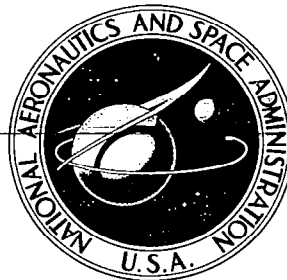


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**STATISTICAL EVALUATION OF
AIRCRAFT COLLISION-HAZARD
WARNING SYSTEM TECHNIQUES IN
THE TERMINAL AREA - PHASE II**

Prepared by
RESEARCH TRIANGLE INSTITUTE
Research Triangle Park, N. C.
for Langley Research Center

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION • WASHINGTON, D. C. • DECEMBER 1969

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STATISTICAL EVALUATION OF AIRCRAFT COLLISION-HAZARD WARNING
SYSTEM TECHNIQUES IN THE TERMINAL AREA - PHASE II

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ABSTRACT

The rapidly increasing density of air traffic has created a demand for instrumentation to reduce the possibility of air catastrophes due to collision. The incidence of reported near-collisions is now estimated to be over 1000 per year in the United States, and represents a serious threat to the future growth of air travel.

For the past year, research has been conducted by NASA and the Research Triangle Institute to develop techniques for evaluation of collision warning systems and to determine the characteristics of the operational environment. Actual aircraft traffic data have been obtained by the FAA from the radar system at the Atlanta Airport. These data have been analyzed to determine encounter statistics which would result with various forms of warning criteria.

This report reviews the definition of several proposed warning criteria and presents the results of the statistical analyses of the data. Probabilities of encounter, encounter rates, and average encounter durations are determined for various definitions of the encounter.



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A STATISTICAL EVALUATION OF AIRCRAFT COLLISION-HAZARD
WARNING SYSTEM TECHNIQUES IN THE TERMINAL AREA

SUMMARY

This report presents the results of a computer study of the encounter statistics resulting from the application of various proposed collision-hazard warning criteria to a data base consisting of the recorded flight time histories of aircraft in the Atlanta, Georgia, terminal area. Probabilities of encounter, encounter rates, and average encounter durations are determined for various definitions of an encounter such as range between aircraft or estimated time-to-closest-approach.

I. INTRODUCTION

The requirement for air-derived, collision-hazard warning equipment for use by general aviation presents a difficult design problem in that not only must the equipment perform with relatively low error rates, it must also be produced at an economic level suitable to this class of user. For such a system to be satisfactory, it must be capable of operating in the dense traffic existing in and near the terminal areas. It is necessary, therefore, for any proposed system to provide sufficient discrimination between hazardous and non-hazardous intruding aircraft such that the encounter rates are within acceptable limits in terms of pilot work load. This discrimination must be obtained in a form suitable for relatively low cost implementation. The encounter statistics can only be determined by the evaluation of the discrimination or warning criteria in a realistic environment.

The purpose of this report is to provide a definition of the environment in which such systems must operate, and to present the encounter statistics which would result from various forms of warning criteria. This information permits the comparison of the merits of the different warning criteria that have been proposed, and indicates quantitatively the discrimination provided by various supplementary measurements. The statistics were derived from data obtained by the FAA, describing the actual flight time histories of aircraft in the Atlanta, Georgia terminal area over a 12 hour period.



II. WARNING CRITERIA

A. DEFINITION OF TERMS

A number of warning criteria were investigated in this study. All of these were functions of various geometrical and time considerations. To define the functions employed, it is desirable to review the geometry of a two aircraft encounter. Figure J shows an encounter situation between two unaccelerated aircraft. The position of the protected and intruding aircraft are the points P_1 and P_2 , respectively. The dotted aircraft represent the positions at some time T later at which time the aircraft are at their point of closest approach. \bar{v}_1 and \bar{v}_2 are velocity vectors for the aircraft and \bar{r} represents the relative range vector. The relative velocity $\bar{v}_1 - \bar{v}_2$ is represented by the vector \bar{v} . The projected miss distance, assuming nonaccelerating flight, will be the quantity \bar{r}_o . It can be seen from the figure that

$$R_o^2 = R^2 - (VT)^2, \quad (1)$$

where $|\bar{r}| = R$, $|\bar{r}_o| = R_o$, $|\bar{v}| = V$, and T is the time to closest approach. The projected miss distance (R_o) can be written in terms of the range and its derivatives by noting that R_o and V are constants, differentiating R twice in eq. (1), and eliminating T and V to obtain

$$R_o^2 = \frac{R^3 \ddot{R}}{\ddot{R} R + \dot{R}^2}. \quad (2)$$

Similarly, the time to closest approach (T) is obtained from eq. (1) and the derivatives of range as

$$T = \frac{R \dot{R}}{\ddot{R} R + \dot{R}^2}. \quad (3)$$

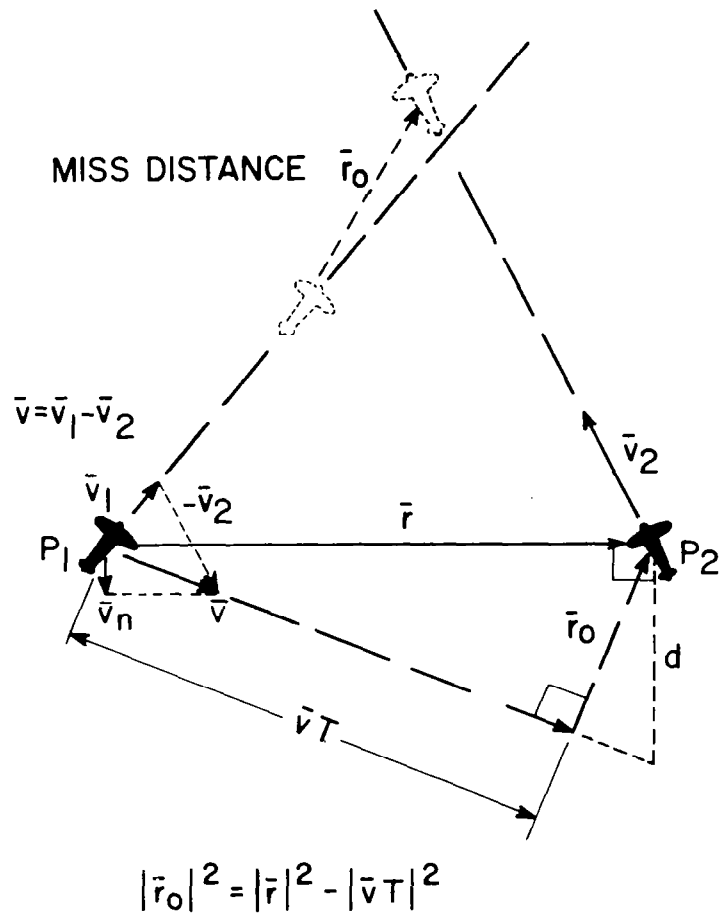


Fig. 1. Two-aircraft geometry for unaccelerated flight. Here \bar{r}_0 is the projected miss distance and has a magnitude given by the equation shown.

Other useful geometrical quantities are the relative normal velocity magnitude V_n and the distance d as shown in Fig. 1. From the figure, we see that the distance d is given by

$$d = \frac{R_o V}{\dot{R}} \quad (4)$$

Substituting (1), (2) and (3) in (4) and squaring gives d in terms of the range and derivatives as

$$d^2 = \frac{R_o^3 \ddot{R}}{\dot{R}^2} = (\tau R^2) \left(\frac{\ddot{R}}{\dot{R}} \right), \quad (5)$$

where $\tau = R/\dot{R}$.

The normal velocity component, $V_n = |\dot{v}_n|$, is related to the range derivatives as

$$V_n^2 = \left(\frac{\dot{R} d}{R} \right)^2 = \ddot{R} R. \quad (6)$$

It is possible, therefore, to describe the most significant quantities for nonaccelerating flight in terms of the range (R), and its derivatives. The quantities d and τ are reasonable estimates of the miss distance (R_o) and time-to-closest-approach (T) assuming R is significantly greater than R_o . In fact,

$$\frac{d}{R_o} = \left[1 - \left(\frac{R_o}{R} \right)^2 \right]^{-1/2} \quad (7)$$

and

$$\frac{\tau}{T} = \left[1 - \left(\frac{R_o}{R} \right)^2 \right]^{-1}. \quad (8)$$

B. BASIC PARAMETERS INVESTIGATED

The warning parameters investigated include several of those proposed in the literature and in various industrial and government studies. It is, of course, desirable in practice to use the simplest threat-indicating criterion that proves to be satisfactory. Possibly the simplest criteria that has been considered is that of proximity only, where a hazardous encounter would be defined by $R \leq R_k$, where R_k is a constant chosen to provide the desired protected volume.

TAU, or the approximate time-to-closest approach (R/\dot{R}) has been proposed as a warning criteria by several investigators [ref. 1,2] and is recommended as a warning criterion in the ATA specifications for a collision avoidance system [ref. 3]. Using this parameter, a hazardous encounter is defined by $\tau < \tau_k$, where τ_k is selected to provide the pilot with sufficient warning time to avoid a potentially hazardous situation.

Another form of a tau warning criteria is being investigated which weights the warning time as a function of range. This criterion defines a hazardous encounter by $R^2\tau < \beta_k$ where β_k is a constant.

In reference 4, accelerating flight is considered. It is shown that the set of all aircraft that can reach a protected craft's position in a time less than a given time τ_{mk} , using a relative acceleration no greater than a given acceleration U , have values of relative range (R), range rate \dot{R} , and normal velocity (V_n), which satisfy the equation

$$(R + \dot{R}t)^2 + V_n^2 t^2 = U^2 t^4 / 4 \quad (9)$$

for some t between 0 and τ_{mk} . It is also shown that the best approximation to this set, using range (R) and range rate (\dot{R}) only, is defined by

$$R + \dot{R} \tau_{mk} \leq \frac{U \tau_{mk}^2}{2} \quad (10)$$

*

Note: In eqs. (9), (10), and (11) range rate is negative for decreasing range.

This relationship then leads to a warning criteria designated as the "modified tau" criteria, with an encounter defined by $\tau_m \leq \tau_{mk}$

where

$$\tau_m = \frac{\dot{R} + (\dot{R}^2 + 2UR)^{1/2}}{U} . \quad (11)$$

C. ADDITIONAL DISCRIMINATION

Consideration has also been given to the use of two simultaneous requirements in the warning criteria. Altitude separation is a logical choice of an added measurement to provide false alarm discrimination. Thus, added discrimination of the form $|\Delta A| \leq \Delta A_k$ has been investigated, where ΔA is the measured altitude separation between a pair of aircraft and ΔA_k is a selected constant.

Since it may be feasible in some cases to implement measurements of relative elevation angle (ϕ_e) to the intruding aircraft (relative to local horizontal) in lieu of relative altitude measurements, the combination of elevation angle with the basic threat-indicating criteria has also been considered.

For warning criteria based on approximate time-to-closest approach (τ , and R^2_{τ}), additional discrimination against false alarms can be obtained by measurements that permit an estimation of the minimum relative range over the duration of an encounter, or the projected miss distance. The approximate miss distance (d) can be written in terms of τ and relative normal velocity as

$$d = V_n \tau . \quad (12)$$

Hence, a criterion based on

$$\tau \leq \tau_k \text{ and } V_n \leq \frac{d_k}{\tau_k} = V_{nk} \quad (13)$$

where τ_k and d_k are selected constants, will provide a warning of approximately τ_k seconds only for those aircraft for which the approximate miss distance will be less than d_k , assuming non-accelerating flight.

Similarly, for the $R^2\tau$ criterion, the appropriate encounter definition is provided by

$$R^2\tau \leq \beta_k \text{ and } |\ddot{R}/\dot{R}| \leq \frac{d_k}{\beta_k} = \gamma_k \quad (14)$$

The inequality (14) follows directly from equation (5). Note that the encounter defined by (14) provides an approximate warning time τ_x defined by

$$\tau_x = \beta_k / R_x^2 \quad (15)$$

where R_x is the range at which the criteria (14) is met.

For the case of accelerating flight, a potentially hazardous encounter as defined by equation (9) can be closely approximated [ref. 4] by a modified tau-normal velocity criteria, or

$$\tau_m \leq \tau_{mk} \text{ and } V_n \leq \frac{U \tau_{mk}}{2} \quad (16)$$

Hence, this combination of parameters has also been considered.

While it would be informative to consider additional combinations of parameters, such as the tau-altitude-normal velocity criteria, extensions along this line have been left for future work. If desired, however, the effect of an additional parameter for discrimination can be roughly estimated from the results determined for the parameter combinations previously discussed.

III. DATA BASE

A. SOURCE OF DATA

The Atlanta Advanced Radar Terminal System (ARTS) radar has "track while scan" capability and provides x-y coordinate data for each target stored on magnetic tape. Altitude data is also recorded for those aircraft equipped with a Mode C radar transponder. However, this data was not used in the data base. Information on each target is updated every four seconds. Other quantities stored on the magnetic tape include computer time in seconds, orthogonal coordinate velocities, computer assigned track numbers, and aircraft identification codes.

When an aircraft arrives within the radar coverage area, its beacon/radar return creates a blip on a PPI display. By means of prior communications, the controller establishes the identity of the target. With a keyboard, he supplies the computer system with identification data. Next, by positioning a slew dot on the target and depressing an "Enter" button, a track is initiated by the tracking computer. Termination of track can occur automatically when the target is beyond the radar coverage area or within approximately one mile of the runway, or manually by controller keyboard entry.

FAA personnel from the National Aviation Facilities Experimental Center (NAFEC) and the Atlanta Terminal collected twelve one-hour samples of digitized radar data, controller-aircraft voice communication tapes, and controller log sheets at the Atlanta Terminal. These data were taken during morning, afternoon, and evening peak traffic periods over a time span of five days during the month of August 1967. Table 1 summarizes the traffic conditions existing during the data periods.

The raw data were edited by NAFEC personnel. To incorporate the altitude information, the best possible information on initial altitudes and on altitude changes was obtained from the voice tapes and time-referenced to the track data. The altitude data were then inserted into the track records at the proper time increments. To obtain altitude data during altitude changes, the aircraft under track were sorted into four performance

Table 1. Breakdown by hours of data obtained by FAA-NAFEC at Atlanta, Georgia.

RUN NO.	DATE	LOCAL TIME	TOTAL NO. OF A/C	ARRIVALS	DEPARTURES	AVR. NO. OF A/C PER RADAR SCAN	MAXIMUM NO. OF A/C RECORDED IN ONE RADAR SCAN	WEATHER
2	8/21	15:20 16:20	42	32	10	8.5	10	M90200
3	8/21	19:55 21:00	58	21	37	5.6	10	M90220
4	8/22	9:00 10:00	58	49	9	12.4	18	M70120
5	8/22	15:15 16:25	64	42	20	6.9	13	M4001000
6	8/22	20:00 21:00	46	20	26	5.0	10	E150400
7	8/23	10:00 11:00	73	34	38	9.4	12	60M120
8	8/23	15:20 16:20	57	36	16	7.6	13	150E350800
9	8/23	20:00 21:15	58	24	34	5.7	10	M110450
10	8/24	10:15 11:15	63	43	20	11.3	16	M2040
11	8/24	19:00 20:00	68	50	18	12.7	18	250M300
12	8/24	20:15 21:15	52	14	37	4.8	9	M2601000
13	8/25	09:00 10:00	48	43	5	12.2	14	M40

categories. For each performance category a rate of climb, rate of descent, and glide slope descent rate was assigned. When an altitude change event was evident from the voice track, the appropriate incremental altitude change was calculated from the assigned rates of climb or descent corresponding to the aircraft category. These incremental changes were used to generate an altitude in each track record until the new assigned altitude was reached.

For departing aircraft, it was necessary to estimate the altitude at the track-start point (approximately three miles from runway) from the known performance characteristics of the aircraft. When departing aircraft were turned over to the enroute controller, no further altitude data were available on the voice tapes. Thus, in the edited data, departure tracks were terminated when this event occurred, even though the x,y coordinate data were valid to longer ranges.

In a few cases, no contact at all was found on the voice tracks with a tracked aircraft. In these cases, no altitude data were available, and the decision was made to eliminate these cases from the data base, rather than to attempt to guess the altitude.

B. DATA RESOLUTION AND ACCURACY

The accuracy of the x,y coordinate data is a function of the radar range. The radar video data processor uses range bins of .0625 nm or 380 ft. Azimuth digital increments are 1/4096 revolution, which corresponds to .0765 nm at a range of 50 nm. The digital round-off errors were small in comparison to the resolution of the ARTS radar. Although the accuracy of the x,y data are dependent upon many factors, it seems reasonable to use a value of about $\pm .03$ nm as the estimated resolution of the coordinate data. This is the value that has been estimated by FAA-Atlanta personnel.

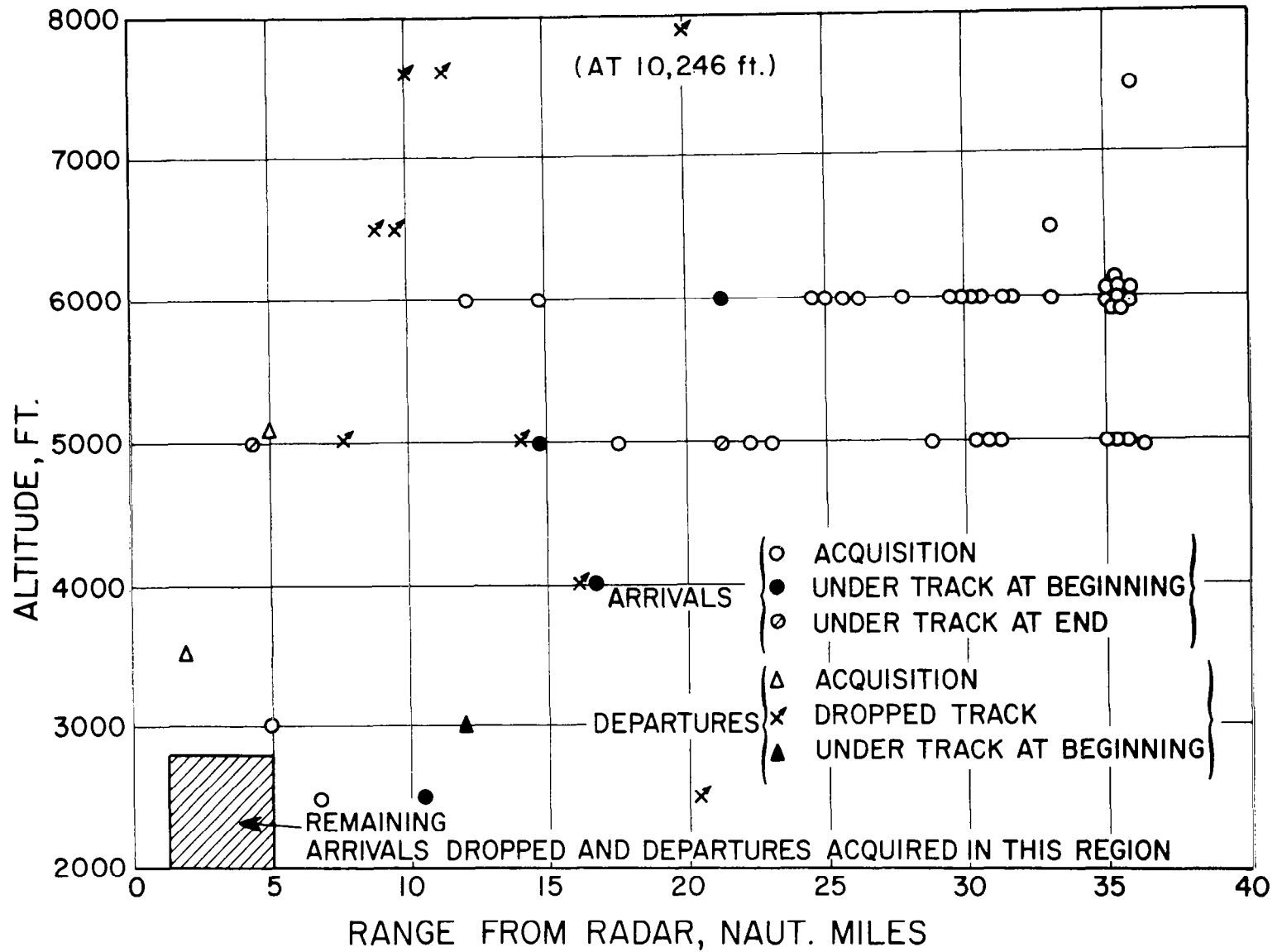


Fig. 2. Acquisition and drop track points plotted vs. altitude and radar range for hour 11 data.

For aircraft in level flight, the altitude data obtained from the voice tapes should be quite accurate. Studies of altitude deviations by pilots [ref. 5,6], indicate that absolute deviations from assigned altitudes rarely (less than 1 percent of the time) exceed 200 ft. for experienced pilots. During climb and descent periods, the linear interpolation from one altitude to another using approximated rates of climb and descent introduces inaccuracies which are extremely difficult to estimate and depend on each particular case. The assigned altitudes during climb and descent can be said, however, to represent the best judgment of the FAA personnel that edited the data. A computer test routine was used to assure that incoming aircraft intercepted the glide slope at the proper altitude. This provided a check on the altitude data, and introduced confidence in the method of assigning altitude points.

C. COVERAGE VOLUME

To properly interpret the results of this paper, it is important to define the "terminal area" or coverage volume. The point at which incoming aircraft are acquired and tracked is a variable depending upon operator workload, proximity of other aircraft to a given target and target altitude. Also, at the beginning and end of each data run, the aircraft are effectively picked up and dropped at their positions at the start and stop time of the data recording period. Thus, there is no well-defined volume in which it can be said that all targets are being tracked and are therefore in the data base. The acquisition and termination altitudes and ranges for a typical hour of data are shown in figure 2. All incoming tracks were terminated at 4-6 nm radius from the radar (approximately 3 nm from the runway in use). In nearly all cases departing aircraft were acquired at a radius of 1-6 nm from the radar. As may be seen from the figure, nearly all aircraft in the data base are under 6500 ft. in altitude and within a radius of 35 nm.

D. LIMITATIONS OF DATA

The most important deficiency in the data is the lack of data points for aircraft that were actually within the coverage volume, but for which no data were recorded. Aircraft falling into this category are operations at satellite airports within the coverage of the ARTS radar and overflights. Also, in some cases aircraft operating at the Atlanta terminal were eliminated due to lack of altitude data. Also, a target was occasionally dropped for one or two scans and then re-acquired and tracked. These dropped data points also represent a target present but unrecorded. For hour 11 the number of data points dropped in this manner were 206 out of 12,282 points present.

Another limitation is that the data were taken at only one airport over a relatively short time period. The Atlanta airport is, however, representative of the major airports across the country, on the basis of number of air carrier operations per hour [ref. 7]. It would be desirable to obtain data at different airports over longer time spans. Additional analyses and discussions of the data base are presented in the Phase I report on this study, [ref. 8].

IV. DATA ANALYSIS

A. STATISTICS OF INTEREST

The statistics of interest for the evaluation and comparison of the merits of warning techniques include: 1) the percent of flying time in the terminal area that an aircraft will be in an encounter status, 2) the rates of encounters, 3) durations of encounters, and 4) estimates of the probability of one or more encounters for a given flight duration. The percent of flying time calculation (1), provides an unbiased estimate of the probability that a randomly selected airplane will be in an encounter status at any particular instant of time under conditions similar to those existing during the data period.

Simultaneous encounters are also of considerable interest, hence the data were analyzed so as to consider up to five simultaneous encounters for a given encounter definition.

B. ANALYTICAL TECHNIQUES

For the computational tasks, the Triangle Universities IBM 360/75 and RTI Bunker-Ramo 340 computers were used. The techniques used for the calculations are best illustrated by specific examples as follows:

Percent of Time in Encounter Status: To present the largest amount of information, the warning criteria of interest is used as a parameter, and distributions are formed as functions of the value of the parameter. For example, consider the simple criteria of relative range (R). We are interested in the average percentage of flying time that an aircraft will find one or more aircraft within a given range.

Let $R_i(t)$ denote the range to the closest aircraft relative to a particular aircraft i . The fraction of the flying time of aircraft i that $R_i(t)$ is less than a value R_k is then given by

$$F_i(R_k) = \frac{\text{time that } R_i(t) \text{ is less than } R_k}{\text{flying time of aircraft } i} = \frac{B_i(R_k)}{C_i} \quad (17)$$

Under the assumption that $R_i(t)$ is a stationary process, $F_i(R_k)$ provides an estimate of the probability that aircraft i will have another aircraft within a range R_k .

Considering all aircraft in the data, a weighted average (i.e. contribution to average is proportional to sample size) over all aircraft provides an unbiased estimate of the probability that a randomly chosen aircraft i will find another within a range R_k . This calculation is

$$\Pr(R_i(t) < R_k) = \frac{1}{n} \sum_{i=1}^n \frac{B_i(R_k)}{C_i} \left[\frac{1}{n} \sum_{i=1}^n C_i \right] = \frac{\sum_{i=1}^n B_i(R_k)}{\sum_{i=1}^n C_i}, \quad (18)$$

where n is the number of aircraft and the weighting factor is

$$\left[\frac{C_i}{\frac{1}{n} \sum_{i=1}^n C_i} \right] = \frac{\text{flying time of aircraft } i}{\text{average flying time}}. \quad (19)$$

Equation (18) also represents the average fraction of flying time for which $R_i(t) < R_k$ for a randomly selected aircraft.

In an exactly analogous manner, the calculation can be made for the k th closest aircraft to aircraft i , or for the other warning criteria of interest.

Encounter Rates and Durations: Encounter rates are obtained by simply counting the number of encounters for a given encounter definition and for a particular hour of data, and then dividing by the total accumulated flying time. This results in a weighted average encounter rate. Simultaneous

encounters are not considered in this calculation, that is, when more than one aircraft are in an encounter status with aircraft i at time t , the situation is considered to be a single encounter.

It should also be pointed out that in determining encounter rates, no distinction is made between different intruders. If several intruders cause an encounter, and the encounters attributable to each intruder happen to overlap, only one encounter would be counted. This was felt to represent the probable operating characteristics of a practical warning system.

Encounter durations are obtained by computing the total time in an encounter status, and average durations represent the average taken over all encounters recorded.

Probability of Encounter in a Given Flight Time: In order to estimate this probability, it is necessary to suppose that the sample functions (e.g. the range $R_i(t)$ previously discussed or one of the other criteria) represent stationary, normal random processes. This assumption, which is obviously open to question, permits the use of the Poisson expression to estimate the probability of an encounter in a time period $(0,T)$ as

$$P_r \text{ \{exactly } k \text{ encounters in } (0,T)\} \approx \frac{(T\mu)^k e^{-T\mu}}{k!}$$

or

$$P_r \text{ \{at least one encounter in } (0,T)\} \approx 1 - e^{-\mu T}$$

(20)

where μ is the expected number of downcrossings of the process below the level that defines the encounter. In order to rigorously calculate μ , the correlation function of the process is required. To avoid this lengthy calculation, however, μ can be estimated directly from the data sample, and this estimate for μ is just the average encounter rate previously discussed.



V. RESULTS

A. STATISTICS PRESENTED

Each hour of the twelve hours of data has been treated as a sample period and analyzed separately. Because of the large number of parameter combinations, the results presented in the main body of the report have been limited primarily to the one hour of data with the largest number of aircraft per radar scan (hour 11 with an average of 12.7 aircraft per scan). Complete sets of results for all hours are presented in the Appendices.

The variation of statistical results between hours does not appear to be as large as might be expected. An example of this variation is given for the tau-altitude criteria in the following section.

B. PERCENT OF TIME IN ENCOUNTER STATUS

Range Criteria: The family of curves in Fig. 3 shows the average percent of flying time that an aircraft in the data base (Hour 11) found one, two, or five aircraft simultaneously within a range given by the value along the ordinate of the graph and within the altitude band as designated on each curve. The altitude bands considered include all altitudes ($\Delta A = \infty$), ± 1000 ft, and ± 500 ft.

Inspection of the curves indicate that, under the conditions existing during this hour, on the average, one aircraft found another aircraft within a range of three miles approximately 10% of the time. Two aircraft were simultaneously within a three mile range of a third aircraft approximately 1% of the time. Limitation of the altitude band considered did not have a large effect on these percentages.

Figure 4 shows a similar set of curves for the range - elevation angle encounter definition.

In interpreting these data, it should be noted that the Atlanta, Ga. facility personnel make extensive use of the visual contact between aircraft in the terminal area when flight conditions permit, alleviating the requirement for IFR separation. For this reason, data which indicate separations less than standard IFR separation criteria should not be interpreted to imply infractions of standard operating procedures by facility personnel.

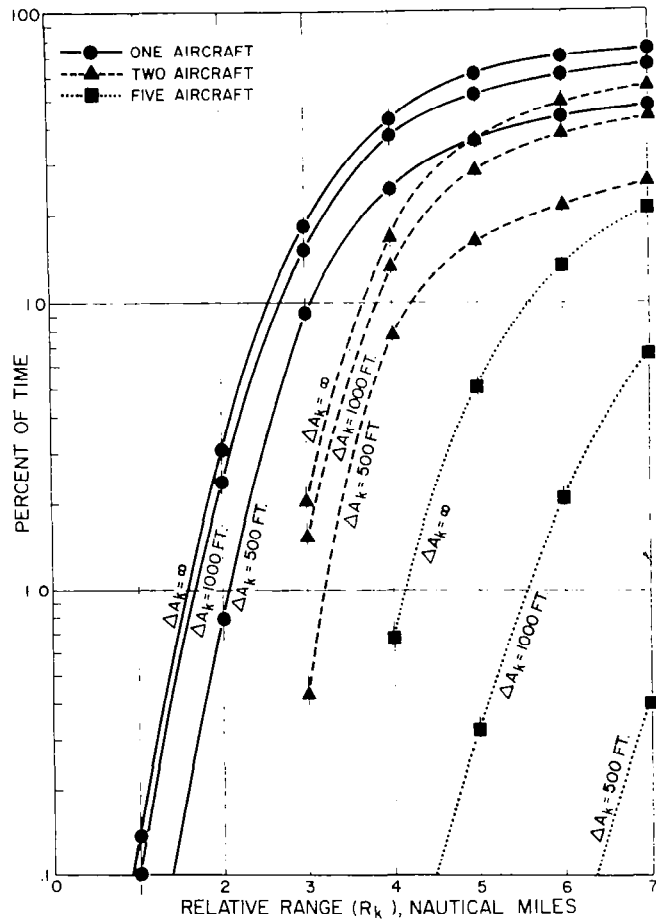


Fig. 3. Average percentage of time that an aircraft was in a range encounter with at least one other aircraft (solid lines). The encounter is defined by range $< R_k$ and altitude difference $< \Delta A_k$, plotted vs R_k . Curves for two or more and five or more simultaneous encounters of the same definition are also shown.

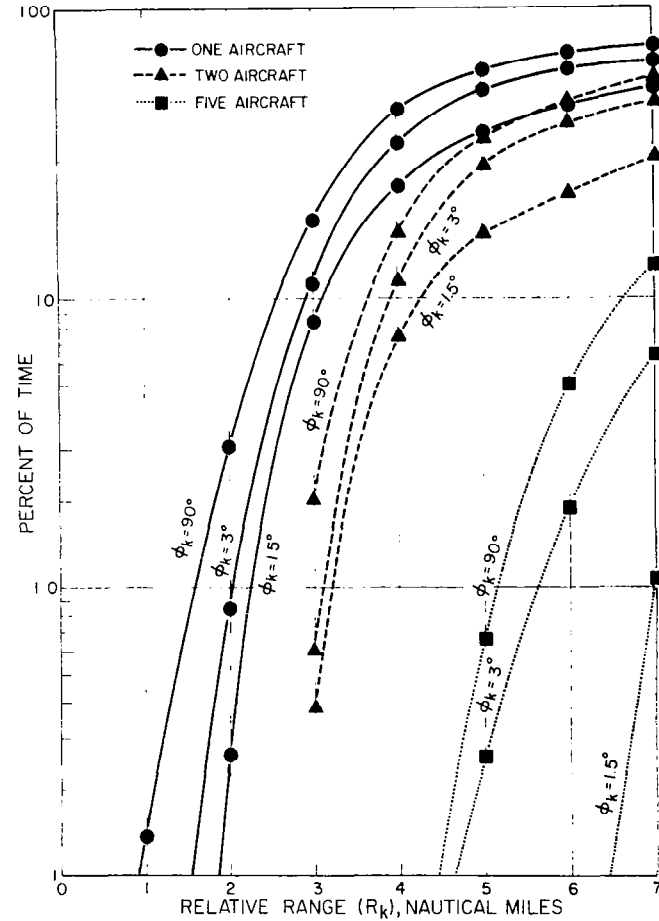


Fig. 4. Curves similar to Fig. 3 except that the encounter is defined by range $< R_k$ and relative elevation angle $< \phi_k$.

Tau and $R^2\tau$ Criteria: Figures 5, 6, 7, and 8 plot the average percent of time that an aircraft was in an encounter situation for the tau-altitude, tau-normal velocity, $R^2\tau$ - altitude, and $R^2\tau$ - \ddot{R}/\dot{R} criteria respectively. The dashed curves represent the cases of two simultaneous encounters as indicated on the figures. An example of the variation noted between hours of data is indicated in Fig. 9 for an encounter defined by $\tau < \tau_k$ and altitude difference $\leq \pm 500$ ft. On this plot, curves showing the mean value, plus and minus one standard deviation, and the maximum and minimum percentages of time are given. There does not seem to be a strong correlation between the aircraft density as represented by the average number of aircraft per radar scan and the percentage of time in an encounter, especially for small percentages. Note that hour six, with only five aircraft per scan on the average, provided the maximum observed percentages over the region of the plot where τ_k is less than eighty seconds.

Modified Tau Criteria: Figure 10 plots the results for the modified tau - altitude encounter definition, and Fig. 11 the modified tau - normal velocity definition. The latter curve differs somewhat from the preceding curves in that the value of normal velocity is not independent of the value of modified tau, but instead is calculated as

$$V_{nk} = \frac{U\tau_{mk}}{2} \quad (21)$$

where τ_{mk} is the value plotted along the ordinate and U is fixed at 16.1 fps². (1/2 g). This plot therefore indicates the average percentage of time that an aircraft could have been involved in a collision within τ_{mk} seconds if both aircraft made the worse possible maneuver at a maximum relative acceleration of 1/2 g.

C. DURATION AND RATES OF ENCOUNTERS

The cumulative distribution of the time duration of encounters (in hour 11) defined by $\tau \leq 60$ secs. is plotted in Fig. 12, with several

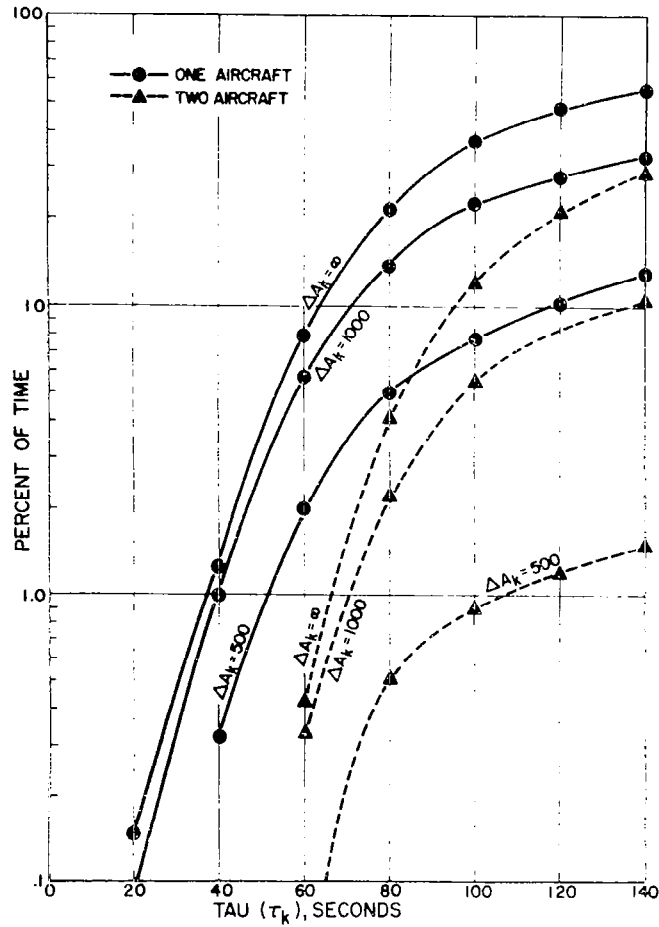


Fig. 5. Average percentage of time that an aircraft was in an encounter defined by $\tau < \tau_k$ and altitude difference $< \Delta A_k$, plotted vs. τ_k . Curves for one or more and two or more simultaneous encounters of the same definition are shown.

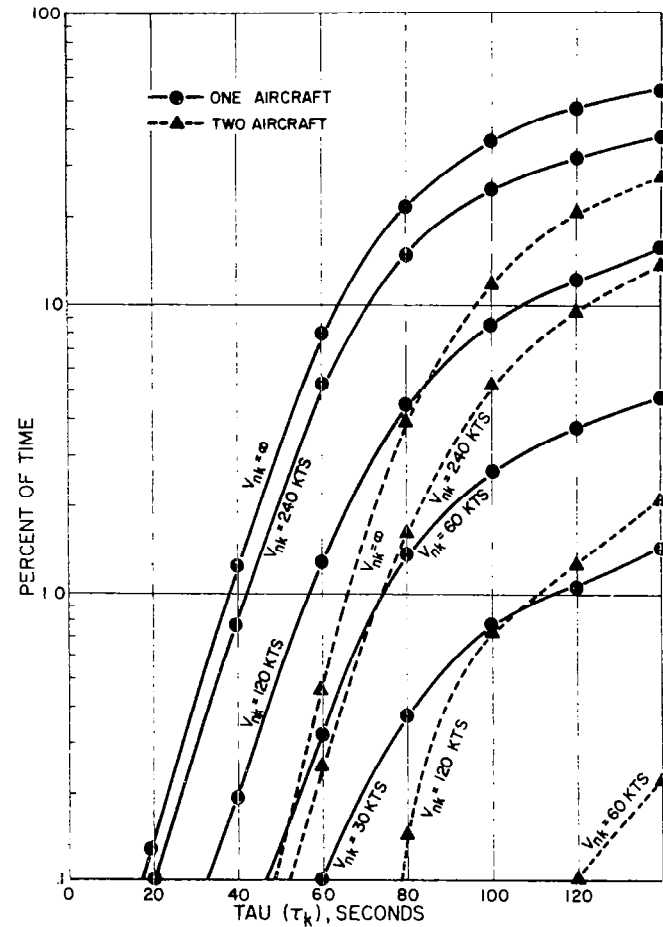


Fig. 6. Curves similar to Fig. 5 except that the encounter is defined by $\tau < \tau_k$ and normal velocity $< V_{nk}$.

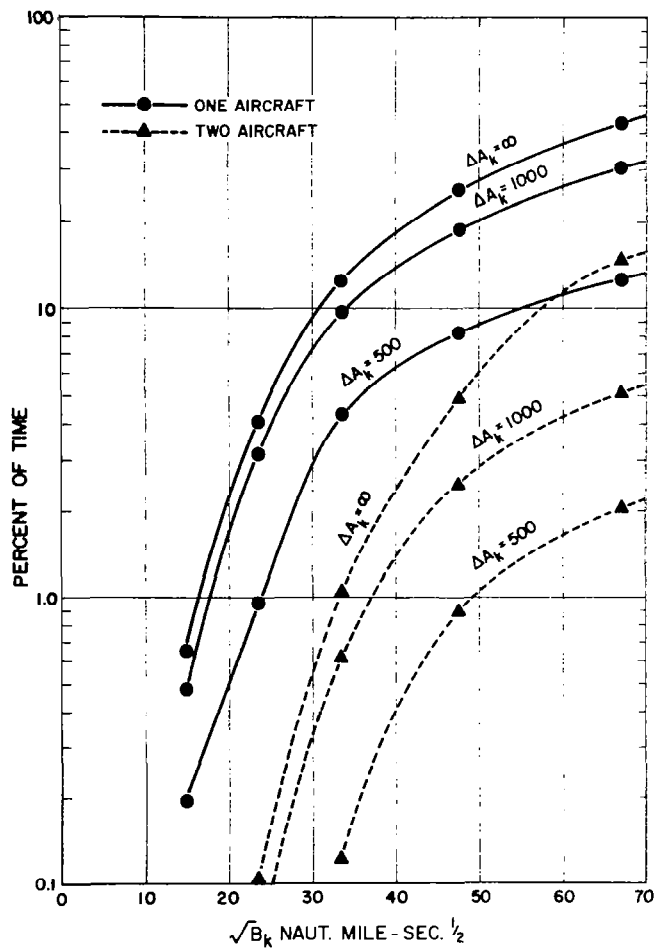


Fig. 7. Average percentage of time that an aircraft was in an encounter defined by $R^2_1 < B_k$ and altitude difference $< \Delta A_k$, plotted vs. $\sqrt{B_k}$.

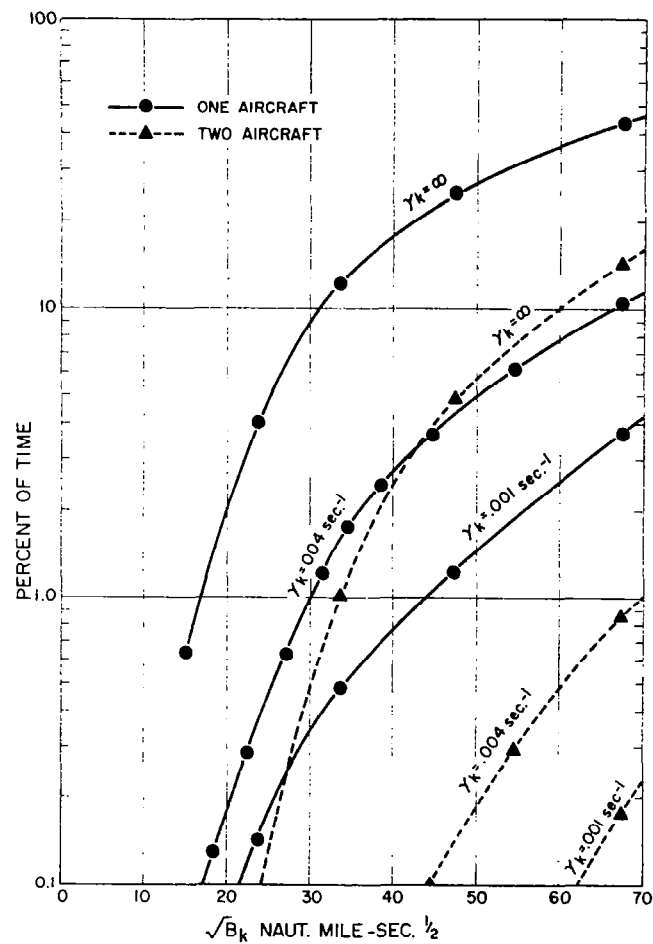


Fig. 8. Curves similar to those of Fig. 7 except that the encounter definition is $R^2 < B_k$ and $|\dot{R}/R| < \gamma_k$.

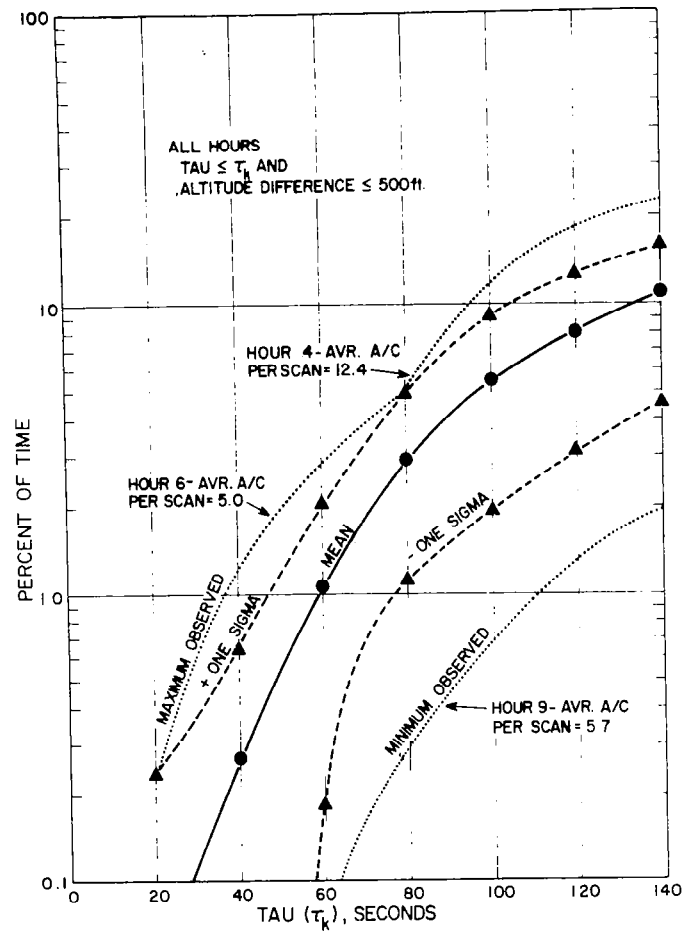


Fig. 9. Average percentage of time that an aircraft was in an encounter defined by $\tau < \tau_k$ and altitude difference < 500 ft plotted vs. τ_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

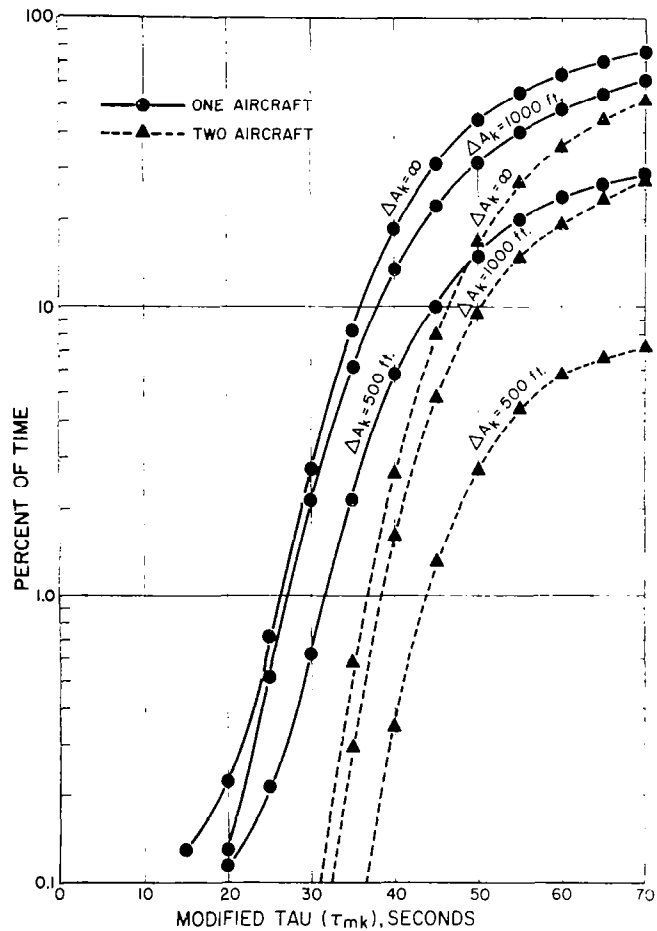


Fig. 10. Average percent of time that an aircraft was in an encounter defined by modified $\tau < \tau_{mk}$ and altitude difference $< \Delta A_k$ plotted vs τ_{mk} . Curves for two simultaneous encounters of the same definition are also shown.

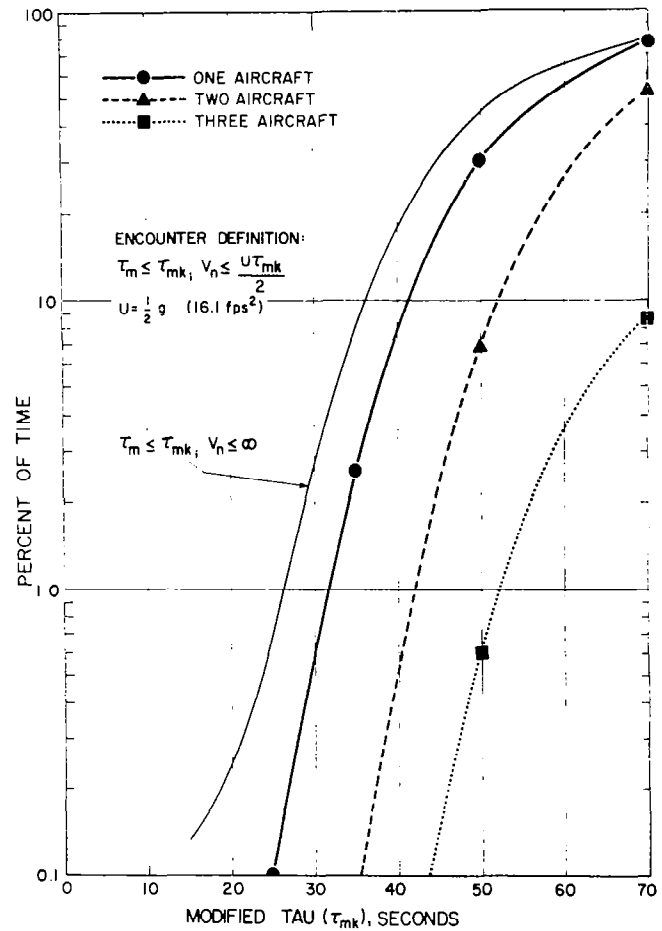


Fig. 11. Average percentage of time that an aircraft was in an encounter defined by $\tau < \tau_{mk}$ and normal velocity $< U_{\tau_{mk}}/2$. Curves for two or more simultaneous encounters are also shown.

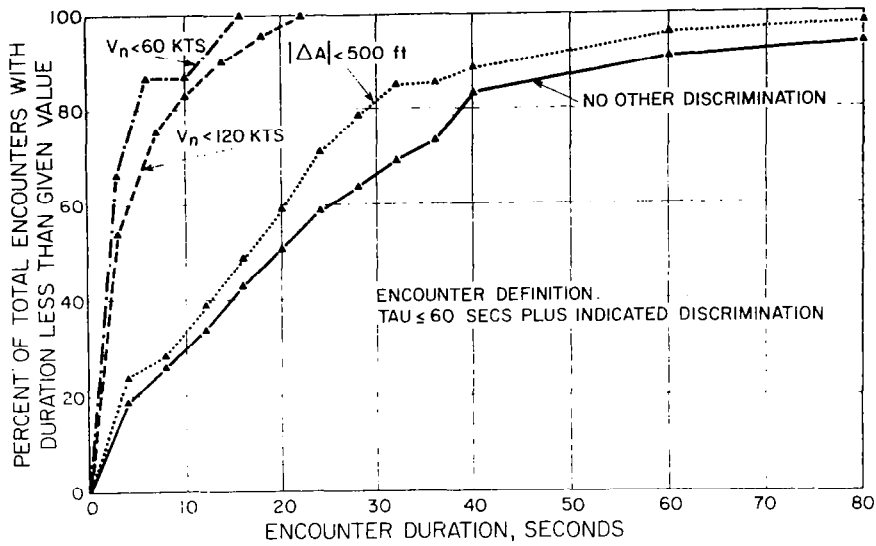


Fig. 12. Cumulative distribution of encounter durations with an encounter defined by $\tau < 60$ sec. and additional discrimination as indicated on the curves.

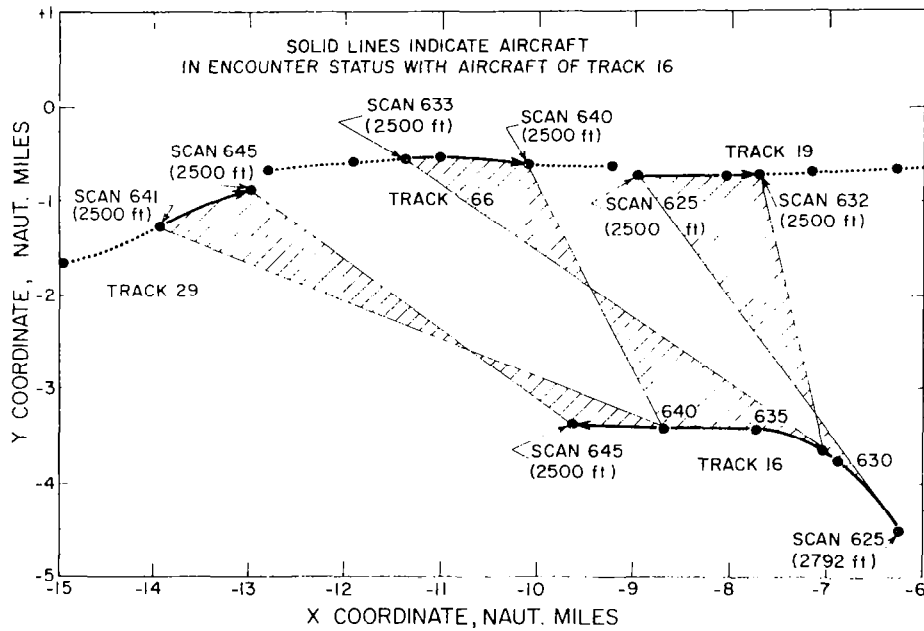


Fig. 13. Plot of the radar tracks showing a long encounter (80 sec.) due to sequential encounters of one aircraft with three other aircraft. The portion of the track during which an aircraft was in an encounter status with track 16 is indicated by the solid curves. The encounter is defined by $\tau < 60$ sec. and altitude difference < 500 ft.

curves shown for various additional discrimination criteria. As may be noted, a fair percentage of the encounters ($\approx 30\%$) have a duration less than ten seconds, while a few percent last as long as eighty seconds. Since long encounters for this criteria were felt to be somewhat peculiar, a few of the longer encounters were examined in detail to determine their nature. Figure 13 plots the radar tracks for an example of one of the longer encounters during which tau was less than 60 seconds for a duration of 80 seconds and the altitude difference was less than 500 ft. Track 16 on the plot is actually involved with three different aircraft, but the encounters occur in sequence such that track 16 is continuously in an encounter status, and only one encounter is counted. The aircraft represented by track 16 is apparently on the downwind leg of his landing pattern, whereas the other aircraft are in line with the runway for landing.

An example of a distribution of encounter rates is shown in Fig. 14, for the tau criteria with no additional discrimination. For this particular encounter definition, the maximum encounter rate observed was $\approx .8$ encounters per minute, whereas the averaged encounter rate was $\approx .2$ encounters per minute. Using the Poisson expression, eq. (16), gives a probability of .93 of having at least one encounter of this type during a 13 minute flight (i.e., the average flying time for aircraft in hour 11) in the terminal area.

Average encounter durations and rates for other criteria of interest are given in Table II as discussed in the following. Encounter duration data for the other hours of data are given in Appendix E.

D. NUMERICAL COMPARISON OF VARIOUS CRITERIA

It is informative to compare the statistical results given by various warning criteria that give approximately the same protection. A plot of protection region in terms of range and closing velocity for the four basic criteria is shown in Fig. 15. The numerical values have been selected to provide crossover of the curves at approximately

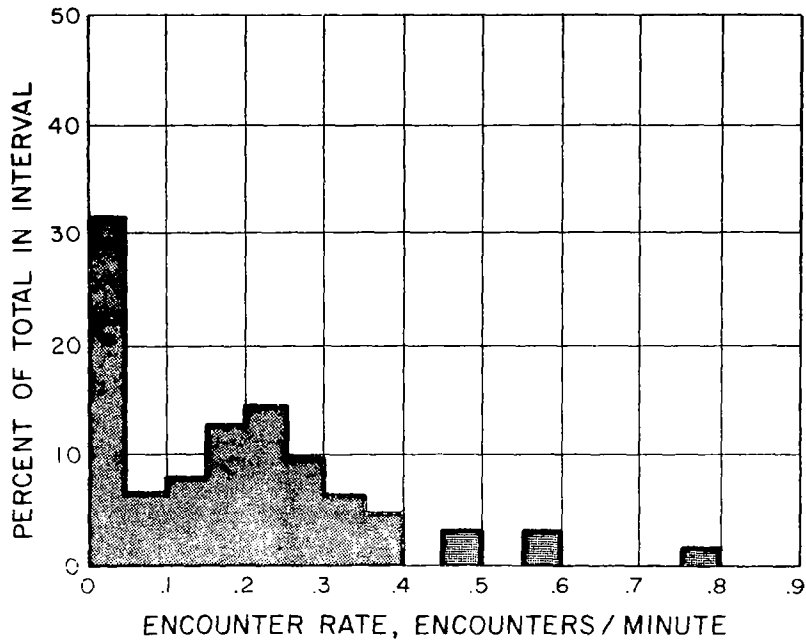


Fig. 14. Histogram indicating the distribution of encounter rates for hour 11 data. The encounter is defined by $\tau < 60$ sec. and with no additional discrimination.

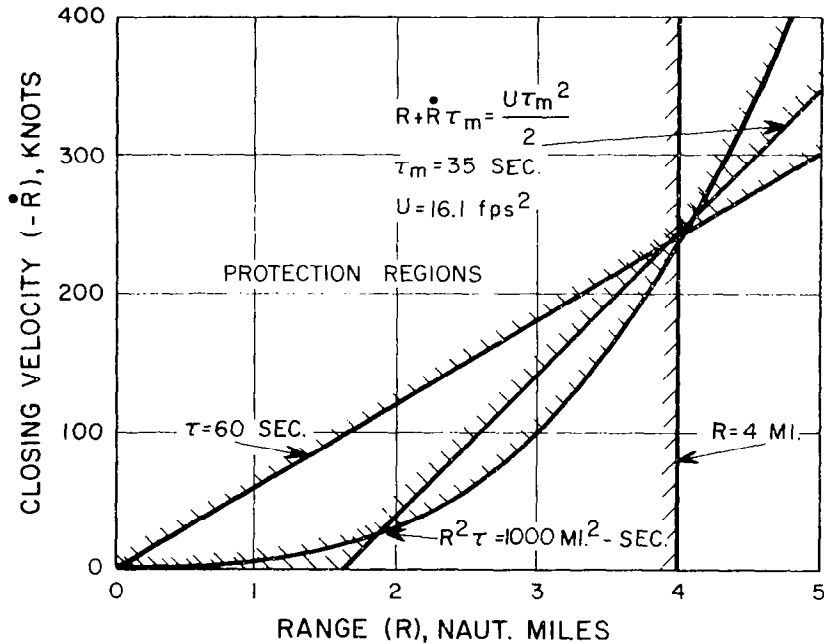


Fig. 15. Range vs. velocity plots of the various numerical warning criteria for comparison of encounter statistics.

4 nm and 240 knots. This crossover was selected to provide roughly the same protection in the terminal area where the mean closing velocity was expected to be approximately 240 knots. The protection region for the criteria are to the left of the curves.

The numerical results for the four criteria are presented in Table II, for various additional discrimination criteria. The table indicates, for hour 11 of the data, the number of encounters (N), the average duration of encounters (t), the average encounter rate (μ), the estimated probability of an encounter during a thirteen minute flight (Pr), and the average fraction of time in the encounter status (or the estimate of the probability of a randomly chosen aircraft being in an encounter status at any particular time) (P). Similar tables for the other hours of data are given in Appendix F, p. 265.

The fraction of time in an encounter status for the various criteria appear to be strongly correlated with the "area" of the region under 400 knots of the range-closing velocity plot (Fig. 15) wherein an encounter is defined. For the case of τ and $R^2\tau$ with equivalent miss distance discrimination, the statistics are not significantly different between the two parameters.

Table II. Encounter statistics from hour 11 data for several specific warning criteria. (See Section V for discussion of calculations).

N = total number of encounters (with one or more aircraft) observed.

t = average duration of encounters (sec.)

μ = weighted average encounter rate (encounters per min.)

P_r = estimated probability of one or more encounters during a thirteen minute flight.

P = average fraction of flying time that an aircraft was in an encounter status.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE R < 4 nm.	TAU $\tau < 60$ sec.	BETA $R^2 \tau < 1000$ (nm) ² sec.	MOD TAU $\tau_m < 35$ sec.
NONE	N=150 t=143 $\mu=.18$ Pr=.90 P=.43	N=139 t=29 $\mu=.17$ Pr=.89 P=.08	N=186 t=28 $\mu=.22$ Pr=.94 P=.11	N=152 t=27 $\mu=.18$ Pr=.90 P=.08
ALTITUDE DIFFERENCE LESS THAN 1000 FT. $ \Delta A \leq 1000$	N=133 t=143 $\mu=.16$ Pr=.88 P=.38	N=94 t=31 $\mu=.11$ Pr=.76 P=.06	N=141 t=28 $\mu=.17$ Pr=.89 P=.09	N=110 t=28 $\mu=.13$ Pr=.82 P=.06
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A \leq 500$	N=116 t=101 $\mu=.14$ Pr=.84 P=.25	N=43 t=24 $\mu=.052$ Pr=.49 P=.02	N=81 t=21 $\mu=.098$ Pr=.72 P=.04	N=57 t=19 $\mu=.069$ Pr=.59 P=.02
APPROXIMATE PROJECTED MISS DISTANCE OF 2 MILES $\tau < 60; V_n \leq 120$ $R^2 \tau < 1000; \dot{R}/R \leq .004$	N/A	N=92 t=8.1 $\mu=.11$ Pr=.76 P=.013	N=83 t=7.9 $\mu=.10$ Pr=.70 P=.012	N/A
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2 \tau < 1000; \dot{R}/R \leq .001$	N/A	N=30 t=6.4 $\mu=.036$ Pr=.38 P=.003	N=36 t=6.9 $\mu=.044$ Pr=.44 P=.005	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = 1/2 G$ $\tau_m < 35$ sec $V_n < 167$ KTS	N/A	N/A	N/A	N=114 t=13 $\mu=.14$ Pr=.83 P=.03

VI. SUMMARY AND CONCLUSIONS

It is beyond the scope of this report to deal with the tradeoffs between the protection provided by the various criteria and the encounter statistics. The data presented should be considered as providing a quantitative basis for an evaluation of specific designs and performance in terms of pilot work load. The results of the statistical analyses indicate the severity of the false alarm problem in the terminal areas. Using warning criteria that have been frequently discussed as providing sufficient warning times, numerous encounters occurred under normal operational procedures.

The quantity which is probably most indicative of pilot work load is the fraction of flying time in the terminal areas (P) spent in an encounter status. It is felt that any PWI approach which results in values of P significantly greater than 0.01 during normally safe flying conditions would probably be unsatisfactory. It would, of course, be desirable to obtain a low probability of one or more encounters (Pr) during an approach to the terminal; however, it is felt that these encounters will not be detrimental in terms of pilot confidence and performance if the discrimination is such that the intruding aircraft are readily identifiable visually and the total time required of the pilot is not too great. It should be noted that this data is only indicative of conditions at Atlanta, Ga. in 1967 and is undoubtedly optimistic in terms of flying conditions in the 1970 time period and the more dense areas of today which contain a number of major terminals in close proximity.

The quantities which are most often considered in collision-hazard warning are range and closing velocity. The results of the study indicate that any system based on range alone will have a high probability of alarm and a correspondingly high pilot work load. As shown in Table II, a range warning system providing a 60 second warning ($R < 4$ mi.) with a 240 knot closing velocity and non-accelerating flight indicated a hazard 43% of the time. If the warning criteria is

reduced to the point where a hazard was indicated 1% of the time ($R < 1.3$ mi.), approximately 20 seconds warning time is provided with the same closing velocity.

The addition of closing velocity to the hazard criteria results in a significant reduction in the probability of alarm. As indicated in Table II, all the criteria evaluated employing range and closing velocity only ($\tau, R^2\tau, \tau_m$) gave approximately the same statistical results. These criteria resulted in a hazard being indicated approximately 8 to 10% of the time when providing a 60 second warning with a 240 knot closing velocity. When the coverage is reduced to the point where a hazard was indicated 1% of the time, approximately 40 seconds warning time is provided with the above conditions. The slight variation in the statistics of these criteria shows some correlation with the "area" coverage under 400 KTS indicated in the range/velocity plane (Fig. 15).

The results of this study also indicate the effectiveness of altitude and projected miss distance discrimination in reducing the number of false alarms. It is interesting to note that altitude discrimination will have to be relatively fine (i.e., less than 500 ft) to obtain a significant reduction in the probability of alarm (P). A relatively coarse projected miss distance discrimination (< 2 mi.), however, results in a significant reduction in this probability.

Another factor for consideration in any system design, especially in the area of display, is the probability of multiple or simultaneous encounters. This problem appears to be rather severe in the case of a range criteria. As indicated in figure 3, approximately 40% of the encounters resulting from a 4 mile range criteria involved more than one intruder simultaneously. With a range and closing velocity criteria, however, this problem is reduced somewhat. With the criteria indicated in Figure 15 ($\tau, R^2\tau, \tau_m$), approximately 5% of the encounters involved more than one intruder. With additional discrimination in the form of altitude ($< 500'$) or miss distance (< 2 mi.) discrimination, significantly less than 5% of the encounters involved more than one intruder. It appears that if sufficient discrimination is used to reduce the probability of alarm to a reasonable value, the probability of simultaneous encounters becomes insignificant.

APPENDIX A
PROGRAM DESCRIPTION -- STATISTICAL
ANALYSIS PROGRAM (STAT4)

A. GENERAL DESCRIPTION

The term "STAT4 program" is sufficient for most of the following discussion, but is an incomplete description of what is actually fed to the computer. There are actually four programs, STAT4, STAT4A, STAT4C, STAT4D, each of which is a Fortran subroutine. They are driven by main programs CALST4, CALST4A, CALST4C, and CALST4D, each of which exists only to read certain control variables from cards and to call its corresponding "STAT4 program."

The STAT4 series programs perform two analyses of the aircraft under track, under all possible pairings. The name of each program is shown below, along with the parameter which it uses to define the relationships between aircraft.

<u>Program</u>	<u>Defining Parameter</u>
STAT4	relative range R
STAT4A	time to closest approach
	$\tau = \frac{R}{V_c}$, where V_c is
	closing velocity
STAT4C	modified tau
	$\tau_m = \frac{-V_c + \sqrt{V_c^2 + 2UR}}{U}$
	where U is a constant.
STAT4D	beta = $\beta = \frac{R^3}{V_c^3}$

The analyses performed by STAT4 programs can most readily be understood by understanding the operations performed on the data before analysis. Those operations are described below.

The data are the array of values for the defining parameter at some particular scan, which for N aircraft in the air this scan, is an N x N matrix with zeroes on the principal diagonal. After each element of the upper-right half of this array is shifted one place to the left, the result is an N x (N-1) array whose I-th row contains numbers characterizing the relationship of the I-th aircraft with each other aircraft.

Some aircraft, however, may be incapable of threatening each other, regardless of the value for the defining parameter. This incapability for threat is identified with having a value of some other relational parameter(s) (called screening parameter(s)) greater than some threshold value(s). The possible screening parameters are as follows:

$ \Delta A $	absolute value of altitude difference
\ddot{R}	closing acceleration
\ddot{R}/\dot{R}	normalized closing acceleration
V_n	normal velocity

Screening may be done using any one of the possible screening parameters, or any pair, or any three, or all four; or there may be no screening at all.

For each aircraft pair whose screening parameter exceeds the threshold value, its value of the defining parameter is removed from the array. the gap in its row is closed up, and the count of values in its row ($IR\emptyset WC(I)$) is decremented by 1. When the screening of the defining parameter array has been completed, the values left in each row are ordered in descending order of threat. After the filtering and ordering are completed, the data are ready for analysis.

The first analysis consists of collecting separate frequency distributions in histogram form, of the most hazardous (or most nearly hazardous) defining parameter value for each aircraft, of the second most hazardous and so on to the fifth. That is, for the whole hour, separate histograms are collected for the first five columns of the screened, ordered, defining parameter array at each scan.

The second analysis is an analysis of the threat conditions that have occurred. The data are checked at each scan for the beginning of new threat conditions (encounters) and termination of encounters in progress. In addition, because of gaps in the data, if an aircraft gets into a threat condition only one scan after having terminated a threat condition, the gap is elided and the earlier condition is considered to be still in progress. For each threat condition, its beginning and ending scan numbers are printed out along with the track number of the threatened aircraft. In addition, a histogram of the encounter durations is printed out along with the mean duration.

If it is desired to obtain the second analysis only for situations in which an aircraft is threatened by at least two other aircraft, or at least 3, 4, or 5, the change can be effected by specifying the input control variable NSIM = 2,3,4, or 5, respectively.

B. PROGRAM INPUTS

1. Card Input

The card deck for a run of a STAT4 program has the following form:

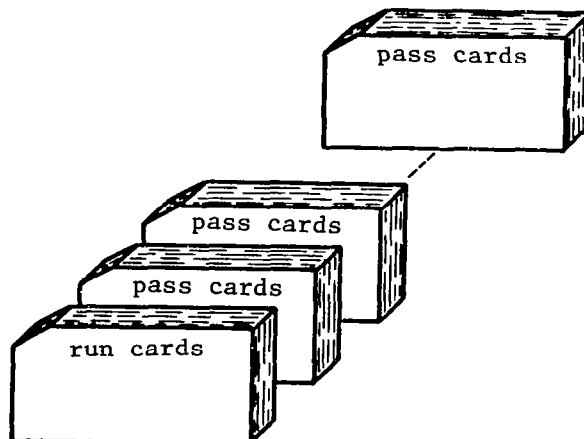


Fig. A-1. Card input sequence.

These run cards contain data which are held constant for all passes through the tape made on a single run. Each set of pass cards contains data peculiar to an individual pass through the tape.

a. Run Cards

Card 1 has the following format

Columns 1-4	NCAS, *	right-justified
5-8	ignored	
9-12	IHØUR	
13-16	NSKIP	
17-20	NCPM1	
Columns 21-80	blank	

Card 2 has punched in columns 1-16 the name, in Hollerith characters, of the defining parameter. Columns 17-80 are blank.

Card 3 contains the positive, finite category limits (array BDP) for the frequency distribution of the defining parameter. (The lower limit of the first category is assumed to be zero; the last category is assumed unbounded.) The limits are punched, in ascending order, in successive eight-column fields. If no decimal point is punched, it will be assumed to occur between the fourth and fifth column of each field. This card may be continued onto one or two additional cards, as necessary to accommodate all the category limits (up to a maximum of 29).

Card 4 contains NCATM1 punched right-justified, without a decimal point, in columns 1-4. Right-justified in successive 4 column fields, beginning with columns 5-8, are punched the category limits for the histogram or encounter durations (array IBDR). If NCPM1 is greater than 19, IBDR must be continued into successive 4-column fields of a second card, beginning with columns 1-4.

*

See Section C, this appendix, for list of variable names.

b. Pass Cards

Card 1 contains alphanumeric information to be inserted into output page headings. Columns 1-8 contain the word "single", "double", etc. according to the number of simultaneous encounters required to define a threat condition. A description of the threshold for the defining parameter is punched in columns 9-20. The hour number is punched right-justified in columns 21-23. The type of screening (parameter name and threshold value) is described in columns 24-43.

Card 2 contains numeric data which control encounter definition and type of screening, as follows:

Columns 1-8	FILFAC (If no decimal point is punched, it is assumed between columns 4 and 5.)
9-12	INDFIL (no decimal point)
13-16	NSIM (no decimal point)
17-20	ignored (no decimal point)
20-28	CRIT (If no decimal point is punched, it is assumed between columns 24 and 25.)
29-32	IFPCH (no decimal point)
33-36	ISTØP
37-40	IDRØP
41-44	IF2
45-48	NSKIP

Card 3 is used only in the data for program STAT4C. The value of the parameter U is punched in columns 1-8. If no decimal point is punched, it is assumed between columns 4 and 5.

2. Tape Input

The input tapes are written in 7-track BCD, with a constant record length of 516 characters. The first record of each hour of data contains the hour number as a BCD integer in positions 5-8. No other useful information is in that record.

The data for each scan begins with a header record listing the track numbers of aircraft under track at that scan. The header has the following format:

positions	1-3	NCRAFT
	4-6	ITRKNO (1)
	7-14	TIME (1)
	15-22	ZEE (1)
	23-25	ITRKNO (2)
	26-33	TIME (2)
	34-41	ZEE (2)
	.	.
	.	.
	.	.
	.	.

NCRAFT and all values of ITRKNO are written as BCD integers. All values of TIME are in seconds, and are written with one digit to the right of the decimal point. The decimal point is also written in all values of ZEE, which are in units of nautical miles and have four digits to the right of the decimal point.

The values of relative range appear next on the tape, in the order R_{ij} , $j = 1, \dots, \text{NCRAFT}$; $i = 1, \dots, \text{NCRAFT}$. The records are written in successive eight-position fields, with the decimal point in the fourth position, 64 fields to a record, in as many records as are needed. Value of τ^{-1} are written after relative range, with the values in the same order.

They are written in exponential representation, with six significant digits, in successive twelve-position fields, 42 fields to a record. Values of $90000\beta^{-1}$ follow the τ^{-1} values, in the same order and the same format.

C. VARIABLE NAMES

1. Variables in COMMON Storage

- a. BDP is the array of category boundaries for the frequency distributions of the defining parameter.
- b. FILFAC is the array of threshold values of the respective screening parameters, in the order in which they are used. (See the definition of INDFIL below.)
- c. IBDR is the array of category boundaries for the frequency distribution of encounter durations, in units of scans.
- d. IDIR indicates the direction for ordering the values of the defining parameter in each row: 1 for ascending, -1 for descending.
- e. IF2 has a value of 1 if the frequency distribution of the defining parameter is to be computed, 0 if it is not.
- f. IHEAD is the array of character strings to be inserted in the heading for the output page of the distribution of encounter durations.
- g. IHØUR is the number of the hour of data being analyzed.

- h. I1B is an array with the following property: I1B is the subscript, in the array ITRKB1, of the track number ITRKNØ(I). In formal notation, for each I, $1 \leq I \leq \text{NCRAFT}$, if there exists J, $1 \leq J \leq \text{NTRKB1}$, such that $\text{ITRKB1}(J) = \text{ITRKNØ}(I)$, then $\text{I1B}(I) = J$; otherwise, $\text{I1B}(I) = 0$.
- i. INDFIL is an integer variable, each of whose digits indicates a parameter to be used as a screening parameter. The digits 1 through 4 have the following significance:
- | | |
|---|---|
| 1 | - altitude difference, $ \Delta A $ |
| 2 | - closing acceleration, \dot{V}_c |
| 3 | - normalized closing acceleration $\frac{\dot{V}_c}{V_c}$ |
| 4 | - normal velocity V_n |
- For example, to do altitude difference filtering, followed by normal velocity filtering, punch INDFIL = 41. Note that the digits indicate filtering parameters to be used in the opposite order. For no filtering, punch INDFIL = 0.
- j. IROWC is the array of row counts; that is, of the number of values of the defining parameter in each row relative to the ownship for that row.
- k. ISTØP is the number of scans after which this hour of data is to be considered complete. This allows test runs to be made on less than a full hour of data.
- l. ITRKB1 is the array of track numbers of aircraft under track the previous scan.
- m. ITRKNO is the array of track numbers for aircraft under track this scan.

- n. LHEAD is the array containing the name of the defining parameter, to be printed in the heading of the output page of frequency distributions of the defining parameter.
- o. NCAT is the number of categories in the frequency distribution of encounter durations.
- p. NCATP is the number of categories in the frequency distribution of the defining parameter.
- q. NCRAFT is the number of aircraft under track this scan.
- r. NK is no longer used.
- s. NTRKB1 is the number of aircraft under track on the preceding scan.
- t. RELR is the array of relative ranges of the aircraft pairs.
- u. VC is the array of closing velocity values for each aircraft pair.
- v. WØRK is the array of values of the defining parameter. The i-th row is considered to contain the values of the defining parameter relative to the aircraft whose track number is in i-th position in ITRKNØ.
- w. ZEE is the array of altitudes of each aircraft.

2. Variables Unique to CALST4 Calling Programs

- a. NCAS is the number of cases to be analyzed this run.
- b. NCATM1 = NCAT-1
- c. NCPM1 = NCATP-1

3. Variables Unique to STAT4 Subroutines

- a. BDPRT is the array of category boundaries for the frequency distribution of encounter durations, in units of seconds.
- b. CRIT is the threshold value of the defining parameter.
- c. CUME is the percentage cumulative frequency distribution corresponding to IADD.
- d. IADD is the cumulative frequency distribution, at output time, for whichever frequency distribution is being printed.
- e. IDRØP: If two threats to the same aircraft are separated by less than IDRØP radar scans, the gap between them will be elided and they will be considered a single continuous threat.
- f. IENC is the array of beginning and ending scan numbers for the most recent encounter for each track number.
- g. IFPCH indicates whether the frequency distributions and encounter times will be put out on punched cards as well as hard copy: IFPCH = 1 for punching, IFPCH = 0 for no punching.
- h. IHIST is the frequency distribution of encounter durations.
- i. IHISTP is the frequency distribution of values of the defining parameter.
- j. IQ and IR are the indices which govern the direction of accumulation in the cumulative frequency distributions of defining parameter values.
- k. ISCAN is the current scan count.

- l. $KC\emptyset UNT$: $KC\emptyset UNT(K)$ is the total number of k-th-most-dangerous relationships of aircraft pairs this hour.
- m. $LENTOT$ is the total time, in units of scans, spent by all aircraft in threat situations.
- n. $NCTOT$ is the total flight time count.
- o. $NENC$ is the array of numbers of most recent encounters for each track number.
- p. $NETOT$ is the total number of threat situations.
- q. NIP : If the aircraft on track N is in a threat situation, $NIP(N+1) = 1$. Otherwise, $NIP(N+1) = -1$.
- r. $NSIM$ is the number of simultaneous threats which are necessary to define a hazard. In practice, we have always used $NSIM = 1$.
- s. $NSKIP$ is the number of scans of bad data which are to be skipped over at the beginning of the tape.
- t. PCT is the percentage frequency distribution for the defining parameter.

D. LOGICAL FLOW CHARTS

Flow charts indicating the logic used in the programs are shown in Figs. A-2 through A-6. Outputs of the program are the histograms as given in Appendices B and C.

CALST4 Series Driving Programs

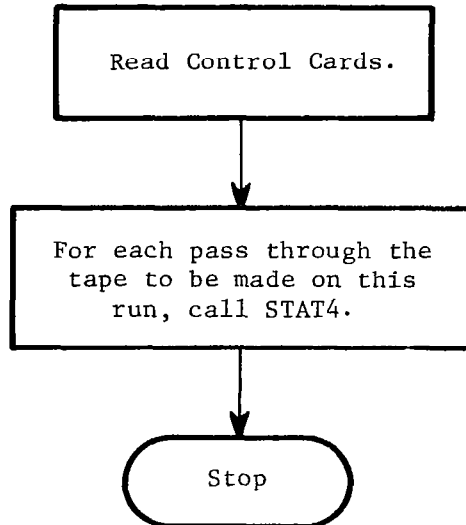


Fig. A-2. Logical flow diagram - CALST4 series driving program.

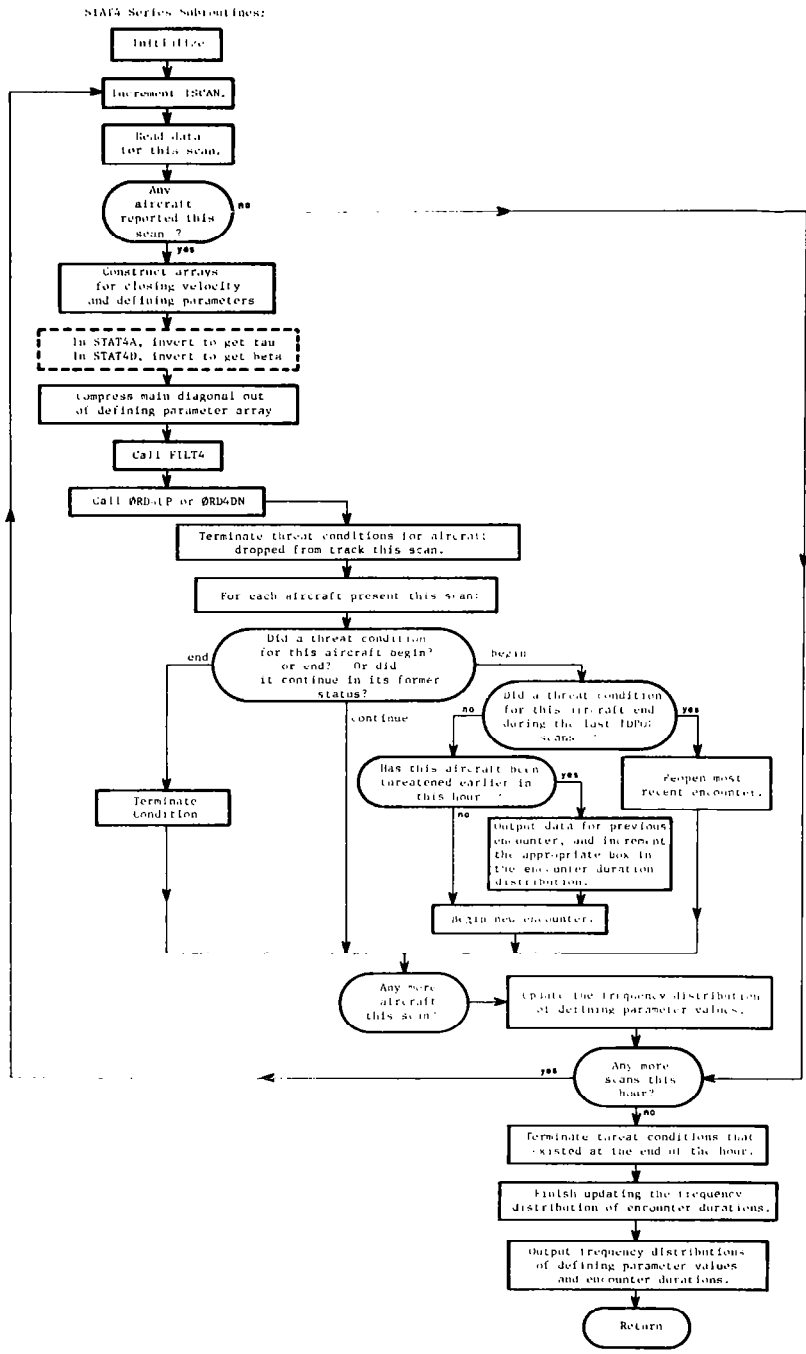


Fig. A-3. Logical flow diagram - STAT4 series subroutines.

FILT4 Subroutine

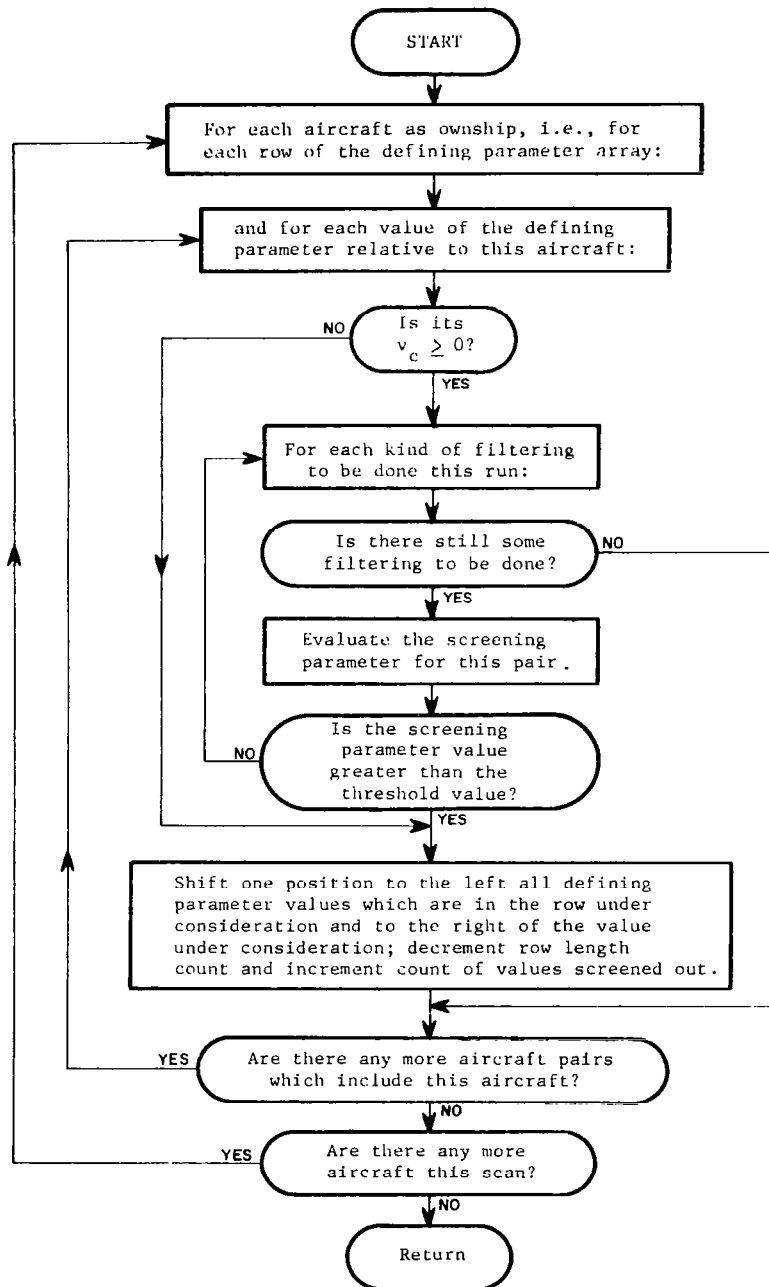


Fig. A-4. Logical flow diagram - FILT4 subroutine.

Subroutine ORD4UP

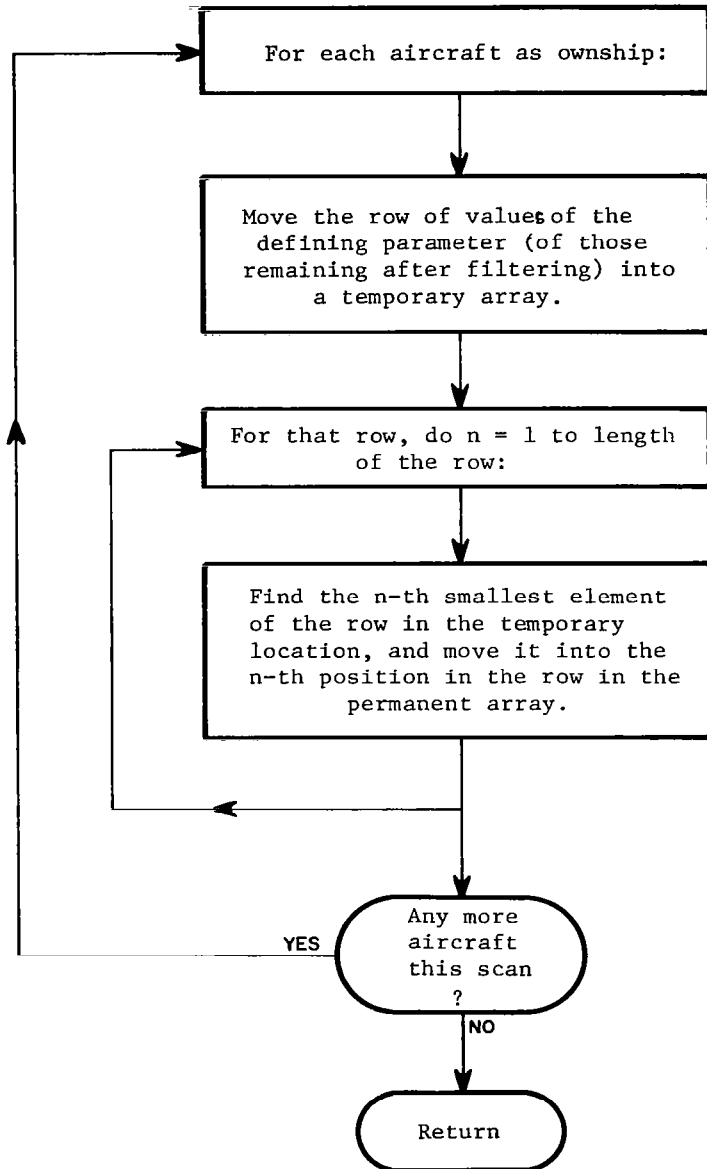


Fig. A-5. Logical flow diagram - subroutine ORD4UP.

Subroutine ØRD4DN

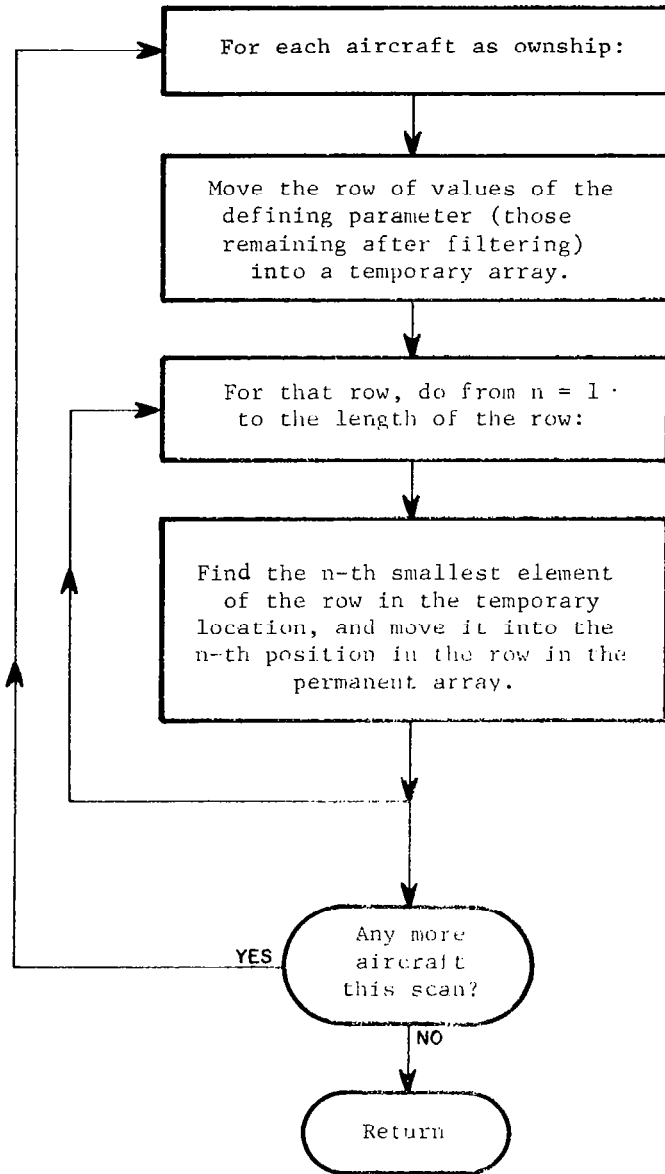


Fig. A-6. Logical flow diagram - subroutine ØRD4DN.

APPENDIX B
HISTOGRAMS OF PERCENT OF TIME IN
ENCOUNTER STATUS FOR HOUR 11 DATA*

This Appendix contains the computer printouts indicating the percent of time that an aircraft was in an encounter status for various definitions of the encounter (for hour 11 only).

The columns on the printouts are as follows:

- Cols. 1 and 2: The bounds on the parameter being investigated, or the histogram increments.
- Col. 3: The number of values calculated that fell within the indicated increment.
- Col. 4: Col. 3 data changed to a percentage by division by the total flying time count.
- Col. 5: The cumulative percentage data accumulating from the most hazardous parameter increment to the least hazardous.
- Cols 6,7,8: Repeat of Cols. 3, 4, and 5 for the case $K = 2$. A count in a particular increment is the second most hazardous value. (i.e., for the relative range parameter, the cases counted in a particular increment are the ranges to the second closest aircraft)
- Cols. 8,9,10: The same as above except for the case $K = 3$.
- Cols. 10,11,12: The same as above except for the case $K = 4$.
- Cols. 13,14,15: The same as above except for the case $K = 5$.

*

Data for remaining hours is presented in Appendix C.

The total number of cases counted for each of the conditions above is printed at the bottom of the respective column.

Units used are:

Range: nautical miles

Velocities: knots

Tau and modified tau: seconds

Altitudes: feet

\ddot{R}/\dot{R} : sec.^{-1}

Beta (R^2_{τ}): cols. 1 and 2 are

$\frac{90,000}{R^2_{\tau}}$ with R^2_{τ} measured in
(naut. mi.)²-sec.

The cases considered for hour 11 are indicated in Table B-1 on the next page.

Table B-1. Histogram data for hour 11. Numbers in blocks are figure numbers in this Appendix.

Discrimination	WARNING CRITERIA			
	Range (nm)	Tau (sec)	Beta ($R^2\tau$) (nm ² -sec)	Mod. Tau (sec)
None	1	10	24	37
Alt. diff., $ \Delta A < 4000$ ft.	2	11	25	
Alt. diff., $ \Delta A < 2000$ ft.	3	12	26	
Alt. diff., $ \Delta A < 1000$ ft.	4	13	27	38
Alt. diff., $ \Delta A < 500$ ft.	5	14	28	39
Rel. el. angle, $ \phi_e < 12^\circ$	6	15	29	
Rel. el. angle, $ \phi_e < 6^\circ$	7	16	30	
Rel. el. angle, $ \phi_e < 3^\circ$	8	17	31	
Rel. el. angle, $ \phi_e < 1.5^\circ$	9	18	32	
Rel. normal vel., $V_n < 240$ kts.		19		40
Rel. normal vel., $V_n < 238.1$ kts				41
Rel. normal vel., $V_n < 180$ kts.		20		
Rel. normal vel., $V_n < 167$ kts.				42
Rel. normal vel., $V_n < 120$ kts.		21		
Rel. normal vel., $V_n < 60$ kts.		22		43
Rel. normal vel., $V_n < 30$ kts.		23		
Normalized range accel. $\ddot{R}/\dot{R} < .009 \text{ sec}^{-1}$			33	
Normalized range accel. $\ddot{R}/\dot{R} < .005 \text{ sec}^{-1}$			34	
Normalized range accel. $\ddot{R}/\dot{R} < .004 \text{ sec}^{-1}$			35	
Normalized range accel. $\ddot{R}/\dot{R} < .001 \text{ sec}^{-1}$			36	

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1			K= 2			K= 3			K= 4			K= 5		
		K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	17	.138	.138	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	357	2.906	3.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	1943	15.817	18.862	252	2.051	2.051	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2927	23.828	42.690	1830	14.897	16.949	507	4.127	4.127	65	.529	.529	1	.008	.008
4.00-	5.00	2253	18.341	61.031	2369	19.448	36.397	1599	13.017	17.144	589	4.795	5.324	81	.659	.667
5.00-	6.00	1045	8.507	69.537	1485	12.089	48.486	1479	12.040	29.184	1161	9.451	14.775	544	4.424	5.098
6.00-	7.00	567	4.616	74.153	918	7.473	55.959	1131	9.207	38.391	1272	10.355	25.130	1056	8.597	13.695
7.00-	8.00	465	3.785	77.938	711	5.788	61.747	1078	8.776	47.167	1091	8.881	34.012	1003	8.165	21.858
8.00-	9.00	428	3.484	81.423	706	5.747	67.494	928	7.555	54.721	1054	8.580	42.592	1154	9.394	31.252
9.00-	10.00	468	3.810	85.233	675	5.495	72.989	1010	8.222	62.944	913	7.432	50.024	1022	8.320	39.373
10.00-	11.00	376	3.061	88.293	531	4.323	77.312	619	5.039	67.983	754	6.138	56.162	836	6.806	46.377
11.00-	12.00	196	1.596	89.889	347	2.825	80.136	426	3.468	71.450	680	5.536	61.698	700	5.698	52.076
12.00-	13.00	149	1.213	91.102	304	2.475	82.611	400	3.256	74.707	618	5.031	66.729	743	6.049	58.124
13.00-	14.00	195	1.587	92.689	258	2.100	84.711	364	2.963	77.670	560	4.559	71.288	579	4.713	62.838
14.00-	15.00	147	1.197	93.886	347	2.825	87.537	384	3.126	80.796	444	3.614	74.902	542	4.412	67.25
15.00-	16.00	153	1.246	95.132	186	1.514	89.051	281	2.288	83.083	353	2.874	77.776	454	3.696	70.946
16.00-	17.00	61	.497	95.628	139	1.132	90.182	222	1.807	84.891	284	2.312	80.088	456	3.712	74.658
17.00-	18.00	114	.928	96.556	179	1.457	91.639	194	1.579	86.470	287	2.336	82.424	421	3.427	78.085
18.00-	19.00	106	.863	97.419	151	1.229	92.868	217	1.757	88.237	258	2.100	84.524	287	2.336	80.422
19.00-	20.00	58	.472	97.891	133	1.083	93.951	169	1.376	89.612	229	1.864	86.389	219	1.783	82.204
20.00-	21.00	76	.619	98.510	93	.757	94.708	123	1.001	90.614	164	1.335	87.724	263	2.141	84.345
21.00-	22.00	26	.212	98.722	90	.733	95.441	119	.969	91.582	152	1.237	88.961	168	1.368	85.713
22.00-	23.00	25	.204	98.925	96	.782	96.223	164	1.376	92.958	147	1.197	90.158	191	1.555	87.268
23.00-	24.00	27	.220	99.145	133	1.083	97.305	143	1.164	94.122	188	1.530	91.688	193	1.571	88.859
24.00-	25.00	24	.195	99.340	94	.765	98.070	123	1.001	95.124	120	1.221	92.909	152	1.237	90.076
25.00-	26.00	25	.204	99.544	73	.594	98.665	134	1.091	96.214	179	1.457	94.366	160	1.303	91.374
26.00-	27.00	23	.187	99.731	43	.350	99.015	110	.944	97.159	127	1.034	95.400	214	1.742	93.121
27.00-	28.00	13	.106	99.837	22	.179	99.194	83	.676	97.834	86	.700	96.101	136	1.107	94.228
28.00-	29.00	7	.057	99.894	24	.195	99.389	56	.456	98.290	96	.782	96.882	130	1.054	95.286
29.00-	AND UP	12	.098	99.992	70	.570	99.959	205	1.669	99.959	370	3.012	99.894	541	4.404	99.690

Fig. B-1. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 4000' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	1.00	17	.138	.138	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	357	2.906	3.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	1943	15.817	18.862	252	2.051	2.051	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2923	23.795	42.657	1838	14.897	16.949	507	4.127	4.127	65	.529	.529	1	.008	.008
4.00-	5.00	2245	18.276	60.933	2389	19.448	46.397	1599	13.017	17.144	589	4.795	5.324	81	.659	.668
5.00-	6.00	1039	8.498	69.391	1485	12.089	48.486	1479	12.040	29.184	1161	9.451	14.775	544	4.429	5.096
6.00-	7.00	564	4.591	73.982	915	7.449	55.934	1131	9.207	38.391	1272	10.355	25.130	1056	8.597	13.693
7.00-	8.00	474	3.859	77.841	702	5.715	61.649	1078	8.776	47.167	1091	8.881	34.012	1003	8.165	21.858
8.00-	9.00	428	3.484	81.325	706	5.747	67.396	928	7.555	54.721	1054	8.580	42.592	1154	9.394	31.252
9.00-	10.00	471	3.834	85.159	668	5.438	72.834	1008	8.206	62.927	912	7.424	50.016	1021	8.312	39.564
10.00-	11.00	380	3.093	88.253	527	4.290	77.125	618	5.031	67.958	755	6.146	56.162	837	6.814	46.377
11.00-	12.00	198	1.612	89.865	345	2.809	79.933	426	3.458	71.426	677	5.511	61.673	699	5.690	52.068
12.00-	13.00	150	1.221	91.086	302	2.458	82.391	396	3.224	74.650	619	5.039	66.713	731	5.951	58.018
13.00-	14.00	195	1.587	92.673	258	2.100	84.492	366	2.979	77.629	549	4.469	71.182	570	4.640	62.659
14.00-	15.00	147	1.197	93.870	346	2.817	87.309	383	3.118	80.747	420	3.419	74.601	523	4.258	66.916
15.00-	16.00	153	1.246	95.115	191	1.555	88.863	278	2.263	83.010	354	2.882	77.483	439	3.574	70.490
16.00-	17.00	61	.497	95.612	139	1.132	89.995	222	1.807	84.817	285	2.320	79.803	451	3.671	74.161
17.00-	18.00	114	.928	96.540	179	1.457	91.452	196	1.596	86.413	299	2.434	82.237	406	3.305	77.467
18.00-	19.00	106	.863	97.403	151	1.229	92.681	217	1.767	88.179	261	2.125	84.362	298	2.426	79.892
19.00-	20.00	58	.472	97.875	133	1.083	93.764	166	1.351	89.531	231	1.880	86.242	232	1.889	81.781
20.00-	21.00	76	.619	98.494	95	.773	94.537	125	1.018	90.548	163	1.327	87.569	264	2.149	83.930
21.00-	22.00	26	.212	98.705	92	.749	95.286	118	.961	91.509	150	1.221	88.790	160	1.303	85.233
22.00-	23.00	25	.204	98.909	96	.782	96.068	166	1.351	92.861	148	1.205	89.995	196	1.596	86.828
23.00-	24.00	27	.220	99.129	137	1.115	97.183	139	1.132	93.992	188	1.530	91.525	202	1.644	88.473
24.00-	25.00	24	.195	99.324	103	.838	98.021	123	1.001	94.993	144	1.172	92.698	158	1.286	89.759
25.00-	26.00	25	.204	99.528	75	.611	98.632	137	1.115	96.108	184	1.498	94.196	158	1.286	91.045
26.00-	27.00	23	.187	99.715	45	.366	98.999	116	.944	97.053	129	1.050	95.246	228	1.856	92.901
27.00-	28.00	13	.106	99.821	22	.179	99.178	86	.700	97.753	83	.676	95.921	139	1.132	94.053
28.00-	29.00	7	.057	99.878	24	.195	99.373	54	.440	98.192	102	.830	96.752	130	1.058	95.091
29.00-	AND UP	12	.098	99.975	70	.570	99.943	212	1.726	99.918	381	3.102	99.853	554	4.510	99.601

53

CASE COUNTS 12281

12277

12274

12266

12235

Fig. B-2. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 4000$ ft.

HISTOGRAM OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 2000' ALT. DIFF.

NOT LESS THAN		NOT LESS THAN		K= 1		%		CUM. %		K= 2		%		CUM. %		K= 3		%		CUM. %		K= 4		%		CUM. %		K= 5		%		CUM. %	
0.00-	1.00	17	.138	.138	0	0.000	0.000	0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000			
1.00-	2.00	426	2.898	3.036	0	0.000	0.000	0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000			
2.00-	3.00	1896	15.435	18.471	251	2.043	2.043	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
3.00-	4.00	2247	23.176	41.648	1733	14.108	16.151	501	4.078	4.078	64	.521	.521	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
4.00-	5.00	2115	17.217	58.865	2209	17.983	34.134	1417	11.535	15.614	473	3.851	4.372	60	.488	.497	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
5.00-	6.00	926	7.535	66.403	1362	11.068	45.221	1328	10.811	26.422	957	7.791	12.162	355	2.890	3.387	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
6.00-	7.00	574	4.681	71.084	729	5.935	51.156	1024	8.336	34.760	1147	9.337	21.499	870	7.082	10.469	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
7.00-	8.00	531	4.323	75.407	612	4.902	56.138	870	7.082	41.843	886	7.213	28.712	830	6.757	17.226	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
8.00-	9.00	355	2.890	78.297	668	5.438	61.576	633	5.176	48.624	909	7.400	36.112	868	7.066	24.292	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
9.00-	10.00	418	3.403	81.700	673	5.479	67.054	895	7.286	55.910	694	5.650	41.761	840	6.838	31.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
10.00-	11.00	444	3.614	85.314	433	3.525	70.579	503	4.095	60.005	700	5.698	47.460	666	5.422	36.552	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
11.00-	12.00	184	1.496	86.812	266	2.165	72.745	339	2.760	62.765	449	3.655	51.115	529	4.306	40.858	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
12.00-	13.00	173	1.408	88.220	317	2.561	75.325	307	3.150	65.915	482	3.924	55.039	554	4.510	45.368	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
13.00-	14.00	287	2.355	89.576	321	2.613	77.938	366	2.979	68.894	361	2.939	57.978	390	3.175	48.543	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
14.00-	15.00	217	1.767	91.343	450	3.663	81.602	460	3.745	72.639	468	3.810	61.788	339	2.760	51.302	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
15.00-	16.00	195	1.587	93.259	284	2.312	83.914	355	2.870	75.529	380	3.093	64.881	375	3.053	54.355	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
16.00-	17.00	89	.725	93.984	159	1.294	85.208	221	1.799	77.326	296	2.410	67.291	275	2.239	56.594	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
17.00-	18.00	103	.833	95.056	189	1.539	86.747	219	1.783	79.111	340	2.768	70.058	323	2.629	59.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
18.00-	19.00	102	.830	95.897	175	1.429	88.171	232	1.889	81.000	310	2.524	72.582	338	2.752	61.975	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
19.00-	20.00	77	.627	96.524	219	1.783	89.954	162	1.319	82.318	247	2.011	74.593	223	1.815	63.790	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
20.00-	21.00	99	.806	97.330	152	1.237	91.182	232	1.889	84.207	154	1.254	75.846	256	2.094	65.874	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
21.00-	22.00	41	.334	97.663	121	.985	92.177	198	1.226	85.493	160	1.303	77.149	197	1.604	67.478	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
22.00-	23.00	39	.317	97.981	167	1.359	93.536	211	1.710	87.211	215	1.750	78.999	167	1.359	68.837	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
23.00-	24.00	26	.212	98.192	180	1.465	95.001	212	1.720	88.937	187	1.522	80.422	202	1.644	70.482	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
24.00-	25.00	27	.226	98.412	141	1.148	96.149	151	1.229	90.166	219	1.783	82.204	190	1.547	72.026	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
25.00-	26.00	36	.293	98.705	103	.838	96.988	153	1.230	91.452	255	2.076	84.280	192	1.563	73.592	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
26.00-	27.00	19	.155	98.860	55	.443	97.436	131	1.066	92.519	155	1.343	85.624	225	1.832	75.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
27.00-	28.00	13	.106	98.966	35	.285	97.720	102	.830	93.349	113	.920	86.543	165	1.343	76.766	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
28.00-	29.00	14	.113	99.079	33	.269	98.030	86	.700	94.049	103	.838	87.382	185	1.506	78.272	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
29.00-	30.00	20	.161	99.240	170	1.384	99.414	431	3.509	97.558	707	5.755	93.137	990	8.059	86.332	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		

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CASE 000.15 12253 12212 11984 11441 10605

Fig. B-3. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 2000$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 1000' ALT. DIFF.

NOT LESS THAN		BUT LESS THAN		K=1	N	CUM.N	K=2	N	CUM.N	K=3	N	CUM.N	K=4	N	CUM.N	K=5	N	CUM.N
0.00-	1.00	12	.098	.098	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
1.00-	2.00	279	2.271	2.369														
2.00-	3.00	1664	13.546	15.915	185	1.908	1	1.908	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
3.00-	4.00	2750	22.387	24.302	1413	11.503	1	12.009	405	3.297	3	3.297	46	3.74	3.74	1	0.008	0.00
4.00-	5.00	1801	14.661	52.963	1916	15.597	28	60.6	979	7.970	11	26.7	335	2.727	3.102	39	3.17	.32
5.00-	6.00	884	7.196	60.159	1230	10.13	38	61.9	992	8.076	19	34.2	635	5.169	8.271	229	1.864	2.190
6.00-	7.00	595	4.844	65.003	703	5.723	44	34.2	957	7.791	27	133	872	7.099	15.370	545	4.437	6.626
7.00-	8.00	527	4.290	69.293	547	4.453	48	79.5	663	5.397	32	530	738	6.008	21.377	491	3.997	10.624
8.00-	9.00	435	3.541	72.834	601	4.893	53	68.8	728	5.926	38	456	709	5.772	27.149	556	4.526	15.15
9.00-	10.00	546	4.445	77.279	519	4.225	57	91.3	707	5.755	44	212	608	4.950	32.099	720	5.861	21.011
10.00-	11.00	457	3.720	81.000	401	3.264	61	177	336	2.735	46	947	488	3.973	36.071	488	3.973	24.984
11.00-	12.00	165	1.343	82.343	280	2.279	63	456	303	2.467	49	414	335	2.727	38.798	310	2.524	27.507
12.00-	13.00	194	1.579	83.922	374	3.045	66	501	355	2.890	52	304	392	3.191	41.990	398	3.240	30.747
13.00-	14.00	215	1.750	85.672	260	2.117	68	617	308	2.507	54	811	292	2.377	44.367	266	2.165	32.913
14.00-	15.00	234	1.905	87.577	450	3.663	72	281	437	3.557	58	368	301	2.450	46.817	290	2.361	35.273
15.00-	16.00	207	1.685	89.262	383	3.118	75	399	353	2.874	61	242	293	2.385	49.202	232	1.889	37.162
16.00-	17.00	109	.887	90.150	245	1.994	77	393	265	2.157	63	399	247	2.011	51.213	189	1.539	38.701
17.00-	18.00	170	1.384	91.533	225	1.832	79	225	300	2.442	65	842	291	2.369	53.582	210	1.710	40.410
18.00-	19.00	133	1.083	92.616	230	1.872	81	097	273	2.222	68	064	278	2.263	55.845	187	1.522	41.932
19.00-	20.00	97	.790	93.406	170	1.384	82	481	180	1.465	69	529	257	2.092	57.937	184	1.498	43.430
20.00-	21.00	172	1.400	94.806	186	1.514	83	995	150	1.221	70	750	220	1.791	59.728	189	1.539	44.969
21.00-	22.00	38	.309	95.115	154	1.254	85	249	162	1.319	72	069	174	1.416	61.144	160	1.303	46.271
22.00-	23.00	82	.668	95.783	213	1.734	86	943	245	1.994	74	063	200	1.628	62.772	195	1.587	47.859
23.00-	24.00	31	.252	96.035	284	2.312	89	295	262	2.133	76	197	185	1.506	64.279	159	1.294	49.153
24.00-	25.00	40	.326	96.361	133	1.083	90	377	225	1.832	78	028	157	1.278	65.557	140	1.140	50.293
25.00-	26.00	30	.244	96.605	117	.952	91	330	195	1.587	79	615	165	1.343	66.900	157	1.278	51.571
26.00-	27.00	31	.252	96.857	94	.765	92	095	188	1.530	81	146	150	1.221	68.121	121	.985	52.556
27.00-	28.00	16	.130	96.988	66	.537	92	633	120	.977	82	123	181	1.473	69.594	136	1.107	53.663
28.00-	29.00	21	.171	97.159	57	.464	93	096	93	.757	82	880	168	1.368	70.962	151	1.229	54.892
29.00-	AND UP	157	1.278	98.437	316	2.572	95	669	669	5.446	88	326	928	7.555	78.517	1367	11.128	66.021

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Fig. B-4. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 1000$ ft.

HISTOGRAM OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 500' ALT. DIFF.

NOT LESS THAN		RUT LESS THAN		K= 1		%		CUM. %		K= 2		%		CUM. %		K= 3		%		CUM. %		K= 4		%		CUM. %		K= 5		%		CUM. %	
0.00-	1.00	10	.081	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
1.00-	2.00	85	.692	.773	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
2.00-	3.00	1039	8.621	9.394	52	4.23	4.23	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
3.00-	4.00	1861	15.150	24.544	888	7.229	7.652	169	1.376	1.376	4	.033	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
4.00-	5.00	1431	11.649	36.193	1044	8.499	16.151	242	1.970	3.346	29	.236	.269	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
5.00-	6.00	925	7.774	43.968	605	4.925	21.076	453	3.688	7.034	75	.611	.879	3	.024	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
6.00-	7.00	464	3.777	47.745	623	5.072	26.148	728	5.926	12.960	335	2.727	3.606	44	.358	.391	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
7.00-	8.00	307	2.499	50.244	391	3.183	29.331	477	3.853	16.843	254	2.068	5.674	72	.586	.977	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
8.00-	9.00	352	2.898	53.142	630	5.129	34.459	487	3.954	20.807	311	2.532	8.206	60	.488	1.465	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
9.00-	10.00	529	4.306	57.448	568	4.624	39.083	542	4.412	25.220	244	1.986	10.192	63	.513	1.978	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
10.00-	11.00	542	4.412	61.861	229	1.864	40.948	310	2.524	27.743	337	2.743	12.935	169	1.376	3.354	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
11.00-	12.00	249	1.954	63.814	209	1.701	42.649	220	1.791	29.534	216	1.758	14.694	76	.619	3.973	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
12.00-	13.00	296	2.084	65.899	340	2.768	45.417	372	3.026	32.563	243	1.978	16.672	54	.440	4.412	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
13.00-	14.00	263	2.141	68.040	263	2.141	47.558	154	1.254	33.816	219	1.783	18.455	131	1.066	5.478	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
14.00-	15.00	387	3.150	71.190	304	2.475	50.032	220	1.791	35.607	254	2.149	20.604	170	1.384	6.863	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
15.00-	16.00	328	2.670	73.860	323	2.629	52.662	216	1.758	37.366	127	1.034	21.638	72	.586	7.449	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
16.00-	17.00	211	1.718	75.578	182	1.482	54.143	117	.952	38.318	120	.977	22.615	70	.570	8.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
17.00-	18.00	234	1.905	77.483	159	1.294	55.438	145	1.180	39.498	99	.806	23.421	85	.692	8.710	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
18.00-	19.00	261	2.125	79.607	177	1.441	56.879	161	1.311	40.809	114	.928	24.349	115	.936	9.647	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
19.00-	20.00	162	1.319	80.926	190	1.551	58.230	192	1.482	42.291	108	.879	25.226	63	.513	10.160	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
20.00-	21.00	295	2.434	83.360	186	1.514	59.744	200	1.628	43.919	103	.838	26.066	87	.708	10.868	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
21.00-	22.00	119	.895	84.256	143	1.164	60.908	133	1.055	45.082	104	.847	26.913	104	.847	11.714	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
22.00-	23.00	79	.643	84.899	220	1.791	62.699	141	1.148	46.149	81	.659	27.572	100	.814	12.528	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
23.00-	24.00	50	.472	85.371	328	2.670	65.369	138	1.093	47.232	85	.692	28.264	108	.879	13.401	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
24.00-	25.00	64	.521	85.892	199	1.620	66.990	106	.814	48.046	82	.668	28.932	63	.513	13.921	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
25.00-	26.00	77	.627	86.519	216	1.758	68.748	106	.853	48.909	88	.716	29.648	61	.497	14.417	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
26.00-	27.00	67	.545	87.064	155	1.262	70.010	110	.895	49.805	87	.708	30.356	52	.423	14.841	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
27.00-	28.00	49	.399	87.463	121	.985	70.995	93	.757	50.562	61	.497	30.853	29	.236	15.077	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
28.00-	29.00	67	.545	88.009	57	.464	71.459	106	.879	51.441	76	.619	31.472	51	.415	15.492	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
29.00-	30.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
30.00-	31.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
31.00-	32.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
32.00-	33.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
33.00-	34.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
34.00-	35.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
35.00-	36.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
36.00-	37.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
37.00-	38.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
38.00-	39.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
39.00-	40.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000		
40.00-	41.00	332	2.703	90.711	586	4.770	76.229	853	6.944	58.385	813	6.618	38.090	401	3.264	18.756	0	0.000	0.000														

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12284

FILTERING: 12.0 DEG. ANGULAR

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	10	.081	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	354	2.882	2.963	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	1942	15.809	18.772	252	2.051	2.051	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2925	23.811	42.584	1628	14.861	16.933	507	4.127	4.127	55	.529	.529	1	.008	.008
4.00-	5.00	2256	18.365	60.949	2386	19.424	16.356	1599	13.017	17.144	589	4.795	5.324	81	.659	.668
5.00-	6.00	1045	8.507	69.456	1489	12.121	18.478	1475	12.007	29.142	1151	9.451	14.775	544	4.429	5.096
6.00-	7.00	569	4.632	74.088	917	7.465	25.943	1133	9.223	38.375	1270	10.339	25.114	1056	8.597	13.693
7.00-	8.00	470	3.826	77.914	711	5.788	31.738	1074	8.743	47.118	1090	8.873	33.987	1003	8.165	21.858
8.00-	9.00	428	3.484	81.398	706	5.747	37.478	934	7.603	54.721	1054	8.580	42.568	1148	9.345	31.203
9.00-	10.00	470	3.826	85.224	673	5.479	42.957	1010	8.222	62.944	914	7.441	50.008	1026	8.352	39.555
10.00-	11.00	376	3.061	88.285	531	4.323	47.279	619	5.039	67.983	755	6.144	56.154	838	6.822	46.377
11.00-	12.00	196	1.596	89.881	347	2.825	50.104	426	3.468	71.450	681	5.544	61.698	700	5.698	52.076
12.00-	13.00	140	1.213	91.094	304	2.475	52.579	400	3.256	74.707	618	5.031	66.729	743	6.049	58.124
13.00-	14.00	195	1.587	92.681	258	2.100	54.679	364	2.953	77.670	560	4.559	71.288	579	4.713	62.838
14.00-	15.00	147	1.197	93.878	347	2.825	57.504	384	3.126	80.796	444	3.614	74.902	542	4.412	67.250
15.00-	16.00	153	1.246	95.124	186	1.514	59.018	281	2.298	83.083	353	2.874	77.776	454	3.696	70.946
16.00-	17.00	61	.497	95.620	139	1.132	60.150	222	1.807	84.891	284	2.312	80.088	456	3.712	74.658
17.00-	18.00	114	.928	96.548	179	1.457	61.607	194	1.579	86.470	287	2.336	82.424	421	3.427	78.085
18.00-	19.00	107	.871	97.419	151	1.229	62.836	216	1.758	88.228	258	2.100	84.524	287	2.336	80.422
19.00-	20.00	58	.472	97.891	133	1.083	63.919	170	1.384	89.612	229	1.864	86.389	219	1.783	82.204
20.00-	21.00	76	.619	98.510	93	.757	64.676	123	1.001	90.614	154	1.335	87.724	263	2.141	84.345
21.00-	22.00	26	.212	98.722	90	.733	65.408	110	.959	91.582	152	1.237	88.961	168	1.368	85.713
22.00-	23.00	25	.204	98.925	98	.798	66.206	169	1.376	92.958	145	1.180	90.141	191	1.555	87.268
23.00-	24.00	27	.220	99.145	133	1.083	67.289	143	1.164	94.122	190	1.547	91.688	193	1.571	88.839
24.00-	25.00	24	.195	99.340	96	.782	68.070	121	.985	95.107	150	1.221	92.909	152	1.237	90.076
25.00-	26.00	25	.204	99.544	73	.594	68.665	136	1.107	96.214	179	1.457	94.366	158	1.286	91.363
26.00-	27.00	23	.187	99.731	43	.350	69.015	116	.944	97.159	127	1.034	95.400	216	1.758	93.121
27.00-	28.00	13	.106	99.837	22	.179	69.194	83	.676	97.834	86	.700	96.101	136	1.107	94.228
28.00-	29.00	7	.097	99.894	24	.195	69.389	56	.456	98.290	96	.782	96.882	130	1.058	95.286
29.00	AND UP	12	.098	99.992	70	.570	69.959	205	1.669	99.959	370	3.012	99.894	541	4.404	99.690

57

CASE COUNTS 12283

12279

12279

12271

12246

Fig. B-6. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 12$ deg.

HISTOGRAM OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 960

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 6.0 DEG. ANGLAR

OF LESS THAN	OF LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	16	.0161	.0161	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	277	.2855	2.330	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	1517	1.5735	17.071	219	1.703	1.703	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2920	2.9800	41.151	1086	13.725	15.028	470	3.826	3.426	55	.529	.529	1	.008	.008
4.00-	5.00	2204	2.2569	59.720	2436	19.847	75.345	1509	12.244	16.110	521	4.241	4.770	78	.619	.627
5.00-	6.00	1407	1.4680	80.406	1529	12.447	87.822	1518	12.358	28.468	1077	8.767	13.538	485	3.948	4.575
6.00-	7.00	654	.6917	76.325	930	7.571	95.373	1163	9.460	37.935	1309	10.656	24.194	997	8.116	12.691
7.00-	8.00	210	.2205	77.248	609	5.690	101.03	1072	8.727	46.662	1131	9.207	33.401	1021	8.312	21.003
8.00-	9.00	440	.5585	81.146	733	6.967	107.00	939	7.644	54.306	1078	8.776	42.177	1200	9.769	30.772
9.00-	10.00	402	.4224	85.370	674	5.487	112.517	1029	8.377	62.683	932	7.567	49.764	1043	8.491	39.262
10.00-	11.00	391	.4183	86.253	345	4.437	116.954	613	4.990	67.673	735	6.146	55.910	854	6.952	46.214
11.00-	12.00	200	.2120	89.841	340	2.898	119.852	449	3.655	71.328	676	5.503	61.413	699	5.690	51.905
12.00-	13.00	140	.1453	91.304	307	2.499	122.351	407	3.313	74.642	633	5.153	66.566	747	6.081	57.986
13.00-	14.00	195	.2027	92.551	263	2.141	124.492	364	2.990	77.637	568	4.624	71.190	579	4.713	62.699
14.00-	15.00	147	.1517	93.073	252	2.068	126.560	300	2.440	80.077	447	3.639	74.829	551	4.485	67.185
15.00-	16.00	123	.1276	93.194	180	1.536	128.096	281	2.280	82.357	357	2.906	77.735	455	3.704	70.889
16.00-	17.00	61	.0637	93.520	139	1.132	129.228	222	1.807	84.164	247	2.006	80.071	459	3.737	74.625
17.00-	18.00	114	.1186	93.634	179	1.457	130.685	194	1.579	85.743	287	2.336	82.408	423	3.443	78.069
18.00-	19.00	137	.1421	93.749	151	1.229	131.914	216	1.756	87.499	258	2.100	84.508	287	2.336	80.405
19.00-	20.00	58	.0602	93.807	130	1.077	132.991	103	1.050	88.549	228	1.856	86.364	219	1.783	82.188
20.00-	21.00	76	.0789	93.883	95	.773	133.764	124	1.009	89.558	132	1.080	87.683	262	2.133	84.321
21.00-	22.00	24	.0248	93.908	92	.749	134.513	122	.990	90.548	151	1.229	88.912	167	1.359	86.680
22.00-	23.00	25	.0260	93.934	99	.806	135.319	109	1.370	91.918	149	1.213	90.125	192	1.563	88.243
23.00-	24.00	27	.0280	93.962	130	1.063	136.382	134	1.123	93.041	192	1.563	91.688	193	1.571	89.814
24.00-	25.00	24	.0248	93.987	99	.806	137.188	123	1.001	94.042	145	1.180	92.868	152	1.237	90.052
25.00-	26.00	26	.0270	94.014	73	.594	137.782	134	1.132	95.174	134	1.098	94.366	150	1.221	91.273
26.00-	27.00	23	.0237	94.038	43	.350	138.132	116	.944	96.118	127	1.034	95.400	224	1.824	93.096
27.00-	28.00	13	.0136	94.052	22	.179	138.311	63	.070	96.188	36	.290	96.101	137	1.115	94.212
28.00-	29.00	7	.0073	94.059	24	.195	138.506	56	.456	96.644	36	.290	96.882	131	1.066	95.278
29.00-	30.00	12	.0125	94.071	70	.570	139.076	205	1.669	98.313	370	3.012	99.884	542	4.412	99.690

CASE NO 12273

12279

12279

12271

12246

Fig. B-7. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 6$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 3.0 DEG. ANGULAR

NOT LESS THAN		NOT LESS THAN		K=1		K=2		K=3		K=4		K=5	
		%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.00-	1.00	9	.073	.073	0	0.000	0.000	0	0.000	0	0.000	0	0.000
1.00-	2.00	93	.757	.830	0	0.000	0.000	0	0.000	0	0.000	0	0.000
2.00-	3.00	1256	10.225	11.055	73	.594	.594	0	0.000	0	0.000	0	0.000
3.00-	4.00	2900	23.608	34.663	1317	10.721	11.315	328	2.670	2.670	35	.285	.285
4.00-	5.00	2120	17.502	52.165	2128	17.323	28.639	994	8.092	10.762	294	2.393	2.678
5.00-	6.00	1099	8.947	61.112	1417	11.535	40.174	1231	10.021	20.783	747	6.081	8.759
6.00-	7.00	709	5.772	66.884	889	7.237	47.411	1165	9.484	30.267	1052	8.564	17.323
7.00-	8.00	674	5.487	72.370	878	7.147	54.559	992	8.076	38.342	944	7.685	25.008
8.00-	9.00	615	5.007	77.377	541	6.846	61.405	1190	9.637	48.030	1220	9.932	34.940
9.00-	10.00	592	4.819	82.196	856	6.968	68.373	1070	8.710	56.740	926	7.538	42.478
10.00-	11.00	472	3.842	86.039	581	4.730	73.103	720	5.861	62.602	873	7.107	49.585
11.00-	12.00	326	2.898	88.937	468	3.810	76.913	562	4.575	67.177	766	6.236	55.820
12.00-	13.00	213	1.734	90.671	411	3.346	80.259	534	4.347	71.524	762	6.203	62.024
13.00-	14.00	220	1.791	92.461	369	3.004	83.263	484	3.940	75.464	661	5.381	67.405
14.00-	15.00	193	1.246	93.707	398	3.240	86.502	469	3.816	79.282	555	4.518	71.923
15.00-	16.00	158	1.286	94.993	232	1.869	88.371	326	2.654	81.936	435	3.541	75.464
16.00-	17.00	64	.521	95.514	192	1.237	89.608	292	2.377	84.313	353	2.874	78.338
17.00-	18.00	116	.944	96.458	189	1.539	91.147	205	1.669	85.982	337	2.743	81.081
18.00-	19.00	110	.895	97.353	164	1.335	92.482	223	1.815	87.797	293	2.385	83.466
19.00-	20.00	59	.480	97.834	141	1.148	93.630	178	1.449	89.246	253	2.060	85.526
20.00-	21.00	78	.635	98.469	98	.798	94.428	131	1.066	90.312	190	1.547	87.073
21.00-	22.00	28	.228	98.697	98	.798	95.226	124	1.009	91.322	153	1.246	88.318
22.00-	23.00	28	.228	98.925	98	.798	96.023	183	1.490	92.812	154	1.254	89.572
23.00-	24.00	27	.220	99.145	142	1.126	97.199	143	1.205	94.016	203	1.653	91.224
24.00-	25.00	24	.195	99.340	106	.863	98.062	124	1.009	95.026	151	1.229	92.453
25.00-	26.00	25	.204	99.544	74	.602	98.665	141	1.148	96.174	198	1.612	94.065
26.00-	27.00	23	.187	99.731	43	.350	99.015	118	.961	97.134	133	1.083	95.148
27.00-	28.00	13	.106	99.837	22	.179	99.194	83	.676	97.810	97	.790	95.937
28.00-	29.00	7	.057	99.894	24	.195	99.389	56	.456	98.266	106	.863	96.801
29.00-	30.00	12	.098	99.992	70	.570	99.959	205	1.669	99.935	371	3.020	99.821

CASE COUNTS 12283 12279 12276 12262 12215

Fig. B-8. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 3$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 1.5 DEG. ANGULAR

GT LESS	NOT LESS	K=1		K=2		K=3		K=4		K=5	
THA	THA	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.00-	1.00	5	.041	0	0.000	0	0.000	0	0.000	0	0.000
1.00-	2.00	27	.220	0	0.000	0	0.000	0	0.000	0	0.000
2.00-	3.00	99	.814	47	.383	0	0.000	0	0.000	0	0.000
3.00-	4.00	200	1.628	87	.704	164	1.335	6	.049	0	0.000
4.00-	5.00	500	4.058	114	0.923	290	2.351	37	.301	2	.016
5.00-	6.00	141	1.141	701	5.707	534	4.347	119	.969	6	.049
6.00-	7.00	672	5.442	1024	8.336	935	7.512	533	4.339	126	1.026
7.00-	8.00	631	5.137	908	7.392	768	6.252	561	4.567	240	1.954
8.00-	9.00	796	6.480	917	7.465	1060	8.629	737	6.000	328	2.670
9.00-	10.00	536	4.366	857	6.977	1011	8.230	1003	8.165	600	4.884
10.00-	11.00	631	5.137	827	6.732	685	5.576	709	5.772	696	5.666
11.00-	12.00	514	4.177	489	3.981	532	4.331	580	4.722	602	4.901
12.00-	13.00	347	2.825	483	3.932	672	5.471	625	5.088	658	5.357
13.00-	14.00	364	2.963	514	4.184	495	4.030	542	4.412	623	5.072
14.00-	15.00	369	3.004	611	4.974	563	4.583	578	4.705	605	4.925
15.00-	16.00	283	2.304	397	3.232	522	4.249	611	4.974	557	4.534
16.00-	17.00	152	1.237	345	2.809	445	3.623	510	4.152	566	4.608
17.00-	18.00	194	1.579	320	2.605	508	4.135	579	4.713	486	3.956
18.00-	19.00	144	1.172	285	2.320	368	2.996	496	4.038	553	4.502
19.00-	20.00	104	.847	235	1.913	330	2.686	367	2.988	436	3.549
20.00-	21.00	107	.871	234	1.905	289	2.353	386	3.142	398	3.240
21.00-	22.00	40	.326	150	1.221	193	1.571	271	2.206	334	2.719
22.00-	23.00	34	.279	191	1.555	267	2.174	339	2.760	444	3.614
23.00-	24.00	30	.244	205	1.669	271	2.206	394	3.207	449	3.655
24.00-	25.00	36	.293	144	1.172	198	1.612	261	2.125	415	3.378
25.00-	26.00	35	.285	114	.928	227	1.848	308	2.507	371	3.020
26.00-	27.00	27	.220	56	.457	209	1.701	253	2.060	318	2.589
27.00-	28.00	19	.154	27	.220	127	1.034	215	1.750	265	2.157
28.00-	29.00	9	.073	36	.293	97	.790	169	1.376	262	2.133
29.00-	30.00	17	.138	136	1.108	372	3.028	640	5.210	1026	8.352

09

BASE COUNTS. 14401 12261 12132 11929 11366

Fig. B-9. Histogram data from hour 11. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	18	.147	.147	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	134	1.091	1.237	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	836	6.806	8.043	52	.423	.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	1677	13.652	21.695	459	3.737	4.160	32	.261	.261	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1913	15.573	37.268	971	7.905	12.064	264	2.149	2.410	15	.122	.122	1	.008	.008
100.00-	120.00	1341	10.917	48.185	1103	8.979	21.044	628	5.112	7.522	171	1.392	1.514	13	.106	.114
120.00-	140.00	968	7.880	56.065	951	7.742	28.785	666	5.422	12.944	373	3.036	4.551	88	.716	.830
140.00-	160.00	829	6.749	62.813	913	7.432	36.218	722	5.878	18.821	446	3.631	8.181	215	1.750	2.581
160.00-	180.00	726	5.910	68.723	876	7.131	43.349	750	6.105	24.927	528	4.298	12.480	366	2.979	5.560
180.00-	200.00	613	4.990	73.714	831	6.765	50.114	615	4.990	29.917	641	5.218	17.698	474	3.859	9.419
200.00-	220.00	639	5.202	78.916	753	6.130	56.244	767	6.244	36.161	655	5.332	23.030	502	4.087	13.505
220.00-	240.00	435	3.541	82.457	738	6.008	62.252	751	6.114	42.274	650	5.291	28.321	558	4.542	18.048
240.00-	260.00	420	3.419	85.876	634	5.161	67.413	637	5.186	47.460	628	5.112	33.434	533	4.334	22.387
260.00-	280.00	292	2.377	88.253	587	4.779	72.191	716	5.829	53.289	675	5.495	38.929	528	4.298	26.685
280.00-	300.00	221	1.799	90.052	411	3.346	75.537	517	4.209	57.497	604	4.917	43.845	600	4.884	31.569
300.00-	320.00	165	1.343	91.395	388	3.159	78.696	421	3.427	60.925	451	3.671	47.517	495	4.030	35.599
320.00-	340.00	112	.912	92.307	266	2.165	80.861	388	3.159	64.083	351	2.857	50.374	466	3.794	39.393
340.00-	360.00	101	.822	93.129	257	2.092	82.953	313	2.548	66.631	357	2.906	53.281	340	2.768	42.160
360.00-	380.00	97	.790	93.919	204	1.661	84.614	276	2.247	68.878	278	2.263	55.544	315	2.564	44.725
380.00-	400.00	70	.570	94.489	177	1.441	86.055	234	1.905	70.783	226	1.840	57.383	231	1.880	46.605
400.00	AND UP	637	5.186	99.674	1629	13.261	99.316	3366	27.401	98.185	4779	38.904	96.288	5594	45.539	92.144

CASE COUNTS 12244

12200

12061

11028

11319

Fig. B-10. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 4000' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	18	.147	.147	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	134	1.091	1.237	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	826	6.724	7.962	52	.423	.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	1669	13.587	21.548	459	3.737	4.160	32	.261	.261	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1910	15.549	37.097	968	7.880	12.040	264	2.149	2.410	15	.122	.122	1	.008	.008
100.00-	120.00	1341	10.917	48.014	1103	8.979	21.019	628	5.112	7.522	171	1.392	1.514	13	.106	.114
120.00-	140.00	966	7.864	55.877	949	7.725	28.745	666	5.422	12.944	373	3.036	4.551	88	.716	.830
140.00-	160.00	830	6.757	62.634	912	7.424	36.169	720	5.861	18.805	446	3.631	8.181	215	1.750	2.581
160.00-	180.00	729	5.935	68.569	872	7.099	43.268	749	6.097	24.902	528	4.298	12.480	366	2.979	5.560
180.00-	200.00	613	4.990	73.559	832	6.773	50.041	612	4.982	29.884	641	5.218	17.698	474	3.859	9.419
200.00-	220.00	631	5.137	78.696	757	6.162	56.203	761	6.195	36.079	649	5.283	22.981	498	4.054	13.473
220.00-	240.00	431	3.509	82.204	734	5.975	62.178	746	6.073	42.152	646	5.259	28.240	558	4.542	18.015
240.00-	260.00	419	3.411	85.615	628	5.112	67.291	634	5.161	47.313	630	5.129	33.369	533	4.339	22.354
260.00-	280.00	302	2.458	88.074	577	4.697	71.988	716	5.829	53.142	669	5.446	38.615	529	4.306	26.661
280.00-	300.00	222	1.807	89.881	406	3.305	75.293	511	4.160	57.302	600	4.884	43.699	597	4.860	31.521
300.00-	320.00	165	1.343	91.224	390	3.175	78.468	419	3.411	60.713	447	3.630	47.338	492	4.005	35.526
320.00-	340.00	115	.936	92.160	277	2.255	80.723	385	3.134	63.847	339	2.760	50.098	462	3.761	39.287
340.00-	360.00	107	.838	92.999	266	2.165	82.888	322	2.621	66.468	356	2.890	52.996	320	2.605	41.892
360.00-	380.00	96	.782	93.781	199	1.620	84.508	285	2.320	68.788	272	2.214	55.210	311	2.532	44.423
380.00-	400.00	59	.480	94.261	167	1.359	85.868	231	1.880	70.669	239	1.946	57.156	242	1.970	46.394
400.00	AND UP	663	5.397	99.658	1640	13.351	99.218	3368	27.418	98.087	4781	38.920	96.076	5603	45.612	92.006
CASE COUNTS		12242			12188			12049			11802			11302		

Fig. B-11. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $\Delta A < 4000$ ft.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 2000' ALT. DIFF.

63

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	18	.147	.147	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	128	1.042	1.189	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	50.00	778	6.333	7.522	52	.423	.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	60.00	1394	11.348	18.670	405	3.297	3.720	25	.204	.204	0	0.000	0.000	0	0.000	0.000
60.00-	100.00	1453	11.828	30.698	675	5.495	9.215	191	1.555	1.758	10	.081	.081	1	.008	.008
100.00-	120.00	945	7.693	38.391	629	5.120	14.336	342	2.784	4.542	66	.537	.619	8	.065	.073
120.00-	140.00	712	5.796	44.187	535	4.355	18.691	283	2.304	6.846	153	1.246	1.864	28	.228	.301
140.00-	160.00	672	5.471	49.658	504	4.103	22.794	283	2.304	9.150	137	1.115	2.979	41	.334	.635
160.00-	180.00	663	5.397	55.055	585	4.762	27.556	308	2.507	11.657	122	.993	3.973	81	.659	1.294
180.00-	200.00	657	5.348	60.404	561	4.567	32.123	340	2.768	14.425	193	1.571	5.544	99	.806	2.100
200.00-	220.00	745	6.065	66.468	657	5.348	37.471	415	3.378	17.804	257	2.092	7.636	99	.806	2.986
220.00-	240.00	526	4.226	70.995	634	5.101	42.633	511	4.150	21.964	342	2.784	10.420	168	1.368	4.274
240.00-	260.00	514	4.184	75.179	539	4.388	47.020	465	3.948	25.912	308	2.507	12.927	212	1.726	6.000
260.00-	280.00	422	3.435	78.614	550	4.477	51.498	502	4.087	29.998	367	2.988	15.915	250	2.035	8.035
280.00-	300.00	315	2.572	81.187	438	3.566	55.063	458	3.728	33.727	410	3.338	19.253	265	2.157	10.192
300.00-	320.00	261	2.125	83.311	440	3.631	58.694	378	3.077	36.804	320	2.605	21.858	267	2.174	12.366
320.00-	340.00	193	1.527	84.838	344	2.800	61.494	387	3.150	39.954	312	2.540	24.398	302	2.458	14.824
340.00-	360.00	101	0.822	85.660	322	2.621	64.116	362	2.947	42.901	352	2.866	27.263	218	1.775	16.599
360.00-	380.00	206	1.677	87.337	258	2.100	66.216	201	1.625	45.026	268	2.182	29.445	191	1.555	18.154
380.00-	400.00	137	1.115	88.452	205	1.669	67.885	204	1.661	46.687	200	1.628	31.073	209	1.701	19.855
400.00	AND UP	1197	9.744	98.648	3205	26.091	93.976	4653	37.878	84.565	5062	41.208	72.281	4856	39.531	59.386

CASE COUNTS 12118

11544

10388

8879

7295

Fig. B-12. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 2000$ ft.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 1000' ALT. DIFF.

NOT LESS BUT LESS

TAU	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00- 20.00	12	.098	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00- 40.00	108	.879	.977	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00- 60.00	613	4.990	5.967	41	.334	.334	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00- 80.00	1063	8.654	14.621	261	2.125	2.458	8	.065	.065	0	0.000	0.000	0	0.000	0.000
80.00- 100.00	1112	9.052	23.673	410	3.338	5.796	93	.757	.822	1	.008	.008	0	0.000	0.000
100.00- 120.00	740	6.024	29.697	373	3.036	8.833	174	1.416	2.239	27	.220	.228	0	0.000	0.000
120.00- 140.00	603	4.909	34.606	315	2.564	11.397	124	1.009	3.248	51	.415	.643	5	.041	.041
140.00- 160.00	628	5.112	39.718	315	2.564	13.961	129	1.050	4.298	29	.236	.879	9	.073	.114
160.00- 180.00	576	4.689	44.407	380	3.093	17.055	147	1.197	5.495	48	.391	1.270	14	.114	.228
180.00- 200.00	601	4.893	49.300	370	3.012	20.067	161	1.311	6.806	70	.570	1.840	20	.163	.391
200.00- 220.00	740	6.024	55.324	459	3.737	23.803	214	1.742	8.548	105	.855	2.695	21	.171	.562
220.00- 240.00	626	5.096	60.420	522	4.249	28.053	355	2.890	11.438	196	1.596	4.290	61	.497	1.058
240.00- 260.00	588	4.787	65.207	456	3.712	31.765	346	2.817	14.254	187	1.522	5.812	124	1.009	2.068
260.00- 280.00	441	3.590	68.797	527	4.290	36.055	368	2.996	17.250	241	1.962	7.774	142	1.156	3.224
280.00- 300.00	318	2.589	71.385	485	3.948	40.003	413	3.362	20.612	266	2.165	9.940	173	1.408	4.632
300.00- 320.00	290	2.361	73.746	430	3.500	43.504	293	2.385	22.997	240	1.954	11.893	153	1.246	5.878
320.00- 340.00	200	1.626	75.374	356	2.898	46.402	342	2.784	25.781	264	2.149	14.043	180	1.465	7.343
340.00- 360.00	206	1.677	77.051	276	2.247	48.649	344	2.800	28.582	266	2.165	16.208	169	1.376	8.719
360.00- 380.00	268	2.182	79.233	240	1.954	50.602	232	1.889	30.470	216	1.758	17.966	145	1.180	9.899
380.00- 400.00	164	1.335	80.568	184	1.498	52.100	184	1.498	31.968	173	1.408	19.375	158	1.286	11.185
400.00 AND UP	1716	13.969	94.537	3896	31.716	83.816	4409	35.892	67.861	3874	31.537	50.912	3353	27.296	38.481

CASE COUNTS 11613

10296

8336

6254

4727

Fig. B-13. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 1000$ ft.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 500' ALT. DIFF.

NOT LESS THAN		BUT LESS THAN		K = 1	%	CUM. %	K = 2	%	CUM. %	K = 3	%	CUM. %	K = 4	%	CUM. %	K = 5	%	CUM. %
0.00-	20.00	12	.098	.098	0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	28	.228	.326	0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	210	1.710	2.035	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000
60.00-	80.00	377	3.232	5.267	63	.513	.529	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000
80.00-	100.00	317	2.581	7.848	48	.391	.920	17	.138	.138	0	0.000	0.000	0	0.000	0.000	0	0.000
100.00-	120.00	342	2.784	10.632	42	.342	1.262	23	.187	.326	1	.008	.008	0	0.000	0.000	0	0.000
120.00-	140.00	329	2.922	13.554	52	.423	1.685	10	.081	.407	3	.024	.033	0	0.000	0.000	0	0.000
140.00-	160.00	411	3.346	16.900	60	.488	2.174	7	.057	.464	6	.049	.081	0	0.000	0.000	0	0.000
160.00-	180.00	378	3.077	19.977	95	.773	2.947	5	.041	.505	4	.033	.114	0	0.000	0.000	0	0.000
180.00-	200.00	402	3.273	23.250	122	.993	3.940	19	.155	.659	9	.073	.187	0	0.000	0.000	0	0.000
200.00-	220.00	436	3.549	26.799	159	1.294	5.234	39	.317	.977	3	.024	.212	0	0.000	0.000	0	0.000
220.00-	240.00	545	4.437	31.236	247	2.011	7.245	72	.586	1.563	25	.204	.415	7	.057	.057	0	0.000
240.00-	260.00	521	4.241	35.477	245	1.994	9.240	103	.838	2.401	38	.309	.725	9	.073	.130	0	0.000
260.00-	280.00	450	3.663	39.140	315	2.564	11.804	116	.944	3.346	40	.326	1.050	8	.065	.195	0	0.000
280.00-	300.00	437	3.557	42.698	353	2.874	14.678	152	1.237	4.583	88	.716	1.767	49	.399	.594	0	0.000
300.00-	320.00	353	2.874	45.571	321	2.613	17.291	155	1.262	5.845	69	.562	2.328	37	.301	.895	0	0.000
320.00-	340.00	259	2.108	47.680	261	2.125	19.415	170	1.384	7.229	71	.578	2.906	38	.309	1.205	0	0.000
340.00-	360.00	226	2.084	49.764	212	1.726	21.141	169	1.376	8.605	66	.537	3.443	21	.171	1.376	0	0.000
360.00-	380.00	272	2.214	51.978	152	1.237	22.379	133	1.083	9.687	56	.456	3.899	15	.122	1.498	0	0.000
380.00-	400.00	176	1.433	53.411	147	1.197	23.575	97	.790	10.477	56	.456	4.355	11	.090	1.587	0	0.000
400.00-	UNT UP	3273	26.644	80.055	4208	34.256	57.831	2896	23.592	34.069	1605	13.066	17.421	654	6.952	8.540	0	0.000

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CASE COUNTS	9834	7104	4185	2140	1049
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Fig. B-14. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 12.0 DEG. ANGULAR

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	16	.130	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	131	1.066	1.197	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	832	6.773	7.970	52	.423	.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	1676	13.644	21.613	459	3.737	4.160	32	.261	.261	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1913	15.573	37.187	971	7.905	12.064	264	2.149	2.410	15	.122	.122	1	.008	.008
100.00-	120.00	1345	10.949	48.136	1100	8.955	21.019	627	5.104	7.514	171	1.392	1.514	13	.106	.114
120.00-	140.00	968	7.880	56.016	952	7.750	28.769	667	5.430	12.944	371	3.020	4.534	88	.716	.830
140.00-	160.00	829	6.749	62.765	914	7.441	36.210	720	5.861	18.805	446	3.631	8.165	215	1.750	2.581
160.00-	180.00	726	5.910	68.679	876	7.131	43.341	751	6.114	24.919	527	4.290	12.455	366	2.979	5.560
180.00-	200.00	613	4.990	73.669	832	6.773	50.114	612	4.992	29.911	643	5.234	17.690	472	3.842	9.402
200.00-	220.00	641	5.218	78.883	752	6.122	56.236	768	6.252	36.153	654	5.324	23.014	501	4.078	13.481
220.00-	240.00	455	3.541	82.424	738	6.008	62.243	752	6.122	42.274	650	5.291	28.305	557	4.534	18.015
240.00-	260.00	420	3.419	85.843	634	5.161	67.405	637	5.196	47.460	628	5.112	33.417	534	4.347	22.362
260.00-	280.00	292	2.377	88.220	587	4.779	72.183	716	5.829	53.289	677	5.511	38.929	526	4.282	26.644
280.00-	300.00	221	1.799	90.019	411	3.346	75.529	517	4.209	57.497	604	4.917	43.845	603	4.909	31.553
300.00-	320.00	165	1.343	91.363	388	3.159	78.687	421	3.427	60.925	451	3.671	47.517	495	4.030	35.583
320.00-	340.00	114	.928	92.291	264	2.149	80.837	388	3.159	64.083	351	2.857	50.374	466	3.794	39.376
340.00-	360.00	101	.822	93.113	257	2.092	82.929	313	2.548	66.631	357	2.906	53.281	340	2.768	42.144
360.00-	380.00	97	.790	93.903	204	1.661	84.589	276	2.247	68.878	278	2.263	55.544	315	2.564	44.708
380.00-	400.00	70	.570	94.472	177	1.441	86.031	234	1.905	70.783	226	1.840	57.383	231	1.880	46.589
400.00	AN UP	639	5.202	99.674	1630	13.269	99.300	3366	27.401	98.185	4778	38.896	96.279	5596	45.555	92.144
CASE COUNTS		12244			12198			12061			11827			11319		

Fig. B-15. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 12$ deg.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 6.0 DEG. ANGULAR

NOT LESS THAN	NOT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	20.00	12	.098	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	4	.125	1.18	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	809	6.586	7.761	52	0.423	4.23	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	1645	13.391	21.092	450	3.663	4.067	28	2.28	2.28	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1911	15.557	36.649	954	7.766	11.853	253	2.060	2.288	15	1.22	1.22	1	.008	1.008
100.00-	120.00	1359	11.063	47.712	1083	8.816	20.669	612	4.982	7.270	166	1.351	1.473	10	.081	1.090
120.00-	140.00	984	8.043	55.755	942	7.668	28.338	653	5.316	12.585	360	2.931	4.404	88	.716	1.806
140.00-	160.00	839	6.830	62.585	926	7.538	35.876	703	5.723	18.308	441	3.590	7.994	211	1.718	2.524
160.00-	180.00	727	5.918	68.503	881	7.172	43.048	751	6.114	24.422	524	4.266	12.260	361	2.939	5.462
180.00-	200.00	616	5.015	73.518	831	6.765	49.813	617	5.023	29.445	631	5.137	17.397	462	3.761	9.223
200.00-	220.00	541	4.418	78.736	762	6.203	56.016	776	6.317	35.762	637	5.186	22.582	493	4.013	13.237
220.00-	240.00	435	3.541	82.278	742	6.040	62.056	752	6.122	41.884	654	5.324	27.906	547	4.453	17.690
240.00-	260.00	421	3.427	85.705	632	5.145	67.201	641	5.218	47.102	628	5.112	33.018	536	4.363	22.053
260.00-	280.00	292	2.377	88.082	591	4.811	72.012	714	5.812	52.914	676	5.503	38.521	519	4.225	26.278
280.00-	300.00	221	1.799	89.881	411	3.346	75.358	520	4.233	57.147	607	4.941	43.463	595	4.844	31.122
300.00-	320.00	165	1.343	91.224	387	3.150	78.509	430	3.500	60.648	454	3.696	47.159	483	3.932	35.054
320.00-	340.00	116	.944	92.168	262	2.133	80.641	389	3.157	63.814	356	2.898	50.057	462	3.761	38.815
340.00-	360.00	101	.822	92.990	254	2.068	82.709	316	2.572	66.382	356	2.898	52.955	340	2.766	41.582
360.00-	380.00	100	.814	93.804	201	1.636	84.345	274	2.231	68.617	276	2.247	55.202	327	2.662	44.244
380.00-	400.00	72	.586	94.390	178	1.449	85.794	233	1.897	70.514	225	1.832	57.033	234	1.905	46.149
400.00	AND UP	649	5.283	99.674	1659	13.505	99.300	3385	27.556	98.070	4816	39.205	96.239	5638	45.897	92.046
CASE COUNTS		12244			12198			12047			11822			11307		

Fig. B-16. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 6$ deg.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 3.0 DEG. ANGULAR

68

NOT LESS THAN		NOT LESS THAN		K=1		K=2		K=3		K=4		K=5	
		%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.00-	20.00	12	.098	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
20.00-	40.00	93	.513	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
40.00-	60.00	640	5.216	21	.171	0	0.000	0	0.000	0	0.000	0	0.000
60.00-	80.00	1326	10.794	322	2.621	4	.033	4	.033	0	0.000	0	0.000
80.00-	100.00	1846	13.490	681	5.544	144	1.172	1	.008	0	0.000	0	0.000
100.00-	120.00	1333	10.852	750	6.105	420	3.419	66	.537	1	.008	1	.008
120.00-	140.00	1149	9.280	840	6.836	458	3.728	238	1.937	27	.220	27	.220
140.00-	160.00	991	5.067	1007	8.198	559	4.551	294	2.393	106	.863	106	.863
160.00-	180.00	812	6.610	1473	7.921	686	5.584	424	3.452	236	1.921	390	3.175
180.00-	200.00	742	6.040	2115	6.952	661	5.381	560	4.559	390	3.175	616	5.027
200.00-	220.00	734	5.975	2849	6.968	816	6.643	561	4.567	430	3.500	946	7.687
220.00-	240.00	493	4.013	3342	6.830	812	6.659	666	5.422	440	3.582	1386	11.269
240.00-	260.00	433	3.605	3775	5.058	721	5.869	620	5.047	508	4.135	1794	14.605
260.00-	280.00	311	2.532	4086	5.088	706	6.230	717	5.837	535	4.355	2119	17.260
280.00-	300.00	225	1.855	4311	3.614	505	4.599	651	5.300	593	4.827	2612	21.287
300.00-	320.00	179	1.457	4490	3.246	456	3.712	466	3.794	490	3.989	3012	24.576
320.00-	340.00	117	.952	4607	2.355	399	3.248	377	3.069	456	3.712	3468	28.288
340.00-	360.00	108	.879	4715	2.198	355	2.727	368	2.996	346	2.817	3714	30.105
360.00-	380.00	103	.879	4818	1.815	271	2.206	294	2.393	346	2.817	3922	31.922
380.00-	400.00	73	.594	4891	1.653	233	1.597	254	2.068	242	1.970	4119	33.892
400.00-	AND UP	729	5.935	5620	15.231	3667	29.952	5132	41.778	5913	48.136	9032	73.828

CASE COUNTS

12238

12162

11979

11689

11059

Fig. B-17. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 3$ deg.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN	BUT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	20.00	4	.033	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	20	.163	.195	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	234	1.905	2.100	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	627	5.104	7.204	81	.659	6.766	2	.016	.016	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1040	8.466	15.671	189	1.539	2.214	27	.220	.236	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	1905	7.367	23.038	323	2.629	4.844	79	.643	.879	7	.057	.057	0	0.000	0.000
120.00-	140.00	2759	6.179	29.217	349	2.841	7.685	127	1.034	1.913	25	.204	.261	0	0.000	0.000
140.00-	160.00	3643	6.863	36.079	455	3.704	11.389	138	1.123	3.036	45	.366	.627	2	.016	.016
160.00-	180.00	4665	7.042	43.121	554	4.510	15.899	219	1.783	4.819	82	.668	1.294	17	.138	.155
180.00-	200.00	5936	7.620	50.741	699	5.690	21.589	352	2.866	7.685	146	1.189	2.483	44	.358	.513
200.00-	220.00	7020	8.303	59.044	866	7.050	28.639	517	4.209	11.893	251	2.043	4.526	113	.920	1.433
220.00-	240.00	7933	6.456	65.500	879	7.156	35.794	672	5.471	17.364	356	2.898	7.424	190	1.547	2.979
240.00-	260.00	768	6.252	71.752	785	6.390	42.195	649	5.283	22.647	441	3.590	11.014	266	2.165	5.145
260.00-	280.00	650	5.291	77.043	882	7.180	49.365	763	6.211	28.854	616	5.015	16.029	336	2.735	7.880
280.00-	300.00	436	3.549	80.593	647	5.267	54.632	687	5.593	34.451	565	4.599	20.628	434	3.533	11.413
300.00-	320.00	293	2.385	82.978	542	4.412	59.044	531	4.323	38.774	533	4.339	24.967	340	2.768	14.181
320.00-	340.00	189	1.539	84.516	437	3.557	62.602	464	3.777	42.551	453	3.688	28.655	460	3.745	17.926
340.00-	350.00	183	1.490	86.006	402	3.330	65.931	388	3.159	45.710	363	2.955	31.610	361	2.939	20.865
360.00-	380.00	154	1.254	87.260	319	2.597	68.528	364	2.963	48.673	321	2.613	34.223	315	2.564	23.429
380.00-	400.00	111	.904	88.163	267	2.174	70.701	255	2.076	50.749	279	2.271	36.495	278	2.263	25.692
400.00	AN UP	1373	11.177	99.340	3308	26.929	97.631	5076	41.322	92.071	5749	46.801	83.295	5639	45.905	71.597
CASE COUNTS		12203			11993			11310			10232			8795		

Fig. B-18. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5 \text{ deg.}$

69

HISTOGRAMS OF TAU

FOR HOUR 11

NUMBER OF SCANS 366

TOTAL FLYING TIME COUNT 12282

FILTERING: V(N) < 240 KT

70

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	<= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	<= 5	%	CUM.%
0:00-	20:00	12	.098	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20:00-	40:00	82	.668	.765	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40:00-	60:00	571	4.649	5.414	31	0.248	0.248	8	0.065	0.313	8	0.065	0.378	8	0.065	0.443
60:00-	80:00	1118	9.103	14.517	166	1.352	1.604	10	.081	.394	0	0.000	.394	0	0.000	.394
80:00-	100:00	1282	10.438	24.955	453	3.688	5.292	71	.578	5.870	2	.016	.603	0	0.000	0.603
100:00-	120:00	931	7.580	32.535	524	4.266	9.559	158	1.286	1.946	19	.155	.171	2	.016	.016
120:00-	140:00	685	5.577	38.113	475	3.867	13.426	285	2.320	4.266	52	.505	.675	3	.024	.041
140:00-	160:00	673	5.480	43.592	432	3.517	16.943	250	2.035	6.302	131	1.067	1.742	26	.212	.252
160:00-	180:00	594	4.836	48.428	481	3.916	20.860	323	2.630	8.932	151	1.311	3.053	63	.513	.765
180:00-	200:00	548	4.462	52.890	427	3.477	24.336	275	2.239	11.171	217	1.767	4.820	96	.782	1.547
200:00-	220:00	523	4.258	57.148	420	3.420	27.756	324	2.638	13.809	152	1.319	6.139	125	1.018	2.565
220:00-	240:00	418	3.403	60.552	435	3.542	31.298	274	2.231	16.040	178	1.449	7.588	114	.928	3.493
240:00-	260:00	407	3.314	63.866	427	3.477	34.774	283	2.304	18.344	180	1.466	9.054	104	.847	4.340
260:00-	280:00	309	2.516	66.382	373	3.037	37.811	318	2.589	20.933	214	1.742	10.796	123	1.001	5.341
280:00-	300:00	249	2.027	68.409	321	2.614	40.425	231	1.891	22.814	190	1.547	12.343	136	1.107	6.448
300:00-	320:00	209	1.702	70.111	224	1.824	42.249	188	1.531	24.344	178	1.449	13.793	126	1.026	7.474
320:00-	340:00	174	1.417	71.527	227	1.848	44.097	174	1.417	25.761	176	1.433	15.225	131	1.067	8.541
340:00-	360:00	143	1.164	72.692	236	1.922	46.018	195	1.588	27.349	154	1.254	16.479	108	.879	9.420
360:00-	380:00	131	1.067	73.758	183	1.490	47.508	190	1.547	28.896	143	1.164	17.644	90	.733	10.153
380:00-	400:00	92	.749	74.507	105	.855	48.363	150	1.221	30.117	113	.839	18.482	119	.969	11.122
400:00-	AND UP	2018	16.430	90.938	3927	31.974	80.337	4643	37.833	67.920	4401	35.833	54.315	3526	29.523	40.645
CASE COUNTS		11149			9867			8342			6571			4992		

Fig. B-19. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 240$ kts.

HISTOGRAM OF TAU

FOR HOUR 11

NUMBER OF SCANS 966

DATA FLYING TIME COUNT 12282

DISCRIMINATION: $V_n < 180$ KT

NOT LESS THAN	NOT LESS THAN	K=1	%	CUM.%	K=2	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	20.00	0	.065	.065	0 0 0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	46	.375	.440	0 0 0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	314	2.557	2.996	0 3	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	754	6.139	9.135	7 5 6	.619	4	.033	.033	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	901	7.336	16.471	19 1 6 2	2.231	21	.171	.204	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	756	6.155	22.627	24 1 9 4	4.209	33	.269	.472	4	.033	.033	0	0.000	0.000
120.00-	140.00	560	4.560	27.186	31 2 5 4	6.733	106	.863	1.335	0	0.000	.114	3	0.000	0.000
140.00-	160.00	539	4.389	31.575	26 2 1 5	8.858	132	1.075	2.410	35	.285	.399	1	0.000	0.000
160.00-	180.00	578	4.706	36.281	35 2 8 0	11.708	174	1.417	3.827	49	.399	.793	12	.098	0.000
180.00-	200.00	526	4.283	40.563	30 2 4 7	14.175	178	1.449	5.276	105	.855	1.653	27	.236	0.34
200.00-	220.00	468	3.908	44.471	32 2 6 0	16.805	173	1.409	6.685	105	.855	2.503	57	.464	0.80
220.00-	240.00	383	3.118	47.590	32 2 6 4	19.459	184	1.498	8.183	103	.839	3.346	64	.521	1.32
240.00-	260.00	408	3.322	50.912	32 2 6 6	22.105	183	1.496	9.673	85	.692	4.033	45	.366	1.69
260.00-	280.00	513	2.548	53.460	33 2 7 8	24.833	203	1.653	11.325	112	.912	4.950	55	.444	2.14
280.00-	300.00	242	1.970	55.431	24 1 9 0	26.803	169	1.376	12.702	114	.928	5.379	51	.415	2.55
300.00-	320.00	215	1.751	57.181	18 1 4 6	28.269	136	1.107	13.809	109	.887	6.766	56	.456	3.01
320.00-	340.00	187	1.523	58.704	16 1 3 8	29.637	156	1.270	15.079	100	.814	7.580	74	.603	3.61
340.00-	360.00	180	1.466	60.169	19 1 5 0	31.216	172	1.400	16.479	108	.879	8.460	57	.460	4.09
360.00-	380.00	141	1.148	61.317	16 1 3 3	32.519	130	1.058	17.538	92	.749	9.209	55	.444	4.54
380.00-	400.00	81	.660	61.977	11 9 6	33.447	111	.904	18.442	85	.692	9.901	72	.586	5.12
400.00-	AND UP	2726	22.195	84.172	428 4 8 0	66.327	4174	33.985	52.426	3379	27.512	37.412	2397	19.533	24.66
CASE COUNTS		10338			83 2		6439			4590			3029		

Fig. B-20. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 180$ kts.

HISTOGRAMS OF TAU

FOR HOUR 11

NUMBER OF SCANS 266

TOTAL FLYING TIME COUNT 12282

FILTERING: $V_n < 120$ KT

UT LESS THAN	UT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	4	.033	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	20	.163	.195	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	133	1.083	1.278	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	400	3.257	4.535	18	.147	.155	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	481	3.916	8.451	72	.586	.741	1	.008	.008	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	466	3.794	12.246	58	.472	1.213	2	.016	.024	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	424	3.452	15.698	115	.936	2.149	11	.090	.114	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	385	3.135	18.833	130	1.058	3.208	34	.277	.391	3	.024	.024	0	0.000	0.000
160.00-	180.00	425	3.460	22.293	147	1.197	4.405	51	.415	.806	3	.024	.049	0	0.000	0.000
180.00-	200.00	383	3.118	25.411	160	1.303	5.708	61	.497	1.303	12	.098	.147	2	.016	.016
200.00-	220.00	374	3.045	28.456	192	1.563	7.271	79	.643	1.946	33	.269	.415	9	.073	.090
220.00-	240.00	316	2.573	31.029	172	1.457	8.728	99	.806	2.752	31	.252	.668	14	.114	.204
240.00-	260.00	338	2.752	33.781	182	1.482	10.210	105	.855	3.607	29	.234	.904	12	.098	.301
260.00-	280.00	301	2.451	36.232	184	1.474	11.684	80	.651	4.258	39	.318	1.221	12	.098	.399
280.00-	300.00	206	1.677	37.909	159	1.298	12.982	78	.635	4.893	49	.399	1.620	11	.090	.489
300.00-	320.00	165	1.343	39.252	126	1.026	14.008	78	.635	5.528	28	.228	1.848	13	.106	.594
320.00-	340.00	153	1.246	40.498	123	1.001	15.009	76	.619	6.147	36	.293	2.141	20	.163	.757
340.00-	360.00	173	1.409	41.907	142	1.156	16.165	97	.790	6.937	39	.318	2.459	18	.147	.904
360.00-	380.00	145	1.181	43.088	125	1.018	17.183	66	.537	7.474	43	.350	2.809	19	.155	1.059
380.00-	400.00	91	.741	43.829	120	.977	18.160	76	.619	8.093	34	.277	3.086	17	.138	1.197
400.00	AND UP	3442	28.025	71.853	3955	32.202	50.358	3094	25.191	33.294	2016	16.414	19.500	1126	9.168	10.365
CASE COUNTS		8825			5195			4088			2395			1273		

Fig. B-21. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 120$ kts.

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12282

FILTERING: V(N) < 60 KT

NOT LESS THAN		BUT LESS THAN		K= 1	%	CUM.%	<= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	<= 5	%	CUM.%
0.00-	20.00	0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	6	.049	6	.049	.049	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	34	.277	34	.277	.326	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	131	1.067	131	1.067	1.392	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	159	1.295	159	1.295	2.687	7	.057	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	128	1.042	128	1.042	3.729	4	.033	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	155	1.262	155	1.262	4.991	15	.122	.220	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	162	1.319	162	1.319	6.310	14	.114	.334	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	212	1.726	212	1.726	8.036	17	.138	.472	1	.008	.008	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	183	1.490	183	1.490	9.526	34	.277	.749	3	.024	.033	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	238	1.938	238	1.938	11.464	65	.529	1.278	17	.138	.171	4	.033	.033	0	0.000	0.000
220.00-	240.00	193	1.571	193	1.571	13.035	56	.456	1.734	16	.130	.301	6	.049	.081	2	.016	.016
240.00-	260.00	199	1.620	199	1.620	14.656	68	.554	2.288	20	.163	.464	1	.008	.090	0	0.000	.016
260.00-	280.00	146	1.189	146	1.189	15.844	64	.521	2.809	11	.090	.554	1	.008	.098	0	0.000	.016
280.00-	300.00	103	.839	103	.839	16.683	39	.318	3.127	9	.073	.627	1	.008	.106	0	0.000	.016
300.00-	320.00	85	.692	85	.692	17.375	47	.383	3.509	14	.114	.741	2	.016	.122	0	0.000	.016
320.00-	340.00	105	.855	105	.855	18.230	67	.546	4.055	17	.138	.879	3	.024	.147	0	0.000	.016
340.00-	360.00	127	1.034	127	1.034	19.264	62	.505	4.560	18	.147	1.026	6	.049	.195	1	.008	.024
360.00-	380.00	143	1.164	143	1.164	20.428	57	.464	5.024	19	.155	1.181	12	.098	.293	3	.024	.049
380.00-	400.00	93	.757	93	.757	21.185	59	.480	5.504	29	.236	1.417	3	.024	.315	1	.008	.057
400.00-	AND UP	3277	26.681	3277	26.681	47.867	2585	21.047	26.551	1425	11.602	13.019	642	5.227	5.545	229	1.865	1.922
CASE COUNTS				5879			3261			1599			581			236		

Fig. B-22. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: V_n < 60 kts.

HISTOGRAMS OF TAU FOR HOUR 11

NUMBER OF SCANS 968

TOTAL FLYING TIME COUNT 12282

FILTERING: $V(N) < 30$ KT

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.07- 20.00		0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.07- 40.00		2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.07- 60.00		10	.081	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.07- 80.00		34	.277	.375	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.07- 100.00		51	.415	.790	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.07- 120.00		30	.244	1.034	0	0.000	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.07- 140.00		53	.432	1.466	1	.008	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.07- 160.00		40	.399	1.865	1	.008	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.07- 180.00		110	.896	2.760	2	.016	.041	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.07- 200.00		84	.684	3.444	10	.081	.122	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.07- 220.00		119	.969	4.413	20	.163	.285	3	.024	.024	0	0.000	0.000	0	0.000	0.000
220.07- 240.00		109	.887	5.300	14	.114	.399	4	.033	.057	1	.008	.008	0	0.000	0.000
240.07- 260.00		82	.668	5.968	11	.090	.489	3	.024	.081	0	0.000	.008	0	0.000	0.000
260.07- 280.00		46	.375	6.343	14	.114	.603	0	0.000	.081	0	0.000	.008	0	0.000	0.000
280.07- 300.00		46	.375	6.717	5	.041	.643	1	.008	.090	0	0.000	.008	0	0.000	0.000
300.07- 320.00		40	.326	7.043	18	.147	.790	2	.016	.106	0	0.000	.008	0	0.000	0.000
320.07- 340.00		58	.472	7.515	25	.204	.993	3	.024	.130	0	0.000	.008	0	0.000	0.000
340.07- 360.00		34	.265	8.280	15	.122	1.115	1	.008	.136	0	0.000	.008	0	0.000	0.000
360.07- 380.00		100	.814	9.095	19	.155	1.270	7	.057	.195	0	0.000	.008	0	0.000	0.000
380.07- 400.00		70	.570	9.665	17	.138	1.409	0	0.000	.195	1	.008	.016	0	0.000	0.000
400.07- 410.00		2377	19.353	29.018	1127	9.176	10.545	396	3.224	3.420	177	.871	.887	17	.138	.138
CASE COUNTS		3564			1300			420			109			17		

Fig. B-23. Histogram data from hour 11. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 30$ kts.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	.02	15	.122	99.674	79	.643	99.316	215	1.770	98.185	446	3.631	96.288	802	6.529	92.144
.02-	.04	21	.171	99.552	35	.285	98.673	56	.426	96.434	96	.782	92.657	142	1.156	85.615
.04-	.06	4	.033	99.381	33	.269	98.388	49	.399	95.978	110	.895	91.875	195	1.587	84.459
.06-	.08	9	.073	99.349	27	.220	98.119	66	.537	95.579	193	1.571	90.980	261	2.125	82.872
.08-	.10	6	.049	99.275	17	.136	97.899	90	.733	95.042	164	1.335	89.409	206	1.677	80.747
.10-	.25	156	1.270	99.227	463	3.769	97.761	890	7.245	94.310	1326	10.794	88.074	1750	14.246	79.070
.25-	.50	432	3.517	97.957	844	6.871	93.992	1350	10.990	87.064	1879	15.296	77.279	1923	15.654	64.824
.50-	.75	325	2.646	94.440	666	5.422	87.121	1049	8.540	76.074	1152	9.378	61.983	1230	10.013	49.170
.75-	1.00	308	2.507	91.794	610	4.966	81.700	909	7.400	67.535	1032	8.401	52.605	994	8.092	39.156
1.00-	1.25	271	2.206	89.287	540	4.396	76.734	724	5.894	60.135	721	5.869	44.204	675	5.495	31.065
1.25-	1.50	245	1.994	87.081	486	3.956	72.338	552	4.494	54.241	564	4.591	38.334	518	4.217	25.571
1.50-	1.75	216	1.758	85.086	438	3.566	68.381	507	4.127	49.748	534	4.347	33.743	416	3.387	21.353
1.75-	2.00	209	1.701	83.328	334	2.719	64.816	379	3.085	45.620	404	3.289	29.396	300	2.442	17.466
2.00-	2.25	152	1.237	81.626	311	2.532	62.097	323	2.629	42.535	343	2.792	26.107	247	2.011	15.524
2.25-	2.50	142	1.156	80.389	255	2.076	59.565	296	2.410	39.906	259	1.946	23.315	164	1.335	13.513
2.50-	5.00	1204	9.801	79.233	1809	14.726	57.489	1841	14.987	37.496	1379	11.226	21.369	1056	8.597	12.178
5.00-	10.00	1598	13.009	69.432	1753	14.271	42.763	1430	11.641	22.509	862	7.017	10.143	403	3.281	3.582
10.00-	20.00	1643	13.375	56.423	1704	13.872	28.492	1015	8.263	10.868	360	2.931	3.126	37	.301	.301
20.00-	40.00	2156	17.551	43.048	1190	9.687	14.621	272	2.214	2.605	24	.195	.195	0	0.000	0.000
40.00-	80.00	1624	13.220	25.497	475	3.867	4.933	41	.334	.391	0	0.000	0.000	0	0.000	0.000
80.00-	160.00	1015	8.263	12.276	120	.977	1.066	7	.057	.057	0	0.000	0.000	0	0.000	0.000
160.00-	400.00	413	3.362	4.013	11	.090	.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00	AND UP	80	.651	3.642	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		12244			12200			12061			11828			11319		

Fig. B-24. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12284

FILTERING: 4000' ALT. DIFF.

OT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	.02	15	.122	99.658	79	.643	99.218	215	1.750	98.087	445	3.623	96.076	820	6.675	92.006
.02-	.04	21	.171	99.536	35	.285	98.575	56	.456	96.336	98	.798	92.453	148	1.205	85.330
.04-	.06	4	.033	99.365	34	.277	98.290	53	.431	95.881	111	.904	91.656	202	1.644	84.125
.06-	.08	10	.081	99.332	27	.220	98.013	64	.521	95.449	126	1.596	90.752	269	2.190	82.481
.08-	.10	6	.049	99.251	17	.138	97.774	97	.790	94.928	167	1.359	89.156	207	1.685	80.291
.10-	.25	160	1.303	99.202	467	3.802	97.655	889	7.237	94.138	1334	10.860	87.797	1717	13.978	78.606
.25-	.50	437	3.557	97.899	836	6.806	93.854	1346	10.957	86.901	1864	15.174	76.937	1934	15.744	64.628
.50-	.75	327	2.662	94.342	673	5.479	87.048	1055	8.588	75.944	1153	9.386	61.763	1230	10.013	48.885
.75-	1.00	314	2.556	91.680	607	4.941	81.569	905	7.367	67.356	1020	8.303	52.377	977	7.953	38.872
1.00-	1.25	272	2.214	89.124	541	4.404	76.628	708	5.764	59.989	712	5.796	44.073	660	5.373	30.918
1.25-	1.50	244	1.986	86.910	480	3.908	72.224	550	4.477	54.225	562	4.575	38.277	515	4.192	25.545
1.50-	1.75	216	1.758	84.923	439	3.574	68.316	508	4.135	49.748	529	4.306	33.702	416	3.387	21.353
1.75-	2.00	210	1.710	83.165	334	2.719	64.742	378	3.077	45.612	404	3.289	29.396	300	2.442	17.966
2.00-	2.25	152	1.237	81.455	311	2.532	62.024	323	2.629	42.535	343	2.792	26.107	247	2.011	15.524
2.25-	2.50	142	1.156	80.218	255	2.076	59.492	296	2.410	39.986	239	1.944	23.315	164	1.335	13.513
2.50-	3.00	1204	9.801	79.062	1803	14.678	57.416	1841	14.987	37.496	1379	11.226	21.369	1056	8.597	12.178
3.00-	5.00	1601	13.033	69.261	1750	14.246	42.738	1430	11.641	22.509	862	7.017	10.143	403	3.281	3.582
5.00-	10.00	1643	13.375	56.227	1704	13.872	28.492	1015	8.263	10.868	360	2.931	3.126	37	.301	.301
10.00-	20.00	2146	17.470	42.852	1190	9.687	14.621	272	2.214	2.605	24	.195	.195	0	0.000	0.000
20.00-	40.00	1618	13.172	25.383	475	3.867	4.933	41	.334	.391	0	0.000	0.000	0	0.000	0.000
40.00-	80.00	1007	8.198	12.211	120	.977	1.066	7	.057	.057	0	0.000	0.000	0	0.000	0.000
80.00-	160.00	413	3.362	4.013	11	.090	.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	400.00	80	.651	3.362	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00	AND UP															

CASE COUNTS 12242

12188

12049

11802

11302

Fig. B-25. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $|AA| < 4000$ ft.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 960

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 2000' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	.02	76	.619	98.648	531	4.323	93.976	875	7.125	84.562	1028	8.369	72.281	968	7.880	59.386
.02-	.04	11	.090	98.738	46	.374	99.653	115	.936	77.442	230	1.872	63.912	248	2.019	51.586
.04-	.06	21	.171	97.940	67	.545	99.279	143	1.164	76.506	180	1.465	62.040	157	1.278	49.487
.06-	.08	31	.252	97.769	51	.415	98.733	128	1.042	75.342	184	1.498	60.575	205	1.669	48.289
.08-	.10	23	.187	97.517	60	.486	98.318	103	.838	74.300	138	1.123	59.077	181	1.473	46.540
.10-	.12	227	1.848	97.330	666	5.422	97.830	1019	8.292	73.461	1207	9.826	57.953	1259	10.249	45.067
.12-	.15	611	4.974	95.482	1091	8.861	92.478	1355	11.031	65.166	1489	12.121	48.127	1449	11.796	34.818
.15-	.20	508	4.132	90.508	982	7.100	73.526	1049	8.540	54.132	1097	8.930	36.006	1032	8.401	23.022
.20-	.25	412	3.354	86.672	667	5.430	66.346	872	7.099	45.596	656	5.340	27.076	449	3.655	14.621
.25-	1.00	318	2.524	83.018	545	4.437	50.917	563	4.583	38.497	432	3.517	21.736	299	2.434	10.965
1.00-	1.25	289	2.353	80.495	420	3.464	46.450	403	3.281	33.919	291	2.369	18.219	231	1.880	8.531
1.25-	1.50	228	1.856	78.142	404	3.289	42.946	321	2.613	30.633	221	1.799	15.850	128	1.042	6.651
1.50-	2.00	243	1.976	76.236	304	2.475	49.737	255	2.076	28.020	205	1.669	14.051	94	.765	5.609
2.00-	2.25	204	1.661	74.308	268	2.182	47.232	221	1.799	25.944	166	1.351	12.382	89	.725	4.844
2.25-	2.50	177	1.441	72.647	199	1.620	45.050	172	1.400	24.145	115	.936	11.031	55	.448	4.119
2.50-	5.00	1252	10.192	71.246	1441	11.731	43.430	1092	8.990	22.745	698	5.682	10.094	324	2.638	3.671
5.00-	10.00	1465	11.926	51.014	1205	9.809	31.710	832	6.773	13.855	352	2.866	4.412	118	.961	1.704
10.00-	20.00	1415	11.519	49.088	1276	10.404	21.890	635	5.159	7.082	175	1.425	1.547	9	.073	.073
20.00-	40.00	1770	14.409	37.569	664	7.034	11.436	167	1.322	1.914	15	.122	.122	0	0.000	0.000
40.00-	80.00	1367	11.291	23.160	418	3.403	4.453	41	.334	.391	0	0.000	0.000	0	0.000	0.000
80.00-	160.00	970	7.970	11.069	116	.961	1.050	7	.057	.057	0	0.000	0.000	0	0.000	0.000
160.00-	400.00	401	3.264	3.899	11	.090	.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00	Avg OP	78	.635	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000

CASE COUNTS 12118 11544 10388 8879 7295

Fig. B-26. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 2000$ ft.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12284

FILTERING: 12.0 DEG. ANGULAR

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	.02	15	.122	99.674	79	.643	99.300	215	1.750	98.185	445	3.623	96.279	802	6.529	92.144
.02-	.04	21	.171	99.552	35	.285	98.656	56	.456	96.434	96	.782	92.657	142	1.156	85.615
.04-	.06	4	.033	99.381	33	.269	98.372	49	.399	95.978	110	.895	91.875	195	1.587	84.459
.06-	.08	9	.073	99.349	27	.220	98.183	66	.537	95.579	193	1.571	90.980	263	2.141	82.872
.08-	.10	6	.049	99.275	17	.138	97.843	92	.749	95.042	164	1.335	89.409	204	1.661	80.731
.10-	.25	160	1.303	99.227	461	3.753	97.745	889	7.237	94.293	1327	10.803	88.074	1750	14.246	79.070
.25-	.50	432	3.517	97.924	845	6.879	93.932	1350	10.990	87.056	1878	15.288	77.271	1923	15.654	64.824
.50-	.75	325	2.646	94.407	667	5.430	87.113	1048	8.531	76.066	1152	9.378	61.983	1231	10.021	49.170
.75-	1.00	309	2.519	91.761	609	4.958	81.683	910	7.408	67.535	1034	8.417	52.605	994	8.092	39.148
1.00-	1.25	271	2.206	89.246	541	4.404	76.726	723	5.886	60.127	722	5.878	44.187	674	5.487	31.057
1.25-	1.50	247	2.011	87.040	484	3.940	72.322	552	4.494	54.241	554	4.591	38.310	519	4.225	25.570
1.50-	1.75	216	1.758	85.029	438	3.566	68.381	507	4.127	49.748	534	4.347	33.719	417	3.395	21.345
1.75-	2.00	209	1.701	83.271	334	2.719	64.816	379	3.085	45.620	405	3.297	29.371	299	2.434	17.950
2.00-	2.25	151	1.229	81.569	311	2.532	62.037	323	2.629	42.535	343	2.792	26.074	247	2.011	15.516
2.25-	2.50	142	1.156	80.340	255	2.076	59.565	296	2.410	39.966	240	1.954	23.282	163	1.327	13.255
2.50-	5.00	1205	9.809	79.184	1809	14.726	57.489	1845	15.019	37.496	1374	11.185	21.328	1056	8.597	12.178
5.00-	10.00	1599	13.017	69.379	1756	14.295	42.763	1426	11.609	22.476	852	7.017	10.143	403	3.281	3.582
10.00-	20.00	1646	13.400	56.358	1701	13.847	28.468	1015	8.253	10.868	360	2.931	3.126	37	.301	.301
20.00-	40.00	2156	17.551	42.958	1196	9.687	14.621	272	2.214	2.695	24	.195	.195	0	0.000	0.000
40.00-	80.00	1624	13.220	25.407	479	3.867	4.933	41	.334	.391	0	0.000	0.000	0	0.000	0.000
80.00-	160.00	1010	8.222	12.187	120	.977	1.066	7	.057	.057	0	0.000	0.000	0	0.000	0.000
160.00-	400.00	412	3.354	3.964	11	.090	.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00-	AND UP	75	.611	3.354	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		12244			12198			12061			11827			11319		

Fig. B-29. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 12$ deg.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLIGHT TIME COUNT 12284

FILTERING: 6.0 DEG. ANGULAR

NOT LESS THAN		NOT LESS THAN		K= 1		K= 2		K= 3		K= 4		K= 5				
		%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%			
0.00-	.02	15	.122	99.874	79	.643	99.300	216	1.758	98.070	452	3.680	96.239	792	6.447	92.046
.02-	.04	21	.171	99.552	35	.285	98.656	56	.456	96.312	96	.782	92.559	143	1.164	85.599
.04-	.06	4	.033	99.381	33	.269	98.372	50	.407	95.856	110	.895	91.778	205	1.669	84.435
.06-	.08	9	.073	99.349	29	.236	98.103	65	.529	95.449	192	1.563	90.882	265	2.157	82.766
.08-	.10	6	.049	99.275	17	.138	97.867	94	.765	94.920	165	1.343	89.319	207	1.685	80.609
.10-	.125	163	1.327	99.227	475	3.867	97.729	882	7.190	94.155	1335	10.868	87.976	1745	14.205	78.924
.125-	.15	438	3.566	97.899	843	6.863	93.862	1362	11.088	86.975	1877	15.280	77.108	1917	15.606	64.718
.15-	.175	326	2.654	94.334	672	5.471	86.999	1055	8.588	75.887	1149	9.354	61.828	1246	10.143	49.113
.175-	1.00	312	2.540	91.680	614	4.998	81.529	909	7.400	67.299	1041	8.474	52.474	1020	8.303	38.969
1.00-	1.25	272	2.214	89.140	543	4.420	76.530	722	5.878	59.899	727	5.918	44.000	704	5.731	30.666
1.25-	1.50	248	2.019	86.920	491	3.997	72.110	553	4.502	54.021	590	4.803	38.082	528	4.298	24.935
1.50-	1.75	217	1.767	84.907	439	3.574	68.113	527	4.290	49.520	542	4.412	33.279	426	3.468	20.637
1.75-	2.00	212	1.726	83.140	336	2.752	64.539	362	3.110	45.229	437	3.557	28.867	281	2.288	17.169
2.00-	2.25	122	1.237	81.415	316	2.572	61.708	332	2.703	42.120	351	2.857	25.309	228	1.856	14.881
2.25-	2.50	143	1.164	80.177	257	2.092	59.215	300	2.442	39.417	244	1.986	22.452	153	1.246	13.025
2.50-	3.00	1224	9.964	79.013	1833	14.922	47.123	1880	15.304	36.975	1346	10.957	20.466	1029	8.377	11.780
3.00-	10.00	1640	13.351	69.049	1789	14.564	42.201	1408	11.452	21.670	822	6.692	9.508	384	3.126	3.403
10.00-	20.00	1694	13.823	55.698	1705	13.880	27.638	969	7.868	10.208	323	2.629	2.817	34	.277	.277
20.00-	40.00	2109	17.113	41.875	1119	9.109	13.758	243	1.978	2.320	23	.187	.187	0	0.000	0.000
40.00-	80.00	1575	12.822	24.463	455	3.704	4.648	36	.293	.342	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	977	7.953	11.641	108	.879	.944	6	.049	.049	0	0.000	0.000	0	0.000	0.000
100.00-	400.00	367	3.150	3.688	8	.065	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00-	∞	66	.537	4.196	0	0.000	4.196	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000

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Fig. B-30. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2_{τ}) encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 6$ deg.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 960

TOTAL FLYING TIME COUNT 12282

FILTERING: VDOT/VC < .009

NOT LESS THAN	NOT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	.10	206	1.922	90.742	457	3.7	19.950	556	4.527	67.147	571	4.649	54.299	540	4.397	43.144
.10-	.50	1207	5.827	38.021	2184	17.7	76.209	2724	22.179	62.620	2657	21.715	49.650	2465	20.070	38.748
.50-	1.00	1127	4.176	78.993	1711	13.9	58.447	1706	13.890	40.441	1558	12.767	27.935	1288	10.487	18.678
1.00-	2.00	1427	11.619	59.017	1777	14.4	44.496	1469	11.961	26.551	1043	8.492	15.169	584	4.769	8.191
2.00-	5.00	1659	13.536	58.199	1563	12.7	30.028	1150	9.363	14.590	719	5.854	6.676	313	2.548	2.622
5.00-	10.00	1406	11.448	43.063	1047	8.5	16.427	467	3.802	5.227	21	.741	.822	9	.073	.073
10.00-	20.00	1537	12.514	31.010	598	4.8	7.963	157	1.278	1.425	10	.081	.081	0	0.000	0.000
20.00-	30.00	840	6.839	19.101	170	1.3	2.210	14	.114	.147	0	0.000	0.000	0	0.000	0.000
30.00-	45.00	573	4.665	12.262	62	.5	.896	3	.024	.033	0	0.000	0.000	0	0.000	0.000
45.00-	60.00	324	2.638	7.596	27	.2	.391	1	.008	.008	0	0.000	0.000	0	0.000	0.000
60.00-	75.00	195	1.588	4.958	9	.0	.171	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
75.00-	90.00	133	1.083	3.371	7	.0	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
90.00-	120.00	130	1.058	2.288	4	.0	.041	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	180.00	83	.676	1.229	1	.0	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	270.00	38	.309	.554	0	0.0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
270.00-	360.00	14	.114	.244	0	0.0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
360.00	AND UP	16	.130	.130	0	0.0	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		11145			9817			8247			6569			5299		

Fig. B-33. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $R/R < .009 \text{ sec.}^{-1}$.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12282

FILTERING: VCDOT/VC < .005

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NOT LESS THAN		BUT LESS THAN		K= 1		K= 2		K= 3		K= 4		K= 5	
		%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.00-	.02	91	.741	81	.660	68	.554	40	.324	47	.393	47	.393
.02-	.04	85	.692	72	.586	73	.594	32	.668	48	.637	48	.637
.04-	.06	51	.415	77	.627	83	.676	78	.635	62	.505	62	.505
.06-	.08	60	.489	126	1.026	109	.897	107	.871	105	.855	105	.855
.08-	.10	63	.513	100	.814	102	.830	112	.912	102	.830	102	.830
.10-	.25	584	4.755	919	7.482	1102	8.972	1057	8.443	938	7.637	938	7.637
.25-	.50	840	6.839	1304	10.617	1378	11.220	1213	9.876	1045	8.508	1045	8.508
.50-	.75	663	5.398	945	7.694	875	7.124	730	5.944	553	4.503	553	4.503
.75-	1.00	607	4.942	774	6.302	614	4.999	426	3.468	260	2.117	260	2.117
1.00-	1.25	438	3.566	567	4.617	381	3.102	252	2.133	145	1.181	145	1.181
1.25-	1.50	398	3.241	382	3.110	306	2.491	192	1.482	99	.806	99	.806
1.50-	1.75	341	2.776	337	2.744	205	1.659	130	1.058	68	.554	68	.554
1.75-	2.00	311	2.532	249	2.027	156	1.270	94	.765	39	.318	39	.318
2.00-	2.25	273	2.223	182	1.482	118	.951	74	.603	26	.212	26	.212
2.25-	2.50	186	1.514	150	1.221	90	.733	55	.448	20	.163	20	.163
2.50-	5.00	1396	11.366	960	7.816	544	4.429	200	1.628	52	.423	52	.423
5.00-	10.00	1239	10.088	578	4.670	194	1.590	20	.163	1	.008	1	.008
10.00-	20.00	1254	10.210	368	2.996	56	.456	2	.016	0	0.000	0	0.000
20.00-	40.00	891	7.255	104	.847	9	.073	0	0.000	0	0.000	0	0.000
40.00-	80.00	439	3.574	16	.130	1	.008	0	0.000	0	0.000	0	0.000
80.00-	160.00	182	1.482	2	.016	0	0.000	0	0.000	0	0.000	0	0.000
160.00-	400.00	46	.375	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
400.00-	AND UP	10	.081	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
CASE COUNTS		10448		9393		6464		4844		3610			

Fig. B-34. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $R/R < .005 \text{ sec.}^{-1}$.

HISTOGRAMS OF BETA FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12282

FILTERING: VCDOT/VC < .001

NOT LESS THAN	NOT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	.02	81	.660	.660	40	.326	.326	26	.212	.212	16	.130	.130	24	.195	.195
.02-	.04	65	.529	54.291	32	.261	30.671	31	.252	17.782	15	.122	9.925	13	.106	4.918
.04-	.06	72	.586	53.761	67	.546	50.410	46	.375	17.530	37	.301	9.803	25	.204	4.812
.06-	.08	100	.814	53.175	64	.521	29.865	37	.301	17.155	42	.342	9.502	24	.195	4.608
.08-	.10	74	.603	52.361	57	.464	29.344	54	.440	16.854	50	.407	9.160	19	.155	4.453
.10-	.125	640	5.211	51.759	612	4.983	28.880	527	4.291	16.414	382	3.110	8.753	238	1.938	4.258
.125-	.150	901	7.336	46.548	834	6.790	23.897	580	4.722	12.123	377	3.070	5.642	173	1.409	2.320
.150-	.175	613	4.991	39.212	575	4.682	17.106	333	2.711	7.401	142	1.156	2.573	64	.521	.912
.175-	1.00	514	4.185	34.221	381	3.102	12.425	205	1.669	4.690	92	.749	1.417	33	.269	.391
1.00-	1.25	339	2.760	30.036	237	1.930	9.323	100	.814	3.021	33	.269	.668	9	.073	.122
1.25-	1.50	296	2.410	27.276	173	1.409	7.393	81	.660	2.206	23	.187	.399	3	.024	.049
1.50-	1.75	261	2.125	24.866	120	.977	5.984	58	.472	1.547	11	.090	.212	2	.016	.024
1.75-	2.00	187	1.523	22.741	71	.578	5.007	29	.236	1.075	4	.033	.122	1	.008	.008
2.00-	2.25	179	1.457	21.218	67	.546	4.429	26	.212	.839	2	.016	.090	0	0.000	0.000
2.25-	2.50	93	.757	19.761	43	.350	3.884	8	.065	.627	4	.033	.073	0	0.000	0.000
2.50-	5.00	785	6.391	19.003	286	2.329	3.534	54	.440	.562	5	.041	.041	0	0.000	0.000
5.00-	10.00	603	4.910	12.612	92	.749	1.205	15	.122	.122	0	0.000	0.000	0	0.000	0.000
10.00-	20.00	484	3.941	7.702	34	.277	.456	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	45.00	311	2.532	3.762	19	.155	.179	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	90.00	91	.741	1.229	3	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
90.00-	150.00	42	.342	.489	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
150.00-	400.00	16	.130	.147	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00	AND UP	2	.016	1.38	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		6749			3807			2210			1235			628		

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Fig. B-3b. Histogram data from hour 11. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $\dot{R}/R < .001 \text{ sec.}^{-1}$.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 960

TOTAL FLYING TIME COUNT 12282

FILTERING: NONE

UT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.016	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	12	.098	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	17	.098	.228	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	62	.505	.733	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	254	2.068	2.801	6	.049	.049	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	665	5.414	8.215	59	.480	.529	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	1291	10.511	18.727	271	2.206	2.736	16	.130	.130	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	1442	11.741	30.467	350	5.292	8.028	103	.839	.969	3	.024	.024	0	0.000	0.000
45.00-	50.00	1702	13.858	44.325	1130	9.200	17.228	324	2.538	3.607	57	.464	.489	1	.008	.008
50.00-	55.00	1332	10.845	55.170	1190	9.669	26.917	740	6.066	9.673	278	2.263	2.752	25	.204	.212
55.00-	60.00	1079	8.785	63.955	1172	9.542	36.460	874	7.116	16.789	408	3.329	6.481	167	1.360	1.571
60.00-	65.00	864	7.035	70.990	1003	8.166	44.626	803	6.538	23.327	547	4.454	10.935	295	2.402	3.973
65.00-	70.00	646	5.260	76.250	597	7.303	51.929	1068	8.696	32.022	684	5.569	16.504	441	3.591	7.564
70.00-	75.00	514	4.185	80.435	446	7.702	59.632	1014	8.256	40.278	708	5.747	23.001	651	5.300	12.864
75.00-	80.00	471	3.835	84.269	376	7.132	66.764	1019	8.297	48.575	992	8.077	31.078	789	6.424	19.288
80.00-	85.00	428	3.485	87.754	385	7.206	73.970	1079	8.785	57.360	1234	10.047	41.125	977	7.955	27.243
85.00-	90.00	313	2.548	90.303	524	5.081	79.051	942	7.670	65.030	1110	9.038	50.163	1029	8.378	35.621
90.00-	95.00	229	1.865	92.167	336	4.364	83.415	838	6.823	71.853	1054	8.582	58.744	965	7.857	43.478
95.00-	100.00	238	1.938	94.105	428	3.485	86.899	661	5.382	77.239	817	6.652	65.396	937	7.629	51.107
100.00-	110.00	332	2.703	96.808	560	5.374	92.273	1001	8.150	85.385	1349	10.984	76.380	1544	12.571	63.673
110.00-	120.00	201	1.637	98.445	364	2.964	95.237	601	4.893	90.278	975	7.938	84.318	1221	9.941	73.621
120.00-	130.00	68	.554	98.999	270	2.198	97.435	536	4.364	94.642	723	5.887	90.205	780	6.351	79.970
130.00-	140.00	55	.448	99.446	149	1.213	98.648	278	2.263	96.906	342	2.785	92.990	682	5.553	85.523
140.00-	150.00	6	.049	99.495	34	.277	98.925	73	.594	97.500	199	1.620	94.610	294	2.394	87.917
150.00-	160.00	16	.130	99.625	11	.090	99.015	20	.163	97.663	57	.464	95.074	135	1.107	89.024
160.00-	170.00	3	.024	99.650	21	.171	99.186	23	.187	97.850	28	.228	95.302	55	.456	89.480
170.00-	180.00	0	0.000	99.650	3	.024	99.210	9	.073	97.924	25	.204	95.505	3	.024	89.504
180.00-	200.00	0	0.000	99.650	1	.008	99.218	0	0.000	97.924	0	0.000	95.505	0	0.000	89.504
200.00-	AND UP	0	0.000	99.650	0	0.000	99.218	0	0.000	97.924	0	0.000	95.505	0	0.000	89.504

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CASE COUNTS 12239 12186 12027 11730 10998

Fig. B-37. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12282

FILTERING: 1000' ALT. DIFF.

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UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.016	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.049	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.049	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	56	.456	.586	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	198	1.612	2.196	6	.049	.049	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	497	4.047	6.243	30	.244	.293	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	943	7.678	13.923	163	1.327	1.620	9	.074	.074	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	1017	8.280	22.203	394	3.208	4.828	45	.366	.391	1	.008	.008	0	0.000	0.000
45.00-	50.00	1171	9.534	31.737	568	4.625	9.453	143	1.164	1.555	11	.090	.098	0	0.000	0.000
50.00-	55.00	1063	8.655	40.392	570	4.655	14.908	284	2.329	3.834	43	.350	.448	0	0.000	0.000
55.00-	60.00	1013	8.248	48.640	519	4.248	19.948	327	2.652	6.546	119	.969	1.417	17	.138	.513
60.00-	65.00	723	5.887	54.527	221	1.822	24.170	254	2.068	8.614	108	.879	2.296	21	.171	.309
65.00-	70.00	776	6.318	60.845	565	4.600	28.770	404	3.299	11.904	160	1.303	3.599	37	.301	.611
70.00-	75.00	595	4.844	65.689	574	4.688	34.278	365	2.972	14.875	159	1.295	4.893	55	.448	1.059
75.00-	80.00	584	4.764	70.453	552	4.509	39.506	499	4.065	18.938	219	1.783	6.676	74	.603	1.661
80.00-	85.00	538	4.380	74.833	599	4.891	44.278	519	4.226	23.164	359	2.917	9.844	202	1.645	3.305
85.00-	90.00	422	3.436	78.269	738	6.009	50.286	465	3.786	26.950	292	2.377	12.221	197	1.604	4.910
90.00-	95.00	302	2.459	80.728	553	4.503	54.789	611	4.975	31.925	362	2.947	15.169	210	1.710	6.619
95.00-	100.00	338	2.752	83.480	577	4.698	60.487	540	4.462	36.386	492	4.006	19.174	293	2.386	9.005
100.00-	110.00	601	4.893	88.373	550	4.503	64.990	1107	9.002	45.388	999	8.134	27.308	765	6.229	15.234
110.00-	120.00	500	4.065	92.438	524	4.266	69.256	659	5.367	50.753	718	5.846	33.154	674	5.488	20.721
120.00-	130.00	211	1.718	94.156	599	4.891	74.147	494	4.022	54.775	558	4.543	37.697	583	4.737	25.459
130.00-	140.00	110	.896	95.052	519	4.248	78.395	516	4.201	58.976	470	3.827	41.524	491	3.998	29.457
140.00-	150.00	36	.293	95.345	63	.513	78.908	171	1.392	60.368	317	2.581	44.105	375	3.053	32.510
150.00-	160.00	7	.057	95.402	50	.407	78.701	46	.375	61.325	118	.961	45.066	176	1.433	33.943
160.00-	170.00	0	0.000	95.402	8	.065	78.766	22	.179	61.504	45	.366	45.432	66	.537	34.480
170.00-	180.00	0	0.000	95.402	5	.041	78.807	24	.195	61.700	4	.033	45.465	5	.041	34.521
180.00-	200.00	0	0.000	95.402	0	0.000	78.807	0	0.000	61.700	0	0.000	45.465	0	0.000	34.521
200.00	AND UP	0	0.000	95.402	0	0.000	78.807	0	0.000	61.700	0	0.000	45.465	0	0.000	34.521
CASE COUNTS		11437			9748			7578			5584			4247		

Fig. B-38. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED-TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 1000$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 966

TOTAL FLYING TIME COUNT 12282

FILTERING: 500' ALT. DIFF.

06

GT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.016	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.049	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	4	.033	.114	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	14	.114	.228	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	50	.407	.635	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	195	1.588	2.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	452	3.680	5.903	43	.350	.350	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	506	4.120	10.023	125	1.018	1.368	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	638	5.195	15.217	169	1.376	2.744	14	.114	.114	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	672	5.471	20.689	212	1.726	4.470	24	.195	.309	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	913	7.434	28.122	193	1.571	6.041	17	.138	.448	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	609	4.958	33.081	206	1.677	7.719	20	.163	.611	5	.041	.041	0	0.000	0.000
65.00-	70.00	656	5.341	38.422	294	2.394	10.112	62	.505	1.115	8	.065	.106	0	0.000	0.000
70.00-	75.00	537	4.372	42.794	396	3.224	13.337	66	.537	1.653	13	.106	.212	0	0.000	0.000
75.00-	80.00	493	4.014	46.808	408	3.322	16.658	132	1.075	2.728	19	.155	.366	0	0.000	0.000
80.00-	85.00	508	4.025	51.433	329	4.307	20.966	178	1.449	4.177	34	.277	.643	7	.057	.057
85.00-	90.00	535	4.356	55.789	472	3.843	24.809	168	1.368	5.545	65	.529	1.172	5	.049	.105
90.00-	95.00	360	2.931	58.720	400	3.257	28.065	237	1.930	7.474	64	.684	1.856	20	.163	.269
95.00-	100.00	532	4.332	63.052	390	3.175	31.241	257	2.092	9.567	66	.700	2.557	39	.318	.585
100.00-	110.00	787	6.408	69.459	980	7.979	39.220	762	6.204	15.771	343	2.793	5.349	143	1.154	1.751
110.00-	120.00	301	2.939	72.398	570	4.641	43.861	530	4.315	20.086	363	2.956	8.305	173	1.409	3.159
120.00-	130.00	203	2.304	74.703	410	3.338	47.199	518	4.218	24.304	309	2.760	11.065	309	2.516	5.675
130.00-	140.00	235	1.913	76.616	359	2.923	50.122	233	1.897	26.201	293	2.386	13.451	142	1.156	6.831
140.00-	150.00	70	.570	77.186	180	1.466	51.588	171	1.392	27.593	126	1.026	14.476	84	.694	7.515
150.00-	160.00	22	.179	77.365	55	.448	52.035	109	.887	28.481	165	.855	15.331	37	.301	7.815
160.00-	170.00	8	.065	77.430	13	.106	52.141	77	.627	29.108	66	.456	15.787	21	.171	7.987
170.00-	180.00	8	.065	77.495	2	.016	52.158	2	.016	29.124	0	0.000	15.787	0	0.000	7.987
180.00-	200.00	0	0.000	77.495	0	0.000	52.158	0	0.000	29.124	0	0.000	15.787	0	0.000	7.987
200.00-	AN'D UP	0	0.000	77.495	0	0.000	52.158	0	0.000	29.124	0	0.000	15.787	0	0.000	7.987
CASE COUNTS		9518			6406			3577			1939			991		

Fig. B-39. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

BEST GRAMS - MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 456

TOTAL FLIGHT TIME COUNT 12292

FILTERING: V(D) < 240 KTS

UT LESS THAN	UT LESS THAN	N	CUM. %	N	CUM. %	N	CUM. %	N	CUM. %	N	CUM. %	N	CUM. %	N	CUM. %
		K=1		K=2		K=3		K=4		K=5					
0.00-	5.00	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
5.00-	10.00	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
10.00-	15.00	6	0.049	6	0.049	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
15.00-	20.00	6	0.049	12	0.098	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
20.00-	25.00	34	0.277	46	0.375	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
25.00-	30.00	145	1.181	160	1.303	1	0.008	0	0.000	0	0.000	0	0.000	0	0.000
30.00-	35.00	430	3.501	590	4.804	24	0.196	0	0.000	0	0.000	0	0.000	0	0.000
35.00-	40.00	232	1.884	822	6.688	97	0.790	3	0.024	0	0.000	0	0.000	0	0.000
40.00-	45.00	1022	8.321	1844	15.009	242	1.972	27	0.220	0	0.000	0	0.000	0	0.000
45.00-	50.00	1276	10.382	3120	25.391	497	4.047	77	0.627	12	0.098	0	0.000	0	0.000
50.00-	55.00	1215	9.882	4335	35.273	722	5.879	244	1.987	51	0.415	2	0.016	0	0.000
55.00-	60.00	1039	8.457	5374	43.730	794	6.440	415	3.379	94	0.765	5	0.041	0	0.000
60.00-	65.00	757	6.163	6131	49.893	640	5.204	350	2.850	150	1.233	33	0.269	0	0.000
65.00-	70.00	658	5.359	6789	55.252	762	6.194	544	4.424	250	2.035	86	0.700	0	0.000
70.00-	75.00	548	4.462	7337	59.714	739	6.017	544	4.429	296	2.410	161	1.311	0	0.000
75.00-	80.00	537	4.374	7874	64.088	841	6.839	676	5.504	450	3.664	250	2.035	0	0.000
80.00-	85.00	544	4.457	8418	68.545	875	7.100	847	6.879	605	4.926	328	2.671	0	0.000
85.00-	90.00	407	3.314	8825	71.859	595	4.844	682	5.558	570	4.641	375	3.053	0	0.000
90.00-	95.00	298	2.426	9123	74.285	514	4.218	613	4.991	547	4.454	375	3.053	0	0.000
95.00-	100.00	390	3.166	9513	77.451	471	3.855	595	4.844	556	4.527	477	3.884	0	0.000
100.00-	110.00	424	3.453	9937	80.904	754	6.115	944	7.636	956	7.865	945	7.688	0	0.000
110.00-	120.00	240	1.952	10177	82.856	497	4.047	861	7.002	750	6.106	568	4.639	0	0.000
120.00-	130.00	179	1.457	10356	84.313	343	2.793	422	3.436	486	3.957	468	3.810	0	0.000
130.00-	140.00	145	1.181	10501	85.494	264	2.152	358	2.915	422	3.436	436	3.550	0	0.000
140.00-	150.00	54	0.443	10555	85.937	29	0.236	188	1.531	372	3.035	305	2.483	0	0.000
150.00-	160.00	20	0.163	10575	86.100	45	0.366	82	0.668	23	0.187	97	0.790	0	0.000
160.00-	170.00	22	0.179	10597	86.279	28	0.228	61	0.497	45	0.366	69	0.562	0	0.000
170.00-	180.00	2	0.016	10600	86.295	7	0.057	4	0.033	15	0.122	11	0.090	0	0.000
180.00-	190.00	0	0.000	10600	86.295	3	0.024	0	0.000	1	0.008	1	0.008	0	0.000
190.00-	200.00	0	0.000	10600	86.295	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
200.00-	210.00	0	0.000	10600	86.295	0	0.000	0	0.000	0	0.000	0	0.000	0	0.000
CASE COUNT		11164		9647		6342		6571		4992					

Fig. B-40. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 240$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12202

FILTERING: $V(N) < 238.1$ KT

NOT LESS THAN	NOT LESS THAN	K = 1	%	CUM.%	<= 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	<= 5	%	CUM.%
0.00-	5.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	8	.065	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.049	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	34	.277	.407	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	141	1.148	1.555	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	427	3.477	5.032	25	.204	.212	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	824	6.709	11.741	93	.757	.959	3	.024	.024	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	1015	8.264	20.005	245	1.995	2.964	26	.212	.236	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	1265	10.300	30.304	490	3.990	6.953	76	.619	.855	11	.090	.090	0	0.000	0.000
50.00-	55.00	1215	9.892	40.197	719	5.854	12.807	233	1.897	2.752	49	.399	.489	2	.016	.016
55.00-	60.00	1095	8.915	49.112	782	6.367	19.174	418	3.403	6.155	90	.733	1.221	5	.041	.057
60.00-	65.00	748	6.090	55.203	641	5.219	24.393	340	2.768	8.924	157	1.278	2.500	30	.244	.301
65.00-	70.00	640	5.284	60.487	763	6.212	30.606	535	4.356	13.280	243	1.979	4.475	83	.676	.977
70.00-	75.00	551	4.486	64.973	737	6.001	36.606	827	6.791	17.570	287	2.337	6.815	156	1.270	2.247
75.00-	80.00	536	4.364	69.337	841	6.847	43.454	680	5.537	23.107	446	3.631	10.446	245	1.995	4.242
80.00-	85.00	545	4.437	73.774	871	7.092	50.545	845	6.890	29.987	634	4.919	15.364	321	2.614	6.856
85.00-	90.00	404	3.289	77.064	600	4.885	55.431	678	5.520	35.502	558	4.543	19.907	374	3.045	9.901
90.00-	95.00	298	2.426	79.490	314	4.185	59.615	614	4.999	40.506	534	4.348	24.255	371	3.021	12.921
95.00-	100.00	309	2.516	82.006	471	3.835	63.450	593	4.828	45.335	558	4.543	28.798	465	3.786	16.707
100.00-	110.00	435	3.558	85.564	753	6.131	69.581	944	7.686	53.021	959	7.808	36.605	545	4.468	23.587
110.00-	120.00	242	1.967	87.531	490	4.063	73.644	662	5.390	58.411	744	6.058	42.664	651	5.300	28.888
120.00-	130.00	180	1.466	89.000	341	2.776	76.420	429	3.493	61.904	487	3.965	46.629	466	3.794	32.682
130.00-	140.00	112	.912	89.912	272	2.215	78.635	353	2.874	64.777	432	3.517	50.146	426	3.468	36.150
140.00-	150.00	53	.432	90.344	97	.790	79.425	188	1.531	66.308	301	2.451	52.597	304	2.475	38.625
150.00-	160.00	28	.228	90.572	45	.366	79.791	81	.660	66.968	90	.733	53.330	97	.790	39.415
160.00-	170.00	23	.187	90.759	27	.220	80.011	62	.505	67.472	83	.677	53.880	69	.562	39.977
170.00-	180.00	2	.016	90.775	7	.057	80.068	9	.073	67.546	15	.122	53.802	11	.090	40.067
180.00-	200.00	0	0.000	90.775	0	0.000	80.068	0	0.000	67.546	1	.008	53.810	1	.008	40.075
200.00-	AND UP	0	0.000	90.775	0	0.000	80.068	0	0.000	67.546	0	0.000	53.810	0	0.000	40.075

92

CASE COUNTS 11155

3834

8296

6509

4922

Fig. B-41. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 238.1$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12282

FILTERING: V(N) < 167 KT

93

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.016	.032	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	4	.033	.064	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	4	.033	.097	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	18	.147	.228	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	72	.586	.814	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	227	1.848	2.662	9	.073	.073	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	526	4.283	6.945	24	.228	.311	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	664	5.406	12.351	94	.765	1.067	6	.049	.049	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	935	7.613	19.964	220	1.791	2.858	23	.187	.236	2	.016	.016	0	0.000	0.000
50.00-	55.00	991	8.069	28.033	392	3.192	6.049	59	.490	.716	6	.049	.065	0	0.000	0.000
55.00-	60.00	1025	8.346	36.379	502	4.087	10.147	121	.985	1.702	10	.081	.147	0	0.000	0.000
60.00-	65.00	633	5.154	41.533	401	3.265	13.402	150	1.221	2.923	27	.220	.366	3	.024	.024
65.00-	70.00	656	5.341	46.873	378	4.706	18.108	264	2.149	5.072	75	.611	.977	11	.090	.114
70.00-	75.00	561	4.568	51.441	352	4.494	22.602	336	2.736	7.808	39	.306	1.783	24	.195	.309
75.00-	80.00	628	5.113	56.554	596	5.585	28.188	456	3.713	11.521	213	1.734	3.517	79	.643	.953
80.00-	85.00	652	5.309	61.863	302	6.530	34.717	583	4.747	16.268	316	2.573	6.090	128	1.042	1.995
85.00-	90.00	454	3.696	65.559	583	4.747	39.464	535	4.356	20.624	333	2.711	8.801	168	1.368	3.363
90.00-	95.00	342	2.785	68.344	504	4.104	43.568	489	3.981	24.605	342	2.785	11.586	190	1.547	4.910
95.00-	100.00	350	2.850	71.193	492	4.006	47.574	498	4.055	28.660	376	3.224	14.810	297	2.418	7.328
100.00-	110.00	529	4.307	75.500	404	6.546	54.120	859	6.994	35.654	729	5.936	20.745	524	4.266	11.594
110.00-	120.00	292	2.377	77.878	514	4.185	58.305	612	4.933	40.637	519	4.226	24.971	372	3.029	14.623
120.00-	130.00	231	1.881	79.759	319	2.597	60.902	372	3.029	43.665	359	3.004	27.976	286	2.329	16.952
130.00-	140.00	142	1.156	80.915	271	2.206	63.118	311	2.532	46.198	351	2.939	30.915	251	2.044	18.995
140.00-	150.00	55	.448	81.363	115	.936	64.045	181	1.474	47.671	214	1.742	32.657	161	1.311	20.306
150.00-	160.00	43	.350	81.713	65	.529	64.574	69	.552	48.233	58	.472	33.130	73	.594	20.900
160.00-	170.00	22	.179	81.892	42	.342	64.916	48	.391	48.624	46	.375	33.504	48	.391	21.291
170.00-	180.00	2	.016	81.908	4	.033	64.948	6	.049	48.673	12	.098	33.602	5	.041	21.332
180.00-	200.00	0	0.000	81.908	0	0.000	64.948	0	0.000	48.673	1	.008	33.610	0	0.000	21.332
200.00	AND UP	0	0.000	81.908	0	0.000	64.948	0	0.000	48.673	0	0.000	33.610	0	0.000	21.332

CASE COUNT: 10040

7977

5978

4123

2620

Fig. B-42. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

NUMBER OF SCANS 956

TOTAL FLYING TIME COUNT 12287

FILTERING: V(N) < 120 KT

NOT LESS THAN	NOT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0-5	5	2	.016	.016	1	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5-10	10	0	0.000	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10-15	15	2	.016	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15-20	20	2	.016	.049	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20-25	25	10	.081	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25-30	30	40	.326	.456	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30-35	35	150	1.221	1.677	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35-40	40	352	2.866	4.543	10	.081	.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40-45	45	446	3.631	8.175	44	.391	.489	2	.016	.016	0	0.000	0.000	0	0.000	0.000
45-50	50	687	5.594	13.769	119	.969	1.457	8	.055	.081	0	0.000	0.000	0	0.000	0.000
50-55	55	803	6.538	20.307	187	1.523	2.980	19	.155	.236	1	.008	.008	0	0.000	0.000
55-60	60	908	7.393	27.699	284	2.353	5.333	36	.293	.529	1	.008	.016	0	0.000	0.000
60-65	65	495	4.006	31.705	232	1.946	7.279	58	.472	1.001	5	.041	.057	0	0.000	0.000
65-70	70	631	5.138	36.842	390	3.249	10.528	117	.953	1.954	18	.147	.204	1	.008	.008
70-75	75	503	4.095	40.937	402	3.330	13.858	157	1.278	3.232	24	.195	.399	3	.024	.033
75-80	80	584	4.755	45.692	514	4.185	18.043	292	2.377	5.610	55	.452	.828	10	.081	.114
80-85	85	602	4.901	50.594	524	4.381	23.123	379	3.086	8.696	125	1.018	1.946	34	.277	.391
85-90	90	441	3.591	54.185	486	3.957	27.080	350	2.850	11.545	193	1.571	3.517	55	.448	.839
90-95	95	324	2.638	56.823	458	3.729	30.809	357	2.907	14.452	157	1.360	4.877	61	.497	1.335
95-100	100	380	3.094	59.917	449	3.656	34.465	401	3.255	17.717	251	2.044	6.921	164	1.335	2.671
100-105	105	544	4.429	64.346	592	5.691	40.156	676	5.504	23.221	515	4.193	11.114	274	2.231	4.901
105-110	110	358	2.915	67.261	464	3.819	43.975	426	3.458	26.689	319	2.597	13.711	205	1.669	6.571
110-115	115	264	2.149	69.410	301	2.451	46.426	295	2.402	29.091	238	1.938	15.649	152	1.238	7.808
115-120	120	102	1.376	70.786	271	2.206	48.632	296	2.410	31.501	251	2.044	17.693	153	1.246	9.054
120-125	125	65	.529	71.315	127	1.034	49.666	138	1.124	32.625	151	1.229	18.922	91	.741	9.795
125-130	130	45	.366	71.682	41	.334	50.000	40	.326	32.951	28	.228	19.150	39	.318	10.112
130-135	135	19	.155	71.837	34	.319	50.317	30	.244	33.195	32	.261	19.410	23	.187	10.300
135-140	140	2	.016	71.853	5	.041	50.358	11	.090	33.284	10	.081	19.492	7	.057	10.357
140-145	145	0	0.000	71.853	0	0.000	50.358	0	0.000	33.284	1	.008	19.500	1	.008	10.365
145-150	150	0	0.000	71.853	0	0.000	50.358	0	0.000	33.284	0	0.000	19.500	0	0.000	10.365

CASE COUNTS 882 5185 4088 2395 1273

Fig. B-43. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 120$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 11

AVERAGE OF SCANS 256

TOTAL FLYING TIME COUNT 12232

FILTERING: $V_n < 60$ KT

95

NOT LESS THAN	NOT LESS THAN	K = 2	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.01- 5.00	2.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.01- 10.00	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.01- 15.00	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.01- 20.00	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.01- 25.00	25.00	4	.033	.033	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.01- 30.00	30.00	24	.195	.228	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.01- 35.00	35.00	52	.423	.651	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.01- 40.00	40.00	160	1.376	2.027	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.01- 45.00	45.00	212	1.726	3.753	10	.081	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.01- 50.00	50.00	437	3.558	7.312	34	.277	.366	3	.024	.024	0	0.000	0.000	0	0.000	0.000
50.01- 55.00	55.00	452	3.762	11.073	32	.261	.627	1	.008	.033	1	.008	.008	0	0.000	0.000
55.01- 60.00	60.00	515	4.193	15.266	73	.594	1.221	0	0.000	.033	0	0.000	.008	0	0.000	0.000
60.01- 65.00	65.00	224	1.824	17.090	67	.546	1.767	11	.090	.122	0	0.000	.008	0	0.000	0.000
65.01- 70.00	70.00	413	3.363	20.453	154	1.256	3.023	9	.073	.195	0	0.000	.008	0	0.000	0.000
70.01- 75.00	75.00	290	2.434	22.887	164	1.352	4.375	21	.171	.366	0	0.000	.008	0	0.000	0.000
75.01- 80.00	80.00	329	2.749	26.136	276	2.247	6.622	81	.660	1.025	6	.049	.057	0	0.000	0.000
80.01- 85.00	85.00	463	3.770	29.905	371	3.021	9.643	114	.928	1.954	26	.212	.269	2	.016	.016
85.01- 90.00	90.00	324	2.671	32.576	277	2.255	11.908	164	1.335	3.289	31	.252	.521	4	.033	.049
90.01- 95.00	95.00	221	1.804	34.380	231	1.881	13.809	110	.896	4.185	19	.155	.676	4	.033	.081
95.01- 100.00	100.00	370	3.086	37.466	294	2.394	16.203	181	1.474	5.659	29	.236	1.482	22	.179	.261
100.01- 110.00	110.00	404	3.293	40.759	440	3.596	19.808	275	2.239	7.890	143	1.164	2.646	42	.342	.603
110.01- 120.00	120.00	266	2.166	42.925	300	2.450	22.257	202	1.645	9.542	24	.195	3.411	39	.318	.921
120.01- 130.00	130.00	184	1.498	45.323	184	1.498	23.755	146	1.189	10.731	20	.165	4.063	38	.309	1.229
130.01- 140.00	140.00	124	1.006	46.329	201	1.628	25.383	143	1.154	11.885	26	.212	4.844	45	.366	1.596
140.01- 150.00	150.00	65	.529	47.858	84	.680	26.063	93	.757	12.642	29	.236	5.325	25	.204	1.799
150.01- 160.00	160.00	37	.299	48.157	38	.308	26.371	19	.155	12.807	12	.098	5.423	13	.106	1.905
160.01- 170.00	170.00	18	.147	48.304	18	.147	26.518	18	.147	12.954	12	.098	5.520	0	0.000	1.905
170.01- 180.00	180.00	7	.057	48.361	2	.016	26.525	8	.065	13.019	3	.024	5.545	2	.016	1.922
180.01- 200.00	200.00	0	0.000	48.361	0	0.000	26.525	0	0.000	13.019	0	0.000	5.545	0	0.000	1.922
200.01- AVERAGE	AVERAGE	0	0.000	48.361	0	0.000	26.525	0	0.000	13.019	0	0.000	5.545	0	0.000	1.922
CASE COUNTS		5270			3241			1509			681			236		

Fig. B-44. Histogram data from hour 11. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.



APPENDIX C
 HISTOGRAMS OF PERCENT OF TIME IN
 ENCOUNTER STATUS FOR HOURS 2 THROUGH 13

This Appendix lists the computer printouts of the "Percent of time in an encounter status" for hours 2 through 13, excluding hour 11 which is given in Appendix B. The cases considered include:

<u>Parameter</u>	<u>Discrimination</u>
Range	None
Range	$ \phi_e < 1.5^\circ$
Range	$ \Delta A < 500 \text{ ft.}$
Tau	None
Tau	$ \Delta A < 500 \text{ ft.}$
Beta ($R^2\tau$)	None
Beta ($R^2\tau$)	$ \Delta A < 500 \text{ ft.}$
Beta ($R^2\tau$)	$\dot{V}_c/V_c < .001 \text{ sec}^{-1}$
Modified Tau	None
Modified Tau	$ \Delta A < 500 \text{ ft.}$
Modified Tau	$V_n < 167 \text{ kts.}$
Tau	$V_n < 60 \text{ kts.}$

The columns on the printouts are the same as those in Appendix B (see page 49) and the units used are:

Range: nautical miles
 Tau and Modified Tau: seconds
 Beta: (naut. mi.)²-sec.

HISTOGRAM OF RELATIVE RANGE FOR HOUR 2

NUMBER OF SCANS 949

TOTAL FLYING TIME COUNT 8038

FILTRING: NONE

86

OT LESS THAN	HUT LESS THAN	#	CUM.#	K= 2 %	CUM.%	K= 3 #	CUM.#	K= 4 %	CUM.%	K= 5 #	CUM.%
0.00-	1.00	30	373	0	0.000	0	0.000	0	0.000	0	0.000
1.00-	2.00	96	1,194	0	0.000	0	0.000	0	0.000	0	0.000
2.00-	3.00	681	3,472	37	.460	4	.050	0	0.000	0	0.000
3.00-	4.00	1654	16,845	228	2.837	14	.174	0	0.000	0	0.000
4.00-	5.00	1284	15,974	617	7.676	150	1.866	11	.137	0	0.000
5.00-	6.00	804	17,065	764	9.505	384	4.777	53	1.033	0	0.000
6.00-	7.00	463	17,760	556	6.917	371	4.616	128	1.592	6	.075
7.00-	8.00	513	18,382	775	9.642	554	6.892	290	3.608	62	.771
8.00-	9.00	380	19,105	533	6.631	585	7.278	357	4.441	100	1.244
9.00-	10.00	287	19,571	385	4.799	453	5.636	446	5.549	183	2.277
10.00-	11.00	330	20,105	504	6.276	465	5.785	470	5.847	306	3.807
11.00-	12.00	292	20,633	372	4.628	508	6.320	485	6.034	430	5.350
12.00-	13.00	284	20,933	454	5.648	420	5.325	520	6.469	498	6.196
13.00-	14.00	217	21,700	412	5.126	364	4.528	437	5.437	540	6.718
14.00-	15.00	179	22,115	329	4.093	448	5.574	353	4.392	442	5.499
15.00-	16.00	101	22,577	259	3.222	364	4.591	349	4.342	418	5.200
16.00-	17.00	95	23,157	201	2.501	346	4.305	375	4.665	317	3.944
17.00-	18.00	88	23,695	198	2.463	270	3.359	377	4.698	371	4.616
18.00-	19.00	85	24,033	170	2.115	217	2.700	324	4.031	403	5.014
19.00-	20.00	111	24,381	164	2.040	243	3.023	310	3.857	292	3.633
20.00-	21.00	45	24,560	159	1.729	143	1.779	225	2.799	289	3.595
21.00-	22.00	44	24,547	188	2.334	203	2.525	213	2.650	258	3.210
22.00-	23.00	43	24,535	133	1.655	235	2.924	265	3.297	221	2.749
23.00-	24.00	39	24,485	75	.933	186	2.314	170	2.115	196	2.438
24.00-	25.00	22	24,274	66	.821	126	1.568	180	2.239	194	2.414
25.00-	26.00	54	24,672	82	1.020	129	1.605	158	1.966	189	2.351
26.00-	27.00	63	24,784	67	.834	156	1.941	201	2.501	202	2.513
27.00-	28.00	20	24,249	53	.659	135	1.680	178	2.214	196	2.438
28.00-	29.00	12	24,149	60	.821	119	1.480	155	1.932	196	2.438
29.00-	AN UP	79	24,983	206	2.563	425	5.287	932	11.595	1588	19.756

CASE COUNTS

8037

8033

8030

8022

7897

Fig. C-1. Histogram data from hour 2. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 3

NUMBER OF SCANS 942

TOTAL FLYING TIME COUNT 5395

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	20	.371	.371	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	32	.593	.964	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	382	7.081	8.044	20	.371	.371	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	801	14.847	22.891	256	4.745	5.116	5	.093	.093	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	755	13.994	36.886	309	5.728	10.843	68	1.260	1.353	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	494	9.157	46.042	314	5.820	16.664	113	2.095	3.448	7	.130	.130	0	0.000	0.000
6.00-	7.00	408	7.563	53.605	344	6.376	23.040	196	3.633	7.081	52	.964	1.094	0	0.000	0.000
7.00-	8.00	370	6.858	60.463	502	9.305	32.345	298	5.524	12.604	100	1.854	2.947	23	.426	.426
8.00-	9.00	285	5.283	65.746	398	7.377	39.722	355	6.580	19.184	144	2.669	5.616	25	.463	.890
9.00-	10.00	280	5.190	70.936	397	7.359	47.081	329	6.098	25.283	179	3.318	8.934	71	1.316	2.206
10.00-	11.00	269	4.986	75.922	413	7.655	54.736	423	7.841	33.123	207	3.837	12.771	35	.649	2.854
11.00-	12.00	242	4.486	80.408	353	6.543	61.279	389	7.210	40.333	317	5.876	18.647	152	2.817	5.672
12.00-	13.00	173	3.207	83.614	265	4.912	66.191	409	7.581	47.915	410	7.609	26.246	232	4.300	9.972
13.00-	14.00	144	2.669	86.283	199	3.689	69.879	249	4.615	52.530	247	4.578	30.825	258	4.782	14.754
14.00-	15.00	114	2.113	88.396	223	4.133	74.013	239	4.430	56.960	285	5.283	36.107	234	4.337	19.092
15.00-	16.00	85	1.576	89.972	165	3.058	77.071	235	4.356	61.316	240	4.449	40.556	168	3.114	22.206
16.00-	17.00	81	1.501	91.473	178	3.299	80.371	208	3.855	65.171	294	5.449	46.005	138	2.558	24.764
17.00-	18.00	67	1.242	92.715	180	3.336	83.707	205	3.800	68.971	251	4.652	50.658	211	3.911	28.675
18.00-	19.00	40	.741	93.457	108	2.002	85.709	186	3.448	72.419	202	3.744	54.402	194	3.596	32.271
19.00-	20.00	32	.593	94.050	114	2.113	87.822	171	3.170	75.588	200	3.707	58.109	197	3.652	35.922
20.00-	21.00	56	1.038	95.088	76	1.409	89.231	152	2.817	78.406	203	3.763	61.872	195	3.614	39.536
21.00-	22.00	39	.723	95.811	67	1.242	90.472	119	2.206	80.612	168	3.114	64.986	198	3.670	43.207
22.00-	23.00	31	.575	96.385	55	1.019	91.492	156	2.892	83.503	167	3.095	68.081	151	2.799	46.005
23.00-	24.00	28	.519	96.904	61	1.131	92.623	130	2.410	85.913	136	2.521	70.602	122	2.261	48.267
24.00-	25.00	17	.315	97.219	41	.760	93.383	64	1.186	87.099	137	2.539	73.142	142	2.632	50.899
25.00-	26.00	15	.278	97.498	43	.797	94.180	67	1.242	88.341	110	2.039	75.180	141	2.614	53.512
26.00-	27.00	14	.259	97.757	38	.704	94.884	82	1.520	89.861	101	1.873	77.052	113	2.095	55.607
27.00-	28.00	15	.278	98.035	31	.575	95.458	55	1.019	90.880	86	1.594	78.647	98	1.816	57.423
28.00-	29.00	14	.259	98.294	34	.630	96.089	44	.816	91.696	77	1.427	80.074	134	2.484	59.907
29.00-	AN UP	69	1.279	99.573	140	2.595	98.684	197	3.652	95.347	400	7.414	87.488	653	12.104	72.011
CASE COUNTS		5372			5324			5144			4720			3885		

Fig. C-2 . Histogram data from hour 3. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 4

NUMBER OF SCANS 1017

TOTAL FLYING TIME COUNT 12611

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	1	.143	.143	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	204	1.618	1.760	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	1112	8.818	10.578	66	.523	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2701	21.418	31.996	900	7.137	7.660	121	.959	.959	2	.016	.016	0	0.000	0.000
4.00-	5.00	2429	19.261	51.257	2236	17.730	25.391	1086	8.612	9.571	342	2.712	2.728	29	.230	.230
5.00-	6.00	1122	8.897	60.154	1468	11.641	37.031	1373	10.887	20.458	844	6.693	9.420	331	2.625	2.855
6.00-	7.00	1262	10.007	70.161	1216	9.642	46.673	1283	10.174	30.632	1044	8.273	17.699	653	5.178	8.033
7.00-	8.00	752	5.963	76.124	1011	8.017	54.690	1080	8.564	39.196	1123	8.905	26.604	877	6.954	14.987
8.00-	9.00	769	6.098	82.222	839	6.653	61.343	892	7.073	46.269	1016	8.056	34.660	1031	8.175	23.162
9.00-	10.00	403	3.196	85.417	651	5.162	66.505	849	6.732	53.001	1077	8.540	43.200	1179	9.349	32.511
10.00-	11.00	195	1.546	86.964	570	4.520	71.025	563	4.464	57.465	789	6.256	49.457	881	6.986	39.497
11.00-	12.00	279	2.212	89.176	508	4.028	75.053	533	4.226	61.692	601	4.766	54.222	760	6.026	45.524
12.00-	13.00	211	1.673	90.849	360	2.855	77.908	582	4.615	66.307	579	4.591	58.814	673	5.376	50.900
13.00-	14.00	179	1.419	92.269	289	2.292	80.200	510	4.044	70.351	620	4.916	63.730	609	4.829	55.729
14.00-	15.00	136	1.078	93.347	299	2.371	82.571	405	3.211	73.562	565	4.480	68.210	672	5.329	61.058
15.00-	16.00	94	.745	94.092	280	2.220	84.791	309	2.450	76.013	384	3.045	71.255	533	4.266	65.324
16.00-	17.00	103	.817	94.909	264	2.093	86.884	294	2.331	78.344	306	2.426	73.682	413	3.315	68.638
17.00-	18.00	140	1.110	96.019	243	1.927	88.811	288	2.294	80.628	321	2.545	76.227	371	2.942	71.580
18.00-	19.00	102	.809	96.828	186	1.475	90.286	224	1.776	82.404	277	2.196	78.423	333	2.630	74.260
19.00-	20.00	65	.515	97.343	194	1.538	91.824	280	2.220	84.624	263	2.085	80.509	295	2.339	76.600
20.00-	21.00	55	.436	97.780	137	1.086	92.911	247	1.959	86.583	253	2.006	82.515	287	2.276	78.875
21.00-	22.00	58	.460	98.240	163	1.293	94.203	294	2.331	88.914	258	2.046	84.561	262	2.078	80.953
22.00-	23.00	46	.365	98.604	146	1.158	95.361	216	1.713	90.627	236	1.871	86.432	215	1.705	82.658
23.00-	24.00	56	.444	99.048	127	1.007	96.368	218	1.729	92.356	244	1.935	88.367	273	2.204	84.862
24.00-	25.00	42	.333	99.381	105	.833	97.201	180	1.427	93.723	213	1.680	90.056	269	2.133	86.995
25.00-	26.00	33	.262	99.643	127	1.007	98.208	149	1.182	94.905	202	1.602	91.658	243	1.927	88.922
26.00-	27.00	15	.119	99.762	79	.626	98.834	156	1.237	96.202	190	1.427	93.085	194	1.538	90.460
27.00-	28.00	12	.095	99.857	47	.373	99.207	108	.856	97.058	165	1.303	94.394	202	1.602	92.062
28.00-	29.00	15	.119	99.976	33	.262	99.469	64	.507	97.565	144	1.142	95.535	173	1.372	93.434
29.00-	AN UP	1	.008	99.984	57	.452	99.921	282	2.236	99.802	526	4.171	99.706	731	5.797	99.231

100

CASE COUNTS 12609

12601

12586

12574

12514

Fig. C-3. Histogram data from hour 4. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7446

FILTERING: NONE

101

QT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	4	.645	.645	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	296	3.975	4.620	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	458	6.151	10.771	28	.376	.376	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	796	10.690	21.461	132	1.773	2.149	4	.054	.054	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	908	12.194	33.656	395	5.305	7.454	59	.792	.846	4	.054	.054	0	0.000	0.000
5.00-	6.00	596	8.004	41.660	343	4.606	12.060	162	2.176	3.022	42	.564	.618	1	.013	.013
6.00-	7.00	501	6.728	48.388	490	6.581	18.641	290	3.895	6.916	84	1.129	1.746	10	.134	.148
7.00-	8.00	674	9.052	57.440	535	7.185	25.826	405	5.439	12.356	184	2.471	4.217	28	.376	.524
8.00-	9.00	465	6.245	63.685	464	6.232	32.057	352	4.727	17.083	255	3.425	7.642	155	2.082	2.605
9.00-	10.00	334	4.486	68.171	409	5.493	37.550	346	4.647	21.730	292	3.922	11.563	239	3.210	5.815
10.00-	11.00	303	4.069	72.240	508	6.822	44.373	445	5.976	27.706	361	4.848	16.411	262	3.519	9.334
11.00-	12.00	197	2.646	74.886	345	4.633	49.006	419	5.627	33.333	356	4.781	21.193	209	2.807	12.141
12.00-	13.00	140	1.880	76.766	358	4.808	53.814	339	4.553	37.886	391	5.251	26.444	347	4.660	16.801
13.00-	14.00	130	1.746	78.512	312	4.190	58.004	322	4.324	42.211	407	5.466	31.910	355	4.768	21.569
14.00-	15.00	117	1.571	80.083	326	4.378	62.382	276	3.707	45.917	294	3.948	35.858	316	4.244	25.812
15.00-	16.00	126	1.692	81.775	275	3.693	66.076	238	3.196	49.114	245	3.290	39.148	291	3.908	29.721
16.00-	17.00	114	1.531	83.306	211	2.834	68.909	259	3.478	52.592	179	2.404	41.552	206	2.767	32.487
17.00-	18.00	127	1.706	85.012	161	2.162	71.072	236	3.169	55.761	155	2.082	43.634	135	1.813	34.300
18.00-	19.00	128	1.719	86.731	192	2.579	73.650	314	4.217	59.978	219	2.941	46.575	171	2.297	36.597
19.00-	20.00	92	1.236	87.966	180	2.417	76.067	243	3.263	63.242	184	2.471	49.046	179	2.404	39.001
20.00-	21.00	134	1.800	89.766	177	2.377	78.445	280	3.760	67.002	220	2.955	52.001	159	2.135	41.136
21.00-	22.00	107	1.437	91.203	138	1.853	80.298	264	3.546	70.548	177	2.377	54.378	130	1.746	42.882
22.00-	23.00	103	1.383	92.586	129	1.732	82.030	157	2.109	72.656	152	2.041	56.419	102	1.370	44.252
23.00-	24.00	100	1.343	93.929	122	1.638	83.669	141	1.894	74.550	171	2.297	58.716	98	1.316	45.568
24.00-	25.00	59	.792	94.722	162	2.176	85.844	132	1.773	76.323	167	2.243	60.959	122	1.638	47.206
25.00-	26.00	91	1.222	95.944	185	2.485	88.329	145	1.947	78.270	196	2.632	63.591	162	2.176	49.382
26.00-	27.00	83	1.115	97.059	170	2.283	90.612	206	2.767	81.037	193	2.592	66.183	145	1.947	51.329
27.00-	28.00	43	.577	97.636	100	1.343	91.955	160	2.149	83.186	144	1.934	68.117	151	2.028	53.357
28.00-	29.00	34	.457	98.093	70	.940	92.896	138	1.853	85.039	121	1.625	69.742	146	1.961	55.318
29.00-	AND UP	136	1.826	99.919	515	6.916	99.812	929	12.476	97.515	1212	16.277	86.019	1211	16.264	71.582
CASE COUNTS		7440			7432			7261			6405			5330		

Fig. C-4 . Histogram data from hour 5 . Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft . Additional discrimination: none .

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 6

NUMBER OF SCANS 711

TOTAL FLYING TIME COUNT 3568

FILTERING: NONE

DT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	4	1.345	1.345	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00	2.00	140	3.924	5.269	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	259	7.259	12.528	9	.252	.252	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	364	10.202	22.730	88	2.466	2.719	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	453	12.696	35.426	207	5.802	8.520	26	.729	.729	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	528	14.798	50.224	325	9.109	17.629	75	2.102	2.831	4	.112	.112	0	0.000	0.000
6.00-	7.00	438	12.276	62.500	385	10.790	28.419	194	5.437	8.268	46	1.289	1.401	3	.084	.084
7.00-	8.00	335	9.389	71.889	408	11.435	39.854	216	6.054	14.322	85	2.382	3.784	12	.336	.420
8.00-	9.00	146	4.092	75.981	288	8.072	47.926	199	5.577	19.899	131	3.672	7.455	51	1.429	1.850
9.00-	10.00	109	3.055	79.036	246	6.895	54.820	299	8.380	28.279	179	5.017	12.472	91	2.550	4.400
10.00-	11.00	110	3.083	82.119	186	5.213	60.034	206	5.774	34.053	207	5.802	18.273	100	2.803	7.203
11.00-	12.00	68	1.906	84.024	127	3.559	63.593	202	5.661	39.714	250	7.007	25.280	151	4.232	11.435
12.00-	13.00	39	1.093	85.117	162	4.540	68.133	190	5.325	45.039	187	5.241	30.521	147	4.120	15.555
13.00-	14.00	27	.757	85.874	183	5.129	73.262	189	5.297	50.336	187	5.241	35.762	181	5.073	20.628
14.00-	15.00	60	1.682	87.556	123	3.447	76.709	145	4.064	54.400	134	3.756	39.518	149	4.176	24.804
15.00-	16.00	44	1.233	88.789	78	2.186	78.896	118	3.307	57.707	159	4.456	43.974	166	4.652	29.456
16.00-	17.00	20	.561	89.350	70	1.962	80.857	70	1.962	59.669	144	4.036	48.010	154	4.316	33.772
17.00-	18.00	37	1.037	90.386	34	.953	81.810	78	2.186	61.855	90	2.522	50.532	108	3.027	36.799
18.00-	19.00	29	.813	91.199	20	.561	82.371	72	2.018	63.873	52	1.457	51.990	97	2.719	39.518
19.00-	20.00	27	.757	91.956	17	.476	82.847	77	2.158	66.031	68	1.906	53.896	44	1.233	40.751
20.00-	21.00	25	.701	92.657	31	.869	83.716	55	1.541	67.573	51	1.429	55.325	63	1.766	42.517
21.00-	22.00	22	.617	93.273	34	.953	84.669	57	1.598	69.170	73	2.046	57.371	80	2.242	44.759
22.00-	23.00	14	.392	93.666	31	.869	85.538	66	1.850	71.020	76	2.130	59.501	69	1.934	46.693
23.00-	24.00	5	.140	93.806	28	.785	86.323	51	1.429	72.449	38	1.065	60.566	58	1.626	48.318
24.00-	25.00	3	.084	93.890	18	.504	86.827	50	1.401	73.851	43	1.205	61.771	65	1.822	50.140
25.00-	26.00	6	.168	94.058	18	.504	87.332	46	1.289	75.140	69	1.934	63.705	58	1.626	51.766
26.00-	27.00	12	.336	94.394	23	.645	87.976	44	1.233	76.373	66	1.850	65.555	36	1.009	52.775
27.00-	28.00	39	1.093	95.488	33	.925	88.901	39	1.093	77.466	66	1.850	67.405	63	1.766	54.540
28.00-	29.00	11	.308	95.796	37	1.037	89.938	45	1.261	78.727	69	1.934	69.338	66	1.850	56.390
29.00	AND UP	34	.953	96.749	79	2.214	92.152	194	5.437	84.165	321	8.997	78.335	423	11.855	68.245
CASE COUNTS		3452			3288			3003			2795			2435		

Fig. C-5. Histogram data from hour 6. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 7

NUMBER OF SCANS 903

TOTAL FLYING TIME COUNT 8508

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	34	.400	.400	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00	2.00	215	2.527	2.927	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	561	6.594	9.520	45	.529	1.541	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	1332	15.656	25.176	251	2.950	3.491	3	.035	.035	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	1360	15.985	41.161	828	9.732	13.223	151	1.775	1.810	3	.035	.035	0	0.000	0.000
5.00-	6.00	894	10.508	51.669	854	10.038	23.260	337	3.961	5.771	41	.482	.517	0	0.000	0.000
6.00-	7.00	716	8.416	60.084	771	9.062	52.322	543	6.382	12.153	115	1.352	1.869	15	.176	.176
7.00-	8.00	621	7.299	67.384	915	10.755	43.077	733	8.615	20.769	308	3.620	5.489	52	.611	.787
8.00-	9.00	395	4.643	72.026	748	8.792	51.869	801	9.415	30.183	722	8.486	13.975	279	3.279	4.067
9.00-	10.00	339	3.984	76.010	640	7.522	59.391	742	8.721	38.904	660	7.757	21.732	429	5.042	9.109
10.00-	11.00	340	3.996	80.007	579	6.805	66.196	762	8.956	47.861	651	7.652	29.384	586	6.888	15.997
11.00-	12.00	308	3.620	83.627	407	4.784	70.980	638	7.499	55.360	730	8.580	37.964	572	6.723	22.720
12.00-	13.00	224	2.633	86.260	318	3.738	74.718	523	6.147	61.507	711	8.357	46.321	738	8.674	31.394
13.00-	14.00	81	.952	87.212	198	2.327	77.045	443	5.207	66.713	586	6.888	53.209	691	8.122	39.516
14.00-	15.00	79	.929	88.140	129	1.516	78.561	310	3.749	70.463	520	6.112	59.320	547	6.429	45.945
15.00-	16.00	101	1.187	89.327	142	1.669	80.230	235	2.752	73.225	435	5.113	64.433	472	5.630	51.575
16.00-	17.00	142	1.669	90.996	190	2.233	82.463	227	2.668	75.893	282	3.315	67.748	414	4.866	56.441
17.00-	18.00	94	1.105	92.101	146	1.716	84.179	127	1.493	77.386	234	2.750	70.498	351	4.126	60.566
18.00-	19.00	115	1.352	93.453	137	1.610	85.790	133	1.563	78.949	187	2.198	72.696	251	2.950	63.517
19.00-	20.00	100	1.175	94.628	108	1.269	87.059	169	1.986	80.935	175	2.057	74.753	226	2.656	66.173
20.00-	21.00	103	1.211	95.839	149	1.751	88.810	151	1.775	82.710	156	1.834	76.587	231	2.715	68.888
21.00-	22.00	48	.564	96.403	80	.940	89.750	156	1.834	84.544	127	1.493	78.079	208	2.445	71.333
22.00-	23.00	39	.458	96.862	89	1.046	90.797	105	1.234	85.778	119	1.399	79.478	180	2.116	73.448
23.00-	24.00	53	.623	97.484	138	1.622	92.419	130	1.528	87.306	134	1.575	81.053	195	2.292	75.740
24.00-	25.00	24	.282	97.767	136	1.598	94.017	115	1.352	88.657	127	1.493	82.546	151	1.775	77.515
25.00-	26.00	28	.329	98.096	79	.929	94.946	145	1.704	90.362	115	1.352	83.897	174	2.045	79.560
26.00-	27.00	25	.294	98.389	47	.552	95.498	102	1.199	91.561	150	1.763	85.660	151	1.775	81.335
27.00-	28.00	42	.494	98.883	57	.670	96.168	79	.929	92.489	188	2.210	87.870	118	1.387	82.722
28.00-	29.00	29	.341	99.224	99	1.164	97.332	104	1.222	93.711	136	1.598	89.469	111	1.305	84.027
29.00	AND UP	66	.776	100.000	171	2.010	99.342	317	3.726	97.437	566	6.653	96.121	794	9.332	93.359

CASE COUNTS 8508

8452

8290

8178

7943

Fig. C-6 . Histogram data from hour 7 . Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft . Additional discrimination: none .

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 8

NUMBER OF SCANS 1012

TOTAL FLYING TIME COUNT 7646

FILTERING: NONE

104

OT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	62	.811	.811	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	295	3.858	4.669	7	.92	.92	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	605	7.913	12.582	29	.979	.971	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	1115	14.583	27.164	147	1.923	2.393	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	840	10.986	38.151	390	5.101	7.494	30	.392	.392	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	740	9.678	47.829	587	7.677	15.171	133	1.739	2.132	10	.131	.131	0	0.000	0.000
6.00-	7.00	740	9.678	57.507	626	8.187	23.359	276	3.610	5.742	34	.445	.575	0	0.000	0.000
7.00-	8.00	456	5.964	63.471	658	8.606	31.964	310	4.054	9.796	101	1.321	1.896	11	.144	.144
8.00-	9.00	457	5.977	69.448	564	7.376	39.341	408	5.336	15.132	181	2.367	4.264	37	.484	.628
9.00-	10.00	281	3.675	73.123	590	7.716	47.057	539	7.049	22.181	273	3.570	7.834	84	1.099	1.726
10.00-	11.00	168	2.197	75.320	426	5.572	52.629	447	5.846	28.028	330	4.316	12.150	130	1.700	3.427
11.00-	12.00	276	3.610	78.930	401	5.245	57.873	525	6.866	34.894	347	4.539	16.688	191	2.498	5.925
12.00-	13.00	137	1.792	80.722	235	3.074	60.947	490	6.409	41.302	377	4.931	21.619	228	2.982	8.907
13.00-	14.00	136	1.779	82.500	252	3.296	64.242	417	5.454	46.756	402	5.258	26.877	305	3.989	12.896
14.00-	15.00	182	2.380	84.881	296	3.871	68.114	401	5.245	52.001	473	6.186	33.063	320	4.185	17.081
15.00-	16.00	257	3.361	88.242	292	3.819	71.933	382	4.996	56.997	401	5.245	38.307	324	4.238	21.318
16.00-	17.00	112	1.465	89.707	226	2.956	74.889	336	4.394	61.391	335	4.381	42.689	274	3.584	24.902
17.00-	18.00	98	1.282	90.989	263	3.440	78.328	389	5.088	66.479	360	4.708	47.397	299	3.911	28.812
18.00-	19.00	103	1.347	92.336	209	2.733	81.062	251	3.283	69.762	300	3.924	51.321	320	4.185	32.998
19.00-	20.00	57	.745	93.081	173	2.263	83.324	186	2.433	72.194	305	3.989	55.310	255	3.335	36.333
20.00-	21.00	40	.523	93.604	164	2.145	85.469	159	2.080	74.274	278	3.636	58.946	280	3.662	39.995
21.00-	22.00	95	1.242	94.847	134	1.753	87.222	188	2.459	76.733	322	4.211	63.157	361	4.721	44.716
22.00-	23.00	85	1.112	95.958	118	1.543	88.765	182	2.380	79.113	342	4.478	67.630	305	3.989	48.705
23.00-	24.00	73	.955	96.913	80	1.046	89.811	175	2.289	81.402	302	3.950	71.580	352	4.604	53.309
24.00-	25.00	87	1.138	98.051	75	.981	90.792	134	1.753	83.154	194	2.537	74.117	285	3.727	57.036
25.00-	26.00	38	.497	98.548	94	1.229	92.022	172	2.250	85.404	187	2.446	76.563	226	2.956	59.992
26.00-	27.00	61	.798	99.346	122	1.596	93.617	162	2.119	87.522	215	2.812	79.375	278	3.636	63.628
27.00-	28.00	23	.301	99.647	121	1.583	95.200	98	1.282	88.804	141	1.844	81.219	290	3.793	67.421
28.00-	29.00	10	.131	99.778	108	1.412	96.613	81	1.059	89.864	149	1.949	83.167	253	3.309	70.729
29.00	AND UP	15	.196	99.974	189	2.472	99.084	639	8.357	98.221	1091	14.269	97.437	1727	22.587	93.317

CASE COUNTS

7644

7576

7510

7450

7135

Fig. C-7. Histogram data from hour 8. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 9

NUMBER OF SCANS 1106

TOTAL FLYING TIME COUNT 6557

FILTERING: NONE

NOT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	47	.717	.717	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	144	2.196	2.913	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	496	7.564	10.477	28	.427	.427	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	887	13.527	24.005	82	1.251	1.678	1	.015	.015	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	838	12.780	36.785	391	5.963	7.641	45	.686	.702	4	.061	.061	0	0.000	0.000
5.00-	6.00	622	9.486	46.271	475	7.244	14.885	125	1.906	2.608	15	.229	.290	1	.015	.015
6.00-	7.00	532	8.113	54.385	479	7.305	22.190	217	3.309	5.917	52	.793	1.083	5	.076	.091
7.00-	8.00	413	6.299	60.683	511	7.793	29.983	299	4.560	10.477	79	1.205	2.288	27	.412	.503
8.00-	9.00	433	6.604	67.287	518	7.900	37.883	378	5.765	16.242	219	3.340	5.628	36	.549	1.052
9.00-	10.00	345	5.262	72.548	456	6.954	44.838	359	5.475	21.717	247	3.767	9.395	46	.702	1.754
10.00-	11.00	239	3.645	76.193	430	6.558	51.395	384	5.856	27.573	256	3.904	13.299	104	1.586	3.344
11.00-	12.00	219	3.340	79.533	319	4.865	56.260	388	5.917	33.491	296	4.514	17.813	197	3.004	6.344
12.00-	13.00	221	3.370	82.904	316	4.819	61.080	373	5.689	39.179	276	4.209	22.022	185	2.821	9.166
13.00-	14.00	165	2.516	85.420	370	5.643	66.722	426	6.497	45.676	341	5.201	27.223	128	1.952	11.118
14.00-	15.00	142	2.166	87.585	241	3.675	70.398	296	4.514	50.190	322	4.911	32.134	145	2.211	13.329
15.00-	16.00	156	2.379	89.965	200	3.050	73.448	303	4.621	54.811	307	4.682	36.815	169	2.577	15.907
16.00-	17.00	121	1.845	91.810	197	3.004	76.453	327	4.987	59.799	331	5.048	41.864	242	3.691	19.597
17.00-	18.00	99	1.510	93.320	188	2.867	79.320	288	4.392	64.191	247	3.767	45.630	270	4.118	23.715
18.00-	19.00	81	1.235	94.555	157	2.394	81.714	269	4.102	68.293	229	3.492	49.123	269	4.102	27.818
19.00-	20.00	65	.991	95.547	214	3.264	84.978	266	4.057	72.350	238	3.630	52.753	223	3.401	31.219
20.00-	21.00	52	.793	96.340	132	2.013	86.991	204	3.111	75.461	193	2.943	55.696	167	2.547	33.765
21.00-	22.00	29	.442	96.782	101	1.540	88.531	175	2.669	78.130	210	3.203	58.899	232	3.538	37.304
22.00-	23.00	44	.671	97.453	107	1.632	90.163	183	2.791	80.921	170	2.593	61.491	228	3.477	40.781
23.00-	24.00	40	.610	98.063	71	1.083	91.246	151	2.303	83.224	147	2.242	63.733	167	2.547	43.328
24.00-	25.00	38	.580	98.642	99	1.510	92.756	136	2.074	85.298	123	2.333	66.067	119	1.815	45.142
25.00-	26.00	29	.442	99.085	113	1.723	94.479	114	1.739	87.037	123	1.876	67.942	106	1.617	46.759
26.00-	27.00	21	.320	99.405	72	1.098	95.577	74	1.129	88.165	129	1.967	69.910	98	1.495	48.254
27.00-	28.00	12	.183	99.588	50	.763	96.340	64	.976	89.141	100	1.525	71.435	84	1.281	49.535
28.00-	29.00	8	.122	99.710	32	.488	96.828	66	1.007	90.148	80	1.220	72.655	83	1.266	50.800
29.00	AND UP	18	.275	99.985	195	2.974	99.802	552	8.418	98.566	567	8.647	81.302	630	9.608	60.409
CASE COUNTS		6556			6544			6463			5331			3961		

105

Fig. C-8 . Histogram data from hour 9 . Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft . Additional discrimination: none .

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 10

NUMBER OF SCANS 985

TOTAL FLYING TIME COUNT 11138

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	46	.413	.413	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	166	1.490	1.903	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	788	7.075	8.978	12	.108	.108	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2344	21.045	30.023	380	3.412	3.519	22	.198	.198	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	2046	18.370	48.393	1169	10.496	14.015	232	2.083	2.280	3	.027	.027	0	0.000	0.000
5.00-	6.00	1269	11.393	59.786	1710	15.353	29.368	915	8.215	10.496	243	2.182	2.209	48	.431	.431
6.00-	7.00	991	8.897	68.684	1371	12.309	41.677	1026	9.212	19.707	511	4.588	6.797	192	1.724	2.155
7.00-	8.00	791	7.102	75.785	1032	9.266	50.943	1114	10.002	29.709	658	5.908	12.704	284	2.550	4.705
8.00-	9.00	572	5.136	80.921	981	8.808	59.750	1080	9.697	39.406	1010	9.068	21.772	665	5.971	10.675
9.00-	10.00	342	3.071	83.991	712	6.393	66.143	1127	10.118	49.524	1084	9.732	31.505	811	7.281	17.957
10.00-	11.00	268	2.406	86.398	510	4.579	70.722	823	7.389	56.913	1019	9.149	40.654	1109	9.957	27.913
11.00-	12.00	223	2.002	88.400	491	4.408	75.130	709	6.366	63.279	796	7.147	47.800	768	6.895	34.809
12.00-	13.00	218	1.957	90.357	435	3.906	79.035	603	5.414	68.692	847	7.605	55.405	877	7.874	42.683
13.00-	14.00	146	1.311	91.668	237	2.128	81.163	447	4.013	72.706	682	6.123	61.528	744	6.680	49.362
14.00-	15.00	121	1.086	92.754	187	1.679	82.842	351	3.151	75.857	542	4.866	66.394	717	6.437	55.800
15.00-	16.00	104	.934	93.688	241	2.164	85.006	318	2.855	78.712	446	4.004	70.398	611	5.486	61.286
16.00-	17.00	99	.889	94.577	278	2.496	87.502	265	2.379	81.092	416	3.735	74.133	487	4.372	65.658
17.00-	18.00	91	.817	95.394	281	2.523	90.025	231	2.074	83.166	365	3.277	77.410	466	4.184	69.842
18.00-	19.00	94	.844	96.238	197	1.769	91.794	262	2.352	85.518	231	2.074	79.484	405	3.636	73.478
19.00-	20.00	88	.790	97.028	139	1.248	93.042	254	2.280	87.798	203	1.823	81.307	303	2.720	76.198
20.00-	21.00	102	.916	97.944	126	1.131	94.173	180	1.616	89.415	278	2.496	83.803	296	2.658	78.856
21.00-	22.00	71	.637	98.581	124	1.113	95.286	166	1.490	90.905	163	1.463	85.266	169	1.517	80.373
22.00-	23.00	54	.485	99.066	122	1.095	96.381	173	1.553	92.458	190	1.706	86.972	235	2.110	82.483
23.00-	24.00	33	.296	99.362	102	.916	97.297	162	1.454	93.913	190	1.706	88.678	250	2.245	84.728
24.00-	25.00	32	.287	99.650	109	.979	98.276	105	.943	94.855	202	1.814	90.492	190	1.706	86.434
25.00-	26.00	18	.162	99.811	57	.512	98.788	129	1.158	96.013	172	1.544	92.036	209	1.876	88.310
26.00-	27.00	9	.081	99.892	84	.754	99.542	108	.970	96.983	129	1.158	93.194	157	1.410	89.720
27.00-	28.00	6	.054	99.946	35	.314	99.856	97	.871	97.854	127	1.140	94.334	179	1.607	91.327
28.00-	29.00	1	.009	99.955	8	.072	99.928	92	.826	98.680	96	.862	95.197	120	1.077	92.404
29.00-	AND UP	3	.027	99.982	2	.018	99.946	99	.889	99.569	315	2.828	99.025	506	4.543	96.947
CASE COUNTS		11136			11132			11090			10918			10798		

106

Fig. C-9. Histogram data from hour 10. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: NONE

107

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%					
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
1.00-	2.00	4	.089	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
2.00-	3.00	235	5.253	5.342	1	.022	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
3.00-	4.00	305	6.817	12.159	21	.469	.492	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
4.00-	5.00	458	10.237	22.396	81	1.810	2.306	7	.156	.156	0	0.000	0.000	0	0.000	0.000					
5.00-	6.00	461	10.304	32.700	152	3.397	5.700	17	.380	.536	8	.179	.179	0	0.000	0.000					
6.00-	7.00	439	9.812	42.512	215	4.806	10.505	47	1.051	1.587	7	.156	.335	0	0.000	0.000					
7.00-	8.00	457	10.215	52.727	261	5.834	16.339	90	2.012	3.599	16	.358	.693	0	0.000	0.000					
8.00-	9.00	372	8.315	61.041	268	5.990	22.329	134	2.995	6.594	37	.827	1.520	5	.112	.112					
9.00-	10.00	316	7.063	68.104	307	6.862	29.191	119	2.660	9.253	68	1.520	3.040	8	.179	.291					
10.00-	11.00	314	7.018	75.123	446	9.969	39.160	235	5.253	14.506	107	2.392	5.431	26	.581	.872					
11.00-	12.00	221	4.940	80.062	360	8.046	47.206	265	5.923	20.429	119	2.660	8.091	29	.648	1.520					
12.00-	13.00	167	3.733	83.795	375	8.382	55.588	296	6.616	27.045	130	2.906	10.997	42	.939	2.459					
13.00-	14.00	119	2.660	86.455	252	5.633	61.220	283	6.325	33.370	166	3.710	14.707	60	1.341	3.800					
14.00-	15.00	77	1.721	88.176	261	5.834	67.054	288	6.437	39.808	235	5.253	19.960	84	1.878	5.677					
15.00-	16.00	70	1.565	89.740	172	3.844	70.898	241	5.387	45.194	131	2.928	22.888	69	1.542	7.219					
16.00-	17.00	82	1.833	91.573	188	4.202	75.100	230	5.141	50.335	174	3.889	26.777	97	2.168	9.389					
17.00-	18.00	84	1.878	93.451	141	3.152	78.252	223	4.984	55.320	156	3.487	30.264	94	2.101	11.489					
18.00-	19.00	59	1.319	94.770	158	3.532	81.783	185	4.135	59.454	186	4.157	34.421	115	2.570	14.059					
19.00-	20.00	44	.983	95.753	124	2.772	84.555	195	4.359	63.813	222	4.962	39.383	94	2.101	16.160					
20.00-	21.00	43	.961	96.714	81	1.810	86.365	140	3.129	66.942	166	3.710	43.093	132	2.950	19.110					
21.00-	22.00	28	.626	97.340	77	1.721	88.087	113	2.526	69.468	157	3.509	46.602	134	2.995	22.105					
22.00-	23.00	20	.447	97.787	84	1.878	89.964	76	1.699	71.167	116	2.593	49.195	104	2.325	24.430					
23.00-	24.00	10	.224	98.010	63	1.408	91.372	46	1.028	72.195	64	1.430	50.626	80	1.788	26.218					
24.00-	25.00	14	.313	98.323	70	1.565	92.937	91	2.034	74.229	68	1.520	52.146	84	1.878	28.095					
25.00-	26.00	29	.648	98.972	35	.782	93.719	72	1.609	75.838	75	1.676	53.822	80	1.788	29.884					
26.00-	27.00	24	.536	99.508	54	1.207	94.926	94	2.101	77.939	94	2.101	55.923	93	2.079	31.962					
27.00-	28.00	3	.067	99.575	29	.648	95.574	92	2.056	79.995	83	1.855	57.778	64	1.430	33.393					
28.00-	29.00	0	0.000	99.575	22	.492	96.066	74	1.654	81.649	71	1.587	59.365	59	1.319	34.712					
29.00	AND UP	13	.291	99.866	104	2.325	98.390	239	5.342	86.991	420	9.388	68.752	503	11.243	45.954					
CASE COUNTS		4468				4402				3892				3076				2056			

Fig. C-10. Histogram data from hour 12. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1			K= 2			K= 3			K= 4			K= 5		
		K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	38	.353	.353	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	348	3.236	3.590	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	816	7.589	11.178	10	.093	.093	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2060	19.157	30.336	475	4.417	4.510	29	.270	.270	2	.019	.019	0	0.000	0.000
4.00-	5.00	1858	17.279	47.615	1683	15.651	20.162	511	4.752	5.022	72	.670	.688	0	0.000	0.000
5.00-	6.00	1106	10.285	57.900	1254	11.662	31.824	791	7.356	12.378	234	2.176	2.864	27	.251	.251
6.00-	7.00	745	6.928	64.828	1019	9.476	41.300	861	8.007	20.385	409	3.804	6.668	93	.865	1.116
7.00-	8.00	524	4.873	69.701	890	8.277	49.577	1037	9.644	30.029	869	8.067	14.935	382	3.552	4.668
8.00-	9.00	541	5.031	74.732	659	6.129	55.705	784	7.291	37.320	846	7.868	22.803	562	5.226	9.895
9.00-	10.00	368	3.422	78.155	531	4.938	60.643	795	7.393	44.713	793	7.375	30.178	732	6.807	16.702
10.00-	11.00	261	2.427	80.582	493	4.585	65.228	764	7.105	51.818	675	6.277	36.455	769	7.151	23.854
11.00-	12.00	231	2.148	82.730	424	3.943	69.171	586	5.450	57.267	706	6.566	43.021	673	6.259	30.112
12.00-	13.00	177	1.646	84.376	309	2.874	72.045	529	4.920	62.187	672	6.249	49.270	702	6.528	36.641
13.00-	14.00	285	2.650	87.027	304	2.827	74.872	370	3.441	65.628	691	6.426	55.696	841	7.821	44.462
14.00-	15.00	165	1.534	88.561	225	2.092	76.964	276	2.567	68.195	395	3.673	59.369	477	4.436	48.898
15.00-	16.00	206	1.916	90.477	233	2.167	79.131	259	2.409	70.603	377	3.506	62.875	514	4.780	53.678
16.00-	17.00	149	1.386	91.863	236	2.195	81.326	286	2.660	73.263	404	3.757	66.632	454	4.222	57.900
17.00-	18.00	114	1.060	92.923	258	2.399	83.725	287	2.669	75.932	292	2.716	69.348	412	3.831	61.731
18.00-	19.00	86	.800	93.722	174	1.618	85.344	247	2.297	78.229	281	2.613	71.961	323	3.004	64.735
19.00-	20.00	89	.828	94.550	182	1.693	87.036	287	2.669	80.898	272	2.530	74.491	270	2.511	67.246
20.00-	21.00	120	1.116	95.666	174	1.618	88.654	265	2.464	83.363	285	2.650	77.141	277	2.576	69.822
21.00-	22.00	80	.744	96.410	155	1.441	90.096	241	2.241	85.604	274	2.548	79.689	287	2.669	72.491
22.00-	23.00	77	.716	97.126	145	1.348	91.444	200	1.860	87.464	223	2.074	81.763	312	2.902	75.393
23.00-	24.00	48	.446	97.573	146	1.358	92.802	144	1.339	88.803	256	2.381	84.144	309	2.874	78.266
24.00-	25.00	52	.484	98.056	99	.921	93.722	129	1.200	90.002	222	2.065	86.208	268	2.492	80.759
25.00-	26.00	36	.335	98.391	94	.874	94.596	123	1.144	91.146	179	1.665	87.873	209	1.934	82.693
26.00-	27.00	26	.242	98.633	89	.828	95.424	116	1.079	92.225	148	1.376	89.249	150	1.395	84.088
27.00-	28.00	25	.232	98.865	86	.800	96.224	98	.911	93.137	111	1.032	90.281	113	1.051	85.139
28.00-	29.00	20	.186	99.051	63	.586	96.810	116	1.079	94.215	141	1.311	91.593	139	1.293	86.431
29.00	AND UP	96	.893	99.944	335	3.115	99.925	602	5.598	99.814	868	8.072	99.665	1413	13.140	99.572

CASE COUNTS 10747

10745

10733

10717

10707

Fig. C-11 Histogram data from hour 13. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 2

NUMBER OF SCANS 949

TOTAL FLYING TIME COUNT 8038

FILTERING: 1.5 DEG. ANGULAR

109

OUT LESS THAN	INUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	12	.149	.149	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	30	.373	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	235	2.924	3.446	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	725	9.020	12.466	6	.075	.075	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	691	8.597	21.062	168	2.090	2.165	11	.137	.137	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	645	8.024	29.087	322	4.006	6.171	73	.908	1.045	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	399	4.964	34.051	310	3.857	10.027	78	.970	2.015	2	.025	.025	0	0.000	0.000
7.00-	8.00	603	7.502	41.552	490	6.096	16.123	153	1.903	3.919	15	.187	.211	0	0.000	0.000
8.00-	9.00	394	4.902	46.454	453	5.636	21.759	185	2.302	6.220	50	.622	.834	1	.012	.012
9.00-	10.00	368	4.578	51.032	373	4.640	26.399	168	2.090	8.310	62	.771	1.605	1	.012	.025
10.00-	11.00	500	6.220	57.253	459	5.710	32.110	174	2.155	10.475	73	.908	2.513	5	.062	.087
11.00-	12.00	439	5.462	62.714	445	5.536	37.646	204	2.538	13.013	97	1.082	3.595	23	.286	.373
12.00-	13.00	480	5.972	68.686	423	5.262	42.909	322	4.006	17.019	157	1.953	5.549	41	.510	.883
13.00-	14.00	419	5.213	73.899	376	4.678	47.586	377	4.690	21.709	252	3.135	8.684	82	1.020	1.903
14.00-	15.00	331	4.118	78.017	349	4.342	51.928	379	4.715	26.424	259	3.347	12.030	95	1.182	3.085
15.00-	16.00	296	3.683	81.699	319	3.969	55.897	348	4.329	30.754	273	3.396	15.427	156	1.941	5.026
16.00-	17.00	204	2.538	84.237	343	4.267	60.164	418	5.200	35.954	241	2.998	18.425	165	2.053	7.079
17.00-	18.00	185	2.302	86.539	342	4.255	64.419	423	5.262	41.217	330	4.105	22.530	166	2.065	9.144
18.00-	19.00	192	2.389	88.927	347	4.317	68.736	400	4.976	46.193	322	4.006	26.536	224	2.787	11.931
19.00-	20.00	173	2.152	91.080	299	3.720	72.456	328	4.081	50.273	288	3.583	30.119	259	3.222	15.153
20.00-	21.00	101	1.257	92.336	230	2.861	75.317	277	3.446	53.720	279	3.471	33.590	276	3.434	18.587
21.00-	22.00	82	1.020	93.356	266	3.309	78.626	273	3.396	57.116	266	3.309	36.900	250	3.110	21.697
22.00-	23.00	85	1.057	94.414	347	4.317	82.943	414	5.151	62.267	308	3.832	40.731	271	3.371	25.068
23.00-	24.00	56	.697	95.111	204	2.538	85.481	357	4.441	66.706	257	3.197	43.929	225	2.799	27.868
24.00-	25.00	27	.336	95.447	158	1.966	87.447	276	3.434	70.142	316	3.931	47.860	215	2.675	30.542
25.00-	26.00	77	.958	96.404	138	1.717	89.164	296	3.683	73.824	253	3.148	51.008	215	2.675	33.217
26.00-	27.00	87	1.082	97.487	127	1.580	90.744	290	3.608	77.432	337	4.193	55.200	213	2.650	35.867
27.00-	28.00	45	.560	98.047	119	1.480	92.224	207	2.575	80.007	314	3.906	59.107	231	2.874	38.741
28.00-	29.00	47	.585	98.631	146	1.816	94.041	212	2.637	82.645	304	3.782	62.889	302	3.757	42.498
29.00-	AND UP	102	1.269	99.900	422	5.250	99.291	1025	12.752	95.397	1845	22.953	85.842	2358	29.336	71.833
CASE COUNTS		8030			7981			7668			6900			5774		

Fig. C-12. Histogram data from hour 2. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 3

NUMBER OF SCANS 942

TOTAL FLYING TIME COUNT 5395

FILTERING: 1.5 DEG. ANGULAR

OT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	78	1.446	1.446	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	166	3.077	4.523	4	.074	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	260	4.819	9.342	10	.185	.259	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	237	4.393	13.735	20	.371	.630	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	326	6.043	19.778	83	1.538	2.169	3	.056	.056	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	418	7.748	27.525	158	2.929	5.097	12	.222	.278	0	0.000	0.000	0	0.000	0.000
8.00-	9.00	382	7.081	34.606	167	3.095	8.193	38	.704	.982	5	.093	.093	0	0.000	0.000
9.00-	10.00	337	6.247	40.853	242	4.486	12.678	70	1.297	2.280	17	.315	.408	1	.019	.019
10.00-	11.00	452	8.378	49.231	254	4.708	17.386	93	1.724	4.004	5	.093	.500	0	0.000	.019
11.00-	12.00	373	6.914	56.144	341	6.321	23.707	166	3.077	7.081	51	.945	1.446	3	.056	.074
12.00-	13.00	439	8.137	64.281	375	6.951	30.658	208	3.855	10.936	85	1.576	3.021	23	.426	.500
13.00-	14.00	246	4.560	68.841	343	6.358	37.016	206	3.818	14.754	96	1.779	4.801	65	1.205	1.705
14.00-	15.00	221	4.096	72.938	307	5.690	42.706	249	4.615	19.370	96	1.779	6.580	31	.575	2.280
15.00-	16.00	163	3.021	75.959	181	3.355	46.061	197	3.652	23.021	111	2.057	8.638	28	.519	2.799
16.00-	17.00	145	2.688	78.647	281	5.209	51.270	224	4.152	27.173	140	2.595	11.233	68	1.260	4.059
17.00-	18.00	120	2.224	80.871	255	4.727	55.996	241	4.467	31.640	170	3.151	14.384	90	1.668	5.728
18.00-	19.00	95	1.761	82.632	204	3.781	59.777	200	3.707	35.347	166	3.077	17.461	73	1.353	7.081
19.00-	20.00	127	2.354	84.986	195	3.614	63.392	240	4.449	39.796	148	2.743	20.204	83	1.538	8.619
20.00-	21.00	123	2.280	87.266	163	3.021	66.413	265	4.912	44.708	167	3.095	23.299	78	1.446	10.065
21.00-	22.00	97	1.798	89.064	130	2.410	68.823	195	3.614	48.322	165	3.058	26.358	102	1.891	11.955
22.00-	23.00	75	1.390	90.454	188	3.485	72.307	157	2.910	51.232	156	2.892	29.249	110	2.039	13.994
23.00-	24.00	66	1.223	91.677	152	2.817	75.125	149	2.762	53.994	136	2.521	31.770	149	2.762	16.756
24.00-	25.00	32	.593	92.270	70	1.297	76.422	152	2.817	56.812	156	2.892	34.662	125	2.317	19.073
25.00-	26.00	24	.445	92.715	84	1.557	77.979	136	2.521	59.333	159	2.947	37.609	105	1.946	21.019
26.00-	27.00	28	.519	93.234	76	1.409	79.388	124	2.298	61.631	160	2.966	40.574	81	1.501	22.521
27.00-	28.00	25	.463	93.698	70	1.297	80.686	103	1.909	63.540	133	2.465	43.040	70	1.297	23.818
28.00-	29.00	20	.371	94.068	74	1.372	82.057	94	1.742	65.282	134	2.484	45.523	138	2.558	26.376
29.00	AND UP	118	2.187	96.256	267	4.949	87.006	436	8.082	73.364	603	11.177	56.700	787	14.588	40.964
CASE COUNTS		5193			4694			3958			3059			2210		

110

Fig. C-13. Histogram data from hour 3. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 4

NUMBER OF SCANS 1017

TOTAL FLYING TIME COUNT 12611

FILTERING: 1.5 DEG. ANGULAR

OT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	4	.032	.032	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	90	.714	.745	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	946	7.501	8.247	66	.523	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	2002	15.875	24.122	750	5.947	6.471	83	.658	.658	2	.016	.016	0	0.000	0.000
4.00-	5.00	1578	12.513	36.635	1535	12.172	18.642	765	6.066	6.724	200	1.586	1.602	13	.103	.103
5.00-	6.00	812	6.439	43.073	1087	8.619	27.262	921	7.303	14.027	481	3.814	5.416	150	1.189	1.293
6.00-	7.00	1231	9.761	52.835	791	6.272	43.534	1038	8.231	22.258	712	5.646	11.062	324	2.569	3.862
7.00-	8.00	1015	8.048	60.883	825	6.542	40.076	818	6.486	28.745	796	6.312	17.374	577	4.575	8.437
8.00-	9.00	906	7.184	68.067	654	5.186	45.262	624	4.948	33.693	853	6.764	24.138	670	5.313	13.750
9.00-	10.00	678	5.376	73.444	775	6.145	51.407	556	4.499	38.102	796	6.312	30.450	859	6.811	20.561
10.00-	11.00	337	2.672	76.116	606	4.805	56.213	602	4.774	42.875	523	4.147	34.597	559	4.433	24.994
11.00-	12.00	456	3.616	79.732	539	4.274	60.487	449	3.560	46.436	376	2.982	37.578	449	3.560	28.554
12.00-	13.00	391	3.100	82.832	417	3.307	63.793	429	3.402	49.837	421	3.338	40.917	473	3.751	32.305
13.00-	14.00	319	2.530	85.362	461	3.656	67.449	422	3.346	53.183	421	3.338	44.255	505	4.004	36.309
14.00-	15.00	342	2.712	88.074	491	3.893	71.342	580	4.671	57.854	419	3.322	47.577	450	3.568	39.878
15.00-	16.00	279	2.212	90.286	410	3.251	74.594	529	4.195	62.049	445	3.529	51.106	384	3.045	42.923
16.00-	17.00	269	2.133	92.419	380	3.013	77.607	462	3.663	65.712	461	3.656	54.762	417	3.307	46.229
17.00-	18.00	206	1.633	94.052	419	3.322	80.929	442	3.505	69.217	393	3.116	57.878	381	3.021	49.250
18.00-	19.00	149	1.182	95.234	303	2.403	83.332	396	3.140	72.357	427	3.386	61.264	339	2.688	51.939
19.00-	20.00	100	.793	96.027	294	2.331	85.663	392	3.108	75.466	392	3.108	64.372	346	2.744	54.682
20.00-	21.00	81	.642	96.669	241	1.911	87.574	333	2.641	78.106	374	2.966	67.338	313	2.482	57.164
21.00-	22.00	94	.745	97.415	305	2.419	89.993	350	2.775	80.882	396	3.140	70.478	376	2.982	60.146
22.00-	23.00	93	.737	98.152	276	2.189	92.181	368	2.918	83.800	435	3.440	73.927	495	3.925	64.071
23.00-	24.00	85	.674	98.826	261	2.070	94.251	399	3.164	86.964	447	3.546	77.472	506	4.012	68.083
24.00-	25.00	56	.444	99.270	172	1.364	95.615	331	2.625	89.588	418	3.315	80.786	464	3.679	71.762
25.00-	26.00	37	.293	99.564	170	1.348	96.963	238	1.887	91.476	365	2.894	83.681	387	3.069	74.831
26.00-	27.00	18	.143	99.706	107	.848	97.811	205	1.626	93.101	311	2.466	86.147	341	2.704	77.535
27.00-	28.00	14	.111	99.817	87	.690	98.501	178	1.411	94.512	265	2.101	88.248	345	2.736	80.271
28.00-	29.00	15	.119	99.936	49	.389	98.890	114	.904	95.417	224	1.776	90.024	300	2.379	82.650
29.00	AND UP	1	.008	99.944	120	.952	99.841	489	3.878	99.294	929	7.367	97.391	1331	10.554	93.204

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CASE COUNTS 12604

12591

12522

12282

11754

Fig. C-14. Histogram data from hour 4. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 5

NUMBER OF SCANS 1071

TOTAL FLYING TIME COUNT 7445

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	65	.873	.873	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	99	1.330	2.203	11	.148	.148	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	237	3.183	5.386	17	.228	.376	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	442	5.937	11.323	101	1.357	1.733	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	337	4.527	15.850	108	1.451	3.183	14	.188	.188	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	284	3.815	19.664	197	2.646	5.829	44	.591	.779	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	685	9.201	28.865	181	2.431	8.261	90	1.209	1.988	13	.175	.175	0	0.000	0.000
8.00-	9.00	476	6.394	35.258	251	3.371	11.632	112	1.504	3.492	31	.416	.591	9	.121	.121
9.00-	10.00	332	4.459	39.718	284	3.815	15.447	207	2.780	6.273	49	.658	1.249	7	.094	.215
10.00-	11.00	436	5.856	45.574	399	5.359	20.806	204	2.740	9.013	117	1.572	2.821	17	.161	.376
11.00-	12.00	384	5.158	50.732	258	3.465	24.271	225	3.022	12.035	118	1.585	4.406	29	.390	.766
12.00-	13.00	247	3.318	54.050	348	4.674	28.945	263	3.533	15.567	225	3.022	7.428	81	1.088	1.854
13.00-	14.00	305	4.097	58.146	338	4.540	33.485	285	3.828	19.396	188	2.525	9.953	117	1.572	3.425
14.00-	15.00	255	3.425	61.571	330	4.432	37.918	254	3.412	22.807	155	2.082	12.035	73	.981	4.406
15.00-	16.00	249	3.345	64.916	334	4.486	42.404	268	3.600	26.407	195	2.619	14.654	110	1.477	5.883
16.00-	17.00	261	3.506	68.422	310	4.164	46.568	199	2.673	29.080	217	2.915	17.569	152	2.042	7.925
17.00-	18.00	238	3.197	71.618	240	3.224	49.792	236	3.170	32.250	195	2.619	20.188	148	1.988	9.913
18.00-	19.00	238	3.197	74.815	328	4.406	54.197	328	4.406	36.655	211	2.834	23.022	157	2.109	12.021
19.00-	20.00	225	3.022	77.837	268	3.600	57.797	238	3.197	39.852	204	2.740	25.762	133	1.786	13.808
20.00-	21.00	264	3.546	81.383	263	3.533	61.330	284	3.815	43.667	223	2.995	28.757	180	2.418	16.226
21.00-	22.00	199	2.673	84.056	240	3.224	64.553	256	3.439	47.105	231	3.103	31.860	156	2.095	18.321
22.00-	23.00	170	2.283	86.340	241	3.237	67.790	171	2.297	49.402	157	2.109	33.969	133	1.786	20.107
23.00-	24.00	168	2.257	88.596	209	2.807	70.597	183	2.458	51.860	196	2.633	36.602	177	2.377	22.485
24.00-	25.00	153	2.055	90.651	213	2.861	73.458	175	2.351	54.211	163	2.189	38.791	181	2.431	24.916
25.00-	26.00	169	2.270	92.921	255	3.425	76.884	216	2.901	57.112	228	3.062	41.854	181	2.431	27.347
26.00-	27.00	138	1.854	94.775	267	3.586	80.470	289	3.882	60.994	199	2.673	44.526	219	2.942	30.269
27.00-	28.00	68	.913	95.688	163	2.189	82.659	260	3.492	64.486	198	2.659	47.186	224	3.009	33.297
28.00-	29.00	50	.672	96.360	133	1.786	84.446	220	2.955	67.441	205	2.754	49.939	207	2.780	36.078
29.00	AND UP	237	3.183	99.543	877	11.780	96.225	1260	16.924	84.365	1484	19.933	69.872	1549	20.806	56.884

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Fig. C-15. Histogram data from hour 5. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 6

NUMBER OF SCANS 711

TOTAL FLYING TIME COUNT 3568

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00	2.00	14	.392	.448	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	117	3.279	3.728	5	.140	.140	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	249	6.979	10.706	53	1.485	1.626	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	319	8.941	19.647	116	3.251	4.877	15	.420	.420	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	319	8.941	28.587	166	4.652	9.529	36	1.009	1.429	4	.112	.112	0	0.000	0.000
6.00-	7.00	368	10.314	38.901	196	5.493	15.022	133	3.728	5.157	24	.673	.785	0	0.000	0.000
7.00-	8.00	342	9.585	48.486	183	5.129	20.151	102	2.859	8.016	59	1.654	2.438	4	.112	.112
8.00-	9.00	243	6.811	55.297	153	4.288	24.439	86	2.410	10.426	55	1.541	3.980	13	.364	.476
9.00-	10.00	185	5.185	60.482	190	5.325	29.765	134	3.756	14.182	43	1.205	5.185	31	.869	1.345
10.00-	11.00	143	4.008	64.490	123	3.447	33.212	83	2.326	16.508	59	1.654	6.839	22	.617	1.962
11.00-	12.00	94	2.635	67.124	115	3.223	36.435	134	3.756	20.263	97	2.719	9.557	53	1.485	3.447
12.00-	13.00	68	1.906	69.030	155	4.344	40.779	112	3.139	23.402	71	1.990	11.547	29	.813	4.260
13.00-	14.00	97	2.719	71.749	270	7.567	48.346	113	3.157	26.569	84	2.354	13.901	57	1.598	5.858
14.00-	15.00	88	2.466	74.215	169	4.737	53.083	93	2.606	29.176	91	2.550	16.452	65	1.822	7.679
15.00-	16.00	89	2.494	76.709	108	3.027	56.110	141	3.952	33.128	82	2.298	18.750	62	1.738	9.417
16.00-	17.00	58	1.626	78.335	112	3.139	59.249	111	3.111	36.239	93	2.606	21.356	83	2.326	11.743
17.00-	18.00	68	1.906	80.241	52	1.457	60.706	92	2.578	38.817	62	1.738	23.094	60	1.682	13.425
18.00-	19.00	49	1.373	81.614	59	1.654	62.360	93	2.606	41.424	65	1.822	24.916	62	1.738	15.163
19.00-	20.00	40	1.121	82.735	73	2.046	64.406	86	2.410	43.834	52	1.457	26.373	45	1.261	16.424
20.00-	21.00	53	1.485	84.220	68	1.906	66.312	68	1.906	45.740	48	1.345	27.719	48	1.345	17.769
21.00-	22.00	51	1.429	85.650	63	1.766	68.077	87	2.438	48.178	74	2.074	29.793	57	1.598	19.367
22.00-	23.00	32	.897	86.547	57	1.598	69.675	99	2.775	50.953	102	2.859	32.651	68	1.906	21.272
23.00-	24.00	22	.617	87.163	48	1.345	71.020	67	1.878	52.831	66	1.850	34.501	64	1.794	23.066
24.00-	25.00	16	.448	87.612	39	1.093	72.113	82	2.298	55.129	76	2.137	36.631	56	1.569	24.636
25.00-	26.00	18	.504	88.116	42	1.177	73.290	83	2.326	57.455	92	2.578	39.209	59	1.654	26.289
26.00-	27.00	23	.645	88.761	48	1.345	74.635	74	2.074	59.529	75	2.102	41.312	76	2.130	28.419
27.00-	28.00	64	1.794	90.555	43	1.205	75.841	69	1.934	61.463	92	2.578	43.890	62	1.738	30.157
28.00-	29.00	35	.981	91.536	57	1.598	77.438	59	1.654	63.116	97	2.719	46.609	71	1.990	32.147
29.00	AND UP	57	1.598	93.133	207	5.802	83.240	325	9.109	72.225	495	13.873	60.482	589	16.508	48.655
CASE COUNTS		3323			2970			2577			2158			1736		

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Fig. C-16. Histogram data from hour 6. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 7

NUMBER OF SCANS 903

TOTAL FLYING TIME COUNT 8508

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN		NOT LESS THAN		K= 1		K= 2		K= 3		K= 4		K= 5	
			%	CUM.%		%	CUM.%		%	CUM.%		%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	2	.24	.24	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	74	8.70	8.93	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	411	4.831	5.724	12	.141	.141	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	622	7.311	13.035	62	.729	.870	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	481	5.653	18.688	160	1.881	2.750	11	.129	.129	0	0.000	0.000
6.00-	7.00	620	7.287	25.975	218	2.562	5.313	31	.364	.494	6	.071	.071
7.00-	8.00	907	10.661	36.636	338	3.973	9.285	55	.646	1.140	9	.104	.176
8.00-	9.00	836	9.826	46.462	615	7.228	16.514	187	2.198	3.338	29	.341	.517
9.00-	10.00	675	7.934	54.396	545	6.406	22.920	274	3.220	6.559	68	.799	1.316
10.00-	11.00	612	7.193	61.589	738	8.674	31.594	386	4.537	11.095	165	1.939	3.256
11.00-	12.00	676	7.945	69.534	780	9.262	40.856	545	6.406	17.501	286	3.362	6.617
12.00-	13.00	539	6.335	75.870	745	8.756	49.612	667	7.840	25.341	450	5.289	11.906
13.00-	14.00	298	3.503	79.372	638	7.499	57.111	662	7.781	33.122	426	5.007	16.913
14.00-	15.00	174	2.045	81.417	445	5.230	62.341	623	7.322	40.444	525	6.171	23.084
15.00-	16.00	212	2.492	83.909	372	4.372	66.713	584	6.864	47.308	579	6.805	29.889
16.00-	17.00	166	1.951	85.860	458	5.383	72.097	439	5.160	52.468	425	4.995	34.885
17.00-	18.00	169	1.986	87.846	274	3.220	75.317	330	3.879	56.347	392	4.607	39.492
18.00-	19.00	139	1.634	89.480	210	2.468	77.785	265	3.115	59.462	319	3.749	43.242
19.00-	20.00	135	1.587	91.067	163	1.916	79.701	311	3.655	63.117	362	4.255	47.496
20.00-	21.00	119	1.399	92.466	176	2.069	81.770	302	3.550	66.667	327	3.843	51.340
21.00-	22.00	59	.693	93.159	104	1.222	82.992	285	3.350	70.016	265	3.115	54.455
22.00-	23.00	41	.482	93.641	109	1.281	84.273	235	2.762	72.778	252	2.962	57.417
23.00-	24.00	80	.940	94.581	136	1.598	85.872	205	2.409	75.188	335	3.937	61.354
24.00-	25.00	47	.552	95.134	137	1.610	87.482	192	2.257	77.445	248	2.915	64.269
25.00-	26.00	53	.623	95.757	131	1.540	89.022	199	2.339	79.783	255	2.997	67.266
26.00-	27.00	35	.411	96.168	92	1.081	90.103	164	1.928	81.711	245	2.880	70.146
27.00-	28.00	57	.670	96.838	106	1.246	91.349	173	2.033	83.744	203	2.386	72.531
28.00-	29.00	62	.729	97.567	107	1.258	92.607	142	1.669	85.413	165	1.939	74.471
29.00-	AN UP	173	2.033	99.600	361	4.243	96.850	623	7.322	92.736	1084	12.741	87.212

CASE COUNTS

8474

8240

7890

7420

6711

Fig. C-17. Histogram data from hour 7. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 8

NUMBER OF SCANS 1012

TOTAL FLYING TIME COUNT 7646

FILTERING: 1.5 DEG. ANGULAR

115

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	38	.497	.497	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	142	1.857	2.354	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	550	7.193	9.547	54	.706	1.706	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	417	5.454	15.001	197	2.576	3.283	10	.131	.131	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	511	6.683	21.684	217	2.838	6.121	39	.510	.641	3	.039	.039	0	0.000	0.000
6.00-	7.00	499	6.526	28.211	189	2.472	8.593	61	.798	1.439	2	.026	.065	0	0.000	0.000
7.00-	8.00	363	4.748	32.958	192	2.511	11.104	71	.929	2.367	10	.131	.196	0	0.000	0.000
8.00-	9.00	443	5.794	38.752	315	4.120	15.224	128	1.674	4.041	21	.275	.471	14	.183	.183
9.00-	10.00	566	7.403	46.155	346	4.525	19.749	130	1.700	5.742	40	.523	.994	4	.052	.235
10.00-	11.00	438	5.728	51.883	261	3.414	23.162	248	3.244	8.985	52	.680	1.674	2	.026	.262
11.00-	12.00	337	4.408	56.291	333	4.355	27.518	292	3.819	12.804	76	.994	2.668	17	.222	.484
12.00-	13.00	273	3.570	59.861	330	4.316	31.833	296	3.871	16.675	131	1.713	4.381	61	.798	1.282
13.00-	14.00	305	3.989	63.850	345	4.512	36.346	336	4.394	21.070	178	2.328	6.709	99	1.295	2.576
14.00-	15.00	366	4.787	68.637	470	6.147	42.493	347	4.538	25.608	278	3.636	10.345	137	1.792	4.368
15.00-	16.00	484	6.330	74.967	479	6.265	48.757	316	4.133	29.741	216	2.825	13.170	142	1.857	6.225
16.00-	17.00	251	3.283	78.250	368	4.813	53.570	295	3.858	33.599	222	2.903	16.074	90	1.177	7.403
17.00-	18.00	235	3.074	81.323	480	6.278	59.848	373	4.878	38.478	214	2.799	18.873	74	.968	8.370
18.00-	19.00	179	2.341	83.664	336	4.394	64.242	344	4.499	42.977	237	3.100	21.972	145	1.896	10.267
19.00-	20.00	143	1.870	85.535	242	3.165	67.407	322	4.211	47.188	284	3.714	25.687	119	1.556	11.823
20.00-	21.00	130	1.700	87.235	206	2.694	70.102	251	3.283	50.471	288	3.767	29.453	143	1.870	13.693
21.00-	22.00	189	2.472	89.707	244	3.191	73.293	334	4.368	54.839	370	4.830	34.292	250	3.270	16.963
22.00-	23.00	172	2.250	91.956	246	3.217	76.510	359	4.695	59.534	397	5.192	39.485	289	3.780	20.743
23.00-	24.00	154	2.014	93.970	182	2.380	78.891	311	4.067	63.602	362	4.734	44.219	254	3.322	24.065
24.00-	25.00	117	1.530	95.501	166	2.171	81.062	237	3.100	66.701	278	3.636	47.855	284	3.714	27.779
25.00-	26.00	69	.902	96.403	197	2.576	83.638	272	3.557	70.259	272	3.557	51.412	250	3.270	31.049
26.00-	27.00	134	1.753	98.156	171	2.236	85.875	276	3.610	73.868	281	3.675	55.087	255	3.335	34.384
27.00-	28.00	37	.484	98.640	213	2.786	88.660	185	2.420	76.288	264	3.453	58.540	226	2.956	37.340
28.00-	29.00	26	.340	98.980	188	2.459	91.119	157	2.053	78.341	222	2.903	61.444	195	2.550	39.890
29.00-	AND UP	51	.667	99.647	530	6.932	98.051	1214	15.878	94.219	1933	25.281	86.725	2384	31.180	71.070
CASE COUNTS		7619			7497			7204			6631			5434		

Fig. C-18. Histogram data from hour 8. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 9

NUMBER OF SCANS 1155

TOTAL FLYING TIME COUNT 6555

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%	
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
1.00-	2.00	10	.153	.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
2.00-	3.00	50	.763	.915	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
3.00-	4.00	288	4.394	5.309	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
4.00-	5.00	352	5.370	10.679	30	.458	.458	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
5.00-	6.00	415	6.331	17.010	65	.992	1.449	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	
6.00-	7.00	558	8.513	25.522	70	1.068	2.517	3	.046	.046	0	0.000	0.000	0	0.000	0.000	
7.00-	8.00	528	8.055	33.577	225	3.432	5.950	23	.351	.397	0	0.000	0.000	0	0.000	0.000	
8.00-	9.00	522	7.963	41.541	313	4.775	10.725	141	2.151	2.548	8	.122	.122	0	0.000	0.000	
9.00-	10.00	343	5.233	46.773	276	4.211	14.935	83	1.266	3.814	8	.122	.244	0	0.000	0.000	
10.00-	11.00	369	5.629	52.403	358	5.461	20.397	93	1.419	5.233	25	.381	.625	13	.198	.198	
11.00-	12.00	330	5.034	57.437	373	5.690	26.087	167	2.548	7.780	44	.671	1.297	21	.320	.519	
12.00-	13.00	282	4.302	61.739	354	5.400	31.487	225	3.432	11.213	58	.885	2.182	11	.168	.686	
13.00-	14.00	277	4.226	65.965	421	6.423	37.910	273	4.165	15.378	97	1.480	3.661	9	.137	.824	
14.00-	15.00	218	3.326	69.291	323	4.928	42.838	298	4.546	19.924	136	2.075	5.736	30	.458	1.281	
15.00-	16.00	222	3.387	72.677	291	4.439	47.277	251	3.829	23.753	125	1.907	7.643	22	.336	1.617	
16.00-	17.00	240	3.661	76.338	307	4.683	51.960	354	5.400	29.153	191	2.914	10.557	33	.503	2.121	
17.00-	18.00	204	3.112	79.451	253	3.860	55.820	278	4.241	33.394	169	2.578	13.135	84	1.281	3.402	
18.00-	19.00	177	2.700	82.151	227	3.463	59.283	202	3.082	36.476	159	2.426	15.561	96	1.465	4.867	
19.00-	20.00	154	2.349	84.500	297	4.531	63.814	305	4.653	41.129	151	2.456	18.017	70	1.068	5.934	
20.00-	21.00	98	1.495	85.995	201	3.066	66.880	204	3.112	44.241	118	1.800	19.817	88	1.342	7.277	
21.00-	22.00	89	1.358	87.353	186	2.838	69.718	194	2.960	47.201	178	2.715	22.532	103	1.571	8.848	
22.00-	23.00	103	1.571	88.924	172	2.624	72.341	201	3.066	50.267	168	2.563	25.095	105	1.602	10.450	
23.00-	24.00	86	1.312	90.236	119	1.815	74.157	184	2.807	53.074	112	1.709	26.804	76	1.159	11.609	
24.00-	25.00	104	1.587	91.823	123	1.876	76.033	156	2.380	55.454	110	1.678	28.482	69	1.053	12.662	
25.00-	26.00	83	1.266	93.089	134	2.044	78.078	131	1.998	57.452	96	1.465	29.946	84	1.281	13.944	
26.00-	27.00	56	.854	93.943	98	1.495	79.573	114	1.739	59.191	158	2.410	32.357	66	1.007	14.950	
27.00-	28.00	42	.641	94.584	63	.961	80.534	121	1.846	61.037	109	1.663	34.020	78	1.190	16.140	
28.00-	29.00	38	.580	95.164	37	.564	81.098	84	1.281	62.319	133	2.029	36.049	75	1.144	17.284	
29.00	AND UP	96	1.465	96.628	442	6.743	87.841	734	11.198	73.516	773	11.793	47.841	544	8.825	27.109	
CASE COUNTS		6334		5758		4819		3135		1777							

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Fig.C-19. Histogram data from hour 9. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5 \text{ deg.}$

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 10

NUMBER OF SCANS 985

TOTAL FLYING TIME COUNT 1113A

FILTERING: 1.5 DEG. ANGULAR

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	12	.126	.126	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	248	2.227	2.352	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	1084	9.732	12.085	68	.611	.611	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	1057	9.490	21.575	218	1.957	2.568	7	.063	.063	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	878	7.883	29.458	546	5.800	8.368	167	1.499	1.562	26	.233	.233	0	0.000	0.000
6.00-	7.00	1047	9.400	38.858	590	5.297	13.665	217	1.948	3.510	76	.682	.915	32	.287	.287
7.00-	8.00	1137	10.208	49.066	665	5.971	19.635	314	2.819	6.330	127	1.140	2.056	50	.449	.736
8.00-	9.00	1011	9.077	58.143	888	7.973	27.608	542	4.866	11.196	159	1.517	3.573	46	.413	1.149
9.00-	10.00	815	7.317	65.460	1098	9.858	37.466	769	6.904	18.100	295	2.649	6.222	88	.790	1.939
10.00-	11.00	621	5.576	71.036	910	8.170	45.636	1043	9.364	27.464	638	5.722	11.950	257	2.307	4.247
11.00-	12.00	552	4.956	75.992	735	6.599	52.235	649	5.827	33.291	698	6.267	18.217	430	3.861	8.107
12.00-	13.00	593	5.324	81.316	772	6.931	59.167	788	7.075	40.366	693	6.222	24.439	368	3.304	11.411
13.00-	14.00	347	3.115	84.432	577	5.180	64.347	644	5.782	46.148	539	4.839	29.279	482	4.328	15.739
14.00-	15.00	254	2.280	86.712	509	4.570	68.917	684	6.141	52.289	698	6.267	35.545	636	5.710	21.449
15.00-	16.00	262	2.352	89.064	498	4.471	73.388	669	6.006	58.296	882	7.919	43.464	689	6.186	27.635
16.00-	17.00	265	2.379	91.444	500	4.489	77.877	647	5.809	64.105	800	7.183	50.646	795	7.138	34.773
17.00-	18.00	177	1.589	93.033	471	4.229	82.106	540	4.848	68.953	588	5.272	55.926	763	6.850	41.623
18.00-	19.00	128	1.149	94.182	371	3.331	85.437	468	4.202	73.155	525	4.714	60.639	508	4.561	46.184
19.00-	20.00	125	1.122	95.304	257	2.307	87.744	399	3.582	76.737	448	4.022	64.661	552	4.956	51.140
20.00-	21.00	119	1.068	96.373	187	1.679	89.423	393	3.528	80.265	515	4.624	69.285	541	4.857	55.997
21.00-	22.00	89	.799	97.172	176	1.580	91.003	288	2.586	82.851	379	3.403	72.688	489	4.390	60.388
22.00-	23.00	98	.880	98.052	200	1.796	92.799	279	2.505	85.356	355	3.277	75.965	493	4.426	64.814
23.00-	24.00	57	.512	98.563	174	1.562	94.361	283	2.541	87.897	329	2.954	78.919	455	4.085	68.899
24.00-	25.00	45	.404	98.967	154	1.383	95.744	229	2.056	89.953	324	2.909	81.828	390	3.502	72.401
25.00-	26.00	22	.198	99.165	97	.871	96.615	207	1.858	91.812	279	2.505	84.333	360	3.232	75.633
26.00-	27.00	35	.314	99.479	113	1.015	97.629	163	1.453	93.275	141	1.265	85.958	265	2.379	78.012
27.00-	28.00	10	.090	99.569	75	.673	98.303	147	1.320	94.595	230	2.065	88.023	265	2.379	80.391
28.00-	29.00	9	.081	99.650	44	.395	98.698	117	1.050	95.646	154	1.383	89.406	213	1.912	82.304
29.00	AND UP	30	.269	99.919	71	.637	99.335	280	2.514	98.159	647	5.988	95.394	998	8.960	91.264
CASE COUNTS		11129			11064			10933			10525			10165		

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Fig. C-20. Histogram data from hour 10. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: 1.5 DEG. ANGULAR

OT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	14	.313	.313	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	12	.268	.581	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	42	.939	1.520	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	110	2.459	3.979	1	.022	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	136	3.040	7.018	0	0.000	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	173	3.867	10.885	6	.134	.156	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
8.00-	9.00	146	3.263	14.148	14	.313	.469	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9.00-	10.00	113	2.526	16.674	22	.492	.961	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	11.00	194	4.336	21.010	24	.536	1.498	3	.067	.067	0	0.000	0.000	0	0.000	0.000
11.00-	12.00	242	5.409	26.419	54	1.207	2.705	0	0.000	.067	0	0.000	0.000	0	0.000	0.000
12.00-	13.00	255	5.700	32.119	40	.894	3.599	0	0.000	.067	0	0.000	0.000	0	0.000	0.000
13.00-	14.00	201	4.493	36.611	61	1.363	4.962	1	.022	.089	0	0.000	0.000	0	0.000	0.000
14.00-	15.00	193	4.314	40.925	54	1.207	6.169	8	.179	.268	0	0.000	0.000	0	0.000	0.000
15.00-	16.00	112	2.503	43.429	23	.514	6.683	0	0.000	.268	0	0.000	0.000	0	0.000	0.000
16.00-	17.00	114	2.548	45.977	34	.760	7.443	0	0.000	.268	0	0.000	0.000	0	0.000	0.000
17.00-	18.00	126	2.816	48.793	65	1.453	8.896	2	.045	.313	0	0.000	0.000	0	0.000	0.000
18.00-	19.00	98	2.190	50.983	76	1.699	10.595	19	.425	.738	0	0.000	0.000	0	0.000	0.000
19.00-	20.00	139	3.107	54.090	80	1.788	12.383	8	.179	.916	0	0.000	0.000	0	0.000	0.000
20.00-	21.00	118	2.637	56.728	85	1.900	14.283	3	.067	.983	2	.045	.045	0	0.000	0.000
21.00-	22.00	111	2.481	59.209	78	1.743	16.026	6	.134	1.118	4	.089	.134	0	0.000	0.000
22.00-	23.00	93	2.079	61.287	83	1.855	17.881	20	.447	1.565	4	.089	.224	0	0.000	0.000
23.00-	24.00	68	1.520	62.807	50	1.118	18.999	12	.268	1.833	0	0.000	.224	0	0.000	0.000
24.00-	25.00	87	1.945	64.752	57	1.274	20.273	9	.201	2.034	0	0.000	.224	0	0.000	0.000
25.00-	26.00	83	1.855	66.607	41	.916	21.189	15	.335	2.369	0	0.000	.224	0	0.000	0.000
26.00-	27.00	108	2.414	69.021	85	1.900	23.089	31	.693	3.062	5	.112	.335	0	0.000	0.000
27.00-	28.00	62	1.386	70.406	61	1.363	24.452	4	.089	3.152	2	.045	.380	0	0.000	0.000
28.00-	29.00	49	1.095	71.501	41	.916	25.369	20	.447	3.599	0	0.000	.380	0	0.000	0.000
29.00-	AND UP	166	3.710	75.212	306	6.840	32.208	173	3.867	7.465	35	.782	1.162	0	0.000	0.000
CASE COUNTS		3365			1441			334			52			0		

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Fig. C-21. Histogram data from hour 12. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5$ deg.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: 1.5 DEG. ANGULAR

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NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	6	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	158	1.469	1.525	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	706	6.566	8.091	17	.158	.158	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	858	7.979	16.070	98	.911	1.769	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	785	7.300	23.370	147	1.367	2.437	5	.046	.046	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	704	6.547	29.917	311	2.892	5.329	3	.028	.074	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	814	7.570	37.487	362	3.366	8.695	39	.363	.437	0	0.000	0.000	0	0.000	0.000
8.00-	9.00	654	6.082	43.569	359	3.339	12.034	58	.539	.976	2	.019	.019	0	0.000	0.000
9.00-	10.00	605	5.626	49.195	437	4.064	16.198	104	.967	1.944	5	.046	.065	0	0.000	0.000
10.00-	11.00	557	5.180	54.375	451	4.194	20.292	186	1.730	3.673	10	.093	.158	0	0.000	0.000
11.00-	12.00	554	5.152	59.527	400	3.720	24.012	151	1.404	5.078	26	.242	.400	7	.019	.019
12.00-	13.00	458	4.259	63.787	474	4.408	28.420	170	1.581	6.659	42	.391	.790	7	.094	.102
13.00-	14.00	442	4.110	67.897	554	5.152	33.572	268	2.492	9.151	81	.753	1.544	14	.130	.232
14.00-	15.00	318	2.957	70.854	421	3.915	37.487	217	2.018	11.169	50	.465	2.009	4	.074	.307
15.00-	16.00	377	3.506	74.360	419	3.897	41.384	336	3.125	14.294	79	.735	2.743	19	.177	.484
16.00-	17.00	313	2.911	77.271	311	4.752	46.136	374	3.478	17.772	126	1.172	3.915	18	.157	.651
17.00-	18.00	266	2.474	79.745	465	4.324	50.460	369	3.432	21.203	175	1.627	5.543	31	.298	.939
18.00-	19.00	252	2.344	82.089	427	3.971	54.431	463	4.306	25.509	212	1.972	7.514	39	.353	1.302
19.00-	20.00	207	1.925	84.014	495	4.603	59.034	424	3.943	29.452	205	1.906	9.421	42	.391	1.693
20.00-	21.00	205	1.906	85.920	375	3.487	62.522	435	4.045	33.498	254	2.362	11.783	97	.837	2.530
21.00-	22.00	195	1.813	87.734	336	3.125	65.647	399	3.711	37.208	244	2.269	14.052	89	.828	3.357
22.00-	23.00	182	1.693	89.426	283	2.632	68.278	431	4.008	41.216	350	3.255	17.307	133	1.237	4.594
23.00-	24.00	159	1.479	90.905	303	2.818	71.096	391	3.636	44.853	292	2.716	20.022	104	1.004	5.593
24.00-	25.00	145	1.348	92.253	299	2.781	73.877	453	4.213	49.065	290	2.697	22.719	134	1.246	6.845
25.00-	26.00	109	1.014	93.267	238	2.213	76.090	371	3.450	52.515	365	3.394	26.114	152	1.414	8.253
26.00-	27.00	69	.642	93.908	217	2.018	78.108	301	2.799	55.315	332	3.088	29.201	135	1.255	9.523
27.00-	28.00	59	.549	94.457	167	1.553	79.661	266	2.474	57.788	291	2.706	31.907	172	1.600	11.122
28.00-	29.00	46	.428	94.885	163	1.516	81.177	239	2.223	60.011	341	3.171	35.078	209	1.944	13.063
29.00	AND UP	432	4.017	98.902	1485	13.810	94.987	2661	24.747	84.758	3042	28.290	63.368	2049	23.096	36.762
CASE COUNTS		10635			10214			9114			6614			3953		

Fig. C-22. Histogram data from hour 13. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\phi_e| < 1.5 \text{ deg.}$

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 2

NUMBER OF SCANS 949

TOTAL FLYING TIME COUNT 8838

FILTERING: 500' ALT. DIFF.

GT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	18	.224	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	36	.448	.672	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	249	3.098	3.770	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	731	9.094	12.864	6	.075	.075	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	636	7.912	20.776	155	1.928	2.003	9	.112	.112	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	538	6.693	27.469	274	3.409	5.412	56	.697	.809	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	286	3.558	31.028	206	2.563	7.975	41	.510	1.319	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	367	4.566	35.593	315	3.919	11.893	90	1.120	2.438	7	.087	.087	0	0.000	0.000
8.00-	9.00	257	3.197	38.791	218	2.712	14.606	80	.995	3.434	6	.075	.162	0	0.000	0.000
9.00-	10.00	213	2.650	41.441	179	2.227	16.833	65	.809	4.242	19	.236	.398	0	0.000	0.000
10.00-	11.00	348	4.329	45.770	235	2.924	19.756	74	.921	5.163	21	.261	.659	0	0.000	0.000
11.00-	12.00	292	3.633	49.403	219	2.725	22.481	79	.983	6.146	16	.199	.858	1	.012	.012
12.00-	13.00	345	4.292	53.695	169	2.103	24.583	90	1.120	7.265	22	.274	1.132	3	.037	.050
13.00-	14.00	265	3.297	56.992	139	1.729	26.312	88	1.095	8.360	27	.336	1.468	7	.087	.137
14.00-	15.00	184	2.289	59.281	134	1.667	27.980	77	.958	9.318	57	.709	2.177	5	.062	.199
15.00-	16.00	156	1.941	61.222	99	1.232	29.211	105	1.306	10.625	49	.610	2.787	8	.100	.299
16.00-	17.00	171	2.127	63.349	114	1.418	30.629	71	.893	11.508	29	.361	3.148	8	.100	.398
17.00-	18.00	182	2.264	65.613	135	1.680	32.309	61	.759	12.267	30	.373	3.521	6	.075	.473
18.00-	19.00	194	2.414	68.027	114	1.418	33.727	94	1.159	13.436	22	.274	3.794	4	.050	.523
19.00-	20.00	193	2.401	70.428	158	1.966	35.693	108	1.344	14.780	16	.199	3.994	6	.075	.597
20.00-	21.00	112	1.393	71.821	143	1.779	37.472	103	1.281	16.061	31	.386	4.379	8	.100	.697
21.00-	22.00	103	1.281	73.103	123	1.530	39.002	77	.958	17.019	30	.373	4.752	14	.174	.871
22.00-	23.00	117	1.456	74.558	110	1.368	40.371	47	.585	17.604	32	.398	5.151	5	.062	.933
23.00-	24.00	79	.983	75.541	112	1.393	41.764	41	.510	18.114	18	.224	5.374	12	.149	1.082
24.00-	25.00	62	.771	76.312	137	1.704	43.468	49	.610	18.724	22	.274	5.648	13	.162	1.244
25.00-	26.00	62	.771	77.084	109	1.356	44.824	44	.547	19.271	16	.199	5.847	13	.162	1.406
26.00-	27.00	180	2.239	79.323	120	1.493	46.317	35	.435	19.706	30	.373	6.220	6	.075	1.480
27.00-	28.00	66	.821	80.144	91	1.132	47.450	94	1.169	20.876	39	.485	6.706	3	.037	1.518
28.00-	29.00	149	1.854	81.998	97	1.207	48.656	99	1.232	22.107	25	.311	7.017	12	.149	1.667
29.00	AND UP	422	5.250	87.248	1260	15.675	64.332	1078	13.411	77.544	660	8.211	85.755	283	3.521	90.276
CASE COUNTS		7013			5171			2855			1224			417		

Fig. C-23. Histogram data from hour 2. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 3

NUMBER OF SCANS 942

TOTAL FLYING TIME COUNT 5395

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	9	0.958	0.958	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	17	1.751	2.710	4	0.374	3.084	0	0.000	3.084	0	0.000	3.084	0	0.000	3.084
4.00-	5.00	213	2.048	5.058	5	0.473	3.557	0	0.000	3.557	0	0.000	3.557	0	0.000	3.557
5.00-	6.00	171	1.637	5.195	4	0.374	3.929	0	0.000	3.929	0	0.000	3.929	0	0.000	3.929
6.00-	7.00	178	1.699	5.624	32	0.293	6.217	0	0.000	6.217	0	0.000	6.217	0	0.000	6.217
7.00-	8.00	277	2.634	8.851	55	0.519	9.370	0	0.000	9.370	0	0.000	9.370	0	0.000	9.370
8.00-	9.00	224	2.152	11.023	62	0.584	12.007	0	0.000	12.007	0	0.000	12.007	0	0.000	12.007
9.00-	10.00	170	1.615	12.638	108	1.002	13.640	17	0.159	13.800	0	0.000	13.800	0	0.000	13.800
10.00-	11.00	281	2.679	15.317	53	0.492	14.132	20	0.187	14.319	0	0.000	14.319	0	0.000	14.319
11.00-	12.00	239	2.274	17.591	101	0.942	15.274	38	0.353	15.627	12	0.112	15.739	0	0.000	15.739
12.00-	13.00	234	2.224	19.815	81	0.751	16.026	40	0.374	16.400	3	0.028	16.428	0	0.000	16.428
13.00-	14.00	118	1.117	20.932	100	0.934	16.960	53	0.492	17.452	3	0.028	17.480	0	0.000	17.480
14.00-	15.00	120	1.132	22.104	103	0.963	17.923	35	0.324	18.247	2	0.019	18.266	0	0.000	18.266
15.00-	16.00	104	0.978	23.082	59	0.552	18.475	15	0.140	18.615	6	0.056	18.671	0	0.000	18.671
16.00-	17.00	81	0.761	23.843	65	0.608	19.083	35	0.324	19.407	1	0.009	19.416	0	0.000	19.416
17.00-	18.00	64	0.601	24.444	97	0.908	20.000	32	0.293	20.293	3	0.028	20.321	0	0.000	20.321
18.00-	19.00	50	0.470	24.914	64	0.596	20.596	20	0.187	20.783	33	0.306	21.089	1	0.009	21.098
19.00-	20.00	63	0.591	25.505	55	0.519	21.105	44	0.411	21.516	16	0.149	21.665	0	0.000	21.665
20.00-	21.00	71	0.666	26.171	53	0.492	21.597	40	0.374	21.971	8	0.075	22.046	0	0.000	22.046
21.00-	22.00	56	0.521	26.692	62	0.584	22.181	23	0.215	22.396	15	0.139	22.535	0	0.000	22.535
22.00-	23.00	70	0.657	27.349	36	0.336	22.517	6	0.056	22.573	20	0.187	22.760	0	0.000	22.760
23.00-	24.00	59	0.552	27.901	32	0.293	22.810	8	0.075	22.885	18	0.167	23.052	3	0.028	23.080
24.00-	25.00	24	0.224	28.125	49	0.456	23.266	33	0.306	23.572	20	0.187	23.759	2	0.019	23.778
25.00-	26.00	29	0.271	28.396	67	0.624	23.890	29	0.271	24.161	18	0.167	24.328	5	0.047	24.375
26.00-	27.00	29	0.271	28.667	40	0.374	24.264	33	0.306	24.570	9	0.084	24.654	1	0.009	24.663
27.00-	28.00	22	0.207	28.874	21	0.194	24.458	12	0.111	24.569	3	0.028	24.597	0	0.000	24.597
28.00-	29.00	53	0.492	29.366	26	0.242	24.700	17	0.159	24.859	4	0.037	24.896	2	0.019	24.915
29.00-	AN UP	347	3.252	32.618	427	3.967	32.585	232	2.161	34.746	100	0.934	35.680	1	0.009	35.689
CASE COUNTS		3607			1861			742			294			15		

121

Fig. C-24. Histogram data from hour 3. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 4

NUMBER OF SCANS 1017

TOTAL FLYING TIME COUNT 12411

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	1.00	12	.095	.095	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	94	.745	.841	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	964	7.644	8.485	66	.523	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	1995	15.819	24.304	750	5.947	6.471	82	.650	.650	2	.016	.016	0	0.000	0.000
4.00-	5.00	1506	11.942	36.246	1463	11.601	18.071	721	5.717	6.367	191	1.515	1.530	10	.079	.079
5.00-	6.00	646	5.122	41.369	962	7.528	25.700	807	6.399	12.767	400	3.172	4.702	128	1.015	1.094
6.00-	7.00	646	5.122	46.491	582	4.615	30.315	934	7.406	20.173	585	4.659	9.341	210	1.665	2.759
7.00-	8.00	748	5.931	52.422	455	3.608	33.923	645	5.115	25.287	637	5.051	14.392	370	3.005	5.765
8.00-	9.00	402	3.188	55.610	268	2.125	36.048	434	3.441	28.729	599	4.750	19.142	397	3.148	8.913
9.00-	10.00	432	3.426	59.036	295	2.339	38.387	263	2.095	30.814	527	4.179	23.321	381	3.021	11.934
10.00-	11.00	310	2.458	61.494	291	2.308	40.695	165	1.308	32.123	243	1.927	25.248	288	2.284	14.218
11.00-	12.00	326	2.623	64.317	163	1.293	41.987	100	.793	32.916	131	1.039	26.286	189	1.499	15.716
12.00-	13.00	282	2.236	66.553	146	1.158	43.145	46	.365	33.280	155	1.229	27.516	167	1.324	17.041
13.00-	14.00	234	1.856	68.408	217	1.721	44.865	41	.325	33.605	49	.389	27.904	90	.714	17.754
14.00-	15.00	243	1.927	70.335	124	.983	45.849	36	.285	33.891	8	.063	27.968	33	.262	18.016
15.00-	16.00	209	1.657	71.993	168	1.332	47.181	72	.571	34.462	12	.095	28.063	9	.071	18.087
16.00-	17.00	159	1.261	73.253	162	1.285	48.465	54	.428	34.890	28	.222	28.285	10	.079	18.167
17.00-	18.00	215	1.705	74.958	162	1.285	49.750	85	.674	35.564	20	.159	28.443	5	.040	18.206
18.00-	19.00	195	1.546	76.504	158	1.253	51.003	57	.452	36.016	20	.159	28.602	2	.016	18.222
19.00-	20.00	168	1.332	77.837	144	1.142	52.145	91	.722	36.738	32	.254	28.856	11	.087	18.309
20.00-	21.00	200	1.586	79.422	148	1.174	53.318	70	.555	37.293	39	.309	29.165	3	.024	18.333
21.00-	22.00	243	1.927	81.349	196	1.554	54.873	114	.904	38.197	32	.254	29.419	12	.095	18.428
22.00-	23.00	203	1.610	82.959	141	1.118	55.991	89	.706	38.902	32	.254	29.672	5	.040	18.468
23.00-	24.00	211	1.673	84.632	211	1.673	57.664	92	.730	39.632	31	.246	29.918	28	.222	18.690
24.00-	25.00	178	1.411	86.044	205	1.626	59.289	114	.904	40.536	33	.262	30.180	24	.190	18.880
25.00-	26.00	162	1.285	87.328	206	1.633	60.923	113	.896	41.432	47	.373	30.553	14	.111	18.991
26.00-	27.00	148	1.174	88.502	214	1.697	62.620	100	.793	42.225	67	.531	31.084	21	.167	19.158
27.00-	28.00	118	.936	89.437	222	1.760	64.380	147	1.166	43.391	44	.340	31.433	27	.214	19.372
28.00-	29.00	94	.745	90.183	255	2.022	66.402	119	.944	44.334	59	.468	31.901	27	.214	19.586
29.00	AND UP	550	4.361	94.544	1778	14.099	80.501	1916	15.193	59.527	1546	12.259	44.160	886	7.026	26.612

CASE COUNTS 11923

10152

7507

5569

3356

Fig. C-25. Histogram data from hour 4. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7446

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	4	.054	.054	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	83	1.115	1.168	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	119	1.598	2.767	11	.148	.148	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	240	3.223	5.990	18	.242	.349	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	316	4.244	10.234	88	1.182	1.571	1	.013	.013	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	242	3.250	13.484	67	.900	2.471	12	.151	.175	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	215	2.887	16.371	126	1.692	4.163	38	.510	.685	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	323	4.338	20.709	107	1.437	5.600	52	.698	1.383	1	.013	.013	0	0.000	0.000
8.00-	9.00	257	3.452	24.161	130	1.746	7.346	61	.819	2.203	3	.040	.054	0	0.000	0.000
9.00-	10.00	190	2.552	26.712	135	1.813	9.159	115	1.544	3.747	3	.040	.094	0	0.000	0.000
10.00-	11.00	277	3.720	30.432	140	1.880	11.039	85	1.142	4.889	30	.403	.497	0	0.000	0.000
11.00-	12.00	207	2.780	33.212	85	1.142	12.141	73	.980	5.869	20	.269	.766	6	.081	.081
12.00-	13.00	120	1.612	34.824	215	2.887	15.068	126	1.692	7.561	64	.860	1.625	5	.067	.148
13.00-	14.00	175	2.350	37.174	170	2.283	17.352	154	2.068	9.629	84	1.129	2.753	2	.027	.175
14.00-	15.00	86	1.155	38.329	57	.766	18.117	65	.873	10.502	49	.658	3.411	4	.054	.228
15.00-	16.00	81	1.088	39.417	45	.604	18.721	58	.779	11.281	45	.604	4.016	7	.094	.322
16.00-	17.00	126	1.692	41.109	36	.483	19.205	37	.497	11.778	29	.389	4.405	11	.148	.470
17.00-	18.00	126	1.692	42.801	36	.483	19.688	44	.591	12.369	28	.374	4.781	4	.054	.524
18.00-	19.00	134	1.800	44.601	47	.631	20.320	23	.309	12.678	10	.134	4.915	1	.013	.537
19.00-	20.00	122	1.638	46.240	60	.806	21.125	30	.403	13.081	6	.081	4.996	1	.013	.551
20.00-	21.00	205	2.753	48.993	61	.819	21.945	39	.524	13.605	24	.322	5.318	9	.121	.672
21.00-	22.00	86	1.155	50.148	39	.524	22.468	29	.399	13.994	12	.161	5.479	14	.188	.860
22.00-	23.00	65	.873	51.021	34	.457	22.925	22	.295	14.290	13	.175	5.654	0	0.000	.860
23.00-	24.00	110	1.477	52.498	35	.470	23.395	4	.054	14.343	12	.161	5.815	1	.013	.873
24.00-	25.00	181	2.431	54.929	47	.631	24.026	18	.242	14.585	13	.175	5.990	2	.027	.900
25.00-	26.00	168	2.256	57.185	60	.806	24.832	9	.121	14.706	3	.040	6.030	0	0.000	.900
26.00-	27.00	160	2.149	59.334	72	.967	25.799	15	.201	14.907	5	.067	6.097	0	0.000	.900
27.00-	28.00	85	1.276	60.610	53	.712	26.511	20	.269	15.176	0	0.000	6.097	0	0.000	.900
28.00-	29.00	96	1.289	61.899	63	.846	27.357	20	.269	15.444	3	.040	6.138	0	0.000	.900
29.00-	AND UP	808	10.851	72.750	1081	14.518	41.875	673	9.038	24.483	381	5.117	11.254	89	1.195	2.095

CASE COUNTS

5417

3118

1823

838

156

Fig. C-26. Histogram data from hour 5. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 6

NUMBER OF SCANS 711

TOTAL FLYING TIME COUNT 3568

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	6	.168	.168	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00	2.00	56	1.569	1.738	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	141	3.952	5.689	9	.252	.252	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	234	6.558	12.248	72	2.018	2.270	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	277	7.763	20.011	124	3.475	5.745	17	.476	.476	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	231	6.474	26.485	154	4.316	10.062	36	1.009	1.485	2	.056	.056	0	0.000	0.000
6.00-	7.00	248	6.951	33.436	139	3.896	13.957	117	3.279	4.765	13	.364	.420	0	0.000	0.000
7.00-	8.00	266	7.455	40.891	81	2.270	16.227	82	2.298	7.063	35	.981	1.401	0	0.000	0.000
8.00-	9.00	175	4.905	45.796	97	2.719	18.946	36	1.009	8.072	25	.701	2.102	5	.140	.140
9.00-	10.00	111	3.111	48.907	89	2.494	21.441	18	.504	8.576	18	.504	2.606	16	.448	.589
10.00-	11.00	70	1.962	50.869	45	1.261	22.702	14	.392	8.969	7	.196	2.803	10	.280	.869
11.00-	12.00	43	1.205	52.074	38	1.065	23.767	70	1.962	10.930	14	.392	3.195	3	.084	.953
12.00-	13.00	30	.841	52.915	36	1.009	24.776	32	.897	11.827	0	0.000	3.195	0	0.000	.953
13.00-	14.00	54	1.513	54.428	23	.645	25.420	20	.561	12.388	1	.028	3.223	0	0.000	.953
14.00-	15.00	55	1.541	55.970	32	.897	26.317	9	.252	12.640	0	0.000	3.223	0	0.000	.953
15.00-	16.00	44	1.233	57.203	26	.729	27.046	7	.196	12.836	1	.028	3.251	0	0.000	.953
16.00-	17.00	13	.364	57.567	15	.420	27.466	8	.224	13.061	0	0.000	3.251	0	0.000	.953
17.00-	18.00	3	.084	57.651	16	.448	27.915	12	.336	13.397	3	.084	3.335	1	.028	.981
18.00-	19.00	8	.224	57.875	33	.925	28.840	8	.224	13.621	1	.028	3.363	0	0.000	.981
19.00-	20.00	9	.252	58.128	19	.533	29.372	0	0.000	13.621	0	0.000	3.363	0	0.000	.981
20.00-	21.00	17	.476	58.604	17	.476	29.849	0	0.000	13.621	0	0.000	3.363	0	0.000	.981
21.00-	22.00	34	.953	59.557	12	.336	30.185	6	.168	13.789	0	0.000	3.363	0	0.000	.981
22.00-	23.00	29	.813	60.370	17	.476	30.661	6	.168	13.957	0	0.000	3.363	0	0.000	.981
23.00-	24.00	20	.561	60.930	16	.448	31.110	8	.224	14.182	0	0.000	3.363	0	0.000	.981
24.00-	25.00	17	.476	61.407	11	.308	31.418	3	.084	14.266	3	.084	3.447	0	0.000	.981
25.00-	26.00	16	.448	61.855	11	.308	31.726	4	.112	14.378	5	.140	3.587	0	0.000	.981
26.00-	27.00	21	.589	62.444	11	.308	32.035	17	.476	14.854	1	.028	3.615	0	0.000	.981
27.00-	28.00	16	.448	62.892	16	.448	32.483	3	.084	14.938	0	0.000	3.615	0	0.000	.981
28.00-	29.00	17	.476	63.369	22	.617	33.100	7	.196	15.135	0	0.000	3.615	0	0.000	.981
29.00	AND UP	325	9.109	72.477	298	8.352	41.452	98	2.747	17.881	9	.252	3.868	2	.056	1.037
CASE COUNTS		2586			1479			638			138			37		

124

Fig. C-27. Histogram data from hour 6. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 7

NUMBER OF SCANS 903

TOTAL FLYING TIME COUNT 8508

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	6	.071	.071	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	90	1.058	1.128	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	400	4.701	5.830	9	.106	.106	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	515	6.053	11.883	55	.646	.752	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	342	4.020	15.903	95	1.117	1.869	3	.035	.035	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	257	3.021	18.923	42	.494	2.362	2	.024	.059	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	388	4.560	23.484	89	1.046	3.409	4	.047	.106	0	0.000	0.000	0	0.000	0.000
8.00-	9.00	512	6.018	29.502	161	1.892	5.301	36	.423	.529	2	.024	.024	0	0.000	0.000
9.00-	10.00	378	4.443	33.944	112	1.316	6.617	16	.188	.717	0	0.000	.024	0	0.000	0.000
10.00-	11.00	487	5.724	39.668	231	2.715	9.332	41	.482	1.199	6	.071	.094	1	.012	.012
11.00-	12.00	610	7.170	46.838	300	3.526	12.858	86	1.011	2.210	15	.176	.270	1	.012	.024
12.00-	13.00	398	4.678	51.516	280	3.291	16.149	69	.811	3.021	25	.294	.564	0	0.000	.024
13.00-	14.00	247	2.903	54.419	372	4.372	20.522	133	1.563	4.584	37	.435	.999	4	.047	.071
14.00-	15.00	191	2.245	56.664	289	3.397	23.919	129	1.516	6.100	54	.635	1.634	9	.106	.176
15.00-	16.00	238	2.797	59.462	258	3.032	26.951	145	1.704	7.804	53	.623	2.257	7	.082	.259
16.00-	17.00	212	2.492	61.953	176	2.069	29.020	88	1.034	8.839	56	.658	2.915	11	.129	.388
17.00-	18.00	177	2.080	64.034	181	2.127	31.147	91	1.070	9.908	60	.705	3.620	11	.129	.517
18.00-	19.00	143	1.681	65.714	104	1.222	32.370	69	.811	10.719	22	.259	3.879	4	.047	.564
19.00-	20.00	118	1.387	67.101	149	1.751	34.121	63	.740	11.460	16	.188	4.067	8	.094	.658
20.00-	21.00	127	1.493	68.594	194	2.280	36.401	80	.940	12.400	37	.435	4.502	8	.094	.752
21.00-	22.00	89	1.046	69.640	203	2.386	38.787	127	1.493	13.893	31	.364	4.866	17	.200	.952
22.00-	23.00	69	.811	70.451	148	1.740	40.526	76	.893	14.786	28	.329	5.195	12	.141	1.093
23.00-	24.00	118	1.387	71.838	189	2.221	42.748	97	1.140	15.926	44	.517	5.712	14	.165	1.258
24.00-	25.00	47	.552	72.390	161	1.892	44.640	109	1.291	17.207	39	.458	6.171	22	.259	1.516
25.00-	26.00	68	.799	73.190	173	2.033	46.674	107	1.258	18.465	34	.400	6.570	12	.141	1.657
26.00-	27.00	72	.846	74.036	154	1.810	48.484	118	1.387	19.852	30	.353	6.923	20	.235	1.892
27.00-	28.00	71	.835	74.871	145	1.704	50.188	92	1.081	20.933	39	.458	7.381	21	.247	2.139
28.00-	29.00	71	.835	75.705	107	1.258	51.446	141	1.657	22.590	37	.435	7.816	11	.129	2.268
29.00-	AND UP	446	5.242	80.947	715	8.404	59.849	1223	14.375	36.965	801	9.415	17.231	334	3.926	6.194

_CASE COUNTS

688/

5092

3145

1466

527

Fig. C-28. Histogram data from hour 7. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 8

NUMBER OF SCANS 1012

TOTAL FLYING TIME COUNT 7646

FILTERING: 500' ALT. DIFF.

OT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	46	.602	.602	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	192	2.511	3.113	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	546	7.141	10.254	56	.732	.732	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	381	4.983	15.237	201	2.629	3.361	10	.131	.131	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	406	5.310	20.547	226	2.956	6.317	46	.602	.732	2	.026	.026	0	0.000	0.000
6.00-	7.00	321	4.198	24.745	146	1.909	8.227	62	.811	1.543	2	.026	.052	0	0.000	0.000
7.00-	8.00	194	2.537	27.282	127	1.661	9.887	54	.706	2.250	7	.092	.144	0	0.000	0.000
8.00-	9.00	178	2.328	29.610	90	1.177	11.065	39	.510	2.760	15	.196	.340	14	.183	.183
9.00-	10.00	220	2.877	32.487	88	1.151	12.216	26	.340	3.100	5	.065	.405	3	.039	.222
10.00-	11.00	258	3.374	35.862	81	1.059	13.275	72	.942	4.041	16	.209	.615	2	.026	.248
11.00-	12.00	120	1.569	37.431	65	.850	14.125	70	.916	4.957	28	.366	.981	3	.039	.288
12.00-	13.00	123	1.609	39.040	81	1.059	15.184	45	.589	5.545	20	.262	1.242	12	.157	.445
13.00-	14.00	138	1.805	40.845	68	.889	16.074	59	.772	6.317	20	.262	1.504	15	.196	.641
14.00-	15.00	239	3.126	43.971	87	1.138	17.212	58	.759	7.076	24	.314	1.818	25	.327	.968
15.00-	16.00	266	3.479	47.450	103	1.347	18.559	36	.471	7.546	19	.248	2.066	28	.366	1.334
16.00-	17.00	169	2.210	49.660	147	1.923	20.481	54	.706	8.253	14	.183	2.250	20	.262	1.596
17.00-	18.00	303	3.963	53.623	172	2.250	22.731	61	.798	9.050	2	.026	2.276	7	.092	1.687
18.00-	19.00	146	1.909	55.532	126	1.648	24.379	55	.719	9.770	12	.157	2.433	15	.196	1.883
19.00-	20.00	107	1.399	56.932	99	1.295	25.673	21	.275	10.044	12	.157	2.590	1	.013	1.896
20.00-	21.00	99	1.295	58.226	96	1.256	26.929	50	.654	10.698	5	.065	2.655	0	0.000	1.896
21.00-	22.00	118	1.543	59.770	106	1.386	28.315	41	.536	11.235	14	.183	2.838	0	0.000	1.896
22.00-	23.00	128	1.674	61.444	113	1.478	29.793	35	.458	11.692	6	.078	2.917	0	0.000	1.896
23.00-	24.00	209	2.733	64.177	134	1.753	31.546	44	.575	12.268	8	.105	3.021	0	0.000	1.896
24.00-	25.00	136	1.779	65.956	72	.942	32.487	42	.549	12.817	8	.105	3.126	0	0.000	1.896
25.00-	26.00	128	1.674	67.630	99	1.295	33.782	36	.471	13.288	8	.105	3.230	0	0.000	1.896
26.00-	27.00	117	1.530	69.160	79	1.033	34.815	42	.549	13.837	10	.131	3.361	0	0.000	1.896
27.00-	28.00	93	1.216	70.376	81	1.059	35.875	51	.667	14.504	7	.092	3.453	0	0.000	1.896
28.00-	29.00	70	.916	71.292	79	1.033	36.908	60	.785	15.289	2	.026	3.479	1	.013	1.909
29.00	AND UP	751	9.822	81.114	949	12.412	49.320	657	8.593	23.882	188	2.459	5.938	22	.288	2.197

CASE COUNTS 6202

3771

1826

454

168

Fig. C-29. Histogram data from hour 8. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 9

NUMBER OF SCANS 1155

TOTAL FLYING TIME COUNT 6555

FILTERING: 500' ALT. DIFF.

NOT LESS THAN		NOT LESS THAN		K=1		K=2		K=3		K=4		K=5	
		COUNT	%	CUM.%	COUNT	%	CUM.%	COUNT	%	CUM.%	COUNT	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	52	.488	.488	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	100	1.526	2.014	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	284	4.333	6.346	2	.031	.031	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	324	4.943	11.289	26	.397	.427	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	316	4.821	16.110	56	.854	1.281	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	235	3.585	19.695	28	.427	1.709	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	328	5.004	24.699	85	1.297	3.005	1	.015	.015	0	0.000	0.000
8.00-	9.00	320	4.882	29.580	138	2.105	5.111	14	.214	.229	0	0.000	0.000
9.00-	10.00	161	2.456	32.036	88	1.342	6.453	13	.198	.427	0	0.000	0.000
10.00-	11.00	189	2.883	34.920	134	2.044	8.497	39	.595	1.022	0	0.000	0.000
11.00-	12.00	123	1.876	36.796	82	1.251	9.748	22	.336	1.358	3	.046	.046
12.00-	13.00	107	1.632	38.429	84	1.281	11.030	20	.305	1.663	3	.046	.092
13.00-	14.00	205	3.127	41.556	102	1.556	12.586	21	.320	1.983	4	.061	.153
14.00-	15.00	136	2.075	43.631	75	1.144	13.730	36	.549	2.532	13	.198	.351
15.00-	16.00	127	1.937	45.568	116	1.770	15.500	38	.580	3.112	7	.107	.458
16.00-	17.00	148	2.258	47.826	123	1.876	17.376	39	.595	3.707	11	.168	.625
17.00-	18.00	104	1.587	49.413	116	1.770	19.146	39	.595	4.302	9	.137	.763
18.00-	19.00	85	1.297	50.709	73	1.114	20.259	38	.580	4.882	14	.214	.976
19.00-	20.00	73	1.114	51.823	42	.641	20.900	39	.595	5.477	10	.153	1.129
20.00-	21.00	41	.625	52.448	42	.641	21.541	24	.366	5.843	2	.031	1.159
21.00-	22.00	37	.564	53.013	49	.748	22.288	16	.244	6.087	3	.046	1.205
22.00-	23.00	77	1.175	54.187	49	.748	23.036	34	.519	6.606	8	.122	1.327
23.00-	24.00	57	.870	55.057	75	1.144	24.180	20	.305	6.911	5	.076	1.404
24.00-	25.00	66	1.007	56.064	57	.870	25.049	14	.214	7.124	5	.076	1.480
25.00-	26.00	69	1.053	57.117	39	.595	25.644	12	.183	7.307	2	.031	1.510
26.00-	27.00	50	.763	57.879	27	.412	26.056	14	.214	7.521	2	.031	1.541
27.00-	28.00	31	.473	58.352	19	.290	26.346	12	.183	7.704	3	.046	1.587
28.00-	29.00	31	.473	58.825	23	.351	26.697	6	.092	7.796	3	.046	1.632
29.00-	AND UP	309	4.714	63.539	157	2.395	29.092	64	.976	8.772	12	.183	1.815
CASE COUNTS		4165			1907			575			119		7

Fig. C-30. Histogram data from hour 9. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 10

NUMBER OF SCANS 985

TOTAL FLYING TIME COUNT 11138

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	10	.090	.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	26	.233	.323	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	316	2.837	3.160	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	1094	9.822	12.983	68	.611	.611	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	934	8.386	21.368	180	1.616	2.227	4	.036	.036	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	632	5.674	27.042	429	3.852	6.078	119	1.068	1.104	7	.063	.063	0	0.000	0.000
6.00-	7.00	523	4.696	31.738	333	2.990	9.068	139	1.248	2.352	26	.233	.296	0	0.000	0.000
7.00-	8.00	468	4.202	35.940	325	2.918	11.986	150	1.347	3.699	50	.449	.745	0	0.000	0.000
8.00-	9.00	497	4.462	40.402	435	3.906	15.891	210	1.885	5.584	45	.404	1.149	3	.027	.027
9.00-	10.00	588	5.279	45.681	448	4.022	19.914	233	2.092	7.676	70	.628	1.778	18	.162	.189
10.00-	11.00	562	5.046	50.727	620	5.567	25.480	287	2.577	10.253	106	.952	2.729	52	.467	.655
11.00-	12.00	401	3.600	54.327	358	3.214	28.695	220	1.975	12.228	124	1.113	3.843	52	.467	1.122
12.00-	13.00	490	4.399	58.727	296	2.658	31.352	166	1.490	13.719	60	.539	4.381	40	.359	1.481
13.00-	14.00	296	2.658	61.384	258	2.316	33.668	127	1.140	14.859	52	.557	4.938	32	.287	1.769
14.00-	15.00	221	1.984	63.369	255	2.289	35.958	197	1.759	16.628	92	.826	5.764	20	.180	1.948
15.00-	16.00	330	2.963	66.331	399	3.582	39.540	285	2.559	19.187	71	.637	6.401	9	.081	2.029
16.00-	17.00	340	3.053	69.384	385	3.457	42.997	235	2.110	21.296	66	.593	6.994	4	.036	2.065
17.00-	18.00	254	2.280	71.664	250	2.245	45.241	210	1.885	23.182	64	.575	7.569	5	.045	2.110
18.00-	19.00	261	2.343	74.008	180	1.616	46.858	206	1.850	25.031	84	.754	8.323	13	.117	2.227
19.00-	20.00	296	2.658	76.665	229	2.056	48.914	209	1.876	26.908	108	.970	9.292	22	.198	2.424
20.00-	21.00	203	1.823	78.488	274	2.460	51.374	213	1.912	28.820	95	.853	10.145	26	.233	2.658
21.00-	22.00	184	1.652	80.140	193	1.733	53.106	190	1.706	30.526	111	.997	11.142	29	.260	2.918
22.00-	23.00	145	1.302	81.442	216	1.939	55.046	191	1.715	32.241	97	.871	12.013	18	.162	3.080
23.00-	24.00	179	1.607	83.049	206	1.850	56.895	134	1.203	33.444	82	.736	12.749	17	.153	3.232
24.00-	25.00	174	1.562	84.611	264	2.370	59.266	123	1.104	34.548	104	.934	13.683	22	.198	3.430
25.00-	26.00	188	1.688	86.299	155	1.392	60.657	120	1.077	35.626	100	.898	14.581	13	.117	3.546
26.00-	27.00	136	1.212	87.511	156	1.401	62.058	127	1.140	36.766	108	.970	15.550	15	.135	3.681
27.00-	28.00	113	1.015	88.525	193	1.733	63.790	107	.961	37.727	83	.745	16.295	11	.099	3.780
28.00-	29.00	91	.817	89.343	154	1.383	65.173	92	.826	38.553	61	.548	16.843	23	.206	3.986
29.00 AND UP		373	3.349	92.691	1123	10.083	75.256	1352	12.139	50.691	1063	.9544	26.387	390	3.502	7.488
CASE COUNTS		10324			8382			5646			2939			834		

Fig. C-31. Histogram data from hour 10. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	22	.492	.492	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	38	.849	1.341	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	38	.849	2.190	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	67	1.498	3.688	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
6.00-	7.00	64	1.430	5.118	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
7.00-	8.00	60	1.341	6.460	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
8.00-	9.00	36	.805	7.264	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9.00-	10.00	14	.313	7.577	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	11.00	50	1.118	8.695	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
11.00-	12.00	23	.514	9.209	1	.022	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
12.00-	13.00	26	.581	9.790	3	.067	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
13.00-	14.00	26	.581	10.371	0	0.000	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
14.00-	15.00	54	1.207	11.578	0	0.000	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	16.00	17	.380	11.958	1	.022	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
16.00-	17.00	86	1.922	13.880	10	.224	.335	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
17.00-	18.00	104	2.325	16.205	4	.089	.425	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18.00-	19.00	68	1.520	17.725	5	.112	.536	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
19.00-	20.00	43	.961	18.686	13	.291	.827	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	21.00	34	.760	19.446	15	.335	1.162	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
21.00-	22.00	37	.827	20.273	14	.313	1.475	3	.067	.067	0	0.000	0.000	0	0.000	0.000
22.00-	23.00	24	.536	20.809	4	.089	1.565	1	.022	.089	0	0.000	0.000	0	0.000	0.000
23.00-	24.00	17	.380	21.189	3	.067	1.632	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
24.00-	25.00	12	.268	21.457	0	0.000	1.632	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
25.00-	26.00	18	.402	21.860	2	.045	1.676	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
26.00-	27.00	27	.603	22.463	5	.112	1.788	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
27.00-	28.00	24	.536	23.000	8	.179	1.967	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
28.00-	29.00	15	.335	23.335	5	.112	2.079	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
29.00-	AND UP	141	3.152	26.486	34	.760	2.839	1	.022	.112	0	0.000	0.000	0	0.000	0.000

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CASE COUNTS 1185

127

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Fig. C-32. Histogram data from hour 12. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF RELATIVE RANGE FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: 500' ALT. DIFF.

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NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	1.00	8	.074	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1.00-	2.00	36	.335	.409	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2.00-	3.00	170	1.581	1.990	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3.00-	4.00	598	5.561	7.551	41	.381	.381	1	.009	.009	0	0.000	0.000	0	0.000	0.000
4.00-	5.00	1070	9.951	17.502	226	2.102	2.483	18	.167	.177	0	0.000	0.000	0	0.000	0.000
5.00-	6.00	777	7.226	24.728	222	2.065	4.548	28	.260	.437	4	.037	.037	0	0.000	0.000
6.00-	7.00	541	5.031	29.759	330	3.069	7.616	59	.549	.986	2	.014	.056	0	0.000	0.000
7.00-	8.00	395	3.673	33.432	364	3.385	11.002	137	1.274	2.260	10	.093	.149	0	0.000	0.000
8.00-	9.00	441	4.101	37.534	335	3.115	14.117	119	1.107	3.366	19	.177	.325	0	0.000	0.000
9.00-	10.00	379	3.525	41.058	295	2.743	16.860	137	1.274	4.634	26	.242	.567	0	0.000	0.000
10.00-	11.00	249	2.316	43.374	249	2.316	19.176	152	1.414	6.054	48	.446	1.014	7	.065	.065
11.00-	12.00	224	2.083	45.457	203	1.888	21.064	155	1.441	7.496	45	.418	1.432	5	.046	.112
12.00-	13.00	270	2.511	47.968	223	2.074	23.138	91	.846	8.342	55	.511	1.944	23	.214	.325
13.00-	14.00	280	2.604	50.572	145	1.348	24.486	128	1.190	9.532	44	.409	2.353	11	.102	.428
14.00-	15.00	206	1.916	52.488	75	.697	25.184	87	.809	10.341	70	.651	3.004	3	.027	.455
15.00-	16.00	209	1.944	54.431	87	.809	25.993	56	.521	10.862	60	.558	3.562	9	.074	.529
16.00-	17.00	209	1.944	56.375	79	.735	26.727	48	.446	11.308	21	.195	3.757	20	.186	.715
17.00-	18.00	156	1.451	57.826	87	.809	27.536	43	.400	11.708	6	.056	3.813	22	.205	.920
18.00-	19.00	145	1.348	59.174	74	.688	28.225	17	.158	11.866	2	.019	3.831	2	.019	.939
19.00-	20.00	128	1.190	60.365	132	1.228	29.452	25	.214	12.080	4	.037	3.869	0	0.000	.985
20.00-	21.00	158	1.469	61.834	128	1.190	30.643	43	.400	12.480	5	.046	3.915	0	0.000	.985
21.00-	22.00	108	1.004	62.838	96	.893	31.535	35	.325	12.806	8	.074	3.990	1	.009	.995
22.00-	23.00	118	1.097	63.935	103	.958	32.493	37	.344	13.150	7	.065	4.055	3	.028	1.023
23.00-	24.00	115	1.069	65.005	87	.809	33.302	28	.260	13.410	8	.074	4.129	0	0.000	1.023
24.00-	25.00	95	.883	65.888	95	.883	34.186	33	.307	13.717	5	.046	4.176	0	0.000	1.023
25.00-	26.00	105	.976	66.865	96	.893	35.078	51	.474	14.191	9	.084	4.259	0	0.000	1.023
26.00-	27.00	101	.939	67.804	82	.763	35.841	50	.465	14.656	9	.084	4.343	0	0.000	1.023
27.00-	28.00	95	.883	68.687	68	.632	36.473	32	.298	14.954	7	.065	4.408	0	0.000	1.023
28.00-	29.00	122	1.135	69.822	50	.465	36.938	26	.242	15.196	8	.074	4.482	0	0.000	1.023
29.00-	AND UP	1214	11.290	81.112	1096	10.192	47.131	422	3.924	19.120	183	1.702	6.184	5	.046	1.069
CASE COUNTS		8722			5068			2056			660			115		

Fig. C-33. Histogram data from hour 13. Average percent of time that an aircraft spent in a RANGE encounter with K or more aircraft. Additional discrimination: |AA| < 500 ft.

HISTOGRAMS OF TAU FOR HOUR 2

NUMBER OF SCANS 949

TOTAL FLYING TIME COUNT 8038

FILTERING: NONE

OR LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	36	3.448	.473	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	195	2.426	2.899	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	643	7.999	10.898	68	.846	.858	1	.012	.012	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	868	10.799	21.697	182	2.264	3.123	12	.149	.162	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	811	10.090	31.786	357	4.441	7.564	54	.672	.834	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	657	8.174	39.960	444	5.524	13.088	125	1.555	2.389	20	.249	.249	0	0.000	0.000
140.00-	160.00	620	7.713	47.673	545	6.780	19.868	215	2.675	5.063	43	.535	.784	1	.012	.012
160.00-	180.00	510	6.345	54.018	544	6.768	26.636	319	3.969	9.032	110	1.368	2.152	5	.062	.075
180.00-	200.00	434	5.399	59.418	549	6.830	33.466	371	4.616	13.648	122	1.891	4.043	14	.174	.249
200.00-	220.00	404	5.026	64.444	493	6.133	39.599	430	5.350	18.997	151	1.879	5.922	34	.423	.672
220.00-	240.00	476	5.922	70.365	429	5.337	44.936	421	5.238	24.235	161	2.003	7.925	80	.995	1.667
240.00-	260.00	302	3.757	74.123	446	5.549	50.485	415	5.138	29.373	257	3.197	11.122	114	1.418	3.085
260.00-	280.00	268	3.334	77.457	425	5.287	55.772	412	5.126	34.499	327	4.068	15.190	148	1.841	4.927
280.00-	300.00	209	2.600	80.057	304	3.782	59.554	366	4.553	39.052	349	4.342	19.532	142	1.767	6.693
300.00-	320.00	204	2.538	82.595	287	3.571	63.125	317	3.944	42.996	327	4.068	28.600	184	2.289	8.982
320.00-	340.00	181	2.252	84.847	293	3.645	66.770	299	3.720	46.715	308	3.832	27.432	194	2.414	11.396
340.00-	360.00	134	1.667	86.514	262	3.260	70.030	284	3.533	50.249	245	3.670	31.102	193	2.401	13.797
360.00-	380.00	81	1.008	87.522	230	2.861	72.891	255	3.172	53.421	251	3.123	34.225	141	1.754	15.551
380.00-	400.00	76	.946	88.467	215	2.675	75.566	274	3.471	56.892	261	3.247	37.472	130	1.617	17.168
400.00	AND UP	797	9.915	98.383	1614	20.080	95.646	2806	34.909	91.801	3709	46.143	83.615	4105	51.070	68.238
CASE COUNTS		7908			7688			7379			6721			5485		

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Fig. C-34. Histogram data from hour 2. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 3

NUMBER OF SCANS 942

TOTAL FLYING TIME COUNT 5395

FILTERING: NONE

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NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	12	.222	.222	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	58	1.075	1.297	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	152	2.817	4.115	4	.074	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	320	5.931	10.046	30	.556	.630	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	395	7.322	17.368	65	1.205	1.835	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	458	8.489	25.857	142	2.632	4.467	6	.111	.111	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	348	6.450	32.308	255	4.727	9.194	40	.741	.853	1	.019	.019	0	0.000	0.000
140.00-	160.00	329	6.098	38.406	229	4.245	13.438	81	1.501	2.354	3	.056	.074	0	0.000	0.000
160.00-	180.00	350	6.487	44.893	326	6.043	19.481	135	2.502	4.856	17	.315	.389	2	.037	.037
180.00-	200.00	315	5.839	50.732	314	5.820	25.301	239	4.430	9.286	28	.519	.908	2	.037	.074
200.00-	220.00	249	4.615	55.347	260	4.819	30.120	228	4.226	13.512	92	1.705	2.614	5	.093	.167
220.00-	240.00	211	3.911	59.258	269	4.986	35.106	217	4.022	17.535	115	2.132	4.745	15	.278	.445
240.00-	260.00	134	2.484	61.742	269	4.986	40.093	206	3.818	21.353	113	2.095	6.840	40	.741	1.186
260.00-	280.00	112	2.076	63.818	187	3.466	43.559	240	4.449	25.802	122	2.261	9.101	49	.908	2.095
280.00-	300.00	104	1.928	65.746	128	2.373	45.931	181	3.355	29.157	158	2.929	12.030	50	.927	3.021
300.00-	320.00	76	1.409	67.155	111	2.057	47.989	134	2.484	31.640	127	2.354	14.384	45	.834	3.855
320.00-	340.00	73	1.353	68.508	109	2.020	50.009	134	2.484	34.124	129	2.391	16.775	69	1.279	5.134
340.00-	360.00	53	.982	69.490	101	1.872	51.881	145	2.688	36.812	148	2.743	19.518	66	1.223	6.358
360.00-	380.00	49	.908	70.398	57	1.057	52.938	114	2.113	38.925	101	1.872	21.390	61	1.131	7.488
380.00-	400.00	48	.890	71.288	53	.982	53.920	70	1.297	40.222	73	1.353	22.743	74	1.372	8.860
400.00	AND UP	656	12.159	83.447	916	16.979	70.899	1059	19.629	59.852	1413	26.191	48.934	1481	27.451	36.311
CASE COUNTS		4502			3825			3229			2640			1959		

Fig. C-35. Histogram data from hour 3. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 4

NUMBER OF SCANS 1017

TOTAL FLYING TIME COUNT 12611

FILTERING: NONE

NOT LESS THAN	RUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	14	.111	.111	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	38	.301	.412	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	169	1.340	1.752	3	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	1082	8.580	10.332	68	.539	.563	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	2451	19.435	29.768	728	5.773	6.336	83	.658	.658	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	1683	13.345	43.113	1454	11.530	17.865	474	3.759	4.417	51	.404	.404	0	0.000	0.000
120.00-	140.00	1060	8.405	51.518	1171	9.285	27.151	740	5.868	10.295	244	1.935	2.330	21	.167	.167
140.00-	160.00	811	6.431	57.949	1005	7.969	35.120	816	6.471	16.755	384	3.045	5.384	104	.825	.991
160.00-	180.00	802	6.359	64.309	944	7.486	42.606	717	5.686	22.441	477	3.782	9.167	202	1.602	2.593
180.00-	200.00	761	6.034	70.343	869	6.891	49.496	771	6.114	28.554	541	4.290	13.456	318	2.522	5.115
200.00-	220.00	638	5.059	75.402	754	5.979	55.475	974	7.723	36.278	663	5.257	18.714	361	2.863	7.977
220.00-	240.00	584	4.631	80.033	796	6.312	61.787	893	7.031	43.359	833	6.605	25.319	580	4.599	12.576
240.00-	260.00	473	3.751	83.784	722	5.725	67.512	858	6.804	50.162	913	7.240	32.559	702	5.567	18.143
260.00-	280.00	383	3.037	86.821	648	5.138	72.651	853	6.764	56.926	856	6.788	39.347	774	6.137	24.280
280.00-	300.00	329	2.609	89.430	558	4.425	77.075	695	5.511	62.437	828	6.566	45.912	855	6.780	31.060
300.00-	320.00	307	2.434	91.864	404	3.204	80.279	550	4.361	66.799	690	5.471	51.384	687	5.448	36.508
320.00-	340.00	196	1.554	93.418	389	3.085	83.364	423	3.354	70.153	487	3.862	55.245	537	4.258	40.766
340.00-	360.00	117	.928	94.346	304	2.411	85.774	435	3.449	73.602	482	3.822	59.067	445	3.529	44.295
360.00-	380.00	92	.730	95.075	197	1.562	87.336	342	2.712	76.314	497	3.941	63.008	501	3.973	48.267
380.00-	400.00	50	.396	95.472	225	1.784	89.120	299	2.371	78.685	339	2.688	65.696	481	3.814	52.081
400.00-	AND UP	487	3.862	99.334	1191	9.444	98.565	2401	19.039	97.724	1898	15.009	96.606	5232	41.487	93.569
CASE COUNTS		12527			12430			12324			12183			11800		

Fig. C-36. Histogram data from hour 4. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7446

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	20	.269	.269	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	148	1.988	2.256	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	288	3.868	6.124	44	0.591	0.591	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	430	5.775	11.899	88	1.182	1.773	6	.081	.081	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	676	9.079	20.978	183	2.458	4.230	24	.322	.403	3	.040	.040	0	0.000	0.000
100.00-	120.00	664	8.918	29.895	266	3.572	7.803	78	1.048	1.450	6	.081	.121	0	0.000	0.000
120.00-	140.00	714	9.589	39.484	323	4.338	12.141	159	2.135	3.586	22	.295	.416	0	0.000	0.000
140.00-	160.00	748	10.046	49.530	478	6.420	18.560	232	3.116	6.702	107	1.437	1.853	14	.188	.188
160.00-	180.00	638	8.568	58.098	535	7.185	25.745	283	3.801	10.502	159	2.135	3.989	53	.712	.900
180.00-	200.00	523	7.024	65.122	494	6.634	32.380	396	5.318	15.821	175	2.350	6.339	93	1.249	2.149
200.00-	220.00	458	6.151	71.273	563	7.561	39.941	424	5.694	21.515	292	3.922	10.261	99	1.330	3.478
220.00-	240.00	367	4.929	76.202	572	7.682	47.623	461	6.191	27.706	357	4.795	15.055	204	2.740	6.218
240.00-	260.00	312	4.190	80.392	564	7.575	55.197	442	5.936	33.642	370	4.960	20.024	233	3.129	9.347
260.00-	280.00	244	3.277	83.669	356	4.781	59.978	378	5.077	38.719	316	4.244	24.268	225	3.022	12.369
280.00-	300.00	220	2.955	86.624	312	4.190	64.168	334	4.486	43.204	342	4.593	28.861	254	3.411	15.780
300.00-	320.00	169	2.270	88.893	362	4.862	69.030	359	4.821	48.076	328	4.405	33.266	282	3.787	19.568
320.00-	340.00	127	1.706	90.599	288	3.868	72.898	321	4.311	52.337	290	3.895	37.161	222	2.981	22.549
340.00-	360.00	97	1.303	91.901	203	2.726	75.624	317	4.257	56.594	299	4.016	41.176	250	3.358	25.906
360.00-	380.00	74	.994	92.896	174	2.337	77.961	227	3.049	59.643	237	3.183	44.359	212	2.847	28.754
380.00-	400.00	56	.752	93.647	113	1.518	79.479	157	2.109	61.751	176	2.364	46.723	174	2.337	31.090
400.00	AND UP	447	6.003	99.651	1371	18.413	97.891	2090	28.069	89.820	1999	26.847	73.570	2206	29.627	60.717
CASE COUNTS		7420			7289			6688			5478			4521		

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Fig. C- 37. Histogram data from hour 5. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 6

NUMBER OF SCANS 711

TOTAL FLYING TIME COUNT 3568

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	14	.392	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	66	1.850	2.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	116	3.251	5.493	14	.392	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	208	5.830	11.323	36	1.009	1.401	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	249	6.979	18.302	75	2.102	3.503	15	.420	.420	7	.196	.196	0	0.000	0.000
100.00-	120.00	264	7.399	25.701	87	2.438	5.942	50	1.401	1.822	15	.420	.617	0	0.000	0.000
120.00-	140.00	300	8.408	34.109	180	5.045	10.987	62	1.738	3.559	26	.720	1.345	0	0.000	0.000
140.00-	160.00	274	7.679	41.788	186	5.213	16.200	128	3.587	7.147	42	1.177	2.522	9	.252	.252
160.00-	180.00	251	7.035	48.823	233	6.530	22.730	127	3.559	10.706	41	1.149	3.672	26	.729	.981
180.00-	200.00	220	6.166	54.989	230	6.446	29.176	129	3.615	14.322	111	3.111	6.783	54	1.513	2.494
200.00-	220.00	197	4.680	59.669	204	5.717	34.893	169	4.737	19.058	100	2.803	9.585	62	1.738	4.232
220.00-	240.00	201	5.633	65.302	186	5.213	40.106	181	5.073	24.131	113	3.167	12.752	87	2.438	6.670
240.00-	260.00	147	4.120	69.422	176	4.933	45.039	149	4.176	28.307	135	3.784	16.536	100	2.803	9.473
260.00-	280.00	100	2.803	72.225	143	4.008	49.047	128	3.587	31.895	101	2.831	19.367	95	2.663	12.136
280.00-	300.00	98	2.747	74.972	110	3.083	52.130	106	2.971	34.865	97	2.719	22.085	85	2.382	14.518
300.00-	320.00	84	2.354	77.326	91	2.550	54.680	116	3.251	38.116	64	1.794	23.879	71	1.990	16.508
320.00-	340.00	72	2.018	79.344	78	2.186	56.866	84	2.354	40.471	85	2.382	26.261	72	2.018	18.526
340.00-	360.00	66	1.850	81.194	100	2.903	59.669	70	1.962	42.433	69	1.934	28.195	62	1.738	20.263
360.00-	380.00	56	1.569	82.763	105	2.943	62.612	44	1.233	43.666	72	2.018	30.213	50	1.401	21.665
380.00-	400.00	20	.561	83.324	86	2.410	65.022	85	2.382	46.048	78	2.186	32.399	41	1.149	22.814
400.00	AND UP	251	7.035	90.359	584	16.368	81.390	967	27.102	73.150	1077	30.185	62.584	1039	29.120	51.934
CASE COUNTS		3224			2904			2610			2233			1853		

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Fig. C-38. Histogram data from hour 6. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 7

NUMBER OF SCANS 903

TOTAL FLYING TIME COUNT 8508

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	32	.376	.376	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	133	1.563	1.939	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	277	3.256	5.195	7	.082	.094	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	562	6.606	11.801	50	.588	.682	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	756	8.886	20.686	157	1.845	2.527	7	.082	.082	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	815	9.579	30.266	339	3.984	6.511	43	.505	.588	5	.059	.059	0	0.000	0.000
120.00-	140.00	771	9.062	39.328	395	4.643	11.154	105	1.234	1.822	17	.200	.259	0	0.000	0.000
140.00-	160.00	602	7.076	46.403	486	5.712	16.866	121	1.422	3.244	18	.212	.470	1	.012	.012
160.00-	180.00	696	8.181	54.584	538	6.323	23.190	247	2.903	6.147	57	.670	1.140	6	.071	.082
180.00-	200.00	771	9.062	63.646	701	8.239	31.429	344	4.043	10.190	125	1.469	2.609	20	.235	.317
200.00-	220.00	571	6.711	70.357	641	7.534	38.963	433	5.089	15.280	136	1.598	4.208	39	.458	.776
220.00-	240.00	414	4.866	75.223	556	6.535	45.498	454	5.336	20.616	222	2.609	6.817	74	.870	1.646
240.00-	260.00	368	4.325	79.549	558	6.559	52.057	481	5.653	26.269	336	3.949	10.766	137	1.610	3.256
260.00-	280.00	270	3.173	82.722	486	5.712	57.769	505	5.936	32.205	386	4.537	15.303	221	2.598	5.853
280.00-	300.00	208	2.445	85.167	378	4.443	62.212	463	5.442	37.647	360	4.231	19.534	187	2.198	8.051
300.00-	320.00	213	2.504	87.670	356	4.184	66.396	481	5.653	43.300	387	4.549	24.083	251	2.950	11.001
320.00-	340.00	155	1.822	89.492	291	3.420	69.816	419	4.925	48.225	433	5.089	29.172	297	3.491	14.492
340.00-	360.00	118	1.387	90.879	262	3.079	72.896	321	3.773	51.998	409	4.807	33.980	369	4.337	18.829
360.00-	380.00	116	1.363	92.242	216	2.539	75.435	311	3.655	55.653	280	3.291	37.271	262	3.079	21.909
380.00-	400.00	59	.693	92.936	165	1.939	77.374	213	2.504	58.157	237	2.786	40.056	245	2.880	24.788
400.00 AND UP		539	6.335	99.271	1674	19.676	97.050	2766	32.510	90.667	3756	44.147	84.203	4428	52.045	76.833
CASE COUNTS		8446			8257			7714			7164			6537		

Fig. C-39. Histogram data from hour 7. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 8

NUMBER OF SCANS 1012

TOTAL FLYING TIME COUNT 7646

FILTERING: NONE

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NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	22	.288	.288	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	158	2.066	2.354	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	348	4.551	6.906	12	.157	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	557	7.285	14.190	59	.772	.929	2	.026	.026	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	641	8.383	22.574	148	1.936	2.864	19	.248	.275	7	.092	.092	4	.052	.052
100.00-	120.00	578	7.559	30.133	226	2.956	5.820	48	.628	.902	10	.131	.222	1	.013	.065
120.00-	140.00	559	7.311	37.444	302	3.950	9.770	84	1.099	2.001	11	.144	.366	3	.039	.105
140.00-	160.00	579	7.573	45.017	350	4.578	14.347	124	1.622	3.623	37	.484	.850	1	.013	.118
160.00-	180.00	617	8.070	53.086	397	5.192	19.540	216	2.825	6.448	74	.964	1.818	22	.288	.405
180.00-	200.00	562	7.350	60.437	519	6.788	26.327	315	4.120	10.568	114	1.491	3.309	44	.575	.981
200.00-	220.00	420	5.493	65.930	521	6.814	33.141	348	4.551	15.119	168	2.197	5.506	59	.772	1.753
220.00-	240.00	414	5.415	71.344	440	5.755	38.896	363	4.748	19.867	217	2.839	8.344	99	1.295	3.047
240.00-	260.00	385	5.035	76.380	535	6.997	45.893	401	5.245	25.111	279	3.649	11.993	188	2.459	5.506
260.00-	280.00	269	3.518	79.898	452	5.912	51.805	413	5.402	30.513	275	3.597	15.590	176	2.302	7.808
280.00-	300.00	244	3.191	83.089	406	5.310	57.115	377	4.931	35.443	298	3.897	19.487	196	2.563	10.371
300.00-	320.00	210	2.747	85.835	337	4.408	61.522	374	4.891	40.335	294	3.845	23.332	165	2.158	12.529
320.00-	340.00	170	2.223	88.059	310	4.054	65.577	384	5.022	45.357	292	3.819	27.151	157	2.053	14.583
340.00-	360.00	118	1.543	89.602	267	3.492	69.069	321	4.198	49.555	258	3.374	30.526	205	2.681	17.264
360.00-	380.00	103	1.347	90.949	241	3.152	72.220	290	3.793	53.348	278	3.636	34.161	205	2.681	19.945
380.00-	400.00	83	1.086	92.035	204	2.668	74.889	221	2.890	56.239	258	3.374	37.536	172	2.250	22.195
400.00-	AN UP	602	7.873	99.908	1797	23.502	98.391	2928	38.294	94.533	3724	48.705	86.241	3943	51.569	73.764
CASE COUNTS		7639			7523			7228			6594			5640		

Fig. C-40. Histogram data from hour 8. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6557

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	12	.183	.183	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	60	.915	1.098	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	118	1.800	2.898	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	282	4.301	7.198	55	.839	.839	1	.015	.015	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	418	6.375	13.573	147	2.242	3.081	11	.168	.183	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	423	6.451	20.024	128	1.952	5.033	19	.290	.473	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	382	5.826	25.850	156	2.379	7.412	26	.397	.869	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	369	5.628	31.478	158	2.410	9.822	57	.869	1.739	10	.153	.153	0	0.000	0.000
160.00-	180.00	459	7.000	38.478	252	3.843	13.665	72	1.098	2.837	15	.229	.381	0	0.000	0.000
180.00-	200.00	461	7.031	45.509	235	3.584	17.249	128	1.952	4.789	12	.183	.564	0	0.000	0.000
200.00-	220.00	352	5.368	50.877	255	3.889	21.138	143	2.181	6.970	39	.595	1.159	1	.015	.015
220.00-	240.00	321	4.896	55.772	298	4.545	25.682	131	1.998	8.967	37	.564	1.723	5	.076	.092
240.00-	260.00	289	4.408	60.180	256	3.904	29.587	158	2.410	11.377	45	.686	2.410	0	0.000	.092
260.00-	280.00	214	3.264	63.443	263	4.011	33.598	140	2.135	13.512	70	1.068	3.477	9	.137	.229
280.00-	300.00	149	2.272	65.716	192	2.928	36.526	162	2.471	15.983	75	1.144	4.621	14	.214	.442
300.00-	320.00	102	1.556	67.271	164	2.501	39.027	187	2.852	18.835	86	1.312	5.933	29	.442	.885
320.00-	340.00	120	1.830	69.102	146	2.227	41.254	197	3.004	21.839	68	1.037	6.970	40	.610	1.495
340.00-	360.00	102	1.556	70.657	135	2.059	43.312	144	2.196	24.035	92	1.403	8.373	25	.381	1.876
360.00-	380.00	72	1.098	71.755	144	2.196	45.509	117	1.784	25.820	98	1.495	9.867	35	.534	2.410
380.00-	400.00	60	.915	72.670	98	1.495	47.003	133	2.028	27.848	64	.976	10.843	45	.686	3.096
400.00	AND UP	1234	18.820	91.490	1834	27.970	74.973	1705	26.003	53.851	1395	21.275	32.118	973	14.839	17.935
CASE COUNTS		5999			4916			3531			2106			1176		

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Fig. C-41. Histogram data from hour 9. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 10

NUMBER OF SCANS 985

TOTAL FLYING TIME COUNT 11138

FILTERING: NONE

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GT LESS THAN	MUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	30	.269	.269	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	109	.979	1.248	1	.009	.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	293	2.631	3.879	3	.027	.036	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	633	5.683	9.562	53	.476	.512	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1292	11.600	21.162	172	1.544	2.056	8	.072	.072	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	1642	14.742	35.904	502	4.507	6.563	45	.404	.476	3	.027	.027	0	0.000	0.000
120.00-	140.00	1580	14.186	50.090	929	8.341	14.904	213	1.912	2.348	15	.135	.162	3	.027	.027
140.00-	160.00	1089	9.777	59.867	1164	10.451	25.355	507	4.552	6.940	96	.862	1.024	8	.072	.099
160.00-	180.00	778	6.985	66.852	1003	9.065	34.360	785	7.048	13.988	270	2.424	3.448	40	.359	.458
180.00-	200.00	629	5.647	72.499	851	7.641	42.000	679	6.096	20.084	339	3.493	6.940	161	1.445	1.903
200.00-	220.00	564	5.064	77.563	786	7.057	49.057	666	5.980	26.064	438	3.932	10.873	234	2.101	4.004
220.00-	240.00	405	3.636	81.199	706	6.339	55.396	746	6.698	32.762	599	5.429	15.902	310	2.783	6.788
240.00-	260.00	359	3.223	84.423	743	6.671	62.067	770	6.913	39.675	647	5.809	21.511	415	3.726	10.514
260.00-	280.00	287	2.577	86.999	514	4.615	66.681	682	6.123	45.798	603	5.414	27.025	474	4.256	14.769
280.00-	300.00	260	2.334	89.333	431	3.870	70.551	624	5.602	51.401	623	5.593	32.618	489	4.390	19.160
300.00-	320.00	207	1.858	91.192	303	2.720	73.271	463	4.157	55.557	510	4.579	37.197	415	3.726	22.886
320.00-	340.00	135	1.212	92.404	202	2.532	75.803	572	3.340	58.897	396	3.555	40.752	423	3.798	26.683
340.00-	360.00	115	1.032	93.437	276	2.478	78.281	331	2.972	61.869	421	3.780	44.532	371	3.331	30.014
360.00-	380.00	97	.871	94.308	263	2.361	80.643	301	2.702	64.572	278	2.496	47.028	309	2.774	32.788
380.00-	400.00	68	.611	94.918	232	2.083	82.726	241	2.164	66.735	250	2.334	49.362	304	2.729	35.518
400.00-	AND UP	495	4.444	99.362	1670	14.994	97.719	3112	27.940	94.676	4615	41.435	90.797	5520	50.458	85.976
CASE COUNTS		11067			10884			10545			10113			9576		

Fig. C-42. Histogram data from hour10. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: NONE

DT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.045	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
20.00-	40.00	0	0.000	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
40.00-	60.00	58	1.296	1.341	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
60.00-	80.00	134	2.995	4.336	8	.179	.179	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
80.00-	100.00	183	4.090	8.426	11	.246	.425	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
100.00-	120.00	199	4.448	12.874	41	.916	1.341	0	0.000	0.000	0	0.000	0.000	1	0.000	0.000
120.00-	140.00	200	4.470	17.345	46	1.028	2.369	8	.179	.179	0	0.000	0.000	1	0.000	0.000
140.00-	160.00	271	6.057	23.402	90	2.012	4.381	7	.156	.335	0	0.000	0.000	1	0.000	0.000
160.00-	180.00	251	5.610	29.012	64	1.430	5.811	23	.514	.849	2	.045	.045	1	0.000	0.000
180.00-	200.00	254	5.677	34.689	124	2.772	8.583	16	.358	1.207	6	.134	.179	1	0.000	0.000
200.00-	220.00	186	4.157	38.847	150	3.353	11.936	29	.648	1.855	7	.156	.335	1	0.000	0.000
220.00-	240.00	180	4.023	42.870	103	2.302	14.238	41	.916	2.772	10	.224	.559	1	0.000	0.000
240.00-	260.00	129	2.883	45.753	85	1.900	16.138	37	.827	3.599	15	.335	.894	1	0.000	0.000
260.00-	280.00	171	3.822	49.575	89	1.989	18.127	59	1.319	4.917	10	.224	1.118	3	.067	.067
280.00-	300.00	130	2.906	52.481	87	1.945	20.071	68	1.520	6.437	19	.425	1.542	2	.045	.112
300.00-	320.00	82	1.833	54.314	117	2.615	22.687	58	1.296	7.734	30	.671	2.213	3	.067	.180
320.00-	340.00	90	2.012	56.325	97	2.168	24.855	50	1.118	8.851	32	.715	2.928	3	.067	.247
340.00-	360.00	57	1.274	57.599	136	3.040	27.894	42	.939	9.790	22	.492	3.420	18	.402	.649
360.00-	380.00	53	1.185	58.784	75	1.676	29.571	27	.603	10.393	17	.380	3.800	12	.268	.917
380.00-	400.00	39	.872	59.656	37	.827	30.398	21	.469	10.863	10	.224	4.023	6	.134	1.051
400.00	AND UP	906	20.250	79.906	1106	24.721	55.118	949	21.211	32.074	681	15.221	19.244	556	7.957	9.142
CASE COUNTS		3575			2466			1435			861			409		

140

Fig. C-43. Histogram data from hour 12. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: NONE

141

NOT LESS THAN	NOT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	22	.205	.205	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	28	.260	.465	2	.019	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	212	1.972	2.437	12	.112	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	841	7.821	10.258	71	.660	.790	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	1447	13.457	23.714	411	3.822	4.013	22	.205	.205	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	1059	9.848	33.563	696	6.473	11.005	103	.958	1.102	4	.037	.037	0	0.000	0.000
120.00-	140.00	786	7.310	40.872	764	7.105	18.190	260	2.418	3.580	36	.335	.372	0	0.000	0.000
140.00-	160.00	775	7.207	48.079	514	5.710	23.900	353	3.283	6.863	79	.735	1.107	0	0.000	.084
160.00-	180.00	700	6.510	54.589	650	6.045	29.945	545	5.068	11.932	143	1.330	2.437	25	.232	.315
180.00-	200.00	695	6.463	51.053	607	5.645	35.790	484	4.501	16.433	246	2.288	4.724	85	.790	1.107
200.00-	220.00	678	6.305	57.358	602	5.598	41.108	600	5.580	22.012	302	3.366	8.091	94	.893	1.995
220.00-	240.00	536	4.985	72.342	614	5.710	46.098	523	4.864	26.876	337	4.994	13.085	194	1.841	3.841
240.00-	260.00	418	3.887	76.230	593	6.445	53.543	603	5.608	32.484	545	5.068	18.153	327	3.041	6.882
260.00-	280.00	381	3.543	79.773	572	5.319	58.863	605	6.184	38.668	602	5.598	23.751	382	3.552	10.434
280.00-	300.00	267	2.669	82.442	557	5.100	63.843	611	5.682	44.350	525	4.882	28.634	387	3.599	14.033
300.00-	320.00	210	1.953	84.395	429	3.990	67.832	523	4.864	49.214	468	4.539	33.172	451	4.174	18.222
320.00-	340.00	106	1.544	85.930	320	2.976	70.808	433	4.027	53.241	400	4.278	37.450	300	4.050	22.072
340.00-	360.00	145	1.348	87.278	282	2.623	73.430	406	3.776	57.016	405	3.766	41.216	424	3.943	26.015
360.00-	380.00	151	1.404	88.682	232	2.158	75.588	364	3.385	60.402	403	4.306	45.522	427	3.971	30.791
380.00-	400.00	128	1.190	89.872	218	2.027	77.615	300	2.790	63.192	433	4.027	49.549	392	3.645	34.437
400.00-	AND UP	951	8.844	98.720	2061	19.167	96.782	3382	31.452	94.643	4303	40.575	90.124	5354	49.791	84.228
TOTAL COUNTS		10616			10407			10177			9691			9057		

Fig. C-44. Histogram data from hour 13. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF TAU

FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8038

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	2	.025	.050	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	52	.647	.697	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	223	2.774	3.471	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	291	3.620	7.091	23	.286	.286	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	340	4.230	11.321	32	.398	.684	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	333	4.143	15.464	41	.510	1.194	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	294	3.658	19.122	46	.572	1.767	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	222	2.762	21.883	53	.659	2.426	1	.012	.012	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	277	3.446	25.330	69	.858	3.284	2	.025	.037	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	251	3.123	28.452	100	1.244	4.528	7	.087	.124	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	235	2.924	31.376	74	.921	5.449	7	.087	.211	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	183	2.277	33.653	88	1.095	6.544	11	.137	.348	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	242	3.011	36.663	107	1.331	7.875	27	.336	.684	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	192	2.389	39.052	91	1.132	9.007	13	.162	.846	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	189	2.351	41.403	131	1.630	10.637	10	.124	.970	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	165	2.053	43.456	131	1.630	12.267	18	.224	1.194	2	.025	.025	0	0.000	0.000
340.00-	360.00	139	1.729	45.185	108	1.344	13.610	7	.087	1.281	0	0.000	.025	0	0.000	0.000
360.00-	380.00	144	1.791	46.977	88	1.095	14.705	19	.236	1.518	0	0.000	.025	0	0.000	0.000
380.00-	400.00	123	1.530	48.507	90	1.120	15.825	37	.460	1.978	2	.025	.050	0	0.000	0.000
400.00	AND UP	1463	18.201	66.708	1746	21.722	37.547	1136	14.133	16.111	487	5.059	6.108	146	1.816	1.816

CASE COUNTS 5362

3018

1295

491

146

Fig. C-45. Histogram data from hour 2. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOP HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5395

FILTERING: 500' ALT. DIFF.

143

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00- 20.00		0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00- 40.00		0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00- 60.00		10	.185	.185	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00- 80.00		20	.371	.556	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00- 100.00		22	.408	.964	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00- 120.00		80	1.483	2.447	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00- 140.00		136	2.521	4.968	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00- 160.00		140	2.595	7.563	10	.185	.185	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00- 180.00		135	2.502	10.065	49	.908	1.094	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00- 200.00		123	2.280	12.345	63	1.168	2.261	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00- 220.00		89	1.650	13.994	34	.630	2.892	1	.019	.019	0	0.000	0.000	0	0.000	0.000
220.00- 240.00		116	2.150	16.145	52	.964	3.855	6	.111	.130	0	0.000	0.000	0	0.000	0.000
240.00- 260.00		105	1.946	18.091	55	1.019	4.875	2	.037	.167	0	0.000	0.000	0	0.000	0.000
260.00- 280.00		72	1.335	19.425	56	1.038	5.913	0	0.000	.167	0	0.000	0.000	0	0.000	0.000
280.00- 300.00		85	1.576	21.001	26	.482	6.395	5	.093	.259	0	0.000	0.000	0	0.000	0.000
300.00- 320.00		44	.816	21.816	41	.760	7.155	5	.093	.352	0	0.000	0.000	0	0.000	0.000
320.00- 340.00		57	1.057	22.873	51	.945	8.100	4	.074	.426	0	0.000	0.000	0	0.000	0.000
340.00- 360.00		53	.982	23.855	68	1.260	9.361	7	.130	.556	0	0.000	0.000	0	0.000	0.000
360.00- 380.00		36	.667	24.523	36	.667	10.028	8	.148	.704	0	0.000	0.000	0	0.000	0.000
380.00- 400.00		14	.259	24.782	22	.408	10.436	6	.111	.816	0	0.000	0.000	0	0.000	0.000
400.00 AND UP		722	13.383	38.165	326	6.043	16.478	335	6.209	7.025	99	1.835	1.935	0	0.000	0.000
CASE COUNTS		2059			889			379			99			0		

Fig. C-46. Histogram data from hour 3. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	20.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	6	.048	.063	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	96	.761	.825	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	471	3.735	4.559	10	.079	.079	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	969	7.684	12.243	213	1.689	1.768	9	.071	.071	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	765	6.066	18.309	301	2.387	4.155	40	.317	.389	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	569	4.512	22.821	311	2.466	6.621	75	.595	.983	6	.048	.048	0	0.000	0.000
140.00-	160.00	426	3.378	26.199	214	1.697	8.318	88	.698	1.681	10	.079	.127	0	0.000	0.000
160.00-	180.00	373	2.958	29.157	200	1.586	9.904	85	.674	2.355	15	.119	.245	1	.008	.008
180.00-	200.00	464	3.679	32.836	144	1.142	11.046	81	.642	2.997	15	.119	.365	2	.016	.024
200.00-	220.00	430	3.481	36.317	142	1.126	12.172	44	.349	3.346	19	.151	.515	0	0.000	.024
220.00-	240.00	478	3.790	40.108	205	1.626	13.797	68	.539	3.885	18	.143	.658	2	.016	.040
240.00-	260.00	567	4.496	44.604	221	1.752	15.550	64	.507	4.393	11	.087	.745	2	.016	.056
260.00-	280.00	439	3.481	48.085	256	2.030	17.580	84	.666	5.059	18	.143	.889	1	.008	.063
280.00-	300.00	447	3.545	51.629	250	1.982	19.562	89	.706	5.765	33	.262	1.150	1	.008	.071
300.00-	320.00	376	2.982	54.611	293	2.323	21.886	72	.571	6.336	20	.159	1.309	2	.016	.087
320.00-	340.00	256	2.030	56.641	269	2.133	24.019	79	.626	6.962	23	.182	1.491	7	.056	.143
340.00-	360.00	293	2.323	58.964	233	1.848	25.866	116	.920	7.882	47	.373	1.863	7	.056	.198
360.00-	380.00	299	2.371	61.335	316	2.506	28.372	118	.936	8.818	53	.420	2.284	12	.095	.293
380.00-	400.00	280	2.220	63.555	286	2.268	30.640	156	1.237	10.055	44	.349	2.633	20	.159	.452
400.00	AND UP	2536	20.109	83.665	3537	28.047	58.687	2709	21.481	31.536	1527	12.108	14.741	588	4.663	5.115
CASE COUNTS		10551			7401			3977			1359			645		

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Fig. C-47. Histogram data from hour 4. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	54	.725	.725	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	124	1.666	2.391	7	.094	.094	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	152	2.042	4.432	17	.228	.322	1	.013	.013	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	152	2.042	6.474	38	.510	.633	0	0.000	.013	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	123	1.652	8.126	37	.497	1.330	0	0.000	.013	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	106	1.424	9.550	30	.403	1.733	0	0.000	.013	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	147	1.974	11.525	33	.443	2.176	4	.054	.067	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	162	2.176	13.700	28	.376	2.552	8	.107	.175	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	197	2.646	16.346	41	.551	3.103	4	.054	.228	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	207	2.780	19.127	51	.685	3.788	10	.134	.363	2	.027	.027	0	0.000	0.000
220.00-	240.00	221	2.968	22.095	43	.578	4.365	4	.054	.415	2	.027	.054	0	0.000	0.000
240.00-	260.00	227	3.049	25.144	71	.954	5.319	5	.067	.484	1	.013	.067	0	0.000	0.000
260.00-	280.00	271	3.640	28.784	138	1.854	7.173	16	.215	.698	1	.013	.081	0	0.000	0.000
280.00-	300.00	207	2.780	31.565	135	1.813	8.986	31	.416	1.115	1	.013	.094	0	0.000	0.000
300.00-	320.00	194	2.606	34.171	127	1.706	10.687	59	.792	1.907	18	.242	.336	2	.027	.027
320.00-	340.00	132	1.773	35.943	125	1.679	12.371	66	.886	2.794	24	.322	.658	3	.040	.067
340.00-	360.00	153	2.055	37.999	145	1.948	14.319	86	1.155	3.949	32	.430	1.088	4	.054	.121
360.00-	380.00	122	1.639	39.637	82	1.101	15.420	53	.712	4.661	28	.376	1.464	3	.040	.161
380.00-	400.00	137	1.840	41.477	49	.658	16.078	37	.497	5.158	18	.242	1.706	3	.040	.201
400.00	AND UP	1247	16.749	58.227	708	9.510	25.588	443	5.950	11.108	170	2.283	3.989	43	.578	.779
CASE COUNTS		4335			1905			827			297			58		

145

Fig. C-48. Histogram data from hour 5. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3568

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	8	.224	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	38	1.065	1.289	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	57	1.598	2.887	9	.252	.252	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	71	1.990	4.877	3	.984	.336	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	123	3.447	8.324	18	.504	.841	2	.056	.056	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	75	2.102	10.426	26	.729	1.569	4	.112	.168	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	87	2.438	12.864	34	.953	2.522	10	.280	.448	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	121	3.391	16.256	27	.757	3.279	10	.280	.729	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	112	3.139	19.395	16	.448	3.728	6	.168	.897	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	113	3.167	22.562	23	.645	4.372	8	.224	1.121	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	114	3.195	25.757	24	.673	5.045	4	.112	1.233	4	.112	.112	0	0.000	0.000
220.00-	240.00	112	3.139	28.896	37	1.037	6.082	5	.140	1.373	0	0.000	.112	0	0.000	0.000
240.00-	260.00	85	2.382	31.278	45	1.261	7.343	2	.056	1.429	0	0.000	.112	0	0.000	0.000
260.00-	280.00	66	1.850	33.128	37	1.037	8.380	0	0.000	1.429	1	.028	.140	0	0.000	0.000
280.00-	300.00	54	1.513	34.641	39	1.093	9.473	3	.084	1.513	2	.056	.196	0	0.000	0.000
300.00-	320.00	65	1.822	36.463	19	.533	10.006	6	.168	1.682	0	0.000	.196	0	0.000	0.000
320.00-	340.00	42	1.177	37.640	10	.280	10.286	4	.112	1.794	0	0.000	.196	0	0.000	0.000
340.00-	360.00	32	.897	38.537	18	.504	10.790	0	0.000	1.794	0	0.000	.196	0	0.000	0.000
360.00-	380.00	59	1.654	40.190	15	.420	11.211	0	0.000	1.794	0	0.000	.196	0	0.000	0.000
380.00-	400.00	55	1.541	41.732	22	.617	11.827	4	.112	1.906	1	.028	.224	0	0.000	0.000
400.00 AND UP		392	10.987	52.719	206	5.774	17.601	50	1.401	3.307	9	.252	.476	0	0.000	0.000
CASE COUNTS		1881			628			118			17			0		

146

Fig. C-49. Histogram data from hour 6. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8504

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	<= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	<= 5	%	CUM.%
0.00-	20.00	2	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	2	.024	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	25	.294	.341	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	68	.799	1.140	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	100	1.175	2.315	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	168	1.975	4.290	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	181	2.127	6.417	11	.129	.129	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	129	1.516	7.934	28	.329	.458	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	171	2.010	9.944	14	.165	.623	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	221	2.598	12.541	33	.388	1.011	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	232	2.727	15.268	25	.294	1.305	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	235	2.762	18.030	41	.482	1.787	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	232	2.727	20.757	75	.882	2.668	4	.047	.047	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	261	3.068	23.825	165	1.939	4.607	26	.306	.353	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	182	2.139	25.964	139	1.622	6.229	41	.482	.835	5	.059	.059	0	0.000	0.000
300.00-	320.00	257	3.021	28.984	142	1.669	7.898	39	.458	1.293	12	.141	.200	0	0.000	0.000
320.00-	340.00	252	2.962	31.946	201	2.362	10.261	54	.635	1.928	4	.047	.247	7	.082	.082
340.00-	360.00	218	2.562	34.509	206	2.421	12.682	76	.893	2.821	15	.176	.423	0	0.000	.082
360.00-	380.00	188	2.210	36.718	131	1.540	14.222	58	.682	3.503	23	.270	.693	0	0.000	.082
380.00-	400.00	132	1.551	38.270	141	1.657	15.879	74	.870	4.372	15	.176	.870	0	0.000	.082
400.00-	AN ^D UP	1855	21.803	60.073	1859	21.850	37.729	1286	15.115	19.487	534	6.276	7.146	175	2.057	2.139
CASE COUNTS		5111			3210			1658			603			182		

147

Fig. C-50. Histogram data from hour 7. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: 500' ALT. DIFF.

DT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	4	.052	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	20	.262	.314	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	112	1.465	1.779	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	197	2.576	4.355	10	.131	.131	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	177	2.315	6.670	24	.314	.445	1	.013	.013	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	112	1.465	8.135	31	.405	.850	3	.039	.052	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	143	1.870	10.005	47	.615	1.465	0	0.000	.052	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	152	1.988	11.993	41	.536	2.001	2	.026	.078	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	186	2.433	14.426	59	.772	2.773	4	.052	.131	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	221	2.890	17.316	42	.549	3.322	1	.013	.144	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	200	2.616	19.932	46	.602	3.924	6	.078	.222	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	140	1.831	21.763	53	.693	4.617	6	.078	.301	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	192	2.511	24.274	83	1.086	5.702	19	.248	.549	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	181	2.367	26.641	69	.902	6.605	4	.052	.602	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	196	2.563	29.205	90	1.177	7.782	14	.183	.785	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	178	2.328	31.533	60	.785	8.567	2	.026	.811	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	173	2.263	33.795	72	.942	9.508	13	.170	.981	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	173	2.263	36.058	101	1.321	10.829	24	.314	1.295	0	0.000	0.000	0	0.000	0.000
360.00-	380.00	180	2.354	38.412	109	1.426	12.255	15	.196	1.491	2	.026	.026	0	0.000	0.000
380.00-	400.00	194	2.537	40.949	70	.916	13.170	9	.118	1.609	1	.013	.039	0	0.000	0.000
400.00	AND UP	1650	21.580	62.529	1144	14.962	28.132	407	5.323	6.932	44	.575	.615	0	0.000	0.000
CASE COUNTS		4781			2151			530			47			0		

Fig. C-51. Histogram data from hour 8. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	20	.305	.305	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	30	.458	.763	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	38	.580	1.342	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	40	.610	1.953	2	.031	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	93	1.419	3.371	11	.168	.198	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	120	1.831	5.202	8	.122	.320	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	103	1.571	6.773	21	.320	.641	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	98	1.495	8.268	20	.305	.946	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	70	1.068	9.336	60	.915	1.861	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	78	1.190	10.526	55	.839	2.700	3	.046	.046	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	65	.992	11.518	53	.809	3.509	2	.031	.076	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	102	1.556	13.074	42	.641	4.149	4	.061	.137	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	60	1.053	14.127	20	.305	4.455	1	.015	.153	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	67	1.022	15.149	22	.336	4.790	13	.198	.351	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	95	1.449	16.598	11	.168	4.958	0	0.000	.351	0	0.000	0.000	0	0.000	0.000
360.00-	380.00	52	.793	17.391	17	.259	5.217	1	.015	.366	0	0.000	0.000	0	0.000	0.000
380.00-	400.00	47	.717	18.108	10	.153	5.370	1	.015	.381	0	0.000	0.000	0	0.000	0.000
400.00 AND UP		618	9.428	27.536	169	2.578	7.948	58	.885	1.266	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		1805			521			83			0			0		

149

Fig. C-52. Histogram data from hour 9. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11138

FILTERING: 500' ALT. DIFF.

150

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	22	.198	.215	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	46	.413	.628	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	80	.718	1.347	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	168	1.508	2.855	7	.063	.063	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	299	2.684	5.540	21	.189	.251	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	282	2.532	8.071	17	.153	.404	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	388	3.484	11.555	33	.296	.700	2	.018	.018	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	330	2.963	14.518	84	.754	1.454	10	.090	.108	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	350	3.142	17.660	50	.449	1.903	13	.117	.224	7	.063	.063	0	0.000	0.000
200.00-	220.00	426	3.825	21.485	116	1.041	2.945	22	.198	.422	6	.054	.117	0	0.000	0.000
220.00-	240.00	390	3.502	24.986	108	.970	3.915	20	.180	.602	0	0.000	.117	0	0.000	0.000
240.00-	260.00	500	4.489	29.476	171	1.535	5.450	45	.404	1.006	6	.054	.171	0	0.000	0.000
260.00-	280.00	384	3.448	32.923	256	2.298	7.748	61	.548	1.553	11	.099	.269	0	0.000	0.000
280.00-	300.00	326	2.927	35.850	235	2.110	9.858	102	.916	2.469	19	.171	.440	0	0.000	0.000
300.00-	320.00	283	2.541	38.391	241	2.164	12.022	109	.979	3.448	19	.171	.611	0	0.000	0.000
320.00-	340.00	303	2.720	41.111	247	2.218	14.240	103	.925	4.372	28	.251	.862	1	.009	.009
340.00-	360.00	257	2.307	43.419	219	1.966	16.206	141	1.266	5.638	25	.224	1.086	0	0.000	.009
360.00-	380.00	238	2.137	45.556	144	1.293	17.499	129	1.158	6.797	45	.404	1.490	4	.036	.045
380.00-	400.00	223	2.002	47.558	138	1.239	18.738	110	.988	7.784	55	.494	1.984	6	.054	.099
400.00	AND UP	2722	24.439	71.997	2730	24.511	43.248	1682	15.101	22.886	772	6.931	8.915	128	1.149	1.248
CASE COUNTS		8019			4817			2549			993			139		

Fig. C-53. Histogram data from hour 10. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	PUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	10	.224	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	16	.358	.581	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	34	.760	1.341	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	36	.805	2.146	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	26	.581	2.727	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	40	.894	3.621	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	58	1.296	4.917	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	72	1.609	6.527	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	24	.536	7.063	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	59	1.319	8.382	1	.022	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	37	.827	9.209	1	.022	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	29	.648	9.857	5	.112	.156	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	29	.648	10.505	5	.112	.268	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	17	.380	10.885	1	.022	.291	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	28	.626	11.511	0	0.000	.291	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	22	.492	12.003	0	0.000	.291	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
360.00-	380.00	20	.447	12.450	0	0.000	.291	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
380.00-	400.00	18	.402	12.852	0	0.000	.291	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
400.00	AN ^D HP	531	11.869	24.721	103	2.302	2.593	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		1106			116			0			9			0		

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Fig. C-54. Histogram data from hour 12. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF TAU

FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	8	.074	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	14	.130	.205	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	102	.949	1.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	353	3.283	4.436	9	.084	.084	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	513	4.771	9.207	66	.614	.697	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	308	2.864	12.071	111	1.032	1.730	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	288	2.678	14.749	90	.837	2.567	2	.019	.019	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	249	2.316	17.065	82	.763	3.329	12	.112	.130	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	355	3.301	20.366	73	.679	4.008	19	.177	.307	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	325	3.022	23.389	76	.707	4.715	12	.112	.418	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	334	3.106	26.495	109	1.014	5.729	23	.214	.632	1	.009	.009	0	0.000	0.000
220.00-	240.00	308	2.864	29.359	109	1.014	6.742	16	.149	.781	1	.009	.019	0	0.000	0.000
240.00-	260.00	328	3.050	32.409	120	1.116	7.858	28	.260	1.042	1	.009	.028	0	0.000	0.000
260.00-	280.00	354	3.292	35.702	107	.995	8.853	29	.270	1.311	2	.019	.046	0	0.000	0.000
280.00-	300.00	281	2.613	38.315	109	1.014	9.867	32	.298	1.609	0	0.000	.046	0	0.000	0.000
300.00-	320.00	318	2.957	41.272	116	1.079	10.946	22	.205	1.813	2	.019	.065	0	0.000	0.000
320.00-	340.00	298	2.771	44.043	129	1.200	12.145	35	.325	2.139	14	.130	.195	0	0.000	0.000
340.00-	360.00	299	2.781	46.824	109	1.014	13.159	12	.112	2.251	14	.130	.325	0	0.000	0.000
360.00-	380.00	268	2.492	49.316	137	1.274	14.433	27	.251	2.502	12	.112	.437	0	0.000	0.000
380.00-	400.00	241	2.241	51.557	129	1.200	15.633	18	.167	2.669	10	.093	.530	0	0.000	0.000
400.00-	AND UP	2330	21.668	73.226	2221	20.655	36.287	912	8.481	11.150	249	2.316	7.846	5	.046	.046
CASE COUNTS		7874			3902			1199			305			5		

152

Fig. C-55. Histogram data from hour 13. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8036

FILTERING: NONE

GT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	56	.697	.697	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	20	.249	.946	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	42	.523	1.468	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	83	1.033	2.501	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	121	1.505	4.006	3	.037	.050	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	103	1.281	5.287	5	.062	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	180	2.239	7.527	9	.112	.224	1	.012	.012	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	344	4.280	11.806	21	.261	.485	1	.012	.025	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	560	6.967	18.773	103	1.281	1.767	5	.062	.087	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	658	8.186	26.959	233	2.899	4.665	9	.112	.199	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	1064	13.237	40.196	587	7.303	11.968	122	1.518	1.717	13	.162	.162	0	0.000	0.000
9000.-	18000.	1013	12.603	52.799	897	11.159	23.128	403	5.014	6.730	96	1.120	1.281	1	.012	.012
18000.-	45000.	1105	13.747	66.546	1402	17.442	40.570	1110	13.809	20.540	493	6.133	7.415	77	.958	.970
45000.-	90000.	938	11.670	78.216	1264	15.725	56.295	1330	16.546	37.086	896	11.172	18.587	375	4.665	5.656
90000.-	180000.	694	8.634	86.850	1218	15.153	71.448	1278	15.899	52.986	1377	17.131	35.718	985	12.254	17.890
180000.-	900000.	702	8.733	95.583	1546	19.234	90.682	2334	29.037	82.023	2781	34.598	70.316	2862	35.636	53.496
900000.	AND UP	225	2.799	98.383	393	4.889	95.571	734	9.132	91.154	453	11.856	82.172	1011	12.576	66.073
CASE COUNTS		7908			7682			7327			6605			5311		

153

Fig. C-56 . Histogram data from hour 2. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5395

FILTERING: NONE

154

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	44	.816	.816	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	18	.334	1.149	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	36	.667	1.816	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	57	1.057	2.873	1	.019	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	77	1.427	4.300	1	.019	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	58	1.075	5.375	2	.037	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	112	2.076	7.451	10	.185	.259	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	153	2.836	10.287	27	.500	.760	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	296	5.487	15.774	57	1.057	1.816	1	.019	.019	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	239	4.430	20.204	113	2.095	3.911	2	.037	.056	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	440	8.156	28.359	198	3.670	7.581	34	.630	.686	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	483	8.953	37.312	417	7.729	15.310	101	1.872	2.558	9	.167	.167	0	0.000	0.000
18000.-	45000.	804	14.903	52.215	821	15.218	30.528	591	10.955	13.512	104	1.928	2.095	4	.074	.074
45000.-	90000.	557	10.324	62.539	550	10.195	40.723	576	10.677	24.189	440	8.156	10.250	85	1.576	1.650
90000.-	180000.	503	9.323	71.863	641	11.881	52.604	572	10.602	34.791	571	10.584	20.834	318	5.894	7.544
180000.-	900000.	519	9.620	81.483	764	14.161	66.765	1169	21.668	56.460	1295	24.004	44.838	1222	22.651	30.195
900000. AND UP		74	1.372	82.854	197	3.652	70.417	156	2.892	59.351	200	3.707	48.545	282	5.227	35.422
CASE COUNTS		4470			3799			3202			2619			1911		

Fig. C-57. Histogram data from hour 3. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: NONE

155

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	38	.301	.301	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	6	.048	.349	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	60	.476	.825	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	146	1.158	1.982	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	158	1.253	3.235	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	153	1.213	4.448	3	.024	.040	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	301	2.387	6.835	13	.103	.143	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	721	5.717	12.552	70	.555	.698	1	.008	.008	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	1550	12.291	24.843	381	3.021	3.719	18	.143	.151	1	.008	.008	0	0.000	0.000
3000.-	4500.	1669	13.234	38.078	934	7.406	11.125	162	1.285	1.435	17	.135	.143	0	0.000	0.000
4500.-	9000.	1838	14.575	52.652	1905	15.106	26.231	916	7.263	8.699	202	1.602	1.745	25	.198	.198
9000.-	18000.	1279	10.142	62.794	1670	13.242	39.473	1382	10.959	19.657	689	5.463	7.208	181	1.435	1.633
18000.-	45000.	1819	14.424	77.218	2496	19.792	59.266	2857	22.655	42.312	2212	17.540	24.748	1344	10.657	12.291
45000.-	90000.	1210	9.595	86.813	1818	14.416	73.682	2269	17.992	60.304	2607	20.672	45.421	2310	18.317	30.608
90000.-	180000.	818	6.486	93.299	1653	13.108	86.789	2115	16.771	77.075	2539	20.133	65.554	2645	20.974	51.582
180000.-	900000.	596	4.726	98.025	1288	10.213	97.002	2285	18.119	95.195	3305	26.207	91.761	4258	33.764	85.346
900000.-	AND UP	163	1.293	99.318	191	1.517	98.517	292	2.315	97.510	524	4.155	95.916	832	6.597	91.943
CASE COUNTS		12525		12424				12297					12096			11595

Fig. C-58 . Histogram data from hour 4 . Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: NONE

156

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	206	2.767	2.767	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	60	.806	3.573	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	95	1.276	4.849	1	.013	.013	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	139	1.867	6.716	15	.201	.215	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	105	1.410	8.126	11	.148	.363	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	73	.981	9.107	9	.121	.484	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	110	1.477	10.584	24	.322	.806	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	215	2.888	13.472	50	.672	1.477	3	.040	.040	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	354	4.755	18.227	102	1.370	2.848	14	.188	.228	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	446	5.991	24.218	144	1.934	4.782	16	.215	.443	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	778	10.450	34.667	377	5.064	9.845	113	1.518	1.961	24	.322	.322	6	.081	.081
9000.-	18000.	1001	13.445	48.113	629	8.449	18.294	335	4.500	6.461	98	1.316	1.639	7	.094	.175
18000.-	45000.	1346	18.079	66.192	1421	19.087	37.381	926	12.438	18.899	551	7.401	9.040	281	3.774	3.949
45000.-	90000.	871	11.699	77.891	1271	17.072	54.453	1142	15.339	34.238	856	11.498	20.537	488	6.555	10.504
90000.-	180000.	683	9.174	87.065	1246	16.736	71.188	1260	16.924	51.162	1174	15.769	36.306	1027	13.794	24.298
180000.-	900000.	860	11.551	98.616	1668	22.404	93.593	2356	31.645	82.807	2278	30.598	66.904	2133	28.650	52.948
900000.-	AND UP	78	1.048	99.664	308	4.137	97.730	490	6.582	89.389	438	5.883	72.787	548	7.361	60.309
CASE COUNTS		7420			7276			6655			5419			4490		

Fig. C- 59. Histogram data from hour 5. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3568

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	90	2.522	2.522	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	500.	66	1.850	4.372	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	58	1.626	5.998	2	.056	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	59	1.654	7.651	3	.084	.196	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1500.	100	2.803	10.454	4	.112	.308	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	62	1.738	12.192	18	.504	.813	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	128	3.587	15.779	41	1.149	1.902	1	.028	.028	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	231	6.474	22.253	61	1.710	3.612	8	.224	.252	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	460	12.892	35.146	179	5.017	8.688	93	2.506	2.859	20	.561	.561	0	0.000	0.000
9000.-	18000.	525	14.714	49.860	423	11.855	20.544	177	4.961	7.819	56	1.569	2.130	11	.308	.308
18000.-	45000.	579	16.227	66.087	659	18.470	39.013	513	14.378	22.197	276	7.567	9.697	106	2.971	3.279
45000.-	90000.	313	8.772	74.860	417	11.687	50.701	392	10.987	35.184	361	10.118	19.815	235	6.670	9.950
90000.-	180000.	262	7.343	82.203	389	10.902	61.603	428	11.995	45.179	378	10.594	30.409	374	10.482	20.432
180000.-	900000.	267	7.483	89.686	681	19.086	80.689	927	25.981	71.160	976	27.354	57.763	890	24.944	45.375
900000. AND UP		18	.504	90.190	23	.645	81.334	49	1.373	72.533	123	3.447	61.211	217	6.082	51.457
CASE COUNTS		3218			2902			2588			2184			1836		

Fig. C- 60. Histogram data from hour 6. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8508

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	136	1.598	1.598	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	30	.353	1.951	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	72	.846	2.797	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	110	1.293	4.090	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	122	1.434	5.524	2	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	110	1.293	6.817	2	.024	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	175	2.057	8.874	11	.129	.176	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	206	2.421	11.295	22	.259	.435	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	436	5.125	16.420	87	1.023	1.457	1	.012	.012	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	640	7.522	23.942	175	2.057	3.514	10	.118	.129	3	.035	.035	0	0.000	0.000
4500.-	9000.	1210	14.222	38.164	597	7.017	10.531	97	1.140	1.269	12	.141	.176	0	0.000	0.000
9000.-	18000.	1070	12.576	50.740	957	11.248	21.779	410	4.819	6.088	55	.646	.823	0	0.000	0.000
18000.-	45000.	1757	20.651	71.391	1987	23.354	45.134	1353	15.903	21.991	633	7.440	8.263	158	1.857	1.857
45000.-	90000.	1035	12.165	83.556	1604	18.853	63.987	1784	20.968	42.959	1267	14.892	23.155	669	7.863	9.720
90000.-	180000.	636	7.475	91.032	1202	14.128	78.115	1558	18.312	61.272	1651	19.405	42.560	1320	15.515	25.235
180000.-	900000.	672	7.898	98.930	1379	16.208	94.323	2106	24.753	86.025	2775	32.616	75.176	3218	37.823	63.058
900000.-	AND UP	29	.341	99.271	212	2.492	96.815	372	4.372	90.397	680	7.992	83.168	988	11.613	74.671
CASE COUNTS		8446			8237			7691			7076			6353		

Fig. C-61. Histogram data from hour 7. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 8
 NUMBER OF SCANS 1013
 TOTAL FLYING TIME COUNT /646
 FILTERING: NONE

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	204	2.668	2.668	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	35	.458	3.126	1	.013	.013	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	89	1.164	4.290	3	.039	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	111	1.452	5.742	3	.039	.092	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	121	1.583	7.324	5	.065	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	131	1.713	9.037	3	.039	.196	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	190	2.485	11.522	6	.078	.275	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	282	3.688	15.211	24	.314	.589	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	412	5.388	20.599	80	1.046	1.635	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	391	5.114	25.713	129	1.687	3.322	8	.105	.105	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	812	10.620	36.333	375	4.905	8.227	72	.942	1.046	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	924	12.085	48.417	617	8.070	16.296	183	2.393	3.440	45	.589	.706	2	.026	.026
18000.-	45000.	1382	18.075	66.492	1432	18.729	35.025	926	12.111	15.551	350	4.578	5.284	85	1.112	1.138
45000.-	90000.	864	11.300	77.792	1439	18.820	53.845	1281	16.754	32.304	634	8.198	16.191	410	5.352	6.500
90000.-	180000.	805	10.528	88.320	1374	17.970	71.815	1420	18.572	50.876	1202	15.721	31.912	807	10.555	17.055
180000.-	900000.	836	10.934	99.254	1701	22.247	94.062	2596	33.952	84.828	3118	40.779	72.691	2979	38.961	56.016
900000.	AND UP	49	.641	99.895	322	4.211	98.273	709	9.273	94.101	928	12.137	84.828	1143	14.949	70.965
CASE COUNTS		7638			7514			7195			6486			5426		

Fig. C- 62. Histogram data from hour 8. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: NONE

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NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	74	1.129	1.129	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	20	.305	1.434	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	40	.610	2.044	2	.031	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	65	.992	3.036	1	.015	.046	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	69	1.053	4.088	1	.015	.061	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	63	.961	5.050	3	.046	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	83	1.266	6.316	7	.107	.214	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	140	2.136	8.452	10	.153	.366	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	232	3.539	11.991	68	1.037	1.404	8	.122	.122	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	309	4.714	16.705	66	1.007	2.410	3	.046	.168	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	644	9.825	26.529	244	3.722	6.133	55	.839	1.007	1	.015	.015	0	0.000	0.000
9000.-	18000.	788	12.021	38.551	415	6.331	12.464	116	1.770	2.776	17	.259	.275	0	0.000	0.000
18000.-	45000.	1084	16.537	55.088	937	14.294	26.758	392	5.980	8.757	102	1.556	1.831	1	.015	.015
45000.-	90000.	818	12.479	67.567	678	10.343	37.101	542	8.268	17.025	172	2.624	4.455	32	.488	.503
90000.-	180000.	634	9.672	77.239	875	13.349	50.450	784	11.960	28.985	435	6.636	11.091	94	1.434	1.937
180000.-	900000.	710	10.831	88.070	1139	17.376	67.826	1146	17.483	46.468	1086	16.567	27.658	792	12.082	14.820
900000. AND UP		220	3.356	91.426	422	6.438	74.264	408	6.224	52.692	268	4.088	31.747	225	3.432	17.452
CASE COUNTS		5993			4868			3454			2081			1144		

Fig. C- 63. Histogram data from hour 9. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11136

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	110	.988	.988	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	38	.341	1.329	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	54	.485	1.814	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	108	.970	2.783	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	144	1.293	4.076	4	.036	.054	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	121	1.086	5.162	3	.027	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	174	1.562	6.725	8	.072	.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	368	3.304	10.029	26	.233	.386	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	783	7.030	17.059	87	.781	1.67	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	1236	11.097	28.156	299	2.684	3.852	9	.081	.081	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	2226	19.986	48.141	1160	10.415	14.266	254	2.280	2.361	41	.368	.368	3	.027	.027
9000.-	18000.	1714	15.389	63.530	1909	17.139	31.406	911	8.179	19.540	205	1.841	2.209	53	.476	.503
18000.-	45000.	1905	17.104	80.634	2714	24.367	55.773	2255	20.246	30.786	1364	12.291	14.500	525	4.714	5.216
45000.-	90000.	929	8.341	88.974	1925	17.283	73.056	2309	20.731	51.517	1935	17.355	31.855	1442	12.947	18.163
90000.-	180000.	543	4.875	93.850	1332	11.959	85.015	2292	20.578	71.095	2696	24.205	56.060	2269	20.372	38.535
180000.-	900000.	534	4.794	98.644	1218	10.936	95.951	2133	19.151	91.246	3171	28.470	84.530	4161	37.359	75.893
900000. AND UP		74	.664	99.308	161	1.445	97.396	319	2.864	94.110	596	5.369	89.899	963	8.646	84.539
CASE COUNTS		11061		10848		10482		10015		9416						

Fig. C-64 . Histogram data from hour 10. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	4	.089	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	4	.089	.179	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	14	.313	.492	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	26	.581	1.073	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	16	.358	1.430	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	42	.939	2.369	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	42	.939	3.308	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	70	1.565	4.873	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	106	2.369	7.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	137	3.062	10.304	19	.425	.425	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	357	7.979	18.283	65	1.453	1.878	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	484	10.818	29.101	164	3.666	5.543	12	.268	.268	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	526	11.757	40.858	291	6.504	12.047	90	2.012	2.280	17	.380	.380	0	0.000	0.000
45000.-	90000.	458	10.237	51.095	273	6.102	18.149	116	2.593	4.873	25	.559	.939	2	.045	.045
90000.-	180000.	455	10.170	61.265	482	10.773	28.923	251	5.610	10.483	108	2.414	3.353	20	.447	.492
180000.-	900000.	644	14.394	75.659	868	19.401	48.324	748	16.719	27.202	503	11.243	14.595	208	4.649	5.141
900000.	AND UP	190	4.247	79.906	304	6.795	55.118	218	4.873	32.074	208	4.649	19.244	179	4.001	9.142
CASE COUNTS		3575			2466			1435			661			409		

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Fig. C-65 . Histogram data from hour 12. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA

FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: NONE

163

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	58	.539	.539	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	20	.186	.725	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	43	.400	1.125	1	.009	.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	113	1.051	2.176	1	.009	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	203	1.888	4.064	5	.046	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	222	2.065	6.129	4	.037	.102	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	272	2.530	8.658	14	.130	.232	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	495	4.603	13.261	55	.511	.744	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	835	7.765	21.027	162	1.507	2.251	3	.028	.028	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	925	8.602	29.629	439	4.083	6.333	42	.391	.418	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	1485	13.810	43.439	1176	10.936	17.270	245	2.278	2.697	30	.279	.279	0	0.000	0.000
9000.-	18000.	1341	12.471	55.910	1317	12.248	29.517	698	6.491	9.188	136	1.265	1.544	24	.223	.223
18000.-	45000.	1728	16.070	71.980	2101	19.539	49.056	2018	18.767	27.955	989	9.197	10.741	284	2.641	2.864
45000.-	90000.	1020	9.486	81.465	1388	12.908	61.964	1886	17.539	45.494	1877	17.456	28.197	1219	11.336	14.201
90000.-	180000.	803	7.468	88.933	1361	12.657	74.621	1789	16.637	62.131	2213	20.580	48.777	2162	20.106	34.307
180000.-	900000.	785	7.300	96.233	1939	18.032	92.653	2811	26.141	88.273	3435	31.945	80.721	4007	37.264	71.571
900000.-	AND UP	268	2.492	98.726	444	4.129	96.782	685	6.370	94.643	1011	9.402	90.124	1361	12.657	84.228

Fig. C- 66. Histogram data from hour 13. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF BETA FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8038

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	18	.224	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	6	.075	.299	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	18	.224	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	22	.274	.796	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	50	.622	1.418	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	35	.435	1.854	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	66	.821	2.675	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	118	1.468	4.143	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	260	3.483	7.626	9	.112	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	338	4.205	11.831	36	.448	.560	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	455	5.661	17.492	49	.610	1.170	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	491	6.108	23.600	97	1.207	2.377	1	.012	.012	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	651	8.099	31.699	286	3.558	5.934	32	.398	.411	1	.012	.012	0	0.000	0.000
45000.-	90000.	652	8.111	39.811	326	4.056	9.990	72	.896	1.306	1	.012	.025	0	0.000	0.000
90000.-	180000.	718	8.933	48.743	352	4.379	14.369	71	.883	2.190	7	.087	.112	0	0.000	0.000
180000.-	900000.	1200	14.929	63.672	1237	15.389	29.759	584	7.265	37.024	123	1.530	1.642	6	.075	.075
900000. AND UP		362	4.504	68.176	699	8.696	38.455	573	7.129	44.153	371	4.616	6.258	142	1.757	1.841
CASE COUNTS		5480			3091			1333			505			148		

Fig. C- 67. Histogram data from hour 2. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 2595

FILTERING: 500' ALT. DIFF.

165

UT LESS THAN		HOT LESS THAN		K= 1		K= 2		K= 3		K= 4		K= 5	
		%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	12	.222	.222	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	10	.185	.408	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	0	0.000	.408	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	12	.222	.630	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	18	.334	.964	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	29	.538	1.501	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	36	.667	2.169	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	72	1.335	3.503	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	151	2.799	6.302	5	.093	.093	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	352	6.525	12.827	110	2.039	2.132	18	.334	.334	0	0.000	0.000
45000.-	90000.	360	6.673	19.499	85	1.576	3.707	13	.241	.575	0	0.000	0.000
90000.-	180000.	260	4.819	24.319	165	3.058	6.766	17	.315	.890	2	.037	.927
180000.-	900000.	667	12.363	36.682	510	9.455	16.219	303	5.616	6.506	62	1.370	1.557
900000. AND UP		201	3.726	40.408	75	1.390	17.609	38	.704	7.210	24	.445	2.902

CASE COUNTS 2180

950

389

100

2

Fig. C- 68. Histogram data from hour 3. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: 500' ALT. DIFF.

166

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	10	.079	.079	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	2	.016	.095	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	42	.333	.428	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	84	.666	1.094	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.030	0.000
750.-	1000.	124	.983	2.078	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	111	.880	2.958	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	168	1.332	4.290	8	.065	.071	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	389	3.085	7.374	52	.412	.484	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	830	6.582	13.956	198	1.570	2.054	4	.032	.032	1	.008	.008	0	0.000	0.000
3000.-	4500.	877	6.954	20.910	409	3.243	5.297	53	.420	.452	1	.008	.016	0	0.000	0.000
4500.-	9000.	1040	8.247	29.157	792	6.280	11.577	240	1.903	2.355	37	.293	.309	0	0.000	0.000
9000.-	18000.	745	5.908	35.065	578	4.585	16.160	309	2.450	4.805	94	.745	1.055	11	.087	.087
18000.-	45000.	1179	9.349	44.413	749	5.939	22.100	492	3.901	8.707	186	1.475	2.530	26	.206	.293
45000.-	90000.	1003	7.953	52.367	542	4.298	26.397	374	2.966	11.672	182	1.443	3.973	39	.309	.603
90000.-	180000.	1407	11.157	63.524	678	5.376	31.774	230	1.824	13.496	109	.864	4.837	41	.325	.928
180000.-	900000.	2148	17.033	80.556	2836	22.488	54.262	1632	12.941	26.437	758	6.011	10.848	286	2.268	3.196
900000.	AND UP	445	3.529	84.085	641	5.083	59.345	682	5.408	31.845	506	4.012	14.860	261	2.070	5.266
CASE COUNTS		10604			7484			4016			1874			654		

Fig. C-69 . Histogram data from hour 4. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 5

NUMBER OF SCANS 1974

TOTAL FLYING TIME COUNT 7440

FILTERING: 500' ALT. DIFF.

167

UT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	04	1.128	1.128	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	26	.349	1.477	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	48	.645	2.122	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	58	.779	2.901	6	.081	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	18	.242	3.143	2	.027	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	20	.269	3.412	4	.054	.161	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	20	.269	3.680	6	.081	.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	43	.578	4.258	8	.107	.349	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	46	1.289	5.547	18	.242	.591	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	155	2.082	7.629	19	.255	.846	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	201	2.700	10.329	87	1.169	2.015	3	.040	.040	1	.013	.013	0	0.000	0.000
9000.-	18000.	252	3.385	13.714	86	1.155	3.170	35	.470	.510	0	0.000	.013	0	0.000	0.000
18000.-	45000.	508	7.898	21.612	137	1.840	5.010	75	1.007	1.510	4	.054	.013	0	0.000	0.000
45000.-	90000.	462	6.205	27.817	126	1.692	6.702	39	.524	2.042	12	.161	.295	0	0.000	0.000
90000.-	180000.	604	8.113	35.930	158	2.122	8.825	33	.443	2.485	0	0.000	.376	0	0.000	0.000
180000.-	900000.	1509	20.269	56.199	1102	14.802	23.627	555	7.455	31.940	199	2.673	3.049	30	.403	.403
900000. AND UP		397	5.332	61.531	271	3.640	27.267	191	2.560	12.505	09	1.195	4.244	28	.376	.779

CASE COUNTS 4581 2030 931 510 56

Fig. C-70 . Histogram data from hour 5 . Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3568

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%					
0.-	250.	48	1.345	1.345	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
250.-	353.	16	.448	1.794	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
353.-	500.	32	.897	2.691	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
500.-	750.	38	1.065	3.756	2	.056	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
750.-	1000.	35	.981	4.737	3	.084	.196	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
1000.-	1200.	17	.476	5.213	1	.028	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
1200.-	1500.	35	.981	6.194	3	.084	.308	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
1500.-	2000.	45	1.261	7.455	9	.252	.561	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
2000.-	3000.	77	2.158	9.613	25	.701	1.261	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
3000.-	4500.	154	4.316	13.929	33	.925	2.186	1	.028	.028	0	0.000	0.000	0	0.000	0.000					
4500.-	9000.	205	5.745	19.675	100	2.803	4.989	32	.897	.925	0	0.000	0.000	0	0.000	0.000					
9000.-	18000.	239	6.698	26.373	109	3.055	8.044	22	.617	1.541	1	.028	.028	0	0.000	0.000					
18000.-	45000.	292	8.184	34.557	161	4.512	12.556	22	.617	2.158	13	.364	.392	0	0.000	0.000					
45000.-	90000.	138	3.868	38.425	109	3.055	15.611	21	.589	2.747	3	.084	.476	0	0.000	0.000					
90000.-	180000.	174	4.877	43.301	70	1.962	17.573	15	.420	3.167	2	.056	.533	0	0.000	0.000					
180000.-	900000.	442	12.388	55.689	267	7.483	25.056	53	1.485	4.652	2	.056	.589	0	0.000	0.000					
900000.-	AND UP	74	2.074	57.763	53	1.485	26.541	16	.448	5.100	0	0.000	.589	0	0.000	0.000					
CASE COUNTS		2061				947				182				21				0			

Fig. C- 71. Histogram data from hour 6. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8508

FILTERING: 500' ALT. DIFF.

169

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	12	.141	.141	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	8	.094	.235	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	14	.165	.400	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	42	.494	.893	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	43	.505	1.399	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	92	1.081	2.480	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	115	1.352	3.832	0	0.000	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	301	3.538	7.370	0	0.000	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	314	3.691	11.060	19	.223	.235	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	722	8.486	19.546	123	1.440	1.081	10	.118	.118	0	0.000	0.000	0	0.000	0.000
45000.-	90000.	916	10.766	30.313	300	3.526	5.207	18	.212	.329	5	.059	.059	0	0.000	0.000
90000.-	180000.	763	8.968	39.281	513	6.030	11.236	119	1.399	1.728	20	.235	.294	1	.012	.012
180000.-	900000.	1634	19.205	58.486	1829	21.497	32.734	980	11.519	13.246	340	3.996	4.290	39	.458	.470
900000.	AND UP	256	3.009	61.495	504	5.924	38.658	592	6.958	20.204	272	3.197	7.487	146	1.716	2.186
CASE COUNTS		5232			3289			1719			637			136		

Fig. C-72. Histogram data from hour 7. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	8	.105	.105	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	8	.105	.209	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	24	.314	.523	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	24	.314	.837	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	40	.523	1.360	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	66	.863	2.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	84	1.099	3.322	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	135	1.766	5.088	5	.065	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	191	2.498	7.586	29	.379	.445	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	150	1.962	9.547	45	.589	1.033	3	.039	.039	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	271	3.544	13.092	120	1.569	2.603	8	.105	.144	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	267	3.492	16.584	151	1.975	4.578	14	.183	.327	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	522	6.827	23.411	173	2.263	6.840	46	.602	.929	1	.013	.013	0	0.000	0.000
45000.-	90000.	599	7.834	31.245	171	2.236	9.077	58	.759	1.687	0	0.000	.013	0	0.000	0.000
90000.-	180000.	763	9.979	41.224	322	4.211	13.288	122	1.596	3.283	7	.092	.105	0	0.000	0.000
180000.-	900000.	1512	19.775	60.999	1028	13.445	26.733	399	5.218	8.501	38	.497	.602	7	.092	.092
900000.	AND UP	534	6.984	67.983	426	5.572	32.304	188	2.459	10.960	67	.876	1.478	0	0.000	.092

CASE COUNT 5198

2470

838

113

7

Fig. C-73 . Histogram data from hour 8 . Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: 500' ALT. DIFF.

171

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	4	.061	.061	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	4	.061	.122	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	6	.092	.214	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	2	.031	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	0	0.000	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	0	0.000	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	2	.031	.275	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	10	.153	.427	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	30	.458	.885	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	26	.397	1.281	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	133	2.029	3.310	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	219	3.341	6.651	1	.015	.015	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	367	5.599	12.250	59	.900	.915	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45000.-	90000.	203	3.097	15.347	76	1.154	2.075	1	.015	.015	0	0.000	0.000	0	0.000	0.000
90000.-	180000.	352	5.370	20.717	174	2.654	4.729	8	.122	.137	0	0.000	0.000	0	0.000	0.000
180000.-	900000.	428	6.529	27.246	208	3.173	7.902	66	1.007	1.144	1	.015	.015	0	0.000	0.000
900000.	AND UP	147	2.243	29.489	48	.732	8.634	13	.198		0	0.000	.015	0	0.000	0.000

CASE COUNTS 1933 566 88 1 0

Fig. C-74. Histogram data from hour 9. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11136

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	20	.180	.180	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	10	.090	.269	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	16	.144	.413	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	32	.287	.700	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	42	.377	1.077	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	36	.323	1.401	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	44	.395	1.796	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	68	.611	2.406	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	150	1.347	3.753	4	.036	.036	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	320	2.873	6.626	13	.117	.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	601	5.396	12.022	103	.925	1.077	11	.099	.099	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	730	6.554	18.576	229	2.056	3.133	20	.180	.278	2	.018	.018	0	0.000	0.000
18000.-	45000.	1240	11.133	29.709	370	3.322	6.455	96	.862	1.140	17	.153	.171	7	.063	.063
45000.-	90000.	1225	10.998	40.707	494	4.437	10.891	129	1.158	2.298	36	.341	.512	3	.027	.090
90000.-	180000.	1488	13.360	54.067	906	8.134	19.025	337	3.026	5.324	64	.575	1.086	0	0.000	.090
180000.-	900000.	1930	17.328	71.395	2375	21.323	40.348	1598	14.347	19.671	622	5.584	6.671	74	.664	.754
900000. AND UP		324	2.909	74.304	657	5.899	46.247	531	4.767	24.438	328	2.945	9.616	83	.745	1.499
CASE COUNTS		8276			5151			2722			1071			157		

172

Fig. C-75. Histogram data from hour 10. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: 500' ALT. DIFF.

173

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	12	.268	.268	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	10	.224	.492	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	14	.313	.805	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	8	.179	.983	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	10	.224	1.207	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	22	.492	1.699	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	30	.671	2.369	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	71	1.587	3.956	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	76	1.699	5.655	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	84	1.878	7.532	3	.067	.067	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45000.-	90000.	137	3.062	10.595	1	.022	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
90000.-	180000.	242	5.409	16.004	9	.201	.091	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180000.-	400000.	343	7.667	23.670	90	2.012	2.302	5	.112	.112	0	0.000	0.000	0	0.000	0.000
400000.-	AND UP	126	2.816	26.486	24	.536	2.838	0	0.000	.112	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		1185			127			5			0			0		

Fig. C-76. Histogram data from hour 12. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: 500' ALT. DIFF.

174

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	20	.186	.186	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	4	.037	.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	22	.205	.428	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	58	.539	.967	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	134	1.246	2.213	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	132	1.228	3.441	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	142	1.321	4.761	10	.093	.093	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	312	2.902	7.663	16	.149	.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	522	4.854	12.517	60	.558	.800	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	605	5.626	18.144	176	1.637	2.437	13	.121	.121	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	902	8.388	26.532	516	4.799	7.235	71	.660	.781	2	.019	.019	0	0.000	0.000
9000.-	18000.	603	5.608	32.140	510	4.743	11.978	153	1.423	2.204	6	.074	.093	0	0.000	0.000
18000.-	45000.	1046	9.727	41.867	637	5.924	17.902	292	2.716	4.920	87	.809	.902	0	0.000	0.000
45000.-	90000.	972	9.039	50.906	417	3.878	21.780	272	2.530	7.449	50	.465	1.367	4	.037	.037
90000.-	180000.	1031	9.588	60.495	696	6.473	28.253	326	3.032	10.481	115	1.069	2.437	17	.158	.195
180000.-	900000.	1807	16.805	77.299	1464	13.613	41.867	639	5.943	16.423	280	2.604	5.040	55	.511	.707
900000.	AND UP	416	3.869	81.168	570	5.301	47.168	294	2.734	19.157	123	1.144	6.184	39	.363	1.030
CASE COUNTS		8728			>072			2060			665			115		

Fig. C- 77. Histogram data from hour 13. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $|AA| < 500$ ft.

HISTOGRAMS OF BETA FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8036

FILTERING: VCDOT/VC < .001

175

NOT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	8	.100	.124	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	22	.274	.398	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	54	.672	1.070	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	99	1.232	2.302	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	387	4.815	7.116	36	.448	.460	1	.012	.012	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	469	5.835	12.951	92	1.145	1.605	15	.187	.199	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	779	9.691	22.642	274	3.409	5.014	48	.597	.796	5	.062	.062	0	0.000	0.000
45000.-	90000.	869	10.811	33.453	484	6.021	11.035	136	1.692	2.488	5	.062	.124	0	0.000	0.000
90000.-	180000.	808	10.052	43.506	669	8.323	19.358	328	4.081	6.569	61	.759	.883	2	.025	.025
180000.-	900000.	1400	17.417	60.923	1724	21.448	40.806	1350	16.795	23.364	771	9.592	10.475	291	3.620	3.645
900000.-	AND UP	345	4.292	65.215	371	4.616	45.422	317	3.944	27.308	280	3.483	13.959	230	2.851	6.507
CASE COUNTS		5242			3651			2195			1122			523		

Fig. C-78. Histogram data from hour 2. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $\ddot{R}/\dot{R} < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5393

FILTERING: VCDOT/VC < .001

176

BT LESS		RUT LESS		K= 1		K= 2		K= 3		K= 4		K= 5	
THAN	THAN	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	2	.037	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	4	.074	.111	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	4	.074	.185	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	6	.111	.297	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	2	.037	.334	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	8	.148	.482	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	8	.148	.630	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	16	.297	.927	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	24	.445	1.372	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	90	1.668	3.040	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	140	2.595	5.635	6	.111	.111	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	284	5.264	10.899	44	.816	.927	2	.037	.037	0	0.000	0.000
45000.-	90000.	360	6.673	17.572	128	2.373	3.299	18	.334	.371	0	0.000	0.000
90000.-	180000.	540	10.009	27.581	289	5.357	8.656	97	1.798	2.169	17	.315	.315
180000.-	900000.	637	11.807	39.388	711	13.179	21.835	511	9.472	11.640	205	3.800	4.115
900000.-	AND UP	85	1.205	40.593	59	1.094	22.929	63	1.168	12.808	51	.945	3.060

CASE COUNTS 2190

1237

691

273

75

Fig. C-79. Histogram data from hour 3. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $\dot{R}/R < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12011

FILTERING: VCDOT/VC < .001

177

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	4	.032	.032	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	.032	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	8	.063	.095	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	10	.079	.174	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	8	.063	.238	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	28	.222	.460	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	30	.238	.698	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	42	.333	1.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	106	.841	1.871	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	144	1.142	3.013	8	.063	.063	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	443	3.513	6.526	38	.301	.365	3	.024	.024	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	905	7.176	13.702	168	1.332	1.697	21	.167	.190	2	.016	.016	0	0.000	0.000
18000.-	45000.	2219	17.596	31.298	1000	7.930	9.626	263	2.085	2.276	57	.452	.468	7	.056	.056
45000.-	90000.	1990	15.780	47.078	1572	12.465	22.092	740	5.868	8.144	252	1.998	2.466	68	.539	.595
90000.-	180000.	1524	12.085	59.162	2065	16.375	38.466	1689	13.393	21.537	808	6.407	8.873	281	2.228	2.823
180000.-	900000.	1724	13.671	72.833	2462	19.523	57.989	3106	24.629	46.166	3247	25.747	34.620	2614	20.728	23.551
900000.-	AND UP	328	2.601	75.434	425	3.370	61.359	416	3.299	49.465	399	3.164	37.784	390	3.093	26.644
CASE COUNTS		9513			7738			6238			4765			3360		

Fig. C- 80. Histogram data from hour 4. Average percent of time that an aircraft spent in a BETA (R^2_{τ}) encounter with K or more aircraft. Additional discrimination: $R/R < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: VCDOT/VC < .001

178

NOT LESS THAN		NOT LESS THAN		K= 1		K= 2		K= 3		K= 4		K= 5	
			%	CUM.%		%	CUM.%		%	CUM.%		%	CUM.%
0.-	250.	26	.349	.349	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	14	.188	.537	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	18	.242	.779	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	26	.349	1.128	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	24	.322	1.451	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	18	.242	1.692	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	22	.295	1.988	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	30	.403	2.391	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	57	.766	3.156	1	.013	.013	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	80	1.075	4.231	0	0.000	.013	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	164	2.203	6.434	8	.107	.121	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	416	5.588	12.021	32	.430	.551	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	929	12.478	24.500	247	3.318	3.868	34	.457	.457	0	0.000	0.000
45000.-	90000.	870	11.686	36.185	541	7.267	11.135	152	2.042	2.498	19	.255	.255
90000.-	180000.	923	12.398	48.583	907	12.183	23.318	439	5.897	8.395	170	2.264	2.619
180000.-	900000.	1328	17.837	66.420	1713	23.009	46.326	1572	21.119	29.510	1194	16.038	18.657
900000. AND UP		208	2.794	69.214	251	3.371	49.698	249	3.345	32.854	240	3.204	21.961
CASE COUNTS		5153		3700		2446		1630		1008			

Fig. C-81 . Histogram data from hour 5 . Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $\ddot{R}/\dot{R} < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 6
NUMBER OF SCANS 712
TOTAL FLYING TIME COUNT 3566
FILTERING: VCDOT/VC < .001

179

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	10	.280	.280	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	.280	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	4	.112	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	0	0.000	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	10	.280	.673	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	10	.280	.953	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	12	.336	1.289	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	34	.953	2.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	36	1.009	3.251	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	49	1.373	4.624	3	.084	.084	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	142	3.980	8.604	34	.953	1.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	263	7.371	15.975	69	1.934	2.971	18	.504	.504	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	408	11.435	27.410	198	5.549	8.520	58	1.626	2.130	10	.280	.280	0	0.000	0.000
45000.-	90000.	263	7.371	34.781	199	5.577	14.097	122	3.419	5.549	40	1.121	1.401	9	.252	.252
90000.-	180000.	270	7.567	42.349	320	8.969	23.066	214	5.998	11.547	105	2.943	4.344	18	.504	.757
180000.-	900000.	392	10.987	53.335	535	14.994	38.060	581	16.284	27.831	484	13.565	17.909	263	7.371	8.128
900000.	AND UP	33	.925	54.260	46	1.289	39.349	56	1.569	29.400	96	2.691	20.600	89	2.494	10.623
CASE COUNTS		1936			1404			1049			735			379		

Fig. C-82 . Histogram data from hour 6. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $\bar{R}/\bar{R} < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR /

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8508

FILTERING: VCDOT/VC < .001

180

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	10	.118	.118	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	4	.047	.165	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	8	.094	.259	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	4	.047	.306	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	10	.118	.423	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	6	.071	.494	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	6	.071	.564	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	22	.259	.823	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	40	.470	1.293	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	104	1.222	2.515	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	255	2.997	5.512	7	.082	.082	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	376	4.419	9.932	60	.705	.787	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	869	10.214	20.146	286	3.362	4.149	21	.247	.247	2	.024	.024	0	0.000	0.000
45000.-	90000.	961	11.295	31.441	496	5.830	9.979	123	1.446	1.693	10	.118	.141	0	0.000	0.000
90000.-	180000.	908	10.672	42.113	708	8.322	18.300	298	3.503	5.195	62	.729	.870	8	.094	.094
180000.-	900000.	1662	19.534	61.648	2060	24.212	42.513	1879	22.085	27.280	1205	14.163	15.033	626	7.358	7.452
900000.-	AND UP	213	2.504	64.151	333	3.914	46.27	406	4.772	32.052	410	4.819	19.852	305	3.595	11.037
CASE COUNTS		5458			3950			2727			1689			939		

Fig. C-83. Histogram data from hour 7. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $\ddot{R}/\dot{R} < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: VCDOT/VC < .001

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	12	.157	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	2	.026	.183	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	8	.105	.288	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	14	.183	.471	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	12	.157	.628	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	18	.235	.863	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	38	.497	1.360	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	54	.706	2.066	2	.026	.026	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	72	.942	3.008	2	.026	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	92	1.203	4.211	8	.105	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	279	3.649	7.860	33	.432	.589	2	.026	.026	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	346	4.525	12.386	67	.876	1.465	11	.144	.170	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	765	10.005	22.391	254	3.322	4.787	38	.497	.667	5	.065	.065	0	0.000	0.000
45000.-	90000.	736	9.626	32.017	422	5.519	10.306	154	2.014	2.681	36	.471	.536	4	.052	.052
90000.-	180000.	826	10.803	42.820	654	8.553	18.859	399	5.218	7.900	154	2.014	2.550	40	.523	.575
180000.-	900000.	1487	19.448	62.268	1596	20.874	39.733	1203	15.734	23.633	820	10.725	13.275	505	6.605	7.180
900000.	AND UP	367	4.800	67.068	482	6.304	46.037	413	5.402	29.035	279	3.649	16.924	184	2.406	9.587
CASE COUNTS		5128			3520			2220			1294			733		

181

Fig. C- 84. Histogram data from hour 8. Average percent of time that an aircraft spent in a BETA (R^2_T) encounter with K or more aircraft. Additional discrimination: $\ddot{R}/\dot{R} < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: VCDOT/VC < .001

OT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	2	.031	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	4	.061	.092	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	6	.092	.183	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	8	.122	.305	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	8	.122	.427	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	26	.397	.824	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	24	.366	1.190	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	101	1.541	2.731	1	.015	.015	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	173	2.639	5.370	7	.107	.122	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	385	5.873	11.243	62	.946	1.068	3	.046	.046	0	0.000	0.000	0	0.000	0.000
45000.-	90000.	359	5.477	16.720	114	1.739	2.807	29	.442	.488	0	0.000	0.000	0	0.000	0.000
90000.-	180000.	342	5.217	21.937	185	2.822	5.629	57	.870	1.358	6	.092	.092	0	0.000	0.000
180000.-	900000.	699	10.664	32.601	486	7.414	13.043	220	3.356	4.714	46	.732	.824	2	.031	.031
900000. AND UP		137	2.090	34.691	151	2.304	15.347	45	.686	5.400	18	.275	1.099	3	.046	.077
CASE COUNTS		2274			1006			354			72			5		

182

Fig. C-85. Histogram data from hour 9. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $\dot{R}/R < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11134

FILTERING: VCDOT/VC < .001

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	12	.108	.108	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	4	.036	.144	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	8	.072	.215	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	8	.072	.287	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	20	.180	.467	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	6	.054	.521	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	14	.126	.646	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	18	.162	.808	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	66	.593	1.401	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	113	1.015	2.415	3	.027	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	280	2.514	4.929	16	.144	.189	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	684	6.141	11.070	80	.718	.907	4	.036	.036	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	1773	15.918	26.989	416	3.735	4.642	55	.494	.530	13	.117	.117	1	.009	.009
45000.-	90000.	1718	15.425	42.413	1031	9.257	13.898	268	2.406	2.936	64	.575	.691	11	.099	.108
90000.-	180000.	1458	13.090	55.504	1706	15.317	29.215	1037	9.310	12.246	374	3.358	4.049	129	1.158	1.266
180000.-	900000.	1462	13.126	68.630	2267	20.354	49.569	2551	22.904	35.150	2067	18.558	22.607	1345	12.076	13.342
900000.	AND UP	219	1.966	70.596	306	2.747	52.316	321	2.882	39.032	278	2.496	25.103	285	2.559	15.901
CASE COUNTS		7863			5827			4236			2796			1771		

Fig. C-86. Histogram data from hour 10. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $R/R < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: VCDOT/VC < .001

184

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	4	.089	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	4	.089	.179	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	6	.134	.313	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	20	.447	.760	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	62	1.386	2.146	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	87	1.945	4.090	3	.067	.067	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	184	4.113	8.203	16	.358	.425	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45000.-	90000.	235	5.253	13.455	34	.760	1.185	1	.022	.022	0	0.000	0.000	0	0.000	0.000
90000.-	180000.	283	6.325	19.781	90	2.012	3.196	1	.022	.045	0	0.000	0.000	0	0.000	0.000
180000.-	900000.	435	9.723	29.504	310	6.929	10.125	116	2.593	2.637	17	.380	.380	0	0.000	0.000
900000. AND UP		193	4.314	33.838	88	1.967	12.092	51	1.140	3.777	22	.492	.872	6	.134	.134
CASE COUNTS		1513			541			169			39			6		

Fig. C-87. Histogram data from hour 12. Average percent of time that an aircraft spent in a BETA ($R^2\tau$) encounter with K or more aircraft. Additional discrimination: $R/R < .001$ sec.

HISTOGRAMS OF BETA FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: VCDOT/VC < .001

185

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.-	250.	4	.037	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
250.-	333.	2	.019	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
333.-	500.	6	.056	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
500.-	750.	0	0.000	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
750.-	1000.	8	.074	.186	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1000.-	1200.	30	.279	.465	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1200.-	1500.	20	.186	.651	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
1500.-	2000.	14	.130	.781	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
2000.-	3000.	32	.298	1.079	4	.037	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
3000.-	4500.	101	.939	2.018	3	.028	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
4500.-	9000.	434	4.036	6.054	18	.167	.232	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
9000.-	18000.	819	7.616	13.671	99	.921	1.153	2	.019	.019	0	0.000	0.000	0	0.000	0.000
18000.-	45000.	1427	13.271	26.941	539	5.013	6.166	87	.809	.628	3	.028	.028	0	0.000	0.000
45000.-	90000.	1324	12.313	39.254	834	7.756	13.922	310	2.883	3.711	64	.595	.623	6	.056	.056
90000.-	180000.	1190	11.067	50.321	1288	11.978	25.900	792	7.365	11.076	285	2.650	3.273	79	.735	.790
180000.-	900000.	1506	14.005	64.326	2273	21.138	47.038	2308	21.464	32.540	1781	16.563	19.836	1105	10.276	11.067
900000.	AND UP	403	3.748	68.074	370	3.441	50.479	358	3.329	35.869	351	3.264	23.100	281	2.613	13.680
CASE COUNTS		7320			5428			3857			2484			1471		

Fig. C- 88. Histogram data from hour 13. Average percent of time that an aircraft spent in a BETA (R^2) encounter with K or more aircraft. Additional discrimination: $R/R < .001$ sec.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8038

FILTERING: NONE

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	4	.050	.075	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	8	.100	.174	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	24	.299	.473	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	54	.672	1.145	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	178	2.214	3.359	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	369	4.591	7.950	21	.261	.286	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	769	9.567	17.517	126	1.568	1.854	5	.062	.062	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	922	11.470	28.987	305	3.794	5.648	25	.311	.373	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	787	9.791	38.778	381	4.740	10.388	90	1.120	1.493	4	.050	.050	0	0.000	0.000
55.00-	60.00	527	6.556	45.335	415	5.163	15.551	128	1.592	3.085	22	.274	.323	0	0.000	0.000
60.00-	65.00	576	7.166	52.500	536	6.668	22.219	298	3.707	6.793	68	.846	1.169	4	.050	.050
65.00-	70.00	493	6.133	58.634	520	6.469	28.689	326	4.056	10.848	112	1.393	2.563	1	.012	.062
70.00-	75.00	401	4.989	63.623	544	6.768	35.457	407	5.063	15.912	176	2.190	4.752	32	.398	.460
75.00-	80.00	300	3.732	67.355	523	6.507	41.963	497	6.183	22.095	317	3.944	8.696	74	.921	1.381
80.00-	85.00	465	5.785	73.140	580	7.216	49.179	511	6.357	28.452	335	4.168	12.864	139	1.729	3.110
85.00-	90.00	406	5.051	78.191	555	6.905	56.083	558	6.942	35.394	464	5.773	18.636	219	2.725	5.835
90.00-	95.00	298	3.707	81.898	487	6.059	62.142	601	7.477	42.871	501	6.233	24.869	327	4.068	9.903
95.00-	100.00	328	4.081	85.979	442	5.499	67.641	503	6.258	49.129	568	7.066	31.936	395	4.914	14.817
100.00-	110.00	319	3.969	89.948	717	8.920	76.561	902	11.222	60.351	1064	13.237	45.173	872	10.848	25.666
110.00-	120.00	248	3.085	93.033	626	7.788	84.349	735	9.144	69.495	825	10.264	55.436	898	11.172	36.837
120.00-	130.00	134	1.667	94.700	308	3.832	88.181	696	8.659	78.154	744	9.256	64.693	712	8.858	45.695
130.00-	140.00	116	1.443	96.143	248	3.085	91.266	373	4.640	82.794	609	7.576	72.269	705	8.783	54.479
140.00-	150.00	50	.622	96.765	178	2.214	93.481	336	4.180	86.974	360	4.479	76.748	384	4.777	59.255
150.00-	160.00	19	.236	97.001	61	.759	94.240	211	2.625	89.599	242	3.011	79.759	233	2.899	62.155
160.00-	170.00	51	.634	97.636	58	.722	94.961	85	1.057	90.657	162	2.015	81.774	192	2.389	64.543
170.00-	180.00	26	.323	97.959	31	.386	95.347	35	.435	91.092	28	.348	82.122	106	1.319	65.862
180.00-	200.00	34	.423	98.383	18	.224	95.571	5	.062	91.154	4	.050	82.172	14	.174	66.035
200.00	AN/D UP	0	0.000	98.383	0	0.000	95.571	0	0.000	91.154	0	0.000	82.172	3	.037	66.073

CASE COUNTS 7908 7682 7327 6605 5311

Fig. C- 89. Histogram data from hour 2. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5395

FILTERING: NONE

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	4	.074	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	10	.185	.259	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	14	.259	.519	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	14	.259	.778	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	60	1.112	1.891	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	99	1.835	3.726	3	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	224	4.152	7.878	16	.297	.352	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	389	7.210	15.088	67	1.242	1.594	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	319	5.913	21.001	153	2.836	4.430	2	.037	.037	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	273	5.060	26.061	142	2.632	7.062	23	.426	.463	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	310	5.746	31.807	160	2.966	10.028	36	.667	1.131	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	263	4.875	36.682	244	4.523	14.550	65	1.205	2.335	0	.111	.111	0	0.000	0.000
65.00-	70.00	280	5.190	41.872	285	5.283	19.833	108	2.002	4.337	11	.204	.315	0	0.000	0.000
70.00-	75.00	378	7.006	48.879	337	6.247	26.080	227	4.208	8.545	37	.686	1.001	1	.019	.019
75.00-	80.00	246	4.560	53.438	300	5.561	31.640	246	4.560	13.105	81	1.501	2.502	5	.093	.111
80.00-	85.00	294	5.449	58.888	271	5.023	36.663	377	6.988	20.093	161	2.984	5.487	13	.241	.352
85.00-	90.00	273	5.060	63.948	249	4.615	41.279	238	4.411	24.504	240	4.449	9.935	82	1.520	1.872
90.00-	95.00	245	4.541	68.489	217	4.022	45.301	164	3.040	27.544	253	4.690	14.625	104	1.928	3.800
95.00-	100.00	168	3.114	71.603	215	3.985	49.286	195	3.614	31.158	181	3.355	17.980	135	2.502	6.302
100.00-	110.00	277	5.134	76.737	452	8.378	57.664	453	8.397	39.555	376	6.969	24.949	273	5.060	11.362
110.00-	120.00	123	2.280	79.017	334	6.191	63.855	503	9.323	48.879	460	8.526	33.475	401	7.433	18.795
120.00-	130.00	95	1.761	80.778	145	2.688	66.543	310	5.746	54.625	389	7.210	40.686	427	7.915	26.710
130.00-	140.00	62	1.149	81.927	122	2.261	68.804	147	2.725	57.349	285	5.283	45.968	248	4.597	31.307
140.00-	150.00	31	.575	82.502	30	.556	69.360	51	.945	58.295	74	1.372	47.340	119	2.200	33.512
150.00-	160.00	4	.074	82.576	15	.278	69.638	15	.278	58.573	30	.556	47.896	71	1.316	34.829
160.00-	170.00	2	.037	82.613	25	.463	70.102	28	.519	59.092	32	.593	48.489	31	.575	35.403
170.00-	180.00	13	.241	82.854	10	.185	70.287	14	.259	59.351	3	.056	48.545	1	.019	35.422
180.00-	200.00	0	0.000	82.854	7	.130	70.417	0	0.000	59.351	0	0.000	48.545	0	0.000	35.422
200.00-	AND UP	0	0.000	82.854	0	0.000	70.417	0	0.000	59.351	0	0.000	48.545	0	0.000	35.422
CASE COUNTS		4470			3799			3202			2619			1911		

Fig. C-90. Histogram data from hour 3. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	4	.032	.032	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	10	.079	.111	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	10	.079	.190	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	18	.143	.333	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	50	.396	.730	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	207	1.641	2.371	3	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	639	5.067	7.438	15	.119	.143	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	1714	13.591	21.029	327	2.593	2.736	21	1.67	.167	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	2182	17.302	38.332	1208	9.579	12.315	239	1.895	2.062	24	.190	.190	1	.008	.008
50.00-	55.00	1400	11.101	49.433	1442	11.434	23.749	739	5.860	7.922	189	1.499	1.689	26	.206	.214
55.00-	60.00	888	7.041	56.474	1012	8.025	31.774	789	6.256	14.178	344	2.728	4.417	91	.722	.936
60.00-	65.00	686	5.440	61.914	876	6.946	38.720	795	6.304	20.482	428	3.394	7.811	116	.920	1.856
65.00-	70.00	804	6.375	68.290	992	7.866	46.586	899	7.129	27.611	623	4.940	12.751	275	2.189	4.044
70.00-	75.00	802	6.359	74.649	970	7.692	54.278	1089	8.635	36.246	896	7.105	19.856	341	4.290	8.334
75.00-	80.00	647	5.130	79.779	955	7.573	61.851	1145	9.079	45.325	1105	8.762	28.618	883	7.002	15.336
80.00-	85.00	448	3.552	83.332	745	5.908	67.758	959	7.604	52.930	1121	8.889	37.507	1022	8.104	23.440
85.00-	90.00	382	3.029	86.361	635	5.035	72.793	822	6.518	59.448	947	7.509	45.016	952	7.549	30.989
90.00-	95.00	336	2.664	89.025	678	5.376	78.170	863	6.843	66.291	989	7.842	52.859	939	7.446	38.435
95.00-	100.00	240	1.903	90.928	619	4.908	83.078	790	6.264	72.555	966	7.660	60.518	1000	7.930	46.364
100.00-	110.00	507	4.020	94.949	893	7.081	90.159	1368	10.848	83.403	1759	13.948	74.467	1915	15.195	61.549
110.00-	120.00	250	1.982	96.931	572	4.536	94.695	858	6.804	90.207	1195	9.476	83.942	1441	11.427	72.976
120.00-	130.00	78	.619	97.550	230	1.824	96.519	444	3.521	93.728	712	5.646	89.588	1060	8.405	81.381
130.00-	140.00	83	.658	98.208	115	.912	97.431	251	1.990	95.718	437	3.465	93.053	691	5.479	86.861
140.00-	150.00	57	.452	98.660	38	.301	97.732	102	.809	96.527	195	1.546	94.600	382	3.029	89.890
150.00-	160.00	42	.333	98.993	31	.246	97.978	68	.539	97.066	76	.603	95.202	122	.967	90.857
160.00-	170.00	11	.087	99.080	29	.230	98.208	29	.230	97.296	39	.309	95.512	91	.722	91.579
170.00-	180.00	20	.159	99.239	27	.214	98.422	8	.063	97.359	27	.214	95.726	29	.230	91.809
180.00-	200.00	7	.056	99.294	12	.095	98.517	18	.143	97.502	24	.190	95.916	15	.119	91.927
200.00-	AND UP	3	.024	99.318	0	0.000	98.517	1	.008	97.510	0	0.000	95.916	2	.016	91.943

CASE COUNT 12224 12424 12297 12096 11595

Fig. C-91. Histogram data from hour 4. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	8	.107	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	14	.188	.295	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	54	.725	1.021	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	114	1.531	2.552	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	125	1.679	4.231	3	.040	.040	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	242	3.251	7.482	27	.363	.403	1	.013	.013	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	246	3.304	10.786	53	.712	1.115	3	.040	.054	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	460	6.179	16.964	97	1.303	2.418	13	.175	.228	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	564	7.576	24.540	186	2.498	4.916	20	.269	.497	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	545	7.320	31.860	239	3.210	8.126	70	.940	1.437	18	.242	.242	4	.054	.7054
55.00-	60.00	504	6.770	38.630	319	4.285	12.411	122	1.639	3.076	30	.403	.645	5	.057	.121
60.00-	65.00	550	7.387	46.017	328	4.406	16.817	190	2.552	5.628	58	.779	1.424	4	.054	.175
65.00-	70.00	562	7.549	53.566	419	5.628	22.445	336	4.513	10.141	161	2.163	3.586	27	.363	.2537
70.00-	75.00	587	7.884	61.451	486	6.528	28.972	342	4.594	14.735	246	3.304	6.891	133	1.786	2.324
75.00-	80.00	451	6.058	67.508	659	8.852	37.824	343	4.607	19.342	215	2.888	9.778	150	2.015	4.338
80.00-	85.00	372	4.997	72.505	528	7.092	44.916	460	6.179	25.520	261	3.506	13.284	159	2.136	6.474
85.00-	90.00	311	4.177	76.682	541	7.267	52.182	505	6.783	32.303	443	5.950	19.234	209	2.807	9.281
90.00-	95.00	275	3.694	80.376	463	6.219	58.401	458	6.152	38.455	501	6.729	25.964	385	5.171	14.453
95.00-	100.00	250	3.358	83.734	483	6.488	64.889	505	6.783	45.238	450	6.044	32.008	423	5.692	20.134
100.00-	110.00	402	5.400	89.134	839	11.269	76.158	910	12.223	57.461	744	9.993	42.001	679	9.120	29.255
110.00-	120.00	355	4.768	93.902	543	7.293	83.452	866	11.632	69.093	788	10.584	52.586	608	8.167	37.421
120.00-	130.00	203	2.727	96.628	377	5.064	88.516	490	6.582	75.675	594	7.978	60.564	562	7.549	44.970
130.00-	140.00	146	1.961	98.589	336	4.513	93.029	488	6.555	82.229	458	6.152	66.716	544	7.307	52.277
140.00-	150.00	68	.913	99.503	234	3.143	96.172	262	3.519	85.749	255	3.425	70.141	353	4.741	57.019
150.00-	160.00	5	.067	99.570	78	1.048	97.219	152	2.042	87.790	125	1.679	71.820	117	1.572	58.589
160.00-	170.00	7	.094	99.664	23	.309	97.528	76	1.021	88.811	58	.779	72.599	100	1.343	59.933
170.00-	180.00	0	0.000	99.664	7	.094	97.622	32	.430	89.241	9	.121	72.720	19	.242	60.175
180.00-	200.00	0	0.000	99.664	8	.107	97.730	11	.148	89.389	5	.067	72.787	10	.134	60.309
200.00-	AND UP	0	0.000	99.664	0	0.000	97.730	0	0.000	89.389	0	0.000	72.787	0	0.000	60.309

CASE COUNTS 7420

7276

6655

5419

4490

Fig. C-92. Histogram data from hour 5. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3568

FILTERING: NONE

UT LESS THAN	KUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	12	.336	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	22	.617	1.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	44	1.233	2.242	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	73	2.046	4.288	3	.084	.084	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	89	2.494	6.783	5	.140	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	154	4.316	11.099	12	.336	.561	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	133	3.728	14.828	50	1.401	1.962	3	.084	.084	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	263	7.371	22.197	71	1.990	3.952	10	.280	.364	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	279	7.819	30.017	98	2.747	6.698	53	1.485	1.850	6	.168	.168	0	0.000	0.000
55.00-	60.00	337	9.445	39.462	190	5.325	12.023	75	2.102	3.952	30	.841	1.009	0	0.000	0.000
60.00-	65.00	371	10.398	49.860	247	6.923	18.946	104	2.915	6.867	34	.953	1.962	3	.224	.224
65.00-	70.00	306	8.576	58.436	284	7.960	26.906	137	3.840	10.706	57	1.598	3.559	12	.336	.561
70.00-	75.00	208	5.830	64.266	244	6.839	33.744	228	6.390	17.096	72	2.018	5.577	32	.897	1.457
75.00-	80.00	145	4.064	68.329	196	5.493	39.238	192	5.381	22.477	128	3.587	9.165	61	1.710	3.167
80.00-	85.00	115	3.223	71.552	199	5.577	44.815	244	6.839	29.316	157	4.400	13.565	95	2.663	5.830
85.00-	90.00	109	3.055	74.607	166	4.652	49.467	155	4.344	33.660	173	4.849	18.414	121	3.391	9.221
90.00-	95.00	102	2.859	77.466	149	4.176	53.643	167	4.680	38.341	163	4.568	22.982	124	3.475	12.696
95.00-	100.00	104	2.915	80.381	153	4.288	57.932	178	4.989	43.329	164	4.596	27.578	129	3.597	16.284
100.00-	110.00	162	4.540	84.921	302	8.464	66.396	239	6.698	50.028	250	7.007	34.585	281	7.876	24.159
110.00-	120.00	115	3.223	88.144	253	7.091	73.486	252	7.063	57.091	250	7.007	41.592	284	7.960	32.119
120.00-	130.00	34	.953	89.097	158	4.428	77.915	267	7.483	64.574	304	8.520	50.112	213	5.970	38.089
130.00-	140.00	26	.729	89.826	99	2.775	80.689	223	6.250	70.824	259	7.259	57.371	217	6.092	44.170
140.00-	150.00	13	.364	90.190	23	.645	81.334	56	1.569	72.393	102	2.859	60.230	172	4.821	48.991
150.00-	160.00	0	0.000	90.190	0	0.000	81.334	5	.140	72.533	27	.757	60.986	55	1.541	50.532
160.00-	170.00	0	0.000	90.190	0	0.000	81.334	0	0.000	72.533	8	.224	61.211	33	.925	51.457
170.00-	180.00	0	0.000	90.190	0	0.000	81.334	0	0.000	72.533	0	0.000	61.211	0	0.000	51.457
180.00-	200.00	0	0.000	90.190	0	0.000	81.334	0	0.000	72.533	0	0.000	61.211	0	0.000	51.457
200.00	AND UP	0	0.000	90.190	0	0.000	81.334	0	0.000	72.533	0	0.000	61.211	0	0.000	51.457

CASE COUNTS

3218

2902

2588

2184

1836

Fig. C-93. Histogram data from hour 6. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8506

FILTERING: NONE

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	6	.071	.071	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	22	.259	.329	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	52	.611	.940	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	63	.740	1.681	1	.012	.012	0	0.000	0.000	0	0.000	.000	0	0.000	0.000
25.00-	30.00	84	.987	2.668	0	0.000	.012	0	0.000	0.000	0	0.000	.000	0	0.000	0.000
30.00-	35.00	213	2.504	5.172	1	.012	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	369	4.337	9.509	21	.247	.270	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	491	5.771	15.280	57	.670	.940	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	802	9.426	24.706	225	2.645	3.285	21	.247	.247	2	.024	.024	0	0.000	0.000
50.00-	55.00	840	9.873	34.579	395	4.643	8.228	48	.564	.811	11	.129	.153	0	0.000	0.000
55.00-	60.00	718	8.439	43.018	531	6.241	14.69	177	2.080	2.891	14	.165	.317	0	0.000	0.000
60.00-	65.00	564	6.629	49.647	528	6.206	20.675	236	2.774	5.665	34	.400	.717	0	0.000	0.000
65.00-	70.00	682	8.016	57.663	700	8.228	28.902	380	4.466	10.132	129	1.516	2.233	1	.012	.012
70.00-	75.00	709	8.333	55.996	804	9.450	38.352	508	5.971	16.102	237	2.786	5.019	41	.482	.7494
75.00-	80.00	589	6.923	72.919	860	10.108	48.460	771	9.062	25.164	439	5.160	10.179	139	1.634	2.127
80.00-	85.00	513	6.030	78.949	754	8.862	57.322	740	8.698	33.862	505	5.936	16.114	266	3.126	5.254
85.00-	90.00	430	5.054	84.003	672	7.898	65.221	740	8.698	42.560	603	7.087	23.202	413	4.854	10.108
90.00-	95.00	266	3.126	87.129	474	5.571	70.792	690	8.110	50.670	676	7.945	31.147	445	5.230	15.338
95.00-	100.00	196	2.304	89.433	480	5.642	76.434	671	7.887	58.557	618	7.264	38.411	548	6.441	21.779
100.00-	110.00	390	4.584	94.017	600	7.052	83.486	856	10.061	68.617	1222	14.363	52.774	1087	12.776	34.555
110.00-	120.00	271	3.185	97.202	399	4.690	88.176	608	7.146	75.764	774	9.097	61.871	949	11.154	45.710
120.00-	130.00	110	1.293	98.495	363	4.267	92.442	565	6.641	82.405	699	8.216	70.087	855	10.049	55.759
130.00-	140.00	44	.517	99.012	235	2.762	95.204	417	4.901	87.306	557	6.547	76.634	822	9.661	65.421
140.00-	150.00	2	.024	99.036	47	.552	95.757	143	1.681	88.987	316	3.714	80.348	479	5.630	71.051
150.00-	160.00	18	.212	99.248	78	.917	96.674	76	.893	89.880	162	1.904	82.252	227	2.668	73.719
160.00-	170.00	2	.024	99.271	7	.082	96.756	42	.494	90.374	67	.787	83.039	51	.599	74.318
170.00-	180.00	0	0.000	99.271	5	.059	96.815	2	.024	90.397	8	.094	83.133	19	.223	74.541
180.00-	200.00	0	0.000	99.271	0	0.000	96.815	0	0.000	90.397	3	.035	83.168	11	.129	74.671
200.00-	AND UP	0	0.000	99.271	0	0.000	96.815	0	0.000	90.397	0	0.000	83.168	0	0.000	74.671
CASE COUNTS		8446			8237			7691			7076			6353		

191

Fig. C-94. Histogram data from hour 7. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	6	.078	.078	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	16	.209	.288	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	54	.706	.994	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	112	1.465	2.459	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	126	1.648	4.107	2	.026	.026	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	200	2.616	6.722	10	.131	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	437	5.715	12.438	21	.275	.432	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	585	7.651	20.089	89	1.164	1.596	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	539	7.049	27.138	165	2.158	3.754	12	.157	.157	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	557	7.285	34.423	225	2.943	6.696	42	.549	.706	4	.052	.052	0	0.000	0.000
55.00-	60.00	461	6.029	40.452	317	4.146	10.842	68	.889	1.596	24	.314	.366	2	.026	.026
60.00-	65.00	604	7.900	48.352	363	4.748	15.590	115	1.504	3.100	23	.301	.667	2	.026	.052
65.00-	70.00	629	8.227	56.578	507	6.631	22.221	226	2.956	6.055	65	.850	1.517	8	.105	.157
70.00-	75.00	520	6.801	63.379	611	7.991	30.212	345	4.512	10.568	138	1.805	3.322	35	.458	.615
75.00-	80.00	417	5.454	68.833	595	7.782	37.994	532	6.958	17.525	220	2.877	6.199	52	.680	1.295
80.00-	85.00	380	4.970	73.803	653	8.540	46.534	500	6.539	24.065	352	4.604	10.803	121	1.583	2.877
85.00-	90.00	260	3.400	77.204	723	6.840	53.374	584	7.638	31.703	336	4.394	15.197	224	2.930	5.807
90.00-	95.00	257	3.361	80.565	548	7.167	60.541	561	7.337	39.040	479	6.265	21.462	277	3.623	9.430
95.00-	100.00	317	4.146	84.711	494	6.461	67.002	519	6.788	45.828	432	5.650	27.112	334	4.368	13.798
100.00-	110.00	495	6.474	91.185	798	10.437	77.439	1149	15.027	60.855	965	12.621	39.733	677	8.854	22.652
110.00-	120.00	365	4.774	95.958	670	8.763	86.202	845	11.051	71.907	1079	14.112	53.845	825	10.803	33.455
120.00-	130.00	217	2.838	98.797	425	5.558	91.760	651	8.514	80.421	921	12.046	65.890	965	12.621	46.076
130.00-	140.00	44	.575	99.372	232	3.034	94.794	434	5.676	86.097	630	8.240	74.130	779	10.188	56.265
140.00-	150.00	12	.157	99.529	160	2.093	96.887	309	4.041	90.138	372	4.865	78.995	514	6.722	62.987
150.00-	160.00	22	.288	99.817	69	.902	97.790	167	2.184	92.323	240	3.139	82.134	365	4.774	67.761
160.00-	170.00	5	.065	99.882	20	.262	98.051	84	1.099	93.421	132	1.726	83.861	189	2.472	70.233
170.00-	180.00	1	.013	99.895	15	.196	98.247	32	.419	93.840	44	.575	84.436	44	.575	70.808
180.00-	200.00	0	0.000	99.895	1	.013	98.260	12	.157	93.997	22	.288	84.724	9	.118	70.926
200.00	AND UP	0	0.000	99.895	1	.013	98.273	8	.105	94.101	8	.105	84.828	3	.039	70.965
CASE COUNTS		7638			7514			7195			6486			5426		

Fig. C-95. Histogram data from hour 8. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: NONE

DT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%					
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
5.00-	10.00	4	.061	.061	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
10.00-	15.00	12	.183	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
15.00-	20.00	18	.275	.519	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
20.00-	25.00	28	.427	.946	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
25.00-	30.00	52	.793	1.739	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
30.00-	35.00	118	1.800	3.539	6	.092	.092	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
35.00-	40.00	206	3.143	6.682	14	.214	.305	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
40.00-	45.00	332	5.065	11.747	71	1.083	1.388	7	.107	.107	0	0.000	0.000	0	0.000	0.000					
45.00-	50.00	386	5.889	17.635	110	1.678	3.066	6	.092	.198	0	0.000	0.000	0	0.000	0.000					
50.00-	55.00	475	7.246	24.882	148	2.258	5.324	29	.442	.641	0	0.000	0.000	0	0.000	0.000					
55.00-	60.00	423	6.453	31.335	192	2.929	8.253	57	.870	1.510	12	.183	.183	0	0.000	0.000					
60.00-	65.00	400	6.102	37.437	272	4.149	12.403	103	1.571	3.082	17	.259	.442	0	0.000	0.000					
65.00-	70.00	399	6.087	43.524	362	5.522	17.925	139	2.121	5.202	24	.366	.809	0	0.000	0.000					
70.00-	75.00	446	6.804	50.328	317	4.836	22.761	159	2.426	7.628	23	.351	1.159	3	.046	.046					
75.00-	80.00	394	6.011	56.339	325	4.958	27.719	154	2.349	9.977	07	1.022	2.182	6	.092	.137					
80.00-	85.00	343	5.233	61.571	308	4.699	32.418	200	3.051	13.028	64	.976	3.158	11	.168	.305					
85.00-	90.00	332	5.065	66.636	266	4.058	36.476	242	3.692	16.720	73	1.114	4.272	22	.336	.641					
90.00-	95.00	411	6.270	72.906	344	5.248	41.724	281	4.287	21.007	129	1.968	6.240	18	.275	.915					
95.00-	100.00	292	4.455	77.361	294	4.485	46.209	301	4.592	25.599	153	2.334	8.574	31	.473	1.388					
100.00-	110.00	311	4.744	82.105	627	9.565	55.774	574	8.757	34.355	382	5.828	14.401	143	2.258	3.645					
110.00-	120.00	184	2.807	84.912	450	6.865	62.639	509	7.765	42.120	391	5.965	20.366	250	3.814	7.460					
120.00-	130.00	157	2.395	87.307	266	4.058	66.697	240	3.661	45.782	342	5.217	25.583	252	3.844	11.304					
130.00-	140.00	115	1.754	89.062	115	1.754	68.451	159	2.426	48.207	182	2.776	28.360	175	2.685	13.989					
140.00-	150.00	61	.931	89.992	146	2.227	70.679	113	1.724	49.931	149	2.273	30.633	177	2.700	16.690					
150.00-	160.00	46	.702	90.694	144	2.197	72.875	91	1.388	51.319	40	.610	31.243	34	.519	17.209					
160.00-	170.00	20	.305	90.999	51	.778	73.654	61	.931	52.250	18	.275	31.518	5	.076	17.284					
170.00-	180.00	26	.397	91.396	39	.595	74.248	29	.442	52.692	15	.229	31.747	4	.061	17.345					
180.00-	200.00	2	.031	91.426	1	.015	74.264	0	0.000	52.692	0	0.000	31.747	7	.107	17.452					
200.00	AND UP	0	0.000	91.426	0	0.000	74.264	0	0.000	52.692	0	0.000	31.747	0	0.000	17.452					
CASE COUNTS		5993				4868				3454				2081				1144			

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Fig. C-96. Histogram data from hour 9. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11136

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	14	.126	.126	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	14	.126	.251	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	44	.395	.646	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	42	.377	1.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	92	.826	1.850	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	192	1.724	3.573	4	.036	.036	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	402	3.609	7.183	14	.126	.162	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	896	8.045	15.227	82	.736	.898	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	1386	12.444	27.671	358	3.214	4.112	18	.162	.162	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	1607	14.428	42.099	750	6.734	10.846	112	1.006	1.167	11	.099	.099	2	.018	.018
55.00-	60.00	1318	11.833	53.932	1052	9.445	20.291	390	3.502	4.669	82	.736	.835	9	.081	.099
60.00-	65.00	895	8.036	51.968	1031	9.257	29.547	618	5.549	10.217	151	1.356	2.191	30	.259	.369
65.00-	70.00	767	6.886	58.854	1024	9.194	38.741	676	6.069	16.287	291	2.613	4.803	99	.889	1.257
70.00-	75.00	756	6.788	65.642	1044	9.373	48.114	837	7.515	23.801	559	5.019	9.822	150	1.347	2.604
75.00-	80.00	672	6.033	71.675	1116	10.020	58.134	1029	9.239	33.040	666	5.980	15.802	419	3.762	6.366
80.00-	85.00	383	3.439	75.114	904	8.116	66.250	1092	9.804	42.844	879	7.892	23.694	575	5.162	11.528
85.00-	90.00	372	3.340	78.454	725	6.509	72.760	1079	9.688	52.532	1054	9.463	33.157	871	7.820	19.349
90.00-	95.00	266	2.388	80.842	625	5.611	78.371	874	7.847	60.379	1029	9.239	42.395	851	7.641	26.989
95.00-	100.00	184	1.652	82.494	495	4.444	82.815	895	8.036	68.414	1102	9.894	52.289	893	8.052	35.051
100.00-	110.00	309	2.774	85.268	590	5.297	88.113	1233	11.070	79.484	1641	14.733	67.023	1913	17.220	52.271
110.00-	120.00	236	2.119	87.387	540	4.848	92.961	682	6.123	85.608	1064	9.553	76.575	1467	13.171	65.442
120.00-	130.00	123	1.104	88.491	297	2.667	95.627	520	4.669	90.276	739	6.635	83.210	1008	9.050	74.492
130.00-	140.00	43	.386	98.877	121	1.086	96.714	289	2.595	92.871	445	3.995	87.206	625	5.611	80.104
140.00-	150.00	15	.135	99.012	43	.386	97.100	71	.637	93.508	168	1.508	88.714	257	2.307	82.411
150.00-	160.00	20	.180	99.192	19	.171	97.271	38	.341	93.850	94	.844	89.558	172	1.544	83.956
160.00-	170.00	2	.018	99.210	7	.063	97.333	23	.206	94.056	28	.251	89.810	55	.494	84.449
170.00-	180.00	11	.099	99.308	2	.018	97.351	2	.018	94.074	8	.072	89.881	7	.063	84.512
180.00-	200.00	0	0.000	99.308	5	.045	97.396	4	.036	94.110	2	.018	89.899	3	.027	84.539
200.00-	AND UP	0	0.000	99.308	0	0.000	97.396	0	0.000	94.110	0	0.000	89.899	0	0.000	84.539

194

CASE COUNTS 11061 10848 10482 10015 9416

Fig. C-97. Histogram data from hour 10. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: NONE

195

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	2	.045	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	10	.224	.269	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	40	.894	1.162	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	112	2.503	3.066	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	144	3.219	6.284	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	172	3.844	10.129	26	.581	10.710	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	206	4.604	15.333	38	.849	14.559	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	267	5.968	21.501	65	1.453	16.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	320	7.152	28.653	101	2.257	18.269	7	.156	18.425	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	167	3.733	32.386	97	2.168	20.437	18	.402	20.839	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	154	3.442	35.828	129	2.883	23.320	52	1.162	24.482	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	247	5.521	41.349	99	2.213	25.533	31	.693	26.226	5	.112	26.338	2	.045	26.383
80.00-	85.00	280	6.258	47.607	121	2.705	28.238	40	.894	29.132	20	.447	29.579	3	.067	29.646
85.00-	90.00	189	4.224	51.831	164	3.666	31.894	52	1.162	33.056	7	.156	33.212	0	0.000	33.212
90.00-	95.00	157	3.509	55.341	149	3.330	35.224	94	2.101	37.325	12	.268	37.593	0	0.000	37.593
95.00-	100.00	161	3.599	58.739	194	4.336	39.560	107	2.392	41.952	51	1.140	43.092	7	.156	43.248
100.00-	110.00	383	8.561	67.300	358	8.002	47.562	259	5.789	53.351	162	3.621	56.972	45	1.006	57.978
110.00-	120.00	237	5.297	72.597	320	7.152	54.714	287	6.413	61.167	202	4.515	65.682	53	1.185	66.867
120.00-	130.00	84	1.878	74.475	249	5.565	60.279	202	4.515	65.682	78	1.743	67.425	102	2.280	69.705
130.00-	140.00	141	3.152	77.626	194	4.336	64.615	127	2.839	67.464	176	3.934	71.359	51	1.140	72.499
140.00-	150.00	39	.872	78.498	54	1.207	65.822	50	1.118	66.940	56	1.252	68.192	47	.094	68.286
150.00-	160.00	40	.894	79.392	70	1.565	67.387	101	2.257	69.644	74	1.654	71.346	94	2.101	73.447
160.00-	170.00	20	.447	79.839	21	.469	67.856	2	.045	67.901	10	.224	68.125	9	.201	68.326
170.00-	180.00	3	.067	79.906	17	.380	68.236	6	.134	68.370	3	.067	68.437	3	.067	68.504
180.00-	200.00	0	0.000	79.906	0	0.000	68.236	0	0.000	68.370	0	0.000	68.437	0	0.000	68.504
200.00	AND UP	0	0.000	79.906	0	0.000	68.236	0	0.000	68.370	0	0.000	68.437	0	0.000	68.504

CASE COUNTS 3575

2466

1435

861

409

Fig. C- 98. Histogram data from hour 12. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 13

NUMB.R OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: NONE

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	12	.112	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	10	.093	.205	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	10	.093	.298	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	16	.149	.446	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	48	.446	.893	2	.019	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	225	2.092	2.985	3	.028	.046	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	694	6.454	9.439	34	.316	.363	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	1089	10.127	19.567	183	1.702	2.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	1151	10.704	30.271	488	4.538	6.603	47	.437	.437	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	1107	10.295	40.565	867	8.063	14.666	205	1.906	2.344	29	.270	.270	0	0.000	0.000
55.00-	60.00	856	7.961	48.526	852	7.923	22.589	340	3.162	5.505	48	.446	.716	5	.056	.056
60.00-	65.00	781	7.263	55.789	775	7.207	29.796	397	3.692	9.197	95	.883	1.600	19	.167	.223
65.00-	70.00	671	6.240	62.029	719	6.686	36.483	537	4.994	14.191	204	1.897	3.497	29	.270	.493
70.00-	75.00	631	5.868	67.897	788	7.328	43.811	794	7.384	21.575	373	3.469	6.965	113	1.097	1.590
75.00-	80.00	562	5.226	73.124	767	7.133	50.944	957	8.900	30.475	587	5.459	12.424	260	2.418	4.008
80.00-	85.00	419	3.897	77.020	606	5.636	56.579	1000	9.300	39.775	914	8.500	20.924	394	3.664	7.672
85.00-	90.00	438	4.073	81.094	554	5.152	61.731	734	6.826	46.601	951	8.844	29.768	634	5.896	13.568
90.00-	95.00	337	3.134	84.228	553	5.143	66.874	726	6.752	53.353	856	7.961	37.729	849	7.895	21.464
95.00-	100.00	316	2.939	87.166	556	5.171	72.045	644	5.989	59.341	783	7.282	45.011	832	7.737	29.201
100.00-	110.00	430	3.999	91.165	898	8.351	80.396	1070	9.951	69.292	1434	13.336	58.346	1552	14.433	43.634
110.00-	120.00	304	2.827	93.992	720	6.696	87.092	1002	9.318	78.611	1102	10.248	68.595	1431	13.308	56.942
120.00-	130.00	219	2.037	96.029	446	4.148	91.240	700	6.510	85.120	885	8.230	76.825	1050	9.765	66.707
130.00-	140.00	61	.567	96.596	246	2.288	93.527	434	4.036	89.156	615	5.719	82.544	822	7.644	74.351
140.00-	150.00	105	.976	97.573	164	1.525	95.052	278	2.585	91.742	382	3.552	86.097	499	4.641	78.992
150.00-	160.00	45	.418	97.991	110	1.023	96.075	175	1.627	93.369	222	2.065	88.161	305	2.836	81.828
160.00-	170.00	23	.214	98.205	35	.325	96.401	64	.595	93.964	121	1.125	89.286	145	1.348	83.177
170.00-	180.00	16	.149	98.354	16	.149	96.550	27	.251	94.215	38	.353	89.640	44	.409	83.586
180.00-	200.00	40	.372	98.726	22	.205	96.754	45	.418	94.634	47	.437	90.077	69	.642	84.228
200.00	AND UP	0	0.000	98.726	3	.028	96.782	1	.009	94.643	5	.046	90.124	0	0.000	84.228

CASE COUNTS 10616

10407

10177

9691

9057

Fig. C-99. Histogram data from hour 13. Average percent of time an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: none.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8038

FILTERING: 500' ALT. DIFF.

197

OT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%					
0-00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
5.00-	10.00	2	.025	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
10.00-	15.00	0	0.000	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
15.00-	20.00	0	0.000	.025	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
20.00-	25.00	2	.025	.050	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
25.00-	30.00	22	.274	.323	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
30.00-	35.00	60	.746	1.070	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
35.00-	40.00	131	1.630	2.700	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
40.00-	45.00	337	4.193	6.892	4	.050	.050	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
45.00-	50.00	474	5.897	12.789	46	.572	.622	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000					
50.00-	55.00	310	3.857	16.646	33	.411	1.033	2	.025	.025	0	0.000	0.000	0	0.000	0.000					
55.00-	60.00	268	3.334	19.980	58	.722	1.754	0	0.000	.025	0	0.000	0.000	0	0.000	0.000					
60.00-	65.00	350	4.354	24.334	91	1.132	2.886	15	.187	.211	0	0.000	0.000	0	0.000	0.000					
65.00-	70.00	250	3.110	27.445	61	.759	3.645	8	.100	.311	0	0.000	0.000	0	0.000	0.000					
70.00-	75.00	244	3.036	30.480	106	1.319	4.964	23	.286	.597	0	0.000	0.000	0	0.000	0.000					
75.00-	80.00	214	2.662	33.142	133	1.655	6.619	17	.211	.809	2	.025	.025	0	0.000	0.000					
80.00-	85.00	291	3.620	36.763	200	2.488	9.107	16	.199	1.008	2	.025	.050	0	0.000	0.000					
85.00-	90.00	305	3.794	40.557	117	1.456	10.562	34	.423	1.431	5	.062	.112	0	0.000	0.000					
90.00-	95.00	241	2.998	43.556	153	1.903	12.466	39	.485	1.916	0	0.000	.112	0	0.000	0.000					
95.00-	100.00	302	3.757	47.313	97	1.207	13.673	30	.373	2.289	0	0.000	.112	0	0.000	0.000					
100.00-	110.00	464	5.773	53.085	268	3.334	17.007	86	1.070	3.359	23	.285	.398	1	.012	.012					
110.00-	120.00	369	4.591	57.676	329	4.093	21.100	109	1.356	4.715	28	.348	.746	1	.012	.025					
120.00-	130.00	293	3.645	61.321	484	6.021	27.121	122	1.518	6.233	6	.075	.821	0	0.000	.025					
130.00-	140.00	250	3.110	64.431	345	4.292	31.413	222	2.762	8.995	27	.336	1.157	1	.012	.037					
140.00-	150.00	173	2.152	66.583	298	3.707	35.120	279	3.471	12.466	190	2.364	3.521	14	.174	.211					
150.00-	160.00	44	.547	67.131	147	1.829	36.949	135	1.680	14.145	90	1.120	4.640	74	.921	1.132					
160.00-	170.00	39	.485	67.616	44	.547	37.497	84	1.045	15.190	102	1.269	5.909	51	.634	1.767					
170.00-	180.00	26	.323	67.940	52	.647	38.144	63	.784	15.974	9	.112	6.021	6	.075	1.841					
180.00-	200.00	19	.236	68.176	19	.236	38.380	49	.610	16.584	19	.235	6.258	0	0.000	1.841					
200.00	AND UP	0	0.000	68.176	6	.075	38.455	0	0.000	16.584	0	0.000	6.258	0	0.000	1.841					
CASE COUNTS		5480				3091				1333				503				146			

Fig. C-100. Histogram data from hour 2. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5395

FILTERING: 500' ALT. DIFF.

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	<= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	12	.222	.222	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	28	.519	.741	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	48	.890	1.631	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	51	.945	2.576	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	58	1.075	3.652	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	54	1.001	4.652	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	90	1.668	6.321	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	117	2.169	8.489	9	.167	.167	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	142	2.632	11.121	61	1.131	1.297	9	.167	.167	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	150	2.780	13.902	56	1.038	2.335	8	.148	.315	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	186	3.448	17.349	44	.816	3.151	12	.222	.538	0	0.000	0.000	0	0.000	0.000
85.00-	90.00	168	3.114	20.463	54	1.001	4.152	16	.297	.834	0	0.000	0.000	0	0.000	0.000
90.00-	95.00	128	2.373	22.836	56	1.038	5.190	2	.037	.871	0	0.000	0.000	0	0.000	0.000
95.00-	100.00	90	1.668	24.504	40	.741	5.931	4	.074	.945	0	0.000	0.000	0	0.000	0.000
100.00-	110.00	201	3.726	28.230	158	2.929	8.860	33	.612	1.557	16	.297	.297	0	0.000	0.000
110.00-	120.00	180	3.336	31.566	169	3.133	11.993	94	1.742	3.299	29	.538	.834	0	0.000	0.000
120.00-	130.00	164	3.040	34.606	173	3.207	15.199	74	1.372	4.671	23	.426	1.260	0	0.000	0.000
130.00-	140.00	161	2.984	37.590	63	1.168	16.367	74	1.372	6.043	26	.482	1.742	2	.037	.3037
140.00-	150.00	50	.927	38.517	38	.704	17.071	54	1.001	7.044	10	.185	1.928	0	0.000	.3037
150.00-	160.00	39	.723	39.240	14	.259	17.331	5	.093	7.136	4	.074	2.002	0	0.000	.3037
160.00-	170.00	58	1.075	40.315	13	.241	17.572	1	.019	7.155	0	0.000	2.002	0	0.000	.3037
170.00-	180.00	3	.056	40.371	0	0.000	17.572	3	.056	7.210	0	0.000	2.002	0	0.000	.3037
180.00-	200.00	2	.037	40.408	2	.037	17.609	0	0.000	7.210	0	0.000	2.002	0	0.000	.3037
200.00	AND UP	0	0.000	40.408	0	0.000	17.609	0	0.000	7.210	0	0.000	2.002	0	0.000	.3037

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CASE COUNTS 2180 940 389 106 2

Fig. C-101. Histogram data from hour 3. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	8	.063	.079	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	30	.238	.317	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	122	.967	1.285	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	403	3.196	4.480	7	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	945	7.493	11.974	181	1.435	1.491	10	.079	.079	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	1255	9.952	21.925	293	4.702	6.193	77	.611	.690	3	.024	.024	0	0.000	0.000
50.00-	55.00	859	6.811	28.737	618	4.900	11.093	225	1.784	2.474	38	.301	.325	3	.024	.024
55.00-	60.00	533	4.226	32.963	468	3.711	14.805	204	1.616	4.092	62	.492	.817	7	.056	.079
60.00-	65.00	390	3.093	36.056	328	2.601	17.405	156	1.237	5.329	60	.476	1.293	13	.143	.222
65.00-	70.00	470	3.727	39.783	354	2.807	20.212	251	1.990	7.319	50	.396	1.689	9	.071	.293
70.00-	75.00	579	4.591	44.374	321	2.545	22.758	262	2.078	9.397	126	.999	2.688	10	.079	.373
75.00-	80.00	433	3.433	47.807	287	2.276	25.034	262	2.078	11.474	169	1.340	4.028	25	.206	.579
80.00-	85.00	425	3.370	51.177	181	1.435	26.469	127	1.007	12.481	83	.658	4.686	27	.214	.793
85.00-	90.00	406	3.219	54.397	182	1.443	27.912	76	.603	13.084	34	.270	4.956	25	.206	.999
90.00-	95.00	365	2.894	57.291	189	1.499	29.411	84	.666	13.750	36	.285	5.241	27	.214	1.213
95.00-	100.00	527	4.179	61.470	247	1.959	31.369	79	.626	14.376	22	.174	5.416	20	.159	1.372
100.00-	110.00	821	6.510	67.980	254	4.393	35.762	157	1.245	15.621	37	.293	5.709	9	.071	1.443
110.00-	120.00	771	6.114	74.094	727	5.765	41.527	312	2.474	18.095	73	.579	6.288	9	.063	1.507
120.00-	130.00	514	4.076	78.170	771	6.114	47.641	441	3.497	21.592	209	1.657	7.945	48	.391	1.887
130.00-	140.00	324	2.569	80.739	613	4.861	52.502	449	3.560	25.153	253	2.006	9.952	86	.682	2.569
140.00-	150.00	164	1.300	82.039	493	3.909	56.411	351	2.783	27.936	242	1.919	11.871	131	1.039	3.603
150.00-	160.00	118	.936	82.975	219	1.737	58.148	225	1.784	29.720	205	1.626	13.496	127	1.007	4.615
160.00-	170.00	64	.507	83.482	84	.666	58.814	150	1.189	30.909	103	.817	14.313	53	.420	5.035
170.00-	180.00	46	.365	83.847	43	.341	59.155	88	.698	31.607	39	.309	14.622	17	.135	5.170
180.00-	200.00	27	.214	84.061	23	.182	59.337	28	.222	31.829	23	.182	14.805	11	.087	5.257
200.00	AND UP	3	.024	84.085	1	.008	59.345	2	.016	31.845	7	.056	14.860	1	.008	5.265
CASE COUNTS		10604			7484			4016			1874			654		

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Fig. C-102 Histogram data from hour ⁴. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: 500' ALT. DIFF.

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NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	16	.215	.215	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	66	.886	1.101	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	52	.698	1.800	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	90	1.209	3.009	8	.107	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	73	.981	3.989	14	.188	.295	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	96	1.289	5.279	18	.242	.537	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	179	2.404	7.683	33	.443	.981	2	.027	.027	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	135	1.813	9.496	65	.873	1.054	1	.013	.040	1	.013	.013	0	0.000	0.000
55.00-	60.00	147	1.974	11.471	59	.792	2.646	9	.121	.161	0	0.000	.013	0	0.000	0.000
60.00-	65.00	142	1.907	13.378	36	.484	3.130	19	.255	.416	0	0.000	.013	0	0.000	0.000
65.00-	70.00	197	2.646	16.024	60	.806	3.936	50	.672	1.088	0	0.000	.013	0	0.000	0.000
70.00-	75.00	293	3.936	19.960	37	.497	4.432	25	.336	1.424	6	.081	.094	0	0.000	0.000
75.00-	80.00	251	3.371	23.331	72	.967	5.400	15	.201	1.625	7	.094	.188	0	0.000	0.000
80.00-	85.00	168	2.257	25.588	57	.766	6.165	23	.309	1.934	6	.081	.269	0	0.000	0.000
85.00-	90.00	195	2.619	28.207	76	1.021	7.186	16	.215	2.149	5	.067	.336	0	0.000	0.000
90.00-	95.00	158	2.122	30.329	55	.739	7.925	30	.403	2.552	2	.027	.363	0	0.000	0.000
95.00-	100.00	215	2.888	33.217	109	1.464	9.389	36	.484	3.036	3	.040	.403	0	0.000	0.000
100.00-	110.00	508	6.823	40.040	107	1.437	10.826	22	.295	3.331	4	.054	.457	0	0.000	0.000
110.00-	120.00	450	6.044	46.085	274	3.680	14.506	59	.792	4.124	3	.040	.497	0	0.000	0.000
120.00-	130.00	453	6.085	52.169	326	4.379	18.885	123	1.652	5.776	34	.457	.954	7	.094	.094
130.00-	140.00	306	4.110	56.279	265	3.559	22.445	232	3.116	8.892	85	1.142	2.095	8	.107	.201
140.00-	150.00	164	2.203	58.482	157	2.109	24.553	148	1.988	10.880	109	1.464	3.559	22	.295	.497
150.00-	160.00	148	1.988	60.470	103	1.383	25.937	90	1.209	12.089	45	.604	4.164	20	.269	.765
160.00-	170.00	39	.524	60.994	45	.604	26.541	19	.255	12.344	6	.081	4.244	1	.013	.779
170.00-	180.00	38	.510	61.504	38	.510	27.052	12	.161	12.505	0	0.000	4.244	0	0.000	.779
180.00-	200.00	2	.027	61.531	16	.215	27.267	0	0.000	12.505	0	0.000	4.244	0	0.000	.779
200.00	AND UP	0	0.000	61.531	0	0.000	27.267	0	0.000	12.505	0	0.000	4.244	0	0.000	.779
CASE COUNTS		4581			2030			931			310			58		

Fig. C-103. Histogram data from hour 5. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3566

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	8	.224	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	16	.448	.673	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	22	.617	1.289	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	55	1.541	2.831	3	.084	.084	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	45	1.261	4.092	5	.140	.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	93	2.606	6.698	5	.140	.364	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	80	2.242	8.941	26	.729	1.093	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	167	4.680	13.621	38	1.065	2.158	3	.084	.084	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	152	4.260	17.881	58	1.626	3.784	17	.476	.561	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	120	3.363	21.244	74	2.074	5.858	17	.476	1.037	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	128	3.587	24.832	57	1.598	7.455	14	.392	1.429	1	.028	.028	0	0.000	0.000
65.00-	70.00	162	4.540	29.372	56	1.569	9.025	19	.533	1.962	1	.028	.056	0	0.000	0.000
70.00-	75.00	137	3.840	33.212	67	1.878	10.902	8	.224	2.186	8	.224	.280	0	0.000	0.000
75.00-	80.00	98	2.747	35.958	59	1.654	12.556	5	.140	2.326	6	.168	.448	0	0.000	0.000
80.00-	85.00	74	2.074	38.032	99	2.775	15.331	14	.392	2.719	1	.028	.476	0	0.000	0.000
85.00-	90.00	40	1.121	39.154	42	1.177	16.508	11	.308	3.027	0	0.000	.476	0	0.000	0.000
90.00-	95.00	57	1.598	40.751	22	.617	17.124	5	.140	3.167	0	0.000	.476	0	0.000	0.000
95.00-	100.00	50	1.401	42.152	16	.448	17.573	0	0.000	3.167	1	.028	.504	0	0.000	0.000
100.00-	110.00	97	2.719	44.871	27	.757	18.330	14	.392	3.559	2	.056	.561	0	0.000	0.000
110.00-	120.00	82	2.298	47.169	79	2.214	20.544	15	.420	3.980	0	0.000	.561	0	0.000	0.000
120.00-	130.00	110	3.083	50.252	63	1.766	22.309	12	.336	4.316	0	0.000	.561	0	0.000	0.000
130.00-	140.00	176	4.933	55.185	67	1.878	24.187	7	.196	4.512	0	0.000	.561	0	0.000	0.000
140.00-	150.00	29	.813	55.998	39	1.093	25.280	9	.252	4.765	1	.028	.589	0	0.000	0.000
150.00-	160.00	24	.673	56.670	36	1.009	26.289	6	.168	4.933	0	0.000	.589	0	0.000	0.000
160.00-	170.00	31	.869	57.539	9	.252	26.541	6	.168	5.101	0	0.000	.589	0	0.000	0.000
170.00-	180.00	8	.224	57.763	0	0.000	26.541	0	0.000	5.101	0	0.000	.589	0	0.000	0.000
180.00-	200.00	0	0.000	57.763	0	0.000	26.541	0	0.000	5.101	0	0.000	.589	0	0.000	0.000
200.00	AND UP	0	0.000	57.763	0	0.000	26.541	0	0.000	5.101	0	0.000	.589	0	0.000	0.000
CASE COUNTS		2061			947			182			21			0		

201

Fig. C-104. Histogram data from hour 6. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8508

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	2	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	2	.024	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	12	.141	.188	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	65	.764	.952	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	107	1.258	2.210	1	.012	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	160	1.881	4.090	0	0.000	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	159	1.869	5.959	0	0.000	.012	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	283	3.326	9.285	3	.035	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	181	2.127	11.413	9	.106	.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	187	2.198	13.611	31	.364	.517	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	253	2.974	16.584	36	.423	.940	1	.012	.012	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	465	5.465	22.050	78	.917	1.857	11	.129	.141	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	374	4.396	26.446	101	1.187	3.044	4	.047	.188	0	0.000	0.000	0	0.000	0.000
85.00-	90.00	509	5.983	32.428	147	1.728	4.772	10	.116	.306	4	.047	.047	0	0.000	0.000
90.00-	95.00	318	3.738	36.166	187	2.198	6.970	20	.235	.541	1	.012	.059	0	0.000	0.000
95.00-	100.00	278	3.268	39.433	207	2.433	9.403	61	.717	1.258	6	.071	.129	0	0.000	0.000
100.00-	110.00	430	5.054	44.487	418	4.913	14.316	160	1.881	3.138	19	.223	.353	1	.012	.012
110.00-	120.00	440	5.172	49.659	450	5.289	19.605	183	2.151	5.289	55	.646	.999	19	.223	.235
120.00-	130.00	434	5.101	54.760	601	7.064	26.669	304	3.573	8.862	88	1.034	2.033	1	.012	.247
130.00-	140.00	343	4.031	58.792	472	5.548	32.217	354	4.161	13.023	145	1.704	3.738	19	.223	.470
140.00-	150.00	123	1.446	50.257	291	3.420	35.637	229	2.692	15.715	124	1.457	5.195	21	.247	.717
150.00-	160.00	93	1.093	51.330	191	2.245	37.882	225	2.645	18.359	106	1.246	6.441	92	1.081	1.798
160.00-	170.00	14	.165	51.495	52	.611	38.493	121	1.422	19.781	50	.588	7.029	32	.376	2.174
170.00-	180.00	0	0.000	51.495	10	.118	38.611	33	.388	20.169	38	.447	7.475	1	.012	2.186
180.00-	200.00	0	0.000	51.495	4	.047	38.658	3	.035	20.204	1	.012	7.487	0	0.000	2.186
200.00-	AND UP	0	0.000	51.495	0	0.000	38.658	0	0.000	20.204	0	0.000	7.487	0	0.000	2.186

CASE COUNTS 5232

3289

1719

637

136

Fig. C-105. Histogram data from hour 7. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	4	.052	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	2	.026	.078	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	10	.131	.209	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	28	.366	.575	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	60	.785	1.360	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	170	2.223	3.584	4	.052	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	260	3.400	6.984	32	.419	.471	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	214	2.799	9.783	53	.693	1.164	1	.013	.013	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	185	2.420	12.202	82	1.072	2.236	12	.157	.170	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	187	2.446	14.648	109	1.426	3.662	6	.078	.248	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	240	3.139	17.787	90	1.177	4.839	12	.157	.405	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	243	3.178	20.965	68	.889	5.728	6	.078	.484	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	143	1.870	22.835	53	.693	6.422	26	.340	.824	1	.013	.013	0	0.000	0.000
75.00-	80.00	135	1.766	24.601	71	.929	7.350	27	.353	1.177	0	0.000	.013	0	0.000	0.000
80.00-	85.00	300	3.924	28.525	75	.981	8.331	35	.458	1.635	0	0.000	.013	0	0.000	0.000
85.00-	90.00	225	2.943	31.467	68	.889	9.220	30	.392	2.027	5	.065	.078	0	0.000	0.000
90.00-	95.00	256	3.348	34.815	70	.916	10.136	32	.419	2.446	2	.026	.105	0	0.000	0.000
95.00-	100.00	255	3.335	38.151	129	1.687	11.823	43	.562	3.008	1	.013	.118	0	0.000	0.000
100.00-	110.00	557	7.285	45.435	314	4.107	15.930	122	1.596	4.604	3	.039	.157	7	.092	.092
110.00-	120.00	467	6.108	21.543	355	4.643	20.573	122	1.596	6.199	5	.065	.222	0	0.000	.092
120.00-	130.00	469	6.134	27.677	212	2.773	23.345	77	1.007	7.206	14	.183	.405	0	0.000	.092
130.00-	140.00	338	4.421	32.098	223	2.917	26.262	104	1.360	8.567	13	.170	.575	0	0.000	.092
140.00-	150.00	213	2.786	34.884	200	2.616	28.878	83	1.086	9.652	24	.314	.889	0	0.000	.092
150.00-	160.00	114	1.491	36.374	157	2.053	30.931	43	.562	10.214	20	.262	1.151	0	0.000	.092
160.00-	170.00	102	1.334	37.708	15	.196	31.127	27	.353	10.568	10	.131	1.282	0	0.000	.092
170.00-	180.00	12	.157	37.865	41	.536	31.664	21	.275	10.842	14	.183	1.465	0	0.000	.092
180.00-	200.00	7	.092	37.957	43	.562	32.226	9	.118	10.960	1	.013	1.478	0	0.000	.092
200.00	AN ¹¹ UP	2	.026	37.983	6	.078	32.304	0	0.000	10.960	0	0.000	1.478	0	0.000	.092

CASE COUNTS 5198

2470

838

113

7

Fig. C-106. Histogram data from hour 8. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: 500' ALT. DIFF.

DT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	6	.092	.092	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	10	.153	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	4	.061	.305	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	40	.610	.915	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	42	.641	1.556	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	71	1.083	2.639	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	112	1.709	4.348	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	149	2.273	6.621	9	.137	.137	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	156	2.380	9.001	12	.183	.320	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	173	2.639	11.640	23	.351	.671	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	161	2.456	14.096	29	.442	1.114	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	67	1.022	15.118	22	.336	1.449	1	.015	.015	0	0.000	0.000	0	0.000	0.000
85.00-	90.00	55	.839	15.957	33	.503	1.953	2	.031	.046	0	0.000	0.000	0	0.000	0.000
90.00-	95.00	74	1.129	17.086	32	.488	2.441	0	0.000	.046	0	0.000	0.000	0	0.000	0.000
95.00-	100.00	151	2.304	19.390	63	.961	3.402	0	0.000	.046	0	0.000	0.000	0	0.000	0.000
100.00-	110.00	214	3.265	22.654	150	2.288	5.690	34	.519	.564	0	0.000	0.000	0	0.000	0.000
110.00-	120.00	133	2.029	24.683	75	1.144	6.834	29	.442	1.007	1	.015	.015	0	0.000	0.000
120.00-	130.00	127	1.937	26.621	57	.870	7.704	11	.168	1.175	0	0.000	.015	0	0.000	0.000
130.00-	140.00	77	1.175	27.795	29	.442	8.146	2	.031	1.205	0	0.000	.015	0	0.000	0.000
140.00-	150.00	73	1.114	28.909	22	.336	8.482	9	.137	1.342	0	0.000	.015	0	0.000	0.000
150.00-	160.00	24	.366	29.275	8	.122	8.604	0	0.000	1.342	0	0.000	.015	0	0.000	0.000
160.00-	170.00	0	0.000	29.275	2	.031	8.635	0	0.000	1.342	0	0.000	.015	0	0.000	0.000
170.00-	180.00	12	.183	29.458	0	0.000	8.635	0	0.000	1.342	0	0.000	.015	0	0.000	0.000
180.00-	200.00	2	.031	29.489	0	0.000	8.635	0	0.000	1.342	0	0.000	.015	0	0.000	0.000
200.00	AND UP	0	0.000	29.489	0	0.000	8.635	0	0.000	1.342	0	0.000	.015	0	0.000	0.000

CASE COUNTS 1933

566

88

1

0

Fig. C-107. Histogram data from hour 9. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11138

FILTERING: 500' ALT. DIFF.

UT LESS THAN	UT LESS THAN	K=1	%	CUM.%	K=2	%	CUM.%	K=3	%	CUM.%	K=4	%	CUM.%	K=5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	14	.126	.144	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	4	.036	.180	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	20	.180	.359	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	42	.377	.736	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	102	.916	1.652	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	193	1.733	3.385	1	.009	.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	373	3.349	6.734	16	.144	.153	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	500	4.489	11.223	81	.727	1.880	1	.009	.009	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	376	3.376	14.599	140	1.257	2.137	17	.153	.162	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	449	4.031	18.630	140	1.257	3.394	22	.196	.359	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	384	3.448	22.078	108	.970	4.363	16	.144	.503	6	.054	.054	0	0.000	0.000
70.00-	75.00	498	4.471	26.549	135	1.212	5.576	52	.467	.970	6	.054	.108	5	.045	.108
75.00-	80.00	590	5.297	31.846	219	1.966	7.542	60	.539	1.511	9	.081	.189	2	.018	.267
80.00-	85.00	533	4.785	36.631	270	2.424	9.966	66	.593	2.101	20	.180	.363	3	.027	.493
85.00-	90.00	649	5.827	42.458	265	2.379	12.345	80	.718	2.819	20	.180	.543	0	0.000	.623
90.00-	95.00	539	4.839	47.297	261	2.343	14.688	76	.682	3.502	16	.162	.709	0	0.000	.791
95.00-	100.00	525	4.714	52.011	328	2.945	17.633	90	.808	4.310	17	.153	.862	0	0.000	.891
100.00-	110.00	808	7.254	59.265	777	6.976	24.609	383	3.439	7.748	64	.754	1.616	0	0.000	.991
110.00-	120.00	658	5.908	65.173	751	6.743	31.352	378	3.394	11.142	147	1.320	2.936	8	.072	1.063
120.00-	130.00	547	4.911	70.084	503	4.514	36.766	437	3.925	15.066	193	1.733	4.669	11	.099	1.162
130.00-	140.00	258	2.316	72.401	559	5.019	41.785	429	3.852	18.917	156	1.401	6.069	30	.259	1.421
140.00-	150.00	123	1.104	73.505	287	2.577	44.362	360	3.232	22.149	100	1.015	7.685	43	.336	1.757
150.00-	160.00	41	.368	73.873	114	1.024	45.385	148	1.329	23.478	100	1.221	8.906	39	.359	1.916
160.00-	170.00	37	.332	74.205	61	.548	45.933	95	.853	24.331	73	.655	9.562	26	.233	1.999
170.00-	180.00	11	.099	74.304	27	.242	46.175	7	.063	24.394	1	.009	9.571	0	0.000	1.999
180.00-	200.00	0	0.000	74.304	8	.072	46.247	5	.045	24.439	0	0.000	9.616	0	0.000	1.999
200.00	AND UP	0	0.000	74.304	0	0.000	46.247	0	0.000	24.439	0	0.000	9.616	0	0.000	1.999

CASE COUNTS 8276

5151

2722

1071

157

Fig. C-108. Histogram data from hour 10. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: 500' ALT. DIFF.

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	8	.179	.179	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	40	.894	1.073	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	20	.447	1.520	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	32	.715	2.235	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	42	.939	3.174	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	59	1.319	4.493	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	64	1.430	5.923	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	24	.536	6.460	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	36	.805	7.264	2	.045	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	67	1.498	8.762	2	.045	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	86	1.922	10.684	0	0.000	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
85.00-	90.00	50	1.118	11.801	0	0.000	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
90.00-	95.00	52	1.162	12.964	0	0.000	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
95.00-	100.00	41	.913	14.998	5	.112	.201	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	110.00	232	5.186	20.183	33	.738	.939	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
110.00-	120.00	92	2.056	22.240	34	.760	1.699	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	130.00	29	.648	22.888	7	.156	1.855	4	.089	.089	0	0.000	0.000	0	0.000	0.000
130.00-	140.00	79	1.766	24.654	27	.603	2.459	0	0.000	.089	0	0.000	0.000	0	0.000	0.000
140.00-	150.00	19	.425	25.078	2	.045	2.503	1	.022	.112	0	0.000	0.000	0	0.000	0.000
150.00-	160.00	59	1.319	26.397	11	.246	2.749	0	0.000	.112	0	0.000	0.000	0	0.000	0.000
160.00-	170.00	1	.022	26.419	1	.022	2.772	0	0.000	.112	0	0.000	0.000	0	0.000	0.000
170.00-	180.00	3	.067	26.486	3	.067	2.839	0	0.000	.112	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	0	0.000	26.486	0	0.000	2.839	0	0.000	.112	0	0.000	0.000	0	0.000	0.000
200.00-	AN'D UP	0	0.000	26.486	0	0.000	2.839	0	0.000	.112	0	0.000	0.000	0	0.000	0.000

CASE COUNTS 1185

127

5

0

206

Fig. C-109. Histogram data from hour 12. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: 500' ALT. DIFF.

207

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.019	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.056	.074	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.056	.130	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	6	.056	.186	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	20	.186	.372	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	106	.986	1.358	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	405	3.766	5.124	15	.139	.139	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	632	5.877	11.002	68	.632	.772	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	750	6.975	17.976	197	1.832	2.604	13	.121	.121	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	716	6.659	24.635	385	3.580	6.184	68	.632	.753	2	.019	.019	0	0.000	0.000
55.00-	60.00	542	5.040	29.675	423	3.934	10.118	120	1.116	1.869	6	.056	.074	0	0.000	0.000
60.00-	65.00	438	4.073	33.749	269	2.502	12.620	88	.818	2.688	4	.037	.112	0	0.000	0.000
65.00-	70.00	303	2.818	36.566	243	2.260	14.880	97	.902	3.590	14	.130	.242	0	0.000	0.000
70.00-	75.00	377	3.506	40.073	283	2.632	17.511	170	1.581	5.171	21	.474	.716	0	0.000	0.000
75.00-	80.00	435	4.045	44.118	241	2.241	19.753	128	1.190	6.361	42	.391	1.107	7	.065	.065
80.00-	85.00	496	4.613	48.730	209	1.944	21.696	196	1.823	8.184	54	.502	1.609	2	.019	.084
85.00-	90.00	403	3.748	52.478	228	2.120	23.817	152	1.414	9.597	69	.642	2.251	11	.102	.185
90.00-	95.00	341	3.171	55.650	206	1.916	25.732	92	.856	10.453	40	.372	2.623	23	.250	.445
95.00-	100.00	391	3.636	59.286	253	2.353	28.085	90	.837	11.290	58	.539	3.162	12	.112	.558
100.00-	110.00	546	5.078	64.363	477	4.436	32.521	164	1.525	12.815	104	.967	4.129	35	.335	.893
110.00-	120.00	468	4.352	68.716	364	3.385	35.906	153	1.423	14.238	41	.381	4.510	14	.130	1.023
120.00-	130.00	466	4.334	73.049	283	2.632	38.538	195	1.813	16.051	57	.530	5.040	0	0.000	1.023
130.00-	140.00	364	3.385	76.434	245	2.278	40.816	94	.874	16.925	34	.316	5.357	3	.028	1.051
140.00-	150.00	193	1.795	78.229	280	2.604	43.420	86	.800	17.725	29	.270	5.626	1	.009	1.060
150.00-	160.00	147	1.367	79.596	196	1.823	45.243	71	.660	18.385	47	.437	6.063	1	.009	1.069
160.00-	170.00	95	.883	80.480	108	1.004	46.247	45	.416	18.804	10	.093	6.156	0	0.000	1.069
170.00-	180.00	51	.474	80.954	63	.586	46.833	20	.186	18.990	2	.019	6.175	0	0.000	1.069
180.00-	200.00	17	.158	81.112	32	.298	47.131	14	.130	19.120	1	.009	6.184	0	0.000	1.069
200.00	AND UP	0	0.000	81.112	0	0.000	47.131	0	0.000	19.120	0	0.000	6.184	0	0.000	1.069
CASE COUNTS		8722			5068			2056			665			115		

Fig. C-110. Histogram data from hour13. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $|\Delta A| < 500$ ft.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 2

NUMBER OF SCANS 950

TOTAL FLYING TIME COUNT 8036

FILTERING: V(N) < 167 KT

OUT LESS THAN	OUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	14	.174	.174	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	26	.323	.498	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	50	.622	1.120	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	92	1.145	2.264	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	297	3.645	5.909	7	.087	.087	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	443	5.511	11.420	41	.510	.600	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	446	5.549	17.019	70	.871	1.468	4	.050	.050	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	304	3.782	20.801	93	1.157	2.625	15	.187	.266	2	.025	.025	0	0.000	0.000
60.00-	65.00	406	5.051	25.852	146	1.816	4.441	28	.348	.585	0	0.000	.025	0	0.000	0.000
65.00-	70.00	353	4.392	30.244	138	1.717	6.158	67	.834	1.418	8	.100	.124	0	0.000	0.000
70.00-	75.00	390	4.852	35.096	201	2.501	8.659	74	.921	2.339	25	.311	.435	0	0.000	0.000
75.00-	80.00	305	3.794	38.890	285	3.546	12.204	108	1.344	3.683	30	.373	.809	2	.025	.025
80.00-	85.00	389	4.839	43.730	336	4.180	16.385	125	1.555	5.238	39	.485	1.294	5	.062	.087
85.00-	90.00	380	4.728	48.457	366	4.553	20.938	177	2.202	7.440	48	.597	1.891	7	.087	.174
90.00-	95.00	330	4.105	52.563	329	4.093	25.031	216	2.687	10.127	89	1.107	2.998	12	.149	.323
95.00-	100.00	340	4.230	56.793	317	3.944	28.975	234	2.911	13.038	101	1.257	4.255	31	.376	.703
100.00-	110.00	418	5.200	61.993	665	8.273	37.248	516	6.419	19.458	258	3.210	7.467	78	.970	1.680
110.00-	120.00	356	4.429	66.422	597	7.303	44.551	516	6.419	25.877	303	3.760	11.227	174	2.155	3.834
120.00-	130.00	252	3.135	69.557	425	5.267	49.818	496	6.171	32.048	366	4.555	16.534	212	2.637	6.471
130.00-	140.00	215	2.675	72.232	325	4.043	53.861	380	4.728	36.776	304	3.760	21.062	213	2.650	9.121
140.00-	150.00	100	1.244	73.476	168	2.090	55.951	223	2.774	39.550	211	2.629	23.687	163	2.027	11.148
150.00-	160.00	36	.448	73.924	92	1.145	57.116	125	1.555	41.105	120	1.493	25.180	117	1.456	12.604
160.00-	170.00	98	1.219	75.143	70	.871	57.987	77	.958	42.063	75	.933	26.113	69	.846	13.450
170.00-	180.00	43	.535	75.678	34	.423	58.410	45	.560	42.622	48	.597	26.711	29	.351	14.071
180.00-	200.00	32	.398	76.076	28	.348	58.758	23	.286	42.909	22	.274	26.984	18	.224	14.295
200.00-	AN ¹ UP	0	0.000	76.076	0	0.000	58.758	0	0.000	42.909	0	0.000	26.984	0	0.000	14.295
CASE COUNTS		6115			4723			3449			2169			1149		

Fig. C-111. Histogram data from hour 2. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 5395

FILTERING: V(N) < 167 KT

UT LESS THAN	RUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	2	.037	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.111	.148	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.111	.259	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	6	.111	.371	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	22	.408	.778	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	22	.408	1.186	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	76	1.409	2.595	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	126	2.335	4.930	2	.037	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	133	2.465	7.396	9	.167	.204	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	165	3.058	10.454	13	.241	.445	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	163	3.021	13.475	29	.538	.982	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	120	2.224	15.700	32	.593	1.576	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	137	2.539	18.239	41	.760	2.335	2	.037	.037	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	201	3.726	21.965	103	1.909	4.245	10	.185	.222	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	115	2.132	24.096	80	1.483	5.728	15	.278	.500	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	184	3.411	27.507	93	1.724	7.451	24	.445	.945	1	.019	.019	0	0.000	0.000
85.00-	90.00	185	3.429	30.936	116	2.150	9.601	50	.927	1.872	5	.093	.111	0	0.000	0.000
90.00-	95.00	170	3.151	34.087	103	1.909	11.511	61	1.131	3.003	20	.371	.482	0	0.000	0.000
95.00-	100.00	135	2.502	36.589	132	2.447	13.957	66	1.223	4.226	23	.426	.908	2	.037	.037
100.00-	110.00	324	6.006	42.595	255	4.727	18.684	165	3.058	7.285	68	1.260	2.167	15	.278	.315
110.00-	120.00	195	3.614	46.209	277	5.134	23.818	195	3.614	10.899	103	1.909	4.073	43	.797	1.112
120.00-	130.00	96	1.779	47.989	194	3.596	27.414	220	4.078	14.977	135	2.502	6.580	39	.723	1.835
130.00-	140.00	60	1.112	49.101	100	1.854	29.268	100	1.854	16.830	68	1.260	7.841	30	.556	2.391
140.00-	150.00	30	.556	49.657	30	.556	29.824	32	.593	17.424	31	.575	8.415	24	.445	2.835
150.00-	160.00	10	.185	49.842	8	.148	29.972	16	.297	17.720	19	.352	8.767	5	.111	2.947
160.00-	170.00	32	.593	50.435	15	.278	30.250	13	.241	17.961	13	.241	9.003	9	.157	3.114
170.00-	180.00	7	.130	50.565	4	.074	30.324	4	.074	18.035	3	.056	9.064	2	.037	3.151
180.00-	200.00	0	0.000	50.565	0	0.000	30.324	0	0.000	18.035	0	0.000	9.064	0	0.000	3.151
200.00	AND UP	0	0.000	50.565	0	0.000	30.324	0	0.000	18.035	0	0.000	9.064	0	0.000	3.151

CASE COUNTS 2728

1636

973

489

170

Fig. C-112. Histogram data from hour 3. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: V(N) < 167 KT

NOT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.048	.048	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	4	.032	.079	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	6	.048	.127	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	16	.127	.254	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	94	.745	.999	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	200	1.586	2.585	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	450	3.568	6.153	20	.159	.159	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	787	6.241	12.394	85	.674	.833	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	814	6.455	18.849	205	1.626	2.458	28	.222	.222	1	.008	.008	0	0.000	0.000
55.00-	60.00	830	6.582	25.430	273	2.165	4.623	56	.444	.666	8	.063	.071	1	.008	.009
60.00-	65.00	714	5.662	31.092	413	3.275	7.898	97	.769	1.435	13	.103	.174	1	.008	.016
65.00-	70.00	853	6.764	37.856	556	4.409	12.307	210	1.665	3.100	33	.262	.436	2	.016	.032
70.00-	75.00	951	7.541	45.397	758	6.011	18.317	375	2.974	6.074	113	.896	1.332	24	.190	.222
75.00-	80.00	943	7.478	52.874	901	7.145	25.462	544	4.314	10.388	224	1.776	3.108	55	.436	.658
80.00-	85.00	681	5.400	58.274	849	6.732	32.194	671	5.321	15.708	307	2.434	5.543	111	.880	1.538
85.00-	90.00	497	3.941	62.215	672	5.329	37.523	599	4.750	20.458	416	3.299	8.841	193	1.530	3.069
90.00-	95.00	451	3.576	65.792	675	5.352	42.875	663	5.257	25.716	529	4.195	13.036	285	2.268	5.337
95.00-	100.00	352	2.791	68.583	625	4.956	47.831	661	5.241	30.957	501	4.448	17.485	352	2.791	8.125
100.00-	110.00	712	5.646	74.229	1156	9.167	56.998	1345	10.665	41.622	1306	10.356	27.841	980	7.771	15.899
110.00-	120.00	401	3.656	77.884	673	5.337	62.334	992	7.866	49.488	1159	9.190	37.031	1087	8.619	24.518
120.00-	130.00	267	2.117	80.001	541	4.290	66.624	727	5.765	55.253	898	7.121	44.152	993	7.914	32.432
130.00-	140.00	146	1.158	81.159	316	2.506	69.130	427	3.386	58.639	515	4.084	48.236	595	4.726	37.158
140.00-	150.00	99	.785	81.944	177	1.404	70.533	266	2.109	60.748	292	2.315	50.551	341	2.734	39.882
150.00-	160.00	67	.531	82.475	108	.856	71.390	115	.912	61.660	156	1.078	51.629	140	1.110	40.972
160.00-	170.00	30	.238	82.713	37	.293	71.683	46	.365	62.025	07	.531	52.161	63	.539	41.511
170.00-	180.00	13	.103	82.816	24	.190	71.874	15	.119	62.144	8	.063	52.224	14	.111	41.622
180.00-	200.00	3	.024	82.840	8	.063	71.937	1	.008	62.152	2	.016	52.240	2	.016	41.633
200.00-	AN UP	0	0.000	82.840	0	0.000	71.937	0	0.000	62.152	0	0.000	52.240	0	0.000	41.633

CASE COUNTS 10447

9072

7838

6588

5251

Fig. C-113. Histogram data from hour 4. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT 7445

FILTERING: $V(N) < 167$ KT

BUT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	6	.081	.081	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	8	.107	.188	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	20	.269	.457	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	60	.806	1.263	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	72	.967	2.230	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	132	1.773	4.003	2	.027	.027	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	125	1.679	5.682	1	.013	.040	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	237	3.183	8.865	5	.067	.107	2	.027	.027	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	258	3.465	12.330	23	.309	.416	1	.013	.040	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	244	3.277	15.608	30	.403	.819	4	.054	.094	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	307	4.124	19.731	48	.645	1.464	5	.067	.161	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	350	4.701	24.432	101	1.357	2.821	11	.148	.309	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	337	4.527	28.959	187	2.512	5.332	38	.510	.819	6	.081	.081	0	0.000	0.000
70.00-	75.00	433	5.816	34.775	229	3.076	8.408	75	1.007	1.827	15	.201	.282	0	0.000	0.000
75.00-	80.00	367	4.929	39.704	264	3.546	11.954	95	1.276	3.103	26	.349	.631	0	0.000	0.000
80.00-	85.00	317	4.258	43.962	282	3.788	15.742	124	1.666	4.768	47	.631	1.263	9	.107	.107
85.00-	90.00	324	4.352	48.314	303	4.070	19.812	139	1.867	6.635	71	.954	2.216	13	.242	.349
90.00-	95.00	245	3.291	51.605	293	3.936	23.747	222	2.982	9.617	94	1.263	3.479	40	.537	.886
95.00-	100.00	307	4.124	55.729	415	5.574	29.322	232	3.116	12.733	151	2.028	5.507	81	1.088	1.974
100.00-	110.00	474	6.367	62.095	707	9.496	38.818	541	7.267	20.000	327	4.392	9.899	195	2.619	4.594
110.00-	120.00	398	5.346	67.441	521	6.998	45.816	547	7.347	27.347	381	5.118	15.017	249	3.345	7.939
120.00-	130.00	274	3.680	71.121	405	5.440	51.256	366	4.916	32.263	307	4.124	19.140	240	3.224	11.162
130.00-	140.00	213	2.861	73.982	340	4.567	55.823	350	4.701	36.964	333	4.473	23.613	285	3.828	14.990
140.00-	150.00	145	1.948	75.930	201	2.700	58.522	202	2.713	39.678	193	2.592	25.205	136	1.827	16.817
150.00-	160.00	69	.927	76.857	84	1.128	59.651	112	1.504	41.182	97	1.303	27.508	80	1.075	17.891
160.00-	170.00	17	.228	77.085	39	.524	60.175	55	.739	41.921	42	.564	28.072	43	.578	18.469
170.00-	180.00	5	.067	77.152	4	.054	60.228	8	.107	42.028	17	.228	28.301	12	.151	18.630
180.00-	200.00	7	.094	77.246	16	.215	60.443	10	.134	42.162	8	.107	28.408	7	.094	18.724
200.00	AND UP	0	0.000	77.246	0	0.000	60.443	0	0.000	42.162	0	0.000	28.408	0	0.000	18.724
CASE COUNTS		5751			4500			3139			2115			1394		

211

Fig. C-114. Histogram data from hour 5. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3564

FILTERING: V(N) < 167 KT

212

GT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	12	.336	.392	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	26	.729	1.121	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	26	.729	1.850	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	40	1.121	2.971	2	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	97	2.719	5.689	3	.084	.140	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	83	2.326	8.016	5	.140	.280	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	93	2.606	10.622	11	.308	.589	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	113	3.167	13.789	29	.813	1.401	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	206	5.774	19.563	71	1.990	3.391	11	.308	.308	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	243	6.811	26.373	88	2.466	5.858	29	.813	1.121	2	.056	.056	0	0.000	0.000
65.00-	70.00	247	6.923	33.296	98	2.747	8.604	38	1.065	2.186	9	.252	.308	0	0.000	0.000
70.00-	75.00	140	3.924	37.220	141	3.952	12.556	48	1.345	3.531	7	.196	.504	2	.056	.556
75.00-	80.00	130	3.643	40.863	107	2.999	15.555	59	1.654	5.185	28	.785	1.289	4	.112	.668
80.00-	85.00	121	3.391	44.254	143	4.008	19.563	85	2.382	7.567	29	.813	2.102	5	.158	.825
85.00-	90.00	95	2.663	46.917	101	2.831	22.393	84	2.354	9.921	52	1.457	3.559	11	.308	.933
90.00-	95.00	100	2.803	49.720	116	3.251	25.645	110	3.083	13.004	72	2.014	5.577	20	.551	1.205
95.00-	100.00	100	2.803	52.522	124	3.475	29.120	111	3.111	16.115	58	1.625	7.203	25	.729	1.934
100.00-	110.00	168	4.709	57.231	215	6.026	35.146	172	4.821	20.936	127	3.559	10.762	63	1.766	3.700
110.00-	120.00	103	2.887	60.117	176	4.933	40.078	200	5.605	26.541	178	4.980	15.751	102	2.854	6.555
120.00-	130.00	88	1.906	62.023	164	4.596	44.675	198	5.549	32.091	162	4.540	20.291	117	3.279	9.834
130.00-	140.00	51	1.429	63.453	129	3.615	48.290	152	4.260	36.351	130	3.643	23.935	97	2.719	12.555
140.00-	150.00	25	.701	64.153	32	.897	49.187	39	1.093	37.444	81	2.270	26.205	85	2.332	14.887
150.00-	160.00	13	.364	64.518	12	.336	49.523	32	.897	38.341	46	1.289	27.494	64	1.794	16.681
160.00-	170.00	9	.252	64.770	5	.140	49.664	11	.308	38.649	22	.617	28.111	24	.673	17.354
170.00-	180.00	0	0.000	64.770	0	0.000	49.664	0	0.000	38.649	0	0.000	28.111	0	0.000	17.354
180.00-	200.00	0	0.000	64.770	0	0.000	49.664	0	0.000	38.649	0	0.000	28.111	0	0.000	17.354
200.00	AN'D UP	0	0.000	64.770	0	0.000	49.664	0	0.000	38.649	0	0.000	28.111	0	0.000	17.354
CASE COUNTS		2311			1772			1379			1003			621		

Fig. C-115. Histogram data from hour 6. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8508

FILTERING: V(N) < 167 KT

NOT LESS THAN	HUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	4	.047	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	24	.282	.329	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	26	.306	.635	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	40	.470	1.105	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	70	.823	1.928	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	146	1.716	3.644	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	204	2.398	6.041	6	.071	.71	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	312	3.667	9.708	20	.235	.306	2	.024	.024	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	352	4.137	13.846	42	.494	.799	0	0.000	.024	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	361	4.243	18.089	130	1.528	2.327	3	.035	.059	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	345	4.055	22.144	137	1.610	3.937	10	.118	.176	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	439	5.160	27.304	184	2.163	6.100	33	.388	.564	4	.047	.047	0	0.000	0.000
70.00-	75.00	486	5.712	33.016	222	2.609	8.709	46	.541	1.105	4	.047	.094	0	0.000	0.000
75.00-	80.00	509	5.983	38.998	352	4.137	12.847	129	1.516	2.621	17	.200	.294	1	.012	.012
80.00-	85.00	428	5.031	44.029	333	3.914	16.761	164	1.928	4.549	37	.435	.729	0	0.000	.012
85.00-	90.00	376	4.419	48.448	372	4.372	21.133	181	2.127	6.676	67	.787	1.516	14	.155	.175
90.00-	95.00	340	3.996	52.445	341	4.008	25.141	203	2.386	9.062	70	.823	2.339	19	.223	.400
95.00-	100.00	231	2.715	55.160	364	4.278	29.419	265	3.115	12.177	114	1.340	3.679	39	.458	.858
100.00-	110.00	473	5.559	60.719	673	7.910	37.329	662	7.781	19.958	366	4.302	7.981	130	1.528	2.386
110.00-	120.00	390	4.584	65.303	574	6.747	44.076	607	7.134	27.092	475	5.583	13.564	225	2.656	5.042
120.00-	130.00	264	3.103	68.406	496	5.830	49.906	628	7.381	34.473	559	6.570	20.134	392	4.607	9.650
130.00-	140.00	241	2.833	71.239	353	4.149	54.055	491	5.771	40.244	573	6.735	26.869	457	5.371	15.021
140.00-	150.00	84	.987	72.226	171	2.010	56.065	310	3.644	43.888	348	4.090	30.959	355	4.184	19.205
150.00-	160.00	64	.752	72.978	104	1.222	57.287	173	2.033	45.921	237	2.786	33.745	213	2.582	21.788
160.00-	170.00	40	.470	73.448	46	.541	57.828	43	.505	46.427	77	.905	34.650	55	.646	22.434
170.00-	180.00	3	.035	73.484	6	.071	57.898	8	.094	46.521	8	.094	34.744	15	.188	22.602
180.00-	200.00	4	.047	73.531	2	.024	57.922	0	0.000	46.521	0	0.000	34.744	1	.012	22.614
200.00-	AND UP	0	0.000	73.531	0	0.000	57.922	0	0.000	46.521	0	0.000	34.744	0	0.000	22.614
CASE COUNTS		6256			4928			3958			2950			1924		

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Fig. C-116. Histogram data from hour 7. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT 7646

FILTERING: V(N) < 167 KT

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	4	.052	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	8	.105	.157	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	32	.419	.575	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	64	.837	1.412	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	70	.916	2.328	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	88	1.151	3.479	4	.052	.052	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	226	2.956	6.435	6	.078	.131	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	223	2.917	9.351	23	.301	.432	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	232	3.034	12.386	46	.602	1.033	2	.026	.026	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	292	3.819	16.205	56	.732	1.766	0	0.000	.026	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	276	3.610	19.814	82	1.072	2.838	13	.170	.196	1	.013	.013	0	0.000	0.000
60.00-	65.00	346	4.525	24.339	128	1.674	4.512	30	.392	.589	0	0.000	.013	0	0.000	0.000
65.00-	70.00	450	5.885	30.225	194	2.537	7.049	63	.824	1.412	7	.092	.105	0	0.000	0.000
70.00-	75.00	444	5.807	36.032	252	3.296	10.345	98	1.282	2.694	10	.131	.235	0	0.000	0.000
75.00-	80.00	393	5.140	41.172	299	3.911	14.256	119	1.556	4.251	33	.432	.667	0	0.000	0.000
80.00-	85.00	323	4.224	45.396	306	4.002	18.258	176	2.302	6.552	35	.458	1.125	5	.078	.078
85.00-	90.00	261	3.414	48.810	273	3.570	21.828	167	2.184	8.737	76	.994	2.119	22	.288	.366
90.00-	95.00	281	3.675	52.485	327	4.277	26.105	220	2.877	11.614	121	1.583	3.701	45	.589	.955
95.00-	100.00	288	3.767	56.251	334	4.368	30.473	229	2.995	14.609	145	1.896	5.598	40	.523	1.478
100.00-	110.00	466	6.095	62.346	557	7.285	37.758	489	6.395	21.004	334	4.368	9.966	164	2.145	3.623
110.00-	120.00	412	5.388	67.735	487	6.369	44.127	447	5.846	26.851	331	4.329	14.295	217	2.838	6.461
120.00-	130.00	277	3.623	71.357	476	6.225	50.353	424	5.545	32.396	353	4.617	18.912	267	3.492	9.953
130.00-	140.00	173	2.263	73.620	272	3.557	53.910	352	4.604	37.000	238	3.113	22.025	177	2.315	12.268
140.00-	150.00	137	1.792	75.412	244	3.191	57.102	240	3.139	40.139	229	2.995	25.020	167	2.184	14.452
150.00-	160.00	90	1.177	76.589	151	1.975	59.076	198	2.590	42.728	160	2.093	27.112	107	1.399	15.851
160.00-	170.00	31	.405	76.994	56	.732	59.809	107	1.399	44.127	104	1.360	28.472	66	.863	16.715
170.00-	180.00	6	.078	77.073	23	.301	60.110	26	.340	44.468	34	.445	28.917	15	.209	16.924
180.00-	200.00	0	0.000	77.073	9	.118	60.227	4	.052	44.520	3	.039	28.956	0	0.000	16.924
200.00	AND UP	0	0.000	77.073	0	0.000	60.227	0	0.000	44.520	0	0.000	28.956	0	0.000	16.924
CASE COUNTS		5893			4605			3404			2214			1294		

Fig. C-117. Histogram data from hour 8. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 6555

FILTERING: V(N) < 167 KT

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	4	.061	.061	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	8	.122	.183	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.092	.275	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	8	.122	.397	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	32	.488	.885	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	52	.793	1.678	2	.031	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	67	1.022	2.700	1	.015	.046	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	138	2.105	4.805	2	.031	.076	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	130	1.983	6.789	2	.031	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	215	3.280	10.069	15	.229	.336	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	169	2.578	12.647	21	.320	.656	2	.031	.031	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	186	2.838	15.484	72	1.098	1.754	2	.031	.061	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	232	3.539	19.024	83	1.266	3.021	5	.076	.137	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	294	4.485	23.509	80	1.220	4.241	12	.183	.320	2	.031	.031	0	0.000	0.000
75.00-	80.00	245	3.738	27.246	82	1.251	5.492	15	.229	.549	6	.092	.122	0	0.000	0.000
80.00-	85.00	177	2.700	29.946	112	1.709	7.201	24	.366	.915	1	.015	.137	0	0.000	0.000
85.00-	90.00	162	2.471	32.418	91	1.388	8.589	33	.503	1.419	0	0.000	.137	0	0.000	0.000
90.00-	95.00	261	3.982	36.400	135	2.059	10.648	47	.717	2.136	3	.046	.183	0	0.000	0.000
95.00-	100.00	146	2.227	38.627	121	1.846	12.494	60	.915	3.051	3	.046	.229	0	0.000	0.000
100.00-	110.00	208	3.173	41.800	255	3.890	16.384	121	1.846	4.897	23	.351	.580	1	.015	.015
110.00-	120.00	193	2.944	44.744	229	3.494	19.878	123	1.876	6.773	32	.488	1.068	11	.158	.183
120.00-	130.00	220	3.356	48.101	179	2.731	22.609	116	1.770	8.543	52	.793	1.861	10	.153	.335
130.00-	140.00	85	1.297	49.397	94	1.434	24.043	86	1.312	9.855	46	.702	2.563	15	.229	.564
140.00-	150.00	103	1.571	50.969	91	1.388	25.431	54	.824	10.679	22	.336	2.899	9	.137	.702
150.00-	160.00	51	.778	51.747	59	.900	26.331	19	.290	10.969	11	.168	3.066	4	.051	.763
160.00-	170.00	30	.458	52.204	41	.625	26.956	10	.153	11.121	4	.061	3.127	0	0.000	.763
170.00-	180.00	18	.275	52.479	50	.763	27.719	5	.076	11.198	2	.031	3.158	1	.015	.778
180.00-	200.00	0	0.000	52.479	1	.015	27.734	0	0.000	11.198	1	.015	3.173	0	0.000	.778
200.00-	AND UP	0	0.000	52.479	0	0.000	27.734	0	0.000	11.198	0	0.000	3.173	0	0.000	.778
CASE COUNTS		3440			1818			754			208			51		

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Fig. C-118. Histogram data from hour 9. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11130

FILTERING: V(N) < 167 KT

NOT LESS THAN	NOT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	4	.036	.036	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	12	.108	.144	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	20	.180	.323	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	22	.198	.521	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	30	.269	.790	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	52	.467	1.257	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	150	1.347	2.604	2	.018	.018	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	271	2.433	5.037	11	.099	.117	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	497	4.462	9.499	43	.386	.503	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	563	5.055	14.554	80	.718	1.221	3	.027	.027	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	605	5.432	19.986	149	1.338	2.559	12	.108	.135	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	680	6.105	26.091	216	1.939	4.498	28	.251	.386	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	736	6.608	32.699	337	3.026	7.524	78	.700	1.086	3	.027	.027	0	0.000	0.000
70.00-	75.00	862	7.739	40.438	523	4.696	12.219	151	1.356	2.442	21	.189	.215	1	.009	.009
75.00-	80.00	854	7.667	48.105	725	6.509	18.729	285	2.559	5.001	72	.646	.862	4	.036	.045
80.00-	85.00	644	5.782	53.887	727	6.527	25.256	431	3.870	8.871	176	1.580	2.442	43	.386	.431
85.00-	90.00	576	5.171	59.059	755	6.779	32.034	559	5.019	13.899	290	2.604	5.046	82	.736	1.167
90.00-	95.00	464	4.166	63.225	630	5.656	37.691	548	4.920	18.809	349	2.774	7.820	144	1.293	2.460
95.00-	100.00	401	3.600	66.825	566	5.980	43.670	640	5.746	24.555	421	3.780	11.600	209	1.867	4.323
100.00-	110.00	580	5.207	72.032	972	8.727	52.397	1233	11.070	35.626	1012	9.080	20.686	679	6.087	10.415
110.00-	120.00	421	3.780	75.812	710	6.375	58.772	912	8.188	43.814	1010	9.060	29.754	855	7.685	18.100
120.00-	130.00	240	2.155	77.967	517	4.642	63.413	762	6.841	50.655	821	7.371	37.125	739	6.626	24.726
130.00-	140.00	114	1.024	78.991	231	2.074	65.487	418	3.753	54.408	536	4.812	41.937	537	4.821	29.547
140.00-	150.00	30	.269	79.260	75	.673	66.161	160	1.437	55.845	271	2.254	44.191	269	2.595	32.142
150.00-	160.00	25	.224	79.484	55	.494	66.655	86	.772	56.617	112	1.006	45.197	135	1.212	33.354
160.00-	170.00	21	.189	79.673	26	.233	66.888	19	.171	56.767	44	.395	45.592	53	.521	33.875
170.00-	180.00	9	.081	79.754	0	0.000	66.888	4	.036	56.823	3	.027	45.619	5	.054	33.929
180.00-	200.00	3	.027	79.781	0	0.000	66.888	0	0.000	56.823	5	.045	45.663	0	0.000	33.929
200.00	AND UP	0	0.000	79.781	0	0.000	66.888	0	0.000	56.823	0	0.000	45.663	0	0.000	33.929
CASE COUNTS		8886			7450			6329			5086			3779		

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Fig. C-119. Histogram data from hour 10. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: V(N) < 167 KT

UT LESS THAN	HUT LESS THAN	K = 1	%	CUM.%	K = 2	%	CUM.%	K = 3	%	CUM.%	K = 4	%	CUM.%	K = 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	4	.089	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	8	.179	.268	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	50	1.118	1.386	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	52	1.162	2.548	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	56	1.252	3.800	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	69	1.542	5.342	1	.022	.022	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	106	2.369	7.711	6	.134	.156	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	129	2.883	10.595	19	.425	.581	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
65.00-	70.00	82	1.833	12.427	26	.581	1.162	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
70.00-	75.00	68	1.520	13.947	34	.760	1.922	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
75.00-	80.00	104	2.325	16.272	20	.447	2.369	2	.045	.045	0	0.000	0.000	0	0.000	0.000
80.00-	85.00	140	3.129	19.401	30	.671	3.040	4	.089	.134	0	0.000	0.000	0	0.000	0.000
85.00-	90.00	126	2.816	22.217	52	1.162	4.202	4	.089	.224	0	0.000	0.000	0	0.000	0.000
90.00-	95.00	114	2.548	24.765	57	1.274	5.476	5	.112	.335	0	0.000	0.000	0	0.000	0.000
95.00-	100.00	95	2.123	26.889	71	1.587	7.063	19	.425	.760	1	.022	.022	0	0.000	0.000
100.00-	110.00	233	5.208	32.096	184	4.113	11.176	48	1.073	1.833	1	.022	.045	0	0.000	0.000
110.00-	120.00	180	4.023	36.120	183	4.090	15.266	75	1.676	3.509	18	.402	.447	0	0.000	0.000
120.00-	130.00	131	2.928	39.048	122	2.727	17.993	85	1.900	5.409	23	.514	.961	1	.022	.022
130.00-	140.00	80	1.788	40.836	77	1.721	19.714	44	.983	6.392	9	.201	1.162	2	.045	.067
140.00-	150.00	30	.671	41.506	36	.805	20.518	28	.626	7.018	15	.335	1.498	3	.067	.134
150.00-	160.00	93	2.079	43.585	87	1.945	22.463	44	.983	8.002	22	.492	1.989	4	.099	.224
160.00-	170.00	28	.626	44.211	8	.179	22.642	0	0.000	8.002	0	0.000	1.989	0	0.000	.224
170.00-	180.00	4	.089	44.300	7	.156	22.798	0	0.000	8.002	1	.022	2.012	0	0.000	.224
180.00-	200.00	0	0.000	44.300	0	0.000	22.798	0	0.000	8.002	0	0.000	2.012	0	0.000	.224
200.00-	AN UP	0	0.000	44.300	0	0.000	22.798	0	0.000	8.002	0	0.000	2.012	0	0.000	.224
CASE COUNTS		1982			1020			358			90			10		

Fig. C-120. Histogram data from hour 12. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: $V_n < 167$ kts.

HISTOGRAMS OF MODIFIED TAU FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10749

FILTERING: V(N) < 167 KT

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UT LESS THAN	MUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	5.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
5.00-	10.00	6	.056	.056	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
10.00-	15.00	6	.056	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15.00-	20.00	6	.056	.167	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	25.00	6	.056	.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
25.00-	30.00	27	.251	.474	1	.009	.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
30.00-	35.00	73	.679	1.154	1	.009	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
35.00-	40.00	193	1.796	2.949	9	.084	.102	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	45.00	322	2.996	5.945	10	.093	.195	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
45.00-	50.00	440	4.093	10.038	34	.316	.512	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
50.00-	55.00	682	6.345	16.383	114	1.061	1.572	4	.037	.037	0	0.000	0.000	0	0.000	0.000
55.00-	60.00	713	6.633	23.016	205	1.907	3.479	18	.167	.205	0	0.000	0.000	0	0.000	0.000
60.00-	65.00	693	6.447	29.463	273	2.540	6.019	51	.474	.679	7	.065	.065	0	0.000	0.000
65.00-	70.00	588	5.470	34.933	366	3.405	9.424	95	.884	1.563	13	.121	.186	2	.019	.019
70.00-	75.00	635	5.908	40.841	494	4.596	14.020	217	2.019	3.582	32	.297	.484	0	0.000	.019
75.00-	80.00	576	5.359	46.200	577	5.368	19.388	264	2.456	6.038	65	.791	1.275	6	.056	.074
80.00-	85.00	490	4.559	50.758	564	5.247	24.635	387	3.600	9.638	134	1.247	2.521	24	.223	.293
85.00-	90.00	490	4.559	55.317	564	5.247	29.882	444	4.131	13.769	206	1.916	4.438	35	.335	.633
90.00-	95.00	416	3.870	59.187	570	5.303	35.185	470	4.372	18.141	325	3.024	7.461	110	1.023	1.655
95.00-	100.00	423	3.935	63.122	511	4.754	39.938	469	4.363	22.504	325	3.024	10.485	170	1.582	3.239
100.00-	110.00	540	5.024	68.146	801	7.452	47.390	880	8.187	30.691	779	7.247	17.732	497	4.624	7.861
110.00-	120.00	478	4.447	72.593	682	6.345	53.735	733	6.819	37.510	708	6.587	24.318	661	6.149	14.011
120.00-	130.00	267	2.484	75.077	497	4.624	58.359	655	6.094	43.604	605	5.628	29.947	511	4.754	18.764
130.00-	140.00	190	1.768	76.844	324	3.014	61.373	460	4.279	47.883	492	4.577	34.524	411	3.824	22.588
140.00-	150.00	136	1.265	78.109	227	2.112	63.485	274	2.549	50.432	264	2.456	36.980	251	2.335	24.923
150.00-	160.00	77	.716	78.826	149	1.386	64.871	162	1.507	51.940	197	1.833	38.813	185	1.721	26.644
160.00-	170.00	35	.326	79.151	70	.651	65.522	100	.930	52.870	114	1.061	39.873	104	.958	27.612
170.00-	180.00	17	.158	79.310	23	.214	65.736	39	.363	53.233	25	.233	40.106	37	.279	27.891
180.00-	200.00	34	.316	79.626	33	.307	66.043	21	.195	53.428	24	.223	40.329	11	.102	27.993
200.00	AN ⁿ UP	1	.009	79.635	4	.037	66.080	3	.028	53.456	0	0.000	49.329	0	0.000	27.993
CASE COUNTS		8560			7103			5746			4335			3009		

Fig. C-121. Histogram data from hour 13. Average percent of time that an aircraft spent in a MODIFIED TAU encounter with K or more aircraft. Additional discrimination: V_n < 167 kts.

HISTOGRAMS OF TAU FOR HOUR 3

NUMBER OF SCANS 943

TOTAL FLYING TIME COUNT 597

FILTERING: V(N) < 60 KT

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	8	.148	.148	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	14	.259	.408	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	18	.334	.741	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	26	.482	1.223	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	54	1.001	2.224	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	55	1.019	3.244	1	.019	.019	0	0.000	0.019	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	50	.927	4.171	2	.037	.056	0	0.000	0.056	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	53	.982	5.153	7	.130	.185	0	0.000	0.185	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	80	1.483	6.636	6	.111	.297	0	0.000	0.297	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	100	1.854	8.489	8	.148	.445	0	0.000	0.445	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	92	1.705	10.195	10	.185	.630	0	0.000	0.630	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	71	1.316	11.511	17	.315	.945	2	.037	.037	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	56	1.038	12.549	22	.408	1.353	2	.037	.074	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	101	1.872	14.421	17	.315	1.668	2	.037	.111	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	49	.908	15.329	34	.630	2.298	1	.019	.130	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	66	1.223	16.552	35	.649	2.947	7	.130	.260	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	46	.853	17.405	18	.334	3.281	3	.056	.315	1	.019	.019	0	0.000	0.000
360.00-	380.00	26	.482	17.887	21	.389	3.670	1	.019	.334	0	0.000	.019	0	0.000	0.000
380.00-	400.00	39	.723	18.610	28	.519	4.189	7	.130	.464	2	.037	.056	0	0.000	0.000
400.00	AN ^D UP	604	12.308	30.917	457	8.471	12.660	236	4.374	4.838	53	.982	1.038	4	.074	.074
CASE COUNTS		1668			683			261			50			4		

Fig. C-123. Histogram data from hour 3. Average percent of time that an aircraft spent in a TAD encounter with K or more aircraft. Additional discrimination: V_n < 60 kts.

HISTOGRAMS OF TAU

FOR HOUR 4

NUMBER OF SCANS 1018

TOTAL FLYING TIME COUNT 12611

FILTERING: $V(N) < 60$ KT

BUT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0-00-	20-00	2	.016	.016	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20-00-	40-00	4	.032	.048	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40-00-	60-00	14	.111	.159	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60-00-	80-00	29	.230	.389	1	.008	.008	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80-00-	100-00	32	.650	1.039	2	.016	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100-00-	120-00	236	1.871	2.910	10	.079	.103	2	.016	.016	0	0.000	0.000	0	0.000	0.000
120-00-	140-00	391	3.100	6.011	28	.222	.325	2	.016	.032	1	.008	.008	0	0.000	0.000
140-00-	160-00	468	3.711	9.722	69	.547	.872	6	.048	.079	0	0.000	.008	1	.008	.008
160-00-	180-00	543	4.306	14.027	131	1.039	1.911	16	.127	.206	2	.016	.024	0	0.000	.008
180-00-	200-00	564	4.472	18.500	207	1.641	3.552	46	.365	.571	3	.024	.048	0	0.000	.008
200-00-	220-00	560	4.441	22.940	165	1.308	4.861	46	.365	.936	10	.079	.127	1	.008	.016
220-00-	240-00	538	4.266	27.206	279	2.212	7.073	85	.674	1.610	19	.151	.278	4	.032	.048
240-00-	260-00	456	3.616	30.822	321	2.545	9.619	111	.880	2.490	32	.254	.531	9	.071	.119
260-00-	280-00	457	3.624	34.446	352	2.791	12.410	160	1.269	3.759	47	.373	.904	5	.040	.159
280-00-	300-00	383	3.037	37.483	365	2.894	15.304	205	1.626	5.384	70	.555	1.459	21	.167	.325
300-00-	320-00	300	2.379	39.862	346	2.744	18.048	195	1.546	6.930	92	.730	2.189	32	.254	.579
320-00-	340-00	233	1.848	41.710	239	1.895	19.943	181	1.435	8.366	87	.690	2.878	27	.214	.793
340-00-	360-00	196	1.554	43.264	265	2.101	22.044	178	1.411	9.777	54	.428	3.307	17	.135	.928
360-00-	380-00	155	1.229	44.493	243	1.927	23.971	193	1.530	11.308	71	.563	3.870	25	.198	1.125
380-00-	400-00	144	1.142	45.635	188	1.491	25.462	173	1.372	12.679	95	.753	4.623	31	.246	1.372
400-00 AN ' UP		3116	24.709	70.343	3569	29.094	94.555	3176	25.184	97.864	2233	17.707	112.571	1251	9.920	112.492
CASE COUNTS		8871			6880			4775			2816			1424		

221

Fig. C-124. Histogram data from hour 4. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU

FOR HOUR 5

NUMBER OF SCANS 1072

TOTAL FLYING TIME COUNT /44>

FILTERING: V(N) < 60 KT

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	40	.537	.537	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	58	.779	1.316	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	55	.739	2.055	3	.040	.040	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	138	1.854	3.909	2	.027	.067	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	173	2.324	6.232	11	.148	.215	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	225	3.022	9.255	13	.175	.390	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	207	2.780	12.035	10	.134	.524	3	.040	.040	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	243	3.264	15.299	38	.510	1.034	3	.040	.081	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	281	3.774	19.073	67	.900	1.934	10	.134	.215	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	261	3.506	22.579	78	1.048	2.982	12	.161	.376	1	.013	.013	0	0.000	0.000
220.00-	240.00	233	3.130	25.708	94	1.263	4.244	16	.215	.591	1	.013	.027	0	0.000	0.000
240.00-	260.00	201	2.700	28.408	106	1.424	5.668	22	.295	.886	5	.067	.094	0	0.000	0.000
260.00-	280.00	152	2.042	30.450	100	1.343	7.011	33	.443	1.330	15	.201	.295	0	0.000	0.000
280.00-	300.00	152	2.042	32.492	121	1.625	8.637	29	.390	1.719	11	.148	.443	3	.040	.040
300.00-	320.00	147	1.974	34.466	108	1.451	10.087	40	.537	2.257	10	.134	.578	3	.040	.081
320.00-	340.00	158	2.122	36.588	110	1.477	11.565	44	.591	2.848	7	.094	.672	3	.040	.121
340.00-	360.00	128	1.719	38.307	82	1.101	12.666	33	.443	3.291	8	.107	.779	3	.040	.161
360.00-	380.00	92	1.236	39.543	63	.846	13.512	26	.349	3.640	8	.107	.886	2	.027	.183
380.00-	400.00	90	1.209	40.752	70	.940	14.453	30	.403	4.043	15	.201	1.088	7	.094	.282
400.00-	AN'D UP	1100	14.775	55.527	1290	17.327	31.780	695	12.021	16.064	373	5.010	6.098	126	1.692	1.974

CASE COUNT

44

2366

1196

454

147

Fig. C-125. Histogram data from hour 5. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

222

HISTOGRAMS OF TAU FOR HOUR 6

NUMBER OF SCANS 712

TOTAL FLYING TIME COUNT 3566

FILTERING: V(N) < 60 KT

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	4	.112	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	12	.336	.448	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	14	.392	.841	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	45	1.261	2.102	1	.028	.028	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	71	1.990	4.092	3	.084	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	91	2.550	6.642	19	.533	.645	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	140	3.924	10.566	30	.841	1.485	2	.056	.056	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	152	4.260	14.826	45	1.261	2.747	10	.280	.356	1	.028	.028	0	0.000	0.000
160.00-	180.00	131	3.672	18.498	45	1.261	4.008	14	.392	.729	0	0.000	.028	0	0.000	0.000
180.00-	200.00	106	2.971	21.469	49	1.373	5.381	14	.392	1.121	5	.140	.168	0	0.000	0.000
200.00-	220.00	100	2.803	24.271	40	1.121	6.502	20	.561	1.682	10	.280	.448	0	0.000	0.000
220.00-	240.00	96	2.691	26.962	51	1.429	7.932	23	.645	2.326	10	.280	.729	0	0.000	0.000
240.00-	260.00	86	2.410	29.372	74	2.074	10.006	20	.561	2.887	9	.252	.981	1	.028	.028
260.00-	280.00	48	1.345	30.717	56	1.569	11.575	33	.925	3.812	5	.140	1.121	2	.056	.084
280.00-	300.00	52	1.457	32.175	43	1.205	12.780	18	.504	4.316	14	.392	1.513	3	.084	.168
300.00-	320.00	43	1.205	33.380	32	.897	13.677	17	.476	4.793	9	.252	1.766	3	.084	.252
320.00-	340.00	31	.869	34.249	41	1.149	14.826	21	.589	5.381	8	.224	1.990	7	.196	.448
340.00-	360.00	42	1.177	35.426	50	1.401	16.227	20	.561	5.942	4	.112	2.102	0	0.000	.448
360.00-	380.00	24	.673	36.099	41	1.149	17.377	32	.897	6.839	7	.196	2.298	4	.112	.561
380.00-	400.00	30	.841	36.939	40	1.121	18.498	26	.729	7.567	11	.303	2.606	5	.140	.701
400.00-	AND UP	346	9.697	46.637	327	9.165	27.662	261	7.315	14.882	127	3.559	6.166	42	1.177	1.873
CASE COUNTS		1664			987			531			220			57		

Fig. C-126. Histogram data from hour 6. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU FOR HOUR 7

NUMBER OF SCANS 904

TOTAL FLYING TIME COUNT 8708

FILTERING: $V(N) < 60$ KT

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.024	.024	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	14	.165	.188	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	28	.329	.517	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	58	.682	1.199	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	128	1.504	2.703	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	152	1.787	4.490	4	.047	.047	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	135	1.587	6.077	7	.082	.129	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	152	1.787	7.863	30	.353	.482	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	195	2.292	10.155	33	.388	.870	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	217	2.551	12.706	45	.529	1.399	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	220	2.586	15.291	42	.494	1.892	4	.047	.047	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	233	2.739	18.030	47	.552	2.445	7	.082	.129	1	.012	.012	0	0.000	0.000
240.00-	260.00	225	2.645	20.675	91	1.070	3.514	8	.094	.223	2	.024	.035	0	0.000	0.000
260.00-	280.00	225	2.645	23.319	105	1.234	4.748	16	.188	.411	2	.024	.059	0	0.000	0.000
280.00-	300.00	190	2.233	25.552	75	.882	5.630	16	.188	.599	1	.012	.071	0	0.000	0.000
300.00-	320.00	216	2.539	28.091	103	1.211	6.841	24	.282	.882	3	.035	.106	0	0.000	0.000
320.00-	340.00	193	2.268	30.360	126	1.481	8.322	33	.388	1.269	0	0.000	.106	0	0.000	0.000
340.00-	360.00	147	1.728	32.087	105	1.234	9.556	26	.306	1.575	4	.047	.153	0	0.000	0.000
360.00-	380.00	130	1.528	33.615	85	.999	10.555	23	.270	1.845	2	.024	.176	0	0.000	0.000
380.00-	400.00	76	.893	34.509	48	.564	11.119	10	.118	1.963	2	.024	.200	0	0.000	0.000
400.00	AND UP	1803	21.192	55.700	1938	22.779	33.897	1351	15.879	17.842	571	6.711	6.911	165	1.939	1.939
CASE COUNTS		4739			2884			1518			588			165		

224

Fig. C-127. Histogram data from hour 7. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU

FUR HOUR 8

NUMBER OF SCANS 1013

TOTAL FLYING TIME COUNT /646

FILTERING: V(N) < 60 KT

UT LESS THAN	HUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	26	.340	.340	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	54	.706	1.046	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	115	1.504	2.550	5	.065	.065	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	138	1.805	4.355	10	.131	.196	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	149	1.949	6.304	24	.314	.510	1	.013	.013	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	145	1.896	8.200	39	.510	1.020	8	.105	.118	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	173	2.263	10.463	46	.602	1.622	11	.144	.262	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	175	2.289	12.752	33	.432	2.053	8	.105	.366	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	234	3.060	15.812	45	.589	2.642	10	.131	.497	3	.039	.039	0	0.000	0.000
200.00-	220.00	212	2.773	18.585	81	1.059	3.701	27	.353	.850	5	.065	.105	1	.013	.013
220.00-	240.00	211	2.760	21.344	87	1.138	4.839	23	.301	1.151	2	.026	.131	1	.013	.026
240.00-	260.00	214	2.799	24.143	106	1.386	6.225	23	.301	1.452	8	.105	.235	1	.013	.039
260.00-	280.00	200	2.616	26.759	118	1.543	7.769	40	.523	1.975	11	.144	.379	2	.026	.065
280.00-	300.00	122	1.596	28.355	115	1.504	9.273	58	.759	2.733	19	.248	.628	0	0.000	.065
300.00-	320.00	96	1.256	29.610	97	1.269	10.541	47	.615	3.348	11	.144	.772	7	.092	.157
320.00-	340.00	132	1.726	31.337	107	1.399	11.941	52	.680	4.026	32	.419	1.190	11	.144	.301
340.00-	360.00	113	1.478	32.814	76	.994	12.935	43	.562	4.591	12	.157	1.347	4	.052	.353
360.00-	380.00	142	1.857	34.672	99	1.295	14.230	48	.628	5.218	36	.471	1.818	10	.131	.484
380.00-	400.00	96	1.256	35.927	74	.968	15.197	36	.471	5.689	23	.301	2.119	11	.144	.628
400.00-	AND UP	1613	21.096	57.023	1174	15.354	30.552	728	9.521	15.211	372	4.865	6.984	147	1.923	2.250
CASE COUNTS		4360			2336			1163			534			195		

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Fig. C-128. Histogram data from hour 8. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU

FOR HOUR 9

NUMBER OF SCANS 1156

TOTAL FLYING TIME COUNT 0555

FILTERING: V(N) < 60 KT

UT LESS THAN	UT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.031	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	0	0.000	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	6	.092	.122	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	8	.122	.244	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	31	.473	.717	1	.015	.015	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	56	.854	1.571	0	0.000	.015	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	43	.656	2.227	1	.015	.031	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	58	.885	3.112	2	.031	.061	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	67	1.022	4.134	1	.015	.076	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	68	1.037	5.172	8	.122	.198	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	128	1.953	7.124	17	.259	.458	1	.015	.015	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	144	2.197	9.321	25	.381	.839	1	.015	.031	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	99	1.510	10.831	20	.305	1.144	3	.046	.076	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	79	1.205	12.037	20	.305	1.449	3	.046	.122	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	71	1.083	13.120	15	.229	1.678	4	.061	.183	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	56	.854	13.974	26	.397	2.075	4	.061	.244	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	40	.610	14.584	19	.290	2.365	3	.046	.290	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	38	.580	15.164	12	.183	2.548	2	.031	.320	0	0.000	0.000	0	0.000	0.000
360.00-	380.00	20	.305	15.469	15	.229	2.776	3	.046	.366	0	0.000	0.000	0	0.000	0.000
380.00-	400.00	39	.595	16.064	18	.275	3.051	1	.015	.381	0	0.000	0.000	0	0.000	0.000
400.00 AND UP		691	10.542	26.606	209	3.188	6.240	33	.503	.885	3	.046	.046	0	0.000	0.000
CASE COUNTS		1744			409			58			3			0		

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Fig. C-129. Histogram data from hour 9. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: V_n < 60 kts.

HISTOGRAMS OF TAU FOR HOUR 10

NUMBER OF SCANS 986

TOTAL FLYING TIME COUNT 11138

FILTERING: $V(N) < 60$ KT

NOT LESS THAN	NOT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	6	.054	.054	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	16	.144	.198	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	46	.413	.611	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	58	.521	1.131	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	115	1.032	2.164	5	.045	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	137	1.230	3.394	7	.062	.107	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	200	1.796	5.190	4	.036	.143	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	328	2.936	8.126	34	.305	.410	2	.018	.428	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	434	3.897	12.023	67	.602	1.022	11	.099	.521	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	405	3.636	15.659	102	.916	1.938	12	.106	.627	1	.009	.636	0	0.000	0.000
200.00-	220.00	376	3.376	19.035	126	1.131	3.069	23	.206	.833	5	.045	.878	0	0.000	0.000
220.00-	240.00	300	2.700	21.735	150	1.347	4.416	19	.171	.999	7	.063	1.062	0	0.000	0.000
240.00-	260.00	411	3.650	25.385	173	1.553	5.969	30	.271	1.270	5	.045	1.315	1	.009	1.324
260.00-	280.00	350	3.142	28.527	170	1.526	7.495	72	.646	2.016	19	.171	2.187	3	.027	2.214
280.00-	300.00	302	2.711	31.238	171	1.535	9.030	66	.593	2.609	27	.242	2.851	12	.108	2.960
300.00-	320.00	100	.897	32.135	170	1.526	10.556	92	.826	3.535	16	.144	3.679	5	.045	3.724
320.00-	340.00	143	1.284	33.419	175	1.571	12.127	79	.709	4.244	20	.180	4.424	5	.045	4.469
340.00-	360.00	202	1.814	35.233	197	1.769	13.896	81	.727	5.171	21	.189	5.360	5	.045	5.405
360.00-	380.00	100	.897	36.130	133	1.194	15.090	53	.476	5.646	19	.171	5.817	3	.027	5.844
380.00-	400.00	100	.897	37.027	129	1.158	16.248	100	.898	6.544	34	.305	6.849	4	.036	6.885
400.00	ANY UP	2507	22.541	59.568	3365	27.527	43.095	2192	19.580	25.490	1178	10.576	37.266	511	4.586	41.852
CASE COUNTS		7260			4877			2640			1322			549		

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Fig. C-130. Histogram data from hour 10. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU FOR HOUR 12

NUMBER OF SCANS 931

TOTAL FLYING TIME COUNT 4474

FILTERING: $V_n < 60$ KT

DT LESS THAN	DT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	12	.268	.268	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	18	.402	.671	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	22	.492	1.162	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	28	.626	1.788	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	52	1.162	2.950	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	48	1.073	4.023	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	46	1.028	5.051	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
200.00-	220.00	52	1.162	6.214	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
220.00-	240.00	78	1.743	7.957	2	.045	.045	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
240.00-	260.00	64	1.430	9.388	2	.045	.089	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
260.00-	280.00	83	1.855	11.243	4	.089	.179	1	.022	.022	0	0.000	0.000	0	0.000	0.000
280.00-	300.00	33	.738	11.980	3	.067	.246	0	0.000	.022	0	0.000	0.000	0	0.000	0.000
300.00-	320.00	60	1.341	13.321	4	.089	.335	0	0.000	.022	0	0.000	0.000	0	0.000	0.000
320.00-	340.00	35	.782	14.104	8	.179	.514	1	.022	.045	0	0.000	0.000	0	0.000	0.000
340.00-	360.00	51	1.140	15.244	11	.246	.760	0	0.000	.045	0	0.000	0.000	0	0.000	0.000
360.00-	380.00	25	.559	15.802	9	.201	.961	0	0.000	.045	0	0.000	0.000	0	0.000	0.000
380.00-	400.00	12	.268	16.071	8	.179	1.140	0	0.000	.045	0	0.000	0.000	0	0.000	0.000
400.00	AND UP	479	10.706	26.777	211	4.716	5.826	24	.536	.581	0	0.000	0.000	0	0.000	0.000
CASE COUNTS		1196			262			26			0			0		

Fig. C-131. Histogram data from hour 12. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.

HISTOGRAMS OF TAU FOR HOUR 13

NUMBER OF SCANS 969

TOTAL FLYING TIME COUNT 10753

FILTERING: $V(N) < 60$ KT

NOT LESS THAN	BUT LESS THAN	K= 1	%	CUM.%	K= 2	%	CUM.%	K= 3	%	CUM.%	K= 4	%	CUM.%	K= 5	%	CUM.%
0.00-	20.00	2	.019	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
20.00-	40.00	10	.093	.112	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
40.00-	60.00	7	.065	.177	1	.009	.009	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
60.00-	80.00	29	.270	.446	1	.009	.019	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
80.00-	100.00	91	.846	1.293	1	.009	.028	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
100.00-	120.00	141	1.311	2.604	1	.009	.037	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
120.00-	140.00	220	2.046	4.650	24	.223	.260	2	.019	.019	0	0.000	0.000	0	0.000	0.000
140.00-	160.00	210	1.953	6.603	18	.167	.428	0	0.000	.019	0	0.000	0.000	0	0.000	0.000
160.00-	180.00	265	2.464	9.067	29	.270	.697	2	.019	.037	0	0.000	0.000	0	0.000	0.000
180.00-	200.00	291	2.706	11.773	33	.307	1.004	1	.009	.046	1	.009	.009	0	0.000	0.000
200.00-	220.00	299	2.781	14.554	65	.604	1.609	3	.028	.074	1	.009	.019	0	0.000	0.000
220.00-	240.00	388	3.608	18.162	105	.976	2.585	8	.074	.149	1	.009	.028	0	0.000	0.000
240.00-	260.00	407	3.785	21.947	161	1.497	4.083	18	.167	.316	0	0.000	.028	0	0.000	0.000
260.00-	280.00	336	3.125	25.072	127	1.181	5.264	50	.465	.781	3	.028	.056	0	0.000	0.000
280.00-	300.00	313	2.911	27.983	172	1.600	6.863	47	.437	1.218	13	.121	.177	3	.028	.023
300.00-	320.00	310	2.883	30.866	202	1.879	8.742	53	.493	1.711	13	.121	.298	2	.019	.045
320.00-	340.00	248	2.306	33.172	207	1.925	10.667	90	.837	2.548	16	.149	.446	1	.009	.055
340.00-	360.00	186	1.730	34.902	172	1.600	12.266	101	.939	3.487	28	.260	.707	7	.065	.121
360.00-	380.00	174	1.618	36.520	182	1.693	13.959	92	.856	4.343	44	.409	1.116	10	.093	.214
380.00-	400.00	138	1.283	37.803	144	1.339	15.298	70	.651	4.994	31	.288	1.404	8	.074	.283
400.00 AND UP		2764	25.704	63.508	2350	23.714	39.012	1617	15.038	20.032	745	6.928	8.333	279	2.595	2.883
CASE COUNTS		6629			4195			2154			696			310		

Fig. C-132. Histogram data from hour 13. Average percent of time that an aircraft spent in a TAU encounter with K or more aircraft. Additional discrimination: $V_n < 60$ kts.



APPENDIX D
HISTOGRAMS AND PLOTS OF PERCENT OF TIME
IN AN ENCOUNTER STATUS -- ALL HOURS COMBINED

In this appendix, the data from all hours are combined to provide composite "percent of time in an encounter status" data. For selected encounter definitions, the mean value and standard deviation of the variation between hours is calculated for each histogram increment.

Figures D-1 through D-11 plot the composite data, while the data are listed in Tables D-1 through D-12. The encounter definitions considered are:

<u>Parameter</u>	<u>Discrimination</u>
Range	None
Range	$ \phi_e < 1.5$
Range	$ \Delta A < 500 \text{ ft.}$
Tau	None
Tau	$V_n < 60 \text{ kts}$
Beta ($R^2\tau$)	None
Beta ($R^2\tau$)	$ \Delta A < 500 \text{ ft.}$
Beta ($R^2\tau$)	$V_c/V_c < .001 \text{ sec}^{-1}$
Modified Tau	None
Modified Tau	$ \Delta A < 167 \text{ kts.}$
Modified Tau	$V_n < 167 \text{ kts.}$

The case of Tau - $|\Delta A| < 500 \text{ ft.}$ is given in the main body of the report on p. 24.

Table D-1. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF RANGE (NM)			ADDITIONAL DISCRIMINATION - NONE			
	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7
2	.373	1.568	10.040	26.885	42.859	52.924	58.683
3	.371	.964	8.044	22.891	36.886	46.042	53.605
4	.143	1.760	10.578	31.996	51.257	60.154	70.161
5	.645	4.620	10.771	21.461	33.656	41.660	48.388
6	1.345	5.269	12.528	22.730	35.426	50.224	62.500
7	.400	2.927	9.520	25.176	41.161	51.669	60.084
8	.811	4.669	12.582	27.164	38.151	47.829	57.507
9	.717	2.913	10.477	24.005	36.785	46.271	54.385
10	.413	1.903	8.978	30.023	48.393	59.786	68.684
11	.138	3.045	18.862	42.690	61.031	69.537	74.153
12	0.000	.089	5.342	12.159	22.396	32.700	42.512
13	.353	3.590	11.178	30.336	47.615	57.900	64.828
MEAN	.476	2.776	10.742	26.460	41.301	51.391	59.624
STD. DEV.	.348	1.520	3.087	6.990	9.492	9.284	8.793

Table D-2. Mean and standard deviation of histogram data
between hours for encounter definition as shown.

HOUR	VALUES OF RANGE (NM)			ADDITIONAL DISCRIMINATION $ \Delta A < 500'$			
	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7
2	.224	.672	3.770	12.864	20.776	27.469	31.028
3	0.000	0.000	1.668	4.819	8.767	11.937	15.236
4	.095	.841	8.485	24.304	36.246	41.369	46.491
5	.054	1.168	2.767	5.990	10.234	13.484	16.371
6	.168	1.738	5.689	12.248	20.011	26.485	33.436
7	0.000	.071	1.128	5.830	11.883	15.903	18.923
8	0.000	.602	3.113	10.254	15.237	20.547	24.745
9	0.000	.488	2.014	6.346	11.289	16.110	19.695
10	.090	.323	3.160	12.983	21.368	27.042	31.738
11	.081	.773	9.394	24.544	36.193	43.968	47.745
12	0.000	0.000	.492	1.341	2.190	3.688	5.118
13	.074	.409	1.990	7.551	17.502	24.728	29.759
MEAN	.065	.590	3.639	10.756	17.641	22.728	26.690
STD. DEV.	.071	.486	2.701	6.989	9.880	11.245	12.079

Table D-3. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF RANGE (NM)								ADDITIONAL DISCRIMINATION: $\phi_e < 1.5^\circ$							
	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8
2	.149	.523	3.446	12.466	21.062	29.087	34.051	41.552								
3	0.000	0.000	1.446	4.523	9.342	13.735	19.778	27.525								
4	.032	.745	8.247	24.122	36.635	43.073	52.835	60.883								
5	0.000	.873	2.203	5.386	11.323	15.850	19.664	28.865								
6	.056	.448	3.728	10.706	19.647	28.587	38.901	48.486								
7	0.000	.024	.893	5.724	13.035	18.688	25.975	36.636								
8	0.000	.497	2.354	9.547	15.001	21.684	28.211	32.958								
9	0.000	.153	.915	5.309	10.679	17.010	25.522	33.577								
10	.018	.126	2.352	12.085	21.575	29.458	38.858	49.066								
11	.041	.261	8.385	24.666	37.187	46.475	53.574	60.339								
12	0.000	0.000	.313	.581	1.520	3.979	7.018	10.885								
13	0.000	.056	1.525	8.091	16.070	23.370	29.917	37.487								
MEAN	.024	.308	2.983	10.267	17.756	24.257	28.942	39.021								
STD. DEV.	.032	.288	2.571	7.122	10.090	11.55	12.95	13.63								

Table D-4. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF TAU (SEC)						
	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120	120 - 140
2	.075	.523	2.973	10.973	21.772	31.836	39.985
3	.222	1.297	4.115	10.046	17.368	25.857	32.308
4	.111	.412	1.752	10.332	29.768	43.113	51.518
5	.269	2.256	6.124	11.899	20.978	29.895	39.484
6	.392	2.242	5.493	11.323	18.302	25.701	34.109
7	.376	1.939	5.195	11.801	20.686	30.266	39.328
8	.288	2.354	6.906	14.190	22.574	30.133	37.444
9	.183	1.098	2.898	7.198	13.573	20.024	25.850
10	.269	1.248	3.879	9.562	21.162	35.904	50.090
11	.130	1.254	7.979	21.397	36.639	47.419	55.406
12	.045	.045	1.341	4.336	8.426	12.874	17.345
13	.205	.465	2.437	10.258	23.714	33.563	40.872
MEAN	.213	1.261	4.257	11.109	21.246	30.548	38.644
STD. DEV.	.105	.764	2.010	3.900	6.862	8.903	10.268

Table D-5. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF TAU (SEC)						
	ADDITIONAL DISCRIMINATION $ \Delta A < 500$ FT.						
	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120	120 - 140
2	.025	.050	.697	3.471	7.091	11.321	15.464
3	0.000	0.000	.185	.556	.964	2.447	4.968
4	.016	.063	.825	4.559	12.243	18.309	22.821
5	0.000	.725	2.391	4.432	6.474	8.126	9.550
6	.224	1.289	2.887	4.877	8.324	10.426	12.864
7	.024	.047	.341	1.140	2.315	4.290	6.417
8	.052	.314	1.779	4.355	6.670	8.135	10.005
9	0.000	0.000	0.000	.305	.824	1.449	2.151
10	.018	.215	.628	1.347	2.855	5.540	8.071
11	.081	.326	2.035	5.089	7.686	10.234	13.084
12	0.000	0.000	.224	.581	1.341	2.146	2.727
13	.074	.205	1.153	4.436	9.207	12.071	14.749
MEAN	.042	.269	1.095	2.929	5.499	7.874	10.239
STD. DEV.	.055	.366	.915	1.864	3.579	4.765	5.704

Table D-6. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF TAU (SEC)							ADDITIONAL DISCRIMINATION: $V_n < 60$ KT						
	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120	120 - 140	0 - 20	20 - 40	40 - 60	60 - 80	80 - 100	100 - 120	120 - 140
2	0.000	0.000	.124	.958	2.575	4.927	7.340	0.000	0.000	.124	.958	2.575	4.927	7.340
3	0.000	.148	.408	.741	1.223	2.224	3.244	0.000	.148	.408	.741	1.223	2.224	3.244
4	.016	.048	.159	.389	1.039	2.910	6.011	.016	.048	.159	.389	1.039	2.910	6.011
5	0.000	.537	1.316	2.055	3.909	6.232	9.255	0.000	.537	1.316	2.055	3.909	6.232	9.255
6	.112	.448	.841	2.102	4.092	6.642	10.566	.112	.448	.841	2.102	4.092	6.642	10.566
7	.024	.188	.517	1.199	2.703	4.490	6.077	.024	.188	.517	1.199	2.703	4.490	6.077
8	0.000	.340	1.046	2.550	4.355	6.304	8.200	0.000	.340	1.046	2.550	4.355	6.304	8.200
9	.031	.031	.122	.244	.717	1.571	2.227	.031	.031	.122	.244	.717	1.571	2.227
10	.054	.198	.611	1.131	2.164	3.394	5.189	.054	.198	.611	1.131	2.164	3.394	5.189
11	0.000	.049	.326	1.392	2.687	3.729	4.991	0.000	.049	.326	1.392	2.687	3.729	4.991
12	0.000	0.000	0.000	.268	.671	1.162	1.788	0.000	0.000	0.000	.268	.671	1.162	1.788
13	.019	.112	.177	.446	1.293	2.604	4.650	.019	.112	.177	.446	1.293	2.604	4.650
MEAN	.021	.174	.470	1.122	2.285	3.849	5.795	.021	.174	.470	1.122	2.285	3.849	5.795
STD. DEV.	.032	.170	.395	.742	1.270	1.797	2.592	.032	.170	.395	.742	1.270	1.797	2.592

Table D-7. Mean and standard deviation of histogram data between hours for encounter definition as shown.

VALUES OF BETA (NM ² -SEC) ADDITIONAL DISCRIMINATION: NONE								
HOUR	0 - 250	250 - 500	500 - 750	750 - 1000	1000 - 1500	1500 - 2000	2000 - 3000	3000 - 4500
2	.697	1.468	2.501	4.006	7.527	11.806	18.773	26.959
3	.816	1.816	2.873	4.300	7.451	10.287	15.774	20.204
4	.301	.825	1.982	3.235	6.835	12.552	24.843	38.078
5	2.767	4.849	6.716	8.126	10.584	13.472	18.227	24.218
6	2.522	4.372	5.998	7.651	10.454	12.192	15.779	22.253
7	1.598	2.797	4.090	5.524	8.874	11.295	16.420	23.942
8	2.668	4.290	5.742	7.324	11.522	15.211	20.599	25.713
9	1.129	2.044	3.036	4.088	6.316	8.452	11.991	16.705
10	.988	1.814	2.783	4.076	6.725	10.029	17.059	28.156
11	.863	3.314	6.220	10.177	16.968	22.903	32.576	42.876
12	.089	.492	1.073	1.430	3.308	4.873	7.242	10.304
13	.539	1.125	2.176	4.064	14.787	13.261	21.027	29.629
MEAN	1.248	2.433	3.761	5.333	9.279	12.194	18.359	25.753
STD. DEV.	.891	1.410	1.838	2.378	3.671	4.119	6.051	8.351

Table D-8. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF BETA (NM ² -SEC)				ADDITIONAL DISCRIMINATION: $ \Delta A < 500$			
	0 - 250	250 - 500	500 - 750	750 - 1000	1000 - 1500	1500 - 2000	2000 - 3000	3000 - 4500
2	.224	.523	.796	1.418	2.675	4.143	7.626	11.831
3	0.000	0.000	.222	.408	.630	.964	1.501	2.169
4	.079	.428	1.094	2.078	4.290	7.374	13.956	20.910
5	1.128	2.122	2.901	3.143	3.680	4.258	5.547	7.629
6	1.345	2.691	3.756	4.737	6.194	7.455	9.613	13.929
7	0.000	0.000	.141	.235	.893	1.399	2.480	3.832
8	.105	.523	.837	1.360	3.322	5.088	7.586	9.547
9	.061	.214	.244	.244	.275	.427	.885	1.281
10	.180	.413	.700	1.077	1.796	2.406	3.753	6.626
11	.277	.782	1.759	3.428	5.683	7.360	9.323	12.360
12	0.000	0.000	.268	.492	.983	1.207	1.699	2.369
13	.186	.428	.967	2.213	4.761	7.663	12.517	18.144
MEAN	.298	.677	1.140	1.736	2.931	4.145	6.373	9.218
STD. DEV.	.430	.815	1.086	1.374	1.953	2.710	4.242	6.146

Table D-9. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF BETA (NM ² -SEC) ADDITIONAL DISCRIMINATION: $\ddot{R}/\dot{R} < .001 \text{ SEC}^{-1}$							
	0 - 250	250 - 500	500 - 750	750 - 1000	1000 - 1500	1500 - 2000	2000 - 3000	3000 - 4500
2	0.000	0.000	0.000	0.000	.124	.398	1.070	2.302
3	0.000	.111	.185	.297	.482	.630	.927	1.327
4	.032	.095	.174	.238	.698	1.031	1.871	3.013
5	.349	.779	1.128	1.451	1.988	2.391	3.156	4.231
6	.280	.392	.392	.673	1.289	2.242	3.251	4.624
7	.118	.259	.306	.423	.564	.823	1.293	2.515
8	.157	.288	.471	.628	1.360	2.066	3.008	4.211
9	0.000	0.000	.031	.092	.305	.427	.824	1.190
10	.108	.215	.287	.467	.646	.808	1.401	2.415
11	.033	.114	.228	.489	.814	1.229	2.092	3.762
12	0.000	0.000	0.000	0.000	.089	.179	.313	.760
13	.037	.112	.112	.186	.651	.781	1.079	2.018
MEAN	.092	.197	.276	.412	.750	1.083	1.685	2.697
STD. DEV.	.155	.210	.293	.381	.528	.718	.955	1.232

Table D-10. Mean and standard deviation of histogram data between hours for encounter definition as shown.

VALUES OF MODIFIED TAU (SEC)				ADDITIONAL DISCRIMINATION: None			
HOUR	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
2	.025	.174	1.145	7.950	28.987	45.335	58.634
3	.074	.519	1.891	7.878	21.001	31.807	41.872
4	.032	.190	.730	7.438	38.332	56.474	68.290
5	.107	1.021	4.231	10.786	24.540	38.630	53.566
6	.056	1.009	4.288	11.099	22.197	39.462	58.436
7	.071	.940	2.668	9.509	24.706	43.018	57.663
8	.078	.994	4.107	12.438	27.138	40.452	56.578
9	.061	.519	1.739	6.682	17.635	31.335	43.524
10	.126	.646	1.850	7.183	27.671	53.932	68.854
11	.033	.228	2.801	18.727	44.325	63.955	76.250
12	0	.045	.268	3.666	10.729	21.301	32.186
13	.112	.298	.893	9.439	30.271	48.526	62.029
MEAN	.064	.548	2.217	9.399	26.461	42.852	56.490
STD. DEV.	.032	.351	1.349	3.588	8.480	11.350	11.920

Table D-11. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF MODIFIED TAU (SEC)							ADDITIONAL DISCRIMINATION: $ \Delta A < 500$ FT
	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	
2	.025	.025	.323	2.700	12.789	19.980	27.445	
3	0	0	0	.741	2.576	4.653	8.489	
4	.016	.016	.317	4.480	21.925	32.963	39.783	
5	0	.215	1.800	3.989	7.683	11.471	16.024	
6	0	.673	2.831	6.698	13.621	21.244	29.372	
7	0	.024	.047	.952	4.090	9.285	13.611	
8	0	.078	.575	3.584	9.783	14.648	20.965	
9	0	0	.092	.305	1.556	4.348	9.001	
10	0	.144	.359	1.652	6.734	14.599	22.078	
11	.033	.114	.635	5.903	15.217	28.122	38.422	
12	0	0	0	1.073	2.235	4.493	6.460	
13	.019	.130	.372	5.124	17.976	29.675	36.566	
MEAN	.007	.118	.612	3.100	9.682	16.290	22.351	
STD. DEV.	0	.179	.814	2.085	6.388	9.706	11.480	

Table D-12. Mean and standard deviation of histogram data between hours for encounter definition as shown.

HOUR	VALUES OF MODIFIED TAU (SEC)							ADDITIONAL DISCRIMINATION: $V_n < 167$ KT
	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	
2	0	0	.498	2.264	11.470	20.801	30.244	
3	.037	.259	.778	2.595	7.396	13.475	18.239	
4	0	.079	.254	2.585	12.394	25.430	37.856	
5	.081	.457	2.230	5.682	12.330	19.731	28.959	
6	0	.392	1.850	5.689	10.622	19.563	33.296	
7	0	.329	1.105	3.644	9.708	18.089	27.304	
8	.052	.575	2.328	6.435	12.386	19.814	30.225	
9	.061	.275	.885	2.700	6.789	12.647	19.024	
10	.036	.323	.790	2.604	9.499	19.986	32.699	
11	.016	.081	.814	6.945	19.964	36.378	46.873	
12	0	0	.089	1.386	3.800	7.711	12.427	
13	.056	.167	.474	2.949	10.038	23.016	34.933	
MEAN	.028	.244	1.007	3.789	10.533	19.720	29.339	
STD. DEV.	0	.176	.711	1.790	3.776	6.820	8.943	

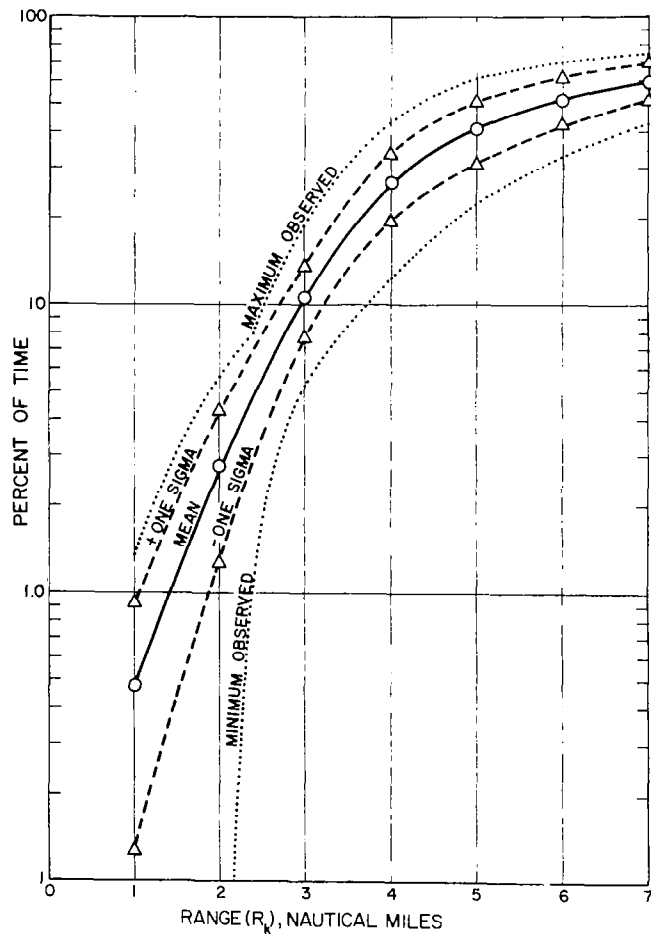


Fig. D-1. Average percent of time that an aircraft was in an encounter defined by range $< R_k$ plotted vs. R_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

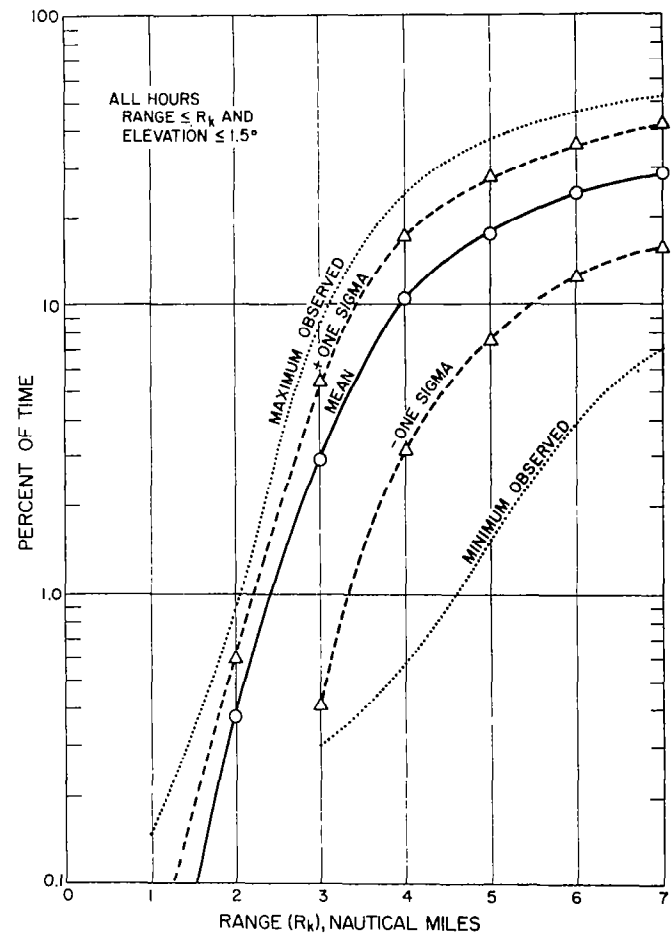


Fig. D-2. Average percent of time that an aircraft was in an encounter defined by range $< R_k$ and relative elevation angle $< 1.5^\circ$ plotted vs. R_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

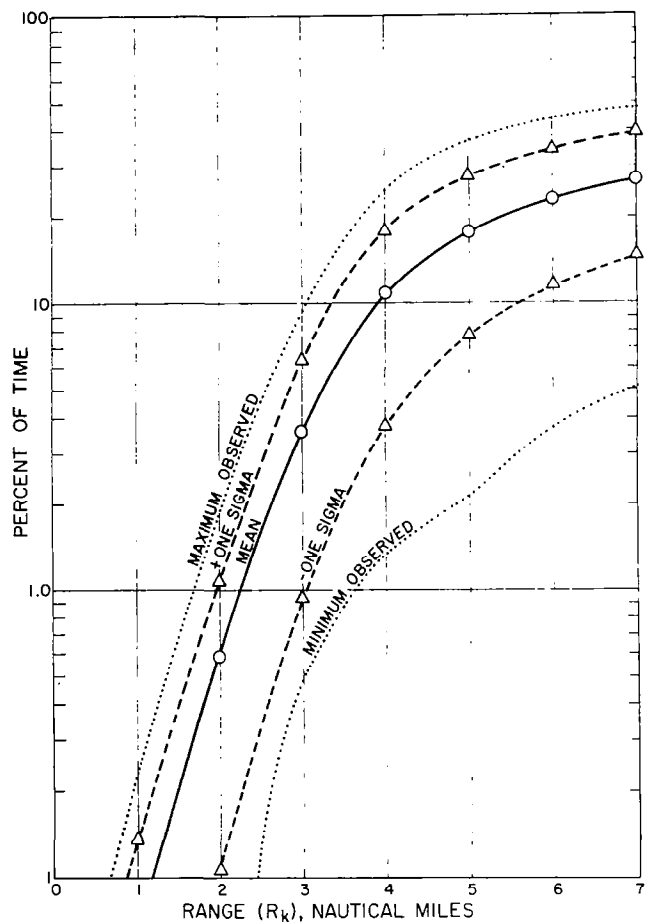


Fig. D-3. Average percent of time that an aircraft was in an encounter defined by range $< R_k$ and altitude difference < 500 ft plotted vs. R_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

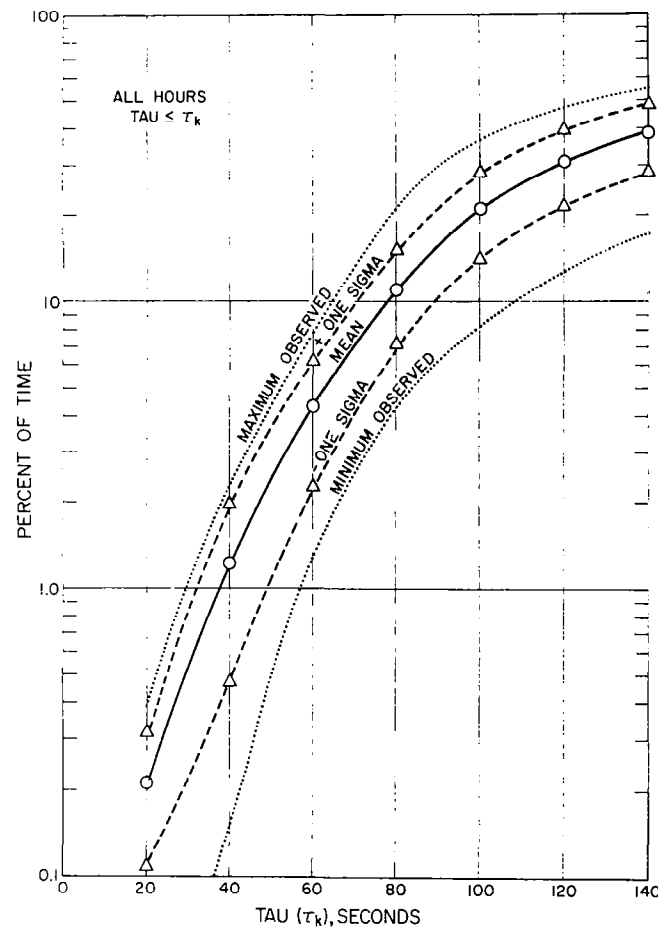


Fig. D-4. Average percent of time that an aircraft was in an encounter defined by τ_k plotted vs. τ_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

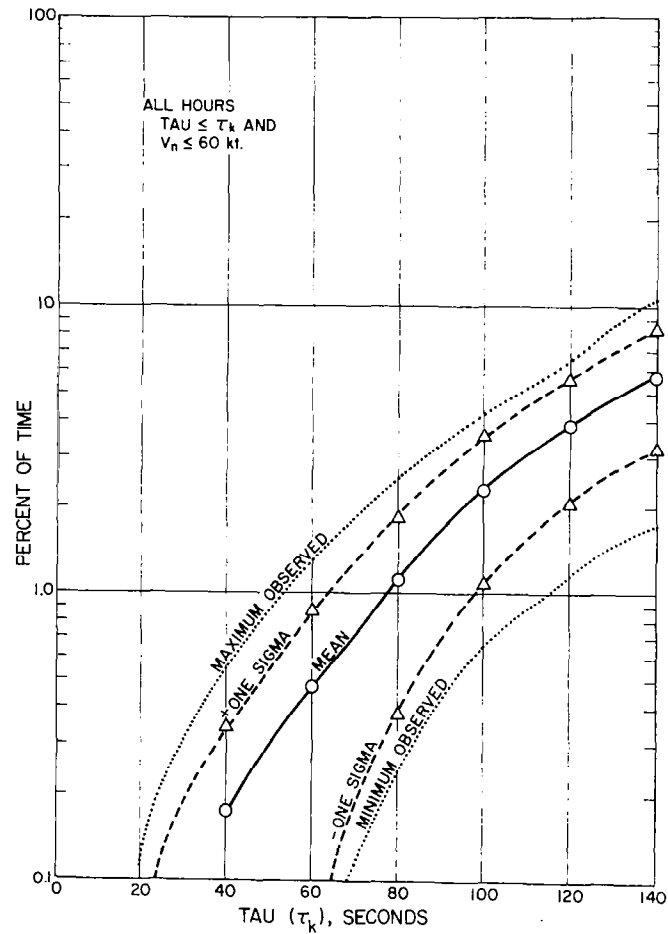


Fig. D-5. Average percent of time that an aircraft was in an encounter defined by $\tau < \tau_k$ and normal velocity < 60 kts plotted vs. τ_k for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

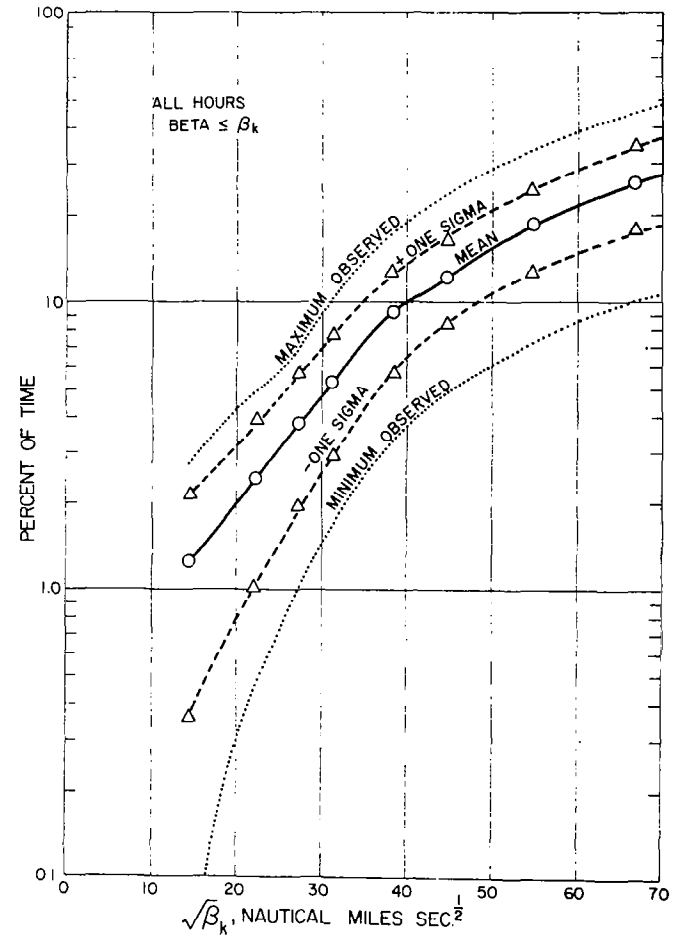


Fig. D-6. Average percent of time that an aircraft was in an encounter defined by $\beta (R^2 \tau) < \beta_k$ plotted vs. $\sqrt{\beta_k}$ for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

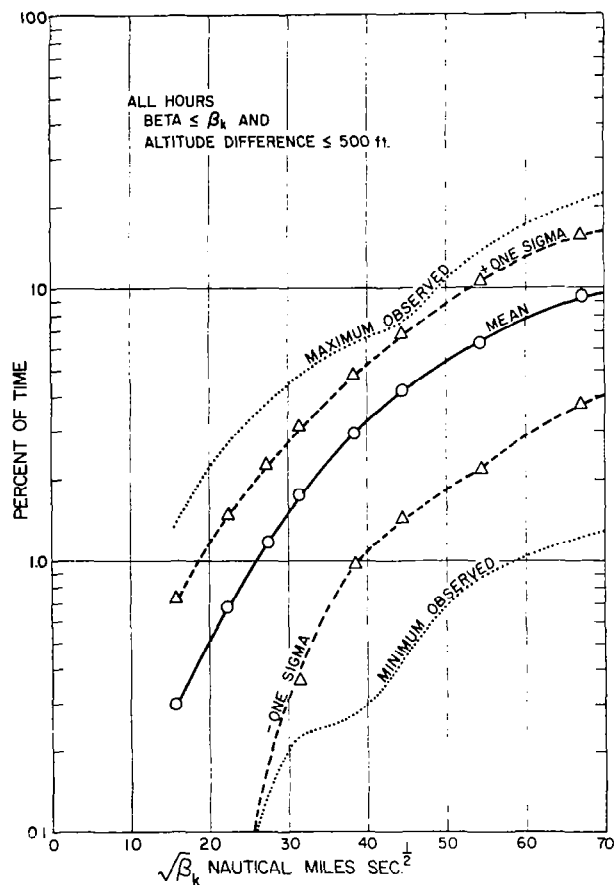


Fig. D-7. Average percent of time that an aircraft was in an encounter defined by $\beta < \beta_k$ and altitude difference < 500 ft. plotted vs. $\sqrt{\beta_k}$ for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

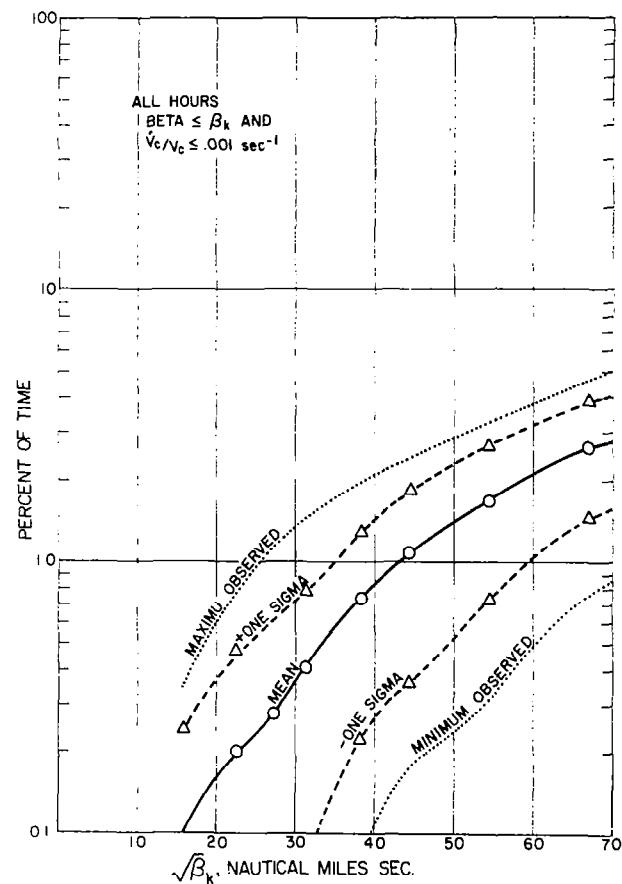


Fig. D-8. Average percent of time that an aircraft was in an encounter defined by $\beta < \beta_k$ and $\dot{R}/R < .001 \text{ sec}^{-1}$ plotted vs. $\sqrt{\beta_k}$ for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

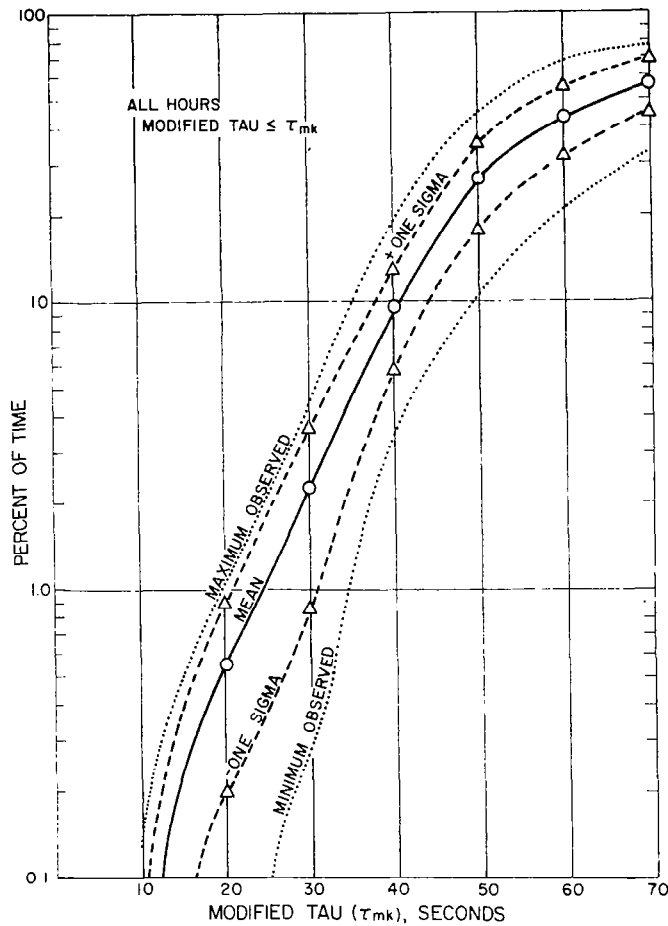


Fig. D-9. Average percent of time that an aircraft was in an encounter defined by modified tau $< \tau_{mk}$ for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

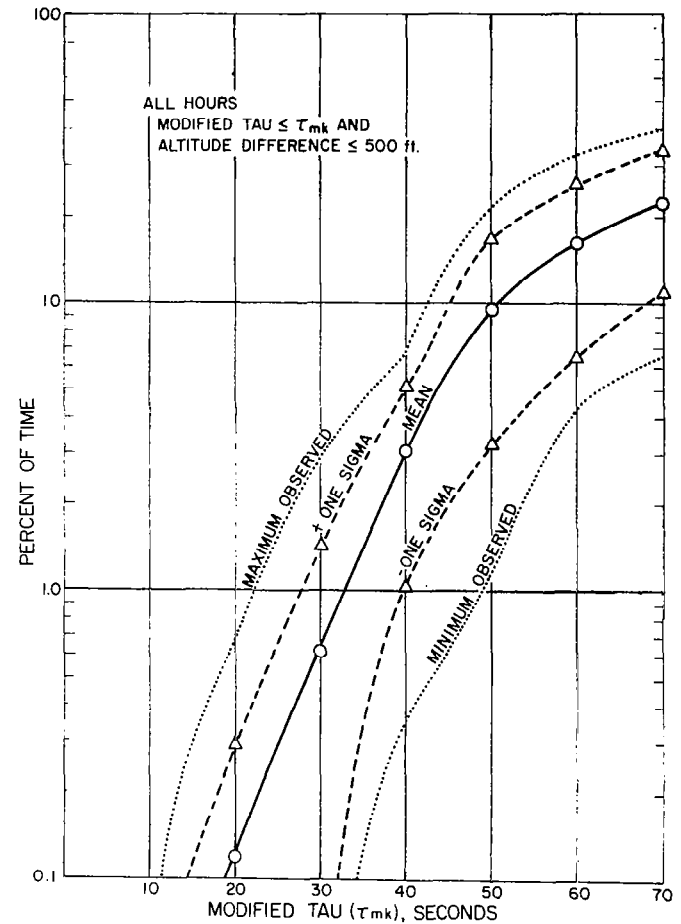


Fig. D-10. Average percent of time that an aircraft was in an encounter defined by modified tau $< \tau_{mk}$ and altitude difference < 500 ft. plotted vs. τ_{mk} for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

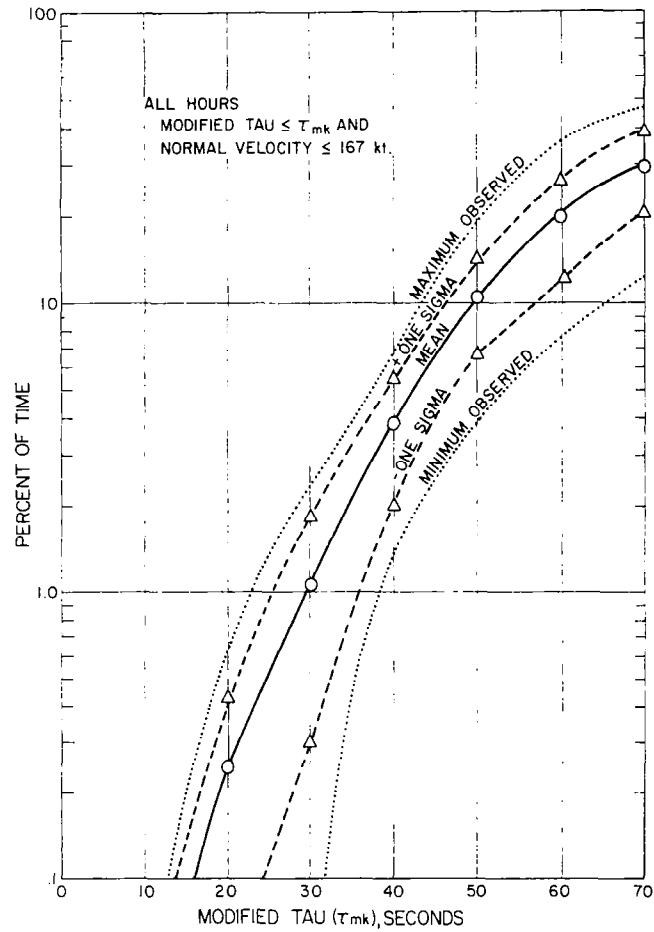


Fig. D-11. Average percent of time that an aircraft was in an encounter defined by modified tau $< \tau_{mk}$ and normal velocity < 167 kt plotted vs. τ_{mk} for all 12 hours of data. Curves showing the mean, \pm one standard deviation, and the maximum and minimum values calculated are shown.

APPENDIX E
DURATIONS OF ENCOUNTER FOR
VARIOUS SPECIFIC ENCOUNTER DEFINITIONS

Tables E-1 through E-12 list the distribution of encounter durations for selected encounter definitions, and for all hours of data. In each table, the average duration for all hours is calculated, and a composite average over all hours and all encounters is listed in the lower right hand corner.

It should be noted that the durations are of necessity calculated in four second intervals, since the data are obtained every four seconds. Thus, a duration 4 seconds corresponds to a single scan encounter, 8 seconds to a two scan encounter, etc.

Figures E-1 through E-4 plot the cumulative distributions of encounter durations for the various warning criteria.

Table E-1. Durations of single threat encounters defined by $R < 4$ nm.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
180 -	9	7.2	9	13.6	34	21.6	6	7.5	3	8.6	5	3.6	13	13.5	10	14.8	24	18.5	41	27.5	2	4.5	18	12.1	14.5	14.1
120 180	11	8.8	3	4.5	11	7.0	14	17.5	3	8.6	10	7.2	14	14.6	9	13.2	6	4.6	14	9.3	2	4.5	13	8.8	9.2	8.9
100 120	9	7.2	4	6.1	8	5.1	6	7.5	5	14.3	8	5.8	5	5.2	1	1.5	6	4.6	6	4.0	0	0	9	6.1	10.1	9.8
80 100	4	3.2	5	7.6	4	2.5	7	8.7	7	20.0	7	5.1	14	14.6	5	7.4	10	7.2	8	5.3	1	2.3	9	6.1	6.8	6.6
60 80	12	9.6	11	16.7	13	8.3	11	13.7	4	11.4	19	13.8	5	5.2	13	19.1	8	6.5	12	8.0	5	11.4	13	8.8	10.5	10.2
40 60	20	16.0	8	12.1	20	12.7	11	13.7	7	20.0	24	17.4	8	8.3	8	11.8	24	18.5	15	10.0	7	15.9	19	12.8	14.2	13.8
36 40	9	7.2	0	0	6	3.8	1	1.2	2	5.7	12	8.7	3	3.1	4	5.9	6	4.6	4	2.7	1	2.3	8	5.4	4.7	4.6
32 36	1	.8	0	0	4	2.5	0	0	1	2.9	0	0	3	3.1	1	1.5	2	1.5	3	2.0	3	6.8	7	4.7	2.1	2.0
28 32	6	4.8	8	12.1	9	5.7	1	1.2	0	0	3	2.2	2	2.1	0	0	4	3.1	2	1.3	2	4.5	5	3.4	3.5	3.4
24 28	4	3.2	2	3.0	4	2.5	0	0	0	0	8	5.8	4	4.2	0	0	5	3.8	7	4.7	0	0	6	4.1	3.3	3.2
20 24	2	1.6	2	3.0	7	4.5	5	6.2	1	2.9	1	.7	5	5.2	2	2.9	2	1.5	2	1.3	3	6.8	5	3.4	3.1	3.0
16 20	5	4.0	2	3.0	11	7.0	2	2.5	0	0	16	11.6	0	0	0	0	3	2.3	7	4.7	3	6.8	5	3.4	4.5	4.4
12 16	6	4.8	1	1.5	8	5.1	4	5.0	2	5.7	2	1.4	9	9.4	2	2.9	9	6.9	3	2.0	4	9.1	7	4.7	4.8	4.7
8 12	7	5.6	5	7.6	2	1.3	4	5.0	0	0	7	5.1	2	2.1	2	2.9	10	7.7	3	2.0	5	11.4	3	2.0	4.2	4.1
4 8	6	4.8	4	6.1	5	3.2	2	2.5	0	0	7	5.1	5	5.2	5	7.4	2	1.5	7	4.7	1	2.3	3	2.0	3.9	3.8
0 4	14	11.2	2	3.0	11	7.0	6	7.5	0	0	9	6.5	4	4.2	6	8.8	9	6.9	16	10.7	5	11.4	18	12.2	8.3	8.1
TOTAL ENCOUNTERS	125		66		157		80		35		138		96		68		130		150		44		148		103	
AVERAGE DURATION	69.9		75.3		104.3		80.9		93.0		62.9		87.7		93.2		104.1		141.5		49.9		89.8		91.7	

Table E-2. Durations of single threat encounters defined by $R < 4$ nm and $|\Delta A| < 500$ ft.

DURATION (SEC) MORE THAN BUT NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N
180 8	0	0	0	0	25	20.7	0	0	1	3.3	0	0	2	4.4	0	0	9	12.2	23	19.4	0	0	12	10.8	6.0	9.5	
120 180	8	9.9	2	7.4	13	10.7	1	2.4	3	10.0	1	2.0	6	13.3	2	5.7	6	8.1	7	5.7	2	12.5	3	2.7	4.5	7.3	
100 120	1	1.2	0	0	8	6.6	0	0	4	13.3	3	5.9	5	11.1	2	5.7	0	0	5	4.1	0	0	6	5.4	2.8	4.5	
80 100	2	2.5	2	7.4	2	1.7	2	4.9	2	6.7	2	3.9	6	13.3	6	17.1	4	5.4	7	5.7	0	0	6	5.4	3.4	5.4	
60 80	13	16.0	0	0	11	9.1	7	17.1	1	3.3	5	9.8	3	6.7	0	0	6	8.1	15	12.3	0	0	12	10.8	6.1	9.7	
40 60	5	18.5	2	7.4	11	9.1	11	26.8	3	10.0	8	15.7	2	4.4	2	5.7	17	23.0	15	12.3	2	12.5	17	15.3	7.9	12.6	
36 40	4	4.9	0	0	4	3.3	0	0	0	0	0	0	1	2.2	0	0	4	5.4	7	5.7	0	0	10	9.0	2.5	4.0	
32 36	0	0	0	0	4	3.3	0	0	0	0	2	3.9	3	6.7	0	0	0	0	3	2.5	2	12.5	8	7.2	1.8	2.9	
28 32	4	4.9	6	22.2	6	5.0	0	0	0	0	0	0	4	11.4	3	4.1	4	4.1	4	3.3	0	0	2	1.8	2.4	3.8	
24 28	3	3.7	0	0	1	.8	0	0	2	6.7	0	0	2	4.4	2	5.7	6	8.1	2	1.6	0	0	4	3.6	1.8	2.9	
20 24	4	4.9	2	7.4	4	3.3	5	12.2	0	0	4	7.8	3	6.7	0	0	4	5.4	4	3.3	0	0	6	5.4	3.0	4.8	
16 20	3	3.7	0	0	7	5.8	2	4.9	6	20.0	6	11.8	0	0	2	5.7	2	2.7	3	2.5	0	0	6	5.4	3.1	4.9	
12 16	0	0	4	14.8	9	7.4	0	0	0	0	1	2.0	2	4.4	2	5.7	2	2.7	6	4.9	4	25.0	6	5.4	3.0	4.8	
8 12	6	7.4	2	7.4	3	2.5	6	14.6	2	6.7	4	7.8	2	4.4	4	11.4	1	1.4	6	4.9	0	0	2	1.8	3.2	5.1	
4 8	6	7.4	3	11.1	0	0	2	4.9	2	6.7	6	11.8	2	4.4	4	11.4	5	6.8	5	4.1	4	25.0	2	1.8	3.4	5.4	
0 4	12	14.8	4	14.8	13	10.7	5	12.2	4	13.3	9	17.6	6	13.3	5	14.3	5	6.8	10	8.2	2	12.5	9	8.1	7.0	11.1	
TOTAL ENCOUNTERS	81		27		121		41		30		51		45		35		74		122		16		111		62.8		
AVERAGE DURATION	49.9		36.1		101.5		41.9		57.7		37.5		68.4		44.5		72.9		101.5		33.5		73.4		71.3		

Table E-3. Durations of single threat encounters defined by $t < 60$ sec.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%		
180 ~	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
120 180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.7	0	0	0	0	0	0	.08	0
100 120	0	0	0	0	0	0	1	1.8	0	0	0	0	2	2.9	0	0	0	0	1	.7	0	0	0	0	0	0	.33	.6
80 100	1	2.0	0	0	0	0	1	1.8	1	4.5	0	0	1	1.5	0	0	0	0	2	1.4	0	0	0	0	0	0	.5	.9
60 80	0	0	4	13.8	2	3.4	3	5.5	2	9.1	4	6.7	1	1.5	4	13.3	2	3.5	5	3.4	0	0	0	0	0	2.25	4.2	
40 60	4	8.2	6	20.7	3	5.2	13	23.6	7	31.8	14	23.3	18	26.5	2	6.7	14	24.6	18	12.4	0	0	4	7.1	8.6	16.0		
36 40	3	6.1	1	3.4	0	0	2	3.6	3	13.6	2	3.3	2	2.9	0	0	10	17.5	8	5.5	0	0	0	0	0	2.6	4.8	
32 36	0	0	0	0	4	6.9	2	3.6	0	0	2	3.3	0	0	2	6.7	2	3.5	8	5.5	2	14.3	2	3.6	2.0	3.7		
28 32	4	8.2	4	13.8	3	5.2	6	10.9	0	0	6	10.0	4	5.9	2	6.7	2	3.5	13	9.0	2	14.3	6	10.7	4.3	8.0		
24 28	4	8.2	0	0	2	3.4	2	3.6	0	0	11	18.3	7	10.3	2	6.7	0	0	10	6.9	0	0	4	7.1	3.7	6.9		
20 24	0	0	2	6.9	1	1.7	3	5.5	0	0	2	3.3	11	16.2	4	13.3	4	7.0	11	7.6	0	0	4	7.1	3.5	6.5		
16 20	4	8.2	3	10.3	0	0	0	0	0	0	2	3.3	4	5.9	0	0	4	7.0	10	6.9	0	0	2	3.6	2.4	4.5		
12 16	4	8.2	2	6.9	4	6.9	8	14.5	0	0	2	3.3	0	0	2	6.7	2	3.5	13	9.0	4	28.6	6	10.7	3.9	7.3		
8 12	2	4.1	2	6.9	6	10.3	2	3.6	3	13.6	2	3.3	4	5.9	6	20.0	5	8.8	10	6.9	2	14.3	12	21.4	4.7	8.8		
4 8	3	6.1	1	3.4	6	10.3	5	9.1	2	9.1	4	6.7	8	11.8	0	0	4	7.0	18	12.4	0	0	6	10.7	4.8	8.9		
0 4	20	40.8	4	13.8	27	46.6	7	12.7	4	18.2	9	15.0	6	8.8	6	20.0	8	14.0	17	11.7	4	28.6	10	17.9	10.2	19.0		
TOTAL ENCOUNTERS	49		29		58		55		22		60		68		30		57		145		14		56		53.7			
AVERAGE DURATION	19.8		31.3		15.7		33.7		36.2		30.7		32.0		26.1		30.7		27.5		17.1		19.0		26.9			

Table E-4. Durations of single threat encounters defined by $\tau < 60$ sec. and $|\Delta A| < 500$ ft.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120 180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80 100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4.7	0	0	0	0	0	0.0	.17	.9
60 80	0	0	0	0	0	0	4	17.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	.33	1.7
40 60	0	0	0	0	0	0	2	8.7	4	22.2	0	0	2	7.1	0	0	2	11.1	4	9.3	0	0	0	0	0.0	1.17	6.3
36 40	2	14.3	0	0	0	0	3	13.0	0	0	0	0	2	7.1	0	0	0	0	0	0	0	0	0	0	0.0	.58	3.1
32 36	0	0	0	0	4	11.8	0	0	1	5.6	0	0	0	0	0	0	0	0	2	4.7	0	0	4	16.7	.91	4.9	
28 32	0	0	0	0	2	5.9	3	13.0	1	5.6	0	0	0	0	0	0	0	0	3	7.0	0	0	4	16.7	1.08	5.8	
24 28	2	14.3	0	0	0	0	1	4.3	1	5.6	0	0	4	14.3	0	0	0	0	3	7.0	0	0	0	0	0.0	.91	4.9
20 24	0	0	0	0	2	5.9	0	0	0	0	2	15.4	6	21.4	0	0	2	11.1	4	9.3	0	0	4	16.7	1.66	9.0	
16 20	2	14.3	0	0	0	0	0	0	0	0	0	0	2	7.1	0	0	2	11.1	7	16.3	2	100.0	0	0	0.0	1.25	6.7
12 16	0	0	2	50.0	2	5.9	2	8.7	4	22.2	2	15.4	2	7.1	0	0	2	11.1	3	7.0	0	0	6	25.0	2.08	11.3	
8 12	2	14.3	0	0	2	5.9	0	0	1	5.6	0	0	2	7.1	0	0	4	22.2	5	11.6	0	0	2	8.3	1.50	8.1	
4 8	0	0	0	0	8	23.5	3	13.0	0	0	0	0	2	7.1	0	0	2	11.1	2	4.7	0	0	2	8.3	1.58	8.5	
0 4	6	42.9	2	50.0	14	41.2	5	21.7	6	33.3	9	69.2	6	21.4	0	0	4	22.2	8	18.6	0	0	2	8.3	5.16	28.0	
TOTAL ENCOUNTERS	14		4		34		23		18		13		28		0		18		43		2		24		18.4		
AVERAGE DURATION	16.0		10.0		12.7		32.0		22.9		18.9		20.0		-		16.0		23.8		20.0		21.3		20.4		

Table E-5. Durations of single threat encounters defined by $\tau < 60$ sec.
and $V_n < 60$ kt.

DURATION (SEC)	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	1	3.7	0	0	0	0	0	0	0	0	0	0	0	.1	.7
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	4	14.3	0	0	0	0	2	7.4	0	0	2	8.3	0	0	0	0	0	0	0	.7	5.0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	2	12.5	0	0	0	0	0	0	0	0	0	0	0	0	0	.2	1.4
28	0	0	0	0	0	0	0	0	2	20.0	2	12.5	0	0	0	0	0	0	0	0	0	0	0	0	0	.3	2.1
24	0	0	2	25.0	0	0	6	21.4	0	0	2	12.5	0	0	0	0	0	0	0	0	0	0	2	28.6	1.0	7.1	
20	2	100.0	0	0	0	0	0	0	2	20.0	0	0	2	7.4	0	0	0	0	0	0	0	0	0	0	0	.5	3.5
16	0	0	0	0	0	0	2	7.1	0	0	0	0	0	0	0	2	8.3	0	0	0	0	0	0	0	.3	2.1	
12	0	0	0	0	2	12.5	4	14.3	2	20.0	0	0	6	22.2	0	0	4	16.7	4	13.3	0	0	0	0	1.9	13.5	
8	0	0	2	25.0	2	12.5	0	0	0	0	2	12.5	0	0	4	100.0	2	8.3	0	0	0	0	0	0	1.0	7.1	
4	0	0	2	25.0	0	0	6	21.4	0	0	0	0	0	0	0	0	4	16.7	6	20.0	0	0	0	0	1.5	10.6	
0	0	0	2	25.0	12	75.0	6	21.4	4	40.0	8	50.0	16	59.3	0	0	10	41.7	20	66.7	0	0	5	71.4	6.9	49.2	
TOTAL ENCOUNTERS	2		8		16		28		10		16		27		0		24		30		0		7		14.0		
AVERAGE DURATION	240		13.0		6.4		18.9		16.0		15.5		15.0		-		12.7		6.4		-		10.9		12.9		

Table E-6. Durations of single threat encounters by $B < 1000$.

DURATION (SEC)	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES			
	MORE THAN	BUT NOT MORE THAN	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	180	0	0	0	0	0	0	0	0	0	1	1.8	0	0	2	6.1	0	0	1	1.5	0	0	0	0	0	0	.33	.5
100	120	0	0	0	0	0	0	2	3.8	2	5.6	2	3.5	1	1.4	0	0	0	0	2	1.1	0	0	0	0	0	.75	1.1
80	100	0	0	0	0	1	1.2	1	1.9	1	2.8	1	1.8	4	5.6	0	0	0	0	2	1.1	0	0	0	0	0	.83	1.3
60	80	1	1.7	0	0	2	2.4	14	26.4	0	0	1	1.8	3	4.2	1	3.0	3	4.2	5	2.7	0	0	0	0	0	2.5	3.8
40	60	11	18.6	4	10.3	8	9.4	15	28.3	8	22.2	10	17.5	19	26.4	6	18.2	7	9.7	22	11.8	0	0	5	5.8	9.6	14.6	
36	40	1	1.7	1	2.6	2	2.4	2	3.8	2	5.6	3	5.3	0	0	0	0	9	12.5	6	3.2	0	0	4	4.7	2.5	3.8	
32	36	3	5.1	5	12.8	2	2.4	2	3.8	3	8.3	7	12.3	1	1.4	4	12.1	2	2.8	14	7.5	2	16.7	8	9.3	4.4	6.7	
28	32	3	5.1	2	5.1	3	3.5	0	0	0	0	7	12.3	3	4.2	2	6.1	4	5.6	19	10.2	2	16.7	0	0	3.8	5.8	
24	28	5	8.5	4	10.3	1	1.2	3	5.7	2	5.6	2	3.5	2	2.8	1	3.0	4	5.6	9	4.8	4	33.3	10	11.6	3.9	5.9	
20	24	3	5.1	4	10.3	10	11.8	2	3.8	4	11.1	0	0	4	5.6	7	21.2	9	12.5	16	8.6	0	0	6	7.0	5.4	8.2	
16	20	4	6.8	4	10.3	9	10.6	0	0	0	0	4	7.0	6	8.3	1	3.0	4	5.6	20	10.8	0	0	10	11.6	5.2	7.9	
12	16	1	1.7	0	0	8	9.4	8	15.1	0	0	9	15.8	2	2.8	0	0	14	19.4	22	11.8	0	0	14	16.3	6.5	9.9	
8	12	5	8.5	11	28.2	6	7.1	1	1.9	0	0	4	7.0	5	6.9	4	12.1	4	5.6	15	8.1	0	0	11	12.8	5.5	8.4	
4	8	7	11.9	0	0	11	12.9	2	3.8	4	11.1	0	0	12	16.7	2	6.1	4	5.6	9	4.8	0	0	2	2.3	4.4	6.7	
0	4	15	25.4	4	10.3	22	25.9	1	1.9	10	27.8	6	10.5	10	13.9	3	9.1	8	11.1	24	12.9	4	33.3	16	18.6	10.2	15.5	
TOTAL ENCOUNTERS		59		39		85		53		36		57		72		33		72		186		12		86		65.8		
AVERAGE DURATION		21.9		24.0		19.7		46.6		30.8		34.2		31.4		33.1		25.8		27.3		22.0		20.7		27.5		

Table E-7. Durations of single threat encounters defined by $\beta < 1000$ and $|\Delta A| < 500$ ft.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180 ∞	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120 180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 120	0	0	0	0	0	0	2	11.8	0	0	0	0	0	0	0	0	0	0	1	1.2	0	0	0	0	.25	0.8	
80 100	0	0	0	0	1	1.5	0	0	1	4.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.16	0.6	
60 80	0	0	0	0	1	1.5	5	29.4	0	0	0	0	0	0	0	0	0	0	1	1.2	0	0	0	0	.58	2.0	
40 60	4	20.0	0	0	2	3.1	5	29.4	6	25.0	0	0	2	7.1	0	0	0	0	5	6.2	0	0	0	0	2.0	7.1	
36 40	0	0	0	0	0	0	1	5.9	2	8.3	0	0	0	0	0	0	0	2	7.1	1	1.2	0	0	2	3.6	.67	2.3
32 36	2	10.0	0	0	2	3.1	0	0	0	0	0	0	0	0	0	0	0	0	2	2.5	0	0	4	7.1	.83	2.9	
28 32	2	10.0	2	50.0	3	4.6	1	5.9	1	4.2	0	0	0	0	2	100.0	2	7.1	5	6.2	0	0	2	3.6	1.7	6.0	
24 28	0	0	0	0	0	0	0	0	0	0	0	0	2	7.1	0	0	0	0	4	4.9	2	33.3	4	7.1	1.0	3.5	
20 24	2	10.0	0	0	8	12.3	0	0	2	8.3	0	0	2	7.1	0	0	2	7.1	11	13.6	0	0	6	10.7	2.75	9.8	
16 20	2	10.0	0	0	6	9.2	1	5.9	4	16.7	2	33.3	2	7.1	0	0	2	7.1	8	9.9	0	0	4	7.1	2.6	9.2	
12 16	0	0	0	0	8	12.3	0	0	2	8.3	2	33.3	2	7.1	0	0	12	42.9	16	19.8	0	0	10	17.9	4.3	15.3	
8 12	2	10.0	2	50.0	4	6.2	0	0	0	0	0	0	4	14.3	0	0	4	14.3	14	17.3	2	33.3	8	14.3	3.3	11.7	
4 8	2	10.0	0	0	12	18.5	2	11.8	2	8.3	0	0	8	28.6	0	0	0	0	4	4.9	2	33.3	4	7.1	3.0	10.7	
0 4	4	20.0	0	0	18	27.7	0	0	4	16.7	2	33.3	6	21.4	0	0	4	14.3	9	11.1	0	0	12	21.4	4.9	17.5	
TOTAL ENCOUNTERS	20		4		65		17		24		6		28		2		28		81		6		56		28.0		
AVERAGE DURATION	22.8		22.0		16.6		56.9		28.8		13.3		14.9		32.0		17.4		21.4		16.0		17.1		21.1		

Table E-8. Durations of single threat encounters defined by $\beta < 1000$
and $V_c/V_c < .001 \text{ sec}^{-1}$.

DURATION (SEC)	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180 8	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
120 180	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
100 120	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
80 100	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
60 80	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
40 60	0	-	0	0	0	0	4	12.5	0	0	0	0	0	0	0	0	2	10.0	0	0	0	-	0	0	.5	3.6	
36 40	0	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0
32 36	0	-	0	0	1	9.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	.1	.7	
28 32	0	-	0	0	0	0	2	6.2	0	0	0	0	2	10.0	0	0	0	0	0	0	0	-	0	0	.3	2.1	
24 28	0	-	0	0	0	0	2	6.2	0	0	2	14.3	0	0	0	0	0	0	0	0	0	-	0	0	.3	2.1	
20 24	0	-	0	0	1	9.1	2	6.2	2	20.0	4	28.6	2	10.0	0	0	0	0	0	0	0	-	0	0	.9	6.5	
16 20	0	-	0	0	2	18.2	4	12.5	2	20.0	0	0	0	0	2	100.0	0	0	2	5.6	0	-	0	0	1.0	7.2	
12 16	0	-	0	0	0	0	4	12.5	2	20.0	0	0	2	10.0	0	0	2	10.0	4	11.1	0	-	2	20.0	1.3	9.4	
8 12	0	-	0	0	2	18.2	2	6.2	0	0	0	0	2	10.0	0	0	4	20.0	2	5.6	0	-	2	20.0	1.1	8.0	
4 8	0	-	6	60.0	2	18.2	2	6.2	2	20.0	0	0	2	10.0	0	0	2	10.0	2	5.6	0	-	0	0	1.5	10.9	
0 4	0	-	4	40.0	3	27.3	10	31.2	2	20.0	8	57.1	10	50.0	0	0	10	50.0	26	72.2	0	-	6	60.0	6.5	47.4	
TOTAL ENCOUNTERS	0		10		11		32		10		14		20		2		20		36		0		10		13.7		
AVERAGE DURATION	-		6.4		13.8		18.2		14.4		13.1		11.2		20.0		11.2		6.9		-		8.0		11.7		

Table E-9. Durations of single threat encounters defined by $\tau_m < 35$ sec for all hours of data.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180 ∞	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120 180	0	0	0	0	0	0	2	3.8	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	0	0	.33	.06
100 120	0	0	0	0	0	0	2	3.8	0	0	1	1.9	1	1.7	2	5.9	0	0	1	.6	0	0	0	0	0	.6	1.1
80 100	1	2.1	0	0	0	0	1	1.9	4	16.0	1	1.9	0	0	0	0	0	0	1	.6	0	0	2	3.1	.8	1.5	
60 80	0	0	0	0	2	2.9	5	9.4	1	4.0	3	5.7	6	10.0	0	0	2	3.6	4	2.6	0	0	0	0	1.9	3.4	
40 60	6	12.5	5	15.6	5	7.1	12	22.6	7	28.0	10	18.9	12	20.0	5	14.7	14	25.5	20	13.0	0	0	4	6.2	8.3	15.0	
36 40	4	8.3	5	15.6	0	0	0	0	0	0	4	7.5	4	6.7	1	2.9	2	3.6	7	4.5	0	0	2	3.1	2.4	4.4	
32 36	0	0	1	3.1	9	12.9	4	7.5	1	4.0	5	9.4	4	6.7	1	2.9	2	3.6	12	7.8	0	0	2	3.1	3.4	6.2	
28 32	3	6.2	0	0	2	2.9	4	7.5	2	8.0	4	7.5	10	16.7	4	11.8	4	7.3	18	11.7	2	14.3	4	6.2	4.8	8.7	
24 28	6	12.5	2	6.2	0	0	4	7.5	0	0	6	11.3	0	0	3	8.8	10	18.2	6	3.9	0	0	6	9.4	3.6	6.5	
20 24	2	4.2	6	18.7	2	2.9	7	13.2	2	8.0	4	7.5	2	3.3	0	0	1	1.8	9	5.8	4	28.6	4	6.2	3.6	6.5	
16 20	3	6.2	0	0	2	2.9	0	0	0	0	0	0	4	6.7	4	11.8	2	3.6	7	4.5	0	0	4	6.2	2.2	4.0	
12 16	3	6.2	3	9.4	7	10.0	6	11.3	2	8.0	4	7.5	2	3.3	0	0	6	10.9	13	8.4	0	0	9	14.1	4.6	8.3	
8 12	1	2.1	0	0	2	2.9	1	1.9	0	0	4	7.5	5	8.3	4	11.8	4	7.3	10	6.5	2	14.3	4	6.2	3.1	5.6	
4 8	5	10.4	4	12.5	10	14.3	3	5.7	2	8.0	2	3.8	4	6.7	4	11.8	4	7.3	16	10.4	0	0	4	6.2	4.8	8.7	
0 4	14	29.2	6	18.7	29	41.4	2	3.8	4	16.0	5	9.4	6	10.0	6	17.6	4	7.3	28	18.2	6	42.9	19	29.7	10.8	19.6	
TOTAL ENCOUNTERS	48		32		70		53		25		53		60		34		55		154		14		64		55.2		
AVERAGE DURATION	22.7		25.7		17.2		43.0		38.7		34.2		34.8		27.9		29.3		26.6		14.9		20.6		27.9		

Table E-10. Durations of single threat encounters defined by $t_m < 35$ sec and $|\Delta A| < 500$ ft.

DURATION (SEC) MORE BUT THAN NOT MORE THAN	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180 ∞	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120 180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100 120	0	0	0	0	0	0	2	11.1	0	0	0	0	0	0	0	0	0	0	1	1.8	0	0	0	0	0	.2	.9
80 100	0	0	0	0	0	0	1	5.6	1	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.2	.9
60 80	0	0	0	0	0	0	5	27.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.4	1.9
40 60	2	14.3	0	0	4	8.7	2	11.1	6	33.3	0	0	2	11.1	0	0	0	0	4	7.0	0	0	0	0	0	1.7	8.1
36 40	2	14.3	0	0	0	0	0	0	0	0	0	0	2	11.1	0	0	2	9.1	1	1.8	0	0	2	5.3	.8	3.8	
32 36	0	0	0	0	4	8.7	1	5.6	0	0	0	0	2	11.1	0	0	0	0	2	3.5	0	0	2	5.3	.9	4.3	
28 32	2	14.3	0	0	0	0	2	11.1	1	5.6	0	0	2	11.1	0	0	0	0	5	8.8	0	0	2	5.3	1.2	5.7	
24 28	2	14.3	0	0	0	0	0	0	2	11.1	0	0	0	0	2	50.0	2	9.1	3	5.3	0	0	2	5.3	1.1	5.2	
20 24	0	0	2	2	2	4.3	0	0	0	0	0	0	2	11.1	0	0	0	0	3	5.3	0	0	4	10.5	1.1	5.2	
16 20	0	0	0	0	2	4.3	1	5.6	2	11.1	0	0	2	11.1	0	0	2	9.1	6	10.5	0	0	4	10.5	1.6	7.6	
12 16	2	14.3	0	0	4	8.7	2	11.1	4	22.2	0	0	0	0	0	0	4	18.2	7	12.3	0	0	2	5.3	2.1	10.0	
8 12	0	0	0	0	2	4.3	0	0	0	0	2	20.0	2	11.1	0	0	4	18.2	3	5.3	2	50.0	2	5.3	1.5	7.1	
4 8	0	0	0	0	6	13.0	2	11.1	0	0	2	20.0	0	0	0	0	4	18.2	5	8.8	0	0	4	10.5	1.9	9.0	
0 4	4	28.6	0	0	22	47.8	0	0	2	11.1	6	60.0	4	22.2	2	50.0	4	18.2	17	29.8	2	50.0	14	36.8	6.4	30.6	
TOTAL ENCOUNTERS	14		2		46		18		18		10		18		4		22		57		4		38		20.9		
AVERAGE DURATION	24.6		24.0		14.6		52.4		32.4		6.4		24.0		16.0		15.3		19.5		8.0		15.6		20.8		

Table E-11. Durations of single threat encounters defined by $\tau_m < 35$ sec and $V_n < 167$ kt.

DURATION (SEC)	HOUR 2		HOUR 3		HOUR 4		HOUR 5		HOUR 6		HOUR 7		HOUR 8		HOUR 9		HOUR 10		HOUR 11		HOUR 12		HOUR 13		AVG. VALUES		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
180 ∞	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120 180	0	0	0	0	0	0	2	3.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.2	.4
100 120	0	0	0	0	0	0	0	0	0	0	0	0	1	2.0	2	9.5	0	0	0	0	0	0	0	0	0	.2	.5
80 100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5.0	.1	.2	
60 80	0	0	0	0	0	0	2	3.6	0	0	3	6.7	4	8.2	0	0	2	5.4	2	1.8	0	0	0	0	1.1	2.7	
40 60	0	0	2	6.7	4	9.5	7	12.7	3	13.0	1	2.2	8	16.3	0	0	2	5.4	2	1.8	0	0	1	2.5	2.5	6.1	
36 40	2	7.7	0	0	0	0	2	3.6	0	0	0	0	0	0	2	9.5	0	0	1	.9	0	0	1	2.5	.7	1.7	
32 36	0	0	0	0	4	9.5	2	3.6	0	0	4	8.9	6	12.2	0	0	2	5.4	7	6.1	0	0	0	0	2.1	5.1	
28 32	4	15.4	0	0	0	0	6	10.9	3	13.0	4	8.9	0	0	1	4.8	1	2.7	3	2.6	0	0	0	0	1.8	4.4	
24 28	4	15.4	0	0	0	0	3	5.5	3	13.0	0	0	0	0	1	4.8	0	0	3	2.6	0	0	4	10.0	1.5	3.6	
20 24	0	0	0	0	0	0	6	10.9	2	8.7	0	0	0	0	0	0	6	16.2	5	4.4	0	0	0	0	1.5	3.6	
16 20	0	0	4	13.3	0	0	4	7.3	2	8.7	4	8.9	4	8.2	2	9.5	3	8.1	6	5.3	2	33.3	0	0	2.5	6.1	
12 16	0	0	2	6.7	0	0	1	1.8	4	17.4	3	6.7	6	12.2	3	14.3	0	0	3	2.6	0	0	4	10.0	2.1	5.1	
8 12	0	0	2	6.7	4	9.5	4	7.3	2	8.7	6	13.3	9	18.4	2	9.5	4	10.8	15	13.2	0	0	1	2.5	4.0	9.8	
4 8	0	0	2	6.7	6	14.3	5	9.1	0	0	6	13.3	4	8.2	0	0	4	10.8	22	19.3	0	0	6	15.0	4.5	10.0	
0 4	16	61.5	18	60.0	24	57.1	11	20.0	4	17.4	14	31.1	7	14.3	8	38.1	13	35.1	45	39.5	4	66.7	21	52.5	15.4	37.9	
TOTAL ENCOUNTERS	26		30		42		55		23		45		49		21		37		114		6		40		40.6		
AVERAGE DURATION	14.8		10.7		13.3		28.3		22.4		18.8		26.8		23.8		17.9		13.3		9.3		14.3		18.0		

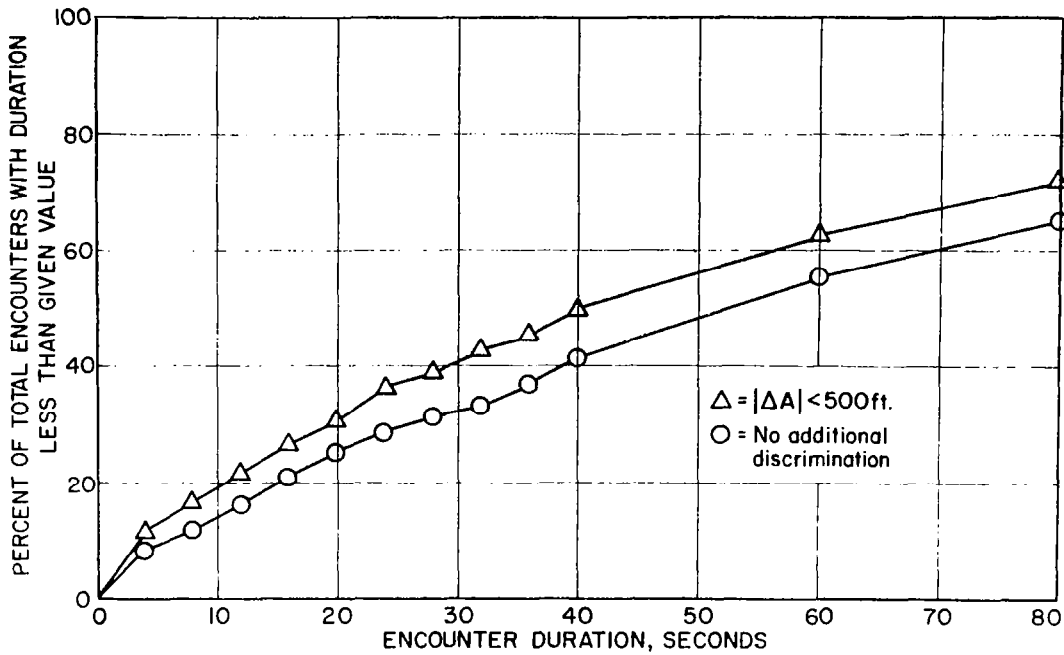


Fig. E-1. Cumulative distribution of encounter durations with an encounter defined by range < 4 nm and additional discrimination as indicated -- all hours combined.

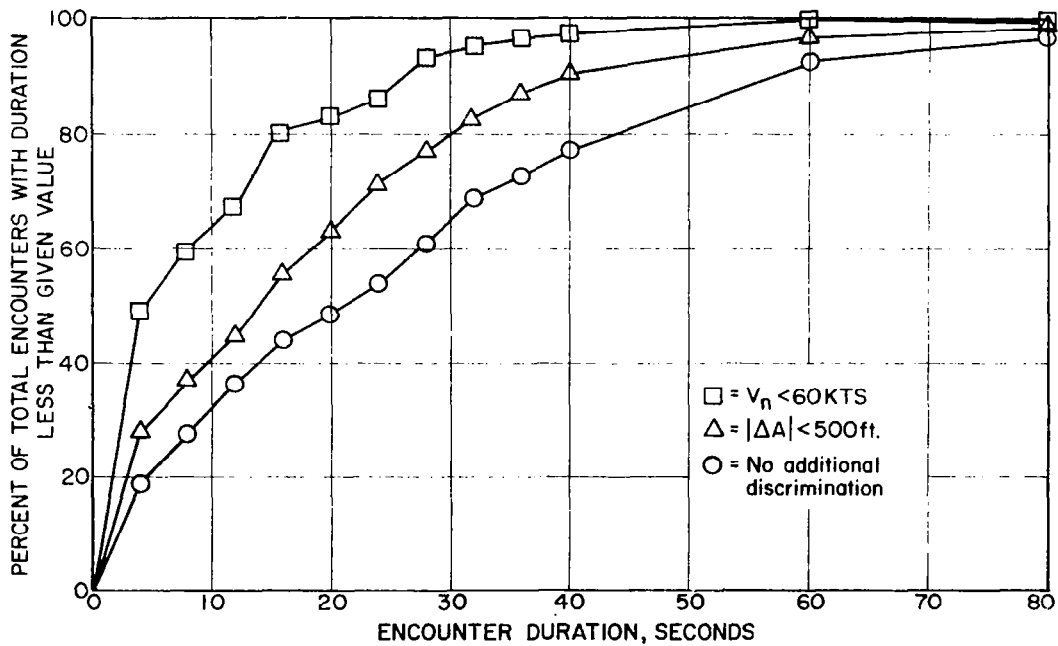


Fig. E-2. Cumulative distribution of encounter durations with an encounter defined by $\tau < \text{secs}$ and additional discrimination as indicated -- all hours combined.

Table F-1. Summary of encounter statistics for warning criteria as shown. Data is from hour 2. The total flying time recorded this hour was 536 minutes and the average flying time was 12.8 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2 \text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 125 $t = 69.9$ $\mu = .23$ Pr = .95 P = .27	N = 49 $t = 19.8$ $\mu = .091$ Pr = .69 P = .03	N = 59 $t = 21.9$ $\mu = .11$ Pr = .75 P = .040	N = 48 $t = 22.7$ $\mu = .089$ Pr = .68 P = .034
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 81 $t = 49.9$ $\mu = .15$ Pr = .86 P = .12	N = 14 $t = 16.0$ $\mu = .026$ Pr = .28 P = .007	N = 20 $t = 22.8$ $\mu = .037$ Pr = .38 P = .014	N = 14 $t = 24.6$ $\mu = .026$ Pr = .28 P = .010
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60$; $V_n < 60$ $R^2\tau < 1000$; $\ddot{R}/\dot{R} < .001$	N/A	N = 2 $t = 24.0$ $\mu = .003$ Pr = .04 P = .001	N = 0 $t = -$ $\mu = 0$ Pr = 0 P = 0	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 26 $t = 14.8$ $\mu = .048$ Pr = .46 P = .011

Table F-2. Summary of encounter statistics for warning criteria as shown. Data is from hour 3. The total flying time recorded this hour was 360 minutes and the average flying time was 6.2 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 66 $t = 75.3$ $\mu = .18$ Pr = .68 P = .23	N = 29 $t = 31.3$ $\mu = .081$ Pr = .39 P = .041	N = 39 $t = 24.0$ $\mu = .11$ Pr = .49 P = .043	N = 32 $t = 25.7$ $\mu = .089$ Pr = .42 P = .037
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 27 $t = 36.1$ $\mu = .075$ Pr = .37 P = .045	N = 4 $t = 10.0$ $\mu = .011$ Pr = .07 P = .002	N = 4 $t = 22.0$ $\mu = .011$ Pr = .07 P = .004	N = 2 $t = 24.0$ $\mu = .006$ Pr = .03 P = .002
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/R < .001$	N/A	N = 8 $t = 13.0$ $\mu = .022$ Pr = .13 P = .004	N = 10 $t = 6.4$ $\mu = .028$ Pr = .16 P = .003	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 30 $t = 10.7$ $\mu = .083$ Pr = .40 P = .012

Table F-3. Summary of encounter statistics for warning criteria as shown. Data is from hour 4. The total flying time recorded this hour was 841 minutes and the average flying time was 14.5 minutes. Nomenclature for the table is given on p. 265

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2 \text{ sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONF	N = 157 $t = 104$ $\mu = .19$ Pr = .93 P = .32	N = 58 $t = 15.7$ $\mu = .069$ Pr = .63 P = .017	N = 85 $t = 19.7$ $\mu = .10$ Pr = .77 P = .032	N = 70 $t = 17.2$ $\mu = .083$ Pr = .70 P = .024
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 121 $t = 101$ $\mu = .14$ Pr = .88 P = .24	N = 34 $t = 12.7$ $\mu = .040$ Pr = .44 P = .008	N = 65 $t = 16.6$ $\mu = .077$ Pr = .67 P = .021	N = 46 $t = 14.6$ $\mu = .055$ Pr = .55 P = .013
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 16 $t = 6.5$ $\mu = .019$ Pr = .24 P = .002	N = 11 $t = 13.8$ $\mu = .013$ Pr = .17 P = .002	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 42 $t = 13.3$ $\mu = .050$ Pr = .52 P = .010

Table F-4. Summary of encounter statistics for warning criteria as shown. Data is from hour 5. The total flying time recorded this hour was 496 minutes and the average flying time was 7.8 minutes. Nomenclature for the table is given on p. 265

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 80 t = 80.9 $\mu = .16$ Pr = .72 P = .21	N = 55 t = 33.7 $\mu = .11$ Pr = .58 P = .061	N = 53 t = 46.6 $\mu = .11$ Pr = .57 P = .081	N = 53 t = 43.0 $\mu = .11$ Pr = .57 P = .075
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 41 t = 41.9 $\mu = .083$ Pr = .47 P = .057	N = 23 t = 32.0 $\mu = .046$ Pr = .30 P = .024	N = 17 t = 56.9 $\mu = .034$ Pr = .23 P = .031	N = 18 t = 52.4 $\mu = .036$ Pr = .25 P = .030
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 28 t = 18.9 $\mu = .056$ Pr = .35 P = .013	N = 32 t = 18.2 $\mu = .064$ Pr = .39 P = .014	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 55 t = 28.3 $\mu = .111$ Pr = .58 P = .040

Table F-5. Summary of encounter statistics for warning criteria as shown. Data is from hour 6. The total flying time recorded this hour was 238 minutes and the average flying time was 6.1 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 35 t = 93.0 $\mu = .15$ Pr = .59 P = .23	N = 22 t = 36.2 $\mu = .092$ Pr = .43 P = .055	N = 36 t = 30.8 $\mu = .151$ Pr = .60 P = .076	N = 25 t = 38.7 $\mu = .105$ Pr = .47 P = .068
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 30 t = 57.7 $\mu = .13$ Pr = .54 P = .12	N = 18 t = 22.9 $\mu = .076$ Pr = .37 P = .029	N = 24 t = 28.8 $\mu = .101$ Pr = .46 P = .047	N = 18 t = 32.4 $\mu = .076$ Pr = .37 P = .041
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; v_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 10 t = 16.0 $\mu = .042$ Pr = .23 P = .008	N = 10 t = 14.4 $\mu = .042$ Pr = .23 P = .007	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $v_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 23 t = 22.4 $\mu = .097$ Pr = .45 P = .030

Table F-6. Summary of encounter statistics for warning criteria as shown. Data is from hour 7. The total flying time recorded this hour was 567 minutes and the average flying time was 7.8 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2 \text{ sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 138 $t = 62.9$ $\mu = .24$ Pr = .85 P = .25	N = 60 $t = 30.7$ $\mu = .11$ Pr = .44 P = .052	N = 57 $t = 34.2$ $\mu = .10$ Pr = .54 P = .055	N = 53 $t = 34.2$ $\mu = .093$ Pr = .52 P = .052
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 51 $t = 37.5$ $\mu = .090$ Pr = .50 P = .056	N = 13 $t = 8.9$ $\mu = .023$ Pr = .16 P = .034	N = 6 $t = 13.3$ $\mu = .011$ Pr = .08 P = .002	N = 10 $t = 6.4$ $\mu = .018$ Pr = .13 P = .002
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/R < .001$	N/A	N = 16 $t = 15.5$ $\mu = .028$ Pr = .20 P = .005	N = 14 $t = 13.1$ $\mu = .025$ Pr = .18 P = .004	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 45 $t = 18.8$ $\mu = .079$ Pr = .46 P = .019

Table F-7. Summary of encounter statistics for warning criteria as shown. Data is from hour 8. The total flying time recorded this hour was 510 minutes and the average flying time was 8.9 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 96 t = 87.7 $\mu = .19$ Pr = .81 P = .27	N = 68 t = 32.0 $\mu = .13$ Pr = .69 P = .069	N = 72 t = 31.4 $\mu = .14$ Pr = .71 P = .073	N = 60 t = 34.8 $\mu = .12$ Pr = .65 P = .067
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 45 t = 68.4 $\mu = .09$ Pr = .54 P = .10	N = 28 t = 20.0 $\mu = .055$ Pr = .39 P = .018	N = 28 t = 14.9 $\mu = .055$ Pr = .39 P = .014	N = 18 t = 24.0 $\mu = .035$ Pr = .27 P = .014
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 27 t = 15.0 $\mu = .053$ Pr = .38 P = .010	N = 20 t = 11.2 $\mu = .039$ Pr = .30 P = .006	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 49 t = 26.8 $\mu = .096$ Pr = .58 P = .035

Table F-8. Summary of encounter statistics for warning criteria as shown. Data is from hour 9. The total flying time recorded this hour was 437 minutes and the average flying time was 7.5 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2 \text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 68 t = 93.2 $\mu = .16$ Pr = .69 P = .24	N = 30 t = 26.1 $\mu = .069$ Pr = .40 P = .029	N = 33 t = 33.1 $\mu = .076$ Pr = .43 P = .041	N = 34 t = 27.9 $\mu = .078$ Pr = .44 P = .035
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 35 t = 44.5 $\mu = .08$ Pr = .45 P = .059	N = 0 t = - $\mu = 0$ Pr = 0 P = 0	N = 2 t = 32.0 $\mu = .005$ Pr = .03 P = .002	N = 4 t = 16.0 $\mu = .009$ Pr = .07 P = .002
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 4 t = 12.0 $\mu = .009$ Pr = .07 P = .002	N = 2 t = 20.0 $\mu = .005$ Pr = .03 P = .002	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 21 t = 23.8 $\mu = .048$ Pr = .30 P = .017

Table F-9. Summary of encounter statistics for warning criteria as shown. Data is from hour 10. The total flying time recorded this hour was 742 minutes and the average flying time was 11.8 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 130 t = 104 $\mu = .18$ Pr = .87 P = .21	N = 57 t = 30.7 $\mu = .077$ Pr = .60 P = .039	N = 72 t = 25.8 $\mu = .097$ Pr = .68 P = .041	N = 55 t = 29.3 $\mu = .074$ Pr = .58 P = .036
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 74 t = 72.9 $\mu = .10$ Pr = .69 P = .12	N = 18 t = 16.0 $\mu = .021$ Pr = .22 P = .006	N = 28 t = 17.4 $\mu = .038$ Pr = .64 P = .011	N = 22 t = 15.3 $\mu = .030$ Pr = .31 P = .007
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/R < .001$	N/A	N = 24 t = 12.7 $\mu = .032$ Pr = .32 P = .006	N = 20 t = 11.2 $\mu = .027$ Pr = .27 P = .005	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 37 t = 17.9 $\mu = .050$ Pr = .44 P = .013

Table F-10. Summary of encounter statistics for warning criteria as shown. Data is from hour 12. The total flying time recorded this hour was 298 minutes and the average flying time was 5.7 minutes. Nomenclature for the table is given on p. 265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 44 t = 49.9 $\mu = .15$ Pr = .57 P = .12	N = 14 t = 17.1 $\mu = .047$ Pr = .24 P = .013	N = 12 t = 22.0 $\mu = .04$ Pr = .21 P = .014	N = 14 t = 14.9 $\mu = .047$ Pr = .23 P = .012
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = .16 t = 33.5 $\mu = .054$ Pr = .26 P = .030	N = 2 t = 20.0 $\mu = .007$ Pr = .04 P = .002	N = 6 t = 16.0 $\mu = .020$ Pr = .11 P = .005	N = 4 t = 8.0 $\mu = .013$ Pr = .07 P = .002
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 0 t = - $\mu = 0$ Pr = 0 P = 0	N = 0 t = - $\mu = 0$ Pr = 0 P = 0	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 6 t = 9.3 $\mu = .020$ Pr = .11 P = .003

Table F-11. Summary of encounter statistics for warning criteria as shown. Data is from hour 13. The total flying time recorded this hour was 717 minutes and the average flying time was 14.9 minutes. Nomenclature for the table is given on p.265.

ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2 \text{ sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 148 $t = 89.8$ $\mu = .21$ Pr = .95 P = .30	N = 56 $t = 19.0$ $\mu = .078$ Pr = .69 P = .024	N = 86 $t = 20.7$ $\mu = .12$ Pr = .83 P = .041	N = 64 $t = 20.6$ $\mu = .089$ Pr = .74 P = .030
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 111 $t = 73.4$ $\mu = .15$ Pr = .90 P = .19	N = 24 $t = 21.3$ $\mu = .033$ Pr = .39 P = .011	N = 56 $t = 17.1$ $\mu = .078$ Pr = .69 P = .022	N = 38 $t = 15.6$ $\mu = .053$ Pr = .55 P = .014
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; \ddot{R}/\dot{R} < .001$	N/A	N = 7 $t = 10.9$ $\mu = .010$ Pr = .14 P = .002	N = 10 $t = 8.0$ $\mu = .014$ Pr = .19 P = .002	N/A
MODIFIED TAU-NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 40 $t = 14.3$ $\mu = .056$ Pr = .57 P = .012

Table F-12. Summary of encounter statistics for warning criteria as shown. Data is the average of all 12 hours. The total flying time recorded was 119 hours and the average flying time was 9.75 minutes. Nomenclature for the table is given on p.265 .

·ADDITIONAL DISCRIMINATION	WARNING CRITERIA			
	RANGE $R < 4 \text{ nm}$	TAU $\tau < 60 \text{ sec}$	BETA $R^2\tau < 1000$ $(\text{nm})^2\text{sec}$	MOD. TAU $\tau_m < 35 \text{ sec}$
NONE	N = 103.1 t = 87.8 $\mu = .19$ Pr = .84 P = .26	N = 53.1 t = 26.8 $\mu = .097$ Pr = .61 P = .0425	N = 65.8 t = 28.2 $\mu = .12$ Pr = .69 P = .054	N = 55 t = 28 $\mu = .10$ Pr = .625 P = .046
ALTITUDE DIFFERENCE LESS THAN 500 FT. $ \Delta A < 500$	N = 62.3 t = 59.8 $\mu = .11$ Pr = .67 P = .116	N = 18.4 t = 17.0 $\mu = .034$ Pr = .28 P = .013	N = 28.1 t = 23.2 $\mu = .051$ Pr = .39 P = .018	N = 20.9 t = 21.0 $\mu = .038$ Pr = .31 P = .013
APPROXIMATE PROJECTED MISS DISTANCE OF 1 MILE $\tau < 60; V_n < 60$ $R^2\tau < 1000; R/R < .001$	N/A	N = 14.3 t = 12.6 $\mu = .026$ Pr = .225 P = .0047	N = 13.75 t = 10.3 $\mu = .025$ Pr = .22 P = .004	N/A
MODIFIED TAU- NORMAL VELOCITY FOR $U = \frac{1}{2}G$ $\tau_m < 35 \text{ SEC}$ $V_n < 167 \text{ KTS}$	N/A	N/A	N/A	N = 40.7 t = 17.8 $\mu = .074$ Pr = .52 P = .019

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