LONG DURATION EXPOSURE FACILITY

MATERIALS SPECIAL INVESTIGATION GROUP

LDEF SUPPORTING DATA

LDEF ATOMIC OXYGEN FLUX AND FLUENCE CALCULATIONS

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MSIG
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FOREWORD

The National Aeronautics and Space Administration Long Duration Exposure Facility (LDEF) was launched into low-Earth orbit (LEO) from the payload bay of the Space Shuttle Orbiter Challenger in April 1984. It was retrieved from orbit by the Columbia in January 1990. The 57 LDEF experiments covered the disciplines of materials, coatings, and thermal systems; power and propulsion; space science; and electronics and optics. LDEF was designed to provide a large number of economical opportunities for science and technology experiments that require modest electrical power and data processing while in space and which benefit from post-flight laboratory investigations of the retrieved experiment hardware on Earth. Most of the the materials experiments were completely passive; their data must be obtained in post-flight laboratory tests and analyses.

The 5 year, 10 month flight of LDEF greatly enhanced the potential value of most LDEF materials, compared to that of the original 1-year flight plan. NASA recognized this potential by forming the LDEF Space Environmental Effects on Materials Special Investigation Group (MSIG) in early 1989. MSIG was chartered to investigate the effects of the long LEO exposure on structure and experiment materials which were not originally planned to be test specimens, and to integrate the results of this investigation with data generated by the Principal Investigators of the LDEF experiments into the LDEF Materials Data Base.

When evaluating space environmental effects on materials and systems in LEO, one of the most important parameters is atomic oxygen. During early Space Shuttle missions, organic polymers and a few metals (e.g.- silver, osmium) in the Orbiter Payload Bays were found to significantly erode in a few days due to atomic oxygen alone or in combination with other LEO environmental parameters. Specific information on atomic oxygen fluxes and fluences on each of the LDEF experiment trays is required to define the performance of most LDEF materials and systems. Accordingly, MSIG decided to delineate atomic oxygen exposures on each of the rows and the Earth and Space Ends of LDEF to provide the Atomic Oxygen Supporting Data to LDEF Investigators for the detailed analyses of their experiments.

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This document is the Atomic Oxygen Flux and Fluence Data Summary, prepared by Boeing Aerospace and Electronics under NASA Contract NAS1-18224, Task 12 "LDEF Materials Data Analysis".

Bland A. Stein
Chairman, LDEF Materials Special Investigation Group
NASA - Langley Research Center

Data Summary

Atomic Oxygen Flux and Fluence Calculation for Long Duration Exposure Facility (LDEF)

by

Roger J. Bourassa
James R. Gillis

January 18, 1991

This work was accomplished under

NAS1-18224, Task 12
LDEF Materials Data Analysis

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I. Introduction

The Long Duration Exposure Facility (LDEF) mission was to study the effects of the space environment on various materials over an extended period of time. One of the important factors for materials degradation in low earth orbit is the atomic oxygen fluxes and fluences experienced by the materials These fluxes and fluences are a function of orbital parameters, solar and geomagnetic activity, and material surface orientation This report summarizes calculations of atomic oxygen fluences and fluxes for the LDEF mission. Included in the text are sections describing LDEF orbital parameters, solar and geomagnetic data, computer code FLUXAV, which was used to perform calculations of fluxes and fluences, and discussion of the calculated fluxes and fluences

II. LDEF Orbital Parameters

LDEF was released into a near circular orbit with an average altitude of 482 km on April 7, 1984, for what was planned to be a one year mission. However, recovery did not occur u 2106 days later on January 12, 1990, by which time the orbit had decayed to 340 km averag altitude. Figure 1 shows average orbital altitude versus days after release Figure 2 shows the orbital decay rate versus days after release. Table 1 lists LDEF orbital parameters over the mission for the dates provided by NASA. These data are at approximately monthly intervals through 1988 and at approximately weekly intervals beginning in 1989 through recovery It is apparent from both Figures 1 and 2 that the LDEF orbit was nearly stable for the first four years of the mission and then began to decay at an increasing rate from there to the end of the mission.

III. Solar and Geomagnetic Data

The decaying orbit near the end of the mission and increasing solar activity (the end of the LDEF mission occurred near the peak of the 11 year solar cycle) caused the atomic oxygen density encountered by LDEF and, hence, atomic oxygen fluxes and fluences to increase rapidly near the end of the mission Figures 3 and 4 show the three month average and daily F10.7 cm solar flux values (the solar radio flux at 10.7 cm is in units of 10^4 Jansky = 10^{-22} W m^{-2} Hz^{-1}) during the LDEF mission Figure 5 shows the daily average geomagnet

activity index Ap during the LDEF mission. These solar and geomagnetic activity values are also listed in Table 1.

Daily values of the solar data have been provided by the National Geophysical Data Center (NGDC) of the National Atmospheric and Oceanic Administration (NOAA) in Boulder, Colorado. Daily values of the geomagnetic index Ap through the end of September 1989 have been provided by NGDC and for the remainder of the LDEF mission by Air Force Global Weather Central (AFGWC) because these data are not yet available from NGDC. The AFGWC data are preliminary, but should be very near the official values to be released by NGDC Any differences should have negligible effect on calculations of atomic oxygen fluxes and fluences

Daily average F10.7 and Ap have been calculated for one month intervals through the end of 1988 and for weekly intervals from there through the end of the LDEF mission The values in Figures 4 and 5 and in Table 1 are taken from the daily average values for the month or week nearest the date of the orbit parameter observation.

Figures 3 and 4 show that solar activity was decreasing during the early part of the LDEF mission followed by approximately three years of low solar activity. Solar activity increased during the last two years of the mission It is interesting to note that in many cases spikes in the decay rate in Figure 2 are well correlated with spikes in solar activity in Figure 4. Comparison of Figures 4 and 5 shows only a weak correlation between solar and geomagnetic activity.

IV. Computer Code FLUXAV

The authors have developed computer code FLUXAV to calculate atomic oxygen fluxes and fluences during the LDEF mission. FLUXAV contains three primary computational sections: orbit propagation and satellite heading routines, an atomic oxygen flux calculation routine, and the Mass-Spectrometer Incoherent Scatter neutral atmosphere model (MSIS-86) written by A. E. Hedin of GSFC Graphics routines are included to display calculated fluxes, fluences, and atomic oxygen density. A brief outline of program flow follows

Execution of FLUXAV starts by reading print and plot control flags, satellite yaw, pitch, and roll (refer to Figure 6 for LDEF body axes definition), and days after release to plot fluences.

LDEF orbital parameters (apogee, perigee, orbit inclination, epoch time of ascending node, ascending node longitude, and argument of perigee), date, and solar and geomagnetic data are read in The orbit propagation routines trace the elliptical satellite orbit around a spherical earth for an integer number of orbits in 24 hours plus up to 1 orbit period (15 or 16 orbits for LDEF altitudes). Each orbit is divided into 16 equal angle intervals This scheme should allow averaging over positional and diurnal variation during the orbits.

At each interval the orbit height above the surface of the earth, earth latitude and longitude taking into account earth rotation and satellite transit time from the preceding calculation, and LDEF surface normal orientations are calculated in earth centered inertial (ECI) coordinates If satellite roll, pitch, or yaw is nonzero, the satellite body axes will not be aligned with the local orbital velocity vector, up, sideways axes. In this case, proper coordinate transformations are performed to obtain the correct ECI representation of satellite surface normal vectors (currently FLUXAV calculates satellite surface normal vectors for zero elevation angle with horizontal angles from 0 to 180 degrees in 2.5 degree increments and satellite top and bottom).

In addition, FLUXAV calculates satellite velocity (magnitude and direction) and atmospheric wind velocity (it is assumed that the atmosphere rotates with the earth) in ECI coordinates The resultant flow velocity of the satellite through the atmosphere is the vector difference of the satellite velocity and the earth wind velocity (note that the satellite velocity and earth wind velocity are in general not parallel except for equatorial orbits and that the earth wind speed varies with latitude, but averages about 5 percent of the orbital speed for LDEF).

MSIS-86 is called to calculate atomic oxygen density and atmospheric temperature at the orbit location from the previously calculated altitude, latitude and longitude, and universal time, and input solar and geomagnetic parameters Atomic oxygen density, atmospheric temperature, the magnitude of the flow velocity, and the satellite surface normal vector are passed to the atomic oxygen flux calculation routine for each satellite surface of interest

Because atomic oxygen has a Maxwellian velocity distribution (with a mean speed of about 1 km/sec or about 12 percent of the orbital speed), the atomic oxygen flux on a surface is not simply the atomic oxygen density times the magnitude of the flow velocity times the cosine of the angle between the flow velocity and the surface normal. Instead, a routine has been developed to account for the atomic oxygen velocity distribution. For LDEF conditions the atomic oxygen flux on a surface parallel to the flow velocity is approximately 4 percent of the head on flux; and the satellite will experience flux on all surfaces, although the fluxes on the side opposite the leading surface are a very small fraction of the head on flux.

After atomic oxygen fluxes have been calculated for each point on the day's worth of orbits, an average flux is calculated for each spacecraft surface. Fluences for each surface are calculated from the average flux for the calculation, the average flux from the preceding calculation, and the time between the current and preceding calculation

New sets of orbital, solar, and geomagnetic parameters are read and the calculations of atomic oxygen flux and fluence are repeated until all input data have been read. These data sets should be spaced in time so that no large changes in atomic oxygen fluxes occur from one data set to the next. For stable orbits and steady solar activity, monthly data sets should be adequate. For rapidly decaying orbits and highly variable solar activity, more closely spaced data sets are desirable to ensure accurate calculation of fluxes and fluences

After all fluxes and fluences have been calculated, plot routines are called to display the calculated data.

V. Calculated Atomic Oxygen Fluxes and Fluences for LDEF

Table 1 is a listing of LDEF data for each date on which orbital parameters were reported The orbital parameters and solar and geomagnetic data from Table 1 have been used to calculate atomic oxygen fluxes and fluences Calculated fluences are given in Appendix A for each tray and longeron location. The incidence angles given in Appendix A are based on an eight degree yaw angle.

Much of the data in the last section is also presented graphically. Figure 7 shows the atomic oxygen density versus time for LDEF Note that the atomic oxygen density correlates quite well with solar activity (see Figures 3 and 4) for most of the LDEF mission and increases rapidly at the end of the mission both because of increased solar activity and because of orbit decay. Atomic oxygen density varies by approximately a factor of 200 over the LDEF mission Figure 8 shows head on atomic oxygen flux versus time for the LDEF mission. As may be expected, the head on flux is directly proportional to atomic oxygen density.

Figure 9 shows head on atomic oxygen fluence versus time for the LDEF mission and Figure 10 shows the same data expressed as a cumulative percent It is particularly significant that figure 10 shows that through the end of 1987 (almost 4 years into the LDEF mission), LDEF had received only 9 percent of its total atomic oxygen exposure; and that in the last year of the mission LDEF received 78 percent of its total atomic oxygen exposure.

Figure 11 shows total atomic oxygen fluence for LDEF calculated for the entire time in orbit plotted as a function of incidence angle for angles up to 120 degrees. Because of the Maxwellian distribution of the atomic oxygen molecular velocity, LDEF surfaces parallel to the ram direction and also surfaces with incident angles slightly greater than 90 degrees received some atomic oxygen. Surfaces at 90 degrees incident angle received four percent of the head on fluence. Surfaces at 95 degrees incident angle received one percent of the head on fluence

Figures 12 through 35 show atomic oxygen fluence versus time for each tray and longeron location Figures 36 and 37 show atomic oxygen fluence versus time for the LDEF top and bottom surfaces Figure 38 is a summary chart that shows total atomic oxygen fluence for each tray and longeron location calculated for the duration of the mission

Should it be necessary to know the fluence for a tray between specific dates, the value may be calculated from the data given in the Appendix For example, suppose that the fluence received by an experiment located on Row 8 is needed for an exposure time starting April 17, 1984 and ending February 17, 1985 The desired value may be calculated from data for the dates April 7, 1984 and February 8, 1985 as follows

DATE	FLUENCE, # PER SQ CM
4/7/84	0 000
(10 days)(8.64E+4 sec per day)(2 016E+13 #/cm^2 sec)	1.742E+19
4/17/84	1.742E+19
2/8/85	1 905E+20
(9 days)(8.64E+4 sec per day)(3 211E+12 #/cm^2 sec)	2.497E+18
2/17/85	1 930E+20
Difference, 4/17/84 to 2/17/85	1.756E+20

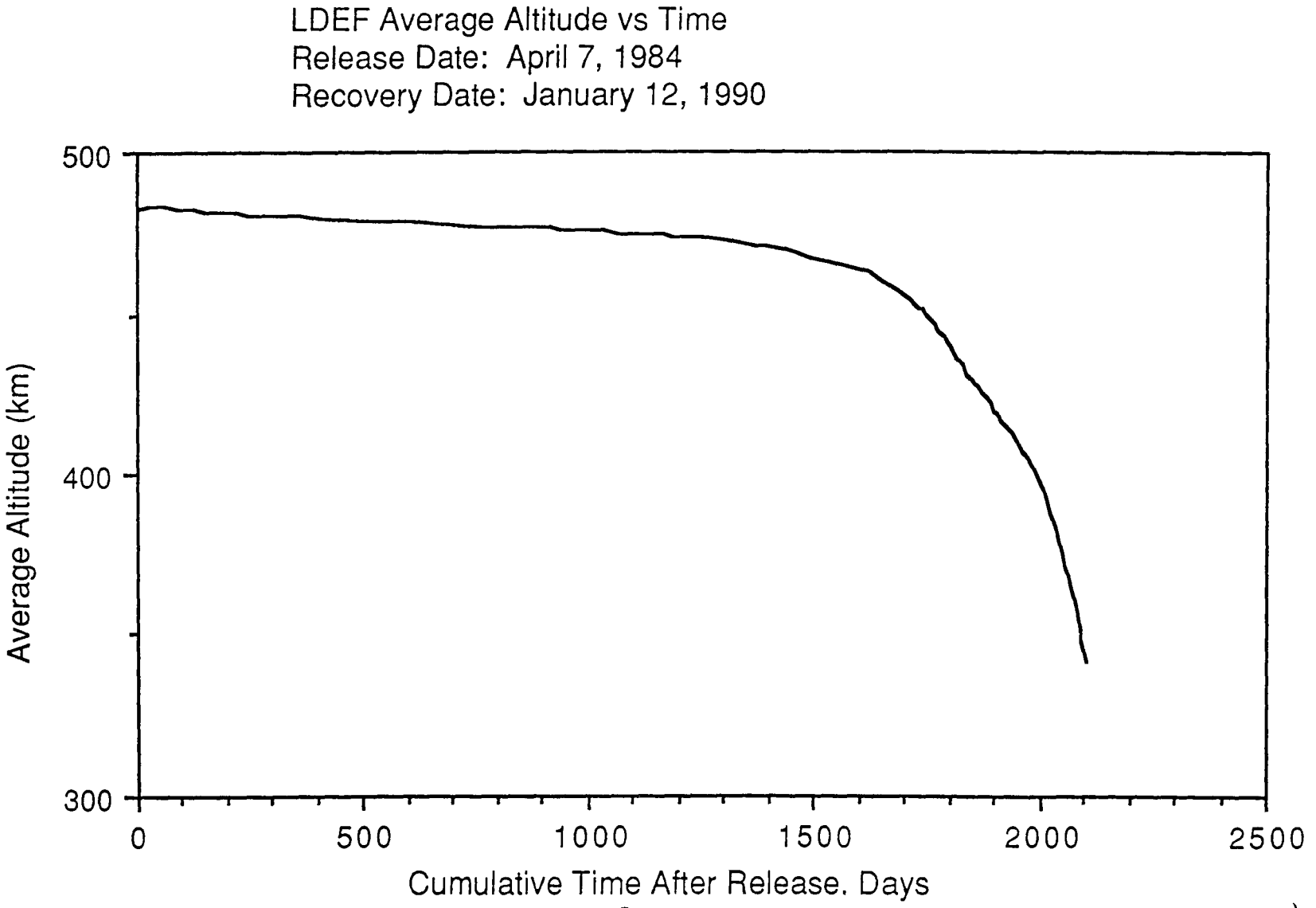


Figure 1 LDEF average orbital altitude vs time after release

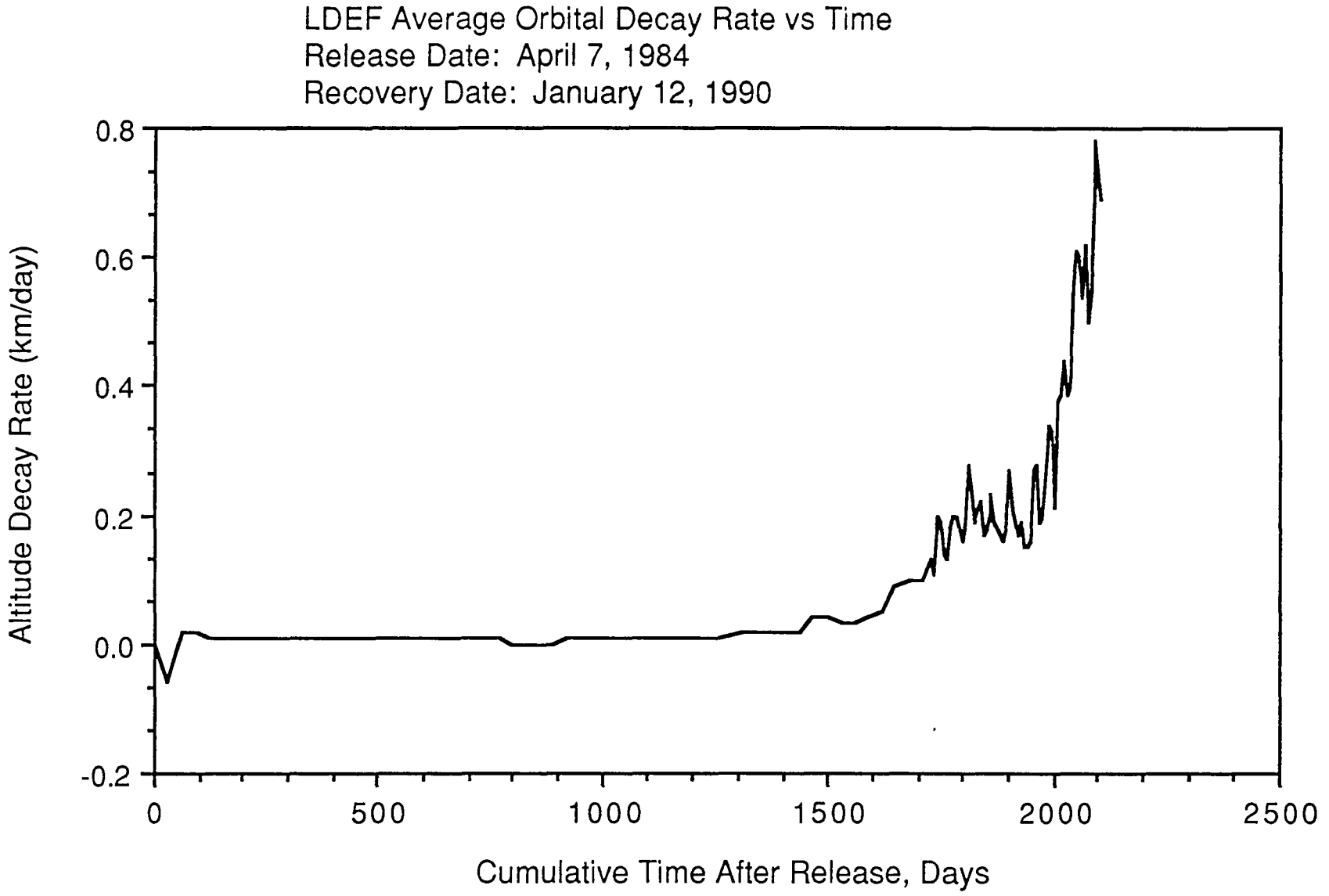


Figure 2. LDEF average orbital decay rate vs time after release.

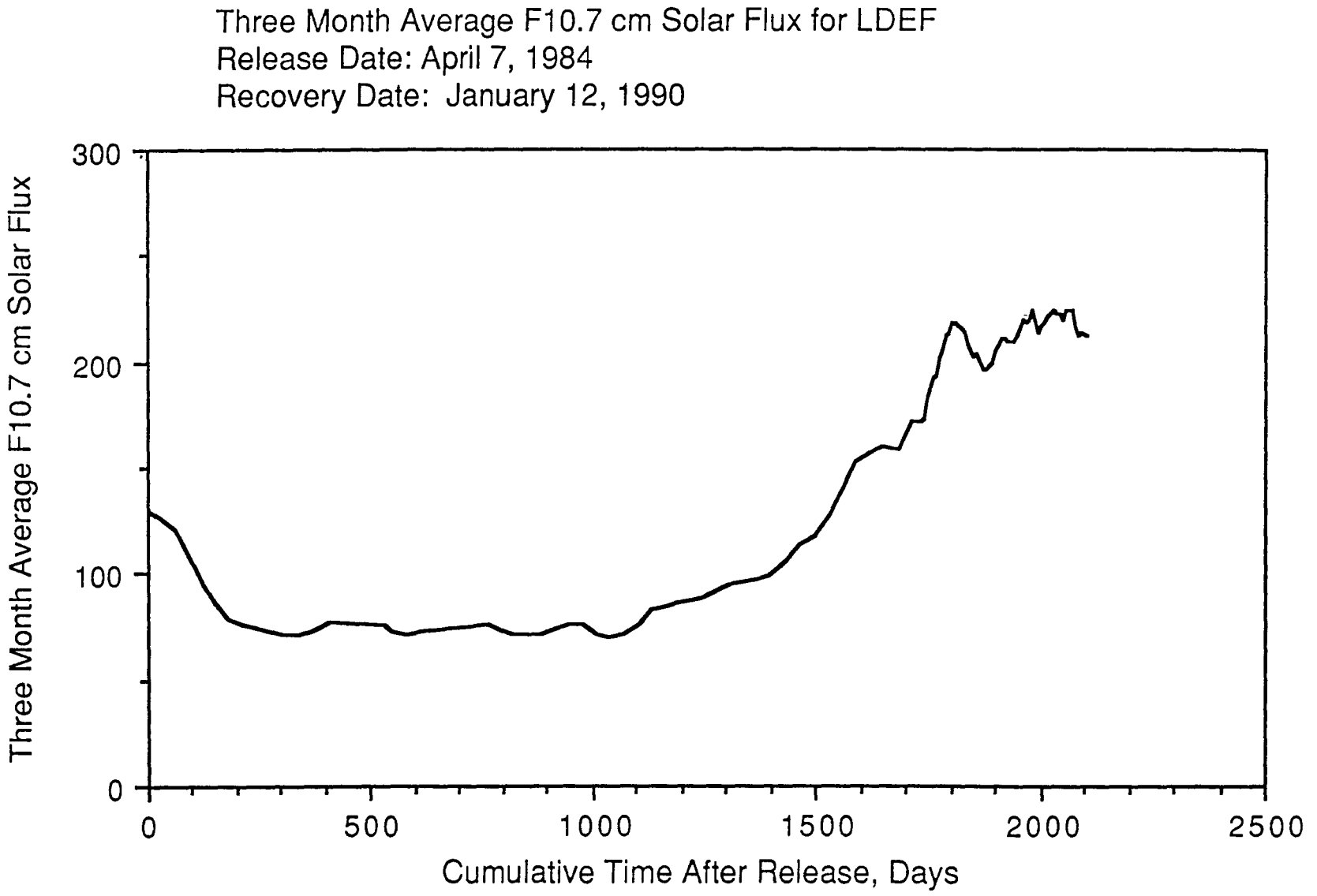


Figure 3. Three month average F10.7 cm solar flux during the LDEF mission.

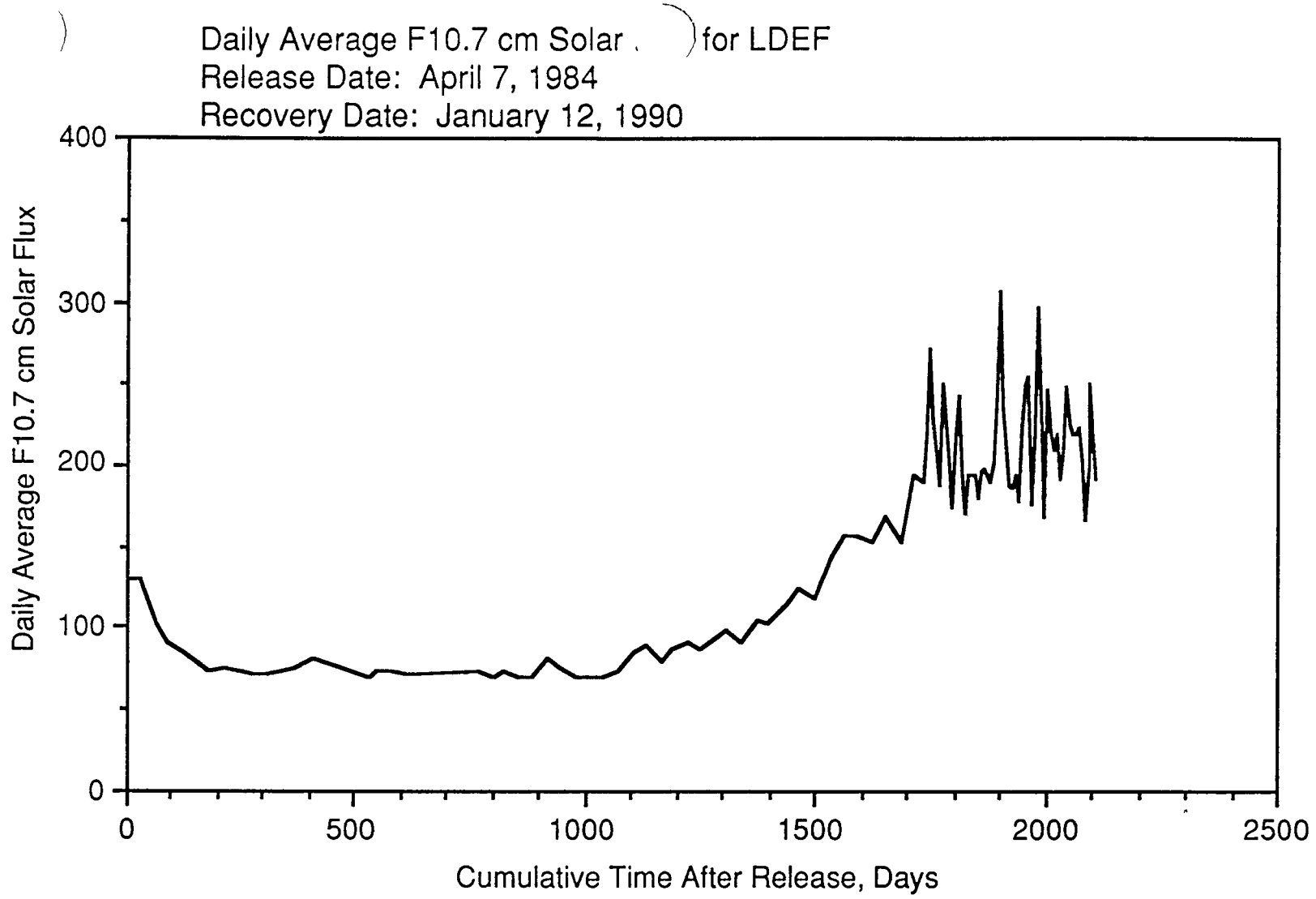


Figure 4. Daily average F10.7 cm solar flux during the LDEF mission

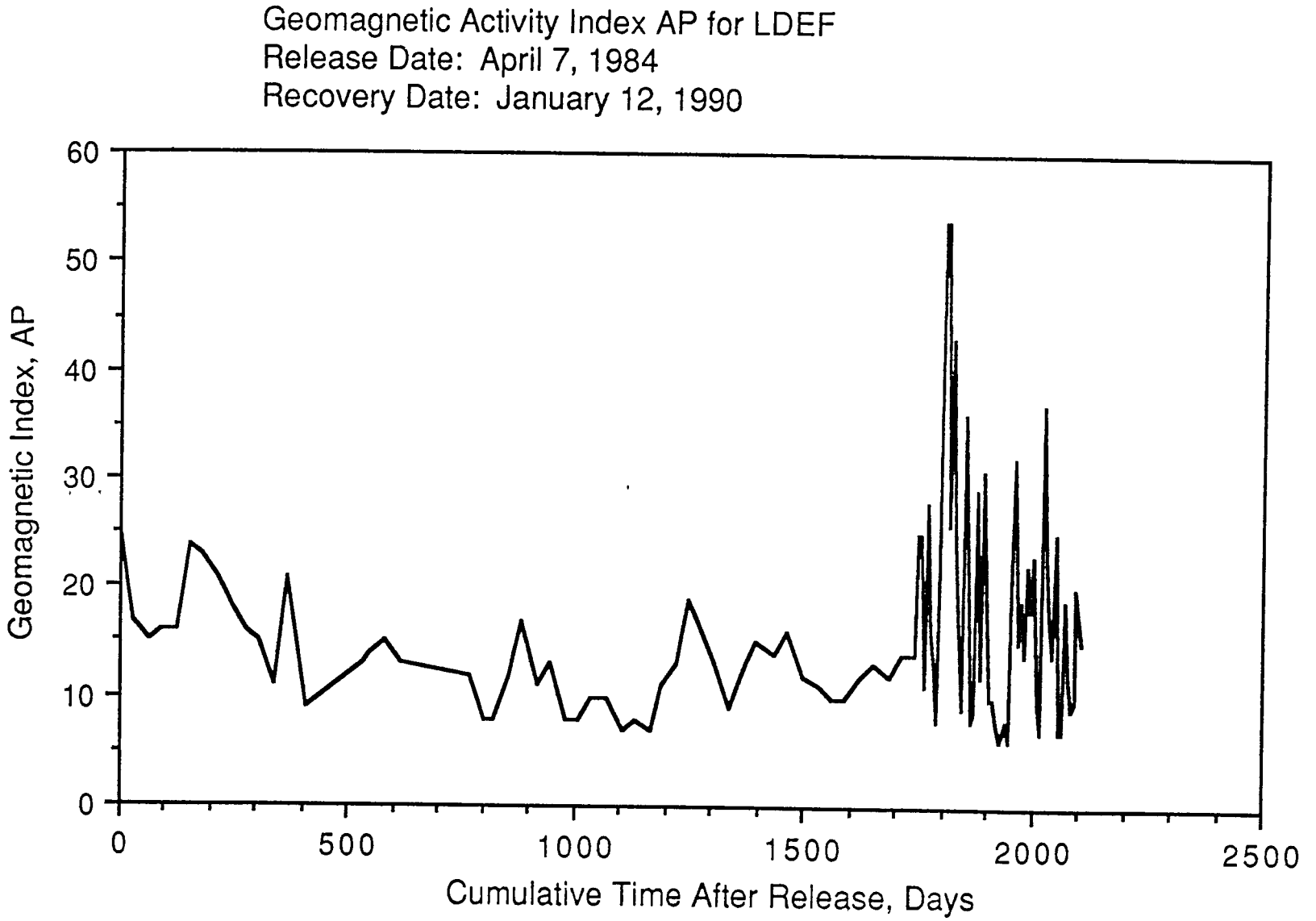
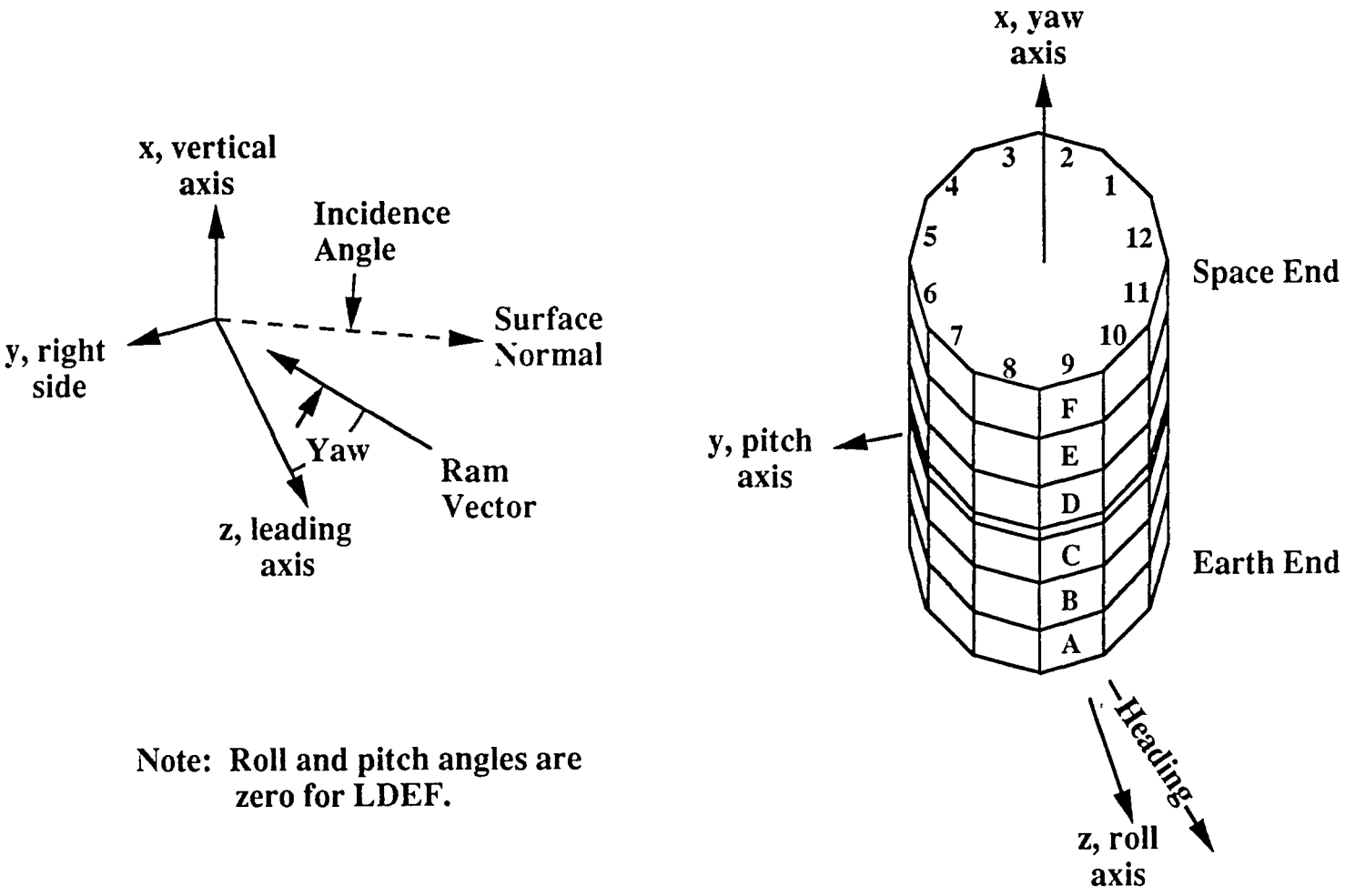


Figure 5 Geomagnetic act ndex Ap during the LDEF mission.



Note: Roll and pitch angles are zero for LDEF.

Figure 6. LDEF spacecraft body axes definition

Figure 7 Atomic oxygen density vs time

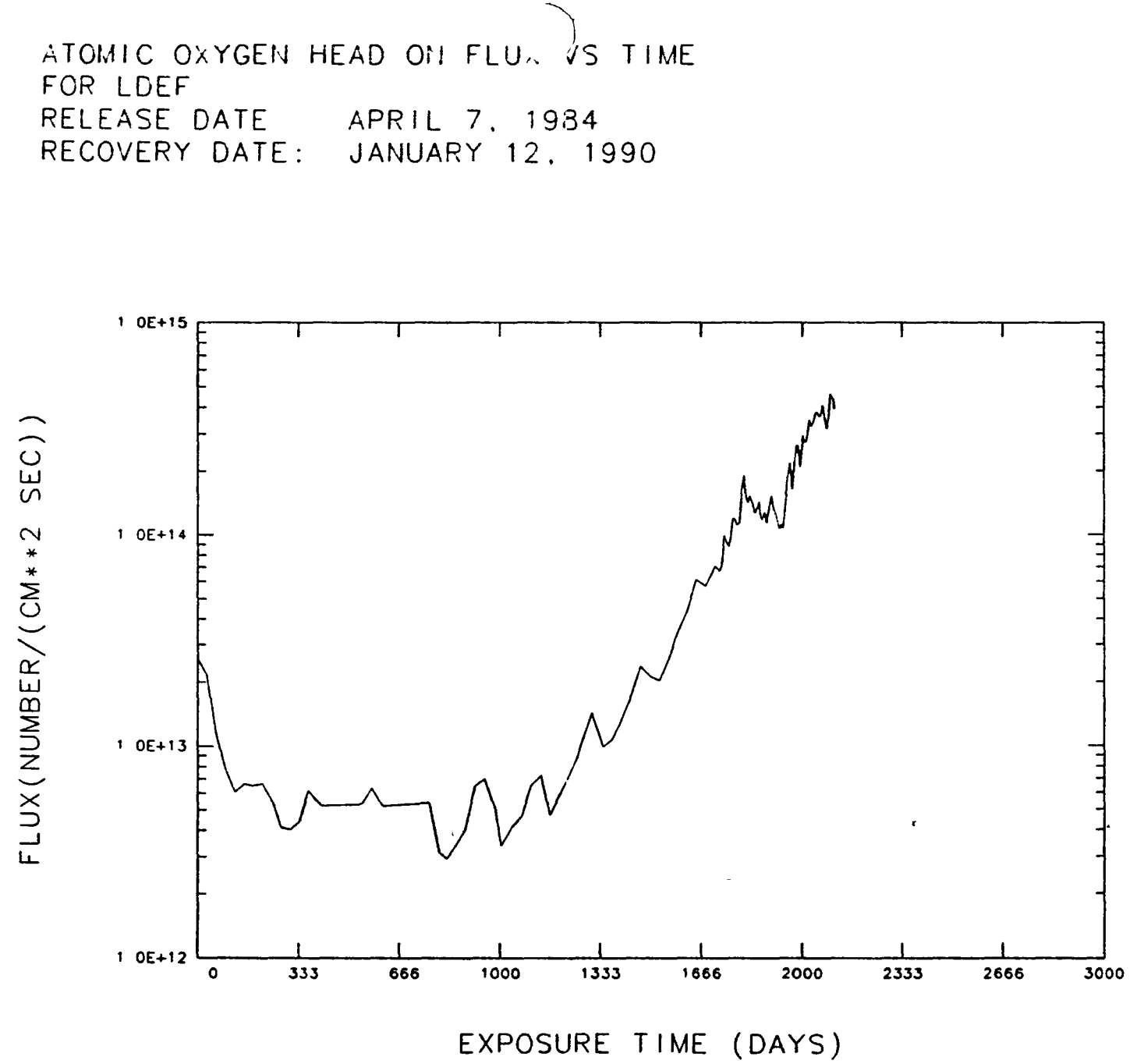


Figure 8. Head on atomic oxygen flux vs time for LDEF. 90/08/17 14.52 31

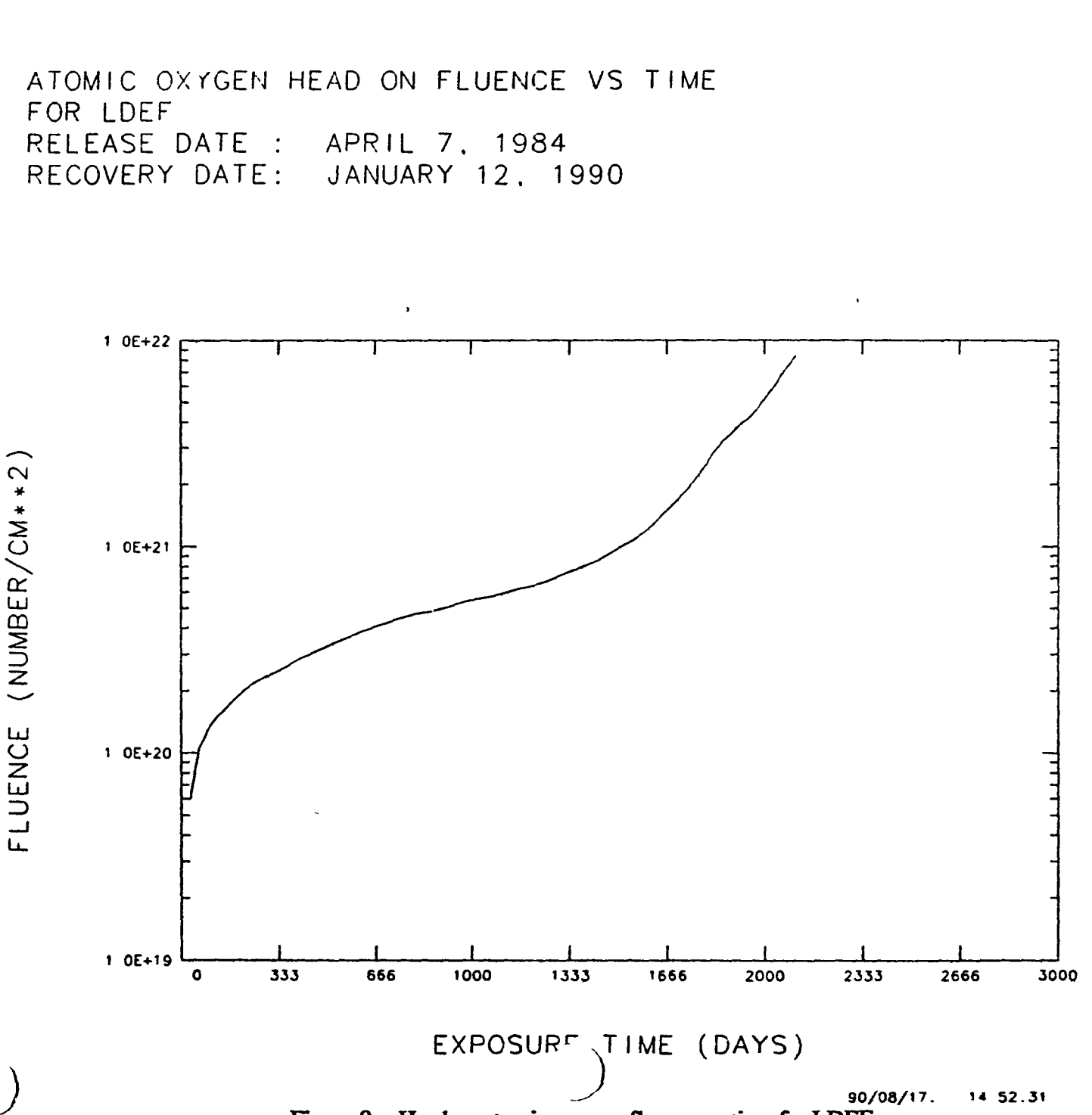


Figure 9. Head on atomic oxygen fluence vs time for LDEF.

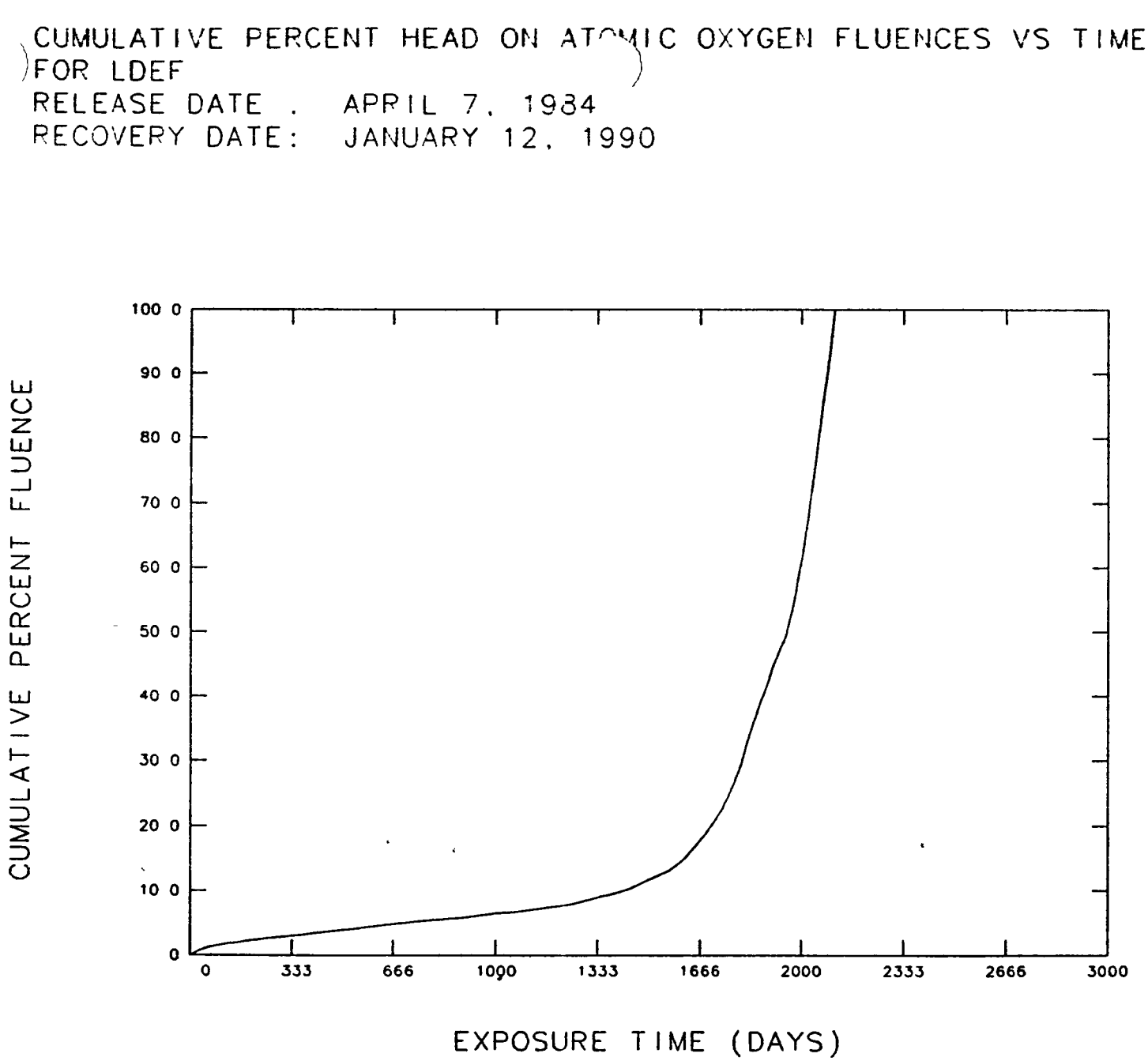


Figure 10. Cumulative percent head on atomic oxygen fluence vs time for LDEF.

RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
2106 DAYS EXPOSURE

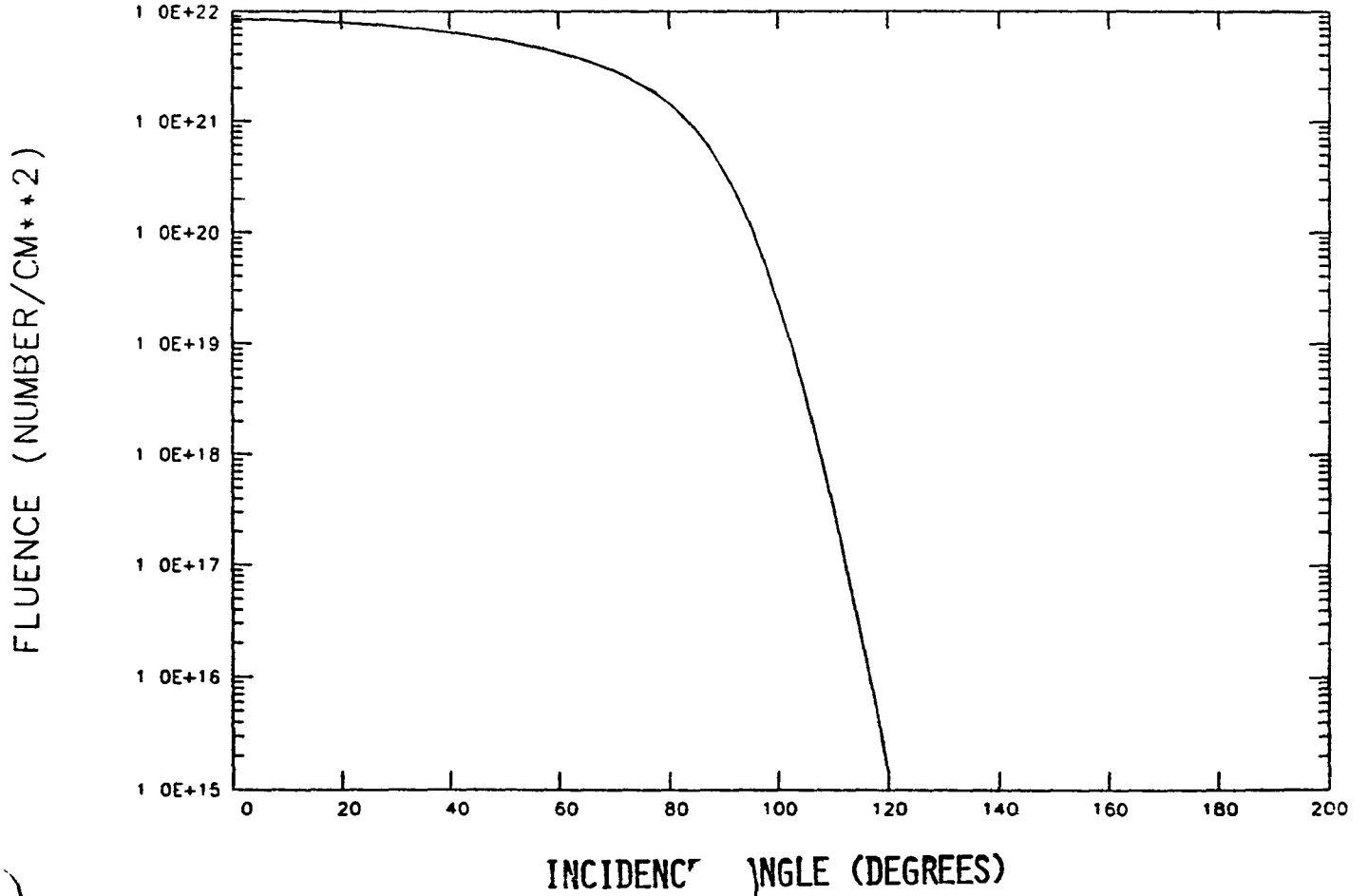


FIGURE 11: ATOMIC OXYGEN FLUENCE AT LDEF RECOVERY VS INCIDENCE ANGLE

RELEASE DATE : APRIL 7, 19[illegible]
RECOVERY DATE: JANUARY 12, 1990
YAW = 8 0 DEGREES ROW 1

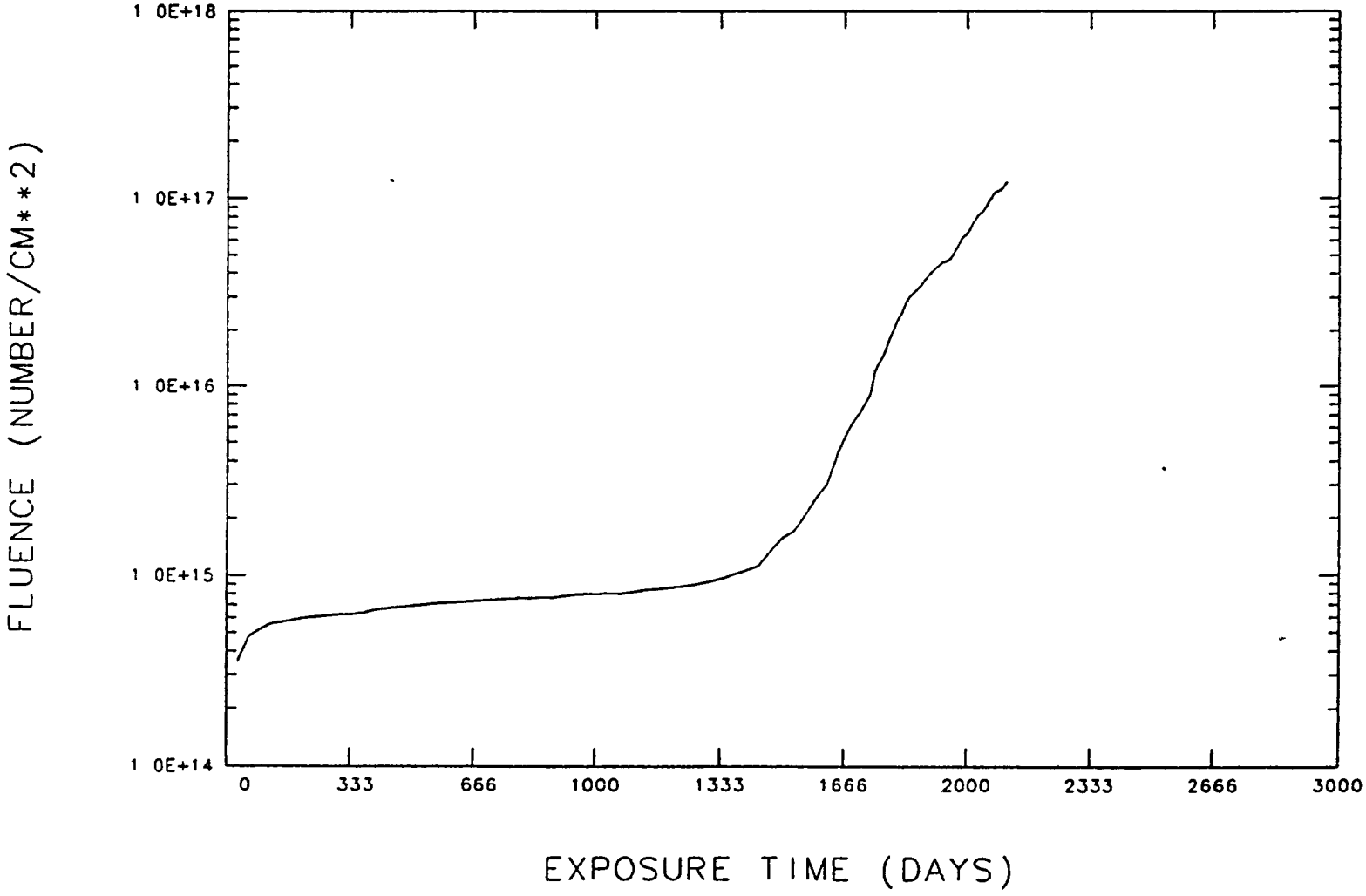


FIGURE 12: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 1

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 1-2

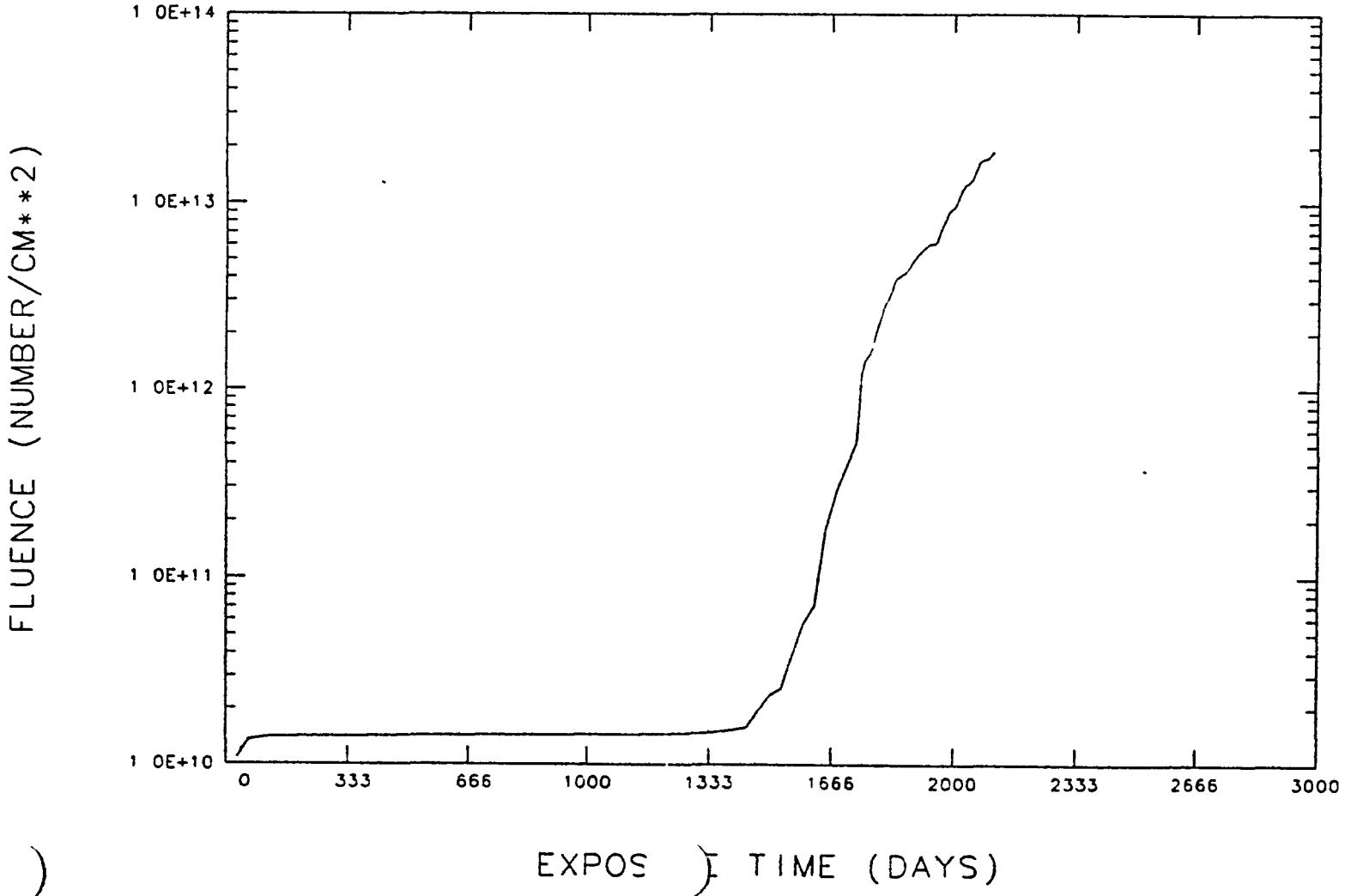


FIGURE 13: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 1-2

RELEASE DATE : APRIL 7 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8 0 DEGREES ROW 2

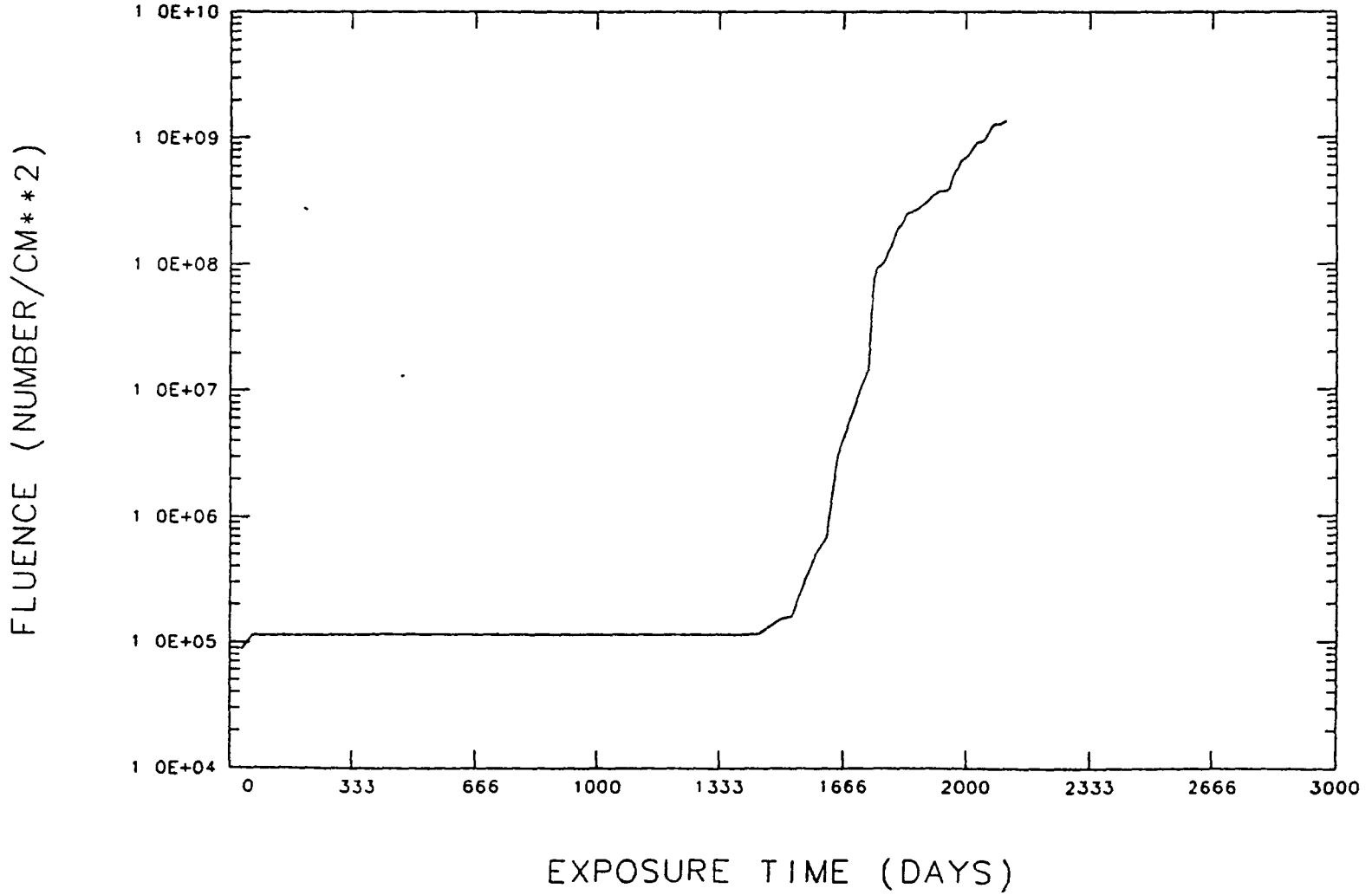


FIGURE 14: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 2

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 2-3

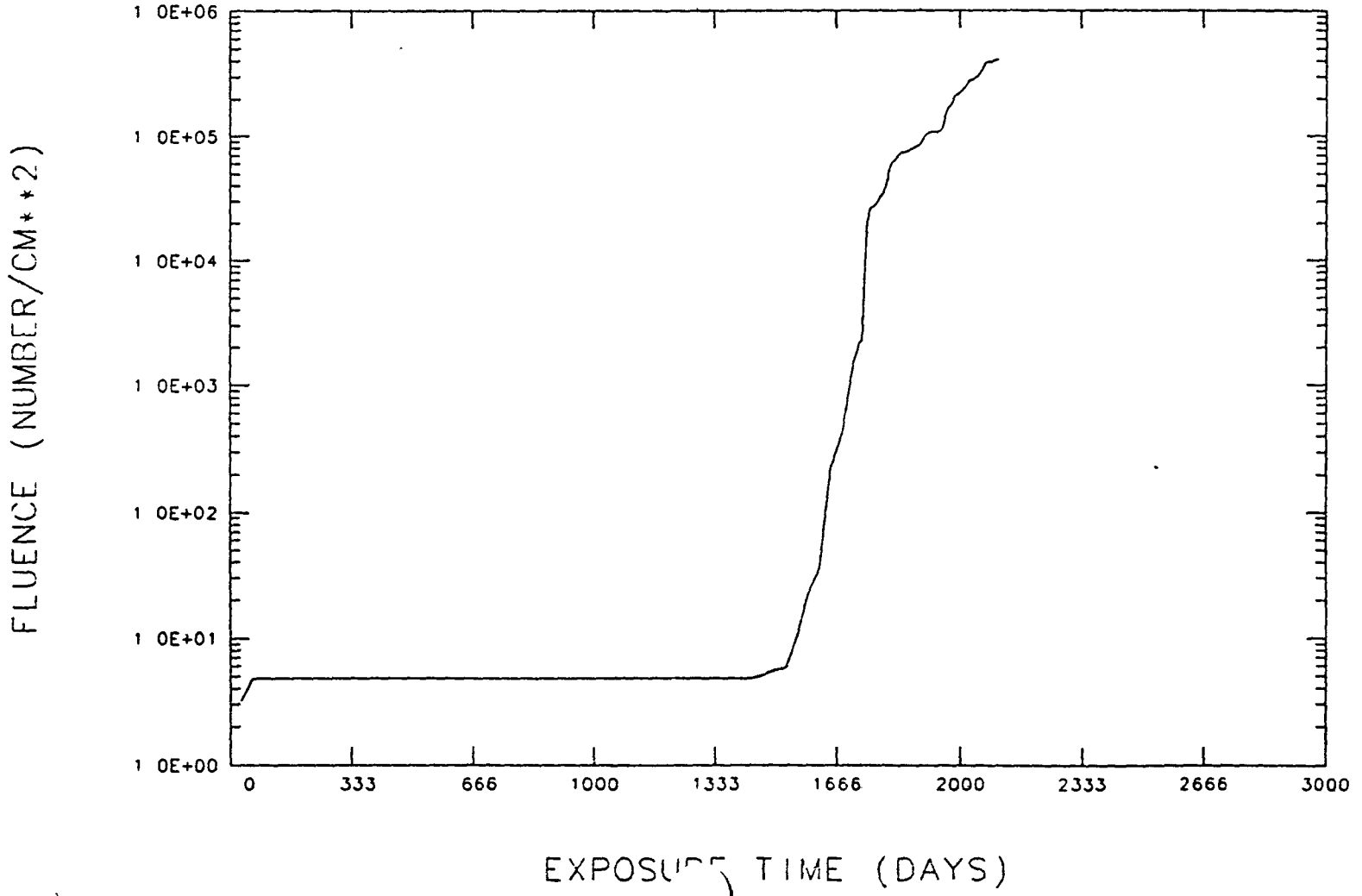


FIGURE 15: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 2-3

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 3

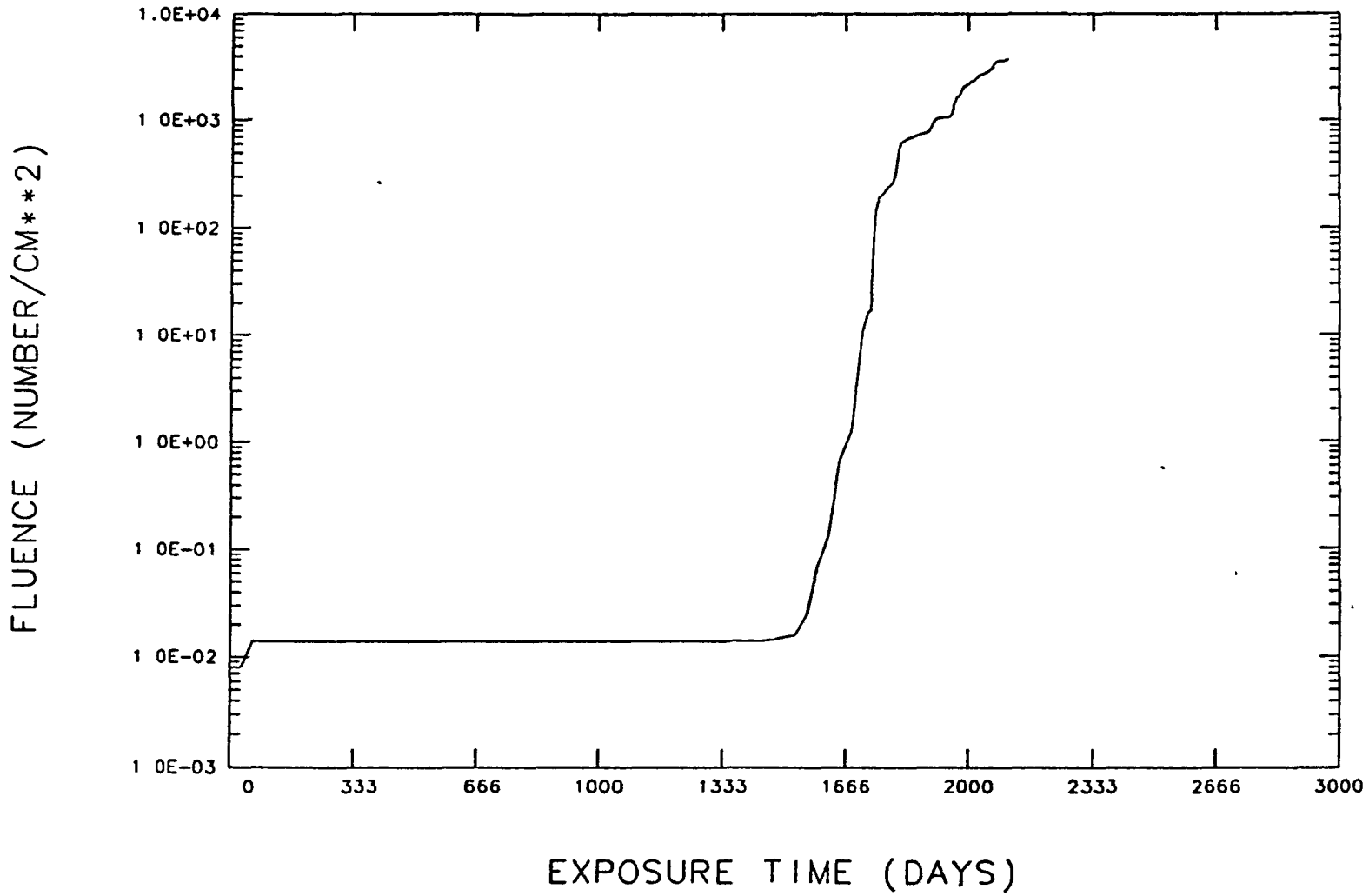


FIGURE 16: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 3

RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 3-4

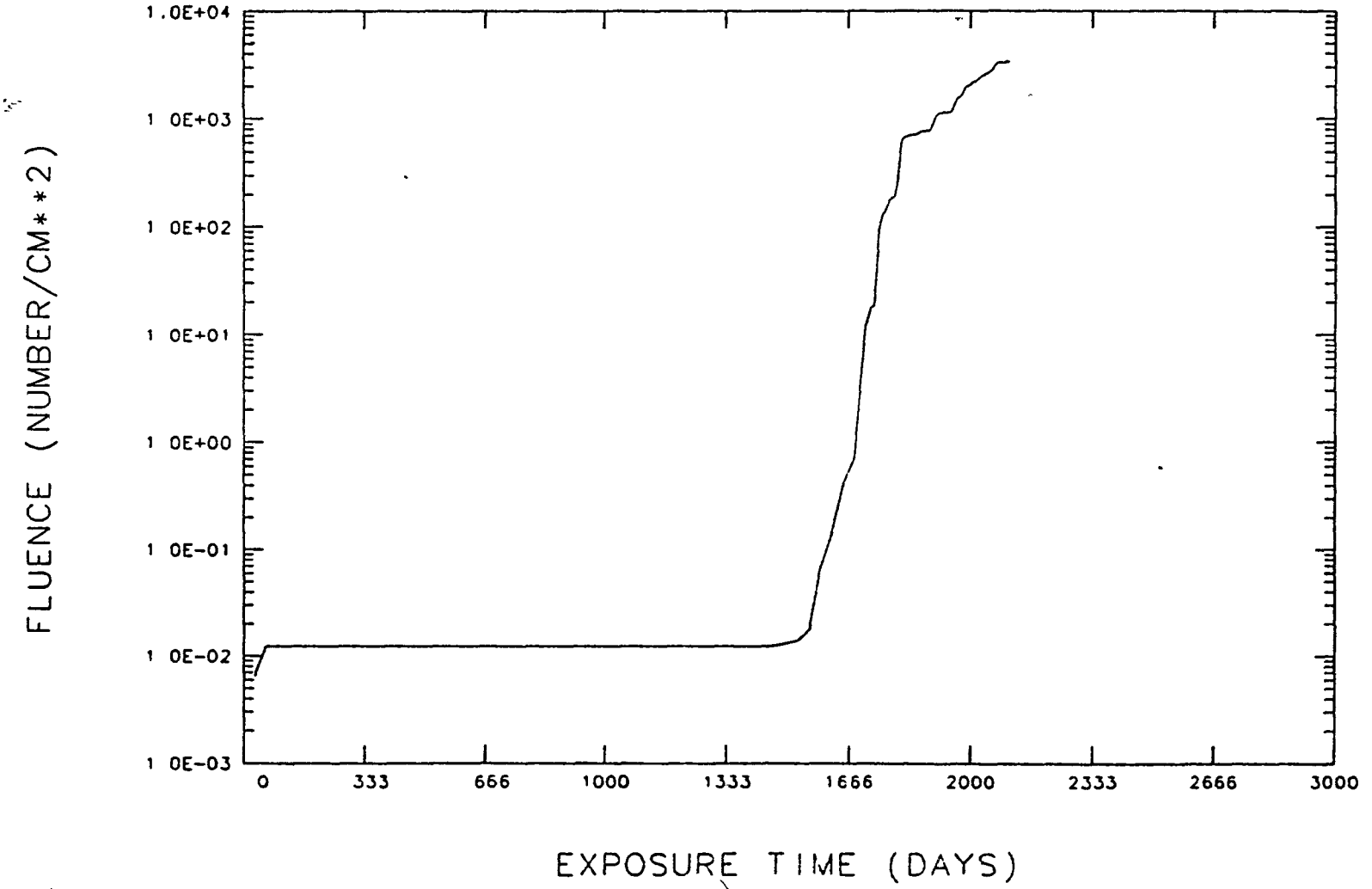


FIGURE 17: ATOMIC OXYGEN ENCE VS TIME FOR LONGERON 3-4

RELEASE DATE : APRIL 7, 19[illegible]
RECOVERY DATE JANUARY 12, 1990
YAW = 8 0 DEGREES ROW 4

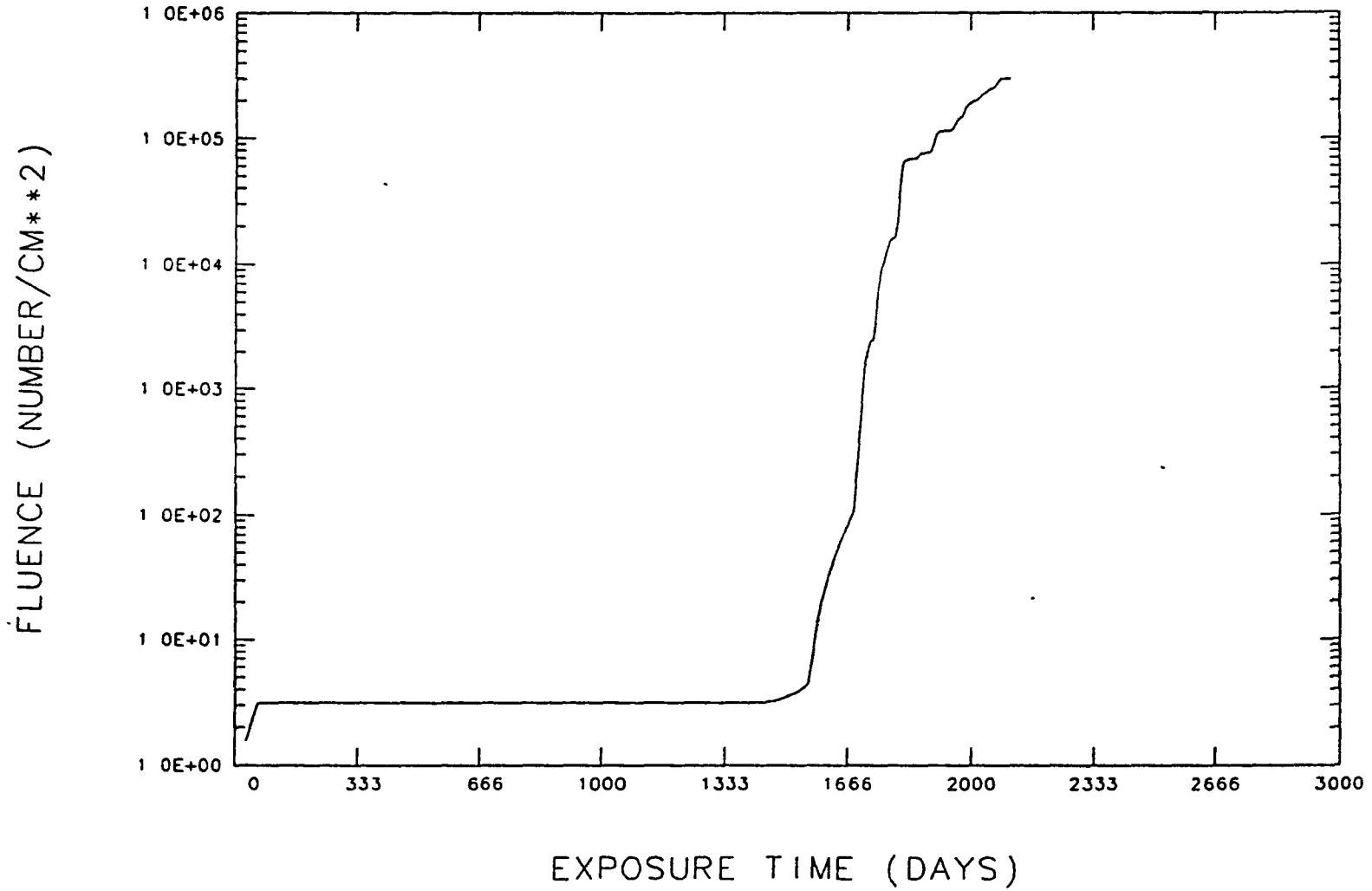


FIGURE 18: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 4

RELEASE DATE . APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 4-5

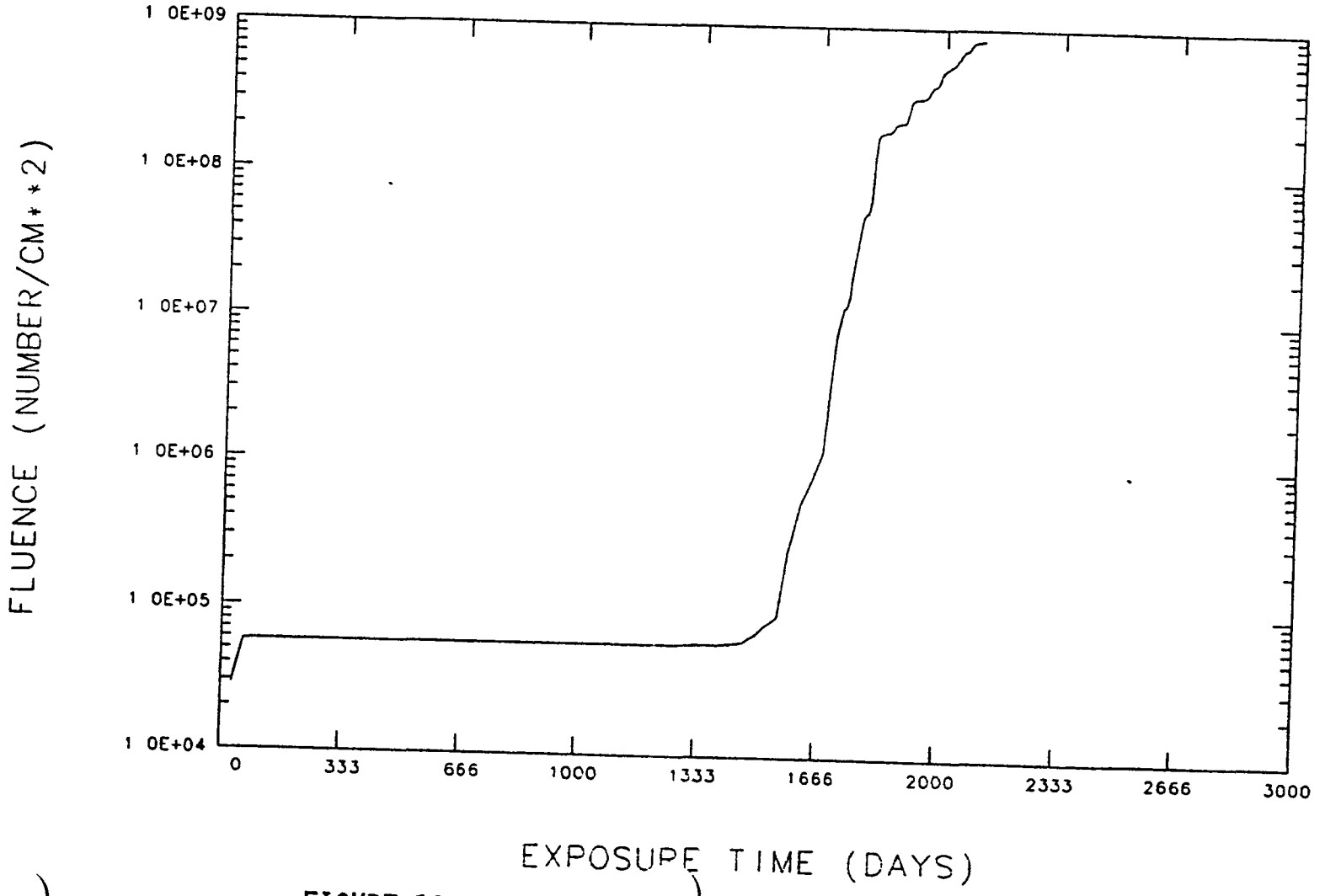


FIGURE 19: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 4-5

RELEASE DATE APRIL 7, 1984
RECOVERY DATE JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 5

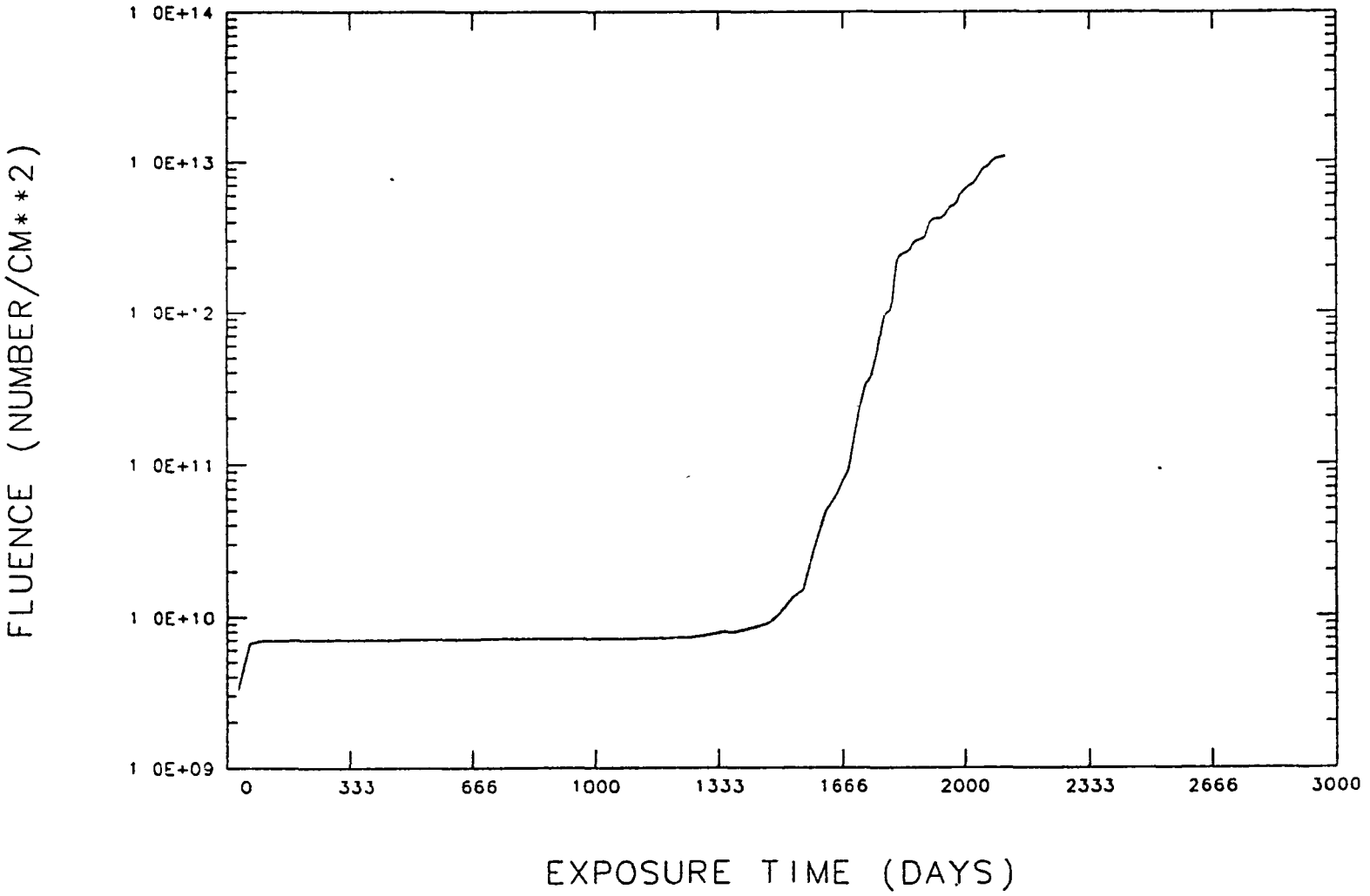


FIGURE 20: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 5

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE. JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 5-6

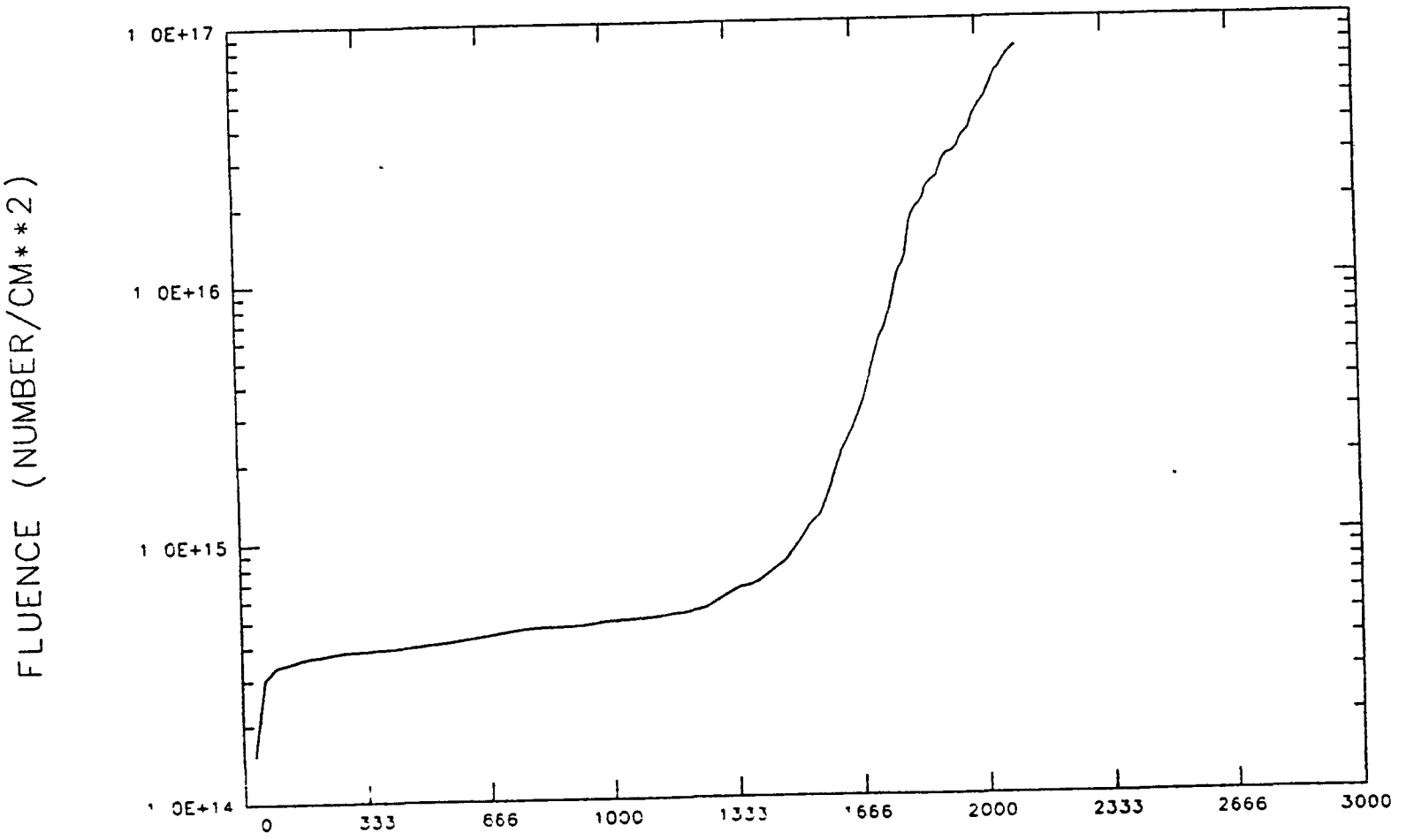


FIGURE 21: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 5-6

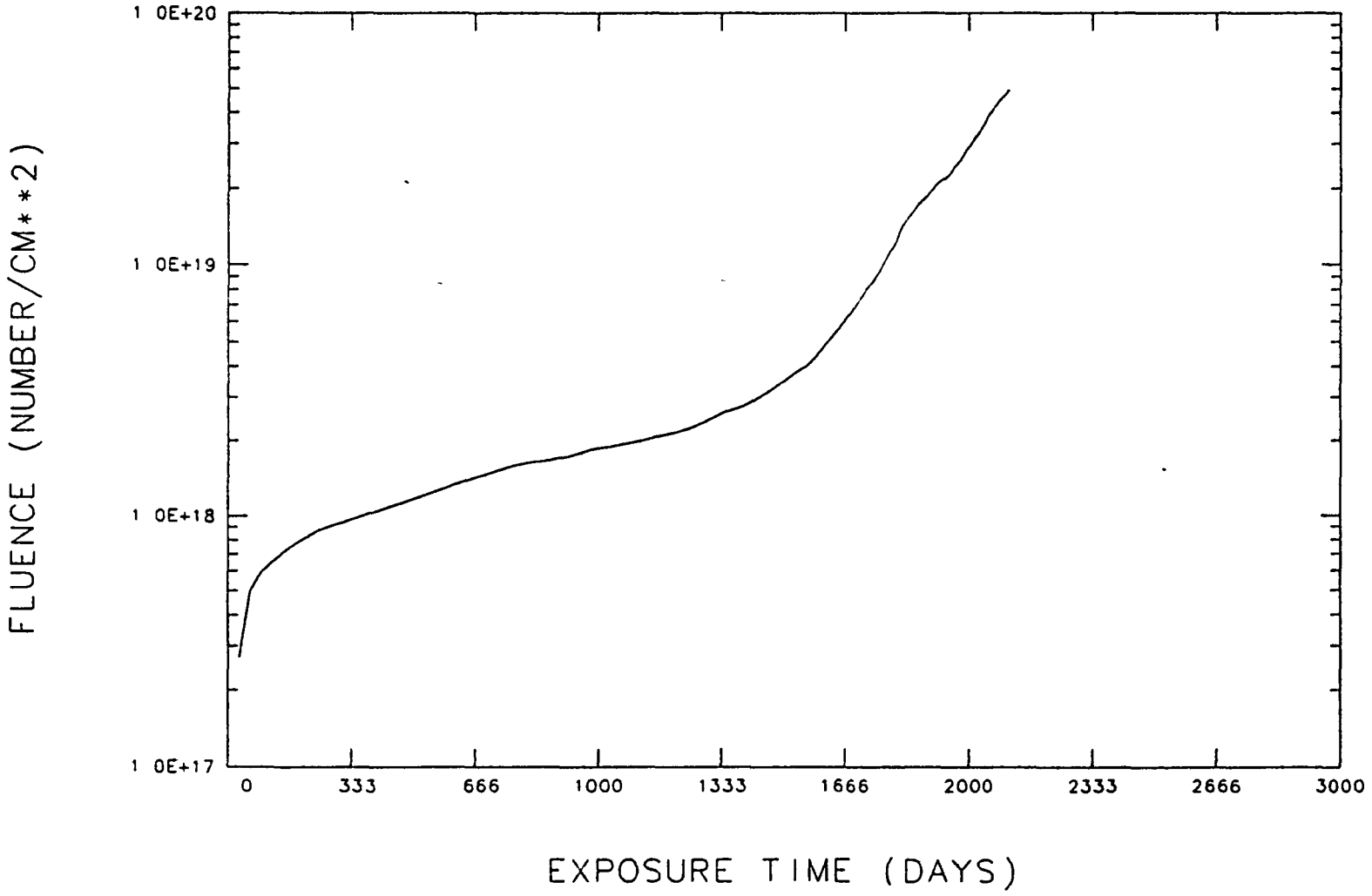
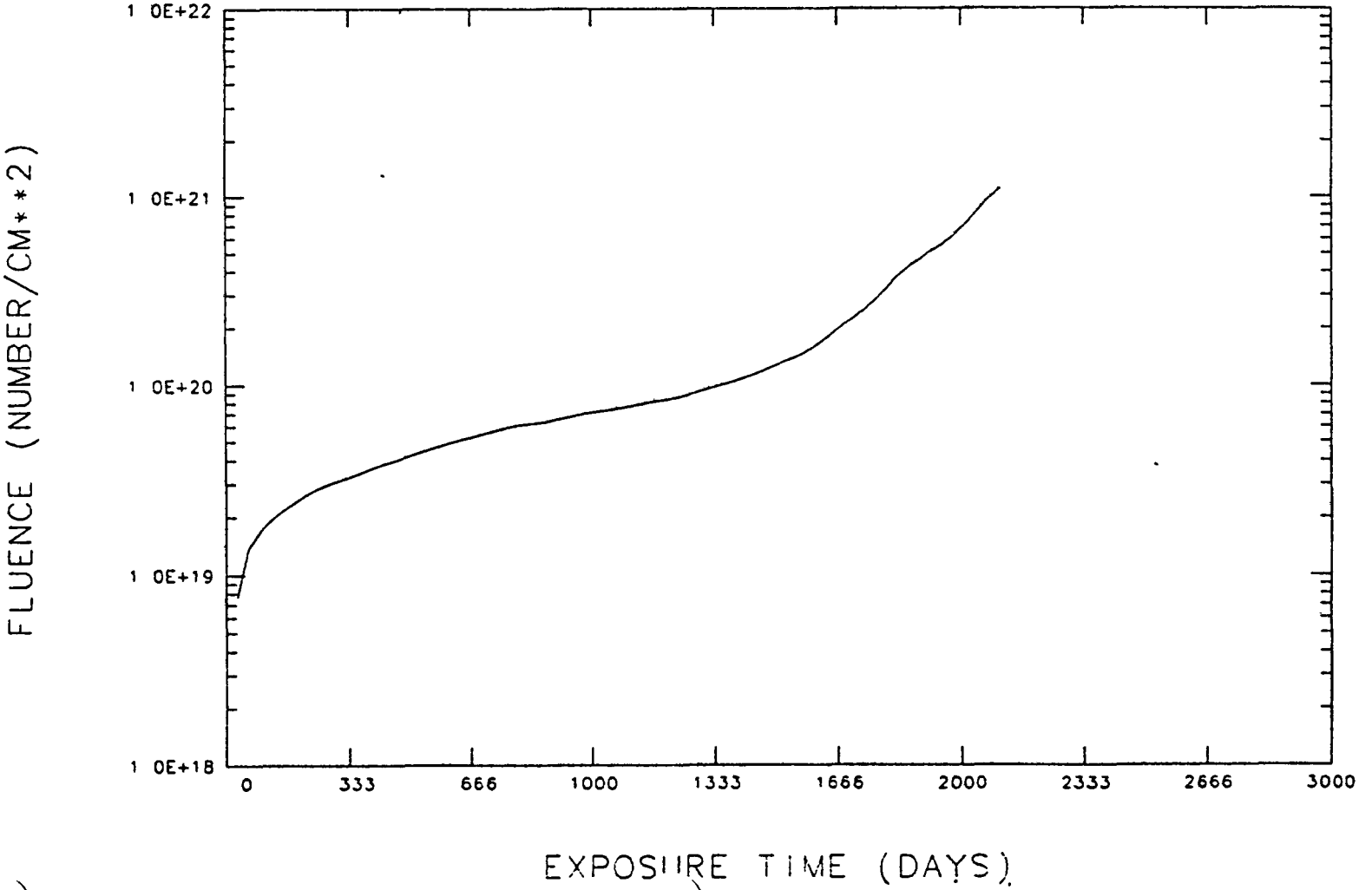


FIGURE 22: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 6

RELEASE DATE . APRIL 7, 1984
RECOVERY DATE JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 6-7



PIGURE 23: ATOMIC GEN FLUENCE VS TIME FOR LONGERON 6-7

RELEASE DATE · APRIL 7, 1984
RECOVERY DATE. JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 7

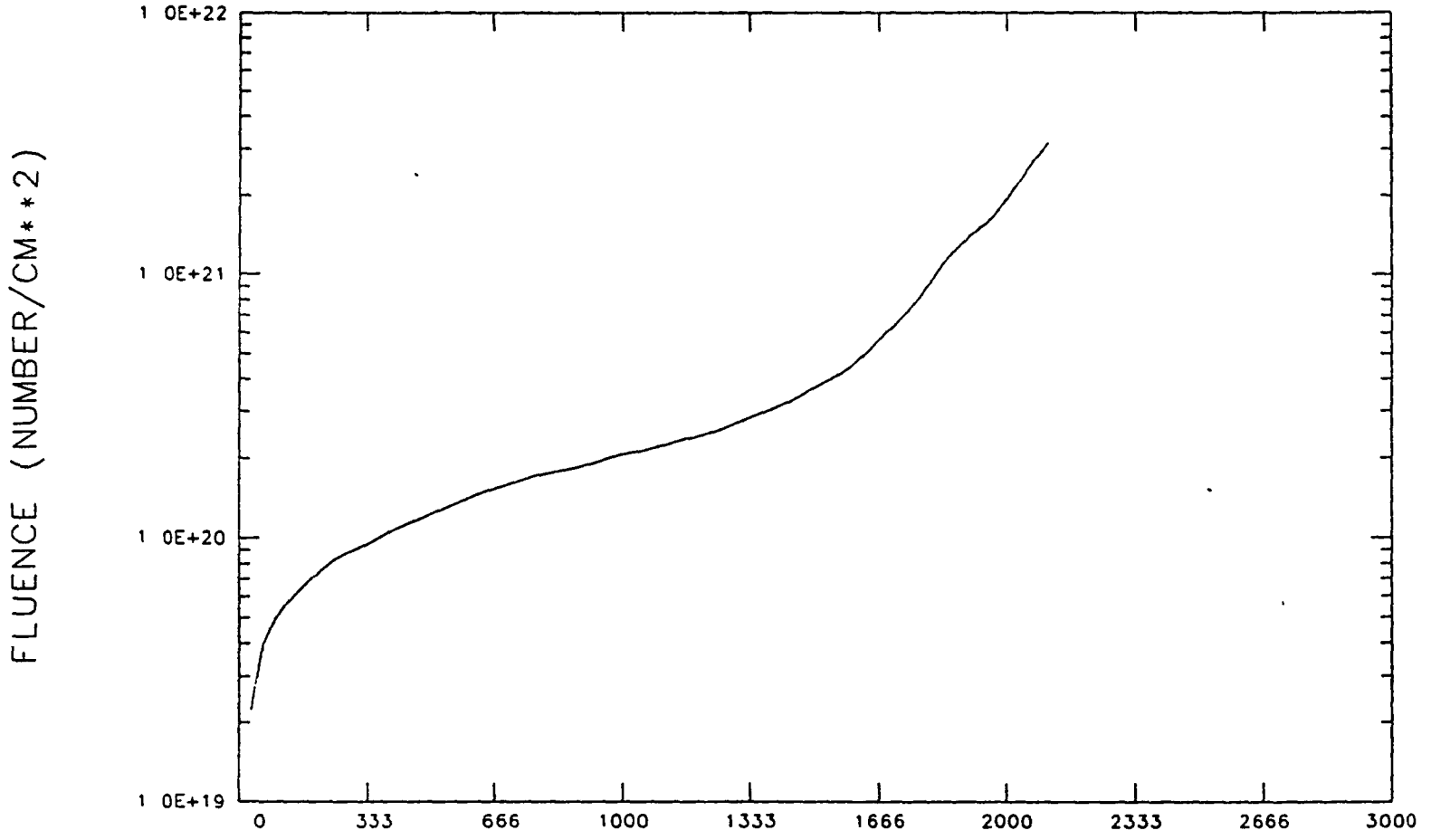


FIGURE 24: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 7

RELEASE DATE · APRIL 7, 1984
RECOVERY DATE JANUARY 12, 1990
YAW = 8 0 DEGREES LONGERON 7-8

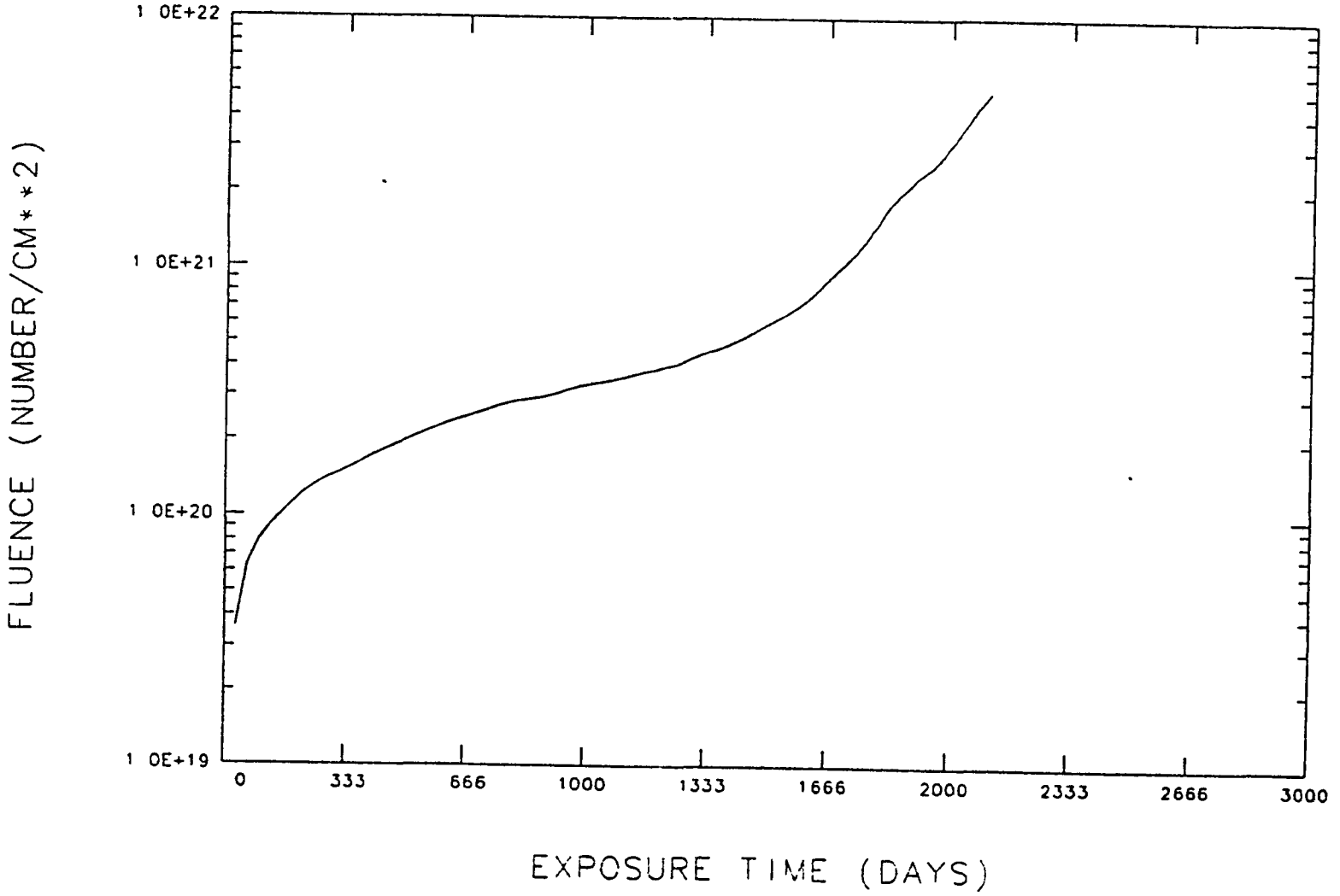


FIGURE 25: ATOMIC O))I FLUENCE VS TIME FOR LONGERON 7-8

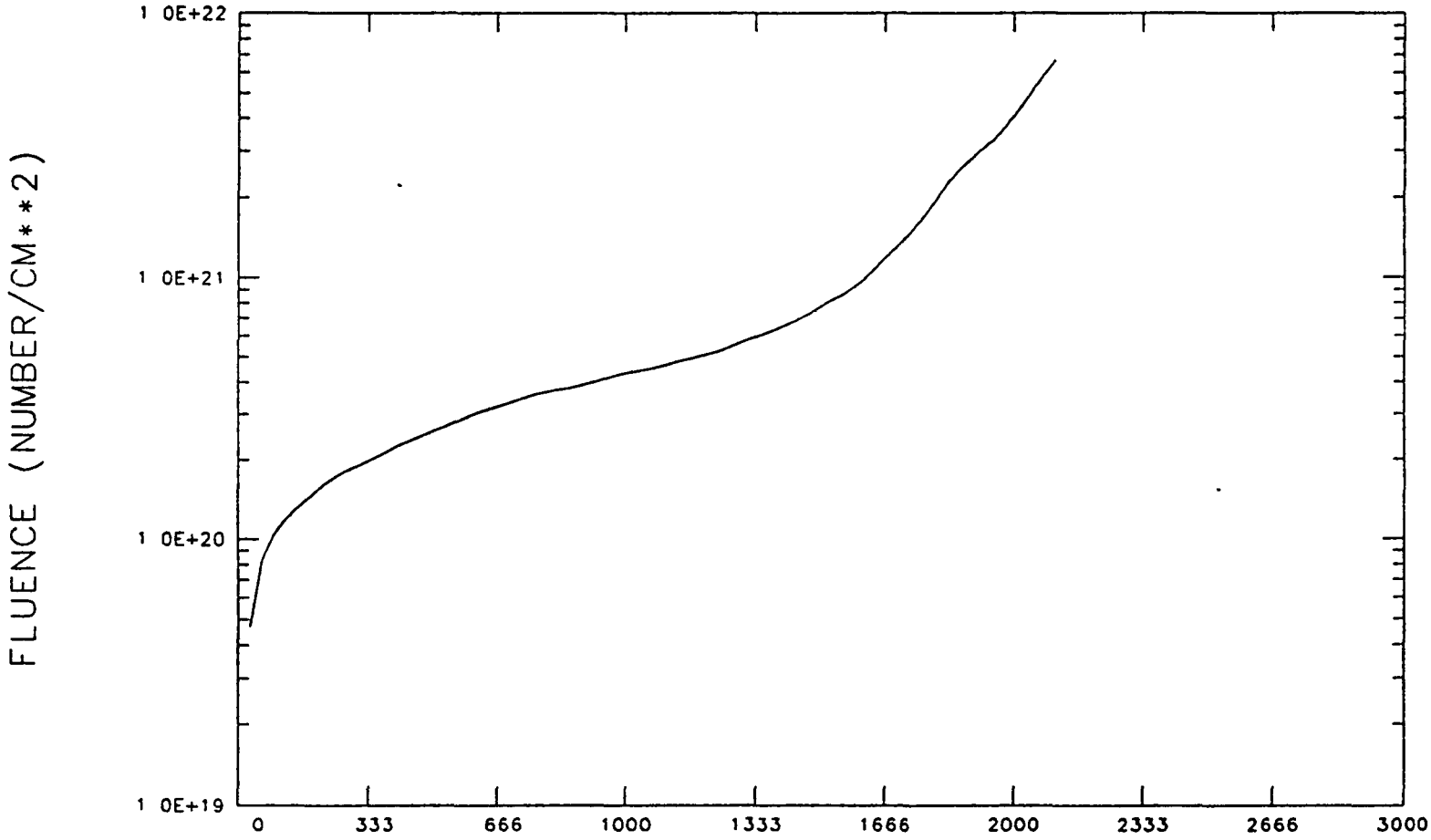


FIGURE 26: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 8

RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 8-9

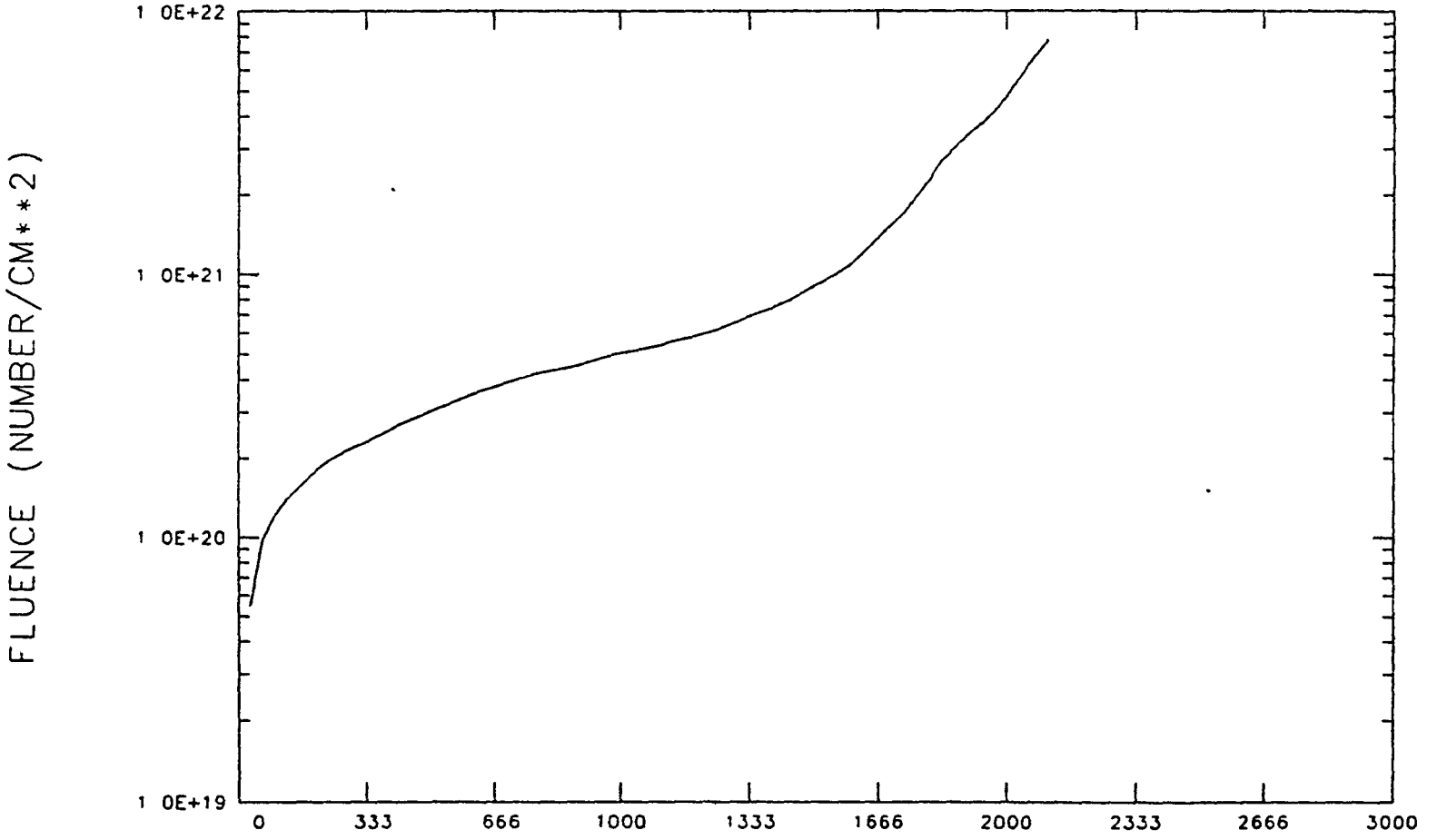


FIGURE 27: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 8-9

RELEASE DATE . APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8 0 DEGREES ROW 9

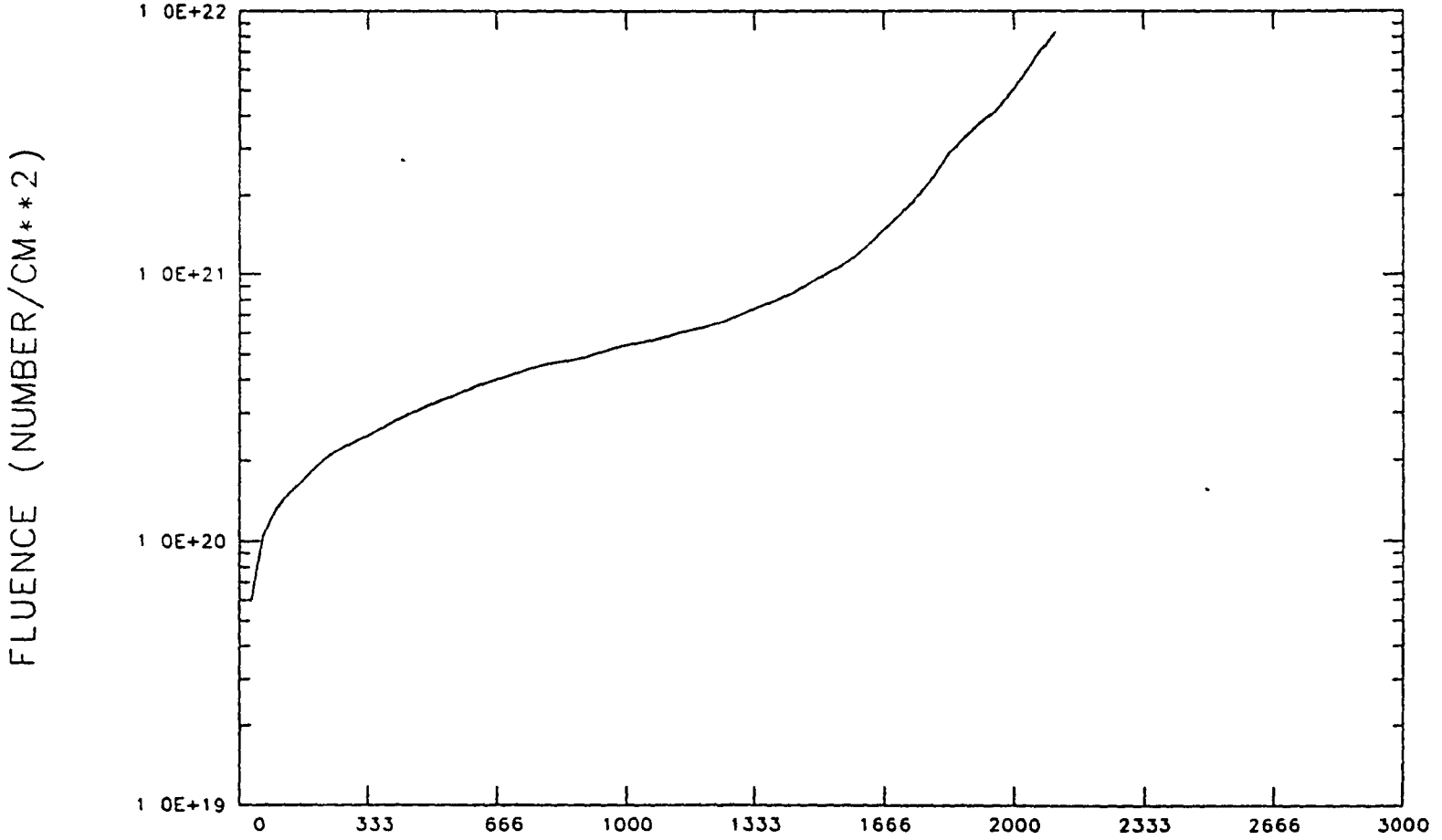


FIGURE 28: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 9

RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 9-10

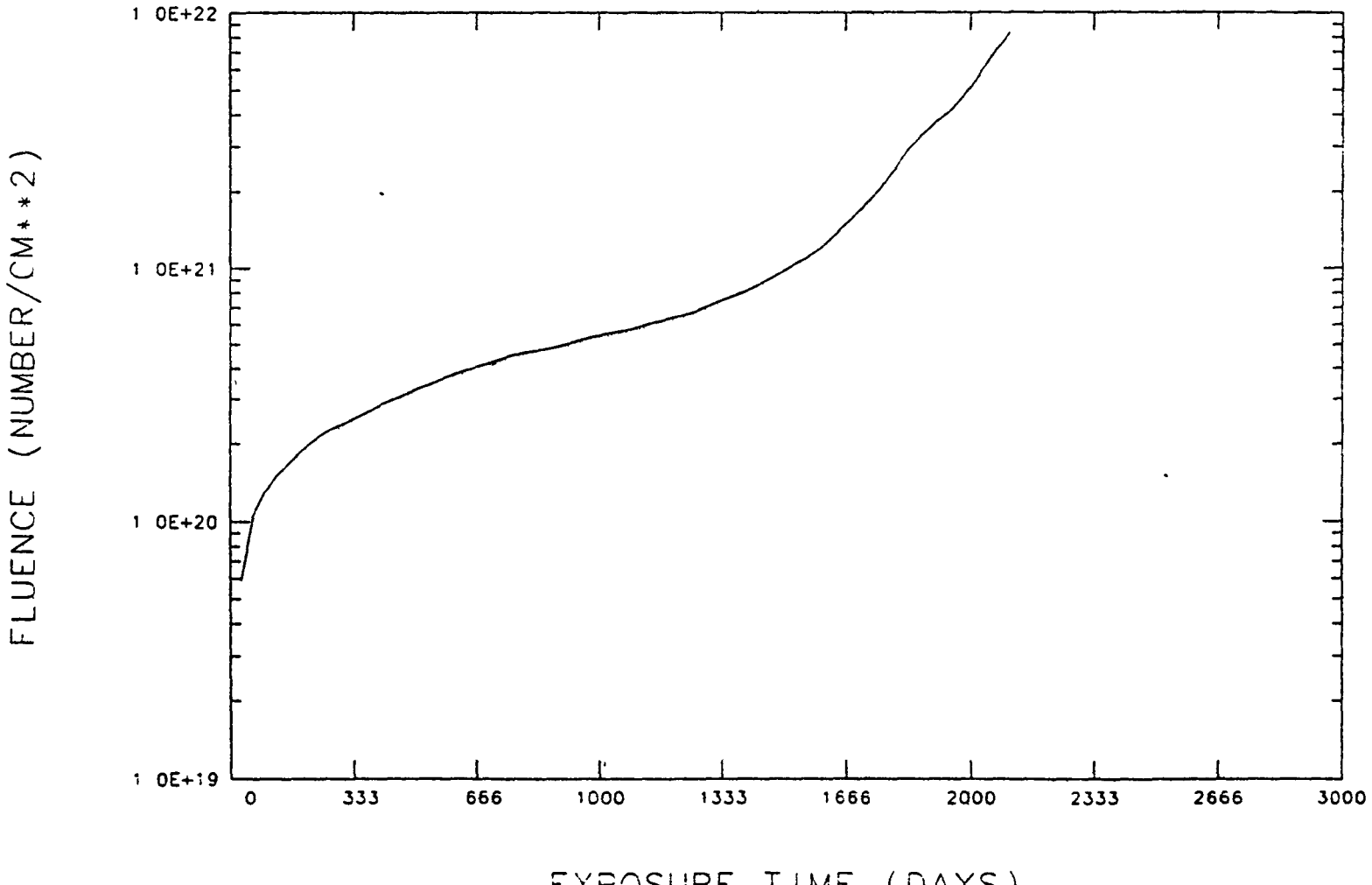


FIGURE 29: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 9-10

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 10

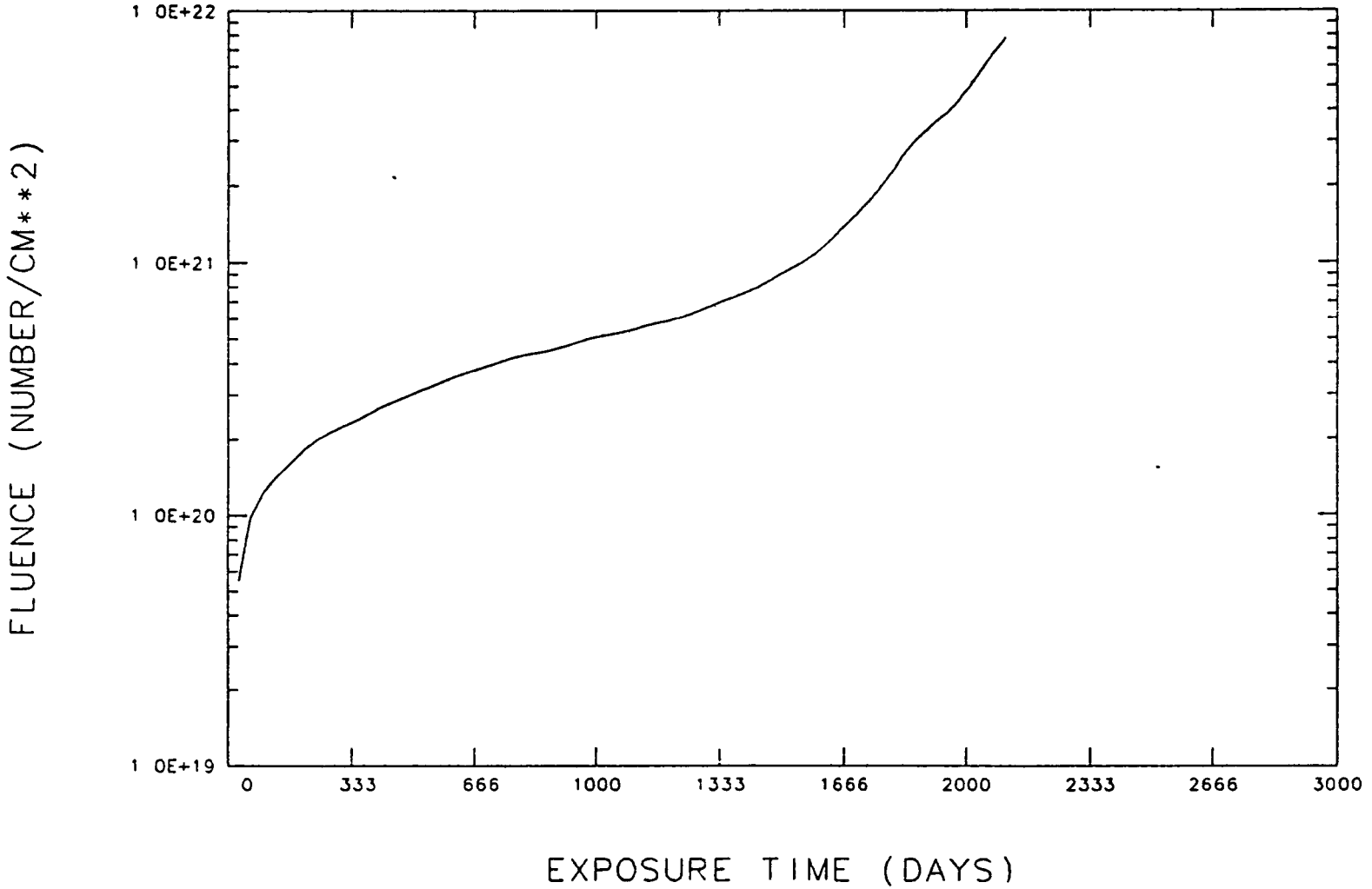


FIGURE 30: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 10

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 10-11

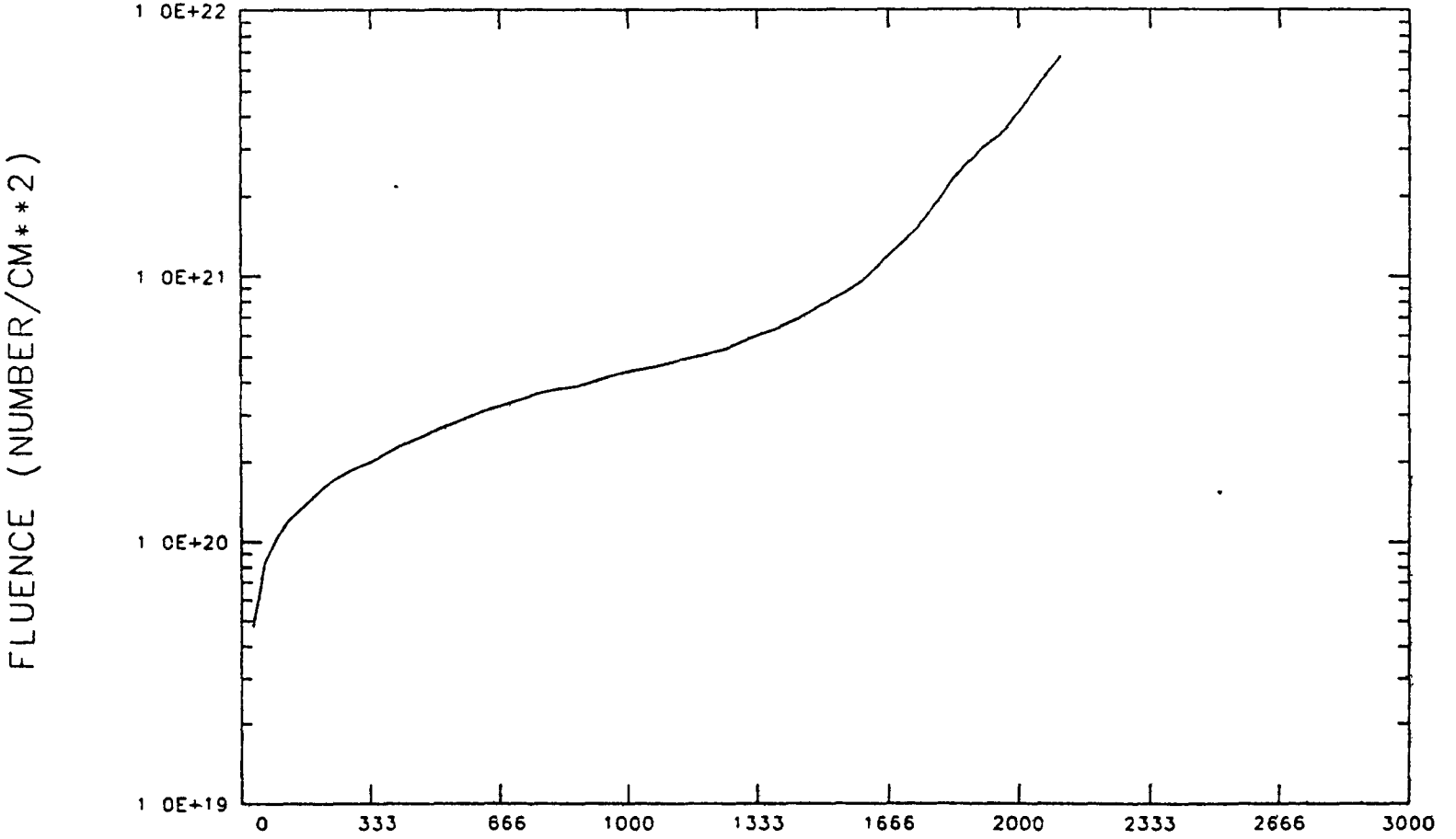


FIGURE 31: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 10-11

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 11

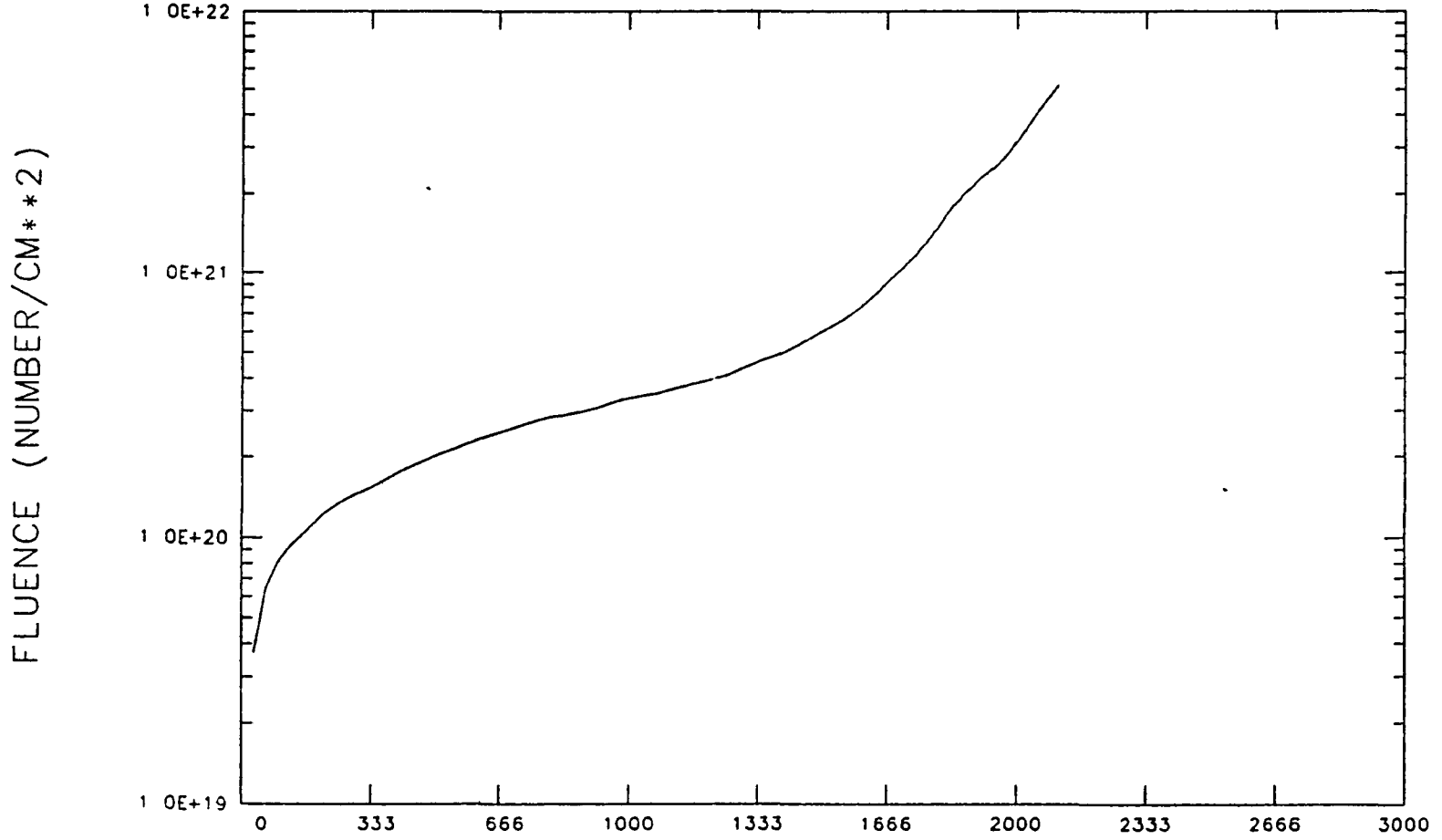


FIGURE 32: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 11

RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 11-12

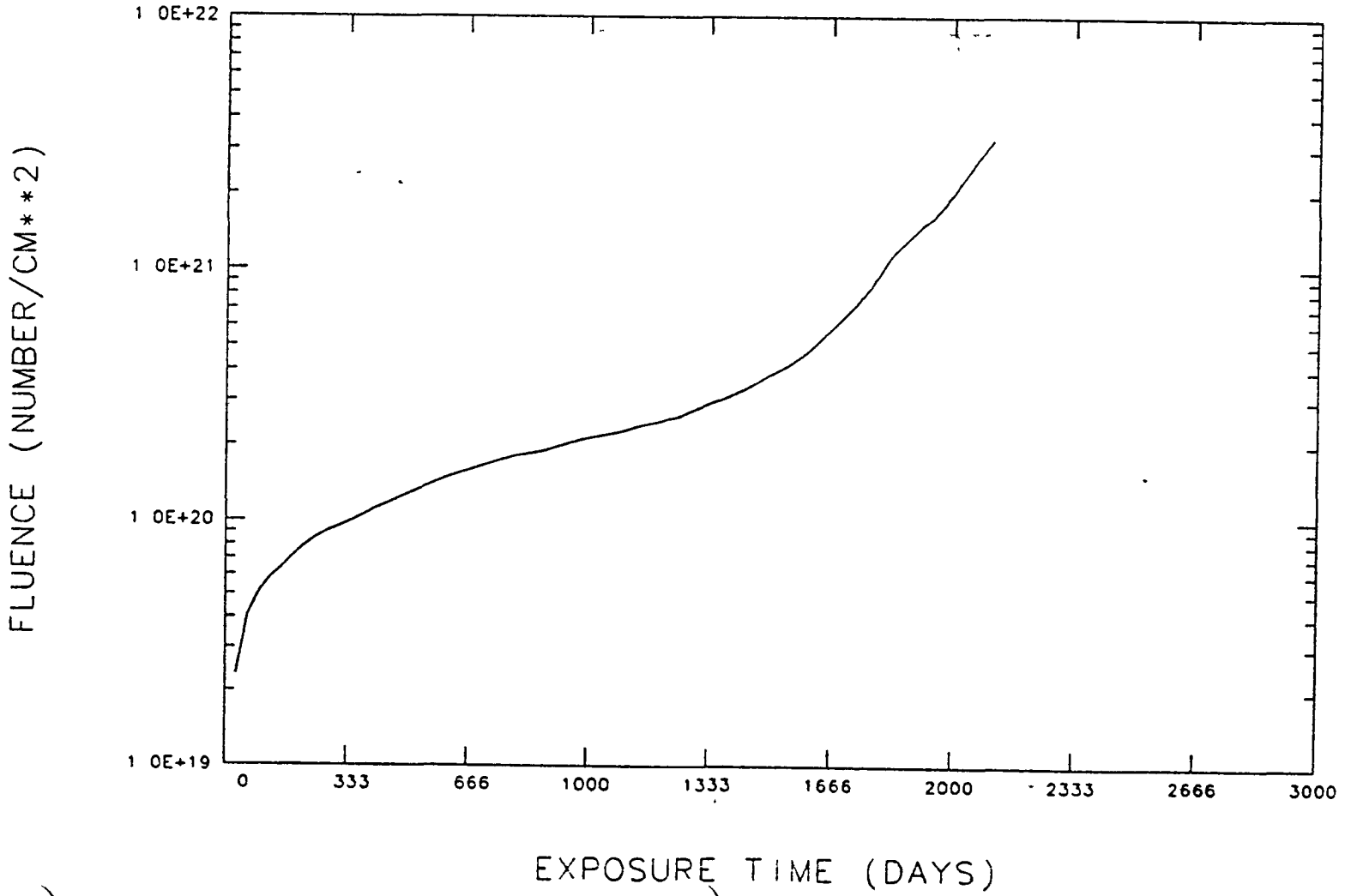


FIGURE 33: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 11-12

RELEASE DATE : APRIL 7, 4
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 12

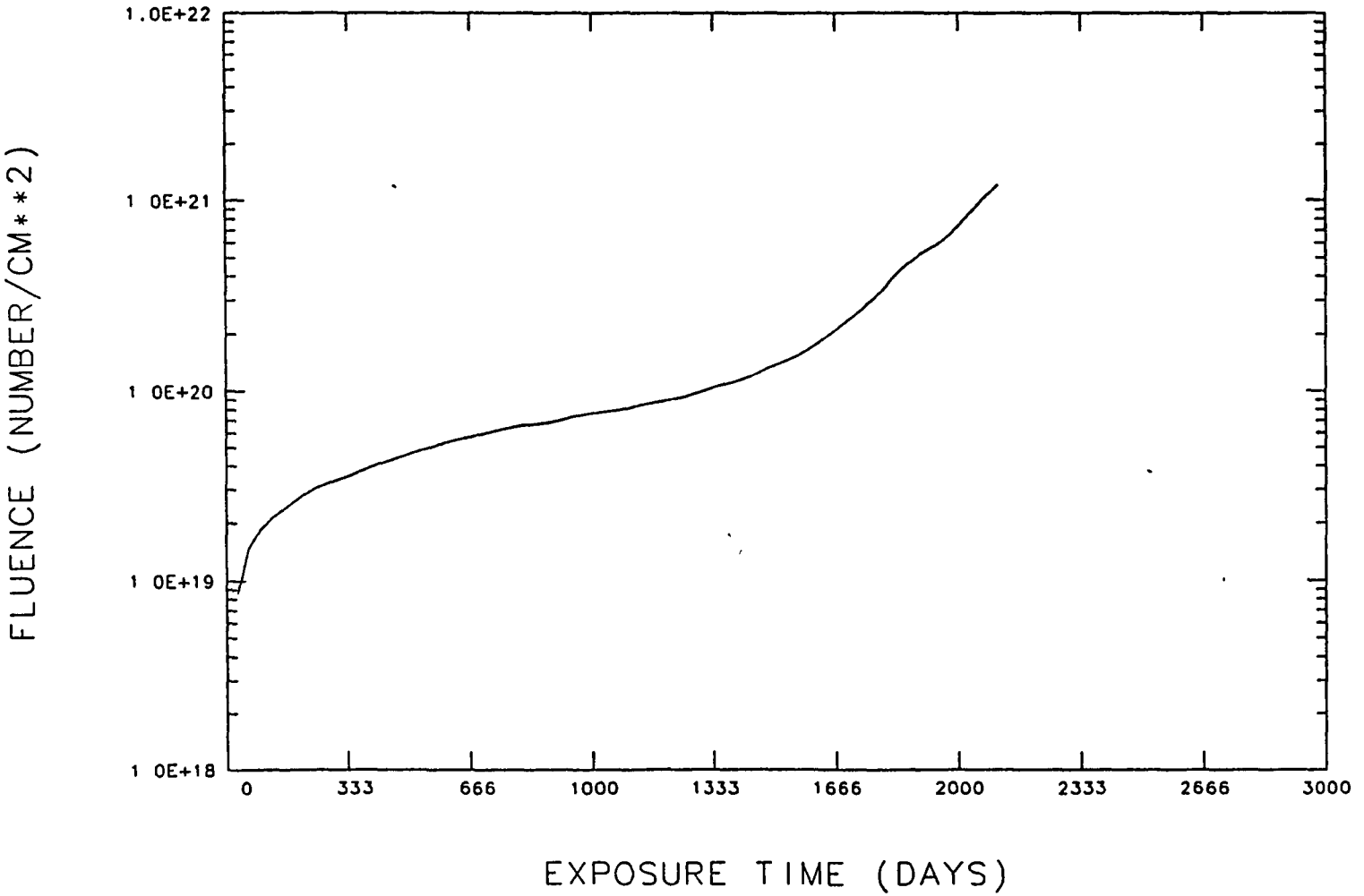


FIGURE 34: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 12

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES LONGERON 12-1

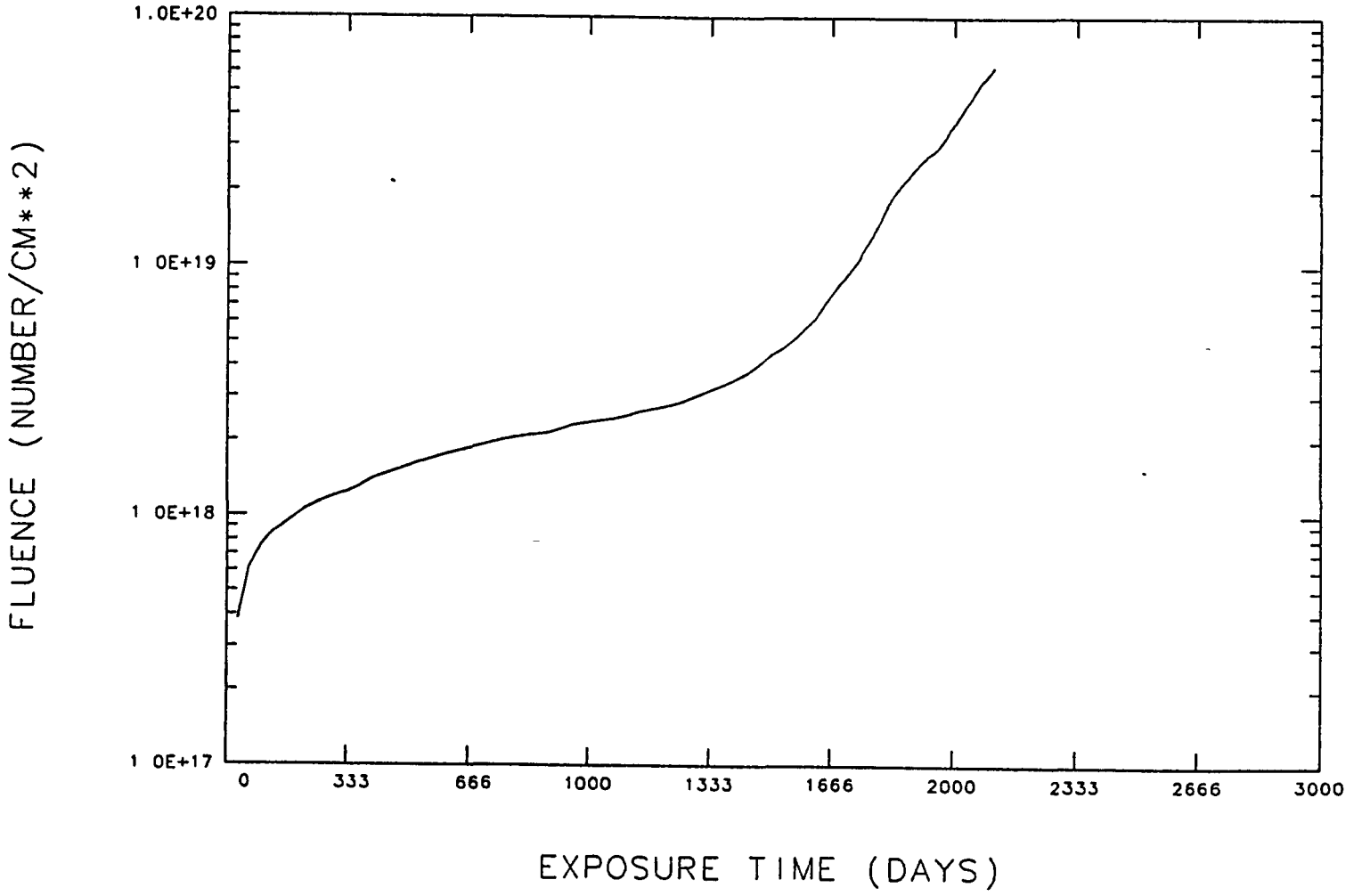


FIGURE 35: ATOMIC OXYGEN FLUEI)VS TIME FOR LONGERON 12-1

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990

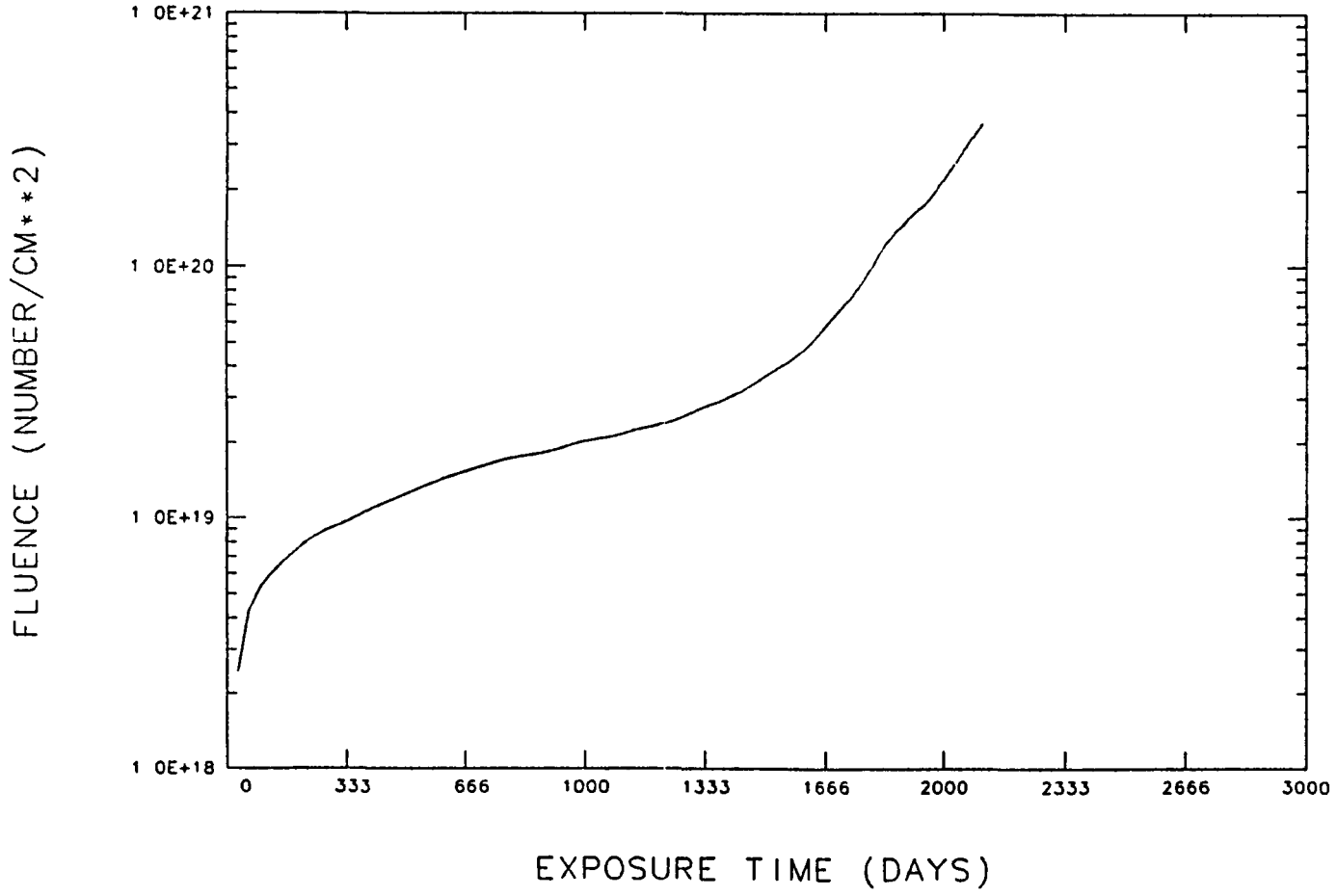


FIGURE 36: ATOMIC OXYGEN FLUENCE VS TIME FOR LDEF TOP SURFACE

RELEASE DATE . APRIL 7, 1984
RECOVERY DATE· JANUARY 12, 1990

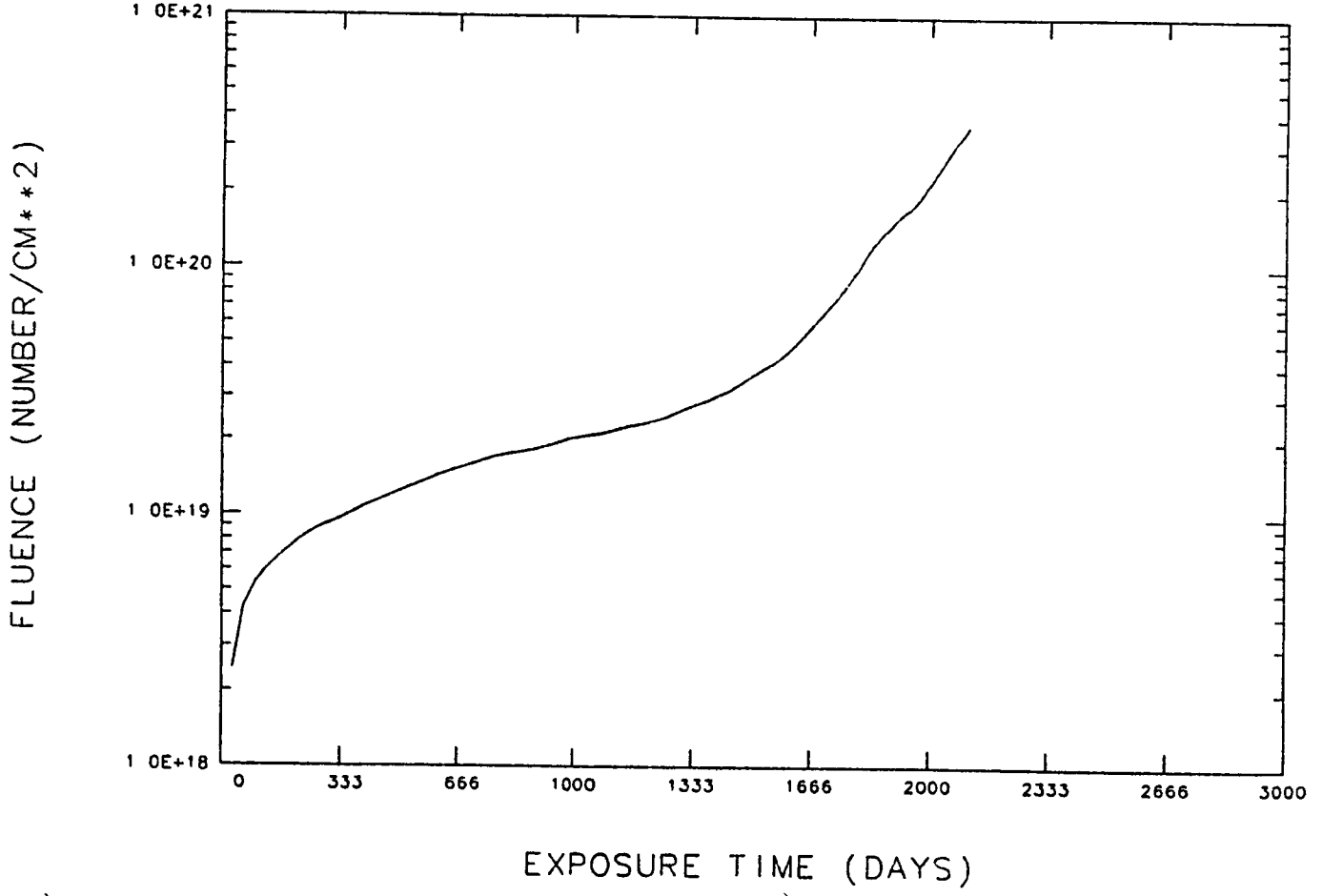


FIGURE 37: ATOMIC OXYGEN FLUENCE VS TIME FOR LDEF BOTTOM SURFACE

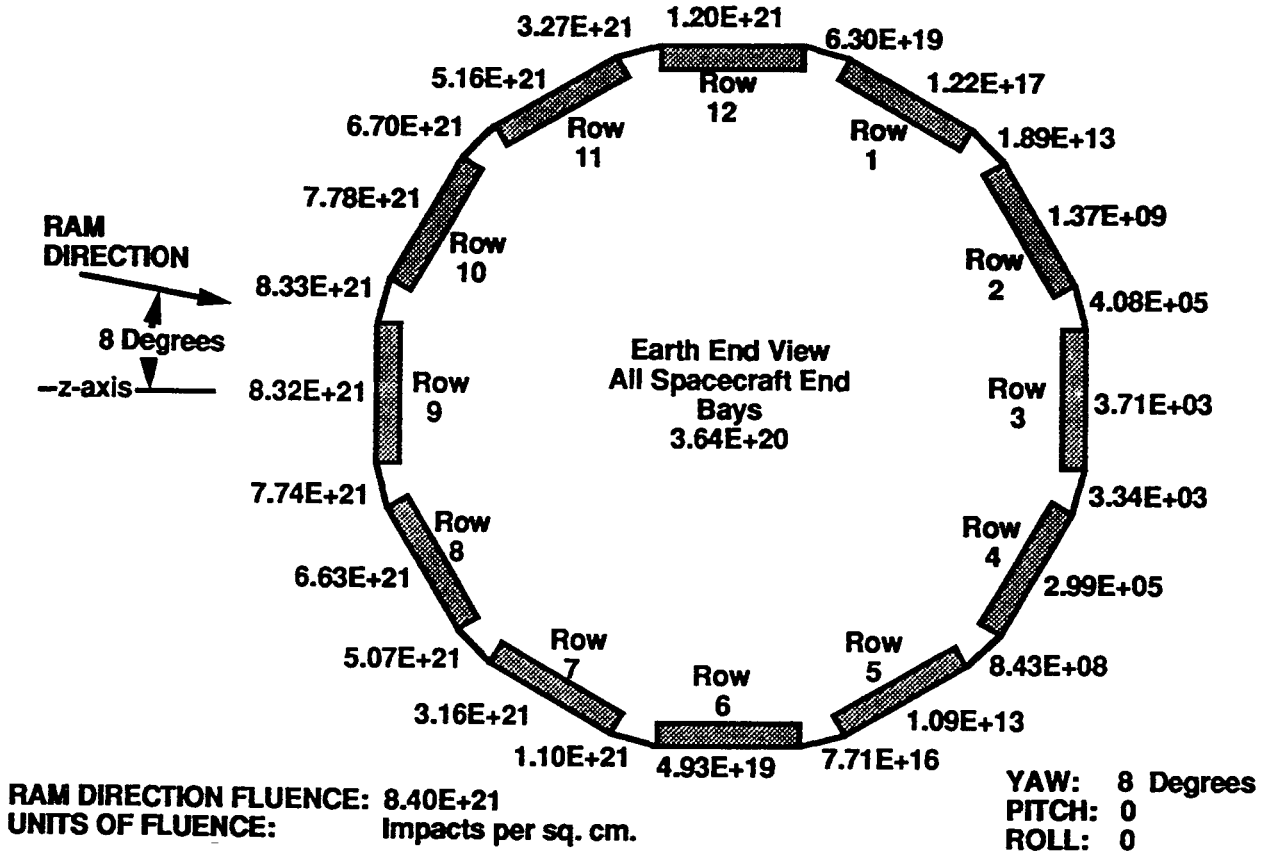


Figure 38.
Atomic oxygen fluences at end of mission for each tray location.

Table 1 LDEF Orbital, Solar, and Geomagnetic Parameters

Date Mo/Day/Yr	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Arguement of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10 7cm Solar Flux	Geo-Magnetic Index
4 7 84	98	0	491.4	473 0	28 52	44842	207 4	18.0	129	130	25
5 6 84	127	29	492 8	474 9	28 53	14429	110 7	16 1	127	131	17
6 7 84	159	61	492 4	473 8	28 53	40090	111 7	13 9	121	103	15
7 8 84	190	92	490 6	474 7	28 53	61603	138 1	17 2	109	92	16
8 8 84	221	123	489 7	474 9	28 54	20909	69 4	20 3	94	86	16
9 8 84	252	154	489 6	474 4	28 52	70157	337 6	22 2	86	79	24
10 3 84	277	179	490 4	473 2	28 53	23414	341 3	33 4	79	73	23
11 9 84	314	216	489 0	473.7	28 53	27216	36 0	26 6	76	75	21
12 9 84	344	246	488 9	473 2	28 53	43978	90.3	30 3	74	73	18
1 9 85	9	277	489 2	472 5	28 53	69984	97 5	31 5	73	72	16
2.8 85	39	307	489 2	471 9	28 53	75168	200 9	32 8	72	72	15
3 9 85	68	336	489 9	470 8	28 53	31363	160 5	30 7	72	73	11
4 9 85	99	367	490 3	469 9	28 53	34387	265 3	28 2	73	76	21
5 22 85	142	410	487 4	472 1	28 53	48211	230 5	27 5	77	82	9
9 22 85	265	533	487 9	470 1	28 52	43373	9 3	32 5	75	70	13
10 5 85	278	546	487 3	470 6	28 53	46483	254 3	20 2	73	74	14
11 5 85	309	577	486.8	470 6	28 52	26179	98 3	20.4	72	73	15
12 12 85	346	614	487 3	469 5	28 53	22205	185 6	17.7	73	72	13
5 14 86	134	767	484.6	469 3	28 53	73354	210 4	26 2	75	74	12
6 16 86	167	800	484 8	469.1	28 53	42509	83.7	25 1	73	70	8
7 10 86	191	824	485 9	467 9	28 53	46051	240 7	30 6	72	73	8
8 9 86	221	854	486.2	467 3	28 53	3974	184 9	29 9	71	70	12
9.9 86	252	885	486 3	466 9	28 52	49939	106 5	29 9	71	69	17
10 12 86	285	918	486.2	466 6	28 53	52445	197 4	30 5	74	82	11
11 12 86	316	949	486 1	466 0	28 52	19354	95 6	28 9	76	75	13
12 17 86	351	984	485 2	466 3	28 53	6221	237 3	30 8	76	70	8
1 7 87	7	1005	485 0	466 1	28 53	77069	131 2	18 6	72	70	8
2.9 87	40	1038	484.7	466 1	28 53	22723	104 2	20 7	70	70	10
3 16 87	75	1073	484 9	465 4	28 52	9245	247 4	23 9	71	73	10

Table 1 LDEF Orbital, Solar, and Geomagnetic Parameters (Continued)

Date Mo/Day/Yr	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Arguement of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10 7cm Solar Flux	Geo-Magnetic Index
4 15 87	105	1103	484.9	464 9	28 52	73094	100 5	22.8	76	86	7
5.18.87	138	1136	484.4	464.7	28 53	23846	51.6	21 9	83	90	8
6 18.87	169	1167	484 2	464.4	28.52	45965	74 5	20.9	85	80	7
7.10.87	191	1189	481 8	466 5	28 53	63504	187 1	21 4	86	87	11
8 10 87	222	1220	481 5	466 3	28 53	29203	90 5	26 0	87	92	13
9 12.87	255	1253	480 9	466 1	28 52	29894	188 5	22.4	89	87	19
11 4 87	308	1306	482 1	462 9	28 52	40176	89 1	34.9	94	99	13
12 11.87	345	1343	479 8	463 7	28 53	3629	314 4	34 0	96	91	9
1 8 88	8	1371	480 5	461.9	28 52	75168	150 2	32 9	98	105	13
2.1 88	32	1395	481.0	460 3	28 53	42250	101 9	22 6	99	102	15
3.14 88	74	1437	478 4	460 9	28.53	61344	50 9	32.5	107	114	14
4.12 88	103	1466	478 5	458 6	28.53	259	83 2	31 8	113	124	16
5 15.88	136	1499	476 7	457 9	28 52	8640	148.2	31 4	118	118	12
6 15 88	167	1530	476 1	456.6	28.53	65578	22 0	31 8	128	144	11
7 15 88	197	1560	475 7	455 1	28 53	11750	15 0	28 9	140	158	10
8 13 88	226	1589	474 7	454 1	28 52	77501	226 7	24.1	153	158	10
9.14.88	258	1621	472.7	452 7	28.52	51754	84.5	26 0	157	154	12
10.14 88	288	1651	470 2	450 0	28 50	12355	15 6	25 9	160	169	13
11.14 88	319	1682	467 1	447 1	28 51	19526	100 6	17 0	159	153	12
12 15.88	350	1713	463 3	444.9	28.52	47261	97.5	16 8	172	194	14
1.1 89	1	1730	459 9	443 8	28.51	6307	137.2	27 1	172	190	14
1.8.89	8	1737	459.4	442.9	28.53	17280	35 2	20.5	174	219	14
1 15 89	15	1744	459 7	439 7	28 52	61603	150 7	23.8	183	272	25
1 22 89	22	1751	458.2	438 6	28 53	5098	336.0	32 5	188	230	25
1 30.89	30	1759	455 9	438 6	28 53	63418	24.3	28 6	192	207	11
2 6 89	37	1766	453.6	439 1	28 53	34560	91.5	22 1	194	188	28
2 13 89	44	1773	454 2	435 9	28.53	39139	16 5	12 8	201	251	16
2 20 89	51	1780	454 2	433 1	28 52	4406	108 8	20.0	207	230	13
2.27 90	58	1787	452.5	432 1	28.53	47693	228 7	28 6	212	203	8

Table 1 LDEF Orbital, Solar, and Geomagnetic Parameters (Continued)

Date Mo/Day/Yr	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Arguement of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10 7cm Solar Flux	Geo-Magnetic Index
3 8 89	67	1796	448 2	433 4	28 53	52099	138.5	31 7	214	175	22
3 15 89	74	1803	447 5	431.5	28 52	33610	161.6	24 0	218	219	54
3 22 89	81	1810	447 0	428 0	28.53	20390	161 9	17 5	219	242	54
3 28 89	87	1816	446 0	426 1	28 52	82253	210 6	23 9	217	195	26
4 4 89	94	1823	443.8	425 6	28 52	85450	141 2	30 8	216	171	43
4 10 89	100	1829	441 7	425 3	28 52	52186	235 0	25 9	214	194	25
4 19 89	109	1838	440 9	422 2	28 52	38275	222 4	20 8	208	194	17
4 26 89	116	1845	440 3	420.4	28.52	24192	226 6	26 5	205	195	9
5 3 89	123	1852	437.8	420 4	28 52	32141	136.6	30 5	203	181	36
5 10 89	130	1859	435 4	420 0	28.52	45533	23 6	22 1	204	197	23
5 14 89	134	1863	435 1	418 5	28 53	73008	234.7	16 1	200	199	8
5 20 89	140	1869	435 6	415 7	28.52	27734	19 4	16 1	197	195	9
5 27 89	147	1876	435 5	413 3	28 52	57370	197 1	25 9	196	190	29
6 4 89	155	1884	432 8	413 6	28 52	56074	138 5	36 7	198	202	12
6 11 89	162	1891	429 1	414 7	28 52	18576	242.0	31 0	200	241	31
6 19 89	170	1899	428 2	411 3	28 52	11232	209 0	14 0	205	307	19
6 27 89	178	1907	428.3	407 8	28.53	48038	347.8	20 8	208	235	10
7 4 89	185	1914	426 9	406.5	28 53	59962	240 9	28 6	211	212	10
7 11 89	192	1921	424 6	406 5	28.53	38275	276.7	29 6	211	189	8
7 18 89	199	1928	422 9	405 5	28 52	55382	147 6	23 3	210	187	6
7 24 89	205	1934	422 3	404 2	28.52	14429	273 9	20 7	210	194	7
7 30 89	211	1940	421.9	402 8	28 52	28771	164.2	24 9	210	178	8
8 7 89	219	1948	419 9	402 3	28.52	14515	160 4	26.9	212	224	6
8 14.89	226	1955	417.7	400 7	28 53	69811	228 5	19.9	216	248	22
8 21 89	233	1962	416 9	397.6	28 53	69379	174 0	16 5	220	254	32
8 28 89	240	1969	416 7	395 1	28.53	7690	20 1	26 8	219	176	15
9.2.89	245	1974	414 8	395 0	28 52	41126	197.2	33 3	220	218	19
9 9 89	252	1981	410 9	395 2	28 52	23501	215 7	34 2	225	297	14
9 16 89	259	1988	407 8	393 6	28 52	11059	211.8	20 7	219	239	22

Table 1 LDEF Orbital, Solar, and Geomagnetic Parameters (Continued)

Date Mo/Day/Yr	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Arguement of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10 7cm Solar Flux	Geo-Magnetic Index
9 22 89	265	1994	407 7	389 7	28 52	84758	209 2	13 5	214	168	18
9 30.89	273	2002	407 5	386 5	28 52	24192	42 4	20.5	217	246	23
10.6 89	279	2008	405.0	384 5	28 53	75341	135 9	30.0	219	219	10
10 13.89	286	2015	401 3	382 8	28 53	1037	35.5	32 5	221	209	7
10 21.89	294	2023	396 9	380 2	28.52	38794	169 5	26.2	223	219	37
10 28.89	301	2030	394 3	377 2	28 52	29981	150 1	22 3	224	192	23
11 4.89	308	2037	391 7	374 2	28 52	9763	179 0	21 9	223	208	17
11.11.89	315	2044	388 0	370 2	28 52	5616	139 2	21 5	223	249	14
11.17 89	321	2050	385 0	365 8	28 52	21341	23 2	20 6	220	226	25
11 24 89	328	2057	381 7	360 8	28 52	65750	136 7	24.9	224	220	7
11 29.89	333	2062	379 0	358.1	28 53	40522	203 0	30.7	224	220	7
12 6 89	340	2069	372 9	355 6	28 52	39917	147.8	35 5	224	224	19
12.13.89	347	2076	367 8	353 6	28 52	11405	211 8	25 4	217	204	12
12 20 89	354	2083	365 3	348 4	28 51	37238	44 0	12 8	212	167	9
12 27 89	361	2090	362 3	341 5	28 51	67910	215 2	17 0	214	200	10
12 31 89	365	2094	359 5	338 0	28 51	56160	232 0	23 6	214	251	20
1.10.90	10	2104	352 0	331 7	28 52	77846	56 7	36 3	212	192	15
1 12 90	12	2106	350 8	330.5	28 52	77846	56 7	36 3	209	167	12
1.13 90	13	2107	350 2	329.9	28 52	77846	56.7	36 3	209	167	12

```
*******************************************************
*  LONG DURATION EXPOSURE FACILITY (LDEF)             *
*  ATOMIC OXYGEN FLUX CALCULATION                     *
*  SPACECRAFT RELEASE DATE:   APRIL 7, 1984           *
*  SPACECRAFT RECOVERY DATE:  JANUARY 12, 1990        *
*                                                     *
*  DATE OF COMPUTATION·     91/01/07    09.04 06.     *
*******************************************************


 SATELLITE ORIENTATION IS
     YAW   =      8.00 DEGREES
     PITCH =        00 DEGREES
     ROLL  =       .00 DEGREES
 YAW   = ROTATION ABOUT SATELLITE X AXIS (VERTICAL UP POSITIVE)
 PITCH = ROTATION ABOUT SATELLITE Y AXIS (SIDE AXIS)
 ROLL  = ROTATION ABOUT SATELLITE Z AXIS (RAM DIRECTION POSTIVE)

ATOMIC OXYGEN FLUENCES WILL BE CALCULATED
FOR THE FOLLOWING DAYS AFTER LAUNCH
      2106
```

```
**************************************
*MONTH·   4   DAY    7   YEAR.  84     *
*DAY OF YEAR    98                     *
*CUMULATIVE EXPOSURE TIME·    0  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          491.40
     PERIGEE (KM ABOVE EARTH)                         473.00
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        44842
     LOCAL SOLAR (EPOCH) TIME (HMS)                 2 16 57
     ASCENDING NODE LONGITUDE (DEGREES EAST)          207 40
     ARGUEMENT OF PERIGEE (DEGREES)                    18.00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6862200.00
     SEMIMINOR AXIS (M)                               6862193 83
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5655.38
     ENERGY (JOULE)                                   -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84098
     3 MONTH AVERAGE F10.7 CM FLUX          129.00
     DAILY AVERAGE F10.7 CM FLUX            130 00
     DAILY MAGNETIC INDEX AP                 25 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84098:      3 578E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84098·      2 046E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84098:   880.8 TO   1161.4 K
```

****
DATA FOR· 84098
7 APRIL 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 046E+08	000E+00
LONGERON	127.0	6.609E+03	.000E+00
ROW 2	142.0	4 847E-02	.000E+00
LONGERON	157.0	1.360E-06	.000E+00
ROW 3	172.0	2 030E-09	.000E+00
LONGERON	173.0	8.523E-10	.000E+00
ROW 4	158.0	1 279E-07	.000E+00
LONGERON	143.0	1 987E-03	.000E+00
ROW 5	128.0	3.178E+02	.000E+00
LONGERON	113.0	3 205E+07	.000E+00
ROW 6	98.0	9.674E+10	.000E+00
LONGERON	83 0	3.166E+12	.000E+00
ROW 7	68.0	9 485E+12	000E+00
LONGERON	53.0	1.535E+13	000E+00
ROW 8	38.0	2 016E+13	000E+00
LONGERON	23.0	2 360E+13	.000E+00
ROW 9	8.0	2 543E+13	000E+00
LONGERON	7.0	2 553E+13	.000E+00
ROW 10	22.0	2 389E+13	.000E+00
LONGERON	37.0	2 062E+13	.000E+00
ROW 11	52.0	1 595E+13	.000E+00
LONGERON	67.0	1.019E+13	.000E+00
ROW 12	82.0	3.829E+12	.000E+00
LONGERON	97.0	1 883E+11	000E+00
TOP	90.0	1 047E+12	000E+00
BOTTOM	90.0	1.047E+12	000E+00
RAM DIR	.0	2 571E+13	.000E+00

```
**************************************
*MONTH:   5   DAY:   6   YEAR   84     *
*DAY OF YEAR   127                     *
*CUMULATIVE EXPOSURE TIME.   29  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          492.80
     PERIGEE (KM ABOVE EARTH)                         474.90
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        14429
     LOCAL SOLAR (EPOCH) TIME (HMS)                 11 23 16
     ASCENDING NODE LONGITUDE (DEGREES EAST)          110.70
     ARGUEMENT OF PERIGEE (DEGREES)                    16.10

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                          6863850.00
     SEMIMINOR AXIS (M)                          6863844.16
     ECCENTRICITY                                       001
     PERIOD (SEC)                                  5657.41
     ENERGY (JOULE)                               -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5.232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84127
     3 MONTH AVERAGE F10.7 CM FLUX          127 00
     DAILY AVERAGE F10 7 CM FLUX            131.00
     DAILY MAGNETIC INDEX AP                 17 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84127·      3 032E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84127.      7 686E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84127:   833 4 TO   1208.5 K
```

****
DATA FOR· 84127
6 MAY 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	7 686E+07	3 526E+14
LONGERON	127.0	1 955E+03	1 073E+10
ROW 2	142.0	2 010E-02	8 591E+04
LONGERON	157.0	1 177E-06	3 178E+00
ROW 3	172.0	4 355E-09	7.999E-03
LONGERON	173.0	4 249E-09	6.391E-03
ROW 4	158.0	1 127E-06	1 572E+00
LONGERON	143.0	2.054E-02	2 823E+04
ROW 5	128.0	2 280E+03	3 255E+09
LONGERON	113.0	8.861E+07	1.512E+14
ROW 6	98.0	1.176E+11	2.685E+17
LONGERON	83.0	2.948E+12	7.660E+18
ROW 7	68.0	8.327E+12	2.231E+19
LONGERON	53.0	1 325E+13	3 583E+19
ROW 8	38.0	1 728E+13	4.691E+19
LONGERON	23.0	2.013E+13	5.478E+19
ROW 9	8.0	2 160E+13	5 893E+19
LONGERON	7.0	2 161E+13	5 906E+19
ROW 10	22.0	2 014E+13	5.516E+19
LONGERON	37 0	1.730E+13	4 751E+19
ROW 11	52.0	1.328E+13	3 661E+19
LONGERON	67.0	8 352E+12	2 323E+19
ROW 12	82 0	2 976E+12	8 525E+18
LONGERON	97 0	1 177E+11	3 834E+17
TOP	90.0	8 919E+11	2.429E+18
BOTTOM	90.0	8.919E+11	2.429E+18
RAM DIR	0	2 179E+13	5 950E+19

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**************************************
*MONTH:   6   DAY:   7   YEAR   84     *
*DAY OF YEAR:  159                     *
*CUMULATIVE EXPOSURE TIME    61  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          492 40
     PERIGEE (KM ABOVE EARTH)                         473 80
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        40090
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 34 57
     ASCENDING NODE LONGITUDE (DEGREES EAST)          111.70
     ARGUEMENT OF PERIGEE (DEGREES)                    13.90

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6863100.00
     SEMIMINOR AXIS (M)                            6863093.70
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                   5656.49
     ENERGY (JOULE)                                -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84159
     3 MONTH AVERAGE F10.7 CM FLUX          121.00
     DAILY AVERAGE F10.7 CM FLUX            103.00
     DAILY MAGNETIC INDEX AP                 15 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84159.      1.597E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84159.      1.376E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84159:   788 4 TO   1055 6 K
```

****
DATA FOR: 84159
7 JUNE 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 376E+07	4.778E+14
LONGERON	127.0	7 223E+01	1.353E+10
ROW 2	142.0	1.420E-04	1.139E+05
LONGERON	157 0	2.379E-09	4.808E+00
ROW 3	172.0	5 223E-12	1.403E-02
LONGERON	173.0	7 093E-12	1.227E-02
ROW 4	158.0	5 451E-09	3.138E+00
LONGERON	143.0	4 279E-04	5.722E+04
ROW 5	128.0	1 963E+02	6 678E+09
LONGERON	113.0	2.197E+07	3 040E+14
ROW 6	98 0	5 206E+10	5.031E+17
LONGERON	83.0	1.539E+12	1 386E+19
ROW 7	68.0	4 383E+12	3.988E+19
LONGERON	53.0	6.979E+12	6.380E+19
ROW 8	38.0	9 100E+12	8 337E+19
LONGERON	23.0	1.060E+13	9 726E+19
ROW 9	8.0	1.138E+13	1.045E+20
LONGERON	7.0	1 138E+13	1.047E+20
ROW 10	22.0	1.061E+13	9.767E+19
LONGERON	37.0	9.113E+12	8.402E+19
ROW 11	52.0	6 996E+12	6.464E+19
LONGERON	67.0	4 403E+12	4.086E+19
ROW 12	82.0	1 561E+12	1.480E+19
LONGERON	97.0	5.120E+10	6.169E+17
TOP	90.0	4 464E+11	4.279E+18
BOTTOM	90.0	4 464E+11	4.279E+18
RAM DIR	.0	1.148E+13	1.055E+20

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**************************************
*MONTH:   7   DAY:   8   YEAR:  84     *
*DAY OF YEAR.  190                     *
*CUMULATIVE EXPOSURE TIME.   92  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          490.60
     PERIGEE (KM ABOVE EARTH)                         474.70
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        61603
     LOCAL SOLAR (EPOCH) TIME (HMS)                 2 19  7
     ASCENDING NODE LONGITUDE (DEGREES EAST)          138.10
     ARGUEMENT OF PERIGEE (DEGREES)                    17 20

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6862650.00
     SEMIMINOR AXIS (M)                           6862645.40
     ECCENTRICITY                                       .001
     PERIOD (SEC)                                   5655.93
     ENERGY (JOULE)                                -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84190
     3 MONTH AVERAGE F10.7 CM FLUX          109.00
     DAILY AVERAGE F10.7 CM FLUX             92.00
     DAILY MAGNETIC INDEX AP                 16.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84190:       1 083E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84190:       2 097E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84190:   744 0 TO    997.5 K
```

****
DATA FOR: 84190
8 JULY 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 097E+07	5 244E+14
LONGERON	127.0	1 361E+02	1.381E+10
ROW 2	142.0	1.477E-04	1.143E+05
LONGERON	157.0	7 455E-10	4.812E+00
ROW 3	172 0	3 783E-13	1.403E-02
LONGERON	173.0	1.354E-13	1 228E-02
ROW 4	158.0	4 604E-11	3.145E+00
LONGERON	143.0	3 586E-06	5 780E+04
ROW 5	128 0	4.061E+00	6 946E+09
LONGERON	113.0	2 314E+06	3 366E+14
ROW 6	98.0	2 073E+10	6 006E+17
LONGERON	83.0	9.333E+11	1.717E+19
ROW 7	68.0	2.856E+12	4.958E+19
LONGERON	53.0	4.631E+12	7.935E+19
ROW 8	38.0	6 091E+12	1.037E+20
LONGERON	23.0	7 135E+12	1.210E+20
ROW 9	8.0	7 693E+12	1.301E+20
LONGERON	7.0	7.727E+12	1 303E+20
ROW 10	22.0	7 235E+12	1.216E+20
LONGERON	37.0	6 249E+12	1.046E+20
ROW 11	52.0	4 837E+12	8.049E+19
LONGERON	67.0	3.096E+12	5 090E+19
ROW 12	82.0	1 165E+12	1.845E+19
LONGERON	97.0	4.695E+10	7.483E+17
TOP	90.0	2.946E+11	5 271E+18
BOTTOM	90 0	2 946E+11	5 271E+18
RAM DIR	.0	7 778E+12	1.313E+20

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**************************************
*MONTH:   8   DAY:   8   YEAR·  84     *
*DAY OF YEAR:  221                     *
*CUMULATIVE EXPOSURE TIME.  123  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489 70
     PERIGEE (KM ABOVE EARTH)                         474.90
     INCLINATION OF ORBIT (DEGREES)                    28.54
     GMT (EPOCH) TIME (SECONDS)                        20909
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 26  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)           69.40
     ARGUEMENT OF PERIGEE (DEGREES)                    20 30

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6862300.00
     SEMIMINOR AXIS (M)                            6862296.01
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                   5655.50
     ENERGY (JOULE)                                -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84221
     3 MONTH AVERAGE F10.7 CM FLUX          94 00
     DAILY AVERAGE F10.7 CM FLUX            86.00
     DAILY MAGNETIC INDEX AP                16 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84221       8.475E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84221:      4.973E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84221:   688 8 TO    988 7 K
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****
DATA FOR: 84221
8 AUGUST 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	4.973E+06	5.591E+14
LONGERON	127.0	1.718E+01	1.402E+10
ROW 2	142.0	1.524E-05	1.145E+05
LONGERON	157.0	9.647E-11	4.813E+00
ROW 3	172.0	8.935E-14	1.403E-02
LONGERON	173.0	7.244E-14	1.228E-02
ROW 4	158.0	5 547E-11	3 146E+00
LONGERON	143.0	7 750E-06	5.781E+04
ROW 5	128.0	1.049E+01	6.966E+09
LONGERON	113.0	4 045E+06	3.451E+14
ROW 6	98.0	2.199E+10	6.578E+17
LONGERON	83.0	8.062E+11	1.950E+19
ROW 7	68.0	2.319E+12	5.651E+19
LONGERON	53.0	3.698E+12	9.051E+19
ROW 8	38.0	4.825E+12	1.183E+20
LONGERON	23.0	5 623E+12	1.381E+20
ROW 9	8.0	6 038E+12	1.485E+20
LONGERON	7.0	6 042E+12	1.487E+20
ROW 10	22.0	5 633E+12	1.388E+20
LONGERON	37.0	4.841E+12	1.194E+20
ROW 11	52.0	3 719E+12	9.195E+19
LONGERON	67.0	2.344E+12	5.819E+19
ROW 12	82.0	8.303E+11	2 112E+19
LONGERON	97.0	2.417E+10	8.436E+17
TOP	90.0	2 263E+11	5.969E+18
BOTTOM	90.0	2 263E+11	5.969E+18
RAM DIR	.0	6.092E+12	1 499E+20

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**************************************
*MONTH:   9   DAY:   8   YEAR   84     *
*DAY OF YEAR:  252                     *
*CUMULATIVE EXPOSURE TIME·  154  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489.60
     PERIGEE (KM ABOVE EARTH)                         474.40
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        70157
     LOCAL SOLAR (EPOCH) TIME (HMS)                17 59 41
     ASCENDING NODE LONGITUDE (DEGREES EAST)          337.60
     ARGUEMENT OF PERIGEE (DEGREES)                    22.20

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6862000.00
     SEMIMINOR AXIS (M)                            6861995 79
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5655.13
     ENERGY (JOULE)                               -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5.232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84252
     3 MONTH AVERAGE F10.7 CM FLUX          86.00
     DAILY AVERAGE F10 7 CM FLUX            79.00
     DAILY MAGNETIC INDEX AP                24 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84252:      9 255E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84252:      2.283E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84252·   700 3 TO    921.3 K
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****
DATA FOR: 84252
8 SEPTEMBER 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 283E+06	5.688E+14
LONGERON	127.0	2 318E+00	1.404E+10
ROW 2	142.0	7.353E-07	1.145E+05
LONGERON	157.0	2.775E-12	4 813E+00
ROW 3	172.0	2 823E-15	1.403E-02
LONGERON	173.0	4 394E-15	1.228E-02
ROW 4	158.0	9 118E-12	3.146E+00
LONGERON	143.0	3 486E-06	5.783E+04
ROW 5	128.0	9 272E+00	6 992E+09
LONGERON	113.0	4.531E+06	3.566E+14
ROW 6	98.0	2.477E+10	7.204E+17
LONGERON	83.0	8.951E+11	2 178E+19
ROW 7	68.0	2 550E+12	6.303E+19
LONGERON	53.0	4 053E+12	1.009E+20
ROW 8	38.0	5 280E+12	1.319E+20
LONGERON	23.0	6 147E+12	1 539E+20
ROW 9	8.0	6 596E+12	1.654E+20
LONGERON	7.0	6 595E+12	1.656E+20
ROW 10	22.0	6 144E+12	1.546E+20
LONGERON	37.0	5 275E+12	1.330E+20
ROW 11	52.0	4 046E+12	1.023E+20
LONGERON	67.0	2 542E+12	6 473E+19
ROW 12	82.0	8 888E+11	2.342E+19
LONGERON	97.0	2 258E+10	9 062E+17
TOP	90.0	2.433E+11	6.597E+18
BOTTOM	90.0	2.433E+11	6 597E+18
RAM DIR	.0	6.652E+12	1 669E+20

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**************************************
*MONTH   10   DAY:   3   YEAR   84     *
*DAY OF YEAR:  277                     *
*CUMULATIVE EXPOSURE TIME:  179  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          490.40
     PERIGEE (KM ABOVE EARTH)                         473.20
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        23414
     LOCAL SOLAR (EPOCH) TIME (HMS)                 5 15 25
     ASCENDING NODE LONGITUDE (DEGREES EAST)          341.30
     ARGUEMENT OF PERIGEE (DEGREES)                    33.40

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6861800.00
     SEMIMINOR AXIS (M)                            6861794 61
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                     5654 88
     ENERGY (JOULE)                                -2.906E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.232E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    84277
     3 MONTH AVERAGE F10.7 CM FLUX             79.00
     DAILY AVERAGE F10.7 CM FLUX               73.00
     DAILY MAGNETIC INDEX AP                   23 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84277:       9.078E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84277:       8.174E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84277·   693 8 TO    907 3 K
```

****
DATA FOR: 84277
3 OCTOBER 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8 174E+06	5.801E+14
LONGERON	127.0	1 944E+01	1.407E+10
ROW 2	142.0	6 415E-06	1.145E+05
LONGERON	157 0	1 131E-11	4.813E+00
ROW 3	172.0	3 132E-15	1.403E-02
LONGERON	173.0	1 144E-15	1.228E-02
ROW 4	158.0	7 348E-13	3.146E+00
LONGERON	143.0	1 634E-07	5 783E+04
ROW 5	128.0	5 824E-01	7.003E+09
LONGERON	113 0	8 729E+05	3.624E+14
ROW 6	98 0	1 481E+10	7 632E+17
LONGERON	83.0	7 857E+11	2.360E+19
ROW 7	68.0	2 404E+12	6.838E+19
LONGERON	53.0	3 891E+12	1 095E+20
ROW 8	38 0	5.114E+12	1.431E+20
LONGERON	23 0	5 988E+12	1 670E+20
ROW 9	8.0	6 453E+12	1.795E+20
LONGERON	7.0	6 479E+12	1 797E+20
ROW 10	22.0	6 064E+12	1 678E+20
LONGERON	37.0	5 235E+12	1 443E+20
ROW 11	52.0	4 049E+12	1 111E+20
LONGERON	67.0	2 588E+12	7 027E+19
ROW 12	82.0	9 648E+11	2 542E+19
LONGERON	97.0	3 310E+10	9 663E+17
TOP	90.0	2 364E+11	7.115E+18
BOTTOM	90.0	2 364E+11	7 115E+18
RAM DIR	0	6 523E+12	1 812E+20

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**************************************
*MONTH   11   DAY    9   YEAR· 84     *
*DAY OF YEAR:  314                     *
*CUMULATIVE EXPOSURE TIME·  216  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489.00
     PERIGEE (KM ABOVE EARTH)                         473.70
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        27216
     LOCAL SOLAR (EPOCH) TIME (HMS)                 9 57 36
     ASCENDING NODE LONGITUDE (DEGREES EAST)           36 00
     ARGUEMENT OF PERIGEE (DEGREES)                    26 60

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6861350 00
     SEMIMINOR AXIS (M)                           6861345 74
     ECCENTRICITY                                        001
     PERIOD (SEC)                                    5654 32
     ENERGY (JOULE)                                -2 907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  84314
     3 MONTH AVERAGE F10.7 CM FLUX           76.00
     DAILY AVERAGE F10.7 CM FLUX             75 00
     DAILY MAGNETIC INDEX AP                 21 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84314:      9 249E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84314:      3.094E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84314:   717.0 TO    900 4 K
```

****
DATA FOR· 84314
9 NOVEMBER 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3.094E+06	5.981E+14
LONGERON	127 0	3 444E+00	1.410E+10
ROW 2	142.0	8 009E-07	1.145E+05
LONGERON	157.0	1 715E-12	4.813E+00
ROW 3	172.0	9 419E-16	1.403E-02
LONGERON	173.0	9 183E-16	1.228E-02
ROW 4	158 0	1.595E-12	3 146E+00
LONGERON	143 0	7 184E-07	5 783E+04
ROW 5	128 0	3 035E+00	7.009E+09
LONGERON	113 0	2.669E+06	3.681E+14
ROW 6	98 0	2.182E+10	8.217E+17
LONGERON	83 0	8 747E+11	2.625E+19
ROW 7	68.0	2 528E+12	7.626E+19
LONGERON	53 0	4.033E+12	1.221E+20
ROW 8	38 0	5 264E+12	1.597E+20
LONGERON	23 0	6.136E+12	1.863E+20
ROW 9	8.0	6 590E+12	2.003E+20
LONGERON	7.0	6 594E+12	2.006E+20
ROW 10	22 0	6.149E+12	1 873E+20
LONGERON	37 0	5 286E+12	1 612E+20
ROW 11	52 0	4.062E+12	1.241E+20
LONGERON	67.0	2 561E+12	7.850E+19
ROW 12	82 0	9.073E+11	2.842E+19
LONGERON	97.0	2.450E+10	1.058E+18
TOP	90 0	2.415E+11	7.879E+18
BOTTOM	90.0	2 415E+11	7.879E+18
RAM DIR	0	6.649E+12	2.022E+20

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**************************************
*MONTH.  12   DAY·   9   YEAR   84     *
*DAY OF YEAR·  344                     *
*CUMULATIVE EXPOSURE TIME   246  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          488 90
     PERIGEE (KM ABOVE EARTH)                         473.20
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        43978
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 14 10
     ASCENDING NODE LONGITUDE (DEGREES EAST)           90 30
     ARGUEMENT OF PERIGEE (DEGREES)                    30.30

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6861050 00
     SEMIMINOR AXIS (M)                               6861045 51
     ECCENTRICITY                                            .001
     PERIOD (SEC)                                        5653 95
     ENERGY (JOULE)                                   -2.907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        84344
     3 MONTH AVERAGE F10 7 CM FLUX                 74 00
     DAILY AVERAGE F10 7 CM FLUX                   73 00
     DAILY MAGNETIC INDEX AP                       18 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   84344       7.691E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   84344       2.285E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    84344.   674 0 TO    923 1 K
```

****
DATA FOR: 84344
9 DECEMBER 1984
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 285E+06	6 051E+14
LONGERON	127.0	2 975E+00	1 411E+10
ROW 2	142.0	9 220E-07	1 145E+05
LONGERON	157.0	2.936E-12	4 813E+00
ROW 3	172.0	2.509E-15	1.403E-02
LONGERON	173.0	3.410E-15	1.228E-02
ROW 4	158.0	6 448E-12	3.146E+00
LONGERON	143.0	2 356E-06	5.784E+04
ROW 5	128.0	6 320E+00	7 021E+09
LONGERON	113.0	3 296E+06	3.758E+14
ROW 6	98.0	1 971E+10	8.756E+17
LONGERON	83 0	7 387E+11	2.834E+19
ROW 7	68 0	2 114E+12	8 228E+19
LONGERON	53.0	3 363E+12	1 317E+20
ROW 8	38.0	4 384E+12	1 722E+20
LONGERON	23 0	5 106E+12	2 009E+20
ROW 9	8.0	5 480E+12	2.160E+20
LONGERON	7.0	5 481E+12	2 163E+20
ROW 10	22.0	5 108E+12	2.019E+20
LONGERON	37.0	4 387E+12	1.737E+20
ROW 11	52.0	3 367E+12	1 337E+20
LONGERON	67.0	2 117E+12	8.456E+19
ROW 12	82.0	7 431E+11	3 055E+19
LONGERON	97.0	1 916E+10	1 115E+18
TOP	90.0	2 012E+11	8.453E+18
BOTTOM	90.0	2.012E+11	8.453E+18
RAM DIR	.0	5 527E+12	2 180E+20

```
**************************************
*MONTH    1   DAY.   9   YEAR·  85     *
*DAY OF YEAR     9                     *
*CUMULATIVE EXPOSURE TIME:  276  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          489 20
      PERIGEE (KM ABOVE EARTH)                         472 50
      INCLINATION OF ORBIT (DEGREES)                    28.53
      GMT (EPOCH) TIME (SECONDS)                        69984
      LOCAL SOLAR (EPOCH) TIME (HMS)                 1 56 24
      ASCENDING NODE LONGITUDE (DEGREES EAST)           97.50
      ARGUEMENT OF PERIGEE (DEGREES)                    31 50

 CONSTANTS
      RADIUS OF EARTH (M)                             6.38E+06
      MASS OF EARTH (KG)                              5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                              6860850.00
      SEMIMINOR AXIS (M)                              6860844 92
      ECCENTRICITY                                          001
      PERIOD (SEC)                                      5653 71
      ENERGY (JOULE)                                 -2.907E+07
      ANGULAR MOMENTUM (JOULE-SEC)                    5 231E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                    85009
      3 MONTH AVERAGE F10.7 CM FLUX             73.00
      DAILY AVERAGE F10.7 CM FLUX               72 00
      DAILY MAGNETIC INDEX AP                   16.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85009       5 737E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85009:      4.845E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85009.   624 1 TO    914 8 K
```

****
DATA FOR· 85009
9 JANUARY 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.845E+06	6.144E+14
LONGERON	127.0	9.852E+00	1.413E+10
ROW 2	142.0	3.050E-06	1.145E+05
LONGERON	157.0	5.927E-12	4.813E+00
ROW 3	172.0	1.979E-15	1.403E-02
LONGERON	173 0	8 585E-16	1.228E-02
ROW 4	158 0	5 916E-13	3 146E+00
LONGERON	143 0	1 213E-07	5 784E+04
ROW 5	128.0	3 494E-01	7 029E+09
LONGERON	113 0	4 503E+05	3 807E+14
ROW 6	98.0	8 401E+09	9 123E+17
LONGERON	83 0	4 862E+11	2 994E+19
ROW 7	68 0	1 509E+12	8 701E+19
LONGERON	53.0	2 450E+12	1 393E+20
ROW 8	38 0	3 224E+12	1 821E+20
LONGERON	23.0	3 779E+12	2 125E+20
ROW 9	8.0	4 075E+12	2 284E+20
LONGERON	7.0	4 095E+12	2 288E+20
ROW 10	22.0	3.835E+12	2.136E+20
LONGERON	37 0	3.314E+12	1.838E+20
ROW 11	52 0	2.567E+12	1.414E+20
LONGERON	67.0	1 645E+12	8.948E+19
ROW 12	82 0	6.192E+11	3.233E+19
LONGERON	97 0	2.137E+10	1.168E+18
TOP	90.0	1 476E+11	8.909E+18
BOTTOM	90.0	1 476E+11	8 909E+18
RAM DIR	0	4.121E+12	2.306E+20

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**************************************
*MONTH.   2   DAY.   8   YEAR.  85     *
*DAY OF YEAR:   39                     *
*CUMULATIVE EXPOSURE TIME:  306  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489.20
     PERIGEE (KM ABOVE EARTH)                         471.90
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        75168
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 16 23
     ASCENDING NODE LONGITUDE (DEGREES EAST)          200 90
     ARGUEMENT OF PERIGEE (DEGREES)                    32.80

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6860550 00
     SEMIMINOR AXIS (M)                               6860544.55
     ECCENTRICITY                                            001
     PERIOD (SEC)                                       5653 34
     ENERGY (JOULE)                                   -2.907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    85039
     3 MONTH AVERAGE F10.7 CM FLUX             72.00
     DAILY AVERAGE F10.7 CM FLUX               72 00
     DAILY MAGNETIC INDEX AP                   15.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85039:      5 635E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85039       9 719E+05  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85039:   680.6 TO    846 4 K
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****
DATA FOR: 85039
8 FEBRUARY 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	9 719E+05	6.219E+14
LONGERON	127.0	4 598E-01	1.414E+10
ROW 2	142 0	4 218E-08	1.145E+05
LONGERON	157 0	4.215E-14	4.813E+00
ROW 3	172.0	1 556E-17	1.403E-02
LONGERON	173 0	1 636E-17	1.228E-02
ROW 4	158.0	4 826E-14	3 146E+00
LONGERON	143.0	5 041E-08	5 784E+04
ROW 5	128 0	5 355E-01	7 031E+09
LONGERON	113 0	9 970E+05	3.826E+14
ROW 6	98 0	1 225E+10	9.391E+17
LONGERON	83 0	5.362E+11	3.127E+19
ROW 7	68 0	1 545E+12	9 097E+19
LONGERON	53.0	2 462E+12	1.457E+20
ROW 8	38 0	3 211E+12	1.905E+20
LONGERON	23.0	3 741E+12	2.223E+20
ROW 9	8.0	4 016E+12	2.389E+20
LONGERON	7.0	4 018E+12	2.393E+20
ROW 10	22.0	3 746E+12	2.234E+20
LONGERON	37.0	3 218E+12	1.922E+20
ROW 11	52.0	2 471E+12	1.480E+20
LONGERON	67.0	1 556E+12	9.363E+19
ROW 12	82.0	5 467E+11	3.385E+19
LONGERON	97.0	1.291E+10	1.212E+18
TOP	90.0	1.431E+11	9.286E+18
BOTTOM	90 0	1 431E+11	9 286E+18
RAM DIR	.0	4 052E+12	2 412E+20

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**************************************
*MONTH.   3   DAY:   9   YEAR:  85     *
*DAY OF YEAR:   68                     *
*CUMULATIVE EXPOSURE TIME:  335  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489 90
     PERIGEE (KM ABOVE EARTH)                         470.80
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        31363
     LOCAL SOLAR (EPOCH) TIME (HMS)                19 24 43
     ASCENDING NODE LONGITUDE (DEGREES EAST)          160.50
     ARGUEMENT OF PERIGEE (DEGREES)                    30.70

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6860350 00
     SEMIMINOR AXIS (M)                            6860343 35
     ECCENTRICITY                                         001
     PERIOD (SEC)                                    5653.09
     ENERGY (JOULE)                                -2.907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  85068
     3 MONTH AVERAGE F10.7 CM FLUX           72 00
     DAILY AVERAGE F10.7 CM FLUX             73 00
     DAILY MAGNETIC INDEX AP                 11.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85068       6 131E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85068       1 186E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85068.   658 0 TO    867 7 K
```

****
DATA FOR: 85068
9 MARCH 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 186E+06	6 247E+14
LONGERON	127 0	7 372E-01	1 414E+10
ROW 2	142 0	1.007E-07	1.145E+05
LONGERON	157.0	1 626E-13	4 813E+00
ROW 3	172 0	9.123E-17	1 403E-02
LONGERON	173 0	1 166E-16	1.228E-02
ROW 4	158 0	3 064E-13	3 146E+00
LONGERON	143.0	2 125E-07	5.784E+04
ROW 5	128.0	1 260E+00	7 033E+09
LONGERON	113 0	1 386E+06	3.855E+14
ROW 6	98.0	1 352E+10	9 713E+17
LONGERON	83.0	5 807E+11	3 267E+19
ROW 7	68.0	1 678E+12	9 501E+19
LONGERON	53.0	2.675E+12	1 521E+20
ROW 8	38.0	3 491E+12	1.989E+20
LONGERON	23.0	4.068E+12	2.321E+20
ROW 9	8.0	4 368E+12	2 494E+20
LONGERON	7 0	4 370E+12	2.498E+20
ROW 10	22.0	4 075E+12	2 332E+20
LONGERON	37.0	3.502E+12	2.006E+20
ROW 11	52 0	2.690E+12	1.544E+20
LONGERON	67.0	1.695E+12	9 770E+19
ROW 12	82 0	5.976E+11	3 528E+19
LONGERON	97.0	1 442E+10	1.247E+18
TOP	90 0	1 563E+11	9 661E+18
BOTTOM	90.0	1 563E+11	9.661E+18
RAM DIR	0	4 407E+12	2 518E+20

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**********************************
*MONTH.   4   DAY.   9   YEAR   85    *
*DAY OF YEAR.   99                    *
*CUMULATIVE EXPOSURE TIME.  366  DAYS *
**********************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          490.30
     PERIGEE (KM ABOVE EARTH)                         469.90
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        34387
     LOCAL SOLAR (EPOCH) TIME (HMS)                 3 14 18
     ASCENDING NODE LONGITUDE (DEGREES EAST)          265.30
     ARGUEMENT OF PERIGEE (DEGREES)                    28 20

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6860100 00
     SEMIMINOR AXIS (M)                           6860092 42
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5652 78
     ENERGY (JOULE)                               -2 907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5 231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  85099
     3 MONTH AVERAGE F10 7 CM FLUX          73.00
     DAILY AVERAGE F10.7 CM FLUX            76 00
     DAILY MAGNETIC INDEX AP                21.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85099:      8.594E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85099.      7 553E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85099.   695.7 TO    888.9 K
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****
DATA FOR: 85099
9 APRIL 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 553E+06	6 364E+14
LONGERON	127.0	1 581E+01	1.416E+10
ROW 2	142.0	4.202E-06	1 146E+05
LONGERON	157.0	5 727E-12	4.813E+00
ROW 3	172.0	1 255E-15	1.403E-02
LONGERON	173 0	3.973E-16	1.228E-02
ROW 4	158.0	2 546E-13	3 146E+00
LONGERON	143.0	6 635E-08	5 784E+04
ROW 5	128.0	3 214E-01	7 035E+09
LONGERON	113.0	6.926E+05	3.883E+14
ROW 6	98.0	1 356E+10	1 008E+18
LONGERON	83.0	7.393E+11	3 443E+19
ROW 7	68 0	2 271E+12	1 003E+20
LONGERON	53.0	3.680E+12	1.606E+20
ROW 8	38.0	4 838E+12	2 100E+20
LONGERON	23.0	5.666E+12	2.451E+20
ROW 9	8 0	6 108E+12	2.635E+20
LONGERON	7.0	6.134E+12	2.639E+20
ROW 10	22 0	5.742E+12	2.463E+20
LONGERON	37.0	4.958E+12	2.120E+20
ROW 11	52.0	3.837E+12	1.632E+20
LONGERON	67.0	2.454E+12	1 033E+20
ROW 12	82 0	9 177E+11	3.731E+19
LONGERON	97 0	3.163E+10	1 308E+18
TOP	90 0	2 230E+11	1 017E+19
BOTTOM	90.0	2.230E+11	1 017E+19
RAM DIR	.0	6 175E+12	2.660E+20

```
**************************************
*MONTH.   5   DAY   22   YEAR   85     *
*DAY OF YEAR·  142                     *
*CUMULATIVE EXPOSURE TIME:  409  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          487.40
     PERIGEE (KM ABOVE EARTH)                         472.10
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        48211
     LOCAL SOLAR (EPOCH) TIME (HMS)                  4 45 31
     ASCENDING NODE LONGITUDE (DEGREES EAST)          230.50
     ARGUEMENT OF PERIGEE (DEGREES)                    27.50

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6859750.00
     SEMIMINOR AXIS (M)                           6859745.73
     ECCENTRICITY                                       .001
     PERIOD (SEC)                                   5652.35
     ENERGY (JOULE)                                -2 907E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  85142
     3 MONTH AVERAGE F10 7 CM FLUX          77.00
     DAILY AVERAGE F10 7 CM FLUX            82 00
     DAILY MAGNETIC INDEX AP                 9.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85142:      7.309E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85142:      6.853E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85142:   681.6 TO    909 3 K
```

****
DATA FOR: 85142
22 MAY 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6 853E+06	6.631E+14
LONGERON	127.0	1.652E+01	1.422E+10
ROW 2	142.0	5.483E-06	1.146E+05
LONGERON	157.0	9.482E-12	4.813E+00
ROW 3	172.0	2.505E-15	1 403E-02
LONGERON	173.0	8 743E-16	1 228E-02
ROW 4	158.0	5.742E-13	3 146E+00
LONGERON	143.0	1 450E-07	5 784E+04
ROW 5	128.0	5 771E-01	7.037E+09
LONGERON	113.0	7 873E+05	3 911E+14
ROW 6	98.0	1.197E+10	1 055E+18
LONGERON	83 0	6 292E+11	3 698E+19
ROW 7	68 0	1 932E+12	1 081E+20
LONGERON	53.0	3 130E+12	1 733E+20
ROW 8	38 0	4 115E+12	2 266E+20
LONGERON	23 0	4.820E+12	2 646E+20
ROW 9	8.0	5.196E+12	2 845E+20
LONGERON	7 0	5.218E+12	2.850E+20
ROW 10	22.0	4 884E+12	2.661E+20
LONGERON	37 0	4 218E+12	2.290E+20
ROW 11	52.0	3.264E+12	1.764E+20
LONGERON	67.0	2 088E+12	1.117E+20
ROW 12	82.0	7.810E+11	4 046E+19
LONGERON	97.0	2 729E+10	1.418E+18
TOP	90.0	1.910E+11	1 094E+19
BOTTOM	90.0	1 910E+11	1.094E+19
RAM DIR	0	5 252E+12	2.872E+20

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**************************************
*MONTH:   9   DAY   22   YEAR   85     *
*DAY OF YEAR:  265                     *
*CUMULATIVE EXPOSURE TIME:  532  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          487.90
     PERIGEE (KM ABOVE EARTH)                         470.10
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        43373
     LOCAL SOLAR (EPOCH) TIME (HMS)                 12 40  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)           9.30
     ARGUEMENT OF PERIGEE (DEGREES)                   32.50

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6859000 00
     SEMIMINOR AXIS (M)                            6858994.23
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5651.42
     ENERGY (JOULE)                                -2.908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.231E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  85265
     3 MONTH AVERAGE F10.7 CM FLUX          75.00
     DAILY AVERAGE F10 7 CM FLUX            70 00
     DAILY MAGNETIC INDEX AP                13.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85265       7 380E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85265:      1.123E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE   85265.   658.3 TO    874 8 K
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****
DATA FOR: 85265
22 SEPTEMBER 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 123E+06	7 055E+14
LONGERON	127.0	7 036E-01	1.432E+10
ROW 2	142.0	1 235E-07	1.146E+05
LONGERON	157.0	2 513E-13	4.813E+00
ROW 3	172.0	1 612E-16	1.403E-02
LONGERON	173.0	2 175E-16	1.228E-02
ROW 4	158.0	5 784E-13	3 146E+00
LONGERON	143 0	4 011E-07	5 784E+04
ROW 5	128.0	2 341E+00	7 052E+09
LONGERON	113.0	2 345E+06	4.077E+14
ROW 6	98.0	1 892E+10	1 219E+18
LONGERON	83.0	7 246E+11	4 417E+19
ROW 7	68.0	2 046E+12	1 292E+20
LONGERON	53 0	3 244E+12	2.072E+20
ROW 8	38.0	4.221E+12	2 709E+20
LONGERON	23.0	4 910E+12	3 163E+20
ROW 9	8.0	5 265E+12	3 400E+20
LONGERON	7.0	5 260E+12	3.406E+20
ROW 10	22.0	4.898E+12	3.180E+20
LONGERON	37.0	4 201E+12	2 737E+20
ROW 11	52.0	3 218E+12	2 108E+20
LONGERON	67.0	2 016E+12	1 335E+20
ROW 12	82.0	6 955E+11	4.831E+19
LONGERON	97.0	1 558E+10	1.646E+18
TOP	90.0	1 899E+11	1.296E+19
BOTTOM	90.0	1 899E+11	1.296E+19
RAM DIR	.0	5 308E+12	3 433E+20

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**************************************
*MONTH   10   DAY·   5   YEAR·  85     *
*DAY OF YEAR:  278                     *
*CUMULATIVE EXPOSURE TIME:  545  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          487.30
      PERIGEE (KM ABOVE EARTH)                         470.60
      INCLINATION OF ORBIT (DEGREES)                    28 53
      GMT (EPOCH) TIME (SECONDS)                        46483
      LOCAL SOLAR (EPOCH) TIME (HMS)                 5 51 55
      ASCENDING NODE LONGITUDE (DEGREES EAST)          254 30
      ARGUEMENT OF PERIGEE (DEGREES)                    20.20

 CONSTANTS
      RADIUS OF EARTH (M)                              6 38E+06
      MASS OF EARTH (KG)                               5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                               6858950.00
      SEMIMINOR AXIS (M)                               6858944.92
      ECCENTRICITY                                           .001
      PERIOD (SEC)                                        5651.36
      ENERGY (JOULE)                                   -2.908E+07
      ANGULAR MOMENTUM (JOULE-SEC)                      5.230E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                        85278
      3 MONTH AVERAGE F10 7 CM FLUX                 73 00
      DAILY AVERAGE F10.7 CM FLUX                   74.00
      DAILY MAGNETIC INDEX AP                       14.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85278.      7.546E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85278       4.930E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85278.   668.8 TO    880.8 K
```

****
DATA FOR: 85278
5 OCTOBER 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.930E+06	7.089E+14
LONGERON	127 0	7.910E+00	1.432E+10
ROW 2	142.0	1.688E-06	1 146E+05
LONGERON	157.0	2 072E-12	4 813E+00
ROW 3	172.0	4.739E-16	1.403E-02
LONGERON	173.0	1.793E-16	1.228E-02
ROW 4	158.0	1 488E-13	3.146E+00
LONGERON	143.0	4.997E-08	5.784E+04
ROW 5	128.0	2.784E-01	7 054E+09
LONGERON	113.0	5.784E+05	4.094E+14
ROW 6	98 0	1 181E+10	1 236E+18
LONGERON	83.0	6.563E+11	4 495E+19
ROW 7	68 0	2.003E+12	1.315E+20
LONGERON	53 0	3 239E+12	2.108E+20
ROW 8	38.0	4.255E+12	2 757E+20
LONGERON	23.0	4.980E+12	3.218E+20
ROW 9	8 0	5 366E+12	3 460E+20
LONGERON	7.0	5.386E+12	3 466E+20
ROW 10	22 0	5.040E+12	3 236E+20
LONGERON	37.0	4.349E+12	2.785E+20
ROW 11	52.0	3.363E+12	2.145E+20
LONGERON	67.0	2.147E+12	1.358E+20
ROW 12	82.0	7.967E+11	4 915E+19
LONGERON	97.0	2.554E+10	1.669E+18
TOP	90.0	1.935E+11	1 318E+19
BOTTOM	90 0	1.935E+11	1.318E+19
RAM DIR	0	5.423E+12	3 493E+20

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****************************************
*MONTH:  11   DAY·   5   YEAR   85     *
*DAY OF YEAR:  309                     *
*CUMULATIVE EXPOSURE TIME:  576  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        486.80
     PERIGEE (KM ABOVE EARTH)                       470.60
     INCLINATION OF ORBIT (DEGREES)                  28 52
     GMT (EPOCH) TIME (SECONDS)                      26179
     LOCAL SOLAR (EPOCH) TIME (HMS)                13 49 31
     ASCENDING NODE LONGITUDE (DEGREES EAST)         98 30
     ARGUEMENT OF PERIGEE (DEGREES)                  20 40

 CONSTANTS
     RADIUS OF EARTH (M)                            6 38E+06
     MASS OF EARTH (KG)                             5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)          6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6858700.00
     SEMIMINOR AXIS (M)                             6858695.22
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                    5651.05
     ENERGY (JOULE)                                 -2.908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5.230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    85309
     3 MONTH AVERAGE F10.7 CM FLUX             72.00
     DAILY AVERAGE F10.7 CM FLUX               73.00
     DAILY MAGNETIC INDEX AP                   15.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85309.      8.803E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85309:      1.305E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85309:   683.3 TO    881 6 K
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****
DATA FOR: 85309
5 NOVEMBER 1985
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.305E+06	7 172E+14
LONGERON	127 0	6.180E-01	1.433E+10
ROW 2	142 0	9.303E-08	1.146E+05
LONGERON	157.0	2 119E-13	4.813E+00
ROW 3	172.0	1 766E-16	1.403E-02
LONGERON	173 0	3 182E-16	1 228E-02
ROW 4	158 0	1 043E-12	3 146E+00
LONGERON	143.0	7 691E-07	5 784E+04
ROW 5	128.0	4 085E+00	7 059E+09
LONGERON	113.0	3 405E+06	4.147E+14
ROW 6	98 0	2 361E+10	1 284E+18
LONGERON	83.0	8 668E+11	4 699E+19
ROW 7	68.0	2 443E+12	1 375E+20
LONGERON	53.0	3 871E+12	2 203E+20
ROW 8	38 0	5 036E+12	2 881E+20
LONGERON	23.0	5 857E+12	3 363E+20
ROW 9	8 0	6 280E+12	3.616E+20
LONGERON	7.0	6 274E+12	3 622E+20
ROW 10	22 0	5 841E+12	3 382E+20
LONGERON	37 0	5.009E+12	2.911E+20
ROW 11	52.0	3 837E+12	2.241E+20
LONGERON	67.0	2 403E+12	1.419E+20
ROW 12	82.0	8 284E+11	5.132E+19
LONGERON	97.0	1 889E+10	1 728E+18
TOP	90.0	2 282E+11	1.374E+19
BOTTOM	90.0	2 282E+11	1 374E+19
RAM DIR	.0	6.330E+12	3 651E+20

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**************************************
*MONTH   12   DAY:  12   YEAR.  85     *
*DAY OF YEAR   346                     *
*CUMULATIVE EXPOSURE TIME   613  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          487.30
     PERIGEE (KM ABOVE EARTH)                         469 50
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        22205
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 32 29
     ASCENDING NODE LONGITUDE (DEGREES EAST)          185 60
     ARGUEMENT OF PERIGEE (DEGREES)                    17 70

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6858400 00
     SEMIMINOR AXIS (M)                              6858394.23
     ECCENTRICITY                                          .001
     PERIOD (SEC)                                     5650.68
     ENERGY (JOULE)                                  -2.908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    85346
     3 MONTH AVERAGE F10.7 CM FLUX             73 00
     DAILY AVERAGE F10 7 CM FLUX               72.00
     DAILY MAGNETIC INDEX AP                   13 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   85346       7.268E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   85346       1.962E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    85346    658.2 TO    913.6 K
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****
DATA FOR: 85346
12 DECEMBER 1985
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LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 962E+06	7 225E+14
LONGERON	127 0	2 190E+00	1 434E+10
ROW 2	142 0	5.592E-07	1 146E+05
LONGERON	157 0	1.541E-12	4.813E+00
ROW 3	172.0	1 227E-15	1.403E-02
LONGERON	173 0	1 672E-15	1 228E-02
ROW 4	158 0	3 400E-12	3 146E+00
LONGERON	143 0	1 417E-06	5.785E+04
ROW 5	128.0	4.477E+00	7.073E+09
LONGERON	113.0	2.731E+06	4.245E+14
ROW 6	98.0	1.816E+10	1 351E+18
LONGERON	83 0	6.985E+11	4.949E+19
ROW 7	68.0	1 999E+12	1.446E+20
LONGERON	53 0	3.180E+12	2.316E+20
ROW 8	38.0	4.145E+12	3.028E+20
LONGERON	23.0	4.827E+12	3.534E+20
ROW 9	8 0	5.181E+12	3 799E+20
LONGERON	7 0	5.181E+12	3.806E+20
ROW 10	22 0	4.828E+12	3.552E+20
LONGERON	37.0	4.147E+12	3.057E+20
ROW 11	52.0	3.182E+12	2.354E+20
LONGERON	67.0	2 001E+12	1 490E+20
ROW 12	82.0	7.015E+11	5 377E+19
LONGERON	97.0	1 766E+10	1 787E+18
TOP	90 0	1 891E+11	1.441E+19
BOTTOM	90 0	1.891E+11	1.441E+19
RAM DIR	.0	5.225E+12	3.835E+20

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****************************************
*MONTH:   5   DAY   14   YEAR.  86     *
*DAY OF YEAR:  134                     *
*CUMULATIVE EXPOSURE TIME   767  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        484.60
     PERIGEE (KM ABOVE EARTH)                       469.30
     INCLINATION OF ORBIT (DEGREES)                  28 53
     GMT (EPOCH) TIME (SECONDS)                      73354
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 24  9
     ASCENDING NODE LONGITUDE (DEGREES EAST)        210 40
     ARGUEMENT OF PERIGEE (DEGREES)                  26 20

 CONSTANTS
     RADIUS OF EARTH (M)                            6.38E+06
     MASS OF EARTH (KG)                             5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)          6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6856950.00
     SEMIMINOR AXIS (M)                              6856945 73
     ECCENTRICITY                                           001
     PERIOD (SEC)                                       5648 89
     ENERGY (JOULE)                                 -2 908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5 230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    86134
     3 MONTH AVERAGE F10.7 CM FLUX             75 00
     DAILY AVERAGE F10.7 CM FLUX               74 00
     DAILY MAGNETIC INDEX AP                   12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86134.      7 531E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86134:      2 924E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86134:   660 1 TO    939 3 K
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****
DATA FOR. 86134
14 MAY 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 924E+06	7.548E+14
LONGERON	127.0	5 569E+00	1.439E+10
ROW 2	142.0	2 435E-06	1.146E+05
LONGERON	157.0	8 242E-12	4.814E+00
ROW 3	172 0	5 241E-15	1 403E-02
LONGERON	173.0	4 145E-15	1 228E-02
ROW 4	158 0	4 422E-12	3 146E+00
LONGERON	143 0	1 127E-06	5.786E+04
ROW 5	128.0	3 115E+00	7 123E+09
LONGERON	113 0	2 254E+06	4 575E+14
ROW 6	98.0	1 775E+10	1 588E+18
LONGERON	83.0	7 142E+11	5 884E+19
ROW 7	68 0	2 061E+12	1 714E+20
LONGERON	53.0	3 287E+12	2 744E+20
ROW 8	38.0	4 289E+12	3.587E+20
LONGERON	23.0	4 999E+12	4.185E+20
ROW 9	8.0	5 368E+12	4.498E+20
LONGERON	7.0	5 372E+12	4 504E+20
ROW 10	22.0	5 009E+12	4 204E+20
LONGERON	37.0	4 305E+12	3.617E+20
ROW 11	52.0	3 307E+12	2.783E+20
LONGERON	67.0	2 084E+12	1 760E+20
ROW 12	82.0	7 373E+11	6 329E+19
LONGERON	97.0	1 980E+10	2.035E+18
TOP	90.0	1 966E+11	1.696E+19
BOTTOM	90 0	1 966E+11	1 696E+19
RAM DIR	.0	5 416E+12	4 540E+20

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**************************************
*MONTH:   6   DAY·  16   YEAR.  86     *
*DAY OF YEAR:  167 .                   *
*CUMULATIVE EXPOSURE TIME·  800  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          484.80
     PERIGEE (KM ABOVE EARTH)                         469 10
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        42509
     LOCAL SOLAR (EPOCH) TIME (HMS)                17 23 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)           83 70
     ARGUEMENT OF PERIGEE (DEGREES)                    25.10

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6856950 00
     SEMIMINOR AXIS (M)                              6856945 51
     ECCENTRICITY                                          .001
     PERIOD (SEC)                                     5648.89
     ENERGY (JOULE)                                  -2 908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  86167
     3 MONTH AVERAGE F10 7 CM FLUX          73 00
     DAILY AVERAGE F10 7 CM FLUX            70 00
     DAILY MAGNETIC INDEX AP                 8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86167       4.345E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86167       3.661E+05  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86167    631.2 TO    840 7 K
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****
DATA FOR: 86167
16 JUNE 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 661E+05	7.595E+14
LONGERON	127 0	1 125E-01	1.440E+10
ROW 2	142.0	1 034E-08	1 146E+05
LONGERON	157.0	1 396E-14	4.814E+00
ROW 3	172.0	8 426E-18	1 403E-02
LONGERON	173 0	1 519E-17	1 228E-02
ROW 4	158 0	6 904E-14	3 146E+00
LONGERON	143.0	8 798E-08	5.787E+04
ROW 5	128 0	8 484E-01	7.129E+09
LONGERON	113.0	1.155E+06	4 624E+14
ROW 6	98 0	1.075E+10	1.629E+18
LONGERON	83.0	4 283E+11	6.047E+19
ROW 7	68.0	1.207E+12	1.761E+20
LONGERON	53.0	1 912E+12	2.818E+20
ROW 8	38 0	2.487E+12	3.683E+20
LONGERON	23.0	2.892E+12	4.297E+20
ROW 9	8 0	3.100E+12	4.618E+20
LONGERON	7 0	3.097E+12	4.625E+20
ROW 10	22 0	2.882E+12	4 316E+20
LONGERON	37.0	2 472E+12	3.713E+20
ROW 11	52 0	1 893E+12	2.857E+20
LONGERON	67 0	1 185E+12	1.807E+20
ROW 12	82 0	4 065E+11	6.492E+19
LONGERON	97.0	8 203E+09	2.074E+18
TOP	90 0	1 098E+11	1.740E+19
BOTTOM	90.0	1 098E+11	1.740E+19
RAM DIR	.0	3 125E+12	4 662E+20

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**************************************
*MONTH:   7   DAY· 10   YEAR   86     *
*DAY OF YEAR:  191                    *
*CUMULATIVE EXPOSURE TIME   824  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                        485.90
      PERIGEE (KM ABOVE EARTH)                       467.90
      INCLINATION OF ORBIT (DEGREES)                  28.53
      GMT (EPOCH) TIME (SECONDS)                      46051
      LOCAL SOLAR (EPOCH) TIME (HMS)                4 50 19
      ASCENDING NODE LONGITUDE (DEGREES EAST)         240 70
      ARGUEMENT OF PERIGEE (DEGREES)                   30 60

 CONSTANTS
      RADIUS OF EARTH (M)                            6 38E+06
      MASS OF EARTH (KG)                             5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)          6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                          6856900.00
      SEMIMINOR AXIS (M)                          6856894.09
      ECCENTRICITY                                      .001
      PERIOD (SEC)                                 5648.82
      ENERGY (JOULE)                              -2.909E+07
      ANGULAR MOMENTUM (JOULE-SEC)                 5.230E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                  86191
      3 MONTH AVERAGE F10 7 CM FLUX          72.00
      DAILY AVERAGE F10 7 CM FLUX            73.00
      DAILY MAGNETIC INDEX AP                 8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86191·      4.094E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86191:      2.058E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86191:   628.0 TO    846 3 K
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****
DATA FOR· 86191
10 JULY 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 058E+06	7.620E+14
LONGERON	127.0	1 996E+00	1 440E+10
ROW 2	142 0	2 237E-07	1.146E+05
LONGERON	157 0	1.451E-13	4.814E+00
ROW 3	172.0	2 055E-17	1.403E-02
LONGERON	173.0	6 442E-18	1.228E-02
ROW 4	158.0	6 578E-15	3 146E+00
LONGERON	143.0	4 121E-09	5.787E+04
ROW 5	128 0	5.141E-02	7.130E+09
LONGERON	113.0	1 954E+05	4 638E+14
ROW 6	98.0	5 597E+09	1 646E+18
LONGERON	83 0	3 496E+11	6 128E+19
ROW 7	68.0	1 081E+12	1 785E+20
LONGERON	53 0	1 753E+12	2 856E+20
ROW 8	38 0	2 305E+12	3.733E+20
LONGERON	23.0	2 700E+12	4.355E+20
ROW 9	8 0	2 911E+12	4.681E+20
LONGERON	7.0	2.924E+12	4.687E+20
ROW 10	22.0	2 737E+12	4.374E+20
LONGERON	37.0	2.364E+12	3.763E+20
ROW 11	52.0	1.830E+12	2.896E+20
LONGERON	67.0	1 171E+12	1.831E+20
ROW 12	82.0	4 379E+11	6.580E+19
LONGERON	97.0	1 366E+10	2.097E+18
TOP	90.0	1 033E+11	1 762E+19
BOTTOM	90.0	1 033E+11	1 762E+19
RAM DIR	.0	2.943E+12	4.724E+20

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**************************************
*MONTH:   8   DAY·   9   YEAR·  86     *
*DAY OF YEAR:  221                     *
*CUMULATIVE EXPOSURE TIME   854  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          486.20
     PERIGEE (KM ABOVE EARTH)                         467.30
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                         3974
     LOCAL SOLAR (EPOCH) TIME (HMS)                13 25 49
     ASCENDING NODE LONGITUDE (DEGREES EAST)          184.90
     ARGUEMENT OF PERIGEE (DEGREES)                    29.90

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6856750 00
     SEMIMINOR AXIS (M)                            6856743.49
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5648.64
     ENERGY (JOULE)                                -2.909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    86221
     3 MONTH AVERAGE F10.7 CM FLUX             71 00
     DAILY AVERAGE F10.7 CM FLUX               70.00
     DAILY MAGNETIC INDEX AP                   12.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86221:      4.711E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86221.      4.630E+05  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86221    619.8 TO    856.6 K
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****
DATA FOR: 86221
9 AUGUST 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4 630E+05	7.653E+14
LONGERON	127 0	2 006E-01	1.440E+10
ROW 2	142 0	2 438E-08	1.146E+05
LONGERON	157.0	3 684E-14	4.814E+00
ROW 3	172.0	2 030E-17	1.403E-02
LONGERON	173.0	2 837E-17	1.228E-02
ROW 4	158 0	9 401E-14	3.146E+00
LONGERON	143.0	9 396E-08	5.787E+04
ROW 5	128.0	8 437E-01	7.131E+09
LONGERON	113.0	1 220E+06	4.656E+14
ROW 6	98.0	1.190E+10	1 669E+18
LONGERON	83.0	4 683E+11	6.234E+19
ROW 7	68.0	1 313E+12	1.816E+20
LONGERON	53.0	2 077E+12	2.906E+20
ROW 8	38.0	2 700E+12	3.798E+20
LONGERON	23.0	3 138E+12	4.431E+20
ROW 9	8.0	3 363E+12	4.762E+20
LONGERON	7.0	3 358E+12	4.769E+20
ROW 10	22.0	3 125E+12	4.450E+20
LONGERON	37.0	2 679E+12	3.829E+20
ROW 11	52.0	2 050E+12	2.946E+20
LONGERON	67.0	1 281E+12	1.863E+20
ROW 12	82 0	4 373E+11	6.693E+19
LONGERON	97.0	8.801E+09	2 126E+18
TOP	90 0	1 194E+11	1.791E+19
BOTTOM	90 0	1 194E+11	1.791E+19
RAM DIR	0	3 389E+12	4.807E+20

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****************************************
*MONTH:   9   DAY    9   YEAR   86     *
*DAY OF YEAR.  252                     *
*CUMULATIVE EXPOSURE TIME   885  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          486.30
     PERIGEE (KM ABOVE EARTH)                         466.90
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        49939
     LOCAL SOLAR (EPOCH) TIME (HMS)                20 58 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)          106 50
     ARGUEMENT OF PERIGEE (DEGREES)                    29 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6856600 00
     SEMIMINOR AXIS (M)                             6856593 14
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                     5648 45
     ENERGY (JOULE)                                  -2 909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  86252
     3 MONTH AVERAGE F10 7 CM FLUX          71.00
     DAILY AVERAGE F10.7 CM FLUX            69.00
     DAILY MAGNETIC INDEX AP                17.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86252.      5 605E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86252:      1.238E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86252.   663 6 TO    841 1 K
```

****
DATA FOR: 86252
9 SEPTEMBER 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 238E+06	7.676E+14
LONGERON	127.0	6 556E-01	1.440E+10
ROW 2	142.0	5.856E-08	1.146E+05
LONGERON	157.0	5.273E-14	4.814E+00
ROW 3	172.0	1.684E-17	1.403E-02
LONGERON	173.0	1.488E-17	1.228E-02
ROW 4	158.0	3 650E-14	3 146E+00
LONGERON	143.0	3 241E-08	5.787E+04
ROW 5	128.0	3.144E-01	7 133E+09
LONGERON	113.0	6.400E+05	4 681E+14
ROW 6	98.0	1.016E+10	1 698E+18
LONGERON	83.0	5.122E+11	6.365E+19
ROW 7	68 0	1 516E+12	1.854E+20
LONGERON	53.0	2 430E+12	2.966E+20
ROW 8	38.0	3 179E+12	3 876E+20
LONGERON	23.0	3 711E+12	4.523E+20
ROW 9	8 0	3.990E+12	4.861E+20
LONGERON	7 0	3 998E+12	4.867E+20
ROW 10	22 0	3 733E+12	4.542E+20
LONGERON	37 0	3 213E+12	3.908E+20
ROW 11	52.0	2 475E+12	3 007E+20
LONGERON	67.0	1 568E+12	1 901E+20
ROW 12	82.0	5 640E+11	6 828E+19
LONGERON	97.0	1 436E+10	2 157E+18
TOP	90.0	1 408E+11	1 826E+19
BOTTOM	90.0	1.408E+11	1 826E+19
RAM DIR	.0	4 028E+12	4.906E+20

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**************************************
*MONTH.  10   DAY·  12   YEAR   86     *
*DAY OF YEAR   285                     *
*CUMULATIVE EXPOSURE TIME·  918  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          486.20
      PERIGEE (KM ABOVE EARTH)                         466 60
      INCLINATION OF ORBIT (DEGREES)                    28.53
      GMT (EPOCH) TIME (SECONDS)                        52445
      LOCAL SOLAR (EPOCH) TIME (HMS)                 3 43 40
      ASCENDING NODE LONGITUDE (DEGREES EAST)          197 40
      ARGUEMENT OF PERIGEE (DEGREES)                    30 50

 CONSTANTS
      RADIUS OF EARTH (M)                              6 38E+06
      MASS OF EARTH (KG)                               5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                               6856400.00
      SEMIMINOR AXIS (M)                               6856393 00
      ECCENTRICITY                                           .001
      PERIOD (SEC)                                        5648 21
      ENERGY (JOULE)                                   -2 909E+07
      ANGULAR MOMENTUM (JOULE-SEC)                      5.230E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                        86285
      3 MONTH AVERAGE F10 7 CM FLUX                 74 00
      DAILY AVERAGE F10.7 CM FLUX                   82.00
      DAILY MAGNETIC INDEX AP                       11 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86285:      9.031E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86285:      8 166E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86285·   682.5 TO    887 3 K
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****
DATA FOR: 86285
12 OCTOBER 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8.166E+06	7 810E+14
LONGERON	127 0	1 750E+01	1 443E+10
ROW 2	142 0	4 759E-06	1.146E+05
LONGERON	157 0	6 577E-12	4.814E+00
ROW 3	172 0	1 444E-15	1 403E-02
LONGERON	173 0	4 498E-16	1 228E-02
ROW 4	158 0	2 756E-13	3 146E+00
LONGERON	143 0	6 566E-08	5.787E+04
ROW 5	128.0	2 832E-01	7 134E+09
LONGERON	113.0	6 115E+05	4.699E+14
ROW 6	98 0	1 350E+10	1 732E+18
LONGERON	83.0	7 703E+11	6 548E+19
ROW 7	68.0	2.381E+12	1.909E+20
LONGERON	53.0	3.862E+12	3.056E+20
ROW 8	38.0	5.081E+12	3.994E+20
LONGERON	23.0	5.953E+12	4 660E+20
ROW 9	8.0	6 420E+12	5.009E+20
LONGERON	7.0	6 449E+12	5.016E+20
ROW 10	22.0	6 039E+12	4.682E+20
LONGERON	37.0	5.217E+12	4.028E+20
ROW 11	52.0	4 039E+12	3.100E+20
LONGERON	67 0	2 587E+12	1.960E+20
ROW 12	82.0	9 712E+11	7.046E+19
LONGERON	97 0	3 372E+10	2 226E+18
TOP	90.0	2 335E+11	1 879E+19
BOTTOM	90 0	2 335E+11	1.879E+19
RAM DIR	0	6 491E+12	5.056E+20

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**********************************
*MONTH  11   DAY.  12   YEAR   86    *
*DAY OF YEAR:  316                   *
*CUMULATIVE EXPOSURE TIME   949  DAYS *
**********************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          486.10
     PERIGEE (KM ABOVE EARTH)                         466 00
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        19354
     LOCAL SOLAR (EPOCH) TIME (HMS)                 11 44 58
     ASCENDING NODE LONGITUDE (DEGREES EAST)           95 50
     ARGUEMENT OF PERIGEE (DEGREES)                    28.90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6856050.00
     SEMIMINOR AXIS (M)                            6856042 63
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                    5647.77
     ENERGY (JOULE)                                -2.909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  86316
     3 MONTH AVERAGE F10.7 CM FLUX          76.00
     DAILY AVERAGE F10.7 CM FLUX            75.00
     DAILY MAGNETIC INDEX AP                13.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86316       9 748E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86316       1 968E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86316:   705 1 TO    891.8 K
```

****
DATA FOR: 86316
12 NOVEMBER 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1.968E+06	7.945E+14
LONGERON	127.0	1.302E+00	1.445E+10
ROW 2	142.0	2.362E-07	1 146E+05
LONGERON	157 0	5 377E-13	4.814E+00
ROW 3	172.0	3 886E-16	1.403E-02
LONGERON	173.0	5 589E-16	1 228E-02
ROW 4	158.0	1 439E-12	3 146E+00
LONGERON	143 0	8 754E-07	5 787E+04
ROW 5	128.0	4 223E+00	7 140E+09
LONGERON	113.0	3 522E+06	4 754E+14
ROW 6	98.0	2 532E+10	1.784E+18
LONGERON	83.0	9 489E+11	6.778E+19
ROW 7	68.0	2 694E+12	1 977E+20
LONGERON	53.0	4 278E+12	3.165E+20
ROW 8	38.0	5 570E+12	4 137E+20
LONGERON	23.0	6 483E+12	4 827E+20
ROW 9	8.0	6 954E+12	5 188E+20
LONGERON	7.0	6 951E+12	5 196E+20
ROW 10	22.0	6 475E+12	4 849E+20
LONGERON	37.0	5 557E+12	4.172E+20
ROW 11	52.0	4.260E+12	3 211E+20
LONGERON	67.0	2.673E+12	2 031E+20
ROW 12	82.0	9 297E+11	7 301E+19
LONGERON	97.0	2 256E+10	2 301E+18
TOP	90.0	2 540E+11	1.944E+19
BOTTOM	90.0	2 540E+11	1.944E+19
RAM DIR	.0	7 012E+12	5 237E+20

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**************************************
*MONTH:  12   DAY:  17   YEAR   86     *
*DAY OF YEAR·  351                     *
*CUMULATIVE EXPOSURE TIME   984  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          485.20
     PERIGEE (KM ABOVE EARTH)                         466.30
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                         6221
     LOCAL SOLAR (EPOCH) TIME (HMS)                17 32 53
     ASCENDING NODE LONGITUDE (DEGREES EAST)          237 30
     ARGUEMENT OF PERIGEE (DEGREES)                    30.80

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6855750.00
     SEMIMINOR AXIS (M)                             6855743 49
     ECCENTRICITY                                          001
     PERIOD (SEC)                                     5647.40
     ENERGY (JOULE)                                  -2 909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    86351
     3 MONTH AVERAGE F10 7 CM FLUX             76 00
     DAILY AVERAGE F10.7 CM FLUX               70 00
     DAILY MAGNETIC INDEX AP                    8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   86351·      7 107E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   86351·      1.407E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    86351·   654.6 TO    889.3 K
```

****
DATA FOR: 86351
17 DECEMBER 1986
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 407E+06	7 996E+14
LONGERON	127 0	1 162E+00	1.446E+10
ROW 2	142.0	2.173E-07	1.146E+05
LONGERON	157.0	4 651E-13	4.814E+00
ROW 3	172.0	3 436E-16	1.403E-02
LONGERON	173.0	5 363E-16	1 228E-02
ROW 4	158 0	1 454E-12	3 146E+00
LONGERON	143.0	8 524E-07	5.787E+04
ROW 5	128.0	3.627E+00	7 151E+09
LONGERON	113 0	2 645E+06	4.847E+14
ROW 6	98.0	1.832E+10	1 850E+18
LONGERON	83 0	6 933E+11	7 026E+19
ROW 7	68.0	1 966E+12	2 048E+20
LONGERON	53 0	3 120E+12	3 277E+20
ROW 8	38.0	4 061E+12	4.282E+20
LONGERON	23.0	4.726E+12	4.996E+20
ROW 9	8.0	5 069E+12	5.370E+20
LONGERON	7.0	5.066E+12	5 377E+20
ROW 10	22.0	4 718E+12	5 018E+20
LONGERON	37.0	4 049E+12	4.317E+20
ROW 11	52.0	3 103E+12	3 322E+20
LONGERON	67.0	1 946E+12	2.101E+20
ROW 12	82 0	6.752E+11	7.544E+19
LONGERON	97 0	1 584E+10	2.359E+18
TOP	90.0	1 838E+11	2.011E+19
BOTTOM	90 0	1 838E+11	2 011E+19
RAM DIR	0	5 111E+12	5.420E+20

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**************************************
*MONTH:   1   DAY:   7   YEAR:  87     *
*DAY OF YEAR.    7                     *
*CUMULATIVE EXPOSURE TIME. 1005  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          485.00
     PERIGEE (KM ABOVE EARTH)                         466.10
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        77069
     LOCAL SOLAR (EPOCH) TIME (HMS)                 6  9 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)          131.20
     ARGUEMENT OF PERIGEE (DEGREES)                    18.60

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6855550.00
     SEMIMINOR AXIS (M)                            6855543 49
     ECCENTRICITY                                         001
     PERIOD (SEC)                                    5647.16
     ENERGY (JOULE)                                -2.909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87007
     3 MONTH AVERAGE F10.7 CM FLUX             72.00
     DAILY AVERAGE F10.7 CM FLUX               70.00
     DAILY MAGNETIC INDEX AP                    8.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87007:      4.689E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87007:      1.869E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87007:   639.0 TO    826.4 K
```

****
DATA FOR: 87007
7 JANUARY 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 869E+06	8.026E+14
LONGERON	127.0	1 416E+00	1.446E+10
ROW 2	142.0	1 177E-07	1.146E+05
LONGERON	157.0	5 932E-14	4 814E+00
ROW 3	172.0	7 516E-18	1.403E-02
LONGERON	173.0	2 510E-18	1 228E-02
ROW 4	158 0	3 022E-15	3.146E+00
LONGERON	143.0	2 157E-09	5.787E+04
ROW 5	128.0	3 124E-02	7 155E+09
LONGERON	113.0	1 740E+05	4.873E+14
ROW 6	98.0	6 407E+09	1 873E+18
LONGERON	83 0	4 064E+11	7 127E+19
ROW 7	68.0	1 245E+12	2 077E+20
LONGERON	53.0	2 013E+12	3 324E+20
ROW 8	38.0	2 644E+12	4.344E+20
LONGERON	23.0	3 095E+12	5 068E+20
ROW 9	8.0	3 335E+12	5 447E+20
LONGERON	7.0	3 348E+12	5.455E+20
ROW 10	22.0	3.132E+12	5 090E+20
LONGERON	37.0	2 703E+12	4.379E+20
ROW 11	52.0	2.090E+12	3 370E+20
LONGERON	67.0	1 335E+12	2.131E+20
ROW 12	82.0	4 944E+11	7.651E+19
LONGERON	97.0	1 445E+10	2.387E+18
TOP	90.0	1 170E+11	2.038E+19
BOTTOM	90.0	1 170E+11	2 038E+19
RAM DIR	0	3 371E+12	5 498E+20

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**************************************
*MONTH    2   DAY·   9   YEAR·  87     *
*DAY OF YEAR·   40                     *
*CUMULATIVE EXPOSURE TIME  1038  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        484.70
     PERIGEE (KM ABOVE EARTH)                       466 10
     INCLINATION OF ORBIT (DEGREES)                  28 53
     GMT (EPOCH) TIME (SECONDS)                      22723
     LOCAL SOLAR (EPOCH) TIME (HMS)                13 15 30
     ASCENDING NODE LONGITUDE (DEGREES EAST)        104.20
     ARGUEMENT OF PERIGEE (DEGREES)                  20.70

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6855400.00
     SEMIMINOR AXIS (M)                            6855393.69
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5646.97
     ENERGY (JOULE)                                -2.909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87040
     3 MONTH AVERAGE F10.7 CM FLUX             70.00
     DAILY AVERAGE F10 7 CM FLUX               70.00
     DAILY MAGNETIC INDEX AP                   10.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87040:      5 713E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87040.      4 662E+05  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87040·   652 2 TO    830 2 K
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****
DATA FOR: 87040
9 FEBRUARY 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	4 662E+05	8 060E+14
LONGERON	127 0	1 059E-01	1 446E+10
ROW 2	142 0	6 879E-09	1.146E+05
LONGERON	157.0	7 414E-15	4 814E+00
ROW 3	172.0	4 003E-18	1 403E-02
LONGERON	173.0	7 265E-18	1 228E-02
ROW 4	158 0	3 733E-14	3 146E+00
LONGERON	143 0	5 940E-08	5 787E+04
ROW 5	128.0	7 586E-01	7 156E+09
LONGERON	113 0	1 334E+06	4 895E+14
ROW 6	98.0	1 409E+10	1 902E+18
LONGERON	83.0	5.654E+11	7 266E+19
ROW 7	68 0	1 590E+12	2 118E+20
LONGERON	53.0	2 517E+12	3.388E+20
ROW 8	38 0	3.272E+12	4 428E+20
LONGERON	23.0	3.805E+12	5 167E+20
ROW 9	8 0	4.078E+12	5 553E+20
LONGERON	7 0	4 073E+12	5 560E+20
ROW 10	22.0	3.791E+12	5 189E+20
LONGERON	37 0	3 250E+12	4 464E+20
ROW 11	52 0	2 488E+12	3 435E+20
LONGERON	67 0	1 556E+12	2 172E+20
ROW 12	82 0	5 325E+11	7 797E+19
LONGERON	97 0	1 069E+10	2 423E+18
TOP	90 0	1.444E+11	2 075E+19
BOTTOM	90 0	1 444E+11	2 075E+19
RAM DIR	0	4.110E+12	5 605E+20

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**************************************
*MONTH    3   DAY:  16   YEAR   87     *
*DAY OF YEAR    75                     *
 CUMULATIVE EXPOSURE TIME  1073  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          489.40
     PERIGEE (KM ABOVE EARTH)                         465.40
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                         9245
     LOCAL SOLAR (EPOCH) TIME (HMS)                19  3 40
     ASCENDING NODE LONGITUDE (DEGREES EAST)          247 40
     ARGUEMENT OF PERIGEE (DEGREES)                    23.90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6857400.00
     SEMIMINOR AXIS (M)                               6857389.50
     ECCENTRICITY                                           .002
     PERIOD (SEC)                                        5649 44
     ENERGY (JOULE)                                   -2 908E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.230E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                      87075
     3 MONTH AVERAGE F10 7 CM FLUX               71 00
     DAILY AVERAGE F10.7 CM FLUX                 73.00
     DAILY MAGNETIC INDEX AP                     10 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87075:      6.557E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87075:      1.048E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87075.   657 3 TO    860 7 K
```

****
DATA FOR· 87075
16 MARCH 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 048E+06	8 083E+14
LONGERON	127.0	5 421E-01	1.446E+10
ROW 2	142.0	6 350E-08	1.146E+05
LONGERON	157 0	9 278E-14	4.814E+00
ROW 3	172 0	5 108E-17	1 403E-02
LONGERON	173 0	7 003E-17	1.228E-02
ROW 4	158 0	2 123E-13	3 146E+00
LONGERON	143.0	1 765E-07	5.787E+04
ROW 5	128 0	1 238E+00	7 159E+09
LONGERON	113 0	1 507E+06	4 938E+14
ROW 6	98 0	1 493E+10	1 946E+18
LONGERON	83 0	6 288E+11	7 446E+19
ROW 7	68 0	1 803E+12	2 169E+20
LONGERON	53 0	2 869E+12	3 470E+20
ROW 8	38 0	3 740E+12	4 534E+20
LONGERON	23.0	4.356E+12	5.290E+20
ROW 9	8.0	4 674E+12	5 685E+20
LONGERON	7.0	4.675E+12	5 693E+20
ROW 10	22.0	4.356E+12	5 312E+20
LONGERON	37.0	3 741E+12	4 570E+20
ROW 11	52.0	2.871E+12	3.516E+20
LONGERON	67.0	1.805E+12	2 223E+20
ROW 12	82 0	6 315E+11	7 973E+19
LONGERON	97 0	1 455E+10	2 461E+18
TOP	90.0	1 668E+11	2 122E+19
BOTTOM	90 0	1 668E+11	2 122E+19
RAM DIR	0	4 715E+12	5.738E+20

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**************************************
*MONTH    4   DAY:  15   YEAR   87     *
*DAY OF YEAR·  105                     *
*CUMULATIVE EXPOSURE TIME· 1103  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          484.90
     PERIGEE (KM ABOVE EARTH)                         464.90
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        73094
     LOCAL SOLAR (EPOCH) TIME (HMS)                3   0 14
     ASCENDING NODE LONGITUDE (DEGREES EAST)          100 50
     ARGUEMENT OF PERIGEE (DEGREES)                    22 80

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6854900 00
     SEMIMINOR AXIS (M)                              6854892.71
     ECCENTRICITY                                          .001
     PERIOD (SEC)                                     5646.35
     ENERGY (JOULE)                                  -2.909E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87105
     3 MONTH AVERAGE F10 7 CM FLUX            76 00
     DAILY AVERAGE F10.7 CM FLUX              86.00
     DAILY MAGNETIC INDEX AP                   7 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87105       9 129E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87105       8.578E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87105    695.3 TO    896 8 K
```

****
DATA FOR: 87105
15 APRIL 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	8 578E+06	8.207E+14
LONGERON	127 0	1.949E+01	1.449E+10
ROW 2	142.0	5.770E-06	1.147E+05
LONGERON	157.0	8 674E-12	4 814E+00
ROW 3	172.0	2 007E-15	1.403E-02
LONGERON	173 0	6 274E-16	1.228E-02
ROW 4	158.0	3.707E-13	3 146E+00
LONGERON	143.0	8 520E-08	5 787E+04
ROW 5	128.0	3 647E-01	7.161E+09
LONGERON	113.0	7.292E+05	4 967E+14
ROW 6	98.0	1 420E+10	1.983E+18
LONGERON	83.0	7 813E+11	7.629E+19
ROW 7	68 0	2 409E+12	2 223E+20
LONGERON	53 0	3 907E+12	3 558E+20
ROW 8	38 0	5.138E+12	4.649E+20
LONGERON	23 0	6 019E+12	5 424E+20
ROW 9	8.0	6 491E+12	5 830E+20
LONGERON	7.0	6 519E+12	5 838E+20
ROW 10	22.0	6.104E+12	5 448E+20
LONGERON	37 0	5 272E+12	4 687E+20
ROW 11	52.0	4 082E+12	3.606E+20
LONGERON	67.0	2.613E+12	2 280E+20
ROW 12	82.0	9.800E+11	8 182E+19
LONGERON	97.0	3 435E+10	2.524E+18
TOP	90 0	2 374E+11	2.175E+19
BOTTOM	90.0	2.374E+11	2 175E+19
RAM DIR	0	6 562E+12	5 884E+20

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*****************************************
*MONTH    5   DAY:  18   YEAR   87      *
*DAY OF YEAR·  138                      *
*CUMULATIVE EXPOSURE TIME  1136  DAYS   *
*****************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          484.40
      PERIGEE (KM ABOVE EARTH)                         464 70
      INCLINATION OF ORBIT (DEGREES)                    28.53
      GMT (EPOCH) TIME (SECONDS)                        23846
      LOCAL SOLAR (EPOCH) TIME (HMS)                10  3 49
      ASCENDING NODE LONGITUDE (DEGREES EAST)           51 60
      ARGUEMENT OF PERIGEE (DEGREES)                    21.90

 CONSTANTS
      RADIUS OF EARTH (M)                              6.38E+06
      MASS OF EARTH (KG)                               5.98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                               6854550.00
      SEMIMINOR AXIS (M)                               6854542.92
      ECCENTRICITY                                           .001
      PERIOD (SEC)                                        5645.92
      ENERGY (JOULE)                                   -2.909E+07
      ANGULAR MOMENTUM (JOULE-SEC)                      5.229E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                      87138
      3 MONTH AVERAGE F10 7 CM FLUX              83.00
      DAILY AVERAGE F10 7 CM FLUX                90 00
      DAILY MAGNETIC INDEX AP                     8.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87138        1.013E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87138:       6.128E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87138:   692.8 TO    980.1 K
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****
DATA FOR 87138
18 MAY 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6 128E+06	8.417E+14
LONGERON	127.0	2.043E+01	1 455E+10
ROW 2	142 0	1.644E-05	1.147E+05
LONGERON	157 0	9 144E-11	4.814E+00
ROW 3	172 0	7 488E-14	1.403E-02
LONGERON	173.0	5 657E-14	1.228E-02
ROW 4	158 0	4 347E-11	3 146E+00
LONGERON	143 0	6 562E-06	5.788E+04
ROW 5	128 0	1 009E+01	7.176E+09
LONGERON	113 0	4 383E+06	5 040E+14
ROW 6	98 0	2 572E+10	2 040E+18
LONGERON	83 0	9 614E+11	7 877E+19
ROW 7	68 0	2 771E+12	2 297E+20
LONGERON	53 0	4.421E+12	3 676E+20
ROW 8	38 0	5 770E+12	4 805E+20
LONGERON	23 0	6 725E+12	5 606E+20
ROW 9	8 0	7 222E+12	6.025E+20
LONGERON	7 0	7 227E+12	6 034E+20
ROW 10	22.0	6 740E+12	5.631E+20
LONGERON	37 0	5 793E+12	4.845E+20
ROW 11	52.0	4 451E+12	3.728E+20
LONGERON	67.0	2 806E+12	2.357E+20
ROW 12	82 0	9 958E+11	8 464E+19
LONGERON	97 0	2 917E+10	2 615E+18
TOP	90 0	2 702E+11	2 247E+19
BOTTOM	90 0	2.702E+11	2 247E+19
RAM DIR	0	7 287E+12	6 082E+20

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**********************************
*MONTH    6   DAY:  18   YEAR.  87    *
*DAY OF YEAR   169                    *
*CUMULATIVE EXPOSURE TIME  1167  DAYS  *
**********************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          484.20
     PERIGEE (KM ABOVE EARTH)                         464.40
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        45965
     LOCAL SOLAR (EPOCH) TIME (HMS)                 17 44  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)           74.50
     ARGUEMENT OF PERIGEE (DEGREES)                    20.90

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6854300 00
     SEMIMINOR AXIS (M)                           6854292.85
     ECCENTRICITY                                       .001
     PERIOD (SEC)                                   5645.61
     ENERGY (JOULE)                                -2.910E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87169
     3 MONTH AVERAGE F10 7 CM FLUX            85.00
     DAILY AVERAGE F10.7 CM FLUX              80 00
     DAILY MAGNETIC INDEX AP                   7.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87169.      6 595E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87169.      1.042E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87169:   668 2 TO    891 2 K
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****
DATA FOR: 87169
18 JUNE 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 042E+06	8.513E+14
LONGERON	127 0	7 149E-01	1.457E+10
ROW 2	142 0	1 538E-07	1.147E+05
LONGERON	157.0	4 141E-13	4.814E+00
ROW 3	172.0	3.549E-16	1 403E-02
LONGERON	173.0	5.923E-16	1.228E-02
ROW 4	158 0	1.661E-12	3.146E+00
LONGERON	143.0	9 882E-07	5.789E+04
ROW 5	128.0	4 119E+00	7 195E+09
LONGERON	113.0	2 797E+06	5.136E+14
ROW 6	98.0	1 773E+10	2.098E+18
LONGERON	83.0	6 483E+11	8.093E+19
ROW 7	68.0	1.829E+12	2.359E+20
LONGERON	53.0	2 900E+12	3.774E+20
ROW 8	38.0	3 773E+12	4 933E+20
LONGERON	23.0	4 389E+12	5.755E+20
ROW 9	8.0	4 706E+12	6.185E+20
LONGERON	7.0	4 702E+12	6.193E+20
ROW 10	22.0	4 378E+12	5 780E+20
LONGERON	37 0	3 755E+12	4.972E+20
ROW 11	52.0	2 876E+12	3 826E+20
LONGERON	67.0	1.802E+12	2.419E+20
ROW 12	82.0	6 222E+11	8.681E+19
LONGERON	97.0	1 422E+10	2.673E+18
TOP	90.0	1.712E+11	2.306E+19
BOTTOM	90.0	1 712E+11	2 306E+19
RAM DIR	.0	4 744E+12	6.243E+20

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**********************************
*MONTH:   7   DAY:  10   YEAR   87    *
*DAY OF YEAR   191                    *
*CUMULATIVE EXPOSURE TIME  1189  DAYS *
**********************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          481.80
     PERIGEE (KM ABOVE EARTH)                         466 50
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        63504
     LOCAL SOLAR (EPOCH) TIME (HMS)                 6  6 48
     ASCENDING NODE LONGITUDE (DEGREES EAST)          187.10
     ARGUEMENT OF PERIGEE (DEGREES)                    21.40

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6854150.00
     SEMIMINOR AXIS (M)                            6854145.73
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5645.43
     ENERGY (JOULE)                                -2 910E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 229E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  87191
     3 MONTH AVERAGE F10 7 CM FLUX          86 00
     DAILY AVERAGE F10.7 CM FLUX            87.00
     DAILY MAGNETIC INDEX AP                11 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87191       7 723E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87191:      7 474E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87191:   683.3 TO    935 4 K
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****
DATA FOR: 87191
10 JULY 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 474E+06	8 594E+14
LONGERON	127 0	2 273E+01	1.460E+10
ROW 2	142.0	1 089E-05	1 147E+05
LONGERON	157.0	2 795E-11	4.814E+00
ROW 3	172.0	1 008E-14	1.403E-02
LONGERON	173 0	4 035E-15	1 228E-02
ROW 4	158 0	2 419E-12	3 146E+00
LONGERON	143 0	4 611E-07	5 789E+04
ROW 5	128 0	1 285E+00	7 200E+09
LONGERON	113 0	1 194E+06	5 174E+14
ROW 6	98 0	1 392E+10	2 129E+18
LONGERON	83 0	6 776E+11	8 219E+19
ROW 7	68 0	2 055E+12	2 396E+20
LONGERON	53 0	3 320E+12	3.834E+20
ROW 8	38 0	4 359E+12	5 010E+20
LONGERON	23 0	5 101E+12	5 845E+20
ROW 9	8 0	5 496E+12	6.282E+20
LONGERON	7 0	5 515E+12	6 291E+20
ROW 10	22 0	5 159E+12	5 870E+20
LONGERON	37 0	4 452E+12	5 050E+20
ROW 11	52 0	3 441E+12	3 886E+20
LONGERON	67.0	2 195E+12	2 457E+20
ROW 12	82.0	8 139E+11	8.817E+19
LONGERON	97.0	2.799E+10	2.713E+18
TOP	90 0	2 033E+11	2 342E+19
BOTTOM	90.0	2 033E+11	2 342E+19
RAM DIR	.0	5 553E+12	6 341E+20

```
*MONTH    8   DAY   10   YEAR   87     *
*DAY OF YEAR  222                      *
*CUMULATIVE EXPOSURE TIME  1220  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          481.50
      PERIGEE (KM ABOVE EARTH)                         466.30
      INCLINATION OF ORBIT (DEGREES)                    28 53
      GMT (EPOCH) TIME (SECONDS)                        29203
      LOCAL SOLAR (EPOCH) TIME (HMS)                14  8 43
      ASCENDING NODE LONGITUDE (DEGREES EAST)           90.50
      ARGUEMENT OF PERIGEE (DEGREES)                    26 00

 CONSTANTS
      RADIUS OF EARTH (M)                             6 38E+06
      MASS OF EARTH (KG)                              5.98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                            6853900.00
      SEMIMINOR AXIS (M)                            6853895.79
      ECCENTRICITY                                        .001
      PERIOD (SEC)                                    5645.12
      ENERGY (JOULE)                                 -2.910E+07
      ANGULAR MOMENTUM (JOULE-SEC)                    5 229E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                       87222
      3 MONTH AVERAGE F10.7 CM FLUX                87.00
      DAILY AVERAGE F10 7 CM FLUX                  92.00
      DAILY MAGNETIC INDEX AP                      13.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87222       9 519E+06  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87222       2 364E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87222    684.8 TO    951 2 K
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****
DATA FOR: 87222
10 AUGUST 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2.364E+06	8.726E+14
LONGERON	127.0	3 313E+00	1.463E+10
ROW 2	142.0	1 690E-06	1.147E+05
LONGERON	157.0	9 439E-12	4 814E+00
ROW 3	172.0	1 182E-14	1.403E-02
LONGERON	173.0	1 831E-14	1.228E-02
ROW 4	158.0	3 164E-11	3 146E+00
LONGERON	143.0	9 125E-06	5.791E+04
ROW 5	128.0	1 791E+01	7.226E+09
LONGERON	113.0	6 582E+06	5.278E+14
ROW 6	98.0	2 874E+10	2.186E+18
LONGERON	83.0	9.451E+11	8.436E+19
ROW 7	68.0	2.648E+12	2.459E+20
LONGERON	53.0	4 193E+12	3 934E+20
ROW 8	38 0	5 451E+12	5 141E+20
LONGERON	23.0	6.339E+12	5 998E+20
ROW 9	8.0	6 794E+12	6.446E+20
LONGERON	7.0	6.786E+12	6.455E+20
ROW 10	22.0	6 316E+12	6.024E+20
LONGERON	37.0	5 416E+12	5.183E+20
ROW 11	52 0	4 146E+12	3 988E+20
LONGERON	67.0	2.594E+12	2 521E+20
ROW 12	82.0	8 936E+11	9.046E+19
LONGERON	97.0	2 203E+10	2.780E+18
TOP	90 0	2.531E+11	2 403E+19
BOTTOM	90.0	2.531E+11	2.403E+19
RAM DIR	.0	6 848E+12	6 507E+20

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**************************************
*MONTH    9   DAY   12   YEAR   87     *
*DAY OF YEAR   255                     *
*CUMULATIVE EXPOSURE TIME  1253  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          480.90
     PERIGEE (KM ABOVE EARTH)                         466 10
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        29894
     LOCAL SOLAR (EPOCH) TIME (HMS)                20 52 14
     ASCENDING NODE LONGITUDE (DEGREES EAST)          188 50
     ARGUEMENT OF PERIGEE (DEGREES)                    22.40

 CONSTANT
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6853500.00
     SEMIMINOR AXIS (M)                             6853496 00
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                    5644.62
     ENERGY (JOULE)                                 -2 910E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5.228E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87255
     3 MONTH AVERAGE F10 7 CM FLUX             89.00
     DAILY AVERAGE F10 7 CM FLUX               87 00
     DAILY MAGNETIC INDEX AP                   19 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87255       1 193E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87255.      6 817E+06  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87255.   730 1 TO    937 7 K
```

****
DATA FOR: 87255
12 SEPTEMBER 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6 817E+06	8.857E+14
LONGERON	127 0	1 345E+01	1.466E+10
ROW 2	142.0	5.684E-06	1.147E+05
LONGERON	157.0	2 017E-11	4.814E+00
ROW 3	172.0	1 456E-14	1.403E-02
LONGERON	173 0	1 335E-14	1.228E-02
ROW 4	158.0	1 543E-11	3 146E+00
LONGERON	143.0	3 593E-06	5 792E+04
ROW 5	128.0	7 295E+00	7.262E+09
LONGERON	113.0	3 772E+06	5.425E+14
ROW 6	98.0	2 647E+10	2.264E+18
LONGERON	83.0	1 093E+12	8.727E+19
ROW 7	68.0	3 224E+12	2.543E+20
LONGERON	53.0	5.172E+12	4.068E+20
ROW 8	38.0	6.768E+12	5.316E+20
LONGERON	23 0	7 903E+12	6 201E+20
ROW 9	8.0	8 499E+12	6 664E+20
LONGERON	7 0	8 516E+12	6.673E+20
ROW 10	22 0	7.952E+12	6.228E+20
LONGERON	37 0	6 847E+12	5.357E+20
ROW 11	52.0	5 275E+12	4.122E+20
LONGERON	67.0	3 343E+12	2.606E+20
ROW 12	82.0	1.211E+12	9.346E+19
LONGERON	97.0	3.721E+10	2 865E+18
TOP	90 0	3 154E+11	2.484E+19
BOTTOM	90 0	3 154E+11	2 484E+19
RAM DIR	0	8 581E+12	6.727E+20

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**************************************
*MONTH  11   DAY    4   YEAR   87     *
*DAY OF YEAR   308                    *
*CUMULATIVE EXPOSURE TIME  1306  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          482.10
     PERIGEE (KM ABOVE EARTH)                         462 90
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        40176
     LOCAL SOLAR (EPOCH) TIME (HMS)                17  6  0
     ASCENDING NODE LONGITUDE (DEGREES EAST)           89 10
     ARGUEMENT OF PERIGEE (DEGREES)                    34 90

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6852500 00
     SEMIMINOR AXIS (M)                              6852493 28
     ECCENTRICITY                                           001
     PERIOD (SEC)                                      5643.39
     ENERGY (JOULE)                                  -2 910E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.228E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    87308
     3 MONTH AVERAGE F10.7 CM FLUX             94.00
     DAILY AVERAGE F10 7 CM FLUX               99.00
     DAILY MAGNETIC INDEX AP                   13 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87308        1 986E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87308:       1.104E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87308:   753 2 TO   1005.1 K
```

****
DATA FOR: 87308
4 NOVEMBER 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 104E+07	9 265E+14
LONGERON	127.0	3 318E+01	1 476E+10
ROW 2	142.0	3 285E-05	1 148E+05
LONGERON	157.0	3 256E-10	4 815E+00
ROW 3	172.0	5 972E-13	1.404E-02
LONGERON	173.0	9.644E-13	1 229E-02
ROW 4	158.0	1 148E-09	3.149E+00
LONGERON	143.0	1 591E-04	5 830E+04
ROW 5	128.0	1 273E+02	7.570E+09
LONGERON	113 0	2 159E+07	6.006E+14
ROW 6	98.0	6 300E+10	2 469E+18
LONGERON	83.0	1.935E+12	9.420E+19
ROW 7	68.0	5 480E+12	2 742E+20
LONGERON	53.0	8 708E+12	4.385E+20
ROW 8	38.0	1 134E+13	5 730E+20
LONGERON	23.0	1 320E+13	6.685E+20
ROW 9	8.0	1 417E+13	7 183E+20
LONGERON	7.0	1 416E+13	7 193E+20
ROW 10	22.0	1 319E+13	6.712E+20
LONGERON	37 0	1 132E+13	5.773E+20
ROW 11	52.0	8 685E+12	4 442E+20
LONGERON	67.0	5 454E+12	2 807E+20
ROW 12	82.0	1.914E+12	1 006E+20
LONGERON	97.0	5 678E+10	3.080E+18
TOP	90 0	5 451E+11	2 681E+19
BOTTOM	90 0	5 451E+11	2 681E+19
RAM DIR	0	1 428E+13	7 250E+20

```
**************************************
*MONTH:  12   DAY.  11   YEAR:  87     *
*DAY OF YEAR   345                     *
*CUMULATIVE EXPOSURE TIME  1343  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          479 80
     PERIGEE (KM ABOVE EARTH)                         463.70
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                         3629
     LOCAL SOLAR (EPOCH) TIME (HMS)                21 58  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)          314 40
     ARGUEMENT OF PERIGEE (DEGREES)                    34 00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6851750 00
     SEMIMINOR AXIS (M)                               6851745.27
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5642.46
     ENERGY (JOULE)                                   -2 911E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.228E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        87345
     3 MONTH AVERAGE F10.7 CM FLUX                 96.00
     DAILY AVERAGE F10.7 CM FLUX                   91.00
     DAILY MAGNETIC INDEX AP                        9.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   87345       1 379E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   87345       1.641E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    87345    702 9 TO   1039.1 K
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****
DATA FOR· 87345
11 DECEMBER 1987
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 641E+07	9.704E+14
LONGERON	127.0	9 141E+01	1 496E+10
ROW 2	142.0	1 325E-04	1 151E+05
LONGERON	157.0	1 411E-09	4.818E+00
ROW 3	172.0	1 870E-12	1.404E-02
LONGERON	173.0	1 599E-12	1 229E-02
ROW 4	158.0	9 012E-10	3 152E+00
LONGERON	143.0	6 554E-05	5.866E+04
ROW 5	128.0	3 677E+01	7.832E+09
LONGERON	113.0	6 900E+06	6.461E+14
ROW 6	98 0	3.181E+10	2.621E+18
LONGERON	83.0	1.245E+12	9 929E+19
ROW 7	68.0	3 701E+12	2.889E+20
LONGERON	53.0	5 956E+12	4.620E+20
ROW 8	38.0	7 804E+12	6.036E+20
LONGERON	23 0	9 120E+12	7.041E+20
ROW 9	8.0	9.815E+12	7.567E+20
LONGERON	7.0	9 841E+12	7.576E+20
ROW 10	22 0	9 197E+12	7.070E+20
LONGERON	37 0	7 925E+12	6.081E+20
ROW 11	52.0	6 114E+12	4.678E+20
LONGERON	67.0	3.886E+12	2 956E+20
ROW 12	82.0	1 425E+12	1.059E+20
LONGERON	97.0	5.005E+10	3 251E+18
TOP	90.0	3.736E+11	2.828E+19
BOTTOM	90.0	3 736E+11	2 828E+19
RAM DIR	.0	9 914E+12	7.637E+20

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**************************************
*MONTH.   1   DAY:   8   YEAR   88     *
*DAY OF YEAR:    8                     *
*CUMULATIVE EXPOSURE TIME  1371  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          480.50
     PERIGEE (KM ABOVE EARTH)                         461.90
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        75168
     LOCAL SOLAR (EPOCH) TIME (HMS)                 6 53 36
     ASCENDING NODE LONGITUDE (DEGREES EAST)          150.20
     ARGUEMENT OF PERIGEE (DEGREES)                    32 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6851200.00
     SEMIMINOR AXIS (M)                             6851193.69
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                     5641 78
     ENERGY (JOULE)                                  -2.911E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.228E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88008
     3 MONTH AVERAGE F10.7 CM FLUX             98 00
     DAILY AVERAGE F10 7 CM FLUX              105 00
     DAILY MAGNETIC INDEX AP                   13.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88008.       1.487E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88008.       1.953E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88008.   763 1 TO    979.8 K
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****
DATA FOR: 88008
8 JANUARY 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 953E+07	1 014E+15
LONGERON	127.0	9 700E+01	1.519E+10
ROW 2	142.0	8 378E-05	1.154E+05
LONGERON	157.0	3 766E-10	4 820E+00
ROW 3	172.0	2 032E-13	1.404E-02
LONGERON	173.0	9 279E-14	1 229E-02
ROW 4	158 0	4 485E-11	3 153E+00
LONGERON	143 0	4 835E-06	5 874E+04
ROW 5	128 0	6 595E+00	7 885E+09
LONGERON	113.0	3 799E+06	6 592E+14
ROW 6	98.0	3 170E+10	2 698E+18
LONGERON	83.0	1.335E+12	1 024E+20
ROW 7	68.0	3 985E+12	2 982E+20
LONGERON	53.0	6 419E+12	4 771E+20
ROW 8	38.0	8.416E+12	6 234E+20
LONGERON	23.0	9 838E+12	7 273E+20
ROW 9	8.0	1 059E+13	7 816E+20
LONGERON	7 0	1 062E+13	7 826E+20
ROW 10	22.0	9 928E+12	7 303E+20
LONGERON	37.0	8.559E+12	6 282E+20
ROW 11	52.0	6 606E+12	4 833E+20
LONGERON	67.0	4 202E+12	3.055E+20
ROW 12	82.0	1 545E+12	1 096E+20
LONGERON	97.0	5 552E+10	3.379E+18
TOP	90.0	4 016E+11	2 923E+19
BOTTOM	90.0	4 016E+11	2 923E+19
RAM DIR	0	1 070E+13	7 888E+20

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**************************************
*MONTH:   2   DAY:   1   YEAR· 88     *
*DAY OF YEAR:   32                    *
*CUMULATIVE EXPOSURE TIME. 1395  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          481.00
     PERIGEE (KM ABOVE EARTH)                         460.30
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        42250
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 31 46
     ASCENDING NODE LONGITUDE (DEGREES EAST)           101 90
     ARGUEMENT OF PERIGEE (DEGREES)                     22 60

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6850650.00
     SEMIMINOR AXIS (M)                           6850642.18
     ECCENTRICITY                                       .002
     PERIOD (SEC)                                   5641.10
     ENERGY (JOULE)                                -2.911E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.227E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88032
     3 MONTH AVERAGE F10.7 CM FLUX            99 00
     DAILY AVERAGE F10.7 CM FLUX             102.00
     DAILY MAGNETIC INDEX AP                  15 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88032·      1 725E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88032:      1.325E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88032.   739.8 TO   1034.3 K
```

****
DATA FOR: 88032
1 FEBRUARY 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 325E+07	1 048E+15
LONGERON	127 0	6 074E+01	1 535E+10
ROW 2	142.0	8 336E-05	1.155E+05
LONGERON	157.0	9 936E-10	4.821E+00
ROW 3	172.0	1 822E-12	1.404E-02
LONGERON	173.0	2.446E-12	1.230E-02
ROW 4	158.0	2 131E-09	3 155E+00
LONGERON	143.0	2 082E-04	5.896E+04
ROW 5	128.0	1 246E+02	8 021E+09
LONGERON	113.0	1 819E+07	6.820E+14
ROW 6	98.0	5 280E+10	2.786E+18
LONGERON	83.0	1 661E+12	1.055E+20
ROW 7	68.0	4 739E+12	3.073E+20
LONGERON	53.0	7 546E+12	4.916E+20
ROW 8	38.0	9.840E+12	6 424E+20
LONGERON	23.0	1 146E+13	7.494E+20
ROW 9	8.0	1 230E+13	8 053E+20
LONGERON	7.0	1.231E+13	8.064E+20
ROW 10	22.0	1 147E+13	7.525E+20
LONGERON	37.0	9 855E+12	6.473E+20
ROW 11	52.0	7 566E+12	4.980E+20
LONGERON	67.0	4 761E+12	3.148E+20
ROW 12	82.0	1 685E+12	1.129E+20
LONGERON	97.0	5 274E+10	3 492E+18
TOP	90 0	4 751E+11	3.013E+19
BOTTOM	90.0	4 751E+11	3 013E+19
RAM DIR	.0	1 241E+13	8.128E+20

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**************************************
*MONTH.   3   DAY·  14   YEAR   88     *
*DAY OF YEAR:   74                     *
*CUMULATIVE EXPOSURE TIME: 1437  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          478.40
      PERIGEE (KM ABOVE EARTH)                         460 90
      INCLINATION OF ORBIT (DEGREES)                    28.53
      GMT (EPOCH) TIME (SECONDS)                        61344
      LOCAL SOLAR (EPOCH) TIME (HMS)                 20 26  0
      ASCENDING NODE LONGITUDE (DEGREES EAST)           50.90
      ARGUEMENT OF PERIGEE (DEGREES)                    32 50

 CONSTANTS
      RADIUS OF EARTH (M)                              6 38E+06
      MASS OF EARTH (KG)                               5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                             6849650.00
      SEMIMINOR AXIS (M)                             6849644.41
      ECCENTRICITY                                         .001
      PERIOD (SEC)                                    5639.87
      ENERGY (JOULE)                                 -2.912E+07
      ANGULAR MOMENTUM (JOULE-SEC)                    5.227E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                        88074
      3 MONTH AVERAGE F10.7 CM FLUX                107.00
      DAILY AVERAGE F10.7 CM FLUX                  114.00
      DAILY MAGNETIC INDEX AP                       14 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88074:       2 412E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88074        3 189E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88074·   799 2 TO   1063 3 K
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****
DATA FOR: 88074
14 MARCH 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3 189E+07	1.130E+15
LONGERON	127.0	2 237E+02	1.587E+10
ROW 2	142 0	4 475E-04	1 165E+05
LONGERON	157.0	6 574E-09	4.835E+00
ROW 3	172 0	1 159E-11	1.407E-02
LONGERON	173 0	1 189E-11	1 232E-02
ROW 4	158.0	6 839E-09	3 172E+00
LONGERON	143 0	4 267E-04	6 011E+04
ROW 5	128 0	1.786E+02	8 571E+09
LONGERON	113.0	2 256E+07	7 560E+14
ROW 6	98.0	6 782E+10	3 005E+18
LONGERON	83.0	2.240E+12	1 126E+20
ROW 7	68.0	6.533E+12	3 277E+20
LONGERON	53.0	1 047E+13	5 243E+20
ROW 8	38.0	1 369E+13	6 851E+20
LONGERON	23.0	1 598E+13	7.992E+20
ROW 9	8.0	1 718E+13	8.588E+20
LONGERON	7.0	1 721E+13	8 599E+20
ROW 10	22.0	1 607E+13	8 025E+20
LONGERON	37.0	1 383E+13	6 903E+20
ROW 11	52 0	1 065E+13	5.311E+20
LONGERON	67 0	6.742E+12	3.357E+20
ROW 12	82 0	2 444E+12	1.204E+20
LONGERON	97.0	8 801E+10	3 747E+18
TOP	90 0	6 718E+11	3 222E+19
BOTTOM	90 0	6 718E+11	3 222E+19
RAM DIR	.0	1 735E+13	8 668E+20

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**************************************
*MONTH:   4   DAY·  12   YEAR   88     *
*DAY OF YEAR:  103                     *
*CUMULATIVE EXPOSURE TIME: 1466  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          478.50
     PERIGEE (KM ABOVE EARTH)                         458.60
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                          259
     LOCAL SOLAR (EPOCH) TIME (HMS)                 5 37  6
     ASCENDING NODE LONGITUDE (DEGREES EAST)           83.20
     ARGUEMENT OF PERIGEE (DEGREES)                    31.80

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6848550.00
     SEMIMINOR AXIS (M)                             6848542.77
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                    5638.51
     ENERGY (JOULE)                                 -2.912E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5 227E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88103
     3 MONTH AVERAGE F10 7 CM FLUX            113.00
     DAILY AVERAGE F10.7 CM FLUX              124.00
     DAILY MAGNETIC INDEX AP                   16.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88103·      3 296E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88103       1 234E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88103    821 1 TO   1110.6 K
```

****
DATA FOR: 88103
12 APRIL 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 234E+08	1 325E+15
LONGERON	127.0	2 577E+03	1.938E+10
ROW 2	142 0	1 195E-02	1.320E+05
LONGERON	157.0	2 312E-07	5.133E+00
ROW 3	172.0	2 877E-10	1.444E-02
LONGERON	173.0	1 301E-10	1.250E-02
ROW 4	158 0	2 736E-08	3.214E+00
LONGERON	143.0	7 218E-04	6 155E+04
ROW 5	128.0	1.906E+02	9 034E+09
LONGERON	113 0	2 421E+07	8.145E+14
ROW 6	98 0	8 588E+10	3 197E+18
LONGERON	83.0	2.956E+12	1.191E+20
ROW 7	68 0	8.802E+12	3.469E+20
LONGERON	53.0	1 420E+13	5 552E+20
ROW 8	38 0	1.863E+13	7.255E+20
LONGERON	23.0	2 179E+13	8.465E+20
ROW 9	8.0	2.347E+13	9.097E+20
LONGERON	7 0	2.355E+13	9 110E+20
ROW 10	22 0	2.202E+13	8.502E+20
LONGERON	37.0	1 899E+13	7 314E+20
ROW 11	52 0	1 467E+13	5.628E+20
LONGERON	67.0	9.347E+12	3.558E+20
ROW 12	82.0	3.474E+12	1.278E+20
LONGERON	97 0	1 540E+11	4.050E+18
TOP	90.0	9 433E+11	3.424E+19
BOTTOM	90 0	9 433E+11	3 424E+19
RAM DIR	.0	2.371E+13	9.182E+20

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**************************************
*MONTH·   5   DAY.  15   YEAR·  88     *
*DAY OF YEAR:  136                     *
*CUMULATIVE EXPOSURE TIME  1499  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                      476 70
     PERIGEE (KM ABOVE EARTH)                     457 90
     INCLINATION OF ORBIT (DEGREES)                28 52
     GMT (EPOCH) TIME (SECONDS)                     8640
     LOCAL SOLAR (EPOCH) TIME (HMS)              12 16 48
     ASCENDING NODE LONGITUDE (DEGREES EAST)       148 20
     ARGUEMENT OF PERIGEE (DEGREES)                 31 40

 CONSTANTS
     RADIUS OF EARTH (M)                          6 38E+06
     MASS OF EARTH (KG)                           5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)        6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                          6847300.00
     SEMIMINOR AXIS (M)                          6847293.55
     ECCENTRICITY                                       001
     PERIOD (SEC)                                 5636.97
     ENERGY (JOULE)                              -2.913E+07
     ANGULAR MOMENTUM (JOULE-SEC)                 5.226E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88136
     3 MONTH AVERAGE F10.7 CM FLUX            118 00
     DAILY AVERAGE F10 7 CM FLUX              118.00
     DAILY MAGNETIC INDEX AP                   12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88136       2.946E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88136·      4 368E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88136    791 9 TO   1151 0 K
```

****
DATA FOR: 88136
15 MAY 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	4 368E+07	1.563E+15
LONGERON	127.0	5 791E+02	2 388E+10
ROW 2	142.0	3 101E-03	1.535E+05
LONGERON	157.0	1 106E-07	5 620E+00
ROW 3	172.0	3 319E-10	1.533E-02
LONGERON	173.0	3.677E-10	1.321E-02
ROW 4	158.0	1 494E-07	3.466E+00
LONGERON	143.0	5 016E-03	6.973E+04
ROW 5	128.0	1 038E+03	1.079E+10
LONGERON	113.0	6.457E+07	9.411E+14
ROW 6	98.0	1 087E+11	3.475E+18
LONGERON	83.0	2 885E+12	1.275E+20
ROW 7	68.0	8 131E+12	3.711E+20
LONGERON	53.0	1 292E+13	5.938E+20
ROW 8	38.0	1 684E+13	7.761E+20
LONGERON	23.0	1.960E+13	9.055E+20
ROW 9	8.0	2.103E+13	9.732E+20
LONGERON	7.0	2 103E+13	9.745E+20
ROW 10	22 0	1 959E+13	9.095E+20
LONGERON	37.0	1.682E+13	7.825E+20
ROW 11	52.0	1 290E+13	6.021E+20
LONGERON	67.0	8.103E+12	3.807E+20
ROW 12	82.0	2.862E+12	1.369E+20
LONGERON	97.0	1.015E+11	4.415E+18
TOP	90.0	8.474E+11	3.679E+19
BOTTOM	90.0	8.474E+11	3 679E+19
RAM DIR	.0	2 121E+13	9 823E+20

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**************************************
*MONTH:   6   DAY:  15   YEAR:  88     *
*DAY OF YEAR:  167                     *
*CUMULATIVE EXPOSURE TIME· 1530  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          476.10
     PERIGEE (KM ABOVE EARTH)                         456.60
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        65578
     LOCAL SOLAR (EPOCH) TIME (HMS)                19 40 58
     ASCENDING NODE LONGITUDE (DEGREES EAST)           22.00
     ARGUEMENT OF PERIGEE (DEGREES)                    31.80

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6846350 00
     SEMIMINOR AXIS (M)                            6846343.06
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5635.79
     ENERGY (JOULE)                                -2.913E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.226E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88167
     3 MONTH AVERAGE F10.7 CM FLUX            128.00
     DAILY AVERAGE F10.7 CM FLUX              144.00
     DAILY MAGNETIC INDEX AP                   11 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88167·       2.822E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88167:       5 390E+07  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88167:   862.9 TO   1129 8 K
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****
DATA FOR 88167
15 JUNE 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	5 390E+07	1.694E+15
LONGERON	127.0	6 531E+02	2 553E+10
ROW 2	142.0	2 802E-03	1.614E+05
LONGERON	157.0	8 160E-08	5 878E+00
ROW 3	172 0	2 160E-10	1.606E-02
LONGERON	173.0	2 342E-10	1.402E-02
ROW 4	158.0	1 013E-07	3.802E+00
LONGERON	143.0	3 686E-03	8.139E+04
ROW 5	128.0	7 901E+02	1 323E+10
LONGERON	113.0	5 091E+07	1.096E+15
ROW 6	98.0	9 368E+10	3 746E+18
LONGERON	83.0	2.660E+12	1 349E+20
ROW 7	68 0	7 676E+12	3 922E+20
LONGERON	53 0	1 228E+13	6.276E+20
ROW 8	38.0	1 605E+13	8 201E+20
LONGERON	23 0	1 872E+13	9.568E+20
ROW 9	8 0	2 012E+13	1.028E+21
LONGERON	7.0	2 015E+13	1.030E+21
ROW 10	22.0	1 880E+13	9.609E+20
LONGERON	37 0	1 617E+13	8.266E+20
ROW 11	52.0	1 244E+13	6.360E+20
LONGERON	67.0	7 865E+12	4.021E+20
ROW 12	82.0	2 845E+12	1.445E+20
LONGERON	97.0	1 112E+11	4 699E+18
TOP	90 0	8 133E+11	3 902E+19
BOTTOM	90.0	8 133E+11	3 902E+19
RAM DIR	.0	2 031E+13	1 038E+21

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**************************************
*MONTH.   7   DAY   15   YEAR   88     *
*DAY OF YEAR   197                     *
*CUMULATIVE EXPOSURE TIME. 1560  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          475 70
      PERIGEE (KM ABOVE EARTH)                         455 10
      INCLINATION OF ORBIT (DEGREES)                    28 53
      GMT (EPOCH) TIME (SECONDS)                        11750
      LOCAL SOLAR (EPOCH) TIME (HMS)                 4 15 50
      ASCENDING NODE LONGITUDE (DEGREES EAST)           15 00
      ARGUEMENT OF PERIGEE (DEGREES)                    28 90

 CONSTANTS
      RADIUS OF EARTH (M)                             6 38E+06
      MASS OF EARTH (KG)                              5.98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                              6845400 00
      SEMIMINOR AXIS (M)                              6845392 25
      ECCENTRICITY                                          .002
      PERIOD (SEC)                                     5634.62
      ENERGY (JOULE)                                  -2.913E+07
      ANGULAR MOMENTUM (JOULE-SEC)                     5.225E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                    88197
      3 MONTH AVERAGE F10 7 CM FLUX            140.00
      DAILY AVERAGE F10 7 CM FLUX              158.00
      DAILY MAGNETIC INDEX AP                   10.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88197        3 615E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88197.       2 365E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88197:   869.3 TO   1195.8 K
```

****
DATA FOR 88197
15 JULY 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 365E+08	2 070E+15
LONGERON	127.0	9.802E+03	3.908E+10
ROW 2	142.0	9 936E-02	2.938E+05
LONGERON	157 0	3 740E-06	1 083E+01
ROW 3	172.0	6 660E-09	2 497E-02
LONGERON	173.0	2.865E-09	1.803E-02
ROW 4	158 0	3 898E-07	4 439E+00
LONGERON	143.0	5 176E-03	9 287E+04
ROW 5	128.0	6 393E+02	1 509E+10
LONGERON	113.0	4 268E+07	1.217E+15
ROW 6	98 0	1 034E+11	4 001E+18
LONGERON	83 0	3 225E+12	1 425E+20
ROW 7	68 0	9 615E+12	4.147E+20
LONGERON	53 0	1 554E+13	6 636E+20
ROW 8	38.0	2 041E+13	8 674E+20
LONGERON	23.0	2 389E+13	1 012E+21
ROW 9	8.0	2 574E+13	1 088E+21
LONGERON	7.0	2 584E+13	1 089E+21
ROW 10	22.0	2 417E+13	1 017E+21
LONGERON	37.0	2 086E+13	8 746E+20
ROW 11	52.0	1.613E+13	6.731E+20
LONGERON	67.0	1 029E+13	4 256E+20
ROW 12	82.0	3 863E+12	1 532E+20
LONGERON	97.0	1 939E+11	5.095E+18
TOP	90.0	1 070E+12	4.146E+19
BOTTOM	90.0	1 070E+12	4 146E+19
RAM DIR	0	2.601E+13	1 098E+21

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**************************************
*MONTH·   8   DAY.  13   YEAR.  88     *
*DAY OF YEAR·  226                     *
*CUMULATIVE EXPOSURE TIME: 1589  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          474.70
      PERIGEE (KM ABOVE EARTH)                         454.10
      INCLINATION OF ORBIT (DEGREES)                    28 52
      GMT (EPOCH) TIME (SECONDS)                        77501
      LOCAL SOLAR (EPOCH) TIME (HMS)                 12 38 29
      ASCENDING NODE LONGITUDE (DEGREES EAST)          226 70
      ARGUEMENT OF PERIGEE (DEGREES)                    24 10

 CONSTANTS
      RADIUS OF EARTH (M)                           6 38E+06
      MASS OF EARTH (KG)                            5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                            6844400.00
      SEMIMINOR AXIS (M)                            6844392 25
      ECCENTRICITY                                        .002
      PERIOD (SEC)                                     5633 39
      ENERGY (JOULE)                                -2 914E+07
      ANGULAR MOMENTUM (JOULE-SEC)                   5 225E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                    88226
      3 MONTH AVERAGE F10 7 CM FLUX            153 00
      DAILY AVERAGE F10.7 CM FLUX              158 00
      DAILY MAGNETIC INDEX AP                   10.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88226        4 785E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88226·       1.344E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88226.   874 0 TO   1260 4 K
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****
DATA FOR: 88226
13 AUGUST 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 344E+08	2 534E+15
LONGERON	127 0	4 119E+03	5 652E+10
ROW 2	142 0	6.018E-02	4 937E+05
LONGERON	157 0	5 324E-06	2 219E+01
ROW 3	172.0	2 819E-08	6.863E-02
LONGERON	173.0	3 375E-08	6.390E-02
ROW 4	158.0	8 886E-06	1.606E+01
LONGERON	143.0	1 283E-01	2 600E+05
ROW 5	128.0	9 297E+03	2 753E+10
LONGERON	113.0	2 216E+08	1 548E+15
ROW 6	98.0	2 086E+11	4 392E+18
LONGERON	83.0	4 728E+12	1 525E+20
ROW 7	68.0	1 322E+13	4.433E+20
LONGERON	53.0	2 101E+13	7.094E+20
ROW 8	38.0	2 736E+13	9 273E+20
LONGERON	23 0	3 185E+13	1 082E+21
ROW 9	8.0	3 417E+13	1.163E+21
LONGERON	7 0	3 416E+13	1.164E+21
ROW 10	22.0	3 182E+13	1 087E+21
LONGERON	37 0	2 731E+13	9.350E+20
ROW 11	52 0	2 095E+13	7 195E+20
LONGERON	67.0	1 315E+13	4.550E+20
ROW 12	82.0	4 666E+12	1.639E+20
LONGERON	97 0	1 899E+11	5.575E+18
TOP	90.0	1 439E+12	4 460E+19
BOTTOM	90.0	1 439E+12	4.460E+19
RAM DIR	0	3 446E+13	1.174E+21

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**************************************
*MONTH    9   DAY  14   YEAR   88     *
*DAY OF YEAR   258                    *
*CUMULATIVE EXPOSURE TIME: 1621  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          472.70
     PERIGEE (KM ABOVE EARTH)                         452 70
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        51754
     LOCAL SOLAR (EPOCH) TIME (HMS)                20  0 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)           84 50
     ARGUEMENT OF PERIGEE (DEGREES)                    26.00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6842700.00
     SEMIMINOR AXIS (M)                               6842692 69
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5631.29
     ENERGY (JOULE)                                   -2.915E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 224E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88258
     3 MONTH AVERAGE F10 7 CM FLUX           157 00
     DAILY AVERAGE F10.7 CM FLUX             154.00
     DAILY MAGNETIC INDEX AP                  12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88258      6 064E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88258:      2.235E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88258:   911.7 TO   1227 2 K
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****
DATA FOR· 88258
14 SEPTEMBER 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 235E+08	3.029E+15
LONGERON	127 0	6 448E+03	7 113E+10
ROW 2	142.0	6 982E-02	6.734E+05
LONGERON	157 0	4 502E-06	3 577E+01
ROW 3	172.0	1 901E-08	1 339E-01
LONGERON	173 0	2 045E-08	1.388E-01
ROW 4	158 0	5 360E-06	3 575E+01
LONGERON	143.0	8 178E-02	5 504E+05
ROW 5	128 0	6 530E+03	4 941E+10
LONGERON	113 0	1 878E+08	2 114E+15
ROW 6	98 0	2 246E+11	4.991E+18
LONGERON	83.0	5 717E+12	1.669E+20
ROW 7	68.0	1 646E+13	4 843E+20
LONGERON	53 0	2 636E+13	7.749E+20
ROW 8	38.0	3 447E+13	1.013E+21
LONGERON	23 0	4 022E+13	1 182E+21
ROW 9	8 0	4 324E+13	1 270E+21
LONGERON	7 0	4 330E+13	1 272E+21
ROW 10	22.0	4 042E+13	1 187E+21
LONGERON	37 0	3 478E+13	1.021E+21
ROW 11	52 0	2 677E+13	7 855E+20
LONGERON	67 0	1 694E+13	4.966E+20
ROW 12	82 0	6 175E+12	1.789E+20
LONGERON	97.0	2 747E+11	6.218E+18
TOP	90 0	1 812E+12	4 910E+19
BOTTOM	90 0	1 812E+12	4 910E+19
RAM DIR	0	4 364E+13	1 282E+21

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**************************************
*MONTH:  10   DAY   14   YEAR:  88     *
*DAY OF YEAR·  288                     *
*CUMULATIVE EXPOSURE TIME  1651  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          470 20
     PERIGEE (KM ABOVE EARTH)                         450.00
     INCLINATION OF ORBIT (DEGREES)                    28 50
     GMT (EPOCH) TIME (SECONDS)                        12355
     LOCAL SOLAR (EPOCH) TIME (HMS)                 4 28 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)           15 60
     ARGUEMENT OF PERIGEE (DEGREES)                    25 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6840100 00
     SEMIMINOR AXIS (M)                               6840092.54
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5628.08
     ENERGY (JOULE)                                   -2 916E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 223E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88288
     3 MONTH AVERAGE F10 7 CM FLUX            160.00
     DAILY AVERAGE F10 7 CM FLUX              169.00
     DAILY MAGNETIC INDEX AP                   13 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88288·      8 515E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88288:      8 973E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88288    933 1 TO   1288 4 K
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****
DATA FOR· 88288
14 OCTOBER 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8 973E+08	4.482E+15
LONGERON	127.0	7 616E+04	1.782E+11
ROW 2	142 0	1 791E+00	3 085E+06
LONGERON	157.0	1 422E-04	2 259E+02
ROW 3	172.0	4.017E-07	6.792E-01
LONGERON	173.0	1 815E-07	4.006E-01
ROW 4	158.0	1 641E-05	6 396E+01
LONGERON	143 0	9.772E-02	7 830E+05
ROW 5	128.0	4.728E+03	6 400E+10
LONGERON	113.0	1.619E+08	2.567E+15
ROW 6	98 0	2 765E+11	5 640E+18
LONGERON	83.0	7.692E+12	1.843E+20
ROW 7	68.0	2 271E+13	5 351E+20
LONGERON	53 0	3.667E+13	8.566E+20
ROW 8	38.0	4.813E+13	1.120E+21
LONGERON	23.0	5.632E+13	1 307E+21
ROW 9	8.0	6 066E+13	1.404E+21
LONGERON	7.0	6 087E+13	1 407E+21
ROW 10	22 0	5 694E+13	1 313E+21
LONGERON	37 0	4 912E+13	1.130E+21
ROW 11	52 0	3 796E+13	8.694E+20
LONGERON	67.0	2 420E+13	5.499E+20
ROW 12	82.0	9 081E+12	1 986E+20
LONGERON	97 0	4 958E+11	7 216E+18
TOP	90 0	2 600E+12	5 481E+19
BOTTOM	90.0	2 600E+12	5.481E+19
RAM DIR	0	6.130E+13	1.418E+21

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****************************************
*MONTH:  11   DAY:  14   YEAR   88     *
*DAY OF YEAR:  319                     *
*CUMULATIVE EXPOSURE TIME. 1682  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          467.10
      PERIGEE (KM ABOVE EARTH)                         447 10
      INCLINATION OF ORBIT (DEGREES)                    28.51
      GMT (EPOCH) TIME (SECONDS)                        19526
      LOCAL SOLAR (EPOCH) TIME (HMS)                12  7 50
      ASCENDING NODE LONGITUDE (DEGREES EAST)          100 60
      ARGUEMENT OF PERIGEE (DEGREES)                    17.00

 CONSTANTS
      RADIUS OF EARTH (M)                              6 38E+06
      MASS OF EARTH (KG)                               5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                               6837100.00
      SEMIMINOR AXIS (M)                               6837092.69
      ECCENTRICITY                                           001
      PERIOD (SEC)                                       5624.37
      ENERGY (JOULE)                                  -2.917E+07
      ANGULAR MOMENTUM (JOULE-SEC)                     5.222E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                        88319
      3 MONTH AVERAGE F10.7 CM FLUX                159 00
      DAILY AVERAGE F10 7 CM FLUX                  153.00
      DAILY MAGNETIC INDEX AP                       12.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88319        7 936E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88319.       2 507E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88319    948.9 TO   1246 6 K
```

****
DATA FOR: 88319
14 NOVEMBER 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 507E+08	6 019E+15
LONGERON	127 0	6 250E+03	2 885E+11
ROW 2	142 0	7 339E-02	5.582E+06
LONGERON	157 0	6 101E-06	4 245E+02
ROW 3	172.0	3 440E-08	1 263E+00
LONGERON	173.0	4 752E-08	7 073E-01
ROW 4	158 0	1 466E-05	1.056E+02
LONGERON	143.0	2 351E-01	1.229E+06
ROW 5	128.0	1.738E+04	9 362E+10
LONGERON	113.0	3.974E+08	3.316E+15
ROW 6	98.0	3 523E+11	6.482E+18
LONGERON	83.0	7 793E+12	2.050E+20
ROW 7	68 0	2 187E+13	5 948E+20
LONGERON	53.0	3 480E+13	9 523E+20
ROW 8	38 0	4 536E+13	1 245E+21
LONGERON	23.0	5 282E+13	1.453E+21
ROW 9	8.0	5.669E+13	1.562E+21
LONGERON	7.0	5.669E+13	1 564E+21
ROW 10	22.0	5.283E+13	1.460E+21
LONGERON	37.0	4.537E+13	1.256E+21
ROW 11	52.0	3 481E+13	9 668E+20
LONGERON	67.0	2.189E+13	6.116E+20
ROW 12	82.0	7 823E+12	2.213E+20
LONGERON	97.0	3 372E+11	8.332E+18
TOP	90.0	2.420E+12	6 154E+19
BOTTOM	90.0	2.420E+12	6 154E+19
RAM DIR	.0	5.718E+13	1.576E+21

```
**************************************
*MONTH· 12   DAY. 15   YEAR   88     *
*DAY OF YEAR:  350                   *
*CUMULATIVE EXPOSURE TIME  1713  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        463 30
     PERIGEE (KM ABOVE EARTH)                       444.90
     INCLINATION OF ORBIT (DEGREES)                  28.52
     GMT (EPOCH) TIME (SECONDS)                      47261
     LOCAL SOLAR (EPOCH) TIME (HMS)                19 37 41
     ASCENDING NODE LONGITUDE (DEGREES EAST)         97 50
     ARGUEMENT OF PERIGEE (DEGREES)                  16 80

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6834100.00
     SEMIMINOR AXIS (M)                            6834093 81
     ECCENTRICITY                                         001
     PERIOD (SEC)                                    5620.67
     ENERGY (JOULE)                                -2 918E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.221E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    88350
     3 MONTH AVERAGE F10 7 CM FLUX            172.00
     DAILY AVERAGE F10.7 CM FLUX              194 00
     DAILY MAGNETIC INDEX AP                   14.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   88350·      9 831E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   88350:      8 331E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    88350    952 6 TO   1425 8 K
```

****
DATA FOR· 88350
15 DECEMBER 1988
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	8.331E+08	7 471E+15
LONGERON	127 0	8 139E+04	4 059E+11
ROW 2	142.0	3 603E+00	1 051E+07
LONGERON	157 0	8 132E-04	1 522E+03
ROW 3	172.0	7 382E-06	1 120E+01
LONGERON	173 0	8 369E-06	1 198E+01
ROW 4	158 0	1 105E-03	1 604E+03
LONGERON	143.0	4 885E+00	8 086E+06
ROW 5	128 0	9 169E+04	2 397E+11
LONGERON	113.0	7 529E+08	4.857E+15
ROW 6	98 0	4 419E+11	7 546E+18
LONGERON	83 0	9 366E+12	2 280E+20
ROW 7	68 0	2 673E+13	6 599E+20
LONGERON	53 0	4 279E+13	1.056E+21
ROW 8	38 0	5 593E+13	1.381E+21
LONGERON	23 0	6.527E+13	1.611E+21
ROW 9	8 0	7.016E+13	1.731E+21
LONGERON	7 0	7 026E+13	1 734E+21
ROW 10	22.0	6 558E+13	1.618E+21
LONGERON	37 0	5 643E+13	1 392E+21
ROW 11	52 0	4 343E+13	1 072E+21
LONGERON	67 0	2 748E+13	6 778E+20
ROW 12	82 0	1 009E+13	2 453E+20
LONGERON	97 0	5 266E+11	9.489E+18
TOP	90 0	3 101E+12	6 893E+19
BOTTOM	90 0	3 101E+12	6 893E+19
RAM DIR	0	7 082E+13	1 748E+21

```
****************************************
*MONTH·   1   DAY·   1   YEAR:  89     *
*DAY OF YEAR.    1                     *
*CUMULATIVE EXPOSURE TIME. 1729  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          459.30
     PERIGEE (KM ABOVE EARTH)                         443.80
     INCLINATION OF ORBIT (DEGREES)                    28.51
     GMT (EPOCH) TIME (SECONDS)                         6307
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 53 55
     ASCENDING NODE LONGITUDE (DEGREES EAST)          137.20
     ARGUEMENT OF PERIGEE (DEGREES)                    27.10

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6831550.00
     SEMIMINOR AXIS (M)                             6831545.60
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                     5617.53
     ENERGY (JOULE)                                  -2.919E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5.220E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89001
     3 MONTH AVERAGE F10 7 CM FLUX                172.00
     DAILY AVERAGE F10 7 CM FLUX                  190.00
     DAILY MAGNETIC INDEX AP                       14.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89001:      9 288E+07  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89001·      4.867E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89001   1018 3 TO   1309 7 K
```

****
DATA FOR: 89001
1 JANUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4 867E+08	8.397E+15
LONGERON	127 0	2 055E+04	4 775E+11
ROW 2	142 0	3 850E-01	1 331E+07
LONGERON	157 0	4 487E-05	2 124E+03
ROW 3	172 0	2 887E-07	1.658E+01
LONGERON	173 0	3 555E-07	1 810E+01
ROW 4	158 0	7 849E-05	2.435E+03
LONGERON	143.0	7 927E-01	1.207E+07
ROW 5	128.0	3 675E+04	3 298E+11
LONGERON	113 0	5 862E+08	5.797E+15
ROW 6	98.0	4 276E+11	8.156E+18
LONGERON	83 0	9 026E+12	2 409E+20
ROW 7	68.0	2 547E+13	6.965E+20
LONGERON	53 0	4 062E+13	1 115E+21
ROW 8	38.0	5 300E+13	1 457E+21
LONGERON	23 0	6 178E+13	1.700E+21
ROW 9	8 0	6 634E+13	1.827E+21
LONGERON	7.0	6 638E+13	1.830E+21
ROW 10	22.0	6 190E+13	1.708E+21
LONGERON	37.0	5 320E+13	1.469E+21
ROW 11	52.0	4 088E+13	1.131E+21
LONGERON	67 0	2 577E+13	7 151E+20
ROW 12	82 0	9 325E+12	2.589E+20
LONGERON	97 0	4 506E+11	1.017E+19
TOP	90 0	2.903E+12	7 314E+19
BOTTOM	90 0	2 903E+12	7 314E+19
RAM DIR	0	6 693E+13	1.844E+21

```
****************************************
*MONTH.   1   DAY    8   YEAR· 89      *
*DAY OF YEAR     8                     *
*CUMULATIVE EXPOSURE TIME· 1736  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                              459 40
     PERIGEE (KM ABOVE EARTH)                             442 90
     INCLINATION OF ORBIT (DEGREES)                        28 53
     GMT (EPOCH) TIME (SECONDS)                            17280
     LOCAL SOLAR (EPOCH) TIME (HMS)                    7   8 48
     ASCENDING NODE LONGITUDE (DEGREES EAST)               35 20
     ARGUEMENT OF PERIGEE (DEGREES)                        20 50

 CONSTANTS
     RADIUS OF EARTH (M)                                  6.38E+06
     MASS OF EARTH (KG)                                   5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)                6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                                   6831150 00
     SEMIMINOR AXIS (M)                                   6831145.02
     ECCENTRICITY                                               001
     PERIOD (SEC)                                           5617 03
     ENERGY (JOULE)                                      -2.919E+07
     ANGULAR MOMENTUM (JOULE-SEC)                         5 220E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                          89008
     3 MONTH AVERAGE F10 7 CM FLUX                  174.00
     DAILY AVERAGE F10 7 CM FLUX                    219.00
     DAILY MAGNETIC INDEX AP                         14 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89008:       1.003E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89008:       1.065E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89008:  1021 6 TO   1346.8 K
```

****
DATA FOR. 89008
8 JANUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 065E+09	8 867E+15
LONGERON	127 0	1 051E+05	5 155E+11
ROW 2	142.0	3 351E+00	1.444E+07
LONGERON	157.0	3 913E-04	2.256E+03
ROW 3	172.0	1 602E-06	1.715E+01
LONGERON	173.0	9 408E-07	1.850E+01
ROW 4	158.0	9 245E-05	2 487E+03
LONGERON	143 0	4 889E-01	1.246E+07
ROW 5	128.0	1 757E+04	3.463E+11
LONGERON	113.0	3.696E+08	6 086E+15
ROW 6	98 0	3 971E+11	8.406E+18
LONGERON	83.0	9 397E+12	2 465E+20
ROW 7	68 0	2 709E+13	7.124E+20
LONGERON	53 0	4 351E+13	1 140E+21
ROW 8	38.0	5 697E+13	1.490E+21
LONGERON	23.0	6 654E+13	1.739E+21
ROW 9	8 0	7 158E+13	1.869E+21
LONGERON	7.0	7 174E+13	1 872E+21
ROW 10	22.0	6 701E+13	1.747E+21
LONGERON	37 0	5 771E+13	1.503E+21
ROW 11	52 0	4 448E+13	1.157E+21
LONGERON	67.0	2 822E+13	7 315E+20
ROW 12	82.0	1 044E+13	2 649E+20
LONGERON	97 0	5 690E+11	1.048E+19
TOP	90.0	3 140E+12	7 497E+19
BOTTOM	90 0	3 140E+12	7 497E+19
RAM DIR	.0	7 228E+13	1 886E+21

```
****************************************
*MONTH.   1   DAY· 15   YEAR   89     *
*DAY OF YEAR:   15                     *
*CUMULATIVE EXPOSURE TIME  1743  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          459.70
     PERIGEE (KM ABOVE EARTH)                         439 70
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        61603
     LOCAL SOLAR (EPOCH) TIME (HMS)                 3  9 31
     ASCENDING NODE LONGITUDE (DEGREES EAST)          150 70
     ARGUEMENT OF PERIGEE (DEGREES)                    23 80

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6829700 00
     SEMIMINOR AXIS (M)                               6829692 68
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5615.25
     ENERGY (JOULE)                                   -2 920E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5.219E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89015
     3 MONTH AVERAGE F10.7 CM FLUX                183 00
     DAILY AVERAGE F10 7 CM FLUX                  272 00
     DAILY MAGNETIC INDEX AP                       25 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89015       1 377E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89015       3 226E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89015.  1017 0 TO   1513 4 K
```

****
DATA FOR: 89015
15 JANUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 226E+09	1 016E+16
LONGERON	127 0	8 613E+05	8 077E+11
ROW 2	142.0	8 112E+01	3.998E+07
LONGERON	157 0	2.302E-02	9 335E+03
ROW 3	172 0	1 475E-04	6 225E+01
LONGERON	173.0	7 623E-05	4 183E+01
ROW 4	158.0	3 779E-03	3 657E+03
LONGERON	143 0	6 877E+00	1 469E+07
ROW 5	128.0	7 811E+04	3 752E+11
LONGERON	113.0	7 268E+08	6.417E+15
ROW 6	98 0	5.681E+11	8.698E+18
LONGERON	83 0	1.268E+13	2.532E+20
ROW 7	68.0	3.684E+13	7.317E+20
LONGERON	53.0	5 943E+13	1 171E+21
ROW 8	38.0	7 797E+13	1 531E+21
LONGERON	23.0	9.119E+13	1.787E+21
ROW 9	8 0	9.820E+13	1.920E+21
LONGERON	7 0	9.852E+13	1.923E+21
ROW 10	22.0	9.213E+13	1.795E+21
LONGERON	37.0	7.946E+13	1.544E+21
ROW 11	52.0	6.137E+13	1 189E+21
LONGERON	67.0	3 910E+13	7 518E+20
ROW 12	82.0	1 473E+13	2.725E+20
LONGERON	97.0	9 435E+11	1 094E+19
TOP	90 0	4.468E+12	7.727E+19
BOTTOM	90 0	4 468E+12	7.727E+19
RAM DIR	.0	9 922E+13	1 938E+21

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****************************************
*MONTH:   1   DAY.  22   YEAR·  89     *
*DAY OF YEAR:   22                     *
*CUMULATIVE EXPOSURE TIME· 1750  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          458 20
     PERIGEE (KM ABOVE EARTH)                         438 60
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                         5098
     LOCAL SOLAR (EPOCH) TIME (HMS)                23 48 58
     ASCENDING NODE LONGITUDE (DEGREES EAST)          336 00
     ARGUEMENT OF PERIGEE (DEGREES)                    32.50

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6828400 00
     SEMIMINOR AXIS (M)                               6828392 97
     ECCENTRICITY                                            001
     PERIOD (SEC)                                        5613.64
     ENERGY (JOULE)                                   -2 921E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 219E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89022
     3 MONTH AVERAGE F10.7 CM FLUX                188 00
     DAILY AVERAGE F10.7 CM FLUX                  230.00
     DAILY MAGNETIC INDEX AP                       25.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89022       1 313E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89022·      2 410E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89022    982.2 TO   1534 9 K
```

****
DATA FOR: 89022
22 JANUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 410E+09	1.187E+16
LONGERON	127.0	5 105E+05	1.223E+12
ROW 2	142.0	4 416E+01	7.787E+07
LONGERON	157.0	1 428E-02	2.061E+04
ROW 3	172.0	1 214E-04	1.436E+02
LONGERON	173 0	8 653E-05	9.105E+01
ROW 4	158 0	5 530E-03	6 472E+03
LONGERON	143.0	1 118E+01	2 015E+07
ROW 5	128.0	1 150E+05	4 336E+11
LONGERON	113.0	8 085E+08	6.882E+15
ROW 6	98.0	5 423E+11	9.033E+18
LONGERON	83 0	1 208E+13	2.607E+20
ROW 7	68 0	3 515E+13	7.535E+20
LONGERON	53.0	5 668E+13	1 206E+21
ROW 8	38.0	7 435E+13	1 577E+21
LONGERON	23.0	8 695E+13	1.841E+21
ROW 9	8.0	9 363E+13	1.978E+21
LONGERON	7.0	9 393E+13	1.981E+21
ROW 10	22 0	8.782E+13	1.849E+21
LONGERON	37.0	7 573E+13	1 591E+21
ROW 11	52.0	5 848E+13	1 225E+21
LONGERON	67.0	3 725E+13	7 749E+20
ROW 12	82.0	1 402E+13	2 812E+20
LONGERON	97 0	8 592E+11	1.149E+19
TOP	90 0	4 223E+12	7.990E+19
BOTTOM	90.0	4 223E+12	7.990E+19
RAM DIR	0	9 459E+13	1 997E+21

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**************************************
*MONTH:   1   DAY   30   YEAR·  89     *
*DAY OF YEAR·   30                     *
*CUMULATIVE EXPOSURE TIME  1758  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          455 90
     PERIGEE (KM ABOVE EARTH)                         438.60
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        63418
     LOCAL SOLAR (EPOCH) TIME (HMS)                 19 14 10
     ASCENDING NODE LONGITUDE (DEGREES EAST)           24 30
     ARGUEMENT OF PERIGEE (DEGREES)                    28 60

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6827250.00
     SEMIMINOR AXIS (M)                             6827244.52
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                    5612.22
     ENERGY (JOULE)                                 -2.921E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5.218E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                       89030
     3 MONTH AVERAGE F10.7 CM FLUX               192 00
     DAILY AVERAGE F10 7 CM FLUX                 207 00
     DAILY MAGNETIC INDEX AP                      11 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89030       1 222E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89030       1.126E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89030    970.3 TO   1458 6 K
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****
DATA FOR 89030
30 JANUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 126E+09	1 309E+16
LONGERON	127 0	1.240E+05	1 442E+12
ROW 2	142.0	6 515E+00	9 538E+07
LONGERON	157 0	1 738E-03	2 615E+04
ROW 3	172 0	1 776E-05	1.917E+02
LONGERON	173.0	2 094E-05	1 282E+02
ROW 4	158 0	2 629E-03	9 292E+03
LONGERON	143 0	1 026E+01	2.756E+07
ROW 5	128 0	1 626E+05	5 295E+11
LONGERON	113 0	1 117E+09	7.547E+15
ROW 6	98.0	5 745E+11	9 419E+18
LONGERON	83.0	1.170E+13	2 689E+20
ROW 7	68 0	3.328E+13	7.772E+20
LONGERON	53 0	5 325E+13	1 244E+21
ROW 8	38.0	6 961E+13	1 627E+21
LONGERON	23.0	8 121E+13	1.899E+21
ROW 9	8 0	8 729E+13	2 041E+21
LONGERON	7 0	8 741E+13	2 044E+21
ROW 10	22 0	8 158E+13	1 908E+21
LONGERON	37.0	7 019E+13	1.642E+21
ROW 11	52.0	5 401E+13	1 264E+21
LONGERON	67.0	3 416E+13	7 996E+20
ROW 12	82.0	1 255E+13	2.904E+20
LONGERON	97.0	6 696E+11	1 201E+19
TOP	90 0	3 898E+12	8 271E+19
BOTTOM	90.0	3 898E+12	8 271E+19
RAM DIR	0	8 810E+13	2 060E+21

```
**************************************
*MONTH·   2   DAY    6   YEAR   89     *
*DAY OF YEAR:   37                     *
*CUMULATIVE EXPOSURE TIME. 1765  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          453.60
     PERIGEE (KM ABOVE EARTH)                         439.10
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        34560
     LOCAL SOLAR (EPOCH) TIME (HMS)                 15 42  0
     ASCENDING NODE LONGITUDE (DEGREES EAST)           91.50
     ARGUEMENT OF PERIGEE (DEGREES)                    22.10

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6826350.00
     SEMIMINOR AXIS (M)                            6826346.15
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5611.12
     ENERGY (JOULE)                                -2.922E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.218E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  89037
     3 MONTH AVERAGE F10 7 CM FLUX          194 00
     DAILY AVERAGE F10.7 CM FLUX            188 00
     DAILY MAGNETIC INDEX AP                 28 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89037·      1.327E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89037·      8 176E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89037:   989 9 TO   1391.9 K
```

****
DATA FOR: 89037
6 FEBRUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	8 176E+08	1 368E+16
LONGERON	127 0	5.348E+04	1 496E+12
ROW 2	142 0	1 891E+00	9.792E+07
LONGERON	157.0	4 036E-04	2.680E+04
ROW 3	172.0	4 104E-06	1.983E+02
LONGERON	173 0	6 074E-06	1 364E+02
ROW 4	158 0	1 140E-03	1 043E+04
LONGERON	143 0	7 079E+00	3 280E+07
ROW 5	128.0	1 653E+05	6.287E+11
LONGERON	113.0	1 358E+09	8 295E+15
ROW 6	98.0	6 714E+11	9 796E+18
LONGERON	83 0	1 300E+13	2 763E+20
ROW 7	68.0	3 646E+13	7.982E+20
LONGERON	53.0	5 810E+13	1 278E+21
ROW 8	38.0	7 578E+13	1.671E+21
LONGERON	23.0	8 830E+13	1.950E+21
ROW 9	8 0	9 480E+13	2.096E+21
LONGERON	7 0	9.484E+13	2.099E+21
ROW 10	22 0	8.841E+13	1.959E+21
LONGERON	37.0	7 596E+13	1.686E+21
ROW 11	52.0	5 834E+13	1.298E+21
LONGERON	67.0	3.674E+13	8 210E+20
ROW 12	82.0	1 330E+13	2.982E+20
LONGERON	97 0	6.631E+11	1.242E+19
TOP	90.0	4 226E+12	8 516E+19
BOTTOM	90.0	4 226E+12	8 516E+19
RAM DIR	.0	9.563E+13	2.116E+21

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**************************************
*MONTH·   2   DAY   13   YEAR   89     *
*DAY OF YEAR:   44                     *
*CUMULATIVE EXPOSURE TIME. 1772  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        454 20
     PERIGEE (KM ABOVE EARTH)                       435 90
     INCLINATION OF ORBIT (DEGREES)                  28 53
     GMT (EPOCH) TIME (SECONDS)                      39139
     LOCAL SOLAR (EPOCH) TIME (HMS)                11 58 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)         16.50
     ARGUEMENT OF PERIGEE (DEGREES)                  12.80

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6825050.00
     SEMIMINOR AXIS (M)                            6825043.87
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5609.51
     ENERGY (JOULE)                                -2.922E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 218E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89044
     3 MONTH AVERAGE F10.7 CM FLUX            201 00
     DAILY AVERAGE F10 7 CM FLUX              251 00
     DAILY MAGNETIC INDEX AP                   16 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89044.      1 656E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89044:      1.637E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89044.  1097.4 TO   1472 6 K
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****
DATA FOR: 89044
13 FEBRUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 637E+09	1.442E+16
LONGERON	127.0	1 744E+05	1.564E+12
ROW 2	142.0	1 039E+01	1.016E+08
LONGERON	157.0	3 350E-03	2.793E+04
ROW 3	172.0	3 936E-05	2.114E+02
LONGERON	173.0	5 035E-05	1.534E+02
ROW 4	158 0	6 544E-03	1.276E+04
LONGERON	143.0	2.537E+01	4.261E+07
ROW 5	128 0	3.793E+05	7 934E+11
LONGERON	113.0	2 245E+09	9.385E+15
ROW 6	98.0	9 116E+11	1.027E+19
LONGERON	83.0	1 631E+13	2.852E+20
ROW 7	68 0	4.551E+13	8.230E+20
LONGERON	53 0	7.254E+13	1.318E+21
ROW 8	38.0	9.462E+13	1 722E+21
LONGERON	23.0	1 103E+14	2.010E+21
ROW 9	8.0	1 184E+14	2.160E+21
LONGERON	7 0	1 184E+14	2 164E+21
ROW 10	22.0	1 104E+14	2.019E+21
LONGERON	37 0	9 487E+13	1.738E+21
ROW 11	52 0	7 286E+13	1.337E+21
LONGERON	67.0	4 589E+13	8 460E+20
ROW 12	82.0	1 670E+13	3 072E+20
LONGERON	97.0	9.233E+11	1 290E+19
TOP	90 0	5 442E+12	8.809E+19
BOTTOM	90 0	5 442E+12	8.809E+19
RAM DIR	0	1.194E+14	2.181E+21

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**************************************
*MONTH:   2   DAY:  20   YEAR   89     *
*DAY OF YEAR:   51                     *
*CUMULATIVE EXPOSURE TIME: 1779  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          454.20
     PERIGEE (KM ABOVE EARTH)                         433.10
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                         4406
     LOCAL SOLAR (EPOCH) TIME (HMS)                 8 28 38
     ASCENDING NODE LONGITUDE (DEGREES EAST)          108 80
     ARGUEMENT OF PERIGEE (DEGREES)                    20 00

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6823650.00
     SEMIMINOR AXIS (M)                           6823641.84
     ECCENTRICITY                                       .002
     PERIOD (SEC)                                   5607.79
     ENERGY (JOULE)                                -2.923E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 217E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89051
     3 MONTH AVERAGE F10.7 CM FLUX            207.00
     DAILY AVERAGE F10 7 CM FLUX              230.00
     DAILY MAGNETIC INDEX AP                   13.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89051:      1 638E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89051       2.064E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89051·  1071.6 TO   1438.9 K
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****
DATA FOR: 89051
20 FEBRUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 064E+09	1.554E+16
LONGERON	127.0	2.958E+05	1.707E+12
ROW 2	142.0	1 695E+01	1.099E+08
LONGERON	157.0	3 742E-03	3.008E+04
ROW 3	172.0	2 549E-05	2.310E+02
LONGERON	173.0	1 911E-05	1.744E+02
ROW 4	158.0	1.735E-03	1.526E+04
LONGERON	143.0	6.263E+00	5.218E+07
ROW 5	128.0	1 210E+05	9.447E+11
LONGERON	113.0	1 203E+09	1.043E+16
ROW 6	98.0	7 702E+11	1 078E+19
LONGERON	83.0	1.573E+13	2.949E+20
ROW 7	68.0	4 462E+13	8 503E+20
LONGERON	53.0	7 141E+13	1 361E+21
ROW 8	38.0	9 333E+13	1.779E+21
LONGERON	23.0	1.089E+14	2.076E+21
ROW 9	8.0	1.170E+14	2.232E+21
LONGERON	7.0	1 172E+14	2.235E+21
ROW 10	22.0	1.094E+14	2.086E+21
LONGERON	37.0	9 411E+13	1.795E+21
ROW 11	52.0	7 243E+13	1.381E+21
LONGERON	67.0	4 580E+13	8.737E+20
ROW 12	82.0	1 683E+13	3 174E+20
LONGERON	97.0	9 503E+11	1 346E+19
TOP	90.0	5 283E+12	9 133E+19
BOTTOM	90.0	5 283E+12	9 133E+19
RAM DIR	.0	1 181E+14	2 253E+21

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****************************************
*MONTH.   2   DAY:  27   YEAR   89     *
*DAY OF YEAR:   58                     *
*CUMULATIVE EXPOSURE TIME. 1786  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          452.50
     PERIGEE (KM ABOVE EARTH)                         432 10
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        47693
     LOCAL SOLAR (EPOCH) TIME (HMS)                 4 29 41
     ASCENDING NODE LONGITUDE (DEGREES EAST)          228 70
     ARGUEMENT OF PERIGEE (DEGREES)                    28 60

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6822300.00
     SEMIMINOR AXIS (M)                              6822292 38
     ECCENTRICITY                                          .001
     PERIOD (SEC)                                     5606.12
     ENERGY (JOULE)                                  -2.923E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 216E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89058
     3 MONTH AVERAGE F10 7 CM FLUX            212 00
     DAILY AVERAGE F10.7 CM FLUX              203.00
     DAILY MAGNETIC INDEX AP                    8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89058:      1 547E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89058:      2.730E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89058:   981.2 TO   1424.6 K
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****
DATA FOR: 89058
27 FEBRUARY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 730E+09	1.699E+16
LONGERON	127.0	4.849E+05	1.943E+12
ROW 2	142 0	2 791E+01	1.235E+08
LONGERON	157.0	4.986E-03	3.272E+04
ROW 3	172 0	2 338E-05	2.458E+02
LONGERON	173.0	1.125E-05	1 836E+02
ROW 4	158 0	6 814E-04	1.599E+04
LONGERON	143.0	1 900E+00	5 465E+07
ROW 5	128.0	3 649E+04	9 923E+11
LONGERON	113.0	5 406E+08	1.095E+16
ROW 6	98.0	5.770E+11	1.119E+19
LONGERON	83 0	1 412E+13	3 039E+20
ROW 7	68.0	4.134E+13	8 763E+20
LONGERON	53.0	6 674E+13	1 403E+21
ROW 8	38 0	8.759E+13	1 834E+21
LONGERON	23 0	1 025E+14	2.140E+21
ROW 9	8 0	1.104E+14	2 300E+21
LONGERON	7.0	1.108E+14	2 304E+21
ROW 10	22.0	1 036E+14	2.150E+21
LONGERON	37.0	8 935E+13	1 850E+21
ROW 11	52 0	6.904E+13	1.424E+21
LONGERON	67.0	4.401E+13	9.009E+20
ROW 12	82 0	1 657E+13	3.275E+20
LONGERON	97.0	1 002E+12	1 405E+19
TOP	90.0	4.908E+12	9.441E+19
BOTTOM	90.0	4 908E+12	9 441E+19
RAM DIR	.0	1.115E+14	2 322E+21

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****************************************
*MONTH:   3   DAY·   8   YEAR   89     *
*DAY OF YEAR:   67                     *
*CUMULATIVE EXPOSURE TIME  1795  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          448.20
     PERIGEE (KM ABOVE EARTH)                         433 40
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        52099
     LOCAL SOLAR (EPOCH) TIME (HMS)                 23 42 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)          138.50
     ARGUEMENT OF PERIGEE (DEGREES)                    31.70

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6820800.00
     SEMIMINOR AXIS (M)                           6820795.99
     ECCENTRICITY                                       .001
     PERIOD (SEC)                                   5604.27
     ENERGY (JOULE)                                -2 924E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.216E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89067
     3 MONTH AVERAGE F10.7 CM FLUX            214 00
     DAILY AVERAGE F10.7 CM FLUX              175.00
     DAILY MAGNETIC INDEX AP                   22 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89067:       1.582E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89067:       2 067E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89067    980 7 TO   1408 5 K
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****
DATA FOR: 89067
8 MARCH 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2.067E+09	1.886E+16
LONGERON	127.0	2 490E+05	2.228E+12
ROW 2	142.0	1.038E+01	1.384E+08
LONGERON	157 0	1 661E-03	3.530E+04
ROW 3	172.0	8 876E-06	2.584E+02
LONGERON	173 0	5 807E-06	1 902E+02
ROW 4	158.0	5 096E-04	1.645E+04
LONGERON	143.0	1 935E+00	5.614E+07
ROW 5	128.0	4 285E+04	1.023E+12
LONGERON	113 0	5 967E+08	1.140E+16
ROW 6	98.0	5 860E+11	1.164E+19
LONGERON	83.0	1.441E+13	3.150E+20
ROW 7	68.0	4 230E+13	9.088E+20
LONGERON	53.0	6.828E+13	1.455E+21
ROW 8	38.0	8.961E+13	1.903E+21
LONGERON	23.0	1 048E+14	2.221E+21
ROW 9	8.0	1 129E+14	2.387E+21
LONGERON	7.0	1 133E+14	2.391E+21
ROW 10	22.0	1 060E+14	2.232E+21
LONGERON	37 0	9 139E+13	1.921E+21
ROW 11	52.0	7.061E+13	1.478E+21
LONGERON	67.0	4 501E+13	9.355E+20
ROW 12	82.0	1 693E+13	3.405E+20
LONGERON	97.0	9 774E+11	1.482E+19
TOP	90.0	4 969E+12	9.825E+19
BOTTOM	90.0	4 969E+12	9.825E+19
RAM DIR	.0	1 141E+14	2.410E+21

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**************************************
*MONTH:   3   DAY·  15   YEAR:  89     *
*DAY OF YEAR:   74                     *
*CUMULATIVE EXPOSURE TIME·  1802  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          447.50
     PERIGEE (KM ABOVE EARTH)                         431.50
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        33610
     LOCAL SOLAR (EPOCH) TIME (HMS)                20  6 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)          161.60
     ARGUEMENT OF PERIGEE (DEGREES)                    24.00

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6819500.00
     SEMIMINOR AXIS (M)                            6819495.31
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5602.67
     ENERGY (JOULE)                                -2.924E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.215E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                      89074
     3 MONTH AVERAGE F10 7 CM FLUX              218.00
     DAILY AVERAGE F10.7 CM FLUX                219.00
     DAILY MAGNETIC INDEX AP                     54 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89074:       2 260E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89074:       3.210E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89074.  1076.9 TO   1530 5 K
```

****
DATA FOR: 89074
15 MARCH 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3 210E+09	2.045E+16
LONGERON	127.0	5 377E+05	2.466E+12
ROW 2	142.0	4.485E+01	1.551E+08
LONGERON	157.0	1.687E-02	4.090E+04
ROW 3	172.0	1 939E-04	3.197E+02
LONGERON	173.0	2 020E-04	2.531E+02
ROW 4	158 0	1.839E-02	2.217E+04
LONGERON	143.0	4 658E+01	7.081E+07
ROW 5	128.0	4 824E+05	1.182E+12
LONGERON	113.0	2.475E+09	1.233E+16
ROW 6	98.0	1.100E+12	1.215E+19
LONGERON	83.0	2.141E+13	3.258E+20
ROW 7	68.0	6.119E+13	9.401E+20
LONGERON	53.0	9 821E+13	1.506E+21
ROW 8	38.0	1 285E+14	1.969E+21
LONGERON	23.0	1 501E+14	2.298E+21
ROW 9	8.0	1 614E+14	2.470E+21
LONGERON	7.0	1 618E+14	2.474E+21
ROW 10	22.0	1 511E+14	2.310E+21
LONGERON	37 0	1 301E+14	1 988E+21
ROW 11	52.0	1 002E+14	1.530E+21
LONGERON	67.0	6 357E+13	9.683E+20
ROW 12	82.0	2 365E+13	3.528E+20
LONGERON	97.0	1 407E+12	1.554E+19
TOP	90.0	7 402E+12	1.020E+20
BOTTOM	90.0	7 402E+12	1.020E+20
RAM DIR	.0	1 630E+14	2.493E+21

```
****************************************
*MONTH:   3   DAY:  22   YEAR   89     *
*DAY OF YEAR:   81                     *
*CUMULATIVE EXPOSURE TIME: 1809  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          447.00
     PERIGEE (KM ABOVE EARTH)                         428.00
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        20390
     LOCAL SOLAR (EPOCH) TIME (HMS)                 16 27 25
     ASCENDING NODE LONGITUDE (DEGREES EAST)          161.90
     ARGUEMENT OF PERIGEE (DEGREES)                    17.50

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6817500.00
     SEMIMINOR AXIS (M)                            6817493.38
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                     5600 21
     ENERGY (JOULE)                                -2.925E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.215E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89081
     3 MONTH AVERAGE F10.7 CM FLUX            219.00
     DAILY AVERAGE F10.7 CM FLUX              242.00
     DAILY MAGNETIC INDEX AP                   54.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89081:       2.633E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89081:       3.249E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89081   1099.9 TO   1552.2 K
```

****
DATA FOR: 89081
22 MARCH 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3.249E+09	2.240E+16
LONGERON	127.0	4.883E+05	2.776E+12
ROW 2	142.0	4.735E+01	1.829E+08
LONGERON	157.0	2.452E-02	5.342E+04
ROW 3	172.0	4 048E-04	5.008E+02
LONGERON	173.0	5.756E-04	4.882E+02
ROW 4	158 0	6 300E-02	4.678E+04
LONGERON	143 0	1 609E+02	1 336E+08
ROW 5	128.0	1.384E+06	1.746E+12
LONGERON	113.0	4.907E+09	1.456E+16
ROW 6	98.0	1.509E+12	1.294E+19
LONGERON	83.0	2.574E+13	3.401E+20
ROW 7	68.0	7.211E+13	9 804E+20
LONGERON	53.0	1 151E+14	1.570E+21
ROW 8	38.0	1.503E+14	2.053E+21
LONGERON	23.0	1 752E+14	2.396E+21
ROW 9	8.0	1.882E+14	2.576E+21
LONGERON	7.0	1 884E+14	2.580E+21
ROW 10	22.0	1.757E+14	2.408E+21
LONGERON	37.0	1.511E+14	2.073E+21
ROW 11	52.0	1.161E+14	1.595E+21
LONGERON	67.0	7 327E+13	1.010E+21
ROW 12	82.0	2 693E+13	3.681E+20
LONGERON	97.0	1.576E+12	1.645E+19
TOP	90.0	8 803E+12	1 069E+20
BOTTOM	90.0	8.803E+12	1.069E+20
RAM DIR	.0	1.899E+14	2 600E+21

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**************************************
*MONTH:   3   DAY:  28   YEAR:  89     *
*DAY OF YEAR:   87                     *
*CUMULATIVE EXPOSURE TIME: 1815  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          446.00
     PERIGEE (KM ABOVE EARTH)                         426.10
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        82253
     LOCAL SOLAR (EPOCH) TIME (HMS)                 12 53 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)          210.60
     ARGUEMENT OF PERIGEE (DEGREES)                    23.90

 CONSTANTS
     RADIUS OF EARTH (M)                             6.38E+06
     MASS OF EARTH (KG)                              5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6816050.00
     SEMIMINOR AXIS (M)                           6816042.74
     ECCENTRICITY                                       .001
     PERIOD (SEC)                                   5598.42
     ENERGY (JOULE)                                -2.926E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.214E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89087
     3 MONTH AVERAGE F10.7 CM FLUX           217.00
     DAILY AVERAGE F10.7 CM FLUX             195.00
     DAILY MAGNETIC INDEX AP                  26 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89087:      2.103E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89087:      1.688E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89087:  1021.0 TO   1457.9 K
```

****
DATA FOR: 89087
28 MARCH 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.688E+09	2.368E+16
LONGERON	127.0	1.703E+05	2 947E+12
ROW 2	142.0	1 021E+01	1 979E+08
LONGERON	157.0	3.214E-03	6.060E+04
ROW 3	172.0	3.664E-05	6.152E+02
LONGERON	173.0	4.632E-05	6.494E+02
ROW 4	158 0	6 145E-03	6 470E+04
LONGERON	143.0	2.515E+01	1.818E+08
ROW 5	128.0	4 046E+05	2.210E+12
LONGERON	113.0	2.576E+09	1 650E+16
ROW 6	98.0	1 120E+12	1 362E+19
LONGERON	83.0	2 075E+13	3.521E+20
ROW 7	68.0	5.793E+13	1.014E+21
LONGERON	53.0	9.226E+13	1.624E+21
ROW 8	38.0	1.203E+14	2 123E+21
LONGERON	23.0	1 401E+14	2.478E+21
ROW 9	8.0	1.504E+14	2.664E+21
LONGERON	7.0	1.505E+14	2.668E+21
ROW 10	22.0	1.403E+14	2.490E+21
LONGERON	37.0	1.205E+14	2.143E+21
ROW 11	52.0	9.251E+13	1.650E+21
LONGERON	67.0	5.823E+13	1.044E+21
ROW 12	82.0	2 109E+13	3.805E+20
LONGERON	97.0	1 100E+12	1.714E+19
TOP	90.0	6.805E+12	1.109E+20
BOTTOM	90.0	6.805E+12	1.109E+20
RAM DIR	.0	1 518E+14	2 689E+21

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**************************************
*MONTH:   4   DAY:   4   YEAR:  89     *
*DAY OF YEAR:   94                     *
*CUMULATIVE EXPOSURE TIME: 1822  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          443.80
      PERIGEE (KM ABOVE EARTH)                         425.60
      INCLINATION OF ORBIT (DEGREES)                    28.52
      GMT (EPOCH) TIME (SECONDS)                        85450
      LOCAL SOLAR (EPOCH) TIME (HMS)                 9  8 58
      ASCENDING NODE LONGITUDE (DEGREES EAST)          141.20
      ARGUEMENT OF PERIGEE (DEGREES)                    30.80

 CONSTANTS
      RADIUS OF EARTH (M)                           6 38E+06
      MASS OF EARTH (KG)                            5.98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                            6814700.00
      SEMIMINOR AXIS (M)                            6814693.92
      ECCENTRICITY                                        .001
      PERIOD (SEC)                                   5596.76
      ENERGY (JOULE)                                -2.927E+07
      ANGULAR MOMENTUM (JOULE-SEC)                   5.214E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                    89094
      3 MONTH AVERAGE F10.7 CM FLUX            216.00
      DAILY AVERAGE F10.7 CM FLUX              171.00
      DAILY MAGNETIC INDEX AP                   43.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89094:       1.954E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89094:       1 959E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89094:   983.0 TO   1431.9 K
```

****
DATA FOR: 89094
4 APRIL 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 959E+09	2 479E+16
LONGERON	127.0	2.476E+05	3.073E+12
ROW 2	142.0	1 337E+01	2.050E+08
LONGERON	157.0	2.896E-03	6.245E+04
ROW 3	172.0	2.001E-05	6.323E+02
LONGERON	173.0	1.561E-05	6.682E+02
ROW 4	158.0	1 505E-03	6.702E+04
LONGERON	143.0	5.897E+00	1.912E+08
ROW 5	128.0	1.242E+05	2.370E+12
LONGERON	113.0	1 295E+09	1.767E+16
ROW 6	98 0	8.807E+11	1 423E+19
LONGERON	83.0	1 877E+13	3.641E+20
ROW 7	68.0	5.332E+13	1.048E+21
LONGERON	53.0	8 529E+13	1.678E+21
ROW 8	38.0	1.114E+14	2.193E+21
LONGERON	23.0	1.300E+14	2.560E+21
ROW 9	8.0	1.397E+14	2.751E+21
LONGERON	7.0	1 399E+14	2.756E+21
ROW 10	22.0	1 305E+14	2.572E+21
LONGERON	37.0	1.123E+14	2.213E+21
ROW 11	52.0	8 640E+13	1.704E+21
LONGERON	67.0	5.461E+13	1.078E+21
ROW 12	82.0	1 998E+13	3.929E+20
LONGERON	97.0	1.061E+12	1.779E+19
TOP	90.0	6 192E+12	1 149E+20
BOTTOM	90.0	6.192E+12	1.149E+20
RAM DIR	.0	1 410E+14	2.777E+21

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**************************************
*MONTH:   4   DAY:  10   YEAR.  89     *
*DAY OF YEAR:  100                     *
*CUMULATIVE EXPOSURE TIME. 1828  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          441.70
     PERIGEE (KM ABOVE EARTH)                         425.30
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        52186
     LOCAL SOLAR (EPOCH) TIME (HMS)                 6  9 46
     ASCENDING NODE LONGITUDE (DEGREES EAST)          235.00
     ARGUEMENT OF PERIGEE (DEGREES)                    25.90

 CONSTANTS
     RADIUS OF EARTH (M)                           6.38E+06
     MASS OF EARTH (KG)                            5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                          6813500.00
     SEMIMINOR AXIS (M)                          6813495.07
     ECCENTRICITY                                      .001
     PERIOD (SEC)                                5595.28
     ENERGY (JOULE)                             -2.927E+07
     ANGULAR MOMENTUM (JOULE-SEC)                5.213E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                   89100
     3 MONTH AVERAGE F10.7 CM FLUX          214.00
     DAILY AVERAGE F10.7 CM FLUX            194.00
     DAILY MAGNETIC INDEX AP                 25.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89100:      2.109E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89100:      3.563E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89100:  1014.1 TO   1463.1 K'
```

****
DATA FOR: 89100
10 APRIL 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3.563E+09	2 622E+16
LONGERON	127.0	6.829E+05	3 314E+12
ROW 2	142.0	4.719E+01	2.207E+08
LONGERON	157 0	1.068E-02	6.597E+04
ROW 3	172.0	6.268E-05	6.537E+02
LONGERON	173.0	3.530E-05	6.814E+02
ROW 4	158.0	2.277E-03	6.800E+04
LONGERON	143.0	6.169E+00	1.943E+08
ROW 5	128.0	1.037E+05	2.429E+12
LONGERON	113.0	1.116E+09	1.829E+16
ROW 6	98 0	8.831E+11	1 469E+19
LONGERON	83.0	1.972E+13	3.741E+20
ROW 7	68 0	5.688E+13	1.076E+21
LONGERON	53 0	9 148E+13	1.724E+21
ROW 8	38.0	1.199E+14	2 253E+21
LONGERON	23.0	1.401E+14	2.630E+21
ROW 9	8.0	1.507E+14	2.827E+21
LONGERON	7.0	1.511E+14	2 831E+21
ROW 10	22.0	1.412E+14	2 643E+21
LONGERON	37.0	1.217E+14	2.274E+21
ROW 11	52.0	9 384E+13	1.750E+21
LONGERON	67.0	5.962E+13	1.108E+21
ROW 12	82 0	2.222E+13	4 039E+20
LONGERON	97.0	1.324E+12	1 841E+19
TOP	90 0	6 770E+12	1.182E+20
BOTTOM	90 0	6 770E+12	1.182E+20
RAM DIR	.0	1 522E+14	2 853E+21

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**************************************
*MONTH:   4   DAY:  19   YEAR   89     *
*DAY OF YEAR:  109                     *
*CUMULATIVE EXPOSURE TIME  1837  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          440 90
     PERIGEE (KM ABOVE EARTH)                         422.20
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        38275
     LOCAL SOLAR (EPOCH) TIME (HMS)                 1 27 30
     ASCENDING NODE LONGITUDE (DEGREES EAST)          222 40
     ARGUEMENT OF PERIGEE (DEGREES)                    20 80

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6811550.00
     SEMIMINOR AXIS (M)                            6811543.58
     ECCENTRICITY                                        .001
     PERIOD (SEC)                                    5592.88
     ENERGY (JOULE)                                -2.928E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 212E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89109
     3 MONTH AVERAGE F10 7 CM FLUX           208.00
     DAILY AVERAGE F10.7 CM FLUX             194 00
     DAILY MAGNETIC INDEX AP                  17 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89109·      1.956E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89109       3.323E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89109   1035 2 TO   1419.1 K
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****
DATA FOR: 89109
19 APRIL 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3.323E+09	2.890E+16
LONGERON	127.0	5.252E+05	3.784E+12
ROW 2	142.0	2.678E+01	2.494E+08
LONGERON	157.0	4.436E-03	7.185E+04
ROW 3	172.0	2.053E-05	6.861E+02
LONGERON	173 0	1.032E-05	6.991E+02
ROW 4	158 0	6 791E-04	6.915E+04
LONGERON	143 0	2.100E+00	1.975E+08
ROW 5	128 0	4.630E+04	2.487E+12
LONGERON	113.0	7.602E+08	1 902E+16
ROW 6	98 0	7.580E+11	1 532E+19
LONGERON	83 0	1.792E+13	3.887E+20
ROW 7	68.0	5.236E+13	1 119E+21
LONGERON	53 0	8.450E+13	1 792E+21
ROW 8	38 0	1.109E+14	2 343E+21
LONGERON	23.0	1.297E+14	2 735E+21
ROW 9	8.0	1.397E+14	2 940E+21
LONGERON	7 0	1.402E+14	2 944E+21
ROW 10	22.0	1 311E+14	2 748E+21
LONGERON	37.0	1.131E+14	2 365E+21
ROW 11	52.0	8 736E+13	1 821E+21
LONGERON	67.0	5 568E+13	1 152E+21
ROW 12	82.0	2 097E+13	4 207E+20
LONGERON	97.0	1 277E+12	1 942E+19
TOP	90.0	6 251E+12	1 233E+20
BOTTOM	90 0	6 251E+12	1.233E+20
RAM DIR	.0	1 412E+14	2 967E+21

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**************************************
*MONTH:   4   DAY· 26   YEAR:  89     *
*DAY OF YEAR   116                    *
*CUMULATIVE EXPOSURE TIME  1844  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          440 30
     PERIGEE (KM ABOVE EARTH)                         420.40
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        24192
     LOCAL SOLAR (EPOCH) TIME (HMS)                 21 49 36
     ASCENDING NODE LONGITUDE (DEGREES EAST)          226.60
     ARGUEMENT OF PERIGEE (DEGREES)                    26.50

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5.98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6810350 00
     SEMIMINOR AXIS (M)                               6810342.73
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5591 40
     ENERGY (JOULE)                                   -2.928E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 212E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89116
     3 MONTH AVERAGE F10 7 CM FLUX            205.00
     DAILY AVERAGE F10.7 CM FLUX              195.00
     DAILY MAGNETIC INDEX AP                    9.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89116       1.751E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89116:      1 895E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89116:  1049 7 TO   1371 0 K
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****
DATA FOR: 89116
26 APRIL 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.895E+09	3.047E+16
LONGERON	127 0	1.810E+05	3.998E+12
ROW 2	142.0	6.227E+00	2.594E+08
LONGERON	157.0	8.892E-04	7.346E+04
ROW 3	172.0	4.739E-06	6.937E+02
LONGERON	173.0	3.526E-06	7.033E+02
ROW 4	158 0	3.931E-04	6.947E+04
LONGERON	143.0	1.996E+00	1 988E+08
ROW 5	128.0	5.700E+04	2 518E+12
LONGERON	113.0	8.343E+08	1.951E+16
ROW 6	98.0	7.093E+11	1.577E+19
LONGERON	83.0	1.627E+13	3.990E+20
ROW 7	68.0	4.718E+13	1 149E+21
LONGERON	53 0	7.590E+13	1.840E+21
ROW 8	38 0	9.946E+13	2.407E+21
LONGERON	23.0	1.162E+14	2.809E+21
ROW 9	8.0	1.251E+14	3 020E+21
LONGERON	7.0	1.254E+14	3 025E+21
ROW 10	22.0	1.172E+14	2.824E+21
LONGERON	37.0	1.010E+14	2.430E+21
ROW 11	52.0	7.791E+13	1.871E+21
LONGERON	67.0	4 951E+13	1 184E+21
ROW 12	82.0	1 845E+13	4 326E+20
LONGERON	97.0	1.035E+12	2.012E+19
TOP	90 0	5.535E+12	1.269E+20
BOTTOM	90.0	5.535E+12	1 269E+20
RAM DIR	.0	1.263E+14	3.048E+21

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****************************************
*MONTH    5   DAY    3   YEAR   89     *
*DAY OF YEAR·  123                     *
*CUMULATIVE EXPOSURE TIME   1851  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                        437 80
     PERIGEE (KM ABOVE EARTH)                       420 40
     INCLINATION OF ORBIT (DEGREES)                  28 52
     GMT (EPOCH) TIME (SECONDS)                      32141
     LOCAL SOLAR (EPOCH) TIME (HMS)               18  2  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)        136 60
     ARGUEMENT OF PERIGEE (DEGREES)                  30 50

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6809100 00
     SEMIMINOR AXIS (M)                            6809094 44
     ECCENTRICITY                                         001
     PERIOD (SEC)                                     5589.86
     ENERGY (JOULE)                               -2 929E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5 211E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89123
     3 MONTH AVERAGE F10 7 CM FLUX            203 00
     DAILY AVERAGE F10 7 CM FLUX              181 00
     DAILY MAGNETIC INDEX AP                   36 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89123       1 855E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89123       1 166E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89123   1003 3 TO   1404 7 K
```

****
DATA FOR. 89123
3 MAY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 166E+09	3.140E+16
LONGERON	127.0	7 691E+04	4 076E+12
ROW 2	142 0	2.936E+00	2 622E+08
LONGERON	157 0	6 570E-04	7 393E+04
ROW 3	172 0	6.452E-06	6 971E+02
LONGERON	173 0	8 689E-06	7.070E+02
ROW 4	158 0	1 464E-03	7.003E+04
LONGERON	143 0	8 375E+00	2 019E+08
ROW 5	128.0	1 898E+05	2 593E+12
LONGERON	113.0	1.621E+09	2 025E+16
ROW 6	98.0	8 744E+11	1 625E+19
LONGERON	83 0	1.786E+13	4 094E+20
ROW 7	68 0	5 071E+13	1 178E+21
LONGERON	53 0	8.107E+13	1 888E+21
ROW 8	38 0	1 059E+14	2 469E+21
LONGERON	23 0	1 235E+14	2 881E+21
ROW 9	8 0	1 327E+14	3 098E+21
LONGERON	7 0	1 329E+14	3 103E+21
ROW 10	22 0	1 240E+14	2 896E+21
LONGERON	37 0	1 066E+14	2 493E+21
ROW 11	52 0	8 200E+13	1 919E+21
LONGERON	67.0	5 180E+13	1 215E+21
ROW 12	82 0	1 894E+13	4.439E+20
LONGERON	97.0	9 574E+11	2 072E+19
TOP	90.0	5.875E+12	1 303E+20
BOTTOM	90.0	5 875E+12	1 303E+20
RAM DIR	0	1 339E+14	3 127E+21

```
**************************************
*MONTH    5   DAY   10   YEAR   89     *
*DAY OF YEAR   130                     *
*CUMULATIVE EXPOSURE TIME  1858  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          435 40
     PERIGEE (KM ABOVE EARTH)                         420 00
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        45533
     LOCAL SOLAR (EPOCH) TIME (HMS)                 14 13 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)           23.60
     ARGUEMENT OF PERIGEE (DEGREES)                    22 10

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6807700 00
     SEMIMINOR AXIS (M)                            6807695.65
     ECCENTRICITY                                         001
     PERIOD (SEC)                                    5588 14
     ENERGY (JOULE)                                -2.930E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 211E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89130
     3 MONTH AVERAGE F10 7 CM FLUX            204 00
     DAILY AVERAGE F10 7 CM FLUX              197 00
     DAILY MAGNETIC INDEX AP                   23 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89130·      1 971E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89130·      1.502E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89130    992.6 TO   1482 6 K
```

****
DATA FOR: 89130
10 MAY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 502E+09	3.221E+16
LONGERON	127 0	1 509E+05	4.145E+12
ROW 2	142.0	9 645E+00	2 660E+08
LONGERON	157 0	3 339E-03	7 513E+04
ROW 3	172 0	4 194E-05	7 117E+02
LONGERON	173 0	5 678E-05	7 268E+02
ROW 4	158 0	7 679E-03	7.280E+04
LONGERON	143 0	3 029E+01	2 136E+08
ROW 5	128 0	4 473E+05	2 786E+12
LONGERON	113 0	2 558E+09	2 151E+16
ROW 6	98 0	1 045E+12	1 683E+19
LONGERON	83 0	1 939E+13	4 206E+20
ROW 7	68 0	5 427E+13	1 210E+21
LONGERON	53 0	8 648E+13	1 939E+21
ROW 8	38 0	1 128E+14	2 535E+21
LONGERON	23 0	1 314E+14	2 958E+21
ROW 9	8 0	1 411E+14	3 180E+21
LONGERON	7 0	1 411E+14	3.186E+21
ROW 10	22.0	1 316E+14	2.974E+21
LONGERON	37.0	1 131E+14	2 559E+21
ROW 11	52 0	8 682E+13	1 970E+21
LONGERON	67 0	5 467E+13	1 247E+21
ROW 12	82 0	1 984E+13	4 556E+20
LONGERON	97.0	1 025E+12	2 132E+19
TOP	90 0	6 365E+12	1 340E+20
BOTTOM	90 0	6 365E+12	1 340E+20
RAM DIR	0	1 423E+14	3 211E+21

```
****************************************
*MONTH    5   DAY   14   YEAR   89      *
*DAY OF YEAR   134                      *
*CUMULATIVE EXPOSURE TIME  1862  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          435 10
     PERIGEE (KM ABOVE EARTH)                         418 50
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        73008
     LOCAL SOLAR (EPOCH) TIME (HMS)                 11 55 36
     ASCENDING NODE LONGITUDE (DEGREES EAST)          234 70
     ARGUEMENT OF PERIGEE (DEGREES)                    16 10

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6806800 00
     SEMIMINOR AXIS (M)                             6806794 94
     ECCENTRICITY                                          001
     PERIOD (SEC)                                     5587 03
     ENERGY (JOULE)                                -2 930E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.211E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89134
     3 MONTH AVERAGE F10 7 CM FLUX            200 00
     DAILY AVERAGE F10.7 CM FLUX              199 00
     DAILY MAGNETIC INDEX AP                    8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89134       1 718E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89134       1 361E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89134    974 6 TO   1471 4 K
```

****
DATA FOR· 89134
14 MAY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 361E+09	3 270E+16
LONGERON	127 0	1 515E+05	4 197E+12
ROW 2	142 0	9.201E+00	2 693E+08
LONGERON	157 0	2 644E-03	7 617E+04
ROW 3	172 0	2.587E-05	7 235E+02
LONGERON	173 0	2 766E-05	7 414E+02
ROW 4	158 0	3.237E-03	7 468E+04
LONGERON	143 0	1 291E+01	2 211E+08
ROW 5	128 0	2 285E+05	2.902E+12
LONGERON	113 0	1 715E+09	2 225E+16
ROW 6	98 0	8.643E+11	1 716E+19
LONGERON	83 0	1 688E+13	4 269E+20
ROW 7	68 0	4 731E+13	1 228E+21
LONGERON	53 0	7.538E+13	1 967E+21
ROW 8	38 0	9 832E+13	2 571E+21
LONGERON	23 0	1 146E+14	3 001E+21
ROW 9	8 0	1 230E+14	3 226E+21
LONGERON	7 0	1 230E+14	3 231E+21
ROW 10	22 0	1.147E+14	3 016E+21
LONGERON	37 0	9 856E+13	2 596E+21
ROW 11	52 0	7 569E+13	1 998E+21
LONGERON	67 0	4 766E+13	1 265E+21
ROW 12	82 0	1.725E+13	4 620E+20
LONGERON	97 0	8 777E+11	2 165E+19
TOP	90 0	5 489E+12	1 361E+20
BOTTOM	90 0	5.489E+12	1 361E+20
RAM DIR	0	1 241E+14	3 257E+21

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****************************************
*MONTH    5   DAY   20   YEAR   89     *
*DAY OF YEAR   140                     *
*CUMULATIVE EXPOSURE TIME· 1868  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          435 60
     PERIGEE (KM ABOVE EARTH)                         415 70
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        27734
     LOCAL SOLAR (EPOCH) TIME (HMS)                 8 59 50
     ASCENDING NODE LONGITUDE (DEGREES EAST)           19 40
     ARGUEMENT OF PERIGEE (DEGREES)                    16 10

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6805650 00
     SEMIMINOR AXIS (M)                               6805642 73
     ECCENTRICITY                                            001
     PERIOD (SEC)                                        5585 61
     ENERGY (JOULE)                                  -2 930E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 210E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89140
     3 MONTH AVERAGE F10 7 CM FLUX                197 00
     DAILY AVERAGE F10 7 CM FLUX                  195.00
     DAILY MAGNETIC INDEX AP                        9 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89140       1 628E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89140       1 735E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89140.   962 7 TO   1464 6 K
```

****
DATA FOR: 89140
20 MAY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 735E+09	3.350E+16
LONGERON	127.0	2 448E+05	4.300E+12
ROW 2	142.0	1.477E+01	2 755E+08
LONGERON	157.0	3 450E-03	7.775E+04
ROW 3	172 0	2.412E-05	7.364E+02
LONGERON	173 0	1 774E-05	7.531E+02
ROW 4	158 0	1 535E-03	7 592E+04
LONGERON	143 0	5 401E+00	2 258E+08
ROW 5	128 0	1 065E+05	2 989E+12
LONGERON	113 0	1 073E+09	2 297E+16
ROW 6	98 0	7 295E+11	1 757E+19
LONGERON	83 0	1.565E+13	4 353E+20
ROW 7	68 0	4 446E+13	1 252E+21
LONGERON	53 0	7 112E+13	2 005E+21
ROW 8	38 0	9 294E+13	2.621E+21
LONGERON	23.0	1.084E+14	3 059E+21
ROW 9	8.0	1 165E+14	3 288E+21
LONGERON	7 0	1 167E+14	3 293E+21
ROW 10	22.0	1 089E+14	3 074E+21
LONGERON	37.0	9 367E+13	2 646E+21
ROW 11	52 0	7 207E+13	2 037E+21
LONGERON	67 0	4 556E+13	1 289E+21
ROW 12	82 0	1 667E+13	4 708E+20
LONGERON	97 0	8 895E+11	2 211E+19
TOP	90 0	5 164E+12	1 388E+20
BOTTOM	90 0	5 164E+12	1 388E+20
RAM DIR	.0	1 176E+14	3 319E+21

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****************************************
*MONTH    5   DAY   27   YEAR   89      *
*DAY OF YEAR   147                      *
*CUMULATIVE EXPOSURE TIME  1875  DAYS   *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          435 50
     PERIGEE (KM ABOVE EARTH)                         413.30
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        57370
     LOCAL SOLAR (EPOCH) TIME (HMS)                 5  4 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)          197 10
     ARGUEMENT OF PERIGEE (DEGREES)                    25.90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6804400 00
     SEMIMINOR AXIS (M)                               6804390 95
     ECCENTRICITY                                           002
     PERIOD (SEC)                                        5584 07
     ENERGY (JOULE)                                  -2 931E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 210E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89147
     3 MONTH AVERAGE F10 7 CM FLUX            196 00
     DAILY AVERAGE F10 7 CM FLUX              190 00
     DAILY MAGNETIC INDEX AP                   29 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89147       1 764E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89147       2 779E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89147    998 9 TO   1435 1 K
```

****
DATA FOR 89147
27 MAY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 779E+09	3 487E+16
LONGERON	127 0	4.570E+05	4 512E+12
ROW 2	142 0	2 510E+01	2 875E+08
LONGERON	157 0	4.469E-03	8 014E+04
ROW 3	172 0	2.181E-05	7.503E+02
LONGERON	173 0	1 143E-05	7 619E+02
ROW 4	158 0	7.961E-04	7 663E+04
LONGERON	143 0	2 668E+00	2 282E+08
ROW 5	128 0	5 844E+04	3 039E+12
LONGERON	113 0	7.919E+08	2 354E+16
ROW 6	98 0	7 133E+11	1 801E+19
LONGERON	83 0	1 644E+13	4 450E+20
ROW 7	68 0	4.756E+13	1 279E+21
LONGERON	53 0	7.654E+13	2 049E+21
ROW 8	38 0	1 003E+14	2 679E+21
LONGERON	23 0	1 172E+14	3 127E+21
ROW 9	8 0	1 262E+14	3 362E+21
LONGERON	7 0	1 265E+14	3.367E+21
ROW 10	22 0	1.182E+14	3 143E+21
LONGERON	37 0	1 019E+14	2.705E+21
ROW 11	52 0	7 859E+13	2 082E+21
LONGERON	67 0	4.996E+13	1.318E+21
ROW 12	82 0	1 863E+13	4 815E+20
LONGERON	97 0	1 096E+12	2.271E+19
TOP	90 0	5 628E+12	1 421E+20
BOTTOM	90 0	5 628E+12	1 421E+20
RAM DIR	0	1 274E+14	3 393E+21

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****************************************
*MONTH    6   DAY·   4   YEAR   89     *
*DAY OF YEAR   155                     *
*CUMULATIVE EXPOSURE TIME  1883  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          432 80
     PERIGEE (KM ABOVE EARTH)                         413 60
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        56074
     LOCAL SOLAR (EPOCH) TIME (HMS)                  0 48 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)          138.50
     ARGUEMENT OF PERIGEE (DEGREES)                    36 70

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6803200 00
     SEMIMINOR AXIS (M)                               6803193 23
     ECCENTRICITY                                            001
     PERIOD (SEC)                                        5582 60
     ENERGY (JOULE)                                  -2 931E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 209E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89155
     3 MONTH AVERAGE F10 7 CM FLUX                198 00
     DAILY AVERAGE F10 7 CM FLUX                  202 00
     DAILY MAGNETIC INDEX AP                       12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89155       1 570E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89155       2 382E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89155   1023.8 TO   1398.7 K
```

****
DATA FOR· 89155
4 JUNE 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 382E+09	3 665E+16
LONGERON	127 0	3 170E+05	4 779E+12
ROW 2	142 0	1 331E+01	3 008E+08
LONGERON	157 0	1.880E-03	8.234E+04
ROW 3	172.0	7.959E-06	7 606E+02
LONGERON	173 0	3 996E-06	7 673E+02
ROW 4	158 0	2.875E-04	7 700E+04
LONGERON	143 0	1.053E+00	2 295E+08
ROW 5	128 0	2 887E+04	3 069E+12
LONGERON	113 0	5 613E+08	2 400E+16
ROW 6	98 0	5 984E+11	1 846E+19
LONGERON	83.0	1 438E+13	4 557E+20
ROW 7	68 0	4 205E+13	1 310E+21
LONGERON	53 0	6 786E+13	2.099E+21
ROW 8	38 0	8 905E+13	2 745E+21
LONGERON	23 0	1 042E+14	3 204E+21
ROW 9	8 0	1.122E+14	3.444E+21
LONGERON	7 0	1.126E+14	3.450E+21
ROW 10	22 0	1 053E+14	3 220E+21
LONGERON	37 0	9 079E+13	2 771E+21
ROW 11	52 0	7 013E+13	2 134E+21
LONGERON	67 0	4 470E+13	1 350E+21
ROW 12	82 0	1.681E+13	4 937E+20
LONGERON	97 0	1.004E+12	2.344E+19
TOP	90 0	4 990E+12	1 458E+20
BOTTOM	90 0	4.990E+12	1 458E+20
RAM DIR	0	1 133E+14	3 477E+21

```
**************************************
*MONTH    6   DAY   11   YEAR   89     *
*DAY OF YEAR   162                     *
*CUMULATIVE EXPOSURE TIME  1890  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          429 10
     PERIGEE (KM ABOVE EARTH)                         414 70
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        18576
     LOCAL SOLAR (EPOCH) TIME (HMS)                 21 17 36
     ASCENDING NODE LONGITUDE (DEGREES EAST)          242 00
     ARGUEMENT OF PERIGEE (DEGREES)                    31 00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6801900 00
     SEMIMINOR AXIS (M)                               6801896.19
     ECCENTRICITY                                            001
     PERIOD (SEC)                                        5581.00
     ENERGY (JOULE)                                   -2 932E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 209E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89162
     3 MONTH AVERAGE F10 7 CM FLUX            200 00
     DAILY AVERAGE F10 7 CM FLUX              241 00
     DAILY MAGNETIC INDEX AP                   31 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89162.      1 862E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89162       2.669E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89162   1112.6 TO   1454.8 K
```

****
DATA FOR: 89162
11 JUNE 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 669E+09	3 818E+16
LONGERON	127 0	3 619E+05	4 985E+12
ROW 2	142 0	1 972E+01	3 108E+08
LONGERON	157.0	4.381E-03	8 423E+04
ROW 3	172 0	3 111E-05	7.724E+02
LONGERON	173.0	2 445E-05	7 759E+02
ROW 4	158 0	2 272E-03	7 777E+04
LONGERON	143 0	8 049E+00	2 323E+08
ROW 5	128 0	1 465E+05	3 122E+12
LONGERON	113 0	1 354E+09	2 458E+16
ROW 6	98 0	8 350E+11	1 889E+19
LONGERON	83 0	1 742E+13	4.653E+20
ROW 7	68 0	5 024E+13	1.338E+21
LONGERON	53 0	8 081E+13	2 144E+21
ROW 8	38.0	1 059E+14	2 804E+21
LONGERON	23 0	1 237E+14	3 272E+21
ROW 9	8 0	1 331E+14	3 518E+21
LONGERON	7 0	1.335E+14	3 524E+21
ROW 10	22 0	1 247E+14	3 290E+21
LONGERON	37 0	1 075E+14	2 831E+21
ROW 11	52 0	8 291E+13	2 180E+21
LONGERON	67 0	5 268E+13	1 380E+21
ROW 12	82.0	1 970E+13	5.048E+20
LONGERON	97.0	1 183E+12	2 410E+19
TOP	90 0	6 052E+12	1 491E+20
BOTTOM	90 0	6 052E+12	1 491E+20
RAM DIR	0	1.345E+14	3 551E+21

```
****************************************
*MONTH    6   DAY   19   YEAR   89     *
*DAY OF YEAR   170                     *
*CUMULATIVE EXPOSURE TIME  1898  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          428 20
     PERIGEE (KM ABOVE EARTH)                         411 30
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        11232
     LOCAL SOLAR (EPOCH) TIME (HMS)                 17  3 12
     ASCENDING NODE LONGITUDE (DEGREES EAST)          209 00
     ARGUEMENT OF PERIGEE (DEGREES)                    14 00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6799750 00
     SEMIMINOR AXIS (M)                               6799744 75
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5578 35
     ENERGY (JOULE)                                   -2 933E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 208E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89170
     3 MONTH AVERAGE F10 7 CM FLUX            205 00
     DAILY AVERAGE F10 7 CM FLUX              307 00
     DAILY MAGNETIC INDEX AP                   19 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89170       2 103E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89170       2 296E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89170   1072.3 TO   1543 8 K
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****
DATA FOR. 89170
19 JUNE 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2.296E+09	3 989E+16
LONGERON	127 0	3 176E+05	5.219E+12
ROW 2	142 0	2.956E+01	3.278E+08
LONGERON	157 0	1.456E-02	9 077E+04
ROW 3	172 0	2.305E-04	8 628E+02
LONGERON	173 0	3.248E-04	8 966E+02
ROW 4	158 0	3 671E-02	9 125E+04
LONGERON	143 0	1 001E+02	2 697E+08
ROW 5	128 0	9 302E+05	3.494E+12
LONGERON	113 0	3 544E+09	2 628E+16
ROW 6	98 0	1 157E+12	1 958E+19
LONGERON	83 0	2 044E+13	4 784E+20
ROW 7	68 0	5 757E+13	1 376E+21
LONGERON	53 0	9 201E+13	2 204E+21
ROW 8	38 0	1 202E+14	2 882E+21
LONGERON	23 0	1.402E+14	3 364E+21
ROW 9	8.0	1 506E+14	3 616E+21
LONGERON	7.0	1 507E+14	3 622E+21
ROW 10	22 0	1.406E+14	3 381E+21
LONGERON	37 0	1.209E+14	2.910E+21
ROW 11	52 0	9.301E+13	2 241E+21
LONGERON	67 0	5 874E+13	1 418E+21
ROW 12	82 0	2.162E+13	5 191E+20
LONGERON	97 0	1 233E+12	2 493E+19
TOP	90 0	6 965E+12	1.536E+20
BOTTOM	90 0	6 965E+12	1 536E+20
RAM DIR	0	1 520E+14	3 650E+21

```
****************************************
*MONTH·   6   DAY   27   YEAR   89     *
*DAY OF YEAR   178                     *
*CUMULATIVE EXPOSURE TIME  1906  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          428 30
     PERIGEE (KM ABOVE EARTH)                         407 80
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        48038
     LOCAL SOLAR (EPOCH) TIME (HMS)                 12 31 49
     ASCENDING NODE LONGITUDE (DEGREES EAST)          347 80
     ARGUEMENT OF PERIGEE (DEGREES)                    20 80

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6798050 00
     SEMIMINOR AXIS (M)                               6798042 27
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5576 26
     ENERGY (JOULE)                                   -2 934E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 207E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89178
     3 MONTH AVERAGE F10 7 CM FLUX                208 00
     DAILY AVERAGE F10 7 CM FLUX                  235 00
     DAILY MAGNETIC INDEX AP                       10 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89178        1.841E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89178        1 777E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89178    991 9 TO   1541 1 K
```

****
DATA FOR: 89178
27 JUNE 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 777E+09	4 130E+16
LONGERON	127 0	2 602E+05	5 419E+12
ROW 2	142 0	2 272E+01	3.459E+08
LONGERON	157 0	9.242E-03	9 900E+04
ROW 3	172 0	1 143E-04	9 820E+02
LONGERON	173 0	1 290E-04	1 053E+03
ROW 4	158 0	1 311E-02	1 085E+05
LONGERON	143.0	3.871E+01	3 176E+08
ROW 5	128.0	4 680E+05	3.978E+12
LONGERON	113 0	2 459E+09	2 835E+16
ROW 6	98 0	9 904E+11	2.032E+19
LONGERON	83 0	1.819E+13	4 917E+20
ROW 7	68 0	5 078E+13	1 413E+21
LONGERON	53 0	8 089E+13	2 264E+21
ROW 8	38 0	1 055E+14	2.960E+21
LONGERON	23 0	1 229E+14	3.455E+21
ROW 9	8 0	1 319E+14	3 714E+21
LONGERON	7 0	1 320E+14	3 720E+21
ROW 10	22 0	1 230E+14	3 473E+21
LONGERON	37 0	1 057E+14	2 989E+21
ROW 11	52 0	8 116E+13	2 301E+21
LONGERON	67 0	5 109E+13	1 456E+21
ROW 12	82 0	1 853E+13	5 329E+20
LONGERON	97 0	9 863E+11	2 570E+19
TOP	90 0	5 993E+12	1 581E+20
BOTTOM	90 0	5 993E+12	1 581E+20
RAM DIR	.0	1 331E+14	3 749E+21

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****************************************
*MONTH    7   DAY    4   YEAR   89     *
*DAY OF YEAR.  185                     *
*CUMULATIVE EXPOSURE TIME  1913  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          426 90
     PERIGEE (KM ABOVE EARTH)                         406 50
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        59962
     LOCAL SOLAR (EPOCH) TIME (HMS)                 8 42 57
     ASCENDING NODE LONGITUDE (DEGREES EAST)          240 90
     ARGUEMENT OF PERIGEE (DEGREES)                    28 60

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6796700 00
     SEMIMINOR AXIS (M)                               6796692 35
     ECCENTRICITY                                           002
     PERIOD (SEC)                                        5574 60
     ENERGY (JOULE)                                   -2 934E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 207E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89185
     3 MONTH AVERAGE F10 7 CM FLUX                211 00
     DAILY AVERAGE F10 7 CM FLUX                  212 00
     DAILY MAGNETIC INDEX AP                       10 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   240 POINTS ON ORBIT
   FOR THE DATE   89185       1.729E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   240 POINTS ON ORBIT
   FOR THE DATE   89185       2.143E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   240 POINTS ON ORBIT
   FOR THE DATE    89185    965 1 TO   1502 6 K
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****
DATA FOR: 89185
4 JULY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 143E+09	4.249E+16
LONGERON	127 0	3.639E+05	5 608E+12
ROW 2	142 0	2 673E+01	3.608E+08
LONGERON	157 0	7.279E-03	1 040E+05
ROW 3	172 0	5.452E-05	1 033E+03
LONGERON	173.0	3 868E-05	1 104E+03
ROW 4	158 0	2 929E-03	1 133E+05
LONGERON	143 0	8.509E+00	3 319E+08
ROW 5	128 0	1.390E+05	4 161E+12
LONGERON	113.0	1.224E+09	2.946E+16
ROW 6	98 0	7 837E+11	2 086E+19
LONGERON	83 0	1.659E+13	5 023E+20
ROW 7	68.0	4 718E+13	1 443E+21
LONGERON	53 0	7 553E+13	2 311E+21
ROW 8	38.0	9.873E+13	3.022E+21
LONGERON	23 0	1 152E+14	3 527E+21
ROW 9	8.0	1.238E+14	3 791E+21
LONGERON	7.0	1 240E+14	3 797E+21
ROW 10	22.0	1.158E+14	3 545E+21
LONGERON	37 0	9 960E+13	3 051E+21
ROW 11	52.0	7.665E+13	2 349E+21
LONGERON	67 0	4 849E+13	1 486E+21
ROW 12	82 0	1.780E+13	5 439E+20
LONGERON	97 0	9 795E+11	2 629E+19
TOP	90 0	5 528E+12	1 616E+20
BOTTOM	90 0	5 528E+12	1 616E+20
RAM DIR	.0	1.250E+14	3 827E+21

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****************************************
*MONTH    7   DAY   11   YEAR   89     *
*DAY OF YEAR:  192                     *
*CUMULATIVE EXPOSURE TIME  1920  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          424 60
     PERIGEE (KM ABOVE EARTH)                         406 50
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        38275
     LOCAL SOLAR (EPOCH) TIME (HMS)                 5  4 43
     ASCENDING NODE LONGITUDE (DEGREES EAST)          276 70
     ARGUEMENT OF PERIGEE (DEGREES)                    29 60

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6795550 00
     SEMIMINOR AXIS (M)                               6795543 97
     ECCENTRICITY                                           .001
     PERIOD (SEC)                                        5573 18
     ENERGY (JOULE)                                  -2 935E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 206E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89192
     3 MONTH AVERAGE F10 7 CM FLUX                211 00
     DAILY AVERAGE F10 7 CM FLUX                  189 00
     DAILY MAGNETIC INDEX AP                        8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89192       1.576E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89192       2 159E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89192    941 9 TO   1407 1 K
```

****
DATA FOR: 89192
11 JULY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 159E+09	4.379E+16
LONGERON	127 0	2.881E+05	5 805E+12
ROW 2	142 0	1.246E+01	3.727E+08
LONGERON	157 0	1 789E-03	1.067E+05
ROW 3	172 0	7.542E-06	1.052E+03
LONGERON	173 0	3.751E-06	1.117E+03
ROW 4	158 0	2.753E-04	1 143E+05
LONGERON	143 0	1 090E+00	3.348E+08
ROW 5	128.0	3 092E+04	4 213E+12
LONGERON	113 0	5.376E+08	3 000E+16
ROW 6	98 0	5.850E+11	2 127E+19
LONGERON	83 0	1 451E+13	5.117E+20
ROW 7	68.0	4 237E+13	1 470E+21
LONGERON	53 0	6.829E+13	2 354E+21
ROW 8	38 0	8 957E+13	3 079E+21
LONGERON	23 0	1.047E+14	3.593E+21
ROW 9	8 0	1.128E+14	3.863E+21
LONGERON	7 0	1 131E+14	3 869E+21
ROW 10	22 0	1.058E+14	3 612E+21
LONGERON	37 0	9 119E+13	3.108E+21
ROW 11	52 0	7 041E+13	2 393E+21
LONGERON	67.0	4.483E+13	1.515E+21
ROW 12	82.0	1.677E+13	5 544E+20
LONGERON	97 0	9 605E+11	2.688E+19
TOP	90.0	4.954E+12	1.647E+20
BOTTOM	90.0	4 954E+12	1.647E+20
RAM DIR	.0	1 139E+14	3.899E+21

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**************************************
*MONTH    7   DAY   18   YEAR   89     *
*DAY OF YEAR   199                     *
*CUMULATIVE EXPOSURE TIME  1927  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          422 90
     PERIGEE (KM ABOVE EARTH)                         405 50
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        55382
     LOCAL SOLAR (EPOCH) TIME (HMS)                 1 13 26
     ASCENDING NODE LONGITUDE (DEGREES EAST)          147 60
     ARGUEMENT OF PERIGEE (DEGREES)                    23 30

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6794200 00
     SEMIMINOR AXIS (M)                           6794194 43
     ECCENTRICITY                                        001
     PERIOD (SEC)                                    5571 52
     ENERGY (JOULE)                                -2 935E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 206E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  89199
     3 MONTH AVERAGE F10 7 CM FLUX          210 00
     DAILY AVERAGE F10 7 CM FLUX            187 00
     DAILY MAGNETIC INDEX AP                  6 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89199       1 471E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89199       1 802E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89199    961 6 TO   1348 1 K
```

****
DATA FOR: 89199
18 JULY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 802E+09	4 499E+16
LONGERON	127 0	1 787E+05	5.946E+12
ROW 2	142 0	5 238E+00	3 780E+08
LONGERON	157.0	5 295E-04	1 074E+05
ROW 3	172.0	1.795E-06	1 055E+03
LONGERON	173 0	8 572E-07	1 118E+03
ROW 4	158 0	7 070E-05	1 144E+05
LONGERON	143 0	3 436E-01	3 352E+08
ROW 5	128 0	1 315E+04	4 226E+12
LONGERON	113 0	3 586E+08	3 027E+16
ROW 6	98 0	5 067E+11	2 160E+19
LONGERON	83 0	1 335E+13	5 201E+20
ROW 7	68 0	3 936E+13	1 494E+21
LONGERON	53 0	6 358E+13	2 394E+21
ROW 8	38 0	8 347E+13	3 131E+21
LONGERON	23.0	9 767E+13	3.654E+21
ROW 9	8 0	1 052E+14	3.929E+21
LONGERON	7.0	1.056E+14	3 935E+21
ROW 10	22 0	9 877E+13	3.674E+21
LONGERON	37.0	8 522E+13	3.162E+21
ROW 11	52 0	6 586E+13	2.434E+21
LONGERON	67.0	4 201E+13	1 541E+21
ROW 12	82.0	1.581E+13	5 642E+20
LONGERON	97.0	8 994E+11	2 744E+19
TOP	90 0	4 579E+12	1 676E+20
BOTTOM	90 0	4 579E+12	1 676E+20
RAM DIR	0	1.063E+14	3 966E+21

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****************************************
*MONTH:   7   DAY   24   YEAR   89     *
*DAY OF YEAR.  205                     *
*CUMULATIVE EXPOSURE TIME  1933  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          422 30
     PERIGEE (KM ABOVE EARTH)                         404 20
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                        14429
     LOCAL SOLAR (EPOCH) TIME (HMS)                 22 16  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)           273.90
     ARGUEMENT OF PERIGEE (DEGREES)                    20 70

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6793250 00
     SEMIMINOR AXIS (M)                            6793243 97
     ECCENTRICITY                                         .001
     PERIOD (SEC)                                     5570 35
     ENERGY (JOULE)                                -2.936E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 205E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89205
     3 MONTH AVERAGE F10 7 CM FLUX           210 00
     DAILY AVERAGE F10 7 CM FLUX             194.00
     DAILY MAGNETIC INDEX AP                   7 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89205:       1.546E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89205.       1.481E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89205   1001 0 TO   1339 4 K
```

****
DATA FOR: 89205
24 JULY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 481E+09	4 584E+16
LONGERON	127.0	1 173E+05	6 023E+12
ROW 2	142 0	3 094E+00	3 802E+08
LONGERON	157 0	3 316E-04	1 077E+05
ROW 3	172.0	1 388E-06	1.055E+03
LONGERON	173 0	9.076E-07	1 119E+03
ROW 4	158 0	1 040E-04	1 144E+05
LONGERON	143 0	6.397E-01	3 355E+08
ROW 5	128 0	2 514E+04	4 236E+12
LONGERON	113 0	5 297E+08	3 050E+16
ROW 6	98 0	5 796E+11	2 189E+19
LONGERON	83 0	1 428E+13	5 273E+20
ROW 7	68.0	4 166E+13	1 515E+21
LONGERON	53.0	6 708E+13	2 428E+21
ROW 8	38 0	8.793E+13	3 175E+21
LONGERON	23 0	1 028E+14	3 706E+21
ROW 9	8 0	1 106E+14	3.985E+21
LONGERON	7 0	1 110E+14	3 991E+21
ROW 10	22 0	1 037E+14	3.726E+21
LONGERON	37 0	8 939E+13	3 207E+21
ROW 11	52 0	6 898E+13	2 469E+21
LONGERON	67 0	4 388E+13	1 563E+21
ROW 12	82 0	1 636E+13	5.726E+20
LONGERON	97 0	8 897E+11	2 791E+19
TOP	90 0	4 819E+12	1 700E+20
BOTTOM	90 0	4 819E+12	1 700E+20
RAM DIR	0	1 118E+14	4 022E+21

```
****************************************
*MONTH    7   DAY.  30   YEAR   89      *
*DAY OF YEAR.  211                      *
*CUMULATIVE EXPOSURE TIME  1939  DAYS   *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          421 90
     PERIGEE (KM ABOVE EARTH)                         402 80
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        28771
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 56 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)          164 20
     ARGUEMENT OF PERIGEE (DEGREES)                    24 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6792350 00
     SEMIMINOR AXIS (M)                               6792343.29
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5569.25
     ENERGY (JOULE)                                   -2 936E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 205E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89211
     3 MONTH AVERAGE F10 7 CM FLUX           210 00
     DAILY AVERAGE F10 7 CM FLUX             178 00
     DAILY MAGNETIC INDEX AP                   8 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89211        1 486E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89211        6 462E+08  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89211    936 4 TO   1311 4 K
```

****
DATA FOR: 89211
30 JULY 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6 462E+08	4 639E+16
LONGERON	127.0	2 773E+04	6 060E+12
ROW 2	142 0	5 726E-01	3.812E+08
LONGERON	157.0	6 901E-05	1 078E+05
ROW 3	172.0	4.451E-07	1 056E+03
LONGERON	173.0	5 436E-07	1 119E+03
ROW 4	158 0	1 180E-04	1.145E+05
LONGERON	143 0	1 149E+00	3 360E+08
ROW 5	128.0	5 031E+04	4 255E+12
LONGERON	113 0	7 850E+08	3 084E+16
ROW 6	98.0	6 226E+11	2 220E+19
LONGERON	83.0	1 424E+13	5.346E+20
ROW 7	68 0	4 067E+13	1 537E+21
LONGERON	53.0	6 503E+13	2 462E+21
ROW 8	38 0	8 495E+13	3.220E+21
LONGERON	23 0	9 909E+13	3 759E+21
ROW 9	8.0	1 065E+14	4.041E+21
LONGERON	7.0	1 066E+14	4 048E+21
ROW 10	22.0	9 947E+13	3.779E+21
LONGERON	37 0	8 555E+13	3 252E+21
ROW 11	52 0	6 581E+13	2 504E+21
LONGERON	67.0	4.158E+13	1 585E+21
ROW 12	82.0	1.514E+13	5.807E+20
LONGERON	97.0	6.989E+11	2.832E+19
TOP	90.0	4.563E+12	1.725E+20
BOTTOM	90.0	4 563E+12	1 725E+20
RAM DIR	.0	1 075E+14	4 079E+21

```
**************************************
*MONTH:   8   DAY    7   YEAR· 89     *
*DAY OF YEAR   219                    *
*CUMULATIVE EXPOSURF TIME  1947  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          419 90
     PERIGEE (KM ABOVE EARTH)                         402 30
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        14515
     LOCAL SOLAR (EPOCH) TIME (HMS)                 14 43 30
     ASCENDING NODE LONGITUDE (DEGREES EAST)          160.40
     ARGUEMENT OF PERIGEE (DEGREES)                    26 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6791100 00
     SEMIMINOR AXIS (M)                             6791094 30
     ECCENTRICITY                                          001
     PERIOD (SEC)                                     5567 71
     ENERGY (JOULE)                                 -2.937E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5 205E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  89219
     3 MONTH AVERAGE F10 7 CM FLUX          212.00
     DAILY AVERAGE F10 7 CM FLUX            224.00
     DAILY MAGNETIC INDEX AP                  6.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89219:      2 006E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89219:      1.337E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89219    980 9 TO   1467 4 K
```

****
DATA FOR 89219
7 AUGUST 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 337E+09	4 707E+16
LONGERON	127 0	1 222E+05	6.112E+12
ROW 2	142.0	7 243E+00	3 839E+08
LONGERON	157 0	2.400E-03	1.086E+05
ROW 3	172 0	3.040E-05	1 067E+03
LONGERON	173 0	4.353E-05	1.134E+03
ROW 4	158 0	6 399E-03	1 167E+05
LONGERON	143 0	2 739E+01	3.458E+08
ROW 5	128 0	4 297E+05	4.421E+12
LONGERON	113 0	2 548E+09	3 199E+16
ROW 6	98 0	1.060E+12	2 278E+19
LONGERON	83 0	1.982E+13	5.464E+20
ROW 7	68 0	5.541E+13	1.570E+21
LONGERON	53 0	8.822E+13	2 515E+21
ROW 8	38 0	1.150E+14	3.289E+21
LONGERON	23 0	1.340E+14	3 839E+21
ROW 9	8 0	1.438E+14	4.127E+21
LONGERON	7 0	1.438E+14	4.134E+21
ROW 10	22 0	1.341E+14	3 859E+21
LONGERON	37 0	1.152E+14	3 322E+21
ROW 11	52 0	8 841E+13	2.557E+21
LONGERON	67 0	5.563E+13	1 619E+21
ROW 12	82 0	2 012E+13	5 929E+20
LONGERON	97.0	1.007E+12	2 891E+19
TOP	90 0	6.450E+12	1 763E+20
BOTTOM	90 0	6 450E+12	1 763E+20
RAM DIR	0	1 451E+14	4 166E+21

```
**************************************
*MONTH:   8   DAY   14   YEAR   89     *
*DAY OF YEAR.  226                     *
*CUMULATIVE EXPOSURE TIME  1954  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          417 70
     PERIGEE (KM ABOVE EARTH)                         400 70
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        69811
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 37 31
     ASCENDING NODE LONGITUDE (DEGREES EAST)          228 50
     ARGUEMENT OF PERIGEE (DEGREES)                    19 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6789200 00
     SEMIMINOR AXIS (M)                            6789194 68
     ECCENTRICITY                                         001
     PERIOD (SEC)                                     5565 37
     ENERGY (JOULE)                                -2 938E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5 204E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  89226
     3 MONTH AVERAGE F10.7 CM FLUX          216 00
     DAILY AVERAGE F10 7 CM FLUX            248 00
     DAILY MAGNETIC INDEX AP                 22 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89226:       2.574E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89226.       3.228E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89226·  1039 0 TO   1567 2 K
```

****
DATA FOR· 89226
14 AUGUST 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 228E+09	4 845E+16
LONGERON	127 0	6 143E+05	6 335E+12
ROW 2	142 0	6 308E+01	4 051E+08
LONGERON	157 0	2 641E-02	1 173E+05
ROW 3	172.0	2 948E-04	1 165E+03
LONGERON	173 0	2 719E-04	1 230E+03
ROW 4	158 0	2 167E-02	1 252E+05
LONGERON	143.0	5 186E+01	3 698E+08
ROW 5	128 0	5 631E+05	4 721E+12
LONGERON	113 0	3 026E+09	3 368E+16
ROW 6	98.0	1 329E+12	2 350E+19
LONGERON	83 0	2.513E+13	5 600E+20
ROW 7	68 0	7 064E+13	1 608E+21
LONGERON	53.0	1 128E+14	2 576E+21
ROW 8	38.0	1 473E+14	3 369E+21
LONGERON	23 0	1 717E+14	3 932E+21
ROW 9	8 0	1 845E+14	4 227E+21
LONGERON	7.0	1 847E+14	4 234E+21
ROW 10	22 0	1 722E+14	3 952E+21
LONGERON	37 0	1.481E+14	3 401E+21
ROW 11	52 0	1 138E+14	2 619E+21
LONGERON	67 0	7 184E+13	1 658E+21
ROW 12	82.0	2 627E+13	6 070E+20
LONGERON	97.0	1.472E+12	2.966E+19
TOP	90 0	8.411E+12	1.808E+20
BOTTOM	90.0	8 411E+12	1 808E+20
RAM DIR	0	1 862E+14	4 267E+21

```
**************************************
*MONTH:   8   DAY   21   YEAR   89     *
*DAY OF YEAR:  233                     *
*CUMULATIVE EXPOSURE TIME  1961  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          416 90
     PERIGEE (KM ABOVE EARTH)                         397.60
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                        69379
     LOCAL SOLAR (EPOCH) TIME (HMS)                 6 52 19
     ASCENDING NODE LONGITUDE (DEGREES EAST)          174 00
     ARGUEMENT OF PERIGEE (DEGREES)                    16 50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6787250 00
     SEMIMINOR AXIS (M)                               6787243 14
     ECCENTRICITY                                            001
     PERIOD (SEC)                                        5562 98
     ENERGY (JOULE)                                  -2.938E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 203E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89233
     3 MONTH AVERAGE F10.7 CM FLUX                220 00
     DAILY AVERAGE F10 7 CM FLUX                  254 00
     DAILY MAGNETIC INDEX AP                       32.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89233.      3.017E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89233       6 137E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89233   1059 6 TO   1572.2 K
```

****
DATA FOR: 89233
21 AUGUST 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.137E+09	5 129E+16
LONGERON	127 0	1.718E+06	7 040E+12
ROW 2	142 0	1.997E+02	4 846E+08
LONGERON	157 0	7.496E-02	1 480E+05
ROW 3	172 0	6.240E-04	1 443E+03
LONGERON	173 0	3 876E-04	1 429E+03
ROW 4	158 0	2 097E-02	1 381E+05
LONGERON	143 0	3.821E+01	3 970E+08
ROW 5	128 0	3.852E+05	5 008E+12
LONGERON	113 0	2 508E+09	3 535E+16
ROW 6	98 0	1 429E+12	2 434E+19
LONGERON	83 0	2 881E+13	5.763E+20
ROW 7	68 0	8 202E+13	1 654E+21
LONGERON	53 0	1 315E+14	2 650E+21
ROW 8	38 0	1 721E+14	3 465E+21
LONGERON	23 0	2 010E+14	4 044E+21
ROW 9	8 0	2 161E+14	4 348E+21
LONGERON	7 0	2 165E+14	4 355E+21
ROW 10	22 0	2 022E+14	4 065E+21
LONGERON	37 0	1.741E+14	3 499E+21
ROW 11	52 0	1 341E+14	2 694E+21
LONGERON	67 0	8.500E+13	1 705E+21
ROW 12	82 0	3 151E+13	6 244E+20
LONGERON	97 0	1 935E+12	3 069E+19
TOP	90 0	9 914E+12	1 863E+20
BOTTOM	90 0	9.914E+12	1 863E+20
RAM DIR	0	2 182E+14	4 389E+21

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**************************************
*MONTH·   8   DAY   28   YEAR   89     *
*DAY OF YEAR   240                     *
*CUMULATIVE EXPOSURE TIME  1968  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          416 70
     PERIGEE (KM ABOVE EARTH)                         395.10
     INCLINATION OF ORBIT (DEGREES)                    28.53
     GMT (EPOCH) TIME (SECONDS)                         7690
     LOCAL SOLAR (EPOCH) TIME (HMS)                  3 28 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)           20 10
     ARGUEMENT OF PERIGEE (DEGREES)                    26 80

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6.67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6785900.00
     SEMIMINOR AXIS (M)                               6785891 41
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5561 32
     ENERGY (JOULE)                                   -2 939E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 203E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                          89240
     3 MONTH AVERAGE F10.7 CM FLUX                  219 00
     DAILY AVERAGE F10 7 CM FLUX                    176 00
     DAILY MAGNETIC INDEX AP                         15 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89240       2.257E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89240       2.858E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89240    945 7 TO   1364 7 K
```

****
DATA FOR· 89240
28 AUGUST 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2.858E+09	5 401E+16
LONGERON	127 0	3.289E+05	7 660E+12
ROW 2	142 0	1.136E+01	5 484E+08
LONGERON	157 0	1 288E-03	1 710E+05
ROW 3	172 0	4.542E-06	1 633E+03
LONGERON	173 0	2.092E-06	1 547E+03
ROW 4	158 0	1 571E-04	1 445E+05
LONGERON	143 0	6.771E-01	4 088E+08
ROW 5	128 0	2 272E+04	5 132E+12
LONGERON	113 0	5.558E+08	3.628E+16
ROW 6	98 0	7.853E+11	2 500E+19
LONGERON	83 0	2 067E+13	5 913E+20
ROW 7	68 0	6 063E+13	1 697E+21
LONGERON	53 0	9 780E+13	2 719E+21
ROW 8	38 0	1 283E+14	3 556E+21
LONGERON	23 0	1.501E+14	4 150E+21
ROW 9	8 0	1 616E+14	4 462E+21
LONGERON	7 0	1 621E+14	4 469E+21
ROW 10	22 0	1 516E+14	4 172E+21
LONGERON	37 0	1.307E+14	3 591E+21
ROW 11	52 0	1 010E+14	2 765E+21
LONGERON	67 0	6.433E+13	1 750E+21
ROW 12	82 0	2 408E+13	6 412E+20
LONGERON	97 0	1 352E+12	3 168E+19
TOP	90 0	7.014E+12	1 914E+20
BOTTOM	90 0	7 014E+12	1 914E+20
RAM DIR	0	1 633E+14	4 504E+21

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**************************************
*MONTH    9   DAY    2   YEAR   89     *
*DAY OF YEAR   245                     *
*CUMULATIVE EXPOSURE TIME  1973  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          414 80
     PERIGEE (KM ABOVE FARTH)                         395 00
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        41126
     LOCAL SOLAR (EPOCH) TIME (HMS)                 0 34 14
     ASCENDING NODE LONGITUDE (DEGREES EAST)          197 20
     ARGUEMENT OF PERIGEE (DEGREES)                    33 30

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6784900 00
     SEMIMINOR AXIS (M)                               6784892 78
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5560 09
     ENERGY (JOULE)                                   -2 939E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 202E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89245
     3 MONTH AVERAGE F10 7 CM FLUX            220 00
     DAILY AVERAGE F10 7 CM FLUX              218 00
     DAILY MAGNETIC INDEX AP                   19 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89245       2.852E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89245       4 953E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89245:  1058.4 TO   1454 8 K
```

****
DATA FOR 89245
2 SEPTEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	4 953E+09	5 569E+16
LONGERON	127 0	8 554E+05	7 915E+12
ROW 2	142 0	5 071E+01	5.618E+08
LONGERON	157 0	1 003E-02	1 735E+05
ROW 3	172 0	5.426E-05	1 646E+03
LONGERON	173 0	2 987E-05	1.554E+03
ROW 4	158 0	1 956E-03	1 450E+05
LONGERON	143 0	5 414E+00	4 101E+08
ROW 5	128 0	9 750E+04	5 158E+12
LONGERON	113 0	1.293E+09	3.667E+16
ROW 6	98 0	1 149E+12	2.542E+19
LONGERON	83 0	2 635E+13	6 014E+20
ROW 7	68 0	7 667E+13	1 727E+21
LONGERON	53 0	1 236E+14	2 767E+21
ROW 8	38 0	1 621E+14	3.619E+21
LONGERON	23 0	1 896E+14	4 224E+21
ROW 9	8 0	2 042E+14	4 541E+21
LONGERON	7 0	2 048E+14	4.549E+21
ROW 10	22 0	1 915E+14	4 246E+21
LONGERON	37 0	1 651E+14	3 655E+21
ROW 11	52 0	1 275E+14	2 814E+21
LONGERON	67 0	8 118E+13	1 782E+21
ROW 12	82.0	3 049E+13	6.530E+20
LONGERON	97 0	1 858E+12	3 238E+19
TOP	90 0	9 175E+12	1 949E+20
BOTTOM	90 0	9.175E+12	1 949E+20
RAM DIR	0	2.062E+14	4 584E+21

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**************************************
*MONTH    9   DAY    9   YEAR   89     *
*DAY OF YEAR   252                     *
*CUMULATIVE EXPOSURE TIME  1980  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          410 90
     PERIGEE (KM ABOVE EARTH)                         395 20
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        23501
     LOCAL SOLAR (EPOCH) TIME (HMS)                20 54 29
     ASCENDING NODE LONGITUDE (DEGREES EAST)          215 70
     ARGUEMENT OF PERIGEE (DEGREES)                    34 20

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6783050 00
     SEMIMINOR AXIS (M)                               6783045.46
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5557 81
     ENERGY (JOULE)                                   -2 940E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 201E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89252
     3 MONTH AVERAGE F10 7 CM FLUX               225 00
     DAILY AVERAGE F10 7 CM FLUX                 297 00
     DAILY MAGNETIC INDEX AP                      14 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89252        3 667E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89252        6.664E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89252   1143 2 TO   1550 0 K
```

****
DATA FOR· 89252
9 SEPTEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6 664E+09	5 921E+16
LONGERON	127 0	1 366E+06	8 587E+12
ROW 2	142 0	1 301E+02	6 165E+08
LONGERON	157 0	5 037E-02	1 918E+05
ROW 3	172.0	5 414E-04	1 826E+03
LONGERON	173.0	4.940E-04	1 712E+03
ROW 4	158 0	3 839E-02	1 572E+05
LONGERON	143 0	8 438E+01	4 373E+08
ROW 5	128.0	8 010E+05	5 429E+12
LONGERON	113 0	4 051E+09	3 829E+16
ROW 6	98 0	1 796E+12	2.631E+19
I ONGERON	83 0	3 460E+13	6 199E+20
ROW 7	68.0	9 922E+13	1 780E+21
LONGERON	53 0	1 595E+14	2 853E+21
ROW 8	38 0	2 089E+14	3.731E+21
LONGERON	23 0	2 441E+14	4 355E+21
ROW 9	8.0	2 627E+14	4 682E+21
LONGERON	7 0	2 633E+14	4 690E+21
ROW 10	22 0	2 460E+14	4 379E+21
LONGERON	37 0	2 120E+14	3 769E+21
ROW 11	52 0	1 635E+14	2 902E+21
LONGERON	67 0	1 038E+14	1 837E+21
ROW 12	82 0	3 890E+13	6 740E+20
LONGERON	97 0	2 450E+12	3 368E+19
TOP	90 0	1 219E+13	2 014E+20
BOTTOM	90 0	1 219E+13	2 014E+20
RAM DIR	0	2 653E+14	4 727E+21

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**************************************
*MONTH    9   DAY   16   YEAR   89     *
*DAY OF YEAR   259                     *
*CUMULATIVE EXPOSURE TIME  1987  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          407 80
     PERIGEE (KM ABOVE EARTH)                         393 60
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        11059
     LOCAL SOLAR (EPOCH) TIME (HMS)                17 11 31
     ASCENDING NODE LONGITUDE (DEGREES EAST)          211 80
     ARGUEMENT OF PERIGEE (DEGREES)                    20 70

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6780700.00
     SEMIMINOR AXIS (M)                           6780696 28
     ECCENTRICITY                                        001
     PERIOD (SEC)                                   5554 92
     ENERGY (JOULE)                               -2 941E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5 201E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89259
     3 MONTH AVERAGE F10 7 CM FLUX           219 00
     DAILY AVERAGE F10 7 CM FLUX             239 00
     DAILY MAGNETIC INDEX AP                  22 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89259       3 620E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89259       3 482E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89259   1057.9 TO   1511.4 K
```

****
DATA FOR: 89259
16 SEPTEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 482E+09	6 227E+16
LONGERON	127 0	3 944E+05	9 119E+12
ROW 2	142 0	2 824E+01	6 643E+08
LONGERON	157 0	1 116E-02	2 104E+05
ROW 3	172 0	1.564E-04	2 037E+03
LONGERON	173 0	2 188E-04	1 928E+03
ROW 4	158 0	2 744E-02	1 771E+05
LONGERON	143 0	9 030E+01	4 901E+08
ROW 5	128 0	1 055E+06	5 990E+12
LONGERON	113 0	4 992E+09	4 103E+16
ROW 6	98 0	1 889E+12	2 743E+19
LONGERON	83 0	3 503E+13	6 409E+20
ROW 7	68 0	9 911E+13	1.840E+21
LONGERON	53 0	1 585E+14	2 949E+21
ROW 8	38 0	2 071E+14	3 857E+21
I ONGERON	23 0	2 416E+14	4.502E+21
ROW 9	8 0	2 596E+14	4 840E+21
LONGERON	7 0	2 599E+14	4 848E+21
ROW 10	22 0	2 425E+14	4 526E+21
LONGERON	37 0	2.086E+14	3 896E+21
ROW 11	52 0	1 605E+14	3 000E+21
LONGERON	67 0	1 014E+14	1 900E+21
ROW 12	82 0	3 732E+13	6 971E+20
LONGERON	97.0	2 071E+12	3 504E+19
TOP	90 0	1 186E+13	2 087E+20
BOTTOM	90 0	1 186E+13	2 087E+20
RAM DIR	0	2 620E+14	4 886E+21

```
****************************************
*MONTH    9   DAY   22   YEAR   89     *
*DAY OF YEAR   265                     *
*CUMULATIVE EXPOSURE TIME· 1993  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          407 70
     PERIGEE (KM ABOVE EARTH)                         389 70
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        84758
     LOCAL SOLAR (EPOCH) TIME (HMS)                 13 29 26
     ASCENDING NODE LONGITUDE (DEGREES EAST)          209 20
     ARGUEMENT OF PERIGEE (DEGREES)                    13 50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6778700 00
     SEMIMINOR AXIS (M)                             6778694 03
     ECCENTRICITY                                          001
     PERIOD (SEC)                                     5552 47
     ENERGY (JOULE)                                  -2 942E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 200E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89265
     3 MONTH AVERAGE F10 7 CM FLUX            214 00
     DAILY AVERAGE F10 7 CM FLUX              168.00
     DAILY MAGNETIC INDEX AP                   18 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89265       2 890E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89265       1 306E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89265    958 0 TO   1363 1 K
```

****
DATA FOR 89265
22 SEPTEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 306E+09	6.352E+16
LONGERON	127 0	6 574E+04	9 239E+12
ROW 2	142 0	1 941E+00	6 722E+08
LONGERON	157 0	3 483E-04	2 133E+05
ROW 3	172 0	3 019E-06	2 078E+03
LONGERON	173 0	4 144E-06	1 986E+03
ROW 4	158 0	8 302E-04	1 844E+05
LONGERON	143 0	6 367E+00	5 151E+08
ROW 5	128 0	2 020E+05	6 316E+12
LONGERON	113 0	2 259E+09	4 290E+16
ROW 6	98 0	1 375E+12	2 827E+19
LONGERON	83 0	2 842E+13	6 574E+20
ROW 7	68 0	7 986E+13	1 887E+21
LONGERON	53 0	1 272E+14	3 023E+21
ROW 8	38 0	1 659E+14	3 953E+21
LONGERON	23 0	1 932E+14	4 615E+21
ROW 9	8 0	2 074E+14	4 961E+21
LONGERON	7.0	2 075E+14	4 970E+21
ROW 10	22 0	1 934E+14	4 639E+21
LONGERON	37.0	1 662E+14	3 993E+21
ROW 11	52 0	1 276E+14	3 075E+21
LONGERON	67 0	8 030E+13	1.947E+21
ROW 12	82 0	2 892E+13	7 142E+20
LONGERON	97 0	1 338E+12	3 593E+19
TOP	90.0	9 041E+12	2 141E+20
BOTTOM	90 0	9 041E+12	2 141E+20
RAM DIR	0	2 092E+14	5 008E+21

```
**************************************
*MONTH    9   DAY  30   YEAR   89     *
*DAY OF YEAR   273                    *
*CUMULATIVE EXPOSURE TIME  2001  DAYS *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          407 50
     PERIGEE (KM ABOVE EARTH)                         386 50
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        24192
     LOCAL SOLAR (EPOCH) TIME (HMS)                 9 32 48
     ASCENDING NODE LONGITUDE (DEGREES EAST)           42 40
     ARGUEMENT OF PERIGEE (DEGREES)                    20 50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6777000 00
     SEMIMINOR AXIS (M)                               6776991 87
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5550 38
     ENERGY (JOULE)                                  -2 943E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 199E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89273
     3 MONTH AVERAGE F10 7 CM FLUX           217 00
     DAILY AVERAGE F10 7 CM FLUX             246 00
     DAILY MAGNETIC INDEX AP                  23 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89273        4.067E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89273        5.582E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89273   1095 5 TO   1525 8 K
```

****
DATA FOR: 89273
30 SEPTEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	5 582E+09	6 590E+16
LONGERON	127 0	1 005E+06	9 609E+12
ROW 2	142 0	8 640E+01	7 027E+08
LONGERON	157 0	2 960E-02	2.237E+05
ROW 3	172.0	2 828E-04	2 177E+03
LONGERON	173 0	2 451E-04	2 072E+03
ROW 4	158 0	2 044E-02	1 918E+05
LONGERON	143 0	5 529E+01	5 364E+08
ROW 5	128 0	6 981E+05	6 627E+12
LONGERON	113 0	4 383E+09	4 520E+16
ROW 6	98 0	2 091E+12	2 947E+19
LONGERON	83 0	3 964E+13	6 809E+20
ROW 7	68.0	1 116E+14	1.953E+21
LONGERON	53 0	1 783E+14	3 129E+21
ROW 8	38 0	2 329E+14	4 091E+21
LONGERON	23.0	2 716E+14	4 775E+21
ROW 9	8 0	2 918E+14	5 134E+21
LONGERON	7.0	2 921E+14	5 142E+21
ROW 10	22.0	2 725E+14	4 800E+21
LONGERON	37.0	2 344E+14	4 132E+21
ROW 11	52.0	1 802E+14	3 181E+21
LONGERON	67.0	1 138E+14	2 014E+21
ROW 12	82.0	4 172E+13	7 386E+20
LONGERON	97 0	2 401E+12	3 722E+19
TOP	90 0	1 337E+13	2 218E+20
BOTTOM	90 0	1 337E+13	2.218E+20
RAM DIR	0	2 945E+14	5 182E+21

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**************************************
*MONTH   10   DAY    6   YEAR· 89     *
*DAY OF YEAR   279                     *
*CUMULATIVE EXPOSURE TIME  2007  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          405 00
     PERIGEE (KM ABOVE EARTH)                         384.50
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        75341
     LOCAL SOLAR (EPOCH) TIME (HMS)                 5 59 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)          135 90
     ARGUEMENT OF PERIGEE (DEGREES)                    30 00

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                          6774750 00
     SEMIMINOR AXIS (M)                          6774742 25
     ECCENTRICITY                                       002
     PERIOD (SEC)                                  5547 61
     ENERGY (JOULE)                               -2 944E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5 198E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89279
     3 MONTH AVERAGE F10 7 CM FLUX           219 00
     DAILY AVERAGE F10 7 CM FLUX             219 00
     DAILY MAGNETIC INDEX AP                  10 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89279       3 798E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89279       6 242E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89279   1025 2 TO   1463 1 K
```

****
DATA FOR· 89279
6 OCTOBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.242E+09	6.896E+16
LONGERON	127 0	1 197E+06	1 018E+13
ROW 2	142 0	8.154E+01	7.462E+08
LONGERON	157.0	1.791E-02	2 360E+05
ROW 3	172 0	1.014E-04	2.276E+03
LONGERON	173 0	5 524E-05	2.150E+03
ROW 4	158 0	3 464E-03	1 980E+05
LONGERON	143 0	9 168E+00	5 532E+08
ROW 5	128 0	1.552E+05	6 849E+12
LONGERON	113 0	1 840E+09	4 681E+16
ROW 6	98 0	1 588E+12	3 043E+19
LONGERON	83 0	3.581E+13	7 005E+20
ROW 7	68 0	1 030E+14	2 008E+21
LONGERON	53 0	1 655E+14	3 218E+21
ROW 8	38 0	2 167E+14	4 208E+21
LONGERON	23 0	2 531E+14	4 911E+21
ROW 9	8 0	2 723E+14	5.280E+21
LONGERON	7 0	2 729E+14	5 289E+21
ROW 10	22 0	2 550E+14	4 937E+21
LONGERON	37.0	2.196E+14	4 249E+21
ROW 11	52 0	1 693E+14	3.272E+21
LONGERON	67 0	1 075E+14	2 071E+21
ROW 12	82.0	3 990E+13	7 598E+20
LONGERON	97 0	2.338E+12	3 845E+19
TOP	90 0	1 218E+13	2 284E+20
BOTTOM	90 0	1 218E+13	2 284E+20
RAM DIR	0	2.750E+14	5 330E+21

```
**************************************
*MONTH   10   DAY   13   YEAR   89     *
*DAY OF YEAR:  286                     *
*CUMULATIVE EXPOSURE TIME  2014  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          401 30
     PERIGEE (KM ABOVE EARTH)                         382.80
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                         1037
     LOCAL SOLAR (EPOCH) TIME (HMS)                  2 39 17
     ASCENDING NODE LONGITUDE (DEGREES EAST)           35 50
     ARGUEMENT OF PERIGEE (DEGREES)                    32 50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6772050 00
     SEMIMINOR AXIS (M)                               6772043 68
     ECCENTRICITY                                            001
     PERIOD (SEC)                                       5544 30
     ENERGY (JOULE)                                  -2 945E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 197E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89286
     3 MONTH AVERAGE F10 7 CM FLUX            221 00
     DAILY AVERAGE F10 7 CM FLUX              209 00
     DAILY MAGNETIC INDEX AP                    7 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89286       3.852E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89286       7 030E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89286   1018 9 TO   1463 6 K
```

****
DATA FOR 89286
13 OCTOBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	7 030E+09	7 297E+16
LONGERON	127 0	1 363E+06	1 095E+13
ROW 2	142 0	8.843E+01	7.976E+08
LONGERON	157 0	1 791E-02	2 468E+05
ROW 3	172 0	9 250E-05	2 335E+03
LONGERON	173 0	4 606E-05	2 180E+03
ROW 4	158 0	2 664E-03	1 998E+05
LONGERON	143 0	6 577E+00	5 579E+08
ROW 5	128 0	1 085E+05	6 928E+12
LONGERON	113 0	1 466E+09	4 781E+16
ROW 6	98 0	1 481E+12	3 135E+19
LONGERON	83 0	3.550E+13	7 220E+20
ROW 7	68 0	1 036E+14	2 071E+21
LONGERON	53 0	1 671E+14	3 318E+21
ROW 8	38 0	2 192E+14	4 340E+21
LONGERON	23 0	2 564E+14	5 065E+21
ROW 9	8 0	2 761E+14	5 446E+21
LONGERON	7 0	2 770E+14	5 455E+21
ROW 10	22 0	2 590E+14	5 093E+21
LONGERON	37 0	2 234E+14	4 383E+21
ROW 11	52 0	1 725E+14	3 375E+21
LONGERON	67 0	1 099E+14	2 137E+21
ROW 12	82 0	4 130E+13	7 844E+20
LONGERON	97 0	2 498E+12	3 991E+19
TOP	90 0	1 231E+13	2 359E+20
BOTTOM	90 0	1 231E+13	2 359E+20
RAM DIR	0	2 790E+14	5 498E+21

```
****************************************
*MONTH   10   DAY:  21   YEAR   89      *
*DAY OF YEAR.  294                      *
*CUMULATIVE EXPOSURE TIME. 2022  DAYS   *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          396 90
     PERIGEE (KM ABOVE EARTH)                         380 20
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        38794
     LOCAL SOLAR (EPOCH) TIME (HMS)                 22  4 34
     ASCENDING NODE LONGITUDE (DEGREES EAST)          169 50
     ARGUEMENT OF PERIGEE (DEGREES)                    26 20

 CONSTANTS
     RADIUS OF EARTH (M)                           6 38E+06
     MASS OF EARTH (KG)                            5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)         6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                            6768550 00
     SEMIMINOR AXIS (M)                            6768544 85
     ECCENTRICITY                                        001
     PERIOD (SEC)                                    5540 00
     ENERGY (JOULE)                               -2 946E+07
     ANGULAR MOMENTUM (JOULE-SEC)                  5 196E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                  89294
     3 MONTH AVERAGE F10 7 CM FLUX          223 00
     DAILY AVERAGE F10.7 CM FLUX            219 00
     DAILY MAGNETIC INDEX AP                 37 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89294        4 780E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89294.       7.679E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89294   1058 1 TO   1555 8 K
```

****
DATA FOR· 89294
21 OCTOBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 679E+09	7 806E+16
LONGERON	127 0	1 477E+06	1 194E+13
ROW 2	142.0	1 260E+02	8.717E+08
LONGERON	157 0	4 330E-02	2.680E+05
ROW 3	172 0	4 178E-04	2.511E+03
LONGERON	173 0	3 494E-04	2 317E+03
ROW 4	158 0	2 587E-02	2.097E+05
LONGERON	143 0	5 728E+01	5 800E+08
ROW 5	128 0	5 907E+05	7 170E+12
LONGERON	113.0	3 703E+09	4 960E+16
ROW 6	98 0	2 126E+12	3 260E+19
LONGERON	83 0	4 482E+13	7 498E+20
ROW 7	68.0	1 293E+14	2.151E+21
LONGERON	53 0	2 080E+14	3.448E+21
ROW 8	38 0	2 726E+14	4.510E+21
LONGERON	23 0	3 186E+14	5.264E+21
ROW 9	8.0	3 428E+14	5.660E+21
LONGERON	7 0	3 437E+14	5 670E+21
ROW 10	22 0	3 212E+14	5 293E+21
LONGERON	37 0	2 768E+14	4 556E+21
ROW 11	52 0	2 135E+14	3 508E+21
LONGERON	67 0	1 357E+14	2.222E+21
ROW 12	82 0	5 074E+13	8.162E+20
LONGERON	97 0	3 042E+12	4.183E+19
TOP	90.0	1 554E+13	2 455E+20
BOTTOM	90 0	1 554E+13	2 455E+20
RAM DIR	0	3 463E+14	5 714E+21

```
**************************************
*MONTH.  10   DAY   28   YEAR.  89     *
*DAY OF YEAR   301                     *
*CUMULATIVE EXPOSURE TIME  2029  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          394 30
     PERIGEE (KM ABOVE EARTH)                         377 20
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        29981
     LOCAL SOLAR (EPOCH) TIME (HMS)                 18 20  5
     ASCENDING NODE LONGITUDE (DEGREES EAST)          150 10
     ARGUEMENT OF PERIGEE (DEGREES)                    22 30

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6765750 00
     SEMIMINOR AXIS (M)                              6765744 60
     ECCENTRICITY                                           001
     PERIOD (SEC)                                       5536 56
     ENERGY (JOULE)                                 -2 948E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5 195E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89301
     3 MONTH AVERAGE F10 7 CM FLUX           224 00
     DAILY AVERAGE F10 7 CM FLUX             192 00
     DAILY MAGNETIC INDEX AP                  23 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89301        4 498E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89301.       3 749E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89301   1009 3 TO   1469 7 K
```

****
DATA FOR 89301
28 OCTOBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 749E+09	8 151E+16
LONGERON	127 0	3 691E+05	1 249E+13
ROW 2	142 0	1 930E+01	9.157E+08
LONGERON	157 0	5 386E-03	2.827E+05
ROW 3	172 0	5 876E-05	2 656E+03
LONGERON	173 0	7 459E-05	2 445E+03
ROW 4	158 0	1 002E-02	2 205E+05
LONGERON	143 0	4 088E+01	6.097E+08
ROW 5	128 0	6 512E+05	7 545E+12
LONGERON	113.0	4 319E+09	5 202E+16
ROW 6	98 0	2 129E+12	3 389E+19
LONGERON	83.0	4 317E+13	7 764E+20
ROW 7	68 0	1 230E+14	2.228E+21
LONGERON	53 0	1 969E+14	3.570E+21
ROW 8	38.0	2 575E+14	4 670E+21
LONGERON	23.0	3 004E+14	5 451E+21
ROW 9	8 0	3 229E+14	5 861E+21
LONGERON	7 0	3 234E+14	5.871E+21
ROW 10	22 0	3 018E+14	5.482E+21
LONGERON	37.0	2.597E+14	4 718E+21
ROW 11	52 0	1 999E+14	3 633E+21
LONGERON	67 0	1 265E+14	2 301E+21
ROW 12	82 0	4 651E+13	8.456E+20
LONGERON	97 0	2 462E+12	4.349E+19
TOP	90 0	1 441E+13	2 545E+20
BOTTOM	90 0	1 441E+13	2.545E+20
RAM DIR	.0	3 259E+14	5 917E+21

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**************************************
*MONTH.  11   DAY    4   YEAR   89     *
*DAY OF YEAR·  308                     *
*CUMULATIVE EXPOSURE TIME  2036  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          391 70
     PERIGEE (KM ABOVE EARTH)                         374 20
     INCLINATION OF ORBIT (DEGREES)                    28.52
     GMT (EPOCH) TIME (SECONDS)                         9763
     LOCAL SOLAR (EPOCH) TIME (HMS)                14 38 43
     ASCENDING NODE LONGITUDE (DEGREES EAST)          179 00
     ARGUEMENT OF PERIGEE (DEGREES)                    21 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                             6762950.00
     SEMIMINOR AXIS (M)                             6762944 34
     ECCENTRICITY                                          001
     PERIOD (SEC)                                     5533 13
     ENERGY (JOULE)                                  -2 949E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 194E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89308
     3 MONTH AVERAGE F10 7 CM FLUX                223 00
     DAILY AVERAGE F10.7 CM FLUX                  208 00
     DAILY MAGNETIC INDEX AP                       17 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89308       4 712E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89308       3.697E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89308·  1046 8 TO   1463 4 K
```

****
DATA FOR: 89308
4 NOVEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3.697E+09	8 377E+16
LONGERON	127 0	3 079E+05	1 270E+13
ROW 2	142 0	1.554E+01	9 262E+08
LONGERON	157 0	4 716E-03	2 858E+05
ROW 3	172.0	5 860E-05	2.691E+03
LONGERON	173 0	8 597E-05	2 494E+03
ROW 4	158 0	1 318E-02	2 275E+05
LONGERON	143 0	5.888E+01	6 398E+08
ROW 5	128 0	9 580E+05	8 032E+12
LONGERON	113 0	5 855E+09	5 510E+16
ROW 6	98 0	2 467E+12	3 528E+19
LONGERON	83 0	4 614E+13	8 034E+20
ROW 7	68 0	1 298E+14	2 304E+21
LONGERON	53 0	2 072E+14	3 693E+21
ROW 8	38 0	2 704E+14	4 830E+21
LONGERON	23 0	3 152E+14	5 637E+21
ROW 9	8 0	3.386E+14	6.061E+21
LONGERON	7 0	3 388E+14	6 072E+21
ROW 10	22 0	3 160E+14	5 668E+21
LONGERON	37 0	2 716E+14	4.879E+21
ROW 11	52 0	2 088E+14	3 757E+21
LONGERON	67.0	1 317E+14	2 379E+21
ROW 12	82 0	4.805E+13	8 742E+20
LONGERON	97 0	2 547E+12	4 500E+19
TOP	90 0	1 533E+13	2 635E+20
BOTTOM	90 0	1 533E+13	2 635E+20
RAM DIR	.0	3 416E+14	6 119E+21

```
****************************************
*MONTH   11   DAY   11   YEAR   89     *
*DAY OF YEAR·  315                     *
*CUMULATIVE EXPOSURE TIME: 2043  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          388 00
     PERIGEE (KM ABOVE EARTH)                         370 20
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                         5616
     LOCAL SOLAR (EPOCH) TIME (HMS)                10 50 24
     ASCENDING NODE LONGITUDE (DEGREES EAST)          139 20
     ARGUEMENT OF PERIGEE (DEGREES)                    21.50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                           6759100 00
     SEMIMINOR AXIS (M)                           6759094 14
     ECCENTRICITY                                        001
     PERIOD (SEC)                                    5528 40
     ENERGY (JOULE)                                -2 951E+07
     ANGULAR MOMENTUM (JOULE-SEC)                   5.192E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                 89315
     3 MONTH AVERAGE F10 7 CM FLUX         223 00
     DAILY AVERAGE F10 7 CM FLUX           249.00
     DAILY MAGNETIC INDEX AP                14.00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89315       5 181E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89315.      6 163E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89315   1132.8 TO   1498.6 K
```

****
DATA FOR. 89315
11 NOVEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.163E+09	8 675E+16
LONGERON	127 0	7 695E+05	1 302E+13
ROW 2	142 0	4.946E+01	9 459E+08
LONGERON	157 0	1 583E-02	2 920E+05
ROW 3	172 0	1.734E-04	2.761E+03
LONGERON	173 0	1.980E-04	2 580E+03
ROW 4	158 0	2 266E-02	2 384E+05
LONGERON	143 0	7 891E+01	6 815E+08
ROW 5	128 0	1.116E+06	8 659E+12
LONGERON	113.0	6 639E+09	5 888E+16
ROW 6	98 0	2 785E+12	3.686E+19
LONGERON	83 0	5.069E+13	8 327E+20
ROW 7	68 0	1.425E+14	2 386E+21
LONGERON	53 0	2 276E+14	3 824E+21
ROW 8	38 0	2 972E+14	5 001E+21
LONGERON	23 0	3.466E+14	5 837E+21
ROW 9	8 0	3 723E+14	6 276E+21
LONGERON	7 0	3.727E+14	6 287E+21
ROW 10	22 0	3 477E+14	5 869E+21
LONGERON	37 0	2 989E+14	5 051E+21
ROW 11	52 0	2 298E+14	3 890E+21
LONGERON	67 0	1 451E+14	2 463E+21
ROW 12	82 0	5.324E+13	9 048E+20
LONGERON	97 0	3 065E+12	4 670E+19
TOP	90.0	1 718E+13	2 734E+20
BOTTOM	90.0	1 718E+13	2 734E+20
RAM DIR	0	3 757E+14	6 336E+21

```
**************************************
*MONTH   11   DAY   17   YEAR   89     *
*DAY OF YEAR   321                     *
*CUMULATIVE EXPOSURE TIME. 2049  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          385 00
     PERIGEE (KM ABOVE EARTH)                         365 80
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        21341
     LOCAL SOLAR (EPOCH) TIME (HMS)                 7 28 29
     ASCENDING NODE LONGITUDE (DEGREES EAST)           23 20
     ARGUEMENT OF PERIGEE (DEGREES)                    20 60

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6755400 00
     SEMIMINOR AXIS (M)                              6755393 18
     ECCENTRICITY                                           001
     PERIOD (SEC)                                       5523 86
     ENERGY (JOULE)                                 -2 952E+07
     ANGULAR MOMENTUM (JOULE-SEC)                    5 191E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89321
     3 MONTH AVERAGE F10 7 CM FLUX           220 00
     DAILY AVERAGE F10 7 CM FLUX             226 00
     DAILY MAGNETIC INDEX AP                  25 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89321       5 232E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89321       7 390E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89321   1087.9 TO   1474 2 K
```

****
DATA FOR 89321
17 NOVEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 390E+09	9.026E+16
LONGERON	127 0	1 221E+06	1 354E+13
ROW 2	142 0	7 687E+01	9.786E+08
LONGERON	157 0	1 716E-02	3 005E+05
ROW 3	172 0	1 082E-04	2.834E+03
LONGERON	173 0	7 003E-05	2.649E+03
ROW 4	158 0	5 310E-03	2 456E+05
LONGERON	143 0	1 635E+01	7.062E+08
ROW 5	128 0	2 987E+05	9 026E+12
LONGERON	113 0	3 330E+09	6.146E+16
ROW 6	98 0	2 409E+12	3 821E+19
LONGERON	83 0	5 042E+13	8 589E+20
ROW 7	68 0	1 432E+14	2.460E+21
LONGERON	53 0	2 293E+14	3 942E+21
ROW 8	38 0	2.998E+14	5 156E+21
LONGERON	23 0	3 498E+14	6 018E+21
ROW 9	8 0	3 760E+14	6.470E+21
LONGERON	7.0	3.766E+14	6 481E+21
ROW 10	22 0	3 515E+14	6 050E+21
LONGERON	37.0	3 025E+14	5 207E+21
ROW 11	52 0	2 328E+14	4 010E+21
LONGERON	67 0	1 473E+14	2 539E+21
ROW 12	82 0	5 417E+13	9.326E+20
LONGERON	97 0	3 096E+12	4 830E+19
TOP	90 0	1 695E+13	2 822E+20
BOTTOM	90 0	1 695E+13	2.822E+20
RAM DIR	0	3 795E+14	6 531E+21

```
**************************************
*MONTH   11   DAY.  24   YEAR   89     *
*DAY OF YEAR.  328                     *
*CUMULATIVE EXPOSURE TIME  2056  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          381 70
     PERIGEE (KM ABOVE EARTH)                         360 80
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        65750
     LOCAL SOLAR (EPOCH) TIME (HMS)                 3 22 38
     ASCENDING NODE LONGITUDE (DEGREES EAST)          136 70
     ARGUEMENT OF PERIGEE (DEGREES)                    24 90

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6751250 00
     SEMIMINOR AXIS (M)                               6751241 91
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5518 77
     ENERGY (JOULE)                                  -2 954E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 189E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89328
     3 MONTH AVERAGE F10 7 CM FLUX           224 00
     DAILY AVERAGE F10 7 CM FLUX             220 00
     DAILY MAGNETIC INDEX AP                   7 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89328       5 004E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89328       9 623E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89328    998 1 TO   1515 5 K
```

****
DATA FOR 89328
24 NOVEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	9 623E+09	9 540E+16
LONGERON	127 0	2 252E+06	1.459E+13
ROW 2	142 0	1 847E+02	1 058E+09
LONGERON	157 0	4 629E-02	3 197E+05
ROW 3	172 0	2 725E-04	2 949E+03
LONGERON	173 0	1 373E-04	2 712E+03
ROW 4	158 0	7 114E-03	2 494E+05
LONGERON	143 0	1 437E+01	7 155E+08
ROW 5	128 0	1 866E+05	9 173E+12
LONGERON	113 0	2 086E+09	6 310E+16
ROW 6	98 0	1 984E+12	3 954E+19
LONGERON	83 0	4 673E+13	8 883E+20
ROW 7	68 0	1 354E+14	2 545E+21
LONGERON	53 0	2 179E+14	4 078E+21
ROW 8	38 0	2.856E+14	5 333E+21
LONGERON	23 0	3 339E+14	6 225E+21
ROW 9	8 0	3 594E+14	6.692E+21
LONGERON	7 0	3 604E+14	6.704E+21
ROW 10	22 0	3 368E+14	6 258E+21
LONGERON	37 0	2 903E+14	5 387E+21
ROW 11	52 0	2 240E+14	4 148E+21
LONGERON	67.0	1 425E+14	2.626E+21
ROW 12	82.0	5 319E+13	9.651E+20
LONGERON	97 0	3 182E+12	5 020E+19
TOP	90 0	1 603E+13	2 922E+20
BOTTOM	90 0	1 603E+13	2 922E+20
RAM DIR	0	3 630E+14	6 756E+21

```
**************************************
*MONTH· 11   DAY. 29   YEAR  89     *
*DAY OF YEAR  333                   *
*CUMULATIVE EXPOSURE TIME  2061  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          379.00
     PERIGEE (KM ABOVE EARTH)                         358 10
     INCLINATION OF ORBIT (DEGREES)                    28 53
     GMT (EPOCH) TIME (SECONDS)                        40522
     LOCAL SOLAR (EPOCH) TIME (HMS)                  0 47 22
     ASCENDING NODE LONGITUDE (DEGREES EAST)          203 00
     ARGUEMENT OF PERIGEE (DEGREES)                    30 70

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6748550 00
     SEMIMINOR AXIS (M)                               6748541 91
     ECCENTRICITY                                           002
     PERIOD (SEC)                                        5515 46
     ENERGY (JOULE)                                   -2 955E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 188E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                        89333
     3 MONTH AVERAGE F10 7 CM FLUX                224 00
     DAILY AVERAGE F10 7 CM FLUX                  220 00
     DAILY MAGNETIC INDEX AP                        7 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89333       5 044E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89333.      9 020E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89333    994 7 TO   1543 2 K
```

****
DATA FOR: 89333
29 NOVEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	9 020E+09	9 943E+16
LONGERON	127 0	1 989E+06	1 551E+13
ROW 2	142 0	1 682E+02	1 134E+09
LONGERON	157 0	4 888E-02	3.403E+05
ROW 3	172 0	3 588E-04	3.086E+03
LONGERON	173 0	2 236E-04	2.790E+03
ROW 4	158 0	1 316E-02	2 538E+05
LONGERON	143 0	2 649E+01	7 243E+08
ROW 5	128 0	2 963E+05	9 277E+12
LONGERON	113 0	2 530E+09	6 410E+16
ROW 6	98 0	2 022E+12	4 040E+19
LONGERON	83 0	4 690E+13	9 085E+20
ROW 7	68 0	1 363E+14	2 603E+21
LONGERON	53 0	2 195E+14	4 172E+21
ROW 8	38 0	2 878E+14	5 457E+21
LONGERON	23 0	3 365E+14	6 370E+21
ROW 9	8 0	3.623E+14	6 848E+21
LONGERON	7.0	3 634E+14	6.860E+21
ROW 10	22 0	3 397E+14	6 405E+21
LONGERON	37 0	2 929E+14	5 513E+21
ROW 11	52 0	2 261E+14	4 245E+21
LONGERON	67 0	1.439E+14	2 688E+21
ROW 12	82 0	5 387E+13	9 882E+20
LONGERON	97 0	3 204E+12	5 158E+19
TOP	90 0	1 616E+13	2 991E+20
BOTTOM	90 0	1 616E+13	2 991E+20
RAM DIR	0	3 660E+14	6 913E+21

```
**************************************
*MONTH.  12   DAY.   6   YEAR   89     *
*DAY OF YEAR   340                     *
*CUMULATIVE EXPOSURE TIME  2068  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          372 90
     PERIGEE (KM ABOVE EARTH)                         355 60
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        39917
     LOCAL SOLAR (EPOCH) TIME (HMS)                20 56 29
     ASCENDING NODE LONGITUDE (DEGREES EAST)          147 80
     ARGUEMENT OF PERIGEE (DEGREES)                    35 50

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6744250 00
     SEMIMINOR AXIS (M)                               6744244 45
     ECCENTRICITY                                           001
     PERIOD (SEC)                                        5510 19
     ENERGY (JOULE)                                   -2 957E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 187E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89340
     3 MONTH AVERAGE F10 7 CM FLUX            224 00
     DAILY AVERAGE F10 7 CM FLUX              224 00
     DAILY MAGNETIC INDEX AP                   19 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89340       5 608E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89340       7 685E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89340   1008 1 TO   1587 0 K
```

****
DATA FOR. 89340
6 DECEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 685E+09	1 045E+17
LONGERON	127 0	1 452E+06	1 655E+13
ROW 2	142 0	1 356E+02	1 226E+09
LONGERON	157 0	5 519E-02	3.718E+05
ROW 3	172 0	6 449E-04	3.389E+03
LONGERON	173 0	6 274E-04	3 047E+03
ROW 4	158 0	4 973E-02	2 728E+05
LONGERON	143 0	1 068E+02	7 646E+08
ROW 5	128 0	9 674E+05	9 659E+12
LONGERON	113 0	4 904E+09	6.635E+16
ROW 6	98 0	2 509E+12	4 178E+19
LONGERON	83 0	5 287E+13	9.387E+20
ROW 7	68 0	1 524E+14	2.691E+21
LONGERON	53 0	2 449E+14	4 313E+21
ROW 8	38 0	3.207E+14	5 641E+21
LONGERON	23 0	3 746E+14	6 585E+21
ROW 9	8 0	4 031E+14	7 080E+21
LONGERON	7 0	4 040E+14	7 092E+21
ROW 10	22 0	3 775E+14	6 621E+21
LONGERON	37 0	3 252E+14	5 700E+21
ROW 11	52 0	2 507E+14	4 389E+21
LONGERON	67 0	1 592E+14	2.780E+21
ROW 12	82 0	5 930E+13	1 022E+21
LONGERON	97 0	3 401E+12	5 357E+19
TOP	90 0	1 812E+13	3 095E+20
BOTTOM	90 0	1 812E+13	3 095E+20
RAM DIR	0	4 071E+14	7 147E+21

```
**************************************
*MONTH:  12   DAY   13   YEAR   89     *
*DAY OF YEAR:  347                     *
*CUMULATIVE EXPOSURE TIME. 2075  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
      APOGEE (KM ABOVE EARTH)                          376.80
      PERIGEE (KM ABOVE EARTH)                         353 60
      INCLINATION OF ORBIT (DEGREES)                    28.52
      GMT (EPOCH) TIME (SECONDS)                        11405
      LOCAL SOLAR (EPOCH) TIME (HMS)                17 17 17
      ASCENDING NODE LONGITUDE (DEGREES EAST)          211 80
      ARGUEMENT OF PERIGEE (DEGREES)                    25 40

 CONSTANTS
      RADIUS OF EARTH (M)                              6 38E+06
      MASS OF EARTH (KG)                               5 98E+24
      GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
      SEMIMAJOR AXIS (M)                               6745200 00
      SEMIMINOR AXIS (M)                               6745190.03
      ECCENTRICITY                                            002
      PERIOD (SEC)                                       5511 36
      ENERGY (JOULE)                                  -2.957E+07
      ANGULAR MOMENTUM (JOULE-SEC)                     5 187E+10

 SOLAR AND GEOMAGNETIC DATA
      YEAR AND DAY (YYDDD)                        89347
      3 MONTH AVERAGE F10 7 CM FLUX                217 00
      DAILY AVERAGE F10 7 CM FLUX                  204 00
      DAILY MAGNETIC INDEX AP                       12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89347        4 845E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89347        3 877E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89347   1003 3 TO   1477 0 K
```

****
DATA FOR 89347
13 DECEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 877E+09	1.080E+17
LONGERON	127 0	3 866E+05	1 710E+13
ROW 2	142 0	2.027E+01	1 273E+09
LONGERON	157 0	5 601E-03	3 901E+05
ROW 3	172 0	6 223E-05	3 603E+03
LONGERON	173 0	8 287E-05	3.262E+03
ROW 4	158 0	1 174E-02	2 914E+05
LONGERON	143.0	4 963E+01	8 119E+08
ROW 5	128 0	7 938E+05	1 019E+13
LONGERON	113 0	5 065E+09	6 936E+16
ROW 6	98 0	2 368E+12	4 325E+19
LONGERON	83 0	4 700E+13	9 689E+20
ROW 7	68 0	1 332E+14	2 777E+21
LONGERON	53 0	2 129E+14	4 451E+21
ROW 8	38.0	2 781E+14	5 822E+21
LONGERON	23 0	3 244E+14	6 796E+21
ROW 9	8 0	3 485E+14	7 307E+21
LONGERON	7 0	3 489E+14	7.320E+21
ROW 10	22 0	3.256E+14	6 834E+21
LONGERON	37 0	2 800E+14	5.883E+21
ROW 11	52 0	2 153E+14	4.530E+21
LONGERON	67.0	1 360E+14	2.869E+21
ROW 12	82 0	4 979E+13	1 055E+21
LONGERON	97 0	2 594E+12	5.539E+19
TOP	90 0	1 557E+13	3 197E+20
BOTTOM	90 0	1 557E+13	3.197E+20
RAM DIR	0	3 517E+14	7 377E+21

```
****************************************
*MONTH   12   DAY   20   YEAR   89      *
*DAY OF YEAR   354                      *
*CUMULATIVE EXPOSURE TIME  2082  DAYS   *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          365 30
     PERIGEE (KM ABOVE EARTH)                         348 40
     INCLINATION OF ORBIT (DEGREES)                    28 51
     GMT (EPOCH) TIME (SECONDS)                        37238
     LOCAL SOLAR (EPOCH) TIME (HMS)                 13 16 38
     ASCENDING NODE LONGITUDE (DEGREES EAST)           44 00
     ARGUEMENT OF PERIGEE (DEGREES)                    12 80

 CONSTANTS
     RADIUS OF EARTH (M)                             6 38E+06
     MASS OF EARTH (KG)                              5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)           6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                              6736850 00
     SEMIMINOR AXIS (M)                              6736844 70
     ECCENTRICITY                                           001
     PERIOD (SEC)                                       5501 13
     ENERGY (JOULE)                                  -2 960E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 184E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89354
     3 MONTH AVERAGE F10 7 CM FLUX            212 00
     DAILY AVERAGE F10 7 CM FLUX              167 00
     DAILY MAGNETIC INDEX AP                    9 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89354       4 341E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89354       1 653E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89354    967 6 TO   1321 5 K
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****
DATA FOR· 89354
20 DECEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 653E+09	1 097E+17
LONGERON	127.0	5 351E+04	1.724E+13
ROW 2	142 0	9 281E-01	1.279E+09
LONGERON	157 0	1 123E-04	3 919E+05
ROW 3	172.0	8 255E-07	3.622E+03
LONGERON	173 0	1 226E-06	3.287E+03
ROW 4	158 0	3 250E-04	2 950E+05
LONGERON	143 0	3 716E+00	8 281E+08
ROW 5	128 0	1 779E+05	1.049E+13
LONGERON	113 0	2 730E+09	7 172E+16
ROW 6	98.0	1 956E+12	4 456E+19
LONGERON	83 0	4 240E+13	9 959E+20
ROW 7	68 0	1 200E+14	2 854E+21
LONGERON	53 0	1 914E+14	4 573E+21
ROW 8	38 0	2 498E+14	5.982E+21
LONGERON	23 0	2 911E+14	6.982E+21
ROW 9	8 0	3 126E+14	7 507E+21
LONGERON	7 0	3 128E+14	7.520E+21
ROW 10	22 0	2 917E+14	7 021E+21
LONGERON	37 0	2 507E+14	6.043E+21
ROW 11	52 0	1 926E+14	4.653E+21
LONGERON	67 0	1 214E+14	2 947E+21
ROW 12	82 0	4 389E+13	1 084E+21
LONGERON	97.0	1 993E+12	5.677E+19
TOP	90 0	1 349E+13	3.285E+20
BOTTOM	90 0	1 349E+13	3.285E+20
RAM DIR	0	3 154E+14	7 578E+21

```
****************************************
*MONTH   12   DAY   27   YEAR   89     *
*DAY OF YEAR   361                     *
*CUMULATIVE EXPOSURE TIME  2089  DAYS  *
****************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          362 30
     PERIGEE (KM ABOVE EARTH)                         341 50
     INCLINATION OF ORBIT (DEGREES)                    28 51
     GMT (EPOCH) TIME (SECONDS)                        67910
     LOCAL SOLAR (EPOCH) TIME (HMS)                 9 12 38
     ASCENDING NODE LONGITUDE (DEGREES EAST)          215 20
     ARGUEMENT OF PERIGEE (DEGREES)                    17 00

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6731900 00
     SEMIMINOR AXIS (M)                               6731891 97
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5495 07
     ENERGY (JOULE)                                  -2 963E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 182E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89361
     3 MONTH AVERAGE F10 7 CM FLUX            214 00
     DAILY AVERAGE F10.7 CM FLUX              200 00
     DAILY MAGNETIC INDEX AP                   10 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89361       5 133E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89361       3 604E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89361   1059 9 TO   1348 8 K
```

****
DATA FOR. 89361
27 DECEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 604E+09	1 112E+17
LONGERON	127 0	2 255E+05	1 732E+13
ROW 2	142 0	5 341E+00	1 281E+09
LONGERON	157 0	6 059E-04	3 921E+05
ROW 3	172 0	3 127E-06	3 623E+03
LONGERON	173 0	2 781E-06	3 289E+03
ROW 4	158 0	4 400E-04	2 953E+05
LONGERON	143 0	3 472E+00	8 302E+08
ROW 5	128 0	1 498E+05	1 058E+13
LONGERON	113 0	2 696E+09	7 336E+16
ROW 6	98 0	2 272E+12	4 584E+19
LONGERON	83 0	4 980E+13	1 024E+21
ROW 7	68 0	1 414E+14	2 933E+21
LONGERON	53.0	2 259E+14	4 700E+21
ROW 8	38 0	2 951E+14	6 146E+21
LONGERON	23 0	3 442E+14	7 174E+21
ROW 9	8 0	3 698E+14	7.713E+21
LONGERON	7 0	3 702E+14	7 727E+21
ROW 10	22 0	3 453E+14	7 213E+21
LONGERON	37 0	2 970E+14	6 209E+21
ROW 11	52 0	2 284E+14	4 781E+21
LONGERON	67 0	1 442E+14	3 027E+21
ROW 12	82 0	5 253E+13	1 113E+21
LONGERON	97 0	2 648E+12	5.818E+19
TOP	90 0	1 620E+13	3 375E+20
BOTTOM	90 0	1 620E+13	3 375E+20
RAM DIR	0	3 732E+14	7 787E+21

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**************************************
*MONTH   12   DAY   31   YEAR   89     *
*DAY OF YEAR   365                     *
*CUMULATIVE EXPOSURE TIME· 2093  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          359 50
     PERIGEE (KM ABOVE EARTH)                         338 00
     INCLINATION OF ORBIT (DEGREES)                    28 51
     GMT (EPOCH) TIME (SECONDS)                        56160
     LOCAL SOLAR (EPOCH) TIME (HMS)                 7  4  0
     ASCENDING NODE LONGITUDE (DEGREES EAST)          232 00
     ARGUEMENT OF PERIGEE (DEGREES)                    23 60

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6728750 00
     SEMIMINOR AXIS (M)                               6728741 41
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5491 21
     ENERGY (JOULE)                                  -2 964E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 181E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    89365
     3 MONTH AVERAGE F10 7 CM FLUX            214 00
     DAILY AVERAGE F10 7 CM FLUX              251.00
     DAILY MAGNETIC INDEX AP                   20 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   89365       6 320E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   89365       8 663E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    89365   1096.6 TO   1465 2 K
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****
DATA FOR 89365
31 DECEMBER 1989
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	8 663E+09	1 134E+17
LONGERON	127 0	1 379E+06	1 760E+13
ROW 2	142 0	7 992E+01	1 296E+09
LONGERON	157 0	1 595E-02	3.949E+05
ROW 3	172 0	9 002E-05	3.639E+03
LONGERON	173 0	5 383E-05	3 298E+03
ROW 4	158 0	3 981E-03	2 960E+05
LONGERON	143 0	1 278E+01	8 330E+08
ROW 5	128 0	2 636E+05	1 066E+13
LONGERON	113 0	3 540E+09	7 444E+16
ROW 6	98 0	2 866E+12	4 672E+19
LONGERON	83 0	6 114E+13	1.043E+21
ROW 7	68.0	1 735E+14	2 987E+21
LONGERON	53 0	2 777E+14	4 787E+21
ROW 8	38 0	3.630E+14	6.260E+21
LONGERON	23 0	4 236E+14	7 307E+21
ROW 9	8 0	4 552E+14	7 856E+21
LONGERON	7 0	4 559E+14	7 869E+21
ROW 10	22 0	4.255E+14	7 347E+21
LONGERON	37 0	3 661E+14	6.323E+21
ROW 11	52 0	2 817E+14	4 869E+21
LONGERON	67 0	1 782E+14	3 083E+21
ROW 12	82 0	6 536E+13	1 133E+21
LONGERON	97 0	3 682E+12	5 927E+19
TOP	90 0	2 041E+13	3 438E+20
BOTTOM	90 0	2 041E+13	3 438E+20
RAM DIR	0	4 595E+14	7 931E+21

```
**************************************
*MONTH    1   DAY   10   YEAR   90     *
*DAY OF YEAR:   10                     *
*CUMULATIVE EXPOSURE TIME  2104  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          352 00
     PERIGEE (KM ABOVE EARTH)                         331 70
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        77846
     LOCAL SOLAR (EPOCH) TIME (HMS)                 1 24 14
     ASCENDING NODE LONGITUDE (DEGREES EAST)           56.70
     ARGUEMENT OF PERIGEE (DEGREES)                    36 30

 CONSTANTS
     RADIUS OF EARTH (M)                              6.38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6721850 00
     SEMIMINOR AXIS (M)                               6721842 34
     ECCENTRICITY                                            002
     PERIOD (SEC)                                        5482 76
     ENERGY (JOULE)                                   -2 967E+07
     ANGULAR MOMENTUM (JOULE-SEC)                      5 178E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    90010
     3 MONTH AVERAGE F10 7 CM FLUX           212 00
     DAILY AVERAGE F10.7 CM FLUX             192.00
     DAILY MAGNETIC INDEX AP                  15 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   90010       5 936E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   90010       7 639E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE    90010    936 9 TO   1465 7 K
```

****
DATA FOR 90010
10 JANUARY 1990
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 639E+09	1 206E+17
LONGERON	127 0	1 151E+06	1 872E+13
ROW 2	142 0	6 118E+01	1 358E+09
LONGERON	157 0	1 153E-02	4 071E+05
ROW 3	172 0	6 327E-05	3 707E+03
LONGERON	173.0	3 671E-05	3 338E+03
ROW 4	158 0	2 561E-03	2 989E+05
LONGERON	143 0	7 454E+00	8 420E+08
ROW 5	128 0	1 350E+05	1 083E+13
LONGERON	113 0	1 905E+09	7 685E+16
ROW 6	98 0	2 166E+12	4 895E+19
LONGERON	83 0	5 533E+13	1 095E+21
ROW 7	68 0	1 611E+14	3 135E+21
LONGERON	53 0	2 593E+14	5 024E+21
ROW 8	38.0	3 398E+14	6 571E+21
LONGERON	23 0	3 972E+14	7 670E+21
ROW 9	8 0	4.275E+14	8 247E+21
LONGERON	7 0	4 286E+14	8 261E+21
ROW 10	22 0	4 006E+14	7 712E+21
LONGERON	37 0	3 453E+14	6 638E+21
ROW 11	52 0	2 664E+14	5 112E+21
LONGERON	67 0	1.694E+14	3 237E+21
ROW 12	82 0	6 298E+13	1 190E+21
LONGERON	97 0	3 432E+12	6 242E+19
TOP	90 0	1 851E+13	3 610E+20
BOTTOM	90 0	1 851E+13	3 610E+20
RAM DIR	0	4 318E+14	8 325E+21

```
**************************************
*MONTH.   1   DAY   12   YEAR   90     *
*DAY OF YEAR.   12                     *
*CUMULATIVE EXPOSURE TIME  2106  DAYS  *
**************************************

 INPUT ORBITAL PARAMETERS
     APOGEE (KM ABOVE EARTH)                          350 80
     PERIGEE (KM ABOVE EARTH)                         330 50
     INCLINATION OF ORBIT (DEGREES)                    28 52
     GMT (EPOCH) TIME (SECONDS)                        77846
     LOCAL SOLAR (EPOCH) TIME (HMS)                 1 24 14
     ASCENDING NODE LONGITUDE (DEGREES EAST)           56 70
     ARGUEMENT OF PERIGEE (DEGREES)                    36 30

 CONSTANTS
     RADIUS OF EARTH (M)                              6 38E+06
     MASS OF EARTH (KG)                               5 98E+24
     GRAVITATIONAL CONSTANT (N M**2/KG**2)            6 67E-11

 CALCULATED PARAMETERS FOR THIS ORBIT
     SEMIMAJOR AXIS (M)                               6720650 00
     SEMIMINOR AXIS (M)                               6720642.34
     ECCENTRICITY                                           002
     PERIOD (SEC)                                        5481 30
     ENERGY (JOULE)                                  -2 967E+07
     ANGULAR MOMENTUM (JOULE-SEC)                     5 177E+10

 SOLAR AND GEOMAGNETIC DATA
     YEAR AND DAY (YYDDD)                    90012
     3 MONTH AVERAGE F10 7 CM FLUX           209.00
     DAILY AVERAGE F10 7 CM FLUX             167 00
     DAILY MAGNETIC INDEX AP                  12 00

 AVERAGE ATOMIC OXYGEN DENSITY FOR   256 POINTS ON ORBIT
   FOR THE DATE   90012        5 386E+08  ATOMS/CM**3

 AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR   256 POINTS ON ORBIT
   FOR THE DATE   90012        5 261E+09  IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR   256 POINTS ON ORBIT
   FOR THE DATE   90012    892 6 TO   1397 2 K
```

****
DATA FOR· 90012
 12 JANUARY 1990
****

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	5 261E+09	1 217E+17
LONGERON	127 0	5 430E+05	1 886E+13
ROW 2	142 0	1 843E+01	1 365E+09
LONGERON	157 0	2 334E-03	4 083E+05
ROW 3	172 0	1 006E-05	3 714E+03
LONGERON	173 0	5 696E-06	3 342E+03
ROW 4	158 0	4 852E-04	2 992E+05
LONGERON	143 0	2 043E+00	8 428E+08
ROW 5	128 0	5.715E+04	1 085E+13
LONGERON	113 0	1 192E+09	7 712E+16
ROW 6	98.0	1 790E+12	4 929E+19
LONGERON	83 0	4 988E+13	1.104E+21
ROW 7	68 0	1 460E+14	3.162E+21
LONGERON	53 0	2.351E+14	5 067E+21
ROW 8	38 0	3 082E+14	6 627E+21
LONGERON	23 0	3 603E+14	7 736E+21
ROW 9	8 0	3.879E+14	8 317E+21
LONGERON	7.0	3 890E+14	8.332E+21
ROW 10	22 0	3.636E+14	7 778E+21
LONGERON	37 0	3 134E+14	6 695E+21
ROW 11	52 0	2 419E+14	5.156E+21
LONGERON	67 0	1 538E+14	3 265E+21
ROW 12	82 0	5 712E+13	1 201E+21
LONGERON	97 0	2 930E+12	6 297E+19
TOP	90 0	1 641E+13	3 640E+20
BOTTOM	90 0	1 641E+13	3 640E+20
RAM DIR	0	3 918E+14	8.396E+21

End of Document