STATISTICAL ANALYSIS OF SKYLAB III

Prepared Under Contract NAS 9-13042

by

Dennis A. Johnston, Ph.D.

Principal Investigator

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1.0 Introduction

One of the principal projects of the contract NAS 9-13042 was to illustrate new applications of statistical and mathematical techniques to the analysis of NASA endocrine/metabolic studies [1,2]. To this end, two data management and retrieval systems [3], [4] have been developed.

Because of its length and completeness prior to the termination of the contract, Skylab III was chosen for representative analysis. This report documents the results of this analysis. The results and comments are based solely upon available data and do not represent a full, final, medical report of findings on Skylab III.

2.0 Analyses Performed

2.1 BASIC ANALYSIS

Several basic statistical tests, contrasts, and comparisons are made routinely when statistical analysis of a test is requested. These are documented in the system report [4]. The analyses were performed on each astronaut separately and consist of:

1. one-way analysis of variance (OWAV)* [5,6]

2. t-test contrasts (t CON) if the OWAV is significant (95% or more) [5,6]

3. Kruskal-Wallis (KW) type non-parametric analysis [7]

4. simple means and standard deviations with pre-, in-, and post-flight groupings. Data points outside two-sided 95% and 99% confidence intervals based upon normal distribution statistics were marked with +, or -, or ++, or -- respectively.

5. graphs of tests were selected.

2.2 TWO WAY UNBALANCED ANALYSIS OF VARIANCE

Two way unbalanced analyses of variance (TWUAV) [8] were performed on all tests with astronauts serving as one effect and pre-, in-, and post-flight as the other effect. These analyses were performed when at least two time groupings were available. A table of data available for this analysis and a summary of results are found in Appendix A.

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* These abreviations will be used in the results Section 3.

2.3 ONE WAY ANALYSIS OF COVARIANCE

To test for linear trend, one way analyses of covariance (OWAC) were performed on all tests with available in-flight readings. Julian date served as the covariate using astronauts as the population (or treatment groups). The analysis follows generally that of Brownlee [9, Chapter 11] (See also [10]). Individual slopes of the trend lines were calculated and tested as being significantly different from zero. The slopes were compared for equality.

A significant positive slope indicates an upward trend while a significant negative slope indicates a downward trend. The magnitude of the slope indicates the rate of change per day in the trend line. It should be indicated here that an upward (or downward) trend may be caused by low (high) readings early in-flight while the bulk of the readings show little or no trend. Either a curvilinear model (polynomial) should be used or the range on the time axis shortened to avoid such areas.

2.4 ANALYSIS OF PERIODIC CHANGES

Two methods were used to examine periodic change in-flight. Both methods use in-flight data corrected for linear trend as calculated in Section 2.3. The first method was autocorrelation analysis. In this method, correlations between the corrected in-flight data and the corrected in-flight data shifted (lagged) by from one to twenty-seven days. These correlations are approximately distributed as a Fishers Z-statistic [11, Chapter 4]. This fact was used to establish significant daily cycles.

The second method is that of Fourier Analysis. The Fast Fourier Transform routine FOURG [12] was used to calculate Fourier Transforms of the in-flight data. One problem with the Fourier Transform method is that all frequencies used are multiples of the fundamental frequency which is the reciprocal of the length; e.e., k/59 or k/60, k=1,2,...,59 or 60. This yields

periods of length 69/k or 60/k long, which are not even multiples of days long. The Fourier Transform is, of course, based upon sine and cosine functions which may not adequately represent the data. This, along with the difficulty of interpretation [13, Chapter 8], [14, Chapter 2] as relegated the Fourier results to a supportive and suggestive role in the analysis.

3.0 Results of Skylab III

Skylab III was the second manned mission in the Skylab series. Three crewmen, hereafter referred to as CDR, PLT, and SPT, were in space (in-flight) a total of sixty (60) days. Approximately eighteen (18) days pre-flight and eighteen (18) days post-flight were available for sampling. Samples of urine were made everyday and blood samples were taken according to a strict protocol (see, for example, [2]).

In this section we document the results of the analyses of Section 2 on a test by test basis. Blood test results are listed first followed by urine tests. Plots of the data are also given. Statistical significance is given in hundredths (.98 indicates there were statistically significant differences at the 98% significance level). Scheffe contrasts are given at the 95% significance level.

3.1 BLOOD PARAMETERS

SKYLAB 3   ACTH   TYPE 5   74/03/26.

CDR
48.50   28.72   40.33
12.40   14.38   18.71

JULIAN DATE

PLT
48.37   57.15   30.46
16.35   30.35   8.31

JULIAN DATE

SPT
48.65   28.66   73.50
21.22   19.49   51.98

JULIAN DATE
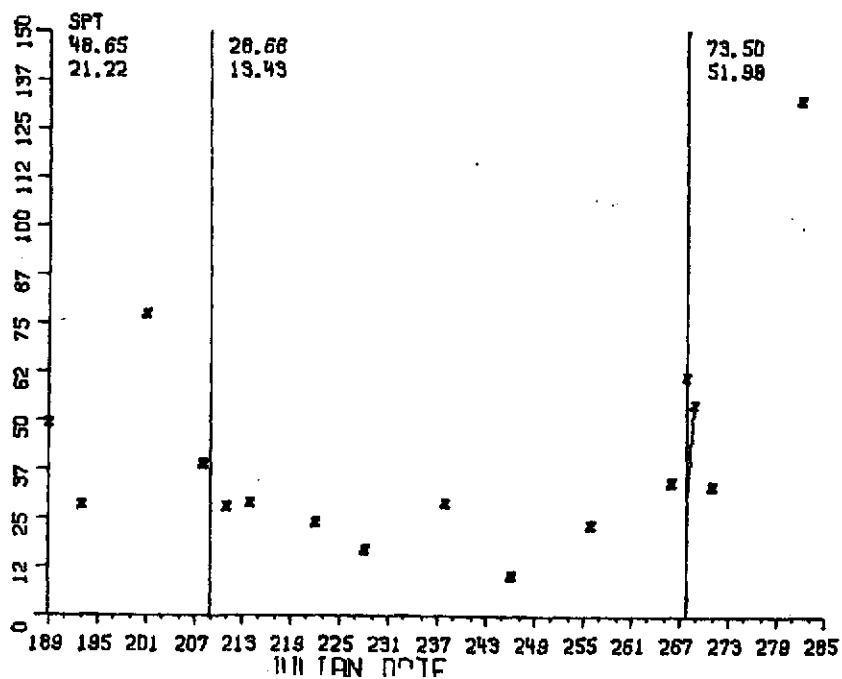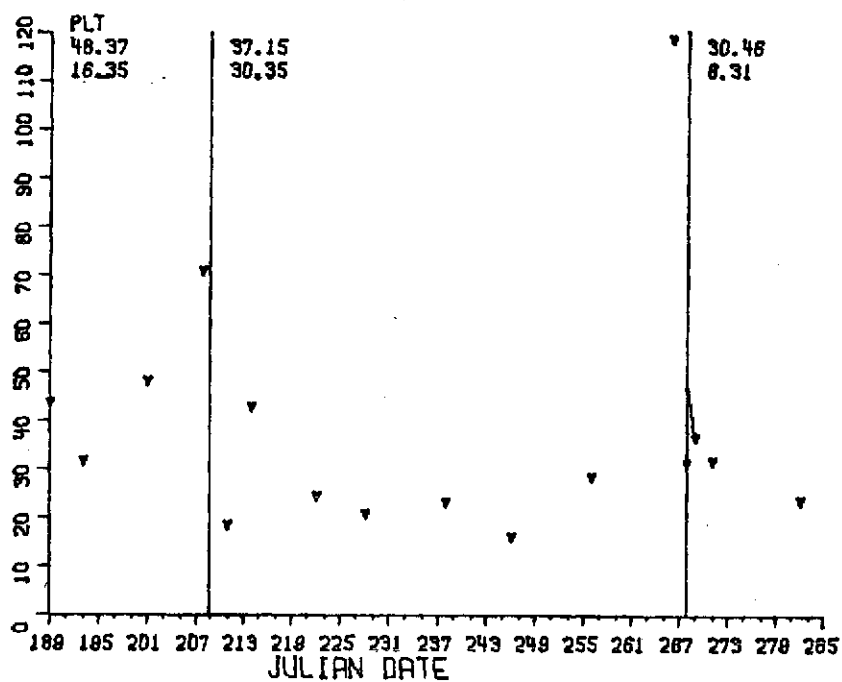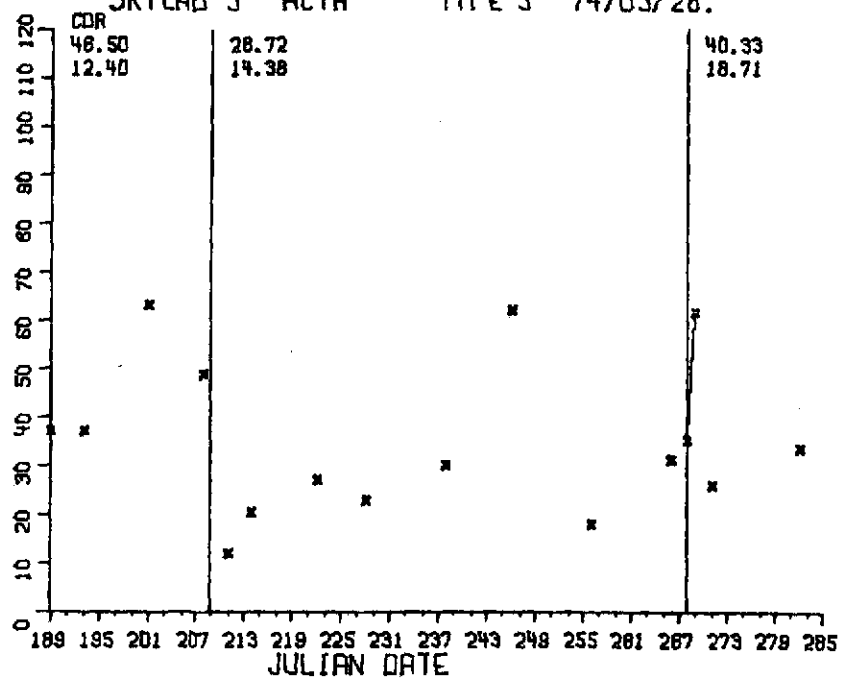
ACTH (Blood)

Data available throughout the period. Using the TWUAV a decrease in-
was observed with pre- and post- the same but was not quite significant (.948).
Individual OWAV show significant increase in- to post- on SPT which is the
reason for the near significance. Examination of the SPT data shows a read-
ing of 132.3 on day 282 which is a factor of two above any other value and
which is above the 99% interval.

No astronaut differences were observed.

No in-flight trends were observed.

SKYLAB 3 ALDO   TYPE 5   74/03/26.
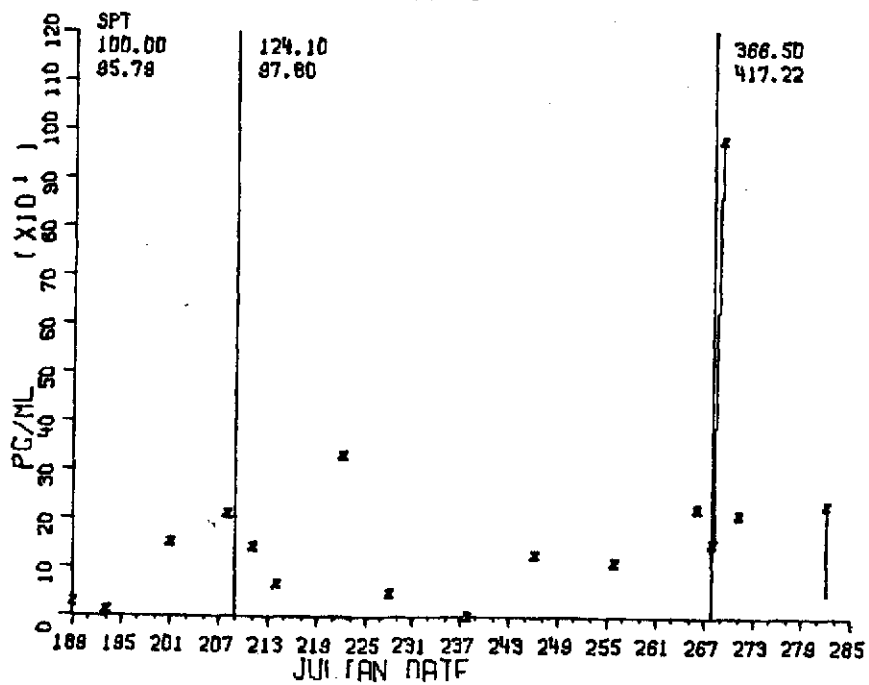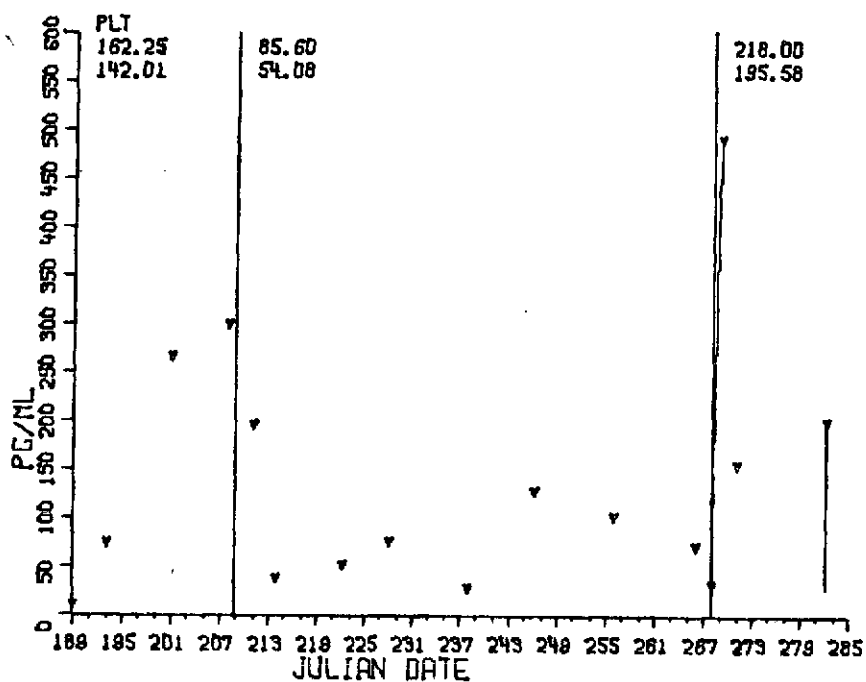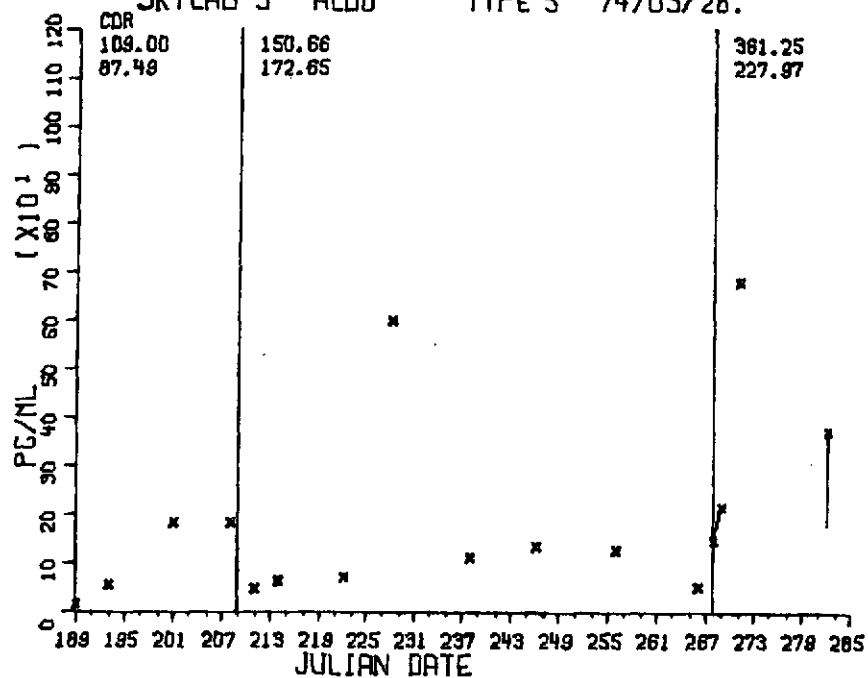
ALDO -- Aldosterone (Blood)

Data available throughout the period. No differences were observed in the individual analyses. No astronaut differences were observed in the TWUAV but a time difference was observed. Post- is significantly higher than pre- and in- which are determined to be the same. This increase post- is due main- ly to three data points -- a 680 on day 271 on CDR, a 490 on day 269 on PLT, and a 980 on day 269 on SPT. Several other points also appear remarkable. These are the 600 on day 228 on CDR, the readings immediate pre-flight on PLT, and the 330 on day 222 on SPT.

SKYLAB 3   ANGIO   TYPE 5   74/03/07.
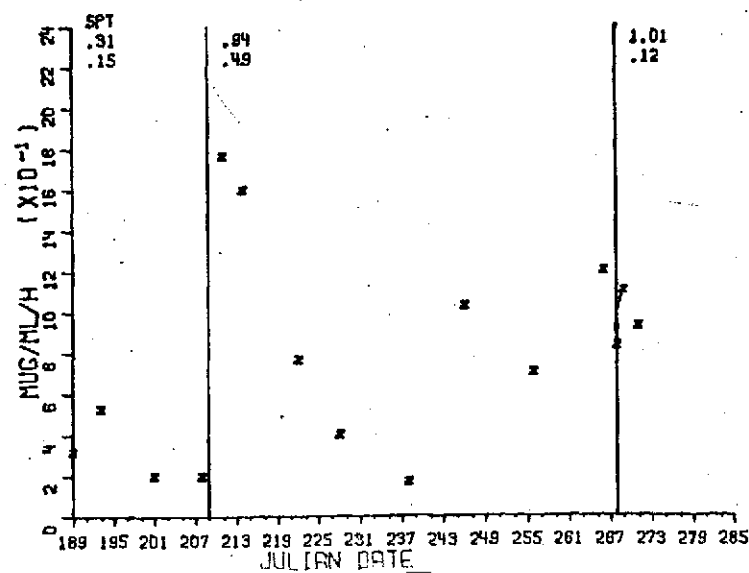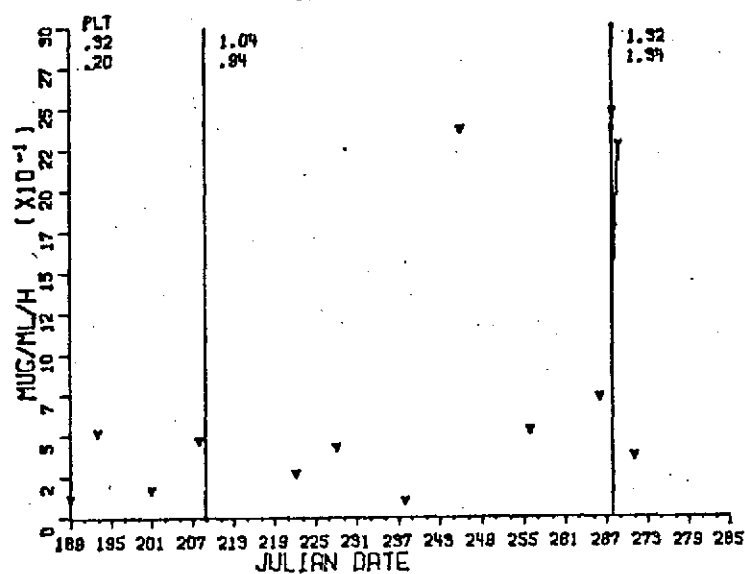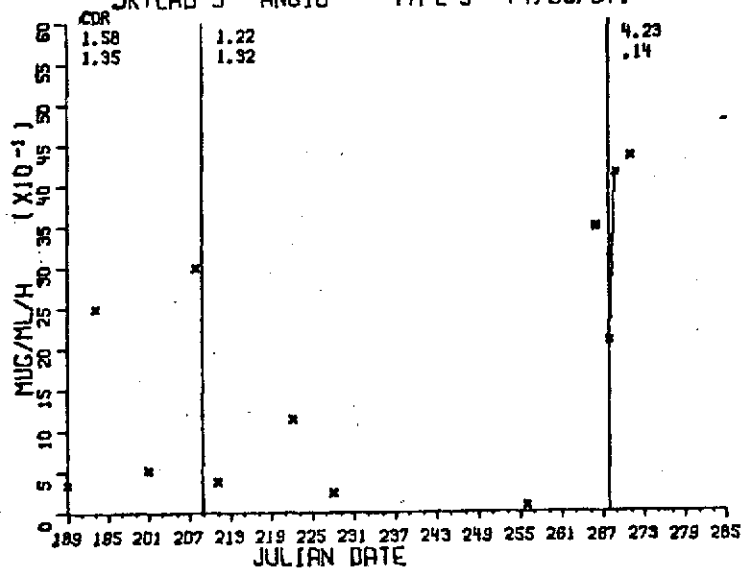
ANGIO -- Angiotensin (Blood)

Data available throughout the period. Statistically significant differences (.98) in time and astronauts (.98) were observed with considerable interaction (.96). Post- was judged to have significantly higher levels than pre- or in- which are judged the same. Observe the post- readings are all within four days of recovery. CDR was judged to have significantly higher levels than PLT or SPT which are judged the same.

This difference falls mainly pre- and post- on CDR for which the mean values are four to five times the PLT/SPT readings. CDR contrasts show post- significantly higher than pre- or in- which are judged the same. PLT does not show significant differences on individual OWAV but SPT shows near significance (.94). SPT exhibits considerable in-flight variation (.49) due to high readings at blastoff. PLT shows a remarkable point at day 246 (2.37) and at recovery. CDR shows remarkable points at both blastoff and recovery.

No in-flight trends were observed.

SKYLAB 3   HGH   TYPE 5   74/03/07.
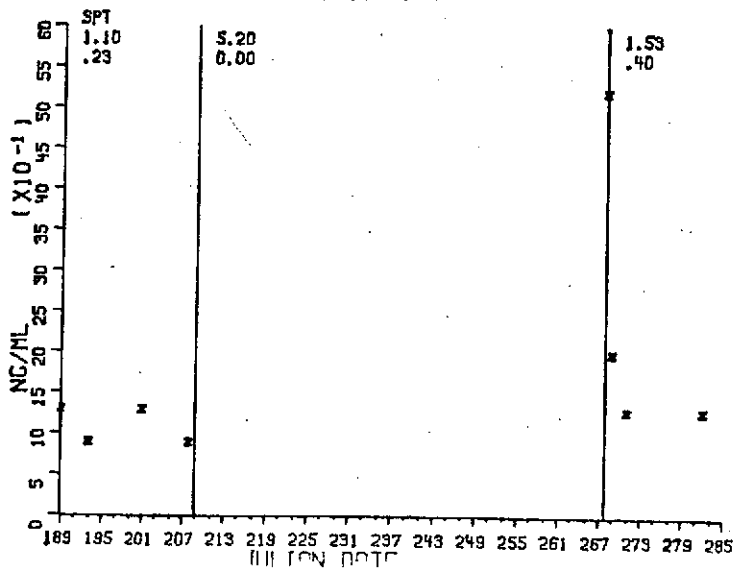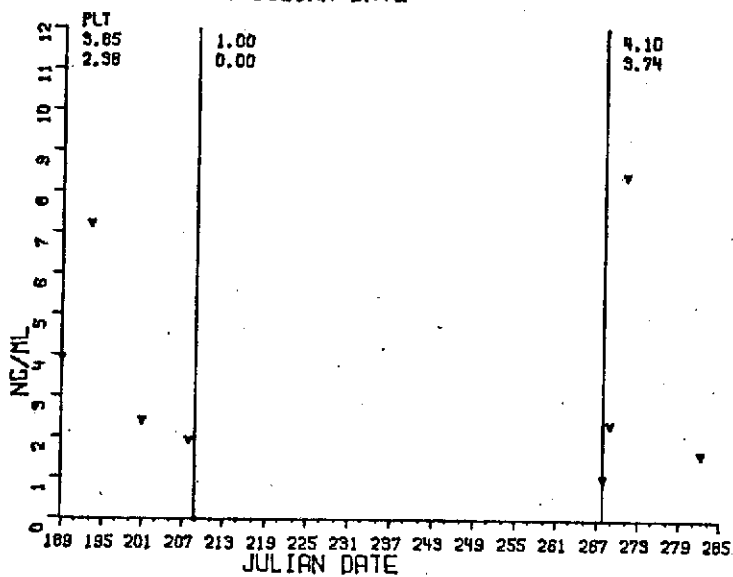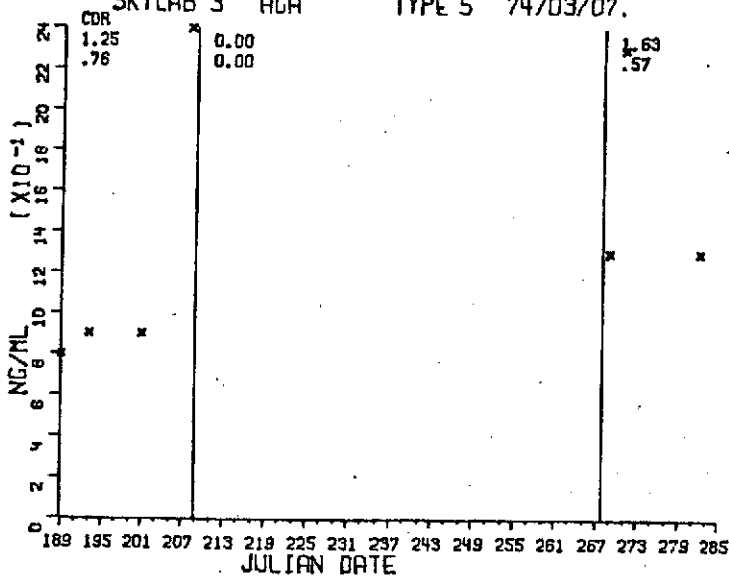
HGH -- Human Growth Hormone (Blood)

Data was available pre- and post- only. No differences pre- to post-
either individually or in the TWUAV. PLT was judged to have significantly
higher levels than CDR and SPT which were judged to have the same levels.
However, at least one data point on each man appeared considerably higher
and in two out of the three men exceeded at least two standard deviations of
the individual man means.

SKYLAB 3 HYDRO   TYPE 5   74/03/26.

18
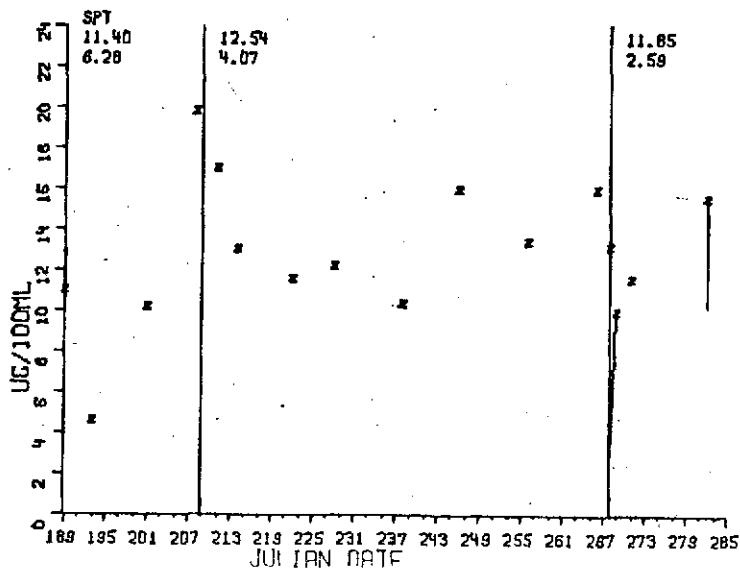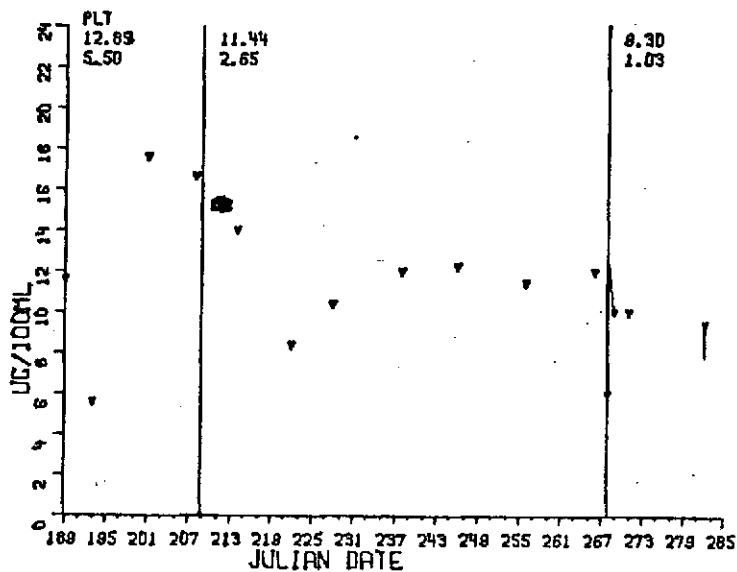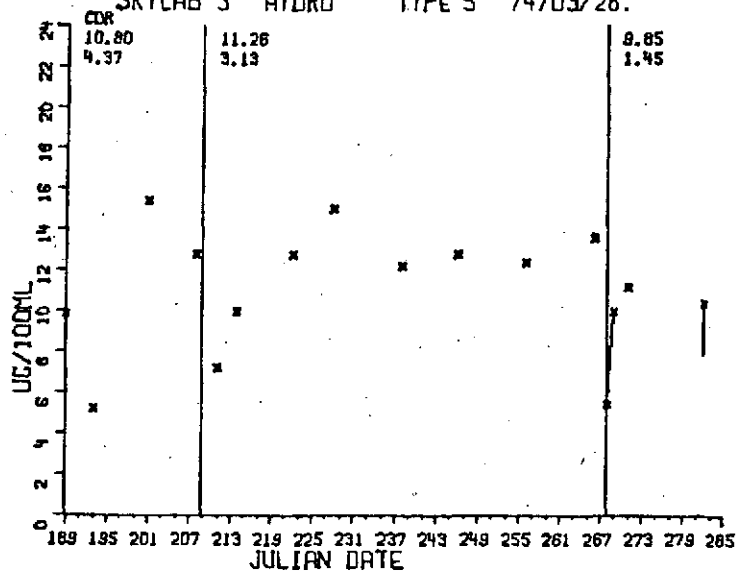
HYDRO -- Hydrocortisone (Blood)

Data available throughout the period. No differences observed on TWUAV or on individual analyses.

No in-flight trends were observed.

SKYLAB 3   INSULIN   TYPE S   74/03/07.
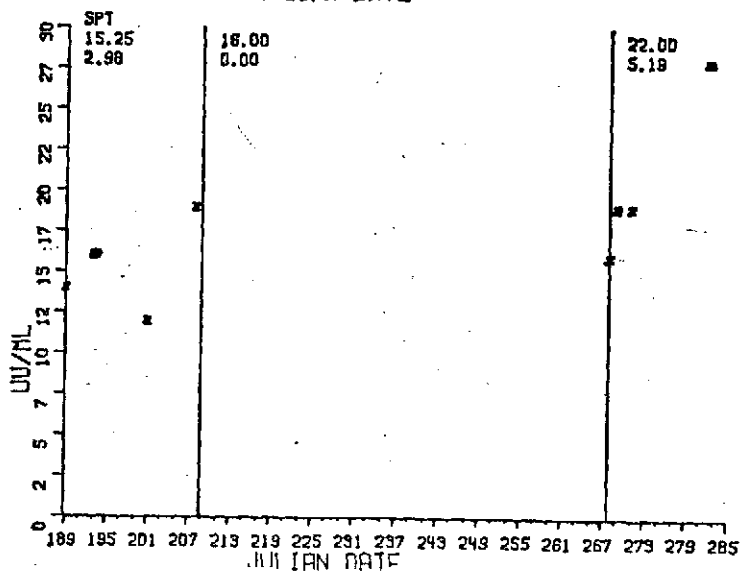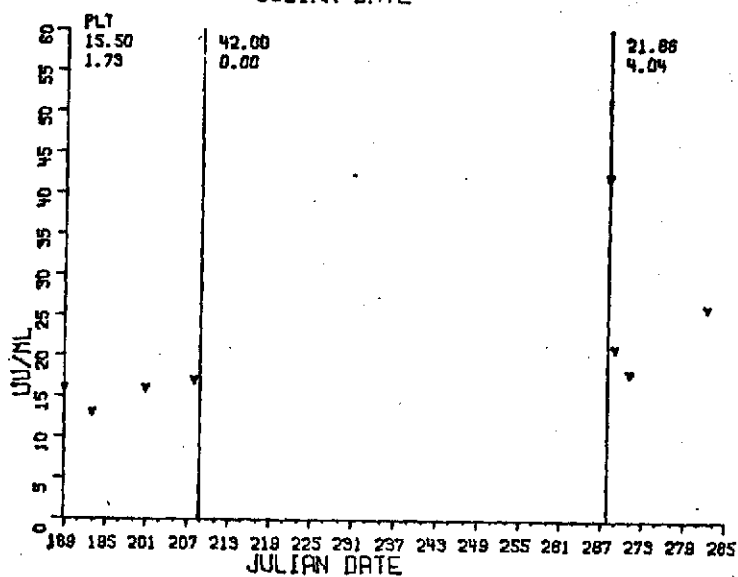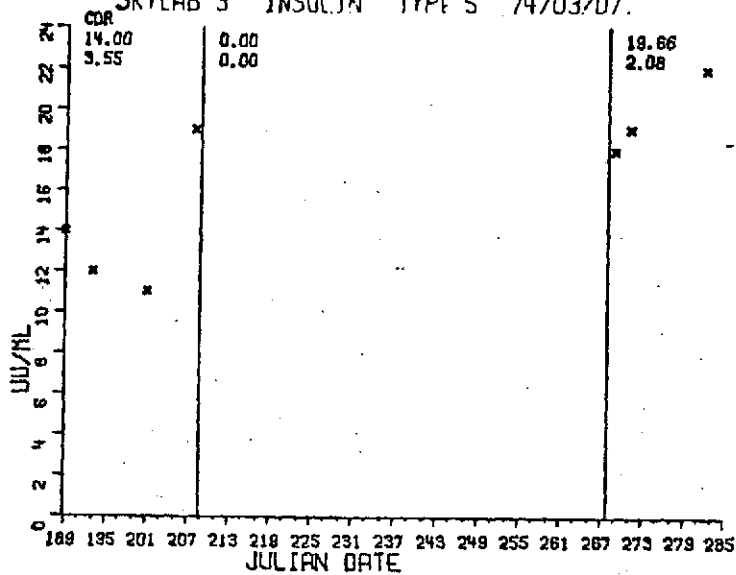
INSULIN (Blood)

Data available only pre- and post- with a significant increase (.999)
in insulin observed post-flight. The pattern holds on the individual OWAV
(.94, .96, .92).

SKYLAB 3   OSMO   TYPE 7   74/03/26.
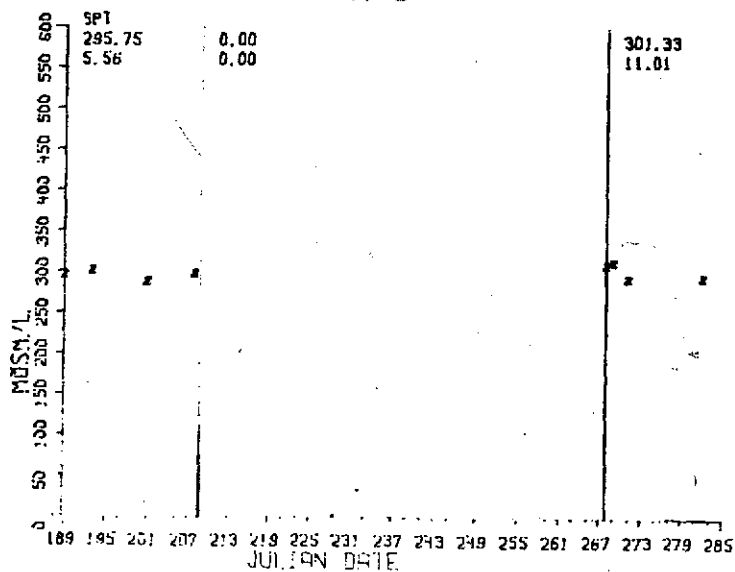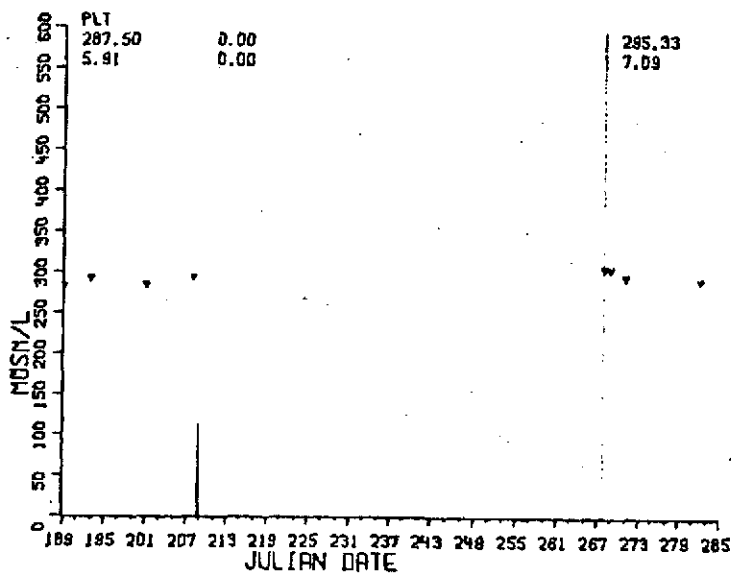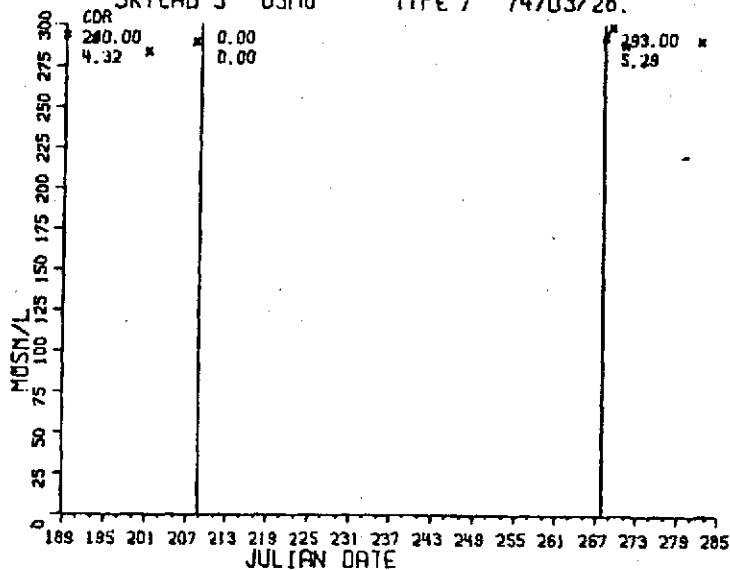
OSMO -- Osmolality (Blood)

Data available pre- and post-. No significant differences were observed.

SKYLAB 3   NA   TYPE 7   74/03/26.
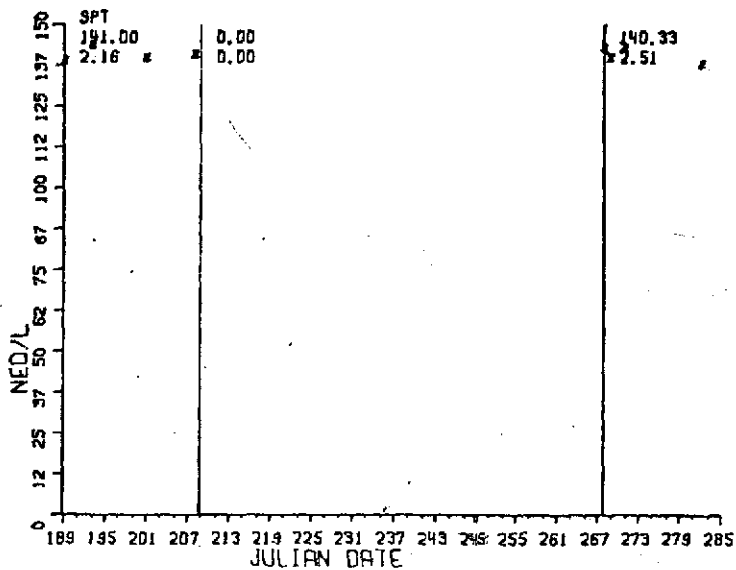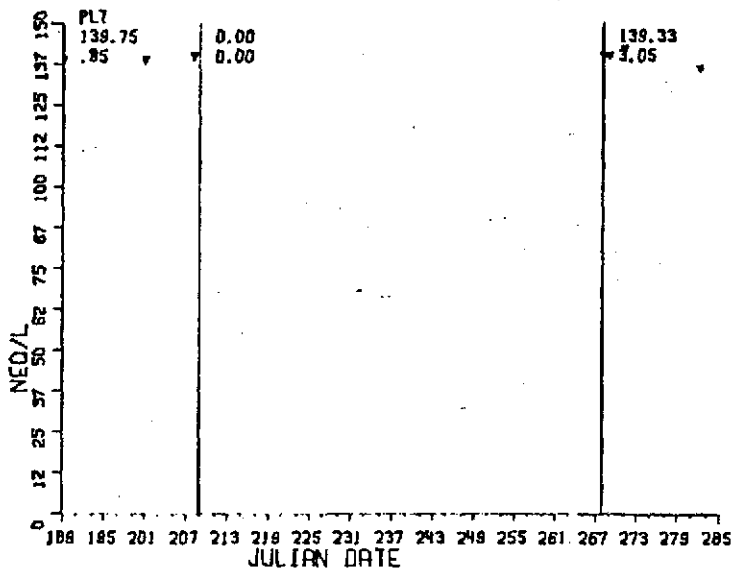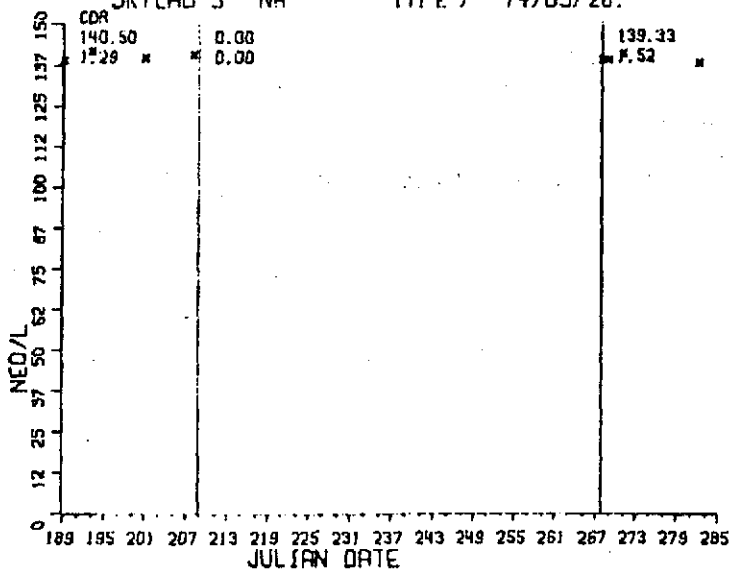
NA (Blood)

Data available pre- and post-flight only. No differences were observed.

SKYLAB 3   K   TYPE 7   74/03/26.

Figure with three plots, each showing NEO/L ((X10⁻¹)) versus JULIAN DATE.

Top plot (COR): 4.02 / .15 ; 0.00 / 0.00 ; 4.03 / .20

Middle plot (PLT): 4.12 / .22 ; 0.00 / 0.00 ; 3.86 / .05

Bottom plot (SPT): 4.00 / .08 ; 0.00 / 0.00 ; 3.93 / .05
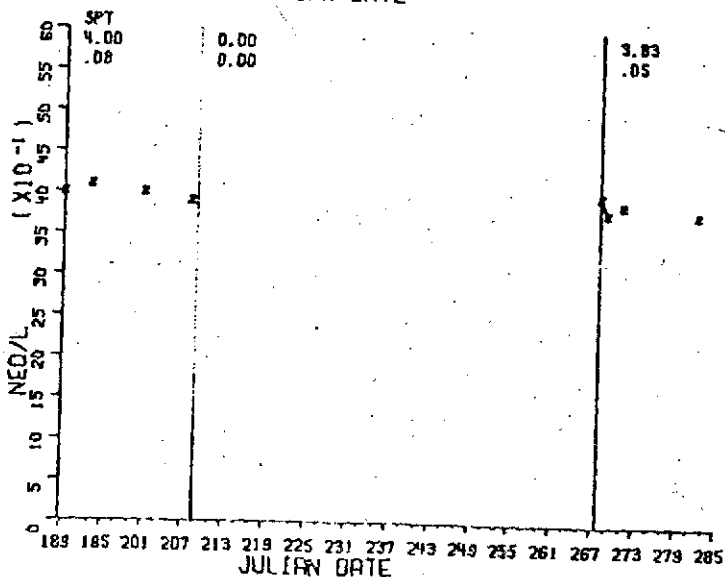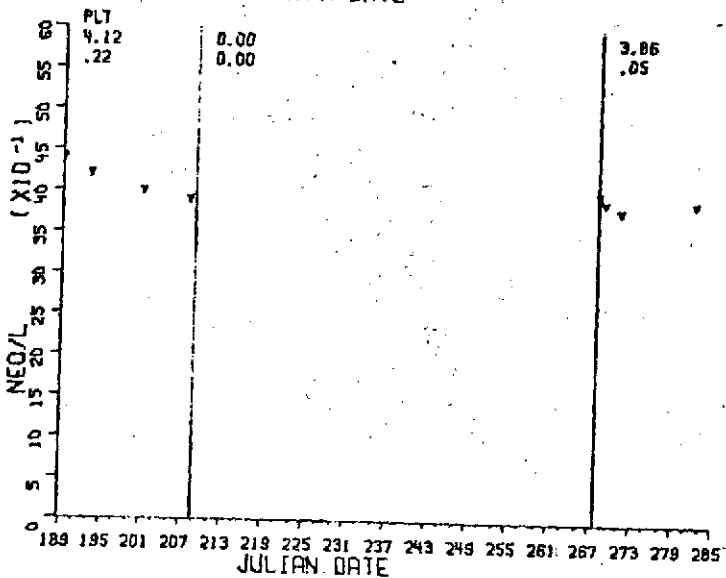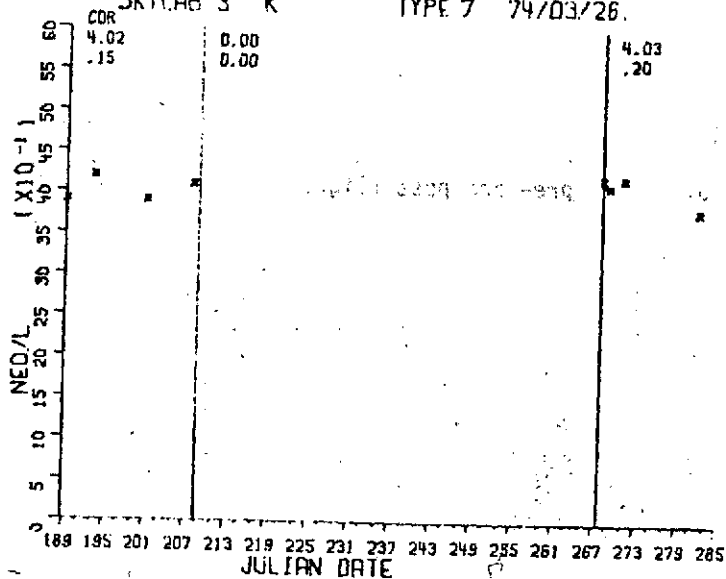
K (Blood)

Data available pre- and post-flight only. A nearly significant difference in time (.94) was observed. Pre- was higher than post-.

SKYLAB 3   MG   TYPE 7   74/03/26.

CDR
2.27   .00
.05   0.00   2.20
                 .00

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

PLT
2.15   0.00
.10   0.00   2.10
                 .10

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

SPT
1.95   0.00
.05   0.00   2.00
                 .10

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE
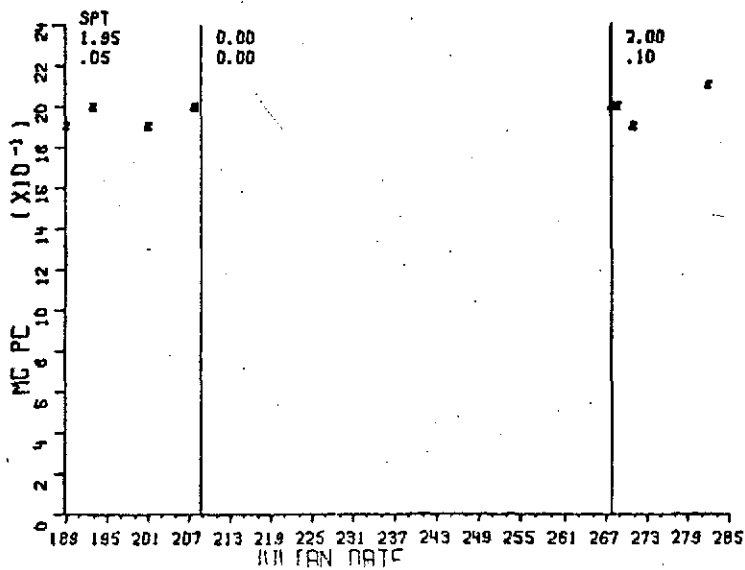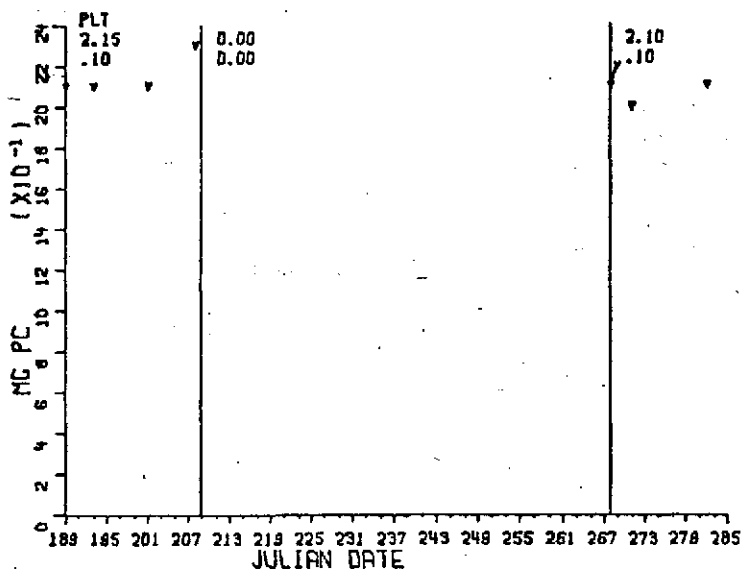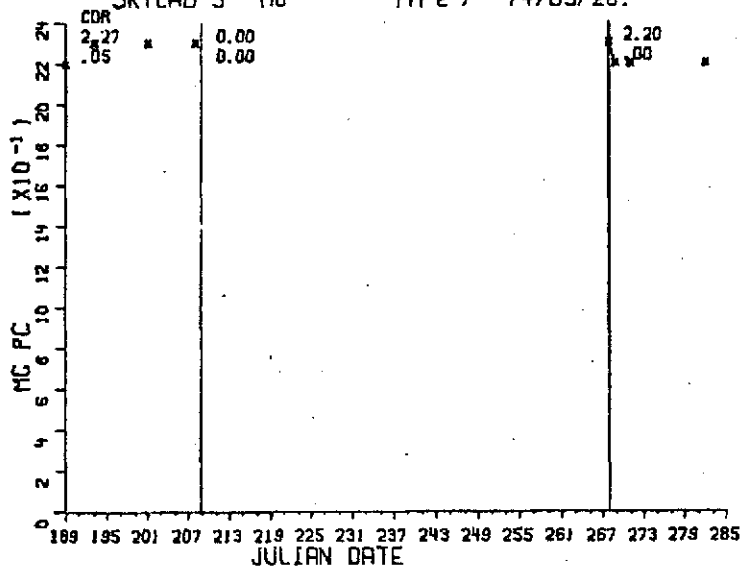
MG (Blood)

Data is available pre- and post- only. A significant astronaut difference was observed using the TWUAV. CDR was significantly higher than PLT who was significantly higher than SPT. All three astronauts show small variability with an overall mean square error of .0058.

SKYLAB 3   P84   TYPE 7   74/03/26.

COR
3.45   0.00   3.66
.23   0.00   .05

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

PLT
9.25   0.00   3.13
.31   0.00   .32

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

SPT
2.70   0.00   3.16
.18   0.00   .28

MG PC (X10⁻¹)

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE
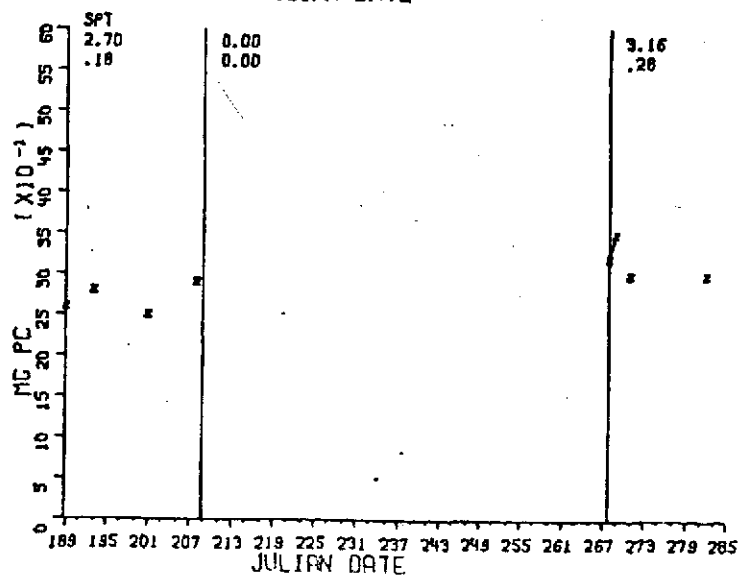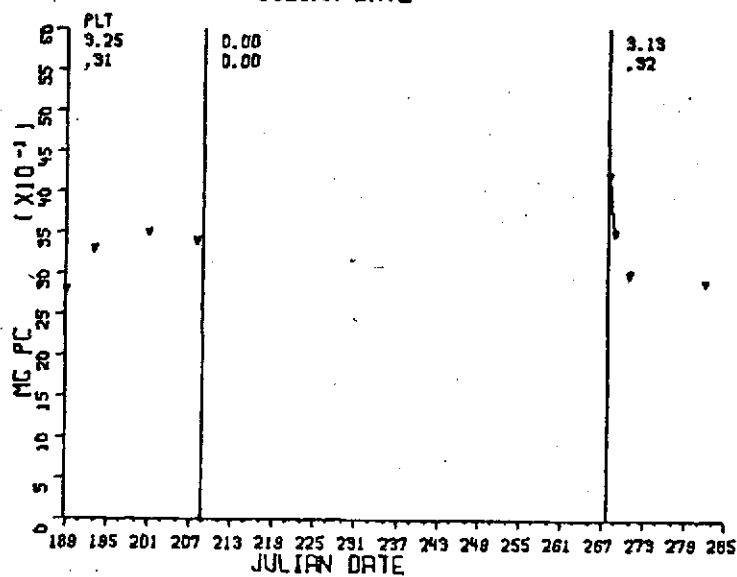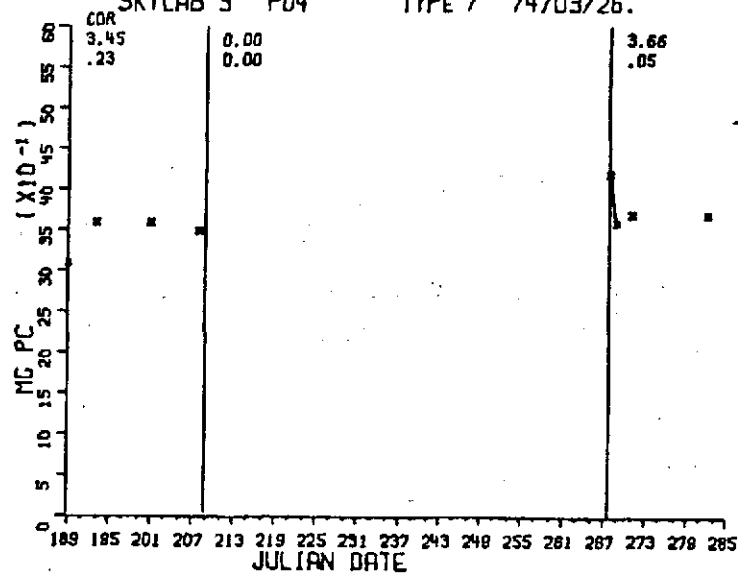
PO4 (Blood)

Data available pre- and post-flight only. Significant astronaut differences were observed using the TWUAV. CDR was judged significantly higher than PLT and SPT which were judged to be the same. Moderate interaction (.87) was also observed. This was due to the significant increase pre- to post- of SPT and no significant increases pre- to post- on either CDR or PLT.

SKYLAB 3 CA   TYPE 7   74/03/26.

CDR
9.12   0.00   9.29
.12   0.00   .92

MG PC

JULIAN DATE

PLT
9.45   0.00   9.23
.12   0.00   .40

MG PC

JULIAN DATE

SPT
9.25   0.00   9.30
.18   0.00   .34

MG PC

JULIAN DATE
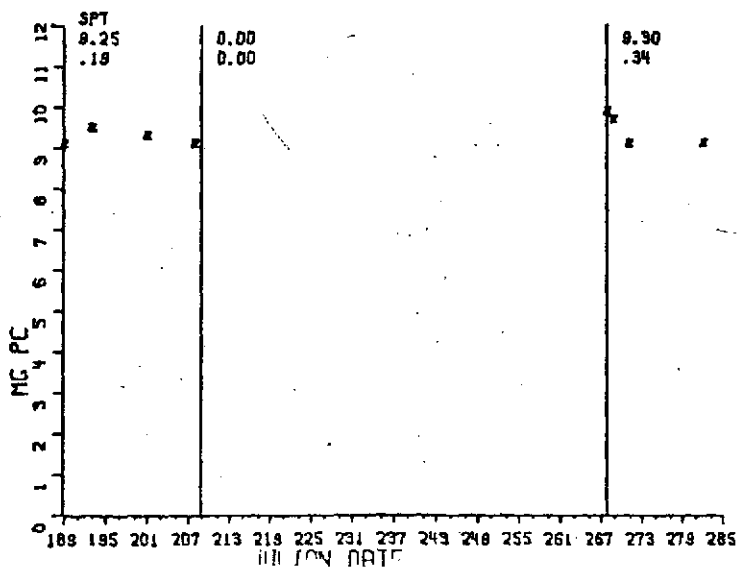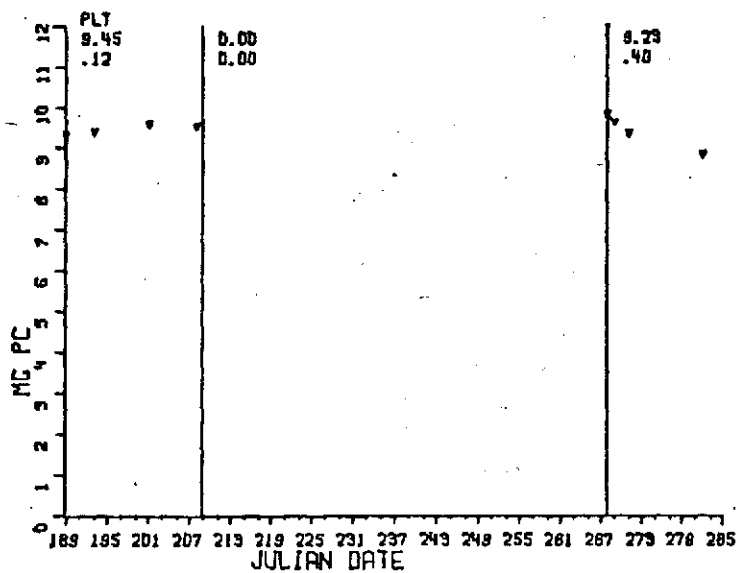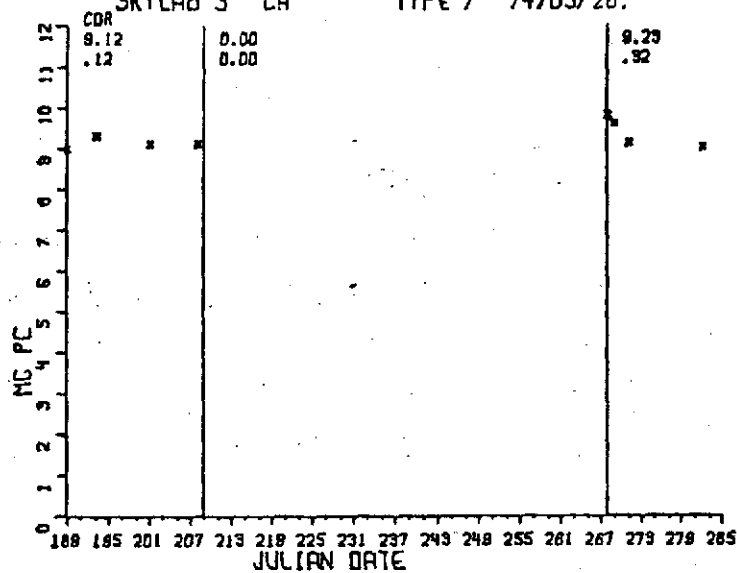
CA (Blood)

Data available pre- and post-flight only. No differences were observed.

SKYLAB 3   CL   TYPE 7   74/03/26.

34
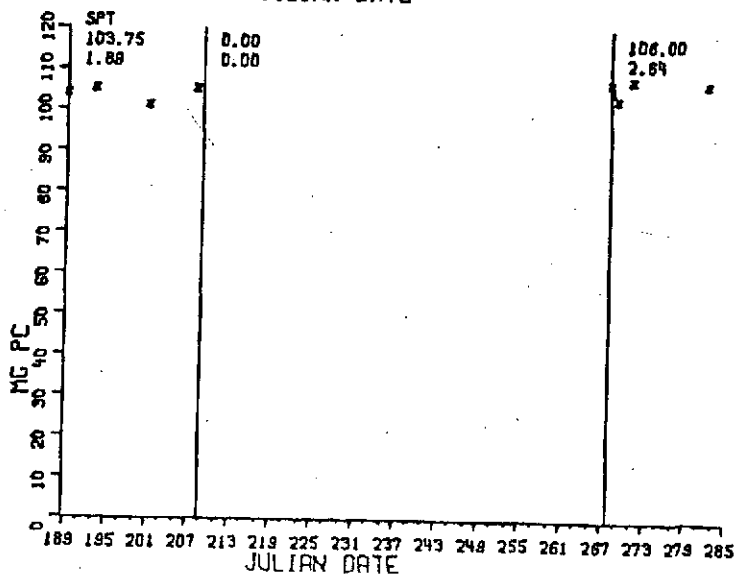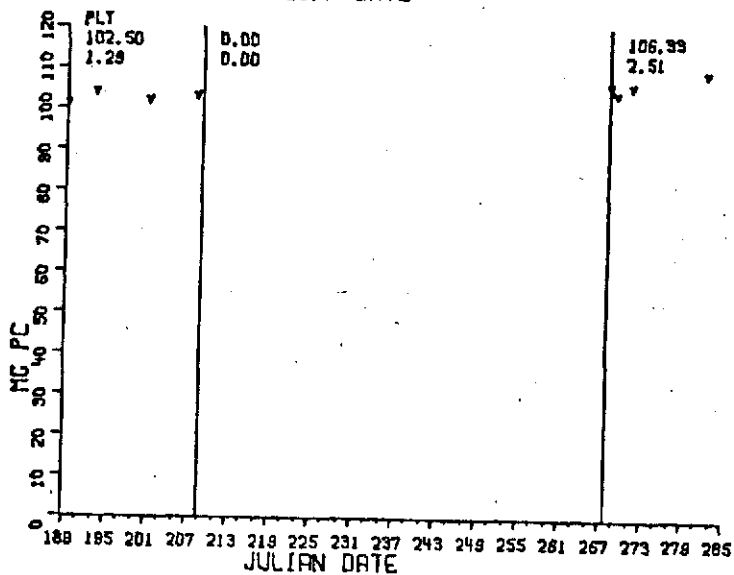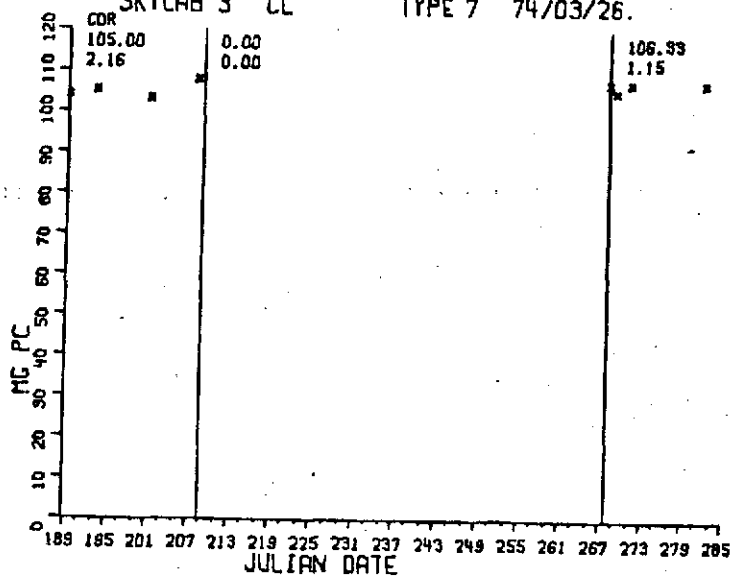
CL (Blood)

Data available pre- and post-flight only. A significant time difference was observed using TWUAV. Post- was judged significantly higher than pre-flight. However, examination of the individual OWAV show PLT only with a significant increase. This was due to the moderate overall mean square error of 3.94.

SKYLAB 3   GLU   TYPE 7   74/03/26.

36
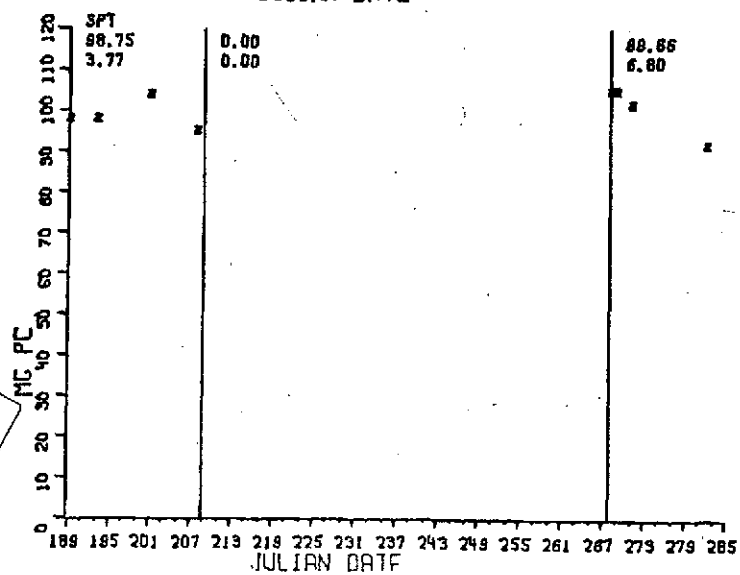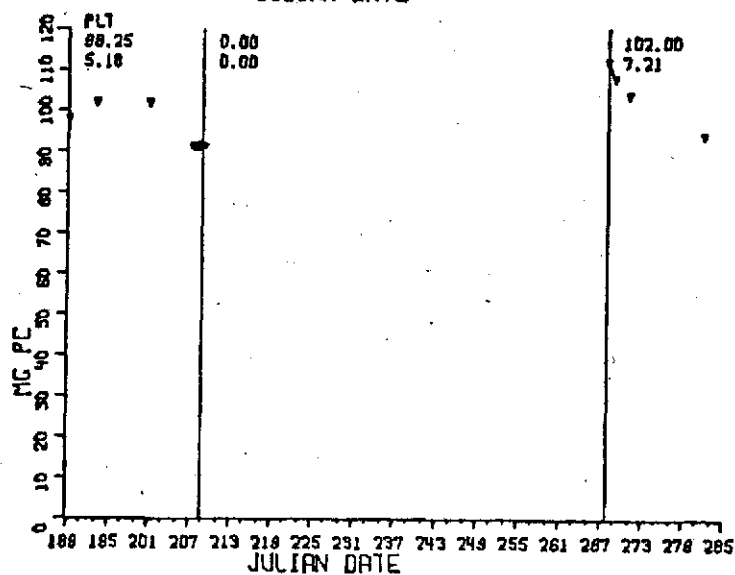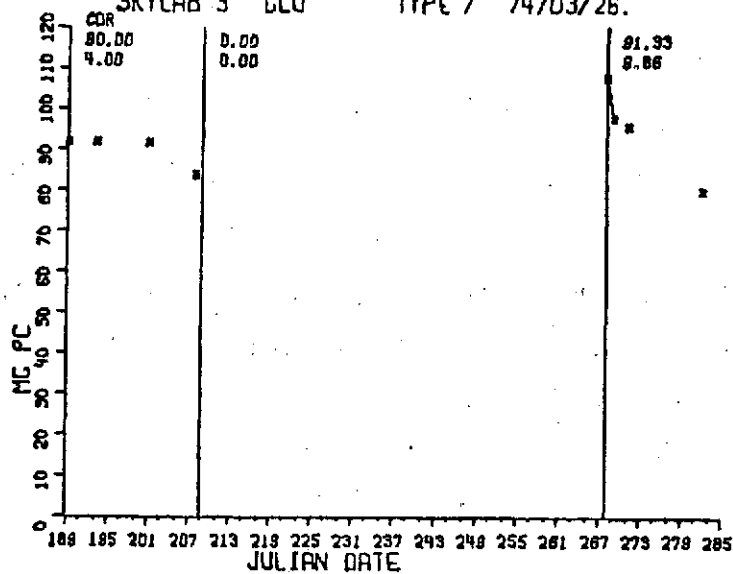
GLU --Glucose (Blood)

Data available pre- and post-flight only. A significant astronaut difference was observed using TWUAV. CDR was judged significantly lower than PLT and SPT which were judged to be the same.

SKYLAB 3   TP   TYPE 7   74/03/26.
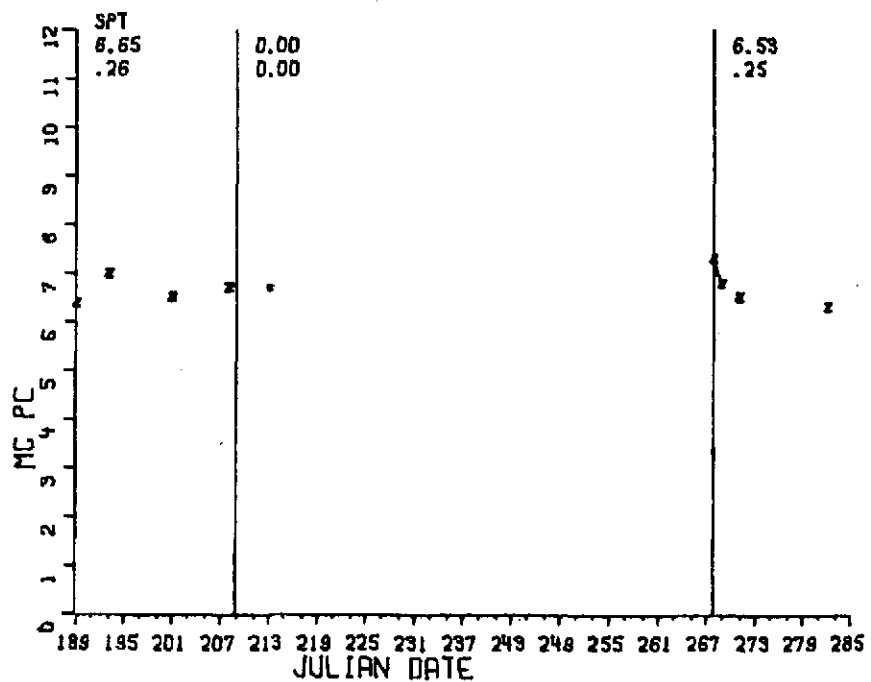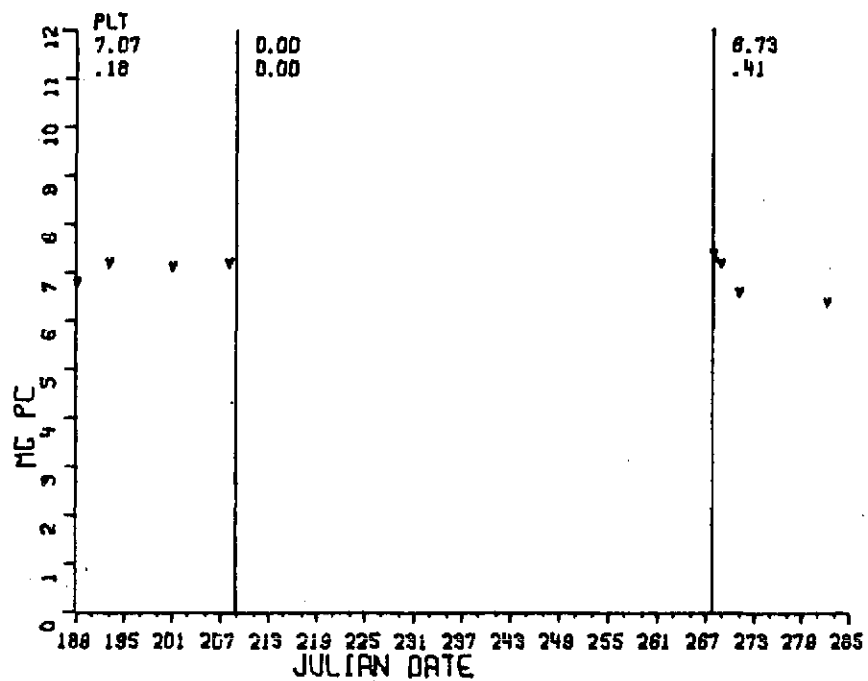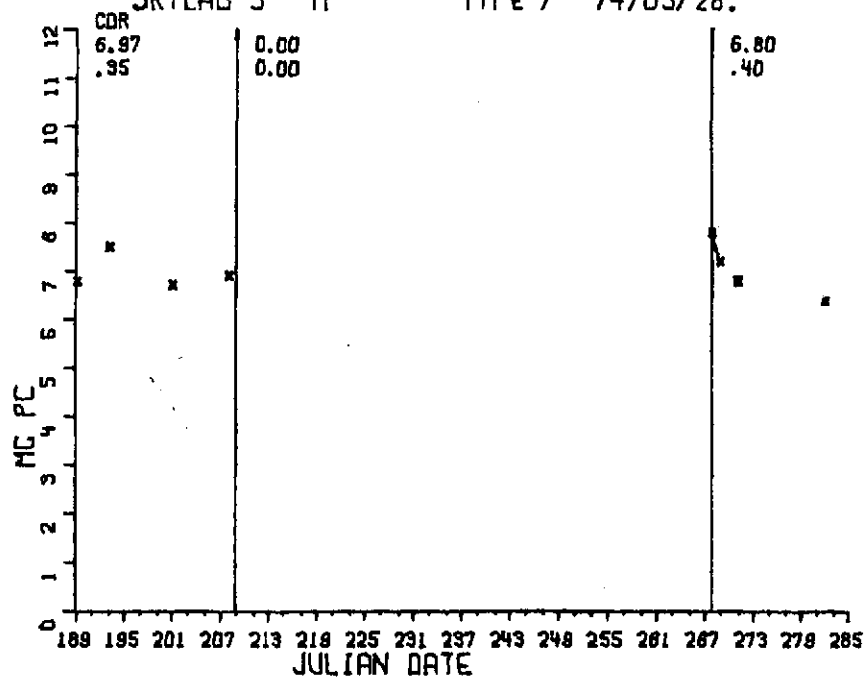
TP -- Total Protein (Blood)

Data available pre- and post-flight only. No differences were observed.

3.2 URINE PARAMETERS

SKYLAB 3 ADH   TYPE 1 74/03/28.
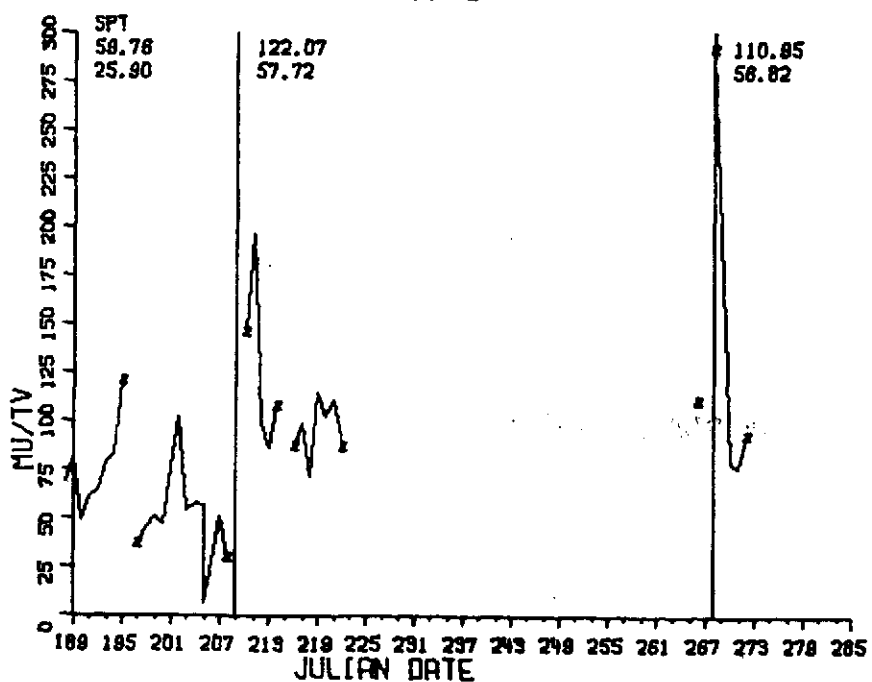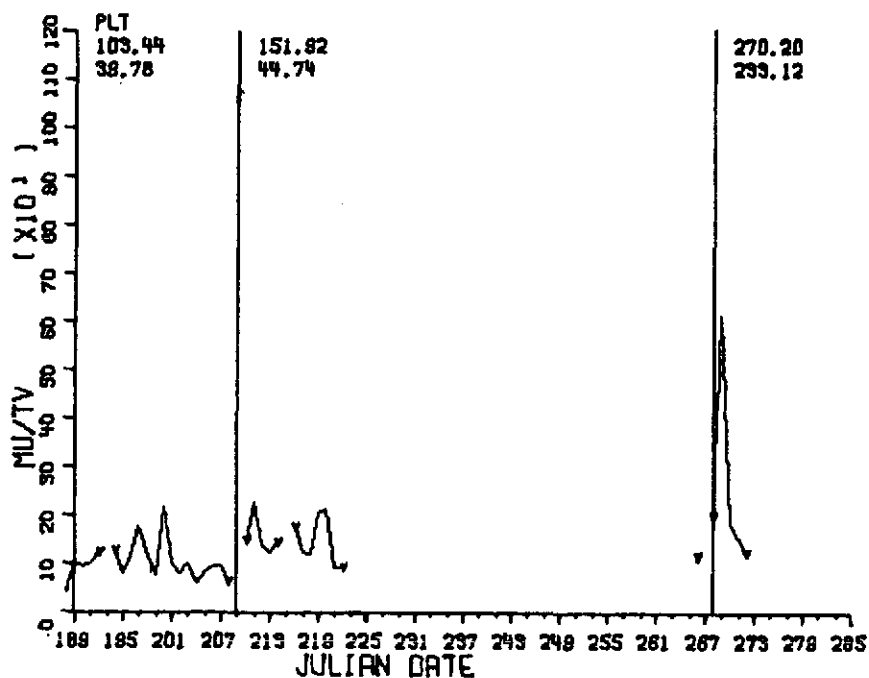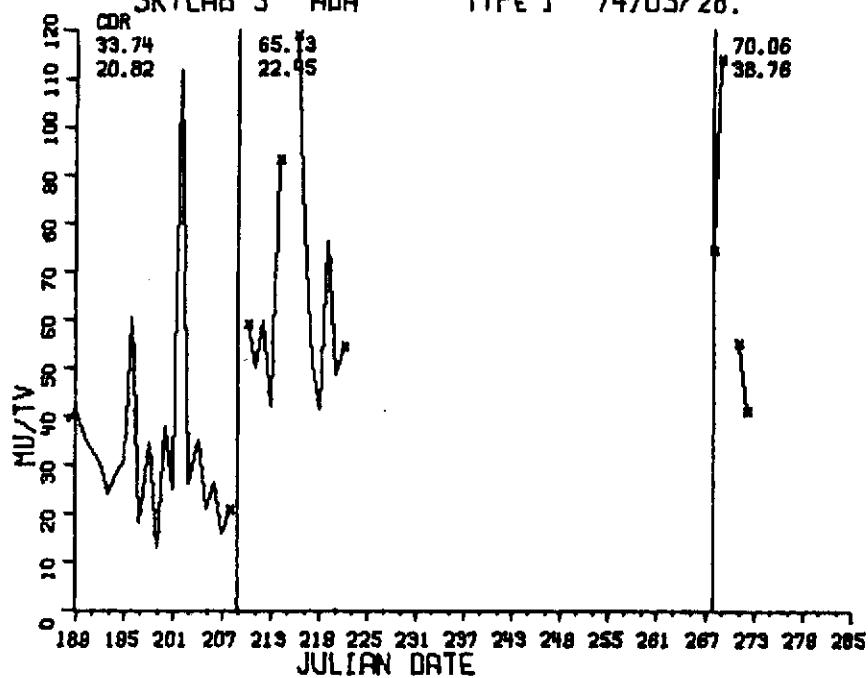
ADH -- Antidiuretic Hormone (Urine)

Data available throughout the period. The data was not available for
the last of in- or post- with post- containing only three or four data points.
Both significant time and astronaut differences were observed using the TWUAV
but with large interaction (.986). All astronauts were significantly differ-
ent with CDR lowest, then SPT, and PLT highest. Pre- is lowest, then in-,
with post- the highest.

The apparent reason for the interaction is seen in the individual con-
trasts. CDR and SPT show significant differences pre- to in- and pre- to
post- while PLT shows a difference in- to post- and pre- to post-. This
indicates that the increase of PLT occurred later. While the rates of in-
crease are roughly a factor of two in CDR and SPT, PLT increases about 1.5
times pre- to in- and then 2.7 times pre- to post-.

SKYLAB 3   ALDO   TYPE 1   74/03/28.
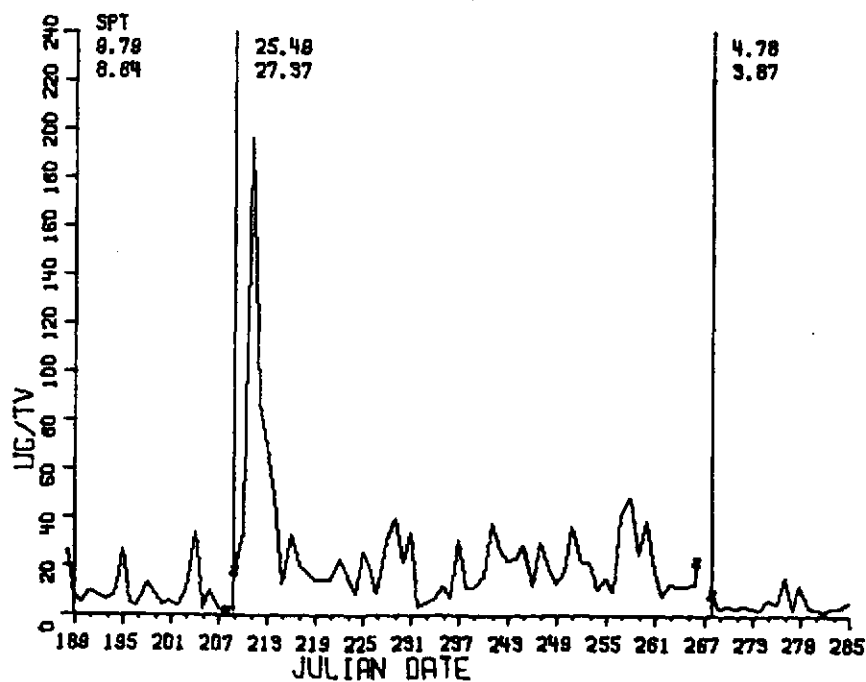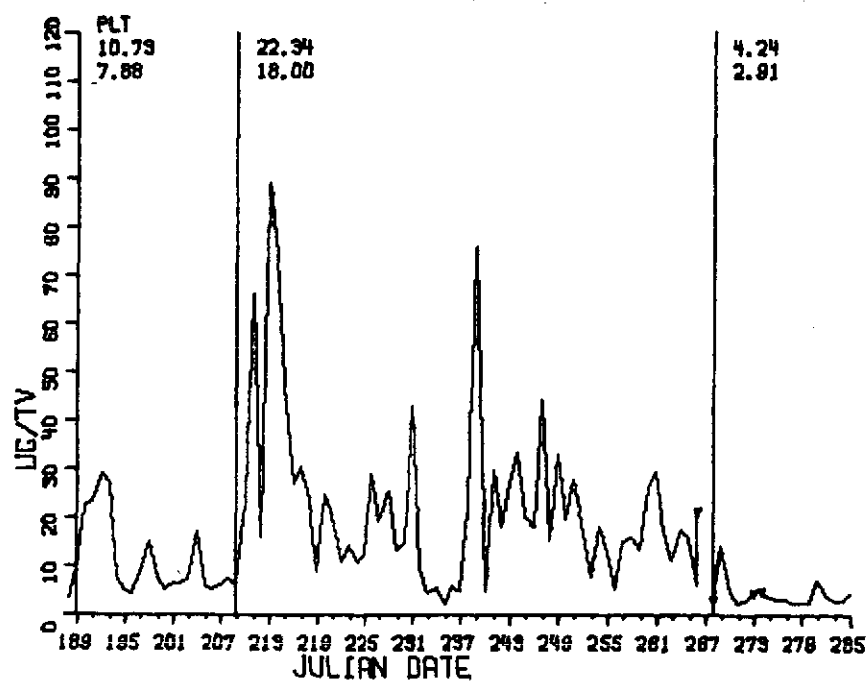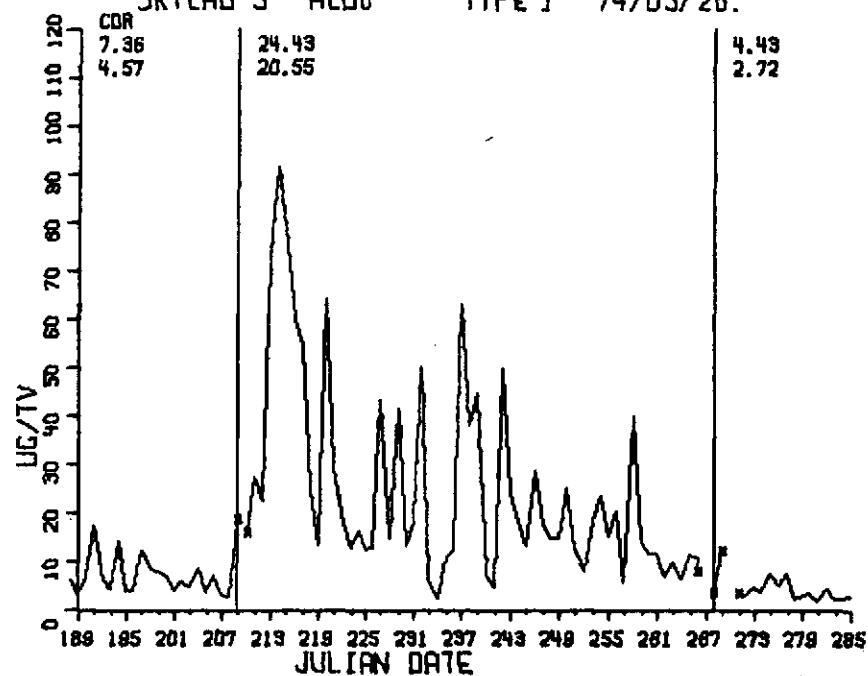
ALDO -- Aldosterone (Urine)

Data available throughout the period. Significant time differences were observed using TWUAV. Pre- and post- were judged the same, while in- was judged significantly higher.

The increase in-flight appears due to several remarkable data points as well as increased oscillations. In particular days 213 through 217 for CDR, days 211 and 239 for PLT and day 211 for SPT.

A significant downward trend is observed in-flight. A rate of -.49 units per day overall with -.6, -.36, -.52 units per day on CDR, PLT and SPT respectively. The trend on SPT is due in part to high readings around day 213 and probably not to some persistant trend. CDR and PLT seem to follow the same pattern as SPT, but the similarity is inconclusive due to large variations.

No significant daily cycles were observed on CDR. However, Fourier analysis shows 7.5, 6, and 4 day cycles. PLT has a significant 2 day cycle. Fourier analysis also shows 6 and 9 day cycles. SPT shows a significant 2 day cycle with 6 and 9 day cycles showing on Fourier analysis.

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SKYLAB 3   EPI   TYPE 1   74/03/28.
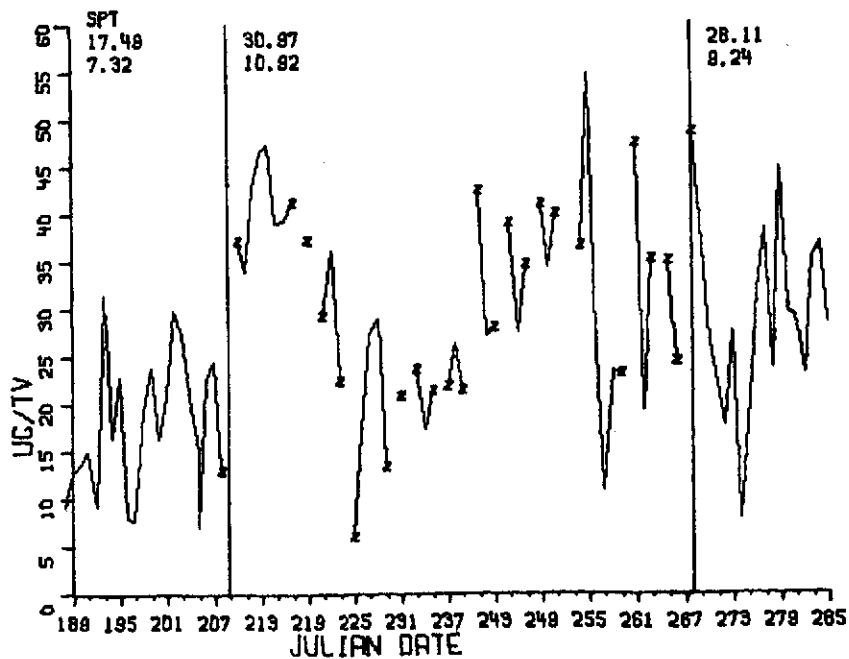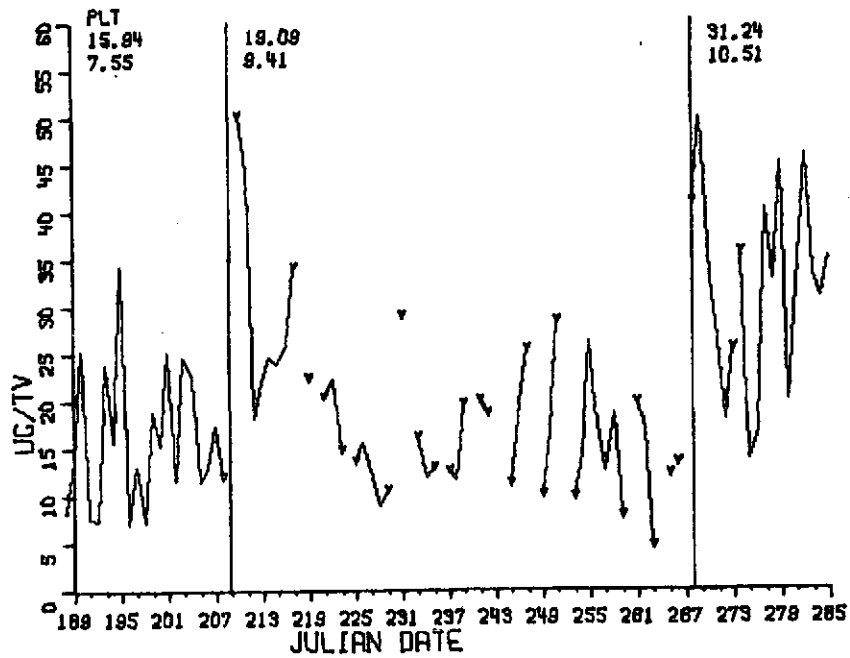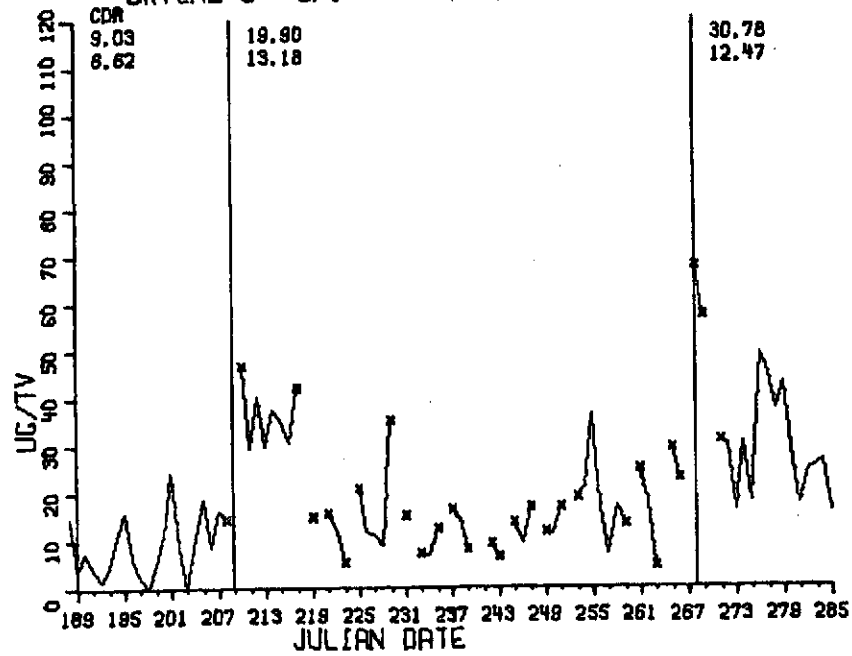
EPI -- Epinephrine (Urine)

Data available throughout the period. Both significant time and astronaut differences were observed using the TWUAV but with a large interaction (.999). There is a statistically significant increase pre- to in- to post- with all times different. CDR and PLT are judged the same while SPT is significantly higher overall.

The apparent reason for the interaction is seen in the individual contrasts. CDR shows a significant (three-fold) increase pre- to in- to post-. PLT shows a significant increase (two-fold) post- over pre- and in- which are judged to be the same. SPT shows a significant increase (two-fold) pre- to in- and post- which are judged to be the same. All arrive at the same level of about 30. post-.

No significant trends were observed. Because the data is not evenly spaced lag correlations and Fourier analyses are not applicable.

SKYLAB 3 HYDRO   TYPE 1 74/03/28.
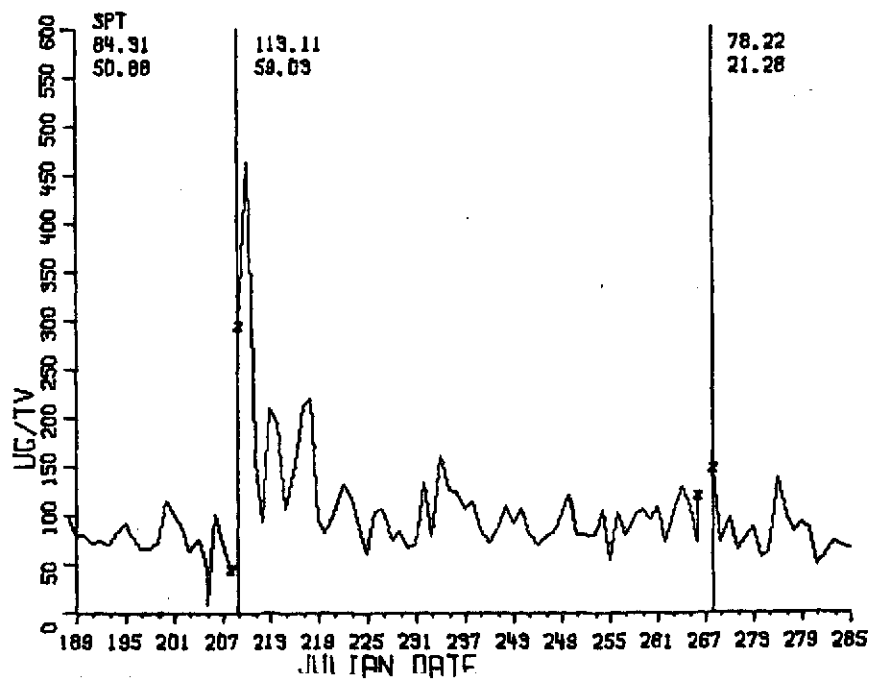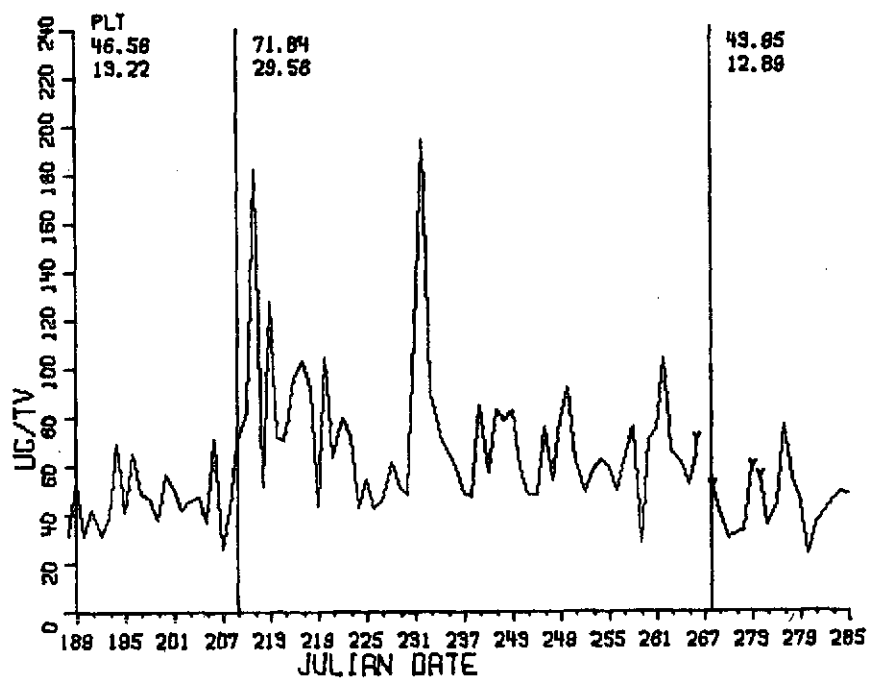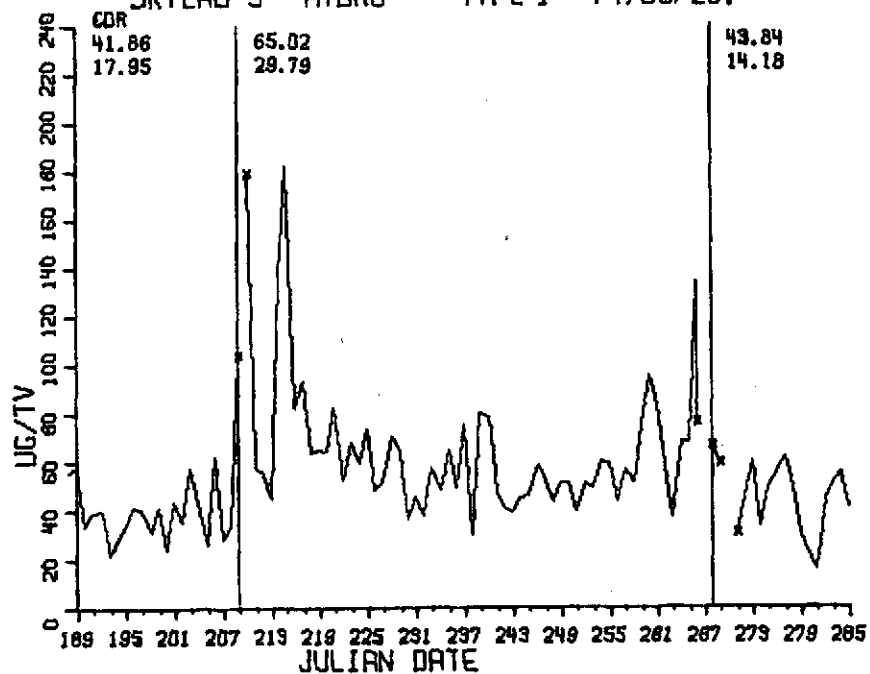
HYDRO -- Hydrocortisone (Urine)

Data available throughout the period. Both significant time and astronaut differences were observed using the TWUAV with no interaction. CDR and PLT are judged the same, while SPT is significantly higher overall. In- is significantly higher than either pre- or post- which are judged to be the same.

The increase seen in-flight is due in part to several remarkable data points for CDR. These points occur at days 210, 214, 215 and 266. For PLT at days 211 and 232. For SPT primarily day 210.

A significant downward trend in-flight was observed. A rate of -.76 units per day was observed overall with a -.41, -.51, -1.37 units per day observed on CDR, PLT and SPT. This downward trend appears due to high readings early in-flight, particularly on SPT, and does not appear due to any persistant trend.

CDR shows significant 5 and 6 day cycles which is confirmed by Fourier analysis with a cycle of 7 days. SPT has significant 3, 4, and 8 day cycles which have corresponding 8.5 and 6 day Fourier cycles.

SKYLAB 3   NOREPI   TYPE 1   74/03/28.

50

NOREPI -- Norepinephrine (Urine)

Data available throughout the period. Both significant time and astronaut differences were observed using the TWUAV but with a large interaction (.999). There is a statistically significant increase pre- to in- to post- with all times different. CDR and PLT are judged the same while SPT is significantly higher overall.

The apparent reason for the interaction is seen in the individual contrasts. CDR does not show a significant change. PLT shows a significant increase pre- to in- and post- which are judged the same. The level pre- is slightly below and the in- and post- is slightly above CDR. SPT shows a significant increase pre- to in- to post- with two readings above 170 post-. The pre- and in- readings of PLT and SPT are similar (51 and 79 to 62 and 78) while SPT increases to 110. post-.

A significant upward trend was observed on all three astronauts. A rate of .45 units per total volume was observed overall with .08, .52 and .75 units per total volume per day observed on CDR, PLT and SPT respectively. The increasing trend on PLT and SPT can be explained in part by examining the plots. PLT and SPT show a shift in level at approximately day 241 with CDR showing no such shift.

Because data was not available daily, lag correlations and Fourier analysis was not applicable.

SKYLAB 3   SHIRA   TYPE 1   74/03/28.
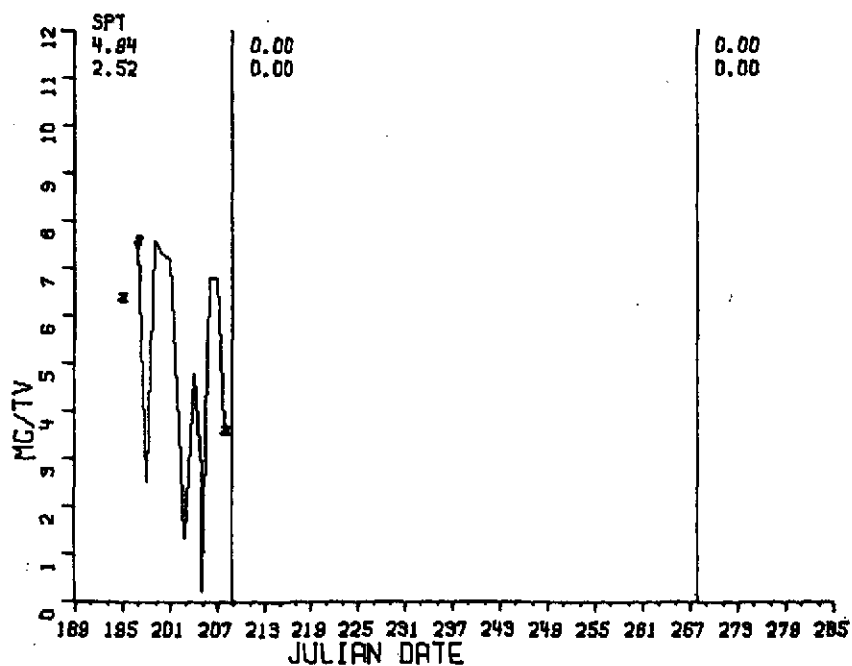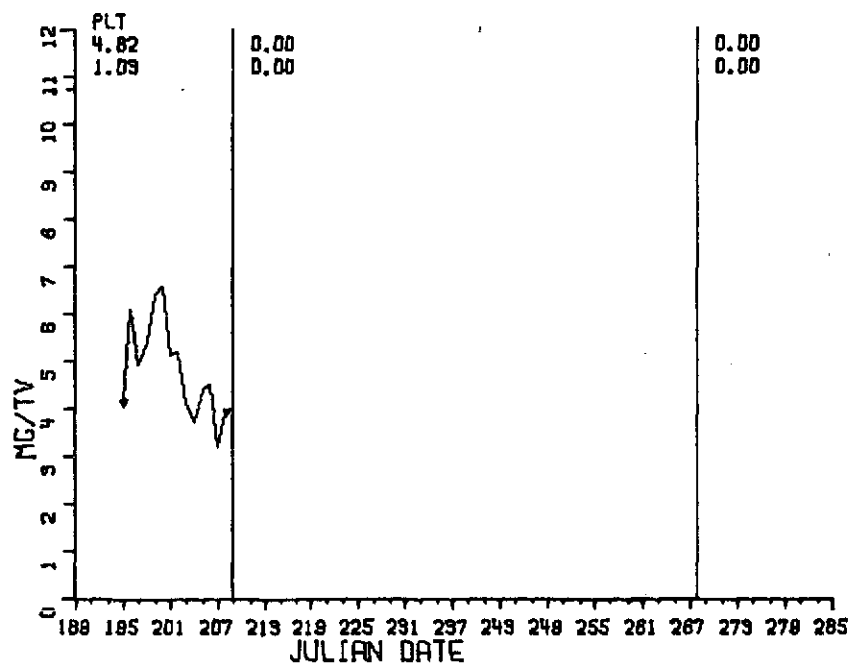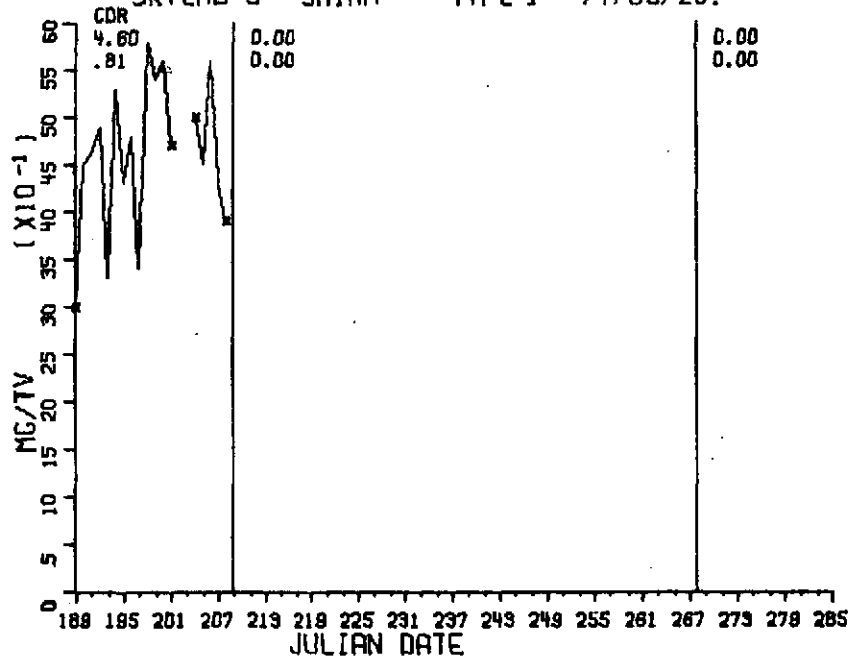
5HIAA -- 5-Hydroxyindolacetic acid (Urine)

Data available pre-flight only.

54

SKYLAB 3   170H   TYPE 1   74/03/28.
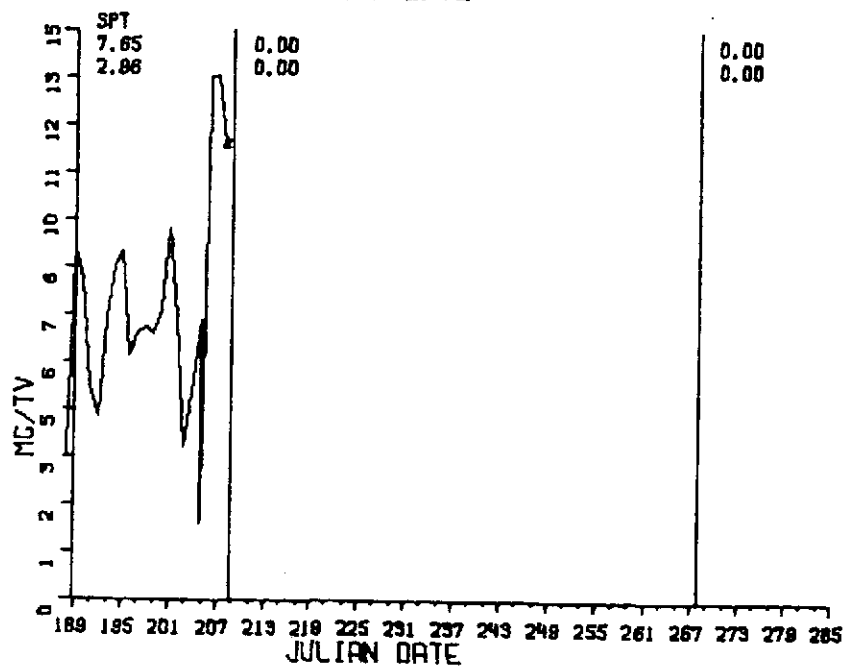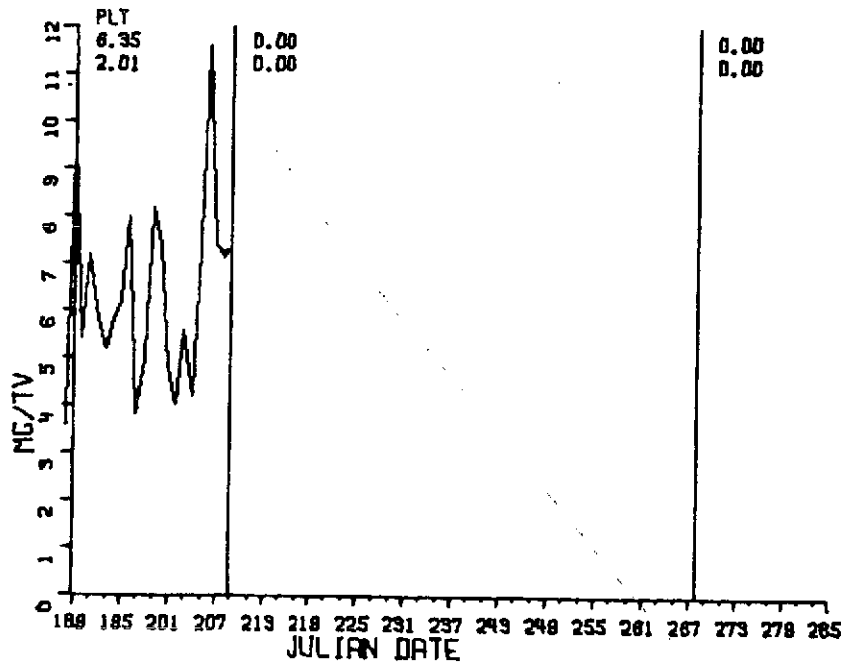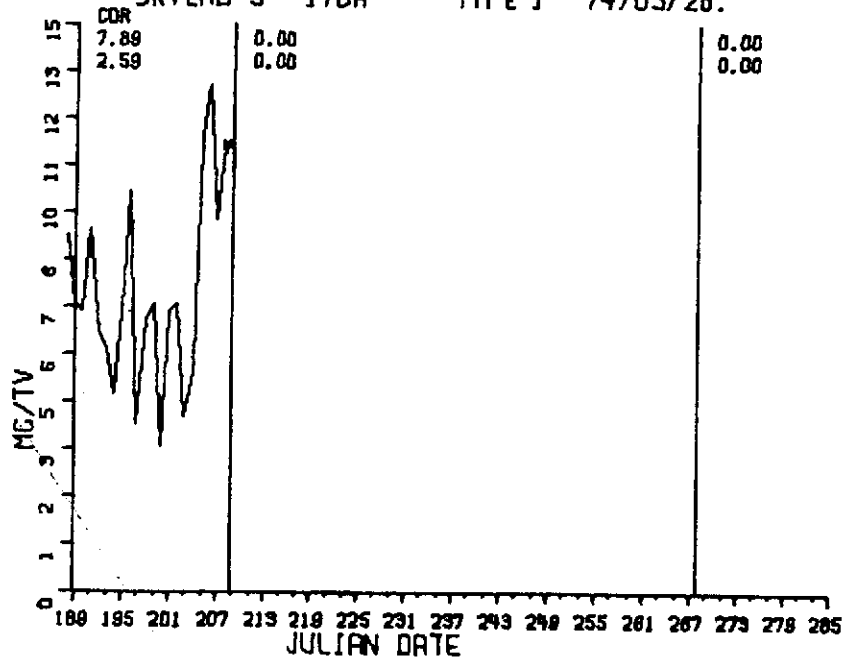
170H -- 17-Hydroxycorticosteroids (Urine)

This data available only pre-flight.

SKYLAB 3   PD   TYPE 1   74/03/29.
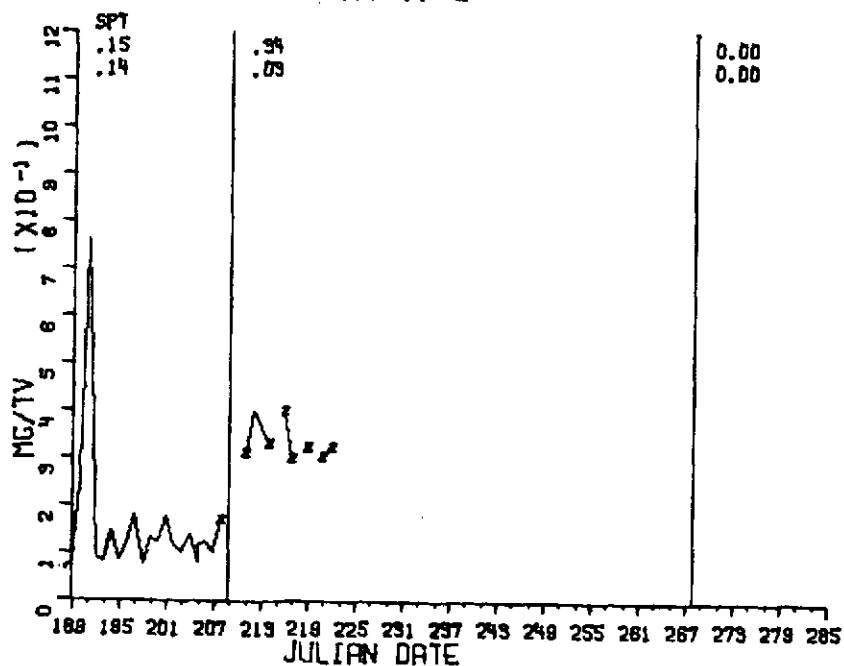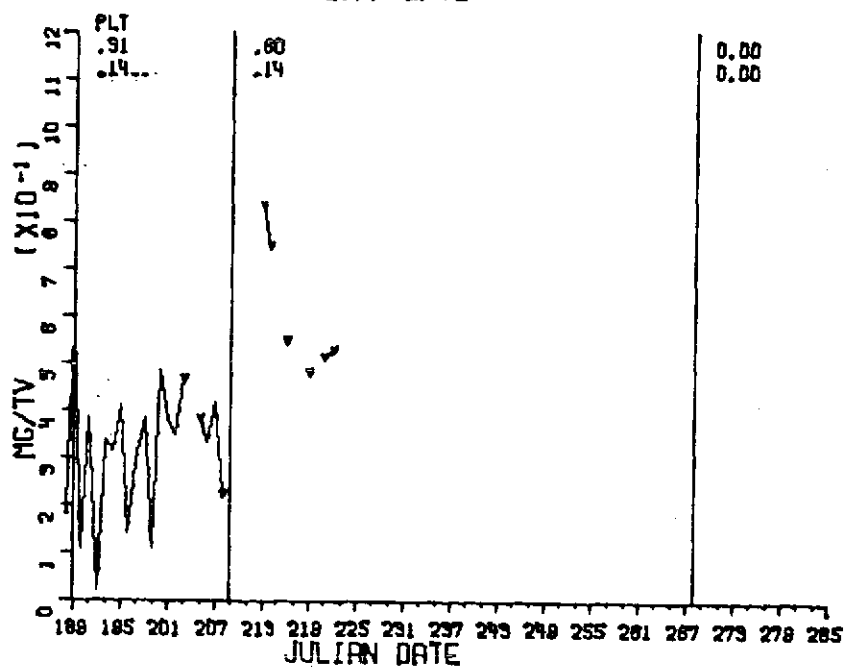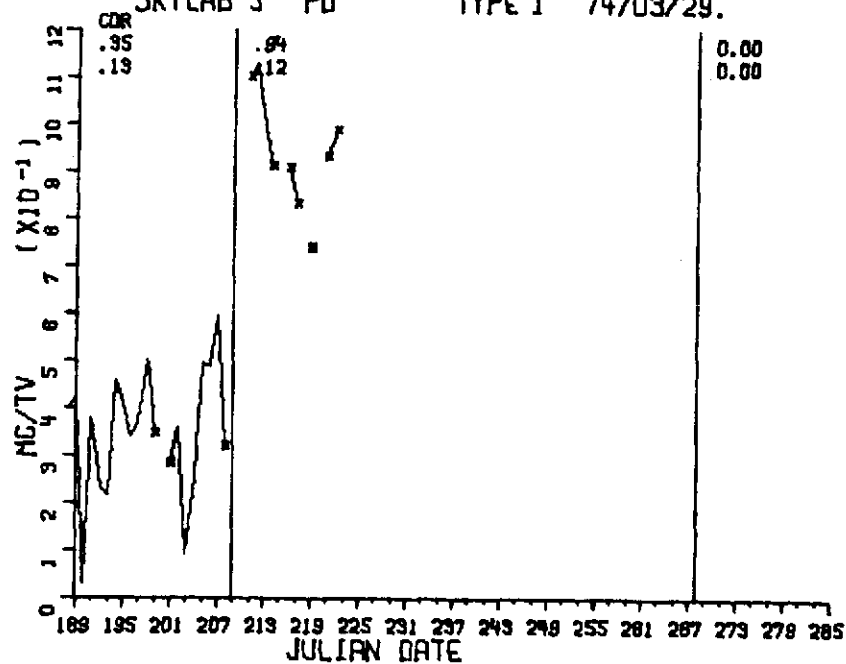
PD -- Pregnene Diol (Urine)

Data available pre- and early in-flight. Both significant time and astronaut differences were observed with high interaction (.999). In- was significantly higher than pre-. CDR was judged significantly higher than PLT which was judged significantly higher than SPT.

High interaction was due primarily to differences in increases pre- to in-. CDR had a three-fold increase while PLT and SPT had a two-fold increase.

SKYLAB 3 AND TYPE 1 74/03/29.

58
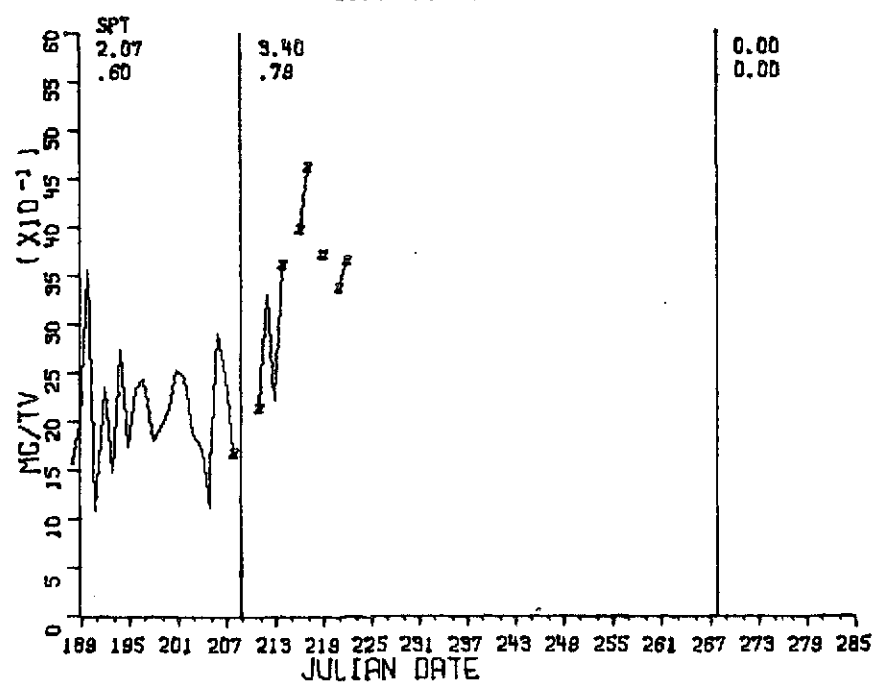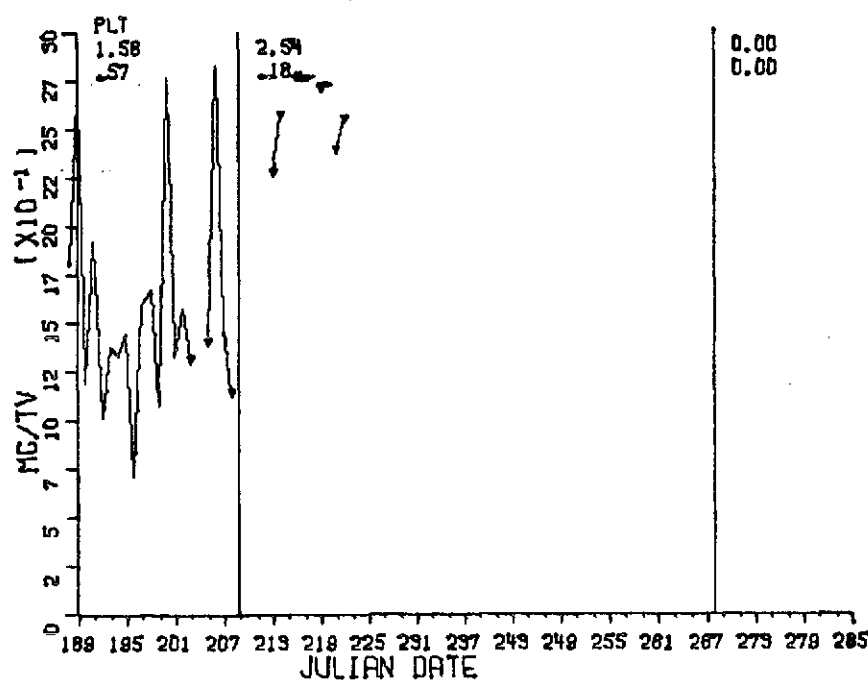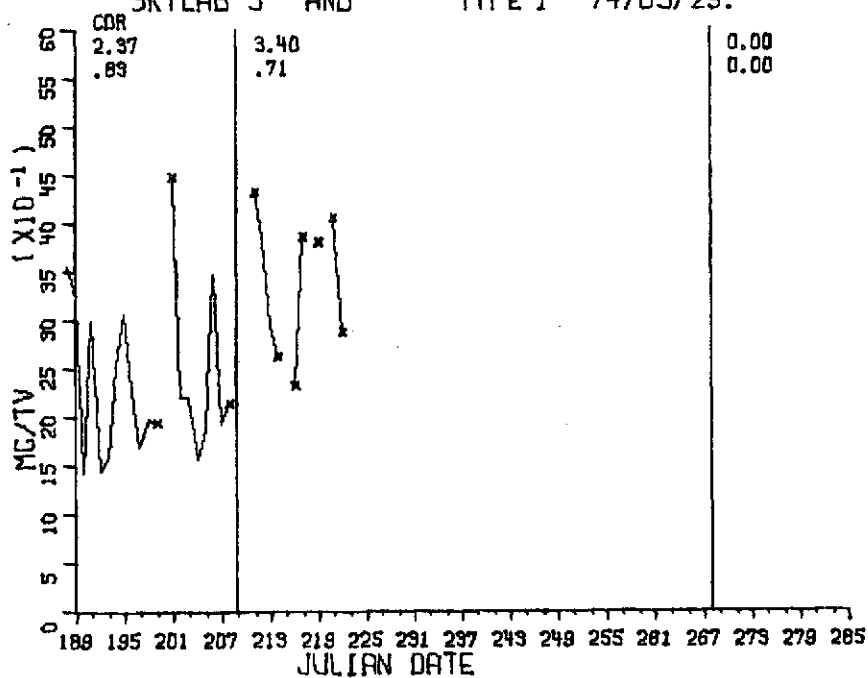
AND -- Androsterone (Urine)

Data available pre- and early in-. Both significant time and astronaut differences were observed using the TWUAV. In- was judged significantly higher than pre-.. CDR and SPT were judged the same, while PLT was judged significantly lower.

SKYLAB 3   ET10   TYPE 1   74/03/29.
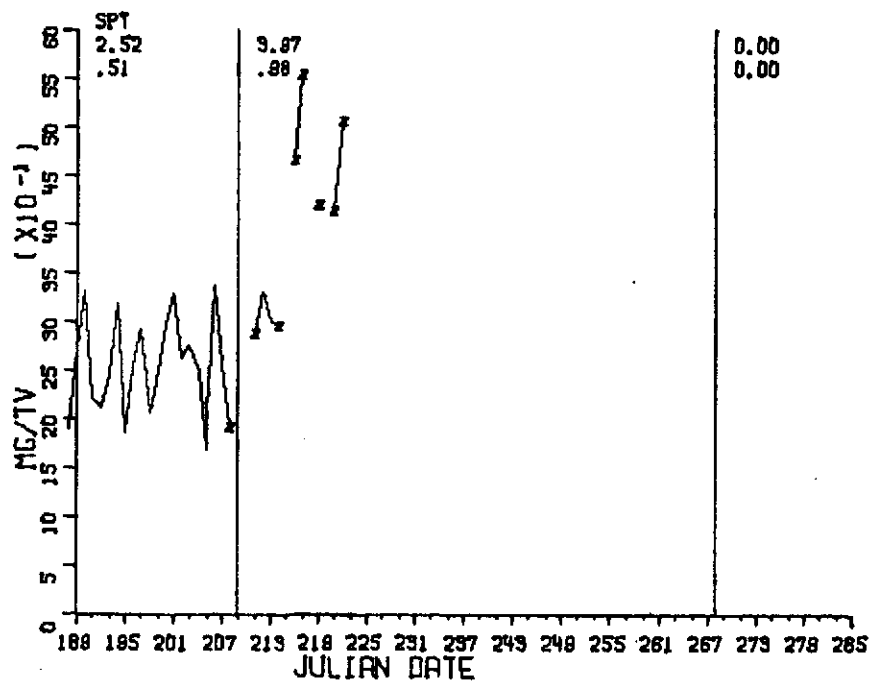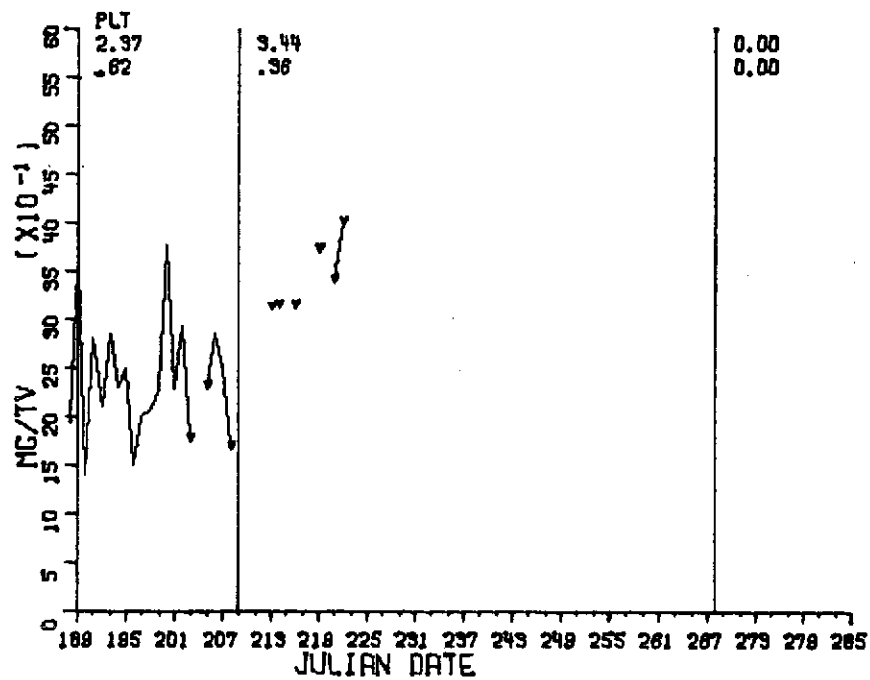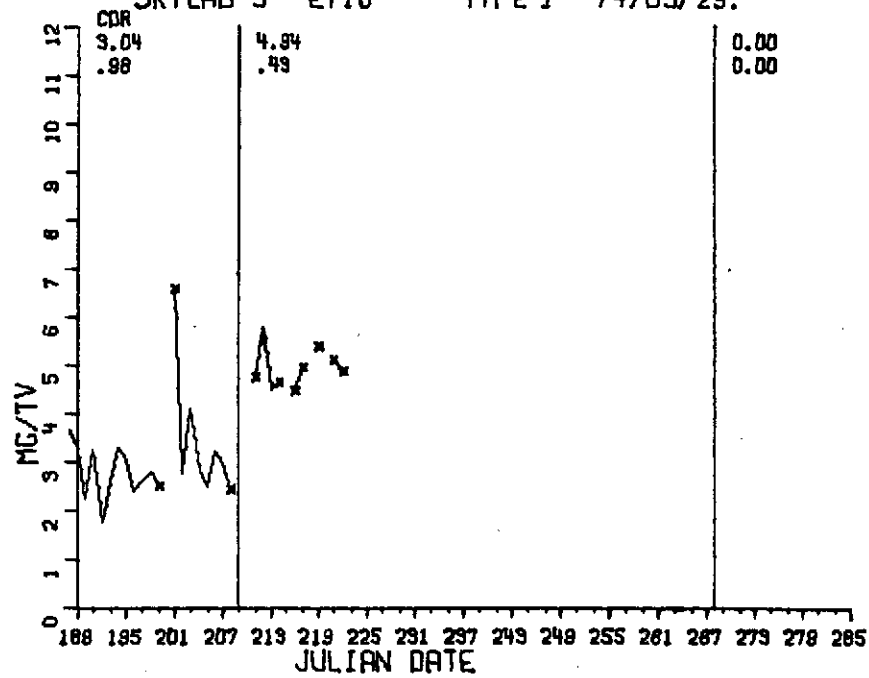
CDR
3.04   4.94   0.00
.98   .49   0.00

MG/TV

JULIAN DATE

PLT
2.97   3.44   0.00
.62   .36   0.00

MG/TV   (X10⁻¹)

JULIAN DATE

SPT
2.52   3.87   0.00
.51   .88   0.00

MG/TV   (X10⁻¹)

JULIAN DATE

ETIO -- EIOCHOLANOLONE (Urine)

Data available pre- and early in-. Both significant time and astronaut differences were observed. In- was judged significantly higher than pre-. CDR was judged significantly higher than PLT and SPT which were judged the same.

SKYLAB 3   DHEA   TYPE 1   74/03/29.
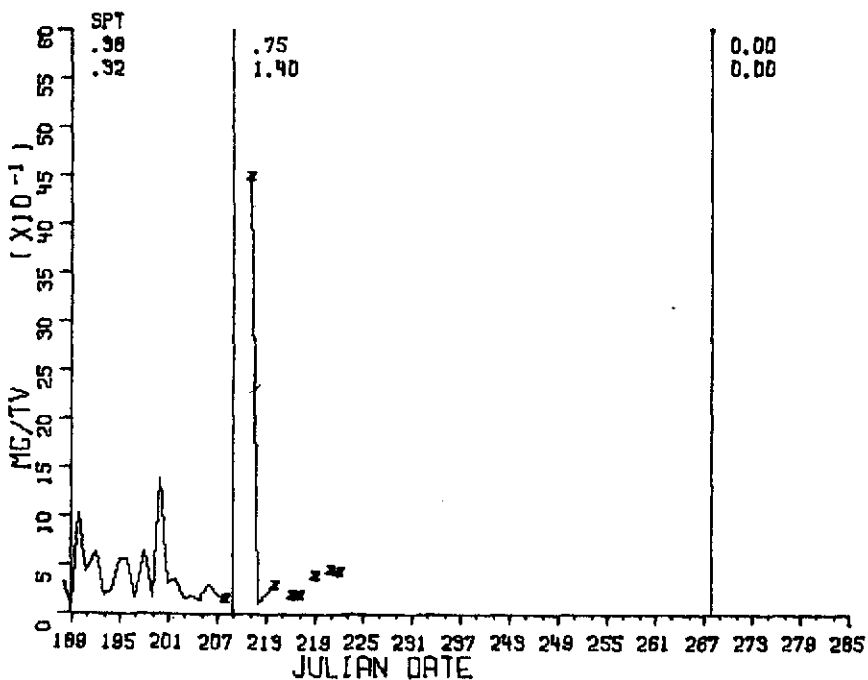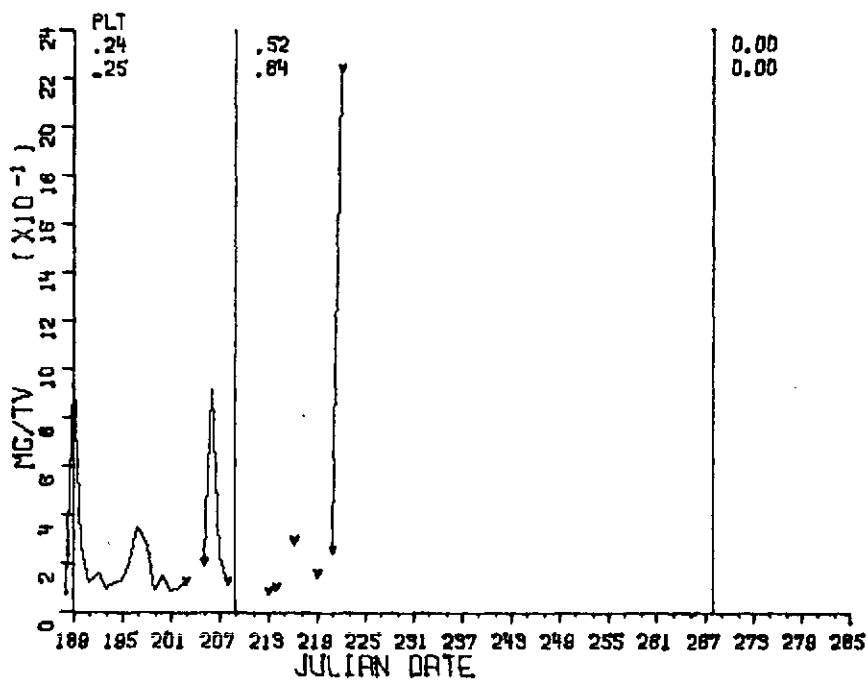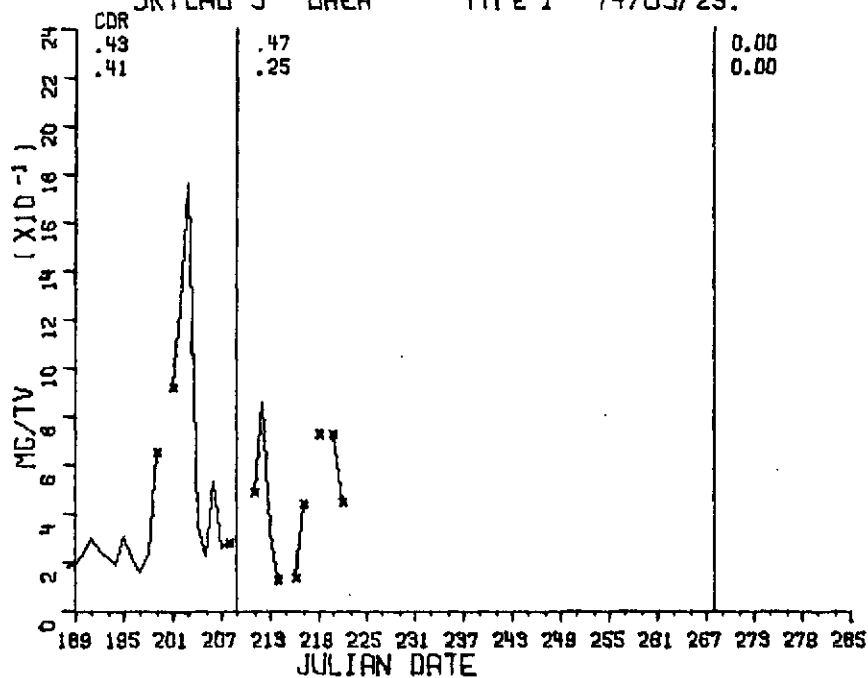
DHEA --   DEHYDROEPIANDROSTERONE (Urine)

Data available pre- and early in-. No significant changes in time or astronaut using TWUAV. Remarkable points include days 202 and 203 on CDR, day 222 on PLT, and day 211 on SPT.

64

SKYLAB 3   11=OETIØ TYPE 1   74/03/29.

CDR
.81   1.22   0.00
.27   .22   0.00

MG/TV   (X10⁻¹)

JULIAN DATE

PLT
.55   .58   0.00
.18   .08   0.00

(X10⁻¹)

MG/TV

JULIAN DATE

SPT
1.02   1.77   0.00
.94   .24   0.00

(X10⁻¹)

MG/TV

JULIAN DATE
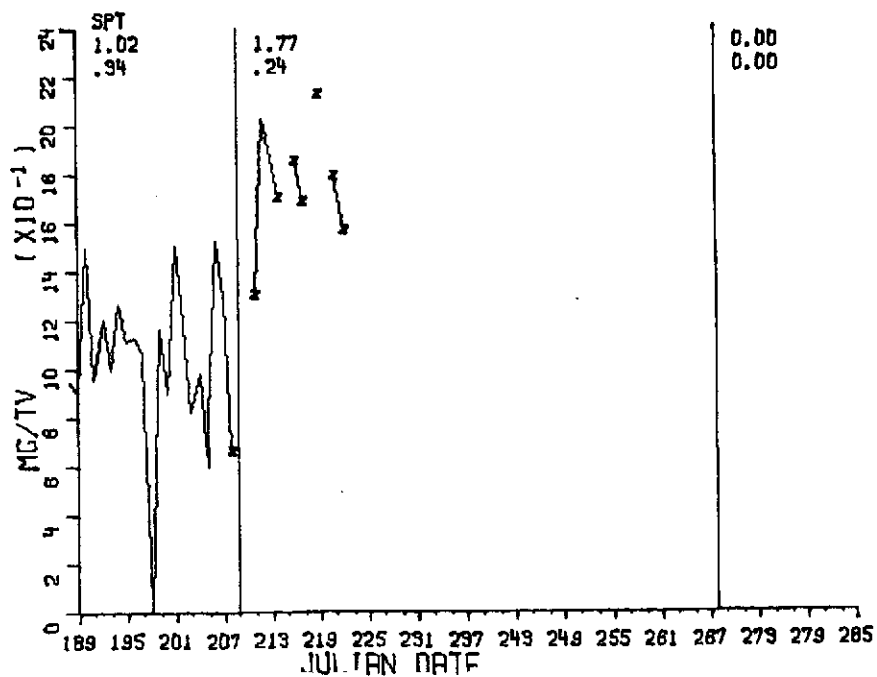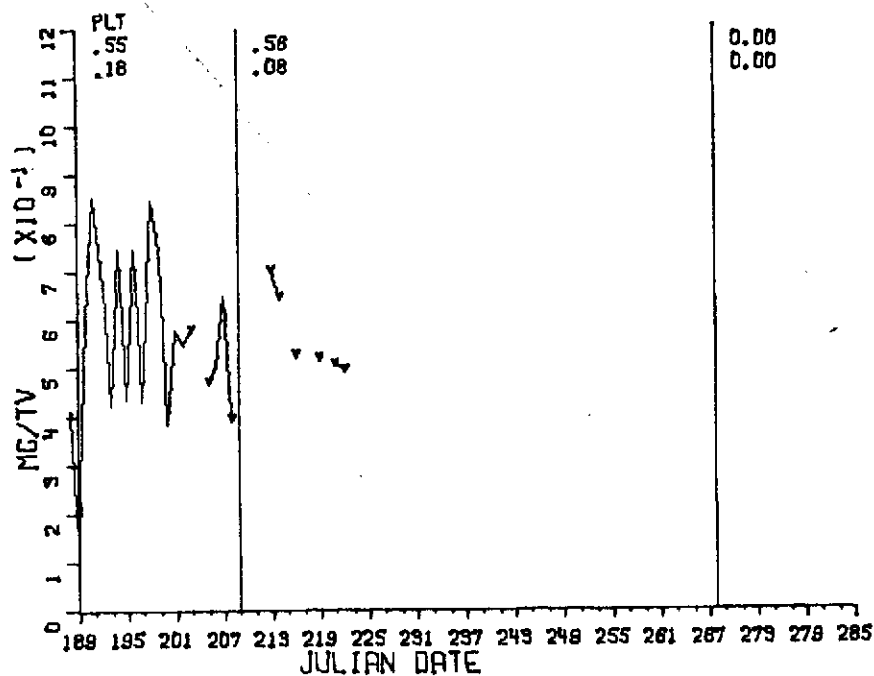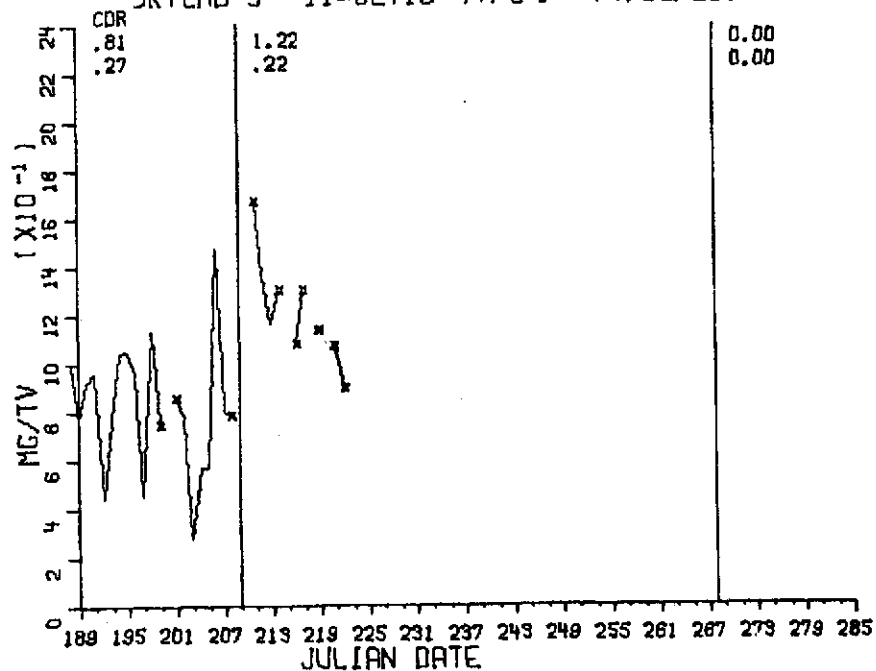
11 = OETIO -- 11-KETO-EIOCHOLONOLONE (Urine)

Data available pre- and early in-. Both significant time and astronaut differences were observed with high interaction (.999). In- was judged significantly higher than pre-. SPT was judged significantly higher than CDR which was judged significantly higher than PLT.

The high interaction can be understood by examining the OWAV. Both CDR and SPT showed significant increases pre- to in-. However, PLT shows no significant increase.

11 = 0 AND -- 11-Keto-Androsterone (Urine)

Data available pre- and early in-. The vast majority of the data available had the value .001 mg, per total volume with only a few isolated incidences of other values. The analysis was inclusive.

68

SKYLAB 3   110H AND TYPE 1   74/03/29.

CDR
.08   .01   0.00
.17   .03   0.00

PLT
.08   .00   0.00
.22   0.00   0.00

SPT
.27   .49   0.00
.24   .28   0.00

110H AND -- 11 BETA HYDROXYANDROSTERONE (Urine)

Data available pre- and early in-. Significant astronaut differences
were observed with high interaction.(.91). SPT was judged significantly
higher than CDR and PLT which were judged the same.

The interaction observed appears to be due to an almost significant
increase in SPT while no significant increase was observed in either CDR or
PLT. The levels of SPT are three- to four-fold higher than either CDR or PLT.

SKYLAB 3 110HETI0 TYPE 1 74/03/29.
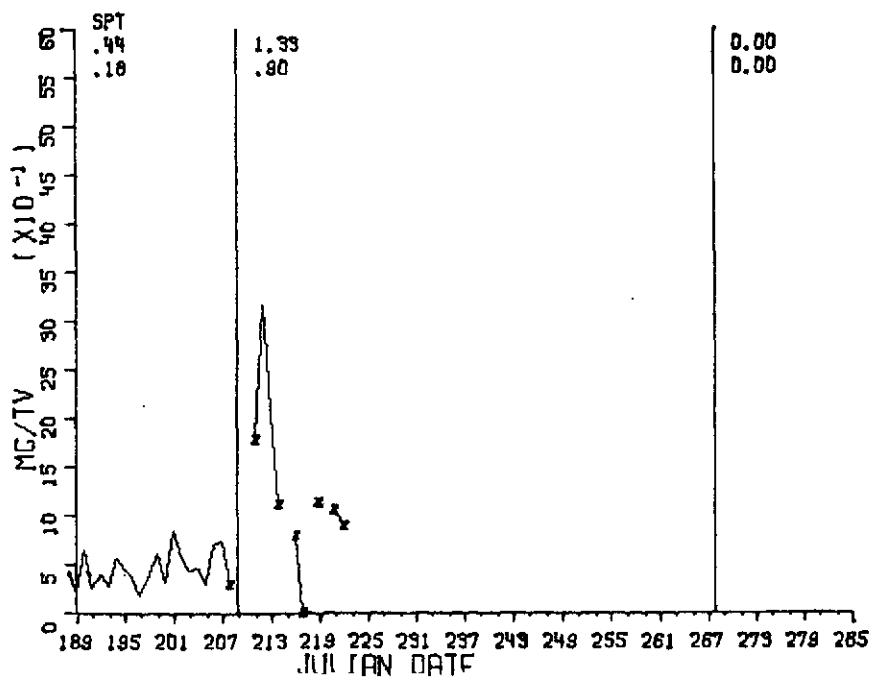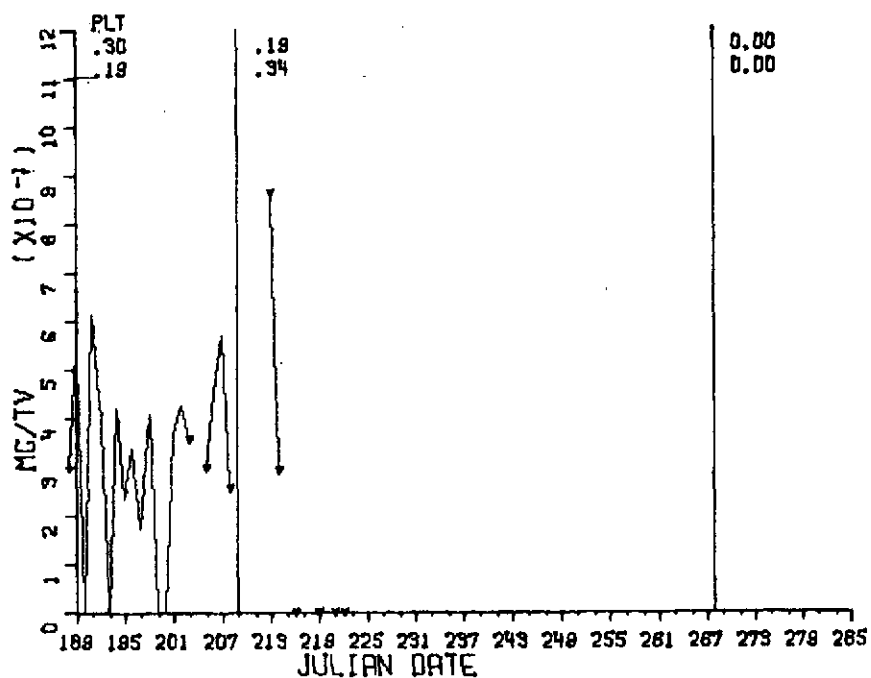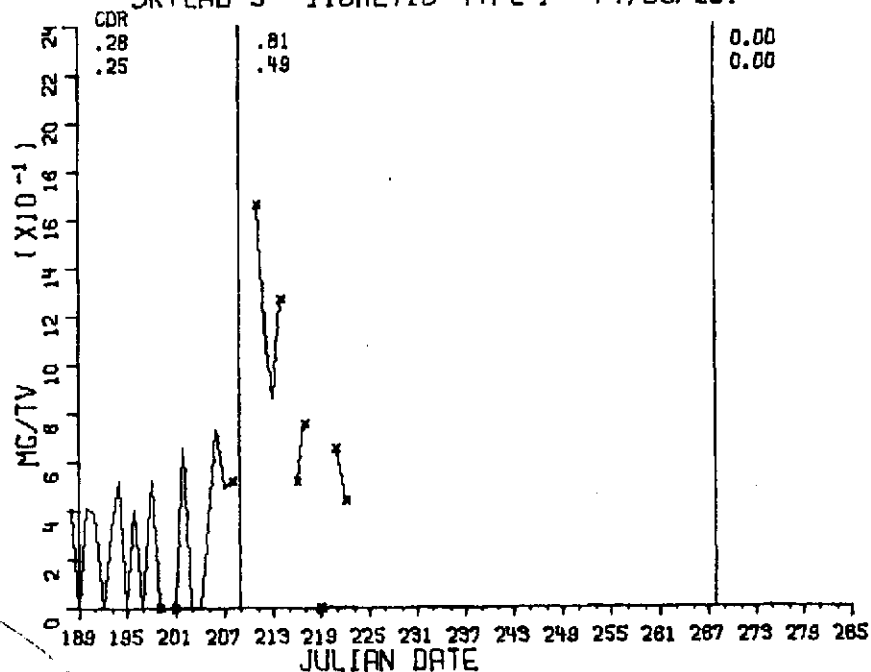
110HETIO -- 11-BETA-HYDROXYETIOCHOLANOLONE (Urine)

Data available pre- and early in-. Both significant time and astronaut differences were observed using TWUAV with high interaction (.999). In- was judged significantly higher than pre-. SPT was judged significantly higher than CDR which was judged significantly higher than PLT.

The high interaction can be understood by examining the OWAV and time means. Significant increases pre- to in-, are observed on CDR and SPT while PLT shows a non-significant decrease. The decrease on PLT is due to near 0 readings of .001 on days 216, 219, 221 and 222.

SKYLAB 3   TOTAL   TYPE 1   74/03/29.
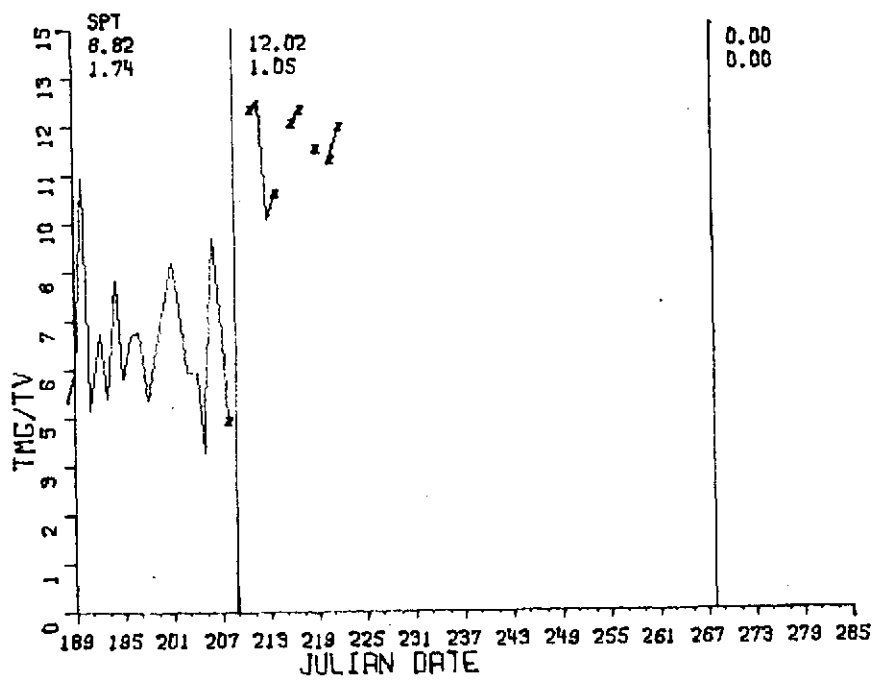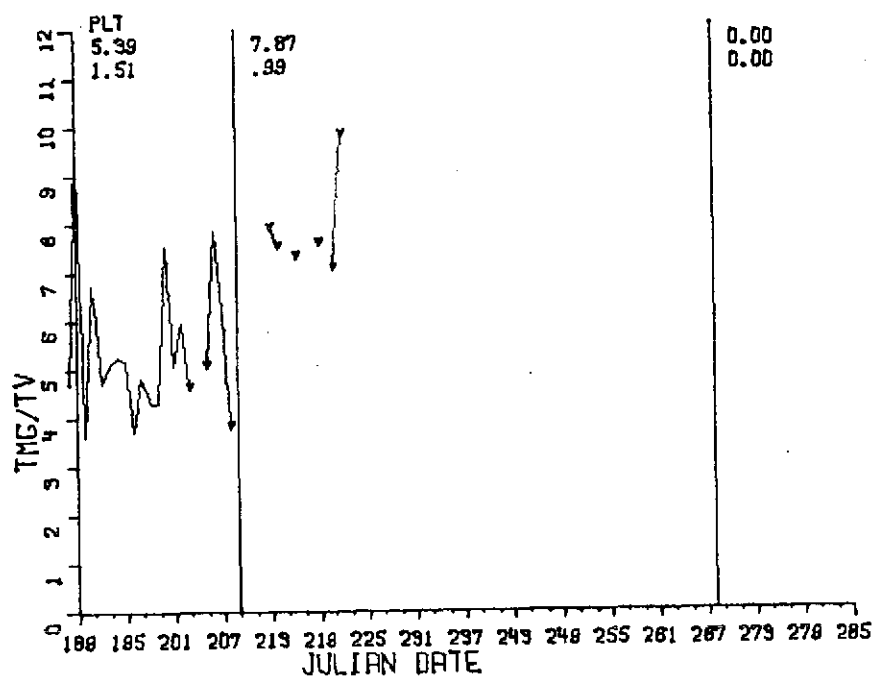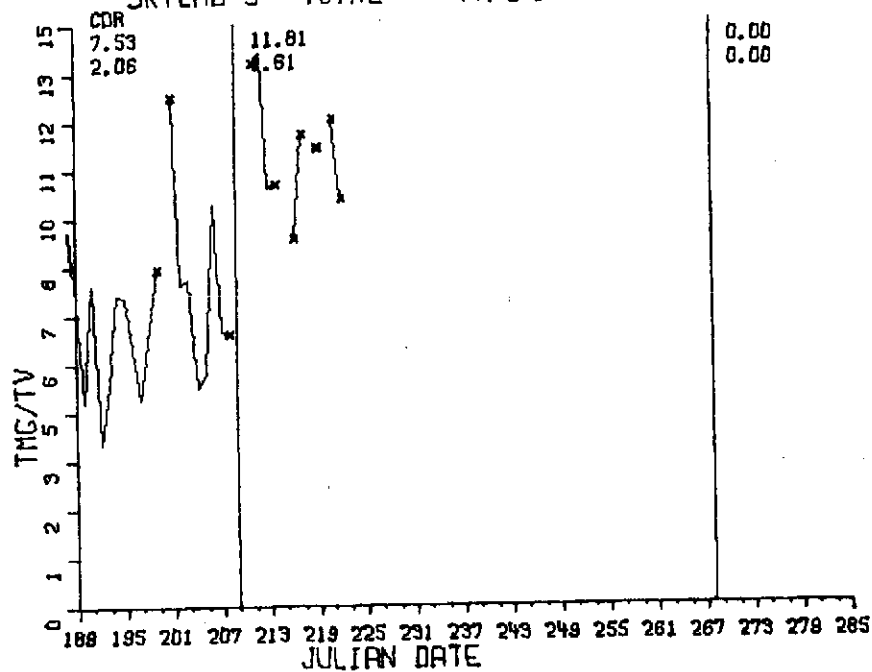
TOTAL -- TOTAL 17-KETO-STEROIDS (Urine)

Data available pre- and early in-. Both significant time and astronaut differences were observed with high interaction (.968). In- was significantly higher than pre-. CDR and SPT were judged the same while PLT was judged significantly lower.

The interaction can be understood by examining the OWAV. All three astronauts show a significant increase pre- to in-flight, however the astronauts showed different rates of increase. CDR and PLT show an increase of 1.5 while SPT showed an increase of 1.75.
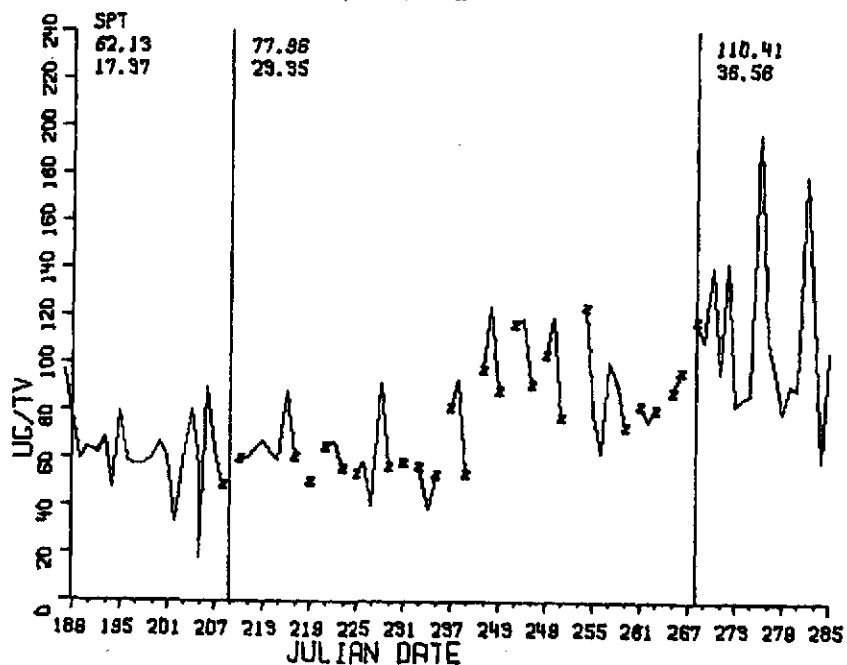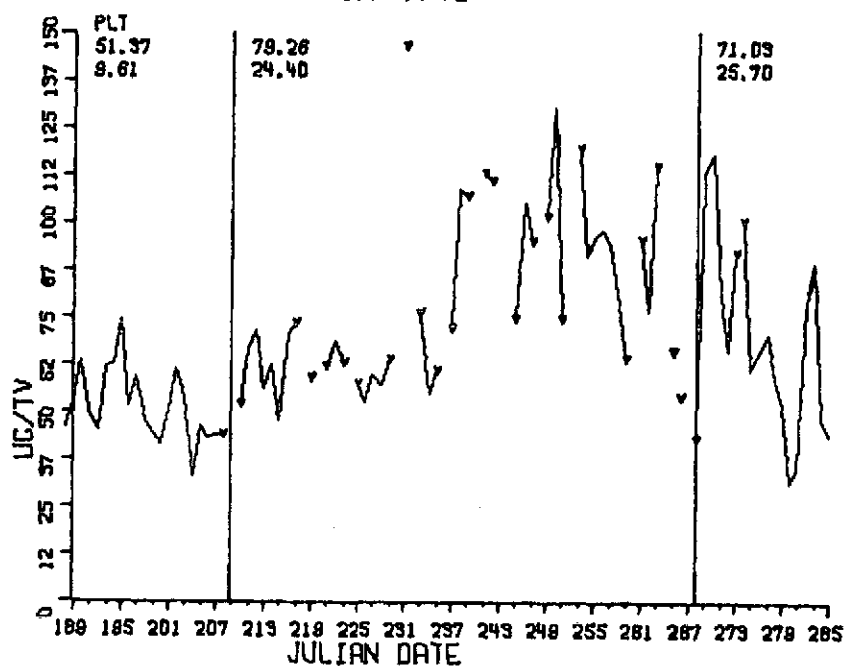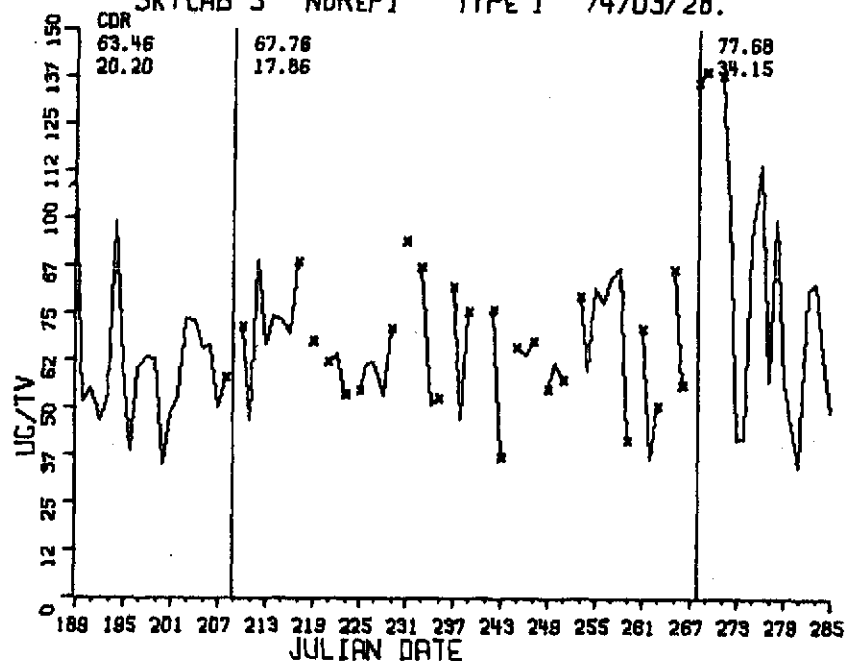
SKYLAB 3 OSMO TYPE 1 74/03/28.

74
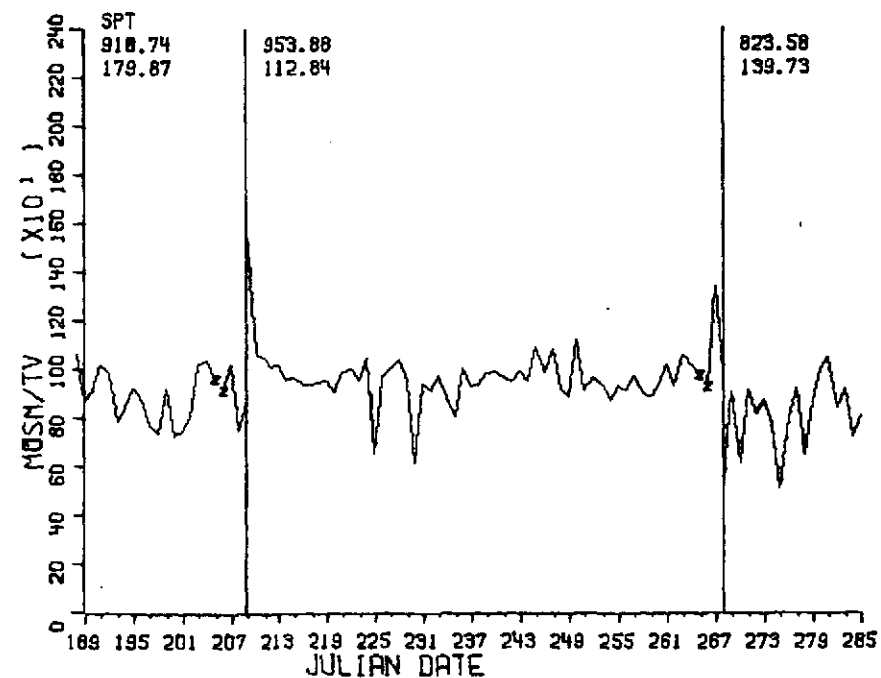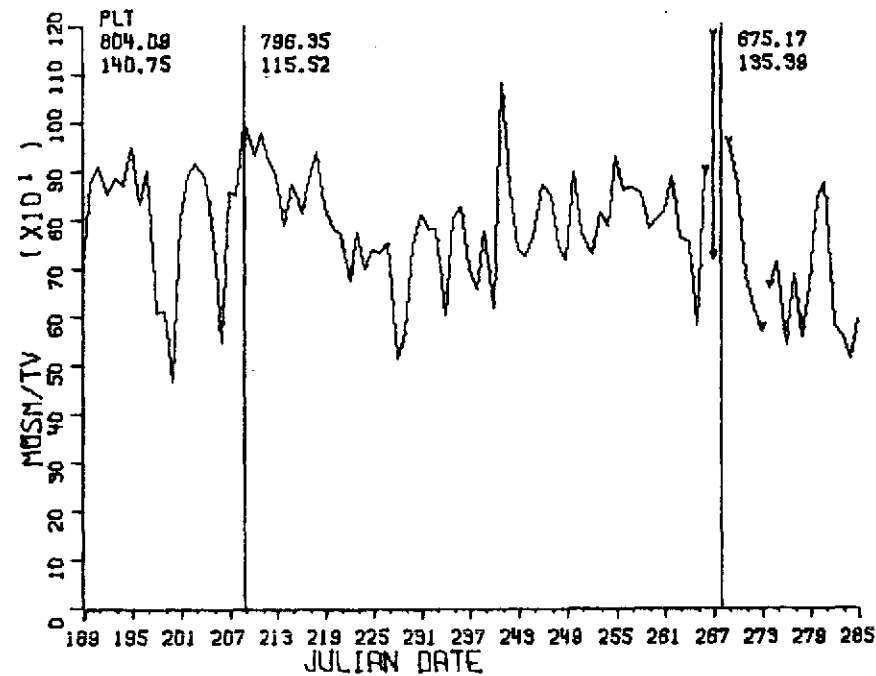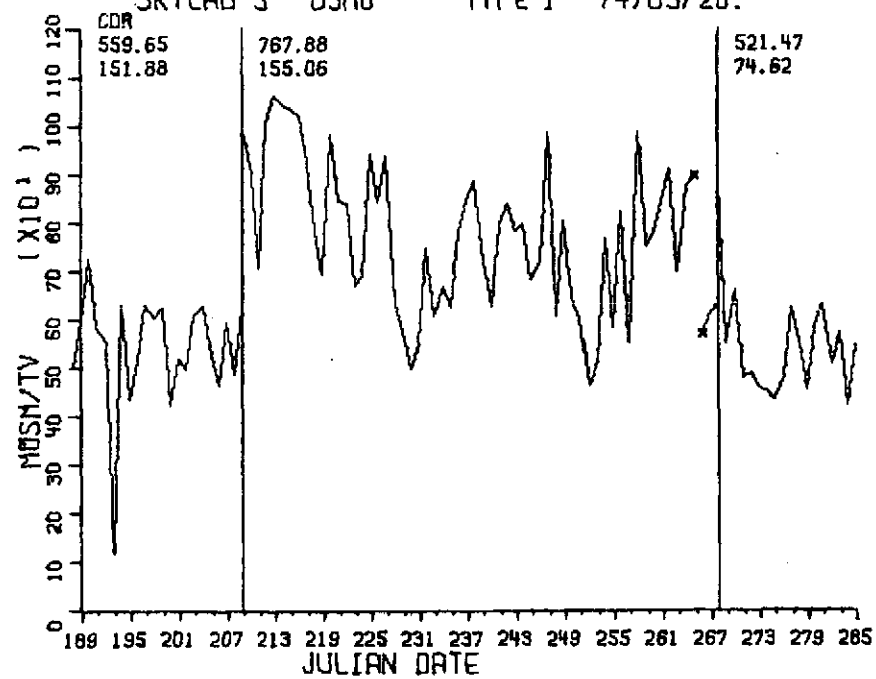
OSMO -- OSMOLALITY (Urine)

Data is available throughout the period. Both significant time and astronaut differences were observed using the TWUAV with high interaction (. 999). In- was judged significantly higher than pre- which was judged significantly higher than post-. SPT was judged significantly higher than PLT which was judged significantly higher than CDR.

The interaction can be understood by examining the individual OWAV. CDR exhibits a significant increase pre- to in- and significant in- to post- while pre- and post- and judged to be the same. PLT and SPT exhibit increases in- to post- and pre- to post- while pre- and in- are judged to be the same. There is, however, a non-significant increase in SPT pre- to in-.

No significant trends were observed.

CDR shows no signficant cycles. However, Fourier analysis shows 4 and 6 day cycles. PLT has a significant 5 day cycle which is confirmed with 4, 5 and 7 day cycles on Fourier analysis. SPT shows no significant cycles. However, Fourier analysis shows cycles at 3, 4 and 6 days.

SKYLAB 3   NA   TYPE 1   74/03/28.
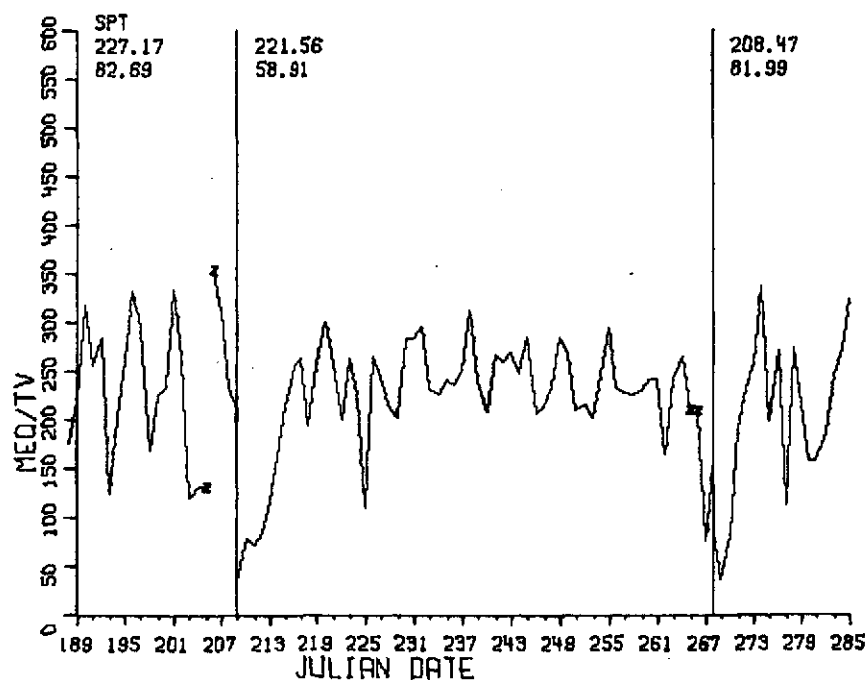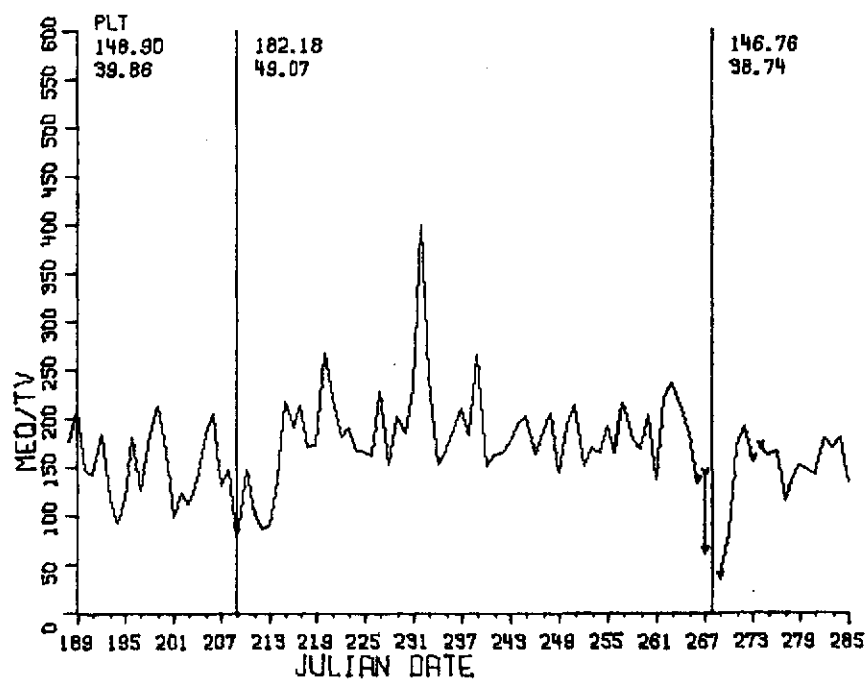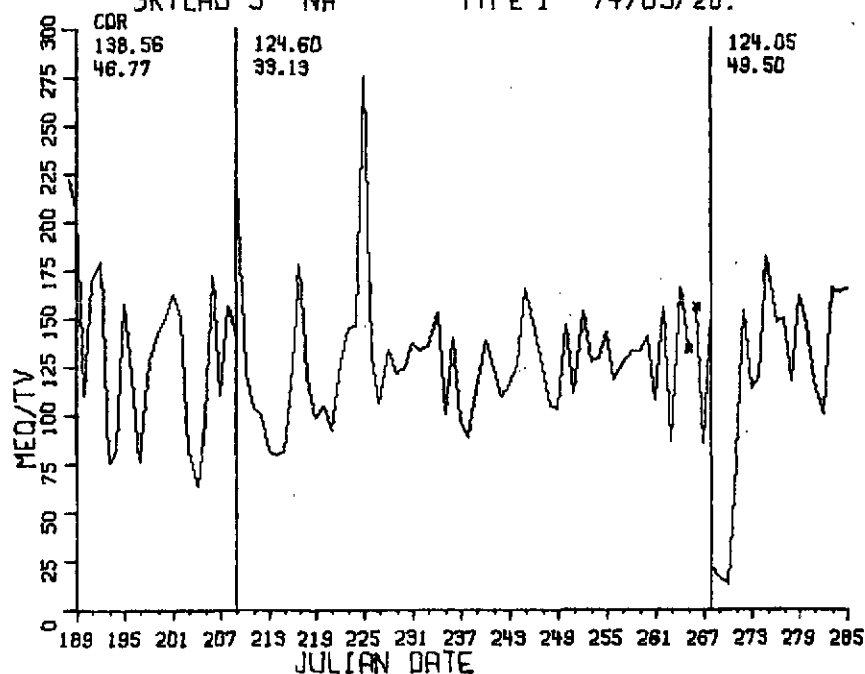
NA --(Urine)

Data is available throughout the period. A significant astronaut diff-
erence is observed using TWUAV with high interaction (.93). SPT is judged
significantly higher than PLT which is significantly higher than CDR.

The interaction can be understood by examining the OWAV. PLT shows a
significant increase pre- to in- and decrease in- to post- while pre- and
post- are judged the same. Remarkable points are found at blast-off and
recovery. CDR has a remarkable point at day 225 with a value of 276. PLT
has remarkable points at 220 with a value of 268 and 232 with a value of
400.

No significant trend was observed

No significant cycles were observed on CDR. However, 5, 6 and 8 day
cycles were found using Fourier analysis. A 12 day cycle was observed on
PLT and confirmed using Fourier analysis along with 4, 6 and 8 day cycles.
A significant 2 day cycle was observed on SPT with 3, 4, 6 and 9 day cycles
occurring using Fourier analysis.

SKYLAB 3   K   TYPE 1   74/03/28.
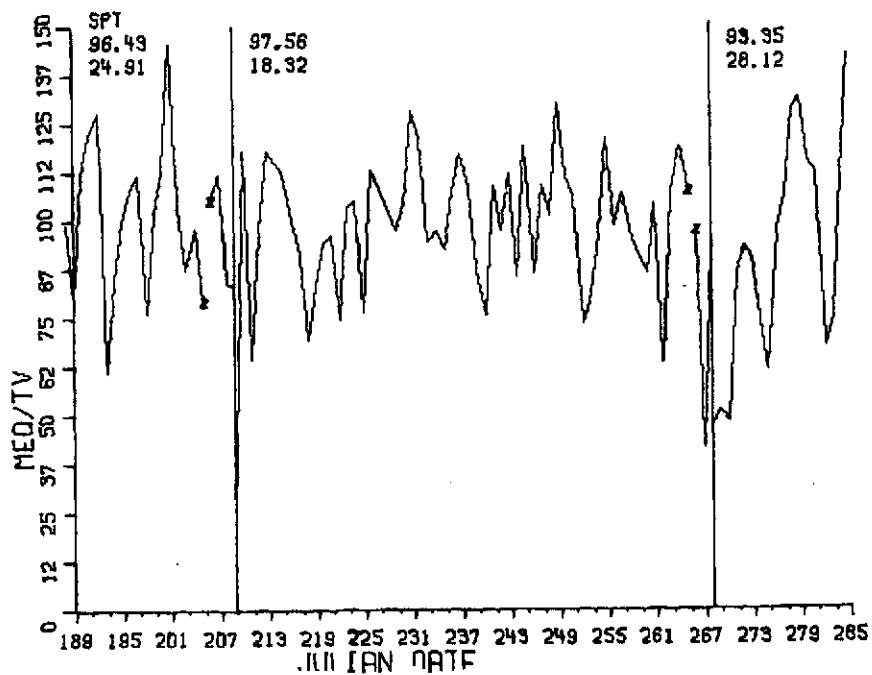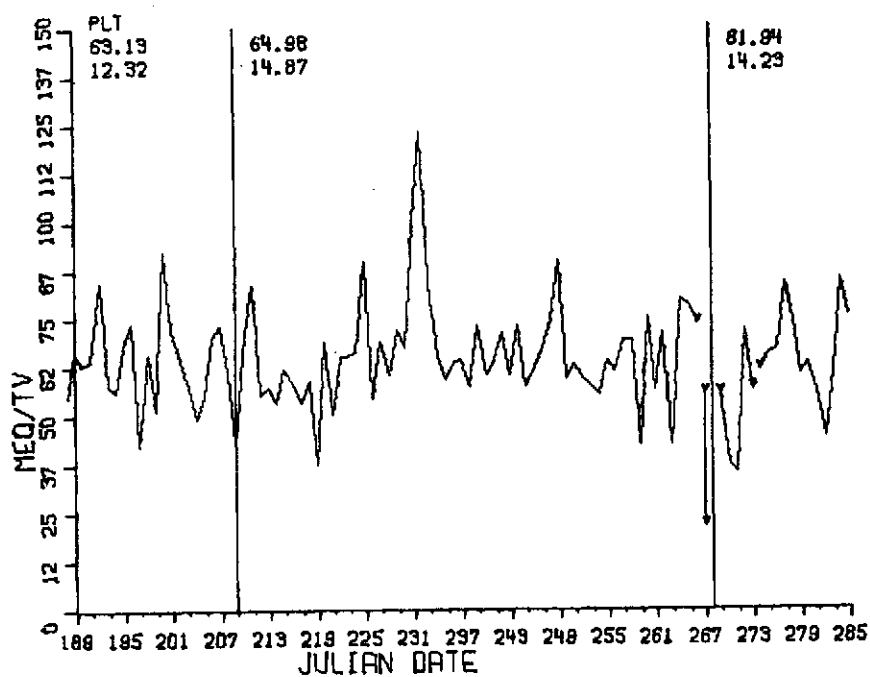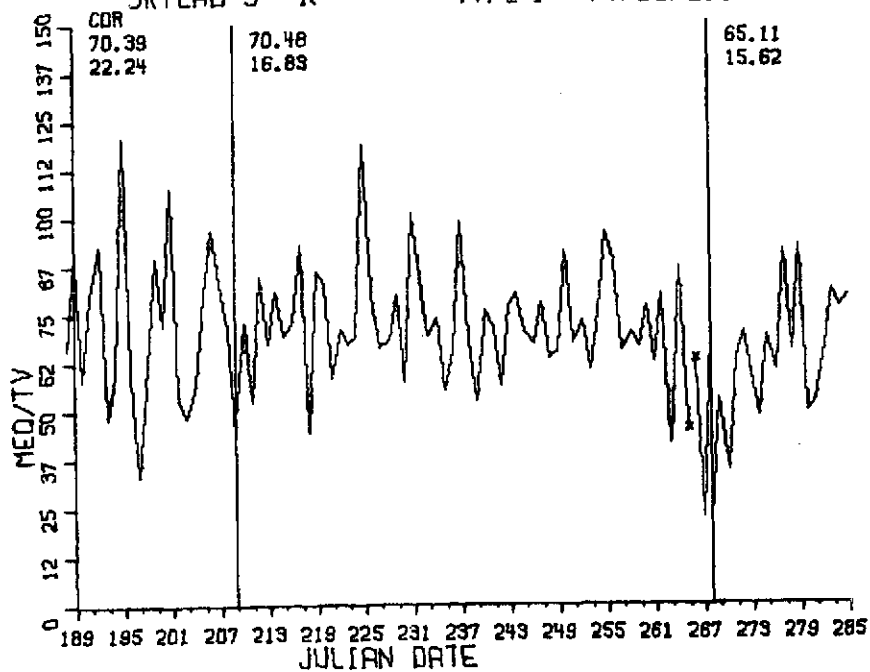
K (Urine)

Data is available throughout the period. A significant astronaut is observed using TWUAV. SPT is judged significantly higher than CDR which is judged significantly higher than PLT. Remarkable points include recovery on all three astronauts and blast-off on SPT. Potassium shows considerable variation, however, PLT shows remarkable points at days 200, 231, and 232.

No significant trends were observed in-flight.

A significant 6 day cycle was found on CDR. Fourier analysis also shows 4, 5 and 6 day cycles. No significant cycles were found on PLT. Fourier analysis shows cycles at 4, 5 and a general large cycle in the neighborhood of 6 through 9 days. This indicates considerable variation in periodicity over the period. A nearly significant 3 day cycle was observed on SPT which is confirmed using Fourier analysis along with an 8 day cycle.

SKYLAB 3   MG   TYPE 1   74/03/28.
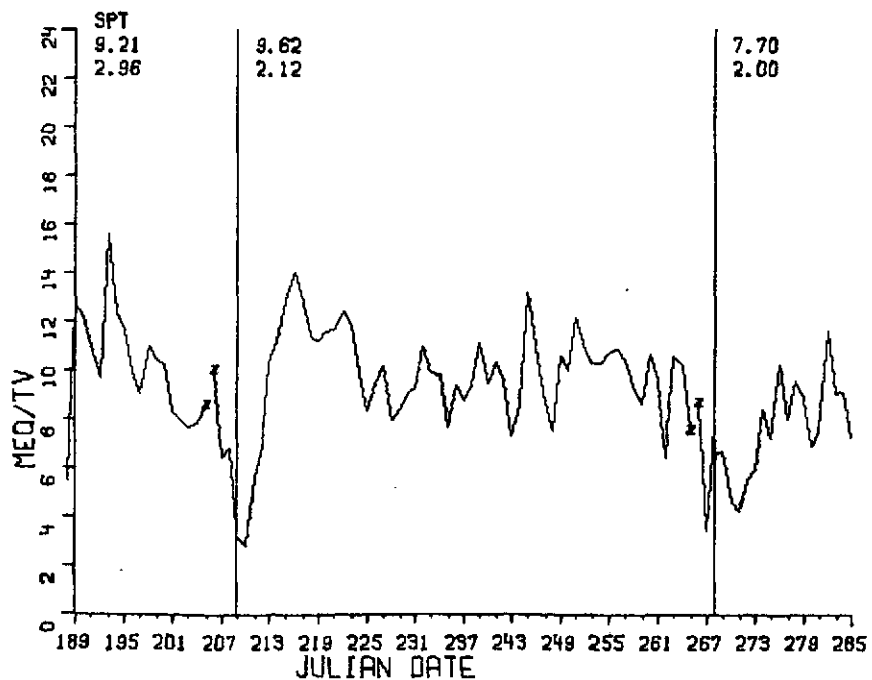
MG (Urine)

Data is available throughout the period. Both significant astronaut and time differences were observed using the TWUAV with high interaction (.999). Post- is judged significantly lower than pre- and in- which are judged to be the same, while in- is judged significantly higher than pre- and post- which are judged to be the same. CDR is judged to be significantly lower than PLT and SPT which are judged to be the same.

The interaction can be understood by examining the individual OWAV. CDR shows no significant change, however a slight decrease was observed in- over pre- and post-. PLT shows a significant increase pre- to in- and decrease pre- to post-, while pre- and post- are judged to be the same. SPT shows a significant decrease in- to post- and pre- to post- with pre- and in- judged to be the same. However, SPT shows a slight non-significant increase pre- to in-. Remarkable points occur at blast-off and recovery. PLT shows remarkable points also at days 232 and 256.

A significant downward trend was observed. A nearly significant (.90) difference in individual decreases was also observed. This is due to individual rate of -.08, -.02 and -.023 for CDR, PLT and SPT respectively for an overall decrease of -.043 MEq/TV per day.

No significant cycles were observed on any astronauts. Fourier analysis shows a period at 6.5 days for CDR, 4 and 5 days for PLT and 4.5 and 6 days for SPT.

SKYLAB 3   P04   TYPE 1   74/03/28.
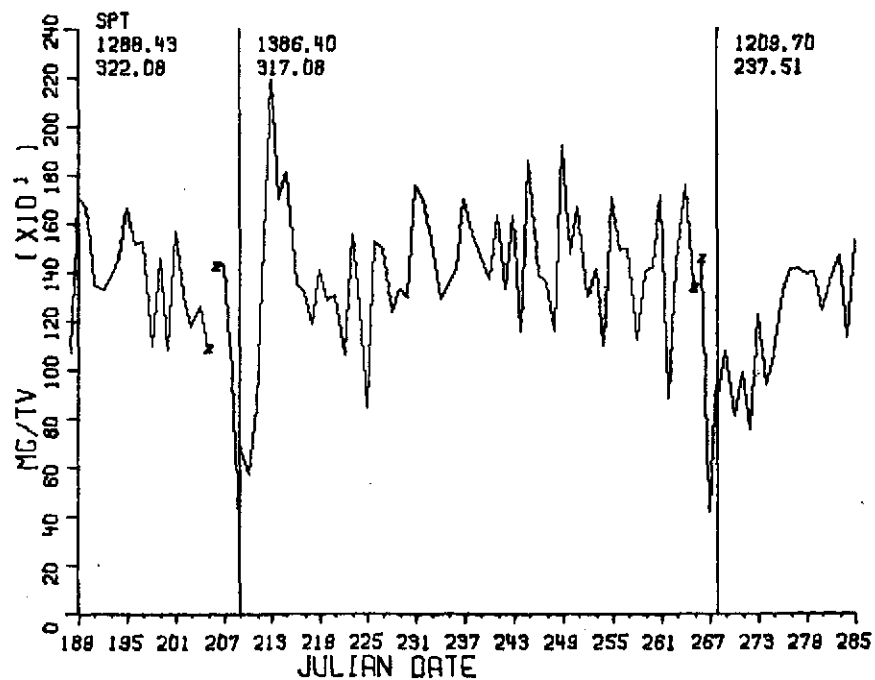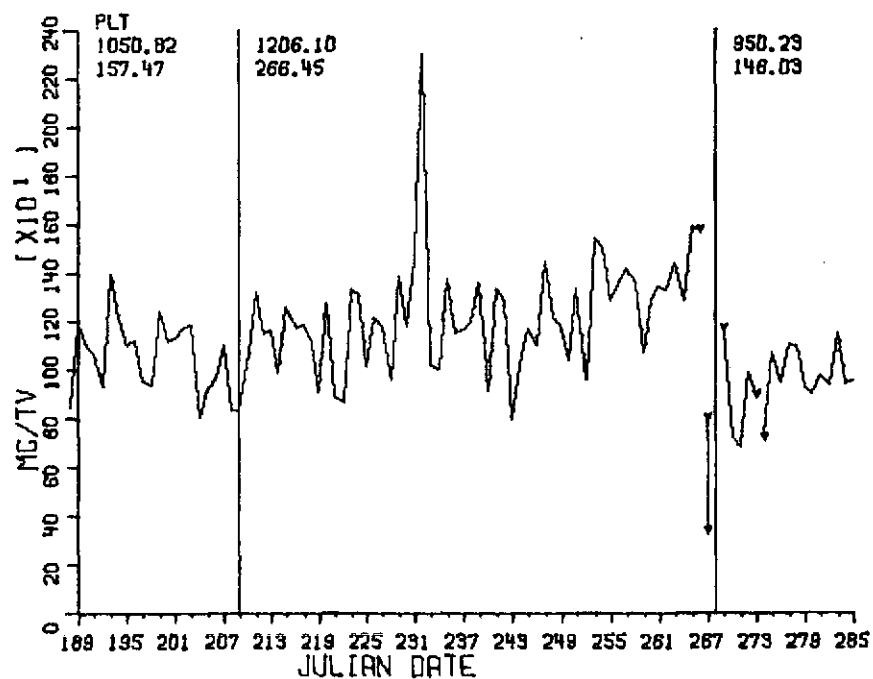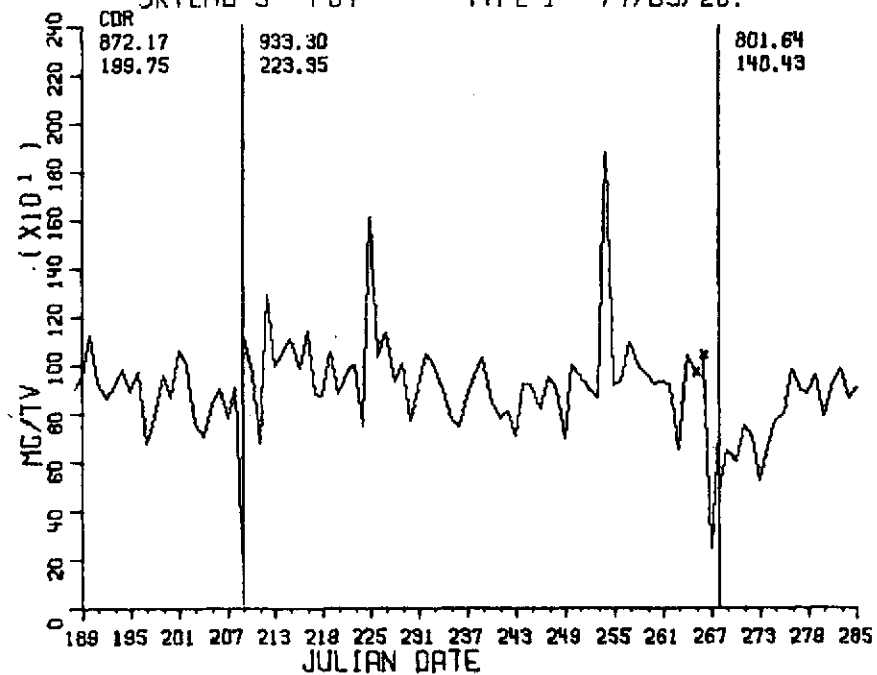
PO4 (Urine)

Data is available throughout the period. Both significant astronaut and time differences are observed using the TWUAV. In- is judged significantly higher than pre- and post- which are judged to be the same. SPT is judged to be significantly higher than PLT which is significantly higher than CDR.

The increase in the in-flight readings may be a result of remarkable points. A decrease is observed at blast-off and recovery. However, CDR exhibits remarkable increases at days 225 with a reading of 1612 and 254 with a reading of 1876. PLT has a remarkable point at day 232 with a value of 2302. SPT shows a remarkable change from blast-off at day 210 with a reading of 556 to day 213 with a high reading of 2199.

No significant trend was observed in-flight. No significant cycles were observed on CDR or PLT while SPT had a significant negative cycle at 3 days.

SKYLAB 3   CR   TYPE 1   74/03/28.
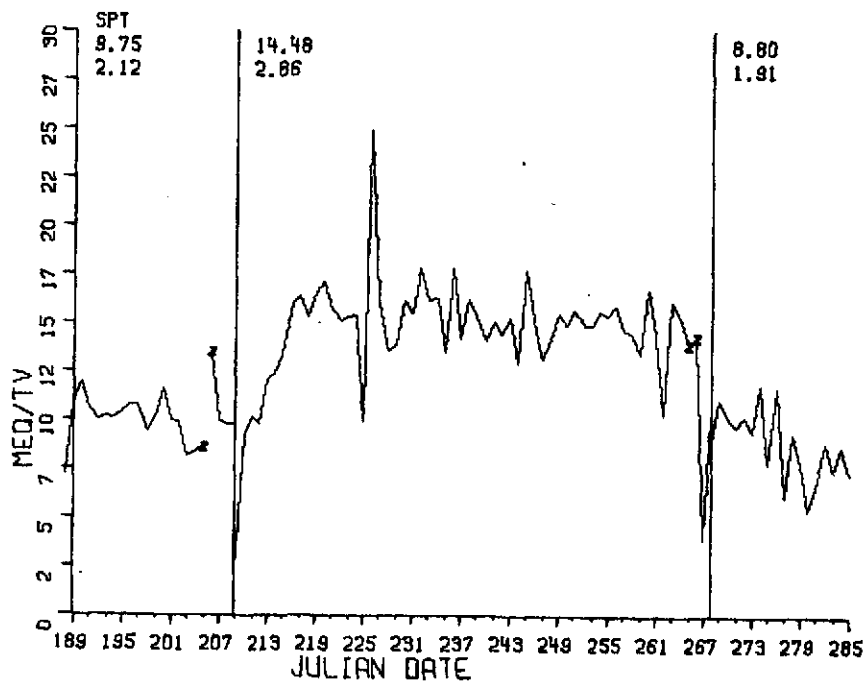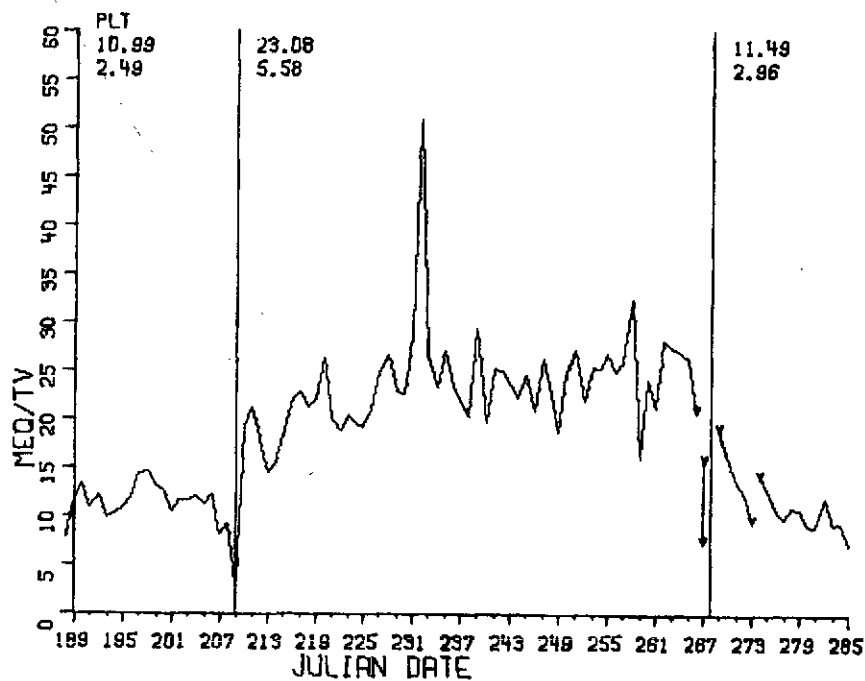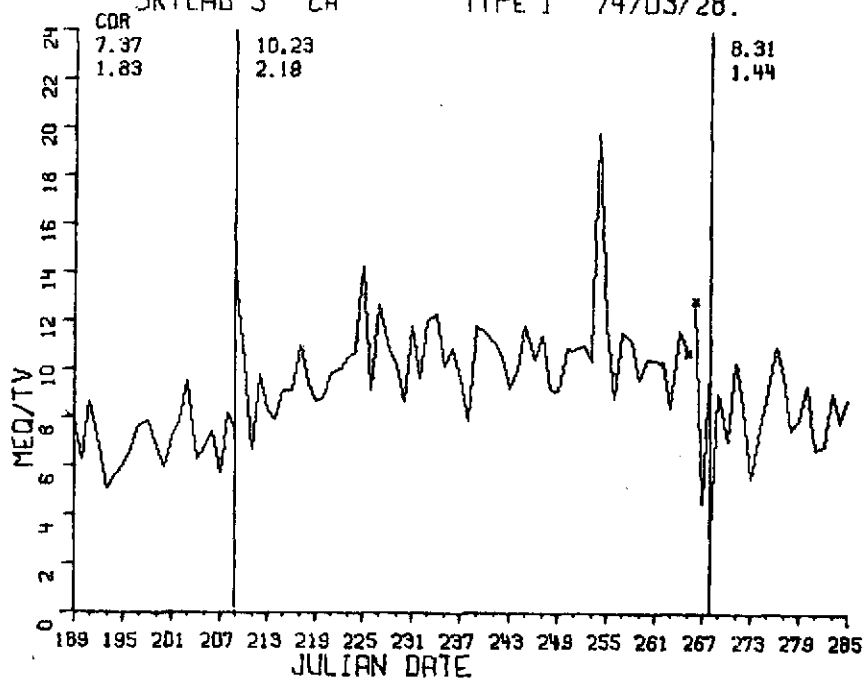
CA (Urine)

Data is available throughout the period. Both significant astronaut and time differences were observed using the TWUAV with a high interaction (>.999). In- was judged significantly higher than pre- and post- which were judged to be the same. PLT was judged to be significantly higher than SPT which was judged to be significantly higher than CDR.

The high interaction can be understood by examining the rates of increase in calcium in-flight over pre-. The CDR in-flight mean increased over pre- by 140%; the PLT in-flight mean increased 230% over pre-flight; the SPT mean in-flight increased 150% over pre-. Some of the increase in-flight shown by PLT may be explained by the remarkable point at day 232 with a value of 50.9. SPT showed considerable variation at days 225 and 226 with respective readings of 9.9 and 25.0. However these two days average out to be approximately the mean. CDR shows one remarkable point at day 254 with a value of 19.8. Other remarkable days occur at blast-off and recovery.

No significant in-flight trends were observed.

No significant cycles were observed on any astronaut. Indeed, only broad period structures from day 4 though 8 were observed using Fourier analysis.

SKYLAB 3   CL   TYPE 1   74/03/29.
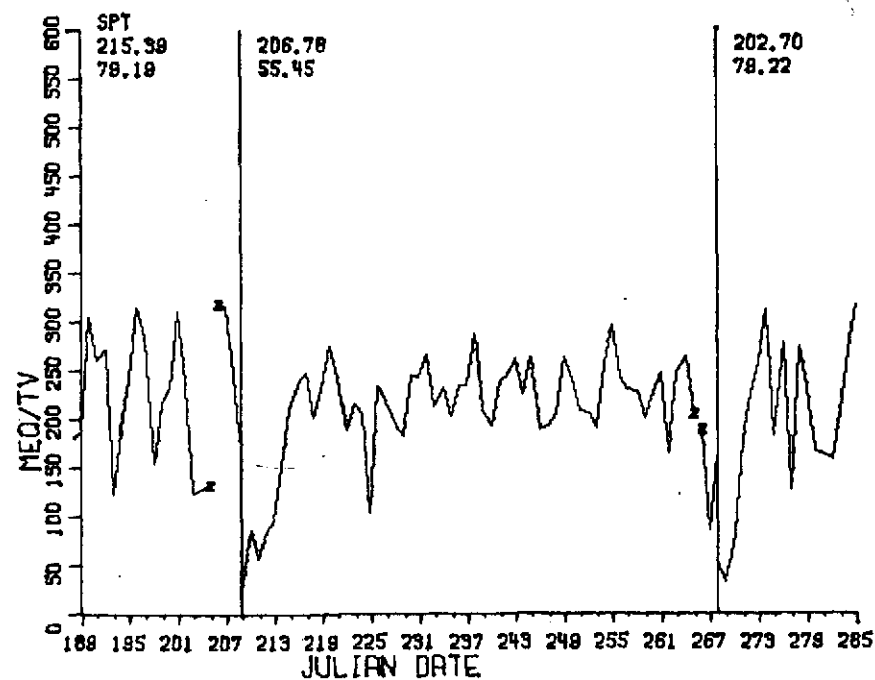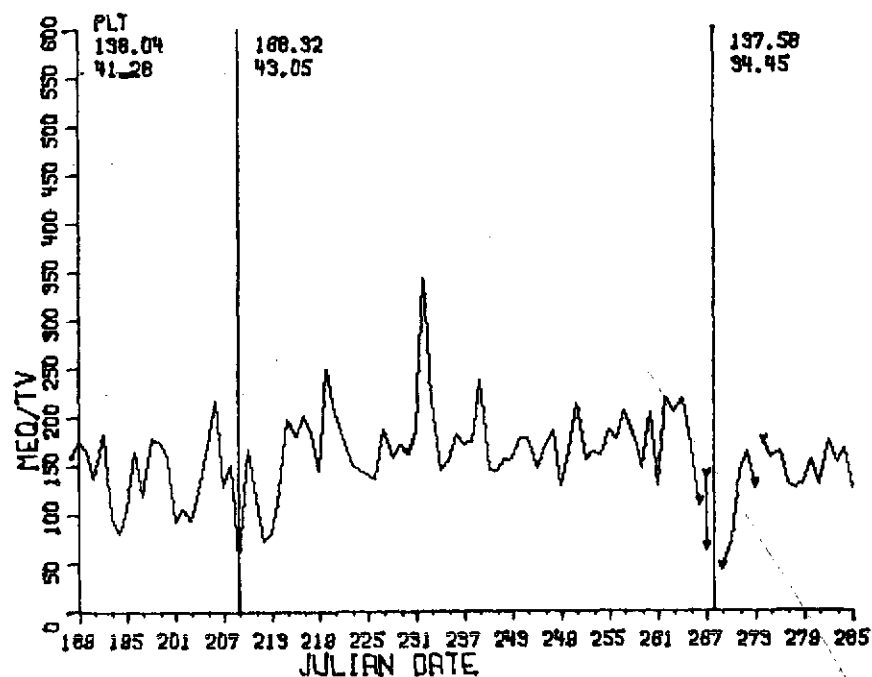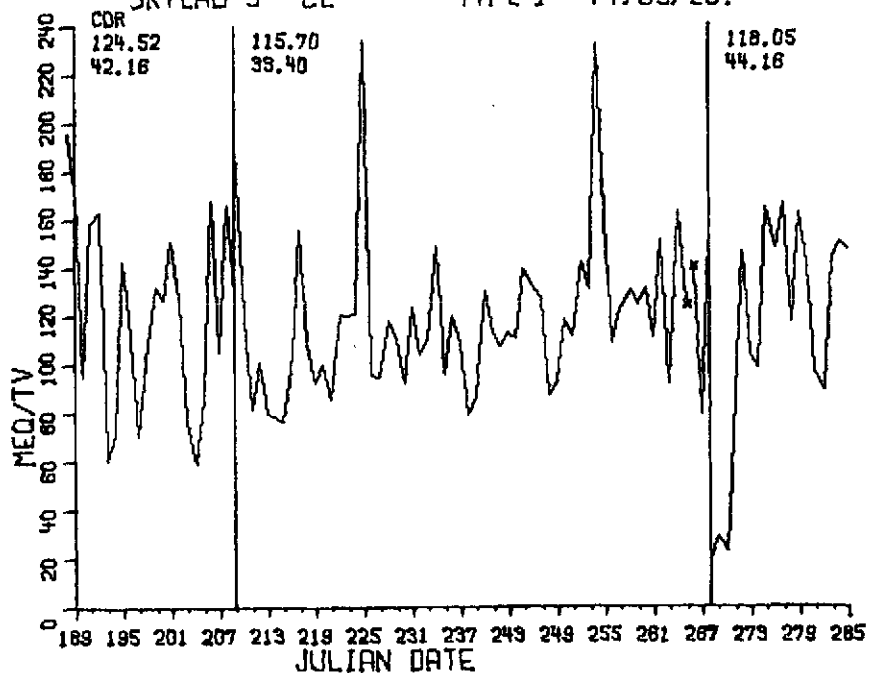
CL -- (Urine)

Data available throughout the period. Significant astronaut differences were observed using TWUAV with high interaction (.91). SPT is significantly higher than PLT which is significantly higher than CDR. The interaction can be understood by examining the OWAV. CDR and SPT show no change pre- to in- to post-, while PLT had significant increase in-flight over pre- and post- which are judged to be the same.

No significant trends were observed.

A significant 2 day cycle was observed on SPT. No significant cycles were observed on CDR or PLT. Fourier analysis shows 6 day cycles on all three astronauts.

SKYLAB 3   SP.GR.   TYPE 1   74/03/29.

CDR
1.01   1.02   1.01
.00   .00   .00

$(X10^{-1})$

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

PLT
1.02   1.02   1.01
.00   .00   .00

$(X10^{-1})$

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

SPT
1.02   1.02   1.02
.00   .00   .00

$(X10^{-1})$

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE
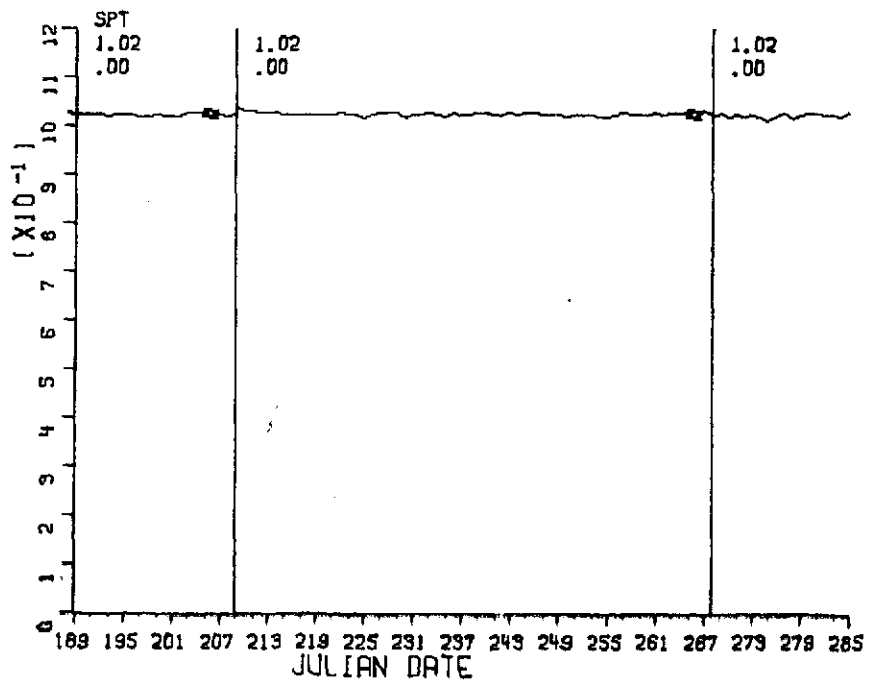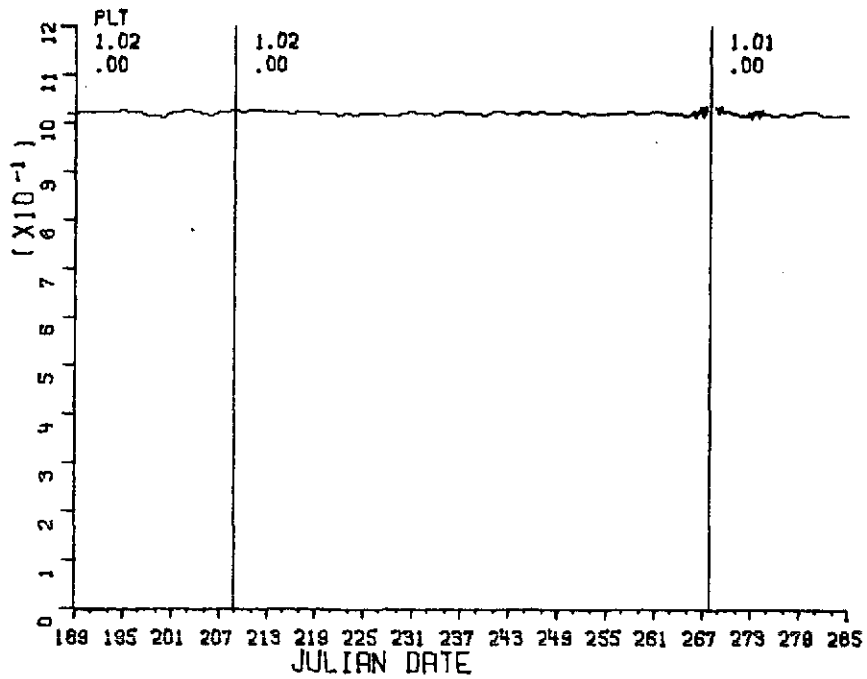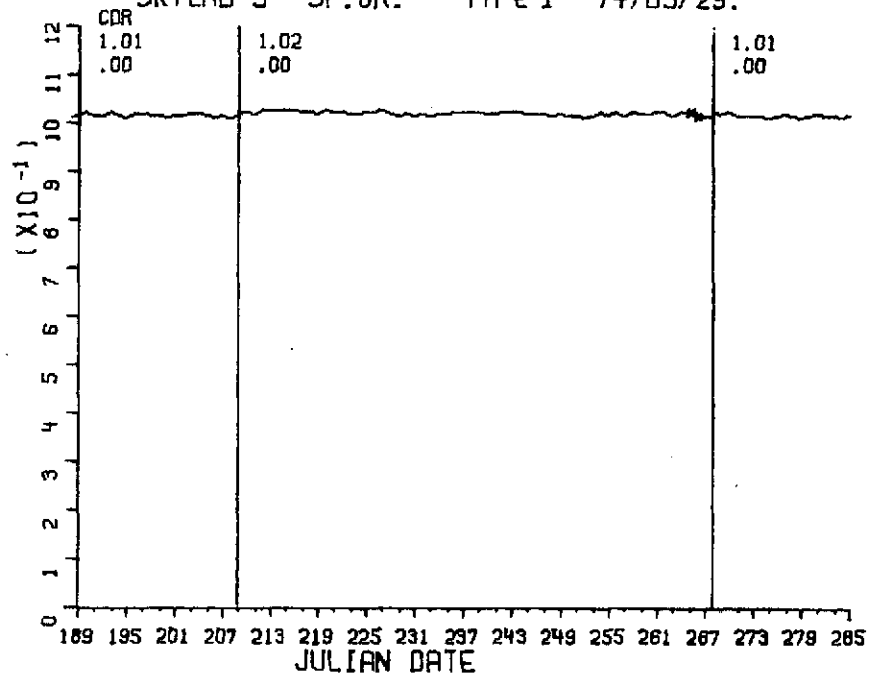
SP. GR. -- (Urine)

Data available throughout the period. Both time and astronaut differences were observed using the TWUAV with large interaction (.999). In- was judged significantly higher than pre- which was significantly higher than post-. SPT was significantly higher than PLT which was significantly higher than CDR.
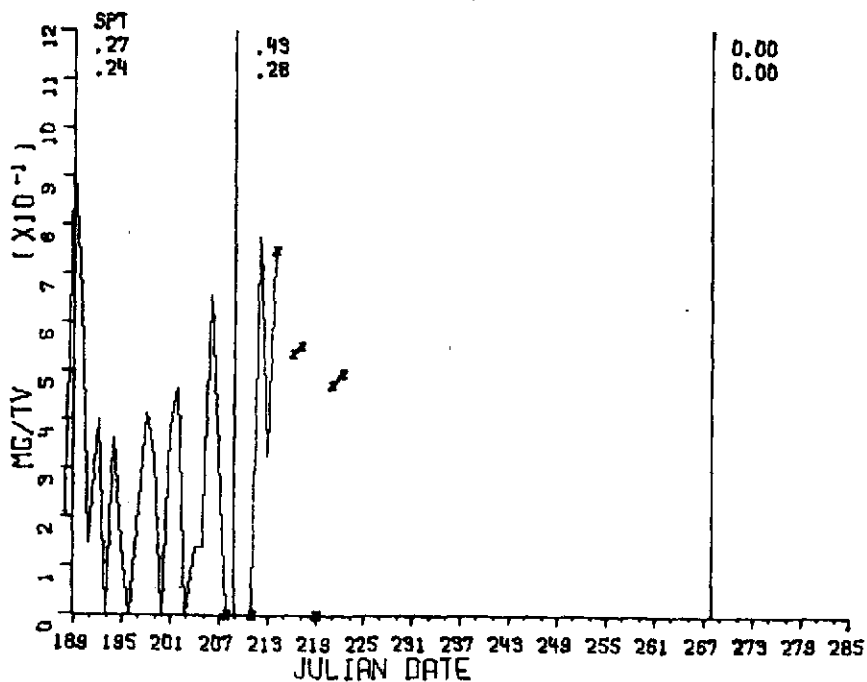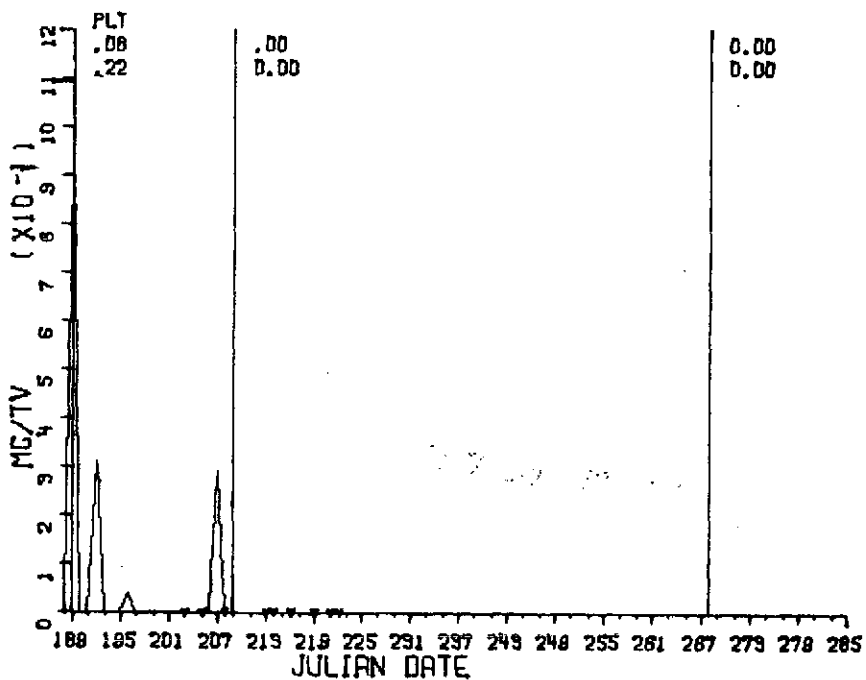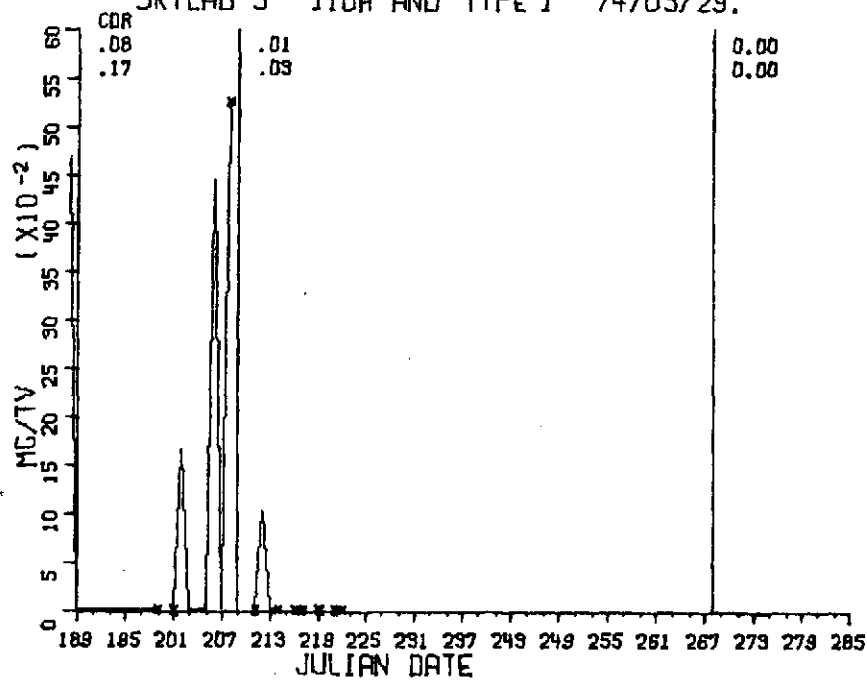
The high interaction can be understood, by examining the individual contrasts, means and standard deviations. CDR shows a significant increase pre- to in- and decrease in- to post- with pre- and post- judged to be the same. PLT shows a near significant decrease in- to post- (.94) and significant decrease pre- to post- with pre- and in- judged to be the same. SPT shows a significant decrease in- to post- but pre- and in-, and pre- and post are judged to be the same. The small observed differences are significant because the overall mean square error is .00352.

A significant downward trend was observed. Rates of $-.1 \times 10^{-3}$, $-.3 \times 10^{-4}$, and $-.3 \times 10^{-4}$ were observed on CDR, PLT and SPT respectively with an overall rate of $-.6 \times 10^{-4}$.

No significant cycle was observed for CDR. However, Fourier analysis shows a 6 day cycle. A significant 6 day cycle was observed on PLT. A significant 5 day cycle was observed on SPT with a 5 day cycle observed using Fourier analysis.

SKYLAB 3   H   TYPE 1   74/03/29.
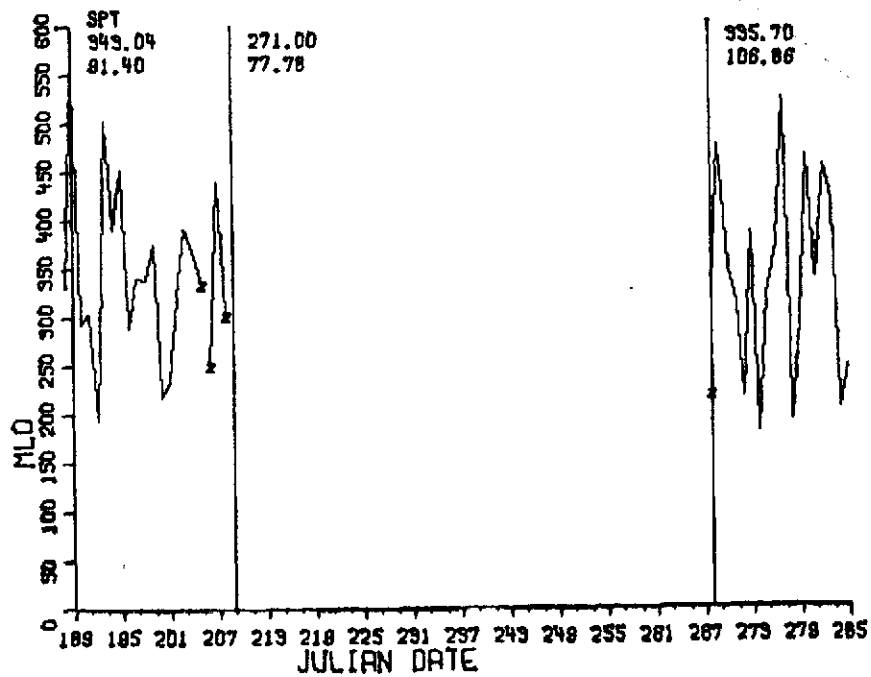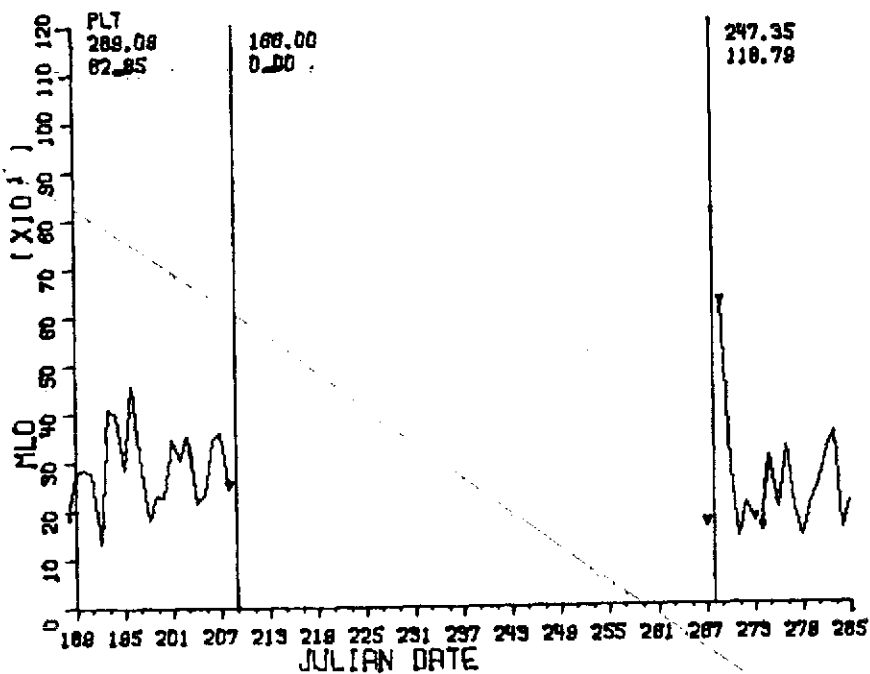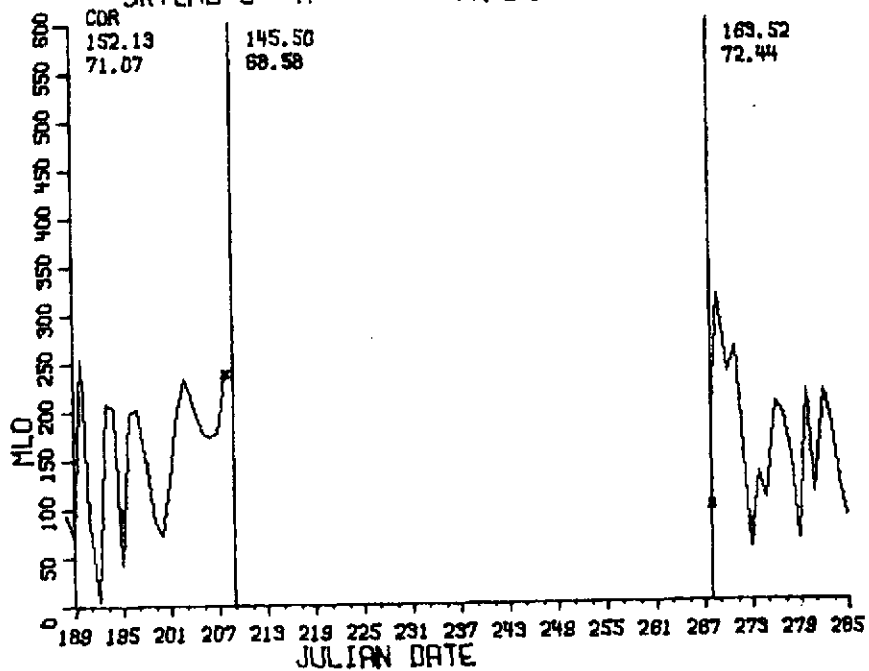
H -- TITRATIBLE ACIDITY (Urine)

Data available pre- and post-flight. A significant astronaut differ- ence was observed using the TWUAV. SPT was judged significantly higher than PLT which was judged significantly higher than CDR.

SKYLAB 3   CREAT   TYPE 1   74/03/29.

92
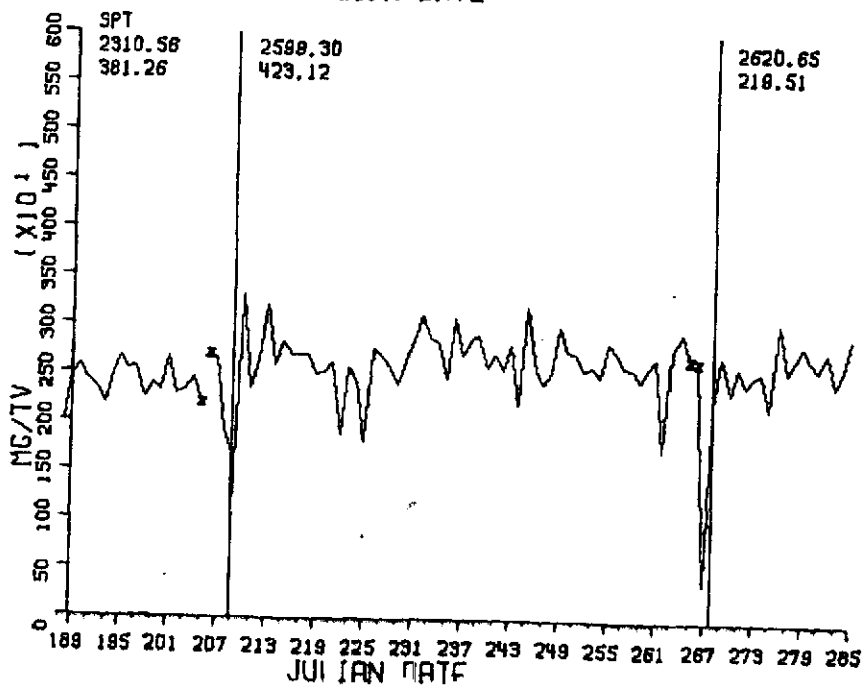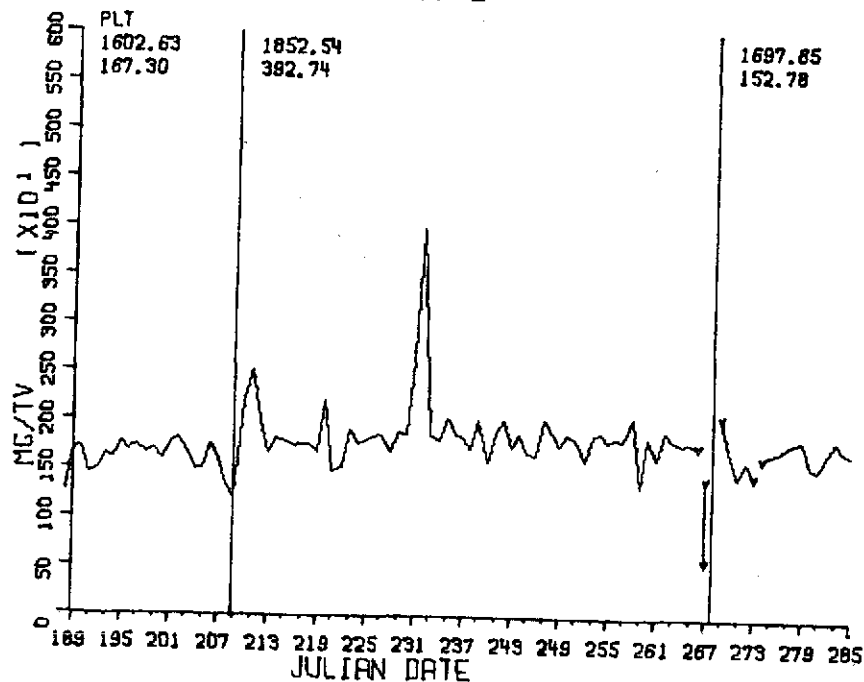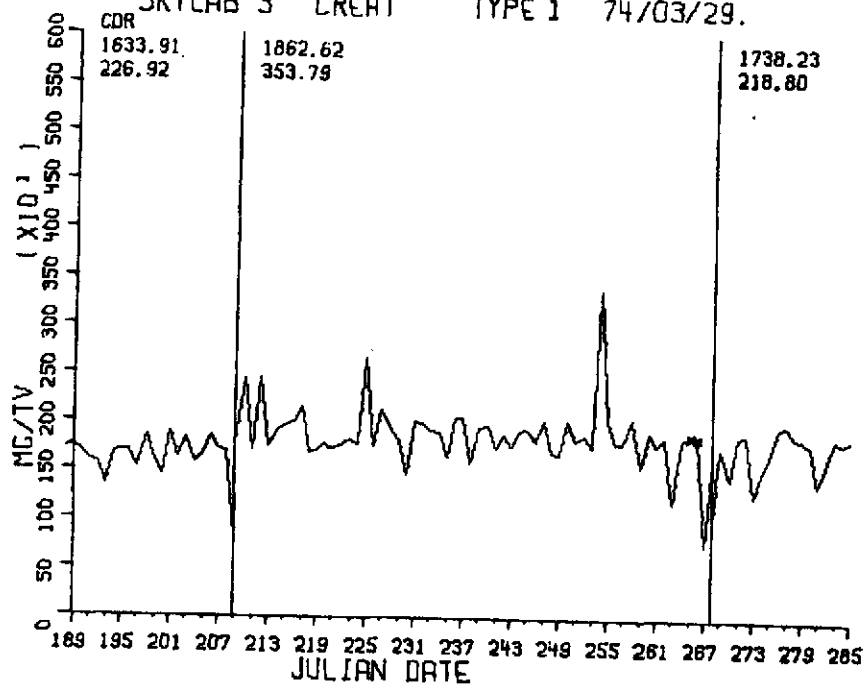
CREATine (Urine)

Data is available throughout the period. Both significant time and astronaut differences were observed using the TWUAV. No interaction. Pre- was significantly lower than in- and post- which were judged to be the same. Post- showed a return toward normal pre-flight readings. SPT was judged to be significantly higher than CDR and PLT which were judged to be the same.

A significant downward trend was observed. A rate of -5.6 mg. per total volume per day was observed. This is most probably due to low readings during late in-flight and not due to some persistant trend.

No significant cycles were observed on CDR and PLT. However, 6 day cycles were observed using Fourier analysis. A significant 5 day cycle was observed on SPT and confirmed using Fourier analysis. However, the Fourier analysis shows considerable cyclic behavior between 4 and 8 days.

SKYLAB 3   URICACID TYPE 1   74/03/29.
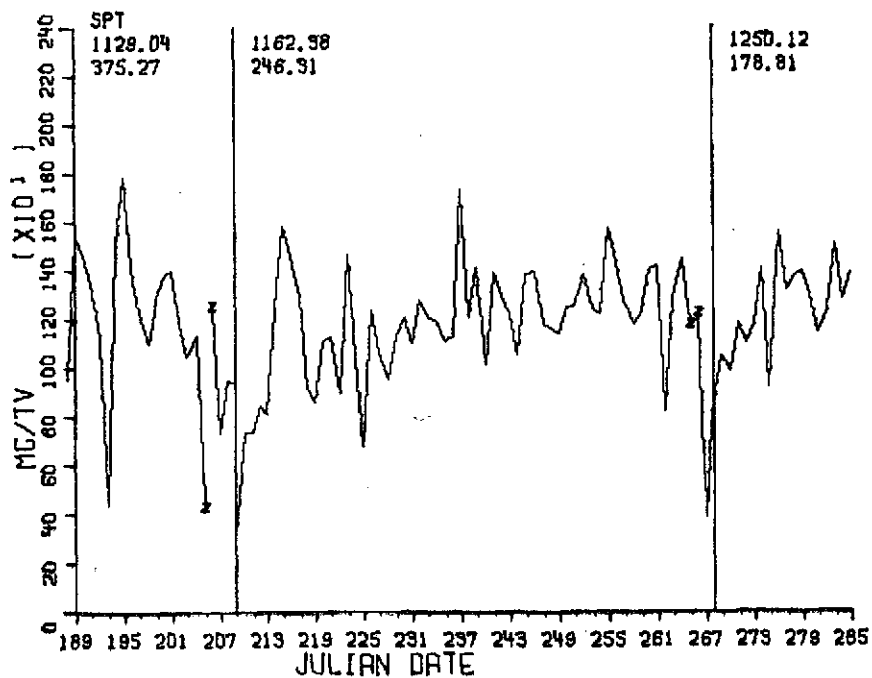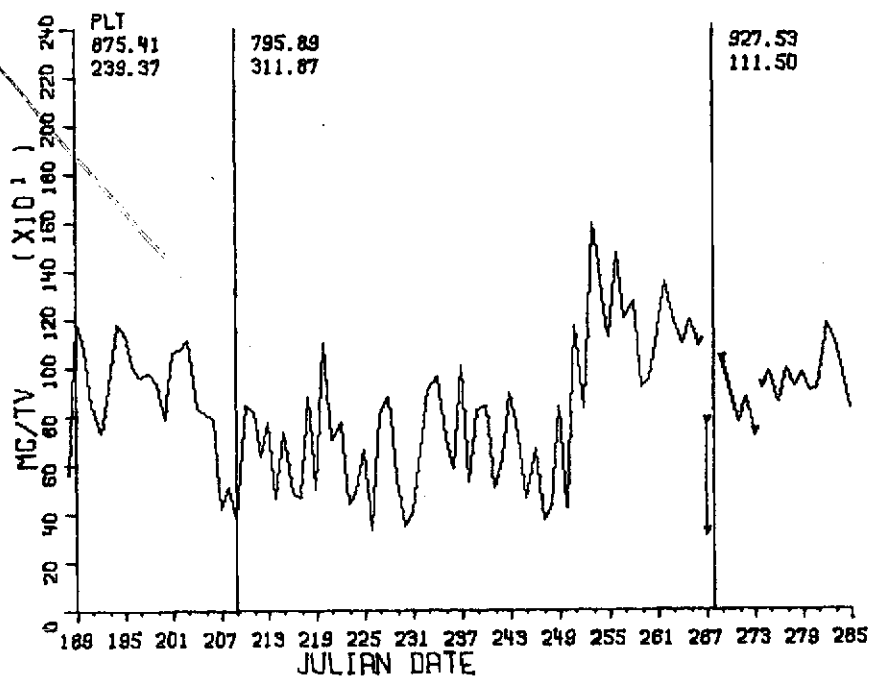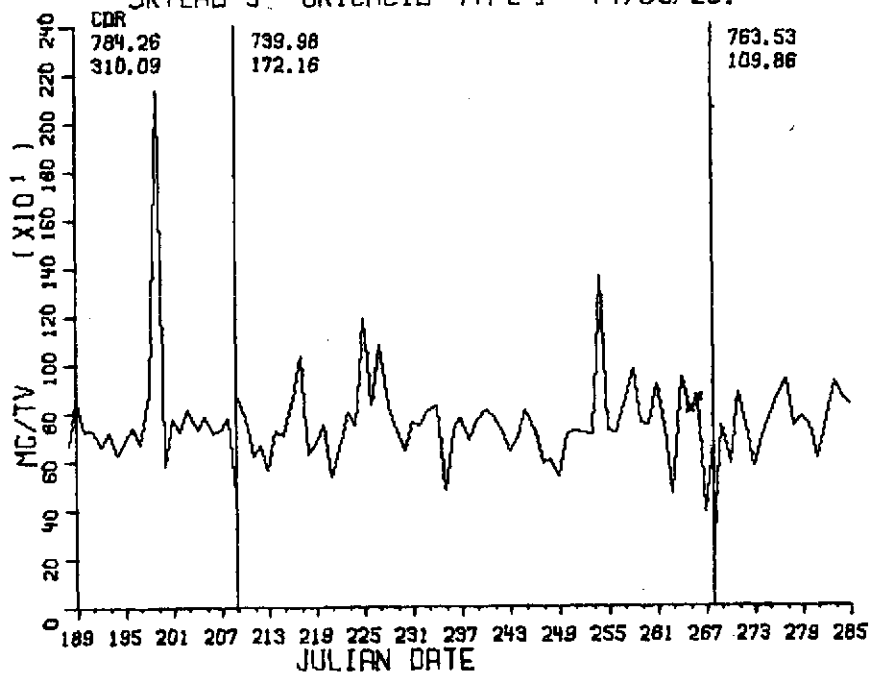
URIC ACID (Urine)

Data available throughout the period. Significant astronaut differences observed using the TWUAV. SPT was judged significantly higher than PLT which is significantly higher than CDR.

There is a remarkable point at date 199 on CDR, and value of 2140.

A significant upward trend was observed. Also the rates of increase were judged to be significantly different. Rates of -.7, 8.5, and 2.5 were observed of CDR, PLT and SPT respectively with an overall rate of 3.4 mg. per total volume per day. The probable reason for high readings on PLT is the rapid increase in uric acid output from days 249 through 255.

No significant cycles were observed on CDR or SPT. A signficiant 3 day cycle was observed on PLT.

3.3 DIETARY PARAMETERS

SKYLAB 3   CALORIES TYPE 1   74/05/08.
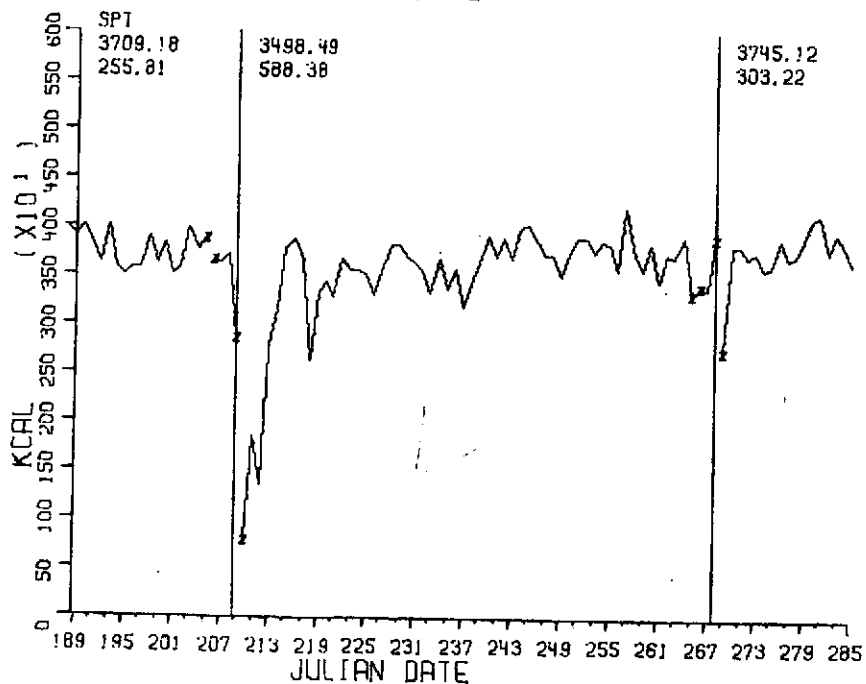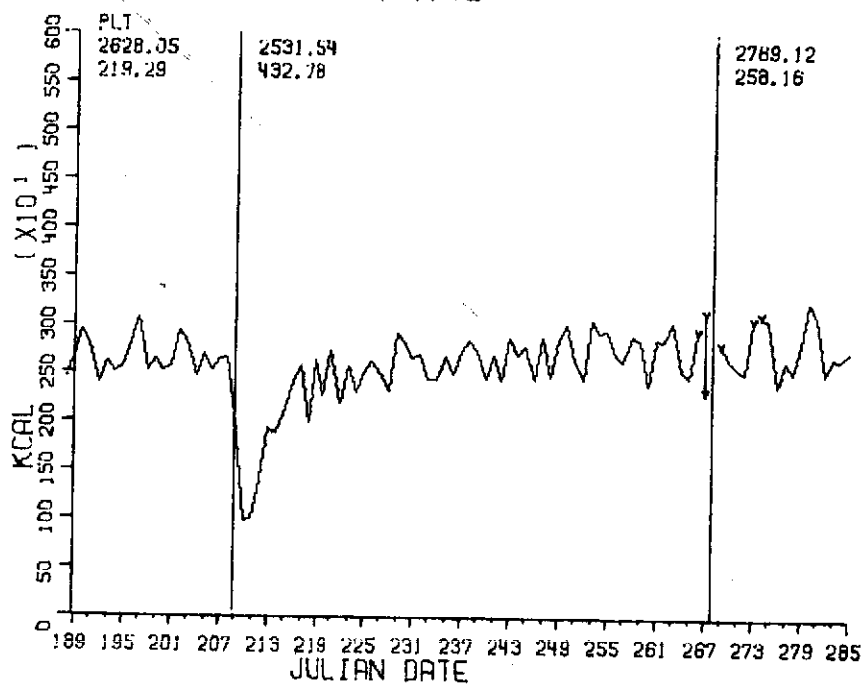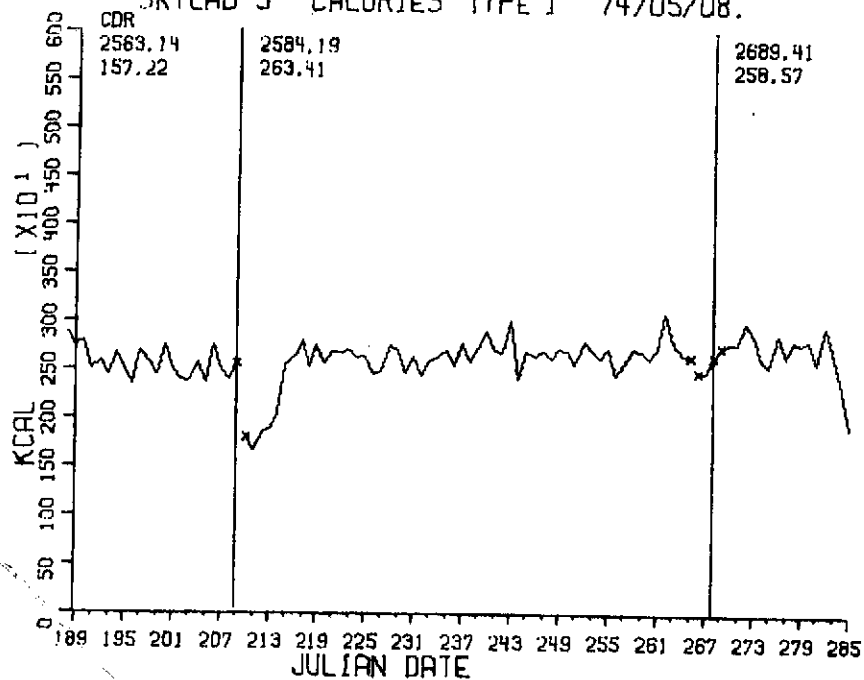
CALORIES

Data is available throughout the period. Both significant time and astronaut differences were observed. In- was judged significantly lower than pre- and post- which were judged the same. Also post- was judged significantly higher pre- and in- which were judged to be the same. Therefore we see a decrease in total caloric intake from pre- to in- followed by an overcompensation post- above pre- levels. SPT was judged to be significantly higher than CDR and PLT which were judged to be the same.

Examination of the plots and individual means show an important phenomenon. Remarkable points occur during early in-flight on all three astronauts and at recovery for SPT. These remarkable points appear to cause the decrease in total caloric intake in the astronauts. Note that SPT, who shows the greatest decrease in-flight has the greatest decrease in early in-flight. It can therefore be postulated that the decrease in total calories in-flight is due to adjustment to space and not a persistant trend.

This can also be seen in the in-flight trends. A significant increase in total caloric intake was observed in-flight. An average increase of 13.4 kilo-calories per day was observed with 7.2 kilo-calories per day, 15.8 and 17.2 attributed to CDR, PLT and SPT respectively.

A two day period was observed on all three astronauts with a three day period observed on CDR.

SKYLAB 3 PROTEIN TYPE 1   74/05'08.
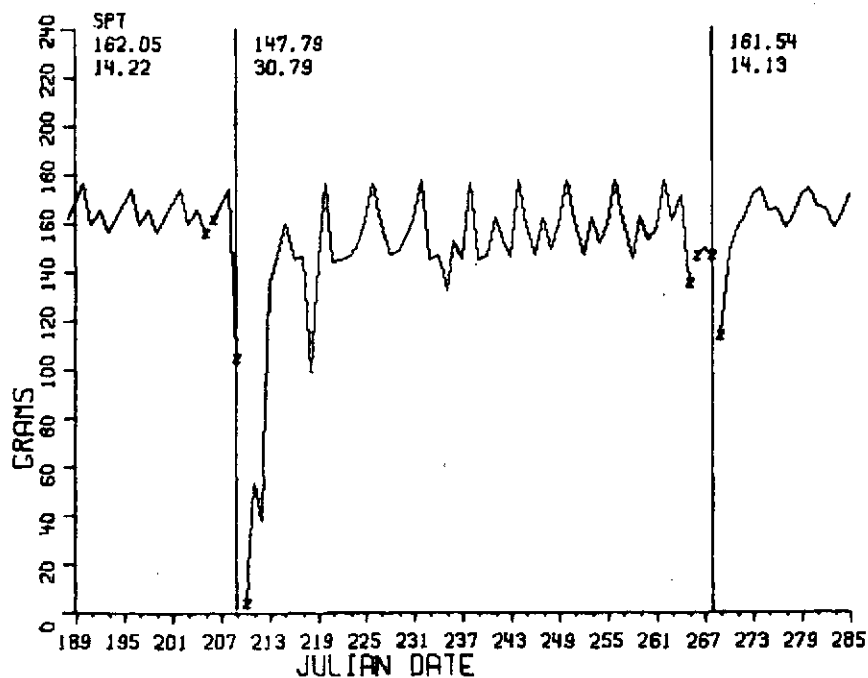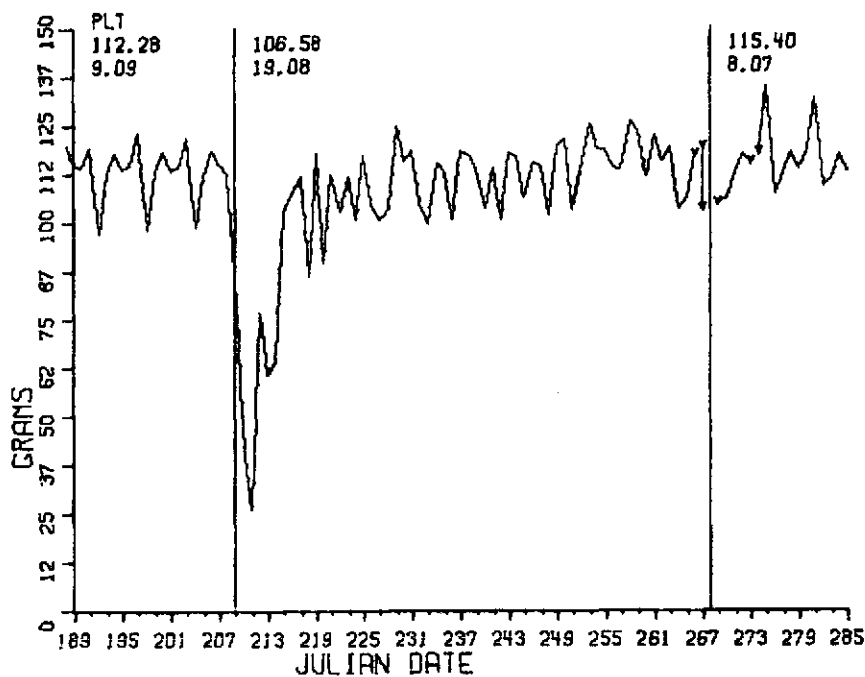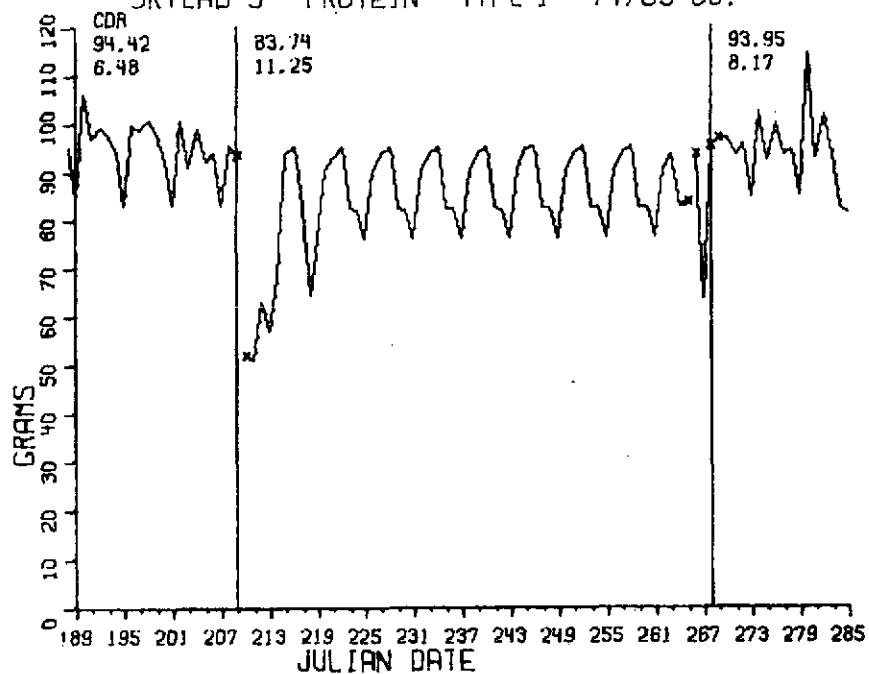
PROTEIN

Data available throughout the period. Both significant time and astronaut differences were observed. In- was judged significantly lower than pre- and post- which were judged to be the same. SPT was judged to be significantly higher than PLT which was judged to be significantly higher than CDR.

Remarkable points occur early in- on all three astronauts and at recovery on SPT. Much of the decrease in protein consumption in-flight is due to this early in-flight period. However, dietary fluctuations appear to be greater in-flight than either pre- or post-flight.

An increase in protein consumption is seen throughout in-flight. An average increase of .55 grams per day is observed with .22, .63 and .79 grams per day respectively for CDR, PLT and SPT. This increase is primarily due to the low early in-flight readings and not a persistant trend.

CDR shows a strong significant 6 day cycle. Fourier Transform Analysis also shows a fundamental period at approximately 6 days. PLT shows periods at 2 and 3 days. SPT shows periods at 2 and 6 days.

SKYLAB 3 WEIGHT TYPE 1 74/05/08.
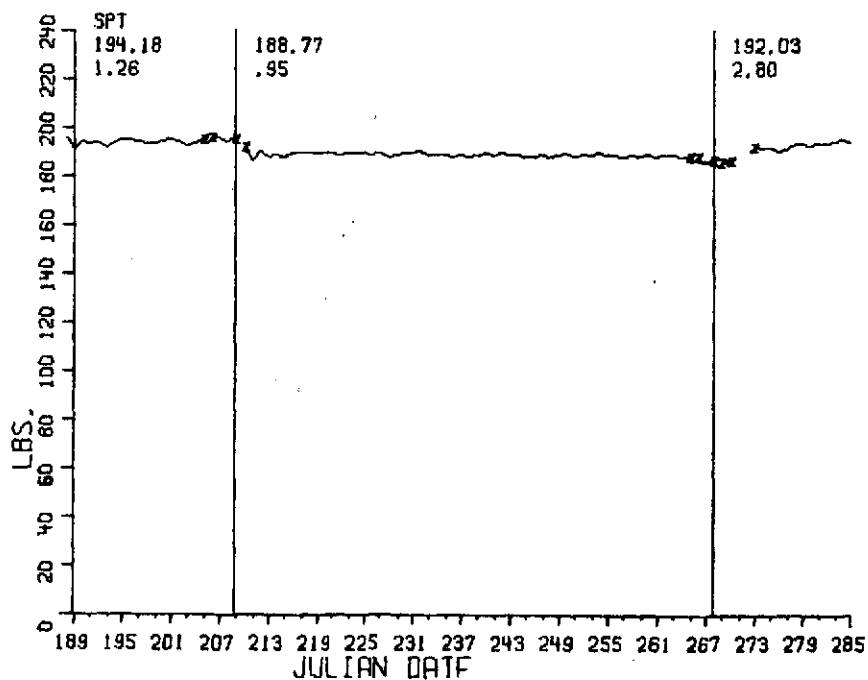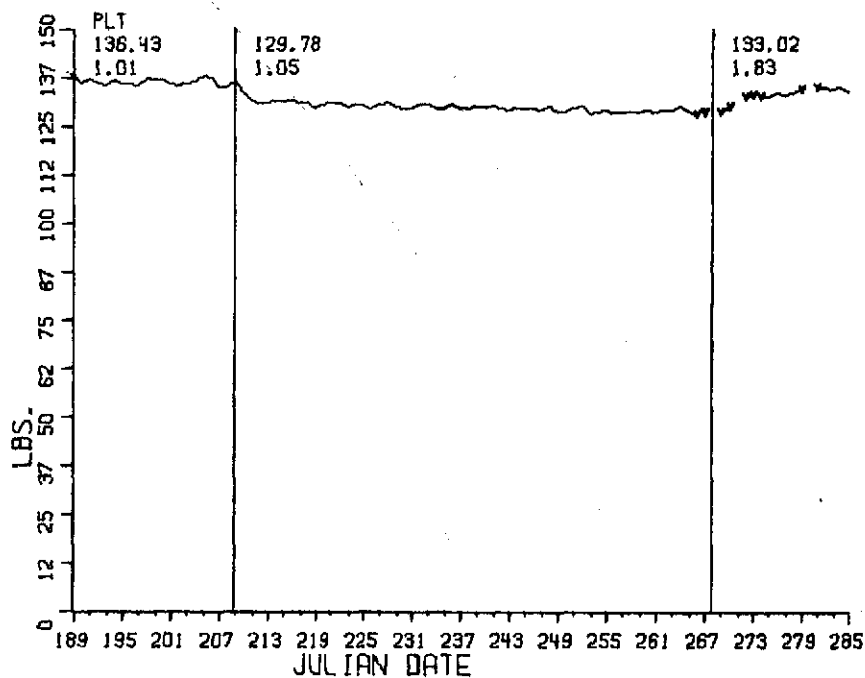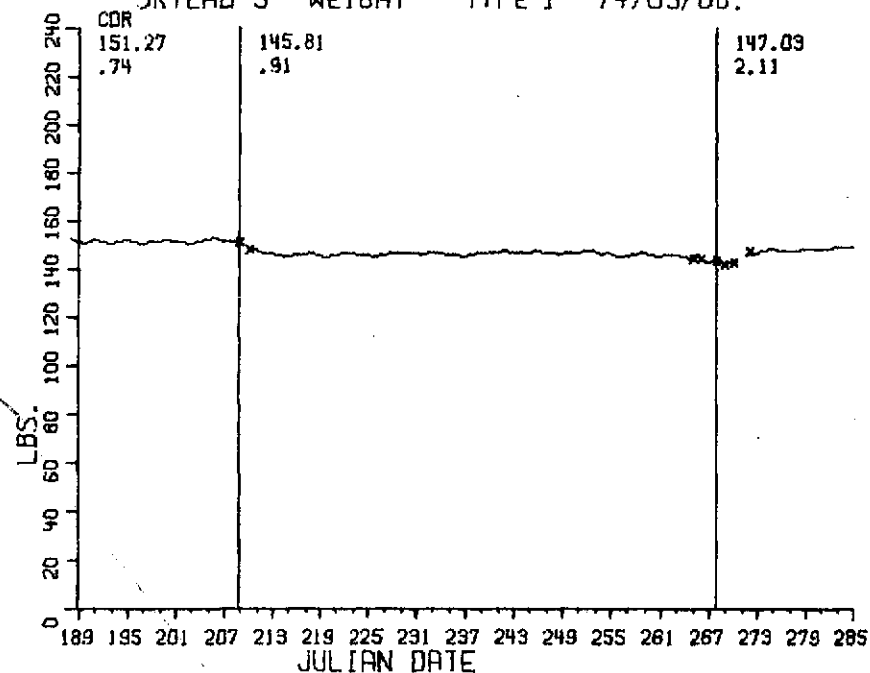
WEIGHT

Data is available throughout the period. Both significant astronaut and time differences were observed using the TWUAV with high interaction (>.999). Pre- was judged higher than post- which was judged significantly higher than in-. SPT was judged higher than CDR which was judged significantly higher than PLT.

The high interaction can be understood by examining the individual means. All three astronauts show the same general phenomenon. The astronauts lost 5.5, 6.6, and 5.4 pounds respectively pre- to in- and gained 1.2, 3.2, and 3.2 pounds respectively in- to post-. These minor differences coupled with a mean square of only 1.64 caused the interaction. Remarkable points occur at blastoff and recovery with a blastoff loss on all astronauts of approximately 3 pounds, within 1/10 of a pound.

A significant downward trend was observed on all three astronauts. The rates of loss were significantly different on the three astronauts. CDR showed a loss rate of .02 pounds per day, PLT of .05 pounds per day and SPT of .026 pounds per day for a net average loss of .032 pounds per day overall. This amounts to a loss, on a 60 day flight, of 1.26 pounds, 3.06 pounds and 1.56 pounds respectively on the three astronauts.

Two day weight cycles were observed on CDR and SPT with an almost significant negative period at two days for PLT.

SKYLAB 3   DIET NA   TYPE 1   74/05/08.

CDR
177.90
16.10

171.33
22.22

180.11
18.34

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

PLT
215.27
42.31

224.49
45.95

209.52
28.62

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

SPT
305.68
32.58

290.62
68.79

287.05
40.77

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE
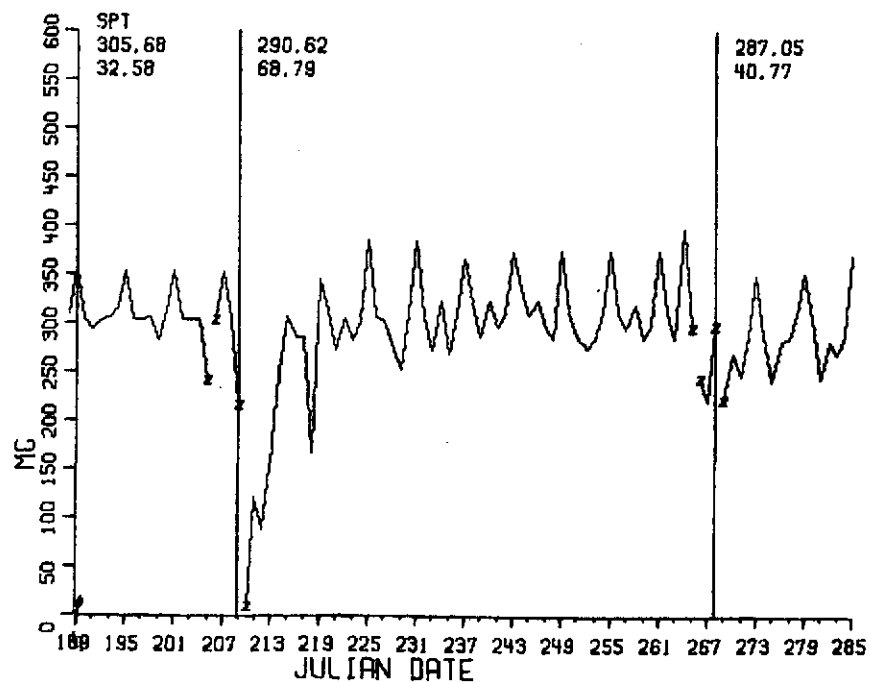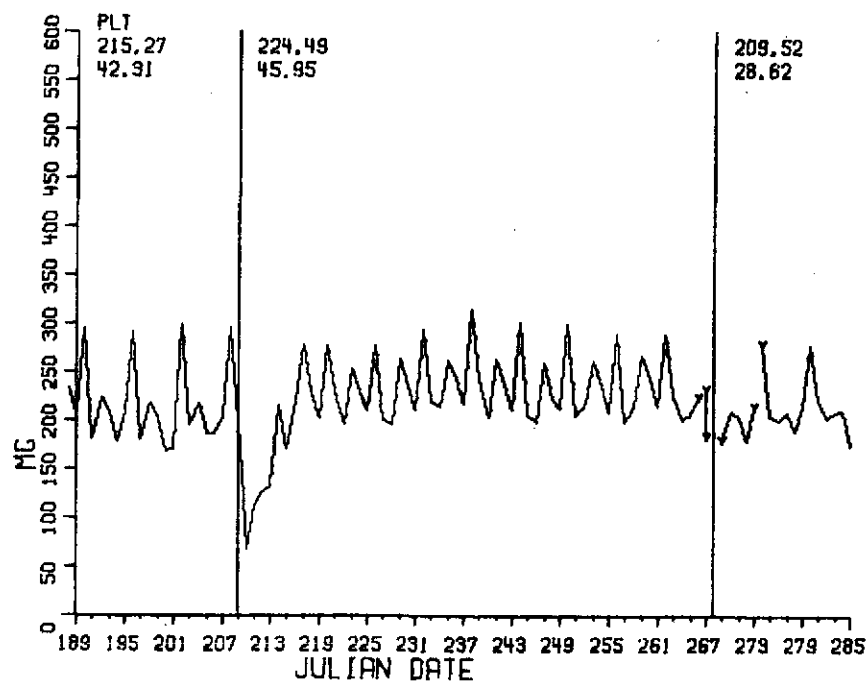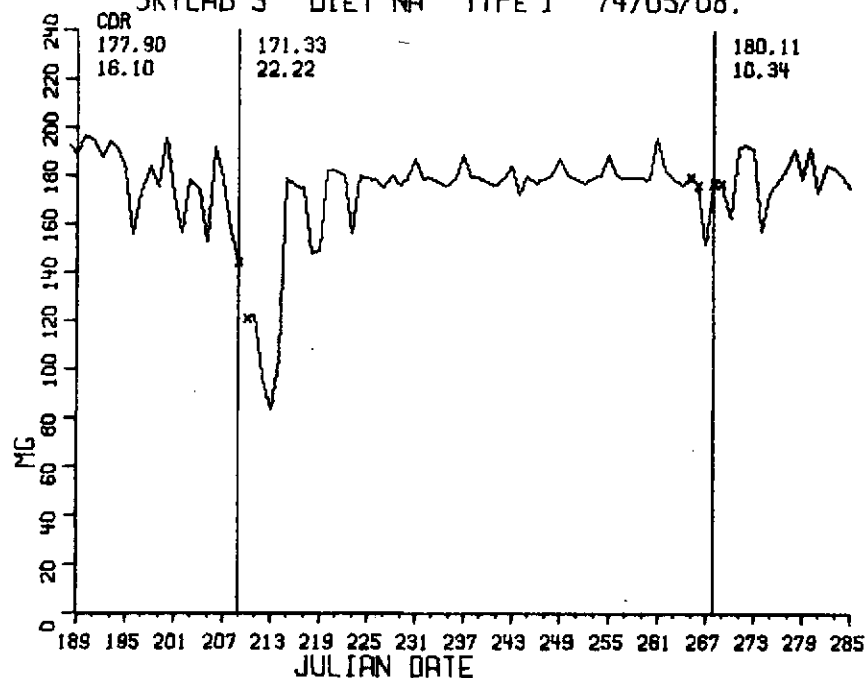
DIET NA

Data available throughout the period. Significant astronaut differences were observed. SPT was significantly higher than PLT, which was significantly higher than CDR.

A significant upward trend of 1.02 mg. per day in dietary sodium was observed in-flight using the OWAC. This trend appears due to remarkable points from blastoff until about day 220 and not due to any persistant trend.

A nearly significant (.90) 5 day cycle was observed on CDR. Significant 3, 6, and 9 day diet cycles were observed on PLT. A significant 7 day diet cycle was observed on SPT.
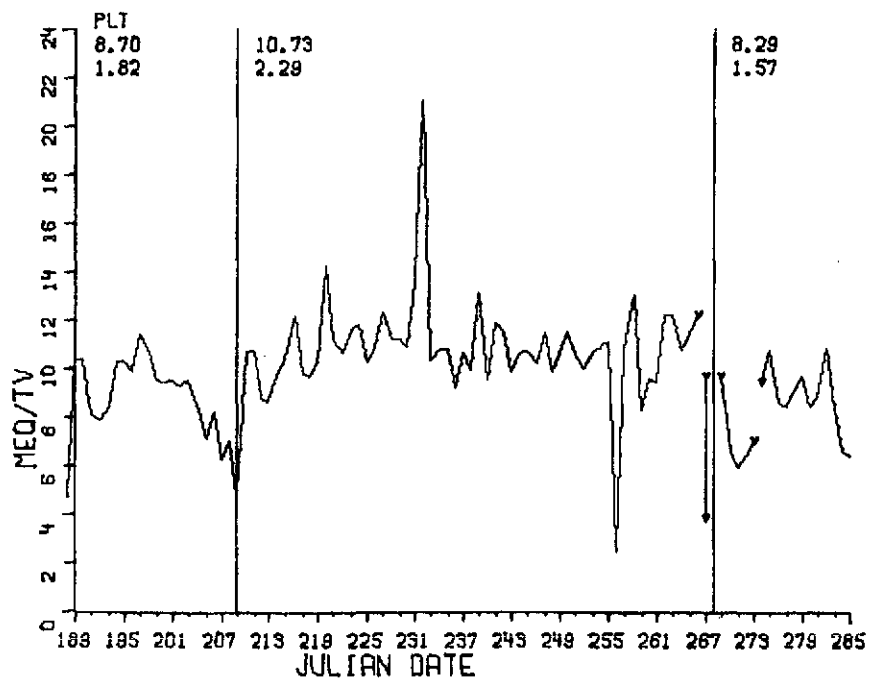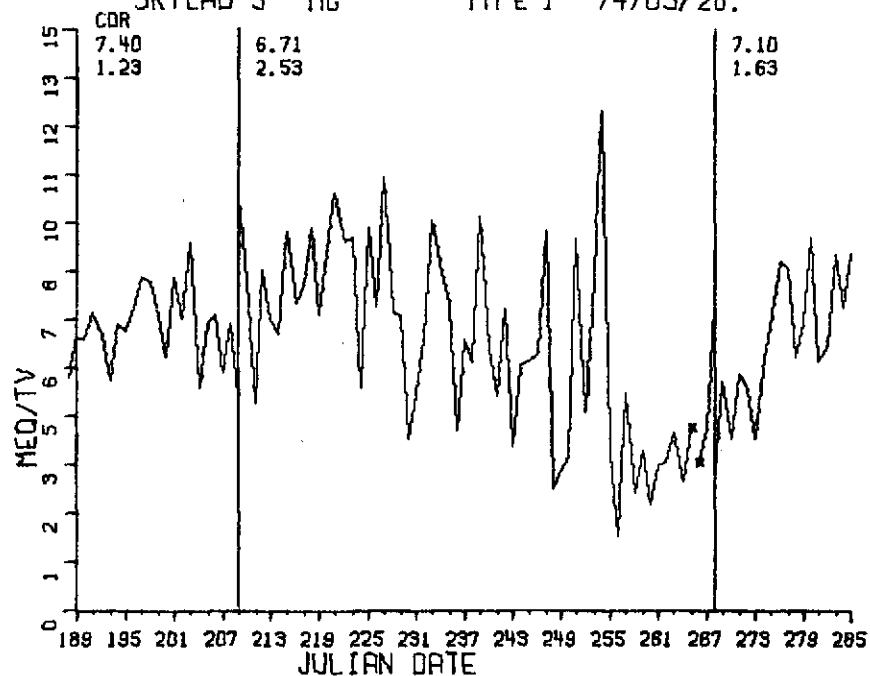
106

SKYLAB 3   DIET MG   TYPE 1   74/05/08.
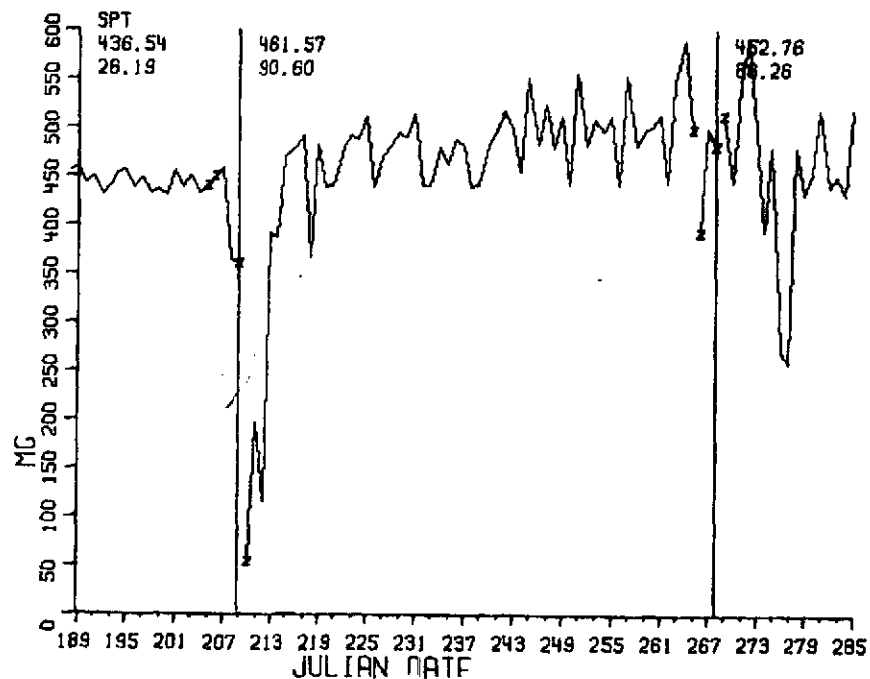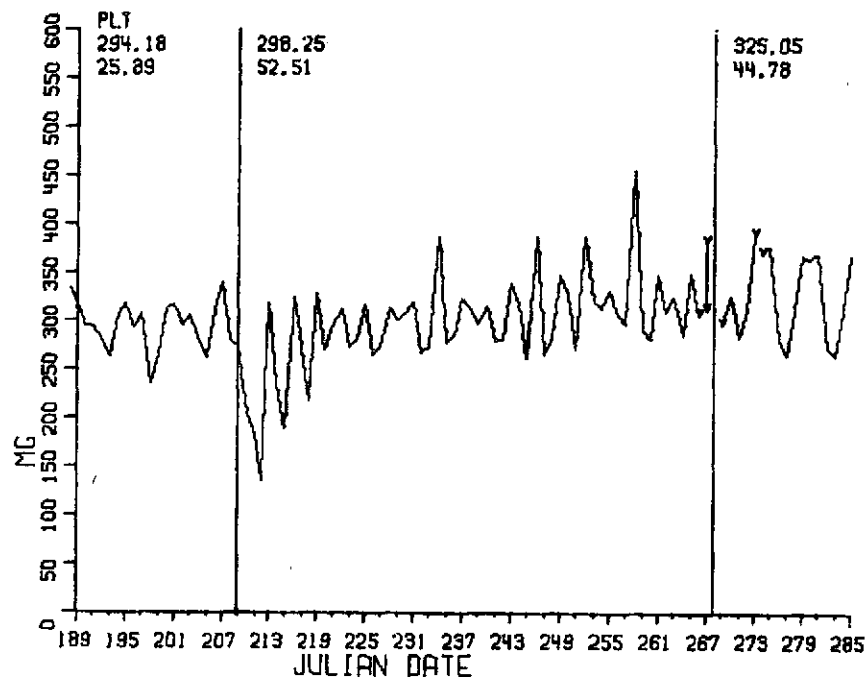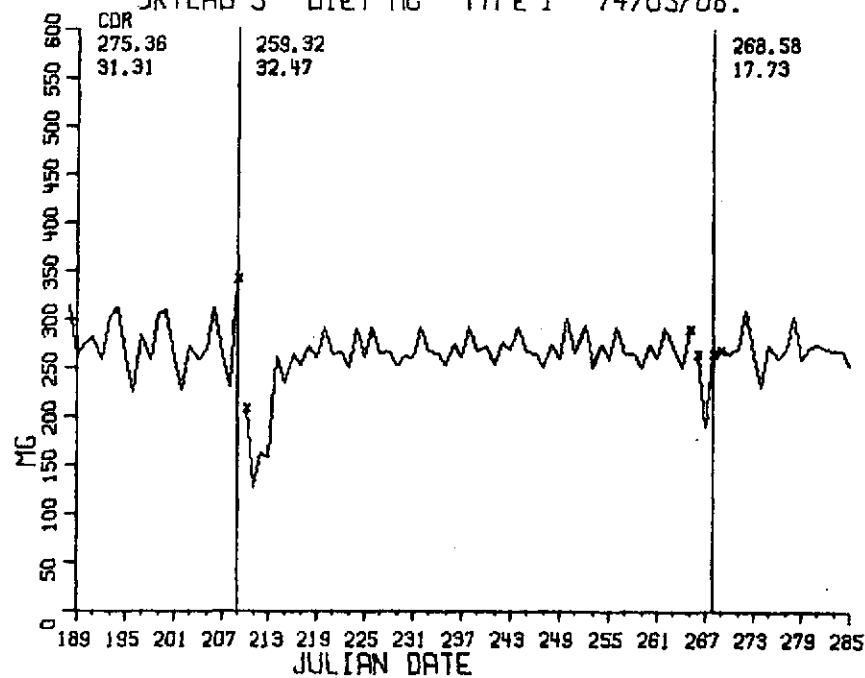
DIET MG

Data available throughout the period. A significant astronaut differ-
ence was observed using the TWUAV. SPT was judged significantly higher than
PLT, which was judged significantly higher than CDR. Remarkable points
occur early in- on all three astronauts and post- on SPT.

A significant increase of 1.65 mg. per day was observed in-flight.
Much of this increase is attributable to low readings early in-flight. SPT
showed an increase of 2.67 mg. per day while CDR showed an increase of only
.64 mg. per day. PLT showed an increase of 1.63 mg. The slope to the trend
lines were nearly signficantly different (.93).

CDR showed a significant 2 day period. PLT showed significant 3, 6, 9
and 12 day periods. SPT showed a significant 2 day period.

SKYLAB 3   DIET K   TYPE 1   74/05/08.

CDR
94.81   85.18   91.47
17.85   13.32   13.21

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

PLT
93.72   84.25   96.88
8.04   12.70   7.92

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE

SPT
145.18   134.40   139.17
11.61   23.80   19.85

MG

189 195 201 207 213 219 225 231 237 243 249 255 261 267 273 279 285
JULIAN DATE
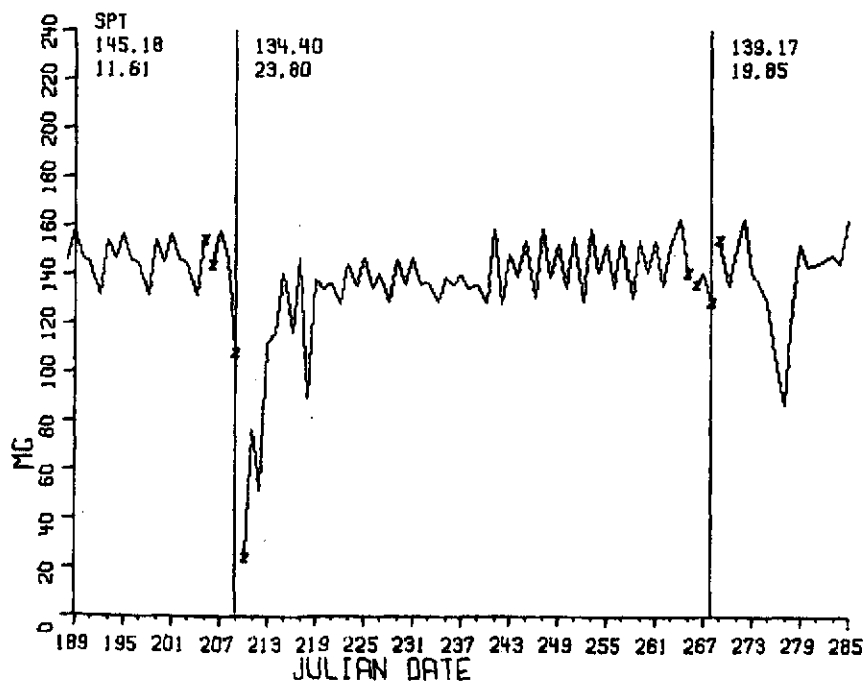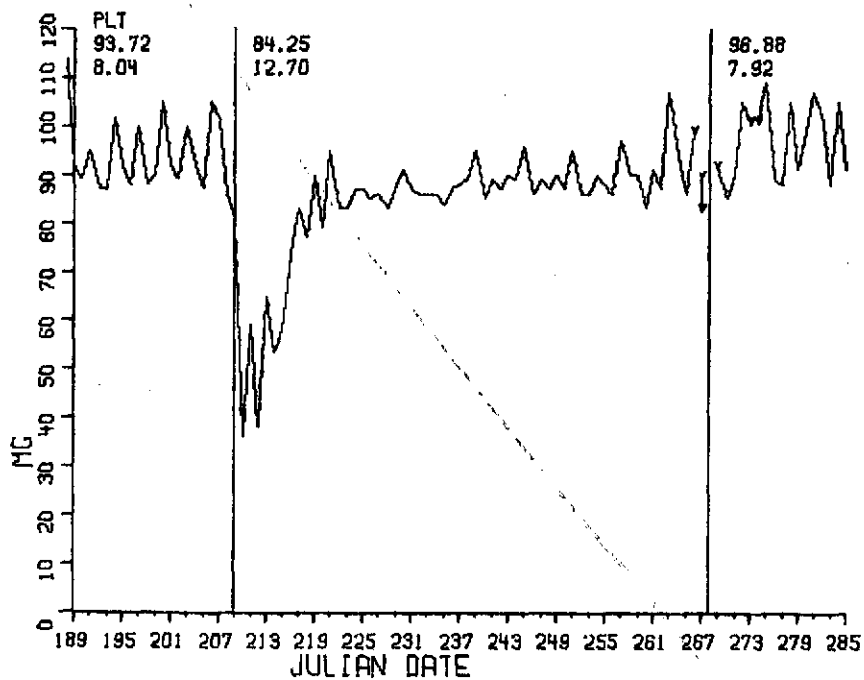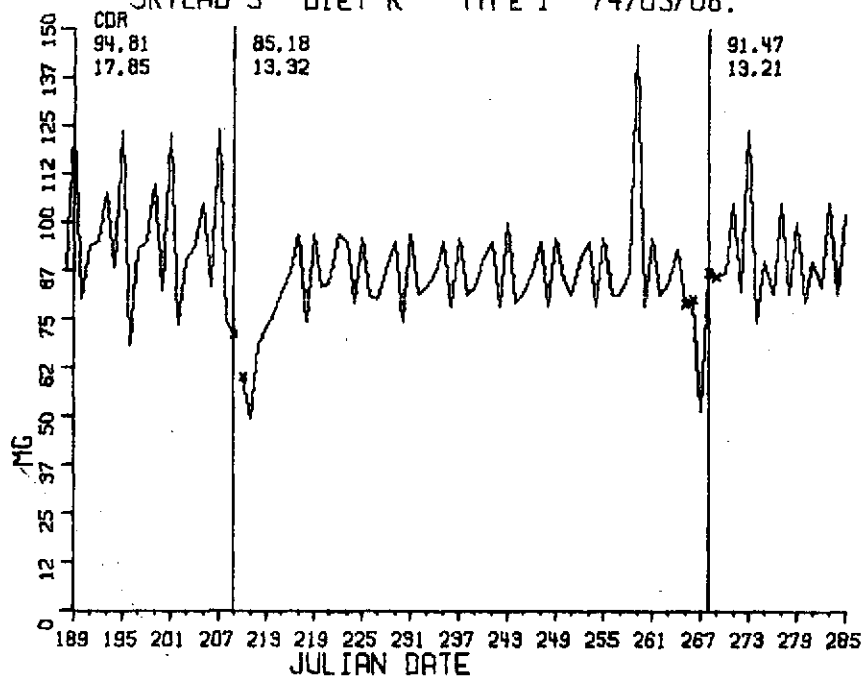
DIET K

Data available throughout the period. Both significant time and astronaut differences were observed using TWUAV. In- was judged significantly lower than pre- and post- which were judged to be the same. SPT was judged to be significantly higher than CDR and PLT which were judged to be the same.

Remarkable points occurred on all three astronauts early in-flight which is probably the reason for the decrease observed in-flight. Remarkable points also occurred on CDR at day 259 with a value of 146 and day 267 with a value of 51. CDR also showed considerable periodic variation pre-flight. SPT has remarkable points at day 266 and 267 post-flight with values of 102 and 86 respectively.

The astronauts showed an overall in-flight increase of .45 mg. per day. The trends of the three astronauts were nearly judged significantly different (.94) with SPT at .73 mg. per day, PLT with a trend of .46 mg. per day and CDR with .15 mg. per day. The trend was due to low early in-flight readings and not a persistant trend.

CDR has a significant negative period at 8 days. PLT has significant 2, 3, and 4 day periods. SPT has significant 2, 4, 6, 8 and a negative 11 day period.

SKYLAB 3   DIET H2O TYPE 1   74/05/08.

CDR
2119.09   2073.05   2540.82
323.23   240.39   522.14

PLT
2537.29   2484.17   2761.18
379.51   353.24   590.24

SPT
3302.73   3140.76   4022.24
976.61   482.51   810.24
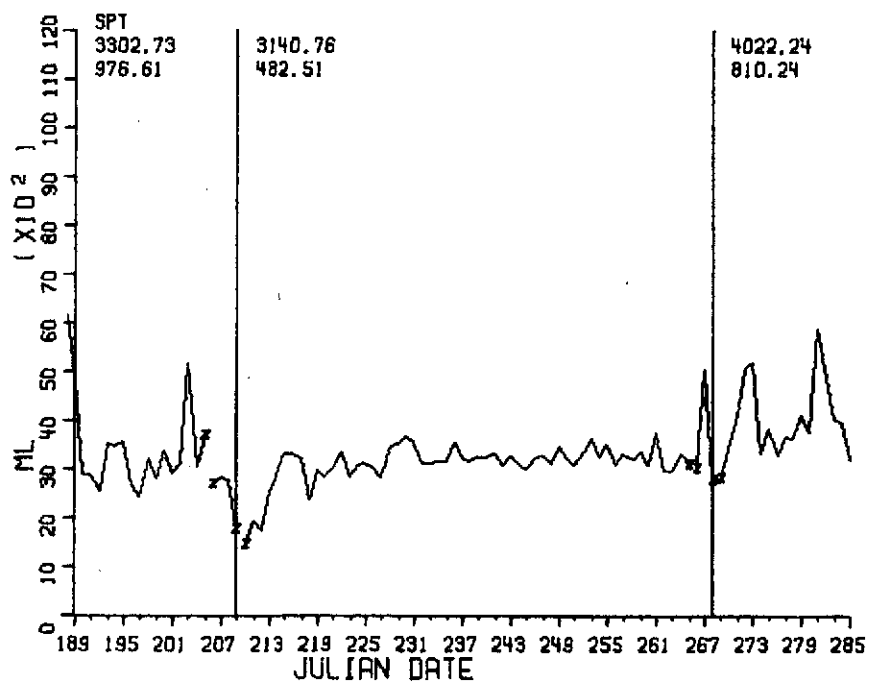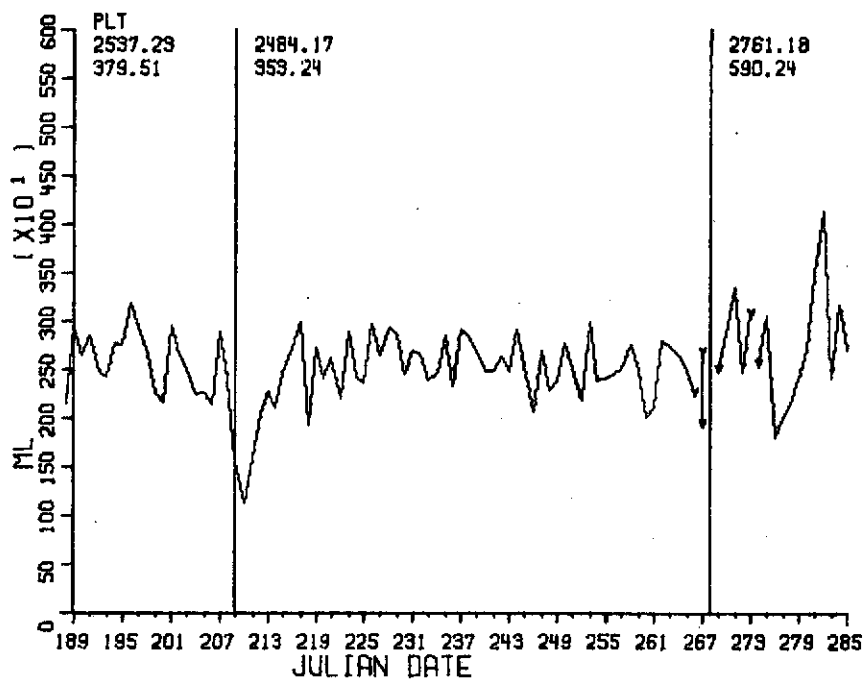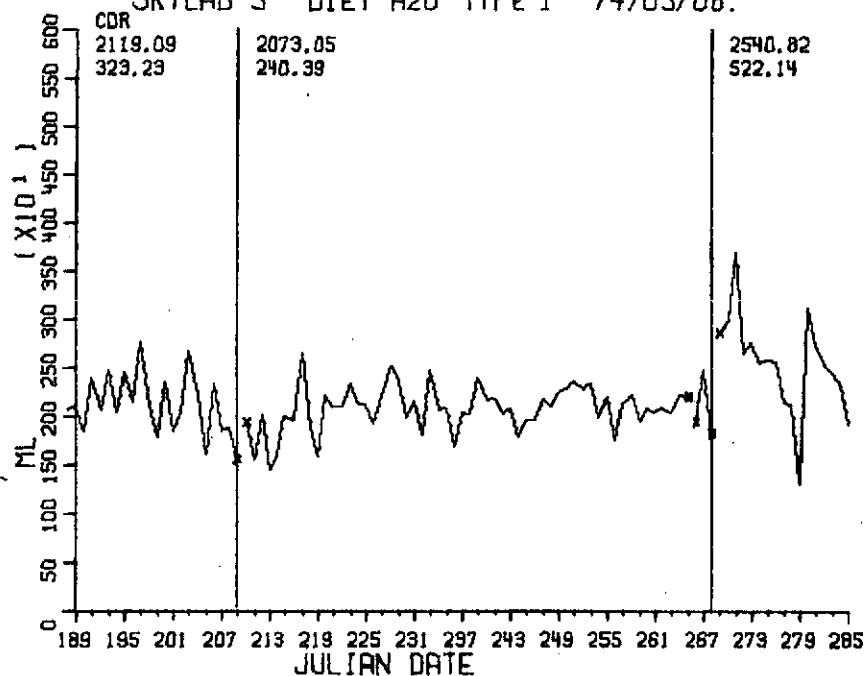
DIET H2O

Data is available throughout the period. Both significant time and astronaut differences were observed using TWUAV. Post- was judged significantly higher than pre- and in- which were judged to be the same. SPT was judged significantly higher than PLT which was judged significantly higher than CDR.

A high interaction (.96) was also observed. This can be explained by examining the individual means. CDR showed an increase of about 500 ml. in- to post- while PLT showed an increase of 300 ml. in- to post- and SPT showed an increase of almost 1,000 ml. in- to post-. While these increases represent considerably varying amounts of water consumption, the ratios of post- to in-flight are 1.23, 1.11 and 1.28 for CDR, PLT and SPT respectively. Remarkable points occur at blastoff and recovery as well as post-flight.

A significant upward trend in in-flight water consumption was observed. An overall increase of 6.40 ml. per day was observed. This was due, in part, to a large upward trend in SPT (13.1) as opposed to CDR and PLT with values of 3.1 and 3.0 respectively. These slopes were nearly judged significantly different (.91). The large increase in SPT is due to low readings immediate in-flight and high readings at recovery with no persistant trend.

The only significant periodism observed on any of the three astronauts was an SPT with a 2 day period.

SKYLAB 3   DIET CA   TYPE 1   74/05/21.

CDR
725.31   728.54   738.08
44.48   73.38   47.51

PLT
780.88   816.28   801.00
44.89   82.41   42.74

SPT
1287.88   1212.03   1235.17
45.71   228.22   141.04
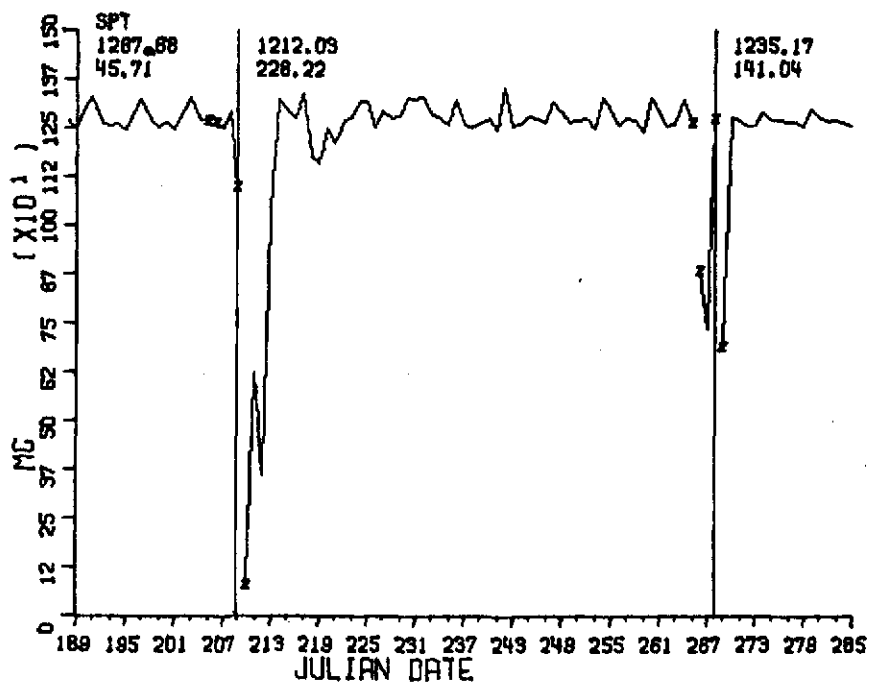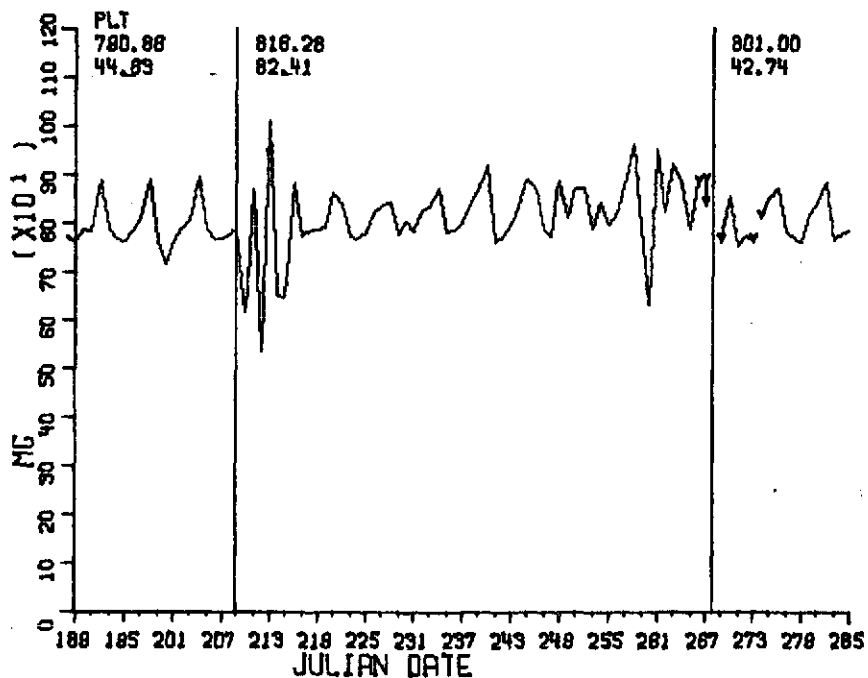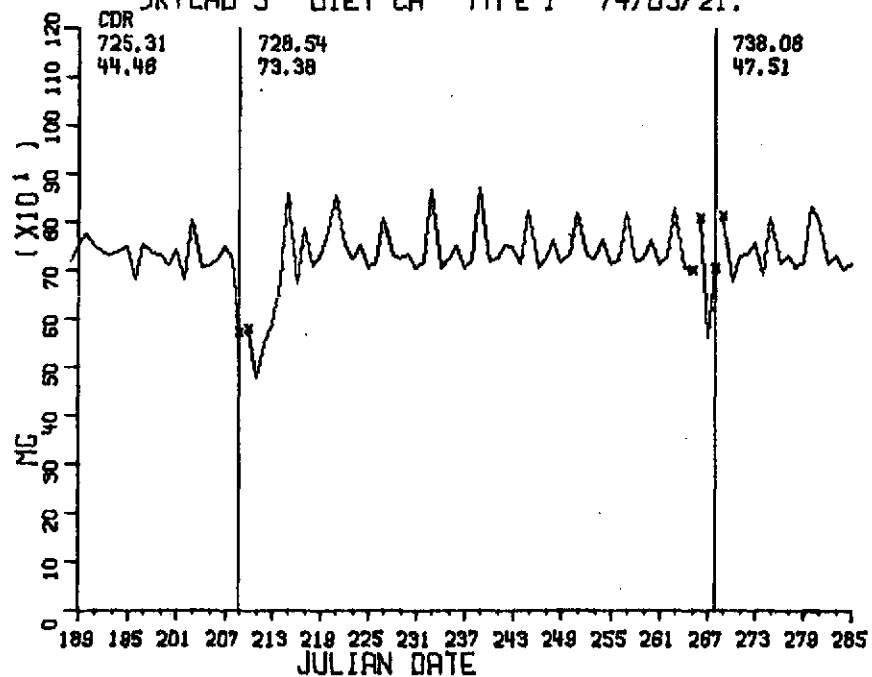
DIET CA

Data is available throughout the period. Significant astronaut differences were observed using the TWUAV. SPT was judged higher than PLT which was judged significantly higher than CDR.

Remarkable points occur for all astronauts at early in- and at recovery for SPT.

A significant upward trend in calcium intake was observed in-flight. An increase of 2 mg. per day was observed overall with .86 mg. per day, 1.74 mg. per day and 3.51 mg. per day increase on CDR, PLT and SPT respectively. The observed increases are due to low intake of calcium during early in-flight and not due to a persistant trend.

A significant 6 day cycle was observed on CDR, 5 day cycle on PLT and 2 day cycle on SPT.

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SKYLAB 3 DIET P TYPE 1 74/05/08.

CDR
1528.36
50.19

1420.62
151.55

1536.82
75.96

PLT
1647.63
82.78

1715.81
227.01

1689.41
72.97

SPT
2505.59
213.85

2428.56
455.19

2511.53
259.53

JULIAN DATE
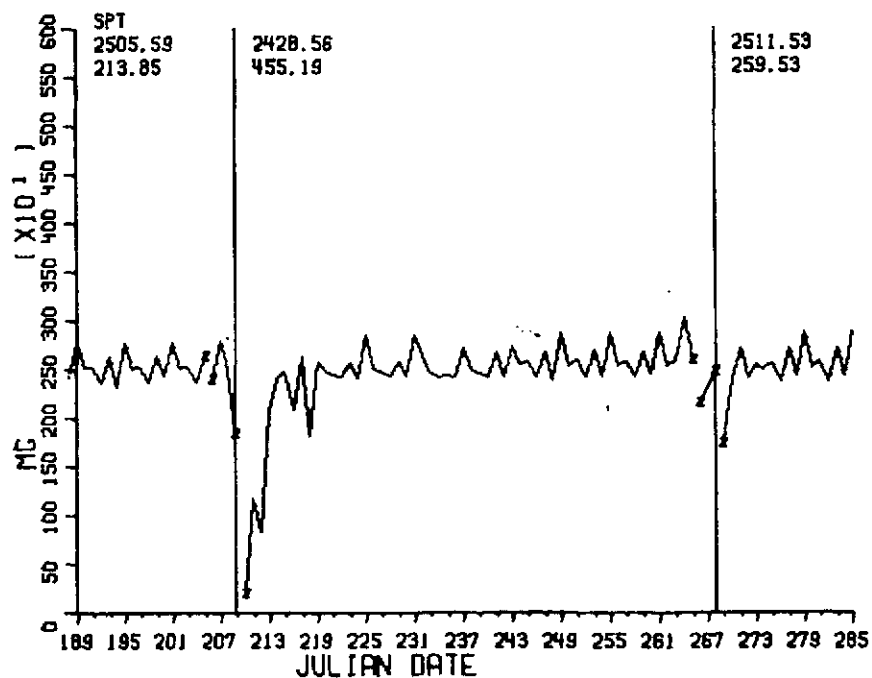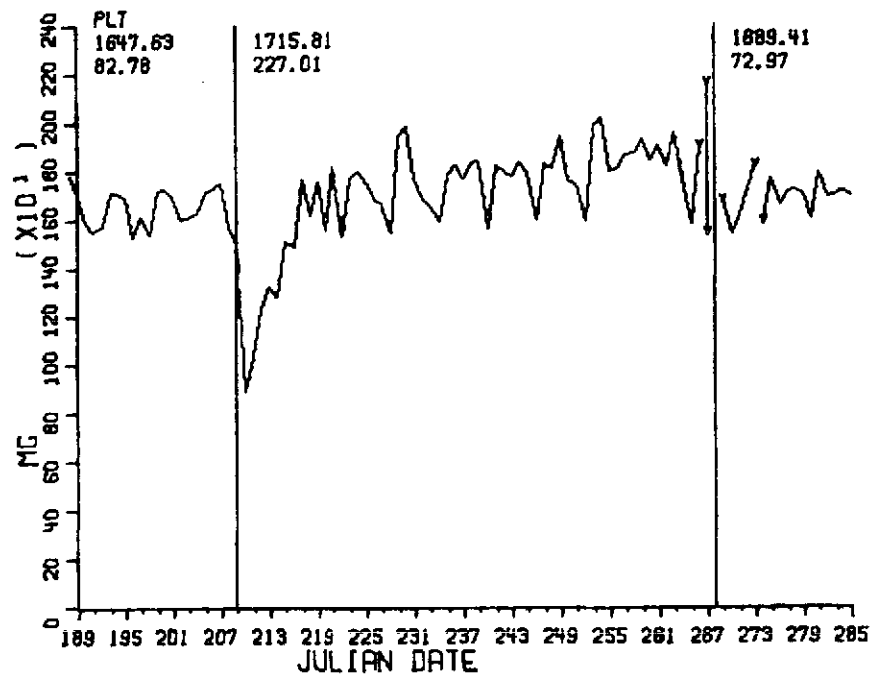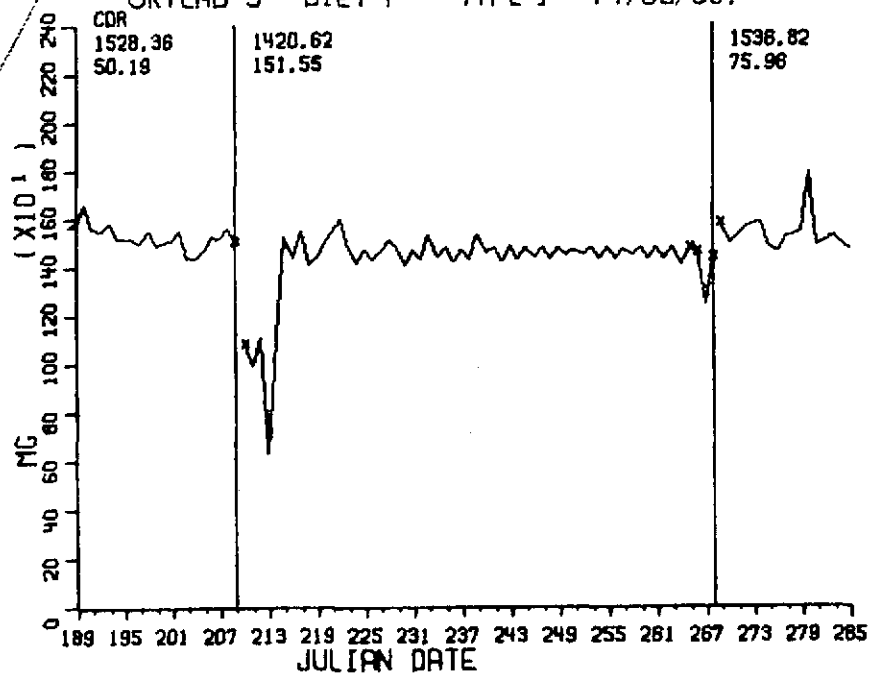
DIET P

Data is available throughout the period. Significant astronaut differences were observed using the TWUAV. SPT was significantly higher than PLT which was significantly higher than CDR. Using the individual OWAV, CDR showed in- significantly lower than pre- and post- which were judged to be the same.

Remarkable points occur on all astronauts at early in-flight and at early post-flight for SPT.

A significant increase in phosphorus intake was observed in-flight. The rate of increase overall was 7.65 mg. per day with 2.86, 8.0, and 12.1 mg. per day on CDR, PLT and SPT respectively. The increases observed were due to low readings during early in-flight and not due to a persistant trend.

Two, 3 and a negative 9 day period were observed on CDR. A 2 day period was observed on PLT. A 2 and 6 day period were observed on SPT.

4.0 Multivariate Methods and Results

In the previous two sections, the analyses have concentrated on the change in individual parameters as a result of prolonged spaceflight. Some of the interrelationships of the parameters during the inflight period will be examined in this section. Urine and diet data was used for the analyses due to the general completeness and ease of retrieval.

4.1 STEPWISE REGRESSION

Stepwise Regression using the Efroymson algorithm [15] modified from [16] was applied using the dietary and date parameters serving as independent variables and the urine parameters serving as dependent variables. Such analyses afford simplified input-output analyses. The results are summarized in Table 2 of Appendix A (Table A.2). As only nine data points were available for the ketosteroids, no analyses were possible on these parameters.

All analyses were performed with included constant which was included on the first step of the algorithm. The examination of Table A.2 fails to reveal any overriding trends. This is due, in part, to the naturally high correlations between diet parameters (See Table A.3) and the lack of consistant fit often found in simplified models of this sort.

Nonetheless, certain relationships do stand out. In many cases, the Julian date is included in the model. This confirms the time changes observed in Section 3. Weight appears as a factor for CDR and SPT for ALDO, OSMO, and SP.GR. Dietary Ca appears in Mg and Ca also on CDR and SPT.

More complicated models and models lagged several days can also be included. Indeed, it would be of value in future research to compare such models with those of earthbound counterparts.

4.2 PRINCIPAL COMPONENTS ANALYSIS

Principal components analyses were performed on several different subgroups of the diet and urine parameters. The subgroups tested were dietary plus date, ketosteroids plus date, all urine except ketosteroids plus date, and electrolytes plus date. All analyses were performed on the respective correlation matricies which are given in Table A.3. The analyses were performed on the crewmen individually by [17]. The resultant Factors (eigenvectors) and their variances (eigenvalues) are given in Table A.4 by analysis subgroup. Factor coefficients are listed left to right, top to bottom, so that the first diet factor on CDR is

$$F_1 = .392 \text{ Calories} + .350 \text{ Diet Protein} + .338 \text{ Diet Ca} + .404 \text{ Diet P}$$
$$+ .404 \text{ Diet Na} + .321 \text{ Diet Mg} + .252 \text{ Diet K} + .239 \text{ Diet H}_2\text{O}$$
$$- .098 \text{ Weight} + .224 \text{ Julian Date.}$$

Below each factor table is a short table which gives the number of factors which must be included to yield the given percent of total variance.

Simple comparisons of principal factors of the crewmen was performed interactively by calculating the Gram-Schmidt Orthogonalizations [18] of the first three factors of CDR to the factors of PLT and SPT. The first three factors of CDR were used for convenience.

On the diet subgroup, the first three factors accounted for all but 5% of factor 1, 81% of factor 2, and 43% of factor 3 on PLT while accounting for all but 2% of factor 1, 24% of factor 2 and 95% of factor 3 of SPT. This indicates the similarity of factor 1 in all three crewmen with the relative rates of increase and decrease shown by Table A.4. Observe that all variables show a relative increase in consumption except Weight which decreases.

On the ketosteroid subgroup, the first three factors of CDR
accounted for all but 6% of factor 1, 50% of factor 2, and 40% of factor 3
on PLT. The first three factors accounted for all but 51% of factor 1,
49% of factor 2, and 27% of factor 3 on SPT. This indicates a similarity
of CDR and PLT but not CDR and SPT. This may be due to random error as
only nine data points were available for the analysis.

On the electrolyte subgroup, the first three factors of CDR accounted
for all but 11% of factor 1, 25% of factor 2, and 42% of factor 3 on PLT.
The first three factors account for all but 4% of factor 1, 6% of factor
2, and 65% of factor 3 on SPT. This indicates the similarity of factor 1
on PLT and SPT whose coefficients against CDR were almost identical. For
PLT and SPT, the first factor shows a decrease in time of OSMO and SP.GR.
with increases in time of the electrolytes and uric acid. CDR on the
other hand, shows decreases in all parameters over time.

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APPENDIX A - Summary of Results

TABLE A.1
SUMMARY OF RESULTS FROM SECTION 3

PARAMETER	DATA AVAILABLE	TWO WAY ANALYSIS OF VARIANCE			LINEAR TREND	CYCLES	COMMENTS
		TIME	ASTRONAUT	INTERACTION			
BLOOD							
ACTH	A	-	-	-	-		decrease in-
ADH	no data						
ALDO	A	1̲ 2̲ 3	-	-			remarkable points
ANGIO	A	1̲ 2̲ 3	P̲ S̲ C	.04	-		
HGH	PP	-	C̲ S̲ P				remarkable points
HYDRO	A	-	-	-	-		
INSULIN	PP	1 3	-	-			
T4	no data						
BLOOD ELECTROLYTES							
OSMO	PP	-	-	-			
NA	PP	-	-	-			
K	PP	-	-	-			decrease post-
MG	PP	-	S P C	-			
PO4	PP	-	P̲ S̲ C	.13			S increase
CA	PP	-	-	-			
CL	PP	1 3	-	-			small mean square error
GLU	PP	-	C P̲ S̲	-			
TP	PP	-	-	-			

PARAMETER	DATA AVAILABLE	TWO WAY ANALYSIS OF VARIANCE TIME	ASTRONAUT	INTERACTION	LINEAR TREND	CYCLES	COMMENTS
URINE								
ADH	A	1 2 3	C S P	.01			
ALDO	A	1 3 2	-	-	-.49	P 2 S 2	remarkable points
EPI	A	1 2 3	C P S	.001	-		different rates of increase
HYDRO	A	1 3 2	C P S	-	-.76	C 5,6 S 3,4,8	remarkable points
NOREPI	A	1 2 3	C P S	.001	.45		
5HIAA	preflight only						
17OH	preflight only						
URINARY 17-KETO-STEROIDS								
PD	PI	1 2	S P C	.001			
AND	PI	1 2	P C S	-			
ETIO	PI	1 2	P S C	-			
DHEA	PI	-	-	-			
11=OETIO	PI	1 2	P C S	.001			
11=OAND	PI	analysis inclusive					
11OHAND	PI	-	C P S	.09			
11OETIO	PI	1 2	P C S	.001			
TOTAL	PI	1 2	P C S	.03			

TABLE A.1 (con't)

PARAMETER	DATA AVAILABLE	TWO WAY ANALYSIS OF VARIANCE TIME ASTRONAUT		INTERACTION	LINEAR TREND	CYCLES	COMMENTS
URINARY ELECTROLYTES							
OSMO	A	3 1 2	C P S	.001	-	P 5	remarkable points
NA	A	-	C P S	.07	-	P 1,2 S 2	remarkable points
K	A	-	P C S	-	-	C 6	remarkable points
MG	A	3 1 2	C P S	.001	-.043	-	remarkable points
PO4	A	1 3 2	C P S	-	-	S 3	remarkable points
CA	A	-	C S P	<.001	-	-	remarkable points
CL	A	-	C P S	.09	-	S 2	remarkable points
SP. GR.	A	3 1 2	C P S	.001	$-.6 \times 10^{-4}$	P 6 S 5	small variability
H	PP	-	C P S	-			
CREAT	A	1 2 3	C P S	-	-5.6	S 5	remarkable points
URICACID	A	-	C P S	-	3.4 C -.7 P 8.5 S 2.5	P 2	P shows shift in-
DIET							
CALORIES	A	2 1 3	C P S	-	13.4	C 2,3 P 2 S 2	remarkable points

PARAMETER	DATA AVAILABLE	TWO WAY ANALYSIS OF VARIANCE			LINEAR TREND	CYCLES	COMMENTS
		TIME	ASTRONAUT	INTERACTION			
DIET (con't)							
PROTEIN	A	2 <u>1 3</u>	C P S	-	.55	C 6 P 2,3 S 6	remarkable points
WEIGHT	A	2 3 1	P C S	.001	.032 C .02 P .05 S .026	C 2 S 2	remarkable points
DIET NA	A	-	C P S	-	1.02	P 3,6,9 S 6	remarkable points
DIET MG	A	-	C P S	-	1.65	C 2 P 3,6,9,12 S 2	remarkable points
DIET K	A	2 <u>1 3</u>	<u>C P</u> S	-	.45	C 8 P 2,3,4 S 2,4,6,8,11	remarkable points
DIET H2O	A	<u>1 2</u> 3	C P S	.04	6.40	S 2	remarkable points
DIET CA	A	-	C P S	-	2	C 6 P 5 S 2	remarkable points
DIETP	A	-	C P S	-	7.65	C 2,3,9 P 2 S 2,6	remarkable points

TABLE A.2
SUMMARY OF MULTIPLE REGRESSION RESULTS

URINE PARAMETER	DIET PARAMETERS IN ESTIMATION (in order of inclusion)		
	CDR	PLT	SPT
1. EPI	(.990) D.PROT	(.995) D.PROT	- - -
2. NOREPI	- - -	(.90) WEIGHT	(.95) DATE
3. ADH	- - -	- - -	- - -(insufficient data)
4. HYDRO	- DATE	(.975) D.PROT D.CA D.NA	(.995) D.K
5. ALDO	(.995) DATE WEIGHT	(.990) D.PROT CAL D.K D.CA	(.995) D.PROT WEIGHT DATE D.MG
6. OSMO	(.90) DATE WEIGHT	(.975) D.H$_2$O	(.975) WEIGHT D.CA D.MG
7. NA	- D.P	(.995) D.NA	(.995) D.CA WEIGHT D.NA
8. K	(.95) D.K DATE	- - -	- D.NA D.H$_2$O
9. MG	(.995) DATE D.CA D.MG	- D.H$_2$O D.P^2 D.K	(.995) D.CA DATE WEIGHT
10. PO4	(.95) D.CA CAL D.K	- D.NA(*5) D.MG WEIGHT	(.975) D.P CAL
11. CA	- D.CA	(.975) D.H$_2$O	(.995) D.CA D.H$_2$O

* indicates the variable was removed from the equation at the nth step

URINE PARAMETER	DIET PARAMETERS IN ESTIMATION (in order of inclusion)		
12. CL	- CAL	(.95) D.NA	(.995) D.NA WEIGHT D.CA
13. SP.GR.	(.99) DATE WEIGHT D.H$_2$O	(.995) D.PROT D.P D.K	(.995) D.CA(*5) WEIGHT D.NA
14. CREAT	- - -	- D.MG	- D.H$_2$O D.CA
15. URIC ACID	- D.NA	(.975) DATE D.P	(.990) D.CA

TABLE A.3 CORRELATIONS AND FISHER'S Z-SCORES

DIET SUBGROUP

VAR (1) = CAL

VAR (2) = DIET PROT

VAR (3) = DIET CA

VAR (4) = DIET P

VAR (5) = DIET NA

VAR (6) = DIET MG

VAR (7) = DIET K

VAR (8) = DIET H_2O

VAR (9) = WEIGHT

VAR (10) = JULIAN

TABLE A.3 DIET (con't)

<u>CDR</u>

VARIABLE (OR COLUMN) MEANS

| 2545.7 | 83.907 | 725.95 | 1422.2 | 170.88 | 260.70 | 84.950 | 2064.5 | 145.90 | 238.50 |

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	.60659187E+00	.10000000E+01						
VAR 3	.57749570E+00	.66241229E+00	.10000000E+01					
VAR 4	.60016024E+00	.72241153E+00	.67462186E+00	.10000000E+01				
VAR 5	.79876454E+00	.66317413E+00	.64792969E+00	.86561654E+00	.10000000E+01			
VAR 6	.62814504E+00	.70156320E+00	.50601304E+00	.70611581E+00	.62406374E+00	.10000000E+01		
VAR 7	.55801563E+00	.30399559E+00	.55168153E+00	.49985246E+00	.47901583E+00	.28229611E+00	.10000000E+01	
VAR 8	.45419063E+00	.27911385E+00	.40142286E+00	.50085683E+00	.48322034E+00	.76278407E-01	.24961247E+00	.10000000E+01
VAR 9	-.13996642E+00	-.66893153E-01	-.23107006E+00	-.79768105E-01	-.24063617E+00	.76278407E-01	-.25060606E-01	-.18185739E+00
VAR 10	.45821714E+00	.30002162E+00	.24625308E+00	.29783727E+00	.52075413E+00	.24590773E+00	.21992912E+00	.26605992E+00

	VAR 9	VAR 10
VAR 9	.10000000E+01	
VAR 10	-.44097509E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	.53115946E+01	.25000000E+02						
VAR 3	.49730542E+01	.60179717E+01	.25000000E+02					
VAR 4	.62977025E+01	.68905742E+01	.61846535E+01	.25000000E+02				
VAR 5	.62654978E+01	.60282296E+01	.58263739E+01	.99365111E+01	.25000000E+02			
VAR 6	.55512035E+01	.65714636E+01	.42079453E+01	.66694521E+01	.55237124E+01	.25000000E+02		
VAR 7	.52037740E+01	.23700152E+01	.27735171E+01	.41456854E+01	.39387959E+01	.21907752E+01	.25000000E+02	
VAR 8	.40669172E+01	.21647946E+01	.32112766E+01	.41555990E+01	.39801003E+01	.81151296E+00	.19252039E+01	.25000000E+02
VAR 9	-.11869372E+01	-.52095714E+00	-.17766240E+01	-.60351822E+00	-.18531014E+01	.57701018E+00	-.18924305E+00	-.13884367E+01
VAR 10	.57575626E+01	.23370592E+01	.19142627E+01	.23186914E+01	.43590776E+01	.18954045E+01	.16860042E+01	.20582266E+01

	VAR 9	VAR 10
VAR 9	.25000000E+02	
VAR 10	-.51743797E+01	.25000000E+02

TABLE A.3 DIET (con't)

PLT

VARIABLE (OR COLUMN) MEANS
          2523.8   106.26   815.80   1712.3   224.03   297.85   84.200   2468.6   129.90   238.48

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	.91614756E+00	.10000000E+01						
VAR 3	.41847579E+00	.25719719E+00	.10000000E+01					
VAR 4	.92264928E+00	.86393645E+00	.30693617E+00	.10000000E+01				
VAR 5	.69938564E+00	.64054055E+00	.89398332E-01	.67118265E+00	.10000000E+01			
VAR 6	.61584088E+00	.63065469E+00	.62952761E+00	.48669436E+00	.24646447E+00	.10000000E+01		
VAR 7	.85150644E+00	.77339960E+00	.59034007E+00	.83627643E+00	.57006875E+00	.59483013E+00	.10000000E+01	
VAR 8	.70530260E+00	.65690527E+00	.24792927E+00	.60647671E+00	.65014190E+00	.31898396E+00	.53563892E+00	.10000000E+01
VAR 9	-.67693647E+00	-.63282886E+00	-.30958191E+00	-.65666157E+00	-.41076019E+00	-.46117828E+00	-.55350386E+00	-.45788574E+00
VAR 10	.63516693E+00	.57990196E+00	.36216115E+00	.61180888E+00	.30746465E+00	.52999076E+00	.61656302E+00	.20534568E+00

	VAR 9	VAR 10
VAR 9	.10000000E+01	
VAR 10	-.76990260E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	.11811767E+02	.25000000E+02						
VAR 3	.33660393E+01	.19863972E+01	.25000000E+02					
VAR 4	.12129222E+02	.98801807E+01	.23945008E+01	.25000000E+02				
VAR 5	.65388884E+01	.57310027E+01	.67674934E+00	.61372015E+01	.25000000E+02			
VAR 6	.54228722E+01	.56057704E+01	.55916585E+01	.40143939E+01	.18998769E+01	.25000000E+02		
VAR 7	.95249213E+01	.77667621E+01	.51202062E+01	.91251664E+01	.48894591E+01	.51724523E+01	.25000000E+02	
VAR 8	.66270513E+01	.59443632E+01	.19116577E+01	.53100191E+01	.58552323E+01	.24953378E+01	.45149497E+01	.25000000E+02
VAR 9	-.62168164E+01	-.56330874E+01	-.24165732E+01	-.59413929E+01	-.32956943E+01	-.37659091E+01	-.47067082E+01	-.37343963E+01
VAR 10	.56626033E+01	.50012785E+01	.28641887E+01	.53740271E+01	.23989066E+01	.44554012E+01	.54316616E+01	.15726852E+01

	VAR 9	VAR 10
VAR 9	.25000000E+02	
VAR 10	-.77014997E+01	.25000000E+02

TABLE A.3 DIET (con't)

PLT

VARIABLE (OR COLUMN) MEANS

2523.8	106.26	815.80	1712.3	224.03	297.85	84.200	2468.6	129.90	238.48

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	.91614758E+00	.10000000E+01						
VAR 3	.41847579E+00	.25719719E+00	.10000000E+01					
VAR 4	.92264928E+00	.86393645E+00	.30693617E+00	.10000000E+01				
VAR 5	.69938564E+00	.64054055E+00	.89390332E-01	.67118265E+00	.10000000E+01			
VAR 6	.61584088E+00	.63065469E+00	.62952761E+00	.48669436E+00	.24646447E+00	.10000000E+01		
VAR 7	.85150644E+00	.77339960E+00	.59034007E+00	.83627643E+00	.57006875E+00	.59483013E+00	.10000000E+01	
VAR 8	.70530260E+00	.65690527E+00	.24792927E+00	.60647671E+00	.65014190E+00	.31898396E+00	.53563892E+00	.10000000E+01
VAR 9	-.67693647E+00	-.63282888E+00	-.30958191E+00	-.65668157E+00	-.41076019E+00	-.46117828E+00	-.55350386E+00	-.45788574E+00
VAR 10	.63516693E+00	.57998196E+00	.36216115E+00	.61180888E+00	.30746465E+00	.52999076E+00	.61656302E+00	.20534568E+00

	VAR 9	VAR 10
VAR 9	.10000000E+01	
VAR 10	-.76990260E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	.11811767E+02	.25000000E+02						
VAR 3	.33660393E+01	.19863972E+01	.25000000E+02					
VAR 4	.12129222E+02	.98801807E+01	.23945808E+01	.25000000E+02				
VAR 5	.65388884E+01	.57310027E+01	.67674934E+00	.61372015E+01	.25000000E+02			
VAR 6	.54228722E+01	.56057704E+01	.55916585E+01	.40143939E+01	.18998769E+01	.25000000E+02		
VAR 7	.95249213E+01	.77667621E+01	.51202062E+01	.91251664E+01	.48894591E+01	.51724523E+01	.25000000E+02	
VAR 8	.66270513E+01	.59443632E+01	.19116577E+01	.53100191E+01	.58552323E+01	.24953378E+01	.45149497E+01	.25000000E+02
VAR 9	-.62168164E+01	-.56330874E+01	-.24165732E+01	-.59413929E+01	-.32956943E+01	-.37659091E+01	-.47067082E+01	-.37343963E+01
VAR 10	.56626033E+01	.50012785E+01	.28641887E+01	.53740271E+01	.23989066E+01	.44554012E+01	.54316616E+01	.15726852E+01

	VAR 9	VAR 10
VAR 9	.25000000E+02	
VAR 10	-.77014997E+01	.25000000E+02

TABLE A.3 (con't)

<u>KETOSTEROID SUBGROUP</u>

VAR (1) = PD

VAR (2) = AND

VAR (3) = ETIO

VAR (4) = DHEA

VAR (5) = 11=0ETIO

VAR (6) = 11OHETIO

VAR (7) = TOTAL

VAR (8) = JULIAN

TABLE A.3 KETOSTEROID (con't)

<u>CDR</u>

VARIABLE (OR COLUMN) MEANS
.94853   3.4011   4.9426   .47622   1.2219   .81511   11.814   216.11

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	.14539711E+00	.10000000E+01						
VAR 3	.32673463E-01	.61134987E+00	.10000000E+01					
VAR 4	.19684259E+00	.77819288E+00	.90717437E+00	.10000000E+01				
VAR 5	.42107296E+00	.52027361E+00	.99665987E-01	.83266316E-01	.10000000E+01			
VAR 6	.72356464E+00	.21131093E+00	-.14160857E+00	-.14710575E+00	.81159718E+00	.10000000E+01		
VAR 7	.46145259E+00	.68754635E+00	.67839277E+00	.74083167E+00	.69803069E+00	.51347693E+00	.10000000E+01	
VAR 8	-.54759949E+00	-.66076332E-01	.96896289E-01	.16167352E+00	-.80774215E+00	-.77808189E+00	-.37960287E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	.35069076E+00	.25000000E+02						
VAR 3	.20297107E+00	.17418076E+01	.25000000E+02					
VAR 4	.38738190E+00	.25493612E+01	.37019815E+01	.25000000E+02				
VAR 5	.10998099E+01	.14126571E+01	.24494401E+00	.20446266E+00	.25000000E+02			
VAR 6	.22414948E+01	.52559130E+00	-.34971557E+00	-.36296752E+00	.27720653E+01	.25000000E+02		
VAR 7	.12856721E+01	.34543635E+01	.20235981E+01	.23326986E+01	.21150108E+01	.13899391E+01	.25000000E+02	
VAR 8	-.15063044E+01	-.16200439E+00	.23809349E+00	.39952320E+00	-.27446489E+01	-.25486721E+01	-.97880526E+00	.25000000E+02

TABLE A.3 KETOSTEROID (con't)

<u>PLT</u>

VARIABLE (OR COLUMN) MEANS
```
          .60767      2.5423      3.4417      .52350      .56650      .19333      7.8717      217.50
```

CORRELATION MATRIX

```
            VAR   1         VAR   2         VAR   3         VAR   4         VAR   5         VAR   6         VAR   7         VAR   8
VAR  1  .10000000E+01
VAR  2 -.58006841E+00  .10000000E+01
VAR  3 -.64136160E+00  .19431321E+00  .10000000E+01
VAR  4 -.34348695E+00  .59938441E-01  .77672178E+00  .10000000E+01
VAR  5  .98045310E+00-.53658549E+00-.65935342E+00-.47480619E+00  .10000000E+01
VAR  6  .92838906E+00-.69971326E+00-.52434170E+00-.33822734E+00  .93834283E+00  .10000000E+01
VAR  7 -.80279422E-01-.63566656E-01  .72734920E+00  .93239978E+00-.18700541E+00-.44959251E-01  .10000000E+01
VAR  8 -.85041920E+00  .16005049E+00  .03119366E+00  .63437636E+00-.89013329E+00-.75496827E+00  .40645695E+00  .10000000E+01
```

FISHERS Z SCORES

```
            VAR   1         VAR   2         VAR   3         VAR   4         VAR   5         VAR   6         VAR   7         VAR   8
VAR  1  .25000000E+02
VAR  2 -.11496874E+01  .25000000E+02
VAR  3 -.13171959E+01  .34089488E+00  .25000000E+02
VAR  4 -.62014835E+00  .10394102E+00  .17962290E+01  .25000000E+02
VAR  5  .39995340E+01-.10381013E+01-.13712107E+01-.89418378E+00  .25000000E+02
VAR  6  .28519883E+01-.15012352E+01-.10085889E+01-.60983696E+00  .29860548E+01  .25000000E+02
VAR  7 -.13934791E+00-.11024933E+00  .15988140E+01  .29037024E+01-.32775987E+00-.77924238E-01  .25000000E+02
VAR  8 -.21793403E+01  .27961071E+00  .20645796E+01  .12967969E+01-.24639589E+01-.17050467E+01  .74713681E+00  .25000000E+02
```

TABLE A.3 KETOSTEROID (con't)

<u>SPT</u>

VARIABLE (OR COLUMN) MEANS

| .34011 | 3.4071 | 3.9740 | .75367 | 1.7703 | 1.3361 | 12.026 | 216.11 |

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	-.10747209E+00	.10000000E+01						
VAR 3	-.24061507E+00	.79669813E+00	.10000000E+01					
VAR 4	-.32773050E+00	-.59521165E+00	-.39631365E+00	.10000000E+01				
VAR 5	.47173543E+00	.29780754E+00	.66950081E-01	-.72692494E+00	.10000000E+01			
VAR 6	.57194578E+00	-.64314247E+00	-.72588804E+00	.14196146E+00	.24055025E+00	.10000000E+01		
VAR 7	.21765702E-01	.34322757E+00	.42698824E+00	.29214844E+00	-.17593318E+00	-.24216740E-01	.10000000E+01	
VAR 8	-.42294481E+00	.53220550E+00	.72617881E+00	-.41521798E+00	.13528236E+00	-.60261379E+00	.15756884E-01	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	-.26427241E+00	.25000000E+02						
VAR 3	-.60117062E+00	.26687362E+01	.25000000E+02					
VAR 4	-.83352104E+00	-.16796119E+01	-.10269929E+01	.25000000E+02				
VAR 5	.12548740E+01	.75226779E+00	.16423922E+00	-.22588593E+01	.25000000E+02			
VAR 6	.15931722E+01	-.18702212E+01	-.22534820E+01	.35009777E+00	.60100210E+00	.25000000E+02		
VAR 7	.53323285E-01	.87629645E+00	.11174757E+01	.73706473E+00	-.43547726E+00	-.59330256E-01	.25000000E+02	
VAR 8	-.11053885E+01	.14530794E+01	.22549882E+01	-.10824291E+01	.33341675E+00	-.17078854E+01	.38599520E-01	.25000000E+02

TABLE A.3 (con't)

ALL URINE EXCEPT KETOSTEROIDS SUBGROUP

VAR (1) = EPI

VAR (2) = NOREPI

VAR (3) = HYDRO

VAR (4) = ALDO

VAR (5) = OSMO

VAR (6) = NA

VAR (7) = K

VAR (8) = MG

VAR (9) = PO4

VAR (10) = CA

VAR (11) = CL

VAR (12) = SP.GR.

VAR (13) = CREATINE

VAR (14) = URIC ACID

VAR (15) = JULIAN

TABLE A.3 <u>ALL URINE EXCEPT KETOSTEROIDS SUBGROUP</u> (con't)

CDR

VARIABLE (OR COLUMN) MEANS

19.841	68.023	65.673	26.600	791.86	121.80	71.500	7.1068	965.02	10.311
114.82	1.0216	1305.7	749.66	237.70					

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	.57771102E+00	.10000000E+01						
VAR 3	.49691080E+00	.15437190E+00	.10000000E+01					
VAR 4	.25934862E+00	.11020474E+00	.41182933E+00	.10000000E+01				
VAR 5	.41389095E+00	.97808440E-01	.36495287E+00	.54360403E+00	.10000000E+01			
VAR 6	-.27147196E+00	-.27397420E+00	-.67360160E-01	-.26118910E+00	-.14366041E+00	.10000000E+01		
VAR 7	-.65281565E-01	-.12114517E+00	.53941106E-01	.14053458E+00	.43649638E-01	.61072186E+00	.10000000E+01	
VAR 8	-.97260330E-01	-.65918377E-01	.20347894E+00	.19605912E+00	.67323605E-01	.13320838E+00	.88134999E-01	.10000000E+01
VAR 9	.17554942E-01	-.68967293E-01	.16255183E+00	.14207832E+00	.21249541E+00	.49712851E+00	.49579462E+00	.55090140E+00
VAR 10	-.34919648E+00	-.18586831E+00	-.71189843E-01	-.14169083E+00	-.19604853E+00	.60410090E+00	.40409129E+00	.48320120E+00
VAR 11	-.20366663E+00	-.25497773E+00	-.69814965E-01	-.24335679E+00	-.14510067E+00	.83566454E+00	.56943269E+00	.22439380E+00
VAR 12	.51836308E+00	.18575552E+00	.42086320E+00	.55407703E+00	.91506042E+00	-.26481543E+00	-.30056138E-01	.15081547E+00
VAR 13	.64655081E-01	-.37679299E-01	.22515455E+00	.12978613E+00	.17680953E+00	.50396228E+00	.55582155E+00	.49243579E+00
VAR 14	-.12855406E+00	-.10173800E+00	.95413147E-01	.87621080E-01	.84807873E-01	.63495351E+00	.47776917E+00	.36331791E+00
VAR 15	-.17754388E+00	.10175112E+00	-.42291906E+00	-.46765153E+00	-.28751313E+00	-.25552013E-01	-.30394728E+00	-.53400328E+00

	VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR 9	.10000000E+01						
VAR 10	.76525851E+00	.10000000E+01					
VAR 11	.68584867E+00	.83770276E+00	.10000000E+01				
VAR 12	.21198213E+00	-.27323581E+00	-.26198429E+00	.10000000E+01			
VAR 13	.86432237E+00	.81122810E+00	.73632208E+00	.14777145E+00	.10000000E+01		
VAR 14	.61245329E+00	.78923895E+00	.74861504E+00	.59267773E-01	.78442148E+00	.10000000E+01	
VAR 15	-.20436661E+00	.89044287E-01	.13736329E+00	-.39962347E+00	-.23950843E+00	-.76800900E-01	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	.42197685E+01	.25000000E+02						
VAR 3	.54909555E+01	.99642660E+00	.25000000E+02					
VAR 4	.16994527E+01	.70853237E+00	.26033658E+01	.25000000E+02				
VAR 5	.28192791E+01	.82828624E+00	.24497584E+01	.39029678E+01	.25000000E+02			
VAR 6	-.17829641E+01	-.18002737E+01	-.56080753E+00	-.17120939E+01	-.92628322E+00	.25000000E+02		
VAR 7	-.41860129E+00	-.77953616E+00	.34572718E+00	.90585567E+00	.27967176E+00	.45466780E+01	.25000000E+02	
VAR 8	-.62474491E+00	-.55150579E+00	.13213429E+01	.12718578E+01	.43173447E+00	.85804926E+00	.56580742E+00	.25000000E+02
VAR 9	.11241802E+00	-.44230832E+00	.10501551E+01	.91594179E+00	.13816874E+01	.34928069E+01	.34814721E+01	.39678532E+01
VAR 10	-.23341203E+01	-.12042670E+01	-.45660338E+00	-.91340969E+00	-.12717859E+01	.44794955E+01	.27439248E+01	.33754209E+01
VAR 11	-.13226101E+01	-.16694834E+01	-.57665029E+00	-.15901463E+01	-.93570300E+00	.77261763E+01	.41407910E+01	.14616931E+01
VAR 12	.56760258E+01	.12033164E+01	.28733416E+01	.39971211E+01	.99746726E+01	-.17370392E+01	-.19251117E+00	.97311338E+00
VAR 13	.41457284E+00	-.24137951E+00	.14668235E+01	.83575057E+00	.11441572E+01	.35511934E+01	.40132625E+01	.34530179E+01
VAR 14	-.82772764E+00	-.65370274E+00	.61280637E+00	.56249112E+00	.54434290E+00	.48002459E+01	.33301983E+01	.24376892E+01
VAR 15	-.11490117E+01	.65378762E+00	-.28893560E+01	-.32467698E+01	-.18943846E+01	-.16364834E+00	-.20097035E+01	-.38145253E+01

	VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR 9	.25000000E+02						
VAR 10	.64593679E+01	.25000000E+02					
VAR 11	.53791032E+01	.77696857E+01	.25000000E+02				
VAR 12	.13762458E+01	-.17951631E+01	-.17175595E+01	.25000000E+02			
VAR 13	.83892811E+01	.72394394E+01	.60342917E+01	.95517779E+00	.25000000E+02		
VAR 14	.72624513E+01	.68475670E+01	.62097303E+01	.57994421E+00	.67665795E+01	.25000000E+02	
VAR 15	-.13272734E+01	.57167576E+00	.66514972E+00	-.27113312E+01	-.15639795E+01	-.49273601E+00	.25000000E+02

TABLE A.3 ALL URINE EXCEPT KETOSTEROIDS SUBGROUP (con't)

PLI

VARIABLE (OR COLUMN) MEANS

18.723	80.695	71.623	24.600	797.79	180.19	64.047	10.714	1225.0	23.093
165.40	1.0210	1853.4	813.88	256.95					

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	-.11670507E+00	.10000000E+01						
VAR 3	.59496677E+00	.10645583E+00	.10000000E+01					
VAR 4	.43014505E+00	-.15490426E-01	.57232761E+00	.10000000E+01				
VAR 5	.54343481E+00	.26685151E+00	.41285851E+00	.24561453E+00	.10000000E+01			
VAR 6	-.17300587E+00	.22394067E+00	-.16446863E+00	-.20239960E+00	-.17589258E+00	.10000000E+01		
VAR 7	.18721493E+00	.18395355E+00	.40936274E+00	.12904680E+00	-.47090547E-01	.11368435E+00	.10000000E+01	
VAR 8	.24782619E-01	.16243640E+00	.21754569E+00	.96057296E-01	-.78259470E-01	.42790243E+00	.29081145E+00	.10000000E+01
VAR 9	-.82033580E-01	.41793216E+00	.95388214E-01	.49241415E-01	.14636522E+00	.16479628E+00	.21894964E+00	.17574486E+00
VAR 10	-.13159706E+00	.42981988E+00	.32909564E-01	-.26336820E+00	-.37150380E-02	.53378934E+00	.23789261E+00	.44244202E+00
VAR 11	-.21227682E-01	.19443002E+00	-.76476936E-01	-.20367687E+00	-.11529530E+00	.93196741E+00	.11673928E+00	.33395131E+00
VAR 12	.53221479E+00	.70451628E-01	.45484516E+00	.36881945E+00	.81159258E+00	-.28580988E+00	-.39478456E-01	-.97501087E-01
VAR 13	.47433448E+00	.27889527E+00	.54356932E+00	.24168003E+00	.32204448E+00	-.16934373E-01	.59565027E+00	.33673338E+00
VAR 14	-.21022752E+00	.10150766E+00	-.94939799E-01	-.27971376E+00	-.40680540E-01	.51133053E-01	.13510281E-02	-.21287882E+00
VAR 15	-.48564164E+00	.52496324E+00	-.30718880E+00	.36194828E+00	-.57359564E-01	.26274533E+00	-.13687256E-01	.42115229E-02

	VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR 9	.10000000E+01						
VAR 10	.52557485E+00	.10000000E+01					
VAR 11	.18815065E+00	.59928285E+00	.10000000E+01				
VAR 12	.96441442E-01	-.15708705E+00	-.27933188E+00	.10000000E+01			
VAR 13	.45905126E+00	.39226238E+00	.20026264E-02	.40152697E+00	.10000000E+01		
VAR 14	.38375580E+00	.34880782E+00	.23447294E+00	-.11498884E+00	-.71667449E-01	.10000000E+01	
VAR 15	.51659152E+00	.54901629E+00	.31096690E+00	-.23501317E+00	-.14689991E+00	.60510461E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	-.74148637E+00	.25000000E+02						
VAR 3	.43343413E+01	.67584664E+00	.25000000E+02					
VAR 4	.29097675E+01	-.97977893E-01	.41171428E+01	.25000000E+02				
VAR 5	.38517621E+01	.17295616E+01	.27768100E+01	.15858216E+01	.25000000E+02			
VAR 6	-.11053023E+01	.14407401E+01	-.10497252E+01	-.12980099E+01	-.11241324E+01	.25000000E+02		
VAR 7	.11981830E+01	.11768205E+01	.27502040E+01	.82074001E+00	-.29804721E+00	.72212470E+00	.25000000E+02	
VAR 8	.15677115E+00	.10365324E+01	.13982227E+01	.60939862E+00	-.49597054E+00	.28923844E+01	.18939036E+01	.25000000E+02
VAR 9	-.51999445E+00	.28155904E+01	.60512765E+00	.31168213E+00	.93239153E+00	.10516552E+01	.14075462E+01	.11231684E+01
VAR 10	-.83714791E+00	.29072445E+01	.20821354E+00	-.17058857E+01	-.23496071E-01	.37658270E+01	.15339521E+01	.30058281E+01
VAR 11	-.13427582E+00	.12455399E+01	-.46462891E+00	-.13064354E+01	-.73244856E+00	.10581953E+02	.74170571E+00	.21963218E+01
VAR 12	.57519169E+01	.44631589E+00	.31040440E+01	.24479570E+01	.71573566E+01	-.18594030E+01	-.24981352E+00	-.61861630E+00
VAR 13	.32612470E+01	.18118824E+01	.38529694E+01	.15607106E+01	.21119366E+01	-.10711262E+00	.43410371E+01	.22161466E+01
VAR 14	-.13497194E+01	.64420954E+00	-.60226590E+00	-.18174970E+01	-.25742659E+00	.32367612E+00	.85446574E-02	-.13672733E+01
VAR 15	-.33541704E+01	.36882701E+01	-.20076562E+01	.23978039E+01	-.36317238E+00	.17016535E+01	-.86571214E-01	.26636167E-01

	VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR 9	.25000000E+02						
VAR 10	.36936121E+01	.25000000E+02					
VAR 11	.12043171E+01	.43767655E+01	.25000000E+02				
VAR 12	.61185089E+00	-.10018009E+01	-.18148771E+01	.25000000E+02			
VAR 13	.31376661E+01	.26213450E+01	.12665738E-01	.26968964E+01	.25000000E+02		
VAR 14	.25580086E+01	.23026807E+01	.15110464E+01	-.73048432E+00	-.45404317E+00	.25000000E+02	
VAR 15	.36156176E+01	.39020740E+01	.20340748E+01	-.15146624E+01	-.93584755E+00	.44345357E+01	.25000000E+02

SPT

VARIABLE (OR COLUMN) MEANS

| 31.123 | 77.543 | 116.30 | 28.273 | 951.43 | 220.59 | 100.07 | 9.7227 | 1423.1 | 14.491 |
| 205.61 | 1.0246 | 2643.8 | 1179.4 | 237.43 | | | | | |

CORRELATION MATRIX

		VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR	1	.10000000E+01							
VAR	2	.26431470E+00	.10000000E+01						
VAR	3	.26109746E+00	-.18246149E+00	.10000000E+01					
VAR	4	.12296519E+00	-.10172741E+00	.17307072E+00	.10000000E+01				
VAR	5	.16228230E+00	.26896563E-01	.10775645E+00	.22610038E+00	.10000000E+01			
VAR	6	-.98568413E-01	.18708215E+00	-.42416050E+00	-.53338636E+00	.21006127E+00	.10000000E+01		
VAR	7	.15709357E+00	.48295176E-01	.81303320E-01	-.14935995E+00	.47740740E+00	.48220784E+00	.10000000E+01	
VAR	8	.16220120E+00	.39701445E-01	-.52681234E+00	-.29883958E+00	.12355459E+00	.57335909E+00	.22692374E+00	.10000000E+01
VAR	9	.25976047E+00	.35242506E-01	-.52252373E+00	-.12459917E+00	.28168128E+00	.50005585E+00	.68340950E+00	.53571815E+00
VAR	10	-.14875510E+00	-.23423687E-01	-.29005544E+00	-.37117005E+00	.24971698E+00	.77282696E+00	.40013718E+00	.56748155E+00
VAR	11	-.64341406E-01	.20895735E+00	-.59690658E+00	-.54033702E+00	.23584363E+00	.97105616E+00	.49919862E+00	.56596386E+00
VAR	12	.53569684E-01	-.26321369E+00	.30276907E+00	.44041751E+00	.74494340E+00	-.15864241E+00	.25383192E+00	-.85889332E-01
VAR	13	.30260958E+00	.28193425E-01	.53703361E+00	-.60289568E-01	.42514726E+00	.30378654E+00	.74474844E+00	.16556030E+00
VAR	14	.63291463E-01	.21534229E+00	-.29537332E+00	-.35825784E+00	.17610865E+00	.68039118E+00	.45164644E+00	.56059359E+00
VAR	15	-.21678912E-01	.55883788E+00	-.41837866E+00	-.38742926E+00	-.20203232E+00	.27129994E+00	-.73081956E-01	-.71383397E-01

		VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR	9	.10000000E+01						
VAR	10	.42732374E+00	.10000000E+01					
VAR	11	.45786304E+00	.74939705E+00	.10000000E+01				
VAR	12	.16096052E+00	.33003284E-01	-.14170740E+00	.10000000E+01			
VAR	13	.56929971E+00	.34829689E+00	.31096036E+00	.36461513E+00	.10000000E+01		
VAR	14	.53917470E+00	.50638231E+00	.69701324E+00	-.82390178E-01	.36447943E+00	.10000000E+01	
VAR	15	.47927269E-02	.58533286E-01	.33241259E+00	-.41120113E+00	-.11922162E+00	.28107077E+00	.10000000E+01

FISHERS Z SCORES

		VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR	1	.25000000E+02							
VAR	2	.17335917E+01	.25000000E+02						
VAR	3	.17114642E+01	-.11815543E+01	.25000000E+02					
VAR	4	.79136621E+00	-.65363682E+00	.11194613E+01	.25000000E+02				
VAR	5	.10483825E+01	.17226358E+00	.69266724E+00	.14732046E+01	.25000000E+02			
VAR	6	-.63320161E+00	.12121868E+01	-.28990427E-01	-.38090018E+01	.13653730E+01	.25000000E+02		
VAR	7	.10142890E+01	.30940078E+00	.52174692E+00	-.93739769E+00	.33271974E+01	.33671281E+01	.25000000E+02	
VAR	8	.11798303E+01	.25434898E+00	-.21722935E+01	-.19737304E+01	.79519713E+00	.41781200E+01	.14787618E+01	.25000000E+02
VAR	9	.17022803E+01	.22575564E+00	-.21451972E+01	-.80199160E+00	.18537318E+01	.35172523E+01	.53497058E+01	.38299058E+01
VAR	10	-.95961784E+00	-.15001222E+00	-.19121444E+01	-.24958060E+01	.16335071E+01	.65779894E+01	.27137225E+01	.41223330E+01
VAR	11	-.41255595E+00	.13579800E+01	-.26891309E+01	-.38715305E+01	.15391083E+01	.13513689E+02	.35104373E+01	.41080172E+01
VAR	12	.34354202E+00	-.17260146E+01	.20013946E+01	.30270684E+01	.61565781E+01	-.10244598E+01	.16616389E+01	-.55131843E+00
VAR	13	.20002704E+01	.18057386E+00	.22458459E+01	-.58651035E+00	.29067511E+01	.20085696E+01	.61537741E+01	.10699515E+01
VAR	14	.40560554E+00	.14007905E+01	-.19493866E+01	-.24004402E+01	.11395251E+01	.53135817E+01	.31168276E+01	.40576495E+01
VAR	15	-.13863452E+00	.40412788E+01	-.28540320E+01	-.26174161E+01	-.13116829E+01	.17817751E+01	-.46878863E+00	-.45785550E+00

		VAR 9	VAR 10	VAR 11	VAR 12	VAR 13	VAR 14	VAR 15
VAR	9	.25000000E+02						
VAR	10	.29237614E+01	.25000000E+02					
VAR	11	.31670119E+01	.62211367E+01	.25000000E+02				
VAR	12	.10396919E+01	.21140090E+00	-.91351798E+00	.25000000E+02			
VAR	13	.41395311E+01	.23275626E+01	.20592974E+01	.24472638E+01	.25000000E+02		
VAR	14	.48610283E+01	.35719986E+01	.55160865E+01	-.52875314E+00	.24462617E+01	.25000000E+02	
VAR	15	.30688661E-01	.37522482E+00	.22125235E+01	-.27985233E+01	-.76703888E+00	.18495060E+01	.25000000E+02

TABLE A.3 (con't)

ELECTROLYTE SUBGROUP

VAR (1) = OSMO

VAR (2) = NA

VAR (3) = K

VAR (4) = MG

VAR (5) = PO4

VAR (6) = CA

VAR (7) = CL

VAR (8) = SP.GR.

VAR (9) = CREAT

VAR (10) = URIC ACID

VAR (11) = JULIAN

TABLE A.3 <u>ELECTROLYTE SUBGROUP</u> (con't)

<u>CDR</u>

VARIABLE (OR COLUMN) MEANS

769.18	126.45	69.677	6.7581	923.35	10.256	117.15	1.0210	1843.6	737.63
234.50									

CORRELATION MATRIX

		VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR	1	.10000000E+01							
VAR	2	-.92611286E-01	.10000000E+01						
VAR	3	.13406533E+00	.44216415E+00	.10000000E+01					
VAR	4	.21632289E+00	.10625000E+00	.67625306E-01	.10000000E+01				
VAR	5	.32003621E+00	.37857884E+00	.56072259E+00	.47790535E+00	.10000000E+01			
VAR	6	-.59415152E-01	.62526893E+00	.42300566E+00	.39842697E+00	.72848962E+00	.10000000E+01		
VAR	7	-.68058070E-01	.85642546E+00	.44772525E+00	.19637966E+00	.52983074E+00	.81035914E+00	.10000000E+01	
VAR	8	.91587196E+00	-.20491298E+00	.11440930E+00	.28120365E+00	.36704809E+00	-.10866268E+00	-.19130382E+00	.10000000E+01
VAR	9	.25893070E+00	.37524186E+00	.63334992E+00	.40882309E+00	.86968522E+00	.77228022E+00	.56801445E+00	.28478561E+00
VAR	10	.18210049E+00	.59437617E+00	.52950223E+00	.31939868E+00	.79455791E+00	.80705545E+00	.70645145E+00	.17537605E+00
VAR	11	-.31439576E+00	-.44402704E-01	-.16539725E+00	-.54964745E+00	-.13665594E+00	.51626959E-01	.10666755E+00	-.41384117E+00

		VAR 9	VAR 10	VAR 11
VAR	9	.10000000E+01		
VAR	10	.77877958E+00	.10000000E+01	
VAR	11	-.15741205E+00	-.48567455E-01	.10000000E+01

FISHERS Z SCORES

		VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR	1	.25000000E+02							
VAR	2	-.71340508E+00	.25000000E+02						
VAR	3	.13360123E+01	.36479121E+01	.25000000E+02					
VAR	4	.16882792E+01	.81321377E+00	.52023384E+00	.25000000E+02				
VAR	5	.25477397E+01	.30691651E+01	.48039740E+01	.39962396E+01	.25000000E+02			
VAR	6	-.45691461E+00	.56349663E+01	.34308626E+01	.32397358E+01	.71089115E+01	.25000000E+02		
VAR	7	-.52357333E+00	.98301529E+01	.37011722E+01	.15202730E+01	.45311832E+01	.86649026E+01	.25000000E+02	
VAR	8	.12004049E+02	-.15965686E+01	.08265923E+00	.23197635E+01	.23572970E+01	-.03796240E+00	-.14077624E+01	.25000000E+02
VAR	9	.20352111E+01	.30302900E+01	.57377407E+01	.33351328E+01	.10229644E+02	.78804961E+01	.49511640E+01	.22496724E+01
VAR	10	.14145165E+01	.52570206E+01	.45276759E+01	.25422851E+01	.83238647E+01	.85915580E+01	.67599009E+01	.13611603E+01
VAR	11	-.24995669E+01	-.34128805E+00	-.12822192E+01	-.47459957E+01	-.10562826E+01	.39690708E+00	.82245784E+00	-.33815273E+01

		VAR 9	VAR 10	VAR 11
VAR	9	.25000000E+02		
VAR	10	.80057653E+01	.25000000E+02	
VAR	11	-.12192427E+01	-.37334743E+00	.25000000E+02

TABLE A.3 ELECTROLYTE SUBGROUP (con't)

PLT

VARIABLE (OR COLUMN) MEANS

799.73	180.42	64.617	10.637	1199.8	22.747	166.37	1.0208	1841.5	788.88
238.48									

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	-.28374201E+00	.10000000E+01						
VAR 3	-.23307831E+00	.53737631E+00	.10000000E+01					
VAR 4	-.26358543E+00	.72451850E+00	.62911765E+00	.10000000E+01				
VAR 5	-.78311983E-01	.56874729E+00	.60268401E+00	.63961488E+00	.10000000E+01			
VAR 6	-.22241455E+00	.79306569E+00	.62224933E+00	.76243406E+00	.74055163E+00	.10000000E+01		
VAR 7	-.26061360E+00	.95828115E+00	.52012339E+00	.65684447E+00	.53604261E+00	.80781005E+00	.10000000E+01	
VAR 8	.82536455E+00	-.25672349E+00	-.16843857E+00	-.21647700E+00	-.35686291E-01	-.20948583E+00	-.26195002E+00	.10000000E+01
VAR 9	-.79638166E-01	.63357580E+00	.77857898E+00	.75636852E+00	.77162764E+00	.79096139E+00	.60167744E+00	.61071050E-01
VAR 10	-.11120219E+00	.11713095E+00	.89332052E-01	.15216330E-01	.30691980E+00	.30291755E+00	.25079045E+00	-.14219011E+00
VAR 11	-.27165217E-01	.59298692E-01	-.24913093E-01	-.73566124E-01	.14837148E+00	.22267117E+00	.11349745E+00	-.23955884E+00

	VAR 9	VAR 10	VAR 11
VAR 9	.10000000E+01		
VAR 10	.52562938E-01	.10000000E+01	
VAR 11	-.18979535E+00	.48779024E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	-.22026419E+01	.25000000E+02						
VAR 3	-.17926490E+01	.45333682E+01	.25000000E+02					
VAR 4	-.20381356E+01	.69238879E+01	.55865337E+01	.25000000E+02				
VAR 5	-.59245562E+00	.48746956E+01	.52648887E+01	.57191635E+01	.25000000E+02			
VAR 6	-.17077339E+01	.81511060E+01	.55013174E+01	.75649563E+01	.71851760E+01	.25000000E+02		
VAR 7	-.20140437E+01	.14529163E+02	.43525467E+01	.59435556E+01	.45192249E+01	.84610514E+01	.25000000E+02	
VAR 8	.88591054E+01	-.19825679E+01	-.12839188E+01	-.16606383E+01	-.26954005E+00	-.16053478E+01	-.20248727E+01	.25000000E+02
VAR 9	-.60253093E+00	.56425007E+01	.78650553E+01	.74567709E+01	.77335843E+01	.81084801E+01	.52529658E+01	.46165082E+00
VAR 10	-.84304466E+00	.88839706E+00	.67624490E+00	.11490475E+00	.23943644E+01	.23610507E+01	.19346914E+01	-.10808356E+01
VAR 11	-.20514336E+00	.44822268E+00	-.18812866E+00	-.55641728E+00	.11285103E+01	.17097724E+01	.86059504E+00	-.18444702E+01

	VAR 9	VAR 10	VAR 11
VAR 9	.25000000E+02		
VAR 10	.39720756E+00	.25000000E+02	
VAR 11	-.14505109E+01	.40252434E+01	.25000000E+02

TABLE A.3 <u>ELECTROLYTE SUBGROUP</u> (con't)

<u>SPT</u>

VARIABLE (OR COLUMN) MEANS

962.68	218.37	96.129	9.4242	1358.6	14.206	203.16	1.0248	2558.9	1145.1
238.56									

CORRELATION MATRIX

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.10000000E+01							
VAR 2	-.27380482E+00	.10000000E+01						
VAR 3	-.18591000E+00	.61408287E+00	.10000000E+01					
VAR 4	-.22760564E+00	.62636460E+00	.41433950E+00	.10000000E+01				
VAR 5	-.96073527E-01	.55258927E+00	.70847796E+00	.67328903E+00	.10000000E+01			
VAR 6	-.33226743E+00	.81379005E+00	.60580847E+00	.71182167E+00	.59736506E+00	.10000000E+01		
VAR 7	-.22708803E+00	.97296835E+00	.61964917E+00	.64724267E+00	.54600563E+00	.80604186E+00	.10000000E+01	
VAR 8	.86022587E+00	-.42104798E+00	-.19909299E+00	-.26260340E+00	-.65214698E-01	-.33760488E+00	-.38222267E+00	.10000000E+01
VAR 9	-.29669761E+00	.52568279E+00	.78092500E+00	.52987379E+00	.72291879E+00	.69472712E+00	.53256185E+00	-.17540709E+00
VAR 10	-.29080226E+00	.73372783E+00	.61438678E+00	.65470525E+00	.65318350E+00	.67349445E+00	.74640616E+00	-.34129052E+00
VAR 11	-.11004952E+00	.16051935E+00	-.93261887E-02	-.18482474E-01	.66377605E-01	.57366126E-01	.23758261E+00	-.23942737E+00

	VAR 9	VAR 10	VAR 11
VAR 9	.10000000E+01		
VAR 10	.62554886E+00	.10000000E+01	
VAR 11	-.60604740E-01	.25909296E+00	.10000000E+01

FISHERS Z SCORES

	VAR 1	VAR 2	VAR 3	VAR 4	VAR 5	VAR 6	VAR 7	VAR 8
VAR 1	.25000000E+02							
VAR 2	-.21581900E+01	.25000000E+02						
VAR 3	-.14448034E+01	.54954734E+01	.25000000E+02					
VAR 4	-.17794360E+01	.56487492E+01	.33861472E+01	.25000000E+02				
VAR 5	-.74023789E+00	.47784495E+01	.67910645E+01	.62734627E+01	.25000000E+02			
VAR 6	-.26528751E+01	.87422925E+01	.53942602E+01	.68426789E+01	.52926183E+01	.25000000E+02		
VAR 7	-.17752435E+01	.16477156E+02	.55644938E+01	.59186211E+01	.47060270E+01	.85692803E+01	.25000000E+02	
VAR 8	.99410366E+01	-.34465667E+01	-.15499625E+01	-.20654800E+01	-.50163556E+00	-.26990534E+01	-.30928903E+01	.25000000E+02
VAR 9	-.23496205E+01	.44870220E+01	.80478208E+01	.45316430E+01	.70185104E+01	.65830144E+01	.45604075E+01	-.13614062E+01
VAR 10	-.23000608E+01	.71953525E+01	.54992226E+01	.60181000E+01	.59976778E+01	.62763497E+01	.74106981E+01	-.27310502E+01
VAR 11	-.84874393E+00	.12437291E+01	-.71637892E-01	-.14198275E+00	.51060605E+00	.28714835E+00	.18604545E+01	-.18754790E+01

	VAR 9	VAR 10	VAR 11
VAR 9	.25000000E+02		
VAR 10	.56359733E+01	.25000000E+02	
VAR 11	-.46608504E+00	.20365471E+01	.25000000E+02

TABLE A.4 FACTORS AND FACTOR VARIANCES

<u>DIET SUBGROUP</u>

VAR (1) = CAL

VAR (2) = DIET PROT

VAR (3) = DIET CA

VAR (4) = DIET P

VAR (5) = DIET NA

VAR (6) = DIET MG

VAR (7) = DIET K

VAR (8) = DIET H_2O

VAR (9) = WEIGHT

VAR (10) = JULIAN

TABLE A.4 DIET SUBGROUP (con't)

CDR

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	5.18762	51.8762	.391607 .321065	.349594 .252366	.338431 .238630	.403923 -.980773E-01	.403741 .224493
2	1.39361	13.9361	.858501E-02 .352536	.198694 .609410E-01	.180088E-01 -.250063	.146156 .702106	-.630299E-01 -.501307
3	.922361	9.22361	-.166686 .384774	.326244 -.534609	.103942 -.546688	-.602082E-01 -.258238	.143998E-01 .227444
4	.787191	7.87191	.174698 .109502	-.152405 .578723	-.355314 -.550214	-.100672 .549031E-01	.309996E-01 .395284
5	.606194	6.06194	-.117460 -.148432	.578251E-01 .419558	.475031 -.338059	-.204752E-01 -.454629	-.103780 -.476428
6	.357909	3.57909	.211323 .319019	-.328454 -.136740	-.487437 -.128061E-01	.292574 -.413376	.182553 -.446572
7	.265683	2.65683	-.922162E-01 -.361959E-01	.731947 .199201	-.601941 .203169	-.732962E-01 -.197824	-.259716 -.978625E-01
8	.222102	2.22102	.308584 .531963	-.165250 .593112E-01	.180621 .244271	-.357426 -.992899E-01	-.599691 .378647E-01
9	.170821	1.70821	-.791161 .427097	-.172221 .267825	-.465625E-02 .229068	.130734 -.328397E-01	.726742E-01 .119651
10	.865035E-01	.865035	.121638E-01 .148603	.685768E-01 .470571E-01	-.157855E-01 .105145	-.751990 .941897E-02	.596148 -.196409

Q= 1 GIVES PROB = 50.00 PERCENT
Q= 3 GIVES PROB = 75.00 PERCENT
Q= 6 GIVES PROB = 90.00 PERCENT
Q= ▶ GIVES PROB = 95.00 PERCENT
Q= ? GIVES PROB = 99.00 PERCENT

PLT

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	6.19081	61.9081	.388822	.366314	.202328	.367323	.277542
			.277874	.358776	.279124	-.306419	.289834
2	1.35292	13.5292	-.954889E-01	-.140845	.563328	-.151077	-.465313
			.425121	.931977E-01	-.366970	-.880534E-01	.287284
3	.884769	8.84769	.366713E-01	-.299011E-01	.483516	-.821376E-01	.115454
			.204394	.154474	.350106	.489678	-.562048
4	.465042	4.65042	-.103202	-.291393	.306531	-.234302	-.523129E-01
			-.246541	-.229773	.576610	-.553519	.200866E-01
5	.434360	4.34360	-.112344E-01	-.338572	.341244	.186393	.254711
			-.622036	.425516	-.260852	.100530	.151763
6	.307180	3.07180	-.132177	-.199425	.583795E-01	-.316207	.781038
			.330103	-.229213	-.197118	-.291436E-01	.167726
7	.158082	1.58082	.108780E-01	.458126E-02	.118761	.321793	.852510E-01
			.505125E-01	-.111444	-.416218	-.516283	-.648214
8	.956589E-01	.956589	-.357694	.203173	-.207836	-.480477	.244817E-01
			.276590E-01	.674594	-.916285E-02	-.262605	-.176732
9	.735035E-01	.735035	-.248000	-.645734	-.314712	.420284	-.446217E-01
			.371473	.249174	.208792	-.132201E-01	-.103918E-02
10	.376792E-01	.376792	-.787743	.384055	.194361	.367191	.750484E-01
			-.478906E-01	-.150825	.924886E-01	.744720E-01	.120757

Q= 1 GIVES PROB = 50.00 PERCENT
Q= 2 GIVES PROB = 75.00 PERCENT
Q= 5 GIVES PROB = 90.00 PERCENT
Q= 6 GIVES PROB = 95.00 PERCENT
Q= 9 GIVES PROB = 99.00 PERCENT

TABLE A.4 <u>DIET SUBGROUP</u> (con't)

SPT NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	7.18786	71.8786	.349752 .359077	.346112 .356169	.323320 .294653	.361061 -.152587	.331494 .217245
2	1.29111	12.9111	.767675E-01 .452011E-01	.106747 .261841E-01	.335006 -.284098	.110772 .703219	.184468 -.496213
3	.517197	5.17197	.493905E-01 -.152154E-01	-.258225E-01 .348705E-01	-.781857E-01 -.357158	-.380868E-01 .450068	.665239E-01 .808291
4	.325638	3.25638	-.718532E-01 .194984E-01	-.731519E-01 .693187E-01	-.849350 .769696	-.305406E-01 .517493	-.274301E-01 .184121E-01
5	.238361	2.38361	-.533426 -.224093	-.219061E-01 .690939E-01	-.843565 -.670175E-01	.292430 -.870147E-01	.708858 -.245869E-01
6	.160440	1.60440	-.157674 -.341959	.797151 .210475	-.206453 -.748656E-01	.108455 .364845E-01	-.341629 -.205548E-01
7	.156060	1.56060	-.276309 .360411	-.320280 .655085	-.157779 -.204944	.256614 .131099E-01	-.348605 -.871622E-01
8	.783759E-01	.783759	.517080 .162569	.845202E-01 .153475	-.663578 -.230383	-.252105 -.413598E-01	.270033 -.209517
9	.316898E-01	.316898	.382767 -.738133	-.325608 .416556	.119911 .886170E-01	.103453 -.202799E-01	.517044E-02 -.124153E-01
10	.132612E-01	.132612	-.254057 .910599E-02	.105459 .437212	.271147 .621599E-01	-.785871 -.253705E-01	.192994 .151097E-01

Q= 1 GIVES PROB = 50.00 PERCENT
Q= 2 GIVES PROB = 75.00 PERCENT
Q= 4 GIVES PROB = 90.00 PERCENT
Q= 5 GIVES PROB = 95.00 PERCENT
Q= 8 GIVES PROB = 99.00 PERCENT

TABLE A.4 (con't)

KETOSTEROID SUBGROUP

VAR (1) = PD

VAR (2) = AND

VAR (3) = ETIO

VAR (4) = DHEA

VAR (5) = 11=OETIO

VAR (6) = 11OHETIO

VAR (7) = TOTAL

VAR (8) = JULIAN

TABLE A.4 <u>KETOSTEROID SUBGROUP</u> (con't)

<u>CDR</u>

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	4.03136	50.3921	.308270	.384680	.268989	.291708	.406280
			.339836	.481220	-.295664		
2	2.69964	33.7454	-.241039	.289479	.448330	.476280	-.255908
			-.413243	.146734	.415296		
3	.714890	8.93613	.778749	-.339660	.170321	.188116	-.446817
			.609328E-01	-.465427E-01	.908819E-01		
4	.386861	4.83577	.206792	.460592	-.538197	-.666851E-01	-.769078E-01
			.242637	.109977	.611643		
5	.132633	1.65791	-.208372	-.296899	.489535	-.309472	.751591E-01
			.547697	.118360	.461936		
6	.299839E-01	.374799	-.372275	.411715E-01	-.157533	.303539	-.611051
			.520193	.698914E-01	-.306423		
7	.463040E-02	.578799E-01	.100185	.448152	.279558	-.670340	-.419300
			-.130703	.136432	-.223866		
8	.126057E-05	.157572E-04	-.749166E-01	-.387331	-.255691	-.104712	-.950901E-01
			-.251994	.833743	.186973E-01		

```
Q=   1 GIVES PROB = 50.00 PERCENT
Q=   2 GIVES PROB = 75.00 PERCENT
Q=   3 GIVES PROB = 90.00 PERCENT
Q=   4 GIVES PROB = 95.00 PERCENT
Q=   5 GIVES PROB = 99.00 PERCENT
```

TABLE A.4 <u>KETOSTEROID SUBGROUP</u> (con't)

<u>PLT</u>

NUMBER	EIGENVALUE		EIGENVECTORS				
1	4.99630	62.4538	.405878 .388657	-.220680 -.212640	-.381411 -.412882	-.310519	.422124
2	2.05232	25.6540	-.263667 -.314694	.400960 -.582072	-.279170 -.610249E-01	-.461698	-.192444
3	.706809	8.83511	.161717 -.454757E-01	.773138 .332617	-.348492E-01 -.443815	.209728	.145707
4	.195693	2.44617	-.138239 .288908	.165858 -.141777E-01	.749833 -.221936E-01	-.503179	.231908
5	.488757E-01	.610921	-.495484 .704301	.605640E-01 .102106	-.218342 -.163741	.509452E-01	-.409001
6	.289653E-13	.362067E-12	.124032 .286964	.358789 .101221	-.297439 .771750	-.112208	.258136
7	.847744E-14	.105966E-12	-.118316E-01 -.236903	-.142539 .686763	-.217676 -.440537E-01	-.606812	-.185016
8	.448925E-15	.561156E-14	-.677821 -.172816	-.113265 .113254	-.172046 -.631707E-01	.991508E-01	.664543

```
Q=   1 GIVES PROB = 50.00 PERCENT
Q=   2 GIVES PROB = 75.00 PERCENT
Q=   3 GIVES PROB = 90.00 PERCENT
Q=   3 GIVES PROB = 95.00 PERCENT
Q=   4 GIVES PROB = 99.00 PERCENT
```

TABLE A.4 KETOSTEROID SUBGROUP (con't)

SPT

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	3.45957	43.2446	-.190287	.475842	.500255	-.283371	.920034E-01
			-.433433	.118431	.443234		
2	2.24247	28.0309	.491021	.125363	-.468945E-01	-.529116	.597530
			.260959	-.187347	-.279167E-01		
3	1.26272	15.7839	.354775	.214151	.210708	.167441	-.131997E-01
			.197398	.814664	-.230265		
4	.466965	5.83707	-.290249	-.332012	.201905E-01	.128293	.320929
			.479938	.248332	.627417		
5	.325926	4.07408	-.606228	.369128	-.298741	.766260E-01	.460905
			.990839E-02	.122713	-.393306		
6	.155291	1.94114	-.236213	.288834	-.178345	-.529872	-.545267
			.495946	.621801E-01	.325829E-01		
7	.860694E-01	1.07587	-.292191	-.409920	.672166	-.253833	.479746E-01
			.158607	-.508368E-01	-.447560		
8	.992450E-03	.124056E-01	.624135E-01	.462656	.360389	.494140	-.208917E-01
			.451124	-.451684	.543981E-02		

Q= 2 GIVES PROB = 50.00 PERCENT
Q= 3 GIVES PROB = 75.00 PERCENT
Q= 4 GIVES PROB = 90.00 PERCENT
Q= 5 GIVES PROB = 95.00 PERCENT
Q= 7 GIVES PROB = 99.00 PERCENT

TABLE A.4 (con't)

ALL URINE EXCEPT KETOSTEROIDS SUBGROUP

VAR (1) = EPI

VAR (2) = NOREPI

VAR (3) = HYDRO

VAR (4) = ALDO

VAR (5) = OSMO

VAR (6) = NA

VAR (7) = K

VAR (8) = MG

VAR (9) = PO4

VAR (10) = CA

VAR (11) = CL

VAR (12) = SP.GR.

VAR (13) = CREATINE

VAR (14) = URIC ACID

VAR (15) = JULIAN

TABLE A.4 **ALL URINE EXCEPT KETOSTEROIDS SUBGROUP** (con't)

<u>CDR</u>

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	5.35325	35.6884	-.979638E-01	-.106456	.211773E-01	-.922590E-02	-.836405E-02
			.333369	.281029	.213897	.376786	.390925
			.387790	-.369443E-01	.382938	.380407	-.686659E-01
2	3.72606	24.8404	.334137	.157604	.348786	.380200	.413582
			-.136885	.468141E-01	.162974	.147483	-.102007
			-.126489	.455190	.143231	.534064E-01	-.316306
3	1.44165	9.61090	-.463361	-.565768	-.316906E-01	.195658	-.436923E-01
			-.622544E-01	-.867907E-02	.376793	-.687165E-01	-.413324E-01
			-.172437	-.264319E-01	-.110641	-.111855	-.465261
4	1.10513	7.36750	.797852E-01	.359630	.121292	-.112870	-.349533
			-.299127	-.424117	.560073	.113658	.230402
			-.117147	-.194867	.108593	-.197208E-02	-.462834E-01
5	.970623	6.47082	.242284	.174301	.343346	-.237287E-01	-.399000
			.216585	.456891	-.539187E-01	-.173121	-.165121
			.380762E-02	-.330688	-.316051E-01	-.154591	-.428018
6	.667073	4.44715	.175772	-.455891	.622220	-.427783	.641730E-01
			.149470	-.362039	-.343476E-01	-.435825E-01	-.213117E-01
			.147281	.503737E-01	-.815781E-02	-.294879E-01	.698627E-01
7	.569065	3.79377	-.194702	-.837693E-01	.449762	.610010	-.168725
			-.216666	-.334686E-01	-.271521	-.546476E-01	.174561
			-.213757E-01	-.254787	.249066E-01	.182825	.312319
8	.335095	2.23397	.317110	-.381016	-.139597	-.915029E-01	-.168945
			-.575672	.261552	-.122137	.197321	.822363E-01
			.346586E-01	-.569306E-01	.372742	-.329502	.465201E-01
9	.251200	1.67447	-.545205	.264294	.349297	-.381319	.225227
			-.185349	.375935	.115794E-01	.347475E-02	.127467
			-.209753	.105622	.102010	-.201968	.127645
10	.224476	1.49651	-.771572E-01	-.513855E-01	-.166551E-01	-.271027	-.247132
			-.220601	-.525426E-01	-.372825	.194299	-.152246
			-.342235	.125406	.285784E-01	.623627	-.300019
11	.151596	1.01065	.845271E-01	-.998982E-01	.967170E-01	.116326E-01	-.154991
			.963041E-02	.259744	.249377	.589069	-.250031
			-.927554E-01	.438082E-01	-.534864	.162259E-01	.336460
12	.905929E-01	.603953	.173952	-.115814	-.973207E-02	-.104007	-.326352E-02
			-.266757	.330369	.364585	-.584776	.366130E-02
			.108190	.123616	-.135049	.446648	.213270
13	.474676E-01	.316565	.190003	-.553228E-01	-.367223E-01	-.858755E-01	.579656
			-.303623E-01	.360456E-01	.298833E-01	.735276E-01	.122123
			-.289077	-.676608	-.125953	.173961	-.708312E-01
14	.379867E-01	.253256	.122011	-.150592	-.404313E-01	.537060E-01	-.154793
			.405824	.544160E-01	.147300	-.101216	-.666715E-01
			-.664150	.619575E-01	.428364	-.909205E-02	.327405
15	.287109E-01	.191406	-.195007	.634516E-01	.254699E-01	.672898E-02	.105513
			-.964197E-01	-.676015E-01	.149900	.496831E-01	-.775500
			.246389	-.258755	.391491	.115559	.107856

Q= 2 GIVES PROB = 50.00 PERCENT
Q= 4 GIVES PROB = 75.00 PERCENT
Q= 7 GIVES PROB = 90.00 PERCENT
Q= 9 GIVES PROB = 95.00 PERCENT
Q= 13 GIVES PROB = 99.00 PERCENT

NUMBER	PLT EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	4.04391	26.9594	.336951	-.146250	.279528	.299478	.245557
			-.315587	.144786E-01	-.921468E-01	-.158115	-.306544
			-.309651	.325752	.135823	-.233857	-.366815
2	3.52330	23.4887	.218318	.287183	.319050	.145248	.242618
			.173891	.296718	.262982	.327259	.339079
			.202634	.200408	.426676	.626623E-01	.106743
3	1.94791	12.9061	.875780E-01	-.228799	.732321E-01	.924185E-01	-.316867
			.332988	.205563	.400044	-.279226	.376164E-02
			.265739	-.269401	.395496E-01	-.389760	-.371278
4	1.29293	8.61951	.228095	.375110E-02	-.906072E-01	-.532570E-01	.420048
			.386900	-.483877	-.432053E-01	-.197132	.259440E-01
			.415259	.302006	-.256469	-.675948E-01	-.353440E-01
5	.961688	6.41125	.329273	-.531870	.160707	-.113219	-.925162E-01
			.198075E-01	.197590	-.317351	-.326591E-01	.404635E-01
			.254804	-.559617E-01	.449300E-01	.563938	-.869875E-01
6	.775728	5.17152	.910806E-01	-.355077E-01	-.272633	-.774711	.165690
			-.849952E-01	.171509	.161839E-02	-.170051	.154755
			-.121654	.132442	.331927	-.188501	-.144659
7	.656852	4.37901	-.698752E-01	-.526549	-.144201	.311480E-01	-.574390E-01
			-.107205	-.449430	.440504	.410046	.208537
			-.144495	.148880	.138623	.530174E-01	-.926251E-01
8	.501590	3.34394	-.354690E-01	.442004E-01	.425524	-.167656	.101417
			-.242912	-.837767E-01	.494117	-.501157	.172171
			-.135316	-.379348E-01	-.232717	.290078	.168210
9	.374717	2.49811	-.439140	-.273751	-.947578E-01	.993934E-02	.210539
			.225953	.476506	.205277	.640361E-02	-.333128
			-.598815E-02	.442639	-.178105	.993701E-01	.999216E-01
10	.277679	1.85252	-.579305	-.495633E-02	.407582	-.275663E-01	-.165173
			.140482	-.181952	-.347807	-.139743	.301579
			.165934E-01	.252848	.197891	-.234150E-01	-.286574
11	.222557	1.48371	-.131675E-01	.193019	.399252	-.435471	-.327390E-01
			.112899	-.163437	.130622	.408791	-.552904
			.517783E-01	-.121385	-.721477E-01	.972684E-01	-.209746
12	.208299	1.38866	-.103542E-01	-.351224	.372611	-.153673	.241178
			-.646256E-01	.122546	-.193016	.256475	.212288
			.227064E-03	-.199236	-.332910	-.502821	.291746
13	.133417	.889446	-.249094	.265912E-01	-.147458	.136552	.597867
			-.550836E-01	.936223E-01	.864218E-02	.591812E-01	.160774
			-.178513E-01	-.464054	-.657938E-01	.186529	-.492599
14	.601020E-01	.400680	.162602	.209623	-.864980E-01	-.547902E-01	-.257079
			-.148149	.217219	.213368E-01	.213860	.347549
			-.186525E-01	.331285	-.590733	.290795E-01	-.396250
15	.191184E-01	.127456	-.197588	.138624E-01	-.420178E-01	.253630E-02	-.379553E-02
			-.647134	.700149E-02	.598576E-01	.862964E-02	-.118476
			.705284	.792167E-01	.798684E-01	-.111030	-.689661E-02

Q= 2 GIVES PROB = 50.00 PERCENT
Q= 5 GIVES PROB = 75.00 PERCENT
Q= 8 GIVES PROB = 90.00 PERCENT
Q= 10 GIVES PROB = 95.00 PERCENT
Q= 13 GIVES PROB = 99.00 PERCENT

TABLE A.4 ALL URINE EXCEPT KETOSTEROIDS SUBGROUP (con't)

SPT

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	5.22723	34.8482	-.303410E-01	-.950493E-01	.169486	.217924	-.139135
			-.400342	-.288223	-.297681	-.315166	-.342434
			-.400158	.169705E-01	-.223250	-.350433	-.113412
2	3.09129	20.6086	.178819	-.176143	.310519	.272960	.394239
			-.103380	.288022	-.205681E-01	.173496	.265960E-02
			-.101828	.467741	.359311	-.392453E-01	-.355910
3	1.58790	10.5860	.546322	.590010	.146044	.338883E-01	.111603E-01
			-.113920	.112408	-.133716	.736404E-01	-.282232
			-.721248E-01	-.122257	.201704	.690927E-01	.369648
4	1.14785	7.65236	.251918	-.297568	.437175	-.367247	-.462194
			-.390454E-01	.931431E-01	.167207	.476173E-01	-.836462E-02
			-.553306E-01	-.368685	.228556	.607816E-02	-.276793
5	1.07736	7.18241	.401736	-.366652E-01	-.364001	.330630	-.859104E-01
			-.106569	-.215708	.525286	.324530	-.707320E-01
			-.142334	-.572787E-01	-.241984	.609704E-01	-.241086
6	.753329	5.02219	-.270332	-.199042	-.343497	.136099	-.296374
			-.129224	.366442	-.318349	.512839	-.227786
			-.172956	-.114347	.189539	.214027E-01	.127926
7	.458331	3.05554	-.265383	.420052	.136203	.578724	-.236884
			.117815	.127918	.236626E-02	-.147717	.237269
			.526040E-01	-.312602	.130174	.401969E-01	-.540774
8	.437614	2.91743	-.212324	-.896760E-01	.203581	.104184	-.639733E-01
			-.128823	-.150693	.106652	-.115518	-.284376
			-.710610E-01	.129438	.115925E-01	.846534	.856682E-01
9	.353936	2.35957	.187097	-.255952	.222946E-01	.289467	-.259198
			-.583194E-01	-.373484	-.111597	-.376827E-02	.552481
			-.411405E-01	.138230	.529399	.519303E-02	.424013
10	.316903	2.11269	-.385546	.416446	.331146E-01	-.317697	-.978673E-01
			-.284256	-.167486	.362574	.202442	.145514
			-.344282	.255253	.244749	-.142339	-.333350E-03
11	.161032	1.07355	.201669	.180504	-.276766	-.281665	-.244950E-02
			.513715E-02	-.215162	-.536800	.501508E-01	.259967
			-.188750	.468217E-01	.986274E-02	.519041	-.475952
12	.159638	1.06459	.334155E-01	-.769058E-01	.252770E-01	-.250006E-01	.267588
			-.432752	.419700	.620511E-01	-.115926	.456162
			-.329491	-.291266	-.293693	.160955	.160083
13	.131890	.879267	-.602532E-01	-.133942	-.332063	-.149018E-01	.408986
			-.880794E-01	-.195504	.114433	-.275092	-.162845
			-.732296E-01	-.436093	.584299	-.143366E-01	-.474467E-01
14	.791452E-01	.527635	-.153959	-.216235E-01	.400851	.579702E-01	.372022
			.211748	-.377953	-.135027	.538536	.290836E-01
			-.143363	-.362577	-.141971	-.122457E-01	.653323E-01
15	.165430E-01	.108953	-.490730E-01	.446017E-01	.462461E-01	-.101332E-01	.447185E-01
			-.657196	-.147390	-.960651E-01	.191686	.347683E-01
			.687693	-.793461E-01	-.115776E-01	-.992963E-02	-.105354

Q= 2 GIVES PROB = 50.00 PERCENT
Q= 5 GIVES PROB = 75.00 PERCENT
Q= 8 GIVES PROB = 90.00 PERCENT
Q= 10 GIVES PROB = 95.00 PERCENT
Q= 13 GIVES PROB = 99.00 PERCENT

TABLE A.4 (con't)

ELECTROLYTE SUBGROUP

VAR (1) = OSMO

VAR (2) = NA

VAR (3) = K

VAR (4) = MG

VAR (5) = PO4

VAR (6) = CA

VAR (7) = CL

VAR (8) = SP.GR.

VAR (9) = CREAT

VAR (10) = URIC ACID

VAR (11) = JULIAN

TABLE A.4 ELECTROLYTE SUBGROUP (con't)

CDR

NUMBER	EIGENVALUE	PERCENT OF VARIANCE	EIGENVECTORS				
1	5.04788	45.8698	.104636	.299439	.295016	.209910	.394146
			.390496	.353647	.936615E-01	.397758	.402326
			-.808465E-01				
2	2.56309	23.3008	.511781	-.272161	-.772594E-02	.254611	.123253
			-.185642	-.279781	.566826	.798788E-01	-.390030E-01
			-.376826				
3	1.11965	10.1786	-.336297	.801380E-01	-.229113	.641504	-.927579E-01
			.921889E-01	.117563E-01	-.258450	-.944254E-01	-.106566
			-.558705				
4	.813535	7.39577	-.855327E-01	-.469941	-.507720	.288114	.258512
			.274013	-.127017	-.140390E-01	.180501	.107339
			.478232				
5	.696598	6.33271	.379796	.433713	-.588693	.387588E-01	-.178073
			.569720E-01	.363766	.199794	-.307999	.698639E-01
			.112442				
6	.249768	2.27061	-.221945	-.197967E-01	-.380187	-.495033	.131940E-01
			.565919E-01	-.233814	.508279E-01	.936810E-01	.557305
			-.425152				
7	.178305	1.62096	-.145000	.160648	.169796	.276549	.284534
			-.353414	-.243580	.460971E-01	-.536840	.492558
			.223001				
8	.137591	1.25062	.202258	-.339492	.235265	.174523	-.691228
			.192925	.715257E-01	-.964618E-01	-.746289E-01	.469679
			.492191E-01				
9	.771372E-01	.701246	-.238854	-.103141	-.116099	.112851	-.133461
			-.690422	.444105	.131107	.412967	.149841
			.647192E-01				
10	.679626E-01	.617842	-.910626E-02	.518440	-.438618E-01	.174089	-.330564
			-.382936E-01	-.571277	.480081E-01	.452510	.943880E-02
			.233775				
11	.484914E-01	.440830	-.542355	.435501E-02	.109308	.578888E-02	-.190526

```
Q=   2 GIVES PROB = 50.00 PERCENT
Q=   3 GIVES PROB = 75.00 PERCENT
Q=   5 GIVES PROB = 90.00 PERCENT
Q=   6 GIVES PROB = 95.00 PERCENT
Q=  10 GIVES PROB = 99.00 PERCENT
```

TABLE A.4 ELECTROLYTO SUBGROUP (con't)

PLT

NUMBER	EICFNVALUE		EIGENVECTORS				
1	5.32707	48.4279	-.149121	.379840	.332906	.369940	.344718
			.402406	.373496	-.128231	.367504	.110156
			.436574E-01				
2	1.91915	17.4466	.510681	-.136078E-01	.111131	.102125	.125109
			.288622E-02	-.542111E-01	.598106	.300087	-.307567
			-.394031				
3	1.49066	13.5514	.420814	-.577971E-01	-.884824E-01	-.155823	.220489
			.136465	.258788E-01	.311316	-.403176E-01	.560977
			.553461				
4	.745325	6.77569	-.211263	-.502559	.448748	-.113934E-01	.325006
			-.859204E-01	-.510157	-.851717E-01	.257749	.223185
			-.672864E-01				
5	.524781	4.77073	.164541	-.630514E-01	.191909	.143240	.517096E-01
			.654167E-01	-.189534	-.124770	-.365286E-01	-.658634
			.646550				
6	.368713	3.35194	-.883075E-01	-.108240	-.725288	.379618	.474440
			.134982	-.234705	-.570107E-01	.513644E-02	-.709000E-01
			-.602456E-01				
7	.244596	2.22360	-.145893	.180536	-.602903E-01	-.733936	.556016
			-.829585E-01	.134724	-.128942E-01	.551170E-01	-.256782
			-.223076E-01				
8	.173810	1.58009	-.297765	-.199707	-.199763	-.284779	-.373055
			.617546	-.783899E-01	.217473	.399006	-.922045E-01
			.93644/E-01				
9	.134747	1.22497	-.582540	.193233	.422983E-01	.186386	.256293E-01
			-.312442	-.424636E-01	.649651	-.973088E-01	-.155439E-01
			.234398				
10	.475279E-01	.432072	.684319E-01	.111998	-.242148	.695933E-02	-.163423
			-.535196	.303133E-01	-.171472	.730569	.590965E-01
			.208332				
11	.236211E-01	.214737	-.799705E-01	-.679397	-.279679E-01	.955328E-01	.864245E-01
			-.131370	.691813	.626624E-01	.491330E-02	-.108453
			.521405E-01				

Q= 2 GIVES PROB = 50.00 PFRCENT
Q= 3 GIVES PROB = 75.00 PFRCENT
Q= 5 GIVES PROB = 90.00 PFRCENT
Q= 7 GIVES PROB = 95.00 PFRCENT
Q= 9 GIVES PROB = 99.00 PFRCENT

TABLE A.4 ELECTROLYTE SUBGROUP (con't)

SPT

NUMBER	EIGENVALUE		EIGENVECTORS				
1	5.90084	53.6440	-.170034	.364591	.319382	.318139	.317460
			.364227	.364553	-.188150	.323745	.352819
			.625426E-01				
2	1.74402	15.8547	.588495	-.360201E-01	.194561	.943426E-01	.285648
			.334169E-01	-.176267E-01	.632978	.186496	.508635E-02
			-.295180				
3	1.09381	9.94372	.382068	.181913	-.142800	-.437445E-01	-.221575E-01
			-.480904E-01	.259237	.165278	-.284633	.179982
			.766741				
4	.773163	7.02875	.153336	.329030	-.402386	.352378	-.303973
			.248423	.296268	-.457673E-02	-.388859	-.784916E-01
			-.427623				
5	.571826	5.19841	-.111168	-.328673	-.425651	.650849	.370636
			-.682248E-01	-.296192	.235140E-01	-.386665E-01	.150127
			.143145				
6	.304000	2.76364	-.960605E-01	-.110525	-.271706	-.304161E-01	-.227972
			.621614	-.443220E-01	.238588	.440561	-.374215
			.269095				
7	.263126	2.39206	-.417389E-01	-.111705	-.206657	-.135077	-.439563
			.285705E-02	-.851076E-01	.180877	.232310	.789373
			-.120687				
8	.143372	1.30338	-.242575	.271802	-.462497	-.518299	.554249
			.105999	-.490090E-02	.172260	-.101870	.939147E-01
			-.131990				
9	.112251	1.02046	.343061E-01	.235120	-.342682	.826800E-01	-.443802E-01
			-.598053	.303838	-.364852E-01	.573675	-.191906
			-.763086E-02				
10	.770566E-01	.700514	-.609740	.636843E-01	.208740	.172243	-.130214
			-.199456	.190422	.642068	-.190855	-.714880E-01
			.643001E-01				
11	.165351E-01	.150319	-.119838E-01	-.677119	-.722315E-01	-.126055	.126721

Q= 1 GIVES PROB = 50.00 PERCENT
Q= 3 GIVES PROB = 75.00 PERCENT
Q= 5 GIVES PROB = 90.00 PERCENT
Q= 7 GIVES PROB = 95.00 PERCENT
Q= 9 GIVES PROB = 99.00 PERCENT