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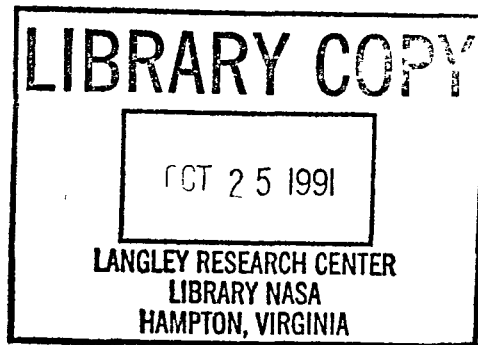
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NF00775

LONG DURATION EXPOSURE FACILITY

MATERIALS SPECIAL INVESTIGATION GROUP

LDEF SUPPORTING DATA



LDEF ATOMIC OXYGEN FLUX AND FLUENCE CALCULATIONS

(NASA-CR-187418) ATOMIC OXYGEN FLUX AND
FLUENCE CALCULATION FOR LONG DURATION
EXPOSURE FACILITY (LDEF) (Boeing Co.)
267 p

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LONG DURATION EXPOSURE FACILITY
MATERIALS SPECIAL INVESTIGATION GROUP
LDEF ATOMIC OXYGEN FLUX AND FLUENCE
CALCULATION

FOREWORD

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

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

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

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N92-17215#

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

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

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

by

Roger J. Bourassa
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January 18, 1991

This work was accomplished under

NAS1-18224, Task 12 ✓
LDEF Materials Data Analysis

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I. Introduction

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

II. LDEF Orbital Parameters

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

III. Solar and Geomagnetic Data

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

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

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

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

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

IV. Computer Code FLUXAV

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

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

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

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

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

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

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

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

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

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

V. Calculated Atomic Oxygen Fluxes and Fluences for LDEF

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

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

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

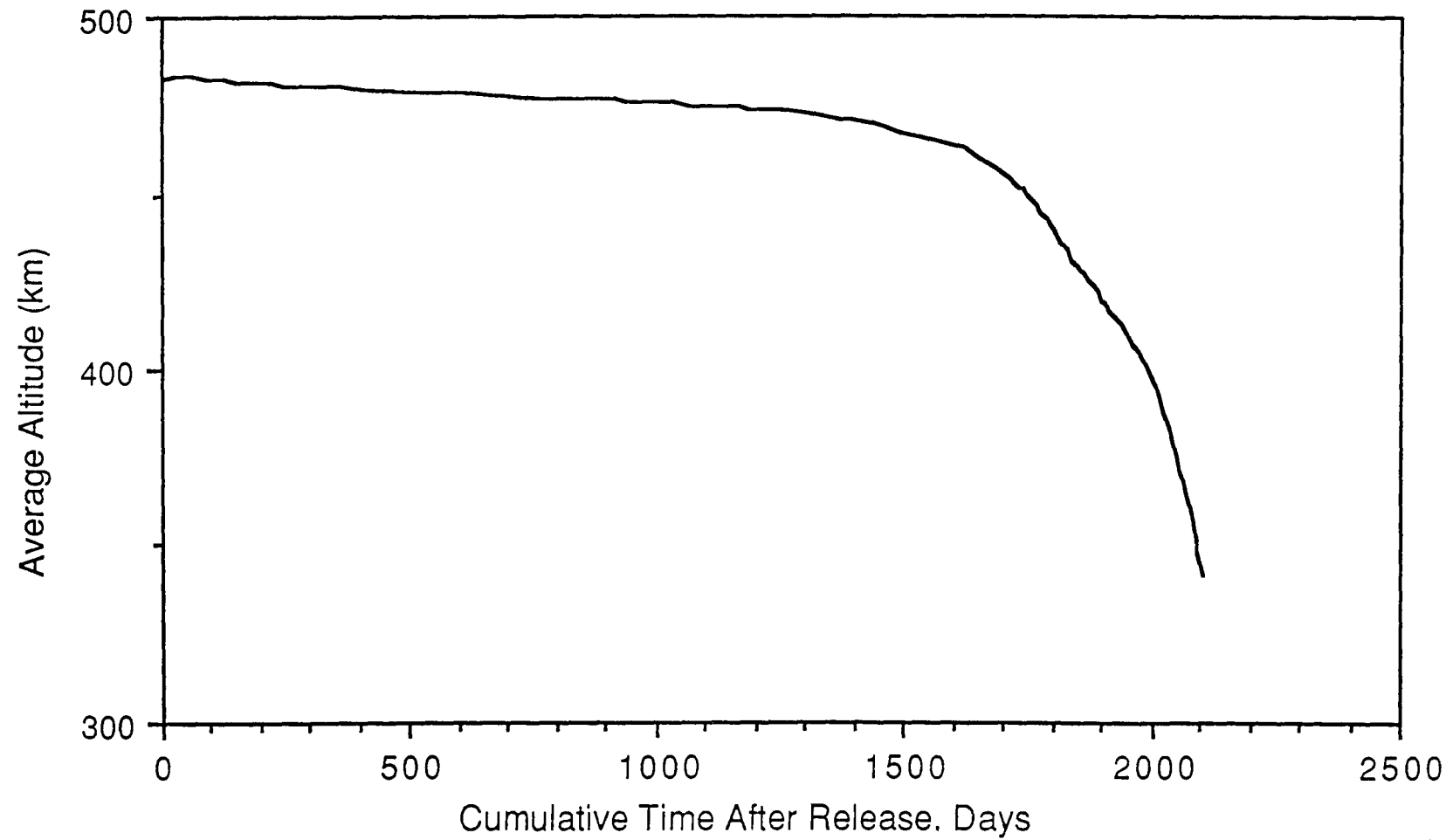
Figure 11 shows total atomic oxygen fluence for LDEF calculated for the entire time in orbit plotted as a function of incidence angle for angles up to 120 degrees. Because of the Maxwellian distribution of the atomic oxygen molecular velocity, LDEF surfaces parallel to ram direction and also surfaces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

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

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

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

LDEF Average Altitude vs Time
Release Date: April 7, 1984
Recovery Date: January 12, 1990



12

Figure 1 LDEF average orbital altitude vs time after release

LDEF Average Orbital Decay Rate vs Time
Release Date: April 7, 1984
Recovery Date: January 12, 1990

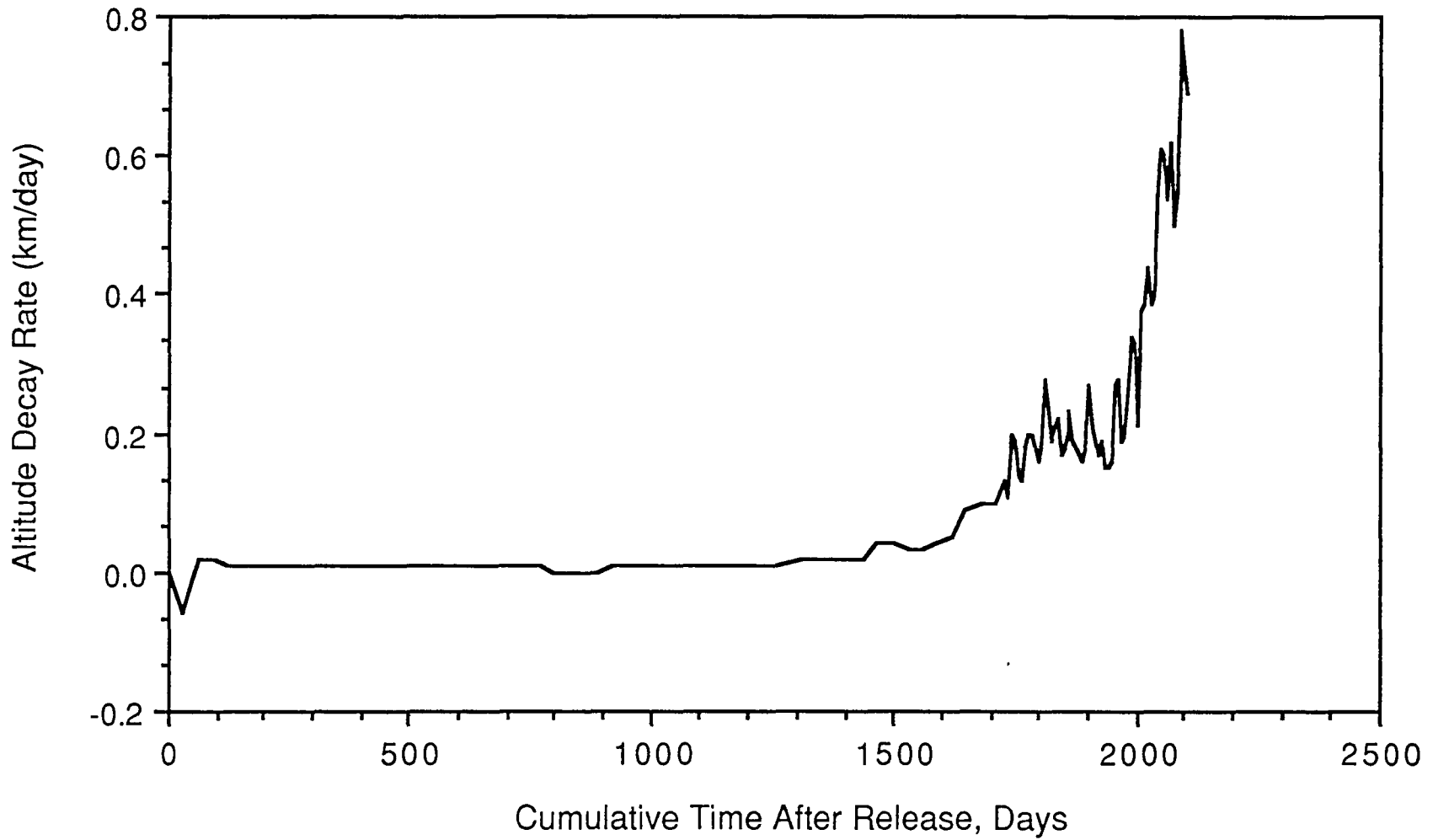


Figure 2. LDEF average orbital decay rate vs time after release.

Three Month Average F10.7 cm Solar Flux for LDEF
Release Date: April 7, 1984
Recovery Date: January 12, 1990

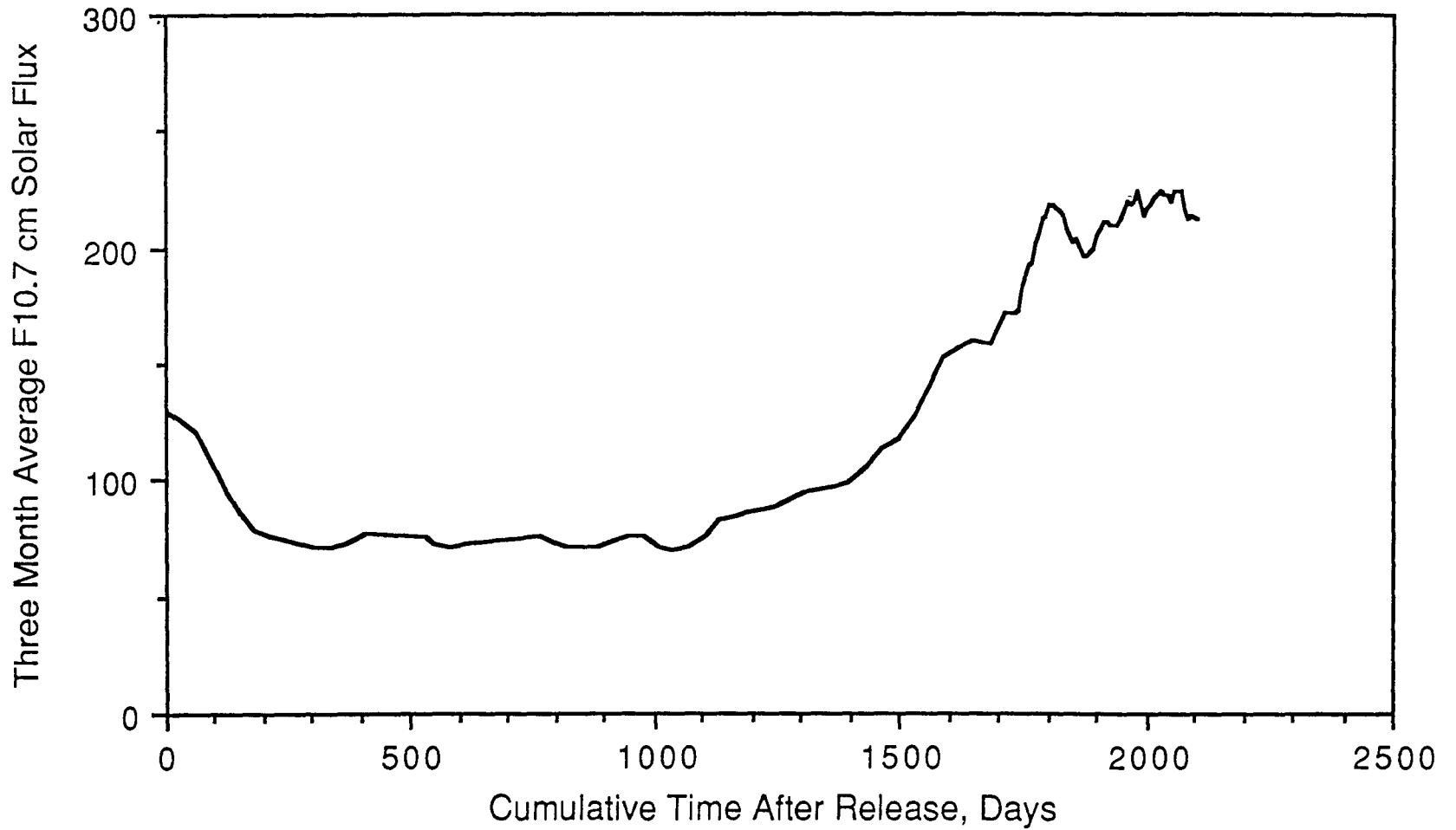


Figure 3. Three month average F10.7 cm solar flux during the LDEF mission.

Daily Average F10.7 cm Solar Flux for LDEF

Release Date: April 7, 1984

Recovery Date: January 12, 1990

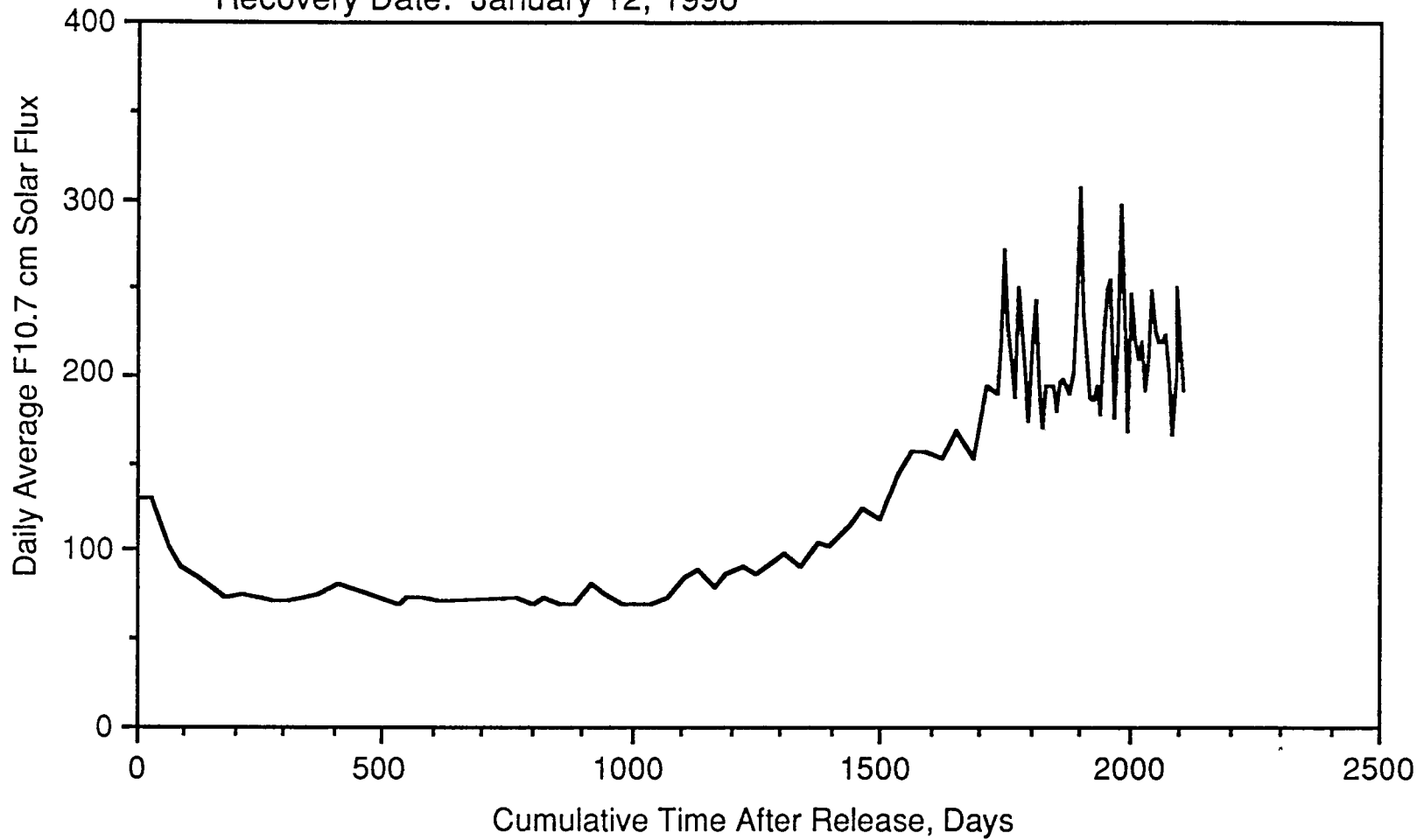


Figure 4. Daily average F10.7 cm solar flux during the LDEF mission

Geomagnetic Activity Index AP for LDEF

Release Date: April 7, 1984

Recovery Date: January 12, 1990

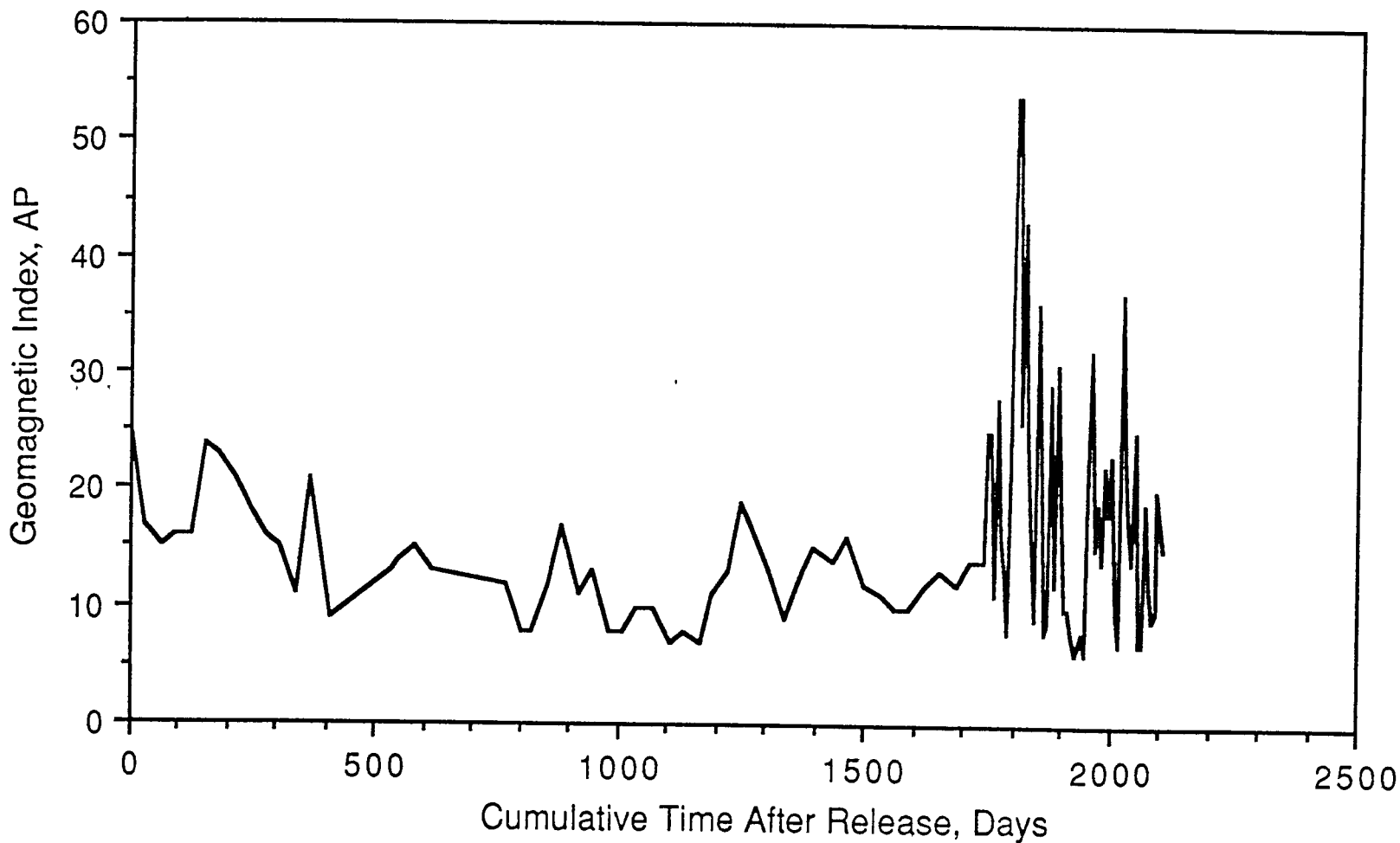
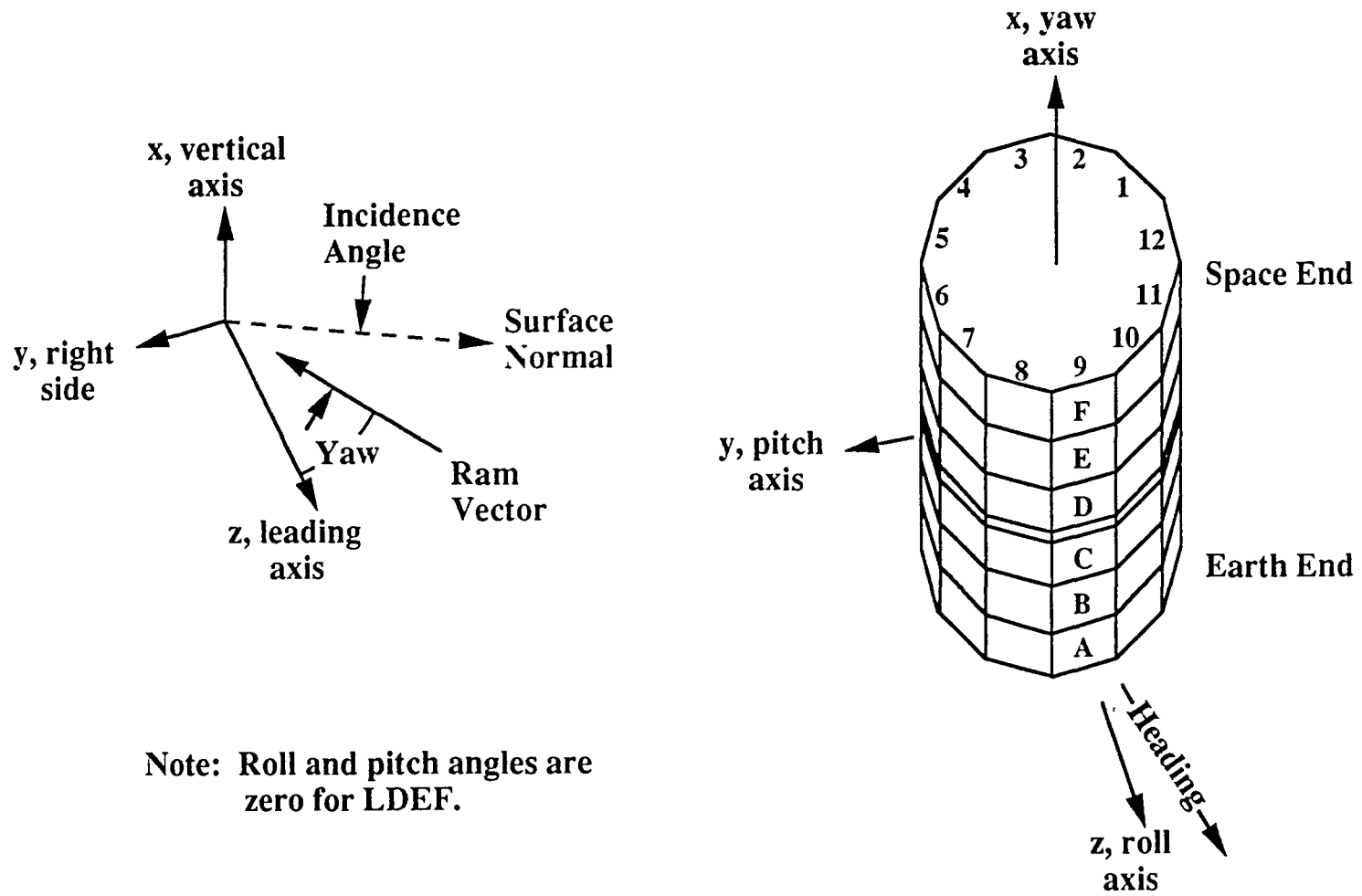


Figure 5 Geomagnetic act)ndex Ap during the LDEF mission.)



Note: Roll and pitch angles are zero for LDEF.

Figure 6. LDEF spacecraft body axes definition

ATOMIC OXYGEN DENSITY VS TIME
 FOR DEF OPBIT
 RELEASE DATE APRIL 7, 1984
 RECEIPT DATE JANUARY 12, 1990

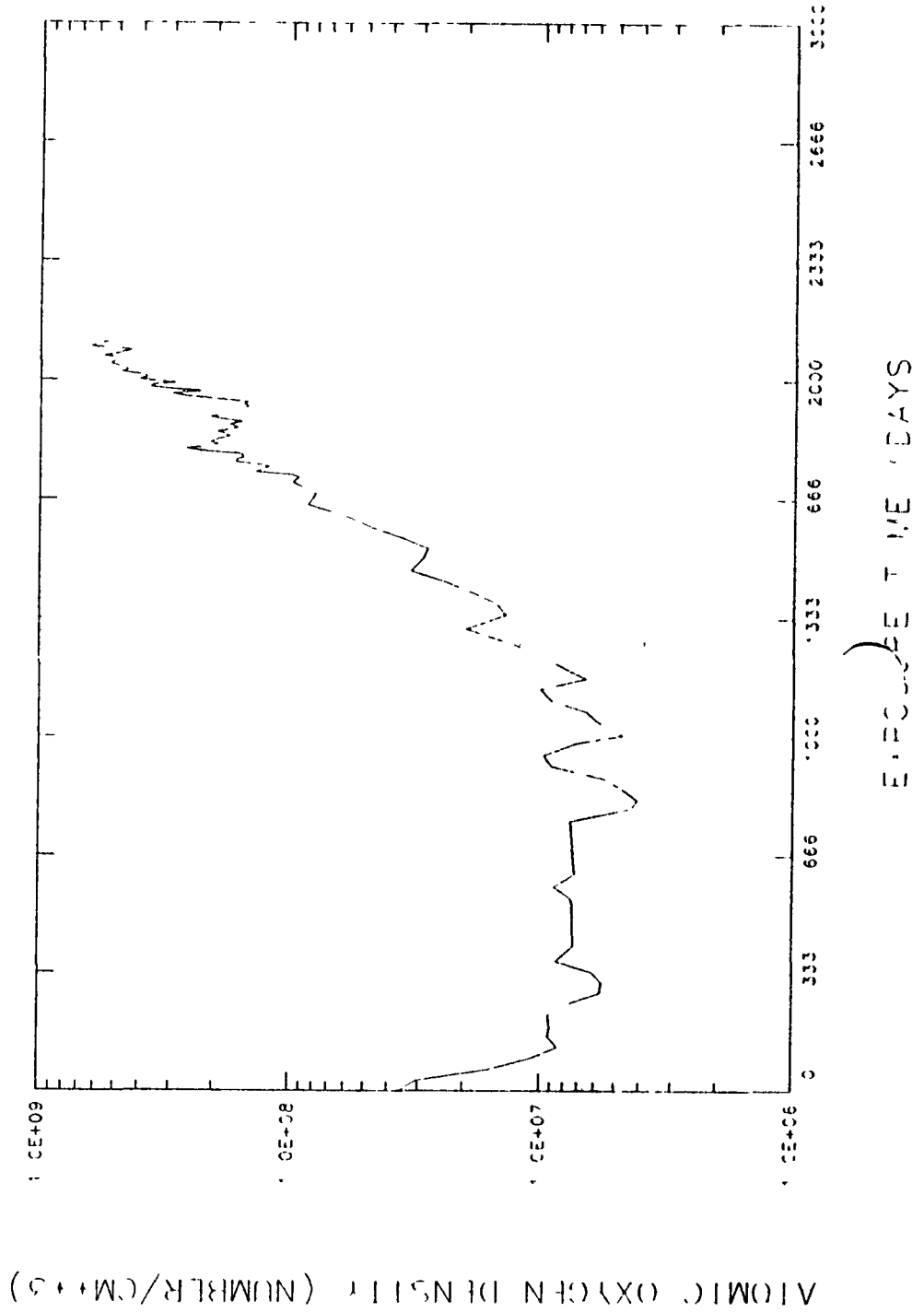


Figure 7 Atomic Oxygen Density

ATOMIC OXYGEN HEAD ON FLUX VS TIME
FOR LDEF
RELEASE DATE APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990

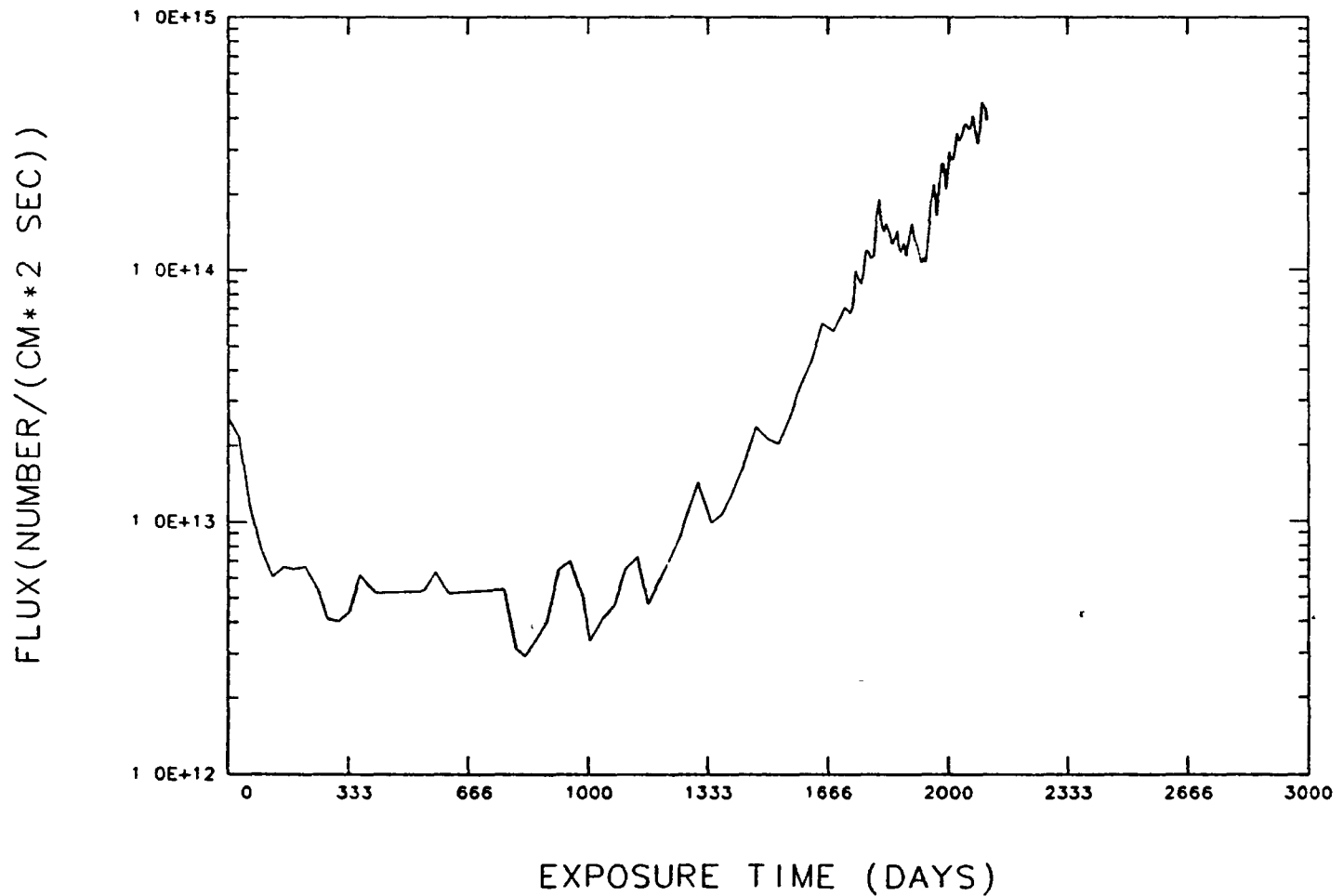


Figure 8. Head on atomic oxygen flux vs time for LDEF-90/08/17 14.52 31

ATOMIC OXYGEN HEAD ON FLUENCE VS TIME
FOR LDEF

RELEASE DATE : APRIL 7, 1984

RECOVERY DATE: JANUARY 12, 1990

20

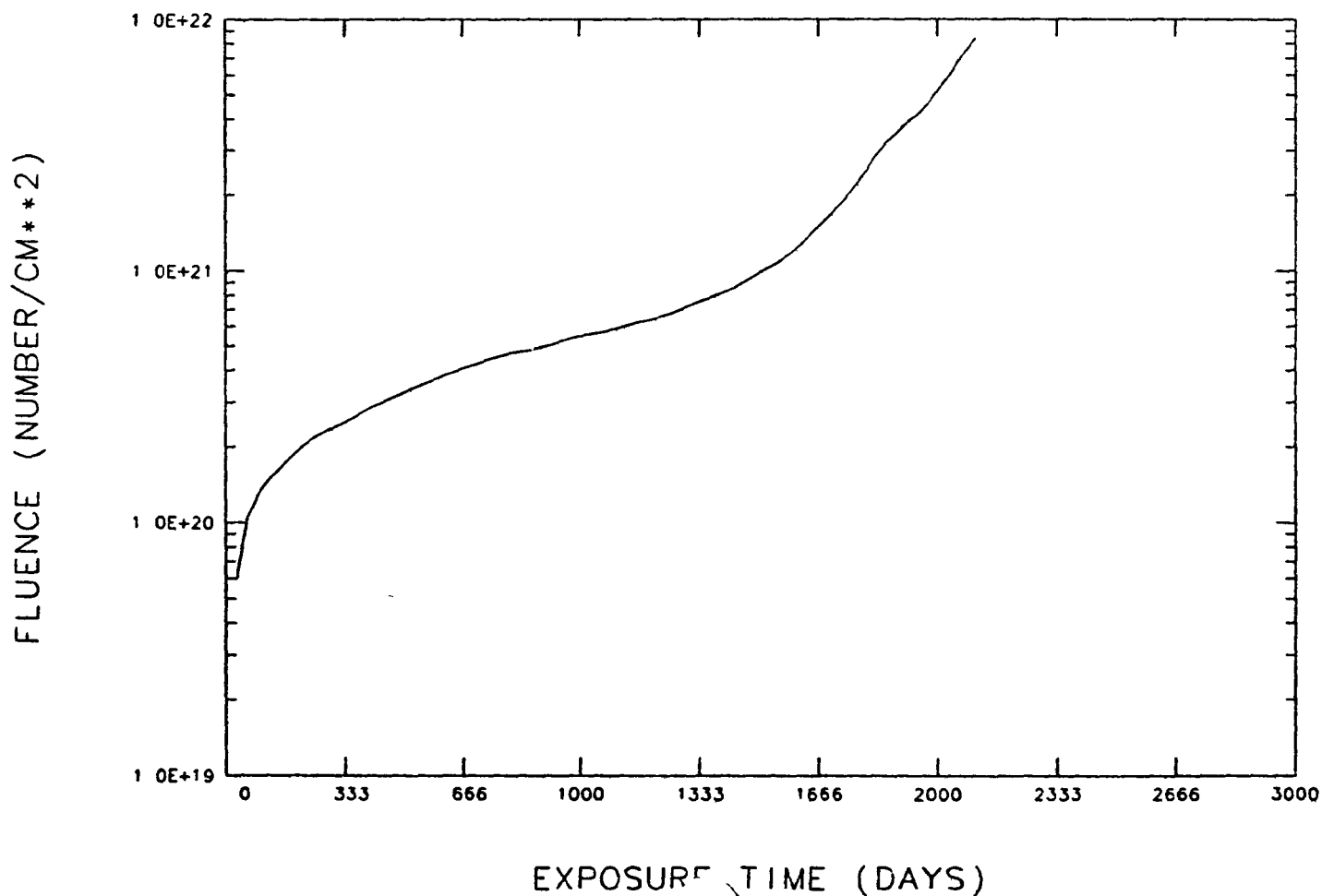


Figure 9. Head on atomic oxygen fluence vs time for LDEF.

CUMULATIVE PERCENT HEAD ON ATOMIC OXYGEN FLUENCES VS TIME
FOR LDEF
RELEASE DATE . APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990

21

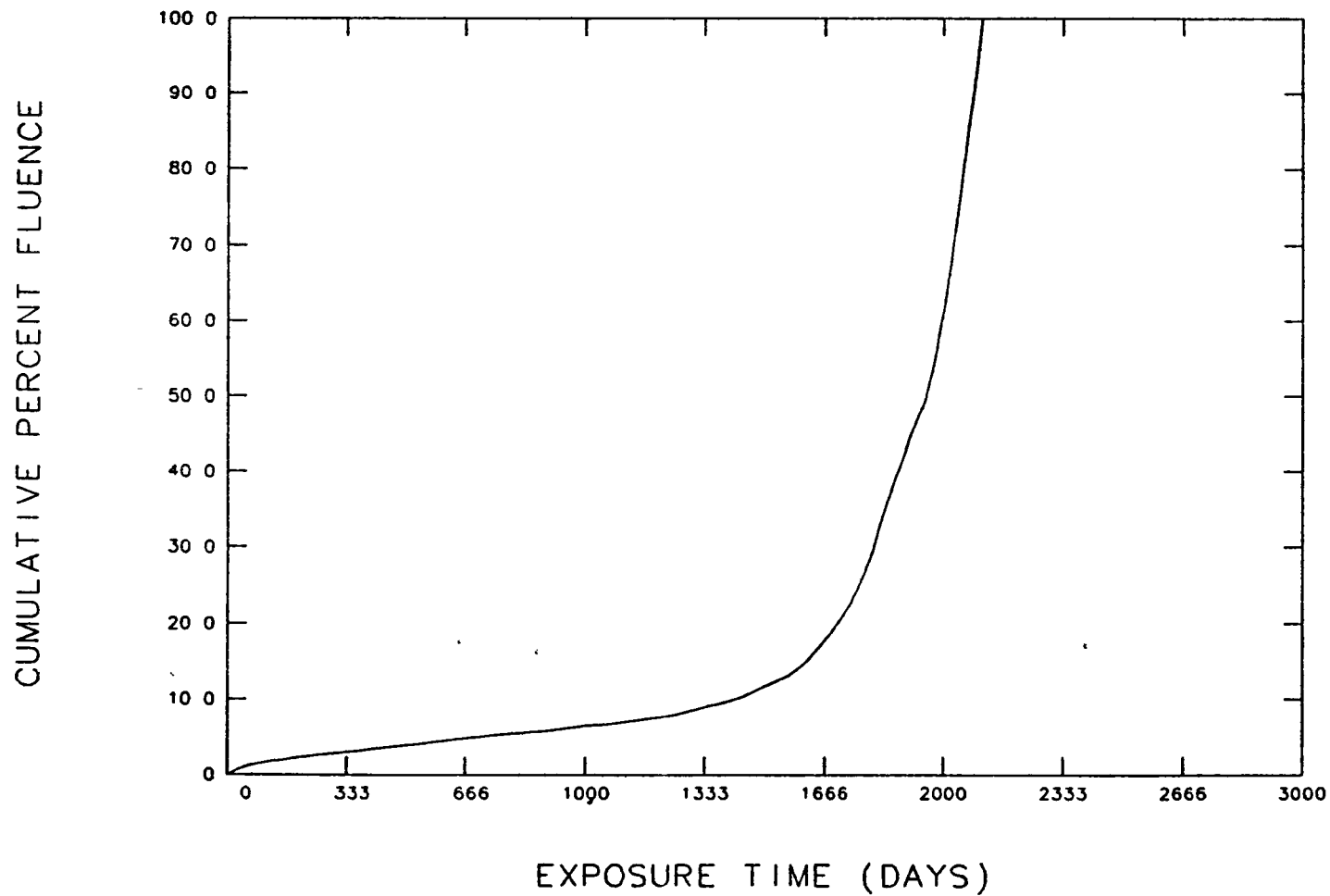


Figure 10. Cumulative percent head on atomic oxygen fluence vs time for LDEF.

90/08/17. 14.52 31

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

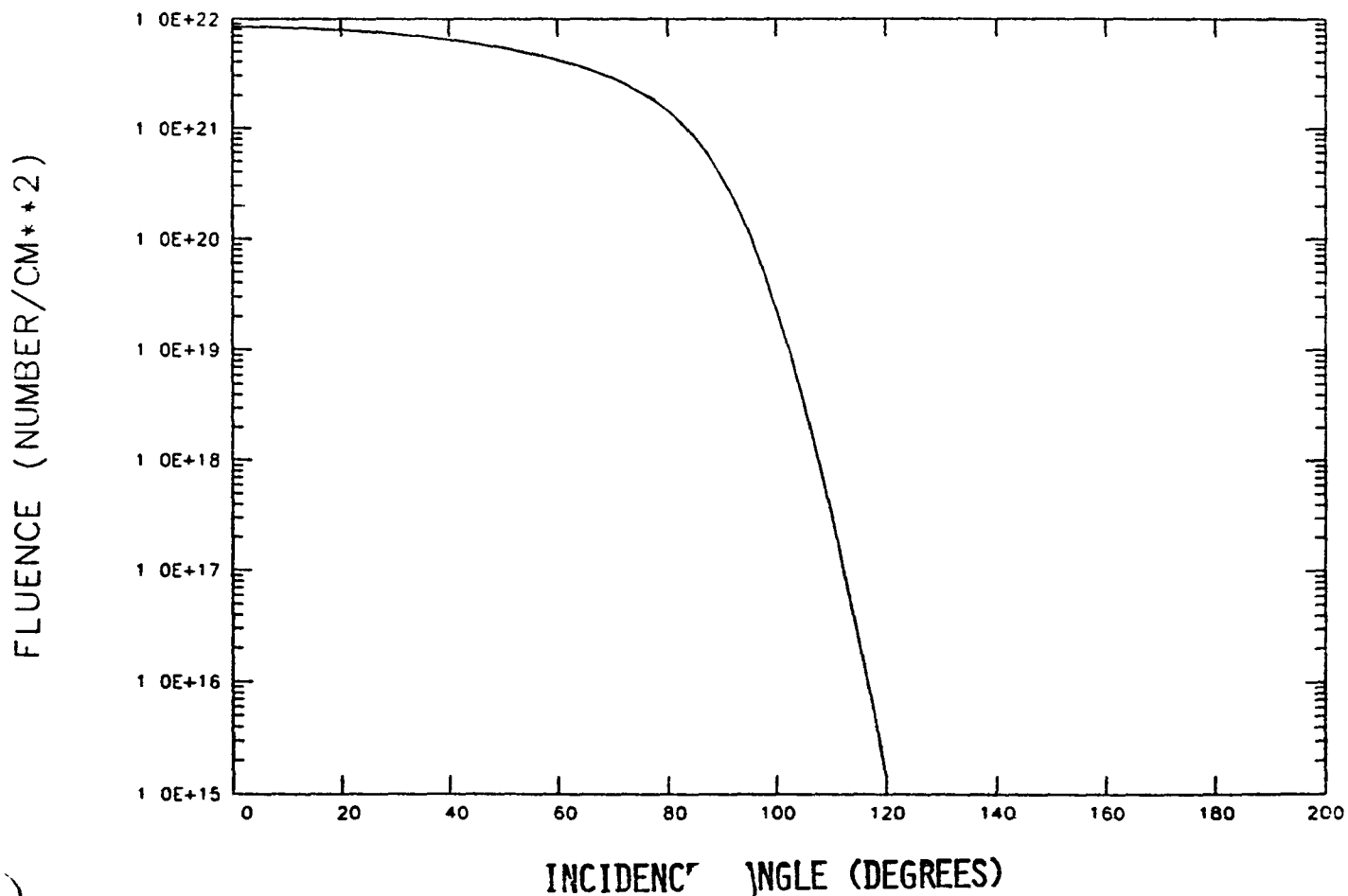


FIGURE 11: ATOMIC OXYGEN FLUENCE AT LDEF RECOVERY VS INCIDENCE ANGLE

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

23

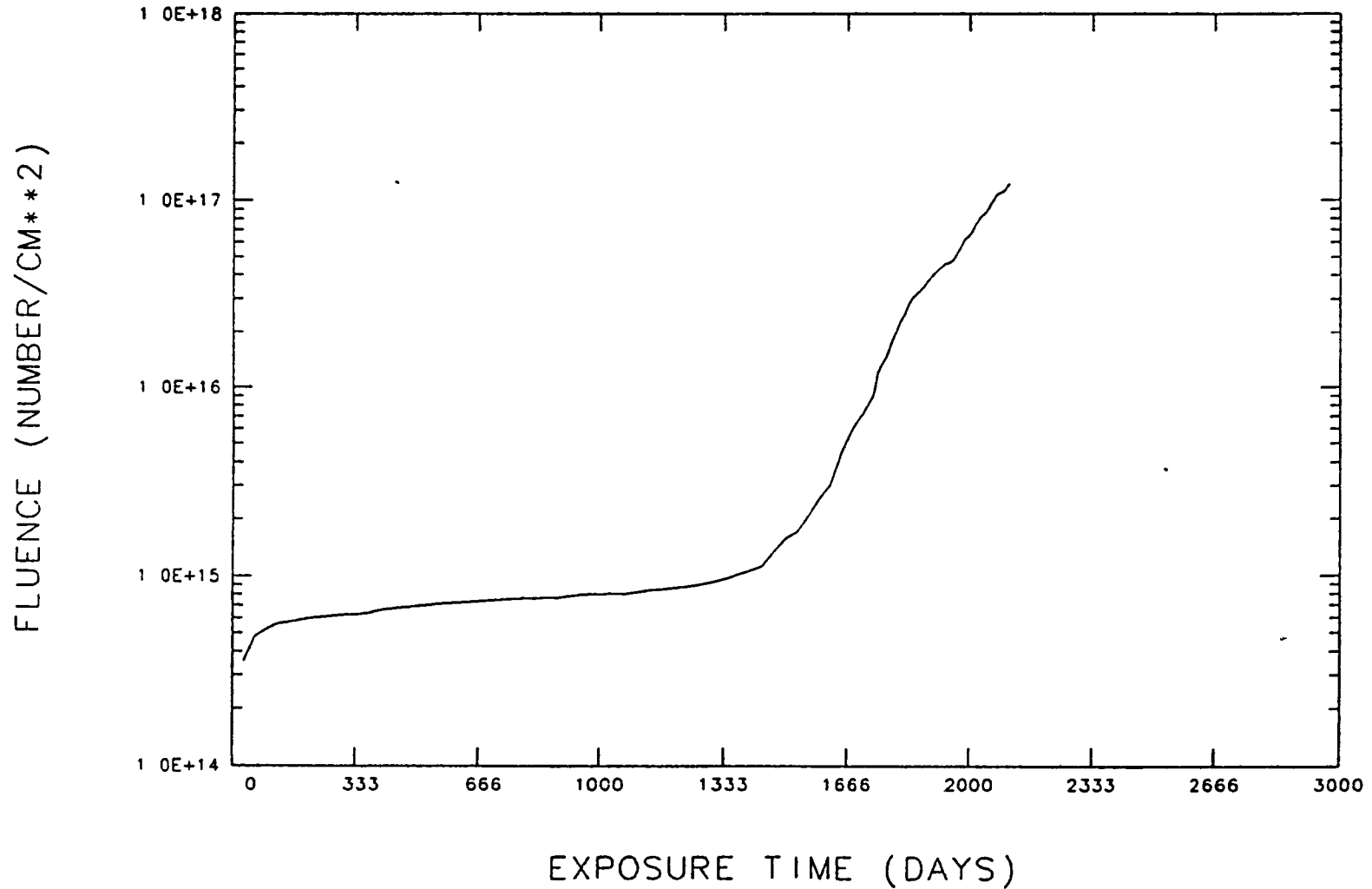


FIGURE 12: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 1

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

24

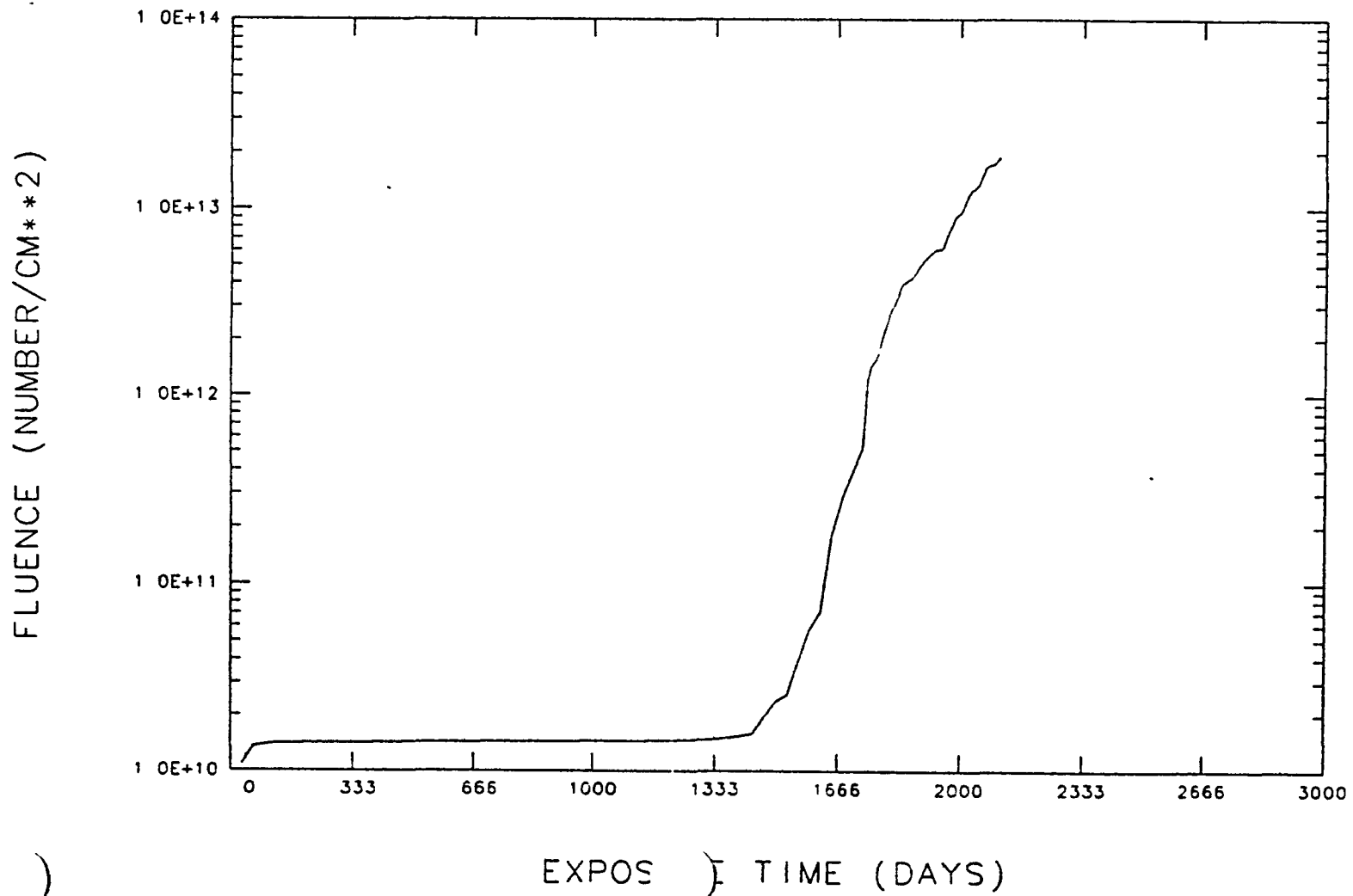


FIGURE 13: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 1-2

RELEASE DATE : APRIL 7 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 80 DEGREES ROW 2

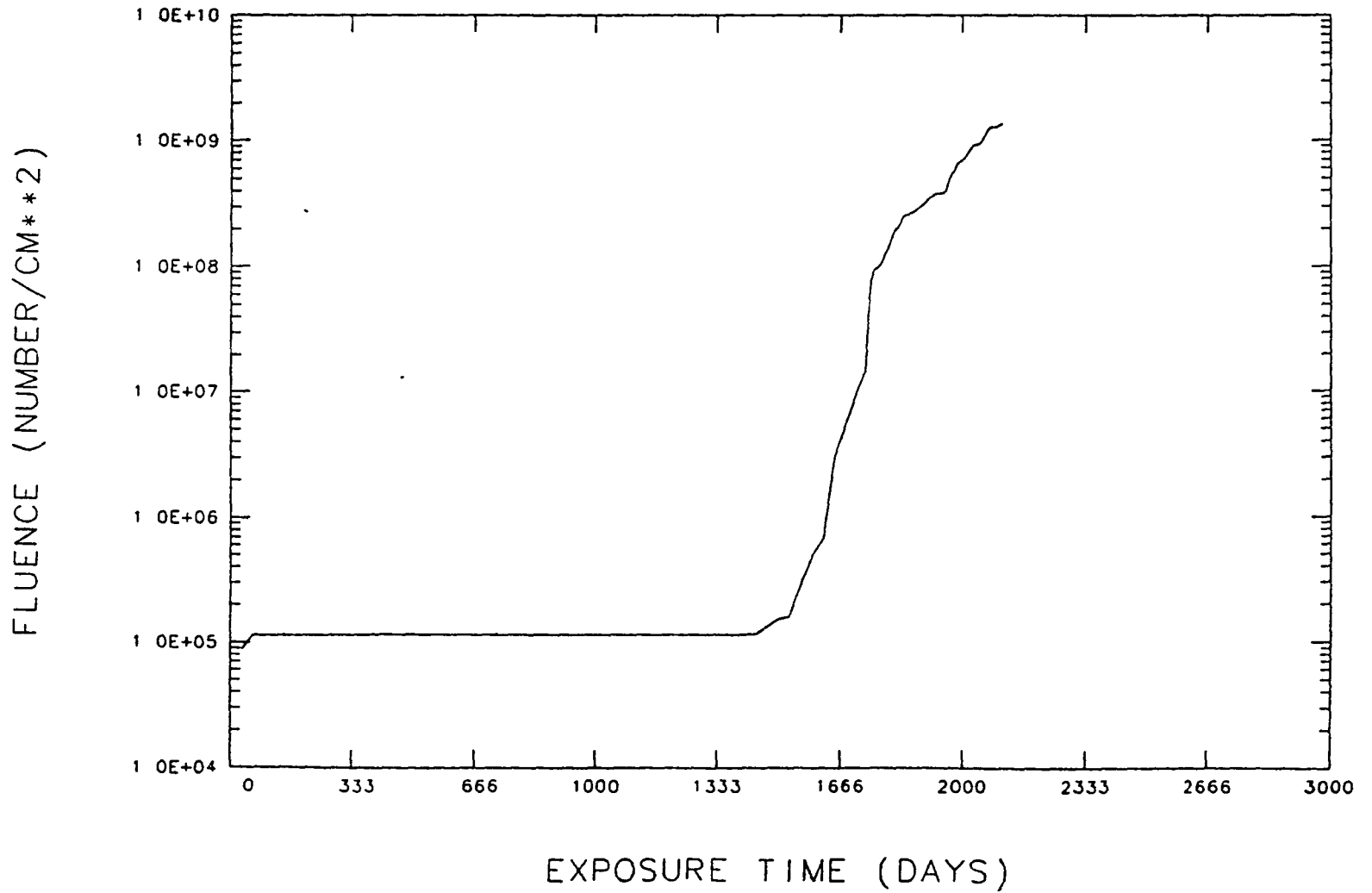


FIGURE 14: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 2

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

26

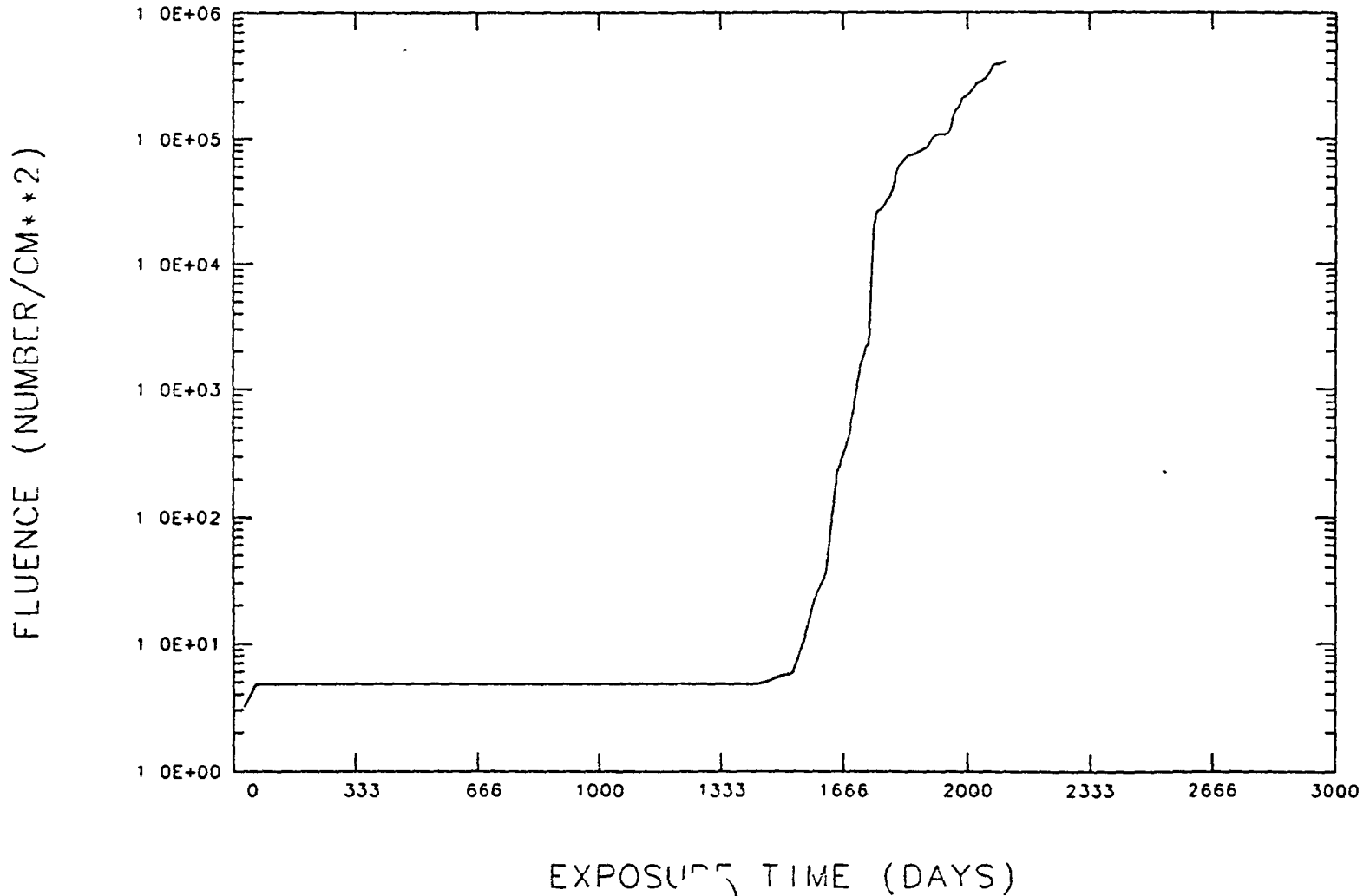


FIGURE 15: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 2-3

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

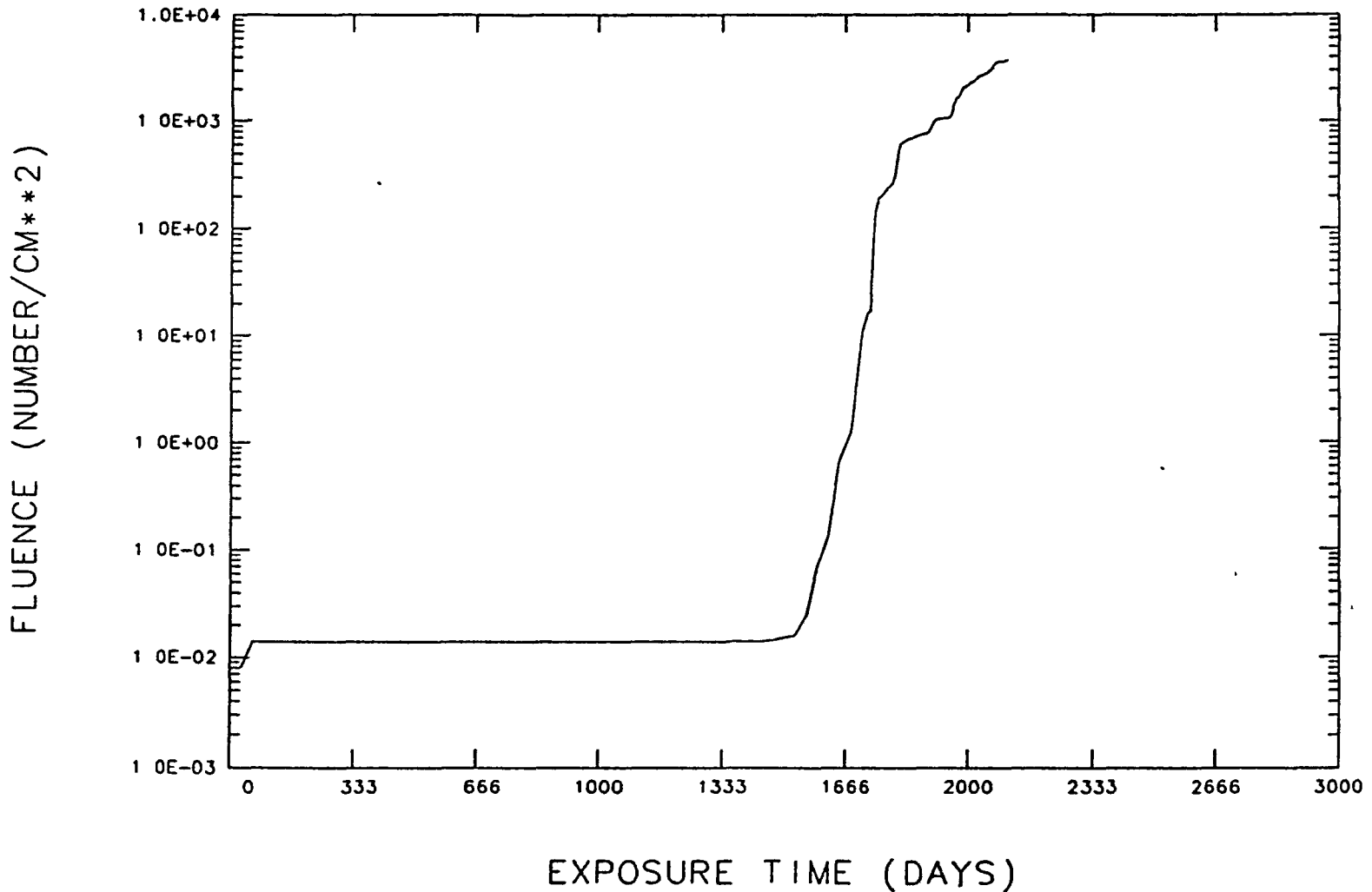
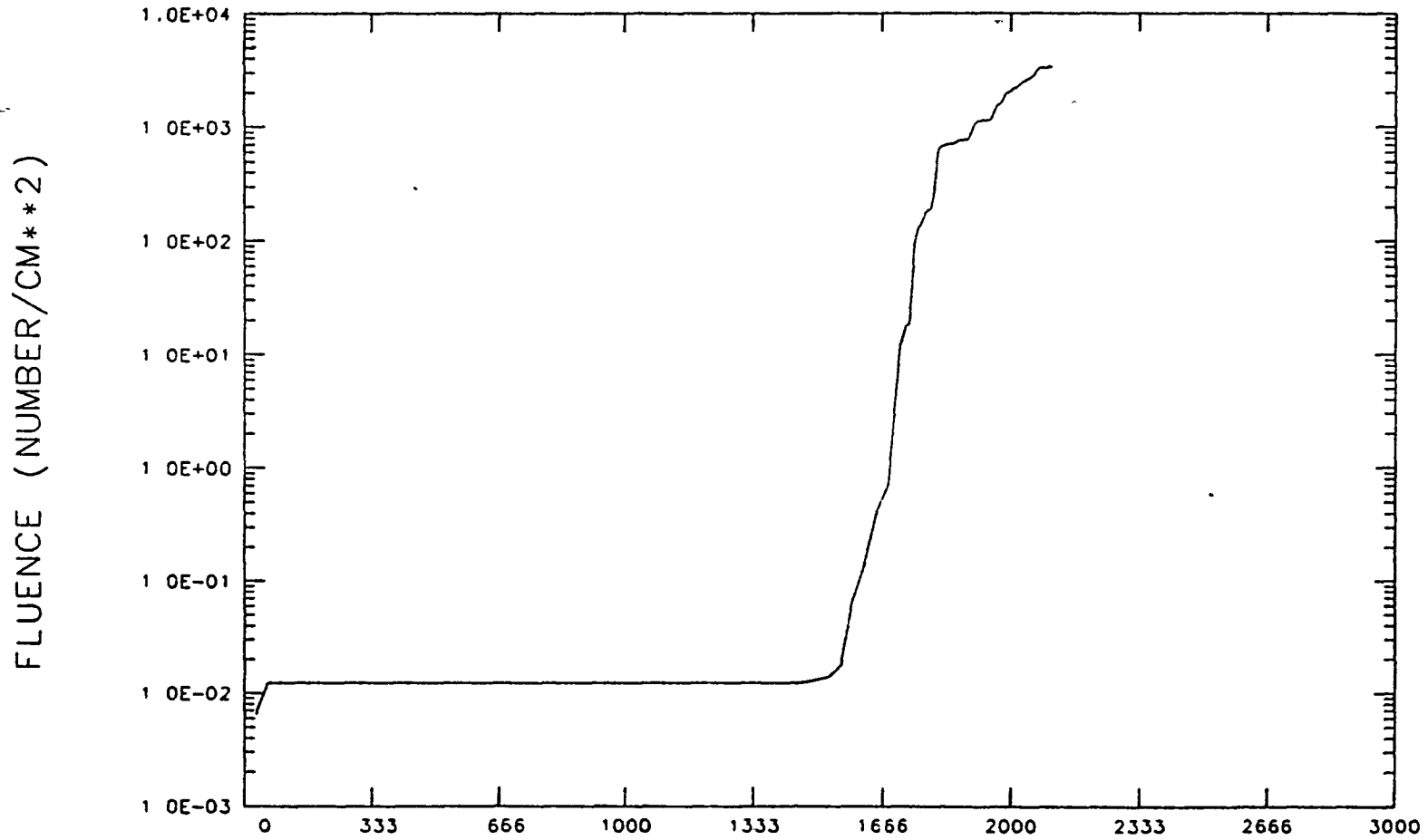


FIGURE 16: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 3

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



28

EXPOSURE TIME (DAYS)

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

RELEASE DATE : APRIL 7, 1974
RECOVERY DATE JANUARY 12, 1990
YAW = 8 0 DEGREES ROW 4

29

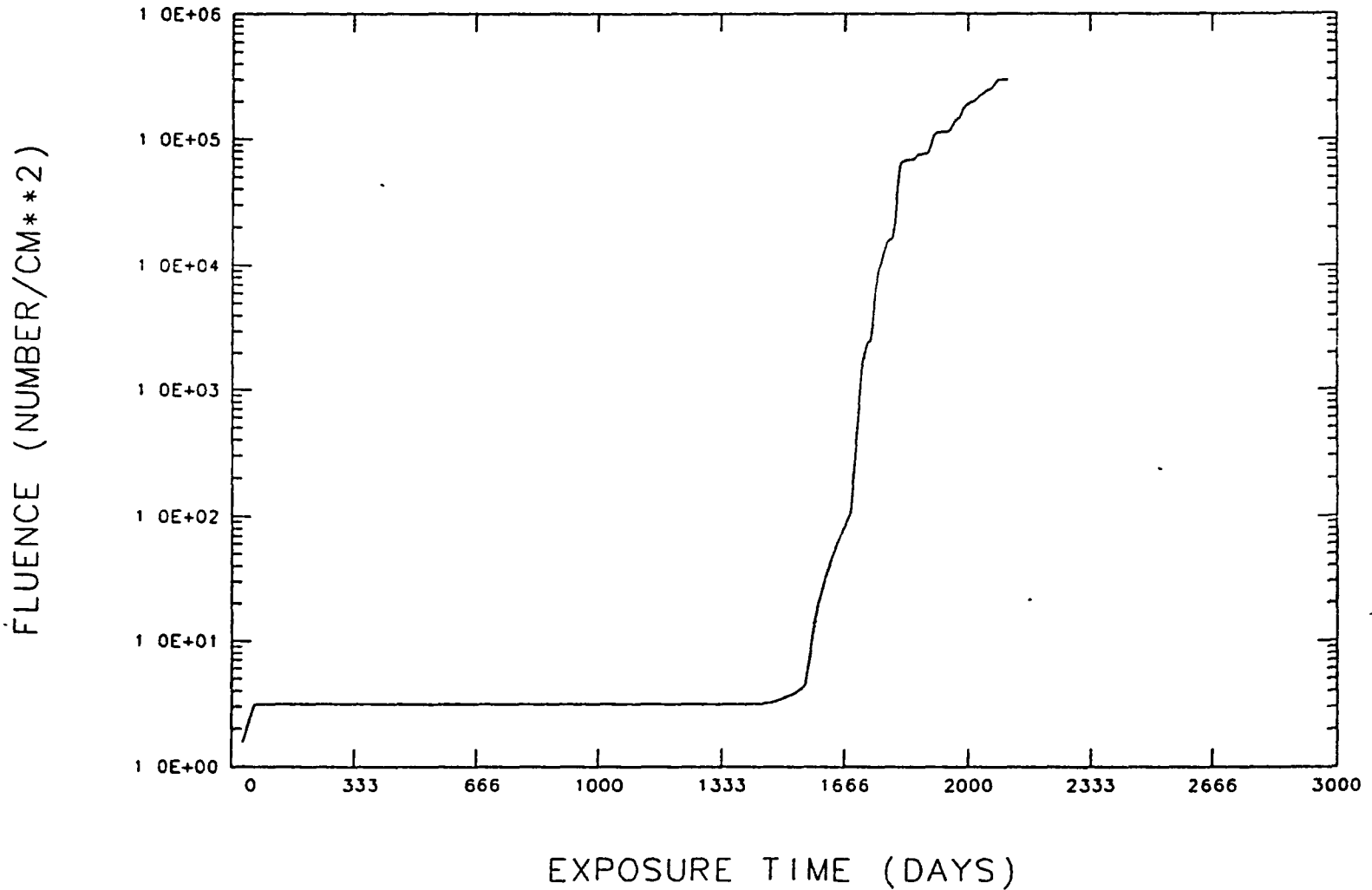
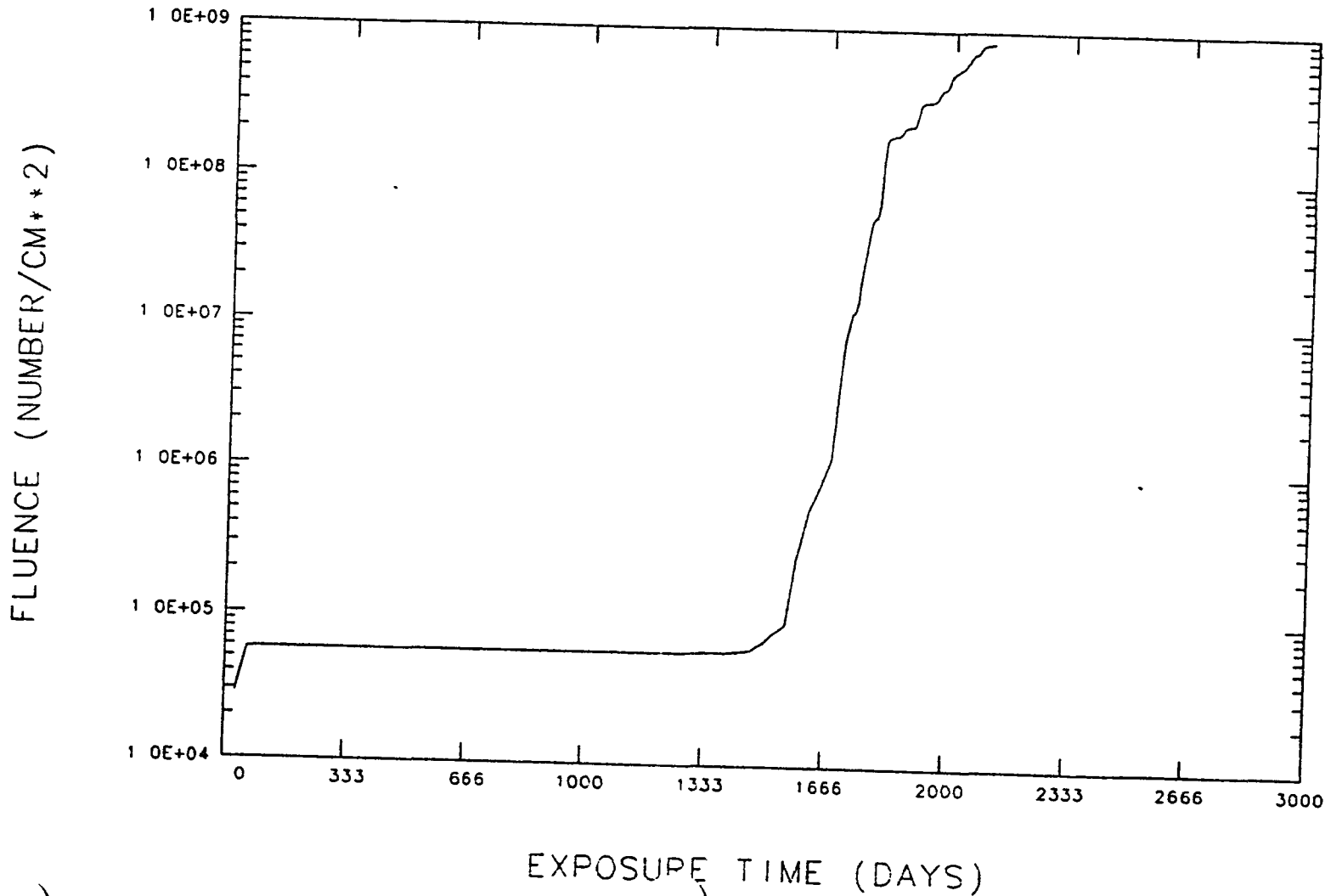


FIGURE 18: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 4

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

30



EXPOSURE TIME (DAYS)
FIGURE 19: ATOMIC OXIDATION FLUENCE VS TIME FOR LONGERON 4-5

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

31

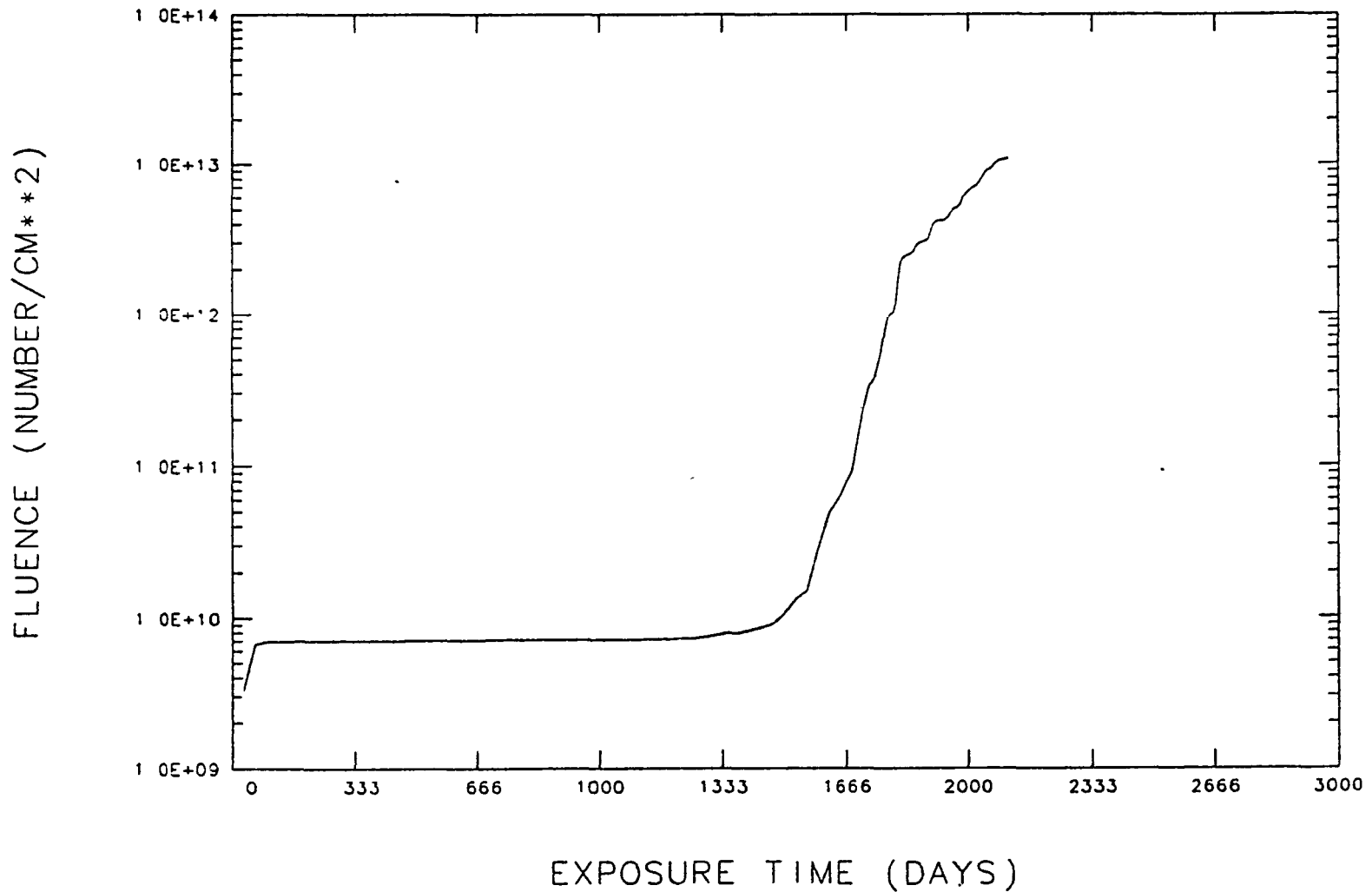


FIGURE 20: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 5

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

32

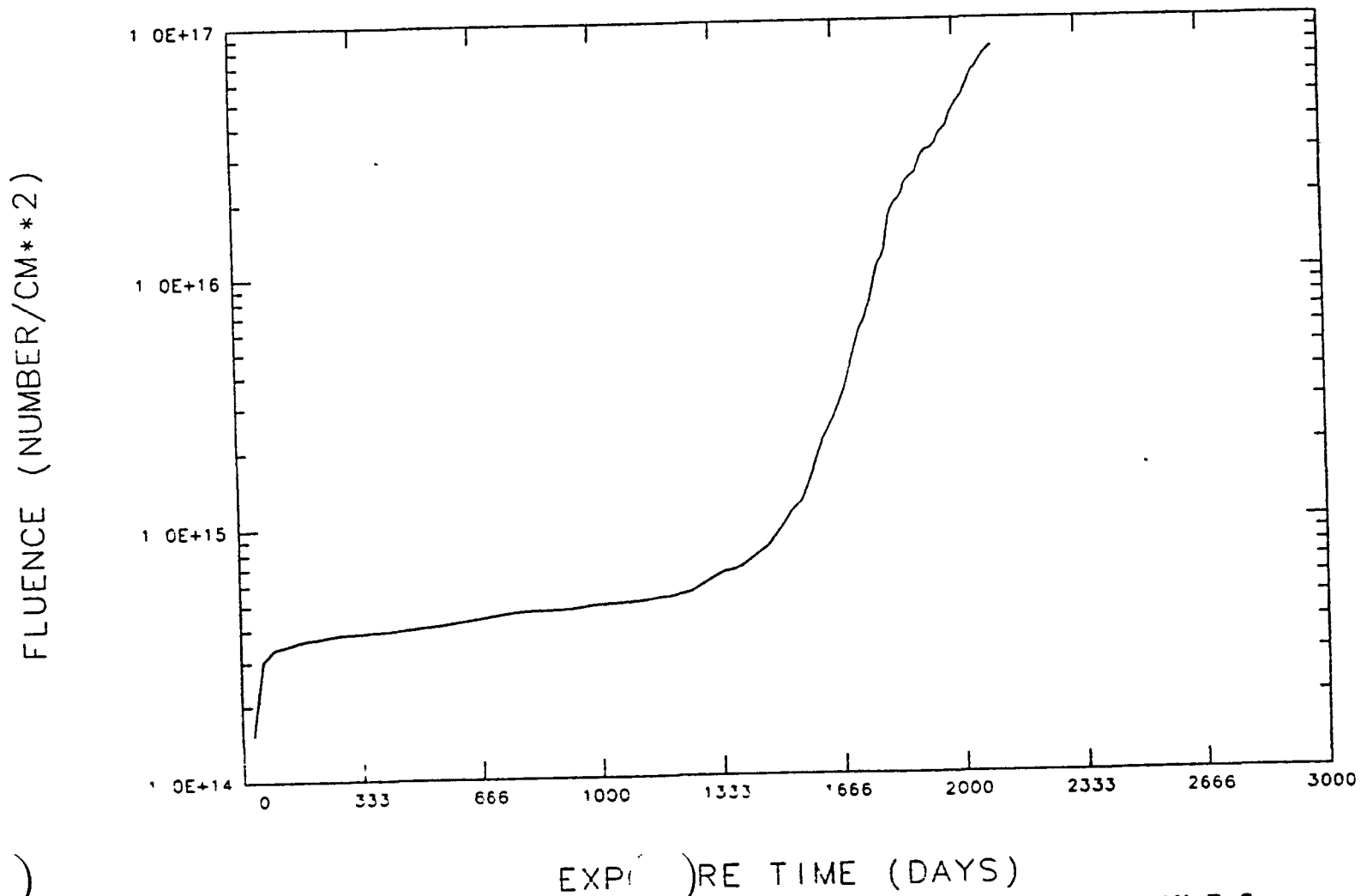


FIGURE 21: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 5-6

RELEASE DATE : APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 6

33

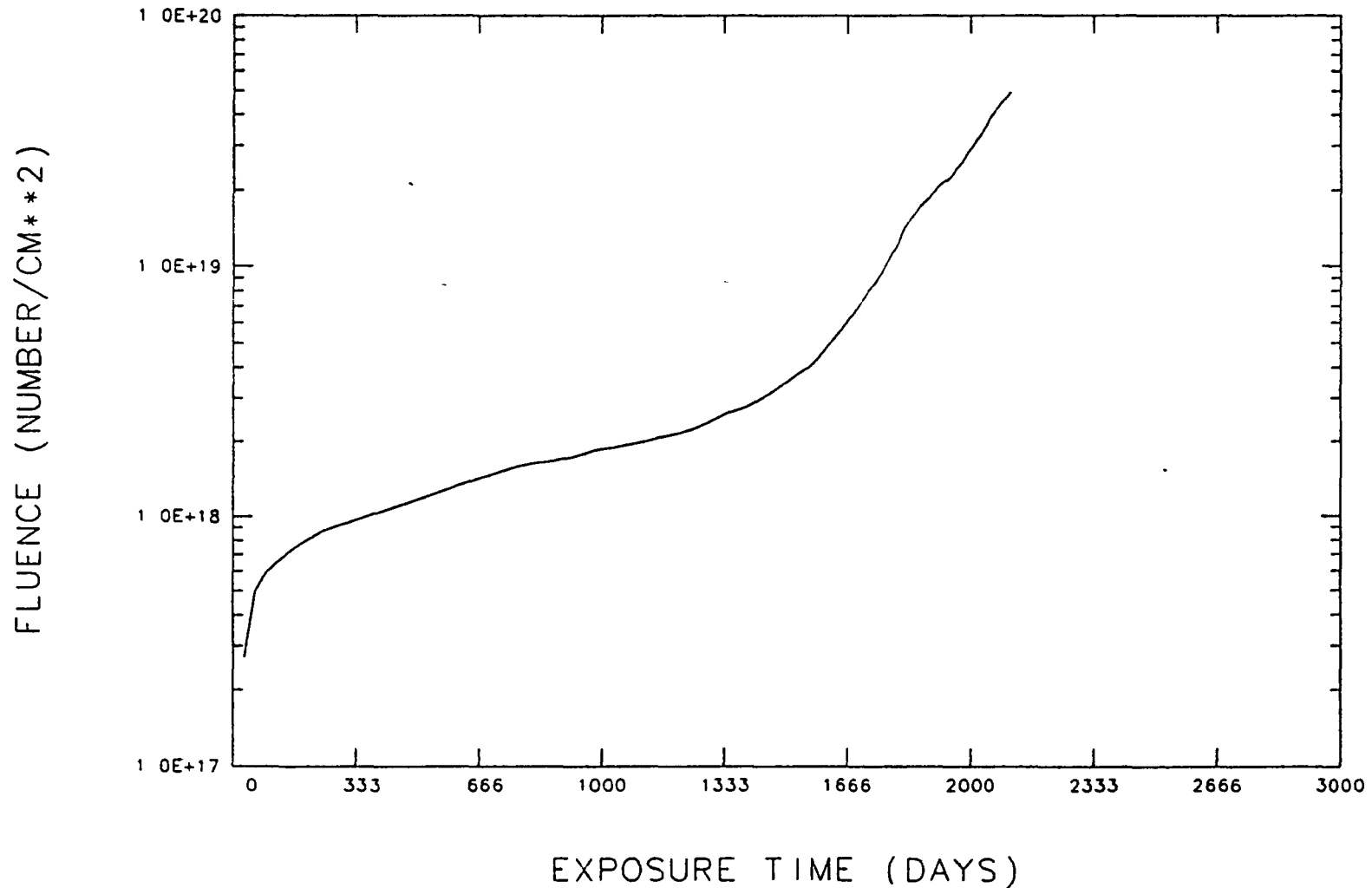


FIGURE 22: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 6

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

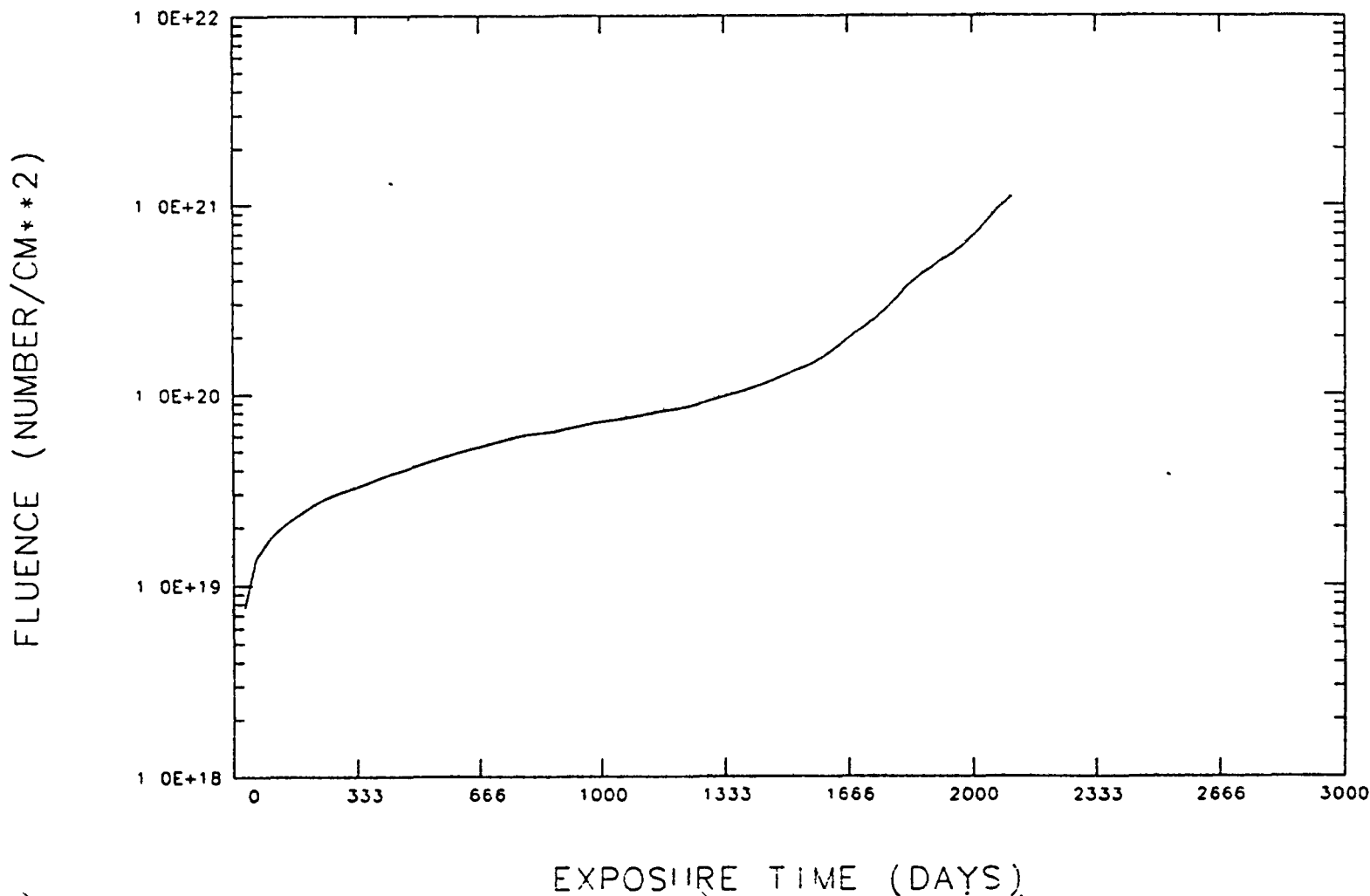


FIGURE 23: ATOMIC FLUENCE VS TIME FOR LONGERON 6-7

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

35

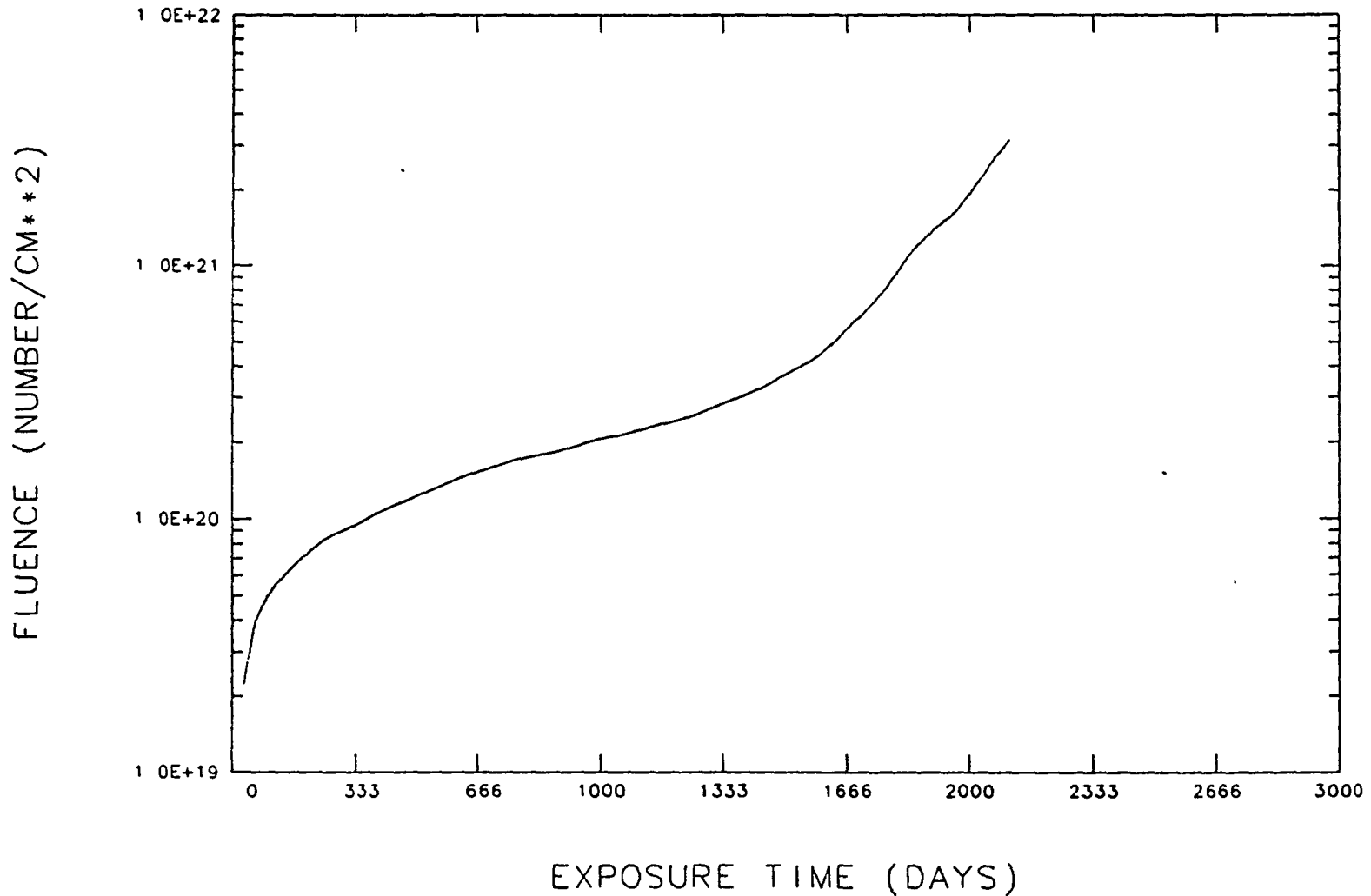


FIGURE 24: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 7

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

36

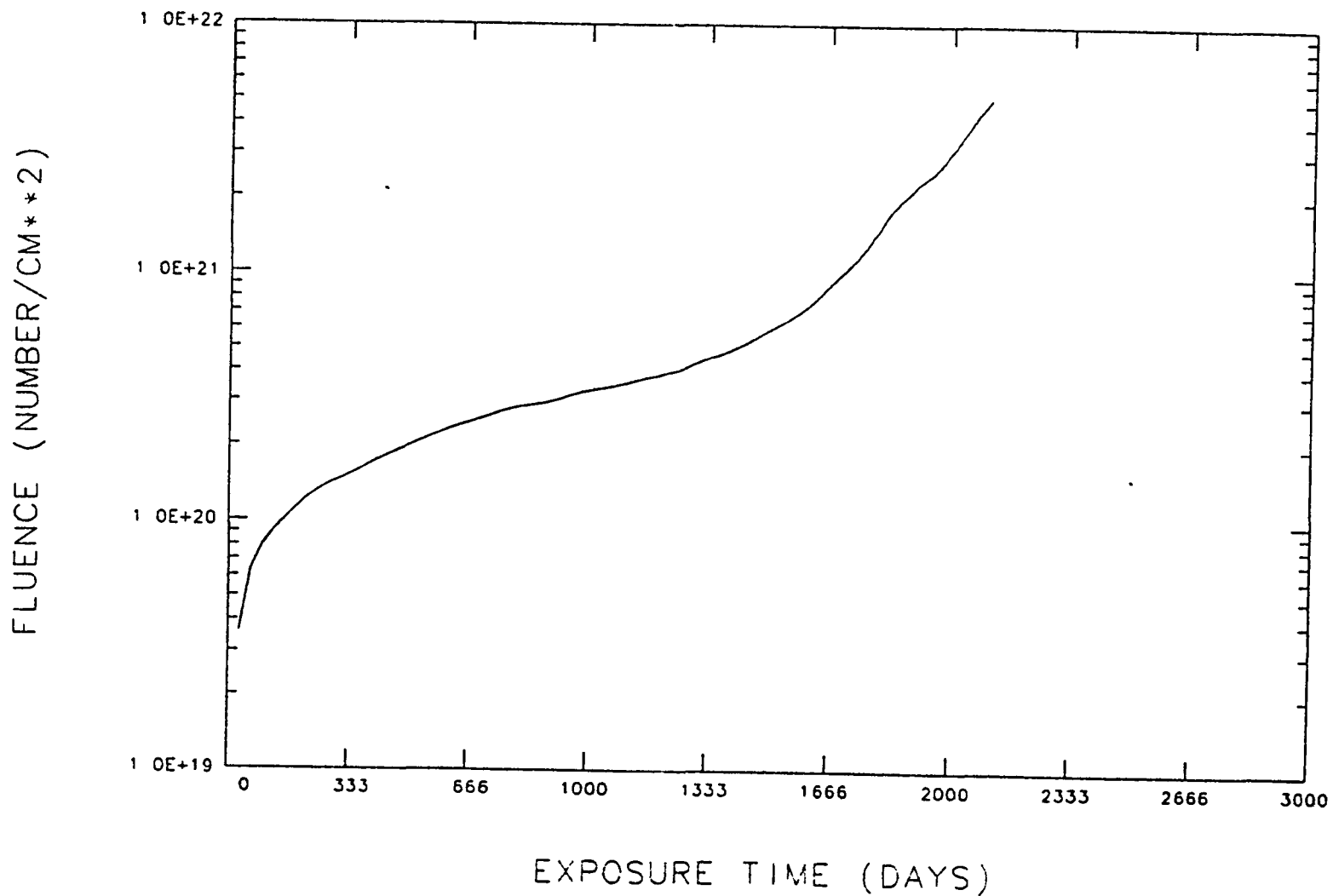
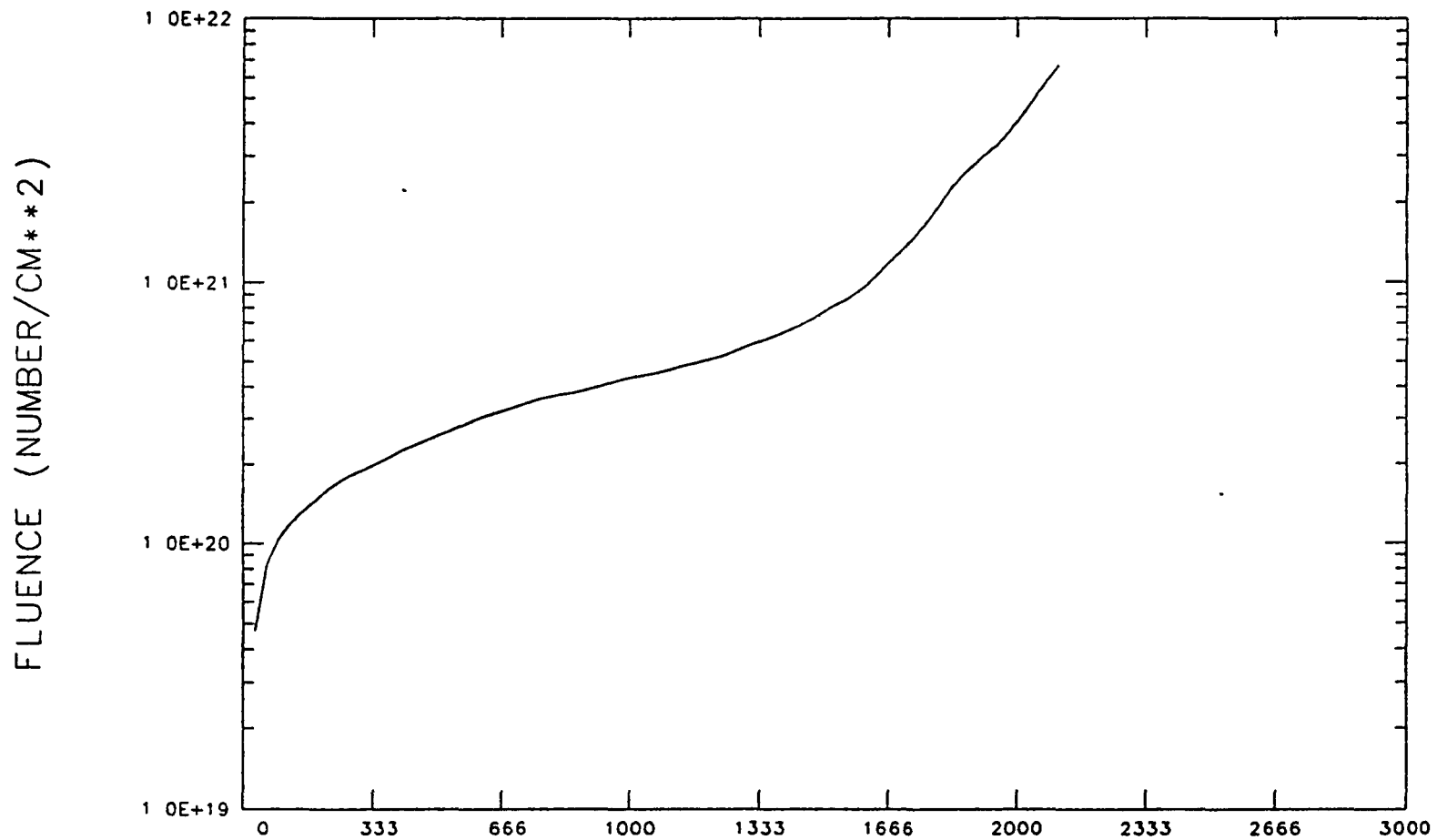


FIGURE 25: ATOMIC O₂ FLUENCE VS TIME FOR LONGERON 7-8

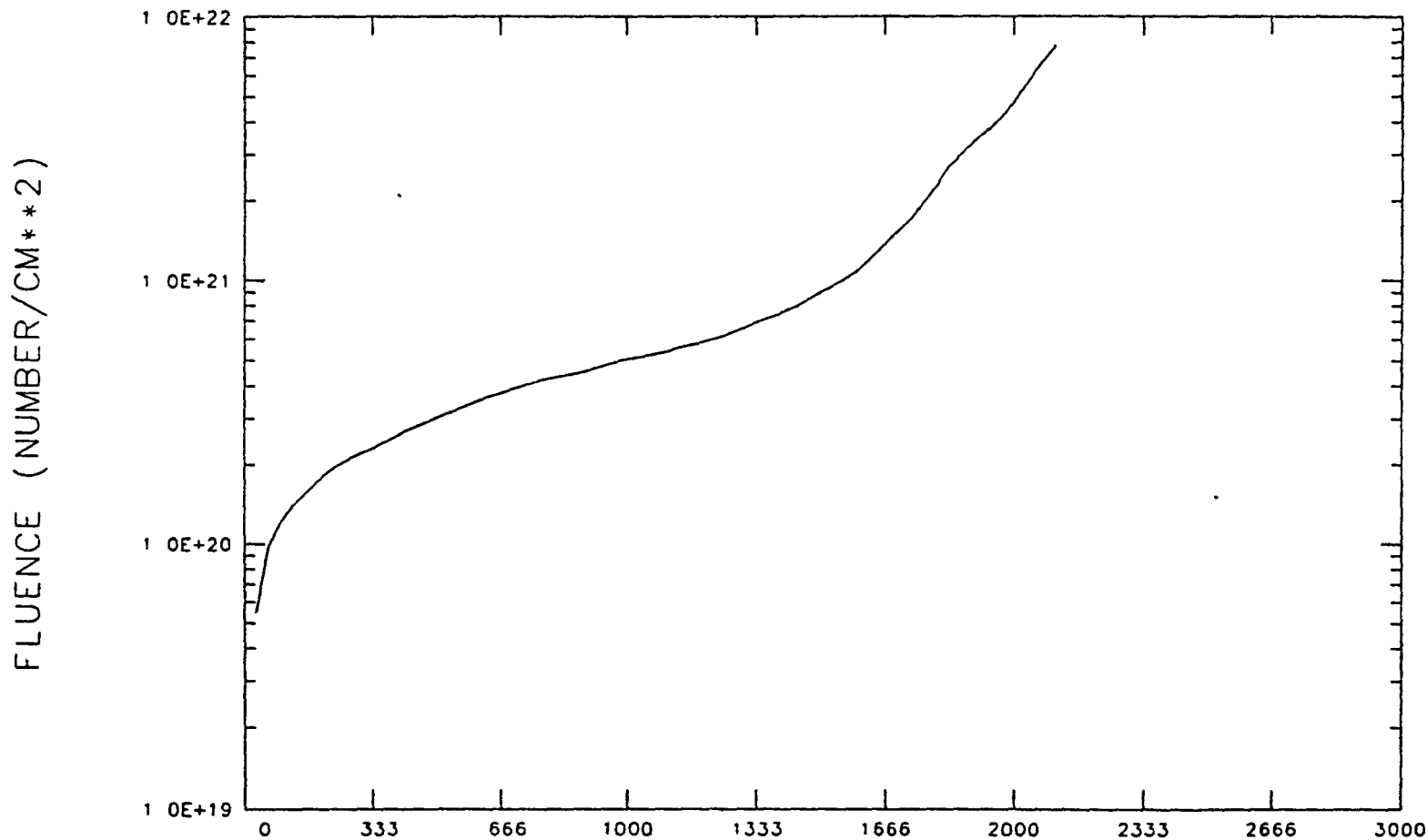
RELEASE DATE . APRIL 7, 1984
RECOVERY DATE: JANUARY 12, 1990
YAW = 8.0 DEGREES ROW 8



EXPOSURE TIME (DAYS)

FIGURE 26: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 8

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



EXPOSURE TIME (DAYS)
FIGURE 27: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 8-9

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

39

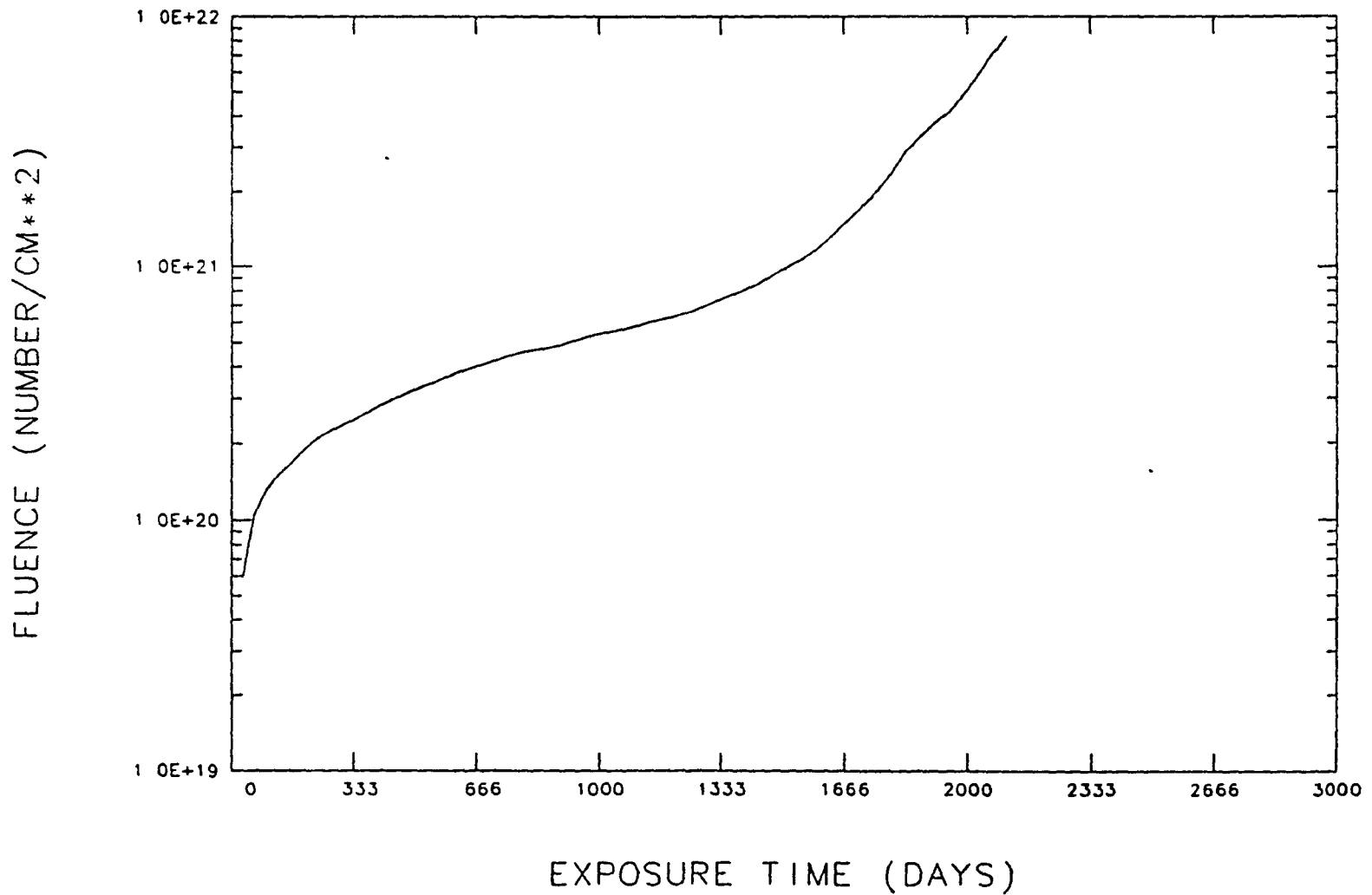


FIGURE 28: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 9

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

40

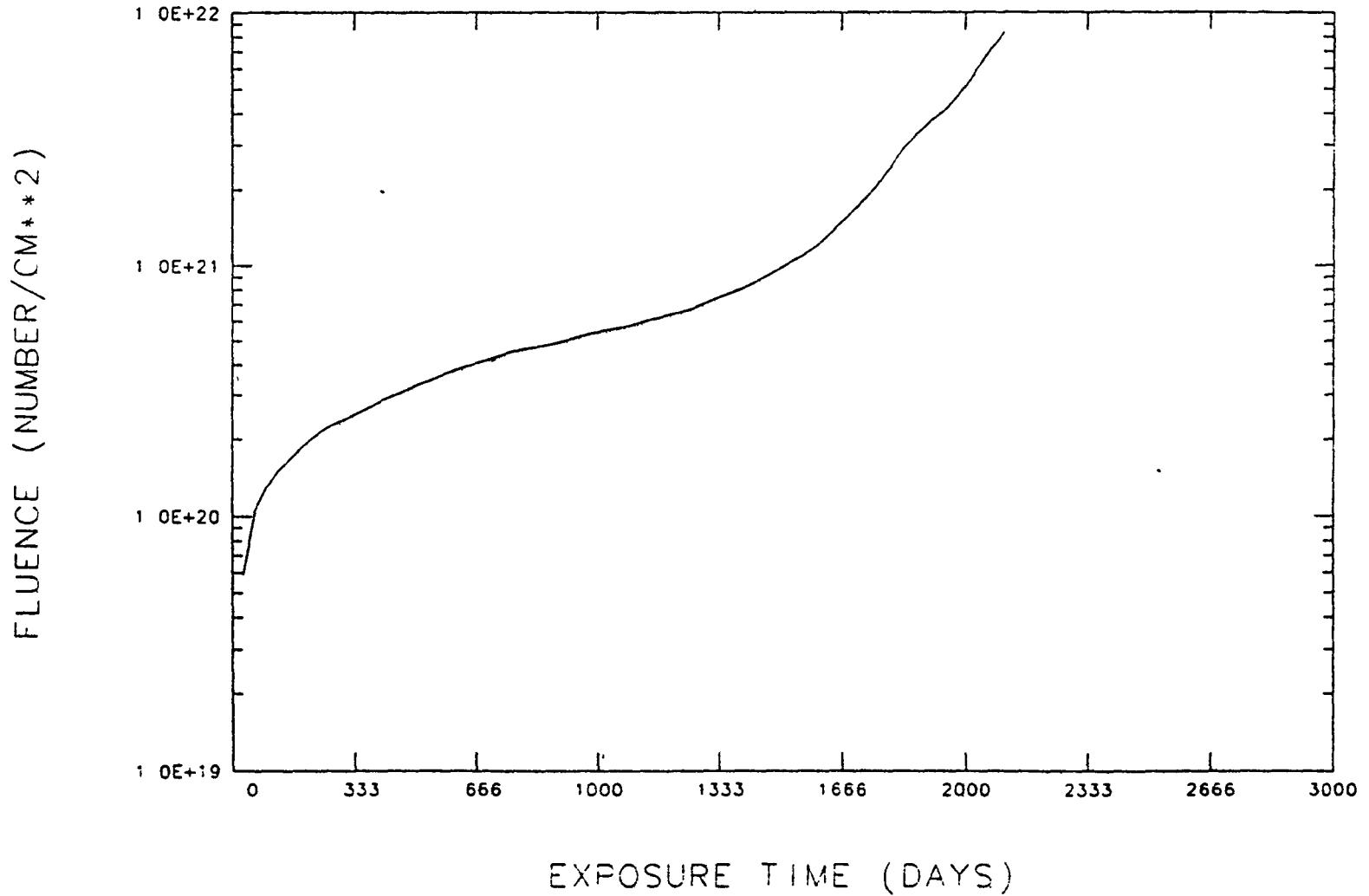


FIGURE 29: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 9-10

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

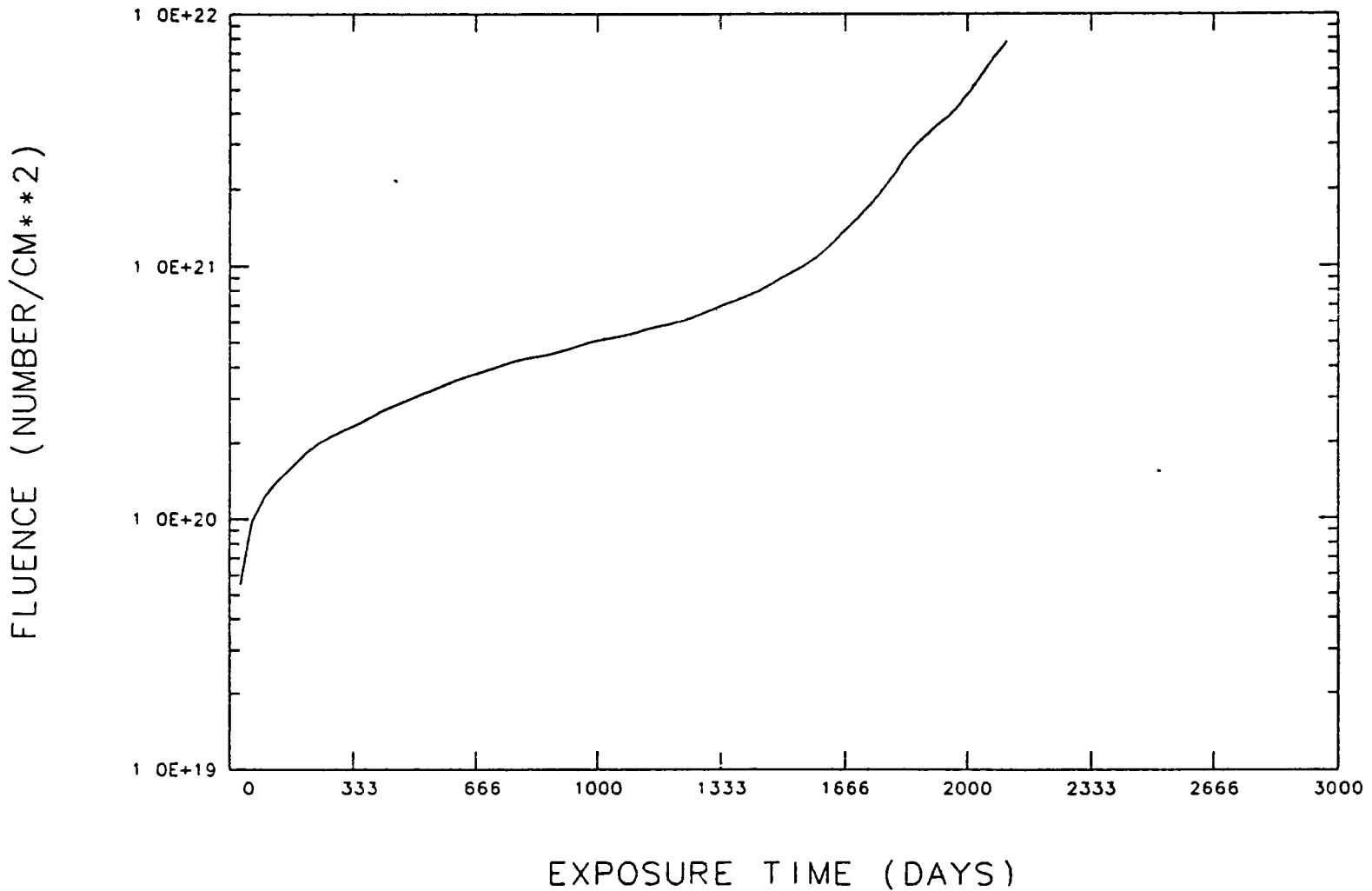


FIGURE 30: ATOMIC OXYGEN! FLUENCE VS TIME FOR ROW 10

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

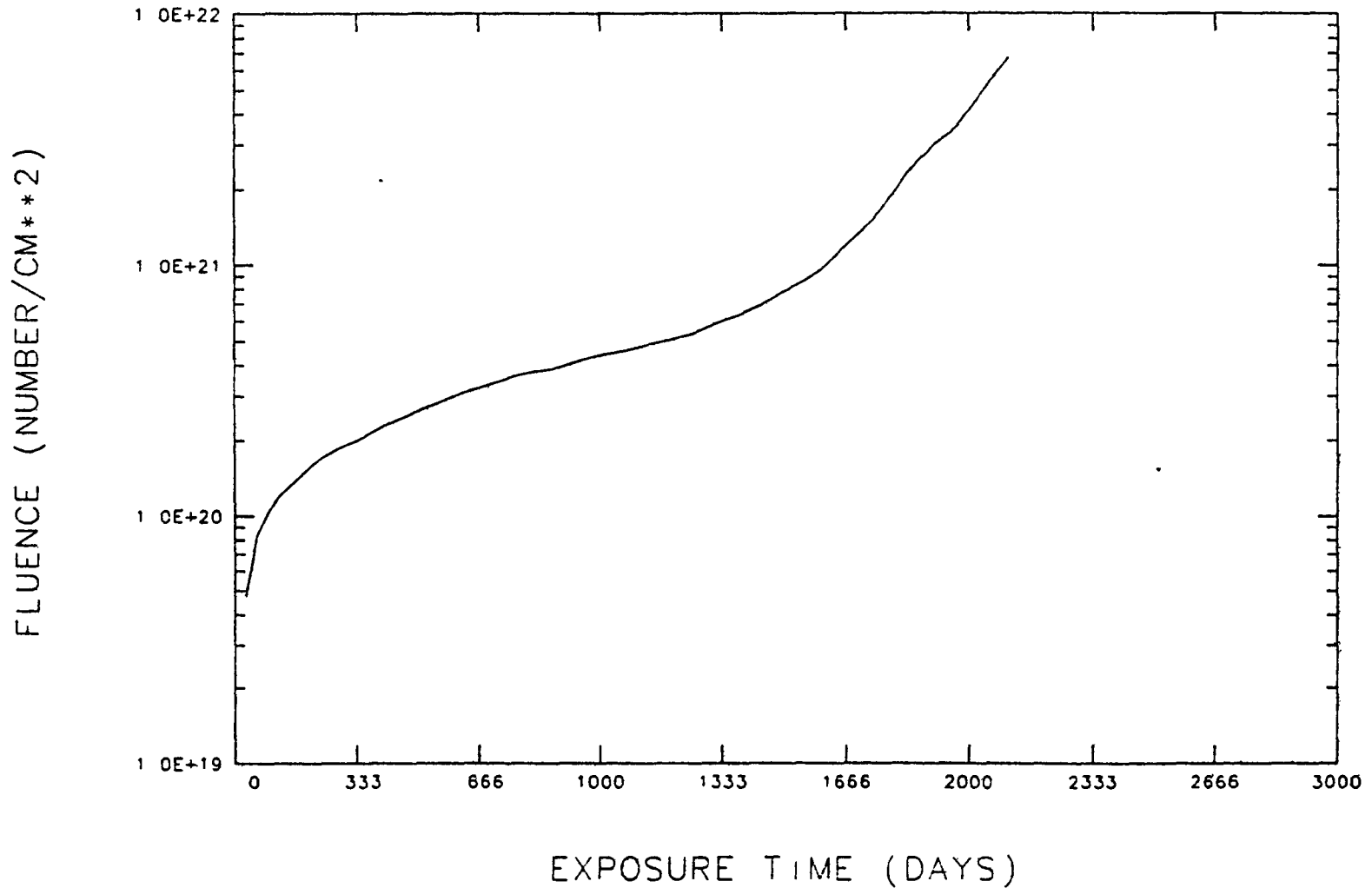


FIGURE 31: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 10-11

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

43

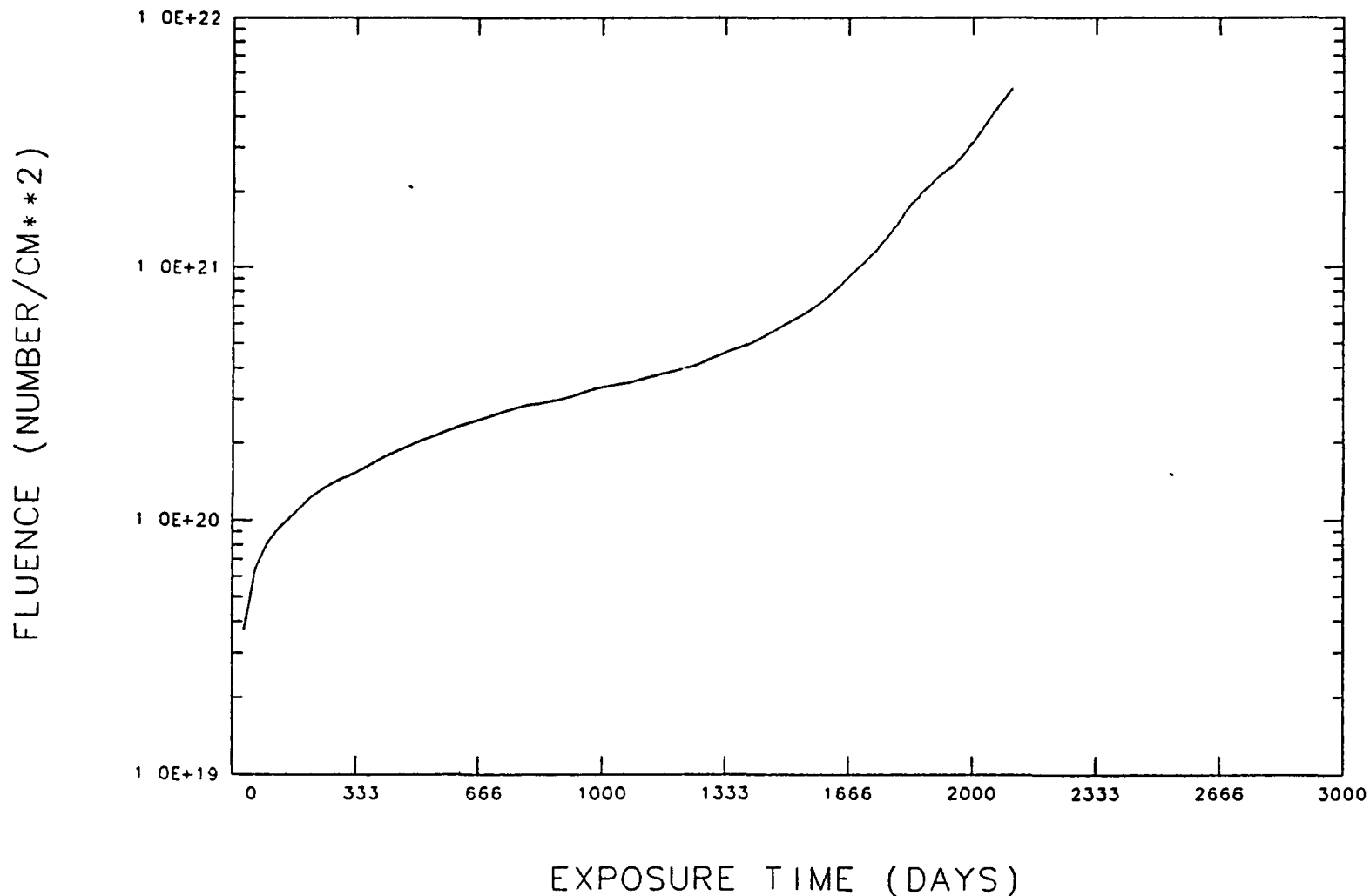


FIGURE 32: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 11

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

44

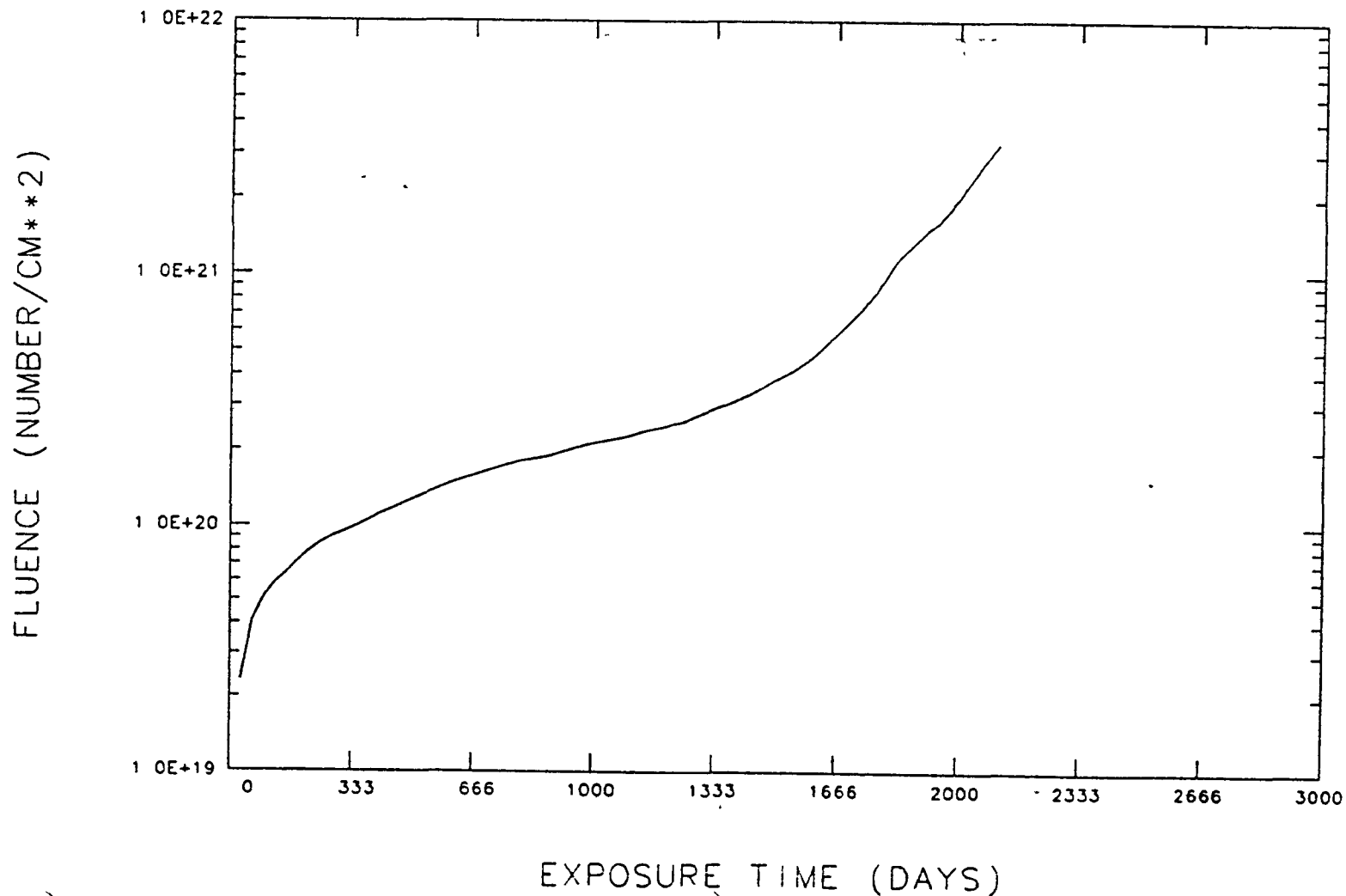


FIGURE 33: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 11-12

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

45

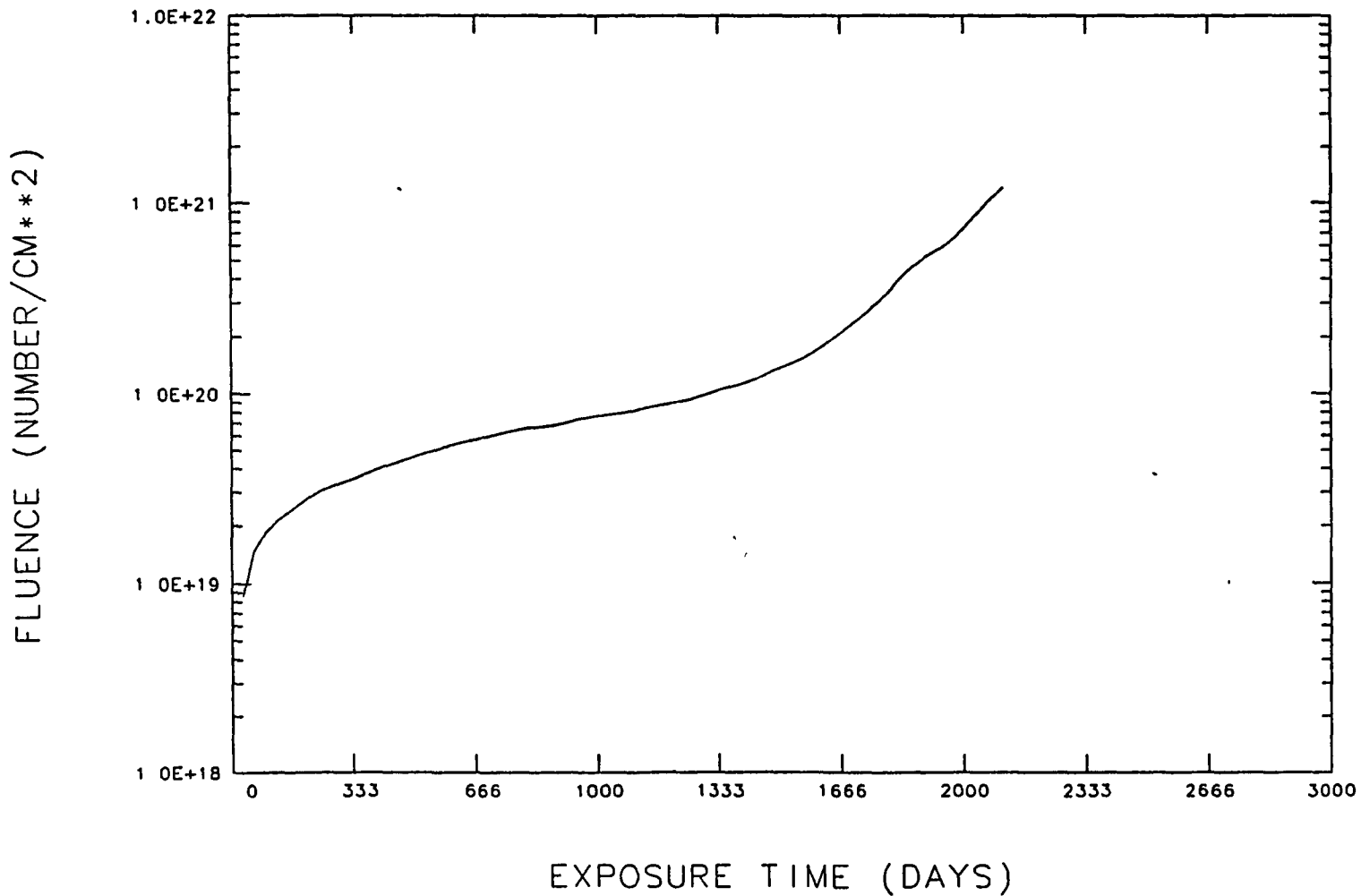


FIGURE 34: ATOMIC OXYGEN FLUENCE VS TIME FOR ROW 12

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

46

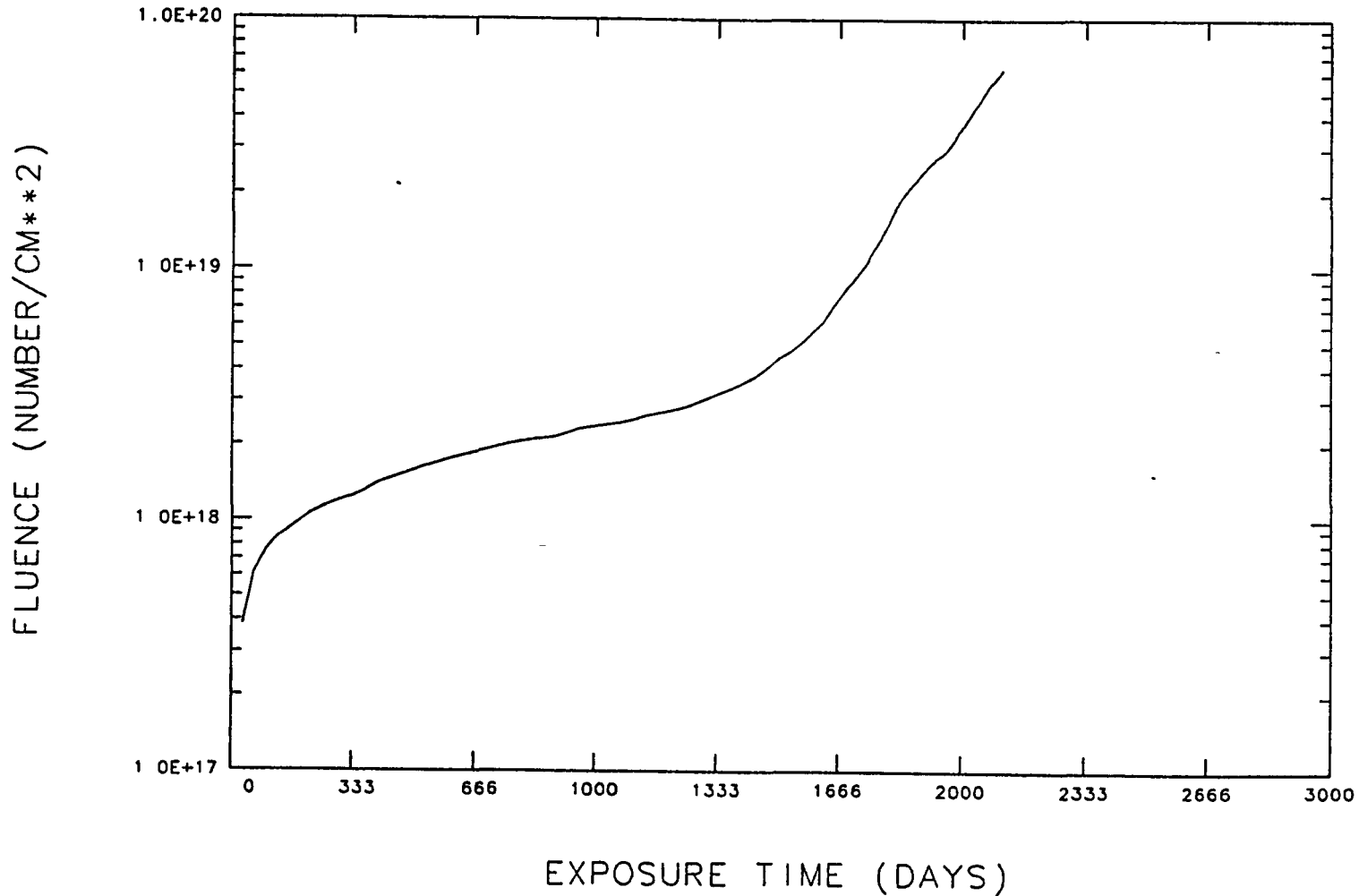


FIGURE 35: ATOMIC OXYGEN FLUENCE VS TIME FOR LONGERON 12-1

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

47

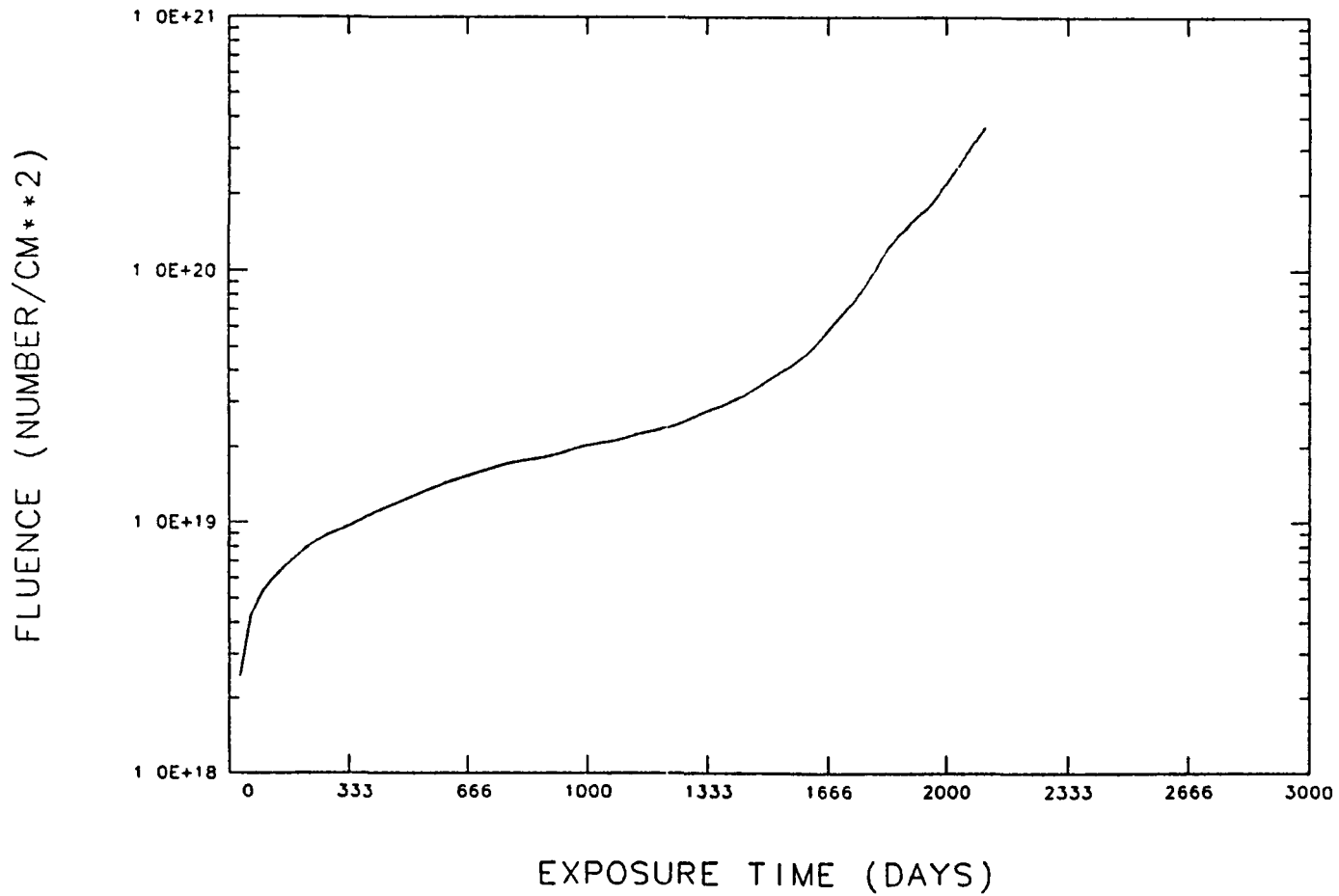


FIGURE 36: ATOMIC OXYGEN FLUENCE VS TIME FOR LDEF TOP SURFACE

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

48

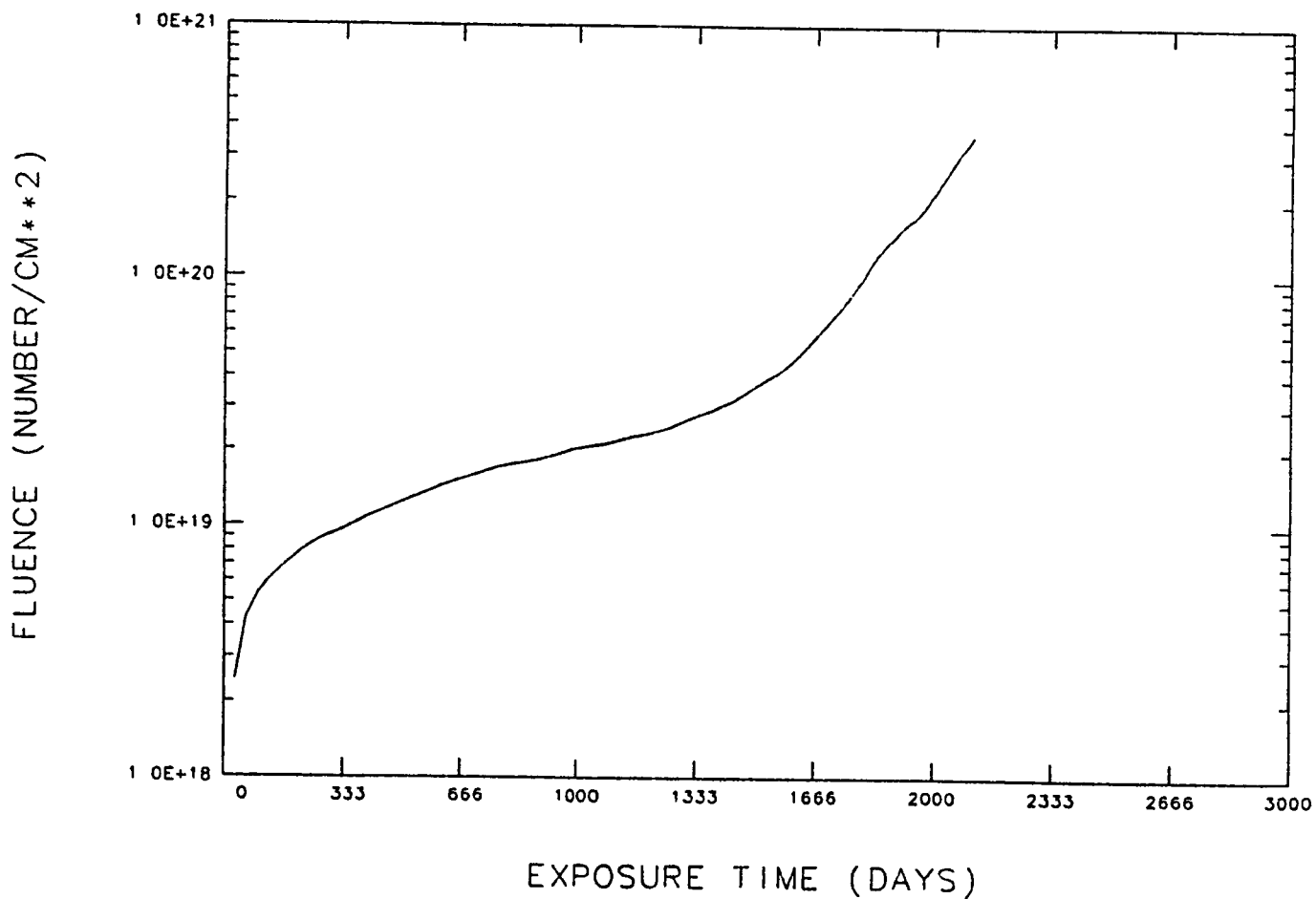


FIGURE 37: ATOMIC OXYGEN FLUENCE VS TIME FOR LDEF BOTTOM SURFACE

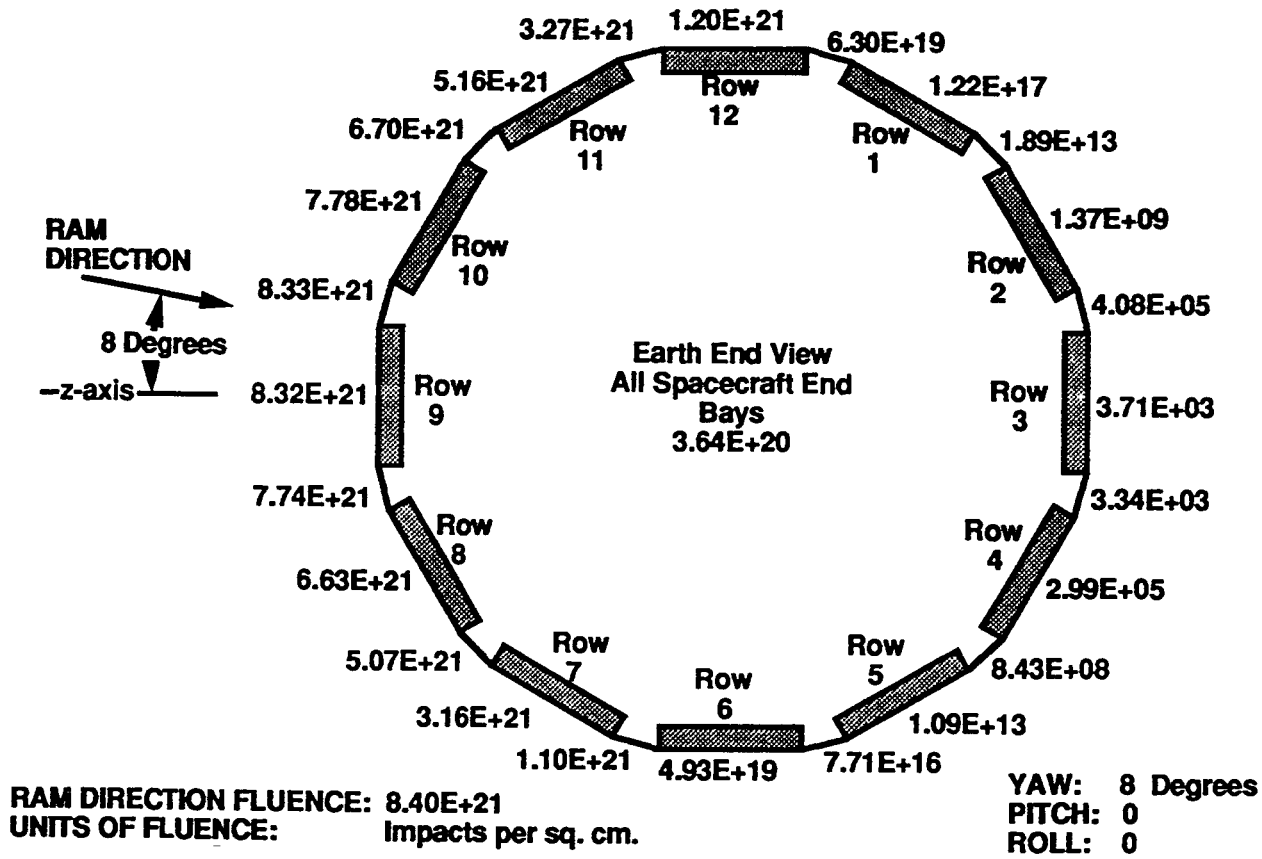


Figure 38.
Atomic oxygen fluences at end of mission for each tray location.

Table 1 LDEF Orbital, Solar, and Geomagnetic Parameters

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

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

Date	Cumulative	Epoch Time,	Ascending	3-Month	Daily	Geo-					
Mo/Day/Yr	Day of Year	Universal Time of Day (sec)	Node Longitude (sec)	Average F10.7 cm Solar Flux	Average F10.7cm Solar Flux	Magnetic Index					
	Days After Release	Orbit Inclination (deg)	Arguement of Perigee (deg)								
		Apogee Altitude (km)	Perigee Altitude (km)								
4 15 87	105	1103	484.9	464.9	28.52	73094	100.5	22.8	76	86	7
5.18.87	138	1136	484.4	464.7	28.53	23846	51.6	21.9	83	90	8
6 18.87	169	1167	484.2	464.4	28.52	45965	74.5	20.9	85	80	7
7.10.87	191	1189	481.8	466.5	28.53	63504	187.1	21.4	86	87	11
8 10 87	222	1220	481.5	466.3	28.53	29203	90.5	26.0	87	92	13
9 12.87	255	1253	480.9	466.1	28.52	29894	188.5	22.4	89	87	19
11 4 87	308	1306	482.1	462.9	28.52	40176	89.1	34.9	94	99	13
12 11.87	345	1343	479.8	463.7	28.53	3629	314.4	34.0	96	91	9
1 8 88	8	1371	480.5	461.9	28.52	75168	150.2	32.9	98	105	13
2.1 88	32	1395	481.0	460.3	28.53	42250	101.9	22.6	99	102	15
3.14 88	74	1437	478.4	460.9	28.53	61344	50.9	32.5	107	114	14
4.12 88	103	1466	478.5	458.6	28.53	259	83.2	31.8	113	124	16
5 15.88	136	1499	476.7	457.9	28.52	8640	148.2	31.4	118	118	12
6 15 88	167	1530	476.1	456.6	28.53	65578	22.0	31.8	128	144	11
7 15 88	197	1560	475.7	455.1	28.53	11750	15.0	28.9	140	158	10
8 13 88	226	1589	474.7	454.1	28.52	77501	226.7	24.1	153	158	10
9.14.88	258	1621	472.7	452.7	28.52	51754	84.5	26.0	157	154	12
10.14 88	288	1651	470.2	450.0	28.50	12355	15.6	25.9	160	169	13
11.14 88	319	1682	467.1	447.1	28.51	19526	100.6	17.0	159	153	12
12 15.88	350	1713	463.3	444.9	28.52	47261	97.5	16.8	172	194	14
1.1 89	1	1730	459.9	443.8	28.51	6307	137.2	27.1	172	190	14
1.8.89	8	1737	459.4	442.9	28.53	17280	35.2	20.5	174	219	14
1 15 89	15	1744	459.7	439.7	28.52	61603	150.7	23.8	183	272	25
1 22 89	22	1751	458.2	438.6	28.53	5098	336.0	32.5	188	230	25
1 30.89	30	1759	455.9	438.6	28.53	63418	24.3	28.6	192	207	11
2 6 89	37	1766	453.6	439.1	28.53	34560	91.5	22.1	194	188	28
2 13 89	44	1773	454.2	435.9	28.53	39139	16.5	12.8	201	251	16
2 20 89	51	1780	454.2	433.1	28.52	4406	108.8	20.0	207	230	13
2.27 90	58	1787	452.5	432.1	28.53	47693	228.7	28.6	212	203	8

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

Date	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Argument of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10.7cm Solar Flux	Geo-Magnetic Index
3 8 89	67	1796	448.2	433.4	28.53	52099	138.5	31.7	214	175	22
3 15 89	74	1803	447.5	431.5	28.52	33610	161.6	24.0	218	219	54
3 22 89	81	1810	447.0	428.0	28.53	20390	161.9	17.5	219	242	54
3 28 89	87	1816	446.0	426.1	28.52	82253	210.6	23.9	217	195	26
4 4 89	94	1823	443.8	425.6	28.52	85450	141.2	30.8	216	171	43
4 10 89	100	1829	441.7	425.3	28.52	52186	235.0	25.9	214	194	25
4 19 89	109	1838	440.9	422.2	28.52	38275	222.4	20.8	208	194	17
4 26 89	116	1845	440.3	420.4	28.52	24192	226.6	26.5	205	195	9
5 3 89	123	1852	437.8	420.4	28.52	32141	136.6	30.5	203	181	36
5 10 89	130	1859	435.4	420.0	28.52	45533	23.6	22.1	204	197	23
5 14 89	134	1863	435.1	418.5	28.53	73008	234.7	16.1	200	199	8
5 20 89	140	1869	435.6	415.7	28.52	27734	19.4	16.1	197	195	9
5 27 89	147	1876	435.5	413.3	28.52	57370	197.1	25.9	196	190	29
6 4 89	155	1884	432.8	413.6	28.52	56074	138.5	36.7	198	202	12
6 11 89	162	1891	429.1	414.7	28.52	18576	242.0	31.0	200	241	31
6 19 89	170	1899	428.2	411.3	28.52	11232	209.0	14.0	205	307	19
6 27 89	178	1907	428.3	407.8	28.53	48038	347.8	20.8	208	235	10
7 4 89	185	1914	426.9	406.5	28.53	59962	240.9	28.6	211	212	10
7 11 89	192	1921	424.6	406.5	28.53	38275	276.7	29.6	211	189	8
7 18 89	199	1928	422.9	405.5	28.52	55382	147.6	23.3	210	187	6
7 24 89	205	1934	422.3	404.2	28.52	14429	273.9	20.7	210	194	7
7 30 89	211	1940	421.9	402.8	28.52	28771	164.2	24.9	210	178	8
8 7 89	219	1948	419.9	402.3	28.52	14515	160.4	26.9	212	224	6
8 14.89	226	1955	417.7	400.7	28.53	69811	228.5	19.9	216	248	22
8 21 89	233	1962	416.9	397.6	28.53	69379	174.0	16.5	220	254	32
8 28 89	240	1969	416.7	395.1	28.53	7690	20.1	26.8	219	176	15
9.2.89	245	1974	414.8	395.0	28.52	41126	197.2	33.3	220	218	19
9 9 89	252	1981	410.9	395.2	28.52	23501	215.7	34.2	225	297	14
9 16 89	259	1988	407.8	393.6	28.52	11059	211.8	20.7	219	239	22

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

Date Mo/Day/Yr	Day of Year	Cumulative Days After Release	Apogee Altitude (km)	Perigee Altitude (km)	Orbit Inclination (deg)	Epoch Time, Universal Time of Day (sec)	Ascending Node Longitude (sec)	Argument of Perigee (deg)	3-Month Average F10.7 cm Solar Flux	Daily Average F10.7cm Solar Flux	Geo- Magnetic Index
9 22 89	265	1994	407.7	389.7	28.52	84758	209.2	13.5	214	168	18
9 30.89	273	2002	407.5	386.5	28.52	24192	42.4	20.5	217	246	23
10.6 89	279	2008	405.0	384.5	28.53	75341	135.9	30.0	219	219	10
10 13.89	286	2015	401.3	382.8	28.53	1037	35.5	32.5	221	209	7
10 21.89	294	2023	396.9	380.2	28.52	38794	169.5	26.2	223	219	37
10 28.89	301	2030	394.3	377.2	28.52	29981	150.1	22.3	224	192	23
11 4.89	308	2037	391.7	374.2	28.52	9763	179.0	21.9	223	208	17
11.11.89	315	2044	388.0	370.2	28.52	5616	139.2	21.5	223	249	14
11.17 89	321	2050	385.0	365.8	28.52	21341	23.2	20.6	220	226	25
11 24 89	328	2057	381.7	360.8	28.52	65750	136.7	24.9	224	220	7
11 29.89	333	2062	379.0	358.1	28.53	40522	203.0	30.7	224	220	7
12 6 89	340	2069	372.9	355.6	28.52	39917	147.8	35.5	224	224	19
12.13.89	347	2076	367.8	353.6	28.52	11405	211.8	25.4	217	204	12
12 20 89	354	2083	365.3	348.4	28.51	37238	44.0	12.8	212	167	9
12 27 89	361	2090	362.3	341.5	28.51	67910	215.2	17.0	214	200	10
12 31 89	365	2094	359.5	338.0	28.51	56160	232.0	23.6	214	251	20
1.10.90	10	2104	352.0	331.7	28.52	77846	56.7	36.3	212	192	15
1 12 90	12	2106	350.8	330.5	28.52	77846	56.7	36.3	209	167	12
1.13 90	13	2107	350.2	329.9	28.52	77846	56.7	36.3	209	167	12

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

SATELLITE ORIENTATION IS

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

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 84098
 7 APRIL 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 046E+08	000E+00
LONGERON	127.0	6.609E+03	.000E+00
ROW 2	142.0	4 847E-02	.000E+00
LONGERON	157.0	1.360E-06	.000E+00
ROW 3	172.0	2 030E-09	.000E+00
LONGERON	173.0	8.523E-10	.000E+00
ROW 4	158.0	1 279E-07	.000E+00
LONGERON	143.0	1 987E-03	.000E+00
ROW 5	128.0	3.178E+02	.000E+00
LONGERON	113.0	3 205E+07	.000E+00
ROW 6	98.0	9.674E+10	.000E+00
LONGERON	83.0	3.166E+12	.000E+00
ROW 7	68.0	9 485E+12	000E+00
LONGERON	53.0	1.535E+13	000E+00
ROW 8	38.0	2 016E+13	000E+00
LONGERON	23.0	2 360E+13	.000E+00
ROW 9	8.0	2 543E+13	000E+00
LONGERON	7.0	2 553E+13	.000E+00
ROW 10	22.0	2 389E+13	.000E+00
LONGERON	37.0	2 062E+13	.000E+00
ROW 11	52.0	1 595E+13	.000E+00
LONGERON	67.0	1.019E+13	.000E+00
ROW 12	82.0	3.829E+12	.000E+00
LONGERON	97.0	1 883E+11	000E+00
TOP	90.0	1 047E+12	000E+00
BOTTOM	90.0	1.047E+12	000E+00
RAM DIR	.0	2 571E+13	.000E+00

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 84127: 833.4 TO 1208.5 K

 DATA FOR 84127
 6 MAY 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	7 686E+07	3 526E+14
LONGERON	127.0	1 955E+03	1 073E+10
ROW 2	142.0	2 010E-02	8 591E+04
LONGERON	157.0	1 177E-06	3 178E+00
ROW 3	172.0	4 355E-09	7.999E-03
LONGERON	173.0	4 249E-09	6.391E-03
ROW 4	158.0	1 127E-06	1 572E+00
LONGERON	143.0	2.054E-02	2 823E+04
ROW 5	128.0	2 280E+03	3 255E+09
LONGERON	113.0	8.861E+07	1.512E+14
ROW 6	98.0	1.176E+11	2.685E+17
LONGERON	83.0	2.948E+12	7.660E+18
ROW 7	68.0	8.327E+12	2.231E+19
LONGERON	53.0	1 325E+13	3 583E+19
ROW 8	38.0	1 728E+13	4.691E+19
LONGERON	23.0	2.013E+13	5.478E+19
ROW 9	8.0	2 160E+13	5 893E+19
LONGERON	7.0	2 161E+13	5 906E+19
ROW 10	22.0	2 014E+13	5.516E+19
LONGERON	37.0	1.730E+13	4 751E+19
ROW 11	52.0	1.328E+13	3 661E+19
LONGERON	67.0	8 352E+12	2 323E+19
ROW 12	82.0	2 976E+12	8 525E+18
LONGERON	97.0	1 177E+11	3 834E+17
TOP	90.0	8 919E+11	2.429E+18
BOTTOM	90.0	8.919E+11	2.429E+18
RAM DIR	0	2 179E+13	5 950E+19

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 84159
 7 JUNE 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 376E+07	4.778E+14
LONGERON	127.0	7 223E+01	1.353E+10
ROW 2	142.0	1.420E-04	1.139E+05
LONGERON	157.0	2.379E-09	4.808E+00
ROW 3	172.0	5 223E-12	1.403E-02
LONGERON	173.0	7 093E-12	1.227E-02
ROW 4	158.0	5 451E-09	3.138E+00
LONGERON	143.0	4 279E-04	5.722E+04
ROW 5	128.0	1 963E+02	6 678E+09
LONGERON	113.0	2.197E+07	3 040E+14
ROW 6	98.0	5 206E+10	5.031E+17
LONGERON	83.0	1.539E+12	1 386E+19
ROW 7	68.0	4 383E+12	3.988E+19
LONGERON	53.0	6.979E+12	6.380E+19
ROW 8	38.0	9 100E+12	8 337E+19
LONGERON	23.0	1.060E+13	9 726E+19
ROW 9	8.0	1.138E+13	1.045E+20
LONGERON	7.0	1 138E+13	1.047E+20
ROW 10	22.0	1.061E+13	9.767E+19
LONGERON	37.0	9.113E+12	8.402E+19
ROW 11	52.0	6 996E+12	6.464E+19
LONGERON	67.0	4 403E+12	4.086E+19
ROW 12	82.0	1 561E+12	1.480E+19
LONGERON	97.0	5.120E+10	6.169E+17
TOP	90.0	4 464E+11	4.279E+18
BOTTOM	90.0	4 464E+11	4.279E+18
RAM DIR	.0	1.148E+13	1.055E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 84190
 8 JULY 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 097E+07	5 244E+14
LONGERON	127.0	1 361E+02	1.381E+10
ROW 2	142.0	1.477E-04	1.143E+05
LONGERON	157.0	7 455E-10	4.812E+00
ROW 3	172.0	3 783E-13	1.403E-02
LONGERON	173.0	1.354E-13	1 228E-02
ROW 4	158.0	4 604E-11	3.145E+00
LONGERON	143.0	3 586E-06	5 780E+04
ROW 5	128.0	4.061E+00	6 946E+09
LONGERON	113.0	2 314E+06	3 366E+14
ROW 6	98.0	2 073E+10	6 006E+17
LONGERON	83.0	9.333E+11	1.717E+19
ROW 7	68.0	2.856E+12	4.958E+19
LONGERON	53.0	4.631E+12	7.935E+19
ROW 8	38.0	6 091E+12	1.037E+20
LONGERON	23.0	7 135E+12	1.210E+20
ROW 9	8.0	7 693E+12	1.301E+20
LONGERON	7.0	7.727E+12	1 303E+20
ROW 10	22.0	7 235E+12	1.216E+20
LONGERON	37.0	6 249E+12	1.046E+20
ROW 11	52.0	4 837E+12	8.049E+19
LONGERON	67.0	3.096E+12	5 090E+19
ROW 12	82.0	1 165E+12	1.845E+19
LONGERON	97.0	4.695E+10	7.483E+17
TOP	90.0	2.946E+11	5 271E+18
BOTTOM	90.0	2 946E+11	5 271E+18
RAM DIR	.0	7 778E+12	1.313E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

```

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

```

```

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

```

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 84221: 888 8 TO 988 7 K

```

 DATA FOR: 84221
 8 AUGUST 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.973E+06	5.591E+14
LONGERON	127.0	1.718E+01	1.402E+10
ROW 2	142.0	1.524E-05	1.145E+05
LONGERON	157.0	9.647E-11	4.813E+00
ROW 3	172.0	8.935E-14	1.403E-02
LONGERON	173.0	7.244E-14	1.228E-02
ROW 4	158.0	5.547E-11	3.146E+00
LONGERON	143.0	7.750E-06	5.781E+04
ROW 5	128.0	1.049E+01	6.966E+09
LONGERON	113.0	4.045E+06	3.451E+14
ROW 6	98.0	2.199E+10	6.578E+17
LONGERON	83.0	8.062E+11	1.950E+19
ROW 7	68.0	2.319E+12	5.651E+19
LONGERON	53.0	3.698E+12	9.051E+19
ROW 8	38.0	4.825E+12	1.183E+20
LONGERON	23.0	5.623E+12	1.381E+20
ROW 9	8.0	6.038E+12	1.485E+20
LONGERON	7.0	6.042E+12	1.487E+20
ROW 10	22.0	5.633E+12	1.388E+20
LONGERON	37.0	4.841E+12	1.194E+20
ROW 11	52.0	3.719E+12	9.195E+19
LONGERON	67.0	2.344E+12	5.819E+19
ROW 12	82.0	8.303E+11	2.112E+19
LONGERON	97.0	2.417E+10	8.436E+17
TOP	90.0	2.263E+11	5.969E+18
BOTTOM	90.0	2.263E+11	5.969E+18
RAM DIR	.0	6.092E+12	1.499E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6862000.00
SEMIMINOR AXIS (M)                 6861995.79
ECCENTRICITY                        .001
PERIOD (SEC)                        5655.13
ENERGY (JOULE)                      -2.906E+07
ANGULAR MOMENTUM (JOULE-SEC)        5.232E+10

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
 FOR THE DATE 84252: 9.255E+06 ATOMS/CM**3

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 84252: 700.3 TO 921.3 K

 DATA FOR: 84252
 8 SEPTEMBER 1984

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 84277
 3 OCTOBER 1984

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8 174E+06	5.801E+14
LONGERON	127.0	1 944E+01	1.407E+10
ROW 2	142.0	6 415E-06	1.145E+05
LONGERON	157.0	1 131E-11	4.813E+00
ROW 3	172.0	3 132E-15	1.403E-02
LONGERON	173.0	1 144E-15	1.228E-02
ROW 4	158.0	7 348E-13	3.146E+00
LONGERON	143.0	1 634E-07	5 783E+04
ROW 5	128.0	5 824E-01	7.003E+09
LONGERON	113.0	8 729E+05	3.624E+14
ROW 6	98.0	1 481E+10	7 632E+17
LONGERON	83.0	7 857E+11	2.360E+19
ROW 7	68.0	2 404E+12	6.838E+19
LONGERON	53.0	3 891E+12	1 095E+20
ROW 8	38.0	5.114E+12	1.431E+20
LONGERON	23.0	5 988E+12	1 670E+20
ROW 9	8.0	6 453E+12	1.795E+20
LONGERON	7.0	6 479E+12	1 797E+20
ROW 10	22.0	6 064E+12	1 678E+20
LONGERON	37.0	5 235E+12	1 443E+20
ROW 11	52.0	4 049E+12	1 111E+20
LONGERON	67.0	2 588E+12	7 027E+19
ROW 12	82.0	9 648E+11	2 542E+19
LONGERON	97.0	3 310E+10	9 663E+17
TOP	90.0	2 364E+11	7.115E+18
BOTTOM	90.0	2 364E+11	7 115E+18
RAM DIR	0	6 523E+12	1 812E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 84314
 9 NOVEMBER 1984

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 84344
 9 DECEMBER 1984

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 85009
 9 JANUARY 1985

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.845E+06	6.144E+14
LONGERON	127.0	9.852E+00	1.413E+10
ROW 2	142.0	3.050E-06	1.145E+05
LONGERON	157.0	5.927E-12	4.813E+00
ROW 3	172.0	1.979E-15	1.403E-02
LONGERON	173.0	8.585E-16	1.228E-02
ROW 4	158.0	5.916E-13	3.146E+00
LONGERON	143.0	1.213E-07	5.784E+04
ROW 5	128.0	3.494E-01	7.029E+09
LONGERON	113.0	4.503E+05	3.807E+14
ROW 6	98.0	8.401E+09	9.123E+17
LONGERON	83.0	4.862E+11	2.994E+19
ROW 7	68.0	1.509E+12	8.701E+19
LONGERON	53.0	2.450E+12	1.393E+20
ROW 8	38.0	3.224E+12	1.821E+20
LONGERON	23.0	3.779E+12	2.125E+20
ROW 9	8.0	4.075E+12	2.284E+20
LONGERON	7.0	4.095E+12	2.288E+20
ROW 10	22.0	3.835E+12	2.136E+20
LONGERON	37.0	3.314E+12	1.838E+20
ROW 11	52.0	2.567E+12	1.414E+20
LONGERON	67.0	1.645E+12	8.948E+19
ROW 12	82.0	6.192E+11	3.233E+19
LONGERON	97.0	2.137E+10	1.168E+18
TOP	90.0	1.476E+11	8.909E+18
BOTTOM	90.0	1.476E+11	8.909E+18
RAM DIR	0	4.121E+12	2.306E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 85039: 680.6 TO 846 4 K

 DATA FOR: 85039
 8 FEBRUARY 1985

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	9 719E+05	6.219E+14
LONGERON	127.0	4 598E-01	1.414E+10
ROW 2	142.0	4 218E-08	1.145E+05
LONGERON	157.0	4.215E-14	4.813E+00
ROW 3	172.0	1 556E-17	1.403E-02
LONGERON	173.0	1 636E-17	1.228E-02
ROW 4	158.0	4 826E-14	3 146E+00
LONGERON	143.0	5 041E-08	5 784E+04
ROW 5	128.0	5 355E-01	7 031E+09
LONGERON	113.0	9 970E+05	3.826E+14
ROW 6	98.0	1 225E+10	9.391E+17
LONGERON	83.0	5.362E+11	3.127E+19
ROW 7	68.0	1 545E+12	9 097E+19
LONGERON	53.0	2 462E+12	1.457E+20
ROW 8	38.0	3 211E+12	1.905E+20
LONGERON	23.0	3 741E+12	2.223E+20
ROW 9	8.0	4 016E+12	2.389E+20
LONGERON	7.0	4 018E+12	2.393E+20
ROW 10	22.0	3 746E+12	2.234E+20
LONGERON	37.0	3 218E+12	1.922E+20
ROW 11	52.0	2 471E+12	1.480E+20
LONGERON	67.0	1 556E+12	9.363E+19
ROW 12	82.0	5 467E+11	3.385E+19
LONGERON	97.0	1.291E+10	1.212E+18
TOP	90.0	1.431E+11	9.286E+18
BOTTOM	90.0	1 431E+11	9 286E+18
RAM DIR	.0	4 052E+12	2 412E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 85068
 9 MARCH 1985

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.186E+06	6.247E+14
LONGERON	127.0	7.372E-01	1.414E+10
ROW 2	142.0	1.007E-07	1.145E+05
LONGERON	157.0	1.626E-13	4.813E+00
ROW 3	172.0	9.123E-17	1.403E-02
LONGERON	173.0	1.166E-16	1.228E-02
ROW 4	158.0	3.064E-13	3.146E+00
LONGERON	143.0	2.125E-07	5.784E+04
ROW 5	128.0	1.260E+00	7.033E+09
LONGERON	113.0	1.386E+06	3.855E+14
ROW 6	98.0	1.352E+10	9.713E+17
LONGERON	83.0	5.807E+11	3.267E+19
ROW 7	68.0	1.678E+12	9.501E+19
LONGERON	53.0	2.675E+12	1.521E+20
ROW 8	38.0	3.491E+12	1.989E+20
LONGERON	23.0	4.068E+12	2.321E+20
ROW 9	8.0	4.368E+12	2.494E+20
LONGERON	7.0	4.370E+12	2.498E+20
ROW 10	22.0	4.075E+12	2.332E+20
LONGERON	37.0	3.502E+12	2.006E+20
ROW 11	52.0	2.690E+12	1.544E+20
LONGERON	67.0	1.695E+12	9.770E+19
ROW 12	82.0	5.976E+11	3.528E+19
LONGERON	97.0	1.442E+10	1.247E+18
TOP	90.0	1.563E+11	9.661E+18
BOTTOM	90.0	1.563E+11	9.661E+18
RAM DIR	0	4.407E+12	2.518E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 85099: 695.7 TO 888.9 K

 DATA FOR: 85099
 9 APRIL 1985

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 85142
 2? MAY 1985

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

```

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

```

```

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

```

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 85265. 658.3 TO 874.8 K

```

 DATA FOR: 85265
 22 SEPTEMBER 1985

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 85278
 5 OCTOBER 1985

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.930E+06	7.089E+14
LONGERON	127.0	7.910E+00	1.432E+10
ROW 2	142.0	1.688E-06	1.146E+05
LONGERON	157.0	2.072E-12	4.813E+00
ROW 3	172.0	4.739E-16	1.403E-02
LONGERON	173.0	1.793E-16	1.228E-02
ROW 4	158.0	1.488E-13	3.146E+00
LONGERON	143.0	4.997E-08	5.784E+04
ROW 5	128.0	2.784E-01	7.054E+09
LONGERON	113.0	5.784E+05	4.094E+14
ROW 6	98.0	1.181E+10	1.236E+18
LONGERON	83.0	6.563E+11	4.495E+19
ROW 7	68.0	2.003E+12	1.315E+20
LONGERON	53.0	3.239E+12	2.108E+20
ROW 8	38.0	4.255E+12	2.757E+20
LONGERON	23.0	4.980E+12	3.218E+20
ROW 9	8.0	5.366E+12	3.460E+20
LONGERON	7.0	5.386E+12	3.466E+20
ROW 10	22.0	5.040E+12	3.236E+20
LONGERON	37.0	4.349E+12	2.785E+20
ROW 11	52.0	3.363E+12	2.145E+20
LONGERON	67.0	2.147E+12	1.358E+20
ROW 12	82.0	7.967E+11	4.915E+19
LONGERON	97.0	2.554E+10	1.669E+18
TOP	90.0	1.935E+11	1.318E+19
BOTTOM	90.0	1.935E+11	1.318E+19
RAM DIR	0	5.423E+12	3.493E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 85309: 683.3 TO 881.6 K

 DATA FOR: 85309
 5 NOVEMBER 1985

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.305E+06	7.172E+14
LONGERON	127.0	6.180E-01	1.433E+10
ROW 2	142.0	9.303E-08	1.146E+05
LONGERON	157.0	2.119E-13	4.813E+00
ROW 3	172.0	1.766E-16	1.403E-02
LONGERON	173.0	3.182E-16	1.228E-02
ROW 4	158.0	1.043E-12	3.146E+00
LONGERON	143.0	7.691E-07	5.784E+04
ROW 5	128.0	4.085E+00	7.059E+09
LONGERON	113.0	3.405E+06	4.147E+14
ROW 6	98.0	2.361E+10	1.284E+18
LONGERON	83.0	8.668E+11	4.699E+19
ROW 7	68.0	2.443E+12	1.375E+20
LONGERON	53.0	3.871E+12	2.203E+20
ROW 8	38.0	5.036E+12	2.881E+20
LONGERON	23.0	5.857E+12	3.363E+20
ROW 9	8.0	6.280E+12	3.616E+20
LONGERON	7.0	6.274E+12	3.622E+20
ROW 10	22.0	5.841E+12	3.382E+20
LONGERON	37.0	5.009E+12	2.911E+20
ROW 11	52.0	3.837E+12	2.241E+20
LONGERON	67.0	2.403E+12	1.419E+20
ROW 12	82.0	8.284E+11	5.132E+19
LONGERON	97.0	1.889E+10	1.728E+18
TOP	90.0	2.282E+11	1.374E+19
BOTTOM	90.0	2.282E+11	1.374E+19
RAM DIR	.0	6.330E+12	3.651E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 487.30
PERIGEE (KM ABOVE EARTH) 469.50
INCLINATION OF ORBIT (DEGREES) 28.53
GMT (EPOCH) TIME (SECONDS) 22205
LOCAL SOLAR (EPOCH) TIME (HMS) 18 32 29
ASCENDING NODE LONGITUDE (DEGREES EAST) 185.60
ARGUMENT OF PERIGEE (DEGREES) 17.70

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6858400.00
SEMIMINOR AXIS (M) 6858394.23
ECCENTRICITY .001
PERIOD (SEC) 5650.68
ENERGY (JOULE) -2.908E+07
ANGULAR MOMENTUM (JOULE-SEC) 5.230E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 85346
3 MONTH AVERAGE F10.7 CM FLUX 73.00
DAILY AVERAGE F10.7 CM FLUX 72.00
DAILY MAGNETIC INDEX AP 13.00

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 85346 658.2 TO 913.6 K

 DATA FOR: 85346
 12 DECEMBER 1985

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 86134: 660 1 TO 939 3 K

 DATA FOR. 86134
 14 MAY 1986

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 924E+06	7.548E+14
LONGERON	127.0	5 569E+00	1.439E+10
ROW 2	142.0	2 435E-06	1.146E+05
LONGERON	157.0	8 242E-12	4.814E+00
ROW 3	172.0	5 241E-15	1.403E-02
LONGERON	173.0	4 145E-15	1.228E-02
ROW 4	158.0	4 422E-12	3.146E+00
LONGERON	143.0	1 127E-06	5.786E+04
ROW 5	128.0	3 115E+00	7.123E+09
LONGERON	113.0	2 254E+06	4.575E+14
ROW 6	98.0	1 775E+10	1.588E+18
LONGERON	83.0	7 142E+11	5.884E+19
ROW 7	68.0	2 061E+12	1.714E+20
LONGERON	53.0	3 287E+12	2.744E+20
ROW 8	38.0	4 289E+12	3.587E+20
LONGERON	23.0	4 999E+12	4.185E+20
ROW 9	8.0	5 368E+12	4.498E+20
LONGERON	7.0	5 372E+12	4.504E+20
ROW 10	22.0	5 009E+12	4.204E+20
LONGERON	37.0	4 305E+12	3.617E+20
ROW 11	52.0	3 307E+12	2.783E+20
LONGERON	67.0	2 084E+12	1.760E+20
ROW 12	82.0	7 373E+11	6.329E+19
LONGERON	97.0	1 980E+10	2.035E+18
TOP	90.0	1 966E+11	1.696E+19
BOTTOM	90.0	1 966E+11	1.696E+19
RAM DIR	.0	5 416E+12	4.540E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 86167 631.2 TO 840 7 K

 DATA FOR: 86167
 16 JUNE 1986

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

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 86191: 628.0 TO 846 3 K

 DATA FOR 86191
 10 JULY 1986

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 058E+06	7.620E+14
LONGERON	127.0	1 996E+00	1 440E+10
ROW 2	142.0	2 237E-07	1.146E+05
LONGERON	157.0	1.451E-13	4.814E+00
ROW 3	172.0	2 055E-17	1.403E-02
LONGERON	173.0	6 442E-18	1.228E-02
ROW 4	158.0	6 578E-15	3 146E+00
LONGERON	143.0	4 121E-09	5.787E+04
ROW 5	128.0	5.141E-02	7.130E+09
LONGERON	113.0	1 954E+05	4 638E+14
ROW 6	98.0	5 597E+09	1 646E+18
LONGERON	83.0	3 496E+11	6 128E+19
ROW 7	68.0	1 081E+12	1 785E+20
LONGERON	53.0	1 753E+12	2 856E+20
ROW 8	38.0	2 305E+12	3.733E+20
LONGERON	23.0	2 700E+12	4.355E+20
ROW 9	8.0	2 911E+12	4.681E+20
LONGERON	7.0	2.924E+12	4.687E+20
ROW 10	22.0	2 737E+12	4.374E+20
LONGERON	37.0	2.364E+12	3.763E+20
ROW 11	52.0	1.830E+12	2.896E+20
LONGERON	67.0	1 171E+12	1.831E+20
ROW 12	82.0	4 379E+11	6.580E+19
LONGERON	97.0	1 366E+10	2.097E+18
TOP	90.0	1 033E+11	1 762E+19
BOTTOM	90.0	1 033E+11	1 762E+19
RAM DIR	.0	2.943E+12	4.724E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 86221 619.8 TO 856.6 K

 DATA FOR: 86221
 9 AUGUST 1986

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

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

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

 DATA FOR: 86252
 9 SEPTEMBER 1986

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

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

INPUT ORBITAL PARAMETERS

APOGEE (KM ABOVE EARTH)	486.20
PERIGEE (KM ABOVE EARTH)	466.60
INCLINATION OF ORBIT (DEGREES)	28.53
GMT (EPOCH) TIME (SECONDS)	52445
LOCAL SOLAR (EPOCH) TIME (HMS)	3 43 40
ASCENDING NODE LONGITUDE (DEGREES EAST)	197 40
ARGUMENT OF PERIGEE (DEGREES)	30 50

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

SEMIMAJOR AXIS (M)	6856400.00
SEMIMINOR AXIS (M)	6856393.00
ECCENTRICITY	.001
PERIOD (SEC)	5648 21
ENERGY (JOULE)	-2 909E+07
ANGULAR MOMENTUM (JOULE-SEC)	5.230E+10

SOLAR AND GEOMAGNETIC DATA

YEAR AND DAY (YYDDD)	86285
3 MONTH AVERAGE F10.7 CM FLUX	74.00
DAILY AVERAGE F10.7 CM FLUX	82.00
DAILY MAGNETIC INDEX AP	11.00

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 86285: 682.5 TO 887.3 K

 DATA FOR: 86285
 12 OCTOBER 1986

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

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

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INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 486.10
PERIGEE (KM ABOVE EARTH) 466.00
INCLINATION OF ORBIT (DEGREES) 28.52
GMT (EPOCH) TIME (SECONDS) 19354
LOCAL SOLAR (EPOCH) TIME (HMS) 11 44 58
ASCENDING NODE LONGITUDE (DEGREES EAST) 95.80
ARGUMENT OF PERIGEE (DEGREES) 28.90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6856050.00
SEMIMINOR AXIS (M) 6856042.63
ECCENTRICITY .001
PERIOD (SEC) 5647.77
ENERGY (JOULE) -2.909E+07
ANGULAR MOMENTUM (JOULE-SEC) 5.229E+10

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
 FOR THE DATE 86316 9.748E+06 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT
 FOR THE DATE 86316 1.968E+06 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 86316: 705.1 TO 891.8 K

 DATA FOR: 86316
 12 NOVEMBER 1986

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.968E+06	7.945E+14
LONGERON	127.0	1.302E+00	1.445E+10
ROW 2	142.0	2.362E-07	1.146E+05
LONGERON	157.0	5.377E-13	4.814E+00
ROW 3	172.0	3.886E-16	1.403E-02
LONGERON	173.0	5.589E-16	1.228E-02
ROW 4	158.0	1.439E-12	3.146E+00
LONGERON	143.0	8.754E-07	5.787E+04
ROW 5	128.0	4.223E+00	7.140E+09
LONGERON	113.0	3.522E+06	4.754E+14
ROW 6	98.0	2.532E+10	1.784E+18
LONGERON	83.0	9.489E+11	6.778E+19
ROW 7	68.0	2.694E+12	1.977E+20
LONGERON	53.0	4.278E+12	3.165E+20
ROW 8	38.0	5.570E+12	4.137E+20
LONGERON	23.0	6.483E+12	4.827E+20
ROW 9	8.0	6.954E+12	5.188E+20
LONGERON	7.0	6.951E+12	5.196E+20
ROW 10	22.0	6.475E+12	4.849E+20
LONGERON	37.0	5.557E+12	4.172E+20
ROW 11	52.0	4.260E+12	3.211E+20
LONGERON	67.0	2.673E+12	2.031E+20
ROW 12	82.0	9.297E+11	7.301E+19
LONGERON	97.0	2.256E+10	2.301E+18
TOP	90.0	2.540E+11	1.944E+19
BOTTOM	90.0	2.540E+11	1.944E+19
RAM DIR	.0	7.012E+12	5.237E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6855750.00
SEMIMINOR AXIS (M)              6855743.49
ECCENTRICITY                      001
PERIOD (SEC)                     5647.40
ENERGY (JOULE)                   -2.909E+07
ANGULAR MOMENTUM (JOULE-SEC)     5.229E+10

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
FOR THE DATE 86351 7.107E+06 ATOMS/CM**3

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

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

 DATA FOR: 86351
 17 DECEMBER 1986

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

```

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

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INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)              6855550.00
SEMIMINOR AXIS (M)             6855543.49
ECCENTRICITY                    001
PERIOD (SEC)                    5647.16
ENERGY (Joule)                  -2.909E+07
ANGULAR MOMENTUM (Joule-SEC)    5.229E+10

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 87007
 7 JANUARY 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 869E+06	8.026E+14
LONGERON	127.0	1 416E+00	1.446E+10
ROW 2	142.0	1 177E-07	1.146E+05
LONGERON	157.0	5 932E-14	4 814E+00
ROW 3	172.0	7 516E-18	1.403E-02
LONGERON	173.0	2 510E-18	1 228E-02
ROW 4	158.0	3 022E-15	3.146E+00
LONGERON	143.0	2 157E-09	5.787E+04
ROW 5	128.0	3 124E-02	7 155E+09
LONGERON	113.0	1 740E+05	4.873E+14
ROW 6	98.0	6 407E+09	1 873E+18
LONGERON	83.0	4 064E+11	7 127E+19
ROW 7	68.0	1 245E+12	2 077E+20
LONGERON	53.0	2 013E+12	3 324E+20
ROW 8	38.0	2 644E+12	4.344E+20
LONGERON	23.0	3 095E+12	5 068E+20
ROW 9	8.0	3 335E+12	5 447E+20
LONGERON	7.0	3 348E+12	5.455E+20
ROW 10	22.0	3.132E+12	5 090E+20
LONGERON	37.0	2 703E+12	4.379E+20
ROW 11	52.0	2.090E+12	3 370E+20
LONGERON	67.0	1 335E+12	2.131E+20
ROW 12	82.0	4 944E+11	7.651E+19
LONGERON	97.0	1 445E+10	2.387E+18
TOP	90.0	1 170E+11	2.038E+19
BOTTOM	90.0	1 170E+11	2 038E+19
RAM DIR	0	3 371E+12	5 498E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 87040: 5 713E+06 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

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FOR THE DATE 87040. 4 662E+05 IMPACTS/(CM**2 SEC)

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TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

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FOR THE DATE 87040. 652 2 TO 830 2 K

```

 DATA FOR: 87040
 9 FEBRUARY 1987

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

```

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

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INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 87075
 16 MARCH 1987

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 87105
 15 APRIL 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8.578E+06	8.207E+14
LONGERON	127.0	1.949E+01	1.449E+10
ROW 2	142.0	5.770E-06	1.147E+05
LONGERON	157.0	8.674E-12	4.814E+00
ROW 3	172.0	2.007E-15	1.403E-02
LONGERON	173.0	6.274E-16	1.228E-02
ROW 4	158.0	3.707E-13	3.146E+00
LONGERON	143.0	8.520E-08	5.787E+04
ROW 5	128.0	3.647E-01	7.161E+09
LONGERON	113.0	7.292E+05	4.967E+14
ROW 6	98.0	1.420E+10	1.983E+18
LONGERON	83.0	7.813E+11	7.629E+19
ROW 7	68.0	2.409E+12	2.223E+20
LONGERON	53.0	3.907E+12	3.558E+20
ROW 8	38.0	5.138E+12	4.649E+20
LONGERON	23.0	6.019E+12	5.424E+20
ROW 9	8.0	6.491E+12	5.830E+20
LONGERON	7.0	6.519E+12	5.838E+20
ROW 10	22.0	6.104E+12	5.448E+20
LONGERON	37.0	5.272E+12	4.687E+20
ROW 11	52.0	4.082E+12	3.606E+20
LONGERON	67.0	2.613E+12	2.280E+20
ROW 12	82.0	9.800E+11	8.182E+19
LONGERON	97.0	3.435E+10	2.524E+18
TOP	90.0	2.374E+11	2.175E+19
BOTTOM	90.0	2.374E+11	2.175E+19
RAM DIR	0	6.562E+12	5.884E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           484.40
PERIGEE (KM ABOVE EARTH)          464.70
INCLINATION OF ORBIT (DEGREES)     28.53
GMT (EPOCH) TIME (SECONDS)         23846
LOCAL SOLAR (EPOCH) TIME (HMS)     10  3  49
ASCENDING NODE LONGITUDE (DEGREES EAST)  51.60
ARGUMENT OF PERIGEE (DEGREES)      21.90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)               87138
3 MONTH AVERAGE F10 7 CM FLUX      83.00
DAILY AVERAGE F10 7 CM FLUX       90.00
DAILY MAGNETIC INDEX AP             8.00

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 87138: 692.8 TO 980.1 K

 DATA FOR 87138
 18 MAY 1987

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6854300.00
SEMIMINOR AXIS (M)                 6854292.85
ECCENTRICITY                        .001
PERIOD (SEC)                        5645.61
ENERGY (JOULE)                      -2.910E+07
ANGULAR MOMENTUM (JOULE-SEC)        5.229E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)                87169
3 MONTH AVERAGE F10.7 CM FLUX       85.00
DAILY AVERAGE F10.7 CM FLUX        80.00
DAILY MAGNETIC INDEX AP              7.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
FOR THE DATE 87169. 6.595E+06 ATOMS/CM**3

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 87169: 668.2 TO 891.2 K

 DATA FOR: 87169
 18 JUNE 1987

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 87191: 683.3 TO 935 4 K

 DATA FOR: 87191
 10 JULY 1987

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 87222 9 519E+06 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

```

FOR THE DATE 87222 2 364E+06 IMPACTS/(CM**2 SEC)

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

```

FOR THE DATE 87222 684.8 TO 951 2 K

```

 DATA FOR: 87222
 10 AUGUST 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2.364E+06	8.726E+14
LONGERON	127.0	3.313E+00	1.463E+10
ROW 2	142.0	1.690E-06	1.147E+05
LONGERON	157.0	9.439E-12	4.814E+00
ROW 3	172.0	1.182E-14	1.403E-02
LONGERON	173.0	1.831E-14	1.228E-02
ROW 4	158.0	3.164E-11	3.146E+00
LONGERON	143.0	9.125E-06	5.791E+04
ROW 5	128.0	1.791E+01	7.226E+09
LONGERON	113.0	6.582E+06	5.278E+14
ROW 6	98.0	2.874E+10	2.186E+18
LONGERON	83.0	9.451E+11	8.436E+19
ROW 7	68.0	2.648E+12	2.459E+20
LONGERON	53.0	4.193E+12	3.934E+20
ROW 8	38.0	5.451E+12	5.141E+20
LONGERON	23.0	6.339E+12	5.998E+20
ROW 9	8.0	6.794E+12	6.446E+20
LONGERON	7.0	6.786E+12	6.455E+20
ROW 10	22.0	6.316E+12	6.024E+20
LONGERON	37.0	5.416E+12	5.183E+20
ROW 11	52.0	4.146E+12	3.988E+20
LONGERON	67.0	2.594E+12	2.521E+20
ROW 12	82.0	8.936E+11	9.046E+19
LONGERON	97.0	2.203E+10	2.780E+18
TOP	90.0	2.531E+11	2.403E+19
BOTTOM	90.0	2.531E+11	2.403E+19
RAM DIR	.0	6.848E+12	6.507E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 87255
 12 SEPTEMBER 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6.817E+06	8.857E+14
LONGERON	127.0	1.345E+01	1.466E+10
ROW 2	142.0	5.684E-06	1.147E+05
LONGERON	157.0	2.017E-11	4.814E+00
ROW 3	172.0	1.456E-14	1.403E-02
LONGERON	173.0	1.335E-14	1.228E-02
ROW 4	158.0	1.543E-11	3.146E+00
LONGERON	143.0	3.593E-06	5.792E+04
ROW 5	128.0	7.295E+00	7.262E+09
LONGERON	113.0	3.772E+06	5.425E+14
ROW 6	98.0	2.647E+10	2.264E+18
LONGERON	83.0	1.093E+12	8.727E+19
ROW 7	68.0	3.224E+12	2.543E+20
LONGERON	53.0	5.172E+12	4.068E+20
ROW 8	38.0	6.768E+12	5.316E+20
LONGERON	23.0	7.903E+12	6.201E+20
ROW 9	8.0	8.499E+12	6.664E+20
LONGERON	7.0	8.516E+12	6.673E+20
ROW 10	22.0	7.952E+12	6.228E+20
LONGERON	37.0	6.847E+12	5.357E+20
ROW 11	52.0	5.275E+12	4.122E+20
LONGERON	67.0	3.343E+12	2.606E+20
ROW 12	82.0	1.211E+12	9.346E+19
LONGERON	97.0	3.721E+10	2.865E+18
TOP	90.0	3.154E+11	2.484E+19
BOTTOM	90.0	3.154E+11	2.484E+19
RAM DIR	0	8.581E+12	6.727E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 87308
 4 NOVEMBER 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.104E+07	9.265E+14
LONGERON	127.0	3.318E+01	1.476E+10
ROW 2	142.0	3.285E-05	1.148E+05
LONGERON	157.0	3.256E-10	4.815E+00
ROW 3	172.0	5.972E-13	1.404E-02
LONGERON	173.0	9.644E-13	1.229E-02
ROW 4	158.0	1.148E-09	3.149E+00
LONGERON	143.0	1.591E-04	5.830E+04
ROW 5	128.0	1.273E+02	7.570E+09
LONGERON	113.0	2.159E+07	6.006E+14
ROW 6	98.0	6.300E+10	2.469E+18
LONGERON	83.0	1.935E+12	9.420E+19
ROW 7	68.0	5.480E+12	2.742E+20
LONGERON	53.0	8.708E+12	4.385E+20
ROW 8	38.0	1.134E+13	5.730E+20
LONGERON	23.0	1.320E+13	6.685E+20
ROW 9	8.0	1.417E+13	7.183E+20
LONGERON	7.0	1.416E+13	7.193E+20
ROW 10	22.0	1.319E+13	6.712E+20
LONGERON	37.0	1.132E+13	5.773E+20
ROW 11	52.0	8.685E+12	4.442E+20
LONGERON	67.0	5.454E+12	2.807E+20
ROW 12	82.0	1.914E+12	1.006E+20
LONGERON	97.0	5.678E+10	3.080E+18
TOP	90.0	5.451E+11	2.681E+19
BOTTOM	90.0	5.451E+11	2.681E+19
RAM DIR	0	1.428E+13	7.250E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 87345 702 9 TO 1039.1 K

 DATA FOR 87345
 11 DECEMBER 1987

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 641E+07	9.704E+14
LONGERON	127.0	9 141E+01	1 496E+10
ROW 2	142.0	1 325E-04	1 151E+05
LONGERON	157.0	1 411E-09	4.818E+00
ROW 3	172.0	1 870E-12	1.404E-02
LONGERON	173.0	1 599E-12	1 229E-02
ROW 4	158.0	9 012E-10	3 152E+00
LONGERON	143.0	6 554E-05	5.866E+04
ROW 5	128.0	3 677E+01	7.832E+09
LONGERON	113.0	6 900E+06	6.461E+14
ROW 6	98.0	3.181E+10	2.621E+18
LONGERON	83.0	1.245E+12	9 929E+19
ROW 7	68.0	3 701E+12	2.889E+20
LONGERON	53.0	5 956E+12	4.620E+20
ROW 8	38.0	7 804E+12	6.036E+20
LONGERON	23.0	9 120E+12	7.041E+20
ROW 9	8.0	9.815E+12	7.567E+20
LONGERON	7.0	9 841E+12	7.576E+20
ROW 10	22.0	9 197E+12	7.070E+20
LONGERON	37.0	7 925E+12	6.081E+20
ROW 11	52.0	6 114E+12	4.678E+20
LONGERON	67.0	3.886E+12	2 956E+20
ROW 12	82.0	1 425E+12	1.059E+20
LONGERON	97.0	5.005E+10	3 251E+18
TOP	90.0	3.736E+11	2.828E+19
BOTTOM	90.0	3 736E+11	2 828E+19
RAM DIR	.0	9 914E+12	7.637E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88008. 763 1 TO 979.8 K

 DATA FOR: 88008
 8 JANUARY 1988

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

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

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

 DATA FOR: 88032
 1 FEBRUARY 1988

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 325E+07	1 048E+15
LONGERON	127.0	6 074E+01	1 535E+10
ROW 2	142.0	8 336E-05	1.155E+05
LONGERON	157.0	9 936E-10	4.821E+00
ROW 3	172.0	1 822E-12	1.404E-02
LONGERON	173.0	2.446E-12	1.230E-02
ROW 4	158.0	2 131E-09	3 155E+00
LONGERON	143.0	2 082E-04	5.896E+04
ROW 5	128.0	1 246E+02	8 021E+09
LONGERON	113.0	1 819E+07	6.820E+14
ROW 6	98.0	5 280E+10	2.786E+18
LONGERON	83.0	1 661E+12	1.055E+20
ROW 7	68.0	4 739E+12	3.073E+20
LONGERON	53.0	7 546E+12	4.916E+20
ROW 8	38.0	9.840E+12	6 424E+20
LONGERON	23.0	1 146E+13	7.494E+20
ROW 9	8.0	1 230E+13	8 053E+20
LONGERON	7.0	1.231E+13	8.064E+20
ROW 10	22.0	1 147E+13	7.525E+20
LONGERON	37.0	9 855E+12	6.473E+20
ROW 11	52.0	7 566E+12	4.980E+20
LONGERON	67.0	4 761E+12	3.148E+20
ROW 12	82.0	1 685E+12	1.129E+20
LONGERON	97.0	5 274E+10	3 492E+18
TOP	90.0	4 751E+11	3.013E+19
BOTTOM	90.0	4 751E+11	3 013E+19
RAM DIR	.0	1 241E+13	8.128E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88074 799 2 TO 1063 3 K

 DATA FOR: 88074
 14 MARCH 1988

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 88103
 12 APRIL 1988

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

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

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

FOR THE DATE 88136	4 368E+07	IMPACTS/(CM**2 SEC)
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TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

FOR THE DATE 88136	791 9 TO	1151 0 K
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 DATA FOR: 88136
 15 MAY 1988

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	4.368E+07	1.563E+15
LONGERON	127.0	5.791E+02	2.388E+10
ROW 2	142.0	3.101E-03	1.535E+05
LONGERON	157.0	1.106E-07	5.620E+00
ROW 3	172.0	3.319E-10	1.533E-02
LONGERON	173.0	3.677E-10	1.321E-02
ROW 4	158.0	1.494E-07	3.466E+00
LONGERON	143.0	5.016E-03	6.973E+04
ROW 5	128.0	1.038E+03	1.079E+10
LONGERON	113.0	6.457E+07	9.411E+14
ROW 6	98.0	1.087E+11	3.475E+18
LONGERON	83.0	2.885E+12	1.275E+20
ROW 7	68.0	8.131E+12	3.711E+20
LONGERON	53.0	1.292E+13	5.938E+20
ROW 8	38.0	1.684E+13	7.761E+20
LONGERON	23.0	1.960E+13	9.055E+20
ROW 9	8.0	2.103E+13	9.732E+20
LONGERON	7.0	2.103E+13	9.745E+20
ROW 10	22.0	1.959E+13	9.095E+20
LONGERON	37.0	1.682E+13	7.825E+20
ROW 11	52.0	1.290E+13	6.021E+20
LONGERON	67.0	8.103E+12	3.807E+20
ROW 12	82.0	2.862E+12	1.369E+20
LONGERON	97.0	1.015E+11	4.415E+18
TOP	90.0	8.474E+11	3.679E+19
BOTTOM	90.0	8.474E+11	3.679E+19
RAM DIR	.0	2.121E+13	9.823E+20

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88167: 862.9 TO 1129 8 K

 DATA FOR 88167
 15 JUNE 1988

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	5 390E+07	1.694E+15
LONGERON	127.0	6 531E+02	2 553E+10
ROW 2	142.0	2 802E-03	1.614E+05
LONGERON	157.0	8 160E-08	5 878E+00
ROW 3	172.0	2 160E-10	1.606E-02
LONGERON	173.0	2 342E-10	1.402E-02
ROW 4	158.0	1 013E-07	3.802E+00
LONGERON	143.0	3 686E-03	8.139E+04
ROW 5	128.0	7 901E+02	1 323E+10
LONGERON	113.0	5 091E+07	1.096E+15
ROW 6	98.0	9 368E+10	3 746E+18
LONGERON	83.0	2.660E+12	1 349E+20
ROW 7	68.0	7 676E+12	3 922E+20
LONGERON	53.0	1 228E+13	6.276E+20
ROW 8	38.0	1 605E+13	8 201E+20
LONGERON	23.0	1 872E+13	9.568E+20
ROW 9	8.0	2 012E+13	1.028E+21
LONGERON	7.0	2 015E+13	1.030E+21
ROW 10	22.0	1 880E+13	9.609E+20
LONGERON	37.0	1 617E+13	8.266E+20
ROW 11	52.0	1 244E+13	6.360E+20
LONGERON	67.0	7 865E+12	4.021E+20
ROW 12	82.0	2 845E+12	1.445E+20
LONGERON	97.0	1 112E+11	4 699E+18
TOP	90.0	8 133E+11	3 902E+19
BOTTOM	90.0	8 133E+11	3 902E+19
RAM DIR	.0	2 031E+13	1 038E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 88197
 15 JULY 1988

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2 365E+08	2 070E+15
LONGERON	127.0	9.802E+03	3.908E+10
ROW 2	142.0	9 936E-02	2.938E+05
LONGERON	157.0	3 740E-06	1 083E+01
ROW 3	172.0	6 660E-09	2 497E-02
LONGERON	173.0	2.865E-09	1.803E-02
ROW 4	158.0	3 898E-07	4 439E+00
LONGERON	143.0	5 176E-03	9 287E+04
ROW 5	128.0	6 393E+02	1 509E+10
LONGERON	113.0	4 268E+07	1.217E+15
ROW 6	98.0	1 034E+11	4 001E+18
LONGERON	83.0	3 225E+12	1 425E+20
ROW 7	68.0	9 615E+12	4.147E+20
LONGERON	53.0	1 554E+13	6 636E+20
ROW 8	38.0	2 041E+13	8 674E+20
LONGERON	23.0	2 389E+13	1 012E+21
ROW 9	8.0	2 574E+13	1 088E+21
LONGERON	7.0	2 584E+13	1 089E+21
ROW 10	22.0	2 417E+13	1 017E+21
LONGERON	37.0	2 086E+13	8 746E+20
ROW 11	52.0	1.613E+13	6.731E+20
LONGERON	67.0	1 029E+13	4 256E+20
ROW 12	82.0	3 863E+12	1 532E+20
LONGERON	97.0	1 939E+11	5.095E+18
TOP	90.0	1 070E+12	4.146E+19
BOTTOM	90.0	1 070E+12	4 146E+19
RAM DIR	0	2.601E+13	1 098E+21

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88226 874 0 TO 1260 4 K

 DATA FOR: 88226
 13 AUGUST 1988

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

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           472.70
PERIGEE (KM ABOVE EARTH)          452.70
INCLINATION OF ORBIT (DEGREES)    28.52
GMT (EPOCH) TIME (SECONDS)        51754
LOCAL SOLAR (EPOCH) TIME (HMS)    20 0 34
ASCENDING NODE LONGITUDE (DEGREES EAST) 84.50
ARGUMENT OF PERIGEE (DEGREES)    26.00

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6842700.00
SEMIMINOR AXIS (M)               6842692.69
ECCENTRICITY                       .001
PERIOD (SEC)                      5631.29
ENERGY (JOULE)                   -2.915E+07
ANGULAR MOMENTUM (JOULE-SEC)      5.224E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              88258
3 MONTH AVERAGE F10.7 CM FLUX    157.00
DAILY AVERAGE F10.7 CM FLUX     154.00
DAILY MAGNETIC INDEX AP           12.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
 FOR THE DATE 88258: 6.064E+07 ATOMS/CM**3

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88258: 911.7 TO 1227.2 K

 DATA FOR 88258
 14 SEPTEMBER 1988

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 88288 933 1 TO 1288 4 K

 DATA FOR 88288
 14 OCTOBER 1988

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	8 973E+08	4.482E+15
LONGERON	127.0	7 616E+04	1.782E+11
ROW 2	142.0	1 791E+00	3 085E+06
LONGERON	157.0	1 422E-04	2 259E+02
ROW 3	172.0	4.017E-07	6.792E-01
LONGERON	173.0	1 815E-07	4.006E-01
ROW 4	158.0	1 641E-05	6 396E+01
LONGERON	143.0	9.772E-02	7 830E+05
ROW 5	128.0	4.728E+03	6 400E+10
LONGERON	113.0	1.619E+08	2.567E+15
ROW 6	98.0	2 765E+11	5 640E+18
LONGERON	83.0	7.692E+12	1.843E+20
ROW 7	68.0	2 271E+13	5 351E+20
LONGERON	53.0	3.667E+13	8.566E+20
ROW 8	38.0	4.813E+13	1.120E+21
LONGERON	23.0	5.632E+13	1 307E+21
ROW 9	8.0	6 066E+13	1.404E+21
LONGERON	7.0	6 087E+13	1 407E+21
ROW 10	22.0	5 694E+13	1 313E+21
LONGERON	37.0	4 912E+13	1.130E+21
ROW 11	52.0	3 796E+13	8.694E+20
LONGERON	67.0	2 420E+13	5.499E+20
ROW 12	82.0	9 081E+12	1 986E+20
LONGERON	97.0	4 958E+11	7 216E+18
TOP	90.0	2 600E+12	5 481E+19
BOTTOM	90.0	2 600E+12	5.481E+19
RAM DIR	0	6.130E+13	1.418E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          467.10
PERIGEE (KM ABOVE EARTH)         447.10
INCLINATION OF ORBIT (DEGREES)   28.51
GMT (EPOCH) TIME (SECONDS)       19526
LOCAL SOLAR (EPOCH) TIME (HMS)   12 7 50
ASCENDING NODE LONGITUDE (DEGREES EAST) 100.60
ARGUMENT OF PERIGEE (DEGREES)   17.00

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6837100.00
SEMIMINOR AXIS (M)              6837092.69
ECCENTRICITY                      001
PERIOD (SEC)                     5624.37
ENERGY (Joule)                   -2.917E+07
ANGULAR MOMENTUM (Joule-SEC)     5.222E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)             88319
3 MONTH AVERAGE F10.7 CM FLUX   159.00
DAILY AVERAGE F10.7 CM FLUX    153.00
DAILY MAGNETIC INDEX AP         12.00

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 88319 948.9 TO 1246.6 K

 DATA FOR: 88319
 14 NOVEMBER 1988

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 88350
 15 DECEMBER 1988

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89001
 1 JANUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR. 89008
 8 JANUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          459.70
PERIGEE (KM ABOVE EARTH)         439.70
INCLINATION OF ORBIT (DEGREES)   28.52
GMT (EPOCH) TIME (SECONDS)       61603
LOCAL SOLAR (EPOCH) TIME (HMS)   3  9  31
ASCENDING NODE LONGITUDE (DEGREES EAST) 150.70
ARGUMENT OF PERIGEE (DEGREES)   23.80

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89015
 15 JANUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89022
 22 JANUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
FOR THE DATE 89030 1.222E+08 ATOMS/CM**3

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 89030 970.3 TO 1458.6 K

 DATA FOR 89030
 30 JANUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89037
 6 FEBRUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 89044. 1097.4 TO 1472 6 K

 DATA FOR: 89044
 13 FEBRUARY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.637E+09	1.442E+16
LONGERON	127.0	1.744E+05	1.564E+12
ROW 2	142.0	1.039E+01	1.016E+08
LONGERON	157.0	3.350E-03	2.793E+04
ROW 3	172.0	3.936E-05	2.114E+02
LONGERON	173.0	5.035E-05	1.534E+02
ROW 4	158.0	6.544E-03	1.276E+04
LONGERON	143.0	2.537E+01	4.261E+07
ROW 5	128.0	3.793E+05	7.934E+11
LONGERON	113.0	2.245E+09	9.385E+15
ROW 6	98.0	9.116E+11	1.027E+19
LONGERON	83.0	1.631E+13	2.852E+20
ROW 7	68.0	4.551E+13	8.230E+20
LONGERON	53.0	7.254E+13	1.318E+21
ROW 8	38.0	9.462E+13	1.722E+21
LONGERON	23.0	1.103E+14	2.010E+21
ROW 9	8.0	1.184E+14	2.160E+21
LONGERON	7.0	1.184E+14	2.164E+21
ROW 10	22.0	1.104E+14	2.019E+21
LONGERON	37.0	9.487E+13	1.738E+21
ROW 11	52.0	7.286E+13	1.337E+21
LONGERON	67.0	4.589E+13	8.460E+20
ROW 12	82.0	1.670E+13	3.072E+20
LONGERON	97.0	9.233E+11	1.290E+19
TOP	90.0	5.442E+12	8.809E+19
BOTTOM	90.0	5.442E+12	8.809E+19
RAM DIR	0	1.194E+14	2.181E+21

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 89051 1071.6 TO 1438.9 K

 DATA FOR: 89051
 20 FEBRUARY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89058: 1 547E+08 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89058: 2.730E+09 IMPACTS/(CM**2 SEC)

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89058: 981.2 TO 1424.6 K

```

 DATA FOR: 89058
 27 FEBRUARY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2.730E+09	1.699E+16
LONGERON	127.0	4.849E+05	1.943E+12
ROW 2	142.0	2.791E+01	1.235E+08
LONGERON	157.0	4.986E-03	3.272E+04
ROW 3	172.0	2.338E-05	2.458E+02
LONGERON	173.0	1.125E-05	1.836E+02
ROW 4	158.0	6.814E-04	1.599E+04
LONGERON	143.0	1.900E+00	5.465E+07
ROW 5	128.0	3.649E+04	9.923E+11
LONGERON	113.0	5.406E+08	1.095E+16
ROW 6	98.0	5.770E+11	1.119E+19
LONGERON	83.0	1.412E+13	3.039E+20
ROW 7	68.0	4.134E+13	8.763E+20
LONGERON	53.0	6.674E+13	1.403E+21
ROW 8	38.0	8.759E+13	1.834E+21
LONGERON	23.0	1.025E+14	2.140E+21
ROW 9	8.0	1.104E+14	2.300E+21
LONGERON	7.0	1.108E+14	2.304E+21
ROW 10	22.0	1.036E+14	2.150E+21
LONGERON	37.0	8.935E+13	1.850E+21
ROW 11	52.0	6.904E+13	1.424E+21
LONGERON	67.0	4.401E+13	9.009E+20
ROW 12	82.0	1.657E+13	3.275E+20
LONGERON	97.0	1.002E+12	1.405E+19
TOP	90.0	4.908E+12	9.441E+19
BOTTOM	90.0	4.908E+12	9.441E+19
RAM DIR	.0	1.115E+14	2.322E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          448.20
PERIGEE (KM ABOVE EARTH)         433.40
INCLINATION OF ORBIT (DEGREES)   28.53
GMT (EPOCH) TIME (SECONDS)       52099
LOCAL SOLAR (EPOCH) TIME (HMS)   23 42 19
ASCENDING NODE LONGITUDE (DEGREES EAST) 138.50
ARGUMENT OF PERIGEE (DEGREES)   31.70

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89067: 1.582E+08 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89067: 2 067E+09 IMPACTS/(CM**2 SEC)

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89067 980 7 TO 1408 5 K

```

 DATA FOR: 89067
 8 MARCH 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	2.067E+09	1.886E+16
LONGERON	127.0	2.490E+05	2.228E+12
ROW 2	142.0	1.038E+01	1.384E+08
LONGERON	157.0	1.661E-03	3.530E+04
ROW 3	172.0	8.876E-06	2.584E+02
LONGERON	173.0	5.807E-06	1.902E+02
ROW 4	158.0	5.096E-04	1.645E+04
LONGERON	143.0	1.935E+00	5.614E+07
ROW 5	128.0	4.285E+04	1.023E+12
LONGERON	113.0	5.967E+08	1.140E+16
ROW 6	98.0	5.860E+11	1.164E+19
LONGERON	83.0	1.441E+13	3.150E+20
ROW 7	68.0	4.230E+13	9.088E+20
LONGERON	53.0	6.828E+13	1.455E+21
ROW 8	38.0	8.961E+13	1.903E+21
LONGERON	23.0	1.048E+14	2.221E+21
ROW 9	8.0	1.129E+14	2.387E+21
LONGERON	7.0	1.133E+14	2.391E+21
ROW 10	22.0	1.060E+14	2.232E+21
LONGERON	37.0	9.139E+13	1.921E+21
ROW 11	52.0	7.061E+13	1.478E+21
LONGERON	67.0	4.501E+13	9.355E+20
ROW 12	82.0	1.693E+13	3.405E+20
LONGERON	97.0	9.774E+11	1.482E+19
TOP	90.0	4.969E+12	9.825E+19
BOTTOM	90.0	4.969E+12	9.825E+19
RAM DIR	.0	1.141E+14	2.410E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89074: 2 260E+08 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89074: 3.210E+09 IMPACTS/(CM**2 SEC)

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89074. 1076.9 TO 1530 5 K

```

 DATA FOR: 89074
 15 MARCH 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3 210E+09	2.045E+16
LONGERON	127.0	5 377E+05	2.466E+12
ROW 2	142.0	4.485E+01	1.551E+08
LONGERON	157.0	1.687E-02	4.090E+04
ROW 3	172.0	1 939E-04	3.197E+02
LONGERON	173.0	2 020E-04	2.531E+02
ROW 4	158.0	1.839E-02	2.217E+04
LONGERON	143.0	4 658E+01	7.081E+07
ROW 5	128.0	4 824E+05	1.182E+12
LONGERON	113.0	2.475E+09	1.233E+16
ROW 6	98.0	1.100E+12	1.215E+19
LONGERON	83.0	2.141E+13	3.258E+20
ROW 7	68.0	6.119E+13	9.401E+20
LONGERON	53.0	9 821E+13	1.506E+21
ROW 8	38.0	1 285E+14	1.969E+21
LONGERON	23.0	1 501E+14	2.298E+21
ROW 9	8.0	1 614E+14	2.470E+21
LONGERON	7.0	1 618E+14	2.474E+21
ROW 10	22.0	1 511E+14	2.310E+21
LONGERON	37.0	1 301E+14	1 988E+21
ROW 11	52.0	1 002E+14	1.530E+21
LONGERON	67.0	6 357E+13	9.683E+20
ROW 12	82.0	2 365E+13	3.528E+20
LONGERON	97.0	1 407E+12	1.554E+19
TOP	90.0	7 402E+12	1.020E+20
BOTTOM	90.0	7 402E+12	1.020E+20
RAM DIR	.0	1 630E+14	2.493E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89081
 22 MARCH 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3.249E+09	2.240E+16
LONGERON	127.0	4.883E+05	2.776E+12
ROW 2	142.0	4.735E+01	1.829E+08
LONGERON	157.0	2.452E-02	5.342E+04
ROW 3	172.0	4.048E-04	5.008E+02
LONGERON	173.0	5.756E-04	4.882E+02
ROW 4	158.0	6.300E-02	4.678E+04
LONGERON	143.0	1.609E+02	1.336E+08
ROW 5	128.0	1.384E+06	1.746E+12
LONGERON	113.0	4.907E+09	1.456E+16
ROW 6	98.0	1.509E+12	1.294E+19
LONGERON	83.0	2.574E+13	3.401E+20
ROW 7	68.0	7.211E+13	9.804E+20
LONGERON	53.0	1.151E+14	1.570E+21
ROW 8	38.0	1.503E+14	2.053E+21
LONGERON	23.0	1.752E+14	2.396E+21
ROW 9	8.0	1.882E+14	2.576E+21
LONGERON	7.0	1.884E+14	2.580E+21
ROW 10	22.0	1.757E+14	2.408E+21
LONGERON	37.0	1.511E+14	2.073E+21
ROW 11	52.0	1.161E+14	1.595E+21
LONGERON	67.0	7.327E+13	1.010E+21
ROW 12	82.0	2.693E+13	3.681E+20
LONGERON	97.0	1.576E+12	1.645E+19
TOP	90.0	8.803E+12	1.069E+20
BOTTOM	90.0	8.803E+12	1.069E+20
RAM DIR	.0	1.899E+14	2.600E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89087
 28 MARCH 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.688E+09	2.368E+16
LONGERON	127.0	1.703E+05	2.947E+12
ROW 2	142.0	1.021E+01	1.979E+08
LONGERON	157.0	3.214E-03	6.060E+04
ROW 3	172.0	3.664E-05	6.152E+02
LONGERON	173.0	4.632E-05	6.494E+02
ROW 4	158.0	6.145E-03	6.470E+04
LONGERON	143.0	2.515E+01	1.818E+08
ROW 5	128.0	4.046E+05	2.210E+12
LONGERON	113.0	2.576E+09	1.650E+16
ROW 6	98.0	1.120E+12	1.362E+19
LONGERON	83.0	2.075E+13	3.521E+20
ROW 7	68.0	5.793E+13	1.014E+21
LONGERON	53.0	9.226E+13	1.624E+21
ROW 8	38.0	1.203E+14	2.123E+21
LONGERON	23.0	1.401E+14	2.478E+21
ROW 9	8.0	1.504E+14	2.664E+21
LONGERON	7.0	1.505E+14	2.668E+21
ROW 10	22.0	1.403E+14	2.490E+21
LONGERON	37.0	1.205E+14	2.143E+21
ROW 11	52.0	9.251E+13	1.650E+21
LONGERON	67.0	5.823E+13	1.044E+21
ROW 12	82.0	2.109E+13	3.805E+20
LONGERON	97.0	1.100E+12	1.714E+19
TOP	90.0	6.805E+12	1.109E+20
BOTTOM	90.0	6.805E+12	1.109E+20
RAM DIR	.0	1.518E+14	2.689E+21

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

INPUT ORBITAL PARAMETERS

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

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

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

SOLAR AND GEOMAGNETIC DATA

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

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

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

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

 DATA FOR: 89094
 4 APRIL 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 959E+09	2 479E+16
LONGERON	127.0	2.476E+05	3.073E+12
ROW 2	142.0	1 337E+01	2.050E+08
LONGERON	157.0	2.896E-03	6.245E+04
ROW 3	172.0	2.001E-05	6.323E+02
LONGERON	173.0	1.561E-05	6.682E+02
ROW 4	158.0	1 505E-03	6.702E+04
LONGERON	143.0	5.897E+00	1.912E+08
ROW 5	128.0	1.242E+05	2.370E+12
LONGERON	113.0	1 295E+09	1.767E+16
ROW 6	98.0	8.807E+11	1 423E+19
LONGERON	83.0	1 877E+13	3.641E+20
ROW 7	68.0	5.332E+13	1.048E+21
LONGERON	53.0	8 529E+13	1.678E+21
ROW 8	38.0	1.114E+14	2.193E+21
LONGERON	23.0	1.300E+14	2.560E+21
ROW 9	8.0	1.397E+14	2.751E+21
LONGERON	7.0	1 399E+14	2.756E+21
ROW 10	22.0	1 305E+14	2.572E+21
LONGERON	37.0	1.123E+14	2.213E+21
ROW 11	52.0	8 640E+13	1.704E+21
LONGERON	67.0	5.461E+13	1.078E+21
ROW 12	82.0	1 998E+13	3.929E+20
LONGERON	97.0	1.061E+12	1.779E+19
TOP	90.0	6 192E+12	1 149E+20
BOTTOM	90.0	6.192E+12	1.149E+20
RAM DIR	.0	1 410E+14	2.777E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89100
 10 APRIL 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
FOR THE DATE 89109 1035 2 TO 1419.1 K

 DATA FOR: 89109
 19 APRIL 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3.323E+09	2.890E+16
LONGERON	127.0	5.252E+05	3.784E+12
ROW 2	142.0	2.678E+01	2.494E+08
LONGERON	157.0	4.436E-03	7.185E+04
ROW 3	172.0	2.053E-05	6.861E+02
LONGERON	173 0	1.032E-05	6.991E+02
ROW 4	158 0	6.791E-04	6.915E+04
LONGERON	143 0	2.100E+00	1.975E+08
ROW 5	128 0	4.630E+04	2.487E+12
LONGERON	113.0	7.602E+08	1.902E+16
ROW 6	98 0	7.580E+11	1.532E+19
LONGERON	83 0	1.792E+13	3.887E+20
ROW 7	68.0	5.236E+13	1.119E+21
LONGERON	53 0	8.450E+13	1.792E+21
ROW 8	38 0	1.109E+14	2.343E+21
LONGERON	23.0	1.297E+14	2.735E+21
ROW 9	8.0	1.397E+14	2.940E+21
LONGERON	7 0	1.402E+14	2.944E+21
ROW 10	22.0	1.311E+14	2.748E+21
LONGERON	37.0	1.131E+14	2.365E+21
ROW 11	52.0	8.736E+13	1.821E+21
LONGERON	67.0	5.568E+13	1.152E+21
ROW 12	82.0	2.097E+13	4.207E+20
LONGERON	97.0	1.277E+12	1.942E+19
TOP	90.0	6.251E+12	1.233E+20
BOTTOM	90 0	6.251E+12	1.233E+20
RAM DIR	.0	1.412E+14	2.967E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 89116: 1049 7 TO 1371 0 K

 DATA FOR: 89116
 26 APRIL 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1.895E+09	3.047E+16
LONGERON	127.0	1.810E+05	3.998E+12
ROW 2	142.0	6.227E+00	2.594E+08
LONGERON	157.0	8.892E-04	7.346E+04
ROW 3	172.0	4.739E-06	6.937E+02
LONGERON	173.0	3.526E-06	7.033E+02
ROW 4	158.0	3.931E-04	6.947E+04
LONGERON	143.0	1.996E+00	1.988E+08
ROW 5	128.0	5.700E+04	2.518E+12
LONGERON	113.0	8.343E+08	1.951E+16
ROW 6	98.0	7.093E+11	1.577E+19
LONGERON	83.0	1.627E+13	3.990E+20
ROW 7	68.0	4.718E+13	1.149E+21
LONGERON	53.0	7.590E+13	1.840E+21
ROW 8	38.0	9.946E+13	2.407E+21
LONGERON	23.0	1.162E+14	2.809E+21
ROW 9	8.0	1.251E+14	3.020E+21
LONGERON	7.0	1.254E+14	3.025E+21
ROW 10	22.0	1.172E+14	2.824E+21
LONGERON	37.0	1.010E+14	2.430E+21
ROW 11	52.0	7.791E+13	1.871E+21
LONGERON	67.0	4.951E+13	1.184E+21
ROW 12	82.0	1.845E+13	4.326E+20
LONGERON	97.0	1.035E+12	2.012E+19
TOP	90.0	5.535E+12	1.269E+20
BOTTOM	90.0	5.535E+12	1.269E+20
RAM DIR	.0	1.263E+14	3.048E+21

```

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

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INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89123 1 855E+08 ATOMS/CM**3

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89123 1 166E+09 IMPACTS/(CM**2 SEC)

```

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT

```

FOR THE DATE 89123 1003 3 TO 1404 7 K

```

 DATA FOR. 89123
 3 MAY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89130
 10 MAY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 89134
 14 MAY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89140
 20 MAY 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 89147
 27 MAY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 779E+09	3 487E+16
LONGERON	127 0	4 570E+05	4 512E+12
ROW 2	142 0	2 510E+01	2 875E+08
LONGERON	157 0	4 469E-03	8 014E+04
ROW 3	172 0	2 181E-05	7 503E+02
LONGERON	173 0	1 143E-05	7 619E+02
ROW 4	158 0	7 961E-04	7 663E+04
LONGERON	143 0	2 668E+00	2 282E+08
ROW 5	128 0	5 844E+04	3 039E+12
LONGERON	113 0	7 919E+08	2 354E+16
ROW 6	98 0	7 133E+11	1 801E+19
LONGERON	83 0	1 644E+13	4 450E+20
ROW 7	68 0	4 756E+13	1 279E+21
LONGERON	53 0	7 654E+13	2 049E+21
ROW 8	38 0	1 003E+14	2 679E+21
LONGERON	23 0	1 172E+14	3 127E+21
ROW 9	8 0	1 262E+14	3 362E+21
LONGERON	7 0	1 265E+14	3 367E+21
ROW 10	22 0	1 182E+14	3 143E+21
LONGERON	37 0	1 019E+14	2 705E+21
ROW 11	52 0	7 859E+13	2 082E+21
LONGERON	67 0	4 996E+13	1 318E+21
ROW 12	82 0	1 863E+13	4 815E+20
LONGERON	97 0	1 096E+12	2 271E+19
TOP	90 0	5 628E+12	1 421E+20
BOTTOM	90 0	5 628E+12	1 421E+20
RAM DIR	0	1 274E+14	3 393E+21

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR 89155
 4 JUNE 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

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

 DATA FOR: 89162
 11 JUNE 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

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

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 89170 1072.3 TO 1543 8 K

 DATA FOR. 89170
 19 JUNE 1989

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

```

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

```

INPUT ORBITAL PARAMETERS

```

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

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

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

```

SOLAR AND GEOMAGNETIC DATA

```

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

```

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

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT
 FOR THE DATE 89178 1.777E+09 IMPACTS/(CM**2 SEC)

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

 DATA FOR: 89178
 27 JUNE 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 777E+09	4 130E+16
LONGERON	127 0	2 602E+05	5 419E+12
ROW 2	142 0	2 272E+01	3.459E+08
LONGERON	157 0	9.242E-03	9 900E+04
ROW 3	172 0	1 143E-04	9 820E+02
LONGERON	173 0	1 290E-04	1 053E+03
ROW 4	158 0	1 311E-02	1 085E+05
LONGERON	143.0	3.871E+01	3 176E+08
ROW 5	128.0	4 680E+05	3.978E+12
LONGERON	113 0	2 459E+09	2 835E+16
ROW 6	98 0	9 904E+11	2.032E+19
LONGERON	83 0	1.819E+13	4 917E+20
ROW 7	68 0	5 078E+13	1 413E+21
LONGERON	53 0	8 089E+13	2 264E+21
ROW 8	38 0	1 055E+14	2.960E+21
LONGERON	23 0	1 229E+14	3.455E+21
ROW 9	8 0	1 319E+14	3 714E+21
LONGERON	7 0	1 320E+14	3 720E+21
ROW 10	22 0	1 230E+14	3 473E+21
LONGERON	37 0	1 057E+14	2 989E+21
ROW 11	52 0	8 116E+13	2 301E+21
LONGERON	67 0	5 109E+13	1 456E+21
ROW 12	82 0	1 853E+13	5 329E+20
LONGERON	97 0	9 863E+11	2 570E+19
TOP	90 0	5 993E+12	1 581E+20
BOTTOM	90 0	5 993E+12	1 581E+20
RAM DIR	.0	1 331E+14	3 749E+21

```

*****
*MONTH   7   DAY   4   YEAR   89   *
*DAY OF YEAR. 185 *
*CUMULATIVE EXPOSURE TIME 1913 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           426 90
PERIGEE (KM ABOVE EARTH)          406 50
INCLINATION OF ORBIT (DEGREES)     28 53
GMT (EPOCH) TIME (SECONDS)         59962
LOCAL SOLAR (EPOCH) TIME (HMS)     8 42 57
ASCENDING NODE LONGITUDE (DEGREES EAST) 240 90
ARGUMENT OF PERIGEE (DEGREES)     28 60

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6796700 00
SEMIMINOR AXIS (M)                 6796692 35
ECCENTRICITY                        002
PERIOD (SEC)                        5574 60
ENERGY (JOULE)                      -2 934E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 207E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)                89185
3 MONTH AVERAGE F10 7 CM FLUX       211 00
DAILY AVERAGE F10 7 CM FLUX        212 00
DAILY MAGNETIC INDEX AP              10 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 240 POINTS ON ORBIT
 FOR THE DATE 89185 1.729E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 240 POINTS ON ORBIT
 FOR THE DATE 89185 2.143E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 240 POINTS ON ORBIT
 FOR THE DATE 89185 965 1 TO 1502 6 K

 DATA FOR: 89185
 4 JULY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 143E+09	4.249E+16
LONGERON	127 0	3.639E+05	5 608E+12
ROW 2	142 0	2 673E+01	3.608E+08
LONGERON	157 0	7.279E-03	1 040E+05
ROW 3	172 0	5.452E-05	1 033E+03
LONGERON	173.0	3 868E-05	1 104E+03
ROW 4	158 0	2 929E-03	1 133E+05
LONGERON	143 0	8.509E+00	3 319E+08
ROW 5	128 0	1.390E+05	4 161E+12
LONGERON	113.0	1.224E+09	2.946E+16
ROW 6	98 0	7 837E+11	2 086E+19
LONGERON	83 0	1.659E+13	5 023E+20
ROW 7	68.0	4 718E+13	1 443E+21
LONGERON	53 0	7 553E+13	2 311E+21
ROW 8	38.0	9.873E+13	3.022E+21
LONGERON	23 0	1 152E+14	3 527E+21
ROW 9	8.0	1.238E+14	3 791E+21
LONGERON	7.0	1 240E+14	3 797E+21
ROW 10	22.0	1.158E+14	3 545E+21
LONGERON	37 0	9 960E+13	3 051E+21
ROW 11	52.0	7.665E+13	2 349E+21
LONGERON	67 0	4 849E+13	1 486E+21
ROW 12	82 0	1.780E+13	5 439E+20
LONGERON	97 0	9 795E+11	2 629E+19
TOP	90 0	5 528E+12	1 616E+20
BOTTOM	90 0	5 528E+12	1 616E+20
RAM DIR	.0	1.250E+14	3 827E+21

```

*****
*MONTH   7   DAY   11   YEAR   89   *
*DAY OF YEAR: 192 *
*CUMULATIVE EXPOSURE TIME 1920 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           424 60
PERIGEE (KM ABOVE EARTH)          406 50
INCLINATION OF ORBIT (DEGREES)     28.53
GMT (EPOCH) TIME (SECONDS)         38275
LOCAL SOLAR (EPOCH) TIME (HMS)     5  4 43
ASCENDING NODE LONGITUDE (DEGREES EAST) 276 70
ARGUMENT OF PERIGEE (DEGREES)     29 60

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6795550 00
SEMIMINOR AXIS (M)                 6795543 97
ECCENTRICITY                        .001
PERIOD (SEC)                        5573 18
ENERGY (JOULE)                      -2 935E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 206E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)                89192
3 MONTH AVERAGE F10 7 CM FLUX      211 00
DAILY AVERAGE F10 7 CM FLUX        189 00
DAILY MAGNETIC INDEX AP              8 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89192 1.576E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89192 2 159E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89192 941 9 TO 1407 1 K

 DATA FOR: 89192
 11 JULY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2 159E+09	4.379E+16
LONGERON	127 0	2.881E+05	5 805E+12
ROW 2	142 0	1.246E+01	3.727E+08
LONGERON	157 0	1 789E-03	1.067E+05
ROW 3	172 0	7.542E-06	1.052E+03
LONGERON	173 0	3.751E-06	1.117E+03
ROW 4	158 0	2.753E-04	1 143E+05
LONGERON	143 0	1 090E+00	3.348E+08
ROW 5	128.0	3 092E+04	4 213E+12
LONGERON	113 0	5.376E+08	3 000E+16
ROW 6	98 0	5.850E+11	2 127E+19
LONGERON	83 0	1 451E+13	5.117E+20
ROW 7	68.0	4 237E+13	1 470E+21
LONGERON	53 0	6.829E+13	2 354E+21
ROW 8	38 0	8 957E+13	3 079E+21
LONGERON	23 0	1.047E+14	3.593E+21
ROW 9	8 0	1.128E+14	3.863E+21
LONGERON	7 0	1 131E+14	3 869E+21
ROW 10	22 0	1.058E+14	3 612E+21
LONGERON	37 0	9 119E+13	3.108E+21
ROW 11	52 0	7 041E+13	2 393E+21
LONGERON	67.0	4.483E+13	1.515E+21
ROW 12	82.0	1.677E+13	5 544E+20
LONGERON	97 0	9 605E+11	2.688E+19
TOP	90.0	4.954E+12	1.647E+20
BOTTOM	90.0	4 954E+12	1.647E+20
RAM DIR	.0	1 139E+14	3.899E+21

```

*****
*MONTH 7 DAY 18 YEAR 89 *
*DAY OF YEAR 199 *
*CUMULATIVE EXPOSURE TIME 1927 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 422 90
PERIGEE (KM ABOVE EARTH) 405 50
INCLINATION OF ORBIT (DEGREES) 28 52
GMT (EPOCH) TIME (SECONDS) 55382
LOCAL SOLAR (EPOCH) TIME (HMS) 1 13 26
ASCENDING NODE LONGITUDE (DEGREES EAST) 147 60
ARGUMENT OF PERIGEE (DEGREES) 23 30

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6794200 00
SEMIMINOR AXIS (M) 6794194 43
ECCENTRICITY 001
PERIOD (SEC) 5571 52
ENERGY (JOULE) -2 935E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 206E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89199
3 MONTH AVERAGE F10 7 CM FLUX 210 00
DAILY AVERAGE F10 7 CM FLUX 187 00
DAILY MAGNETIC INDEX AP 6 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89199 1 471E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89199 1 802E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89199 961 6 TO 1348 1 K

 DATA FOR: 89199
 18 JULY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 802E+09	4 499E+16
LONGERON	127 0	1 787E+05	5.946E+12
ROW 2	142 0	5 238E+00	3 780E+08
LONGERON	157.0	5 295E-04	1 074E+05
ROW 3	172.0	1.795E-06	1 055E+03
LONGERON	173 0	8 572E-07	1 118E+03
ROW 4	158 0	7 070E-05	1 144E+05
LONGERON	143 0	3 436E-01	3 352E+08
ROW 5	128 0	1 315E+04	4 226E+12
LONGERON	113 0	3 586E+08	3 027E+16
ROW 6	98 0	5 067E+11	2 160E+19
LONGERON	83 0	1 335E+13	5 201E+20
ROW 7	68 0	3 936E+13	1 494E+21
LONGERON	53 0	6 358E+13	2 394E+21
ROW 8	38 0	8 347E+13	3 131E+21
LONGERON	23.0	9 767E+13	3.654E+21
ROW 9	8 0	1 052E+14	3.929E+21
LONGERON	7.0	1.056E+14	3 935E+21
ROW 10	22 0	9 877E+13	3.674E+21
LONGERON	37.0	8 522E+13	3.162E+21
ROW 11	52 0	6 586E+13	2.434E+21
LONGERON	67.0	4 201E+13	1 541E+21
ROW 12	82.0	1.581E+13	5 642E+20
LONGERON	97.0	8 994E+11	2 744E+19
TOP	90 0	4 579E+12	1 676E+20
BOTTOM	90 0	4 579E+12	1 676E+20
RAM DIR	0	1.063E+14	3 966E+21

```

*****
*MONTH: 7 DAY 24 YEAR 89 *
*DAY OF YEAR. 205 *
*CUMULATIVE EXPOSURE TIME 1933 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           422 30
PERIGEE (KM ABOVE EARTH)          404 20
INCLINATION OF ORBIT (DEGREES)    28.52
GMT (EPOCH) TIME (SECONDS)        14429
LOCAL SOLAR (EPOCH) TIME (HMS)    22 16 5
ASCENDING NODE LONGITUDE (DEGREES EAST) 273.90
ARGUMENT OF PERIGEE (DEGREES)     20 70

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6793250 00
SEMIMINOR AXIS (M)                 6793243 97
ECCENTRICITY                        .001
PERIOD (SEC)                        5570 35
ENERGY (JOULE)                      -2.936E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 205E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)               89205
3 MONTH AVERAGE F10 7 CM FLUX      210 00
DAILY AVERAGE F10 7 CM FLUX        194.00
DAILY MAGNETIC INDEX AP              7 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89205: 1.546E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89205. 1.481E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89205 1001 0 TO 1339 4 K

 DATA FOR: 89205
 24 JULY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 481E+09	4 584E+16
LONGERON	127.0	1 173E+05	6 023E+12
ROW 2	142 0	3 094E+00	3 802E+08
LONGERON	157 0	3 316E-04	1 077E+05
ROW 3	172.0	1 388E-06	1.055E+03
LONGERON	173 0	9.076E-07	1 119E+03
ROW 4	158 0	1 040E-04	1 144E+05
LONGERON	143 0	6.397E-01	3 355E+08
ROW 5	128 0	2 514E+04	4 236E+12
LONGERON	113 0	5 297E+08	3 050E+16
ROW 6	98 0	5 796E+11	2 189E+19
LONGERON	83 0	1 428E+13	5 273E+20
ROW 7	68.0	4 166E+13	1 515E+21
LONGERON	53.0	6 708E+13	2 428E+21
ROW 8	38 0	8.793E+13	3 175E+21
LONGERON	23 0	1 028E+14	3 706E+21
ROW 9	8 0	1 106E+14	3.985E+21
LONGERON	7 0	1 110E+14	3 991E+21
ROW 10	22 0	1 037E+14	3.726E+21
LONGERON	37 0	8 939E+13	3 207E+21
ROW 11	52 0	6 898E+13	2 469E+21
LONGERON	67 0	4 388E+13	1 563E+21
ROW 12	82 0	1 636E+13	5.726E+20
LONGERON	97 0	8 897E+11	2 791E+19
TOP	90 0	4 819E+12	1 700E+20
BOTTOM	90 0	4 819E+12	1 700E+20
RAM DIR	0	1 118E+14	4 022E+21

```

*****
*MONTH 7 DAY. 30 YEAR 89 *
*DAY OF YEAR. 211 *
*CUMULATIVE EXPOSURE TIME 1939 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 421 90
PERIGEE (KM ABOVE EARTH) 402 80
INCLINATION OF ORBIT (DEGREES) 28 52
GMT (EPOCH) TIME (SECONDS) 28771
LOCAL SOLAR (EPOCH) TIME (HMS) 18 56 19
ASCENDING NODE LONGITUDE (DEGREES EAST) 164 20
ARGUMENT OF PERIGEE (DEGREES) 24 90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6792350 00
SEMIMINOR AXIS (M) 6792343.29
ECCENTRICITY 001
PERIOD (SEC) 5569.25
ENERGY (JOULE) -2 936E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 205E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89211
3 MONTH AVERAGE F10 7 CM FLUX 210 00
DAILY AVERAGE F10 7 CM FLUX 178 00
DAILY MAGNETIC INDEX AP 8 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89211 1 486E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89211 6 462E+08 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89211 936 4 TO 1311 4 K

 DATA FOR: 89211
 30 JULY 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6 462E+08	4 639E+16
LONGERON	127.0	2 773E+04	6 060E+12
ROW 2	142.0	5 726E-01	3.812E+08
LONGERON	157.0	6 901E-05	1 078E+05
ROW 3	172.0	4.451E-07	1 056E+03
LONGERON	173.0	5 436E-07	1 119E+03
ROW 4	158.0	1 180E-04	1.145E+05
LONGERON	143.0	1 149E+00	3 360E+08
ROW 5	128.0	5 031E+04	4 255E+12
LONGERON	113.0	7 850E+08	3 084E+16
ROW 6	98.0	6 226E+11	2 220E+19
LONGERON	83.0	1 424E+13	5.346E+20
ROW 7	68.0	4 067E+13	1 537E+21
LONGERON	53.0	6 503E+13	2 462E+21
ROW 8	38.0	8 495E+13	3.220E+21
LONGERON	23.0	9 909E+13	3 759E+21
ROW 9	8.0	1 065E+14	4.041E+21
LONGERON	7.0	1 066E+14	4 048E+21
ROW 10	22.0	9 947E+13	3.779E+21
LONGERON	37.0	8 555E+13	3 252E+21
ROW 11	52.0	6 581E+13	2 504E+21
LONGERON	67.0	4.158E+13	1 585E+21
ROW 12	82.0	1.514E+13	5.807E+20
LONGERON	97.0	6.989E+11	2.832E+19
TOP	90.0	4.563E+12	1.725E+20
BOTTOM	90.0	4 563E+12	1 725E+20
RAM DIR	.0	1 075E+14	4 079E+21

```

*****
*MONTH:  8  DAY   7  YEAR  89  *
*DAY OF YEAR  219  *
*CUMULATIVE EXPOSURE TIME 1947 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           419 90
PERIGEE (KM ABOVE EARTH)          402 30
INCLINATION OF ORBIT (DEGREES)    28 52
GMT (EPOCH) TIME (SECONDS)        14515
LOCAL SOLAR (EPOCH) TIME (HMS)    14 43 30
ASCENDING NODE LONGITUDE (DEGREES EAST) 160.40
ARGUMENT OF PERIGEE (DEGREES)    26 90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6791100 00
SEMIMINOR AXIS (M)                6791094 30
ECCENTRICITY                       001
PERIOD (SEC)                       5567 71
ENERGY (JOULE)                     -2.937E+07
ANGULAR MOMENTUM (JOULE-SEC)       5 205E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89219
3 MONTH AVERAGE F10 7 CM FLUX    212.00
DAILY AVERAGE F10 7 CM FLUX     224.00
DAILY MAGNETIC INDEX AP           6.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89219: 2 006E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89219: 1.337E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89219 980 9 TO 1467 4 K

 DATA FOR 89219
 7 AUGUST 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 337E+09	4 707E+16
LONGERON	127 0	1 222E+05	6.112E+12
ROW 2	142.0	7 243E+00	3 839E+08
LONGERON	157 0	2.400E-03	1.086E+05
ROW 3	172 0	3.040E-05	1 067E+03
LONGERON	173 0	4.353E-05	1.134E+03
ROW 4	158 0	6 399E-03	1 167E+05
LONGERON	143 0	2 739E+01	3.458E+08
ROW 5	128 0	4 297E+05	4.421E+12
LONGERON	113 0	2 548E+09	3 199E+16
ROW 6	98 0	1.060E+12	2 278E+19
LONGERON	83 0	1.982E+13	5.464E+20
ROW 7	68 0	5.541E+13	1.570E+21
LONGERON	53 0	8.822E+13	2 515E+21
ROW 8	38 0	1.150E+14	3.289E+21
LONGERON	23 0	1.340E+14	3 839E+21
ROW 9	8 0	1.438E+14	4.127E+21
LONGERON	7 0	1.438E+14	4.134E+21
ROW 10	22 0	1.341E+14	3 859E+21
LONGERON	37 0	1.152E+14	3 322E+21
ROW 11	52 0	8 841E+13	2.557E+21
LONGERON	67 0	5.563E+13	1 619E+21
ROW 12	82 0	2 012E+13	5 929E+20
LONGERON	97.0	1.007E+12	2 891E+19
TOP	90 0	6.450E+12	1 763E+20
BOTTOM	90 0	6 450E+12	1 763E+20
RAM DIR	0	1 451E+14	4 166E+21

```

*****
*MONTH:  8  DAY  14  YEAR  89  *
*DAY OF YEAR.  226  *
*CUMULATIVE EXPOSURE TIME  1954  DAYS  *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           417 70
PERIGEE (KM ABOVE EARTH)          400 70
INCLINATION OF ORBIT (DEGREES)    28 53
GMT (EPOCH) TIME (SECONDS)        69811
LOCAL SOLAR (EPOCH) TIME (HMS)    10 37 31
ASCENDING NODE LONGITUDE (DEGREES EAST)  228 50
ARGUMENT OF PERIGEE (DEGREES)    19 90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6789200 00
SEMIMINOR AXIS (M)                6789194 68
ECCENTRICITY                       001
PERIOD (SEC)                       5565 37
ENERGY (JOULE)                     -2 938E+07
ANGULAR MOMENTUM (JOULE-SEC)       5 204E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89226
3 MONTH AVERAGE F10.7 CM FLUX     216 00
DAILY AVERAGE F10.7 CM FLUX      248 00
DAILY MAGNETIC INDEX AP            22 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89226: 2.574E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89226. 3.228E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89226. 1039 0 TO 1567 2 K

 DATA FOR 89226
 14 AUGUST 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 228E+09	4 845E+16
LONGERON	127 0	6 143E+05	6 335E+12
ROW 2	142 0	6 308E+01	4 051E+08
LONGERON	157 0	2 641E-02	1 173E+05
ROW 3	172.0	2 948E-04	1 165E+03
LONGERON	173 0	2 719E-04	1 230E+03
ROW 4	158 0	2 167E-02	1 252E+05
LONGERON	143.0	5 186E+01	3 698E+08
ROW 5	128 0	5 631E+05	4 721E+12
LONGERON	113 0	3 026E+09	3 368E+16
ROW 6	98.0	1 329E+12	2 350E+19
LONGERON	83 0	2.513E+13	5 600E+20
ROW 7	68 0	7 064E+13	1 608E+21
LONGERON	53.0	1 128E+14	2 576E+21
ROW 8	38.0	1 473E+14	3 369E+21
LONGERON	23 0	1 717E+14	3 932E+21
ROW 9	8 0	1 845E+14	4 227E+21
LONGERON	7.0	1 847E+14	4 234E+21
ROW 10	22 0	1 722E+14	3 952E+21
LONGERON	37 0	1.481E+14	3 401E+21
ROW 11	52 0	1 138E+14	2 619E+21
LONGERON	67 0	7 184E+13	1 658E+21
ROW 12	82.0	2 627E+13	6 070E+20
LONGERON	97.0	1.472E+12	2.966E+19
TOP	90 0	8.411E+12	1.808E+20
BOTTOM	90.0	8 411E+12	1 808E+20
RAM DIR	0	1 862E+14	4 267E+21

```

*****
*MONTH:  8  DAY  21  YEAR  89  *
*DAY OF YEAR:  233  *
*CUMULATIVE EXPOSURE TIME  1961  DAYS  *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           416 90
PERIGEE (KM ABOVE EARTH)         397.60
INCLINATION OF ORBIT (DEGREES)    28.53
GMT (EPOCH) TIME (SECONDS)        69379
LOCAL SOLAR (EPOCH) TIME (HMS)    6 52 19
ASCENDING NODE LONGITUDE (DEGREES EAST) 174 00
ARGUMENT OF PERIGEE (DEGREES)    16 50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6787250 00
SEMIMINOR AXIS (M)                6787243 14
ECCENTRICITY                       001
PERIOD (SEC)                       5562 98
ENERGY (JOULE)                     -2.938E+07
ANGULAR MOMENTUM (JOULE-SEC)       5 203E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89233
3 MONTH AVERAGE F10.7 CM FLUX    220 00
DAILY AVERAGE F10 7 CM FLUX      254 00
DAILY MAGNETIC INDEX AP           32.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89233. 3.017E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89233 6 137E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89233 1059 6 TO 1572.2 K

 DATA FOR: 89233
 21 AUGUST 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.137E+09	5 129E+16
LONGERON	127 0	1.718E+06	7 040E+12
ROW 2	142 0	1.997E+02	4 846E+08
LONGERON	157 0	7.496E-02	1 480E+05
ROW 3	172 0	6.240E-04	1 443E+03
LONGERON	173 0	3 876E-04	1 429E+03
ROW 4	158 0	2 097E-02	1 381E+05
LONGERON	143 0	3.821E+01	3 970E+08
ROW 5	128 0	3.852E+05	5 008E+12
LONGERON	113 0	2 508E+09	3 535E+16
ROW 6	98 0	1 429E+12	2 434E+19
LONGERON	83 0	2 881E+13	5.763E+20
ROW 7	68 0	8 202E+13	1 654E+21
LONGERON	53 0	1 315E+14	2 650E+21
ROW 8	38 0	1 721E+14	3 465E+21
LONGERON	23 0	2 010E+14	4 044E+21
ROW 9	8 0	2 161E+14	4 348E+21
LONGERON	7 0	2 165E+14	4 355E+21
ROW 10	22 0	2 022E+14	4 065E+21
LONGERON	37 0	1.741E+14	3 499E+21
ROW 11	52 0	1 341E+14	2 694E+21
LONGERON	67 0	8.500E+13	1 705E+21
ROW 12	82 0	3 151E+13	6 244E+20
LONGERON	97 0	1 935E+12	3 069E+19
TOP	90 0	9 914E+12	1 863E+20
BOTTOM	90 0	9.914E+12	1 863E+20
RAM DIR	0	2 182E+14	4 389E+21

```

*****
*MONTH·  8  DAY  28  YEAR  89  *
*DAY OF YEAR  240  *
*CUMULATIVE EXPOSURE TIME 1968 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           416 70
PERIGEE (KM ABOVE EARTH)          395.10
INCLINATION OF ORBIT (DEGREES)    28.53
GMT (EPOCH) TIME (SECONDS)        7690
LOCAL SOLAR (EPOCH) TIME (HMS)    3 28 34
ASCENDING NODE LONGITUDE (DEGREES EAST) 20 10
ARGUMENT OF PERIGEE (DEGREES)    26 80

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6785900.00
SEMIMINOR AXIS (M)                 6785891 41
ECCENTRICITY                        002
PERIOD (SEC)                        5561 32
ENERGY (JOULE)                      -2 939E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 203E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)                89240
3 MONTH AVERAGE F10.7 CM FLUX       219 00
DAILY AVERAGE F10 7 CM FLUX        176 00
DAILY MAGNETIC INDEX AP              15 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89240 2.257E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89240 2.858E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89240 945 7 TO 1364 7 K

 DATA FOR 89240
 28 AUGUST 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	2.858E+09	5 401E+16
LONGERON	127 0	3.289E+05	7 660E+12
ROW 2	142 0	1.136E+01	5 484E+08
LONGERON	157 0	1 288E-03	1 710E+05
ROW 3	172 0	4.542E-06	1 633E+03
LONGERON	173 0	2.092E-06	1 547E+03
ROW 4	158 0	1 571E-04	1 445E+05
LONGERON	143 0	6.771E-01	4 088E+08
ROW 5	128 0	2 272E+04	5 132E+12
LONGERON	113 0	5.558E+08	3.628E+16
ROW 6	98 0	7.853E+11	2 500E+19
LONGERON	83 0	2 067E+13	5 913E+20
ROW 7	68 0	6 063E+13	1 697E+21
LONGERON	53 0	9 780E+13	2 719E+21
ROW 8	38 0	1 283E+14	3 556E+21
LONGERON	23 0	1.501E+14	4 150E+21
ROW 9	8 0	1 616E+14	4 462E+21
LONGERON	7 0	1 621E+14	4 469E+21
ROW 10	22 0	1 516E+14	4 172E+21
LONGERON	37 0	1.307E+14	3 591E+21
ROW 11	52 0	1 010E+14	2 765E+21
LONGERON	67 0	6.433E+13	1 750E+21
ROW 12	82 0	2 408E+13	6 412E+20
LONGERON	97 0	1 352E+12	3 168E+19
TOP	90 0	7.014E+12	1 914E+20
BOTTOM	90 0	7 014E+12	1 914E+20
RAM DIR	0	1 633E+14	4 504E+21

```

*****
*MONTH   9   DAY   2   YEAR  89   *
*DAY OF YEAR  245   *
*CUMULATIVE EXPOSURE TIME 1973 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           414 80
PERIGEE (KM ABOVE FARTH)          395 00
INCLINATION OF ORBIT (DEGREES)     28 52
GMT (EPOCH) TIME (SECONDS)         41126
LOCAL SOLAR (EPOCH) TIME (HMS)     0 34 14
ASCENDING NODE LONGITUDE (DEGREES EAST) 197 20
ARGUEMENT OF PERIGEE (DEGREES)     33 30

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6784900 00
SEMIMINOR AXIS (M)                 6784892 78
ECCENTRICITY                        001
PERIOD (SEC)                        5560 09
ENERGY (JOULE)                      -2 939E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 202E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)               89245
3 MONTH AVERAGE F10 7 CM FLUX      220 00
DAILY AVERAGE F10 7 CM FLUX        218 00
DAILY MAGNETIC INDEX AP             19 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89245 2.852E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89245 4 953E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89245: 1058.4 TO 1454 8 K

 DATA FOR 89245
 2 SEPTEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	4 953E+09	5 569E+16
LONGERON	127 0	8 554E+05	7 915E+12
ROW 2	142 0	5 071E+01	5.618E+08
LONGERON	157 0	1 003E-02	1 735E+05
ROW 3	172 0	5.426E-05	1 646E+03
LONGERON	173 0	2 987E-05	1.554E+03
ROW 4	158 0	1 956E-03	1 450E+05
LONGERON	143 0	5 414E+00	4 101E+08
ROW 5	128 0	9 750E+04	5 158E+12
LONGERON	113 0	1.293E+09	3.667E+16
ROW 6	98 0	1 149E+12	2.542E+19
LONGERON	83 0	2 635E+13	6 014E+20
ROW 7	68 0	7 667E+13	1 727E+21
LONGERON	53 0	1 236E+14	2 767E+21
ROW 8	38 0	1 621E+14	3.619E+21
LONGERON	23 0	1 896E+14	4 224E+21
ROW 9	8 0	2 042E+14	4 541E+21
LONGERON	7 0	2 048E+14	4.549E+21
ROW 10	22 0	1 915E+14	4 246E+21
LONGERON	37 0	1 651E+14	3 655E+21
ROW 11	52 0	1 275E+14	2 814E+21
LONGERON	67 0	8 118E+13	1 782E+21
ROW 12	82.0	3 049E+13	6.530E+20
LONGERON	97 0	1 858E+12	3 238E+19
TOP	90 0	9 175E+12	1 949E+20
BOTTOM	90 0	9.175E+12	1 949E+20
RAM DIR	0	2.062E+14	4 584E+21

```

*****
*MONTH   9   DAY   9   YEAR  89   *
*DAY OF YEAR  252 *
*CUMULATIVE EXPOSURE TIME 1980 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           410 90
PERIGEE (KM ABOVE EARTH)         395 20
INCLINATION OF ORBIT (DEGREES)   28 52
GMT (EPOCH) TIME (SECONDS)       23501
LOCAL SOLAR (EPOCH) TIME (HMS)   20 54 29
ASCENDING NODE LONGITUDE (DEGREES EAST) 215 70
ARGUMENT OF PERIGEE (DEGREES)    34 20

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6783050 00
SEMIMINOR AXIS (M)                6783045.46
ECCENTRICITY                       001
PERIOD (SEC)                       5557 81
ENERGY (JOULE)                     -2 940E+07
ANGULAR MOMENTUM (JOULE-SEC)       5 201E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89252
3 MONTH AVERAGE F10 7 CM FLUX    225 00
DAILY AVERAGE F10 7 CM FLUX     297 00
DAILY MAGNETIC INDEX AP           14 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89252 3 667E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89252 6.664E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89252 1143 2 TO 1550 0 K

 DATA FOR 89252
 9 SEPTEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	6 664E+09	5 921E+16
LONGERON	127 0	1 366E+06	8 587E+12
ROW 2	142 0	1 301E+02	6 165E+08
LONGERON	157 0	5 037E-02	1 918E+05
ROW 3	172.0	5 414E-04	1 826E+03
LONGERON	173.0	4.940E-04	1 712E+03
ROW 4	158 0	3 839E-02	1 572E+05
LONGERON	143 0	8 438E+01	4 373E+08
ROW 5	128.0	8 010E+05	5 429E+12
LONGERON	113 0	4 051E+09	3 829E+16
ROW 6	98 0	1 796E+12	2.631E+19
LONGERON	83 0	3 460E+13	6 199E+20
ROW 7	68.0	9 922E+13	1 780E+21
LONGERON	53 0	1 595E+14	2 853E+21
ROW 8	38 0	2 089E+14	3.731E+21
LONGERON	23 0	2 441E+14	4 355E+21
ROW 9	8.0	2 627E+14	4 682E+21
LONGERON	7 0	2 633E+14	4 690E+21
ROW 10	22 0	2 460E+14	4 379E+21
LONGERON	37 0	2 120E+14	3 769E+21
ROW 11	52 0	1 635E+14	2 902E+21
LONGERON	67 0	1 038E+14	1 837E+21
ROW 12	82 0	3 890E+13	6 740E+20
LONGERON	97 0	2 450E+12	3 368E+19
TOP	90 0	1 219E+13	2 014E+20
BOTTOM	90 0	1 219E+13	2 014E+20
RAM DIR	0	2 653E+14	4 727E+21

```

*****
*MONTH   9   DAY   16   YEAR   89   *
*DAY OF YEAR   259   *
*CUMULATIVE EXPOSURE TIME 1987 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           407 80
PERIGEE (KM ABOVE EARTH)          393 60
INCLINATION OF ORBIT (DEGREES)     28 52
GMT (EPOCH) TIME (SECONDS)         11059
LOCAL SOLAR (EPOCH) TIME (HMS)     17 11 31
ASCENDING NODE LONGITUDE (DEGREES EAST) 211 80
ARGUMENT OF PERIGEE (DEGREES)      20 70

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6780700.00
SEMIMINOR AXIS (M)                 6780696 28
ECCENTRICITY                        001
PERIOD (SEC)                        5554 92
ENERGY (JOULE)                      -2 941E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 201E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)               89259
3 MONTH AVERAGE F10 7 CM FLUX      219 00
DAILY AVERAGE F10 7 CM FLUX        239 00
DAILY MAGNETIC INDEX AP              22 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89259 3 620E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89259 3 482E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89259 1057.9 TO 1511.4 K

 DATA FOR: 89259
 16 SEPTEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 482E+09	6 227E+16
LONGERON	127 0	3 944E+05	9 119E+12
ROW 2	142 0	2 824E+01	6 643E+08
LONGERON	157 0	1 116E-02	2 104E+05
ROW 3	172 0	1.564E-04	2 037E+03
LONGERON	173 0	2 188E-04	1 928E+03
ROW 4	158 0	2 744E-02	1 771E+05
LONGERON	143 0	9 030E+01	4 901E+08
ROW 5	128 0	1 055E+06	5 990E+12
LONGERON	113 0	4 992E+09	4 103E+16
ROW 6	98 0	1 889E+12	2 743E+19
LONGERON	83 0	3 503E+13	6 409E+20
ROW 7	68 0	9 911E+13	1.840E+21
LONGERON	53 0	1 585E+14	2 949E+21
ROW 8	38 0	2 071E+14	3 857E+21
LONGERON	23 0	2 416E+14	4.502E+21
ROW 9	8 0	2 596E+14	4 840E+21
LONGERON	7 0	2 599E+14	4 848E+21
ROW 10	22 0	2 425E+14	4 526E+21
LONGERON	37 0	2.086E+14	3 896E+21
ROW 11	52 0	1 605E+14	3 000E+21
LONGERON	67 0	1 014E+14	1 900E+21
ROW 12	82 0	3 732E+13	6 971E+20
LONGERON	97.0	2 071E+12	3 504E+19
TOP	90 0	1 186E+13	2 087E+20
BOTTOM	90 0	1 186E+13	2 087E+20
RAM DIR	0	2 620E+14	4 886E+21

```

*****
*MONTH   9   DAY   22   YEAR   89   *
*DAY OF YEAR   265   *
*CUMULATIVE EXPOSURE TIME 1993 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           407 70
PERIGEE (KM ABOVE EARTH)          389 70
INCLINATION OF ORBIT (DEGREES)    28 52
GMT (EPOCH) TIME (SECONDS)        84758
LOCAL SOLAR (EPOCH) TIME (HMS)    13 29 26
ASCENDING NODE LONGITUDE (DEGREES EAST) 209 20
ARGUMENT OF PERIGEE (DEGREES)    13 50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6778700 00
SEMIMINOR AXIS (M)                6778694 03
ECCENTRICITY                       001
PERIOD (SEC)                       5552 47
ENERGY (JOULE)                     -2 942E+07
ANGULAR MOMENTUM (JOULE-SEC)       5 200E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89265
3 MONTH AVERAGE F10 7 CM FLUX    214 00
DAILY AVERAGE F10 7 CM FLUX     168.00
DAILY MAGNETIC INDEX AP           18 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89265 2 890E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89265 1 306E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89265 958 0 TO 1363 1 K

 DATA FOR 89265
 22 SEPTEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	1 306E+09	6.352E+16
LONGERON	127 0	6 574E+04	9 239E+12
ROW 2	142 0	1 941E+00	6 722E+08
LONGERON	157 0	3 483E-04	2 133E+05
ROW 3	172 0	3 019E-06	2 078E+03
LONGERON	173 0	4 144E-06	1 986E+03
ROW 4	158 0	8 302E-04	1 844E+05
LONGERON	143 0	6 367E+00	5 151E+08
ROW 5	128 0	2 020E+05	6 316E+12
LONGERON	113 0	2 259E+09	4 290E+16
ROW 6	98 0	1 375E+12	2 827E+19
LONGERON	83 0	2 842E+13	6 574E+20
ROW 7	68 0	7 986E+13	1 887E+21
LONGERON	53 0	1 272E+14	3 023E+21
ROW 8	38 0	1 659E+14	3 953E+21
LONGERON	23 0	1 932E+14	4 615E+21
ROW 9	8 0	2 074E+14	4 961E+21
LONGERON	7.0	2 075E+14	4 970E+21
ROW 10	22 0	1 934E+14	4 639E+21
LONGERON	37.0	1 662E+14	3 993E+21
ROW 11	52 0	1 276E+14	3 075E+21
LONGERON	67 0	8 030E+13	1.947E+21
ROW 12	82 0	2 892E+13	7 142E+20
LONGERON	97 0	1 338E+12	3 593E+19
TOP	90.0	9 041E+12	2 141E+20
BOTTOM	90 0	9 041E+12	2 141E+20
RAM DIR	0	2 092E+14	5 008E+21

```

*****
*MONTH 9 DAY 30 YEAR 89 *
*DAY OF YEAR 273 *
*CUMULATIVE EXPOSURE TIME 2001 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 407 50
PERIGEE (KM ABOVE EARTH) 386 50
INCLINATION OF ORBIT (DEGREES) 28 52
GMT (EPOCH) TIME (SECONDS) 24192
LOCAL SOLAR (EPOCH) TIME (HMS) 9 32 48
ASCENDING NODE LONGITUDE (DEGREES EAST) 42 40
ARGUMENT OF PERIGEE (DEGREES) 20 50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6777000 00
SEMIMINOR AXIS (M) 6776991 87
ECCENTRICITY 002
PERIOD (SEC) 5550 38
ENERGY (JOULE) -2 943E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 199E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89273
3 MONTH AVERAGE F10 7 CM FLUX 217 00
DAILY AVERAGE F10 7 CM FLUX 246 00
DAILY MAGNETIC INDEX AP 23 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89273 4.067E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89273 5.582E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89273 1095 5 TO 1525 8 K

 DATA FOR: 89273
 30 SEPTEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	5 582E+09	6 590E+16
LONGERON	127 0	1 005E+06	9 609E+12
ROW 2	142 0	8 640E+01	7 027E+08
LONGERON	157 0	2 960E-02	2.237E+05
ROW 3	172.0	2 828E-04	2 177E+03
LONGERON	173 0	2 451E-04	2 072E+03
ROW 4	158 0	2 044E-02	1 918E+05
LONGERON	143 0	5 529E+01	5 364E+08
ROW 5	128 0	6 981E+05	6 627E+12
LONGERON	113 0	4 383E+09	4 520E+16
ROW 6	98 0	2 091E+12	2 947E+19
LONGERON	83 0	3 964E+13	6 809E+20
ROW 7	68.0	1 116E+14	1.953E+21
LONGERON	53 0	1 783E+14	3 129E+21
ROW 8	38 0	2 329E+14	4 091E+21
LONGERON	23.0	2 716E+14	4 775E+21
ROW 9	8 0	2 918E+14	5 134E+21
LONGERON	7.0	2 921E+14	5 142E+21
ROW 10	22.0	2 725E+14	4 800E+21
LONGERON	37.0	2 344E+14	4 132E+21
ROW 11	52.0	1 802E+14	3 181E+21
LONGERON	67.0	1 138E+14	2 014E+21
ROW 12	82.0	4 172E+13	7 386E+20
LONGERON	97 0	2 401E+12	3 722E+19
TOP	90 0	1 337E+13	2 218E+20
BOTTOM	90 0	1 337E+13	2.218E+20
RAM DIR	0	2 945E+14	5 182E+21

```

*****
*MONTH 10 DAY 6 YEAR 89 *
*DAY OF YEAR 279 *
*CUMULATIVE EXPOSURE TIME 2007 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 405 00
PERIGEE (KM ABOVE EARTH) 384.50
INCLINATION OF ORBIT (DEGREES) 28 53
GMT (EPOCH) TIME (SECONDS) 75341
LOCAL SOLAR (EPOCH) TIME (HMS) 5 59 17
ASCENDING NODE LONGITUDE (DEGREES EAST) 135 90
ARGUMENT OF PERIGEE (DEGREES) 30 00

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6774750 00
SEMIMINOR AXIS (M) 6774742 25
ECCENTRICITY 002
PERIOD (SEC) 5547 61
ENERGY (JOULE) -2 944E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 198E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89279
3 MONTH AVERAGE F10 7 CM FLUX 219 00
DAILY AVERAGE F10 7 CM FLUX 219 00
DAILY MAGNETIC INDEX AP 10 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89279 3 798E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89279 6 242E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89279 1025 2 TO 1463 1 K

 DATA FOR 89279
 6 OCTOBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.242E+09	6.896E+16
LONGERON	127 0	1.197E+06	1.018E+13
ROW 2	142 0	8.154E+01	7.462E+08
LONGERON	157.0	1.791E-02	2.360E+05
ROW 3	172 0	1.014E-04	2.276E+03
LONGERON	173 0	5.524E-05	2.150E+03
ROW 4	158 0	3.464E-03	1.980E+05
LONGERON	143 0	9.168E+00	5.532E+08
ROW 5	128 0	1.552E+05	6.849E+12
LONGERON	113 0	1.840E+09	4.681E+16
ROW 6	98 0	1.588E+12	3.043E+19
LONGERON	83 0	3.581E+13	7.005E+20
ROW 7	68 0	1.030E+14	2.008E+21
LONGERON	53 0	1.655E+14	3.218E+21
ROW 8	38 0	2.167E+14	4.208E+21
LONGERON	23 0	2.531E+14	4.911E+21
ROW 9	8 0	2.723E+14	5.280E+21
LONGERON	7 0	2.729E+14	5.289E+21
ROW 10	22 0	2.550E+14	4.937E+21
LONGERON	37.0	2.196E+14	4.249E+21
ROW 11	52 0	1.693E+14	3.272E+21
LONGERON	67 0	1.075E+14	2.071E+21
ROW 12	82.0	3.990E+13	7.598E+20
LONGERON	97 0	2.338E+12	3.845E+19
TOP	90 0	1.218E+13	2.284E+20
BOTTOM	90 0	1.218E+13	2.284E+20
RAM DIR	0	2.750E+14	5.330E+21

```

*****
*MONTH 10 DAY 13 YEAR 89 *
*DAY OF YEAR: 286 *
*CUMULATIVE EXPOSURE TIME 2014 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          401 30
PERIGEE (KM ABOVE EARTH)         382.80
INCLINATION OF ORBIT (DEGREES)   28 53
GMT (EPOCH) TIME (SECONDS)       1037
LOCAL SOLAR (EPOCH) TIME (HMS)   2 39 17
ASCENDING NODE LONGITUDE (DEGREES EAST) 35 50
ARGUMENT OF PERIGEE (DEGREES)   32 50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6772050 00
SEMIMINOR AXIS (M)               6772043 68
ECCENTRICITY                      001
PERIOD (SEC)                      5544 30
ENERGY (JOULE)                    -2 945E+07
ANGULAR MOMENTUM (JOULE-SEC)      5 197E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)             89286
3 MONTH AVERAGE F10 7 CM FLUX   221 00
DAILY AVERAGE F10 7 CM FLUX    209 00
DAILY MAGNETIC INDEX AP          7 00

```

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89286 3.852E+08 ATOMS/CM**3

```

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89286 7 030E+09 IMPACTS/(CM**2 SEC)

```

```

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89286 1018 9 TO 1463 6 K

```

 DATA FOR 89286
 13 OCTOBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	7 030E+09	7 297E+16
LONGERON	127 0	1 363E+06	1 095E+13
ROW 2	142 0	8.843E+01	7.976E+08
LONGERON	157 0	1 791E-02	2 468E+05
ROW 3	172 0	9 250E-05	2 335E+03
LONGERON	173 0	4 606E-05	2 180E+03
ROW 4	158 0	2 664E-03	1 998E+05
LONGERON	143 0	6 577E+00	5 579E+08
ROW 5	128 0	1 085E+05	6 928E+12
LONGERON	113 0	1 466E+09	4 781E+16
ROW 6	98 0	1 481E+12	3 135E+19
LONGERON	83 0	3.550E+13	7 220E+20
ROW 7	68 0	1 036E+14	2 071E+21
LONGERON	53 0	1 671E+14	3 318E+21
ROW 8	38 0	2 192E+14	4 340E+21
LONGERON	23 0	2 564E+14	5 065E+21
ROW 9	8 0	2 761E+14	5 446E+21
LONGERON	7 0	2 770E+14	5 455E+21
ROW 10	22 0	2 590E+14	5 093E+21
LONGERON	37 0	2 234E+14	4 383E+21
ROW 11	52 0	1 725E+14	3 375E+21
LONGERON	67 0	1 099E+14	2 137E+21
ROW 12	82 0	4 130E+13	7 844E+20
LONGERON	97 0	2 498E+12	3 991E+19
TOP	90 0	1 231E+13	2 359E+20
BOTTOM	90 0	1 231E+13	2 359E+20
RAM DIR	0	2 790E+14	5 498E+21

 *MONTH 10 DAY: 21 YEAR 89 *
 *DAY OF YEAR. 294 *
 *CUMULATIVE EXPOSURE TIME. 2022 DAYS *

INPUT ORBITAL PARAMETERS

APOGEE (KM ABOVE EARTH)	396 90
PERIGEE (KM ABOVE EARTH)	380 20
INCLINATION OF ORBIT (DEGREES)	28 52
GMT (EPOCH) TIME (SECONDS)	38794
LOCAL SOLAR (EPOCH) TIME (HMS)	22 4 34
ASCENDING NODE LONGITUDE (DEGREES EAST)	169 50
ARGUMENT OF PERIGEE (DEGREES)	26 20

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

SEMIMAJOR AXIS (M)	6768550 00
SEMIMINOR AXIS (M)	6768544 85
ECCENTRICITY	001
PERIOD (SEC)	5540 00
ENERGY (JOULE)	-2 946E+07
ANGULAR MOMENTUM (JOULE-SEC)	5 196E+10

SOLAR AND GEOMAGNETIC DATA

YEAR AND DAY (YYDDD)	89294
3 MONTH AVERAGE F10.7 CM FLUX	223 00
DAILY AVERAGE F10.7 CM FLUX	219 00
DAILY MAGNETIC INDEX AP	37 00

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89294 4 780E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89294. 7.679E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89294 1058 1 TO 1555 8 K

 DATA FOR 89294
 21 OCTOBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 679E+09	7 806E+16
LONGERON	127 0	1 477E+06	1 194E+13
ROW 2	142.0	1 260E+02	8.717E+08
LONGERON	157 0	4 330E-02	2.680E+05
ROW 3	172 0	4 178E-04	2.511E+03
LONGERON	173 0	3 494E-04	2 317E+03
ROW 4	158 0	2 587E-02	2.097E+05
LONGERON	143 0	5 728E+01	5 800E+08
ROW 5	128 0	5 907E+05	7 170E+12
LONGERON	113.0	3 703E+09	4 960E+16
ROW 6	98 0	2 126E+12	3 260E+19
LONGERON	83 0	4 482E+13	7 498E+20
ROW 7	68.0	1 293E+14	2.151E+21
LONGERON	53 0	2 080E+14	3.448E+21
ROW 8	38 0	2 726E+14	4.510E+21
LONGERON	23 0	3 186E+14	5.264E+21
ROW 9	8.0	3 428E+14	5.660E+21
LONGERON	7 0	3 437E+14	5 670E+21
ROW 10	22 0	3 212E+14	5 293E+21
LONGERON	37 0	2 768E+14	4 556E+21
ROW 11	52 0	2 135E+14	3 508E+21
LONGERON	67 0	1 357E+14	2.222E+21
ROW 12	82 0	5 074E+13	8.162E+20
LONGERON	97 0	3 042E+12	4.183E+19
TOP	90.0	1 554E+13	2 455E+20
BOTTOM	90 0	1 554E+13	2 455E+20
RAM DIR	0	3 463E+14	5 714E+21

 *MONTH. 10 DAY 28 YEAR. 89 *
 *DAY OF YEAR 301 *
 *CUMULATIVE EXPOSURE TIME 2029 DAYS *

INPUT ORBITAL PARAMETERS

APOGEE (KM ABOVE EARTH)	394 30
PERIGEE (KM ABOVE EARTH)	377 20
INCLINATION OF ORBIT (DEGREES)	28 52
GMT (EPOCH) TIME (SECONDS)	29981
LOCAL SOLAR (EPOCH) TIME (HMS)	18 20 5
ASCENDING NODE LONGITUDE (DEGREES EAST)	150 10
ARGUMENT OF PERIGEE (DEGREES)	22 30

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

SEMIMAJOR AXIS (M)	6765750 00
SEMIMINOR AXIS (M)	6765744 60
ECCENTRICITY	001
PERIOD (SEC)	5536 56
ENERGY (JOULE)	-2 948E+07
ANGULAR MOMENTUM (JOULE-SEC)	5 195E+10

SOLAR AND GEOMAGNETIC DATA

YEAR AND DAY (YYDDD)	89301
3 MONTH AVERAGE F10 7 CM FLUX	224 00
DAILY AVERAGE F10 7 CM FLUX	192 00
DAILY MAGNETIC INDEX AP	23 00

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89301 4 498E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89301. 3 749E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89301 1009 3 TO 1469 7 K

 DATA FOR 89301
 28 OCTOBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 749E+09	8 151E+16
LONGERON	127 0	3 691E+05	1 249E+13
ROW 2	142 0	1 930E+01	9.157E+08
LONGERON	157 0	5 386E-03	2.827E+05
ROW 3	172 0	5 876E-05	2 656E+03
LONGERON	173 0	7 459E-05	2 445E+03
ROW 4	158 0	1 002E-02	2 205E+05
LONGERON	143 0	4 088E+01	6.097E+08
ROW 5	128 0	6 512E+05	7 545E+12
LONGERON	113.0	4 319E+09	5 202E+16
ROW 6	98 0	2 129E+12	3 389E+19
LONGERON	83.0	4 317E+13	7 764E+20
ROW 7	68 0	1 230E+14	2.228E+21
LONGERON	53 0	1 969E+14	3.570E+21
ROW 8	38.0	2 575E+14	4 670E+21
LONGERON	23.0	3 004E+14	5 451E+21
ROW 9	8 0	3 229E+14	5 861E+21
LONGERON	7 0	3 234E+14	5.871E+21
ROW 10	22 0	3 018E+14	5.482E+21
LONGERON	37.0	2.597E+14	4 718E+21
ROW 11	52 0	1 999E+14	3 633E+21
LONGERON	67 0	1 265E+14	2 301E+21
ROW 12	82 0	4 651E+13	8.456E+20
LONGERON	97 0	2 462E+12	4.349E+19
TOP	90 0	1 441E+13	2 545E+20
BOTTOM	90 0	1 441E+13	2.545E+20
RAM DIR	.0	3 259E+14	5 917E+21

```

*****
*MONTH. 11 DAY 4 YEAR 89 *
*DAY OF YEAR 308 *
*CUMULATIVE EXPOSURE TIME 2036 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          391 70
PERIGEE (KM ABOVE EARTH)         374 20
INCLINATION OF ORBIT (DEGREES)   28.52
GMT (EPOCH) TIME (SECONDS)       9763
LOCAL SOLAR (EPOCH) TIME (HMS)   14 38 43
ASCENDING NODE LONGITUDE (DEGREES EAST) 179 00
ARGUMENT OF PERIGEE (DEGREES)   21 90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)              6762950.00
SEMIMINOR AXIS (M)             6762944 34
ECCENTRICITY                    001
PERIOD (SEC)                    5533 13
ENERGY (JOULE)                 -2 949E+07
ANGULAR MOMENTUM (JOULE-SEC)   5 194E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)           89308
3 MONTH AVERAGE F10.7 CM FLUX 223 00
DAILY AVERAGE F10.7 CM FLUX  208 00
DAILY MAGNETIC INDEX AP       17 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89308 4 712E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89308 3.697E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89308 1046 8 TO 1463 4 K

 DATA FOR: 89308
 4 NOVEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112.0	3.697E+09	8 377E+16
LONGERON	127 0	3 079E+05	1 270E+13
ROW 2	142 0	1.554E+01	9 262E+08
LONGERON	157 0	4 716E-03	2 858E+05
ROW 3	172.0	5 860E-05	2.691E+03
LONGERON	173 0	8 597E-05	2 494E+03
ROW 4	158 0	1 318E-02	2 275E+05
LONGERON	143 0	5.888E+01	6 398E+08
ROW 5	128 0	9 580E+05	8 032E+12
LONGERON	113 0	5 855E+09	5 510E+16
ROW 6	98 0	2 467E+12	3 528E+19
LONGERON	83 0	4 614E+13	8 034E+20
ROW 7	68 0	1 298E+14	2 304E+21
LONGERON	53 0	2 072E+14	3 693E+21
ROW 8	38 0	2 704E+14	4 830E+21
LONGERON	23 0	3 152E+14	5 637E+21
ROW 9	8 0	3.386E+14	6.061E+21
LONGERON	7 0	3 388E+14	6 072E+21
ROW 10	22 0	3 160E+14	5 668E+21
LONGERON	37 0	2 716E+14	4.879E+21
ROW 11	52 0	2 088E+14	3 757E+21
LONGERON	67.0	1 317E+14	2 379E+21
ROW 12	82 0	4.805E+13	8 742E+20
LONGERON	97 0	2 547E+12	4 500E+19
TOP	90 0	1 533E+13	2 635E+20
BOTTOM	90 0	1 533E+13	2 635E+20
RAM DIR	.0	3 416E+14	6 119E+21

```

*****
*MONTH 11 DAY 11 YEAR 89 *
*DAY OF YEAR 315 *
*CUMULATIVE EXPOSURE TIME: 2043 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 388 00
PERIGEE (KM ABOVE EARTH) 370 20
INCLINATION OF ORBIT (DEGREES) 28 52
GMT (EPOCH) TIME (SECONDS) 5616
LOCAL SOLAR (EPOCH) TIME (HMS) 10 50 24
ASCENDING NODE LONGITUDE (DEGREES EAST) 139 20
ARGUMENT OF PERIGEE (DEGREES) 21.50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6759100 00
SEMIMINOR AXIS (M) 6759094 14
ECCENTRICITY 001
PERIOD (SEC) 5528 40
ENERGY (JOULE) -2 951E+07
ANGULAR MOMENTUM (JOULE-SEC) 5.192E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89315
3 MONTH AVERAGE F10 7 CM FLUX 223 00
DAILY AVERAGE F10 7 CM FLUX 249.00
DAILY MAGNETIC INDEX AP 14.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89315 5 181E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89315. 6 163E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89315 1132.8 TO 1498.6 K

 DATA FOR. 89315
 11 NOVEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	6.163E+09	8 675E+16
LONGERON	127 0	7 695E+05	1 302E+13
ROW 2	142 0	4.946E+01	9 459E+08
LONGERON	157 0	1 583E-02	2 920E+05
ROW 3	172 0	1.734E-04	2.761E+03
LONGERON	173 0	1.980E-04	2 580E+03
ROW 4	158 0	2 266E-02	2 384E+05
LONGERON	143 0	7 891E+01	6 815E+08
ROW 5	128 0	1.116E+06	8 659E+12
LONGERON	113.0	6 639E+09	5 888E+16
ROW 6	98 0	2 785E+12	3.686E+19
LONGERON	83 0	5.069E+13	8 327E+20
ROW 7	68 0	1.425E+14	2 386E+21
LONGERON	53 0	2 276E+14	3 824E+21
ROW 8	38 0	2 972E+14	5 001E+21
LONGERON	23 0	3.466E+14	5 837E+21
ROW 9	8 0	3 723E+14	6 276E+21
LONGERON	7 0	3.727E+14	6 287E+21
ROW 10	22 0	3 477E+14	5 869E+21
LONGERON	37 0	2 989E+14	5 051E+21
ROW 11	52 0	2 298E+14	3 890E+21
LONGERON	67 0	1 451E+14	2 463E+21
ROW 12	82 0	5.324E+13	9 048E+20
LONGERON	97 0	3 065E+12	4 670E+19
TOP	90.0	1 718E+13	2 734E+20
BOTTOM	90.0	1 718E+13	2 734E+20
RAM DIR	0	3 757E+14	6 336E+21

```

*****
*MONTH 11 DAY 17 YEAR 89 *
*DAY OF YEAR 321 *
*CUMULATIVE EXPOSURE TIME. 2049 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           385 00
PERIGEE (KM ABOVE EARTH)          365 80
INCLINATION OF ORBIT (DEGREES)    28 52
GMT (EPOCH) TIME (SECONDS)        21341
LOCAL SOLAR (EPOCH) TIME (HMS)    7 28 29
ASCENDING NODE LONGITUDE (DEGREES EAST) 23 20
ARGUMENT OF PERIGEE (DEGREES)    20 60

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                6755400 00
SEMIMINOR AXIS (M)               6755393 18
ECCENTRICITY                       001
PERIOD (SEC)                      5523 86
ENERGY (JOULE)                    -2 952E+07
ANGULAR MOMENTUM (JOULE-SEC)      5 191E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)              89321
3 MONTH AVERAGE F10 7 CM FLUX    220 00
DAILY AVERAGE F10 7 CM FLUX     226 00
DAILY MAGNETIC INDEX AP           25 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89321 5 232E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89321 7 390E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89321 1087.9 TO 1474 2 K

 DATA FOR 89321
 17 NOVEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 390E+09	9.026E+16
LONGERON	127 0	1 221E+06	1 354E+13
ROW 2	142 0	7 687E+01	9.786E+08
LONGERON	157 0	1 716E-02	3 005E+05
ROW 3	172 0	1 082E-04	2.834E+03
LONGERON	173 0	7 003E-05	2.649E+03
ROW 4	158 0	5 310E-03	2 456E+05
LONGERON	143 0	1 635E+01	7.062E+08
ROW 5	128 0	2 987E+05	9 026E+12
LONGERON	113 0	3 330E+09	6.146E+16
ROW 6	98 0	2 409E+12	3 821E+19
LONGERON	83 0	5 042E+13	8 589E+20
ROW 7	68 0	1 432E+14	2.460E+21
LONGERON	53 0	2 293E+14	3 942E+21
ROW 8	38 0	2.998E+14	5 156E+21
LONGERON	23 0	3 498E+14	6 018E+21
ROW 9	8 0	3 760E+14	6.470E+21
LONGERON	7.0	3.766E+14	6 481E+21
ROW 10	22 0	3 515E+14	6 050E+21
LONGERON	37.0	3 025E+14	5 207E+21
ROW 11	52 0	2 328E+14	4 010E+21
LONGERON	67 0	1 473E+14	2 539E+21
ROW 12	82 0	5 417E+13	9.326E+20
LONGERON	97 0	3 096E+12	4 830E+19
TOP	90 0	1 695E+13	2 822E+20
BOTTOM	90 0	1 695E+13	2.822E+20
RAM DIR	0	3 795E+14	6 531E+21

```

*****
*MONTH 11 DAY. 24 YEAR 89 *
*DAY OF YEAR. 328 *
*CUMULATIVE EXPOSURE TIME 2056 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)           381 70
PERIGEE (KM ABOVE EARTH)          360 80
INCLINATION OF ORBIT (DEGREES)     28 52
GMT (EPOCH) TIME (SECONDS)         65750
LOCAL SOLAR (EPOCH) TIME (HMS)     3 22 38
ASCENDING NODE LONGITUDE (DEGREES EAST) 136 70
ARGUMENT OF PERIGEE (DEGREES)      24 90

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)                 6751250 00
SEMIMINOR AXIS (M)                 6751241 91
ECCENTRICITY                        002
PERIOD (SEC)                        5518 77
ENERGY (JOULE)                      -2 954E+07
ANGULAR MOMENTUM (JOULE-SEC)        5 189E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)               89328
3 MONTH AVERAGE F10 7 CM FLUX      224 00
DAILY AVERAGE F10 7 CM FLUX        220 00
DAILY MAGNETIC INDEX AP              7 00

```

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
FOR THE DATE 89328 5 004E+08 ATOMS/CM**3

```

```

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
FOR THE DATE 89328 9 623E+09 IMPACTS/(CM**2 SEC)

```

```

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
FOR THE DATE 89328 998 1 TO 1515 5 K

```

 DATA FOR 89328
 24 NOVEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	9 623E+09	9 540E+16
LONGERON	127 0	2 252E+06	1.459E+13
ROW 2	142 0	1 847E+02	1 058E+09
LONGERON	157 0	4 629E-02	3 197E+05
ROW 3	172 0	2 725E-04	2 949E+03
LONGERON	173 0	1 373E-04	2 712E+03
ROW 4	158 0	7 114E-03	2 494E+05
LONGERON	143 0	1 437E+01	7 155E+08
ROW 5	128 0	1 866E+05	9 173E+12
LONGERON	113 0	2 086E+09	6 310E+16
ROW 6	98 0	1 984E+12	3 954E+19
LONGERON	83 0	4 673E+13	8 883E+20
ROW 7	68 0	1 354E+14	2 545E+21
LONGERON	53 0	2 179E+14	4 078E+21
ROW 8	38 0	2.856E+14	5 333E+21
LONGERON	23 0	3 339E+14	6 225E+21
ROW 9	8 0	3 594E+14	6.692E+21
LONGERON	7 0	3 604E+14	6.704E+21
ROW 10	22 0	3 368E+14	6 258E+21
LONGERON	37 0	2 903E+14	5 387E+21
ROW 11	52 0	2 240E+14	4 148E+21
LONGERON	67.0	1 425E+14	2.626E+21
ROW 12	82.0	5 319E+13	9.651E+20
LONGERON	97 0	3 182E+12	5 020E+19
TOP	90 0	1 603E+13	2 922E+20
BOTTOM	90 0	1 603E+13	2 922E+20
RAM DIR	0	3 630E+14	6 756E+21

```

*****
*MONTH· 11 DAY. 29 YEAR 89 *
*DAY OF YEAR 333 *
*CUMULATIVE EXPOSURE TIME 2061 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH) 379.00
PERIGEE (KM ABOVE EARTH) 358 10
INCLINATION OF ORBIT (DEGREES) 28 53
GMT (EPOCH) TIME (SECONDS) 40522
LOCAL SOLAR (EPOCH) TIME (HMS) 0 47 22
ASCENDING NODE LONGITUDE (DEGREES EAST) 203 00
ARGUMENT OF PERIGEE (DEGREES) 30 70

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M) 6748550 00
SEMIMINOR AXIS (M) 6748541 91
ECCENTRICITY 002
PERIOD (SEC) 5515 46
ENERGY (JOULE) -2 955E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 188E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD) 89333
3 MONTH AVERAGE F10 7 CM FLUX 224 00
DAILY AVERAGE F10 7 CM FLUX 220 00
DAILY MAGNETIC INDEX AP 7 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89333 5 044E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89333. 9 020E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89333 994 7 TO 1543 2 K

 DATA FOR: 89333
 29 NOVEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	9 020E+09	9 943E+16
LONGERON	127 0	1 989E+06	1 551E+13
ROW 2	142 0	1 682E+02	1 134E+09
LONGERON	157 0	4 888E-02	3.403E+05
ROW 3	172 0	3 588E-04	3.086E+03
LONGERON	173 0	2 236E-04	2.790E+03
ROW 4	158 0	1 316E-02	2 538E+05
LONGERON	143 0	2 649E+01	7 243E+08
ROW 5	128 0	2 963E+05	9 277E+12
LONGERON	113 0	2 530E+09	6 410E+16
ROW 6	98 0	2 022E+12	4 040E+19
LONGERON	83 0	4 690E+13	9 085E+20
ROW 7	68 0	1 363E+14	2 603E+21
LONGERON	53 0	2 195E+14	4 172E+21
ROW 8	38 0	2 878E+14	5 457E+21
LONGERON	23 0	3 365E+14	6 370E+21
ROW 9	8 0	3.623E+14	6 848E+21
LONGERON	7.0	3 634E+14	6.860E+21
ROW 10	22 0	3 397E+14	6 405E+21
LONGERON	37 0	2 929E+14	5 513E+21
ROW 11	52 0	2 261E+14	4 245E+21
LONGERON	67 0	1.439E+14	2 688E+21
ROW 12	82 0	5 387E+13	9 882E+20
LONGERON	97 0	3 204E+12	5 158E+19
TOP	90 0	1 616E+13	2 991E+20
BOTTOM	90 0	1 616E+13	2 991E+20
RAM DIR	0	3 660E+14	6 913E+21

```

*****
*MONTH. 12 DAY. 6 YEAR 89 *
*DAY OF YEAR 340 *
*CUMULATIVE EXPOSURE TIME 2068 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          372 90
PERIGEE (KM ABOVE EARTH)        355 60
INCLINATION OF ORBIT (DEGREES)   28 52
GMT (EPOCH) TIME (SECONDS)       39917
LOCAL SOLAR (EPOCH) TIME (HMS)   20 56 29
ASCENDING NODE LONGITUDE (DEGREES EAST) 147 80
ARGUMENT OF PERIGEE (DEGREES)   35 50

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6744250 00
SEMIMINOR AXIS (M)              6744244 45
ECCENTRICITY                      001
PERIOD (SEC)                     5510 19
ENERGY (JOULE)                   -2 957E+07
ANGULAR MOMENTUM (JOULE-SEC)     5 187E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)             89340
3 MONTH AVERAGE F10 7 CM FLUX   224 00
DAILY AVERAGE F10 7 CM FLUX    224 00
DAILY MAGNETIC INDEX AP          19 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89340 5 608E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89340 7 685E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89340 1008 1 TO 1587 0 K

 DATA FOR. 89340
 6 DECEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	ILLUENCE (#/CM**2)
ROW 1	112 0	7 685E+09	1 045E+17
LONGERON	127 0	1 452E+06	1 655E+13
ROW 2	142 0	1 356E+02	1 226E+09
LONGERON	157 0	5 519E-02	3.718E+05
ROW 3	172 0	6 449E-04	3.389E+03
LONGERON	173 0	6 274E-04	3 047E+03
ROW 4	158 0	4 973E-02	2 728E+05
LONGERON	143 0	1 068E+02	7 646E+08
ROW 5	128 0	9 674E+05	9 659E+12
LONGERON	113 0	4 904E+09	6.635E+16
ROW 6	98 0	2 509E+12	4 178E+19
LONGERON	83 0	5 287E+13	9.387E+20
ROW 7	68 0	1 524E+14	2.691E+21
LONGERON	53 0	2 449E+14	4 313E+21
ROW 8	38 0	3.207E+14	5 641E+21
LONGERON	23 0	3 746E+14	6 585E+21
ROW 9	8 0	4 031E+14	7 080E+21
LONGERON	7 0	4 040E+14	7 092E+21
ROW 10	22 0	3 775E+14	6 621E+21
LONGERON	37 0	3 252E+14	5 700E+21
ROW 11	52 0	2 507E+14	4 389E+21
LONGERON	67 0	1 592E+14	2.780E+21
ROW 12	82 0	5 930E+13	1 022E+21
LONGERON	97 0	3 401E+12	5 357E+19
TOP	90 0	1 812E+13	3 095E+20
BOTTOM	90 0	1 812E+13	3 095E+20
RAM DIR	0	4 071E+14	7 147E+21

```

*****
*MONTH: 12 DAY 13 YEAR 89 *
*DAY OF YEAR: 347 *
*CUMULATIVE EXPOSURE TIME. 2075 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          376.80
PERIGEE (KM ABOVE EARTH)         353.60
INCLINATION OF ORBIT (DEGREES)   28.52
GMT (EPOCH) TIME (SECONDS)       11405
LOCAL SOLAR (EPOCH) TIME (HMS)   17 17 17
ASCENDING NODE LONGITUDE (DEGREES EAST) 211.80
ARGUMENT OF PERIGEE (DEGREES)   25.40

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)              6745200.00
SEMIMINOR AXIS (M)             6745190.03
ECCENTRICITY                    002
PERIOD (SEC)                    5511.36
ENERGY (JOULE)                  -2.957E+07
ANGULAR MOMENTUM (JOULE-SEC)    5.187E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)           89347
3 MONTH AVERAGE F10.7 CM FLUX 217.00
DAILY AVERAGE F10.7 CM FLUX   204.00
DAILY MAGNETIC INDEX AP        12.00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89347 4.845E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89347 3.877E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89347 1003.3 TO 1477.0 K

 DATA FOR 89347
 13 DECEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 877E+09	1.080E+17
LONGERON	127 0	3 866E+05	1 710E+13
ROW 2	142 0	2.027E+01	1 273E+09
LONGERON	157 0	5 601E-03	3 901E+05
ROW 3	172 0	6 223E-05	3 603E+03
LONGERON	173 0	8 287E-05	3.262E+03
ROW 4	158 0	1 174E-02	2 914E+05
LONGERON	143.0	4 963E+01	8 119E+08
ROW 5	128 0	7 938E+05	1 019E+13
LONGERON	113 0	5 065E+09	6 936E+16
ROW 6	98 0	2 368E+12	4 325E+19
LONGERON	83 0	4 700E+13	9 689E+20
ROW 7	68 0	1 332E+14	2 777E+21
LONGERON	53 0	2 129E+14	4 451E+21
ROW 8	38.0	2 781E+14	5 822E+21
LONGERON	23 0	3 244E+14	6 796E+21
ROW 9	8 0	3 485E+14	7 307E+21
LONGERON	7 0	3 489E+14	7.320E+21
ROW 10	22 0	3.256E+14	6 834E+21
LONGERON	37 0	2 800E+14	5.883E+21
ROW 11	52 0	2 153E+14	4.530E+21
LONGERON	67.0	1 360E+14	2.869E+21
ROW 12	82 0	4 979E+13	1 055E+21
LONGERON	97 0	2 594E+12	5.539E+19
TOP	90 0	1 557E+13	3 197E+20
BOTTOM	90 0	1 557E+13	3.197E+20
RAM DIR	0	3 517E+14	7 377E+21

```

*****
*MONTH 12 DAY 20 YEAR 89 *
*DAY OF YEAR 354 *
*CUMULATIVE EXPOSURE TIME 2082 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          365 30
PERIGEE (KM ABOVE EARTH)         348 40
INCLINATION OF ORBIT (DEGREES)   28 51
GMT (EPOCH) TIME (SECONDS)       37238
LOCAL SOLAR (EPOCH) TIME (HMS)   13 16 38
ASCENDING NODE LONGITUDE (DEGREES EAST) 44 00
ARGUMENT OF PERIGEE (DEGREES)   12 80

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)              6736850 00
SEMIMINOR AXIS (M)             6736844 70
ECCENTRICITY                    001
PERIOD (SEC)                    5501 13
ENERGY (JOULE)                  -2 960E+07
ANGULAR MOMENTUM (JOULE-SEC)    5 184E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)           89354
3 MONTH AVERAGE F10 7 CM FLUX 212 00
DAILY AVERAGE F10 7 CM FLUX  167 00
DAILY MAGNETIC INDEX AP        9 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89354 4 341E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89354 1 653E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89354 967 6 TO 1321 5 K

 DATA FOR 89354
 20 DECEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	1 653E+09	1 097E+17
LONGERON	127.0	5 351E+04	1.724E+13
ROW 2	142 0	9 281E-01	1.279E+09
LONGERON	157 0	1 123E-04	3 919E+05
ROW 3	172.0	8 255E-07	3.622E+03
LONGERON	173 0	1 226E-06	3.287E+03
ROW 4	158 0	3 250E-04	2 950E+05
LONGERON	143 0	3 716E+00	8 281E+08
ROW 5	128 0	1 779E+05	1.049E+13
LONGERON	113 0	2 730E+09	7 172E+16
ROW 6	98.0	1 956E+12	4 456E+19
LONGERON	83 0	4 240E+13	9 959E+20
ROW 7	68 0	1 200E+14	2 854E+21
LONGERON	53 0	1 914E+14	4 573E+21
ROW 8	38 0	2 498E+14	5.982E+21
LONGERON	23 0	2 911E+14	6.982E+21
ROW 9	8 0	3 126E+14	7 507E+21
LONGERON	7 0	3 128E+14	7.520E+21
ROW 10	22 0	2 917E+14	7 021E+21
LONGERON	37 0	2 507E+14	6.043E+21
ROW 11	52 0	1 926E+14	4.653E+21
LONGERON	67 0	1 214E+14	2 947E+21
ROW 12	82 0	4 389E+13	1 084E+21
LONGERON	97.0	1 993E+12	5.677E+19
TOP	90 0	1 349E+13	3.285E+20
BOTTOM	90 0	1 349E+13	3.285E+20
RAM DIR	0	3 154E+14	7 578E+21

```

*****
*MONTH 12 DAY 27 YEAR 89 *
*DAY OF YEAR 361 *
*CUMULATIVE EXPOSURE TIME 2089 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          362 30
PERIGEE (KM ABOVE EARTH)         341 50
INCLINATION OF ORBIT (DEGREES)   28 51
GMT (EPOCH) TIME (SECONDS)       67910
LOCAL SOLAR (EPOCH) TIME (HMS)   9 12 38
ASCENDING NODE LONGITUDE (DEGREES EAST) 215 20
ARGUMENT OF PERIGEE (DEGREES)   17 00

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6731900 00
SEMIMINOR AXIS (M)               6731891 97
ECCENTRICITY                      002
PERIOD (SEC)                      5495 07
ENERGY (JOULE)                    -2 963E+07
ANGULAR MOMENTUM (JOULE-SEC)      5 182E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)             89361
3 MONTH AVERAGE F10.7 CM FLUX    214 00
DAILY AVERAGE F10.7 CM FLUX     200 00
DAILY MAGNETIC INDEX AP           10 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89361 5 133E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89361 3 604E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89361 1059 9 TO 1348 8 K

 DATA FOR. 89361
 27 DECEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	3 604E+09	1 112E+17
LONGERON	127 0	2 255E+05	1 732E+13
ROW 2	142 0	5 341E+00	1 281E+09
LONGERON	157 0	6 059E-04	3 921E+05
ROW 3	172 0	3 127E-06	3 623E+03
LONGERON	173 0	2 781E-06	3 289E+03
ROW 4	158 0	4 400E-04	2 953E+05
LONGERON	143 0	3 472E+00	8 302E+08
ROW 5	128 0	1 498E+05	1 058E+13
LONGERON	113 0	2 696E+09	7 336E+16
ROW 6	98 0	2 272E+12	4 584E+19
LONGERON	83 0	4 980E+13	1 024E+21
ROW 7	68 0	1 414E+14	2 933E+21
LONGERON	53 0	2 259E+14	4 700E+21
ROW 8	38 0	2 951E+14	6 146E+21
LONGERON	23 0	3 442E+14	7 174E+21
ROW 9	8 0	3 698E+14	7 713E+21
LONGERON	7 0	3 702E+14	7 727E+21
ROW 10	22 0	3 453E+14	7 213E+21
LONGERON	37 0	2 970E+14	6 209E+21
ROW 11	52 0	2 284E+14	4 781E+21
LONGERON	67 0	1 442E+14	3 027E+21
ROW 12	82 0	5 253E+13	1 113E+21
LONGERON	97 0	2 648E+12	5 818E+19
TOP	90 0	1 620E+13	3 375E+20
BITOM	90 0	1 620E+13	3 375E+20
RAM DIR	0	3 732E+14	7 787E+21

```

*****
*MONTH 12 DAY 31 YEAR 89 *
*DAY OF YEAR 365 *
*CUMULATIVE EXPOSURE TIME 2093 DAYS *
*****

```

INPUT ORBITAL PARAMETERS

```

APOGEE (KM ABOVE EARTH)          359 50
PERIGEE (KM ABOVE EARTH)         338 00
INCLINATION OF ORBIT (DEGREES)   28 51
GMT (EPOCH) TIME (SECONDS)       56160
LOCAL SOLAR (EPOCH) TIME (HMS)   7 4 0
ASCENDING NODE LONGITUDE (DEGREES EAST) 232 00
ARGUMENT OF PERIGEE (DEGREES)   23 60

```

CONSTANTS

```

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

```

CALCULATED PARAMETERS FOR THIS ORBIT

```

SEMIMAJOR AXIS (M)               6728750 00
SEMIMINOR AXIS (M)              6728741 41
ECCENTRICITY                      002
PERIOD (SEC)                     5491 21
ENERGY (JOULE)                   -2 964E+07
ANGULAR MOMENTUM (JOULE-SEC)     5 181E+10

```

SOLAR AND GEOMAGNETIC DATA

```

YEAR AND DAY (YYDDD)             89365
3 MONTH AVERAGE F10 7 CM FLUX   214 00
DAILY AVERAGE F10 7 CM FLUX    251.00
DAILY MAGNETIC INDEX AP         20 00

```

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 89365 6 320E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 89365 8 663E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 89365 1096.6 TO 1465 2 K

 DATA FOR 89365
 31 DECEMBER 1989

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	8 663E+09	1 134E+17
LONGERON	127 0	1 379E+06	1 760E+13
ROW 2	142 0	7 992E+01	1 296E+09
LONGERON	157 0	1 595E-02	3.949E+05
ROW 3	172 0	9 002E-05	3.639E+03
LONGERON	173 0	5 383E-05	3 298E+03
ROW 4	158 0	3 981E-03	2 960E+05
LONGERON	143 0	1 278E+01	8 330E+08
ROW 5	128 0	2 636E+05	1 066E+13
LONGERON	113 0	3 540E+09	7 444E+16
ROW 6	98 0	2 866E+12	4 672E+19
LONGERON	83 0	6 114E+13	1.043E+21
ROW 7	68.0	1 735E+14	2 987E+21
LONGERON	53 0	2 777E+14	4 787E+21
ROW 8	38 0	3.630E+14	6.260E+21
LONGERON	23 0	4 236E+14	7 307E+21
ROW 9	8 0	4 552E+14	7 856E+21
LONGERON	7 0	4 559E+14	7 869E+21
ROW 10	22 0	4.255E+14	7 347E+21
LONGERON	37 0	3 661E+14	6.323E+21
ROW 11	52 0	2 817E+14	4 869E+21
LONGERON	67 0	1 782E+14	3 083E+21
ROW 12	82 0	6 536E+13	1 133E+21
LONGERON	97 0	3 682E+12	5 927E+19
TOP	90 0	2 041E+13	3 438E+20
BOTTOM	90 0	2 041E+13	3 438E+20
RAM DIR	0	4 595E+14	7 931E+21

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*****
*MONTH 1 DAY 10 YEAR 90 *
*DAY OF YEAR: 10 *
*CUMULATIVE EXPOSURE TIME 2104 DAYS *
*****

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INPUT ORBITAL PARAMETERS

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APOGEE (KM ABOVE EARTH) 352 00
PERIGEE (KM ABOVE EARTH) 331 70
INCLINATION OF ORBIT (DEGREES) 28 52
GMT (EPOCH) TIME (SECONDS) 77846
LOCAL SOLAR (EPOCH) TIME (HMS) 1 24 14
ASCENDING NODE LONGITUDE (DEGREES EAST) 56.70
ARGUMENT OF PERIGEE (DEGREES) 36 30

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CONSTANTS

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

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CALCULATED PARAMETERS FOR THIS ORBIT

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SEMIMAJOR AXIS (M) 6721850 00
SEMIMINOR AXIS (M) 6721842 34
ECCENTRICITY 002
PERIOD (SEC) 5482 76
ENERGY (JOULE) -2 967E+07
ANGULAR MOMENTUM (JOULE-SEC) 5 178E+10

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SOLAR AND GEOMAGNETIC DATA

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YEAR AND DAY (YYDDD) 90010
3 MONTH AVERAGE F10 7 CM FLUX 212 00
DAILY AVERAGE F10.7 CM FLUX 192.00
DAILY MAGNETIC INDEX AP 15 00

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AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 90010 5 936E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 90010 7 639E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 90010 936 9 TO 1465 7 K

 DATA FOR 90010
 10 JANUARY 1990

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	7 639E+09	1 206E+17
LONGERON	127 0	1 151E+06	1 872E+13
ROW 2	142 0	6 118E+01	1 358E+09
LONGERON	157 0	1 153E-02	4 071E+05
ROW 3	172 0	6 327E-05	3 707E+03
LONGERON	173 0	3 671E-05	3 338E+03
ROW 4	158 0	2 561E-03	2 989E+05
LONGERON	143 0	7 454E+00	8 420E+08
ROW 5	128 0	1 350E+05	1 083E+13
LONGERON	113 0	1 905E+09	7 685E+16
ROW 6	98 0	2 166E+12	4 895E+19
LONGERON	83 0	5 533E+13	1 095E+21
ROW 7	68 0	1 611E+14	3 135E+21
LONGERON	53 0	2 593E+14	5 024E+21
ROW 8	38 0	3 398E+14	6 571E+21
LONGERON	23 0	3 972E+14	7 670E+21
ROW 9	8 0	4 275E+14	8 247E+21
LONGERON	7 0	4 286E+14	8 261E+21
ROW 10	22 0	4 006E+14	7 712E+21
LONGERON	37 0	3 453E+14	6 638E+21
ROW 11	52 0	2 664E+14	5 112E+21
LONGERON	67 0	1 694E+14	3 237E+21
ROW 12	82 0	6 298E+13	1 190E+21
LONGERON	97 0	3 432E+12	6 242E+19
TOP	90 0	1 851E+13	3 610E+20
BOTTOM	90 0	1 851E+13	3 610E+20
RAM DIR	0	4 318E+14	8 325E+21

 *MONTH. 1 DAY 12 YEAR 90 *
 *DAY OF YEAR. 12 *
 *CUMULATIVE EXPOSURE TIME 2106 DAYS *

INPUT ORBITAL PARAMETERS

APOGEE (KM ABOVE EARTH)	350 80
PERIGEE (KM ABOVE EARTH)	330 50
INCLINATION OF ORBIT (DEGREES)	28 52
GMT (EPOCH) TIME (SECONDS)	77846
LOCAL SOLAR (EPOCH) TIME (HMS)	1 24 14
ASCENDING NODE LONGITUDE (DEGREES EAST)	56 70
ARGUMENT OF PERIGEE (DEGREES)	36 30

CONSTANTS

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

CALCULATED PARAMETERS FOR THIS ORBIT

SEMIMAJOR AXIS (M)	6720650 00
SEMIMINOR AXIS (M)	6720642.34
ECCENTRICITY	002
PERIOD (SEC)	5481 30
ENERGY (JOULE)	-2 967E+07
ANGULAR MOMENTUM (JOULE-SEC)	5 177E+10

SOLAR AND GEOMAGNETIC DATA

YEAR AND DAY (YYDDD)	90012
3 MONTH AVERAGE F10 7 CM FLUX	209.00
DAILY AVERAGE F10 7 CM FLUX	167 00
DAILY MAGNETIC INDEX AP	12 00

AVERAGE ATOMIC OXYGEN DENSITY FOR 256 POINTS ON ORBIT
 FOR THE DATE 90012 5 386E+08 ATOMS/CM**3

AVERAGE HEAD ON ATOMIC OXYGEN FLUX FOR 256 POINTS ON ORBIT
 FOR THE DATE 90012 5 261E+09 IMPACTS/(CM**2 SEC)

TEMPERATURE RANGE FOR 256 POINTS ON ORBIT
 FOR THE DATE 90012 892 6 TO 1397 2 K

 DATA FOR 90012
 12 JANUARY 1990

LOCATION	INCIDENCE ANGLE (DEGREES)	AVERAGE FLUX (#/CM**2 SEC)	FLUENCE (#/CM**2)
ROW 1	112 0	5 261E+09	1 217E+17
LONGERON	127 0	5 430E+05	1 886E+13
ROW 2	142 0	1 843E+01	1 365E+09
LONGERON	157 0	2 334E-03	4 083E+05
ROW 3	172 0	1 006E-05	3 714E+03
LONGERON	173 0	5 696E-06	3 342E+03
ROW 4	158 0	4 852E-04	2 992E+05
LONGERON	143 0	2 043E+00	8 428E+08
ROW 5	128 0	5 715E+04	1 085E+13
LONGERON	113 0	1 192E+09	7 712E+16
ROW 6	98 0	1 790E+12	4 929E+19
LONGERON	83 0	4 988E+13	1 104E+21
ROW 7	68 0	1 460E+14	3 162E+21
LONGERON	53 0	2 351E+14	5 067E+21
ROW 8	38 0	3 082E+14	6 627E+21
LONGERON	23 0	3 603E+14	7 736E+21
ROW 9	8 0	3 879E+14	8 317E+21
LONGERON	7 0	3 890E+14	8 332E+21
ROW 10	22 0	3 636E+14	7 778E+21
LONGERON	37 0	3 134E+14	6 695E+21
ROW 11	52 0	2 419E+14	5 156E+21
LONGERON	67 0	1 538E+14	3 265E+21
ROW 12	82 0	5 712E+13	1 201E+21
LONGERON	97 0	2 930E+12	6 297E+19
TOP	90 0	1 641E+13	3 640E+20
BOTTOM	90 0	1 641E+13	3 640E+20
RAM DIR	0	3 918E+14	8 396E+21

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