REPORT UAG-71

WORLD DATA CENTER A
for
Solar-Terrestrial Physics

MAGNETIC POTENTIAL PLOTS OVER THE NORTHERN HEMISPHERE FOR 26–28 MARCH 1976

April 1979

WORLD DATA CENTER A
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C., U.S.A., 20418

World Data Center A consists of the Coordination Office

and seven Subcenters:

World Data Center A
Coordination Office
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D.C., U.S.A., 20418
[Telephone: (202) 389-6478]

Glaciology [Snow and Ice]:

World Data Center A: Glaciology
[Snow and Ice]
Inst. of Arctic & Alpine Research
University of Colorado
Boulder, Colorado, U.S.A. 80309
[Telephone: (303) 492-5171]

Meteorology (and Nuclear Radiation):

World Data Center A: Meteorology
National Climatic Center
Federal Building
Asheville, North Carolina, U.S.A. 28801
[Telephone: (704) 258-2850]

Oceanography:

World Data Center A: Oceanography
National Oceanic and Atmospheric
Administration
Washington, D.C., U.S.A. 20235
[Telephone: (202) 634-7249]

Rockets and Satellites:

World Data Center A: Rockets and
Satellites
Goddard Space Flight Center
Code 601
Greenbelt, Maryland, U.S.A. 20771
[Telephone: (301) 982-6695]

Rotation of the Earth:

World Data Center A: Rotation
of the Earth
U.S. Naval Observatory
Washington, D.C., U.S.A. 20390
[Telephone: (202) 254-4023]

Solar-Terrestrial Physics (Solar and Interplanetary Phenomena, Ionospheric Phenomena, Flare-Associated Events, Geomagnetic Variations, Magnetospheric and Interplanetary Magnetic Phenomena, Aurora, Cosmic Rays, Airglow):

World Data Center A
for Solar-Terrestrial Physics
Environmental Data and Information
Service, NOAA
Boulder, Colorado, U.S.A. 80303
[Telephone: (303) 499-1000, Ext. 6467]

Solid-Earth Geophysics (Seismology, Tsunamis, Gravimetry, Earth Tides, Recent Movements of the Earth's Crust, Magnetic Measurements, Paleomagnetism and Archeomagnetism, Volcanology, Geothermics):

World Data Center A
for Solid-Earth Geophysics
Environmental Data and Information
Service, NOAA
Boulder, Colorado, U.S.A. 80303
[Telephone: (303) 499-1000, Ext. 6521]

NOTES:

1. World Data Centers conduct international exchange of geophysical observations in accordance with the principles set forth by the International Council of Scientific Unions. WDC-A is established in the United States under the auspices of the National Academy of Sciences.

2. Communications regarding data interchange matters in general and World Data Center A as a whole should be addressed to: World Data Center A, Coordination Office (see address above).

3. Inquiries and communications concerning data in specific disciplines should be addressed to the appropriate subcenter listed above.

WORLD DATA CENTER A
for
Solar-Terrestrial Physics

REPORT UAG-71

MAGNETIC POTENTIAL PLOTS OVER THE NORTHERN HEMISPHERE FOR 26–28 MARCH 1976

by

A. D. Richmond, H. W. Kroehl, M. A. Henning, and Y. Kamide

April 1979

Published by World Data Center A for
Solar-Terrestrial Physics, NOAA, Boulder, Colorado
and printed by

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Asheville, North Carolina, USA 28801

SUBSCRIPTION PRICE: $25.20 a year; $17.30 additional for foreign mailing; single copy price varies.*
Checks and money orders should be made payable to the Department of Commerce, NOAA/NGSDC.
Remittance and correspondence regarding subscriptions should be sent to the National Geophysical and Solar–Terrestrial Data Center, NOAA, Boulder, CO 80303.

TABLE OF CONTENTS

		Page
PART 1		
I.	Introduction	1
II.	Data Processing	1
III.	Derived Parameters	1
IV.	Acknowledgments	4
V.	References	4
VI.	Appendix	5
PART 2		
	The 10-Minute Plots for 26 - 28 March 1976	7

MAGNETIC POTENTIAL PLOTS OVER THE NORTHERN HEMISPHERE FOR 26-28 MARCH 1976

by

A. D. Richmond[1], H. W. Kroehl[2],
M. A. Henning[3], and Y. Kamide[4]

National Geophysical and Solar-Terrestrial Data Center
NOAA, Boulder, CO 80303

PART 1

I. Introduction

The magnetic storm of 26-28 March 1976 has been the subject of considerable scientific interest, being part of a Retrospective World Interval, a Study of Traveling Interplanetary Phenomena Interval II and a Special International Magnetospheric Study Interval [e.g., Coffey and McKinnon, 1977]. This report presents contour maps of magnetic potential variations over the Northern Hemisphere at 10-min intervals between 0000 UT, 26 March and 0550 UT, 28 March 1978 as an aid to further study of this event. These are excerpts from a larger data set, with plots every minute, which were used to make a data moving picture. An analysis of these maps for several magnetic substorms occurring during this period is presented in Kroehl and Richmond [1979].

A geomagnetic variation field $\underline{B}$ at ground level can be described as the negative gradient of a scalar magnetic potential V, if the magnetic effects of electrical currents within the lower atmosphere are negligible. The magnetic potential is closely related to the so-called "equivalent" ionospheric current often discussed in the literature. For many purposes, it is sufficient to make the approximation that 1 T-m of magnetic potential variation at ground level represents 10^6 A of equivalent overhead current, a relation that takes into account the contribution of induced earth currents to $\underline{B}$. For example, if the magnetic potential is increasing toward the north at the rate of 10^{-6} Tesla-meters per meter (a 1,000-nT southward magnetic variation), the equivalent overhead ionospheric current is approximately 1 Ampere per meter toward the west. In reality the actual currents responsible for the ground-based magnetic variations are not confined to the ionosphere but extend far out into the magnetosphere.

II. Data Processing

The magnetic potentials are derived from observed magnetic variation data at the 52 observatories listed in Table 1 and shown in Figure 1. From the 1-min digitized H and D (or X and Y) magnetogram traces on 26-28 March 1976, the corresponding values on 25 March 1976 (a quiet day) are subtracted in an attempt to remove Sq effects. For intervals when data gaps or unusable data occur, the problem station or stations are excluded from the magnetic potential derivation. The computerized procedure used to obtain the potentials, as outlined by Kroehl and Richmond [1979], is reproduced in the Appendix. This procedure differs from one used by Kamide et al. [1976] in a report presenting magnetic potential maps for 8-9 November 1969.

Because ring current effects are strong throughout most of the storm period, it is useful to remove these effects in order to reveal other features of the potential patterns more clearly. This is done as described in the Appendix. In this report we present maps of the total potential V and the potential with symmetric ring current effects removed V'.

III. Derived Parameters

Several parameters have been extracted from the potential plots, and the time variations of some of these are shown in Figure 2. "Dst" is derived as explained in the Appendix. "Potential maximum (with Dst)" is the maximum value of V in the northern geomagnetic hemisphere, while "potential maximum (without Dst)" is the maximum value of V'. "AU(13)" and "AL(13)" are defined in a similar manner to the standard AE indices, except that we have used our own digitizations of auroral-zone magnetic data in their derivations.

Present Addresses:

1 Space Environment Laboratory, Environmental Research Laboratories, NOAA, Boulder, Colorado
2 Data Studies Division, NOAA/EDIS/NGSDC, Boulder, Colorado
3 Lockheed Missiles and Space Co., Aurora, Colorado
4 Kyoto Sangyo University, Kyoto, Japan

TABLE 1

STATION	GEOMAG LAT	GEOMAG EAST LONG
Thule	89.0	3.6
Alert	85.9	167.3
Resolute Bay	83.1	290.2
Godhavn	79.8	33.3
Mould Bay	79.3	256.4
Cambridge	77.4	290.0
New Alesund	76.4	131.0
Baker Lake	73.8	316.0
Heiss Island	71.3	156.3
Narssarssuaq	71.1	37.4
Leirvogur	70.1	71.5
Yellowknife	69.1	294.3
Fort Churchill	68.7	323.5
Point Barrow	68.6	241.6
Great Whale River	66.6	348.1
Cape Chelyuskin	66.3	176.7
Abisko	65.9	115.3
College	64.7	257.0
Dixon Island	63.0	161.8
Meanook	61.9	301.6
Tixie Bay	60.5	191.7
St. Johns	58.4	21.8
Ottawa	56.8	352.1
Newport	55.2	300.8
Wingst	54.3	95.3
Dourbes	51.9	88.2
Minsk	51.4	111.0
Fredericksburg	49.5	350.4
Boulder	49.0	317.0
Furstenfeldbruck	48.7	93.8
Sverdlovsk	48.5	141.1
Tihany	46.2	99.8
Logrono	46.0	77.7
Petropavlosk	44.8	219.3
Toledo	43.8	75.1
Odessa	43.6	111.5
Almeria	40.5	75.8
Tucson	40.5	312.7
Karanganda	40.3	148.7
Tbilisi	36.6	122.5
Memambetsu	34.1	208.8
Vladivostock	32.9	198.5
Tashkent	32.3	144.4
San Juan	29.6	3.6
Kakioka	26.1	206.4
Honolulu	21.2	267.0
M'Bour	21.2	55.5
Kanoya	20.6	198.5
Fuquene	16.9	355.6
Bangui	4.7	89.0
Guam	4.0	213.4
Davao	-4.0	195.3

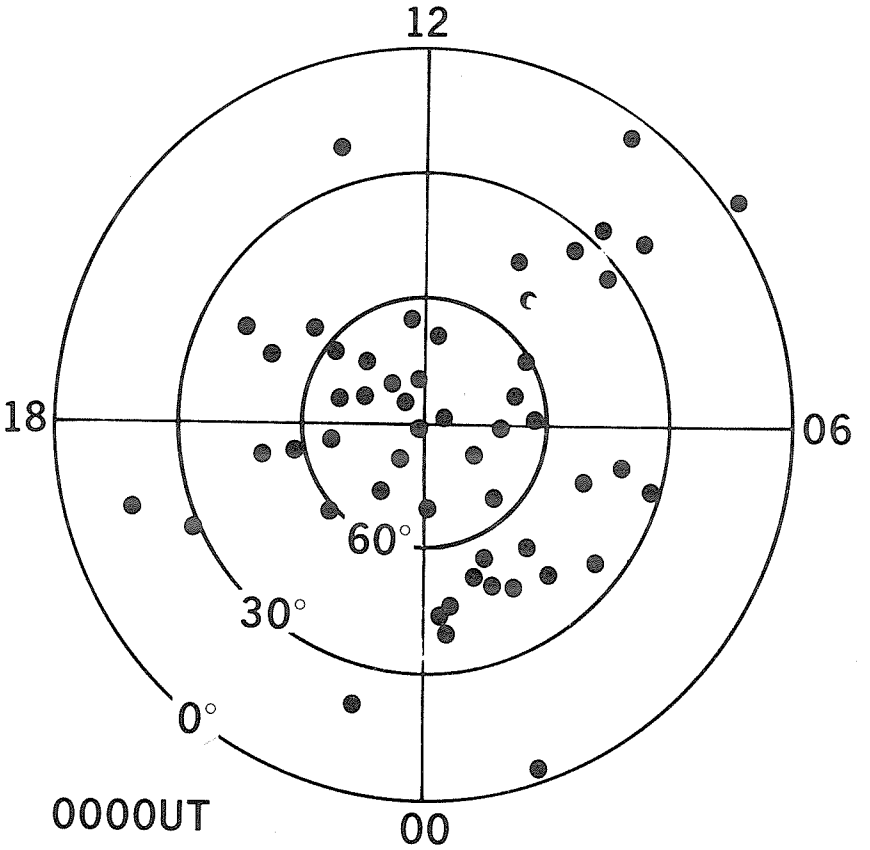


Fig. 1. Station locations in geomagnetic latitude and geomagnetic local time (MLT) at 0000 UT. The geomagnetic prime meridian (0° geomagnetic longitude) is at 1920 MLT.

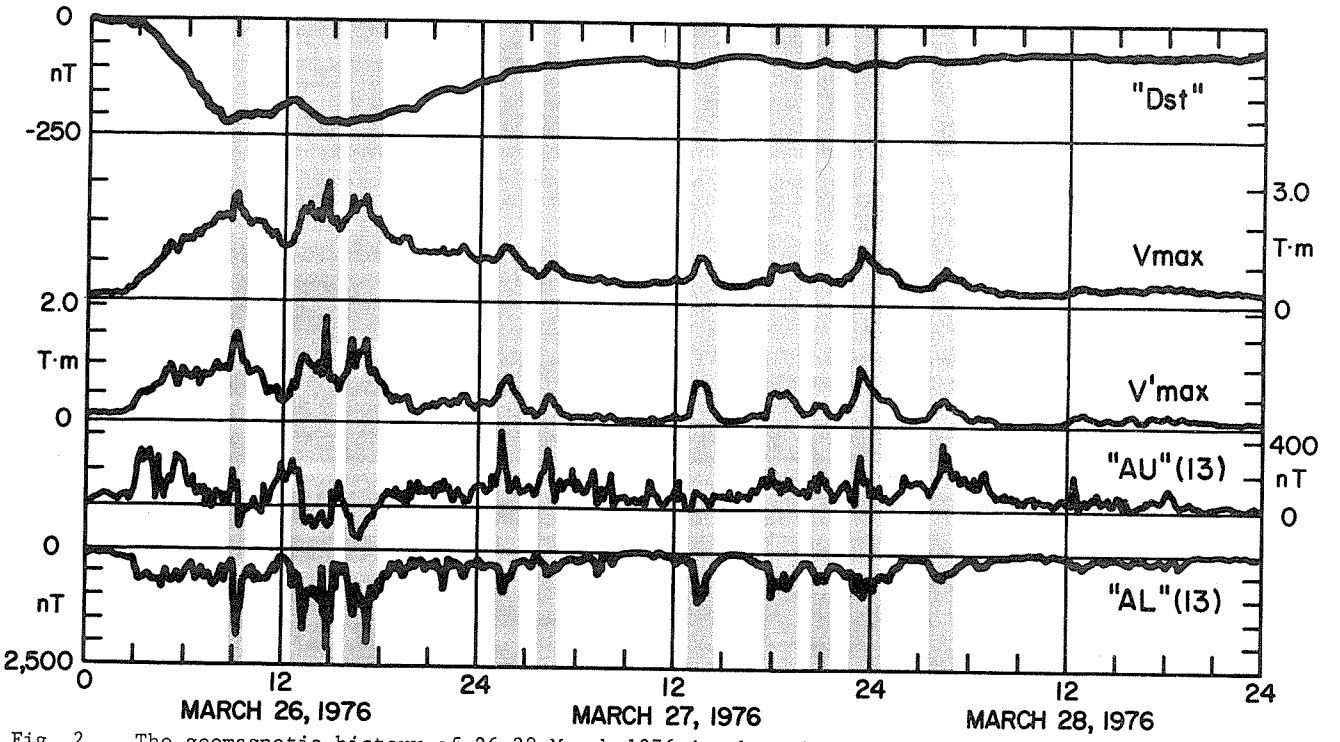


Fig. 2. The geomagnetic history of 26-28 March 1976 is shown by indices of magnetic activity, i.e. "Dst", maximum values of V and V', "AU" and "AL". "Dst", "AU", and "AL" are comparable to the standard magnetic indices though they were derived from our techniques and data. Note that the 600-nT range of "AU" is plotted in the same vertical displacement as the 2,300-nT range of "AL".

IV. Acknowledgments

This work was done when two of us (A.D. Richmond and Y. Kamide) were guest workers at NGSDC/ World Data Center A for Solar-Terrestrial Physics, and another (M.A. Henning) was a work-study employee. A.D. Richmond was supported in part by a Resident Research Associateship from the National Research Council. We wish to express our gratitude to P.R. Yotka for preparation of the data and to J.H. Allen and A.H. Shapley for their financial support and encouragement.

V. References

COFFEY, H. E. and J. A. MCKINNON, eds. 1977 Collected Data Reports for STIP Interval II, 20 March - 5 May 1976, World Data Center-A for Solar-Terrestrial Physics, Report UAG-61.

KAMIDE, Y., H. W. KROEHL, M. KANAMITSU, J. H. ALLEN, and S.-I. AKASOFU 1976 Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances, World Data Center-A for Solar-Terrestrial Physics, Report UAG-55.

KROEHL, H. W., and A. D. RICHMOND 1979 Magnetic Substorm Characteristics Described by Magnetic Potential Maps for 26-28 March 1976, Space Sci. Rev., in press.

VI. Appendix

The magnetic variation potential V at any given time is expressed as a spherical harmonic series as a function of geomagnetic colatitude θ and east longitude ϕ :

$$V(\theta,\phi) = \sum_{m=o}^{12} \sum_{n} (a_n^m \cos m\phi + b_n^m \sin m\phi) P_n^m(\cos\theta) \tag{1}$$

The values of n to be included in this series are determined from the following considerations. First, the spacing of our stations permits resolution of features down to scales of a few hundred kilometers at some high-latitude locations. It is found that including values of n up to 34 gives the desired resolution in the potential. Because this degree of spatial resolution is required only at colatitudes less than 30 degrees, and because the associated Lengendre polynomials P_n^m for m>12 and n<35 are insignificant at these colatitudes, it is unnecessary to include in the series values of m greater than 12. Second, since our data are only from the northern hemisphere and since an infinite series including only terms with (n-m) odd would form a complete set of orthonormal functions over one hemisphere, most of the terms for which (n-m) is even are omitted from our series. The exception is when n=m>0, which terms are included in our series in order to allow magnetic potential contours to intersect the equator in our finite series representation. Because those coefficients b_n^m with m=0 are indeterminate, we have in total 377 coefficients a_n^m and b_n^m to be determined in our series.

Two fundamental criteria guided our selection of a principle from which to determine the 377 coefficients. First, the negative gradient of the potential should match up reasonably well to the observed magnetic variation vectors at each station. An exact fit could be required, but in practice is not necessary nor perhaps even desirable. Some data error should be allowed for; and, probably even more importantly, allowance should be made for the fact that an observation at a given station may be unduly influenced by a localized feature in the ionospheric currents and therefore may not accurately represent mean conditions over a spatial scale characteristic of inter-station distances, an implicit assumption of any global mapping procedure. Our second fundamental criterion is that the potential vary smoothly between stations.

The principle we selected to determine the coefficients is the minimization of the following function Ψ with respect to variations of the coefficients a_n^m and b_n^m:

$$\Psi(V) = \sum_j \left\{ \alpha_j \left[X_j - \frac{1}{R_E}\frac{\partial V}{\partial\theta}(\theta_j,\phi_j)\right]^2 + \beta_j \left[Y_j + \frac{1}{R_E \sin\theta}\frac{\partial V}{\partial\phi}(\theta_j,\phi_j)\right]^2 \right\}$$

$$+ \frac{\Gamma}{2\pi R_E} \int_0^{\pi/2} \sin\theta \, d\theta \int_0^{2\pi} d\phi \, \Theta(\theta) \left\{ \frac{1}{\sin\theta}\frac{\partial}{\partial\theta}\left[\sin\theta\frac{\partial V}{\partial\theta}\right] + \frac{1}{\sin^2\theta}\frac{\partial^2 V}{\partial\phi^2}\right\}^2$$

$$+ \frac{\gamma}{2\pi R_E} \int_0^{2\pi} d\phi \left[\frac{\partial^2 V(\pi/2,\phi)}{\partial\phi^2}\right]^2 \tag{2}$$

where R_E is the radius of the earth (6371 km); X_j and Y_j are the observed geomagnetic north and east variations at the jth station; α_j, β_j, Γ, and γ are prechosen weighting factors, and $\Theta(\theta)$ is a latitudinal weighting function defined by

$$\Theta(\theta) = 1 - 12\cos^6\theta + 19.078125\cos^8\theta - 8.0625\cos^{10}\theta \tag{3}$$

The choice of weighting factors determines the relative importance of each of the constraints in (2). Because the measurement errors and spatial variability are generally much greater at high latitudes than at low latitudes, the weighting factors α_j and β_j are chosen to increase with decreasing geomagnetic latitude, being generally 0.25 above 56 degrees, 0.5 at 50 - 56 degrees, 1.0 at 45 - 50 degrees, 2.0 at 40 - 45 degrees, and 4.0 below 40 degrees. At the magnetic equator (Davao) α_j is set equal to zero in order to avoid influencing the global pattern by the localized feature of the equatorial electrojet. The term in (2) containing Γ is a weighted hemispherical integral of the hori-

zontal Laplacian of V, which represents a measure of roughness of the potential. The weighting function Θ is small at high latitudes and large at low latitudes, so that this constraint for V to be smooth operates more strongly at low latitudes, where spatial structure is expected to be much smoother than at high latitudes. The resultant potential patterns are found to be fairly insensitive to the choice of Γ; a value of 2.0 is used. Finally, initial computations with $\gamma = 0$ often yielded unrealistic wavy patterns around the equator. This can occur because certain types of structure are not suppressed by the constraint on the Laplacian (for example, functions like $\tan^m(\theta/2)\cos(m\theta)$ have a zero Laplacian in the northern hemisphere, but their importance increases with θ). This structure is suppressed by constraining potential contours to tend not to cross the equator, accomplished by use of a non-zero value (4.0) for γ.

In order to solve for V, partial derivatives of $\Psi(V)$ with respect to each of the a_n^m and b_n^m are set equal to zero, yielding 377 linear equations with 377 unknowns. An iterative procedure is used to solve for the coefficients. After V is determined, the computed magnetic variation components at each station are compared with the observed values. Typically, the root-mean-square difference for all stations is about 8% of the root-mean-square observed variation. However, at certain times the average discrepancy rises to as much as 20%. An important practical advantage of comparing the computed and observed variations at each station is that it permits us to locate easily bad data sets, for which the fit is consistently poor.

We define the ring current component of the potential as

$$V_{rc}(\theta) = \mathrm{Dst}\, R_E \cos\theta \tag{4}$$

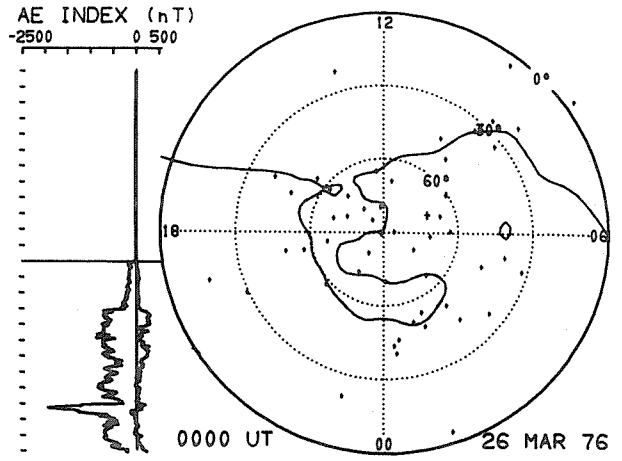
in which Dst is chosen such that V_{rc} at 60 degrees colatitude equals the average value of V around the 60 degrees colatitude circle. (Note that both V_{rc} and the average value of V around the equator are zero). The magnetic variation potential with longitudinally symmetric ring current effects removed V' is then defined simply as

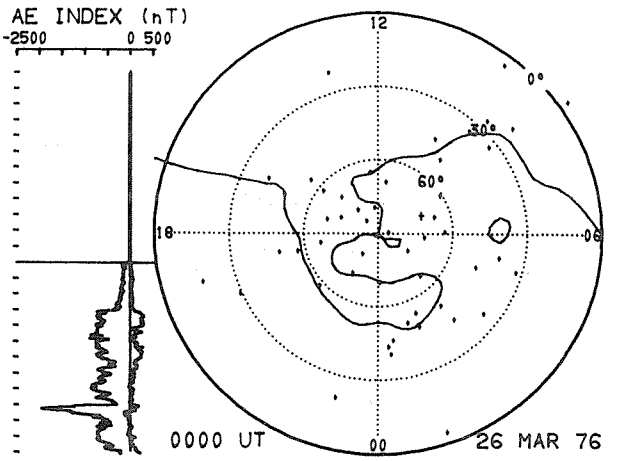
$$V'(\theta,\phi) = V(\theta,\phi) - V_{rc}(\theta) \tag{5}$$

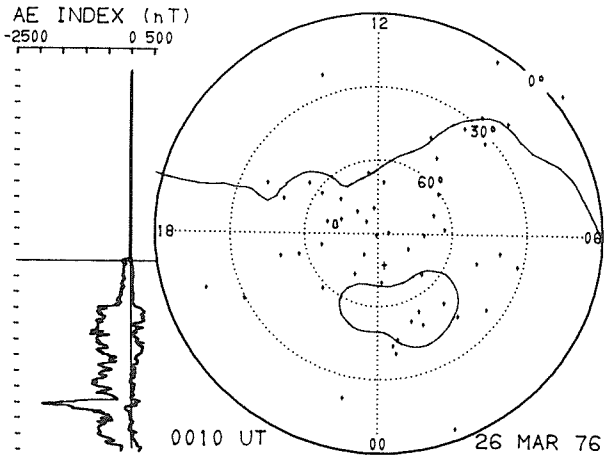
PART 2

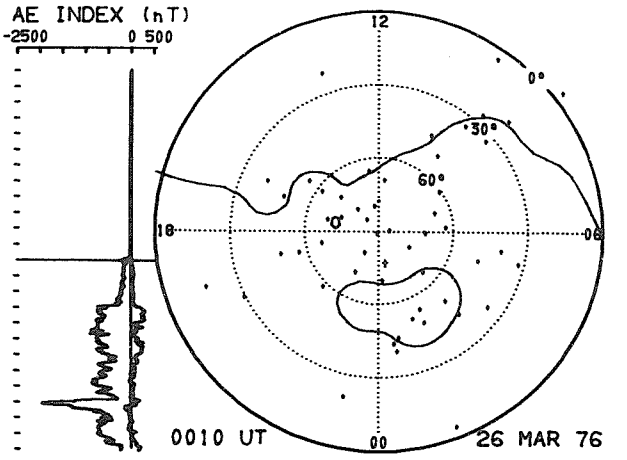
The 10-Minute Plots for 26-28 March 1976

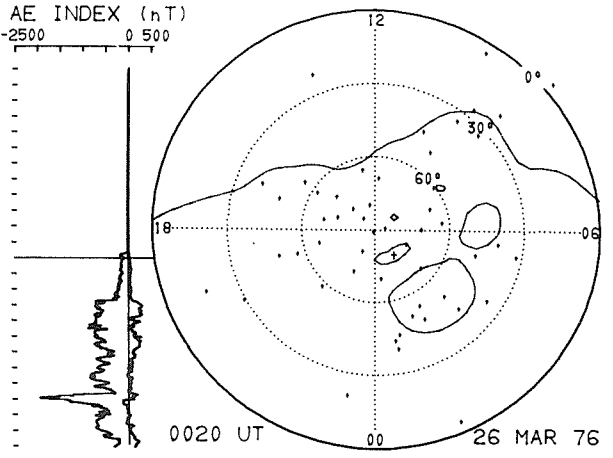
Two magnetic potential contour plots for the northern geomagnetic hemisphere are presented for each time. On the left is shown the total potential V and on the right is shown the potential V' which has symmetric ring current effects removed. Coordinates are geomagnetic latitude and geomagnetic local time. At 0440 UT the geomagnetic prime meridian extends straight down from the pole; for any later (earlier) time the contours are rotated clockwise (counterclockwise) by 2.5 degrees per 10 minutes. Thus geomagnetic local midnight is always at the bottom of the plot. The contour interval is 0.1 T·m corresponding to approximately 10^5 Amperes of equivalent overhead current. Station locations are indicated by small crosses. The positions of the maximum and minimum potentials are shown by a plus and minus sign, respectively. To the left are shown the AU and AL indices (whose difference gives the AE index) for a 24-hour period, with time increasing downwards. The horizontal bar across the middle of the AE plot marks the time of the contour plot to the right.

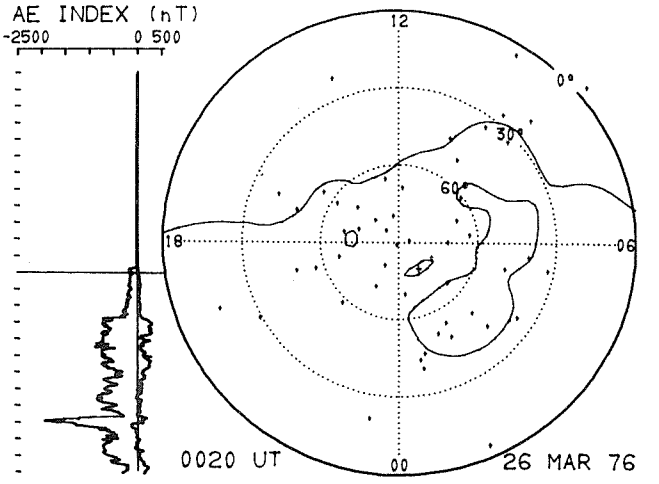

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0000 UT
26 MAR 76

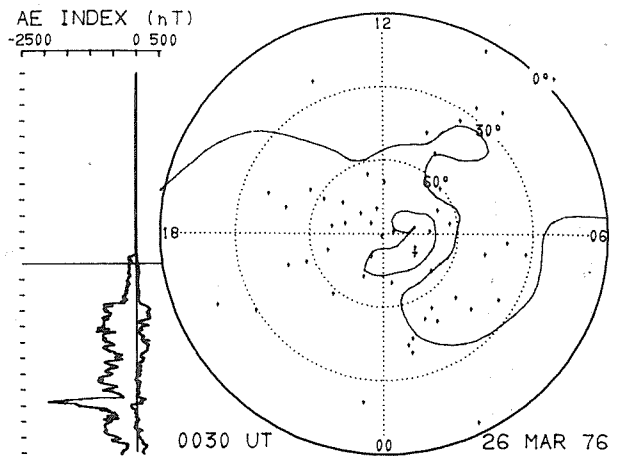

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0000 UT
26 MAR 76

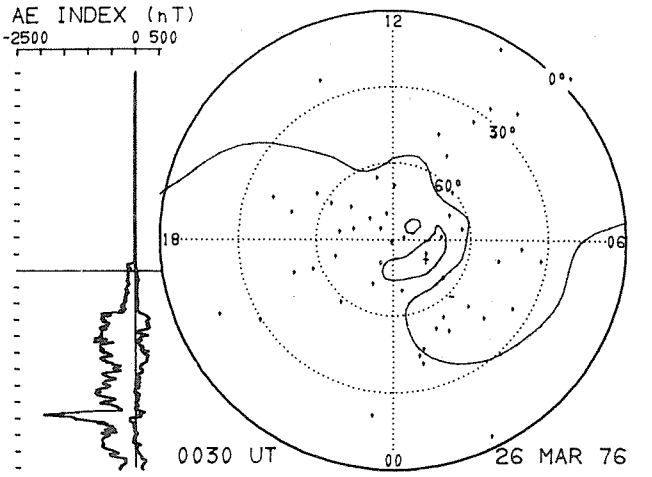

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
26 MAR 76

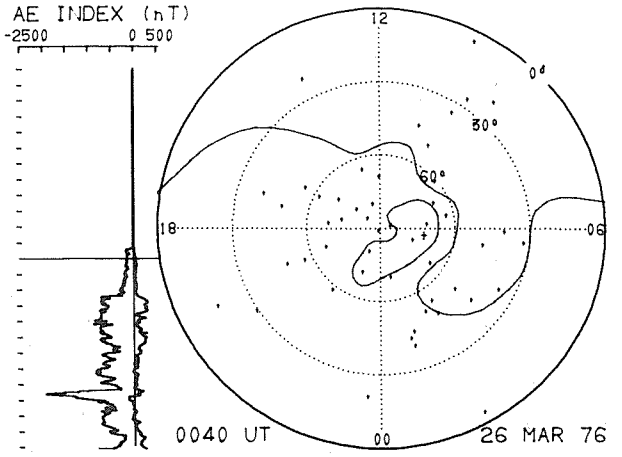

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
26 MAR 76

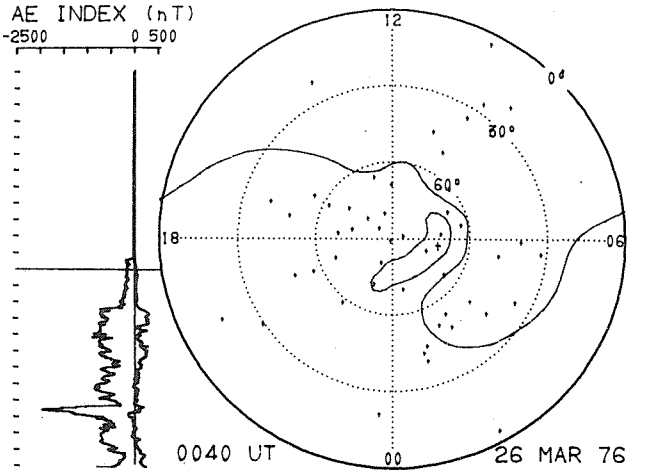

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
26 MAR 76

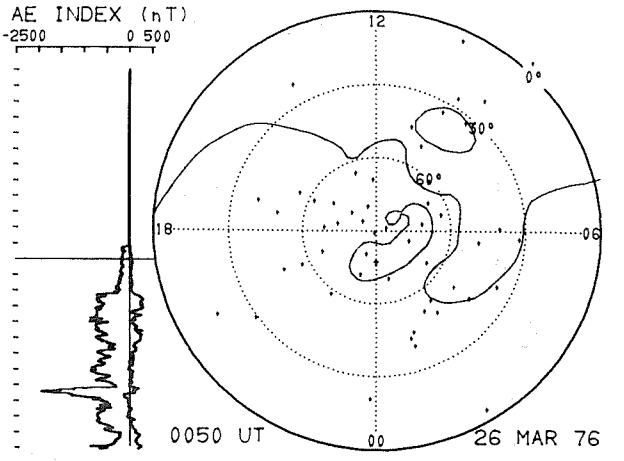

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
26 MAR 76

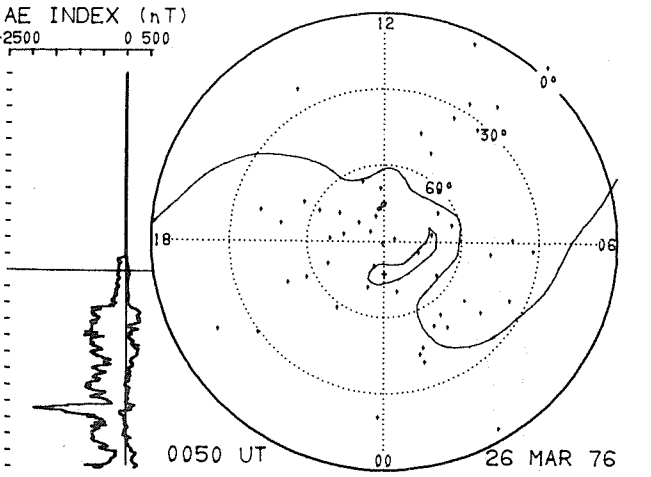

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
26 MAR 76

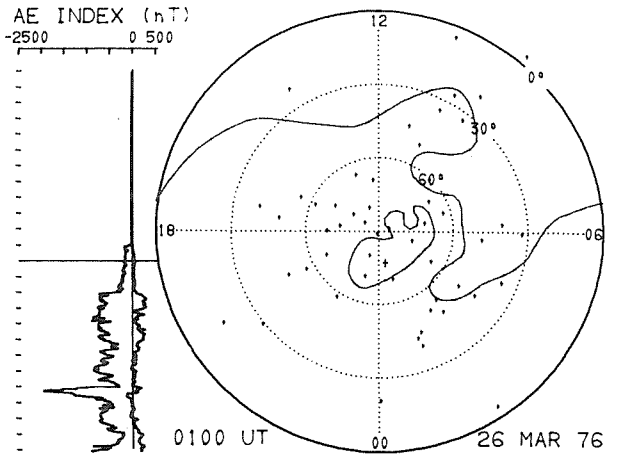

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
26 MAR 76

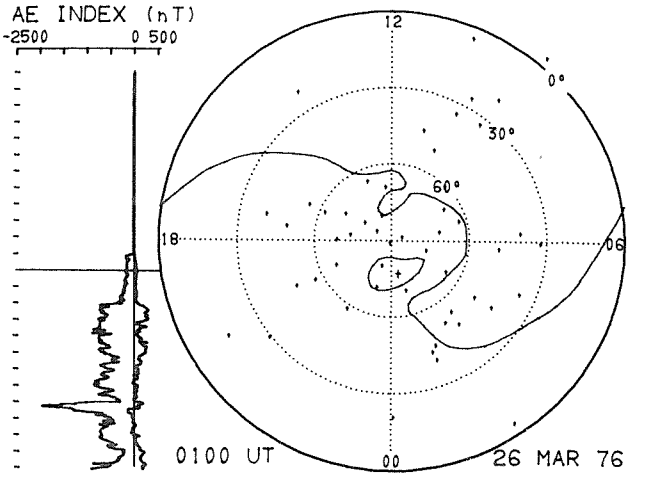

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
26 MAR 76

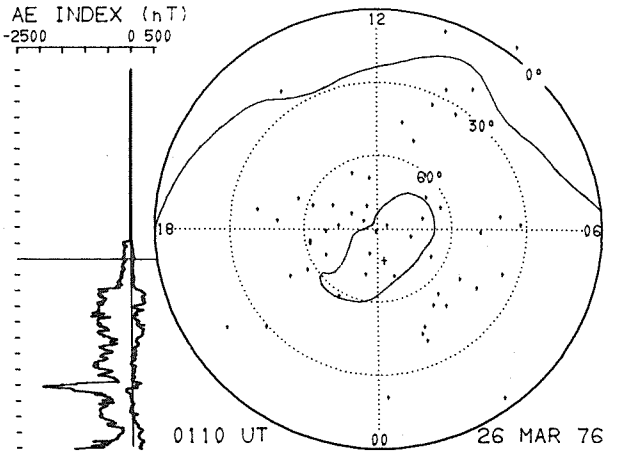

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
26 MAR 76

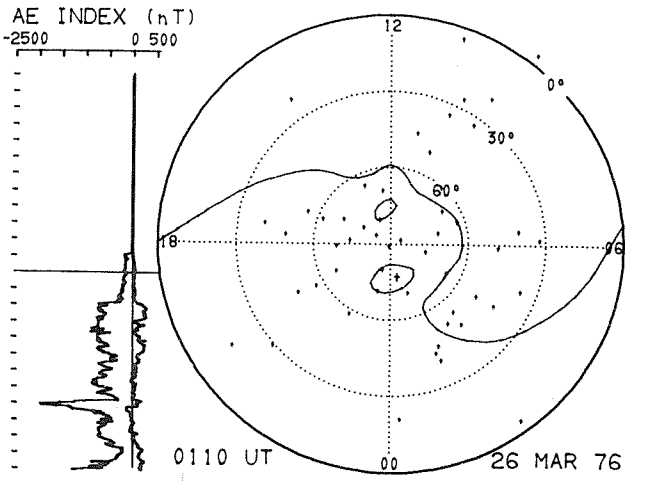

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
26 MAR 76

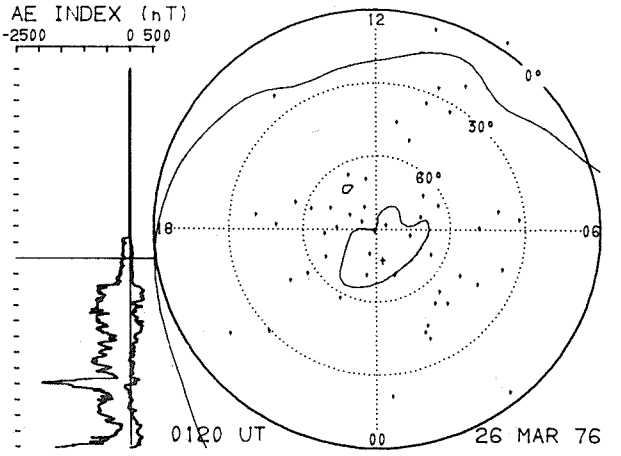

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
26 MAR 76

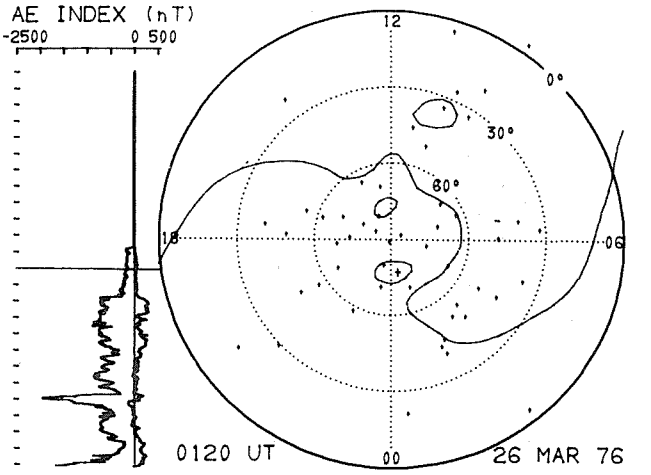

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
26 MAR 76

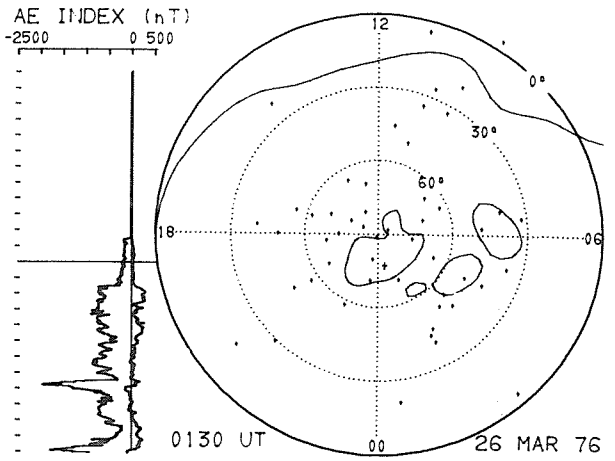

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
26 MAR 76

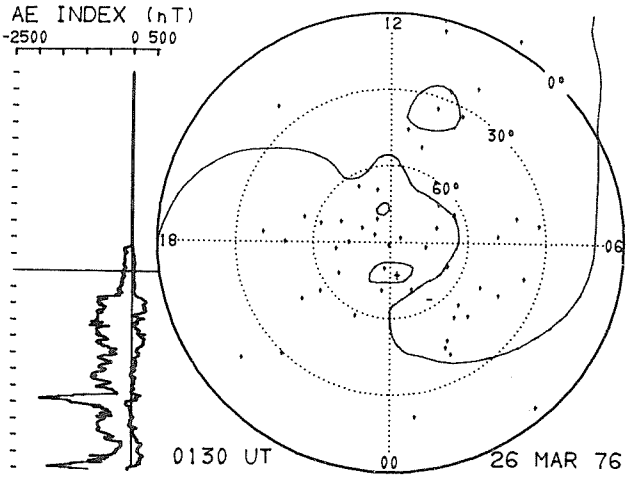

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
26 MAR 76

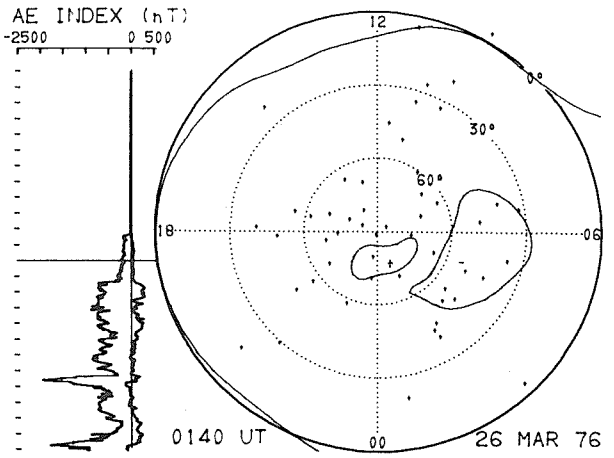

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
26 MAR 76

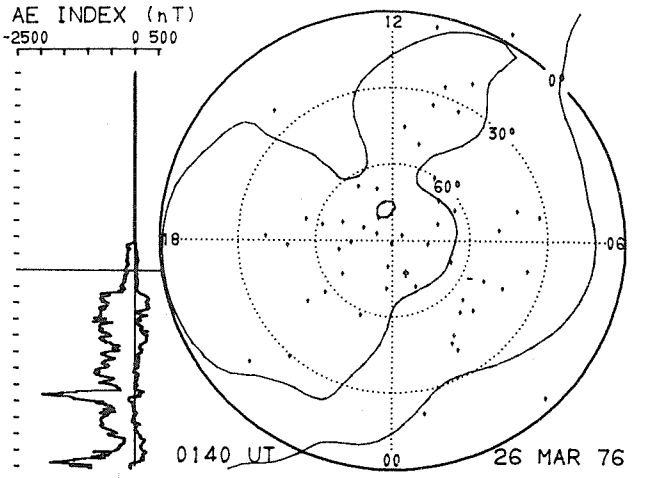

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
26 MAR 76

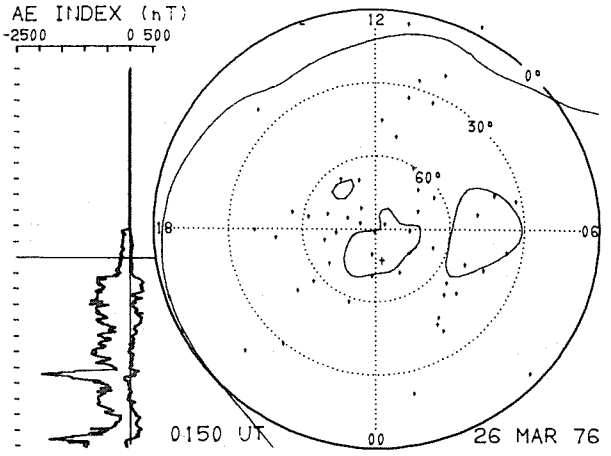

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
26 MAR 76

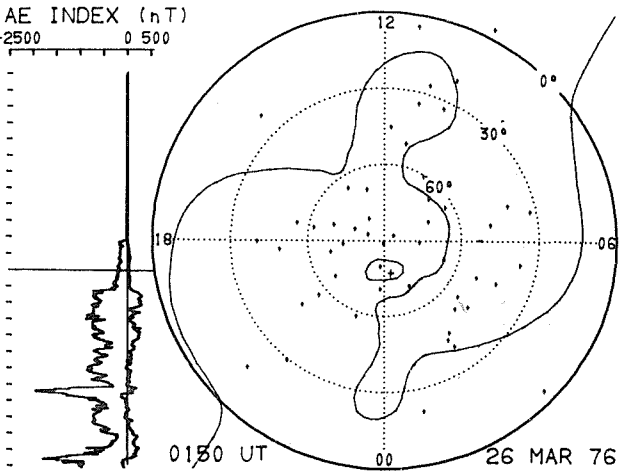

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
26 MAR 76

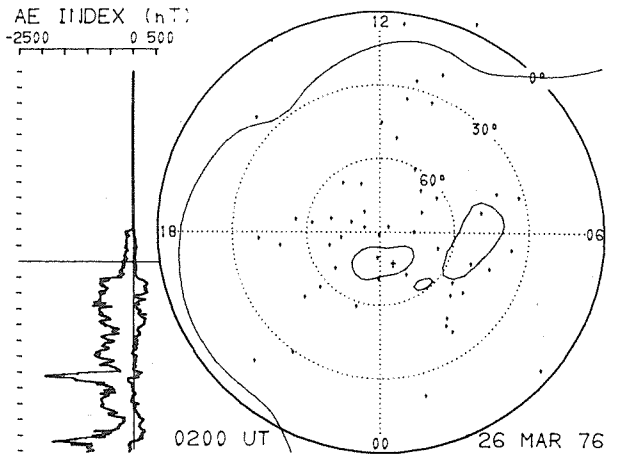

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
26 MAR 76

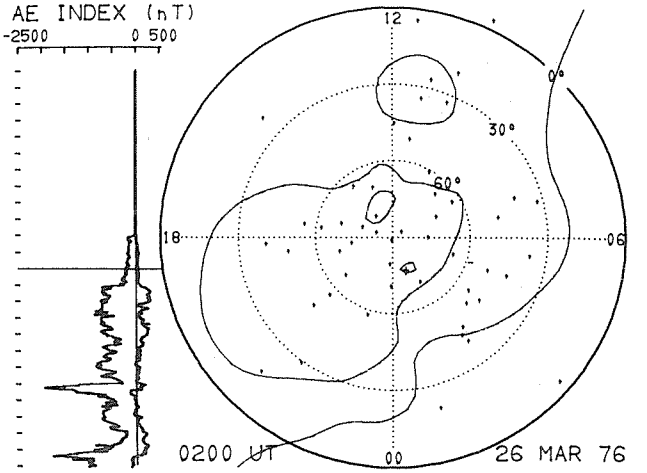

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
26 MAR 76

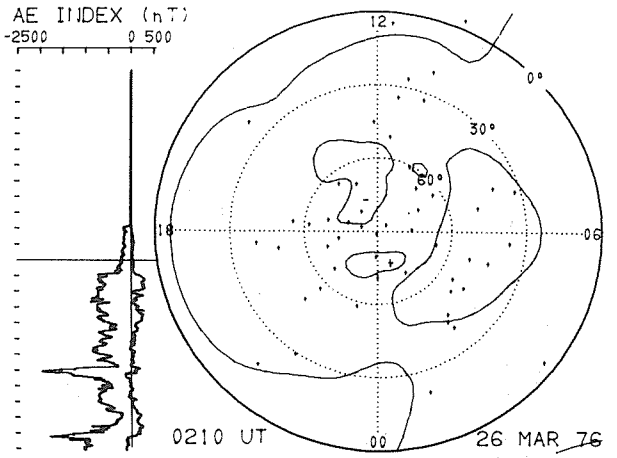

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
26 MAR 76

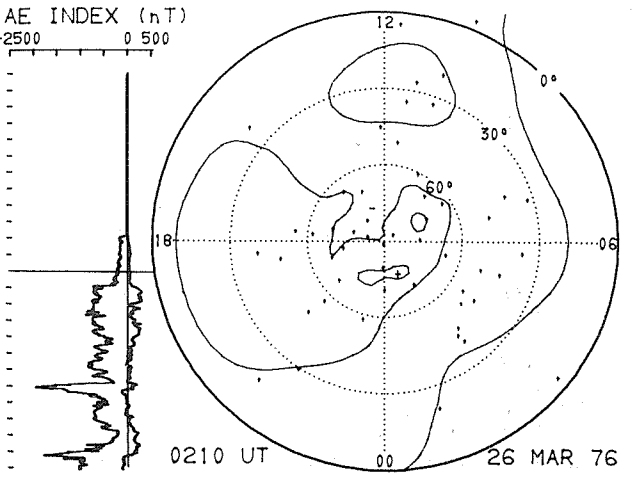

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
26 MAR 76

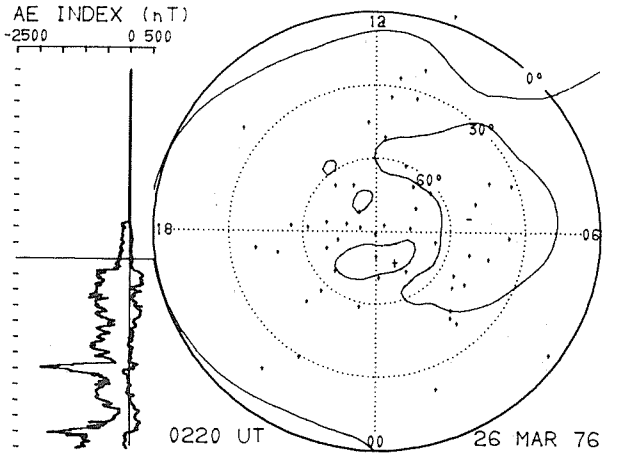

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
26 MAR 76

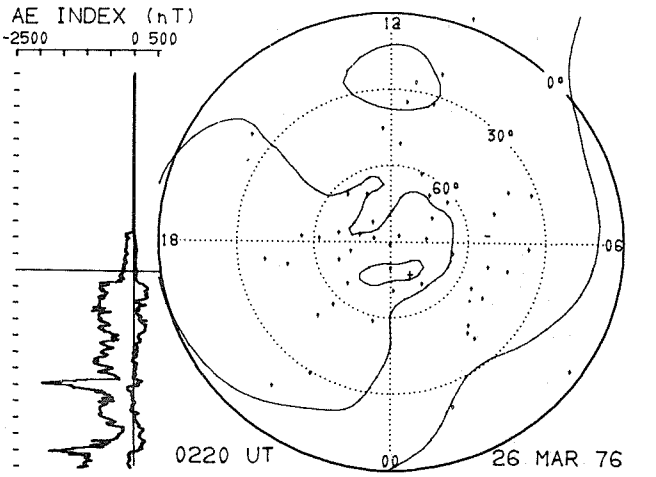

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
26 MAR 76

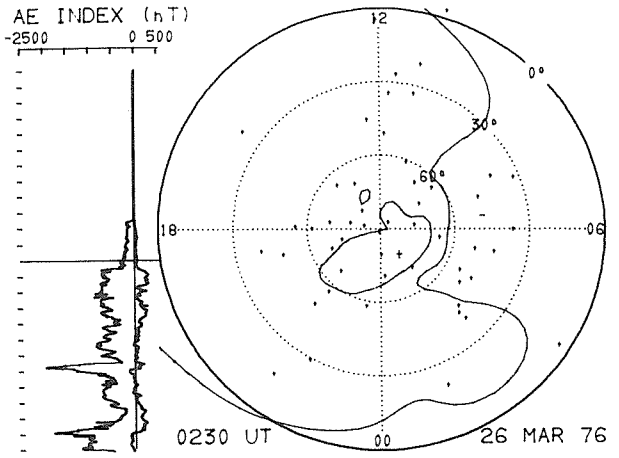

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
26 MAR 76

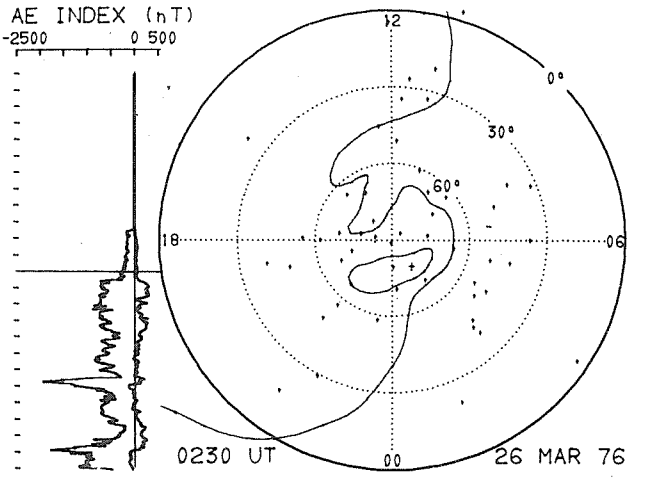

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
26 MAR 76

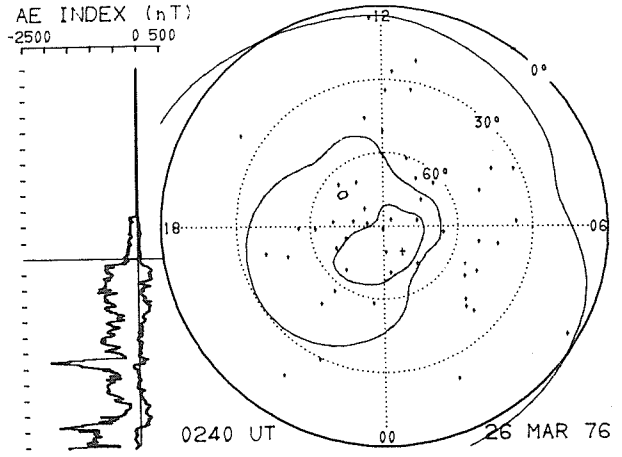

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
26 MAR 76

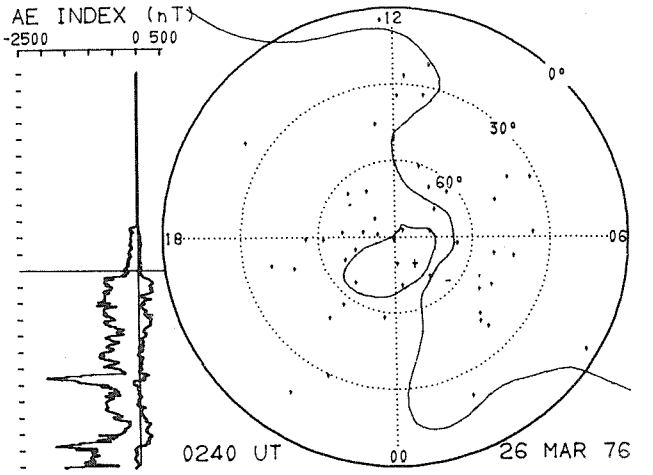

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
26 MAR 76

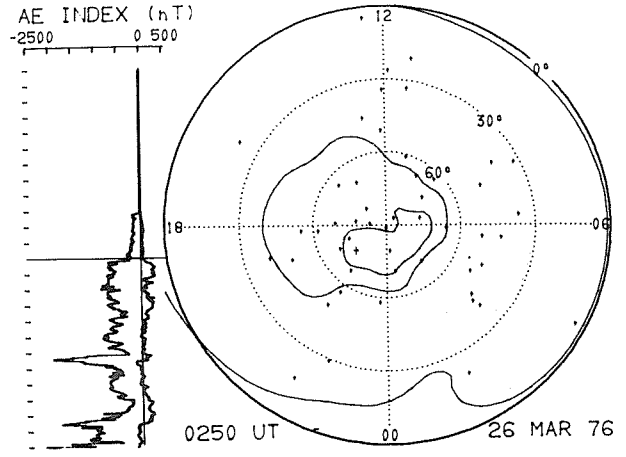

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
26 MAR 76

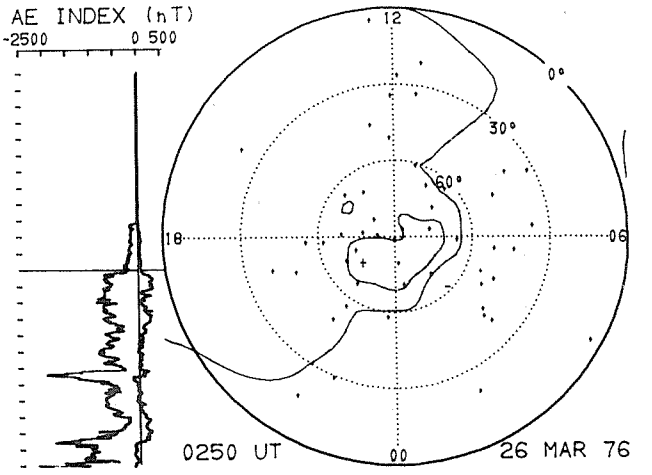

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
26 MAR 76

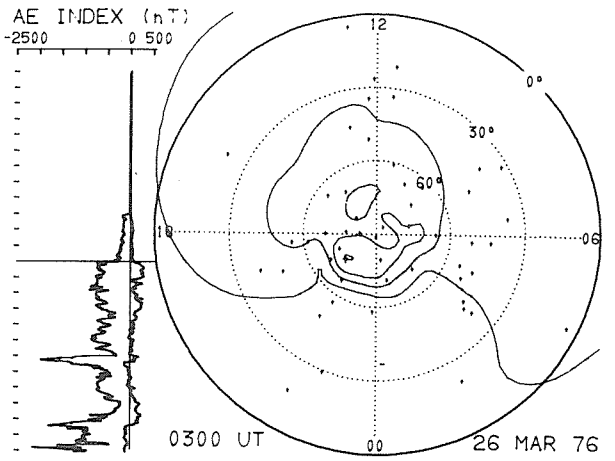

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
26 MAR 76

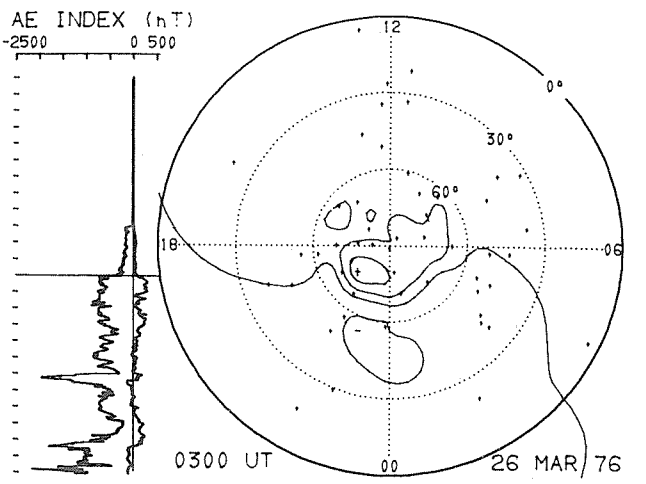

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
26 MAR 76

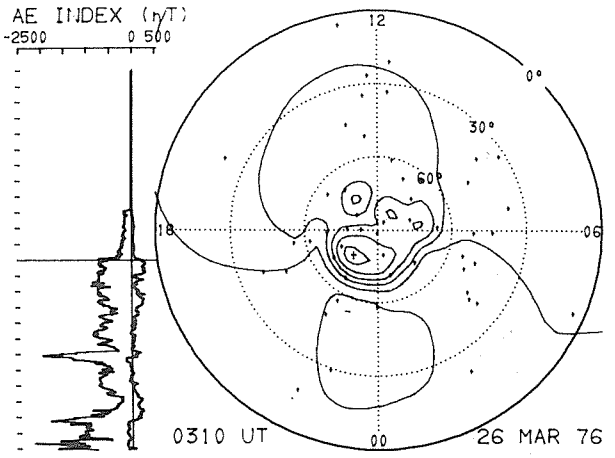

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
26 MAR 76

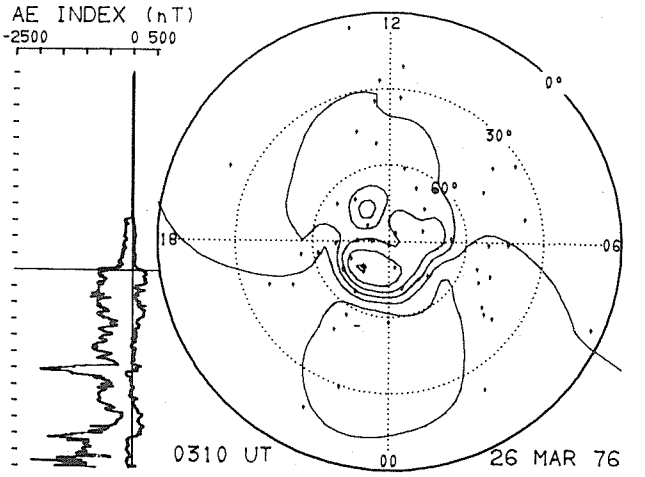

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
26 MAR 76

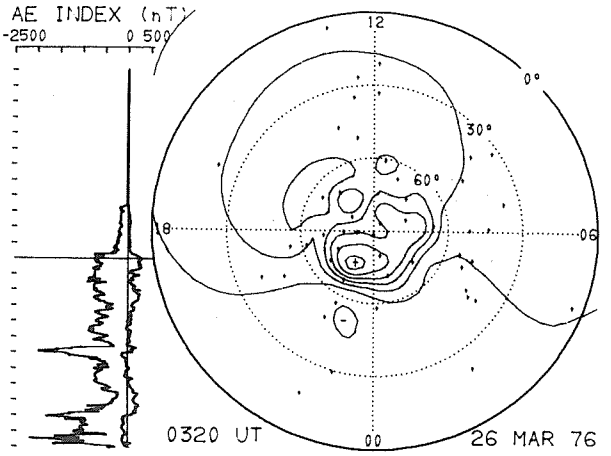

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
26 MAR 76

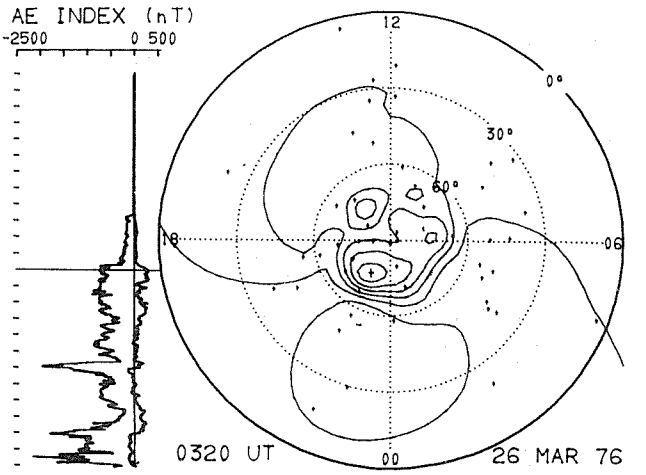

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
26 MAR 76

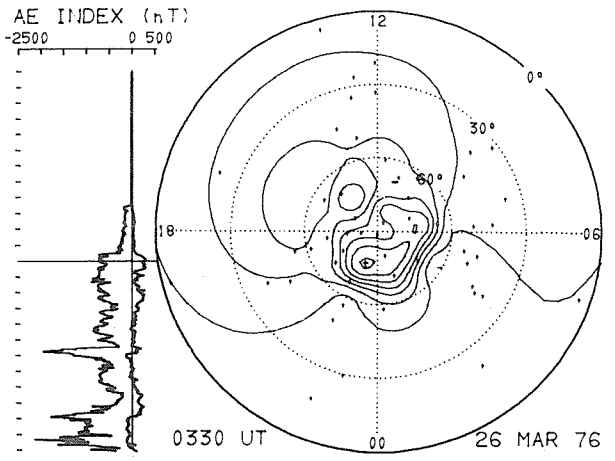

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
26 MAR 76

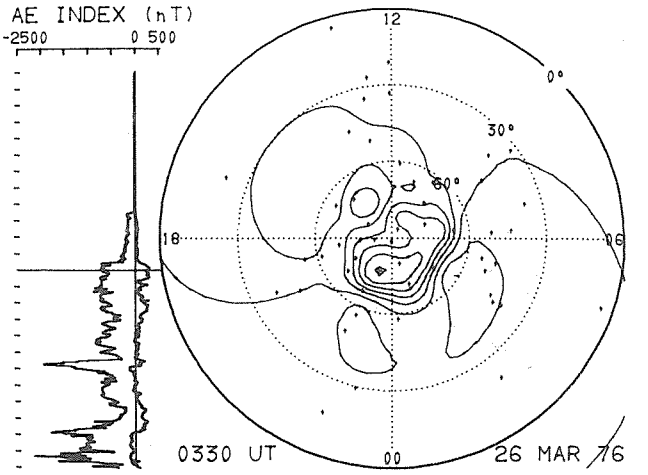

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
26 MAR 76

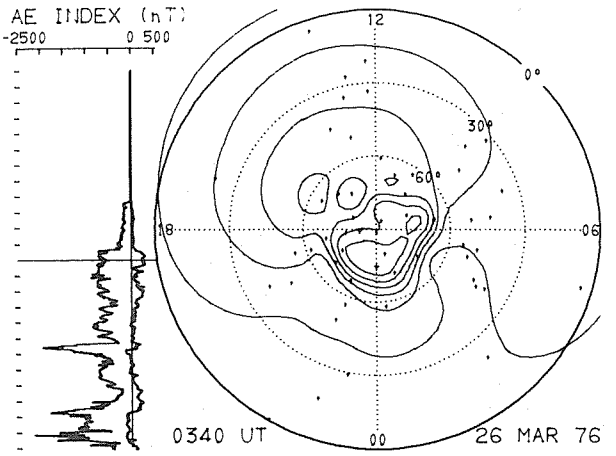

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
26 MAR 76

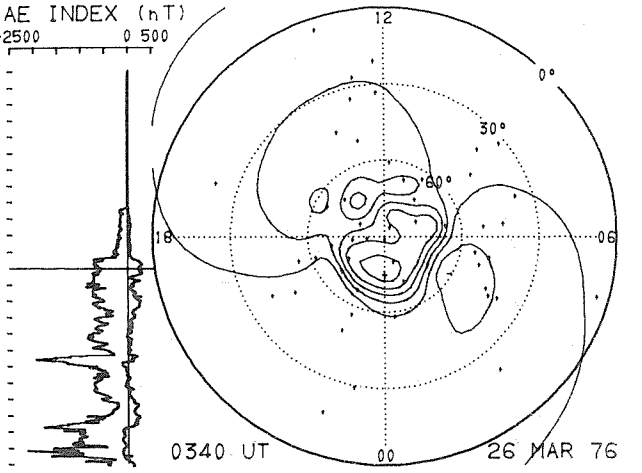

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
26 MAR 76

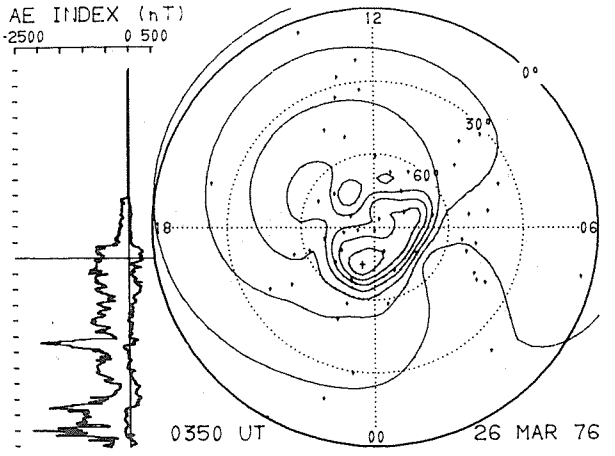

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
26 MAR 76

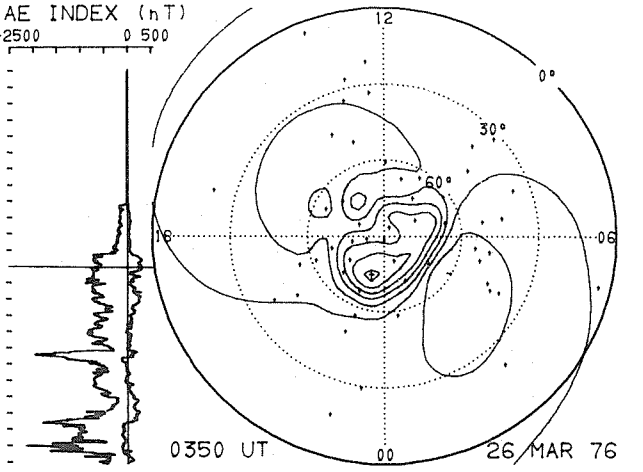

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
26 MAR 76

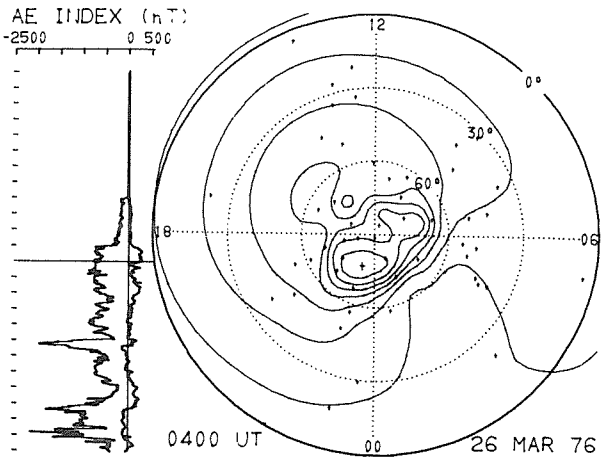

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
26 MAR 76

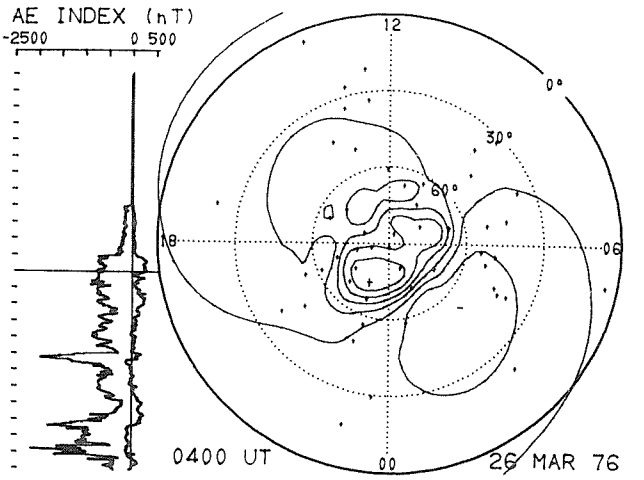

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
26 MAR 76

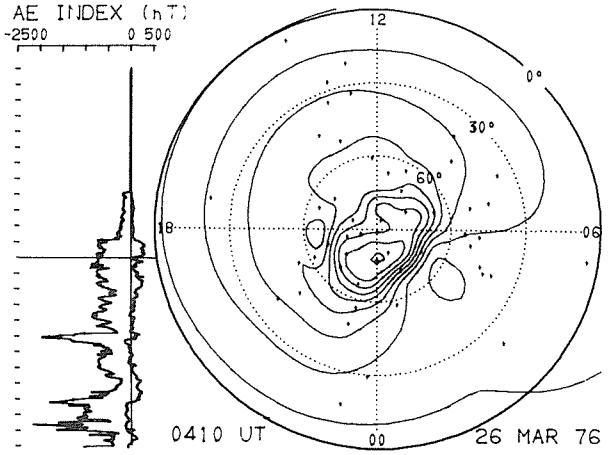

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
26 MAR 76

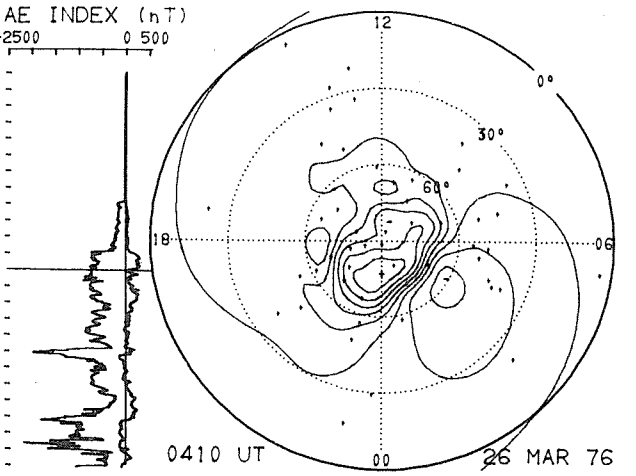

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
26 MAR 76

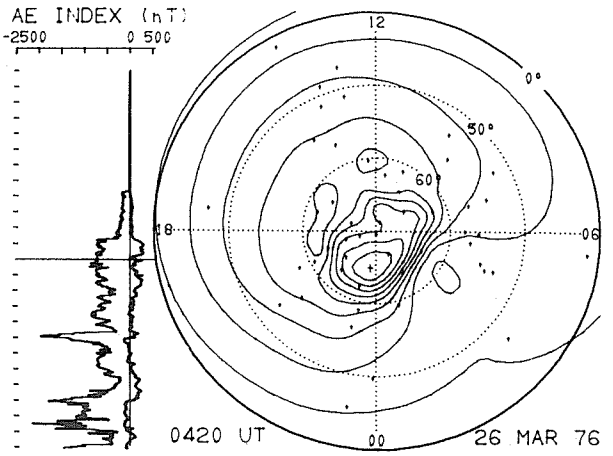

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
26 MAR 76

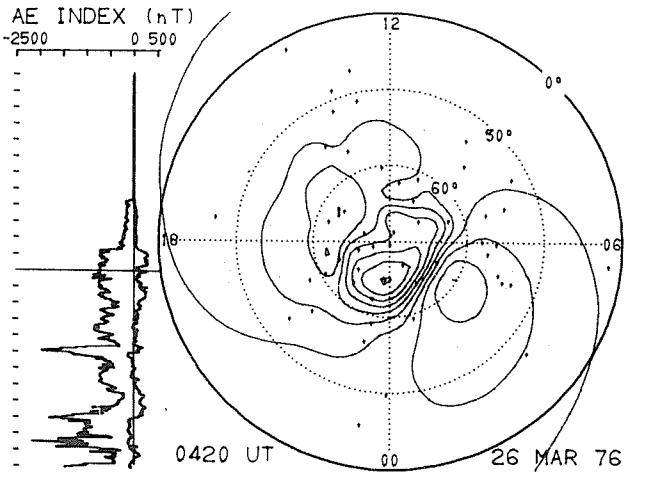

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
26 MAR 76

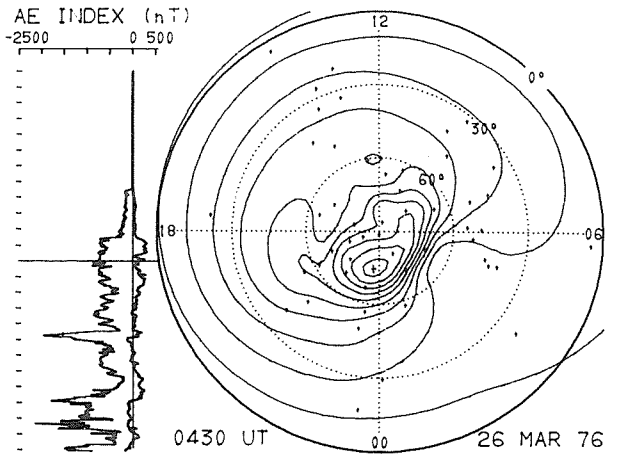

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
26 MAR 76

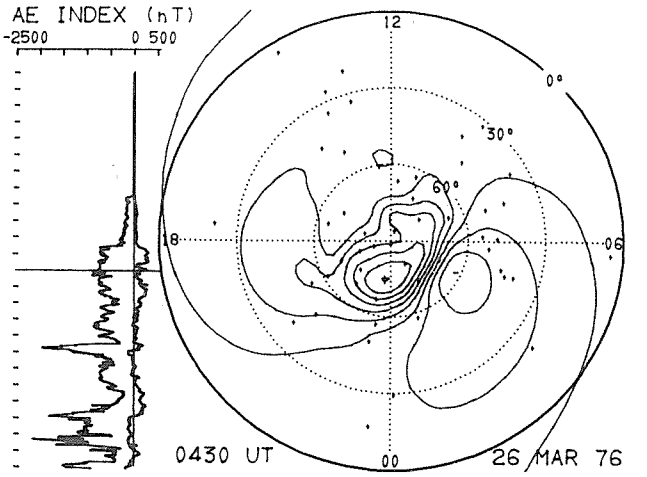

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
26 MAR 76

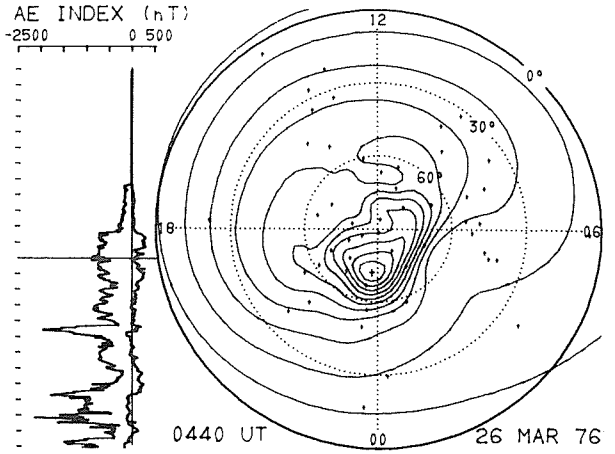

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
26 MAR 76

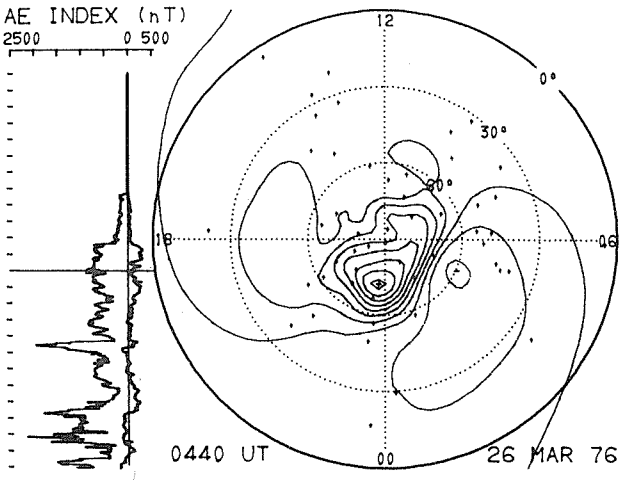

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
26 MAR 76

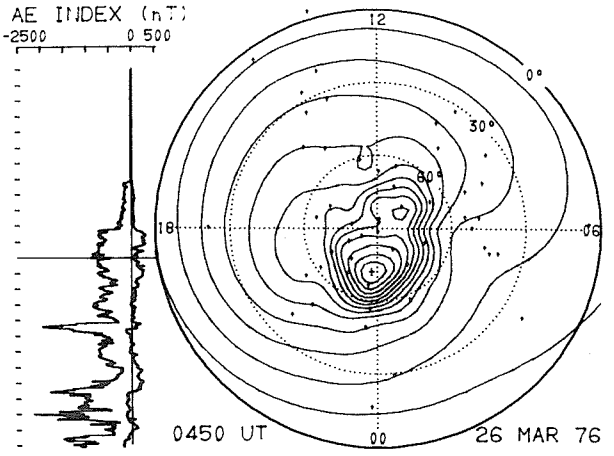

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
26 MAR 76

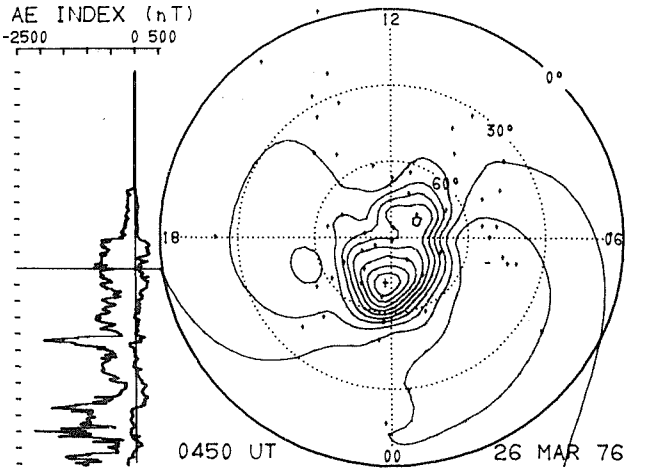

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
26 MAR 76

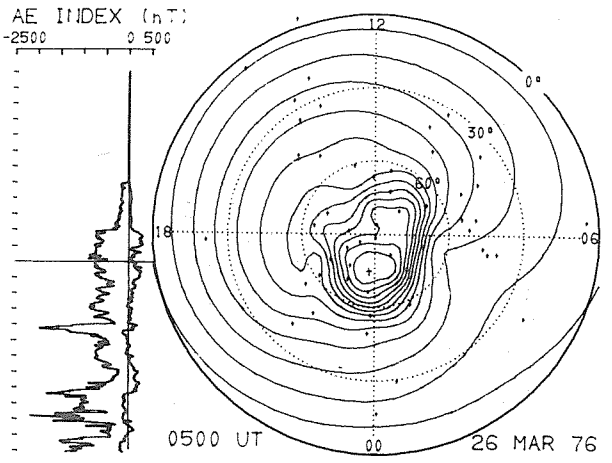

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
26 MAR 76

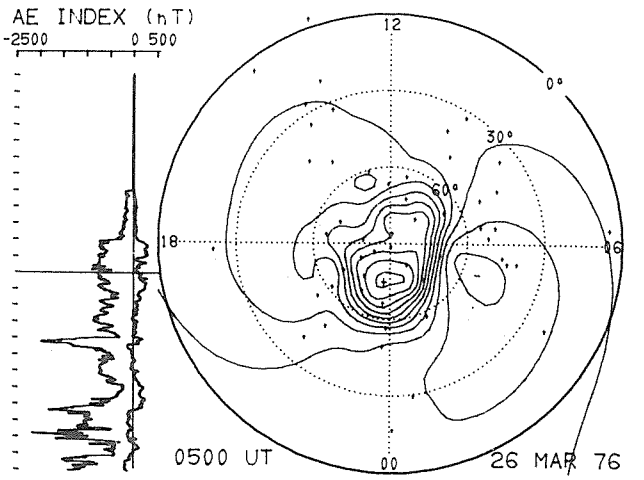

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
26 MAR 76

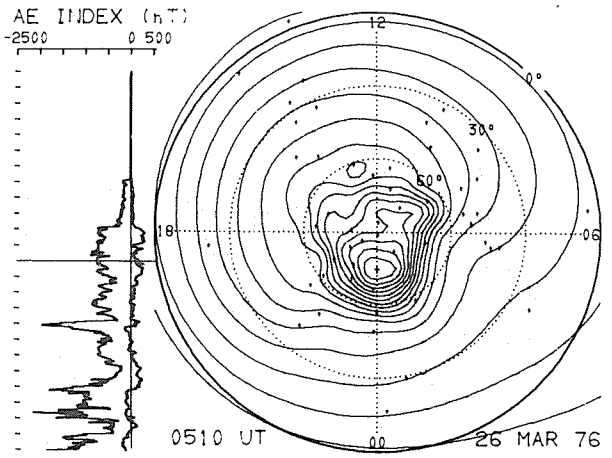

AE INDEX (nT)
2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
26 MAR 76

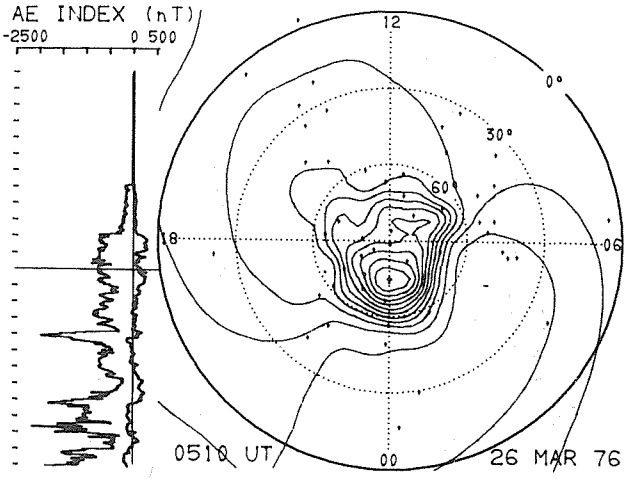

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
26 MAR 76

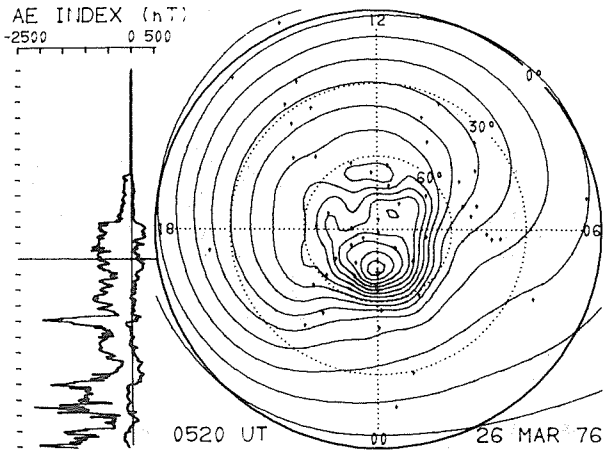

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
26 MAR 76

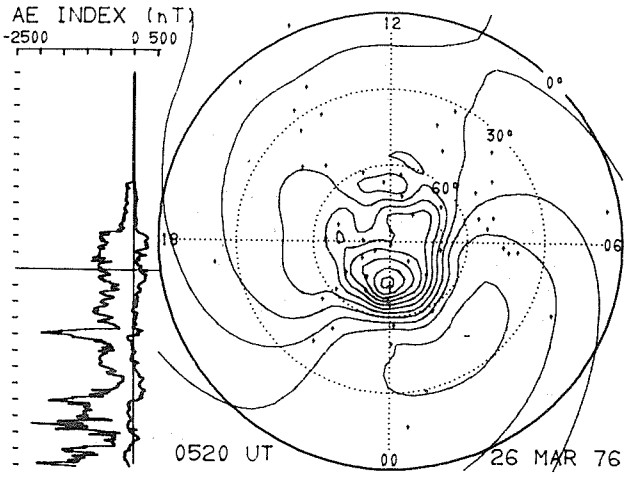

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
26 MAR 76

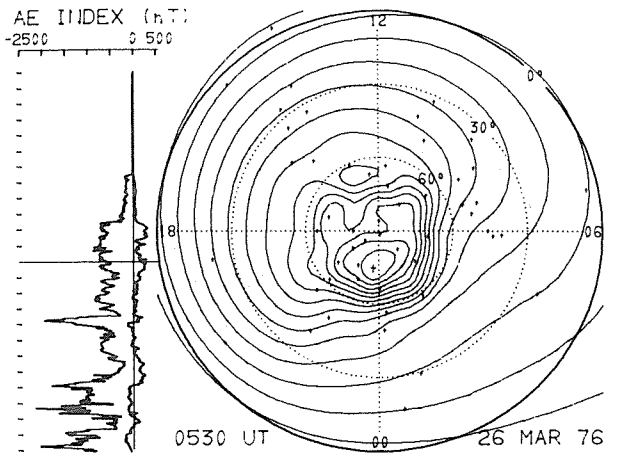

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
26 MAR 76

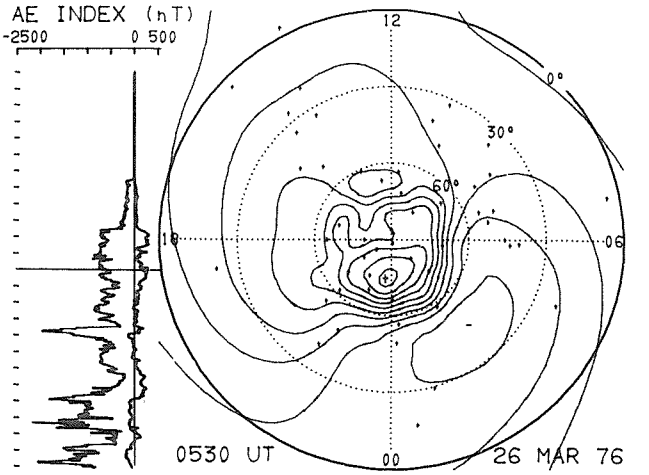

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
26 MAR 76

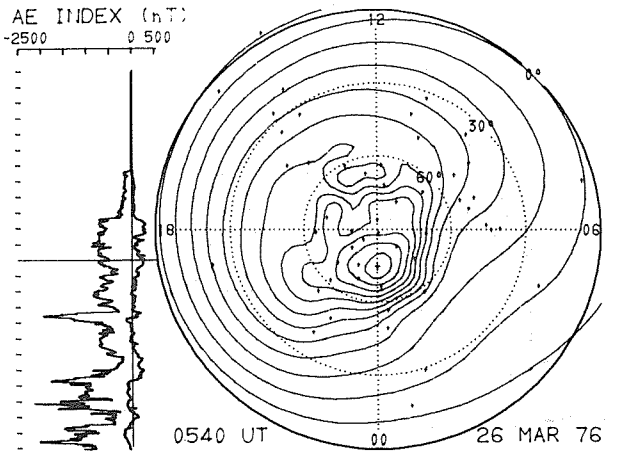

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
26 MAR 76

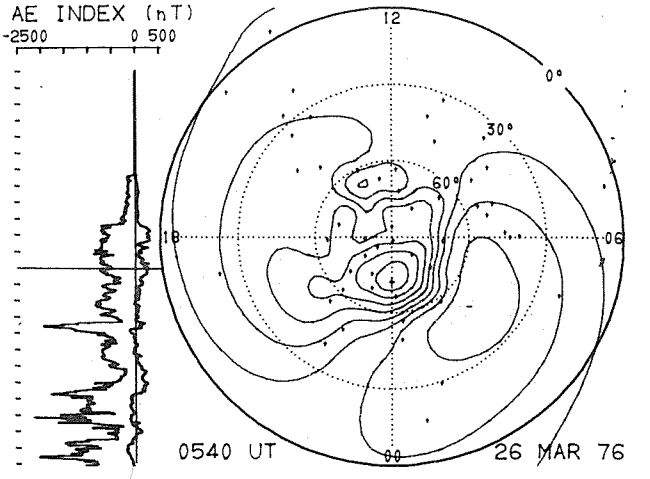

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
26 MAR 76

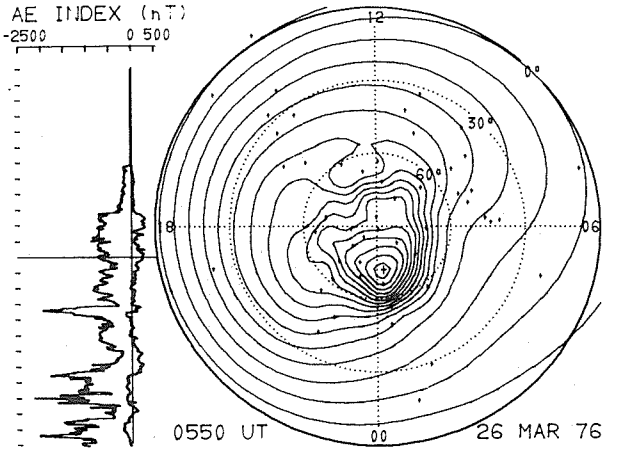

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
26 MAR 76

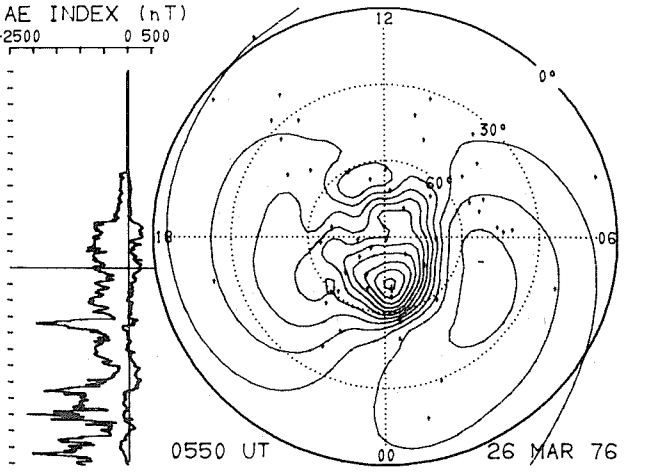

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
26 MAR 76

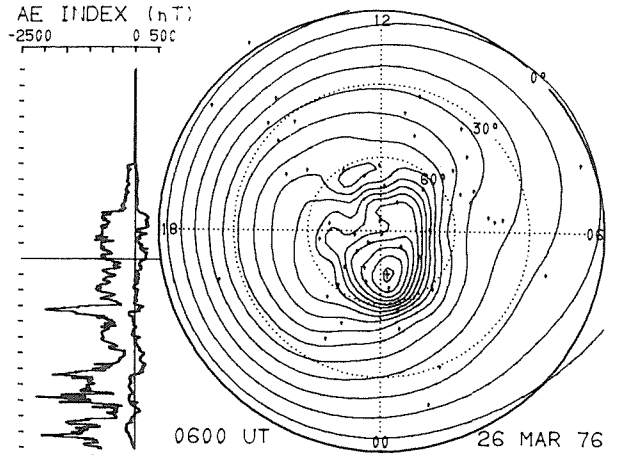

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
26 MAR 76

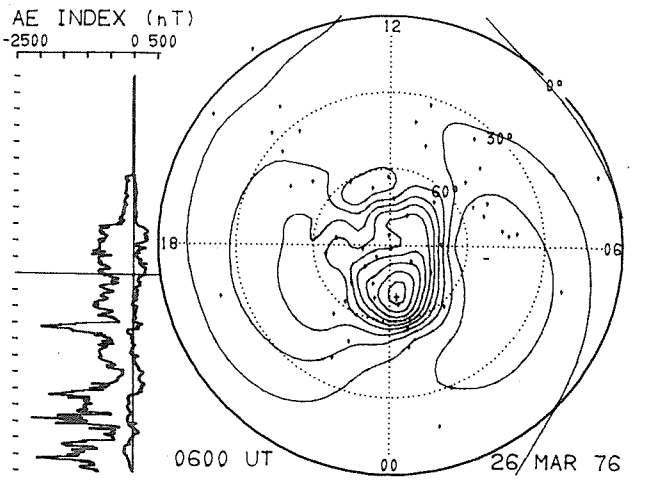

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
26 MAR 76

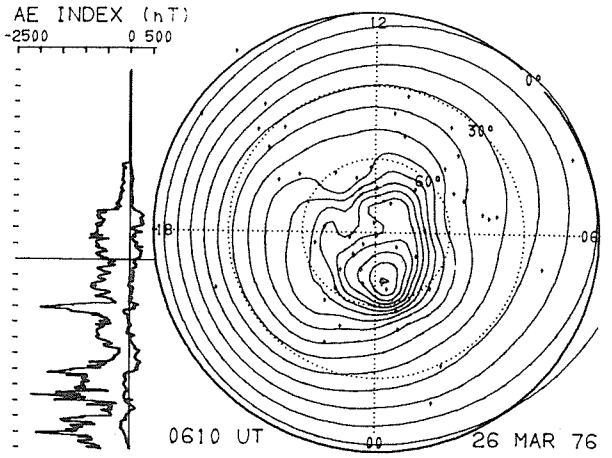

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
26 MAR 76

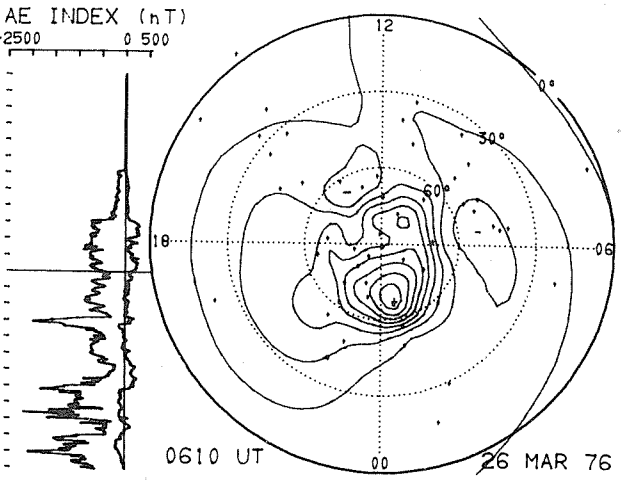

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
26 MAR 76

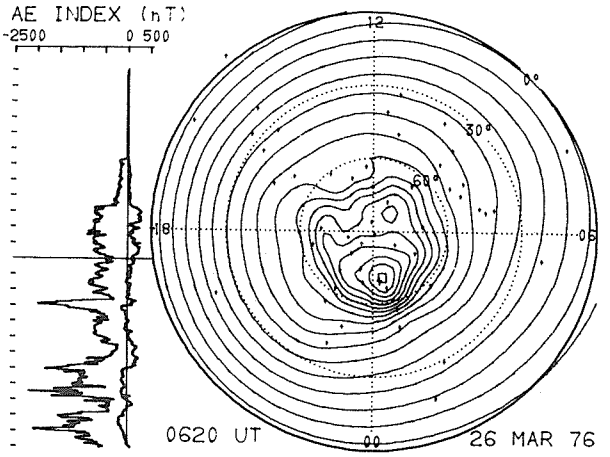

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
26 MAR 76

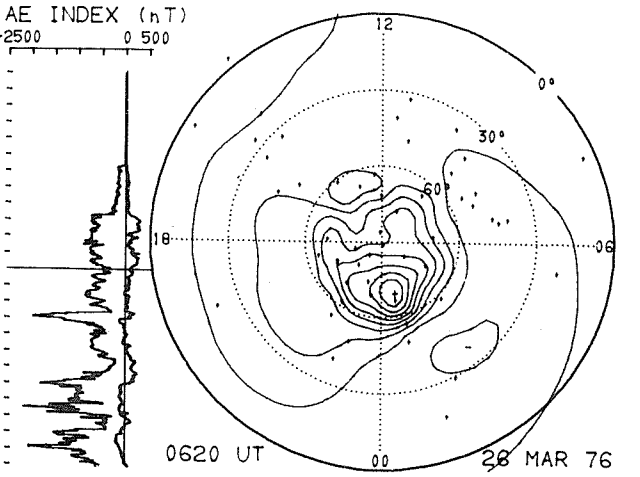

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0600 UT
26 MAR 76

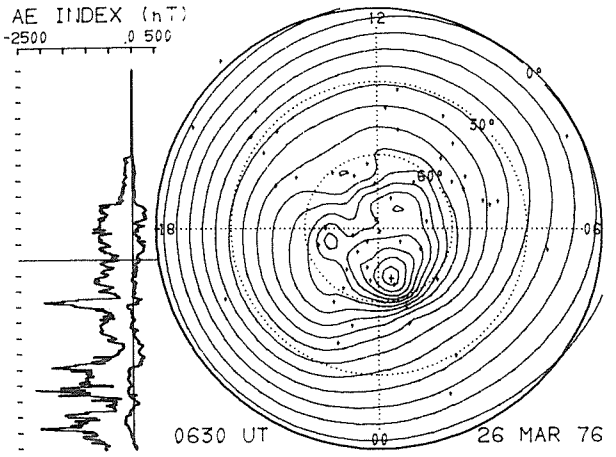

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0600 UT
26 MAR 76

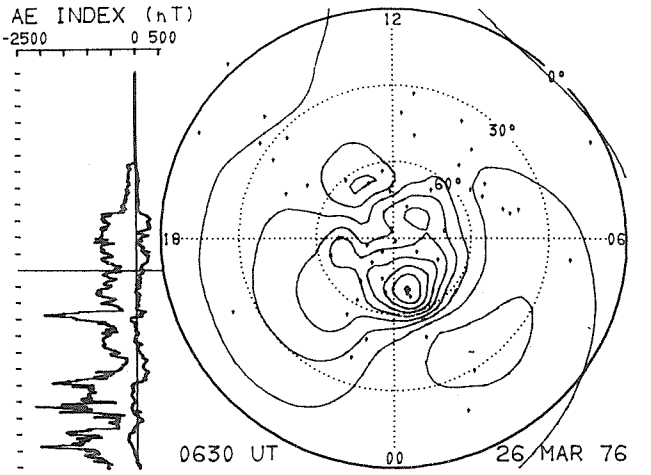

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0610 UT
26 MAR 76

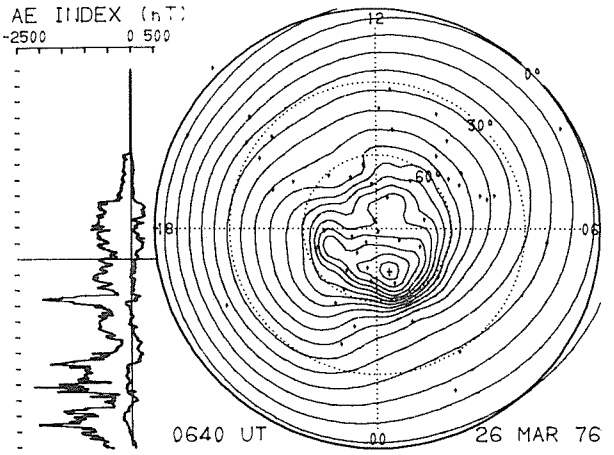

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0610 UT
26 MAR 76

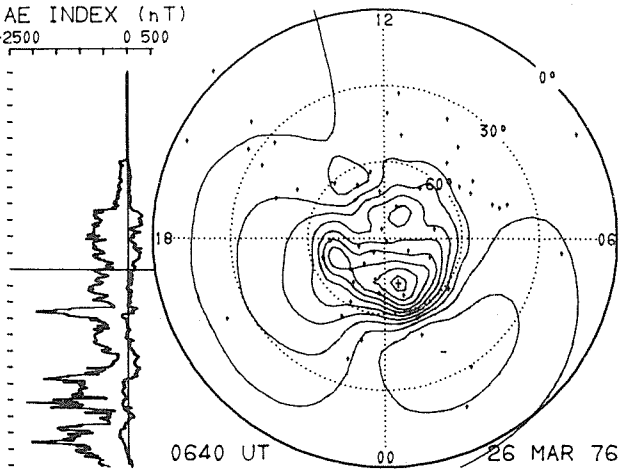

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0620 UT
26 MAR 76

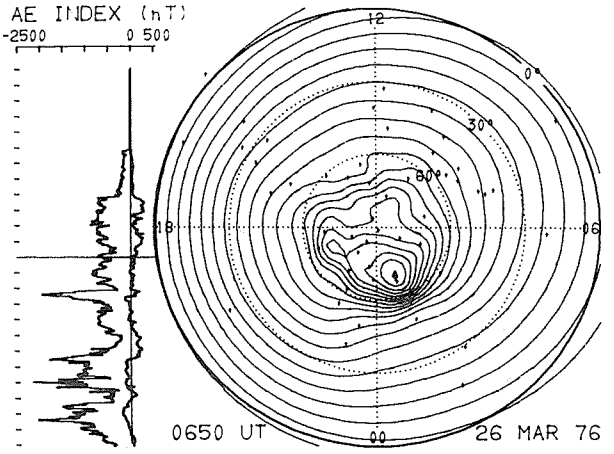

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0620 UT
26 MAR 76

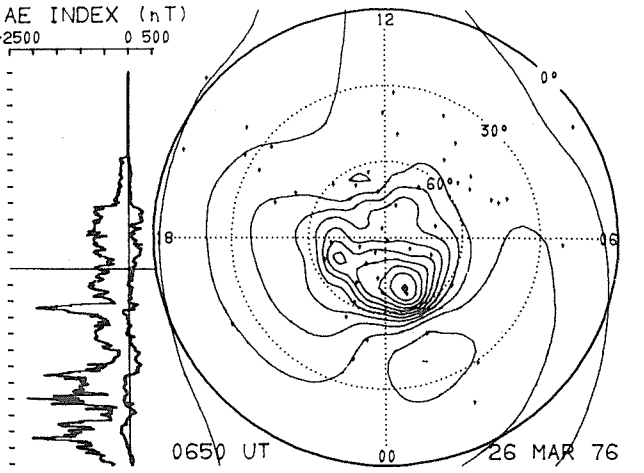

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0630 UT
26 MAR 76

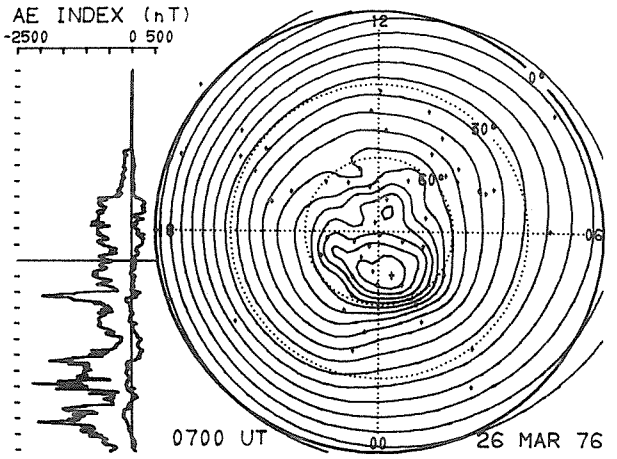

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0630 UT
26 MAR 76

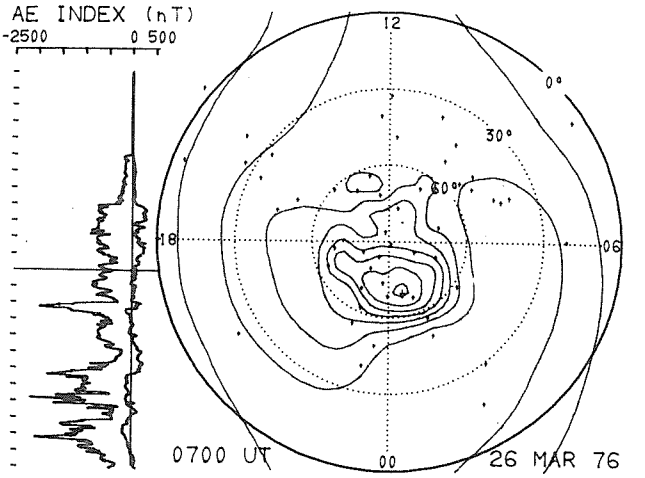

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0640 UT
26 MAR 76

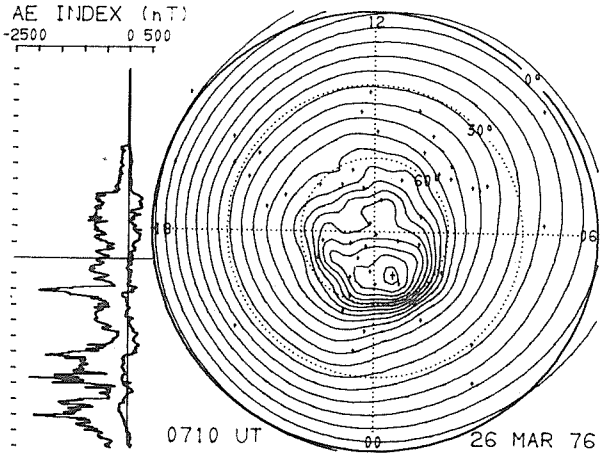

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0640 UT
26 MAR 76

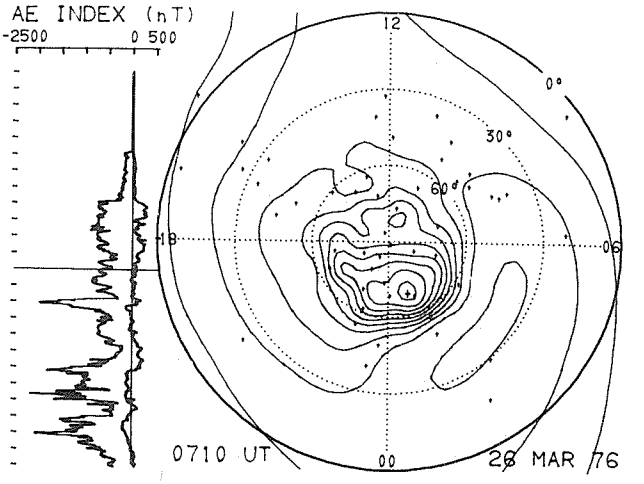

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0650 UT
26 MAR 76

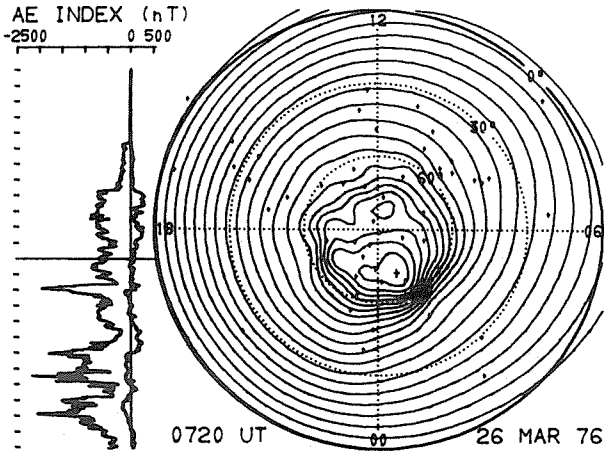

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0650 UT
26 MAR 76

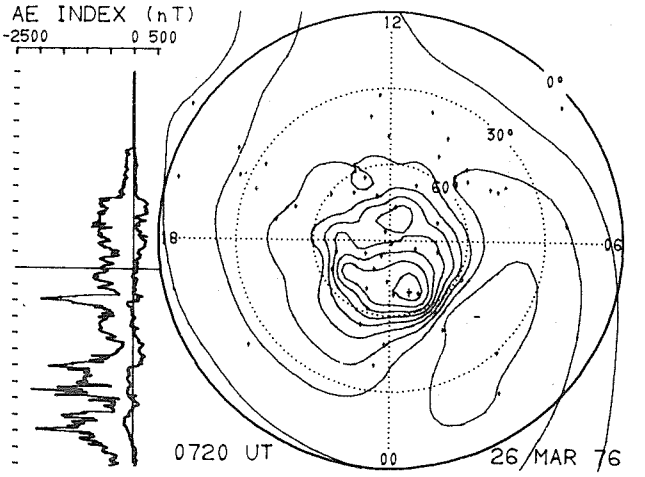

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0700 UT
26 MAR 76

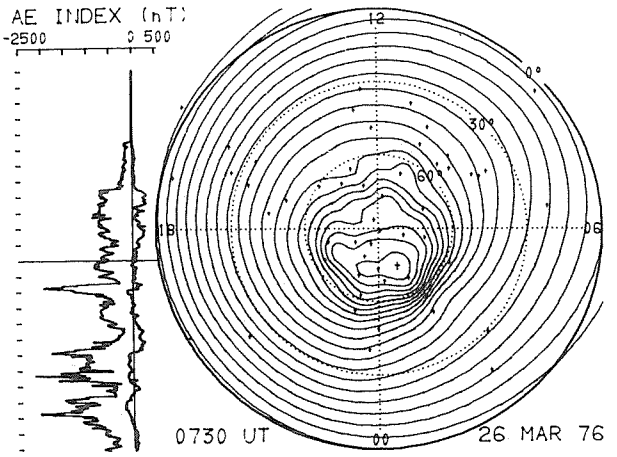

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0700 UT
26 MAR 76

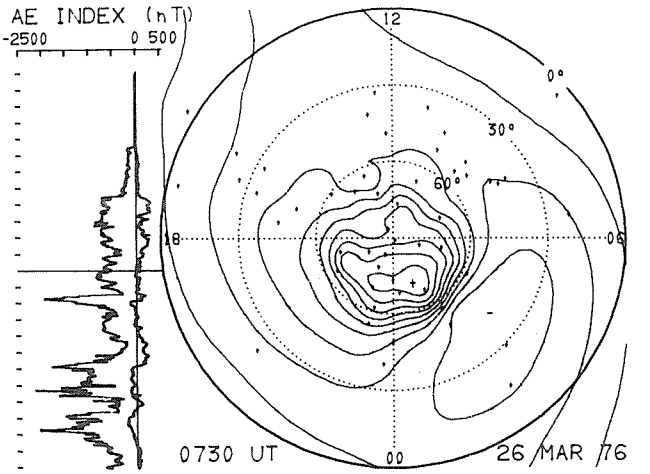

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0710 UT
26 MAR 76

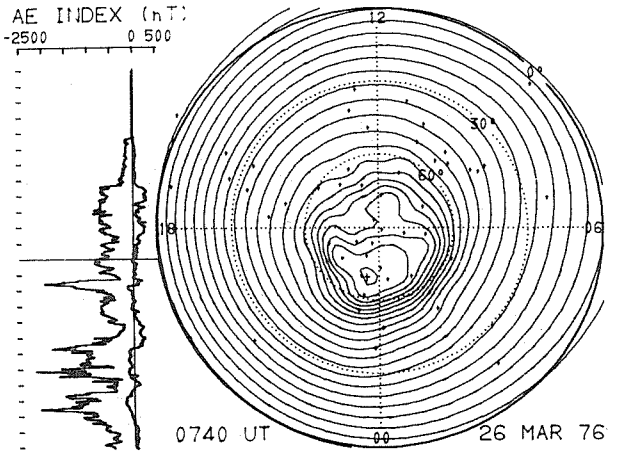

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0710 UT
26 MAR 76

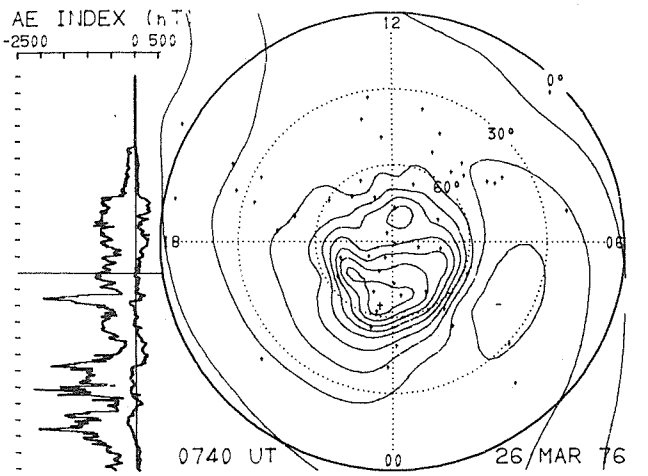

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0720 UT
26 MAR 76

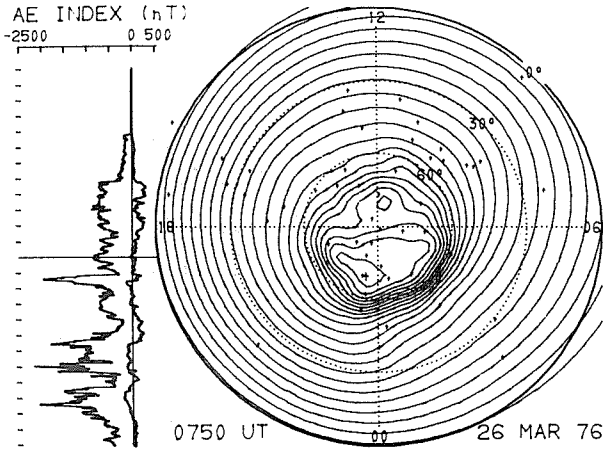

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0720 UT
26 MAR 76

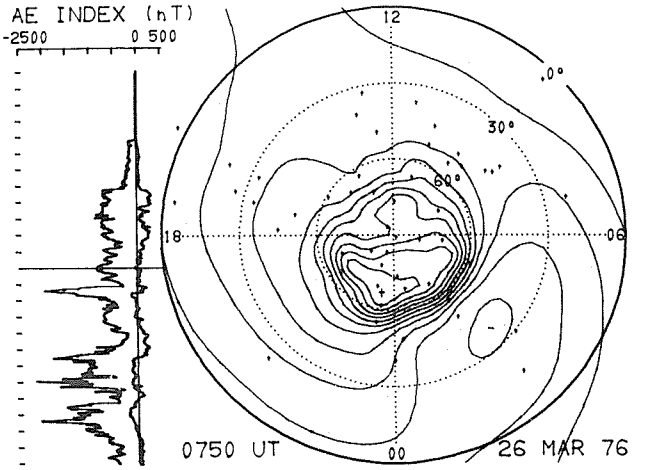

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0730 UT
26 MAR 76

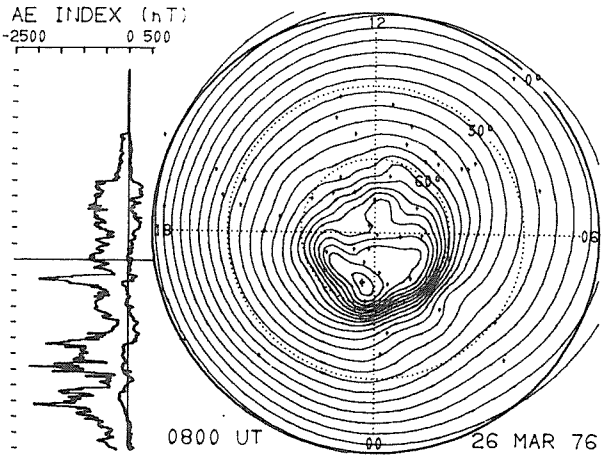

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0730 UT
26 MAR 76

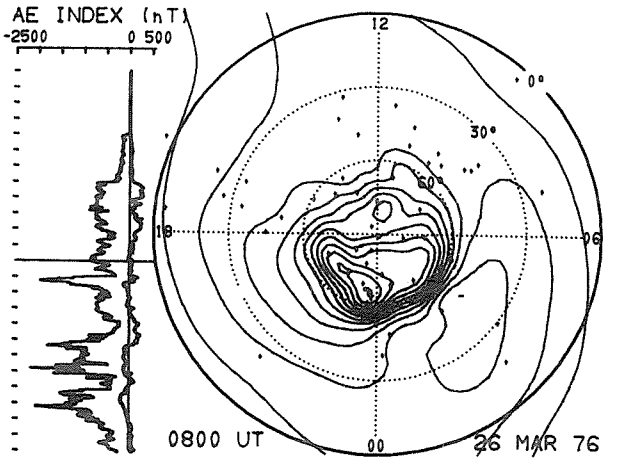

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0740 UT
26 MAR 76

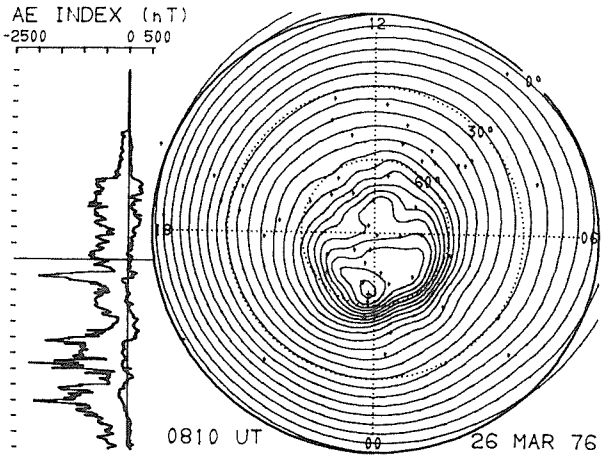

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0740 UT
26 MAR 76

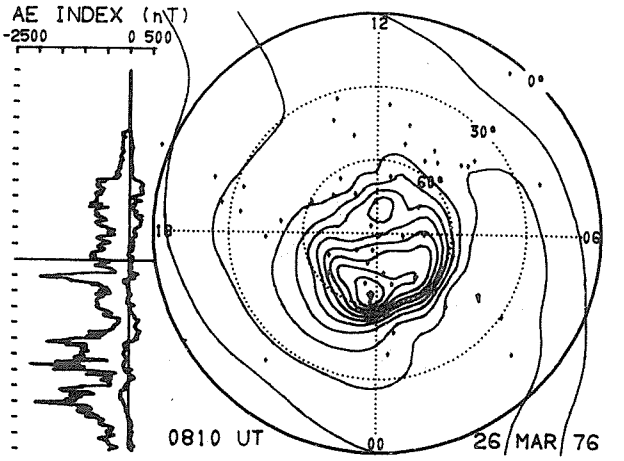

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0750 UT
26 MAR 76

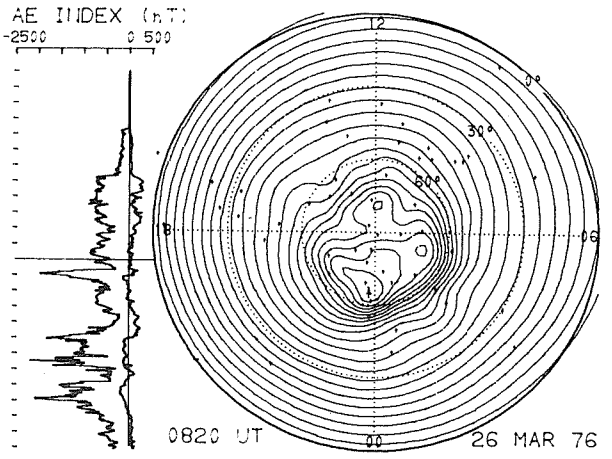

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0750 UT
26 MAR 76

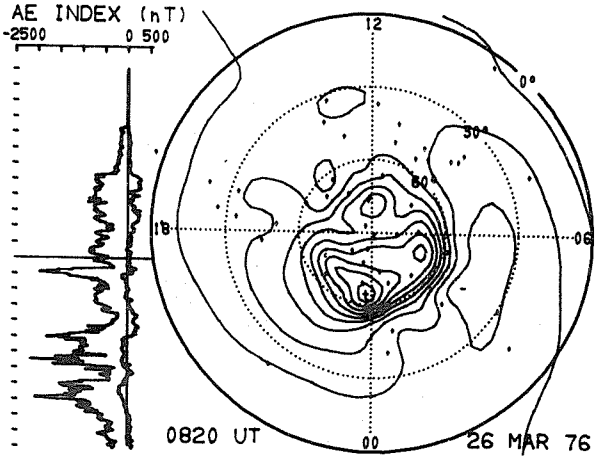

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0800 UT
26 MAR 76

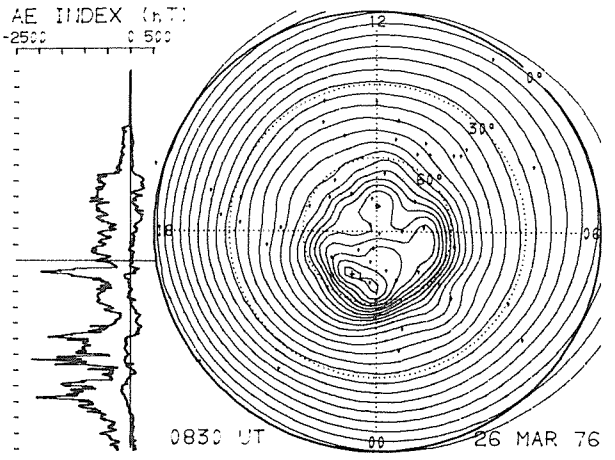

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0800 UT
26 MAR 76

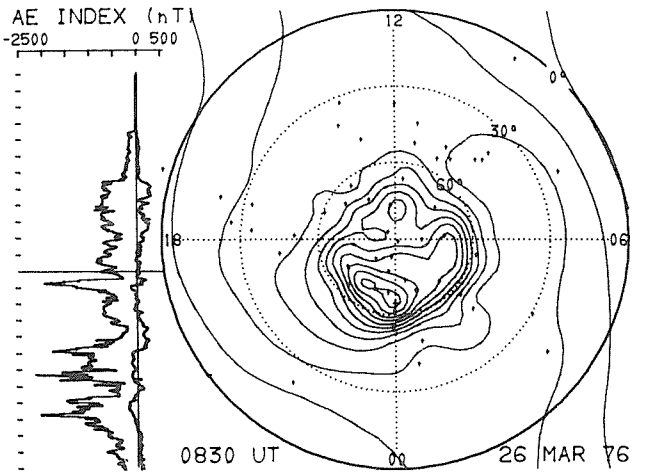

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0810 UT
26 MAR 76

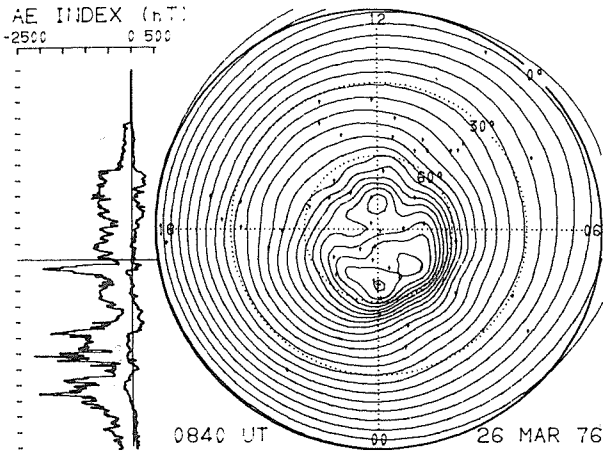

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0810 UT
26 MAR 76

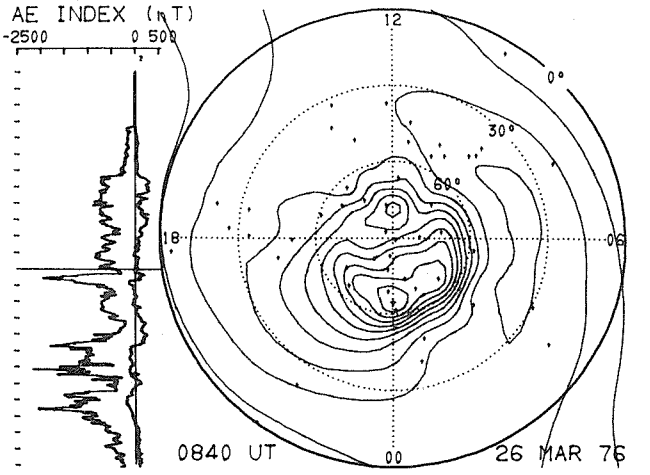

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0820 UT
26 MAR 76

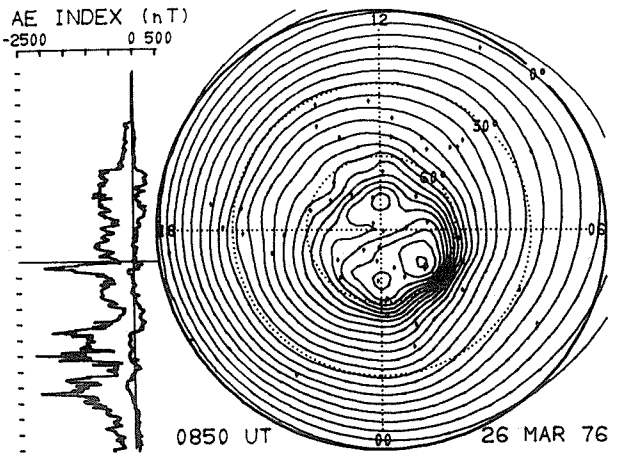

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0820 UT
26 MAR 76

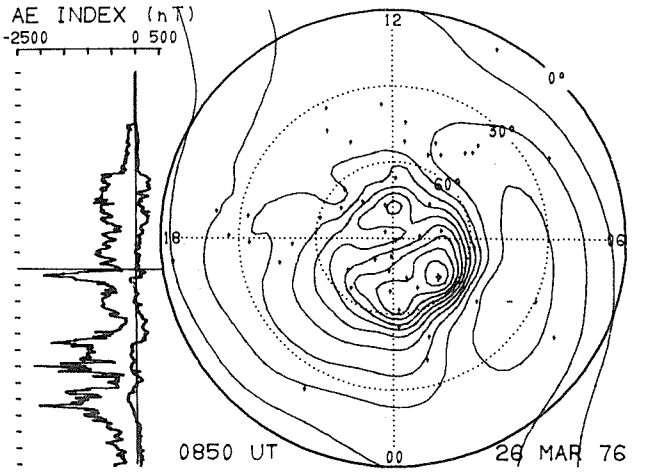

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0830 UT
26 MAR 76

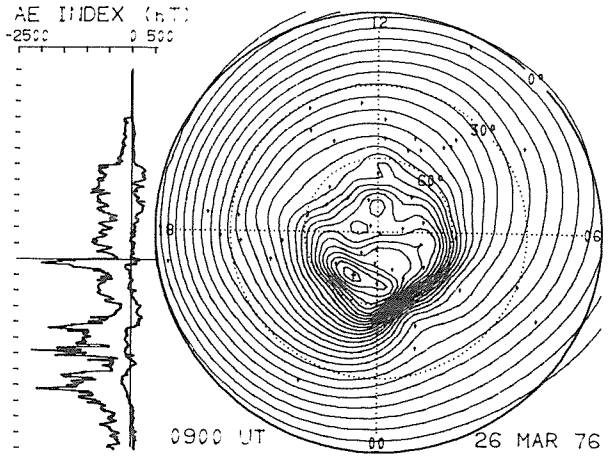

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0830 UT
26 MAR 76

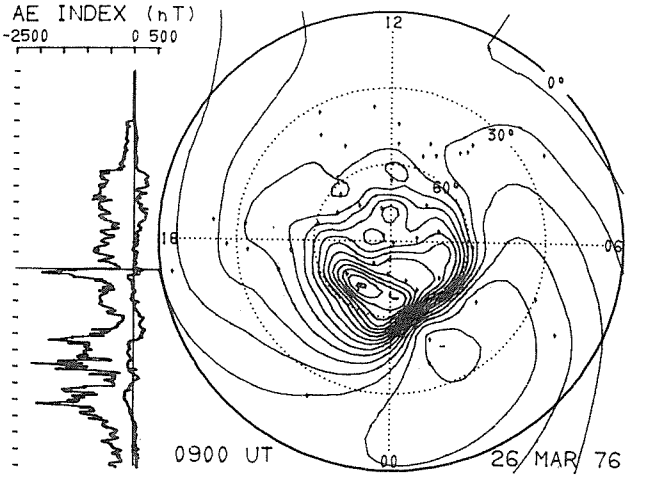

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0840 UT
26 MAR 76

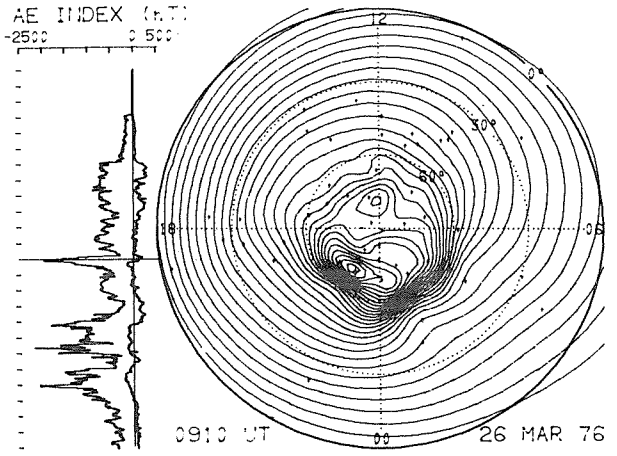

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0840 UT
26 MAR 76

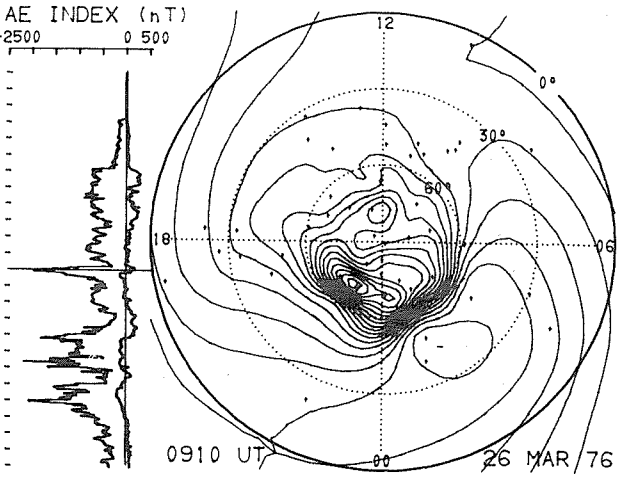

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0850 UT
26 MAR 76

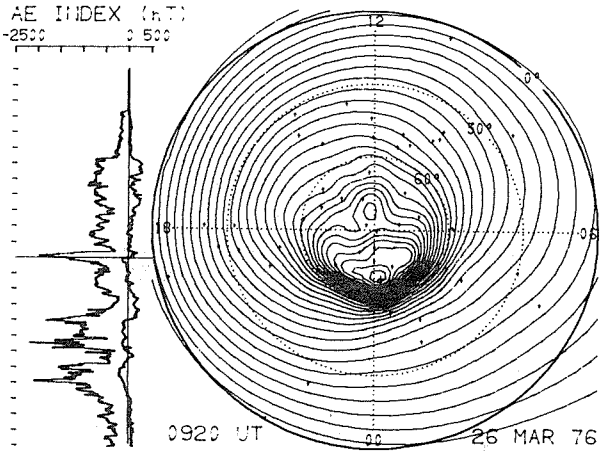

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0850 UT
26 MAR 76

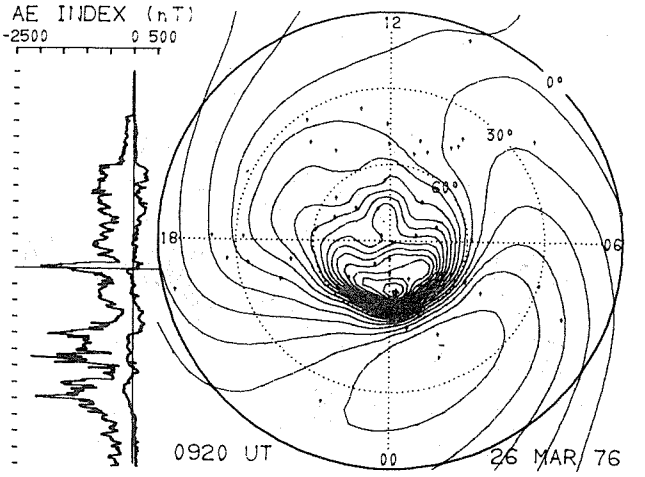

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0900 UT
26 MAR 76

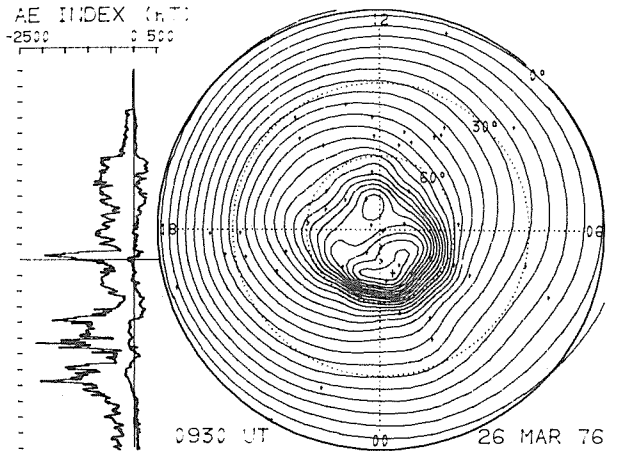

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0900 UT
26 MAR 76

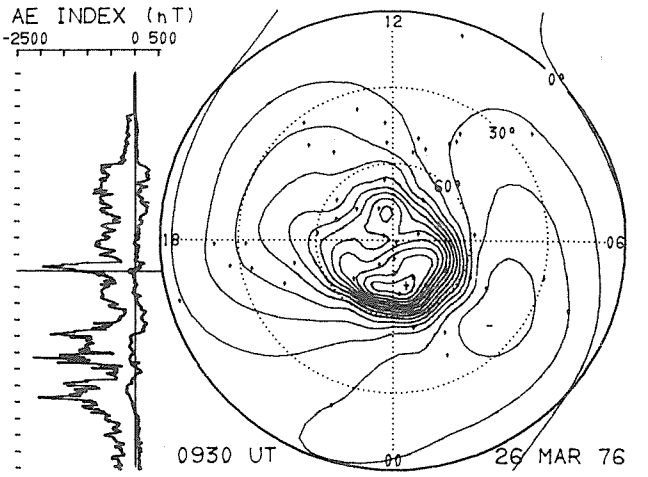

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0910 UT
26 MAR 76

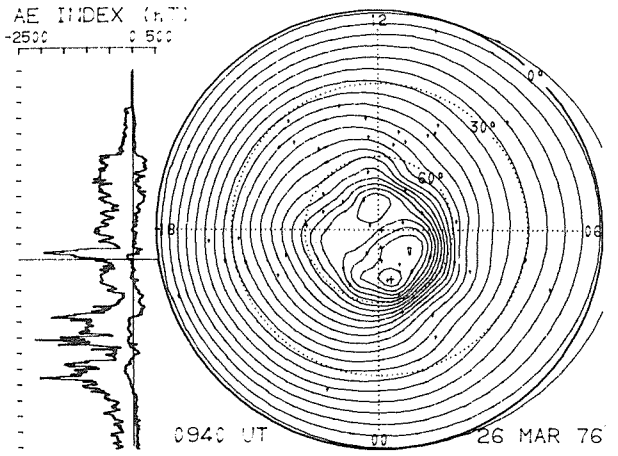

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0910 UT
26 MAR 76

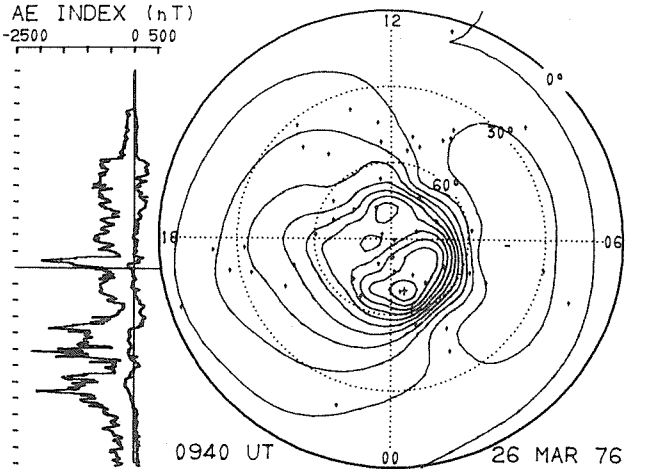

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0920 UT
26 MAR 76

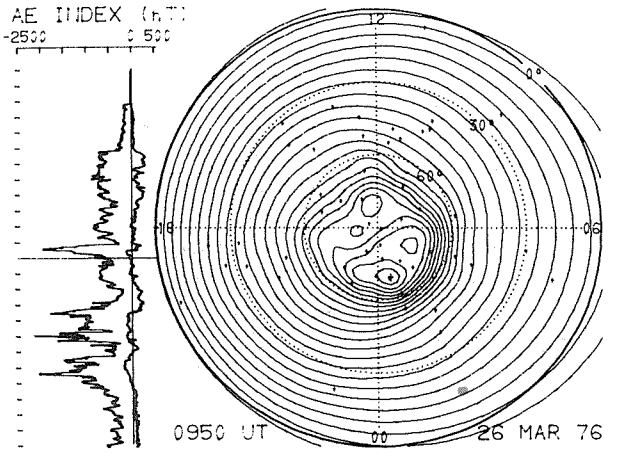

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0920 UT
26 MAR 76

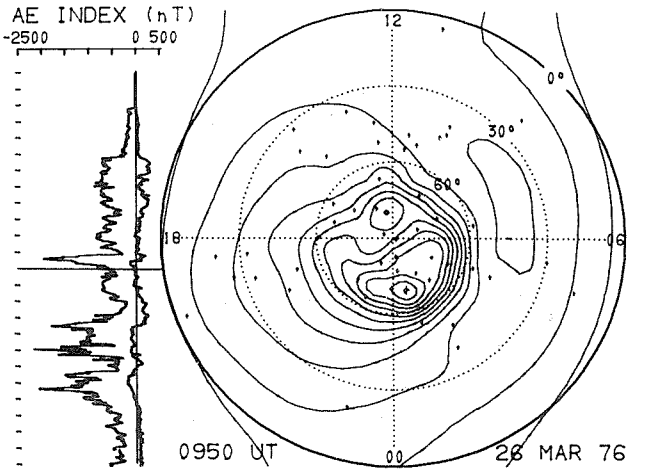

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0930 UT
26 MAR 76

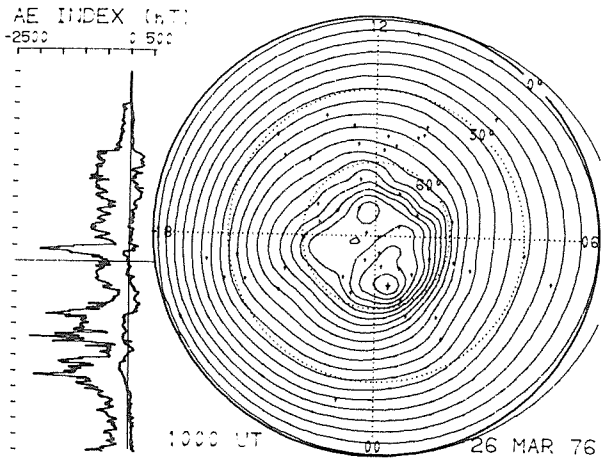

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0930 UT
26 MAR 76

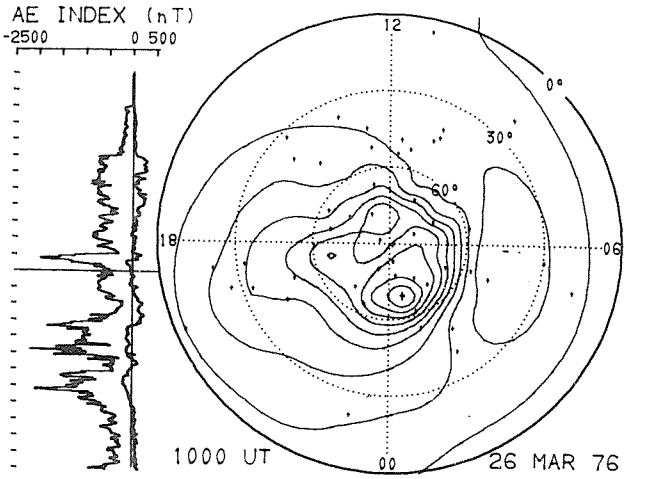

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0940 UT
26 MAR 76

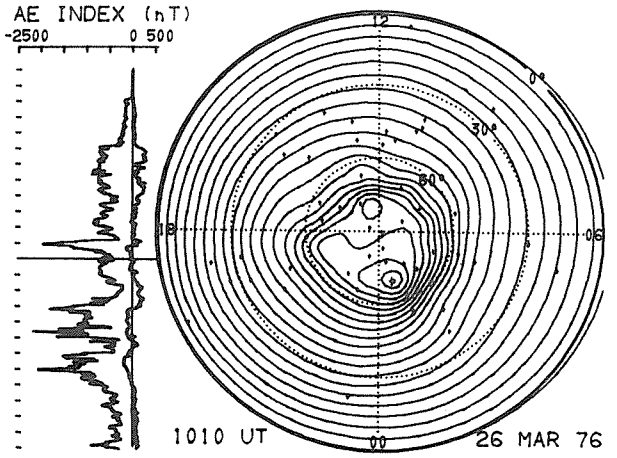

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0940 UT
26 MAR 76

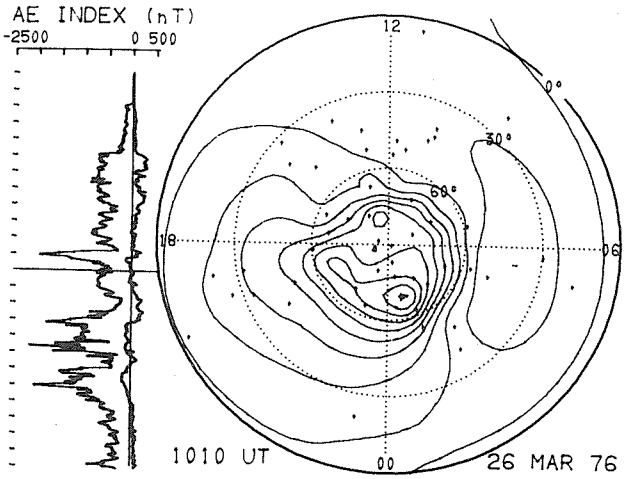

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0950 UT
26 MAR 76

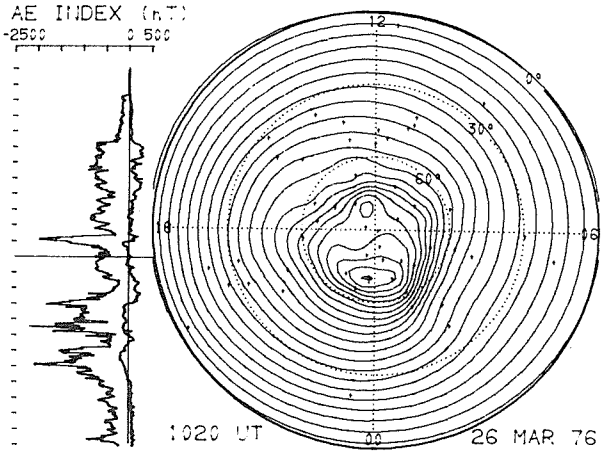

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0950 UT
26 MAR 76

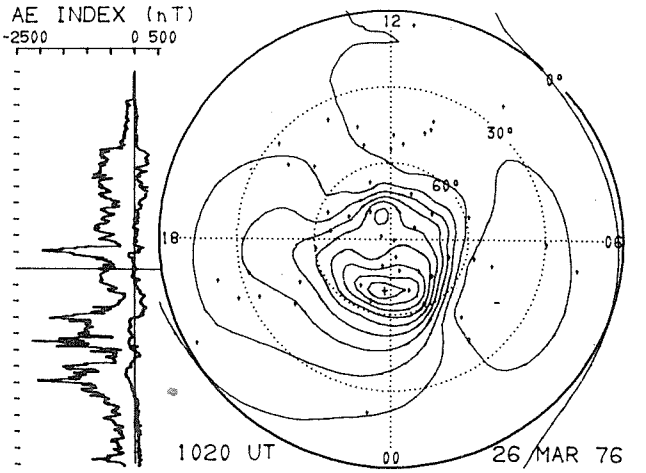

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1000 UT
26 MAR 76

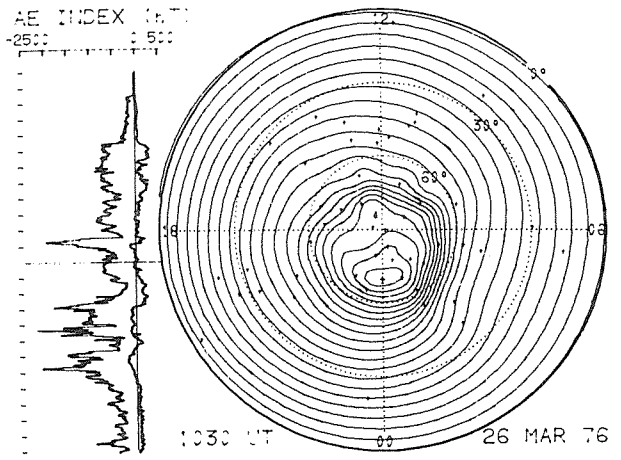

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1000 UT
26 MAR 76

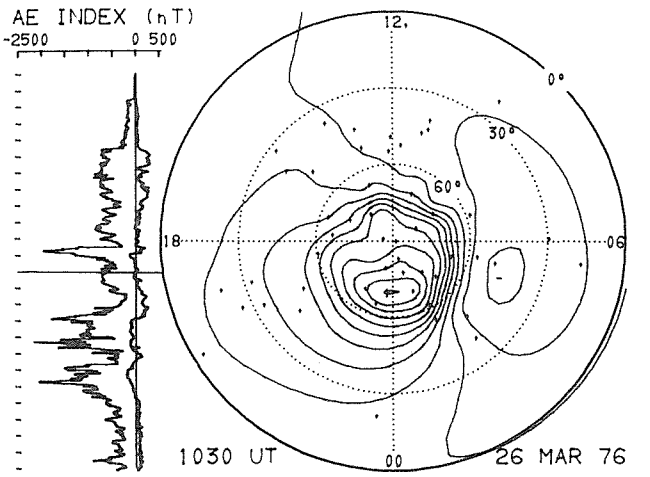

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1010 UT
26 MAR 76

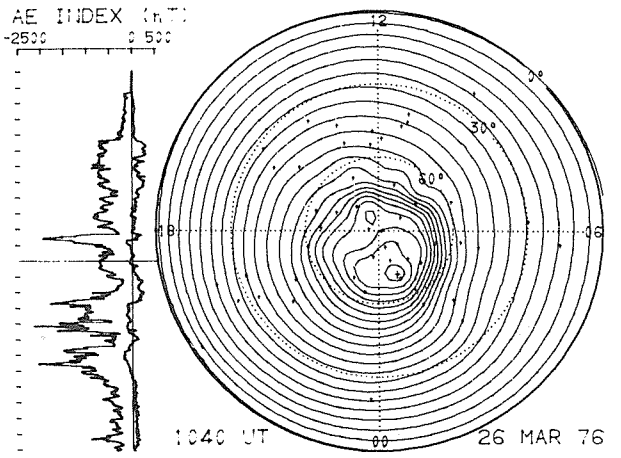

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1010 UT
26 MAR 76

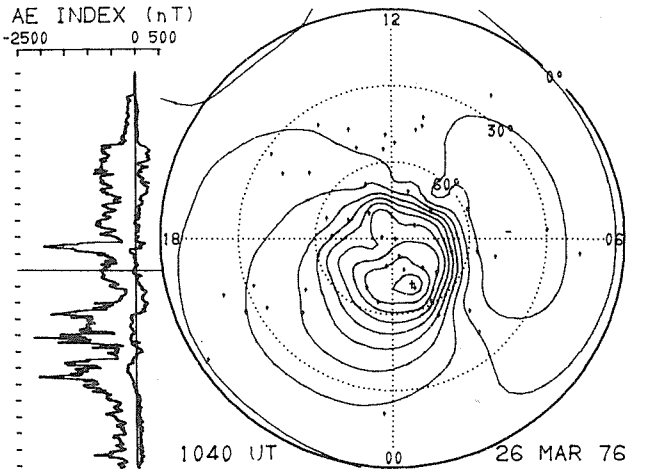

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1020 UT
26 MAR 76

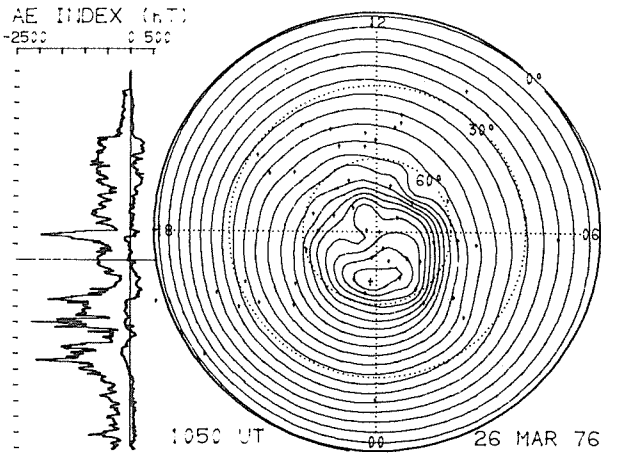

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1020 UT
26 MAR 76

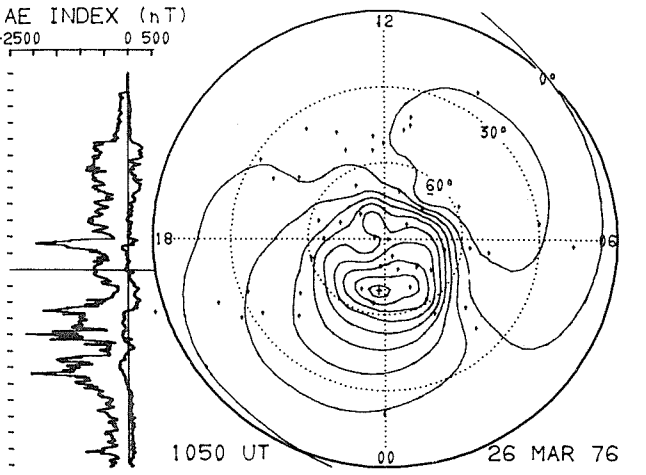

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1030 UT
26 MAR 76

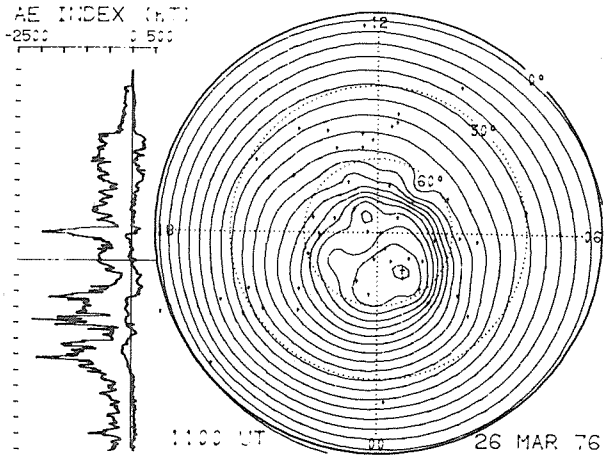

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1030 UT
26 MAR 76

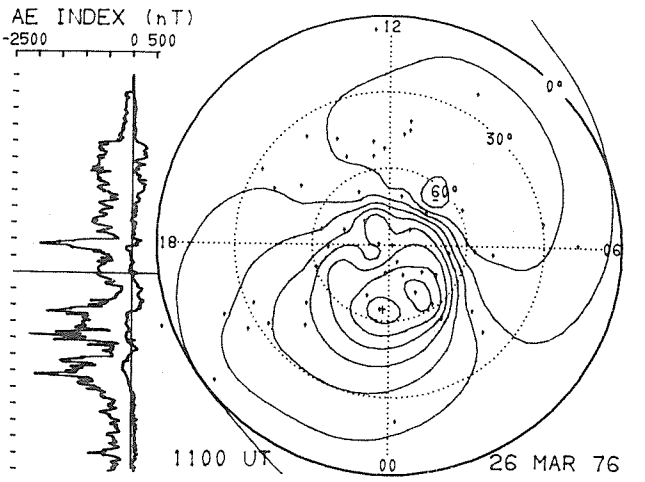

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1040 UT
26 MAR 76

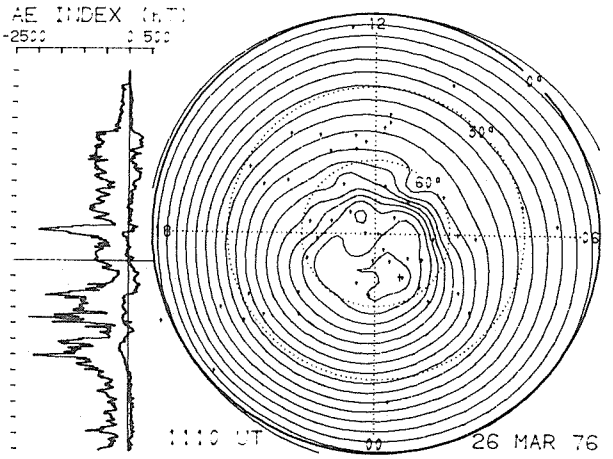

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1040 UT
26 MAR 76

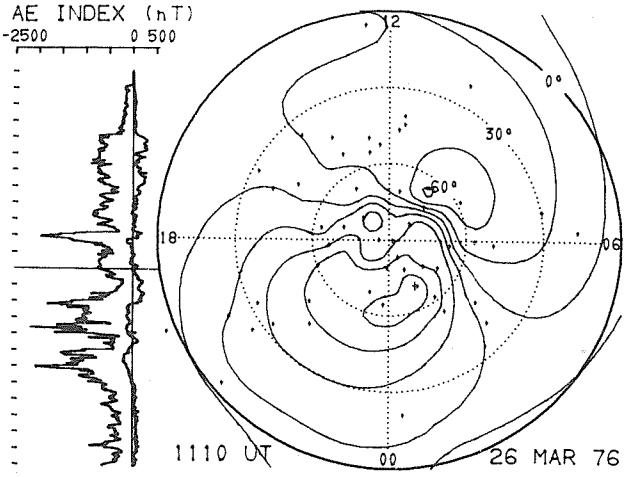

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1050 UT
26 MAR 76

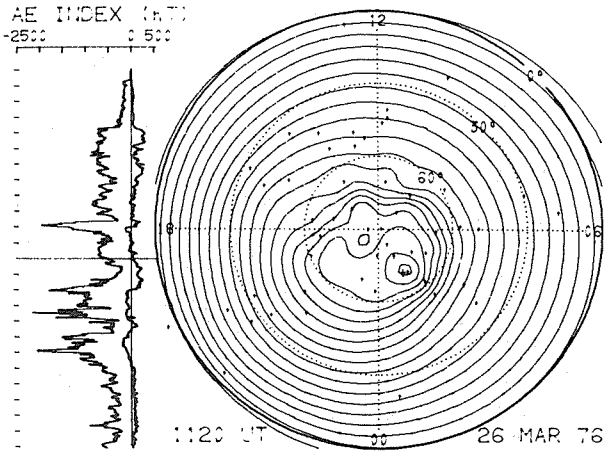

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1050 UT
26 MAR 76

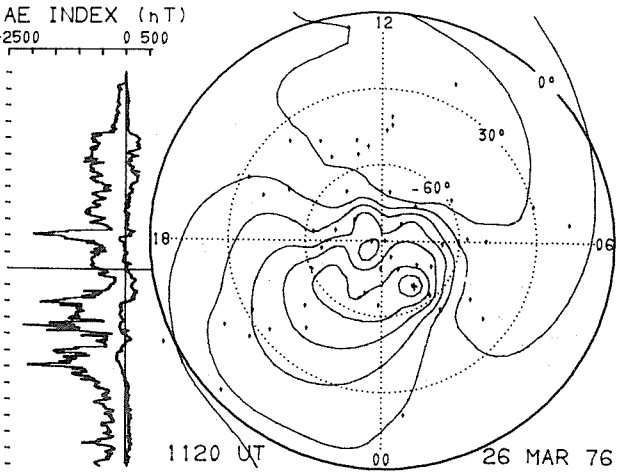

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1100 UT
26 MAR 76

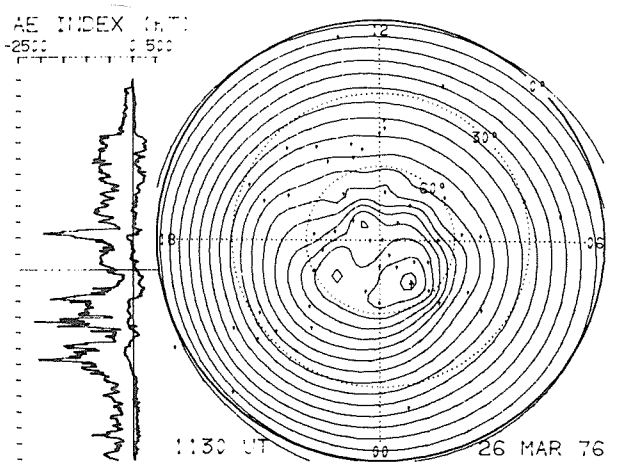

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1100 UT
26 MAR 76

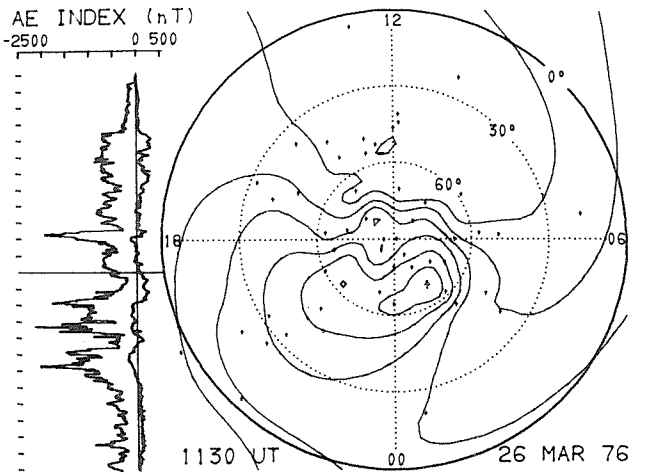

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1110 UT
26 MAR 76

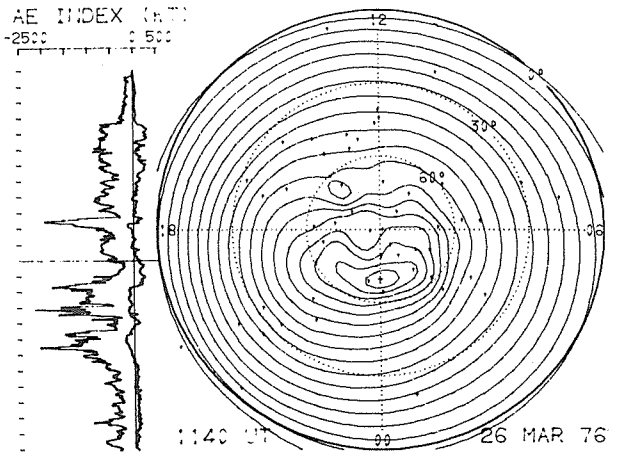

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1110 UT
26 MAR 76

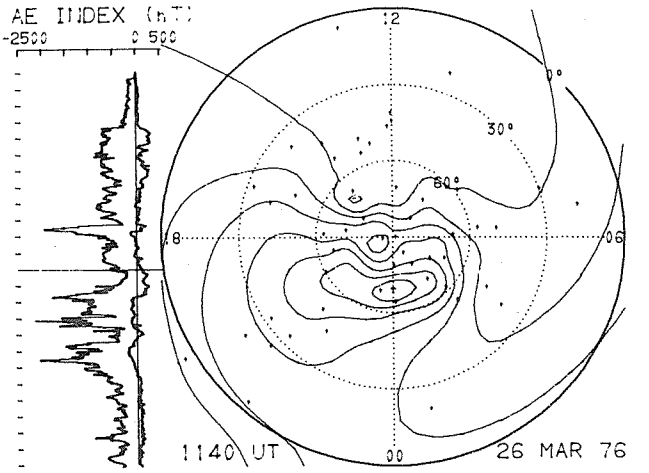

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1120 UT
26 MAR 76

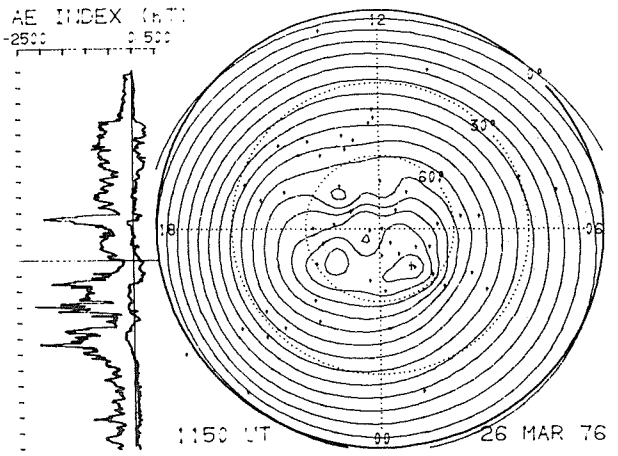

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1120 UT
26 MAR 76

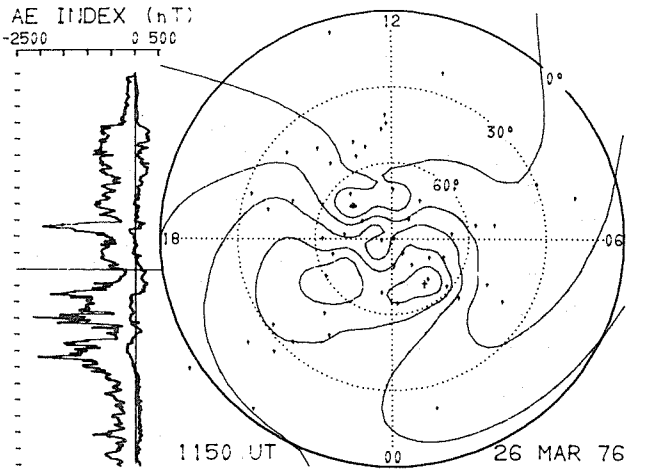

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1130 UT
26 MAR 76

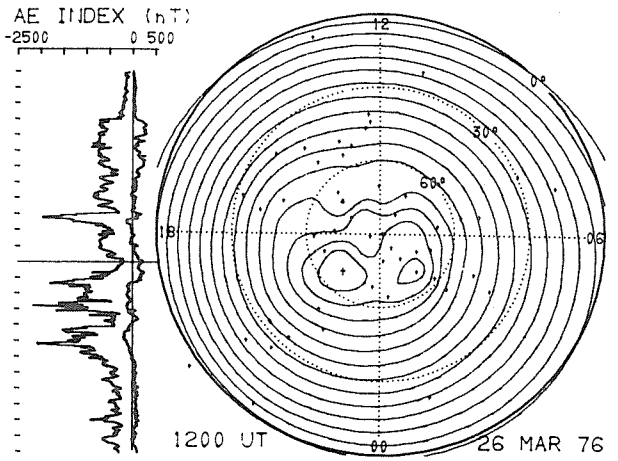

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1130 UT
26 MAR 76

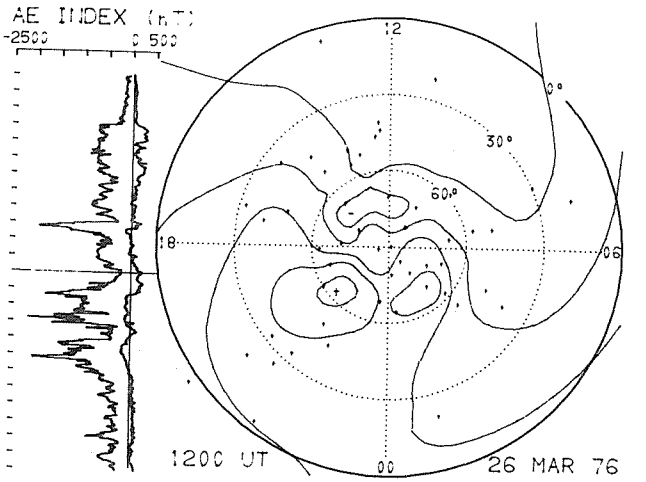

12
0°
30°
60°
18
06
00
26 MAR 76

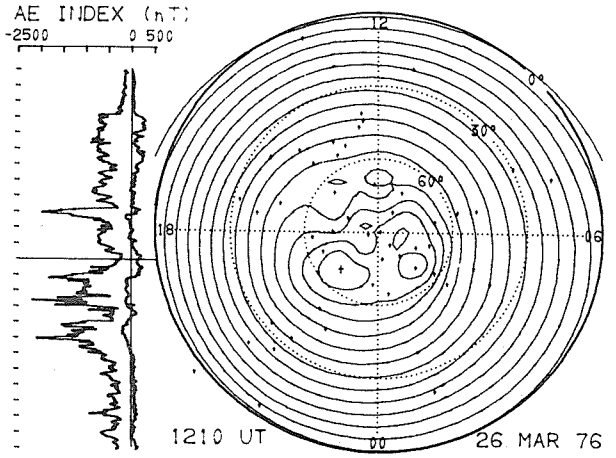

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1140 UT
26 MAR 76

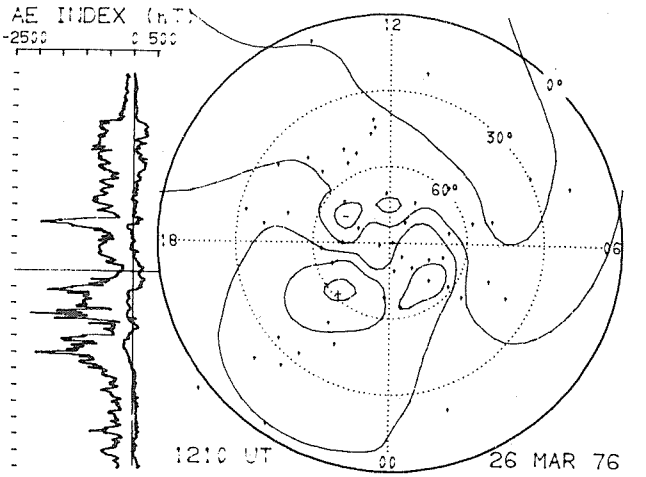

12
0°
30°
60°
18
06
00
26 MAR 76

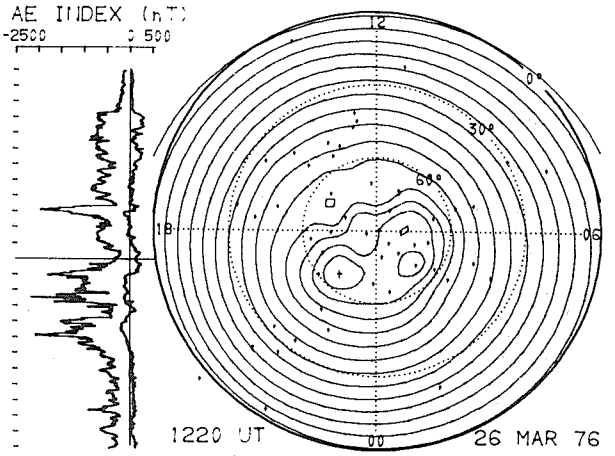

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1150 UT
26 MAR 76

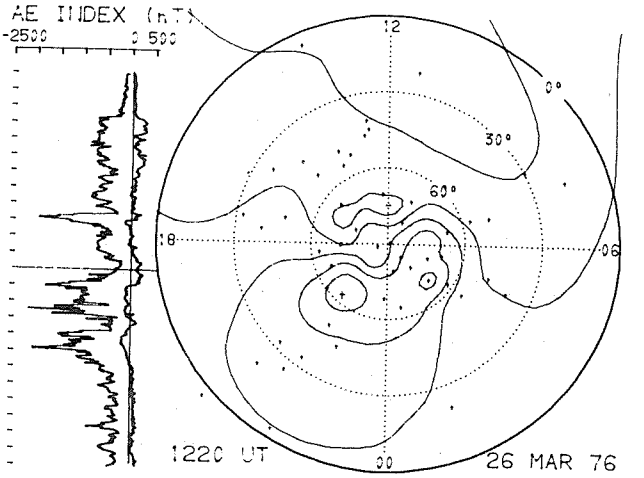

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1200 UT
26 MAR 76

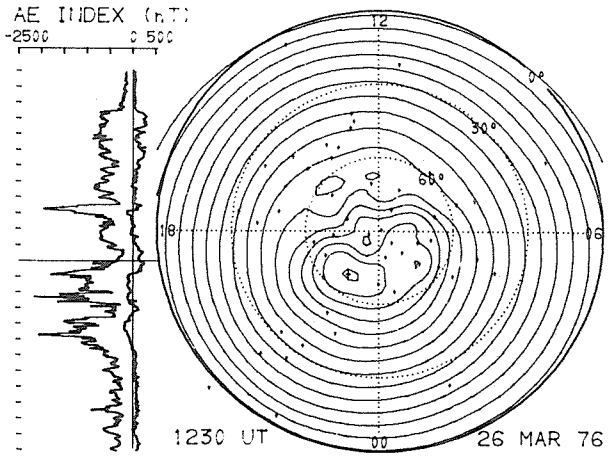

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1200 UT
26 MAR 76

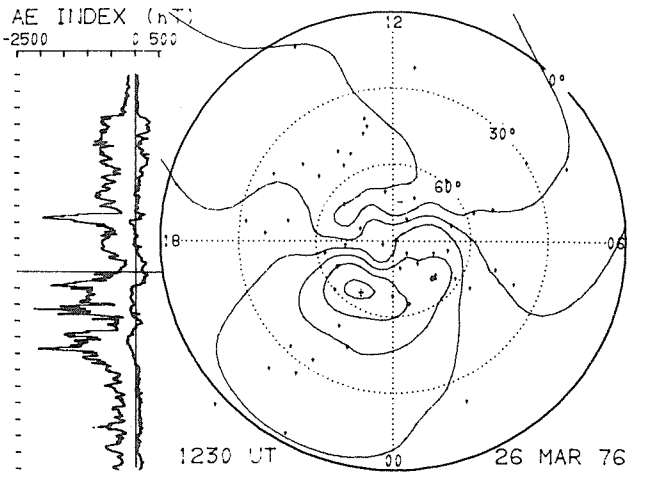

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1210 UT
26 MAR 76

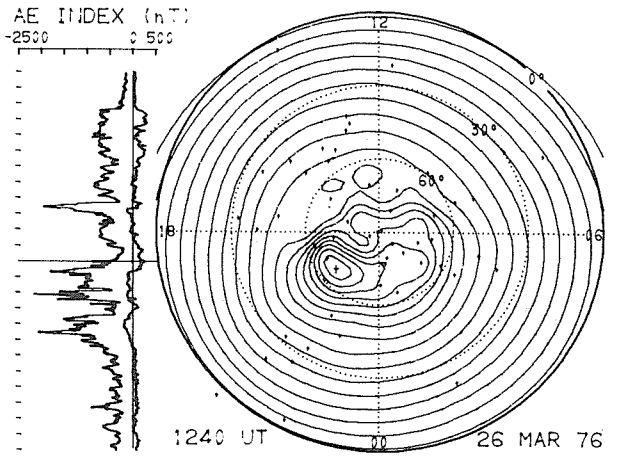

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1210 UT
26 MAR 76

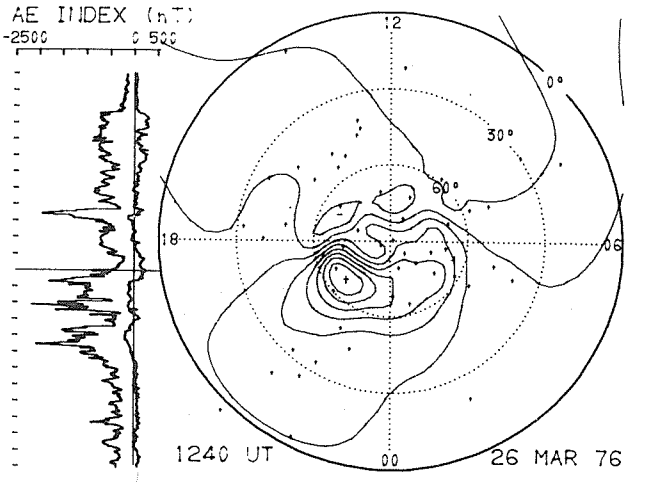

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1220 UT
26 MAR 76

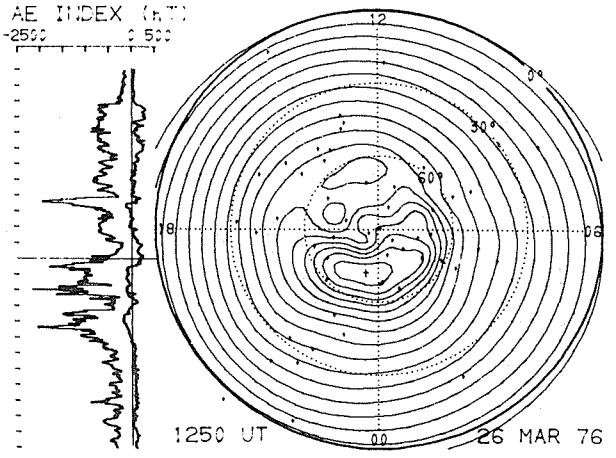

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1220 UT
26 MAR 76

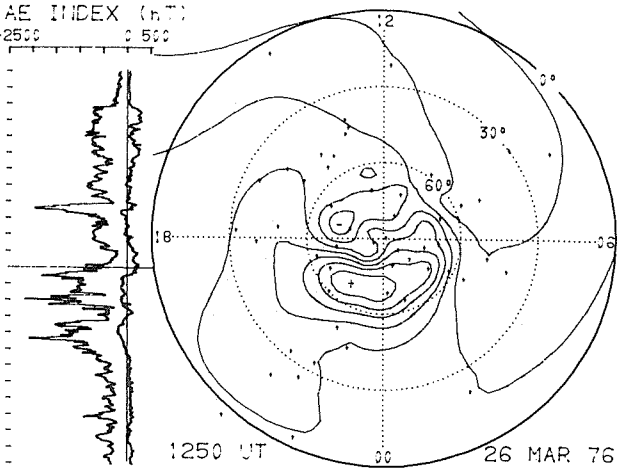

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1230 UT
26 MAR 76

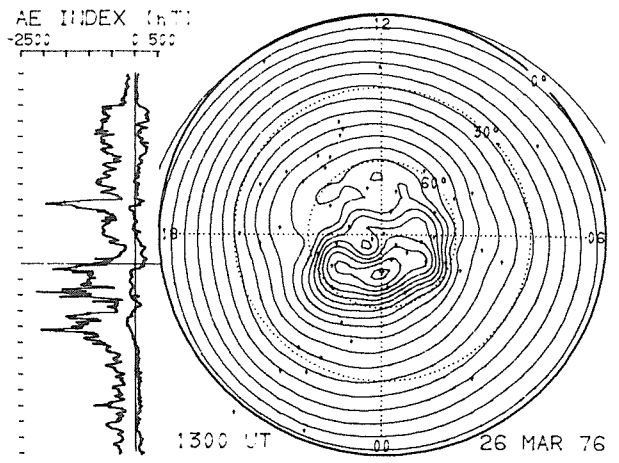

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1230 UT
26 MAR 76

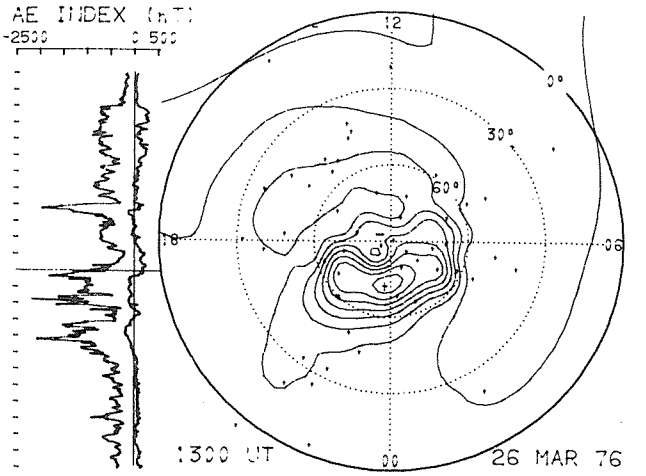

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1240 UT
26 MAR 76

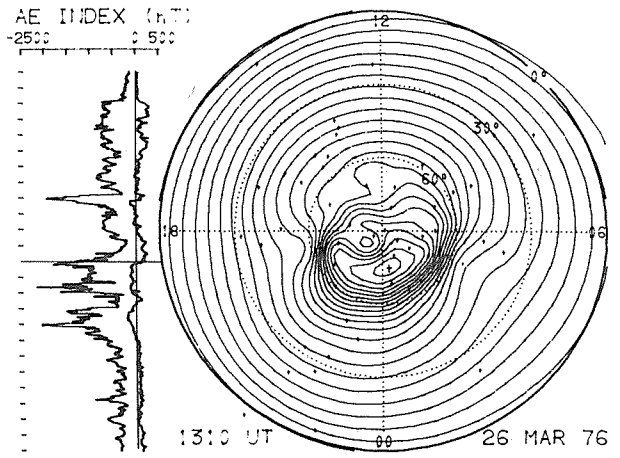

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1240 UT
26 MAR 76

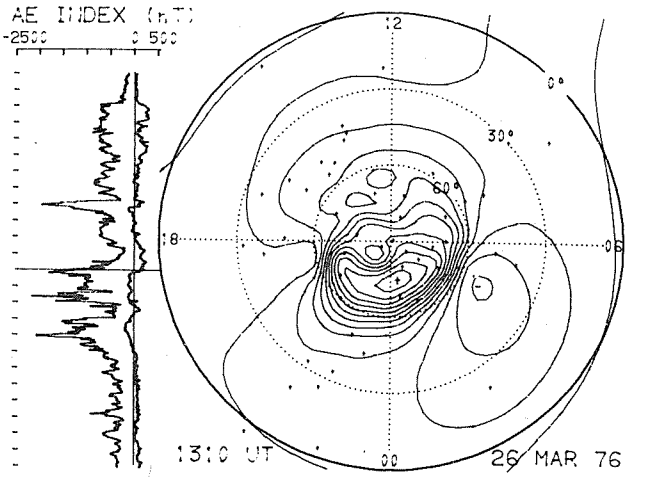

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1250 UT
26 MAR 76

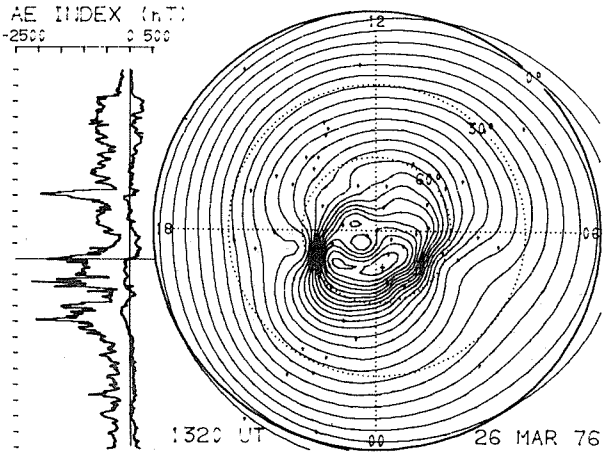

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1250 UT
26 MAR 76

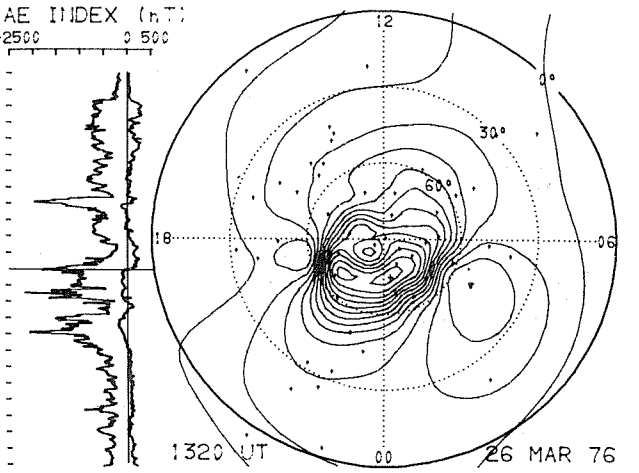

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1300 UT
26 MAR 76

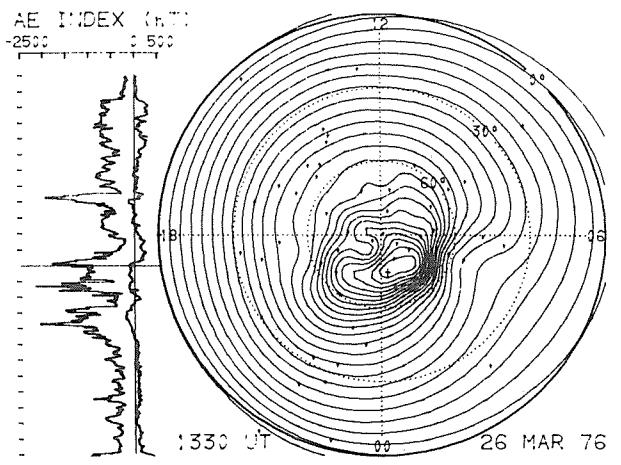

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1300 UT
26 MAR 76

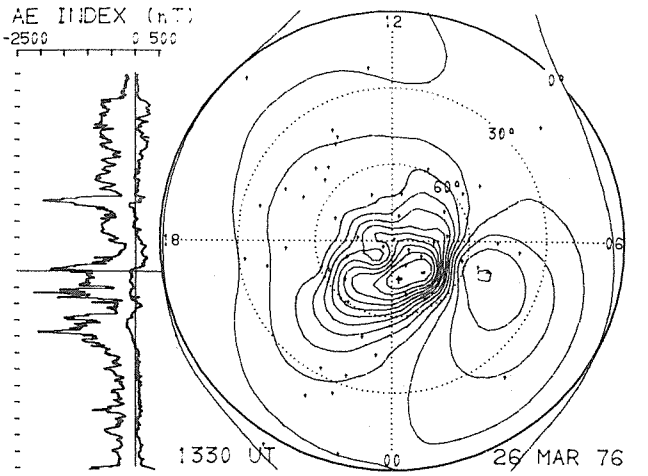

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1310 UT
26 MAR 76

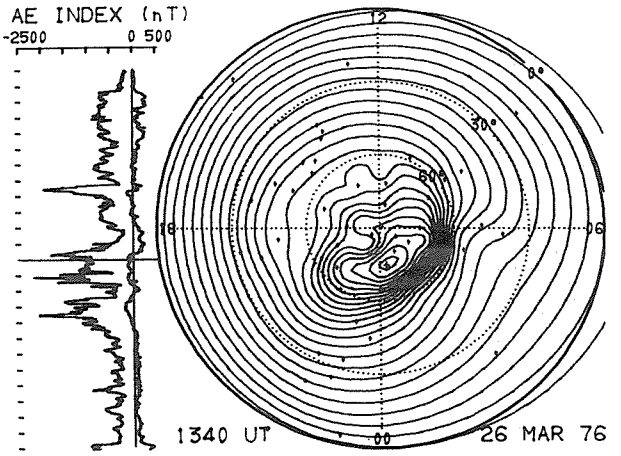

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1310 UT
26 MAR 76

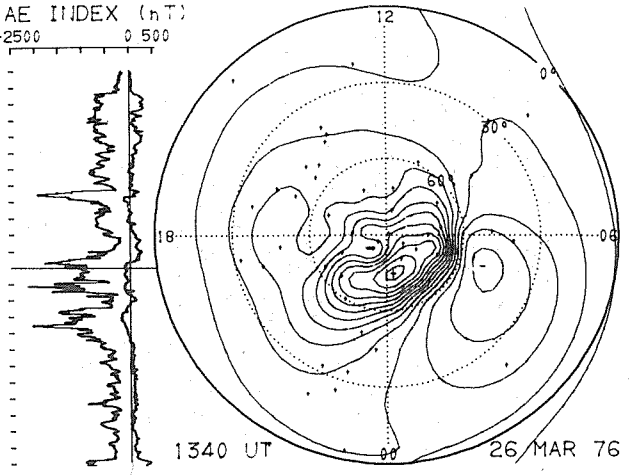

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1320 UT
26 MAR 76

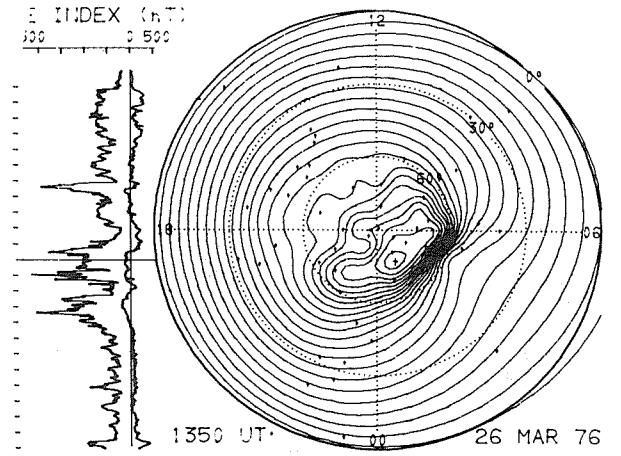

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1320 UT
26 MAR 76

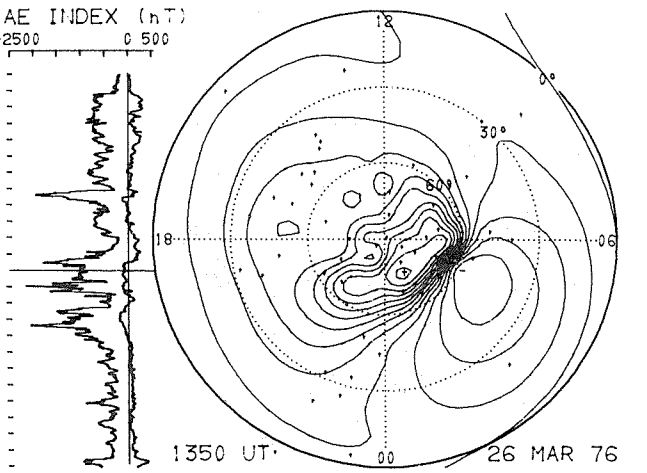

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1330 UT
26 MAR 76

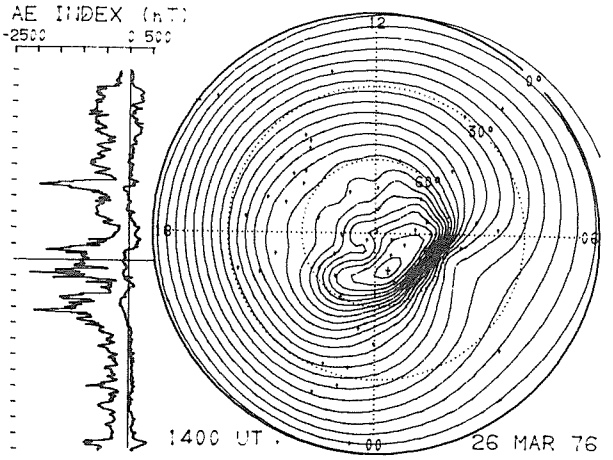

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1330 UT
26 MAR 76

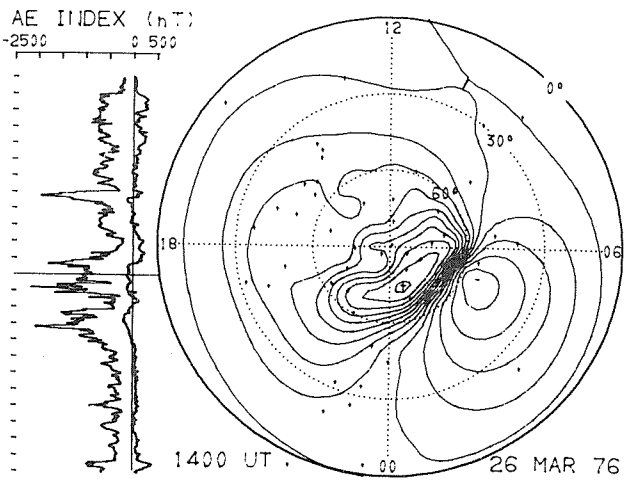

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1340 UT
26 MAR 76

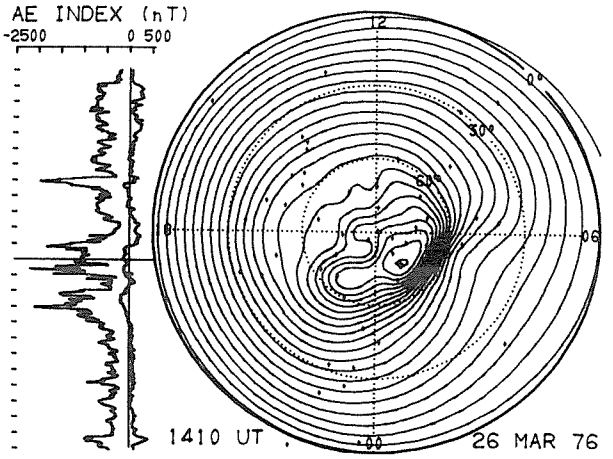

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1340 UT
26 MAR 76

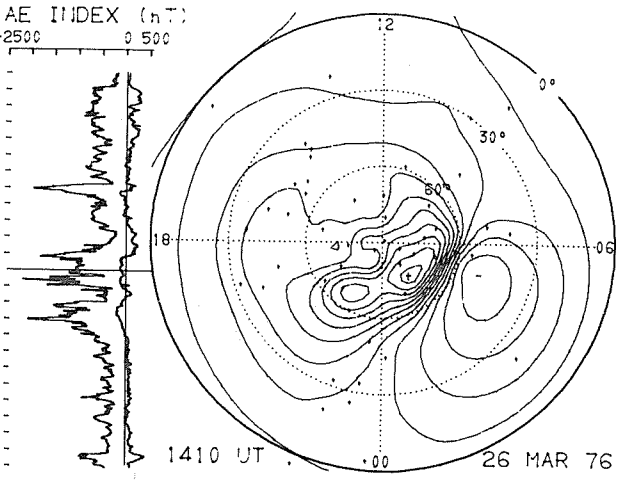

12
0°
30°
60°
18
06
00
1350 UT
26 MAR 76

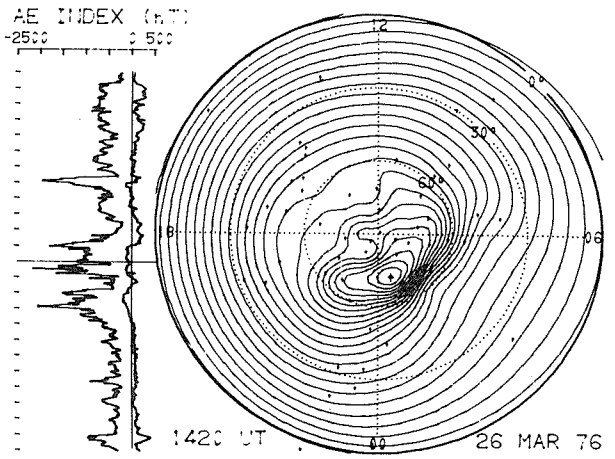

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1350 UT
26 MAR 76

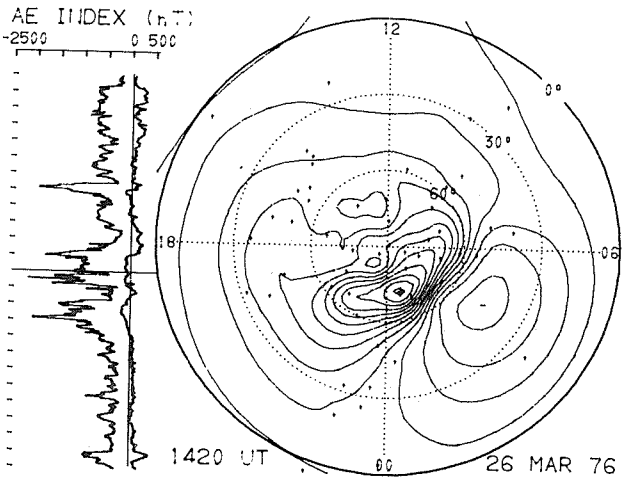

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1400 UT
26 MAR 76

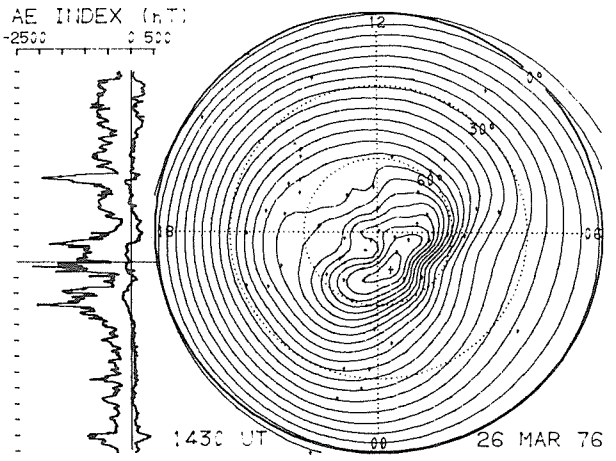

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1400 UT
26 MAR 76

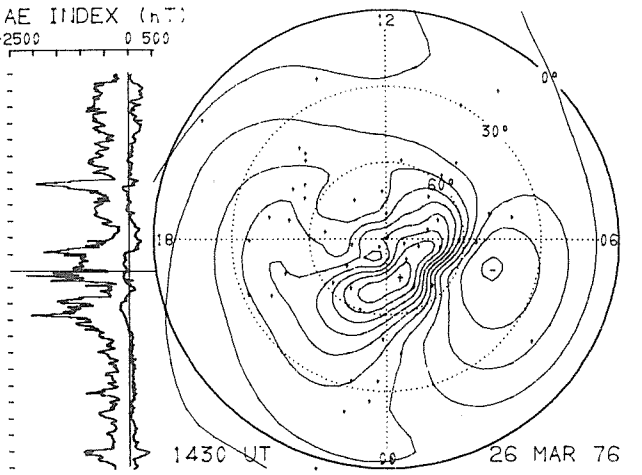

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1410 UT
26 MAR 76

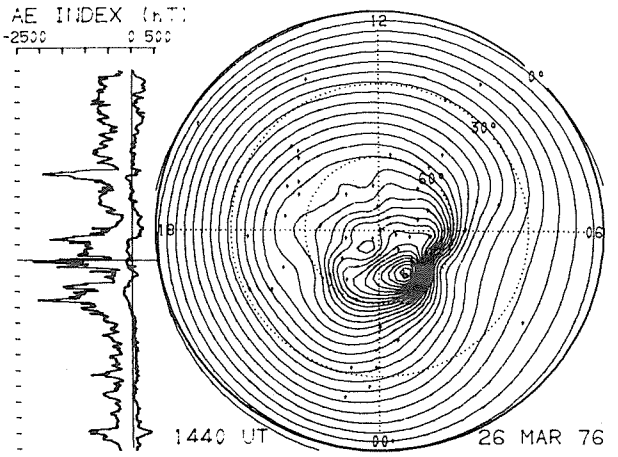

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1410 UT
26 MAR 76

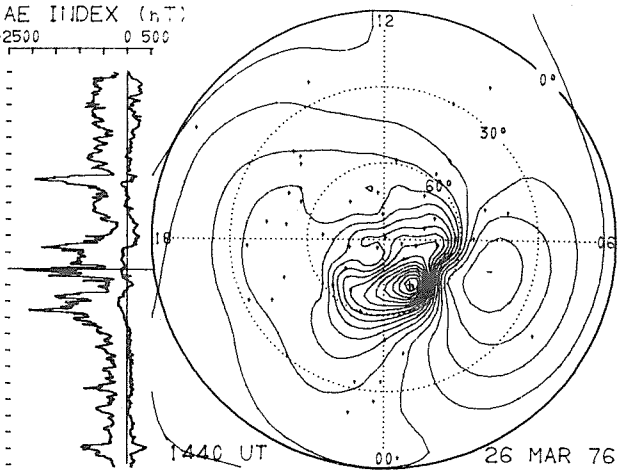

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1420 UT
26 MAR 76

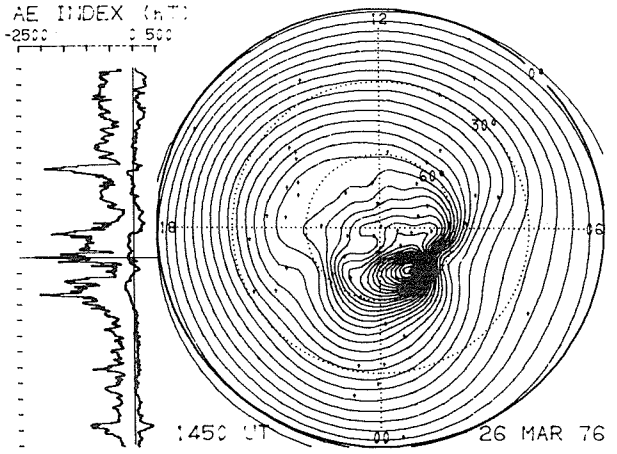

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1420 UT
26 MAR 76

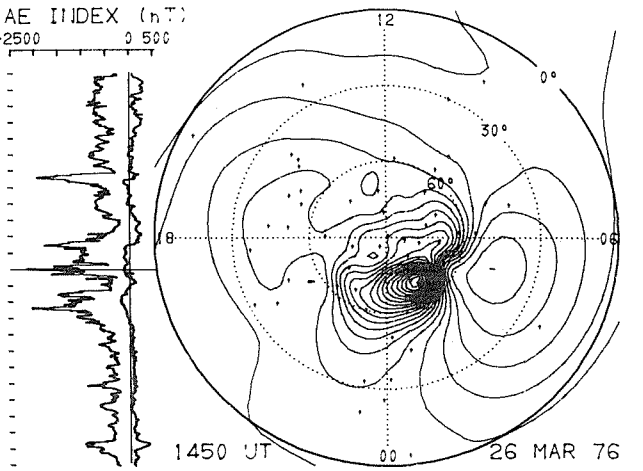

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1430 UT
26 MAR 76

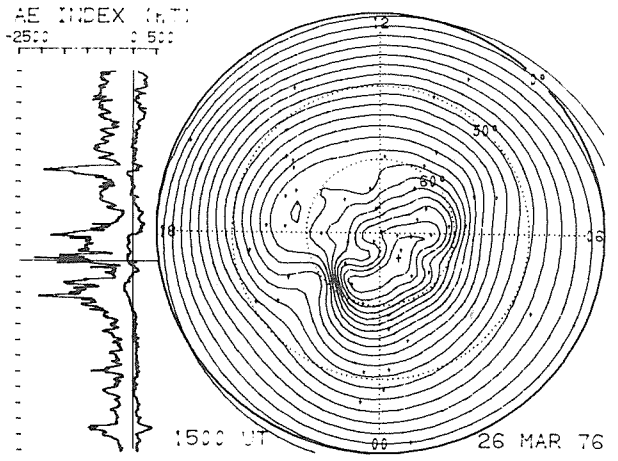

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1430 UT
26 MAR 76

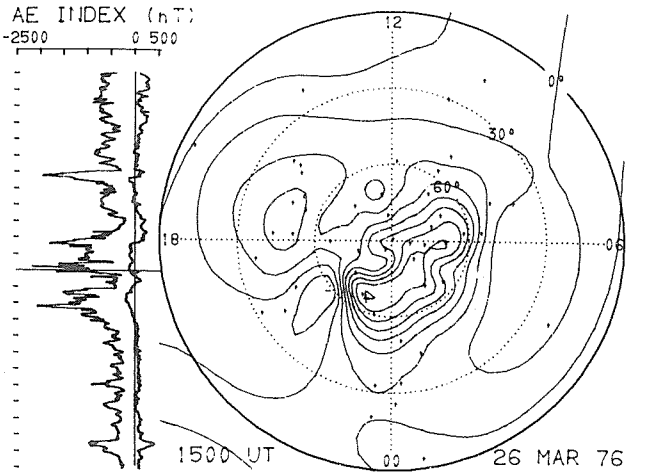

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1440 UT
26 MAR 76

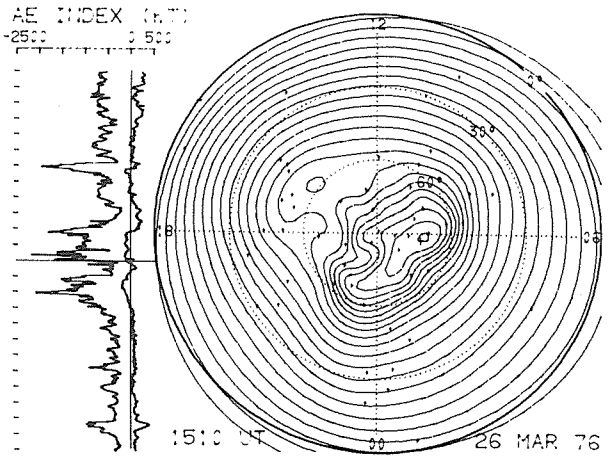

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1440 UT
26 MAR 76

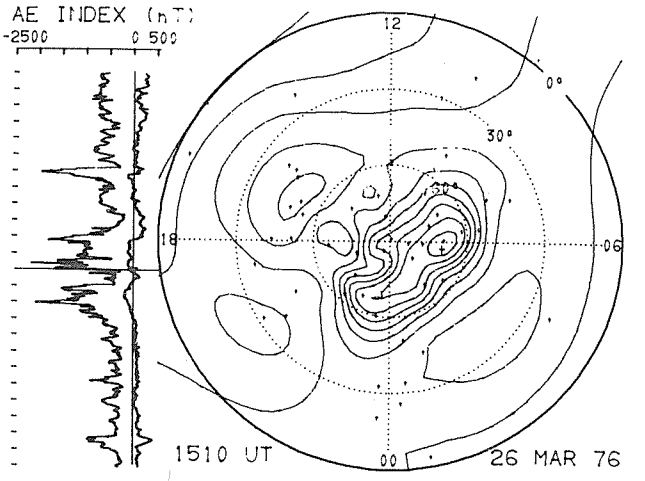

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1450 UT
26 MAR 76

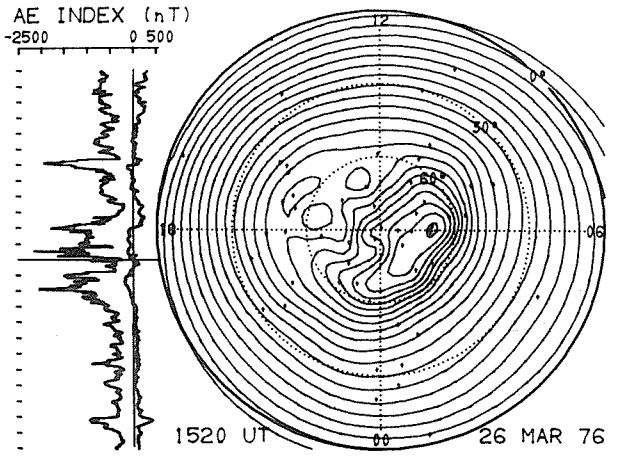

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1450 UT
26 MAR 76

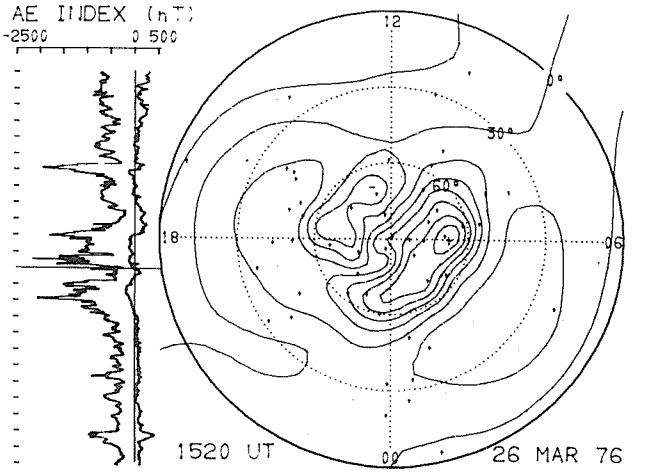

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1500 UT
26 MAR 76

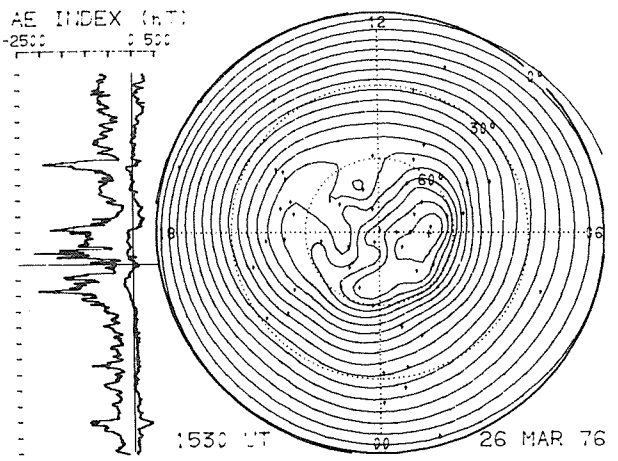

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1500 UT
26 MAR 76

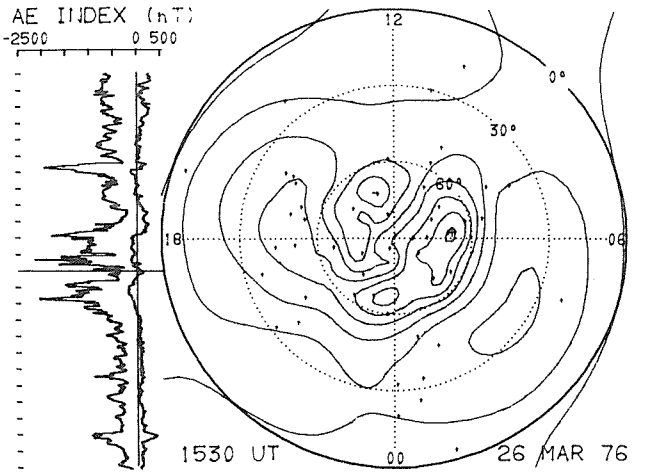

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1510 UT
26 MAR 76

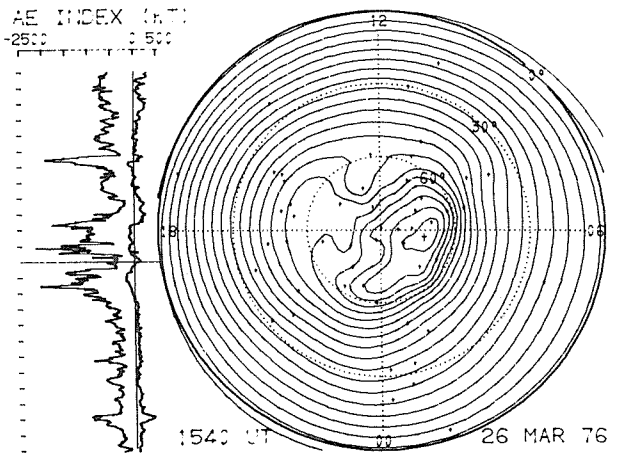

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1510 UT
26 MAR 76

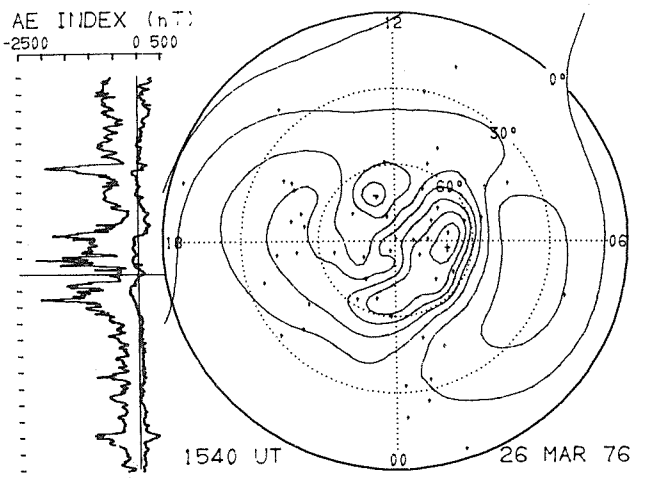

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1520 UT
26 MAR 76

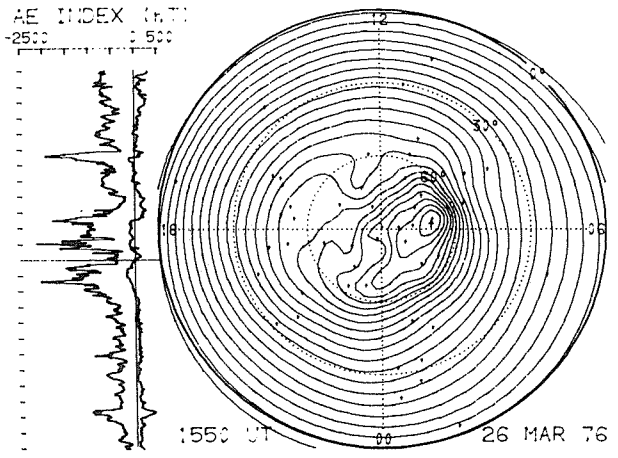

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1520 UT
26 MAR 76

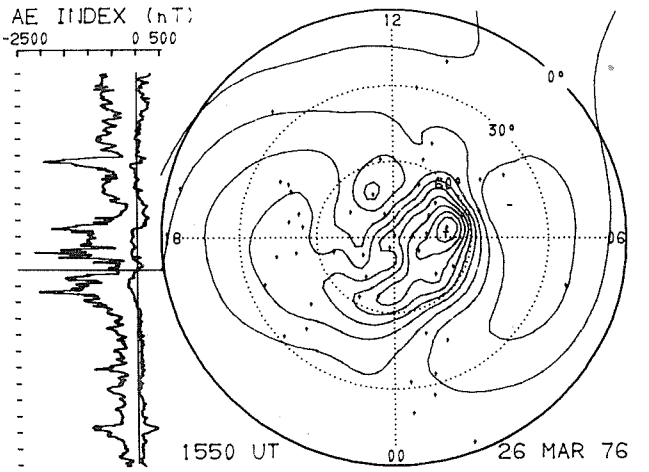

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1530 UT
26 MAR 76

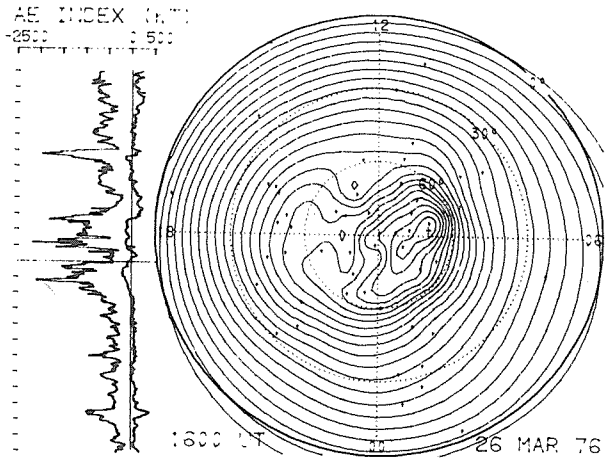

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1530 UT
26 MAR 76

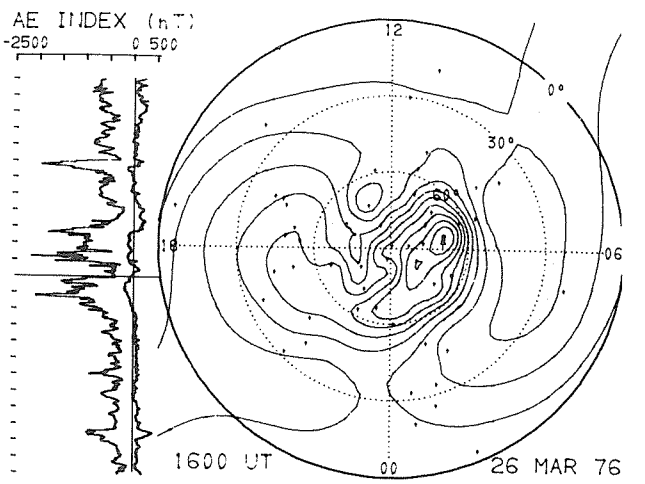

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1540 UT
26 MAR 76

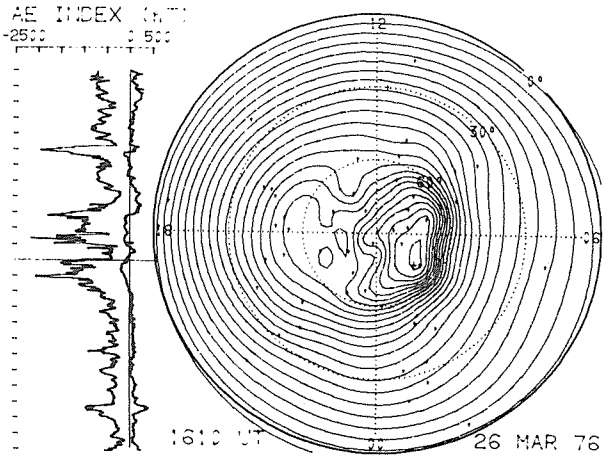

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1540 UT
26 MAR 76

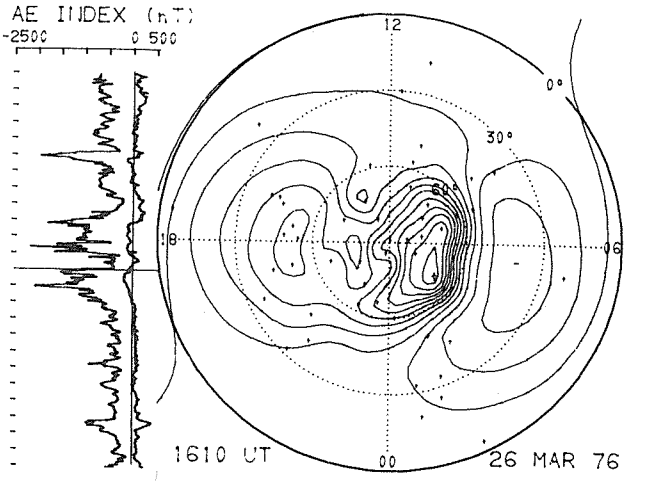

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1550 UT
26 MAR 76

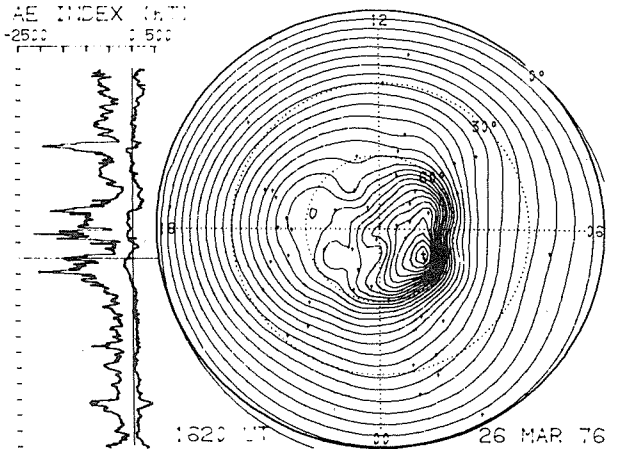

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1550 UT
26 MAR 76

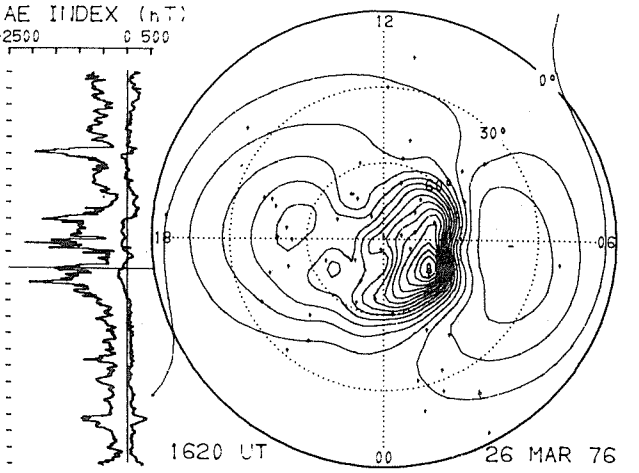

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1600 UT
26 MAR 76

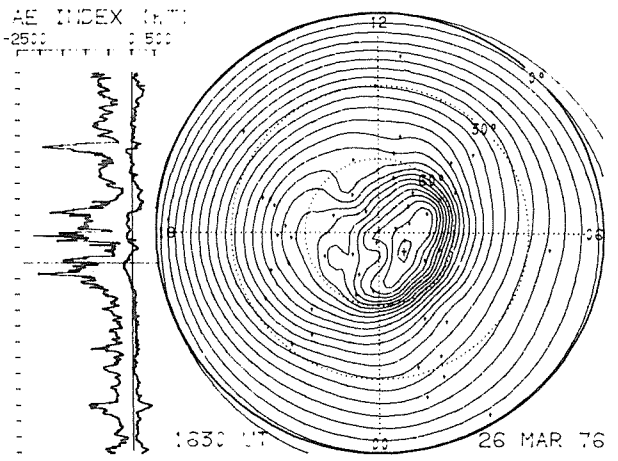

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1600 UT
26 MAR 76

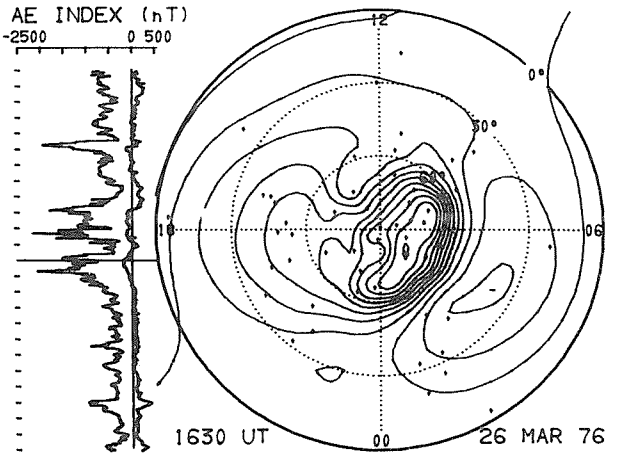

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1610 UT
26 MAR 76

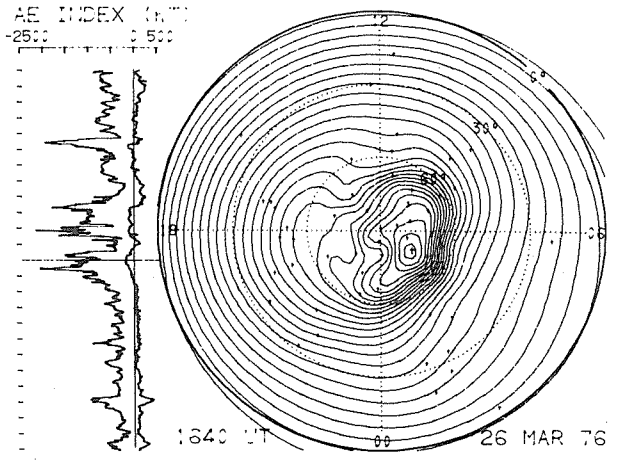

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1610 UT
26 MAR 76

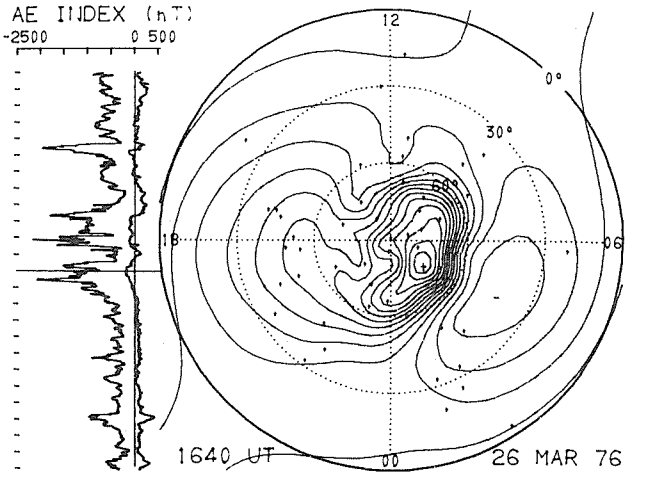

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1620 UT
26 MAR 76

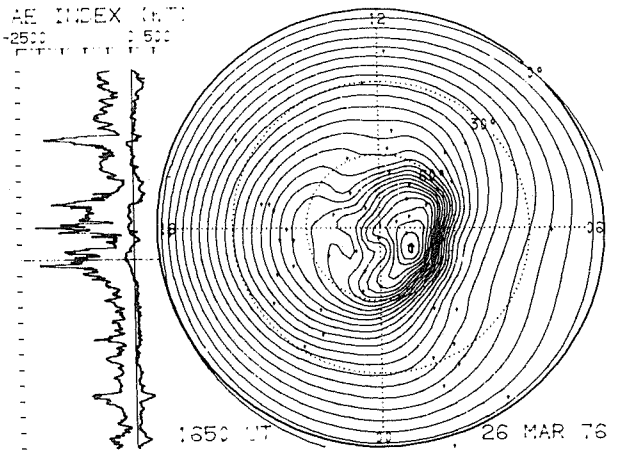

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1620 UT
26 MAR 76

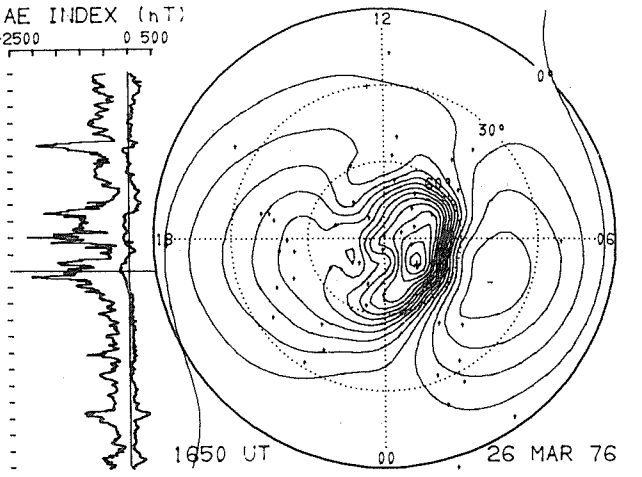

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1630 UT
26 MAR 76

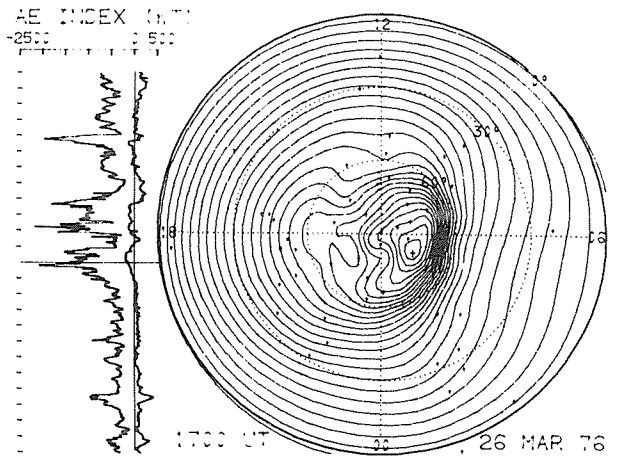

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1630 UT
26 MAR 76

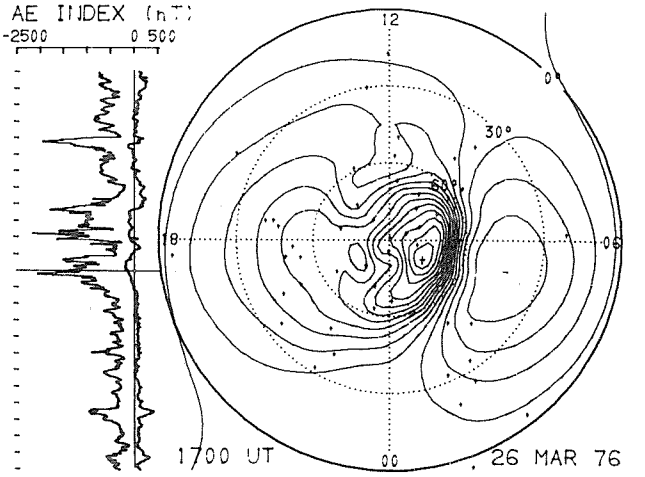

12
0°
30°
60°
18
06
00
26 MAR 76

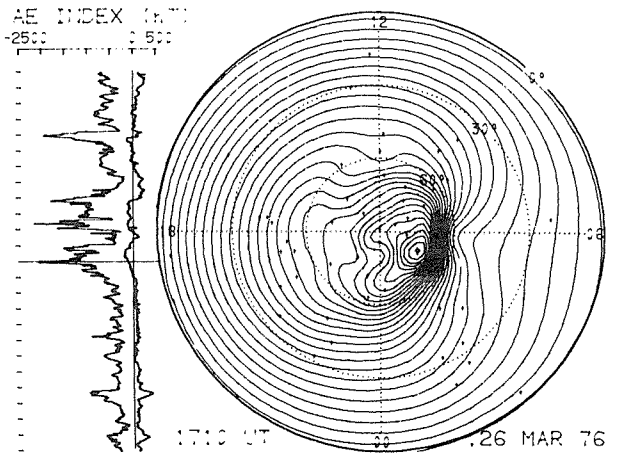

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1640 UT
26 MAR 76

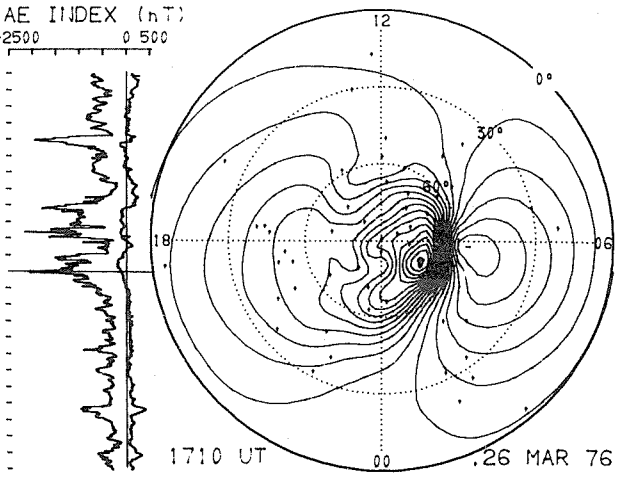

12
0°
30°
60°
18
06
26 MAR 76

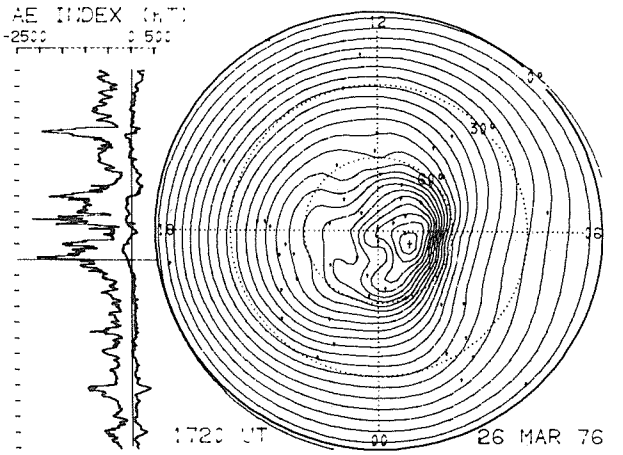

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1650 UT
26 MAR 76

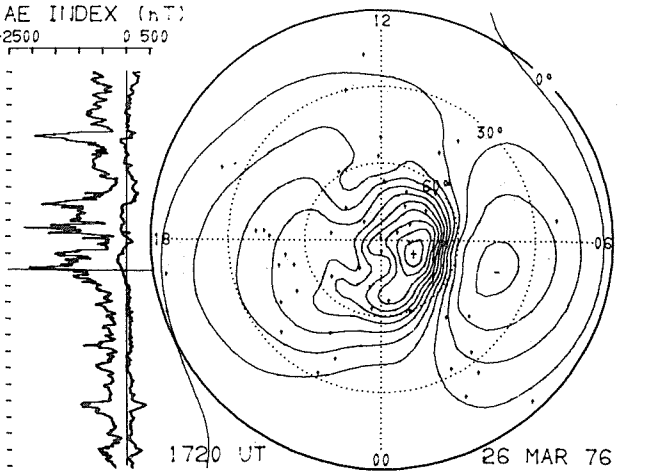

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1700 UT
26 MAR 76

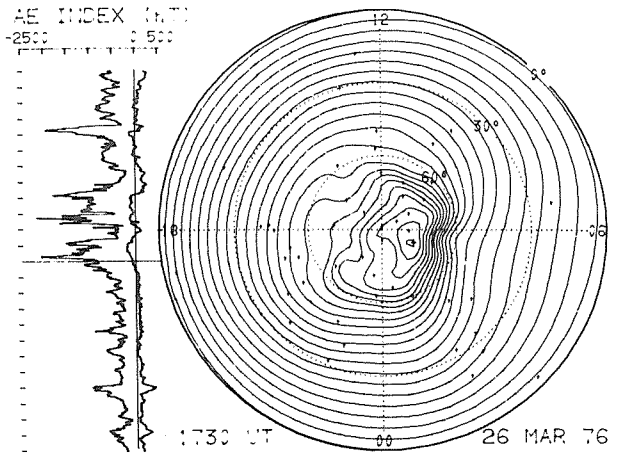

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1700 UT
26 MAR 76

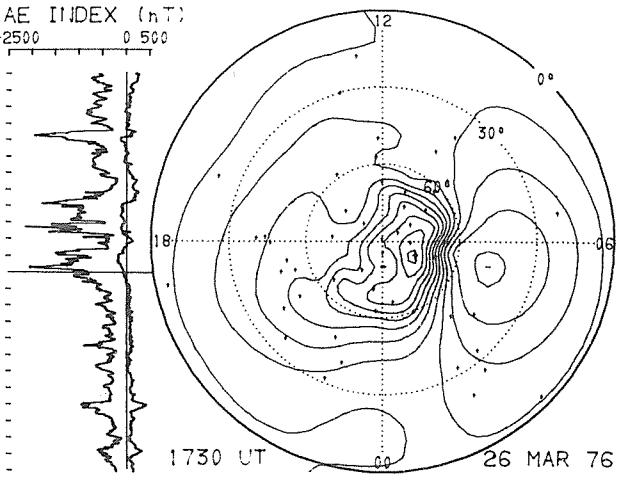

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1710 UT
26 MAR 76

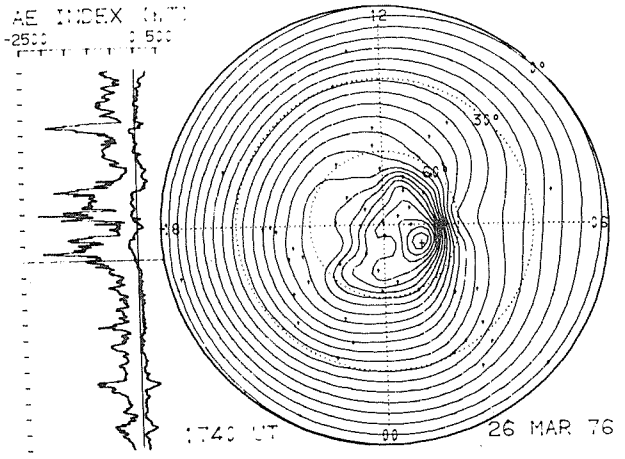

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1710 UT
26 MAR 76

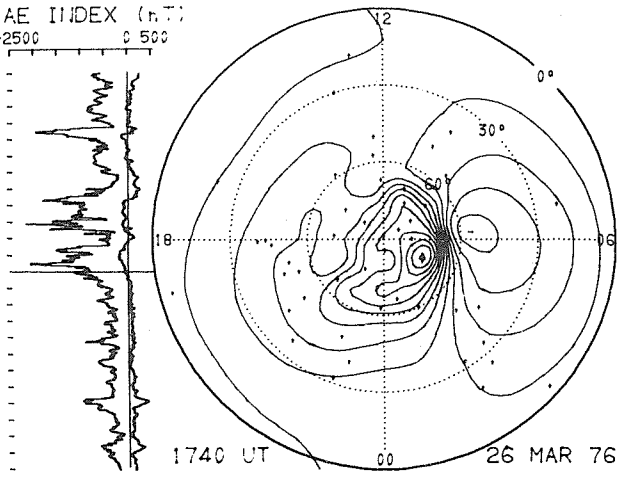

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1720 UT
26 MAR 76

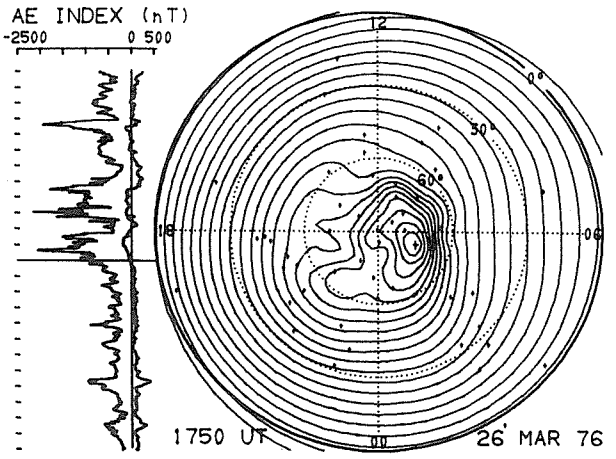

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1720 UT
26 MAR 76

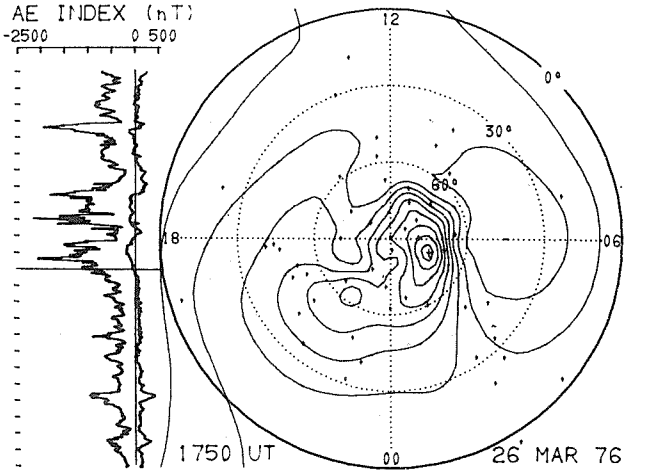

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1730 UT
26 MAR 76

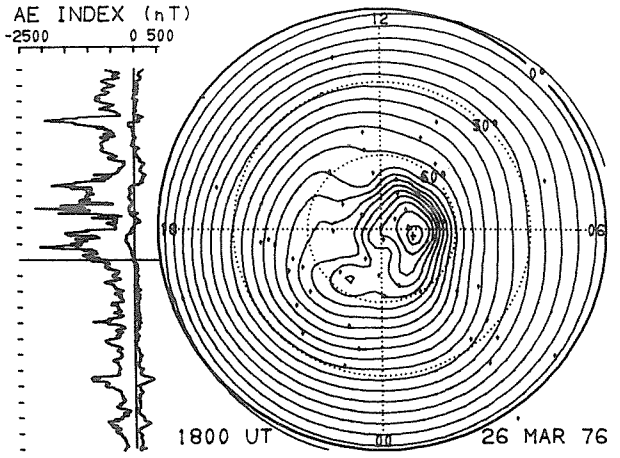

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1730 UT
26 MAR 76

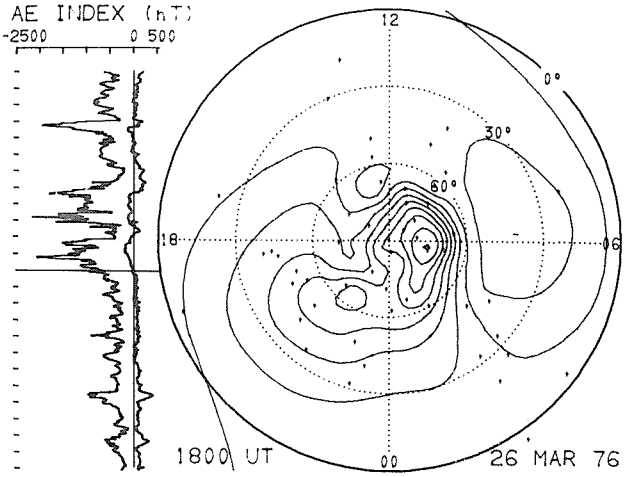

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1740 UT
26 MAR 76

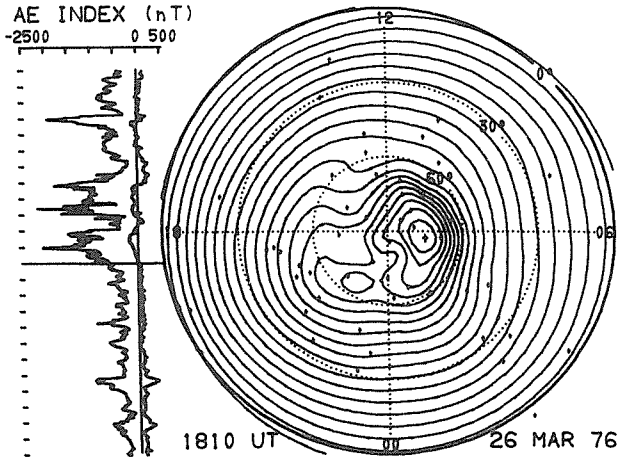

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1740 UT
26 MAR 76

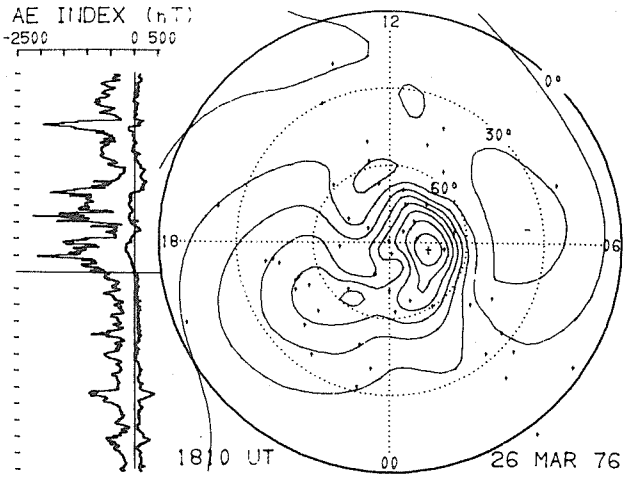

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1750 UT
26 MAR 76

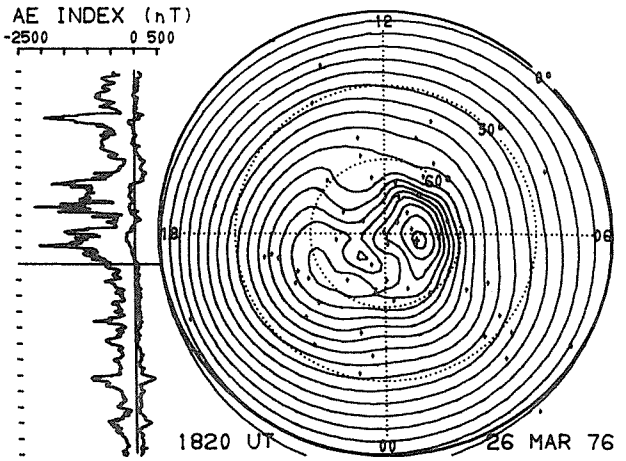

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1750 UT
26 MAR 76

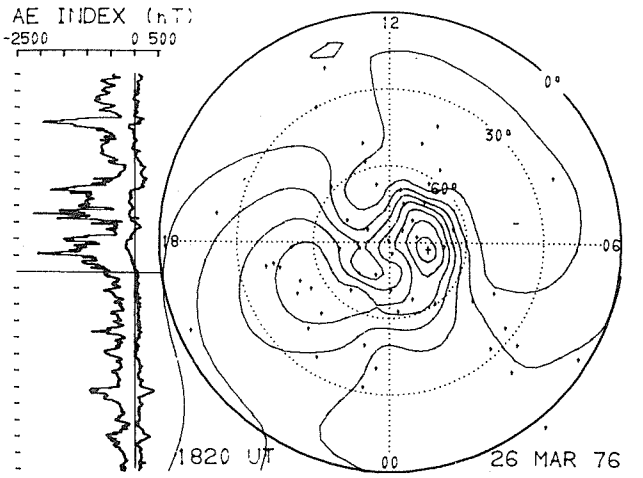

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1800 UT
26 MAR 76

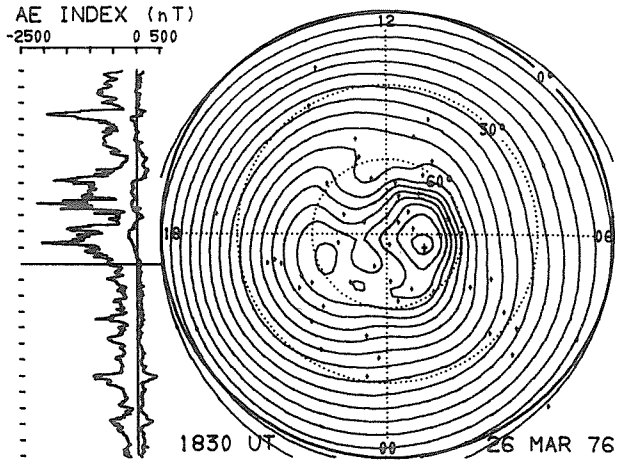

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1800 UT
26 MAR 76

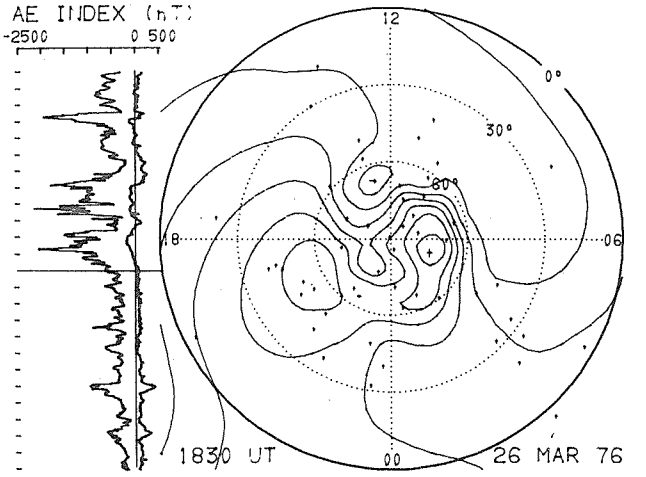

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1810 UT
26 MAR 76

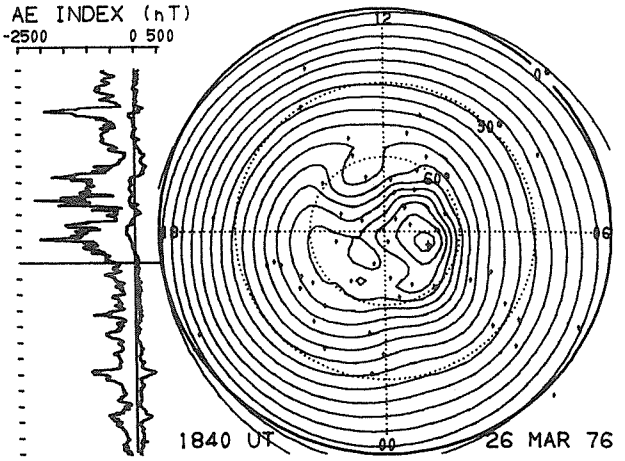

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1810 UT
26 MAR 76

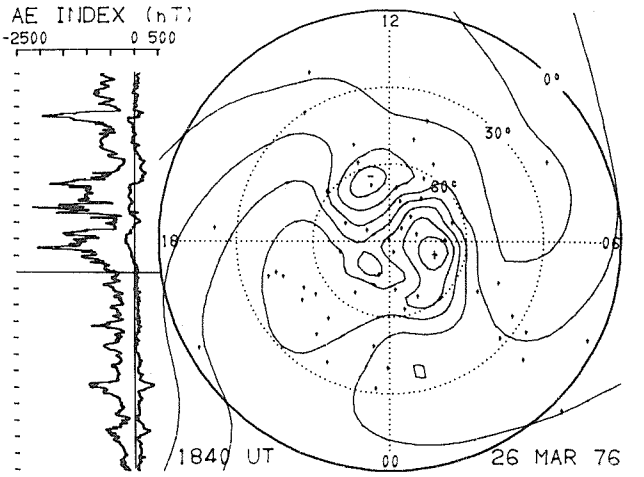

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1820 UT
26 MAR 76

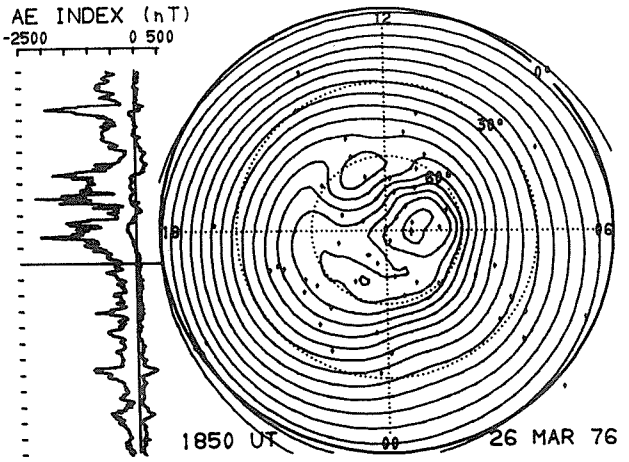

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1820 UT
26 MAR 76

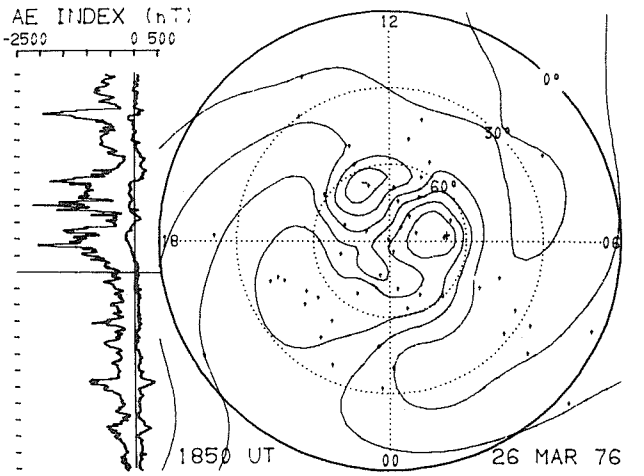

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1830 UT
26 MAR 76

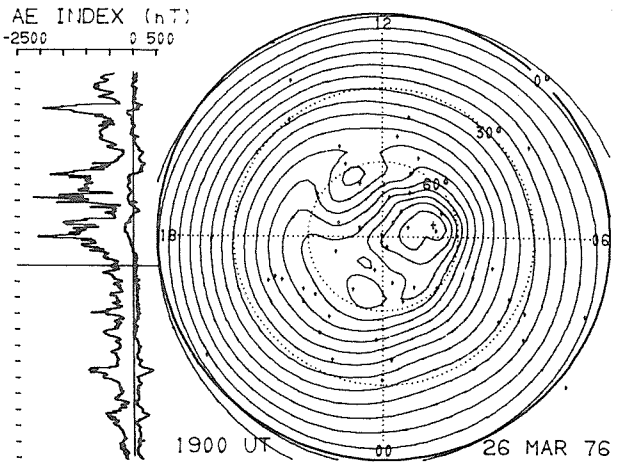

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1830 UT
26 MAR 76

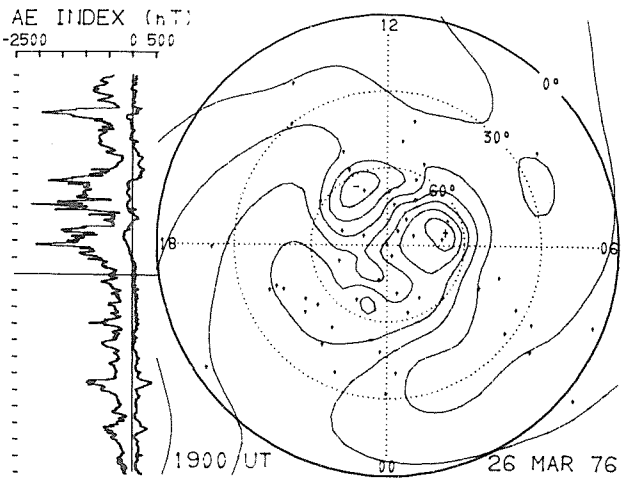

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1840 UT
26 MAR 76

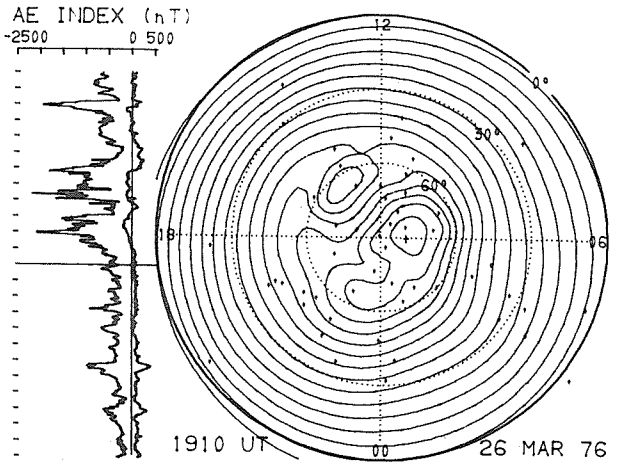

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1840 UT
26 MAR 76

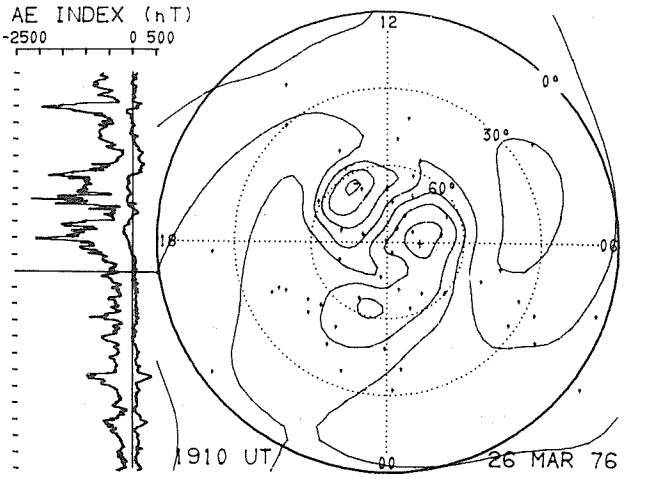

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1850 UT
26 MAR 76

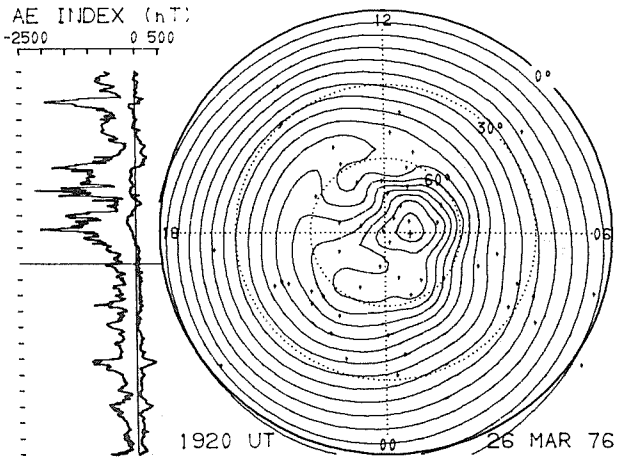

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1850 UT
26 MAR 76

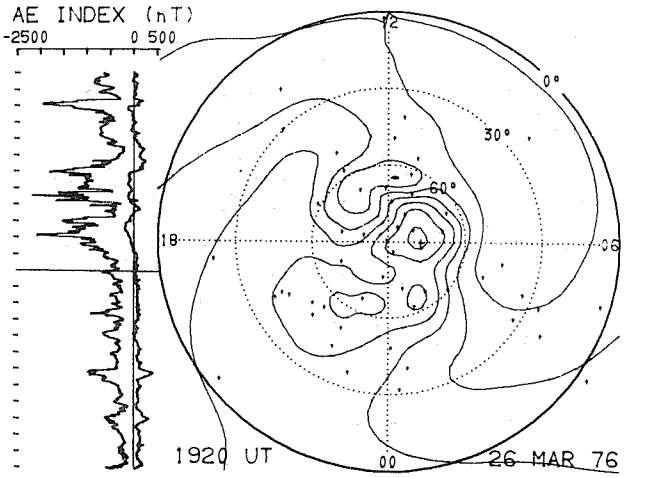

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1900 UT
26 MAR 76

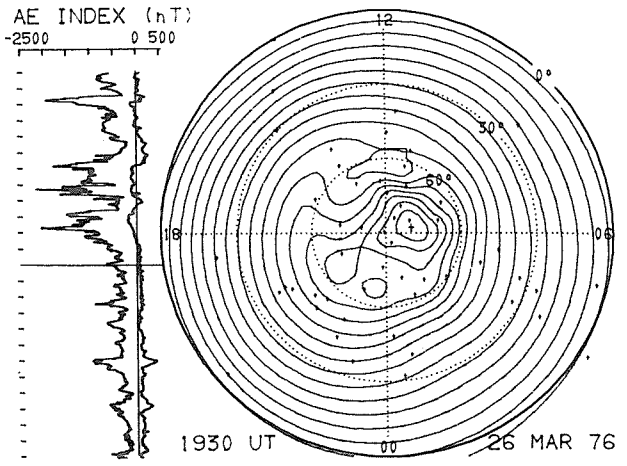

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1900 UT
26 MAR 76

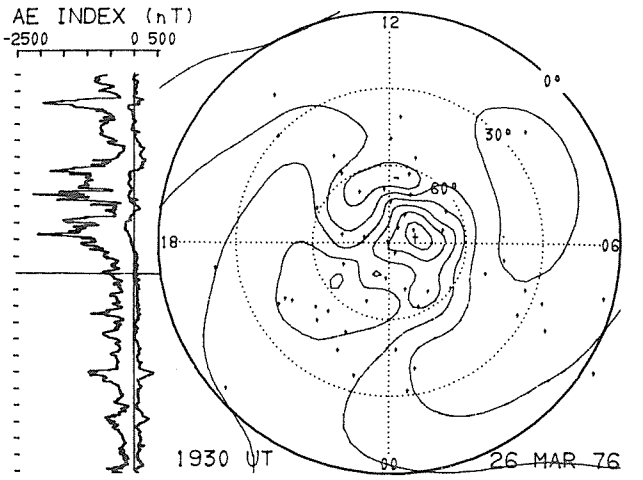

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1910 UT
26 MAR 76

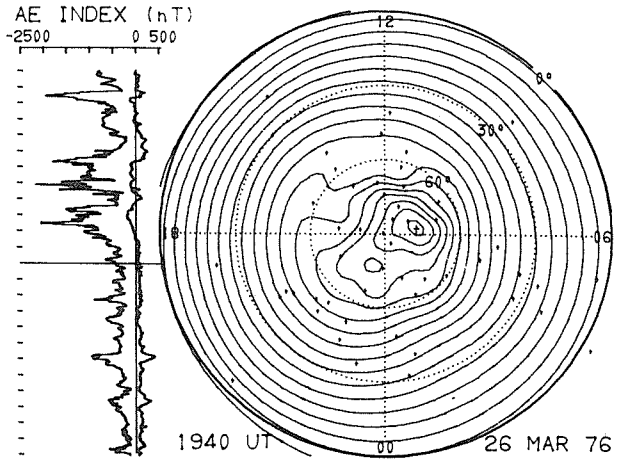

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1910 UT
26 MAR 76

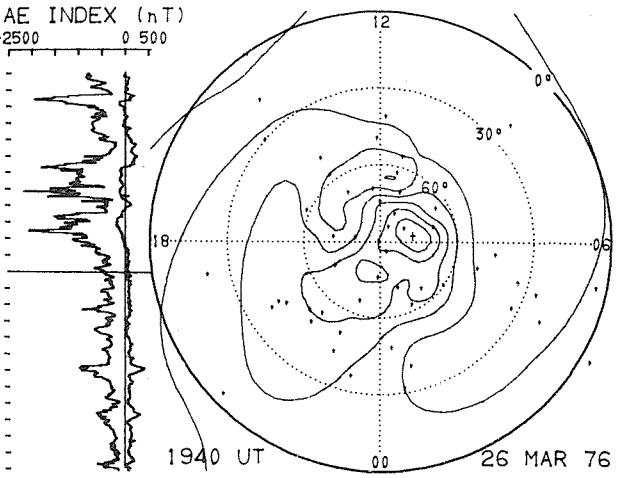

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1920 UT
26 MAR 76

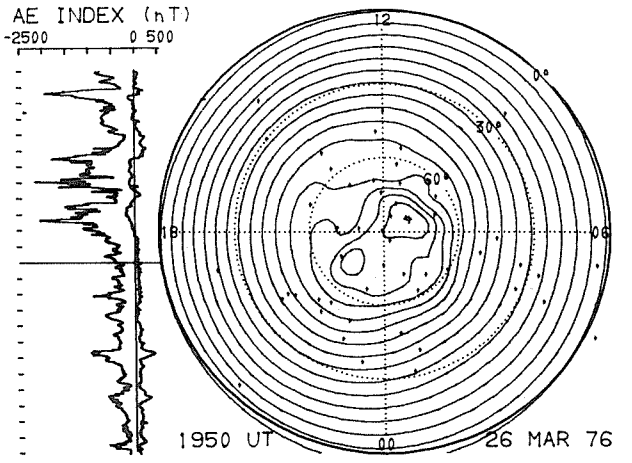

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1920 UT
26 MAR 76

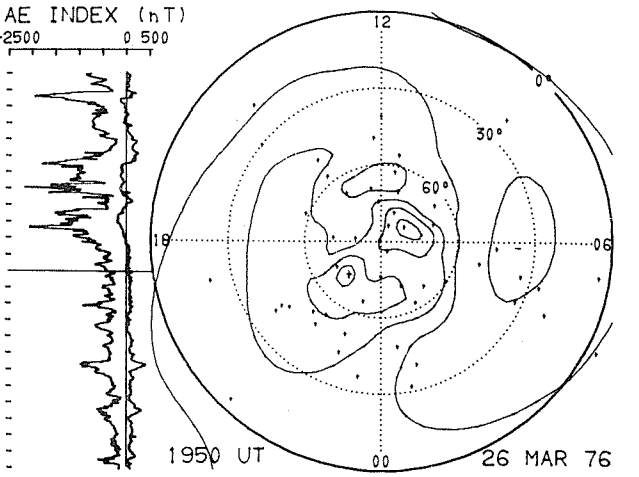

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1930 UT
26 MAR 76

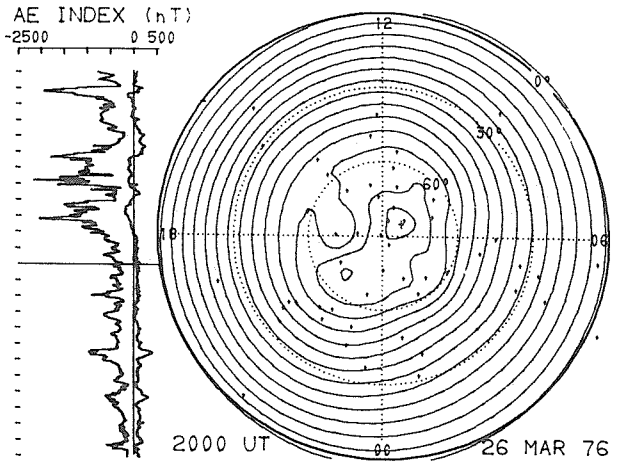

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1930 UT
26 MAR 76

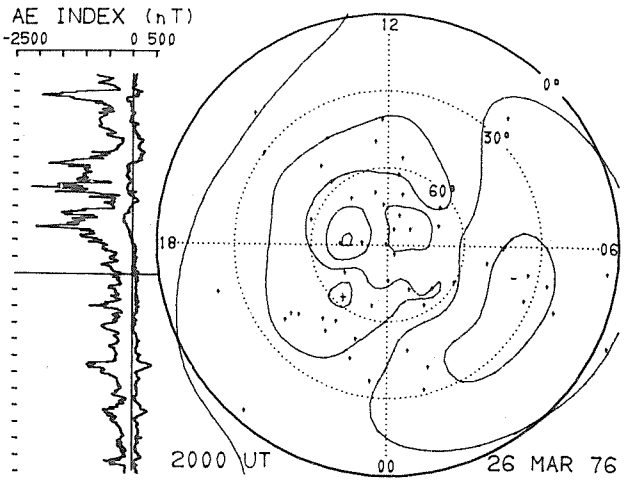

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1940 UT
26 MAR 76

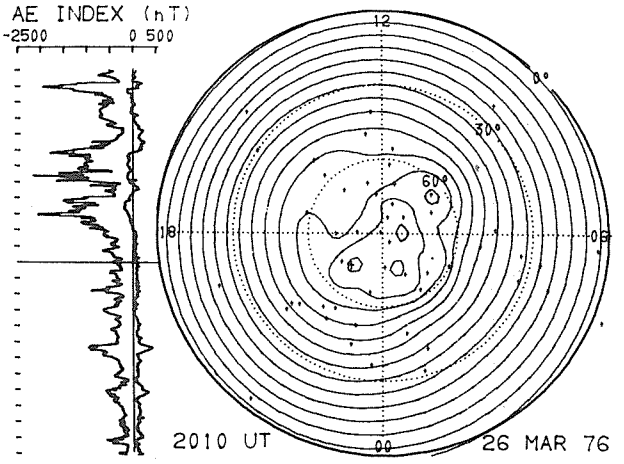

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1940 UT
26 MAR 76

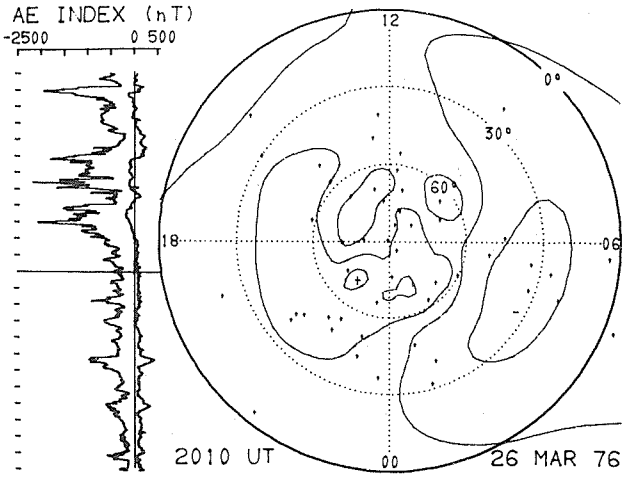

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1950 UT
26 MAR 76

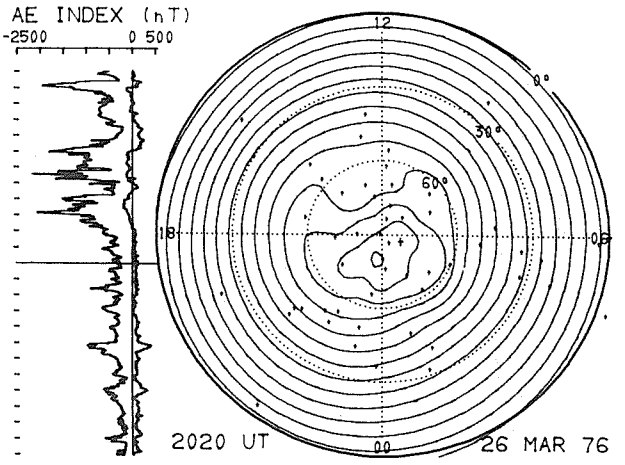

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1950 UT
26 MAR 76

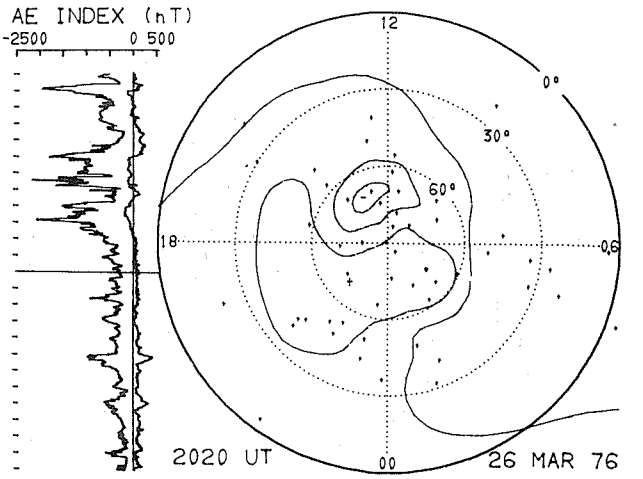

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2000 UT
26 MAR 76

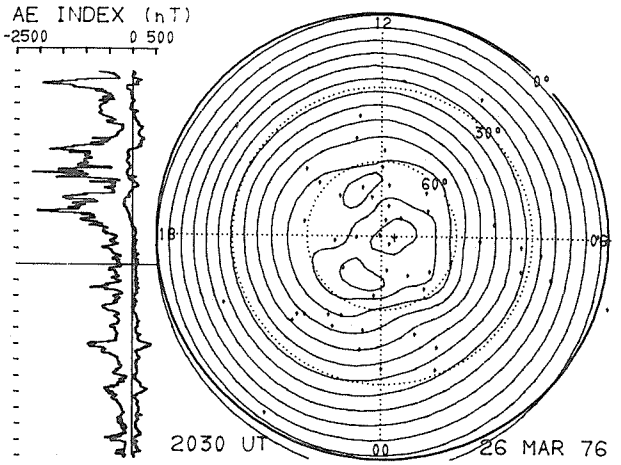

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2000 UT
26 MAR 76

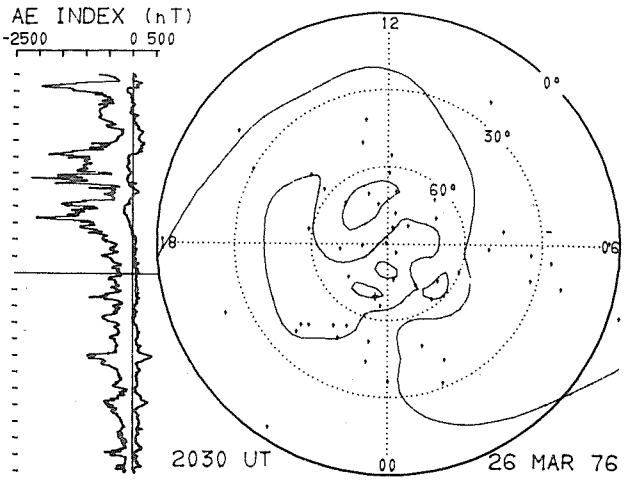

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2010 UT
26 MAR 76

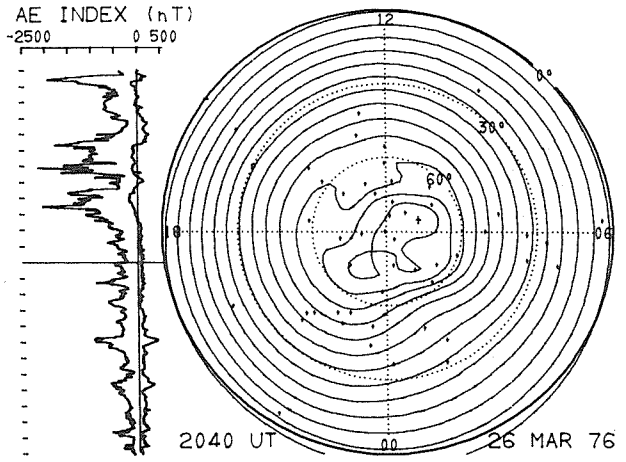

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2010 UT
26 MAR 76

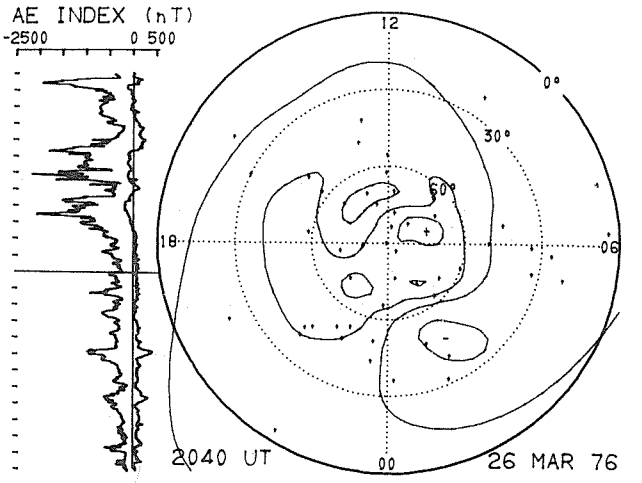

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2020 UT
26 MAR 76

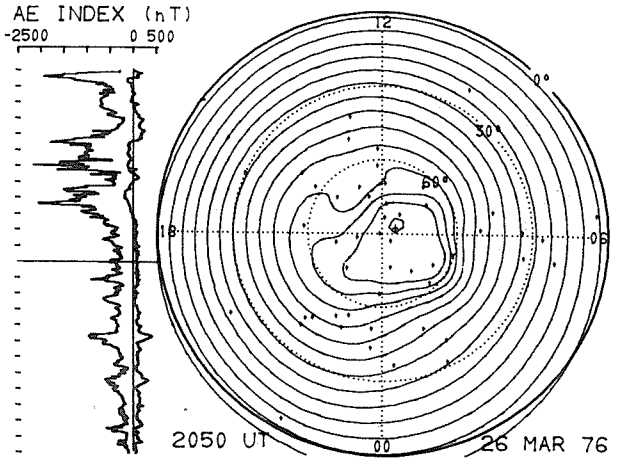

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2020 UT
26 MAR 76

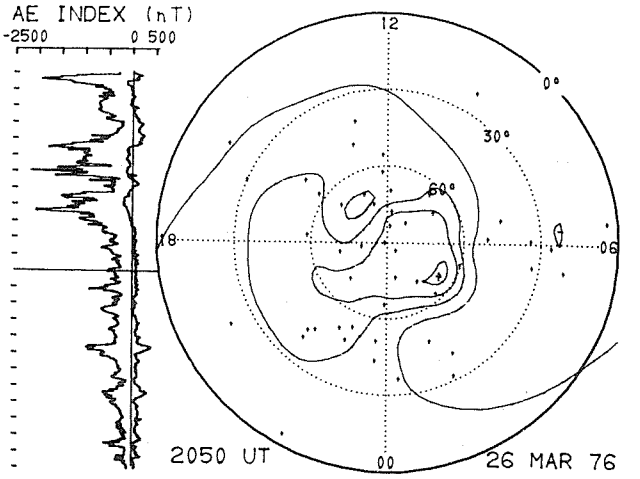

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2030 UT
26 MAR 76

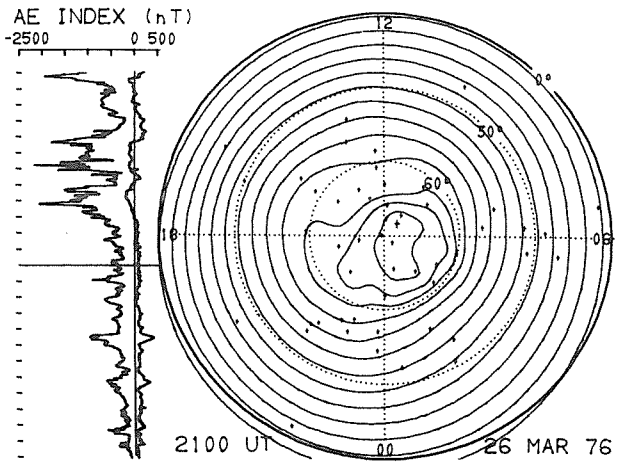

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2030 UT
26 MAR 76

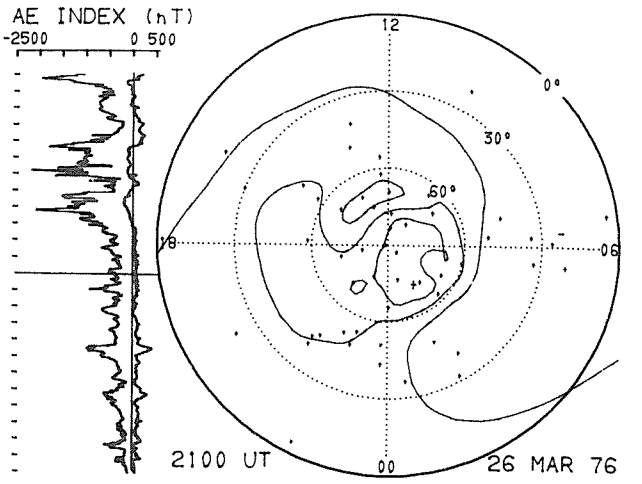

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2040 UT
26 MAR 76

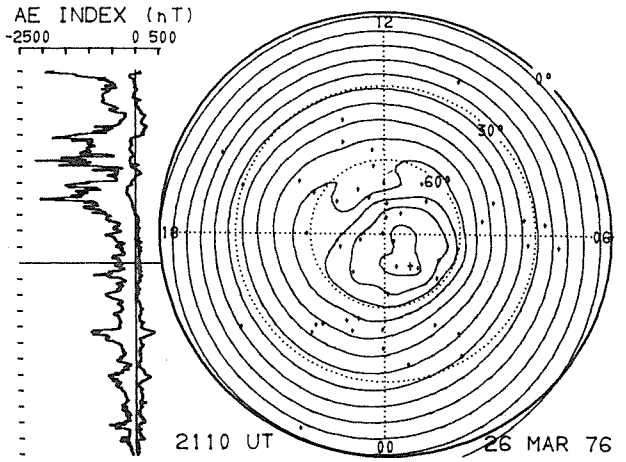

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2040 UT
26 MAR 76

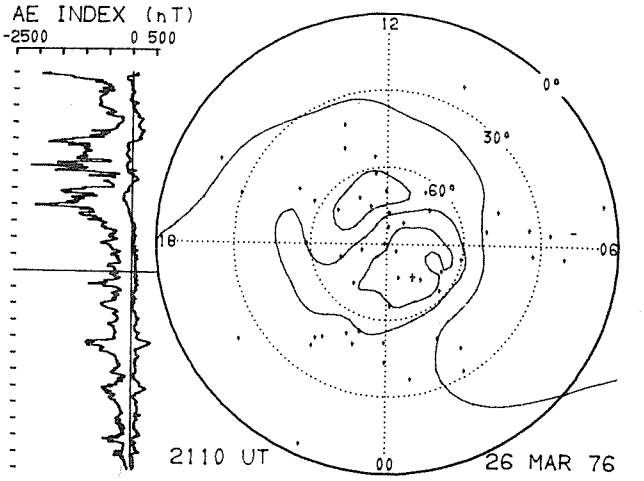

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2050 UT
26 MAR 76

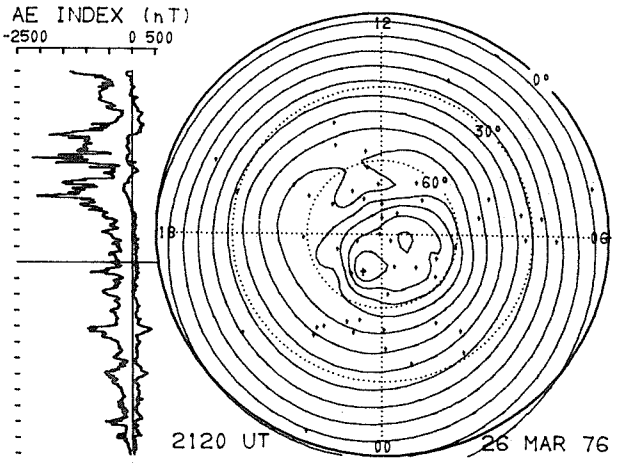

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2050 UT
26 MAR 76

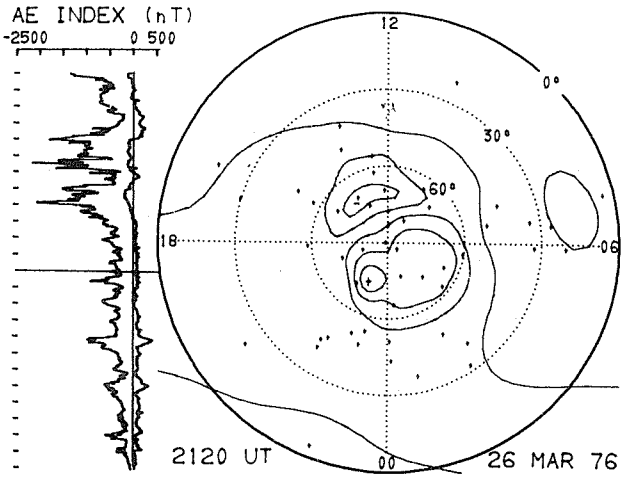

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2100 UT
26 MAR 76

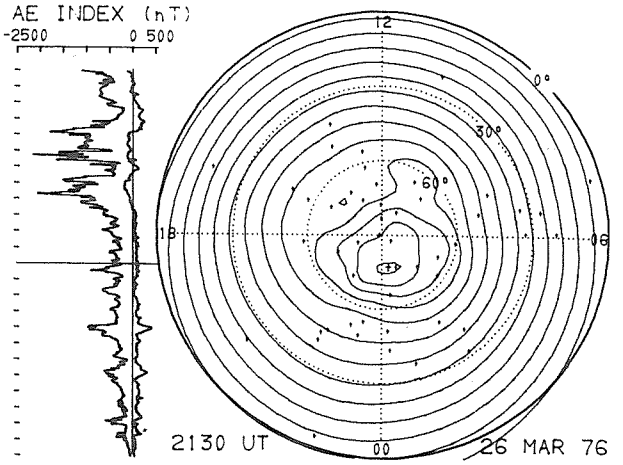

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2100 UT
26 MAR 76

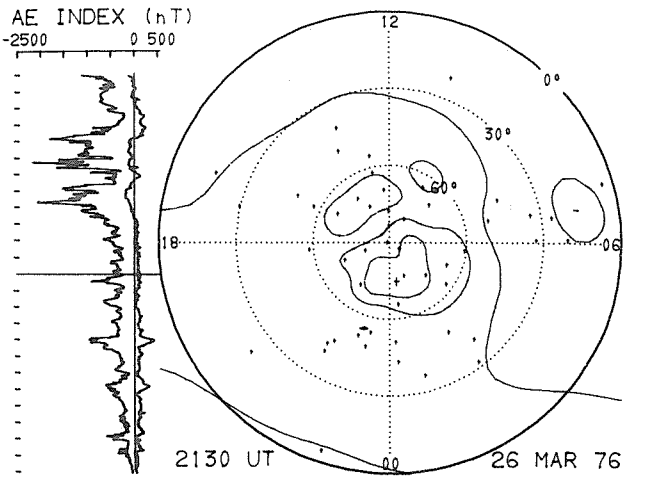

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2110 UT
26 MAR 76

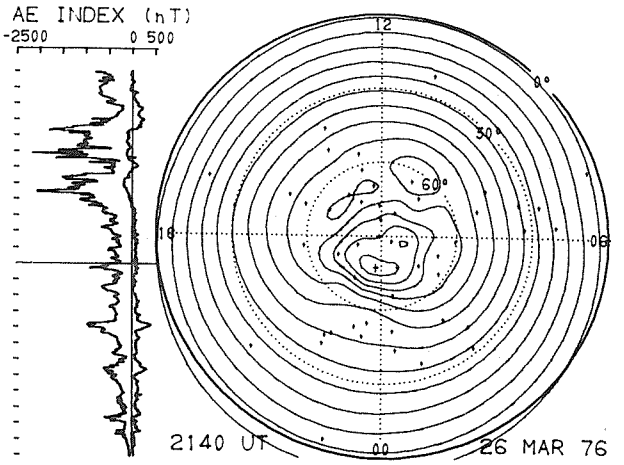

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2110 UT
26 MAR 76

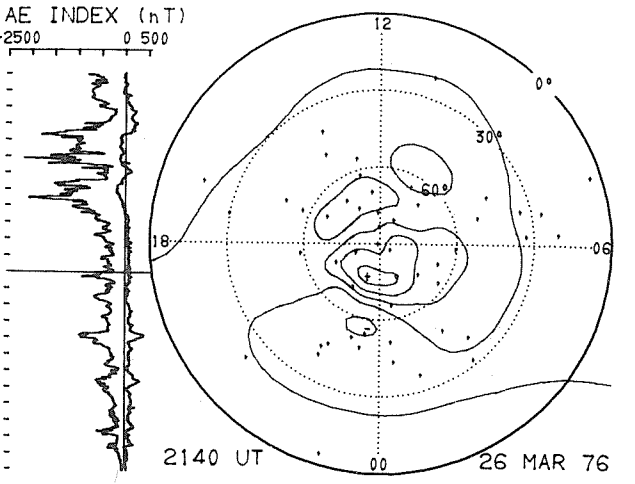

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2120 UT
26 MAR 76

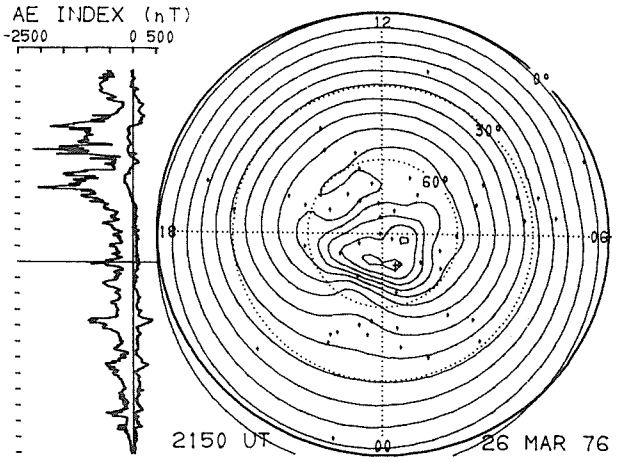

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2120 UT
26 MAR 76

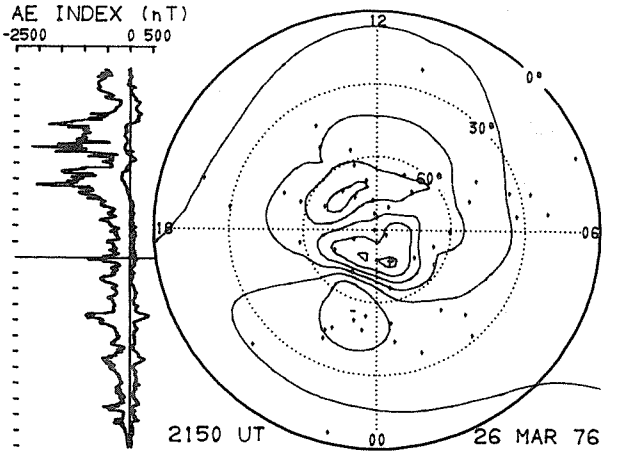

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2130 UT
26 MAR 76

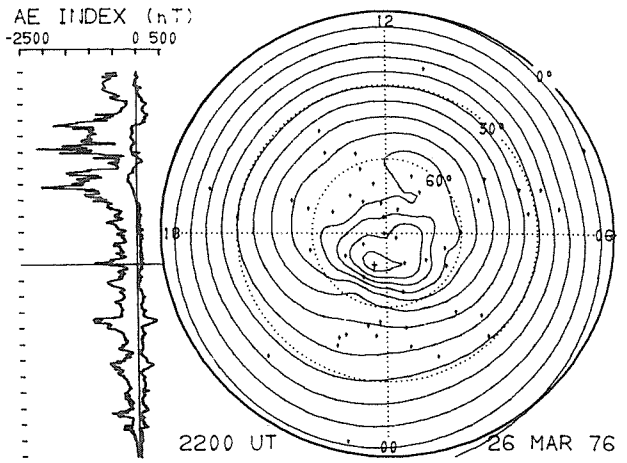

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2130 UT
26 MAR 76

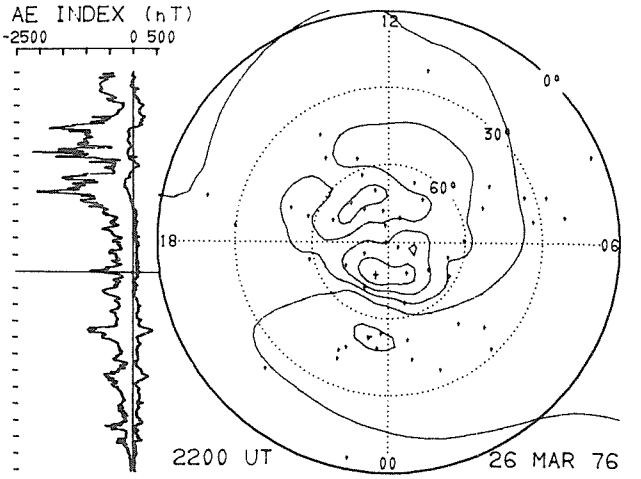

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2140 UT
26 MAR 76

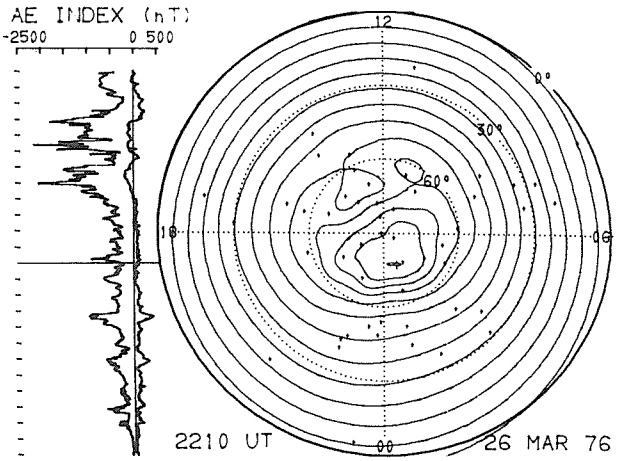

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2140 UT
26 MAR 76

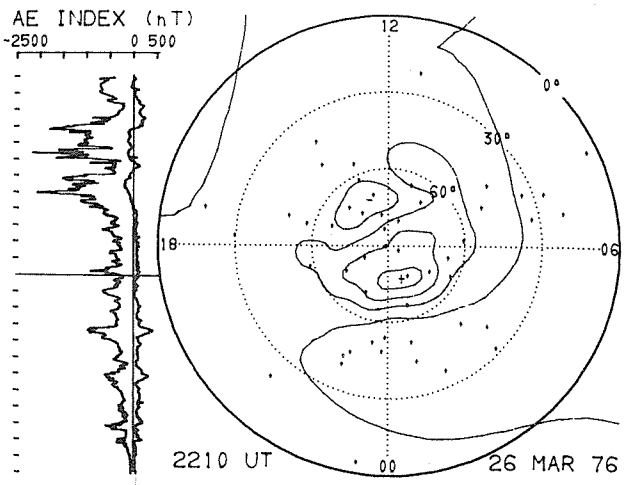

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2150 UT
26 MAR 76

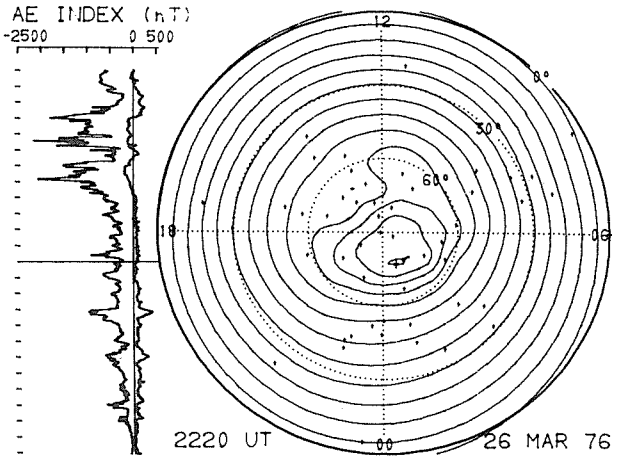

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2150 UT
26 MAR 76

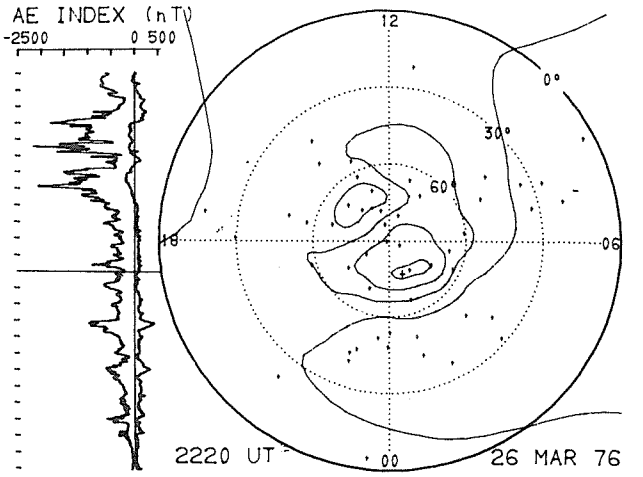

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2200 UT
26 MAR 76

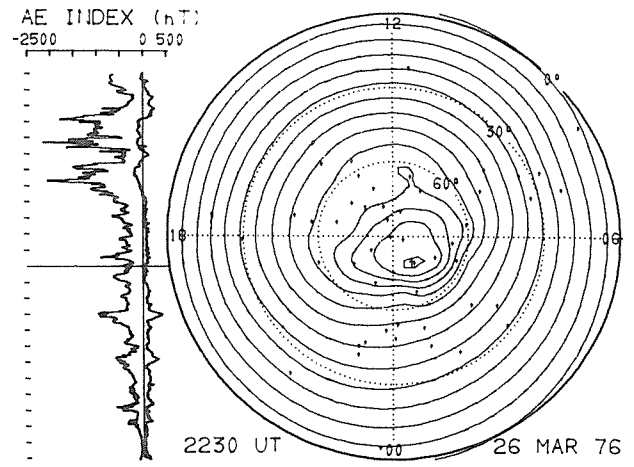

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2200 UT
26 MAR 76

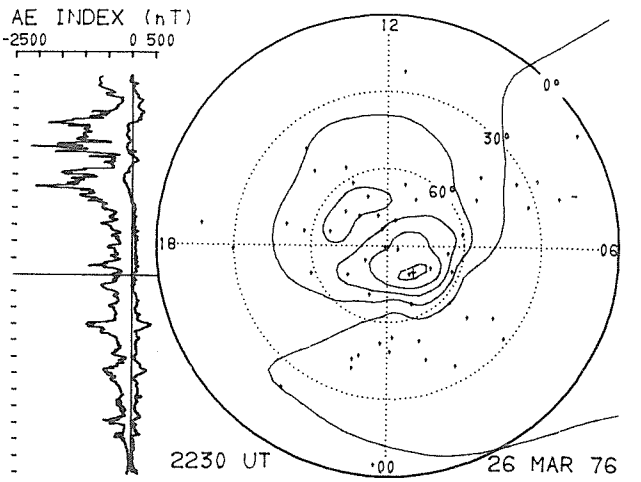

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2210 UT
26 MAR 76

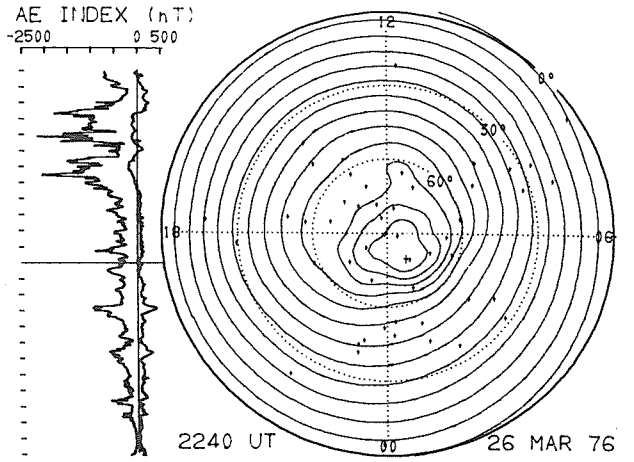

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2210 UT
26 MAR 76

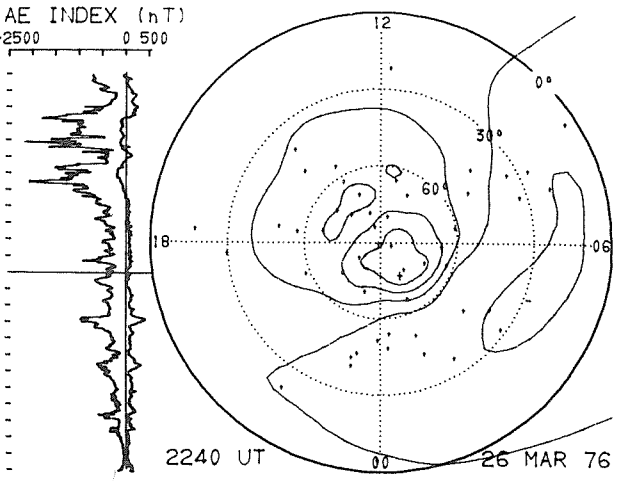

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2220 UT
26 MAR 76

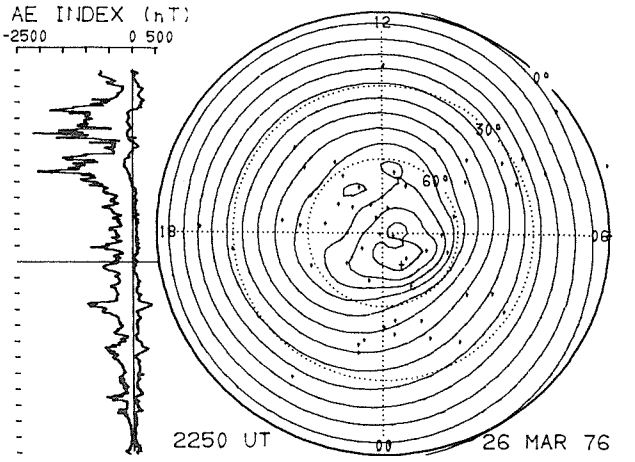

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2220 UT
26 MAR 76

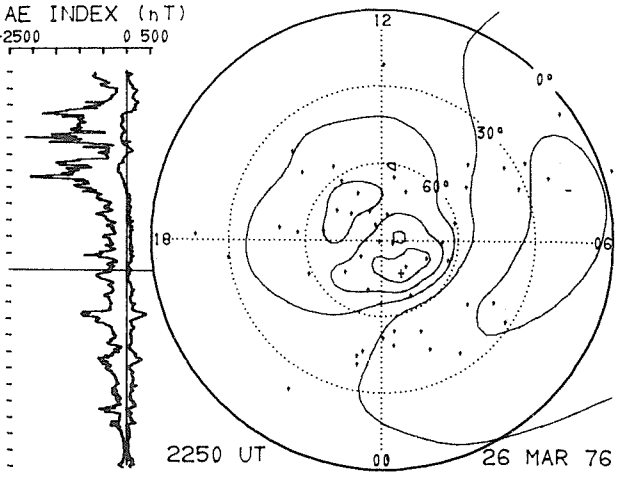

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2230 UT
26 MAR 76

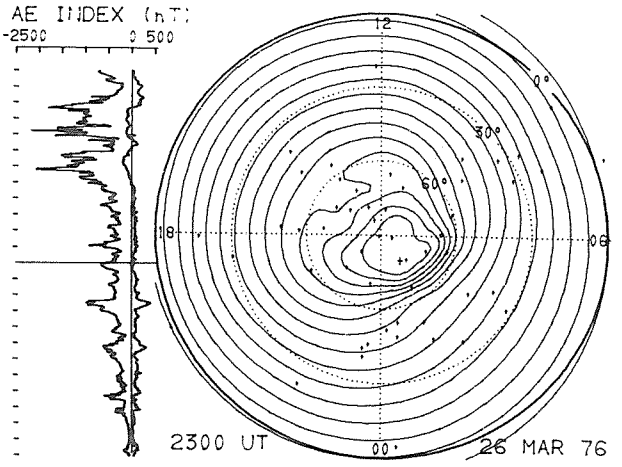

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2230 UT
26 MAR 76

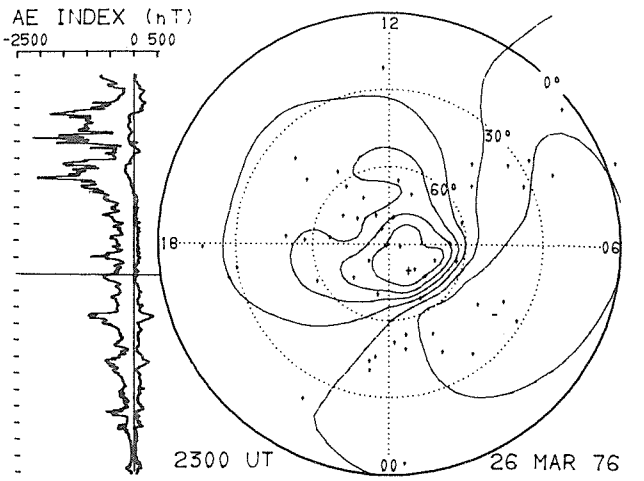

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2240 UT
26 MAR 76

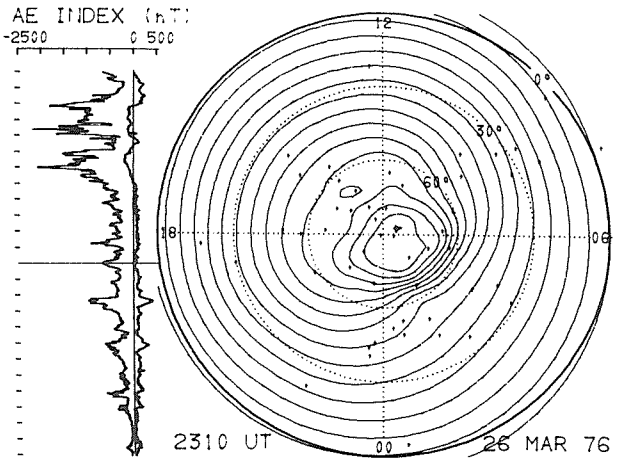

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2240 UT
26 MAR 76

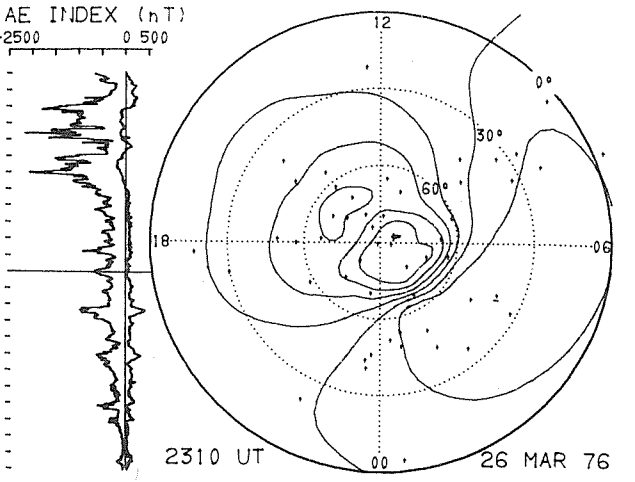

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2250 UT
26 MAR 76

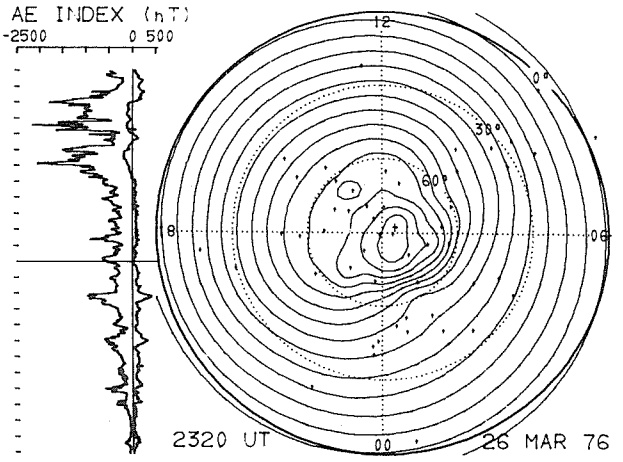

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2250 UT
26 MAR 76

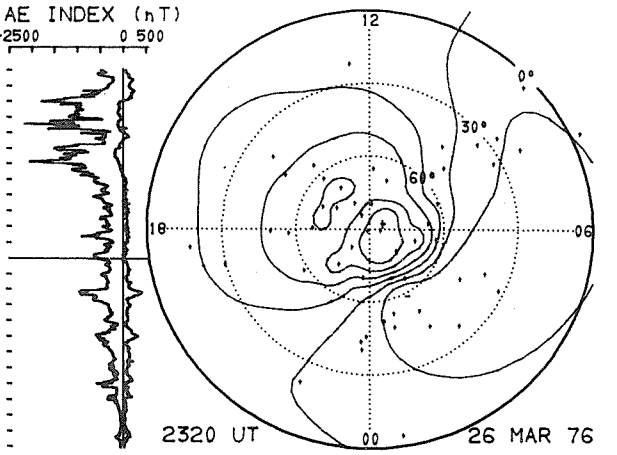

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2300 UT
26 MAR 76

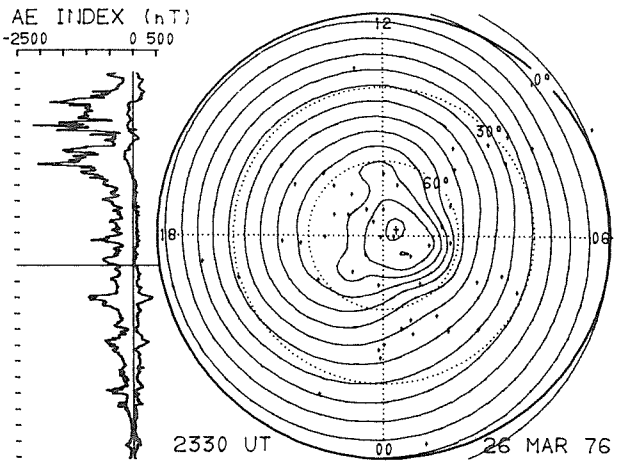

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2300 UT
26 MAR 76

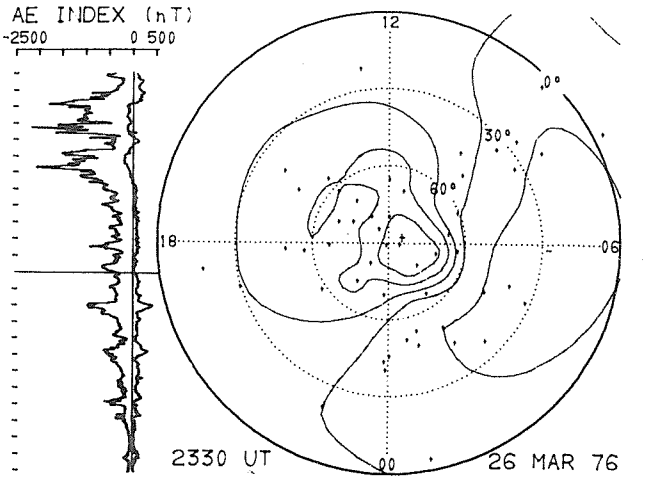

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2310 UT
26 MAR 76

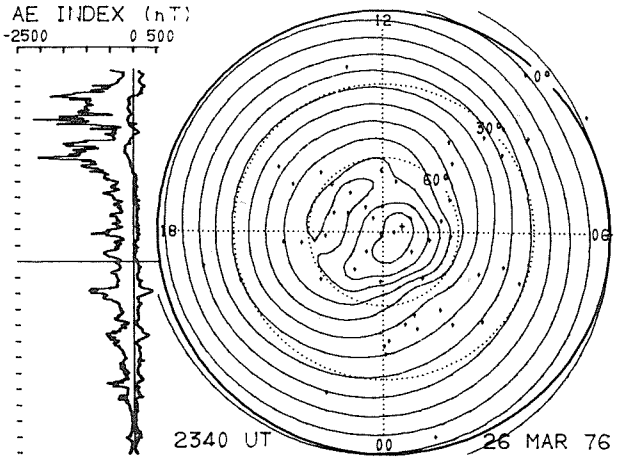

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2310 UT
26 MAR 76

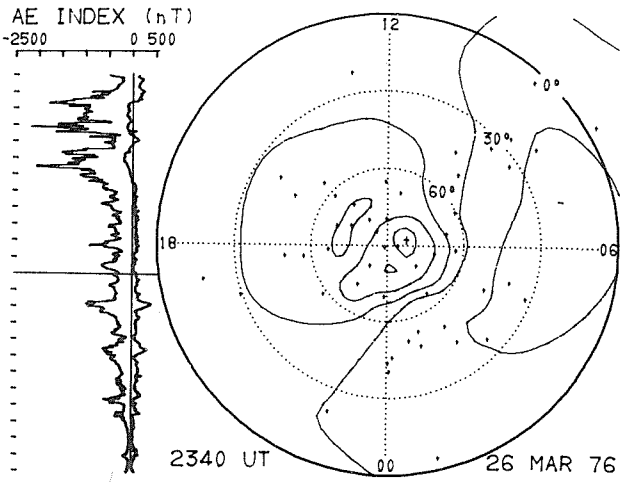

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2320 UT
26 MAR 76

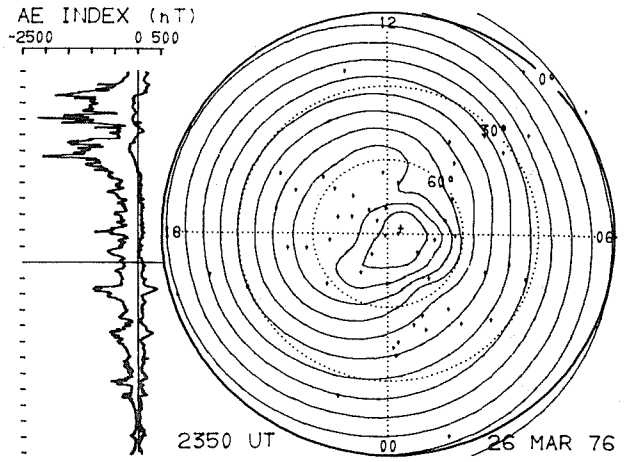

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2320 UT
26 MAR 76

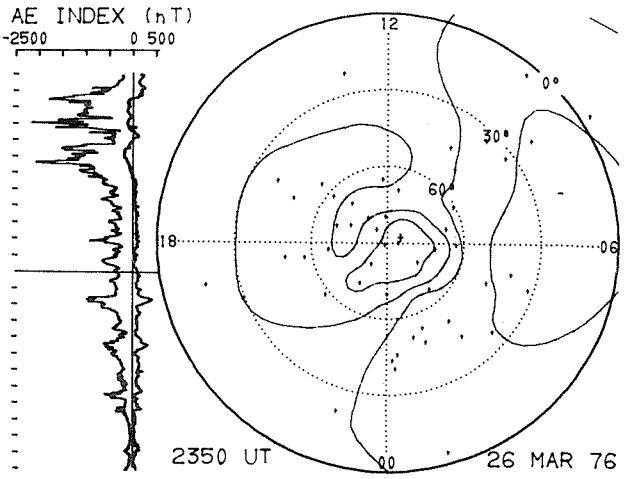

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2330 UT
26 MAR 76

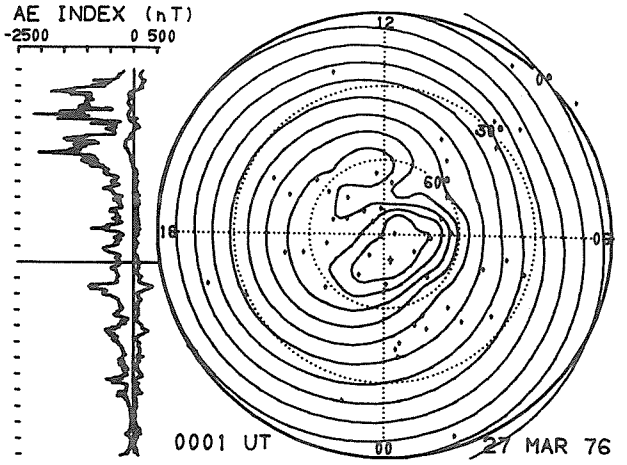

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2330 UT
26 MAR 76

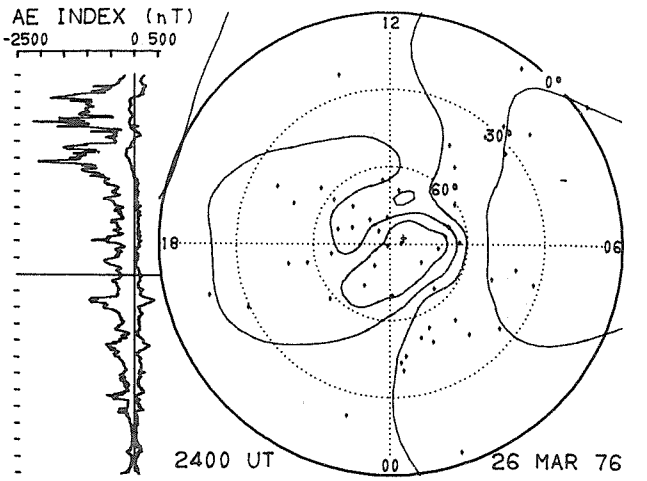

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2340 UT
26 MAR 76

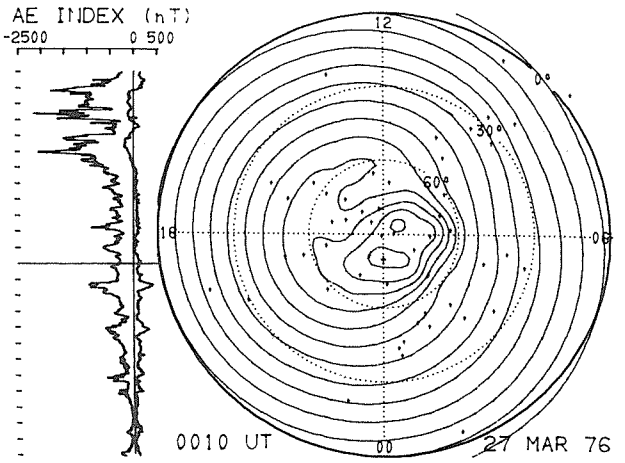

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2340 UT
26 MAR 76

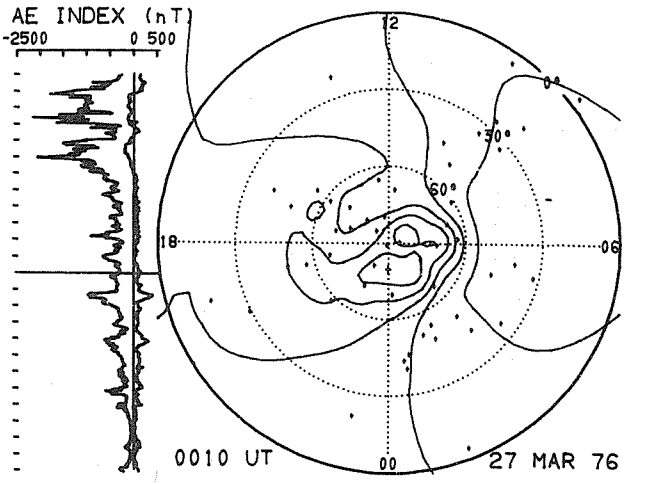

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2350 UT
26 MAR 76

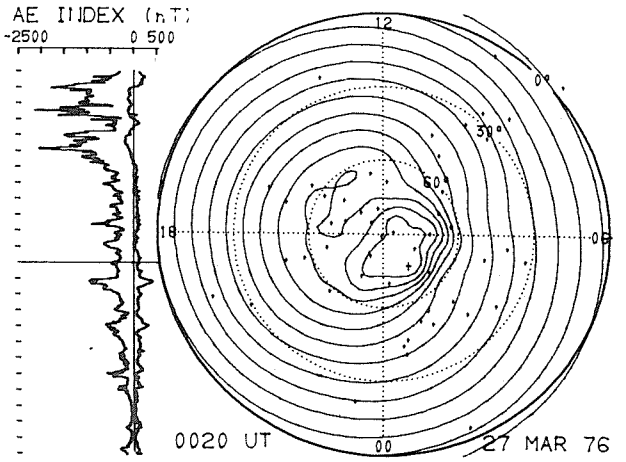

AE INDEX (nT)
-2500
0 500
12
18
06
00
0°
30°
60°
2350 UT
26 MAR 76

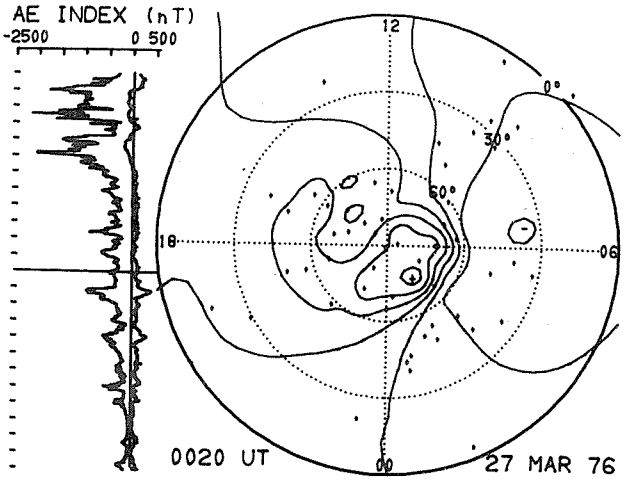

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0001 UT
27 MAR 76

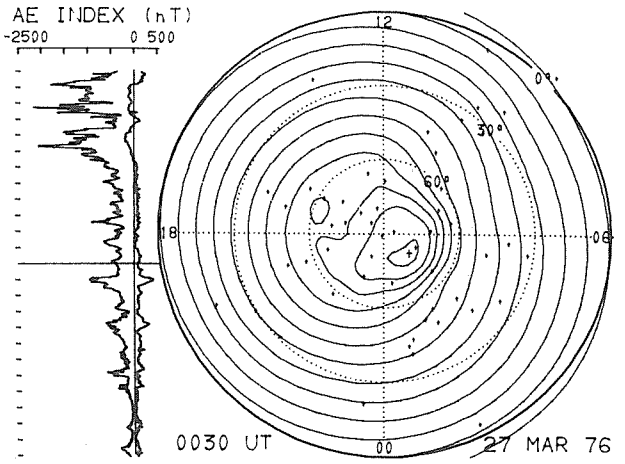

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2400 UT
26 MAR 76

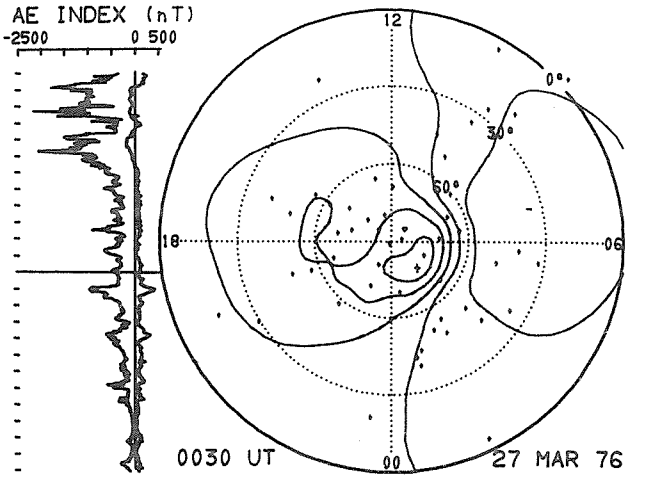

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
27 MAR 76

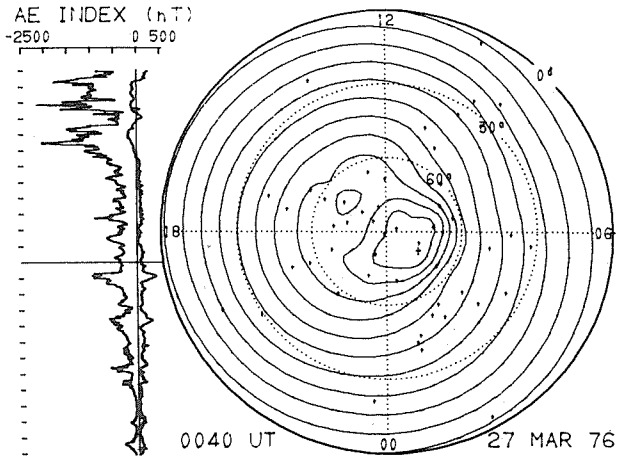

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
27 MAR 76

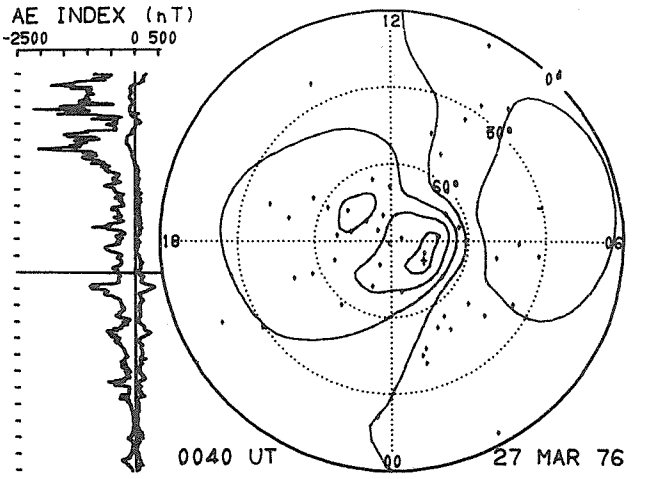

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
27 MAR 76

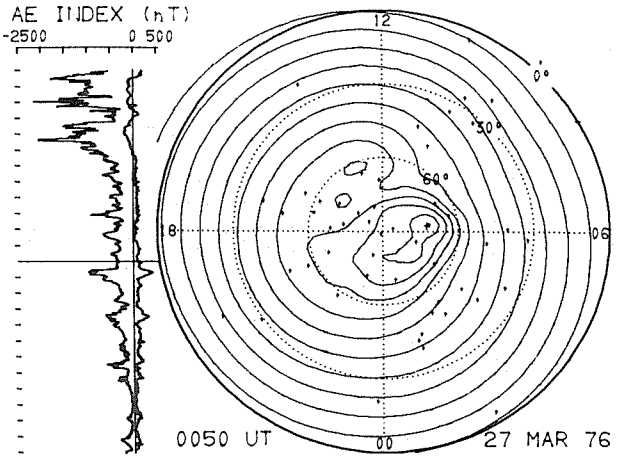

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
27 MAR 76

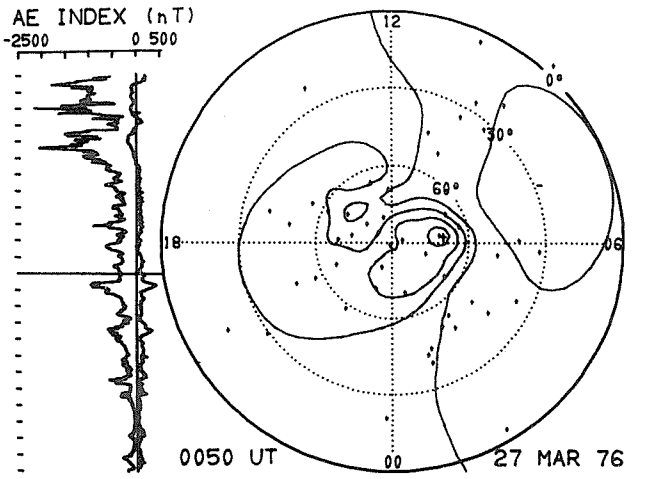

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
27 MAR 76

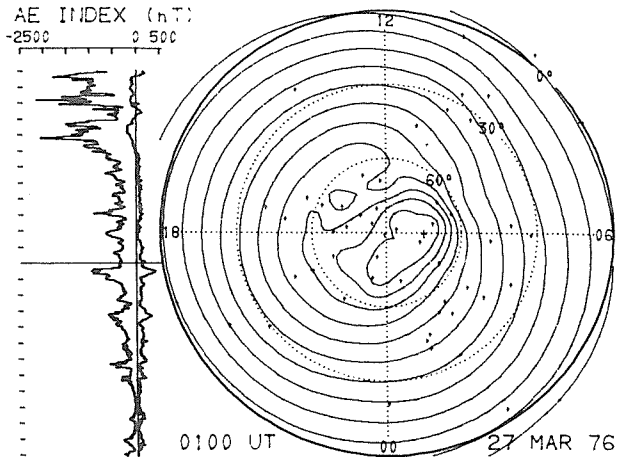

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
27 MAR 76

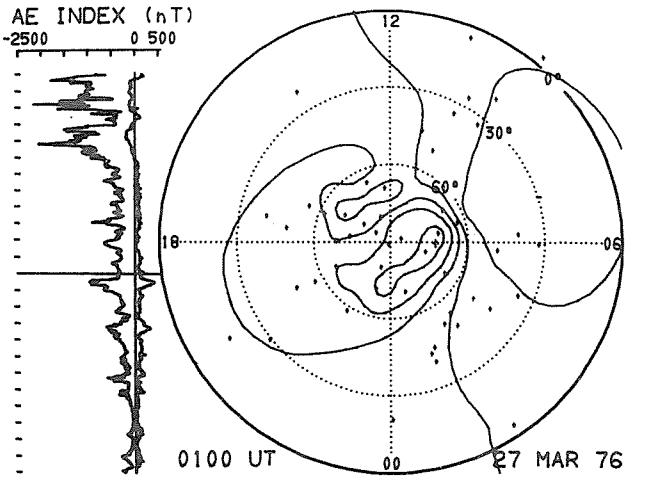

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
27 MAR 76

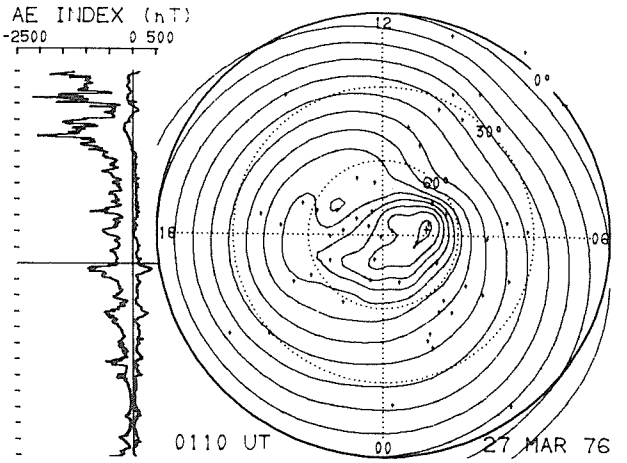

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
27 MAR 76

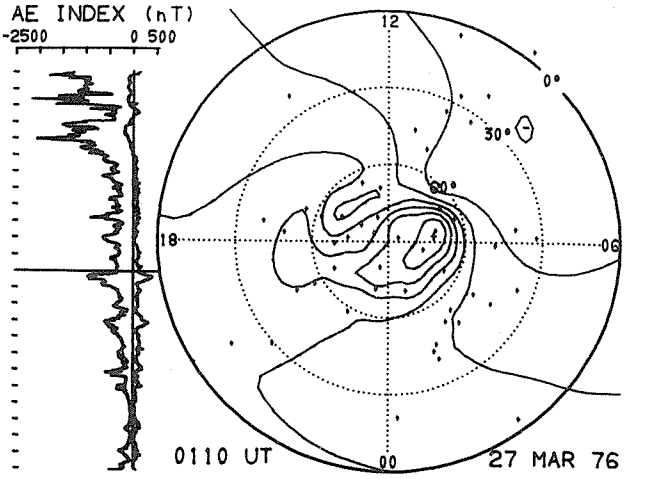

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
27 MAR 76

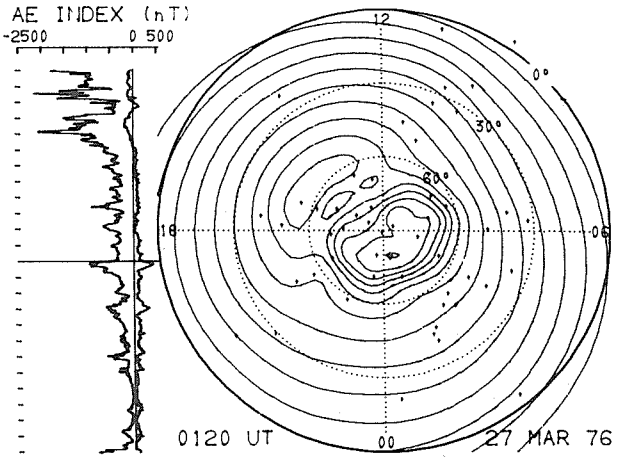

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
27 MAR 76

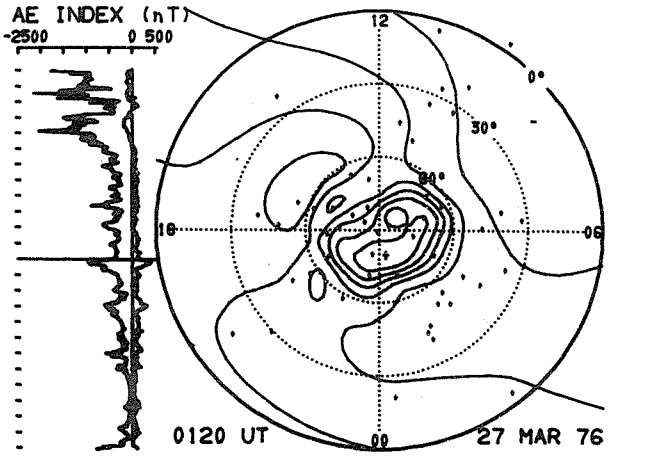

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
27 MAR 76

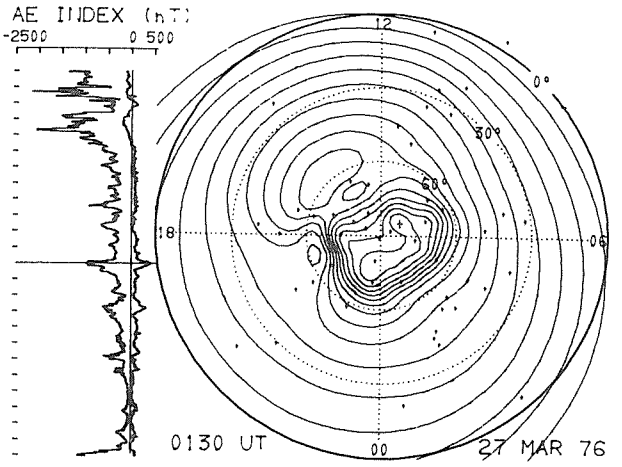

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
27 MAR 76

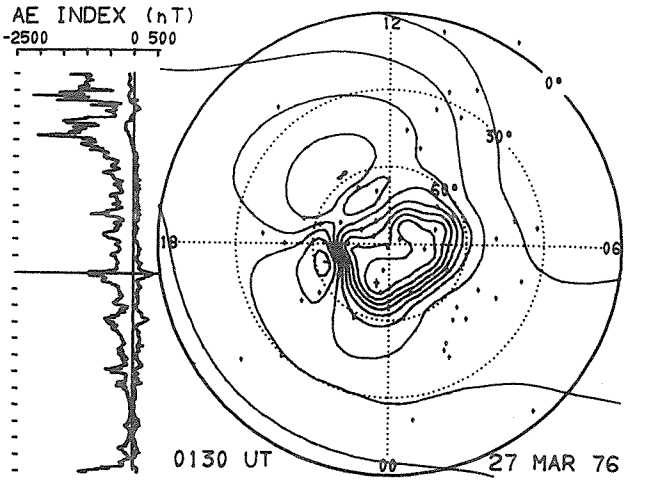

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
27 MAR 76

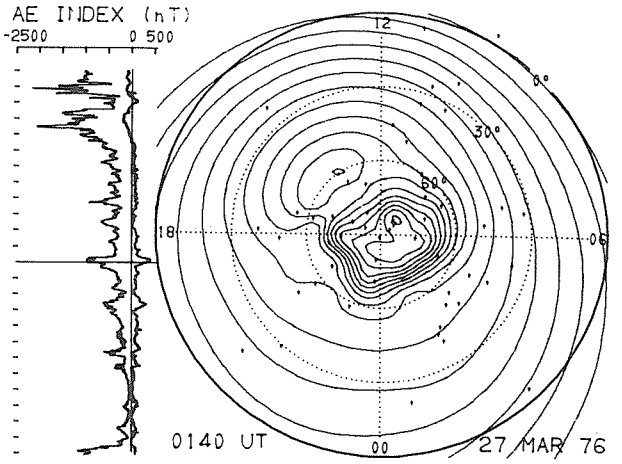

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
27 MAR 76

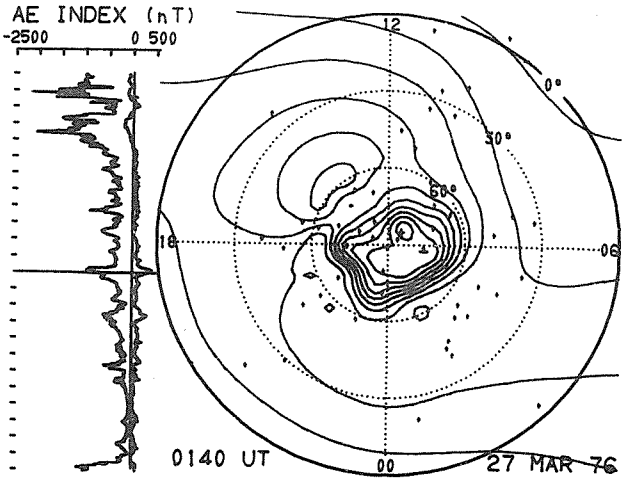

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
27 MAR 76

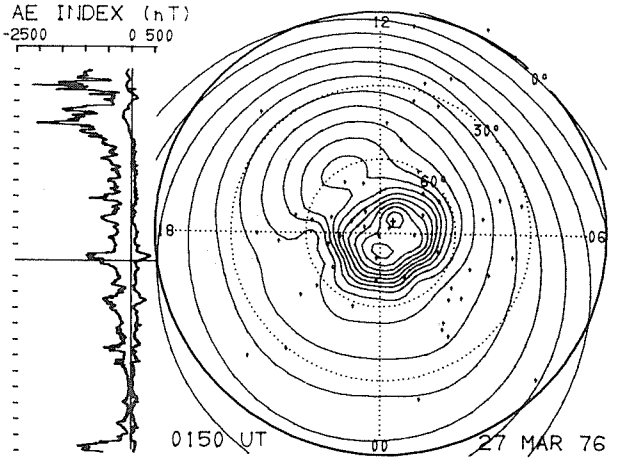

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
27 MAR 76

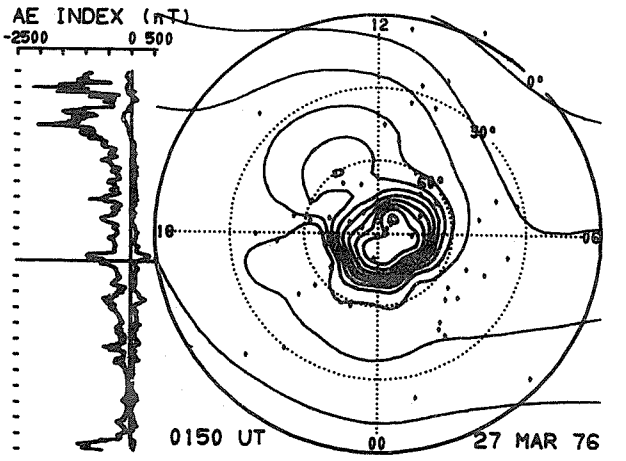

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
27 MAR 76

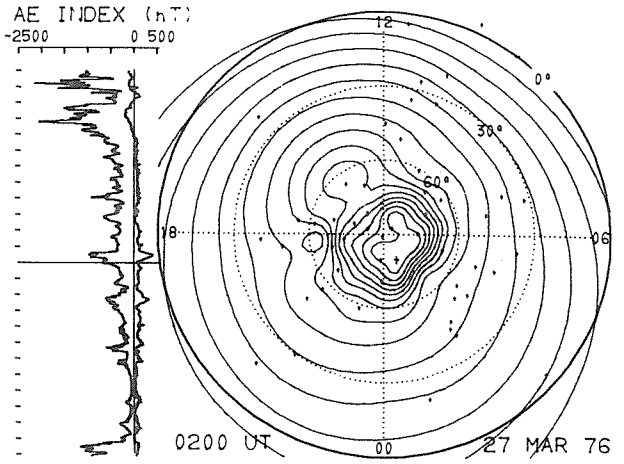

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
27 MAR 76

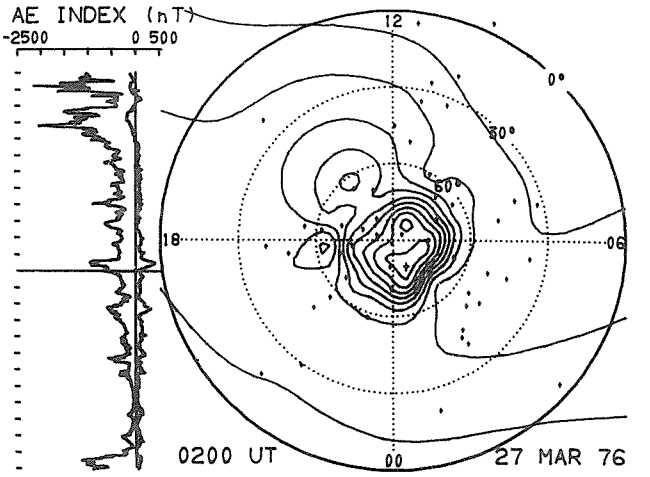

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
27 MAR 76

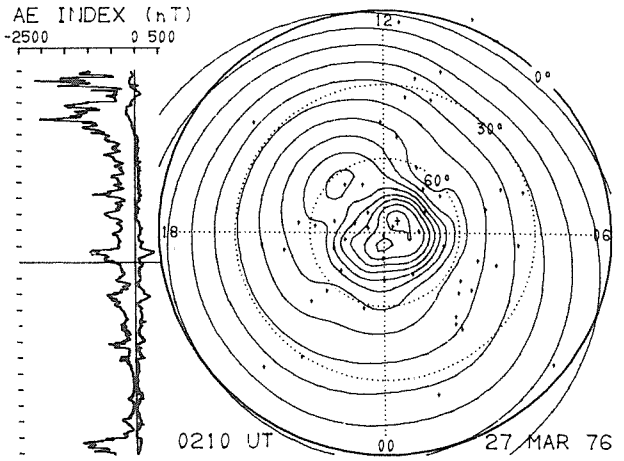

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
27 MAR 76

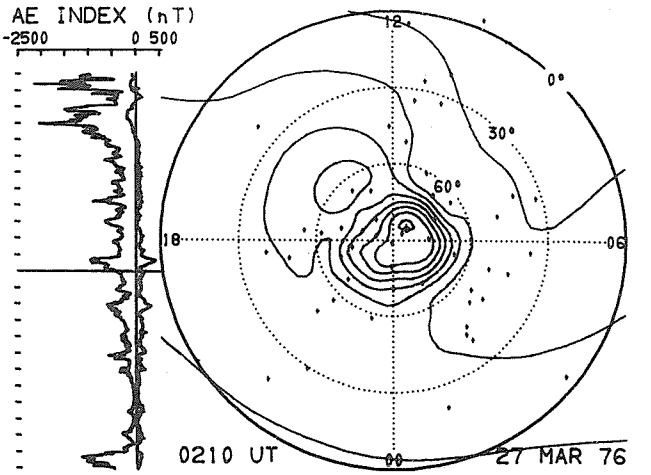

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
27 MAR 76

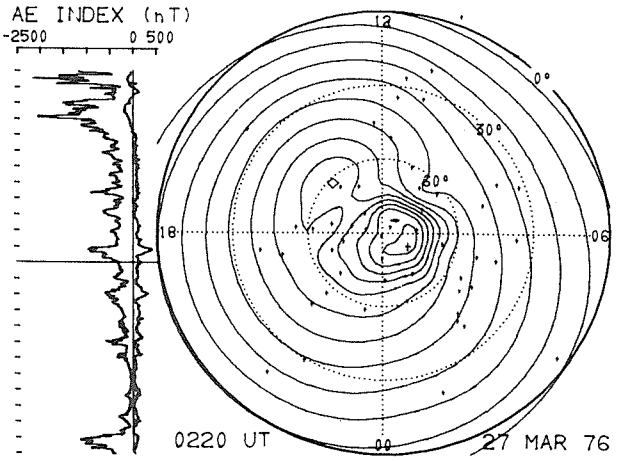

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
27 MAR 76

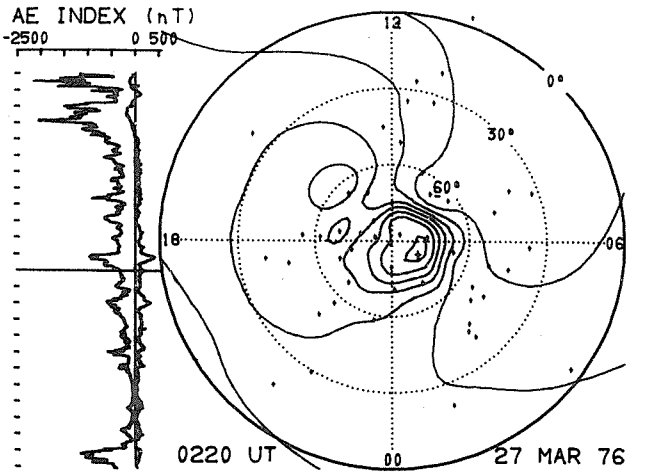

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
27 MAR 76

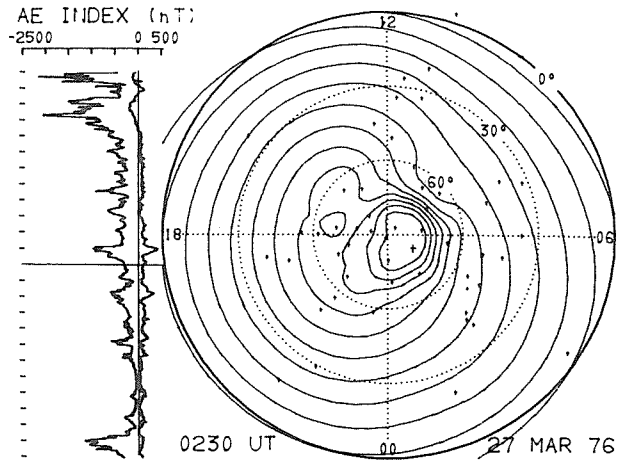

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
27 MAR 76

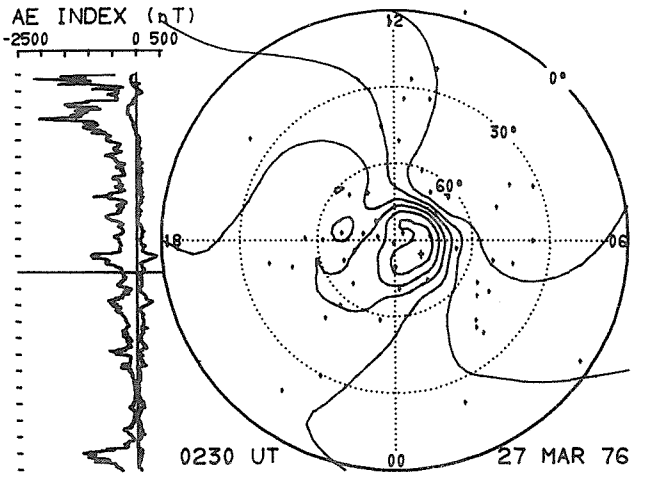

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
27 MAR 76

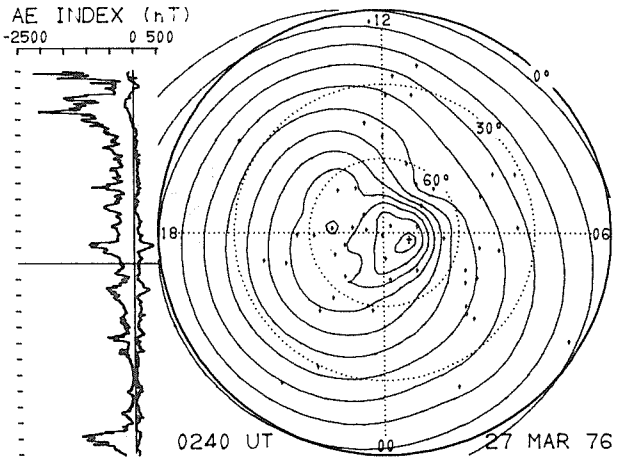

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
27 MAR 76

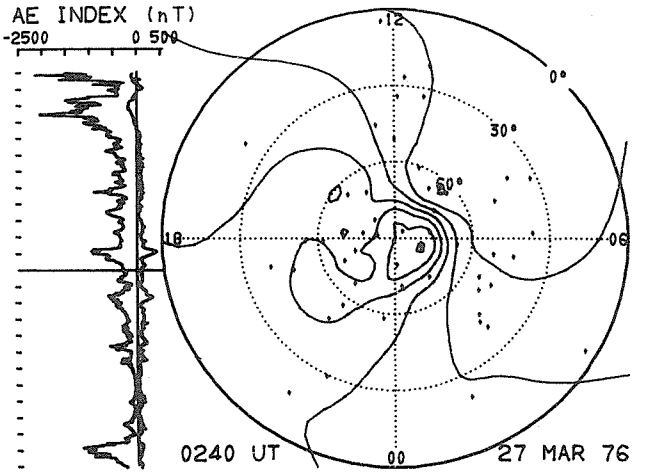

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
27 MAR 76

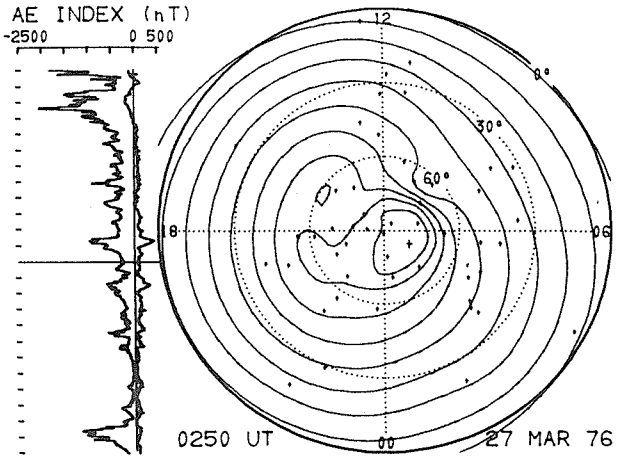

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
27 MAR 76

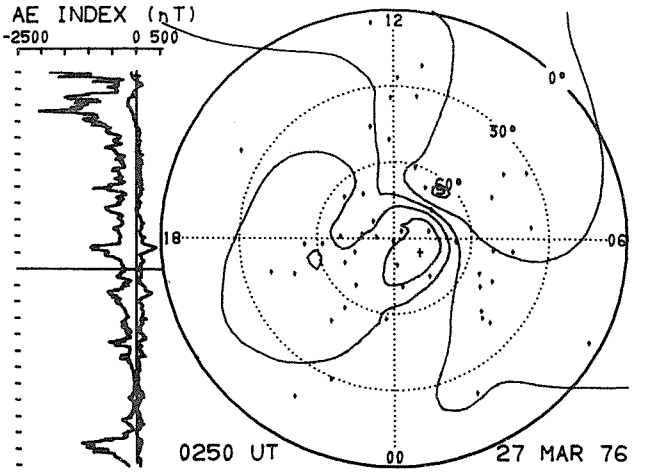

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
27 MAR 76

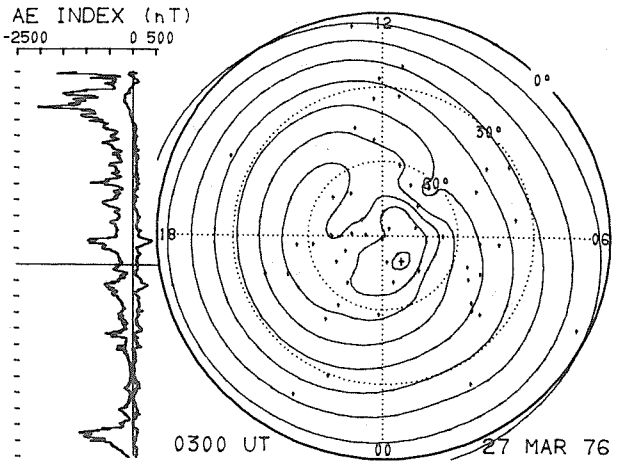

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
27 MAR 76

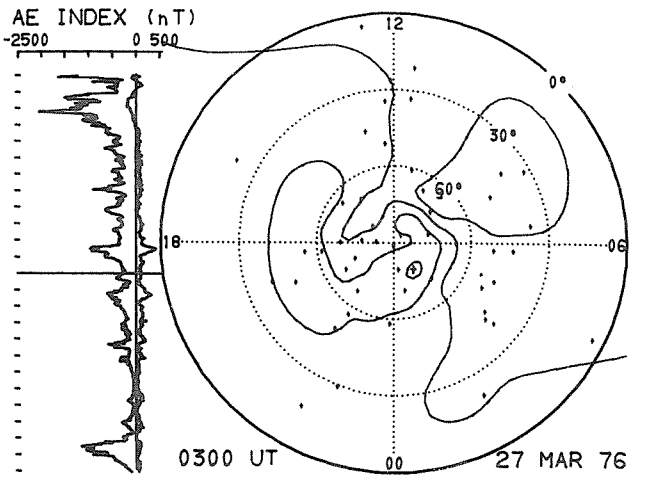

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
27 MAR 76

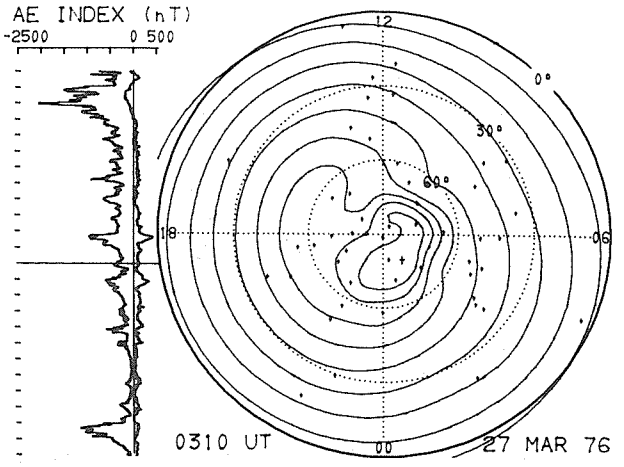

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
27 MAR 76

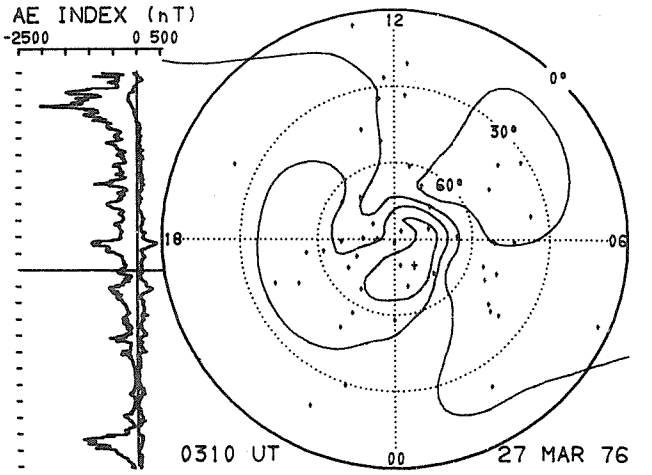

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
27 MAR 76

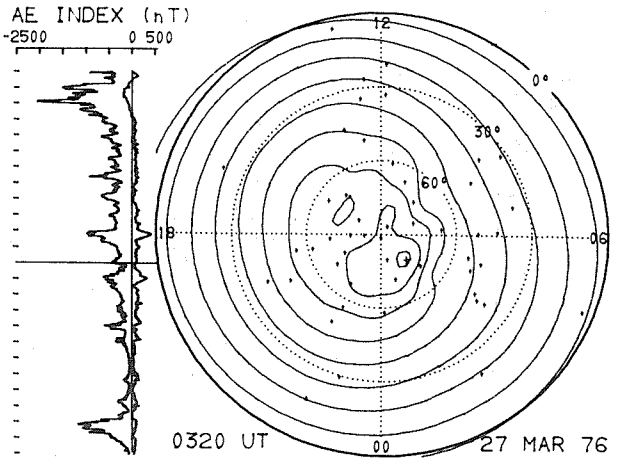

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
27 MAR 76

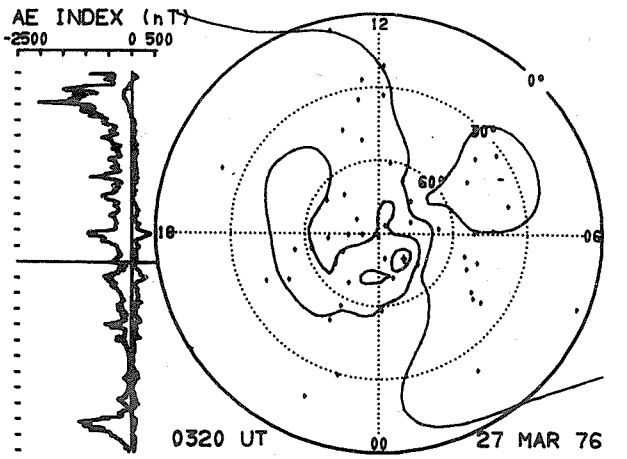

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
27 MAR 76

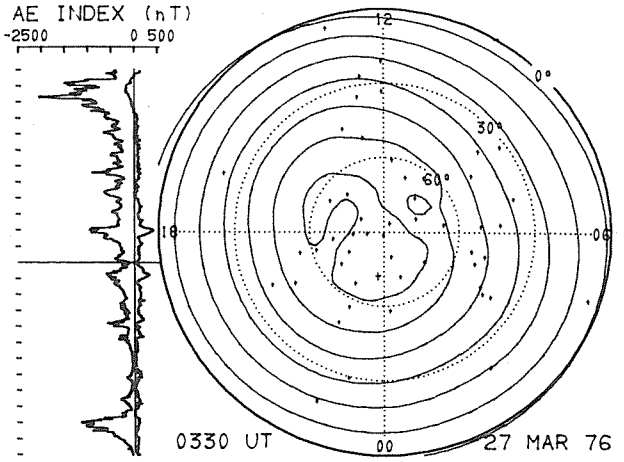

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
27 MAR 76

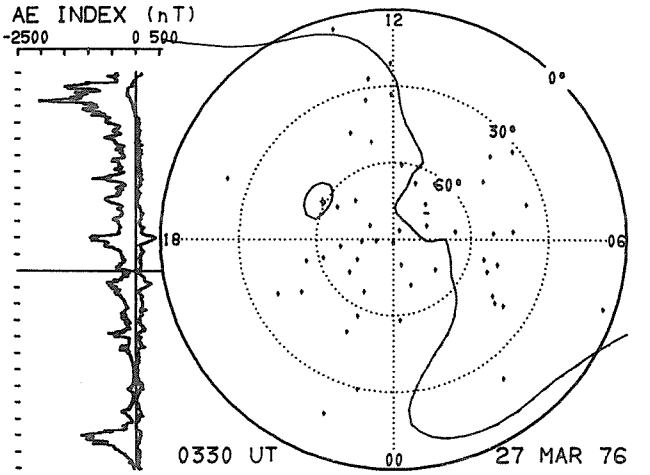

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
27 MAR 76

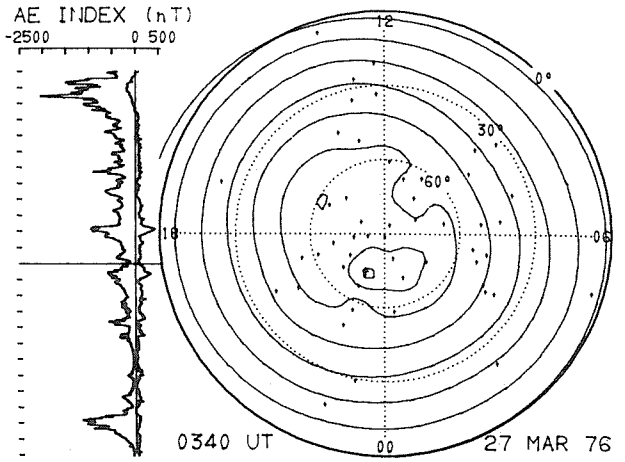

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
27 MAR 76

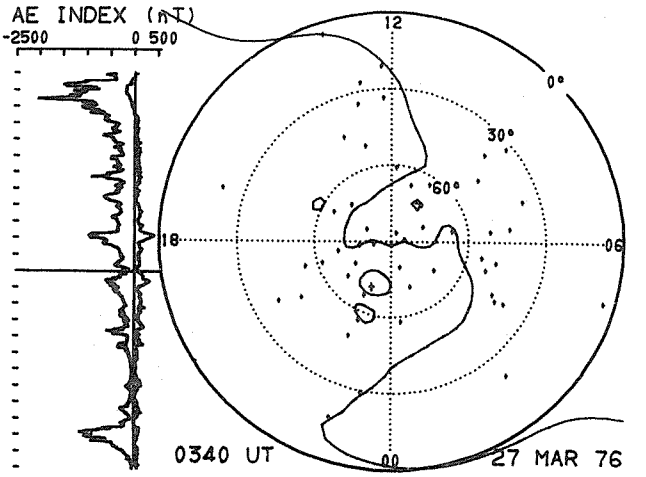

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
27 MAR 76

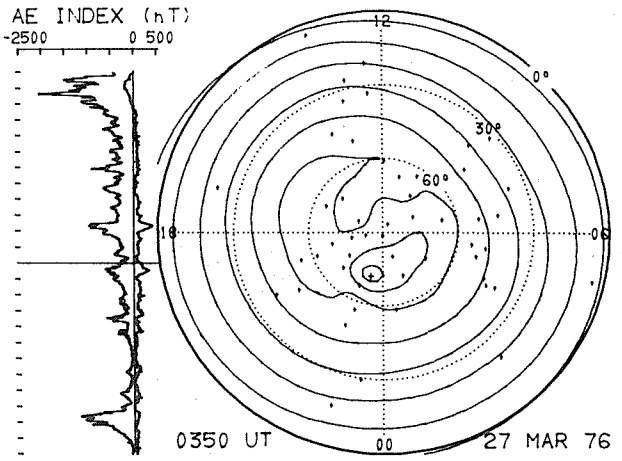

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
27 MAR 76

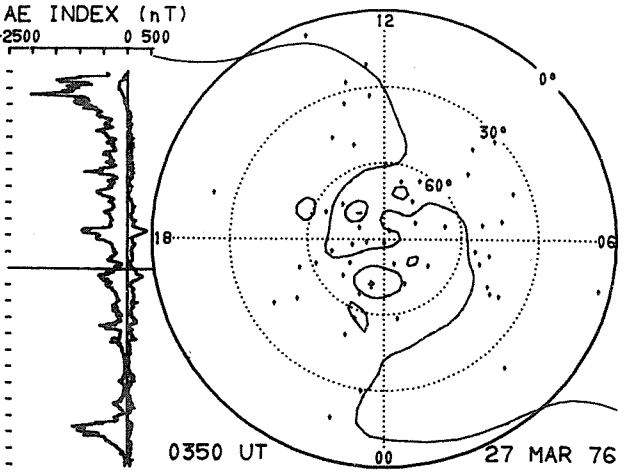

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
27 MAR 76

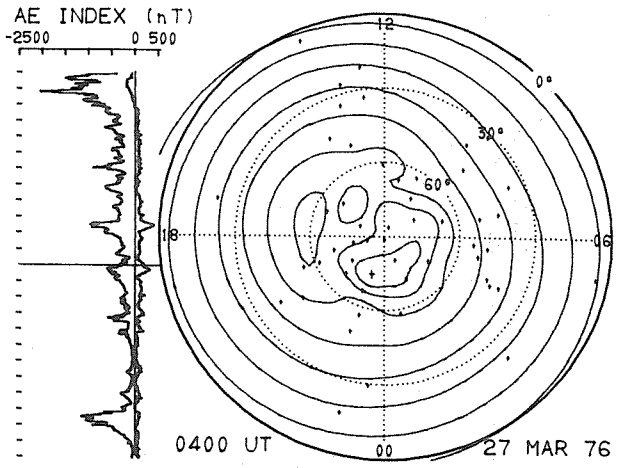

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
27 MAR 76

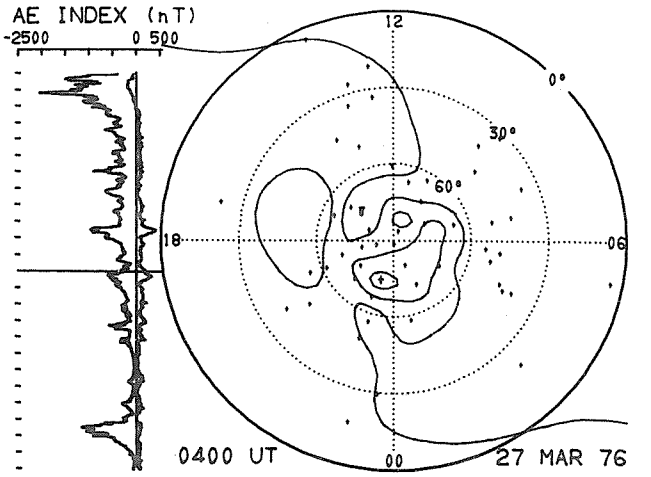

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
27 MAR 76

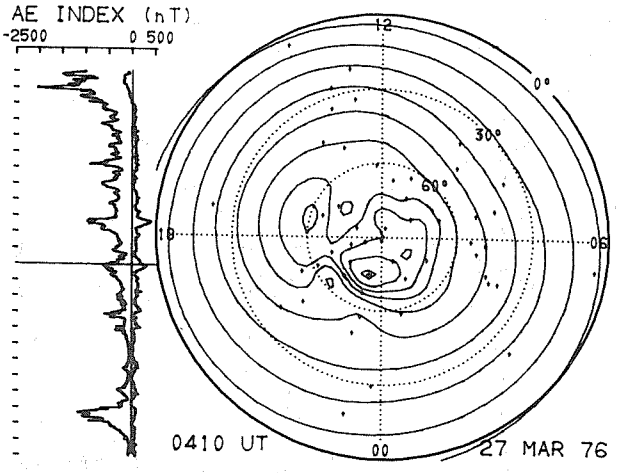

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
27 MAR 76

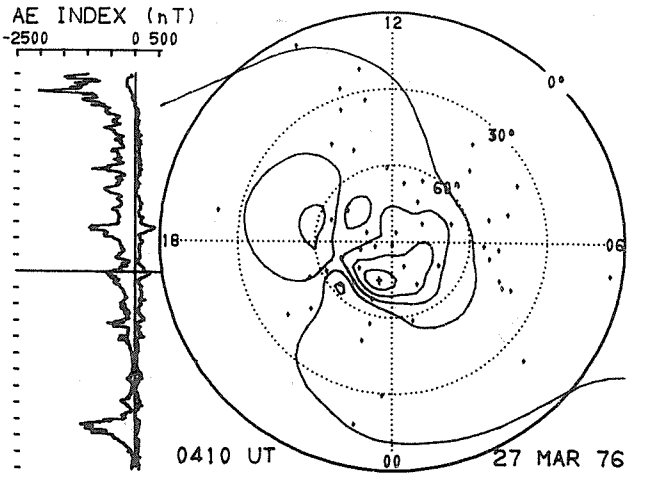

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
27 MAR 76

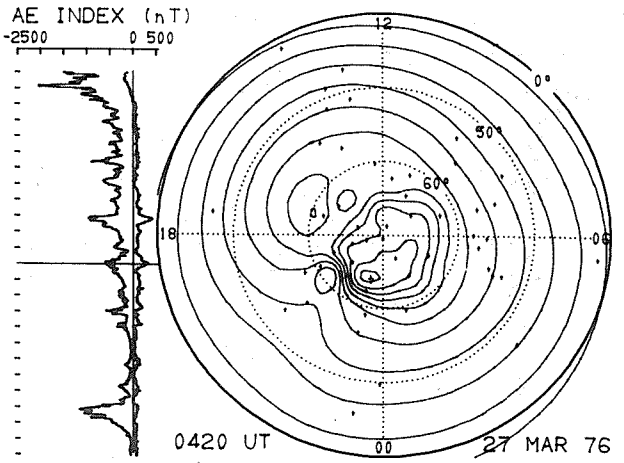

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
27 MAR 76

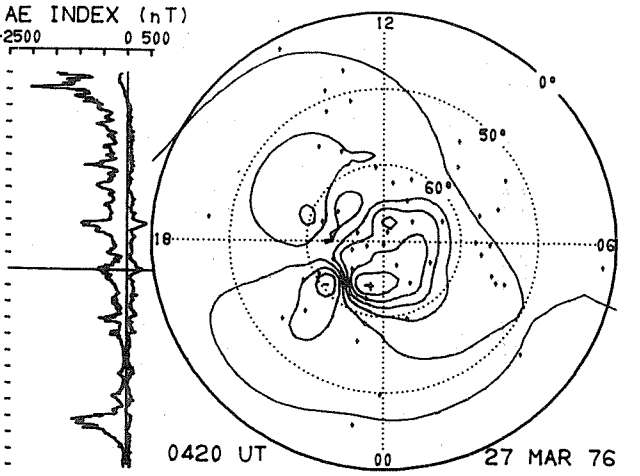

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
27 MAR 76

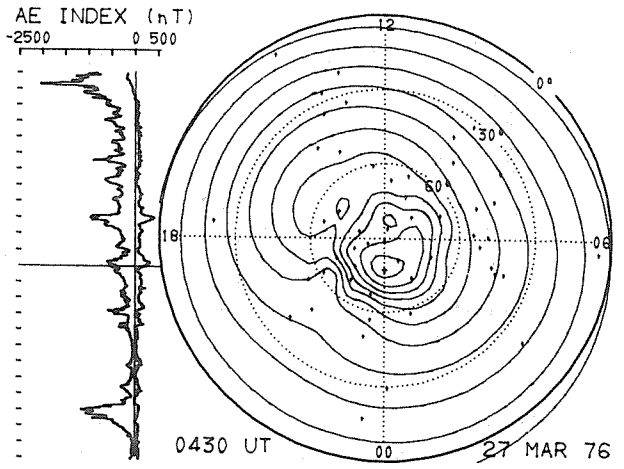

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
27 MAR 76

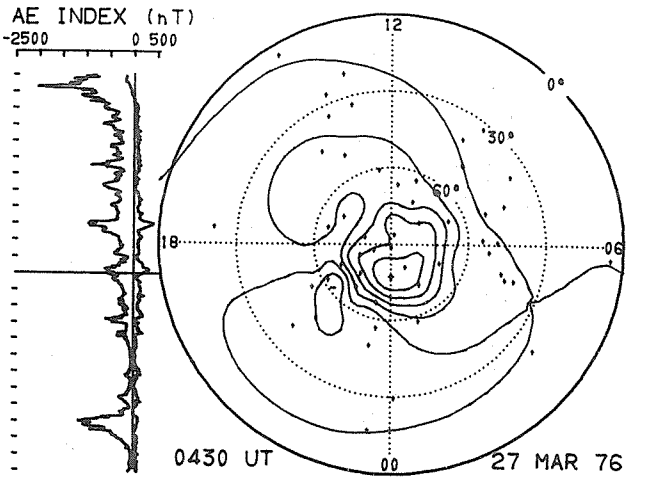

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
27 MAR 76

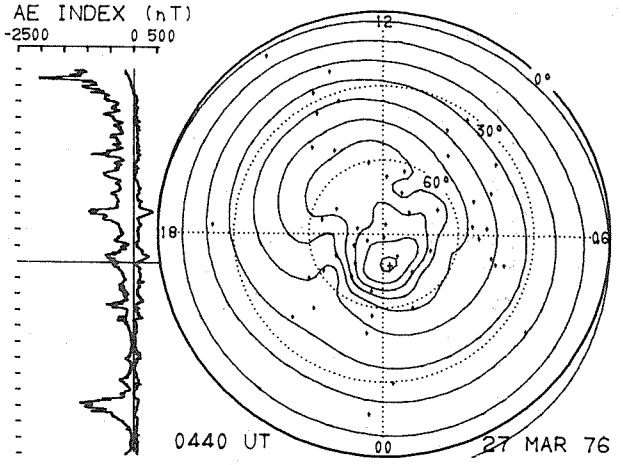

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
27 MAR 76

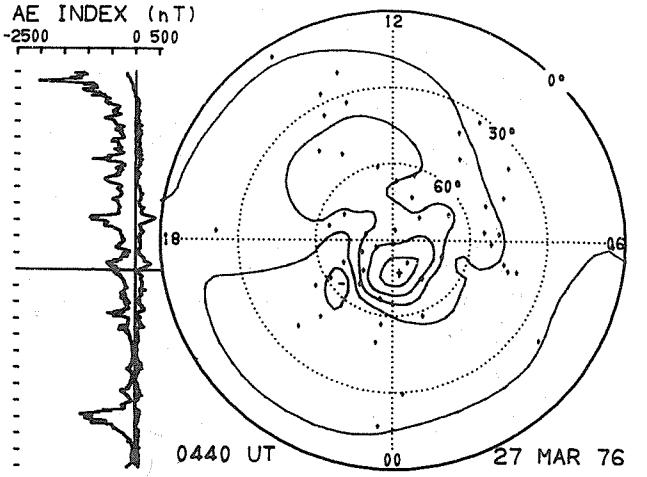

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
27 MAR 76

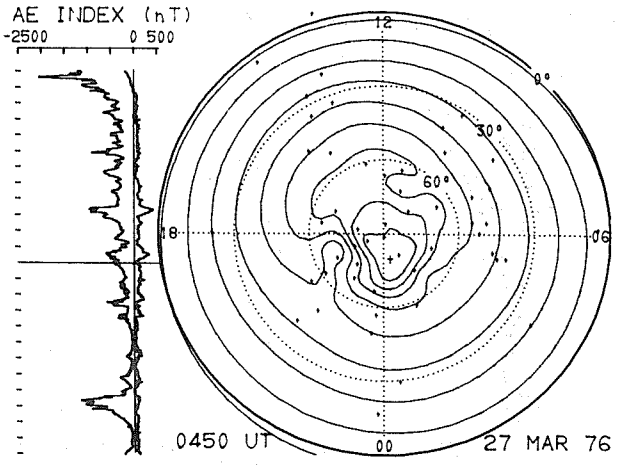

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
27 MAR 76

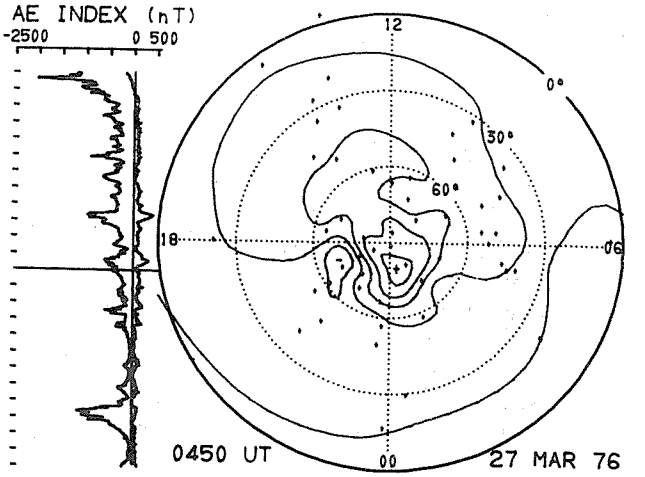

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
27 MAR 76

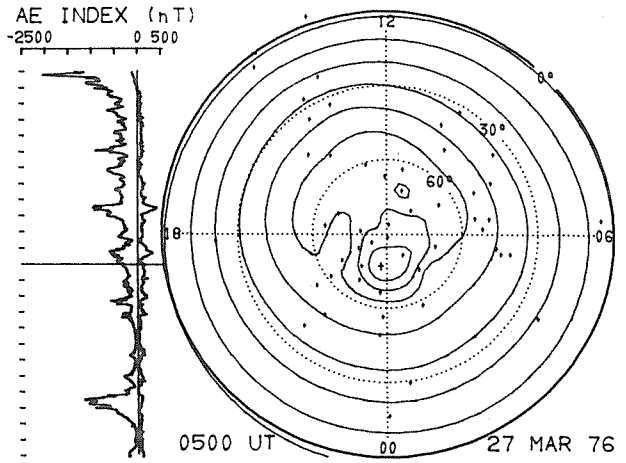

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
27 MAR 76

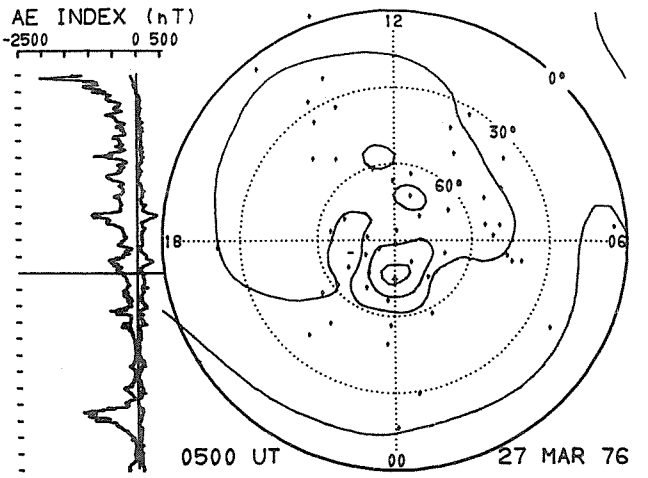

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
27 MAR 76

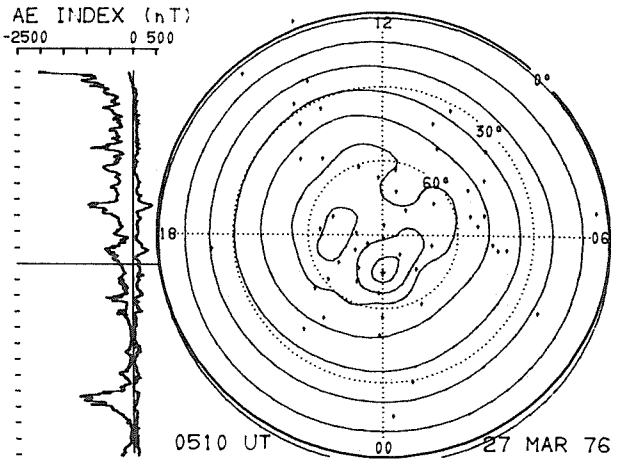

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
27 MAR 76

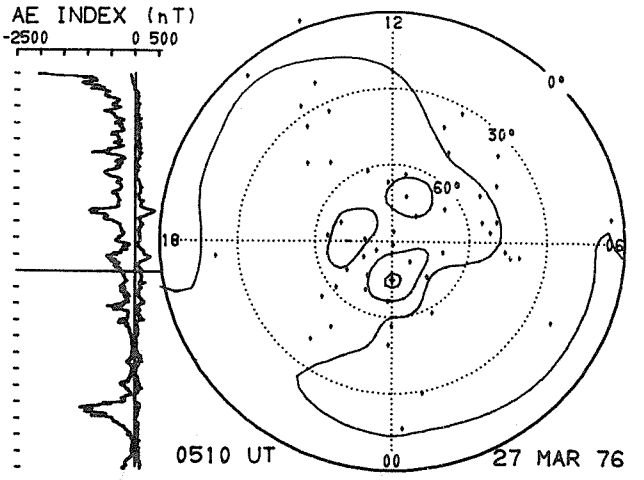

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
27 MAR 76

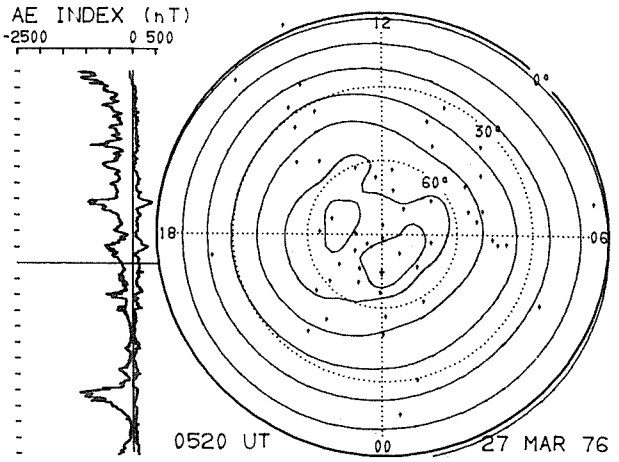

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
27 MAR 76

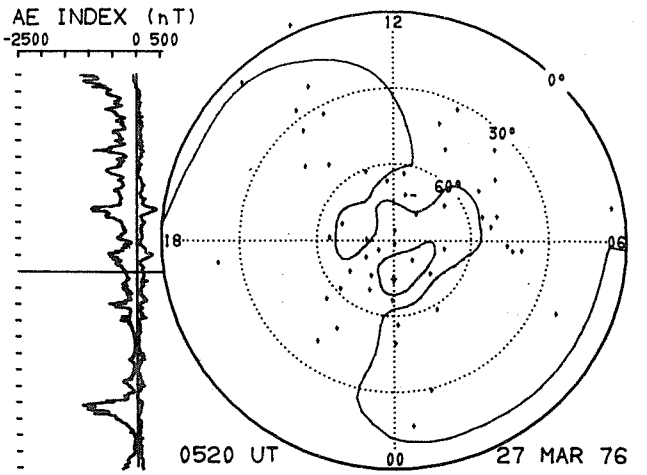

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
27 MAR 76

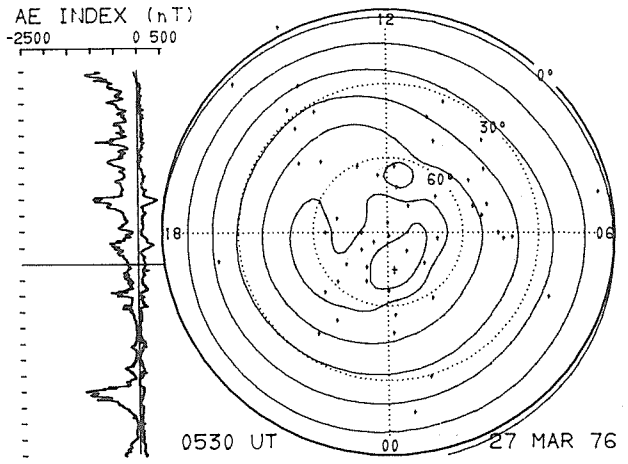

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
27 MAR 76

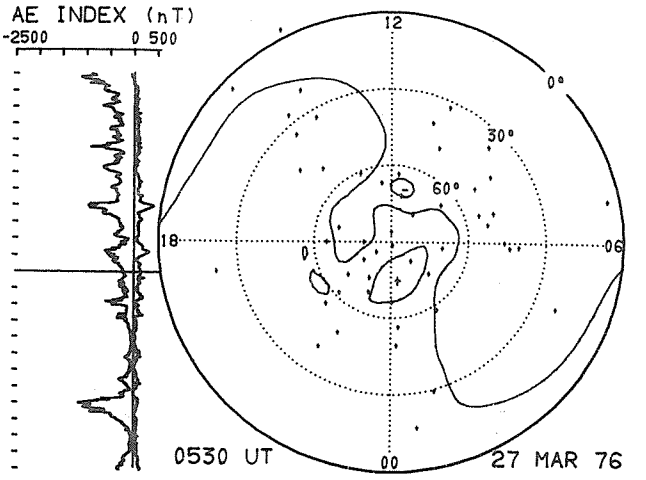

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
27 MAR 76

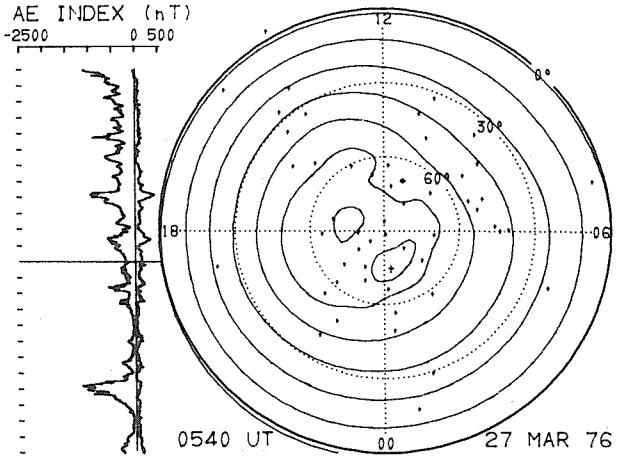

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
27 MAR 76

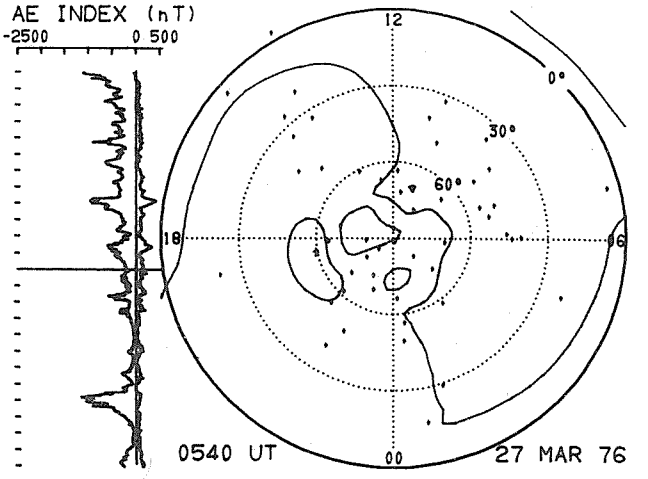

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
27 MAR 76

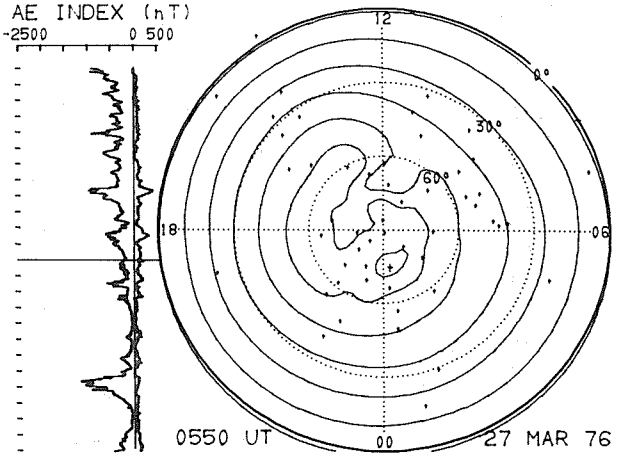

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
27 MAR 76

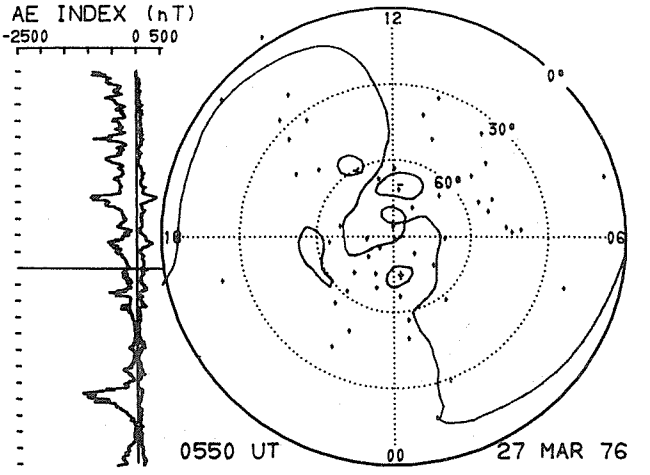

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
27 MAR 76

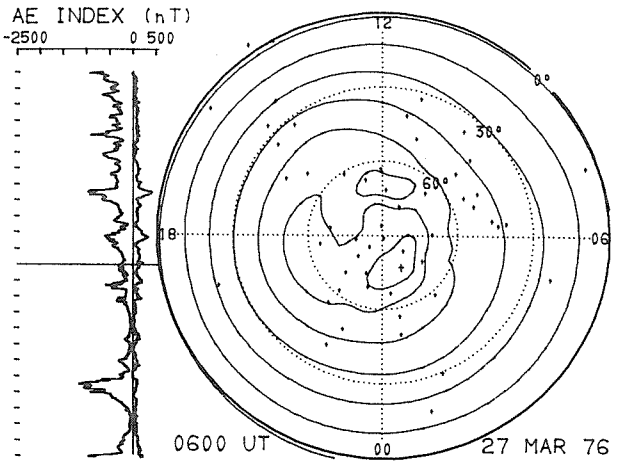

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
27 MAR 76

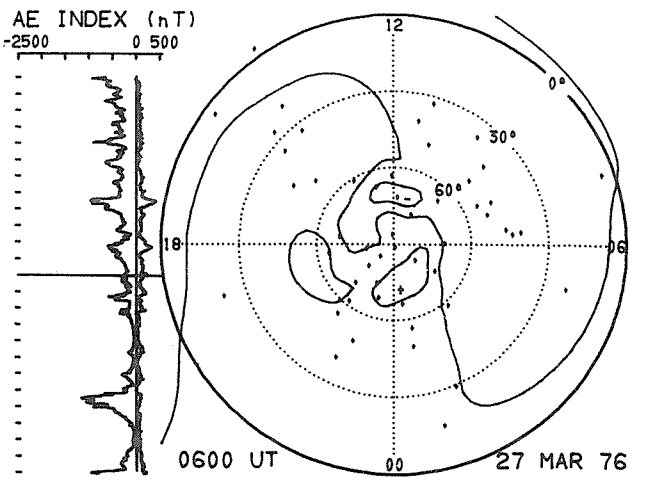

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
27 MAR 76

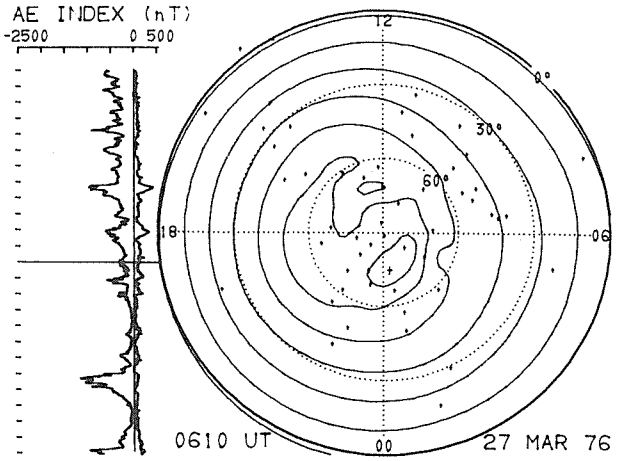

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
27 MAR 76

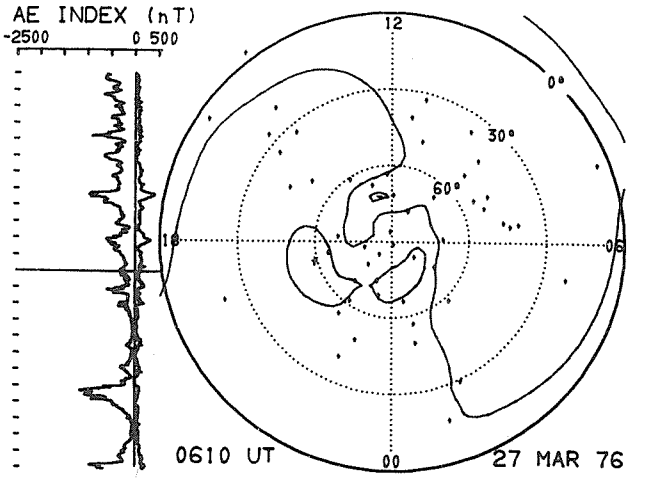

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
27 MAR 76

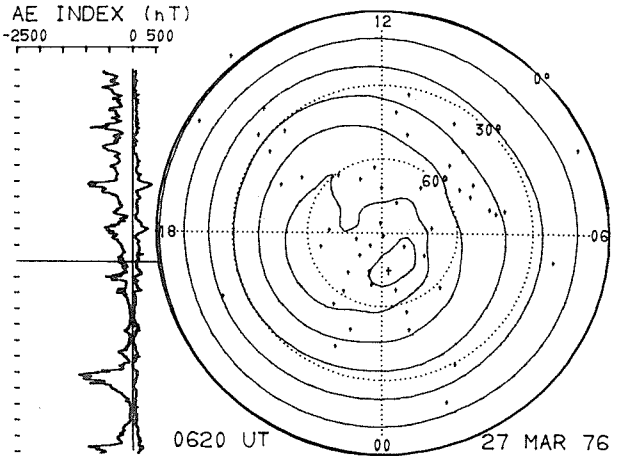

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
27 MAR 76

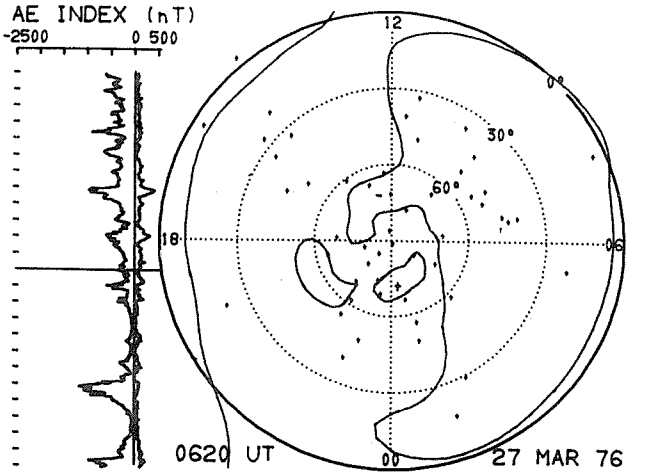

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0600 UT
27 MAR 76

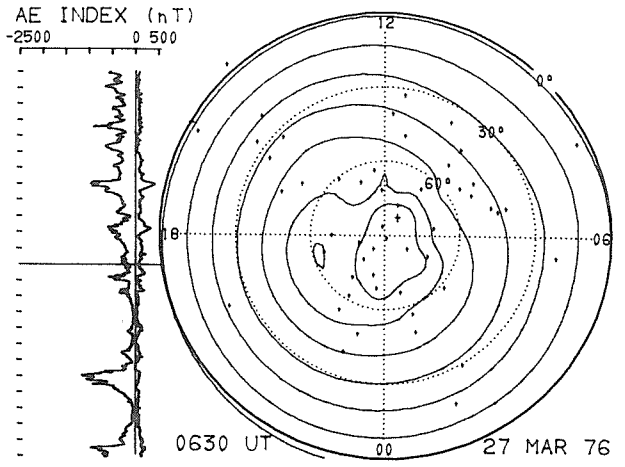

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0600 UT
27 MAR 76

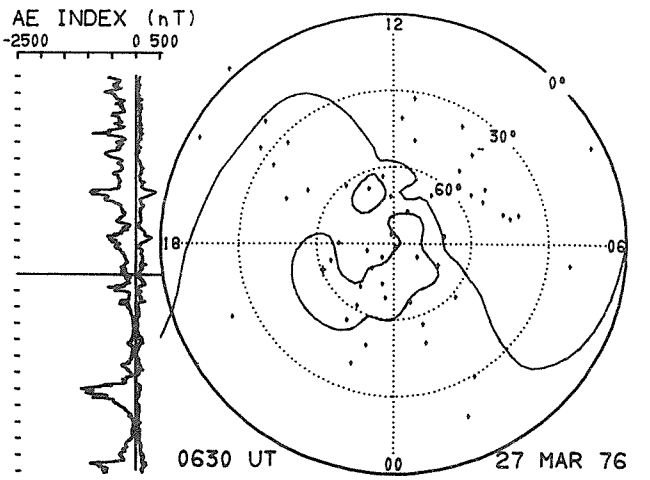

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0610 UT
27 MAR 76

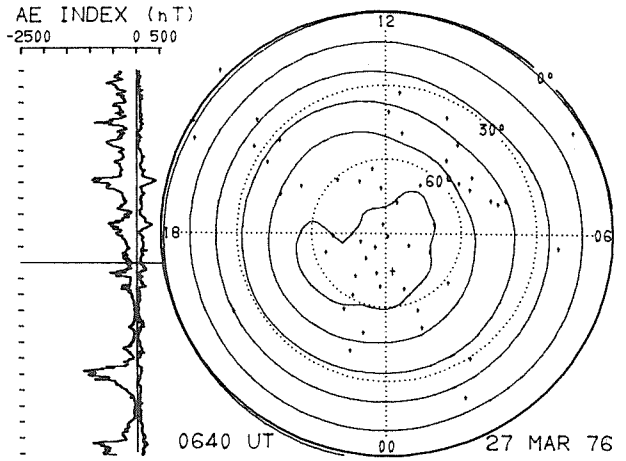

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0610 UT
27 MAR 76

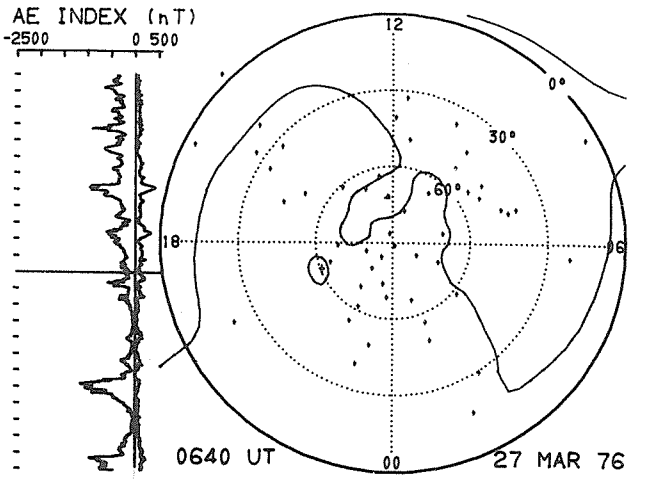

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0620 UT
27 MAR 76

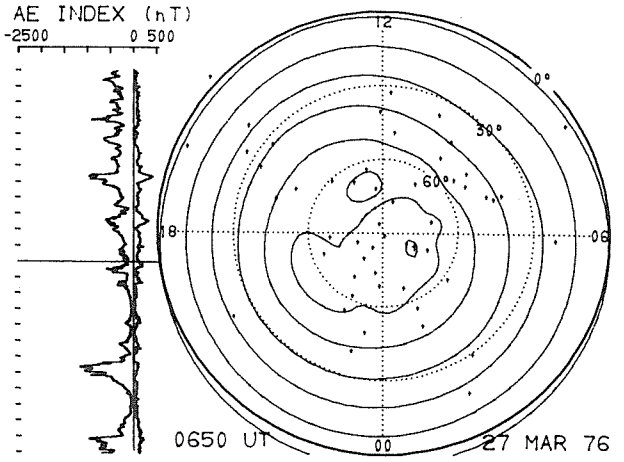

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0620 UT
27 MAR 76

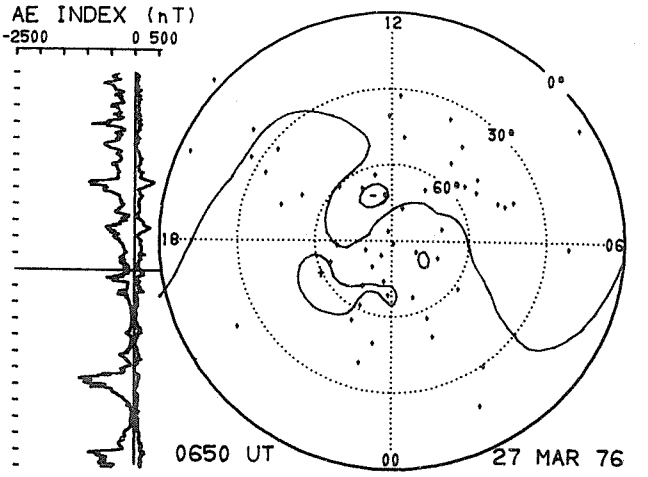

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0630 UT
27 MAR 76

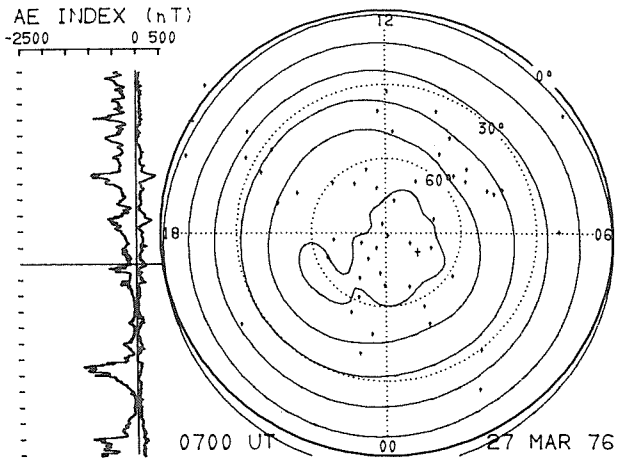

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0630 UT
27 MAR 76

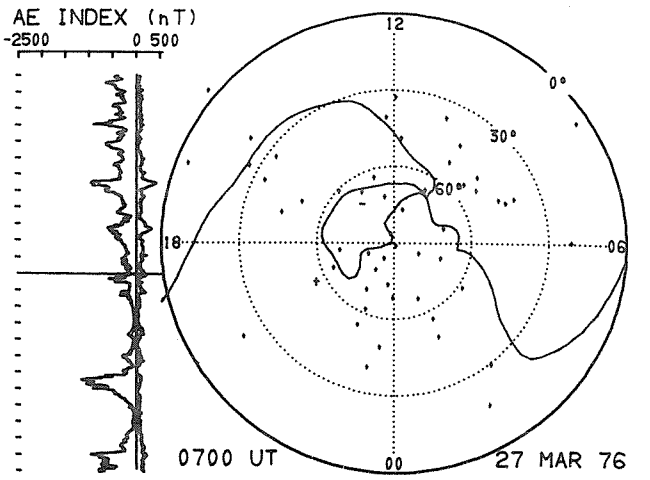

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0640 UT
27 MAR 76

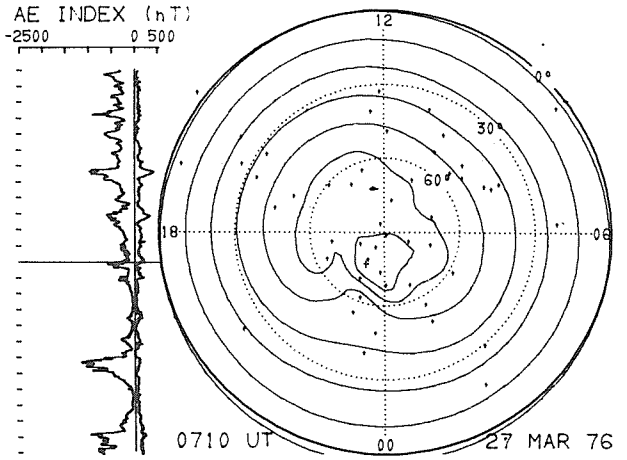

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0640 UT
27 MAR 76

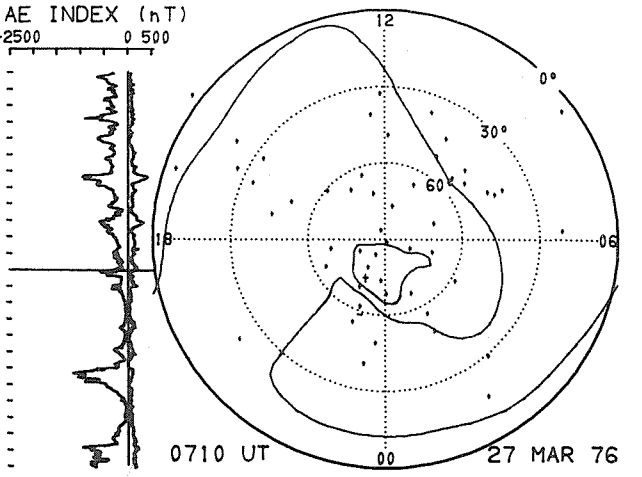

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0650 UT
27 MAR 76

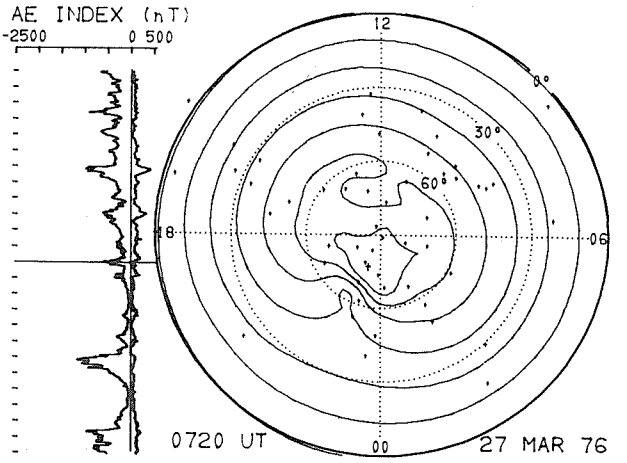

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0650 UT
27 MAR 76

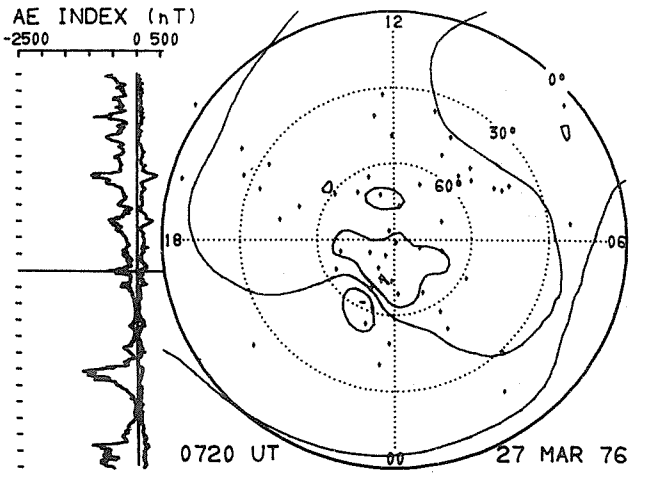

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0700 UT
27 MAR 76

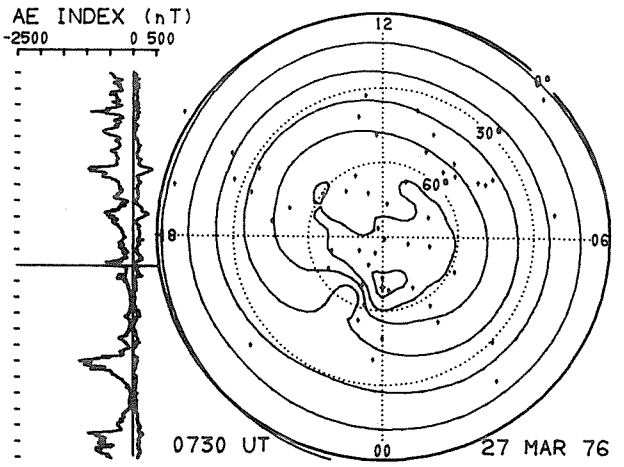

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0700 UT
27 MAR 76

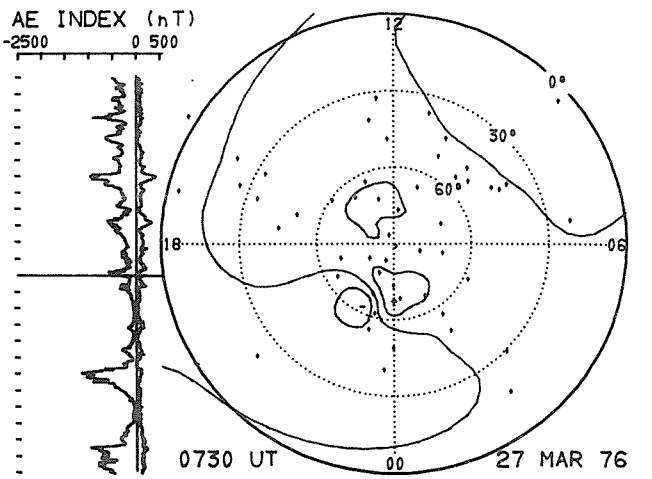

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0710 UT
27 MAR 76

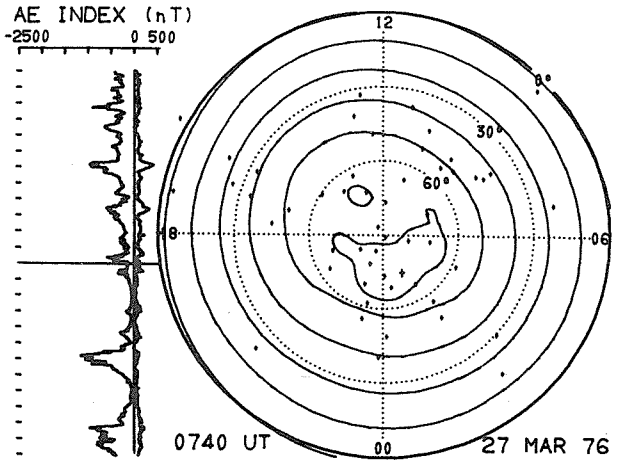

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0710 UT
27 MAR 76

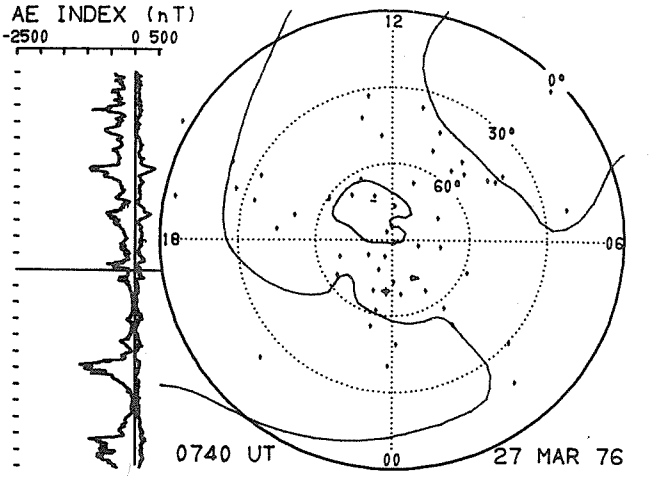

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0720 UT
27 MAR 76

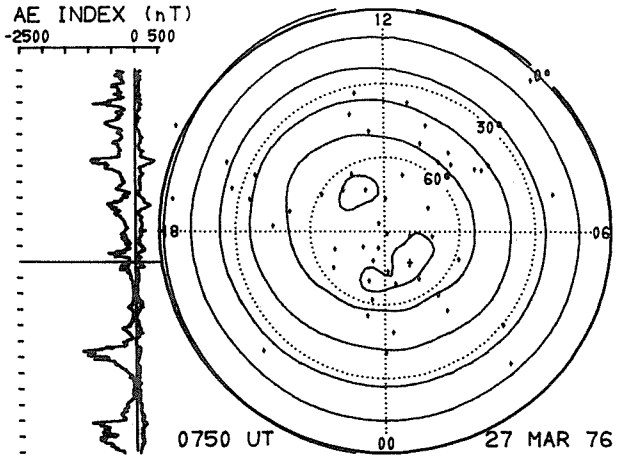

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0720 UT
27 MAR 76

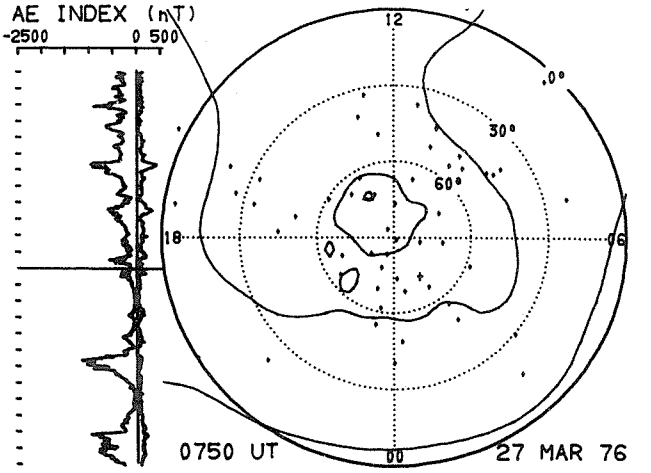

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0730 UT
27 MAR 76

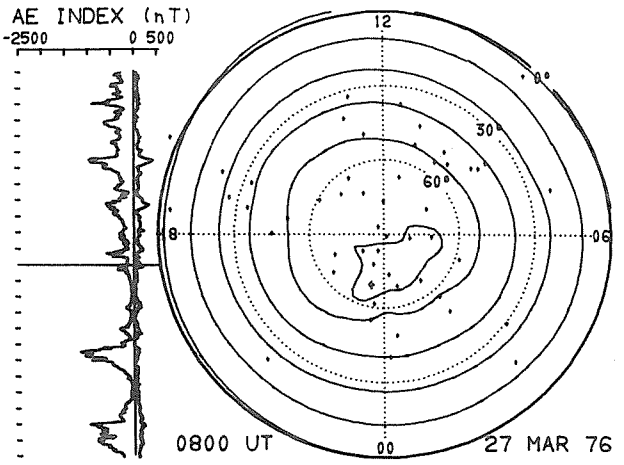

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0730 UT
27 MAR 76

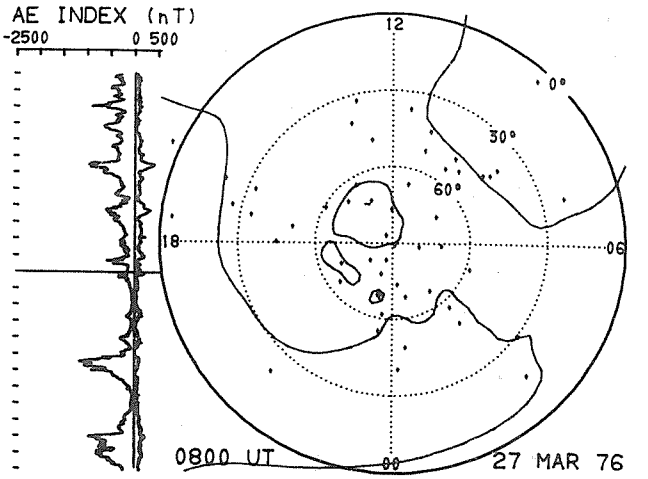

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0740 UT
27 MAR 76

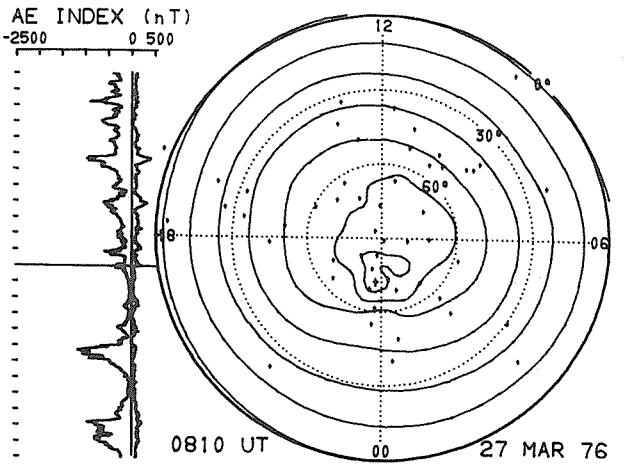

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0740 UT
27 MAR 76

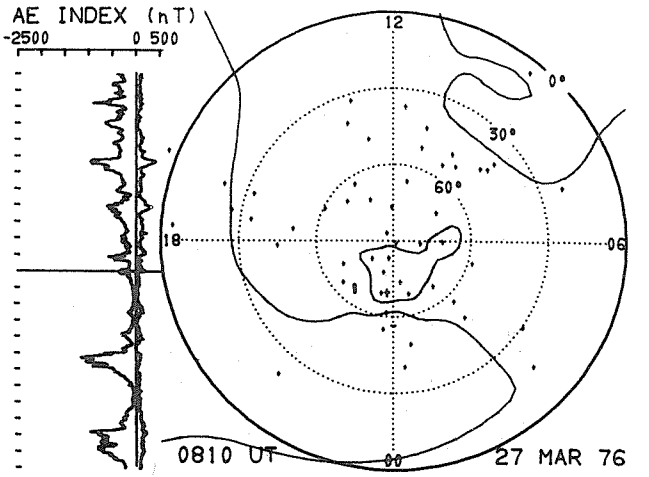

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0750 UT
27 MAR 76

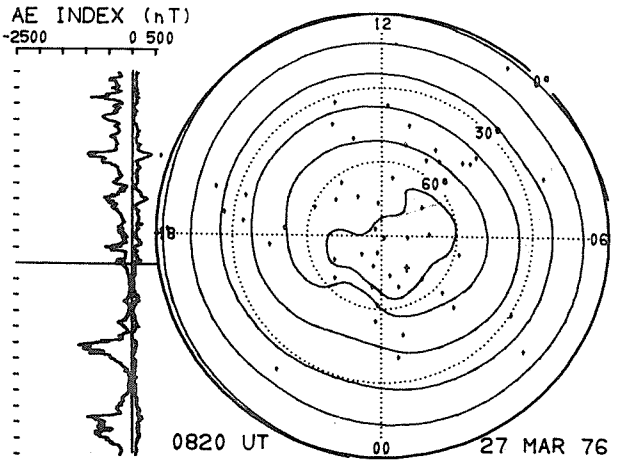

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0750 UT
27 MAR 76

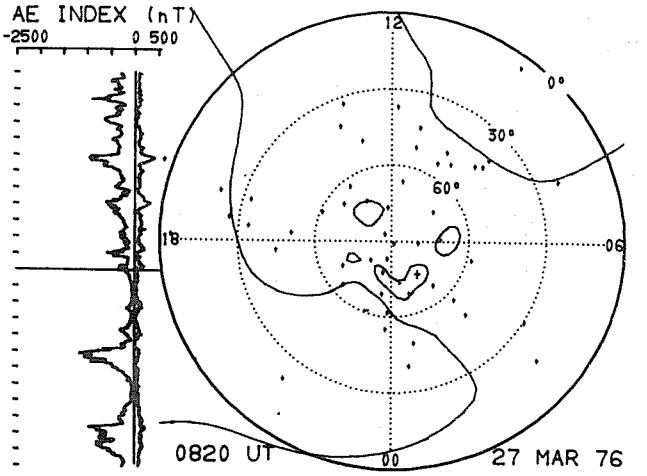

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0800 UT
27 MAR 76

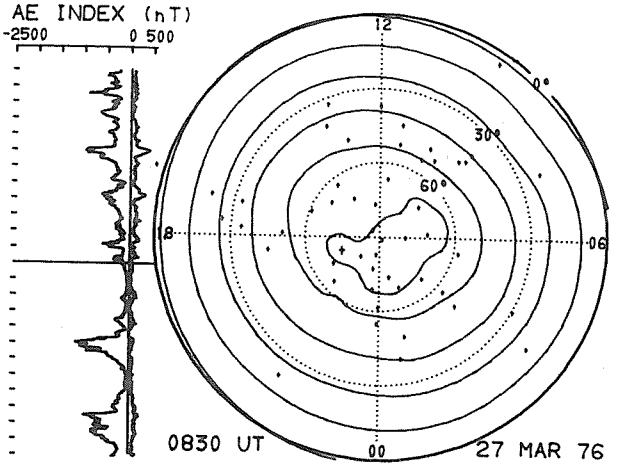

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0800 UT
27 MAR 76

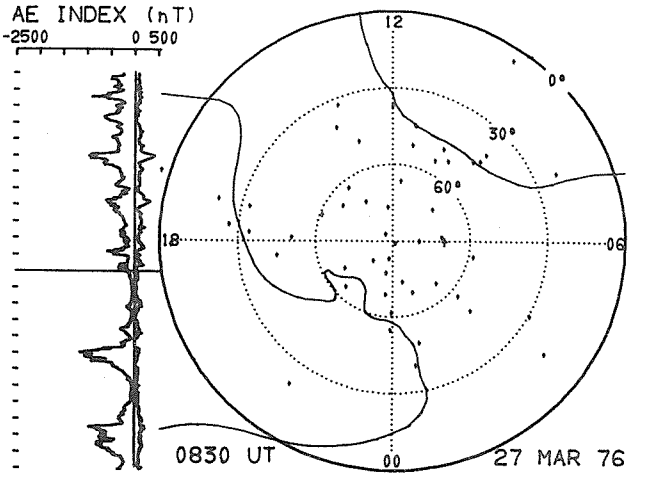

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0810 UT
27 MAR 76

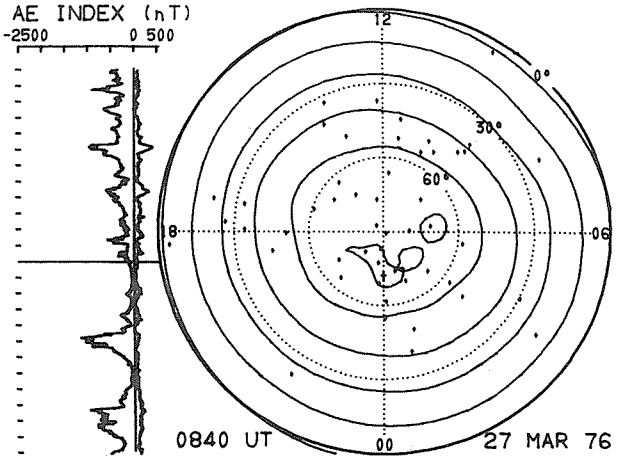

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0810 UT
27 MAR 76

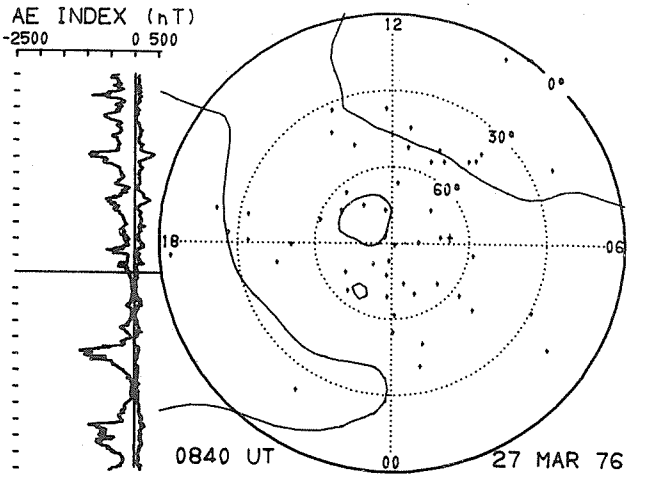

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0820 UT
27 MAR 76

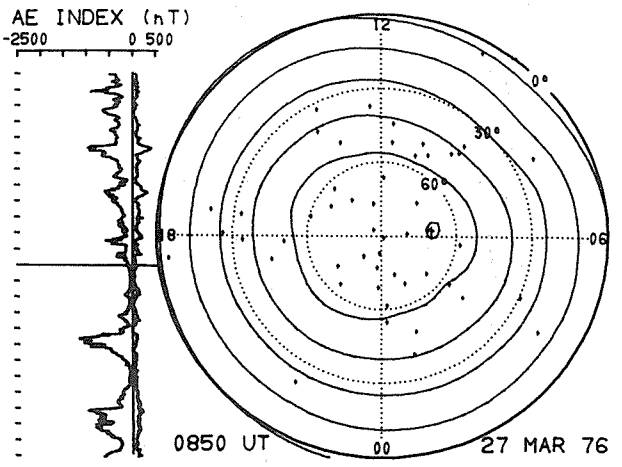

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0820 UT
27 MAR 76

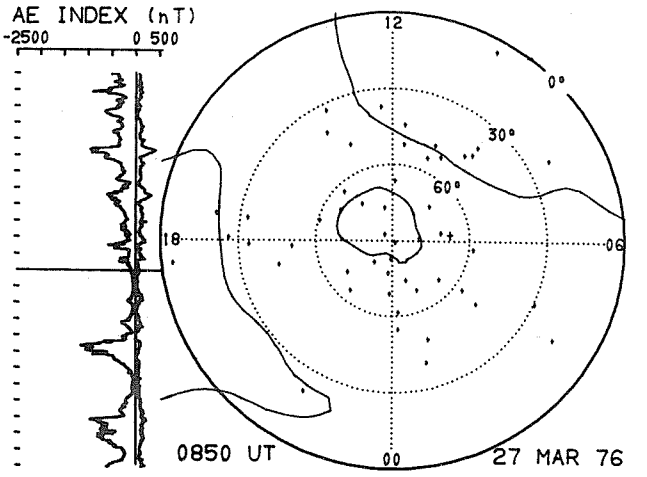

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0830 UT
27 MAR 76

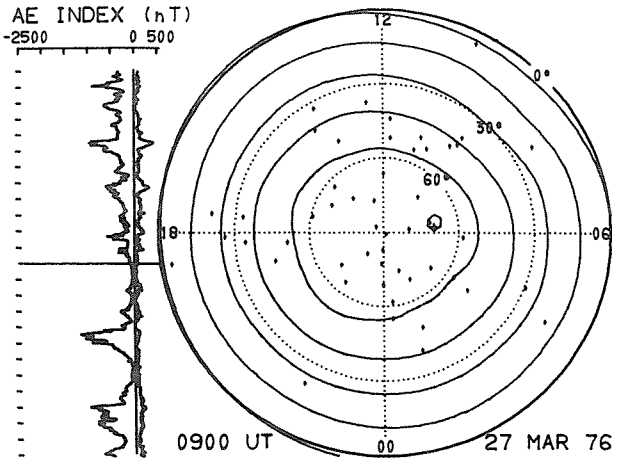

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0830 UT
27 MAR 76

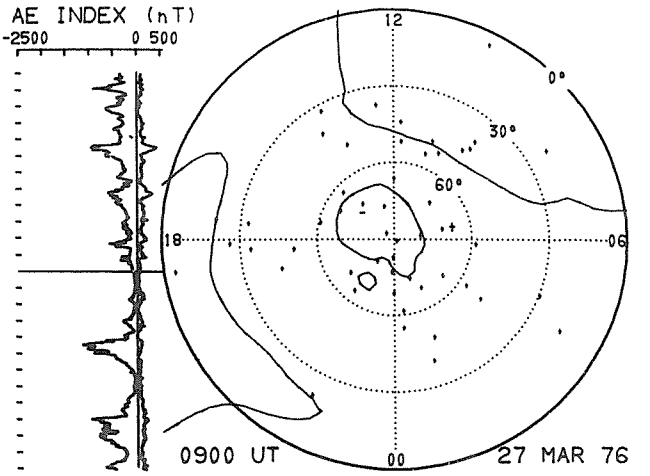

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0840 UT
27 MAR 76

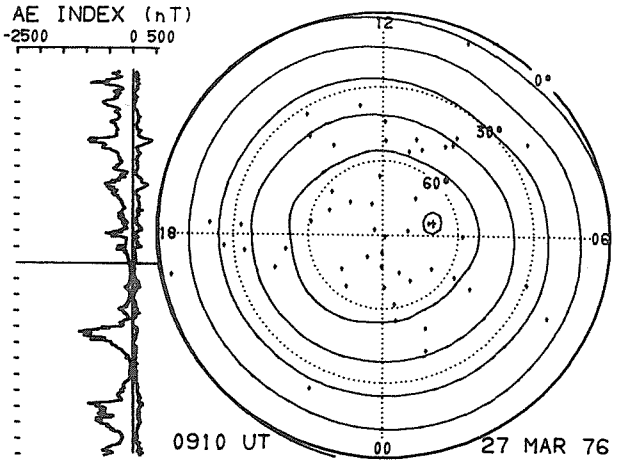

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0840 UT
27 MAR 76

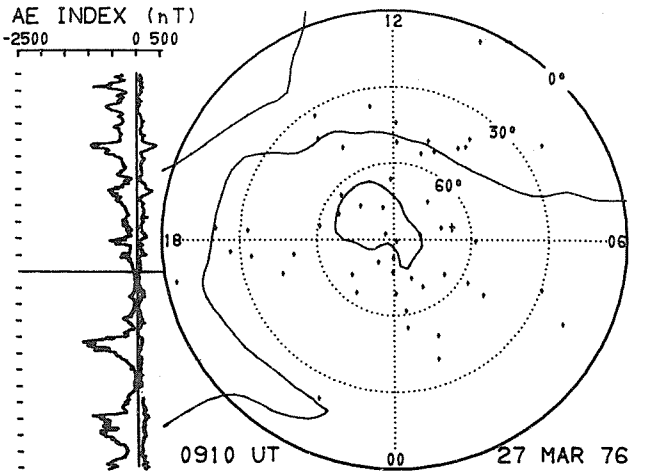

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0850 UT
27 MAR 76

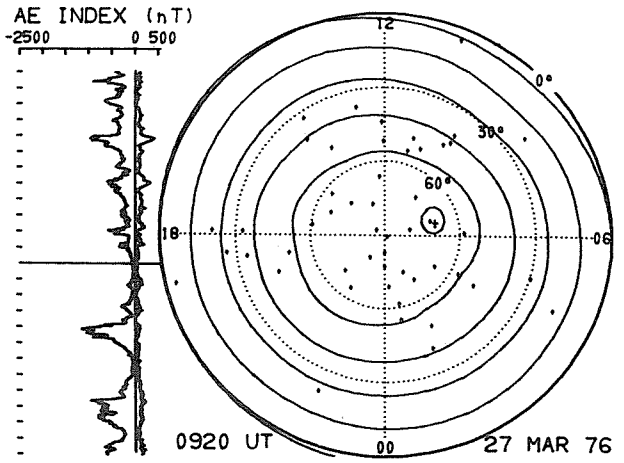

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0850 UT
27 MAR 76

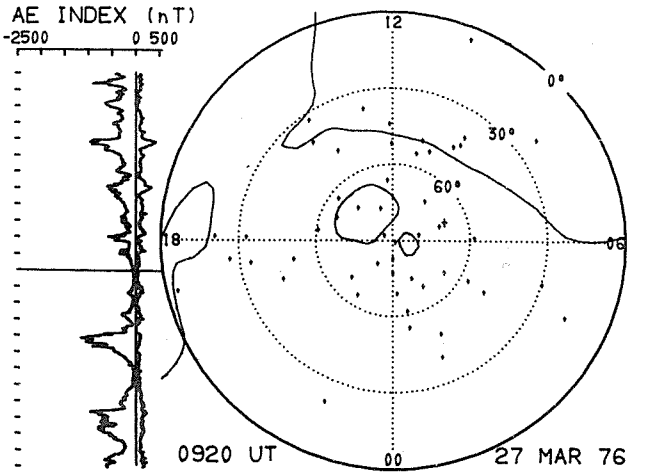

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0900 UT
27 MAR 76

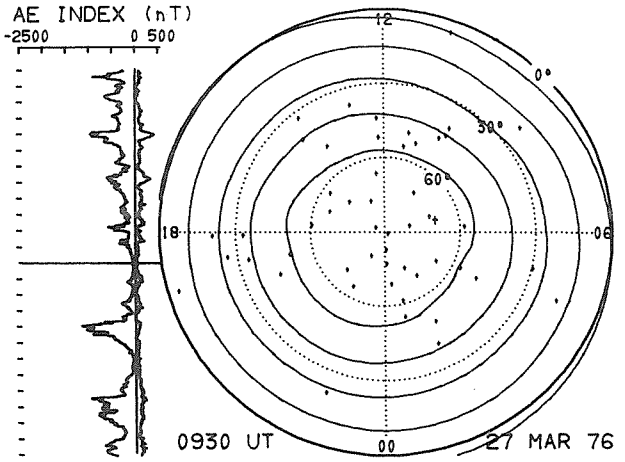

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0900 UT
27 MAR 76

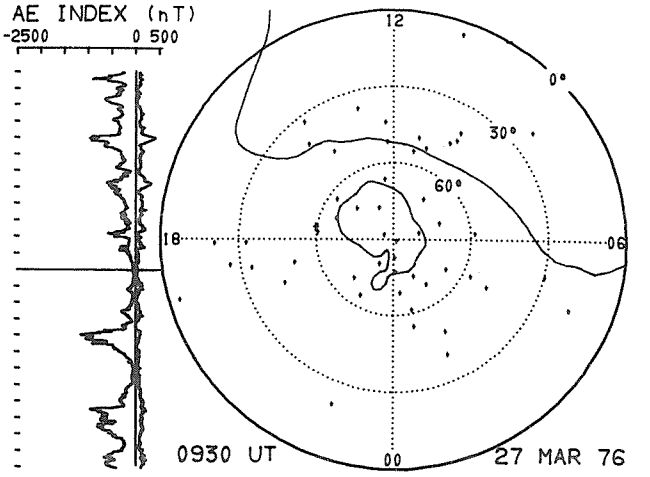

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0910 UT
27 MAR 76

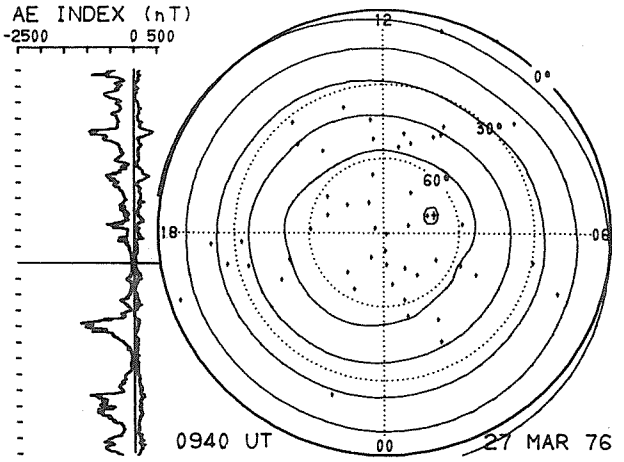

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0910 UT
27 MAR 76

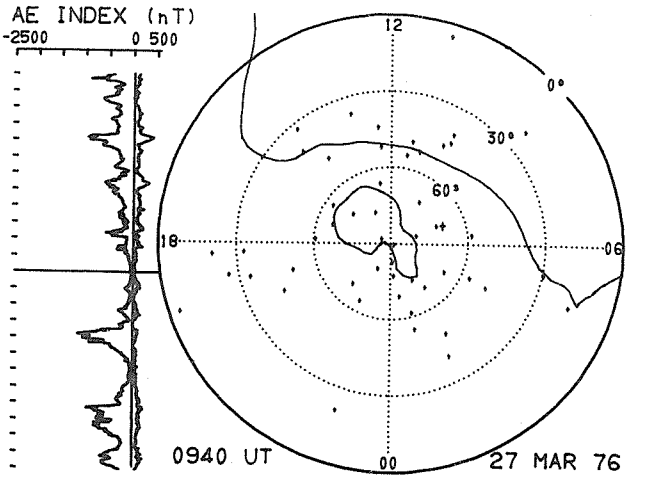

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0920 UT
27 MAR 76

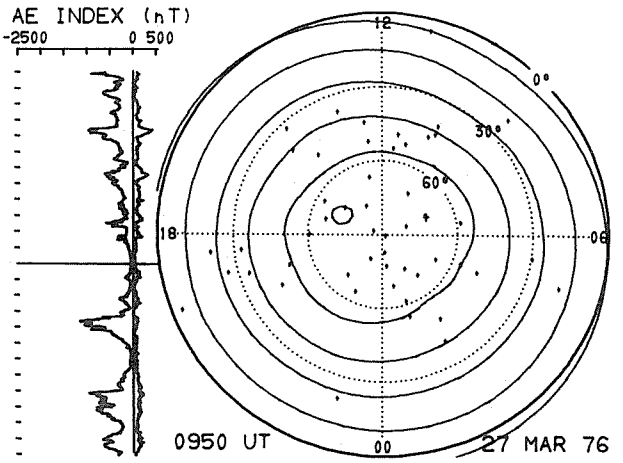

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0920 UT
27 MAR 76

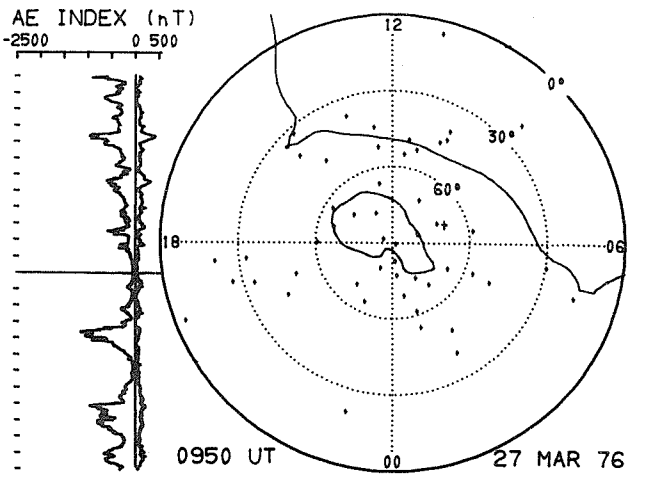

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0930 UT
27 MAR 76

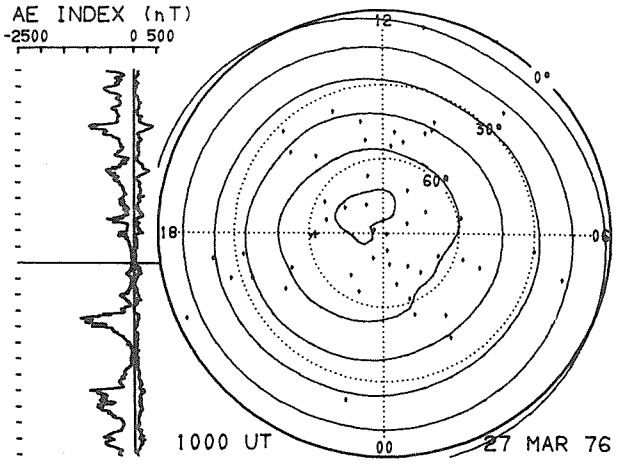

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0930 UT
27 MAR 76

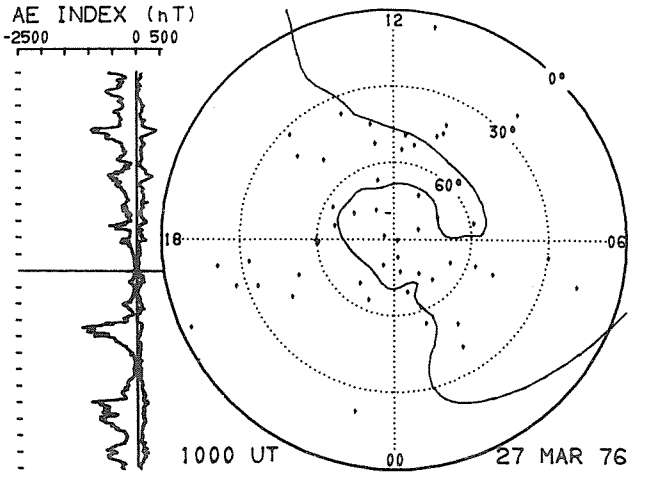

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0940 UT
27 MAR 76

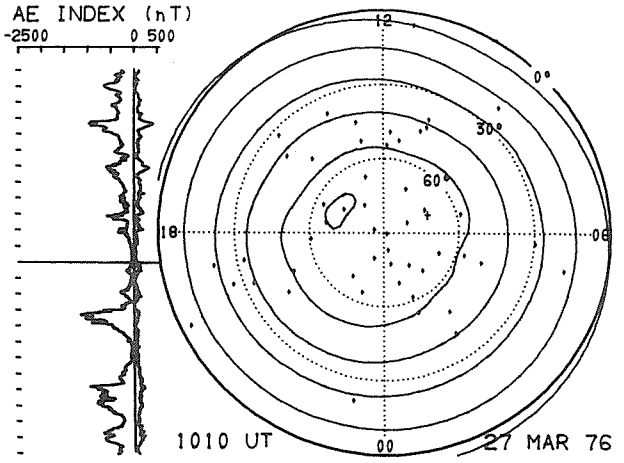

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0940 UT
27 MAR 76

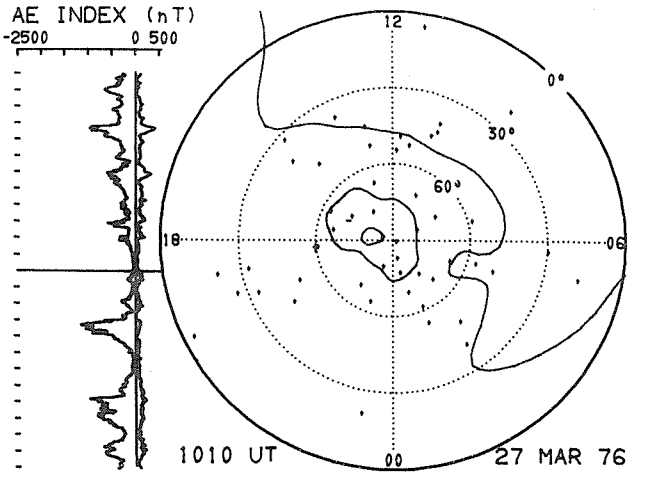

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0950 UT
27 MAR 76

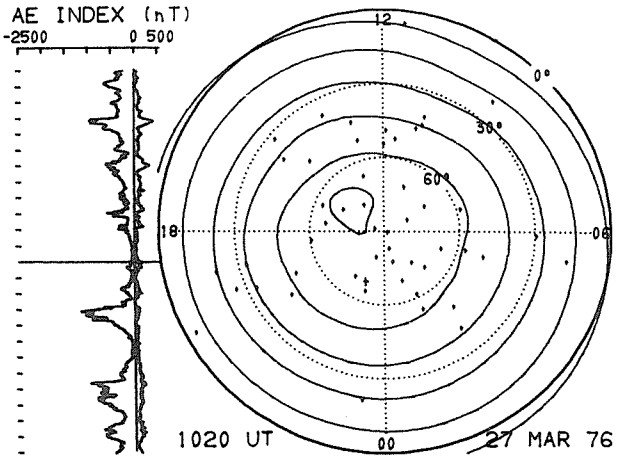

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0950 UT
27 MAR 76

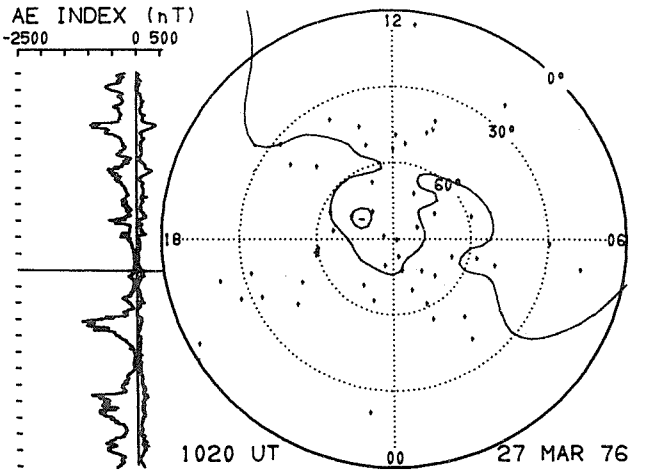

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1000 UT
27 MAR 76

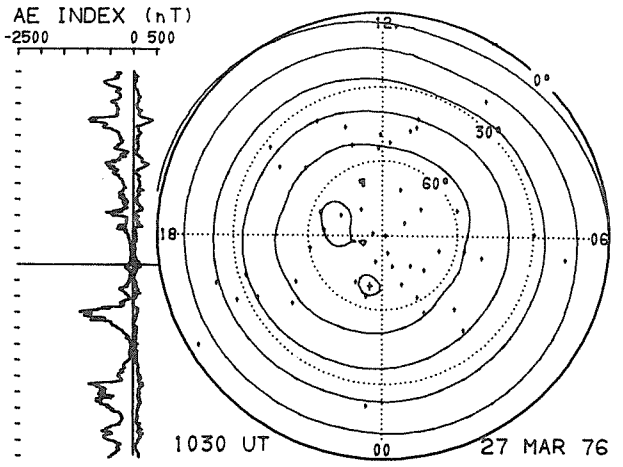

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1000 UT
27 MAR 76

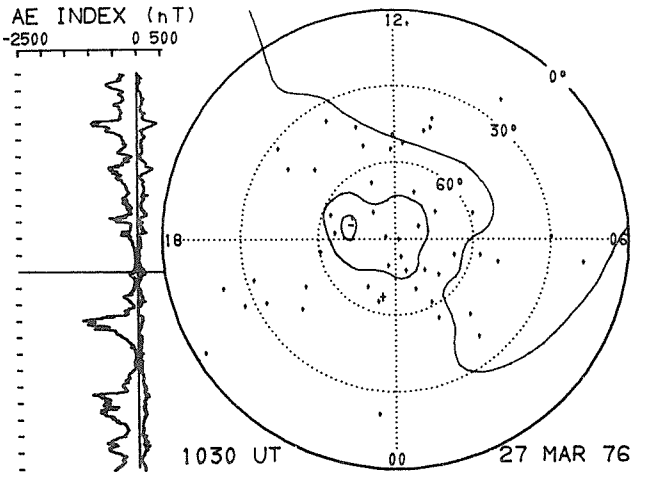

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1010 UT
27 MAR 76

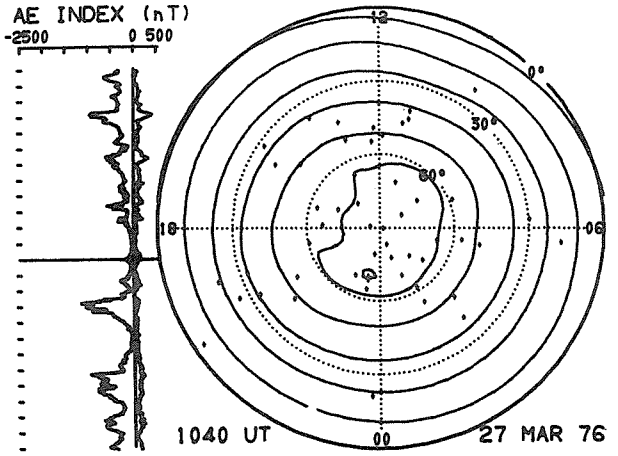

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1010 UT
27 MAR 76

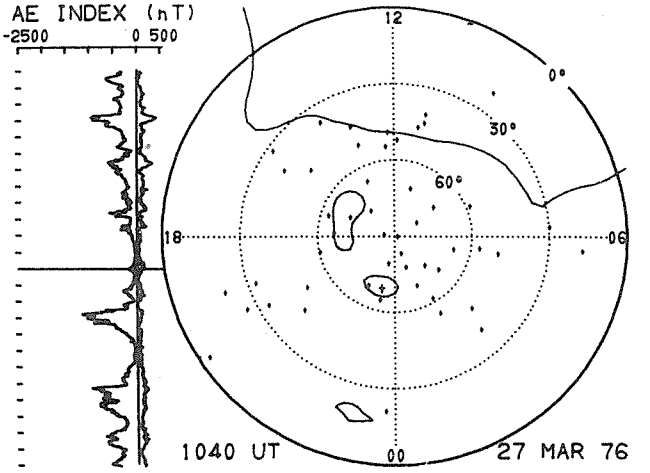

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1020 UT
27 MAR 76

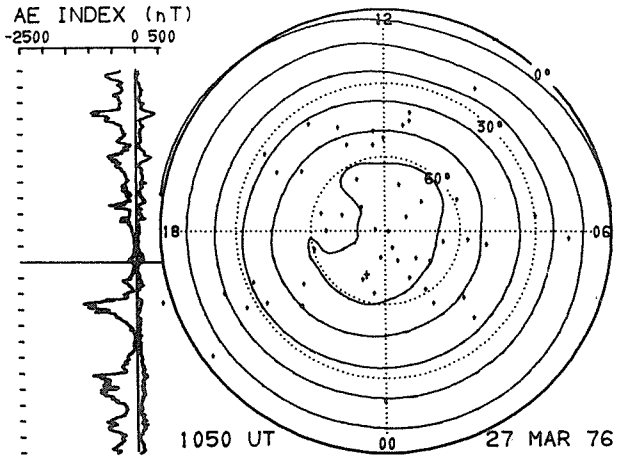

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1020 UT
27 MAR 76

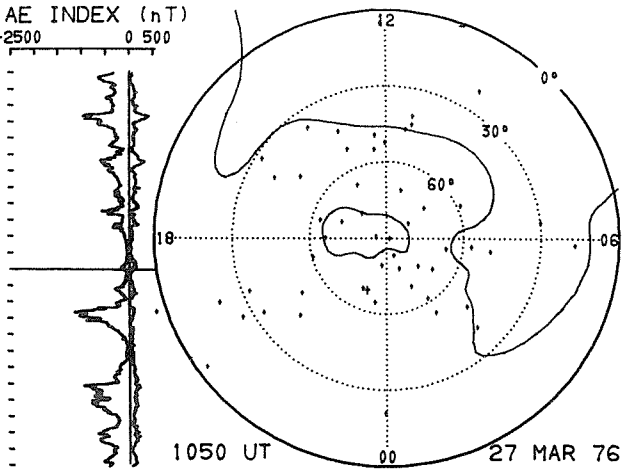

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1030 UT
27 MAR 76

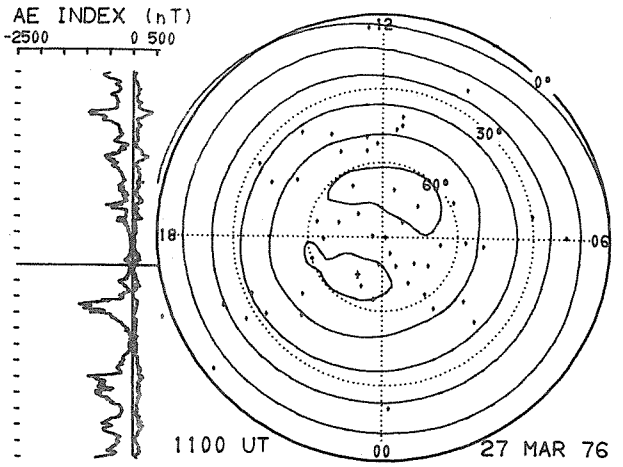

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1030 UT
27 MAR 76

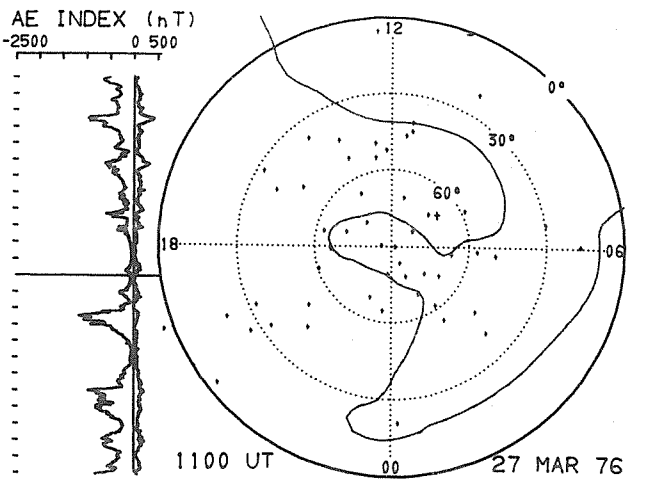

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1040 UT
27 MAR 76

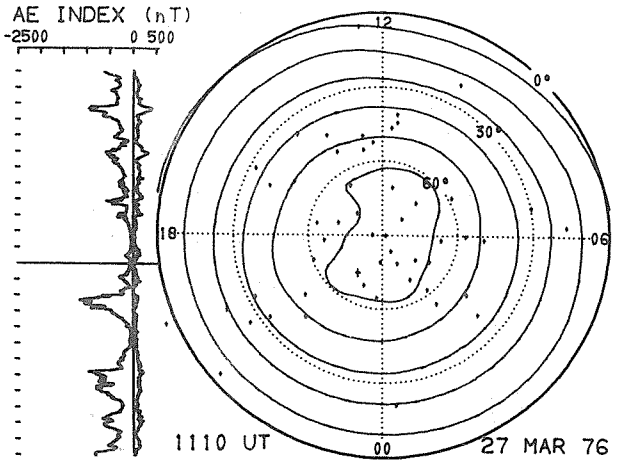

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1040 UT
27 MAR 76

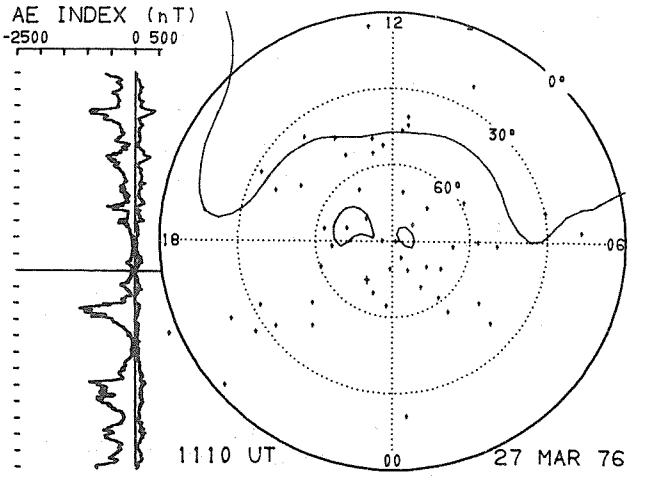

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1050 UT
27 MAR 76

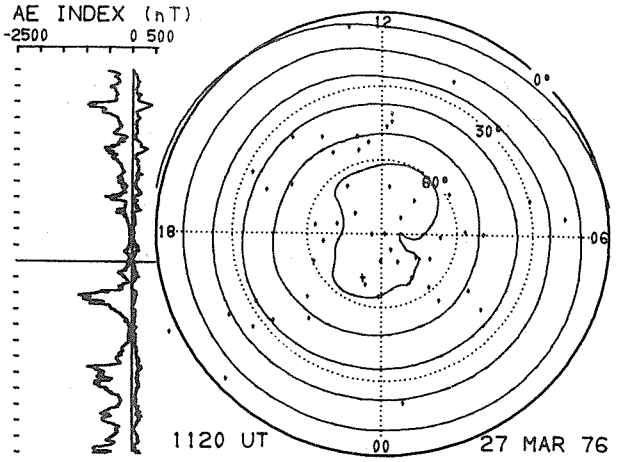

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1050 UT
27 MAR 76

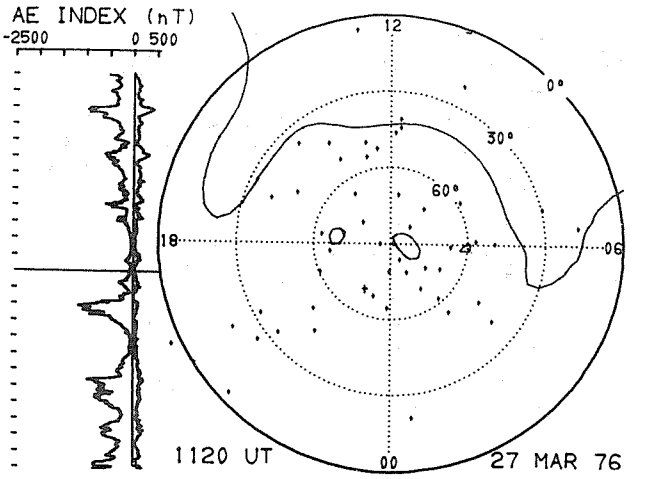

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1100 UT
27 MAR 76

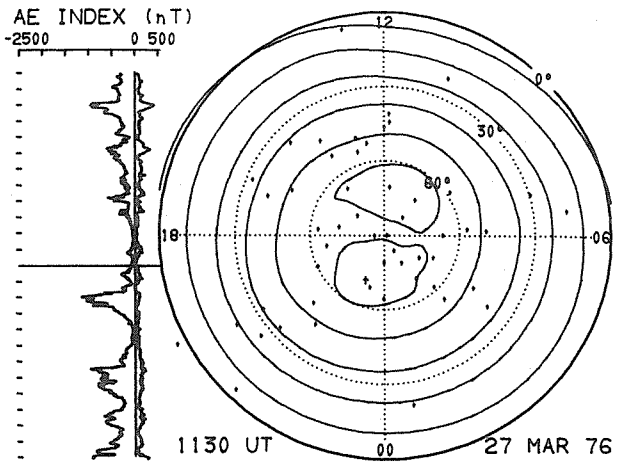

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1100 UT
27 MAR 76

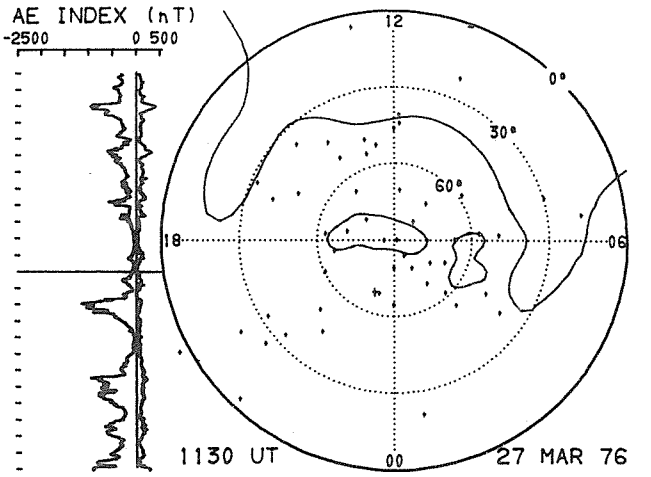

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1110 UT
27 MAR 76

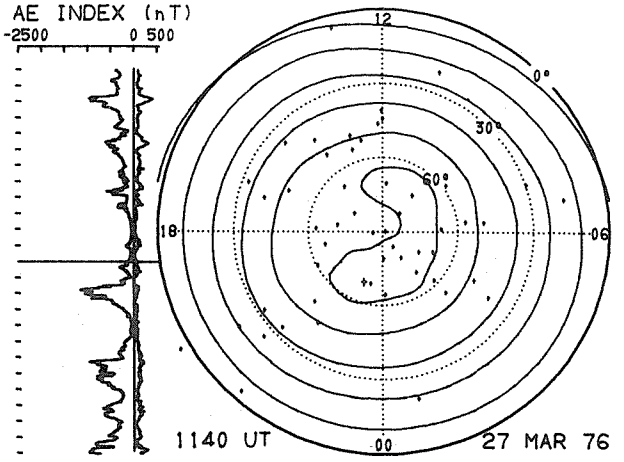

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1110 UT
27 MAR 76

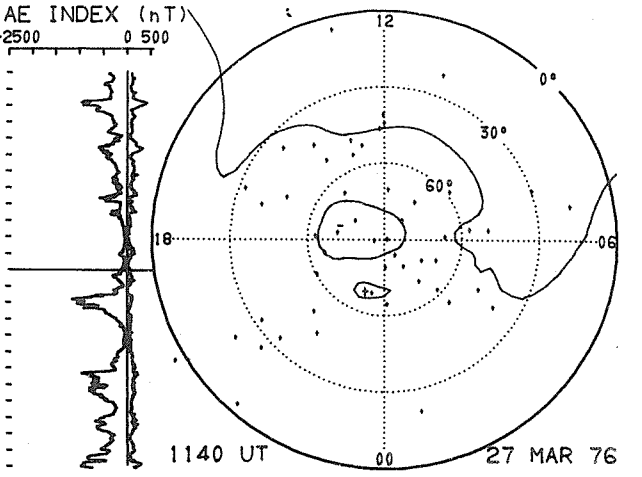

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1120 UT
27 MAR 76

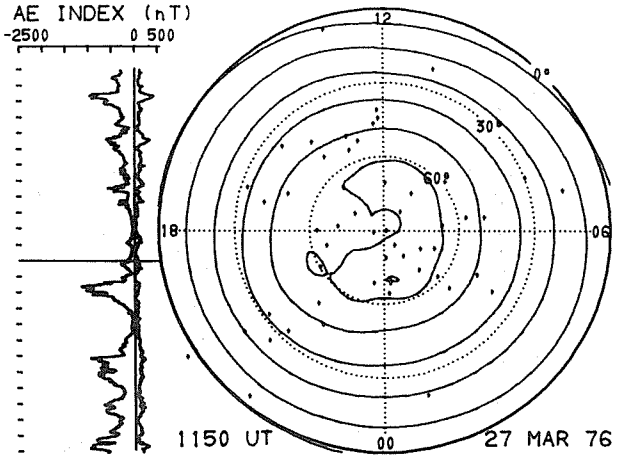

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1120 UT
27 MAR 76

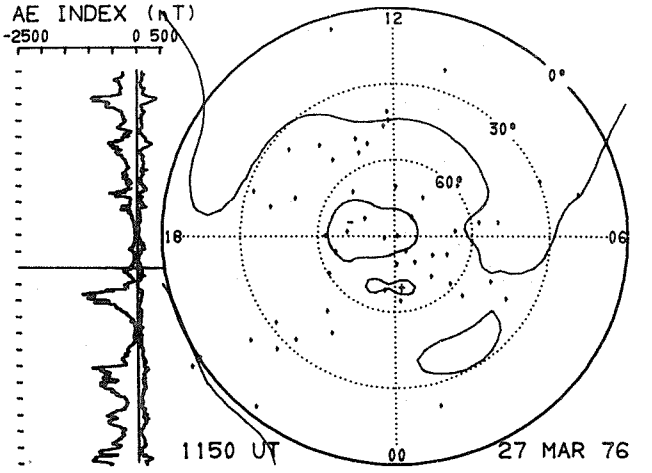

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1130 UT
27 MAR 76

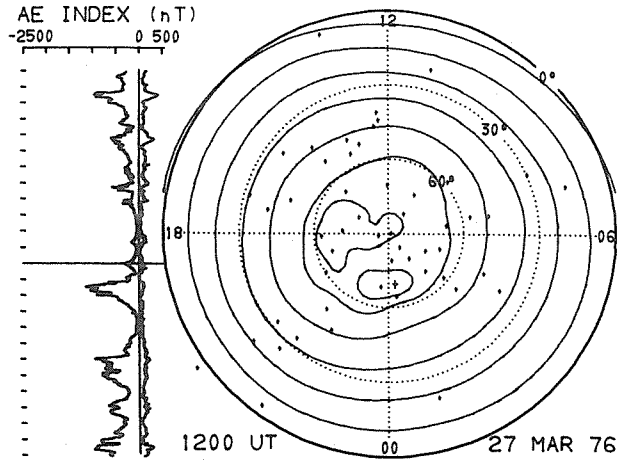

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1130 UT
27 MAR 76

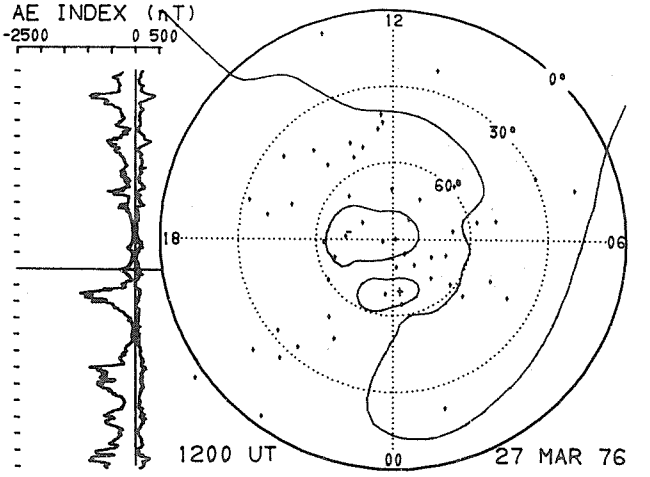

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1140 UT
27 MAR 76

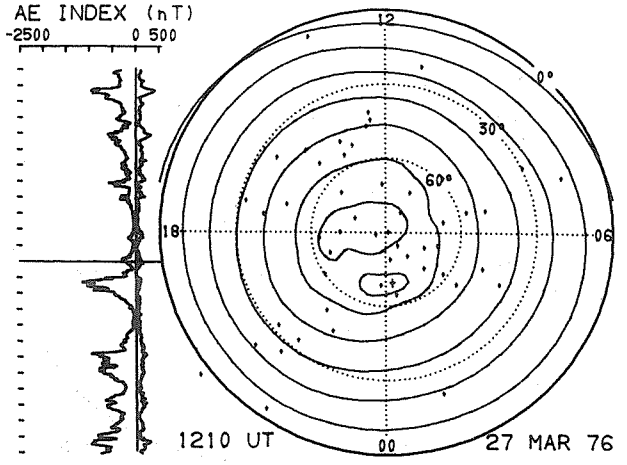

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1140 UT
27 MAR 76

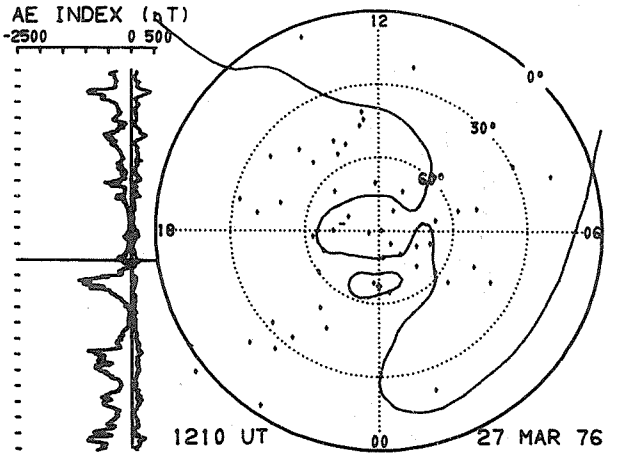

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1150 UT
27 MAR 76

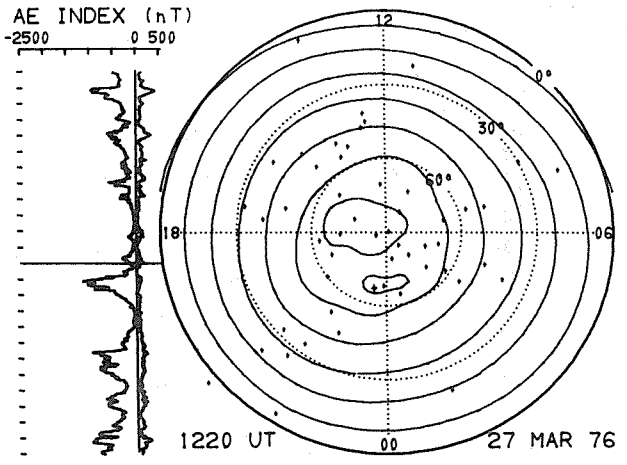

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1150 UT
27 MAR 76

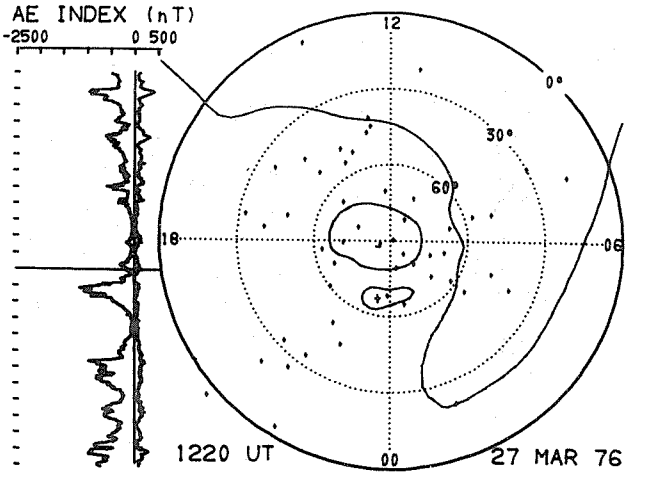

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1200 UT
27 MAR 76

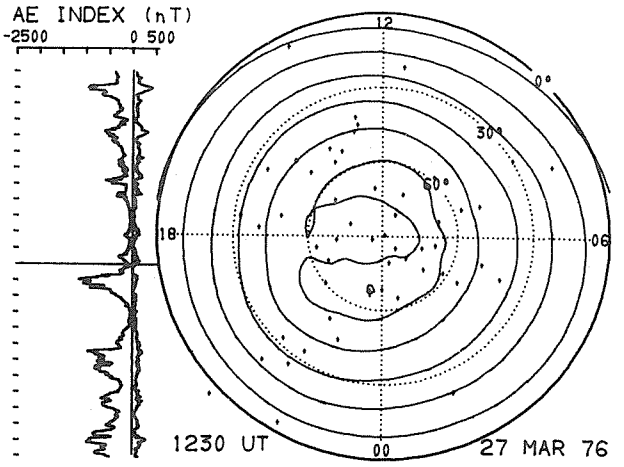

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1200 UT
27 MAR 76

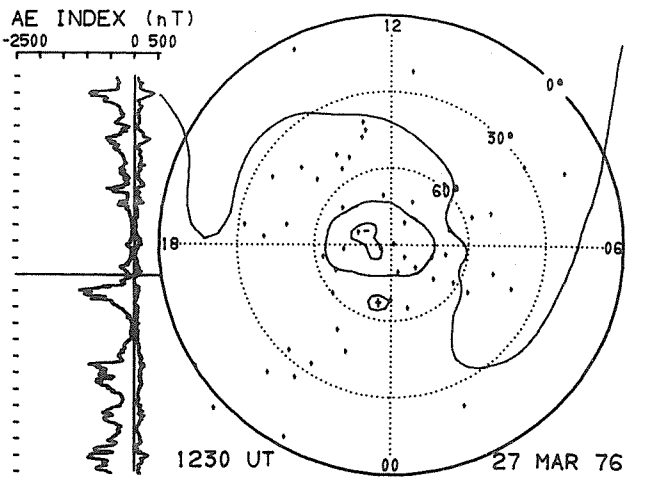

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1210 UT
27 MAR 76

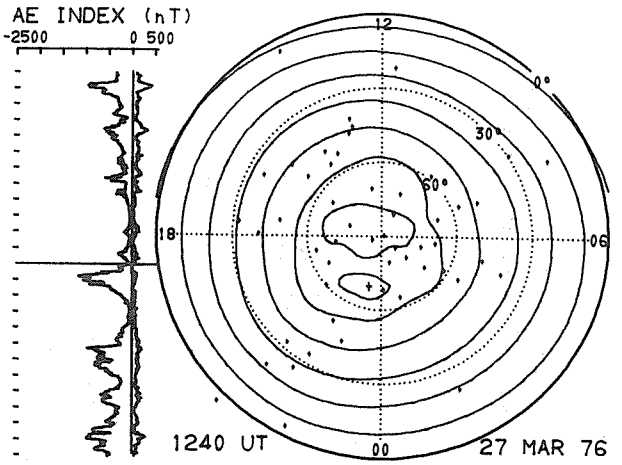

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1210 UT
27 MAR 76

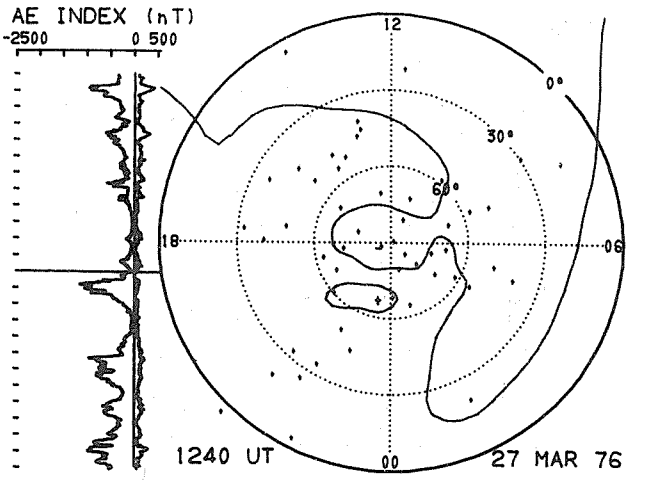

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1220 UT
27 MAR 76

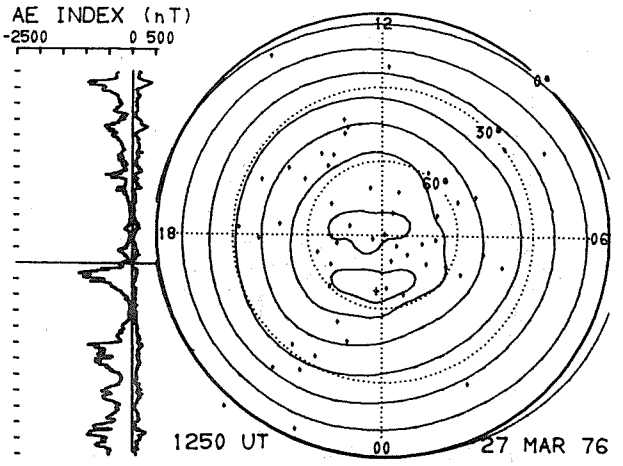

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1220 UT
27 MAR 76

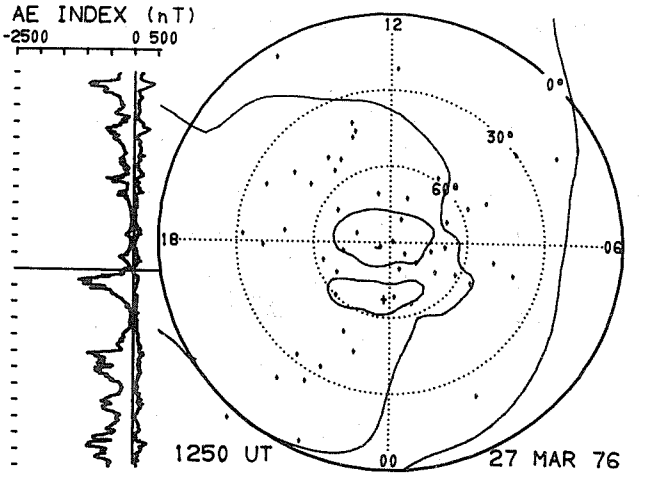

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1230 UT
27 MAR 76

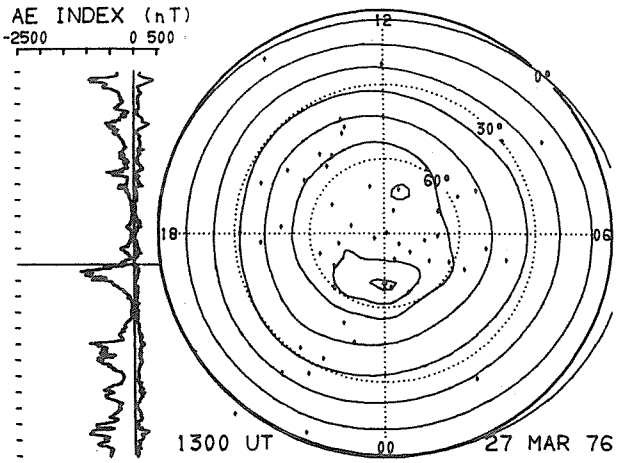

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1230 UT
27 MAR 76

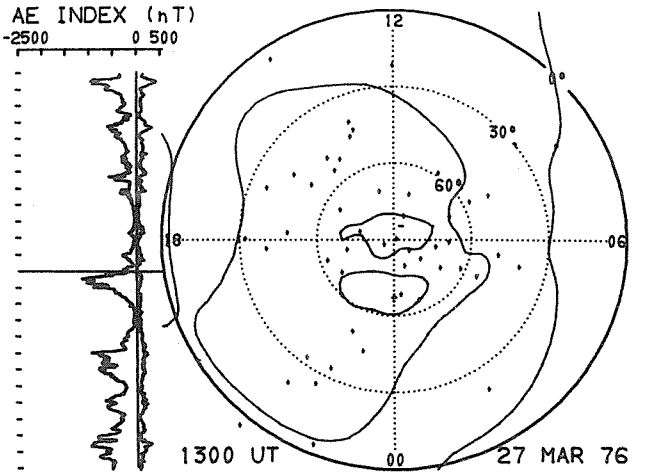

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1240 UT
27 MAR 76

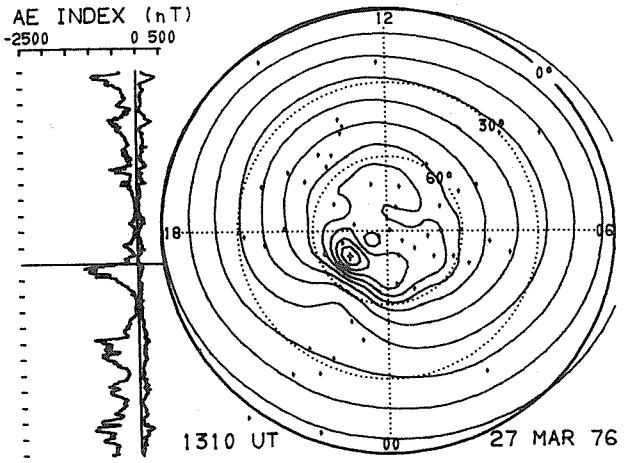

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1240 UT
27 MAR 76

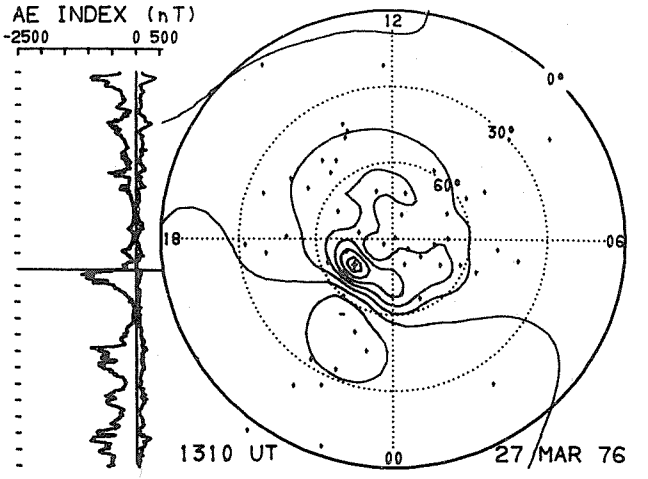

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1250 UT
27 MAR 76

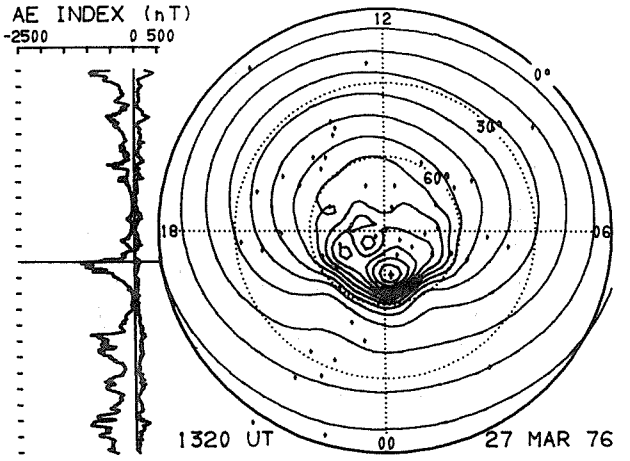

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1250 UT
27 MAR 76

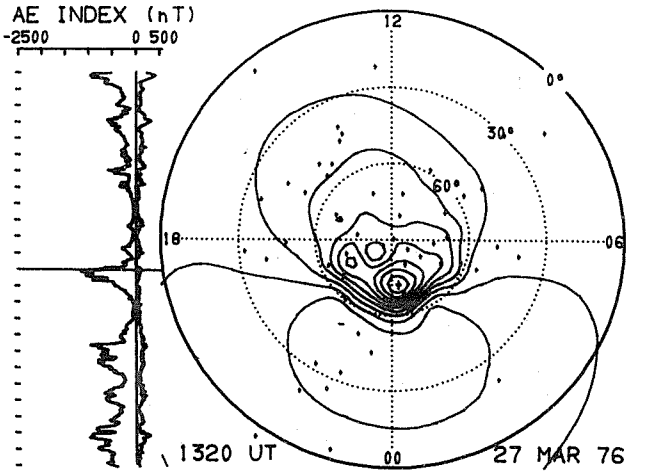

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1300 UT
27 MAR 76

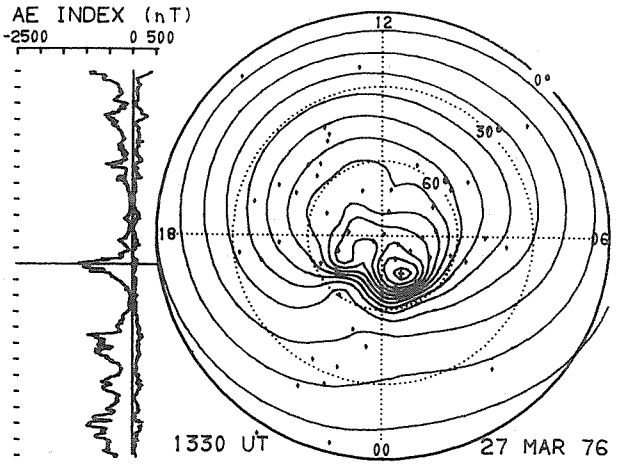

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1300 UT
27 MAR 76

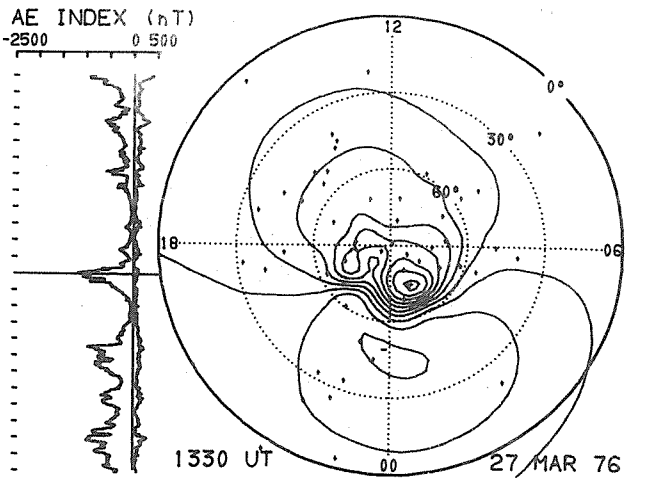

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1310 UT
27 MAR 76

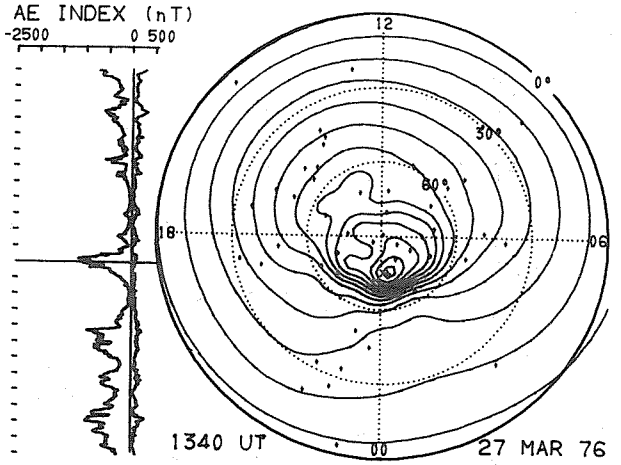

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1310 UT
27 MAR 76

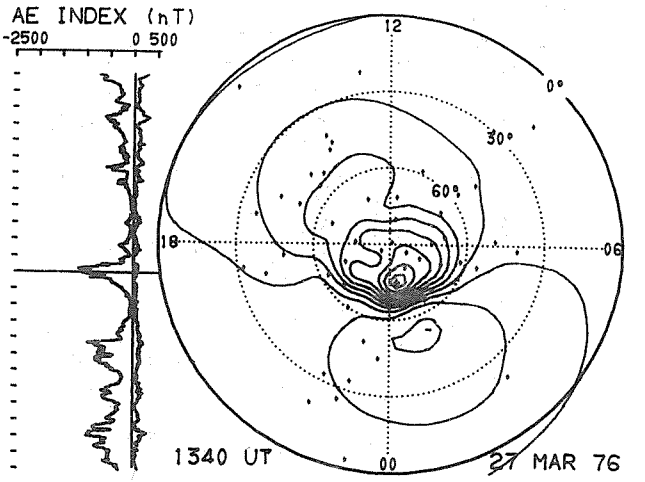

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1320 UT
27 MAR 76

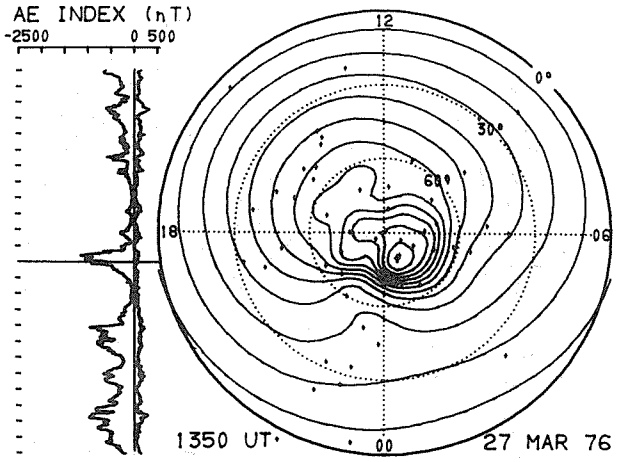

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1320 UT
27 MAR 76

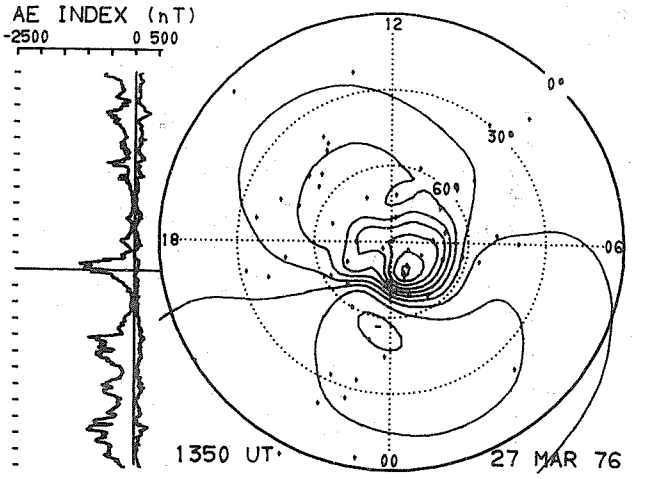

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1330 UT
27 MAR 76

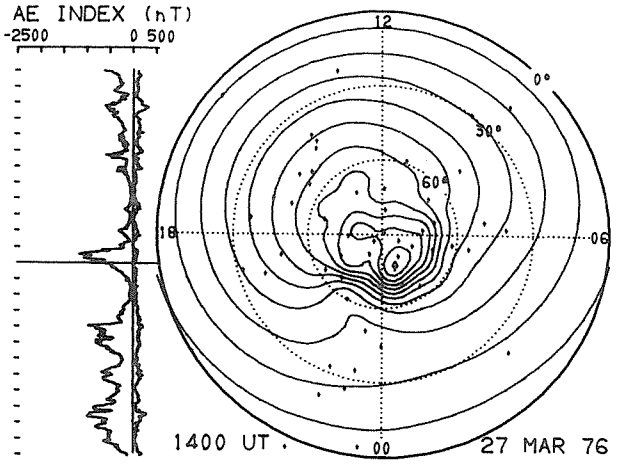

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1330 UT
27 MAR 76

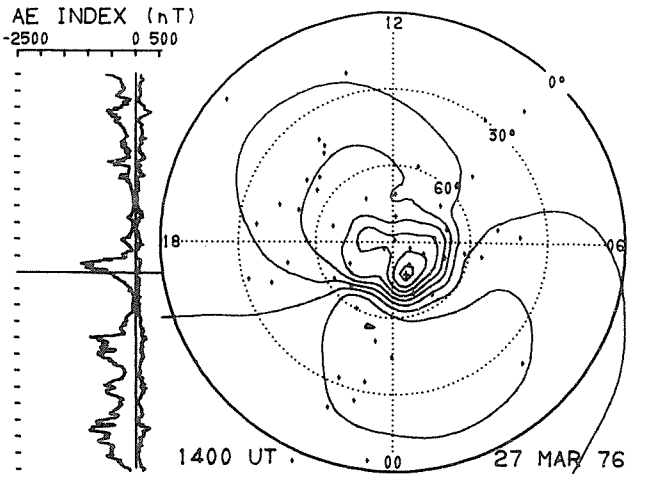

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1340 UT
27 MAR 76

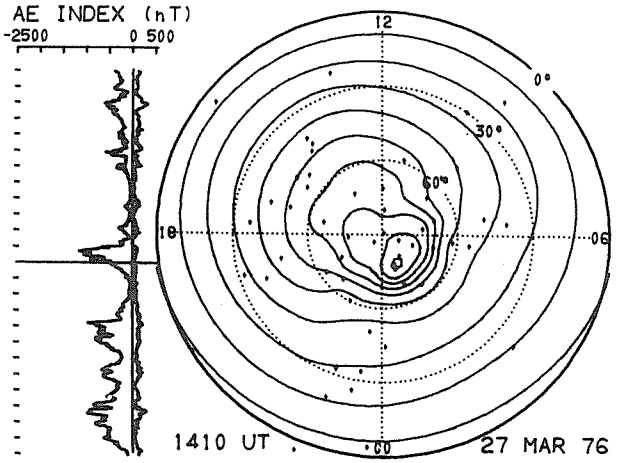

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1340 UT
27 MAR 76

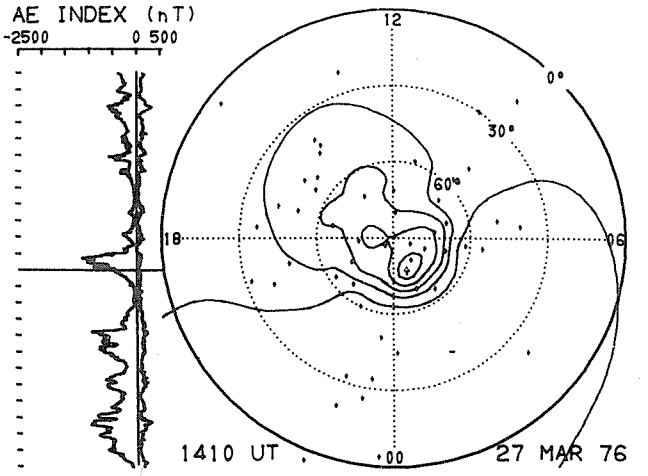

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1350 UT
27 MAR 76

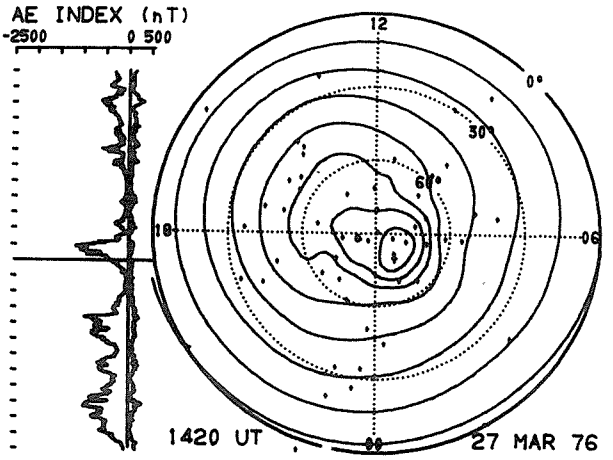

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1350 UT
27 MAR 76

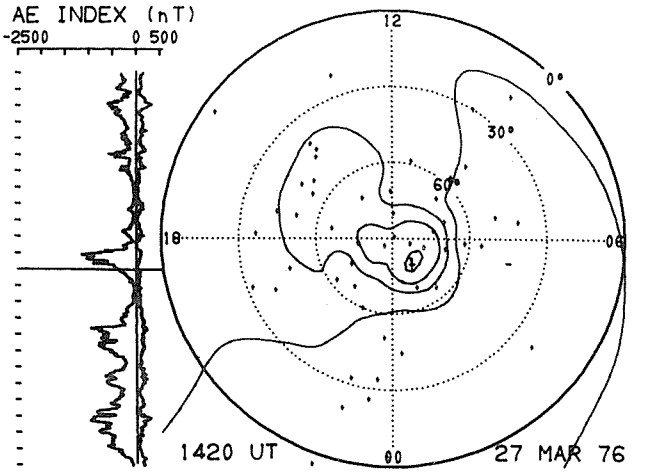

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1400 UT
27 MAR 76

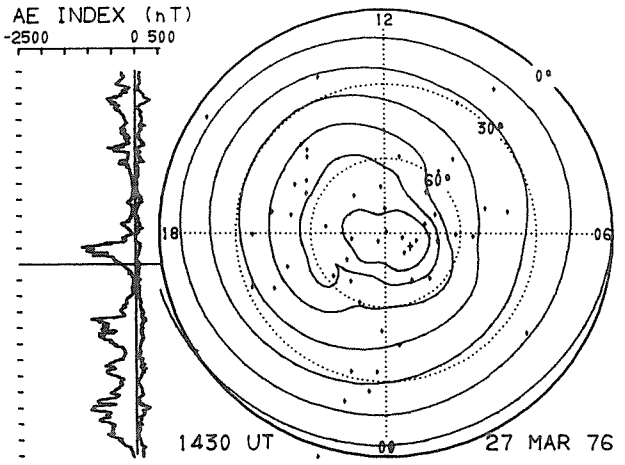

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1400 UT
27 MAR 76

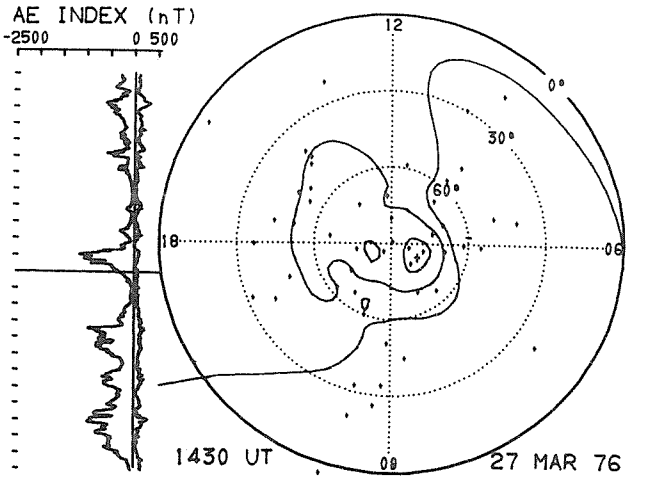

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1410 UT
27 MAR 76

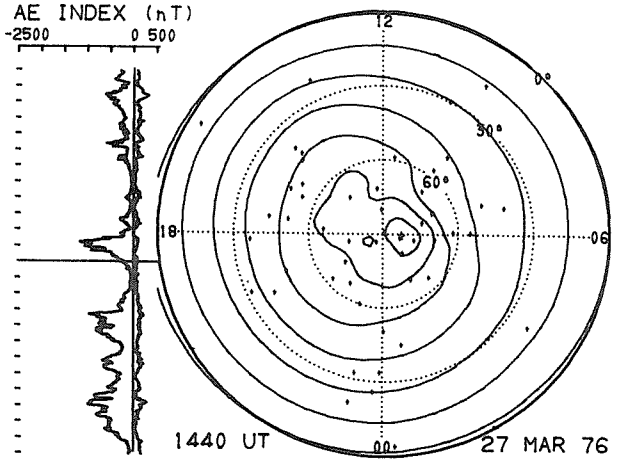

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1410 UT
27 MAR 76

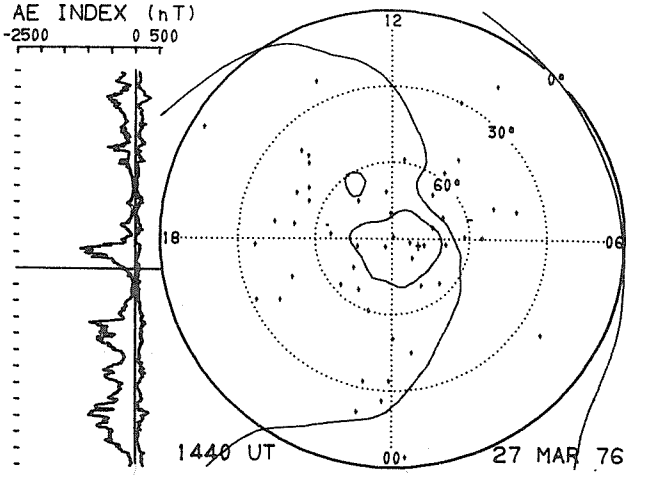

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1420 UT
27 MAR 76

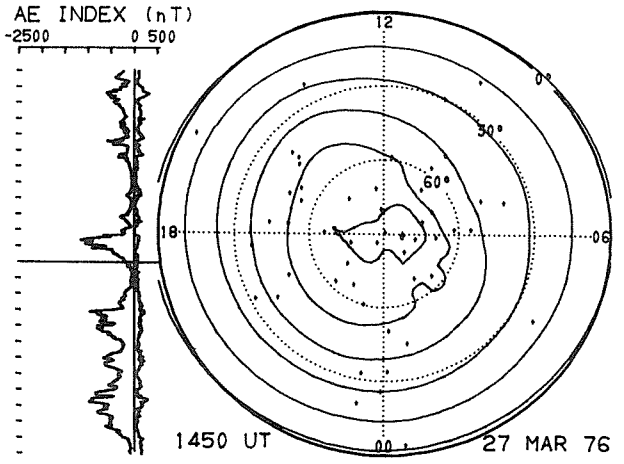

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1420 UT
27 MAR 76

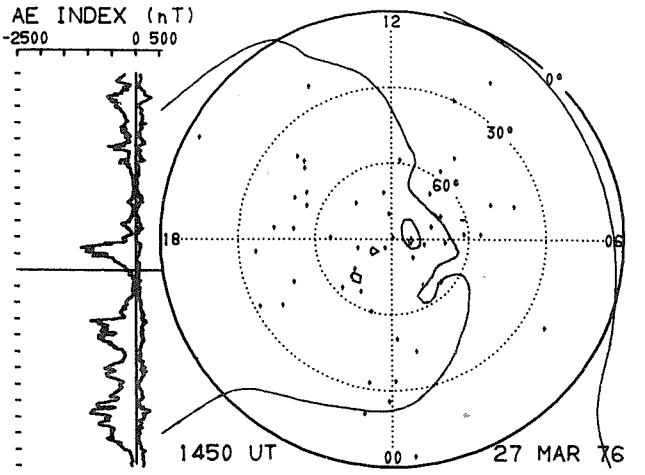

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1430 UT
27 MAR 76

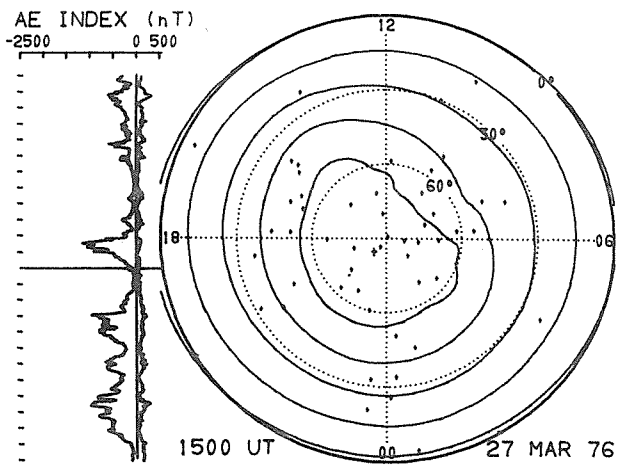

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1430 UT
27 MAR 76

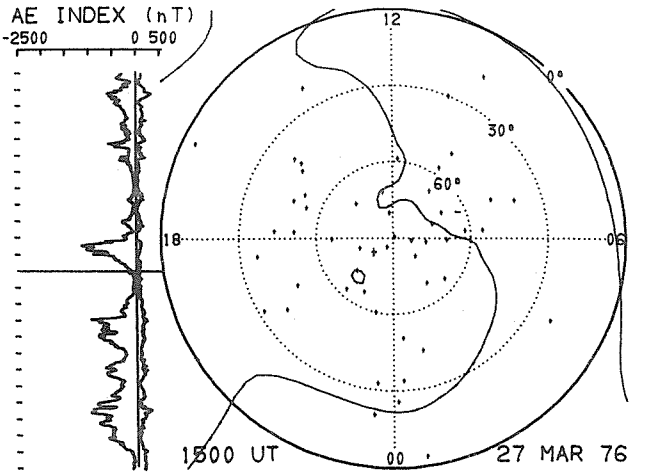

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1440 UT
27 MAR 76

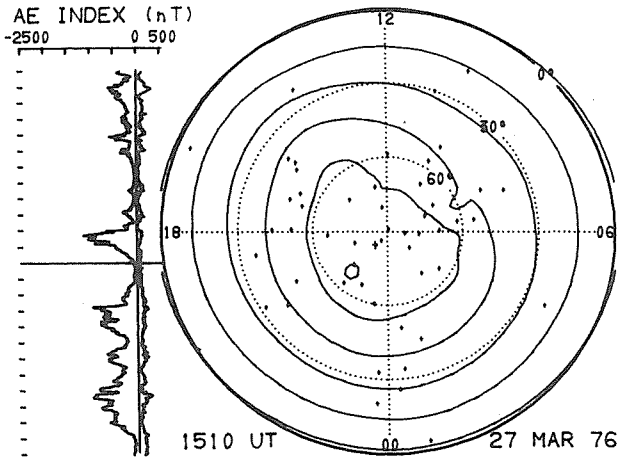

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1440 UT
27 MAR 76

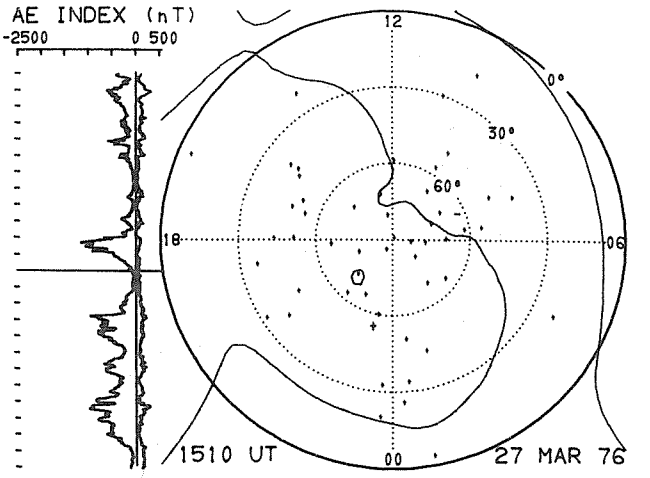

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1450 UT
27 MAR 76

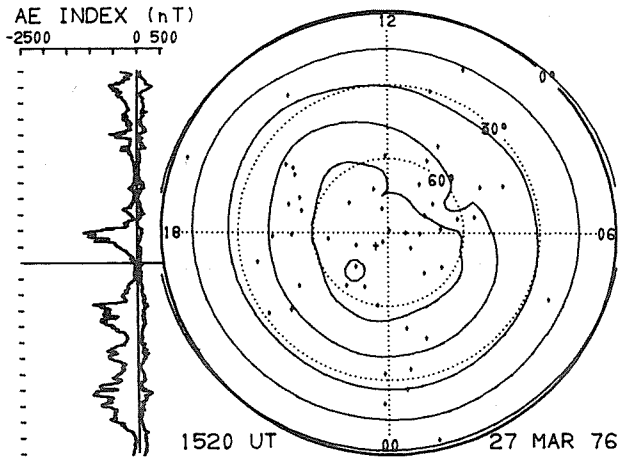

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1450 UT
27 MAR 76

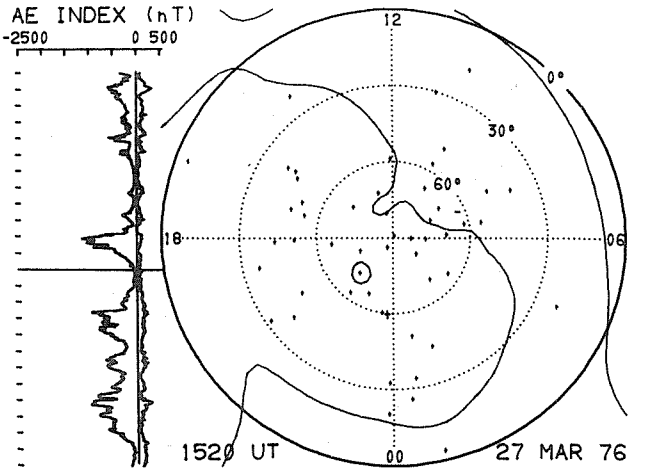

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1500 UT
27 MAR 76

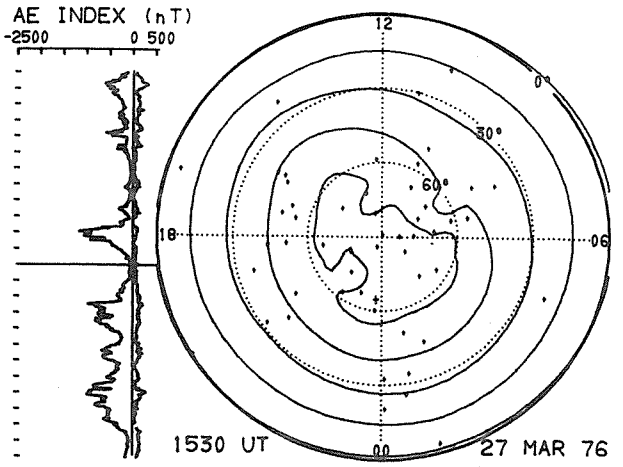

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1500 UT
27 MAR 76

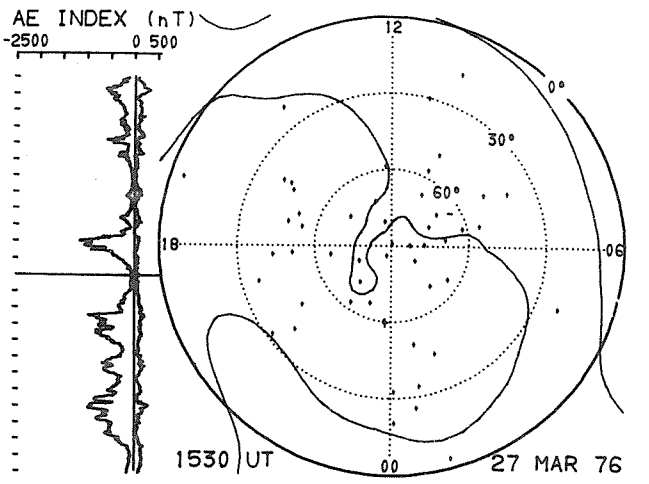

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1510 UT
27 MAR 76

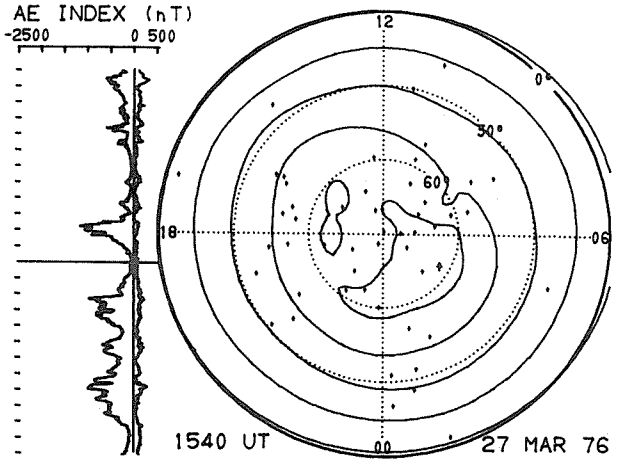

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1510 UT
27 MAR 76

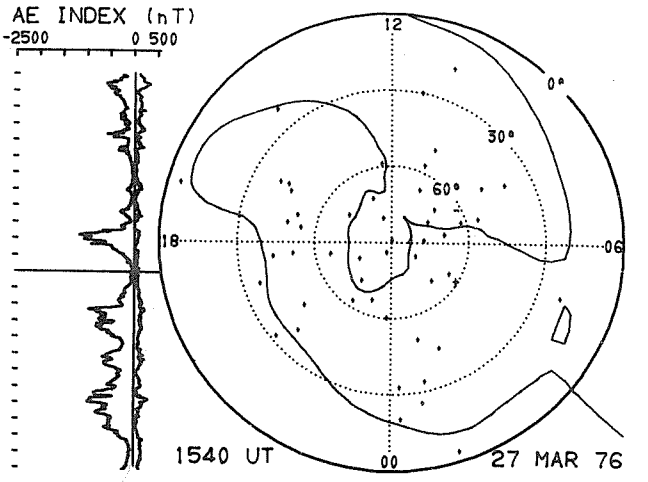

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1520 UT
27 MAR 76

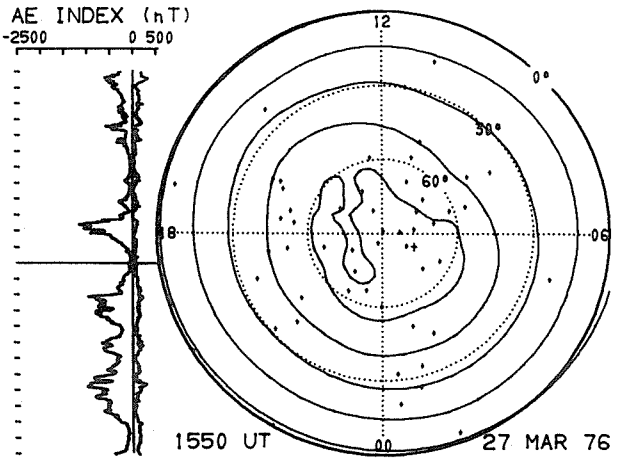

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1520 UT
27 MAR 76

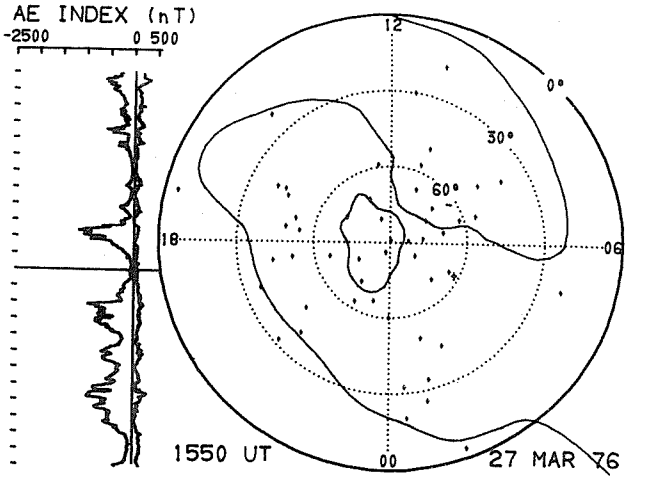

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1530 UT
27 MAR 76

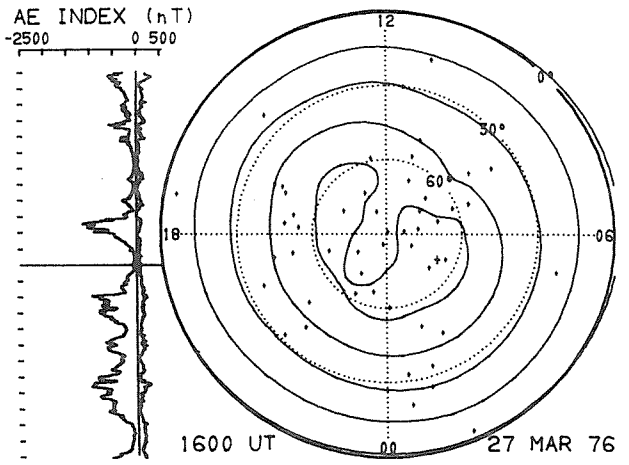

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1530 UT
27 MAR 76

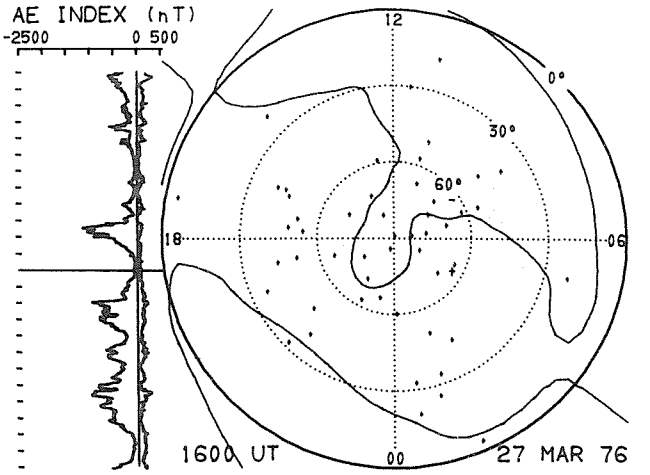

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1540 UT
27 MAR 76

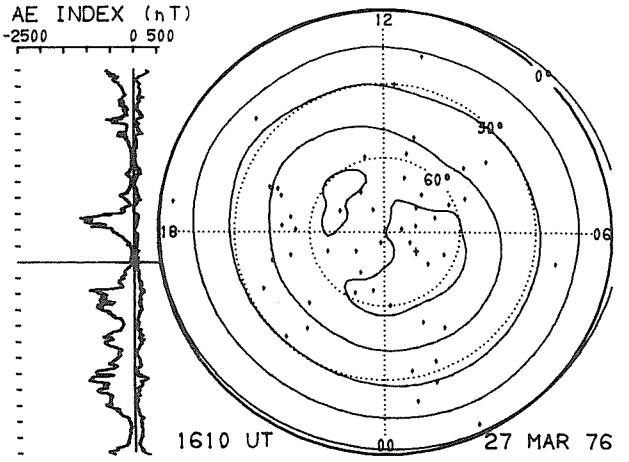

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1540 UT
27 MAR 76

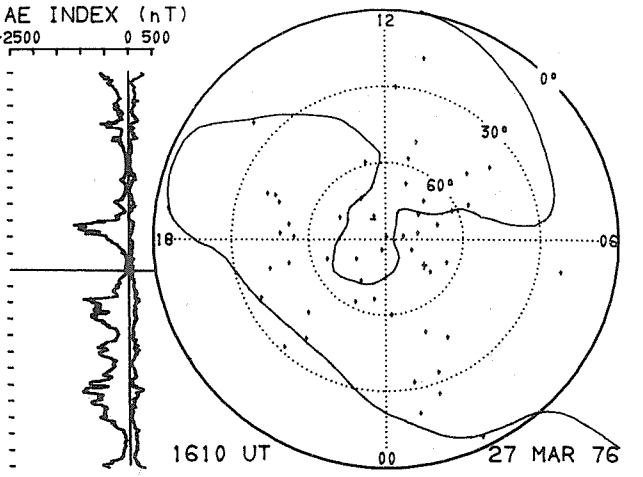

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1550 UT
27 MAR 76

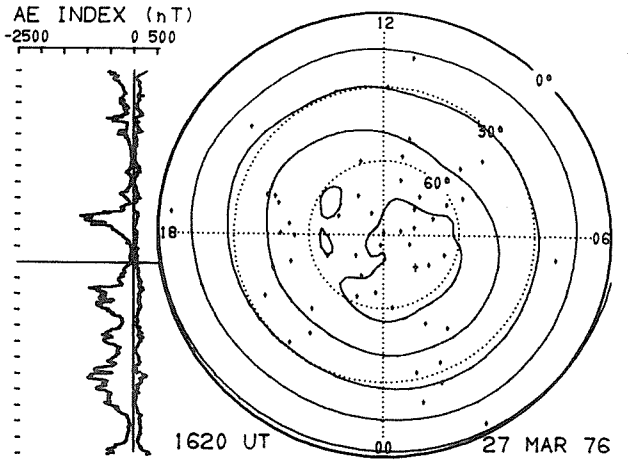

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1550 UT
27 MAR 76

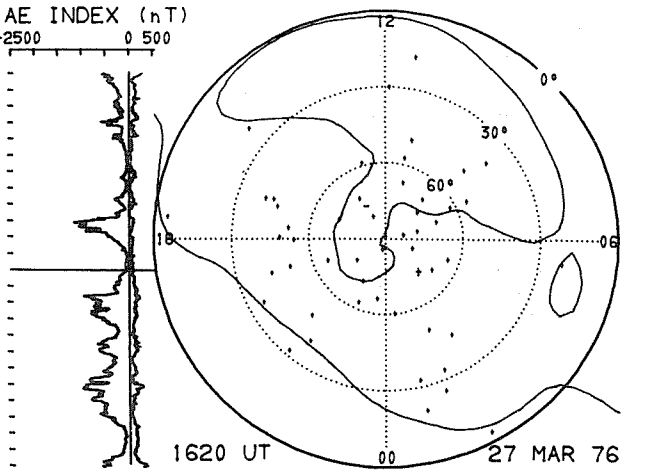

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1600 UT
27 MAR 76

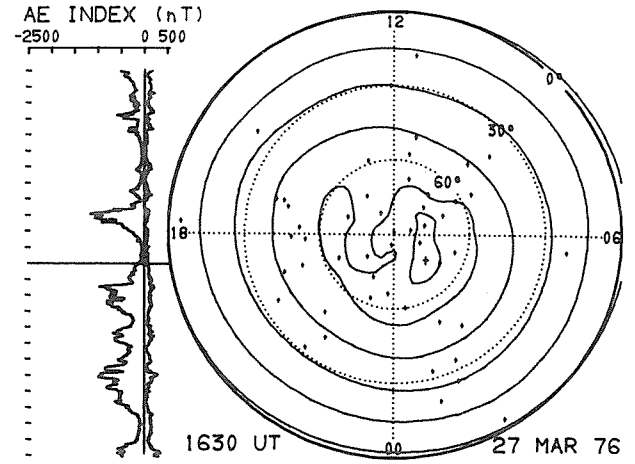

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1600 UT
27 MAR 76

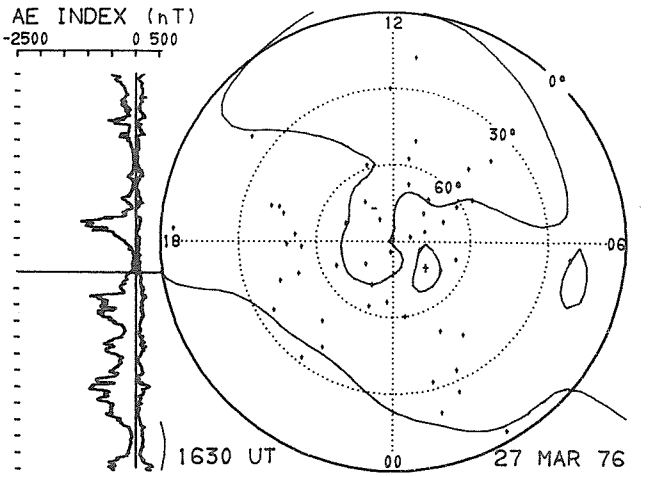

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1610 UT
27 MAR 76

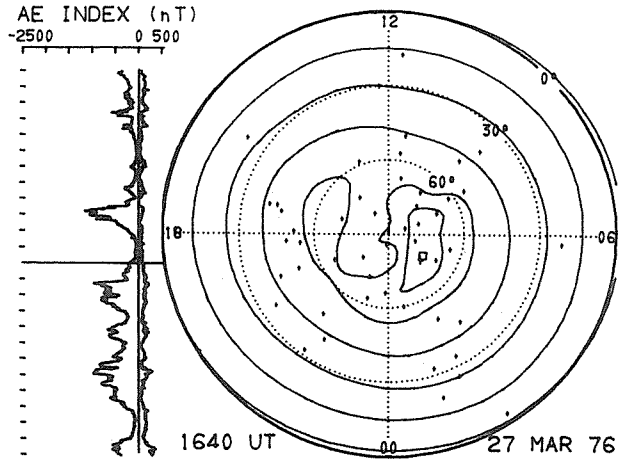

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1610 UT
27 MAR 76

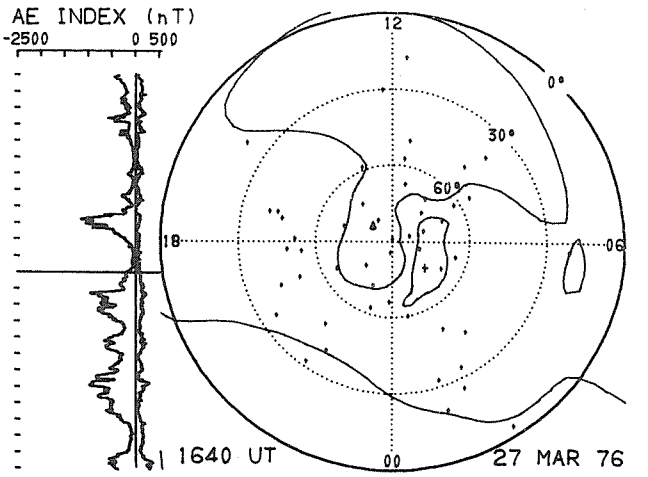

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1620 UT
27 MAR 76

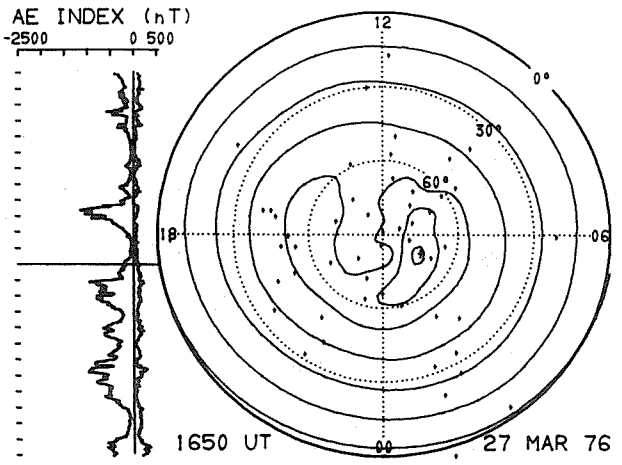

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1620 UT
27 MAR 76

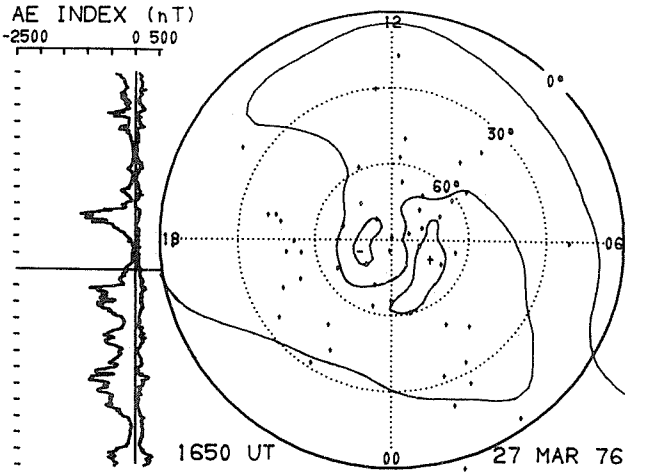

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1630 UT
27 MAR 76

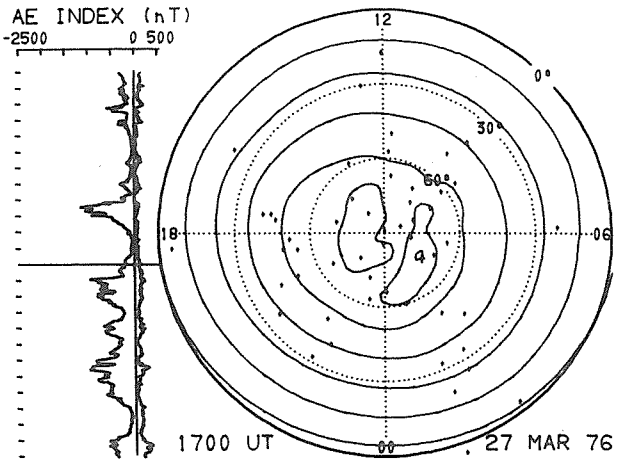

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1630 UT
27 MAR 76

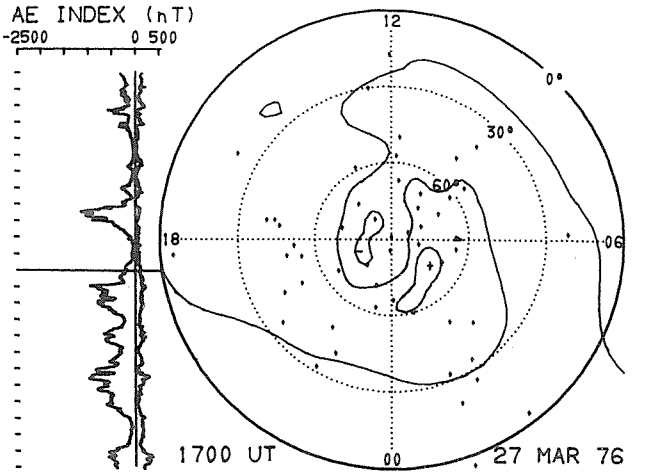

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1640 UT
27 MAR 76

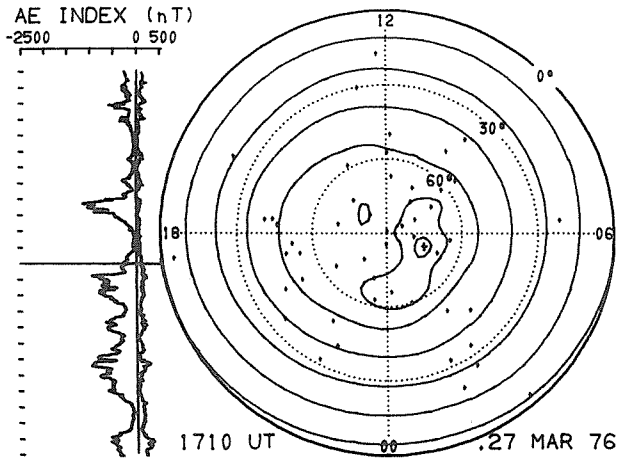

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1640 UT
27 MAR 76

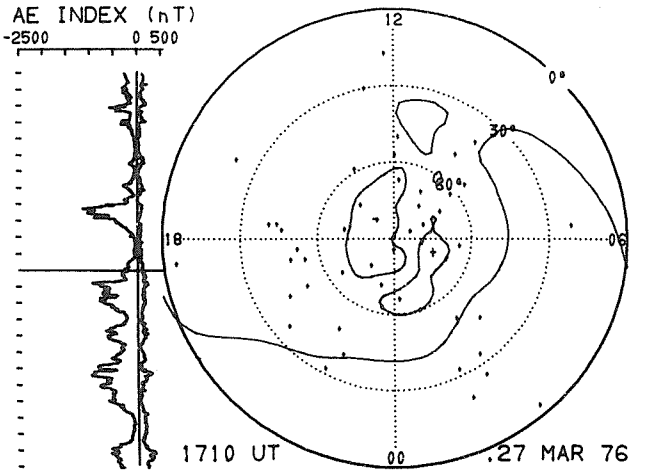

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1650 UT
27 MAR 76

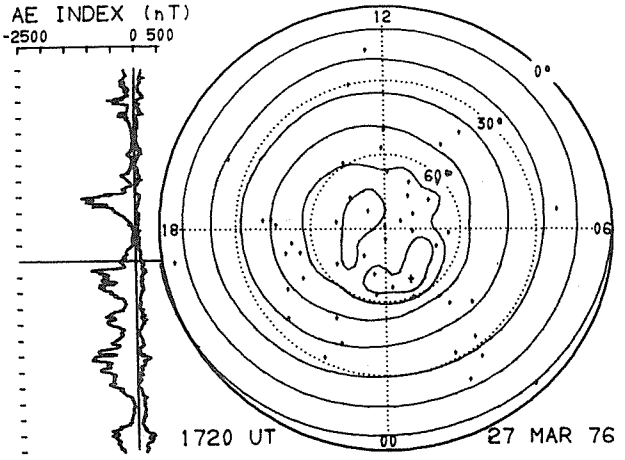

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1650 UT
27 MAR 76

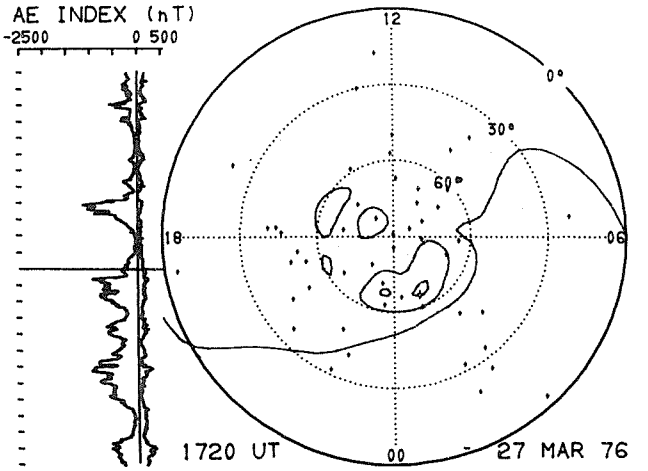

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1700 UT
27 MAR 76

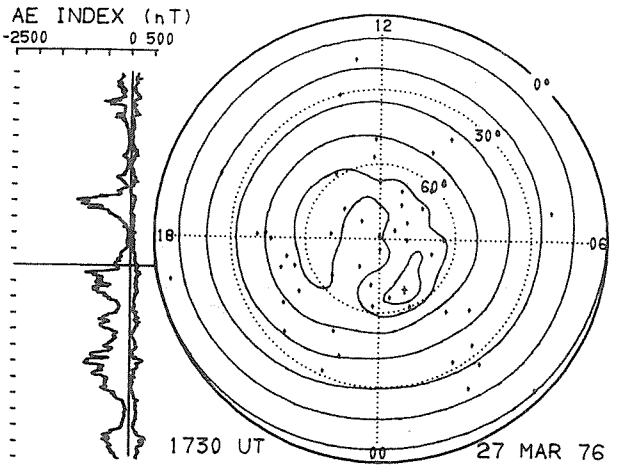

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1700 UT
27 MAR 76

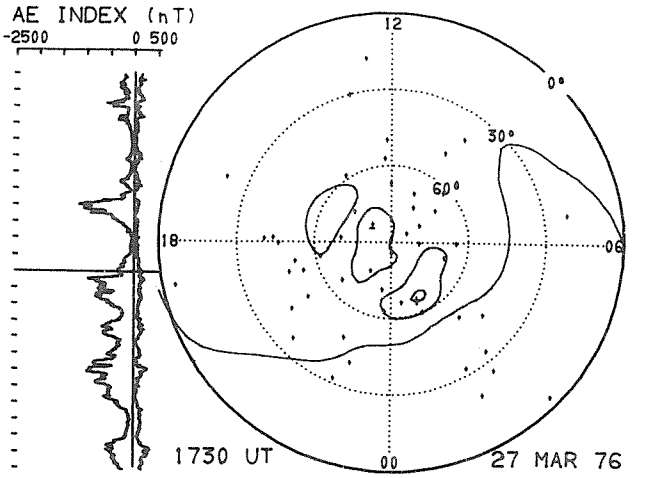

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1710 UT
27 MAR 76

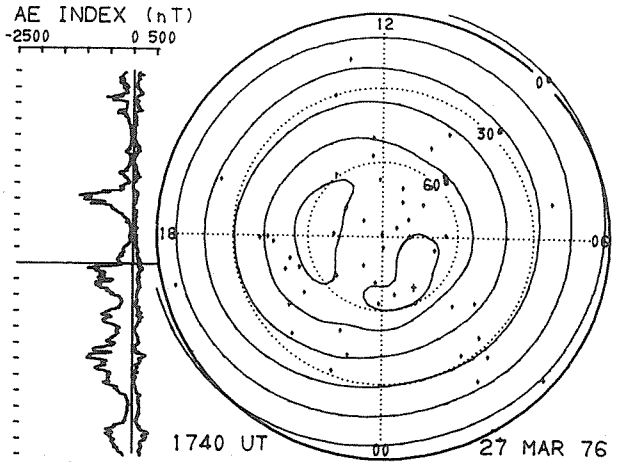

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1710 UT
27 MAR 76

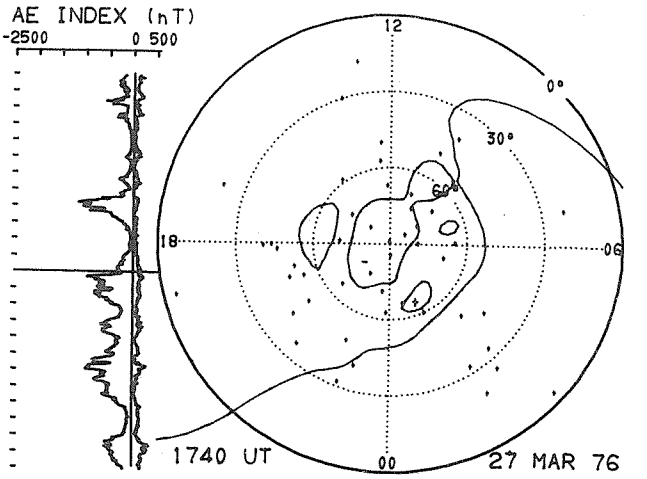

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1720 UT
27 MAR 76

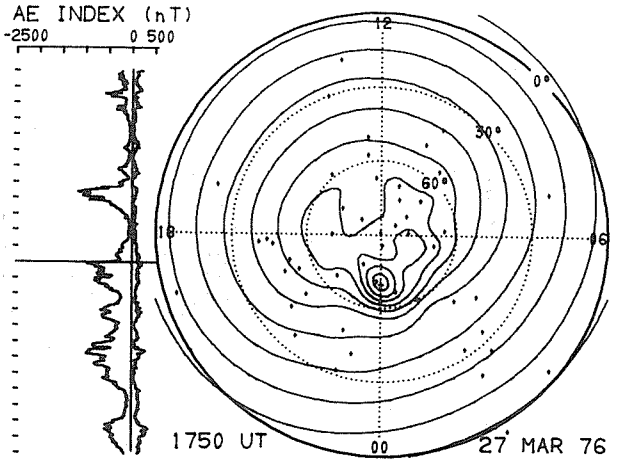

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1720 UT
27 MAR 76

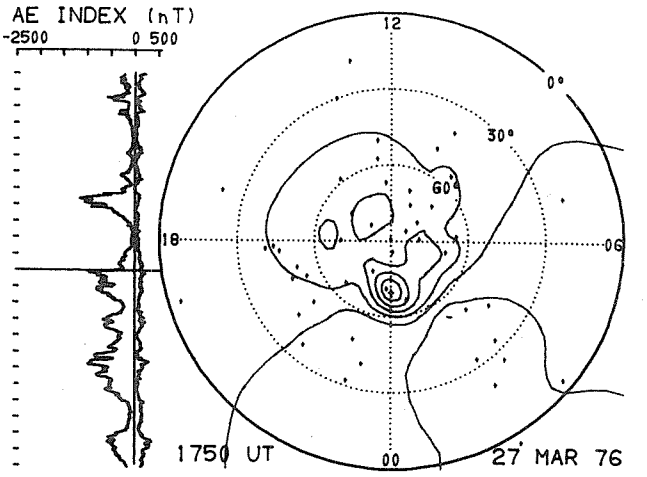

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1730 UT
27 MAR 76

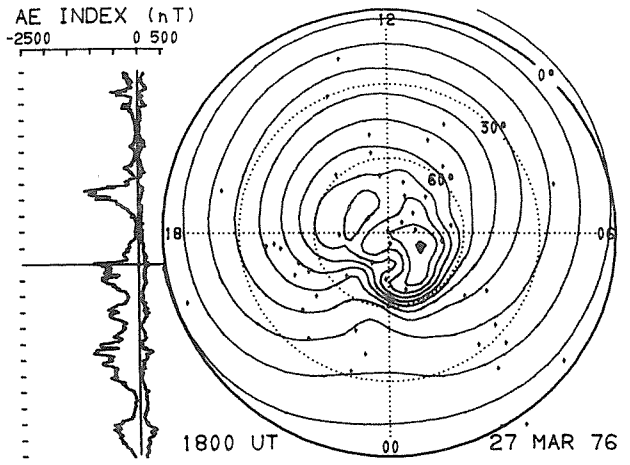

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1730 UT
27 MAR 76

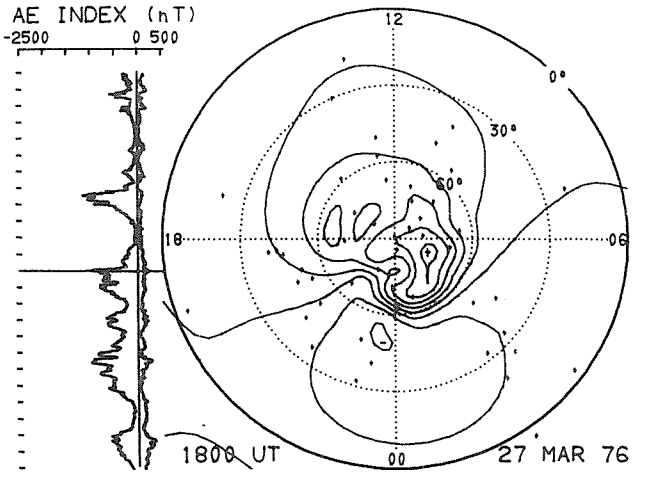

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1740 UT
27 MAR 76

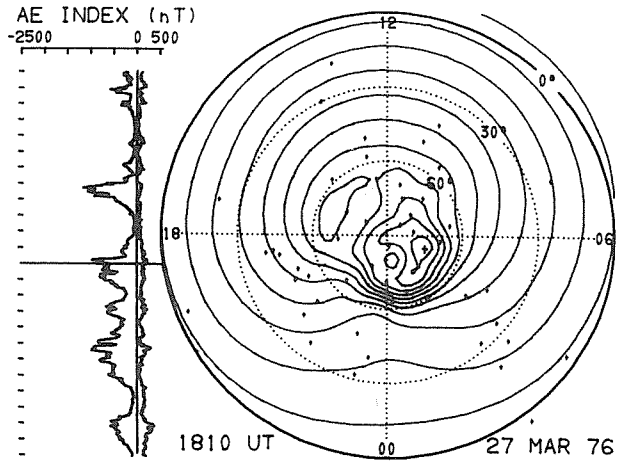

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1740 UT
27 MAR 76

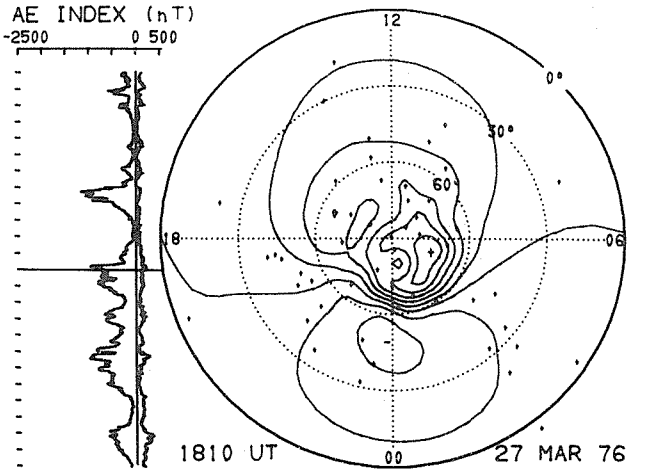

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1750 UT
27 MAR 76

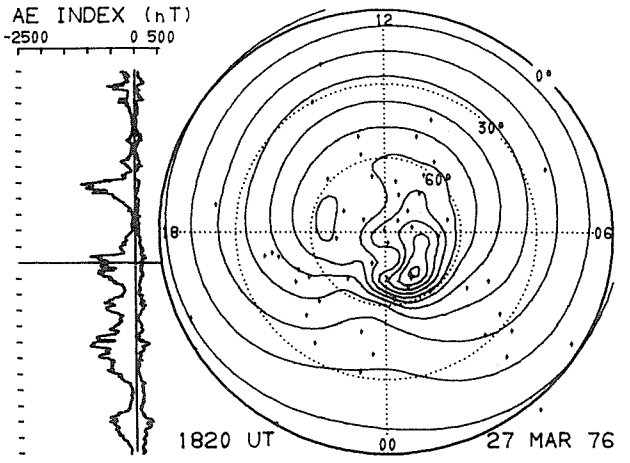

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1750 UT
27 MAR 76

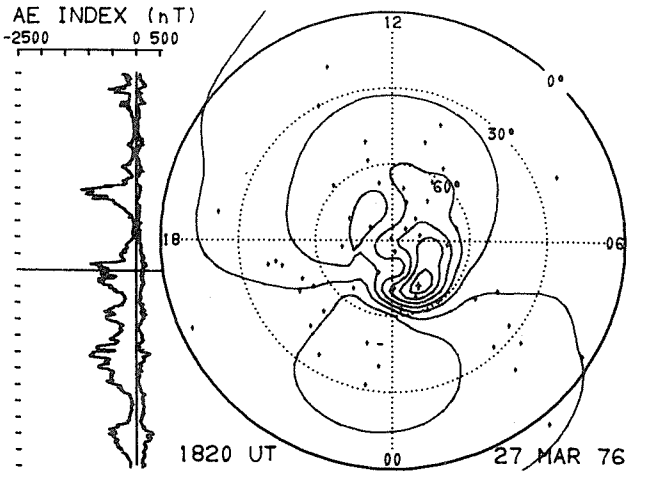

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1800 UT
27 MAR 76

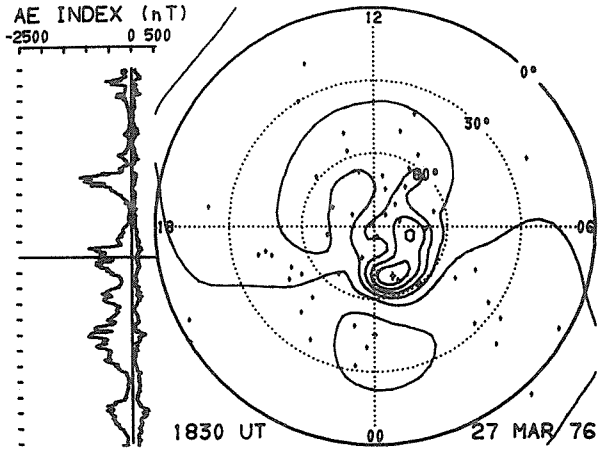

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1800 UT
27 MAR 76

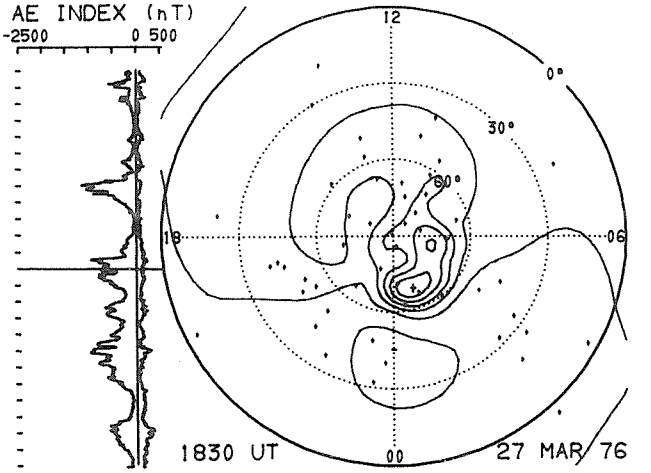

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1810 UT
27 MAR 76

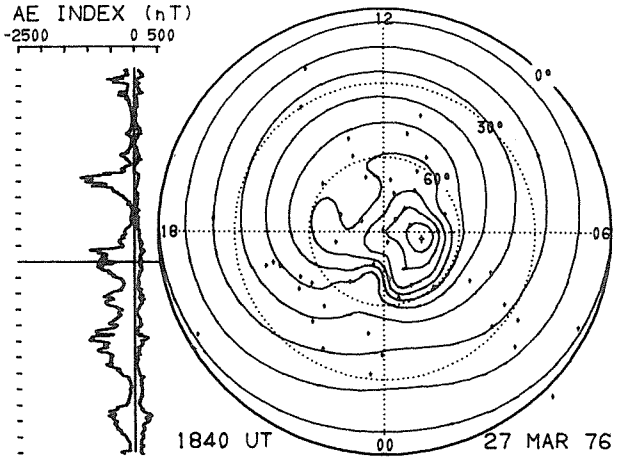

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1810 UT
27 MAR 76

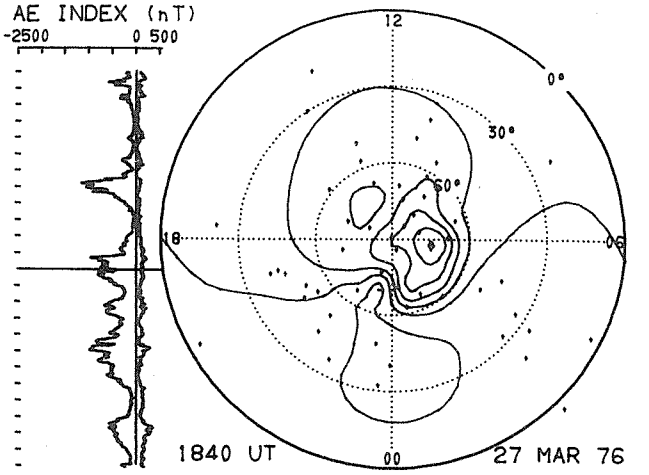

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1820 UT
27 MAR 76

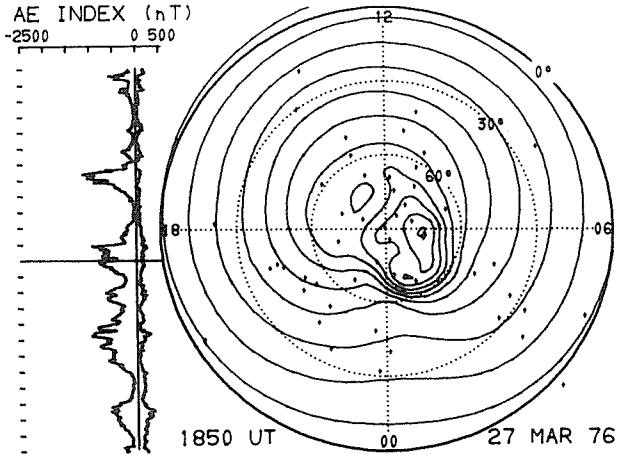

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1820 UT
27 MAR 76

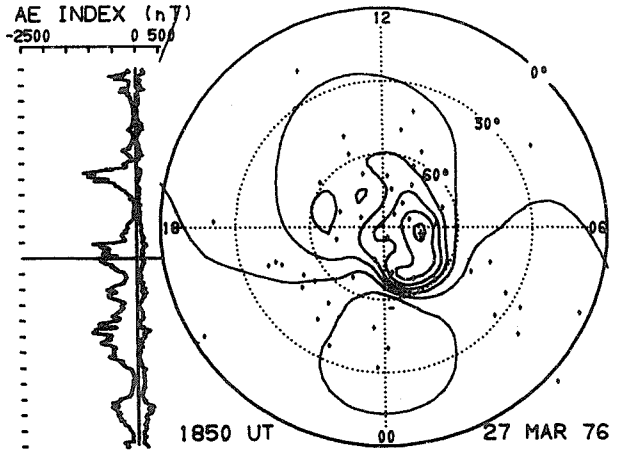

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1830 UT
27 MAR 76

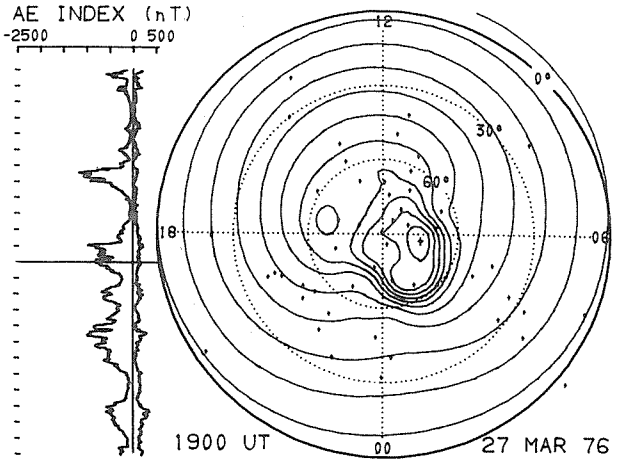

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1830 UT
27 MAR 76

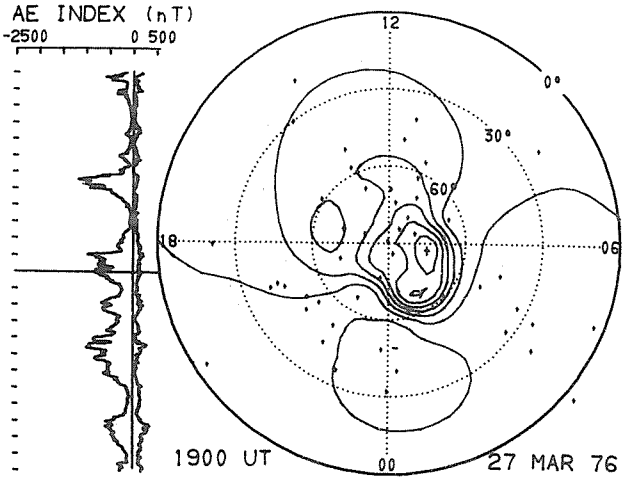

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1840 UT
27 MAR 76

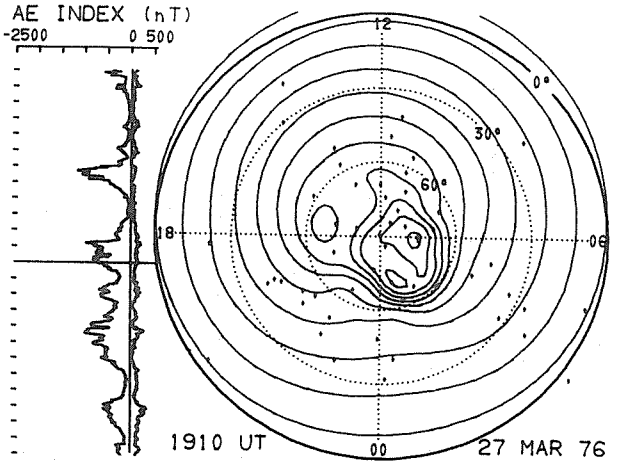

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1840 UT
27 MAR 76

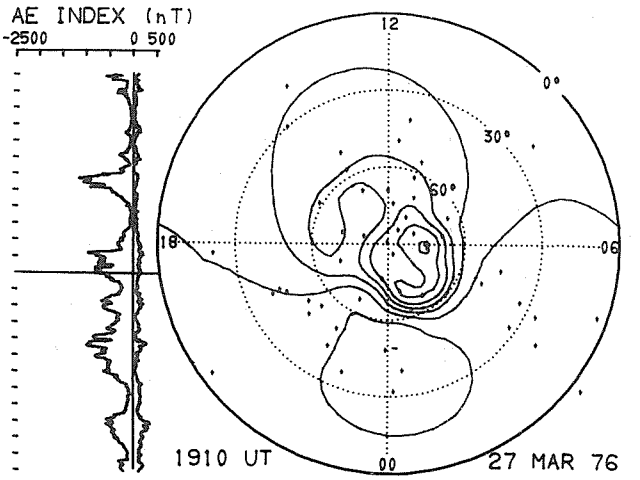

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1850 UT
27 MAR 76

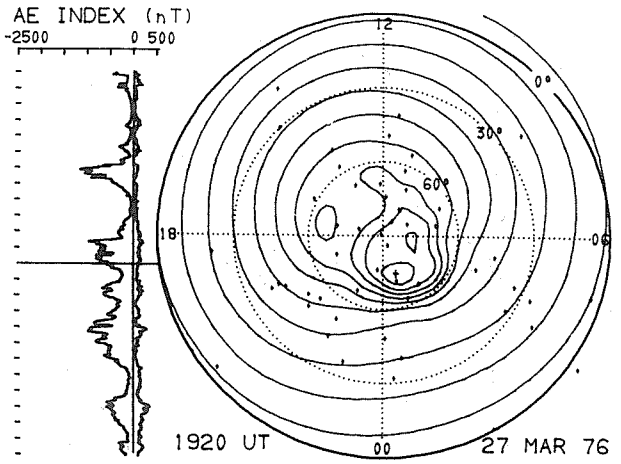

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1850 UT
27 MAR 76

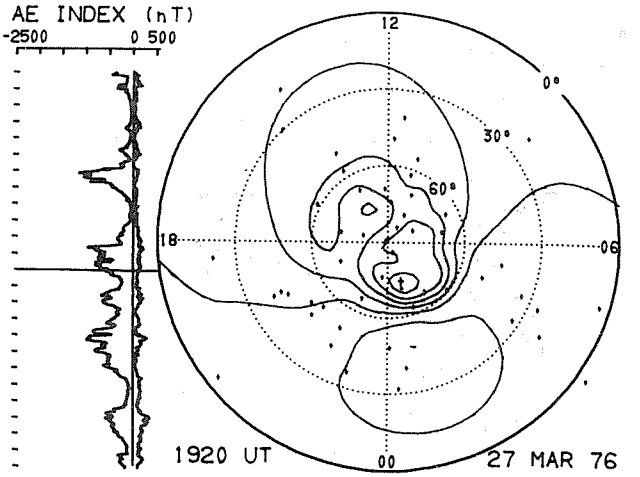

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1900 UT
27 MAR 76

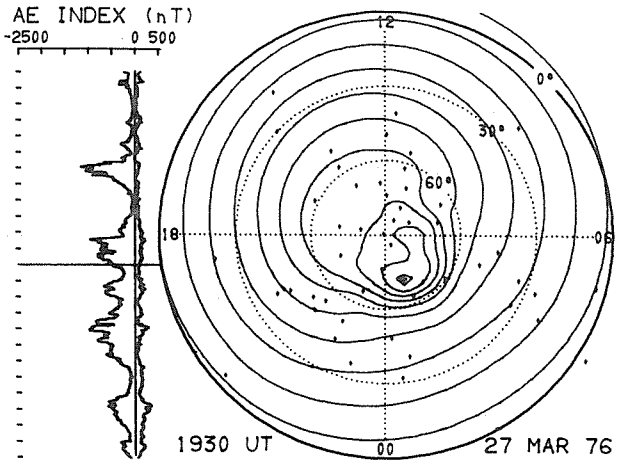

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1900 UT
27 MAR 76

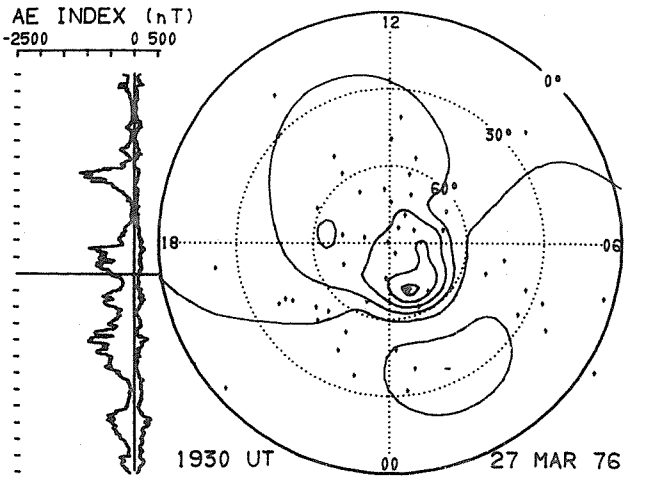

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1910 UT
27 MAR 76

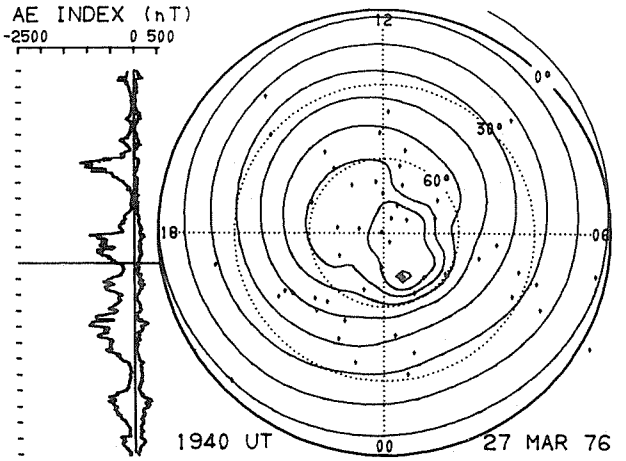

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1910 UT
27 MAR 76

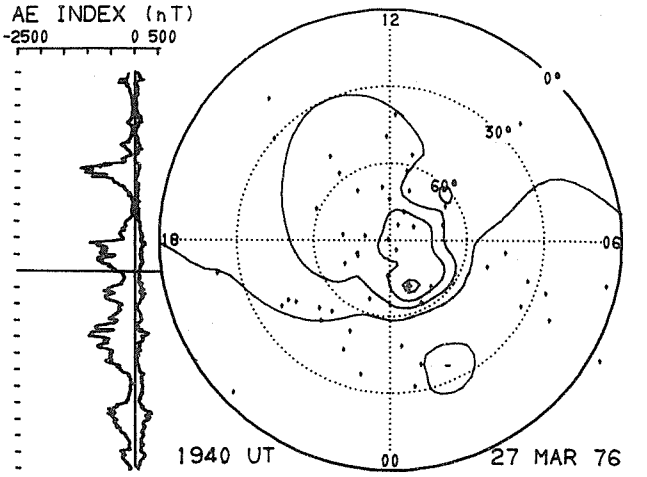

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1920 UT
27 MAR 76

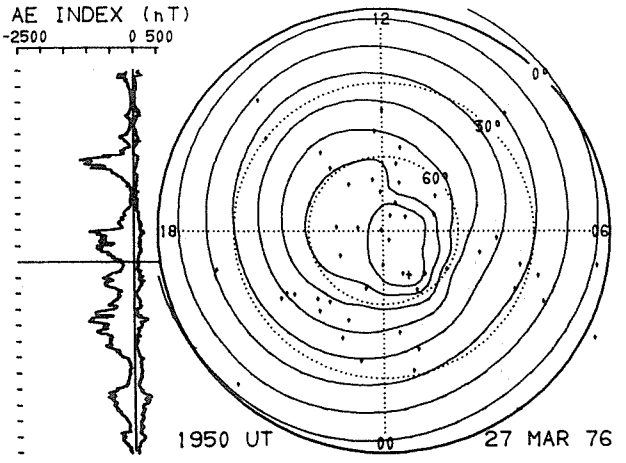

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1920 UT
27 MAR 76

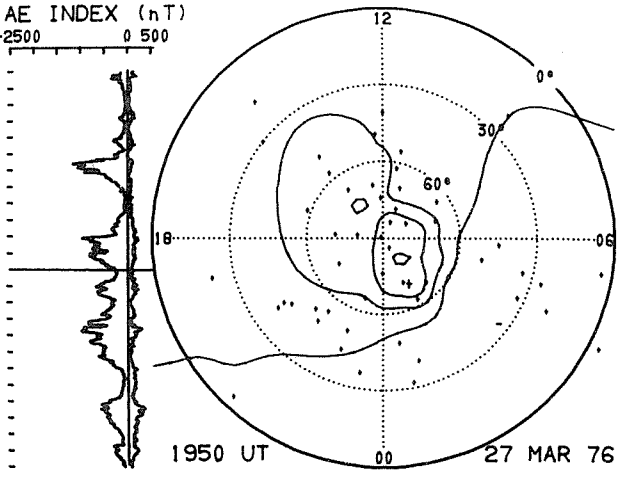

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1930 UT
27 MAR 76

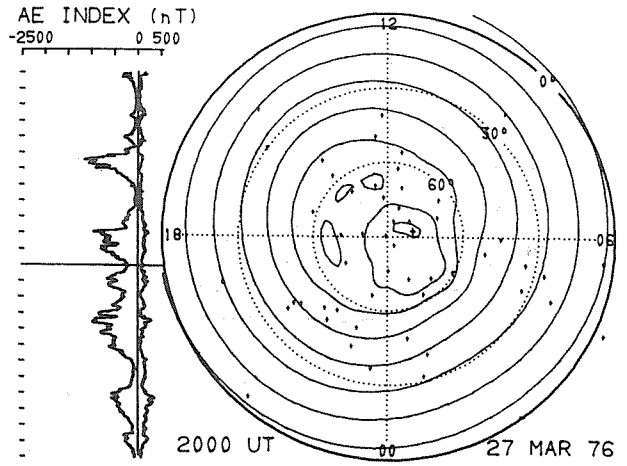

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1930 UT
27 MAR 76

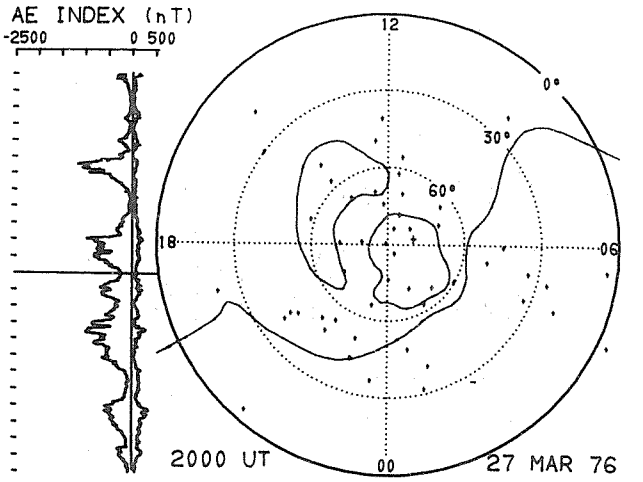

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1940 UT
27 MAR 76

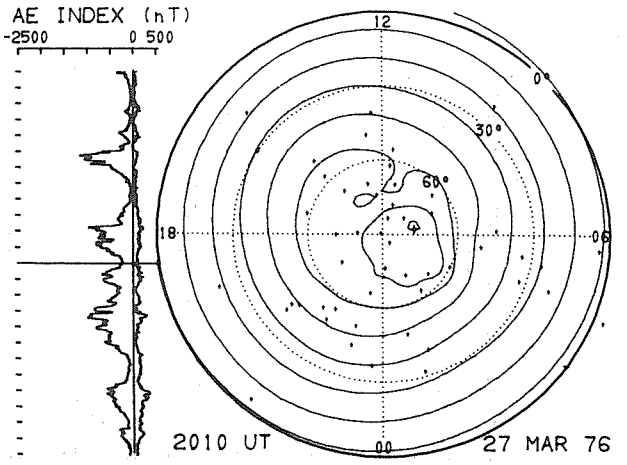

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1940 UT
27 MAR 76

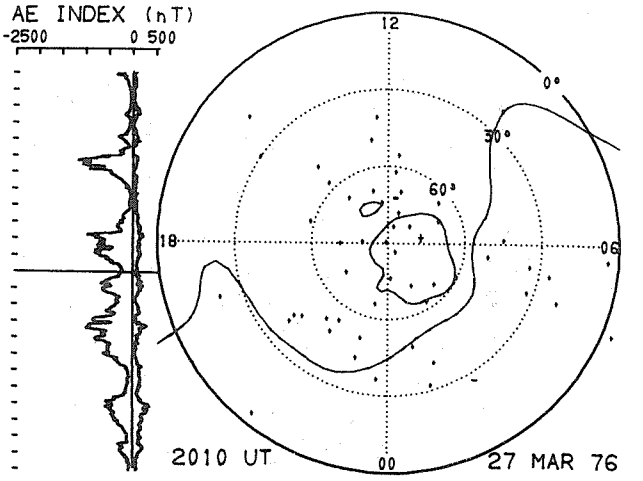

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1950 UT
27 MAR 76

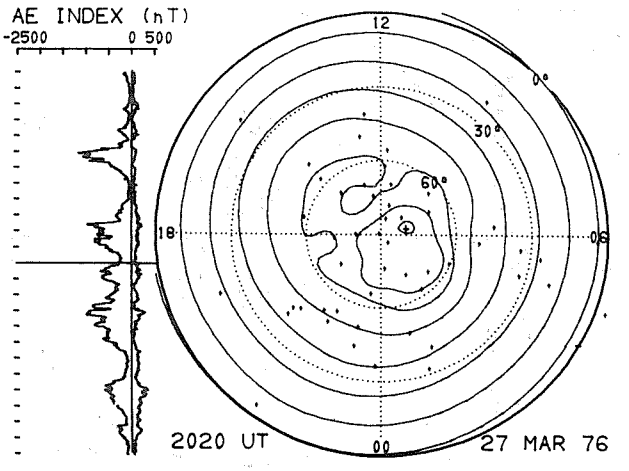

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
1950 UT
27 MAR 76

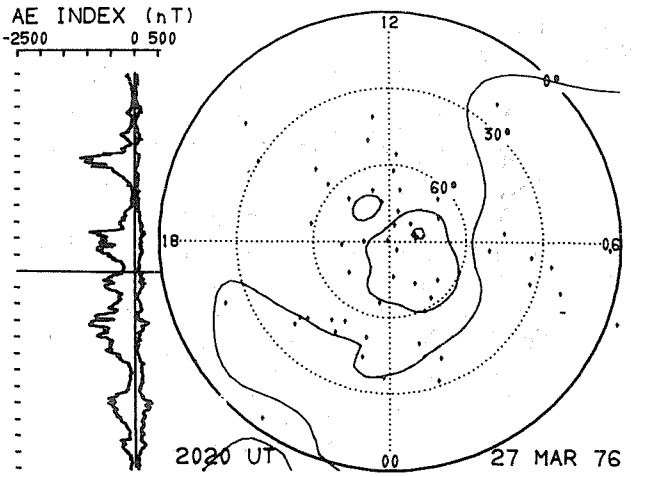

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2000 UT
27 MAR 76

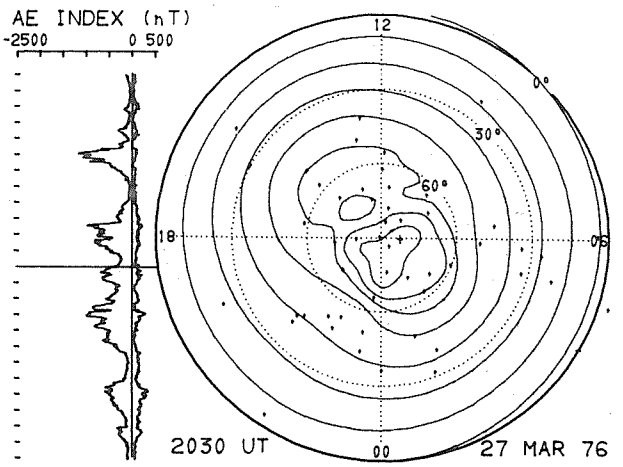

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2000 UT
27 MAR 76

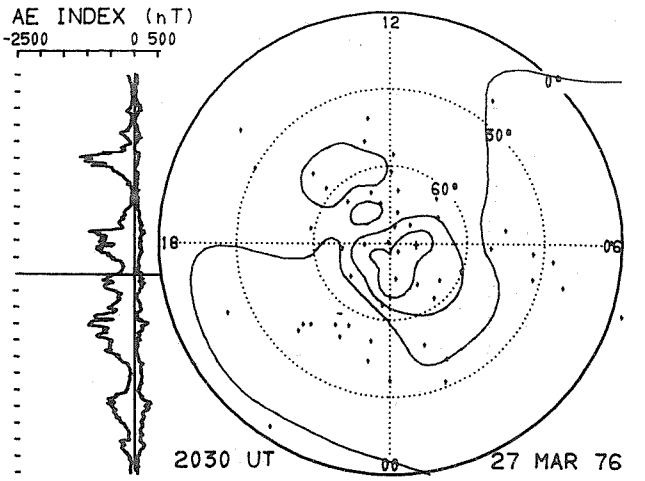

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2010 UT
27 MAR 76

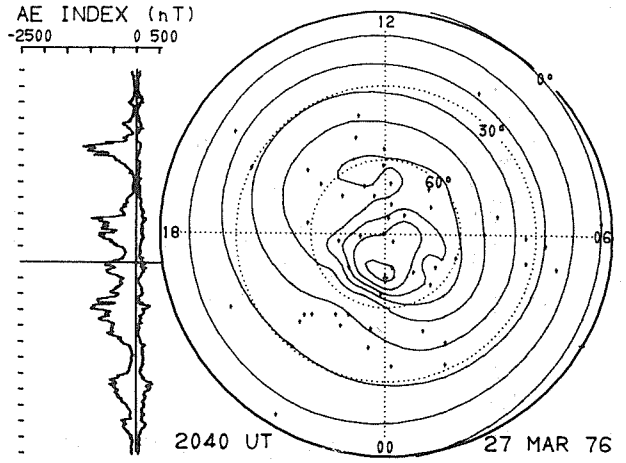

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2010 UT
27 MAR 76

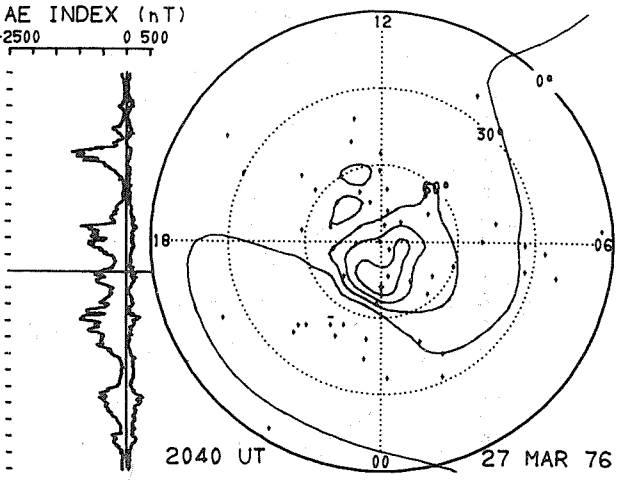

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2020 UT
27 MAR 76

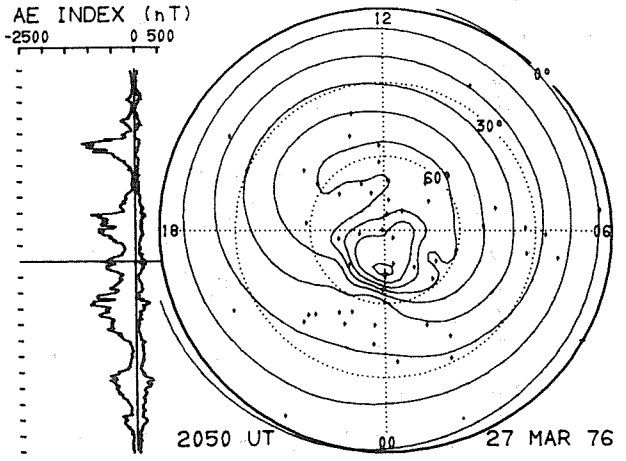

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2020 UT
27 MAR 76

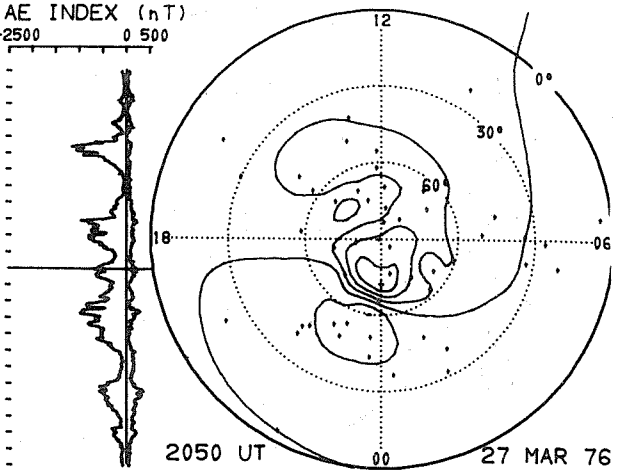

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2030 UT
27 MAR 76

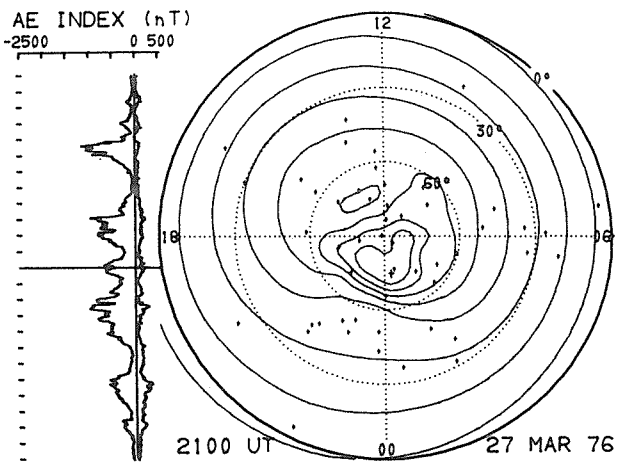

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2030 UT
27 MAR 76

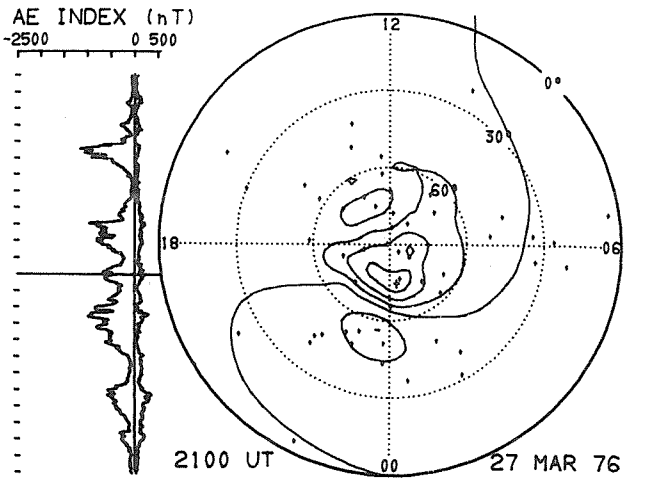

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2040 UT
27 MAR 76

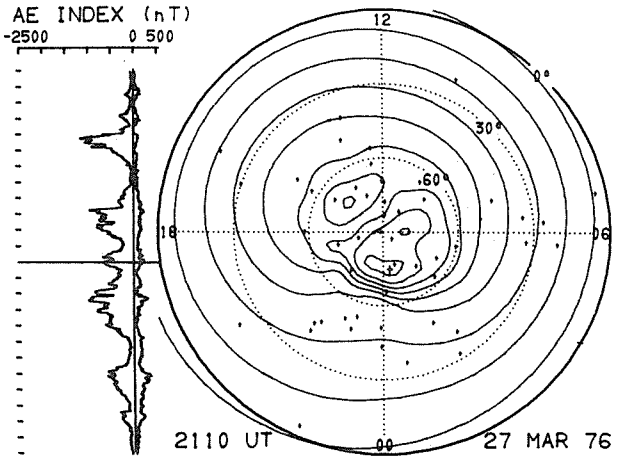

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2040 UT
27 MAR 76

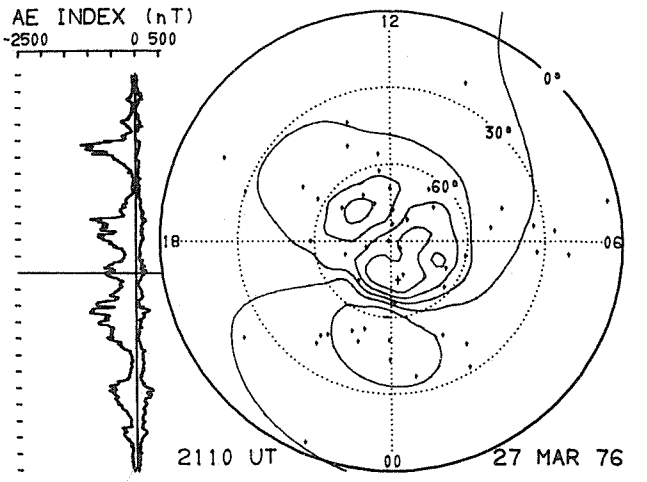

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2050 UT
27 MAR 76

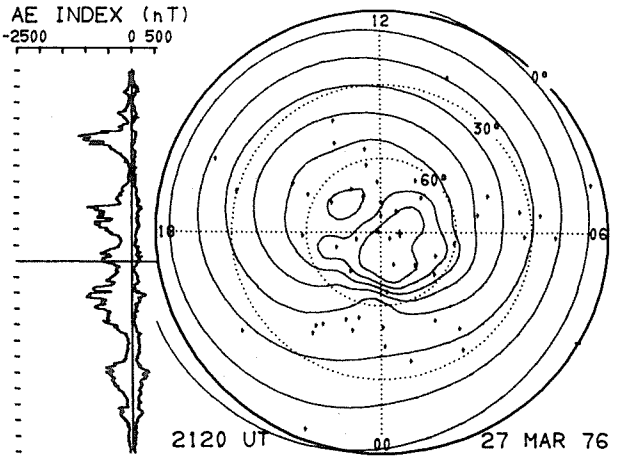

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2050 UT
27 MAR 76

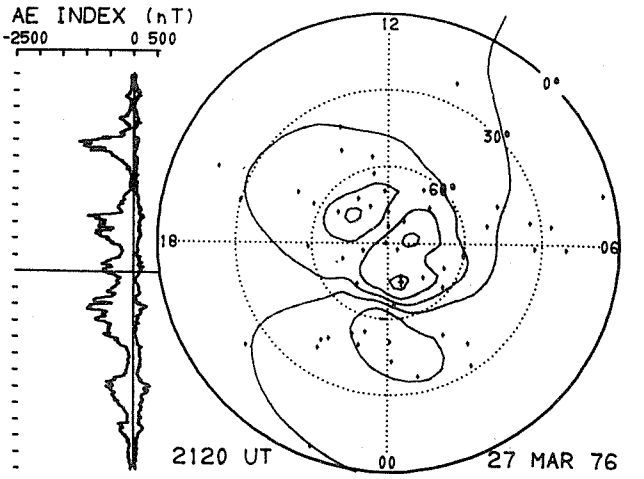

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2100 UT
27 MAR 76

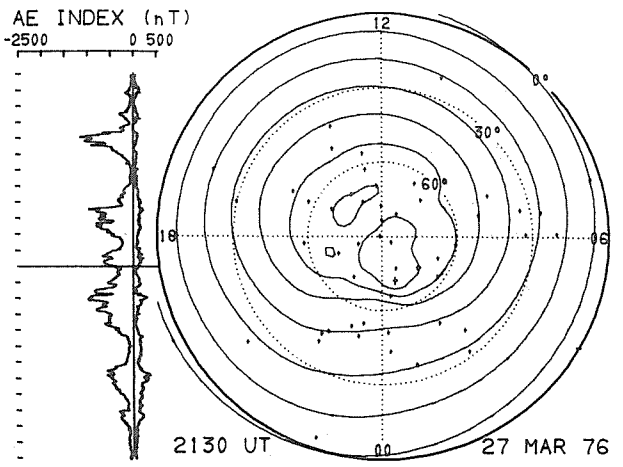

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2100 UT
27 MAR 76

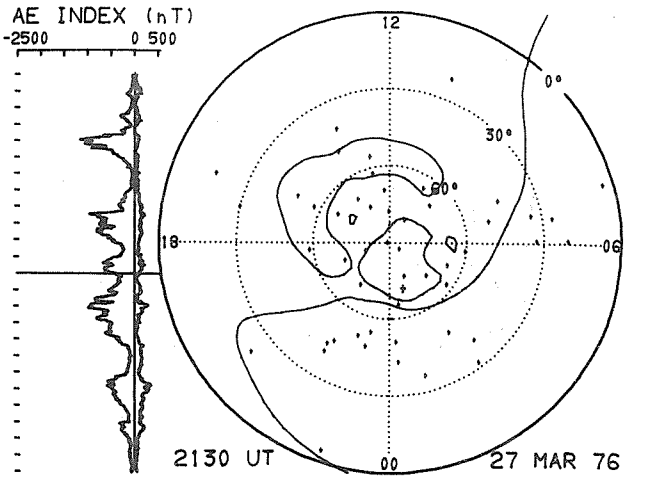

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2110 UT
27 MAR 76

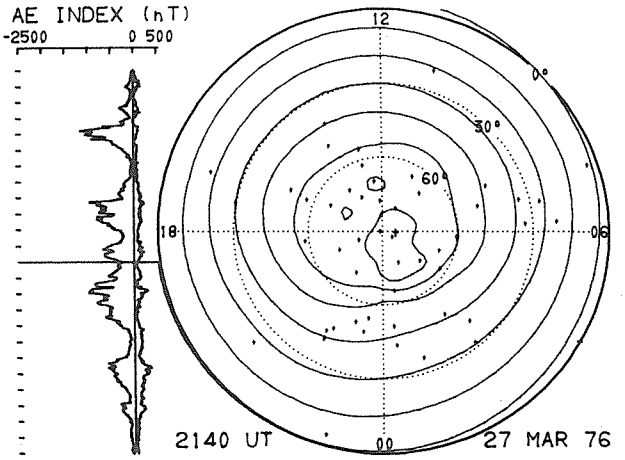

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2110 UT
27 MAR 76

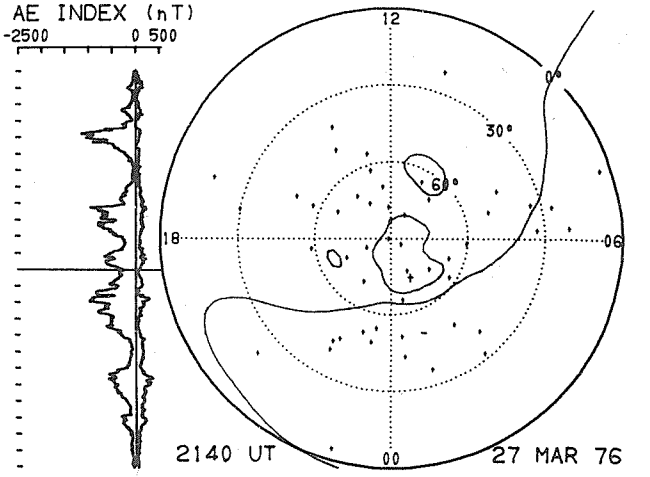

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2120 UT
27 MAR 76

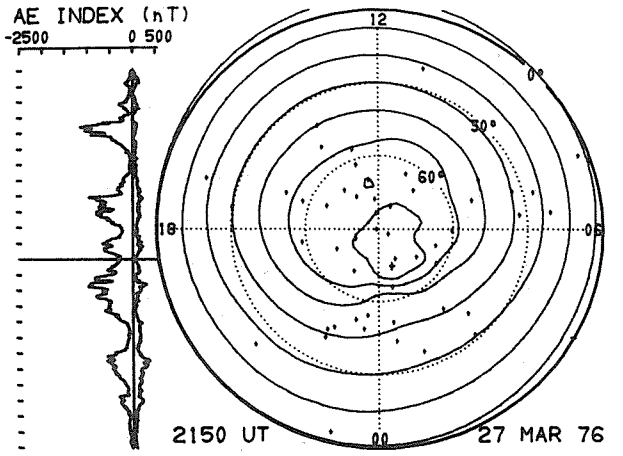

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2120 UT
27 MAR 76

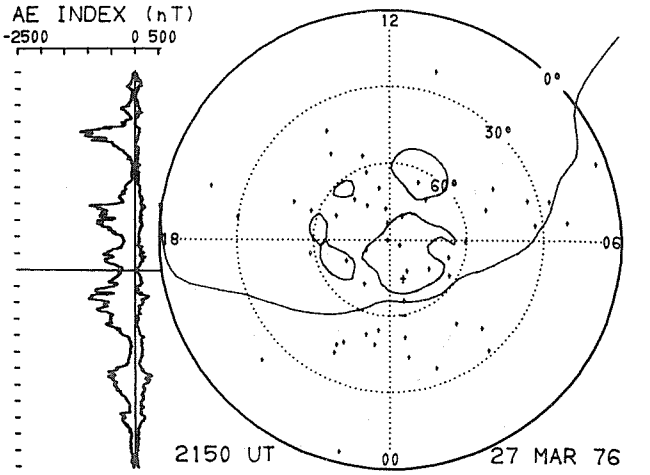

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2130 UT
27 MAR 76

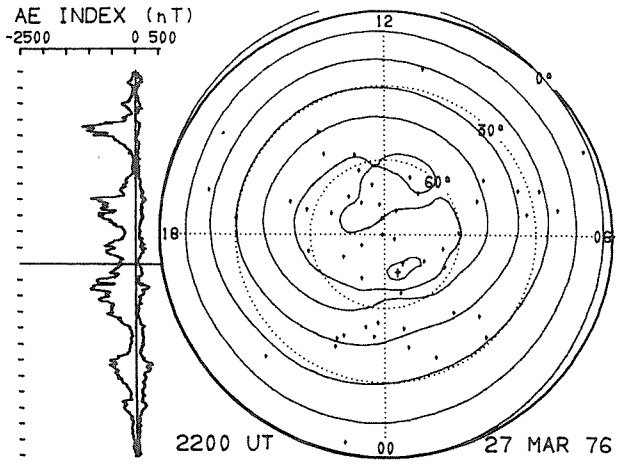

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2130 UT
27 MAR 76

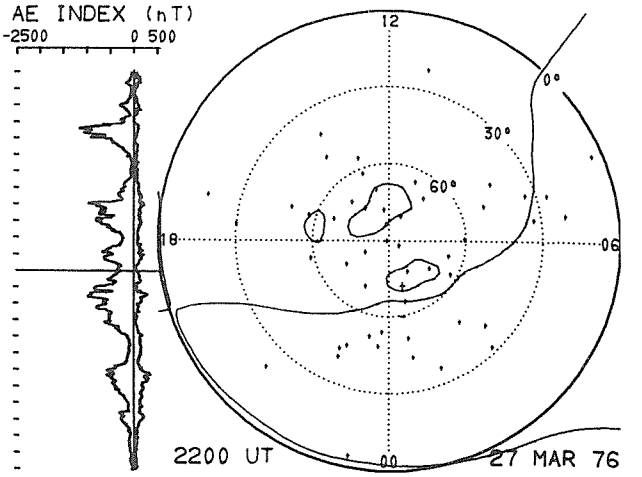

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2140 UT
27 MAR 76

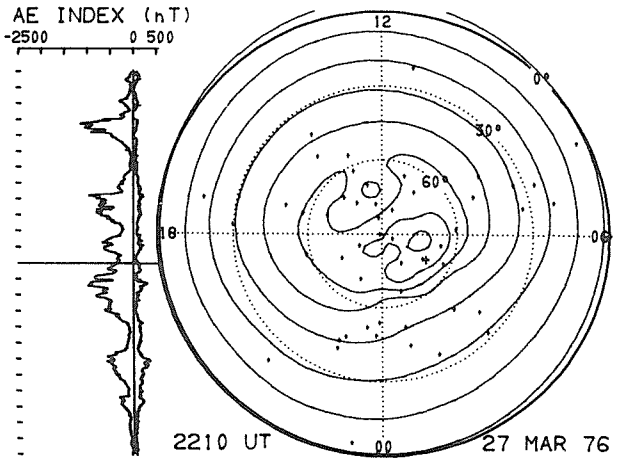

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2140 UT
27 MAR 76

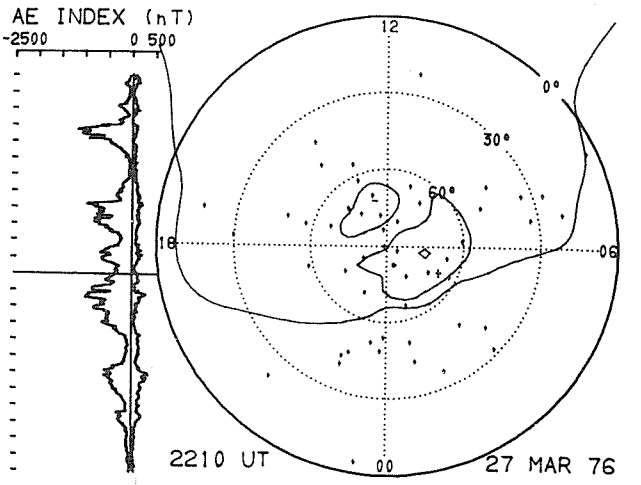

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2150 UT
27 MAR 76

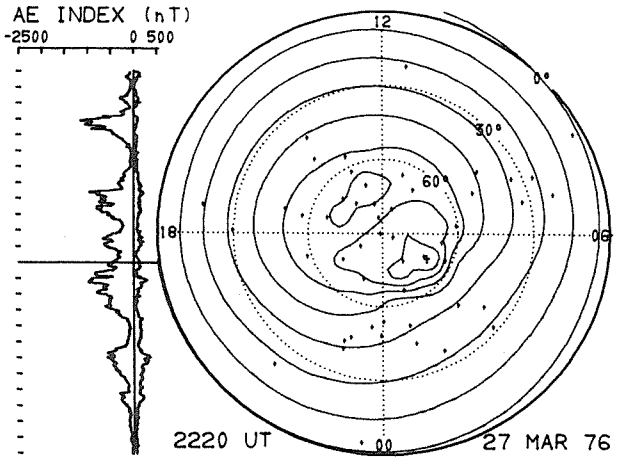

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2150 UT
27 MAR 76

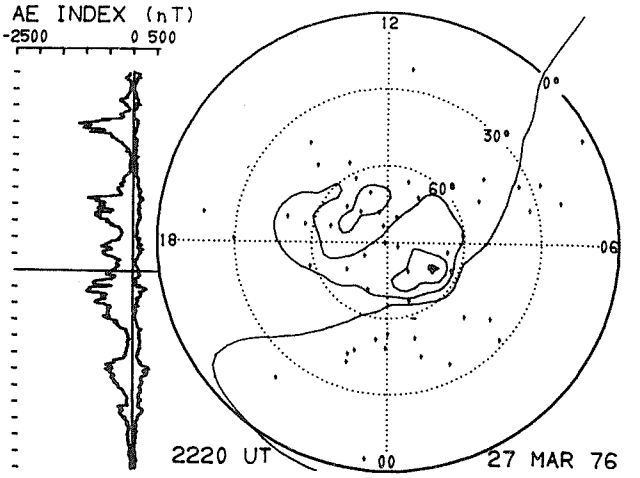

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2200 UT
27 MAR 76

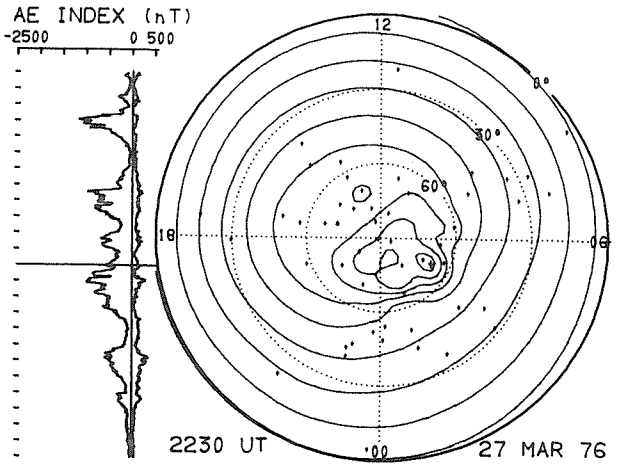

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2200 UT
27 MAR 76

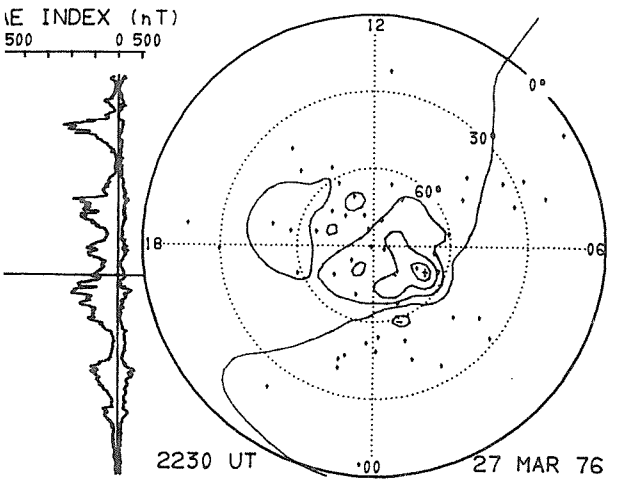

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2210 UT
27 MAR 76

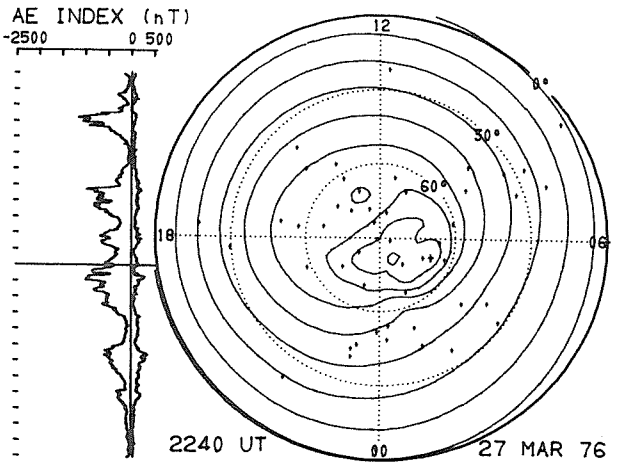

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2210 UT
27 MAR 76

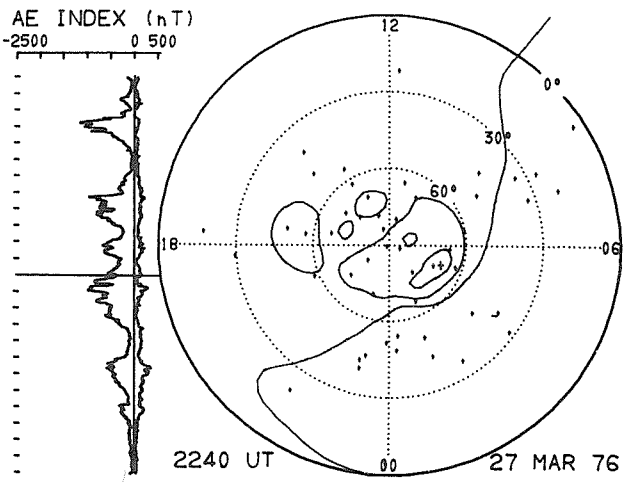

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2220 UT
27 MAR 76

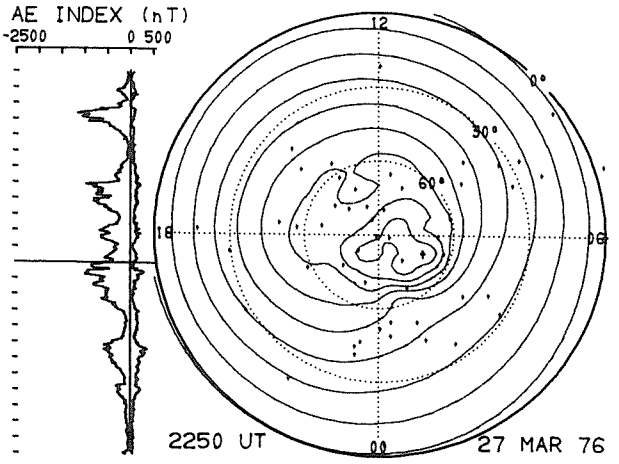

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2220 UT
27 MAR 76

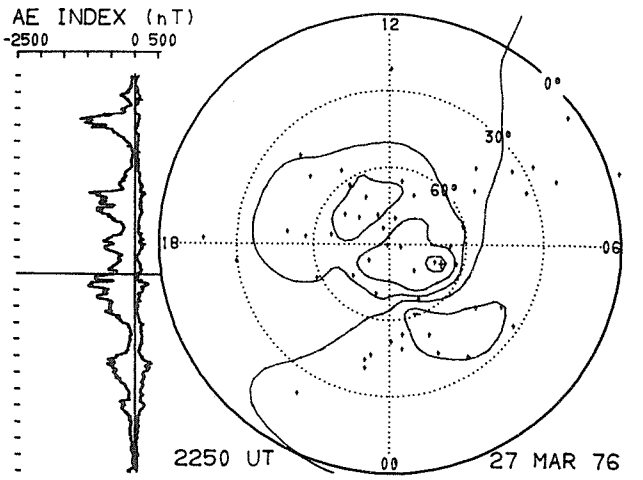

AE INDEX (nT)
-2500 0 500
12
0°
30°
60°
18
06
00
2230 UT
27 MAR 76

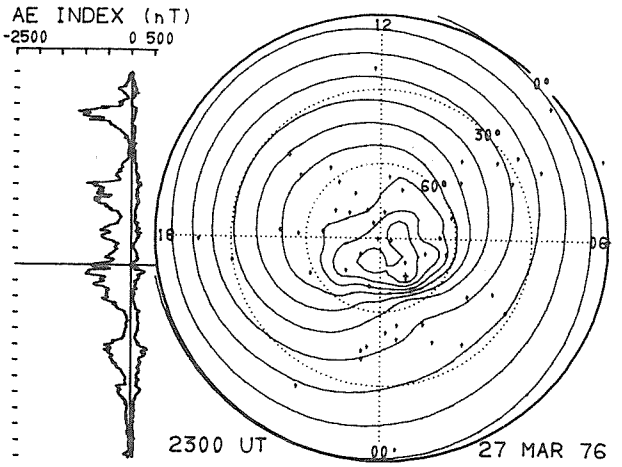

AE INDEX (nT)
500 0 500
12
0°
30°
60°
18
06
00
2230 UT
27 MAR 76

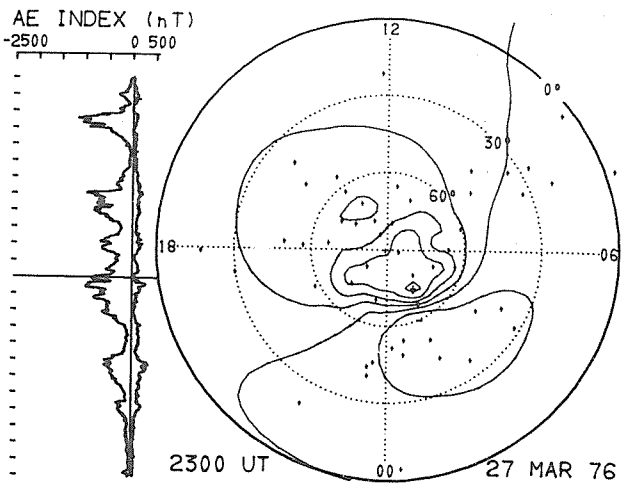

AE INDEX (nT)
-2500 0 500
12
0°
30°
60°
18
06
00
2240 UT
27 MAR 76

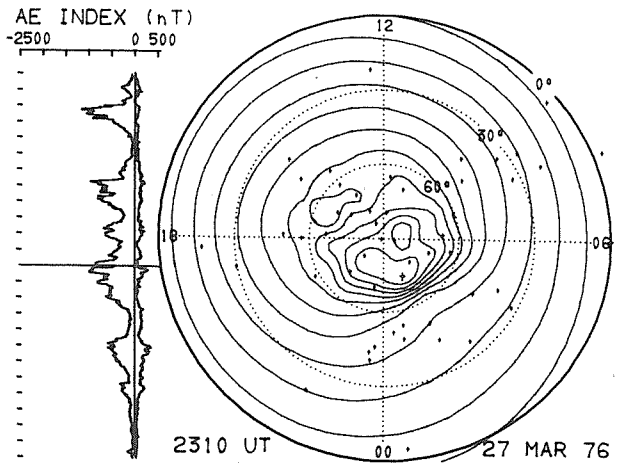

AE INDEX (nT)
-2500 0 500
12
0°
30°
60°
18
06
00
2240 UT
27 MAR 76

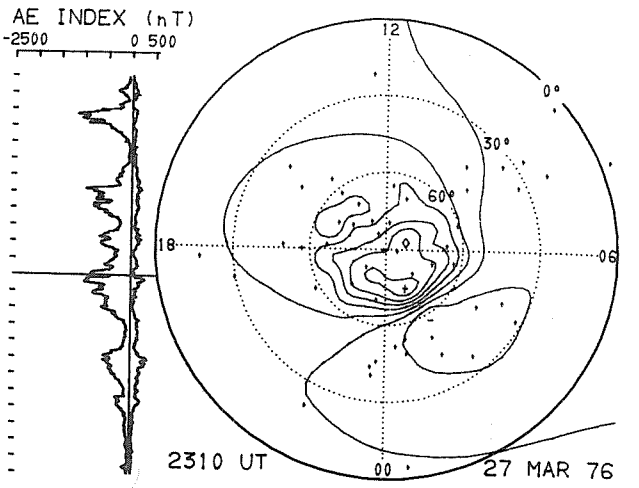

AE INDEX (nT)
-2500 0 500
12
0°
30°
60°
18
06
00
2250 UT
27 MAR 76

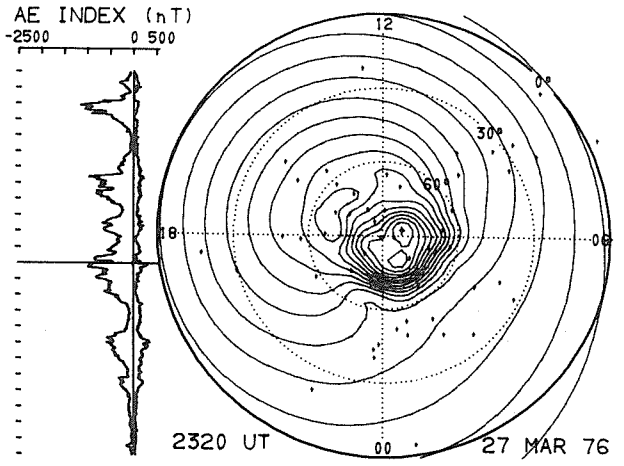

AE INDEX (nT)
-2500 0 500
12
0°
30°
60°
18
06
00
2250 UT
27 MAR 76

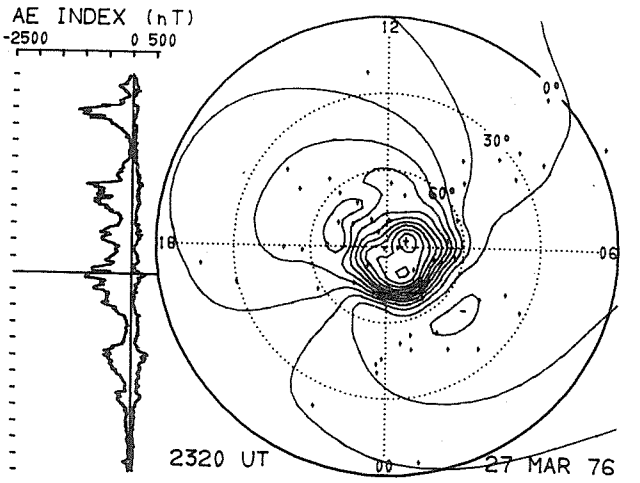

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2300 UT
27 MAR 76

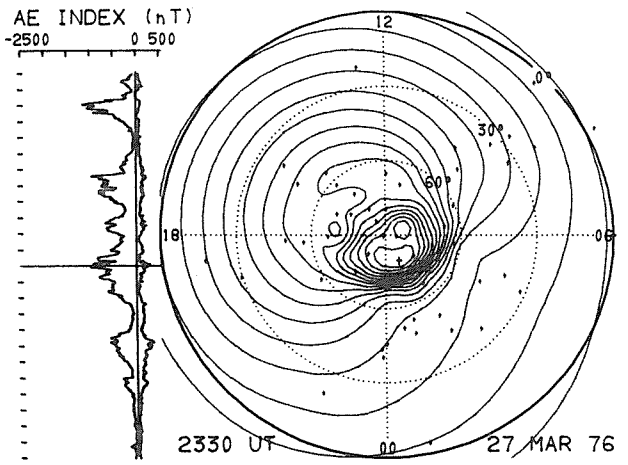

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2300 UT
27 MAR 76

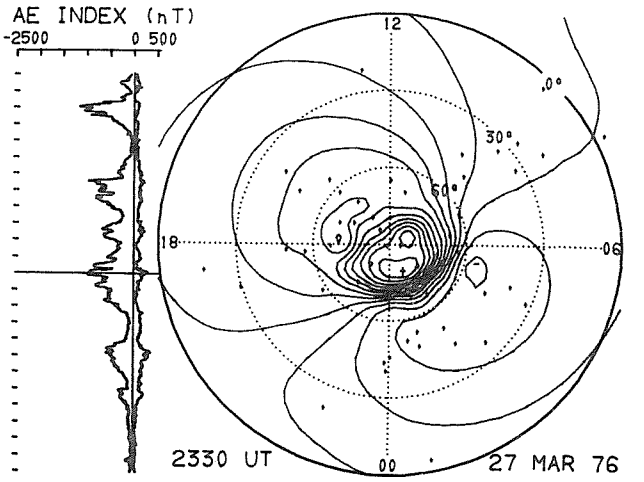

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2310 UT
27 MAR 76

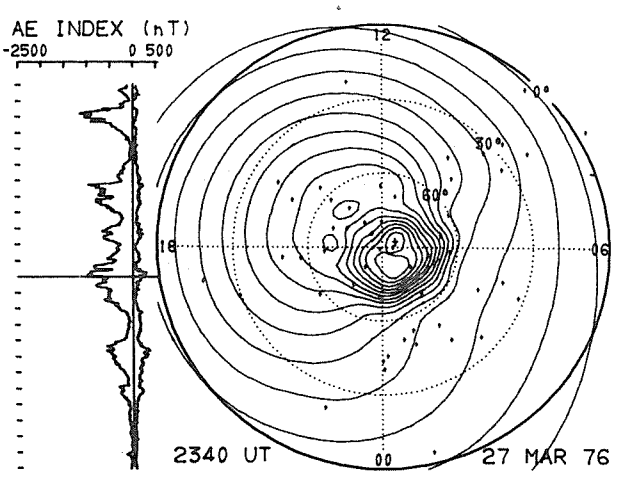

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2310 UT
27 MAR 76

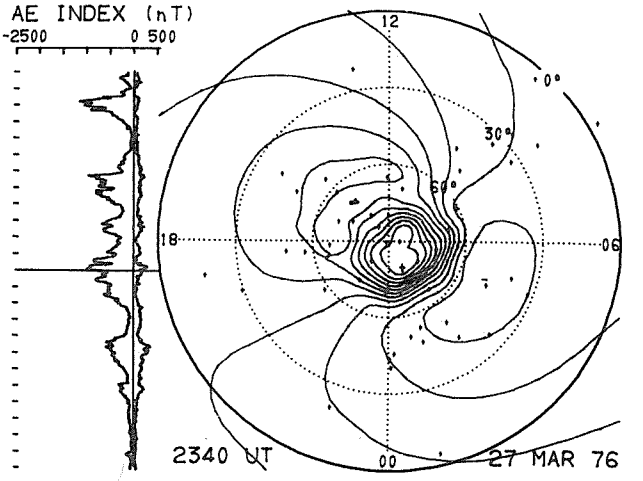

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2320 UT
27 MAR 76

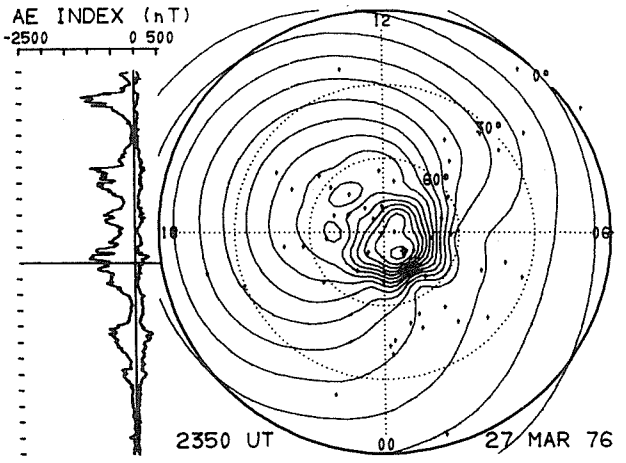

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2320 UT
27 MAR 76

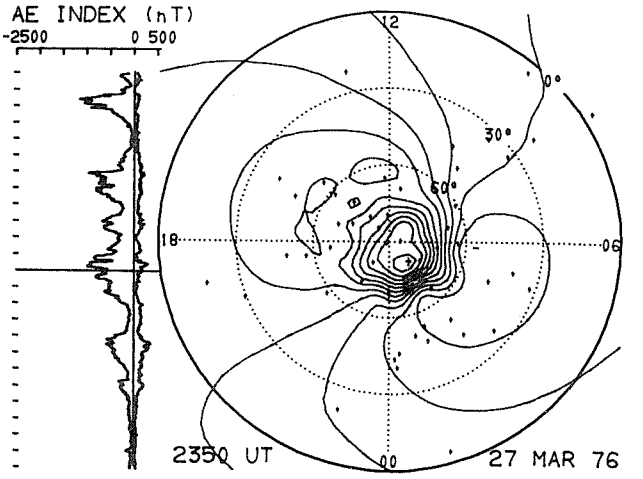

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2330 UT
27 MAR 76

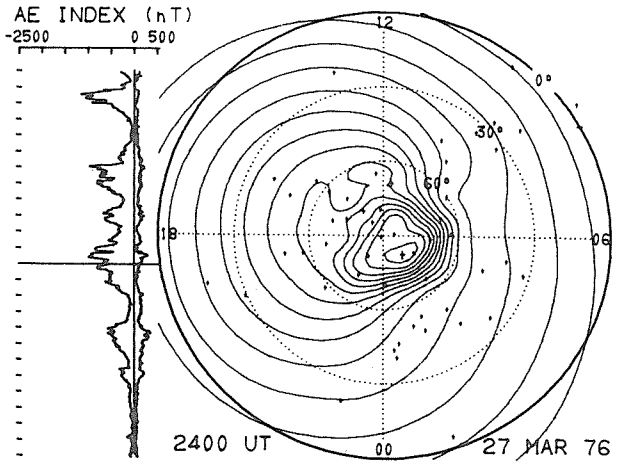

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2330 UT
27 MAR 76

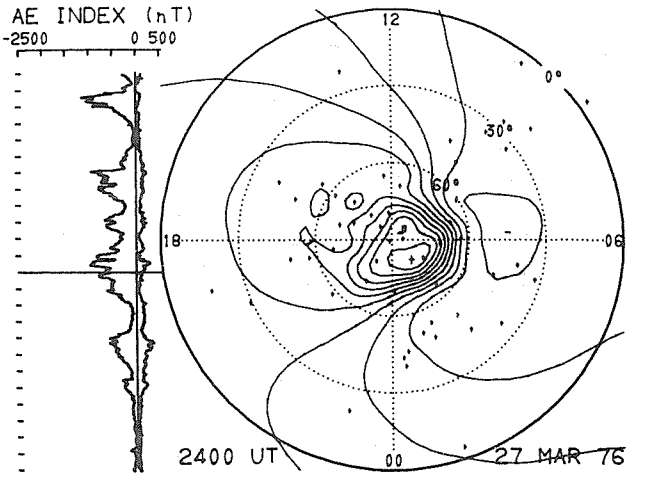

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2340 UT
27 MAR 76

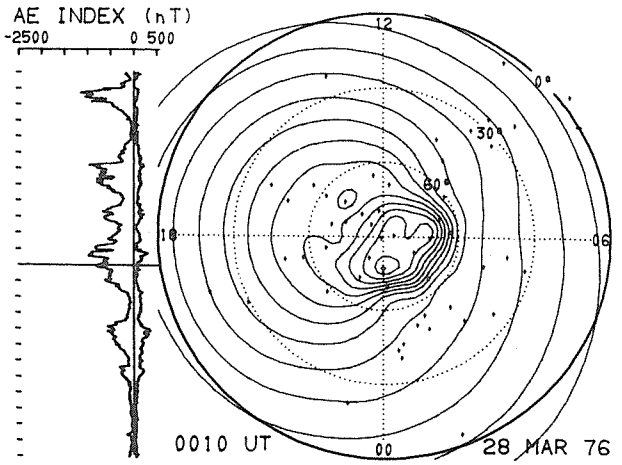

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2340 UT
27 MAR 76

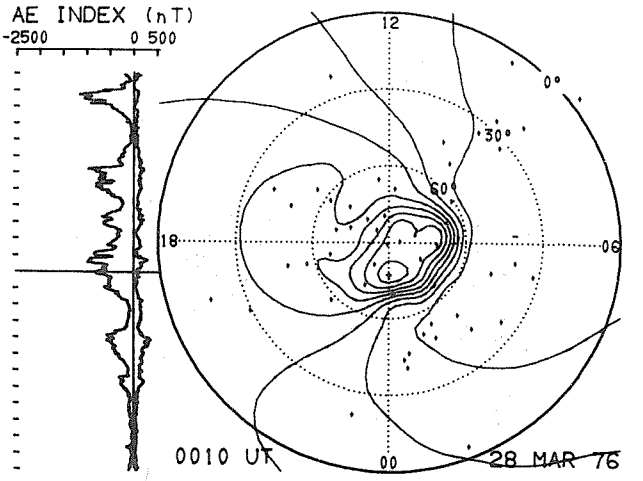

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2350 UT
27 MAR 76

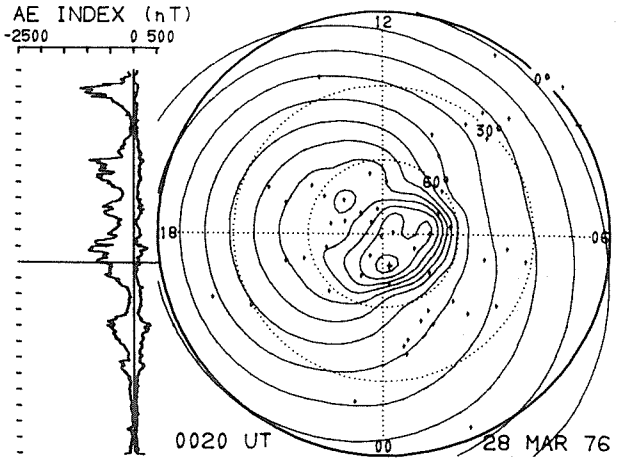

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2350 UT
27 MAR 76

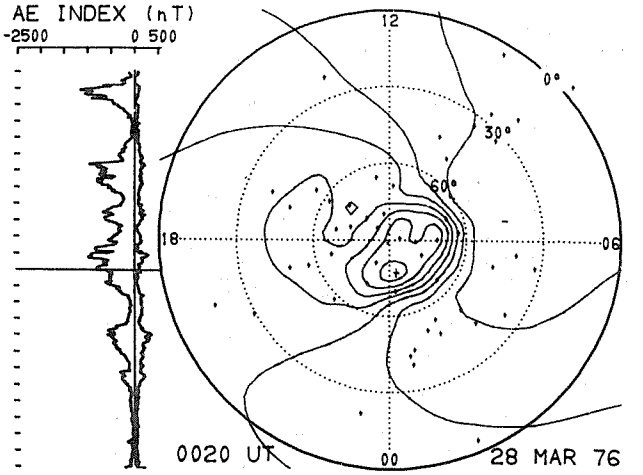

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2400 UT
27 MAR 76

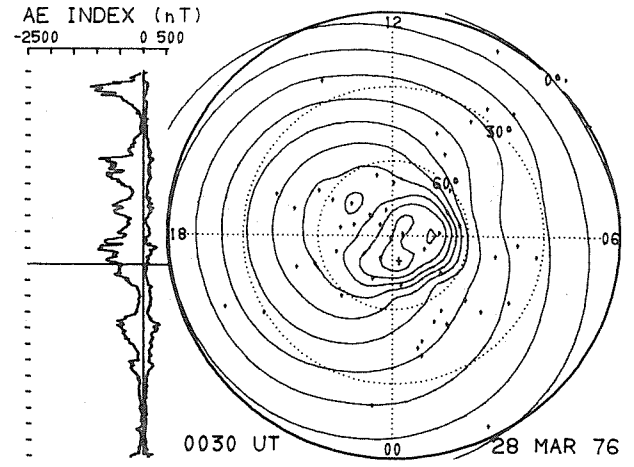

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
2400 UT
27 MAR 76

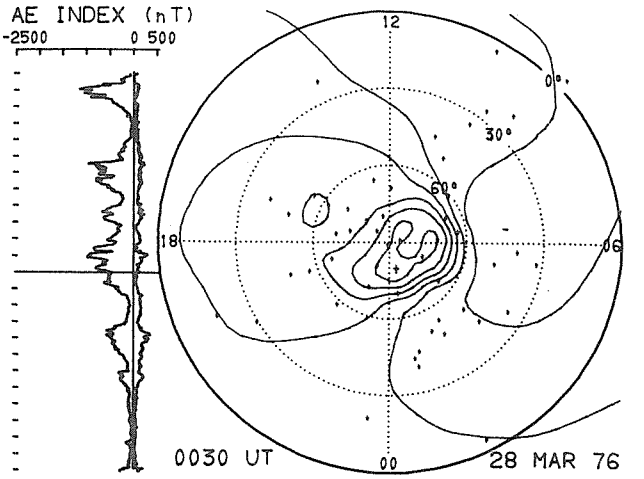

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
28 MAR 76

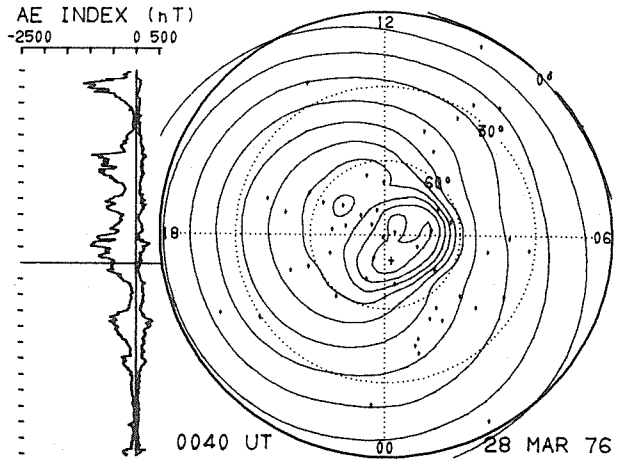

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0010 UT
28 MAR 76

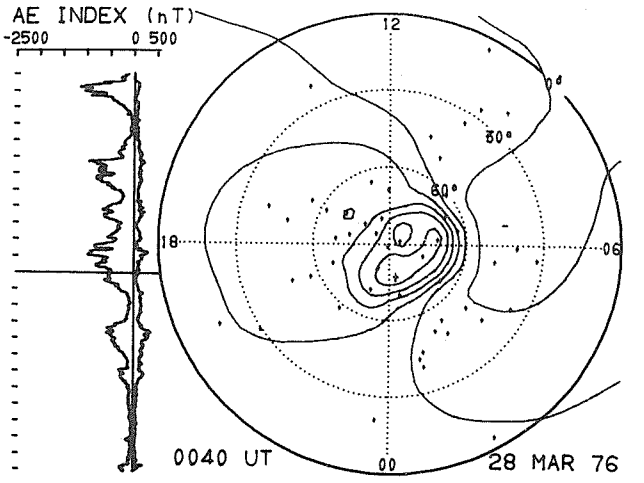

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
28 MAR 76

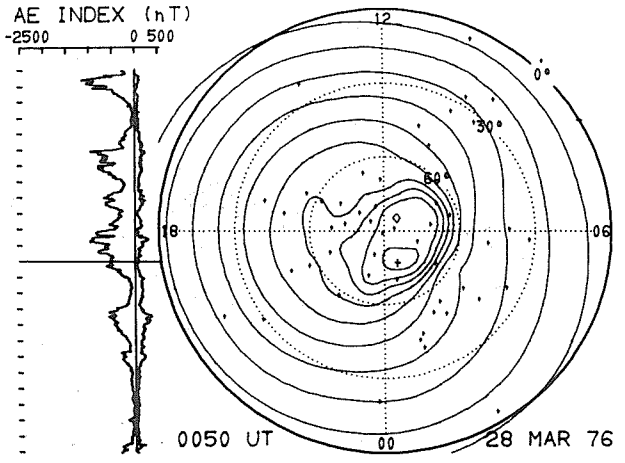

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0020 UT
28 MAR 76

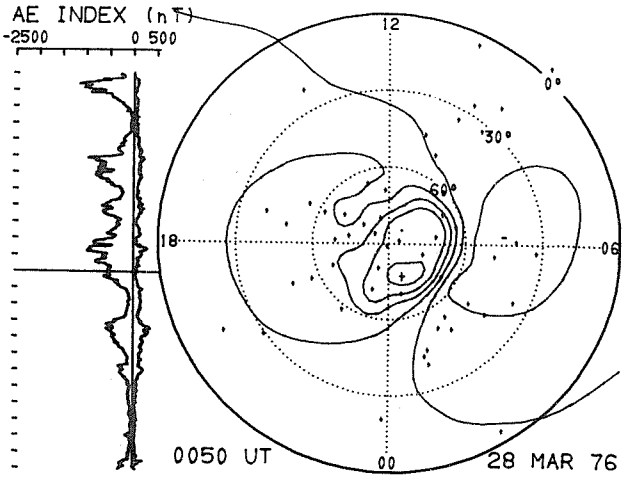

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
28 MAR 76

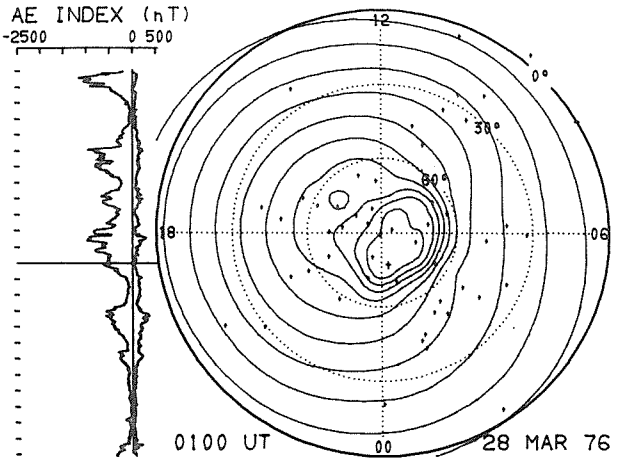

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0030 UT
28 MAR 76

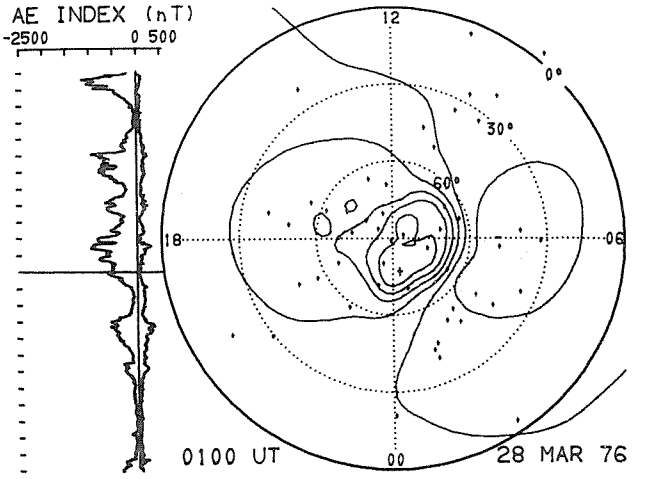

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
28 MAR 76

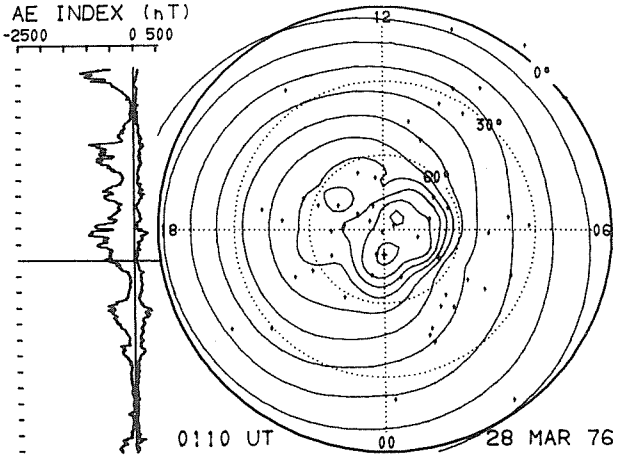

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0040 UT
28 MAR 76

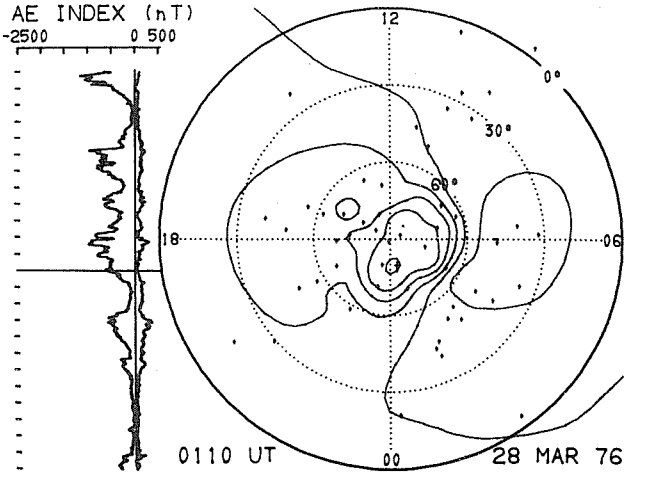

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
28 MAR 76

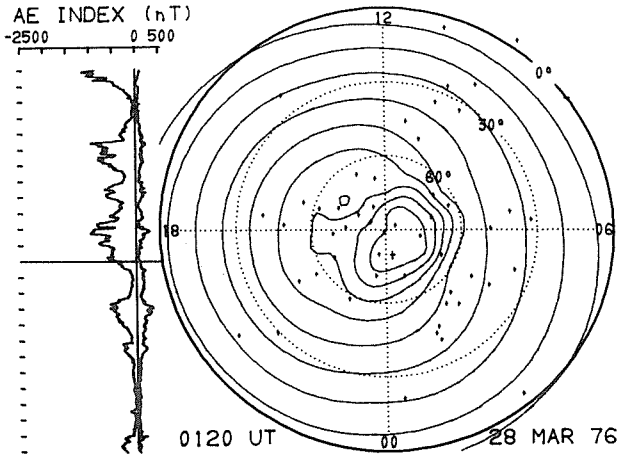

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0050 UT
28 MAR 76

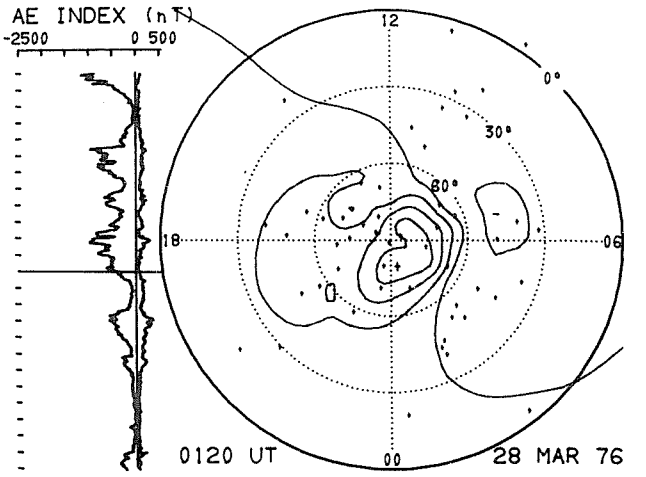

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
28 MAR 76

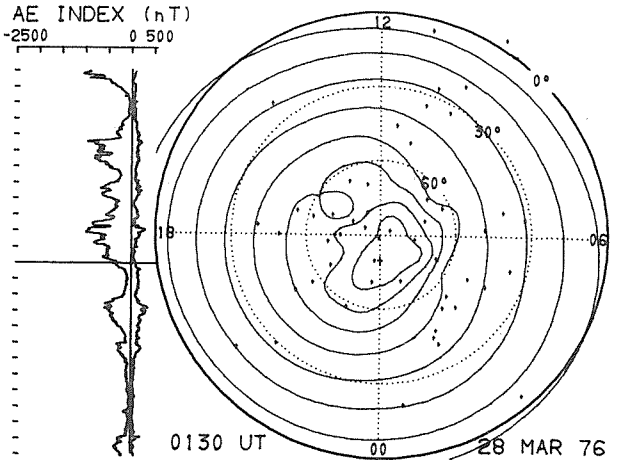

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0100 UT
28 MAR 76

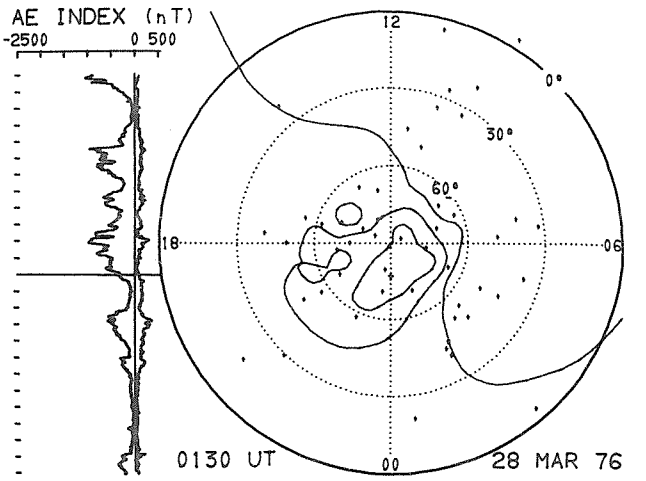

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
28 MAR 76

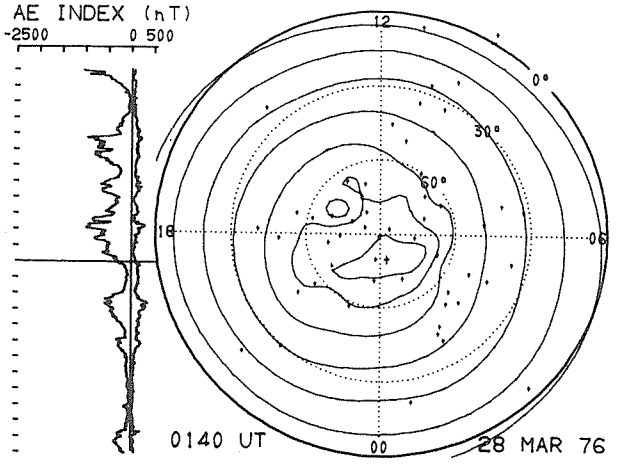

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0110 UT
28 MAR 76

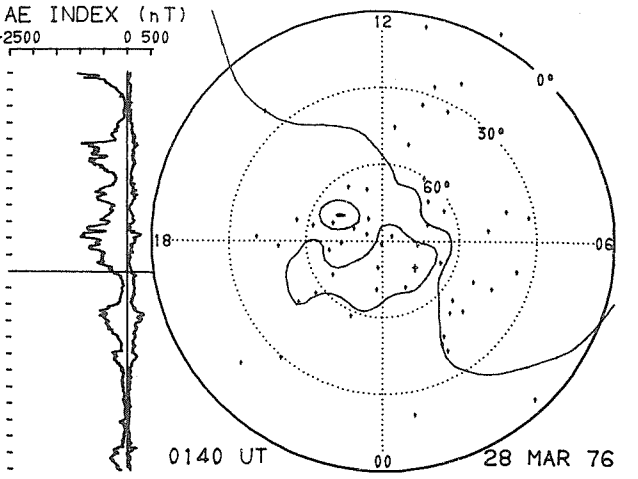

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
28 MAR 76

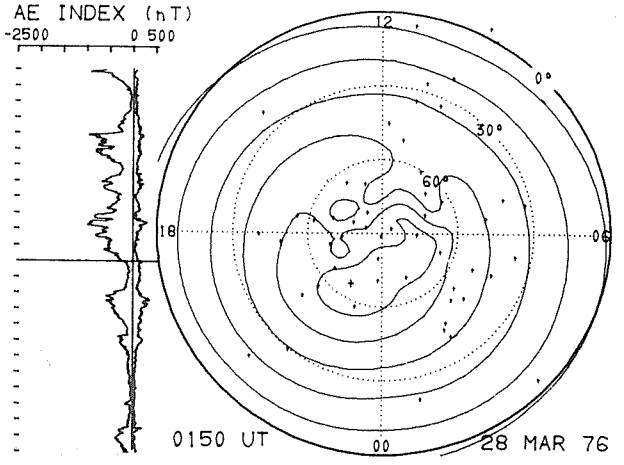

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0120 UT
28 MAR 76

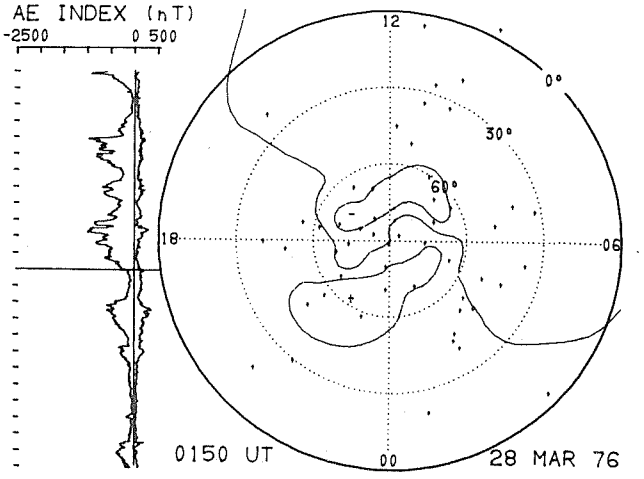

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
28 MAR 76

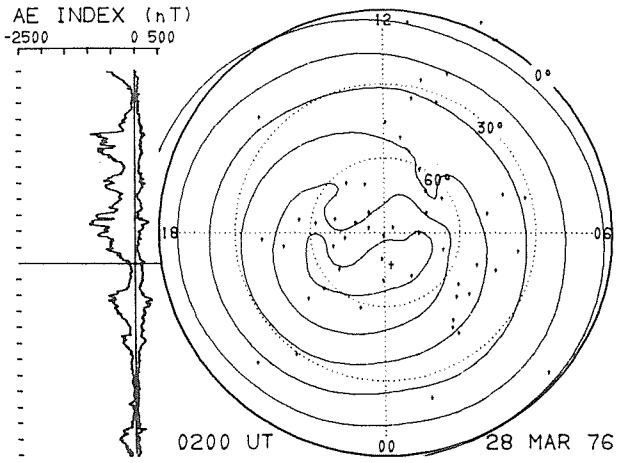

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0130 UT
28 MAR 76

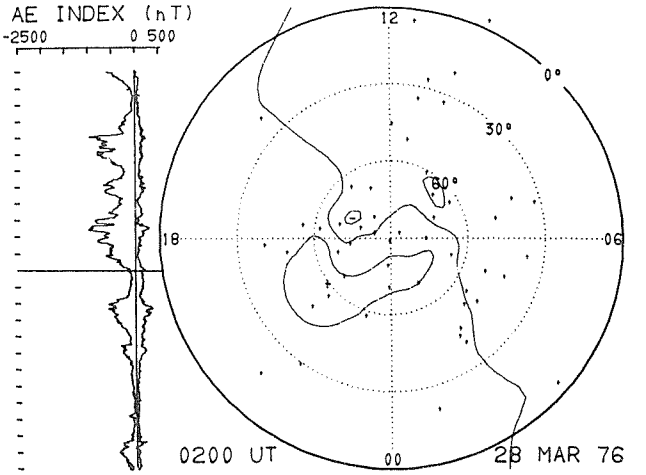

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
28 MAR 76

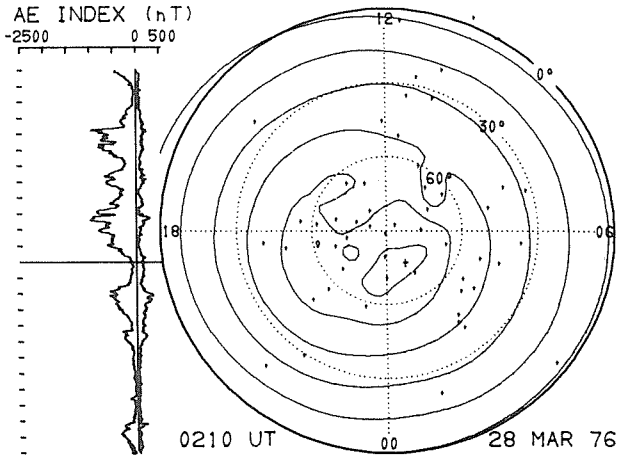

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0140 UT
28 MAR 76

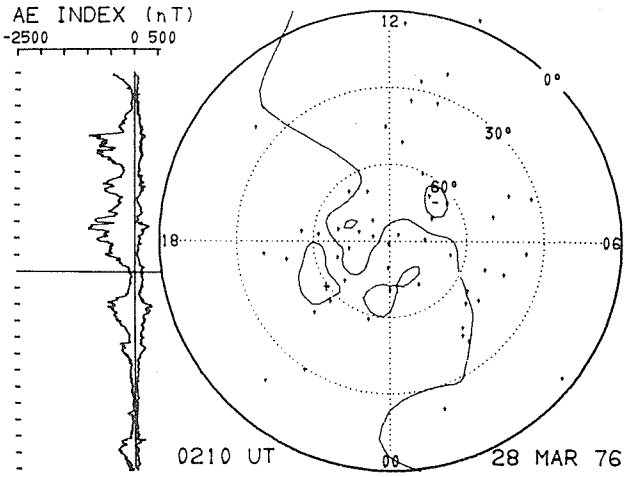

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
28 MAR 76

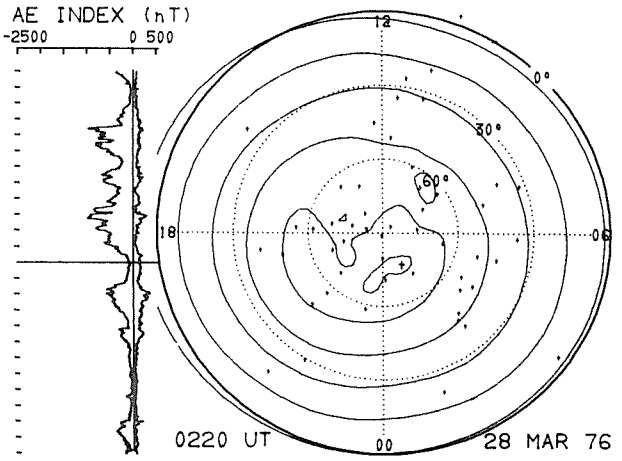

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0150 UT
28 MAR 76

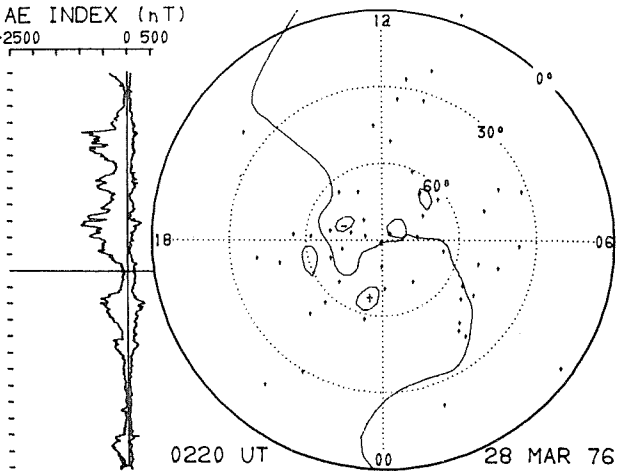

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
28 MAR 76

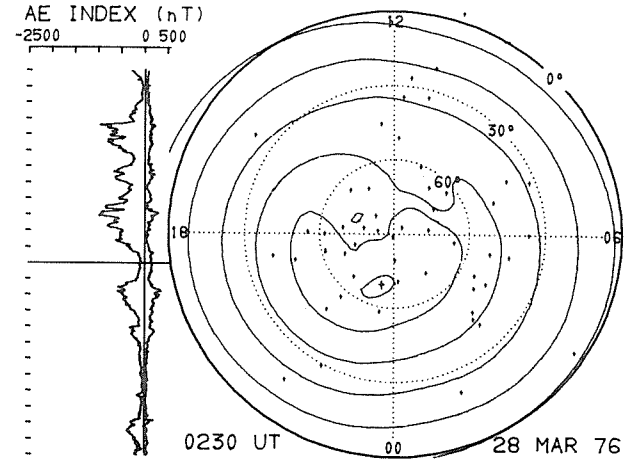

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0200 UT
28 MAR 76

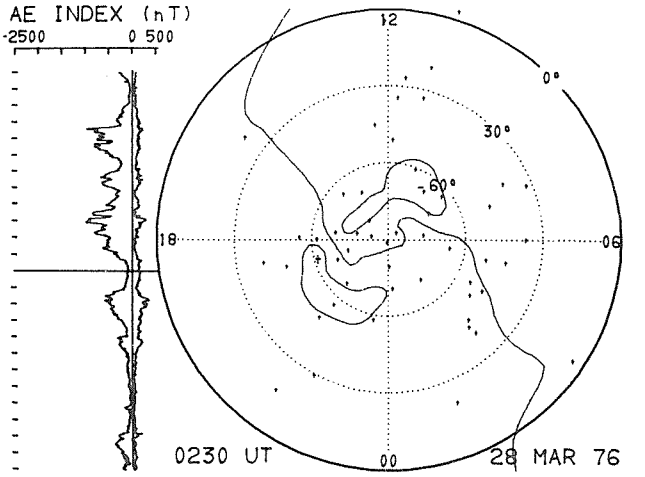

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
28 MAR 76

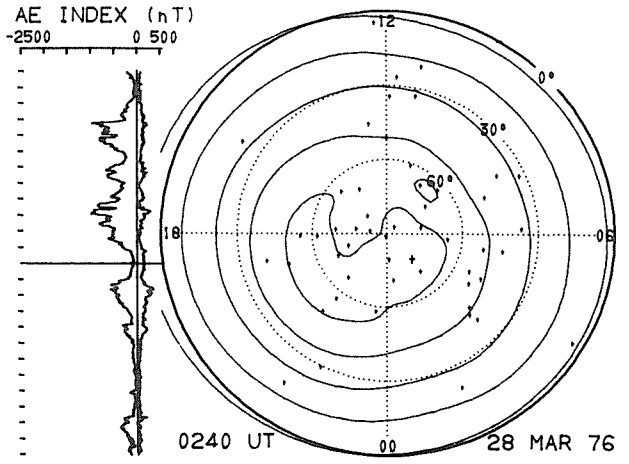

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0210 UT
28 MAR 76

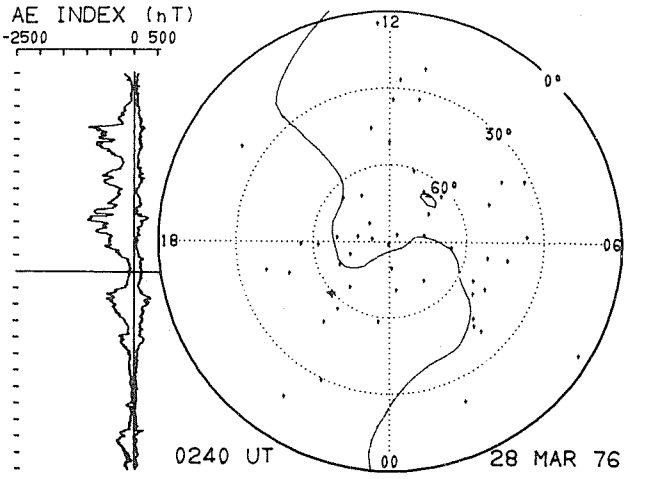

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
28 MAR 76

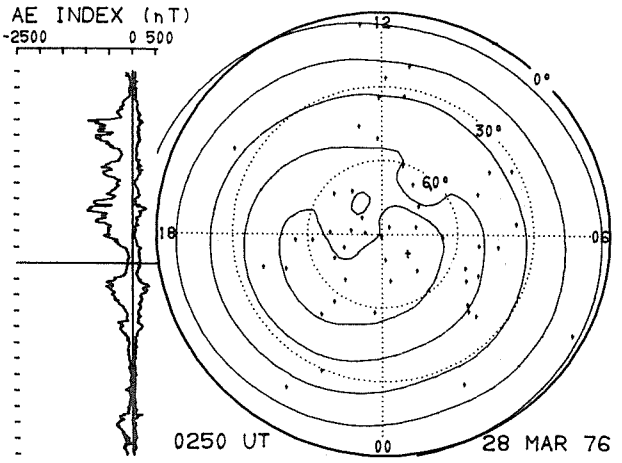

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0220 UT
28 MAR 76

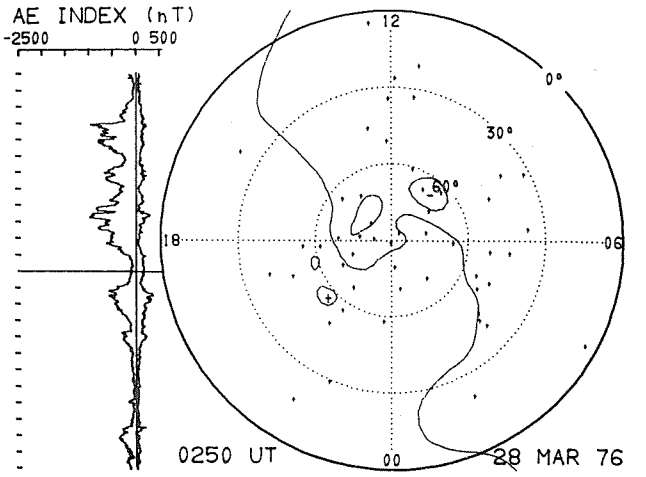

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
28 MAR 76

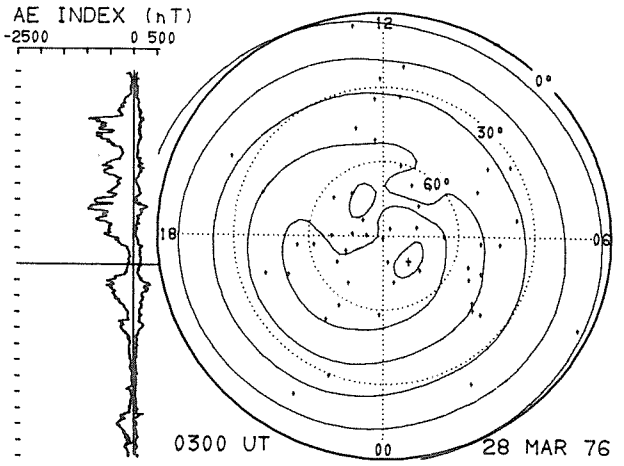

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0230 UT
28 MAR 76

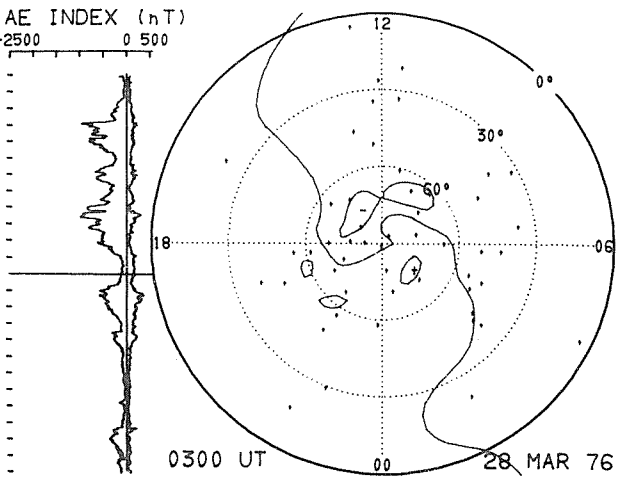

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
28 MAR 76

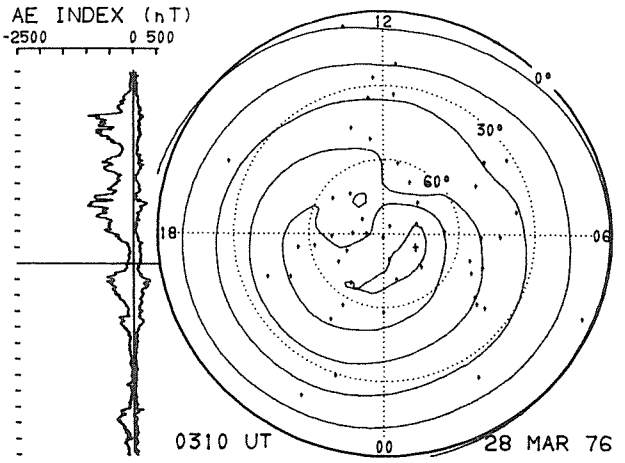

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0240 UT
28 MAR 76

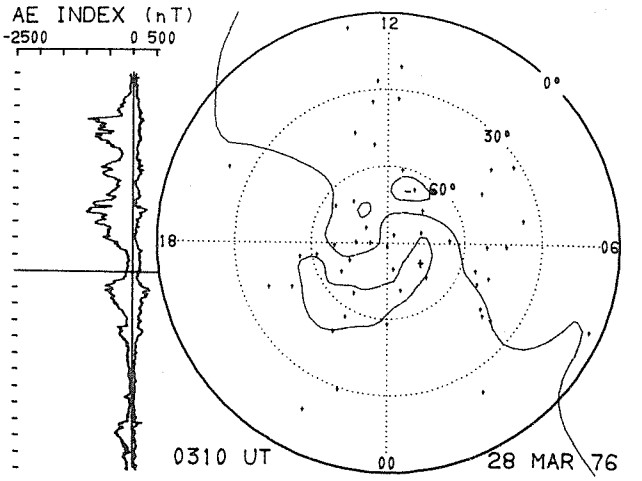

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
28 MAR 76

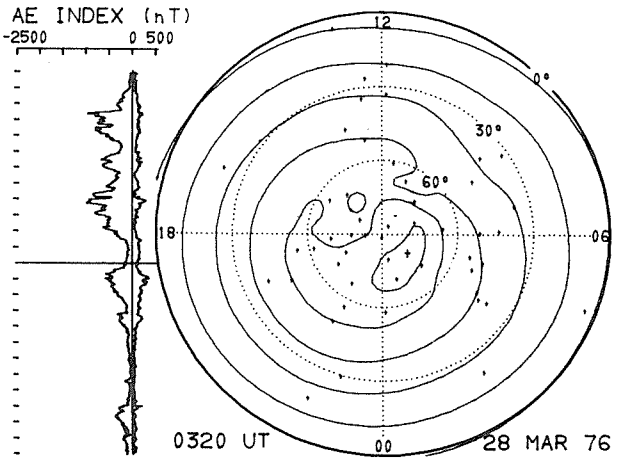

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0250 UT
28 MAR 76

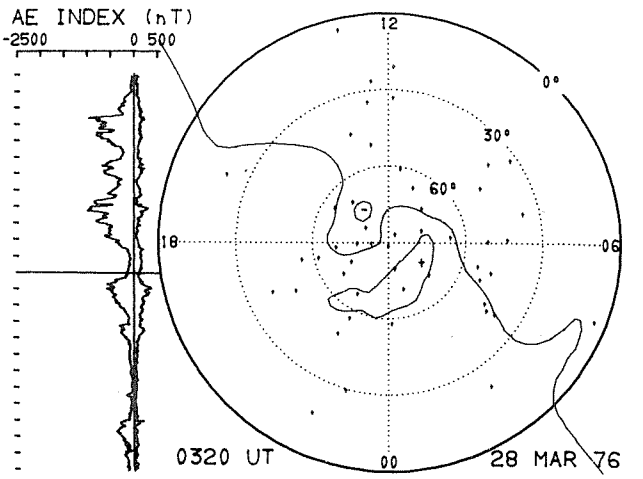

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
28 MAR 76

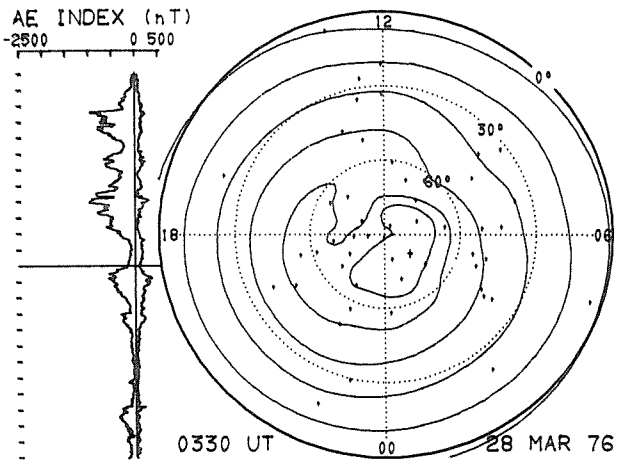

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0300 UT
28 MAR 76

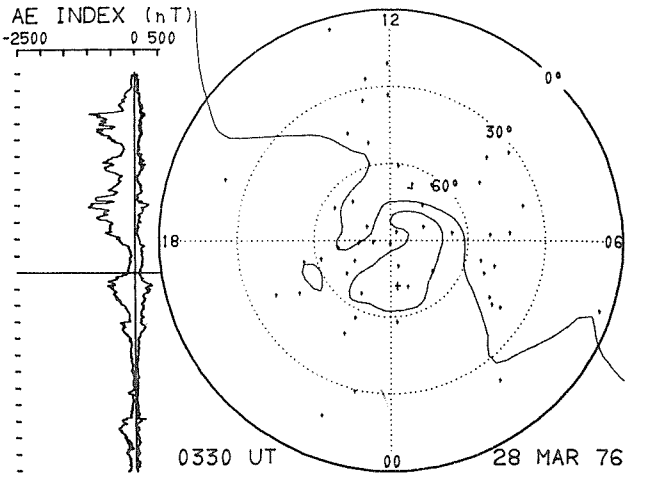

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
28 MAR 76

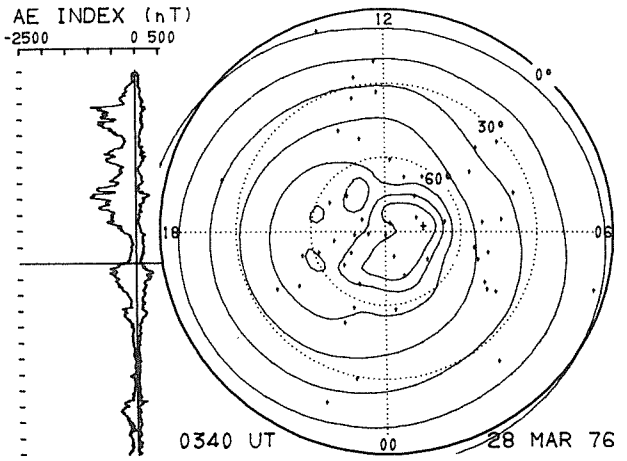

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0310 UT
28 MAR 76

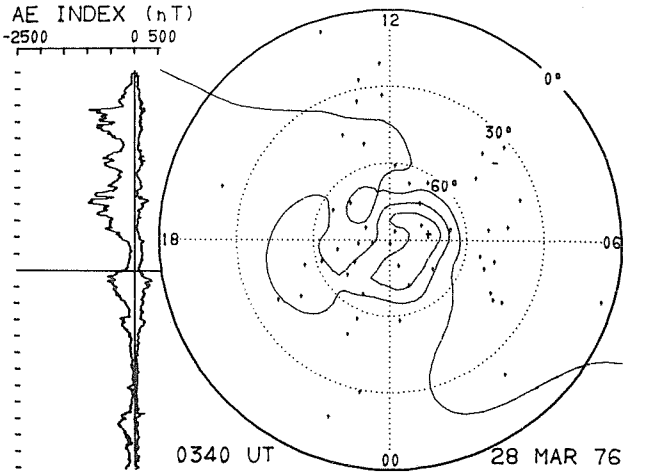

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
28 MAR 76

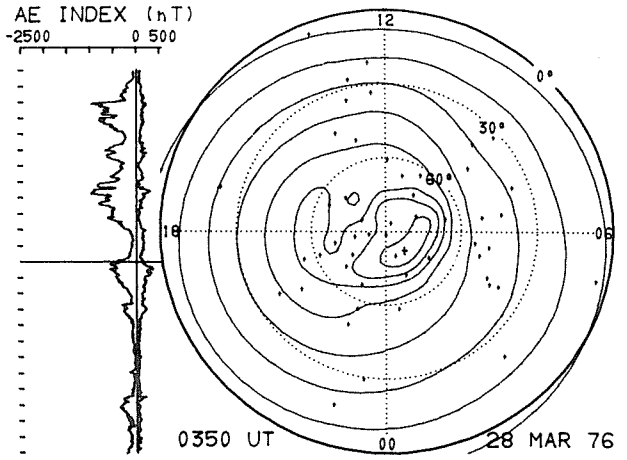

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0320 UT
28 MAR 76

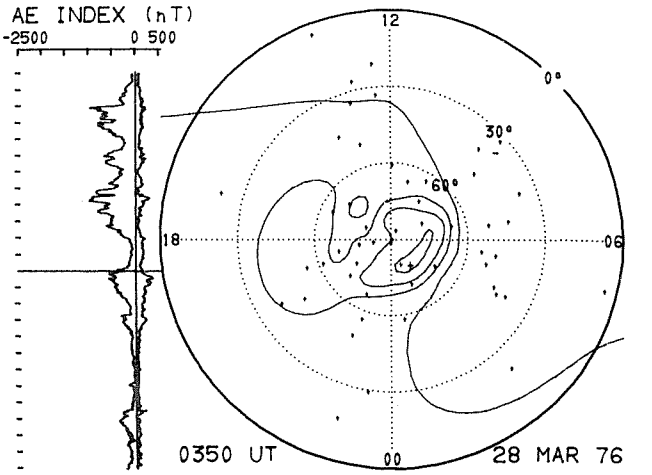

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
28 MAR 76

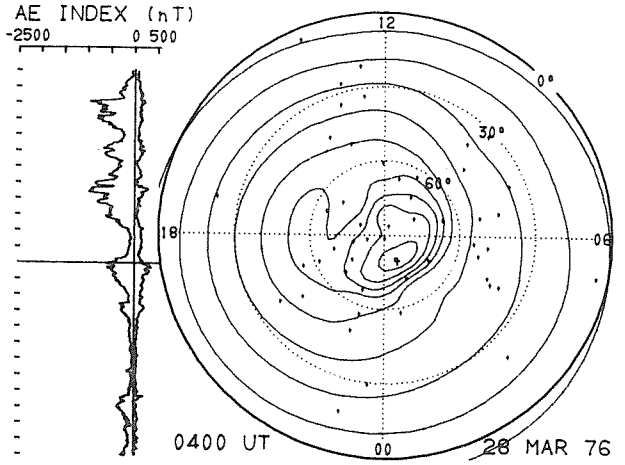

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0330 UT
28 MAR 76

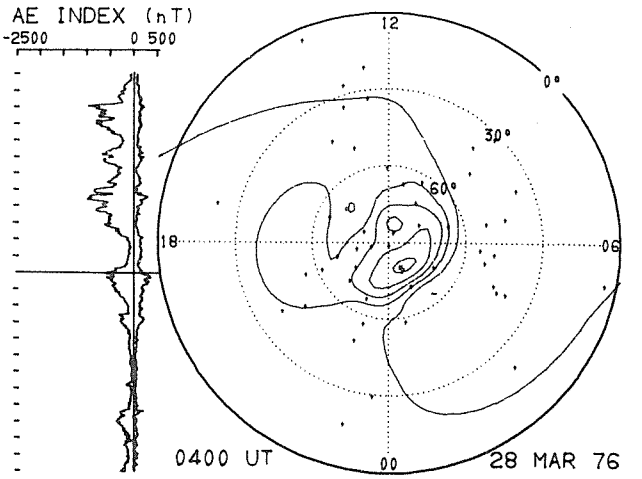

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
28 MAR 76

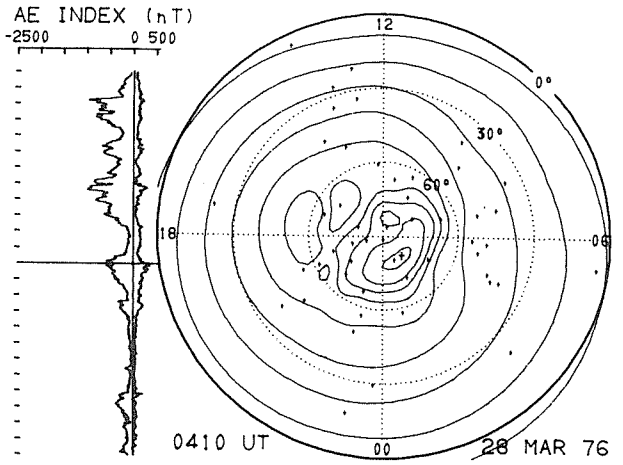

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0340 UT
28 MAR 76

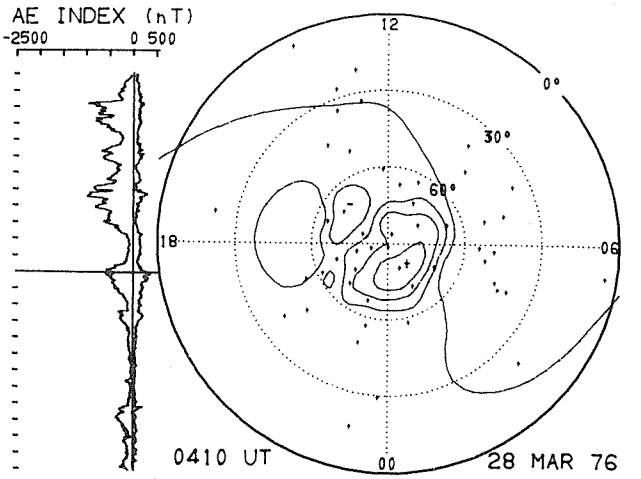

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
28 MAR 76

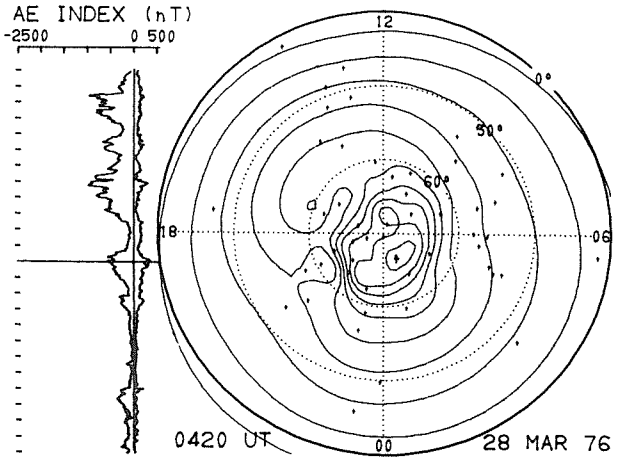

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0350 UT
28 MAR 76

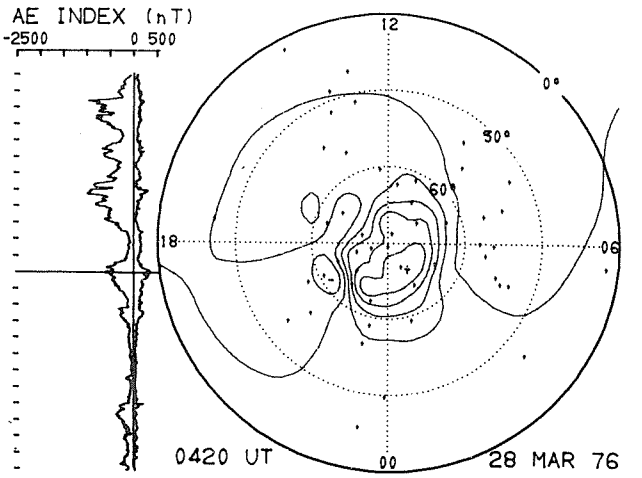

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
28 MAR 76

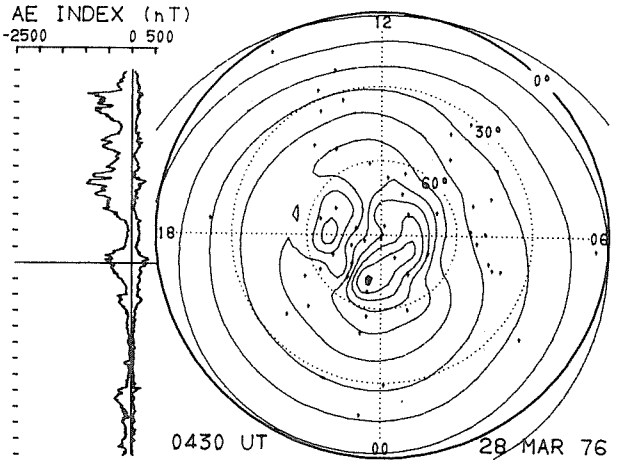

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0400 UT
28 MAR 76

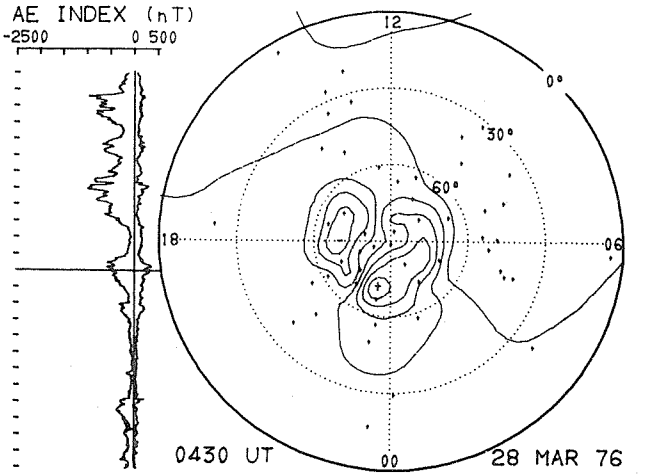

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
28 MAR 76

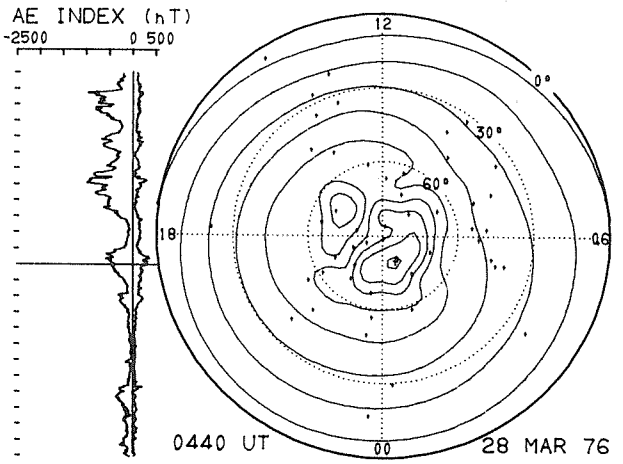

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0410 UT
28 MAR 76

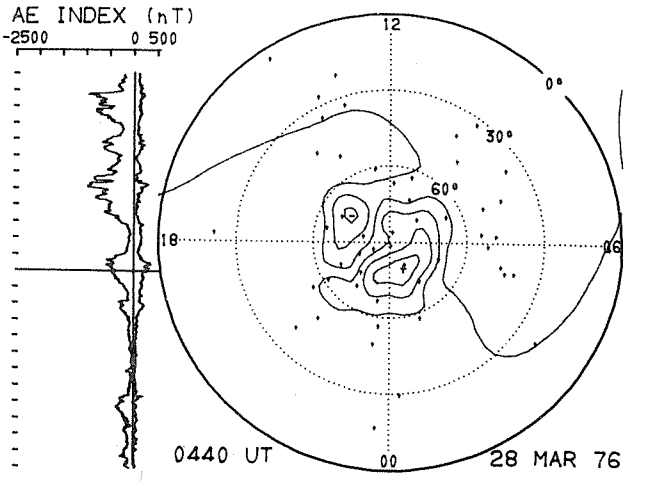

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
28 MAR 76

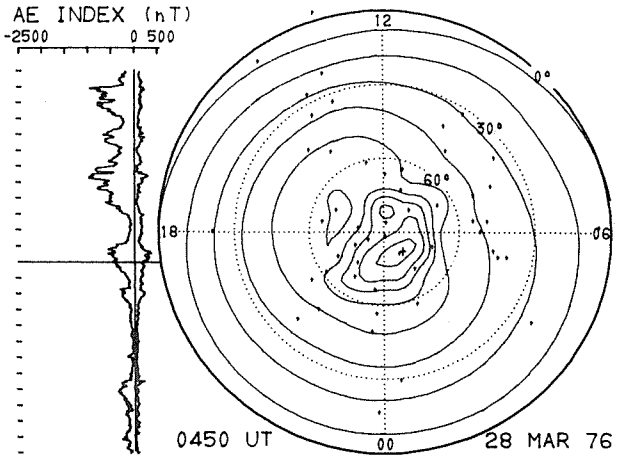

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0420 UT
28 MAR 76

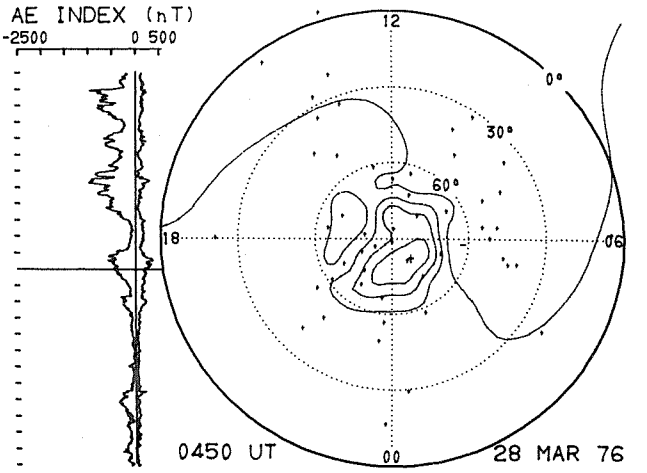

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
28 MAR 76

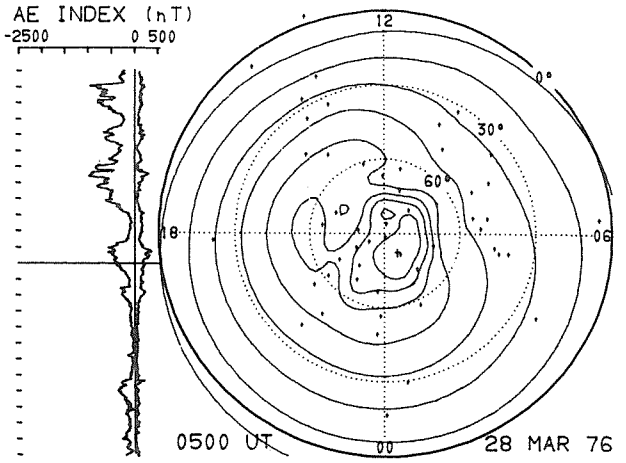

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0430 UT
28 MAR 76

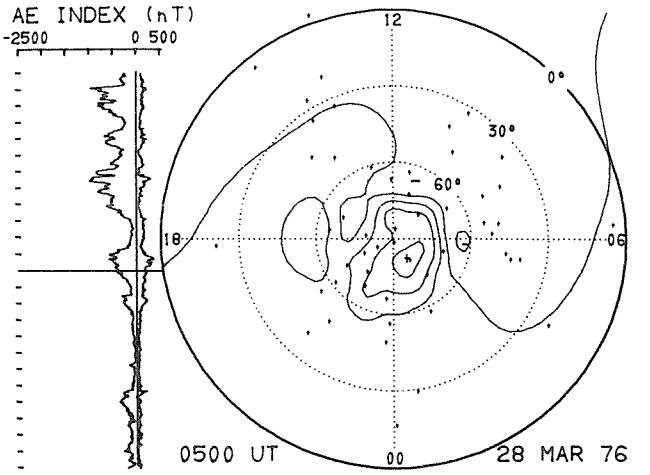

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
28 MAR 76

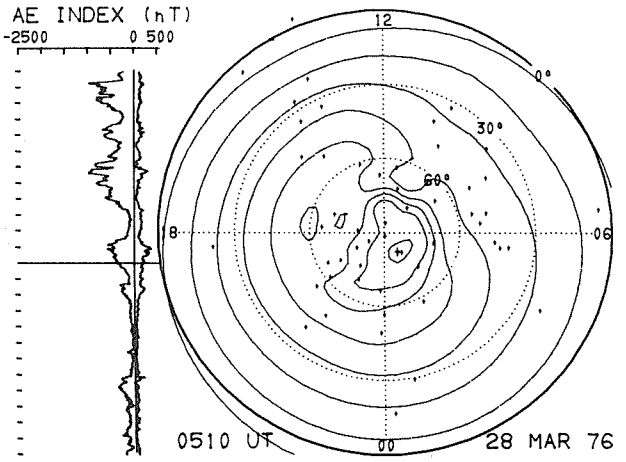

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0440 UT
28 MAR 76

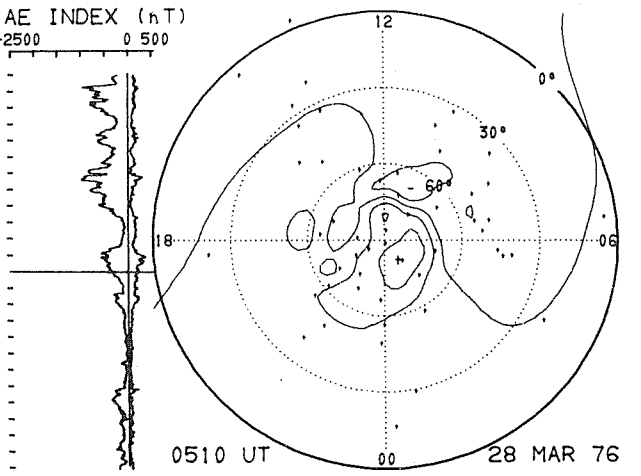

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
28 MAR 76

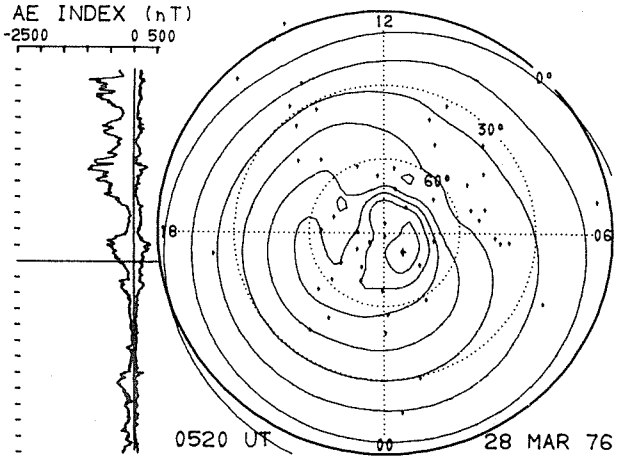

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0450 UT
28 MAR 76

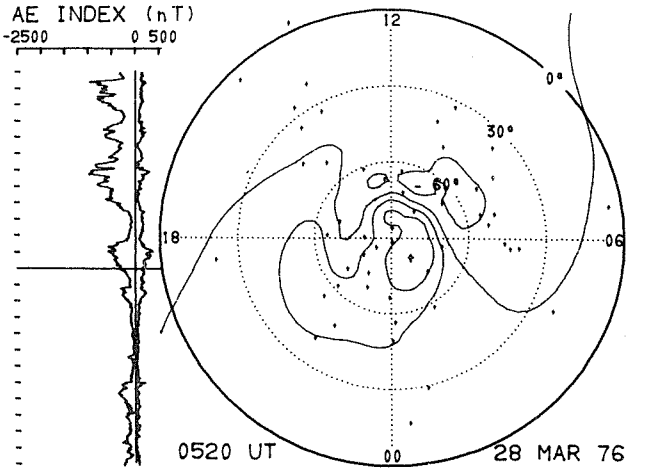

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
28 MAR 76

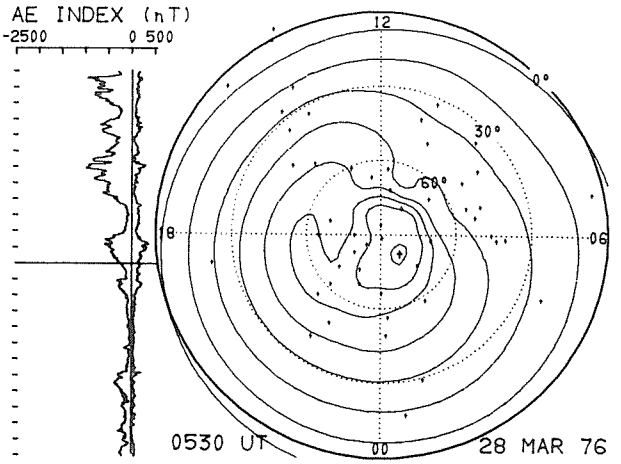

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0500 UT
28 MAR 76

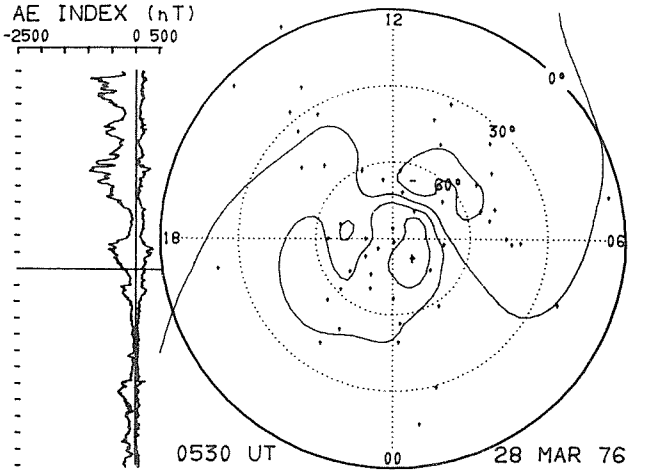

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
28 MAR 76

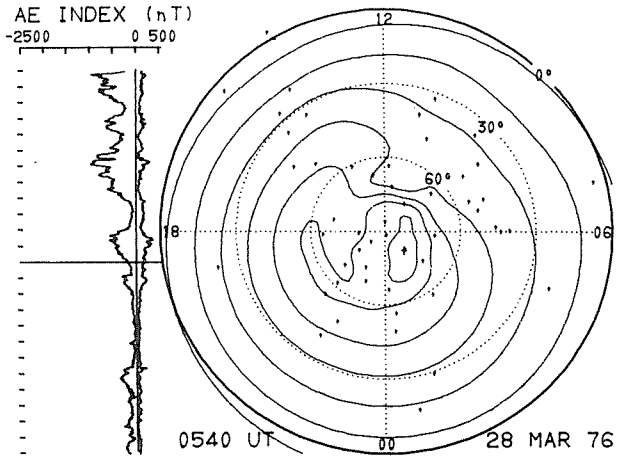

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0510 UT
28 MAR 76

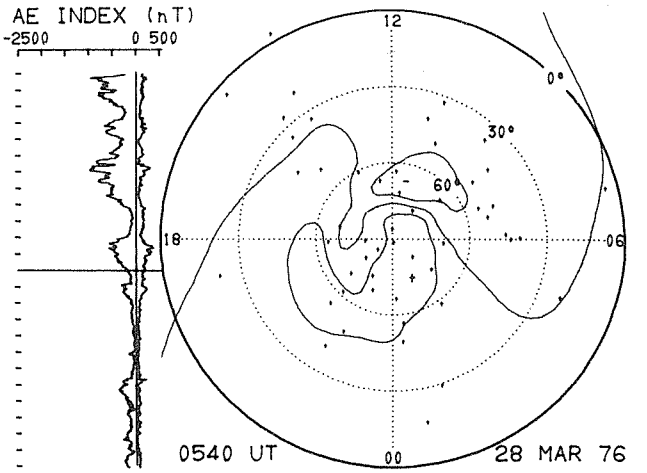

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
28 MAR 76

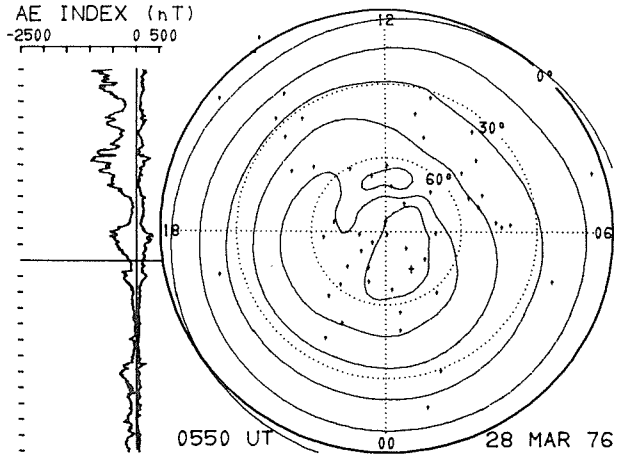

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0520 UT
28 MAR 76

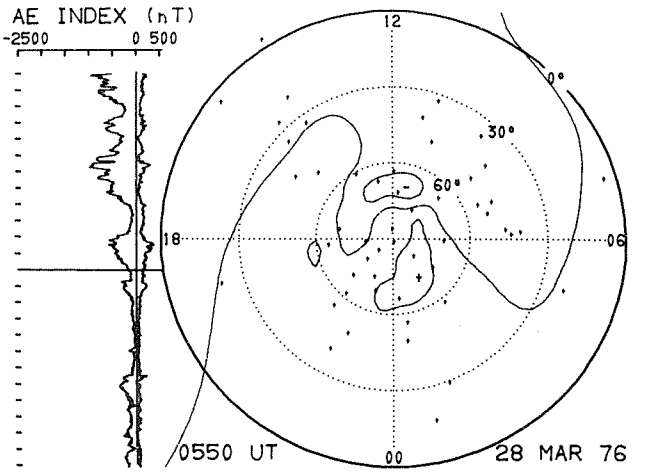

AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
28 MAR 76


AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0530 UT
28 MAR 76


AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
28 MAR 76


AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0540 UT
28 MAR 76


AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
28 MAR 76


AE INDEX (nT)
-2500
0 500
12
0°
30°
60°
18
06
00
0550 UT
28 MAR 76

UAG Series of Reports

UAG Reports are issued on an irregular basis, with 6 to 12 reports being issued each year. Subscriptions may be ordered through the National Geophysical and Solar-Terrestrial Data Center, Environmental Data and Information Service, NOAA, Boulder, CO 80303, USA. The annual subscription price is $25.20 ($17.30 additional for foreign mailing). In years when the single price copies are less than $25.20, arrangements will be made to extend the subscription duration. Single issues are also available at the prices shown below. Some of the issues are now out of print and are available only on microfiche. Orders must include check or money order payable in U.S. currency to the Department of Commerce, NOAA/NGSDC. $2.00 handling charge per order.

UAG-1 "IQSY Night Airglow Data", price $1.75.
UAG-2 "A Reevaluation of Solar Flares, 1964-1966", price 30 cents.
UAG-3 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 6 July 1966 through 8 September 1968", microfiche only, price 45 cents.
UAG-4 "Abbreviated Calendar Record 1966-1967", price $1.25.
UAG-5 "Data on Solar Event of May 23, 1967 and its Geophysical Effects", price 65 cents.

UAG-6 "International Geophysical Calendars 1957-1969", price 30 cents.
UAG-7 "Observations of the Solar Electron Corona: February 1964-January 1968", price 15 cents.
UAG-8 "Data on Solar-Geophysical Activity October 24-November 6, 1968", price (includes Parts 1 & 2) $1.75.
UAG-9 "Data on Cosmic Ray Event of November 18, 1968 and Associated Phenomena", price 55 cents.
UAG-10 "Atlas of Ionograms", price $1.50.

UAG-11 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).
UAG-12 "Solar-Geophysical Activity Associated with the Major Geomagnetic Storm of March 8, 1970", price (includes Parts 1-3) $3.00.
UAG-13 "Data on the Solar Proton Event of November 2, 1969 through the Geomagnetic Storm of November 8-10, 1969, price 50 cents.
UAG-14 "An Experimental, Comprehensive Flare Index and Its Derivation for 'Major' Flares, 1955-1969", price 30 cents.
UAG-15 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).

UAG-16 "Temporal Development of the Geographical Distribution of Auroral Absorption for 30 Substorm Events in each of IQSY (1964-65) and IASY (1969)", price 70 cents.
UAG-17 "Ionospheric Drift Velocity Measurements at Jicamarca, Peru (July 1967-March 1970)", microfiche only, price 45 cents.
UAG-18 "A Study of Polar Cap and Auroral Zone Magnetic Variations", price 20 cents.
UAG-19 "Reevaluation of Solar Flares 1967", price 15 cents.
UAG-20 "Catalogue of Data on Solar-Terrestrial Physics" (now obsolete).

UAG-21 "Preliminary Compilation of Data for Retrospective World Interval July 26 - August 14, 1972", price 70 cents.
UAG-22 "Auroral Electrojet Magnetic Activity Indices (AE) for 1970", price 75 cents.
UAG-23 "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, November 1972, 324 pages, price $1.75.

UAG-23A "U.R.S.I. Handbook of Ionogram Interpretation and Reduction, Second Edition, November 1972", Revision of Chapters 1-4, edited by W. R. Piggott and K. Rawer, NGSDC/EDS/NOAA, July 1978, 135 pages, price $2.14.

UAG-24 "Data on Solar-Geophysical Activity Associated with the Major Ground Level Cosmic Ray Events of 24 January and 1 September 1971", price (includes Parts 1 and 2) $2.00.
UAG-25 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-41 MHz, 9 September 1968 through 9 December 1971", price 35 cents.

UAG-26 "Data Compilation for the Magnetospherically Quiet Periods February 19-23 and November 29 - December 3, 1970", price 70 cents.
UAG-27 "High Speed Streams in the Solar Wind", price 15 cents.
UAG-28 "Collected Data Reports on August 1972 Solar-Terrestrial Events", price (includes Parts 1-3) $4.50.
UAG-29 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1968", price 75 cents.
UAG-30 "Catalogue of Data on Solar-Terrestrial Physics", price $1.75.

UAG-31 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1969", price 75 cents.
UAG-32 "Synoptic Radio Maps of the Sun at 3.3 mm for the Years 1967-1969", price 35 cents.
UAG-33 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1967", price 75 cents.
UAG-34 "Absorption Data for the IGY/IGC and IQSY", price $2.00.
UAG-35 "Catalogue of Digital Geomagnetic Variation Data at World Data Center A for Solar-Terrestrial Physics", price 20 cents.

UAG-36 "An Atlas of Extreme Ultraviolet Flashes of Solar Flares Observed Via Sudden Frequency Deviations During the ATM-SKYLAB Missions", price 55 cents.
UAG-37 "Auroral Electrojet Magnetic Activity Indices AE (10) for 1966", price 75 cents.
UAG-38 "Master Station List for Solar-Terrestrial Physics Data at WDC-A for Solar-Terrestrial Physics", price $1.60.
UAG-39 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1971", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, February 1975, 144 pages, price $2.05.

UAG-40 "H-Alpha Synoptic Charts of Solar Activity For the Period of Skylab Observations, May, 1973-March, 1974", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, February 1975, 32 pages, price 56 cents.

UAG-41 "H-Alpha Synoptic Charts of Solar Activity During the First Year of Solar Cycle 20, October, 1964 - August, 1965", by Patrick S. McIntosh, NOAA Environmental Research Laboratories, and Jerome T. Nolte, American Science and Engineering, Cambridge, Massachusetts, March 1975, 25 pages, price 48 cents.

UAG-42 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-80 MHz 10 December 1971 through 21 March 1975", by James W. Warwick, George A. Dulk, and Anthony C. Riddle, Department of Astro-Geophysics, University of Colorado, Boulder, Colorado 80302, April 1975, 49 pages, price $1.15.

UAG-43 "Catalog of Observation Times of Ground-Based Skylab-Coordinated Solar Observing Programs", compiled by Helen E. Coffey, World Data Center A for Solar-Terrestrial Physics, May 1975, 159 pages, price $3.00.

UAG-44 "Synoptic Maps of Solar 9.1 cm Microwave Emission from June 1962 to August 1973", by Werner Graf and Ronald N. Bracewell, Radio Astronomy Institute, Stanford University, Stanford, California 94305, May 1975, 183 pages, price $2.55.

UAG-45 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1972", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, May 1975, 144 pages, price $2.10.

UAG-46 "Interplanetary Magnetic Field Data 1963-1974", by Joseph H. King, National Space Science Data Center, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771, June 1975, 382 pages, price $2.95.

UAG-47 "Auroral Electrojet Magnetic Activity Indices AE (11) for 1973", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, June 1975, 144 pages, price $2.10.

UAG-48A "Synoptic Observations of the Solar Corona during Carrington Rotations 1580-1596 (11 October 1971 - 15 January 1973)", [Reissue with quality images] by R. A. Howard, M. J. Koomen, D. J. Michels, R. Tousey, C. R. Detwiler, D. E. Roberts, R. T. Seal and J. D. Whitney, E. O. Hulbert Center for Space Research, NRL, Washington, D. C. 20375 and R. T. and S. F. Hansen, C. J. Garcia and E. Yasukawa, High Altitude Observatory, NCAR, Boulder, Colorado 80303, February 1976, 200 pages, price $4.27.

UAG-49 "Catalog of Standard Geomagnetic Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price $1.85.

UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price $4.00.

UAG-51 "Synoptic Maps of Solar Coronal Hole Boundaries Derived from He II 304Å Spectroheliograms from the Manned Skylab Missions", by J. D. Bohlin and D. M. Rubenstein, E. O. Hulbert Center for Space Research, Naval Research Laboratory, Washington, D. C. 20375 U.S.A., November 1975, 30 pages, price 54 cents.

UAG-52 "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, 895 Lake Angelus Road North, Pontiac, Michigan 48055 U.S.A., November 1975, 27 pages, price 60 cents.

UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.

UAG-54 "Catalog of Ionosphere Vertical Soundings Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado 80302, April 1976, 130 pages, price $2.10.

UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price $1.60.

UAG-56 "Iso-intensity Contours of Ground Magnetic H Perturbations for the December 16-18, 1971 Geomagnetic Storm", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701 (currently Guest worker at Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302), April 1976, 37 pages, price $1.39.

UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price $4.27.

UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price $2.16.

UAG-60 "Geomagnetic Data for January 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, July 1977, 57 pages, price $1.07.

UAG-61 "Collected Data Reports for STIP Interval II 20 March - 5 May 1976", edited by Helen E. Coffey and John A. McKinnon, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, August 1977, 313 pages, price $2.95.

UAG-62 "Geomagnetic Data For February 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 55 pages, price $1.11.

UAG-63 "Geomagnetic Data for March 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, September 1977, 57 pages, price $1.11.

UAG-64 "Geomagnetic Data for April 1976 (AE(8) Indices and Stacked Magnetograms)" by J. H. Allen, C. C. Abston and L. D. Morris, NGSDC/EDS/NOAA, February 1978, 55 pages, price $1.00.

UAG-65 "The Information Explosion and Its Consequences for Data Acquisition, Documentation, and Processing" by G. K. Hartmann, Max-Planck-Institut für Aeronomie, D-3411 Katlenburg-Lindau 3, GFR, May 1978, 36 pages, price 75 cents.

UAG-66 "Synoptic Radio Maps of the Sun at 3.3mm 1970-1973" by Earle B. Mayfield, Space Science Lab., and Fred I. Shimabukuro Electronics Res. Lab., The Ivan A. Getting Laboratories, The Aerospace Corp., El Segundo, California 90245, May 1978, 30 pages, price 75 cents.

UAG-67 "Ionospheric D-Region Profile Data Base, A Collection of Computer-Accessible Experimental Profiles of the D and Lower E Regions", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, August 1978, 30 pages, price 88 cents.

UAG-68 "A Comparative Study of Methods of Electron Density Profile Analysis", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, September 1978, 56 pages, price $1.41.

UAG-69 "Selected Disturbed D-Region Electron Density Profiles. Their relation to the undisturbed D region", by L. F. McNamara, Ionospheric Prediction Service, Sydney, Australia, October 1978, 50 pages, price $1.29.

UAG-70 "Annotated Atlas of Hα Synoptic Charts for Solar Cycle 20 (1964-1974) Carrington Solar Rotations 1487-1616", by Patrick S. McIntosh, Space Environment Laboratory, ERL/NOAA, February 1979, 327 pages, price $3.50.

USCOMM-NOAA-Asheville, NC--5-79--1000