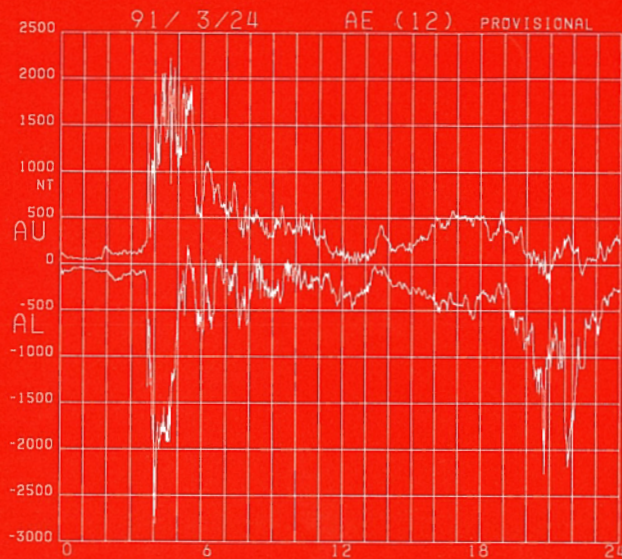


World Data Center C2 for Geomagnetism, Kyoto

# DATA BOOK

No. 24

Provisional  
Auroral electrojet (AE) indices  
for January-December 1991



AUGUST 1998

Data Analysis Center for  
Geomagnetism and Space Magnetism  
Graduate School of Science  
**KYOTO UNIVERSITY**  
KYOTO

Division of  
Data Collection and Processing  
**NATIONAL INSTITUTE OF  
POLAR RESEARCH**  
TOKYO

SPECIAL NOTICE

Provisional AE index is given in this Data Book. Although we received all necessary data for the AE derivation, we curtailed extensive check on the data, hence we used the title 'Provisional AE(12).' However, we believe that this version of the AE index is as accurate as the final AE index. Therefore we are publishing this version in the Data Book series.

On the basis of the anticipated schedules for the data collection and digitization, where needed, the publication of Provisional AE indices in the following order is tentatively contemplated: January to December 1992, January to December 1995, and January to December 1996.

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All requests and inquiries on the Data Books and the Prompt Reports of the WDC-C2 for Geomagnetism, Kyoto and notices of change of address should be sent to:

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Auroral electrojet indices (AE12)

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and

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## PREFACE

The Auroral Electrojet (AE) index was originally introduced by Davis and Sugiura in 1966 as a measure of global electrojet activity in the auroral zone. The AE index is now widely used for researches in geomagnetism, aeronomy, and solar-terrestrial physics. After the initial development at the NASA/Goddard Space Flight Center the calculation of the index was first performed at the Geophysical Institute of the University of Alaska, which published hourly values of the index for the years 1957 to 1964. The production of 2.5 min values was then made at the Goddard Space Flight Center for the period from September 1964 to June 1968.

After these early publications the index was regularly issued by the World Data Center A for Solar-Terrestrial Physics (WDC-A for STP) in Boulder, Colorado, which published 2.5 min values for the years 1966 to 1974 and 1.0 min values for 1975 and the first 4 months of 1976.

When it became difficult for the WDC-A for STP to continue the production of the AE index, a question was raised if the index could be produced at the WDC-C2 for Geomagnetism, which is operated by the Data Analysis Center for Geomagnetism and Space Magnetism, Faculty of Science, Kyoto University. Responding to this request we decided to produce the index for the two years, 1978-1979, of the International Magnetospheric Study (IMS), and published 1.0 min values of the AE index for these years in the "WDC-C2 for Geomagnetism Data Book" No.3-6.

Although the International Association of Geomagnetism and Aeronomy (IAGA) recommended the continuation of the production of the AE index at the WDC-C2, the AE production could not be extended beyond IMS because of the constraints in manpower and computing capability. Increasing demands for the AE index, however, motivated us to resume its production, and we then published the Data Book No.7 for the first half of 1980. After this publication, various possibilities of financial support for the production of the index were explored by the Subcommittee on Solar Terrestrial Physics of the Special Committee for International Cooperation, Science Council of Japan. Beginning with the Data Book No.8, the production of the AE index has been continued at the Kyoto University, but the printing and distribution of the Data Book have been done by National Institute of Polar Research in Tokyo.

In order to reduce the digitization burden in Kyoto, WDC-B for STP in Moscow and WDC-C2 for Geomagnetism in Kyoto began a cooperative digitization project for Russian analog data. At the same time there have been several projects to rescue the Russian observatories after the collapse of USSR. One of these efforts was the STEP project which enabled IZMIRAN to digitize Tixie data for 1990. Another effort is a cooperative work to support Arctic and Antarctic Research Institute (AARI) which operates the Russian AE stations with the help from the WDC panel, WDC-A for STP and WDC-C2 Kyoto. This effort has

resulted in the installation of digital magnetometers in the Russian AE stations, and part of digital data for 1993 and 1994 has been provided. This effort has also resulted in the fast digitization of the data from the Russian AE stations by AARI.

As a result of the prompt derivation of the AE index, provisional AE index based on data from fewer stations are published in Prompt Reports of WDC-C2 for Geomagnetism, Kyoto for 1990, 1993, 1994. These provisional AE indices will be updated and will be published as the final AE index at later dates.

For 1991, we obtained data from all 12 stations. However, the error check made is not as rigorous as it is usually made. Therefore we publish them as the provisional AE (12) in the Data Book series. Nevertheless the quality of this version seems quite high. Therefore a revised final version may not be published unless severe errors are detected.

Additional efforts are being made by INTERMAGNET. A transmitter was provided to the Tixie IKFIA station in 1990 by USGS and a way to send realtime data from Tixie through the Japanese Geostationally Meteorological Satellite (GMS) to the WDC-C2 Kyoto was sought with help of the Communications Research Laboratory in Japan and the Japan Meteorological Agency. After long negotiations, a temporary radio license was obtained and realtime data were successfully sent from Tixie to the WDC-C2 Kyoto for 6 months from March 1996 till September 1996; at the middle of September 1996 the license expired. After that, we have not been able to obtain the permanent radio license from the Russian authority.

We are trying to install the same transmitter system in Cape Chelyuskin and Cape Wellen as at Tixie; both stations are in the service area of the GMS satellite. However, Cape Wellen was closed in 1996 because of the local power failure. The situation in Cape Wellen looks so bad, and WDC-C2 Kyoto and AARI are seeking a way to set up a new station near Pyebek between Tixie and Cape Wellen, but the situation in the Russian Arctic area is now not favorable at all.

AARI and WDC-C2 Kyoto also made a cooperative effort to transmit Dixon data via a local meteorological telex line, and a radio telemetry system was set up at Dixon in 1996. However, the organizational situations of the Russian government are not preferable for providing the data through the system regularly to WDC-C2 Kyoto via AARI in Petersburg.

Development of INTERNET and cooperations of observatories directly or through INTERMAGNET enable us to collect near realtime data from many of the AE stations. Since January 1997, we have been deriving a Quick Look (QL) AE index with a delay of 2-3 days, and have been providing the plot of the QL AE index through WWW. Data are available from only 8 out of the 12 standard AE stations so far. Thus this QL index should be used with care. We are continuing effort to increase the number of stations for the QL AE index and to speed up the derivation of the provisional and final AE indices.

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# Auroral Electrojet (AE) Indices

for January - December 1991  
(Provisional)

## 1. Derivation and Representation

The AE index is derived from geomagnetic variations in the horizontal component observed at selected (10-13) observatories along the auroral zone in the northern hemisphere. To normalize the data a base value for each station is first calculated for each month by averaging all the data from the station on the five international quietest days. This base value is subtracted from each value of one minute data obtained at the station during that month. Then among the data from all the stations at each given time (UT), the largest and smallest values are selected. The AU and AL indices are respectively defined by the largest and the smallest values so selected. The symbols, AU and AL, derive from the fact that these values form the upper and lower envelopes of the superposed plots of all the data from these stations as functions of UT. The difference, AU minus AL, defines the AE index, and the mean value of the AU and AL, i.e.  $(AU+AL)/2$ , defines the AO index. The term "AE indices" is usually used to represent these four indices (AU, AL, AE and AO). The AU and AL indices are intended to express the strongest current intensity of the eastward and westward auroral electrojets, respectively. The AE index represents the overall activity of the electrojets, and the AO index provides a measure of the equivalent zonal current.

In this report we present daily plots and hourly values of the AE indices and "contributing station" plots giving additional information on the indices. The stations that actually give the AU and AL values are named the "contributing stations" of the AU and AL indices. The pair of the AU and AL contributing stations is referred to as "the contributing stations of the AE indices". The plot identifies these AE contributing stations, and also gives information on the data availability for each station.

## 2. Data Used

To obtain reliable AE indices it is desirable to use as many observatories as possible. However, there are two major difficulties: one is that the distribution of the observatories in operation is not uniform along the auroral zone, and the other is that the digitization of magnetograms is a laborious task.

For the derivation of the AE indices reported in this Data Book, we used twelve observatories listed in [Table 1](#). The distribution of these observatories is shown in [Figure 1](#). Of the twelve observatories seven are taking digital data in the year 1991; these stations are referred to as digital stations below. Three of the digital stations, Fort Churchill, Poste-de-la-Baleine, and Yellowknife, give data in the X, Y, Z coordinate system. To make these data compatible with the other stations, we convert the X and Y components to the H component by  $H = \sqrt{X^2 + Y^2}$ . If either X or Y is missing, H is also treated as being missing. For the other three digital stations, Barrow, College, Narsarsuaq and Lerivogur, the original digital H component data are used. We used the Abisko data digitized from analog records at the station. For Dixon, Cape Chelyuskin, Tixie and Cape Wellen, we used the H values digitized at the Arctic and Antarctic Research

Table 1. List of AE(12) Stations.

Observatory	IAGA Code	Geographic Coord.		Geomagnetic Coord.	
		Lat. (°N)	Long. (°E)	Lat. (°N)	Long. (°E)
Abisko	ABK	68.36	18.82	66.04	115.08
Dixon Island	DIK	73.55	80.57	63.02	161.57
Cape Chelyuskin	CCS	77.72	104.28	66.26	176.46
Tixie Bay	TIK	71.58	129.00	60.44	191.41
Cape Wellen	CWE	66.17	190.17	61.79	237.10
Barrow	BRW	71.30	203.25	68.54	241.15
College	CMO	64.87	212.17	64.63	256.52
Yellowknife	YKC	62.40	245.60	69.00	292.80
Fort Churchill	FCC	58.80	265.90	68.70	322.77
Poste-de-la-Baleine	PBQ	55.27	282.22	66.58	347.36
Narsarsuaq (Narssarssuaq)	NAQ	61.20	314.16	71.21	36.79
Leirvogur	LRV	64.18	338.30	70.22	71.04

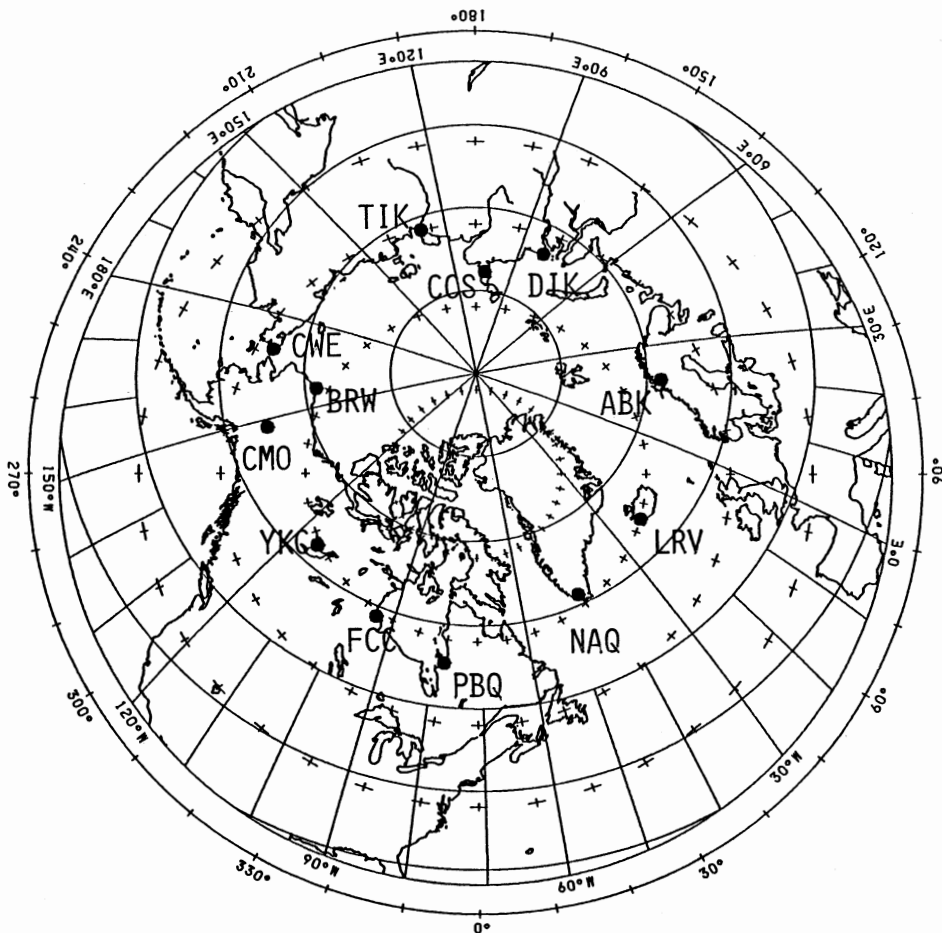
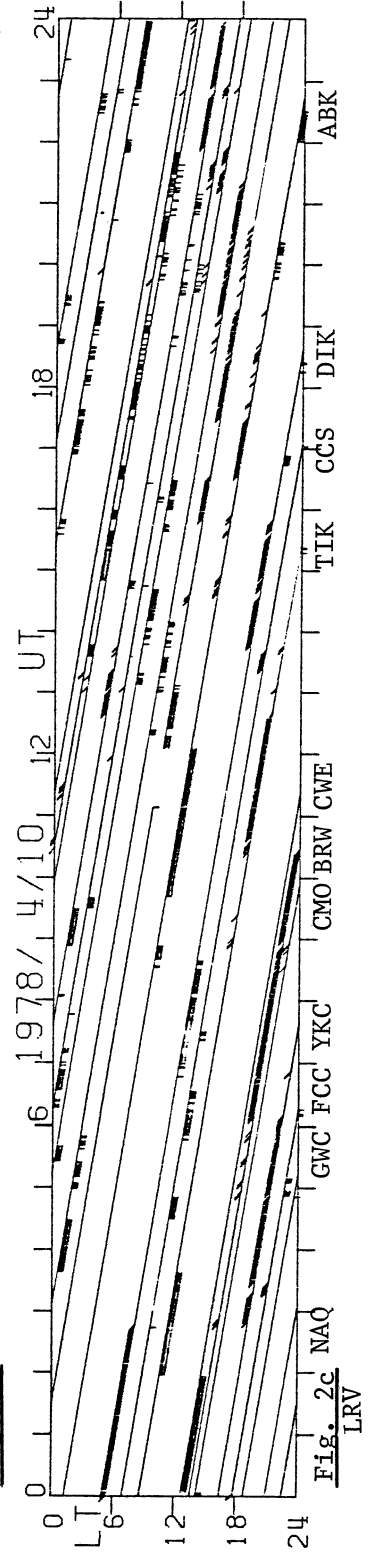
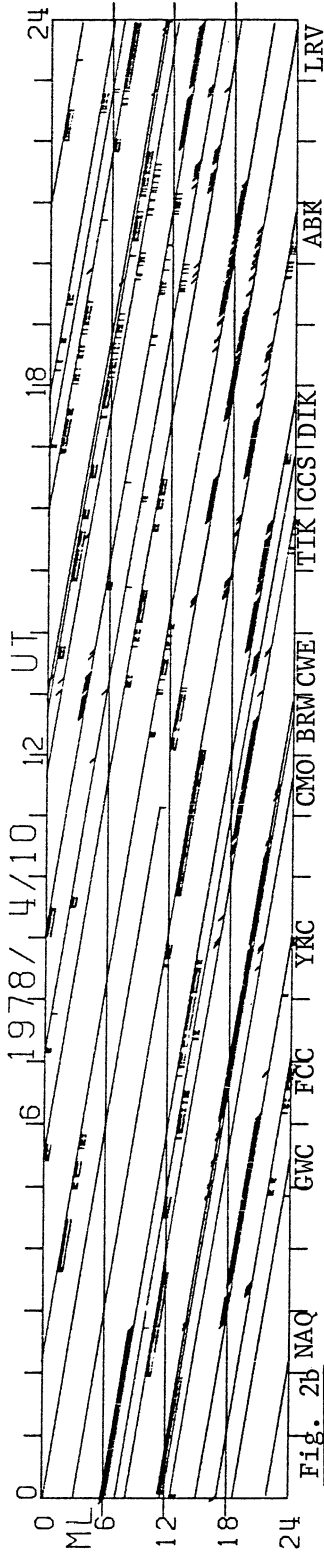
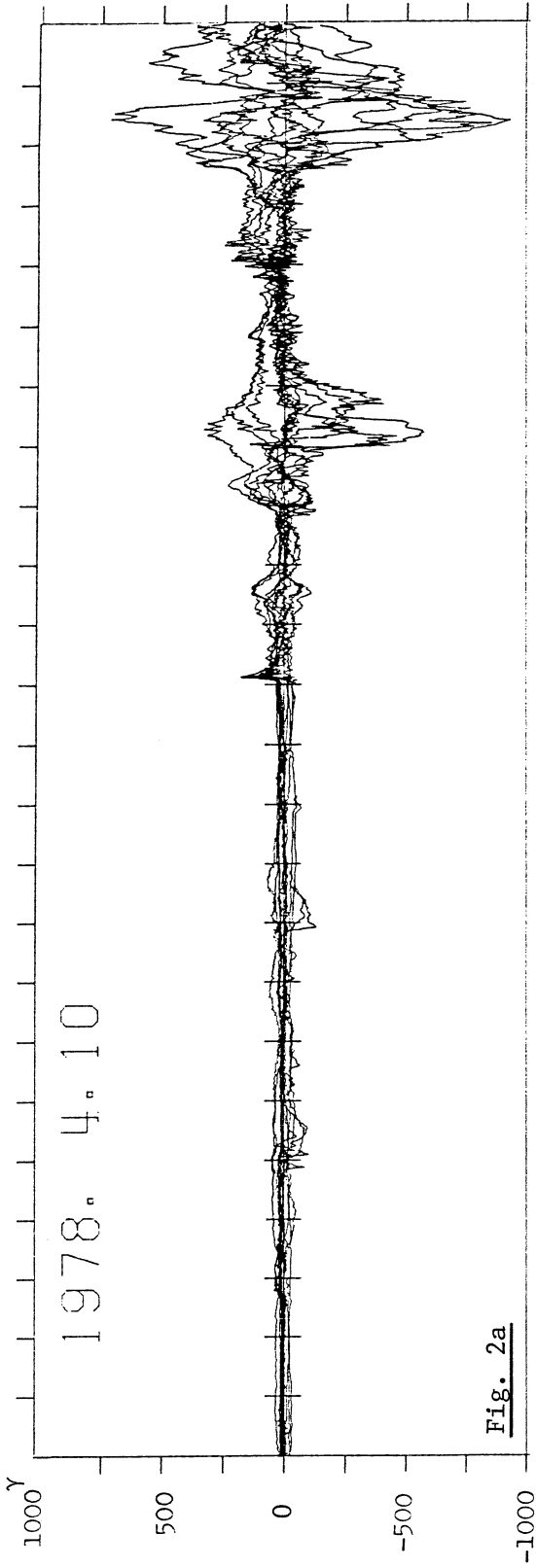


Figure 1. Distribution of AE(12) stations.

This figure is drawn by Lambert projection with the geomagnetic north pole at its center. Geographic coordinates are indicated by solid lines. Geomagnetic coordinates are shown by thin plus signs. Latitude circles are drawn at 10° intervals. Geomagnetic longitude is shown by the numbers along the outer circle and geographic longitude is given by the numbers along the inner circle with suffix E or W.





Institute in Petersburg.

We by-passed the correction process of re-digitization of analog magnetograms at Kyoto in this provisional version of the AE index unless the digital recording or digitized values appear clearly faulty; hence we call this version 'provisional'. However, the quality of the data for 1991 is quite high, and although this is a 'provisional' version, we believe that this provisional AE(12) for 1991 is reliable enough to be used for scientific analyses.

### 3. The Superposed Plot and the Plot of the Contributing Stations of the AE Indices

Figure 2a shows an example of the superposed plot of H traces from the AE stations for April 10, 1978. The upper envelope gives the AU index and the lower envelope, the AL index; Figs. 2b and 2c show sample plots of the contributing stations in geomagnetic (2b) and geographic (2c) local time, for the same day as in Fig. 2a. In these figures, the upper and lower plumes on a diagonal line for each station show the contribution of this station to the AU and AL indices, respectively. In Fig. 2b, for example, the data from Dixon Island (DIK) give the AU index from 0000 to 0240 UT and again from 1330 to 1530 UT, and the AL index from 0640 to 0830 UT. It is seen that from 1100 to 1200 UT Leirvogur (LRV) offers no data. Since Leirvogur is a key station for the AL index for this time interval, the exact AL values may be lower than was calculated for this interval.

We use geomagnetic local time (MLT) for the ordinate of the plot of the contributing stations. MLT is defined by the difference between the geomagnetic longitude of the station and the geomagnetic longitude of the meridian opposite to the subsolar point; and MLT is a function of the geomagnetic longitude of the station, the Sun's declination, and universal time. Figures 3a, 3b, and 3c show the differences between geographic local time GLT and MLT of the stations used to derive the AE indices for winter, summer and equinox, respectively. In these figures GLT is represented for each station by a straight line which runs diagonally, and MLT is shown by the top of T shaped mark (or the bottom of inverted T). The length of the vertical line of T from the diagonal line is the difference between GLT and MLT. Note that for some stations the difference between GLT and MLT is as much as 2 hours.

### 4. Results

Monthly quiet-time H reference values for January–December 1991 are listed in Table 2. Table 3 gives hourly average values of the AE indices for each day from January to December 1991.

Daily graphs of 1.0-min AE indices (AU, AL, AE and AO) are shown in Figure 4, and corresponding plots of the contributing stations are given in Figure 5. Supplemental plots for disturbed days are given at the end of Figure 4. Figure 6 shows the H-traces of magnetograms from AE(12) stations for each month from January to December 1991. Finally, summary plots of hourly values of AU, AL and AE indices are given in Figure 7.

Departing from the usual format in the Data Books for the final AE index, we give the hourly value tables, plots of the AE indices and plots of the contribution stations month by month.

### 5. Acknowledgements

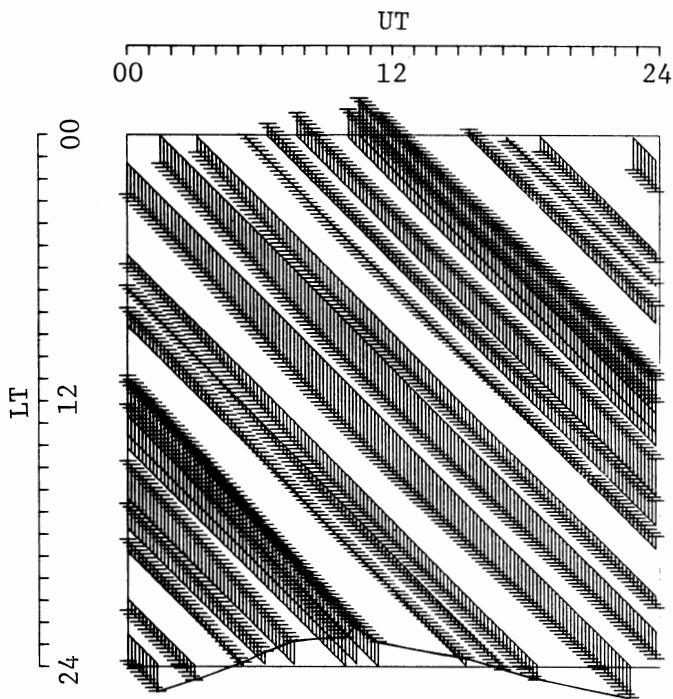


Fig. 3a Difference between GLT and MLT in winter.

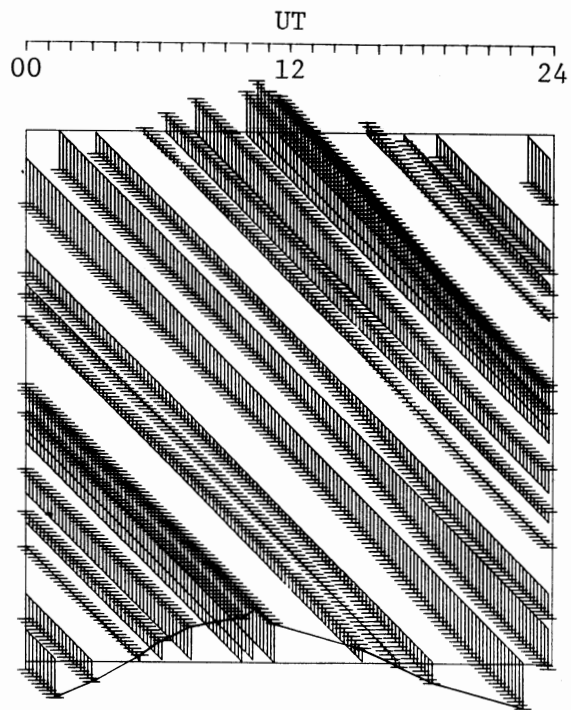


Fig. 3b Difference between GLT and MLT in summer.

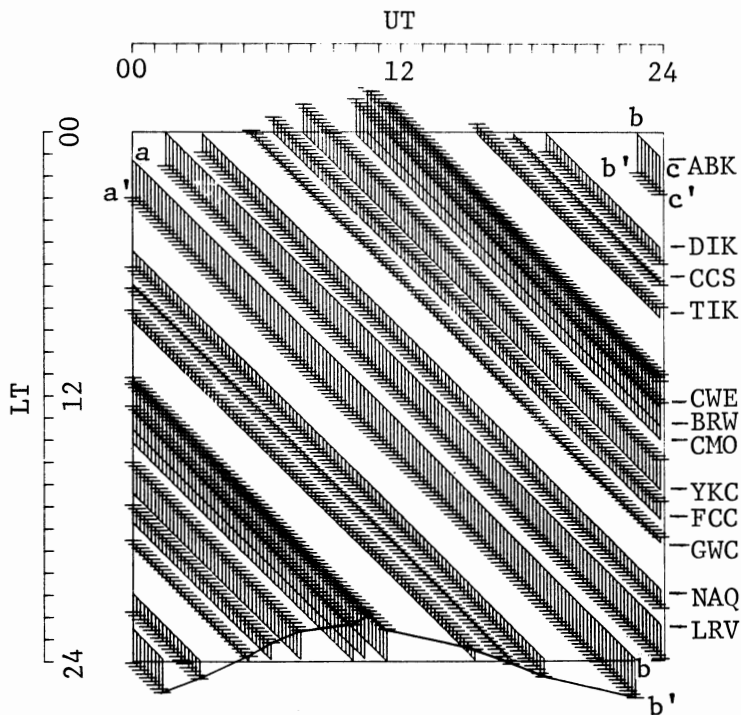


Fig. 3c Difference between GLT and MLT in equinox.

Fig. 3a, 3b and 3c show the difference between the geographic local time (GLT) and the geomagnetic local time (MLT) for winter, summer and equinox, where a-b-c (full line on the top or bottom of the vertical lines) shows the relation between UT and GLT, and a'-b'-c' (crossing of the vertical and horizontal lines) shows the relation between UT and MLT for each of the AE(12) stations.

The calculation of the provisional AE indices in this volume was made possible with the data provided directly to us by the AE stations or through the World Data Centers and the INTERMAGET GINs.

As we do not know the details of the operation of each observatory, it is not possible for us to acknowledge all the persons who have contributed to the preparation of data. Here we mention only those persons with whom we have directly corresponded.

We thank Dr. T. Saemundsson of the Leirvogur Observatory for the very quick transmission of data, Ms. B. Olafsdottir of the Geological Survey of Sweden for the digitization and quality control of Abisko data, Dr. E. Friis-Christensen, Mr. O. Rasmussen and Mr. B. Pederson of the Danish Meteorological Institute, Mr. G. Jansen van Beek and Dr. R. Coles of the Geological Survey of Canada, Mr. L. Wilson, Mr. D. Herzog of the United States Geological Survey for their cooperations, and Dr. O. Troshichev of the Arctic and Antarctic Research Institute for the digitization of Russian data. We also thank Dr. W. Green of USGS for the support of the Russian AE stations and the coordination of data supply through INTERMAGNET, Dr. H. Kroehl and Mr. L. Morris of WDC-A for STP, Mr. J. Allen of the SCOSTEP office, and Dr. V. Papitashvili for cooperation in the digitization project of Russian data, and Dr. Z. Kharin of WDC-B for STP for the preparation of microfilm copies of magnetograms from the Russian stations.

Locally we thank Ms. Y. Yamamoto for her assistance in the preparation of this Prompt Report. We also thank Drs. T. Iyemori, T. Takeda and Ms. N. Kondo of WDC-C2 for Geomagnetism for their assistance in the computation and production of plots. Thanks are also due to Dr. A. Kadokura of the National Institute of Polar Research who contributed to the printing and distribution of this data book.

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Table 2. Monthly quiet-time H reference values (unit in nT)

(Year 1991)

STATION	Jan.	Feb.	Mar.	Apr.	May	June
Abisko	11567	11559	11548	11555	11557	11549
Dixon Island	6065	6051	6049	6052	6054	6064
Cape Chelyuskin	3148	3144	3146	3151	3155	3167
Tixie Bay	7592	7582	7577	7569	7578	7591
Cape Wellen	13915	13910	13897	13900	13901	13901
Barrow	9502	9495	9495	9499	9494	9497
College	12768	12761	12750	12755	12756	12749
Yellowknife	8760	8753	8751	8762	8764	8760
Fort Churchill	7918	7919	7908	7932	7938	7937
Poste-de-la-Baleine	10990	10993	10985	11006	11011	10999
Narsarsuaq	12291	12294	12279	12299	12303	12292
Leirvogur	12420	12420	12405	12418	12425	12409

STATION	July	Aug.	Sep.	Oct.	Nov.	Dec.
Abisko	11558	11543	11547	11546	11541	11545
Dixon Island	6050	6042	6033	6032	6027	6037
Cape Chelyuskin	3157	3140	3143	3135	3116	3126
Tixie Bay	7578	7568	7559	7563	7535	7563
Cape Wellen	13902	13884	13888	13886	13870	13886
Barrow	9489	9484	9477	9484	9442	9475
College	12759	12741	12747	12745	12736	12745
Yellowknife	8770	8765	8770	8768	8738	8767
Fort Churchill	7950	7941	7953	7947	7928	7951
Poste-de-la-Baleine	11024	11013	11016	11023	11012	11025
Narsarsuaq	12311	12300	12302	12303	12288	12303
Leirvogur	12427	12417	12418	12416	12412	12417



TABLE 3

Hourly average AE indices (AU, AL, AE and AO)  
for January-December 1991.

AU Index ( Provisional Hourly mean values, unit nT ) January 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
1	46	67	161	115	94	113	68	58	58	46	18	21	20	18	1	0	3	13	10	7	5	6	8	6	40	
2	6	19	20	58	71	33	43	37	44	48	33	36	122	79	33	40	66	110	72	57	94	64	39	63	54	
3	52	57	64	71	62	64	76	98	120	236	231	61	50	25	30	15	19	16	9	14	10	16	47	42	62	
4	52	62	69	54	54	63	137	113	62	40	32	50	34	16	20	41	24	40	48	20	38	58	71	77	53	
5	63	78	79	50	53	43	41	47	29	39	60	93	31	60	45	21	7	18	20	15	36	20	18	29	41	
Q	12	13	26	33	50	39	33	28	21	17	18	18	21	11	8	5	8	7	7	4	11	9	15	22	18	
Q	27	21	19	16	18	16	21	26	22	29	27	51	45	41	18	42	16	17	17	18	16	15	22	37	25	
8	65	149	91	75	80	104	110	119	87	73	74	83	80	61	44	18	15	15	10	20	54	27	25	29	63	
9	26	17	32	38	24	19	19	42	30	52	45	22	14	13	26	7	15	24	17	20	20	43	48	26		
10	46	34	15	29	15	13	19	28	48	23	22	27	21	21	21	47	35	33	26	23	23	38	38	28	28	
11	34	25	23	22	47	64	42	34	26	42	26	29	56	47	73	35	27	50	47	92	51	26	46	45	42	
D	12	34	61	92	61	45	96	152	186	56	77	43	40	27	34	53	70	133	155	233	232	117	69	58	91	
13	96	85	97	63	57	207	137	99	63	55	19	11	4	8	1	5	6	25	61	48	50	24	26	27	53	
Q	14	18	19	16	29	16	11	15	21	24	20	20	16	17	16	20	22	12	15	26	10	12	12	15	17	
D	15	33	84	169	134	50	39	25	82	49	67	43	29	46	23	17	13	12	26	96	122	141	72	62	61	
16	46	30	28	26	20	12	24	53	45	46	40	87	52	51	57	31	24	26	32	33	33	88	112	98	46	
17	61	68	69	55	47	30	47	35	32	65	65	117	149	70	48	33	67	47	34	30	51	26	56	103	58	
18	91	56	41	77	91	74	71	51	34	39	38	35	29	36	93	46	42	100	81	111	138	112	96	45	68	
Q	19	25	19	17	21	26	21	17	16	38	39	44	31	19	20	21	45	36	22	21	25	11	14	17	24	
20	37	15	11	16	37	16	13	19	14	31	25	58	16	16	19	26	22	60	60	26	22	13	5	3	24	
21	6	12	21	36	52	62	23	9	9	15	29	27	38	55	77	39	17	13	15	10	7	16	23	56	28	
Q	22	40	43	63	27	60	28	30	33	35	31	20	18	14	18	32	15	16	16	14	13	11	15	9	26	
23	9	11	20	21	21	20	12	25	29	27	38	44	39	35	46	42	28	16	22	33	32	54	80	95	33	
D	24	82	158	200	118	117	90	76	81	133	225	239	255	124	92	73	75	125	255	89	37	21	37	24	23	115
D	12	18	17	22	27	31	24	28	20	26	15	17	23	14	19	23	14	88	185	162	47	53	17	31	39	
26	29	19	23	43	51	37	38	44	25	22	16	13	6	13	10	8	3	13	18	18	12	20	30	15	22	
27	22	13	12	12	28	17	17	11	7	7	13	22	32	49	54	32	11	9	11	37	54	56	36	10	24	
28	11	10	12	26	22	24	26	18	13	23	23	31	20	25	17	22	16	13	23	28	23	14	16	35	20	
29	18	8	11	22	28	25	33	55	102	61	44	38	15	10	13	8	6	9	13	12	12	18	17	12	25	
30	12	8	7	10	11	14	23	21	18	17	12	11	11	15	19	23	43	69	62	67	25	20	18	23	23	
D	31	36	52	59	66	75	80	131	205	261	137	239	146	81	35	37	47	32	47	92	80	171	190	251	265	117
Mean	37	42	51	46	46	48	49	55	49	54	52	50	41	33	32	28	27	43	42	45	47	43	43	45	44	
5Q Mean	24	23	28	25	34	23	23	23	23	27	24	30	26	20	16	24	21	17	15	16	15	11	15	20	22	
5D Mean	39	74	107	80	62	67	81	116	103	106	120	98	62	42	37	43	50	107	109	121	118	107	86	87	84	



AL Index ( Provisional Hourly mean values, unit nT ) 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-286	-404	-188	-93	-121	-152	-78	-99	-100	-115	-83	-94	-112	-112	-118	-78	-82	-48	-21	-18	-13	-13	-6	-7	-102
2	-12	-22	-130	-321	-34	-11	-41	-164	-95	-116	-91	-251	-311	-199	-176	-252	-280	-301	-156	-152	-183	-84	-36	-84	-146
3	-155	-216	-150	-174	-162	-118	-391	-239	-263	-354	-226	-144	-279	-364	-61	-23	-33	-23	-27	-25	-46	-45	-164	-150	-160
4	-133	-87	-50	-78	-209	-165	-97	-108	-29	-20	-34	-164	-79	-18	-20	-37	-67	-116	-101	-18	-24	-16	-86	-64	-76
5	-29	-38	-9	2	-12	-5	-12	-14	-34	-24	-173	-66	-15	-98	-84	-14	-25	-19	-17	-14	-147	-65	-9	-19	-39
Q	-11	-10	-7	-7	-24	-3	-3	-6	-4	-6	-8	-28	-42	-44	-20	-16	-24	-26	-19	-58	-38	-15	-25	-20	-19
Q	-17	-17	-15	-4	-2	-1	-4	-5	-6	-8	-10	-54	-50	-20	-38	-95	-31	-29	-22	-70	-51	-46	-46	-41	-28
8	-49	-56	-5	-22	-9	-37	-14	-32	-15	-28	-40	-246	-113	-104	-47	-32	-88	-124	-112	-90	-264	-66	-37	-12	-68
9	-6	-9	-39	-111	-89	-3	-6	-23	-152	-183	-99	-21	-14	-23	-42	-108	-64	-19	-27	-19	-22	-33	-114	-222	-60
10	-135	-8	-5	-14	-8	-5	-5	-30	-86	-88	-75	-200	-43	-30	-203	-362	-183	-40	-19	-18	-17	-101	-178	-131	-83
11	-20	-21	-67	-60	-69	-91	-33	-25	-35	-86	-272	-102	-296	-222	-180	-73	-80	-199	-135	-146	-111	-17	-48	-41	-101
D	-52	-30	-226	-22	-9	-78	-384	-185	-31	-58	-117	-133	-24	-26	-31	-74	-212	-539	-312	-245	-160	-29	-26	-70	-128
13	-177	-73	-49	-69	-202	-347	-262	-141	-86	-45	-19	-23	-40	-25	-22	-31	-39	-138	-275	-191	-95	-27	-17	-11	-100
Q	-16	-15	-13	-13	-13	-10	-6	-3	-6	-8	-9	-11	-12	-67	-20	-23	-29	-18	-50	-77	-28	-11	-15	-23	-21
D	-50	-210	-132	-90	-13	-19	-21	-38	-44	-102	-17	-17	-67	-96	-44	-14	-16	-8	-37	-307	-465	-168	-25	-18	-84
16	-10	-4	-3	-7	-9	-3	-5	-15	-136	-105	-68	-307	-27	-21	-51	-25	-25	-94	-78	-38	-46	-206	-132	-57	-61
17	-109	-25	-26	-10	0	-6	-15	-11	-19	-154	-210	-346	-413	-73	-49	-129	-399	-114	-18	-29	-131	-46	-54	-126	-105
18	-68	-36	-17	-18	-7	-18	-29	-16	-21	-11	-21	-18	-18	-63	-309	-29	-167	-449	-265	-343	-302	-156	-140	-87	-109
Q	-15	-13	-11	-5	-6	-4	-4	-5	-8	-22	-77	-79	-31	-11	-21	-124	-237	-110	-140	-27	-11	-17	-19	-27	-43
20	-51	-21	-10	-4	-8	-6	-9	-20	-5	-15	-88	-15	-12	-14	-16	-69	-164	-176	-146	-36	-23	-15	-16	-16	-40
21	-17	-14	-9	-8	-167	-10	0	-9	-9	-9	-37	-115	-99	-138	-80	-35	-23	-24	-25	-18	-24	-35	-38	-99	-43
22	-30	-29	-11	-3	-9	-12	-9	-7	-4	-4	-6	-11	-13	-17	-20	-68	-43	-23	-21	-10	-14	-32	-50	-9	-19
23	-8	-10	-34	-16	-5	-7	-5	-22	-44	-54	-79	-125	-64	-15	-27	-169	-166	-90	-38	-61	-20	-23	-2	-82	-49
D	-229	-320	-123	-65	-66	2	-12	-55	-239	-315	-443	-199	-95	-107	-63	-99	-166	-749	-154	-4	-12	-14	-12	-21	-148
D	-17	-13	-9	-10	-5	-6	-6	-1	-2	-15	-18	-27	-21	-22	-15	-53	-134	-306	-354	-244	-82	-97	-163	-136	-73
26	-108	-100	-125	-167	-199	-99	-164	-106	-100	-66	-59	-122	-46	-33	-99	-138	-97	-133	-37	-25	-40	-224	-208	-37	-105
27	-27	-23	-25	-37	-60	-9	-7	-10	-18	-24	-26	-51	-156	-218	-221	-108	-90	-37	-48	-190	-217	-275	-83	-55	-84
28	-33	-36	-18	-28	-71	-36	-42	-13	-16	-33	-58	-82	-55	-30	-35	-67	-44	-123	-72	-20	-13	-16	-42	-110	-45
29	-41	-25	-16	-12	-17	-15	-44	-106	-80	-48	-65	-73	-52	-24	-27	-17	-22	-24	-25	-26	-16	-22	-24	-28	-35
30	-24	-24	-19	-11	-7	-4	-9	-10	-8	-12	-14	-15	-17	-16	-19	-30	-313	-320	-211	-117	-14	-6	-11	-11	-52
D	-25	-35	-79	-176	-178	-108	-40	-183	-170	-62	-89	-112	-45	-18	-32	-59	-96	-117	-57	-77	-165	-296	-280	-162	-109
Mean	-63	-62	-52	-53	-57	-44	-56	-54	-60	-70	-83	-104	-85	-73	-70	-79	-110	-146	-97	-87	-90	-71	-67	-63	-75
5Q Mean	-17	-16	-11	-6	-10	-6	-5	-5	-5	-9	-22	-36	-29	-31	-23	-65	-72	-41	-50	-48	-28	-24	-31	-24	-26
5D Mean	-74	-121	-113	-72	-54	-41	-92	-92	-97	-110	-126	-97	-50	-53	-37	-59	-124	-343	-182	-175	-176	-120	-101	-81	-108

AE Index ( Provisional Hourly mean values, unit nT )

January 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	332	471	349	208	216	267	147	158	159	161	102	117	133	131	120	78	86	62	32	26	20	21	15	14	143
2	19	42	152	380	105	45	85	202	139	164	125	288	434	280	211	294	347	413	229	210	278	149	75	148	201
3	208	274	214	246	226	183	469	338	384	591	457	205	329	390	91	39	53	41	36	40	57	62	212	194	222
4	185	149	120	132	264	229	236	222	92	60	66	215	114	34	40	79	92	158	150	40	63	75	158	141	130
5	93	117	89	48	66	49	54	61	64	63	234	161	47	159	130	36	33	39	37	30	184	86	28	49	82
Q	25	24	34	42	75	43	37	35	26	24	27	47	63	56	30	22	34	34	27	64	51	25	41	43	39
Q	44	40	35	22	21	18	26	33	28	37	38	107	97	61	57	137	49	47	40	89	68	62	69	79	54
8	116	206	97	98	90	143	126	153	103	102	114	330	194	166	92	51	105	140	123	112	319	94	62	41	132
9	33	27	73	151	114	24	26	65	184	236	145	44	28	38	69	115	81	44	46	39	43	55	157	271	88
10	182	43	22	44	24	19	25	59	134	113	99	227	66	51	224	410	218	74	46	43	41	139	217	160	112
11	55	47	92	83	118	156	76	59	61	130	299	132	353	271	253	109	108	250	183	239	163	44	95	87	144
D	87	92	319	84	55	175	588	372	89	136	184	176	64	53	65	127	284	673	469	479	393	147	95	129	220
13	275	159	147	133	260	554	401	241	150	101	39	35	45	34	24	36	47	165	337	240	147	53	44	39	154
Q	35	36	31	43	31	22	22	19	27	33	29	31	29	85	38	44	52	31	65	104	40	24	28	38	39
D	85	295	302	225	64	59	46	121	94	170	61	46	114	138	67	32	30	21	65	404	588	311	98	81	146
16	57	36	31	33	29	15	31	69	182	152	108	394	80	74	109	58	50	122	111	72	80	296	246	156	108
17	171	94	97	66	47	36	63	47	52	221	276	464	563	144	98	163	467	163	53	60	184	72	111	229	164
18	160	93	59	96	98	92	101	69	55	51	60	54	48	100	403	76	210	551	347	456	441	269	237	132	177
Q	42	33	30	28	34	25	23	22	25	61	116	123	63	32	43	147	282	147	163	50	36	29	34	45	68
20	89	37	23	22	47	23	23	40	20	46	114	74	29	31	36	96	187	237	208	64	47	30	23	21	65
21	24	27	31	45	221	73	22	20	19	24	66	142	138	194	158	75	41	38	42	28	32	52	61	156	72
Q	71	73	76	32	70	41	40	42	40	36	27	30	32	33	40	101	59	40	38	25	28	45	66	19	46
23	18	23	55	38	27	28	18	47	74	82	118	170	104	50	74	212	195	107	61	96	53	77	83	178	83
D	312	478	323	184	185	87	89	137	373	541	682	455	219	200	137	175	292	1006	245	42	33	51	37	45	264
D	30	33	28	33	34	38	32	30	23	42	33	45	45	38	36	78	150	395	540	408	131	152	181	168	113
26	138	119	149	211	251	137	203	151	126	88	76	136	53	47	110	147	101	147	56	43	53	245	238	54	128
27	51	38	38	50	90	27	24	21	26	31	39	74	190	268	276	140	101	47	59	228	272	332	120	66	109
28	45	47	32	56	95	61	68	31	29	57	81	113	77	56	53	90	60	137	96	48	36	30	58	146	67
29	60	34	29	35	47	42	78	162	183	109	109	112	67	34	41	27	29	34	38	38	29	41	42	41	61
30	37	34	28	22	20	19	33	32	27	30	27	26	29	33	39	54	357	391	275	186	41	32	32	30	76
D	62	88	139	243	253	189	172	389	431	200	279	259	127	53	70	107	129	165	149	159	337	487	532	428	227
Mean	101	106	104	101	105	94	107	111	110	125	136	155	128	107	104	108	139	190	140	134	188	115	112	110	120
5Q Mean	43	41	41	33	46	29	29	30	29	38	47	67	56	53	41	90	95	59	66	66	44	37	47	44	49
5D Mean	115	197	222	153	118	109	175	209	202	217	247	196	113	96	75	103	177	452	293	298	296	229	188	170	194

AO Index ( Provisional Hourly mean values, unit nF ) January 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-119	-168	-13	10	-13	-19	-5	-20	-20	-33	-31	-36	-45	-47	-57	-38	-38	-16	-4	-4	-3	-3	0	0	-30
2	-2	-1	-55	-130	18	10	0	-63	-25	-33	-28	-107	-94	-59	-71	-105	-106	-94	-41	-47	-44	-10	1	-10	-46
3	-50	-79	-42	-50	-49	-27	-157	-70	-71	-58	2	-41	-114	-169	-15	-3	-6	-3	-8	-5	-17	-13	-58	-53	-48
4	-40	-12	9	-11	-76	-50	19	2	16	9	0	-56	-22	0	0	1	-21	-37	-26	0	6	20	-7	6	-11
5	16	19	34	26	20	18	13	16	-2	7	-56	12	7	-19	-19	3	-8	0	1	0	-54	-22	4	4	0
Q	0	1	8	12	12	17	14	10	8	4	4	-5	-10	-16	-5	-5	-7	-8	-5	-26	-13	-2	-4	0	0
Q	4	1	1	5	7	7	7	9	7	10	8	-1	-2	9	-10	-26	-7	-6	-2	-25	-17	-14	-11	-2	-2
8	7	46	42	26	34	32	47	42	35	22	16	-81	-16	-20	-1	-6	-36	-54	-50	-34	-104	-18	-5	8	-2
9	9	3	-3	-36	-32	7	5	9	-60	-64	-26	0	0	-4	-7	-50	-24	2	-4	0	0	-6	-35	-86	-16
10	-43	12	4	7	3	3	7	0	-18	-32	-25	-86	-10	-4	-90	-156	-73	-3	3	2	3	-31	-69	-50	-27
11	6	2	-21	-18	-10	-13	3	4	-3	-21	-122	-36	-119	-87	-53	-18	-26	-73	-43	-26	-29	3	0	2	-29
12	-8	15	-66	19	17	8	-116	0	11	9	-24	-45	7	0	1	-10	-70	-202	-77	-5	35	43	21	-5	-18
13	-40	5	23	-2	-71	-69	-62	-20	-11	4	0	-5	-17	-8	-10	-13	-16	-56	-106	-71	-22	-1	4	7	-23
Q	1	1	1	7	1	0	3	5	7	7	4	3	2	-24	-1	-1	-3	-2	-17	-25	-8	0	-1	-3	-1
D	-7	-62	18	21	17	9	1	20	2	-17	12	5	-10	-26	-10	1	-1	1	-5	-105	-171	-13	22	21	-11
16	17	12	12	9	5	4	9	18	-45	-28	-13	-109	12	14	2	2	0	-33	-22	-2	-6	-58	-10	20	-8
17	-23	20	20	22	22	11	14	11	6	-44	-72	-114	-132	-1	-1	-48	-165	-33	7	0	-39	-9	0	-11	-23
18	10	8	11	29	41	27	20	17	6	13	7	8	5	-13	-107	8	-62	-174	-91	-115	-81	-22	-22	-20	-20
Q	4	2	2	7	9	8	6	4	3	7	-19	-17	0	3	0	-51	-95	-36	-58	-2	6	-2	-2	-4	-9
20	-7	-3	0	5	14	4	1	0	4	7	-31	21	1	0	0	-21	-70	-57	-42	-4	0	0	-5	-6	-7
21	-5	-1	5	13	-57	25	11	0	0	2	-4	-43	-29	-41	-1	1	-2	-5	-4	-3	-7	-8	-7	-21	-7
Q	4	6	25	11	25	7	9	12	15	13	6	2	1	-1	-1	-17	-13	-3	-2	1	0	-10	-16	0	3
23	0	0	-6	2	7	5	2	1	-7	-13	-19	-40	-12	9	8	-63	-68	-86	-8	-13	5	14	38	6	-7
D	-73	-81	38	25	24	46	31	12	-52	-45	-101	27	14	-7	4	-11	-20	-246	-32	16	4	11	5	0	-17
D	-2	2	3	5	10	11	8	12	8	5	-1	-4	0	-3	1	-15	-59	-108	-83	-40	-16	-21	-72	-52	-17
26	-38	-39	-50	-61	-73	-30	-62	-30	-36	-21	-20	-53	-20	-9	-44	-64	-46	-59	-9	-3	-13	-101	-88	-10	-41
27	-2	-4	-6	-11	-15	3	4	0	-5	-8	-5	-14	-61	-84	-83	-37	-39	-13	-18	-75	-81	-108	-23	-22	-29
28	-11	-12	-3	-1	-24	-5	-7	2	-1	-4	-16	-25	-17	-2	-8	-22	-13	-54	-24	4	4	0	-12	-36	-12
29	-11	-8	-2	4	4	4	-5	-24	11	6	-9	-17	-18	-6	-6	-4	-7	-7	-5	-6	-1	-2	-3	-7	-5
30	-5	-7	-5	0	1	4	6	5	4	2	0	-1	-2	0	0	-3	-134	-124	-73	-24	4	9	4	2	-14
D	5	8	-9	-54	-51	-14	44	10	44	37	99	16	17	7	2	-6	-31	-34	17	1	3	-52	-14	50	4
Mean	-13	-10	0	-3	-5	1	-4	0	-5	-8	-14	-27	-22	-19	-18	-25	-40	-50	-26	-20	-21	-13	-11	-8	-15
5Q Mean	2	2	7	8	10	7	7	8	8	8	0	-3	-1	-5	-3	-20	-25	-11	-16	-15	-6	-5	-6	-1	-2
5D Mean	-17	-23	-3	3	12	-6	10	2	-2	-2	-3	0	5	-5	0	-8	-36	-117	-36	-26	-29	-6	-7	2	-12

AU Index ( Provisional Hourly mean values, unit nT )

February 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	123	126	124	53	44	36	60	106	115	222	162	165	106	137	82	63	215	248	300	214	222	186	231	240	149
2	172	61	43	59	28	18	9	14	22	12	15	43	22	34	8	4	16	4	15	10	2	7	4	5	26
Q 3	5	4	8	27	33	57	58	82	76	49	27	24	23	29	30	16	23	6	1	3	4	2	5	5	25
4	16	53	38	15	27	14	12	14	15	13	15	22	15	15	19	16	15	11	13	16	18	16	31	21	19
5	19	25	57	48	29	28	48	27	69	70	63	59	40	27	24	22	24	28	30	27	27	49	59	47	39
Q 6	34	37	40	52	36	27	28	24	26	22	34	30	45	41	22	23	24	20	24	30	32	14	34	30	30
7	22	29	28	44	42	64	77	115	65	60	67	49	58	60	40	50	47	39	39	39	41	73	80	60	54
8	77	81	110	65	62	74	77	63	97	176	234	287	223	84	128	81	97	120	98	60	41	87	96	80	108
D 9	98	126	133	86	51	36	46	42	57	47	39	119	131	86	54	62	83	234	235	158	82	80	110	173	99
10	67	86	67	68	41	49	72	43	75	76	74	140	153	42	20	21	28	26	16	45	38	36	53	46	58
D 11	80	72	110	60	115	125	83	50	59	60	116	227	132	71	71	34	123	213	135	182	107	97	183	244	115
12	184	111	88	148	91	60	48	60	51	74	69	66	133	188	110	70	29	52	30	44	19	25	28	69	75
13	51	44	65	50	64	46	27	23	28	39	66	99	158	102	63	47	48	31	22	47	88	77	52	57	58
14	42	43	25	36	52	44	52	54	39	56	40	48	57	74	109	94	121	104	84	104	104	99	107	92	70
15	163	65	51	63	65	68	60	79	90	57	23	20	33	45	58	63	24	20	38	76	74	70	50	43	58
Q 16	37	31	53	44	39	34	46	51	29	61	88	42	33	28	30	40	23	19	29	31	29	42	58	79	42
Q 17	56	67	83	72	82	74	39	18	28	23	12	18	26	33	57	73	43	29	23	27	32	35	31	51	43
Q 18	67	45	20	31	48	68	101	85	53	39	52	32	23	16	18	16	21	23	40	38	27	51	64	91	45
19	60	31	17	18	24	43	45	60	48	42	31	23	60	103	31	47	226	245	245	208	154	50	40	38	79
20	36	23	18	19	16	17	27	31	45	25	13	30	44	26	46	33	43	131	234	226	112	68	93	60	59
21	51	37	34	52	50	47	32	39	71	80	49	22	21	34	33	32	30	18	17	32	29	26	30	24	37
22	22	18	14	11	10	40	67	103	67	125	60	51	39	14	25	33	25	38	40	15	21	43	76	50	42
D 23	60	43	65	75	65	93	138	172	103	38	43	100	71	76	126	68	103	134	40	29	91	58	44	52	79
24	40	44	34	38	27	30	28	25	17	17	14	13	20	16	18	14	13	14	30	28	21	21	22	23	24
25	24	38	23	15	17	21	18	20	21	40	61	78	141	92	64	59	55	52	41	40	25	34	33	28	43
26	29	42	34	79	68	81	66	151	104	108	121	52	43	31	24	20	32	23	20	33	26	22	19	20	52
27	17	12	9	10	9	11	14	37	31	47	106	82	37	19	42	39	39	98	143	135	78	100	119	97	55
D 28	135	125	117	88	59	61	160	151	163	128	50	21	63	123	123	107	126	193	102	115	153	248	151	108	120
Mean	63	54	53	50	46	48	54	62	59	64	62	70	69	57	52	44	60	77	74	71	60	61	67	69	60
5Q Mean	39	36	40	45	47	52	54	52	42	38	42	29	30	29	31	33	26	19	23	25	24	28	38	51	36
5D Mean	99	98	109	72	66	70	97	104	99	99	82	126	100	98	91	66	130	204	162	139	131	133	143	163	112

AL Index ( Provisional Hourly mean values, unit nF ) February 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	-37	-77	-79	-11	-3	-4	-24	-100	-198	-377	-275	-237	-279	-84	-79	-73	-258	-628	-546	-490	-588	-610	-596	-305	-248
2	-193	-92	-38	-42	-29	-28	-27	-27	-41	-33	-39	-88	-43	-46	-39	-44	-42	-36	-30	-25	-29	-33	-35	-34	-44
Q 3	-29	-25	-22	-36	-87	-62	-25	-13	-103	-55	-13	-19	-28	-93	-55	-27	-26	-23	-22	-18	-16	-19	-18	-22	-36
4	-26	-61	-32	-10	-7	-7	-7	-10	-24	-17	-23	-42	-29	-25	-37	-56	-48	-40	-36	-24	-20	-21	-20	-20	-27
5	-35	-19	-17	-11	-3	-3	-9	-7	-10	-27	-50	-158	-99	-29	-34	-34	-44	-88	-108	-23	-8	-137	-175	-50	-49
Q 6	-28	-46	-47	-50	-20	0	0	-5	-5	-21	-71	-114	-195	-80	-25	-25	-30	-38	-35	-103	-63	-13	-39	-41	-46
7	-17	-24	-73	-95	-101	-128	-165	-87	-53	-41	-153	-158	-198	-73	-122	-403	-243	-86	-26	-13	-23	-48	-149	-208	-112
8	-55	-38	-30	-105	-67	0	-18	-73	-208	-239	-291	-435	-363	-349	-146	-65	-188	-536	-190	-47	-19	-31	-122	-248	-161
D 9	-275	-157	-52	-40	-21	-17	-37	-75	-72	-73	-80	-208	-228	-95	-91	-101	-164	-504	-416	-144	-82	-108	-194	-249	-145
10	-44	-70	-50	-32	-20	-17	-37	-50	-195	-157	-116	-188	-131	-32	-27	-21	-52	-33	-47	-140	-126	-39	-26	-29	-70
D 11	-132	-141	-96	-215	-129	1	4	-24	-97	-130	-85	-70	-14	-21	-51	-66	-432	-496	-200	-249	-101	-139	-422	-240	-148
12	-120	-226	-287	-134	-3	-8	-13	-76	-193	-132	-66	-56	-276	-169	-107	-72	-77	-244	-85	-15	-14	-18	-20	-80	-104
13	-60	-34	-20	-28	-101	-113	-18	-13	-14	-44	-77	-220	-181	-36	-16	-148	-126	-38	-8	-49	-232	-129	-25	-47	-74
14	-35	-45	-12	-10	-15	-20	-22	-26	-11	-27	-23	-25	-46	-95	-149	-153	-200	-168	-221	-185	-80	-62	-110	-248	-83
15	-302	-33	-10	-2	-1	-18	-66	-28	-10	-16	-20	-20	-26	-36	-135	-70	-106	-76	-105	-149	-125	-145	-31	-26	-65
Q 16	-18	-9	-12	-7	-6	-3	-9	-26	-45	-92	-80	-22	-20	-40	-59	-28	-62	-122	-109	-96	-56	-47	-40	-60	-45
Q 17	-37	-31	-25	-10	-26	-6	0	-4	-3	-13	-22	-34	-39	-50	-95	-111	-76	-59	-59	-57	-21	-22	-24	-34	-36
Q 18	-33	-22	-14	-9	-13	-12	-14	-17	-55	-57	-36	-17	-23	-31	-33	-37	-44	-79	-120	-81	-24	-64	-78	-41	-41
19	-24	-17	-17	-17	-13	-8	-10	-58	-14	-1	-5	-17	-98	-124	-26	-73	-474	-387	-314	-197	-134	-31	-28	-39	-89
20	-36	-38	-21	-12	-7	-6	-18	-85	-95	-64	-50	-64	-81	-32	-68	-63	-60	-348	-436	-283	-95	-48	-73	-104	-91
21	-91	-103	-101	-71	-44	-21	-15	-31	-95	-209	-84	-37	-30	-55	-65	-39	-35	-39	-37	-37	-85	-26	-16	-17	-58
22	-28	-34	-26	-28	-18	-25	-201	-210	-122	-199	-117	-88	-55	-26	-20	-25	-22	-42	-141	-29	-13	-122	-306	-83	-83
D 23	-90	-121	-155	-118	-79	-149	-351	-226	-58	-14	-57	-199	-148	-268	-448	-85	-192	-404	-154	-41	-277	-215	-28	-28	-163
24	-29	-29	-42	-138	-52	-32	-50	-15	-35	-25	-52	-27	-35	-69	-59	-53	-37	-59	-210	-70	-48	-19	-21	-62	-53
25	-76	-29	-28	-17	-11	-10	-10	-8	-16	-37	-264	-260	-270	-174	-200	-241	-236	-64	-42	-194	-66	-16	-47	-42	-98
26	-52	-61	-95	-152	-147	-107	-164	-194	-85	-201	-163	-37	-31	-15	-41	-37	-24	-97	-162	-27	-24	-6	-16	-21	-82
27	-23	-27	-25	-30	-27	-20	-20	-46	-74	-74	-178	-207	-81	-48	-54	-99	-136	-220	-294	-336	-60	-59	-170	-190	-104
D 28	-161	-117	-62	-60	-120	-200	-157	-68	-215	-177	-26	-43	-96	-201	-248	-248	-197	-252	-147	-188	-205	-153	-109	-153	-150
Mean	-74	-61	-53	-53	-41	-36	-52	-57	-76	-91	-89	-108	-112	-85	-90	-89	-129	-185	-153	-118	-94	-85	-104	-98	-89
5Q Mean	-29	-26	-24	-22	-30	-16	-9	-13	-42	-47	-44	-41	-61	-58	-53	-45	-47	-64	-69	-71	-36	-33	-39	-44	-40
5D Mean	-139	-122	-88	-88	-70	-73	-113	-98	-128	-154	-104	-151	-153	-133	-183	-114	-248	-456	-292	-222	-250	-245	-269	-195	-170

AE Index ( Provisional Hourly mean values, unit nT ) February 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
D 1	160	203	203	65	48	42	86	207	315	601	438	403	386	222	162	137	474	877	847	705	810	797	827	546	398	
2	366	153	82	102	59	47	38	43	64	47	55	82	65	81	49	49	60	41	46	36	31	40	39	39	71	
Q 3	34	30	30	64	121	120	84	96	180	105	41	45	53	123	85	44	50	31	24	22	20	21	23	28	61	
4	43	115	72	25	35	22	20	25	40	31	40	65	44	40	56	73	64	53	50	41	38	38	52	42	47	
5	54	45	75	60	33	32	59	36	80	98	114	218	141	56	59	58	69	117	139	51	36	187	236	99	90	
Q 6	63	84	87	103	57	28	29	30	33	44	107	145	241	122	48	48	54	59	60	134	96	28	74	72	77	
7	40	53	102	140	144	193	244	204	119	103	221	208	257	135	163	454	291	125	66	54	65	123	230	268	167	
8	133	120	141	171	129	75	96	137	307	417	527	724	588	434	275	147	286	657	289	107	62	119	219	328	270	
D 9	373	283	186	127	73	54	84	118	131	121	121	328	360	182	146	164	248	740	652	303	165	189	306	422	245	
10	112	157	117	101	61	67	110	94	271	234	192	328	286	76	48	43	81	60	63	186	165	75	80	77	128	
D 11	213	214	207	276	244	123	78	75	157	192	202	298	146	92	122	101	555	709	335	433	209	236	606	484	263	
12	305	337	376	283	94	68	61	138	245	207	136	123	410	309	218	143	107	297	116	60	34	44	49	149	180	
13	112	80	86	78	167	159	46	37	44	84	144	321	341	139	81	195	175	70	31	96	321	208	77	105	133	
14	78	88	37	46	68	65	76	81	51	84	65	74	104	170	259	248	322	273	306	289	186	161	218	341	154	
15	465	98	62	65	66	88	128	108	102	75	43	41	60	83	194	134	130	96	144	226	200	216	82	70	124	
Q 16	56	41	66	51	46	38	57	79	76	153	169	65	53	69	90	69	86	142	139	127	87	91	99	141	87	
Q 17	94	99	108	82	109	81	37	23	33	37	35	53	65	84	153	185	120	88	83	84	54	57	55	87	79	
Q 18	101	69	34	42	62	82	116	104	110	98	90	50	47	48	52	55	67	102	161	120	52	116	144	159	87	
19	86	49	35	36	38	53	57	120	63	45	38	41	159	229	59	122	700	633	560	405	288	83	69	78	168	
20	73	61	40	31	24	24	47	117	142	91	64	94	125	59	114	97	104	480	671	510	208	117	168	165	151	
21	142	141	135	125	95	70	49	71	168	291	135	61	52	89	99	72	66	59	56	71	114	54	47	42	96	
22	51	53	40	39	29	66	269	315	189	326	178	140	95	41	45	58	48	82	182	45	35	166	382	134	125	
D 23	151	165	221	194	144	244	490	399	161	53	101	300	220	344	575	154	296	539	195	71	369	274	73	81	242	
24	69	74	77	177	80	63	78	41	54	44	67	41	56	85	78	68	52	73	240	99	69	41	44	86	77	
25	101	68	52	33	30	32	29	29	38	78	326	339	411	266	264	301	291	118	84	235	92	51	81	71	143	
26	83	104	129	232	216	189	231	346	190	311	285	89	76	48	66	58	57	121	183	61	52	30	37	41	135	
27	41	39	35	40	38	32	35	85	107	122	285	290	119	69	97	139	176	319	438	472	139	161	289	287	160	
D 28	297	243	179	149	180	262	318	221	379	306	77	66	160	325	372	356	325	446	250	304	359	402	261	261	271	
Mean	139	116	107	104	88	86	109	120	137	157	153	179	182	143	143	134	191	264	228	190	155	147	173	167	151	
5Q Mean	69	64	65	68	79	69	64	66	86	86	87	88	71	91	89	85	80	75	84	93	97	61	62	79	97	78
5D Mean	238	221	199	162	137	145	211	204	228	254	187	279	254	233	275	182	379	662	455	363	382	379	414	358	283	

AO Index ( Provisional Hourly mean values, unit nF ) February 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	42	24	21	20	20	15	17	2	-41	-77	-56	-35	-86	26	1	-4	-21	-189	-122	-137	-182	-211	-181	-32	-49
Q	-10	-15	2	8	0	-4	-8	-6	-8	-9	-11	2	-9	-5	-15	-19	-12	-15	-7	-7	-13	-12	-15	-14	-8
Q	-11	-9	-6	-4	-26	-2	15	33	-13	-2	6	2	-2	-30	-11	-5	0	-7	-10	-6	-5	-7	-5	-7	-5
Q	-4	-3	3	2	10	3	1	2	-3	-1	-3	-9	-6	-4	-8	-19	-16	-13	-11	-3	0	-1	5	0	-3
Q	-7	3	19	18	13	12	19	9	29	20	6	-49	-29	0	-4	-5	-9	-29	-38	2	9	-43	-56	-1	-4
Q	3	-4	-3	1	7	13	13	9	10	0	-18	-41	-74	-19	-1	0	-2	-8	-5	-36	-15	0	-2	-5	-7
Q	2	2	-22	-25	-28	-31	-43	14	5	8	-42	-54	-68	-6	-40	-176	-97	-23	5	12	9	12	-33	-73	-28
Q	10	21	39	-19	-2	36	29	-4	-55	-31	-28	-73	-69	-131	-8	7	-45	-207	-45	6	10	27	-12	-83	-26
D	-88	-15	39	22	14	9	4	-16	-7	-13	-20	-44	-48	-4	-18	-18	-39	-134	-89	6	0	-13	-41	-38	-23
Q	10	7	8	17	10	15	17	-3	-59	-40	-20	-23	9	4	-3	0	-11	-3	-14	-46	-43	-1	13	7	-6
D	-25	-34	7	-76	-7	63	43	12	-18	-34	14	77	58	24	9	-14	-153	-140	-32	-32	3	-20	-119	1	-16
Q	31	-57	-98	6	43	25	17	-7	-71	-28	0	4	-70	-15	1	0	-23	-95	-26	13	2	3	3	-5	-14
Q	-4	4	22	10	-18	-32	4	4	6	-2	-5	-60	-11	32	23	-50	-38	-3	6	0	-71	-25	13	4	-7
Q	3	-1	6	12	18	11	15	13	13	13	7	10	5	-10	-19	-28	-39	-31	-67	-39	11	17	-1	-77	-6
Q	-69	16	20	30	31	24	-2	24	39	19	1	0	3	3	-37	-3	-40	-27	-33	-36	-25	-36	8	8	-3
Q	9	10	20	17	15	15	18	12	-7	-15	3	9	6	-5	-14	5	-19	-51	-39	-32	-13	-2	8	9	-1
Q	8	17	28	30	27	33	19	6	11	4	-4	-7	-6	-7	-18	-18	-15	-14	-17	-14	4	5	2	8	3
Q	17	11	2	10	16	27	43	33	0	-8	7	7	0	-6	-6	-10	-11	-27	-39	-20	1	-6	-6	11	1
Q	18	6	0	0	5	17	17	1	16	20	13	2	-18	-10	2	-13	-123	-70	-33	5	9	8	6	0	-4
Q	19	18	6	0	5	17	17	1	16	20	13	2	-18	-10	2	-13	-123	-70	-33	5	9	8	6	0	-4
Q	0	-6	-1	3	4	5	4	-26	-24	-19	-17	-16	-17	-2	-10	-14	-7	-107	-99	-27	8	9	9	-22	-15
Q	-19	-32	-32	-9	2	12	8	3	-12	-63	-17	-7	-4	-9	-15	-2	-2	-10	-9	-2	-27	0	6	3	-10
Q	-2	-7	-5	-7	-3	7	-66	-53	-26	-36	-28	-18	-7	-5	2	3	1	-1	-50	-6	3	-39	-114	-15	-19
D	-15	-38	-44	-20	-6	-27	-105	-26	22	11	-6	-48	-37	-95	-160	-8	-43	-134	-56	-5	-92	-77	7	11	-41
Q	5	7	-3	-49	-12	-1	-10	4	-8	-3	-18	-6	-7	-26	-20	-18	-11	-21	-89	-20	-13	1	0	-19	-14
Q	-25	4	-2	0	2	5	3	5	1	1	-101	-90	-63	-40	-67	-90	-90	-5	0	-76	-20	8	-7	-6	-27
Q	-11	-9	-29	-36	-38	-12	-48	-21	9	-46	-20	7	5	7	-8	-7	4	-36	-70	2	0	7	1	0	-14
Q	-2	-6	-7	-9	-8	-4	-2	-4	-21	-13	-35	-62	-21	-14	-5	-29	-47	-59	-74	-99	8	20	-25	-46	-23
D	-12	3	27	13	-30	-69	1	41	-25	-24	11	-10	-16	-38	-62	-69	-35	-29	-21	-36	-25	47	20	-22	-15
Mean	-5	-3	0	-1	2	5	0	2	-8	-13	-13	-19	-20	-13	-18	-21	-33	-53	-38	-22	-16	-11	-18	-14	-14
5Q Mean	5	5	8	10	7	17	21	18	0	-4	-1	-6	-15	-13	-10	-5	-9	-21	-22	-21	-5	-2	0	3	-1
5D Mean	-19	-12	10	-8	-1	-1	-8	2	-13	-27	-11	-12	-25	-17	-46	-22	-58	-125	-64	-40	-59	-54	-62	-16	-29





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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
Q	1	-113	-33	-25	-35	-9	-58	-105	-47	-29	-26	-39	-66	-166	-213	-202	-170	-82	-167	-171	-297	-372	-287	-218	-172	-129
	2	-278	-81	-37	-68	-107	-6	-24	-40	-158	-100	-68	-47	-49	-176	-177	-36	-22	-103	-219	-146	-27	-19	-19	-84	-84
	3	-50	-74	-13	-9	-5	-2	-61	-72	-53	-6	-11	-11	-12	-23	-28	-31	-26	-24	-124	-41	-25	-75	-135	-38	-38
	4	-141	-65	-42	-27	0	0	-3	-6	-3	-7	-51	-110	-62	-25	-17	-17	-15	-28	-212	-298	-184	-210	-82	-68	-68
	5	-138	-96	-77	-86	-69	-155	-146	-164	-388	-343	-111	-35	-179	-295	-316	-446	-100	-30	-46	-133	-146	-138	-73	-102	-159
	6	-83	-84	-27	-31	-66	-196	-219	-60	-48	-238	-414	-259	-152	-113	-107	-274	-412	-320	-424	-270	-303	-158	-30	-61	-181
	7	-189	-223	-155	-195	-355	-155	-138	-139	-352	-143	-105	-433	-581	-457	-232	-301	-122	-257	-231	-264	-218	-334	-251	-39	-245
	8	-42	-195	-88	-32	-48	-21	-69	-42	-22	-16	-196	-248	-29	-23	-28	-45	-263	-562	-477	-400	-213	-172	-255	-839	-159
	9	-316	-232	-219	-321	-19	-73	-123	-131	-263	-143	-191	-197	-104	-286	-473	-198	-36	-137	-230	-233	-47	-79	-214	-534	-200
	10	-300	-127	-337	-517	-234	-161	-21	-16	-68	-134	-167	-171	-191	-90	-107	-87	-139	-11	-32	-15	-15	-16	-21	-23	-125
Q	11	-28	-25	-19	-16	-15	-15	-16	-14	-12	-12	-23	-82	-44	-33	-15	-22	-24	-27	-29	-17	-34	-41	-114	-74	-31
	12	-75	-71	-23	-16	-16	-58	-94	-45	-142	-230	-121	-105	-59	-54	-87	-134	-216	-324	-248	-278	-315	-325	-221	-331	-150
	13	-344	-621	-85	-19	-30	-81	-113	-368	-116	-38	-31	-31	-24	-21	-27	-139	-356	-201	-70	-53	-16	-19	-26	-27	-119
Q	14	-34	-168	-221	-132	-83	-30	-42	-88	-195	-161	-129	-59	-31	-21	-23	-26	-20	-15	-18	-21	-25	-21	-25	-25	-67
Q	15	-31	-23	-25	-25	-23	-28	-28	-24	-27	-23	-38	-168	-56	-23	-47	-242	-51	-28	-28	-22	-13	-17	-21	-23	-43
	16	-31	-29	-31	-28	-23	-23	-21	-22	-20	-17	-53	-44	-37	-34	-31	-30	-35	-39	-348	-462	-128	-33	-24	-52	-66
	17	-44	-133	-43	-31	-154	-276	-82	-17	-11	-17	-38	-29	-36	-33	-27	-36	-42	-57	-115	-69	-80	-272	-320	-190	-90
	18	-177	-200	-163	-36	-120	-65	-9	-8	-87	-75	-23	-63	-48	-41	-42	-28	-24	-19	-9	-3	-11	-19	-18	-28	-55
	19	-32	-30	-32	-53	-70	-70	-35	-10	-37	-34	-206	-78	-58	-118	-346	-320	-313	-213	-377	-407	-579	-271	-174	-202	-169
	20	-96	-52	-32	-8	-27	-77	-128	-153	-214	-126	-217	-114	-56	-36	-33	-34	-39	-35	-114	-38	-4	-9	-17	-24	-70
	21	-30	-25	-21	-20	-19	-14	7	-3	-3	-13	-20	-38	-172	-715	-287	-80	-53	-51	-36	-42	-50	-81	-166	-56	-83
	22	-41	-66	-90	-109	-139	-127	-260	-229	-348	-115	-96	-337	-146	-86	-176	-89	-33	-57	-100	-106	-142	-336	-308	-184	-155
	23	-31	-78	-263	-164	-46	-31	-32	-29	-36	-145	-245	-277	-135	-25	-26	-30	-35	-49	-107	-46	-16	-16	-30	-42	-81
D	24	-63	-66	-134	-425	-1643	-269	-280	-304	-177	-176	-170	-244	-342	-117	-232	-309	-416	-433	-319	-547	-1114	-1211	-915	-404	-430
D	25	-216	-646	-635	-498	-493	-466	-381	-416	-545	-403	-751	-654	-1042	-885	-561	-556	-564	-449	-485	-573	-806	-724	-741	-708	-592
D	26	-347	-397	-1082	-550	-523	-350	-658	-386	-299	-620	-481	-634	-785	-637	-307	-307	-158	-294	-407	-346	-450	-357	-356	-218	-456
D	27	-218	-247	-91	-270	-194	-157	-304	-313	-278	-356	-404	-432	-369	-332	-502	-474	-467	-449	-538	-341	-473	-415	-426	-360	-350
	28	-422	-392	-382	-408	-192	-245	-231	-348	-218	-224	-179	-215	-163	-252	-367	-176	-153	-261	-164	-50	-18	-23	-25	-31	-214
Q	29	-37	-42	-40	-32	-30	-24	-27	-23	-21	-20	-35	-88	-43	-29	-23	-19	-25	-24	-18	-15	-34	-52	-179	-114	-41
D	30	-43	-43	-96	-124	-159	-320	-383	-384	-269	-193	-123	-223	-170	-100	-394	-721	-448	-567	-531	-488	-396	-328	-107	-33	-277
	31	-19	-32	-68	-30	-19	-6	-2	-28	-40	-188	-90	-25	-20	-21	-19	-24	-19	-12	-16	-17	-29	-43	-38	-153	-40
Mean		-129	-148	-148	-139	-159	-114	-127	-125	-141	-143	-156	-178	-172	-166	-169	-178	-152	-166	-188	-197	-210	-194	-181	-154	-160
5Q Mean		-36	-66	-63	-42	-31	-19	-23	-42	-65	-53	-46	-81	-37	-23	-26	-67	-30	-24	-23	-39	-29	-31	-82	-74	-44
5D Mean		-177	-279	-407	-373	-602	-312	-401	-360	-313	-349	-385	-437	-541	-414	-399	-473	-410	-438	-456	-459	-647	-607	-509	-844	-420

AE Index ( Provisional Hourly mean values, unit nT )

Date	1991																									
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
1	223	178	128	138	79	130	175	156	110	107	104	150	305	387	306	255	152	222	248	466	511	443	337	300	234	
2	542	232	108	145	158	65	43	89	95	253	181	143	122	146	269	265	79	55	187	345	259	88	55	67	166	
Q	116	143	55	33	22	18	25	110	97	85	38	35	36	32	48	53	73	48	48	164	69	72	148	195	73	
4	269	149	140	99	52	25	28	32	31	44	118	152	108	59	53	55	58	58	88	372	461	396	381	275	146	
5	311	216	201	155	155	253	256	341	675	742	282	147	317	426	482	675	228	111	114	241	258	297	244	235	307	
6	181	143	66	92	209	416	448	199	141	430	624	604	376	241	172	410	662	666	805	518	532	424	193	168	363	
7	296	320	271	304	466	236	281	308	498	314	245	624	688	575	325	395	218	449	427	529	388	500	402	112	382	
8	102	333	179	100	133	111	132	98	77	67	335	365	76	68	60	77	393	728	651	585	315	316	430	626	265	
9	457	332	383	499	111	194	243	278	436	313	348	392	206	453	726	298	103	249	334	364	119	141	294	742	334	
10	432	231	576	706	529	337	95	65	155	263	348	357	422	210	190	148	202	51	77	47	41	38	48	49	234	
Q	51	46	39	32	31	29	29	28	25	39	55	100	86	59	41	45	45	48	49	38	56	83	175	131	57	
12	116	112	59	52	60	147	231	172	296	407	267	280	167	157	198	214	384	557	484	531	565	608	467	458	291	
13	437	836	222	89	107	195	197	532	209	75	52	60	49	47	66	215	549	327	132	86	39	37	47	44	194	
Q	68	258	343	269	207	84	100	163	299	286	249	127	65	44	38	44	43	34	34	38	44	41	49	47	124	
Q	52	44	44	44	41	45	47	41	45	41	88	236	114	54	103	330	82	57	49	40	30	37	46	44	73	
16	53	49	51	50	45	44	44	43	43	52	92	74	62	61	57	74	79	83	581	759	241	85	63	85	119	
17	93	214	93	99	288	369	117	54	48	64	72	60	60	63	69	83	93	111	184	121	149	419	413	305	152	
18	312	284	323	201	224	120	63	46	156	121	73	169	131	95	77	84	57	51	32	30	39	47	46	55	118	
19	59	56	64	116	123	158	93	53	78	92	303	173	151	247	478	544	507	435	610	623	896	570	375	306	296	
20	236	139	135	132	165	269	306	371	403	314	418	232	169	139	88	65	66	75	221	120	60	39	43	57	178	
21	60	58	60	50	47	45	63	69	74	81	90	144	364	1027	561	167	107	87	61	88	104	223	262	96	166	
22	105	118	181	165	194	247	388	355	501	209	223	565	244	153	258	151	75	108	153	179	268	529	547	322	260	
23	79	163	348	204	94	66	68	63	121	253	419	478	241	72	60	85	67	96	184	91	48	45	72	103	147	
D	130	137	255	804	3195	1529	1110	860	610	595	561	426	426	351	413	604	895	932	725	844	1131	1366	965	585	810	
D	422	900	854	703	753	618	550	618	735	508	840	735	1114	999	885	897	788	719	781	825	846	775	920	838	776	
26	545	633	1204	920	726	746	957	612	562	751	741	852	1019	988	703	469	266	471	613	538	659	537	613	476	692	
D	382	461	209	417	353	278	502	551	506	602	634	637	618	656	784	682	712	671	741	583	729	671	696	533	567	
28	676	529	498	551	299	422	391	550	464	412	441	379	309	463	533	324	271	440	314	150	66	61	59	60	361	
Q	69	72	70	63	55	43	40	33	36	63	74	156	58	39	36	24	36	38	36	36	28	62	100	288	190	71
D	93	98	176	196	259	528	588	630	487	372	239	430	332	204	618	1102	812	838	793	811	690	527	218	119	465	
31	82	108	175	119	101	73	50	116	150	382	253	106	57	42	30	36	32	27	38	46	57	98	116	377	111	
Mean	227	244	242	243	299	252	247	246	263	268	284	302	273	276	281	286	262	285	315	329	313	310	290	258	275	
5Q Mean	71	112	110	88	71	43	48	75	100	102	100	130	71	45	53	99	55	45	43	61	52	66	141	121	79	
5D Mean	314	445	539	608	1057	739	741	654	580	565	603	616	701	639	680	750	694	726	730	720	811	775	682	510	662	

A0 Index ( Provisional Hourly mean values, unit nT )

March

1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
Q	1	-2	55	38	33	29	6	-17	29	24	27	12	8	-13	-20	-48	-42	-5	-55	-46	-63	-116	-64	-48	-21	-12
	2	-8	33	15	3	-27	25	14	19	6	-30	-9	2	13	22	-42	-44	3	4	-10	-46	-16	15	7	13	-1
	3	6	-2	13	6	5	6	10	-6	-23	-11	11	5	6	3	0	-1	4	-1	0	-42	-7	10	-1	-36	-1
	4	-6	9	26	22	25	12	10	9	11	13	7	-33	-7	3	8	9	11	12	14	-27	-68	13	-19	54	4
	5	16	11	23	-8	7	-28	-18	6	-50	27	28	37	-20	-81	-74	-108	13	25	9	-12	-17	9	47	14	-5
	6	7	-13	5	13	37	11	3	38	21	-23	-101	42	34	6	-21	-68	-80	12	-21	-11	-37	53	64	22	0
	7	-41	-62	-19	-43	-122	-36	2	14	-102	13	16	-120	-236	-169	-69	-103	-13	-32	-18	0	-24	-83	-50	16	-53
	8	8	-28	1	17	33	-3	6	15	15	-29	-65	8	10	1	-6	-66	-197	-150	-107	-55	-15	-40	-26	-27	
	9	-87	-66	-28	-70	35	23	-1	6	-44	13	-17	-2	0	-59	-109	-49	14	-12	-62	-50	12	-9	-66	-163	
	10	-84	-12	-48	-163	29	7	26	16	8	-3	6	18	14	-11	-13	-37	13	5	7	5	2	1	0	-8	
Q	11	-2	-1	0	0	0	0	-1	0	0	6	4	-31	-1	-4	4	0	-1	-3	-4	1	-6	0	-26	-8	-3
	12	-16	-14	6	9	13	14	20	39	5	-26	12	34	23	23	11	-26	-23	-45	-6	-12	-32	-22	12	-102	-4
	13	-125	-202	25	24	23	16	-14	-101	-12	-1	-5	-1	0	2	5	-31	-81	-37	-4	-11	2	0	-2	-4	-22
Q	14	0	-38	-49	2	19	10	7	-6	-45	-18	-4	3	0	1	-3	-4	0	1	-1	-2	-3	0	0	-1	-5
Q	15	-4	-1	-2	-2	-2	-4	-4	-3	-4	-3	5	-49	0	3	3	-76	-10	0	-3	-2	0	0	0	-1	-6
	16	-4	-5	-5	-3	0	0	0	0	0	7	-7	-7	-6	-2	-2	5	4	1	-57	-81	-8	8	6	-9	-6
	17	1	-26	2	18	-10	-91	-23	8	11	13	-2	0	-5	-1	6	5	3	-1	-23	-8	-5	-62	-113	-37	-14
	18	-21	-58	-2	63	-8	-5	22	14	-9	-14	12	20	16	5	-3	13	3	5	6	11	7	3	3	0	3
	19	-2	-1	0	4	-8	8	10	15	0	11	-54	7	16	4	-106	-47	-60	3	-71	-95	-130	13	13	-49	-21
	20	20	16	34	57	55	56	24	32	-12	29	-8	2	28	32	10	-1	-6	1	-3	21	24	10	3	3	18
	21	0	3	7	4	4	8	39	31	32	26	23	32	9	-201	-6	2	0	-8	-5	1	1	29	-35	-8	0
	22	10	-7	0	-26	-42	-3	-65	-51	-97	-10	14	-55	-23	-9	-47	-14	3	-3	-23	-17	-8	-71	-35	-23	-25
	23	7	3	-88	-62	1	1	0	1	24	-18	-35	-37	-13	10	3	11	-1	-1	-15	-1	7	6	5	8	-7
D	24	1	2	-7	-23	-46	495	274	125	127	120	109	-30	-128	58	-25	-7	30	31	43	-125	-547	-528	-432	-111	-24
D	25	-4	-195	-208	-146	-117	-156	-105	-107	-177	-149	-330	-286	-485	-385	-118	-107	-170	-89	-94	-161	-383	-336	-280	-289	-203
	26	-74	-81	-480	-90	-159	22	-178	-79	-17	-243	-110	-208	-275	-143	43	-72	-25	-58	-100	-77	-120	-88	-49	19	-110
D	27	-27	-17	12	-61	-17	-18	-52	-36	-24	-54	-86	-113	-60	-4	-109	-132	-110	-113	-167	-48	-108	-79	-78	-93	-66
	28	-84	-128	-133	-132	-42	-34	-35	-73	13	-18	40	-25	-9	-21	-100	-13	-17	-40	-6	24	13	6	4	-1	-34
Q	29	-3	-6	-4	-1	-2	-1	-6	-3	10	1	-10	-13	-8	-4	-6	-7	-4	0	-1	-2	-2	-2	-34	-19	-5
D	30	2	5	-7	-25	-29	-55	-89	-69	-25	-7	-3	-8	-4	0	-84	-169	-42	-147	-134	-81	-51	-64	0	26	-44
	31	21	21	18	29	30	30	22	29	33	2	36	26	8	0	-3	-6	-3	0	1	4	0	6	19	34	15
Mean	-15	-25	-27	-17	-9	11	-4	-3	-10	-9	-14	-27	-36	-29	-28	-35	-21	-23	-30	-32	-53	-40	-86	-25	-22	-22
5Q Mean	0	-9	-8	1	4	2	1	-4	-15	-3	3	-16	-1	-1	0	-17	-2	-1	-1	-9	-3	1	-12	-13	-4	-4
5D Mean	-20	-57	-138	-69	-73	57	-30	-33	-23	-66	-84	-129	-190	-94	-58	-97	-63	-75	-90	-98	-241	-219	-167	-89	-89	-89

AU Index ( Provisional Hourly mean values, unit nT )

April

1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	16	111	145	250	202	98	242	274	185	317	259	192	321	263	157	99	76	107	57	42	58	210	219	269	174
2	112	148	139	118	91	91	155	177	264	227	221	201	102	38	38	105	149	64	55	146	162	187	168	137	137
D 3	129	116	147	151	130	180	182	200	310	295	117	239	222	214	335	295	176	166	228	166	145	165	217	190	196
D 4	72	119	105	68	58	70	102	146	161	258	176	263	430	469	476	287	369	260	314	323	307	128	251	279	229
5	205	86	128	117	114	81	86	104	110	75	87	94	119	136	82	42	79	101	96	56	43	83	30	29	91
6	36	68	122	147	137	157	120	98	122	119	111	79	64	33	25	69	117	123	90	181	103	56	103	71	98
7	108	69	127	178	124	177	180	139	84	83	86	101	110	72	118	103	83	64	43	76	87	67	76	44	100
Q 8	38	77	114	158	159	72	49	37	73	132	148	112	97	77	60	53	56	119	156	193	195	178	205	125	112
9	158	120	175	166	172	140	236	190	123	211	239	252	166	189	274	265	255	241	281	260	184	186	176	153	200
10	145	166	143	112	127	179	114	111	145	151	159	207	124	50	37	27	19	38	43	29	34	39	36	24	94
Q 11	20	14	13	9	11	14	10	15	17	20	24	26	28	26	30	22	27	24	34	37	30	34	47	30	23
12	29	28	44	24	81	23	20	81	81	78	55	58	171	162	229	81	39	35	28	28	29	30	22	30	62
Q 13	36	24	25	27	20	21	25	28	30	26	32	35	46	43	37	35	33	29	32	31	35	54	46	26	32
14	37	27	23	20	30	69	52	42	44	64	72	49	44	39	34	36	35	64	87	59	73	82	30	32	48
15	23	28	17	28	17	16	39	74	55	33	40	47	39	43	57	27	39	43	36	36	45	41	34	34	37
Q 16	28	20	20	22	21	17	20	21	30	34	38	35	46	43	49	83	101	88	52	89	89	37	40	35	44
17	43	52	48	58	169	159	58	43	34	49	50	71	95	153	160	133	44	74	223	325	128	49	45	39	96
18	33	26	27	23	38	40	61	186	162	85	105	149	135	110	71	39	52	57	40	65	150	99	39	39	76
19	46	37	63	96	241	305	293	171	181	74	55	53	49	57	56	52	49	40	43	37	81	69	44	41	93
Q 20	42	35	22	14	15	11	13	18	26	32	37	60	52	67	75	64	56	55	42	47	35	28	24	30	37
21	29	25	25	24	25	24	30	36	60	87	99	59	90	85	72	52	49	47	42	43	41	32	34	37	48
22	34	49	49	22	19	15	22	68	74	85	96	164	102	42	31	76	119	70	31	32	51	29	20	18	55
23	22	20	19	41	21	21	18	16	32	63	61	57	42	46	40	37	64	122	129	72	61	76	76	150	54
24	115	138	137	76	62	103	169	112	121	79	52	27	19	29	39	30	42	65	106	178	170	355	380	267	120
25	187	174	250	250	217	306	277	132	165	211	158	200	199	114	59	25	34	26	36	33	69	49	38	34	135
26	48	50	118	148	179	129	61	98	75	36	29	26	38	30	21	41	50	71	138	175	227	246	212	242	104
27	184	225	334	301	213	248	198	172	138	156	330	222	211	220	241	304	289	355	349	300	174	214	340	310	251
D 28	177	170	323	224	225	158	189	56	171	226	215	290	232	355	343	421	360	384	341	285	236	204	128	75	241
D 29	213	339	302	252	209	257	341	434	259	286	209	290	339	367	408	575	438	337	236	216	299	281	228	316	310
D 30	222	198	298	223	244	320	282	158	108	178	152	212	204	241	305	338	301	280	235	230	171	70	101	129	217
Mean	86	91	116	111	112	116	121	114	114	125	117	129	131	127	131	127	120	118	120	126	117	112	113	107	117
5Q Mean	32	34	38	46	45	27	23	23	35	48	55	53	53	51	50	51	54	63	63	79	76	66	72	49	49
5D Mean	162	188	235	183	173	197	219	198	201	248	173	258	285	329	373	383	328	285	270	244	231	169	185	197	238

AL Index ( Provisional Hourly mean values, unit nT )

April 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-664	-498	-284	-268	-200	-107	-271	-429	-531	-320	-249	-217	-573	-658	-351	-217	-131	-185	-71	-81	-95	-188	-855	-364	-304
2	-197	-189	-269	-363	-90	-92	-408	-348	-465	-510	-366	-170	-41	-60	-144	-212	-271	-51	-75	-163	-318	-161	-276	-94	-222
D	-92	-94	-185	-201	-142	-258	-250	-269	-557	-419	-457	-674	-307	-290	-390	-439	-212	-131	-279	-222	-224	-254	-267	-365	-291
D	-93	-100	-151	-105	-54	-37	-69	-112	-111	-380	-462	-571	-820	-654	-584	-345	-203	-110	-168	-226	-522	-192	-273	-384	-280
5	-296	-331	-200	-94	-92	-101	-235	-212	-242	-189	-117	-145	-284	-336	-207	-119	-154	-225	-114	-48	-46	-132	-126	-42	-170
6	-72	-298	-363	-350	-252	-175	-132	-130	-158	-167	-115	-106	-128	-37	-35	-87	-255	-419	-151	-225	-127	-64	-166	-194	-175
7	-204	-69	-146	-237	-134	-183	-262	-206	-89	-41	-78	-121	-195	-111	-229	-207	-121	-79	-114	-59	-64	-71	-132	-71	-134
8	-36	-111	-185	-114	-99	-40	-19	-31	-74	-129	-111	-149	-143	-106	-88	-67	-60	-162	-382	-279	-170	-145	-150	-102	-123
Q	-114	-130	-182	-89	-103	-208	-198	-165	-168	-160	-207	-213	-314	-368	-436	-408	-409	-345	-187	-229	-289	-199	-97	-99	-221
10	-144	-127	-89	-84	-67	-56	-93	-124	-201	-173	-241	-173	-114	-55	-38	-64	-43	-20	-25	-2	3	-7	-12	-24	-82
11	-25	-29	-33	-30	-30	-33	-42	-38	-49	-53	-48	-55	-59	-63	-57	-55	-61	-55	-27	-29	-30	-32	-38	-42	-42
12	-47	-38	-41	-39	-51	-59	-47	-29	-43	-57	-57	-66	-155	-198	-409	-216	-56	-21	-14	-17	-7	-20	-32	-88	-73
13	-44	-49	-39	-45	-33	-35	-30	-29	-36	-48	-48	-48	-57	-40	-40	-48	-38	-29	-25	-6	-14	-32	-48	-46	-38
14	-47	-48	-38	-39	-45	-51	-64	-47	-42	-46	-58	-54	-44	-42	-45	-42	-29	-93	-91	-64	-32	-42	-25	-33	-48
15	-46	-42	-41	-41	-42	-36	-29	-56	-59	-45	-49	-52	-48	-60	-81	-45	-56	-52	-30	-18	-21	-36	-31	-84	-44
16	-43	-43	-38	-37	-34	-33	-35	-41	-42	-51	-54	-58	-67	-73	-58	-71	-88	-209	-90	-58	-114	-20	-24	-33	-59
17	-44	-37	-49	-49	-76	-138	-58	-36	-44	-43	-49	-44	-57	-120	-154	-186	-29	-36	-55	-205	-103	-1	-17	-26	-69
18	-32	-34	-31	-38	-57	-113	-99	-120	-170	-135	-90	-112	-185	-157	-113	-80	-33	-12	0	-25	-59	-130	-38	-40	-79
19	-86	-33	-38	-65	-507	-338	-288	-125	-80	-59	-82	-70	-40	-34	-33	-24	-24	-24	-7	-4	-39	-95	-33	-25	-90
Q	-21	-22	-23	-32	-36	-37	-36	-44	-37	-46	-58	-54	-52	-49	-38	-41	-68	-43	-11	-4	0	-15	-26	-26	-84
21	-32	-26	-23	-22	-26	-35	-25	-18	-13	-35	-36	-33	-46	-37	-31	-33	-27	-5	3	-4	-4	-8	-28	-30	-24
22	-34	-51	-106	-24	-24	-31	-35	-87	-153	-88	-64	-199	-213	-70	-39	-103	-284	-247	-35	-20	-19	-20	-25	-26	-83
23	-28	-26	-29	-35	-37	-37	-35	-39	-28	-62	-50	-60	-27	-32	-29	-25	-40	-128	-244	-93	-17	-53	-87	-209	-60
24	-172	-294	-266	-116	-45	-89	-276	-202	-197	-41	-21	-25	-27	-45	-118	-74	-79	-169	-145	-179	-174	-541	-590	-440	-180
25	-331	-322	-397	-341	-130	-275	-228	-101	-108	-152	-81	-88	-215	-84	-18	-14	-3	-11	-10	-2	-36	-14	-9	-23	-125
26	-12	-11	-61	-170	-366	-186	-109	-27	-56	-27	-28	-27	-26	-52	-26	-84	-60	-164	-208	-164	-195	-255	-446	-354	-130
27	-482	-496	-404	-348	-449	-370	-139	-172	-147	-97	-217	-188	-192	-284	-500	-591	-326	-455	-374	-483	-409	-467	-284	-211	-337
D	-289	-270	-232	-450	-224	-174	-181	-37	-69	-231	-319	-264	-152	-387	-684	-507	-592	-317	-528	-686	-278	-200	-454	-369	-329
D	-337	-585	-765	-324	-55	-278	-556	-631	-397	-386	-107	-363	-615	-524	-536	-586	-544	-531	-365	-233	-280	-346	-357	-265	-415
D	-360	-287	-394	-508	-376	-341	-280	-133	-80	-137	-390	-334	-396	-434	-452	-411	-514	-389	-223	-341	-201	-42	-47	-173	-302
Mean	-147	-156	-170	-155	-129	-131	-150	-134	-148	-144	-143	-157	-186	-182	-198	-180	-160	-157	-134	-138	-129	-126	-149	-139	-152
5Q Mean	-33	-50	-63	-51	-46	-35	-32	-36	-47	-65	-63	-72	-75	-66	-56	-56	-63	-99	-107	-75	-65	-48	-57	-49	-59
5D Mean	-234	-267	-345	-317	-170	-217	-267	-236	-242	-310	-347	-441	-458	-457	-529	-457	-413	-295	-312	-341	-301	-206	-279	-311	-323

AE Index ( Provisional Hourly mean values, unit nT )

April 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	680	609	430	519	404	206	514	703	717	638	509	411	895	922	509	317	208	293	129	124	154	398	575	634	479
2	310	338	409	482	182	183	563	526	730	738	588	372	144	99	184	318	421	115	132	311	481	349	444	232	360
D	222	211	333	353	273	438	433	470	867	714	575	914	530	504	725	735	389	298	508	389	370	420	485	556	488
D	167	220	257	175	113	108	171	258	273	639	639	835	1251	1123	1061	633	572	371	484	551	829	321	524	664	510
5	502	418	330	212	207	182	322	317	353	264	205	241	404	473	290	162	233	328	212	105	90	215	157	72	262
6	109	367	486	498	390	332	252	229	281	288	228	187	193	70	62	157	373	543	243	408	231	120	270	265	274
7	313	139	274	416	259	360	442	347	174	125	165	224	306	184	348	311	205	144	159	137	153	139	208	116	235
8	75	189	300	274	259	113	69	70	149	262	260	262	242	184	148	121	116	282	540	474	367	325	356	227	236
9	273	251	358	256	276	348	434	355	292	372	447	466	481	559	711	674	665	586	469	491	474	386	273	252	423
10	290	295	234	197	194	236	208	237	347	325	402	382	240	106	77	92	63	59	69	32	30	47	49	49	177
Q	46	43	46	40	41	48	54	54	67	75	74	83	88	89	88	78	90	81	63	67	61	67	87	74	67
12	76	66	85	63	133	82	69	111	125	136	114	125	328	361	639	298	95	57	43	46	38	51	55	68	136
Q	80	74	65	73	55	57	56	58	67	75	81	84	103	85	77	84	72	59	58	37	50	87	95	73	71
14	85	76	62	60	75	121	117	91	86	111	131	104	89	83	80	80	66	157	179	124	106	125	56	67	97
15	70	71	59	69	59	53	70	130	115	79	91	101	89	103	139	73	96	96	67	54	67	78	66	69	82
Q	71	63	59	59	55	50	57	63	74	86	93	95	114	118	108	155	190	299	144	148	205	59	65	69	104
17	88	90	98	108	245	297	117	80	79	93	100	116	152	274	316	321	73	111	278	531	232	51	63	65	166
18	66	61	59	63	96	154	161	308	333	221	196	262	321	268	186	120	86	70	40	91	210	231	78	80	157
19	133	71	102	163	748	644	581	297	262	135	139	124	91	92	89	77	74	65	50	40	121	166	78	66	184
Q	63	58	46	47	51	49	51	63	64	79	97	116	105	116	114	106	125	99	54	52	35	44	51	57	73
21	61	52	48	47	52	60	56	56	73	124	137	93	137	123	103	86	77	53	38	47	46	41	63	68	73
22	69	101	156	47	43	47	58	156	228	174	162	364	316	113	70	180	404	317	67	53	71	49	46	45	139
23	51	47	49	76	60	59	54	56	61	125	112	118	70	79	70	64	105	250	374	167	79	130	163	360	116
24	288	433	404	193	108	192	445	315	319	122	74	54	47	75	158	105	122	235	253	357	344	897	971	708	301
25	519	497	649	592	348	581	505	234	274	364	240	290	415	200	78	40	38	38	47	37	106	64	48	58	261
26	61	62	179	319	546	316	170	125	131	65	58	54	65	83	49	126	111	236	347	340	423	502	659	597	234
27	667	721	738	650	664	619	338	344	286	254	548	412	405	506	742	895	616	810	724	784	584	682	625	522	589
D	468	441	555	675	450	333	370	93	241	458	535	555	385	743	1028	929	953	701	869	972	515	404	584	446	571
D	552	926	1067	577	265	536	898	1065	657	673	317	653	955	892	945	1162	983	869	602	450	580	627	586	582	726
D	583	486	692	732	621	663	563	292	189	317	544	546	601	676	757	750	816	670	459	573	373	113	148	303	520
Mean	234	249	287	267	242	248	273	250	263	271	262	288	318	310	331	308	281	276	256	266	247	239	264	248	270
5Q Mean	67	85	103	98	92	63	57	61	84	115	121	128	130	118	107	108	118	164	171	155	143	116	130	100	110
5D Mean	398	456	580	502	344	415	487	435	445	560	522	700	744	787	903	841	742	581	584	587	533	377	465	510	562

AO Index ( Provisional Hourly mean values, unit nT )

April 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-323	-193	-69	-8	0	-4	-14	-76	-172	-1	5	-12	-125	-197	-96	-58	-27	-39	-7	-19	-18	10	-68	-47	-65
2	-42	-20	-64	-122	0	0	-125	-84	-100	-140	-71	14	29	-10	-52	-52	-60	5	-9	-8	-77	12	-53	21	-42
D 3	17	10	-18	-24	-6	-38	-33	-33	-122	-61	-169	-217	-42	-37	-27	-71	-17	17	-25	-28	-39	-43	-25	-86	-46
D 4	-10	9	-22	-18	1	15	16	16	24	-60	-142	-153	-194	-92	-53	-28	82	74	72	48	-106	-31	-11	-52	-25
5	-45	-121	-36	11	10	-9	-73	-53	-65	-56	-14	-25	-82	-99	-62	-37	-37	-61	-8	4	-1	-24	-48	-6	-39
6	-17	-114	-119	-100	-56	-8	-5	-15	-17	-23	-2	-13	-31	-1	-4	-8	-68	-147	-29	-21	-11	-3	-31	-61	-38
7	-47	0	-9	-29	-4	-2	-40	-33	-2	20	3	-10	-42	-19	-54	-51	-18	-7	-35	8	11	-2	-27	-13	-16
8	1	-16	-34	22	29	16	14	3	0	1	17	-18	-22	-13	-13	-6	-1	-21	-112	-42	12	16	26	10	-5
Q 9	21	-5	-3	38	34	-33	19	12	-21	25	15	19	-73	-89	-80	-70	-76	-51	46	15	-52	-6	38	26	-10
10	0	19	26	13	29	61	10	-5	-27	-10	-40	17	4	-2	0	-18	-11	8	8	13	19	15	11	0	6
11	-2	-7	-9	-9	-8	-9	-15	-10	-15	-16	-11	-14	-15	-17	-13	-16	-16	-15	3	4	0	0	4	-5	-8
12	-8	-4	2	-7	15	-17	-13	25	18	10	0	-3	7	-17	-89	-66	-8	5	6	5	10	4	-4	-3	-5
13	-3	-11	-6	-8	-5	-6	-2	0	-3	-10	-7	-6	-4	1	-1	-6	-2	0	3	12	10	10	0	-9	-2
14	-4	-9	-7	-8	-7	8	-6	-2	1	8	7	-2	0	-1	-4	-2	2	-14	-2	-2	20	19	2	0	0
15	-10	-6	-11	-6	-11	-9	4	8	-2	-5	-3	-2	-4	-8	-11	-8	-8	-4	2	8	11	2	2	0	-3
16	-6	-10	-8	-7	-5	-7	-7	-9	-5	-8	-7	-11	-9	-14	-3	5	6	-60	-18	15	-12	8	7	0	-7
17	0	6	0	4	45	10	0	3	-4	3	0	13	18	15	2	-26	7	19	83	59	12	23	13	6	13
18	0	-3	-1	-6	-9	-36	-18	32	-3	-24	7	18	-24	-23	-20	-20	8	22	20	19	45	-15	0	0	-1
19	-19	1	12	15	-132	-16	2	23	50	7	-13	-8	4	11	11	13	11	7	17	16	20	-12	4	7	1
Q 20	10	5	0	-8	-9	-12	-11	-12	-5	-6	-9	2	0	8	18	11	-5	5	15	21	17	6	-1	1	1
21	0	0	0	1	0	-4	2	8	22	25	31	12	21	23	19	8	10	20	22	19	17	11	2	3	11
22	0	0	-27	0	-2	-7	-6	-9	-38	-2	15	-17	-54	-13	-3	-13	-82	-88	-2	5	15	4	-1	-3	-13
23	-2	-2	-4	3	-7	-7	-7	-11	2	0	4	-1	7	6	5	5	11	-2	-57	-10	21	10	-5	-29	-2
24	-28	-77	-63	-19	8	7	-52	-44	-38	18	14	0	-3	-7	-39	-21	-18	-51	-19	0	-2	-92	-104	-86	-30
25	-71	-73	-73	-45	42	15	24	15	28	29	38	55	-7	14	20	5	14	7	12	15	15	17	13	5	4
26	17	18	28	-11	-92	-28	-23	35	9	4	0	0	5	-10	-2	-21	-5	-46	-34	5	15	-4	-116	-55	-13
27	-148	-135	-35	-23	-117	-60	29	0	-3	29	55	16	8	-32	-129	-142	-18	-49	-11	-90	-117	-126	28	48	-42
D 28	-55	-49	44	-113	0	-7	3	9	50	-2	-51	12	39	-16	-169	-42	-115	33	-93	-200	-20	1	-162	-146	-43
D 29	-61	-122	-231	-35	76	-10	-107	-97	-68	-50	50	-36	-137	-78	-63	-5	-52	-96	-64	-8	9	-31	-64	25	-52
D 30	-68	-44	-48	-141	-65	-10	0	12	14	20	-118	-60	-96	-96	-72	-36	-106	-54	5	-54	-14	13	26	-22	-42
Mean	-30	-31	-26	-21	-8	-6	-14	-9	-16	-9	-13	-14	-27	-27	-32	-25	-19	-19	-7	-6	-6	-6	-18	-15	-17
5Q Mean	0	-7	-11	-2	0	-3	-4	-5	-5	-7	-3	-9	-10	-7	-2	-2	-3	-18	-21	2	5	8	7	0	-4
5D Mean	-35	-39	-55	-66	1	-10	-24	-18	-20	-30	-86	-90	-86	-63	-76	-36	-41	-5	-21	-48	-34	-18	-47	-56	-42

AU Index ( Provisional Hourly mean values, unit nF )

Date	1991																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	195	180	146	198	172	127	114	206	163	180	274	223	92	158	233	125	177	170	183	176	234	203	98	190	176
D	169	200	291	242	211	333	260	195	447	409	231	233	317	375	451	380	352	312	358	252	194	225	267	168	286
3	179	154	162	194	240	90	99	79	115	203	90	116	188	116	71	65	89	69	77	156	121	124	158	201	132
4	179	132	42	37	33	72	160	165	107	53	31	28	44	58	92	64	90	85	36	80	87	96	49	56	78
5	178	188	157	173	180	226	155	124	60	84	70	101	86	69	62	59	50	53	73	73	45	41	45	107	102
6	57	39	82	57	87	157	177	120	34	28	23	47	46	37	88	84	70	41	41	31	40	76	92	167	72
7	116	68	32	25	26	108	160	97	113	152	67	53	64	95	110	79	50	45	47	45	32	31	21	52	70
8	117	76	41	31	30	122	196	105	81	52	83	125	78	70	59	82	123	151	263	136	83	45	48	42	93
9	75	65	39	69	70	72	53	44	75	50	70	91	99	73	56	40	133	233	378	359	408	187	88	54	120
10	50	40	33	24	24	93	74	131	75	63	124	263	196	64	41	36	95	99	43	67	64	73	273	120	90
11	48	49	41	28	18	15	26	24	48	83	91	109	89	86	55	55	29	44	43	35	31	35	32	24	47
12	29	21	19	23	75	115	80	36	27	39	36	34	37	49	90	76	57	44	97	131	150	100	102	104	66
13	132	236	195	227	228	178	140	154	166	470	544	385	244	151	302	524	403	299	533	397	264	273	105	105	277
D	72	51	61	57	213	247	390	474	254	138	314	173	266	484	539	501	535	511	273	196	135	149	122	100	259
15	51	53	51	47	44	29	93	93	125	151	80	60	50	35	41	33	20	22	26	30	35	33	28	25	52
16	28	23	15	13	14	18	20	28	27	34	56	57	51	48	74	47	69	105	261	229	184	141	124	109	74
17	363	444	212	136	283	490	423	392	265	281	282	159	152	117	131	60	82	39	39	32	45	30	21	19	187
18	12	7	4	0	-2	9	7	17	19	28	64	47	37	23	17	20	16	15	13	11	13	11	11	14	17
19	15	12	11	6	0	-2	0	0	1	7	4	15	12	9	9	13	19	12	19	30	31	30	28	34	13
20	30	20	14	17	18	20	20	23	31	31	32	28	25	23	20	32	27	27	28	28	36	35	35	32	26
21	27	16	15	14	17	25	42	51	55	62	106	131	86	83	97	78	72	88	103	75	65	56	47	48	61
22	79	64	70	120	96	297	321	274	203	149	295	247	232	189	173	182	145	242	293	351	392	219	95	176	204
23	168	110	162	95	280	148	71	117	215	166	156	108	356	355	270	226	136	179	203	244	231	328	372	234	205
24	185	258	208	194	174	310	318	184	75	65	107	214	209	261	300	215	86	118	317	420	306	286	290	294	225
D	198	378	395	397	395	429	378	123	71	156	354	250	232	140	82	269	257	186	199	328	245	198	71	128	244
26	206	196	139	237	131	87	175	195	237	102	181	215	173	180	237	296	250	248	265	261	131	207	112	117	191
27	194	303	386	247	264	285	201	233	134	210	300	233	211	382	178	159	116	66	54	113	240	277	232	129	214
28	225	369	348	325	263	131	97	180	199	158	137	181	213	118	57	255	308	354	313	446	316	259	278	295	243
29	184	323	376	163	210	200	187	169	239	202	263	181	190	188	230	162	117	104	156	281	271	286	316	239	218
30	273	271	248	131	118	124	194	198	210	232	142	123	142	132	86	109	212	174	161	208	256	227	245	152	182
D	161	231	249	198	317	151	255	409	397	391	440	295	228	588	630	451	387	394	118	106	153	99	77	72	283
Mean	128	147	136	120	136	151	157	149	137	142	162	145	143	151	157	154	147	146	161	171	156	141	125	116	145
5Q Mean	26	21	17	14	21	31	26	20	25	37	45	46	40	38	38	39	29	28	40	47	52	42	41	41	33
5D Mean	192	260	241	206	283	330	341	318	286	275	324	222	239	330	366	332	322	288	197	182	154	140	111	97	251







AO Index ( Provisional Hourly mean values, unit nT )

May 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	10	-182	-105	37	-88	-5	17	20	-4	-14	-29	0	-79	-2	-94	-50	-19	-36	-8	30	-43	-44	4	-4	-28
	-57	-115	-55	-139	0	79	-1	4	56	39	-82	-104	-179	-74	-51	-111	-40	-121	44	-20	-66	-37	2	-33	-44
	-50	-77	-46	0	-78	-13	1	11	-2	-15	5	16	-54	-82	-40	-24	-9	-21	5	-11	-11	25	-28	-93	-24
	-65	-45	-17	5	-1	1	-24	-33	-4	3	-5	-2	0	-2	-23	-23	-77	-26	0	15	9	0	-11	0	-13
	27	-24	7	17	28	23	15	7	2	-3	5	17	5	-1	-4	5	-18	-13	10	21	17	12	6	13	7
	0	0	16	2	7	-22	-15	-10	1	-4	-9	1	4	-1	7	-51	-60	-32	3	4	5	5	-5	18	-5
	20	17	4	1	4	44	19	-8	37	53	6	4	12	33	42	35	5	17	12	18	14	10	4	8	17
	29	-42	-13	2	3	50	-11	14	27	10	18	30	3	6	16	8	14	-34	-50	29	29	9	7	0	6
	7	3	0	6	-27	6	3	3	23	10	22	31	33	28	12	-1	24	42	-74	-42	-16	-7	10	9	4
	-3	-25	1	3	6	34	3	8	-9	10	32	57	-22	-14	-1	-7	5	4	6	19	18	6	39	-26	6
Q	7	12	11	5	0	-1	0	-1	6	18	20	24	18	21	3	11	-1	-2	10	9	6	13	10	1	8
Q	2	0	0	0	27	34	5	-5	-2	5	-1	-4	-3	0	-6	-28	-57	-47	-28	-18	-14	2	-1	6	-5
	16	57	26	29	25	40	44	41	12	-23	35	51	59	-32	-46	102	-29	-98	64	33	0	62	38	32	22
D	20	9	16	15	70	31	-1	-11	-8	29	-15	-173	-41	23	13	-106	-139	-26	-28	63	44	46	-30	-51	-10
	0	4	4	-1	6	-1	28	27	41	35	17	15	9	6	17	4	0	-1	0	3	6	5	4	0	9
	0	-3	-9	-9	-7	-7	-8	-12	-6	0	7	8	7	11	23	17	15	14	63	41	48	49	29	33	12
D	125	19	5	15	74	28	6	31	-114	-23	61	16	30	14	-14	2	9	1	-4	5	10	1	-3	-7	12
Q	-9	-15	-20	-21	-24	-18	-25	-13	-15	-13	6	4	5	2	0	0	-4	-3	0	1	-1	-10	-11	-14	-8
Q	-10	-15	-11	-11	-17	-20	-21	-20	-16	-12	-12	-5	-6	-5	-3	-4	0	-5	2	9	10	10	1	7	-6
Q	2	-6	-13	-5	-4	-4	-4	-1	0	0	3	0	0	2	1	8	10	10	12	13	15	11	12	7	3
	3	-2	-5	-3	-2	0	8	11	13	13	32	20	14	32	37	37	35	23	19	46	36	25	12	13	17
	26	23	17	39	34	94	80	64	61	49	48	2	0	-15	-20	-23	-28	-39	-91	-9	44	68	14	17	19
	-50	-21	-21	15	75	-3	25	39	-5	-5	41	17	85	-33	-138	-157	14	-2	-26	-4	4	41	33	-6	-3
	-63	-19	34	58	50	45	-51	-87	5	25	21	21	-110	-53	49	11	-45	-66	-25	-26	-51	-10	8	3	-11
D	-33	-17	-128	-56	70	50	10	13	2	39	-16	-79	-55	-39	-12	-56	-149	-146	19	-29	-38	11	-7	-43	-28
	9	-68	-67	22	-8	-21	10	-24	-86	9	48	-9	-89	-82	-105	-100	39	-26	-5	-34	3	25	-43	-45	-27
	-49	41	-8	-85	-51	-11	10	8	1	-6	-33	27	-19	-56	-38	-50	-4	-13	-8	6	16	-37	-5	9	-14
	-45	-137	-64	-99	-23	-9	8	44	42	-14	30	42	-21	-35	0	-36	-1	-5	-151	-62	-27	-29	-28	-64	-28
	-158	-98	-101	-94	14	49	47	39	-18	-14	-15	-10	-26	-95	-92	-58	-64	-29	-39	-69	1	-30	6	23	-34
	40	15	23	-17	14	-32	-6	-38	52	-33	15	35	19	-23	-117	-125	-19	-13	-60	-58	16	12	-5	11	-12
D	32	-8	-71	-82	3	22	14	-13	-67	-210	-56	-83	-115	48	-223	-31	-54	85	53	48	49	1	6	8	-26
Mean	-7	-23	-19	-11	5	14	6	3	0	-1	6	-1	-16	-13	-26	-25	-20	-19	-8	1	4	7	2	-5	-6
5Q Mean	-1	-4	-6	-6	-3	-1	-9	-8	-5	0	3	3	2	4	-1	-2	-10	-9	0	2	3	5	2	1	-1
5D Mean	17	-22	-46	-49	43	42	5	4	-26	-25	-21	-84	-72	-5	-57	-60	-74	-41	16	13	0	4	-6	-25	-19





AE Index ( Provisional Hourly mean values, unit nT ) June 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	224	389	175	333	722	767	795	624	921	1277	864	291	272	279	213	446	245	150	142	174	188	210	339	593	443
2	785	709	804	889	1041	1010	1020	967	767	577	323	200	188	184	108	152	709	1114	938	623	867	809	737	173	654
3	153	157	154	107	226	341	392	729	240	235	254	364	321	332	396	324	202	353	428	748	552	469	602	487	357
4	458	208	93	107	100	82	77	88	138	71	92	58	40	56	199	297	1073	1487	1316	866	1205	1008	280	460	411
D 5	462	932	988	792	1134	1396	483	790	405	452	865	837	898	1232	1175	1604	1213	718	711	1093	844	613	455	469	857
6	409	769	1076	901	720	613	339	591	1040	1005	516	454	325	237	184	119	120	148	111	146	188	139	334	403	452
7	431	278	250	451	722	780	729	839	931	282	522	342	255	334	382	202	164	371	550	682	319	280	257	256	442
8	241	361	306	161	208	281	213	146	199	295	179	262	216	274	357	895	1277	1211	1010	564	393	334	237	459	420
9	546	1669	1770	471	299	262	274	409	295	231	249	463	422	414	582	395	460	1255	1164	756	567	358	181	177	569
D 10	319	282	421	398	377	336	702	1273	1541	830	892	871	1062	902	1081	1293	1395	2042	1641	1202	924	450	530	587	890
11	823	709	1197	1069	1022	1303	1363	1202	724	731	427	654	992	964	847	1008	1266	1348	1052	1060	1456	1197	905	838	1006
12	697	946	1133	961	1083	849	360	125	191	424	833	1144	896	751	557	607	1260	1768	1078	550	671	412	347	330	749
D 13	448	891	610	362	386	381	435	523	1060	816	1004	1258	918	1347	605	514	843	1532	1163	1094	735	342	314	260	743
Q 14	175	182	228	187	88	71	74	100	182	205	144	269	152	201	121	77	71	70	64	70	69	77	93	129	129
15	129	162	214	216	301	423	487	498	656	789	694	329	335	284	366	518	607	346	238	164	96	117	102	91	340
16	76	71	75	66	74	96	79	77	81	118	219	246	262	134	141	102	86	113	114	78	97	140	93	114	115
17	312	414	253	287	596	551	462	376	403	435	433	735	717	1022	1440	1343	793	389	509	533	861	982	601	445	621
18	251	367	403	511	593	355	459	473	653	350	144	81	58	64	217	261	282	597	636	608	520	485	426	425	384
19	391	509	613	433	586	739	581	587	703	532	148	233	473	376	157	229	573	759	678	343	337	211	213	534	456
20	254	263	544	180	407	136	138	210	103	69	67	58	50	97	52	146	183	282	469	240	284	400	203	262	212
21	583	523	210	107	168	379	508	286	165	140	212	289	277	190	139	236	484	364	389	414	534	537	421	403	332
22	513	480	151	232	546	746	592	431	346	318	228	200	274	568	380	336	305	342	219	296	403	570	723	473	403
23	296	444	326	237	529	530	630	830	775	750	957	433	521	998	1110	710	767	807	866	1052	1144	702	843	886	714
24	663	856	905	534	522	723	513	513	569	751	682	578	522	419	499	432	359	616	305	373	496	585	259	326	542
25	539	504	305	359	537	507	413	340	295	360	435	425	330	213	208	490	531	566	559	663	572	490	574	534	448
26	702	595	370	224	398	587	565	430	309	499	340	287	440	262	268	440	589	504	490	384	350	480	554	363	435
Q 27	392	438	365	161	96	70	82	101	221	438	666	461	117	79	88	175	193	349	337	213	198	328	337	456	265
Q 28	452	274	272	505	495	391	411	219	192	257	378	350	175	184	243	295	347	255	270	197	190	172	132	123	283
Q 29	120	79	84	88	93	110	136	215	116	141	169	216	316	164	108	99	106	72	80	144	146	189	154	136	137
30	151	266	396	663	693	397	298	302	202	198	145	297	423	775	841	813	727	819	812	956	894	677	379	308	518
Mean	399	490	489	399	492	507	453	476	480	452	436	422	408	444	435	485	574	691	611	542	535	458	387	383	477
5Q Mean	243	208	204	201	169	147	156	142	158	231	315	308	204	152	140	149	160	171	173	140	140	181	161	191	185
5D Mean	455	640	678	590	728	836	755	882	930	821	810	782	828	944	784	973	992	1158	941	924	829	562	508	549	787

A0 Index ( Provisional Hourly mean values, unit nT )

June 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	30	46	37	55	78	14	-44	-8	-112	-258	-114	16	28	15	49	33	59	33	28	42	38	41	63	18	6
2	-112	-76	-124	-36	-125	-45	-21	-103	-54	-3	-11	28	0	22	16	30	28	-69	-36	-32	-80	-118	-63	18	-40
3	3	-12	-6	2	25	66	12	-70	10	49	63	-19	-43	-43	-50	-34	-23	-26	1	-47	-2	55	13	-45	-5
4	14	-11	0	-4	-2	-4	-8	0	17	-4	9	19	17	1	-4	-40	-31	-234	-188	62	4	-89	42	-3	-18
D 5	26	121	-4	133	183	-221	11	91	-7	8	-105	-243	-79	-169	-174	-681	-382	-89	58	-207	-145	-113	-56	-92	-89
6	-161	-54	-119	-32	18	23	52	52	-110	-256	-28	10	-39	-14	-27	-7	-2	-1	8	1	-4	-5	24	-72	-31
7	-60	-22	20	16	18	45	-41	-5	-80	13	3	-2	36	20	-13	38	39	9	6	-52	0	8	17	16	1
8	10	13	0	13	37	22	56	32	57	64	31	47	-3	18	5	44	-27	4	-42	43	48	48	48	72	26
9	31	-109	105	73	54	74	103	51	34	65	42	65	10	-7	-78	-59	37	38	-199	91	-11	-9	25	-7	17
D 10	-27	38	-66	-51	-8	-16	75	-206	7	-52	-194	32	-49	-81	29	-154	-169	-109	-67	96	24	40	29	-89	-40
D 11	106	90	-58	-32	172	-39	-220	-234	53	-104	-79	-8	-116	-143	-64	-37	-128	-208	-203	-194	-299	-120	-178	-122	-90
12	-20	-98	-194	-75	-185	-102	21	-16	13	-18	-91	47	85	70	63	65	134	111	97	61	14	60	100	36	7
D 13	60	-175	-97	-6	34	25	-13	-14	-182	-186	-95	-210	-278	-209	-80	4	-84	-375	-382	-117	-21	21	-10	-10	-100
Q 14	22	11	-29	-32	4	-16	-5	24	-14	-14	14	-49	-3	-21	-11	0	-4	-5	-1	-11	-15	-15	-12	-5	-8
15	-21	-32	-14	13	20	-2	-34	-28	127	82	0	42	7	-2	-22	24	7	26	-10	1	16	4	-5	-5	8
Q 16	-6	-10	-12	-9	-13	-2	-5	-10	4	18	44	-4	-23	8	-18	1	-4	-14	4	18	22	12	6	4	0
17	35	14	48	51	39	50	76	34	1	73	115	40	-63	-54	-214	-261	-34	44	7	58	86	-66	-50	-19	0
18	0	0	117	23	59	20	48	45	-28	-23	27	19	13	-4	-19	-25	-44	-102	-99	2	35	35	34	-11	5
19	-40	-65	-86	19	29	-14	-26	26	44	-41	34	25	-47	-87	-1	0	-27	-153	-66	0	34	48	-1	-24	-17
20	-39	2	-103	-26	4	4	7	-5	-16	-4	3	5	1	-12	0	-1	-48	-63	-102	-23	-7	-48	-11	6	-20
21	-40	-75	6	11	16	77	-44	-58	20	47	69	43	-10	-16	5	-10	-5	-48	-34	-4	-34	-12	58	32	0
22	42	-5	21	27	-31	-104	-73	21	7	16	-8	33	28	-87	-62	-34	9	-64	-11	-7	-15	-15	-14	-61	-16
23	16	-15	-28	0	-19	-62	-12	-115	-100	-50	-171	-14	-52	-20	-94	-82	-9	-80	-184	-151	-208	-178	-91	-121	-77
24	-81	-67	-49	-33	-50	-82	-29	19	-2	-18	-27	-59	40	33	-4	-25	-46	-112	4	-22	4	-55	-22	6	-28
25	-15	-14	24	-64	8	-14	12	16	11	5	7	-55	-69	-39	-7	-38	-86	-71	-96	-75	2	32	57	15	-18
26	-23	-63	-24	-18	27	-57	-41	-26	51	4	26	-3	-53	-3	-3	-50	-47	-12	-25	29	8	55	-46	13	-11
Q 27	3	-26	-22	9	8	1	-1	24	44	13	-19	-59	9	-6	-7	-3	-30	-60	-45	27	-3	-22	2	5	-6
Q 28	-2	-28	0	-38	-47	-9	0	57	50	62	6	-14	5	1	-52	-54	-85	-28	-3	7	8	9	3	8	-6
Q 29	6	-4	-8	-7	-6	6	33	-12	18	17	31	-1	-62	-21	-21	-8	-9	-2	0	-15	-6	0	19	22	-1
30	-3	46	98	47	-7	31	91	55	44	51	59	59	-4	-39	-20	-80	-6	38	61	-25	104	106	103	29	35
Mean	-8	-19	-18	0	11	-11	0	-12	-3	-14	-11	-7	-23	-29	-29	-48	-33	-54	-50	-14	-13	-9	2	-14	-17
5Q Mean	4	-11	-14	-15	-10	-4	4	16	20	19	15	-25	-14	-7	-21	-12	-26	-21	-9	5	1	-3	3	6	-4
5D Mean	39	24	-37	19	91	-47	-38	-74	-48	-118	-117	-82	-98	-117	-48	-167	-140	-149	-113	-76	-80	-26	-30	-66	-62





AL Index ( Provisional Hourly mean values, unit nT )

July 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
Q	-190	-79	-58	-137	-254	-109	-31	-35	-41	-32	-23	-30	-27	-29	-43	-37	-26	-27	-69	-67	-98	-58	-48	-37	-66
	-31	-32	-34	-27	-37	-141	-214	-426	-337	-197	-256	-123	-87	-98	-113	-257	-290	-222	-172	-218	-249	-332	-320	-284	-187
	-147	-425	-427	-326	-474	-390	-431	-350	-236	-167	-170	-103	-158	-323	-119	-198	-100	-101	-351	-290	-359	-447	-247	-129	-269
	-263	-180	-249	-108	-158	-194	-187	-95	-112	-95	-56	-22	-71	-93	-108	-103	-91	-9	-5	-3	-25	-41	-40	-37	-98
Q	-40	-33	-43	-32	-49	-39	-34	-27	-27	-36	-49	-60	-21	-17	-45	-59	-59	-62	-62	-37	-29	-28	-37	-31	-40
	-29	-52	-64	-126	-100	-51	-23	-26	-24	-81	-136	-160	-109	-35	-58	-56	-80	-30	-15	-68	-103	-243	-189	-77	-81
	-78	-71	-117	-190	-152	-77	-41	-56	-52	-36	-16	-25	-45	-43	-121	-223	-204	-165	-78	-81	-65	-122	-97	-85	-93
D	-123	-249	-267	-267	-277	-385	-514	-458	-374	-489	-227	-172	-331	-180	-232	-439	-699	-860	-625	-368	-218	-186	-93	-104	-339
D	2	-32	-47	-188	-176	-221	-189	-1000	-1076	-734	-651	-581	-746	-986	-652	-492	-403	-573	-588	-479	-640	-361	-336	-310	-477
	-373	-479	-324	-237	-291	-419	-333	-319	-294	-120	-255	-334	-374	-235	-144	-129	-117	-135	-261	-112	-50	-39	-56	-102	-230
	-236	-195	-108	-228	-250	-236	-430	-462	-560	-452	-250	-449	-218	-191	-167	-293	-186	-83	-63	-30	-50	-261	-334	-194	-247
	-134	-289	-346	-300	-202	-235	-216	-437	-292	-324	-338	-164	-165	-207	-88	-144	-148	-330	-198	-64	-86	-59	-104	-169	-210
	-348	-415	-297	-365	-107	-222	-329	-524	-559	-252	-676	-1004	-717	-642	-583	-1025	-766	-627	-526	-407	-349	-1084	-1023	-387	-551
D	-113	-452	-720	-507	-215	-446	-365	-434	-757	-558	-537	-540	-268	-429	-606	-682	-469	-434	-658	-536	-459	-365	-441	-477	-478
D	-546	-386	-327	-144	-185	-117	-93	-109	-188	-216	-142	-154	-104	-94	-85	-46	-74	-40	-53	-85	-102	-108	-72	-60	-147
	-117	-59	-81	-99	-106	-165	-47	-39	-42	-61	-54	-48	-44	-45	-74	-127	-444	-524	-802	-518	-226	-83	-196	-353	-181
D	-242	-143	-451	-792	-916	-681	-575	-278	-397	-251	-229	-345	-298	-232	-179	-539	-300	-300	-452	-371	-491	-493	-608	-445	-417
	-514	-466	-117	-116	-63	-111	-117	-60	-37	-34	-37	-92	-94	-81	-72	-168	-179	-271	-316	-342	-422	-278	-146	-197	-180
	-419	-90	-76	-377	-376	-466	-380	-149	-175	-61	-62	-269	-334	-132	-309	-494	-440	-351	-389	-624	-544	-300	-228	-293	-306
	-184	-90	-114	-216	-108	-404	-488	-491	-613	-540	-220	-186	-102	-179	-346	-152	-77	-161	-240	-160	-92	-165	-108	-193	-235
	-196	-327	-474	-542	-559	-382	-322	-115	-81	-107	-119	-324	-487	-256	-125	-126	-154	-213	-244	-282	-279	-285	-399	-158	-273
	-158	-307	-313	-185	-118	-285	-325	-186	-123	-113	-96	-103	-356	-232	-206	-184	-65	-186	-192	-134	-164	-87	-155	-554	-201
	-349	-210	-145	-200	-121	-77	-123	-162	-148	-111	-145	-173	-208	-175	-199	-154	-199	-296	-256	-108	-50	-48	-52	-47	-156
	-44	-34	-35	-30	-33	-36	-69	-189	-100	-53	-70	-63	-102	-103	-174	-98	-138	-213	-123	-73	-49	-64	-86	-140	-88
	-83	-66	-76	-75	-105	-142	-218	-216	-252	-198	-160	-56	-152	-112	-218	-305	-200	-160	-242	-199	-116	-67	-66	-60	-148
Q	-65	-50	-37	-40	-48	-148	-161	-69	-41	-45	-48	-50	-104	-126	-87	-49	-41	-37	-47	-31	-26	-27	-27	-35	-60
	-42	-61	-67	-67	-39	-25	-21	-36	-34	-51	-61	-58	-49	-33	-27	-23	-41	-112	-183	-181	-285	-354	-190	-201	-93
Q	-103	-62	-65	-148	-135	-30	-20	-18	-37	-35	-42	-46	-46	-39	-35	-36	-30	-33	-28	-33	-39	-37	-34	-38	-49
Q	-40	-42	-43	-38	-31	-35	-24	-17	-35	-47	-60	-89	-116	-99	-151	-111	-95	-76	-111	-117	-75	-93	-54	-71	-70
	-92	-160	-139	-89	-186	-47	-15	-45	-161	-103	-61	-49	-50	-50	-39	-66	-86	-305	-227	-131	-58	-47	-55	-52	-96
Q	-51	-43	-34	-40	-35	-35	-31	-48	-43	-51	-59	-65	-72	-115	-98	-68	-84	-119	-171	-111	-86	-252	-155	-149	-84
Mean	-172	-179	-183	-201	-190	-204	-205	-221	-233	-182	-171	-191	-195	-180	-177	-222	-202	-227	-249	-201	-189	-206	-193	-176	-198
5Q Mean	-59	-46	-44	-59	-59	-57	-54	-35	-36	-42	-51	-62	-71	-79	-83	-64	-61	-65	-83	-65	-51	-87	-61	-64	-60
5D Mean	-164	-258	-356	-423	-338	-391	-394	-538	-632	-456	-464	-528	-472	-493	-450	-635	-527	-558	-569	-432	-431	-497	-500	-344	-452



AO Index (Provisional Hourly mean values, unit nT)

July 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
1	-34	37	65	125	74	3	4	7	18	8	18	17	18	34	45	56	73	92	14	22	53	35	15	8	33	
2	7	4	1	3	65	60	5	-58	-21	21	47	66	19	22	67	48	11	88	102	88	73	22	28	21	33	
3	103	-57	-74	-28	-8	-18	-20	11	57	125	73	69	14	-81	23	26	62	69	-28	31	-4	-22	41	112	19	
4	30	47	-37	-5	40	43	0	37	82	93	34	53	52	30	8	9	6	36	32	28	18	12	8	0	27	
Q	0	-4	6	21	5	1	1	19	24	36	27	27	43	17	-4	-10	-15	-8	0	8	4	6	4	3	8	
6	10	0	12	-12	14	17	6	13	25	46	28	-14	-7	13	6	2	-7	6	14	12	42	-24	-6	15	9	
7	18	50	82	68	131	21	-14	-21	-12	-4	9	12	4	5	-6	-75	-78	-54	2	21	36	17	16	15	10	
D	30	9	12	72	77	0	-77	2	8	-128	80	108	-23	5	15	-53	-38	-3	227	230	107	96	144	106	42	
D	100	63	64	101	124	57	113	-401	-516	-263	-137	-155	-249	-328	-189	-160	-42	-123	-95	-4	-191	0	24	50	-89	
10	-35	-109	-4	-2	-17	-90	-69	-52	-11	34	29	5	-51	-59	-22	-27	-4	-29	-81	-22	-8	-6	-2	-2	-26	
11	-28	-53	-9	-40	-50	37	-71	-71	-117	-34	33	-55	-18	-25	-10	-51	-21	-8	-10	4	10	-44	-26	-36	-29	
12	-9	-49	-36	-36	-17	-35	-6	-87	-15	59	29	26	45	-7	37	39	65	-7	13	47	29	22	22	-1	5	
D	13	-45	-67	-11	61	3	38	59	126	73	39	-224	-287	-234	-283	-214	-483	-281	-130	-113	-59	-47	-527	-467	-93	-132
D	14	31	-84	-242	-40	77	-13	12	-42	-327	-179	-139	-88	-32	-81	-109	-166	-104	-74	-166	-101	-69	-4	-59	-175	-90
15	-180	-77	-48	56	54	29	18	-9	-17	-52	-4	-17	-9	-20	-6	-9	-29	-18	-17	-15	-36	-25	-4	-15	-19	
16	-12	-13	-23	0	-10	-17	-11	-13	-15	-13	-20	-21	-15	-13	-14	-10	-134	-113	-202	-91	3	25	11	-109	-34	
D	17	-63	-7	-30	-219	-282	-166	-116	-13	-58	-55	-36	-85	-38	-43	-33	-140	-70	-56	-118	-80	-62	-92	-194	-91	-89
18	-158	-122	86	31	0	20	-23	-9	0	0	9	5	-8	1	1	-27	-49	-38	-59	-36	-38	-43	-7	-13	-20	
19	-98	1	24	-56	-57	-95	-93	-36	33	39	33	-29	-62	-18	-43	-134	-104	-34	-57	-177	-147	0	0	-45	-48	
20	-8	-4	16	-20	52	-49	-100	-5	-91	-137	63	-5	2	-17	-68	-20	22	37	-45	-14	12	1	36	-48	-16	
21	-47	-55	-78	-81	-161	-17	-40	-11	15	-11	24	-66	-128	-40	-23	-28	-6	-47	-60	-41	-25	-9	-80	-24	-43	
22	10	-55	-46	-13	18	7	-55	-2	12	26	63	30	-91	-12	0	-39	7	-28	-45	-18	-18	9	35	-122	-13	
23	-38	-40	-12	-38	-36	11	-7	-41	-34	-16	-31	-14	-28	-9	-28	9	21	44	-1	13	1	-2	9	4	-11	
24	-1	1	0	1	-1	11	33	-40	-27	-15	-2	-11	-23	-19	-57	-20	-29	-50	1	10	1	-2	1	-27	-11	
25	-13	-19	-28	-26	-18	25	-55	-12	-35	-30	-9	21	-2	-1	-34	-90	-72	-30	-52	-2	8	6	3	10	-19	
Q	-8	-1	4	2	19	1	-16	3	15	5	-5	9	2	-15	-12	-2	-3	-7	-8	-2	4	8	3	2	0	
27	-5	-3	4	-10	0	10	25	13	-6	-13	-16	-13	-9	-1	0	4	3	-26	-31	2	-27	-31	30	7	-3	
Q	4	18	5	8	-11	-2	-4	0	3	-10	-12	-13	-8	-5	-6	-8	-5	-3	3	2	-4	-5	-3	0	-2	
Q	-4	-6	-5	-7	0	3	16	15	4	0	1	-3	-23	-1	-42	-40	-32	-17	-25	-14	18	25	91	33	0	
30	30	-6	6	23	-31	0	49	62	0	2	11	0	-11	-12	-3	3	11	-77	-27	12	8	-3	-6	-2	1	
Q	-7	-4	-2	-7	-6	-2	1	-6	-9	-12	-14	-16	3	-14	-21	8	-25	-20	-20	10	37	-38	15	62	-3	
Mean	-13	-19	-9	-2	1	-3	-14	-20	-30	-14	-1	-14	-27	-31	-23	-44	-27	-20	-27	-4	-6	-19	-10	-11	-16	
5Q Mean	-3	0	1	3	1	0	0	6	7	3	0	0	3	-3	-17	-10	-16	-11	-10	0	11	0	22	20	0	
5D Mean	10	-17	-41	-5	0	-16	-1	-65	-164	-117	-91	-101	-115	-146	-106	-200	-107	-77	-53	-2	-52	-105	-110	-40	-71	

AU Index (Provisional Hourly mean values, unit nT)		1991																							
		August																							
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	336	176	52	44	88	125	141	102	84	89	121	229	277	257	214	364	548	528	483	222	223	124	232	375	226
	200	94	92	94	74	304	431	505	462	427	232	261	361	413	352	387	465	374	196	84	105	180	234	180	271
	191	193	132	131	174	226	338	128	174	384	381	325	304	487	461	297	286	210	178	149	140	197	294	183	249
	277	369	319	298	390	460	535	449	280	161	158	139	161	187	355	231	90	138	285	329	178	225	127	157	262
	107	153	320	391	362	283	291	173	190	163	290	211	167	151	123	103	141	116	66	59	69	155	314	360	198
	314	440	460	501	316	244	134	124	245	502	431	268	211	282	226	200	223	110	93	153	134	105	100	100	246
	123	166	192	317	378	177	228	118	103	113	135	101	120	124	109	100	97	119	84	97	106	130	142	112	145
	178	172	200	239	172	134	233	182	243	278	194	173	143	100	82	63	88	119	79	64	64	106	155	131	150
	89	33	98	171	312	295	114	172	205	266	272	222	200	339	350	194	255	259	191	214	150	69	45	44	190
Q	27	32	66	82	64	134	132	126	191	213	131	106	145	83	59	118	175	132	80	52	34	38	61	119	100
	71	38	47	133	95	166	241	281	218	164	217	109	152	271	327	328	231	235	178	138	137	88	45	106	167
D	84	52	77	189	303	356	337	349	273	280	297	198	303	437	428	483	425	390	287	273	505	291	188	126	289
Q	84	28	28	12	11	20	31	14	13	12	29	39	29	46	20	56	89	67	128	181	105	68	49	61	51
	21	9	7	9	24	13	68	115	107	48	34	32	31	42	53	52	110	283	346	400	314	247	199	188	115
	287	291	241	233	342	342	217	277	375	288	251	213	184	109	111	272	173	243	300	325	262	276	265	316	258
	238	212	297	288	200	125	74	104	99	69	89	68	82	94	105	58	97	107	156	154	102	242	238	161	144
	93	70	34	47	292	154	145	104	123	220	193	87	62	49	105	112	111	100	277	288	117	60	195	267	138
	217	120	175	101	59	74	99	35	43	55	86	123	166	127	114	174	112	68	95	138	384	348	200	209	139
D	243	193	255	226	135	185	359	58	74	179	352	219	221	186	54	58	34	42	40	37	42	36	35	49	138
D	34	22	28	30	25	33	88	144	130	247	348	209	112	270	286	144	119	260	245	227	167	224	220	181	158
	161	335	187	354	375	329	248	356	152	168	227	147	156	92	109	120	127	100	77	108	178	197	228	88	192
	127	169	272	158	167	419	538	316	262	235	172	253	215	178	107	89	118	106	114	116	145	195	238	213	205
	134	166	194	182	259	183	199	178	182	235	339	119	51	49	40	25	25	27	26	32	35	33	38	25	116
Q	79	163	143	83	101	106	107	60	56	65	56	51	54	53	80	69	28	35	38	41	62	74	123	129	77
Q	164	261	268	276	124	97	69	72	113	90	77	100	55	34	40	81	102	104	163	151	91	83	126	56	117
	40	32	60	132	201	60	53	57	21	19	73	120	69	34	35	75	84	114	119	183	168	139	81	99	86
	162	160	173	208	262	235	231	177	238	288	197	211	155	98	74	135	264	662	506	455	296	623	337	365	269
	255	206	137	217	158	174	191	109	83	136	107	144	122	146	185	284	335	227	203	130	196	184	145	76	173
	40	33	33	60	102	101	172	156	151	126	219	179	181	220	240	191	268	290	280	379	264	217	248	216	182
	238	249	183	150	159	175	206	193	247	314	319	191	316	442	480	383	300	229	317	420	423	452	172	89	277
	94	77	60	147	201	205	214	250	274	265	325	278	310	313	498	379	326	258	172	176	216	122	235	260	236
Mean	151	152	155	177	191	191	208	176	174	195	204	165	165	184	187	181	188	195	187	186	174	178	171	162	179
5Q Mean	78	103	113	117	100	83	78	65	78	79	73	83	70	50	46	79	95	90	105	121	92	80	88	92	86
5D Mean	131	87	102	137	147	216	285	261	242	279	310	233	261	323	323	290	273	264	188	159	207	170	182	159	218

AL Index ( Provisional Hourly mean values, unit nT )

August

1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	-252	-105	-3	-9	-22	-104	-42	-31	-12	-17	-51	-80	-92	-303	-444	-329	-219	-252	-246	-87	-210	-122	-141	-371	-148
	-159	-81	-61	-44	-17	-108	-716	-589	-428	-416	-424	-433	-417	-546	-550	-381	-484	-322	-175	-51	-54	-104	-465	-503	-314
	-507	-839	-145	-148	-387	-330	-423	-171	-71	-321	-533	-279	-502	-768	-528	-371	-248	-300	-165	-77	-46	-106	-494	-908	-340
	-486	-543	-511	-615	-419	-328	-388	-319	-294	-119	-233	-21	-39	-238	-463	-289	-44	-73	-379	-540	-134	-165	-131	-208	-291
	-341	-376	-361	-489	-605	-600	-321	-271	-144	-129	-423	-183	-290	-72	-73	-101	-161	-96	-34	-15	-10	-94	-205	-749	-256
	-542	-277	-310	-554	-382	-214	-226	-217	-213	-554	-630	-457	-401	-521	-379	-235	-414	-269	-173	-161	-81	-69	-85	-117	-312
	-76	-113	-324	-506	-316	-174	-219	-233	-54	-53	-79	-67	-67	-144	-101	-47	-69	-170	-53	-35	-24	-105	-231	-118	-141
	-144	-256	-425	-294	-184	-79	-185	-207	-263	-257	-94	-145	-163	-188	-82	-50	-103	-95	-119	-54	-45	-78	-241	-169	-163
	-90	-30	-79	-223	-320	-247	-117	-250	-116	-116	-233	-134	-175	-555	-406	-165	-217	-204	-128	-136	-86	-51	-10	-46	-172
Q	-12	-26	-67	-82	-73	-89	-118	-59	-175	-196	-41	-59	-137	-41	-20	-65	-187	-239	-41	8	-10	-13	-26	-118	-79
	-98	-23	-17	-77	-63	-36	-65	-39	-87	-63	-91	-91	-243	-376	-684	-420	-290	-166	-95	-96	-141	-59	-26	-73	-142
D	-207	-48	-47	-144	-381	-497	-449	-487	-451	-270	-302	-83	-574	-682	-839	-689	-638	-607	-468	-561	-494	-486	-253	-172	-410
Q	-86	-53	-44	-37	-36	-33	-34	-38	-37	-39	-54	-57	-52	-54	-62	-130	-214	-149	-151	-245	-142	-58	-44	-55	-79
	-57	-39	-36	-31	-31	-27	-37	-77	-56	-30	-32	-30	-30	-27	-51	-52	-141	-348	-581	-295	-354	-556	-627	-416	-165
	-412	-430	-303	-187	-352	-435	-234	-373	-391	-274	-188	-152	-127	-201	-256	-324	-169	-314	-482	-500	-351	-269	-255	-436	-309
	-237	-271	-253	-385	-291	-62	-42	-104	-186	-160	-67	-53	-74	-61	-199	-179	-104	-223	-332	-81	-61	-192	-283	-254	-173
	-73	-37	-48	-43	-250	-558	-211	-52	-61	-256	-415	-92	-59	-48	-105	-144	-129	-111	-396	-416	-123	-35	-179	-331	-174
	-506	-364	-209	-126	-31	-35	-87	-144	-27	-36	-37	-53	-131	-253	-230	-279	-108	-117	-63	-173	-794	-475	-134	-156	-190
D	-385	-491	-383	-107	-60	-56	-664	-1012	-323	-1070	-453	-259	-159	-148	-39	-37	-47	-79	-76	-19	-19	-24	-23	-35	-249
D	-37	-30	-56	-69	-42	-46	-85	-156	-148	-91	-751	-835	-416	-389	-239	-198	-177	-260	-676	-381	-251	-252	-234	-354	-260
	-342	-333	-355	-319	-177	-330	-446	-371	-138	-71	-195	-402	-201	-238	-147	-198	-300	-120	-56	-80	-147	-152	-273	-140	-231
	-147	-162	-623	-577	-154	-481	-761	-416	-389	-268	-107	-496	-332	-298	-178	-118	-132	-139	-132	-169	-234	-298	-373	-323	-304
	-434	-483	-561	-400	-302	-254	-236	-218	-161	-420	-268	-73	-46	-47	-42	-41	-31	-41	-39	-24	-21	-24	-30	-32	-176
Q	-82	-269	-171	-69	-70	-101	-68	-20	-19	-36	-34	-44	-45	-39	-61	-57	-84	-51	-65	-47	-55	-57	-162	-152	-77
Q	-179	-244	-305	-248	-85	-23	-36	-59	-70	-59	-52	-46	-39	-39	-56	-123	-282	-262	-247	-124	-47	-59	-100	-59	-119
	-39	-44	-52	-118	-266	-129	-32	-15	-30	-37	-61	-119	-72	-49	-57	-66	-156	-218	-116	-146	-237	-142	-56	-70	-97
	-104	-144	-318	-249	-158	-111	-142	-126	-168	-165	-86	-101	-120	-76	-89	-50	-126	-499	-916	-332	-191	-455	-328	-179	-218
	-200	-192	-173	-174	-225	-193	-119	-66	-47	-107	-110	-105	-85	-150	-321	-323	-400	-209	-129	-103	-180	-299	-277	-121	-179
	-34	-20	-21	-30	-70	-110	-146	-138	-121	-88	-132	-75	-259	-242	-215	-291	-339	-216	-257	-394	-253	-155	-203	-448	-177
	-236	-152	-158	-137	-137	-318	-145	-122	-89	-240	-355	-446	-492	-775	-254	-194	-112	-112	-152	-275	-267	-235	-152	-52	-234
D	-89	-59	-78	-155	-144	-132	-183	-465	-472	-278	-259	-465	-435	-442	-421	-558	-294	-218	-215	-187	-209	-136	-301	-407	-275
Mean	-212	-194	-209	-214	-195	-201	-225	-220	-169	-201	-219	-191	-202	-258	-246	-209	-207	-209	-230	-186	-170	-171	-204	-244	-208
5Q Mean	-79	-127	-127	-110	-106	-75	-57	-38	-66	-73	-48	-65	-69	-44	-51	-88	-184	-183	-124	-110	-98	-65	-77	-90	-90
5D Mean	-175	-141	-125	-103	-128	-167	-419	-541	-364	-425	-437	-415	-400	-441	-429	-372	-328	-297	-322	-239	-205	-200	-255	-294	-301



A0 Index ( Provisional Hourly mean values, unit nT )

August 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	41	35	24	17	32	9	48	35	35	34	73	91	-22	-114	17	164	137	117	67	6	6	0	44	1	39
	20	6	15	24	28	97	-141	-41	17	5	-95	-85	-27	-66	-98	3	-9	26	10	16	25	37	-115	-160	-21
	-157	-72	-6	-8	-106	-51	-42	-21	51	31	-75	23	-98	-139	-33	-37	18	-44	5	35	46	45	-99	-361	-45
	-104	-86	-95	-157	-14	65	73	64	-7	20	-37	58	59	-25	-53	-28	22	32	-47	-105	21	29	-2	-25	-14
	-116	-111	-20	-48	-121	-157	-15	-48	22	17	-66	13	-61	38	24	1	-9	9	15	21	29	30	53	-193	-28
	-113	81	74	-25	-32	15	-45	-46	15	-25	-99	-94	-94	-119	-76	-17	-94	-78	-39	-4	26	17	7	-8	-32
	23	26	-65	-93	30	1	4	-57	23	29	27	16	26	-9	3	26	14	-24	15	30	40	12	-44	-3	2
	16	-41	-111	-26	-5	27	23	-12	-10	10	49	13	-10	-43	0	6	-6	11	-19	4	9	13	-42	-18	-6
	0	1	9	-25	-3	23	-1	-38	43	74	18	43	12	-107	-27	14	18	27	31	38	31	8	16	0	8
Q	7	3	0	0	-4	22	6	32	7	8	43	23	3	20	19	26	-5	-53	19	30	11	11	16	0	10
	-13	7	14	27	15	64	87	120	64	49	62	8	-45	-51	-178	-45	-28	34	41	20	-1	13	8	15	12
D	-60	1	14	22	-38	-70	-55	-68	-88	4	-2	56	-134	-121	-204	-102	-105	-108	-90	-143	5	-97	-32	-22	-60
Q	0	-12	-7	-11	-11	-6	-1	-11	-11	-13	-12	-8	-10	-3	-20	-36	-61	-40	-11	-31	-18	4	2	2	-13
	-17	-14	-13	-10	-3	-5	15	18	24	8	0	1	0	7	0	0	-14	-82	-117	52	-19	-153	-213	-113	-25
	-62	-68	-30	22	-4	-45	-8	-47	-8	6	31	30	28	-45	-72	-26	1	-35	-90	-87	-44	3	4	-59	-25
	0	-28	21	-47	-44	31	15	0	-42	-45	10	7	3	15	-46	-59	-3	-57	-87	35	19	24	-22	-46	-14
	10	16	-7	2	21	-201	-32	25	30	-18	-110	-2	1	0	0	-15	-8	-5	-59	-63	-2	11	7	-32	-18
	-144	-121	-16	-11	13	18	6	-54	7	9	24	34	17	-62	-57	-51	2	-23	16	-17	-204	-63	32	25	-25
D	-70	-148	-63	59	36	64	-152	-476	-123	-445	-50	-19	30	19	7	9	-6	-18	-18	8	10	5	5	6	-55
D	-1	-3	-13	-18	-7	-6	1	-6	-8	77	-201	-312	-151	-59	-6	-26	-28	0	-215	-76	-41	-13	-6	-86	-50
	-90	1	-83	17	98	0	-98	-7	6	47	15	-126	-22	-72	-19	-38	-86	-9	9	13	14	22	-22	-25	-18
	-9	3	-174	-209	6	-30	-110	-49	-63	-16	32	-121	-58	-59	-34	-13	-6	-16	-8	-25	-44	-51	-66	-54	-49
	-149	-157	-183	-108	-21	-34	-18	-20	9	-92	35	22	2	0	0	-8	-2	-6	-6	4	6	4	4	-3	-30
Q	-1	-52	-13	7	14	2	19	19	18	14	10	3	4	6	9	6	-27	-7	-12	-2	3	7	-18	-11	0
Q	-6	8	-18	14	19	36	16	6	20	14	12	26	7	-2	-7	-20	-89	-78	-41	13	21	11	12	-1	-1
	0	-6	4	7	-31	-34	9	20	-3	-8	5	0	-1	-7	-10	3	-35	-51	0	17	-34	-1	11	13	-5
Q	28	8	-71	-19	51	61	44	24	34	35	54	53	17	10	-6	41	68	80	-204	61	51	83	4	92	25
	27	7	-17	21	-33	-9	35	20	17	14	-1	18	17	-2	-67	-18	-31	9	36	13	7	-57	-65	-21	-3
	2	6	5	14	15	-4	12	9	14	18	42	51	-38	-11	12	-49	-34	36	11	-7	5	30	21	-115	2
	1	47	12	6	10	-70	30	34	78	36	-17	-127	-87	-165	112	94	94	57	82	72	77	108	9	18	21
D	2	8	-8	-3	27	36	15	-106	-98	-6	32	-93	-61	-64	38	-89	16	20	-21	-5	3	-6	-32	-72	-19
Mean	-30	-21	-26	-18	-2	-4	-8	-21	2	-3	-7	-13	-18	-36	-29	-13	-8	-6	-21	0	1	2	-16	-40	-14
5Q Mean	0	-11	-6	3	-2	4	9	13	6	3	11	8	0	2	-1	-4	-43	-45	-9	5	-3	6	4	0	-2
5D Mean	-21	-27	-11	16	9	24	-66	-139	-60	-73	-63	-90	-68	-58	-52	-41	-26	-16	-66	-40	0	-14	-36	-66	-41

AU Index ( Provisional Hourly mean values, unit nT ) September 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	201	215	161	250	275	263	328	408	269	281	284	177	132	147	243	171	180	88	56	173	209	255	249	225	218
	169	151	212	179	172	277	266	332	263	373	206	187	232	180	92	188	200	102	77	73	69	56	54	45	173
	41	25	25	73	162	130	138	175	177	278	285	189	97	229	265	251	166	87	77	94	180	262	192	112	155
	92	159	165	216	225	160	237	254	260	202	149	119	193	179	70	59	59	116	160	150	140	93	48	120	151
	142	178	210	349	290	238	223	308	217	212	264	321	261	176	248	251	263	268	260	228	215	309	261	293	249
	260	234	168	219	234	193	240	203	203	188	193	222	176	128	83	153	248	152	151	50	43	66	111	164	170
	242	207	210	201	189	171	120	161	160	144	183	207	182	136	72	22	58	30	47	43	53	54	86	136	130
	189	209	182	233	222	231	163	179	189	235	257	209	242	220	232	236	305	320	302	318	226	120	63	147	218
D	162	93	37	25	74	163	208	228	206	204	180	196	446	329	388	321	346	279	217	233	271	296	108	216	216
	208	248	208	245	219	250	173	179	80	92	85	60	83	121	187	125	231	316	282	306	294	291	265	146	196
	81	103	60	81	30	41	34	31	44	58	212	152	147	128	92	89	116	69	45	132	94	46	41	39	82
	29	90	49	43	92	96	42	43	77	147	61	60	64	57	30	24	27	38	53	64	95	80	48	38	60
	25	90	66	39	47	94	102	74	59	43	48	48	39	28	32	62	38	24	132	117	84	186	227	171	78
	57	158	152	93	215	77	107	164	189	155	185	177	74	77	248	158	105	134	231	130	49	135	106	142	138
	103	173	191	42	18	18	44	57	66	31	39	39	40	42	34	28	39	52	24	35	69	58	33	39	55
	61	78	73	45	37	44	69	89	47	71	103	85	61	35	30	21	16	16	21	86	52	21	39	32	51
Q	44	29	43	31	59	50	37	37	25	24	20	15	12	20	43	51	77	38	39	37	51	99	85	55	43
Q	38	28	16	19	20	18	20	20	23	25	26	31	26	24	33	39	24	23	20	26	61	64	85	63	32
	87	82	81	53	61	78	88	121	93	123	124	206	140	109	81	94	81	39	20	41	56	39	48	85	85
	50	57	73	98	123	168	81	24	29	24	56	72	118	76	45	24	53	36	26	32	39	37	22	52	59
Q	62	74	88	88	137	161	95	72	103	88	50	41	25	25	32	23	21	19	20	39	44	59	29	18	59
	27	15	31	39	65	47	101	101	60	44	74	141	105	57	87	70	48	23	20	29	32	30	30	40	55
Q	42	36	21	22	17	24	17	20	24	26	29	34	35	39	23	20	16	18	48	69	71	73	70	58	35
Q	34	46	64	74	70	40	19	23	26	22	24	22	25	35	63	83	55	94	125	193	108	49	110	78	62
D	129	102	123	154	169	182	142	185	249	261	179	151	180	199	299	359	463	250	218	236	243	124	188	121	204
	94	102	152	231	211	196	251	356	350	299	208	131	207	208	387	330	331	280	322	271	258	206	101	127	234
D	119	151	192	259	229	270	443	339	287	222	94	152	90	72	240	238	173	300	320	299	161	125	79	116	207
D	143	124	199	188	154	171	158	126	115	197	200	94	294	342	219	217	288	274	215	275	333	224	100	176	201
	95	70	36	19	33	46	22	22	13	18	30	101	141	202	116	80	141	71	82	73	150	59	122	182	80
	97	101	77	118	163	125	42	127	263	386	387	240	110	127	177	229	146	117	222	249	279	186	153	114	176
Mean	104	114	112	124	133	134	133	148	138	149	141	129	132	124	138	133	143	122	127	136	134	123	105	111	129
5Q Mean	44	42	46	46	60	58	37	34	40	37	29	28	24	28	38	43	38	38	50	72	67	68	75	54	46
5D Mean	150	137	142	175	180	209	255	257	225	233	187	154	228	217	267	261	290	238	205	243	243	204	144	170	209



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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	-359	-448	-691	-439	-324	-366	-425	-342	-373	-369	-385	-184	-64	-165	-551	-449	-307	-137	-91	-227	-864	-498	-326	-383	-365
	-497	-261	-205	-282	-214	-584	-674	-755	-397	-511	-190	-320	-430	-315	-298	-278	-266	-127	-105	-47	-97	-139	-165	-24	-299
	-22	-18	-25	-69	-336	-434	-296	-268	-296	-684	-377	-305	-255	-367	-420	-381	-337	-148	-71	-62	-409	-395	-282	-304	-273
	-222	-246	-237	-209	-169	-157	-293	-467	-303	-255	-113	-106	-377	-280	-220	-138	-95	-151	-172	-136	-168	-207	-90	-237	-210
	-327	-215	-502	-635	-376	-215	-235	-392	-255	-291	-409	-327	-282	-306	-387	-426	-365	-320	-368	-330	-355	-330	-329	-306	-345
	-234	-211	-147	-404	-315	-238	-213	-260	-221	-210	-221	-278	-165	-206	-180	-185	-310	-223	-237	-57	-12	-33	-100	-249	-205
	-406	-353	-322	-312	-154	-119	-89	-109	-269	-188	-128	-175	-189	-212	-194	-129	-178	-130	-68	-35	-42	-36	-114	-133	-170
	-276	-300	-220	-328	-249	-160	-158	-155	-98	-118	-233	-360	-230	-320	-267	-315	-357	-335	-501	-469	-246	-117	-37	-62	-246
D	-240	-46	-14	-14	-29	-224	-326	-259	-312	-256	-263	-349	-299	-492	-563	-595	-516	-602	-411	-237	-333	-389	-827	-756	-348
	-284	-317	-328	-517	-246	-307	-380	-236	-24	-64	-23	-44	-100	-145	-284	-185	-174	-230	-386	-275	-286	-240	-116	-63	-219
	-37	-49	-27	-34	-24	-19	-8	-9	-28	-34	-232	-575	-296	-305	-310	-192	-135	-57	-42	-172	-308	-73	-25	-16	-125
	-22	-31	-81	-69	-110	-142	-43	-32	-42	-107	-43	-55	-73	-89	-78	-58	-66	-53	-66	-139	-158	-104	-31	-22	-71
	-30	-84	-86	-42	-23	-46	-93	-83	-32	-29	-32	-53	-29	-39	-43	-74	-84	-48	-138	-161	-80	-173	-322	-371	-92
	-468	-177	-300	-83	-267	-106	-292	-256	-295	-339	-238	-159	-44	-71	-502	-362	-223	-199	-268	-150	-25	-63	-139	-270	-221
	-272	-220	-350	-65	-28	-22	-26	-73	-38	-20	-22	-30	-43	-53	-54	-85	-120	-85	-33	-26	-53	-97	-42	-44	-79
	-52	-80	-60	-48	-33	-18	-90	-67	-12	-27	-84	-138	-65	-29	-43	-40	-42	-43	-42	-83	-53	-32	-38	-65	-54
Q	-138	-21	-17	-12	-20	-25	-10	-14	-22	-22	-28	-35	-38	-34	-57	-138	-320	-138	-60	-38	-117	-181	-77	-15	-66
Q	-13	-21	-19	-11	-25	-22	-32	-11	-13	-16	-24	-37	-40	-42	-43	-51	-36	-38	-31	-22	-72	-65	-57	-42	-33
	-81	-16	-18	-8	-198	-73	-150	-175	-141	-141	-198	-384	-202	-184	-164	-167	-165	-79	-36	-30	-56	-42	-80	-232	-126
	-95	-78	-228	-167	-245	-267	-64	-32	-26	-25	-34	-173	-195	-182	-118	-118	-142	-80	-55	-16	-9	-3	-10	-50	-100
	-146	-111	-131	-109	-121	-184	-130	-100	-139	-68	-46	-40	-38	-32	-31	-34	-29	-25	-22	-23	-13	-21	-32	-52	-70
	-94	-19	-10	-36	-33	-41	-62	-14	-15	-28	-36	-93	-92	-61	-95	-87	-42	-27	-24	-22	-15	-13	-18	-35	-42
	-42	-19	-9	-7	-6	-10	-3	-7	-15	-19	-24	-26	-29	-43	-35	-32	-42	-39	-61	-69	-58	-57	-55	-30	-31
Q	-22	-33	-90	-60	-24	-2	2	-3	-11	-15	-18	-19	-20	-27	-50	-96	-123	-220	-271	-207	-94	-30	-91	-126	-69
D	-127	-242	-277	-168	-375	-305	-269	-230	-354	-209	-106	-173	-426	-277	-406	-451	-418	-171	-127	-416	-685	-609	-421	-167	-309
	-139	-183	-332	-306	-278	-266	-194	-432	-288	-307	-391	-705	-448	-369	-567	-313	-304	-212	-391	-300	-366	-337	-134	-226	-324
D	-401	-283	-304	-561	-377	-322	-481	-434	-443	-603	-610	-446	-304	-134	-459	-437	-238	-558	-593	-543	-309	-197	-148	-171	-390
D	-307	-305	-415	-360	-388	-335	-230	-214	-177	-393	-376	-532	-657	-637	-399	-327	-455	-553	-595	-348	-401	-262	-89	-333	-379
	-156	-63	-79	-81	-71	-88	-59	-24	-20	-28	-40	-84	-388	-345	-79	-103	-242	-295	-189	-116	-375	-131	-218	-381	-152
	-109	-133	-235	-287	-285	-219	-58	-60	-416	-377	-388	-313	-289	-271	-467	-456	-301	-205	-211	-505	-420	-325	-260	-268	-286
Mean	-187	-152	-191	-190	-178	-177	-179	-183	-169	-191	-177	-217	-203	-201	-245	-223	-214	-184	-188	-175	-215	-173	-155	-181	-189
5Q Mean	-72	-41	-53	-39	-39	-48	-34	-27	-40	-28	-28	-31	-33	-35	-43	-70	-110	-92	-89	-71	-70	-62	-53	-53	-58
5D Mean	-286	-264	-340	-308	-298	-310	-346	-295	-331	-366	-348	-336	-350	-341	-475	-451	-386	-404	-363	-354	-518	-391	-362	-362	-358

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	560	664	853	690	600	630	755	752	644	652	671	362	198	313	796	622	488	226	148	401	1073	754	576	608	585
	667	413	418	462	387	861	941	1088	662	885	398	509	664	496	392	468	466	230	183	122	166	195	220	70	473
	64	44	51	142	499	565	435	444	474	964	663	495	353	598	687	633	505	236	149	157	589	657	475	417	429
	315	406	403	426	396	318	532	723	564	458	264	227	571	461	291	199	155	268	333	287	309	300	139	358	363
	470	395	713	985	688	454	460	701	473	505	675	650	544	484	636	678	629	589	629	559	570	639	591	600	596
	495	446	315	623	549	432	454	465	425	400	416	502	343	336	265	339	559	376	389	107	55	100	211	414	376
	649	561	533	514	343	290	210	272	431	333	313	383	372	349	268	152	237	162	116	78	96	91	201	269	301
	466	509	403	563	472	391	321	335	288	354	491	570	473	542	501	552	663	656	804	787	473	237	101	210	465
D	402	140	51	40	103	389	535	489	519	462	444	546	746	823	902	917	864	882	629	471	605	685	936	973	565
	493	565	537	762	466	558	554	417	105	158	109	104	184	268	473	312	405	547	669	582	581	531	381	210	415
	119	153	89	116	55	61	44	41	73	93	445	728	445	434	403	283	251	126	88	305	403	119	67	56	208
	53	122	131	113	202	239	86	76	120	256	105	116	138	147	109	84	94	93	120	204	253	185	80	61	133
	56	174	154	82	71	141	196	158	92	73	81	102	69	68	77	138	124	74	271	278	165	360	550	543	171
	525	336	453	178	483	184	400	421	486	495	424	338	120	149	752	521	329	333	500	281	74	199	245	412	360
	376	393	542	107	47	41	71	130	105	52	63	71	84	96	89	114	161	138	58	62	124	156	77	84	135
	114	159	134	93	71	63	160	156	60	100	189	225	128	66	74	63	58	60	65	170	106	53	78	98	106
	183	51	60	44	80	76	48	52	47	47	49	51	51	55	102	190	398	178	100	76	168	280	163	72	109
Q	52	51	36	31	46	40	53	31	36	42	51	69	68	68	78	91	62	62	53	50	133	130	142	107	66
Q	169	99	100	62	259	151	239	297	235	266	323	592	344	294	247	263	248	119	58	71	112	81	129	318	211
	146	136	302	267	369	436	145	56	56	50	91	247	314	259	165	143	195	117	81	48	48	40	33	103	160
	209	186	221	198	259	345	226	174	243	158	97	82	65	58	64	58	52	45	43	63	57	81	61	71	130
	122	35	42	75	99	89	164	116	75	73	111	235	198	119	183	159	91	51	45	53	48	43	48	76	98
Q	84	55	30	30	24	34	20	28	39	46	54	62	65	83	59	52	59	58	111	139	129	131	125	89	67
Q	57	79	155	135	95	42	16	27	37	37	43	43	47	64	114	181	180	315	398	401	202	80	202	204	131
D	256	345	400	323	545	489	411	417	604	471	287	325	608	478	706	811	881	422	346	653	929	734	610	289	514
	234	286	485	538	490	463	446	790	639	607	601	837	656	579	956	644	636	493	713	572	624	544	235	354	559
D	521	434	496	822	607	594	925	774	732	827	706	600	395	207	699	676	412	859	914	843	471	322	227	287	598
D	451	429	615	550	544	508	390	341	294	591	578	628	952	980	619	546	745	827	810	624	735	487	189	510	581
	252	134	116	101	105	135	82	47	34	48	72	187	530	549	196	184	383	367	273	190	525	190	341	564	233
	208	235	313	406	449	346	101	188	681	764	776	553	400	399	646	686	448	322	434	755	700	512	414	383	463
Mean	292	267	305	315	312	312	314	333	309	342	319	347	337	327	384	358	359	307	317	312	350	297	261	293	320
5Q Mean	117	84	100	87	100	107	72	62	80	66	58	61	59	65	83	114	150	131	141	145	137	140	138	108	100
5D Mean	438	402	483	485	479	522	603	554	558	600	537	492	579	560	744	714	678	643	569	598	762	596	507	533	568

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
D	1	-78	-116	-264	-94	-24	-51	-48	32	-51	-43	-49	-3	33	-8	-153	-138	-62	-23	-17	-26	-327	-121	-38	-78	-73
	2	-163	-55	3	-51	-21	-153	-204	-211	-66	-68	7	-66	-98	-66	-102	-44	-32	-12	-14	12	-13	-40	-55	10	-62
	3	9	3	0	1	-87	-151	-79	-45	-58	-202	-45	-57	-78	-68	-76	-64	-84	-30	3	15	-113	-66	-44	-95	-59
	4	-64	-43	-35	3	27	1	-27	-105	-20	-26	17	6	-91	-49	-73	-38	-17	-17	-5	7	-13	-56	-20	-58	-29
	5	-92	-18	-145	-142	-43	11	-5	-41	-18	-39	-72	-2	-10	-64	-69	-87	-50	-25	-53	-50	-69	-9	-34	-6	-47
	6	12	11	10	-92	-40	-22	12	-27	-8	-11	-13	-27	5	-38	-47	-15	-30	-35	-42	-3	15	16	5	-42	-17
	7	-80	-72	-55	-55	17	25	14	25	-54	-21	27	16	-3	-37	-60	-52	-59	-49	-10	3	5	8	-13	1	-20
	8	-42	-44	-18	-47	-13	34	2	11	45	57	11	-74	5	-49	-16	-38	-25	-7	-99	-74	-9	1	12	42	-14
D	9	-38	23	11	4	21	-30	-58	-14	-52	-25	-41	-76	73	-80	-111	-136	-84	-160	-96	-2	-30	-46	-359	-269	-65
	10	-37	-34	-59	-135	-13	-28	-103	-28	27	13	30	7	-8	-11	-47	-29	28	42	15	4	25	73	41	-11	
	11	21	26	15	23	3	10	12	10	7	11	-9	-211	-73	-87	-108	-50	-9	5	1	-20	-106	-13	8	11	-21
	12	3	29	-15	-12	-8	-22	0	5	16	19	8	2	-4	-15	-23	-16	-18	-7	-6	-36	-30	-11	8	7	-5
	13	-2	3	-10	-1	11	23	4	-4	12	6	7	-2	4	-5	-5	-22	-11	-3	-21	2	6	-47	-99	-6	
	14	-204	-9	-74	4	-26	-14	-92	-45	-52	-91	-26	9	14	3	-126	-101	-58	-32	-18	-9	11	35	-15	-63	-41
	15	-83	-23	-79	-11	-4	-1	8	-8	13	5	8	4	-1	-4	-9	-27	-40	-16	-4	4	7	-19	-4	-2	-12
	16	5	-1	6	-1	1	12	-10	10	17	21	9	-26	-1	2	-5	-9	-12	-12	-10	0	0	-5	0	-16	-1
Q	17	-46	3	12	8	18	11	13	11	1	0	-4	-9	-12	-6	-42	-120	-49	-10	0	-32	-39	4	19	-11	-11
Q	18	12	3	0	3	-2	-2	-5	4	4	4	0	-3	-6	-8	-4	-4	-5	-6	-5	1	-5	0	13	10	0
	19	3	32	30	22	-68	2	-30	-26	-23	-8	-36	-88	-30	-37	-40	-35	-41	-19	-7	5	0	-1	-15	-72	-20
	20	-22	-10	-77	-34	-60	-49	8	-3	1	0	10	-50	-38	-52	-35	-46	-44	-21	-13	7	14	16	5	0	-20
Q	21	-41	-18	-21	-10	7	-11	-17	-13	-18	9	2	0	-5	-3	0	-5	-3	-2	0	7	14	18	-1	-16	-5
	22	-33	-1	10	1	15	2	19	42	22	7	18	23	6	-1	-3	-7	2	-1	-1	3	8	8	5	2	6
Q	23	0	8	5	7	5	6	6	6	4	2	1	3	2	-1	-5	-5	-12	-9	-6	0	6	7	7	14	2
Q	24	6	6	-13	6	22	19	11	9	7	3	2	0	1	3	6	-6	-33	-61	-72	-7	6	8	9	-23	-3
D	25	1	-69	-76	-6	-102	-61	-63	-21	-52	25	35	-10	-122	-38	-52	-46	21	39	45	-89	-220	-242	-116	-22	-51
	26	-21	-39	-89	-37	-33	-34	28	-37	30	-4	-91	-286	-119	-79	-89	8	13	33	-34	-14	-53	-65	-16	-49	-45
D	27	-140	-65	-55	-150	-73	-26	-19	-47	-77	-189	-257	-146	-106	-30	-109	-99	-31	-128	-136	-121	-73	-35	-34	-26	-90
D	28	-81	-89	-107	-85	-116	-81	-36	-43	-30	-97	-87	-218	-180	-147	-89	-54	-82	-139	-189	-36	-33	-18	5	-78	-88
	29	-30	3	-21	-30	-18	-20	-18	-1	-2	-4	-4	8	-123	-71	18	-11	-50	-111	-53	-21	-112	-35	-46	-98	-35
	30	-5	-15	-78	-84	-61	-46	-7	32	-76	4	0	-36	-88	-71	-144	-112	-77	-43	5	-127	-70	-69	-53	-76	-54
Mean		-41	-19	-39	-33	-22	-21	-22	-17	-15	-21	-18	-43	-35	-37	-52	-43	-34	-30	-80	-19	-40	-24	-25	-34	-30
5Q Mean		-13	0	-3	2	10	4	1	3	0	3	0	-1	-4	-3	-1	-12	-34	-25	-18	0	-2	-1	6	0	-3
5D Mean		-67	-63	-98	-66	-58	-49	-44	-18	-52	-65	-79	-90	-60	-60	-102	-94	-47	-82	-78	-54	-136	-92	-108	-94	-73

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			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	1	123	129	126	127	120	131	180	161	363	386	300	152	190	126	75	133	144	138	348	306	203	134	134	134	233	186
D	2	294	261	152	144	146	224	209	260	110	249	221	254	257	244	323	261	190	377	223	52	61	89	105	128	201	
	3	162	169	117	125	115	122	60	100	147	148	84	78	99	60	82	63	51	62	54	83	117	143	81	68	100	
	4	37	91	94	163	124	109	137	172	321	314	291	228	169	214	317	246	147	113	123	257	140	182	149	166	179	
	5	107	89	93	164	127	81	112	171	132	103	83	68	78	58	26	19	30	16	32	25	20	25	21	25	71	
	6	25	22	20	18	17	52	76	89	127	142	177	69	94	47	48	177	218	173	321	284	115	73	106	57	106	
	7	116	129	133	126	158	118	120	141	126	170	74	80	47	50	51	32	31	36	31	41	56	48	37	48	83	
	8	74	83	110	101	109	108	234	171	217	159	112	190	132	184	160	229	217	86	118	184	213	147	99	120	148	
	9	150	162	127	149	87	69	59	55	55	55	63	50	34	30	24	30	17	23	41	42	58	71	38	23	63	
	10	32	66	198	132	184	147	238	228	87	46	43	49	54	110	211	216	137	94	97	63	91	54	30	31	110	
	11	30	39	44	41	29	33	38	22	72	54	76	40	48	31	21	21	43	114	57	37	27	28	51	32	43	
Q	12	25	47	37	40	30	33	44	33	29	21	28	23	36	51	63	70	58	40	44	46	33	52	55	51	41	
Q	13	79	54	22	33	41	33	52	37	19	14	17	51	94	62	23	21	20	24	23	39	53	37	55	103	42	
	14	123	91	57	36	23	20	36	35	29	22	18	14	15	22	37	34	21	34	91	159	66	37	40	38	46	
Q	15	64	70	76	60	49	39	49	51	56	22	18	9	10	11	9	8	14	17	17	22	22	20	15	15	31	
	16	15	16	20	20	23	30	29	23	22	26	21	16	14	33	18	23	18	12	14	14	15	17	16	15	20	
Q	17	23	29	16	15	12	12	13	19	23	27	27	32	32	42	46	38	28	50	68	61	53	63	65	40	35	
	18	30	34	39	36	38	37	21	38	72	56	73	132	176	107	140	94	17	29	25	41	80	103	100	74	66	
	19	50	66	96	82	51	60	34	54	63	82	132	209	138	136	68	21	19	33	72	115	98	113	95	61	81	
	20	145	121	98	57	60	73	52	134	277	263	88	128	156	127	91	27	142	145	134	74	40	23	41	19	105	
	21	29	54	72	117	226	247	147	157	232	176	166	130	229	341	327	280	242	274	178	210	227	208	80	73	184	
	22	112	85	140	200	106	47	101	167	232	114	94	101	107	76	166	177	226	193	197	126	55	57	129	89	129	
	23	61	54	89	93	93	85	91	106	232	206	158	121	84	48	38	17	33	124	149	145	152	280	276	223	123	
	24	174	75	44	84	140	121	88	142	221	124	80	65	72	103	75	78	173	175	212	162	230	224	142	45	127	
	25	55	102	121	120	180	195	119	108	99	75	220	200	69	192	330	294	318	246	139	197	134	194	128	138	165	
	26	128	74	73	93	144	205	246	103	90	165	244	172	127	233	218	202	195	260	124	189	128	124	95	164	158	
	27	107	104	153	336	158	109	129	140	174	165	111	119	97	165	271	210	125	174	177	234	182	89	82	80	154	
D	28	136	89	222	152	194	153	141	190	141	139	226	285	345	289	389	290	287	293	150	84	39	44	69	132	187	
D	29	203	234	218	318	-55	83	-37	-29	-119	-27	62	104	86	20	139	228	175	77	-33	75	67	173	99	121	91	
	30	38	32	7	26	25	20	13	20	16	23	22	86	97	118	176	134	91	86	245	186	60	124	118	92	77	
D	31	85	108	118	47	110	207	193	219	277	219	203	252	208	178	155	352	281	326	302	286	170	167	185	-36	192	
	Mean	91	89	94	105	92	96	97	107	127	120	113	113	109	113	132	129	119	124	121	123	96	101	88	79	107	
	5Q Mean	41	43	34	33	31	29	37	32	29	22	22	26	37	39	31	32	27	28	33	36	35	37	41	44	33	
	5D Mean	168	164	167	157	103	159	137	160	154	193	202	209	217	171	216	252	215	242	198	160	108	121	118	115	171	

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	-228	-223	-192	-80	-126	-346	-496	-249	-430	-476	-407	-394	-324	-170	-169	-225	-212	-216	-597	-1039	-504	-713	-598	-420	-368
D	-656	-271	-404	-443	-298	-460	-338	-464	-514	-748	-644	-273	-463	-530	-545	-527	-652	-753	-315	-117	-131	-313	-154	-231	-427
3	-336	-185	-200	-300	-208	-191	-109	-108	-266	-348	-134	-130	-208	-231	-189	-179	-115	-124	-67	-129	-224	-276	-225	-212	-196
4	-146	-287	-205	-242	-456	-430	-396	-441	-490	-322	-377	-317	-346	-364	-375	-286	-211	-91	-109	-289	-634	-544	-130	-151	-327
5	-354	-344	-140	-140	-117	-84	-77	-175	-364	-133	-32	-43	-32	-60	-36	-36	-52	-49	-38	-30	-17	-24	-20	-29	-101
6	-36	-42	-22	-20	-30	-76	-69	-37	-62	-191	-149	-42	-88	-34	-83	-327	-594	-436	-404	-431	-122	-50	-148	-610	-171
7	-374	-443	-579	-182	-133	-87	-186	-297	-231	-195	-64	-128	-72	-37	-54	-110	-101	-85	-68	-90	-50	-97	-177	-123	-165
8	-379	-272	-255	-252	-160	-346	-443	-381	-674	-522	-476	-425	-413	-505	-382	-747	-602	-762	-647	-563	-221	-161	-178	-249	-417
9	-225	-244	-233	-318	-105	-100	-184	-82	-39	-37	-65	-41	-32	-35	-36	-47	-39	-52	-30	-30	-32	-53	-47	-35	-89
10	-30	-96	-395	-443	-592	-448	-381	-233	-38	-26	-38	-67	-78	-361	-599	-485	-275	-169	-191	-132	-64	-45	-35	-41	-219
11	-62	-82	-51	-47	-72	-33	-17	-38	-123	-23	-61	-65	-125	-112	-109	-46	-76	-388	-271	-54	-37	-33	-137	-120	-91
12	-18	-43	-107	-45	-18	-16	-13	-13	-15	-22	-56	-32	-35	-39	-38	-30	-54	-110	-130	-62	-41	-32	-75	-64	-46
13	-47	-27	-21	-11	-25	-19	-46	-24	-16	-21	-26	-48	-131	-88	-53	-76	-99	-86	-34	-27	-78	-51	-75	-67	-50
14	-44	-30	-15	-13	-10	-8	-30	-19	-28	-19	-22	-27	-32	-36	-39	-43	-35	-35	-167	-312	-93	-23	-30	-46	-48
15	-93	-46	-31	-32	-19	-14	-6	-22	-67	-27	-19	-28	-34	-32	-32	-37	-36	-31	-23	-22	-18	-19	-17	-21	-30
16	-17	-14	-17	-18	-24	-34	-35	-70	-42	-41	-35	-29	-32	-47	-36	-42	-40	-50	-41	-24	-28	-16	-14	-9	-31
17	-32	-36	-17	-13	-7	-6	-8	-14	-20	-27	-33	-40	-35	-32	-31	-46	-35	-40	-73	-29	-13	-44	-88	-135	-36
18	-86	-14	-4	-1	-2	-2	-1	-5	-27	-11	-36	-78	-204	-176	-303	-108	-35	-33	-39	-41	-139	-71	-81	-31	-62
19	-27	-53	-61	-37	-38	-49	-26	-28	-63	-32	-48	-124	-74	-46	-31	-37	-32	-99	-173	-269	-364	-342	-209	-214	-103
20	-170	-80	-141	-78	-28	-308	-258	-330	-364	-286	-312	-374	-183	-140	-165	-100	-147	-264	-178	-24	-17	-13	-35	-62	-169
21	-23	-64	-61	-197	-310	-261	-189	-212	-152	-350	-402	-348	-394	-395	-387	-442	-730	-549	-667	-439	-453	-414	-386	-281	-338
22	-210	-282	-317	-186	-81	-78	-139	-378	-335	-138	-490	-569	-199	-168	-202	-270	-296	-175	-190	-210	-68	-50	-76	-142	-219
23	-232	-162	-226	-96	-115	-173	-169	-117	-102	-191	-154	-91	-55	-26	-28	-22	-48	-244	-309	-237	-364	-591	-446	-150	-181
24	-115	-193	-376	-142	-59	-100	-241	-311	-137	-30	-39	-99	-300	-216	-143	-117	-294	-314	-305	-229	-270	-195	-308	-256	-200
25	-214	-248	-383	-195	-81	-122	-84	-152	-102	-246	-466	-376	-292	-358	-626	-450	-363	-330	-613	-524	-289	-287	-267	-220	-304
26	-298	-202	-266	-407	-360	-415	-333	-199	-231	-326	-290	-252	-429	-562	-704	-575	-423	-480	-222	-294	-412	-386	-188	-259	-355
27	-601	-550	-751	-630	-224	-141	-162	-275	-739	-249	-146	-171	-572	-572	-487	-553	-329	-248	-457	-288	-387	-567	-152	-143	-391
28	-182	-601	-541	-322	-294	-240	-221	-437	-246	-389	-470	-1061	-1384	-714	-1046	-829	-874	-323	-82	-161	-179	-197	-425	-375	-483
29	-671	-829	-980	-677	-1165	-751	-743	-616	-1062	-650	-375	-329	-178	-109	-457	-562	-503	-807	-1046	-648	-704	-429	-218	-155	-611
30	-111	-119	-178	-184	-247	-102	-39	-46	-38	-52	-130	-330	-359	-586	-827	-1129	-840	-530	-667	-374	-62	-210	-493	-462	-338
31	-311	-358	-223	-153	-127	-123	-218	-206	-196	-141	-667	-696	-555	-657	-498	-472	-404	-506	-246	-58	-232	-87	-465	-782	-349
Mean	-204	-207	-238	-190	-178	-179	-182	-192	-232	-202	-214	-226	-247	-239	-280	-288	-275	-270	-270	-231	-207	-204	-188	-196	-223
5Q Mean	-41	-33	-38	-23	-18	-17	-21	-28	-32	-27	-33	-35	-53	-47	-38	-46	-52	-63	-60	-32	-35	-82	-53	-59	-38
5D Mean	-409	-456	-468	-335	-402	-384	-403	-394	-489	-480	-512	-550	-580	-436	-543	-523	-529	-521	-457	-404	-350	-347	-372	-392	-447

AE Index ( Provisional Hourly mean values, unit nT )

October

1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	351	352	318	207	247	477	677	410	794	863	708	548	516	297	245	359	358	356	945	1346	709	847	733	654	555
D 2	950	533	556	587	445	684	548	724	625	998	866	529	721	775	869	790	843	1131	540	170	193	402	260	359	629
3	498	354	318	426	324	314	170	208	413	498	218	210	309	293	273	244	167	187	122	214	342	419	307	281	296
4	184	378	300	406	581	539	534	614	812	637	669	545	516	579	693	534	359	205	234	548	975	728	280	318	507
5	462	433	233	305	244	166	190	347	498	237	116	112	111	120	63	56	84	67	71	57	39	50	42	55	173
6	62	65	43	39	48	128	145	126	189	333	327	112	183	82	132	506	813	611	726	717	239	124	256	667	278
7	491	573	713	308	292	206	307	439	359	366	140	210	120	88	107	143	133	122	100	132	108	146	215	172	249
8	453	355	366	353	270	455	678	552	892	682	589	617	546	691	544	978	821	849	766	748	436	308	277	369	567
9	376	406	360	467	192	169	243	138	95	93	130	91	67	66	61	78	58	77	72	74	91	125	86	59	153
10	64	163	593	576	777	596	619	462	125	73	82	117	133	473	811	703	413	265	289	196	157	100	67	73	330
11	92	121	96	88	102	66	55	60	197	78	138	106	174	144	132	69	120	504	329	92	65	62	189	153	135
12	44	91	145	85	48	49	58	47	45	43	86	56	71	90	101	101	114	152	175	110	75	86	131	116	88
13	127	82	45	45	67	53	99	61	36	35	43	100	227	151	77	97	120	112	59	68	132	90	132	172	93
14	167	122	73	51	35	29	67	55	58	41	41	42	48	59	76	78	56	70	260	472	160	62	71	86	95
15	157	116	107	93	70	54	56	73	124	50	37	38	45	43	42	46	50	49	42	45	41	41	34	37	62
16	34	32	38	39	47	65	65	93	65	68	57	45	46	81	54	65	59	62	56	38	45	34	32	25	52
17	56	66	34	29	21	19	21	34	43	55	60	72	68	75	78	85	64	92	143	92	67	108	154	175	71
18	116	49	44	38	41	39	23	43	99	68	109	212	382	284	445	203	54	63	65	83	221	176	132	106	129
19	77	119	157	119	89	110	61	82	126	114	181	334	213	183	100	59	52	134	247	386	464	456	305	276	185
20	316	202	240	135	88	382	311	464	642	550	401	503	340	268	257	129	290	411	313	99	59	37	77	81	275
21	52	119	133	315	537	508	337	369	385	527	569	480	624	737	716	723	973	824	846	651	681	623	467	355	523
22	323	367	458	387	187	125	241	546	567	253	586	671	308	245	370	448	523	369	388	338	124	107	205	231	349
23	293	217	315	189	209	259	260	223	335	398	314	213	140	75	67	40	83	369	459	384	517	872	723	374	305
24	290	268	420	227	200	221	330	454	359	156	119	165	374	320	220	196	468	490	519	392	502	421	451	302	328
25	270	350	505	315	261	318	204	260	202	322	688	577	363	551	957	745	682	578	753	722	424	483	396	358	470
26	427	276	339	500	505	620	579	302	321	492	535	425	557	797	923	779	619	742	348	484	541	511	284	424	514
27	708	655	904	967	383	251	292	416	914	415	258	291	670	739	760	765	456	423	636	524	570	658	235	224	546
28	319	691	764	475	489	394	363	628	387	529	697	1347	1731	1004	1436	1120	1161	617	233	245	218	241	495	507	670
29	875	1063	1199	995	1108	834	705	587	942	622	439	435	265	130	597	791	679	885	1013	724	772	604	318	277	702
30	150	152	185	211	272	123	53	68	55	76	153	418	458	705	1005	1264	932	617	913	562	124	335	612	554	416
31	396	467	341	201	238	331	412	426	473	361	872	949	765	837	654	826	686	834	549	346	403	255	652	745	542
Mean	296	297	333	296	271	276	280	300	360	323	329	340	357	354	415	420	396	395	393	356	306	306	278	276	331
5Q Mean	83	77	73	58	50	48	59	61	62	50	56	62	91	88	70	78	81	93	95	70	72	71	96	105	73
5D Mean	578	621	635	493	505	544	541	555	644	674	716	761	799	608	760	777	745	764	656	566	459	469	491	508	619

Date		A0 Index ( Provisional Hourly mean values, unit nT )																								Mean	
		1991																									
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
D	1	-51	-46	-32	23	-3	-107	-157	-43	-33	-44	-52	-120	-65	-21	-46	-45	-33	-38	-124	-365	-149	-289	-231	-93	-90	
D	2	-179	-4	-126	-148	-75	-117	-63	-101	-201	-248	-210	-8	-102	-142	-110	-132	-230	-187	-45	-31	-34	-111	-23	-51	-112	
	3	-86	-7	-41	-87	-46	-34	-24	-4	-58	-99	-24	-25	-54	-85	-53	-57	-31	-29	-6	-22	-52	-66	-71	-71	-47	
	4	-53	-97	-54	-39	-165	-160	-128	-133	-84	-3	-42	-43	-88	-74	-28	-19	-31	11	6	-15	-346	-180	9	7	-73	
	5	-122	-127	-22	11	4	-1	17	-2	-115	-15	24	12	22	0	-4	-7	-10	-15	-2	-2	1	0	0	-1	-14	
	6	-5	-9	0	-1	-5	-11	2	25	31	-23	13	12	2	5	-17	-74	-187	-131	-41	-72	-3	11	-20	-276	-32	
	7	-128	-156	-222	-27	12	15	-32	-78	-52	-12	4	-24	-12	6	-1	-38	-34	-23	-18	-23	3	-23	-69	-36	-40	
	8	-152	-93	-72	-75	-25	-118	-104	-104	-227	-181	-117	-140	-159	-110	-258	-191	-337	-263	-263	-188	-3	-6	-38	-63	-133	
	9	-36	-40	-52	-84	-8	-15	-62	-13	7	9	-1	4	1	-2	-5	-8	-10	-14	5	5	12	9	-3	-5	-12	
	10	0	-14	-98	-155	-203	-149	-71	-2	23	9	2	-8	-11	-124	-193	-133	-68	-37	-46	-33	13	4	-2	-4	-54	
	11	-15	-21	-3	-2	-21	0	9	-7	-25	15	7	-12	-38	-40	-44	-11	-16	-136	-106	-8	-4	-2	-42	-43	-23	
Q	12	3	1	-34	-3	5	7	15	9	6	0	-13	-3	1	5	12	19	1	-35	-42	-7	-3	9	-10	-6	-2	
Q	13	15	12	0	10	7	6	2	6	1	-2	-3	1	-18	-12	-14	-27	-38	-30	-5	5	-12	-6	-9	17	-3	
Q	14	38	30	20	11	5	5	2	7	0	1	-1	-5	-7	-6	0	-4	-6	-1	-37	-75	-13	6	4	-4	-1	
Q	15	-14	11	22	14	14	14	12	20	13	-5	-1	0	-8	-11	-9	-11	-13	-10	-6	-2	0	2	0	-2	0	
Q	16	0	0	1	1	0	-2	-2	-23	-10	-7	-6	-6	-8	-6	-8	-8	-10	-18	-13	-4	-5	0	0	2	-5	
Q	17	-4	-3	0	0	2	2	1	1	1	0	-2	-2	0	4	7	-3	-2	5	-2	15	19	9	-11	-46	0	
	18	-27	9	16	16	17	17	9	15	22	22	17	26	-13	-33	-80	-6	-8	-1	-6	0	-28	15	34	20	2	
	19	11	6	17	21	6	5	3	12	0	24	41	41	31	44	18	-7	-5	-32	-49	-76	-132	-113	-56	-75	-11	
	20	-12	20	-21	-9	15	-116	-102	-97	-43	-11	-110	-122	-13	-6	-36	-36	-2	-59	-22	24	11	4	3	-20	-31	
	21	2	-4	5	-39	-41	-7	-20	-26	39	-87	-117	-108	-81	-26	-29	-80	-243	-137	-243	-113	-112	-102	-152	-103	-76	
	22	-48	-97	-88	6	12	-14	-18	-105	-50	-11	-197	-234	-45	-45	-17	-45	-34	8	3	-41	-6	3	26	-25	-44	
	23	-84	-53	-68	-1	-11	-43	-38	-5	64	7	1	14	14	10	4	-2	-7	-59	-79	-45	-105	-155	-84	36	-28	
	24	29	-58	-165	-28	40	10	-75	-83	41	46	20	-16	-113	-55	-33	-18	-59	-69	-46	-33	-19	13	-82	-105	-36	
	25	-79	-72	-130	-36	49	35	16	-21	-1	-84	-122	-87	-110	-82	-147	-77	-22	-41	-236	-163	-77	-45	-68	-40	-68	
	26	-84	-63	-96	-156	-107	-104	-42	-47	-69	-79	-22	-39	-150	-163	-242	-186	-113	-109	-48	-52	-141	-130	-46	-47	-97	
	27	-246	-222	-298	-146	-32	-15	-15	-67	-282	-42	-17	-25	-236	-202	-107	-170	-101	-36	-139	-27	-101	-238	-34	-31	-118	
D	28	-22	-255	-159	-84	-49	-42	-39	-123	-52	-124	-121	-387	-518	-211	-328	-268	-293	-14	33	-38	-69	-75	-177	-120	-147	
D	29	-233	-297	-380	-178	-610	-333	-390	-322	-590	-338	-155	-111	-45	-44	-158	-166	-163	-364	-540	-285	-317	-127	-59	-16	-259	
	30	-36	-42	-84	-78	-111	-40	-12	-12	-10	-14	-53	-121	-130	-233	-325	-497	-373	-221	-210	-93	0	-42	-186	-184	-129	
D	31	-112	-124	-51	-52	-8	41	-12	6	40	38	-231	-221	-173	-239	-170	-59	-60	-89	27	113	-31	39	-139	-409	-78	
	Mean	-55	-58	-71	-42	-42	-41	-42	-42	-52	-40	-50	-56	-68	-62	-73	-78	-77	-72	-74	-53	-54	-51	-49	-57	-57	
5Q	Mean	0	4	-2	4	5	5	7	1	-1	-2	-4	-3	-7	-3	-2	-6	-11	-16	-12	1	0	2	-6	-7	-2	
5D	Mean	-119	-145	-149	-87	-149	-111	-132	-116	-167	-143	-153	-169	-180	-131	-162	-134	-155	-138	-129	-121	-120	-112	-125	-137	-137	

AU Index ( Provisional Hourly mean values, unit nT ) November 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
D 1	89	70	61	62	74	90	143	149	215	300	180	237	289	278	286	193	67	45	-18	5	172	172	15	-46	130	
D 2	110	158	155	200	62	55	44	12	10	21	125	187	162	66	33	84	62	68	122	129	163	123	94	89	97	
D 3	71	60	67	50	65	50	44	58	53	54	92	90	113	96	53	25	49	53	71	64	104	157	138	130	75	
D 4	87	70	80	114	133	183	131	122	115	148	130	124	111	63	47	58	205	115	134	210	205	100	193	223	129	
D 5	73	215	204	114	100	125	86	98	100	70	75	69	48	80	55	74	73	90	133	91	59	81	64	71	94	
D 6	82	128	111	108	129	263	142	86	87	64	59	61	78	91	75	60	90	117	91	57	80	94	69	118	98	
D 7	136	140	135	84	95	110	105	85	71	101	61	57	57	70	89	99	52	35	42	80	78	64	74	60	82	
D 8	78	95	87	89	106	97	120	177	173	145	159	100	54	165	61	58	43	-8	26	-89	-42	-121	38	23	68	
D 9	39	23	-13	11	105	186	192	105	116	116	192	185	185	236	207	173	129	144	120	151	101	77	82	62	122	
D 10	69	85	70	102	39	34	42	56	70	121	98	65	47	53	48	34	88	136	67	77	77	85	70	90	72	
D 11	82	68	53	80	111	105	89	68	81	64	90	94	101	125	54	112	70	93	102	147	166	130	106	102	96	
Q 12	127	105	119	102	107	72	100	69	59	37	32	29	38	34	37	28	42	40	30	40	36	38	47	34	58	
Q 13	34	39	38	39	61	48	65	99	168	158	104	79	103	59	182	124	70	69	49	63	69	54	38	53	78	
Q 14	85	76	102	212	148	163	125	148	184	135	210	187	108	60	49	37	27	21	43	79	51	54	84	55	102	
Q 15	102	162	116	131	144	88	169	152	112	110	129	167	134	182	184	184	183	132	155	77	88	70	61	89	130	
Q 16	119	146	109	111	118	142	161	120	130	132	50	160	127	114	192	221	183	148	216	140	112	108	169	132	140	
Q 17	117	98	131	131	80	78	102	93	147	166	108	188	241	256	299	244	201	178	98	117	86	66	56	67	140	
Q 18	61	33	80	169	101	89	119	160	291	167	181	178	247	241	148	111	52	145	199	162	130	63	75	18	134	
D 19	109	157	116	120	212	302	313	273	238	183	105	108	132	155	247	284	60	177	125	93	125	83	43	75	160	
Q 20	64	59	43	48	48	46	44	61	52	73	46	68	64	14	4	36	38	129	154	152	107	152	165	133	75	
D 21	69	111	160	160	181	149	155	304	322	122	162	205	146	139	193	111	50	94	70	27	11	104	226	203	145	
Q 22	95	182	212	211	218	221	177	167	240	199	111	158	159	224	256	122	89	67	92	85	52	52	57	67	146	
Q 23	64	95	147	123	116	109	96	119	206	286	140	180	198	253	106	95	73	81	67	55	93	116	109	77	125	
Q 24	84	95	76	100	90	72	81	112	103	77	47	40	40	34	31	81	50	61	47	90	97	115	120	154	79	
Q 25	80	68	73	47	116	83	90	78	59	46	34	31	51	59	46	30	33	54	94	73	55	64	65	53	62	
Q 26	47	71	54	80	76	96	83	60	70	73	67	97	73	58	47	51	51	41	46	48	47	42	38	41	61	
Q 27	41	62	69	68	53	64	62	49	42	33	38	44	100	128	68	103	99	201	140	95	56	76	68	81	77	
Q 28	66	88	64	50	58	62	69	52	59	73	71	80	109	111	125	74	59	42	44	47	86	79	114	120	75	
Q 29	85	117	114	122	91	73	53	56	51	53	82	69	59	56	81	71	80	85	55	69	73	70	96	126	79	
Q 30	156	125	116	71	79	136	197	126	131	152	85	54	70	134	130	70	30	57	44	48	45	59	73	110	96	
Mean	84	100	98	103	103	113	113	110	125	115	102	113	114	121	114	101	79	90	88	82	86	80	88	87	100	
5Q Mean	72	78	75	69	82	75	80	61	57	52	48	56	74	78	64	57	56	75	70	60	56	59	66	65	66	
5D Mean	76	91	82	88	135	164	184	201	212	173	159	167	161	194	198	163	69	90	64	37	73	63	80	63	124	



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November 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
D	1	-168	-66	-67	-63	-99	-164	-436	-480	-560	-475	-526	-674	-1113	-1011	-990	-599	-845	-866	-1133	-878	-790	-606	-780	-499	-579
	2	-217	-441	-656	-450	-179	-80	-57	-82	-83	-181	-133	-133	-138	-182	-327	-124	-133	-80	-103	-141	-76	-40	-64	-173	
	3	-20	-13	-11	-24	-16	-31	-13	-29	-29	-31	-86	-378	-266	-93	-67	-47	-86	-192	-99	-53	-133	-132	-265	-302	-101
	4	-157	-45	-14	-34	-359	-61	-14	-28	-213	-271	-111	-76	-41	-32	-42	-73	-172	-119	-132	-771	-727	-664	-325	-432	-205
	5	-377	-319	-139	-180	-243	-237	-124	-206	-59	-28	-73	-83	-272	-228	-87	-72	-169	-417	-446	-124	-16	-28	-36	-64	-168
	6	-26	-102	-177	-341	-379	-178	-90	5	-109	-49	-46	-22	-27	-47	-51	-45	-249	-270	-109	-38	-48	-53	-176	-111	
	7	-254	-117	-12	-46	-42	-57	22	9	0	-22	-10	-9	-15	-15	-32	-32	-29	-30	-44	-106	-152	-52	-8	-11	-44
	8	-22	-205	-157	-34	-50	-22	-43	-254	-104	0	-36	-28	-47	-232	-843	-639	-752	-970	-721	-934	-1008	-1213	-773	-799	-412
D	9	-653	-449	-1053	-772	-500	-860	-442	-450	-1001	-473	-228	-1204	-1109	-1027	-671	-611	-336	-533	-756	-571	-465	-385	-268	-304	-630
D	10	-368	-339	-189	-199	-202	-172	-105	-99	-76	-311	-372	-84	-21	-40	-48	-87	-273	-451	-218	-94	-234	-295	-248	-253	-199
	11	-191	-110	-88	-110	-132	-87	-54	-31	-22	-50	-129	-235	-141	-127	-196	-264	-258	-151	-403	-470	-452	-280	-68	-233	-178
Q	12	-320	-80	-46	-45	-27	-22	-86	-92	-72	-14	-4	-13	-14	-11	-8	-18	-96	-82	-63	-19	-16	-31	-44	-130	-56
	13	-37	-43	-11	7	5	5	4	-79	-214	-76	-42	-20	-52	-177	-466	-219	-15	4	-18	-102	-122	-48	-10	-4	-72
	14	-53	-123	-321	-165	-50	-115	-127	-118	-292	-165	-105	-237	-133	-16	-32	-39	-43	-40	-71	-200	-52	-29	-72	-91	-112
	15	-150	-304	-113	-61	-89	-133	-213	-130	-131	-331	-593	-613	-683	-426	-552	-296	-172	-74	-113	-41	-56	-43	-6	-223	-231
	16	-259	-276	-58	-44	-91	-281	-258	-98	-147	-294	-359	-629	-329	-241	-248	-172	-176	-123	-211	-122	-249	-460	-287	-123	-231
	17	-45	-49	-83	-19	-4	-11	-56	-7	-105	-172	-183	-537	-482	-495	-481	-427	-400	-269	-327	-298	-94	-52	-153	-254	-208
	18	-316	-365	-372	-265	-145	-154	-175	-288	-327	-313	-389	-637	-490	-232	-283	-199	-85	-159	-643	-237	-109	-72	-353	-514	-297
D	19	-373	-191	-284	-377	-343	-496	-299	-479	-398	-344	-330	-344	-488	-386	-542	-727	-801	-904	-779	-463	-581	-506	-88	-40	-440
	20	-33	-27	-33	-39	-45	-44	-82	-94	-90	-273	-162	-184	-261	-229	-250	-67	-65	-351	-550	-434	-233	-316	-239	-126	-176
	21	-53	-90	-175	-311	-288	-216	-296	-526	-509	-368	-544	-621	-283	-217	-855	-1368	-831	-924	-762	-791	-840	-752	-156	-137	-496
D	22	-442	-449	-244	-761	-661	-322	-547	-423	-910	-784	-556	-646	-837	-303	-549	-155	-83	-46	-40	-39	-28	-24	-36	-138	-376
	23	-203	-349	-415	-316	-163	-230	-432	-324	-415	-311	-491	-715	-537	-445	-251	-215	-167	-92	-76	-102	-246	-406	-140	-59	-296
	24	-113	-302	-268	-176	-73	-155	-272	-215	-201	-80	-31	-21	-21	-107	-372	-331	-61	-128	-133	-389	-275	-289	-499	-423	-206
Q	25	-108	-76	-100	-44	-134	-202	-64	-194	-139	-10	-10	-11	-31	-46	-41	-45	-107	-282	-285	-109	-69	-113	-131	-20	-99
	26	3	-10	-21	-229	-186	-85	-43	-140	-245	-72	-82	-199	-73	-78	-147	-244	-168	-23	-62	-44	-35	3	2	-90	
Q	27	2	-6	-32	-57	5	6	-1	0	-2	-3	-7	-72	-262	-324	-170	-275	-335	-272	-265	-127	-25	-43	-45	-87	-100
Q	28	-86	-86	2	0	-20	-46	-43	-28	-9	-36	-200	-165	-323	-406	-210	-45	-24	-12	-1	-20	-173	-375	-93	-144	-106
	29	-190	-139	-171	-36	-30	13	4	0	-3	-6	-90	-19	-1	-55	-373	-291	-25	0	-32	-78	-6	-17	-65	-363	-82
	30	-43	6	-39	-11	-71	-84	-20	7	-43	-129	-24	-14	-42	-31	-5	1	-14	3	0	-5	-14	-20	-179	-353	-47
Mean		-175	-172	-178	-173	-153	-150	-145	-161	-216	-185	-200	-287	-284	-240	-301	-264	-232	-263	-285	-258	-245	-245	-181	-212	-217
5Q Mean		-101	-51	-39	-75	-72	-69	-47	-90	-93	-27	-60	-92	-140	-173	-115	-125	-146	-134	-135	-63	-63	-111	-62	-75	-90
5D Mean		-253	-200	-347	-311	-256	-351	-303	-437	-514	-332	-574	-608	-574	-780	-788	-713	-839	-830	-727	-736	-692	-413	-355	-511	

AE Index ( Provisional Hourly mean values, unit nT )		November 1991												Mean												
		0	1	2	3	4	5	6	7	8	9	10	11		12	13	14	15	16	17	18	19	20	21	22	23
D	1	258	137	128	125	173	256	581	630	777	776	707	912	1403	1289	1276	792	913	912	1114	883	963	779	796	451	710
	2	328	600	812	652	243	137	102	69	93	105	308	321	297	206	215	412	186	202	203	233	305	199	135	153	272
	3	92	74	79	75	81	82	58	88	84	86	178	469	379	190	121	73	136	246	170	118	237	290	403	433	177
	4	244	115	95	149	493	245	145	151	330	421	242	201	153	96	90	133	379	236	267	982	933	765	519	655	335
	5	451	534	344	295	344	363	211	305	160	99	149	154	321	309	144	147	243	508	580	215	75	110	101	136	262
	6	108	231	288	451	509	443	233	80	197	114	106	84	106	140	127	106	341	388	201	97	119	143	123	295	210
	7	391	258	147	131	138	167	82	75	71	125	72	66	73	86	122	132	82	66	87	187	231	117	82	71	128
D	8	100	300	245	123	156	120	164	432	278	145	196	129	101	398	905	699	796	961	748	844	966	1091	811	823	480
D	9	693	472	1040	785	606	1047	635	557	1118	591	421	1390	1295	1264	879	785	466	678	876	722	567	463	351	366	753
	10	437	425	260	301	241	206	148	156	147	434	471	150	68	93	96	122	362	588	285	172	312	380	318	344	271
	11	273	178	142	191	243	192	143	100	104	115	220	330	243	253	251	377	329	245	506	618	619	410	175	336	275
Q	12	448	185	165	148	134	95	188	163	133	52	36	42	53	46	46	47	139	123	94	60	53	70	92	164	116
	13	72	82	49	31	55	42	60	180	384	235	147	99	156	237	649	344	86	65	67	167	192	102	48	58	150
	14	139	199	423	377	199	279	254	267	477	302	316	426	242	76	82	76	71	61	115	280	104	83	158	147	215
	15	253	467	230	193	233	223	383	283	245	443	722	781	818	609	737	480	356	208	269	118	145	113	67	313	362
	16	378	422	168	156	211	425	421	219	278	427	410	790	457	357	441	394	359	272	427	263	362	569	456	256	372
	17	162	148	214	150	84	89	160	100	254	339	293	726	724	752	781	672	601	447	426	415	180	119	210	322	349
	18	377	399	452	435	247	243	296	449	619	481	571	816	738	475	432	311	138	306	843	400	240	135	429	533	432
D	19	482	349	401	499	556	799	614	753	637	528	435	453	622	542	790	1011	862	1082	904	557	707	589	131	116	601
	20	98	86	76	87	93	91	127	156	143	348	209	254	326	244	255	104	104	482	705	587	340	469	405	259	252
D	21	123	202	336	472	470	366	452	831	833	492	707	827	430	357	1049	1479	882	1019	833	819	851	856	382	340	642
	22	538	632	457	974	880	544	726	591	1151	985	668	806	997	529	806	278	173	115	133	125	82	77	93	206	524
	23	268	444	562	439	280	340	529	444	622	598	632	897	736	699	358	312	241	174	144	158	340	524	250	137	422
	24	198	397	344	277	164	227	355	328	305	159	79	62	62	142	405	413	111	190	180	480	373	405	619	578	286
Q	25	188	144	174	92	251	285	155	273	200	57	45	43	83	107	88	77	140	337	381	183	125	178	197	72	161
	26	43	82	75	310	262	182	127	202	317	147	150	298	147	136	194	296	219	64	109	93	84	38	33	38	152
Q	27	38	68	102	126	47	56	64	48	45	36	46	117	363	453	239	379	436	474	406	224	82	120	113	169	177
Q	28	152	175	61	49	78	109	112	80	69	111	272	246	433	518	336	119	84	55	45	68	260	455	208	264	182
	29	275	256	285	158	121	59	48	56	55	60	174	90	60	112	455	363	107	85	88	149	81	88	161	490	162
	30	199	118	155	82	151	221	217	118	175	283	109	68	113	166	134	68	45	53	43	54	59	80	253	464	143
	Mean	260	272	276	277	258	264	259	272	343	303	303	401	399	362	416	366	312	354	374	342	332	327	270	299	318
5Q Mean		173	130	115	145	154	145	129	153	152	80	109	149	215	252	180	183	203	210	207	125	120	172	128	141	157
5D Mean		331	292	430	400	392	517	489	640	728	506	493	742	770	770	979	953	783	930	895	765	810	755	494	419	637

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November 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	-39	1	-2	0	-12	-36	-145	-164	-172	-87	-172	-217	-411	-365	-351	-202	-388	-409	-575	-436	-308	-216	-382	-272	-223
	-52	-140	-249	-124	-57	-11	-5	-21	-35	-30	-26	26	14	-35	-74	-121	-31	-32	20	12	10	22	26	12	-37
	25	23	27	12	23	8	14	14	11	10	2	-143	-76	1	-6	-10	-18	-68	-13	5	-14	12	-63	-85	-12
	-34	12	32	40	-112	60	58	46	-48	-60	9	24	34	15	2	-7	16	-1	0	-280	-260	-281	-65	-103	-37
	-151	-51	32	-32	-71	-55	-18	-53	20	20	1	-6	-112	-73	-15	0	-47	-162	-156	-15	21	26	13	3	-36
	27	12	-32	-116	-123	42	25	45	-10	7	6	18	24	21	11	7	-79	-75	-8	9	20	22	7	-28	-6
	-58	11	61	18	25	25	63	47	35	39	24	23	20	27	28	33	11	2	-1	-12	-37	5	32	24	18
D	27	-54	-34	26	27	37	37	-88	34	73	61	35	3	-33	-390	-290	-353	-489	-347	-511	-525	-667	-367	-387	-171
D	-306	-212	-532	-379	-197	-336	-124	-171	-441	-178	-17	-509	-461	-394	-231	-218	-102	-193	-317	-209	-181	-153	-92	-120	-253
	-148	-126	-59	-48	-81	-68	-31	-21	-3	-94	-136	-9	12	6	0	-26	-91	-156	-74	-8	-77	-104	-88	-80	-63
	-54	-20	-17	-14	-10	8	16	17	29	6	-19	-70	-19	0	-70	-75	-93	-28	-149	-160	-142	-74	18	-65	-41
Q	-96	11	36	27	39	24	7	-11	-6	11	13	7	10	10	13	4	-26	-20	-16	10	9	3	1	-47	0
	-1	-2	13	23	33	26	34	9	-22	40	30	28	25	-58	-141	-47	27	36	15	-19	-26	2	13	24	2
	15	-23	-109	22	48	23	-1	14	-53	-14	52	-24	-11	21	8	0	-7	-9	-13	-59	0	11	6	-18	-5
	-23	-70	1	34	26	-22	-21	10	-9	-109	-231	-222	-274	-121	-183	-55	5	28	21	17	16	13	26	-66	-50
	-69	-64	25	33	13	-69	-47	10	-8	-80	-154	-234	-100	-63	-27	24	3	12	2	8	-68	-175	-58	4	-45
	35	24	23	55	37	32	22	42	-2	-36	-173	-119	-119	-90	-90	-90	-98	-44	-113	-90	-3	6	-47	-93	-34
	-127	-165	-145	-47	-21	-32	-27	-63	-17	-72	-103	-228	-120	4	-66	-43	-15	-6	-221	-36	10	-4	-138	-247	-80
D	-131	-16	-83	-127	-64	-96	6	-102	-79	-79	-111	-117	-177	-114	-147	-220	-369	-362	-326	-184	-237	-211	-22	17	-139
	14	15	4	3	0	0	-18	-15	-18	-99	-57	-57	-98	-106	-122	-15	-13	-110	-197	-140	-62	-81	-36	3	-50
	7	10	-7	-75	-53	-33	-70	-110	-92	-122	-190	-207	-68	-38	-330	-628	-389	-414	-345	-381	-413	-323	34	33	-175
D	-172	-133	-15	-274	-220	-50	-184	-127	-334	-292	-222	-243	-338	-39	-146	-16	2	10	25	22	11	13	10	-35	-114
	-68	-126	-133	-96	-23	-59	-167	-102	-104	-12	-174	-266	-168	-95	-72	-59	-46	-5	-4	-22	-75	-144	-15	8	-84
	-14	-103	-95	-38	8	-41	-94	-51	-48	-1	7	8	9	-36	-169	-124	-5	-32	-42	-149	-88	-86	-188	-133	-63
Q	-13	-3	-13	1	-8	-59	12	-57	-40	17	12	9	9	6	2	-7	-36	-113	-95	-17	-7	-23	-32	16	-18
	25	29	15	-74	-54	4	19	-39	-87	0	-7	-50	0	-9	-49	-95	-58	8	-8	1	5	22	20	22	-14
Q	22	27	17	4	29	35	29	24	19	14	14	-13	-80	-97	-50	-85	-117	-35	-61	-15	14	16	11	-3	-11
Q	-9	1	33	24	18	7	12	11	24	18	-63	-41	-106	-147	-42	14	17	15	21	13	-42	-147	10	-11	-15
	-51	-10	-28	42	30	43	28	28	22	-3	24	28	0	-145	-109	26	42	11	-4	32	25	15	-118	-1	-1
	56	66	38	29	3	25	87	66	43	11	30	19	13	51	62	35	7	29	22	21	15	19	-52	-121	24
Mean	-45	-35	-39	-35	-24	-18	-16	-25	-45	-34	-48	-86	-84	-59	-93	-80	-75	-86	-98	-87	-79	-82	-46	-62	-58
5Q Mean	-14	13	17	-3	4	2	15	-14	-18	12	-6	-17	-33	-47	-25	-33	-44	-29	-31	-1	-4	-25	2	-4	-11
5D Mean	-88	-54	-131	-111	-59	-92	-59	-117	-150	-78	-85	-203	-222	-188	-289	-311	-320	-373	-382	-344	-330	-314	-165	-145	-192

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December 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	72	72	55	46	54	61	51	56	27	34	19	29	36	24	18	23	21	35	97	110	86	66	76	120	54
2	186	70	52	23	33	98	36	49	92	170	345	224	149	63	108	89	121	51	92	161	167	74	106	58	109
3	58	70	60	61	58	72	61	48	61	48	58	55	93	58	76	105	72	124	173	136	114	102	84	88	81
4	80	57	89	82	98	126	126	69	43	32	43	47	69	104	79	78	73	66	111	111	74	66	76	101	79
5	79	60	52	62	63	55	56	102	92	64	29	16	11	27	41	28	16	50	28	27	36	26	41	36	46
Q	42	46	52	57	46	38	31	33	29	34	21	35	28	25	41	17	14	10	12	13	21	44	85	46	34
Q	47	46	69	61	67	59	68	32	35	37	40	59	111	49	26	17	17	23	25	27	63	86	112	39	51
8	39	49	57	84	90	99	88	90	97	90	70	48	116	122	102	80	26	24	22	18	11	11	12	16	61
9	19	26	23	24	25	14	14	20	30	26	14	18	18	20	38	28	48	124	62	85	116	115	190	68	48
10	89	66	129	98	93	65	130	110	54	67	41	39	30	62	33	38	31	97	157	233	157	88	131	118	90
11	175	60	61	57	48	31	12	12	20	14	9	12	28	41	70	55	105	76	68	75	128	113	78	142	62
12	210	68	133	94	59	35	23	16	20	17	16	15	15	37	23	18	39	87	98	66	38	56	89	75	56
13	114	100	93	82	52	77	54	74	83	68	127	99	96	78	103	57	66	114	50	108	109	111	69	80	86
14	82	74	73	52	84	82	108	125	127	56	128	111	153	81	68	178	165	158	115	99	42	55	51	74	97
Q	89	148	151	119	114	61	54	54	67	37	31	37	46	47	47	25	11	10	9	20	12	10	9	6	51
16	12	15	16	14	20	36	46	37	38	77	83	95	202	155	115	159	278	117	56	115	176	168	72	90	91
17	92	72	129	192	196	144	103	144	77	85	110	60	108	114	169	222	206	193	80	183	135	63	95	102	128
18	96	76	95	50	55	87	79	89	81	191	271	138	82	33	26	42	39	33	12	30	24	9	8	7	69
19	4	4	10	6	10	9	30	35	61	160	240	172	150	145	129	168	177	154	109	163	170	78	13	12	92
20	12	0	2	10	37	44	54	79	69	18	16	12	5	8	20	107	167	85	73	88	43	54	67	38	46
D	71	93	179	233	166	149	148	140	203	285	219	64	111	70	59	98	105	80	54	47	47	45	64	67	117
Q	59	59	90	92	57	68	65	58	63	68	39	20	15	14	13	12	12	13	15	18	19	21	23	25	39
23	39	60	75	74	76	122	77	74	81	111	221	167	67	68	31	38	39	62	55	40	53	65	46	48	75
24	48	72	66	82	116	95	42	81	62	148	119	67	83	85	44	40	113	59	33	25	18	14	11	15	64
Q	29	36	27	28	24	37	35	27	29	34	42	73	195	113	59	47	27	39	66	49	31	54	61	55	51
26	50	31	56	46	28	47	71	53	26	19	19	23	22	24	24	22	27	33	41	43	55	81	149	154	48
27	144	131	118	100	159	184	133	170	118	173	119	235	198	62	54	98	154	143	324	272	120	63	147	193	151
D	115	122	144	88	74	82	75	97	75	78	51	62	87	110	159	165	210	271	201	127	122	159	115	53	118
D	45	44	66	82	106	155	132	157	147	104	137	129	116	44	45	49	67	151	217	269	110	0	5	101	103
30	127	206	164	130	65	30	24	28	20	23	13	25	16	31	43	82	8	13	19	47	79	93	55	33	57
31	29	4	5	3	8	15	14	10	38	40	37	23	22	21	29	26	45	116	144	174	136	94	94	76	50
Mean	75	65	77	72	70	73	65	69	66	77	87	71	79	62	61	71	80	84	84	96	81	67	72	68	74
5Q Mean	53	67	77	71	61	52	50	40	44	42	34	44	79	49	37	23	16	19	25	25	29	43	58	34	45
5D Mean	93	92	127	139	140	142	118	141	124	145	127	110	124	80	97	126	148	167	175	179	106	66	85	103	123

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December

1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-66	-46	-28	-15	-14	-22	-58	-84	-18	-19	-50	-83	-111	-53	-42	-41	-103	-140	-220	-203	-97	-24	-38	-116	-70
2	-166	-22	-1	-3	0	-28	-8	-29	-143	-339	-296	-121	-164	-380	-311	-126	-211	-71	-224	-335	-87	-31	-110	-83	-137
3	-47	-17	-17	-17	-28	-4	-6	-13	-23	-29	61	-102	-220	-189	-207	-304	-122	-189	-278	-129	-107	-73	-80	-111	-99
4	-125	-9	-52	-31	-49	-80	-5	-13	-10	-18	-48	-99	-185	-183	-283	-112	-12	-72	-175	-340	-193	-92	-41	-131	-98
5	-26	-2	-8	-4	-28	-113	-103	-46	-21	-25	-10	-24	-19	-27	-24	-126	-87	-167	-70	-61	-146	-66	-5	-20	-51
Q	-27	-21	-14	-7	-4	-4	-3	-20	-15	-17	-29	-49	-22	-19	-34	-19	-15	-13	-9	-6	-27	-107	-89	-48	-26
Q	-36	-9	-10	-6	-4	-13	-6	-4	-3	-7	-2	-100	-119	-27	-12	-19	-45	-73	-22	-27	-72	-258	-64	-24	-40
8	-36	-25	-13	-32	-34	-19	-1	-87	-94	-90	-45	-13	-45	-116	-113	-82	-13	-16	-6	-8	-5	-4	-2	-6	-36
9	-6	-2	0	4	3	0	0	-2	-8	3	0	-11	-24	-9	-17	-16	-106	-314	-136	-121	-202	-177	-106	-61	-55
10	-98	-136	-80	-15	7	-16	-13	-35	6	-26	-26	-19	-28	-37	-40	-47	-157	-467	-300	-191	-141	-219	-457	-275	-117
11	-24	-46	-97	-61	-42	-54	-26	-8	-21	-27	-40	-29	-45	-262	-188	-224	-234	-141	-117	-29	-183	-157	-130	-162	-98
12	-104	-5	-59	-40	-55	-21	-21	-17	-19	-18	-20	-27	-23	-40	-54	-103	-290	-443	-278	-187	-82	-46	-37	-49	-85
13	-175	-250	-109	-22	-42	-55	-105	-181	-151	-129	-315	-274	-165	-401	-542	-93	-67	-286	-253	-234	-165	-269	-149	-134	-190
14	-28	-10	-2	-16	-66	-140	-207	-284	-129	-88	-144	-491	-286	-301	-344	-234	-540	-367	-159	-45	-76	-191	-118	-273	-189
Q	-250	-193	-92	-44	-78	-62	-83	-86	-44	-26	-19	-27	-22	-61	-58	-47	-76	-40	-22	-19	-11	-15	-17	-13	-59
16	-9	-6	-8	-12	-23	-86	-83	-41	-49	-54	-146	-437	-584	-273	-71	-269	-516	-95	-63	-154	-522	-261	-74	-109	-164
17	-285	-689	-199	-367	-429	-283	-127	-326	-352	-157	-403	-401	-440	-248	-357	-659	-596	-421	-321	-389	-123	-143	-371	-232	-347
18	-148	-238	-104	-167	-192	-265	-187	-202	-333	-313	-282	-279	-262	-262	-275	-248	-30	-28	-44	-26	-28	-13	-9	-9	-164
19	-10	-10	-7	-4	-10	-65	-89	-142	-215	-249	-152	-238	-404	-459	-350	-361	-522	-436	-364	-389	-257	-109	-20	-27	-204
20	-36	-26	-17	-15	-72	-157	-139	-200	-206	-90	-65	-33	-39	-55	-82	-310	-420	-115	-166	-261	-79	-75	-129	-84	-120
D	-190	-214	-317	-377	-177	-227	-287	-180	-460	-411	-133	-356	-290	-193	-173	-253	-243	-149	-277	-361	-211	-151	-280	-238	-256
Q	-75	-153	-110	-56	-36	-116	-63	-62	-126	-181	-68	-14	-12	-18	-23	-27	-37	-34	-21	-14	-6	-2	-2	-5	-53
23	-69	-304	-264	-136	-116	-288	-61	-199	-300	-345	-228	-158	-186	-164	-178	-277	-282	-423	-299	-89	-97	-258	-179	-210	-213
24	-190	-218	-103	-127	-178	-115	-25	-72	-179	-431	-91	-91	-138	-177	-212	-237	-258	-268	-81	-44	-36	-24	-44	-29	-140
Q	-27	-52	-19	-3	-2	-4	-11	-47	-107	-73	-46	-184	-425	-87	-77	-166	-103	-142	-192	-80	-26	-39	-166	-129	-92
26	-47	-6	-26	-90	-146	-101	-121	-40	-41	-17	-13	-30	-8	-15	-11	-11	-15	-8	-16	-29	-21	-21	-26	-18	-37
D	-31	-14	-17	-72	-85	-41	-23	-59	-297	-368	-624	-286	-178	-244	-253	-421	-590	-713	-189	-497	-587	-673	-811	-298	-307
D	-128	-85	-88	-29	-67	-110	-156	-147	-80	-66	-162	-426	-526	-342	-376	-781	-528	-424	-392	-561	-504	-404	-119	-41	-273
D	-30	-20	-52	-45	-60	-68	-67	-108	-118	-76	-76	-48	-82	-159	-237	-149	-136	-140	-421	-445	-533	-572	-594	-315	-190
30	-149	-406	-371	-143	-25	-18	-13	-16	-21	-18	-17	-37	-42	-90	-230	-143	-48	-34	-40	-73	-79	-101	-18	-9	-89
31	-22	-22	-18	-17	-12	-10	-8	-6	-14	-16	-91	-102	-16	-38	-23	-37	-106	-158	-209	-211	-66	-36	-133	-142	-63
Mean	-85	-105	-74	-63	-66	-83	-67	-89	-115	-120	-119	-148	-164	-159	-167	-190	-209	-206	-173	-179	-153	-148	-142	-109	-130
5Q Mean	-83	-85	-49	-23	-24	-39	-33	-43	-59	-60	-32	-74	-120	-42	-40	-55	-55	-60	-53	-29	-28	-84	-67	-43	-53
5D Mean	-132	-204	-134	-178	-163	-145	-132	-164	-261	-215	-279	-303	-303	-237	-279	-452	-418	-369	-320	-450	-391	-388	-435	-224	-274

AE Index ( Provisional Hourly mean values, unit nF ) December 1991

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	140	118	84	62	70	83	110	140	47	54	71	112	147	79	61	65	124	177	319	314	184	91	115	237	125
2	353	93	54	28	33	127	44	78	237	510	642	347	314	444	420	217	334	123	316	496	255	106	217	142	247
3	105	88	79	79	87	77	68	62	85	77	120	158	314	247	284	409	195	315	452	266	222	176	166	200	181
4	207	66	142	114	148	206	131	83	54	51	93	147	254	288	363	191	86	139	287	452	268	159	118	232	178
5	106	63	61	66	92	169	160	148	113	90	40	41	30	55	66	155	105	218	98	89	184	93	46	58	98
Q	71	68	67	65	51	43	35	54	46	52	51	85	51	45	76	37	29	24	22	20	49	153	175	96	61
Q	84	56	79	69	71	72	74	36	38	46	43	161	231	76	39	36	63	98	48	55	137	346	177	64	92
8	77	75	71	117	125	118	89	178	193	181	115	62	161	239	216	113	39	40	29	27	17	15	15	23	97
9	26	29	22	19	21	14	17	29	26	25	26	44	28	37	56	44	155	440	199	208	319	293	298	130	104
10	189	204	210	114	86	82	143	146	47	94	69	59	59	99	73	85	189	566	459	425	299	309	589	394	208
11	200	108	158	119	91	86	39	21	42	42	50	42	73	304	258	280	340	218	187	105	313	272	210	306	161
12	316	74	193	136	114	56	45	34	39	36	36	43	40	78	77	122	330	531	376	254	121	103	127	125	142
13	290	351	204	105	94	132	160	256	235	198	442	373	261	479	647	151	133	401	304	342	275	381	219	215	277
14	110	84	77	68	151	223	316	410	257	145	272	602	440	384	412	412	706	525	276	146	119	248	170	348	288
Q	341	343	244	164	192	123	138	141	112	64	50	65	68	108	105	73	89	51	31	40	24	26	27	20	110
16	21	22	25	26	43	122	130	79	89	132	230	533	787	429	187	430	795	212	121	271	700	430	148	200	257
17	378	763	329	560	626	427	230	471	430	244	514	462	548	363	527	883	802	615	403	573	259	206	467	336	476
18	244	315	199	217	247	353	267	292	415	505	553	418	344	295	302	290	70	61	57	57	53	23	18	16	234
19	14	15	18	11	20	75	119	178	277	410	393	411	555	605	480	530	700	591	474	553	429	188	35	41	297
20	50	26	20	26	109	202	193	279	276	109	82	46	45	64	103	418	588	200	240	350	124	130	198	124	167
D	262	309	497	611	344	377	436	321	663	697	353	421	402	264	233	351	349	231	332	409	260	197	345	306	374
Q	134	213	200	149	94	185	130	121	189	250	109	35	27	33	37	40	49	48	38	32	26	24	25	31	93
23	110	366	341	210	192	411	139	274	382	457	450	326	253	233	209	316	323	486	355	131	150	324	227	258	288
24	240	291	170	210	294	211	67	153	242	580	212	159	221	262	257	278	372	328	116	70	56	39	57	45	205
Q	56	88	47	32	27	42	47	76	137	107	89	257	621	201	137	214	130	182	260	131	59	93	229	185	144
26	98	38	83	136	174	148	193	94	67	37	33	54	30	39	36	35	43	42	58	73	77	103	177	173	85
D	176	147	136	173	244	226	157	231	416	542	744	522	377	307	309	520	745	857	515	770	709	738	959	492	459
D	244	208	233	117	142	193	231	244	156	145	214	488	614	453	536	947	739	696	593	690	628	565	236	95	392
D	76	66	119	128	167	224	200	266	265	181	214	178	200	204	282	199	205	293	639	715	644	572	600	417	294
30	277	613	536	273	91	49	38	45	42	42	30	62	59	122	274	225	58	48	60	122	159	195	74	43	147
31	52	27	24	21	20	26	22	16	53	58	129	126	39	60	53	64	152	275	353	386	203	130	228	220	114
Mean	162	171	152	136	137	157	134	159	182	198	208	220	244	222	229	262	291	291	258	276	236	217	215	179	206
5Q	137	153	127	95	87	93	84	85	104	103	68	120	199	92	78	80	72	80	79	55	59	128	126	79	99
5D	227	298	262	317	304	289	250	306	386	361	407	414	428	318	377	580	568	538	496	631	500	455	521	329	398

December 1991

A0 Index ( Provisional Hourly mean values, unit nT )

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
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2	9	23	25	9	16	34	13	9	-25	-84	24	50	-7	-157	-101	-18	-44	-9	-65	-86	39	21	-1	-12	-13
3	5	26	20	21	14	33	27	17	18	9	-1	-23	-63	-65	-65	-99	-24	-32	-52	3	3	14	1	-11	-9
4	-22	23	18	25	23	23	60	27	16	6	-2	-26	-57	-39	-101	-17	29	-2	-31	-114	-59	-12	17	-14	-9
5	26	28	21	28	17	-28	-23	28	35	19	9	-4	-3	0	7	-48	-35	-58	-20	-17	-54	-19	17	7	-2
Q	7	12	17	24	20	16	13	5	6	7	-3	-6	2	2	3	0	0	-1	1	2	-3	-31	-1	0	4
Q	5	17	29	26	31	22	30	13	16	14	18	-20	-4	10	6	0	-13	-24	1	0	-4	-85	23	7	5
8	1	11	21	25	27	39	43	1	1	0	12	17	34	3	-5	23	6	3	7	4	2	3	4	4	12
9	6	11	12	14	14	6	5	5	16	13	1	-2	3	1	10	5	-29	-94	-36	-17	-42	-31	41	3	-3
10	-4	-34	24	41	50	24	58	37	30	20	7	9	0	11	-3	-4	-62	-184	-70	20	8	-64	-162	-78	-13
11	74	6	-17	-1	2	-11	-6	1	0	-6	-14	-8	-8	-110	-58	-84	-63	-32	-24	22	-27	-21	-25	-9	-17
12	52	31	36	26	1	6	0	0	0	-1	-5	-3	-3	-1	-15	-41	-125	-177	-89	-60	-21	4	25	12	-14
13	-29	-74	-7	29	5	10	-25	-53	-33	-30	-93	-86	-33	-160	-218	-17	0	-85	-100	-62	-27	-78	-39	-26	-51
14	26	31	34	17	8	-28	-48	-78	0	-15	-8	-189	-66	-109	-137	-27	-187	-104	-21	26	-16	-67	-33	-99	-45
Q	-80	-22	29	37	17	0	-14	-15	11	4	5	4	11	-6	-5	-10	-31	-14	-6	0	0	-1	-3	-2	-3
16	1	4	4	0	-1	-24	-17	-1	-5	11	-31	-170	-190	-58	21	-54	-118	11	-3	-19	-172	-46	-1	-9	-36
17	-96	-307	-34	-86	-116	-69	-12	-90	-136	-35	-146	-170	-165	-66	-93	-218	-194	-113	-119	-102	6	-39	-137	-64	-108
18	-25	-80	-4	-57	-67	-88	-53	-55	-125	-60	-5	-70	-89	-114	-123	-102	4	2	-15	1	-1	0	0	0	-47
19	-2	-2	1	0	0	-27	-28	-53	-76	-43	43	-33	-126	-156	-110	-95	-171	-140	-126	-112	-42	-15	-3	-6	-55
20	-11	-13	-6	-1	-16	-55	-41	-59	-68	-35	-23	-9	-16	-23	-31	-101	-125	-15	-45	-86	-17	-10	-30	-22	-36
D	-59	-59	-68	-71	-5	-38	-69	-19	-128	-62	42	-146	-88	-60	-56	-76	-68	-34	-111	-156	-81	-52	-107	-84	-69
Q	-7	-46	-9	17	10	-23	0	-2	-30	-56	-14	2	1	-1	-4	-7	-11	-9	-2	1	6	8	10	9	-6
23	-14	-121	-94	-30	-19	-82	7	-61	-108	-116	-3	4	-58	-47	-72	-118	-121	-180	-121	-24	-21	-95	-66	-80	-68
24	-70	-72	-17	-21	-30	-9	8	4	-57	-141	13	-12	-26	-45	-83	-97	-72	-104	-23	-9	-8	-5	-16	-6	-37
Q	0	-7	3	11	10	15	11	-9	-38	-18	-1	-55	-114	12	-9	-59	-37	-50	-62	-15	2	7	-52	-36	-20
26	1	11	14	-21	-58	-26	-24	6	-7	0	3	-3	6	4	5	5	5	11	11	6	16	29	61	67	5
D	56	58	49	13	36	71	54	55	-89	-97	-252	-25	9	-91	-99	-161	-217	-284	67	-111	-232	-304	-331	-51	-78
D	-6	18	28	29	3	-13	-39	-24	-2	6	-55	-181	-219	-115	-107	-307	-158	-75	-94	-216	-190	-121	-1	5	-76
D	6	11	6	17	22	43	32	24	14	14	30	39	16	-56	-94	-49	-34	5	-102	-87	-211	-286	-294	-106	-43
30	-10	-99	-102	-5	19	6	5	5	0	1	-1	-5	-12	-29	-92	-29	-19	-10	-10	-12	0	-4	18	11	-15
31	3	-8	-6	-6	-2	2	2	1	11	12	-26	-39	3	-8	3	-5	-30	-20	-32	-18	34	28	-18	-32	-6
Mean	-4	-19	1	4	1	-4	-1	-9	-24	-21	-15	-38	-41	-47	-52	-58	-64	-60	-43	-41	-36	-40	-35	-20	-28
5Q Mean	-15	-9	13	23	17	6	8	-1	-7	-9	1	-15	-20	3	-1	-15	-18	-19	-13	-2	0	-20	-4	-4	-4
5D Mean	-19	-55	-3	-19	-12	-1	-6	-10	-68	-34	-76	-96	-89	-77	-89	-162	-134	-100	-71	-134	-141	-160	-174	-60	-75



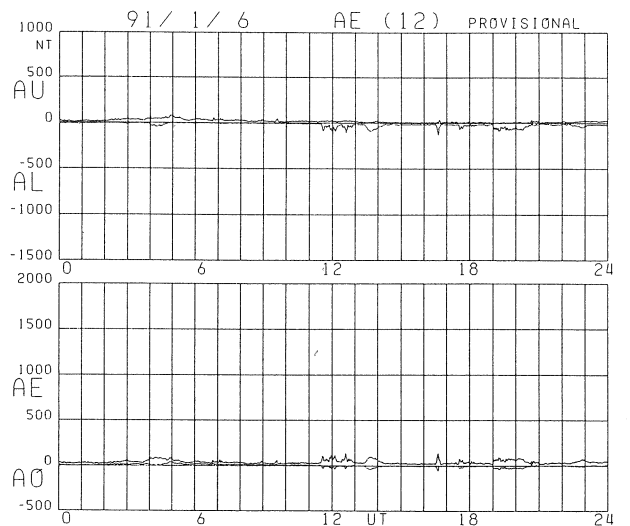
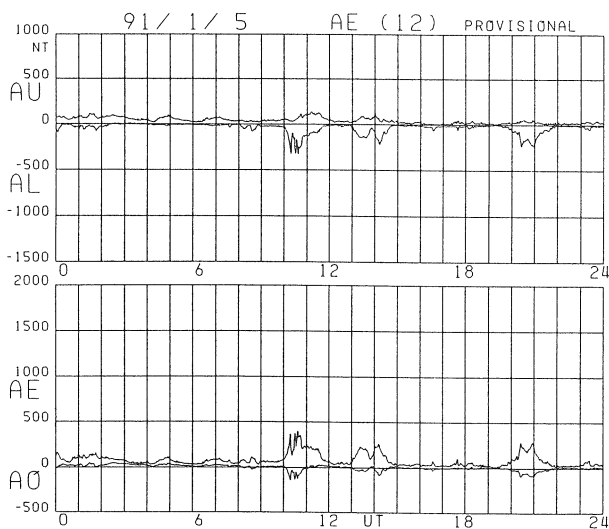
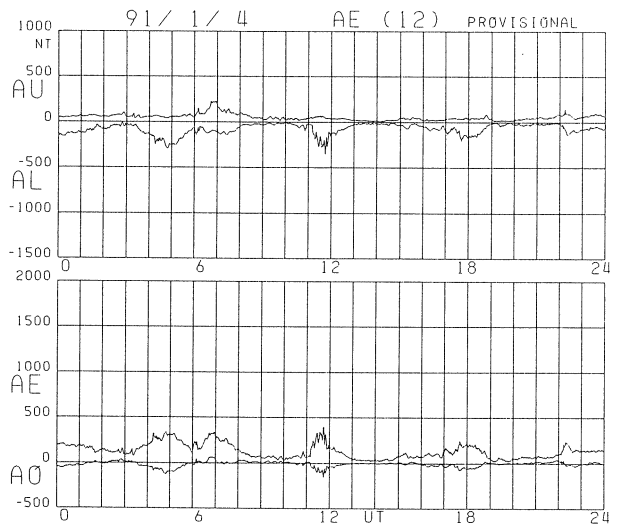
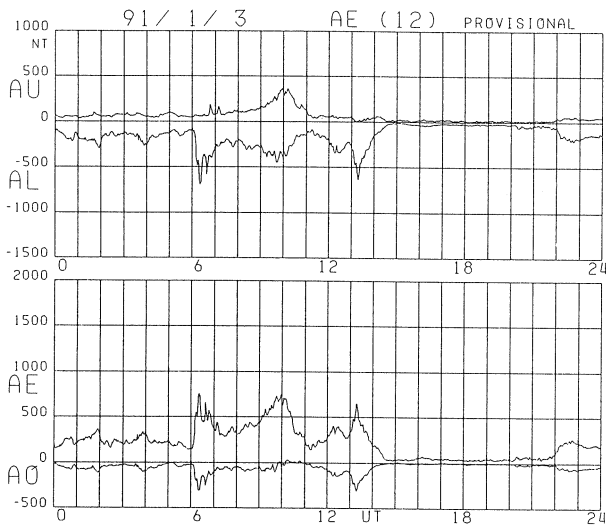
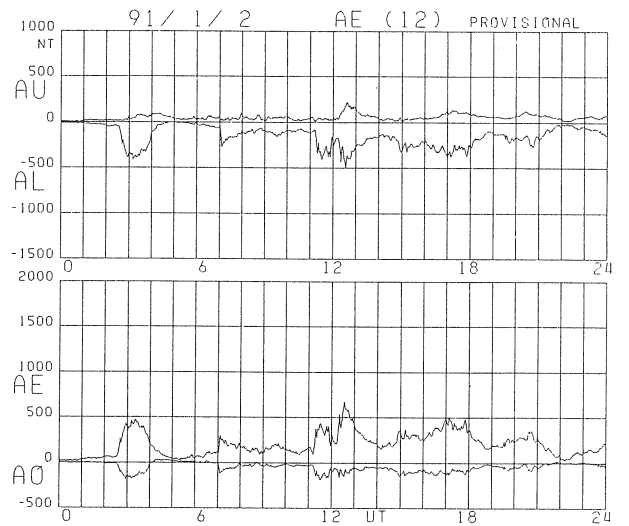
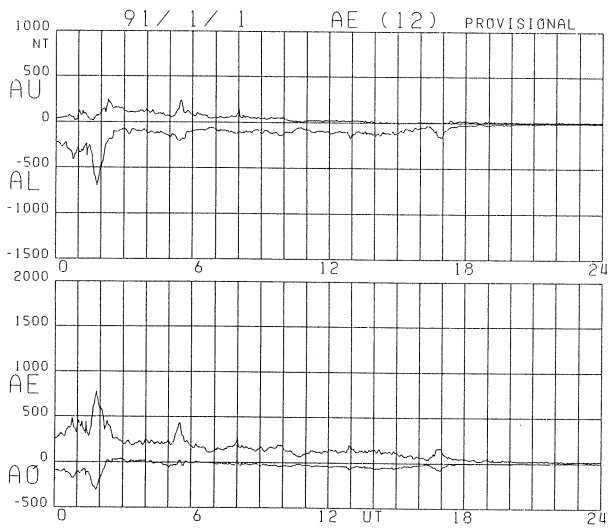


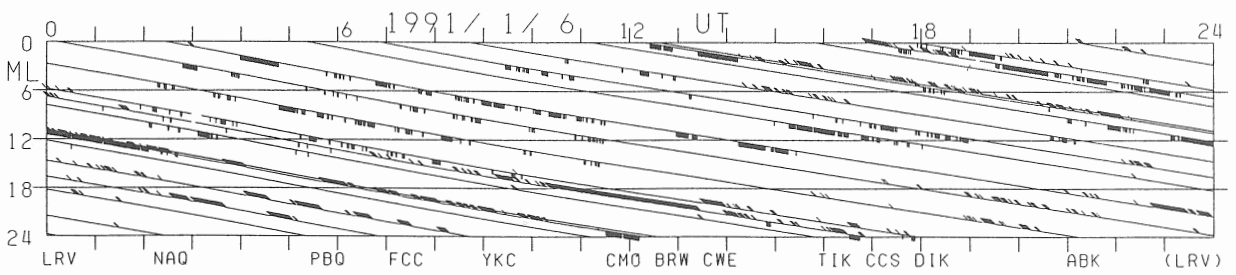
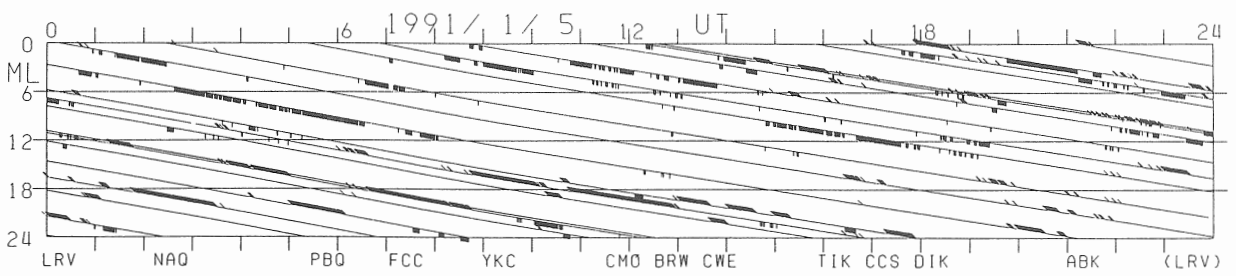
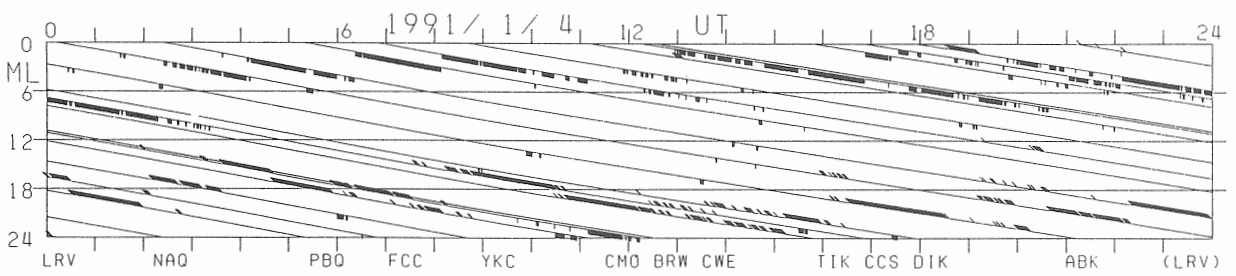
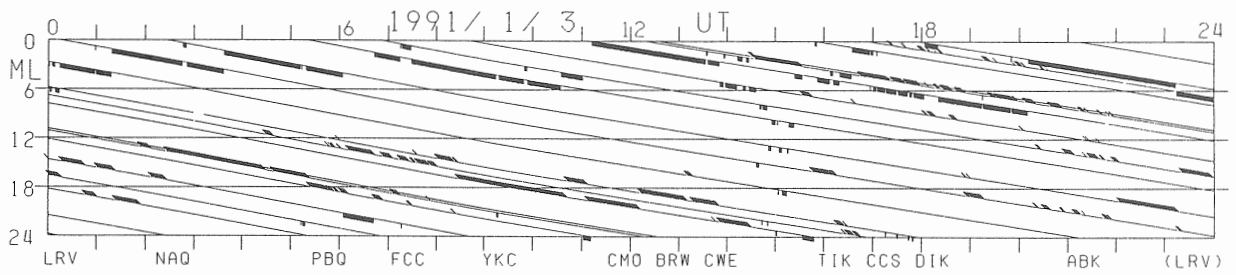
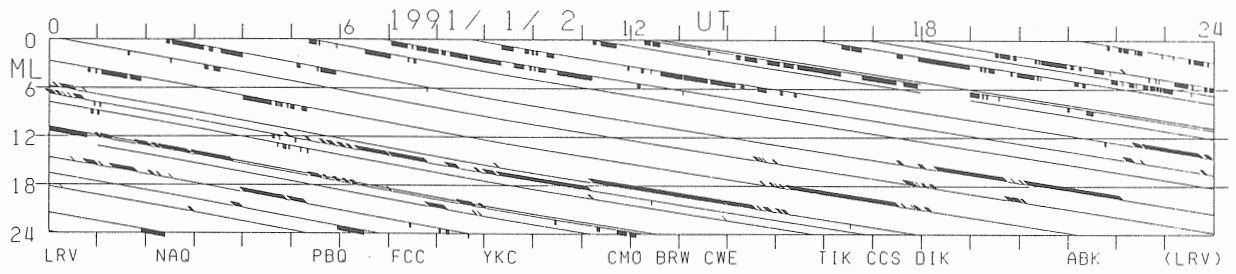
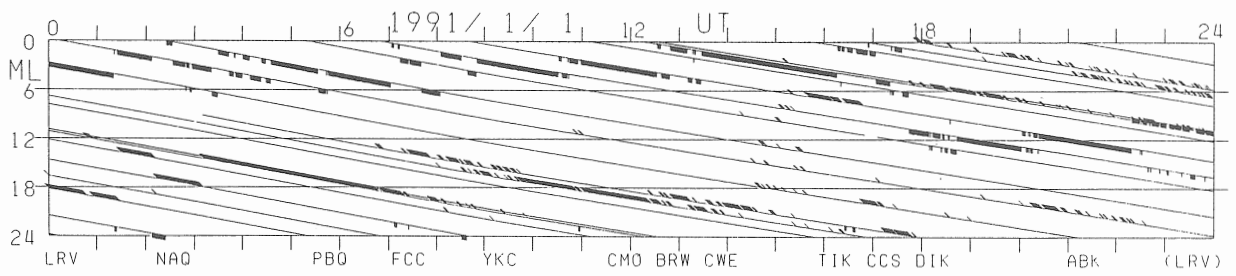
FIGURE 4 (on even pages)

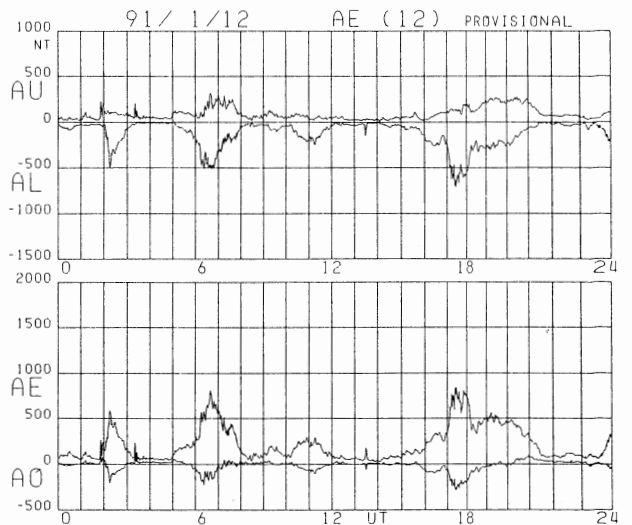
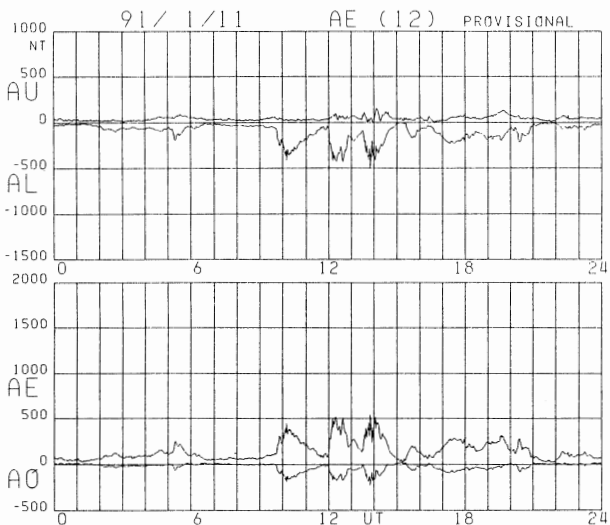
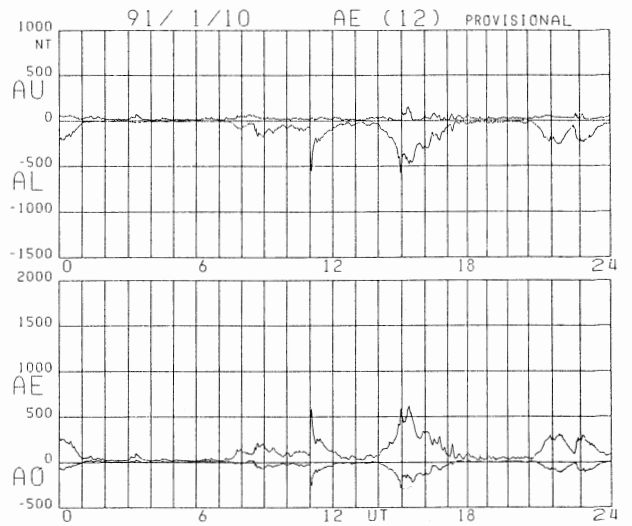
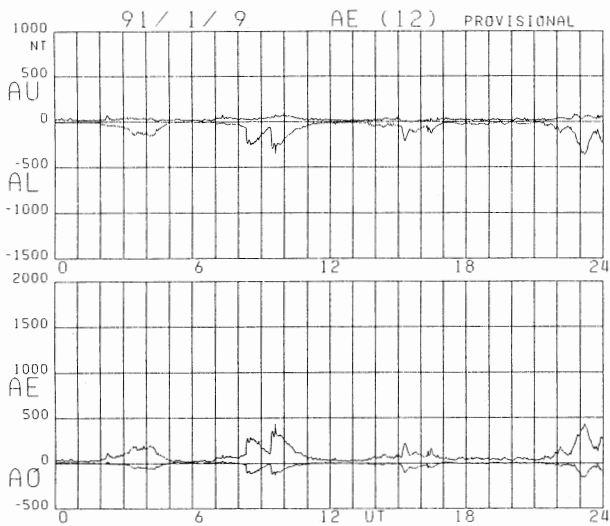
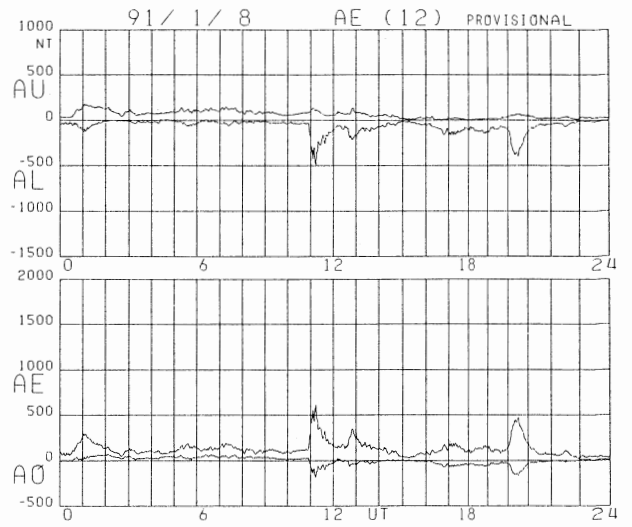
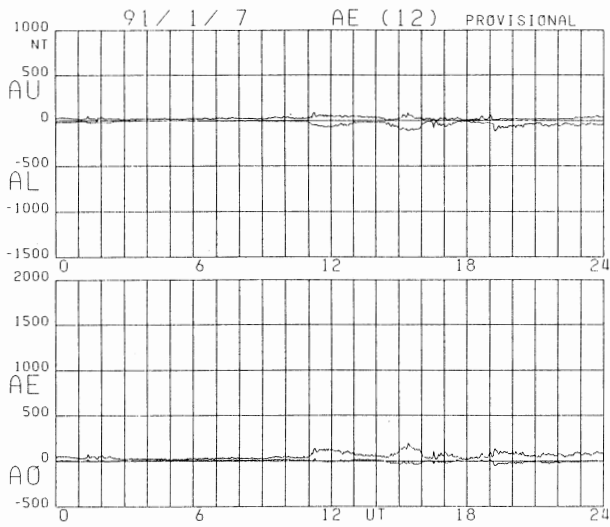
Daily graphs of 1.0 min AE indices (AU, AL, AE and AO) for January-December 1991. Graphs on disturbed days (Mar. 24, 25, 26, Jun. 5, 9, 10, 11, 12, 13, Jul. 8, 9, 13, Sep. 28, Oct. 28, 29, 31, Nov. 1, 8, 9, 19, 21 and 22) are reproduced on pages 194 - 199.

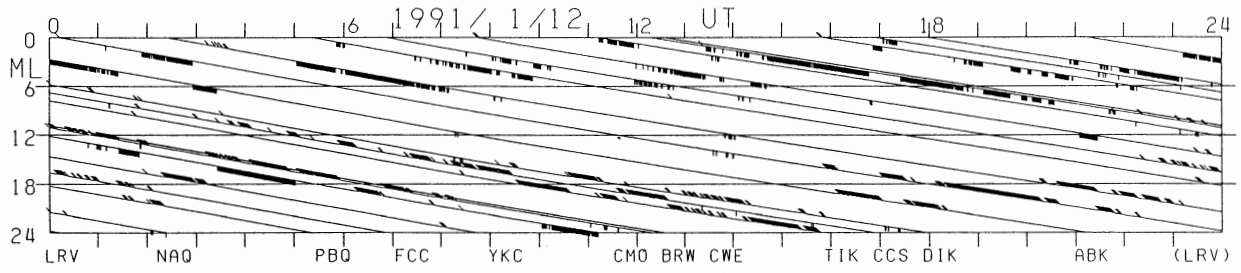
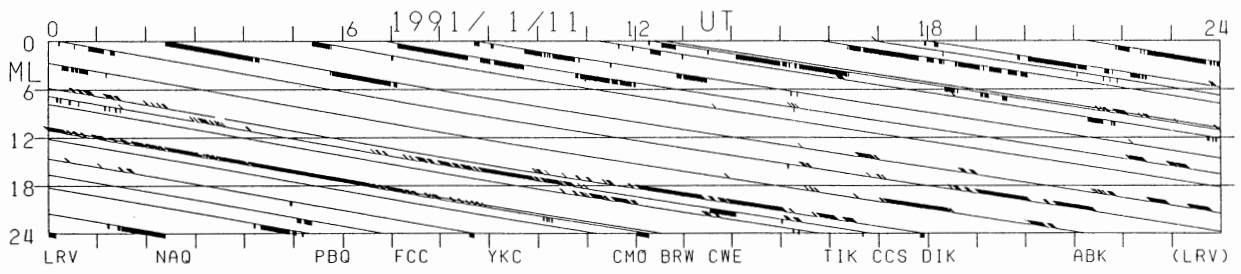
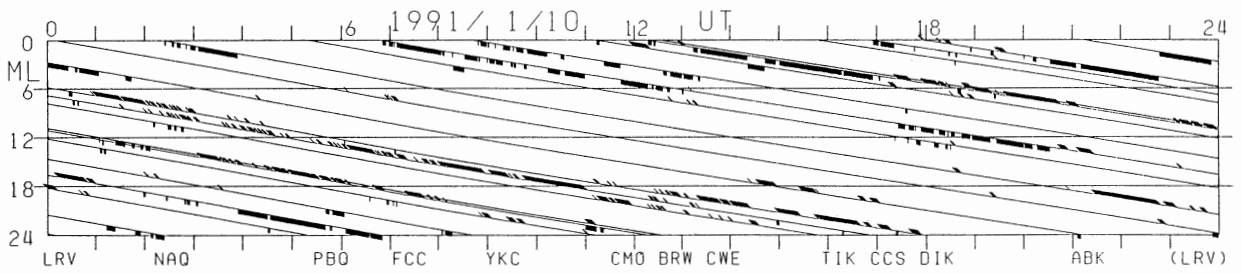
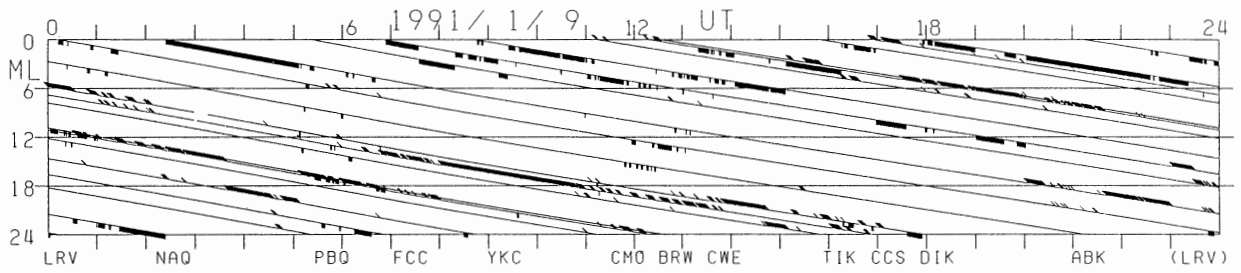
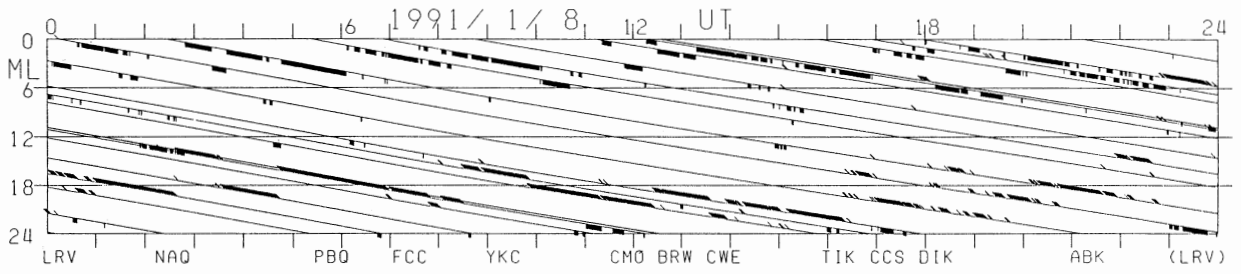
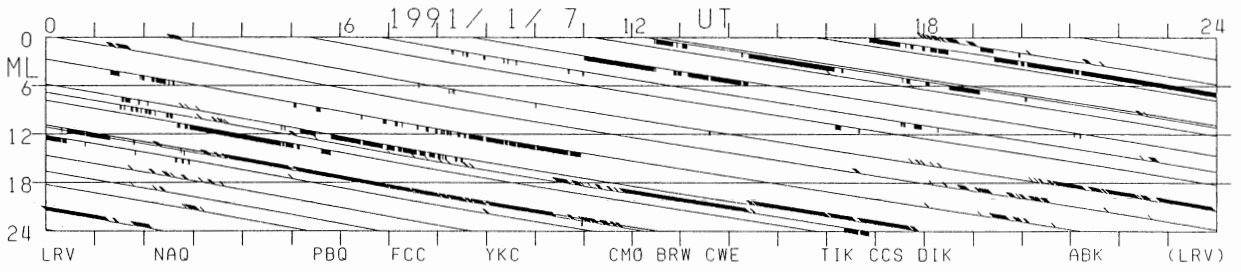
FIGURE 5 (on odd pages)

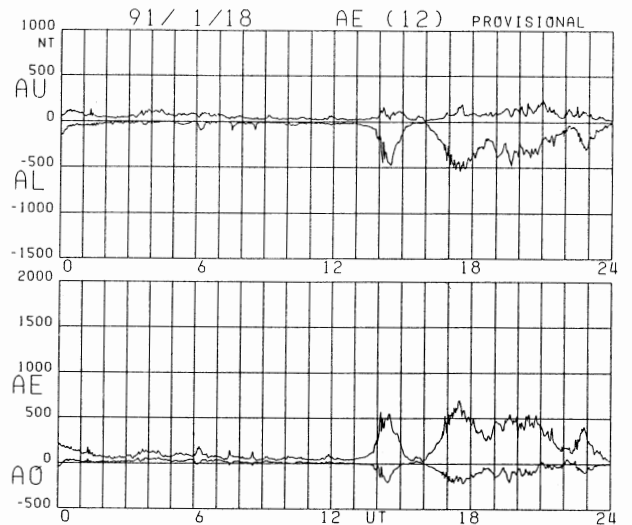
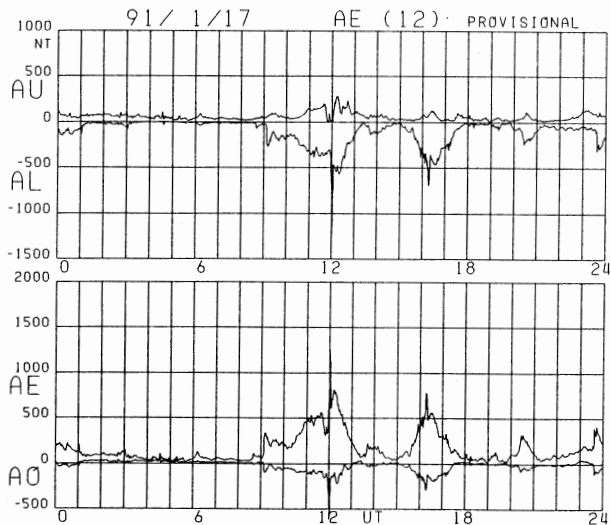
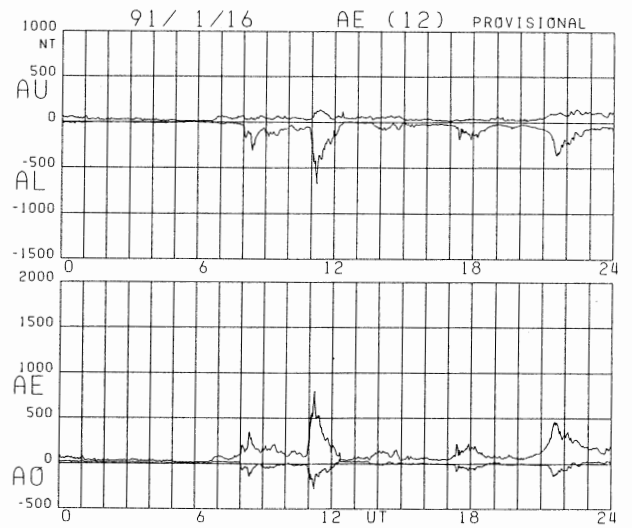
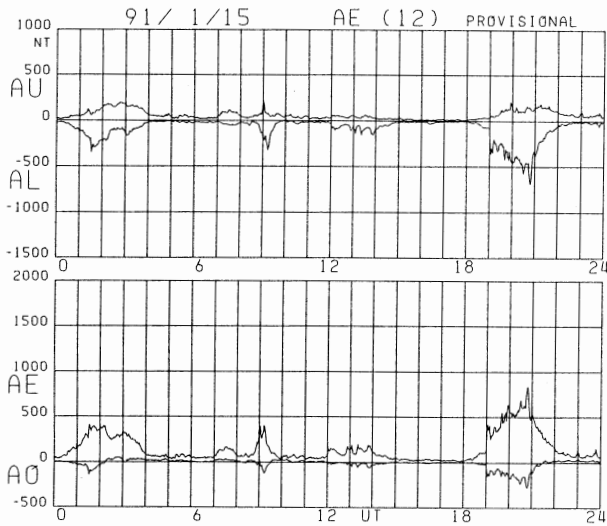
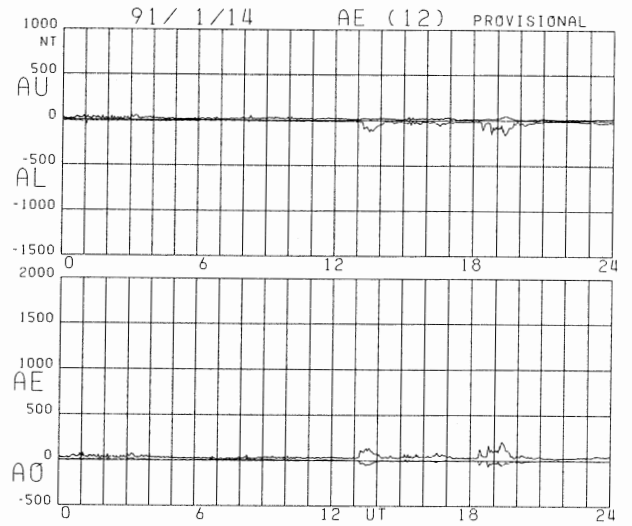
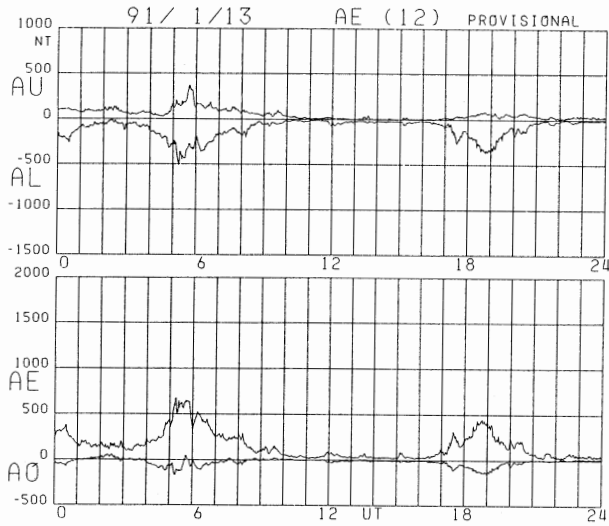
Plots of the contributing station to the AU (upper plumes) and AL (lower plumes) indices, showing which station contributes to these indices at each UT minute.

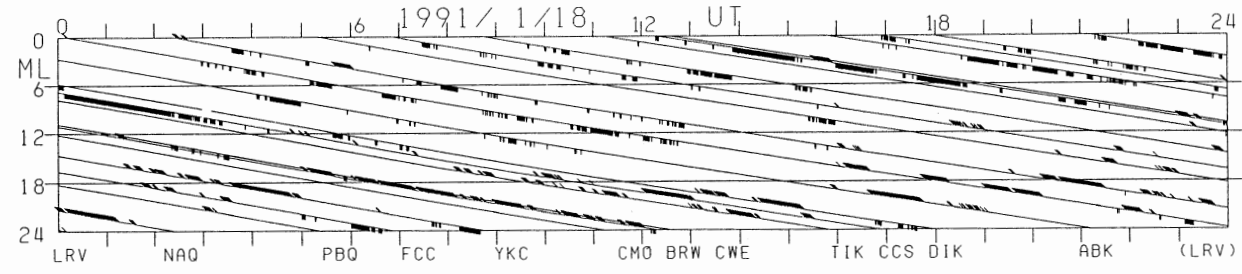
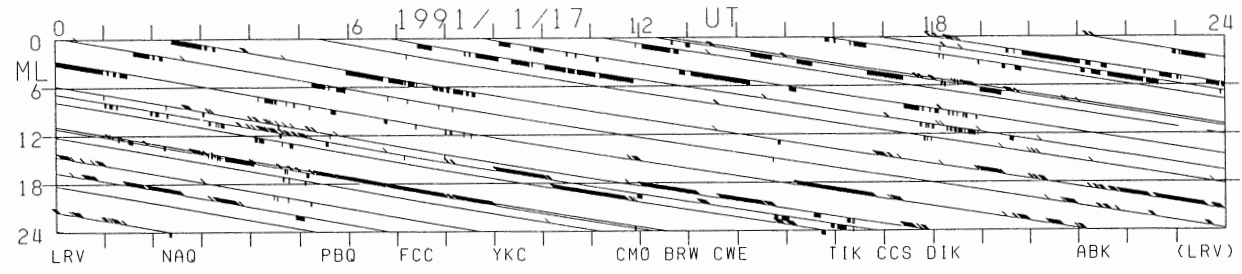
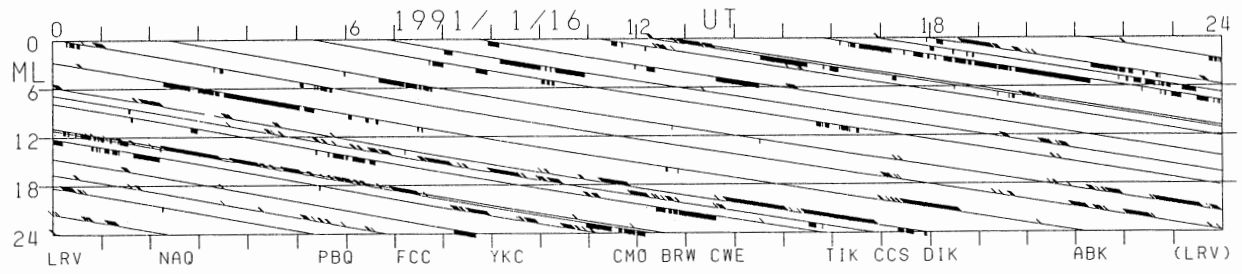
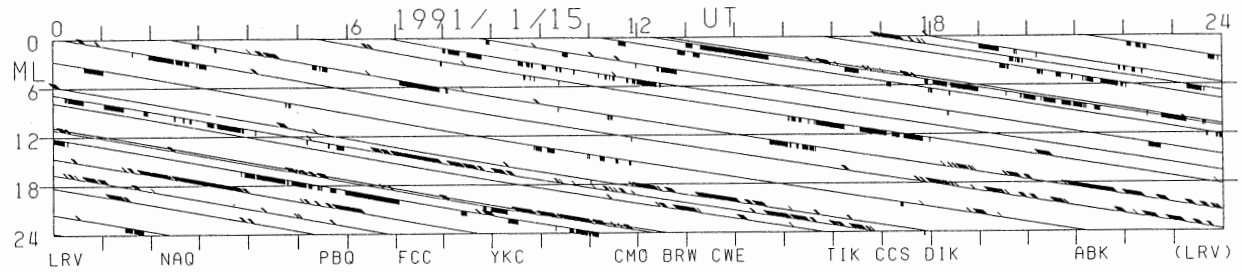
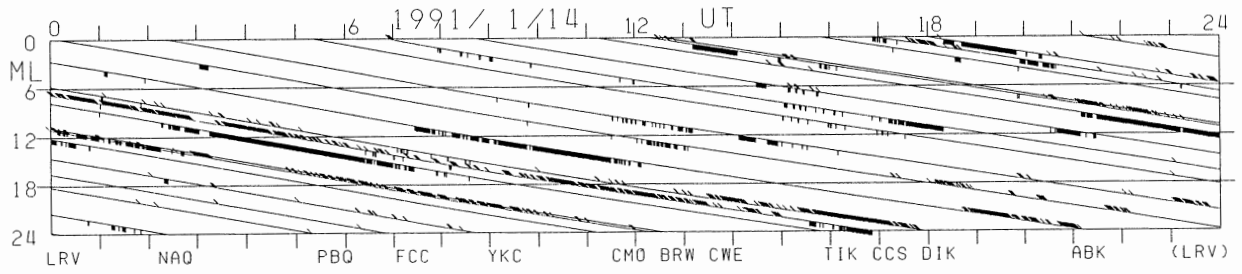
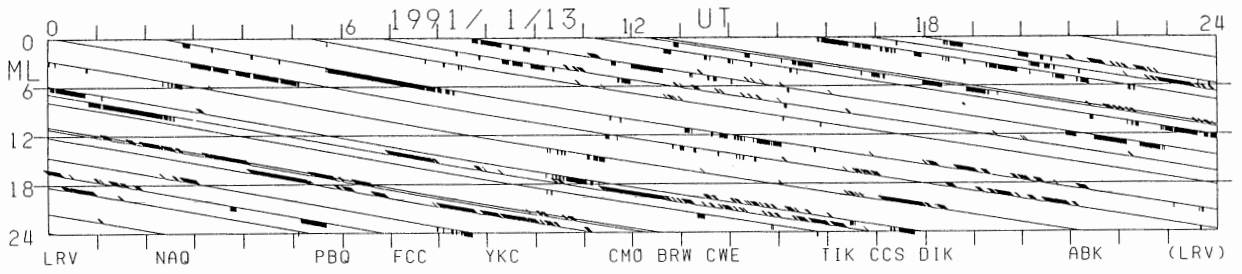


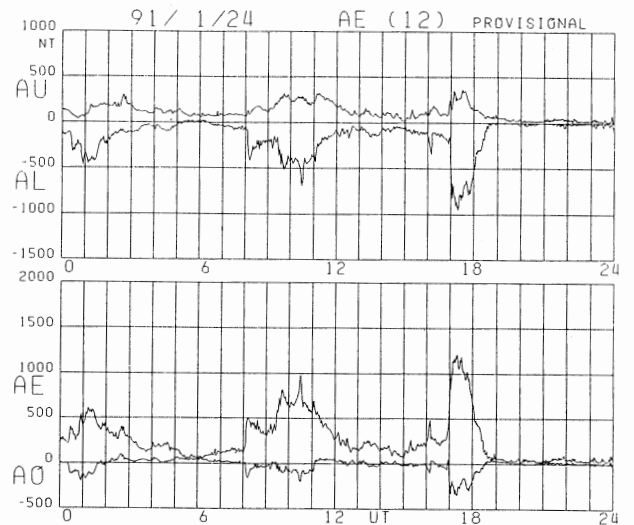
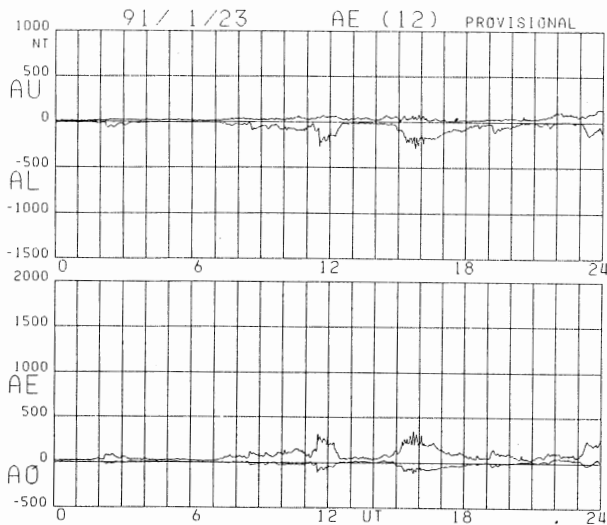
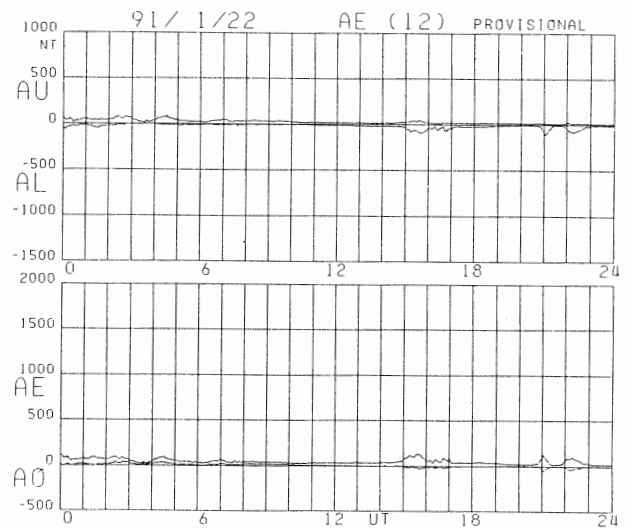
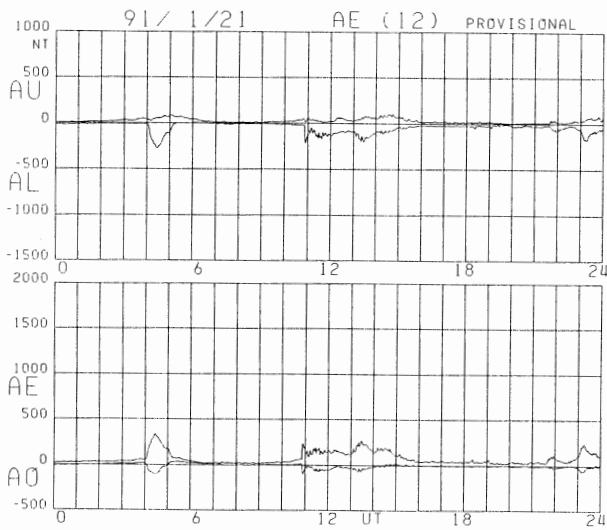
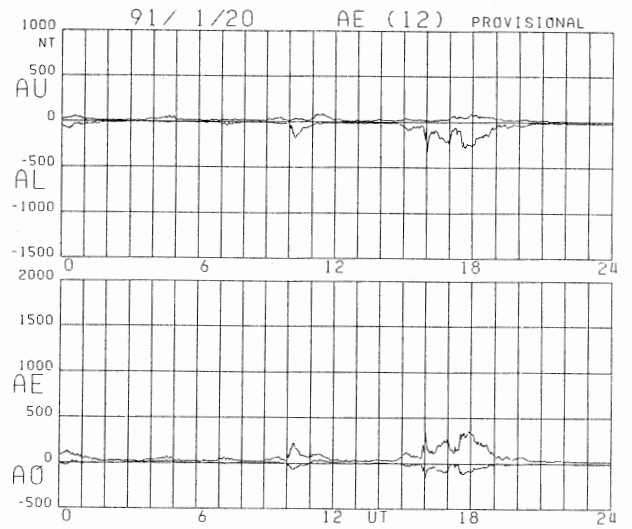
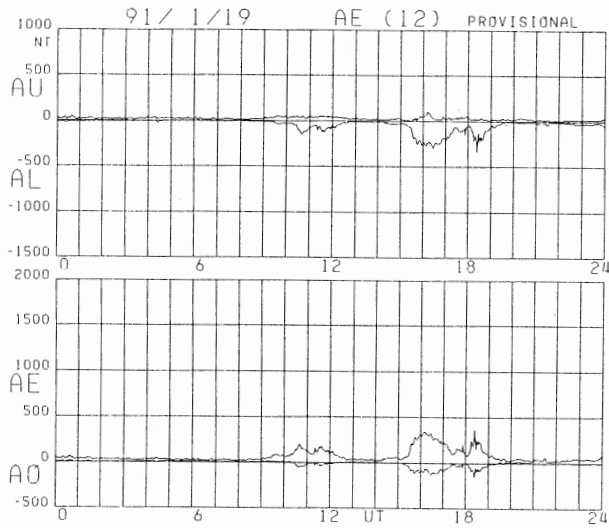




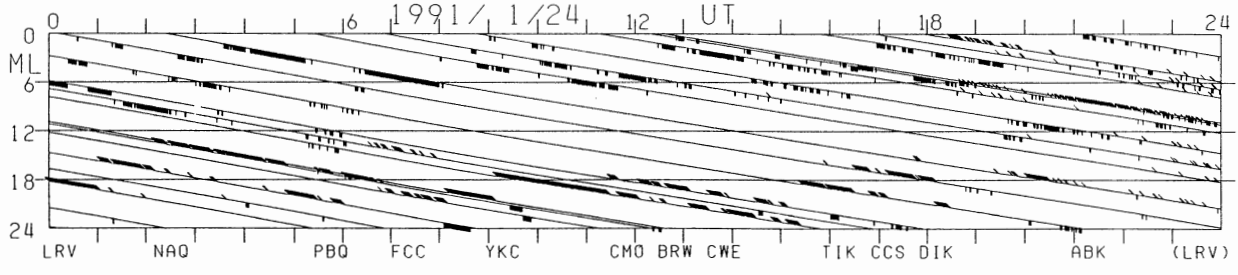
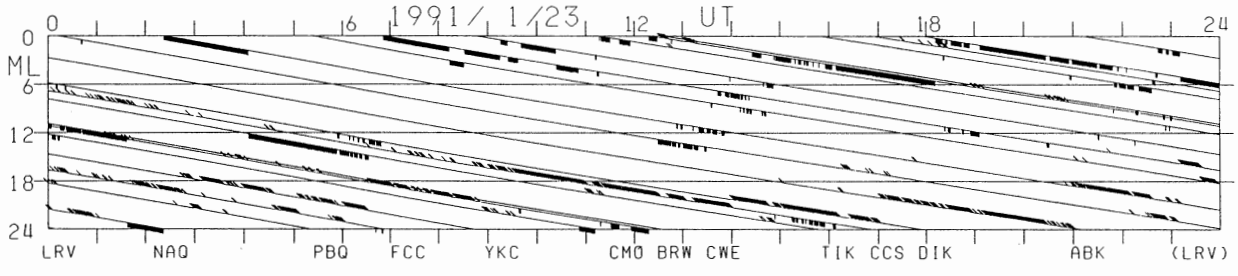
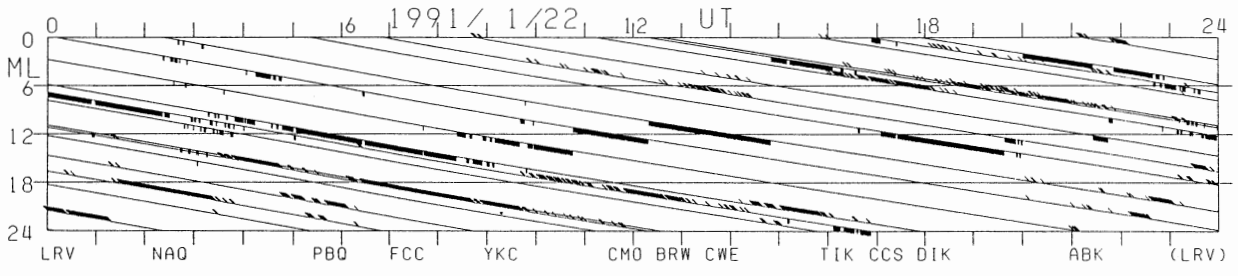
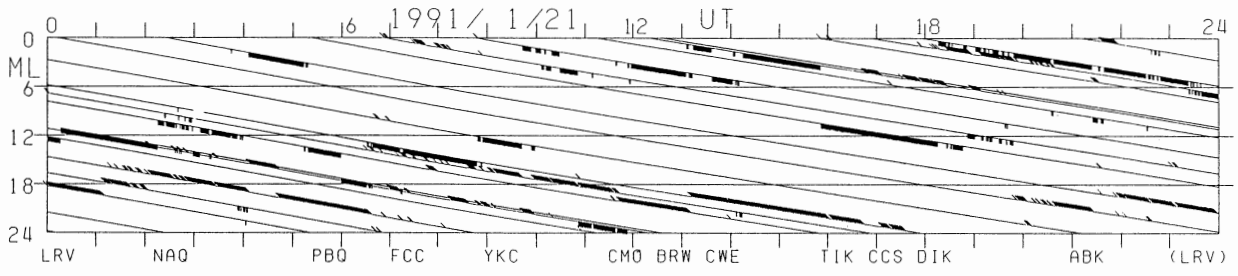
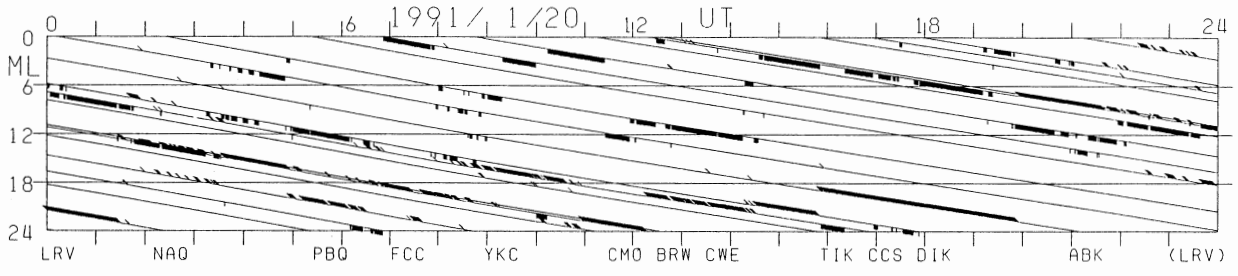
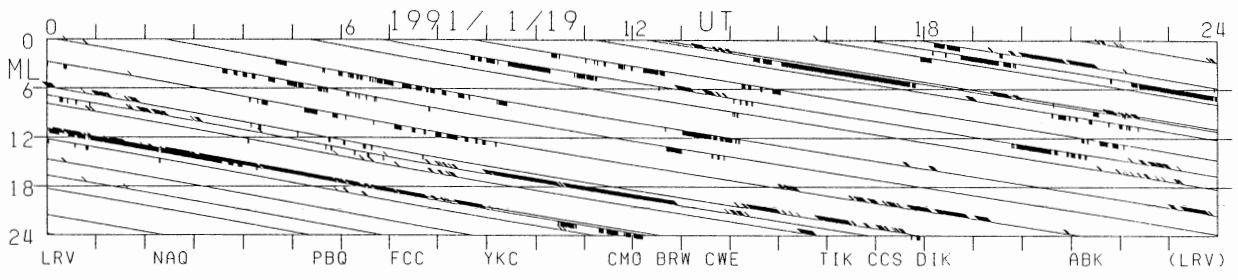


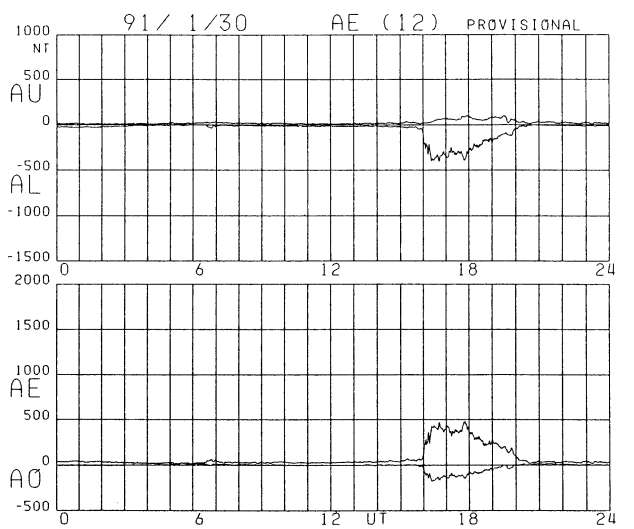
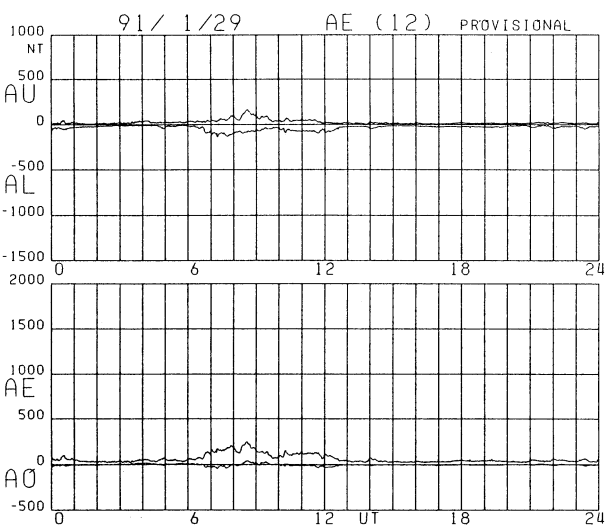
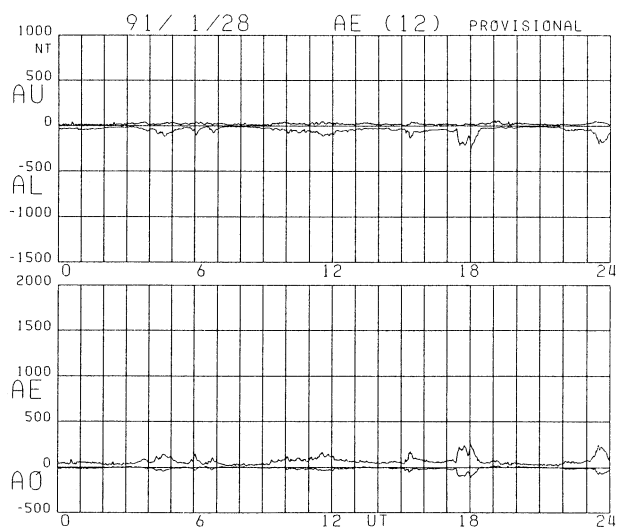
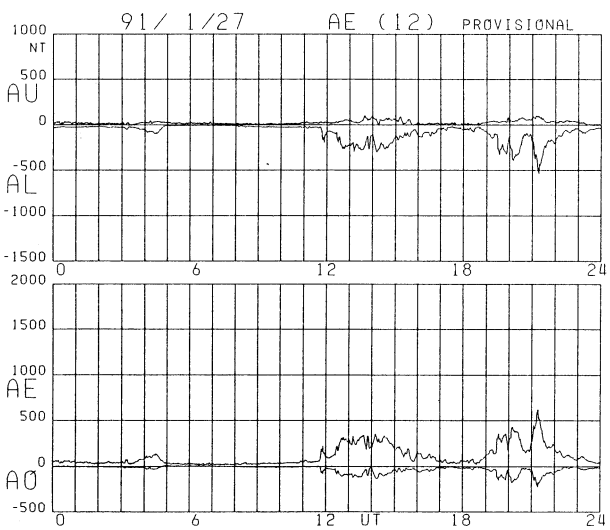
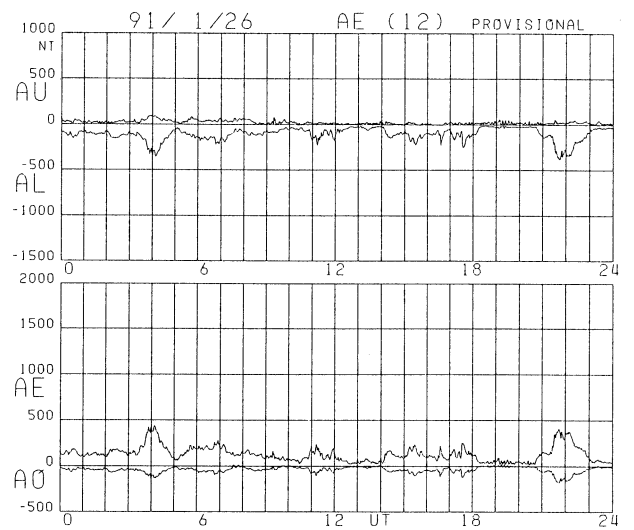
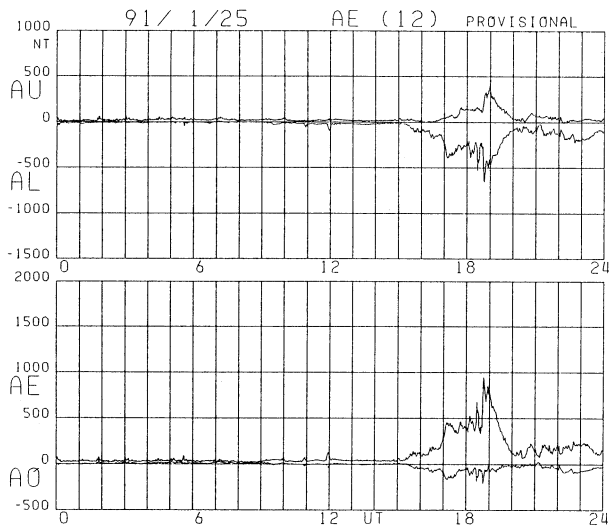


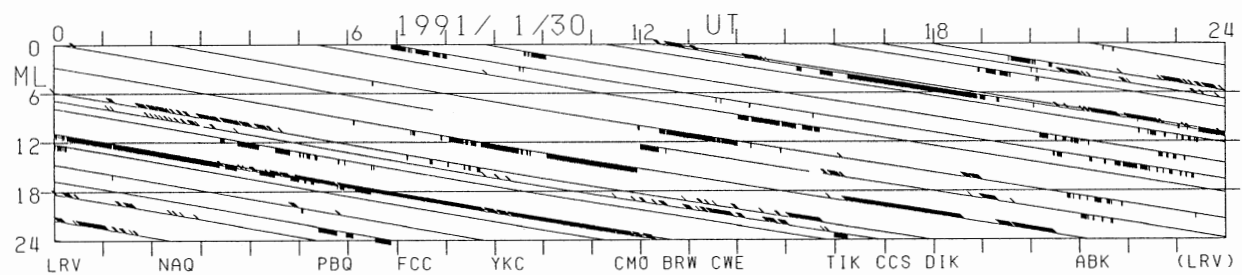
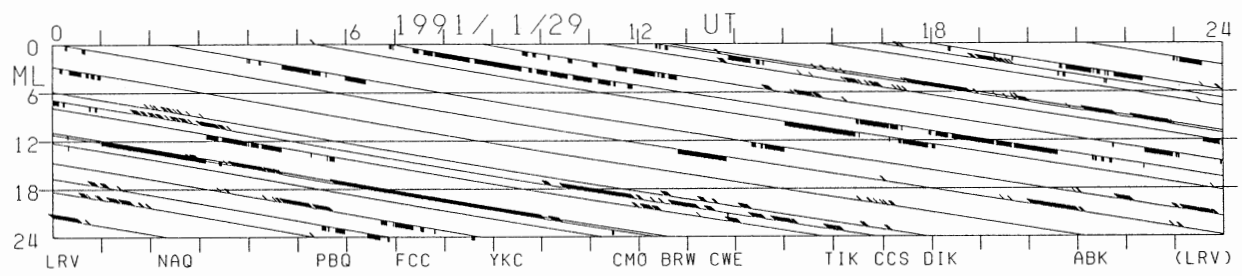
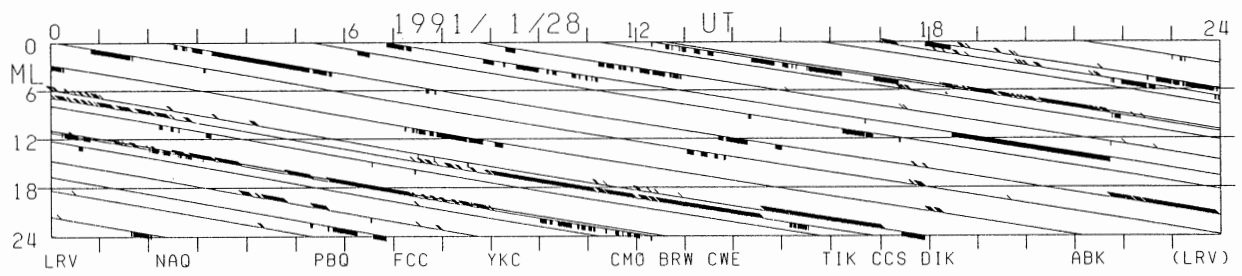
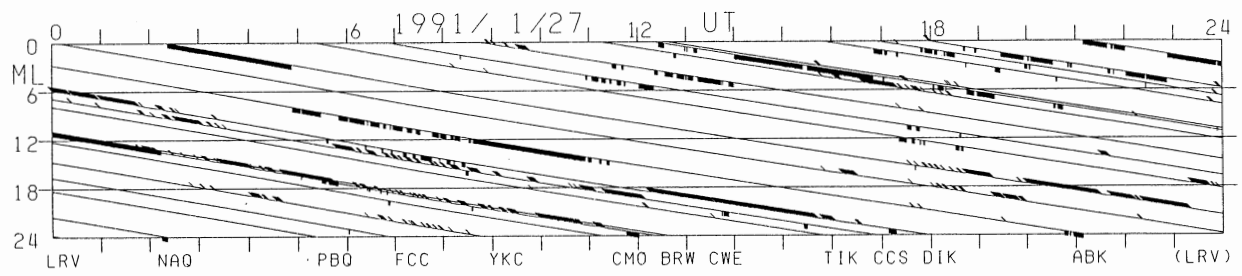
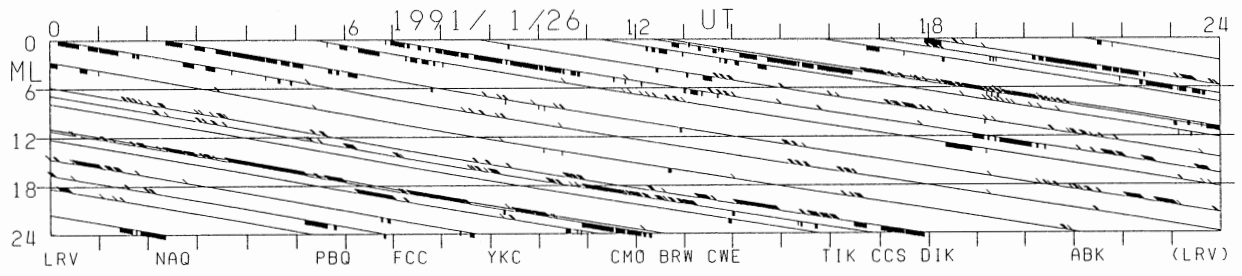
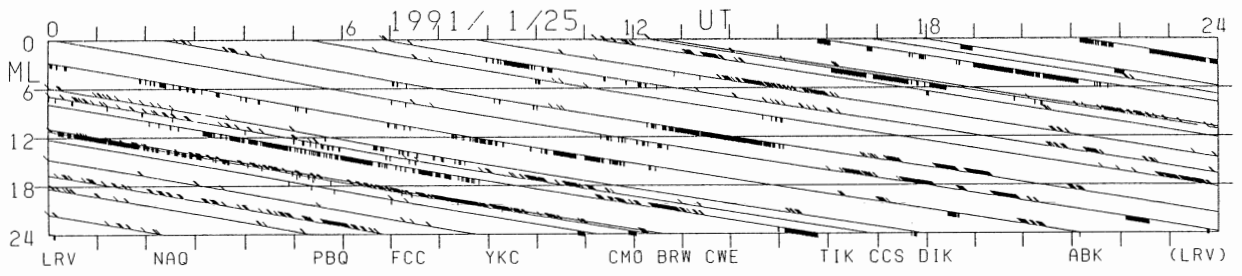


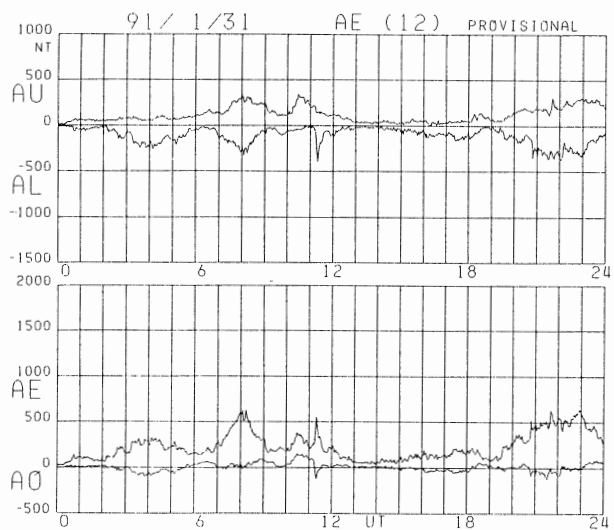


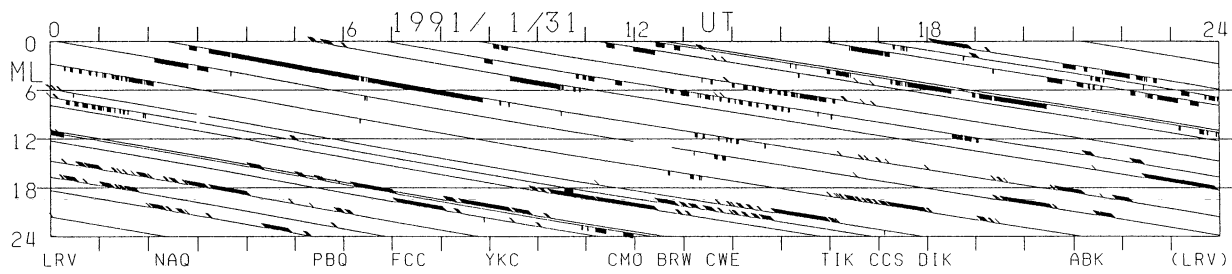


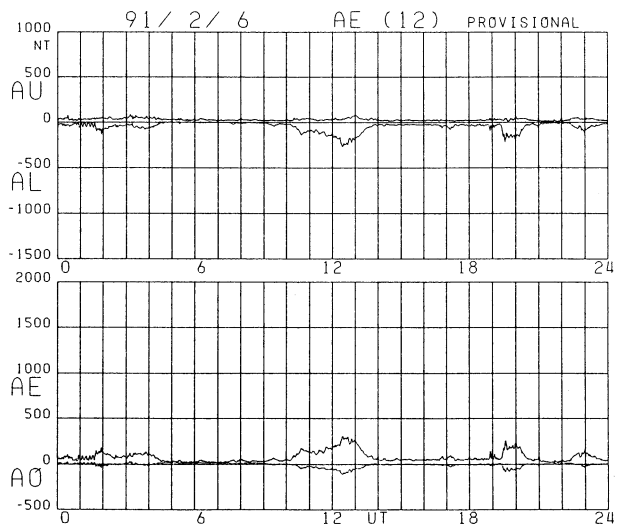
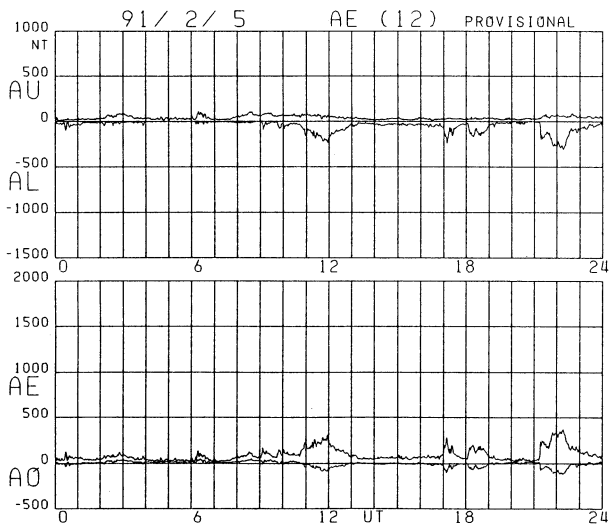
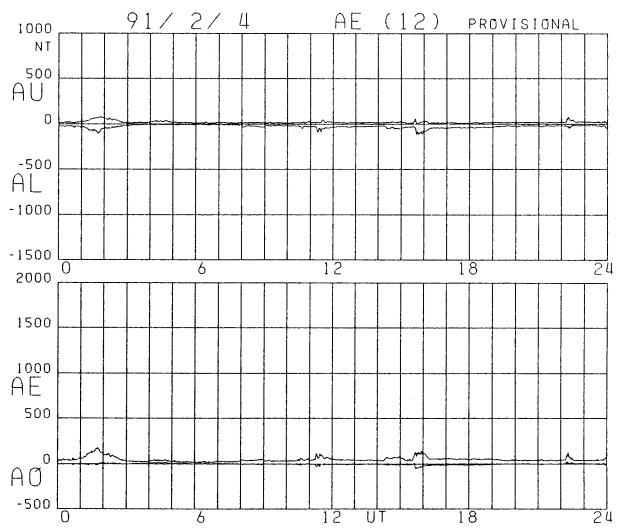
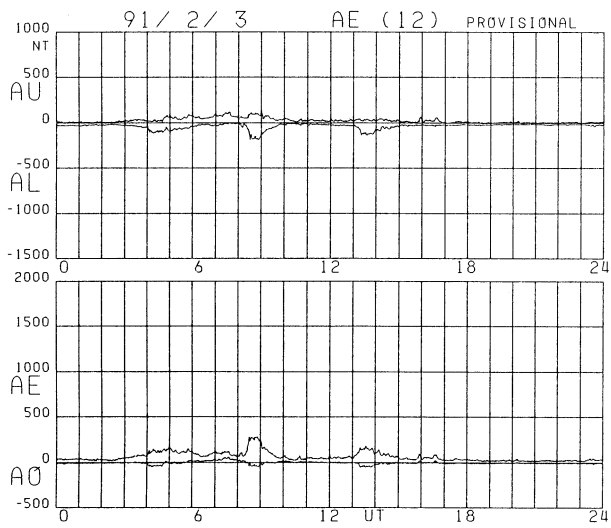
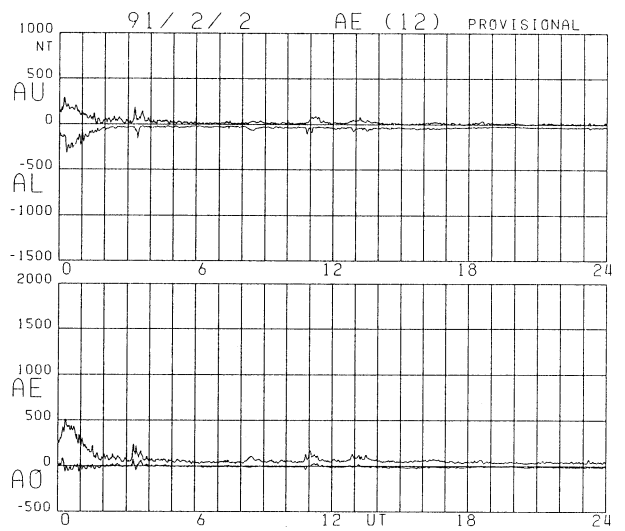
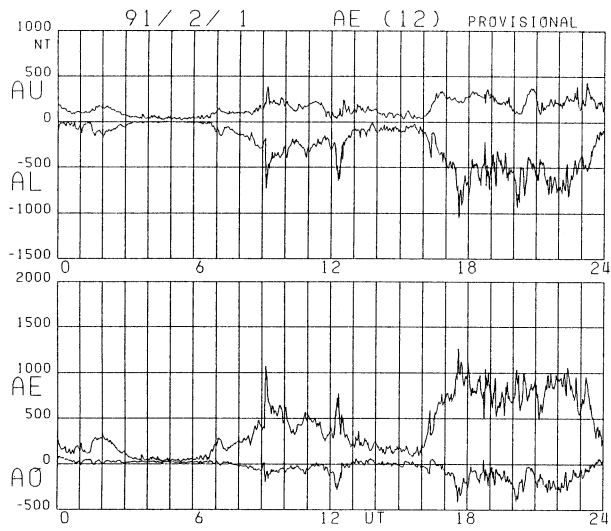


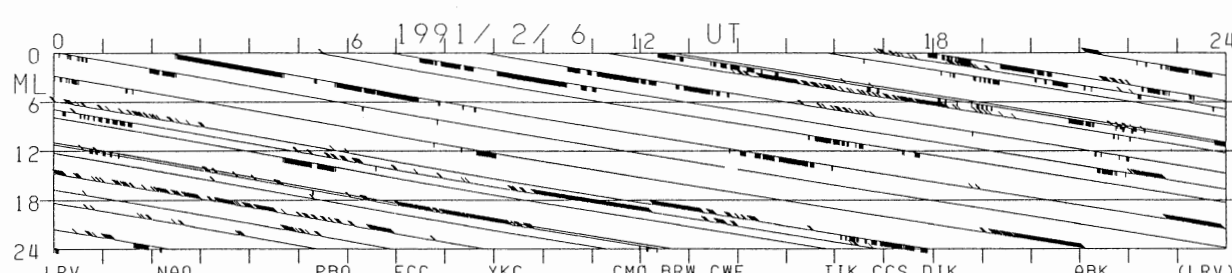
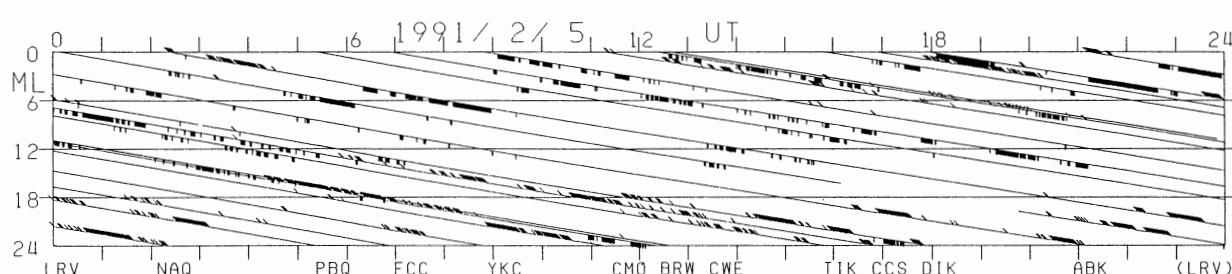
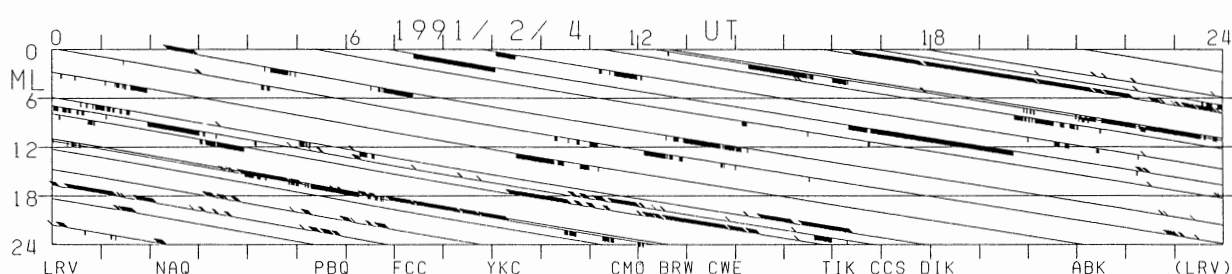
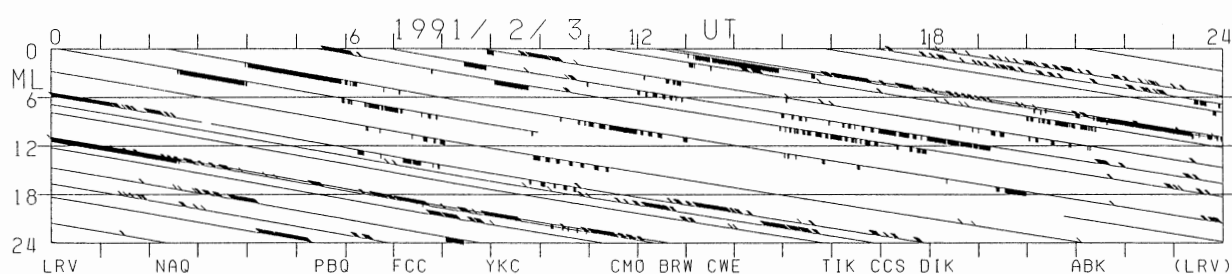
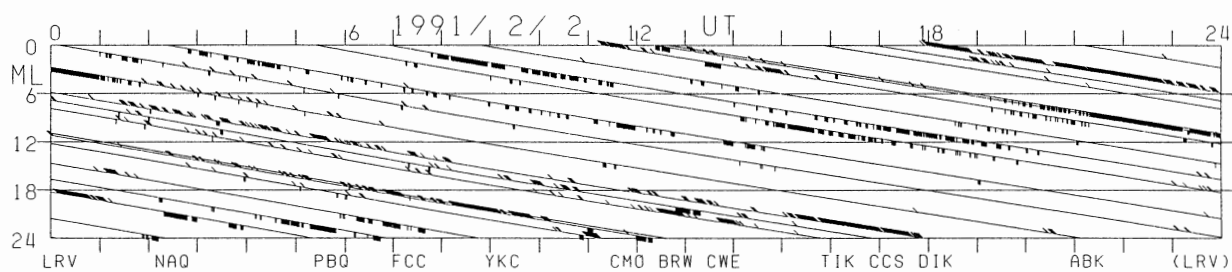
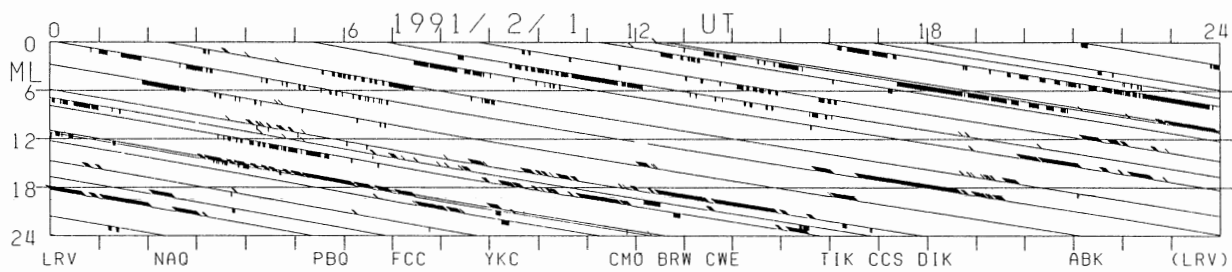


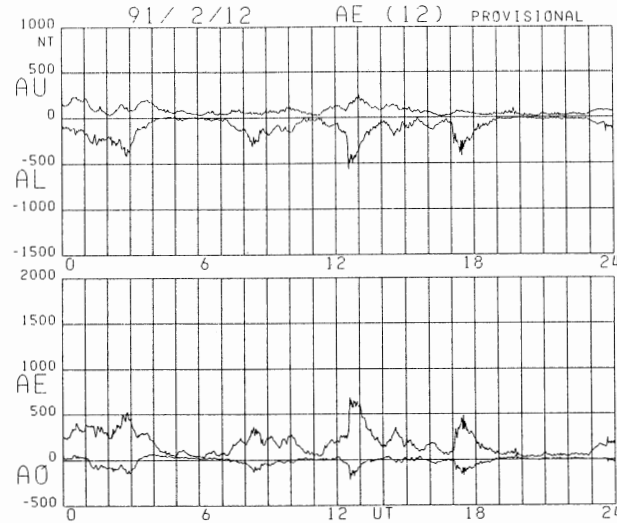
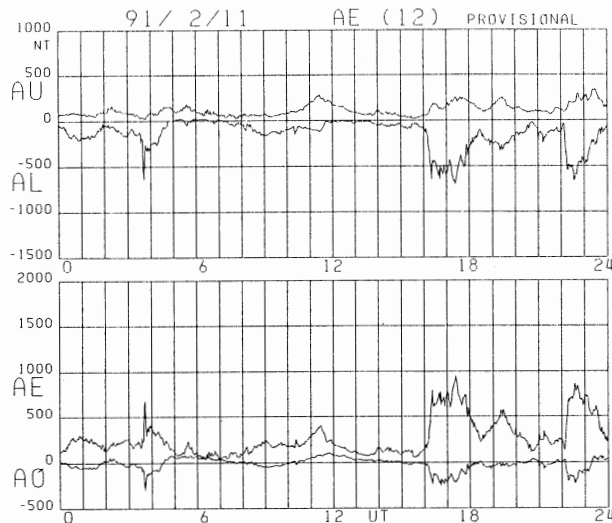
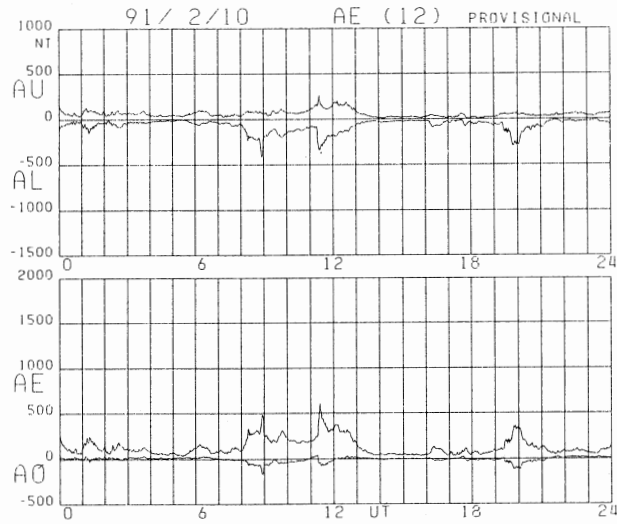
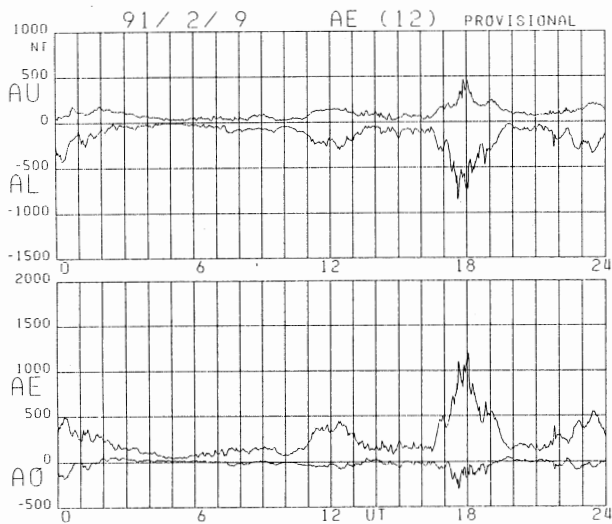
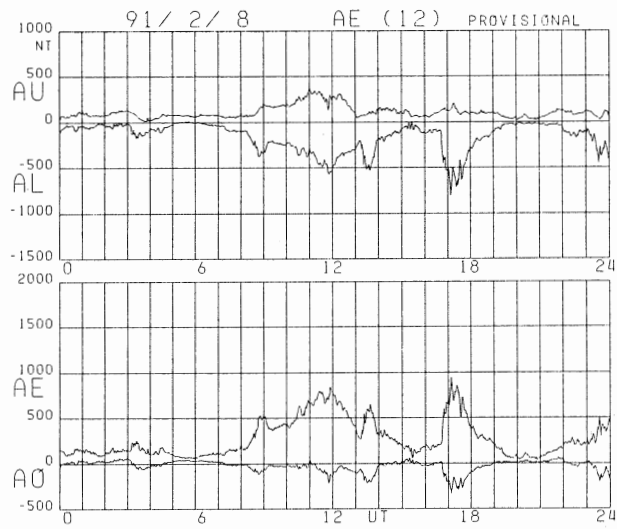
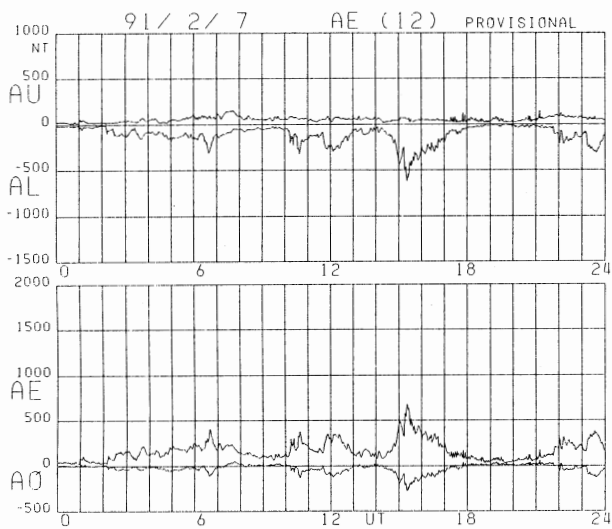




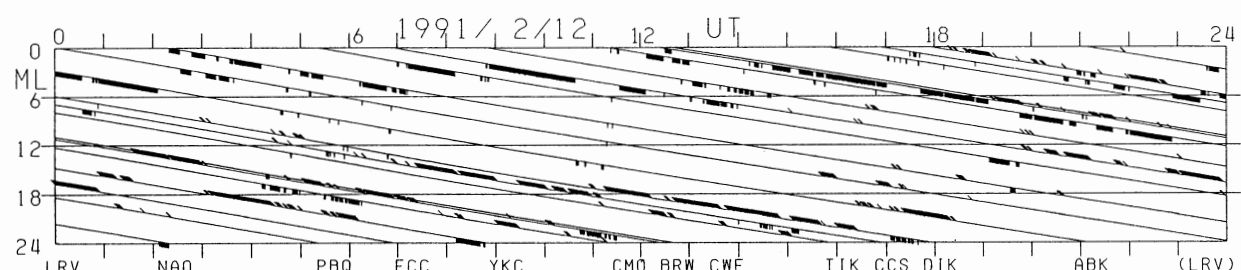
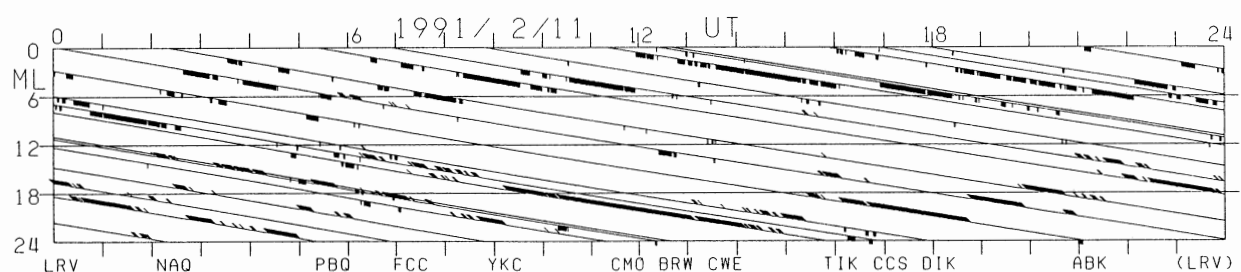
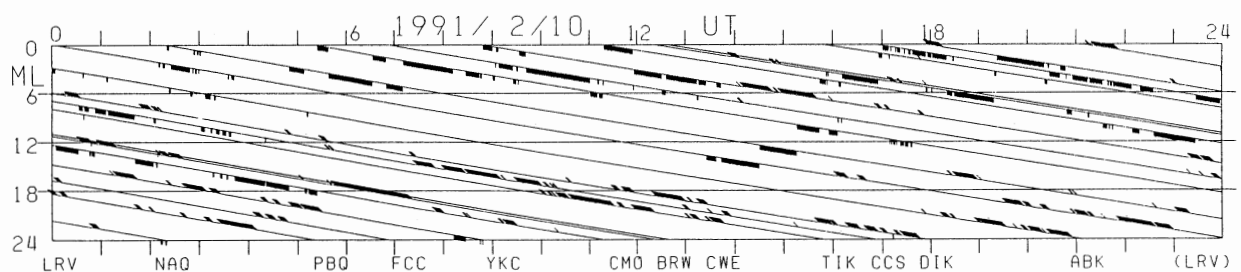
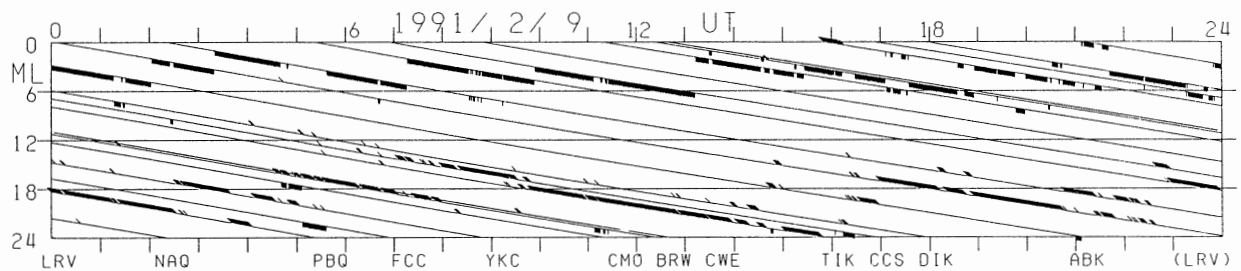
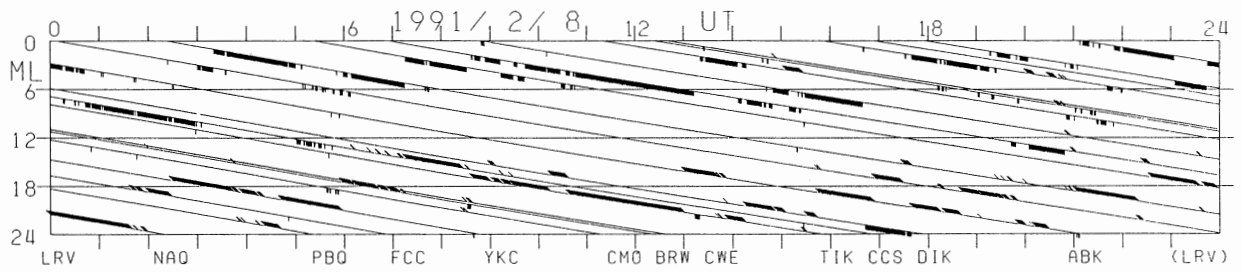
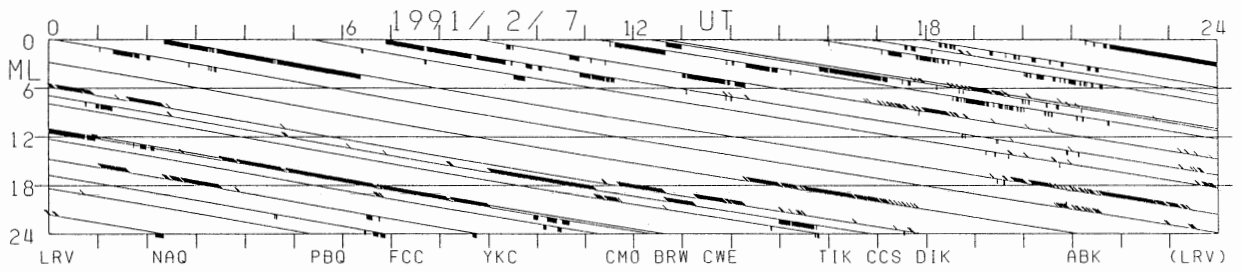


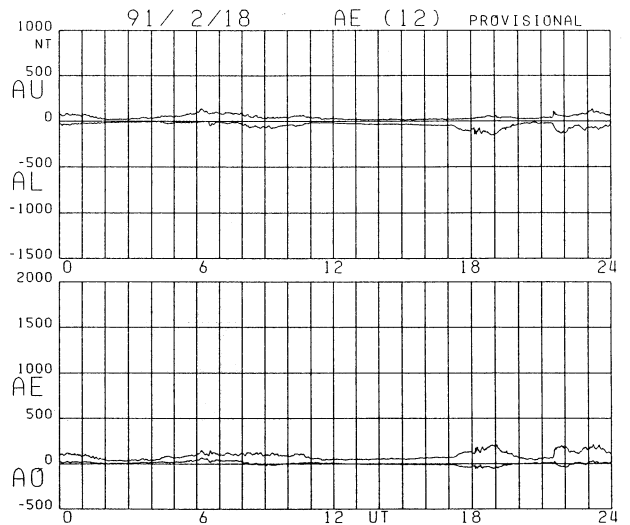
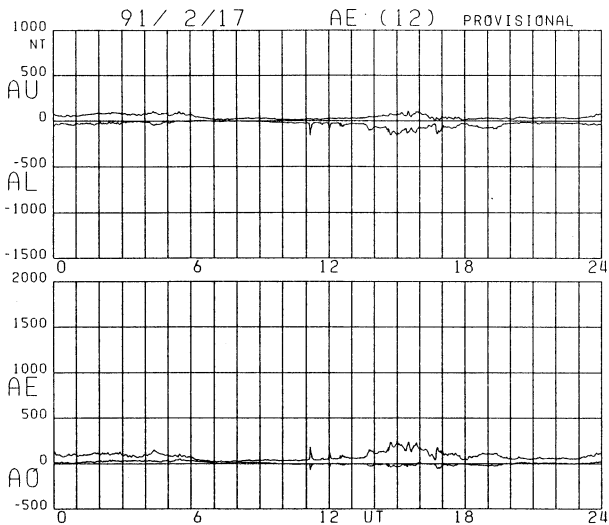
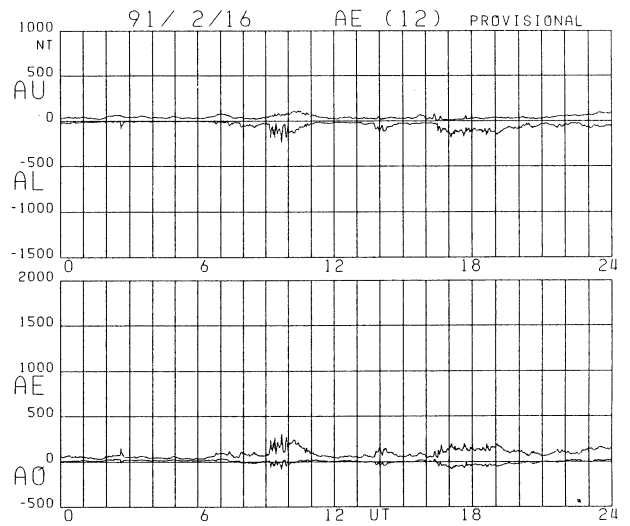
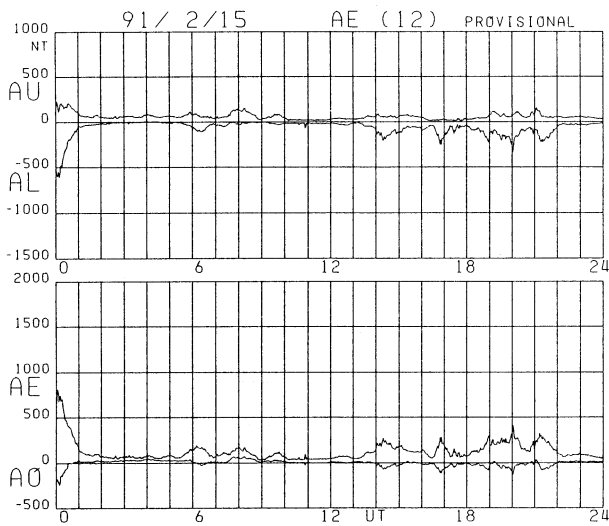
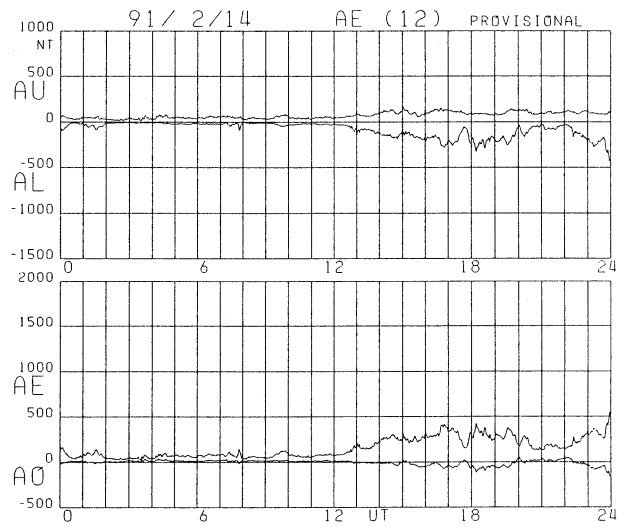
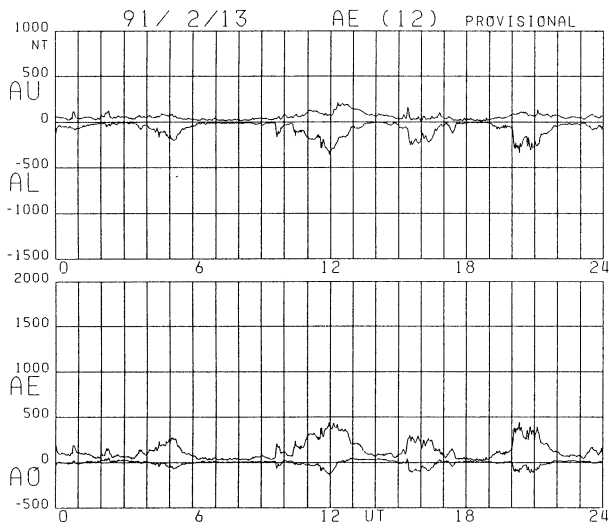


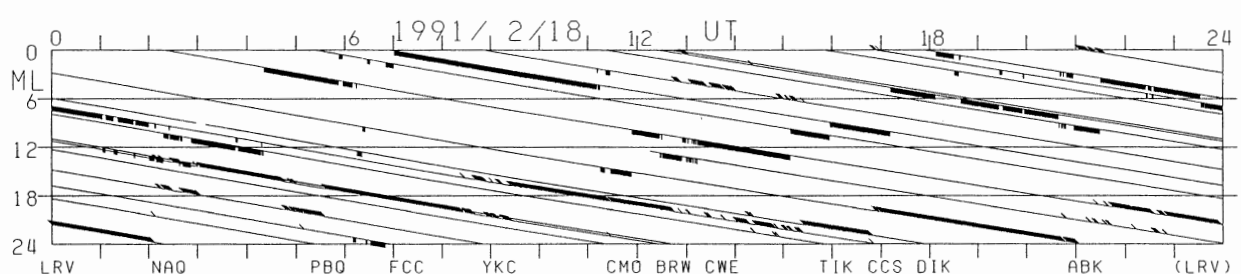
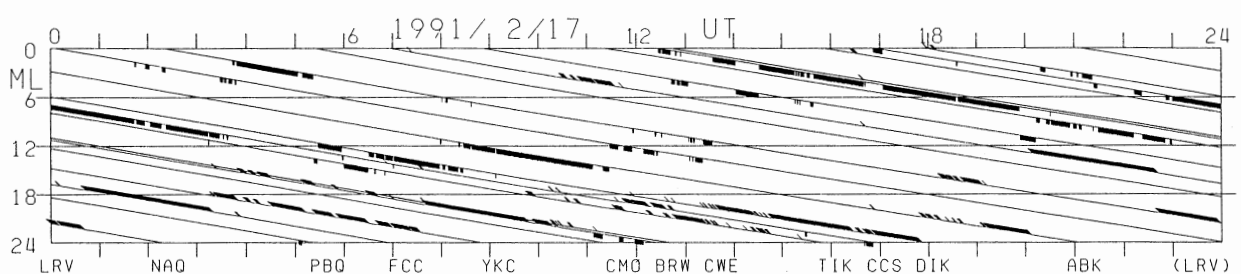
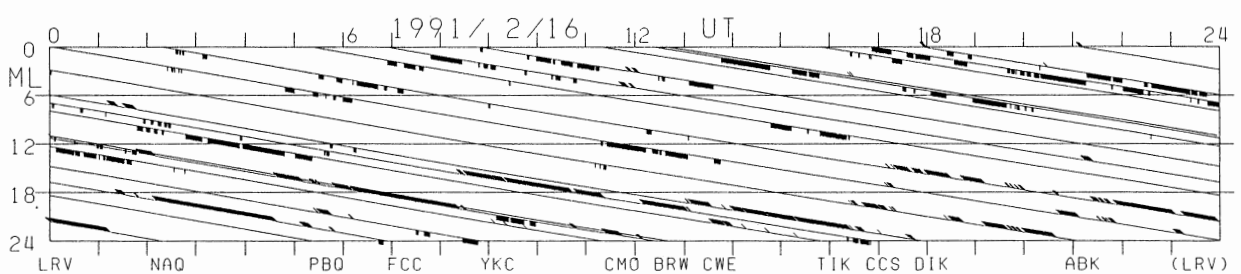
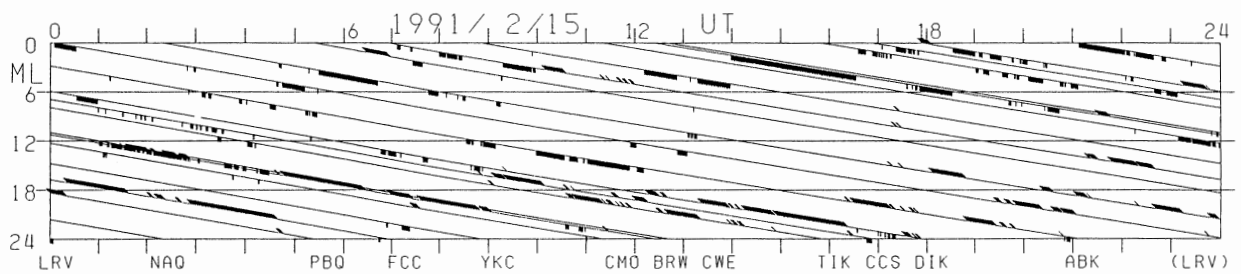
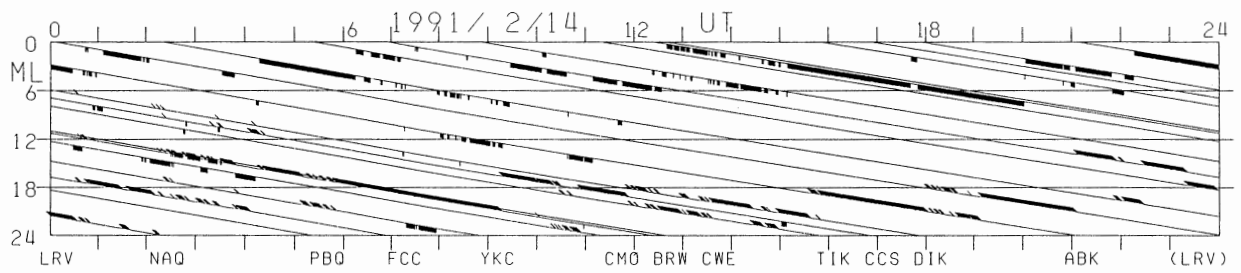
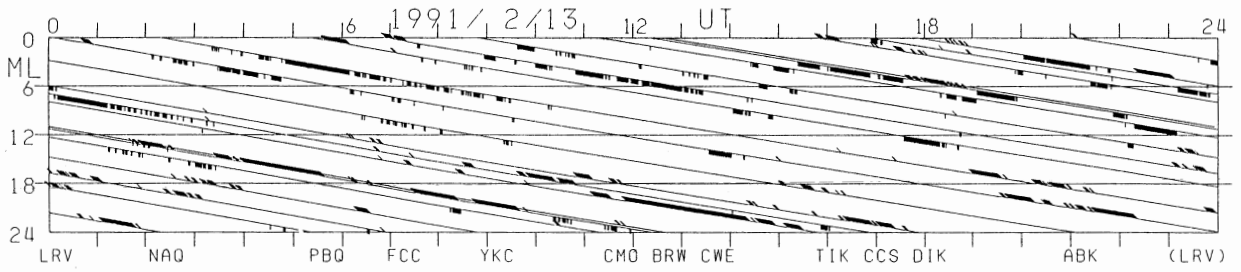


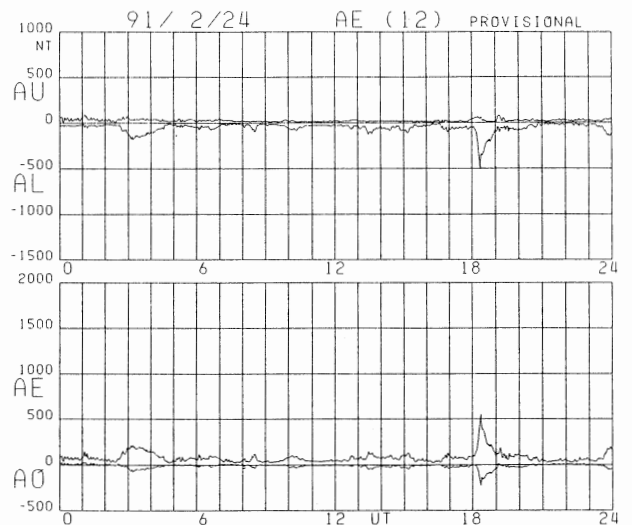
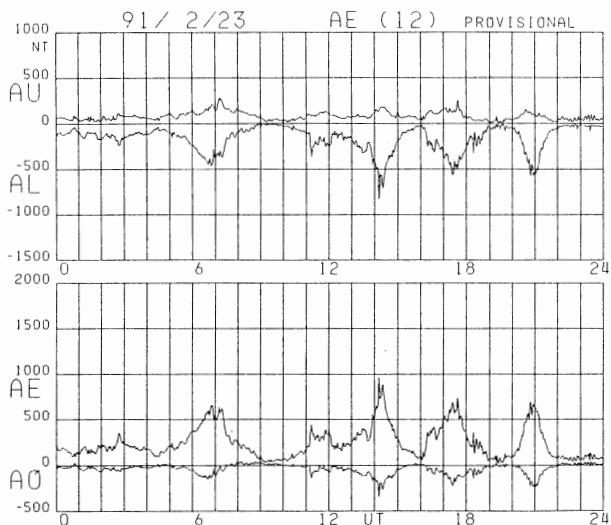
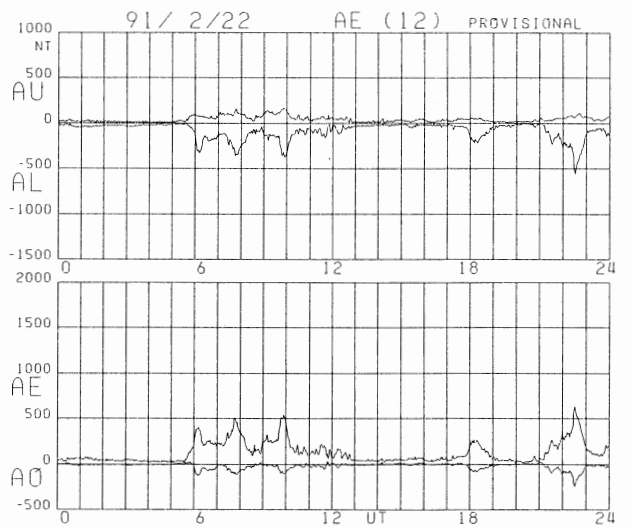
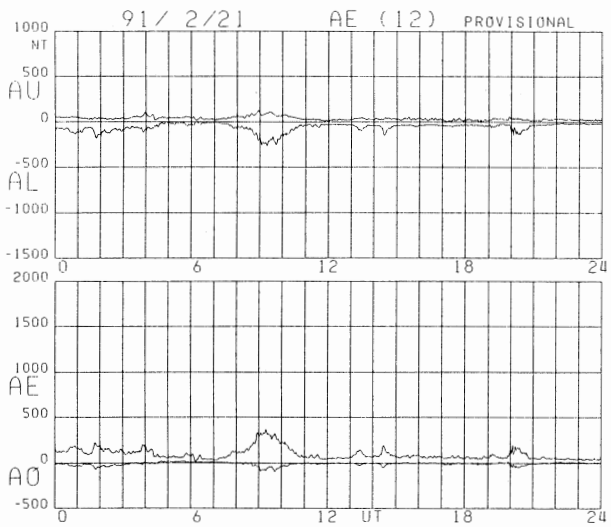
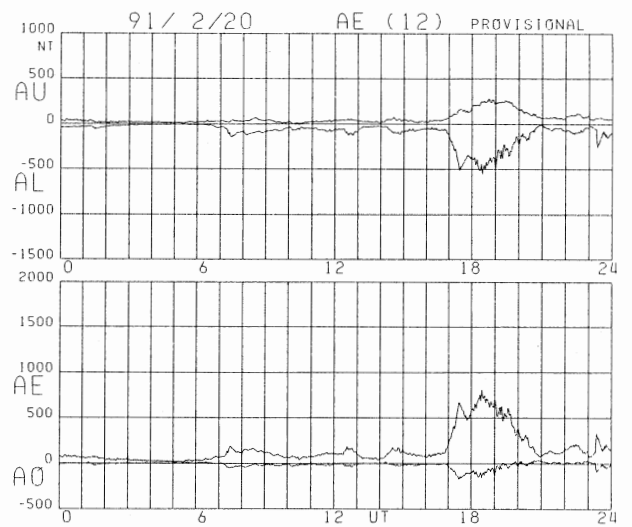
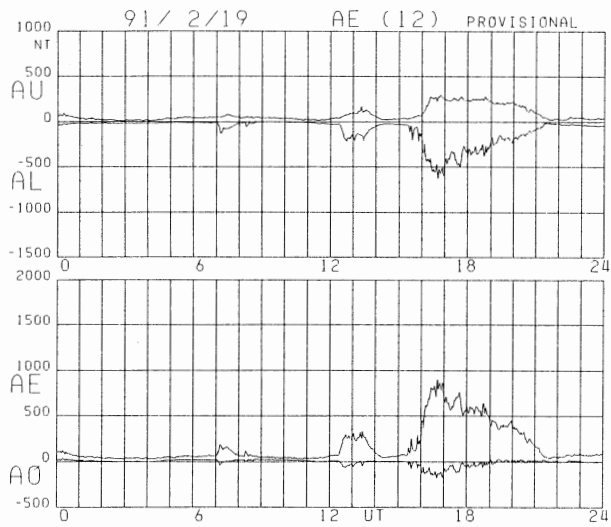


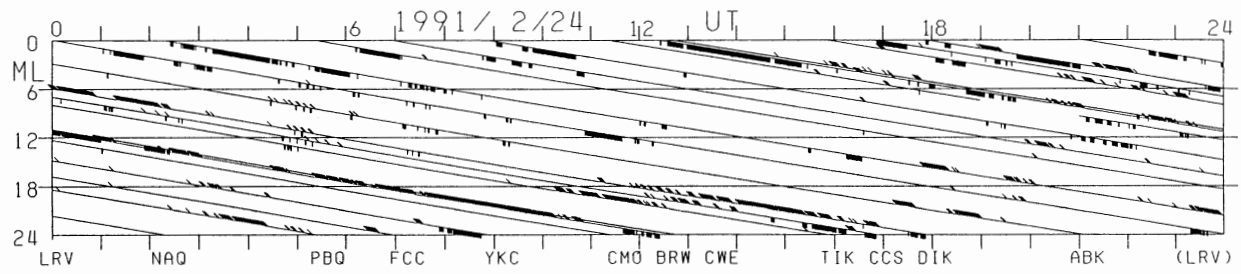
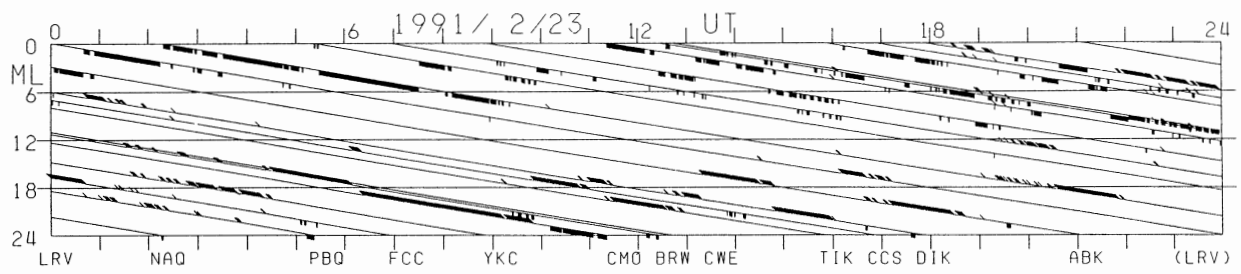
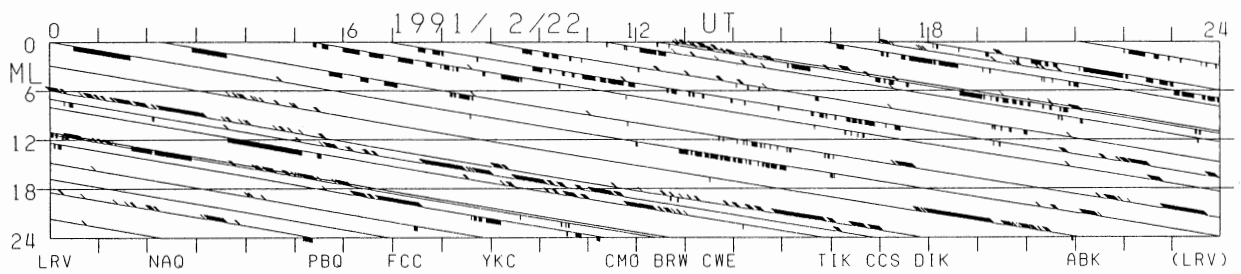
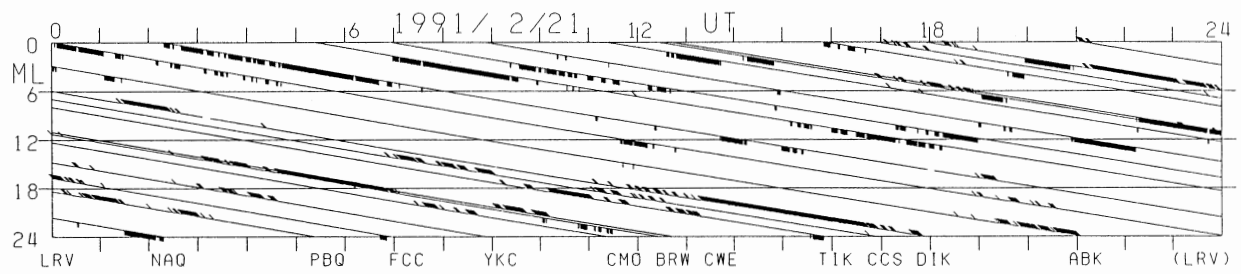
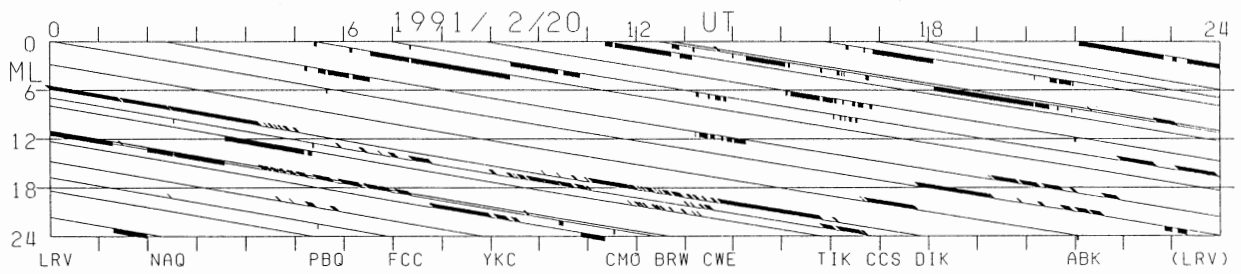
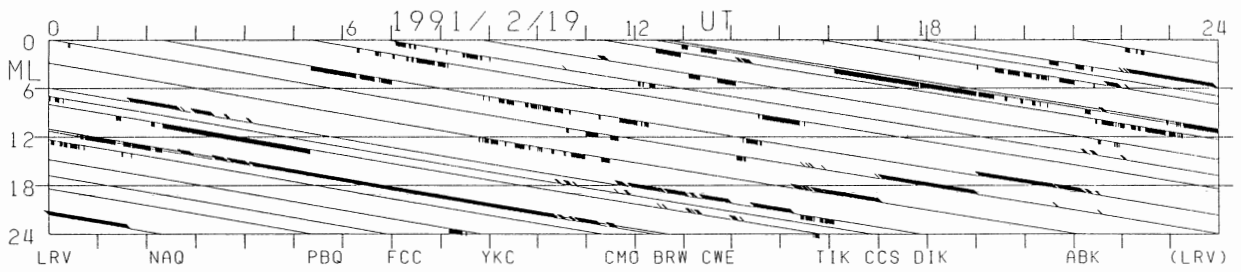


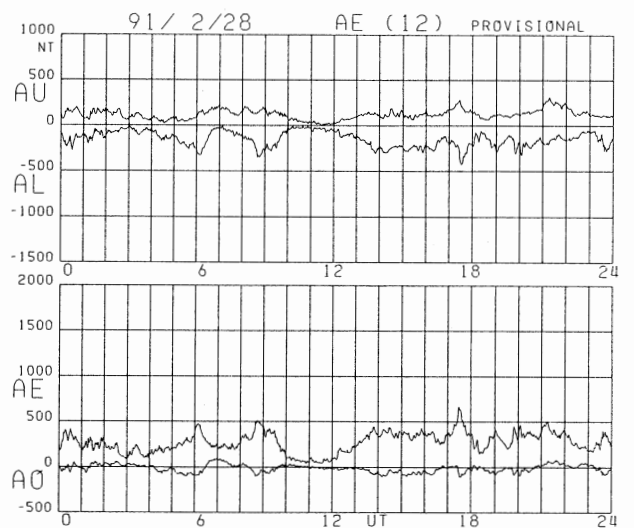
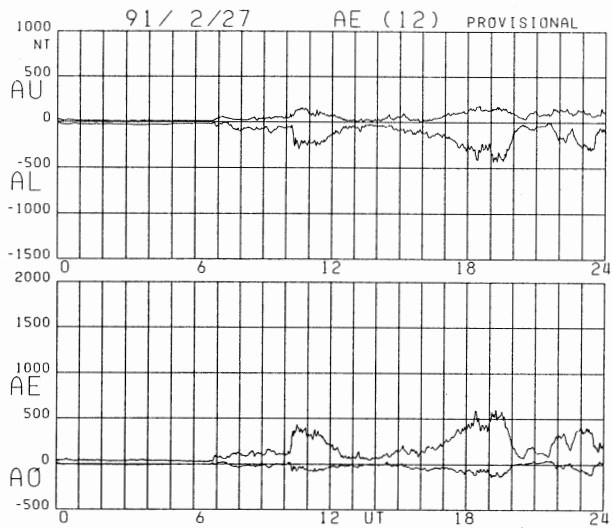
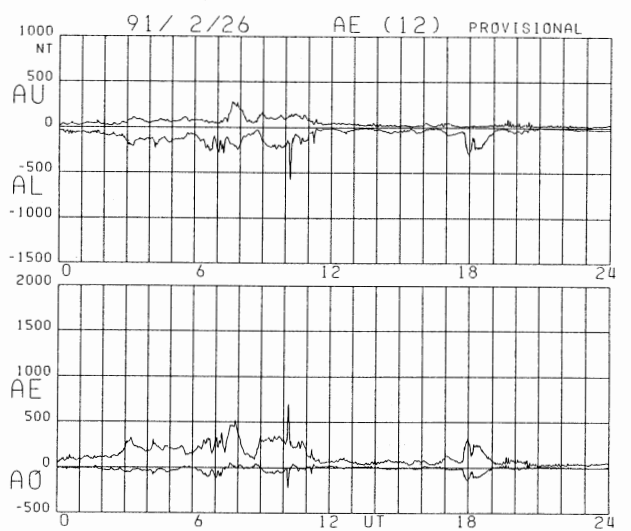
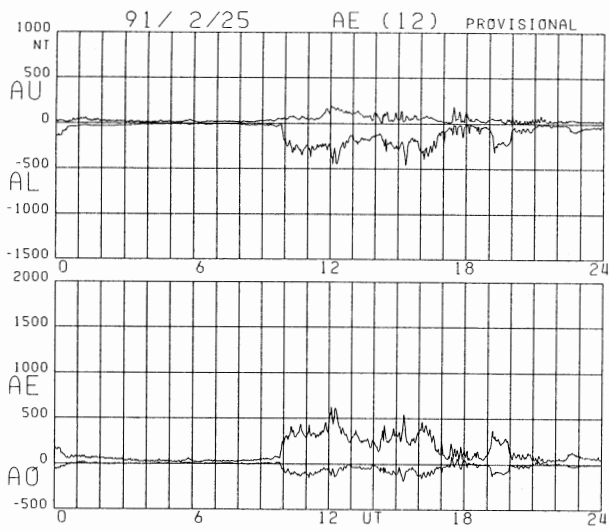


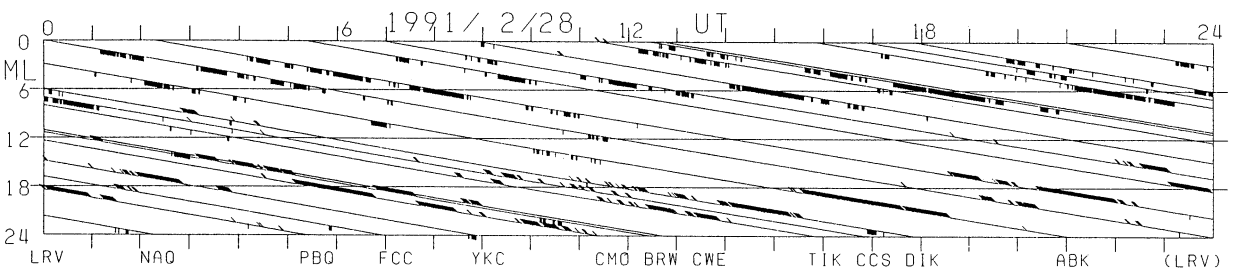
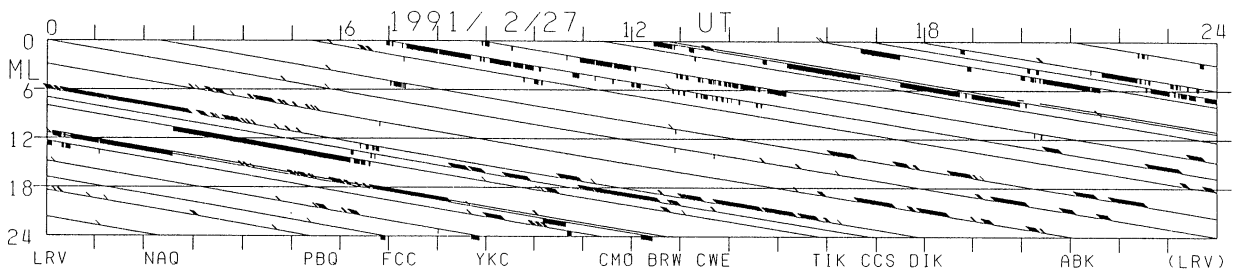
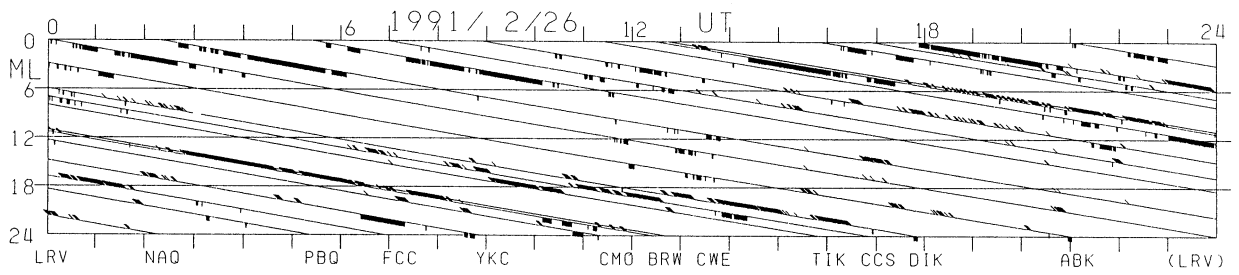
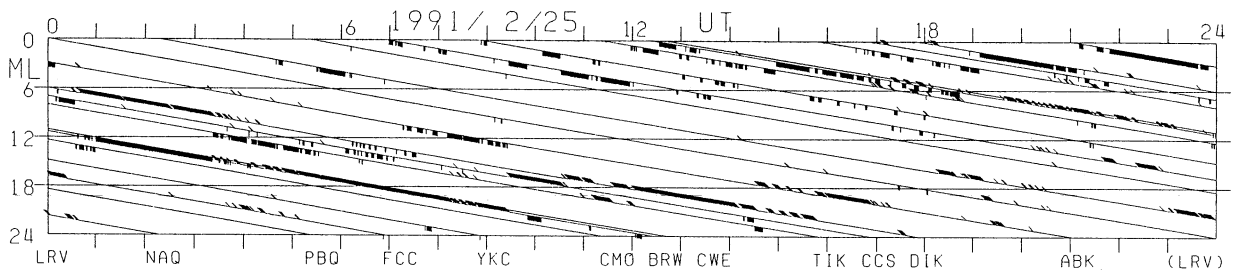


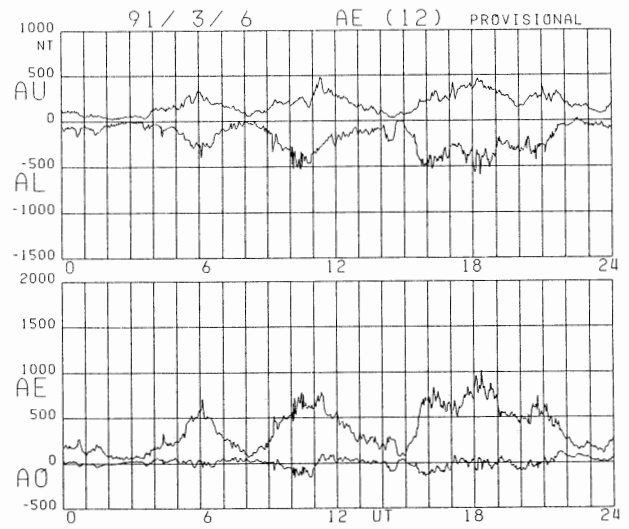
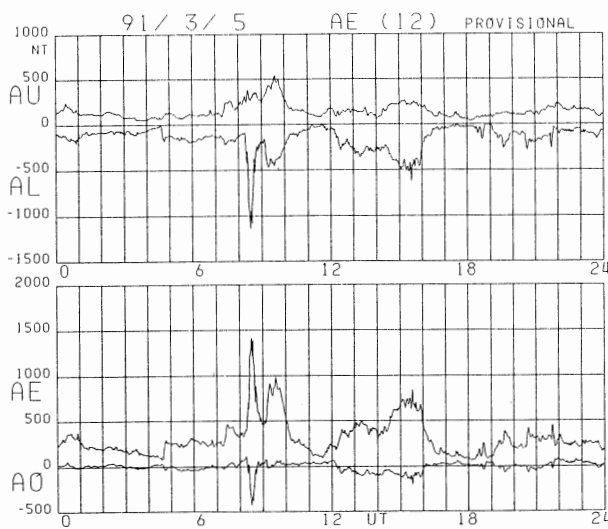
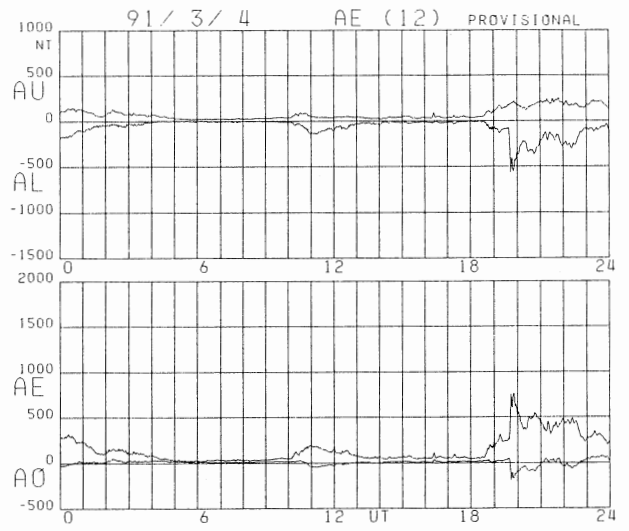
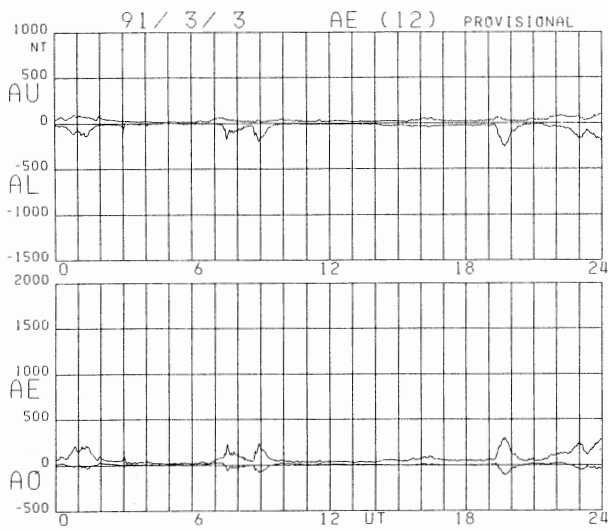
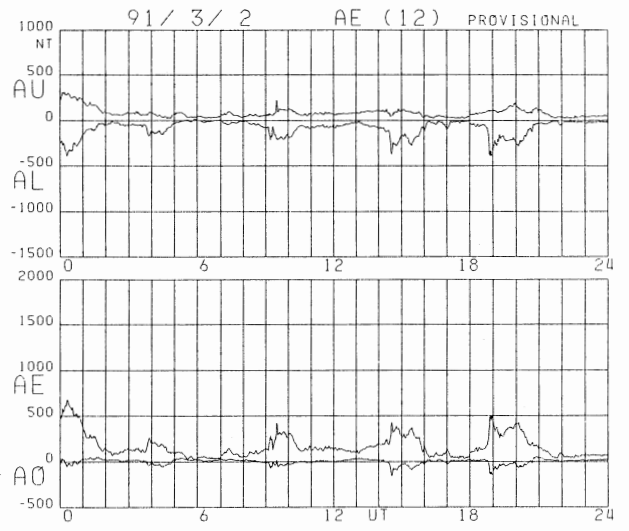
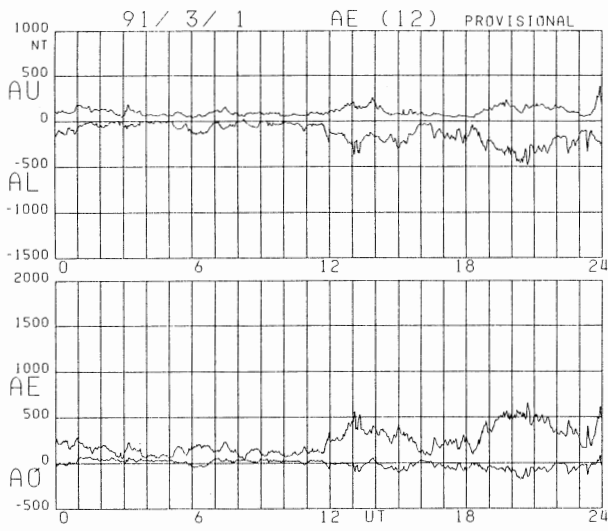




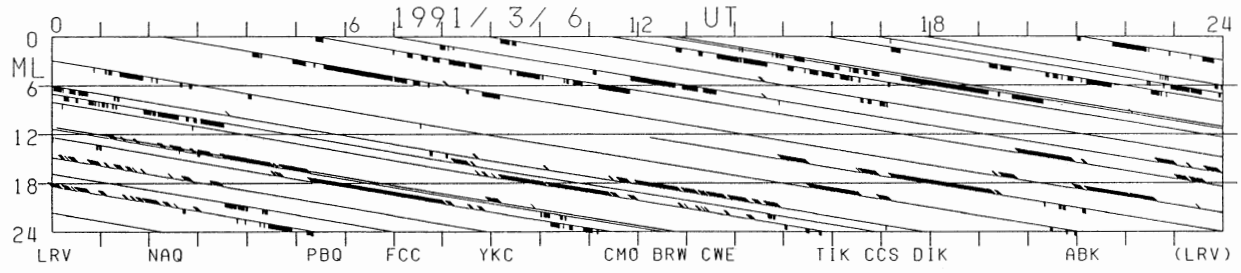
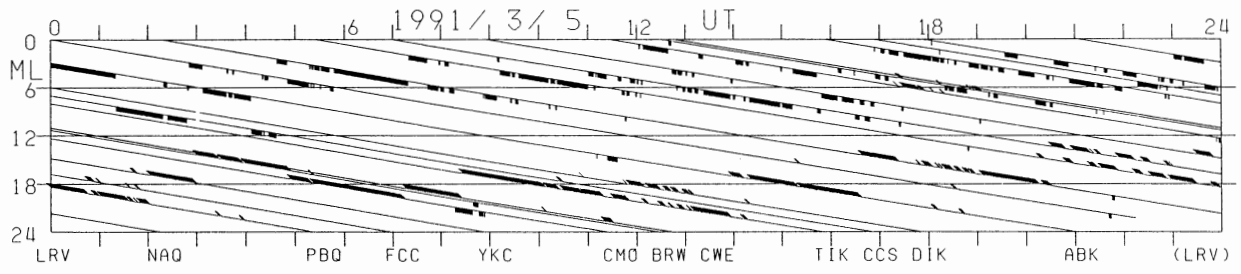
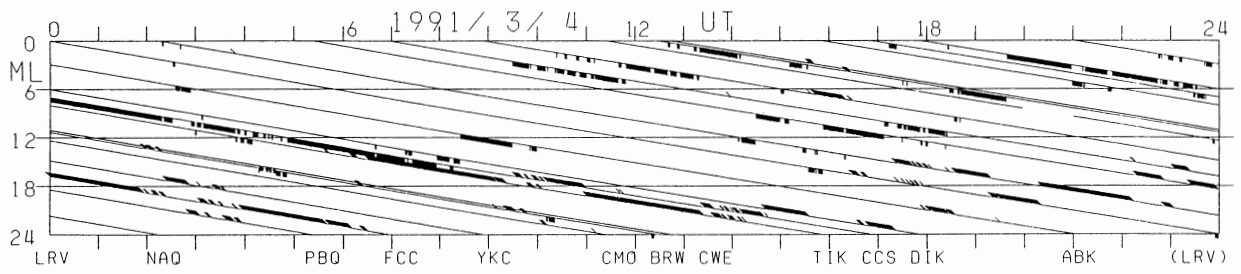
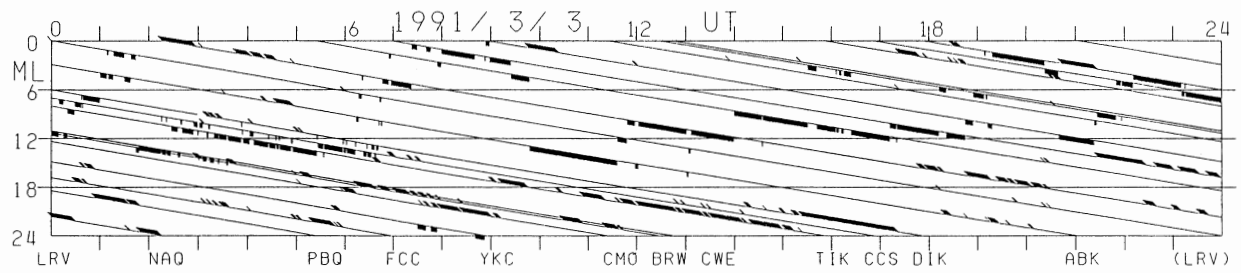
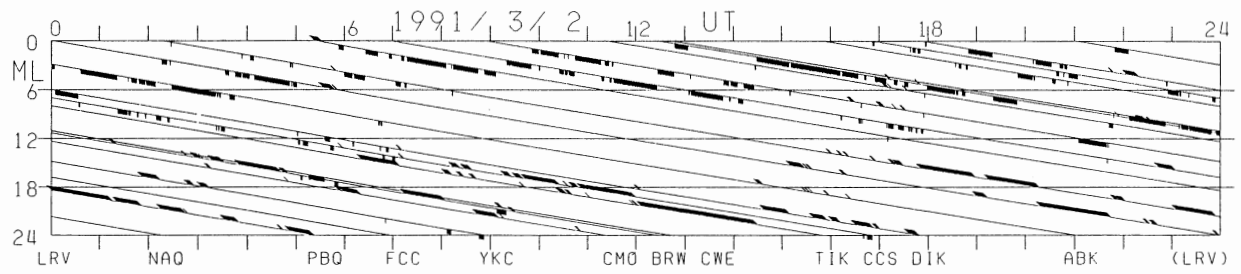
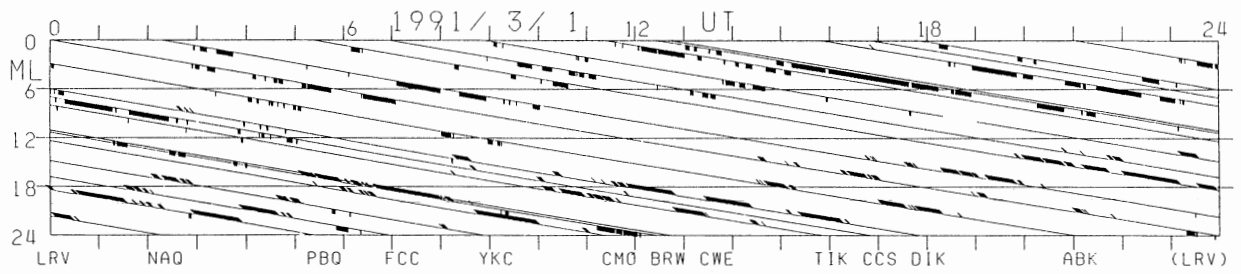


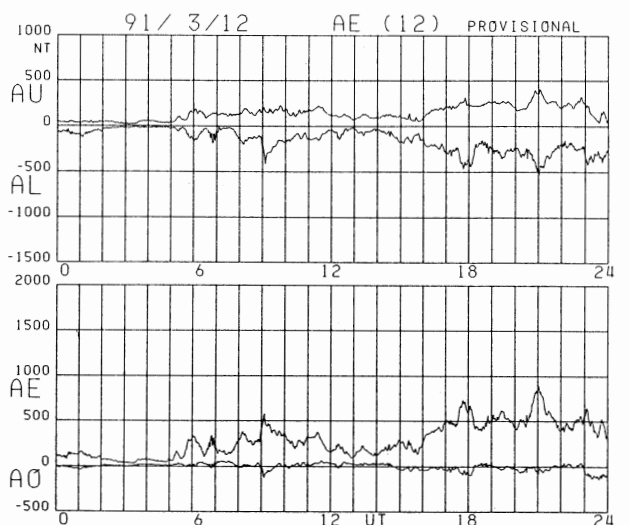
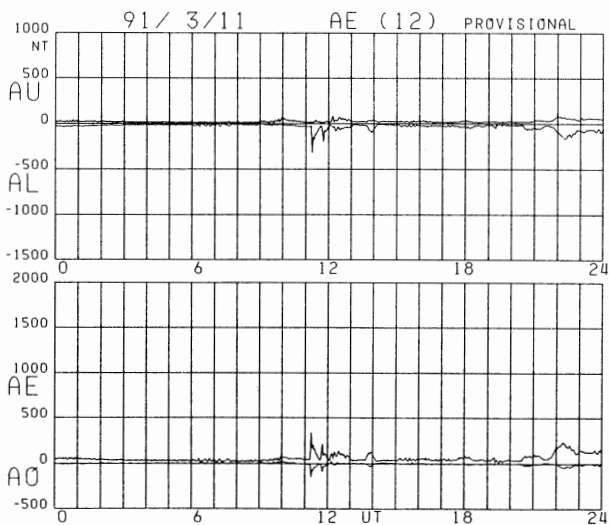
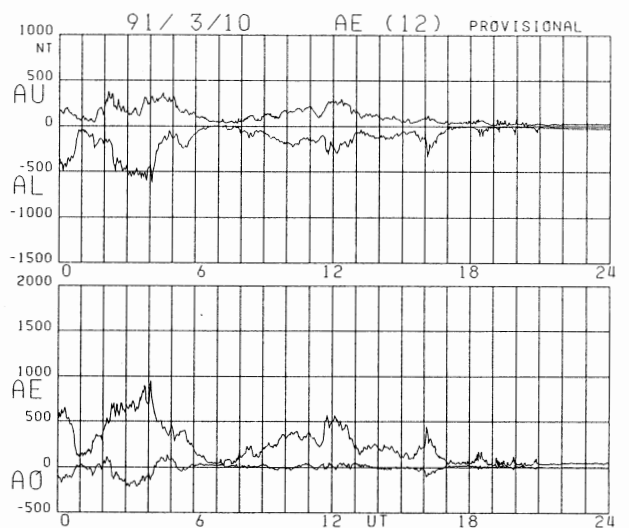
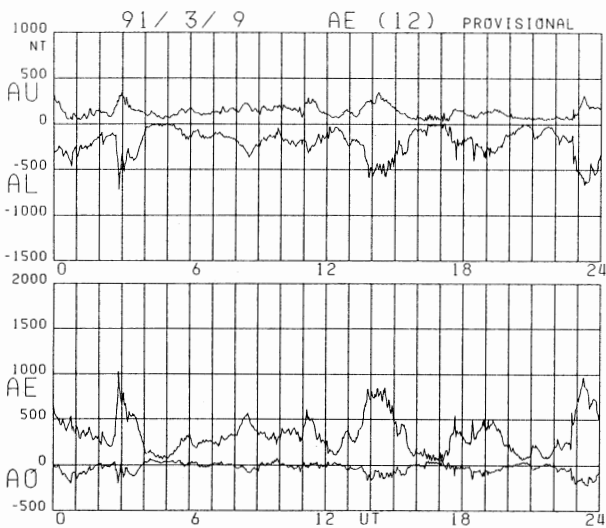
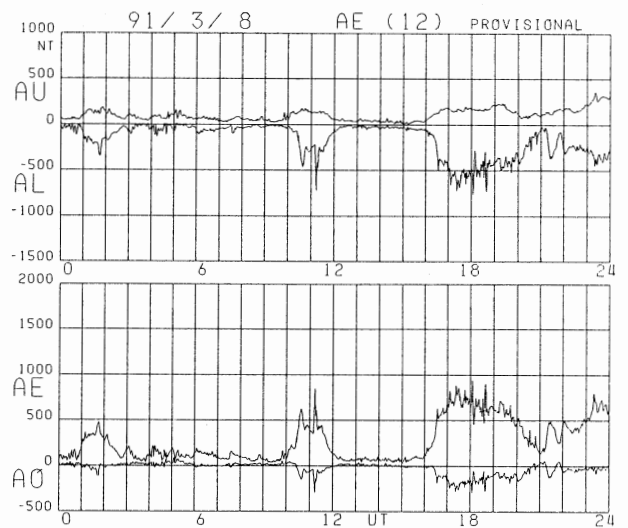
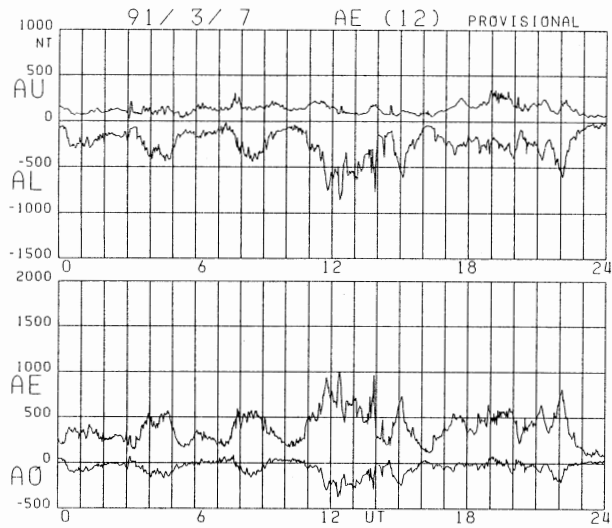


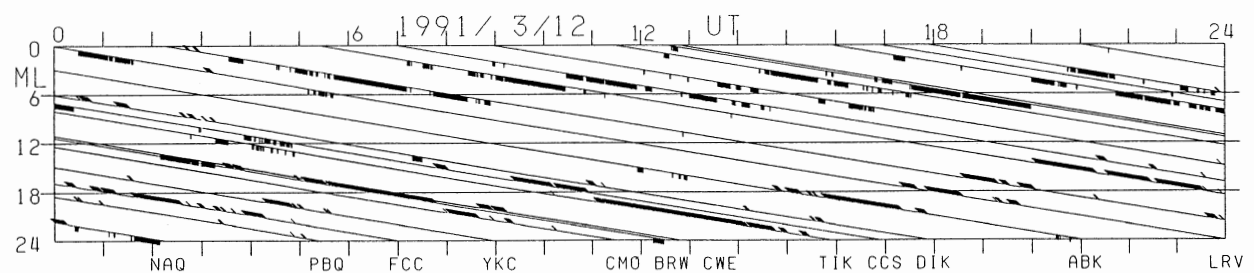
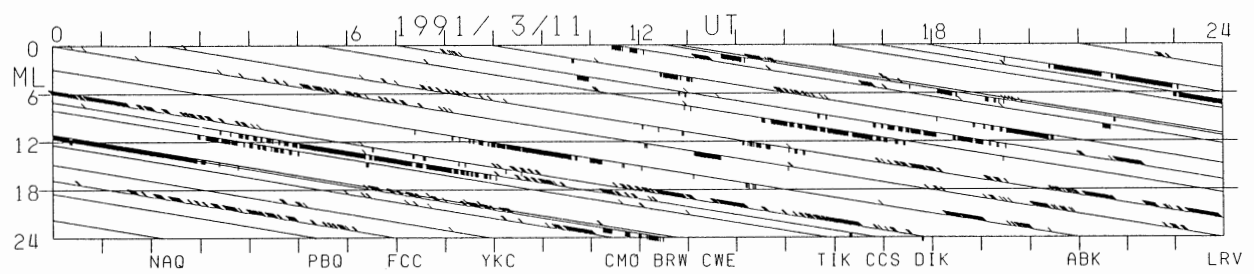
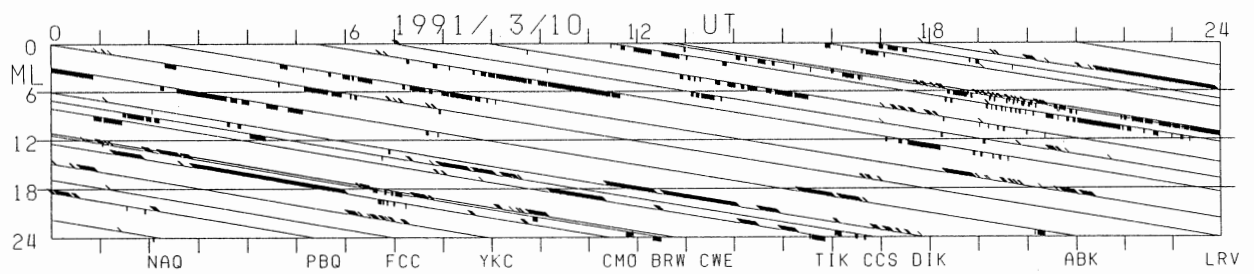
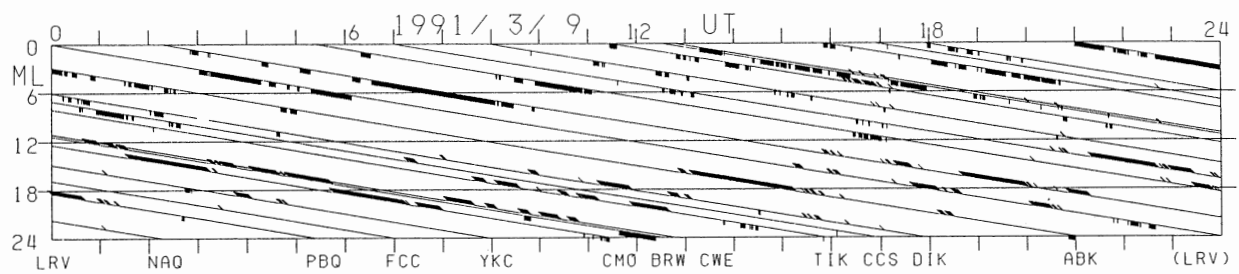
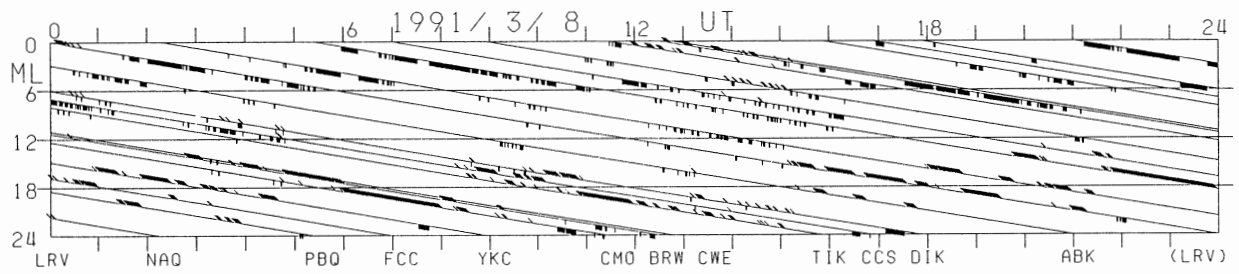
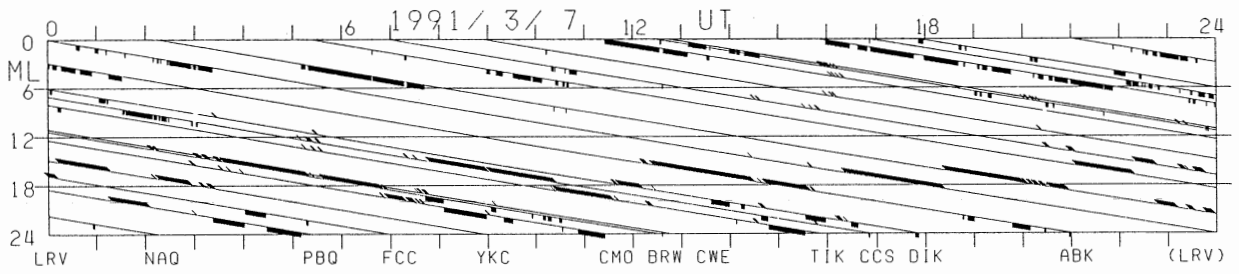


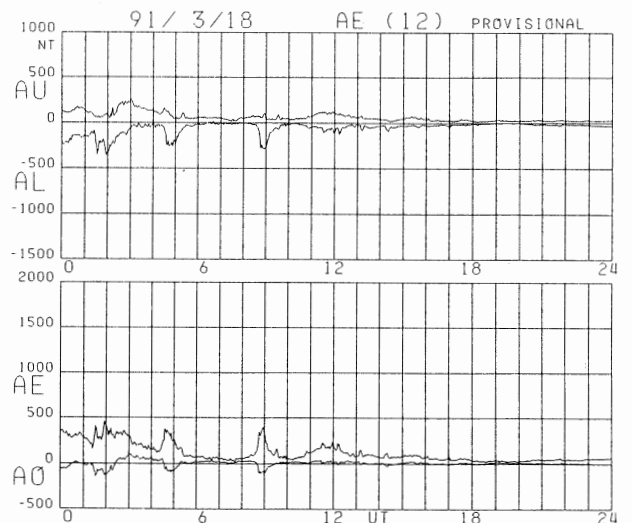
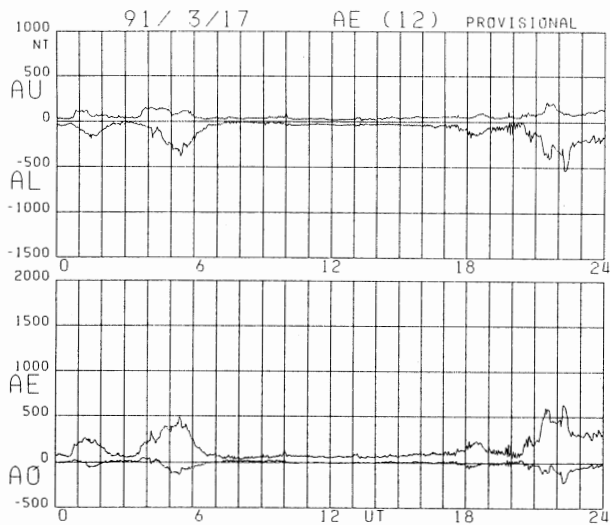
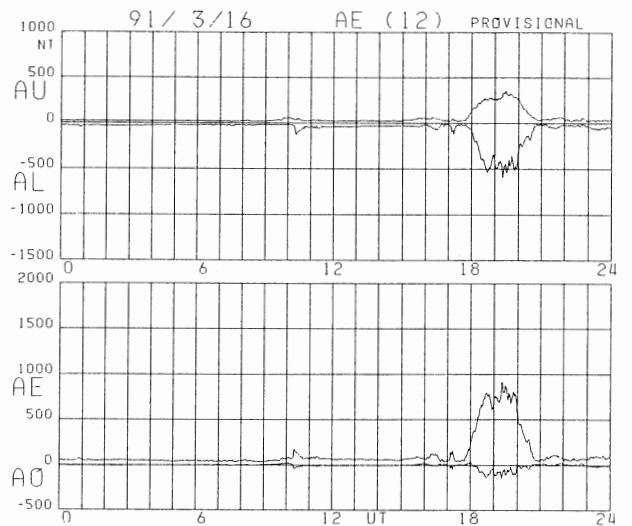
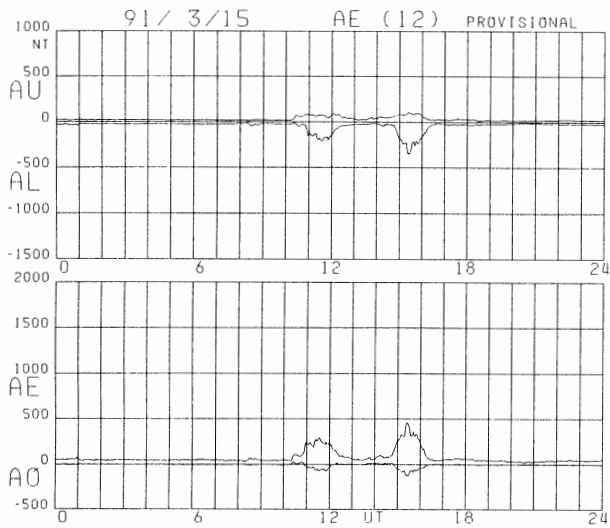
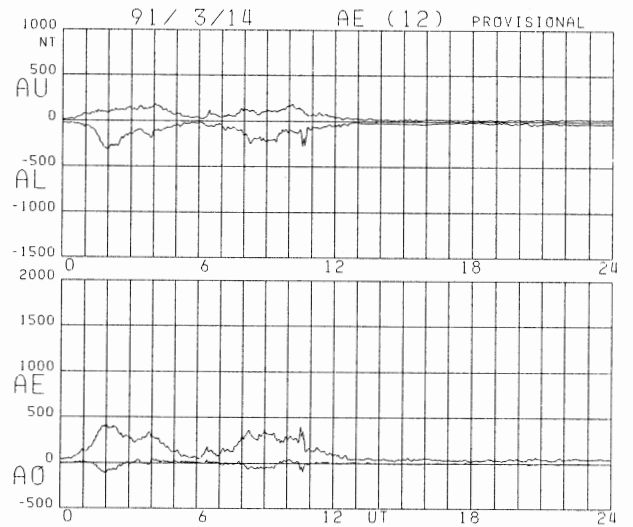
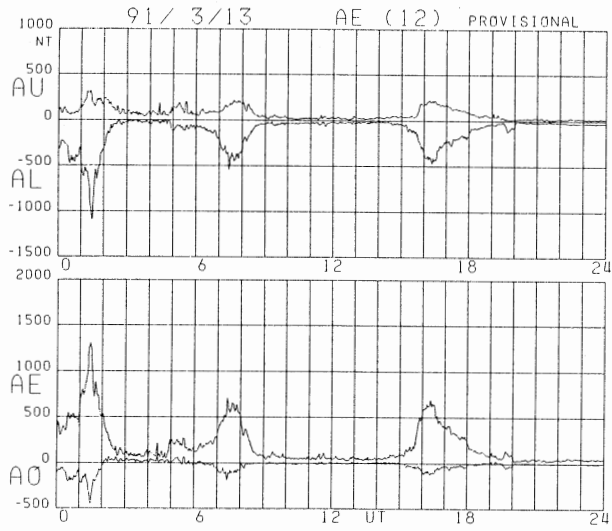


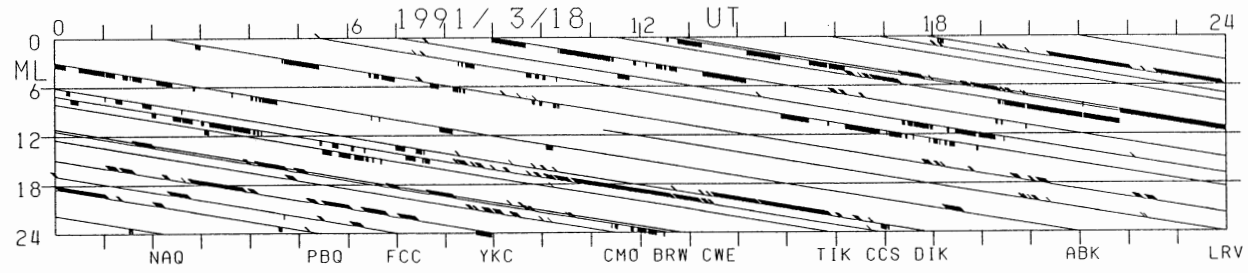
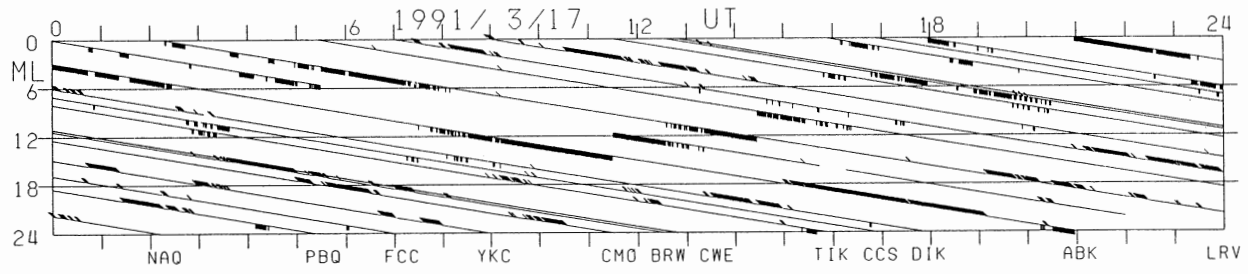
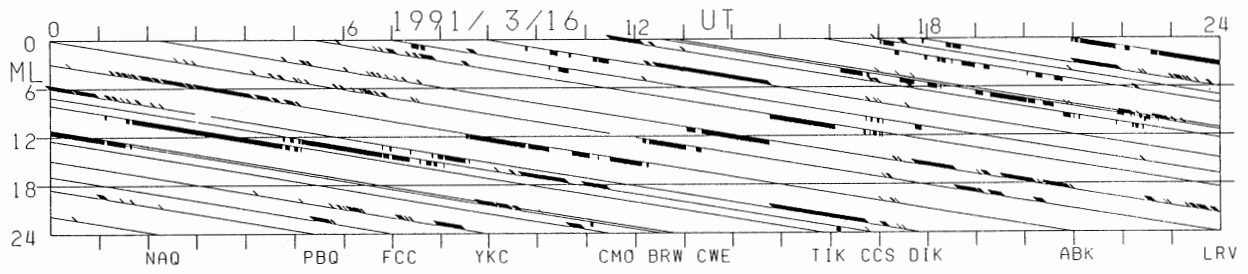
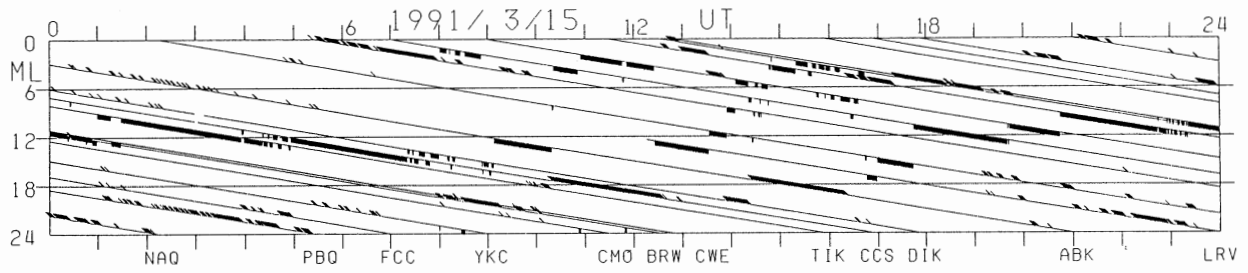
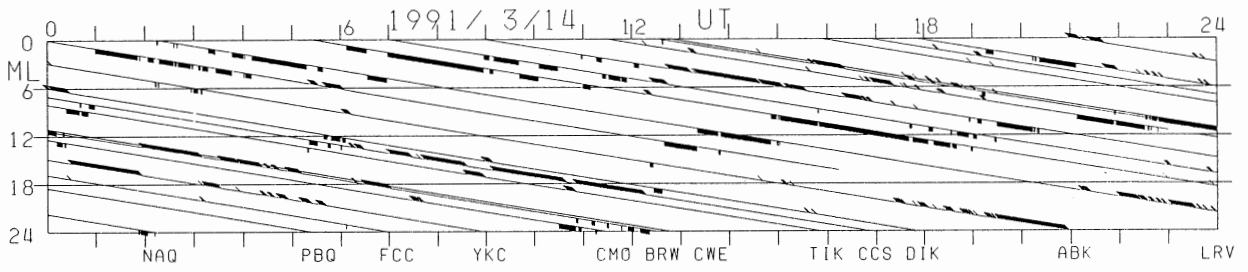
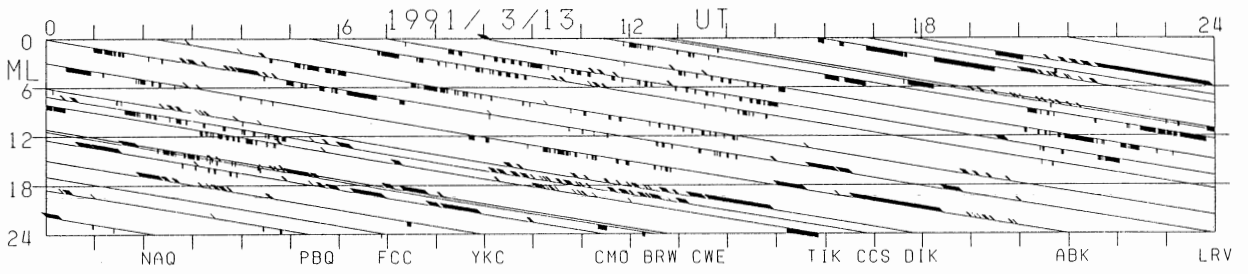


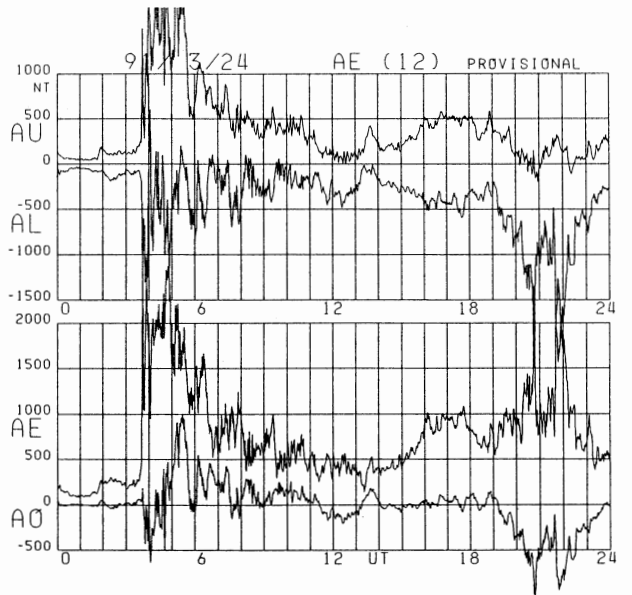
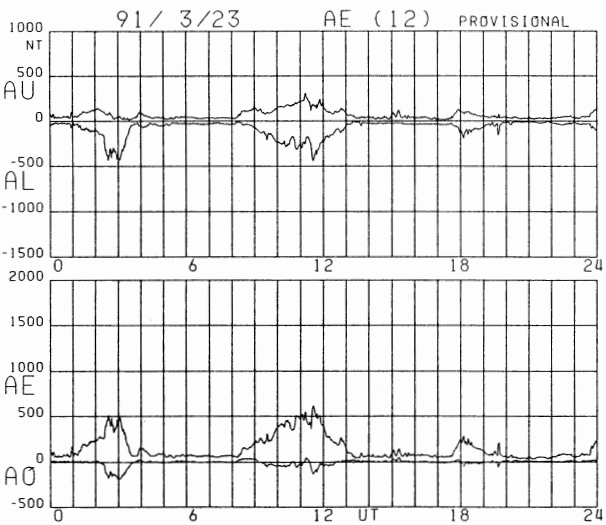
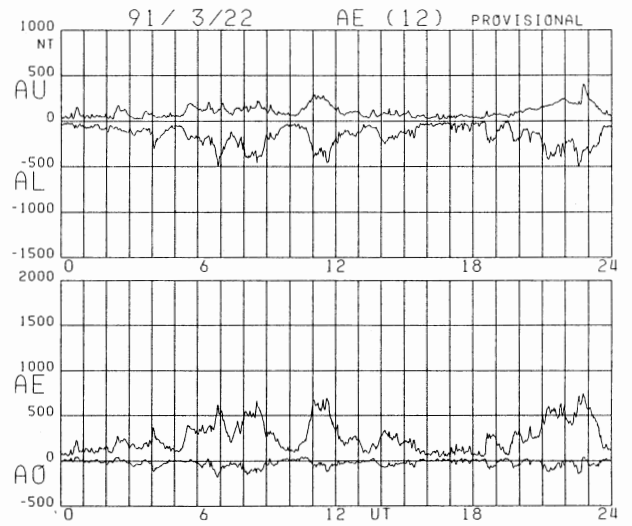
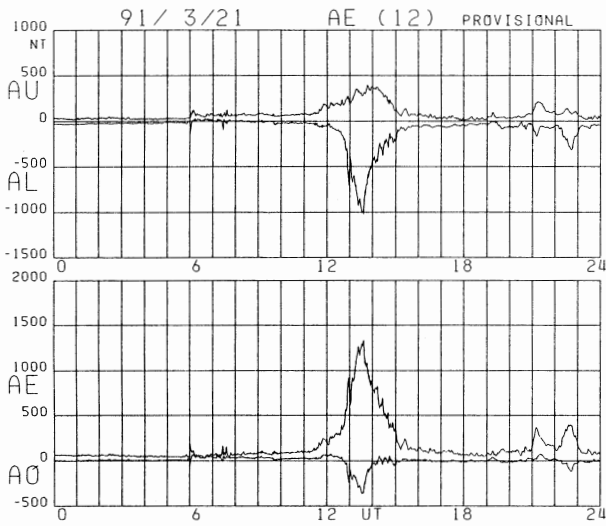
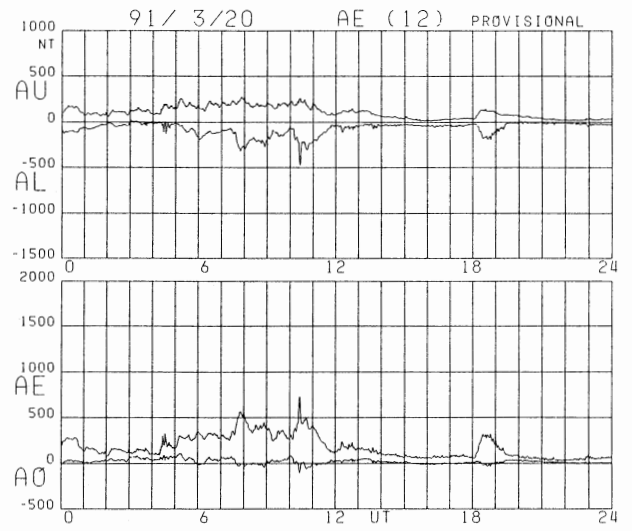
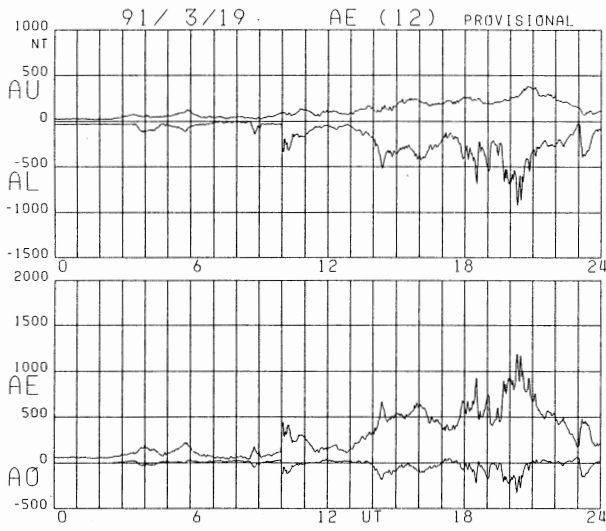


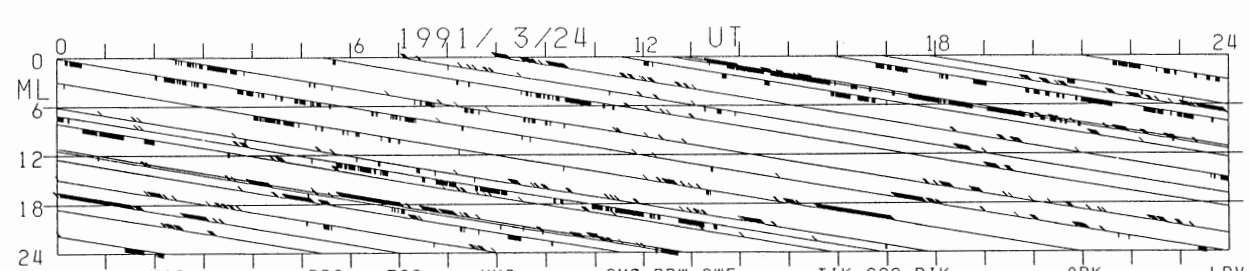
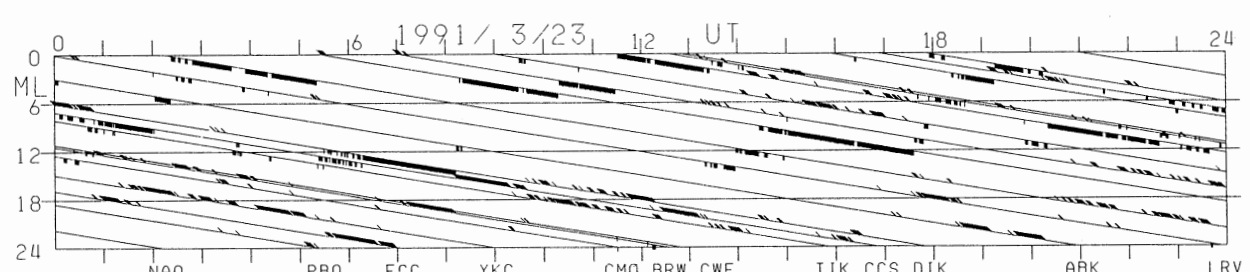
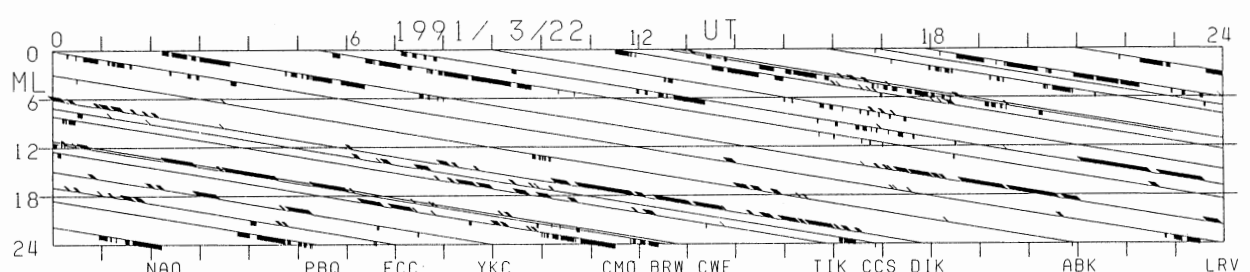
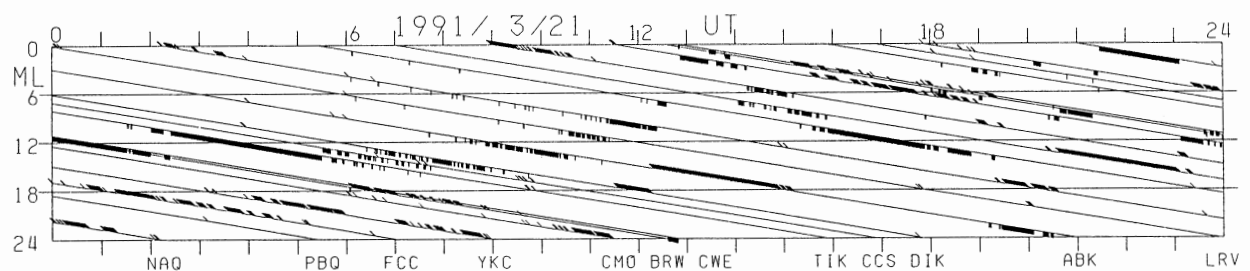
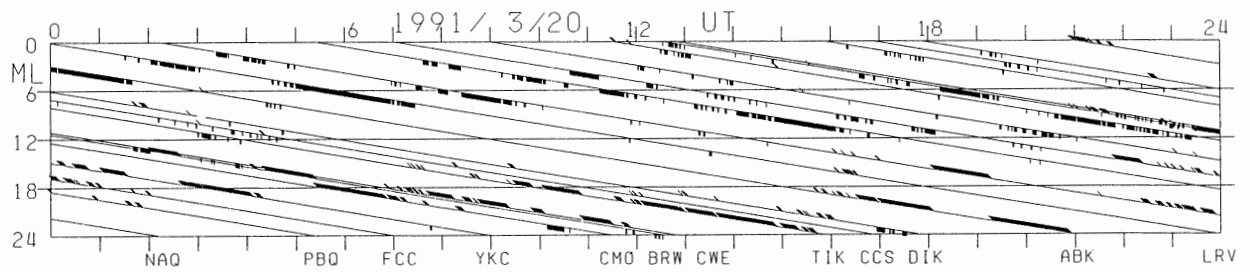
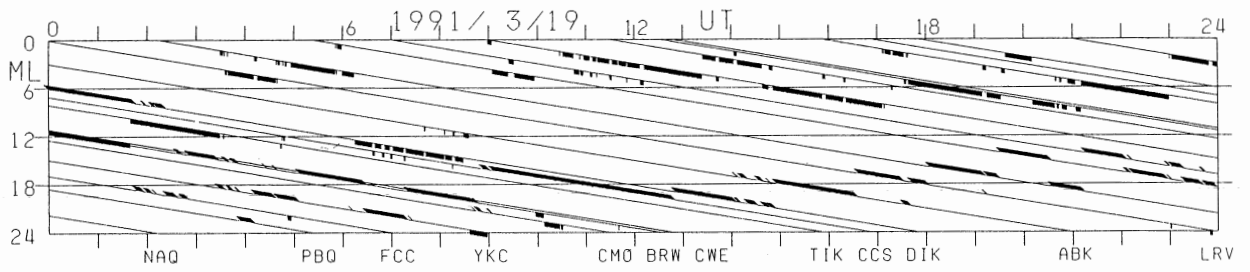


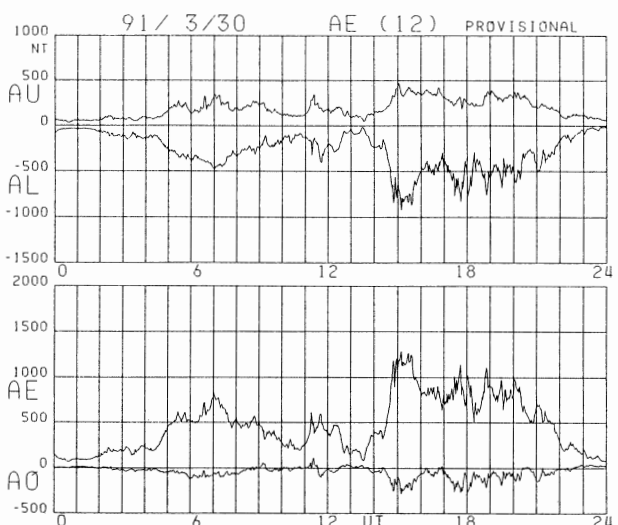
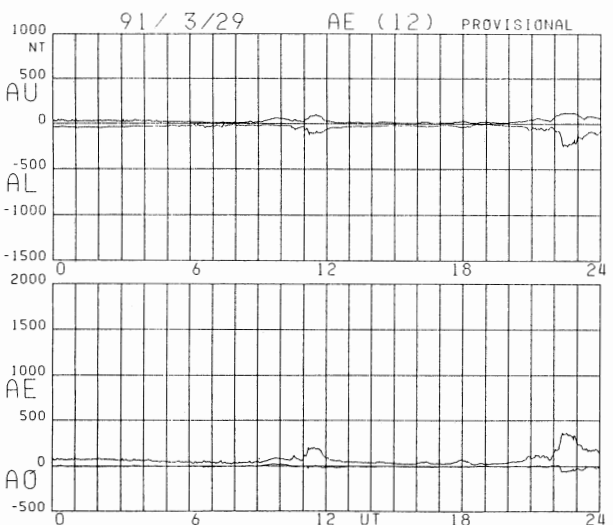
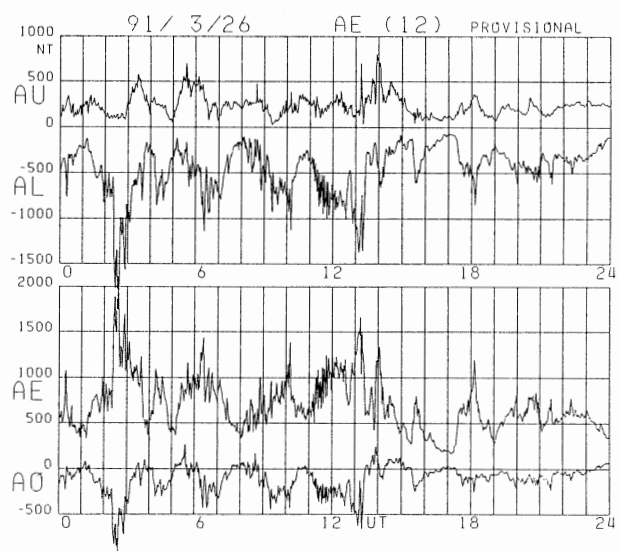
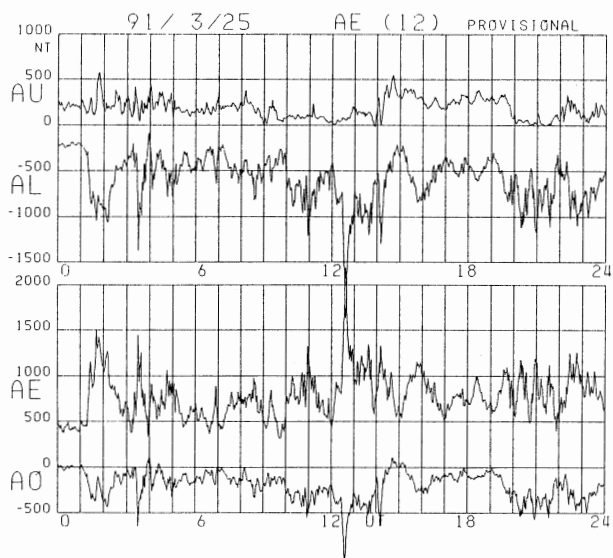




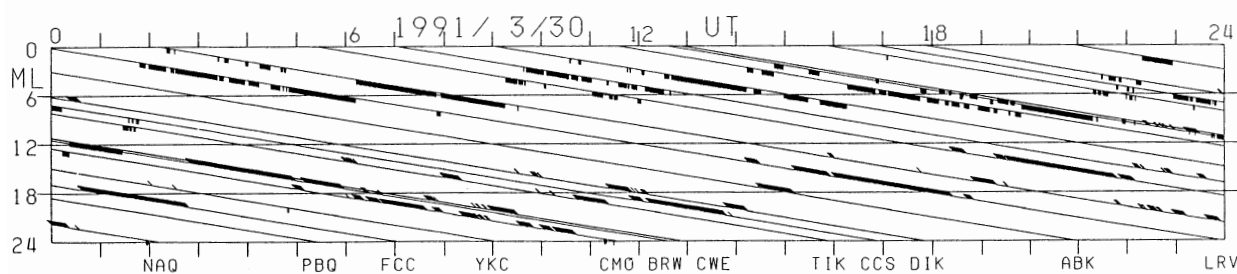
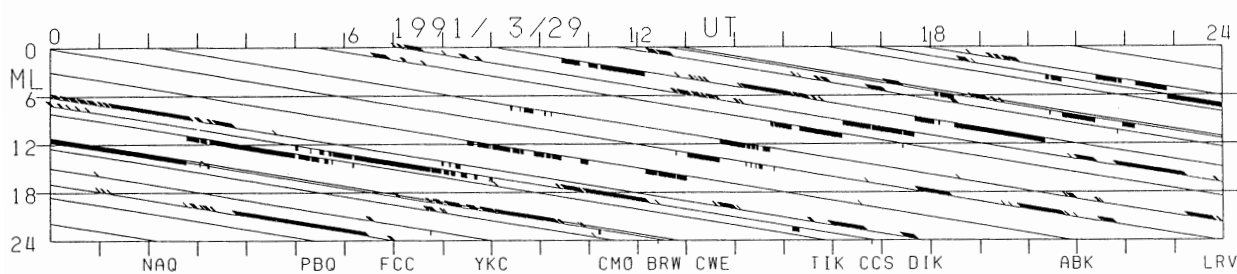
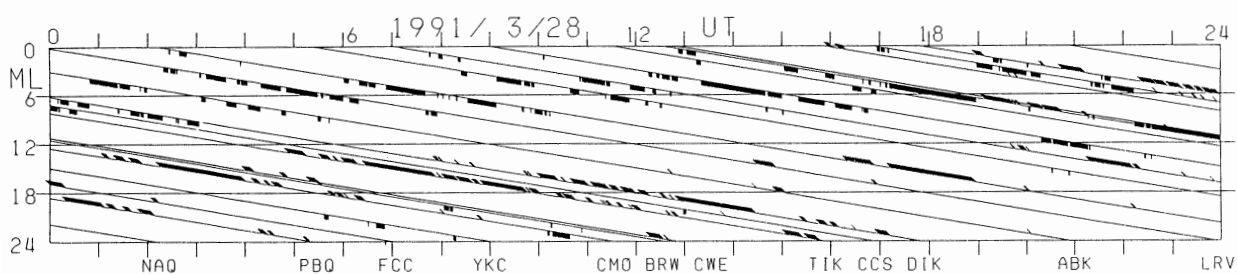
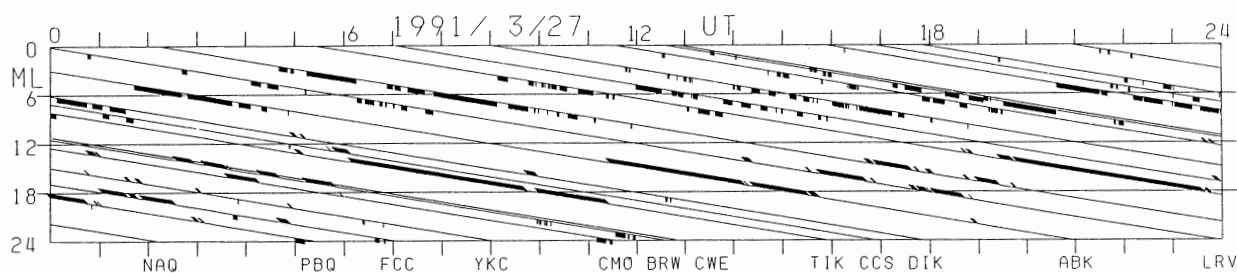
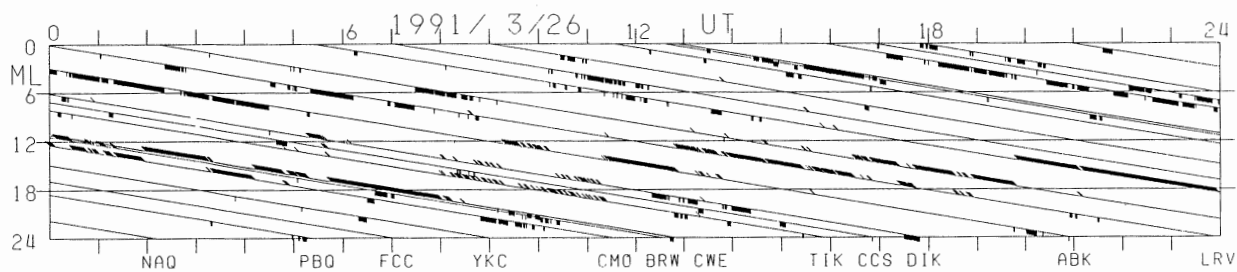
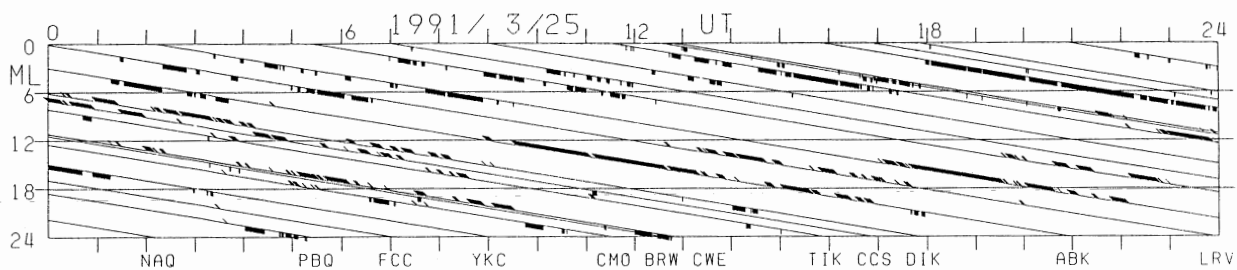


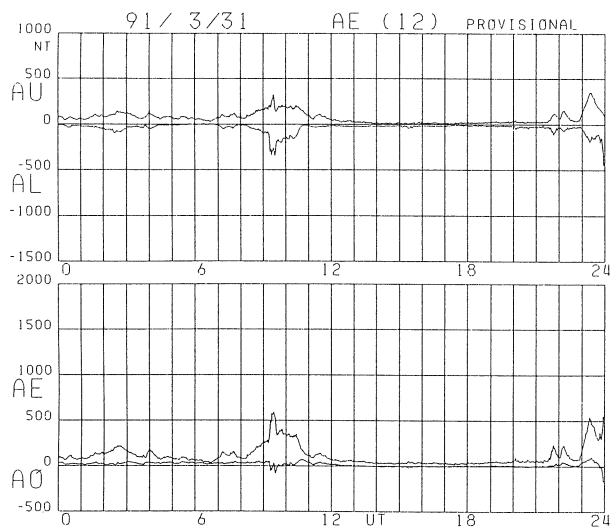


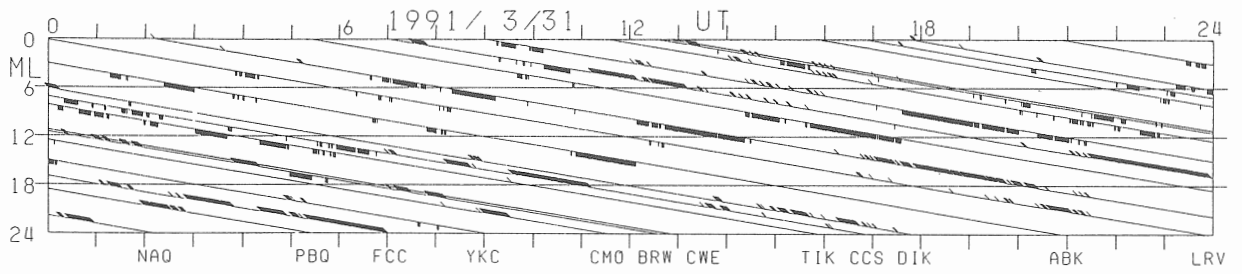


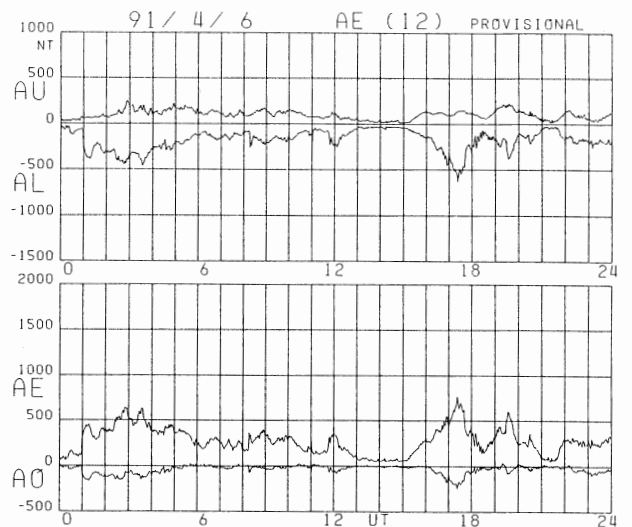
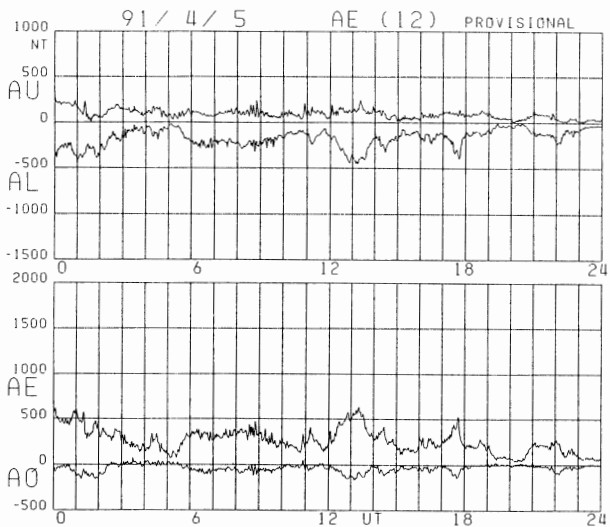
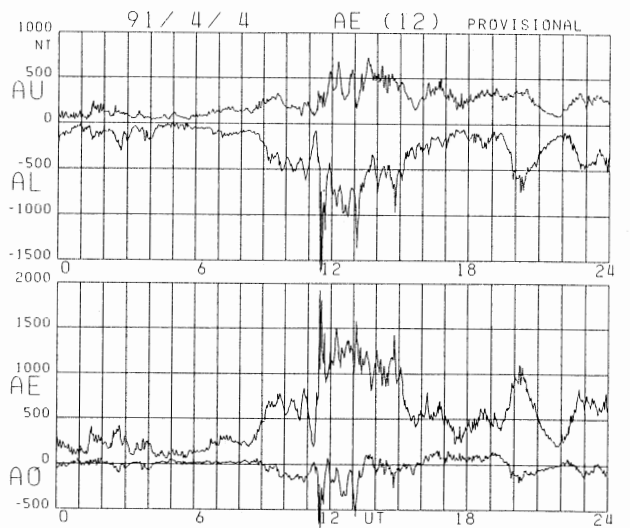
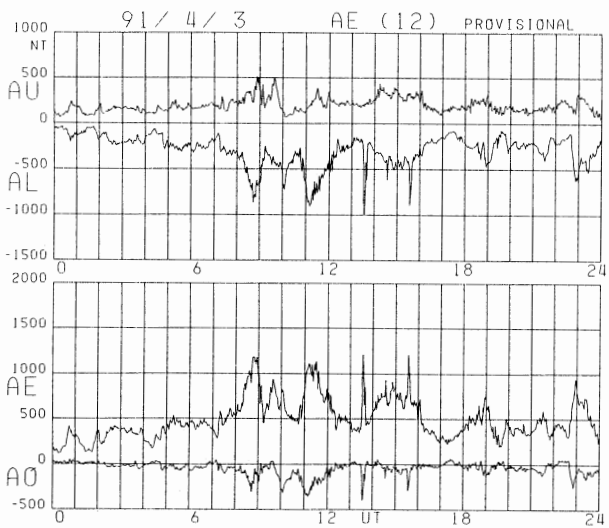
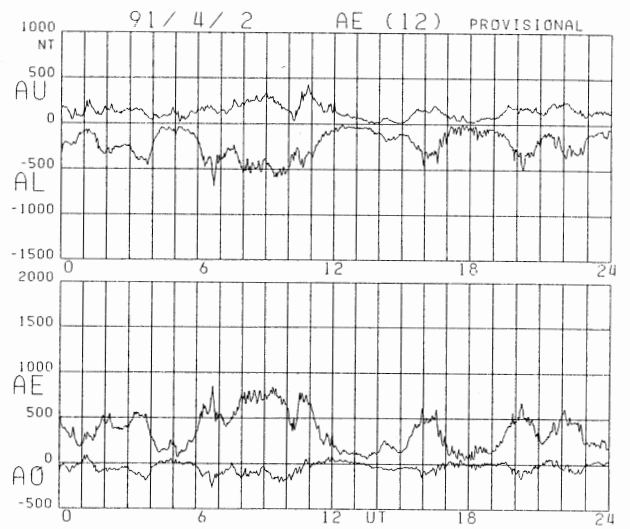
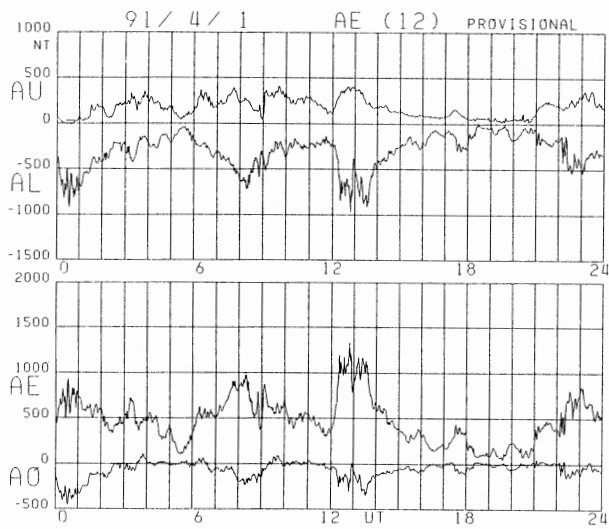


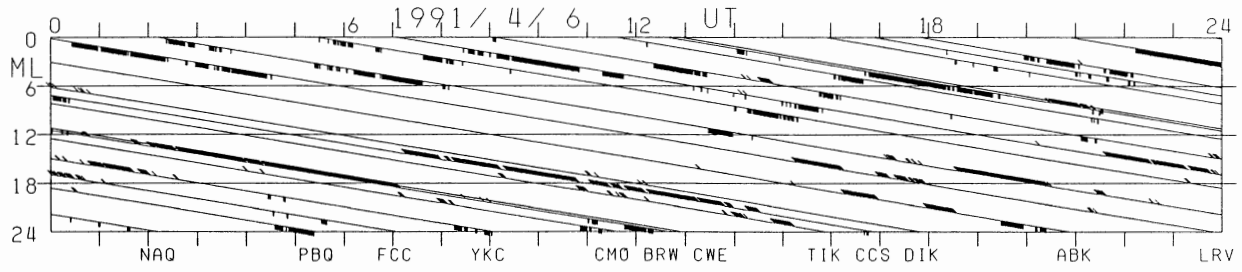
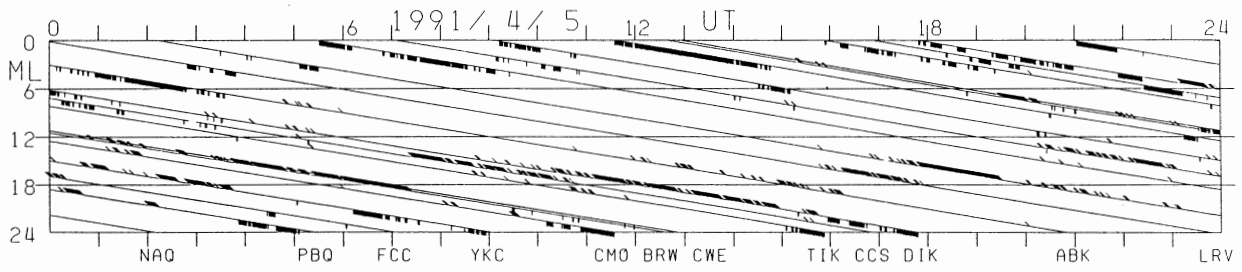
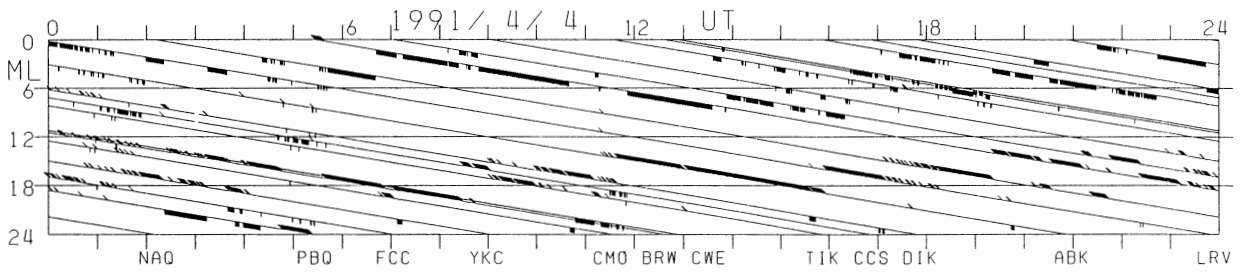
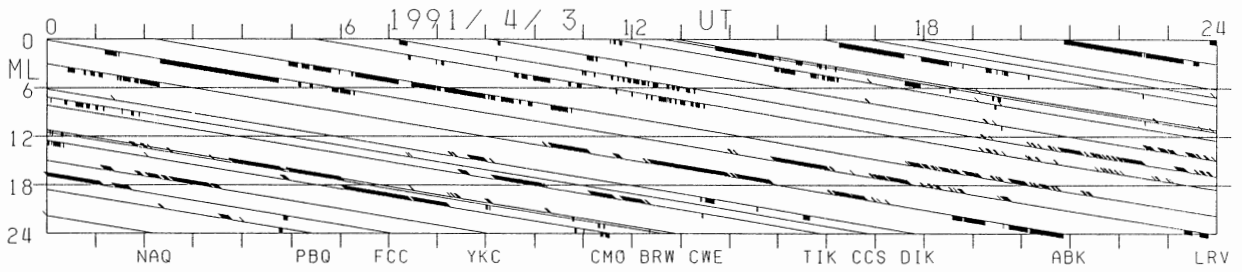
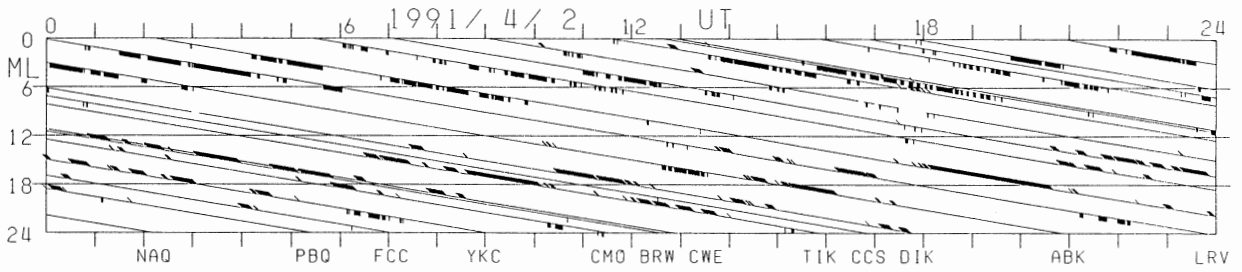
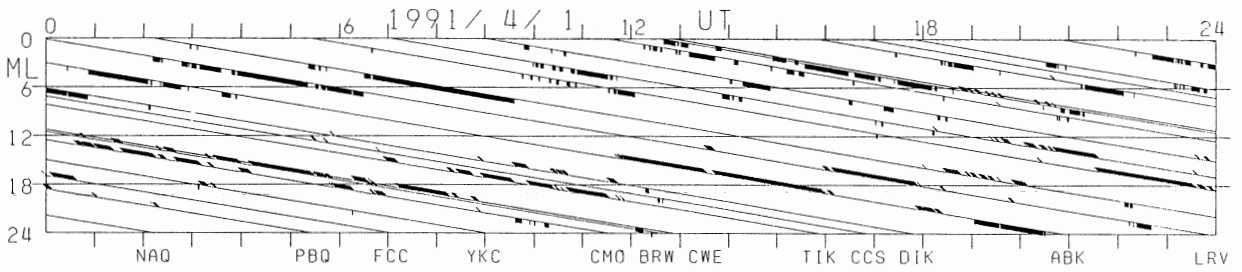


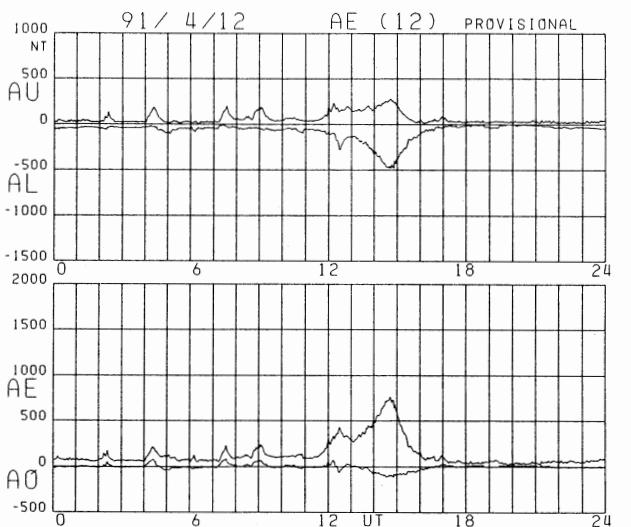
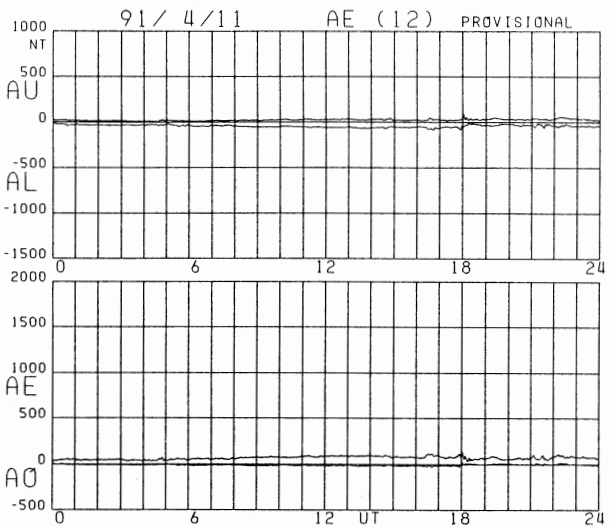
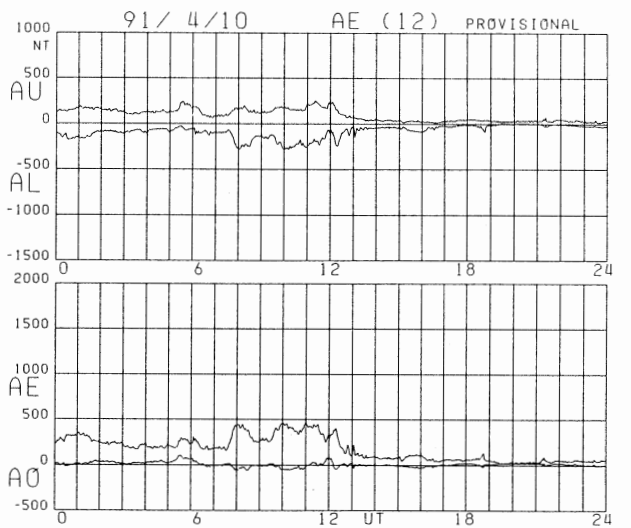
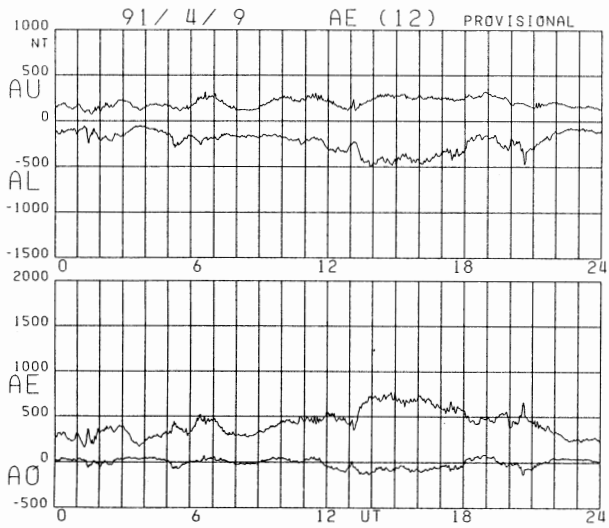
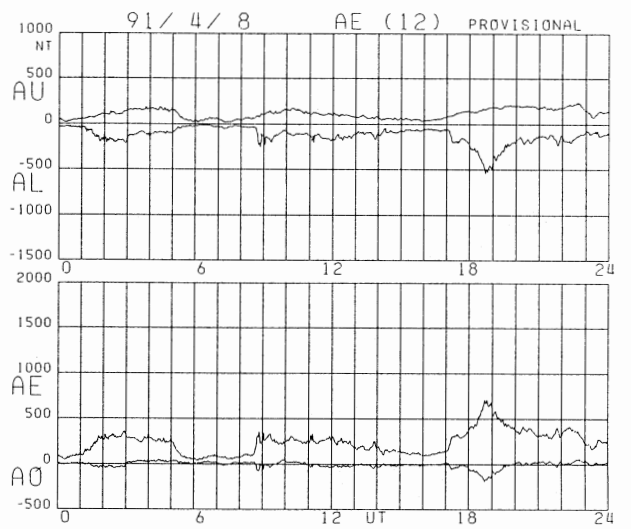
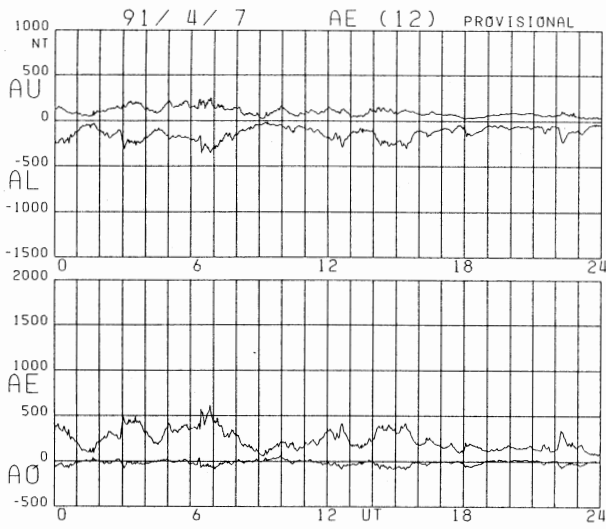


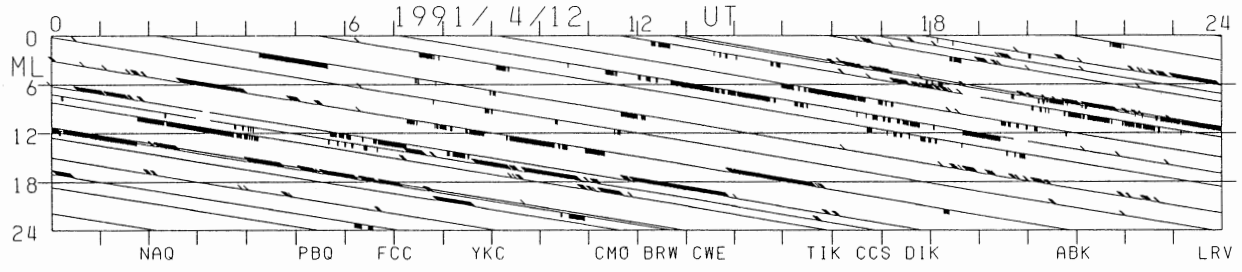
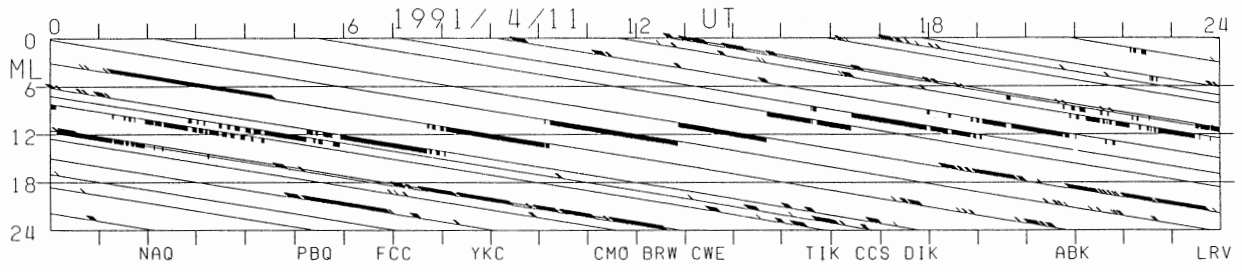
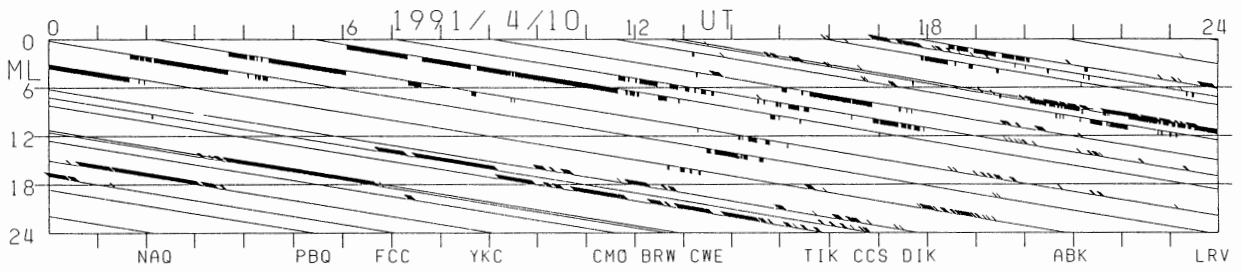
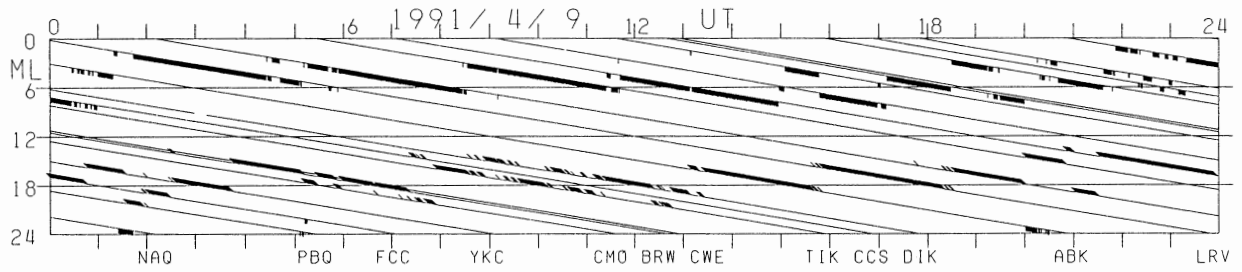
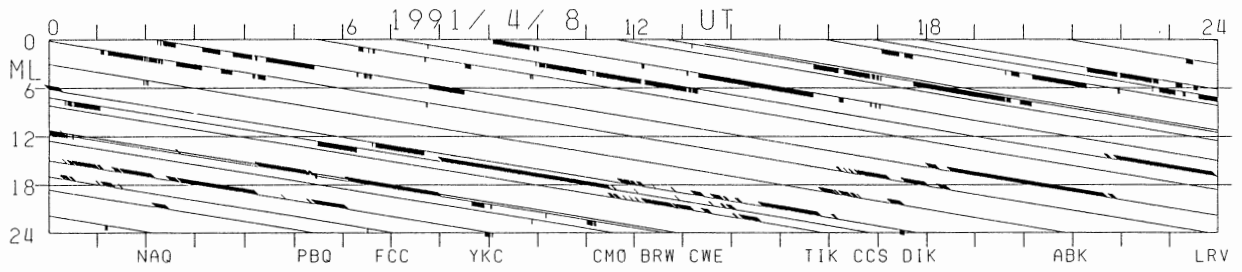
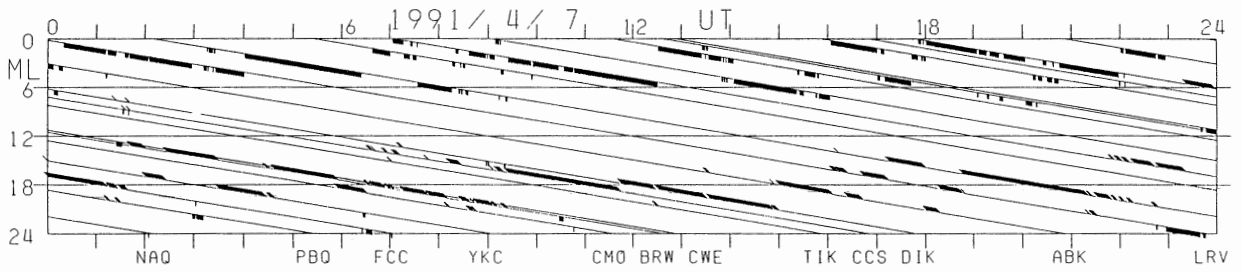


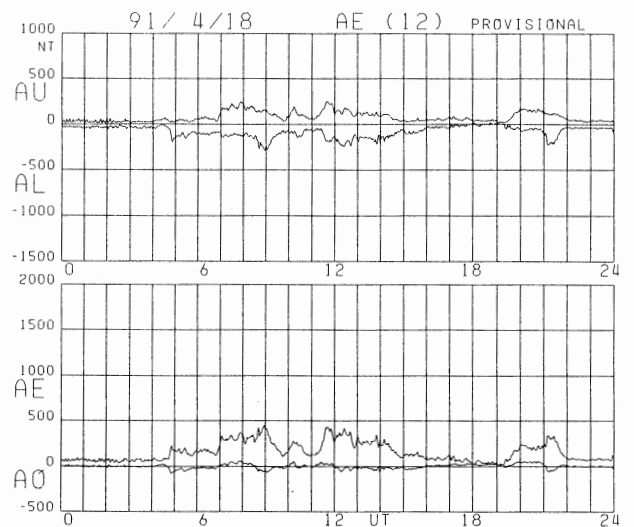
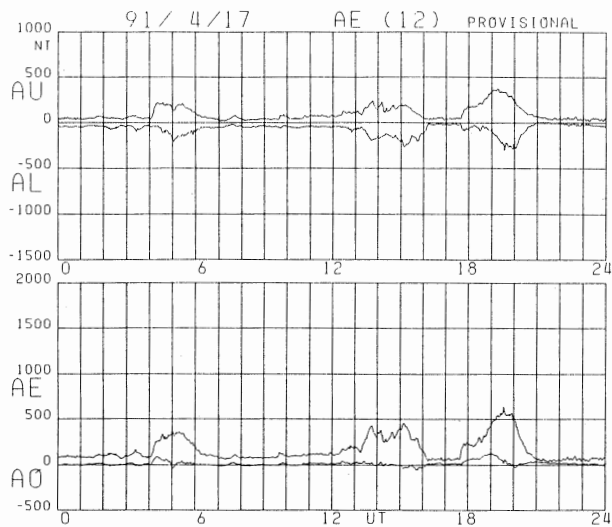
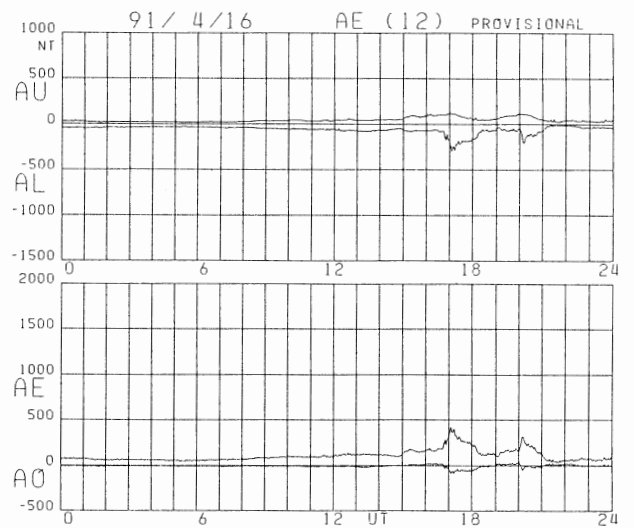
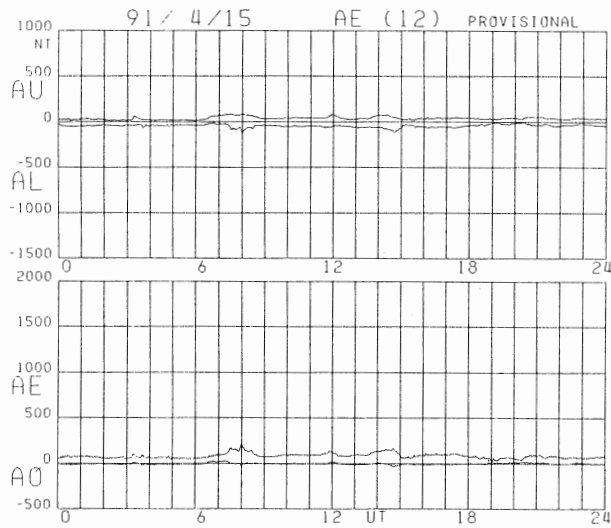
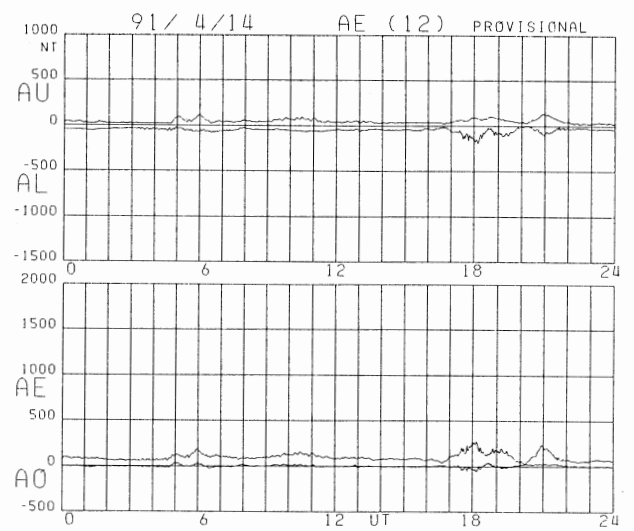
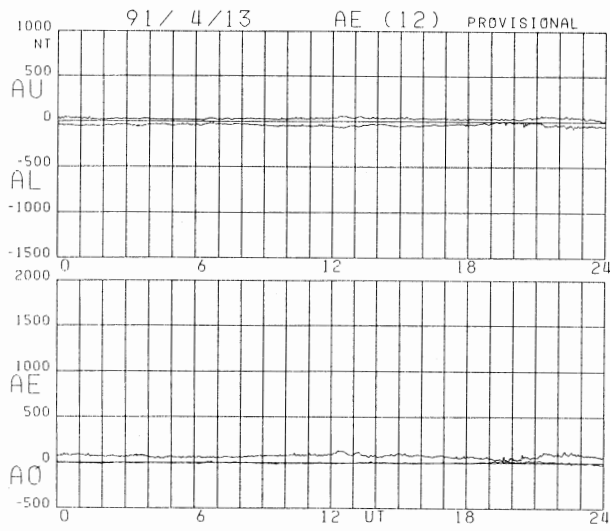




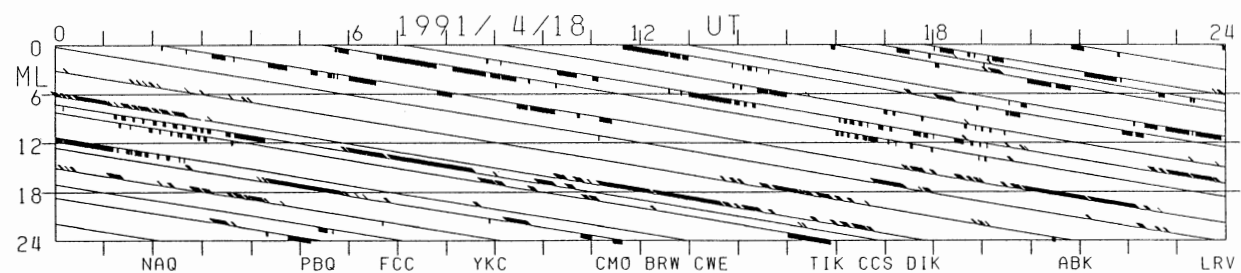
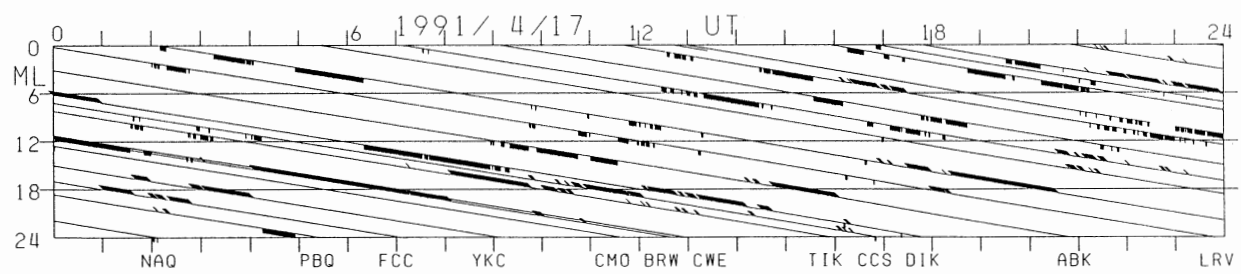
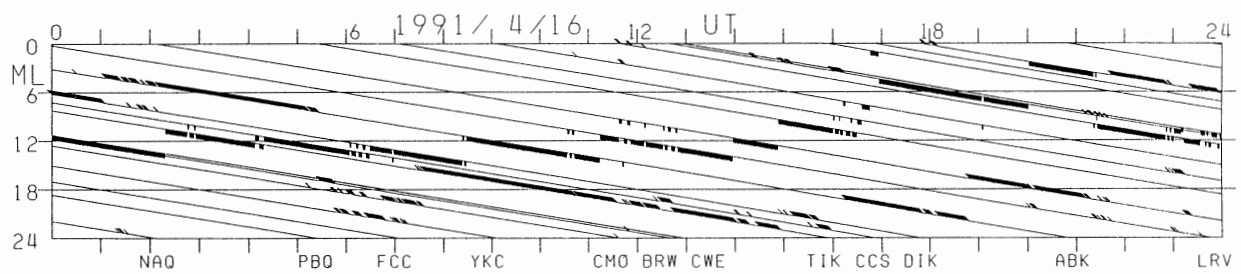
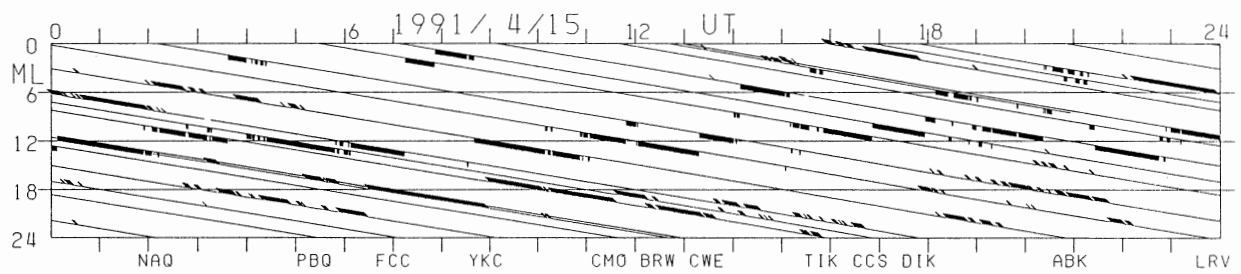
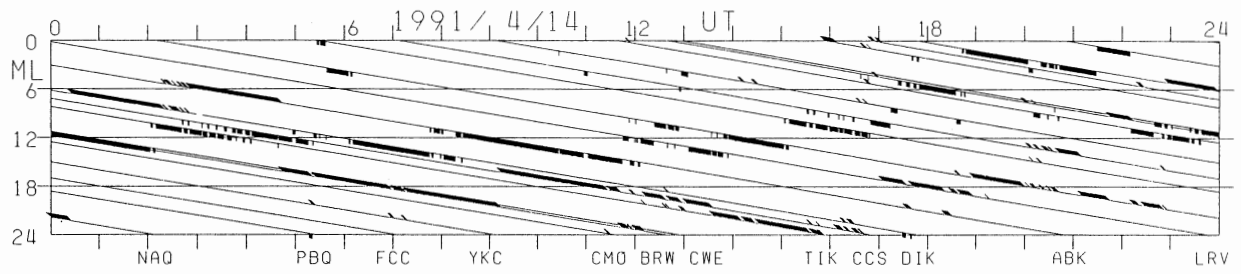
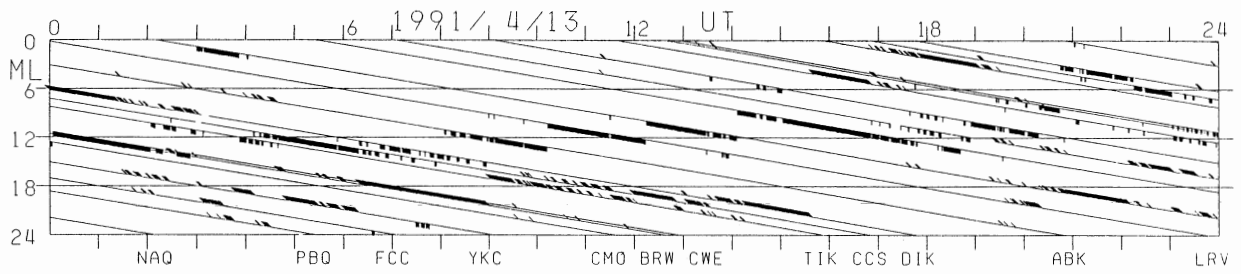


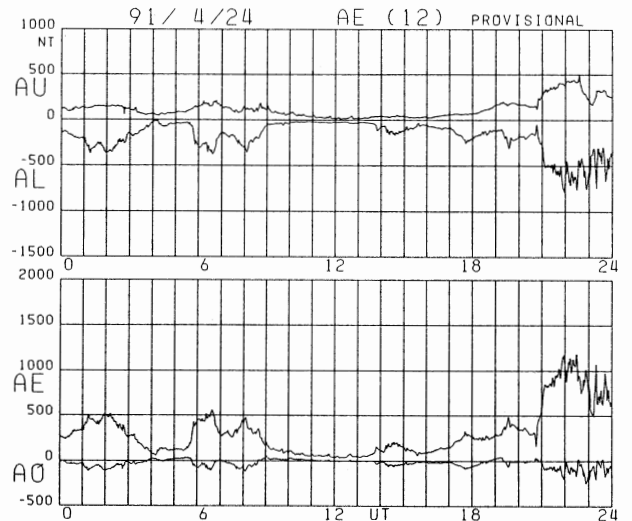
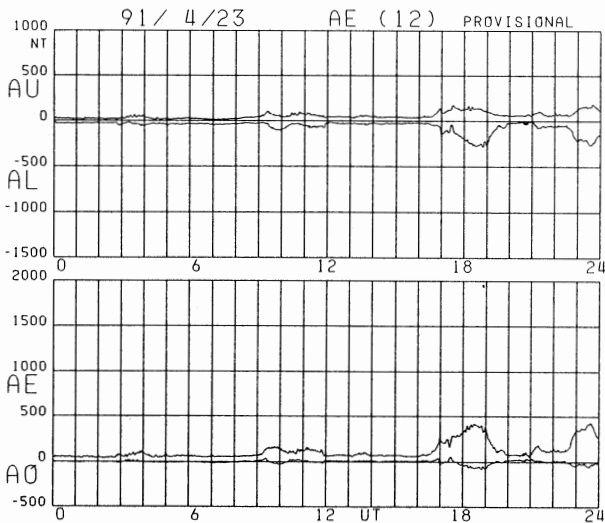
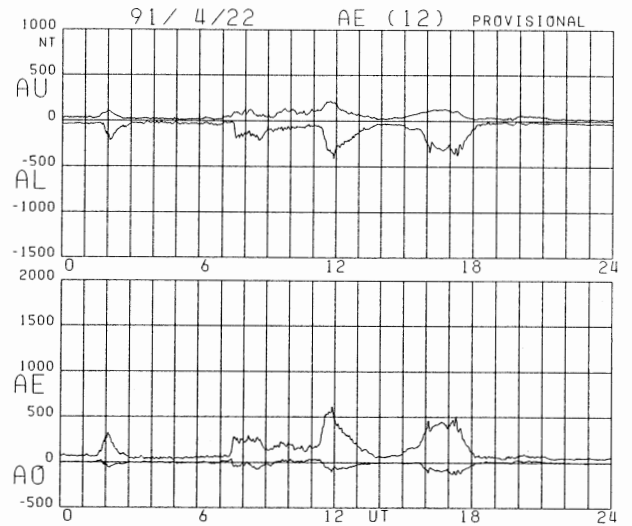
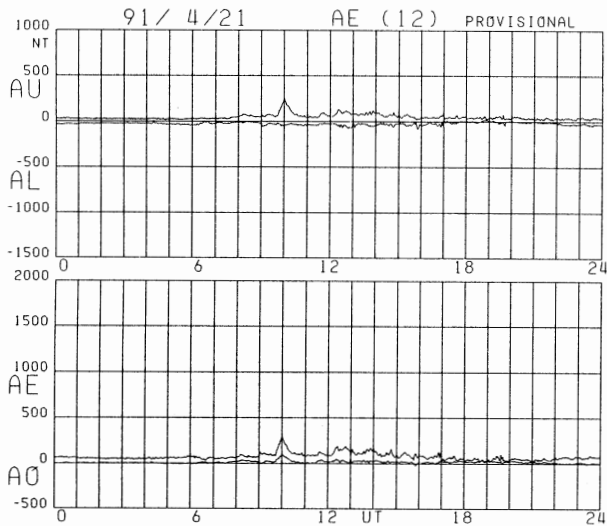
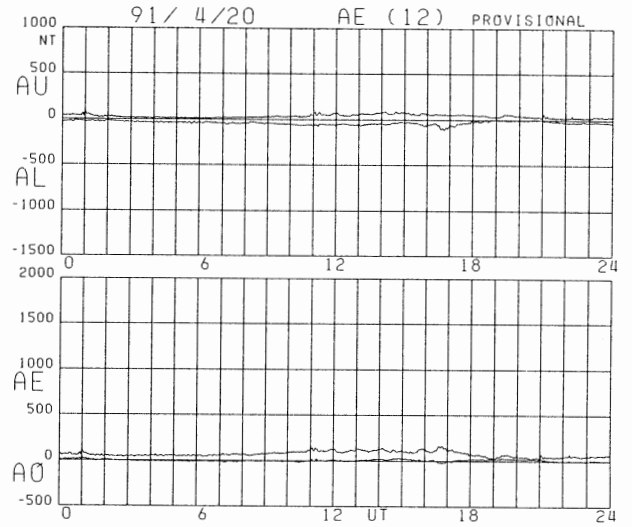
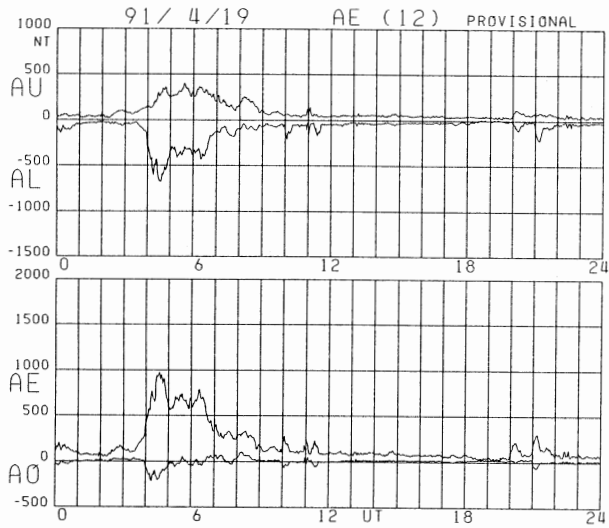


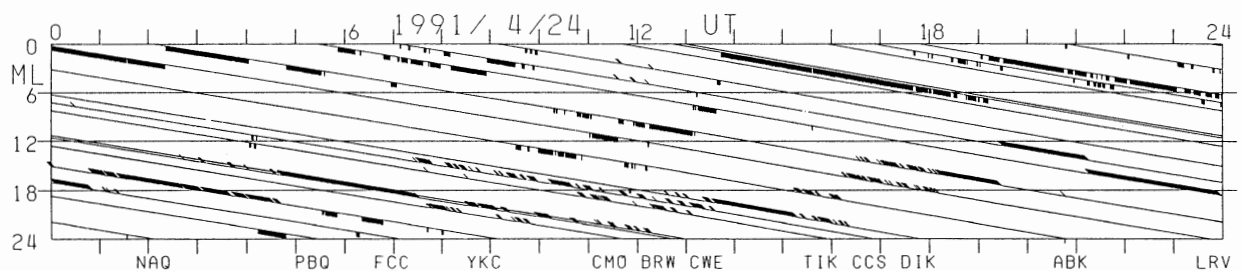
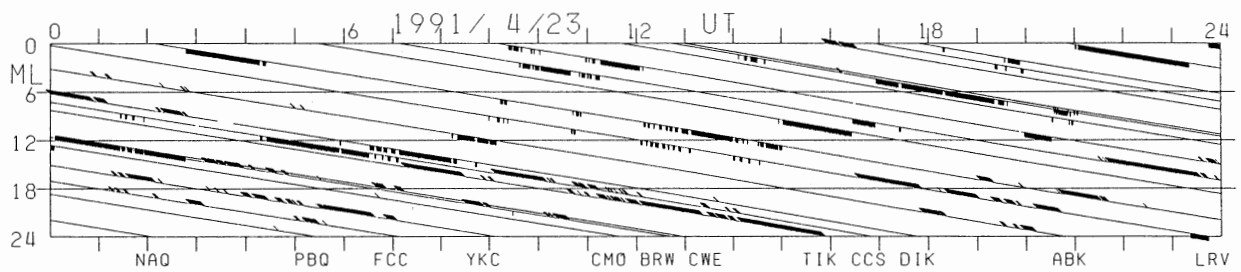
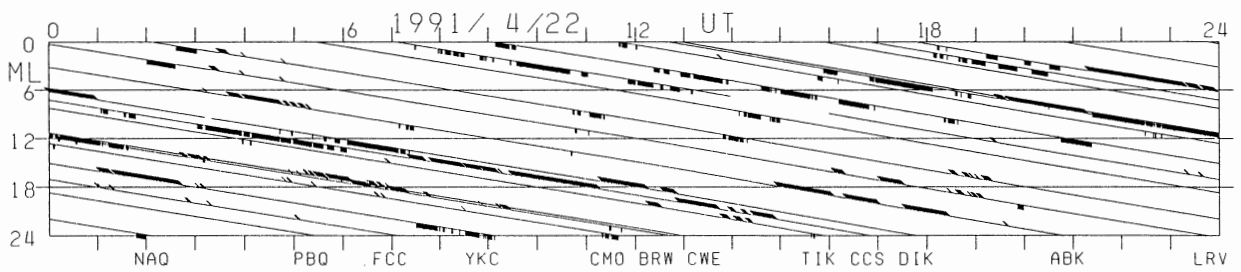
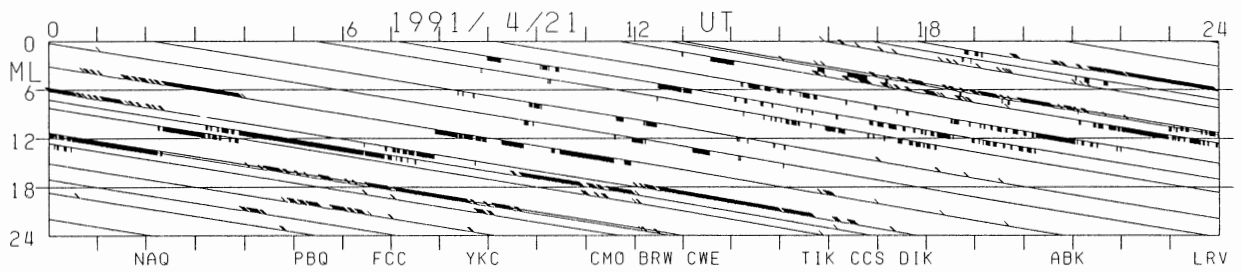
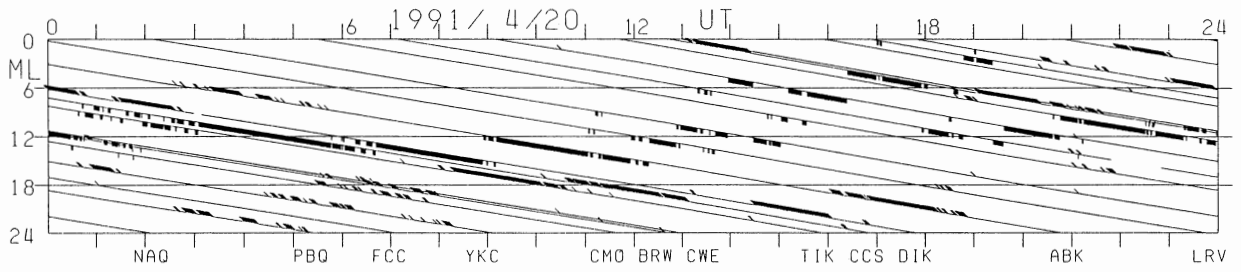
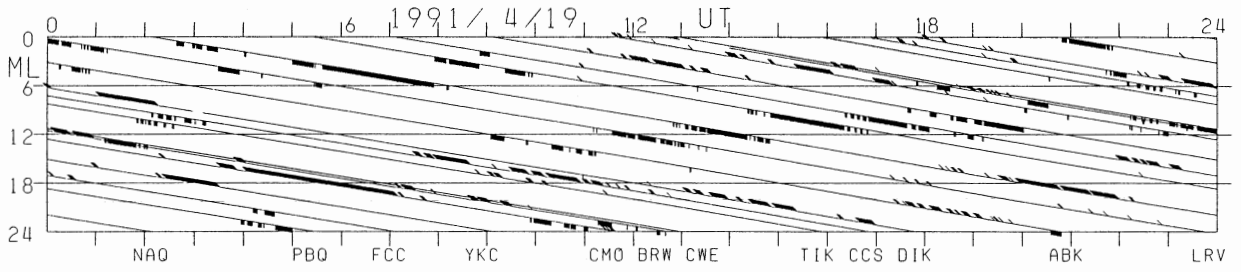


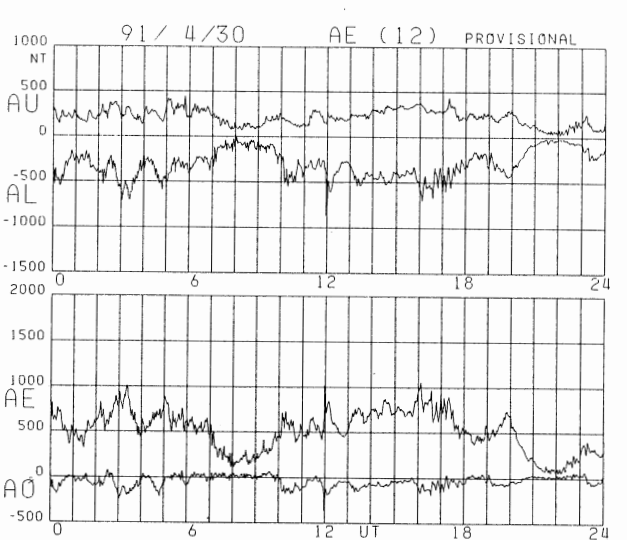
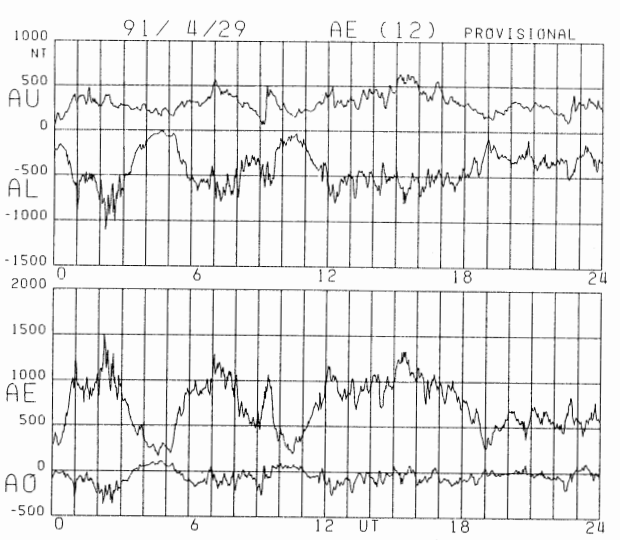
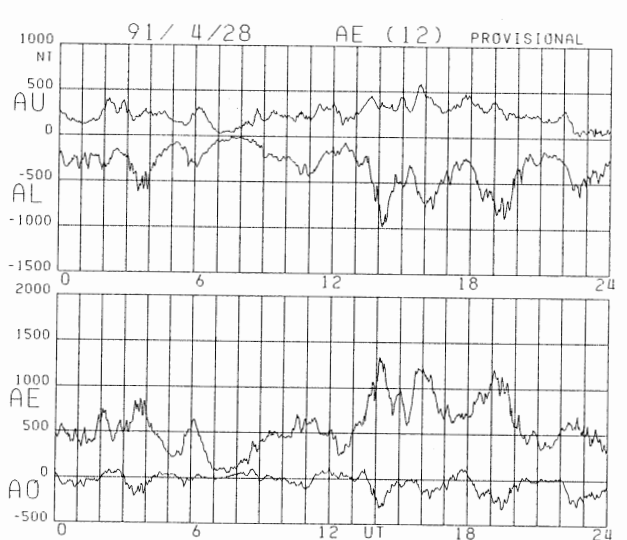
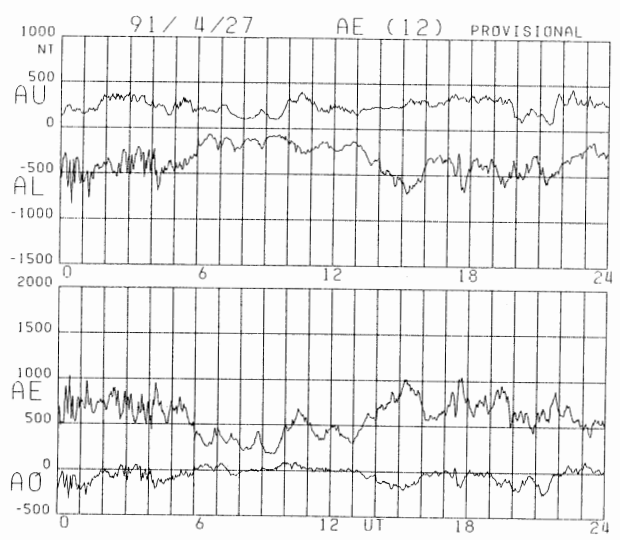
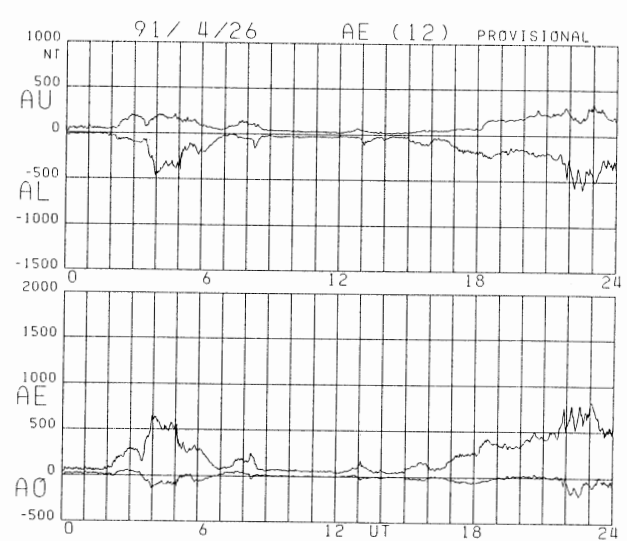
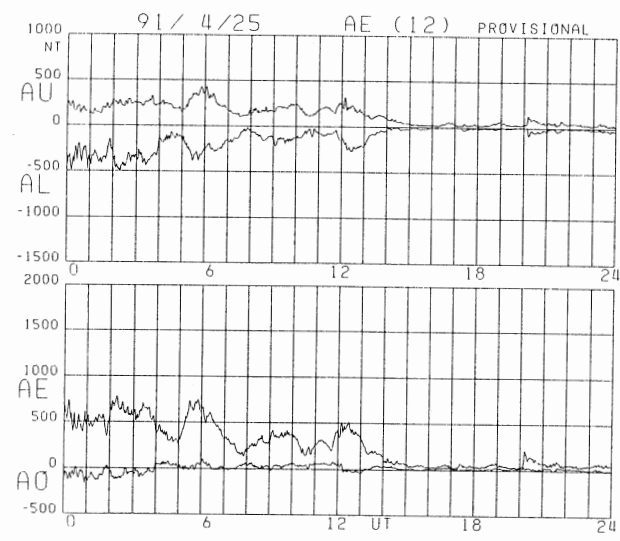


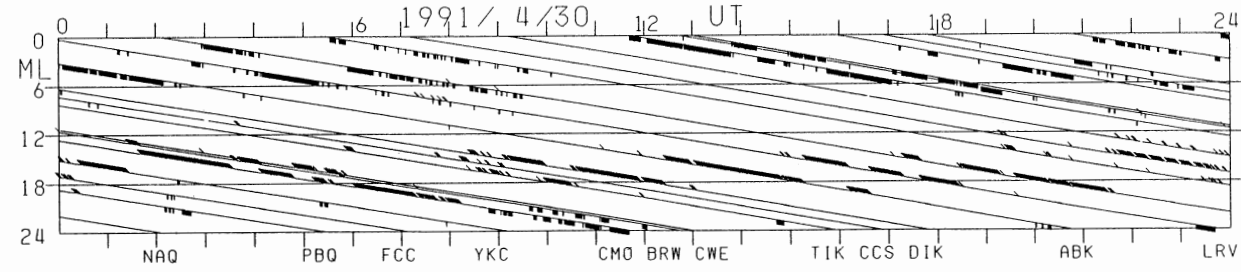
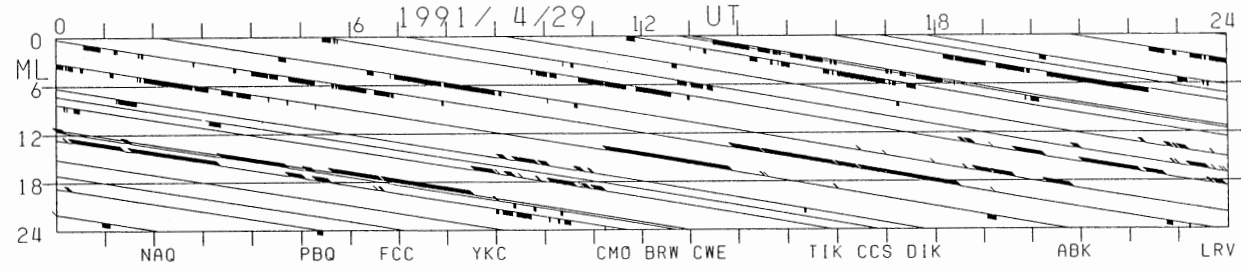
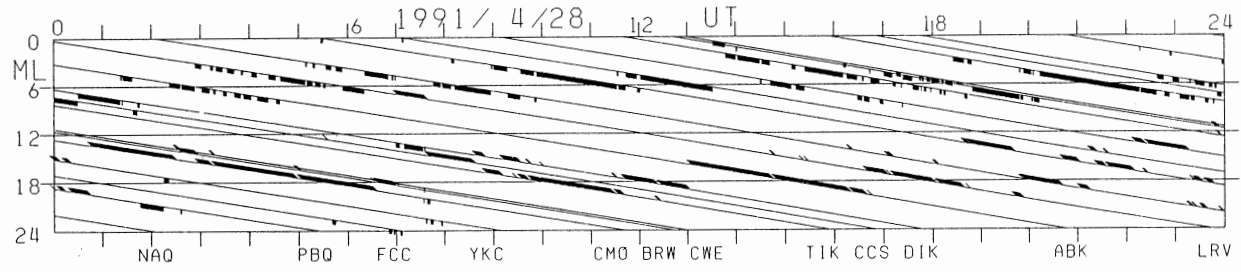
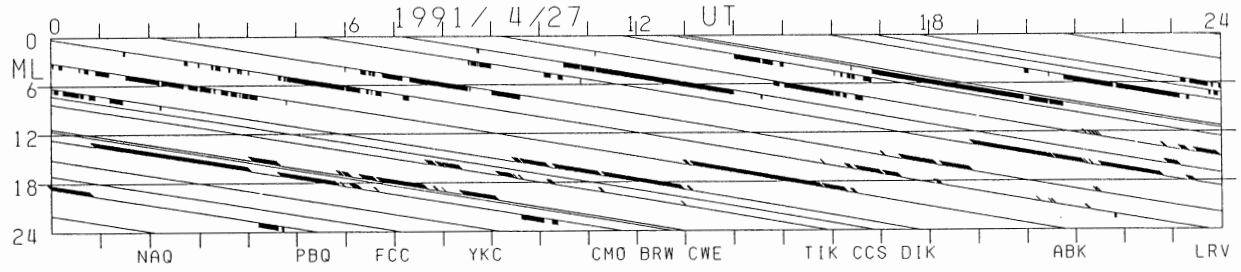
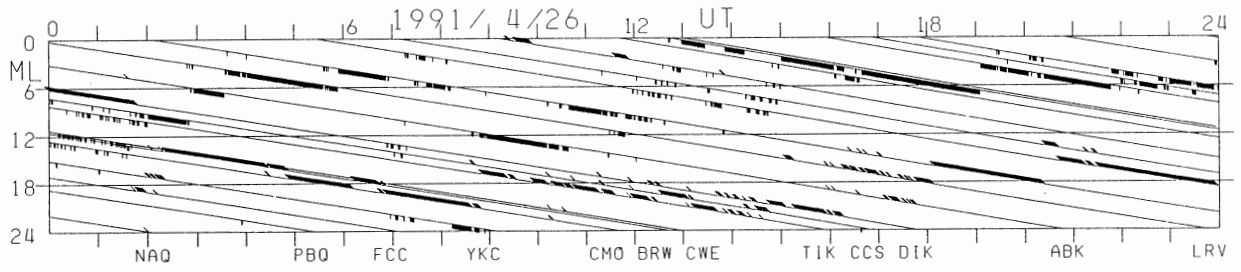
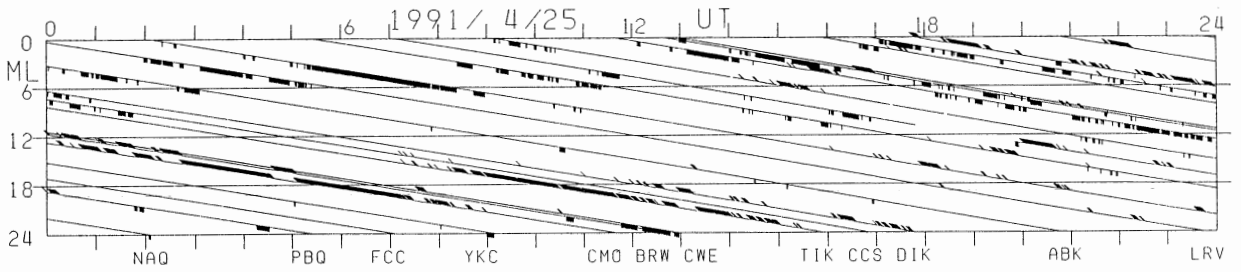


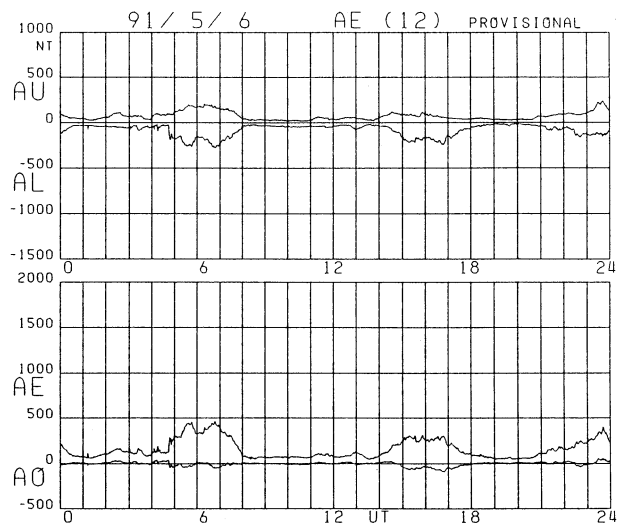
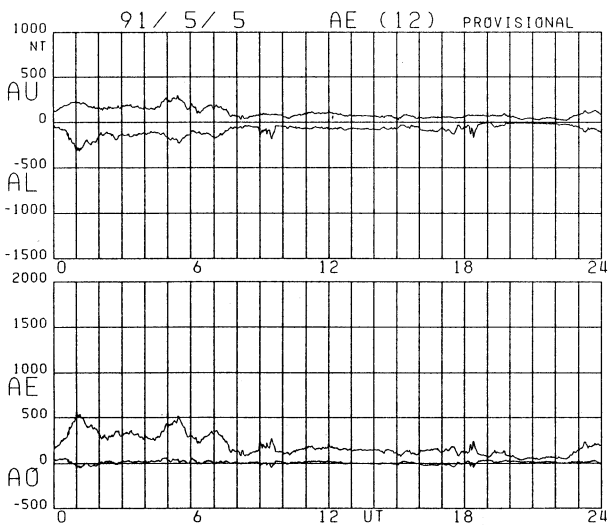
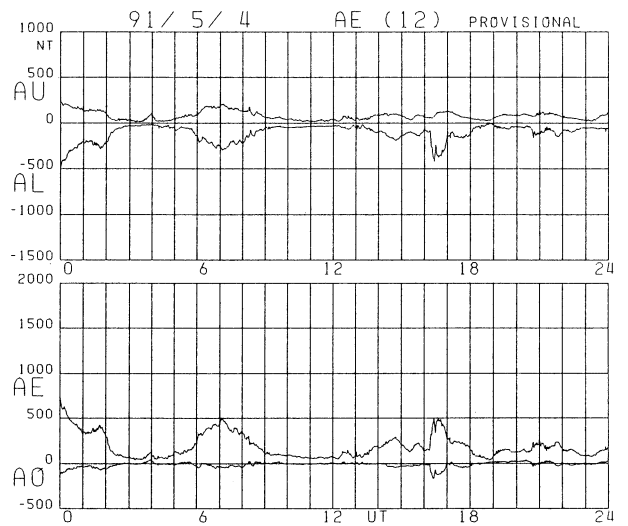
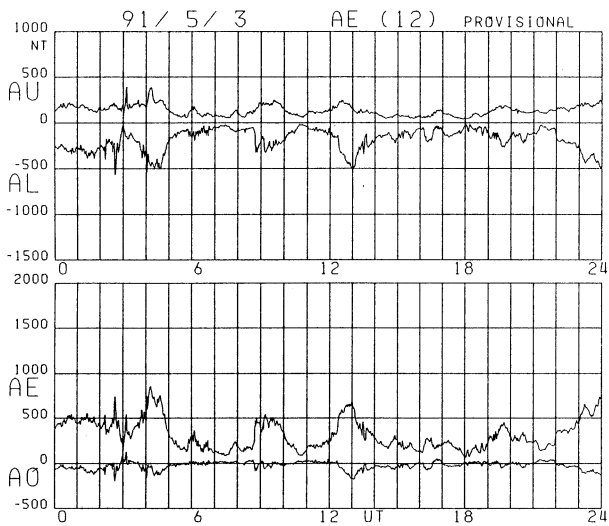
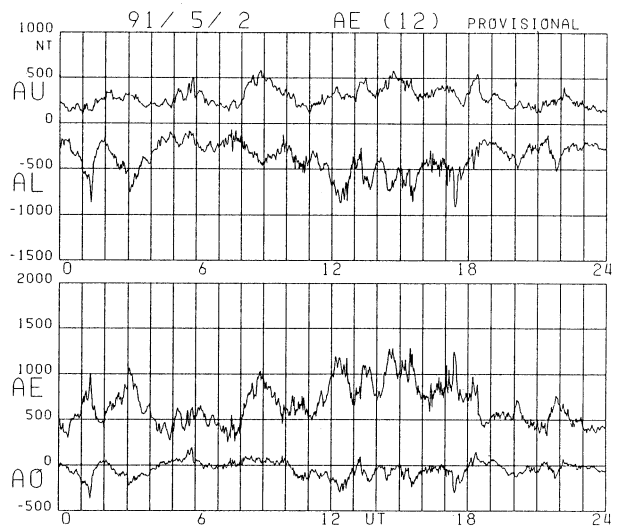
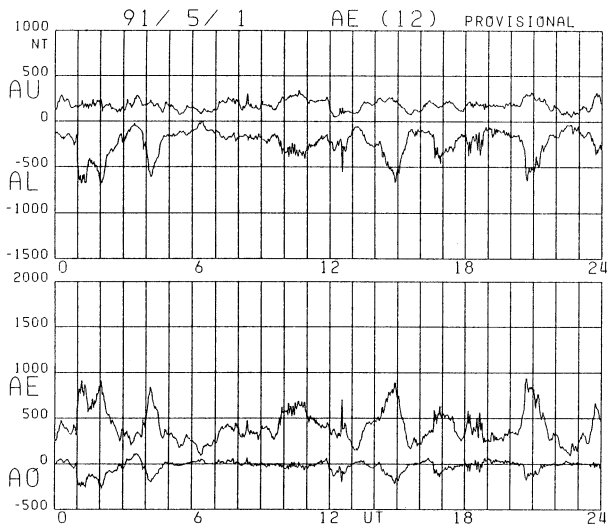


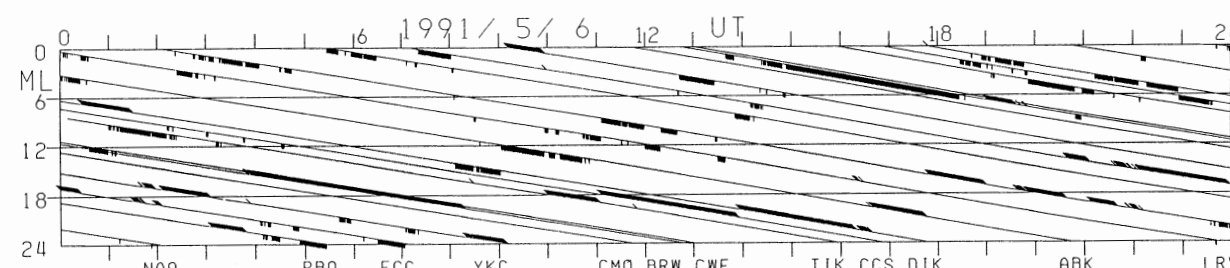
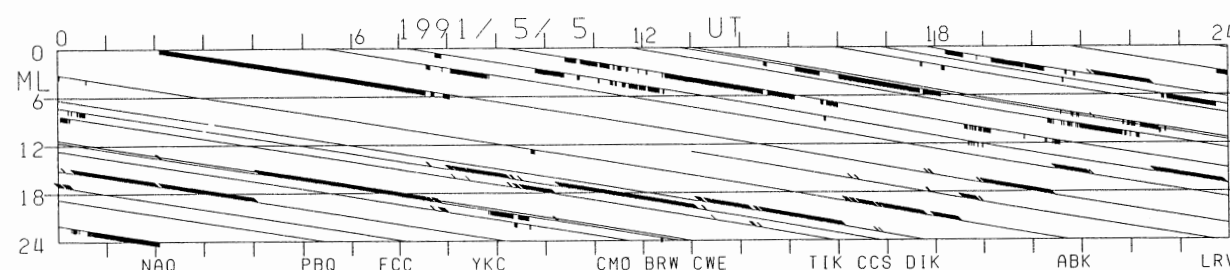
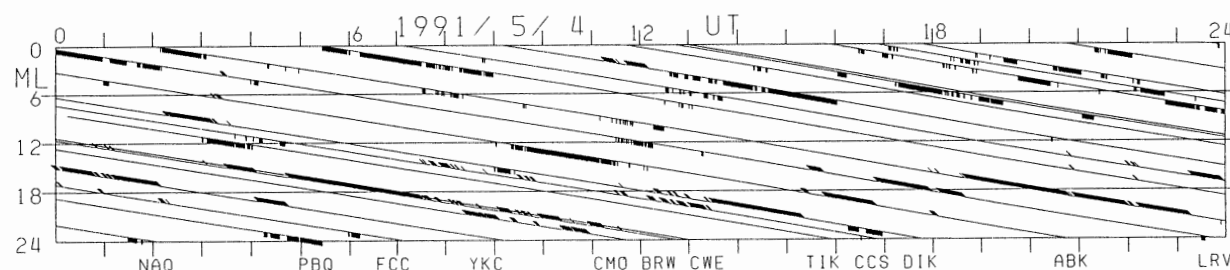
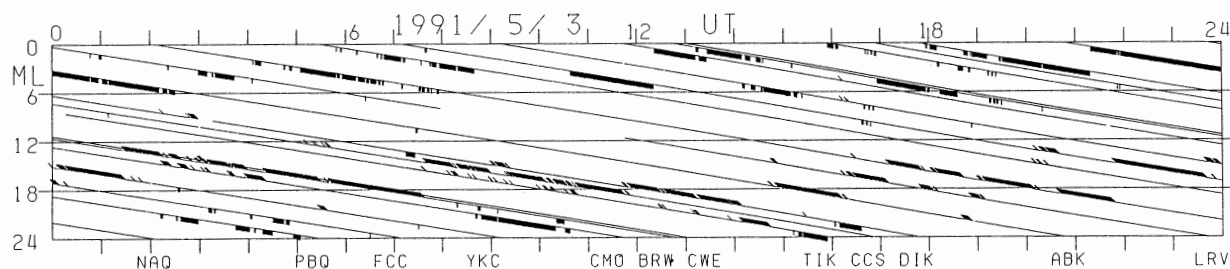
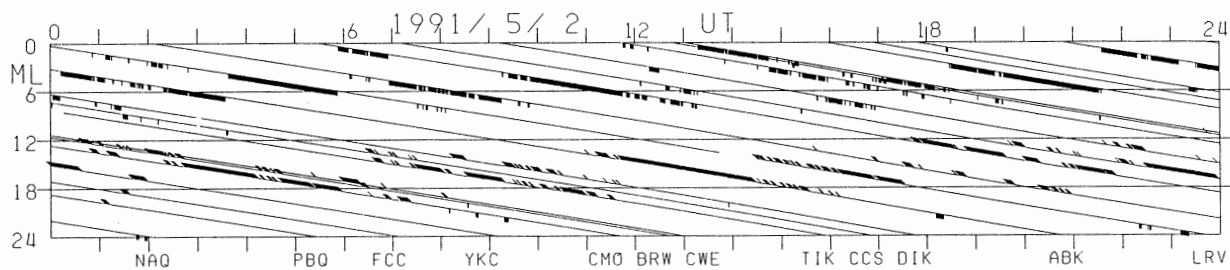
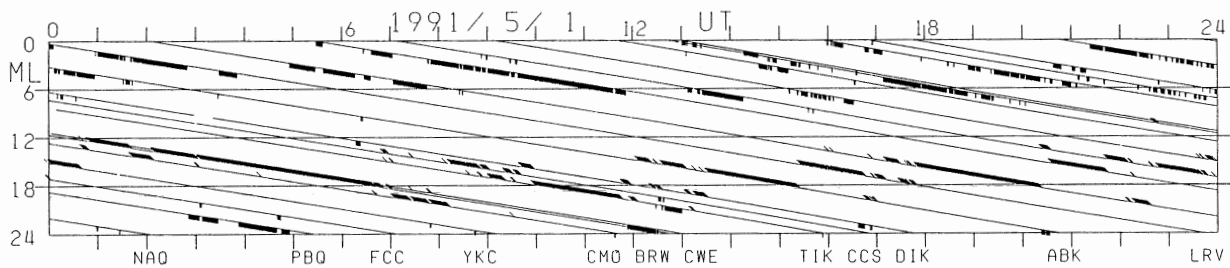


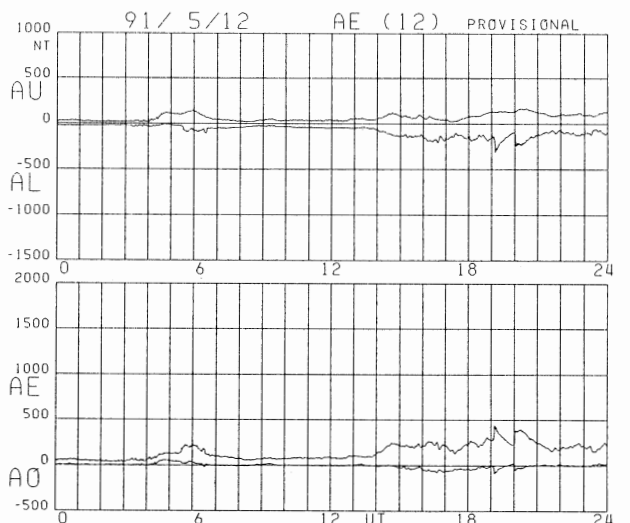
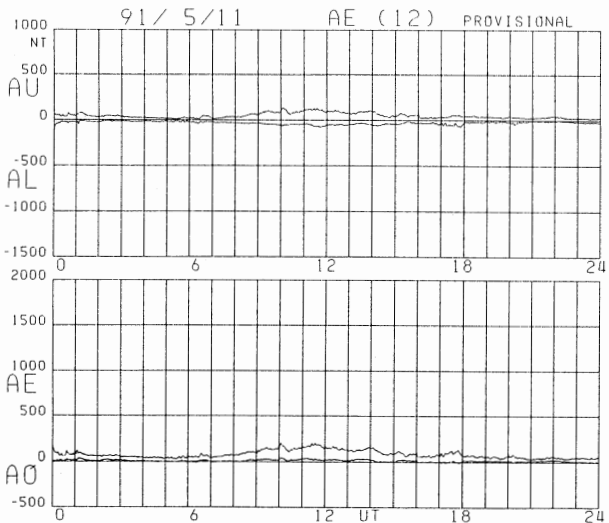
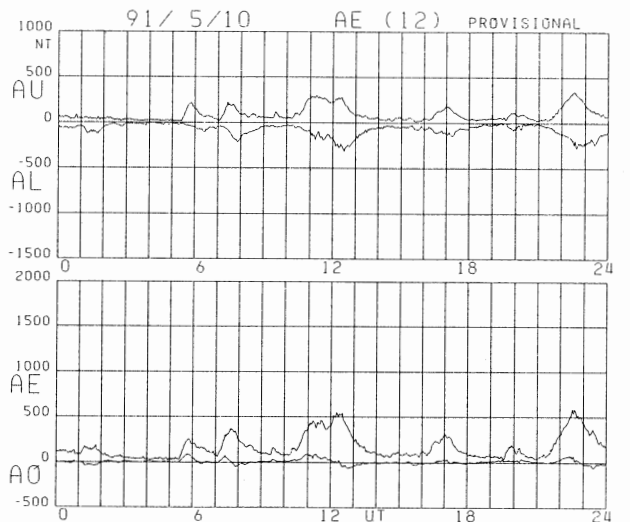
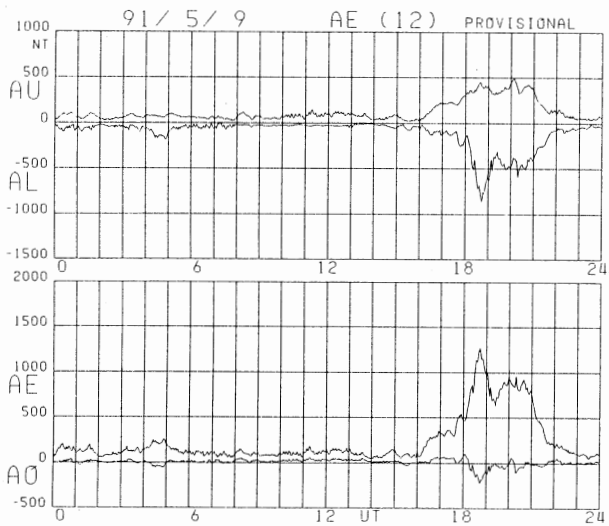
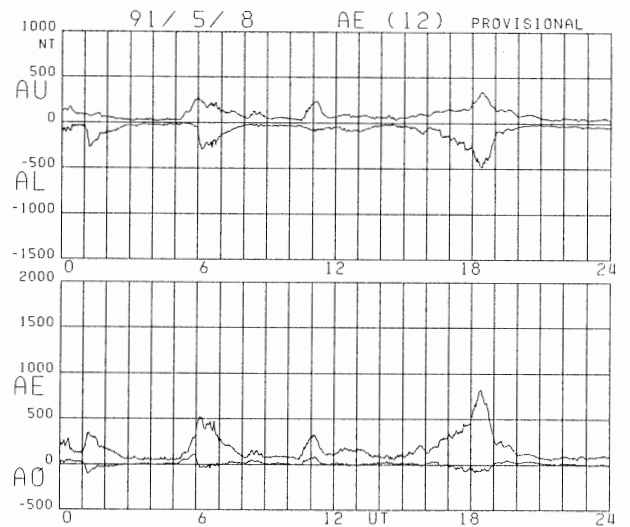
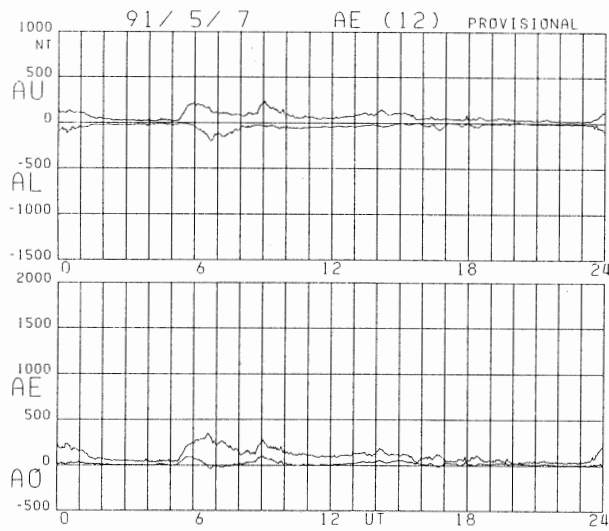




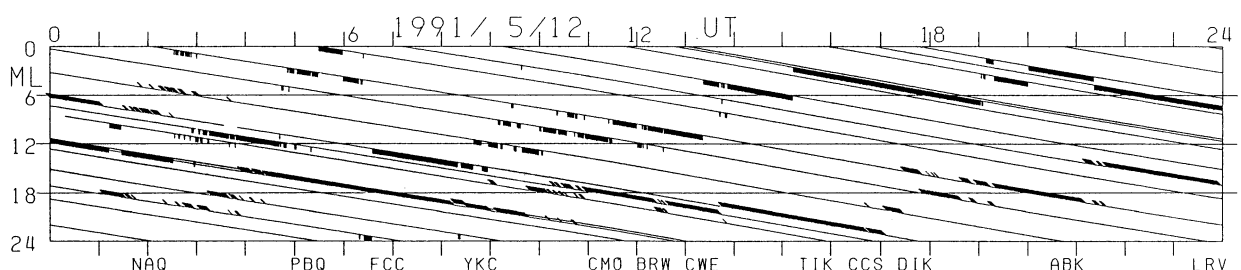
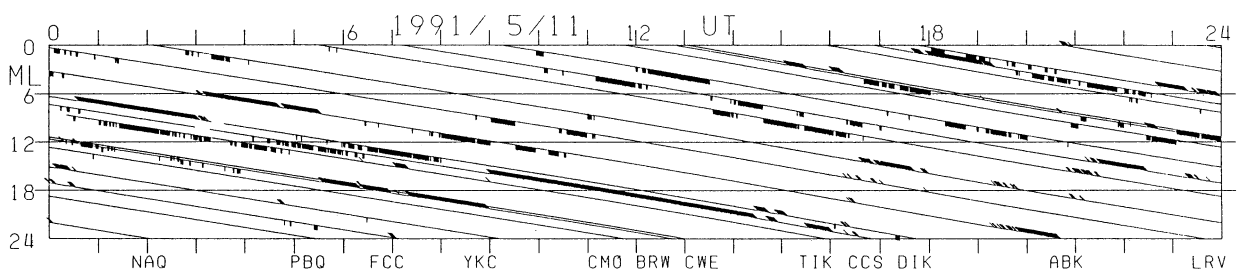
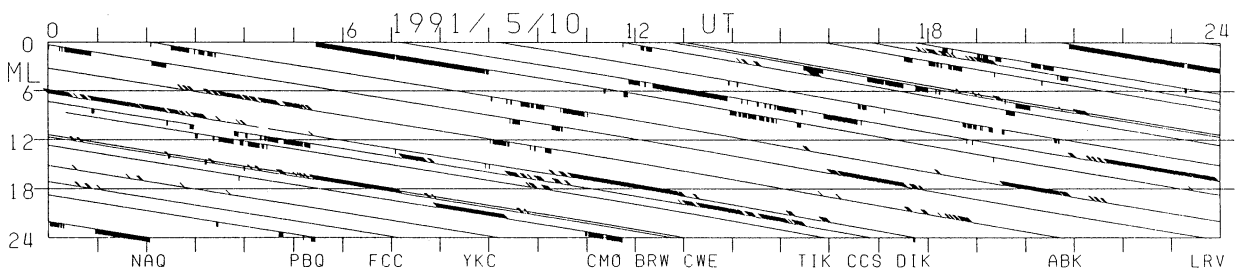
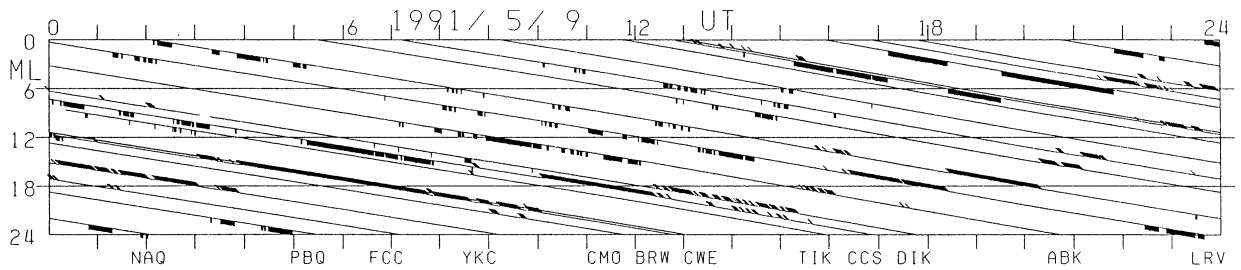
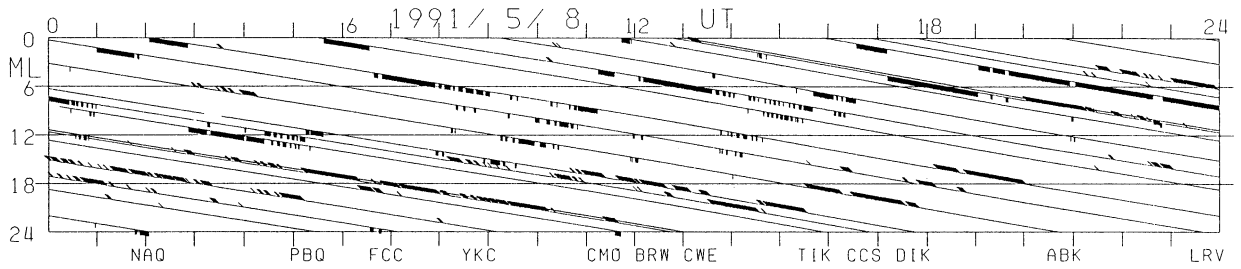
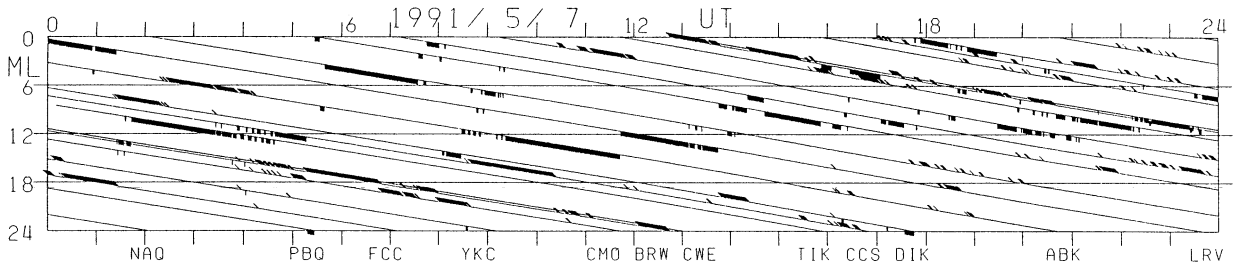


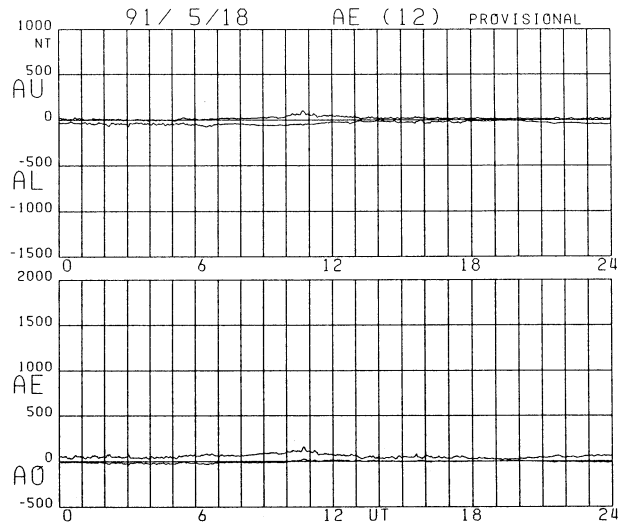
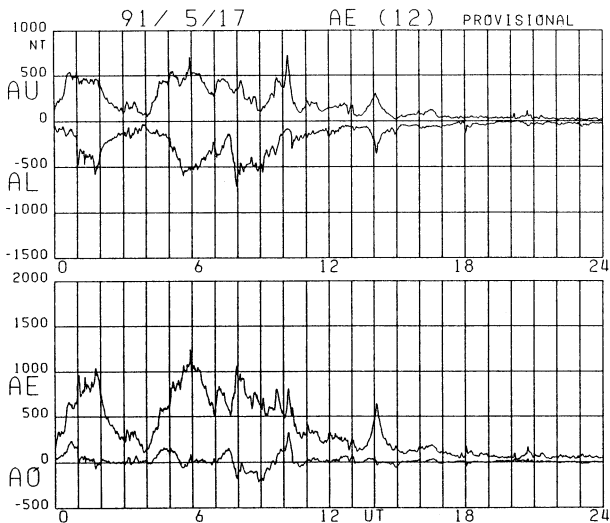
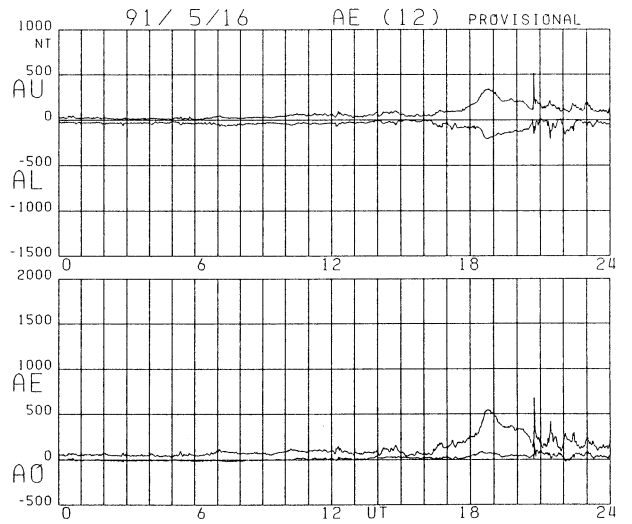
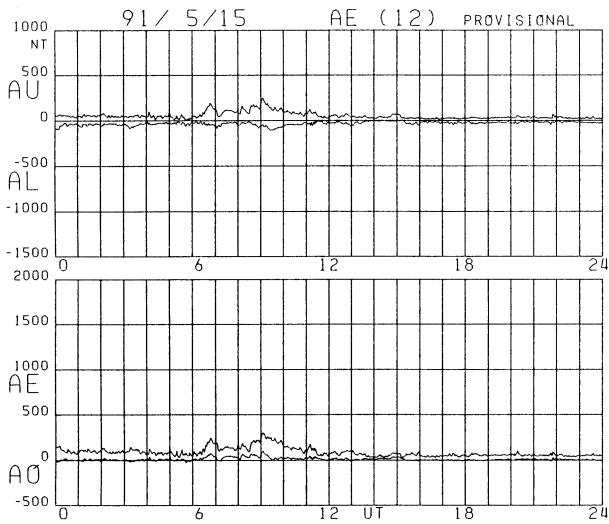
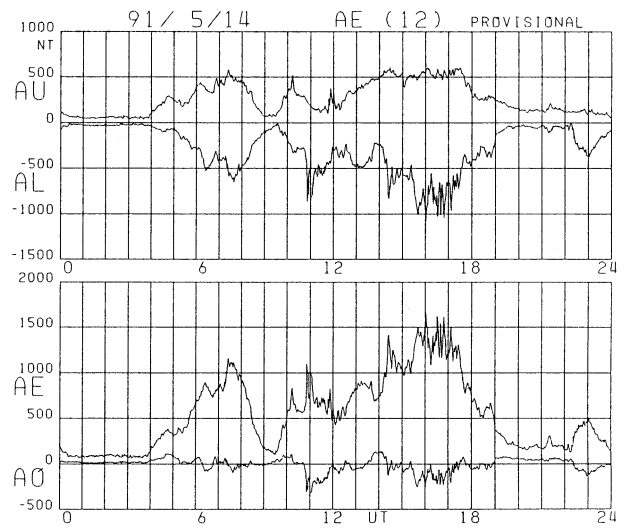
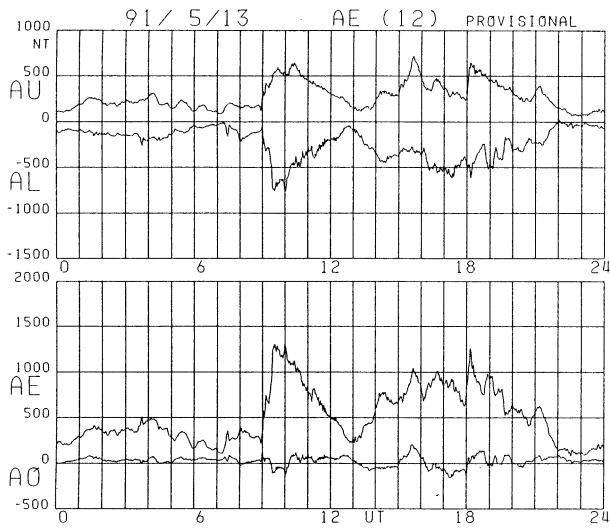


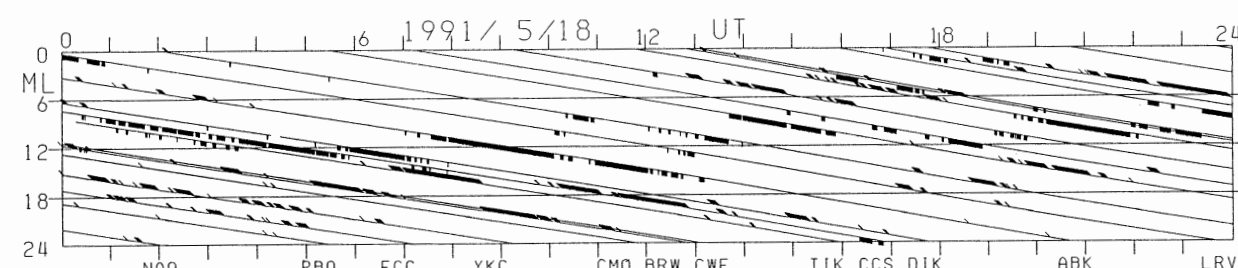
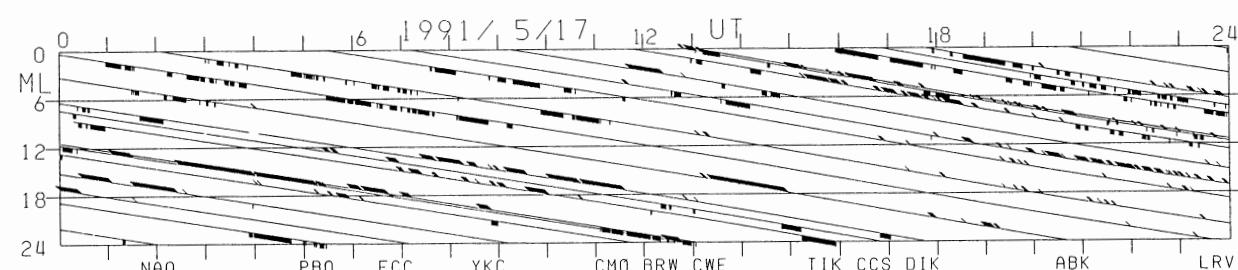
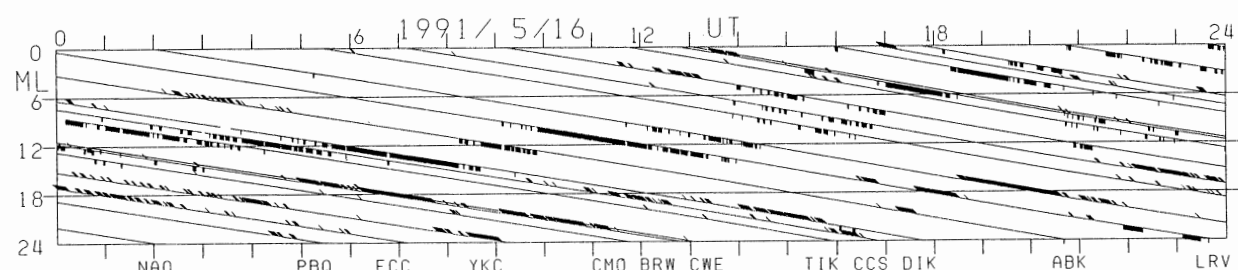
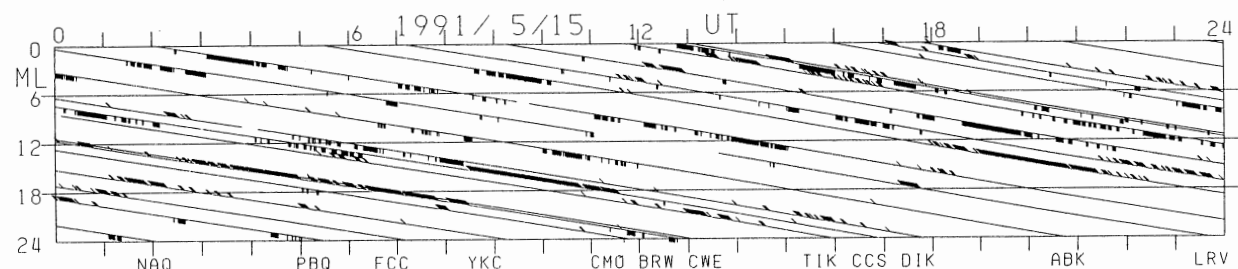
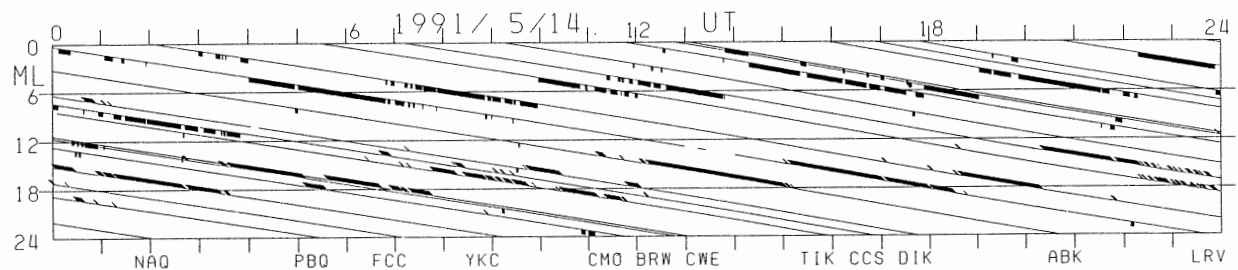
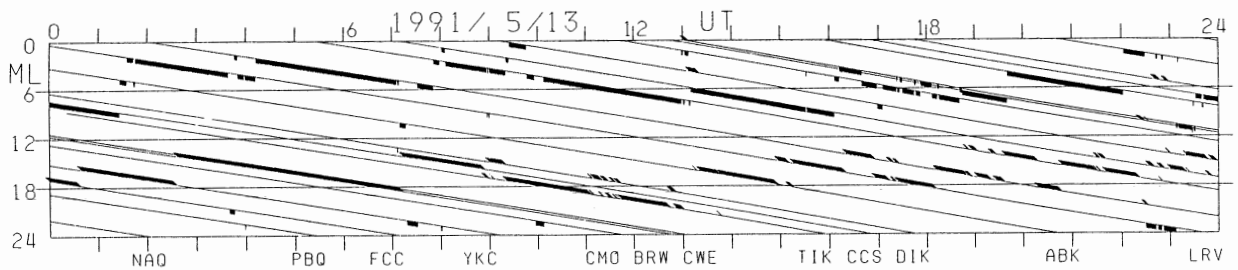


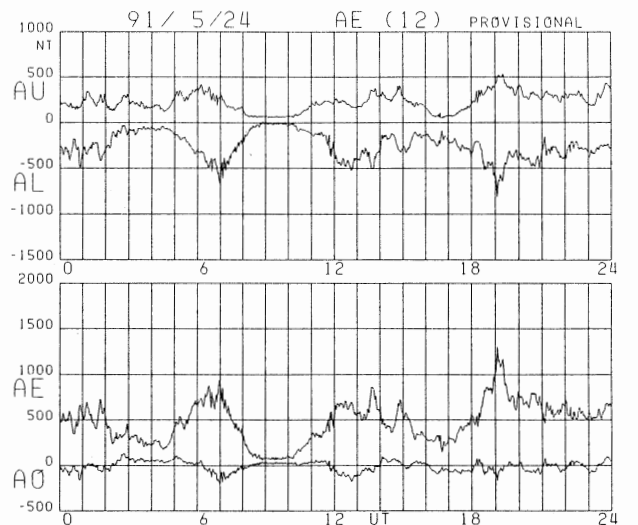
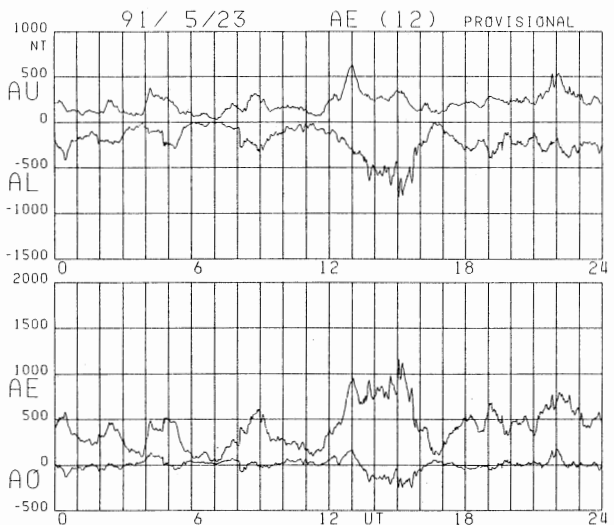
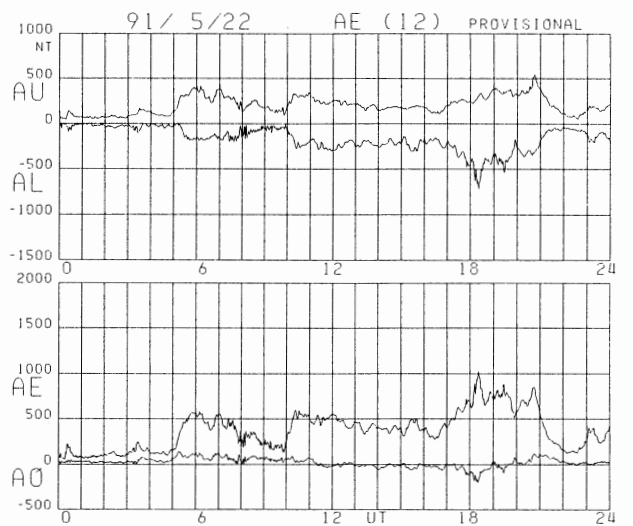
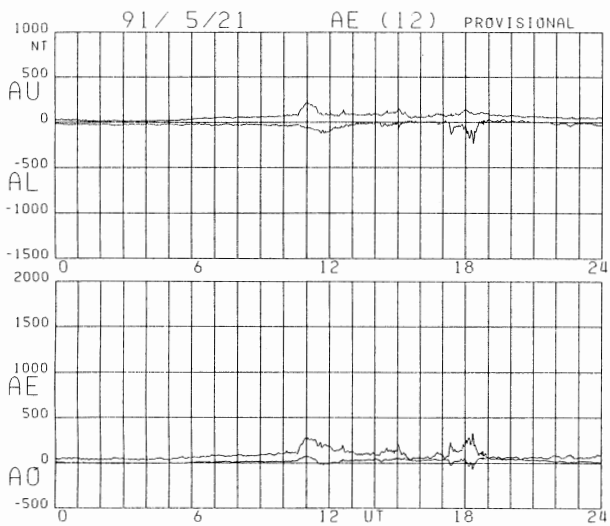
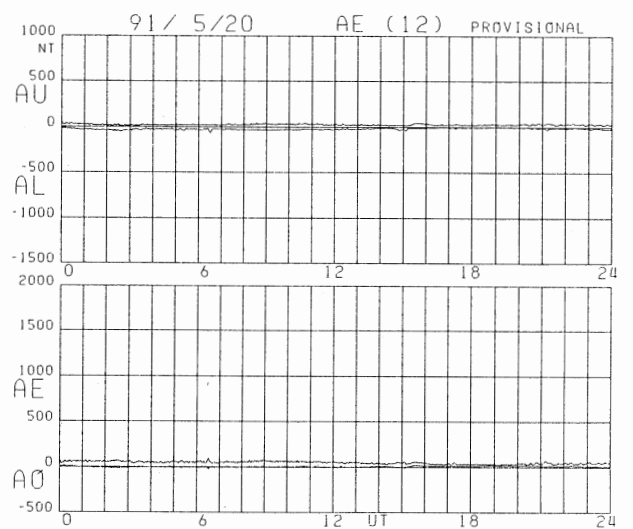
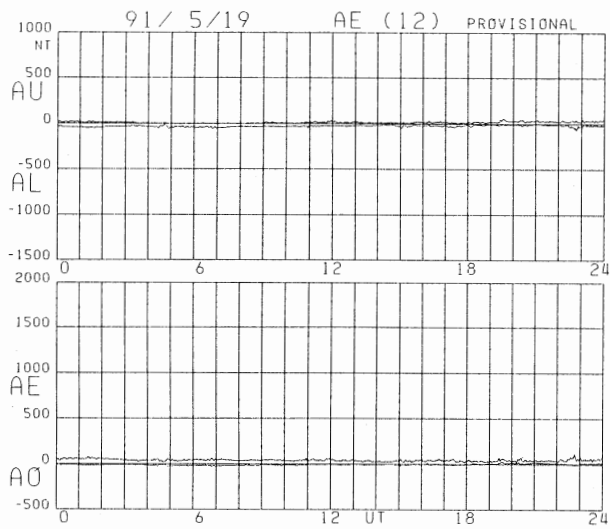


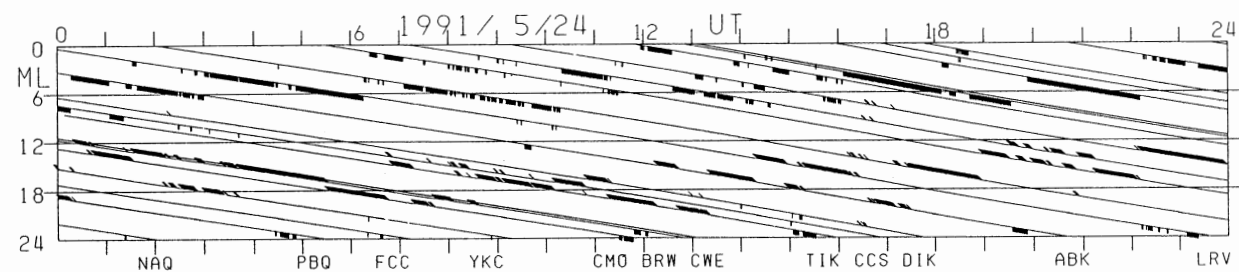
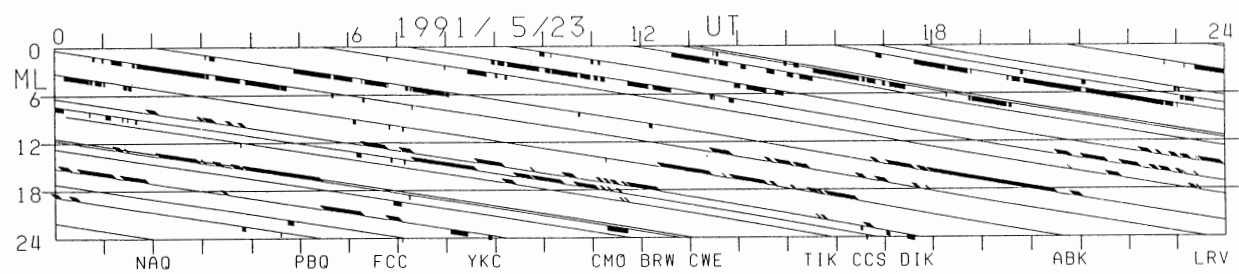
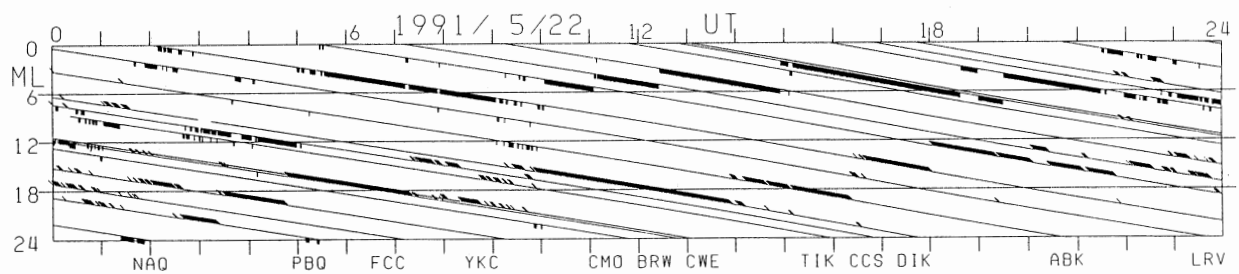
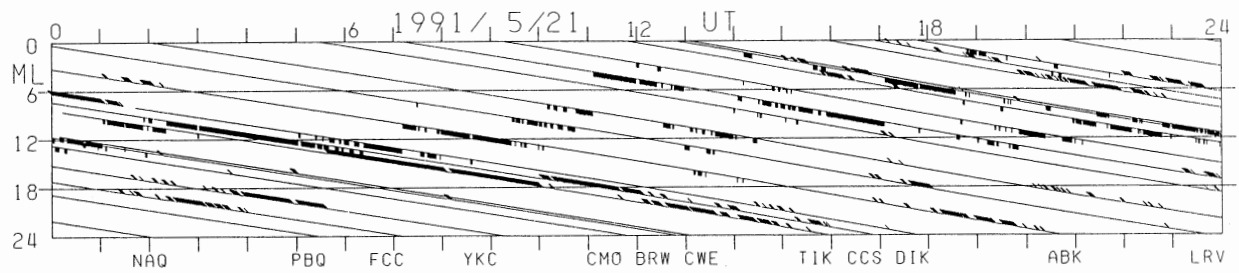
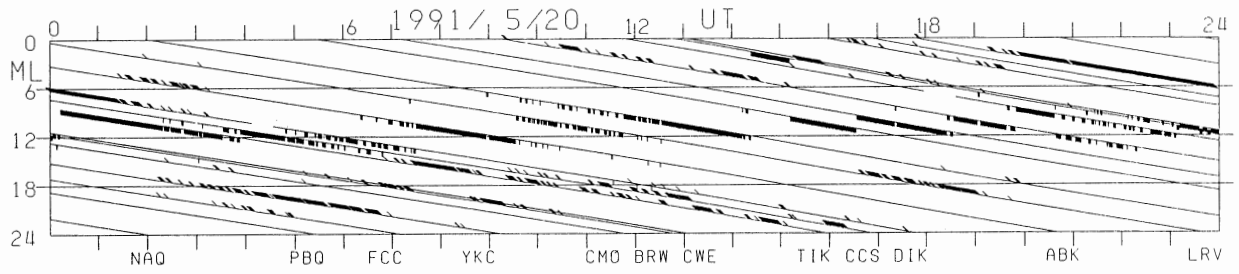
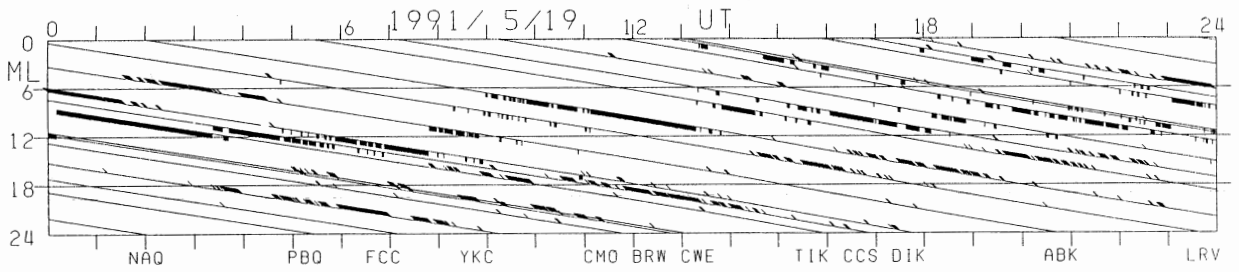


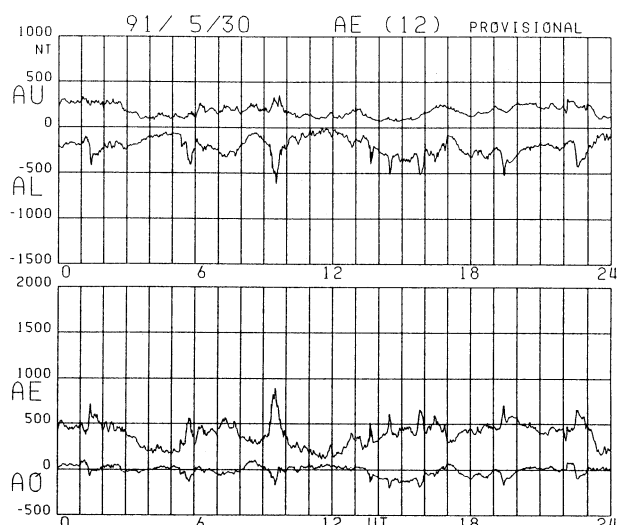
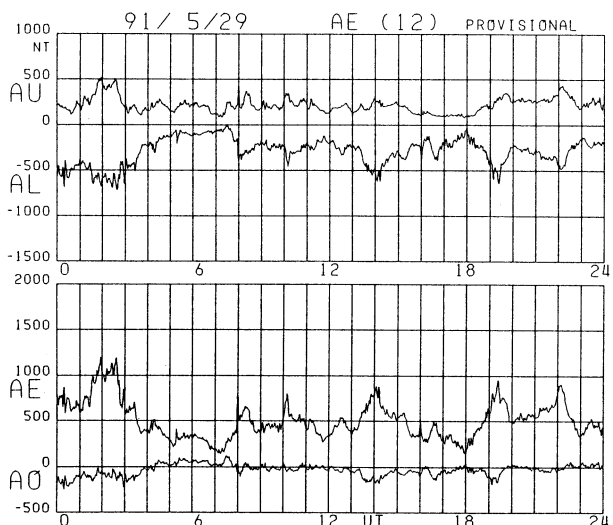
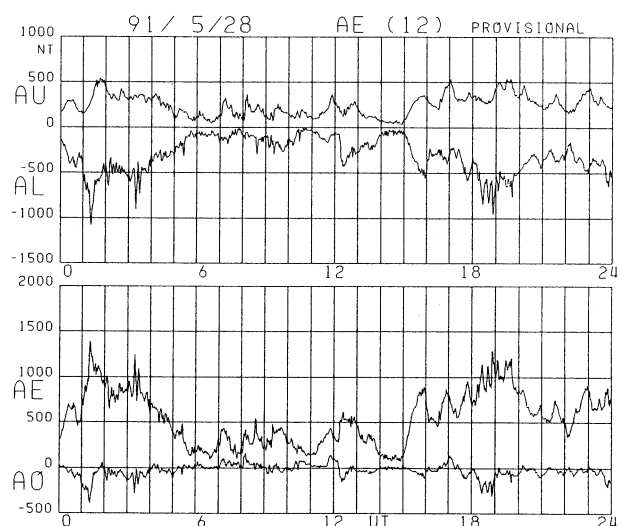
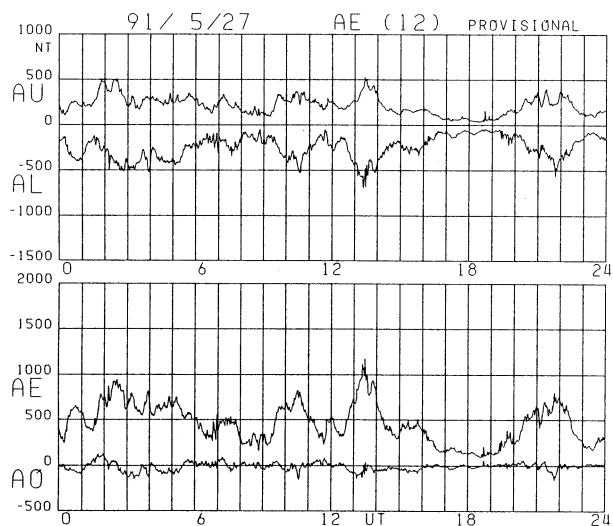
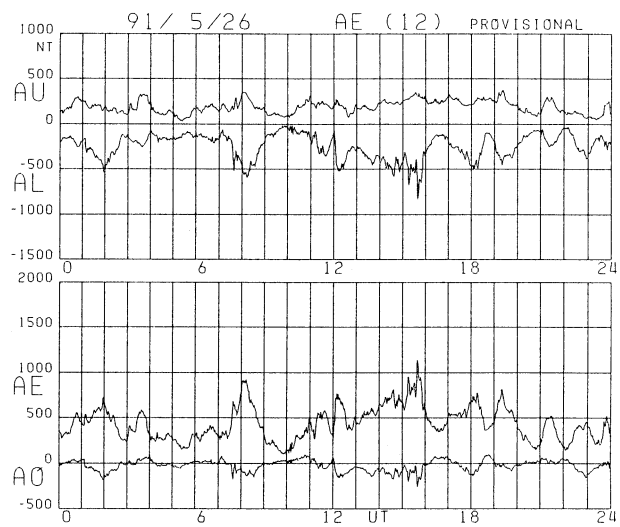
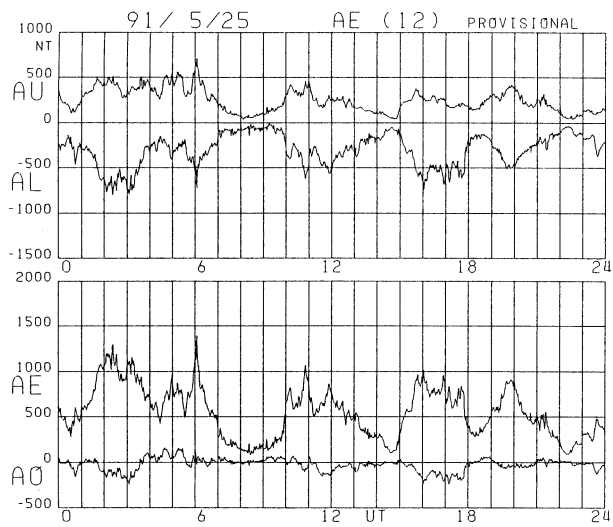


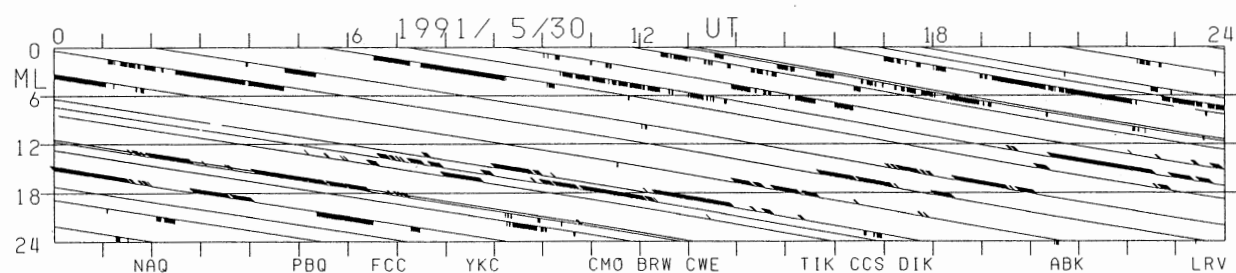
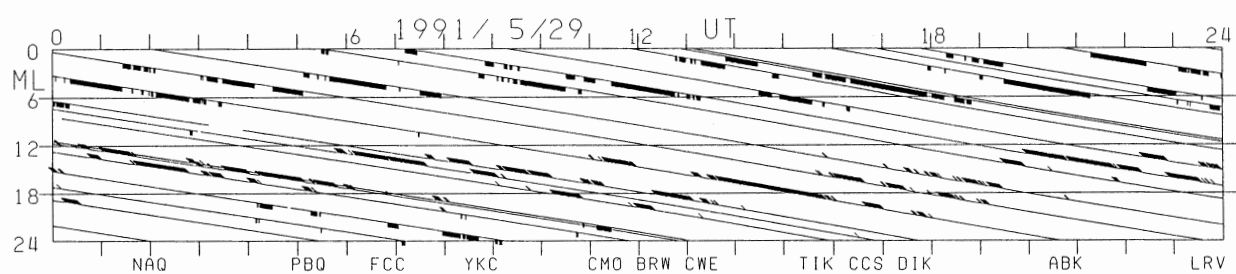
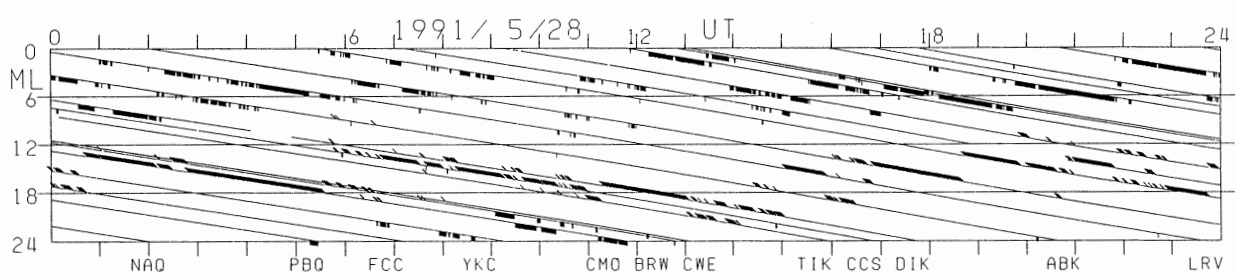
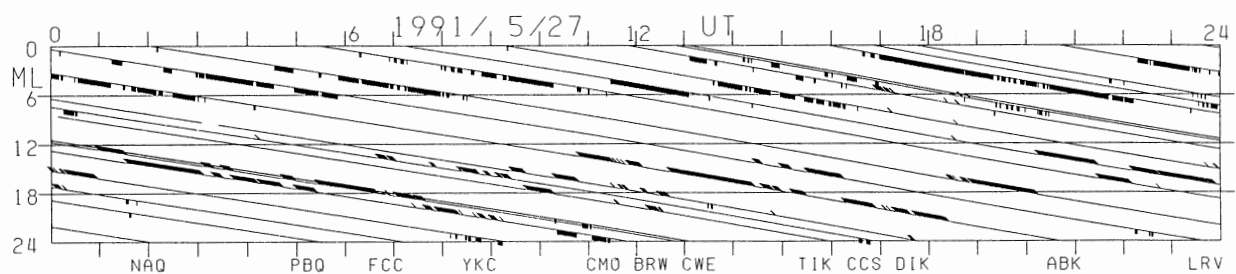
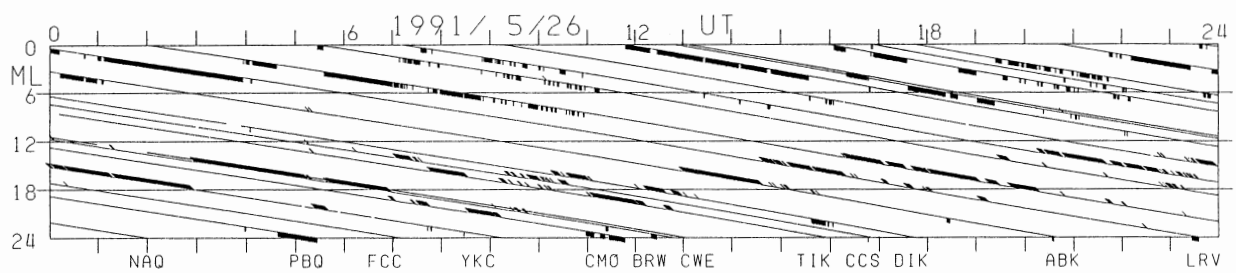
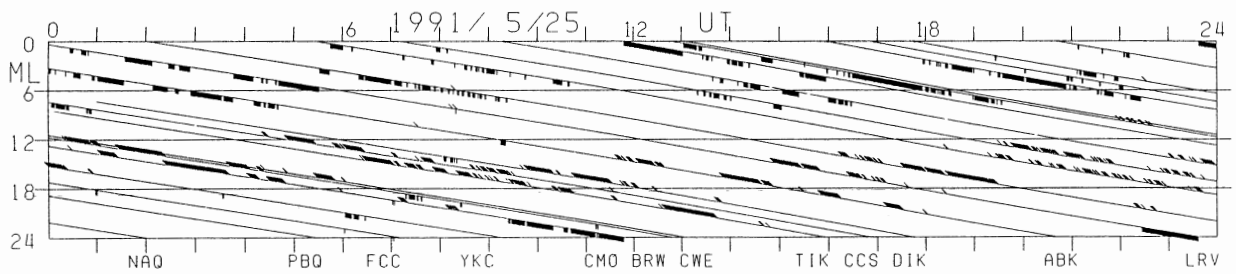


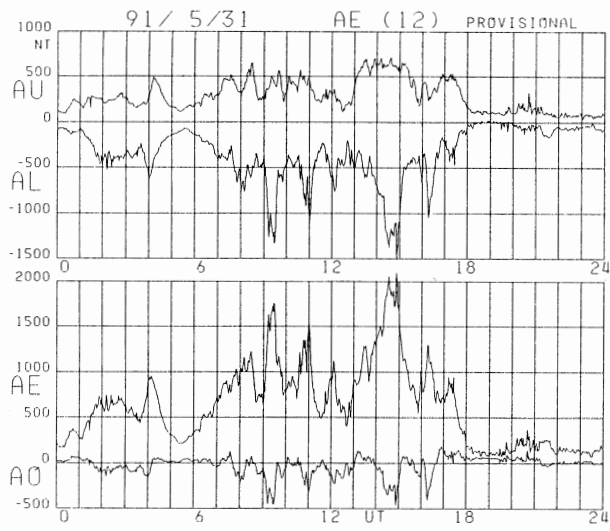




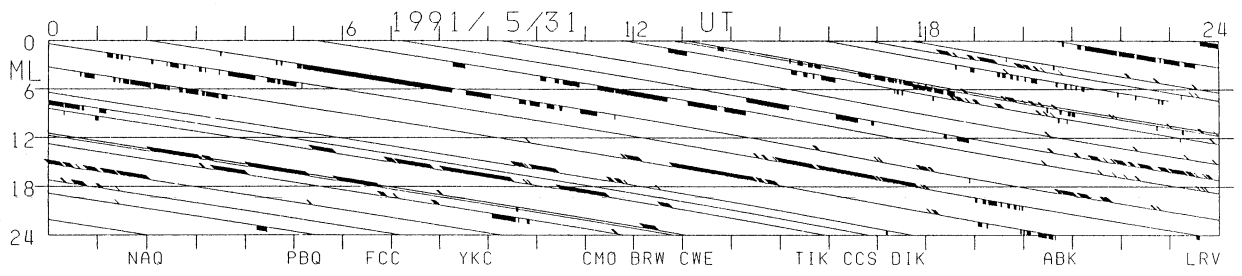


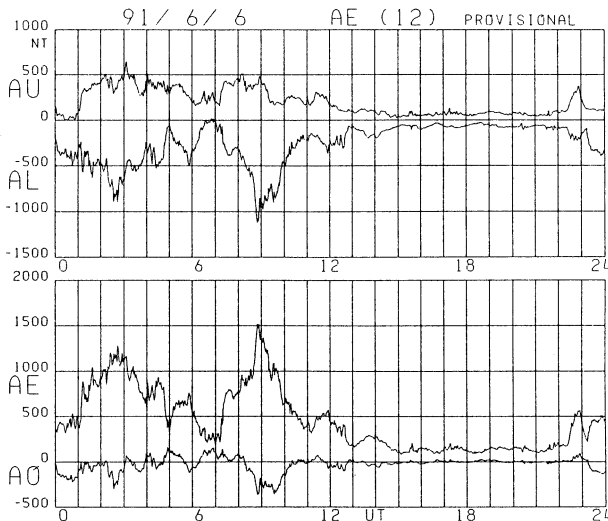
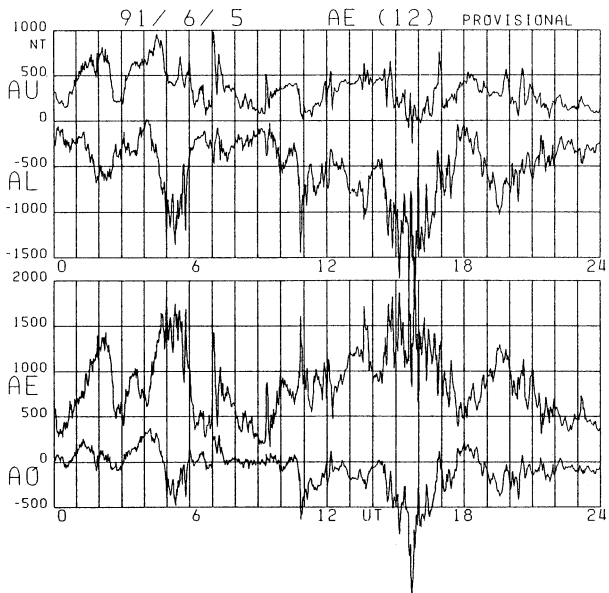
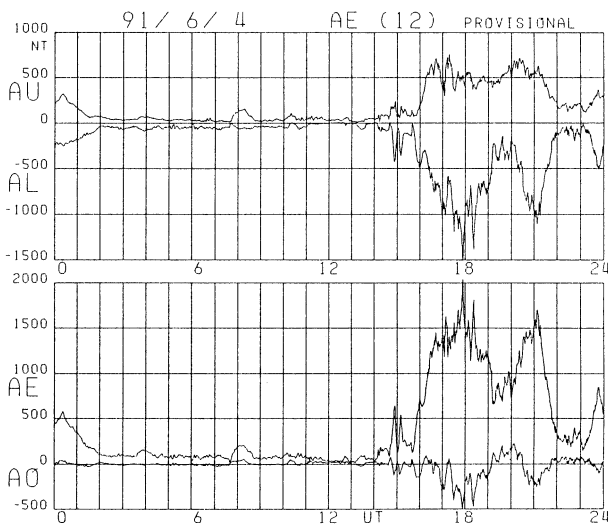
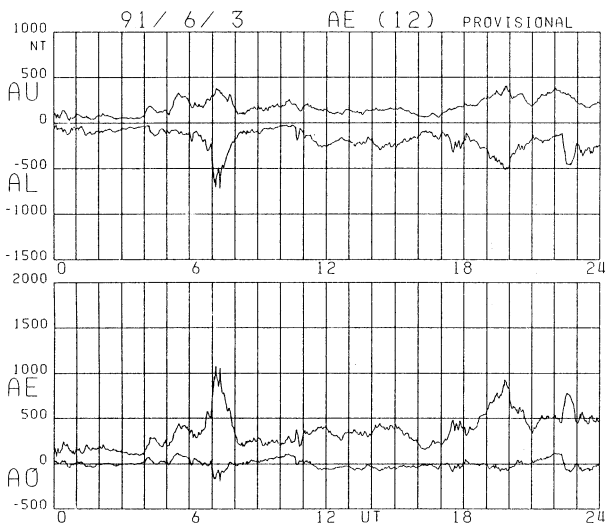
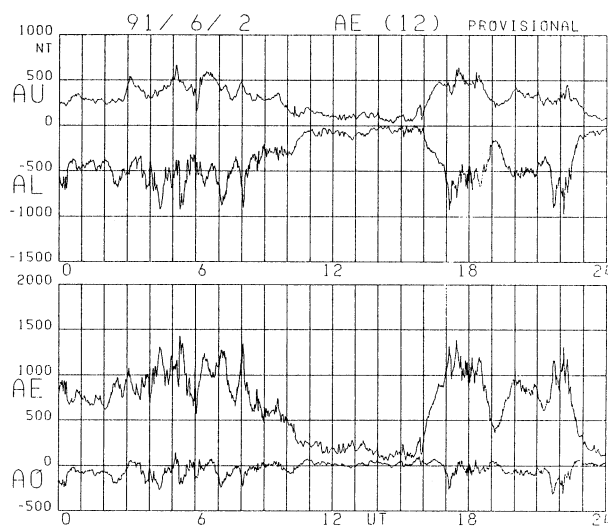
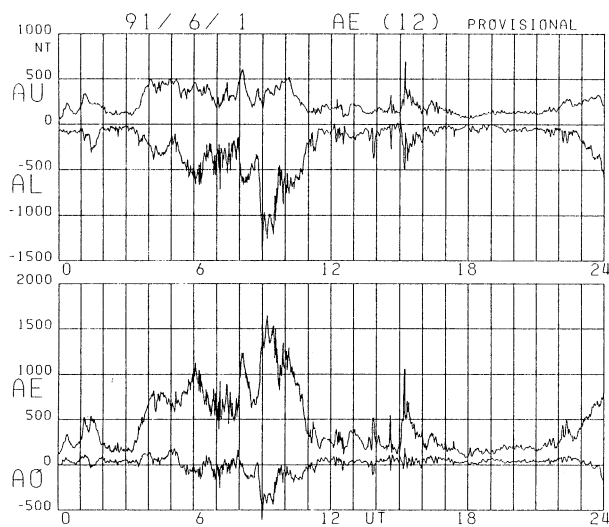


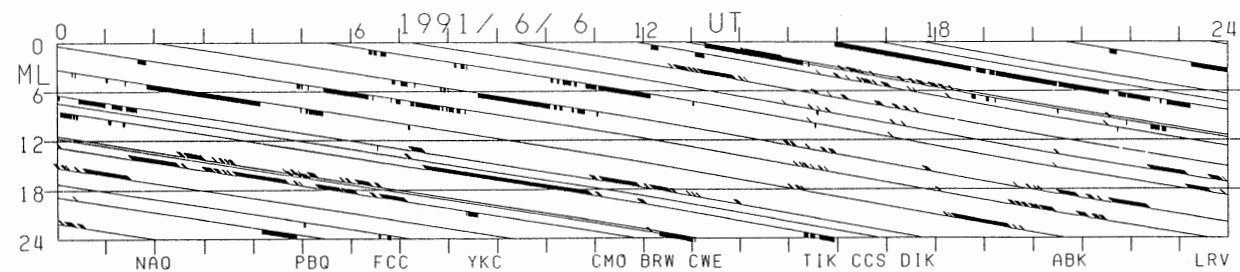
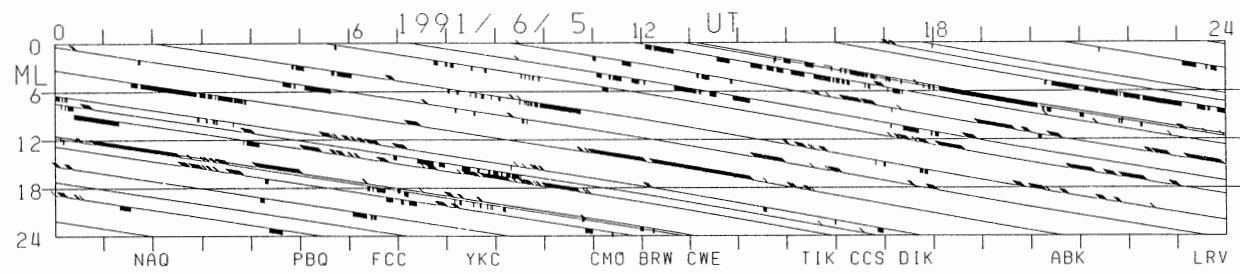
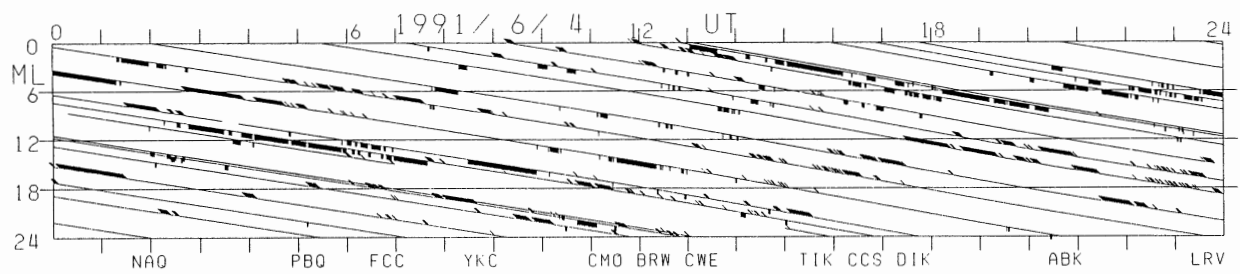
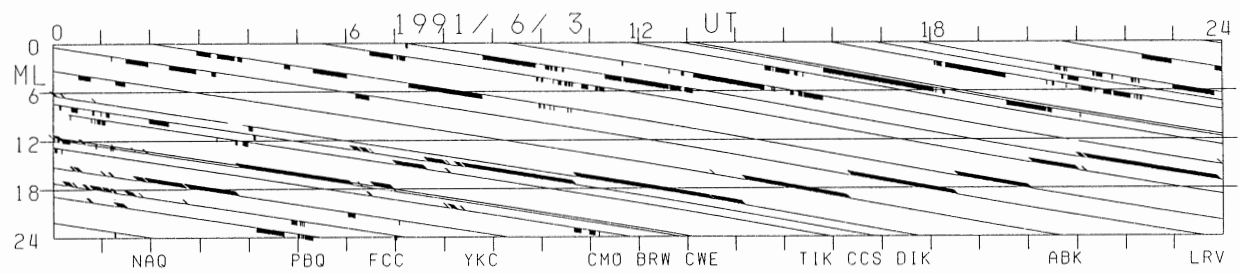
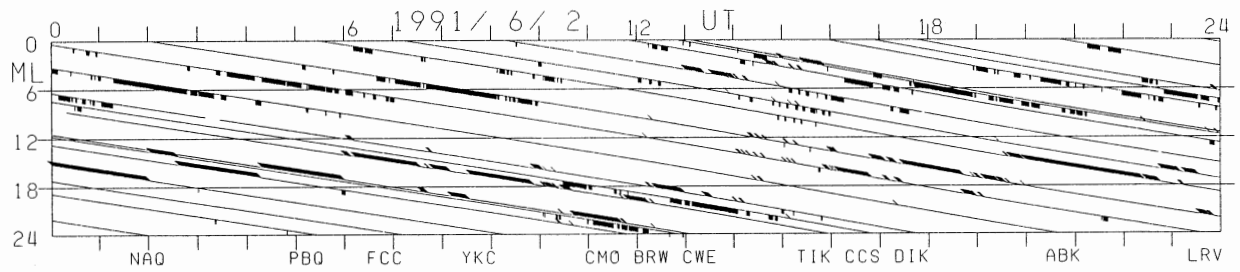
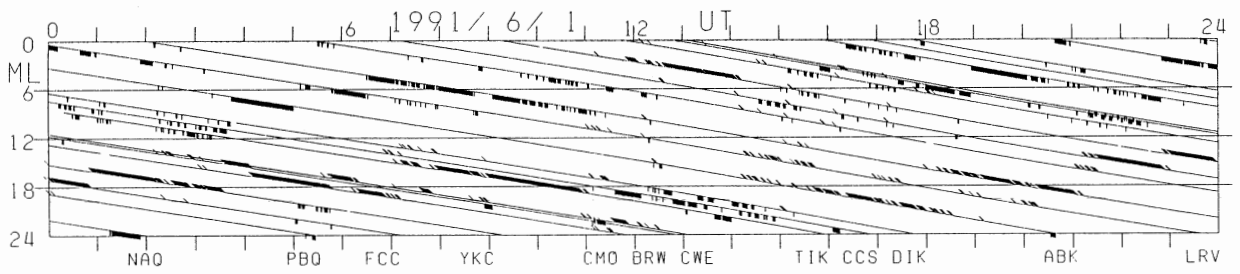


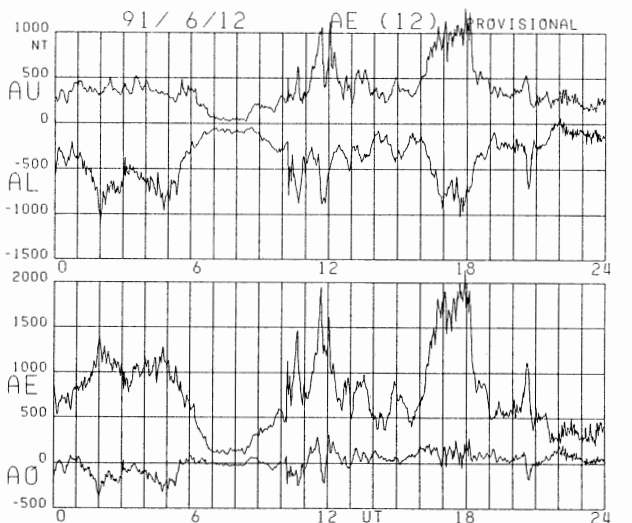
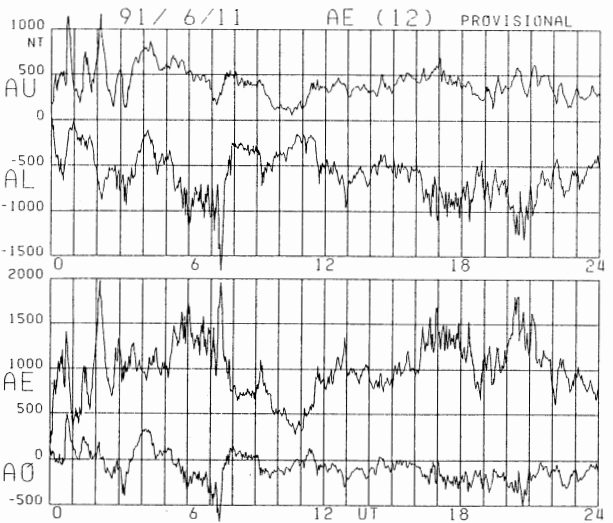
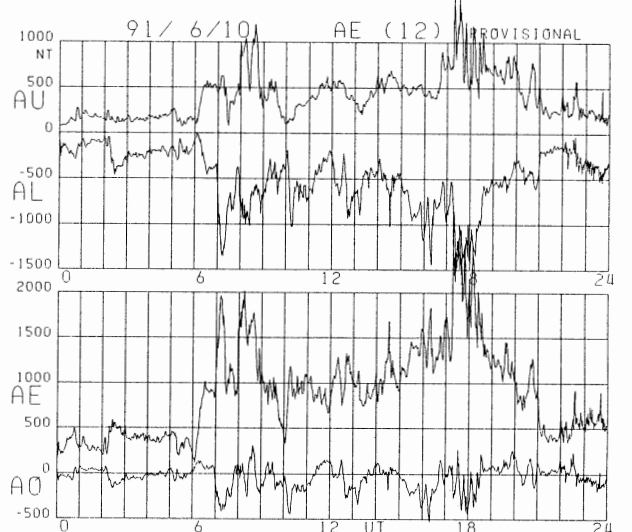
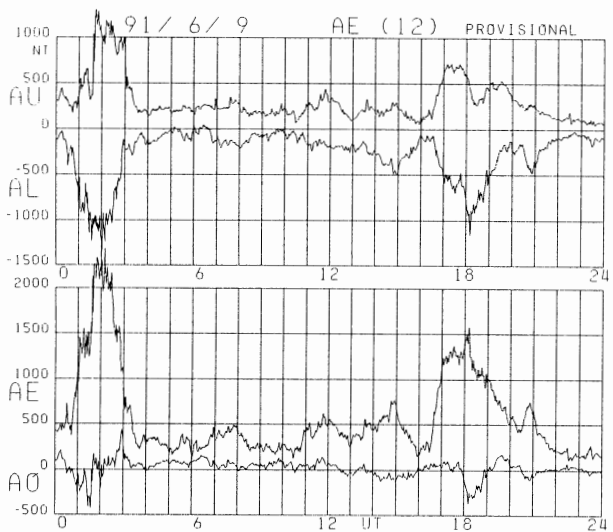
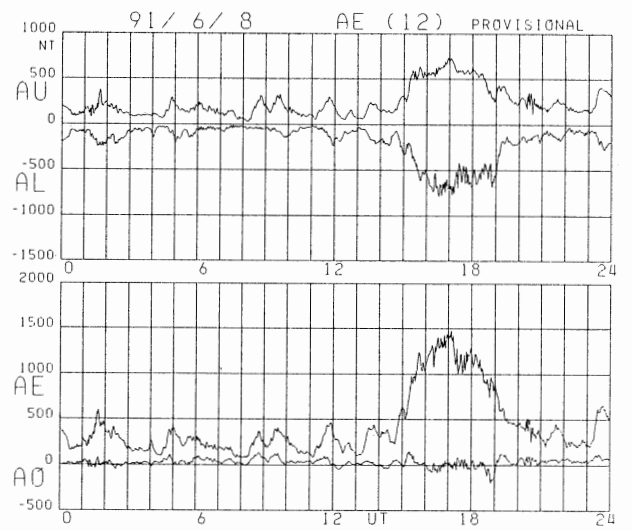
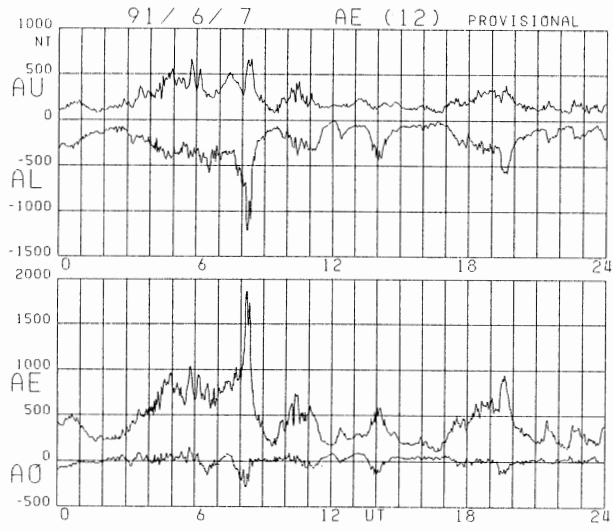


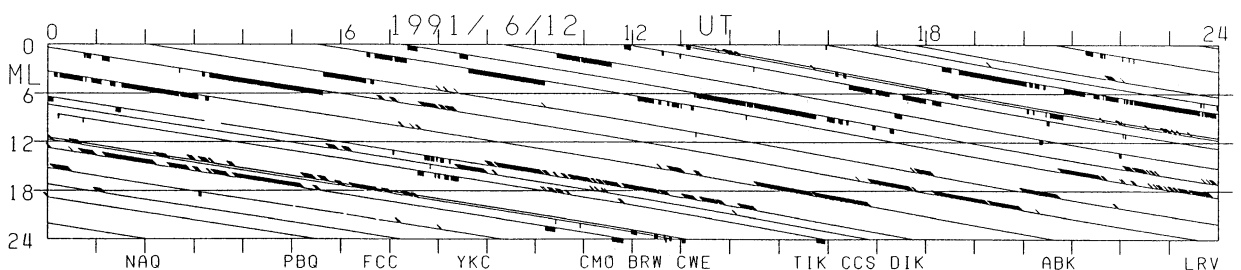
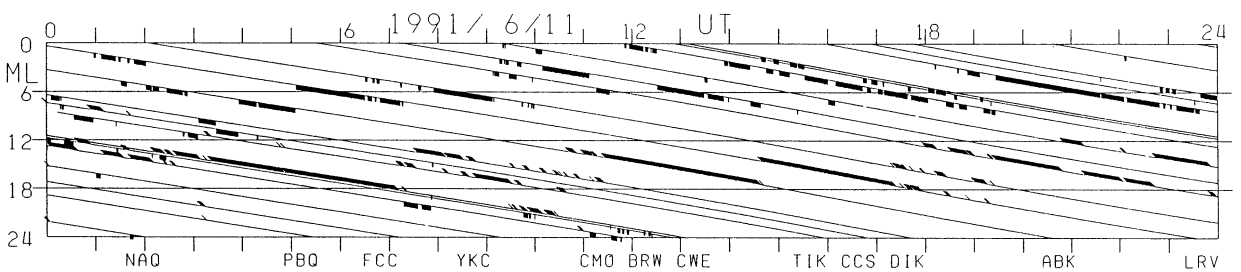
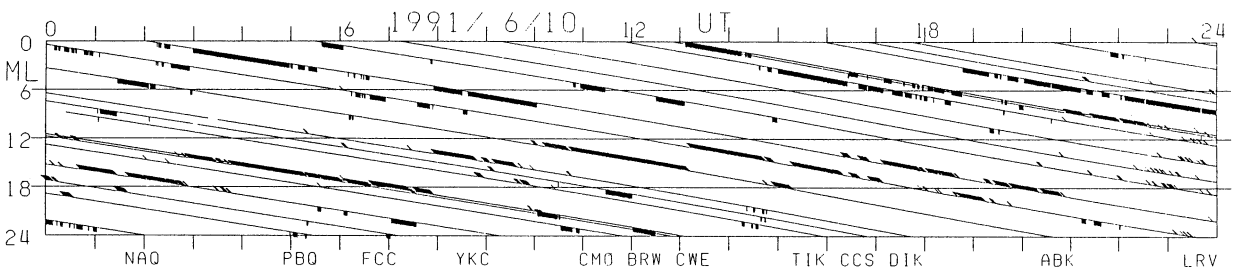
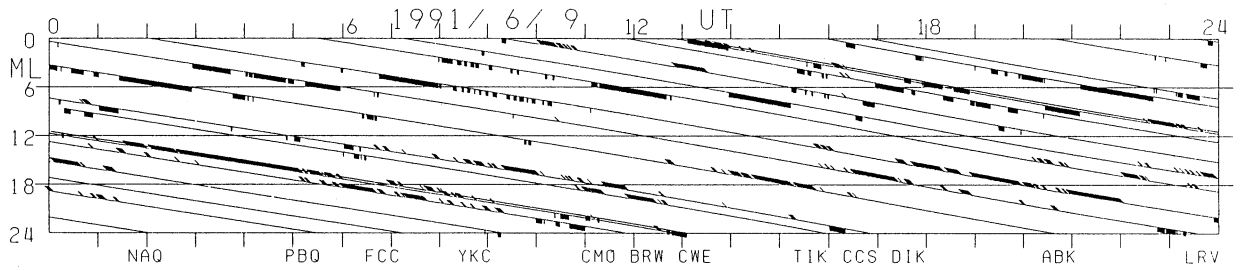
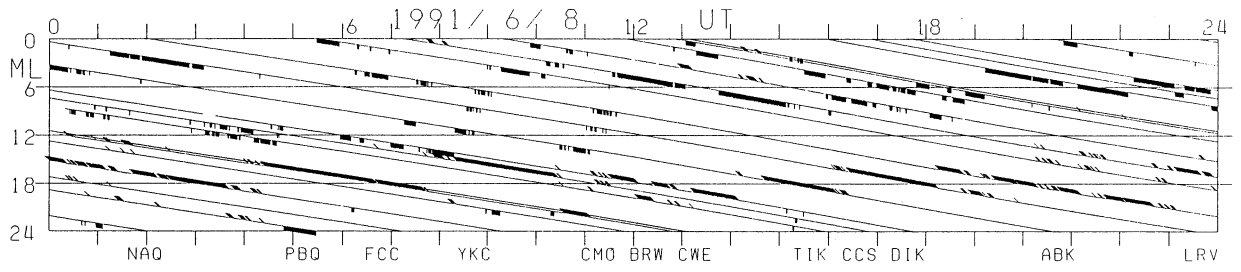
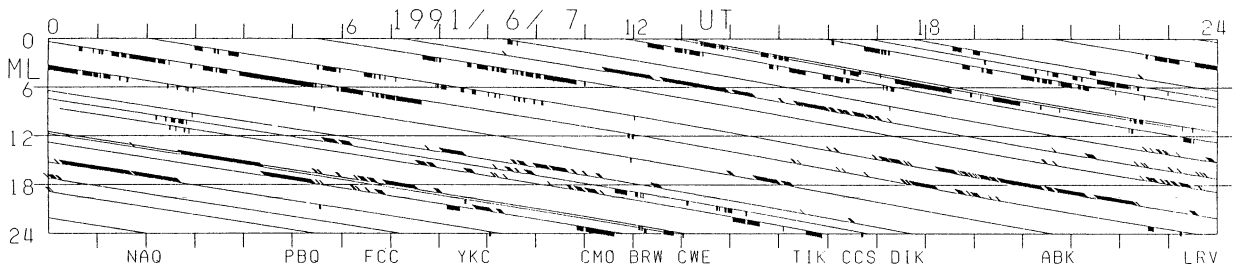


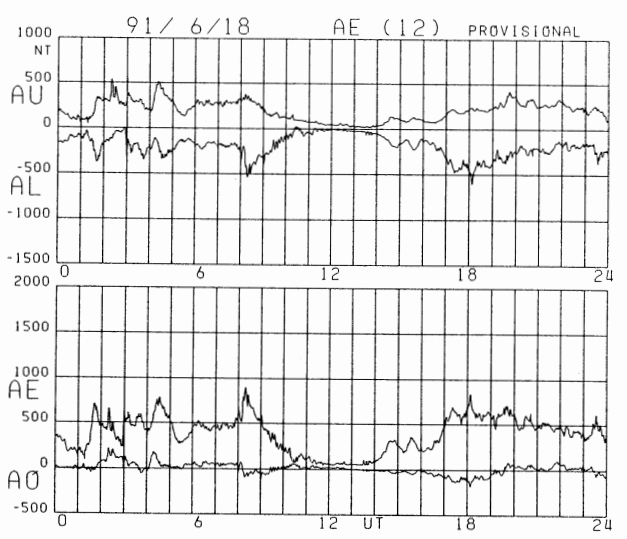
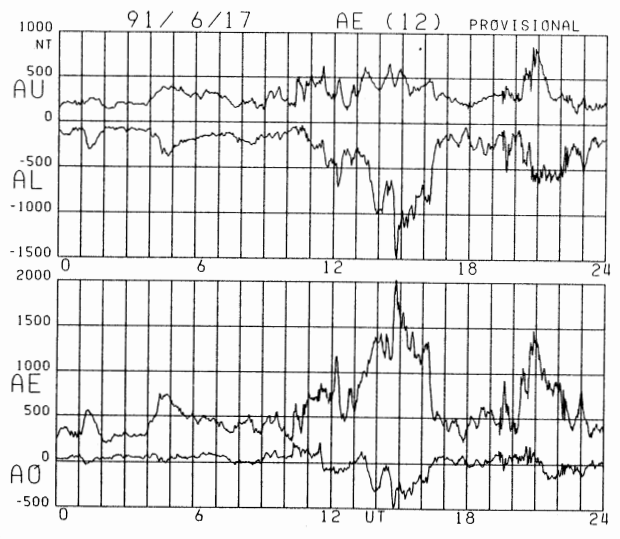
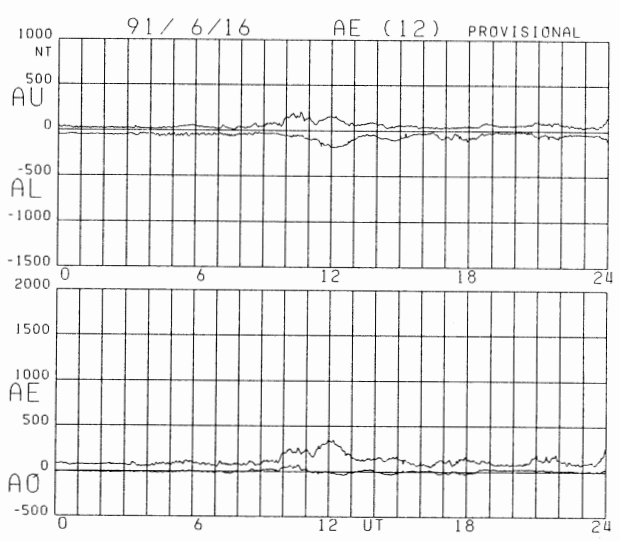
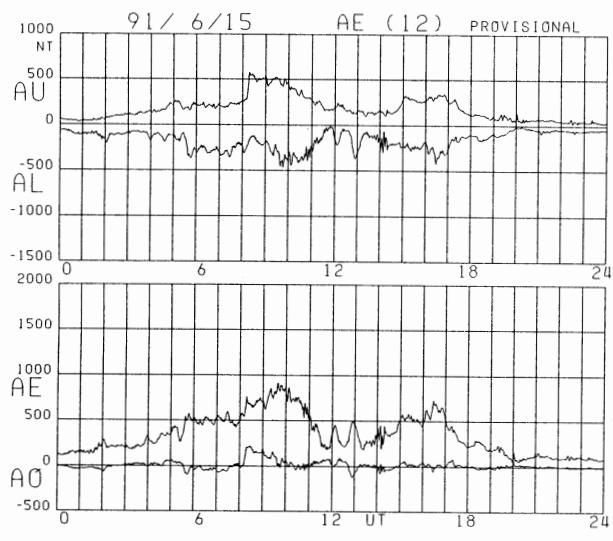
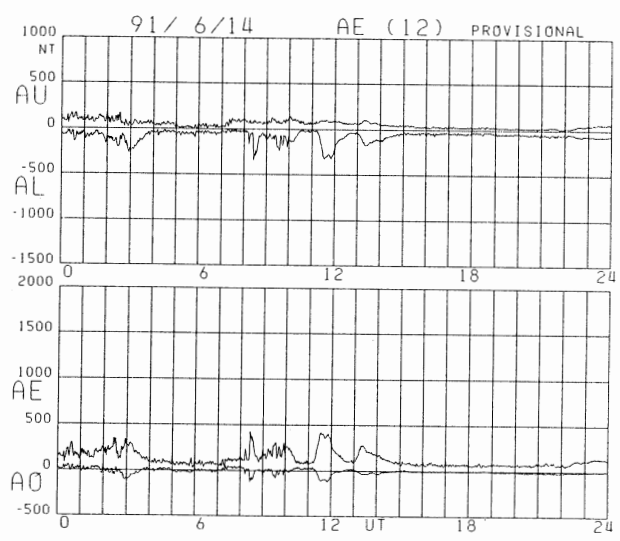
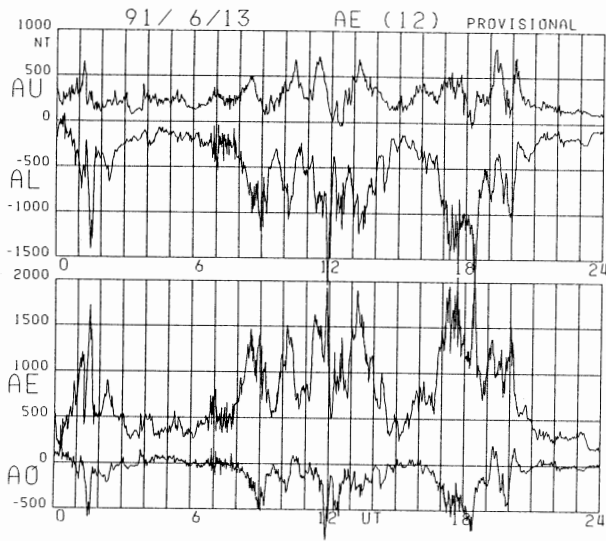


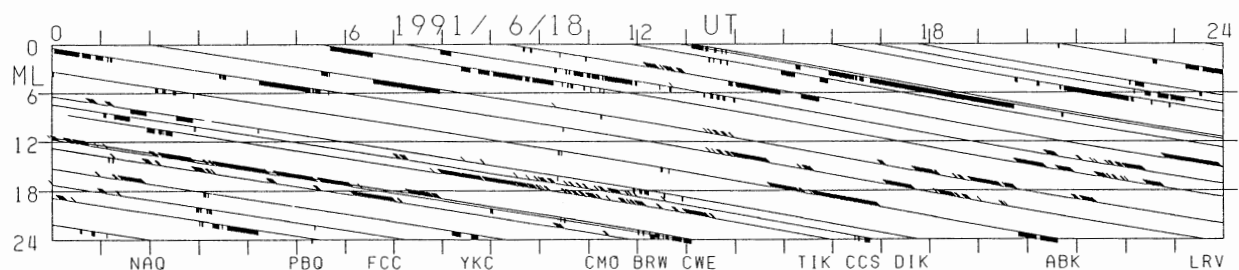
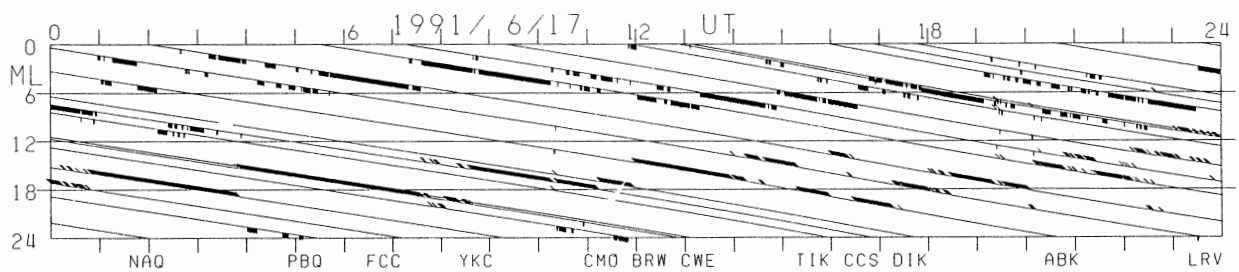
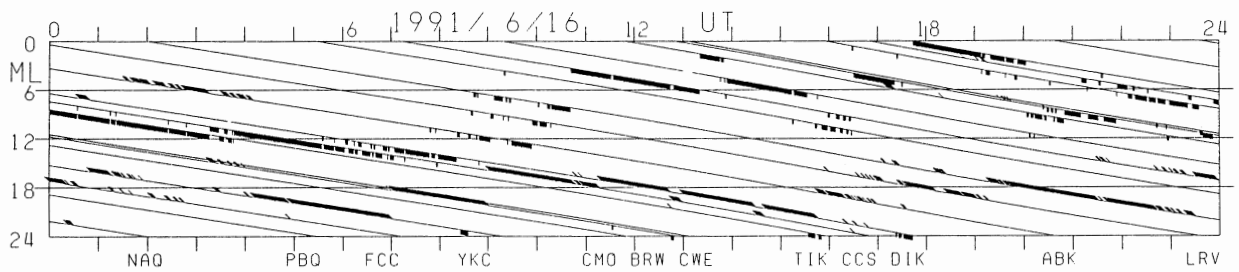
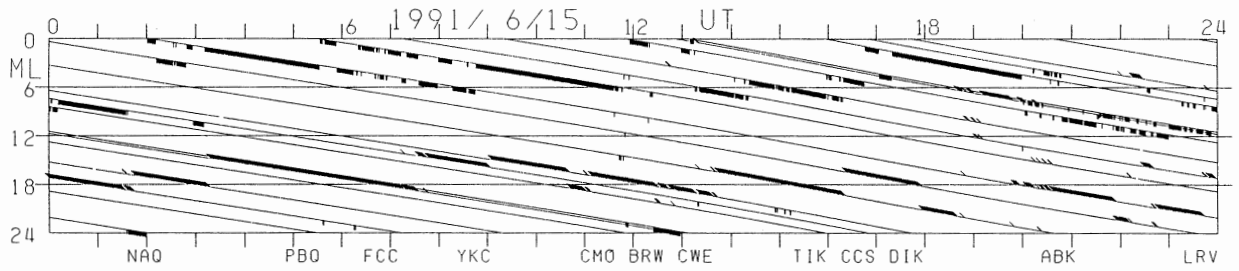
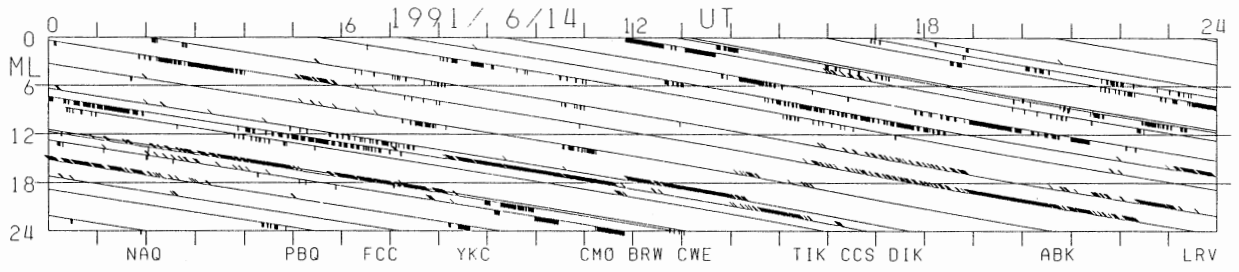
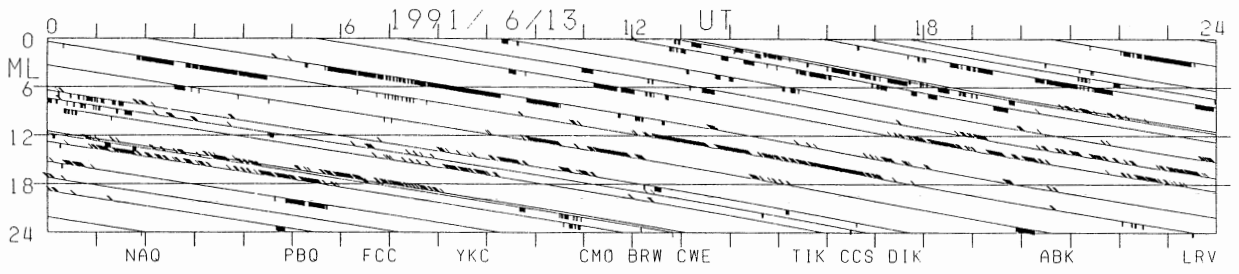


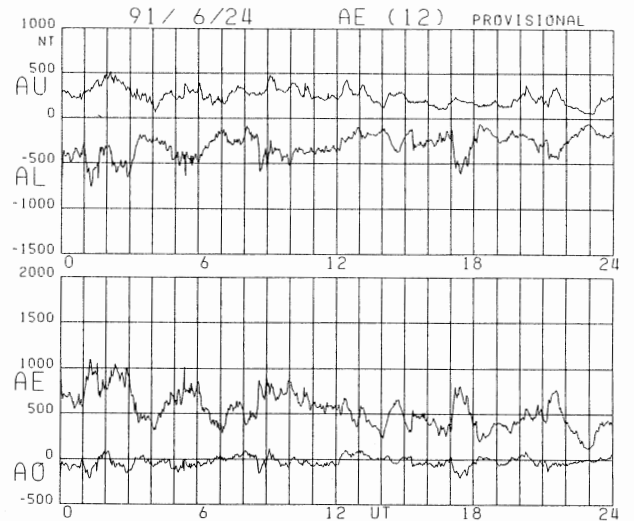
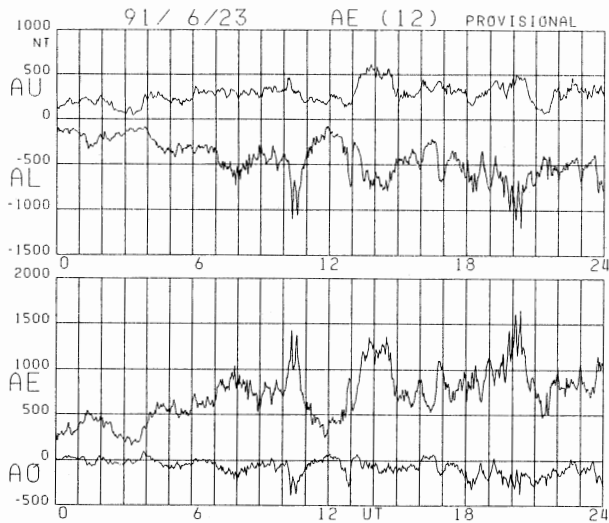
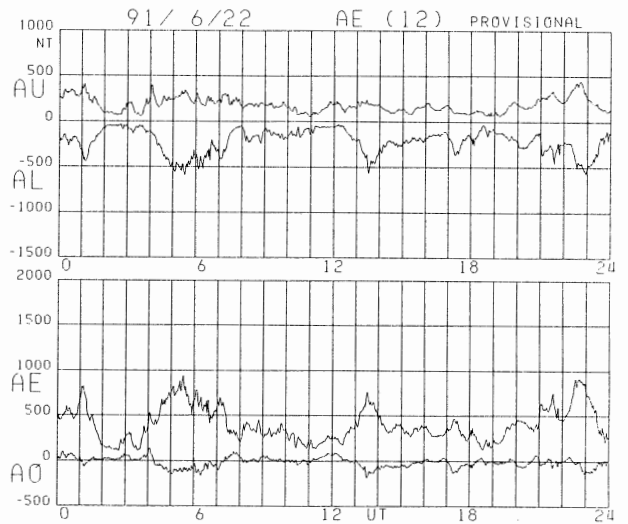
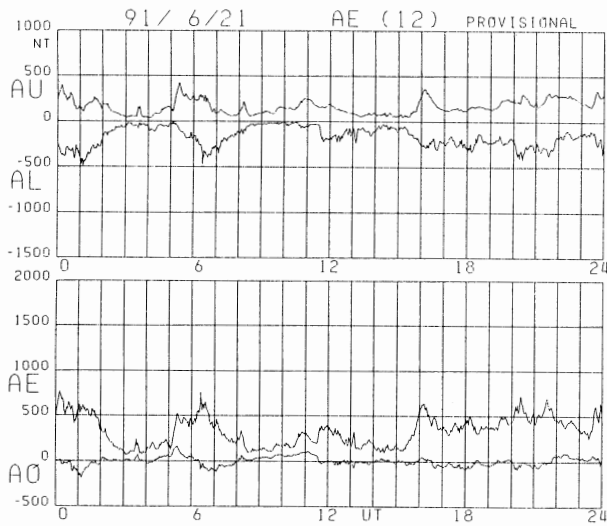
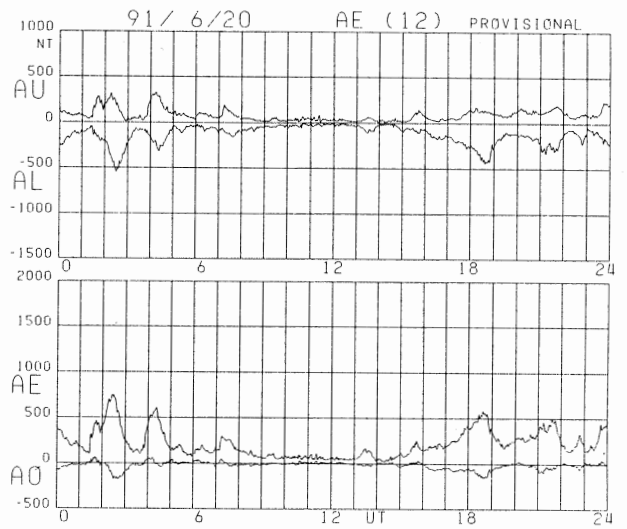
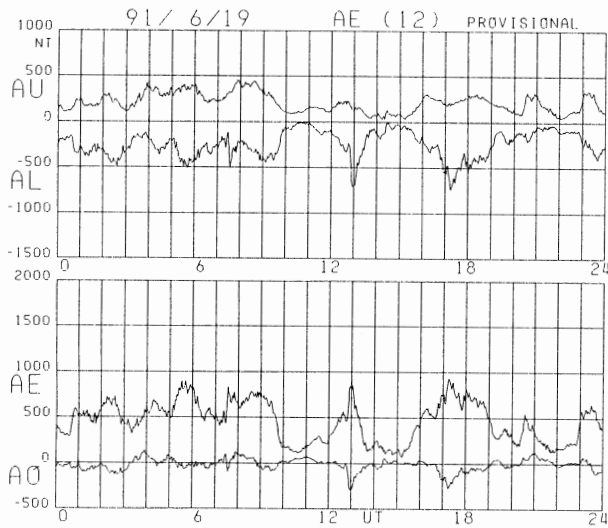




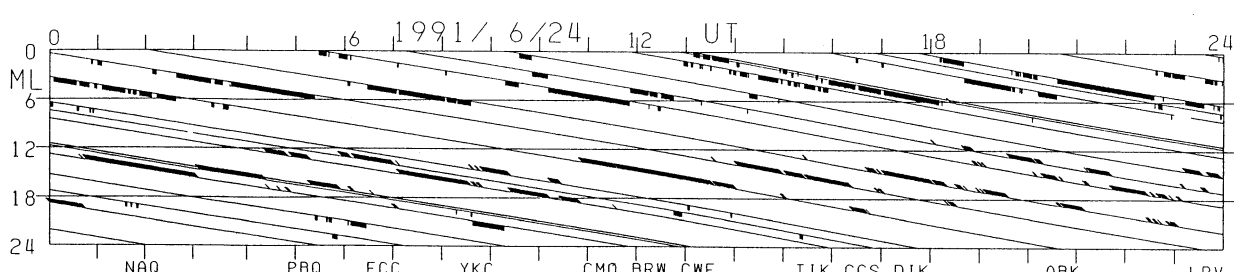
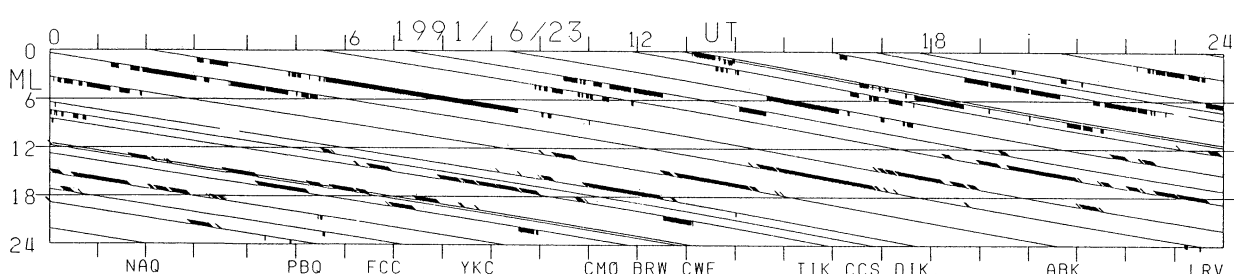
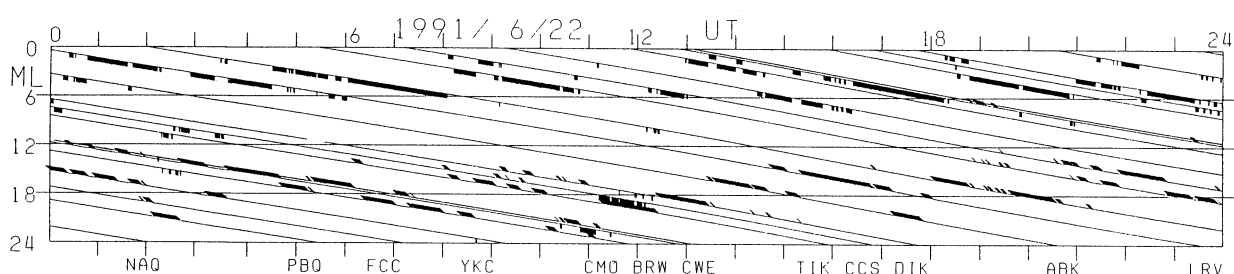
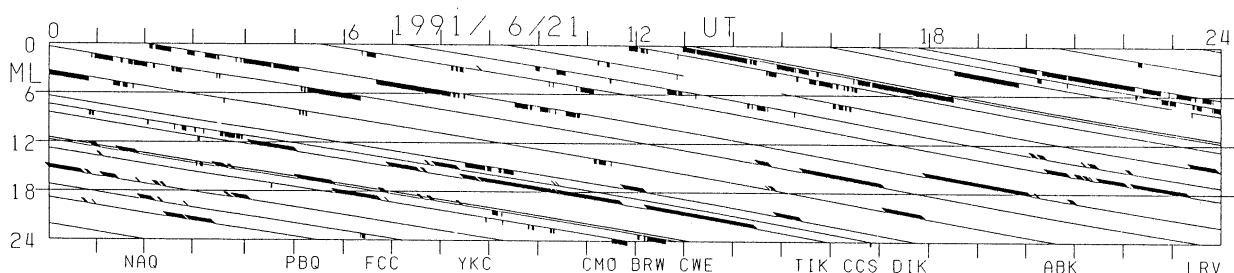
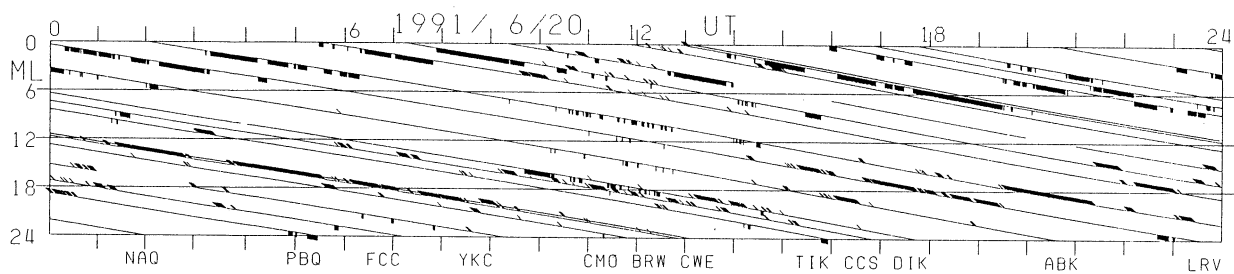
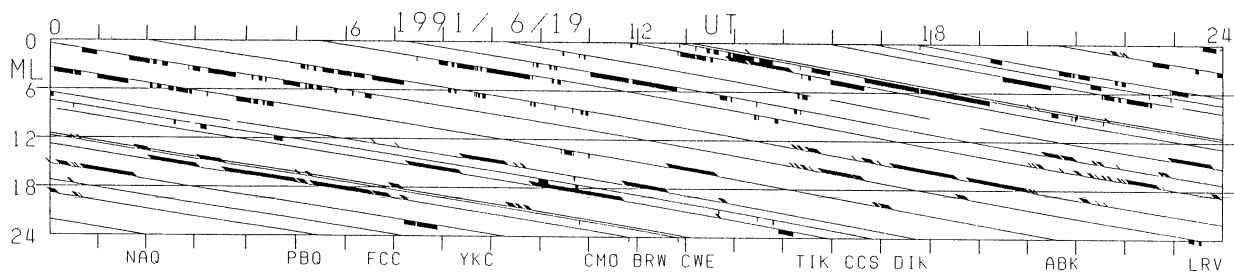


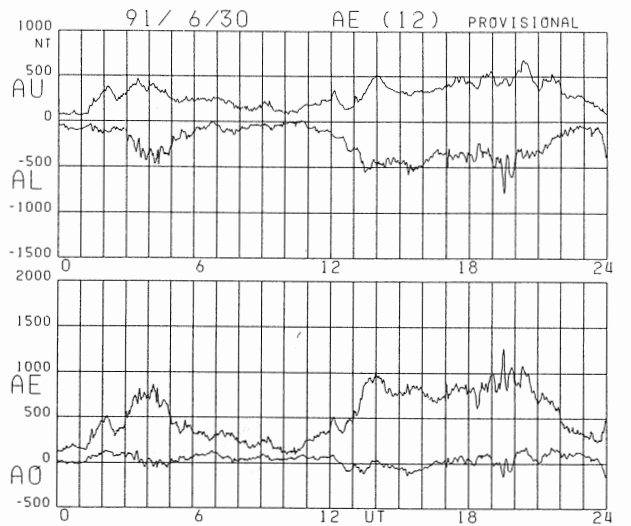
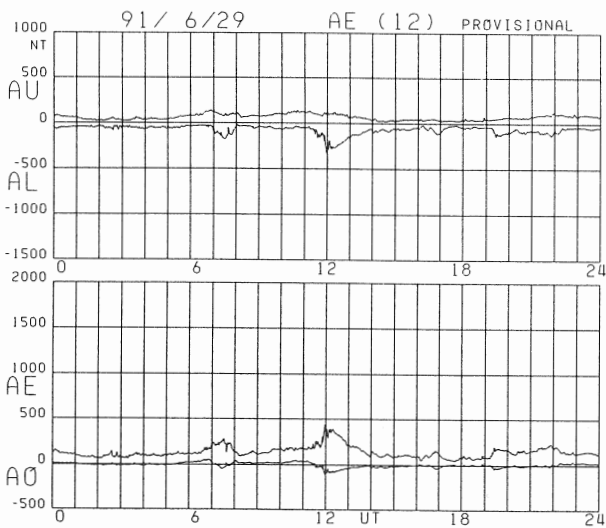
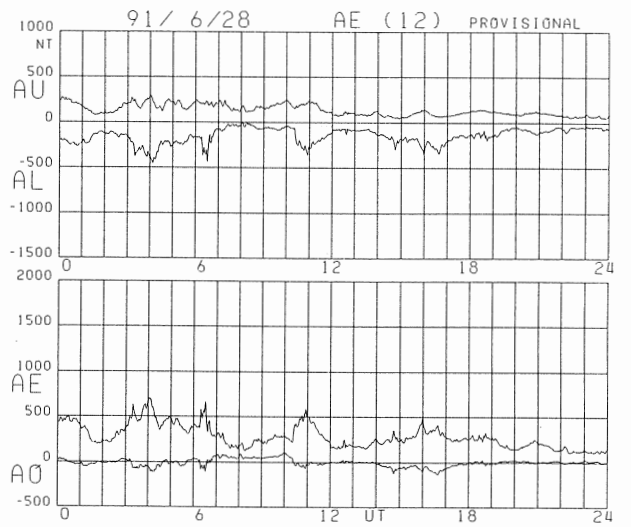
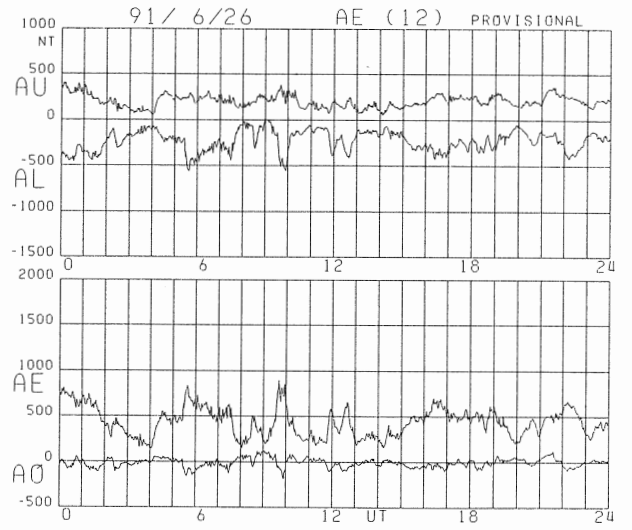
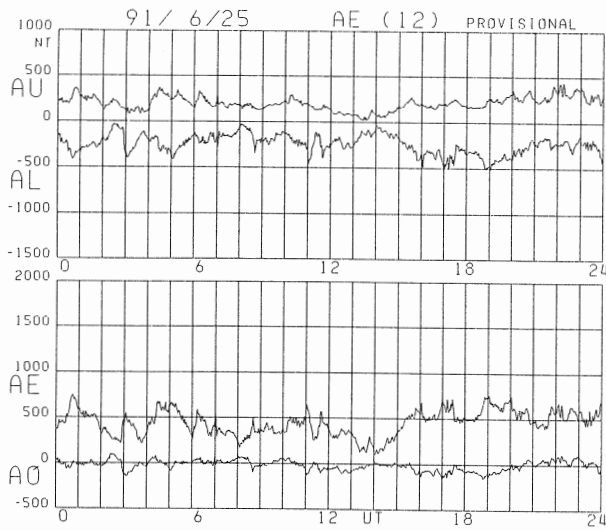


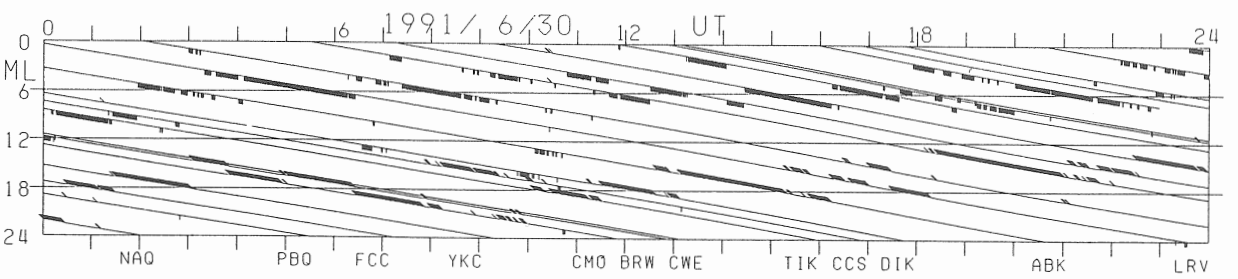
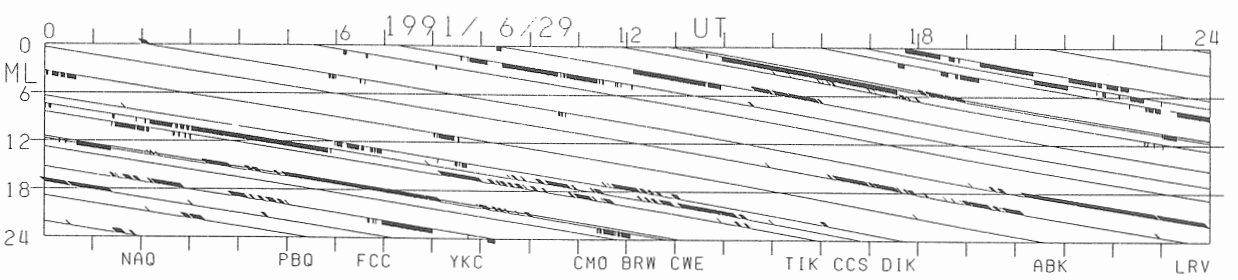
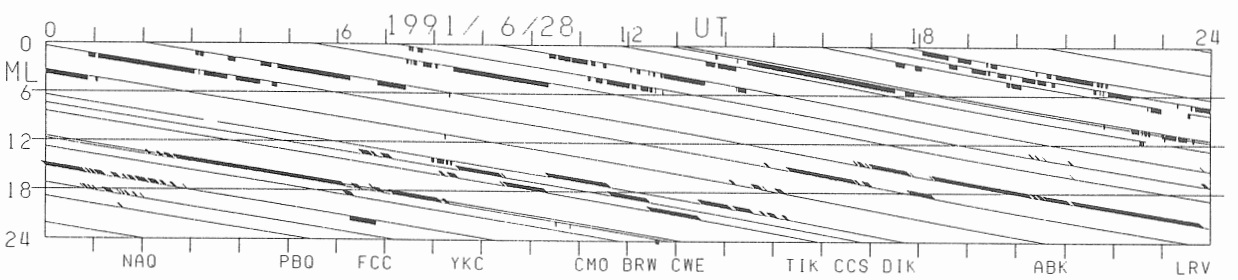
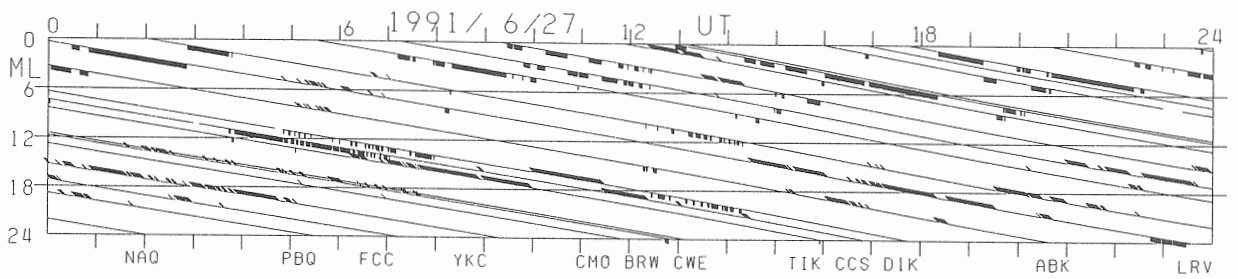
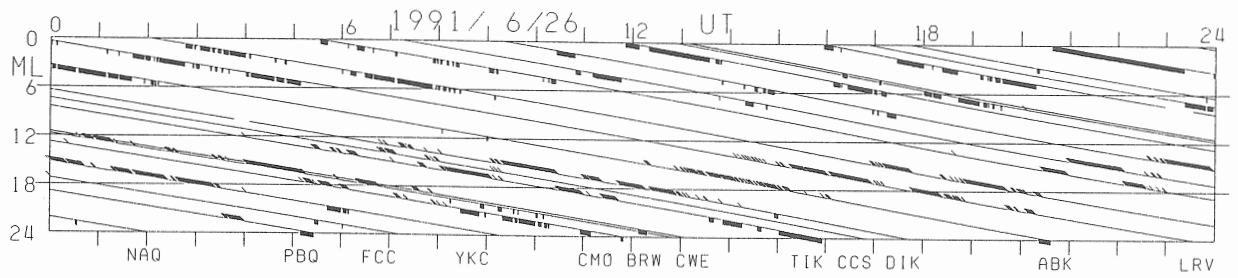
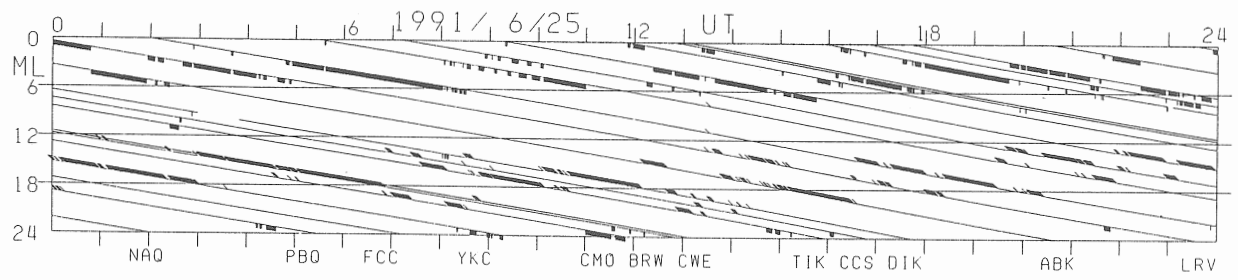


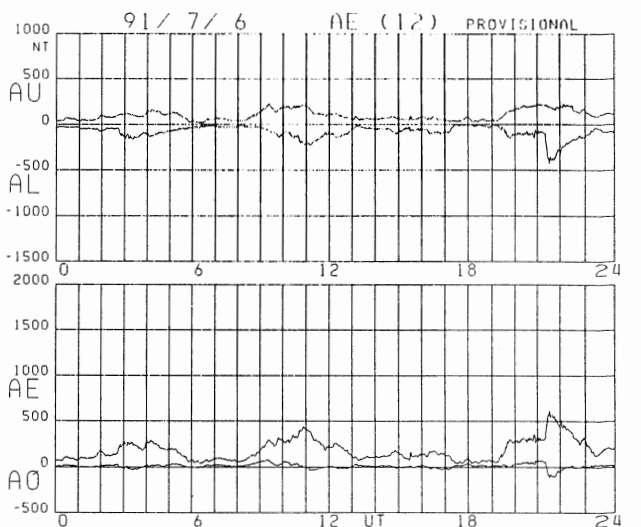
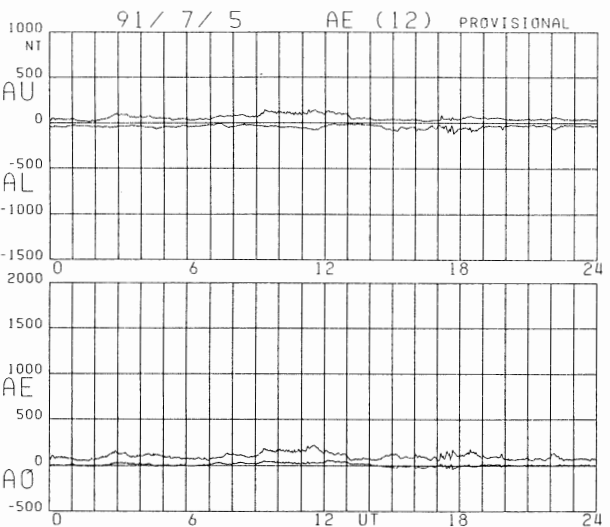
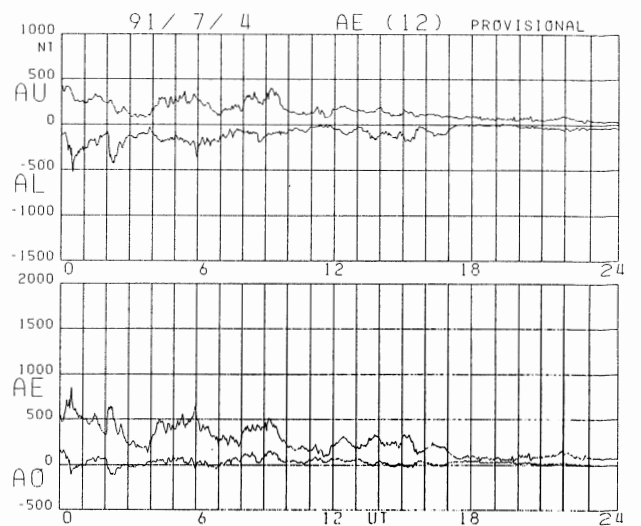
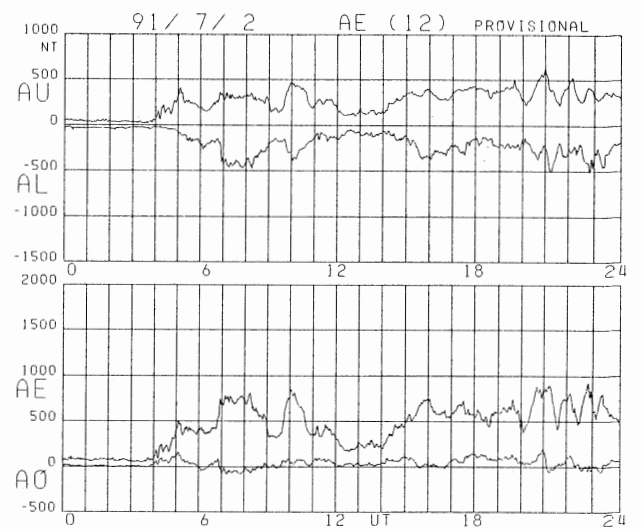
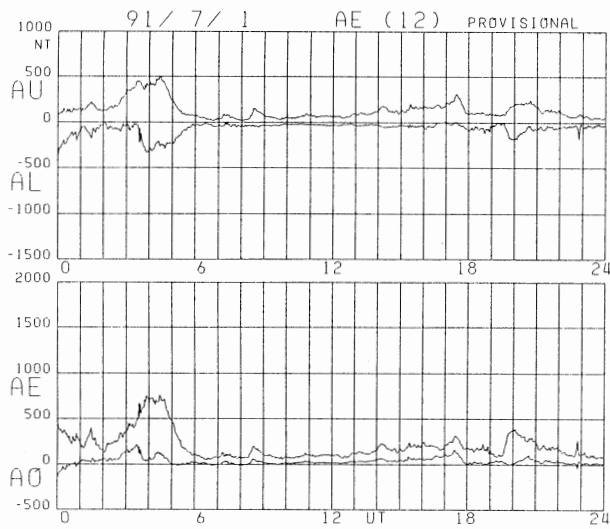


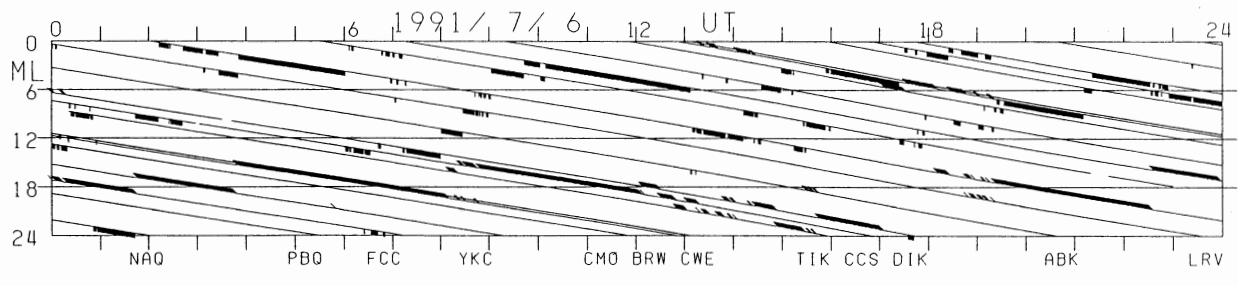
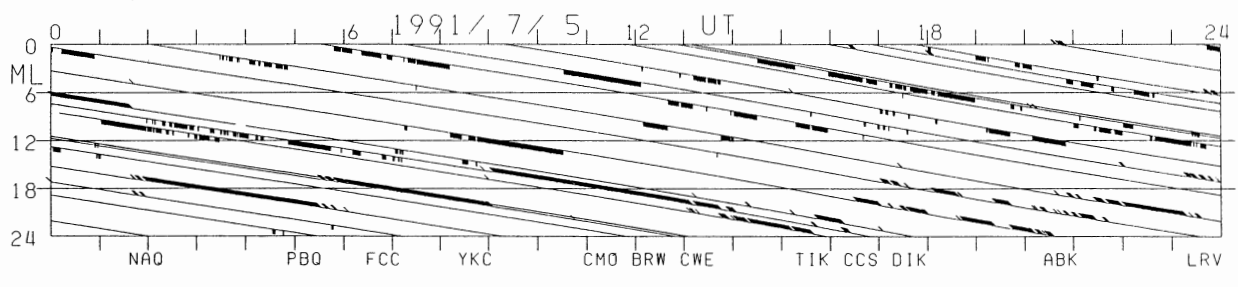
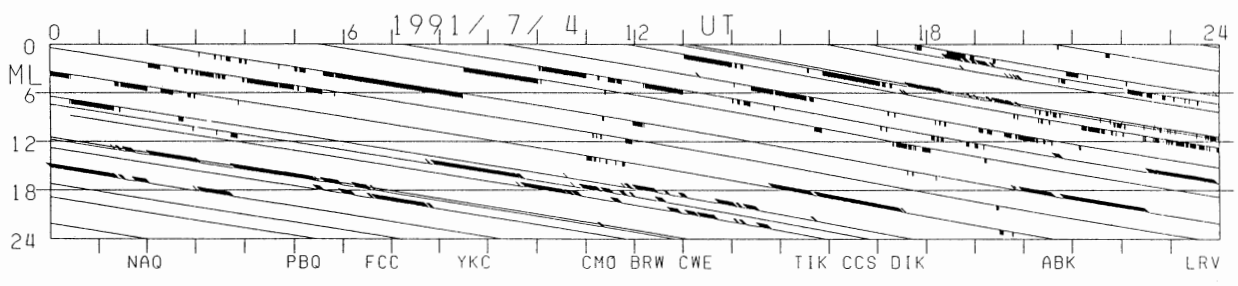
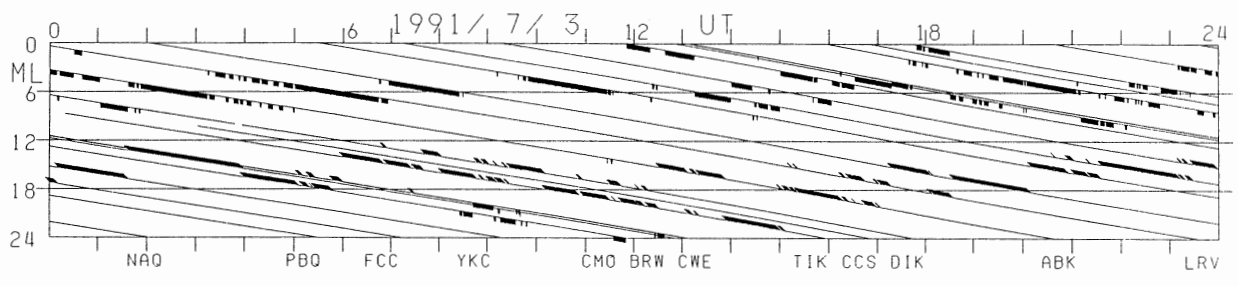
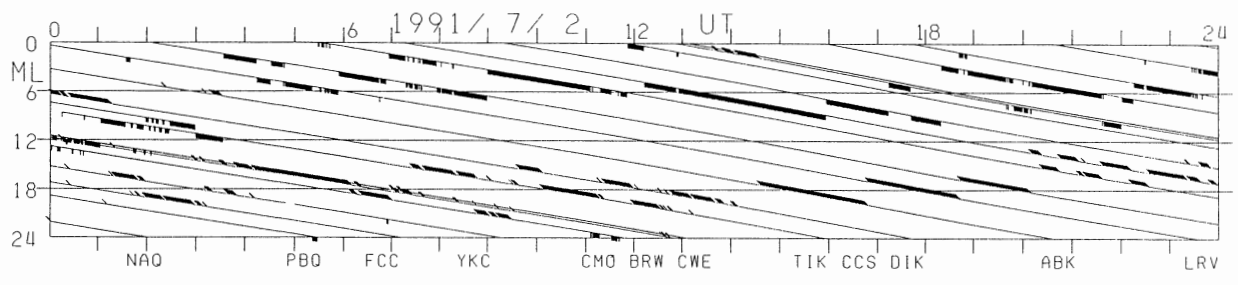
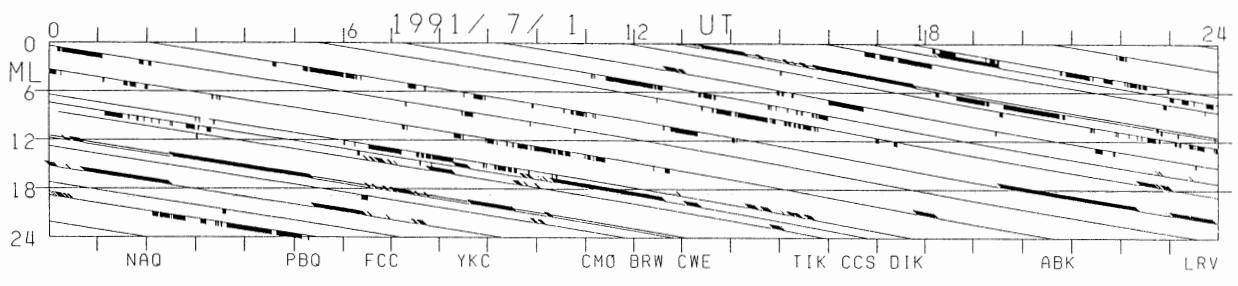


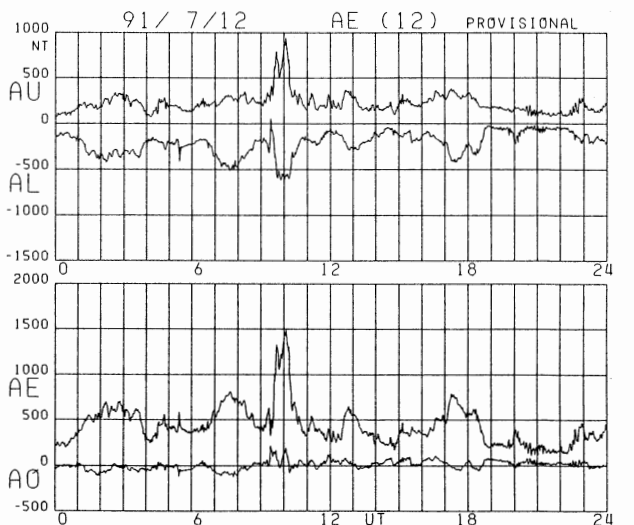
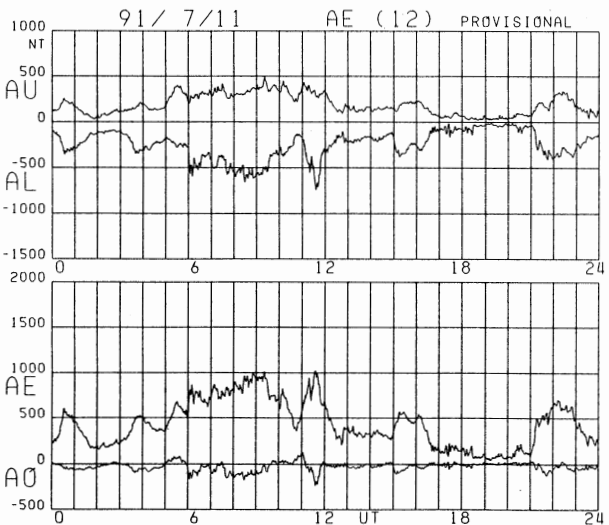
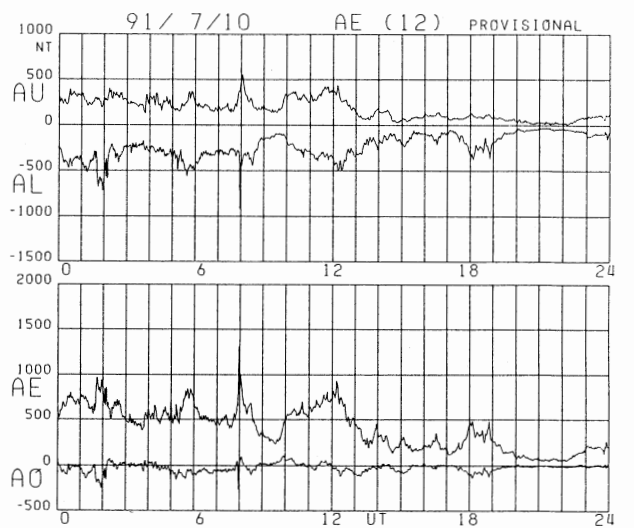
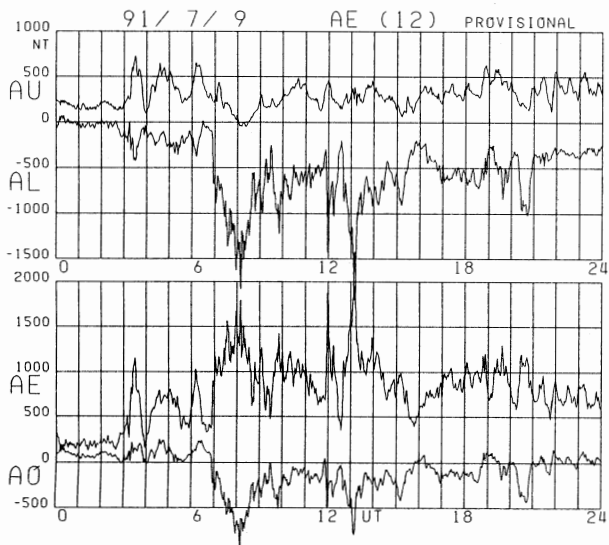
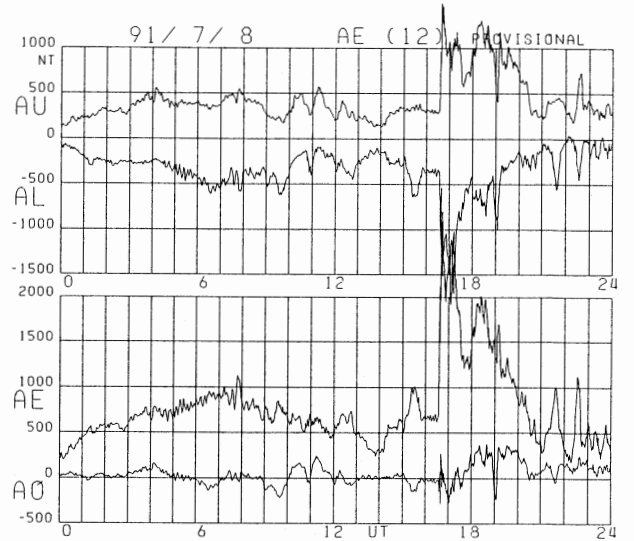
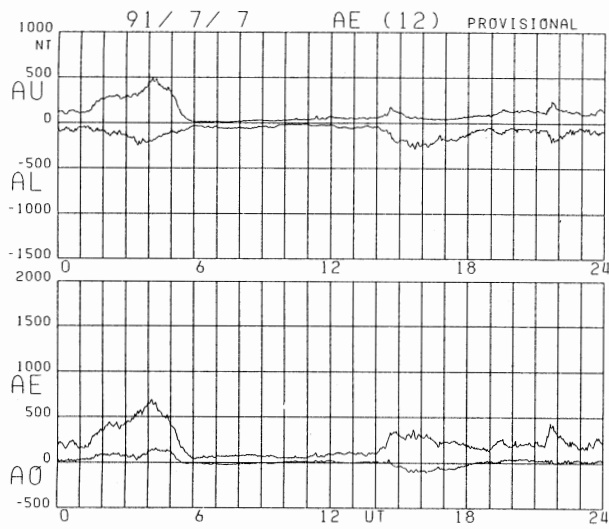


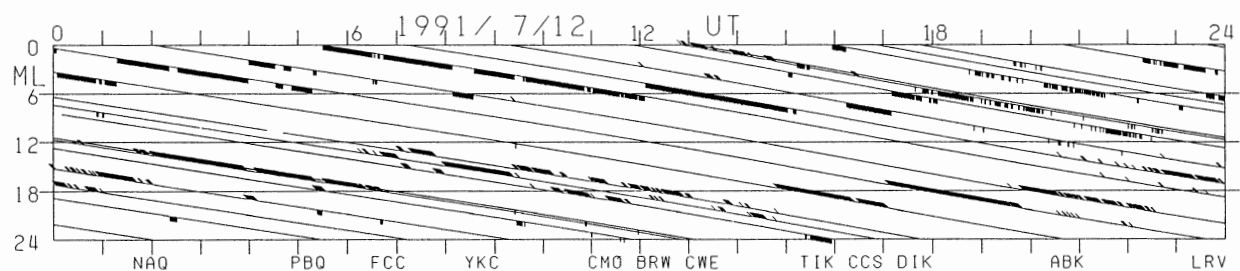
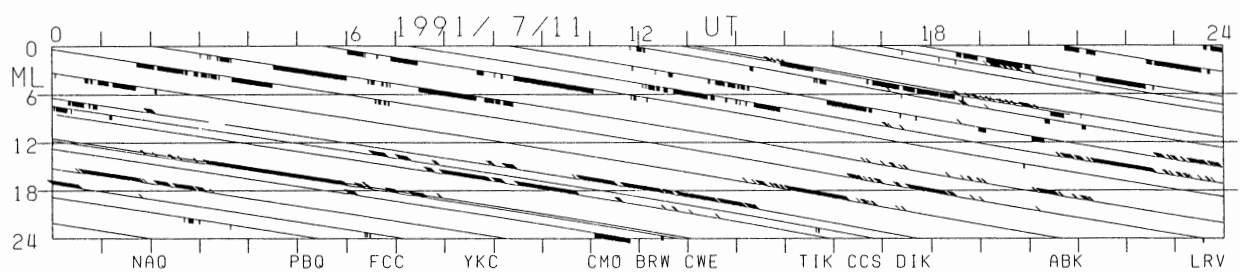
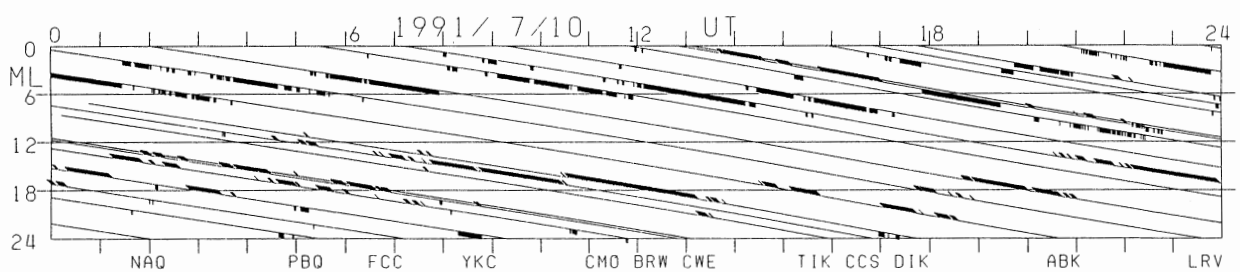
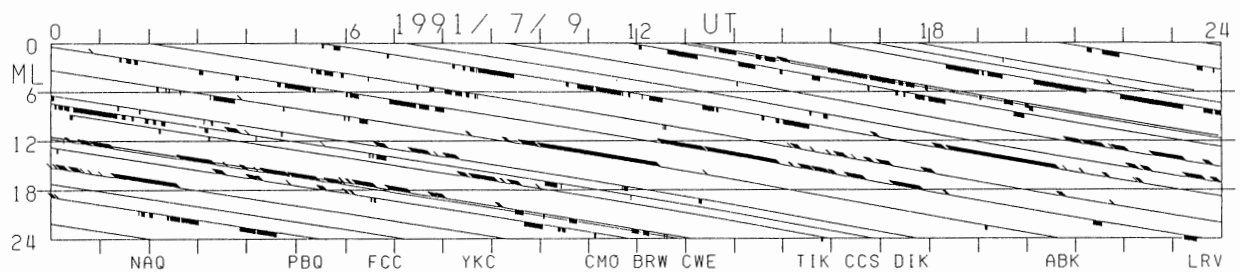
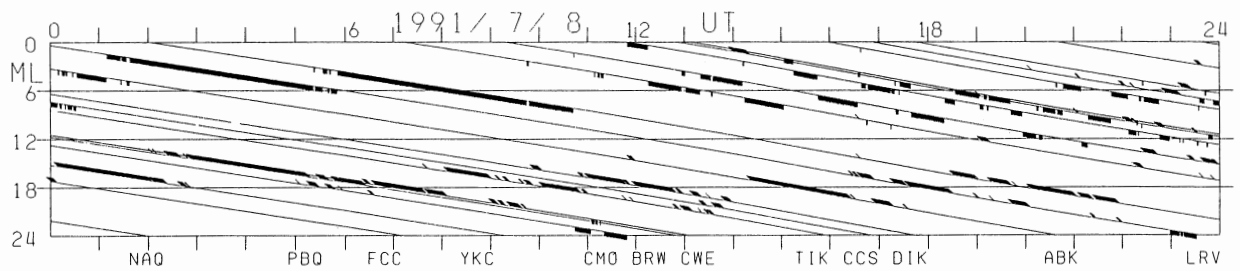
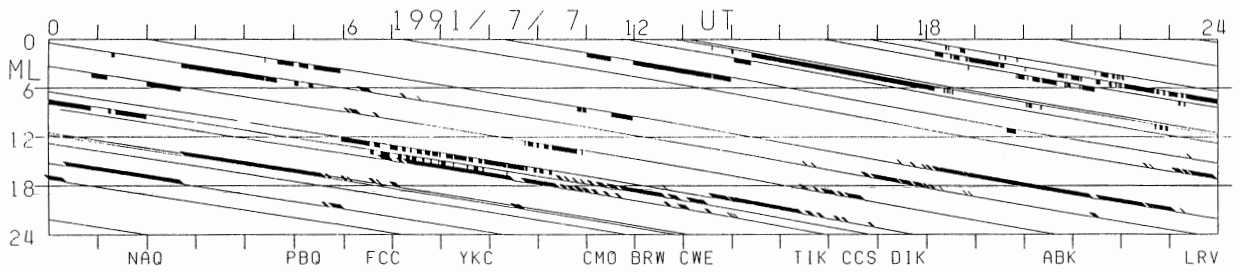


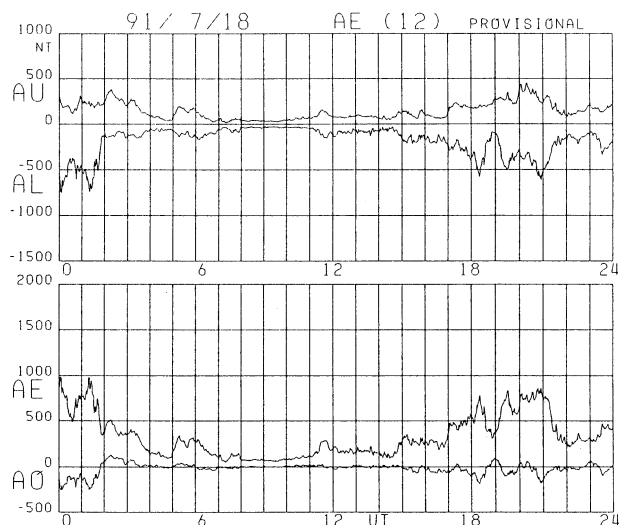
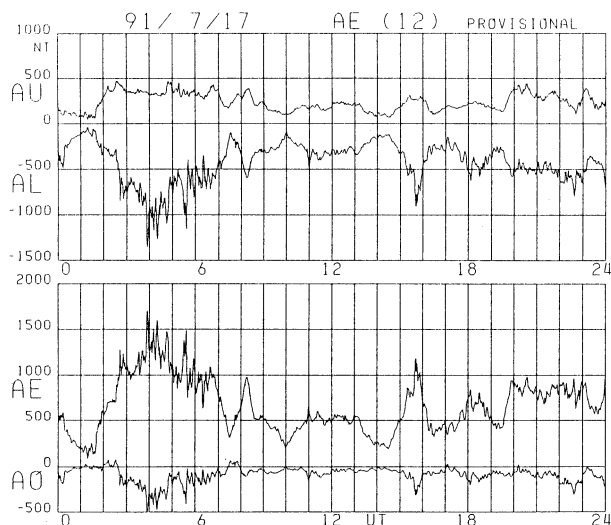
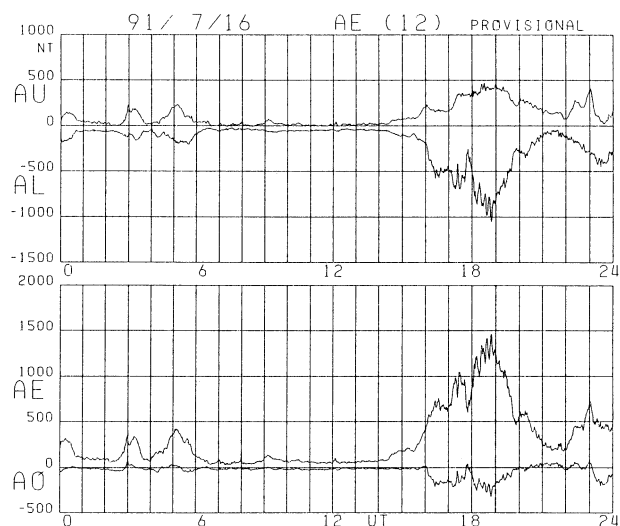
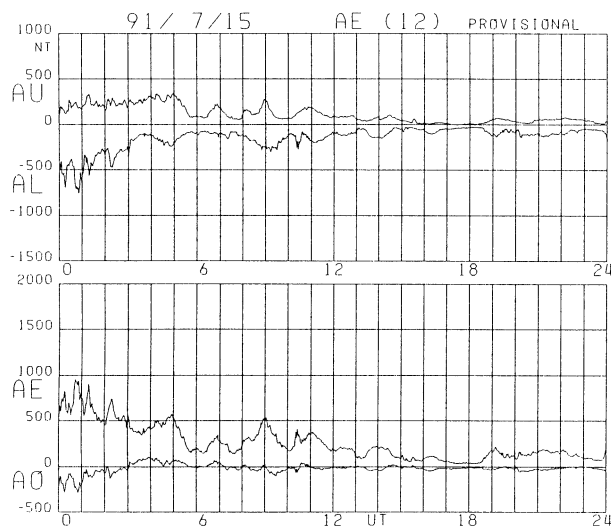
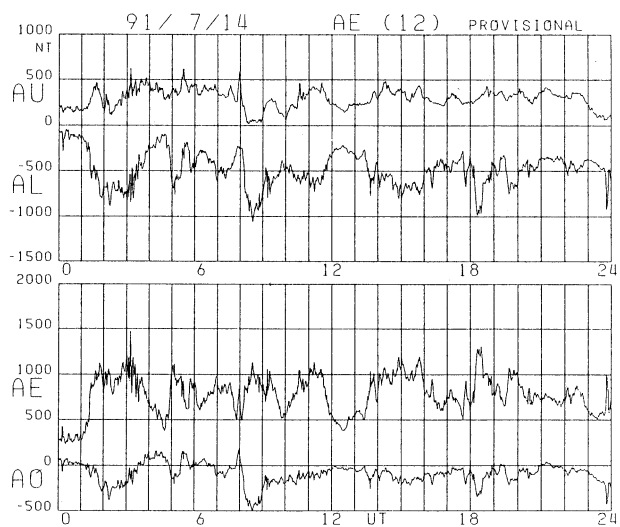
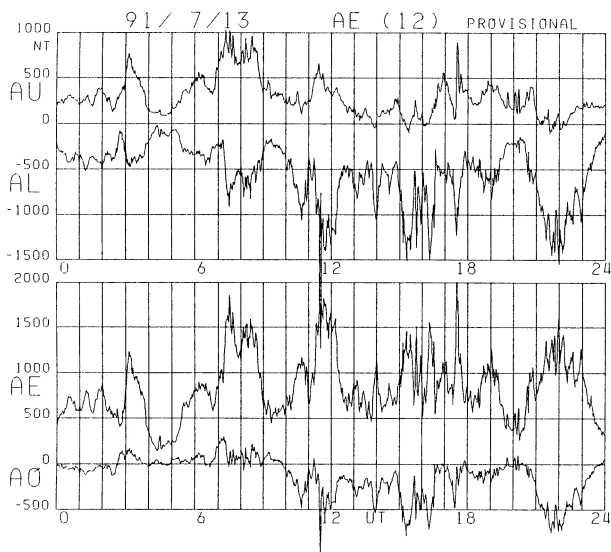




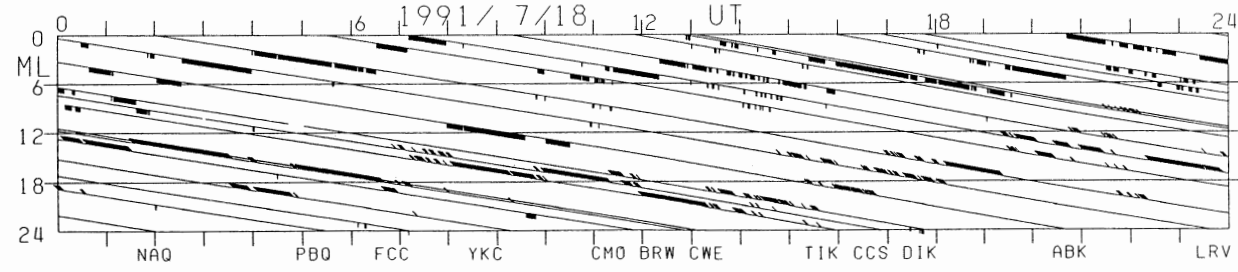
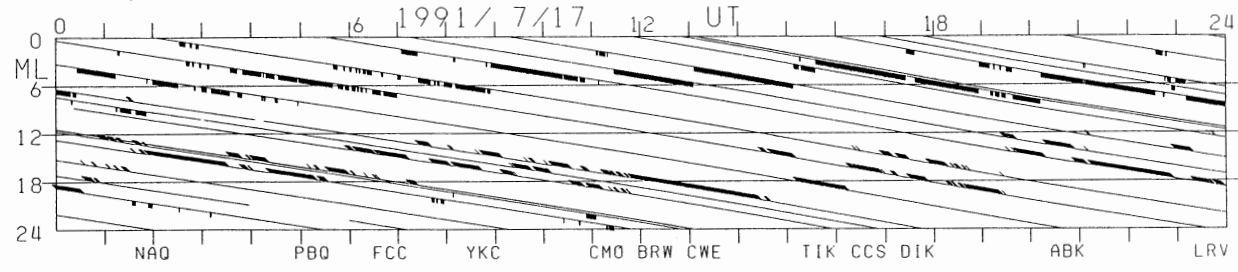
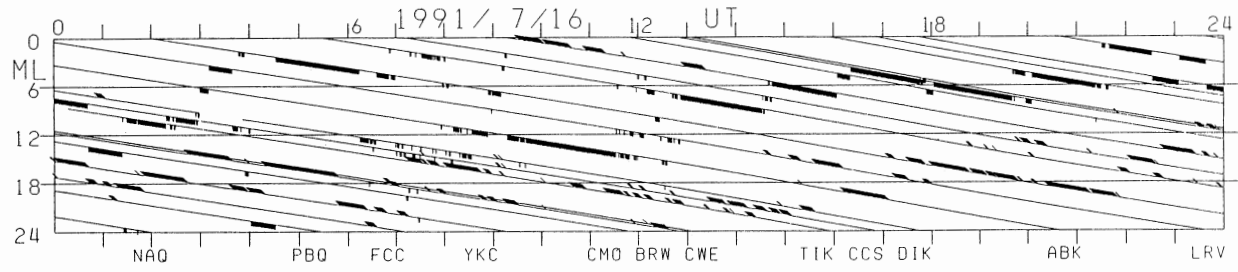
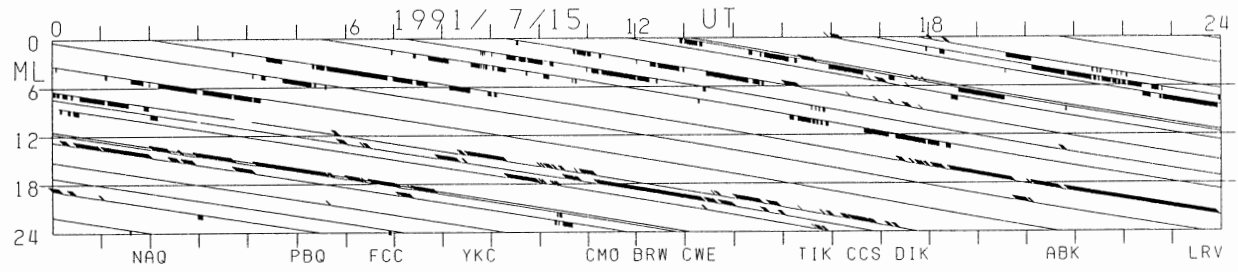
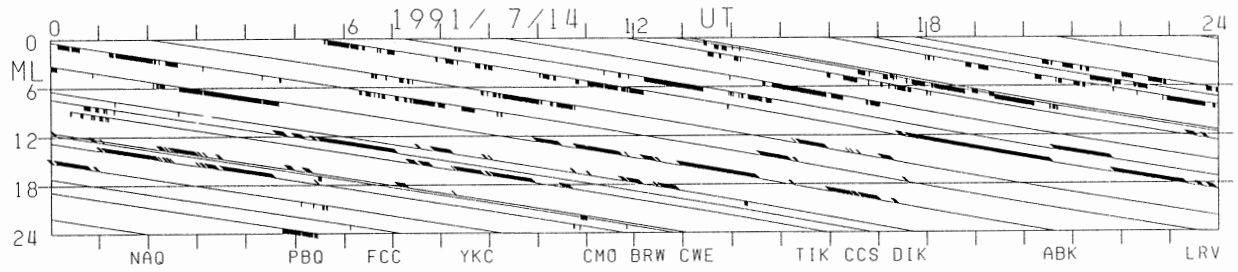
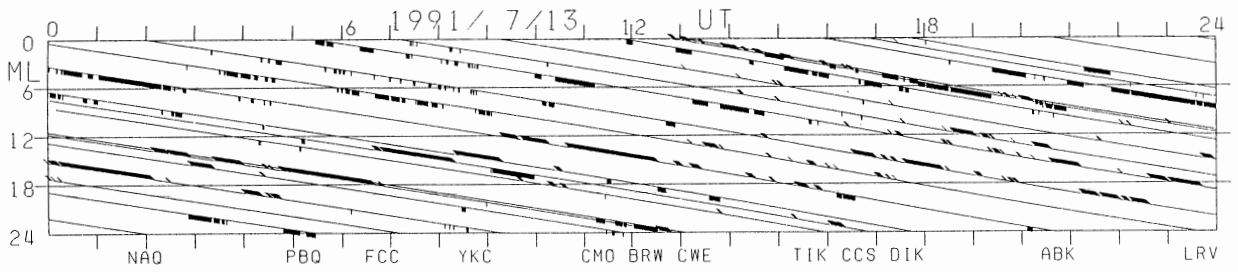


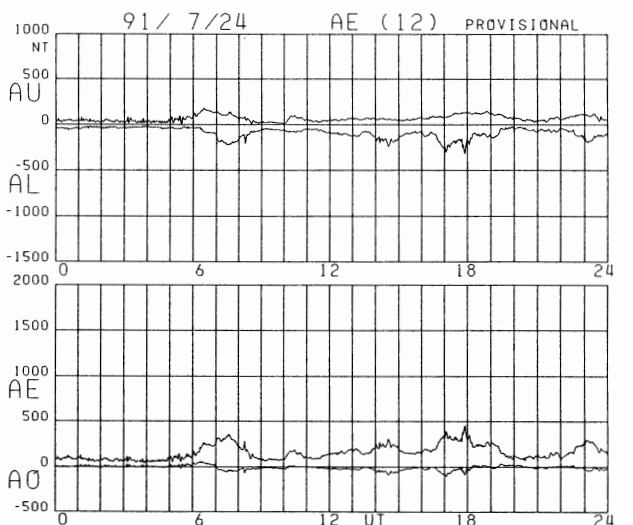
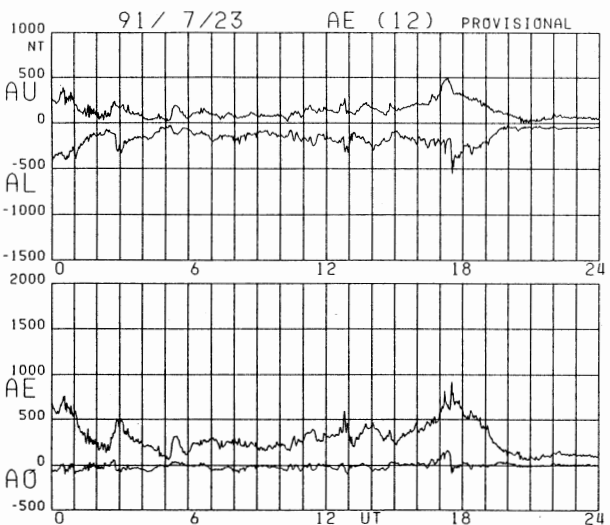
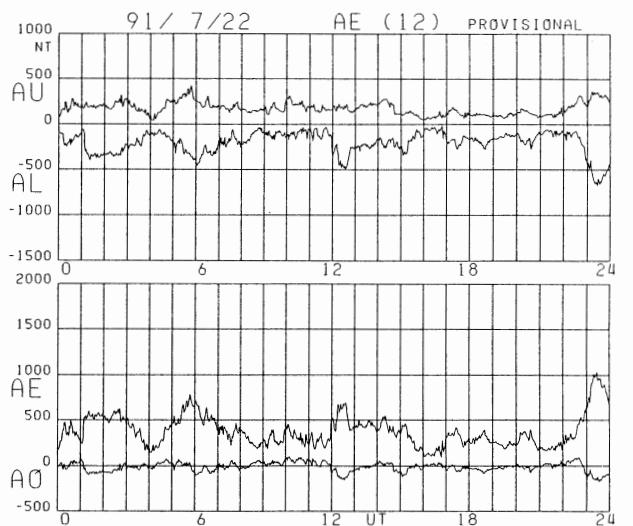
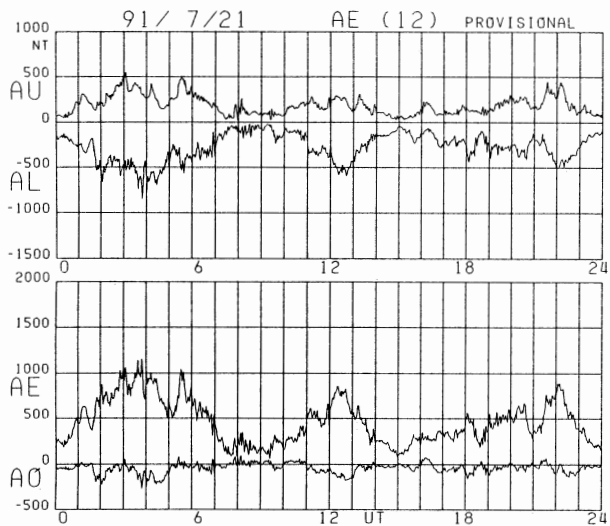
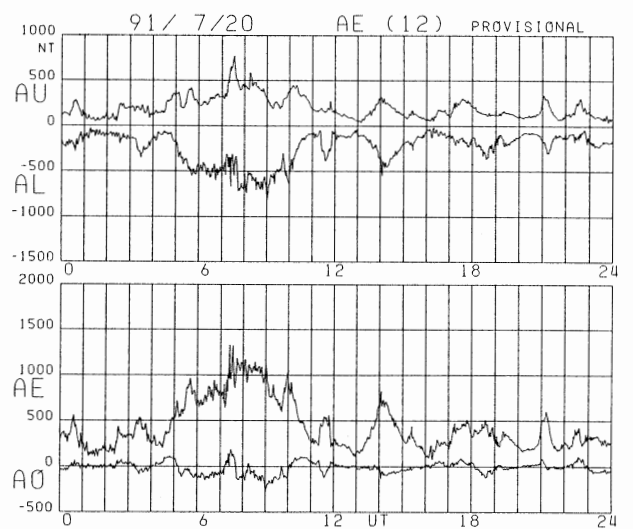
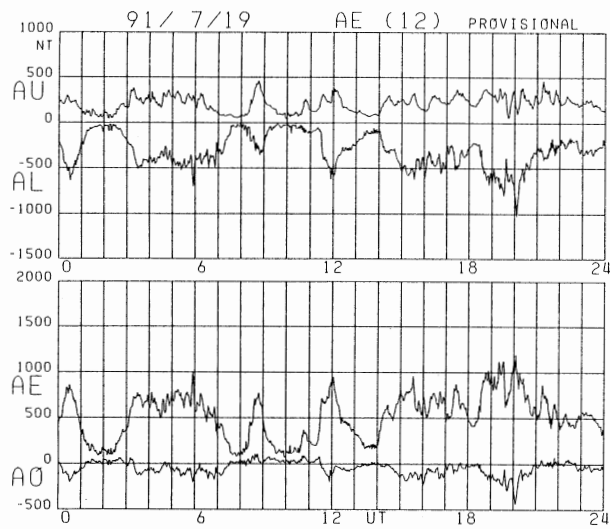


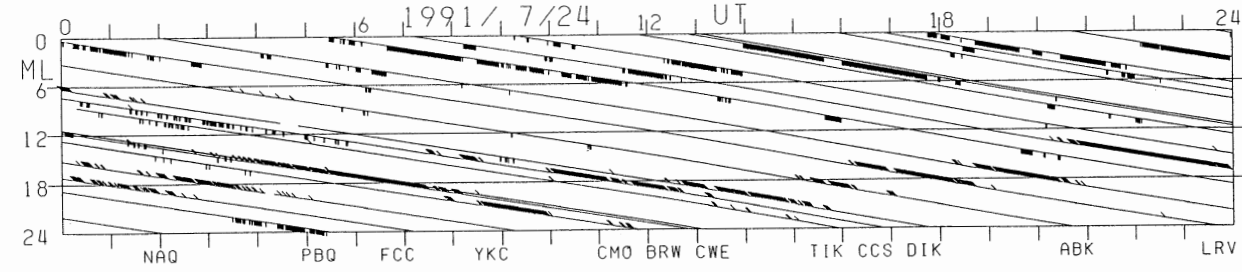
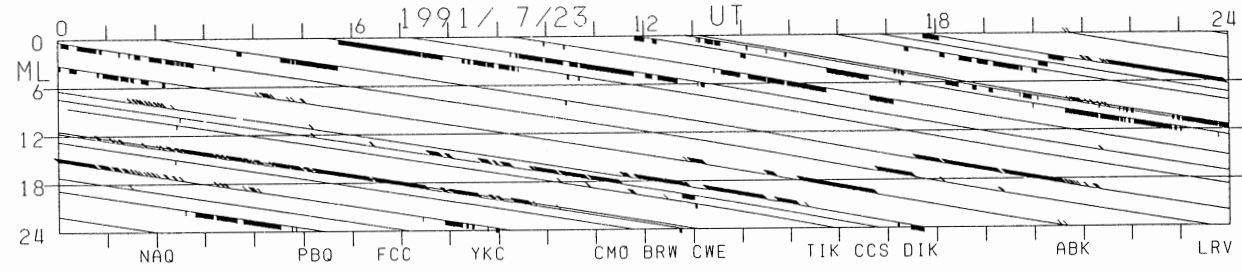
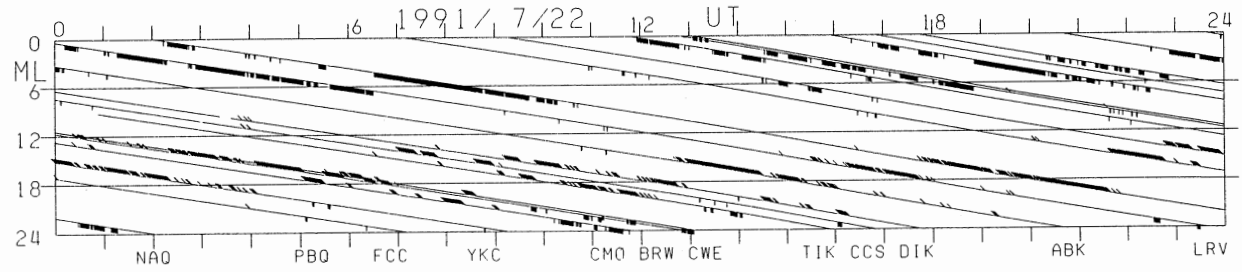
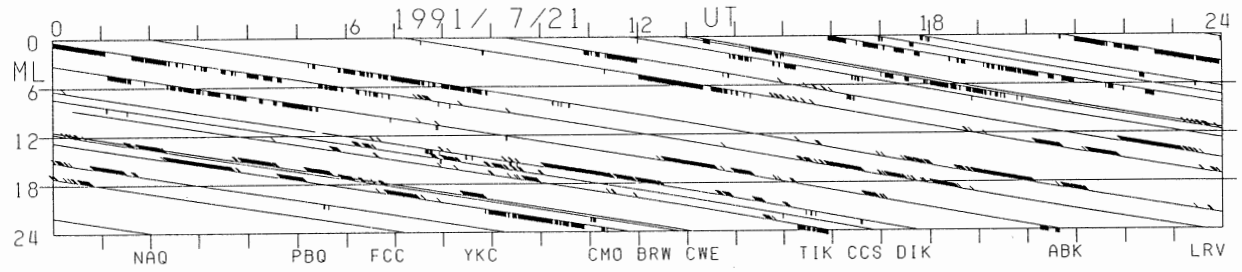
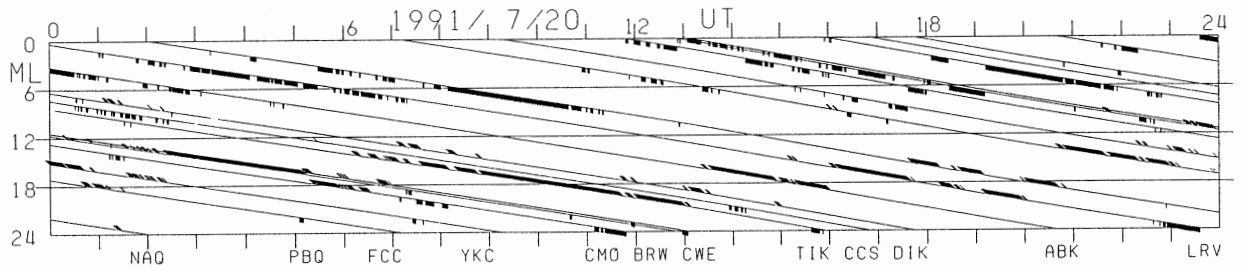
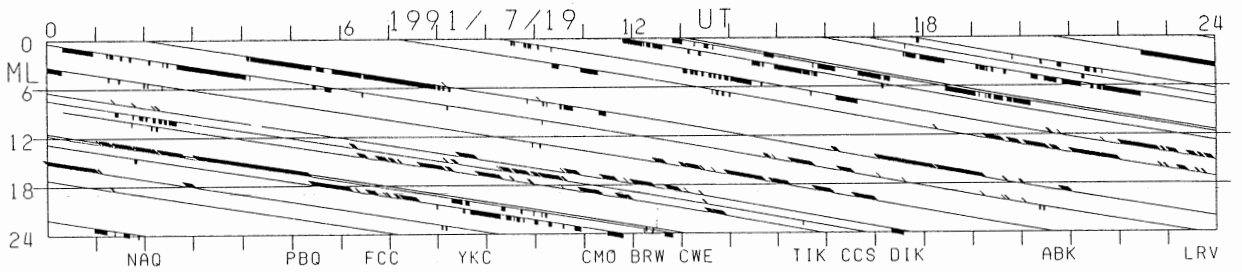


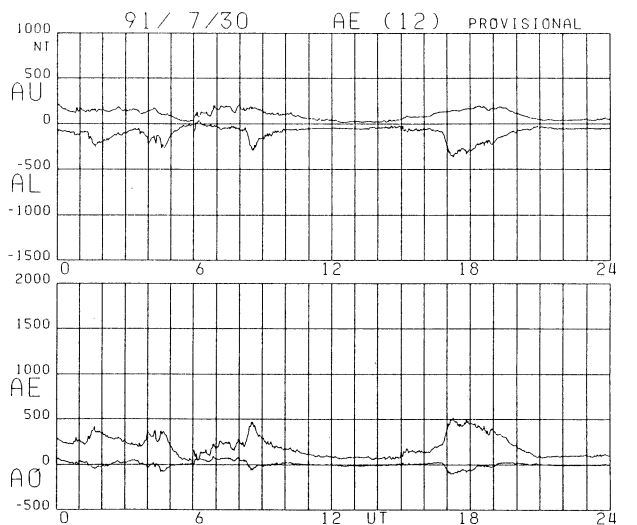
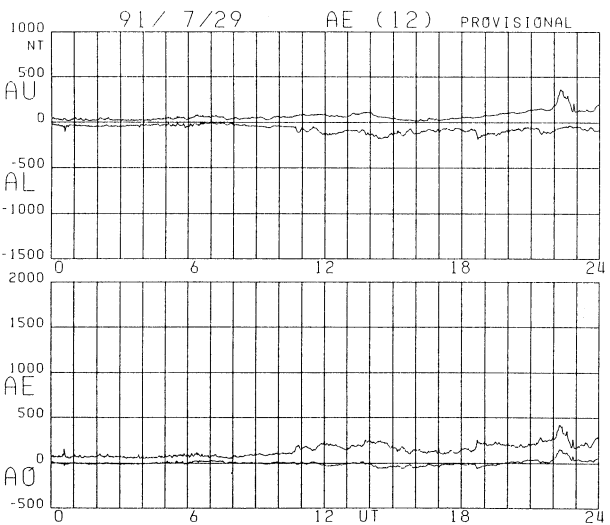
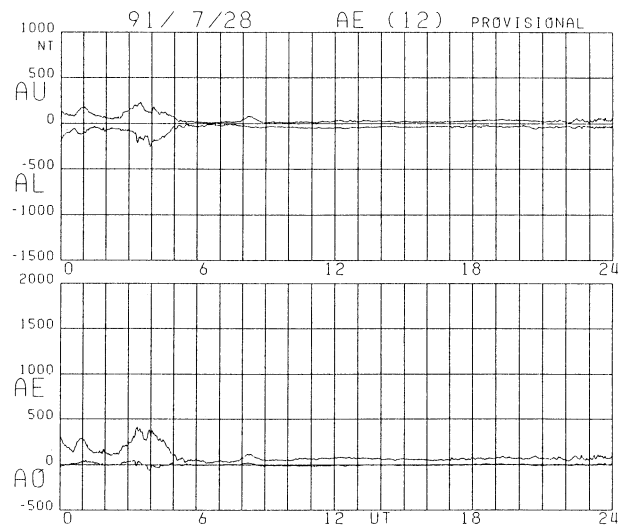
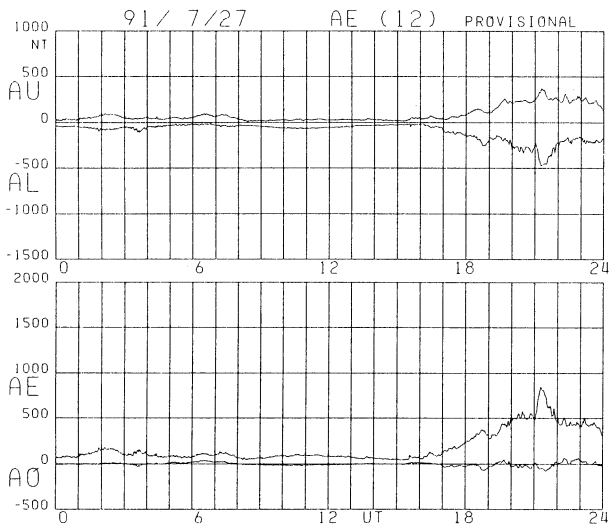
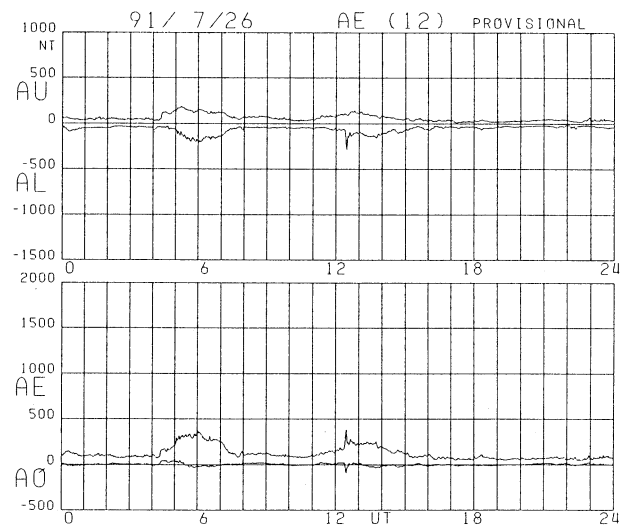
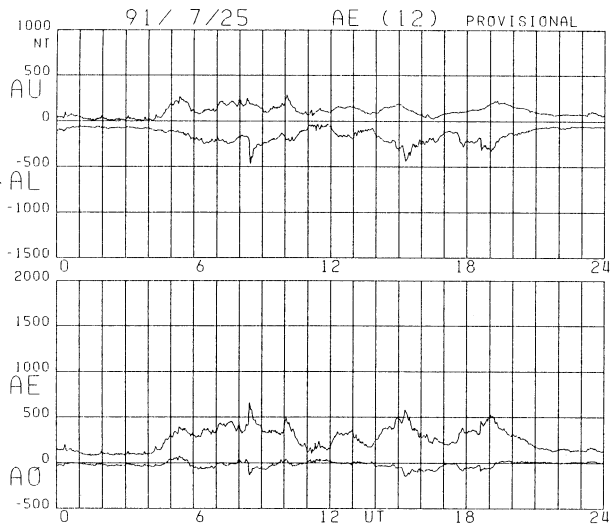


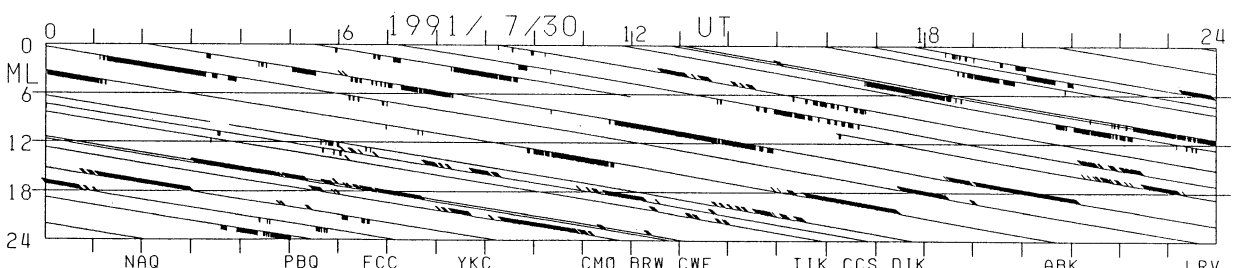
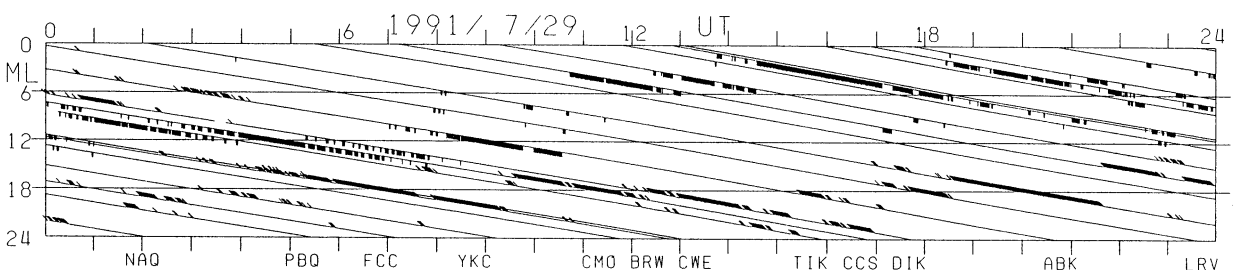
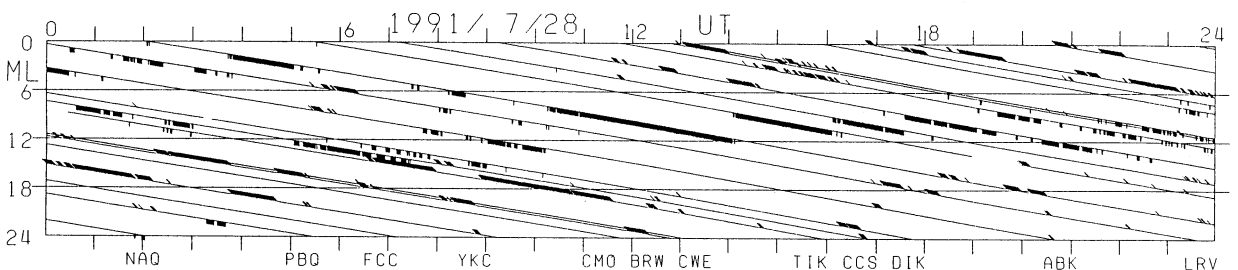
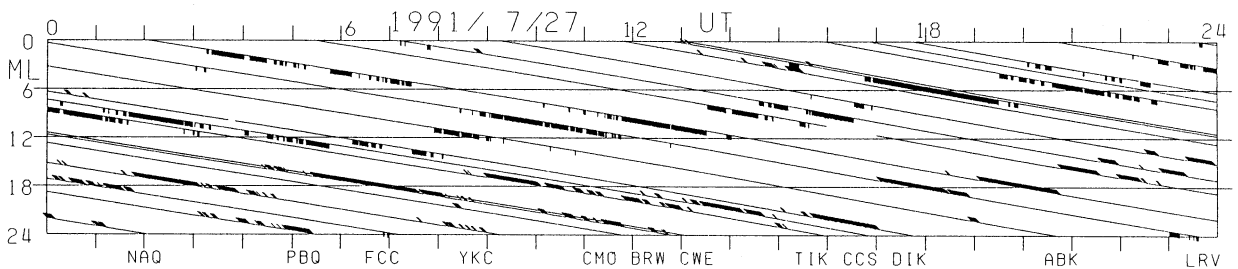
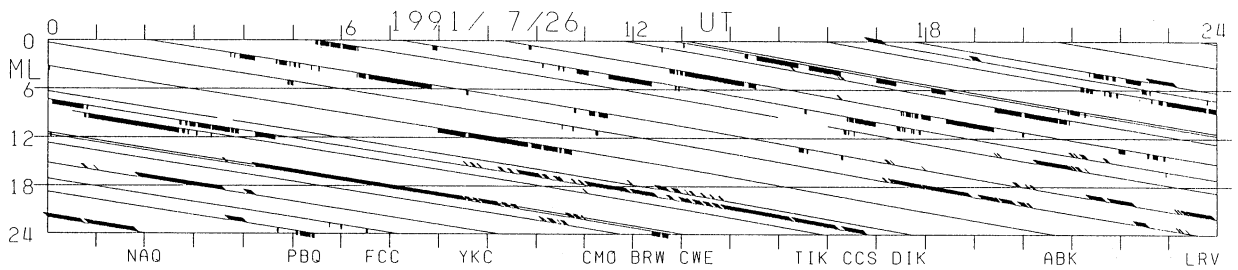
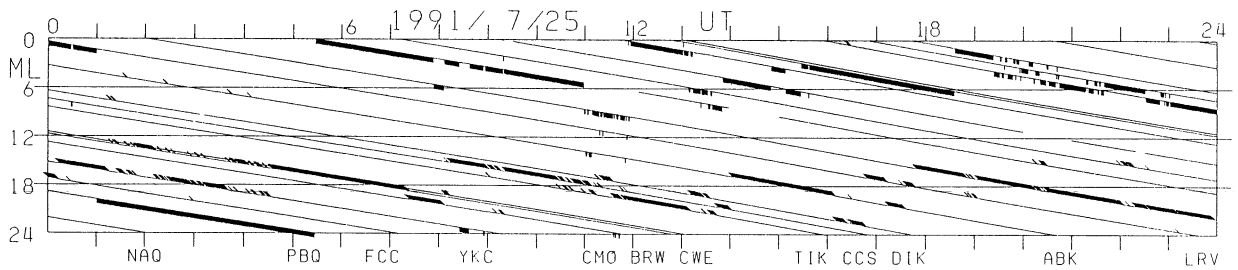


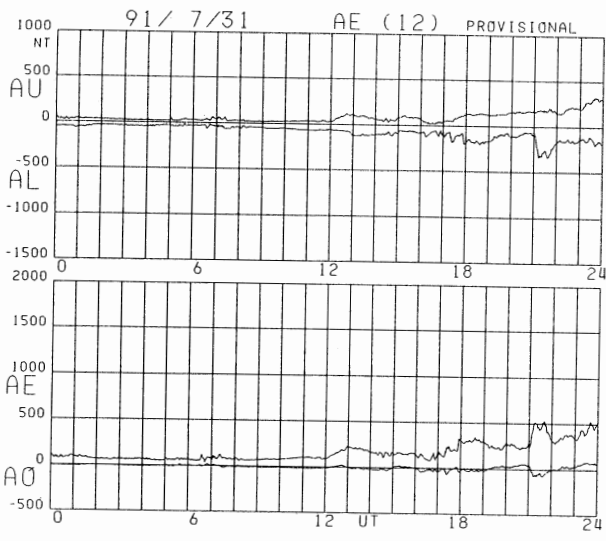


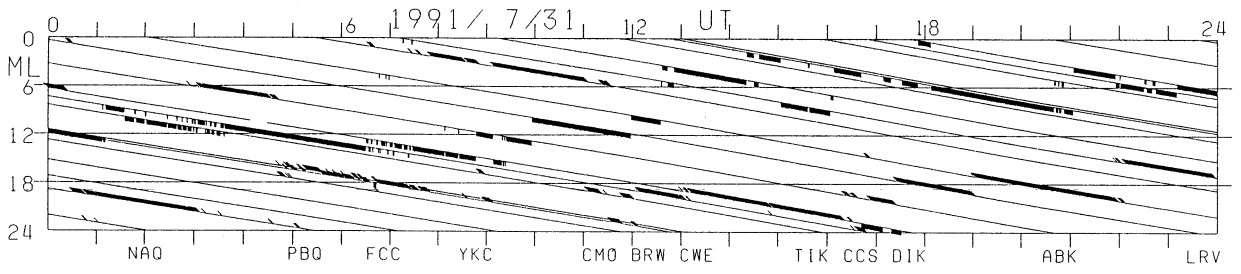


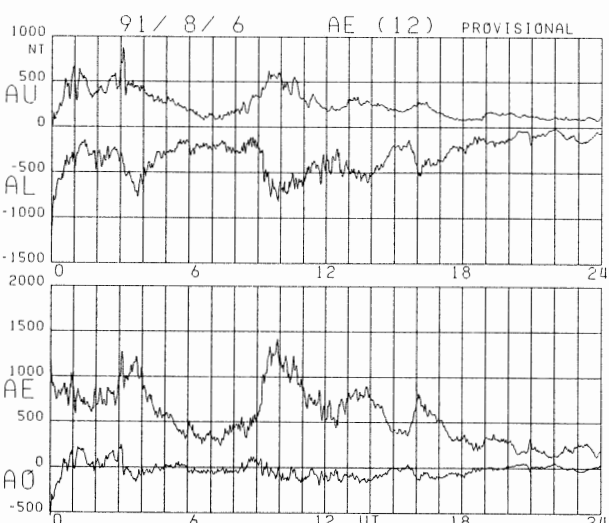
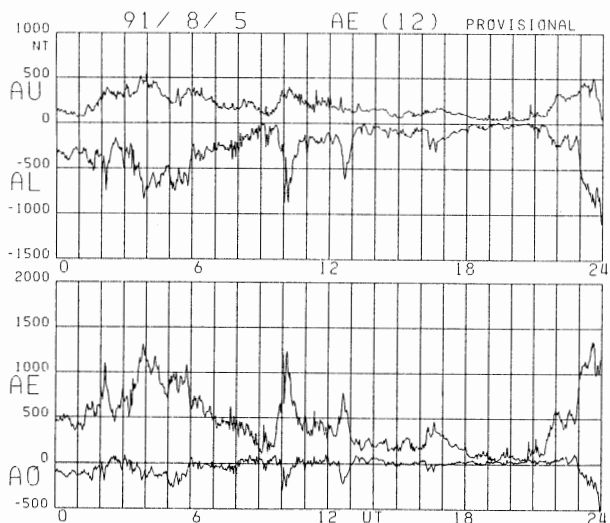
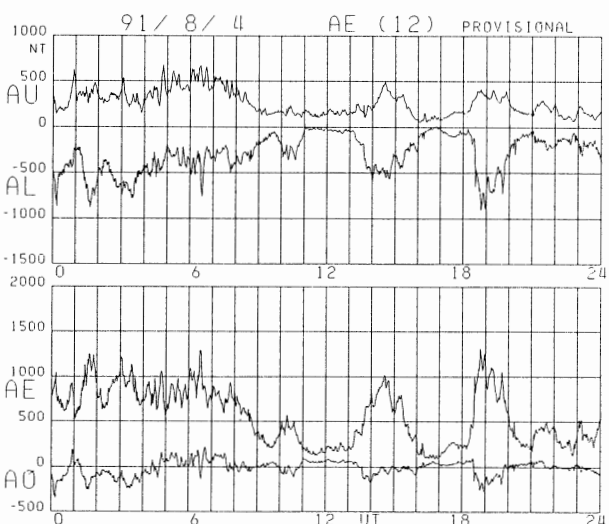
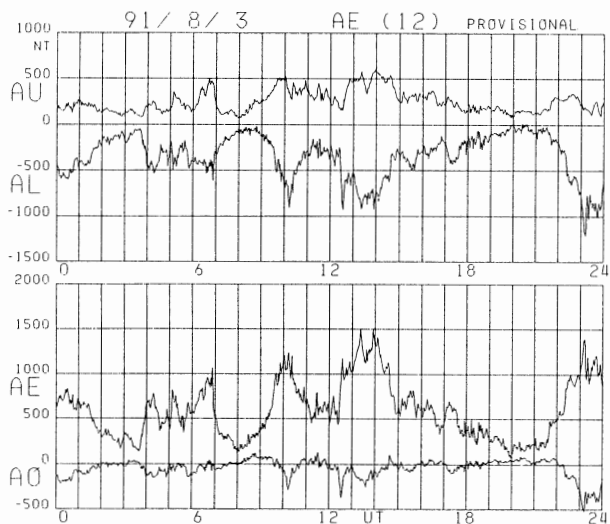
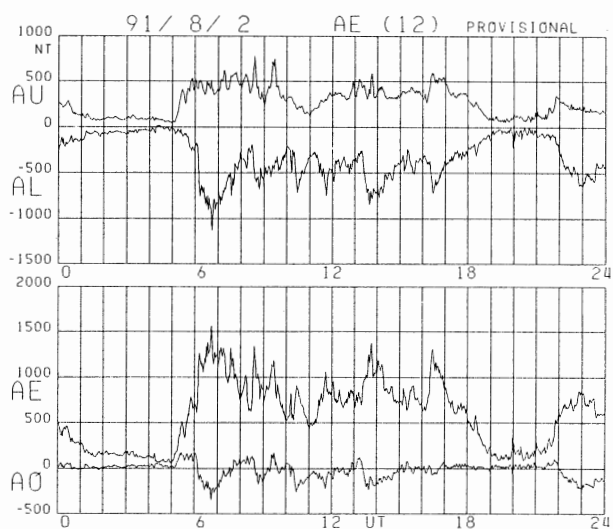
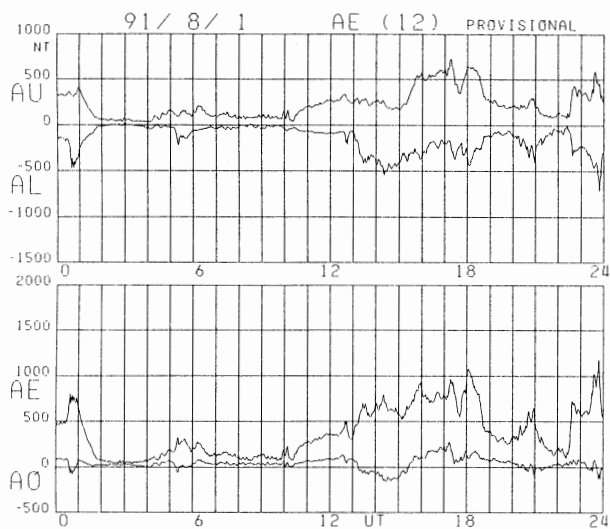




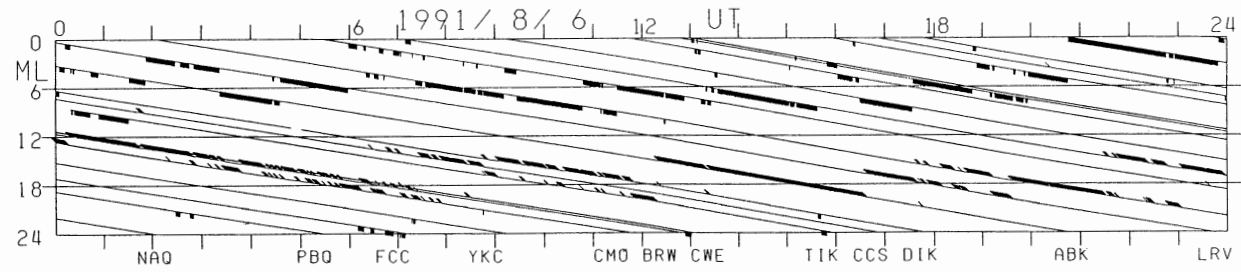
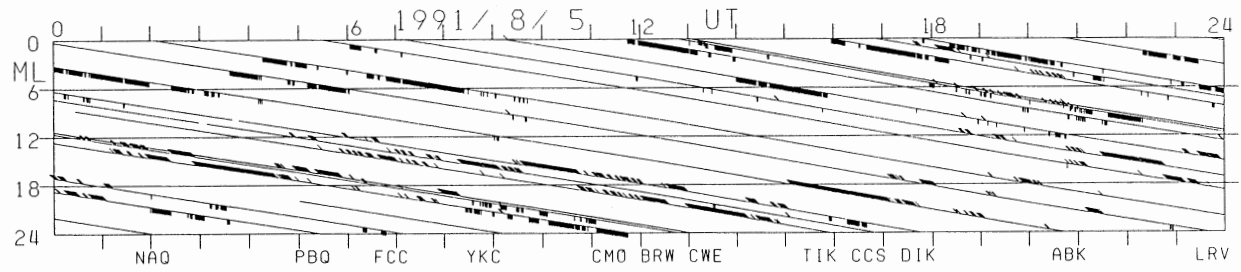
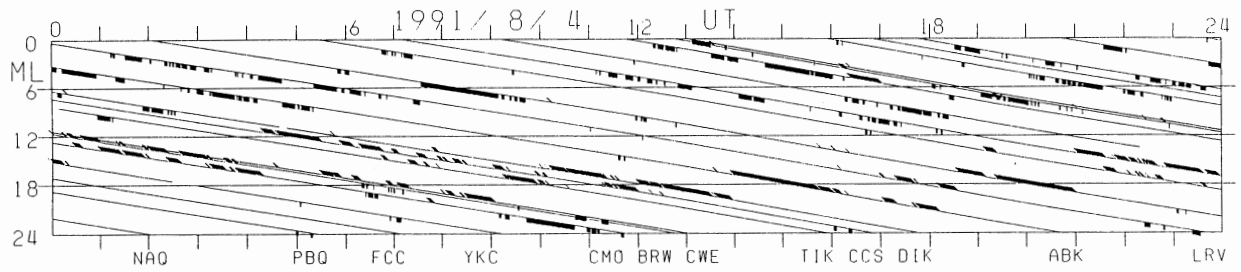
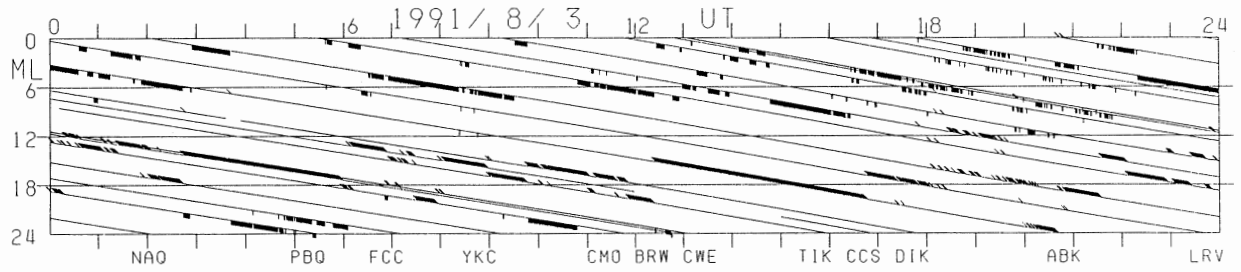
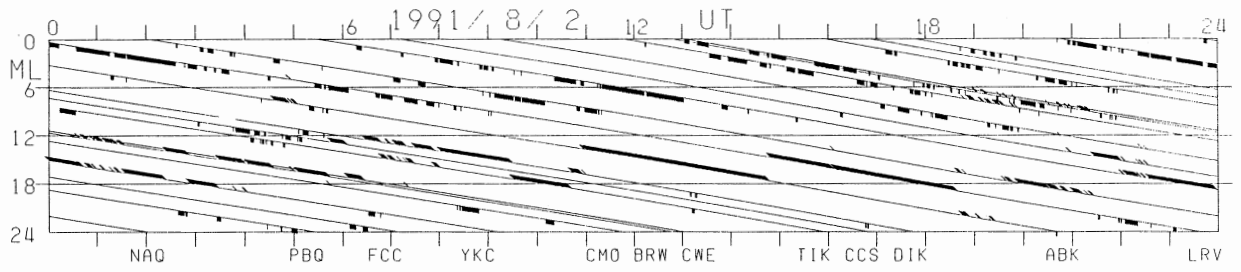
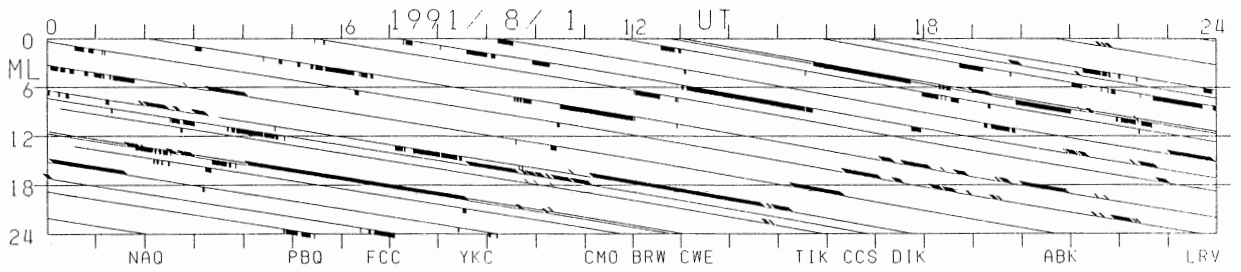


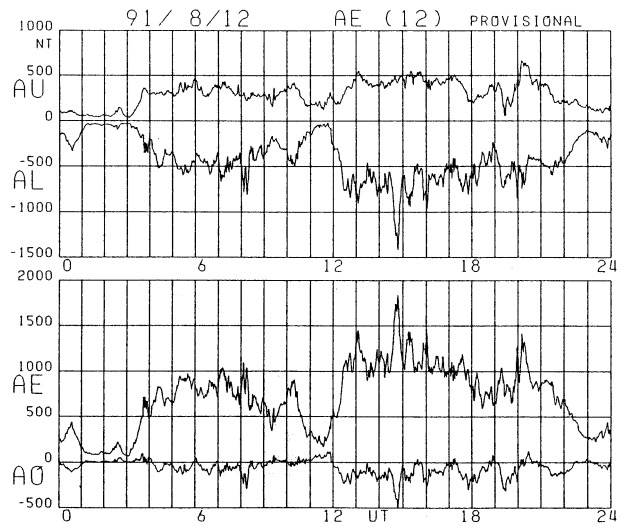
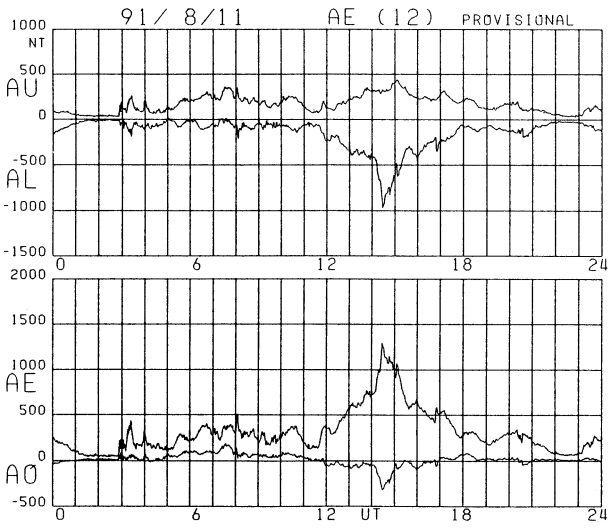
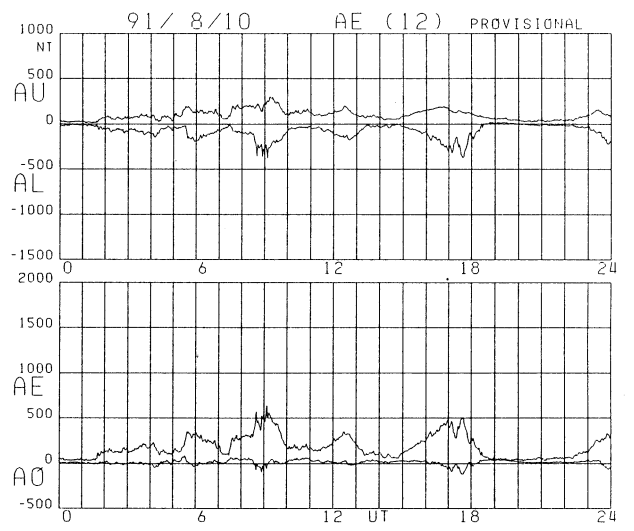
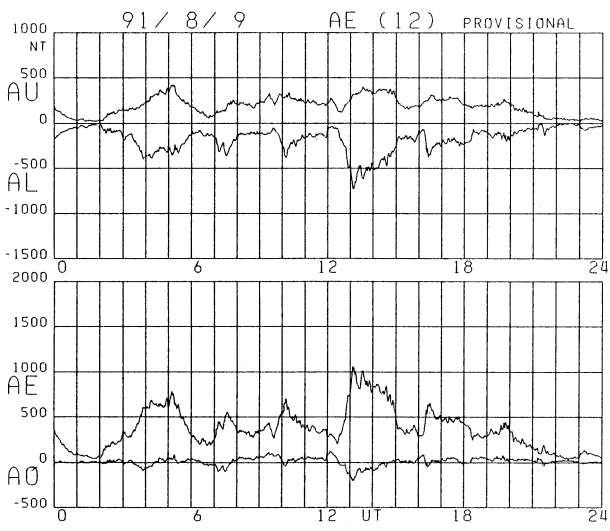
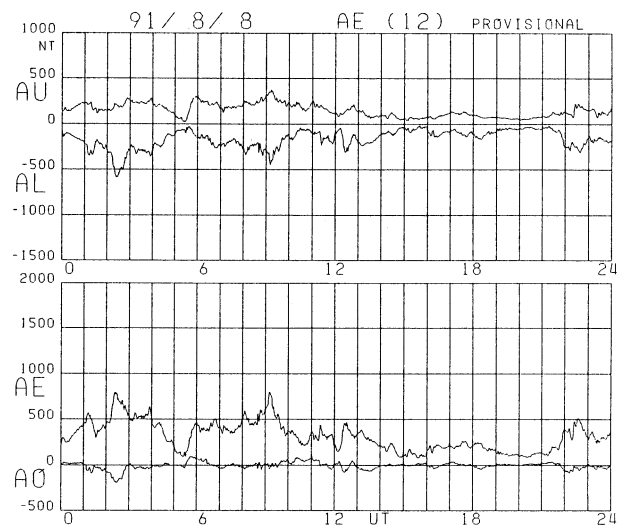
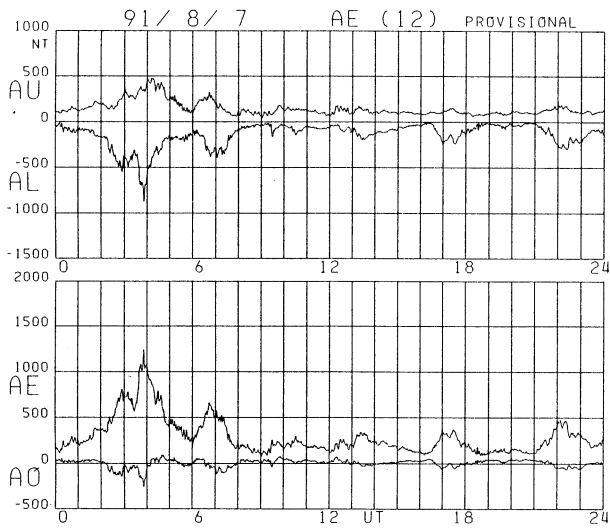


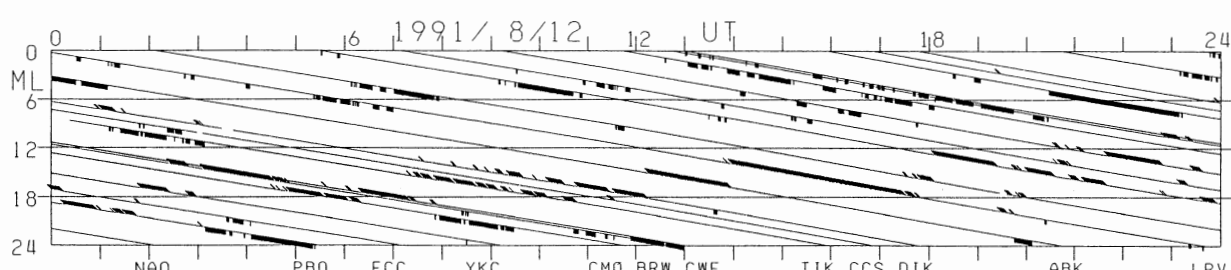
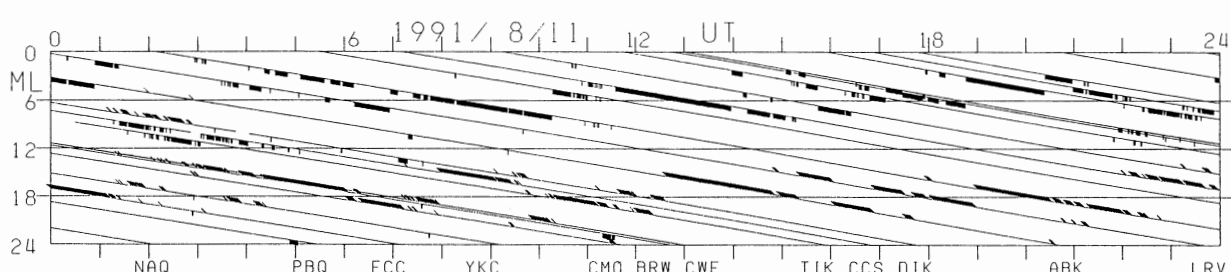
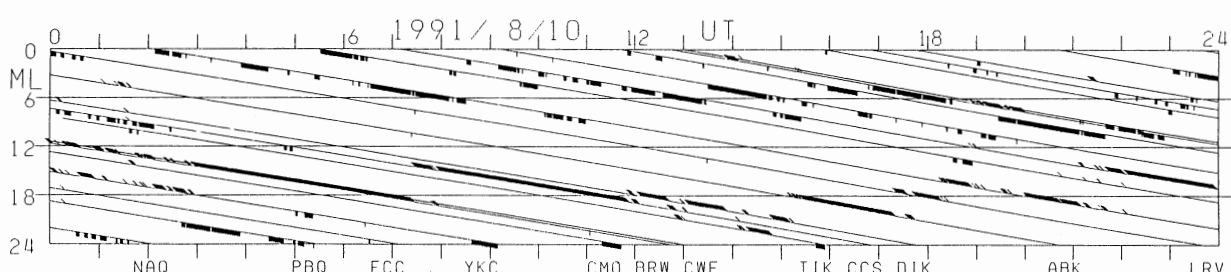
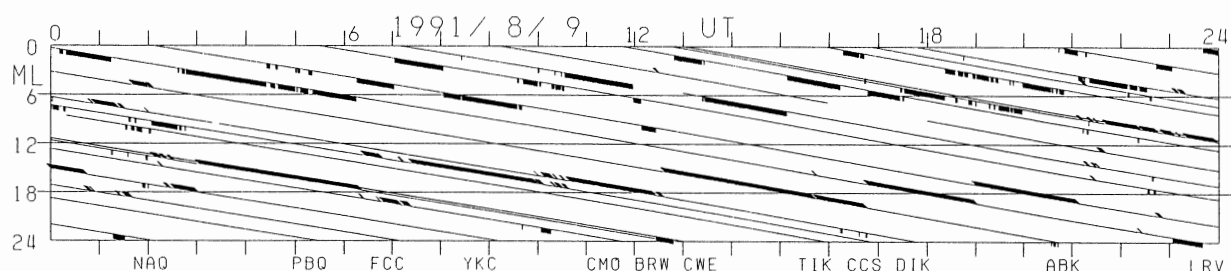
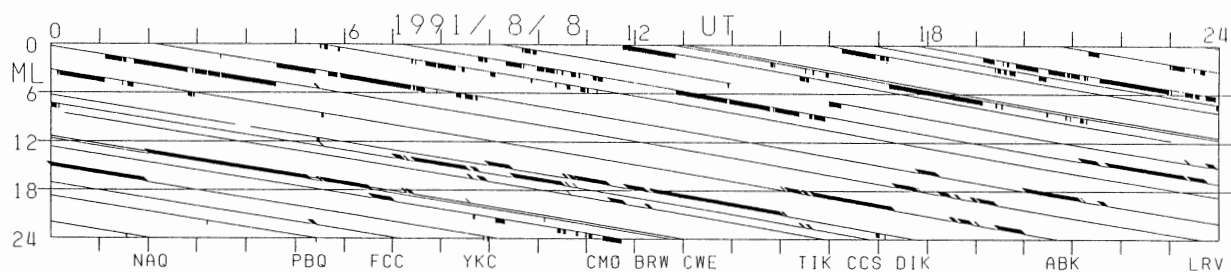
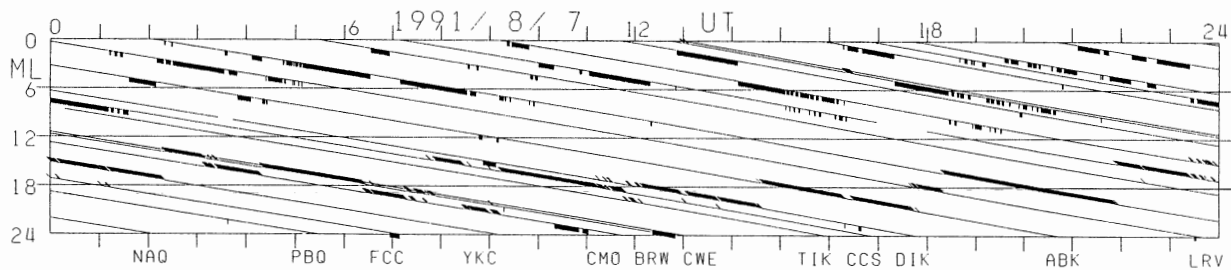


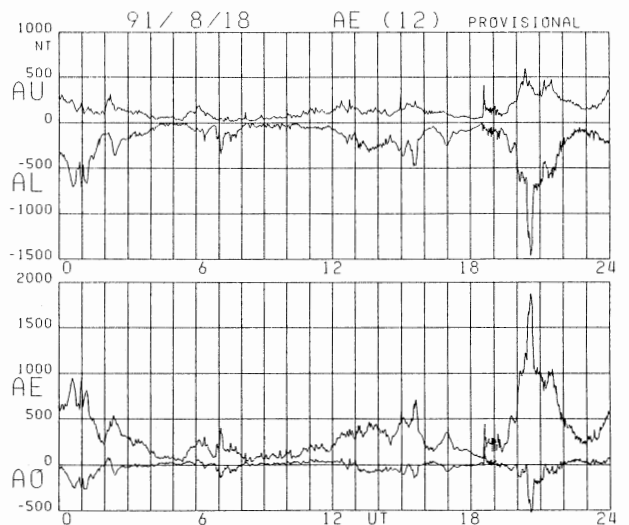
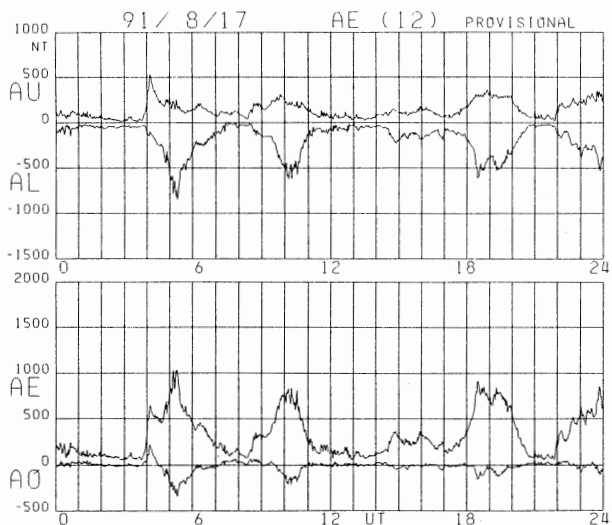
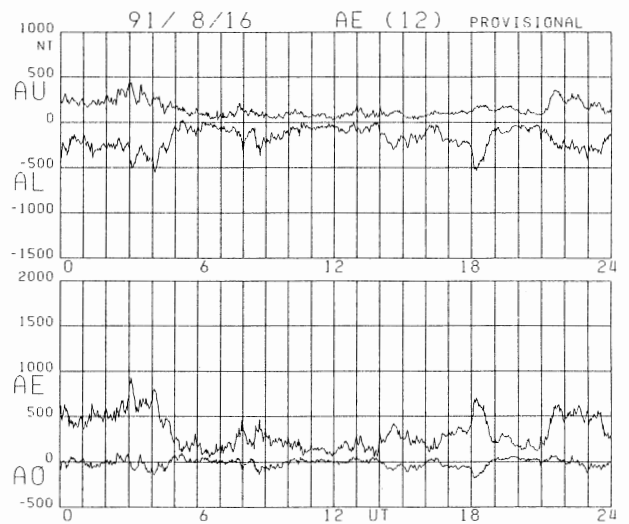
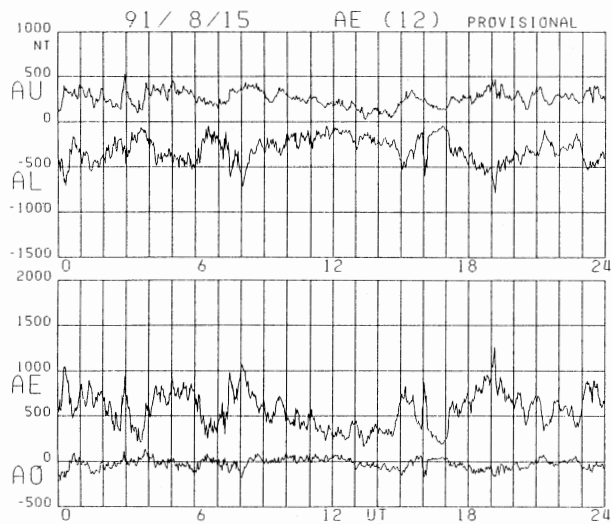
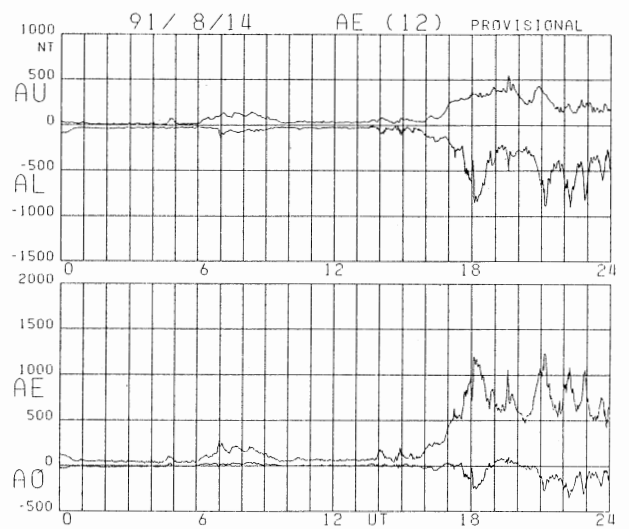
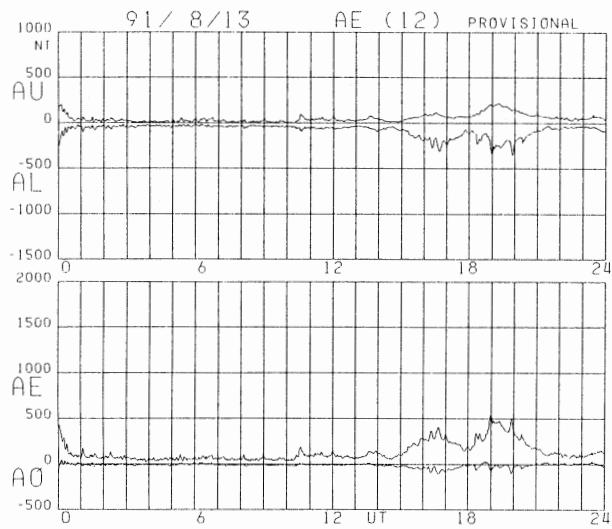


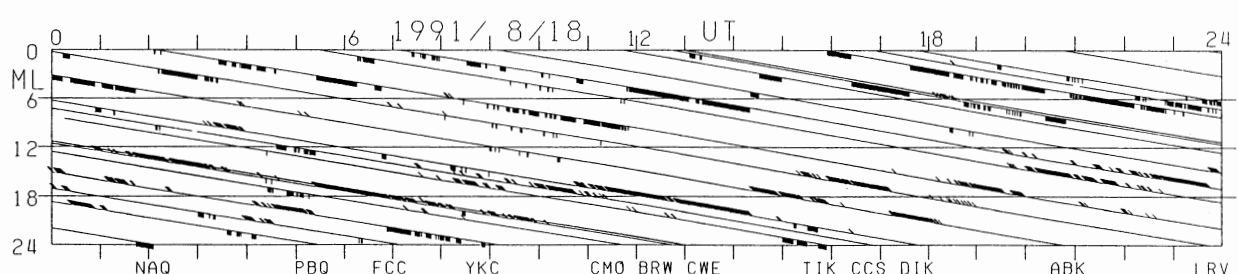
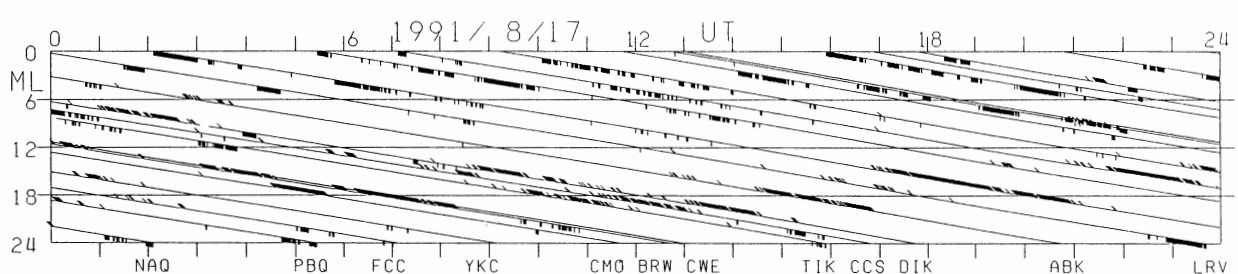
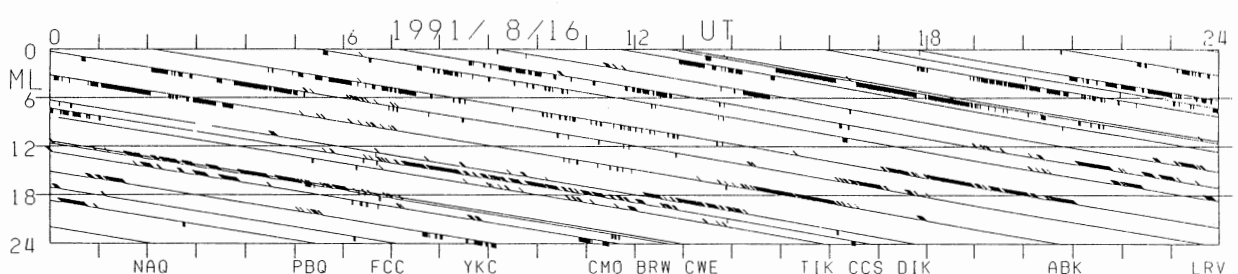
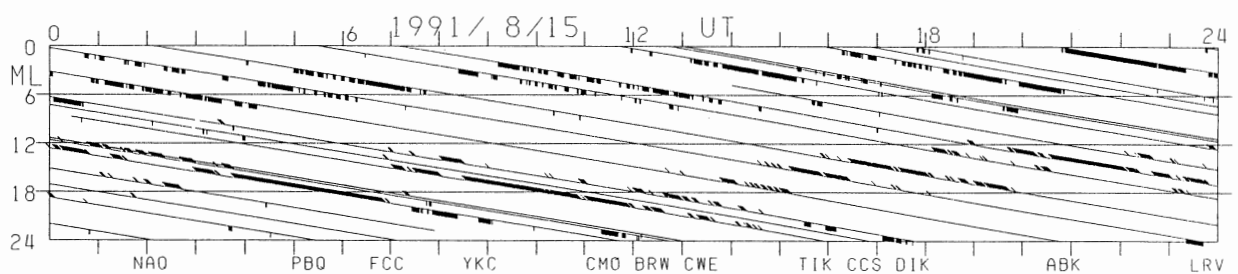
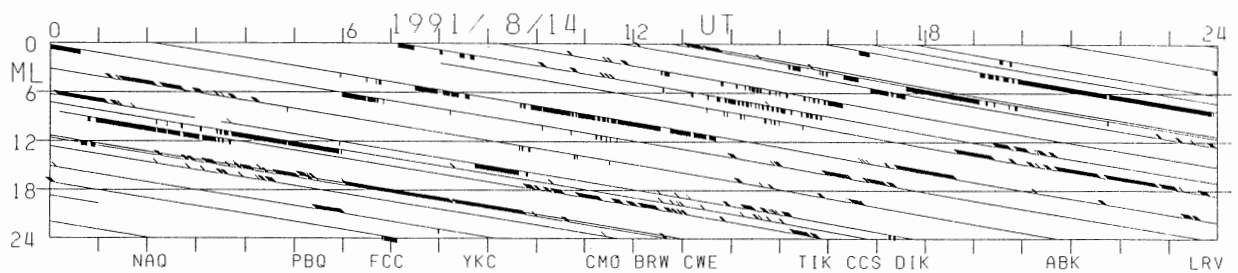
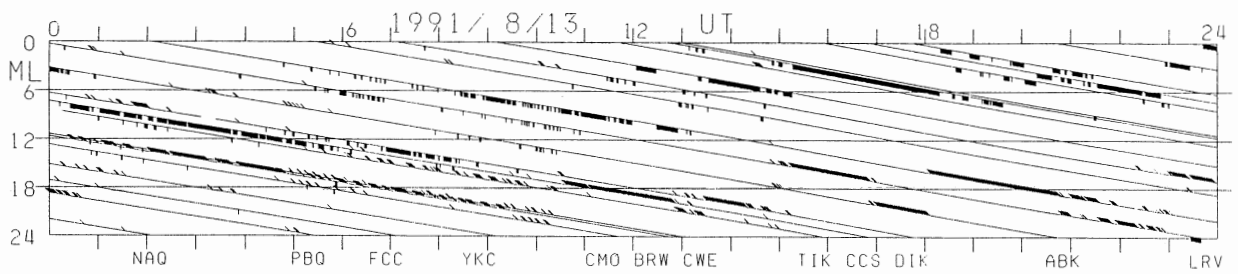


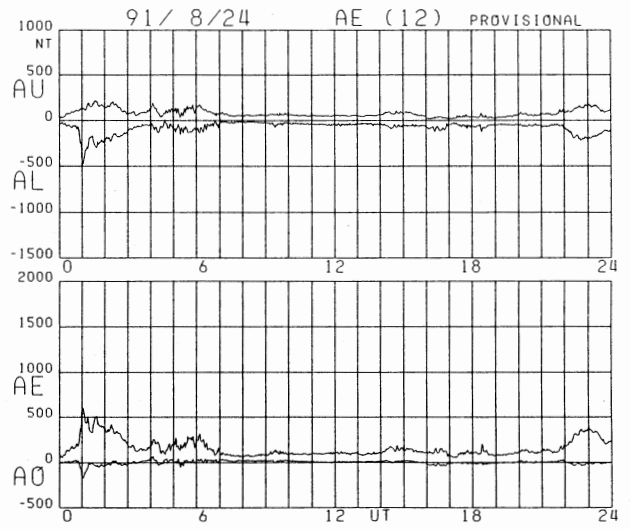
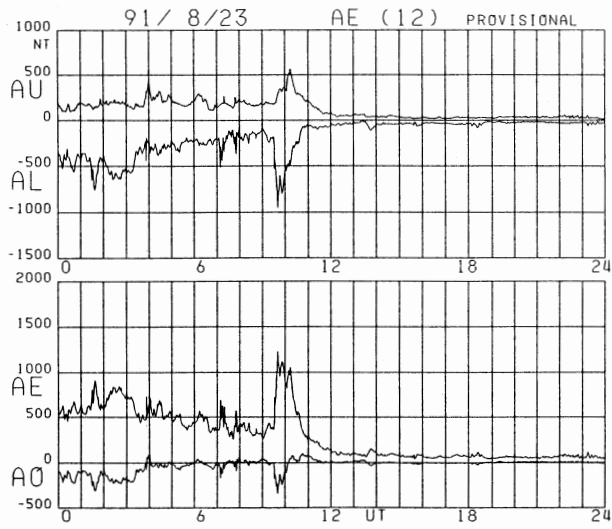
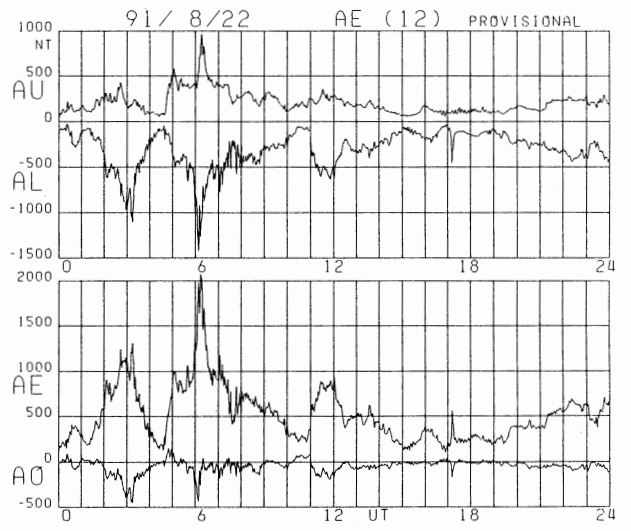
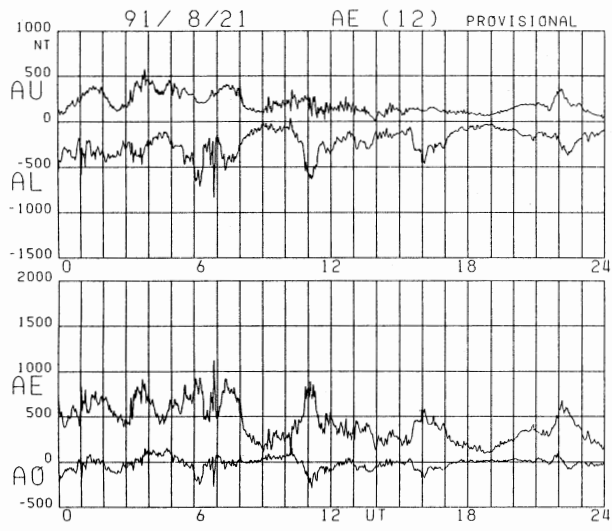
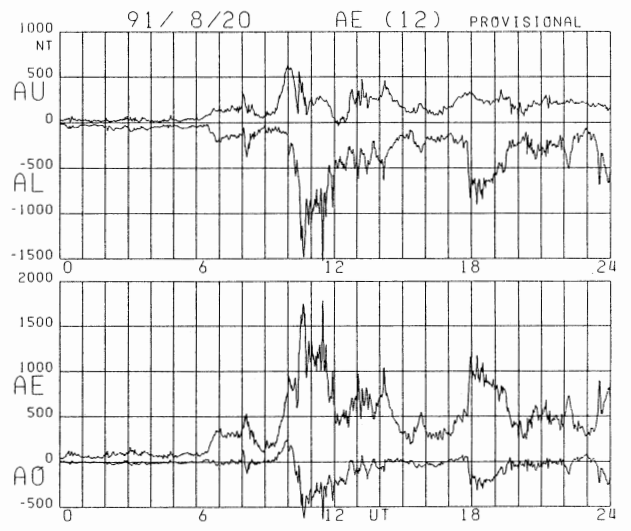
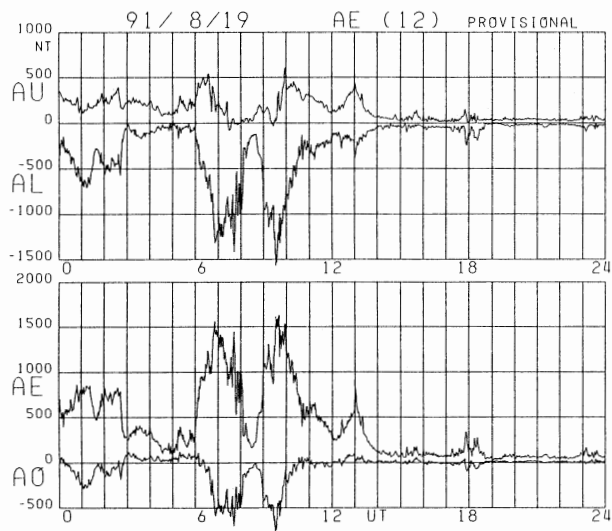


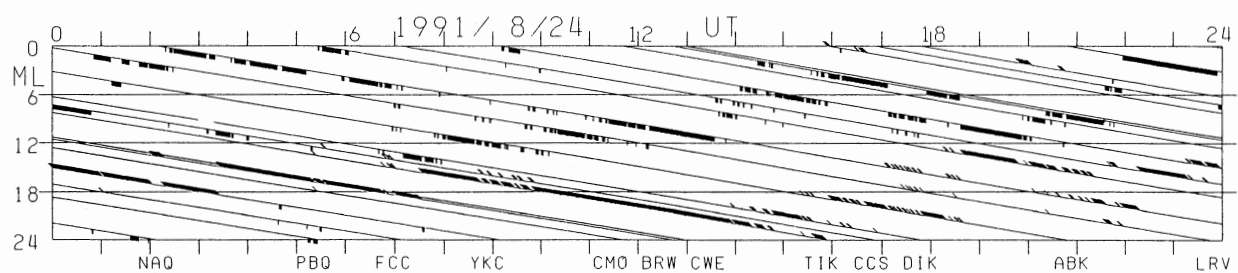
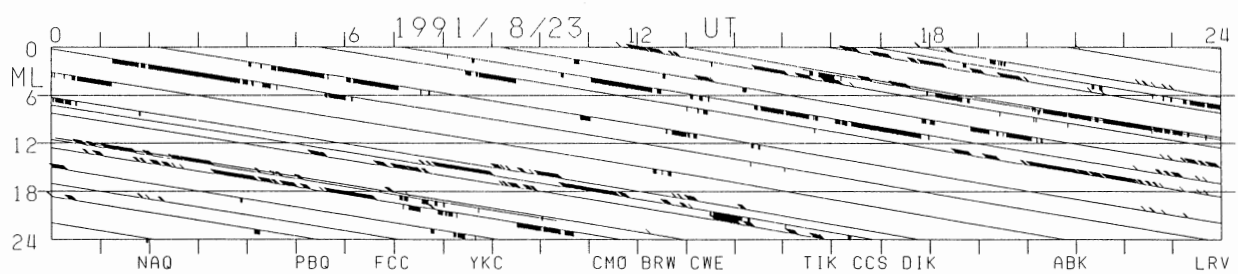
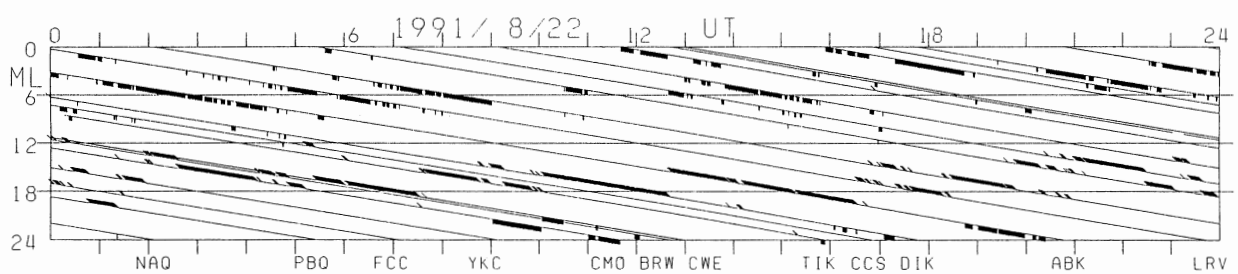
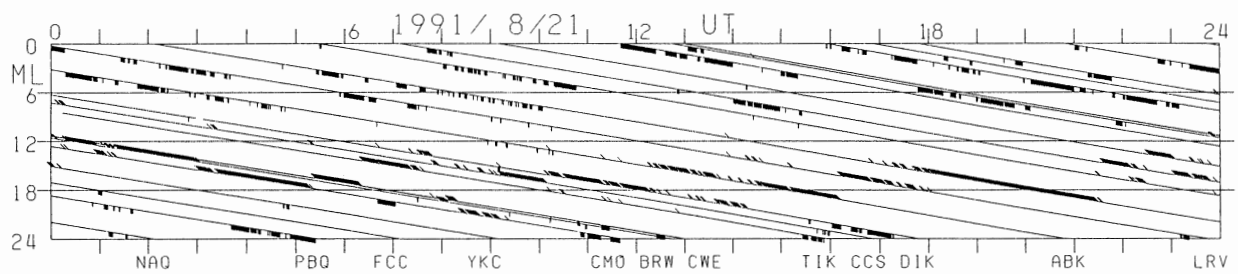
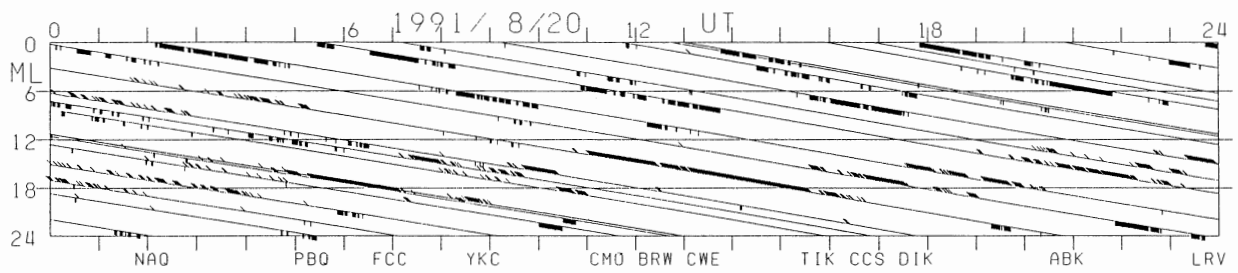
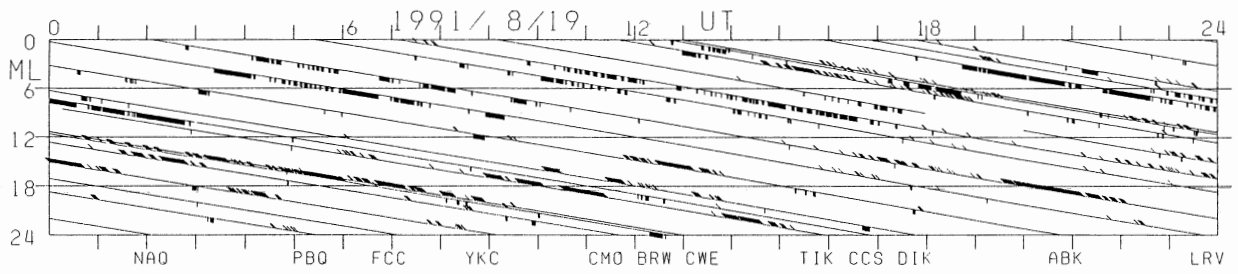


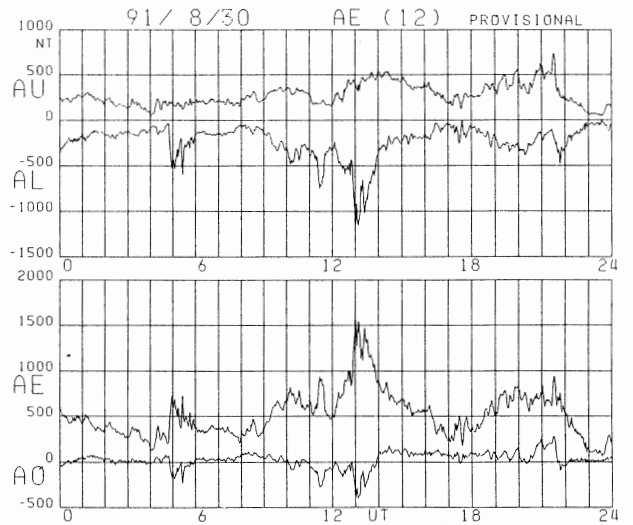
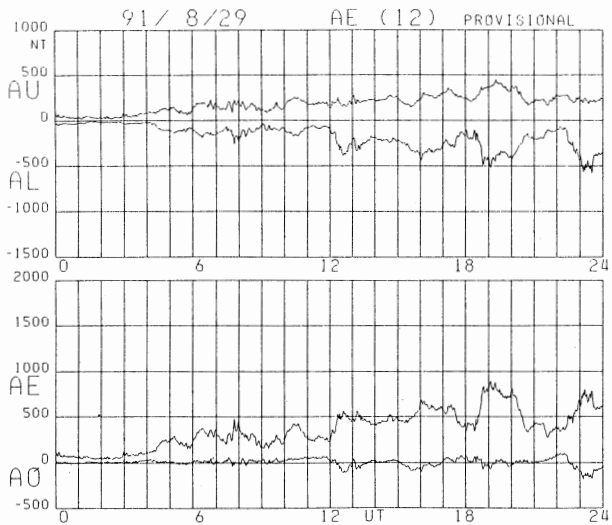
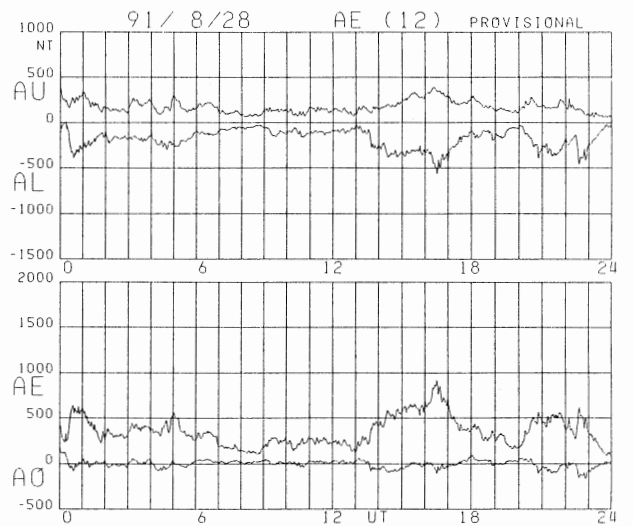
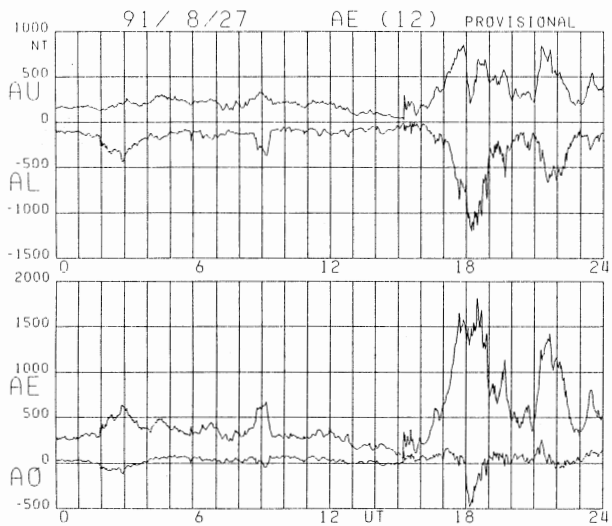
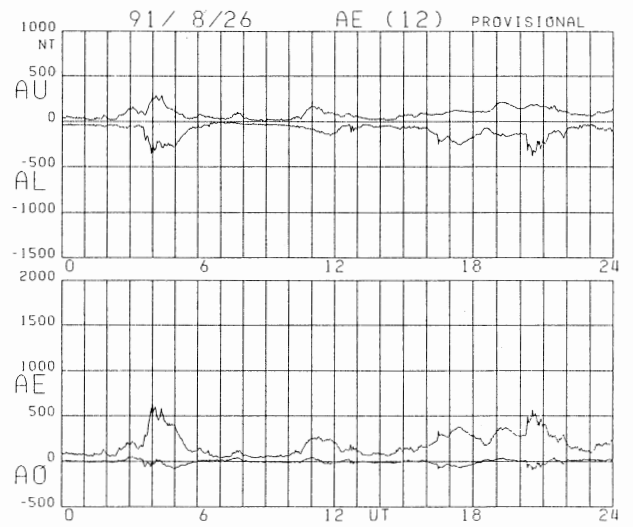
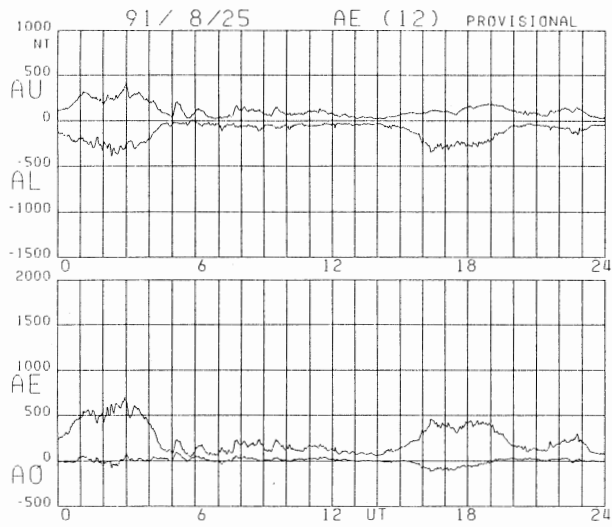




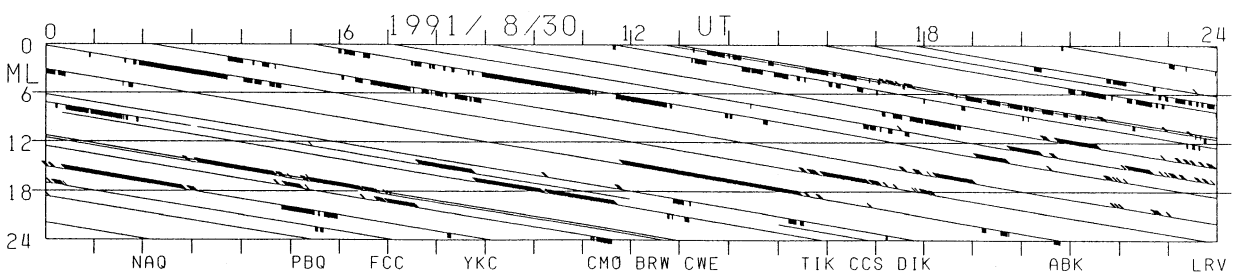
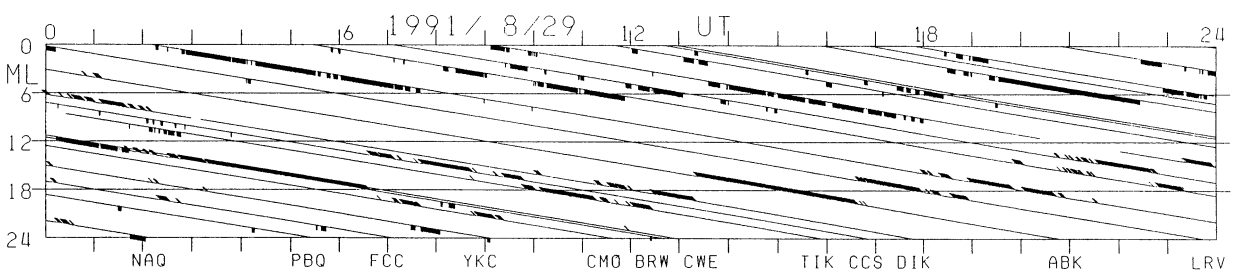
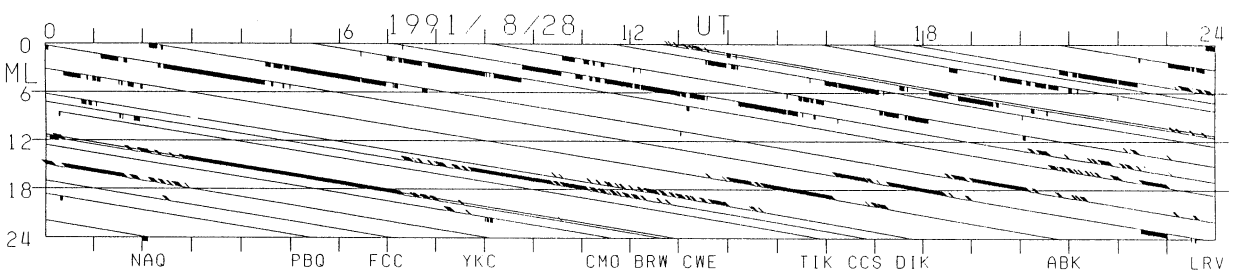
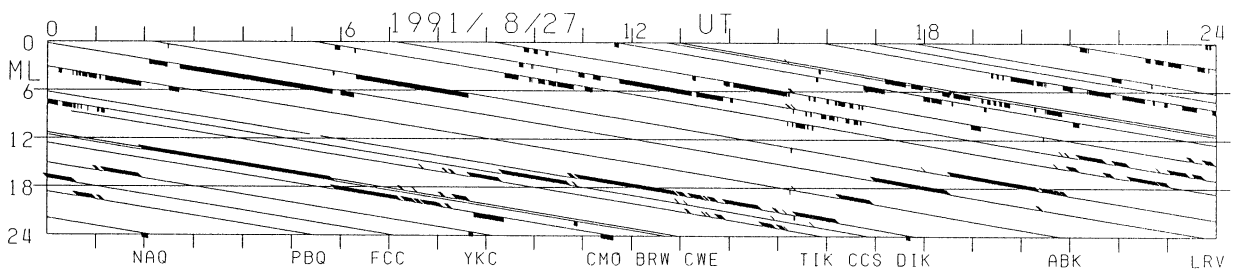
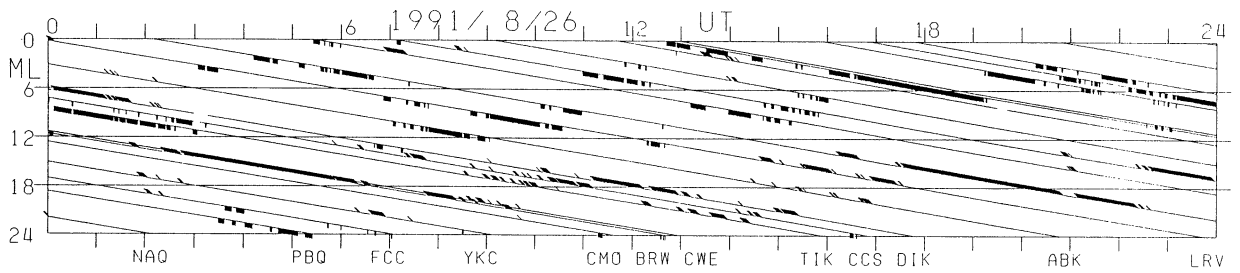
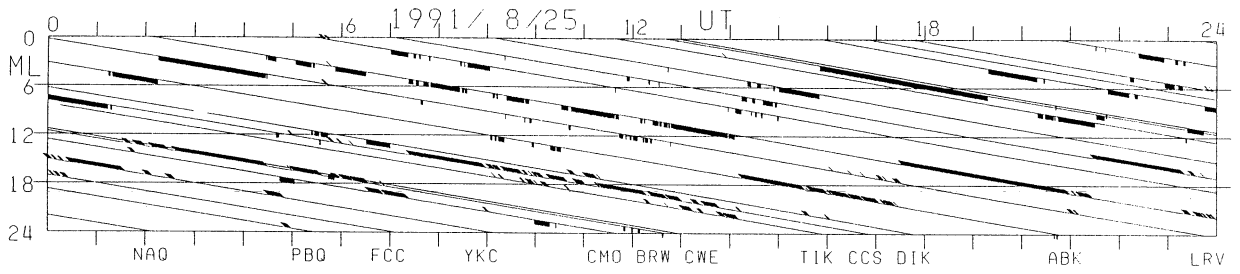


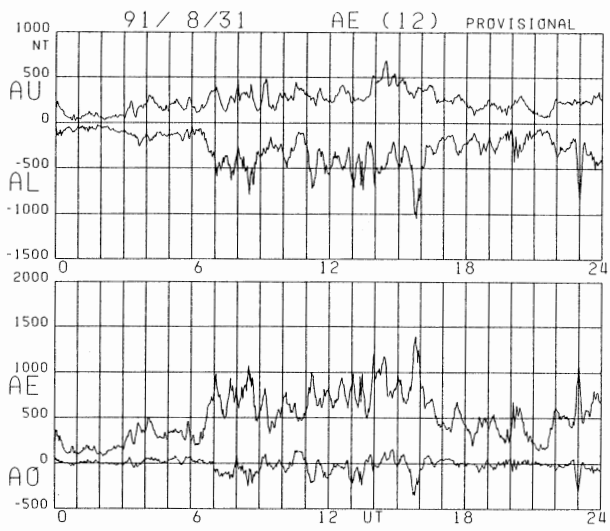


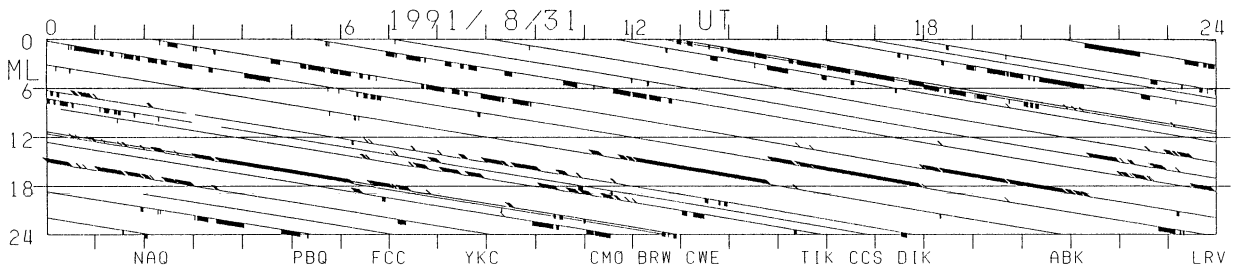


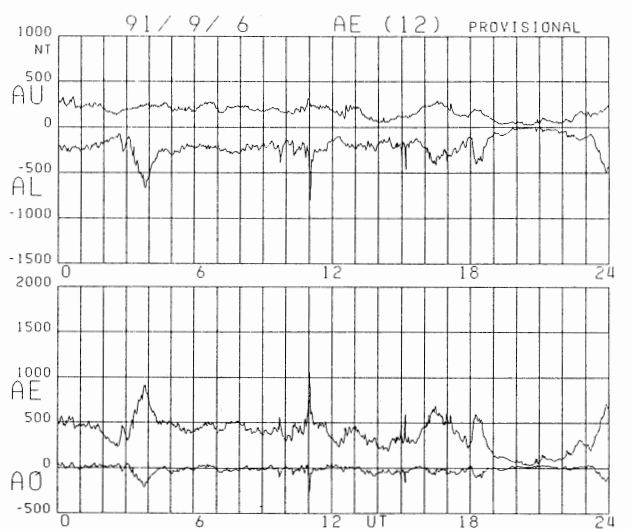
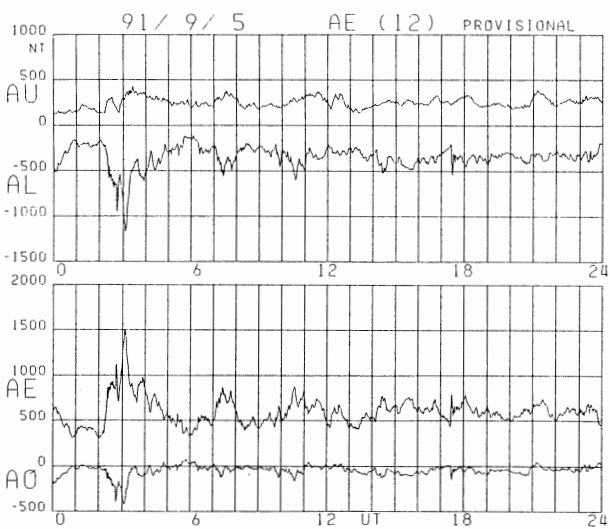
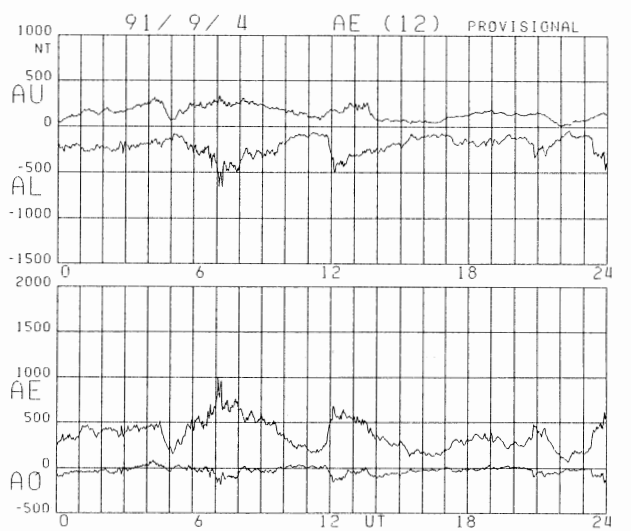
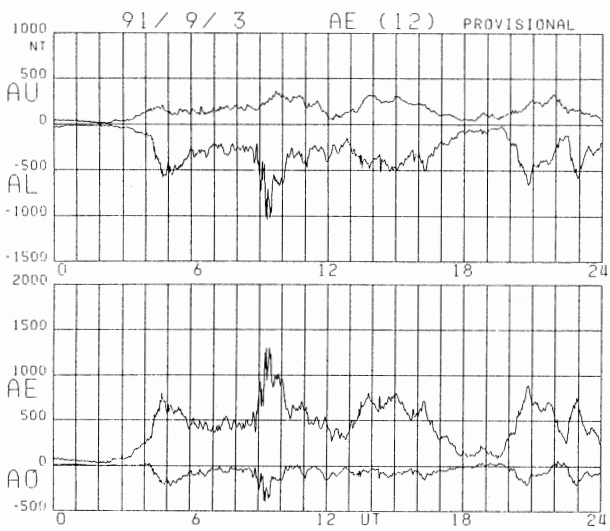
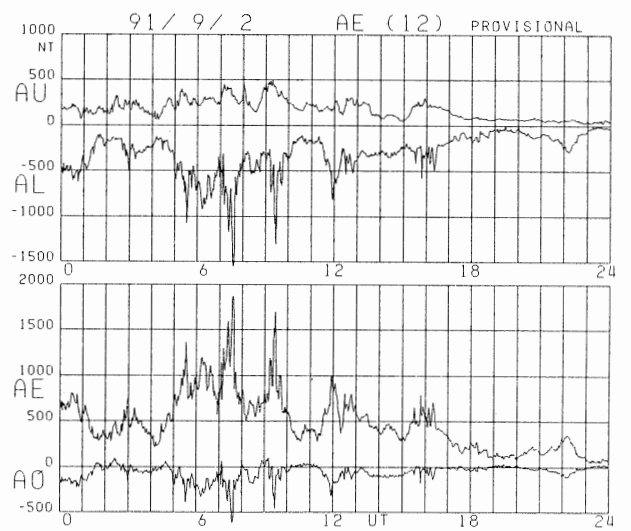
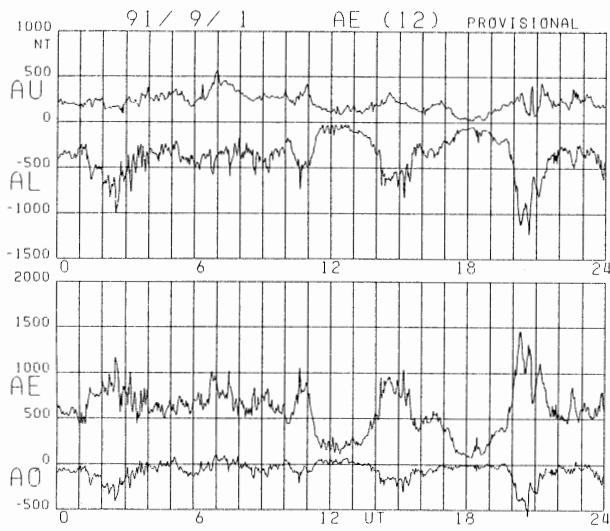


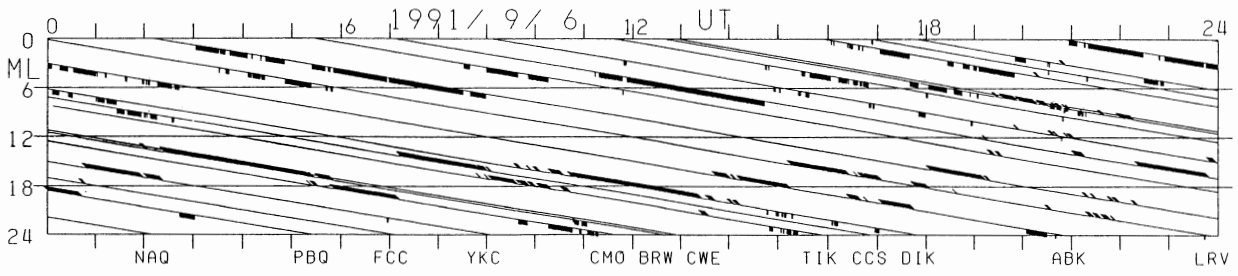
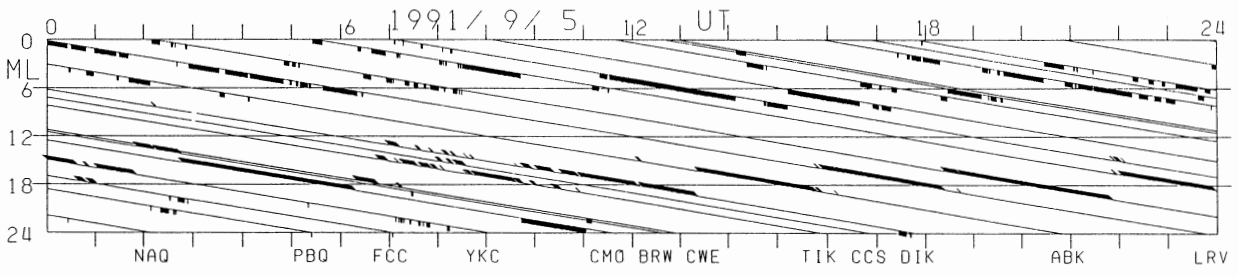
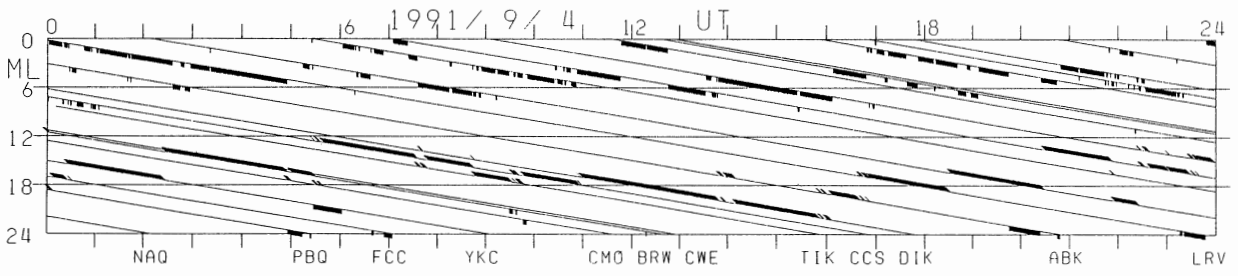
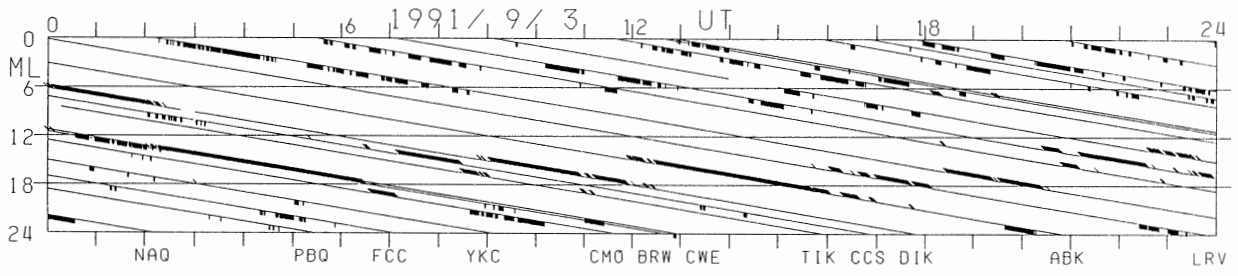
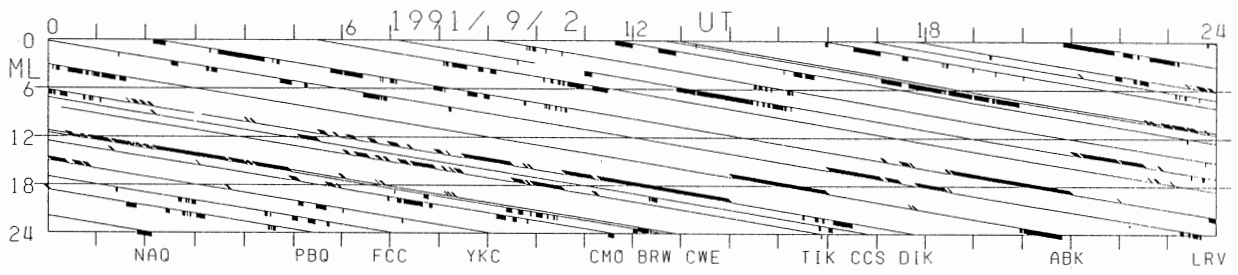
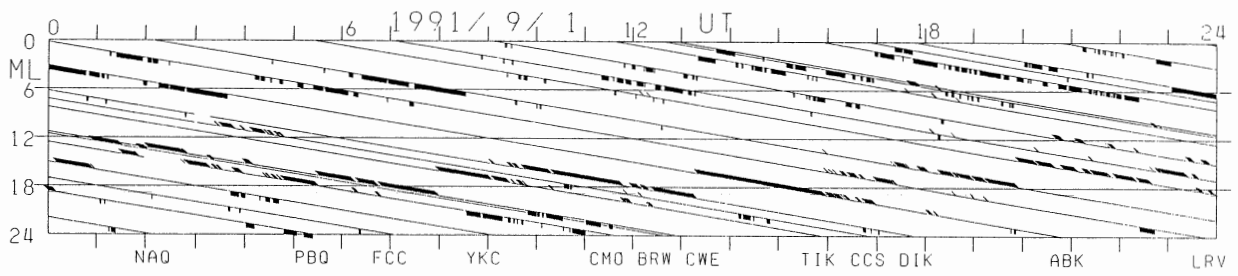


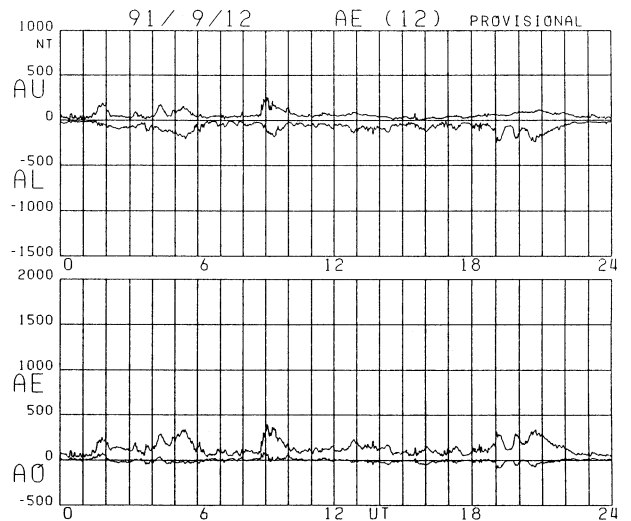
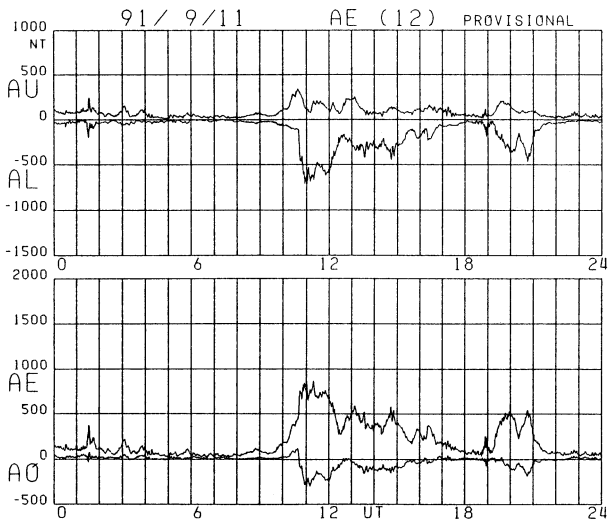
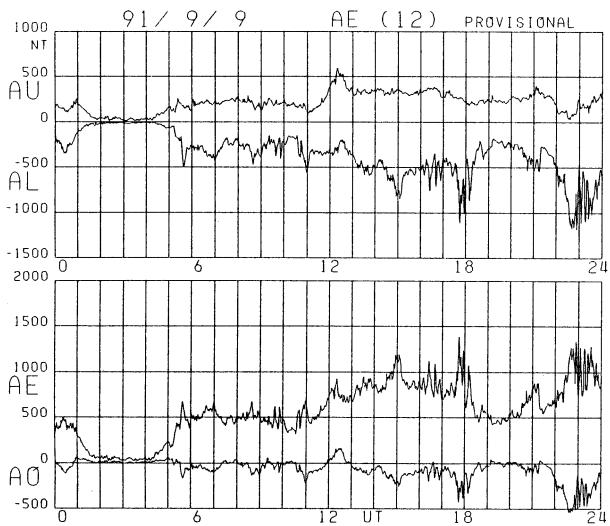
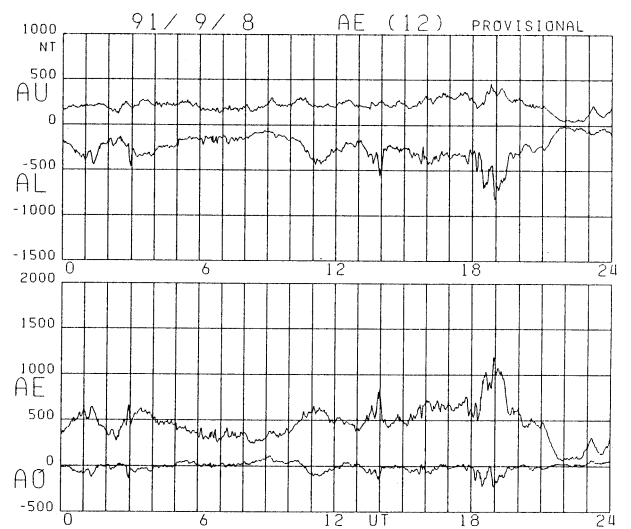
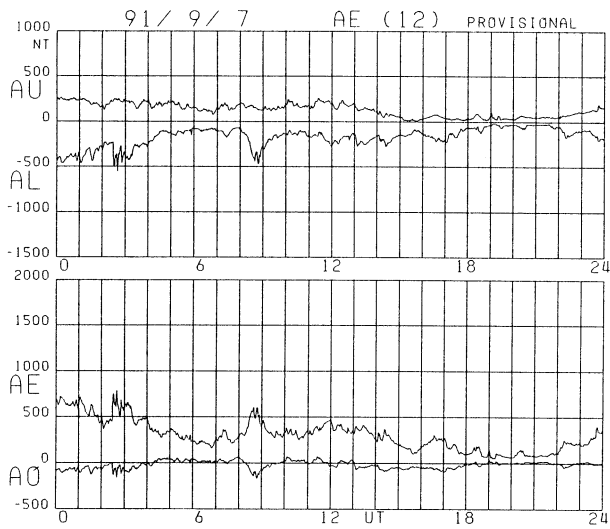


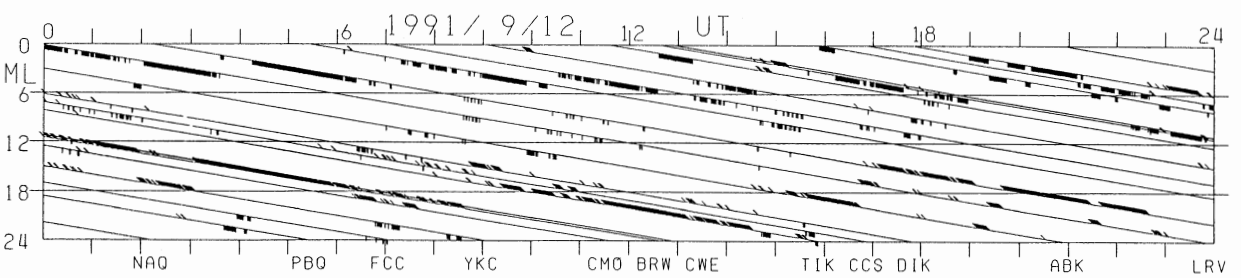
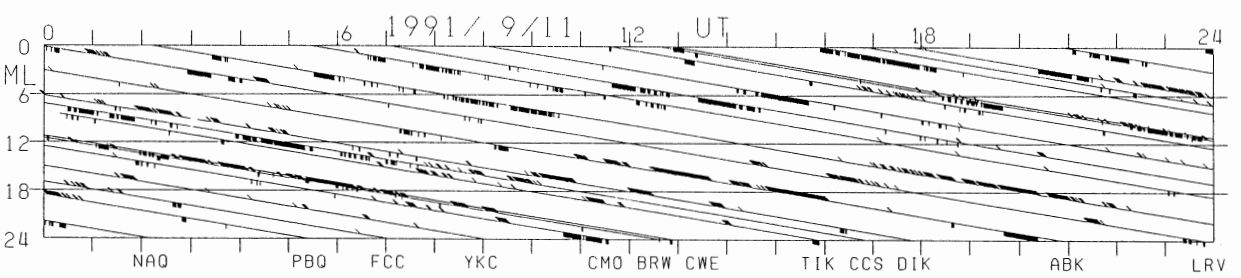
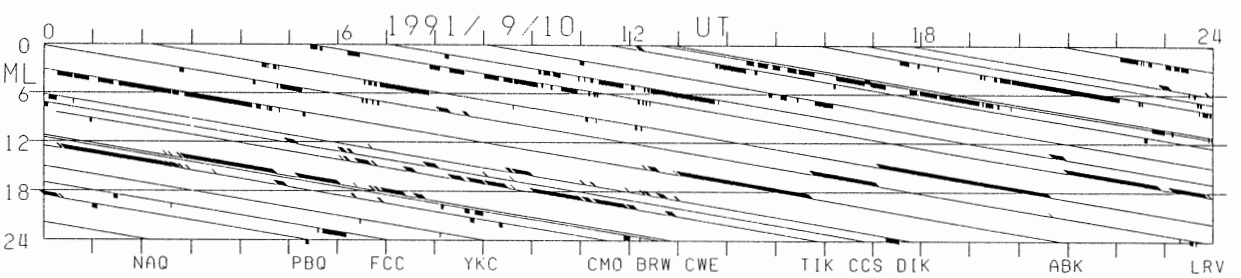
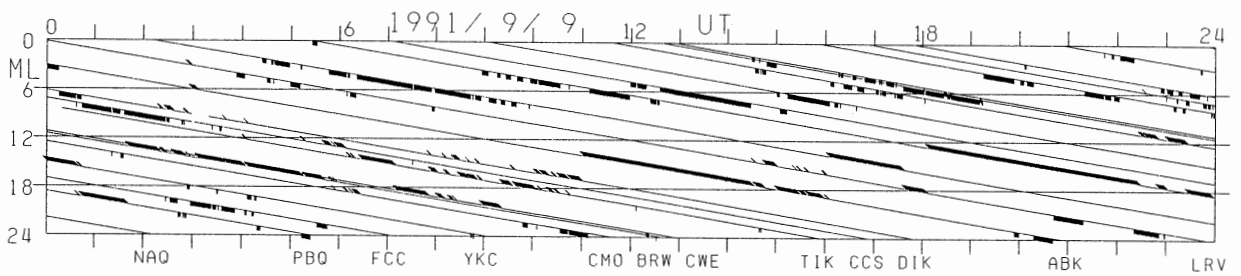
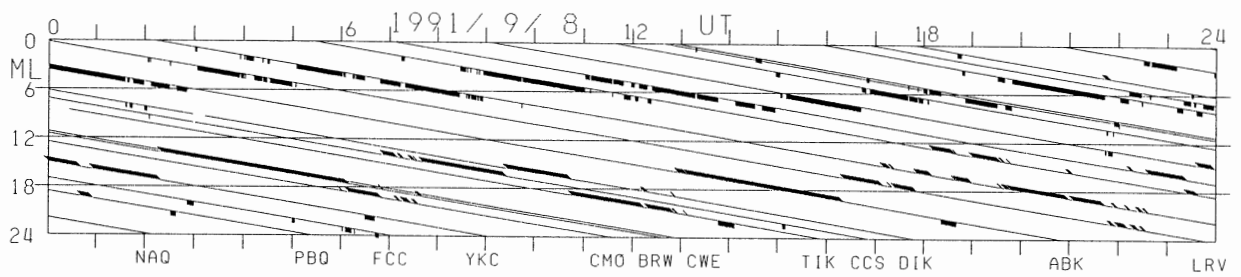
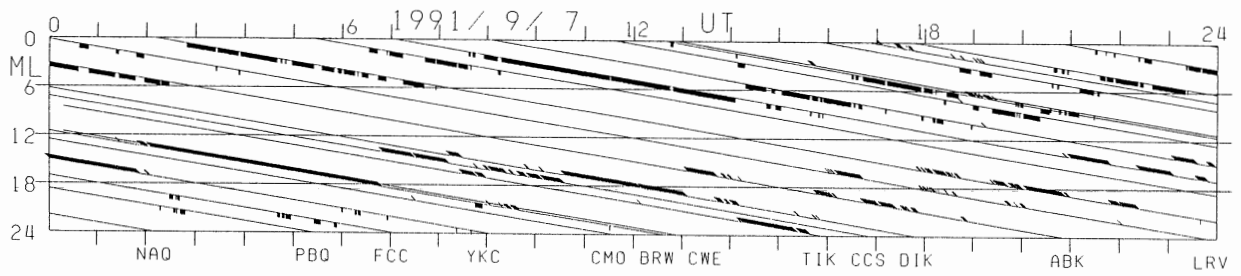


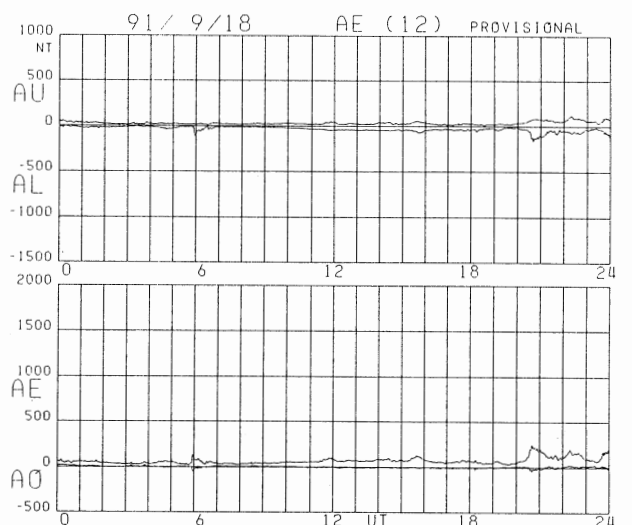
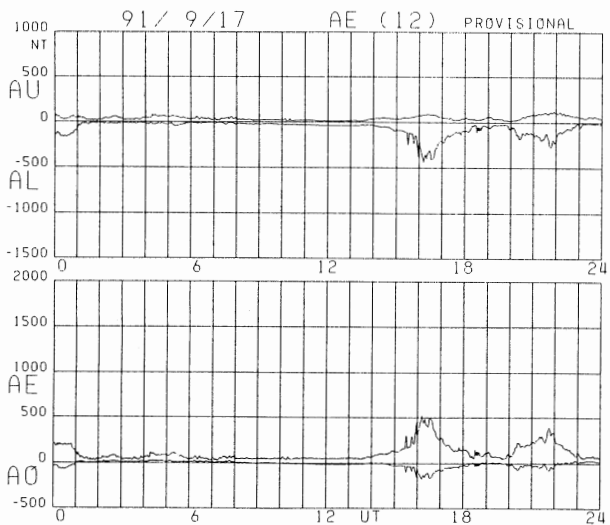
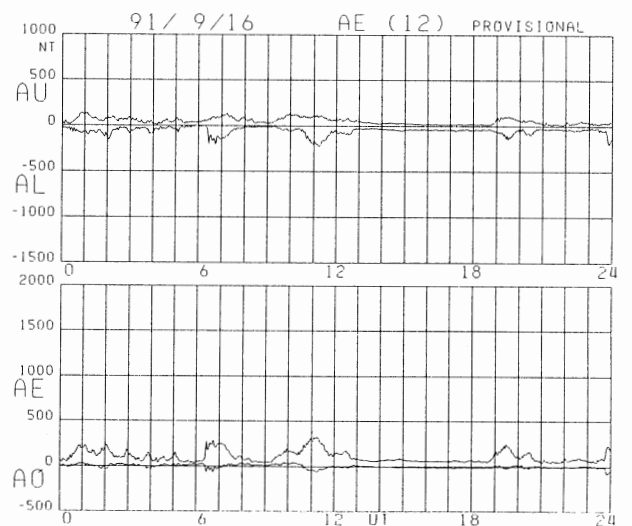
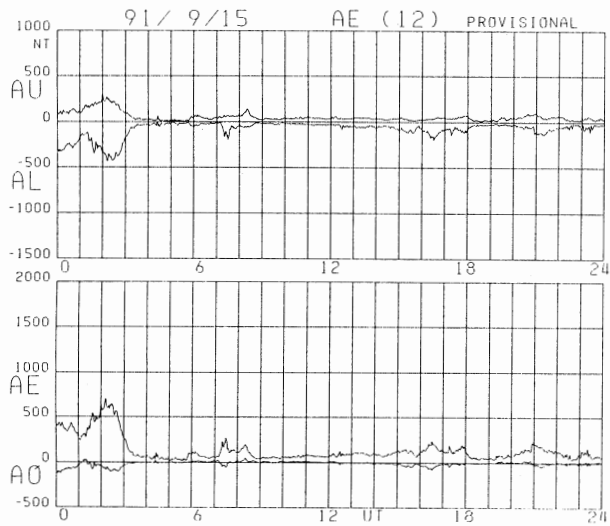
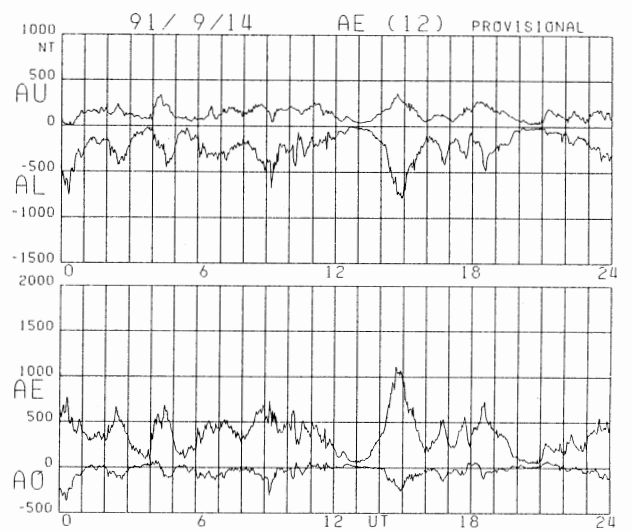
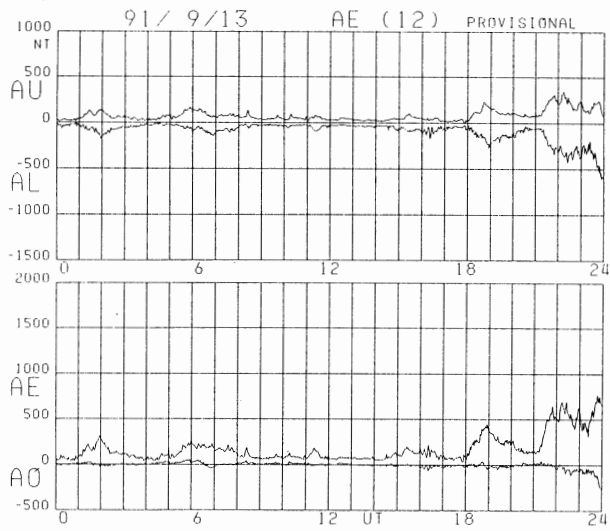




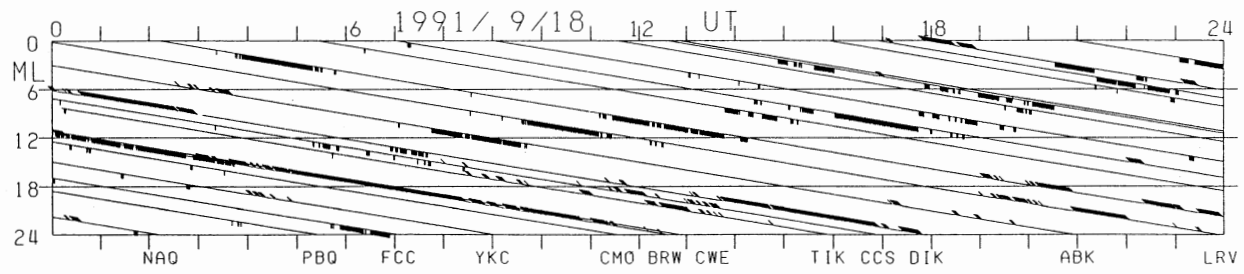
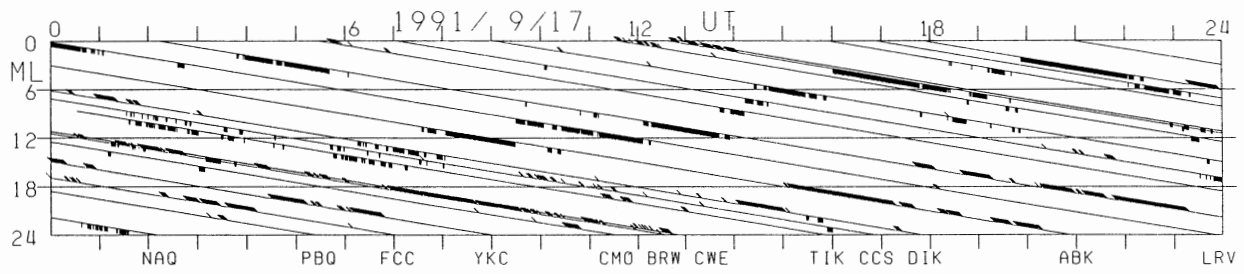
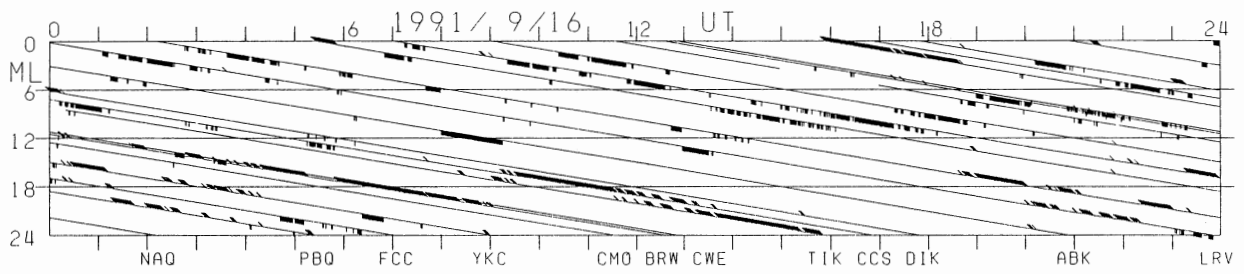
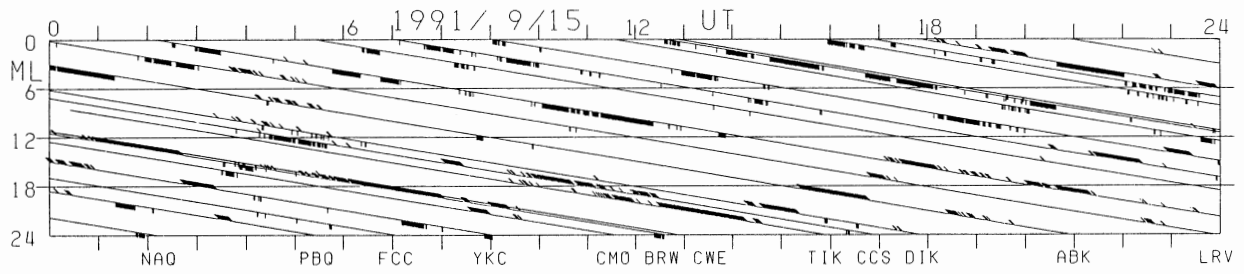
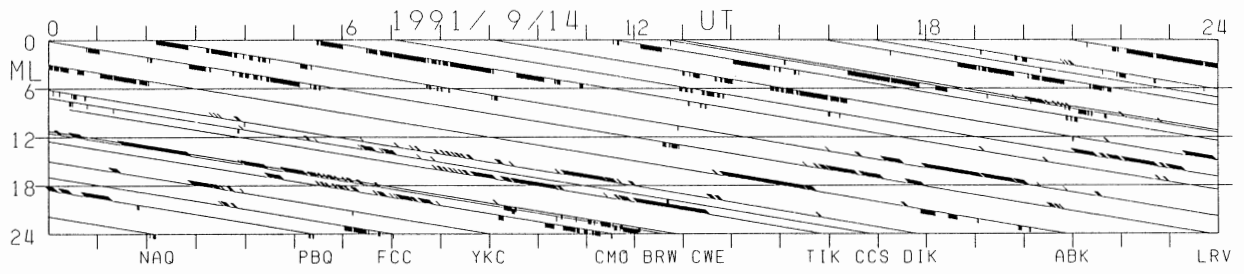
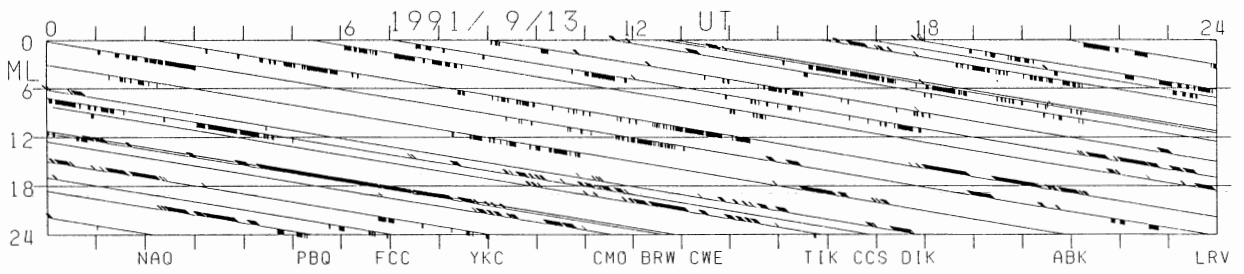


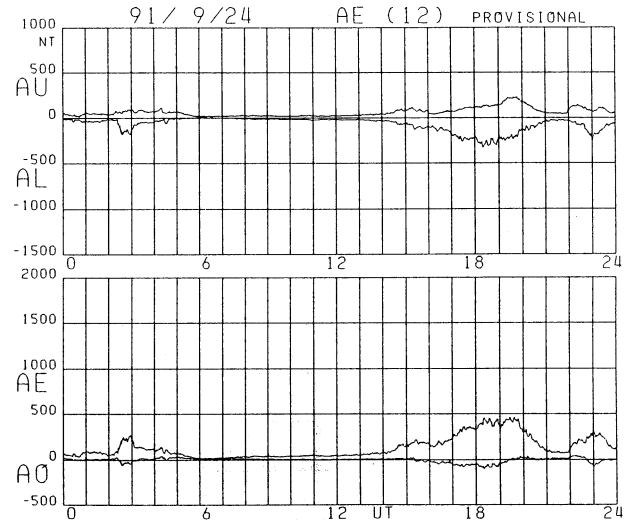
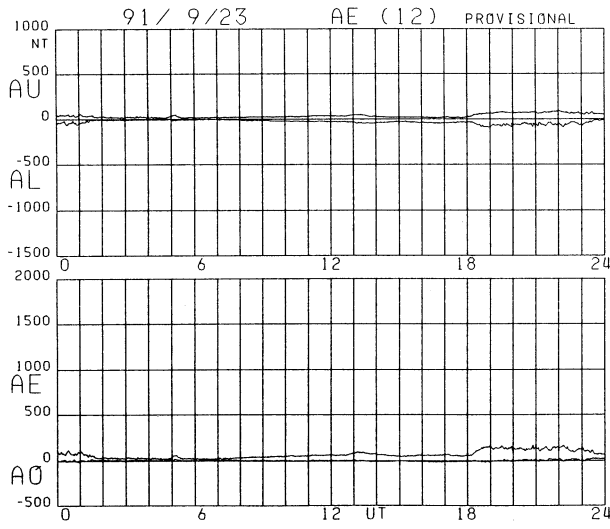
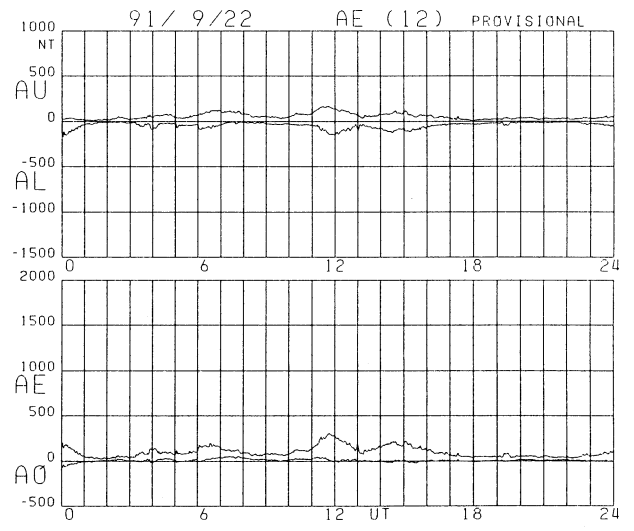
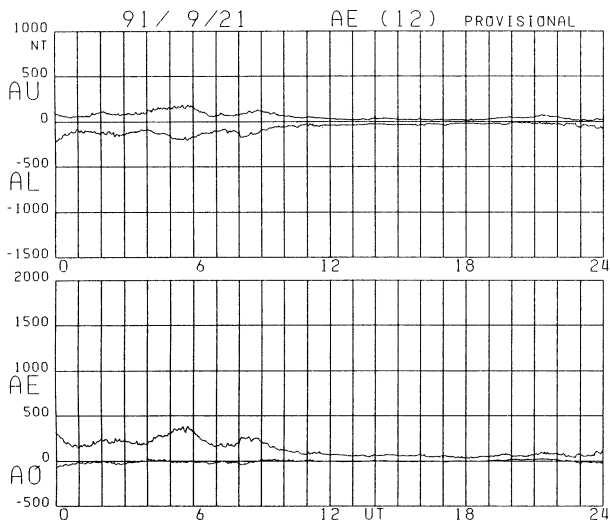
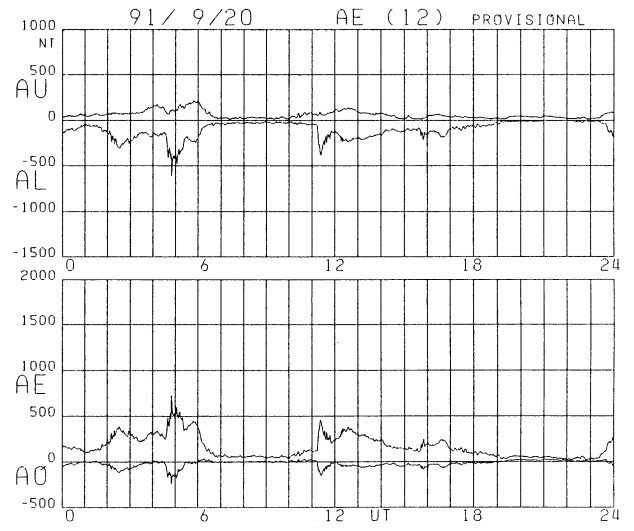
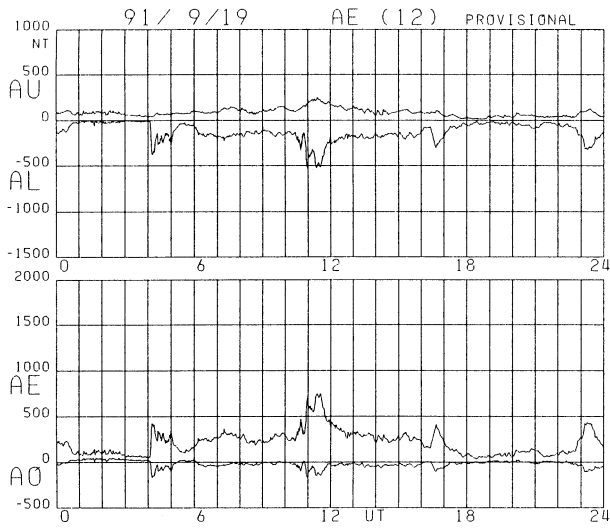


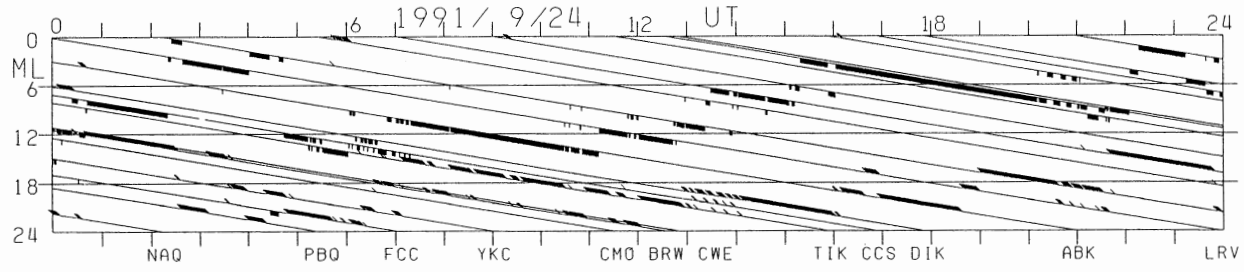
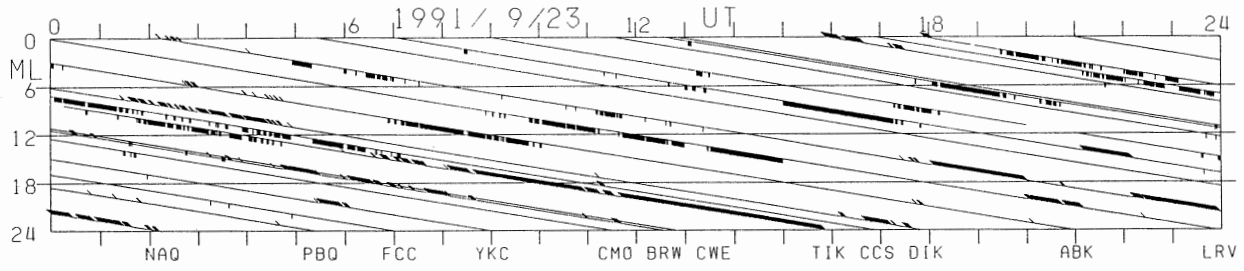
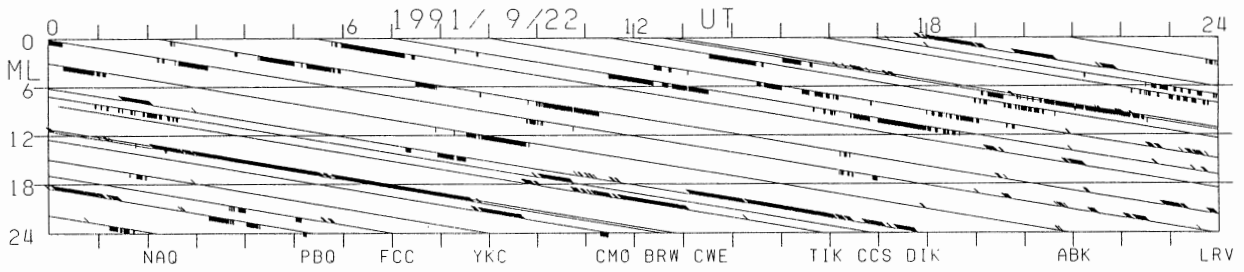
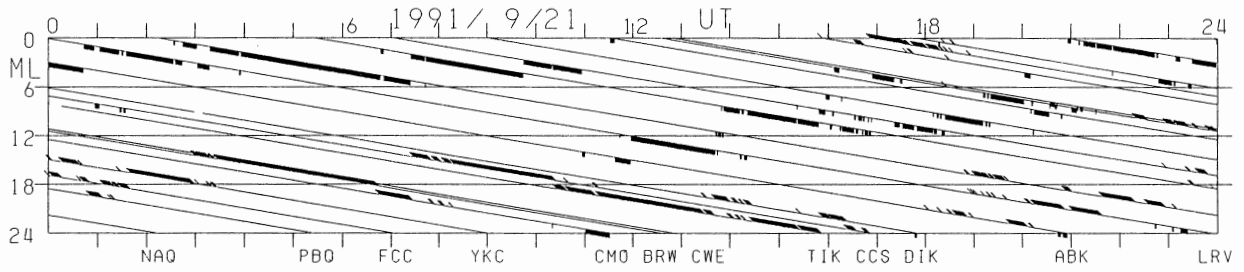
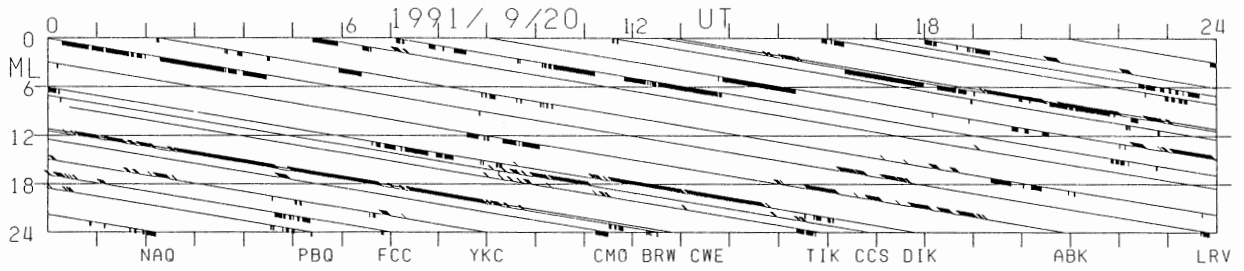
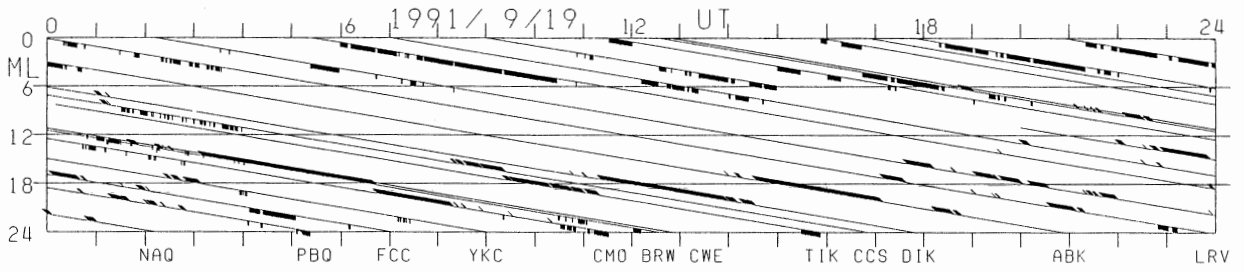


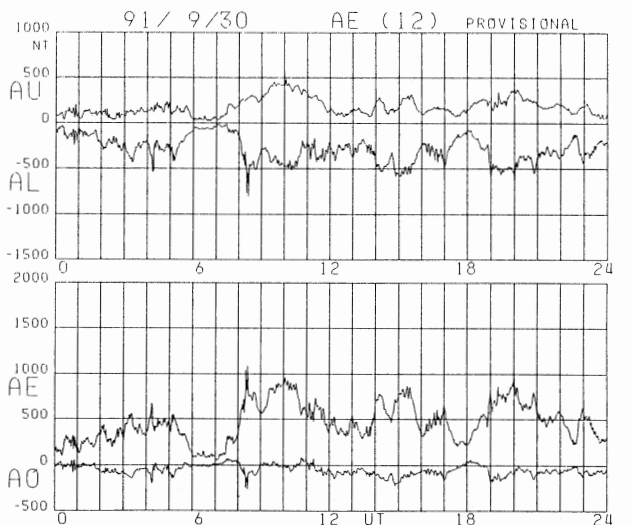
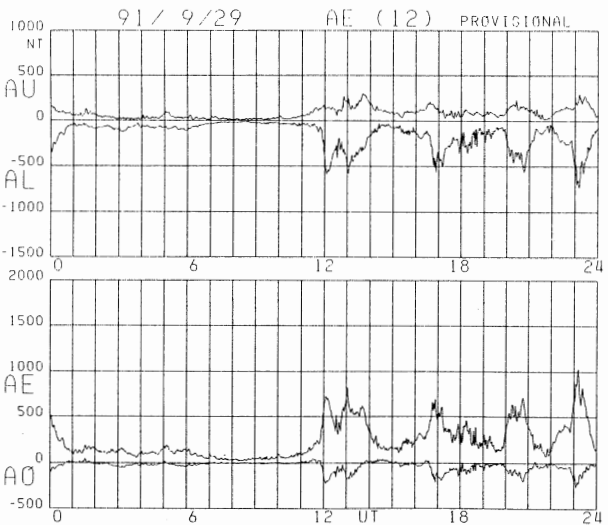
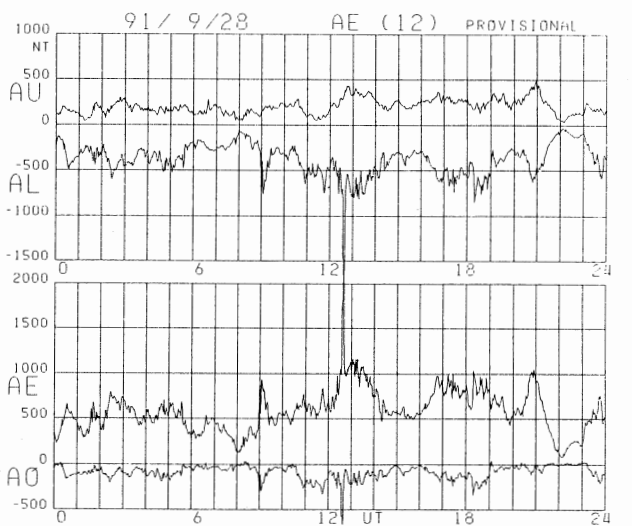
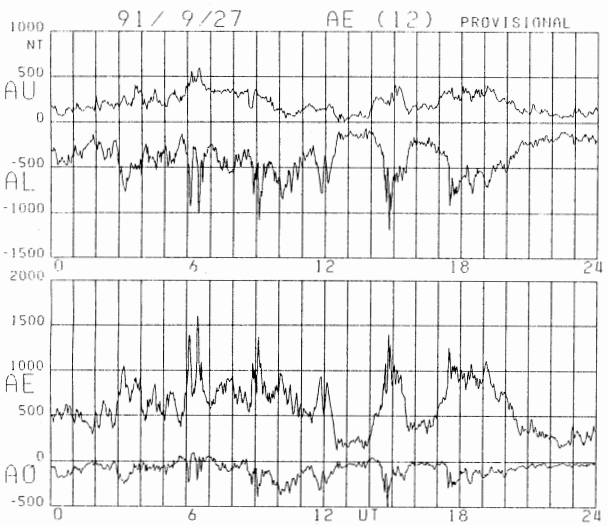
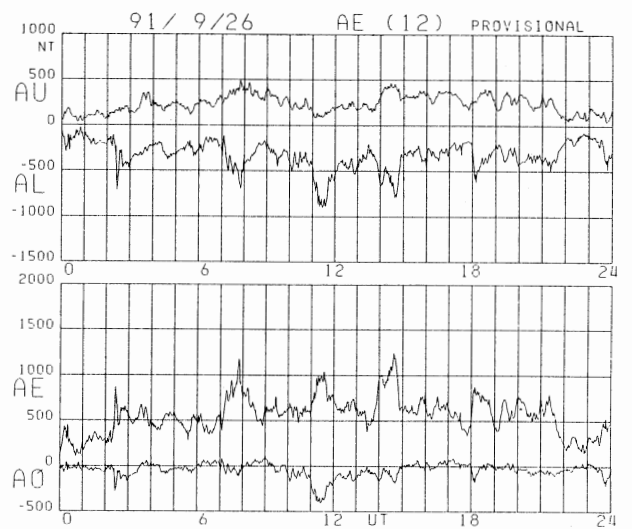
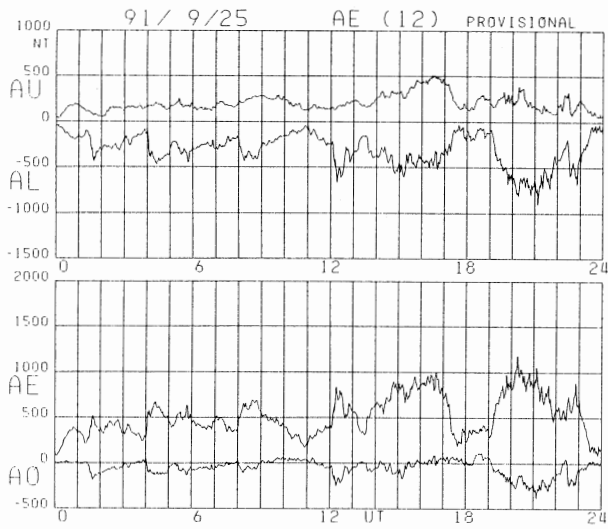


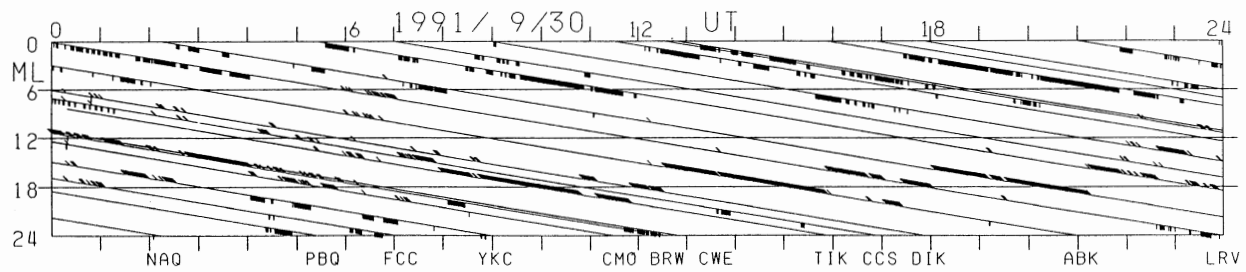
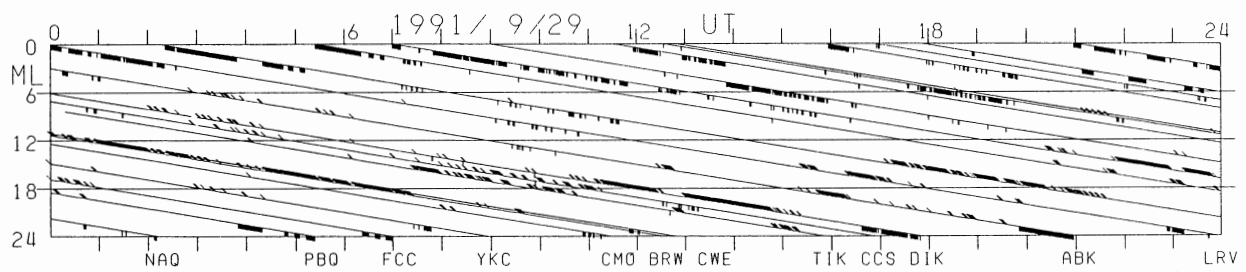
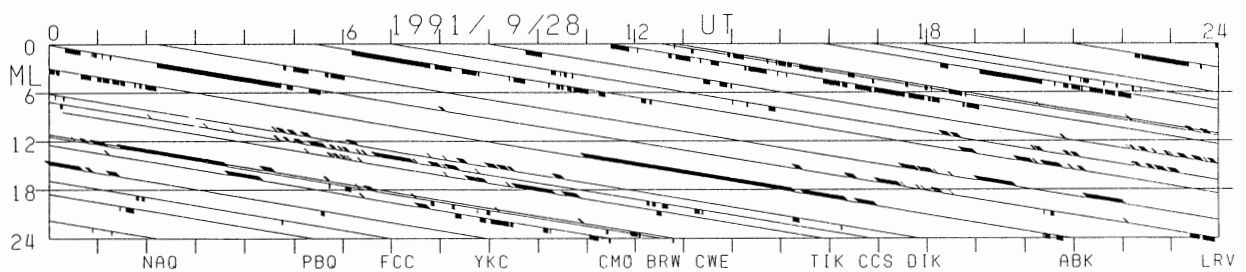
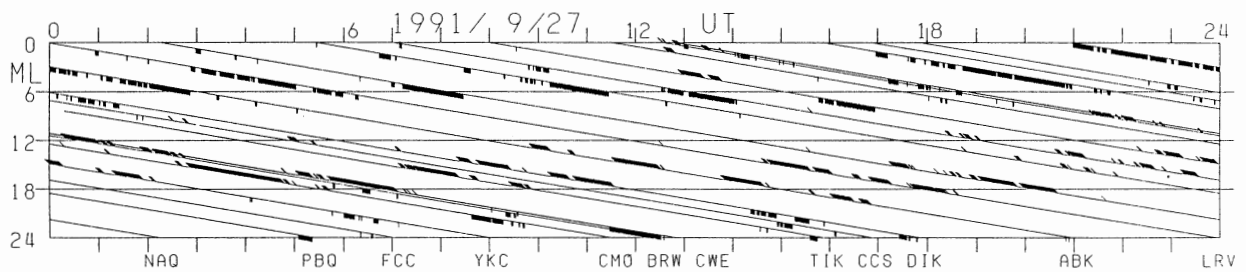
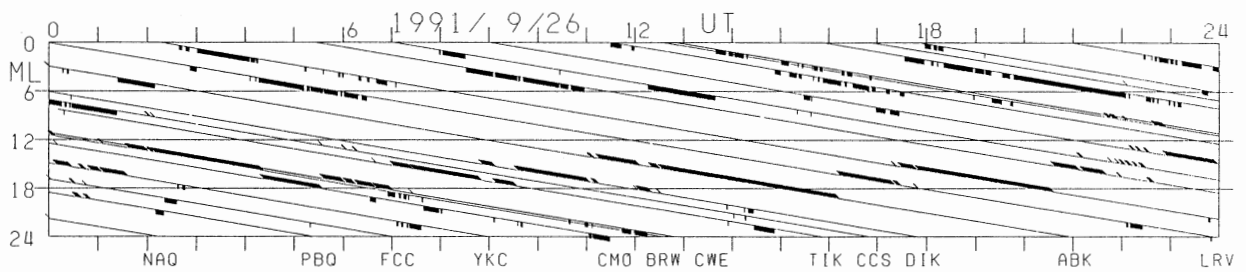
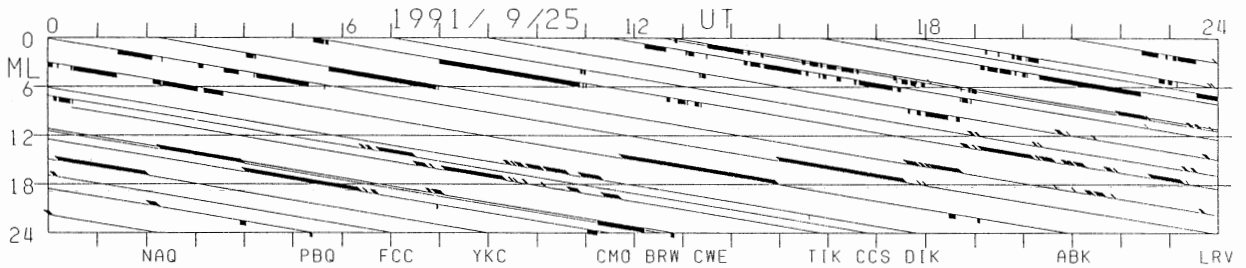


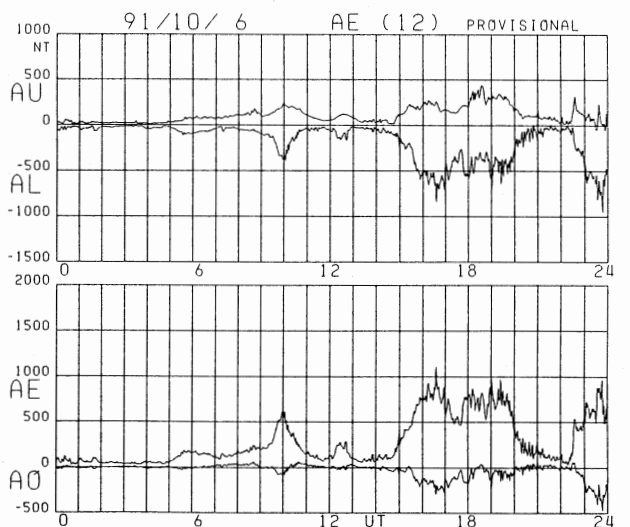
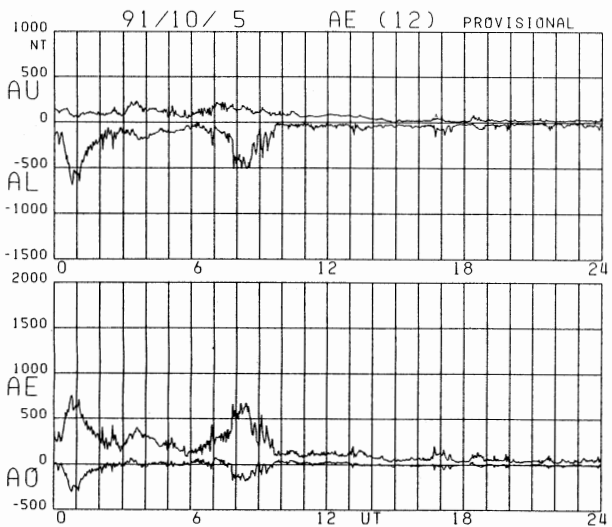
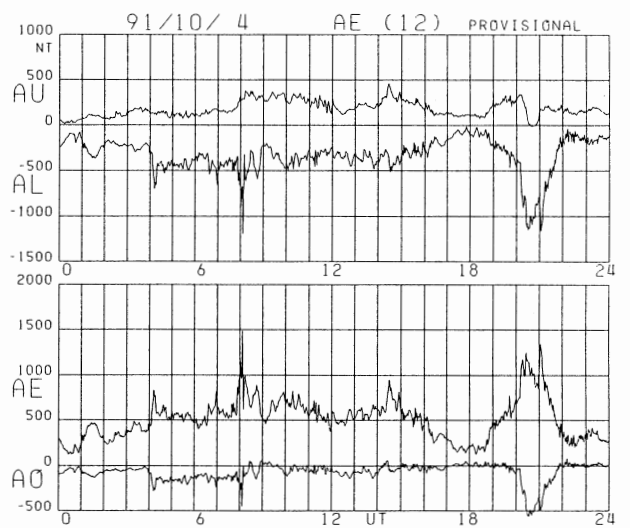
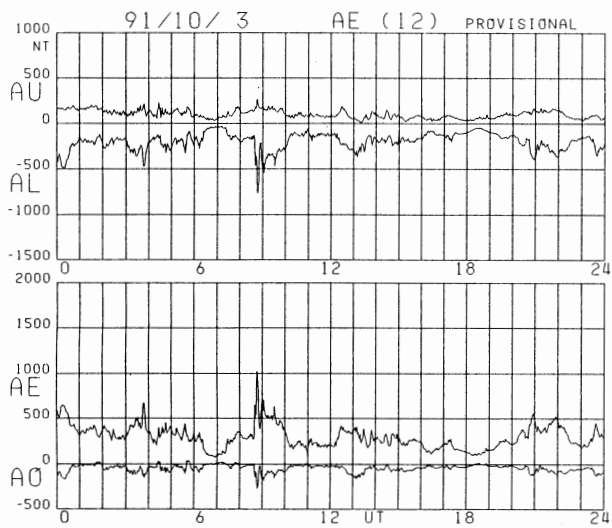
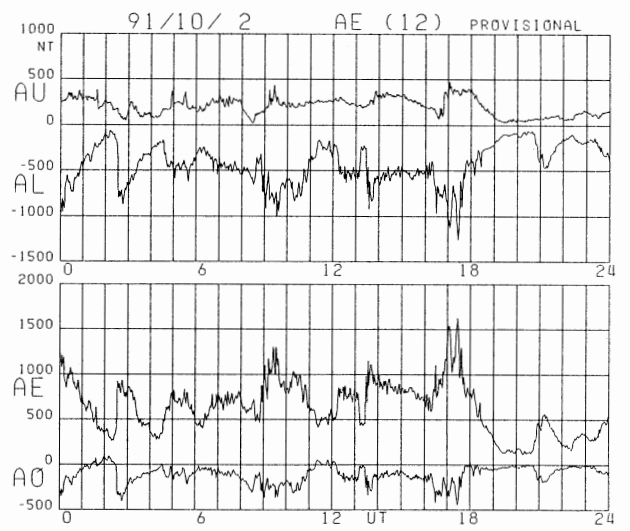
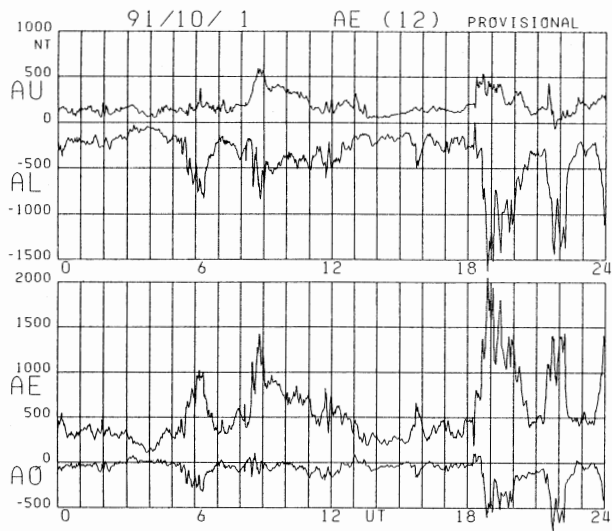


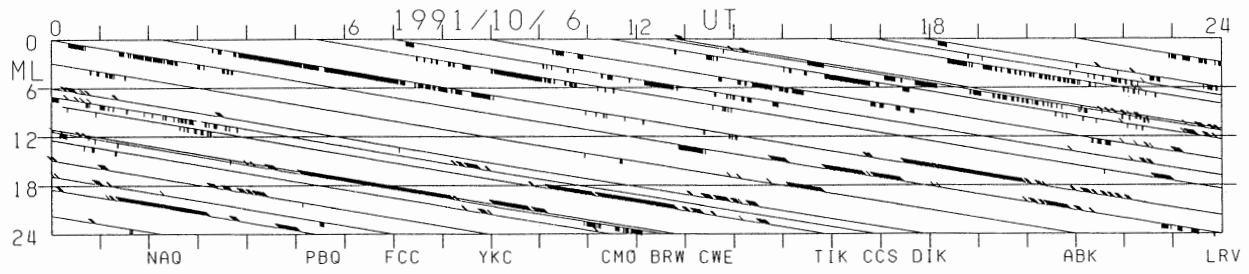
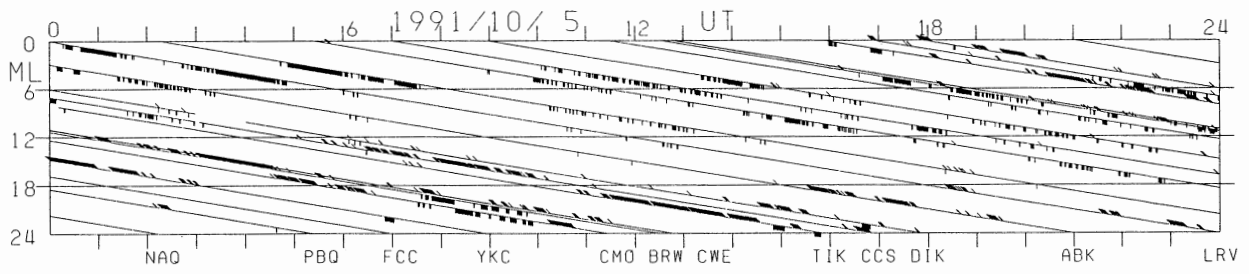
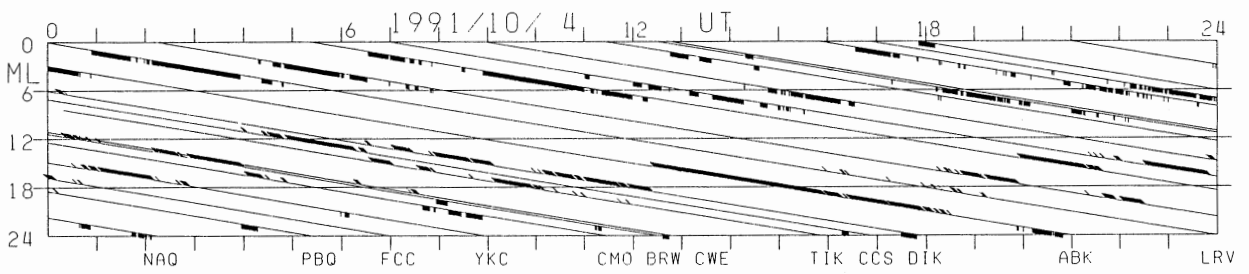
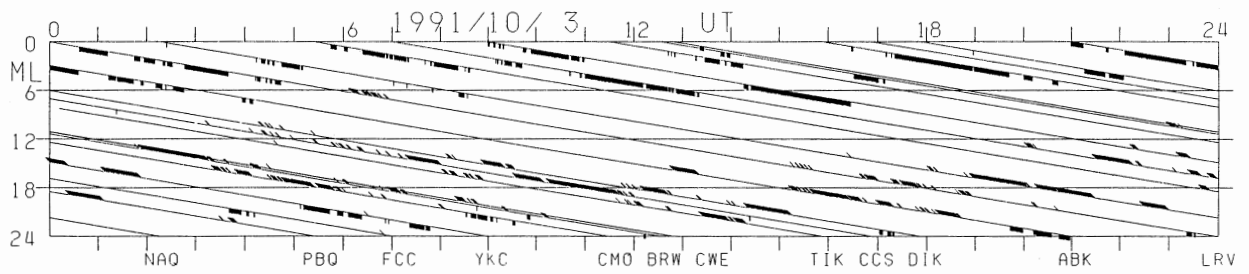
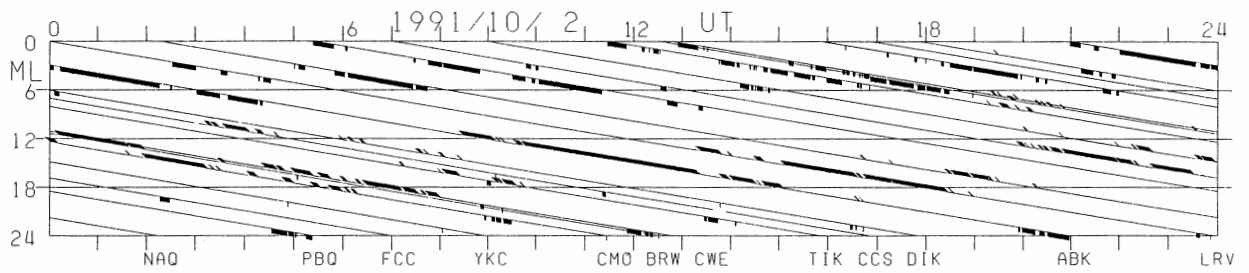
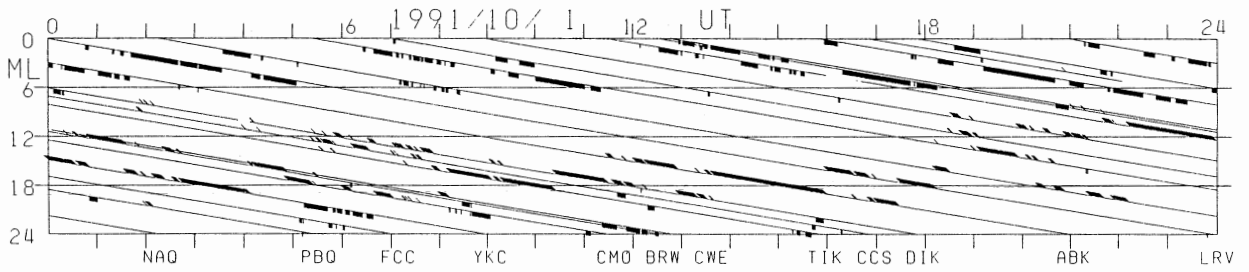


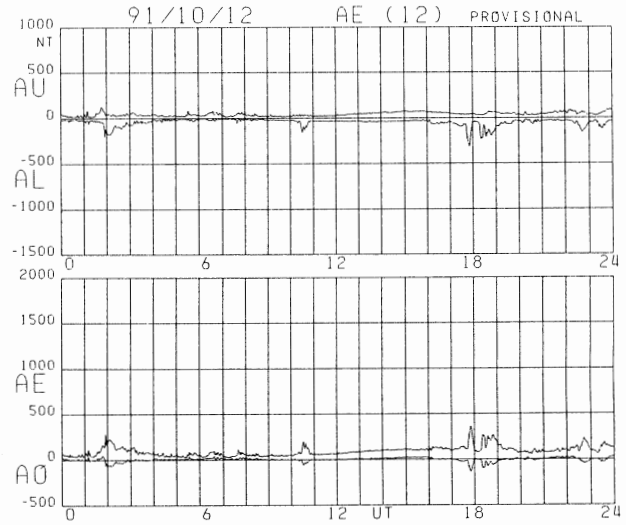
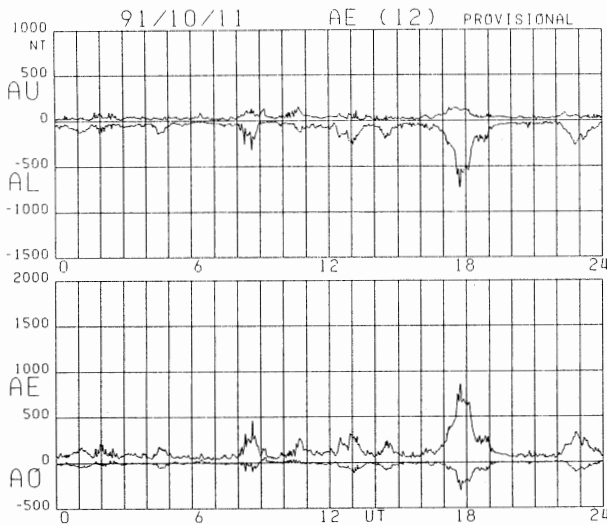
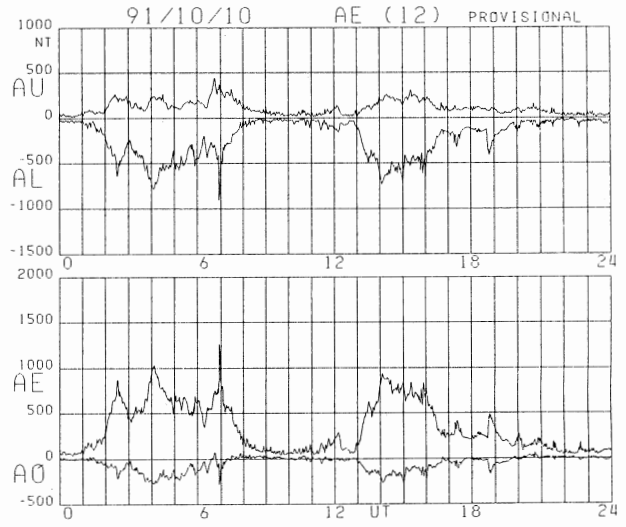
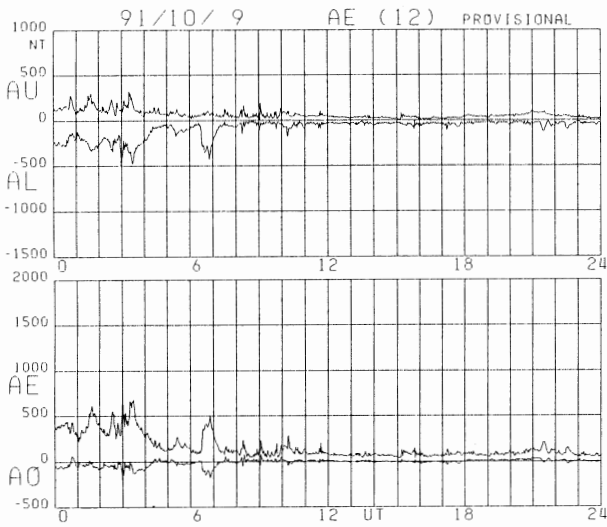
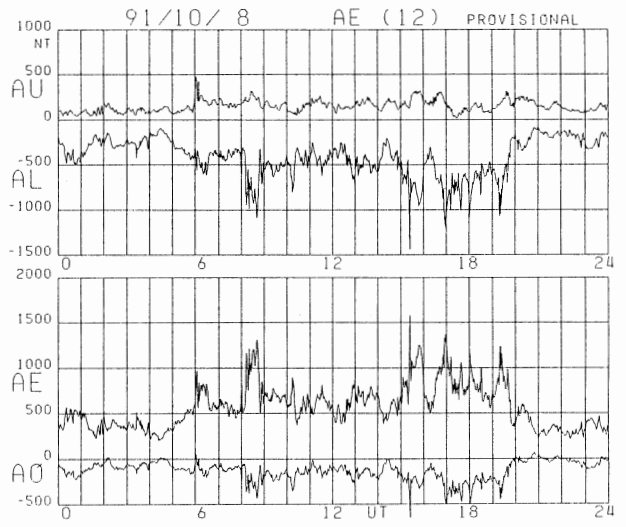
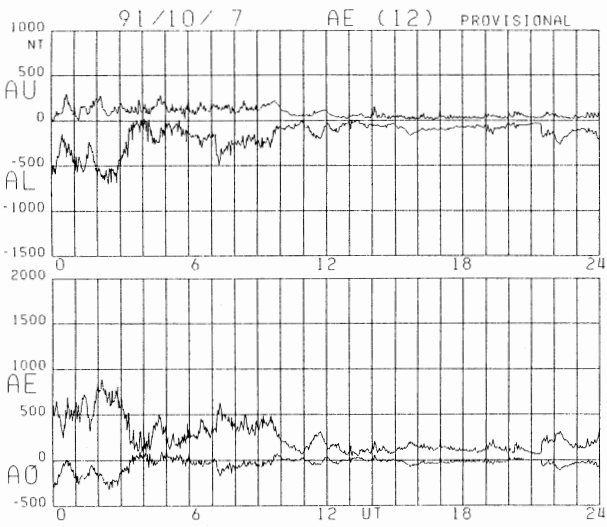




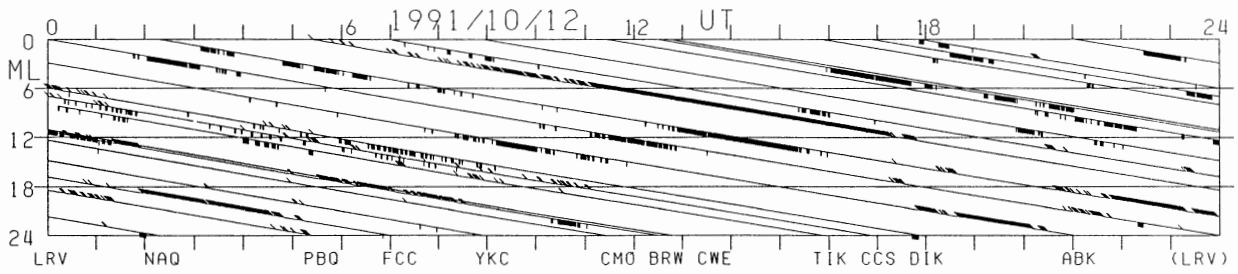
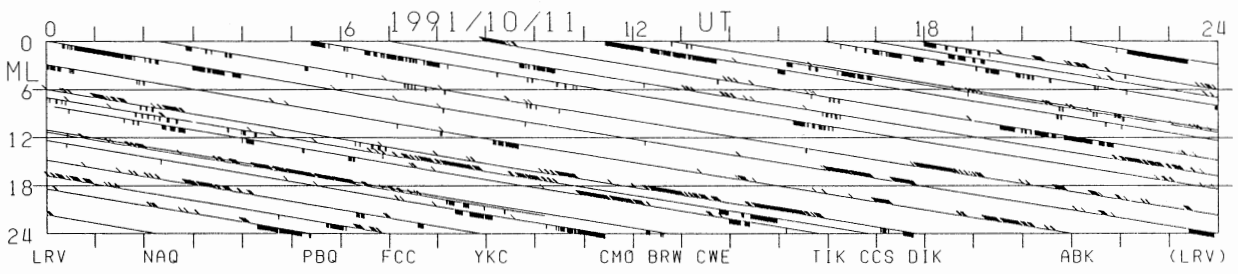
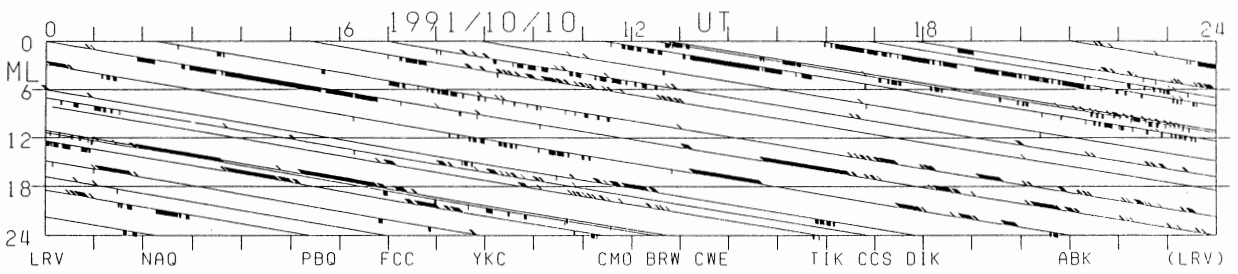
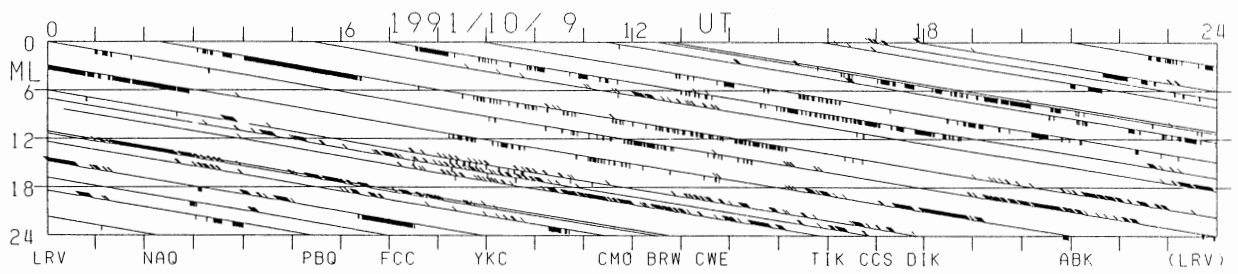
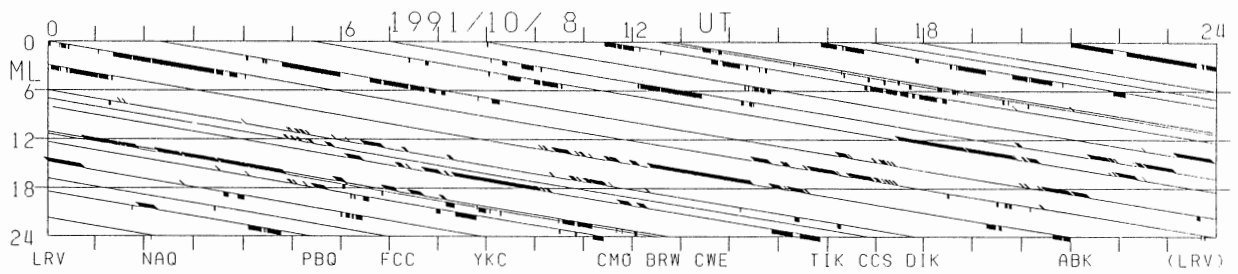
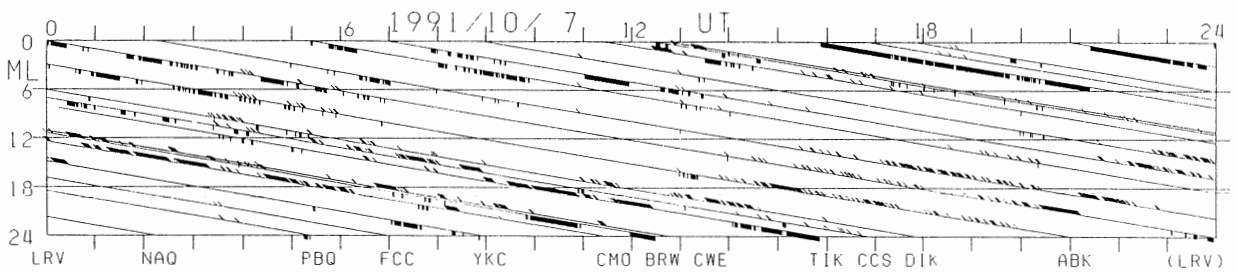


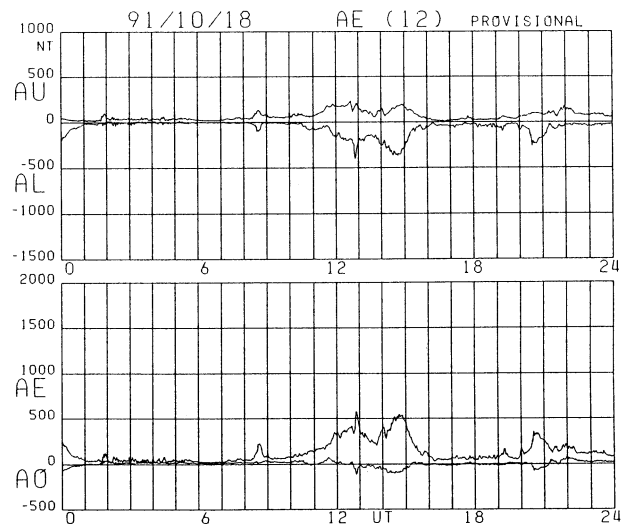
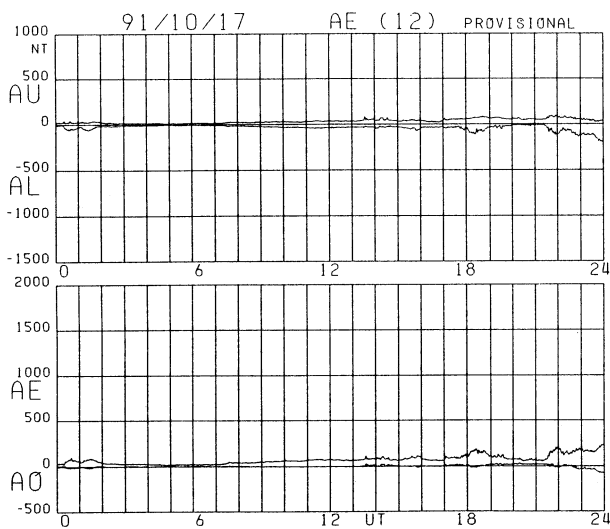
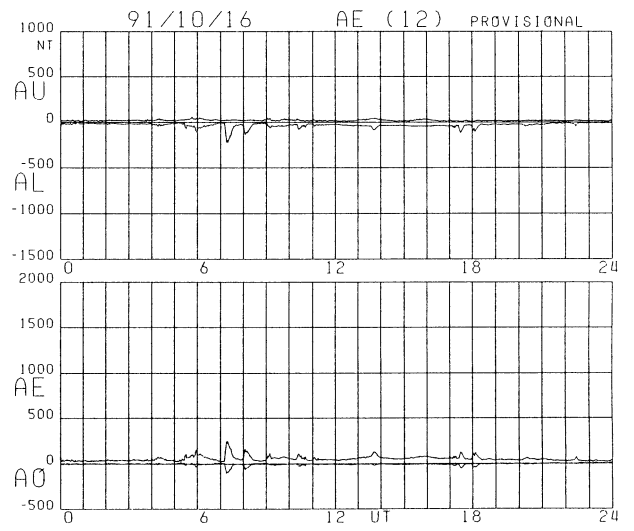
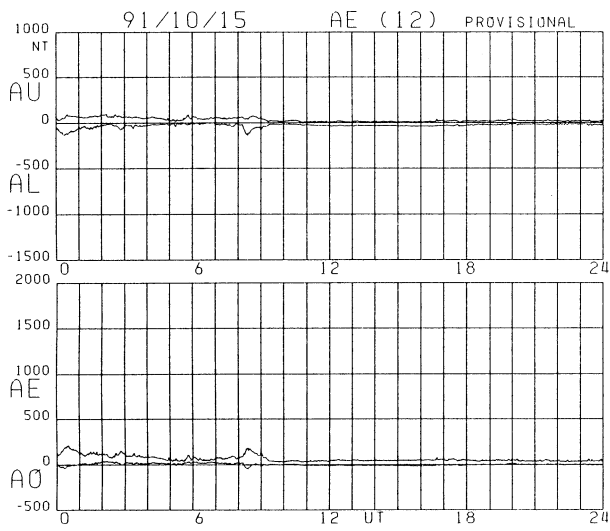
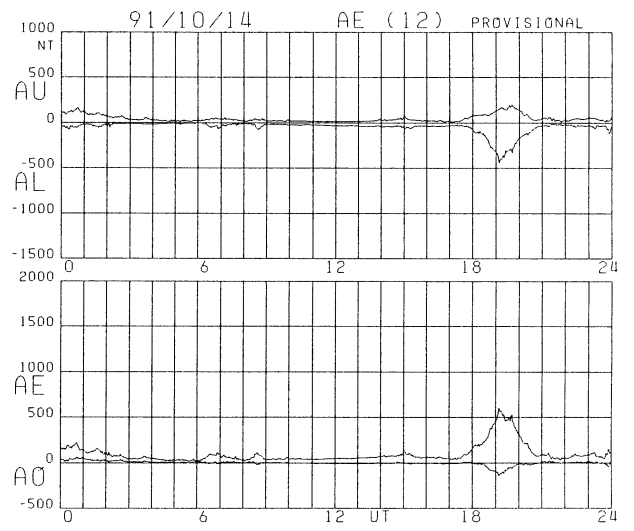
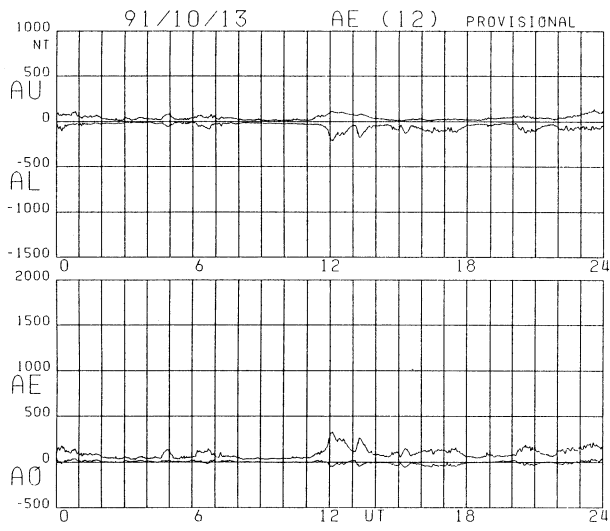


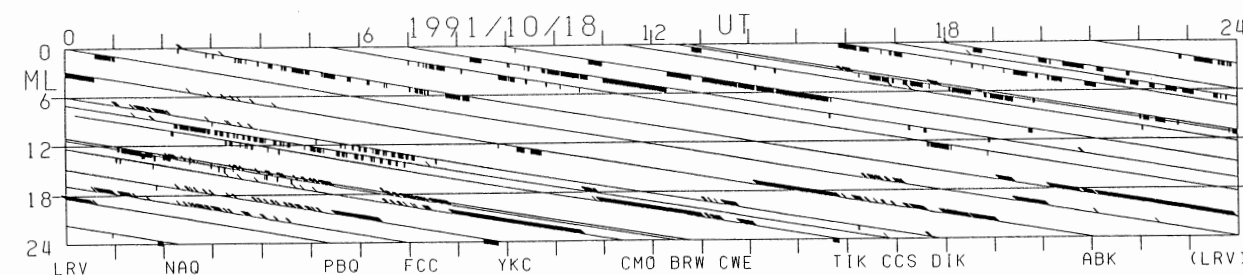
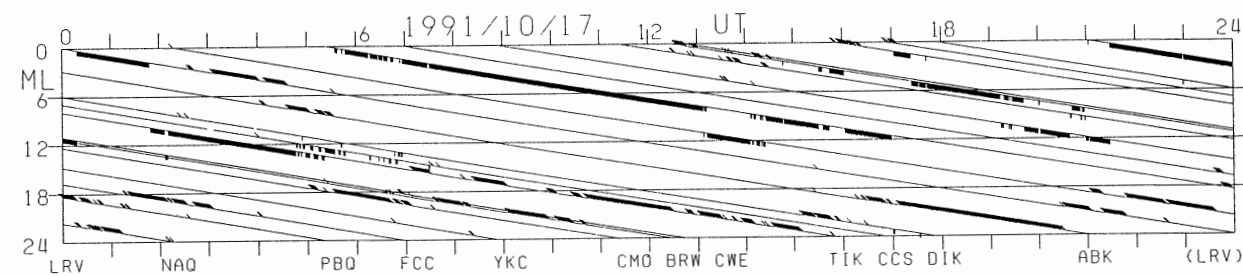
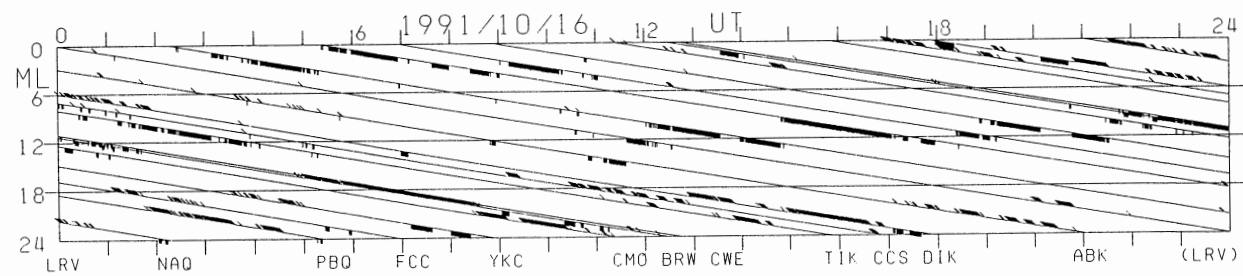
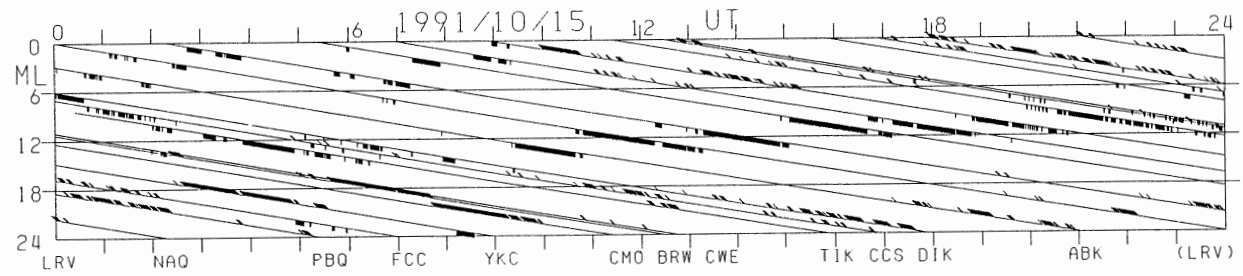
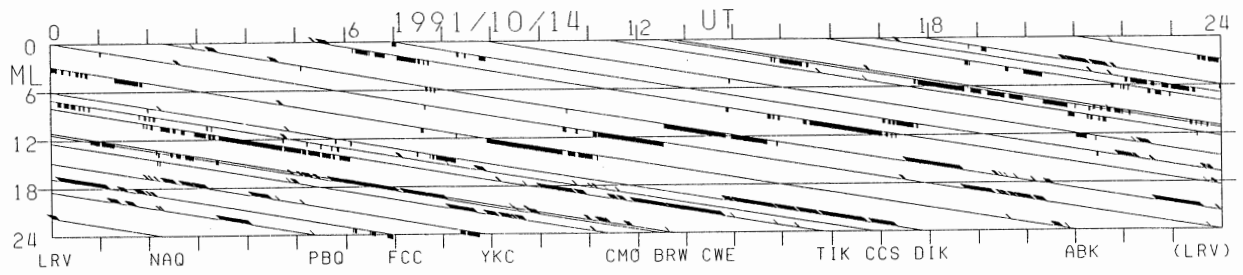
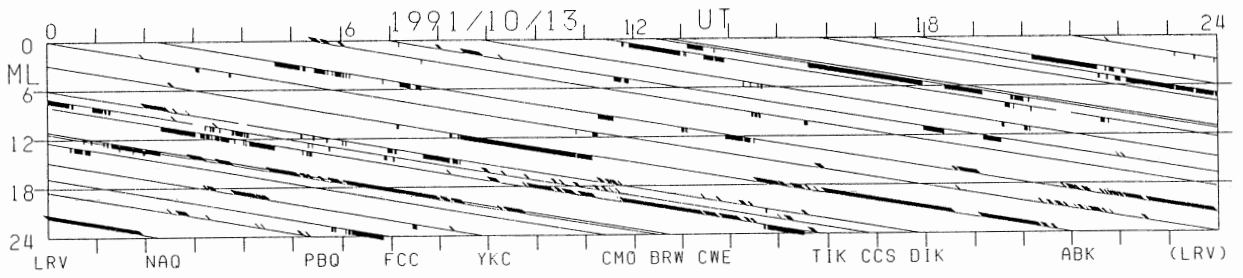


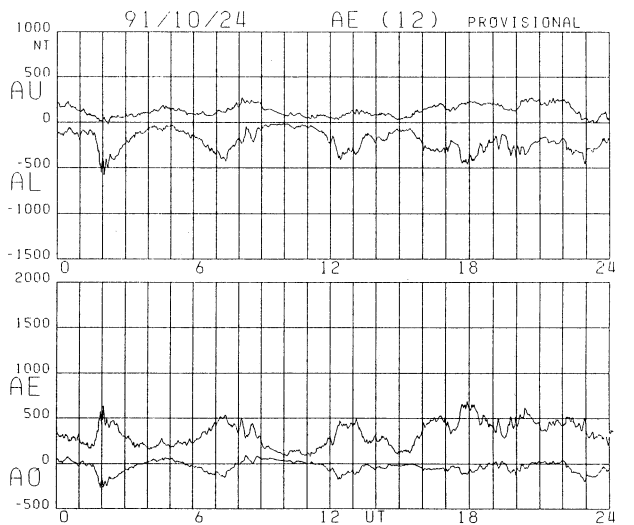
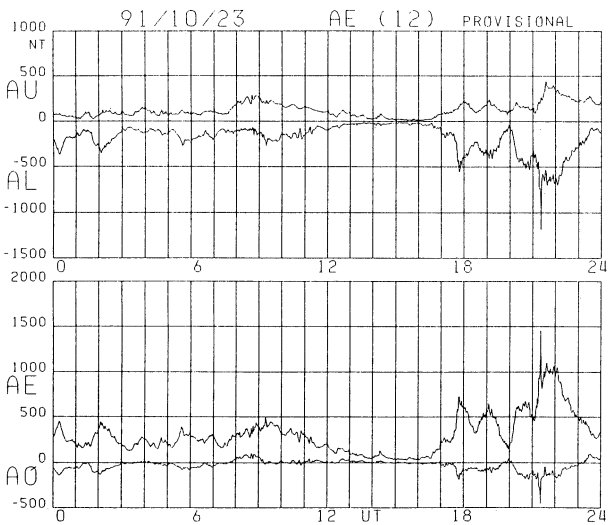
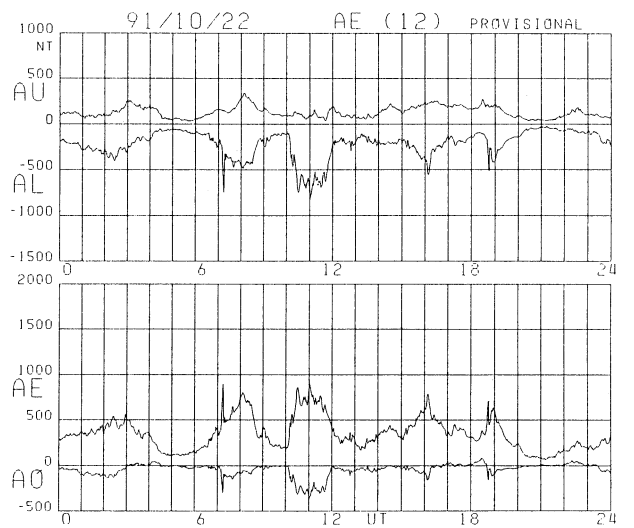
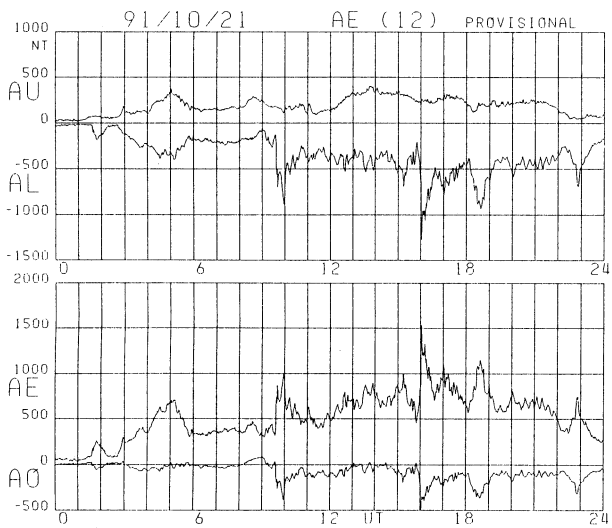
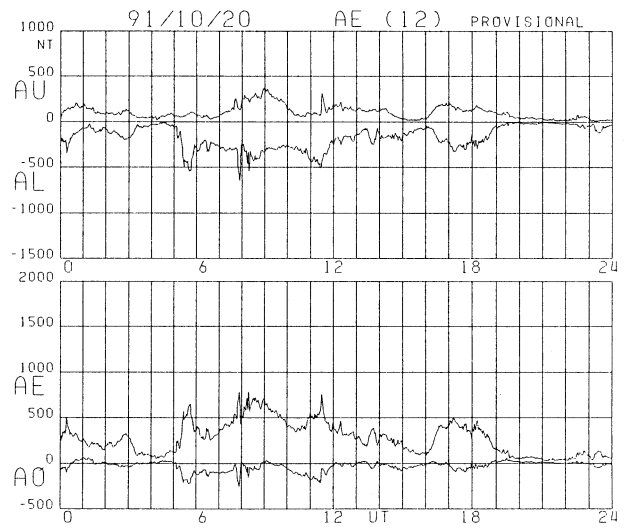
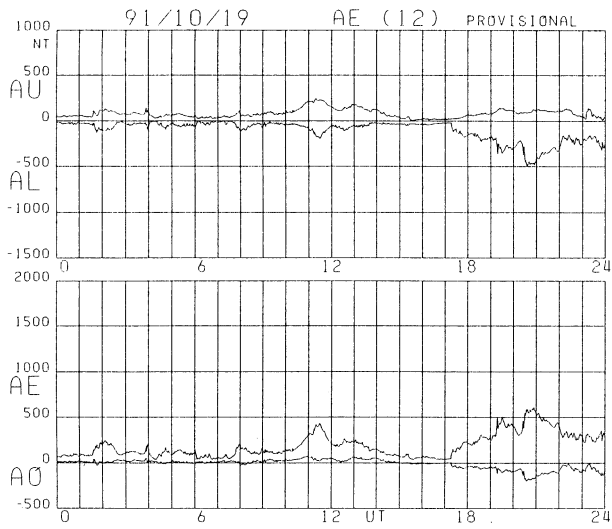


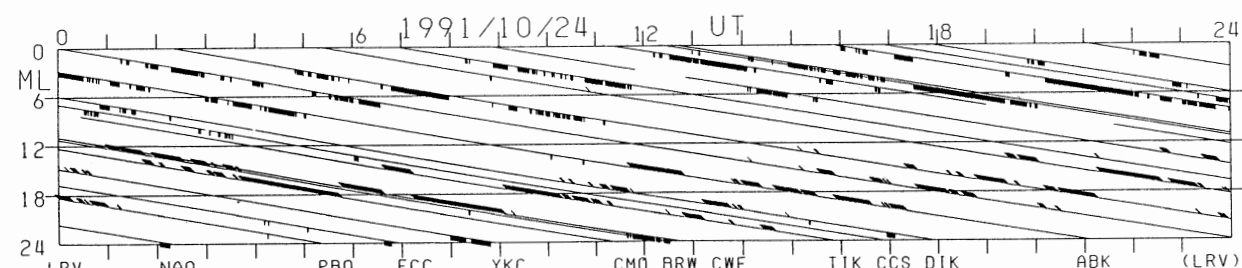
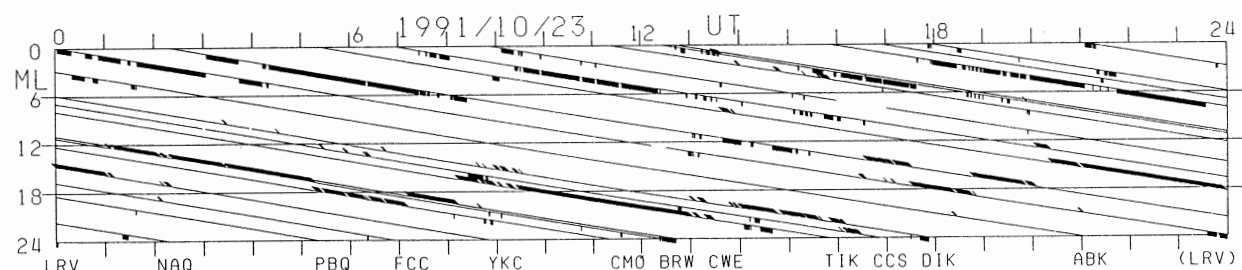
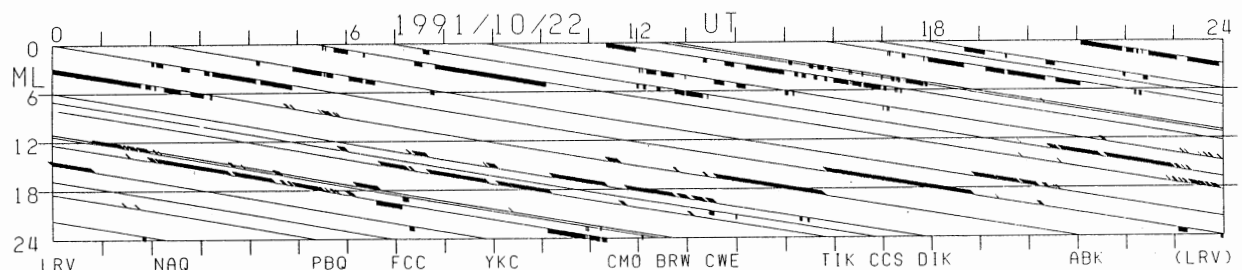
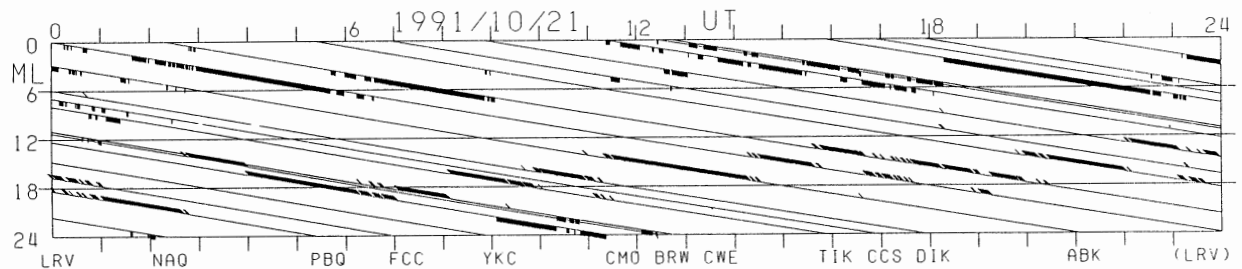
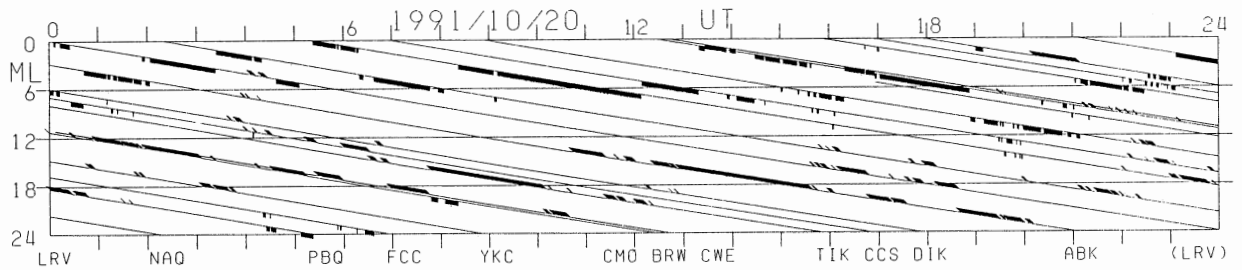
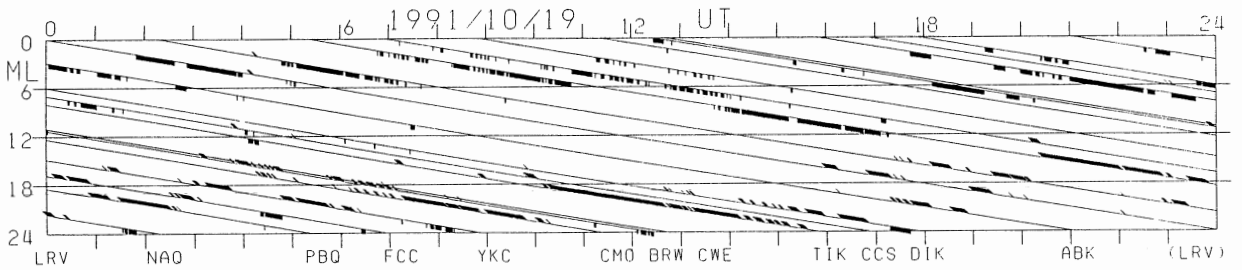


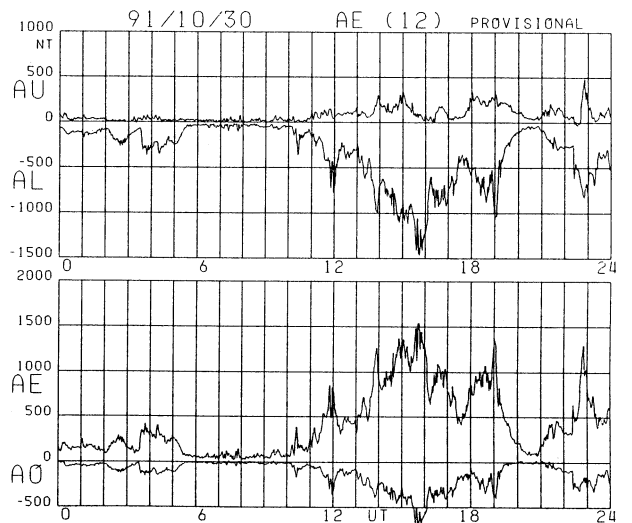
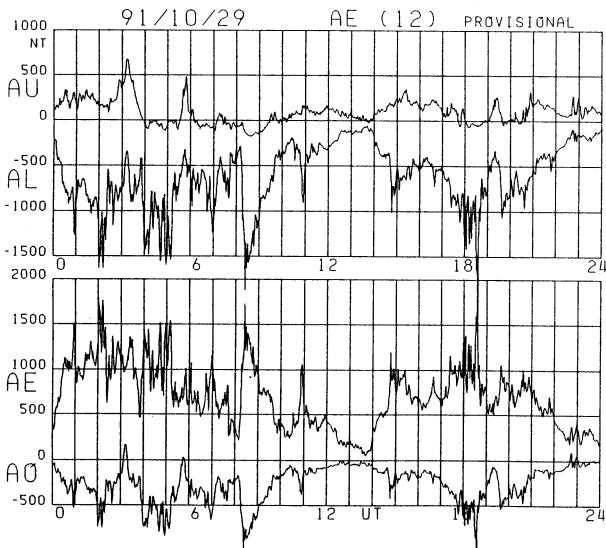
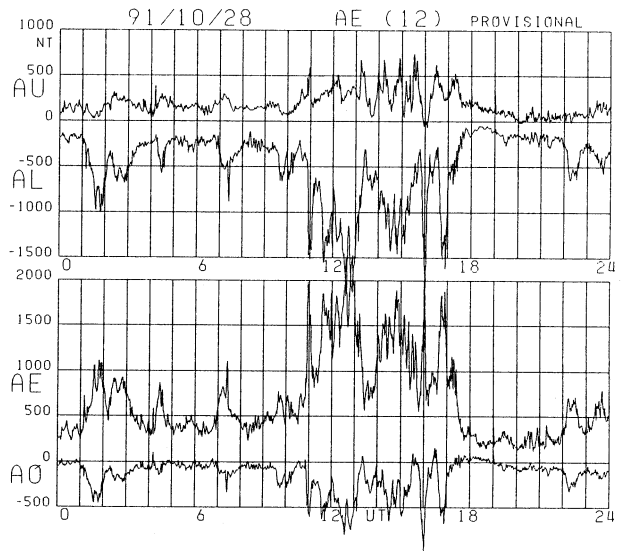
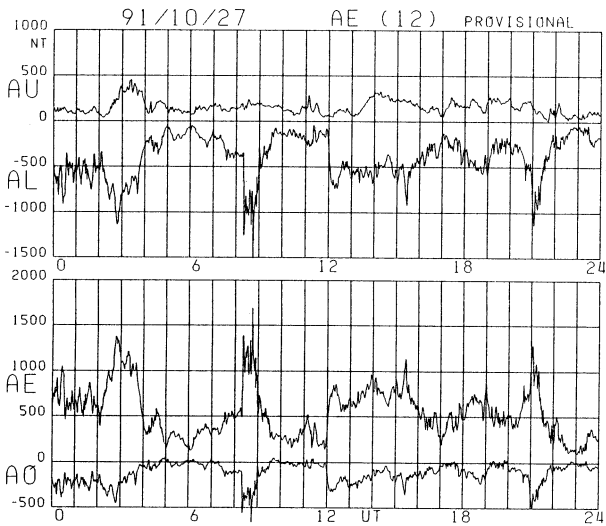
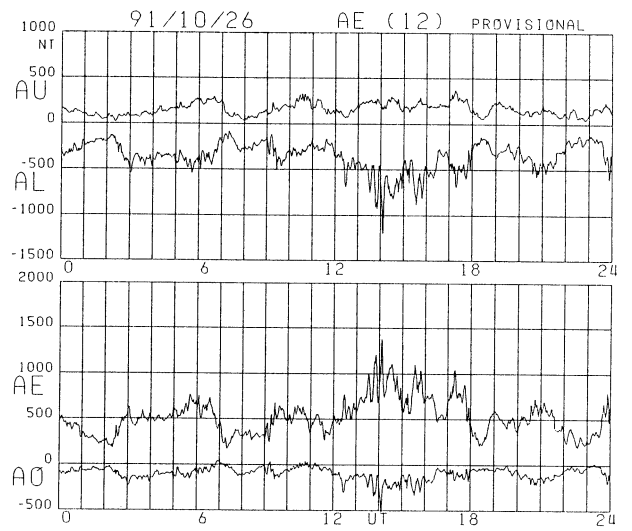
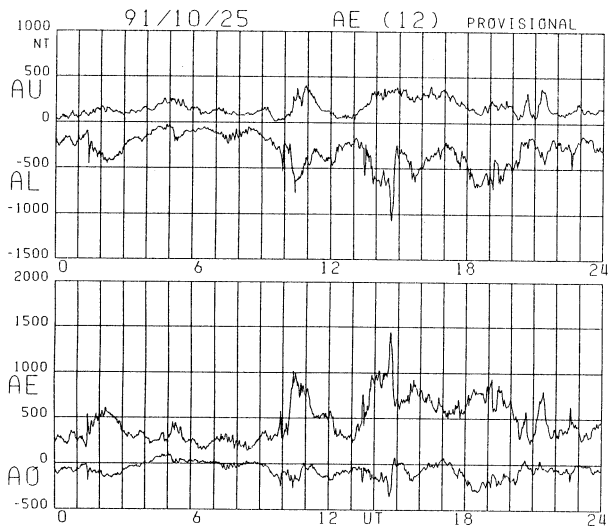


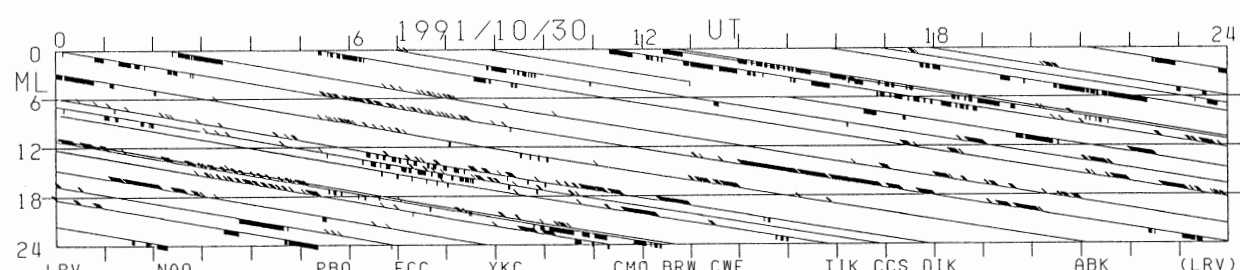
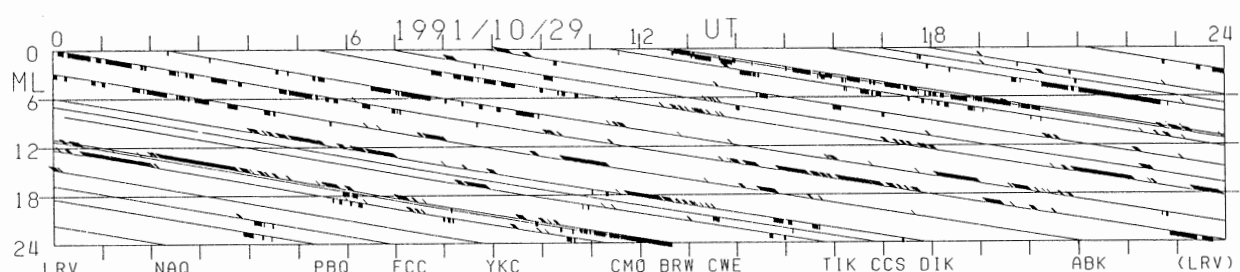
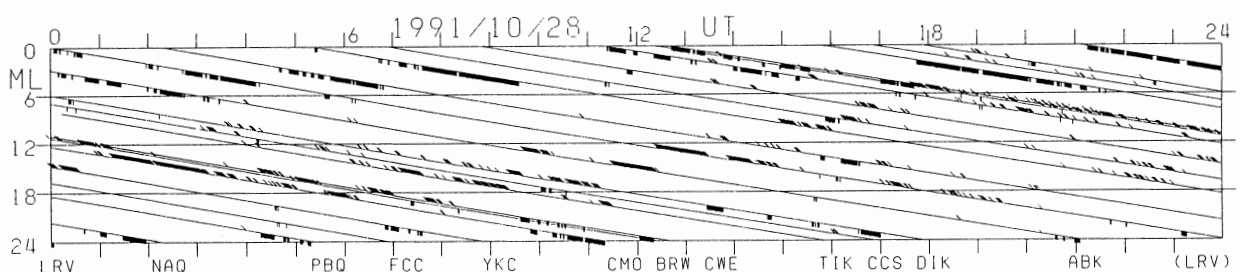
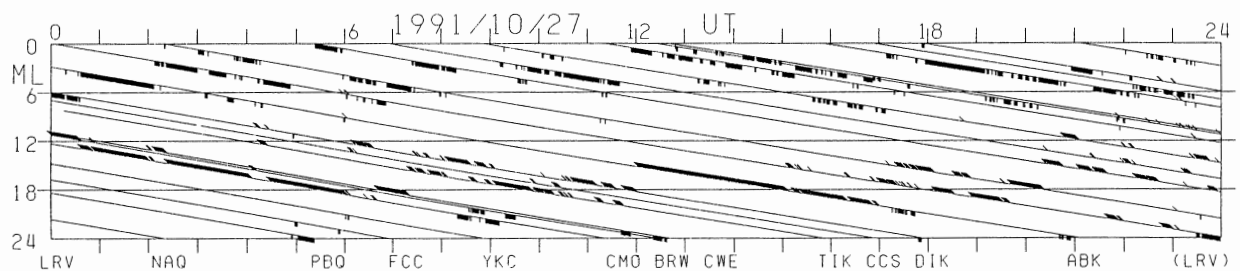
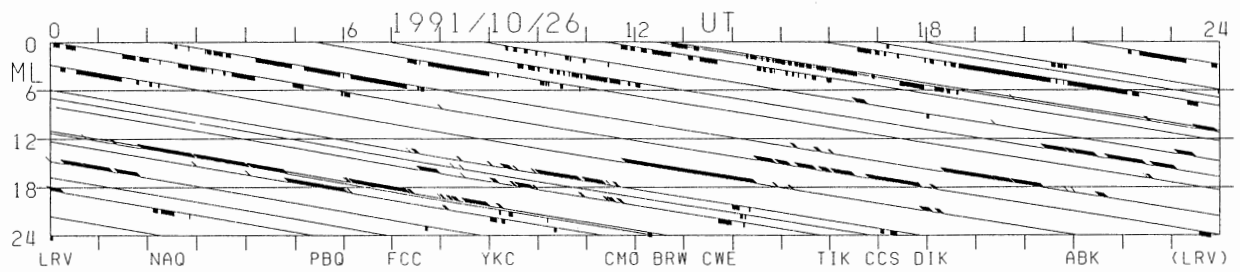
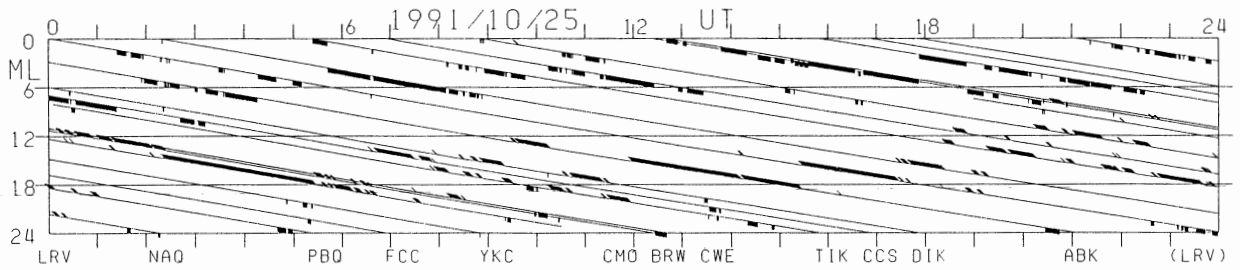


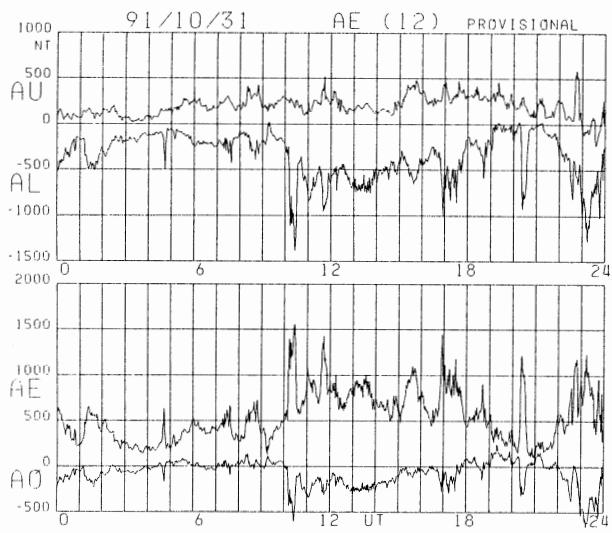




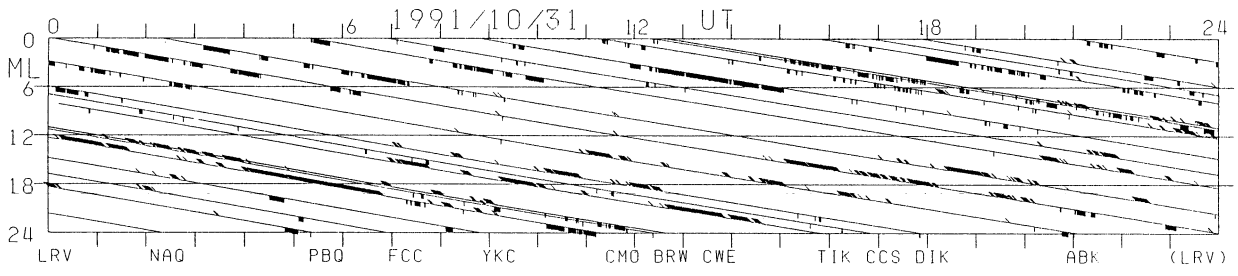


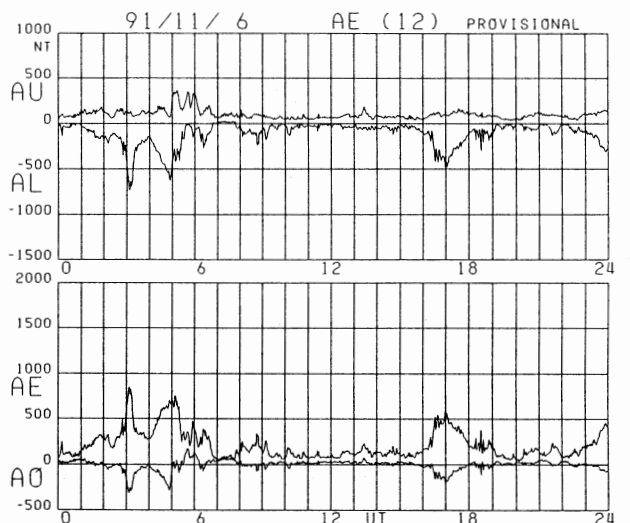
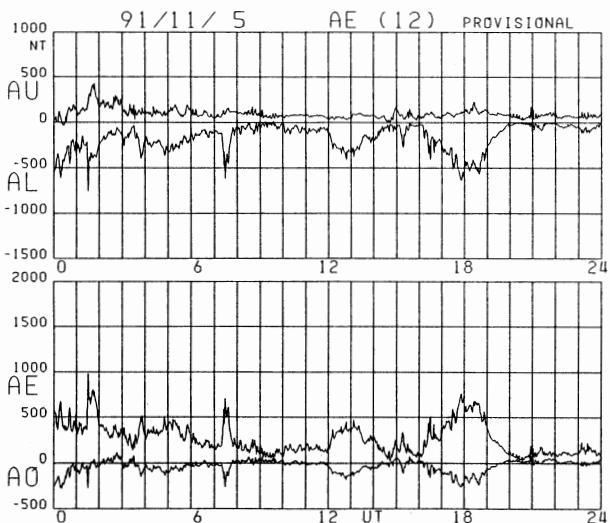
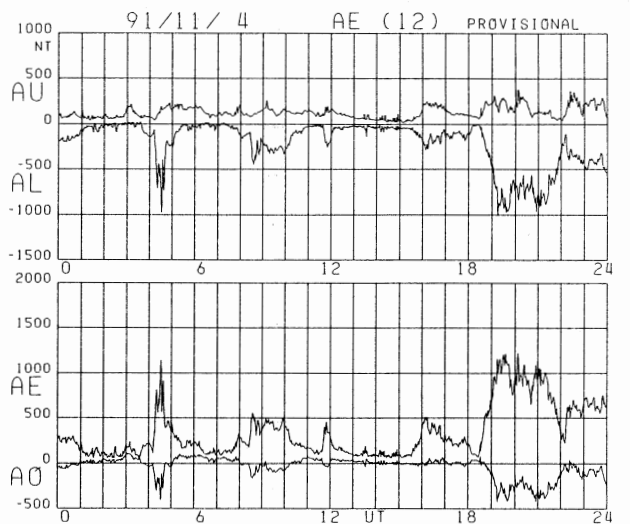
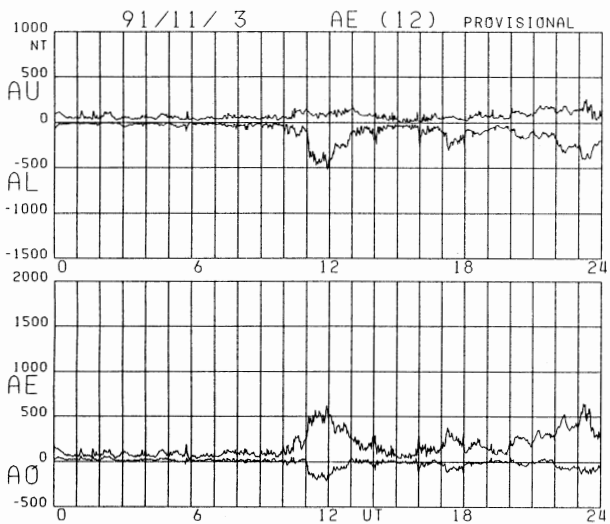
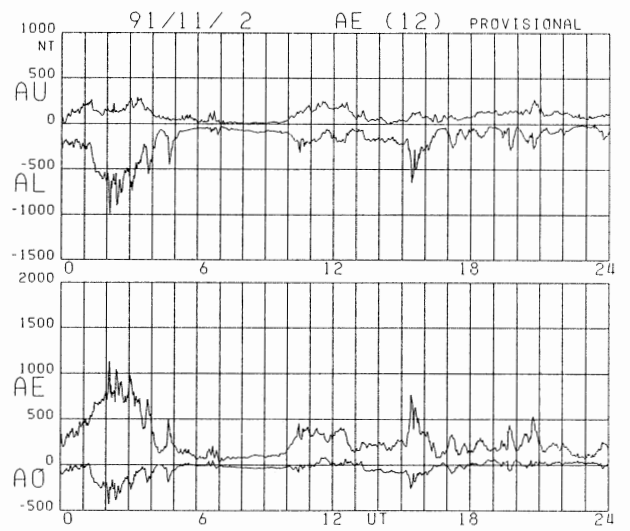
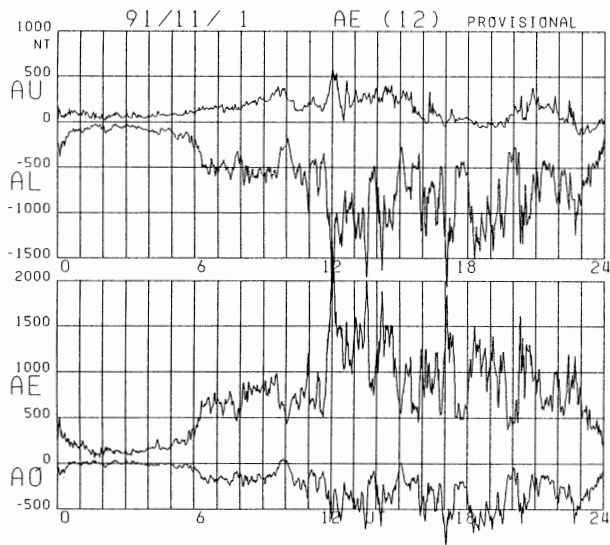


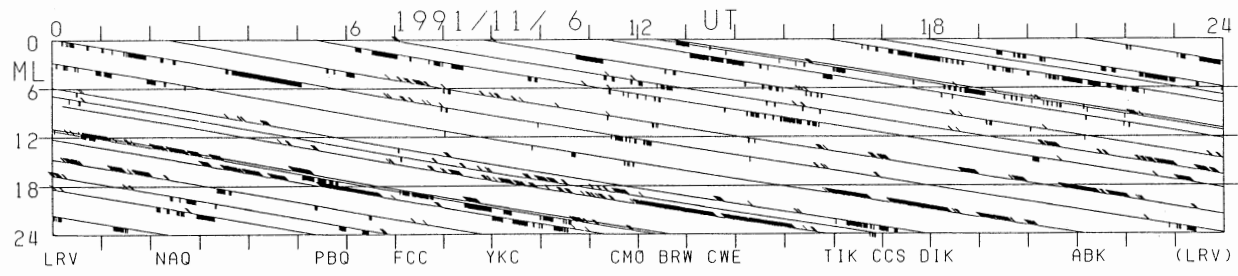
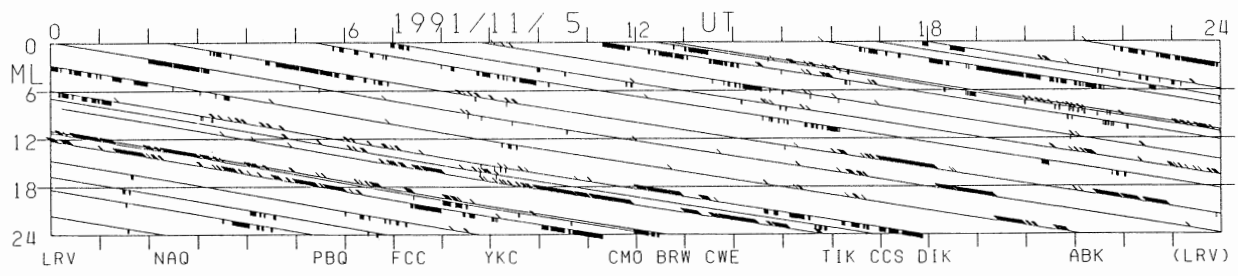
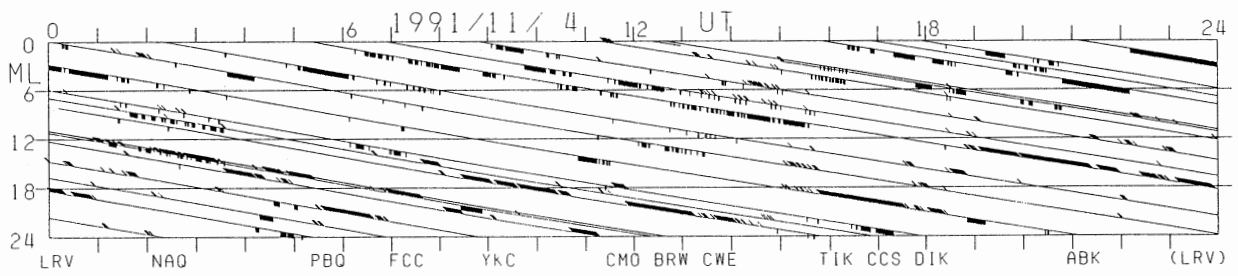
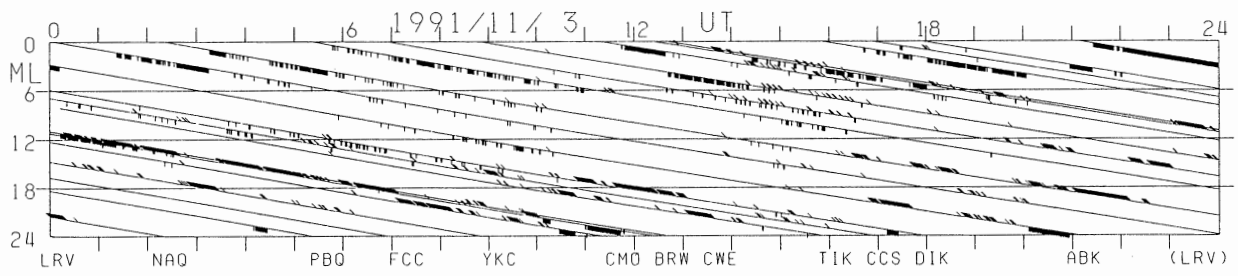
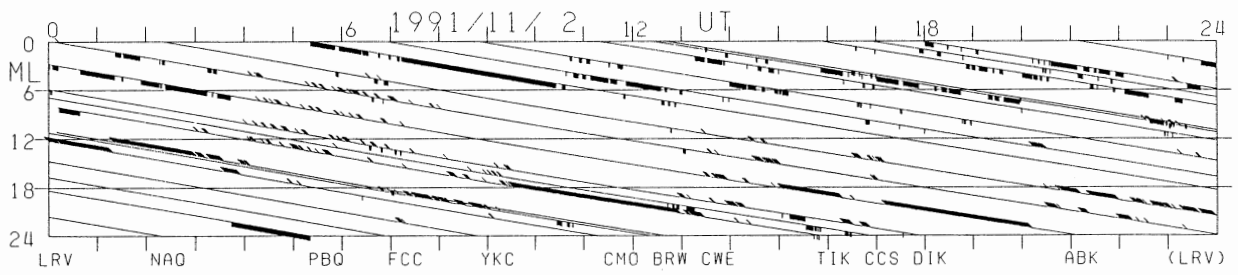
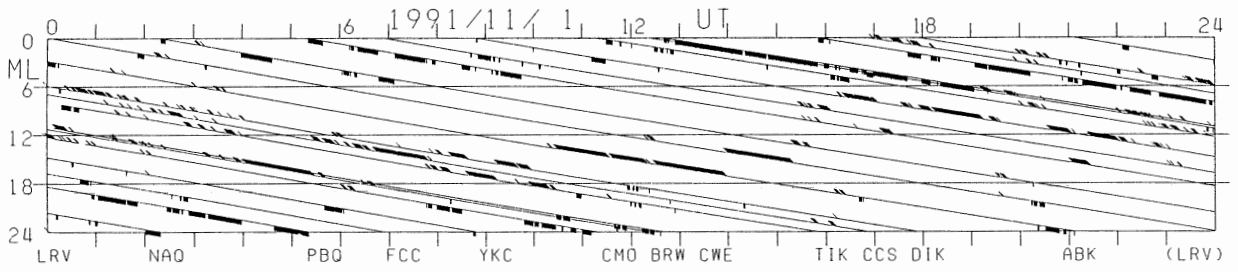


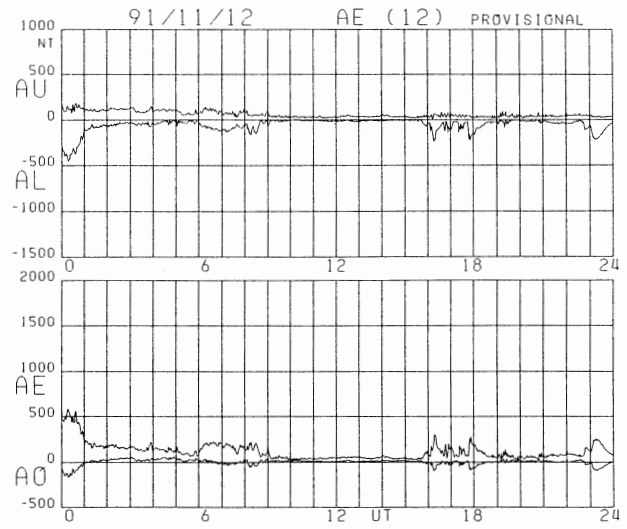
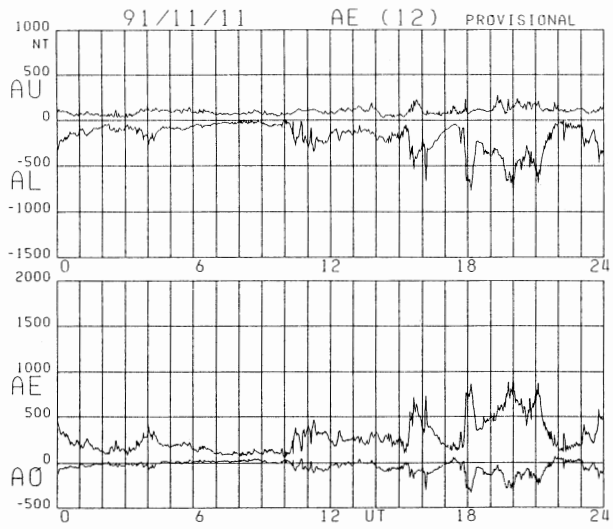
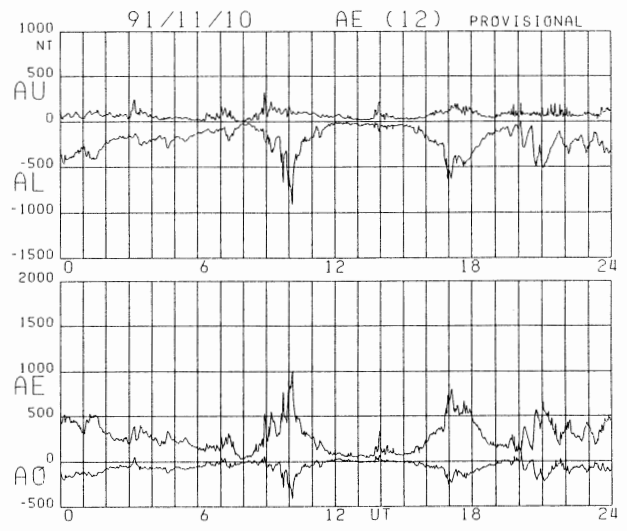
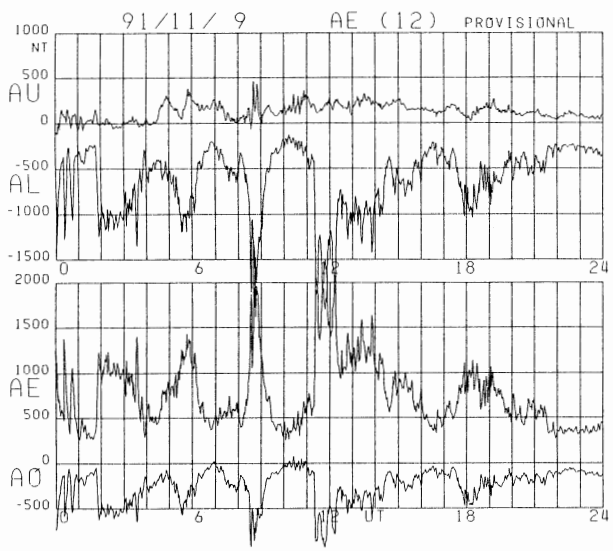
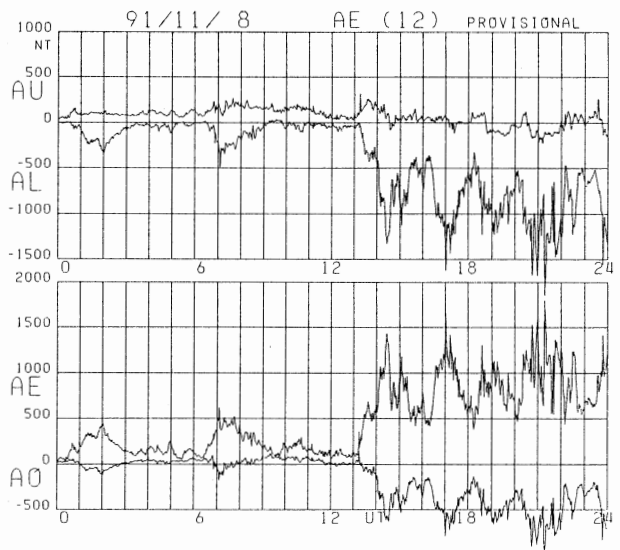
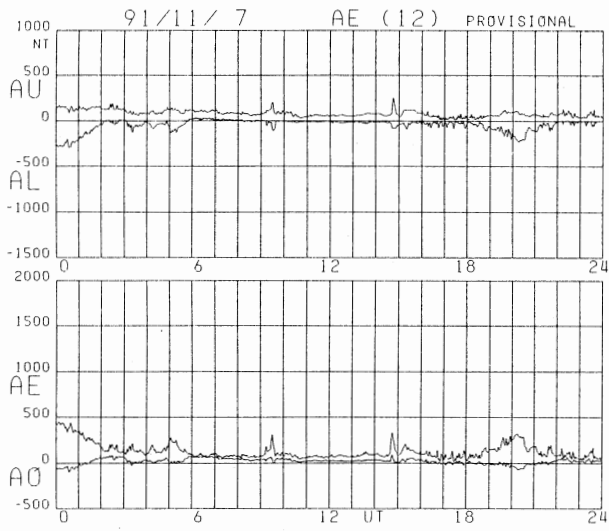


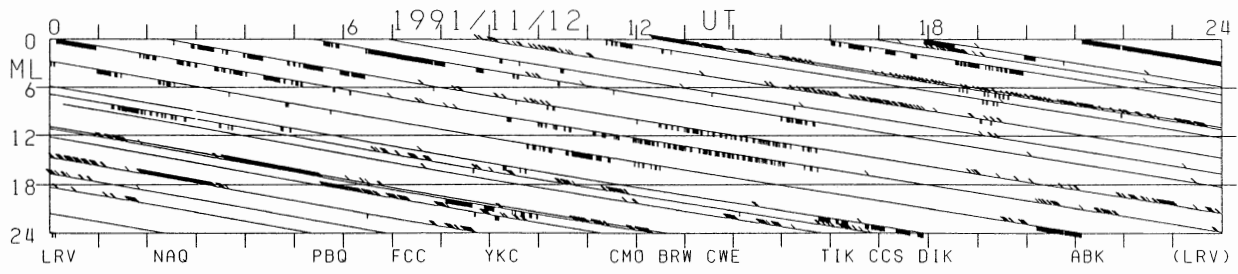
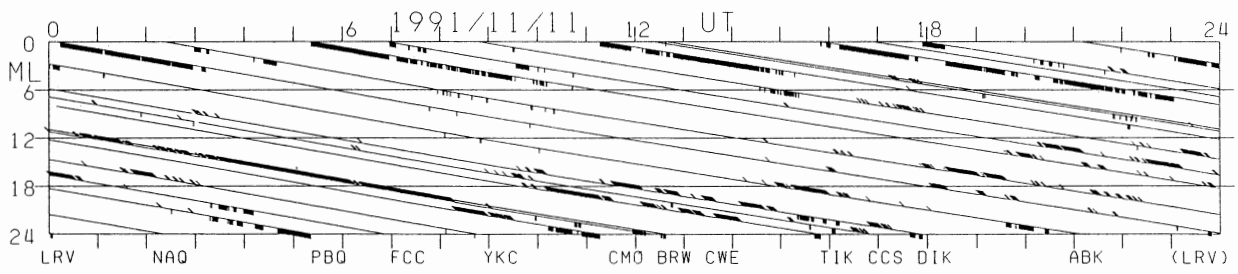
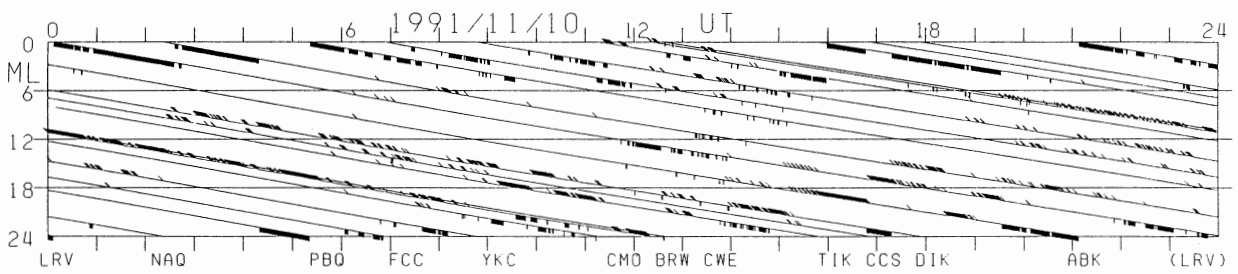
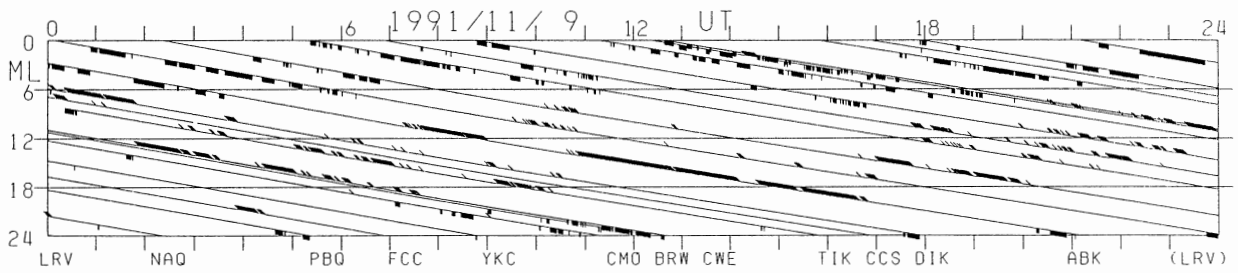
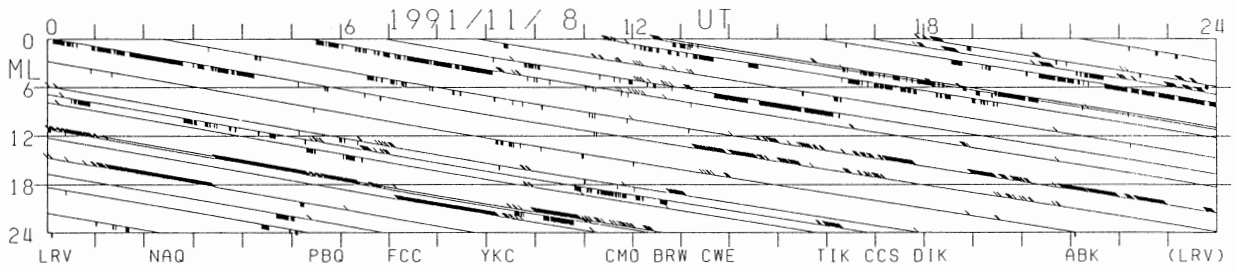
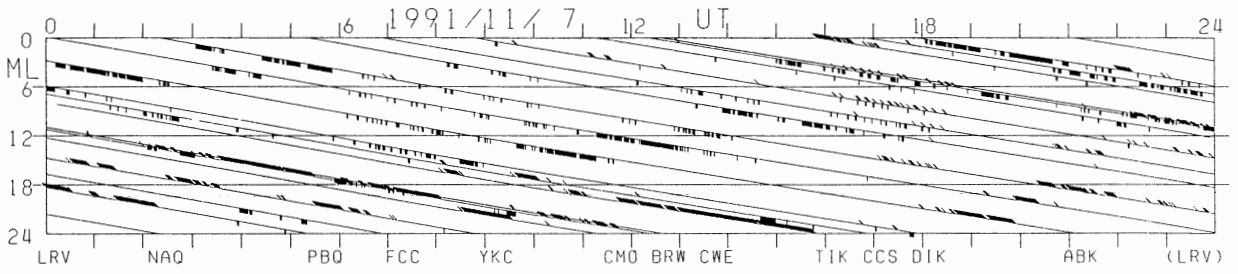


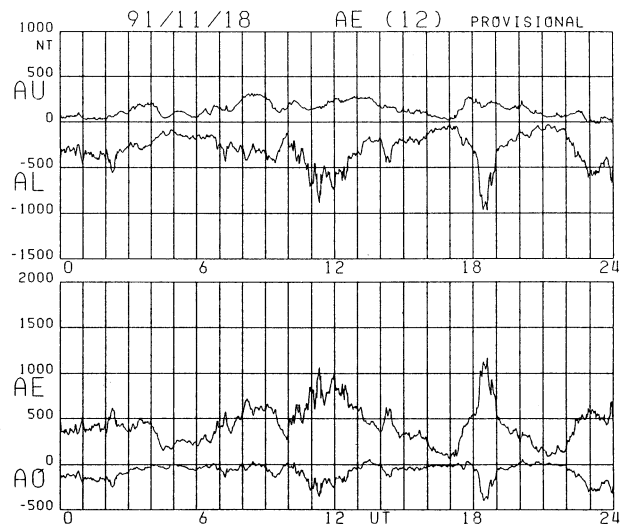
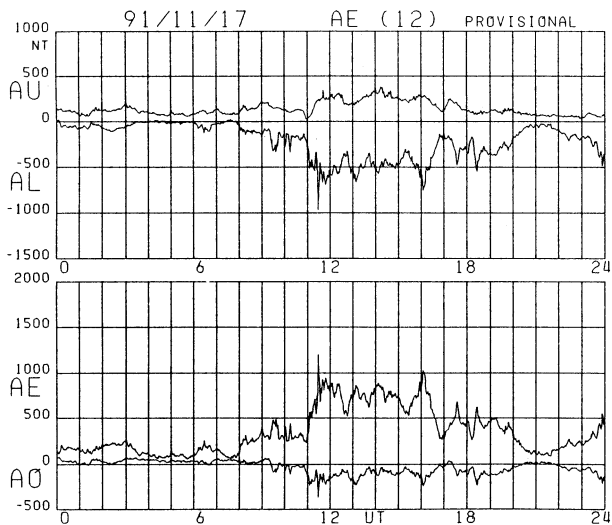
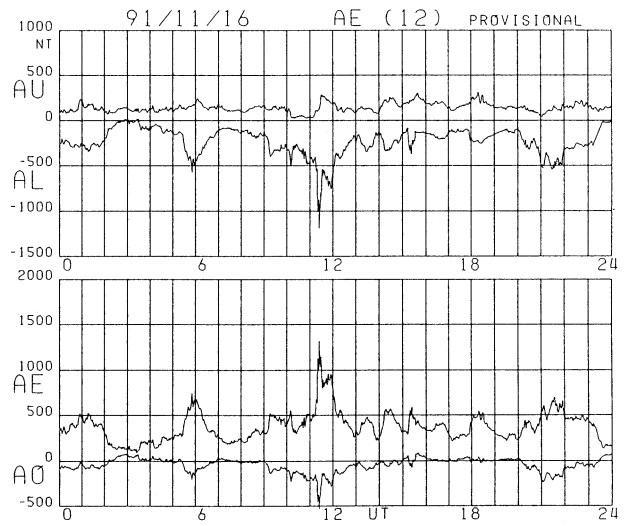
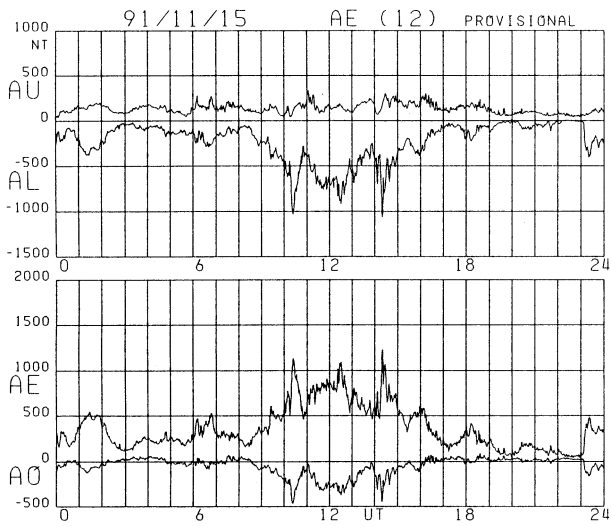
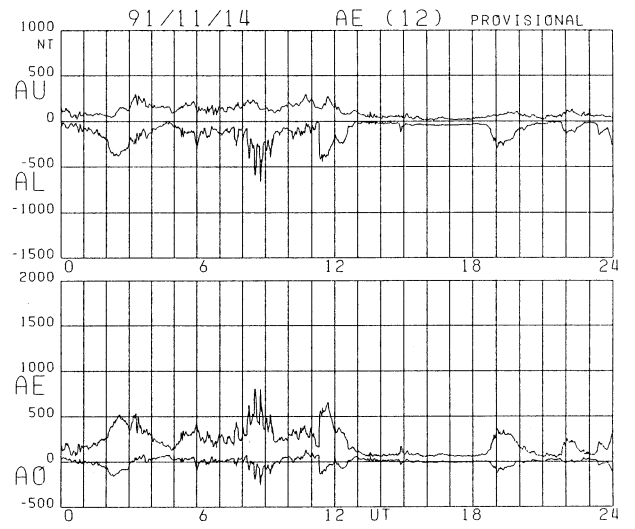
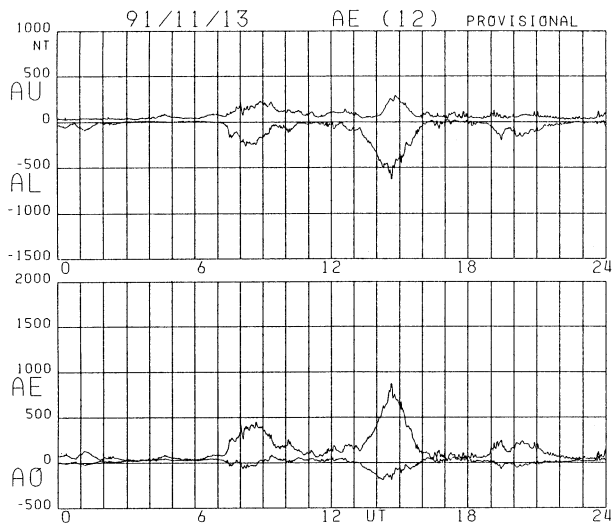


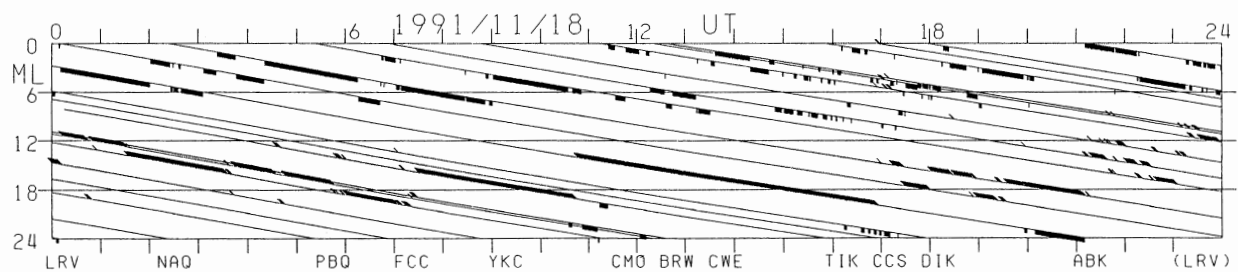
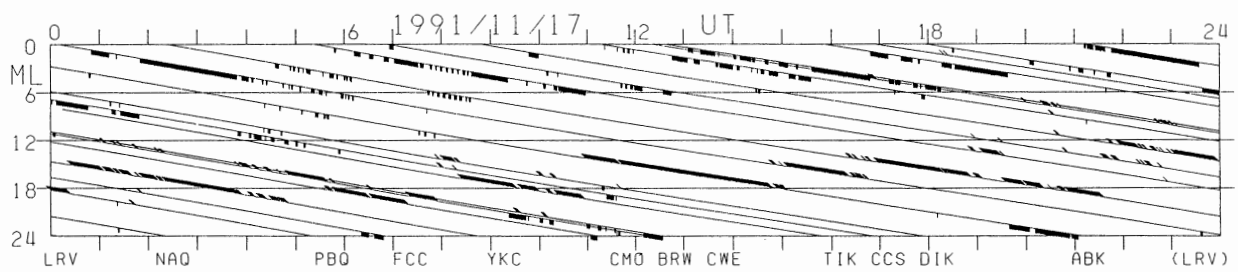
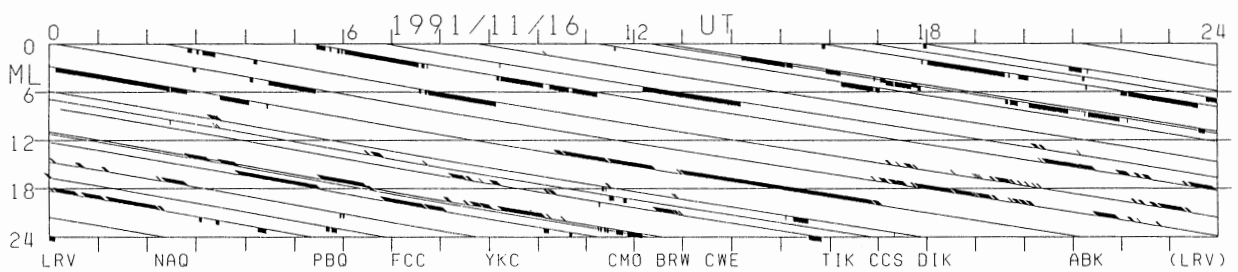
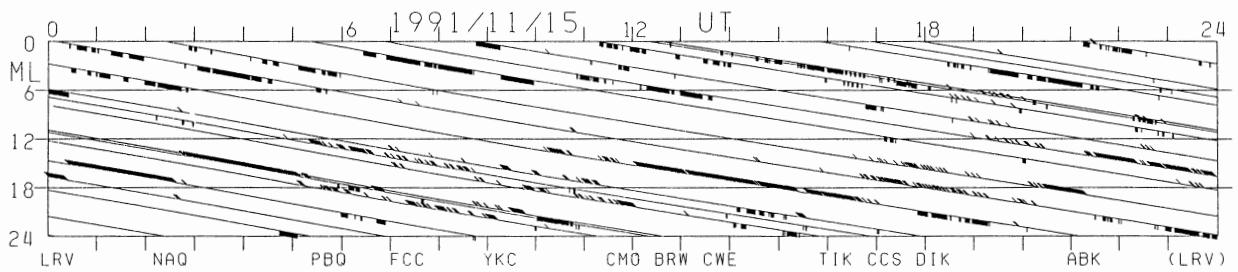
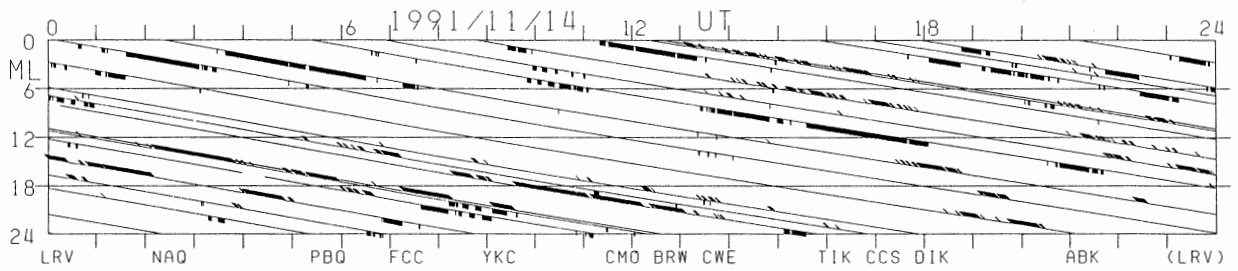
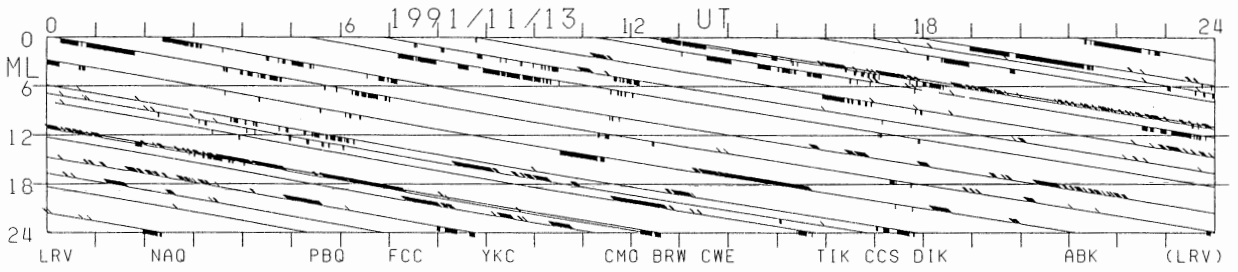


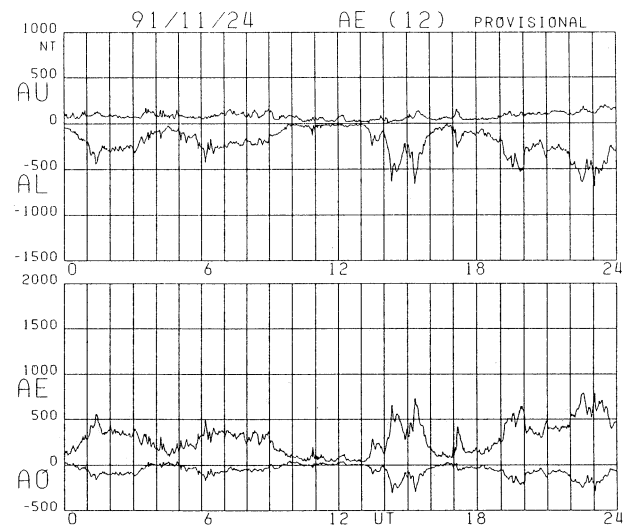
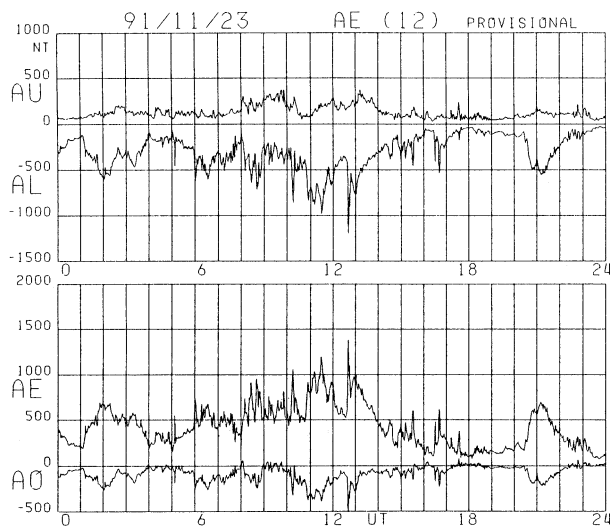
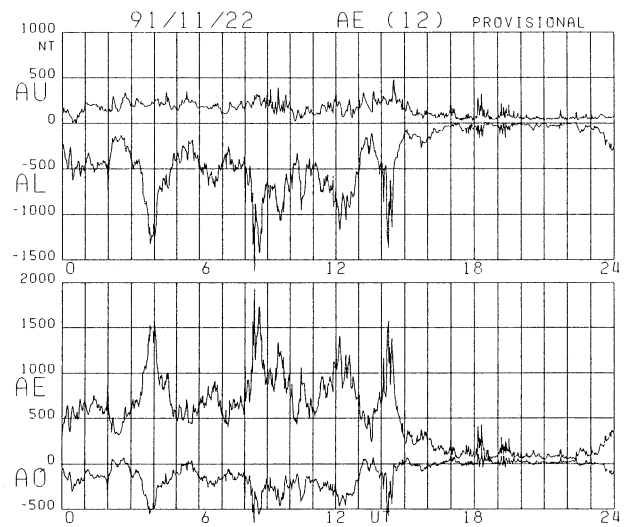
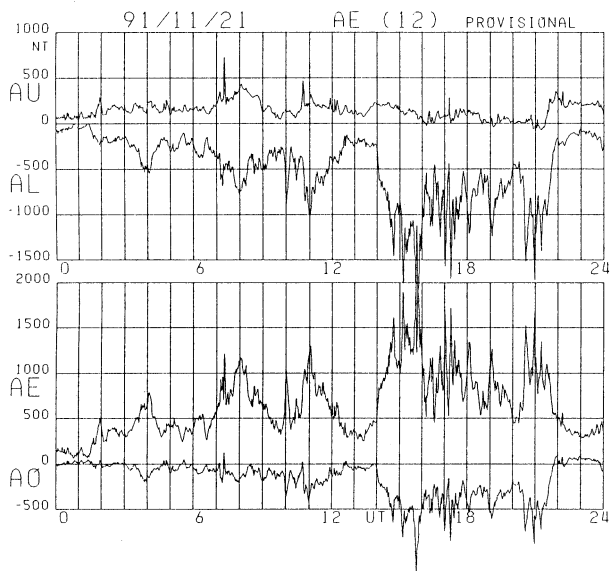
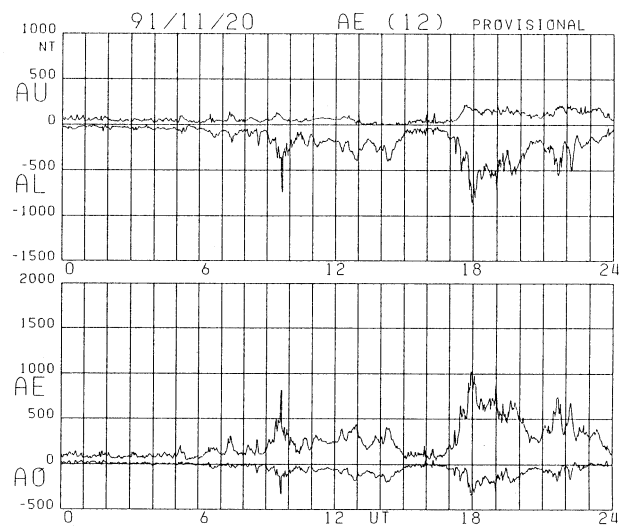
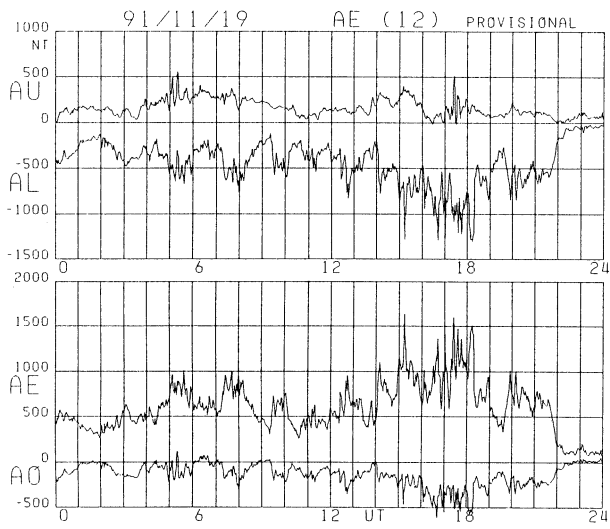




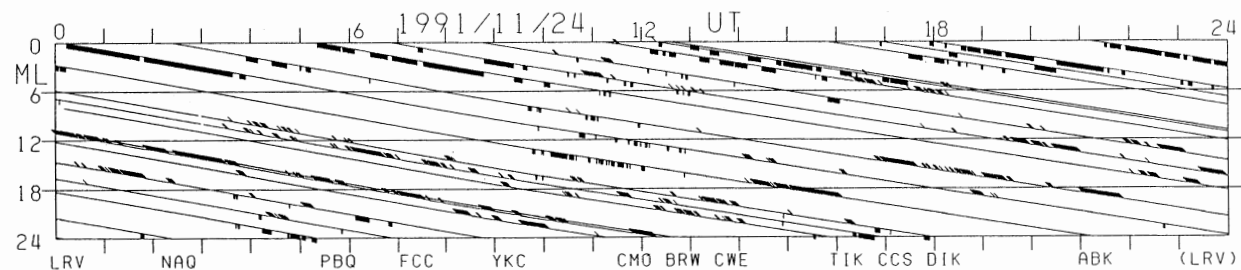
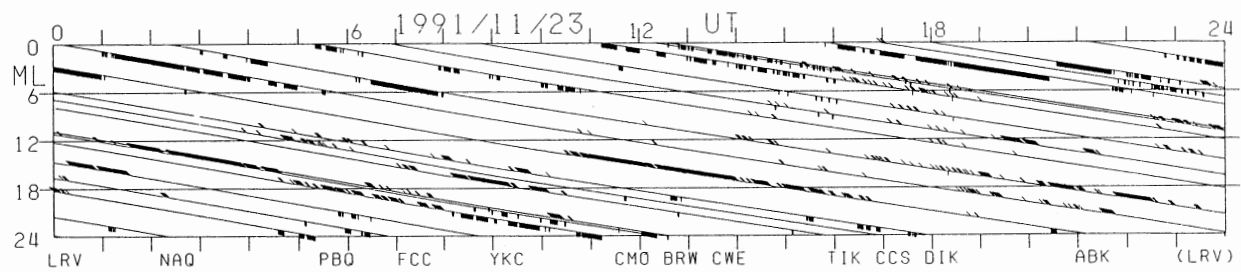
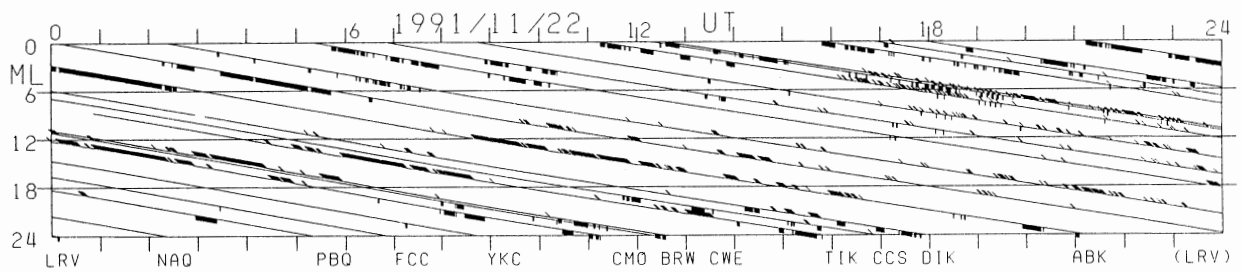
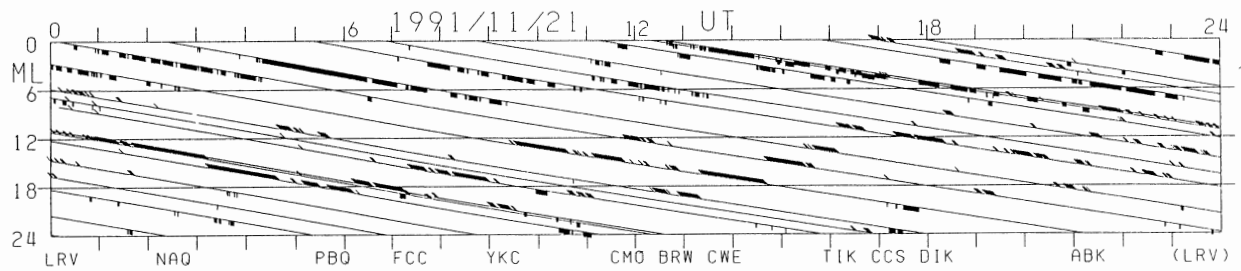
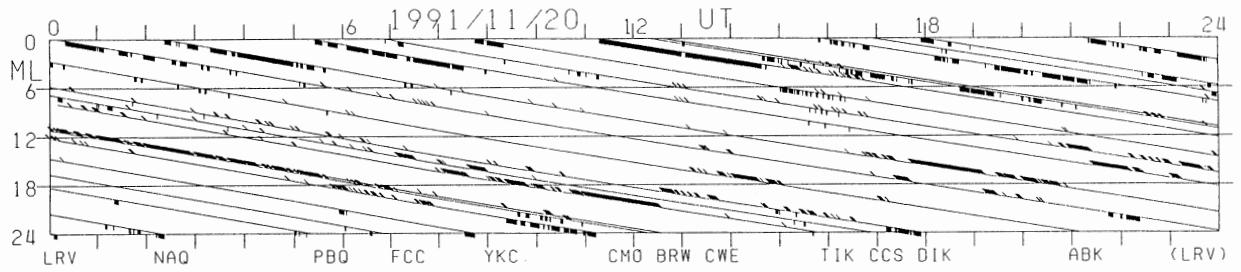
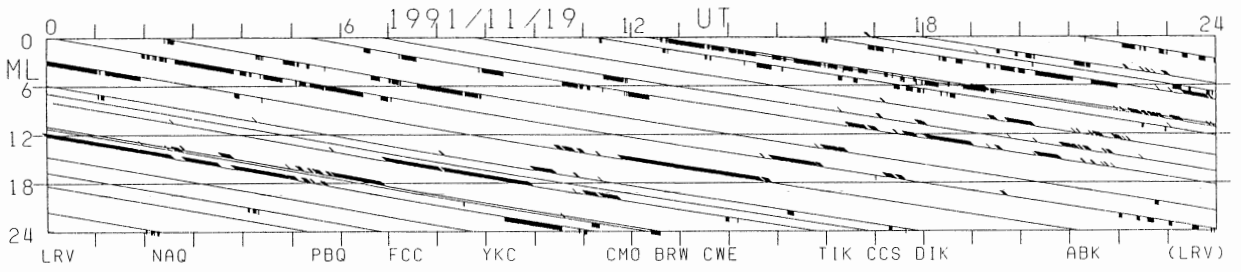


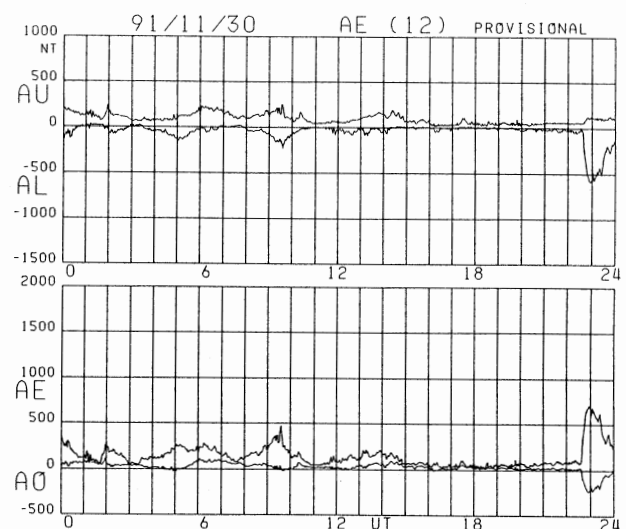
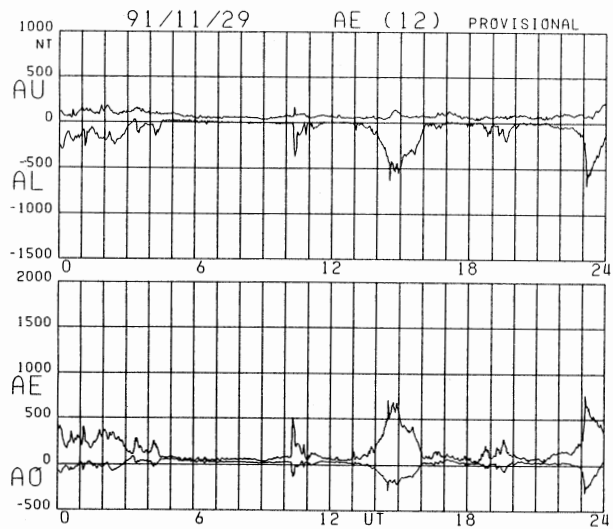
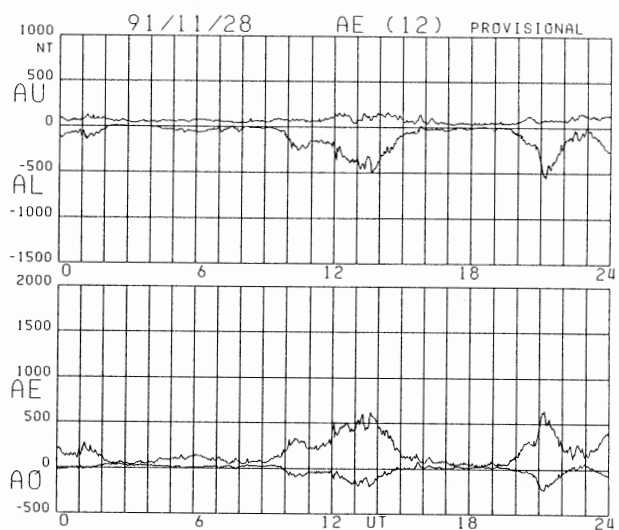
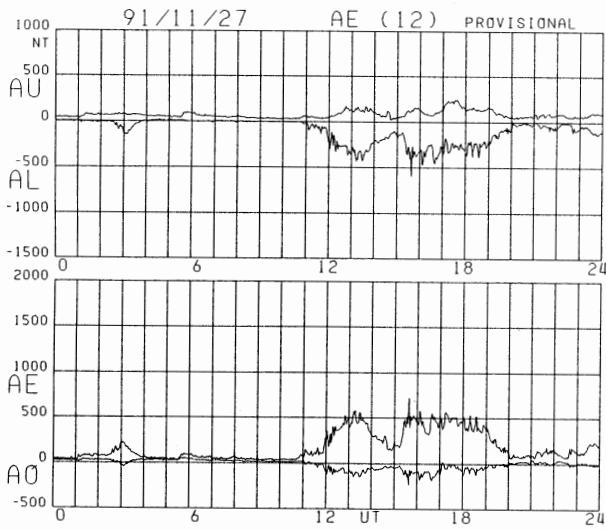
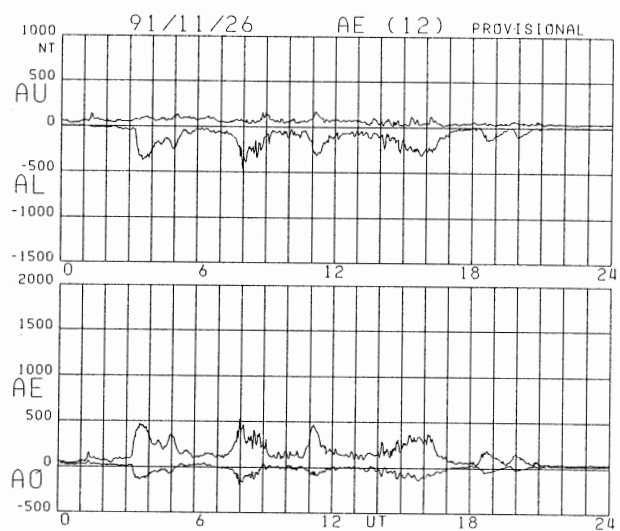
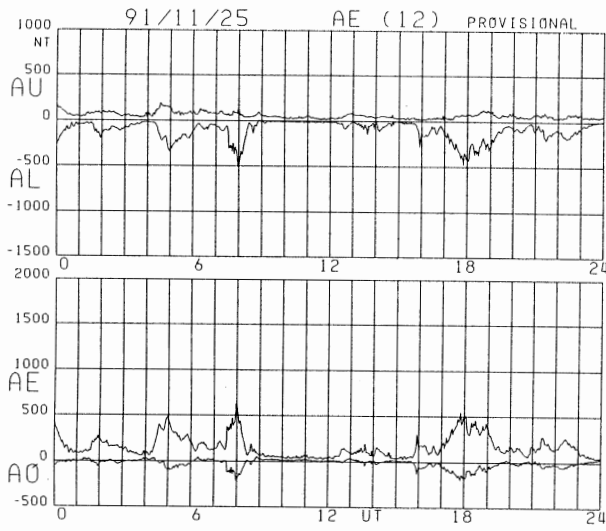


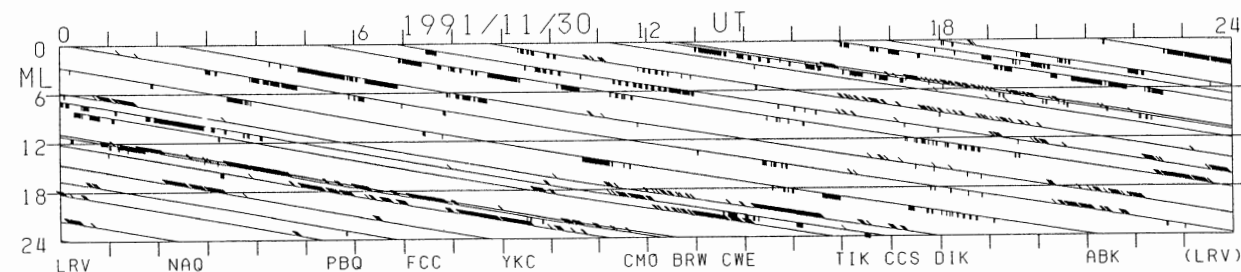
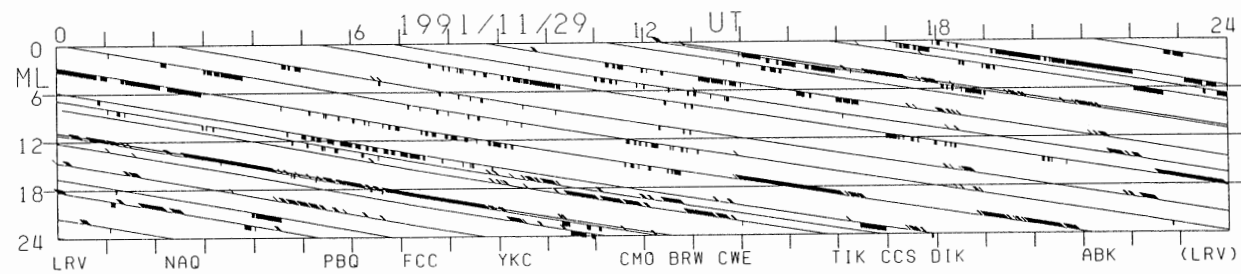
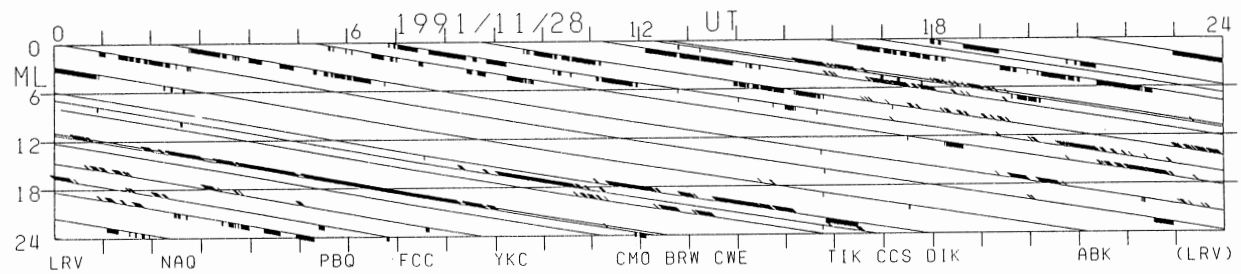
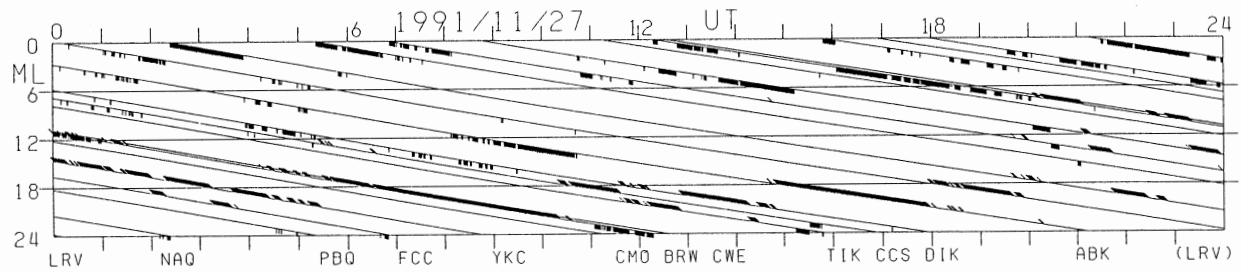
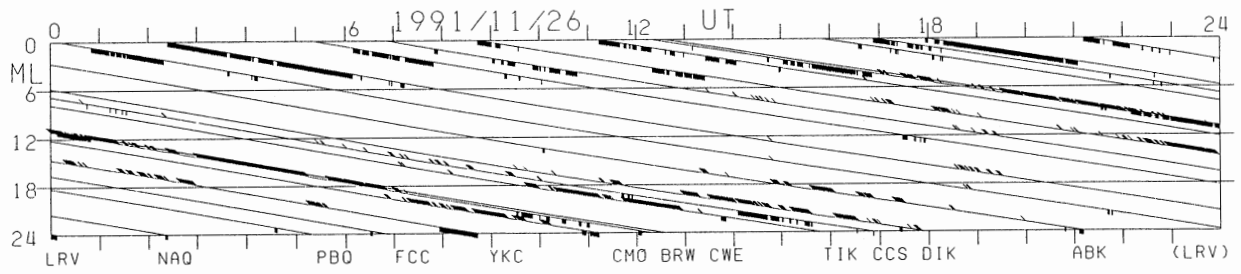
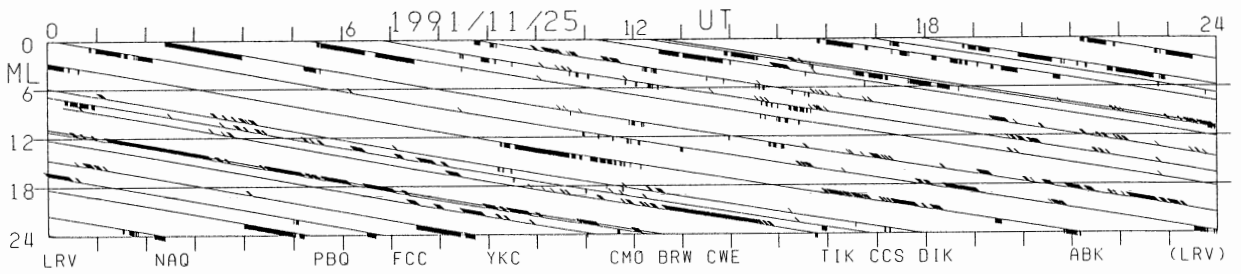


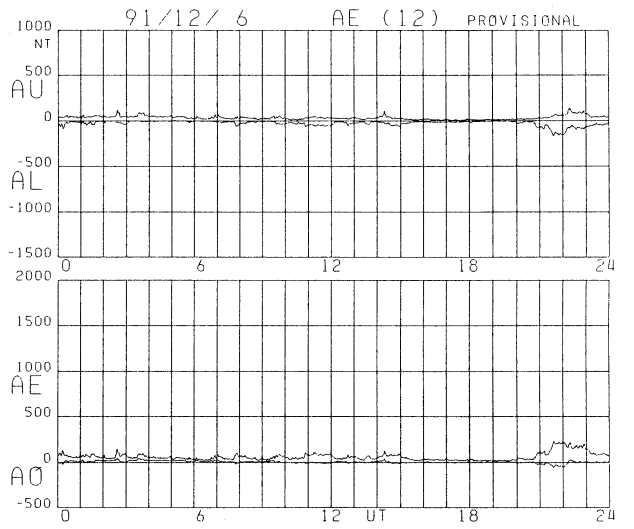
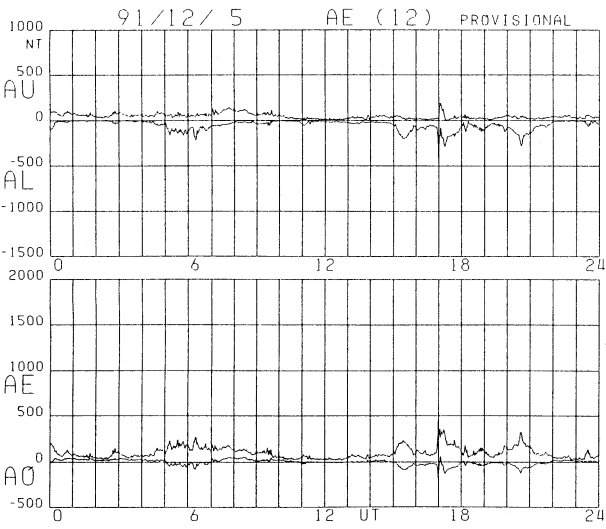
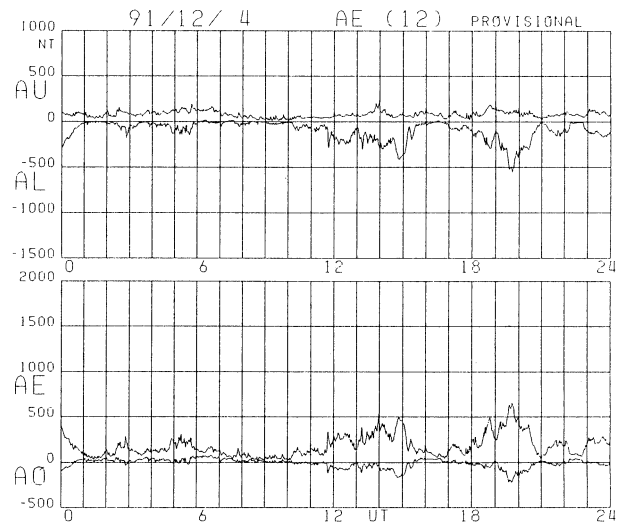
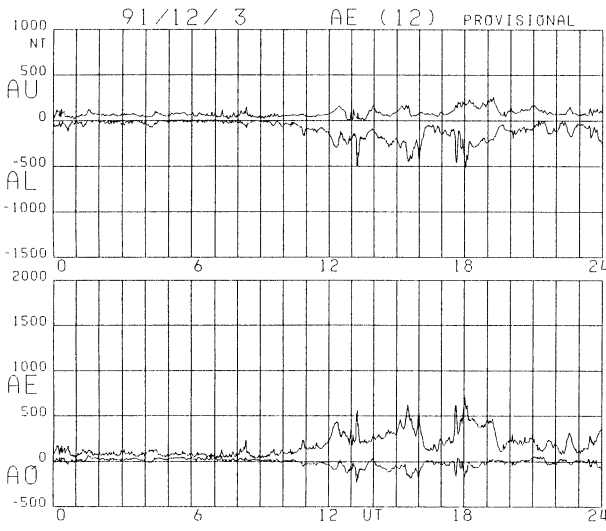
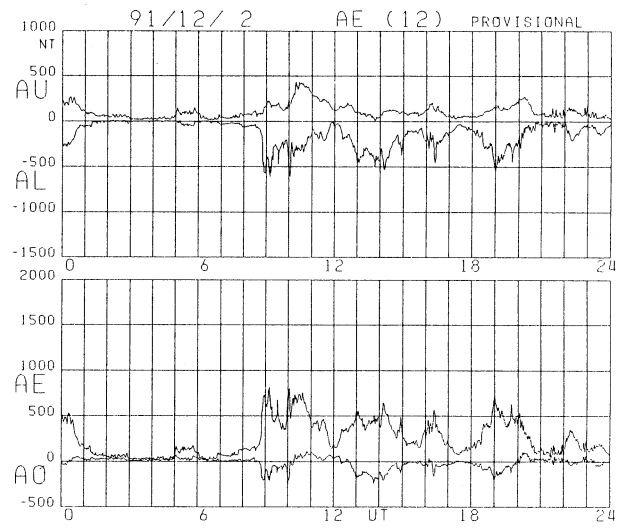
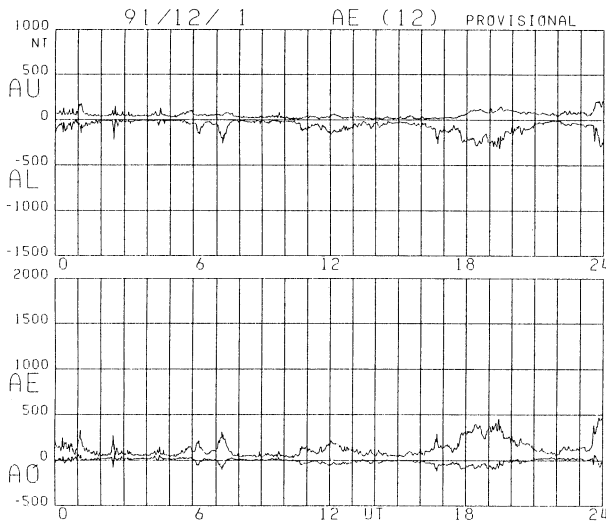


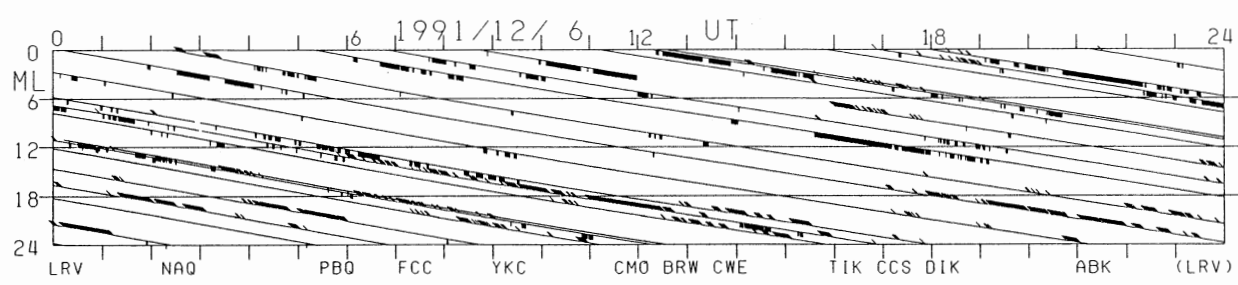
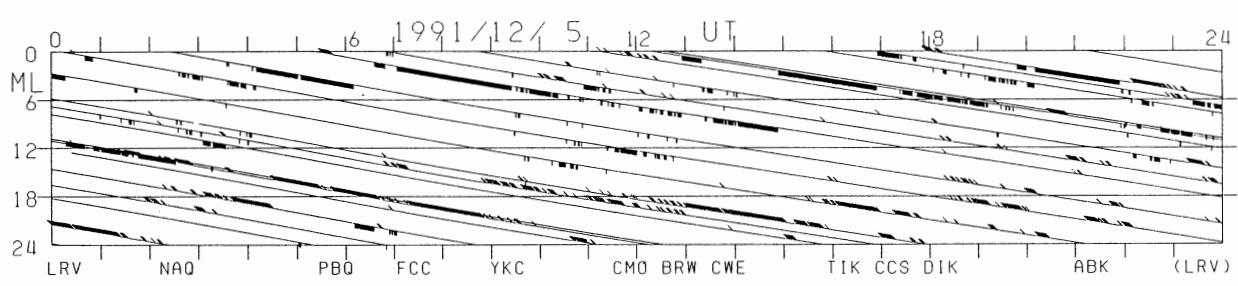
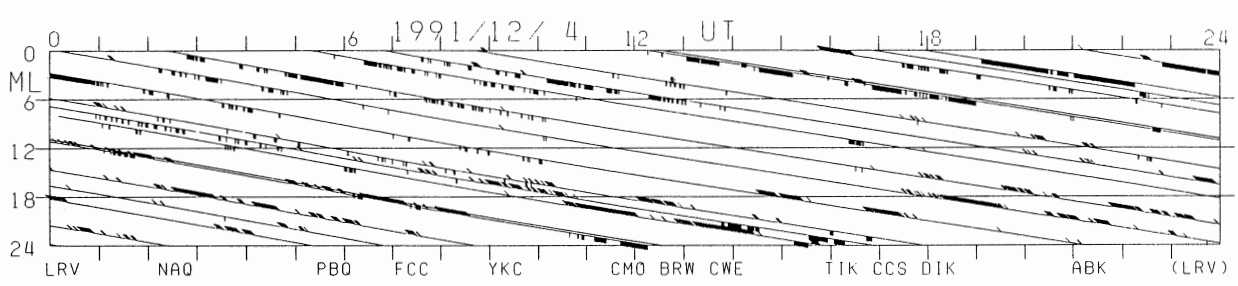
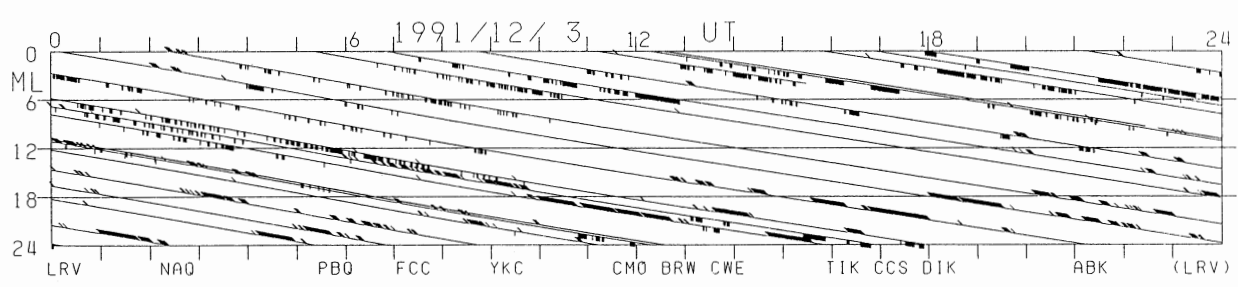
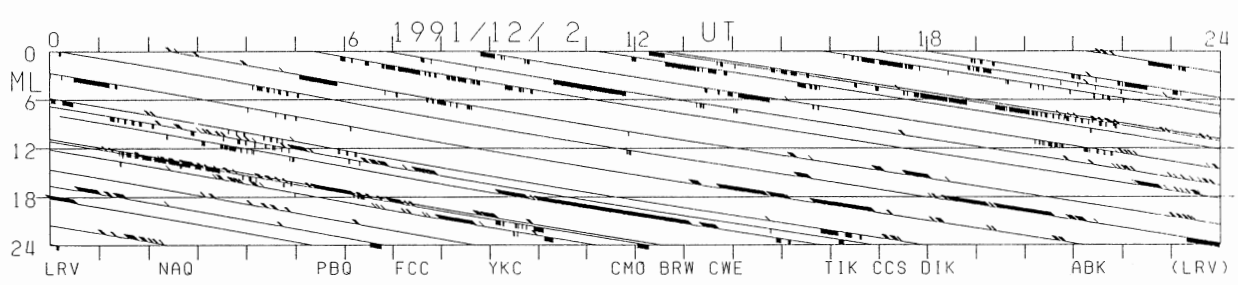
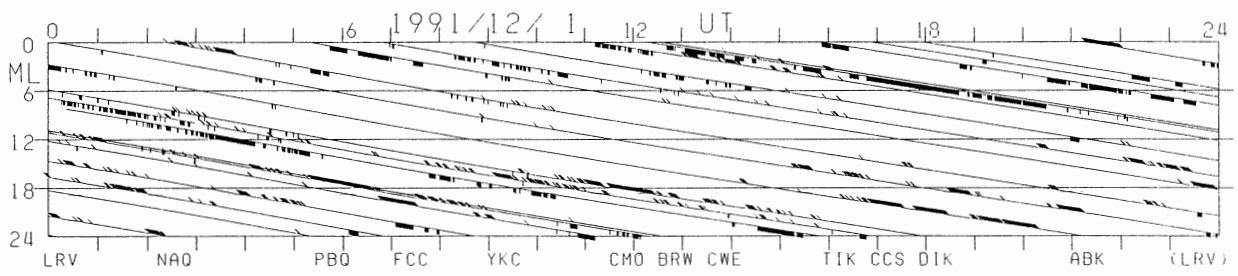


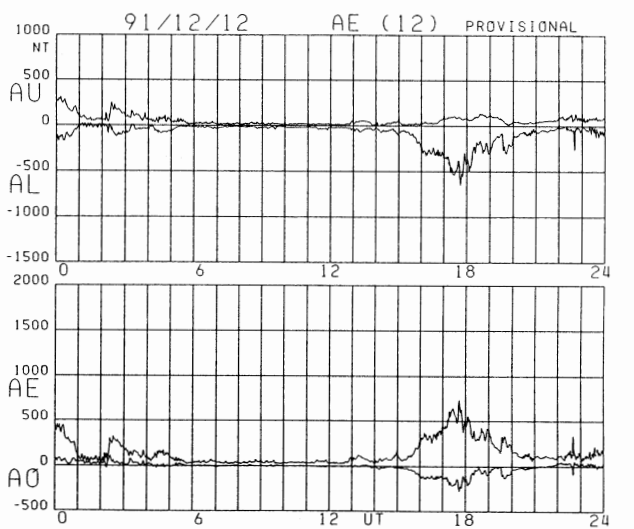
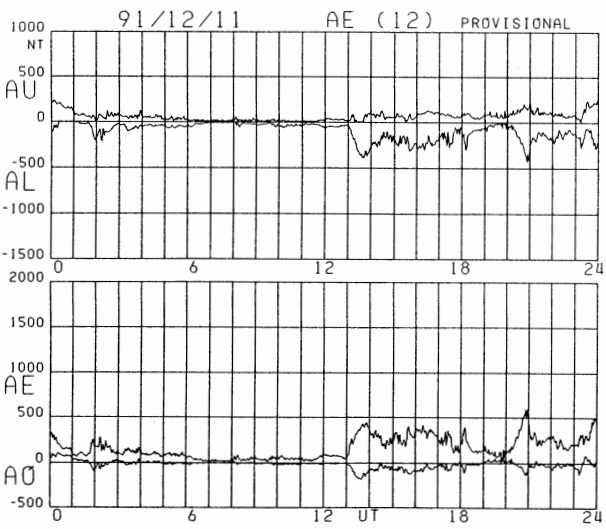
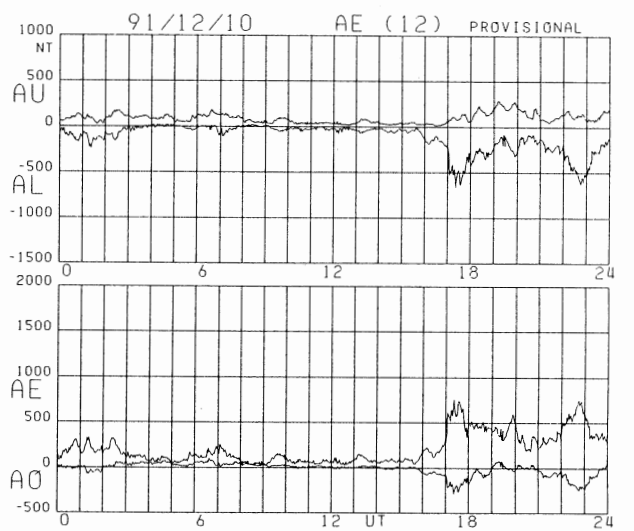
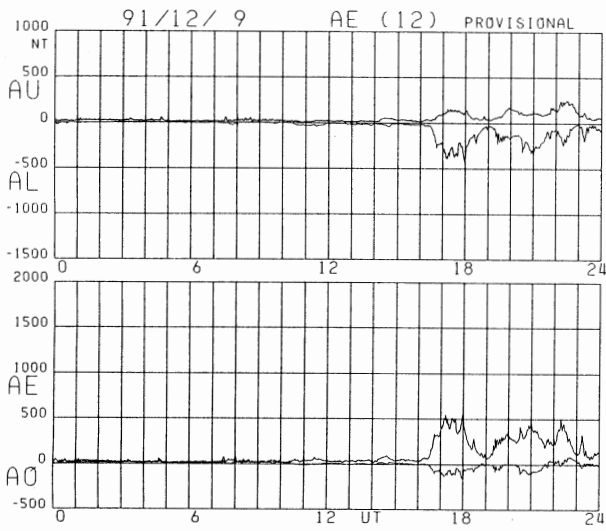
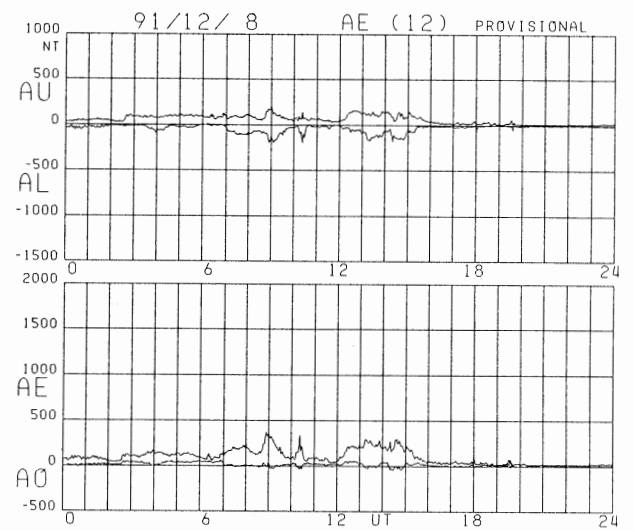
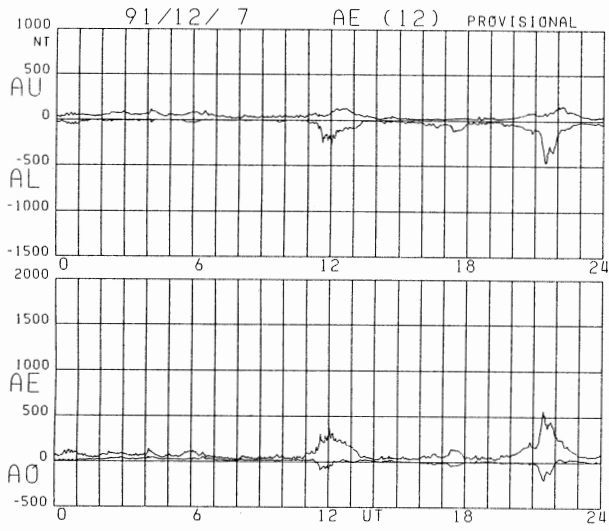


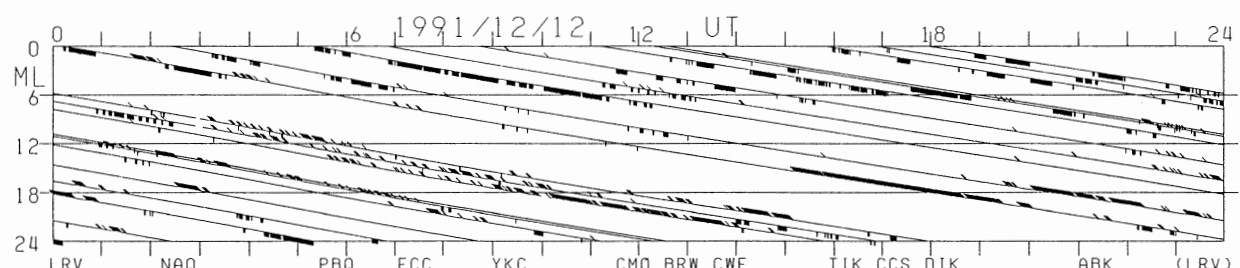
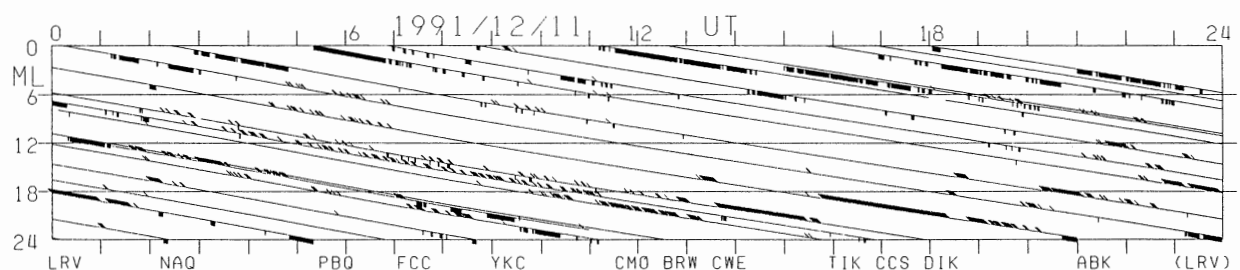
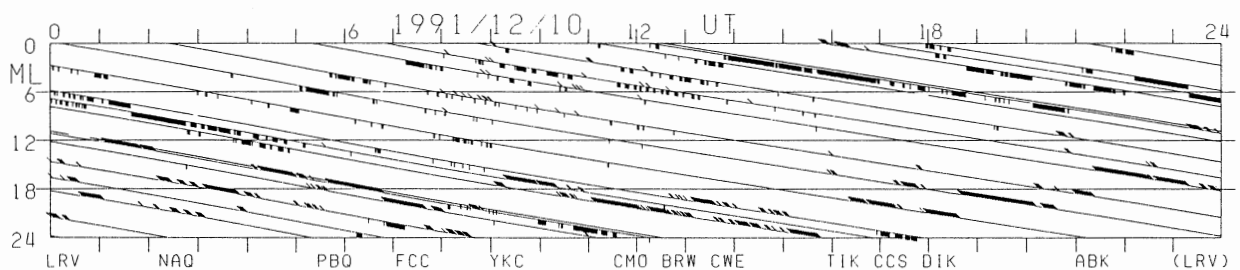
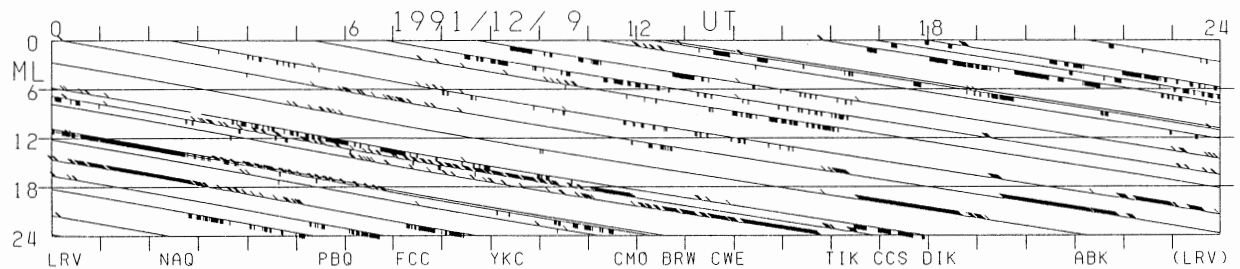
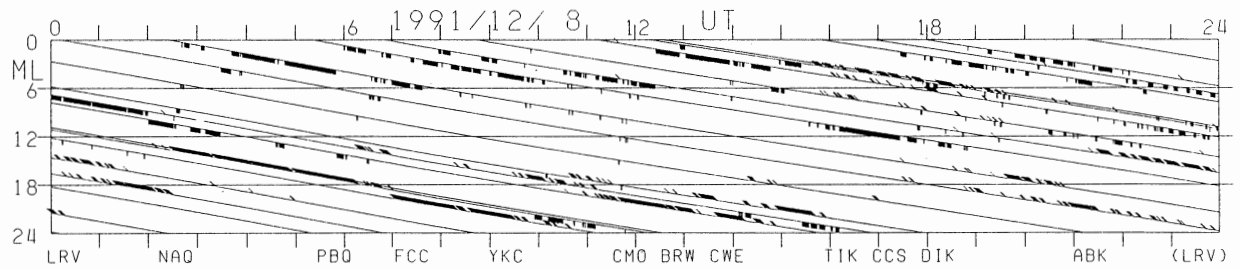
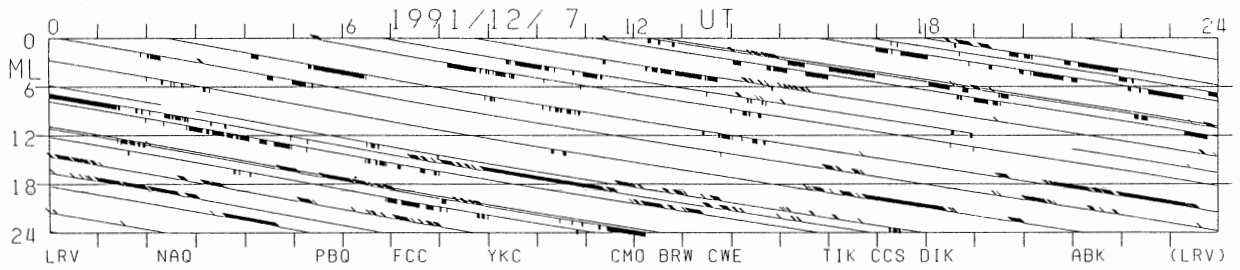


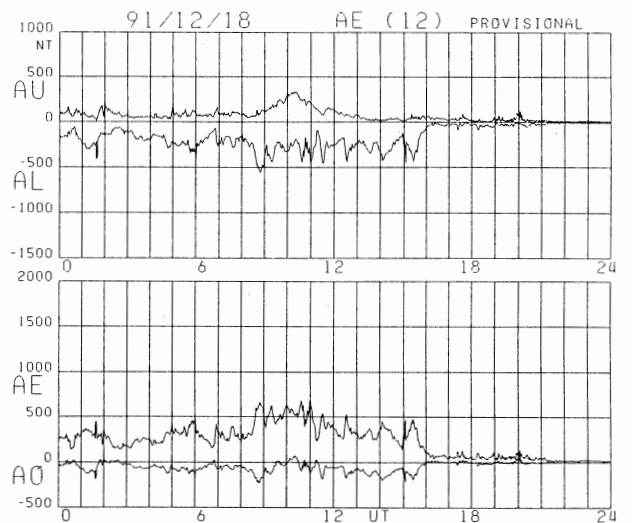
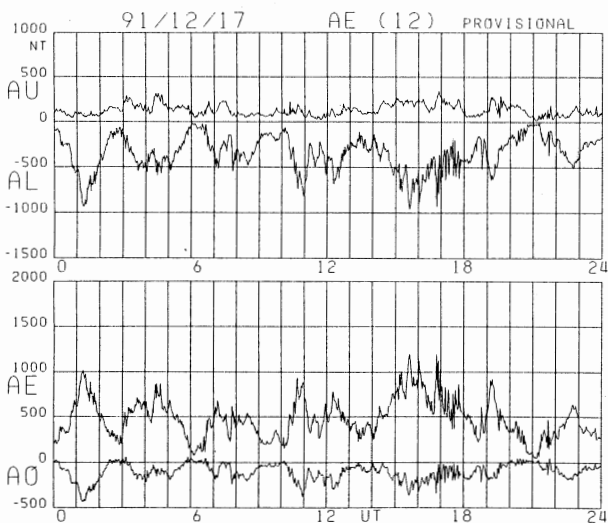
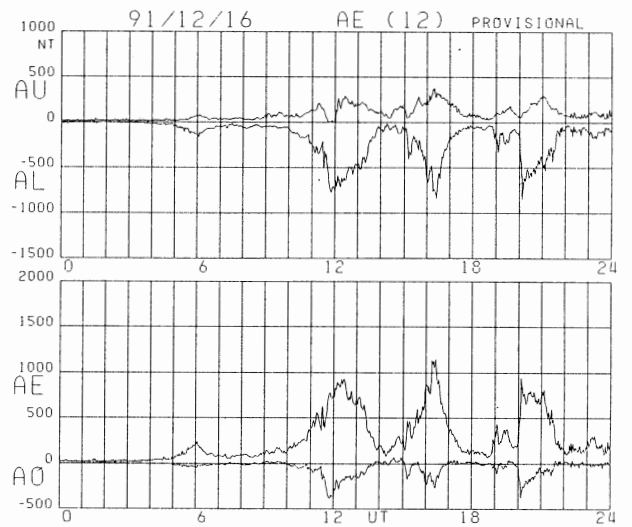
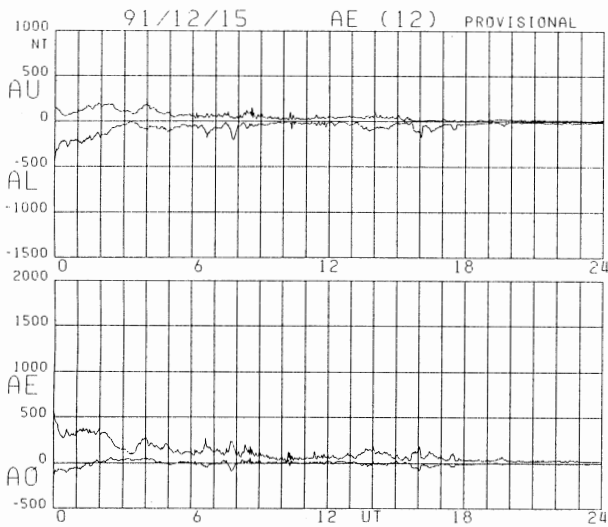
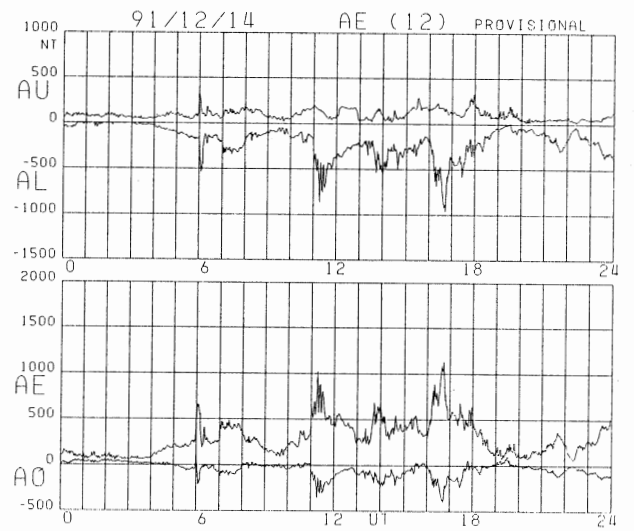
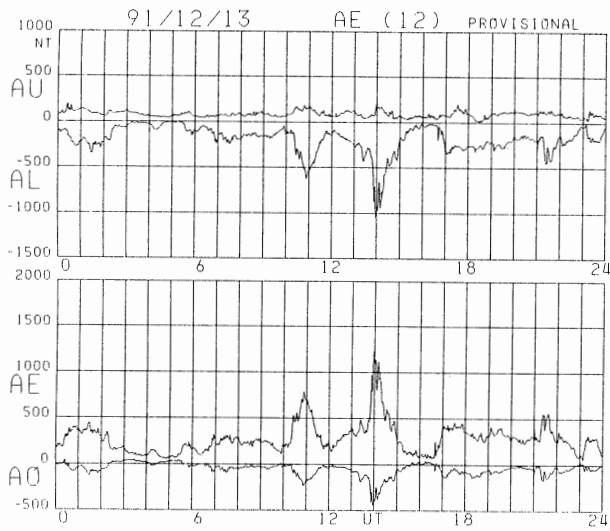




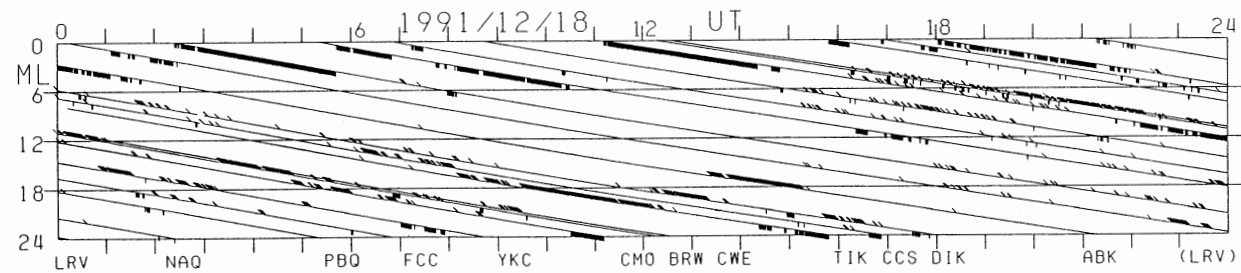
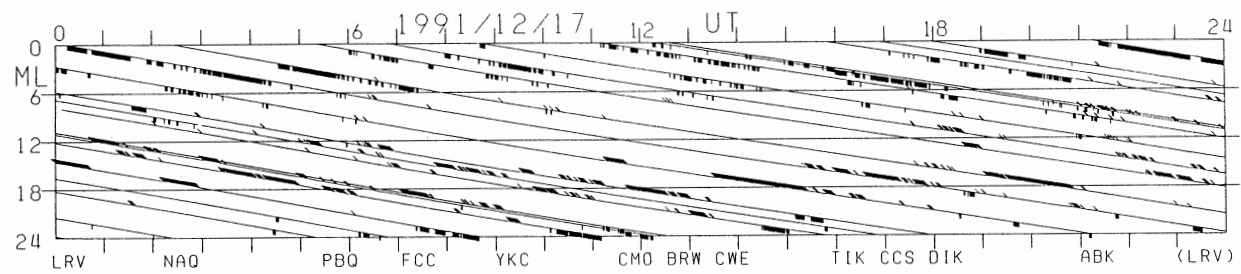
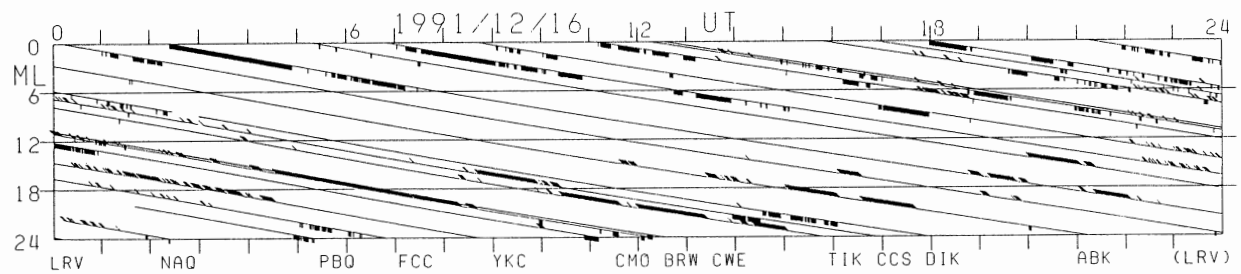
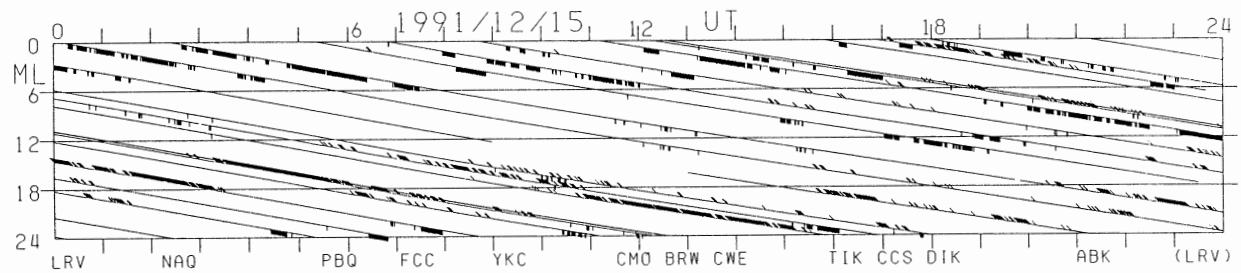
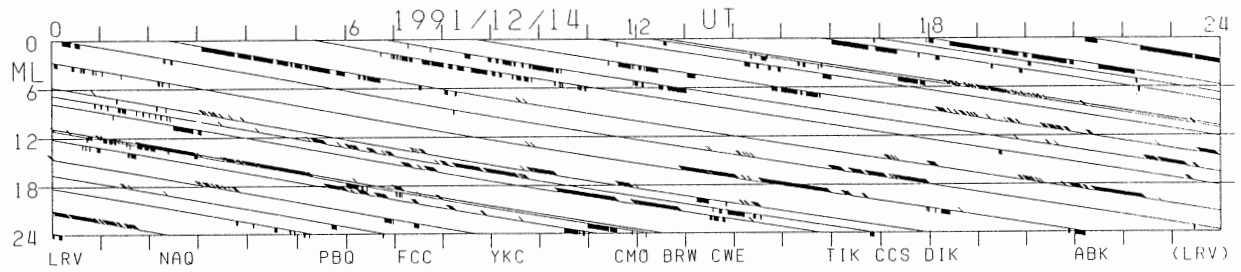
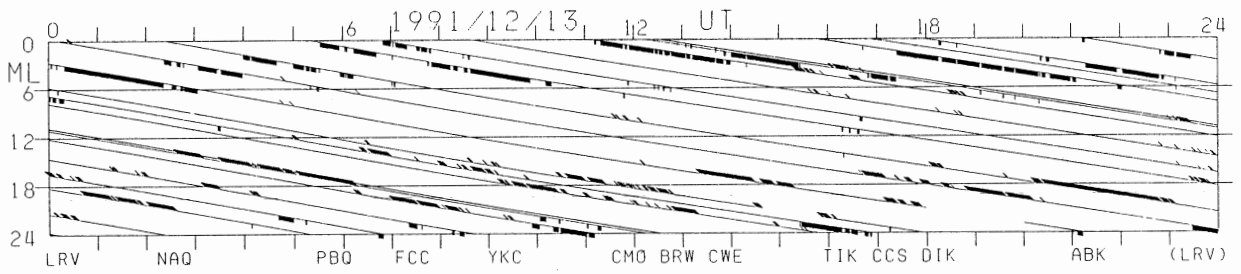


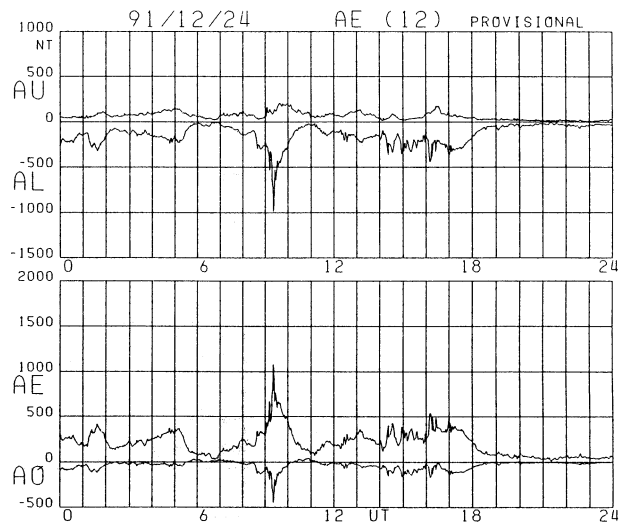
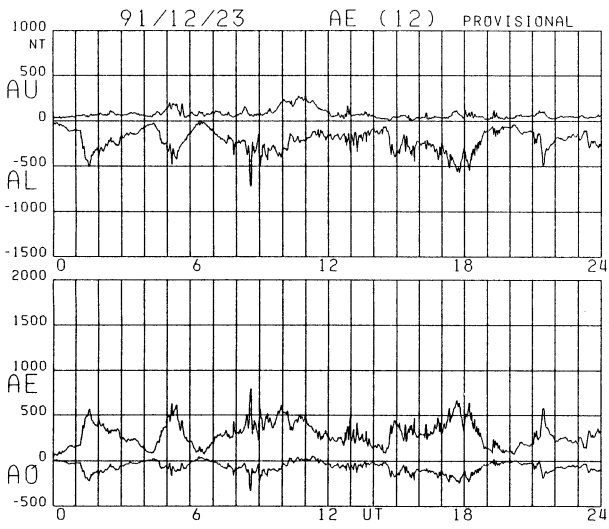
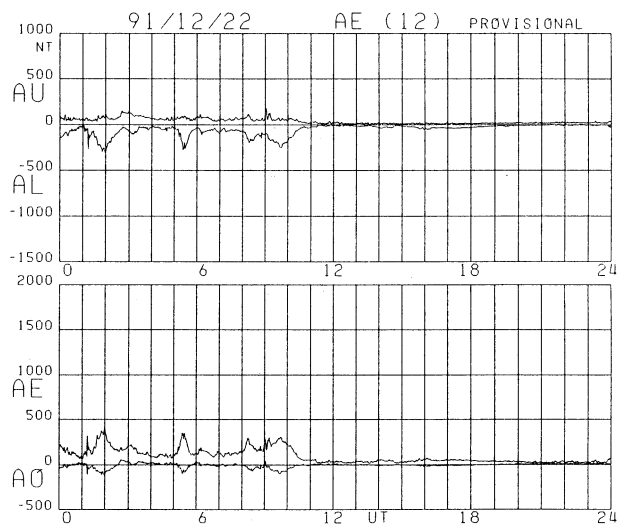
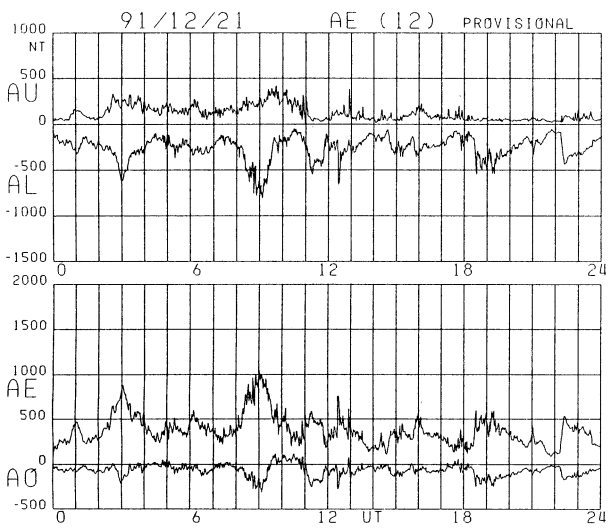
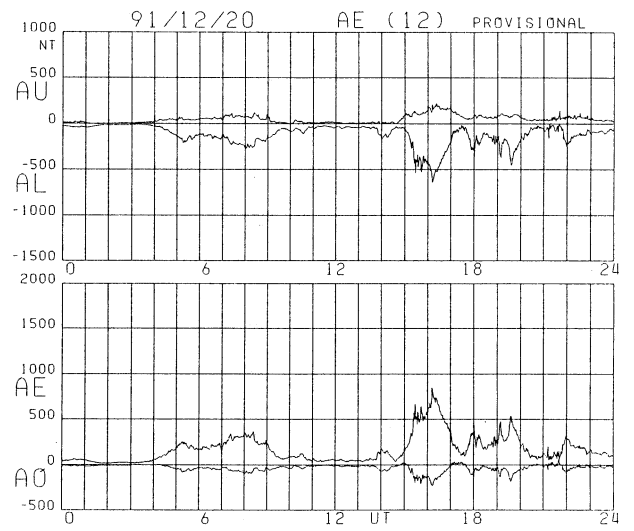
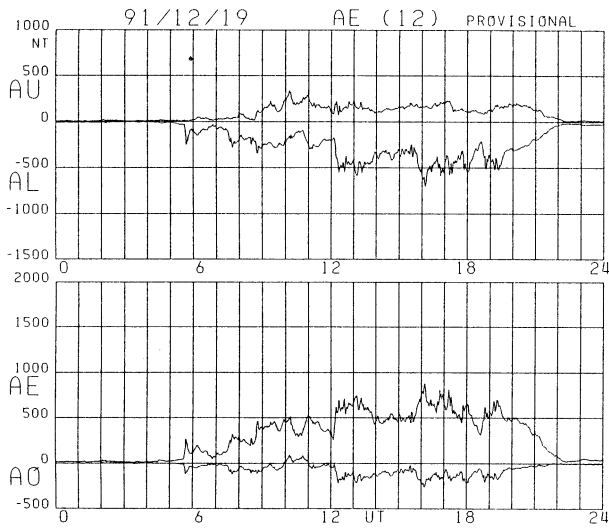


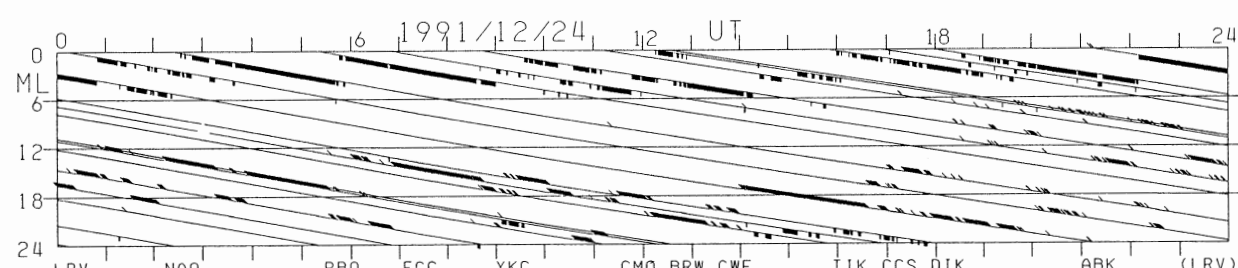
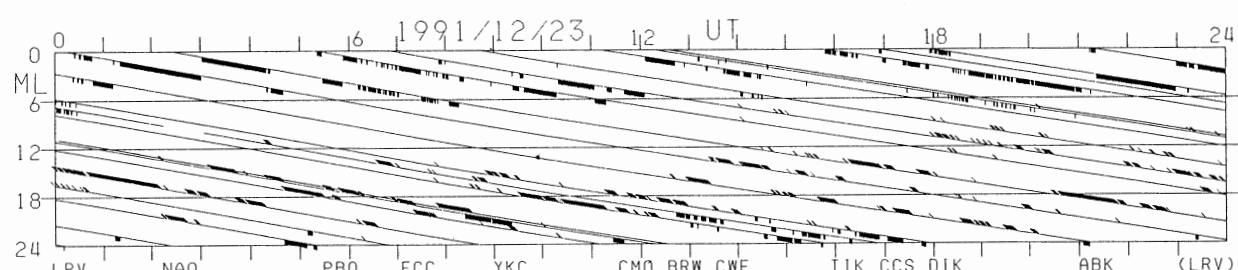
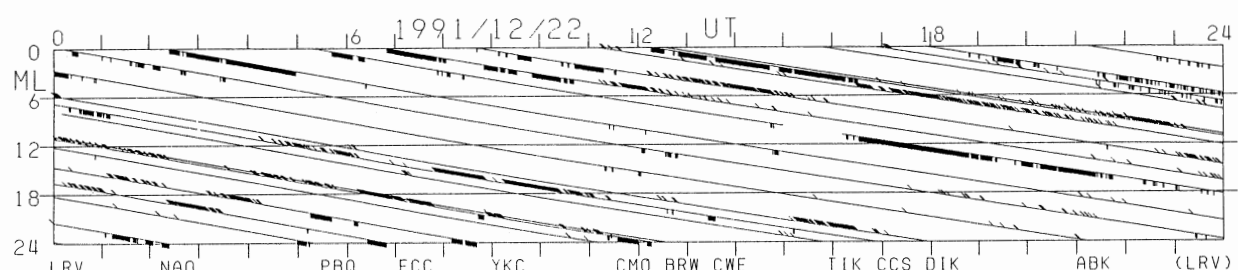
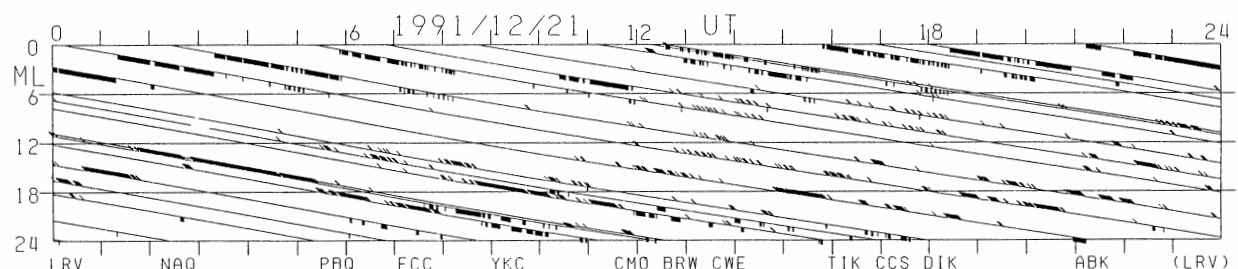
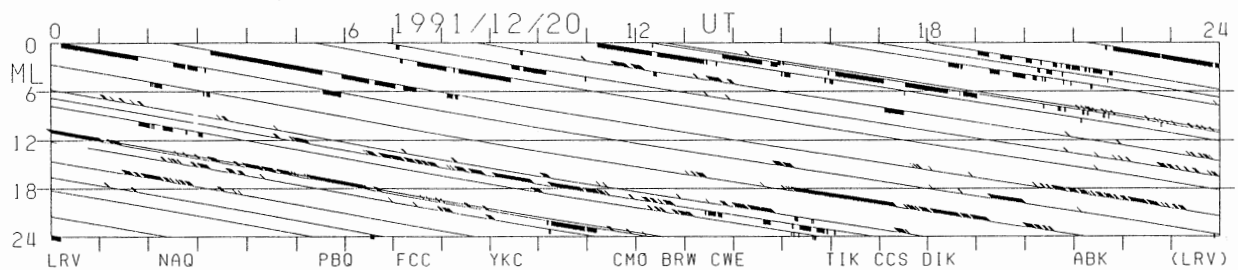
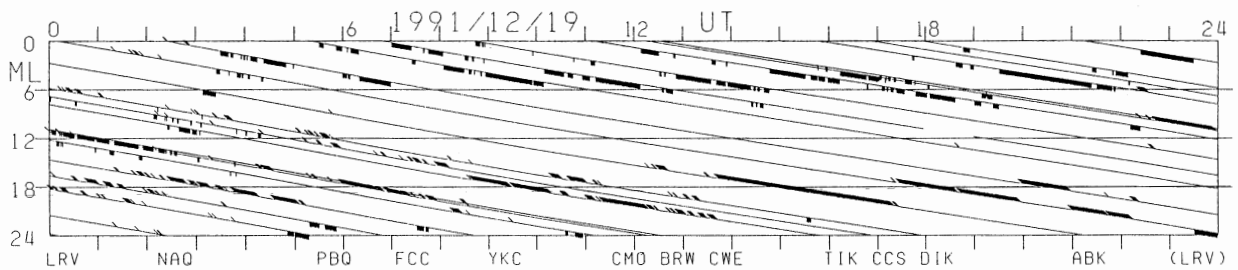


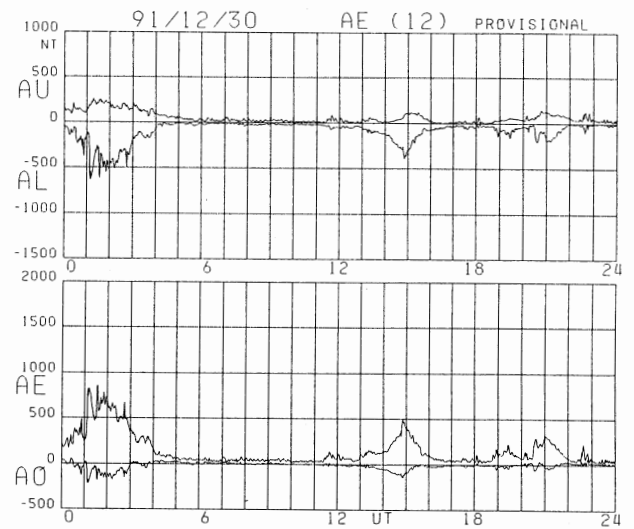
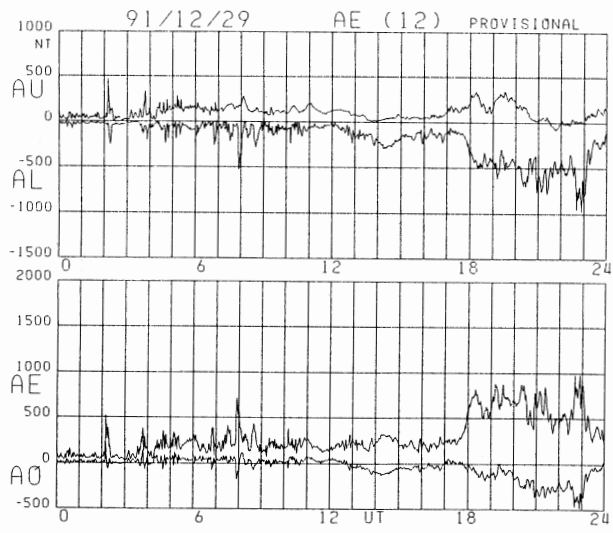
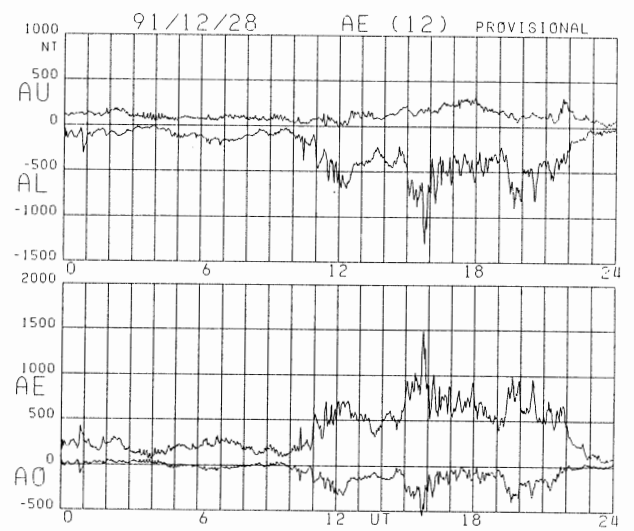
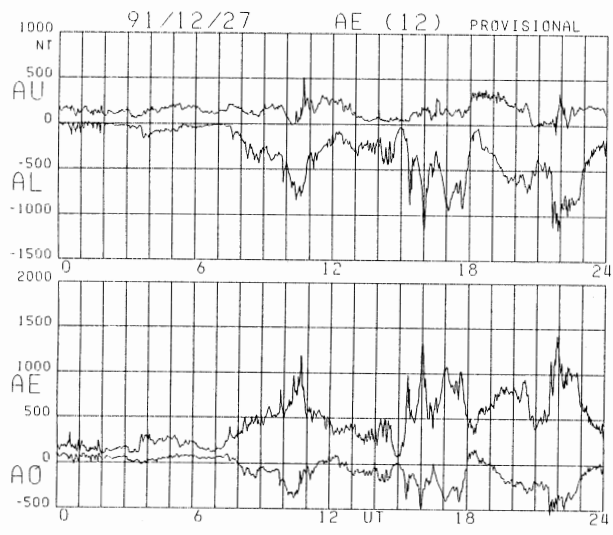
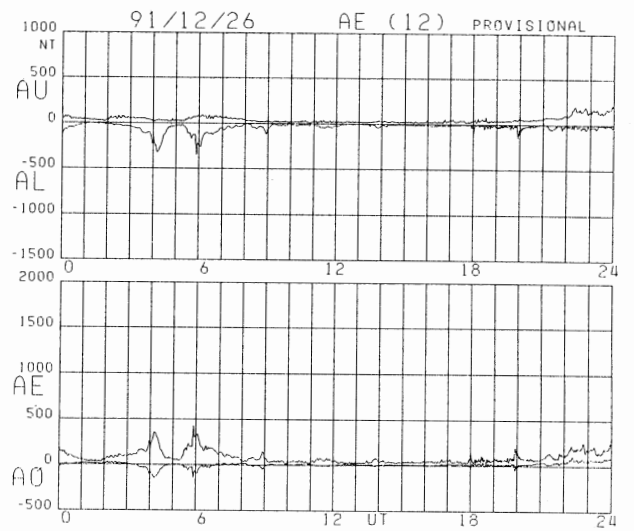
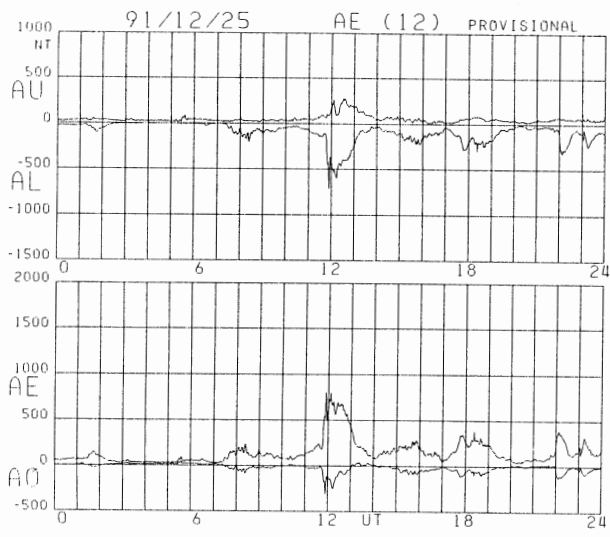


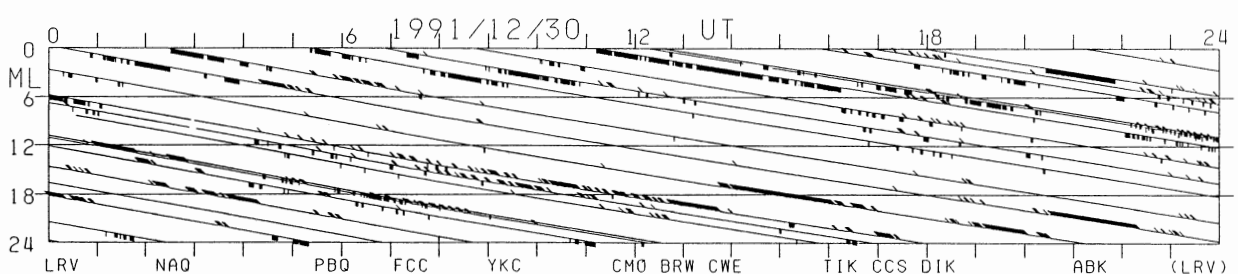
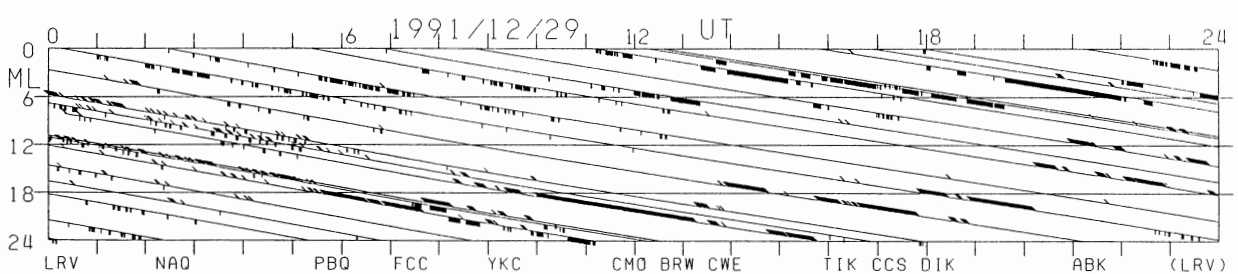
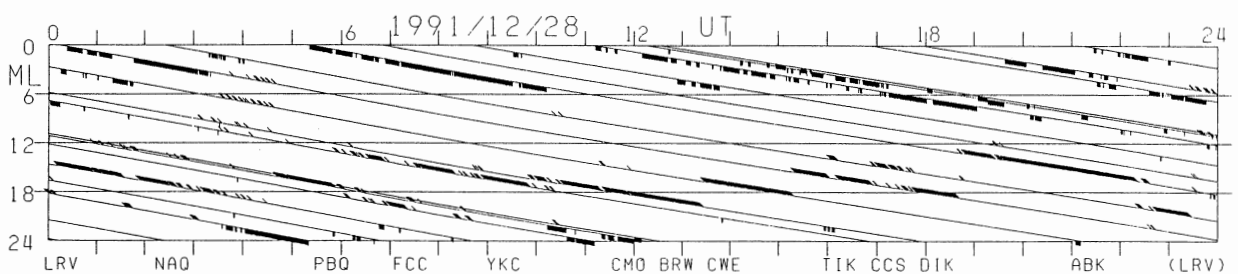
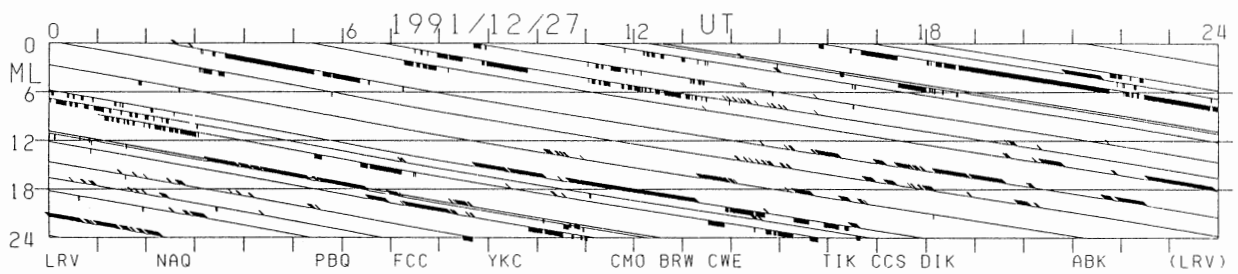
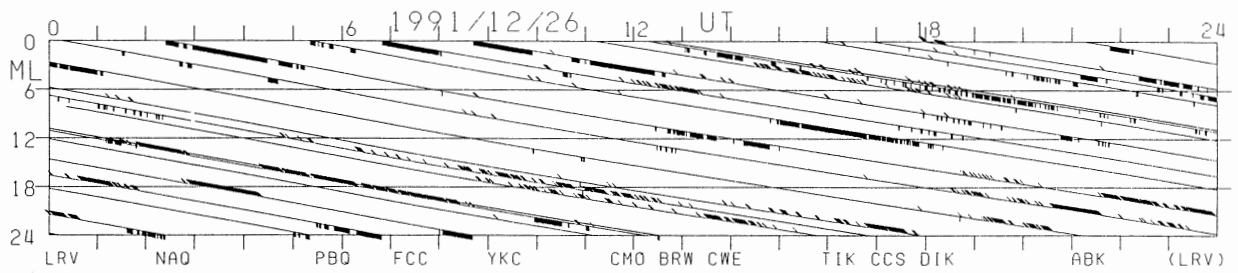
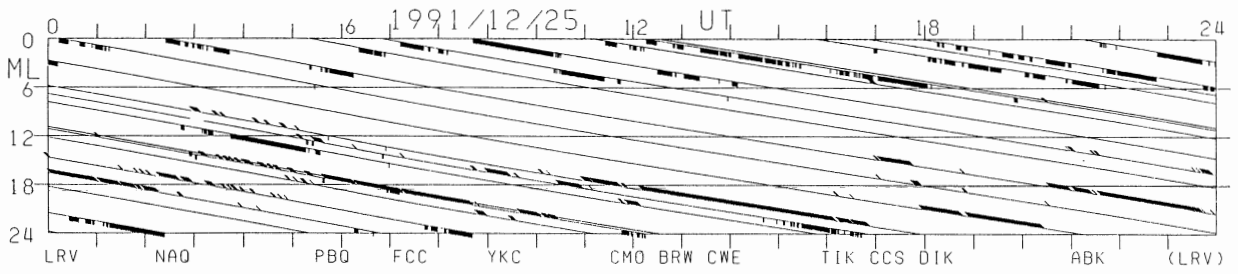


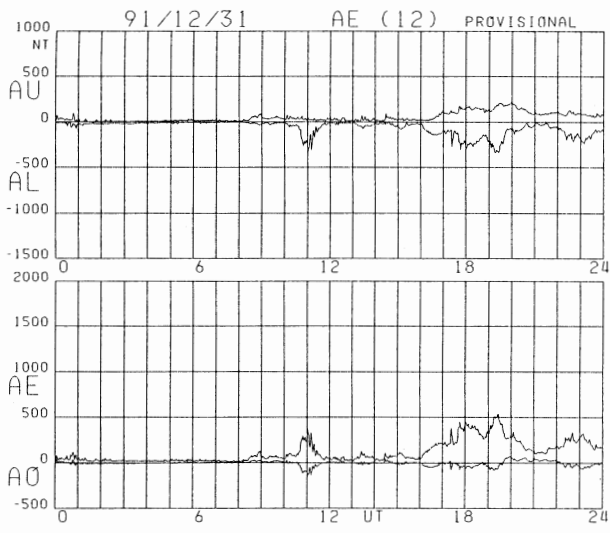


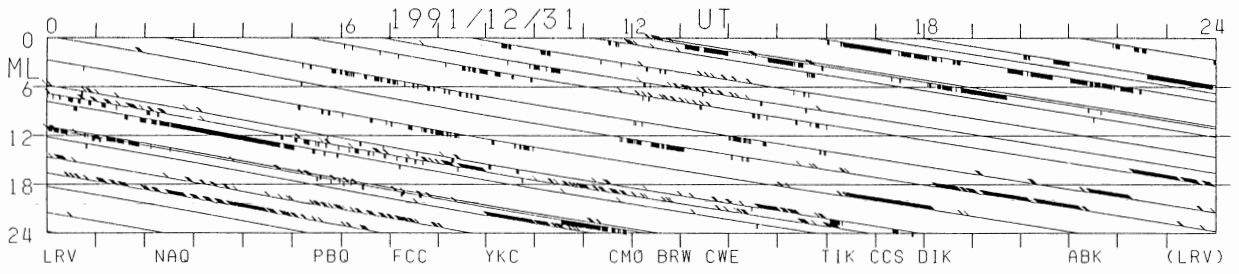


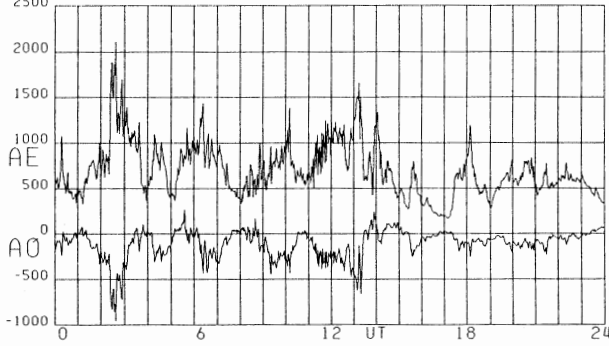
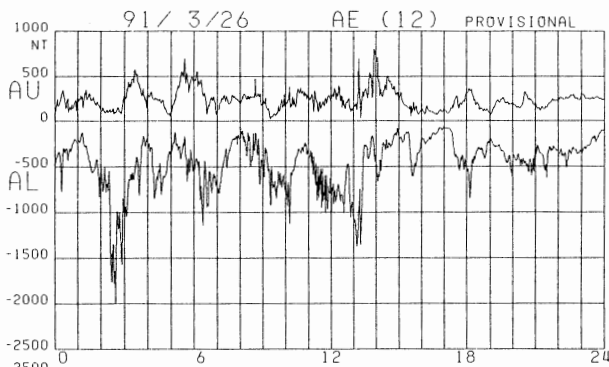
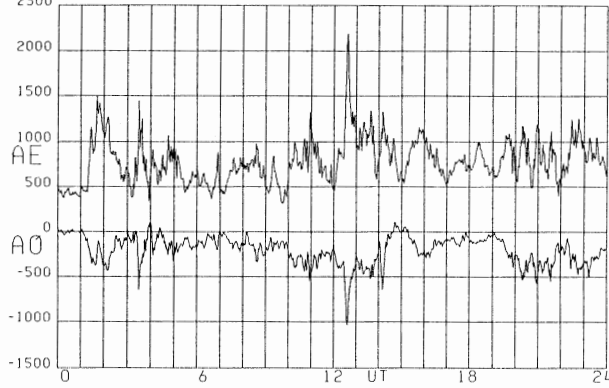
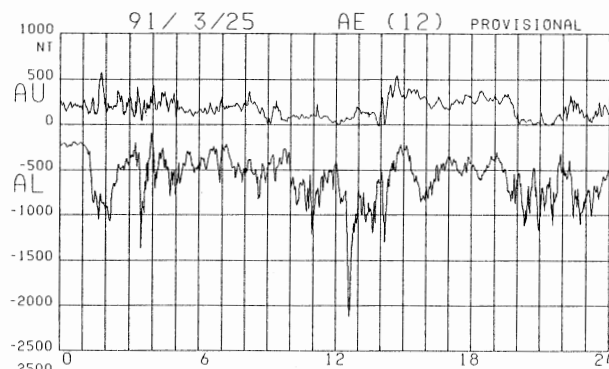
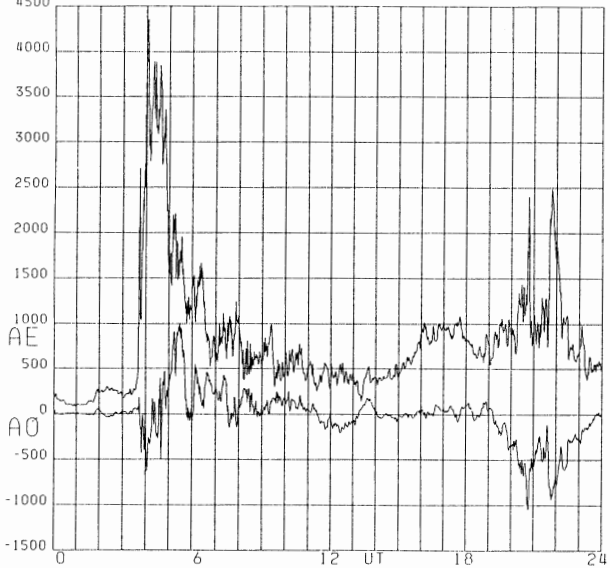
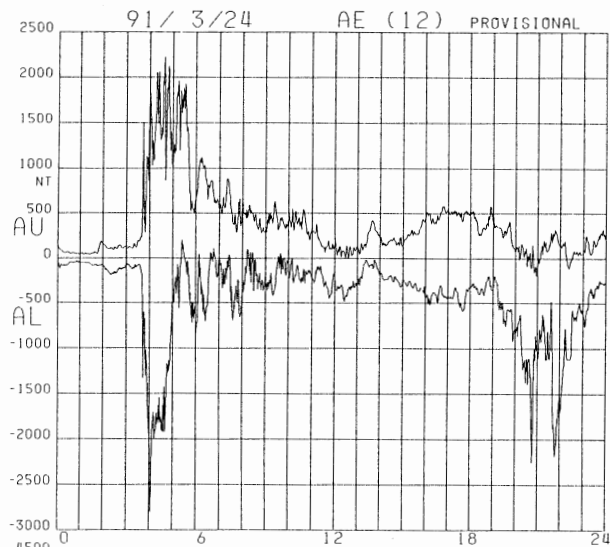




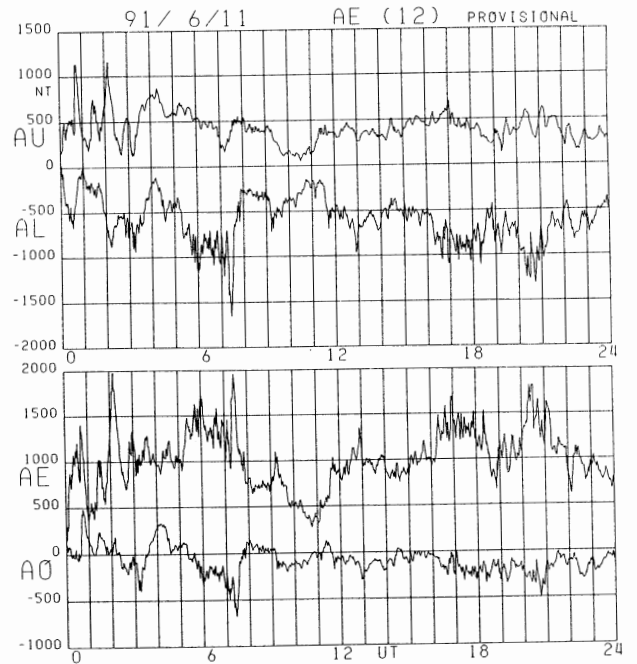
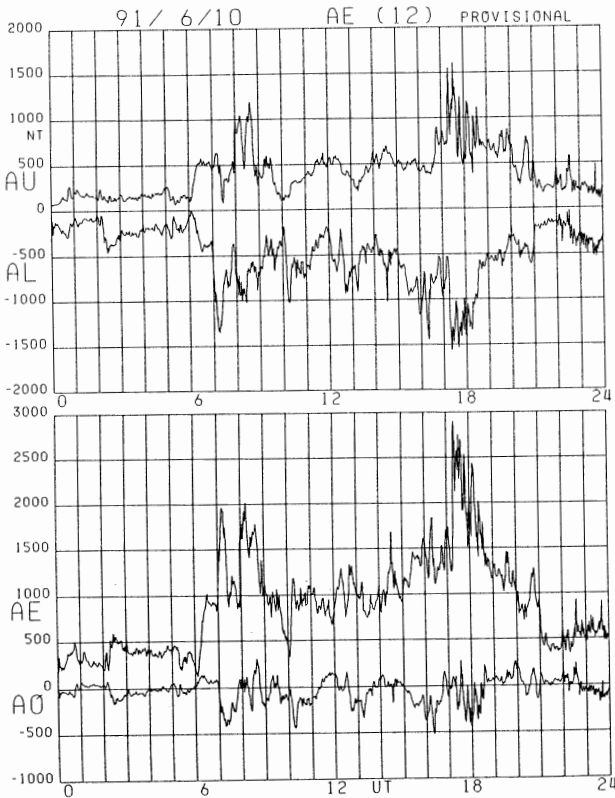
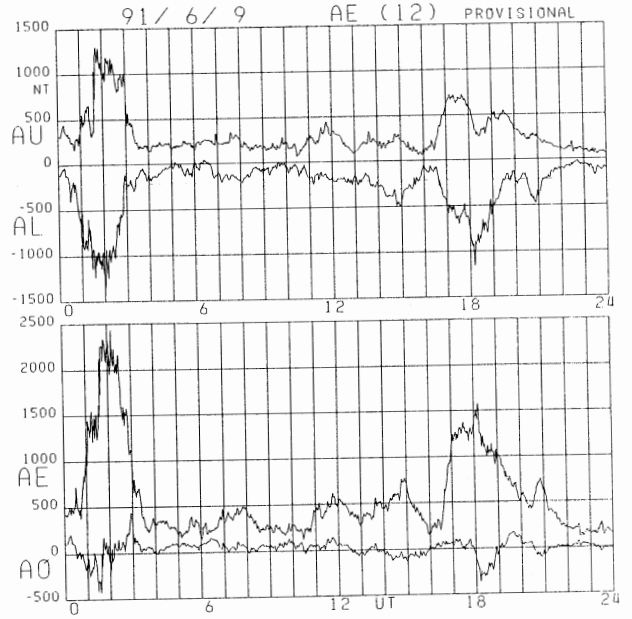
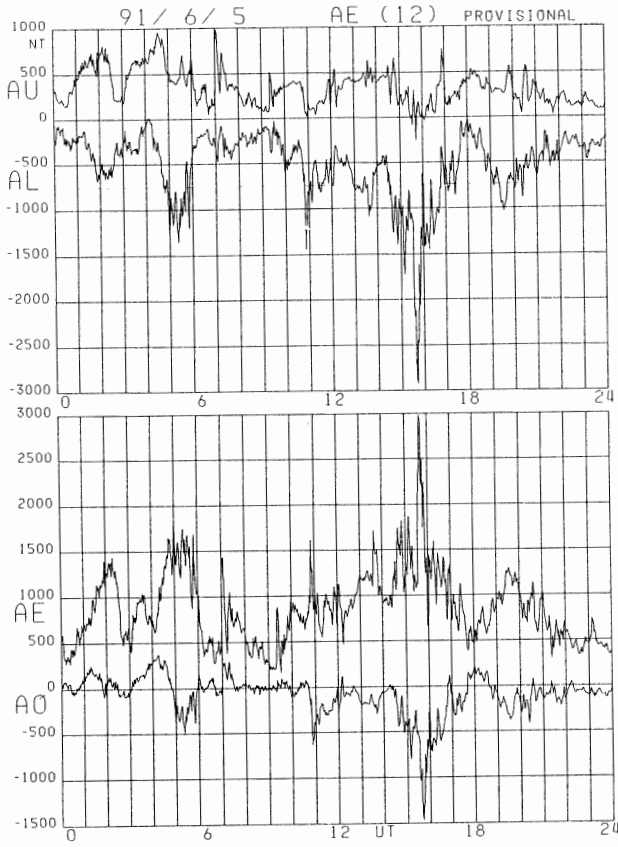


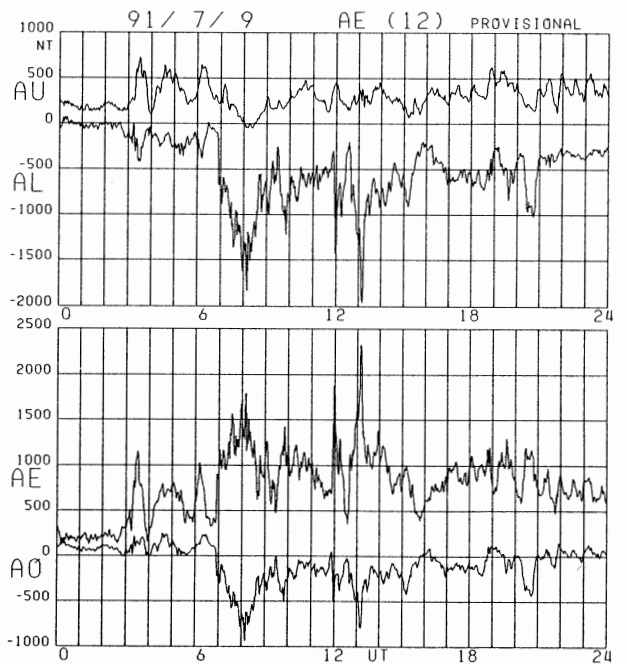
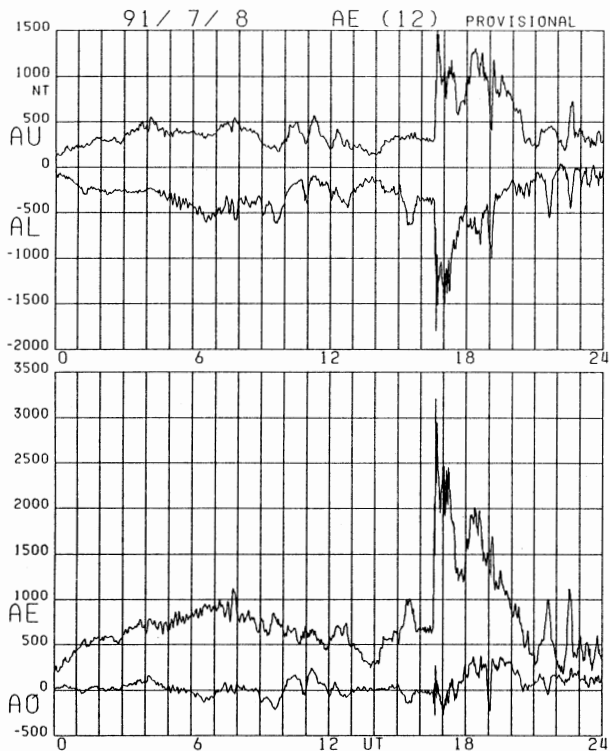
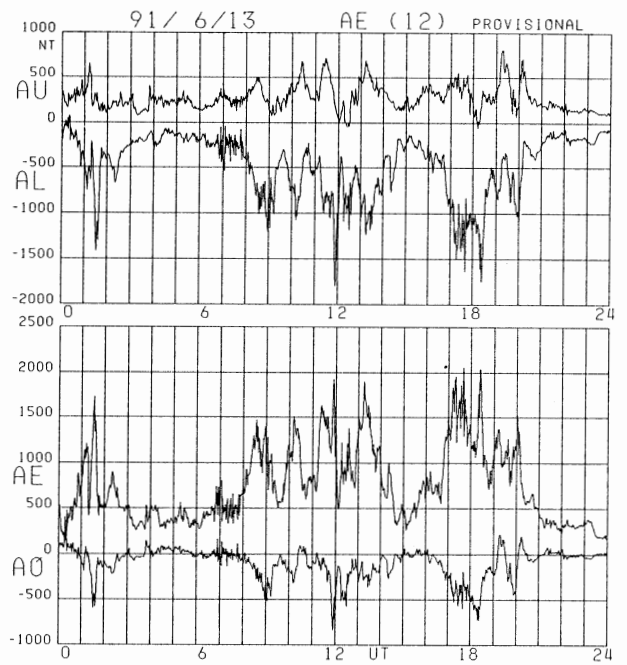
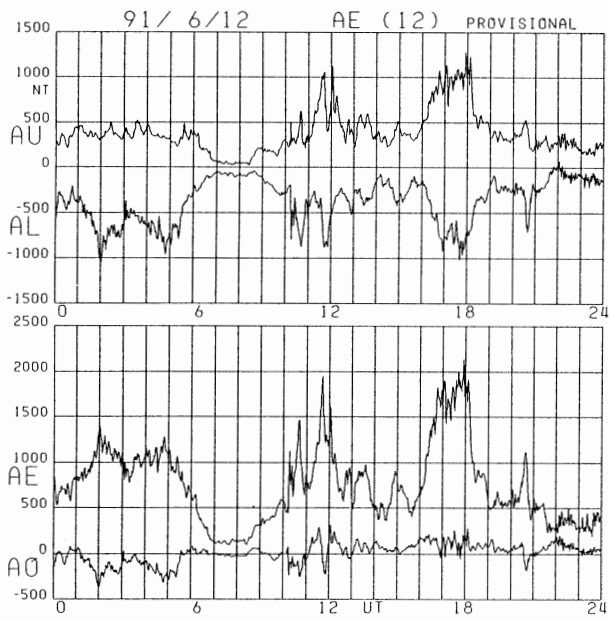


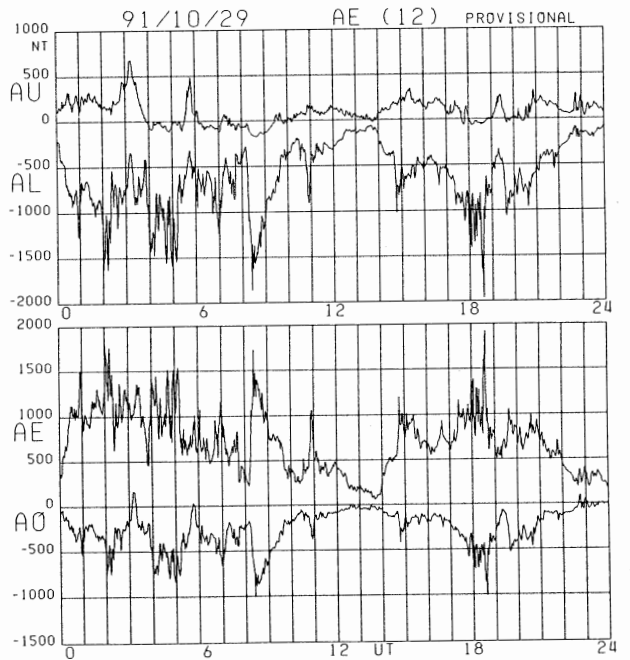
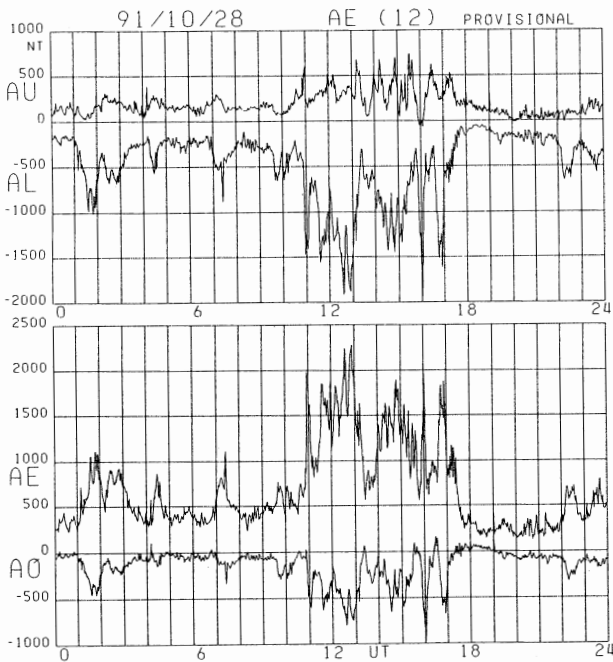
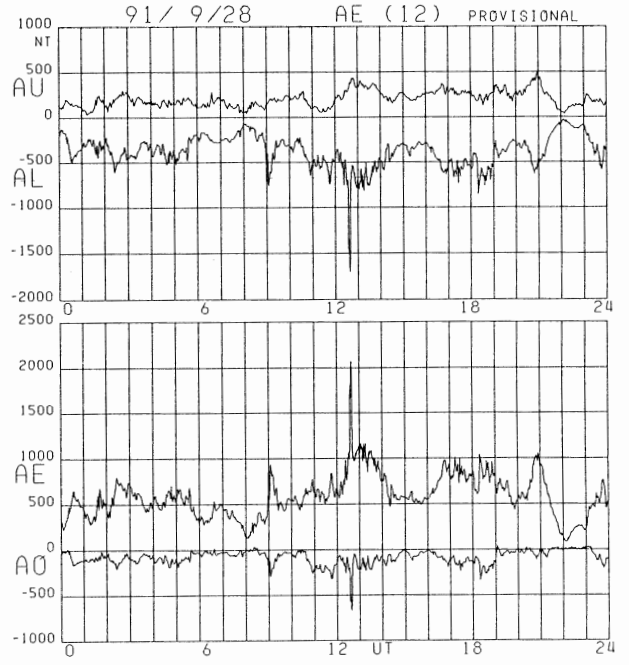
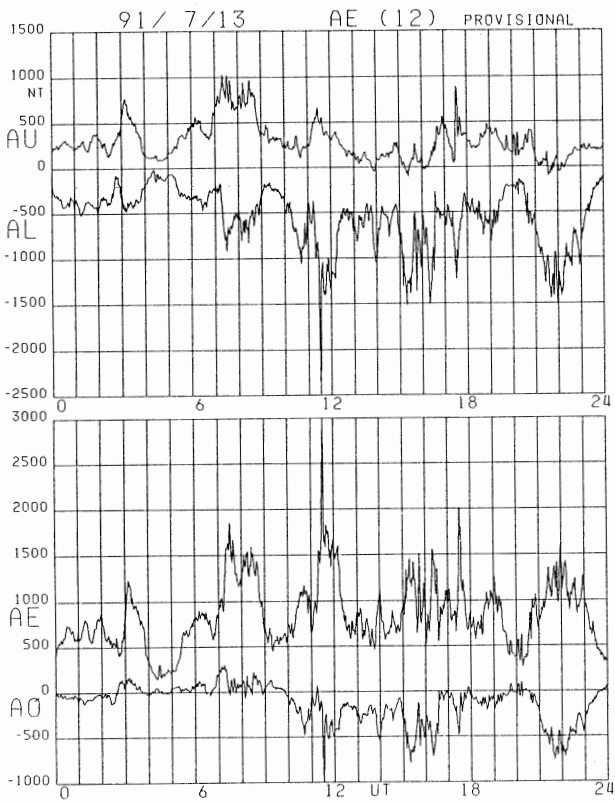


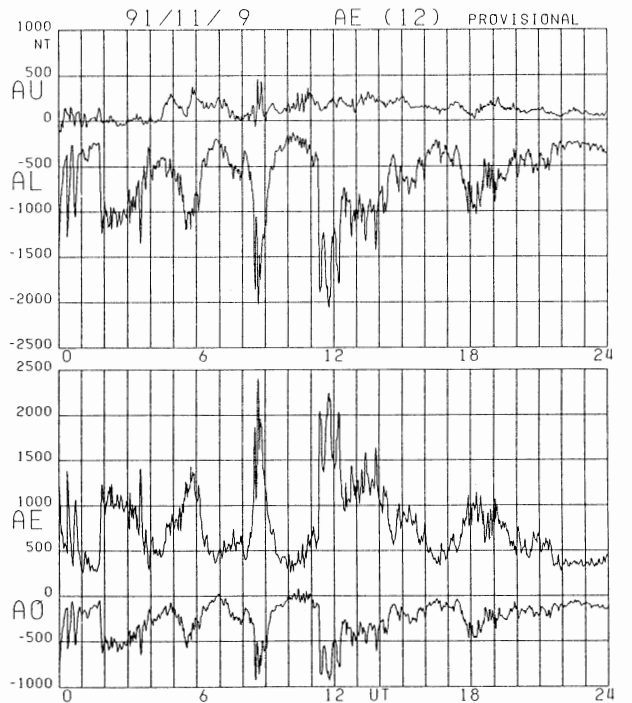
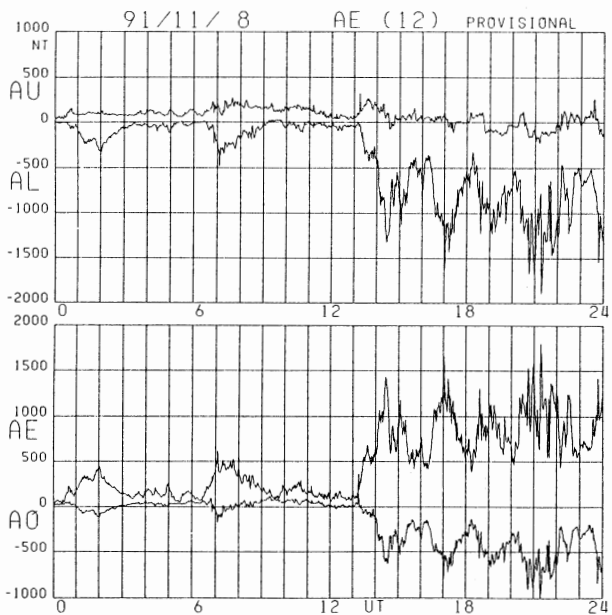
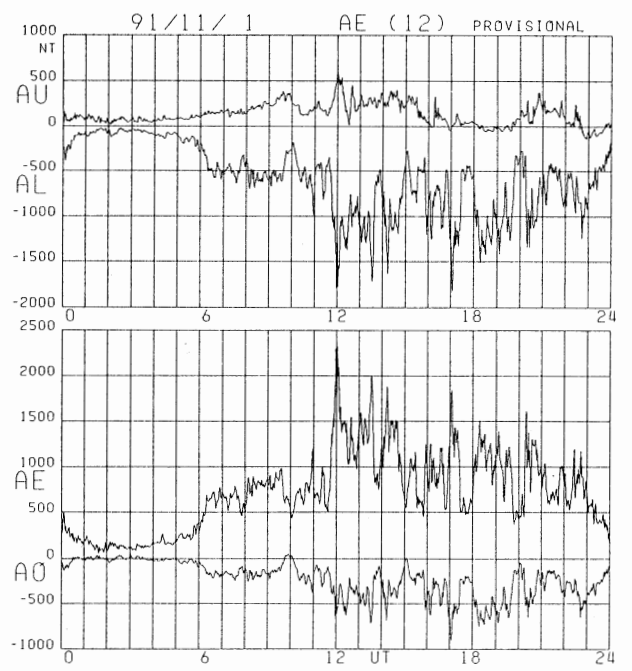
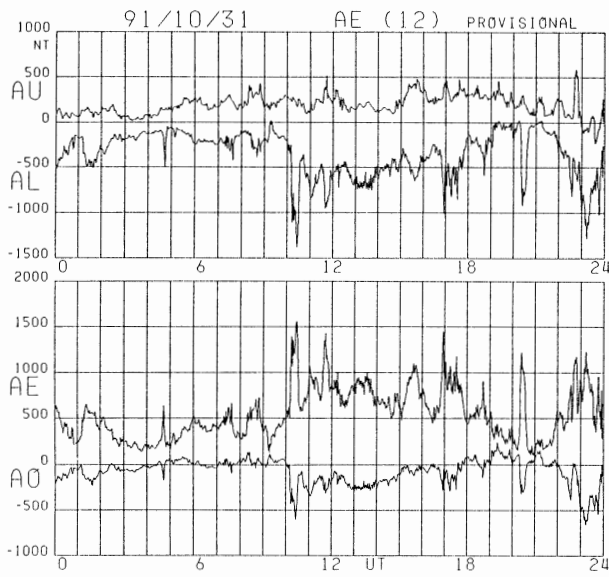












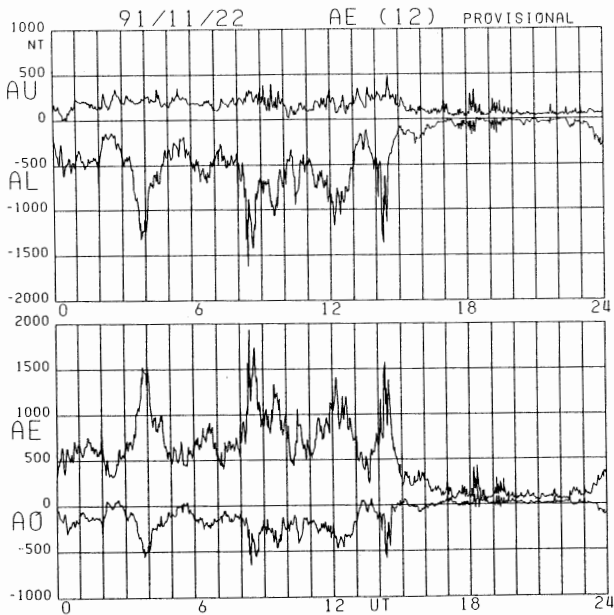
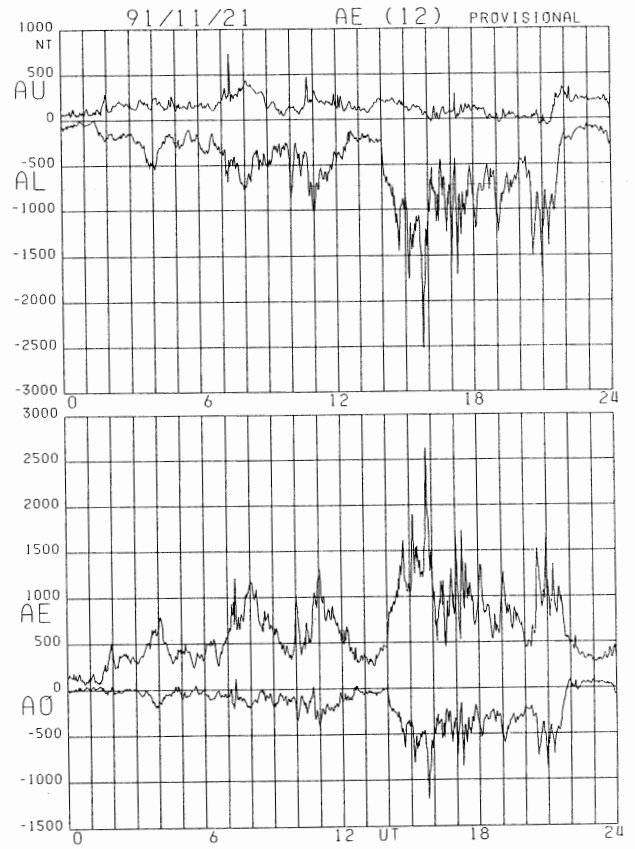
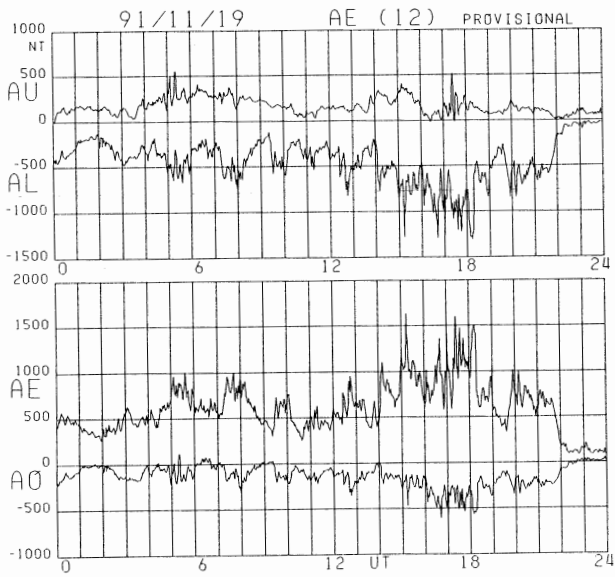
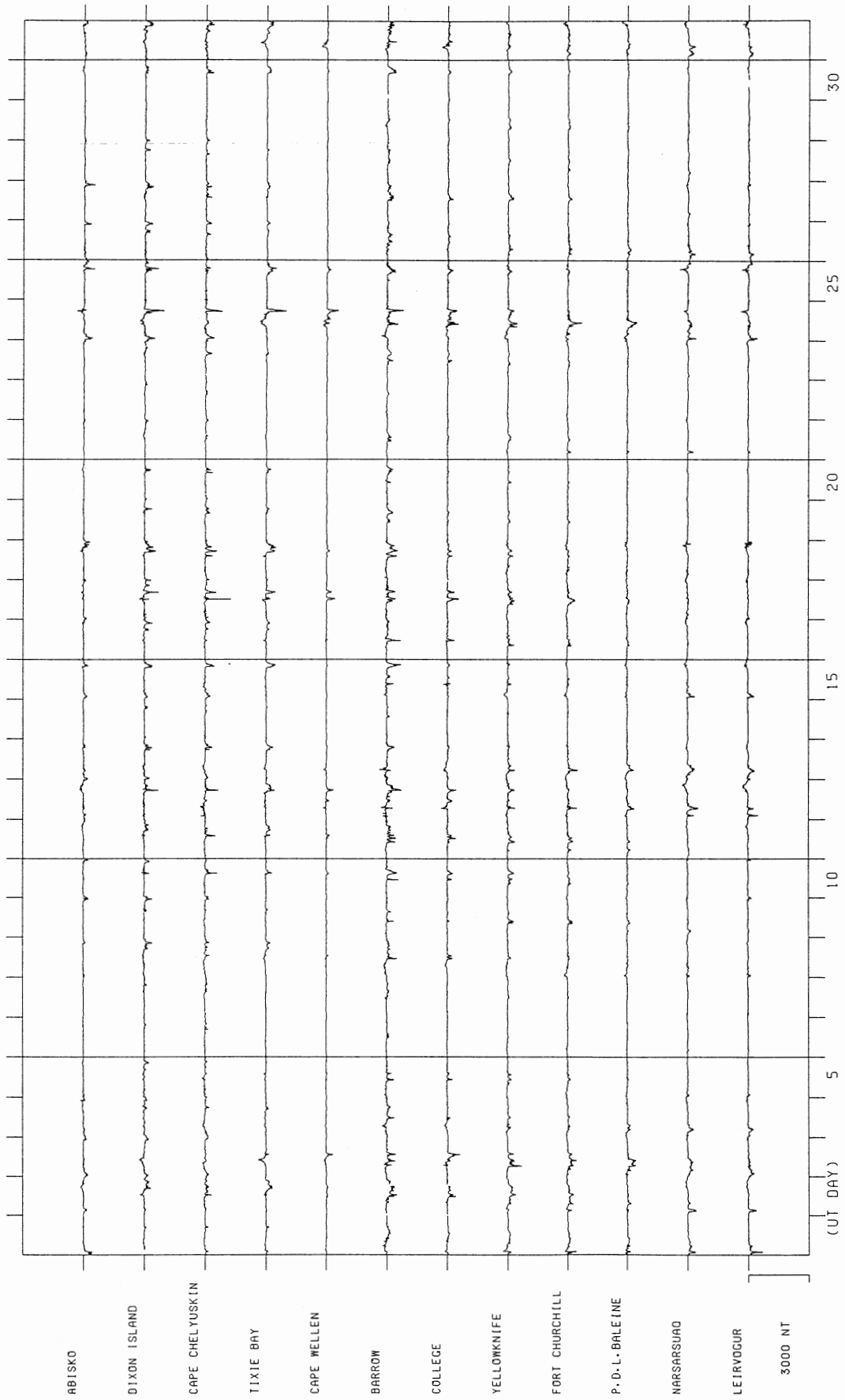
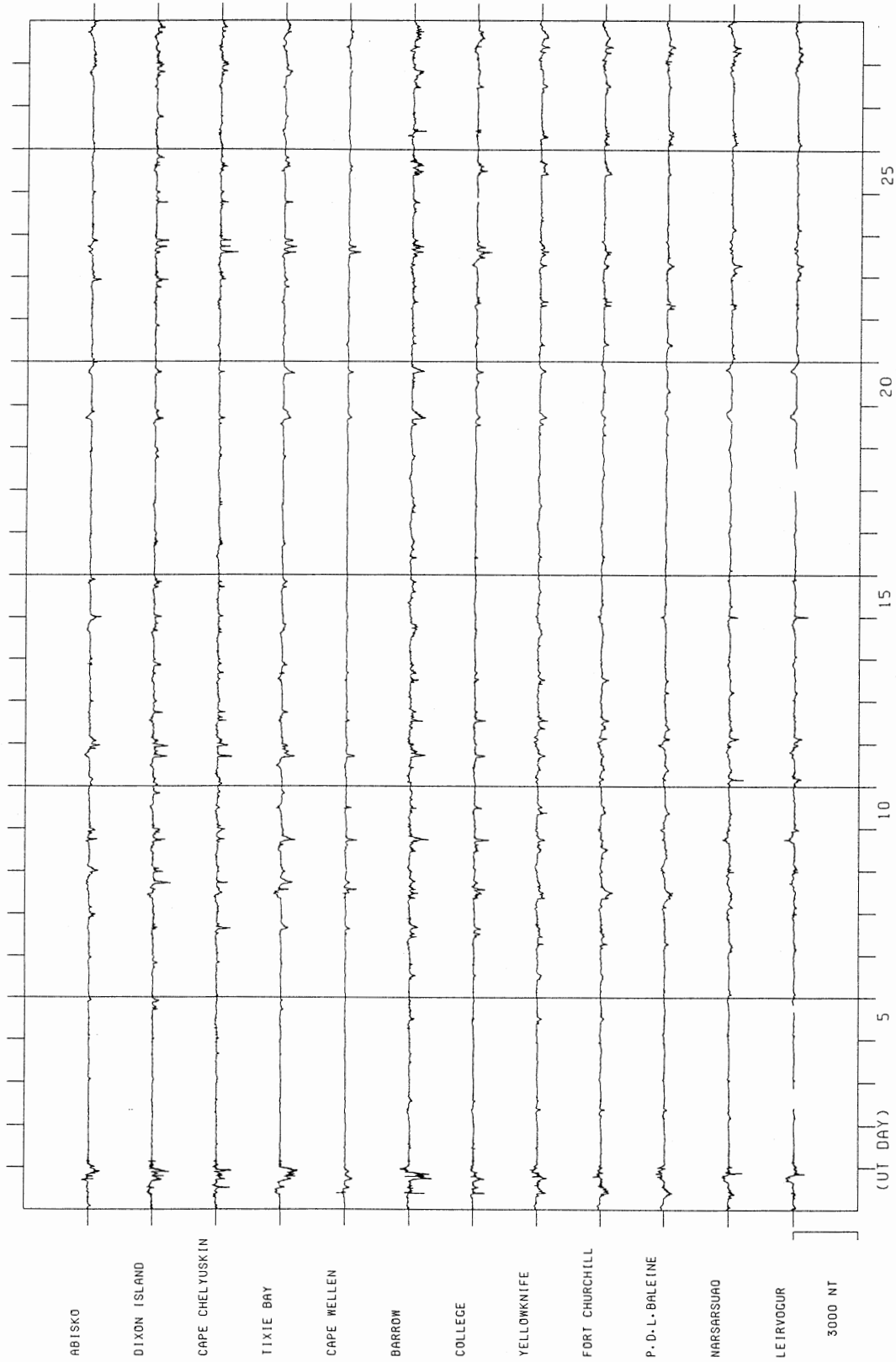


FIGURE 6

The H traces of magnetograms  
from AE(12) stations  
in each month  
for January-December 1991.

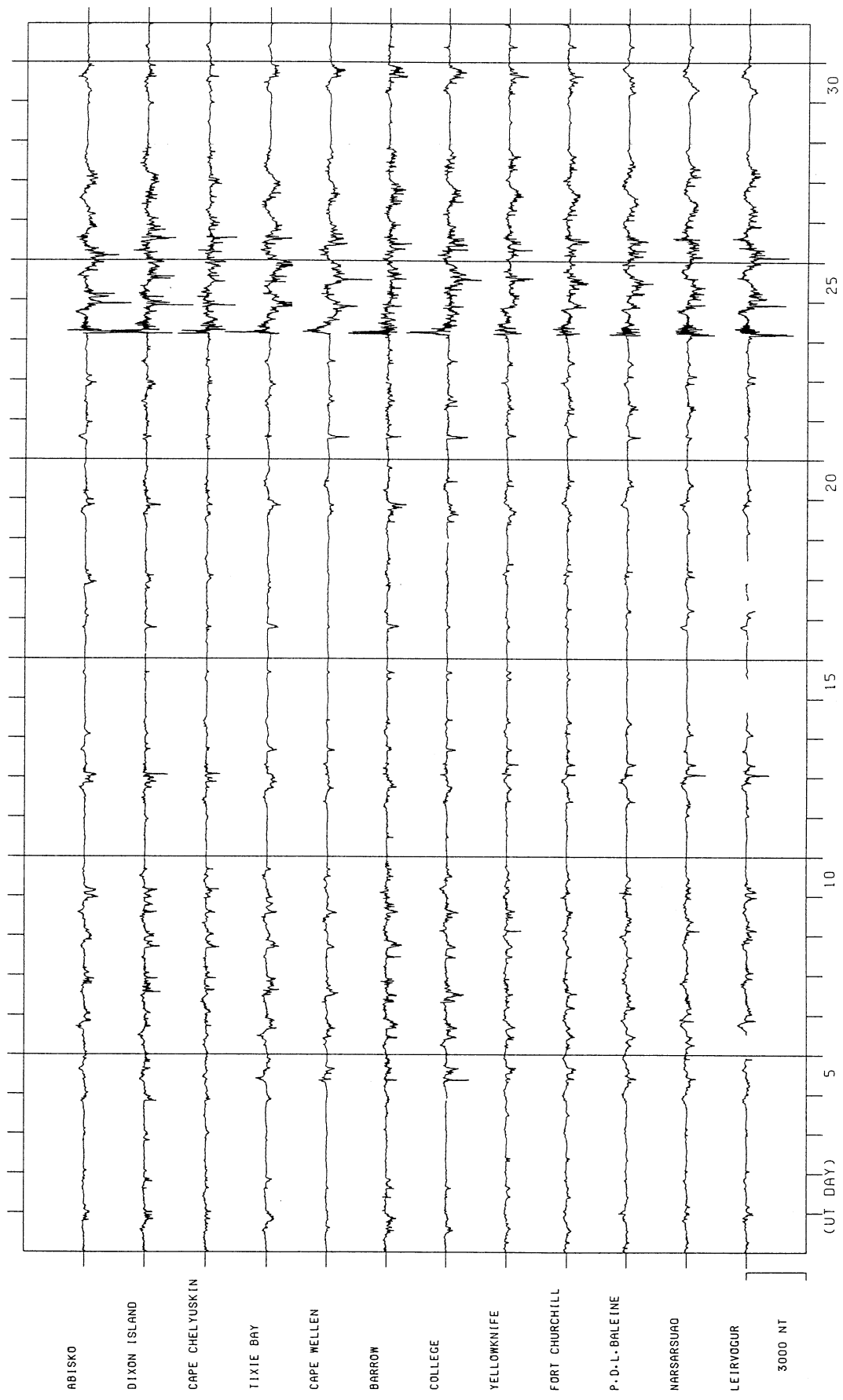


STACKED COMMON SCALE MAGNETOGRAMS FOR JANUARY 1991

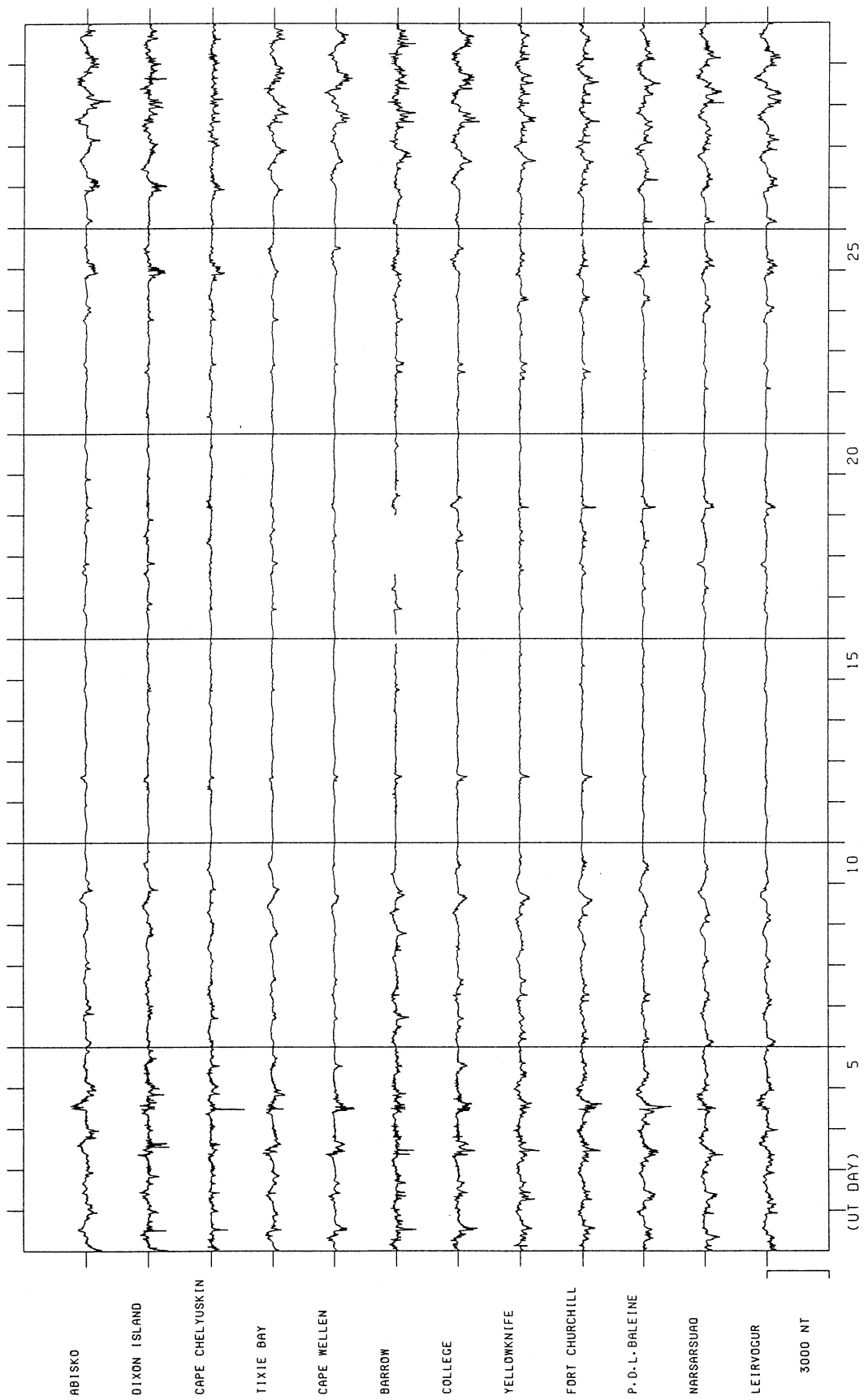


STACKED COMMON SCALE MAGNETOGRAMS FOR FEBRUARY 1991

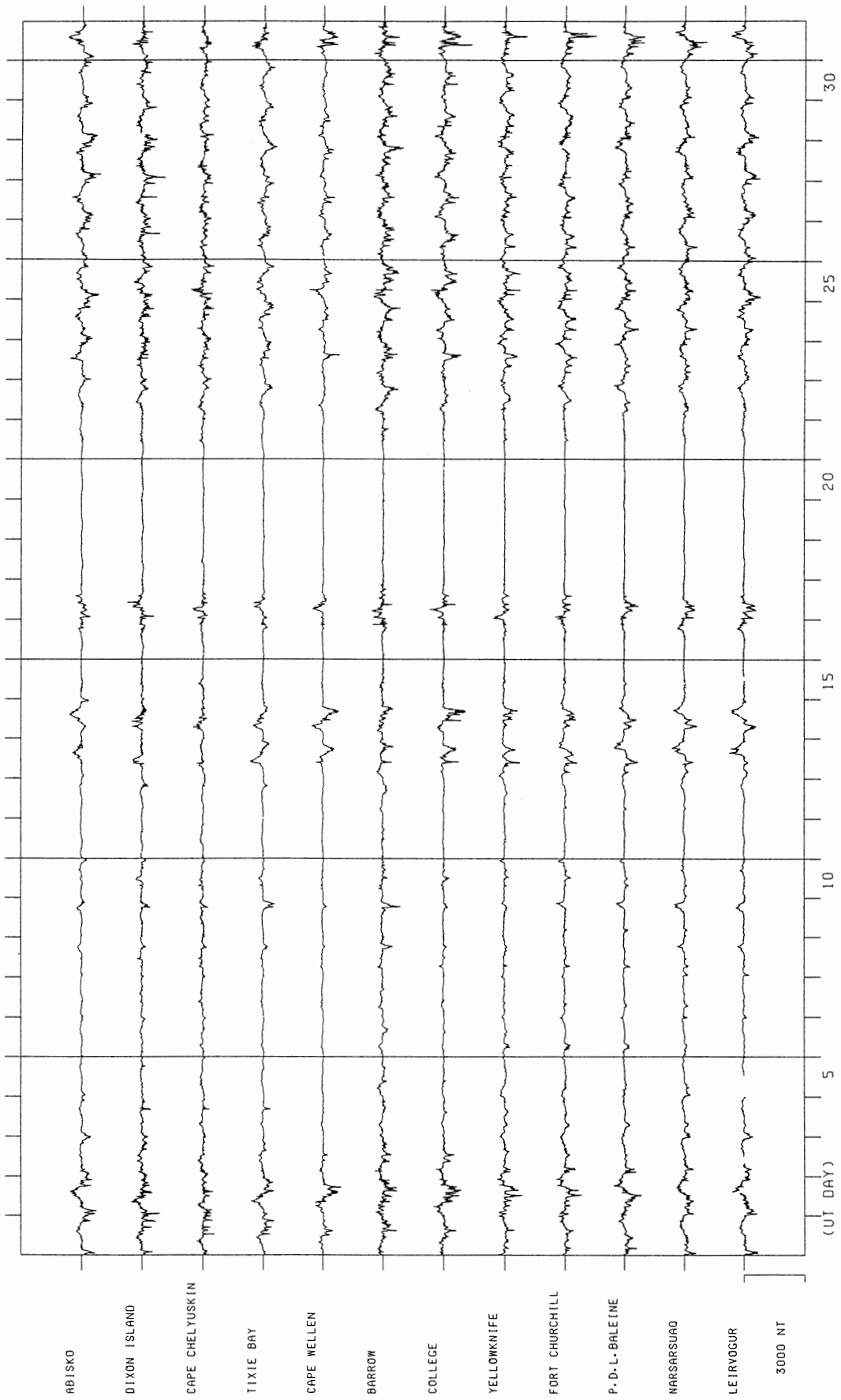




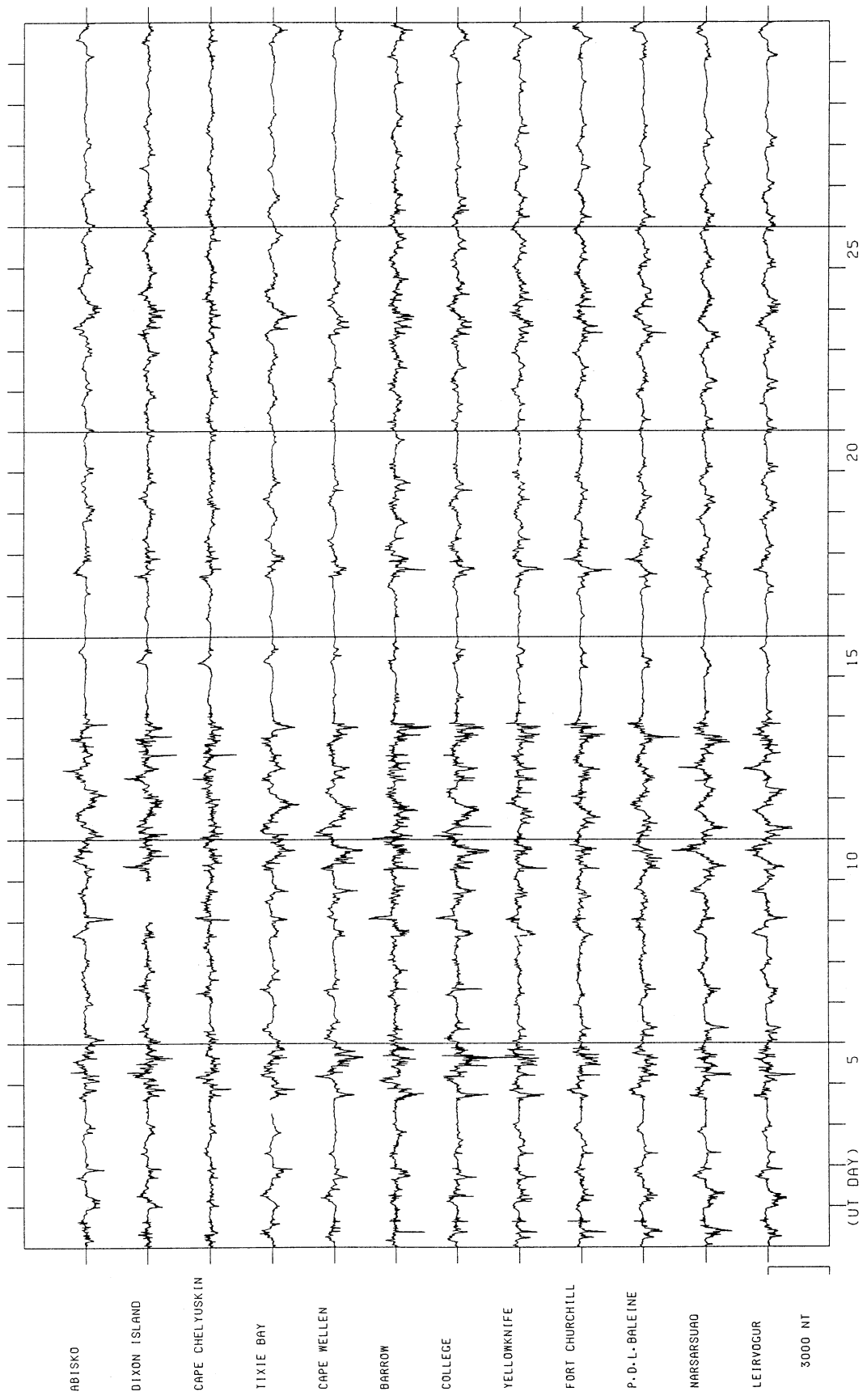
STACKED COMMON SCALE MAGNETOGRAMS FOR MARCH 1991



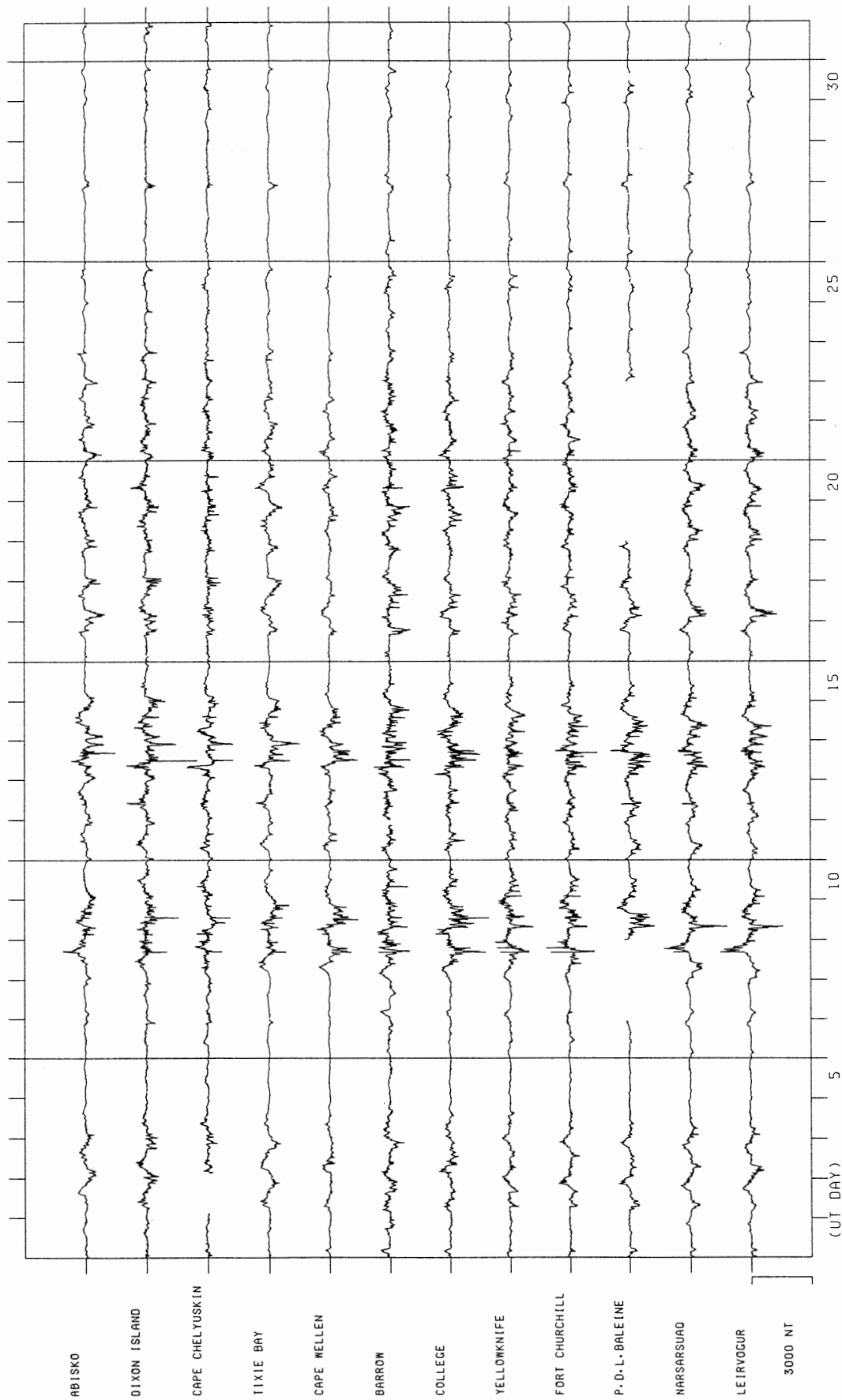
STACKED COMMON SCALE MAGNETOGRAMS FOR APRIL 1991



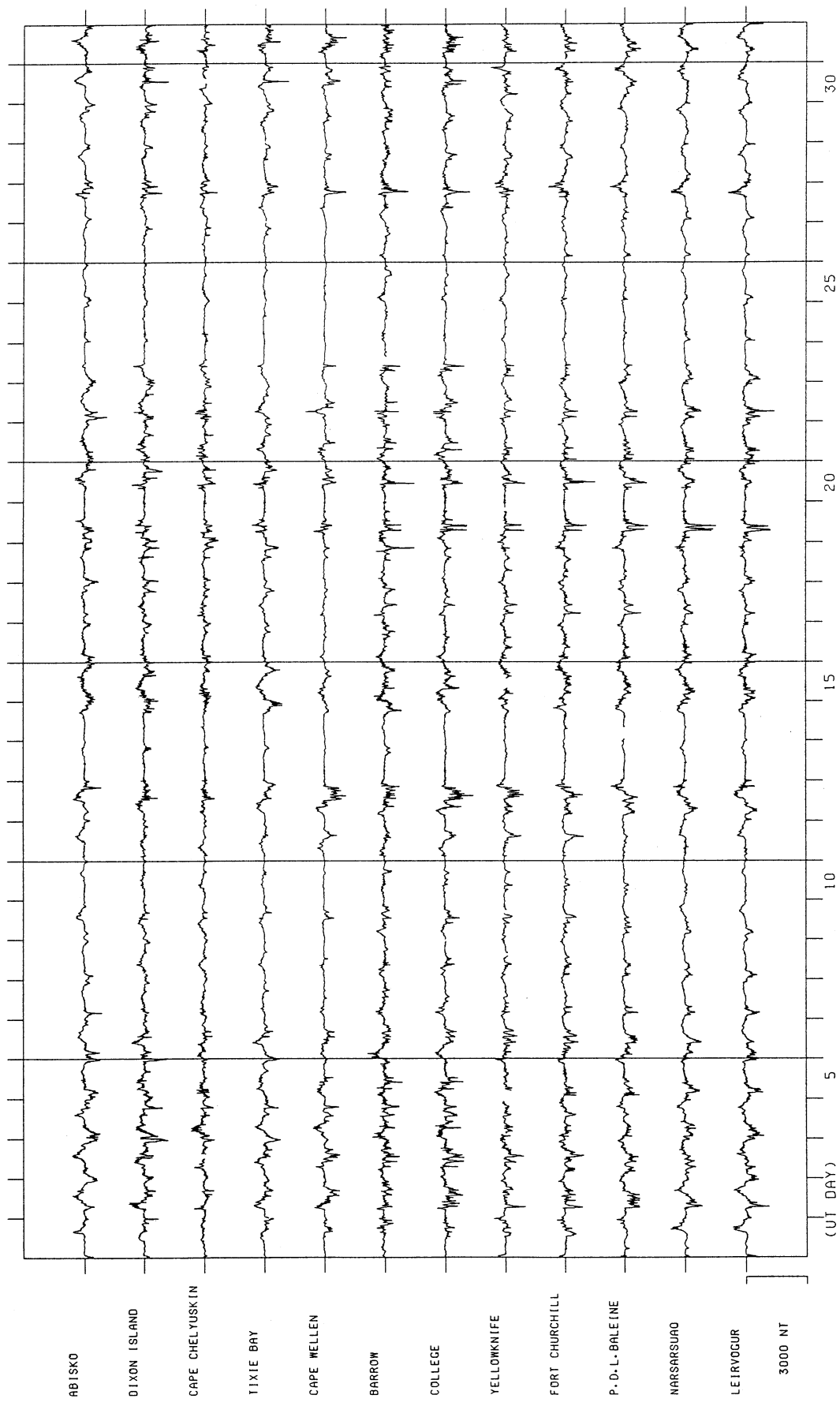
STACKED COMMON SCALE MAGNETOGRAMS FOR MAY 1991



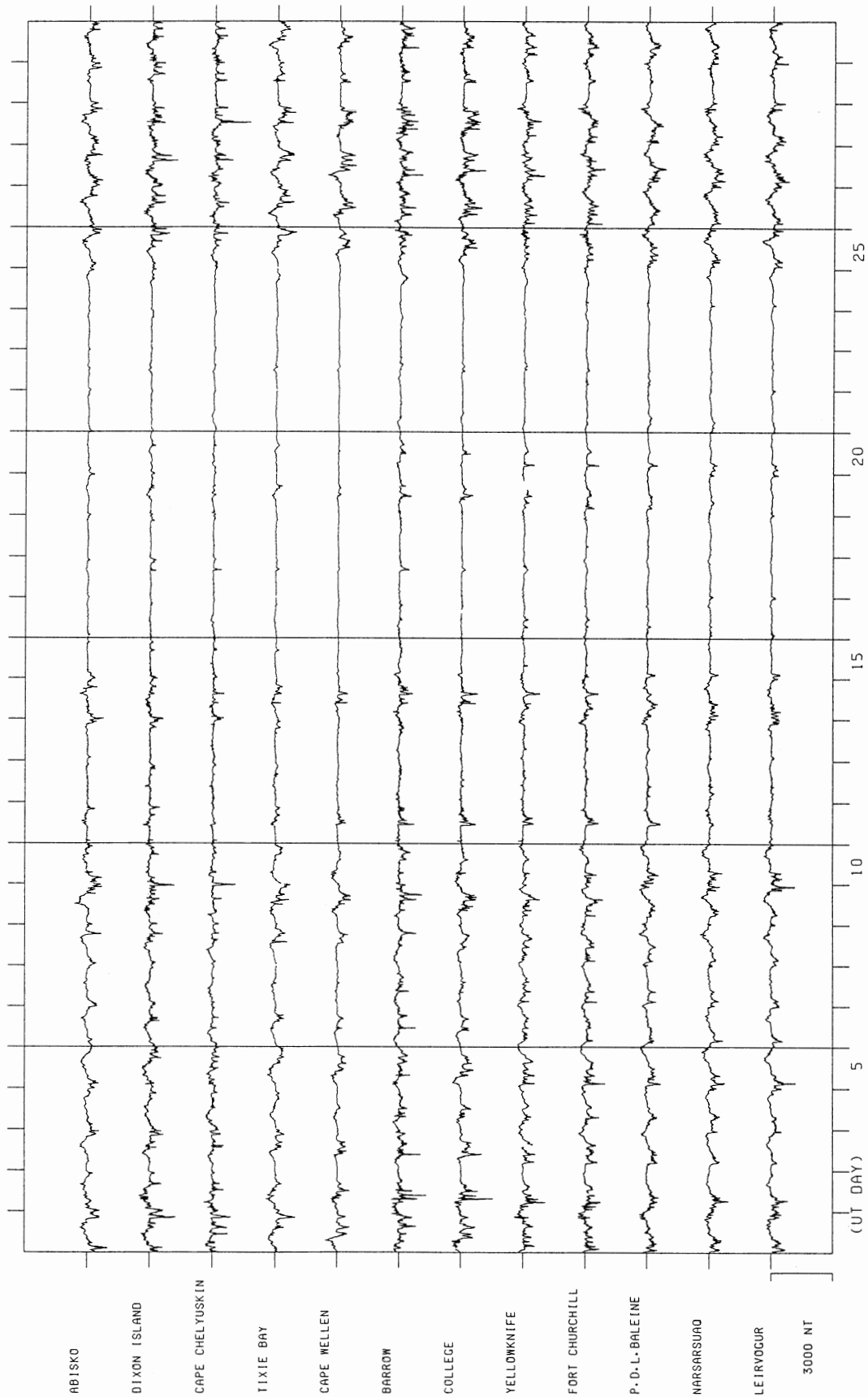
STACKED COMMON SCALE MAGNETOGRAMS FOR JUNE 1991



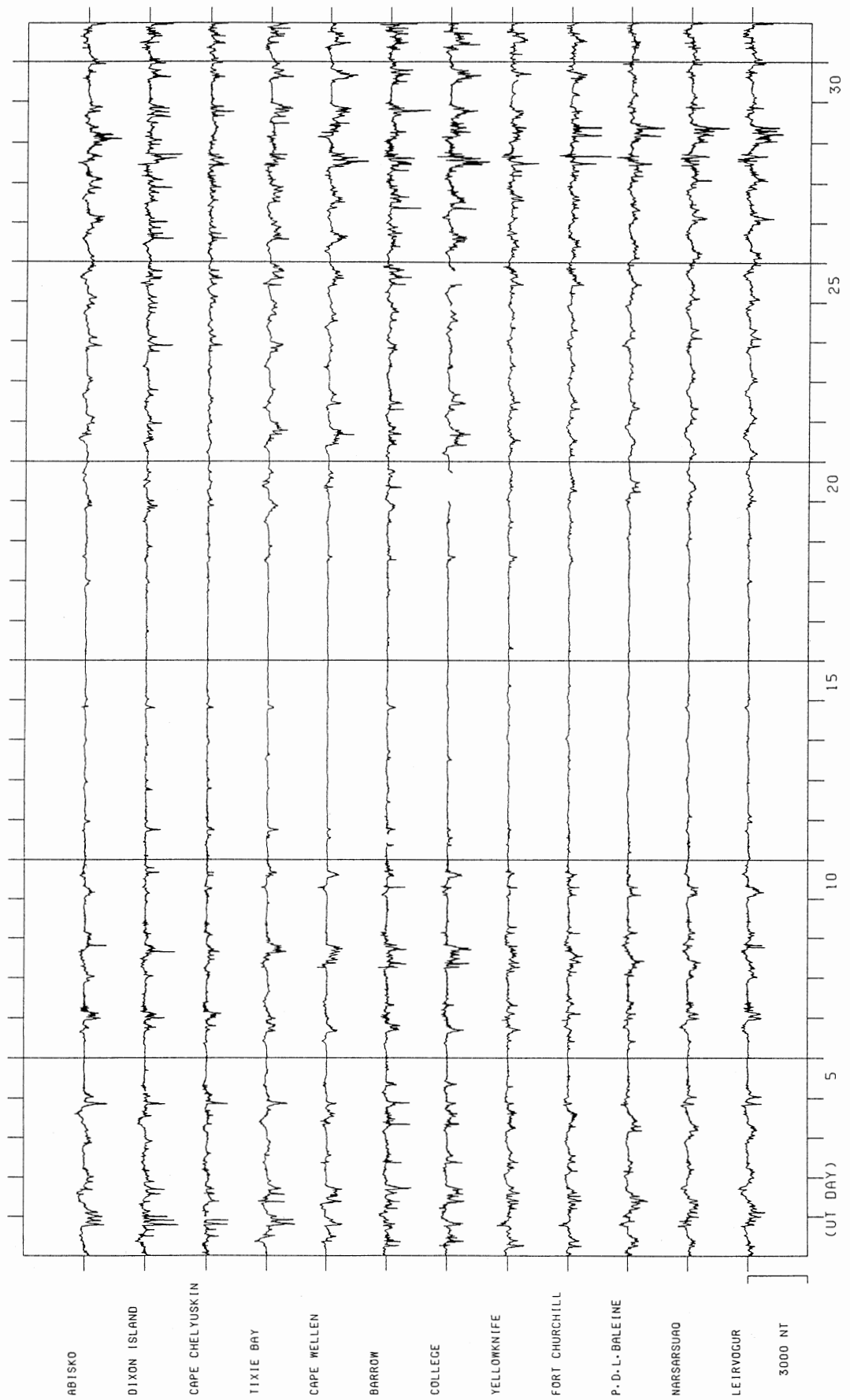
STACKED COMMON SCALE MAGNETOGRAMS FOR JULY 1991



STACKED COMMON SCALE MAGNETOGRAMS FOR AUGUST 1991

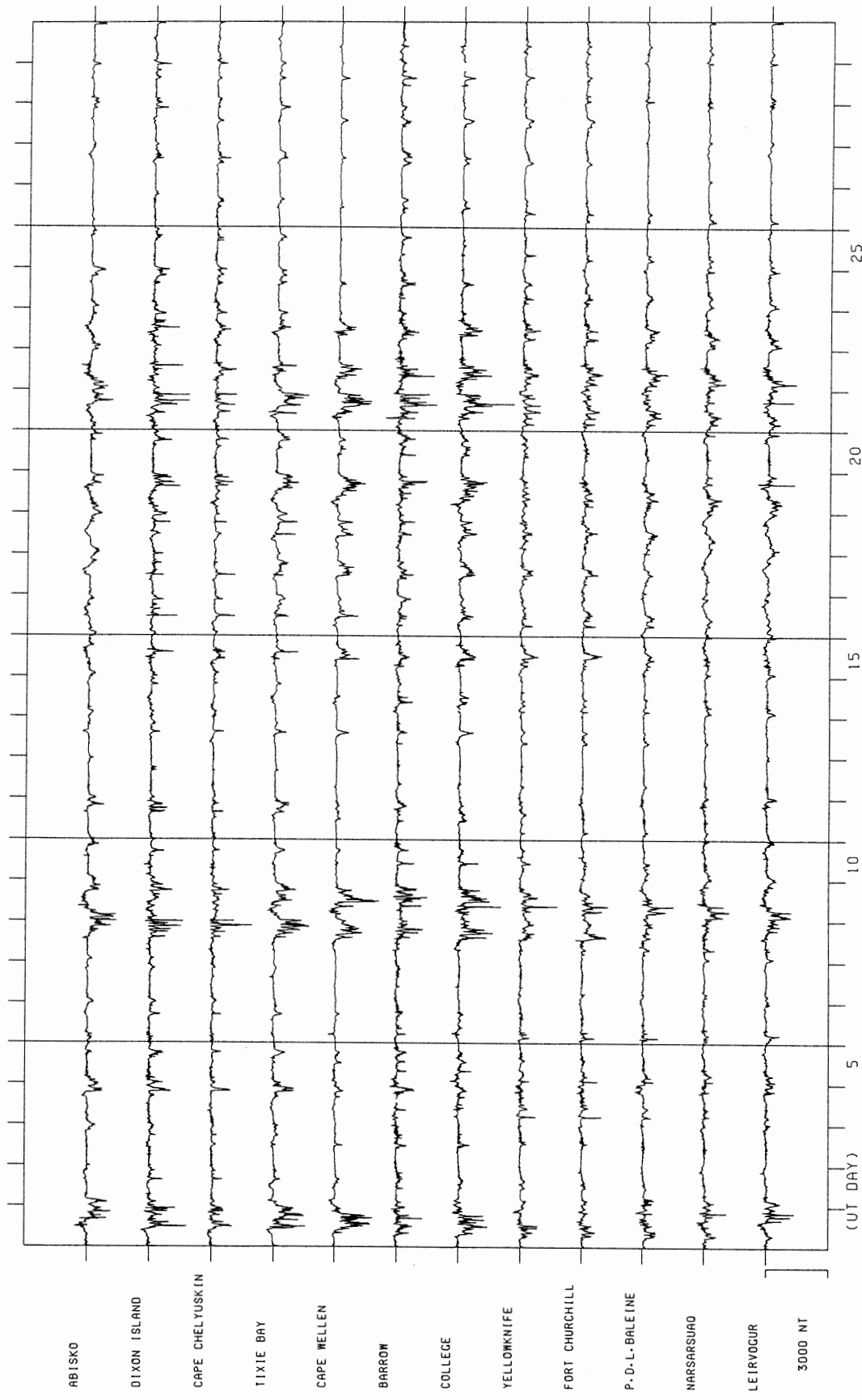


STACKED COMMON SCALE MAGNETOGRAMS FOR SEPTEMBER 1991

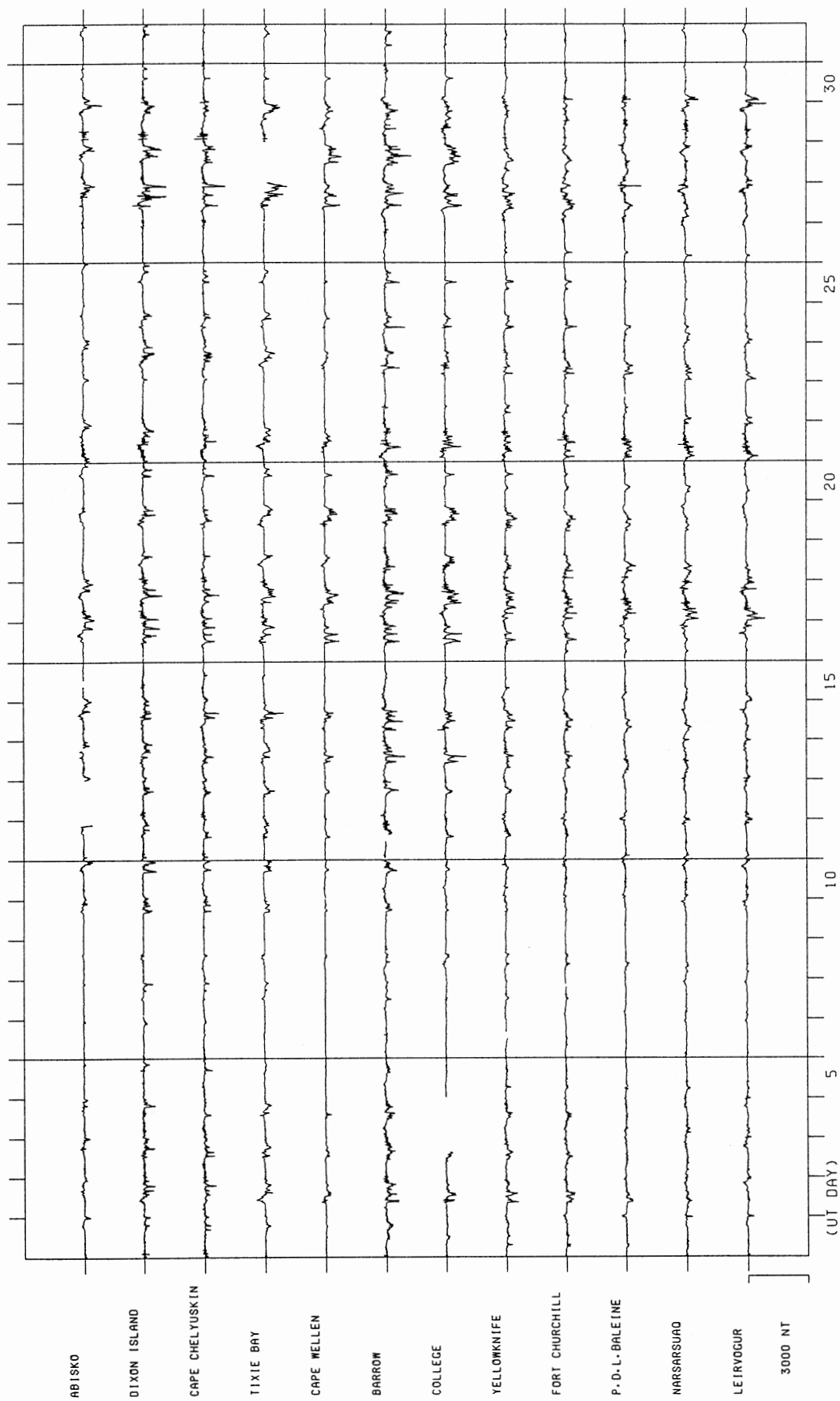


STACKED COMMON SCALE MAGNETOGRAMS FOR OCTOBER 1991





STACKED COMMON SCALE MAGNETOGRAMS FOR NOVEMBER 1991

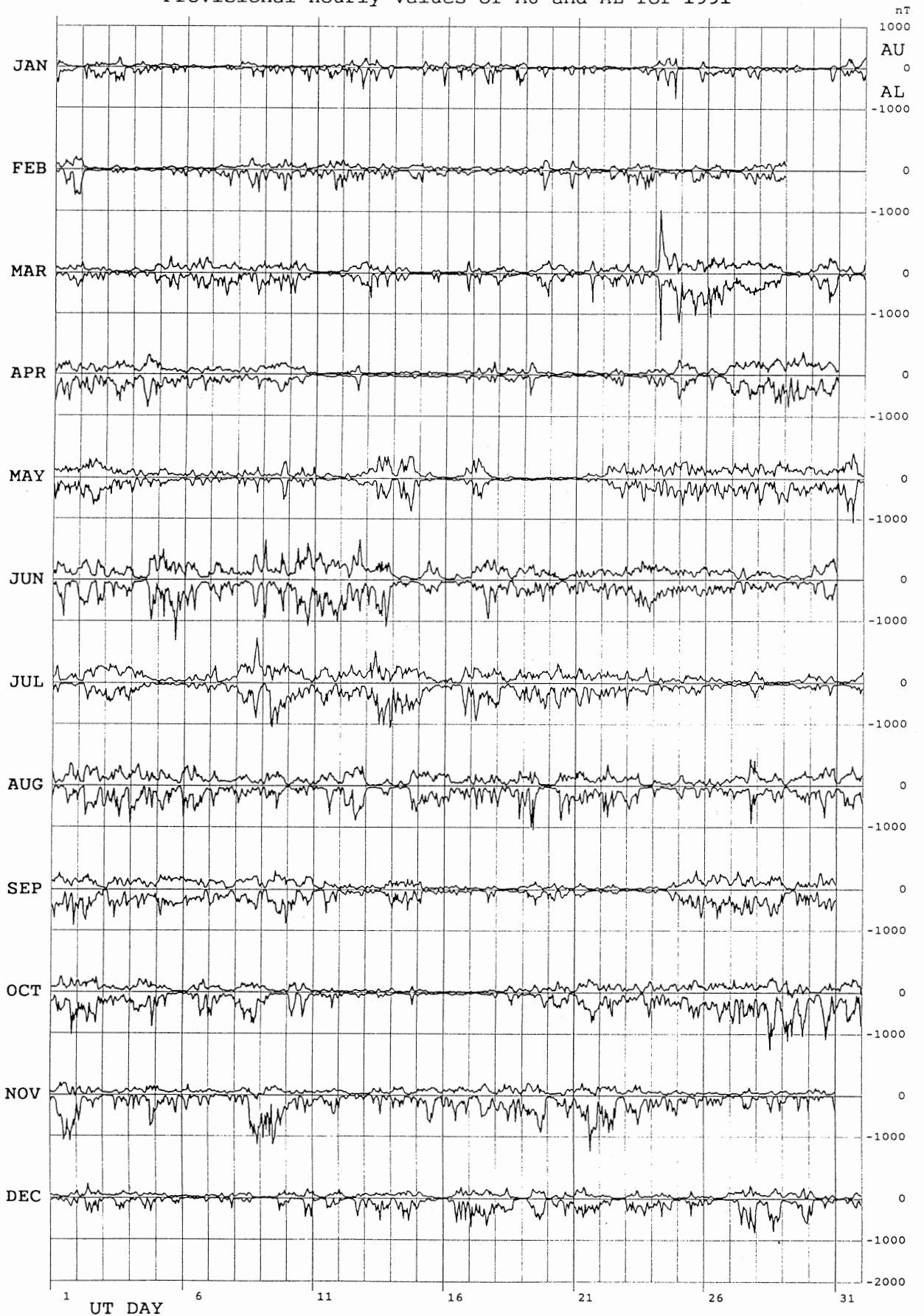


STACKED COMMON SCALE MAGNETOGRAMS FOR DECEMBER 1991

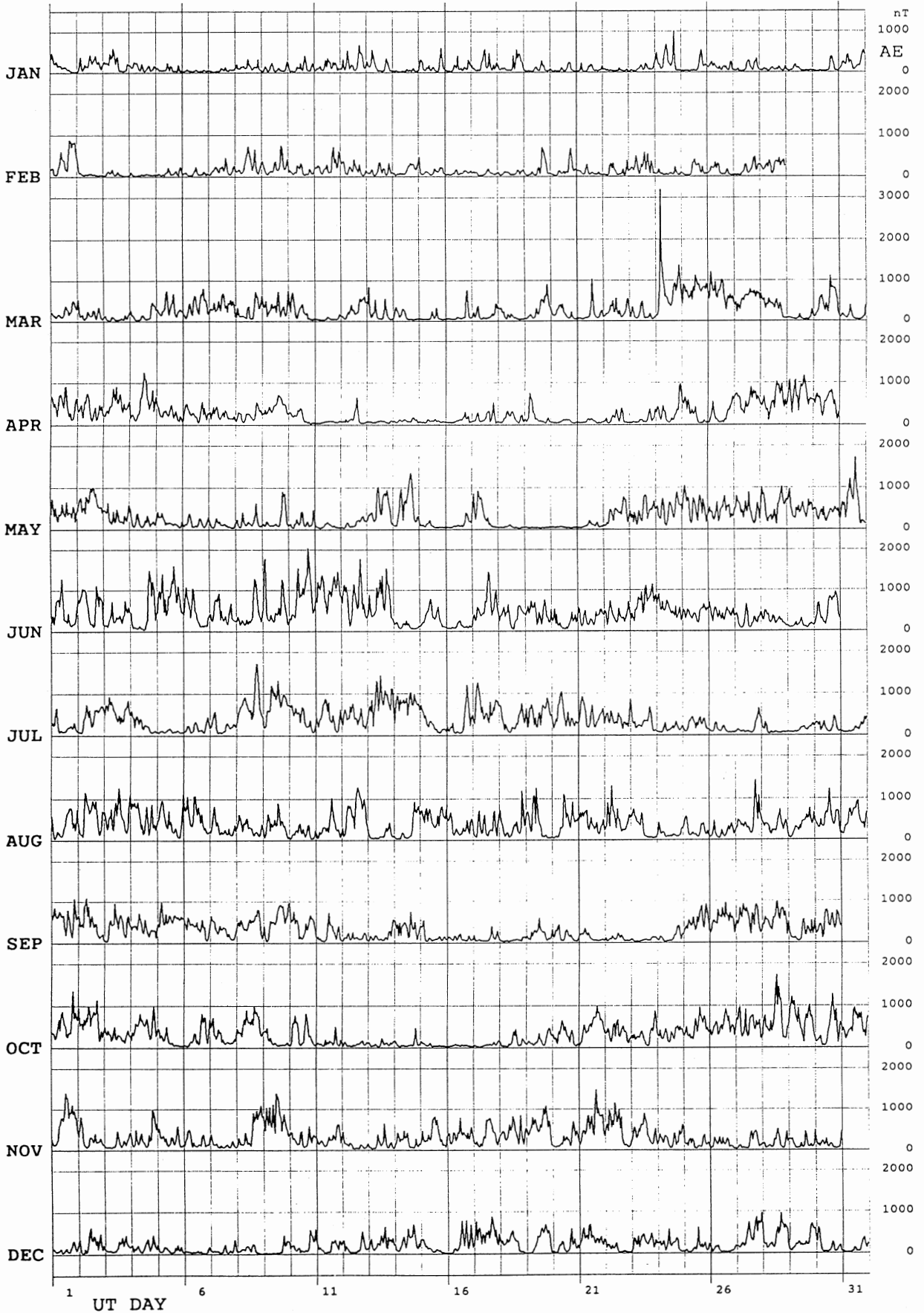
FIGURE 7

A summary plot of hourly values of  
AU and AL indices  
and  
a summary plot of hourly values of  
AE index  
for January-December 1991.

Provisional Hourly Values of AU and AL for 1991



Provisional Hourly Values of AE index for 1991



Publications by the World Data Center C2 for Geomagnetism.

1. Data Catalogue

	Published in
Data Catalogue of World Data Center C2 for Geomagnetism No.24	1996

2. Data Books

No. 1	Equivalent current systems of the daily geomagnetic variations in December 1964	1978
No. 2	Electric fields and neutral winds in the ionospheric dynamo region as deduced from the daily geomagnetic variations in December 1964	1979
No. 3	Auroral Electrojet (AE) indices for January-June 1978	1981
No. 4	Auroral Electrojet (AE) indices for July-December 1978	1981
No. 5	Auroral Electrojet (AE) indices for January-June 1979	1982
No. 6	Auroral Electrojet (AE) indices for July-December 1979	1982
No. 7	Auroral Electrojet (AE) indices for January-June 1980	1983
No. 8	Auroral Electrojet (AE) indices for July-December 1980	1983
No. 9	Auroral Electrojet (AE) indices for January-June 1981	1984
No.10	Auroral Electrojet (AE) indices for July-December 1981	1984
No.11	Auroral Electrojet (AE) indices for January-June 1983	1985
No.12	Auroral Electrojet (AE) indices for July-December 1982	1985
No.13	Auroral Electrojet (AE) indices for July-December 1983	1986
No.14	Auroral Electrojet (AE) indices for January-June 1982	1986
No.15	Auroral Electrojet (AE) indices for January-June 1984	1987
No.16	Auroral Electrojet (AE) indices for July-December 1984	1988
No.17	Auroral Electrojet (AE) indices for July-December 1985	1989
No.18	Auroral Electrojet (AE) indices for January-June 1985	1989
No.19	Auroral Electrojet (AE) indices for January-June 1986	1990
No.20	Auroral Electrojet (AE) indices for July-December 1986	1991
No.21	Auroral Electrojet (AE) indices for January-June 1987	1992
No.22	Auroral Electrojet (AE) indices for July-December 1987	1993
No.23	Auroral Electrojet (AE) indices for January-June 1988	1994

3. Prompt Reports

Provisional Equatorial Dst Index (since Oct. 1985)	monthly
Provisional Auroral Electrojet Indices (AE11) for March 1989	1989
Provisional Auroral Electrojet Indices (AE11) for Jan-Dec 1990	1995
Provisional Auroral Electrojet Indices (AE11) for Jan-Dec 1993	1996
Provisional Auroral Electrojet Indices (AE11) for Jan-Dec 1994	1998
Provisional Geomagnetic Data Plots No1 (Jan-Dec 1989)	1990
Provisional Geomagnetic Data Plots No2 (Jan-Jun 1990)	1990
Provisional Geomagnetic Data Plots No3 (Jul-Dec 1990)	1991
Provisional Geomagnetic Data Plots No4 (Jan-Jun 1991)	1992
Provisional Geomagnetic Data Plots No5 (Jul-Dec 1991)	1992
Provisional Geomagnetic Data Plots No6 (Jan-Jun 1992)	1992
Provisional Geomagnetic Data Plots No7 (Jul-Dec 1992)	1993
Provisional Geomagnetic Data Plots No8 (Jan-Jun 1993)	1993
Provisional Geomagnetic Data Plots No9 (Jul-Dec 1993)	1994

Provisional Geomagnetic Data Plots No10 (Jan-Jun 1994)	1994
Provisional Geomagnetic Data Plots No11 (Jun-Dec 1994)	1995
Provisional Geomagnetic Data Plots No12 (Jan-Jun 1995)	1995
Provisional Geomagnetic Data Plots No13 (Jul-Dec 1995)	1996
Provisional Geomagnetic Data Plots No14 (Jan-Jun 1996)	1996
Provisional Geomagnetic Data Plots No15 (Jul-Dec 1996)	1997
Provisional Geomagnetic Data Plots No16 (Jan-Dec 1997)	1998

#### 4. Other publications

Report of Aeromagnetic Survey in Japan	1966
Japanese WMS Magnetic Charts for 1965	1966
WMA Inventory; First Issue	1970
WMA Inventory; Second Issue	1971
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.1 1989 - 1990	1992
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.2 1991	1993
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.3 1992	1994
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.4 1993	1994
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.5 1994	1995
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.6 1995	1996
Mid-Latitude Geomagnetic Indices ASY and SYM (provisional) No.7 1996	1997

(WMA: World Magnetic Archives; WMS: World Magnetic Survey)

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The publications above are available on request. Requests should be made by mail to:

WDC-C2 for Geomagnetism, Kyoto  
 Graduate School of Science  
 Kyoto University  
 Kyoto 606-8502, Japan

(The WDC-C2 for Geomagnetism, Kyoto is operated by the Data Analysis Center for Geomagnetism and Space Magnetism, Graduate School of Science, Kyoto University, Kyoto 606-8502, Japan.)

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Many of our data services are available by WWW. The URL of our home page is:

<http://swdcdb.kugi.kyoto-u.ac.jp>

