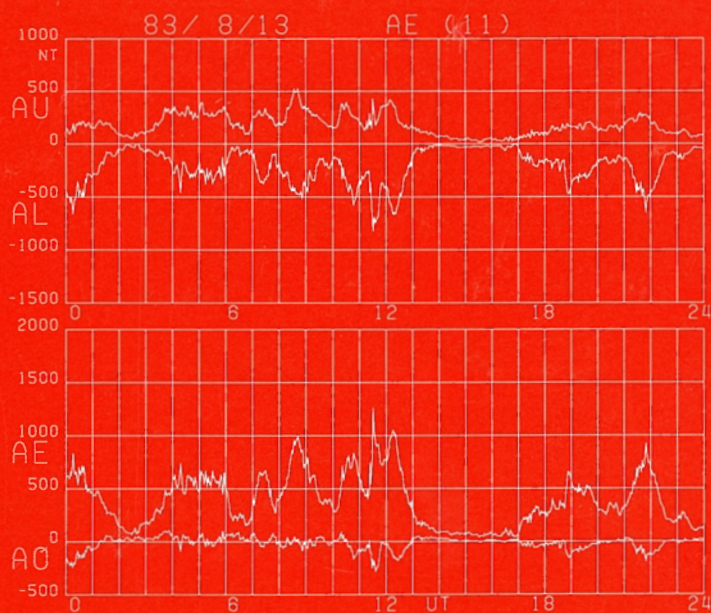


World Data Center C2 for Geomagnetism

# DATA BOOK

No. 13

Auroral electrojet indices (AE)  
for July-December 1983



JANUARY 1986

Data Analysis Center for  
Geomagnetism and Spacemagnetism  
FACULTY OF SCIENCE  
KYOTO UNIVERSITY  
KYOTO

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

SPECIAL NOTICE

We published the AE index for the first half and the last half of 1983 in Data Book No.11 and No.13 prior to the publication of the AE index for the first half of 1982. This is because the AE index was in demand for the period (October 1982 - December 1983) when the ISEE-3 spacecraft was traversing the magnetospheric tail. For the production of the AE index for this special period, NASA provided the necessary fund and the World Data Center A for Solar Terrestrial Physics, NOAA, Boulder, Colorado, performed the digitization of magnetograms needed for the derivation of the AE index. By the use of the data we derived provisional values of the AE index for this period for preliminary analyses. The same digitized data were used for the derivation of the index in Data Book No.11 and No.12 and this volume, No.13, but following the normal procedure of quality check, which was omitted in the quick derivation of the provisional index.

The shedule of the publication of our Data Books hereafter is as follows;

- Data Book No.14 : AE indices for January - June 1982.
- Data Book No.15 : AE indices for January - June 1984.
- Data Book No.16 : AE indices for July - December 1984.

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All inquireies on the Data Book and its distribution and notices of change of address should be sent to:

World Data Center C2 for Geomagnetism  
Faculty of Science, Kyoto University  
Kyoto 606, Japan  
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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, and it is now widely used in researches on geomagnetism, aeronomy, and solar-terrestrial physics. The index was first derived at the Geophysical Institute of the University of Alaska, and hourly values were published for the years 1957 to 1964. The production of 2.5 min values was then tried at the Goddard Space Flight Center of NASA, and the results from September 1964 to June 1968 were published.

After the above early attempts, the index was regularly published at the World Data Center A (WDC-A) in Boulder, Colorado, and the Center published 2.5 min values for the years 1966 to 1974 and 1.0 min values for 1975 and for the first 4 months of 1976.

When it became difficult to continue the production of the AE index at the WDC-A, it was requested that the index be produced at the WDC-C2 for Geomagnetism which is operated by Data Analysis Center for Geomagnetism and Spacemagnetism, Faculty of Science, Kyoto University. We decided to produce the index for the two years, 1978-1979, of the International Magnetospheric Study (IMS). We have published 1.0 min values of the AE index in the "WDC-C2 for Geomagnetism Data Book" series.

Although the International Association of Geomagnetism and Aeronomy (IAGA) recommended a continuation of the production of the AE index at the WDC-C2, we could not extend it beyond IMS because of the constraints in manpower and computing facility.

Increasing demands for the AE index, however, motivated us to resume its production and we published 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. As a result, National Institute of Polar Research (NIPR), Tokyo, offered assistance. Beginning with Data Book No.8, the production of the AE index was continued at the Kyoto University, but the printing and distribution of the Data Book were done by NIPR.

For the derivation of the AE index in the Data Book No.11, 12 and 13, we used digitized data which were especially prepared by the WDC-A for STP for the analyses of the ISEE-3 obtained during its magnetospheric tail crossing. Thus the AE index for this special period was produced by a cooperation among the three organizations, WDC-C2 for Geomagnetism, NIPR, and WDC-A for STP.

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# Auroral Electrojet Indices (AE) for July - December 1983

## 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 value and the smallest value 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 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 density of the eastward and westward auroral electrojets, respectively. The AE index is understood to represent the overall activity of the electrojets, and the AO index is regarded as a measure of the equivalent zonal current.

In this report we present daily plots and hourly values of the AE indices and "contributing stations" plots which give additional information on the indices. Stations that give the AU and AL indices are named the "contributing stations" of the AU and the AL index, respectively, and 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. This plot 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.

We used eleven observatories listed in Table 1. The distribution

Table 1. List of AE(12) stations.

Observatory	Abbreviations		Geographic		Geomagnetic	
	IAGA	WDC-A	Lat. (°N)	Long.(°E)	Lat. (°N)	Long.(°E)
Abisko	ABK	AI	68.36	18.82	66.04	115.08
Dixon Island	DIK	DI	73.55	80.57	63.02	161.57
Cape Chelyuskin	CCS	CC	77.72	104.28	66.26	176.46
Tixie Bay	TIK	TI	71.58	129.00	60.44	191.41
(Cape Wellen)	CWE	UE	66.17	190.17	61.79	237.10
Barrow	BRW	BW	71.30	203.25	68.54	241.15
College	CMO	CO	64.87	212.17	64.63	256.52
Yellowknife	YKC	YEK	62.40	245.60	69.00	292.80
Fort Churchill	FCC	FC	58.80	265.90	68.70	322.77
Great Whale River	GWC	GWR	55.27	282.22	66.58	347.36
Narsarsuaq	NAQ	NAS	61.20	314.16	71.21	36.79
Leirvogur	LRV	LR	64.18	338.30	70.22	71.04

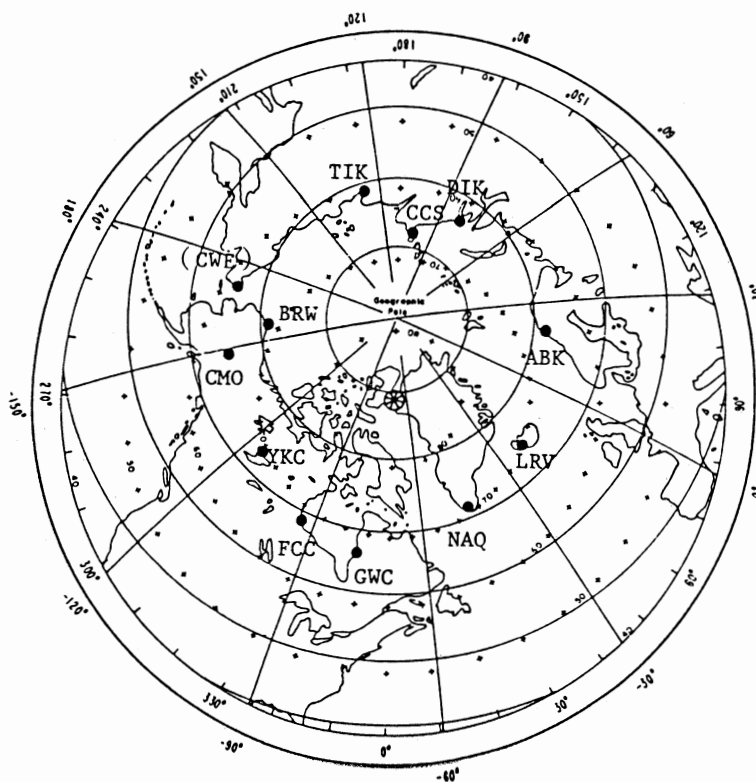
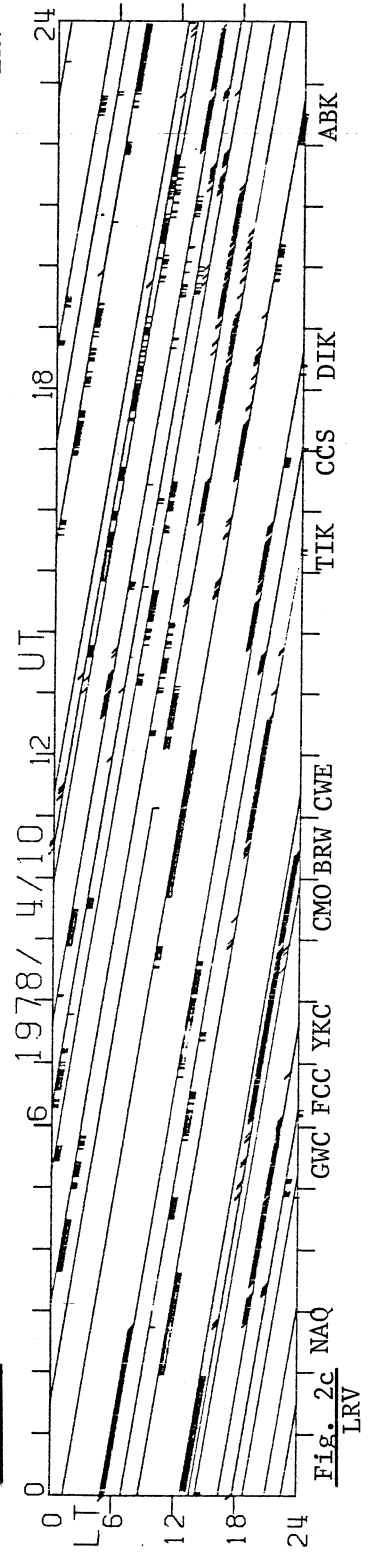
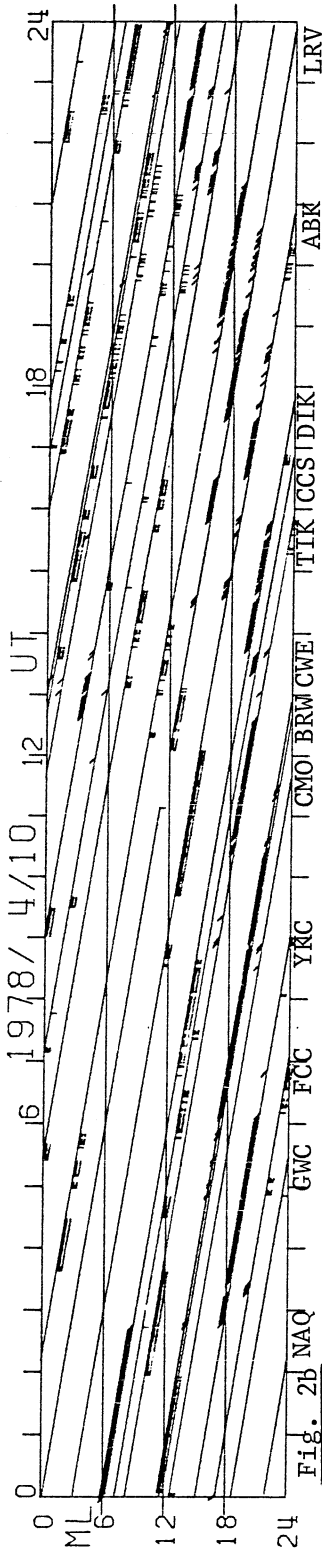
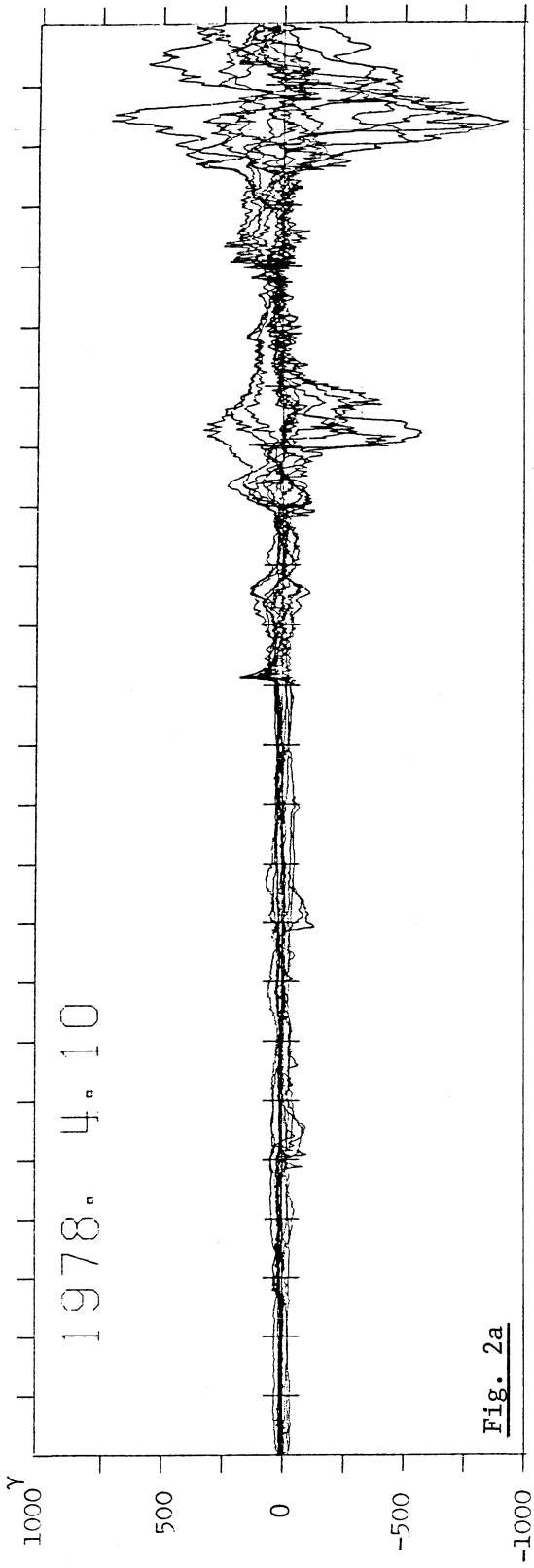


Fig. 1. Distribution of AE(12) stations.

Geographic latitude is indicated by the concentric circles of solid lines. Geomagnetic latitude is indicated by the numbered concentric circles formed by + signs. Geographic longitude is given by the outer circle of numerical values with meridians shown as solid lines every 30°. Geomagnetic longitude is given by the inner circle of numbers and the border of hash-marks at 10° intervals.





of the stations are shown in Fig. 1. Cape Wellen is not used in this volume to reduce digitization time as its contribution to the AE indices is not so frequent. Of the eleven observatories, six are taking digital data; these stations are referred to as digital stations below.

Three of the digital stations, Fort Churchill, Great Whale River, and Yellowknife, are stations which give data in the X, Y, Z coordinate system. To make these data more compatible with the other stations, we converted the X and Y components to the H component by  $H=(X^2+Y^2)^{1/2}$ . If either X or Y is missing, H is also treated as being missing. For the other three digital stations, Barrow, College, and Narssarssuaq, the original digital H-component data were used.

If a digital station has any trouble in digital recording, we digitized the analog magnetogram if available. As digital data from College had missing periods in July and August 1983, we digitized its magnetograms for part of these two months.

We used digitized Abisko data supplied from the station. For the other analog stations, Leirvogur, Cape Chelyuskin, Dixon Island, and Tixie Bay, we used digitized data which were specially prepared by WDC-A for STP for the analyses of the ISEE-3 data during the satellite's magnetospheric tail crossing period. We applied the normal quality check and correction procedures on these data.

### 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 the H traces from the AE stations on 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. 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 this is a key station for the AL index for this time interval, the exact AL values might be lower than was calculated for this interval.

Some explanations are necessary for the plot of the contributing stations. On the plot, hereafter, the ordinate is geomagnetic local time (MLT), which is defined by the difference between the geomagnetic longitude of the station and the geomagnetic longitude of the subsolar point; and MLT is a function of the geomagnetic longitude of the station, season, and universal time. Figures 3a, 3b, and 3c show the difference 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

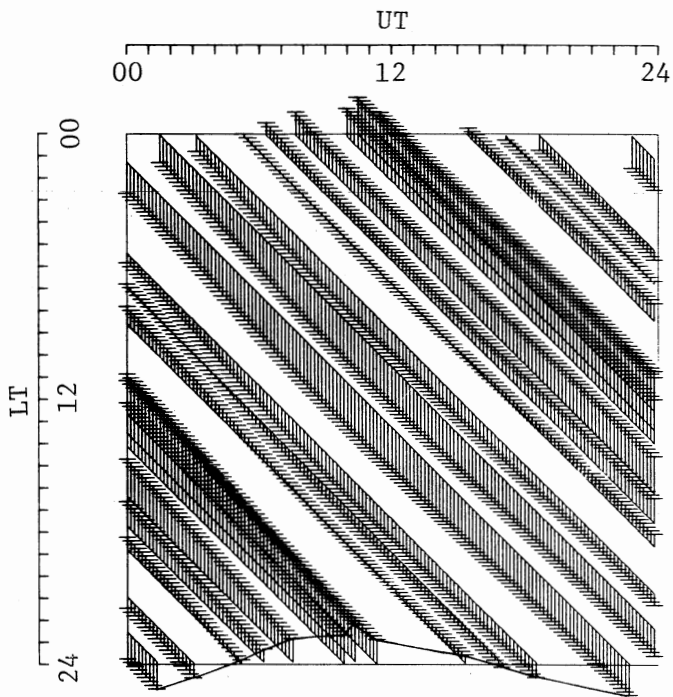


Fig. 3a Difference between GLT and MLT in winter.

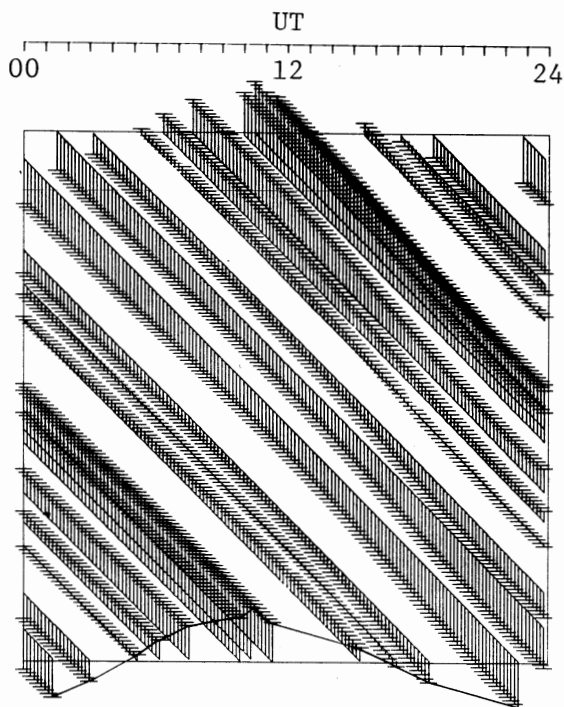


Fig. 3b Difference between GLT and MLT in summer.

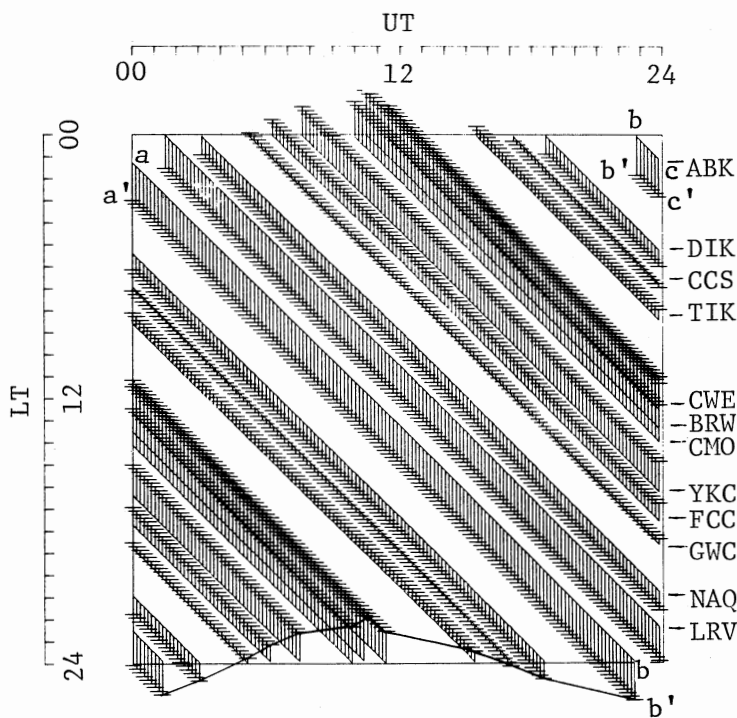


Fig. 3c Difference between GLT and MLT in equinox.

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.

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 July-December 1983 are listed in Table 2. Table 3 gives the hourly average values of AE indices on each day from July to December 1983.

Daily graphs of 1.0-min AE indices (AU, AL, AE and AO) are shown in Fig. 4, and corresponding plots of the contributing stations are given in Fig. 5. Figure 6 shows the H-traces of magnetograms from AE(11) stations for each month from July to December 1983. Finally, Fig. 7 shows hourly mean values of each index for the one half year on one page.

#### 5. Acknowledgements

The calculation of the AE indices in this volume has been made possible by the data provided by the AE stations through the World Data Centers. We wish to thank Mr. H. W. Kroehl, Ms. B. A. Hausman and Mr. C. Wells of the WDC-A for Solar-Terrestrial Physics for supplying digitized data. We also express our gratitude to Ms. Y. Yamamoto, Mr. S. Yokoyama and Dr. T. Iyemori of WDC-C2 for Geomagnetism for their assistance in the computation and production of plots, and also to Dr. M. Ayukawa and Mr. Y. Katsuta of National Institute of Polar Research for printing and distribution. We thank Dr. E. Friis-Christensen of Danish Meteorological Institute and Dr. T. Bergmark of Geological Survey of Sweden for their rapid transmission of digital data.

TOYOHISA KAMEI,  
TOHRU ARAKI, and  
MASAHISA SUGIURA

Data Analysis Center  
for Geomagnetism and Spacemagnetism  
Faculty of Science  
Kyoto University  
Sakyo-ku, Kyoto 606  
Japan



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

(Year 1983)

STATION	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Abisko	11732	11728	11725	11725	11722	11726
Dixon Island	-499	-522	-516	-521	-525	-518 (HO+)
Cape Chelyuskin	+433	+405	+400	+404	+399	+385 (HO+)
Tixie Bay	+149	+115	+131	+112	(+776)*	+174 (HO+)
Barrow	9748	9723	9723	9724	9735	9722
College	12959	12938	12937	12937	12937	12935
Yellowknife	8741	8719	8721	8715	8728	8726
Fort Churchill	7656	7659	7657	7654	7664	7671
Great Whale River	10833	10839	10841	10852	10857	10873
Narssarssuaq	12163	12170	12168	12166	12173	12178
Leirvogur	12454	12423	12421	12421	12421	12426

(HO+) : Deviation from the H base line  
on the ordinary magnetograms.

\* : As Tixie ordinary magnetograms had frequent  
base changes in November, its reference  
value is derived from the H base line on  
the storm magnetograms in this month.

TABLE 3

Hourly average AE indices (AU, AL, AE and AO)  
for July-December 1983.

AU Index ( Hourly mean values, unit nT )

July 1983

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	129	171	121	147	129	94	128	95	79	99	129	90	68	72	48	53	47	44	59	68	64	85	84	125	93
2	72	41	59	73	34	48	101	101	45	74	69	130	172	99	71	70	72	71	121	121	117	135	129	148	88
3	164	86	106	71	31	16	36	102	127	223	156	103	72	36	50	70	43	57	76	147	164	118	121	102	95
4	42	27	42	51	118	105	84	68	79	59	62	28	45	29	59	67	83	86	146	209	190	121	70	54	80
Q 5	87	88	55	46	25	15	18	50	114	234	121	80	30	36	44	62	81	81	78	85	62	55	45	38	68
6	58	84	110	78	59	118	94	71	86	109	232	247	267	117	81	118	147	125	148	199	188	158	109	74	128
7	34	42	44	115	56	40	13	45	128	285	301	193	170	157	138	147	202	106	83	105	142	173	224	120	128
8	65	97	107	116	77	93	133	190	212	183	195	85	102	57	42	22	35	111	150	131	99	107	106	104	109
9	117	66	174	271	152	55	72	55	125	121	134	62	73	71	66	34	81	96	87	80	142	207	192	122	111
Q 10	113	132	118	99	77	69	83	68	120	35	32	31	35	40	24	36	26	27	22	37	57	43	30	36	58
Q 11	50	39	28	21	13	36	32	23	51	77	126	117	125	85	58	56	68	50	47	63	65	50	42	35	57
12	37	34	32	15	13	9	25	38	32	45	69	171	304	222	175	201	109	140	268	319	302	325	303	186	141
13	92	158	159	206	229	233	172	210	205	221	140	199	241	81	112	83	75	82	49	58	52	84	86	80	138
14	60	75	85	97	81	146	91	123	65	103	183	199	171	105	99	66	23	41	49	106	138	56	26	47	93
Q 15	66	75	67	72	82	94	160	135	61	73	85	57	52	48	67	63	81	94	101	144	188	113	106	177	94
16	233	241	133	219	244	269	126	33	64	103	110	98	158	139	79	73	55	104	172	220	279	261	274	245	164
D 17	145	228	218	260	209	170	93	147	264	221	217	200	152	105	90	117	235	238	125	103	222	191	118	131	175
D 18	108	99	175	201	207	236	192	148	68	125	138	118	156	79	66	169	106	81	129	122	88	161	181	107	136
19	95	154	144	116	99	144	118	123	147	144	64	101	136	88	64	95	141	225	133	154	148	169	106	53	123
20	41	128	141	99	52	175	119	135	150	48	24	22	29	29	31	26	41	65	61	65	66	70	77	107	75
21	78	83	86	136	210	175	183	135	99	95	83	76	55	37	63	91	111	106	135	146	161	167	70	57	110
22	110	146	154	166	161	203	151	82	77	57	71	69	70	52	56	68	51	35	40	96	170	296	225	131	114
D 23	78	49	46	56	35	56	122	182	237	391	276	100	72	62	91	127	184	281	324	471	351	347	272	322	189
D 24	370	361	349	295	255	214	261	175	239	245	138	129	282	378	131	280	264	200	225	312	210	97	128	264	242
25	203	209	143	175	131	126	114	89	179	94	113	110	72	66	126	109	54	64	101	109	94	127	111	73	116
26	100	142	168	104	107	54	72	103	123	67	74	74	140	125	140	130	118	81	52	41	60	79	89	102	98
27	44	82	68	70	51	38	73	91	127	128	146	67	96	59	41	44	55	74	125	154	86	62	138	154	86
28	85	34	29	41	79	172	180	147	131	164	142	104	62	70	121	105	138	133	231	277	198	99	118	96	123
29	59	122	159	207	131	124	131	135	206	163	261	224	192	127	57	74	98	179	181	158	97	138	62	69	140
30	208	230	247	183	197	169	123	83	151	185	283	332	176	78	42	51	53	71	163	158	196	267	135	173	165
31	130	69	107	76	89	78	67	75	39	35	52	76	107	100	77	92	59	38	68	42	60	52	42	33	69
Mean	105	115	118	125	110	115	108	105	123	135	136	119	125	91	77	90	94	102	118	145	143	142	123	115	116
5Q Mean	89	101	77	77	65	61	84	74	85	103	98	75	62	56	48	54	60	59	61	79	87	69	61	82	73
5D Mean	186	195	184	206	190	189	158	137	174	217	175	129	164	152	91	153	168	180	195	245	230	211	194	213	181

1983

August

AU Index ( 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
1	49	50	80	116	121	91	125	88	124	92	87	87	82	93	69	50	38	51	63	68	99	76	133	194	89
D 2	212	184	230	305	158	212	273	323	213	98	74	145	217	326	209	151	120	152	202	276	150	130	172	222	198
3	155	117	91	61	150	60	64	47	55	53	54	74	118	122	102	202	145	119	264	201	131	109	291	145	122
4	103	129	137	122	103	80	81	107	70	45	39	63	76	76	53	44	28	25	22	34	73	111	91	88	75
Q 5	64	48	30	15	19	16	19	17	28	33	29	22	23	28	25	27	23	21	22	18	18	25	30	30	26
6	30	29	26	21	34	37	19	18	20	27	29	34	36	45	72	72	86	96	65	107	175	103	56	67	54
7	42	49	80	74	43	55	46	51	56	49	43	64	85	91	98	50	46	69	155	215	192	320	146	203	97
D 8	456	297	114	173	219	225	32	250	246	362	334	176	58	49	46	31	56	41	37	28	28	28	91	144	147
9	159	170	216	91	57	30	14	5	19	23	22	24	43	77	45	39	44	41	20	25	21	18	22	20	52
Q 10	31	35	27	112	194	174	188	95	67	98	111	111	82	79	66	55	45	41	43	44	36	34	29	45	77
11	68	93	81	58	67	70	41	29	30	33	88	112	177	126	48	47	40	45	96	139	143	124	49	59	78
12	103	88	111	203	273	308	304	272	341	313	340	363	212	224	341	365	364	385	355	246	198	247	290	150	267
13	167	170	84	215	295	305	174	258	350	244	269	243	263	112	56	39	40	83	141	168	145	239	131	91	178
14	103	157	81	47	65	145	84	118	100	77	39	46	54	78	116	80	84	133	112	156	139	113	56	52	93
15	79	175	157	149	71	101	58	37	36	102	149	171	78	42	68	93	175	185	65	47	59	109	97	63	99
16	55	47	38	18	12	6	10	17	22	19	31	50	57	77	89	90	94	103	139	112	107	119	156	163	68
17	253	226	222	163	184	187	95	58	54	60	108	65	44	29	30	35	24	22	30	26	28	41	74	42	88
18	32	31	29	35	19	16	18	24	36	49	38	33	43	50	34	21	18	16	17	14	16	17	24	30	28
19	27	19	19	17	20	29	27	25	27	28	27	53	79	161	185	304	302	233	109	75	64	107	131	69	89
20	39	42	72	172	175	92	101	92	98	69	143	188	192	77	63	74	122	142	166	259	254	218	238	266	140
21	196	166	258	228	316	364	236	217	278	215	145	195	265	276	282	360	357	296	283	230	164	104	229	201	244
22	128	95	49	48	63	71	140	143	81	81	163	90	147	106	78	64	116	181	208	265	243	98	75	67	117
23	68	175	158	219	186	252	168	195	265	249	249	232	227	168	62	71	230	289	230	197	123	127	88	116	181
D 24	197	165	161	164	216	131	184	160	193	180	268	243	237	188	128	162	156	84	110	182	175	199	209	252	181
25	220	195	189	146	168	61	138	182	261	155	244	256	186	221	159	84	176	228	287	184	105	89	99	134	174
26	103	205	169	142	194	177	151	77	178	213	207	219	157	125	125	219	162	63	79	159	89	55	76	80	143
27	93	91	33	27	24	19	19	15	17	16	19	31	97	118	99	76	122	76	31	40	48	37	39	81	53
28	102	92	75	81	65	50	89	141	188	171	111	105	50	40	52	41	32	34	59	113	83	42	54	53	80
29	88	139	183	170	139	116	68	91	91	88	93	106	124	115	78	98	125	246	289	212	166	240	256	177	146
30	203	183	83	196	138	232	121	170	139	139	84	104	55	44	75	86	82	83	107	72	133	116	174	148	124
D 31	202	165	250	189	137	159	189	107	141	93	87	82	106	121	101	148	307	173	153	122	209	149	131	195	155
Mean	123	123	113	121	126	124	105	110	123	112	120	122	118	112	98	105	121	121	127	130	116	114	120	117	118
5Q Mean	55	50	31	41	53	46	50	33	34	43	45	49	60	70	62	53	60	51	50	45	45	46	55	69	50
5D Mean	231	203	188	206	173	181	160	211	225	191	197	178	158	177	115	97	177	176	181	161	123	104	116	162	170



September 1983

AU Index ( 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
1	176	159	186	201	214	106	69	44	40	88	54	66	55	58	97	98	53	50	67	65	92	99	91	74	96
2	60	61	111	73	48	25	20	20	38	38	49	67	43	30	35	46	46	62	113	57	62	82	78	50	55
3	43	64	56	71	80	118	85	51	42	36	35	28	29	27	31	28	48	52	63	42	28	28	26	30	48
Q	23	21	18	20	23	30	27	22	27	22	24	23	24	27	25	29	24	31	37	56	49	28	35	61	29
Q	77	34	28	27	15	16	18	24	23	28	28	23	26	26	27	28	28	35	31	36	74	51	40	32	32
Q	28	30	58	96	92	165	160	91	64	64	60	58	42	37	50	63	38	66	82	117	103	63	45	43	71
7	33	48	47	87	96	64	80	63	71	128	104	119	252	209	322	289	292	361	320	245	129	63	51	45	147
8	42	42	67	52	58	36	72	125	152	213	302	181	80	54	27	21	87	113	69	83	151	117	81	64	95
9	70	73	128	76	56	50	79	54	48	49	48	82	37	41	61	76	62	89	222	126	108	145	119	125	84
10	79	83	95	60	52	76	106	65	50	62	69	58	45	33	46	100	86	34	104	126	100	69	29	68	71
11	89	77	113	112	64	54	51	53	45	33	34	103	117	42	46	39	76	90	61	73	126	41	53	53	68
12	36	39	90	146	75	129	95	135	151	137	147	150	135	121	84	41	33	30	32	32	58	69	64	79	88
13	91	131	84	50	30	34	70	51	59	69	109	86	102	101	42	68	27	22	31	39	55	92	114	96	69
14	72	72	72	64	62	41	58	44	46	41	34	26	42	21	28	69	100	70	24	38	29	90	69	45	52
15	40	62	73	82	67	53	76	137	164	123	69	30	27	28	43	45	114	221	131	190	219	127	175	94	100
16	78	70	88	134	161	164	157	232	168	325	324	157	172	155	91	77	276	273	189	158	85	91	151	109	162
17	197	225	187	150	163	248	216	162	296	129	63	27	89	53	52	71	155	134	71	50	85	57	40	99	126
18	79	54	79	70	125	147	109	92	130	113	47	27	48	40	63	49	85	106	83	146	162	164	124	55	92
19	126	93	211	268	410	188	111	104	154	230	308	175	153	303	308	238	296	235	245	219	167	222	134	143	210
20	228	158	178	143	118	81	93	124	115	120	92	143	180	110	84	69	107	77	78	79	83	68	94	33	111
21	49	92	85	148	134	69	80	116	132	142	89	72	54	115	102	146	55	102	103	115	51	38	38	114	93
22	105	118	103	74	128	62	107	148	113	102	159	213	135	42	20	43	17	34	28	35	38	73	63	40	83
23	29	25	38	43	49	34	27	27	40	29	65	101	49	36	87	61	65	86	80	38	18	18	33	35	46
24	38	48	48	20	13	12	14	21	29	15	30	58	124	132	133	244	197	69	25	60	88	98	87	55	69
25	103	118	120	144	123	65	111	134	131	142	152	108	90	99	137	264	198	217	158	160	107	106	164	136	137
26	142	98	174	136	90	179	201	154	137	247	185	113	97	118	84	23	37	65	107	71	69	88	85	75	116
27	130	174	115	48	36	77	78	54	76	35	58	81	96	88	35	27	32	51	36	79	64	103	65	94	72
28	135	178	109	109	53	31	22	46	36	22	15	26	47	71	54	66	90	36	28	46	88	71	51	69	62
29	95	109	131	143	70	69	50	48	34	40	62	26	19	13	12	7	6	15	22	19	15	35	25	27	46
Q	22	19	15	29	21	24	26	27	19	19	17	12	8	13	13	11	9	18	21	18	16	21	28	59	20
Mean	83	85	96	95	90	81	82	82	87	94	94	81	80	74	74	81	91	94	88	87	83	80	75	70	85
5Q Mean	35	25	31	43	40	53	51	38	34	32	38	43	29	27	40	38	32	47	50	53	52	36	36	46	39
5D Mean	129	120	156	166	189	168	159	157	177	214	206	116	120	145	134	134	192	184	154	131	102	112	114	112	150

AU Index ( Hourly mean values, unit nT ) 1983

October

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	65	81	81	81	42	30	59	64	56	38	58	51	57	94	72	43	154	103	75	122	132	127	148	145	82
2	154	102	127	191	341	240	167	149	161	135	190	105	140	162	129	128	91	37	50	82	136	160	180	114	145
3	104	89	49	104	97	83	142	179	143	239	261	205	128	61	194	182	118	71	115	127	157	181	209	141	145
D	128	55	76	62	73	106	174	187	333	276	392	227	145	68	235	211	285	150	113	113	89	67	50	43	152
5	31	29	24	14	18	28	26	32	69	83	81	36	25	29	5	5	9	14	20	23	33	39	39	75	33
6	84	51	64	58	35	70	77	99	85	152	239	138	106	58	55	175	237	200	153	99	61	52	93	56	104
7	47	54	58	128	97	78	63	70	89	63	61	78	34	36	31	49	45	41	45	38	31	56	53	52	58
8	64	72	100	79	55	58	72	83	98	82	60	46	89	54	34	165	212	119	187	149	63	73	76	86	91
Q	92	115	111	72	34	37	54	42	29	28	28	33	38	46	48	26	27	22	18	23	14	25	24	31	42
10	20	17	21	21	21	20	23	22	19	39	38	34	30	28	18	16	33	67	55	119	115	57	38	20	37
Q	31	29	52	25	34	63	104	87	89	47	52	51	36	46	37	44	38	14	19	13	18	14	16	18	41
Q	12	13	22	42	30	21	20	18	26	23	38	35	35	39	51	47	23	42	79	120	200	136	69	66	50
D	131	125	176	133	193	257	150	173	186	398	245	74	88	113	276	286	291	242	141	101	127	113	121	70	175
14	95	91	93	66	58	78	135	134	177	156	218	197	136	251	246	242	194	230	147	199	153	107	144	159	155
15	164	134	111	87	109	93	88	122	124	144	110	175	125	182	76	142	99	22	77	176	174	144	98	125	121
16	92	82	91	88	82	86	105	43	23	32	45	64	94	90	140	266	154	79	31	65	68	51	44	44	82
D	67	56	60	86	83	106	100	173	335	305	272	140	294	278	289	240	283	259	227	165	179	179	175	204	190
D	147	155	108	194	272	290	253	182	186	138	82	135	254	270	291	307	202	186	147	109	157	127	103	93	183
19	81	60	76	86	72	73	62	50	52	34	54	44	40	24	46	9	34	35	24	19	12	7	16	8	42
20	6	9	17	33	61	56	63	50	22	32	70	57	36	14	13	13	14	10	18	40	69	69	68	57	37
21	25	17	18	23	29	21	36	37	42	82	87	98	61	40	46	102	150	135	96	170	116	132	79	97	73
22	97	121	204	142	100	129	64	40	72	104	57	104	92	96	72	41	33	47	60	42	36	37	65	67	80
23	52	80	111	84	79	76	93	71	71	72	79	117	131	75	165	93	104	142	59	142	200	187	146	166	108
24	115	143	84	50	30	114	56	50	40	71	96	133	153	116	68	79	62	57	138	82	53	61	55	81	83
25	57	44	47	47	43	41	38	30	28	12	18	23	15	15	44	13	40	13	19	15	21	24	48	40	31
Q	30	22	35	34	43	49	49	38	37	33	38	21	16	27	26	23	33	17	8	9	9	10	8	8	26
Q	27	12	12	20	27	36	43	50	76	59	45	20	27	16	13	9	9	13	14	30	18	16	17	29	26
28	48	91	118	52	15	14	13	16	15	14	15	15	13	11	12	30	46	48	53	70	66	73	87	99	43
D	180	200	169	176	153	173	165	205	237	282	246	201	95	199	112	56	69	195	118	201	108	77	106	70	158
30	110	60	87	120	131	91	65	114	116	100	208	274	155	161	177	159	163	181	169	108	62	48	42	42	122
31	30	35	41	55	35	19	57	73	73	94	142	81	70	45	67	35	15	26	31	26	44	51	62	31	52
Mean	76	72	79	79	80	85	84	87	99	108	116	97	88	88	99	104	105	90	80	90	87	80	79	75	89
5Q Mean	35	38	48	40	35	42	55	52	48	35	35	33	28	34	34	29	26	21	27	39	51	40	26	30	37
5D Mean	130	118	117	130	154	186	168	184	255	279	247	155	175	185	240	220	226	206	149	137	132	112	111	96	171

November 1983

AU Index ( 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
D	20	72	62	61	54	39	75	61	82	137	161	92	129	121	66	20	16	40	108	108	103	201	227	165	92
D	192	114	74	155	130	91	134	136	152	162	107	117	146	68	80	37	38	100	60	54	98	75	62	51	103
Q	90	78	87	66	65	35	40	29	43	41	52	78	134	135	71	39	174	156	141	184	88	83	66	63	85
Q	41	68	39	51	79	53	29	22	25	18	32	44	67	34	24	61	55	19	22	14	20	38	27	25	38
Q	16	11	28	52	46	37	38	20	33	40	35	23	28	25	27	9	6	4	6	6	8	9	7	7	22
Q	10	8	8	10	11	8	8	11	11	12	12	18	24	19	17	17	16	12	13	13	10	10	11	14	13
Q	12	11	12	11	16	32	40	48	34	23	19	31	79	69	73	198	234	235	187	140	182	147	103	130	86
Q	86	189	100	52	122	143	128	154	169	189	82	183	170	166	270	248	103	107	99	40	51	107	139	159	136
D	126	93	93	107	114	83	102	98	139	192	83	118	109	167	279	248	155	101	122	186	229	160	134	73	138
Q	90	156	88	85	91	100	119	82	66	95	81	86	97	92	135	88	117	139	143	170	204	115	49	56	106
D	162	112	60	38	30	30	32	20	38	31	63	91	61	75	72	48	19	17	45	86	92	137	80	85	64
D	103	91	158	172	122	259	189	115	1	172	142	105	114	107	199	197	254	303	213	158	163	131	162	100	155
Q	62	74	57	100	100	91	138	170	112	155	72	160	138	181	208	233	190	129	150	140	108	116	102	48	126
Q	39	28	23	84	59	76	70	116	125	70	40	135	109	213	150	177	201	316	208	56	29	61	47	49	103
Q	67	67	51	49	51	48	87	94	86	52	69	118	53	139	206	287	141	119	157	78	221	140	150	56	108
Q	179	149	117	83	113	102	127	166	144	97	55	63	94	72	75	119	196	160	193	111	116	127	156	78	120
Q	124	253	132	94	208	118	165	132	122	126	146	156	112	55	63	138	140	133	138	111	134	133	87	82	129
Q	150	126	194	140	191	161	96	41	50	90	97	104	160	132	109	97	156	197	155	114	105	100	75	72	121
Q	92	84	73	103	85	78	79	76	71	34	59	64	70	39	74	104	83	89	75	53	121	165	109	81	82
Q	67	124	164	135	105	98	91	109	137	207	140	133	186	132	64	94	162	73	148	96	93	92	110	80	118
Q	82	73	90	72	62	37	35	23	16	14	24	32	26	42	49	25	54	54	47	28	24	23	51	64	44
Q	59	74	85	64	73	61	106	106	79	42	34	24	33	21	25	18	25	10	8	29	15	14	14	25	43
Q	21	11	8	8	10	10	14	20	23	19	24	20	18	10	6	6	8	8	10	11	10	10	10	15	13
Q	13	17	20	16	39	61	57	49	89	96	44	43	30	57	43	72	44	40	104	175	62	34	23	28	52
Q	39	66	42	56	71	109	72	158	101	161	147	135	108	97	67	48	36	54	50	123	94	84	127	209	94
Q	205	159	107	86	53	93	125	191	88	58	47	38	73	83	80	43	49	158	149	83	111	79	44	20	93
Q	13	7	13	19	18	39	48	40	63	68	87	43	71	97	90	99	68	30	30	17	13	10	13	15	42
Q	13	10	7	10	10	14	15	21	17	16	18	18	27	45	38	71	177	246	256	104	115	138	97	85	65
Q	129	107	113	155	150	110	84	55	50	118	126	120	92	77	66	41	52	40	62	100	117	114	143	96	96
Q	161	183	179	105	101	55	69	99	134	112	86	91	92	76	76	45	63	89	92	129	183	128	171	105	109
Mean	82	87	76	74	79	75	80	82	76	88	72	82	88	88	93	99	101	106	106	90	97	92	86	71	86
5Q Mean	29	34	33	37	43	33	39	35	34	26	27	25	34	21	19	22	22	11	12	14	12	16	13	17	25
5D Mean	141	132	103	113	120	116	124	100	90	136	108	117	108	94	138	143	121	130	115	119	143	127	105	78	117

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AU Index ( 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	
1	79	130	154	121	97	82	105	88	67	64	84	61	44	46	49	32	48	33	44	35	57	44	51	52	69	
2	36	36	33	54	68	85	102	54	80	53	35	39	46	53	89	113	77	71	31	26	18	29	12	23	53	
3	33	34	32	46	58	54	27	22	24	22	25	40	33	80	126	67	21	28	28	18	18	15	13	18	37	
Q	4	11	9	15	24	23	42	48	35	31	16	22	17	21	23	20	47	48	57	26	20	23	20	17	26	
Q	5	18	25	33	59	69	91	103	164	159	83	115	109	58	47	115	119	124	118	105	158	152	177	97	98	
D	6	81	77	54	81	179	235	200	163	138	206	146	142	158	275	153	82	56	107	108	143	75	55	106	133	
D	7	104	91	64	148	109	46	47	126	109	105	128	103	159	117	129	172	159	186	150	131	87	58	73	114	
8	76	106	78	71	95	78	46	46	56	58	60	37	75	68	99	51	26	10	12	13	47	69	45	37	57	
9	38	26	38	34	39	33	29	24	25	22	26	23	19	14	10	8	7	9	10	14	14	10	6	4	20	
Q	10	7	10	11	23	33	30	54	59	131	182	164	148	103	381	347	334	288	189	100	113	67	27	24	126	
D	11	48	48	81	57	52	68	96	92	114	109	112	131	91	185	114	222	111	74	43	41	59	105	146	160	
12	102	125	165	120	126	120	120	79	110	118	131	52	98	89	207	223	163	227	90	87	103	103	105	129	125	
13	147	102	151	133	100	138	112	88	85	101	127	153	110	102	92	144	88	94	95	100	147	97	127	128	115	
14	131	109	96	109	137	173	268	160	101	62	77	165	92	96	201	163	118	123	185	140	168	211	131	102	138	
15	112	150	153	149	99	96	136	107	156	123	88	45	58	68	73	39	46	35	41	53	19	31	73	77	84	
16	108	124	216	96	49	39	41	29	25	26	51	61	37	34	13	14	13	12	3	10	9	10	10	17	44	
17	28	33	34	29	17	14	16	14	12	16	28	29	23	45	59	39	23	28	36	15	26	25	20	24	26	
18	22	18	17	17	16	17	18	20	21	22	27	25	29	35	32	47	117	155	179	124	171	123	85	84	59	
19	132	103	62	64	62	109	111	113	115	83	78	43	25	46	42	55	51	44	78	34	35	59	102	93	72	
Q	20	77	76	88	73	39	19	20	18	21	22	17	15	20	16	12	18	19	9	12	14	15	26	14	18	28
Q	21	16	16	27	24	21	17	17	15	21	25	30	34	44	27	22	12	22	26	22	27	41	103	109	31	
22	107	80	106	54	64	37	42	58	40	129	186	142	82	45	46	108	78	168	181	66	44	43	33	39	82	
23	69	57	59	48	67	73	106	105	61	45	43	50	36	41	47	44	30	33	25	60	100	144	84	37	61	
24	23	24	24	22	24	23	24	30	29	24	32	28	32	62	238	270	100	157	136	126	102	135	78	70	76	
25	88	65	76	102	78	53	47	62	84	70	48	76	49	24	48	43	36	39	63	63	33	39	37	24	56	
26	27	24	41	46	61	41	69	68	77	56	53	57	62	78	50	32	26	67	55	52	147	179	145	137	69	
27	213	147	101	88	73	63	107	57	64	62	46	38	40	63	83	63	83	96	195	160	140	123	183	133	101	
28	108	182	130	142	100	86	64	75	82	116	74	85	83	115	102	72	58	30	26	31	38	40	46	44	80	
29	52	69	63	64	49	41	76	117	141	81	55	60	40	65	81	50	46	35	26	29	31	33	44	65	59	
30	69	72	56	94	127	112	127	180	232	179	279	138	177	289	142	109	215	172	148	152	225	70	52	93	146	
D	31	96	62	67	99	161	170	134	141	190	183	129	190	178	142	140	119	145	121	155	126	153	121	153	129	138
Mean	72	71	75	73	73	73	81	77	83	79	81	75	68	80	98	94	81	82	83	67	81	75	72	69	78	
5Q Mean	35	32	40	40	36	33	28	22	24	21	24	25	27	32	39	27	21	23	26	18	18	23	31	33	28	
5D Mean	79	70	64	95	125	126	120	140	156	156	158	140	152	183	157	146	145	116	127	115	142	91	92	112	125	



AL Index ( Hourly mean values, unit nT ) July 1983

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	-110	-236	-197	-179	-155	-120	-80	-50	-37	-26	-88	-94	-34	-30	-38	-52	-43	-38	-100	-54	-58	-59	-58	-125	-86
2	-58	-17	-47	-54	-77	-52	-32	-110	-39	-24	-33	-68	-267	-158	-76	-96	-148	-190	-37	-42	-45	-186	-136	-93	-87
3	-113	-98	-106	-66	-36	-33	-25	-39	-134	-232	-163	-75	-33	-24	-21	-27	-83	-108	-63	-66	-63	-50	-80	-99	-76
4	-43	-57	-58	-60	-62	-103	-60	-35	-38	-55	-59	-35	-42	-28	-56	-182	-210	-186	-151	-149	-186	-107	-105	-47	-92
Q 5	-67	-138	-65	-53	-51	-49	-45	-25	-54	-218	-141	-118	-56	-25	-28	-41	-30	-129	-71	-24	-25	-31	-24	-38	-64
6	-40	-44	-95	-218	-137	-163	-85	-44	-42	-54	-227	-246	-422	-200	-131	-163	-322	-323	-117	-98	-121	-192	-234	-107	-159
7	-54	-55	-58	-194	-178	-55	-39	-25	-42	-254	-325	-185	-288	-234	-239	-256	-233	-252	-120	-55	-103	-322	-286	-99	-165
8	-39	-70	-190	-170	-208	-69	-149	-489	-273	-205	-196	-67	-70	-148	-47	-28	-43	-144	-301	-157	-47	-52	-84	-115	-140
9	-190	-61	-128	-418	-259	-53	-32	-69	-85	-117	-446	-81	-56	-47	-60	-60	-140	-218	-103	-85	-111	-250	-277	-135	-145
Q 10	-103	-102	-130	-168	-98	-27	-54	-226	-260	-135	-25	-16	-26	-13	-34	-84	-62	-49	-39	-53	-99	-43	-45	-82	-82
Q 11	-50	-55	-41	-34	-33	-25	-34	-55	-52	-41	-119	-212	-175	-73	-27	-28	-71	-112	-52	-60	-37	-35	-25	-29	-61
12	-32	-41	-44	-50	-48	-53	-37	-39	-39	-38	-32	-83	-456	-351	-264	-206	-62	-92	-394	-606	-327	-308	-178	-64	-160
13	-110	-203	-373	-185	-270	-433	-354	-161	-127	-318	-282	-481	-338	-60	-68	-57	-76	-111	-59	-38	-44	-69	-137	-89	-185
14	-56	-99	-158	-170	-122	-106	-154	-193	-52	-33	-109	-148	-180	-242	-230	-103	-97	-129	-57	-40	-156	-112	-51	-54	-119
Q 15	-84	-116	-83	-118	-129	-99	-103	-111	-52	-35	-57	-89	-87	-51	-37	-29	-87	-206	-142	-92	-80	-46	-86	-136	-90
16	-149	-159	-232	-179	-145	-182	-105	-39	-31	-88	-94	-60	-218	-165	-79	-53	-94	-125	-182	-268	-299	-271	-291	-251	-157
D 17	-289	-417	-370	-367	-303	-327	-154	-171	-230	-483	-352	-292	-337	-142	-227	-302	-325	-482	-157	-64	-170	-476	-153	-94	-279
D 18	-69	-66	-446	-387	-261	-352	-353	-184	-39	-134	-268	-250	-207	-100	-131	-220	-244	-54	-94	-145	-93	-257	-241	-139	-197
19	-157	-225	-222	-111	-85	-197	-115	-74	-135	-164	-56	-92	-205	-156	-120	-210	-205	-302	-310	-236	-216	-196	-92	-70	-165
20	-81	-172	-213	-120	-59	-144	-152	-275	-292	-146	-52	-25	-21	-29	-32	-38	-118	-66	-54	-92	-79	-65	-108	-141	-107
21	-125	-71	-69	-110	-338	-274	-210	-108	-90	-177	-129	-121	-22	-38	-98	-234	-242	-283	-219	-121	-138	-67	-61	-70	-142
22	-189	-233	-215	-120	-124	-134	-119	-47	-100	-104	-136	-77	-75	-68	-77	-133	-142	-71	-25	-81	-118	-259	-563	-193	-142
D 23	-59	-47	-37	-34	-42	-46	-24	-99	-183	-366	-234	-70	-66	-63	-97	-218	-318	-353	-553	-421	-554	-417	-440	-497	-218
D 24	-551	-365	-422	-432	-370	-489	-308	-198	-226	-381	-116	-67	-555	-462	-69	-147	-353	-227	-228	-186	-157	-122	-107	-394	-289
25	-397	-305	-220	-270	-260	-277	-103	-58	-146	-233	-61	-112	-138	-128	-207	-171	-109	-79	-128	-64	-156	-184	-104	-135	-168
26	-188	-153	-187	-151	-144	-101	-112	-159	-144	-37	-43	-112	-140	-253	-371	-182	-301	-172	-47	-20	-50	-61	-73	-147	-139
27	-46	-58	-68	-67	-75	-59	-81	-216	-153	-174	-452	-175	-84	-23	-24	-54	-58	-184	-128	-100	-34	-41	-93	-261	-113
28	-101	-45	-53	-57	-52	-244	-270	-193	-85	-126	-156	-97	-81	-25	-74	-89	-92	-52	-127	-259	-151	-41	-101	-142	-113
29	-103	-91	-186	-608	-391	-149	-111	-245	-274	-194	-233	-341	-287	-164	-73	-29	-79	-146	-227	-122	-47	-90	-96	-134	-184
30	-275	-310	-547	-406	-258	-205	-241	-153	-207	-262	-607	-391	-120	-248	-70	-55	-45	-40	-111	-164	-206	-232	-165	-230	-231
31	-248	-150	-101	-78	-149	-238	-117	-35	-98	-161	-61	-64	-199	-195	-134	-99	-48	-39	-63	-43	-96	-94	-74	-43	-109
Mean	-134	-137	-172	-181	-161	-156	-124	-126	-121	-161	-172	-140	-170	-127	-104	-117	-144	-160	-143	-129	-131	-153	-147	-136	-144
5Q Mean	-82	-129	-103	-110	-93	-64	-63	-93	-91	-91	-86	-105	-75	-38	-32	-46	-58	-106	-80	-56	-59	-49	-47	-74	-76
5D Mean	-223	-210	-301	-279	-224	-279	-188	-138	-141	-290	-212	-147	-276	-186	-120	-188	-266	-248	-242	-216	-254	-308	-246	-275	-227

AL Index ( Hourly mean values, unit nT ) August 1983

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	-13	-12	-25	-99	-79	-78	-111	-149	-62	-41	-37	-26	-61	-165	-100	-50	-103	-107	-38	-46	-67	-65	-138	-137	-75
	-173	-473	-354	-174	-148	-81	-485	-406	-185	-35	-66	-71	-407	-521	-386	-156	-80	-152	-330	-712	-413	-127	-184	-255	-266
	-333	-178	-40	-17	-91	-28	-20	-28	-33	-22	-80	-161	-183	-197	-136	-180	-139	-337	-269	-76	-55	-199	-225	-127	
Q	-98	-133	-196	-223	-131	-50	-34	-68	-95	-77	-20	-51	-59	-102	-68	-96	-95	-43	-24	-33	-84	-189	-112	-114	-91
	-42	-27	-28	-26	-31	-27	-29	-26	-41	-26	-27	-20	-20	-21	-18	-5	-9	-11	-17	-27	-29	-22	-9	-14	-23
	-10	-20	-28	-22	-12	-27	-16	-11	-18	-23	-24	-22	-15	-26	-36	-59	-101	-192	-76	-52	-138	-133	-32	-26	-47
	-23	-27	-53	-35	-17	-12	-26	-22	-30	-30	-25	-16	-49	-15	-69	-46	-71	-32	-82	-115	-181	-445	-498	-481	-100
D	-413	-867	-696	-800	-1062	-280	-304	-323	-257	-354	-348	-93	-31	-34	-37	-48	-33	-29	-27	-21	-23	-33	-88	-105	-263
	-326	-466	-382	-106	-53	-60	-49	-41	-35	-32	-29	-24	-27	-49	-37	-25	-39	-68	-18	-45	-51	-45	-34	-31	-86
Q	-17	-22	-25	-57	-191	-212	-95	-41	-17	-36	-43	-147	-81	-83	-74	-73	-62	-34	-13	-8	-6	-16	-19	-31	-58
	-42	-114	-81	-36	-49	-46	-28	-17	-23	-25	-43	-69	-210	-151	-28	-14	-25	-45	-153	-175	-118	-72	-19	-21	-67
	-154	-102	-138	-173	-377	-224	-165	-297	-341	-258	-219	-351	-385	-208	-245	-407	-400	-305	-223	-258	-162	-127	-64	-376	-248
	-442	-159	-31	-99	-267	-274	-78	-232	-375	-244	-320	-454	-442	-43	-22	-25	-24	-150	-230	-295	-155	-357	-213	-76	-209
	-85	-305	-154	-33	-29	-125	-118	-41	-48	-31	-23	-34	-42	-143	-107	-52	-121	-183	-196	-113	-182	-121	-35	-46	-99
	-79	-313	-184	-84	-45	-53	-44	-56	-23	-38	-178	-279	-81	-19	-64	-220	-355	-280	-30	-18	-43	-129	-131	-48	-116
	-52	-121	-68	-14	-24	-31	-43	-45	-40	-35	-35	-34	-39	-76	-157	-230	-294	-169	-280	-149	-117	-102	-161	-175	-104
Q	-188	-216	-147	-94	-83	-88	-24	-20	-32	-58	-95	-53	-39	-36	-43	-36	-28	-23	-19	-35	-32	-38	-86	-34	-65
	-29	-27	-26	-32	-20	-20	-20	-18	-30	-40	-38	-33	-41	-40	-35	-22	-27	-30	-28	-26	-37	-41	-28	-23	-30
	-16	-20	-21	-19	-22	-27	-20	-17	-18	-23	-30	-32	-42	-135	-341	-388	-261	-160	-46	-23	-8	-53	-166	-76	-82
	-20	-28	-37	-238	-268	-136	-65	-64	-44	-25	-52	-78	-296	-173	-173	-114	-88	-278	-220	-220	-217	-215	-217	-212	-145
	-269	-302	-302	-440	-268	-223	-160	-331	-429	-560	-318	-468	-461	-306	-287	-287	-335	-255	-217	-181	-101	-103	-330	-101	-293
	-57	-62	-36	-18	-26	-84	-130	-152	-61	-71	-137	-153	-192	-98	-67	-49	-164	-266	-239	-394	-486	-54	-41	-73	-130
D	-88	-121	-188	-460	-780	-537	-123	-267	-366	-235	-285	-270	-215	-207	-186	-123	-154	-356	-363	-389	-288	-119	-104	-153	-266
	-303	-291	-256	-245	-359	-174	-176	-364	-410	-243	-495	-565	-289	-364	-152	-264	-258	-131	-93	-146	-332	-523	-396	-280	-296
D	-422	-642	-123	-104	-335	-195	-170	-343	-572	-261	-614	-497	-223	-328	-210	-36	-217	-227	-471	-168	-50	-79	-143	-280	-280
	-213	-315	-265	-126	-184	-461	-153	-87	-150	-490	-588	-479	-241	-205	-201	-507	-314	-34	-26	-196	-219	-63	-48	-47	-234
Q	-110	-169	-39	-19	-18	-13	-11	-14	-20	-27	-30	-34	-72	-158	-201	-139	-270	-106	-35	-36	-69	-46	-29	-51	-72
	-157	-103	-84	-116	-145	-69	-153	-240	-228	-213	-118	-97	-35	-14	-60	-61	-31	-61	-72	-121	-165	-23	-16	-18	-100
	-152	-275	-341	-217	-152	-44	-18	-28	-56	-134	-153	-78	-162	-115	-150	-99	-55	-118	-121	-228	-116	-139	-356	-175	-141
	-146	-258	-120	-94	-160	-233	-291	-187	-140	-138	-30	-150	-96	-58	-173	-252	-209	-118	-84	-20	-167	-245	-328	-177	-161
D	-190	-213	-441	-309	-178	-188	-341	-139	-146	-220	-112	-102	-108	-142	-156	-73	-574	-359	-216	-93	-461	-313	-143	-279	-229
	-150	-205	-158	-146	-180	-131	-113	-131	-139	-130	-146	-156	-149	-136	-131	-132	-160	-143	-139	-148	-148	-132	-140	-130	-145
5Q Mean	-50	-73	-37	-29	-56	-60	-39	-28	-29	-32	-34	-53	-50	-75	-97	-93	-132	-70	-74	-49	-51	-45	-49	-58	-57
5D Mean	-257	-463	-360	-369	-500	-256	-284	-295	-305	-221	-285	-206	-196	-246	-195	-87	-211	-224	-281	-276	-247	-134	-132	-214	-260

AL Index ( Hourly mean values, unit nT ) September 1983

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	-388	-374	-409	-532	-321	-145	-14	-10	-13	-163	-74	-54	-41	-50	-194	-256	-170	-55	-47	-64	-151	-253	-83	-35	-162
2	-24	-18	-74	-126	-45	-7	-4	-14	-26	-31	-27	-35	-48	-26	-32	-46	-180	-194	-223	-84	-35	-150	-137	-40	-68
3	-9	-33	-97	-42	-67	-227	-129	-72	-14	-19	-21	-20	-28	-28	-46	-41	-33	-139	-126	-103	-70	-15	-5	-3	-10
Q 4	-10	-9	-13	-6	-9	-11	-12	-12	-18	-23	-27	-32	-29	-26	-27	-31	-56	-87	-48	-99	-90	-26	-12	-87	-33
Q 5	-163	-32	-2	-15	-12	-9	-5	-6	-12	-18	-21	-20	-20	-24	-26	-21	-26	-63	-46	-24	-72	-99	-27	-8	-32
Q 6	0	-3	-118	-307	-175	-143	-115	-56	-32	-24	-27	-27	-24	-30	-58	-97	-93	-120	-99	-129	-65	-32	-37	-106	-80
7	-54	-47	-40	-45	-52	-43	-5	-9	-22	-41	-87	-187	-412	-293	-403	-426	-291	-474	-379	-280	-201	-119	-79	-93	-170
8	-150	-59	-141	-163	-56	-11	-24	-218	-326	-208	-375	-267	-57	-52	-33	-76	-111	-226	-71	-23	-53	-46	-48	-44	-118
9	-50	-65	-229	-128	-25	-21	-30	-42	-26	-28	-31	-52	-36	-40	-115	-86	-92	-172	-368	-174	-73	-231	-191	-191	-104
10	-93	-43	-147	-86	-24	-43	-91	-32	-28	-163	-76	-50	-56	-37	-69	-354	-203	-17	-170	-325	-151	-172	-19	-44	-104
11	-149	-185	-215	-51	-28	-91	-17	-31	-26	-20	-24	-110	-242	-73	-71	-83	-255	-261	-87	-43	-259	-52	-58	-80	-105
12	-36	-25	-88	-268	-162	-172	-239	-205	-298	-196	-357	-460	-295	-368	-252	-26	-29	-40	-37	-44	-60	-142	-111	-79	-166
13	-167	-310	-253	-47	-10	-14	-101	-160	-182	-186	-164	-177	-269	-110	-230	-162	-29	-26	-43	-91	-58	-121	-313	-213	-143
14	-71	-54	-79	-9	-29	-10	-33	-32	-152	-15	-14	-16	-24	-12	-23	-160	348	277	-84	-34	-23	-55	-29	-9	-66
15	-17	-22	-90	-57	-44	-19	-36	-115	-235	-182	-37	-27	-20	-17	-16	-16	-68	-591	-745	-706	-472	-196	-275	-140	-173
16	-61	-62	-97	-100	-238	-352	-364	-281	-208	-363	-375	-501	-282	-452	-187	-81	-574	-670	-341	-392	-232	-214	-279	-190	-287
17	-394	-556	-298	-331	-373	-534	-375	-198	-553	-142	-27	-14	-117	-114	-198	-196	-323	437	-89	-16	-146	-119	-37	-122	-238
18	-365	-105	-106	-156	-226	-148	-205	-163	-224	-45	-30	-17	-41	-41	-157	-172	-207	-275	-123	-186	-552	-357	-102	-51	-169
19	-211	-661	-606	-512	-485	-85	-90	-102	-452	-412	-496	-394	-342	-561	-471	-416	-377	-184	-454	-781	-832	-693	-577	-586	-449
20	-650	-508	-255	-150	-352	-224	-257	-228	-205	-399	-246	-377	-695	-271	-270	-218	-326	-279	-114	-59	-115	-189	-126	-37	-273
21	-58	-305	-321	-310	-247	-109	-70	-161	-194	-152	-90	-117	-111	-162	-279	-393	-165	-197	-132	-114	-31	-11	-22	-255	-167
22	-426	-313	-120	-32	-104	-175	-196	-94	-94	-64	-283	-367	-176	-41	-17	-50	-81	-31	-29	-20	-37	-86	-114	-72	-126
23	-12	-13	-18	-59	-32	-13	-9	-23	-32	-27	-78	-95	-25	-37	-135	-234	-210	-175	-115	-76	-26	-23	-17	-16	-63
24	-54	-114	-184	-103	-53	-48	-11	-12	-22	-28	-24	-33	-366	-416	-314	-390	-253	-99	-65	-53	-66	-45	-41	-26	-118
25	-80	-175	-454	-164	-54	-5	-62	-184	-58	-89	-66	-42	-54	-90	-274	-480	-392	-475	-175	-268	-140	-79	-314	-670	-202
26	-468	-347	-322	-215	-391	-340	-500	-440	-254	-587	-291	-199	-172	-190	-38	-18	-72	-168	-264	-161	-72	-176	-228	-69	-249
27	-241	-425	-125	-30	-48	-108	-154	-77	-103	-23	-103	-291	-387	-317	-171	-84	-141	-156	-39	-77	-32	-216	-261	-156	-157
28	-250	-612	-462	-92	-67	-9	-7	-18	-30	-25	-19	-23	-49	-251	-329	-384	-302	-76	-23	-19	-115	-135	-30	-144	-145
29	-229	-256	-162	-121	-6	-48	-29	-25	-16	-18	-182	-23	-18	-19	-17	-15	-22	-23	-56	-80	-17	-54	-42	-35	-63
Q 30	-15	-31	-21	-18	-10	-7	-11	-14	-16	-15	-17	-21	-20	-14	-11	-9	-33	-27	-46	-24	-15	-16	-15	-125	-23
Mean	-163	-192	-184	-142	-124	-105	-106	-101	-129	-123	-122	-134	-148	-139	-148	-167	-185	-200	-153	-150	-140	-137	-120	-124	-143
5Q Mean	-40	-17	-34	-81	-47	-36	-30	-22	-22	-21	-34	-39	-23	-26	-51	-78	-83	-94	-70	-70	-53	-39	-21	-68	-46
5D Mean	-242	-360	-355	-264	-308	-263	-278	-241	-305	-318	-251	-230	-193	-281	-233	-238	-347	-386	-264	-323	-284	-256	-287	-327	-285

AL Index ( Hourly mean values, unit nT ) October 1983

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	-179	-66	-65	-20	-10	-10	-26	-28	-18	-21	-25	-20	-29	-79	-74	-100	-488	-308	-185	-125	-210	-179	-603	-397	-136
2	-271	-353	-346	-321	-309	-266	-227	-260	-496	-35	-134	-154	-359	-251	-148	-228	-353	-30	-30	-69	-313	-388	-222	-265	-243
3	-114	-225	-85	-216	-254	-207	-334	-441	-314	-353	-463	-293	-237	-186	-546	-338	-228	-141	-182	-162	-147	-222	-233	-370	-262
4	-257	-32	-40	-90	-232	-210	-380	-419	-231	-352	-554	-312	-151	-108	-339	-1004	-562	-117	-138	-175	-370	-222	-154	-69	-272
5	-38	-28	-19	-19	-25	-19	-21	-41	-72	-146	-131	-44	-28	-39	-28	-28	-26	-25	-16	-14	-23	-22	-25	-89	-40
6	-227	-56	-49	-40	-38	-40	-139	-362	-282	-260	-193	-14	-42	-29	-40	-287	-504	-451	-359	-153	-21	-32	-201	-160	-166
7	-79	-35	-58	-284	-190	-151	-23	-32	-80	-43	-48	-63	-38	-32	-50	-109	-203	-110	-109	-46	-17	-48	-83	-161	-87
8	-204	-139	-84	-13	-59	-63	-81	-15	-31	-48	-21	-28	-52	-83	-107	-231	-557	-278	-342	-316	-111	-111	-136	-81	-133
9	-54	-75	-48	-13	-5	-24	-28	-99	-12	-17	-20	-24	-49	-60	-106	-42	-47	-16	-37	-61	-34	-50	-23	-10	-40
10	-8	-7	-7	-4	-3	-11	-71	-89	-35	-40	-30	-72	-155	-36	-32	-28	-75	-202	-212	-242	-287	-71	-13	-12	-73
11	-24	-27	-83	-95	-63	-76	-313	-283	-203	-51	-34	-63	-46	-53	-107	-116	-16	-13	-11	-53	-19	-13	-9	-9	-74
12	-6	-6	-11	-24	-12	-11	-17	-18	-26	-25	-103	-42	-60	-28	-32	-57	-87	-141	-163	-127	-85	-12	-7	-22	-47
13	-183	-482	-260	-376	-485	-379	-156	-208	-304	-362	-271	-428	-251	-438	-293	-678	-327	-264	-205	-279	-403	-433	-165	-115	-323
14	-153	-202	-211	-118	-77	-93	-291	-271	-206	-298	-289	-344	-363	-458	-303	-300	-294	-520	-451	-289	-136	-176	-418	-693	-290
15	-382	-142	-92	-82	-239	-398	-178	-161	-159	-374	-471	-305	-378	-564	-333	-300	-184	-59	-102	-496	-328	-124	-203	-284	-264
16	-105	-88	-80	-141	-178	-398	-116	-46	-19	-18	-35	-165	-180	-341	-313	-340	-159	-153	-57	-37	-228	-199	-88	-105	-149
17	-174	-80	-110	-277	-261	-175	-149	-289	-684	-475	-465	-758	-465	-331	-711	-415	-663	-395	-412	-741	-543	-214	-714	-423	-413
18	-588	-733	-194	-187	-373	-419	-354	-343	-506	-389	-501	-460	-711	-591	-532	-480	-592	-469	-527	-614	-472	-109	-194	-218	-440
19	-310	-237	-134	-142	-208	-159	-132	-97	-153	-202	-89	-108	-63	-32	-33	-85	-202	-107	-45	-41	-19	-19	-19	-14	-110
20	-12	-10	-13	-78	-245	-145	-77	-29	-36	-26	-187	-145	-45	-24	-21	-28	-20	-27	-23	-130	-195	-185	-73	-54	-76
21	-23	-13	-18	-9	-8	-11	-15	-18	-11	-37	-118	-175	-24	-17	-42	-125	-220	-180	-156	-156	-135	-193	-75	-304	-87
22	-599	-364	-143	-35	-79	-357	-108	-21	-98	-422	-403	-330	-471	-301	-78	-78	-111	-146	-166	-128	-23	-29	-135	-154	-199
23	-95	-132	-97	-23	-36	-65	-164	-117	-71	-89	-387	-466	-628	-198	-464	-309	-198	-429	-187	-156	-696	-696	-226	-173	-254
24	-387	-330	-16	-12	-64	-131	-108	-53	-27	-86	-161	-353	-524	-84	-95	-271	-222	-149	-613	-436	-115	-129	-126	-211	-196
25	-180	-76	-11	-29	-15	-8	-6	-10	-7	-9	-28	-49	-30	-34	-68	-167	-38	-16	-23	-17	-44	-26	-49	-76	-42
26	-13	-14	-34	-22	-15	-13	-11	-6	-8	-13	-82	-42	-30	-17	-26	-95	-64	-22	-9	-9	-11	-13	-14	-13	-25
27	-13	-15	-17	-22	-17	-13	-34	-19	-14	-11	-13	-14	-13	-14	-13	-52	-39	-32	-20	-87	-73	-17	-16	-19	-25
28	-23	-113	-51	-12	-11	-9	-8	-11	-14	-10	-9	-11	-11	-10	-8	-7	-23	-43	-32	-19	-9	-33	-297	-499	-53
29	-332	-334	-286	-241	-210	-253	-368	-358	-508	-657	-601	-468	-240	-492	-439	-66	-188	-261	-496	-293	-144	-335	-446	-278	-346
30	-268	-320	-281	-270	-293	-180	-166	-343	-309	-447	-428	-429	-466	-537	-452	-445	-480	-645	-622	-339	-208	-38	-36	-110	-338
31	-177	-163	-207	-69	-17	-8	-33	-274	-266	-227	-327	-192	-176	-408	-192	-104	-113	-142	-44	-23	-43	-157	-341	-91	-158
Mean	-176	-157	-101	-105	-130	-138	-133	-153	-167	-178	-213	-205	-203	-189	-194	-223	-234	-190	-192	-188	-176	-145	-172	-176	-172
5Q Mean	-22	-27	-38	-35	-22	-27	-80	-85	-52	-23	-50	-37	-39	-34	-56	-72	-50	-44	-48	-67	-44	-21	-13	-14	-42
5D Mean	-306	-332	-178	-234	-312	-287	-281	-323	-446	-447	-478	-485	-363	-392	-462	-528	-466	-301	-355	-420	-386	-262	-334	-220	-358

AL Index ( Hourly mean values, unit nT ) November 1983

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	-12	-56	-375	-390	-92	-65	-101	-64	-91	-273	-391	-438	-514	-138	-41	-28	-46	-113	-221	-130	-313	-421	-265	-107	-195
D 2	-141	-182	-317	-715	-222	-26	-112	-139	-375	-335	-101	-470	-360	-201	-140	-76	-47	-274	-143	-47	-120	-159	-91	-123	-205
3	-265	-206	-58	-28	-9	-12	-20	-3	-11	-35	-34	-128	-229	-135	-71	-109	-646	-813	-316	-461	-308	-234	-72	-31	-176
Q 4	-45	-135	-42	-29	-27	-15	-4	-18	-22	-13	-49	-141	-85	-120	-203	-190	-71	-33	-52	-20	-27	-51	-30	-36	-61
Q 5	-14	-8	-11	-5	-33	-8	-4	-6	-26	-55	-30	-20	-23	-31	-71	-33	-30	-27	-22	-27	-59	-42	-8	-6	-25
Q 6	-7	-7	-12	-12	-17	-28	-13	-2	-4	-9	-15	-20	-40	-22	-29	-29	-24	-21	-25	-18	-10	-11	-6	-7	-16
7	-2	-2	-6	-11	-5	-26	-21	-25	-8	-6	-4	-13	-52	-138	-344	-249	-287	-220	-216	-414	-408	-318	-374	-203	-140
8	-317	-366	-103	-244	-299	-137	-117	-110	-273	-252	-680	-637	-517	-374	-394	-209	-147	-409	-303	-164	-201	-447	-326	-237	-303
D 9	-212	-343	-638	-397	-414	-332	-314	-262	-283	-542	-403	-107	-657	-747	-569	-585	-420	-181	-206	-1053	-452	-198	-299	-499	-421
10	-498	-345	-218	-239	-266	-303	-375	-272	-276	-151	-577	-397	-439	-344	-701	-414	-379	-720	-671	-658	-468	-103	-96	-153	-378
D 11	-274	-432	-51	-25	-29	-30	-26	-29	-35	-31	-72	-799	-324	-97	-69	-57	-57	-36	-63	-343	-1065	-439	-158	-390	-205
D 12	-429	-356	-343	-303	-429	-426	-482	-771	-820	-364	-223	-472	-765	-492	-649	-638	-384	-304	-360	-364	-613	-330	-201	-139	-444
13	-114	-139	-111	-264	-294	-174	-285	-354	-220	-366	-457	-647	-382	-501	-637	-339	-168	-155	-214	-269	-649	-501	-271	-87	-316
14	-39	-19	-17	-68	-152	-264	-208	-157	-392	-201	-27	-200	-643	-936	-860	-699	-386	-712	-499	-51	-41	-89	-51	-96	-284
15	-95	-50	-59	-20	-11	-17	-41	-75	-5	-21	-63	-238	-415	-401	-494	-191	-69	-148	-228	-376	-427	-201	-350	-557	-190
16	-353	-353	-301	-152	-8	-59	-163	-323	-211	-63	-42	-57	-40	-105	-388	-356	-444	-354	-350	-129	-62	-293	-653	-384	-235
D 17	-270	-331	-265	-218	-197	-27	-99	-110	-158	-578	-686	-337	-174	-121	-252	-668	-610	-463	-240	-161	-442	-490	-274	-380	-315
18	-279	-133	-204	-94	-352	-320	-32	-17	-22	-111	-347	-305	-193	-71	-376	-372	-395	-555	-577	-96	-101	-158	-124	-146	-224
19	-269	-299	-150	-73	-129	-288	-217	-58	-35	-25	-67	-136	-132	-86	-351	-121	-58	-247	-340	-148	-237	-344	-246	-115	-174
20	-90	-161	-158	-226	-84	-54	-140	-53	-294	-330	-344	-331	-619	-264	-338	-507	-354	-146	-445	-469	-310	-87	-309	-163	-261
21	-107	-123	-72	-36	-10	-14	-7	-11	-8	-22	-49	-67	-64	-107	-71	-84	-101	-261	-327	-112	-50	-38	-33	-104	-78
Q 22	-144	-33	-19	-34	3	-32	-83	-31	-33	-57	-26	-11	-16	-36	-35	-26	-24	-27	-24	-55	-66	-30	-37	-23	-37
Q 23	-7	-6	-9	-4	-3	-7	-24	-55	-13	-3	-5	-8	-10	-8	-13	-16	-14	-12	-15	-13	-10	-8	-6	-4	-11
24	-9	-9	-23	-153	-81	-33	-32	-87	-433	-136	-8	-4	-42	-147	-234	-272	-110	-74	-370	-361	-67	-40	-25	-46	-117
25	-95	-285	-101	-89	-172	-268	-133	-157	-136	-123	-208	-165	-323	-310	-155	-117	-153	-216	-189	-175	-270	-346	-306	-568	-211
26	-356	-270	-449	-373	-245	-222	-471	-515	-88	-41	-70	-110	-239	-347	-191	-176	-241	-334	-370	-131	-222	-106	-29	-26	-234
27	-8	-10	-14	-10	-6	-48	-116	-134	-154	-233	-293	-175	-183	-360	-189	-244	-118	-36	-26	-30	-55	-32	-13	-11	-104
28	-25	-23	-25	-27	-27	-19	-16	-42	-34	-40	-5	0	-2	-61	-344	-263	-185	-265	-486	-559	-301	-146	-74	-126	-129
29	-119	-156	-72	-71	-65	-48	1	-7	-25	-118	-561	-487	-354	-98	-113	-135	-189	-93	-150	-191	-144	-277	-356	-114	-164
30	-264	-255	-79	-60	-41	-9	-30	-146	-270	-99	-42	-149	-296	-499	-201	-57	-259	-426	-754	-490	-177	-150	-104	-61	-205
Mean	-161	-169	-143	-145	-123	-110	-122	-134	-158	-154	-195	-235	-271	-243	-284	-242	-213	-255	-273	-250	-255	-202	-172	-164	-195
50 Mean	-43	-37	-18	-16	-15	-18	-25	-22	-19	-27	-25	-40	-34	-43	-70	-58	-32	-24	-27	-26	-34	-28	-17	-15	-30
50 Mean	-265	-328	-322	-331	-258	-168	-206	-262	-334	-370	-297	-437	-456	-331	-335	-404	-303	-251	-202	-393	-538	-323	-204	-306	-318

AL Index ( Hourly mean values, unit nr ) December 1983

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	-126	-178	-139	-82	-89	-44	-98	-71	-19	-61	-158	-179	-134	-24	-31	-42	-194	-87	-49	-59	-201	-325	-70	-55	-105
2	-38	-37	-59	-119	-168	-114	-15	-15	-26	-40	-21	-55	-119	-195	-300	-314	-170	-34	-45	-84	-55	-28	-19	-44	-88
Q 3	-79	-19	-12	-12	-10	-10	-6	-12	-20	-18	-20	-29	-54	-206	-174	-43	-26	-52	-77	-35	-20	-25	-32	-11	-42
Q 4	-12	-13	-15	-15	-23	-37	-39	-13	-16	-18	-17	-15	-17	-29	-81	-235	-402	-117	-5	-3	-6	-7	-6	-7	-48
5	-8	-28	-127	-260	-108	-149	-193	-252	-200	-195	-194	-305	-179	-199	-297	-383	-312	-255	-260	-165	-408	-286	-342	-101	-217
D 6	-99	-336	-358	-193	-301	-474	-286	-239	-293	-470	-855	-643	-328	-703	-693	-305	-122	-231	-520	-563	-441	-230	-142	-149	-374
D 7	-163	-177	-114	-316	-114	-6	-18	-86	-427	-642	-513	-370	-379	-383	-456	-639	-572	-551	-631	-179	-120	-284	-412	-163	-322
8	-169	-308	-86	-146	-207	-90	-45	-78	-246	-96	-99	-148	-339	-363	-176	-35	-43	-34	-41	-50	-364	-262	-110	-14	-148
Q 9	-23	-5	-5	-8	-1	-3	-2	-2	-5	-5	-4	-7	-9	-11	-12	-15	-16	-16	-15	-11	-8	-8	-7	-6	-9
10	-6	-6	-5	-6	-3	-18	-122	-169	-443	-347	-247	-293	-454	-536	-533	-581	-528	-319	-398	-179	-249	-110	-41	-36	-235
D 11	-81	-87	-216	-186	-96	-78	-80	-111	-284	-270	-149	-194	-183	-398	-1125	-416	-127	-147	-94	-162	-461	-568	-420	-137	-253
12	-154	-266	-149	-112	-198	-102	-11	8	-47	-132	-184	-361	-115	-219	-614	-428	-266	-155	-236	-221	-375	-331	-320	-162	-215
13	-99	-127	-136	-233	-188	-65	-57	-40	-43	-194	-312	-154	-244	-365	-206	-267	-170	-157	-427	-803	-426	-105	-360	-456	-235
14	-107	-74	-127	-57	-120	-104	-352	-135	-144	-73	-90	-390	-205	-123	-413	-462	-287	-325	-353	-482	-561	-399	-411	-257	-252
15	-352	-279	-177	-60	-33	-105	-63	-215	-332	-275	-265	-134	-80	-263	-131	-134	-298	-185	-88	-16	-27	-113	-451	-340	-184
16	-169	-214	-90	-22	-8	-38	-28	-37	-15	-31	-76	-106	-73	-14	-14	-35	-28	-72	-85	-65	-78	-20	-32	-72	-59
17	-205	-60	-72	-83	-14	-15	-19	-15	-8	-9	-35	-42	-72	-143	-262	-37	-21	-146	-142	-37	-35	-45	-43	-23	-66
18	-60	-39	-23	-14	-3	-3	-2	-1	-2	-3	-6	-7	-12	-9	-23	-212	-391	-424	-307	-252	-108	-46	-15	-59	-84
19	-159	5	-28	-44	-51	-108	-16	-63	3	-15	-52	-29	-17	-65	-44	-87	-73	-53	-189	-55	-25	-31	-129	-106	-60
Q 20	-72	-54	-100	-28	-3	-2	-3	-6	-7	-12	-8	-8	-10	-8	-10	-14	-18	-21	-18	-21	-46	-113	-32	-10	-26
Q 21	-5	-6	-45	-48	-15	-5	-2	-5	-4	-5	-10	-31	-34	-30	-20	-34	-69	-147	-75	-31	-31	-55	-63	-31	-33
22	-12	-9	-13	-9	-9	-13	-63	-230	-185	-362	-478	-193	-158	-215	-240	-415	-282	-362	-258	-68	-39	-122	-92	-37	-161
23	-102	-110	-184	-150	-108	-221	-256	-117	-163	-155	-30	-49	-151	-231	-387	-309	-143	-101	-52	-165	-308	-162	-81	-56	-158
24	-42	-28	-3	-4	-2	-2	-4	-4	-17	-7	-5	-19	-113	-654	-715	-341	-156	-500	-410	-198	-253	-421	-346	-141	-183
25	-176	-437	-132	-91	-105	-76	-103	-141	-147	-124	-93	-400	-216	-336	-473	-180	-100	-93	-184	-264	-87	-72	-118	-105	-177
26	-72	-42	-75	-307	-195	3	-23	-63	-106	-82	-29	-66	-45	-43	-97	-130	-125	-256	-556	-492	-469	-578	-282	-238	-182
27	-291	-43	-49	-133	-63	-26	-24	-40	-27	-35	-48	-40	-33	-130	-99	-102	-123	-308	-325	-317	-440	-291	-107	-79	-132
28	-99	-88	-49	-48	-17	0	-30	-63	-143	-194	-150	-105	-191	-340	-245	-57	-15	-38	-45	-181	-101	-89	-126	-44	-102
29	-59	-269	-69	-3	-40	-49	-296	-264	-195	-122	-120	-140	-139	-324	-262	-171	-67	-38	-78	-112	-76	-42	-40	-36	-126
D 30	-44	-76	-20	-21	-142	-35	-72	-432	-181	-322	-592	-677	-813	-670	-275	-269	-714	-782	-871	-627	-343	-31	-59	-282	-348
D 31	-199	-89	-70	-179	-284	-166	-215	-181	-220	-179	-228	-462	-369	-227	-153	-286	-813	-453	-327	-426	-560	-299	-165	-348	-287
Mean	-105	-112	-88	-96	-87	-69	-82	-99	-127	-144	-164	-182	-170	-240	-276	-225	-215	-208	-231	-203	-216	-177	-157	-116	-158
5Q Mean	-38	-19	-35	-22	-10	-11	-10	-7	-10	-11	-11	-18	-24	-56	-59	-68	-106	-71	-38	-20	-22	-41	-28	-13	-31
5D Mean	-117	-153	-155	-179	-187	-151	-134	-209	-281	-376	-467	-469	-414	-476	-540	-383	-469	-432	-488	-391	-395	-282	-239	-215	-316

AE Index ( Hourly mean values, unit nT )

July 1983

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	240	408	318	327	285	214	209	145	117	126	217	185	103	102	88	106	92	83	160	124	124	146	143	251	180
	132	58	108	129	112	101	134	211	84	98	102	198	440	258	147	167	222	263	99	164	164	322	267	243	176
	278	185	213	139	68	51	62	142	262	455	320	178	105	60	72	98	127	166	140	214	228	169	202	202	172
	86	85	102	102	281	208	144	104	117	114	121	64	87	58	115	250	294	274	299	360	378	230	176	102	173
Q	155	228	122	100	77	66	64	76	168	452	262	199	86	62	73	103	112	211	150	111	88	86	69	76	133
	100	129	205	297	196	281	179	116	129	163	460	494	690	318	213	282	470	450	266	298	309	351	344	183	288
	90	99	103	310	235	96	53	70	170	539	626	378	458	391	377	404	437	359	204	161	246	497	512	221	293
	105	167	298	287	286	163	283	680	486	388	392	153	173	205	91	52	80	256	453	290	147	160	192	220	250
	309	128	303	691	412	109	104	125	211	239	581	143	130	119	126	95	223	316	191	166	254	458	471	258	257
Q	217	234	248	267	176	97	138	294	381	171	58	49	61	54	59	121	90	148	62	91	158	122	73	82	141
	102	95	71	56	48	62	66	78	103	119	245	329	301	159	86	85	140	163	100	125	103	86	68	64	119
	70	77	78	67	62	64	62	78	71	84	102	255	760	573	439	408	172	234	663	926	629	634	483	251	302
	203	362	533	392	501	668	527	372	332	540	422	681	580	142	181	141	153	195	108	97	98	154	225	171	324
	117	175	244	268	203	252	245	316	117	136	293	348	352	347	329	171	121	171	107	148	296	170	78	103	213
Q	152	192	152	191	211	194	263	246	114	108	142	146	140	100	105	93	170	302	244	237	269	161	193	315	185
	384	401	366	398	390	451	231	74	97	192	206	159	376	304	159	127	150	230	355	490	579	533	567	498	321
D	435	646	589	628	513	499	248	319	495	705	570	492	490	249	317	421	561	721	283	169	394	668	273	227	455
D	178	166	621	589	469	589	546	334	109	259	406	369	363	179	197	390	351	136	224	269	182	420	423	247	334
	254	379	366	228	185	341	234	197	283	309	117	194	342	245	186	306	347	528	445	391	365	367	200	124	289
	123	300	355	221	112	319	271	411	443	194	77	48	51	60	64	65	160	132	117	159	145	136	187	249	183
	204	155	156	246	548	449	393	244	190	273	212	198	78	76	163	327	354	390	355	269	300	236	133	129	253
	300	380	369	287	286	338	271	130	178	162	208	147	145	121	134	202	194	107	65	178	289	556	790	326	257
	138	97	84	91	78	103	148	282	421	758	511	171	139	126	188	346	504	636	879	894	905	765	713	820	408
D	923	728	773	728	626	704	569	375	466	627	256	197	837	840	200	427	618	428	454	498	368	220	237	660	532
D	601	516	363	446	391	403	217	147	326	327	174	223	211	196	333	281	164	144	230	174	251	313	217	209	286
	289	296	355	256	252	156	185	263	267	104	117	186	280	378	512	313	420	254	100	61	110	142	163	251	238
	91	141	137	138	126	98	154	307	280	302	599	243	181	83	65	99	115	259	255	255	121	104	232	417	200
	187	79	82	100	132	417	451	341	218	291	299	202	144	95	196	195	230	186	359	537	350	141	220	240	237
	163	213	346	815	523	274	243	380	480	357	485	566	480	291	131	104	179	326	409	281	145	230	159	205	324
	484	541	795	590	455	375	365	236	359	448	891	724	296	327	113	107	99	113	275	323	403	500	301	405	397
	379	221	209	155	238	317	185	110	138	197	113	140	306	295	211	192	108	78	133	87	158	148	118	76	180
Mean	241	254	292	307	273	272	233	232	245	297	309	259	296	219	182	208	240	264	264	275	276	297	271	252	261
5Q Mean	173	231	182	188	159	126	148	167	176	195	184	181	138	95	82	101	120	167	143	137	148	120	109	157	151
5D Mean	411	407	486	486	415	469	348	276	317	508	389	277	441	339	212	342	436	430	439	464	485	521	442	490	410

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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	63	64	107	216	201	170	237	238	186	133	124	113	144	259	170	101	143	159	103	115	167	142	272	332	165
	386	584	480	307	294	758	730	399	133	141	217	624	849	596	534	989	565	258	357	479	465	250	371	250	465
	489	296	131	79	241	80	93	67	84	87	77	155	280	306	299	339	326	259	602	471	208	166	490	371	250
	202	263	334	346	235	131	115	175	165	122	60	115	136	179	123	141	125	70	47	68	157	302	205	203	167
Q	108	77	60	42	51	44	49	43	70	59	56	42	44	50	44	33	32	33	40	46	49	48	40	46	50
	41	50	55	44	47	66	36	31	40	52	54	56	52	73	109	133	189	290	143	160	313	237	89	95	102
	67	78	134	110	62	68	73	74	86	80	69	81	135	107	168	97	117	102	238	331	374	767	645	685	198
D	870	1164	810	974	1282	506	336	574	504	717	683	270	90	84	81	91	91	72	65	51	52	62	181	251	411
	487	636	599	199	111	92	63	46	55	55	52	50	71	128	83	65	84	110	40	72	73	64	58	52	139
Q	49	58	54	170	385	386	283	137	85	135	154	258	163	163	140	130	109	76	57	53	43	51	49	77	136
	111	209	164	95	117	117	70	46	54	59	131	182	388	278	76	62	66	91	250	315	263	197	69	82	145
	257	191	249	377	650	533	469	570	682	571	560	715	599	433	587	774	766	692	579	506	362	375	356	528	516
	610	330	116	315	563	579	252	490	726	488	590	699	706	155	79	65	65	234	372	464	300	597	345	168	388
	189	464	236	81	95	270	202	159	149	109	63	80	97	223	224	133	206	318	309	270	322	235	92	100	193
	159	490	342	234	117	155	102	93	60	140	328	451	160	62	134	314	532	467	97	65	103	238	229	112	216
Q	109	169	108	34	37	39	53	63	62	54	66	84	97	154	246	321	390	274	420	261	225	221	318	339	173
	443	444	370	258	267	275	119	78	87	119	204	119	84	67	74	73	53	46	50	63	62	81	161	77	153
Q	62	59	56	68	41	37	39	43	66	90	77	67	85	91	71	43	45	48	45	42	55	59	53	55	58
	44	41	41	38	44	58	49	43	47	52	58	86	121	297	528	694	564	394	156	100	73	161	297	146	172
	60	71	110	410	444	229	166	157	143	95	196	267	490	251	237	190	211	422	387	480	472	434	456	479	286
	466	468	560	669	585	587	397	549	707	776	464	664	727	583	570	649	693	553	501	413	266	208	560	303	538
	186	159	87	67	89	156	271	295	143	153	301	243	340	206	146	115	282	448	448	660	729	153	117	141	247
D	157	298	347	680	966	790	291	463	632	485	536	503	443	377	249	195	385	646	594	587	412	247	193	269	448
	501	457	419	410	576	306	361	524	603	424	764	809	528	554	281	427	416	217	205	329	508	723	605	533	478
D	644	838	313	250	503	257	308	526	833	417	859	755	410	551	370	121	395	456	759	353	156	169	242	414	454
	318	521	435	269	378	639	305	164	329	704	796	699	400	332	327	727	477	98	106	356	309	119	125	128	377
Q	204	261	74	47	43	34	32	30	38	45	51	67	171	277	300	216	393	183	67	78	117	84	70	133	126
	260	196	160	198	212	120	243	382	416	385	231	203	86	55	114	103	64	97	132	236	248	67	71	72	181
	241	415	525	388	292	161	87	120	147	223	246	184	287	230	230	198	181	366	411	442	283	380	614	253	288
	350	442	204	290	298	465	412	358	279	277	115	254	152	103	249	340	292	202	192	94	300	361	502	327	286
D	393	379	691	500	316	347	531	246	287	314	200	186	215	264	259	222	883	533	370	216	670	463	275	476	385
Mean	275	330	273	268	308	257	219	242	263	243	267	279	268	249	231	239	283	266	268	280	265	247	262	249	264
5Q Mean	106	124	70	72	111	108	91	63	64	76	80	103	112	147	160	148	193	122	125	96	97	92	106	130	108
5D Mean	490	667	549	576	674	438	444	507	531	413	483	386	356	425	311	185	391	402	464	439	371	239	249	377	432



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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
1	565	533	596	734	537	252	84	55	54	252	129	120	97	109	293	355	225	106	115	130	244	353	175	110	259
2	84	80	186	200	95	33	25	35	65	70	78	102	92	58	68	93	227	258	338	141	97	233	216	90	124
3	52	97	153	115	148	345	215	124	57	56	49	49	59	75	73	62	188	179	167	112	44	33	30	41	105
Q	34	30	32	26	32	41	39	35	45	46	52	57	55	54	53	61	82	119	86	155	140	56	47	149	64
Q	241	66	30	43	29	27	25	31	36	47	49	44	46	51	54	49	54	100	78	61	147	151	68	41	65
Q	27	34	177	403	268	308	276	148	97	89	88	86	68	68	110	161	133	187	182	247	169	96	84	151	152
7	88	96	88	132	149	108	85	72	95	171	192	307	665	503	726	716	584	836	700	526	331	183	131	139	318
8	192	102	208	216	115	47	96	344	480	423	678	449	137	107	61	99	199	341	142	107	206	164	130	110	215
9	121	139	358	205	82	71	110	96	75	79	80	135	74	83	177	162	156	262	591	301	181	378	312	317	189
10	173	127	242	147	76	120	197	98	79	226	146	109	103	70	116	455	290	52	275	452	251	242	48	112	175
11	239	263	328	163	92	146	69	85	71	54	58	213	360	116	118	123	332	353	149	117	386	94	112	134	174
12	74	64	179	415	238	301	335	342	451	334	505	611	431	490	337	68	62	70	69	77	119	212	175	160	255
13	259	441	338	99	42	49	172	212	242	256	275	264	372	213	272	232	57	49	74	131	113	214	429	310	213
14	145	128	153	74	92	51	91	77	199	57	49	44	67	34	51	230	450	348	109	73	52	146	99	55	120
15	58	85	163	140	112	73	112	254	400	306	107	59	48	46	59	62	184	813	876	897	692	323	452	235	273
D	140	133	185	234	400	517	522	514	377	689	701	658	455	608	278	159	851	944	531	551	317	306	432	301	450
D	592	782	486	481	537	784	593	362	850	272	91	43	207	167	251	269	479	572	161	67	231	177	79	223	365
18	445	160	186	228	351	296	314	256	356	159	79	46	90	82	221	222	293	381	206	332	715	522	226	106	261
D	338	754	819	782	897	274	201	208	608	643	806	571	496	864	779	655	674	419	700	1000	1000	916	711	730	660
20	879	666	434	294	472	305	351	354	322	520	339	520	877	382	354	287	435	357	193	139	199	258	221	70	384
21	108	398	406	459	382	178	151	279	327	295	179	190	166	279	382	540	221	301	237	230	83	50	61	370	261
22	531	431	223	107	232	237	303	242	208	167	444	581	312	84	38	94	100	66	58	56	76	159	178	113	210
Q	42	38	57	103	81	47	37	50	73	56	144	198	76	74	223	296	277	262	196	116	45	43	51	53	110
24	93	163	233	125	66	61	26	33	52	43	56	92	491	550	449	636	452	168	91	114	155	143	129	81	188
D	185	294	574	308	177	70	174	320	191	232	219	151	145	190	412	745	591	694	334	429	248	186	479	806	340
D	610	445	497	351	482	520	703	596	393	836	477	313	270	309	122	42	111	235	372	233	141	265	314	144	366
27	372	600	242	80	85	186	232	132	180	58	162	373	485	407	207	112	174	208	75	157	97	320	327	251	230
28	385	791	572	203	120	40	30	64	66	48	35	49	96	324	385	451	394	113	51	65	203	206	83	215	208
29	325	365	294	265	77	118	79	73	50	58	246	50	38	33	30	22	30	38	79	100	33	90	68	63	109
Q	38	52	37	48	31	32	37	42	35	35	35	34	29	28	25	21	43	46	69	42	32	37	44	185	44
Mean	247	278	282	239	216	187	189	184	217	219	218	217	230	215	224	249	278	295	243	238	224	218	197	195	229
5Q	76	44	66	124	88	91	82	61	57	54	73	83	54	55	93	117	117	142	122	124	106	76	58	115	87
5D	373	481	512	431	498	433	438	400	483	534	458	347	314	427	368	374	541	572	419	456	387	370	403	440	436

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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
1	246	149	147	102	53	40	86	93	75	61	84	72	87	174	147	144	643	412	261	249	342	307	752	543	220
2	426	456	474	514	651	507	395	409	658	172	325	260	499	413	277	357	445	67	81	152	449	548	402	380	388
3	219	315	136	321	352	292	478	621	458	593	725	499	366	248	741	520	346	213	298	290	304	404	442	529	405
4	387	87	116	153	306	316	556	607	565	629	946	541	296	177	575	1216	848	267	253	290	461	290	206	113	425
5	70	57	45	34	43	47	47	74	142	230	213	82	54	68	34	34	37	39	37	37	57	62	65	165	74
6	311	108	114	99	74	111	217	462	369	413	433	153	149	88	96	462	742	651	514	254	83	85	295	216	271
7	126	91	117	414	287	230	86	104	170	108	110	142	73	68	82	159	249	152	155	85	48	105	137	215	146
8	269	212	185	93	115	122	154	100	130	131	83	76	143	138	142	396	770	398	530	465	175	185	212	168	225
9	147	191	160	87	39	62	83	143	41	46	50	58	88	106	155	68	75	39	56	84	48	76	47	41	83
10	29	24	28	26	25	32	96	112	55	81	70	108	186	65	52	46	109	270	268	362	402	129	52	33	111
11	56	57	135	120	98	140	418	371	294	99	88	116	84	99	145	161	54	29	31	66	38	27	26	28	116
12	19	19	34	67	43	32	38	37	53	50	142	79	96	68	84	105	110	183	243	247	285	149	77	89	98
13	315	608	438	510	680	636	307	381	492	761	517	502	340	552	571	965	618	507	348	381	531	546	286	186	499
14	250	295	305	185	135	172	428	407	384	455	508	541	500	710	550	543	489	750	600	489	291	284	563	853	445
15	546	277	204	170	350	492	267	285	284	519	582	480	503	746	409	442	284	83	181	672	503	270	302	409	386
16	198	172	172	230	261	485	222	90	43	51	81	230	274	432	454	606	313	233	89	103	297	251	133	151	232
17	242	137	172	365	344	282	251	463	1020	781	738	898	760	610	1001	655	946	654	640	906	723	394	890	628	604
18	736	889	303	383	646	710	608	526	693	528	584	596	966	862	824	787	794	656	674	723	630	237	298	313	624
19	392	298	211	230	281	233	196	149	206	236	144	154	105	56	80	95	237	144	69	60	32	27	35	24	154
20	20	20	30	111	306	202	141	80	60	59	259	203	83	39	36	42	35	38	43	170	264	255	142	113	115
21	49	31	37	33	37	33	51	56	53	121	207	275	86	58	89	228	371	316	253	327	252	326	155	402	160
22	697	486	349	178	180	488	172	62	171	527	460	434	564	398	151	120	144	194	227	171	60	67	202	222	280
23	149	214	208	107	116	142	259	188	144	163	467	583	760	273	630	403	303	572	247	299	897	884	373	339	363
24	503	474	100	63	96	246	166	104	68	159	257	486	677	201	164	351	285	207	752	519	169	192	182	293	280
25	239	121	58	77	59	50	46	41	36	22	48	73	46	50	113	181	78	29	43	34	65	51	98	117	74
26	44	36	69	57	59	63	60	45	47	48	122	64	48	44	53	118	97	40	18	19	21	24	23	22	52
27	25	28	38	49	54	57	86	95	73	56	34	42	30	28	26	62	50	46	35	118	92	34	34	49	52
28	72	204	169	65	27	24	21	27	29	26	26	27	25	22	21	37	70	92	86	90	76	107	385	600	97
29	513	535	457	418	364	426	534	563	746	939	847	669	336	691	552	123	258	457	615	495	253	413	553	349	504
30	380	381	369	391	425	271	232	458	426	547	637	704	622	698	630	604	643	827	792	447	271	86	79	154	461
31	208	199	249	124	53	27	90	349	340	322	470	275	247	453	260	140	130	170	76	49	88	209	404	123	211
Mean	254	231	181	186	211	224	219	242	268	288	330	303	293	278	294	328	341	281	274	279	264	226	253	253	263
5Q Mean	58	66	87	76	58	70	137	138	101	59	87	71	69	69	92	102	77	67	76	106	96	62	41	45	80
5D Mean	438	451	297	365	468	474	451	508	703	727	726	641	539	578	704	749	692	508	506	559	519	376	446	317	531

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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
1	33	128	438	453	147	104	177	126	174	411	553	531	644	260	109	49	63	153	331	240	418	624	493	273	289
D	335	296	391	871	354	118	246	276	528	497	209	588	507	270	222	164	85	374	204	102	219	235	154	176	309
Q	86	203	82	80	107	70	33	40	48	31	82	186	153	156	229	252	126	53	76	36	49	90	57	62	100
Q	31	19	40	58	80	46	42	26	60	96	65	44	52	57	99	43	37	32	29	35	68	52	17	14	48
Q	18	15	21	24	29	36	21	14	15	22	27	39	65	42	46	46	40	34	40	32	22	23	18	22	30
7	15	14	19	24	22	59	62	74	44	30	24	45	132	209	418	448	522	456	404	556	591	466	478	334	227
8	403	555	204	296	421	281	247	265	443	442	763	822	688	541	666	459	252	517	403	204	254	556	466	398	439
D	339	437	731	505	528	416	417	361	422	735	487	225	768	916	850	834	575	283	329	1240	682	360	434	572	560
10	589	501	307	324	358	404	495	355	343	247	658	485	537	437	837	504	497	860	816	828	672	219	145	210	485
D	437	544	111	64	60	60	59	50	73	63	136	892	386	173	142	105	77	54	109	430	1158	577	239	476	270
D	532	447	502	475	552	685	672	887	821	537	366	578	880	600	849	837	639	608	575	523	777	462	365	240	600
13	177	213	168	366	396	266	424	525	333	522	530	809	521	683	846	574	359	285	364	409	759	618	374	135	444
14	79	47	40	152	212	341	278	274	518	272	68	336	753	1150	1011	877	588	1029	709	109	71	150	99	146	388
15	163	118	111	70	63	67	128	170	91	74	133	357	469	542	702	480	211	269	386	455	650	342	502	613	299
16	533	502	419	236	122	162	291	490	356	160	98	121	135	178	464	476	642	515	543	240	180	422	811	463	356
17	395	584	398	313	406	146	265	243	281	705	833	495	287	177	316	807	752	598	379	273	577	623	363	464	445
D	430	259	399	235	544	482	129	59	73	202	445	410	354	204	487	470	551	753	734	212	206	258	199	219	346
19	361	385	224	177	214	366	297	135	107	60	127	202	204	126	427	226	142	337	417	203	359	510	356	197	257
20	158	286	324	362	191	152	233	163	432	538	484	465	807	398	403	602	517	220	594	566	404	180	420	244	381
21	190	197	163	109	74	51	43	34	24	37	74	100	91	149	122	110	156	316	376	142	75	61	84	169	123
Q	204	108	104	99	69	95	191	139	112	100	62	36	50	57	61	44	50	38	33	85	82	45	52	49	82
Q	29	19	18	13	14	18	39	76	37	24	30	29	28	19	19	23	23	23	27	25	21	19	18	21	26
24	24	28	44	171	122	95	90	137	523	232	53	48	74	205	278	346	155	114	475	536	129	75	49	75	170
25	134	352	143	146	244	379	206	315	237	285	356	302	432	408	223	166	190	271	240	299	364	431	434	777	306
26	562	430	557	459	299	317	596	707	177	100	118	149	312	431	272	221	290	493	520	214	334	186	74	46	328
27	22	18	28	31	25	87	165	175	218	301	380	219	255	458	280	344	187	67	57	48	69	43	28	27	147
28	39	34	34	37	38	33	31	64	52	57	24	19	30	107	383	336	364	512	744	664	418	285	172	212	195
29	249	264	185	227	216	159	82	63	75	236	687	608	447	176	180	178	242	134	213	291	262	392	500	211	262
30	426	439	259	167	143	65	100	246	405	212	128	241	389	576	278	103	324	516	848	620	360	279	276	166	315
Mean	244	257	220	221	204	186	204	217	235	243	269	319	360	332	378	342	315	362	381	342	354	296	260	236	282
5Q	73	72	53	54	59	53	65	59	54	54	53	66	69	66	90	81	55	36	41	42	48	45	32	33	56
5D	407	461	426	445	380	285	331	363	425	507	406	555	565	427	475	549	425	383	319	513	682	451	311	385	436

December 1983

AE Index ( 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
1	206	309	293	205	187	126	204	160	86	126	243	240	179	72	81	75	243	121	94	95	258	370	122	108	175
2	74	75	93	174	236	199	117	70	108	94	57	95	165	249	390	428	248	106	76	111	74	58	32	68	142
Q	3	113	54	46	59	69	34	36	41	45	40	70	88	287	302	111	49	81	106	54	38	40	45	30	80
Q	4	24	23	30	40	47	79	87	49	48	35	40	32	39	44	106	257	451	166	63	30	27	31	27	75
5	28	55	160	320	178	241	297	418	360	279	310	415	238	252	344	499	433	381	380	272	567	438	519	200	316
D	6	181	415	413	275	481	709	487	403	433	677	1002	786	487	880	969	460	205	288	627	585	306	197	256	508
D	7	268	268	179	464	225	54	66	214	536	748	642	474	539	509	574	769	746	712	819	331	253	372	471	436
8	246	415	164	218	304	170	93	125	303	154	161	186	416	432	277	87	70	45	54	64	411	331	156	53	206
Q	9	62	32	44	43	40	36	32	27	30	29	32	31	30	24	24	24	27	26	25	22	18	14	10	30
10	13	16	17	30	36	49	176	229	576	530	412	443	558	727	915	929	863	609	588	281	363	178	70	61	361
D	11	130	137	298	243	148	177	204	399	379	262	326	275	584	1241	639	239	222	139	204	521	674	567	298	352
12	258	392	315	234	324	223	131	71	158	251	316	414	214	308	821	653	430	384	328	309	478	435	425	292	340
13	247	230	289	367	288	203	169	129	130	295	440	307	356	468	299	412	259	252	523	903	575	204	489	585	351
14	239	183	223	167	258	278	620	296	246	136	169	557	297	219	615	626	406	449	539	623	730	610	543	360	391
15	466	430	331	210	132	202	200	323	489	399	354	180	139	332	206	174	345	220	130	70	47	145	524	419	269
16	278	338	307	119	58	78	70	67	41	58	128	168	110	50	28	51	42	84	89	75	88	31	43	90	104
17	234	93	106	113	32	30	35	29	21	26	64	71	96	189	323	77	45	175	179	52	61	71	64	47	93
18	82	58	40	32	20	21	20	22	24	25	33	34	43	45	56	260	510	580	488	377	281	169	100	143	144
19	292	98	90	109	113	218	129	177	111	98	132	73	43	113	87	144	126	98	268	89	60	91	232	199	133
Q	20	150	131	189	102	43	22	24	25	29	35	24	31	26	24	34	39	31	31	36	61	139	46	29	55
Q	21	21	23	73	73	37	22	20	26	31	41	66	78	67	48	57	82	170	102	54	59	96	167	141	66
22	120	89	119	64	74	50	105	289	227	492	665	336	241	262	287	524	361	531	441	135	84	167	125	77	244
23	172	168	244	199	175	295	363	223	225	200	73	100	188	273	436	355	175	135	78	227	409	306	165	93	220
24	67	53	28	27	26	25	29	34	47	32	38	48	146	717	954	612	257	658	548	326	356	557	424	212	259
25	265	503	209	193	184	130	151	205	233	195	142	477	266	360	522	224	137	133	248	328	120	111	156	130	234
26	99	67	117	354	256	38	93	132	184	139	82	124	108	122	148	163	153	325	611	545	617	759	428	377	252
27	505	191	151	223	137	90	131	97	92	98	96	78	74	195	183	167	207	405	521	478	581	415	291	212	234
28	208	271	179	191	117	86	95	140	226	311	225	191	275	456	349	131	74	68	72	212	140	129	173	89	184
29	112	339	132	68	90	372	382	337	205	177	201	180	300	344	223	114	74	105	142	108	76	85	102	185	185
D	30	113	149	77	117	270	148	200	612	415	503	872	815	990	600	379	930	955	1021	780	570	102	111	376	495
D	31	296	153	138	279	445	337	350	323	412	363	652	548	370	293	406	959	576	484	553	714	422	318	479	426
Mean	179	185	164	171	162	143	163	178	212	225	246	258	239	322	376	320	297	292	315	272	298	253	229	187	237
5Q Mean	74	52	76	63	47	44	39	31	35	34	36	44	53	90	100	96	129	95	65	39	41	64	59	46	60
5D Mean	197	224	221	275	313	279	256	351	439	534	627	610	567	660	699	530	615	550	618	508	528	375	332	329	443

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July

AO Index ( 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
Q 1	9	-31	-37	-15	-12	-12	23	21	20	35	20	-2	17	20	4	0	1	2	-20	7	2	12	12	0	3
2	6	11	5	9	-20	-1	33	-4	2	24	17	30	-46	-29	-2	-12	-37	-58	11	38	35	-25	-3	27	0
3	25	-5	0	2	-2	-8	5	30	-3	-4	-2	14	19	5	13	20	-19	-25	6	40	49	33	20	1	9
4	0	-14	-7	0	-21	0	11	15	20	1	1	-3	1	0	1	-56	-63	-49	-2	29	1	6	-16	3	-5
Q 5	10	-24	-4	-2	-12	-16	-13	12	29	8	-9	-18	-12	4	7	9	25	-24	3	30	18	11	10	0	1
6	8	19	7	-69	-38	-22	4	13	22	27	2	0	-76	-40	-24	-21	-87	-98	15	50	33	-16	-61	-15	-15
7	-9	-5	-6	-39	-60	-7	-12	9	42	15	-12	3	-59	-37	-49	-53	-15	-72	-18	24	18	-74	-30	10	-18
8	12	13	-41	-26	-65	11	-8	-148	-29	-10	0	8	16	-45	-2	-3	-4	-16	-75	-13	25	26	10	-5	-15
9	-36	2	22	-73	-53	0	19	-7	19	2	-155	-9	8	11	2	-13	-29	-60	-7	-1	15	-21	-41	-5	-17
Q 10	4	14	-5	-34	-10	20	14	-78	-69	-49	2	7	3	12	-4	-23	-18	-10	-7	-7	-20	-17	-6	-3	-12
11	0	-7	-6	-6	-9	5	-1	-16	0	17	3	-46	-24	5	14	13	-1	-30	-2	1	13	7	8	2	-2
12	2	-3	-5	-16	-16	-21	-5	0	-3	3	17	43	-75	-63	-43	-2	22	23	-62	-143	-12	8	62	60	-9
13	-9	-22	-106	9	-20	-99	-90	24	39	-47	-70	-140	-47	10	21	12	0	-14	-4	9	3	7	-24	-3	-23
14	1	-11	-36	-36	-20	19	-31	-34	5	34	36	25	-4	-67	-64	-18	-36	-43	-3	32	-8	-27	-12	-3	-12
Q 15	-8	-19	-7	-22	-23	-2	27	11	4	18	13	-15	-16	0	14	16	-3	-55	-20	25	53	33	9	20	2
16	42	40	-48	19	48	42	9	-2	16	6	7	18	-29	-12	0	9	-19	-10	-4	-23	-9	-5	-8	-2	3
D 17	-71	-93	-75	-52	-46	-77	-30	-11	16	-130	-67	-45	-91	-17	-67	-92	-44	-121	-15	19	25	-141	-17	18	-51
D 18	18	15	-135	-92	-26	-57	-79	-17	14	-4	-64	-65	-24	-9	-32	-24	-68	12	17	-11	-2	-47	-29	-15	-30
19	-30	-34	-38	2	6	-26	1	23	5	-9	1	4	-33	-33	-27	-57	-31	-38	-88	-40	-33	-12	6	-8	-20
20	-19	-21	-35	-10	-3	14	-16	-69	-70	-48	-13	-1	4	0	0	-6	-38	0	2	-13	-6	2	-14	-16	-15
21	-22	5	8	12	-63	-49	-13	12	4	-40	-22	-22	16	0	-17	-71	-65	-88	-41	12	10	49	4	-5	-16
22	-38	-42	-29	22	18	33	15	16	-11	-23	-32	-3	-2	-8	-10	-32	-45	-17	7	7	25	18	-168	-30	-13
D 23	8	0	4	10	-3	5	48	41	26	13	21	15	3	0	-2	-45	-66	-35	-114	24	-100	-34	-83	-87	-14
D 24	-90	-1	-36	-68	-57	-136	-23	-11	6	-67	11	30	-136	-41	30	65	-43	-13	-1	62	26	-11	10	-64	-23
25	-96	-47	-37	-47	-64	-75	5	15	16	-68	26	0	-32	-30	-39	-30	-27	-7	-13	22	-31	-28	3	-30	-25
26	-43	-5	-8	-22	-18	-23	-20	-27	-9	14	15	-18	5	-63	-114	-25	-91	-45	2	9	4	8	8	-21	-20
27	-1	11	0	1	-11	-10	-3	-62	-12	-22	-152	-53	5	16	8	-4	-1	-54	-1	26	25	10	22	-52	-13
28	-7	-4	-11	-7	12	-35	-45	-22	23	18	-6	4	-8	22	22	8	22	40	51	8	23	28	8	-22	5
29	-20	15	-13	-200	-129	-12	9	-54	-33	-14	19	-58	-46	-18	-7	21	9	16	-22	17	24	23	-16	-32	-21
30	-32	-39	-149	-111	-30	-17	-58	-34	-27	-37	-161	-29	27	-84	-13	-1	3	15	25	-2	-5	17	-14	-27	-33
31	-58	-39	2	0	-29	-79	-24	19	-28	-62	-4	6	-45	-46	-28	-3	5	0	2	0	-17	-20	-15	-4	-19
Mean	-14	-10	-26	-27	-25	-20	-8	-10	1	-12	-18	-10	-22	-17	-13	-13	-24	-28	-12	7	5	-5	-11	-9	-13
5Q Mean	3	-13	-11	-15	-13	-1	10	-10	-3	5	5	-14	-6	8	7	3	0	-23	-9	11	13	9	6	3	-1
5D Mean	-18	-7	-58	-36	-16	-44	-15	0	15	-36	-18	-9	-55	-15	-14	-17	-48	-33	-23	14	-12	-47	-25	-30	-23

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August

AO Index ( 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
D	17	18	27	8	20	6	6	-30	30	25	24	30	9	-35	-14	0	-31	-27	11	11	15	5	-2	28	6
	19	-143	-61	65	5	64	-105	-41	13	30	3	35	-94	-97	-87	-2	19	0	-63	-218	-131	1	-5	-16	-33
	-88	-29	25	21	29	20	16	13	12	9	15	-3	-21	-30	-47	33	-17	-9	-36	-34	26	45	-39	-2	-2
Q	2	-1	-28	-50	-13	14	22	19	-12	-15	8	5	8	-12	-7	-25	-32	-8	0	0	-5	-38	-10	-12	-8
	10	9	0	-5	-6	-5	-4	-4	-5	3	0	0	1	2	2	10	6	4	2	-3	-5	1	9	7	1
	9	4	0	0	10	4	1	2	0	1	2	5	10	9	17	6	-7	-46	-5	27	18	-15	11	19	3
	8	10	12	18	12	20	9	13	12	9	8	23	17	37	14	1	-12	18	35	49	5	-62	-175	-138	-2
D	21	-284	-290	-312	-420	-27	-136	-36	-5	4	-7	40	13	6	4	-8	10	5	4	2	2	-2	1	18	-58
	-83	-147	-82	-6	2	-14	-16	-17	-7	-4	-3	0	7	13	3	6	2	-12	1	-9	-14	-13	-6	-5	-17
Q	6	6	0	26	1	-19	45	26	24	30	33	-17	0	-1	-3	-9	-7	3	14	17	14	8	4	6	8
	13	-10	0	11	8	11	6	5	2	3	22	20	-16	-12	9	16	7	0	-27	-18	12	25	14	18	5
	-25	-6	-12	14	-51	41	68	-12	0	26	59	5	-86	7	47	-20	-17	39	65	-5	17	59	112	-112	9
	-137	5	26	57	13	15	47	12	-12	0	-25	-105	-88	34	16	6	7	-33	-44	-62	-4	-58	-40	7	-15
	8	-73	-36	6	17	9	-16	37	24	22	8	5	5	-32	4	13	-18	-24	-42	21	-21	-4	9	2	-2
	0	-68	-13	32	12	23	6	-9	5	31	-14	-53	-1	10	1	-62	-89	-47	16	14	7	-9	-16	7	-9
Q	1	-36	-14	1	-5	-12	-16	-13	-8	-7	-1	7	8	0	-33	-69	-99	-32	-69	-18	-5	8	-2	-5	-17
	32	4	37	33	50	48	34	18	10	1	6	5	2	-2	-6	0	-2	0	5	-4	-1	1	-6	3	11
Q	1	1	1	1	0	-2	-1	2	3	4	0	0	0	4	0	0	-3	-6	-4	-5	-9	-11	-2	3	-1
	4	0	0	0	0	0	3	3	4	2	0	9	18	12	-77	-41	20	36	31	25	27	26	-17	-2	3
	9	7	17	-32	-45	-22	17	13	26	21	44	54	-51	-47	-54	-19	16	-67	-26	18	17	1	10	26	-2
	-36	-67	-21	-105	24	70	37	-56	-75	-171	-86	-136	-97	-14	-2	36	11	20	32	23	30	0	-49	49	-24
	35	16	6	14	17	-6	4	-4	9	4	12	-31	-22	3	5	7	-23	-41	-15	-64	-121	21	16	-2	-6
D	-9	26	-14	-119	-296	-141	22	-36	-50	6	-18	-19	5	-19	-61	-25	37	-32	-66	-95	-82	3	-7	-17	-42
	-52	-62	-46	-39	-71	-21	3	-101	-108	-31	-113	-160	-26	-87	-11	-50	-50	-22	7	17	-77	-161	-92	-13	-57
D	-100	-222	32	20	-83	-66	-15	-80	-155	-52	-184	-120	-18	-52	-24	23	-20	0	-92	7	26	5	-21	-72	-52
	-54	-54	-47	8	5	-141	-1	-4	13	-137	-190	-129	-41	-39	-37	-143	-75	13	25	-19	-64	-4	13	15	-45
Q	-8	-38	-2	3	2	2	3	0	-1	-4	-4	0	11	-19	-50	-30	-73	-14	-2	1	-9	-4	4	14	-9
	-27	-5	-3	-17	-39	-9	-32	-49	-19	-21	-3	3	6	12	-3	-9	0	-13	-6	-4	-40	8	18	17	-9
	-31	-67	-78	-22	-6	35	24	30	16	-22	-29	13	-18	0	-35	0	34	63	83	-7	24	50	-49	50	2
	28	-37	-18	50	-10	0	-84	-8	0	26	-23	-20	-20	-6	-48	-82	-62	-17	11	25	-17	-63	-76	-14	-18
D	6	-23	-94	-59	-20	-14	-75	-15	-2	-63	-12	-9	-1	-10	-26	37	-133	-92	-31	14	-125	-81	-5	-41	-36
Mean	-13	-40	-21	-12	-27	-3	-4	-10	-8	-9	-13	-17	-15	-11	-16	-12	-19	-11	-6	-9	-15	-8	-10	-6	-13
50 Mean	2	-11	-3	5	-1	-7	5	2	2	5	5	-2	4	-2	-16	-19	-35	-9	-11	-1	-2	0	2	5	-3
5D Mean	-12	-129	-85	-81	-162	-36	-61	-41	-39	-15	-43	-14	-19	-34	-38	5	-17	-23	-49	-58	-62	-14	-7	-25	-44

September 1983

AO Index ( 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	
1	-106	-107	-111	-164	-53	-19	27	16	12	-36	-10	5	6	3	-48	-78	-58	-2	9	0	-29	-76	3	18	-33	
2	17	21	18	-26	1	8	7	2	6	3	10	15	-2	1	1	0	-66	-65	-54	-12	12	-33	-28	4	-6	
3	16	15	-20	13	6	-54	-21	-10	13	7	6	3	1	-8	-4	-2	-44	-36	-20	-13	6	11	11	10	-4	
Q 4	6	5	2	6	6	8	6	4	3	0	-1	-3	-2	0	0	-1	-15	-27	-5	-21	-20	1	11	-12	-2	
Q 5	-42	0	12	5	1	3	6	8	5	4	2	1	2	1	0	3	0	-13	-7	5	0	-23	6	11	0	
Q 6	14	13	-30	-105	-41	10	21	16	15	19	16	15	8	3	-3	-16	-27	-27	-8	-6	18	14	3	-30	-4	
7	-10	0	3	20	21	9	37	26	23	43	8	-33	-79	-41	-39	-67	0	-56	-29	-17	-35	-27	-14	-23	-11	
8	-53	-8	-36	-55	0	12	23	-46	-86	2	-35	-42	11	0	-3	-27	-11	-56	-1	29	48	35	15	9	-11	
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11	-29	-53	-50	29	17	-18	16	10	9	5	4	-3	-61	-14	-12	-21	-89	-84	-12	14	-66	-5	-2	-13	-18	
12	0	6	0	-60	-43	-21	-72	-34	-72	-28	-104	-154	-79	-122	-83	6	1	-4	-2	-6	-1	-36	-22	0	-39	
13	-37	-89	-83	2	10	9	-15	-93	-60	-57	-26	-44	-82	-4	-93	-46	-1	-2	-5	-25	-1	-14	-98	-57	-36	
14	0	8	-3	26	15	14	11	5	-52	11	9	4	8	4	2	-44	-123	-103	-29	1	2	16	19	17	-7	
15	11	19	-8	11	10	16	19	10	-35	-28	15	1	3	5	12	13	22	-184	-306	-257	-125	-33	-49	-22	-36	
16	7	3	-4	16	-38	-93	-102	-23	-19	-18	-25	-171	-54	-147	-47	-1	-148	-197	-75	-116	-72	-60	-63	-40	-62	
17	-98	-165	-55	-90	-104	-142	-79	-17	-128	-6	17	5	-13	-29	-72	-62	-83	-151	-8	16	-30	-30	1	-11	-55	
18	-142	-24	-13	-42	-49	0	-47	-34	-46	33	8	4	3	0	-46	-61	-60	-83	-19	-19	-194	-95	10	1	-38	
19	-42	-283	-197	-121	-36	50	9	0	-148	-90	-93	-109	-93	-128	-81	-88	-40	25	-103	-280	-331	-234	-221	-221	-119	
20	-210	-174	-38	-3	-116	-71	-81	-51	-44	-138	-76	-116	-257	-79	-92	-73	-108	-101	-17	9	-16	-59	-16	-2	-80	
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22	-159	-97	-8	20	11	-56	-44	25	8	19	-61	-76	-19	0	1	-3	-31	0	0	7	0	-6	-25	-15	-21	
23	7	5	9	-8	7	10	7	1	3	0	-6	3	11	0	-23	-85	-72	-44	-17	-18	-4	-2	7	9	-8	
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25	11	-28	-166	-10	34	29	23	-24	36	26	42	33	17	4	-67	-107	-96	-128	-8	-53	-16	12	-74	-266	-32	
26	-162	-123	-73	-39	-150	-80	-148	-142	-58	-169	-52	-42	-36	-35	22	2	-17	-51	-78	-44	-1	-43	-70	2	-66	
27	-55	-125	-5	8	-6	-15	-37	-11	-13	5	-22	-104	-145	-114	-67	-28	-54	-52	-1	0	15	-56	-97	-30	-42	
28	-57	-216	-176	8	-6	10	7	13	2	-1	-2	1	-1	-89	-137	-158	-105	-20	2	13	-13	-31	9	-36	-41	
29	-66	-73	-15	11	31	10	9	10	8	10	-59	1	0	-2	-2	-3	-7	-3	-17	-30	-1	-9	-8	-3	-8	
Q 30	3	-5	-2	5	4	8	6	5	1	1	0	-4	-5	0	0	1	-11	-4	-12	-3	0	1	6	-32	-1	
Mean	-39	-53	-43	-23	-17	-12	-12	-9	-20	-14	-14	-26	-33	-31	-36	-42	-46	-52	-32	-31	-28	-27	-22	-22	-26	-29
5Q Mean	-2	3	-1	-19	-4	7	9	6	5	4	2	2	2	0	-5	-19	-25	-23	-9	-8	-1	-1	6	-10	-3	
5D Mean	-56	-119	-99	-48	-58	-47	-59	-41	-63	-51	-22	-56	-35	-67	-49	-51	-76	-100	-54	-95	-90	-71	-85	-107	-66	

1983

October

AO Index ( Hourly mean values, unit nr )

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	-57	-124	-108	-64	15	-12	-29	-54	-167	49	27	-24	-108	-44	-9	-49	-130	3	9	6	-88	-113	-20	-75	-48
3	-4	-67	-18	-55	-77	-61	-95	-130	-85	-56	-100	-43	-54	-61	-175	-77	-54	-34	-32	-16	5	-19	-11	-105	-59
4	-64	11	17	-13	-78	-51	-102	-115	50	-37	-81	-42	-3	-19	-52	-396	-138	15	-11	-30	-139	-76	-51	-12	-59
5	-3	0	2	-2	-3	4	2	-4	-1	-30	-24	-3	-1	-4	-11	-10	-8	-5	1	4	4	8	6	-7	-3
6	-71	-2	6	8	-1	15	-30	-130	-97	-54	22	61	31	13	6	-55	-132	-125	-102	-26	19	9	-53	-51	-30
7	-15	9	0	-77	-46	-35	19	18	4	10	5	7	-2	1	-8	-29	-78	-33	-31	-3	6	3	-14	-54	-14
8	-69	-33	7	32	-1	-2	-4	33	33	16	19	8	17	-14	-35	-32	-171	-78	-77	-82	-23	-18	-29	2	-21
9	18	19	30	28	14	6	12	-28	8	4	3	3	5	-6	-28	-7	-10	2	-9	-18	-9	-12	0	9	1
10	5	4	6	8	8	4	-23	-32	-7	0	3	-18	-62	-3	-6	-5	-20	-66	-78	-61	-85	-7	11	3	-17
11	3	0	-15	-34	-13	-6	-103	-97	-56	-1	9	-5	-4	-3	-34	-35	10	0	3	-19	0	0	2	3	-16
12	2	3	5	8	8	4	1	0	0	-1	-31	-3	-12	5	8	-4	-31	-48	-41	-2	56	61	30	21	1
13	-25	-178	-42	-121	-145	-60	-2	-17	-58	17	-12	-176	-81	-161	-8	-194	-17	-10	-31	-88	-137	-159	-21	-21	-73
14	-28	-54	-59	-25	-8	-7	-77	-68	-14	-70	-35	-73	-113	-102	-28	-28	-49	-144	-151	-44	8	-34	-136	-265	-67
15	-108	-4	9	2	-64	-151	-44	-18	-17	-114	-180	-64	-126	-190	-127	-78	-41	-17	-12	-159	-76	9	-51	-78	-71
16	-6	-3	4	-25	-47	-155	-5	-1	2	6	4	-49	-42	-125	-85	-36	-2	-36	-12	13	-78	-73	-21	-30	-33
17	-53	-11	-24	-94	-88	-33	-23	-57	-174	-84	-96	-308	-84	-26	-210	-87	-189	-67	-91	-287	-181	-17	-269	-109	-111
18	-220	-287	-43	3	-50	-64	-50	-79	-159	-125	-208	-162	-227	-159	-119	-86	-194	-141	-189	-252	-156	8	-44	-62	-128
19	-114	-88	-28	-27	-67	-42	-34	-23	-50	-83	-16	-31	-11	-3	6	-37	-83	-35	-9	-10	-3	-5	0	-2	-33
20	-2	0	1	-22	-91	-43	-6	9	-6	3	-57	-43	-3	-5	-3	-7	-2	-7	-2	-44	-62	-57	-2	1	-19
21	0	2	0	7	9	4	10	9	15	22	-15	-38	17	10	1	-10	-34	-22	-29	7	-9	-29	2	-102	-7
22	-250	-121	30	53	9	-113	-22	9	-12	-158	-172	-112	-189	-102	-3	-17	-38	-48	-52	-42	6	4	-34	-42	-59
23	-21	-25	7	30	21	5	-34	-22	0	-8	-153	-174	-248	-61	-149	-107	-46	-142	-63	-7	-247	-254	-39	-3	-72
24	-135	-93	33	18	-17	-8	-25	-1	6	-7	-32	-109	-185	15	-13	-95	-79	-45	-236	-176	-30	-33	-34	-64	-56
25	-61	-15	17	9	13	15	15	9	10	1	-5	-12	-6	-9	-12	-76	0	-1	-1	0	-10	0	0	-17	-5
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27	0	0	1	2	9	14	7	28	22	17	3	6	1	0	0	-21	-14	-8	-2	-27	-27	0	0	4	0
28	12	-10	32	19	2	2	2	2	0	1	2	1	0	0	1	10	10	2	10	25	28	19	-103	-199	-5
29	-75	-66	-57	-32	-28	-39	-100	-75	-134	-186	-177	-133	-72	-145	-162	-4	-59	-32	-187	-45	-17	-128	-169	-103	-93
30	-78	-129	-96	-74	-80	-43	-49	-113	-96	-173	-109	-76	-155	-187	-136	-142	-158	-231	-225	-114	-72	4	2	-33	-107
31	-72	-63	-82	-6	8	5	12	-99	-95	-65	-92	-55	-53	-181	-62	-34	-48	-57	-6	1	0	-52	-138	-30	-52
Mean	-49	-42	-11	-13	-24	-26	-23	-32	-33	-35	-48	-53	-57	-50	-46	-58	-64	-48	-55	-48	-43	-31	-45	-49	-41
5Q Mean	6	5	4	1	6	7	-13	-16	-2	5	-7	-1	-5	0	-10	-20	-12	-11	-9	-13	3	9	6	7	-2
5D Mean	-87	-106	-29	-51	-77	-49	-55	-68	-95	-83	-114	-164	-93	-102	-110	-153	-119	-47	-101	-140	-126	-74	-110	-61	-92



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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
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D 2	25	-34	-121	-279	-45	32	10	2	-111	-86	3	-176	-106	-66	-29	5	-4	-86	-41	3	-10	-41	-14	-35	-50
D 3	-86	-63	14	18	27	10	9	12	15	2	-24	-47	0	0	-34	-235	-327	-86	-138	-109	-74	-3	15	-45	
Q 4	-1	-32	-1	10	25	18	12	1	1	2	-8	-47	-8	-42	-88	-64	-8	-6	-15	-2	-2	-6	-1	-5	-11
Q 5	0	1	8	23	5	13	16	6	3	-6	2	1	2	-3	-21	-11	-11	-10	-6	-10	-24	-16	0	0	-1
Q 6	1	0	-2	-1	-2	-9	-2	3	3	0	-1	-1	-8	0	-5	-5	-3	-3	-5	-2	0	0	2	2	-1
Q 7	4	3	2	0	5	2	9	10	12	7	7	8	12	-34	-135	-25	-26	7	-14	-136	-112	-84	-134	-36	-26
Q 8	-115	-88	-1	-95	-87	2	5	21	-51	-31	-298	-226	-173	-103	-61	18	-21	-150	-101	-61	-74	-169	-93	-38	-83
D 9	-42	-124	-271	-144	-149	-123	-105	-81	-71	-174	-159	5	-273	-289	-144	-168	-131	-39	-41	-433	-110	-18	-82	-212	-141
D 10	-203	-94	-64	-76	-87	-100	-127	-94	-104	-27	-247	-155	-170	-125	-282	-162	-130	-290	-263	-243	-131	5	-23	-47	-135
D 11	-55	-159	4	6	0	0	3	-3	1	0	-4	-353	-131	-10	1	-4	-18	-9	-9	-127	-486	-150	-38	-152	-70
D 12	-162	-131	-92	-64	-152	-82	-145	-327	-408	-95	-40	-183	-325	-192	-224	-219	-64	0	-72	-102	-224	-98	-18	-19	-143
D 13	-25	-32	-26	-81	-96	-40	-72	-91	-53	-104	-192	-242	-120	-159	-214	-52	10	-12	-31	-64	-269	-191	-84	-19	-94
D 14	0	4	2	7	-46	-93	-68	-20	-133	-65	6	-32	-267	-361	-353	-260	-91	-197	-144	2	-5	-14	-2	-22	-89
D 15	-13	7	-4	13	19	14	22	9	40	15	2	-59	-180	-131	-144	47	35	-14	-34	-147	-102	-29	-99	-250	-40
D 16	-86	-101	-91	-34	52	20	-17	-78	-33	16	6	2	26	-16	-156	-118	-123	-96	-78	-8	26	-82	-247	-152	-57
D 17	-72	-38	-66	-61	4	45	32	10	-17	-225	-269	-90	-30	-33	-93	-264	-234	-164	-50	-24	-153	-178	-92	-148	-92
D 18	-64	-3	-5	22	-79	-79	31	10	13	-10	-124	-99	-16	29	-133	-136	-118	-178	-210	8	1	-28	-24	-36	-51
D 19	-88	-106	-38	14	-21	-104	-68	9	17	3	-3	-35	-30	-23	-138	-8	11	-79	-132	-46	-57	-89	-68	-16	-45
D 20	-11	-18	2	-45	10	21	-24	27	-77	-61	-101	-98	-216	-65	-136	-205	-95	-35	-147	-185	-108	2	-98	-41	-71
Q 21	-12	-24	9	17	25	11	13	5	3	-3	-12	-17	-18	-32	-11	-29	-23	-103	-139	-41	-12	-6	8	-19	-17
Q 22	-42	19	33	14	38	13	10	36	22	-7	3	6	7	-7	-4	-4	0	-7	-7	-13	-24	-7	-11	0	2
Q 23	6	2	0	1	3	1	-4	-17	4	8	8	5	3	0	-2	-4	-2	0	-1	-1	0	0	1	5	0
Q 24	1	3	-1	-68	-20	13	12	-18	-171	-20	17	19	-6	-44	-94	-99	-32	-16	-132	-93	-2	-2	0	-8	-31
Q 25	-27	-108	-28	-16	-49	-79	-29	0	-16	18	-30	-15	-107	-106	-43	-33	-58	-87	-69	-25	-87	-130	-89	-178	-58
Q 26	-74	-55	-170	-142	-95	-63	-172	-161	0	8	-11	-36	-82	-132	-55	-65	-95	-87	-110	-23	-54	-13	7	-2	-70
Q 27	2	0	0	3	5	-3	-33	-46	-45	-81	-102	-65	-55	-130	-48	-72	-24	-3	1	-6	-20	-9	0	2	-30
Q 28	-5	-5	-8	-8	-7	-2	0	-9	-7	-11	5	8	12	-7	-152	-95	-3	-9	-114	-226	-92	-3	10	-20	-31
Q 29	4	-24	20	42	41	30	43	23	12	0	-217	-183	-130	-10	-23	-46	-67	-26	-43	-45	-13	-81	-105	-8	-33
Q 30	-51	-35	49	22	29	22	18	-23	-67	6	21	-28	-101	-211	-62	-5	-97	-168	-330	-179	2	-10	32	21	-47
Mean	-39	-40	-33	-35	-22	-17	-21	-26	-40	-32	-61	-76	-90	-77	-94	-70	-55	-74	-82	-79	-78	-54	-42	-46	-53
5D Mean	-7	-2	7	9	13	7	6	5	6	0	0	-7	0	-10	-24	-17	-4	-5	-6	-5	-10	-5	-1	0	-2
5D Mean	-61	-97	-109	-108	-68	-25	-41	-80	-121	-116	-93	-159	-173	-118	-97	-130	-90	-59	-42	-136	-196	-97	-48	-113	-99

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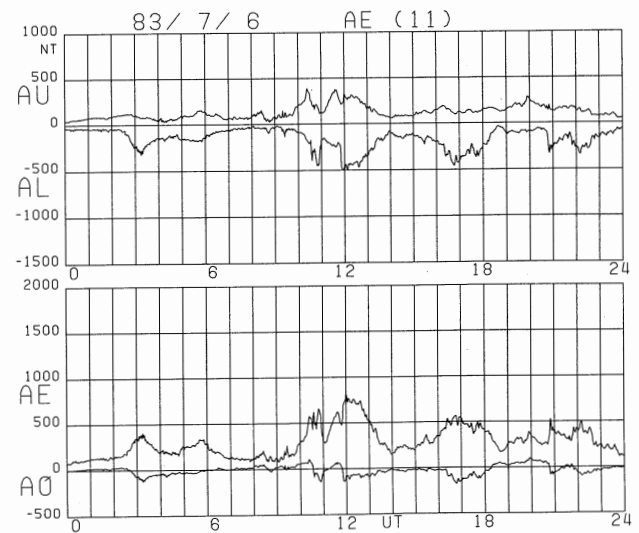
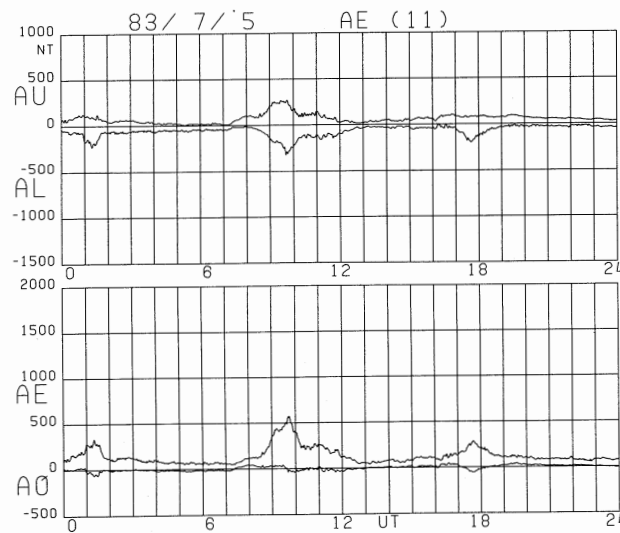
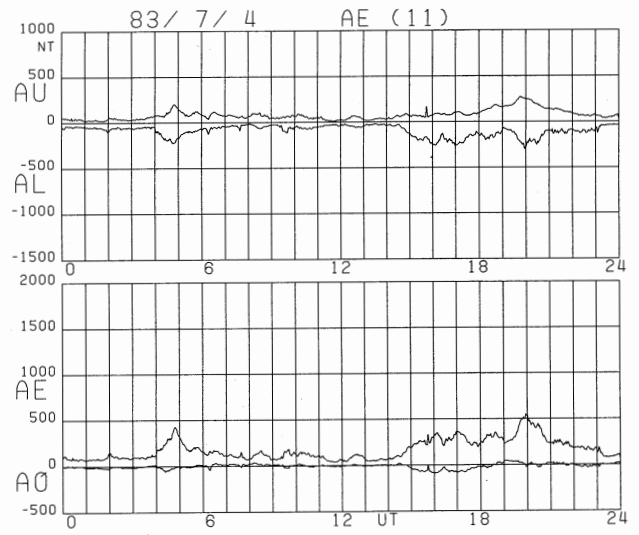
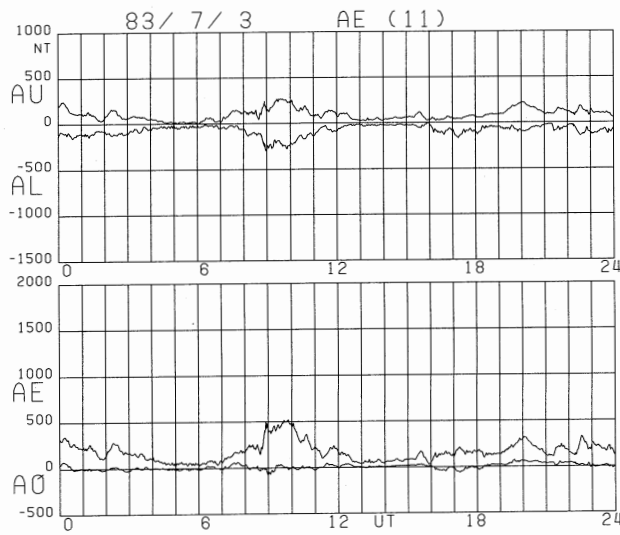
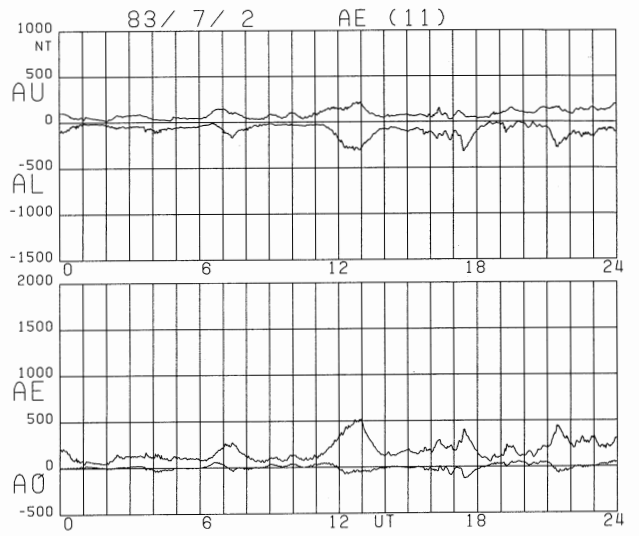
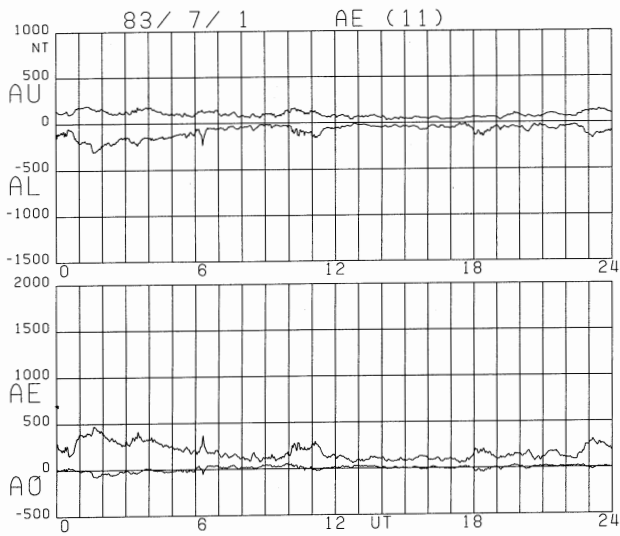
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2	0	0	-12	-31	-49	-14	42	18	26	5	6	-7	-35	-70	-104	-99	-46	18	-7	-28	-17	0	-3	-10	-17
Q 3	-22	6	9	16	23	21	10	4	1	1	1	5	-10	-62	-24	11	-2	11	-24	-1	-4	-9	2	-2	-2
Q 4	0	0	-1	0	4	0	2	4	10	7	0	1	1	-6	-28	-107	-177	-34	25	11	6	7	6	4	-10
5	4	-1	-46	-100	-19	-28	-44	-43	-20	-55	-39	-97	-59	-72	-124	-133	-96	-64	-70	-29	-124	-66	-81	-1	-59
D 6	-8	-128	-151	-55	-60	-119	-42	-36	-77	-132	-354	-249	-84	-263	-208	-75	-20	-87	-206	-227	-148	-77	-43	-21	-120
D 7	-29	-42	-24	-83	-2	19	14	19	-158	-288	-191	-132	-109	-128	-168	-254	-199	-195	-221	-14	5	-98	-176	-44	-103
8	-46	-100	-4	-36	-55	-6	0	15	-94	-18	-18	-54	-131	-147	-38	8	-8	-11	-14	-18	-157	-96	-32	11	-45
Q 9	7	10	16	12	18	14	13	10	9	8	10	7	4	1	0	-2	-4	-4	-4	1	2	0	0	0	5
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D 11	-16	-19	-66	-64	-21	-4	7	-8	-84	-79	-18	-31	-45	-105	-504	-96	-7	-36	-25	-59	-200	-231	-136	11	-76
12	-25	-69	7	3	-35	9	54	44	31	-6	-25	-153	-8	-64	-203	-101	-51	35	-72	-66	-135	-113	-106	-16	-44
13	23	-12	7	-49	-44	36	27	23	20	-46	-91	0	-66	-131	-56	-60	-41	-31	-165	-350	-139	-3	-116	-163	-59
14	11	17	-15	26	8	34	-41	12	-21	-5	-6	-111	-56	-13	-105	-149	-83	-100	-83	-170	-196	-93	-139	-77	-56
15	-119	-64	-11	44	32	-4	36	-53	-87	-75	-87	-44	-10	-97	-28	-47	-125	-74	-23	17	-3	-40	-188	-130	-49
16	-30	-44	63	36	20	0	6	-4	4	-2	-12	-21	-17	9	0	-9	-6	-29	-40	-26	-34	4	-10	-27	-7
17	-87	-13	-18	-26	1	0	-1	0	1	3	-3	-5	-24	-48	-101	0	0	-58	-52	-10	-3	-9	-11	0	-19
18	-18	-10	-3	1	5	6	7	8	9	9	9	8	7	12	4	-82	-136	-134	-64	-63	30	38	34	12	-12
19	-13	54	16	9	5	0	47	24	59	33	12	6	3	-9	-1	-16	-11	-4	-55	-10	4	13	-12	-6	6
Q 20	2	10	-5	21	17	8	8	5	6	4	4	3	4	3	0	1	0	-5	-2	-2	-14	-42	-8	3	1
Q 21	4	4	-8	-11	3	5	7	4	8	9	10	1	4	2	3	-6	-28	-61	-23	-4	-1	-6	19	39	0
22	46	34	46	22	27	11	-11	-85	-71	-116	-145	-24	-37	-84	-96	-153	-101	-96	-38	0	2	-39	-28	1	-39
23	-15	-25	-61	-50	-20	-73	-74	-5	-50	-54	6	0	-56	-94	-169	-132	-55	-33	-13	-52	-103	-8	1	-8	-48
24	-9	-2	9	8	10	10	9	12	6	8	12	3	-40	-295	-238	-34	-27	-171	-136	-36	-75	-142	-133	-34	-53
25	-43	-185	-28	4	-13	-11	-27	-38	-30	-26	-21	-161	-82	-155	-211	-68	-31	-26	-59	-100	-26	-16	-40	-40	-60
26	-22	-8	-16	-130	-66	22	22	2	-13	-12	11	-3	8	17	-23	-48	-48	-94	-249	-219	-160	-199	-68	-50	-56
27	-38	51	26	-22	4	18	40	8	18	13	0	0	3	-33	-7	-19	-19	-105	-64	-77	-149	-83	38	27	-15
28	4	47	40	46	41	42	16	5	-29	-38	-37	-9	-53	-111	-70	7	21	-3	-9	-73	-31	-24	-39	0	-10
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D 30	12	-1	17	35	-7	38	26	-125	25	-71	-156	-269	-317	-190	-66	-79	-248	-304	-361	-237	-58	19	-3	-93	-100
D 31	-51	-13	-2	-39	-61	1	-40	-19	-15	2	-49	-135	-95	-42	-6	-83	-333	-165	-85	-149	-202	-88	-6	-108	-74
Mean	-16	-20	-6	-11	-7	1	0	-11	-21	-32	-41	-52	-50	-79	-88	-64	-66	-62	-73	-67	-67	-50	-42	-22	-39
5Q Mean	-1	5	2	8	12	10	8	6	6	4	5	3	0	-12	-9	-20	-42	-23	-5	0	-1	-9	1	9	-1
5D Mean	-18	-40	-45	-41	-30	-13	-7	-33	-61	-109	-153	-163	-130	-145	-190	-117	-161	-157	-179	-137	-120	-95	-72	-51	-94

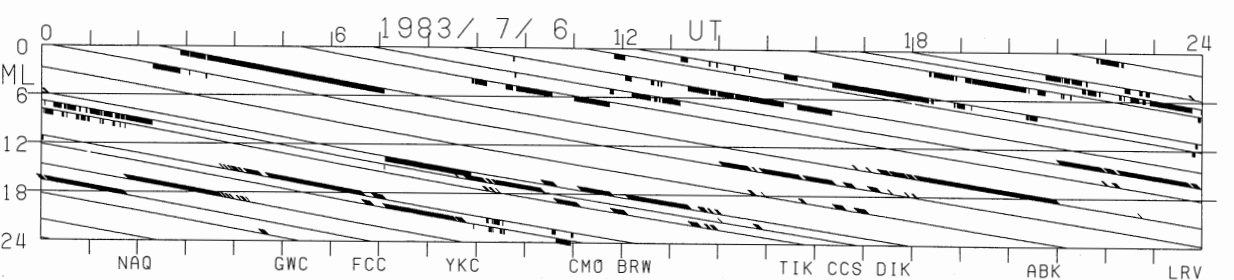
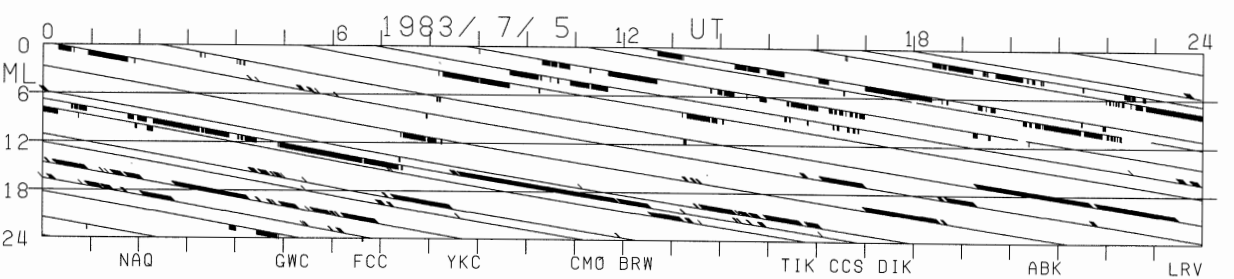
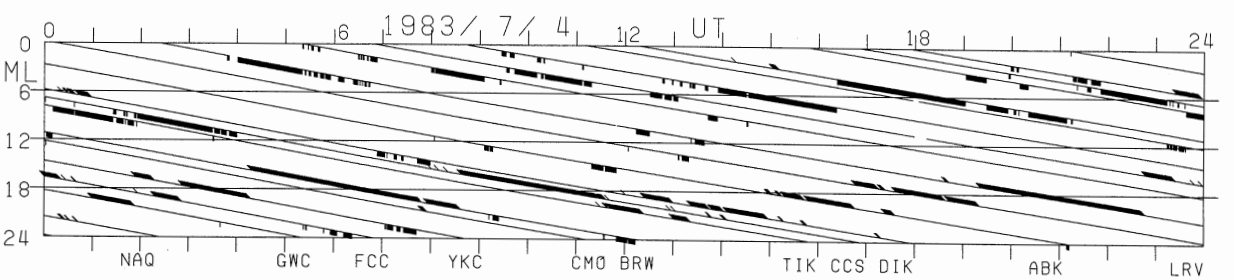
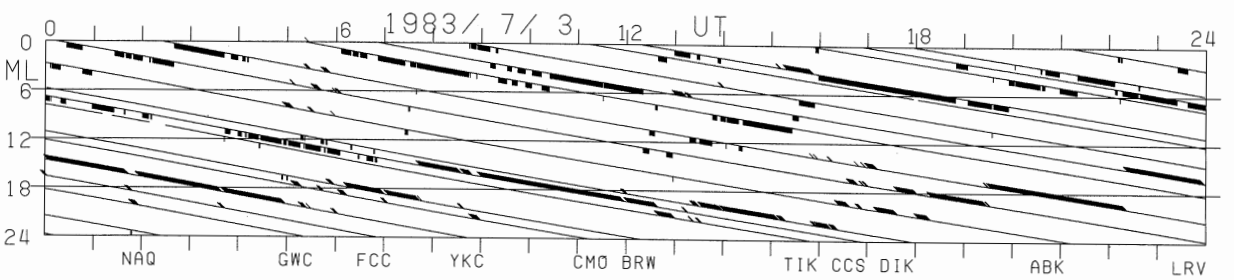
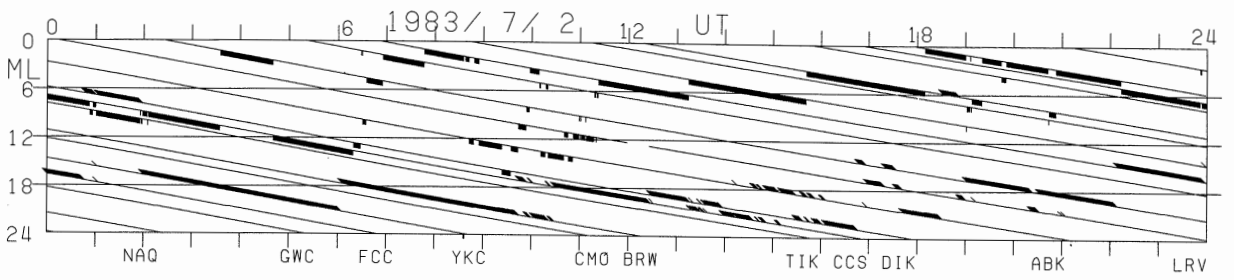
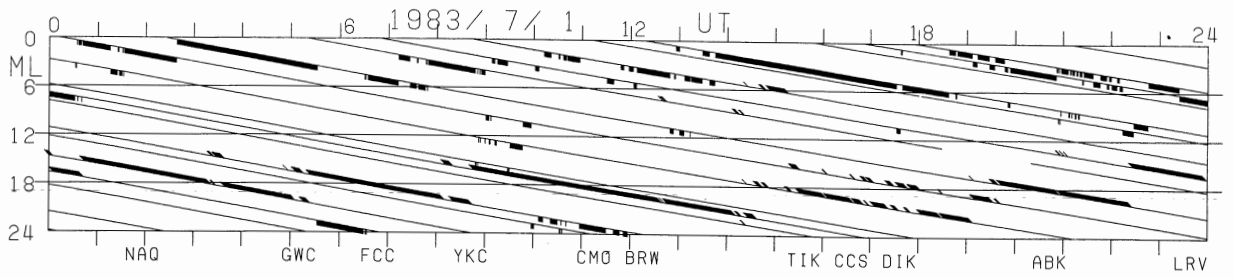
FIGURE 4 (on even pages)

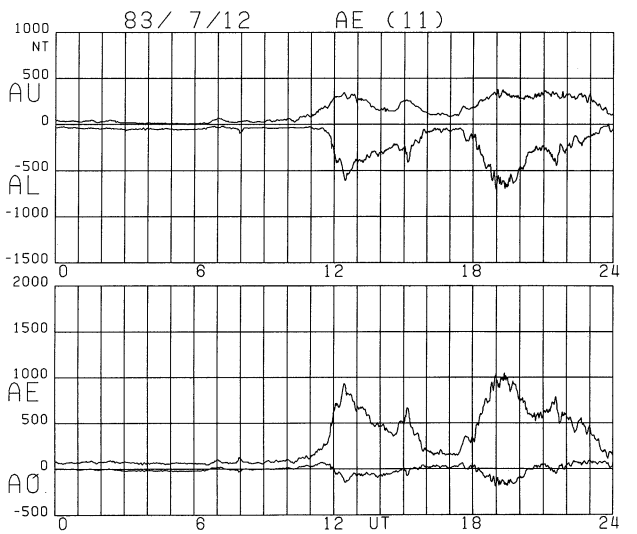
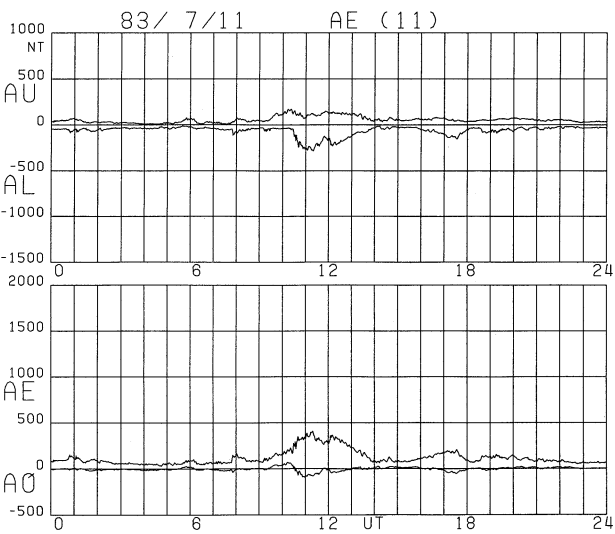
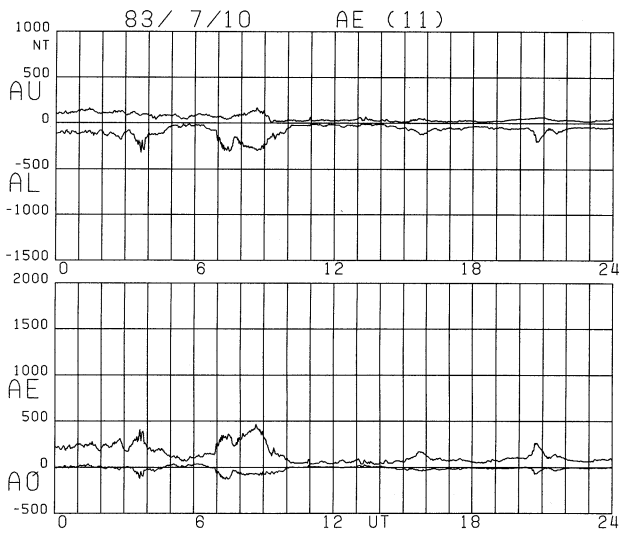
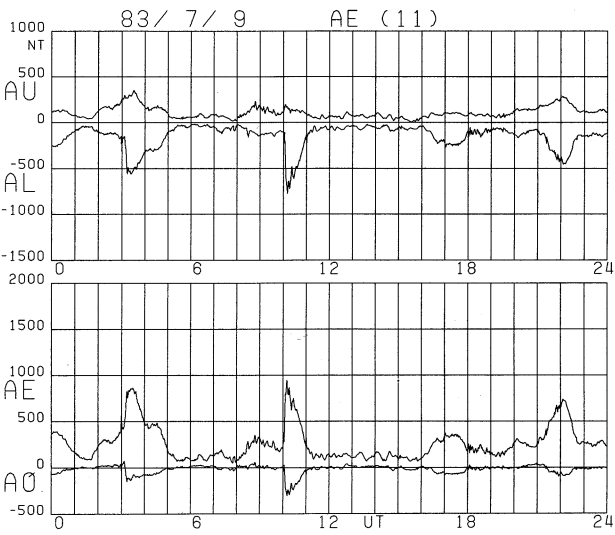
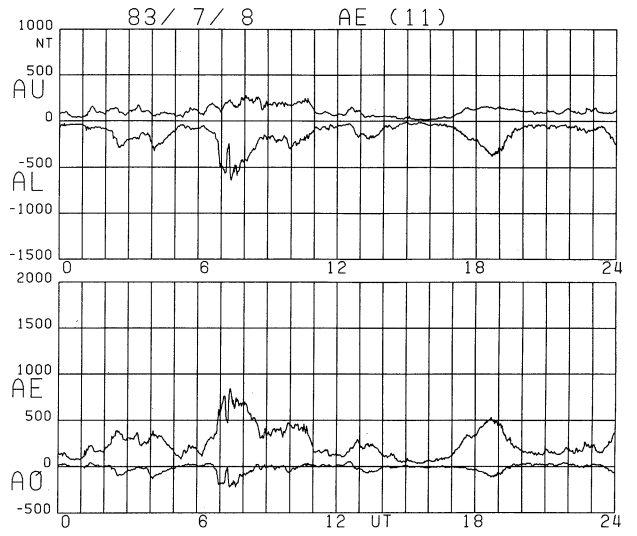
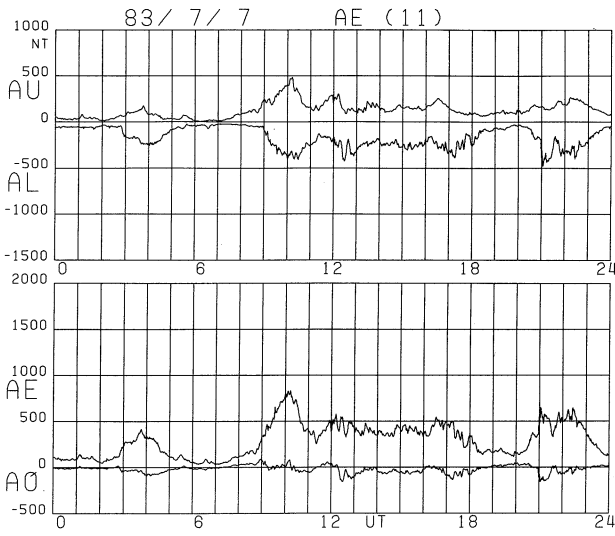
Daily graphs of 1.0 min AE indices (Au, AL, AE and AO) for July-December 1983. A graph on a disturbed day (Dec. 11) is reproduced on page 96.

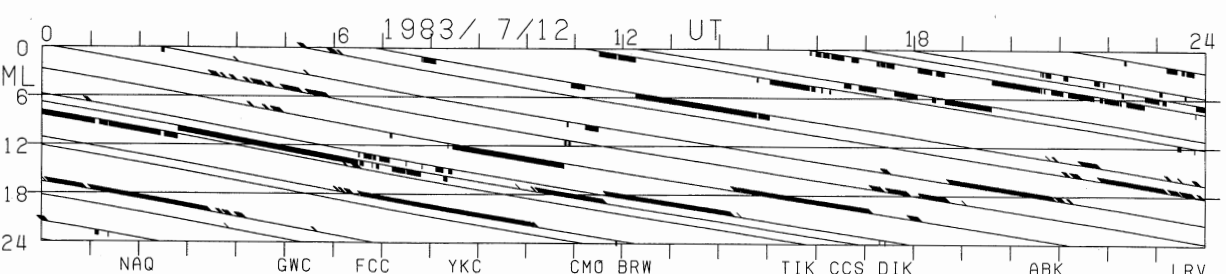
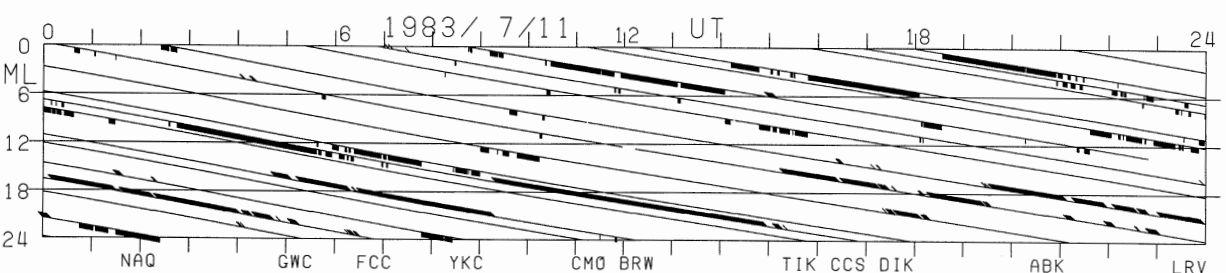
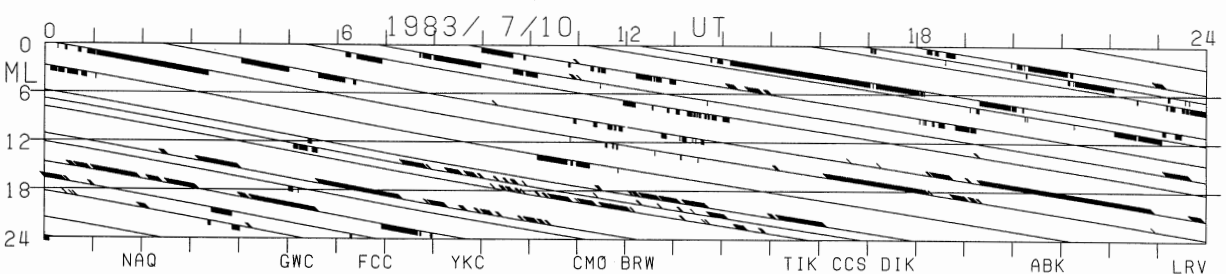
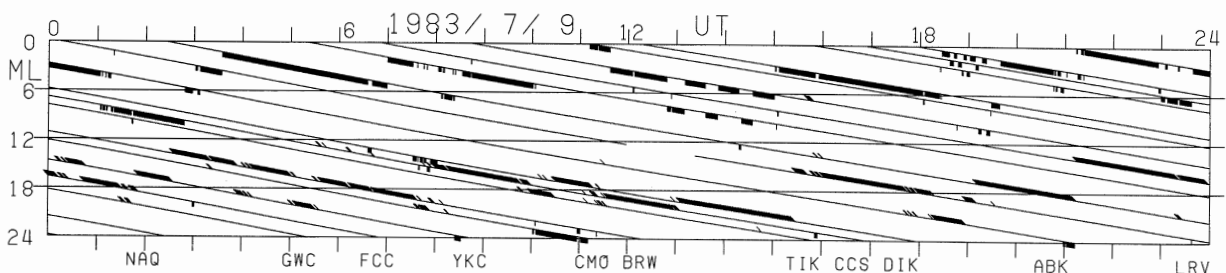
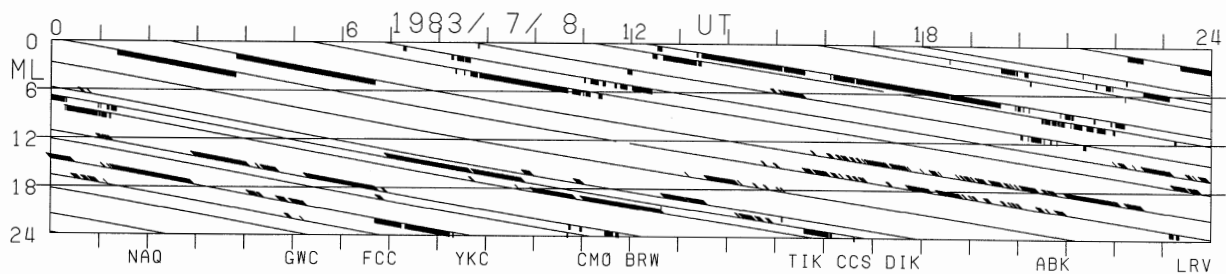
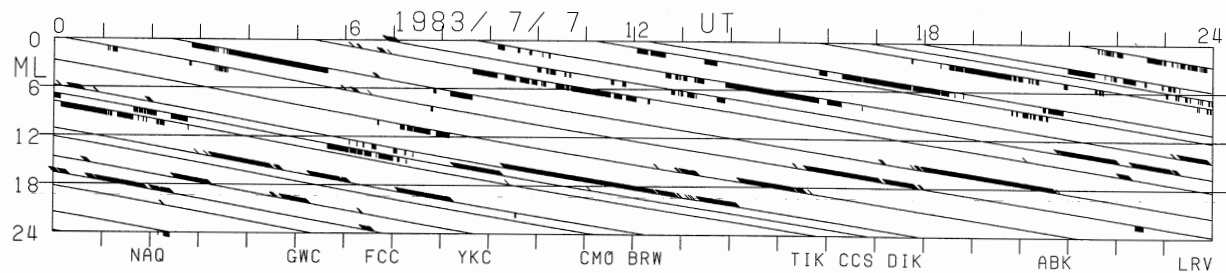
FIGURE 5 (on odd pages)

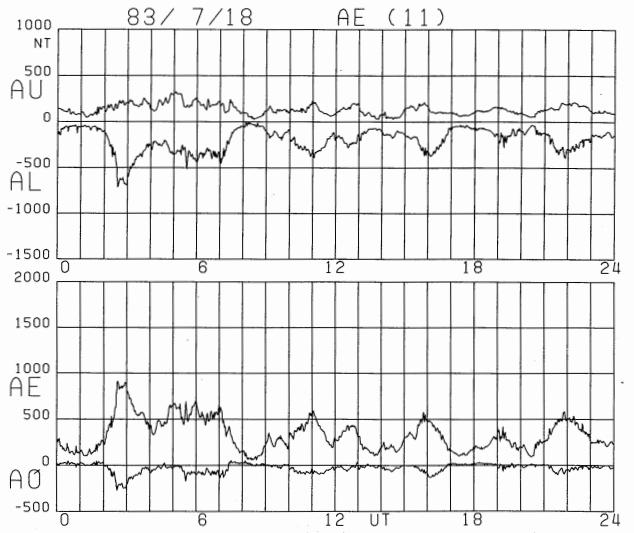
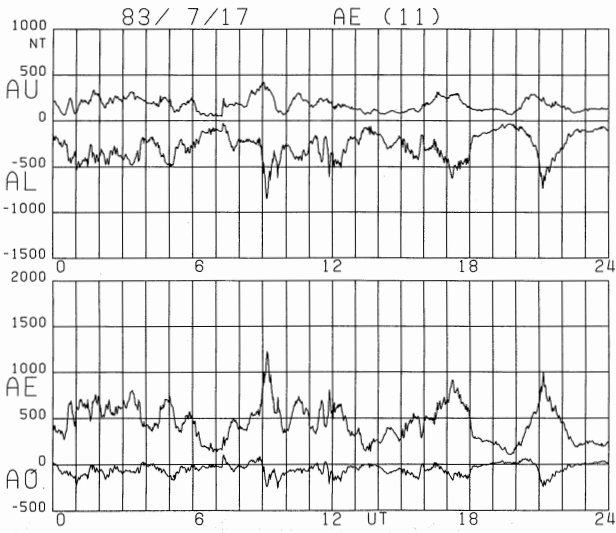
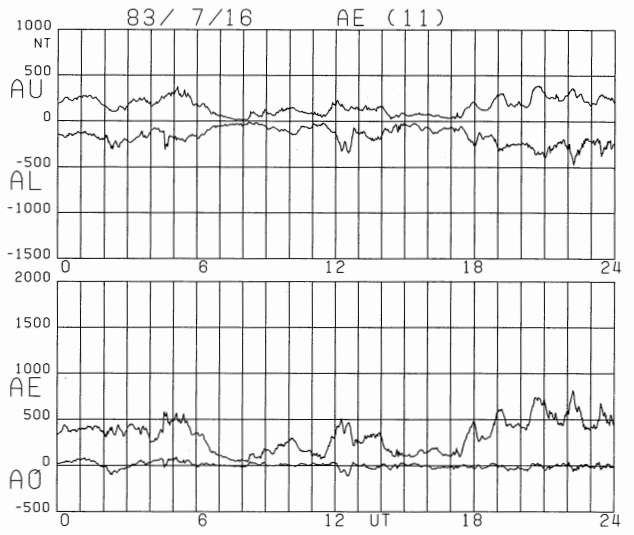
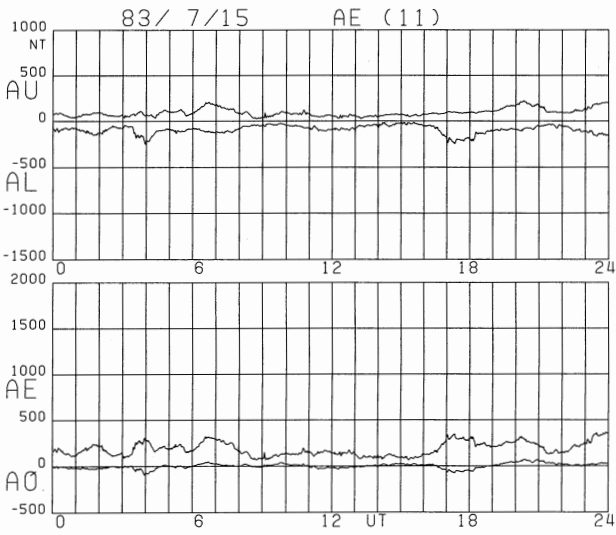
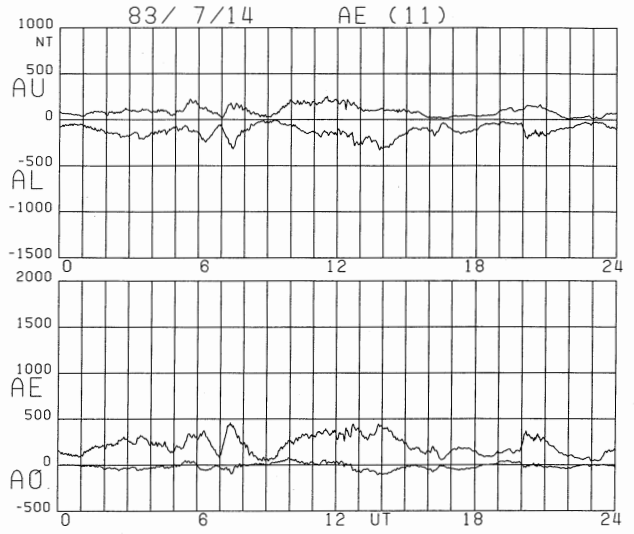
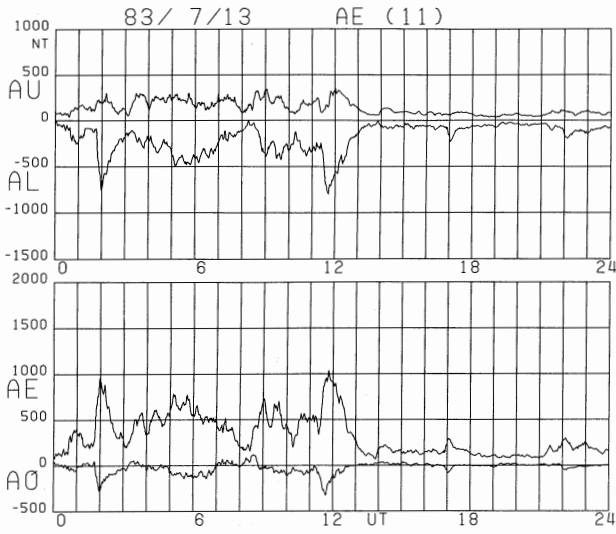
Plots of the contributing station to the AU (upper plumes) and AL (lower plumes) indices, where you can see which station contributes to these indices at each UT minute.



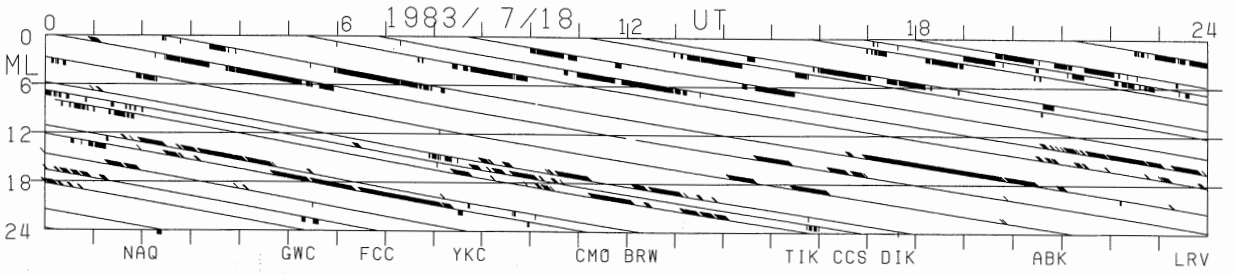
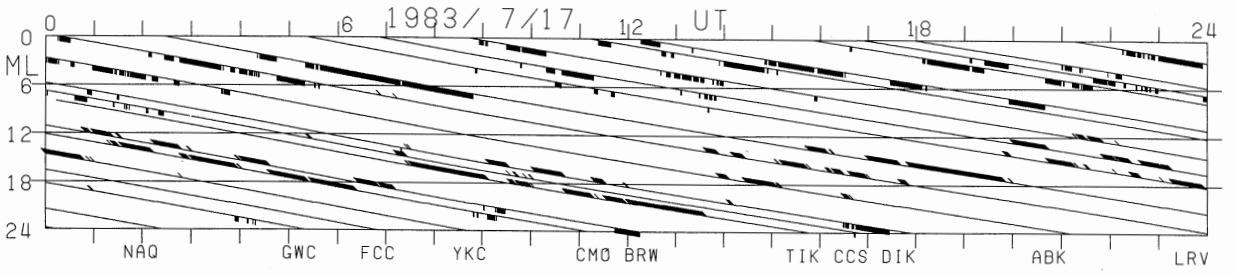
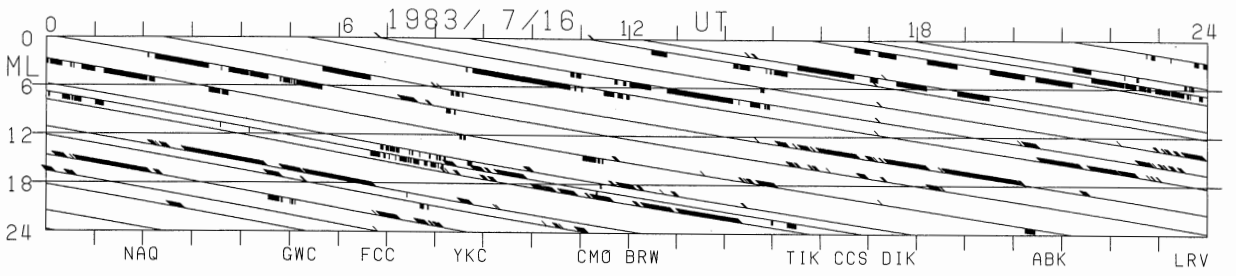
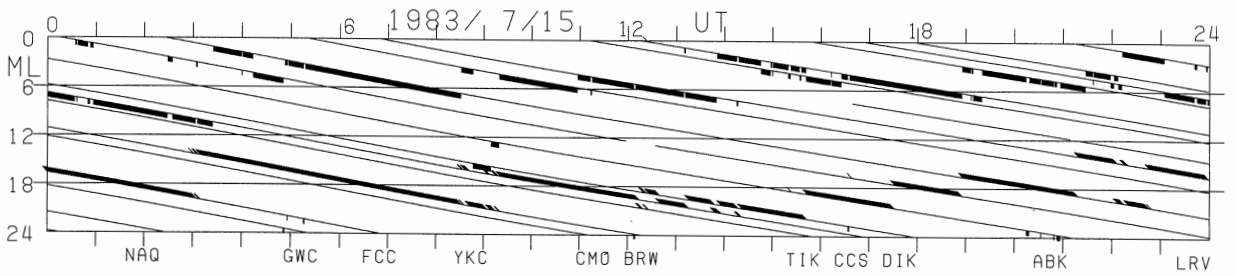
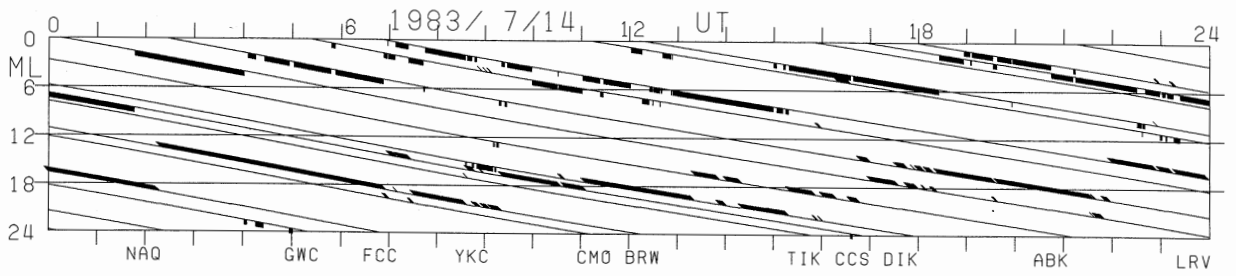
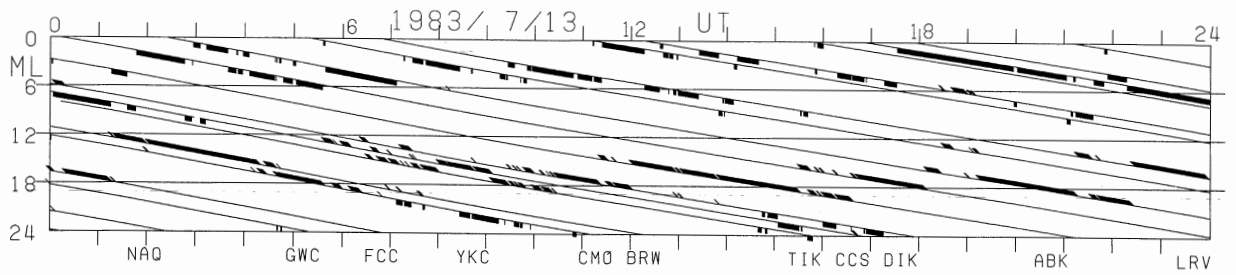


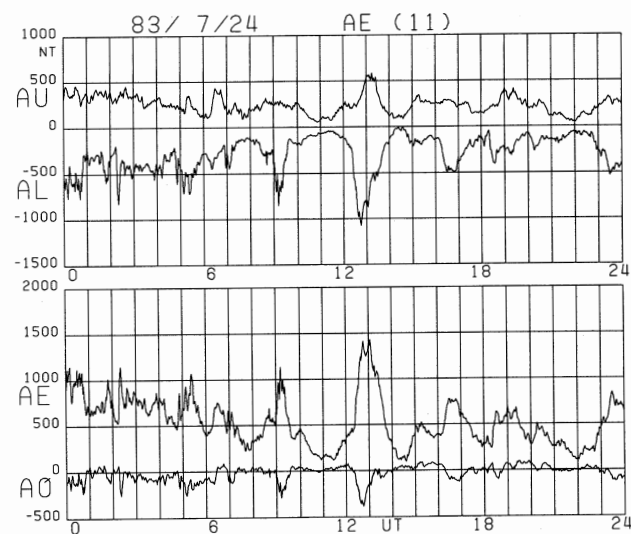
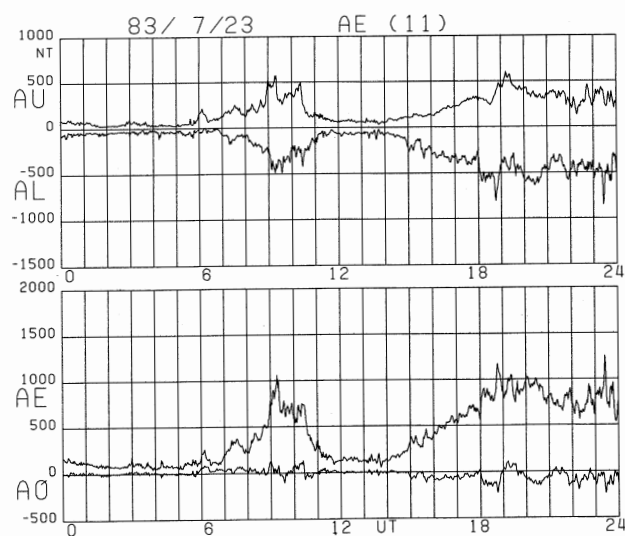
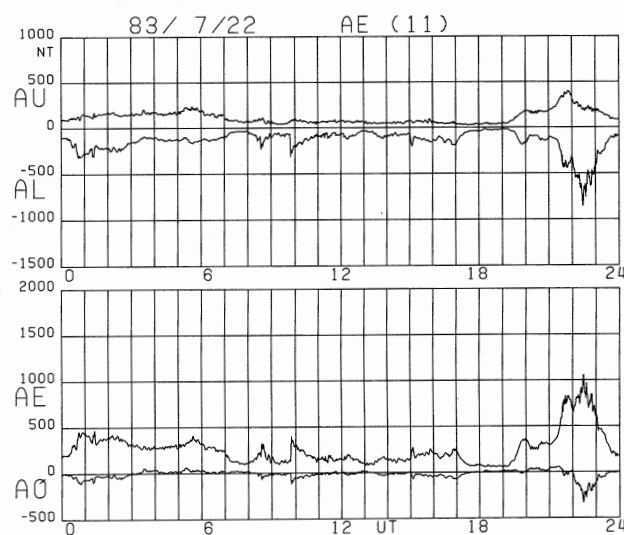
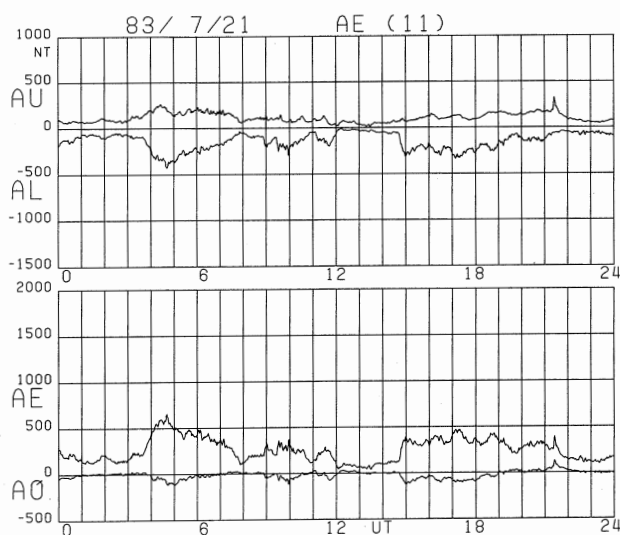
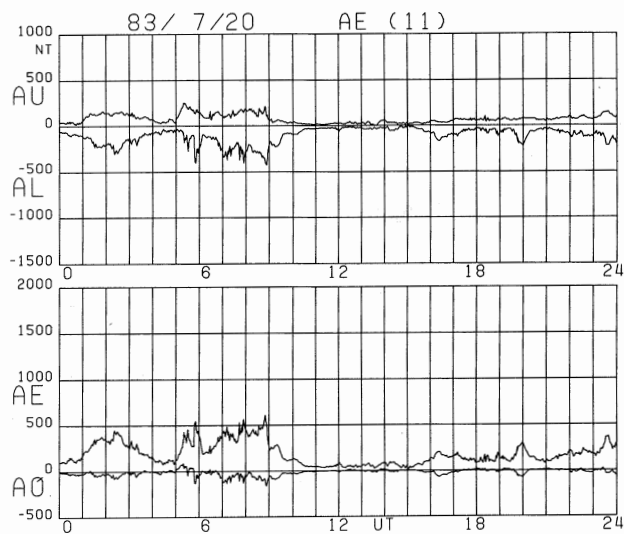
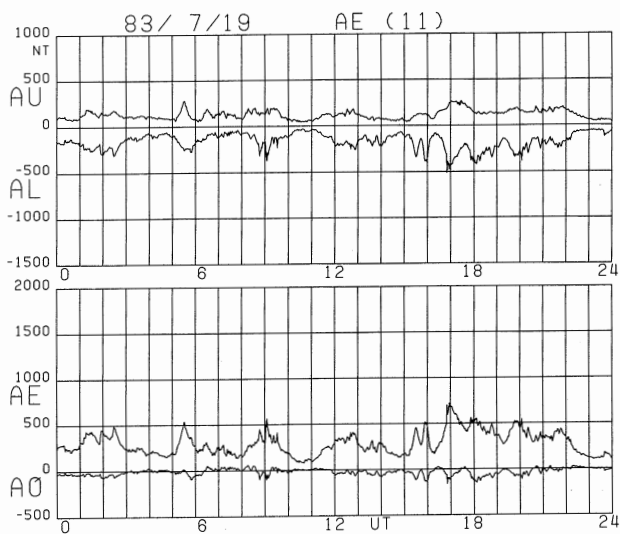


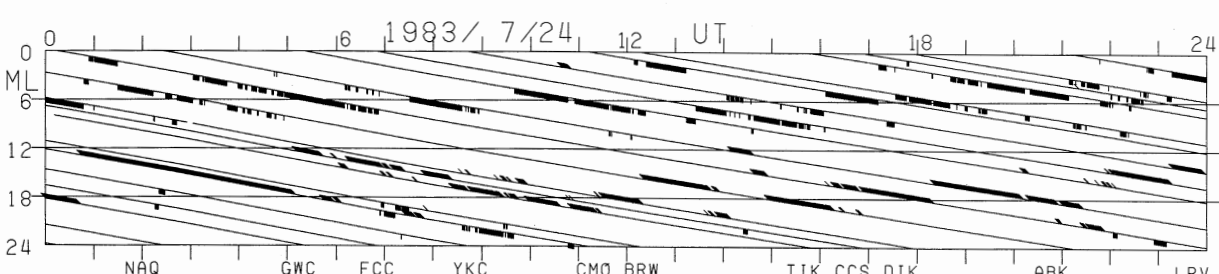
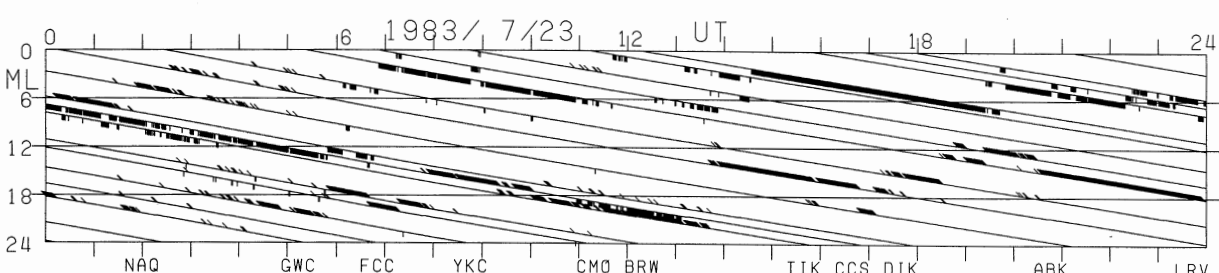
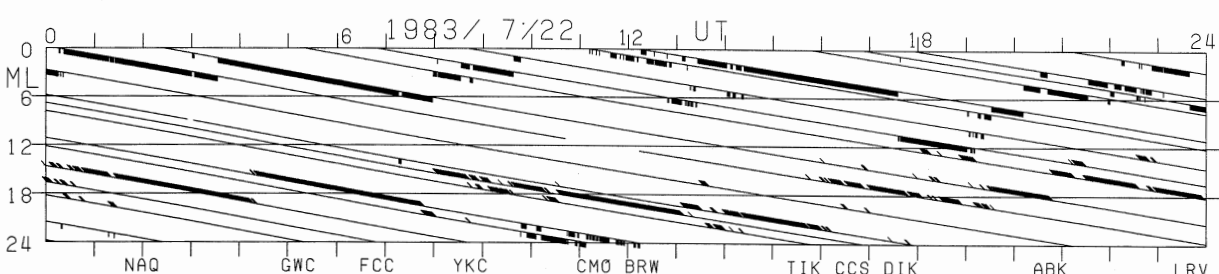
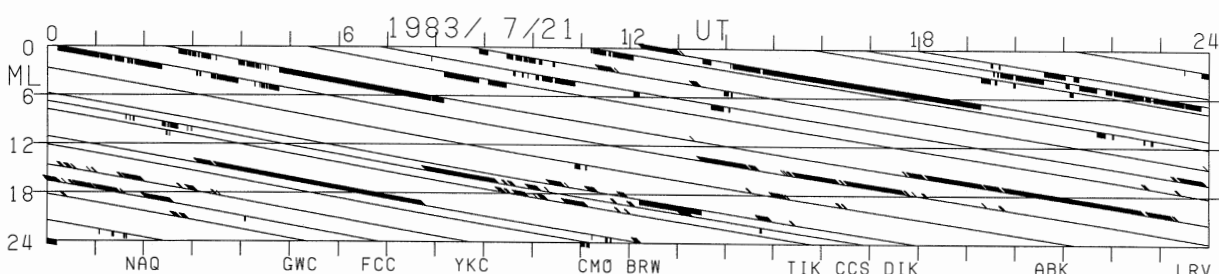
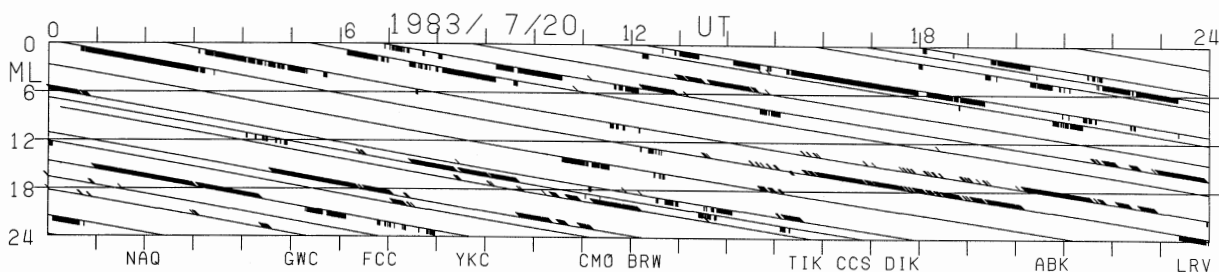
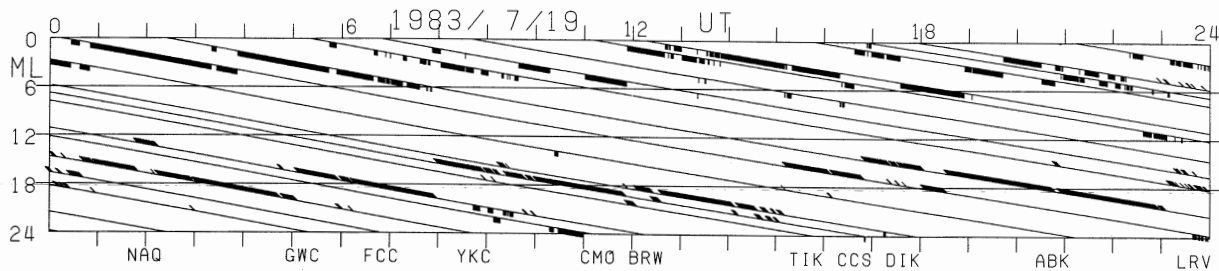


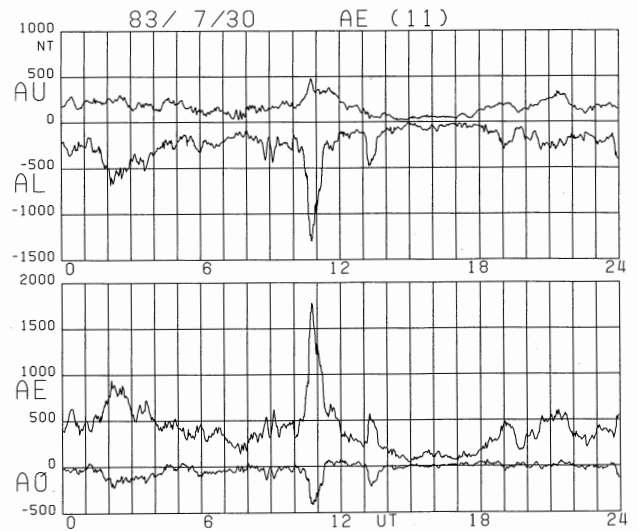
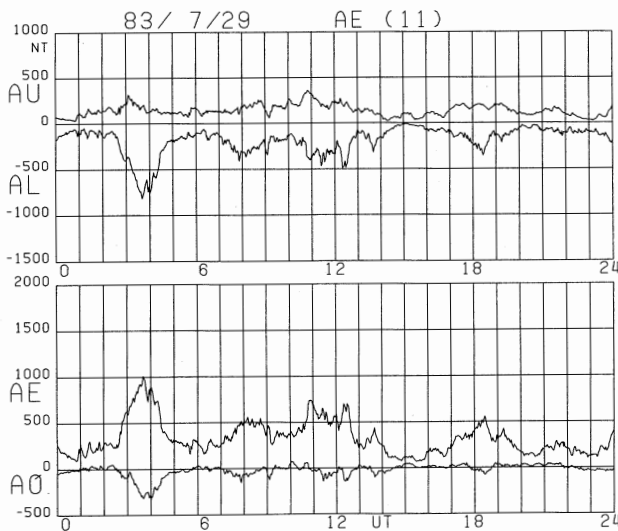
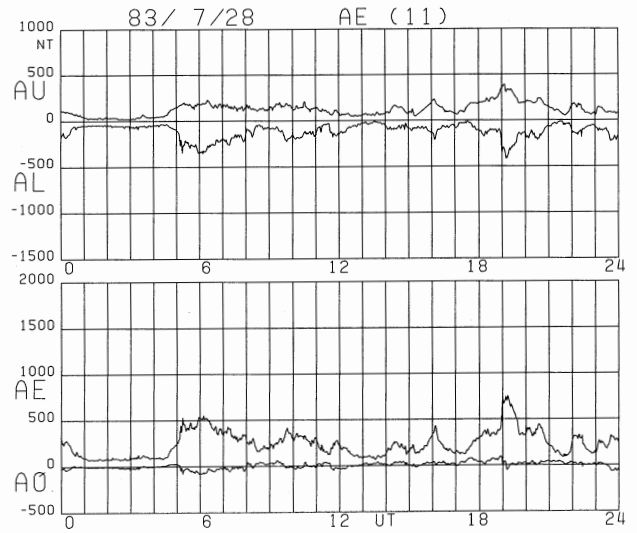
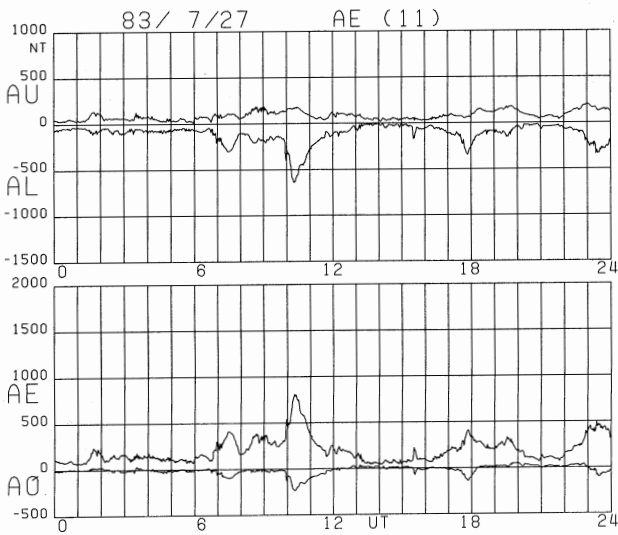
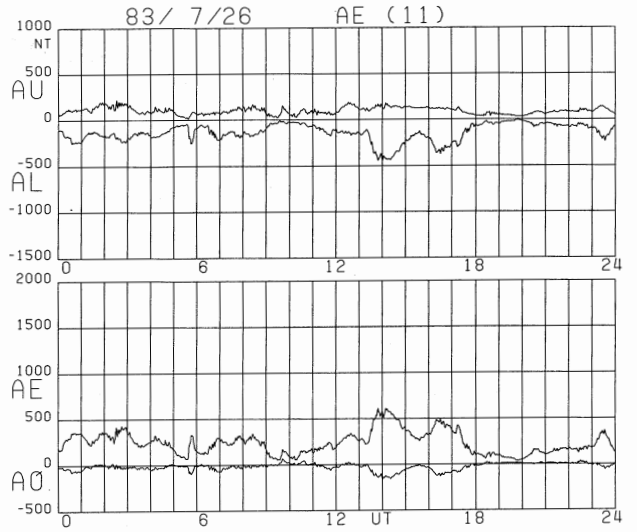
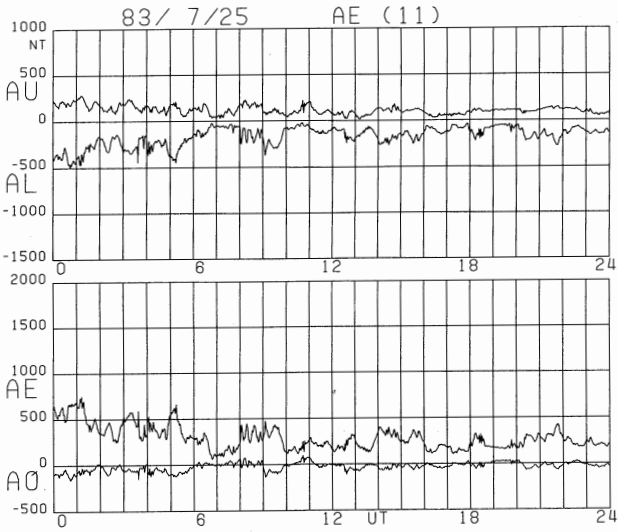


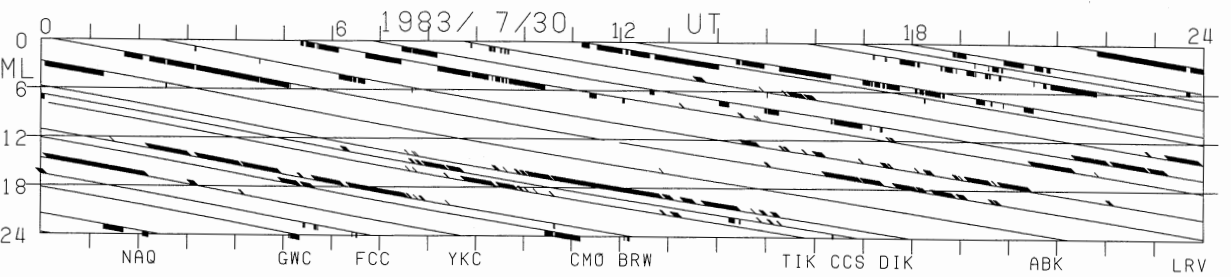
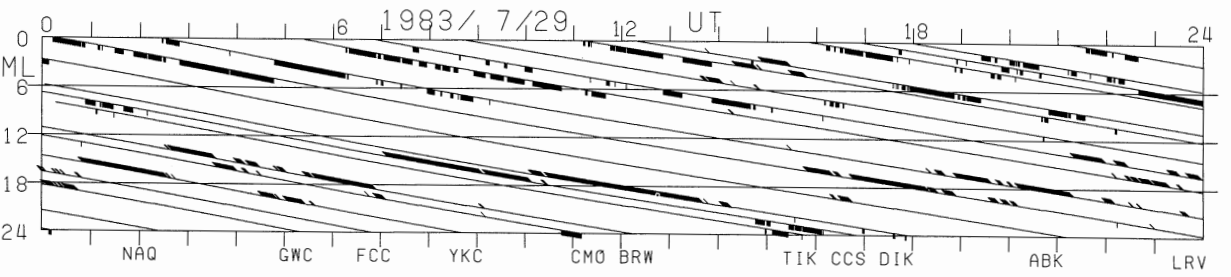
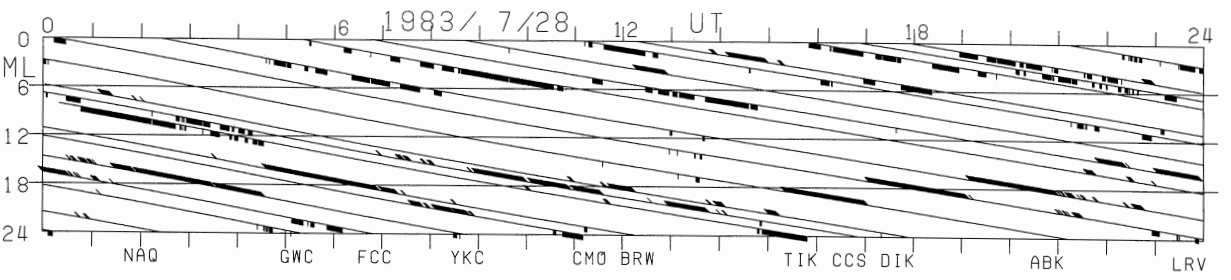
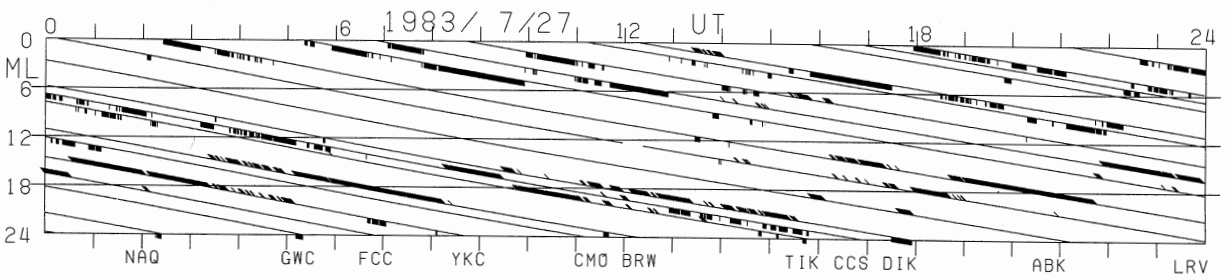
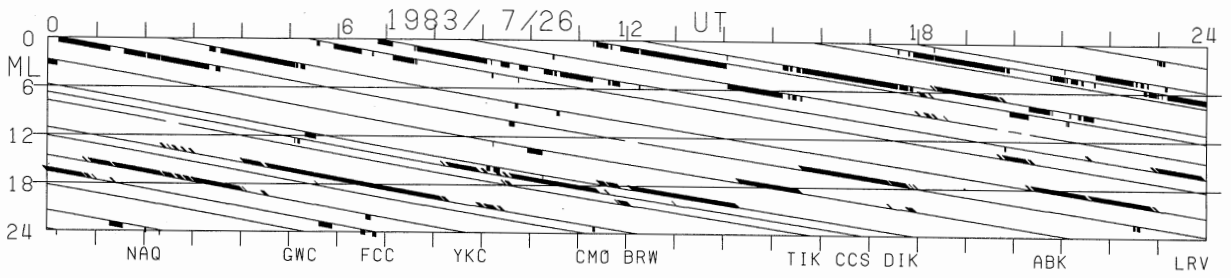
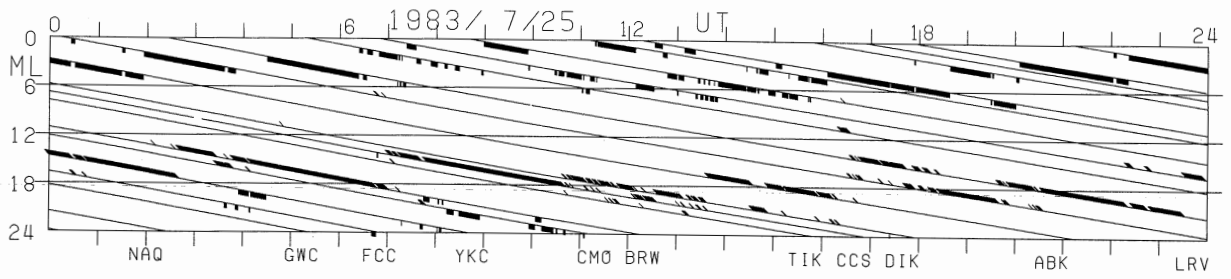


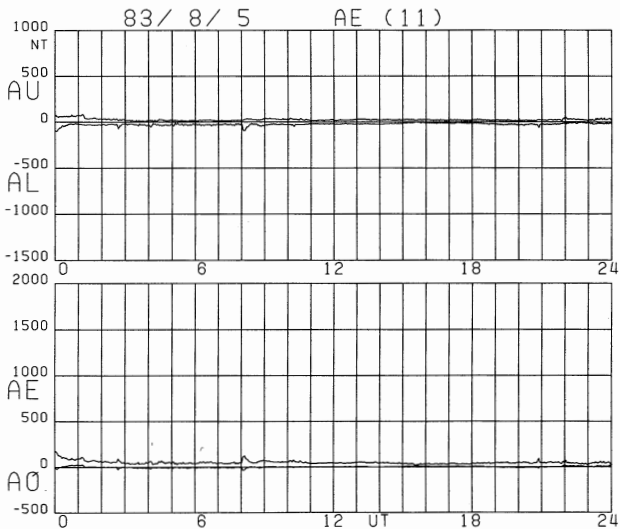
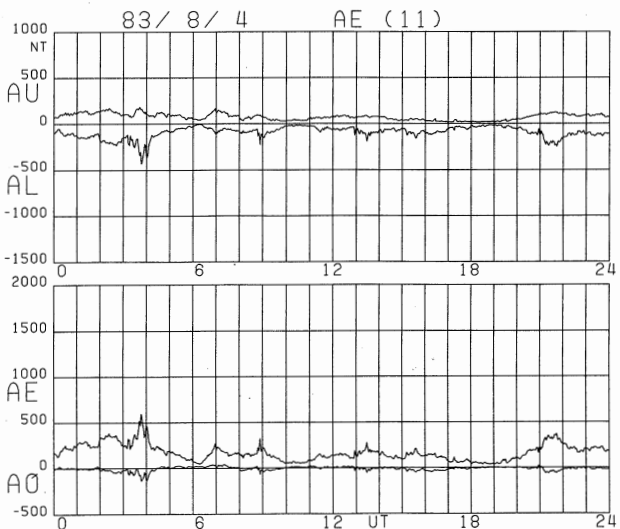
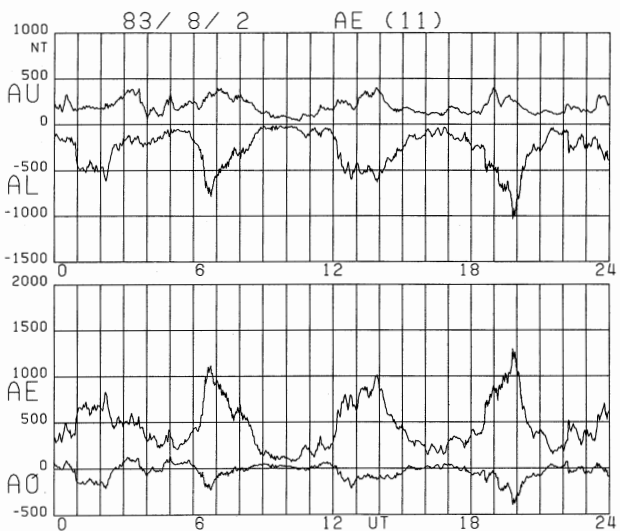
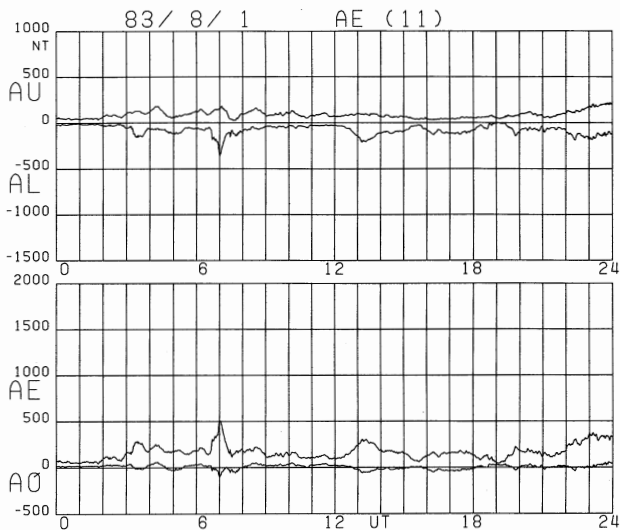
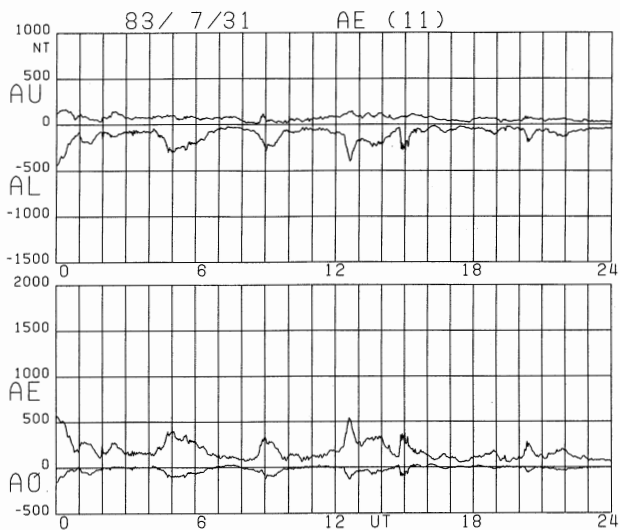


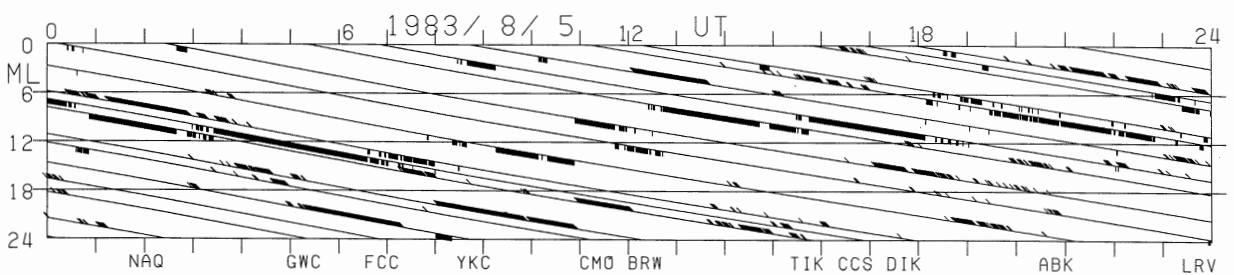
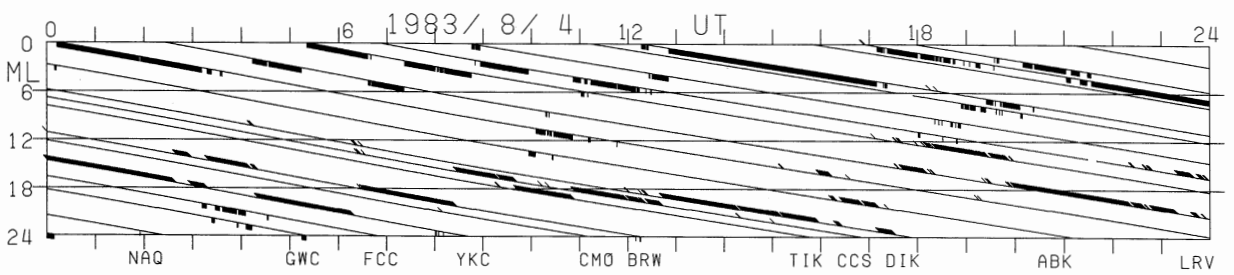
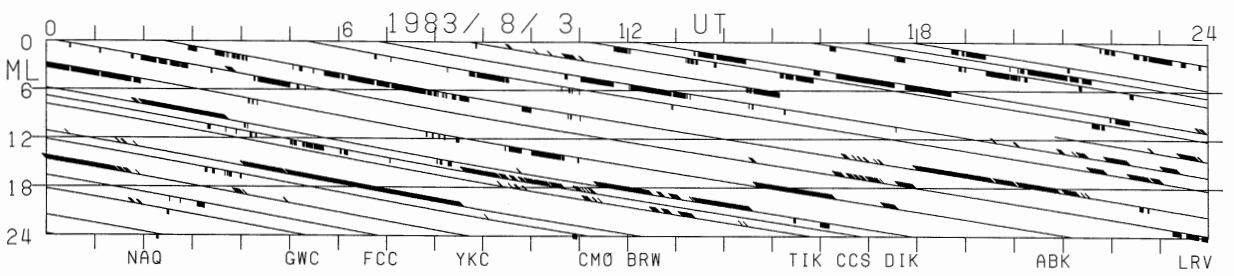
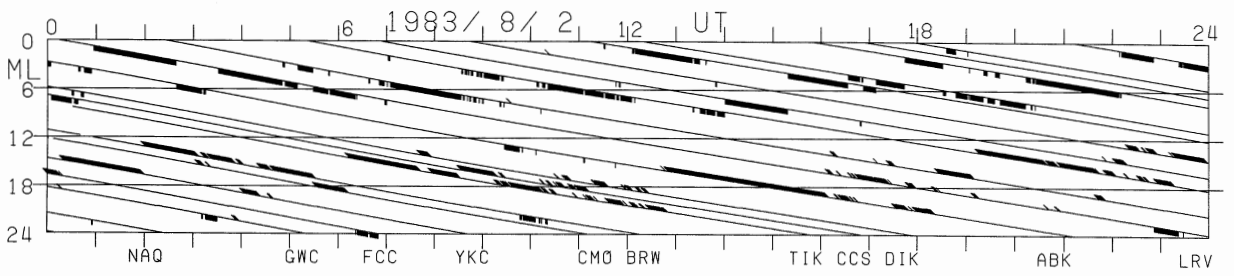
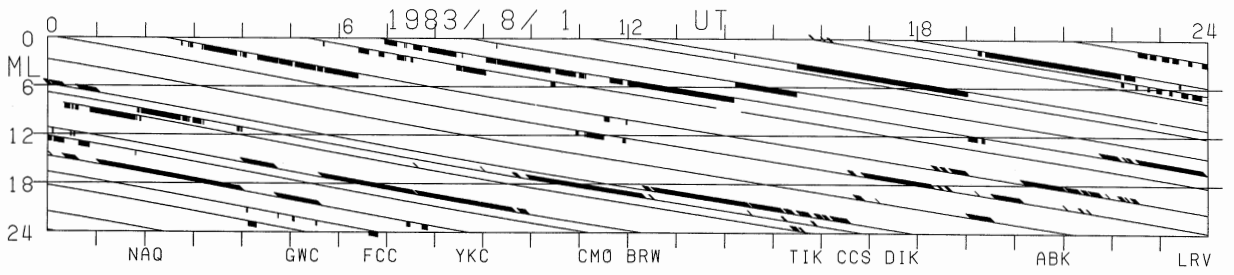
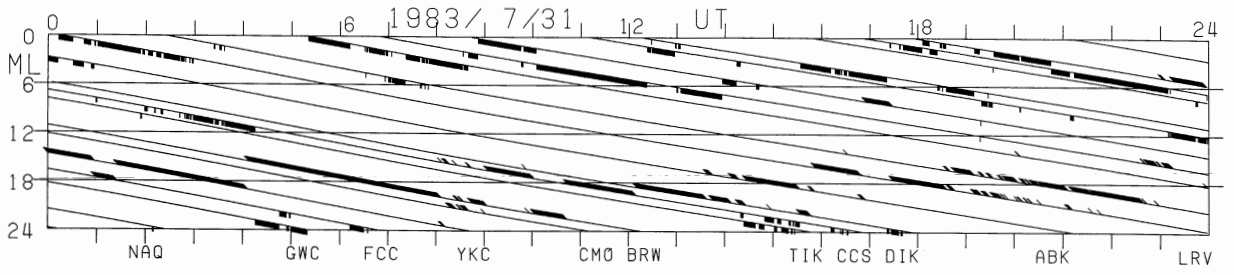


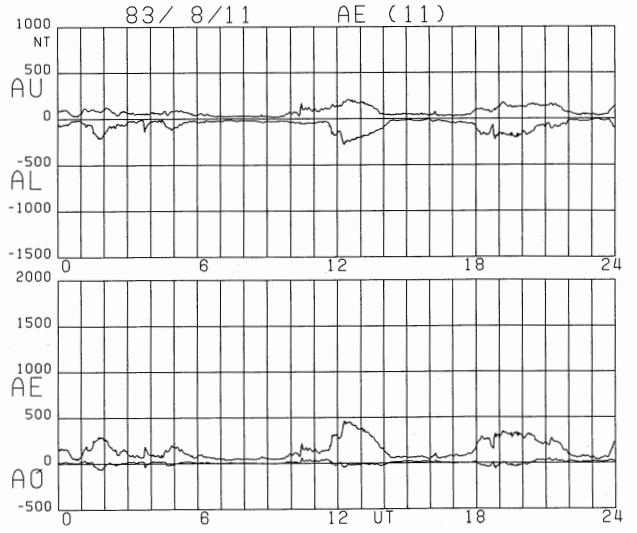
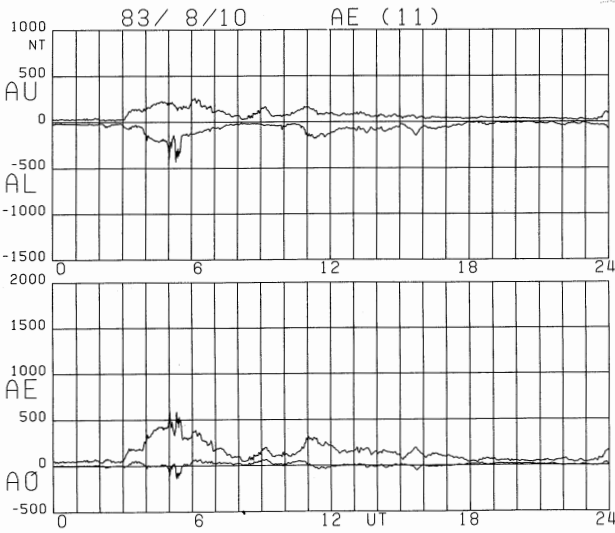
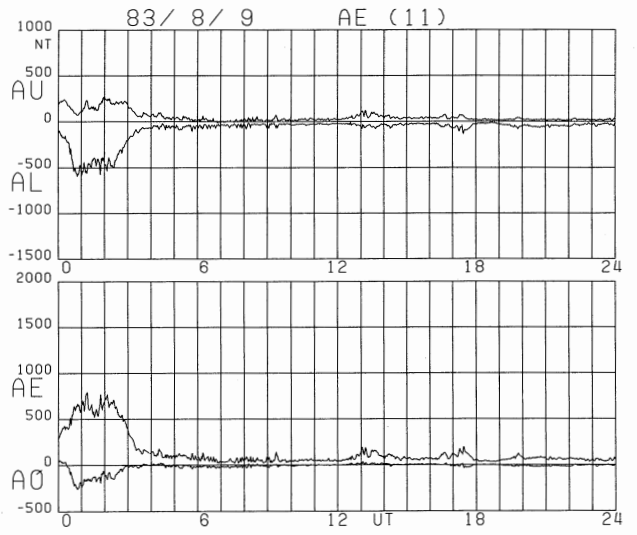
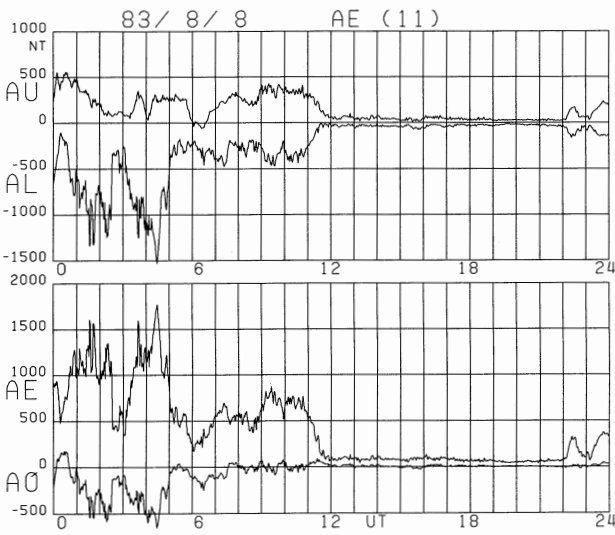
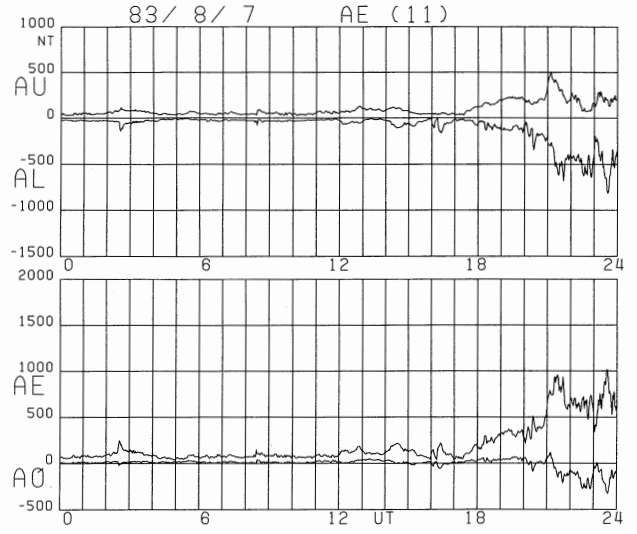
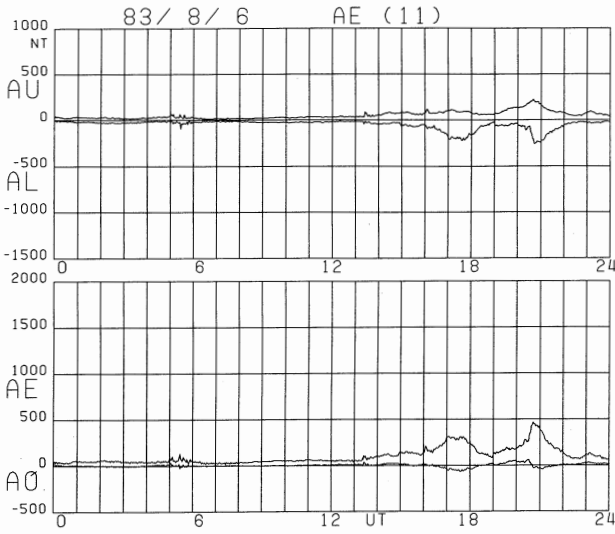




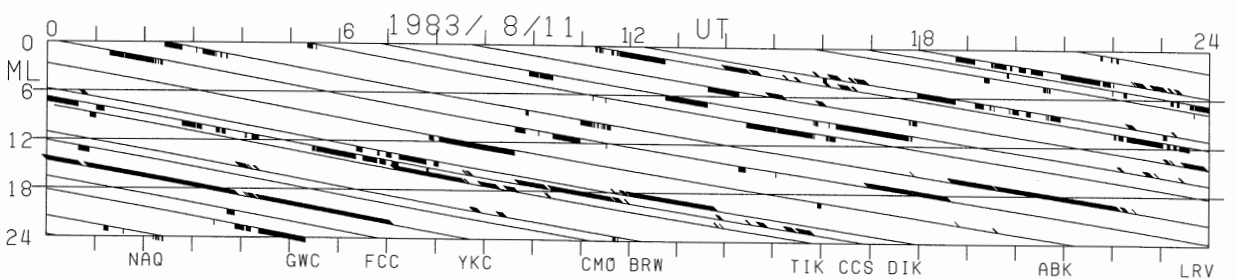
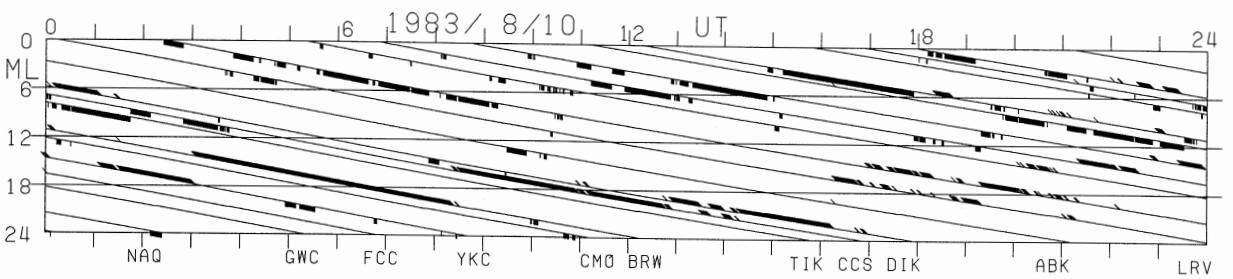
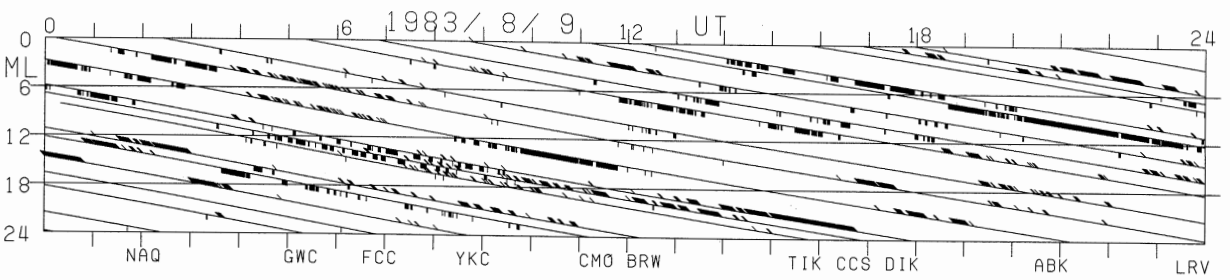
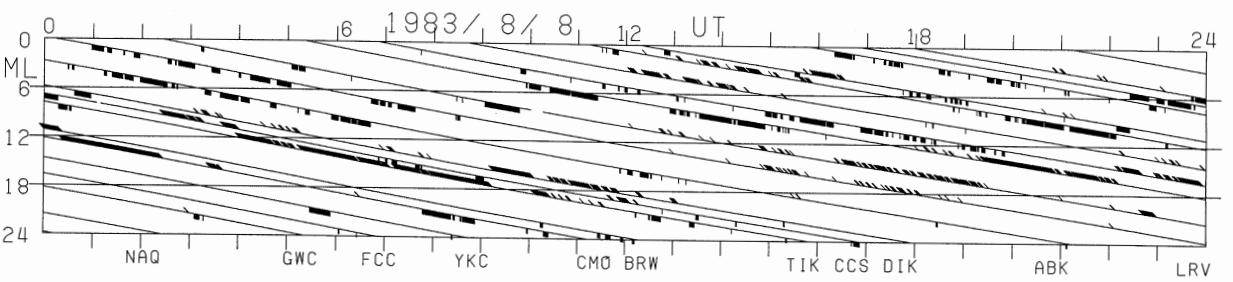
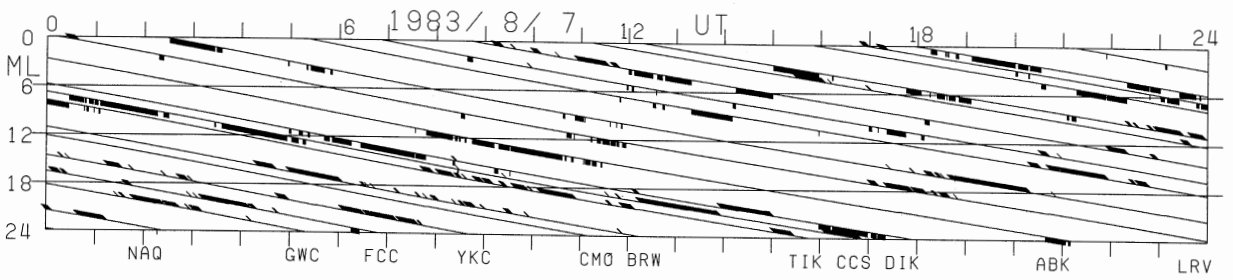
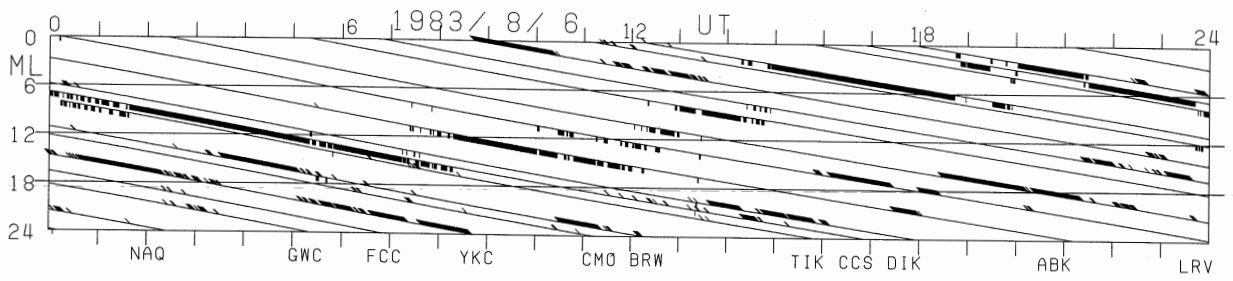


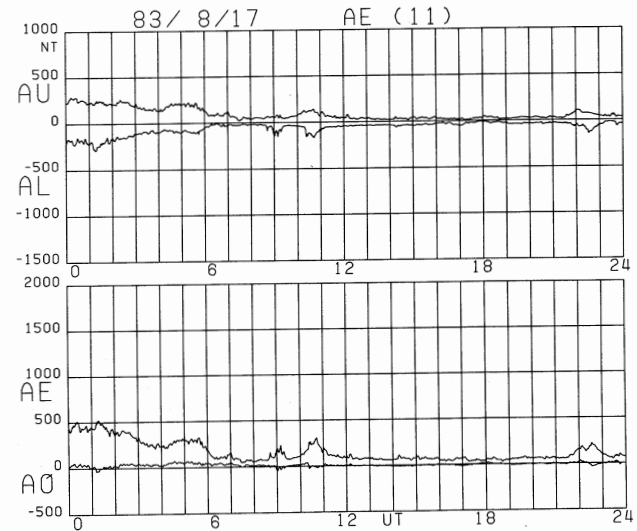
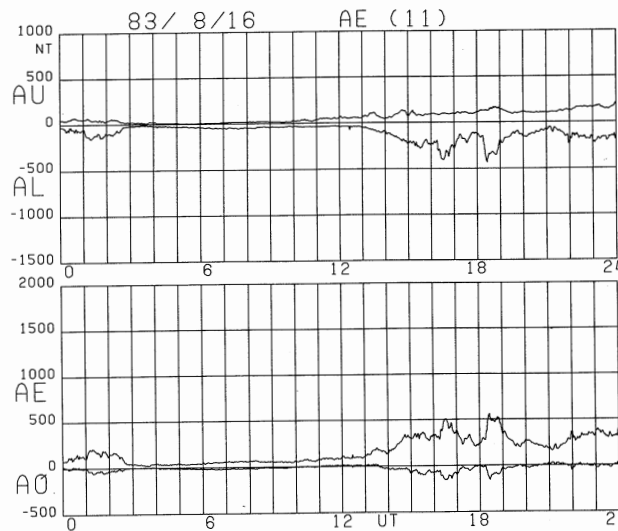
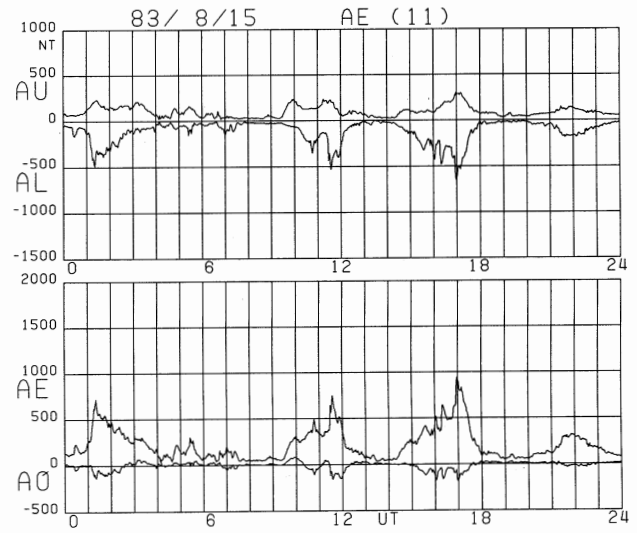
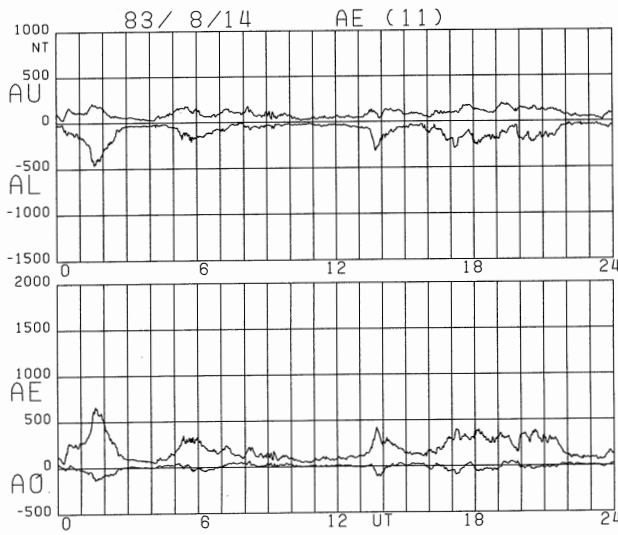
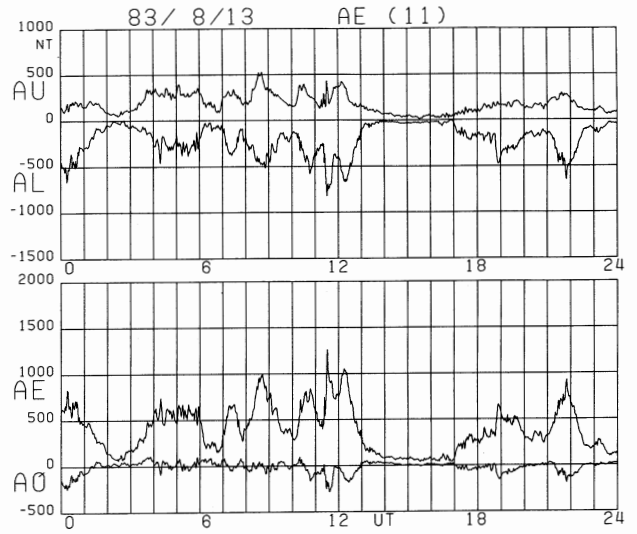
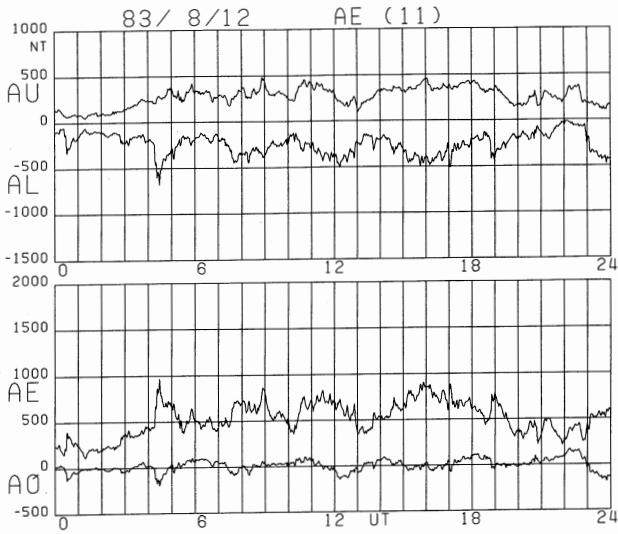


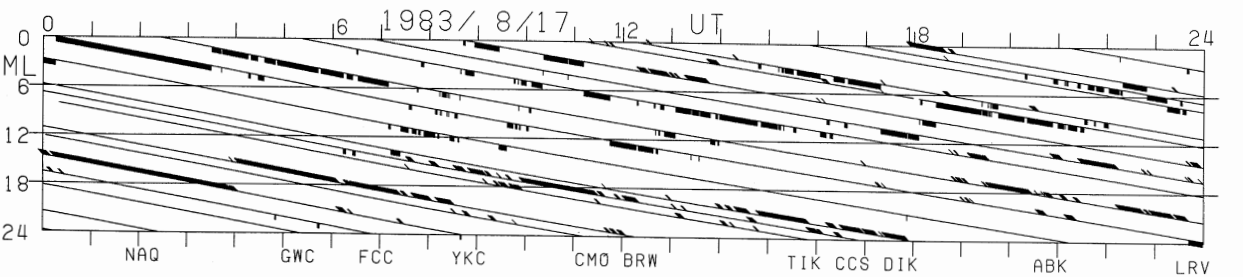
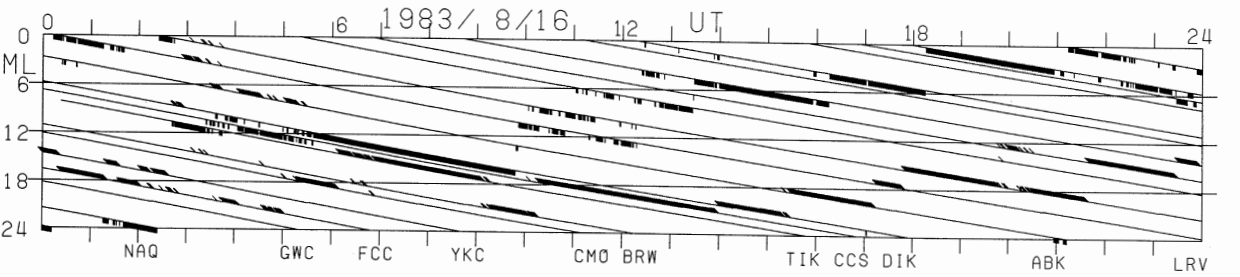
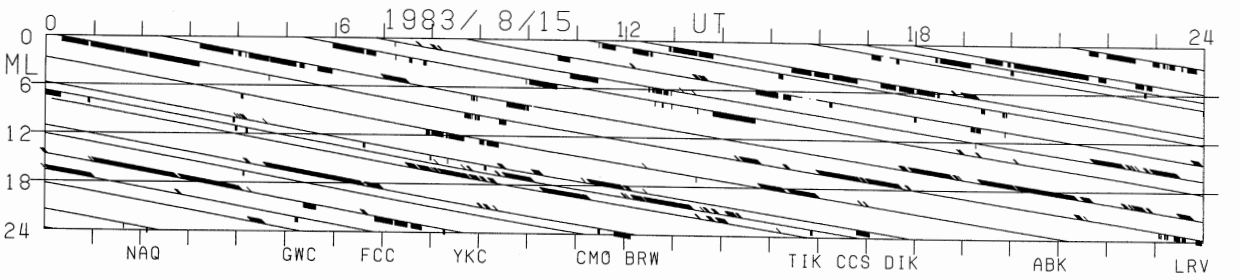
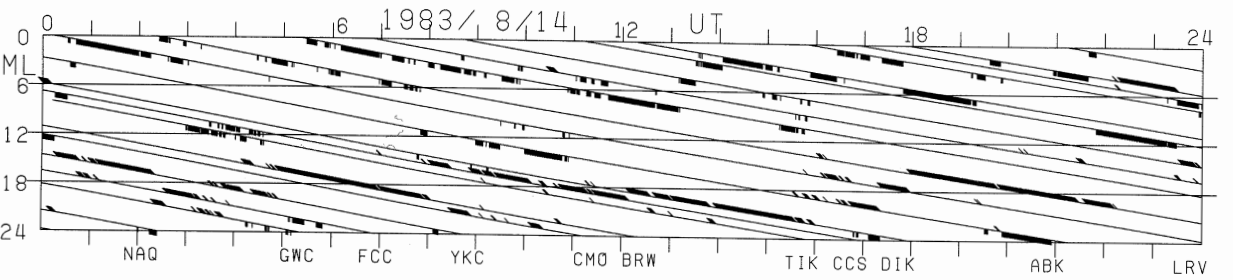
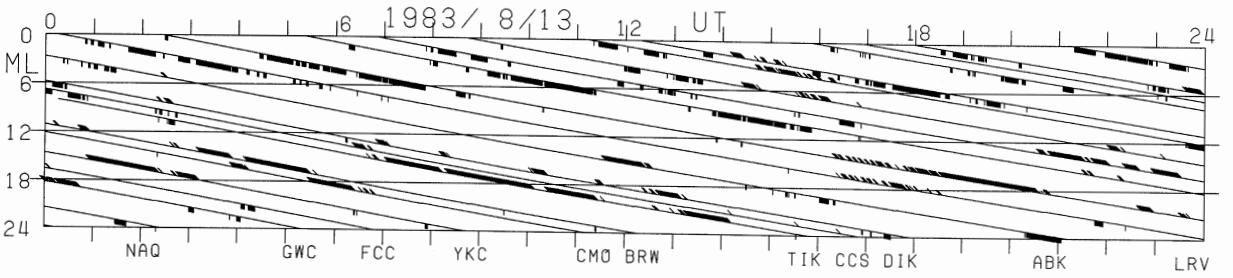
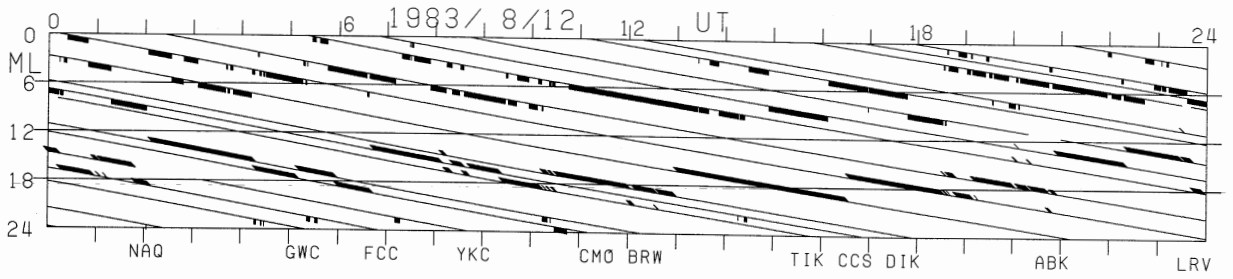


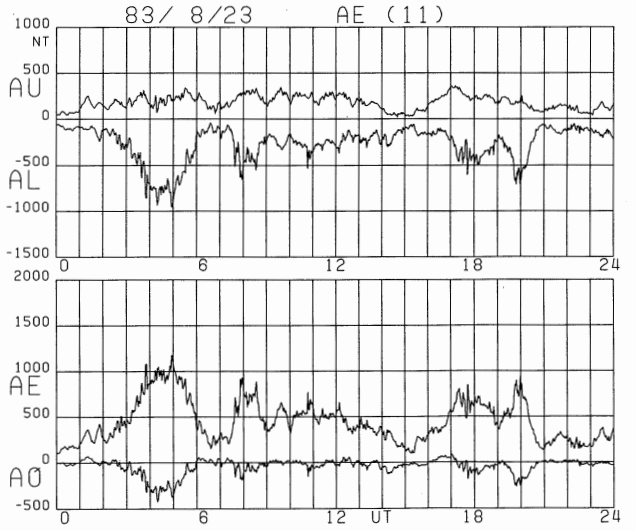
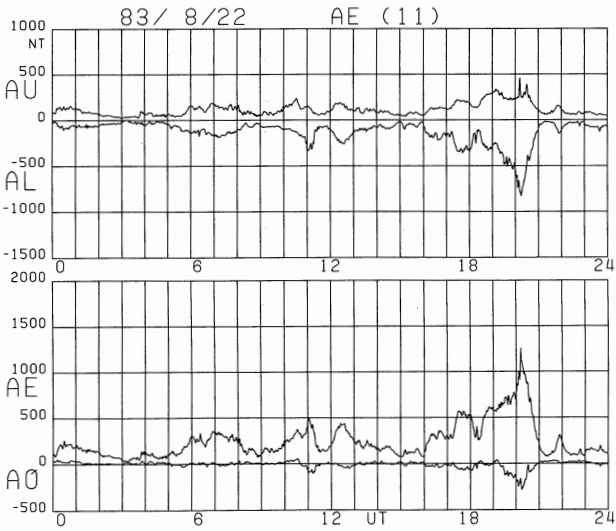
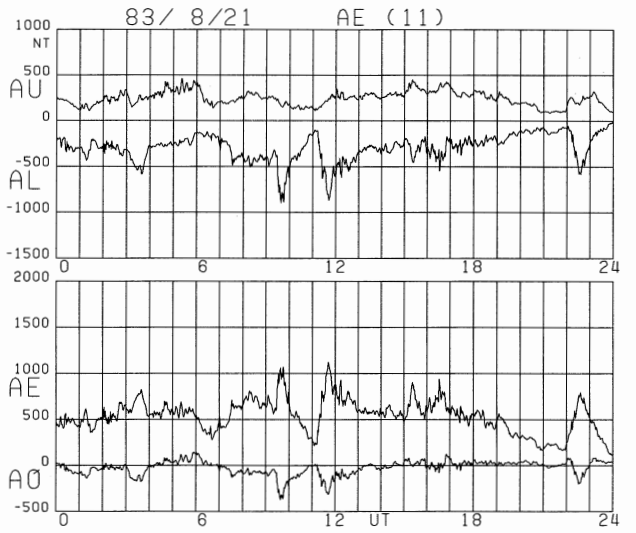
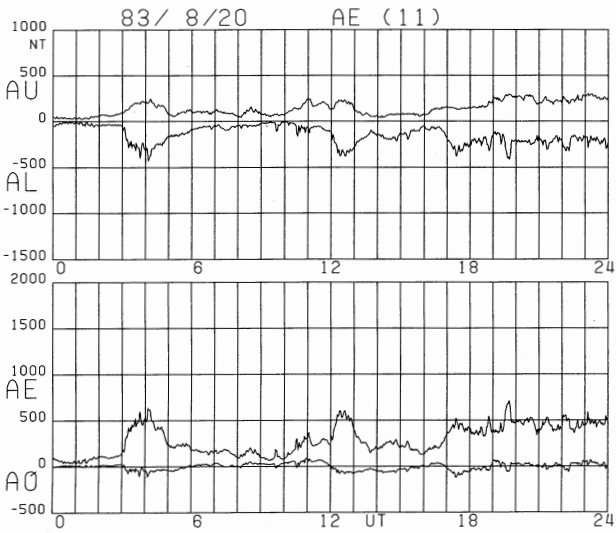
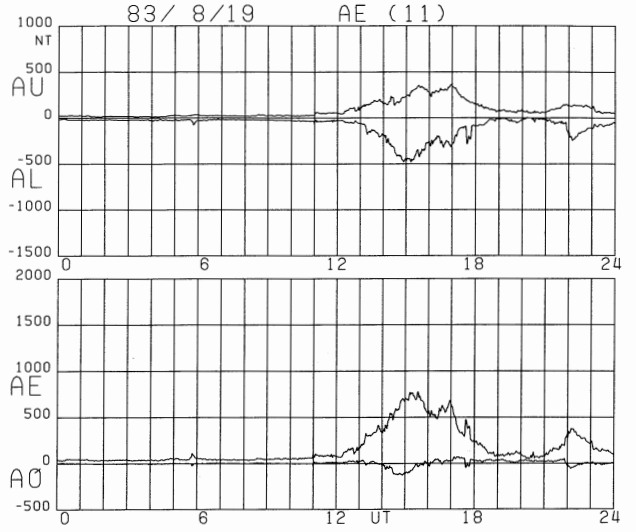
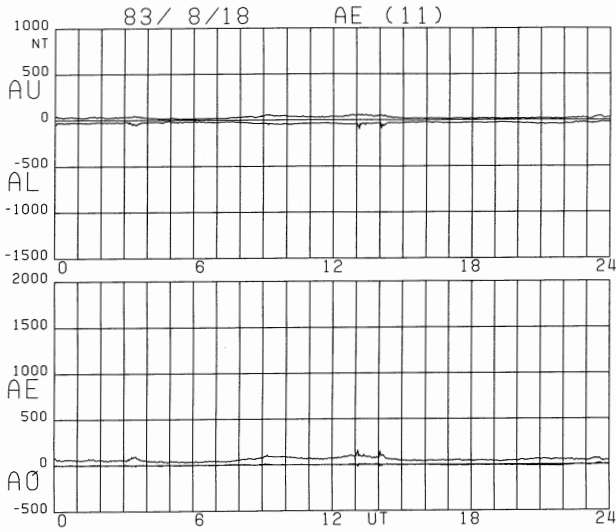


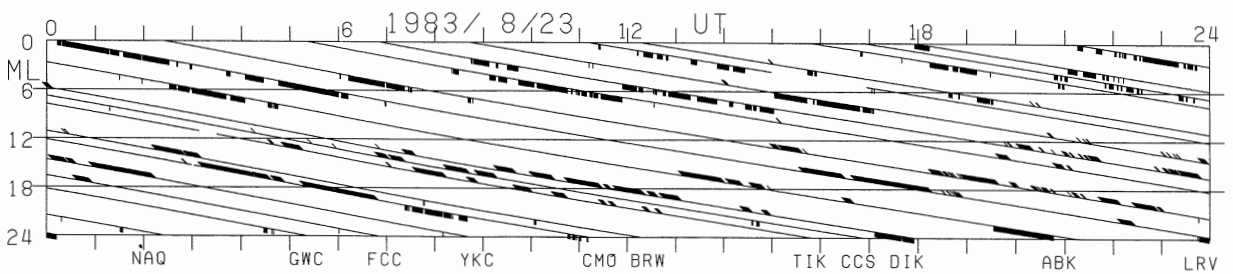
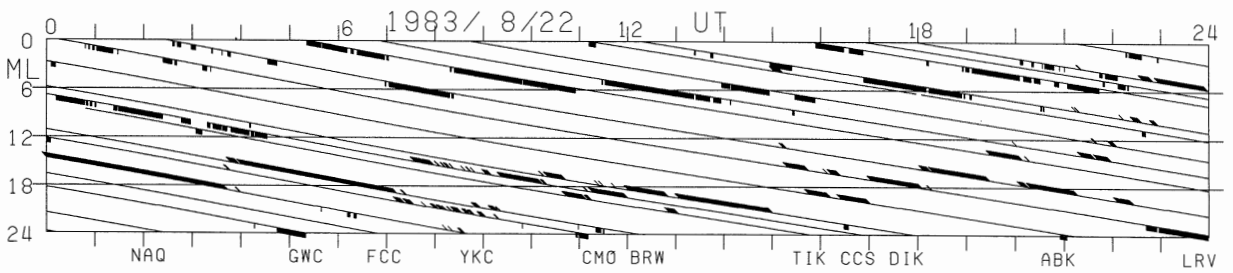
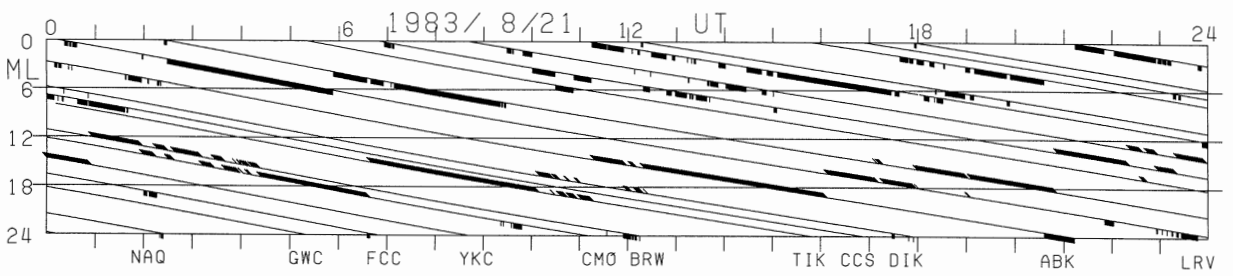
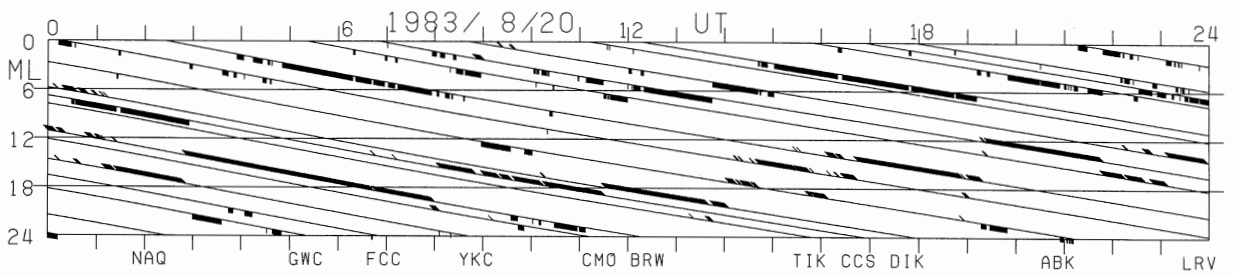
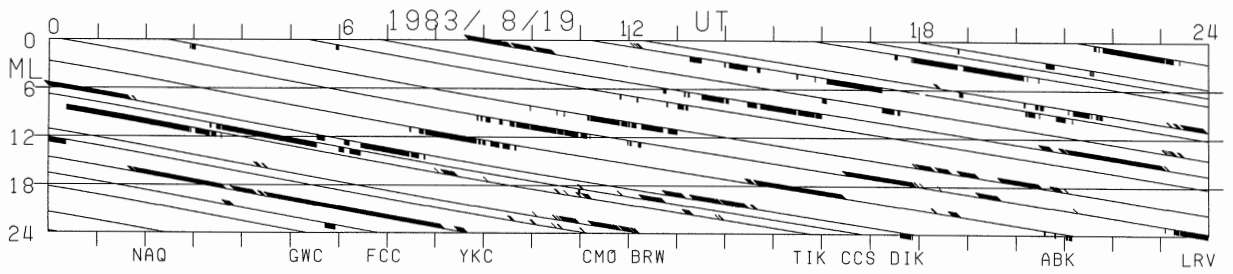
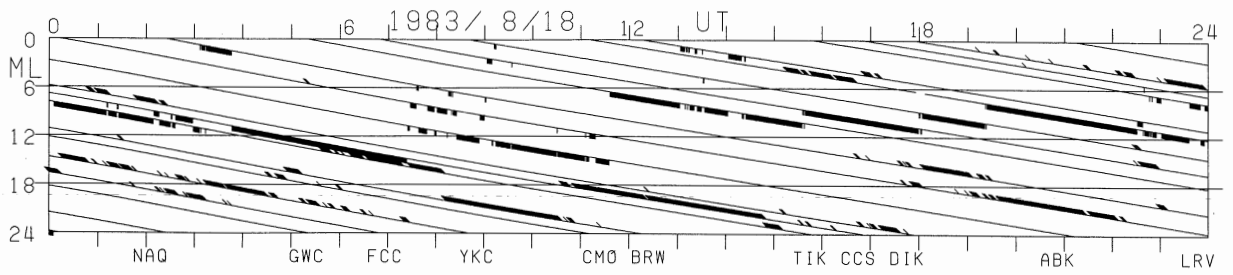


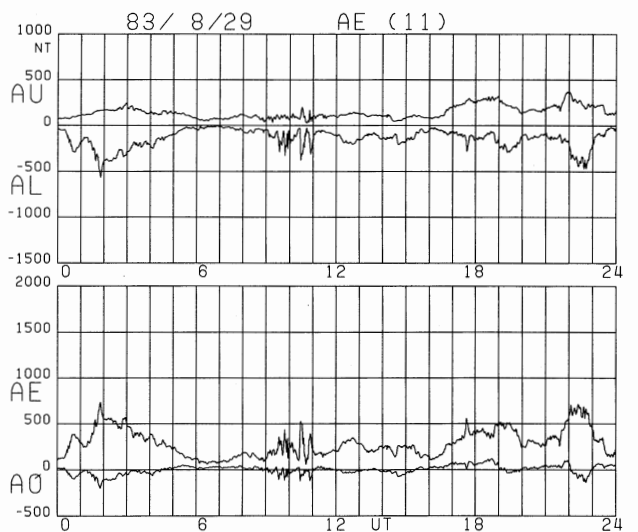
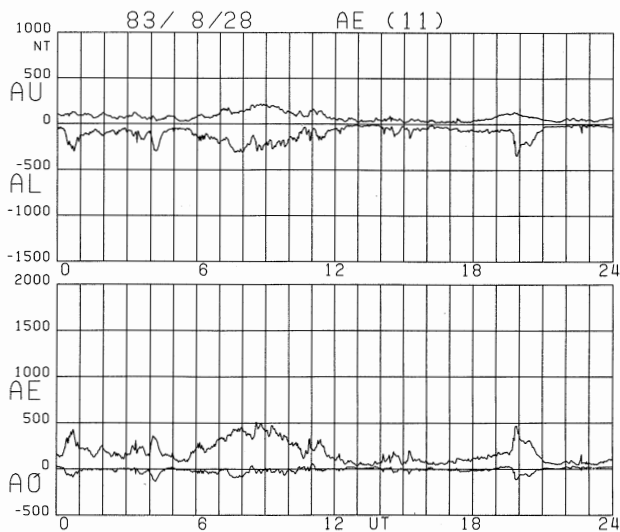
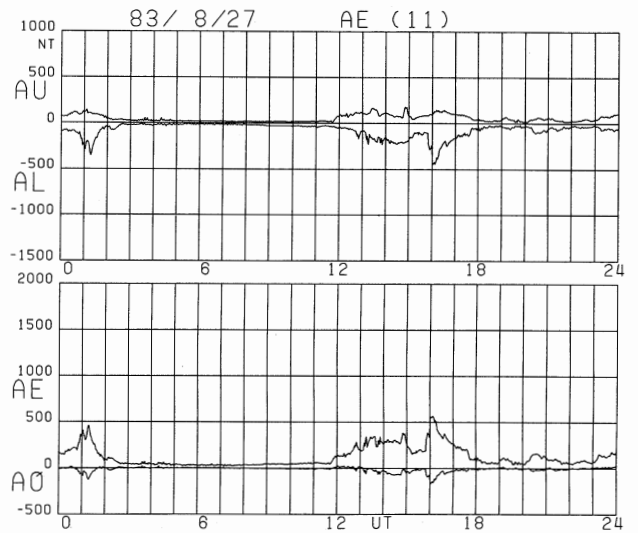
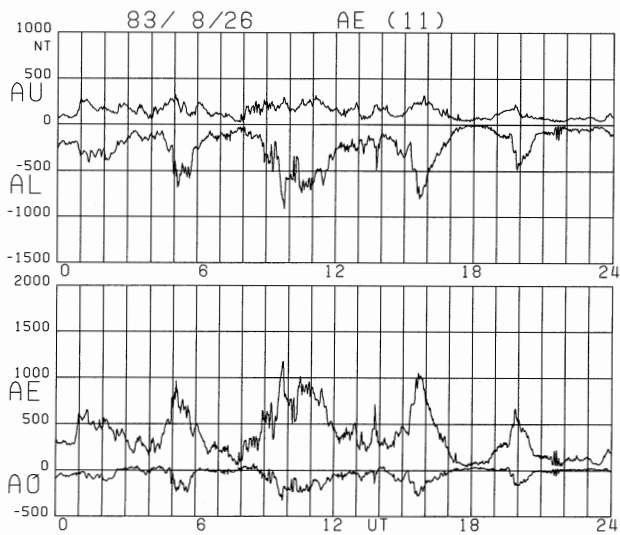
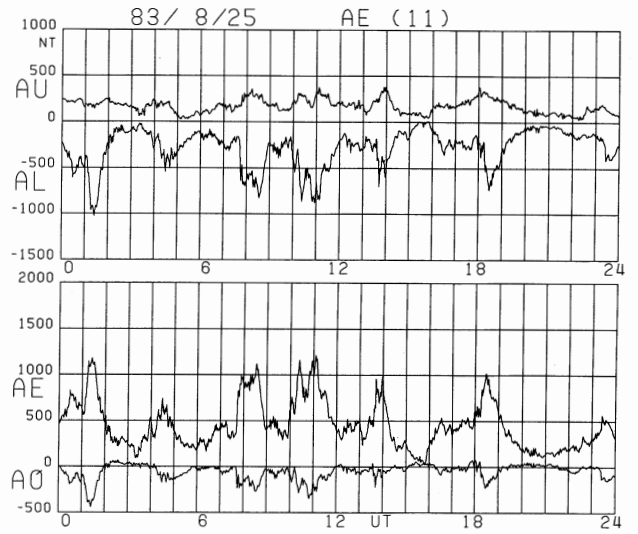
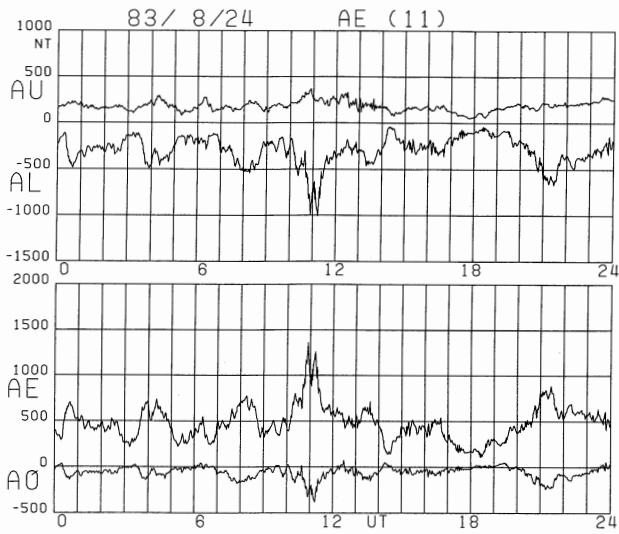


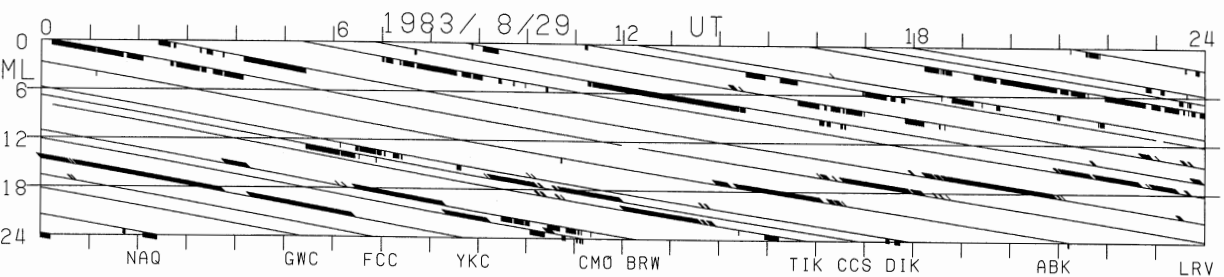
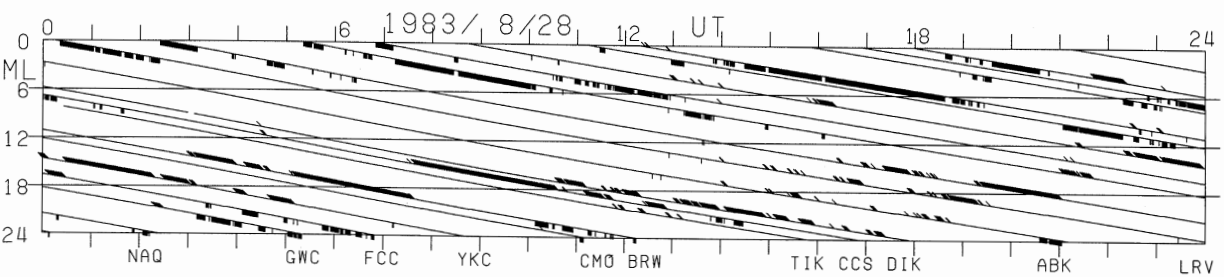
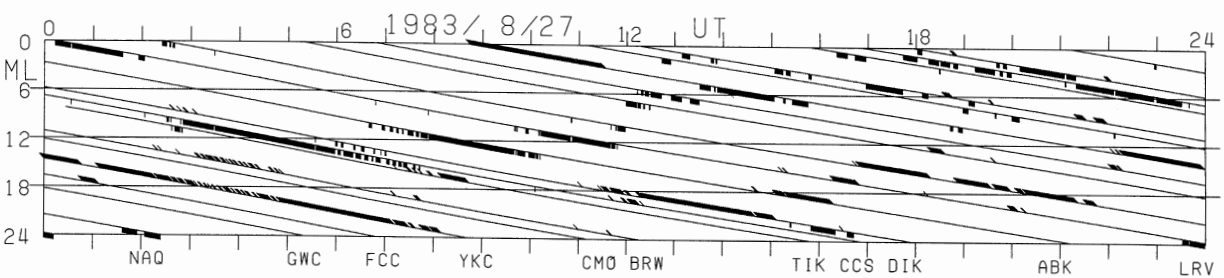
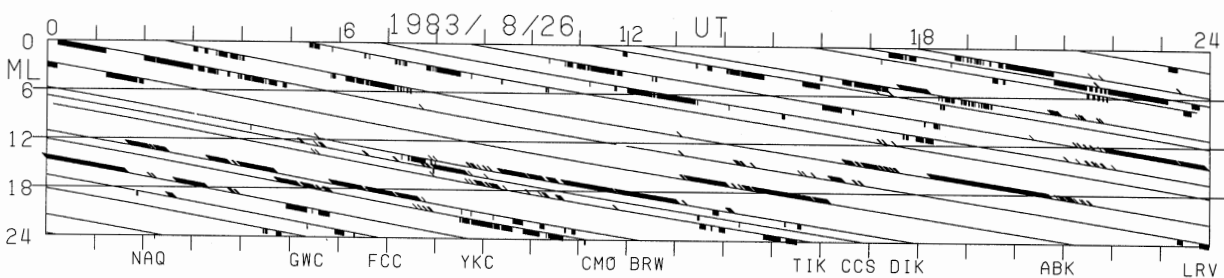
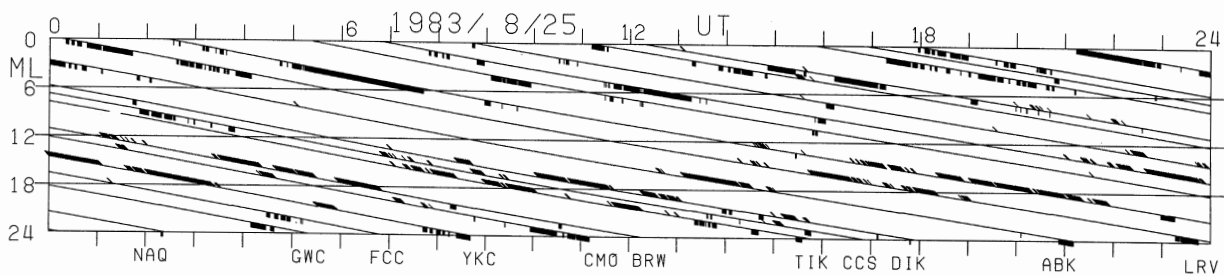
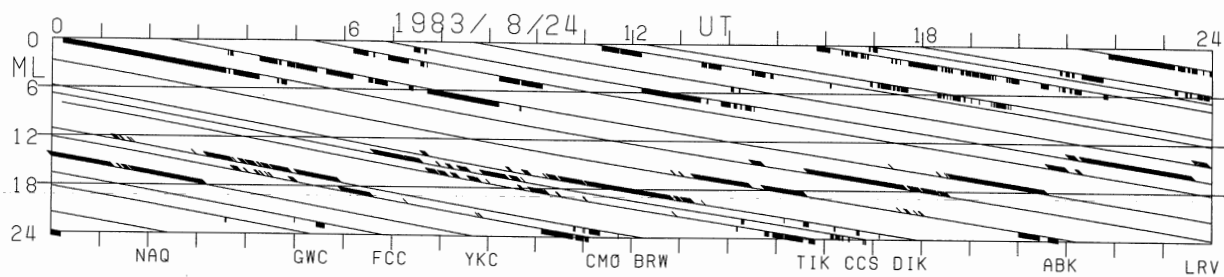


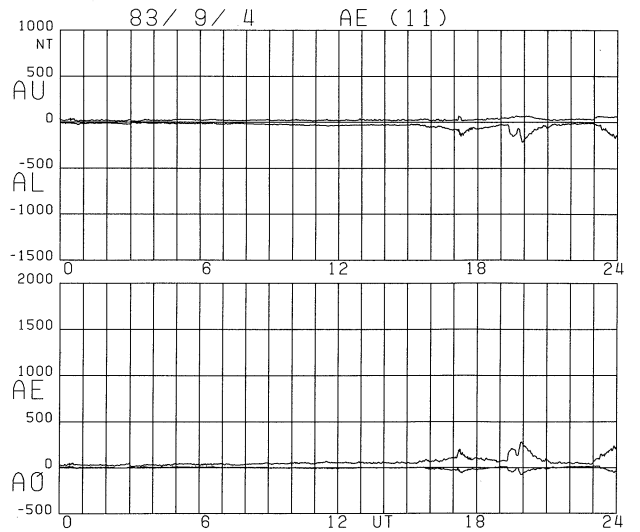
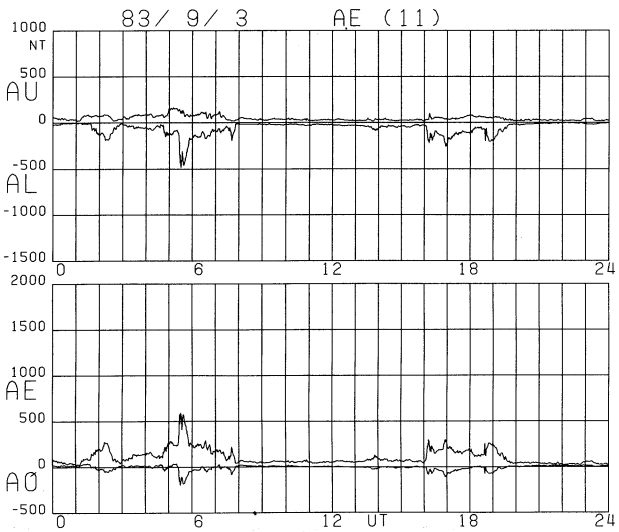
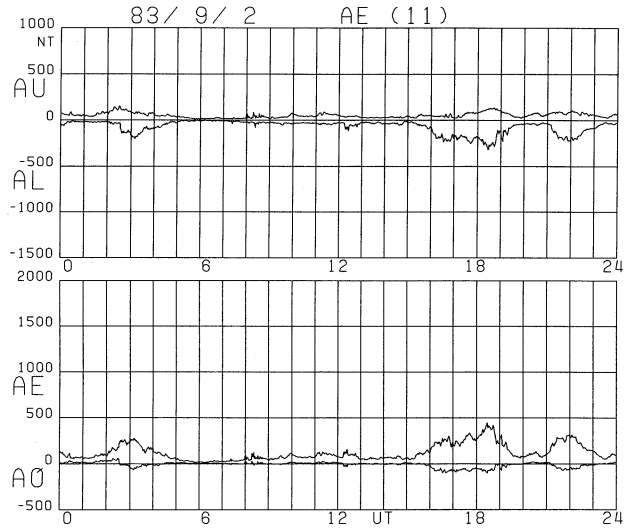
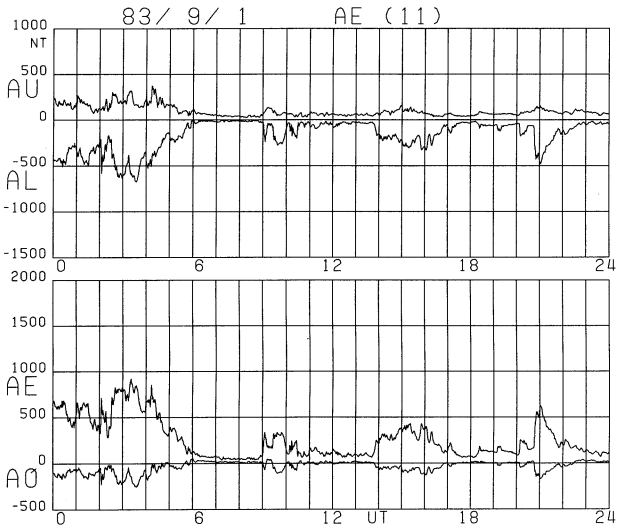
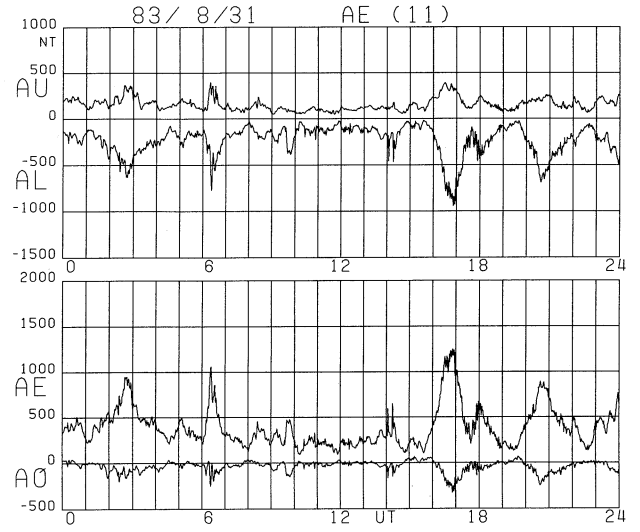
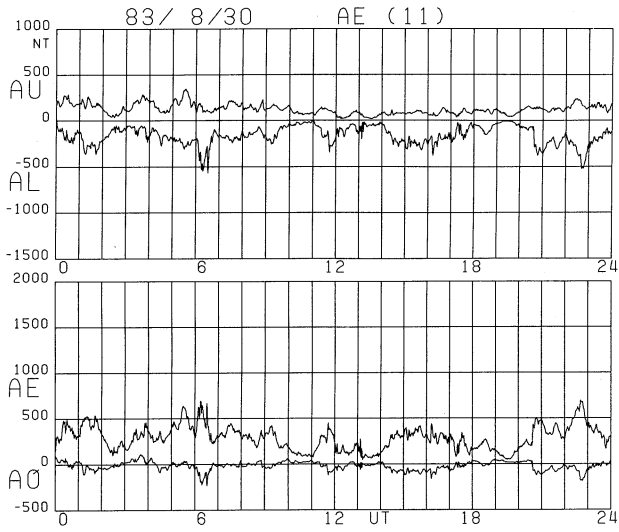




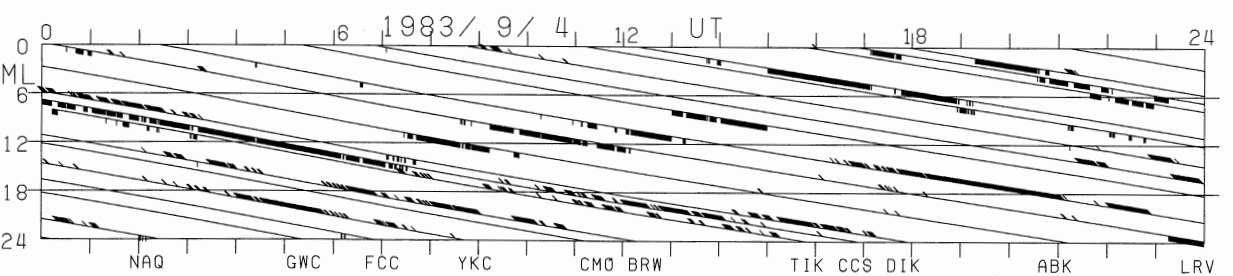
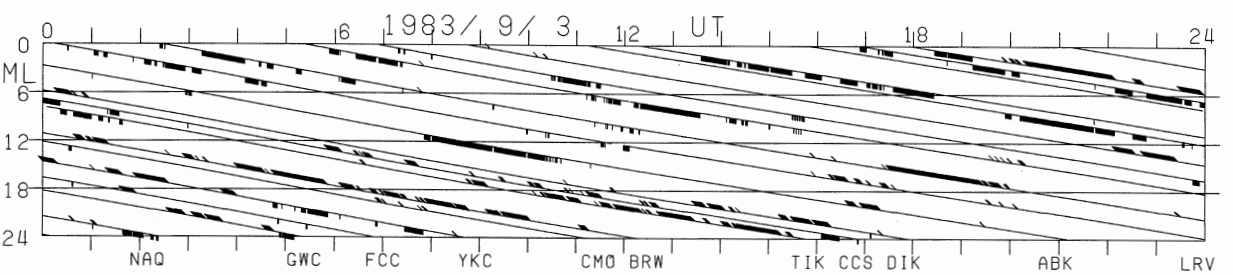
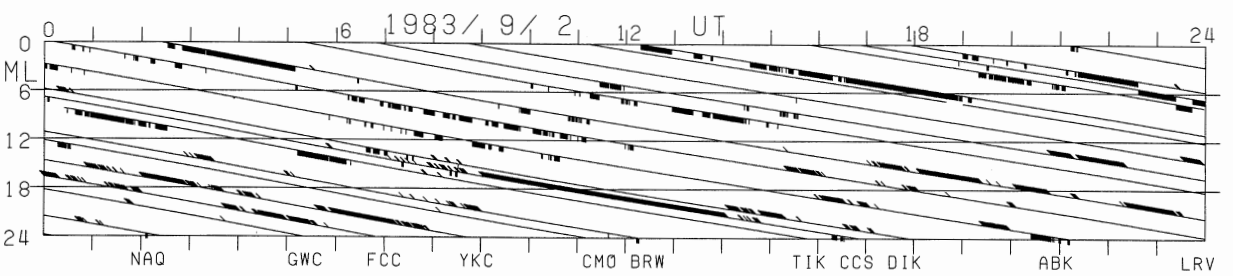
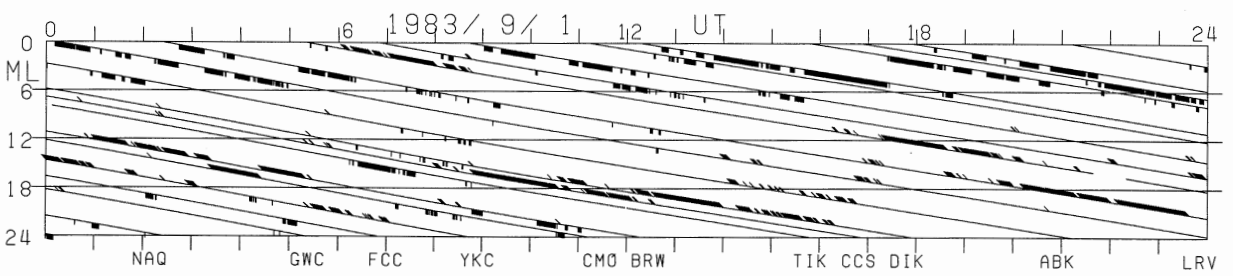
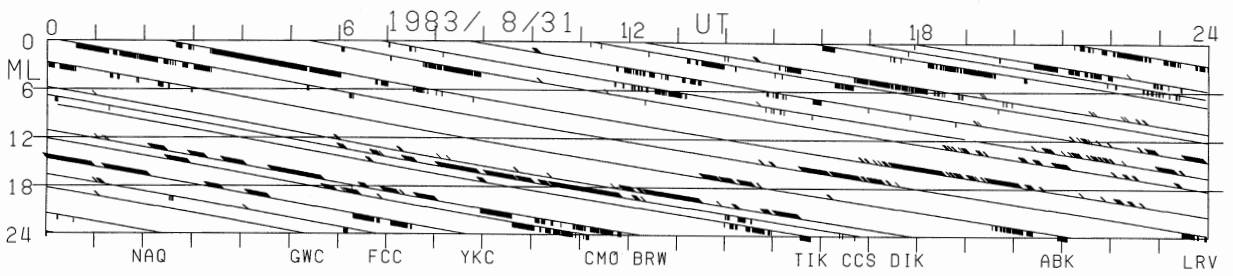
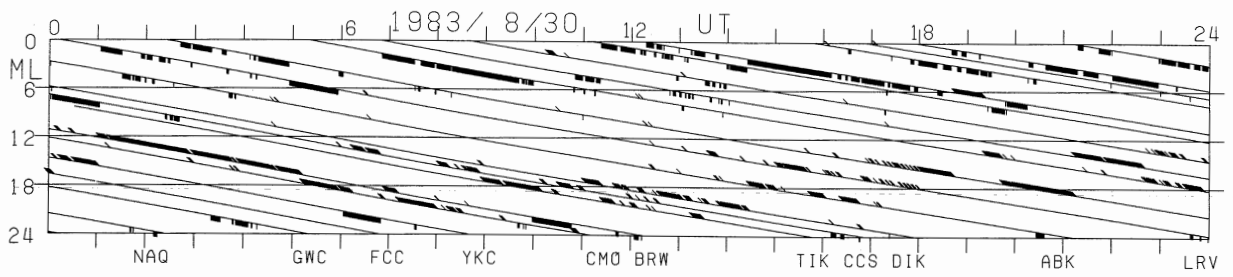


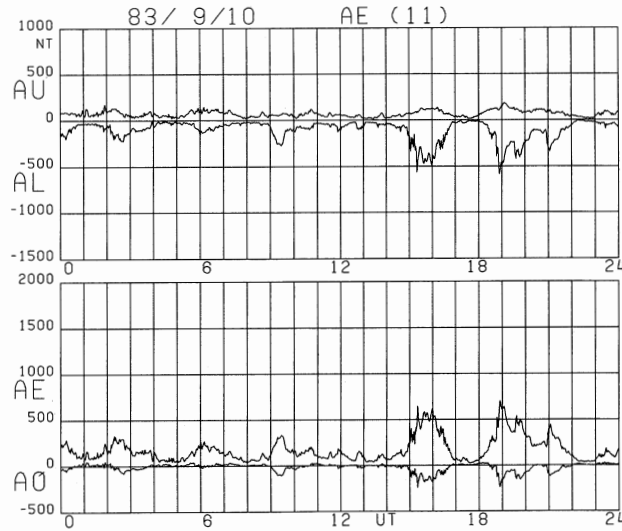
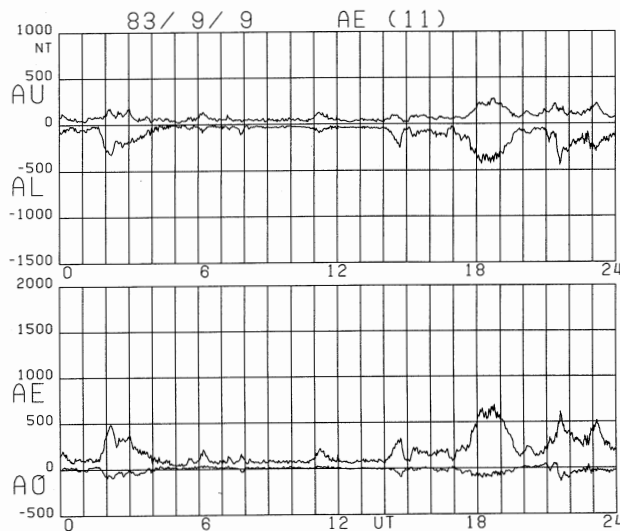
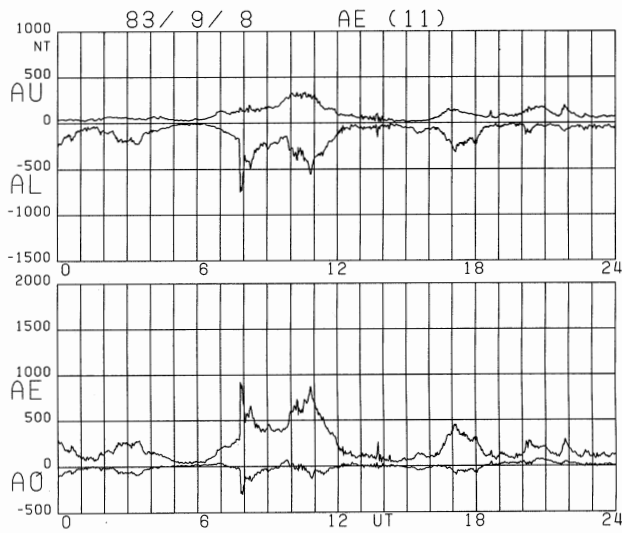
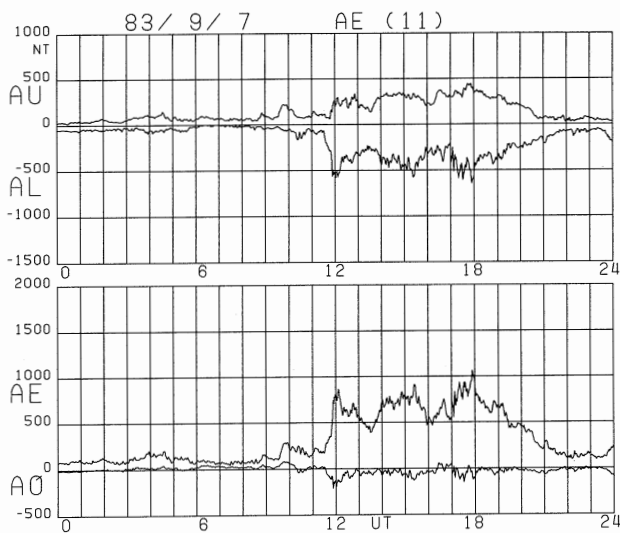
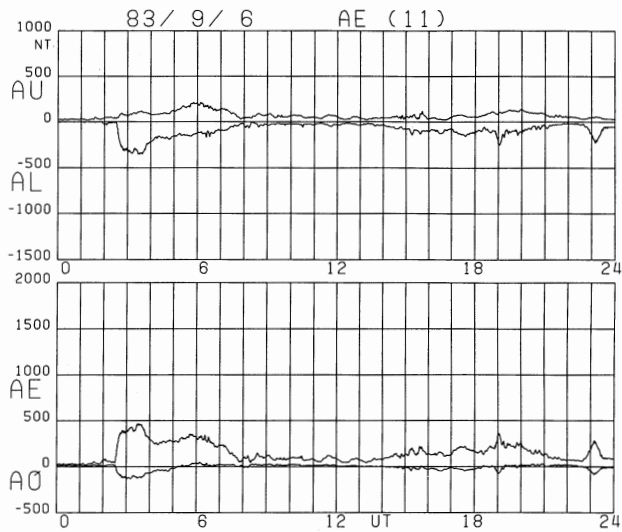
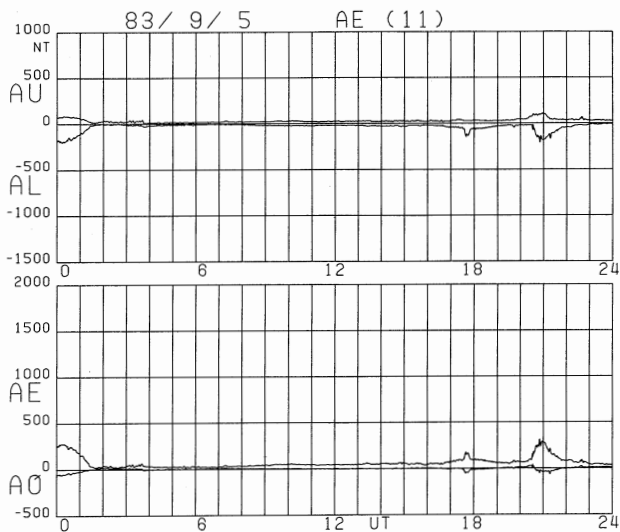


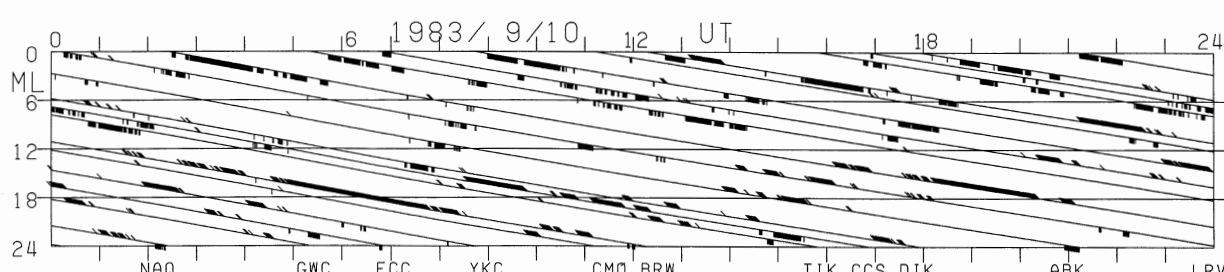
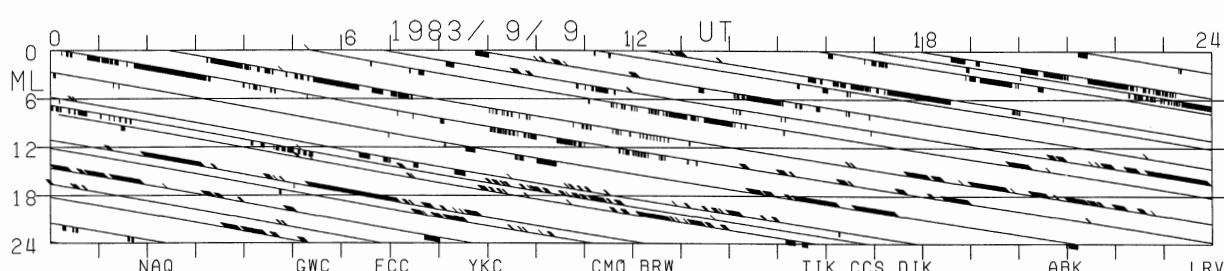
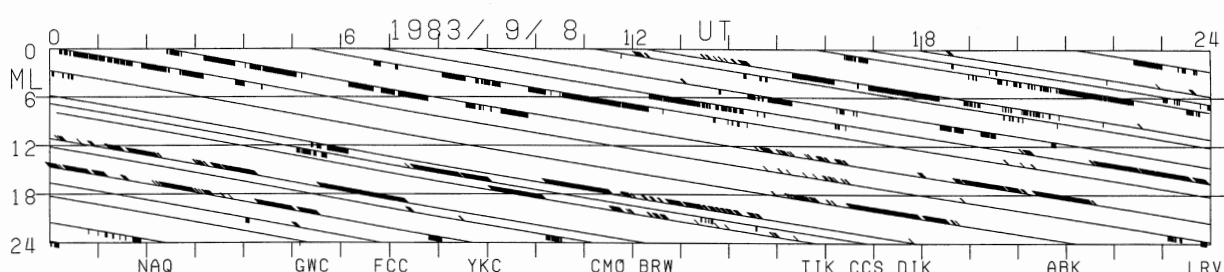
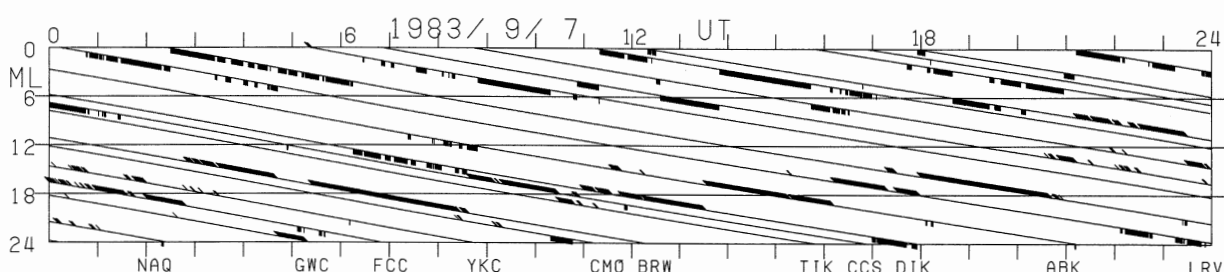
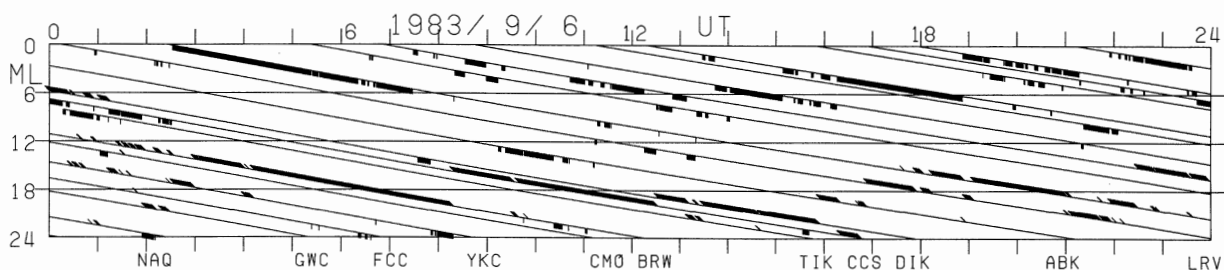
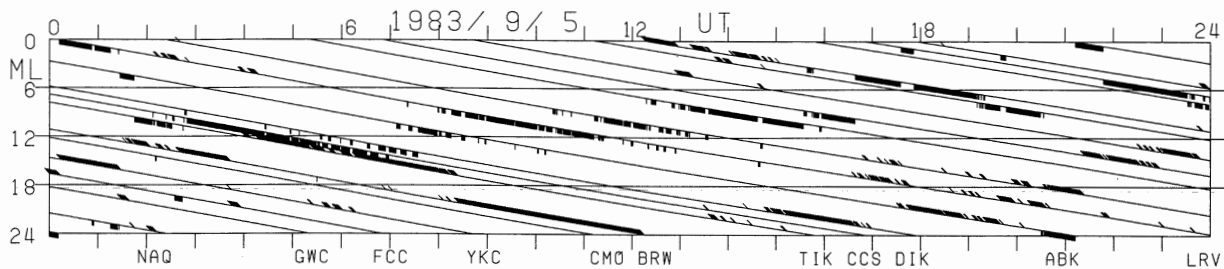


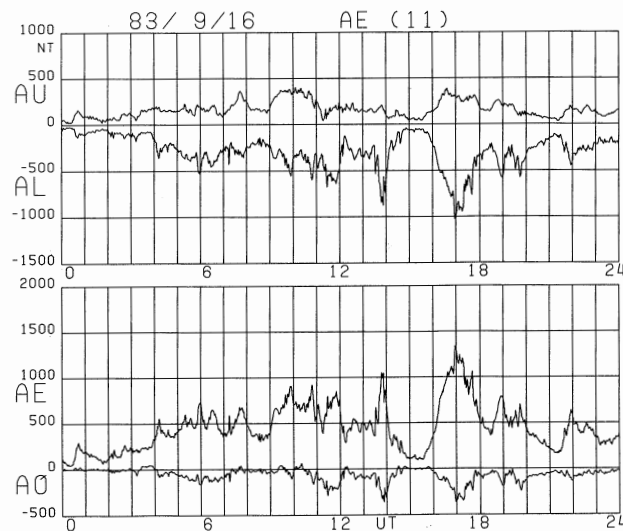
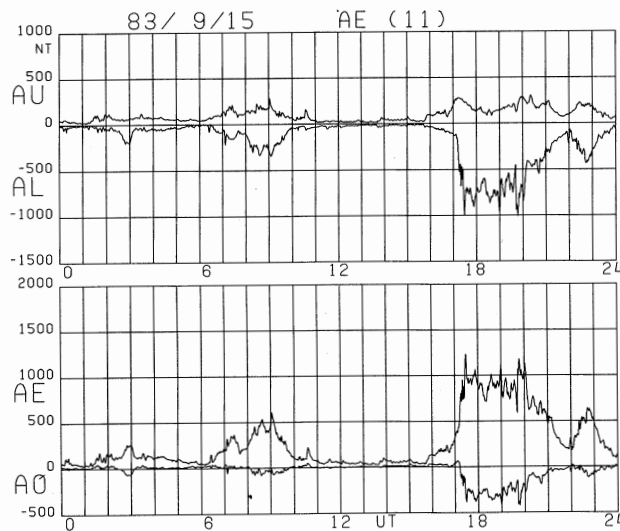
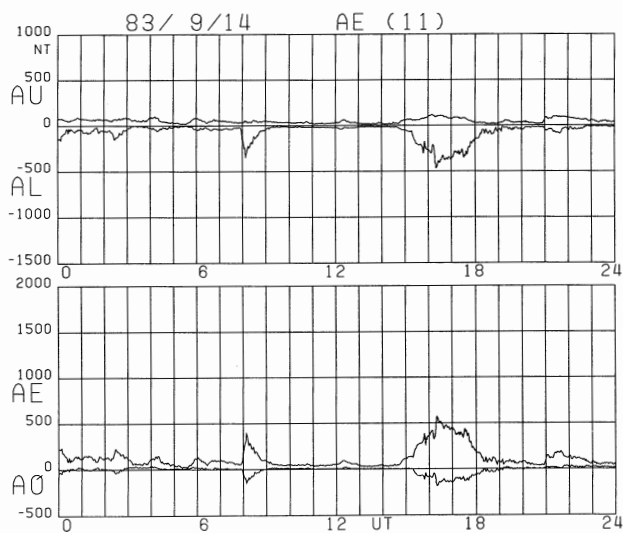
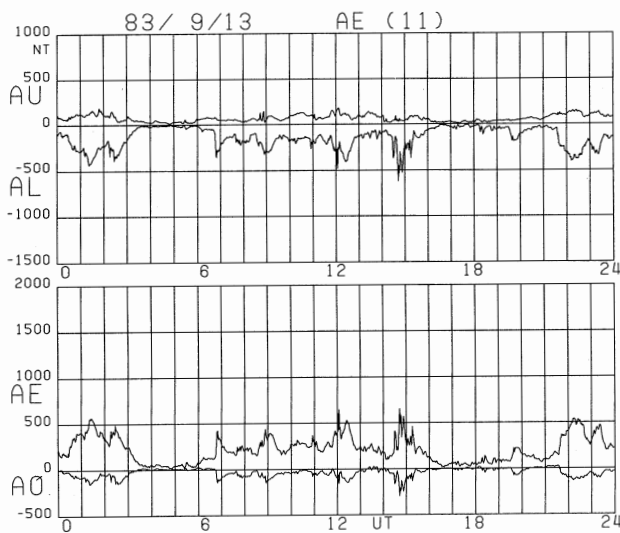
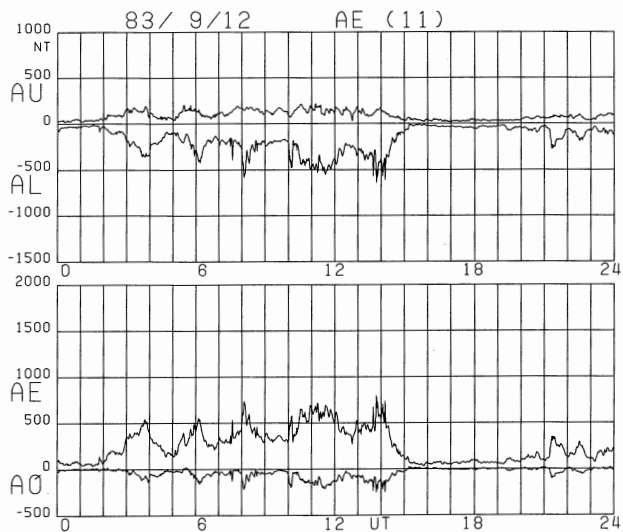
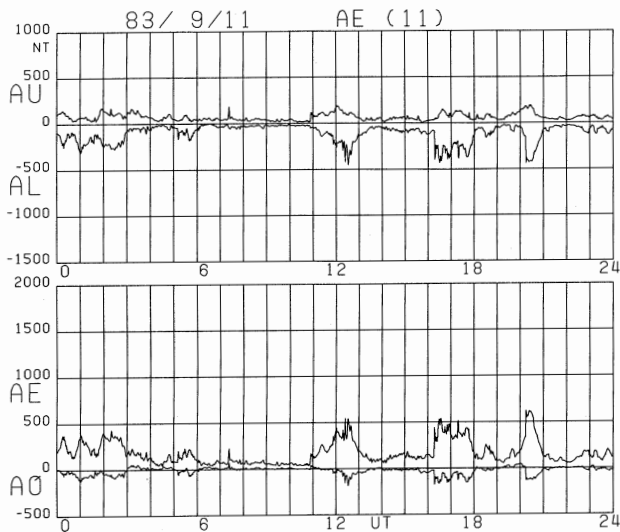


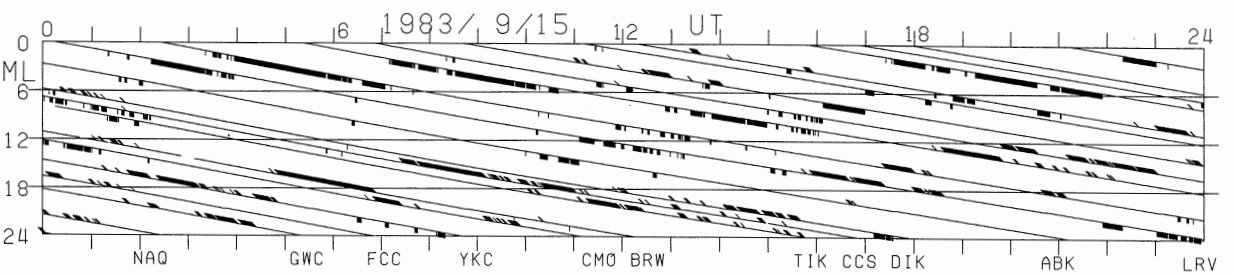
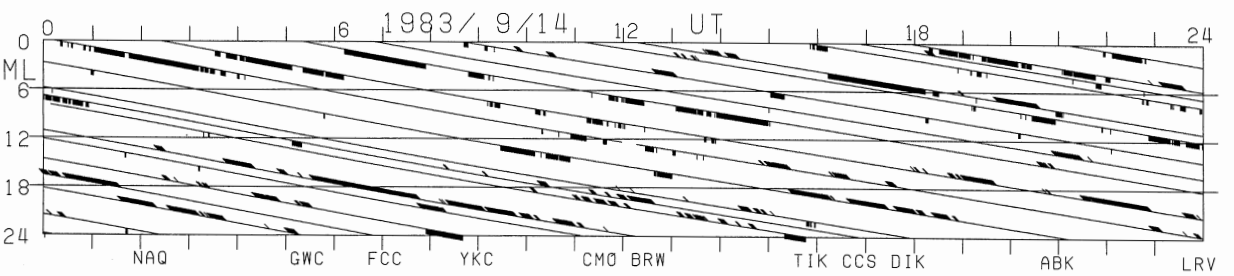
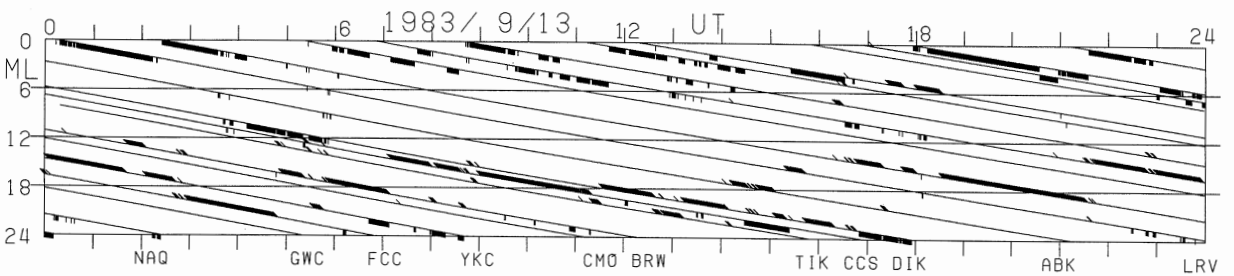
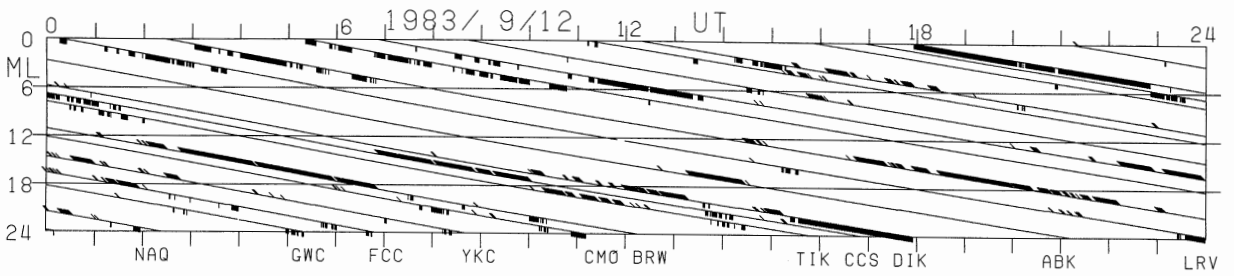
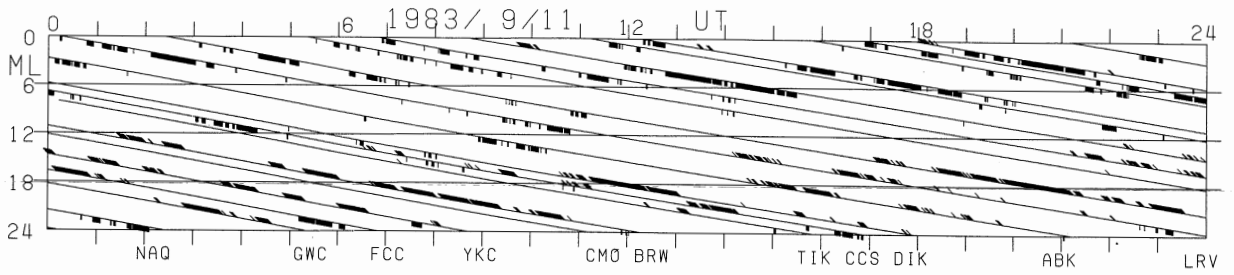


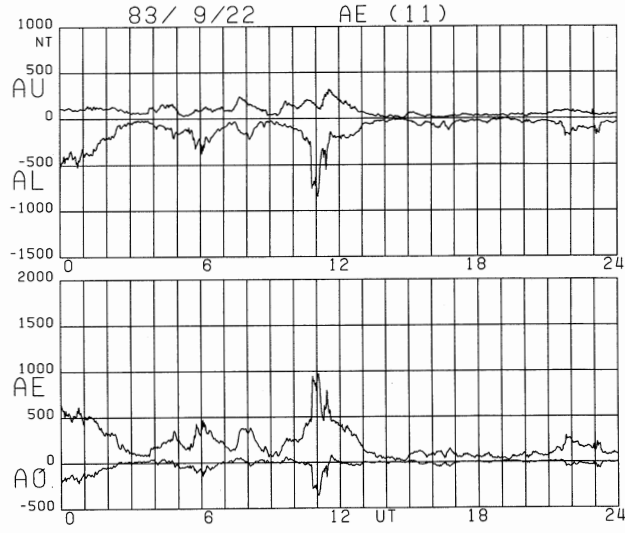
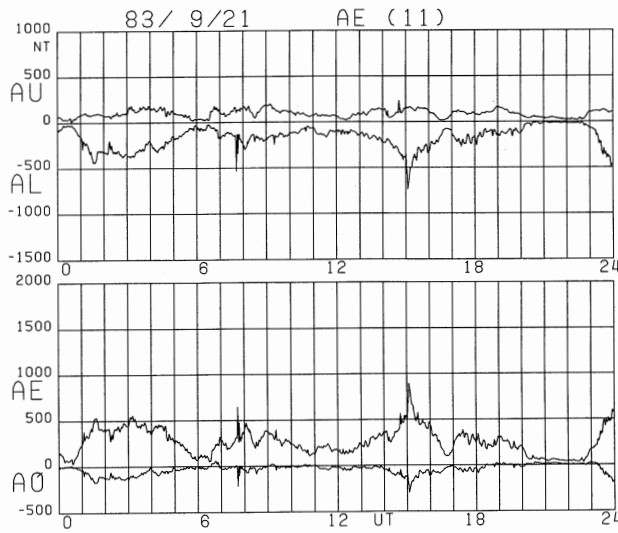
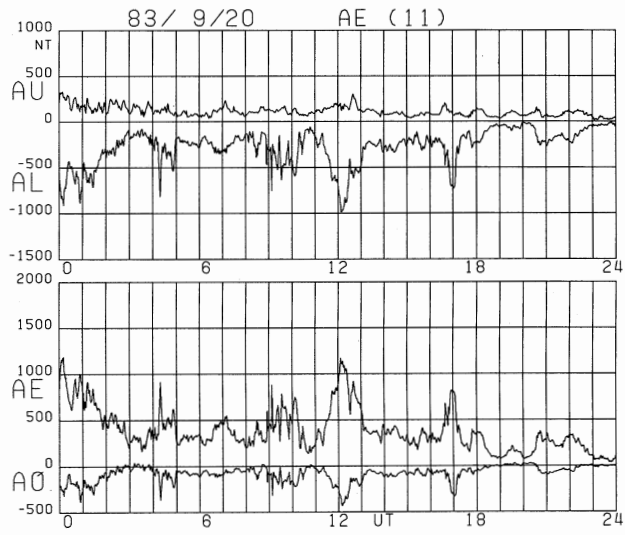
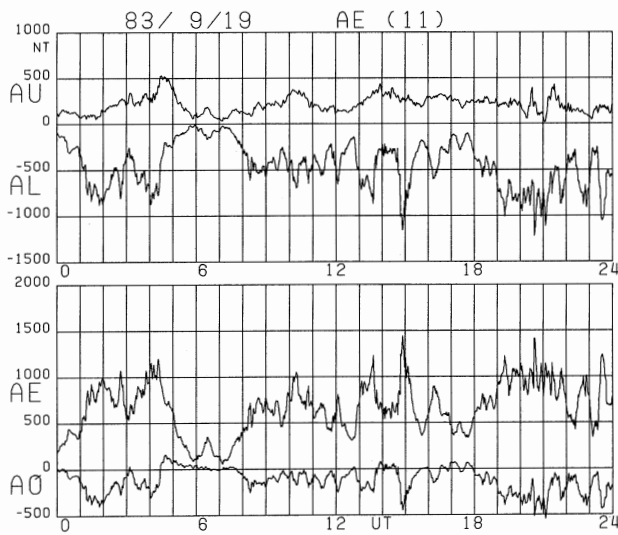
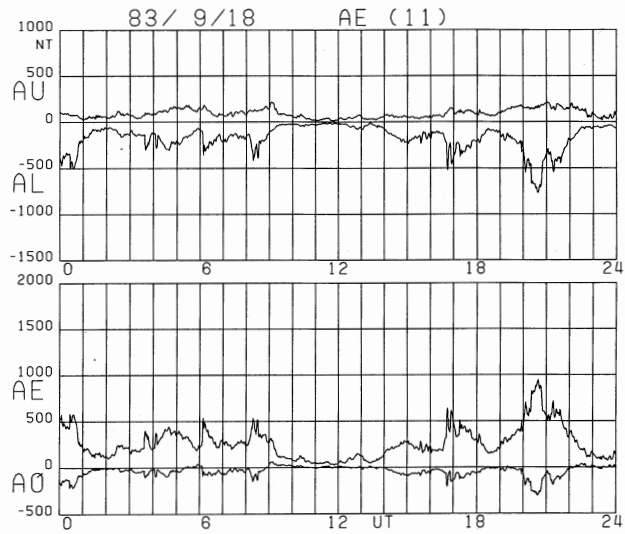
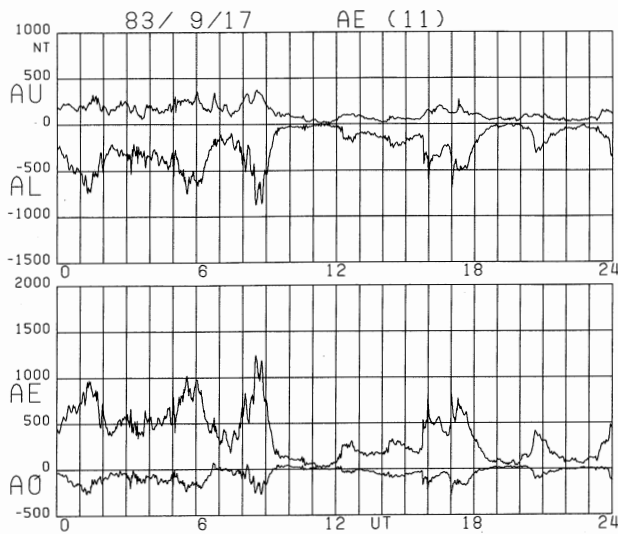


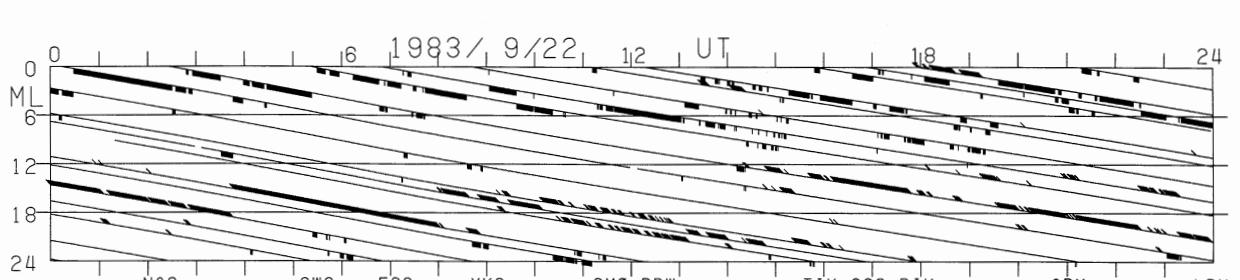
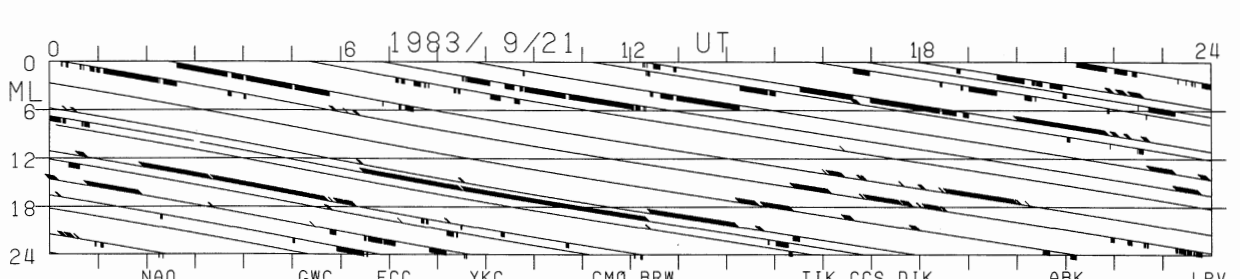
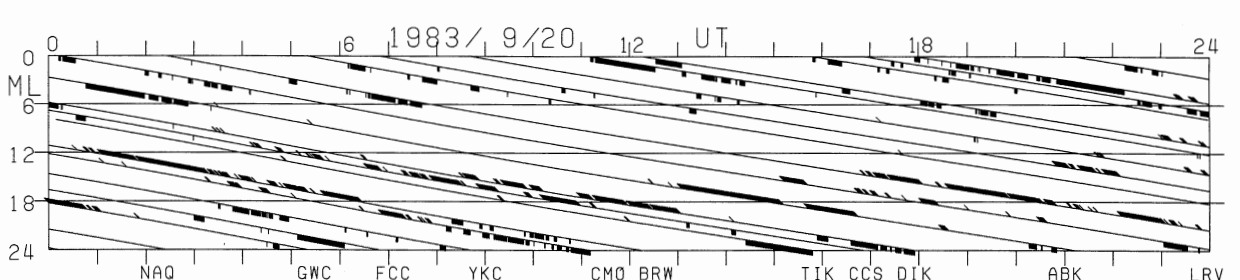
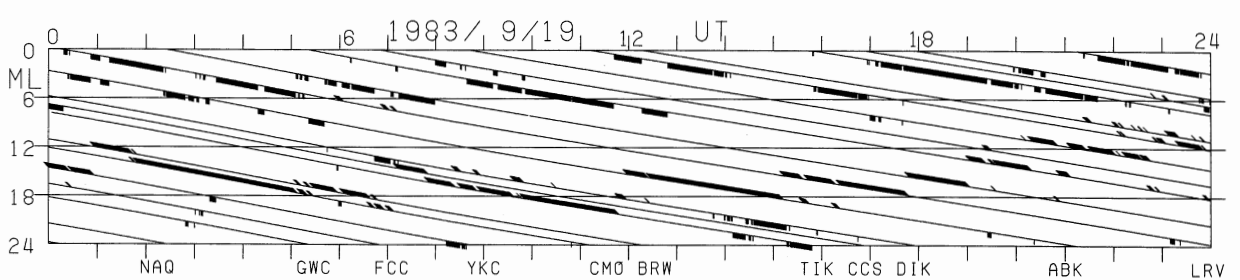
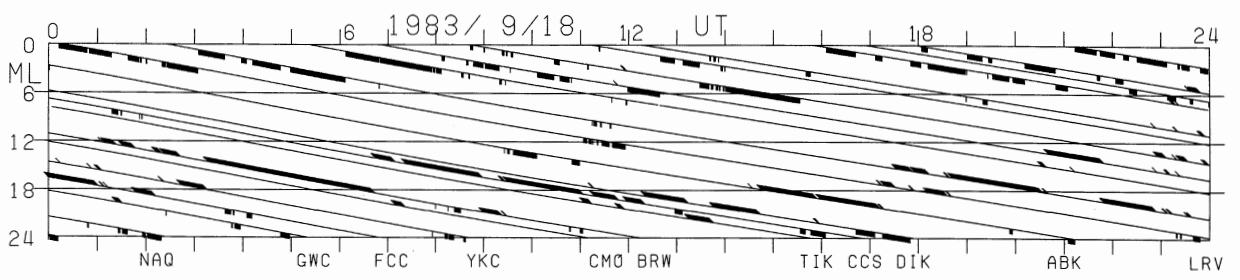
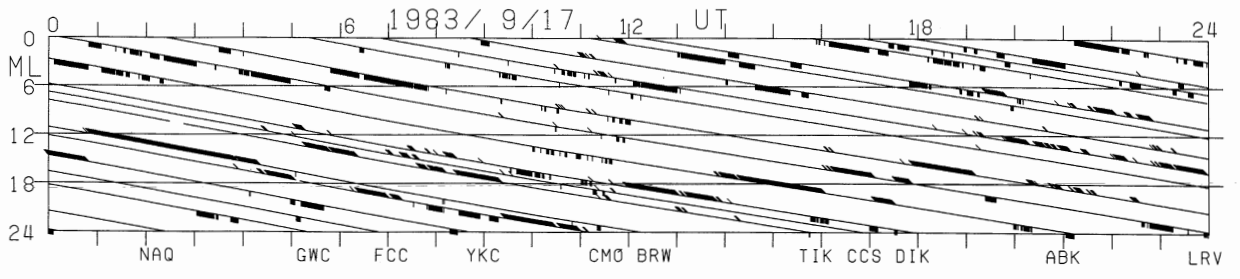


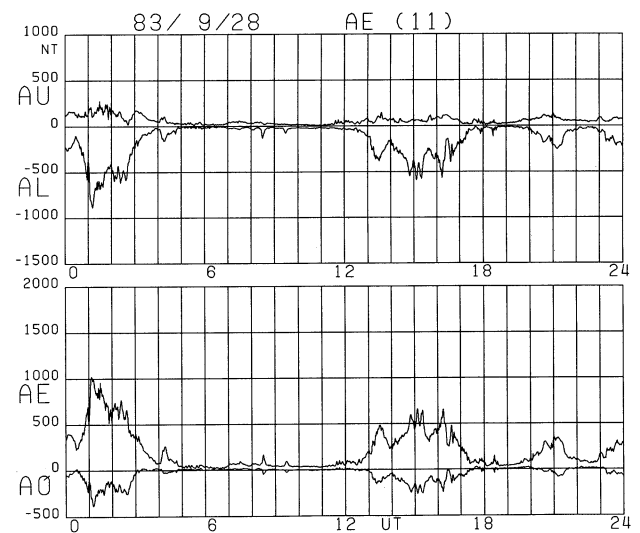
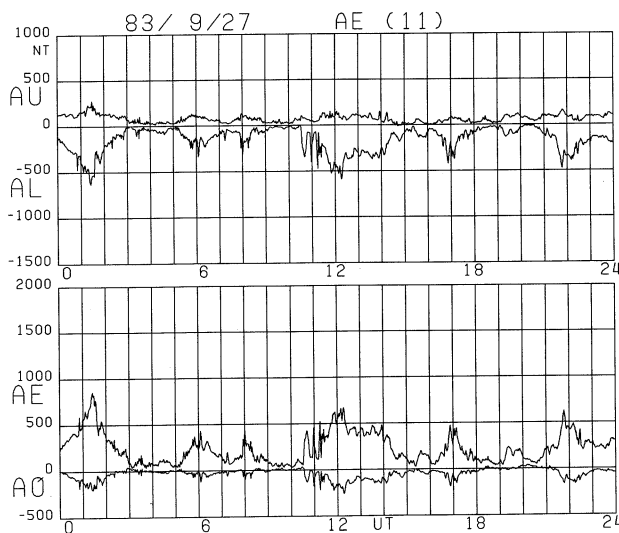
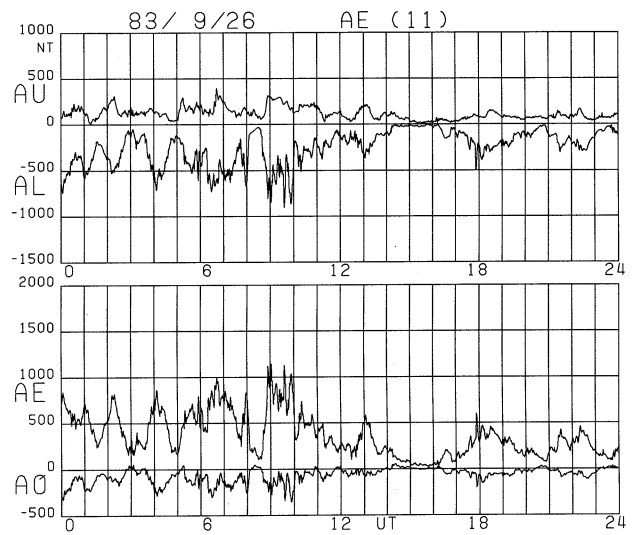
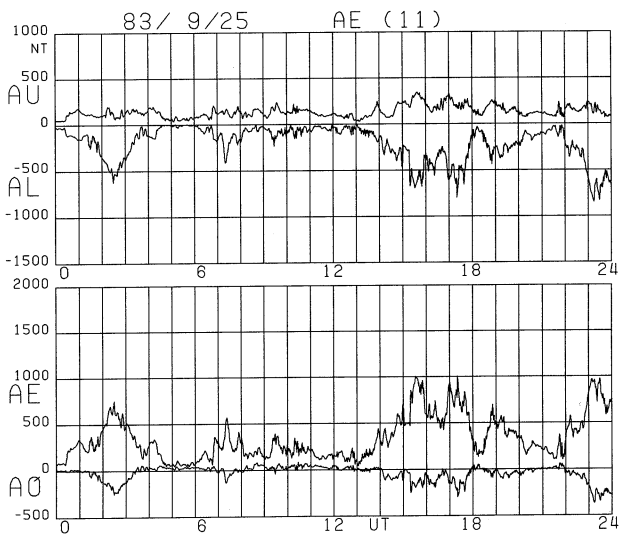
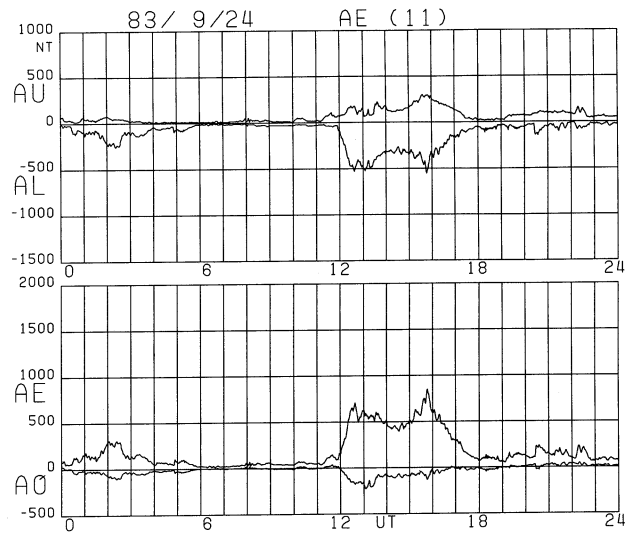
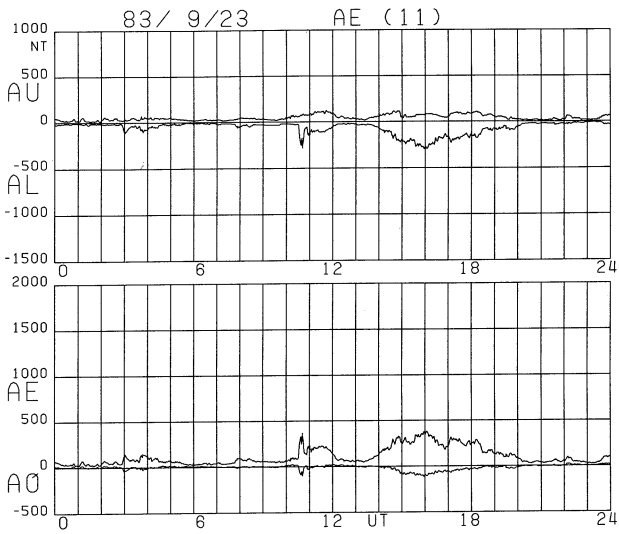




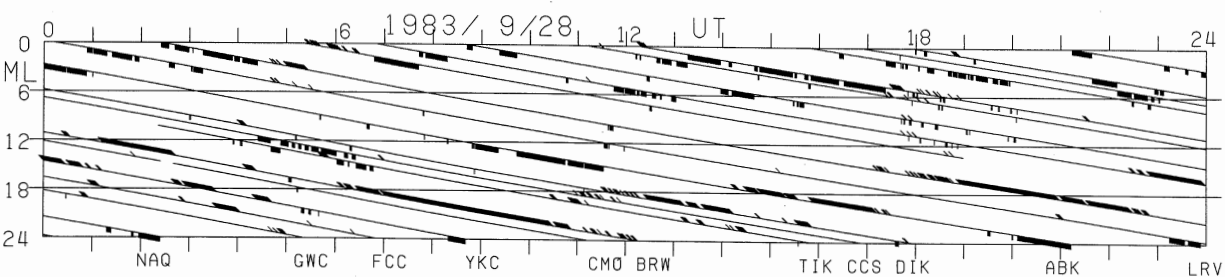
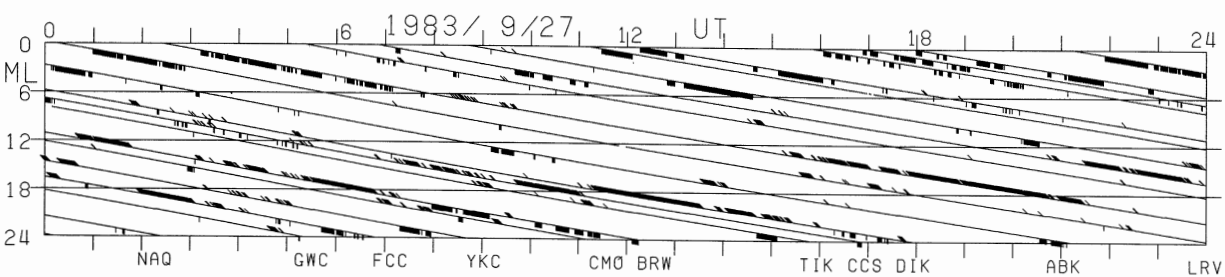
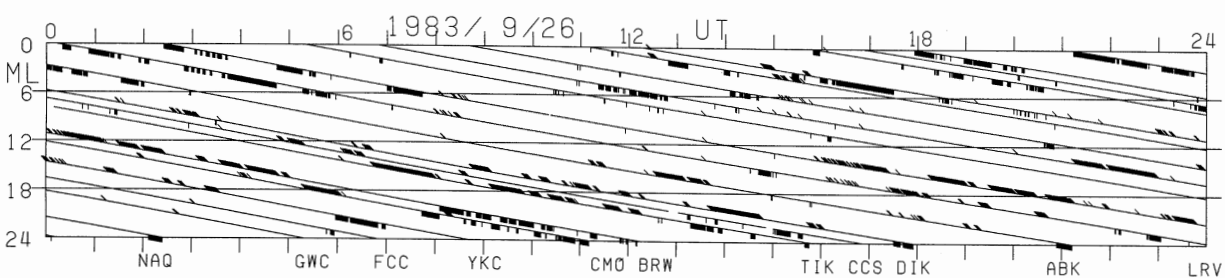
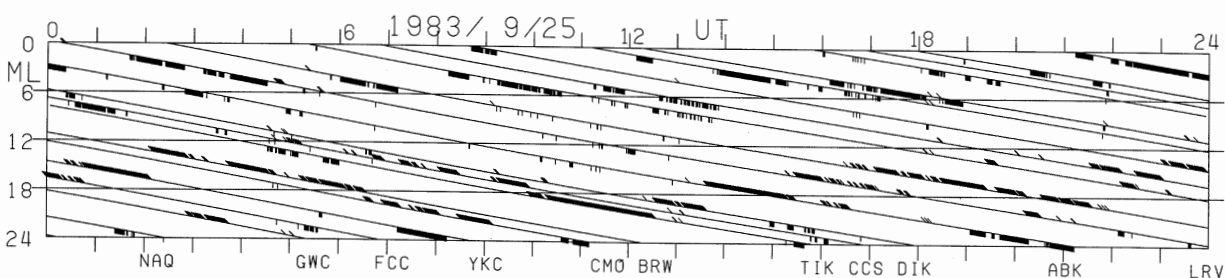
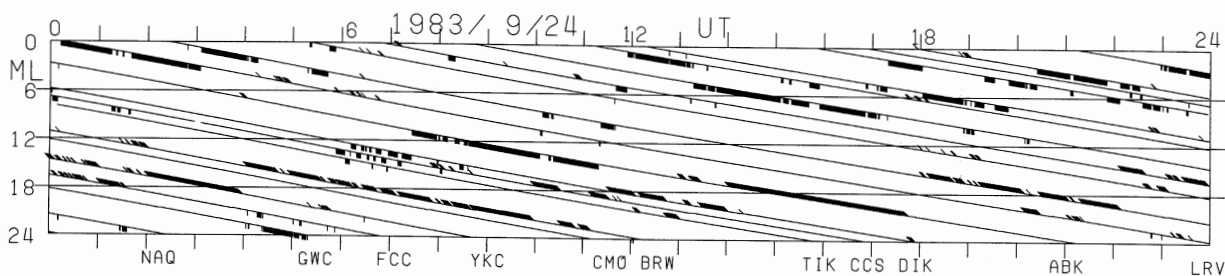
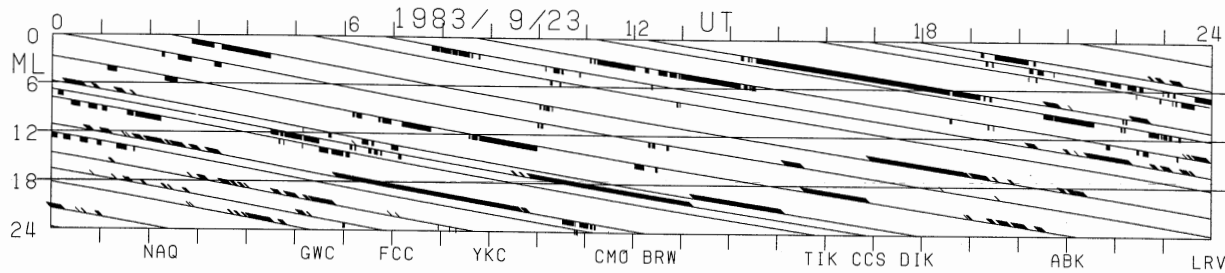


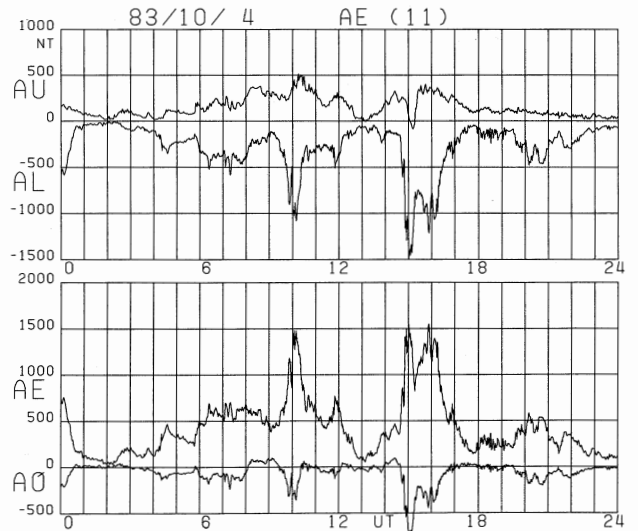
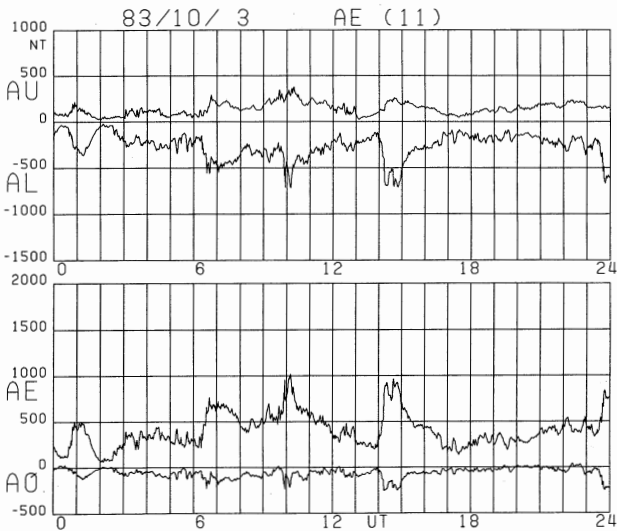
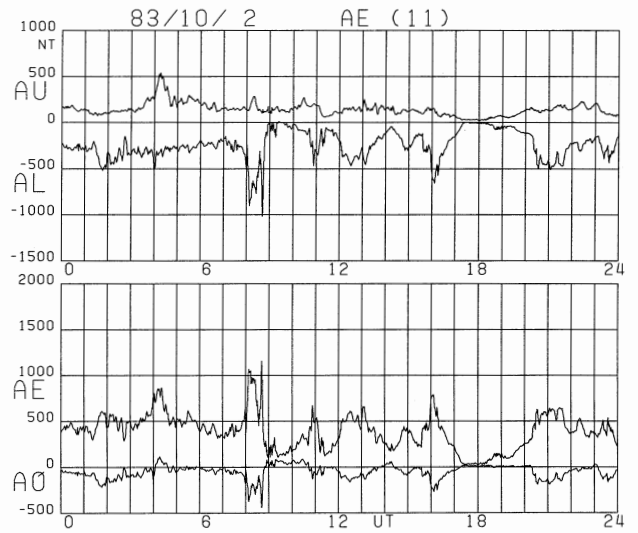
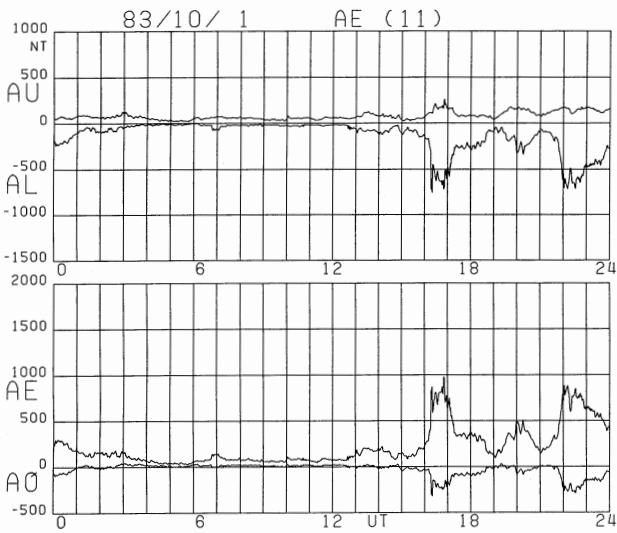
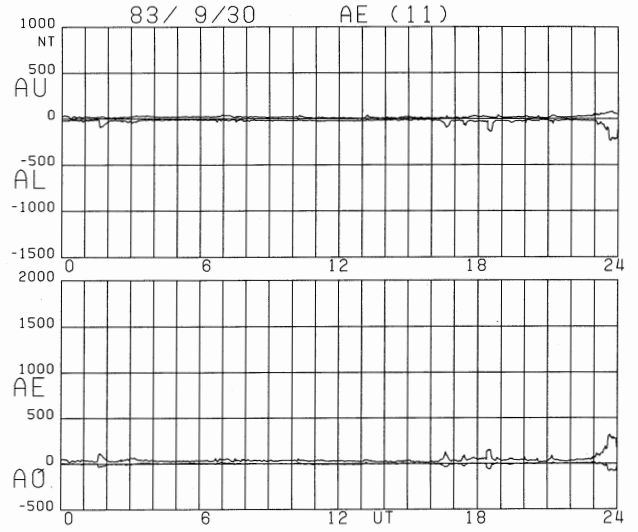
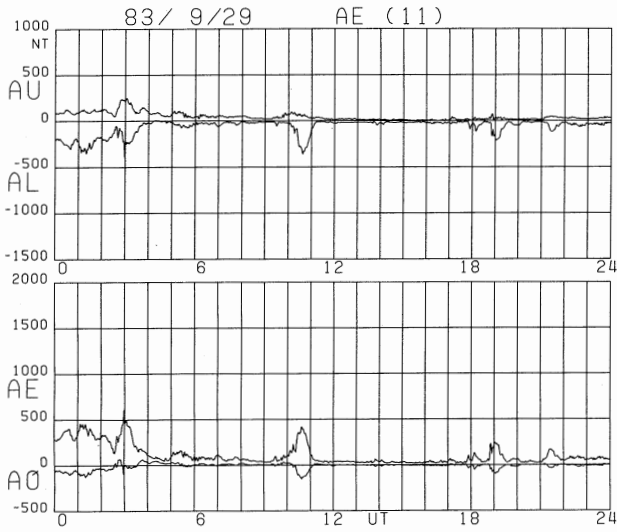


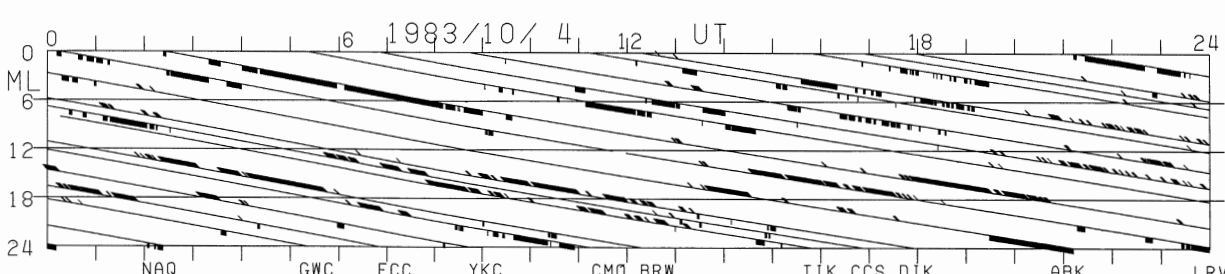
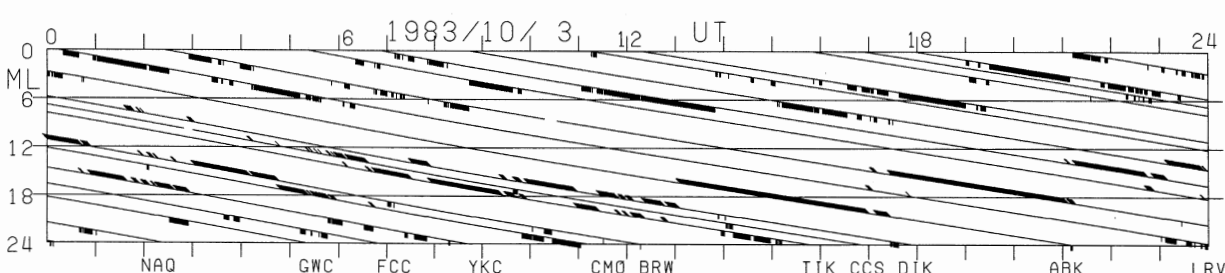
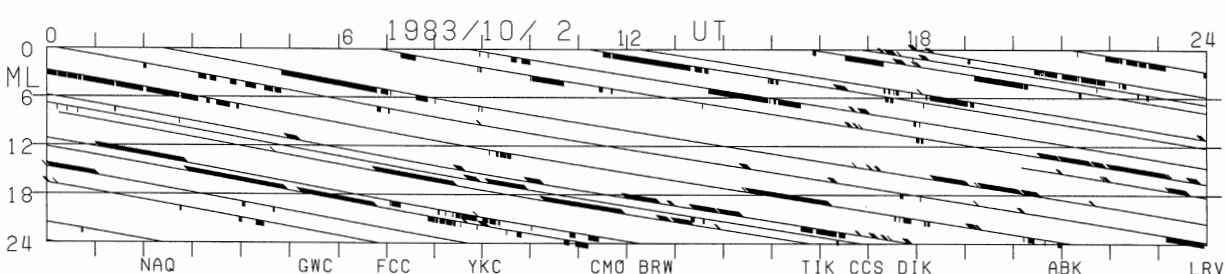
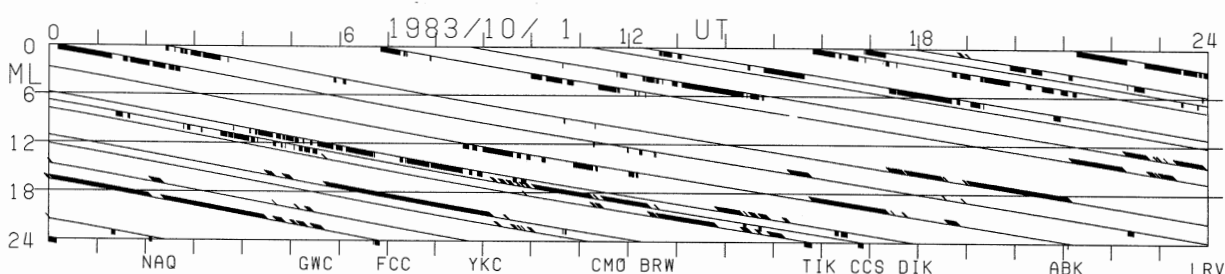
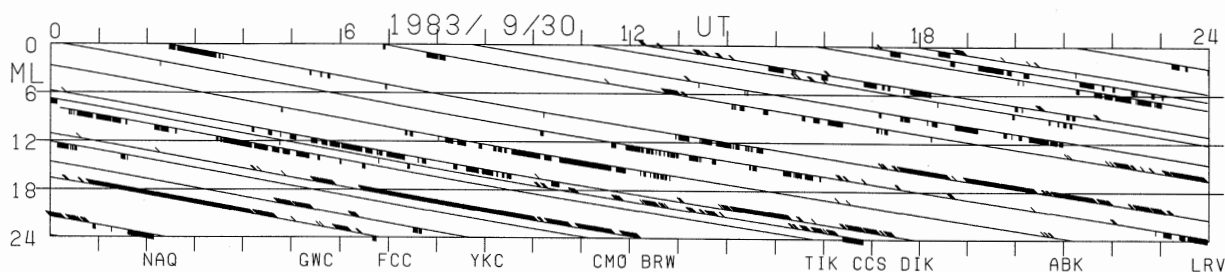
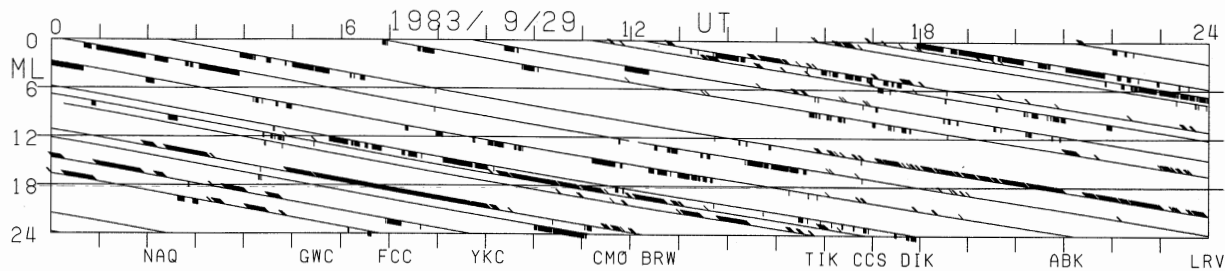


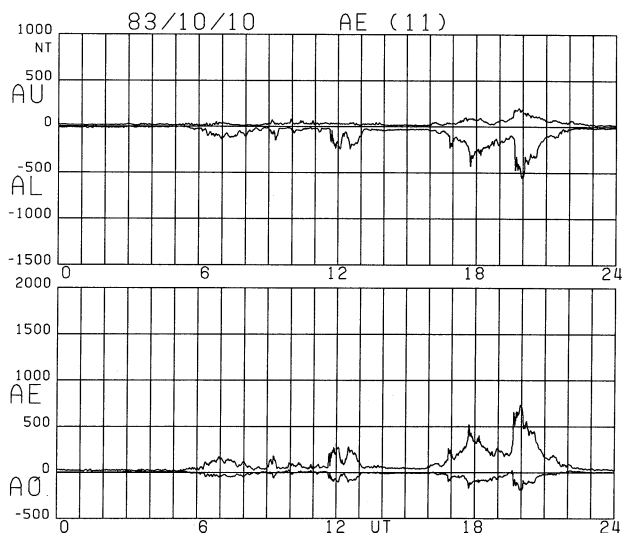
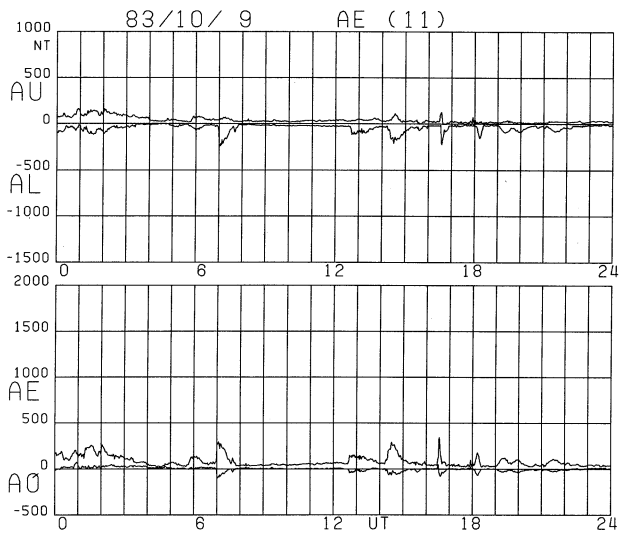
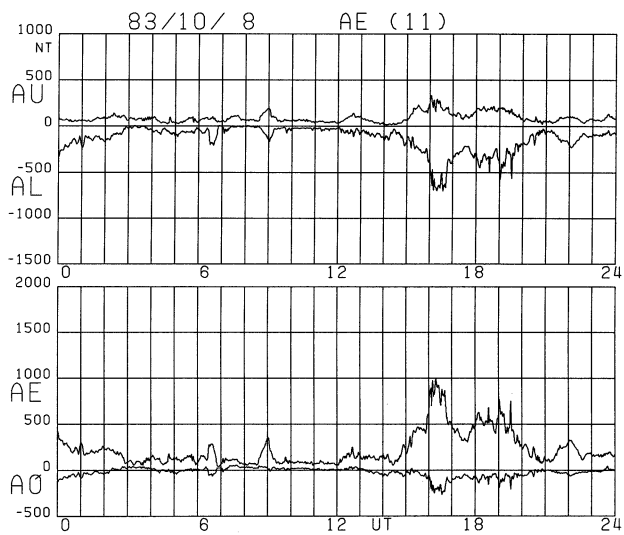
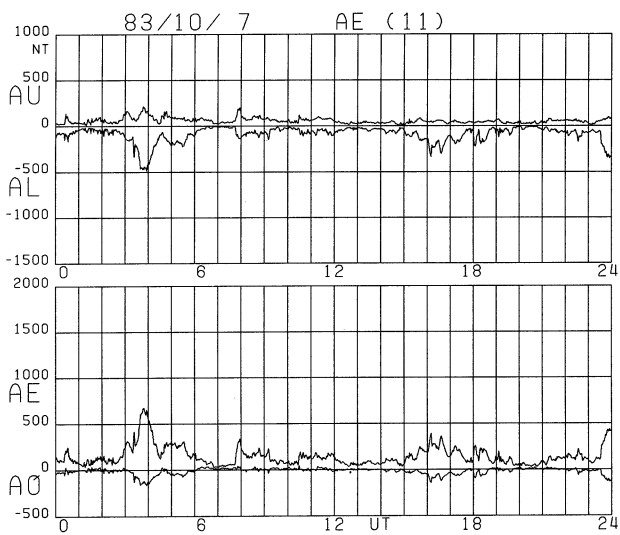
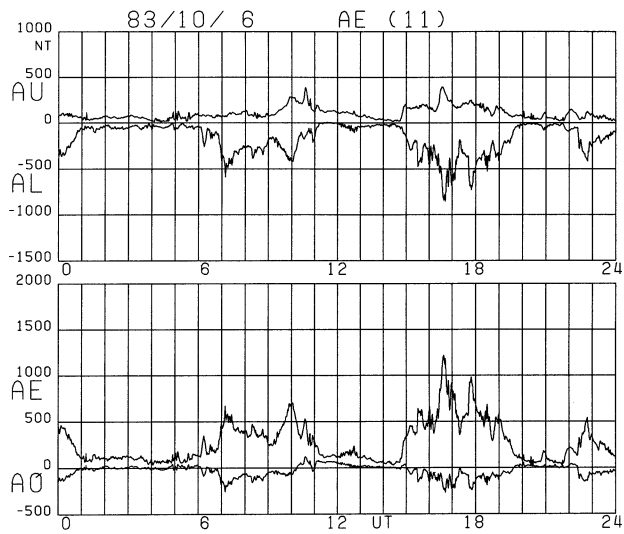
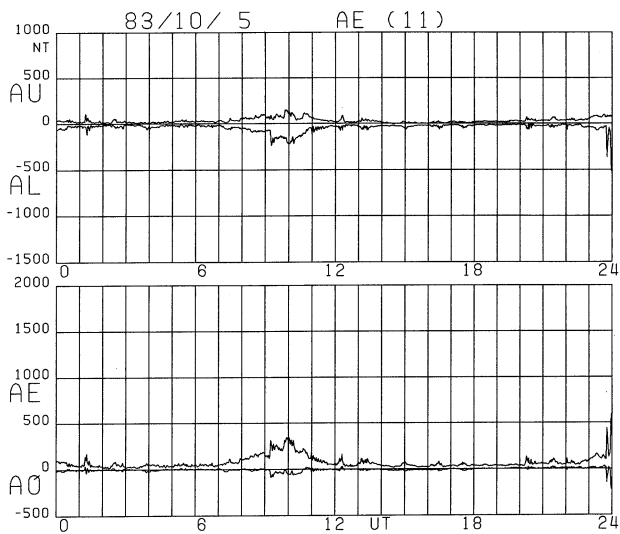


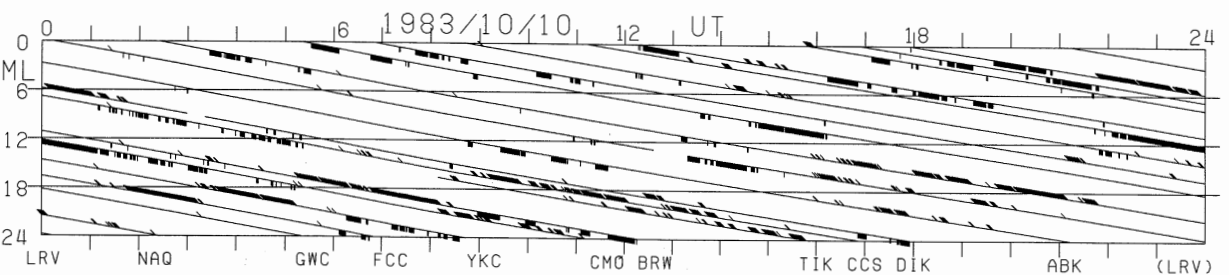
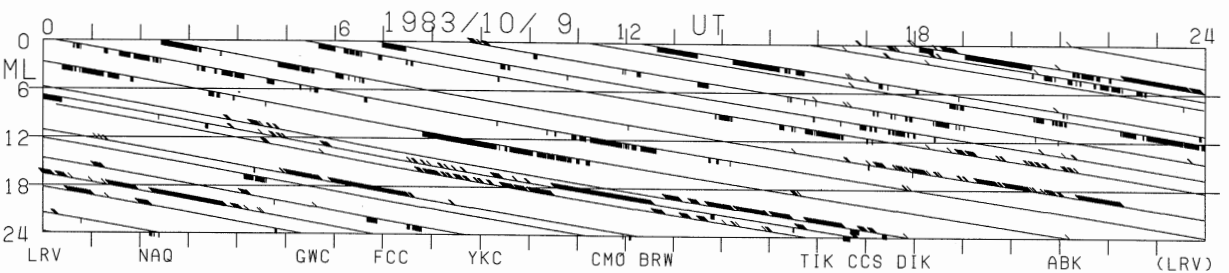
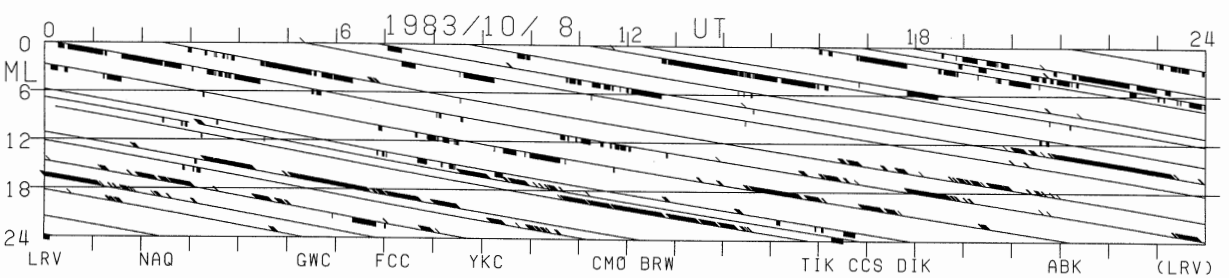
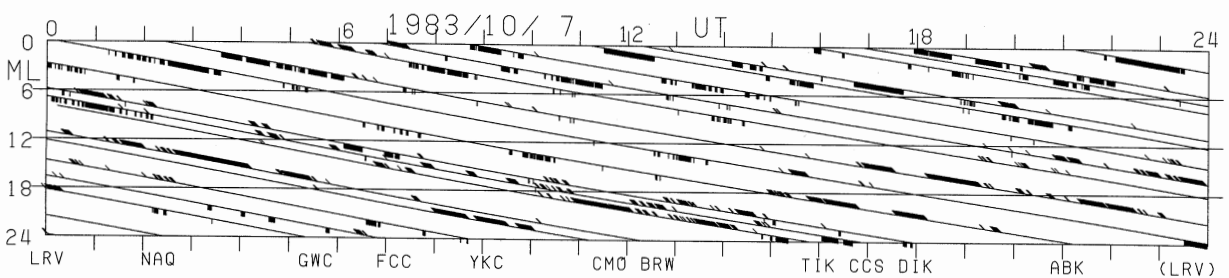
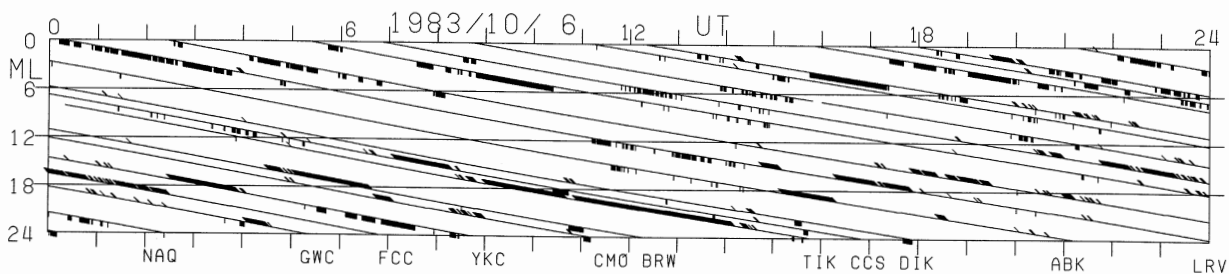
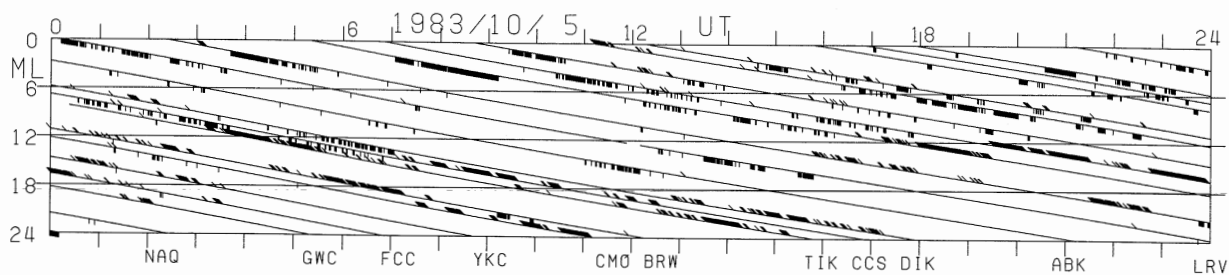


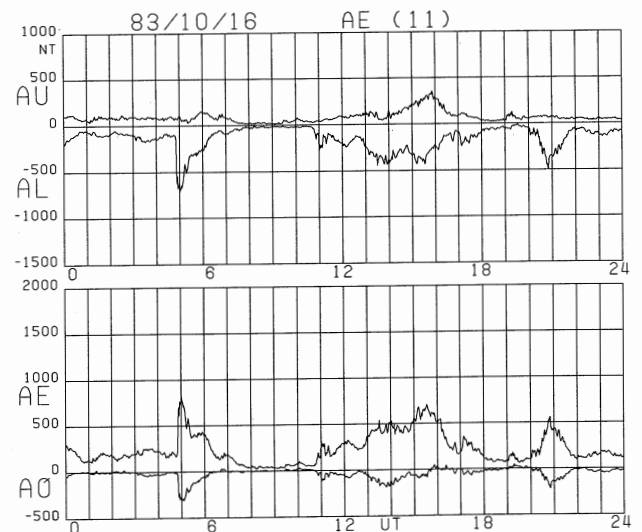
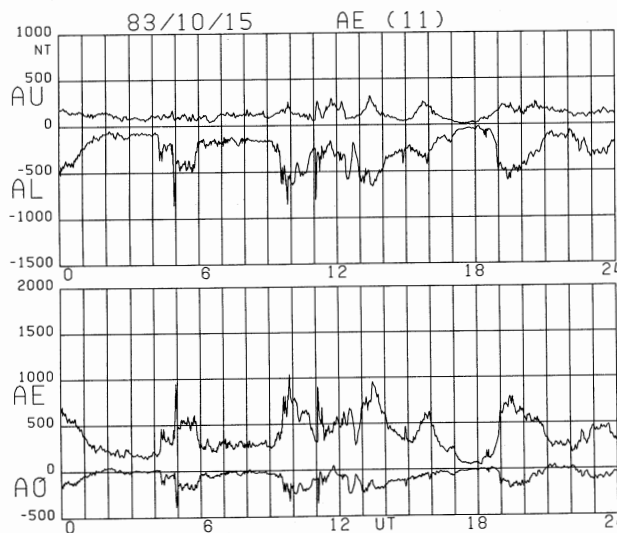
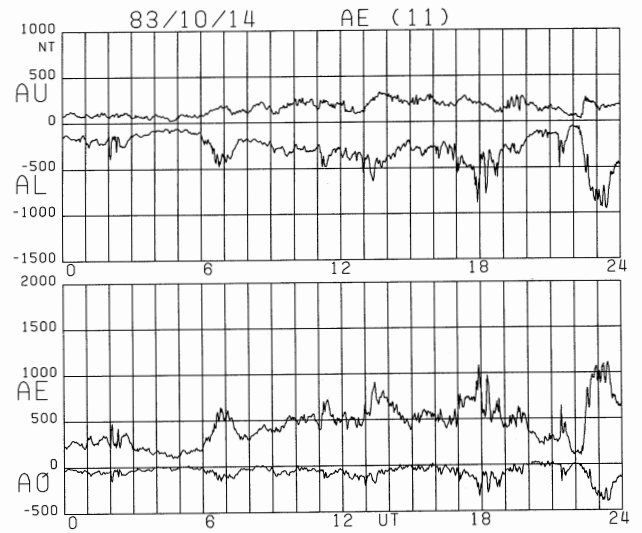
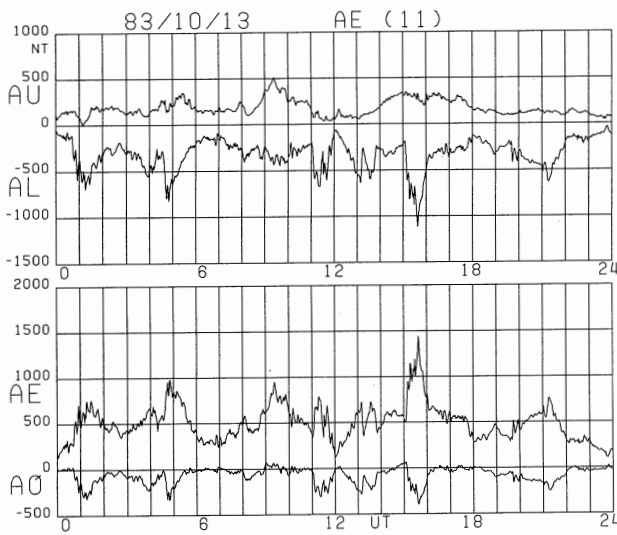
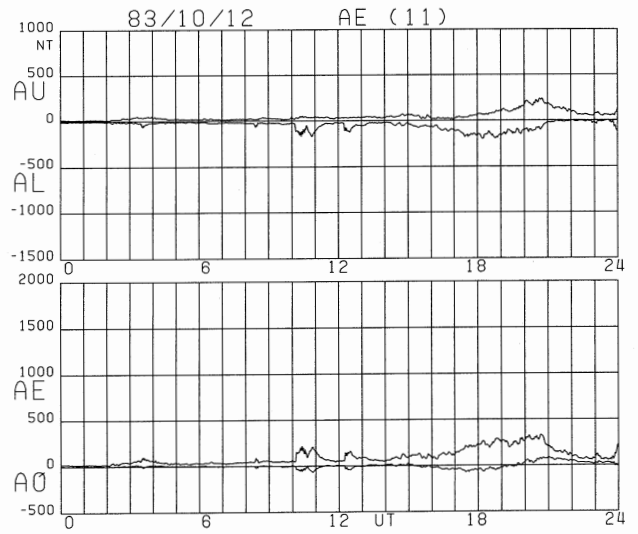
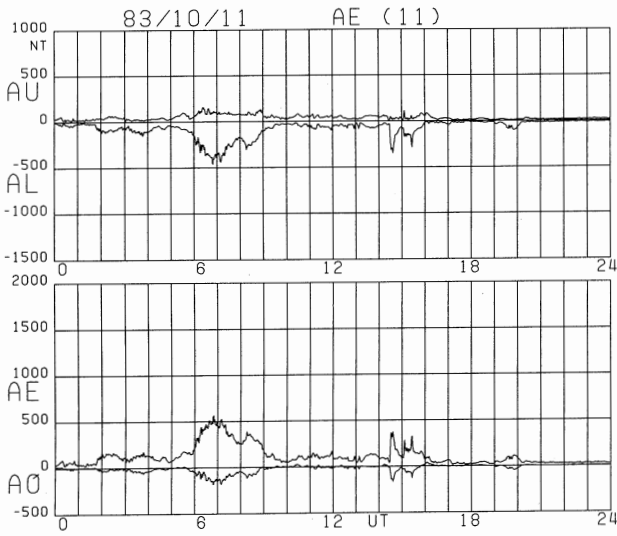


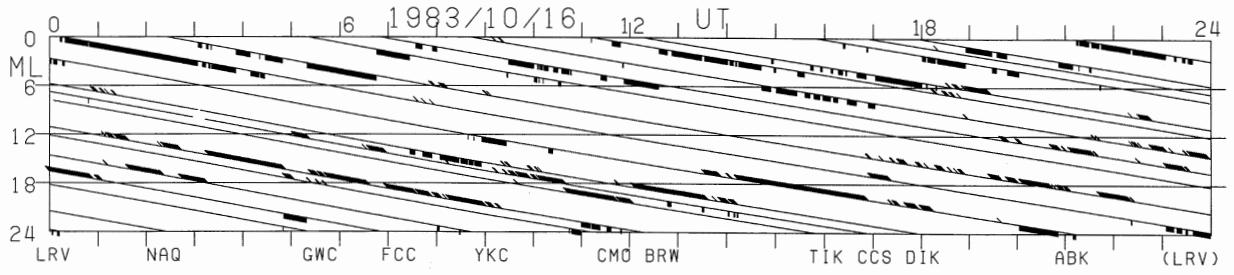
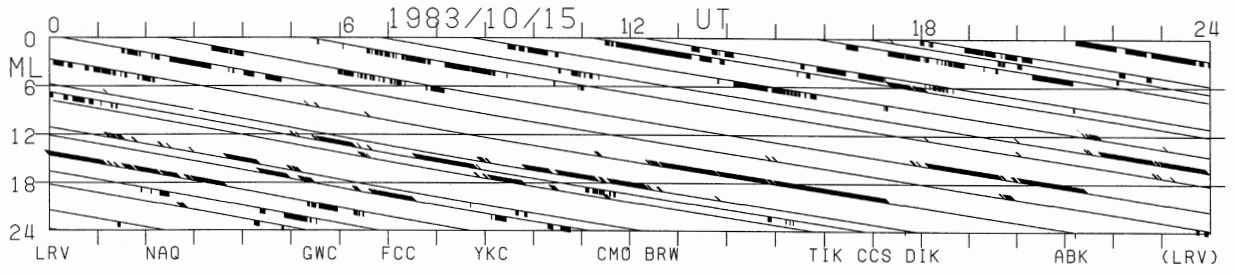
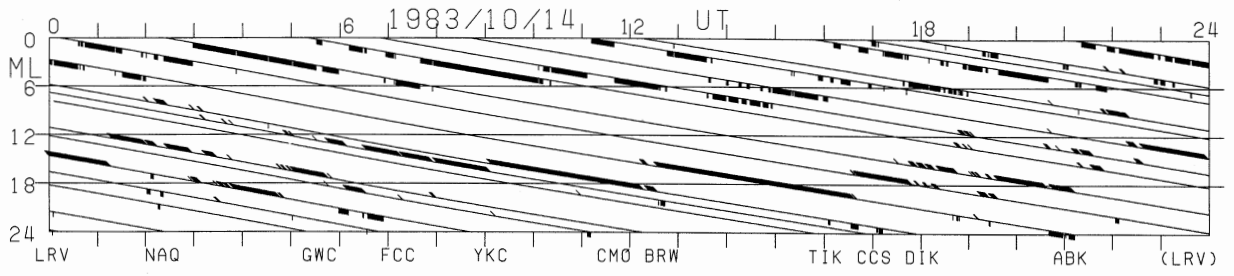
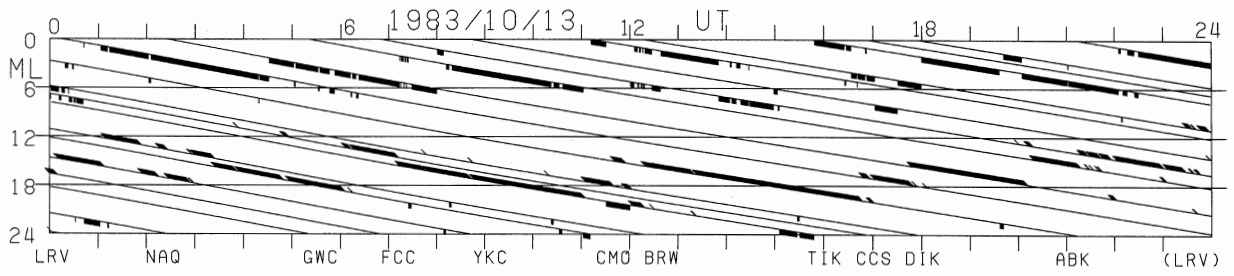
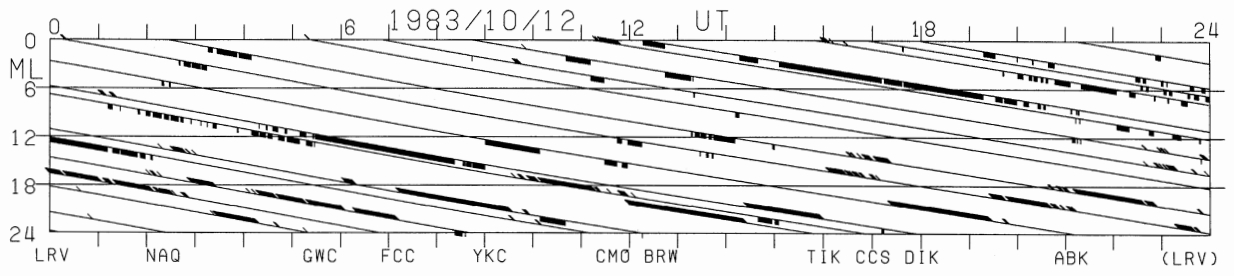
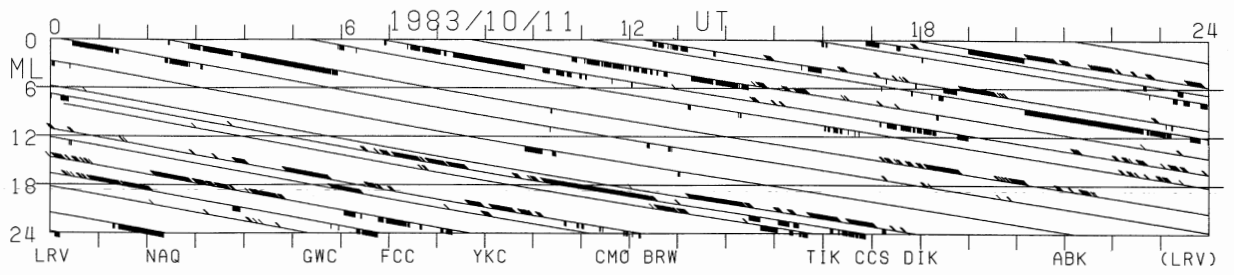


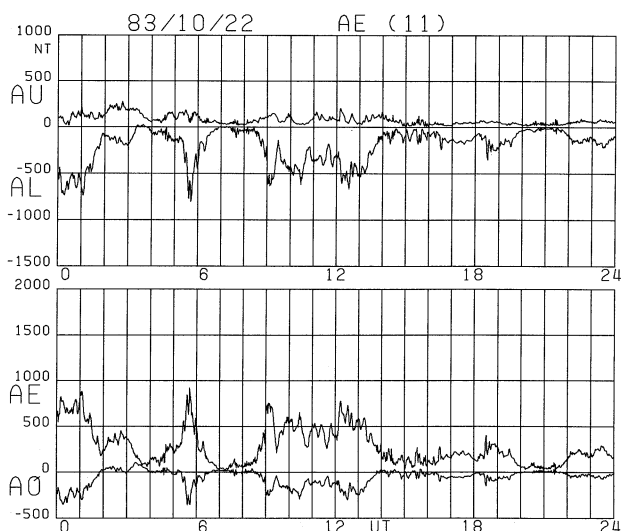
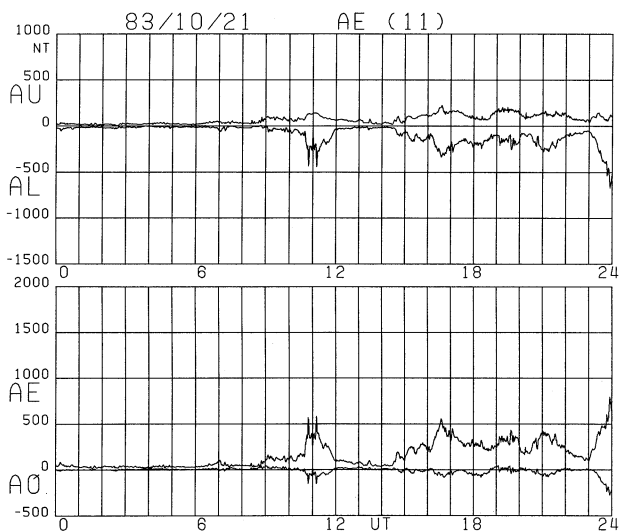
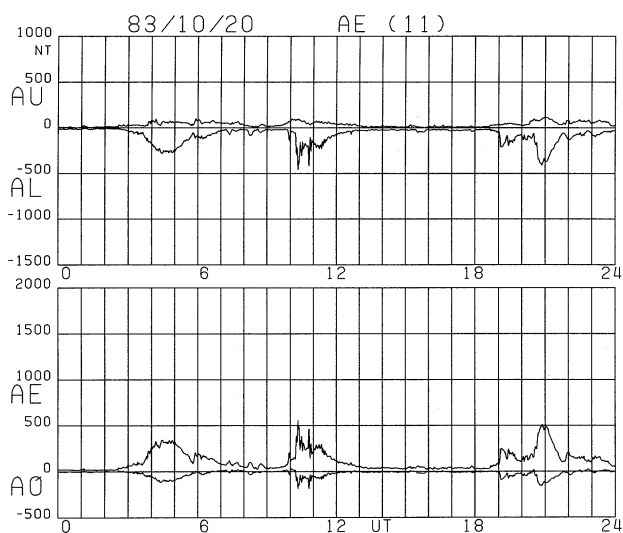
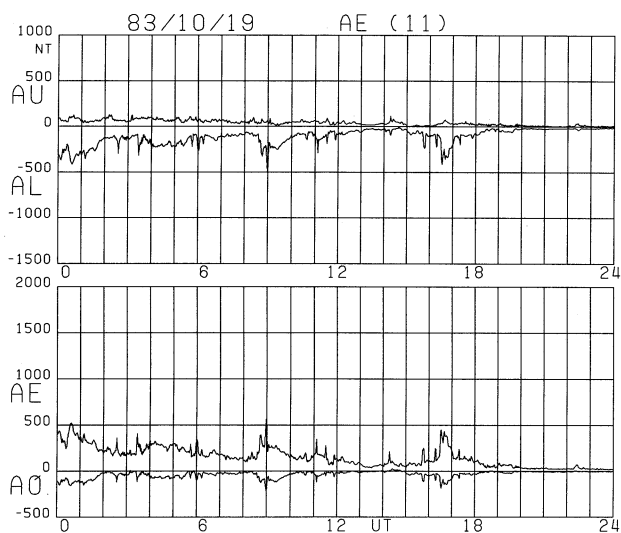
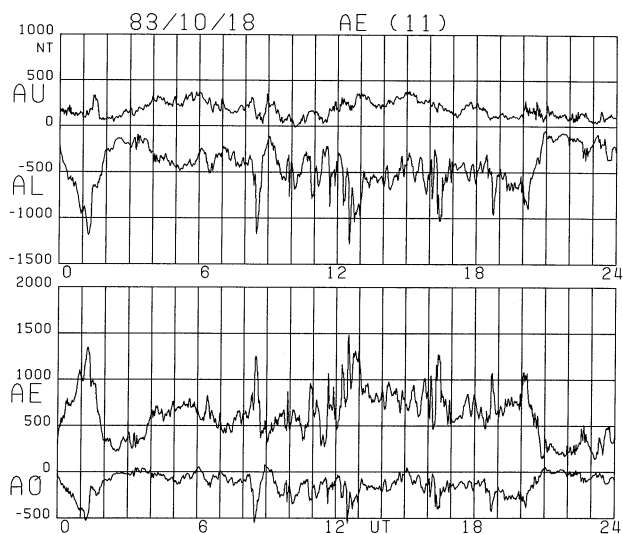
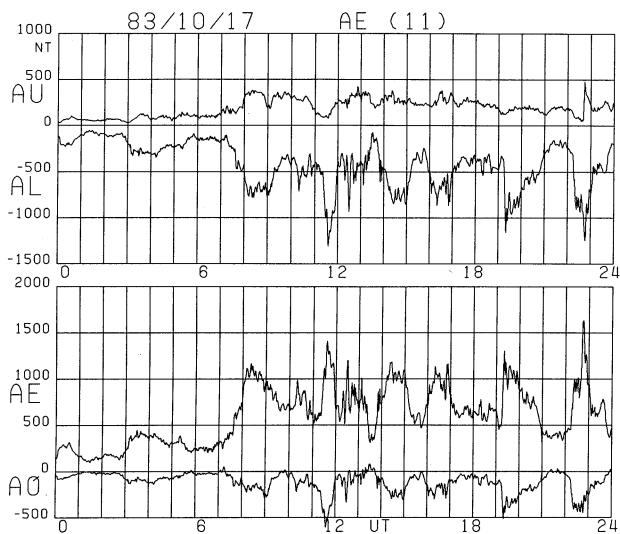




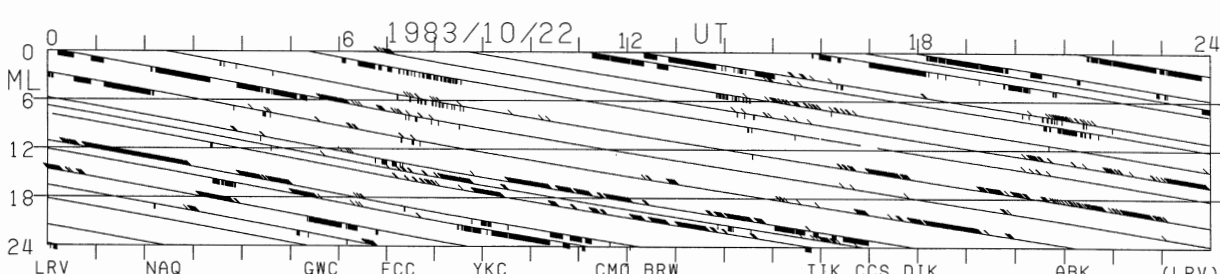
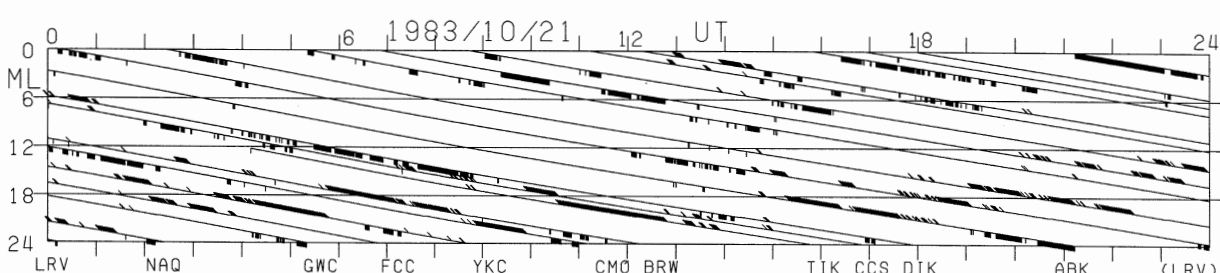
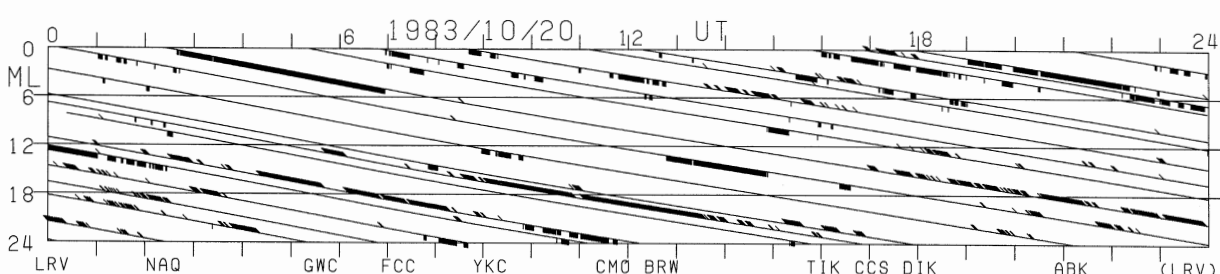
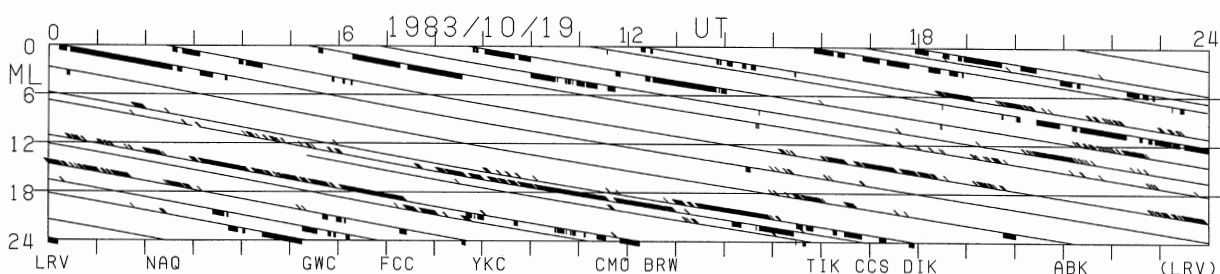
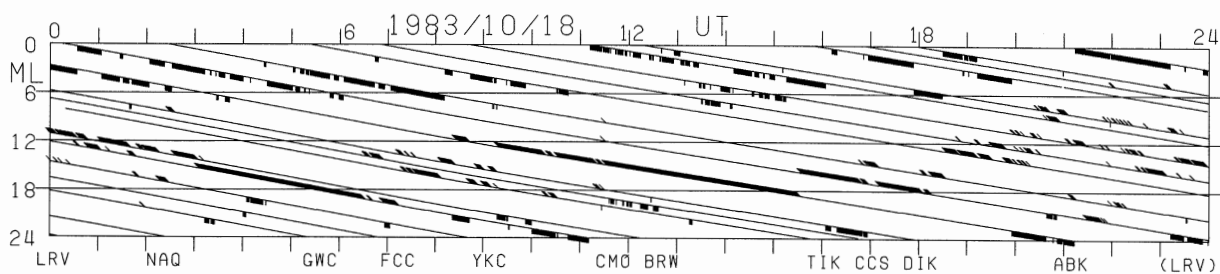
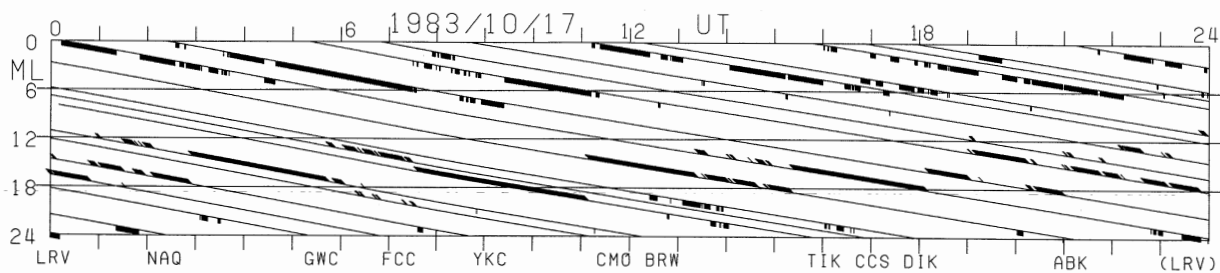


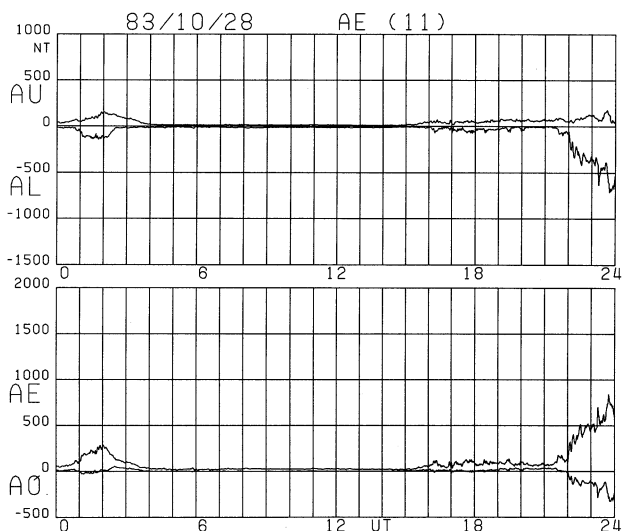
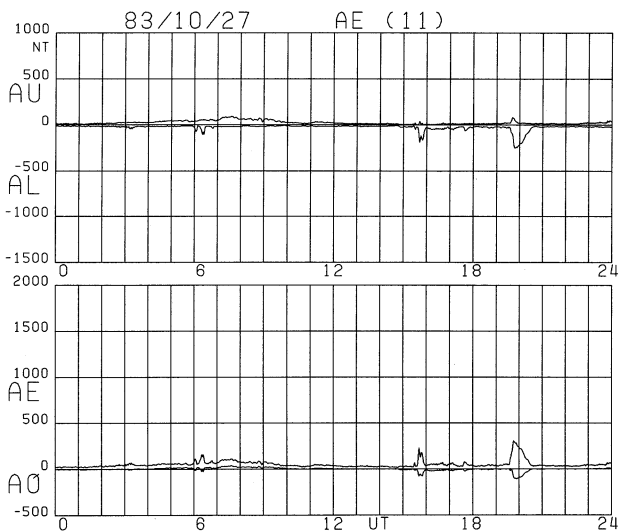
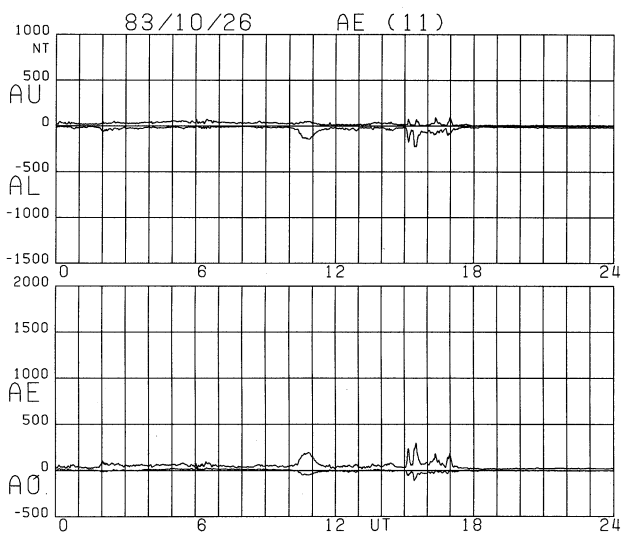
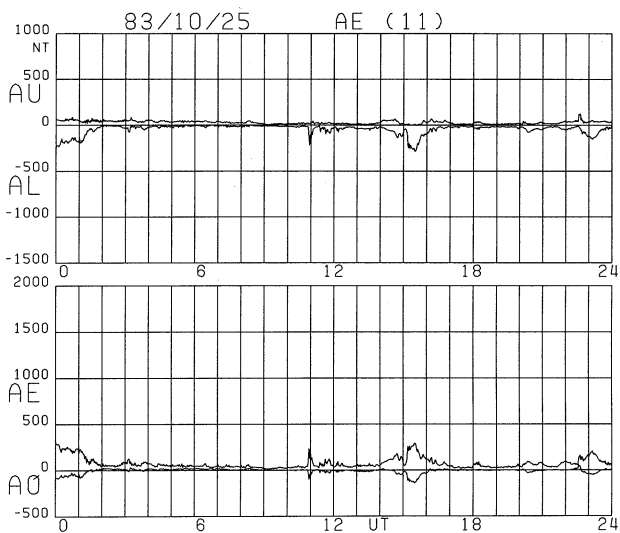
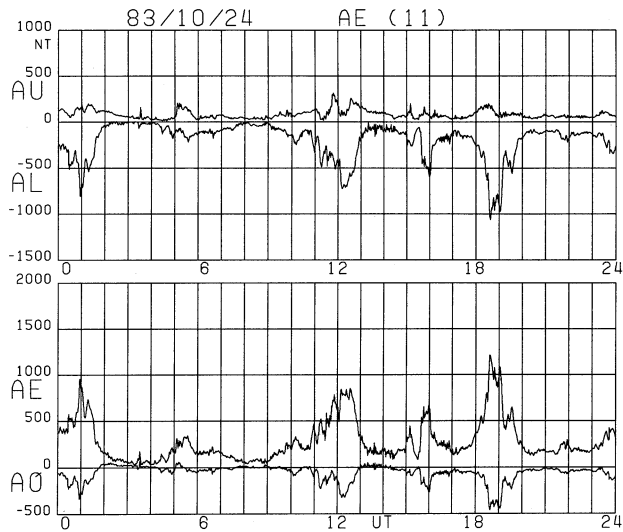
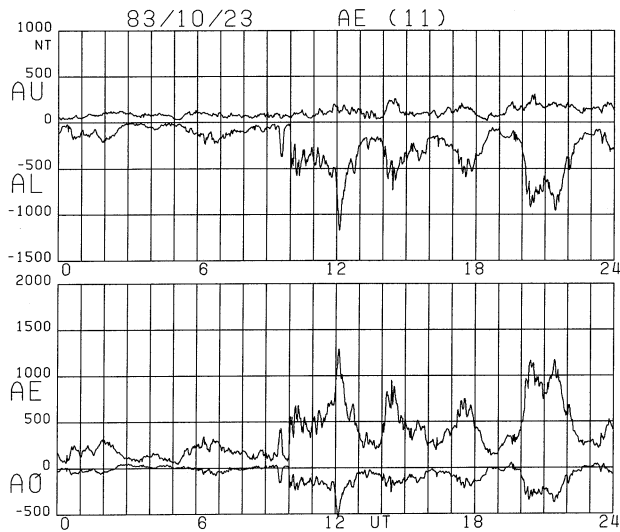


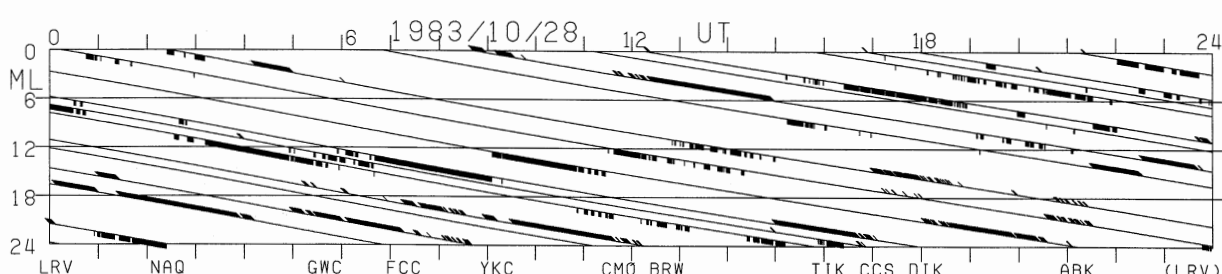
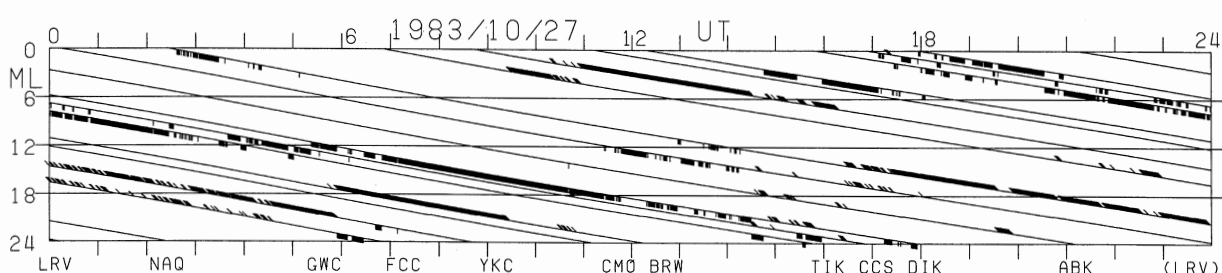
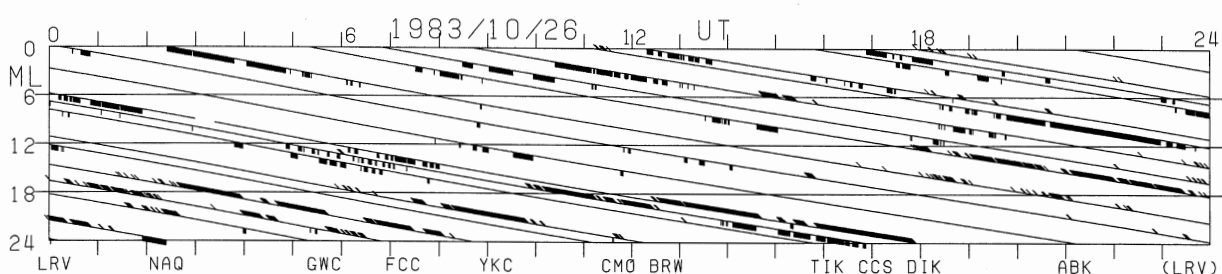
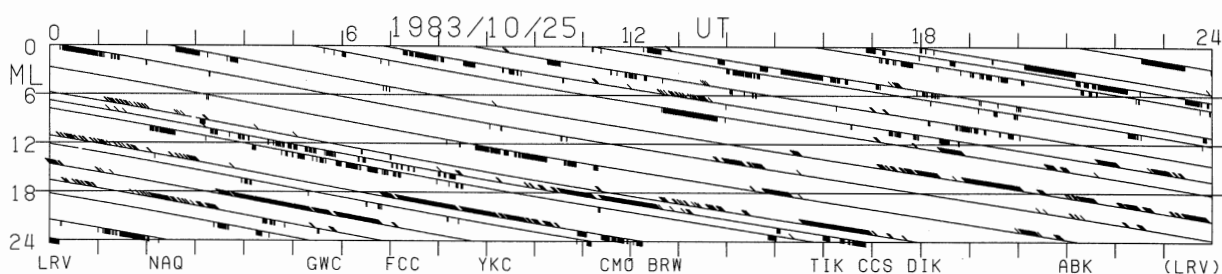
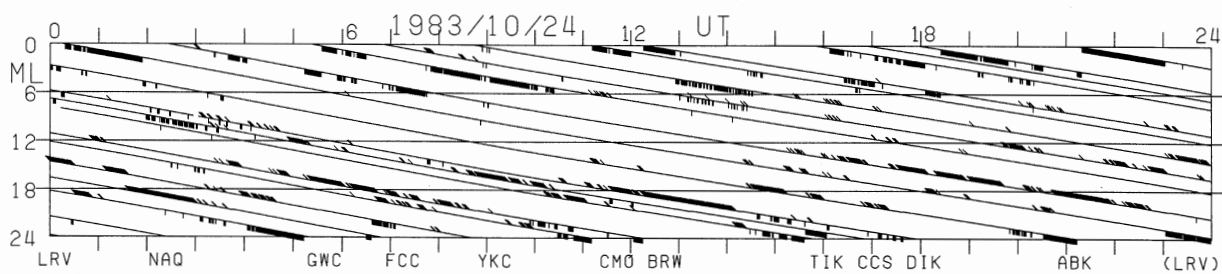
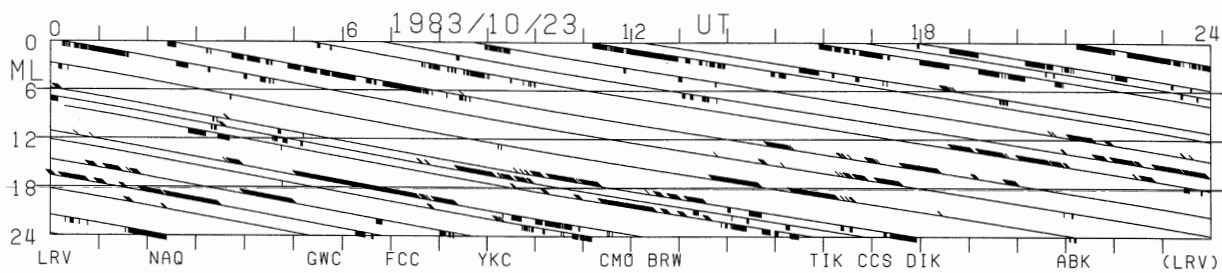


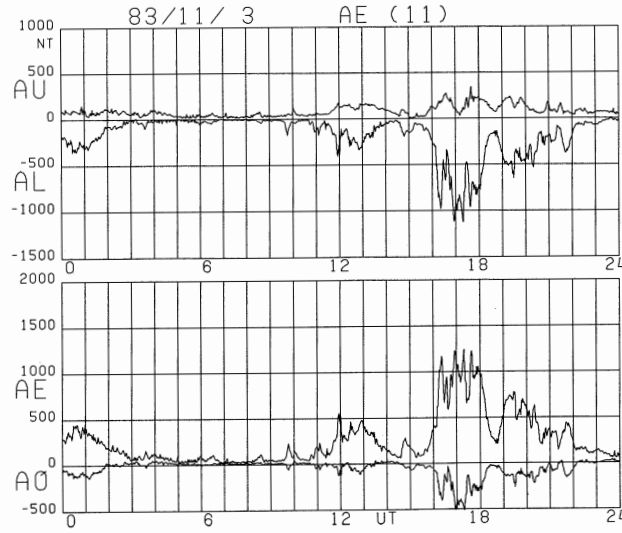
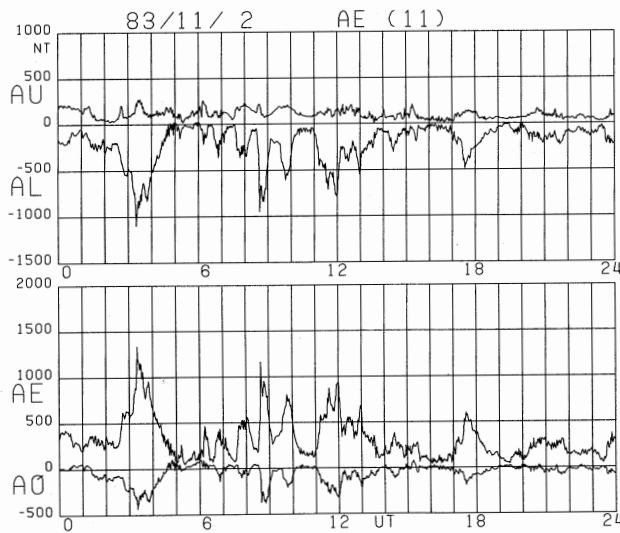
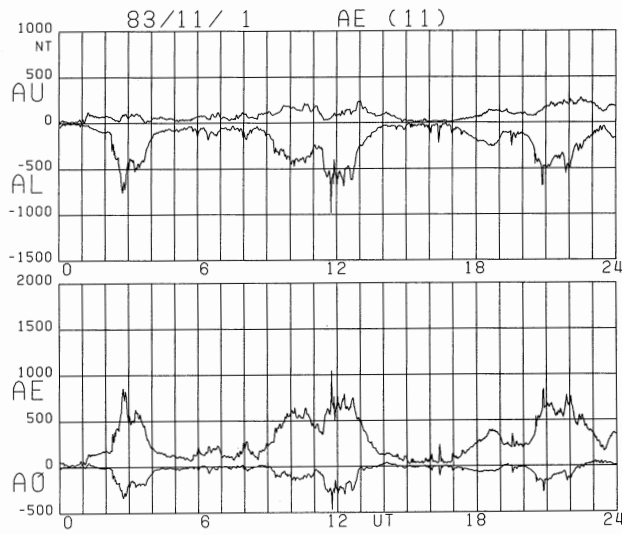
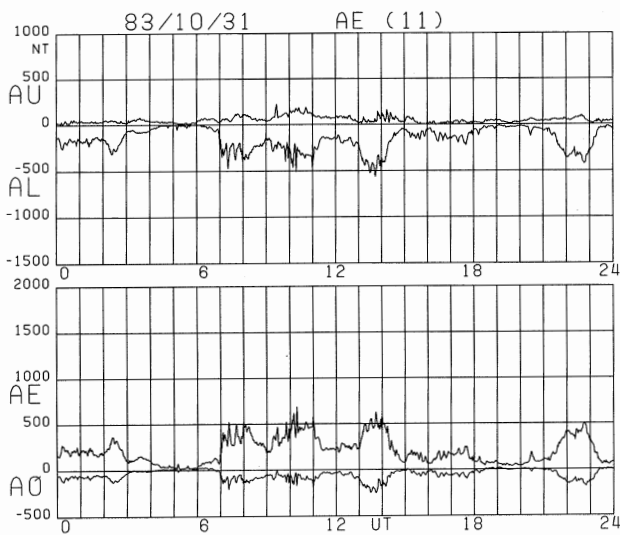
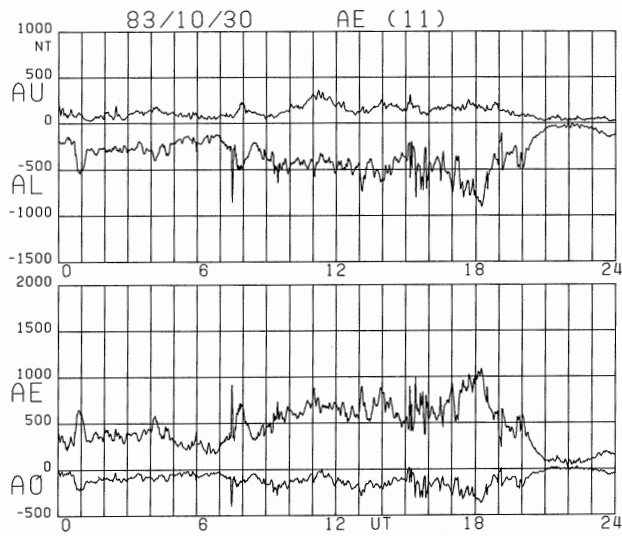
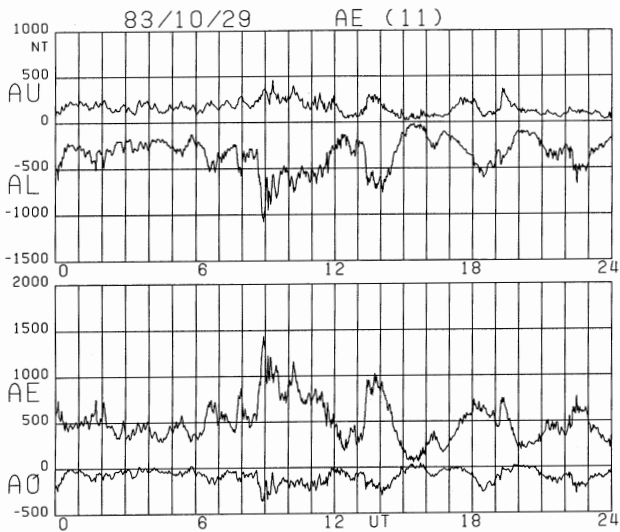


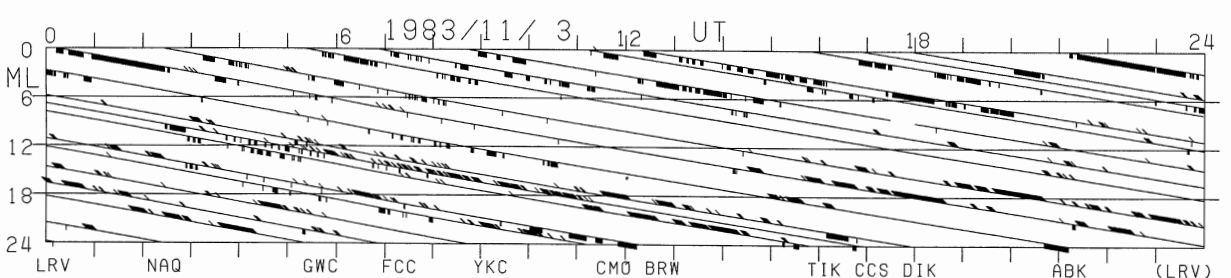
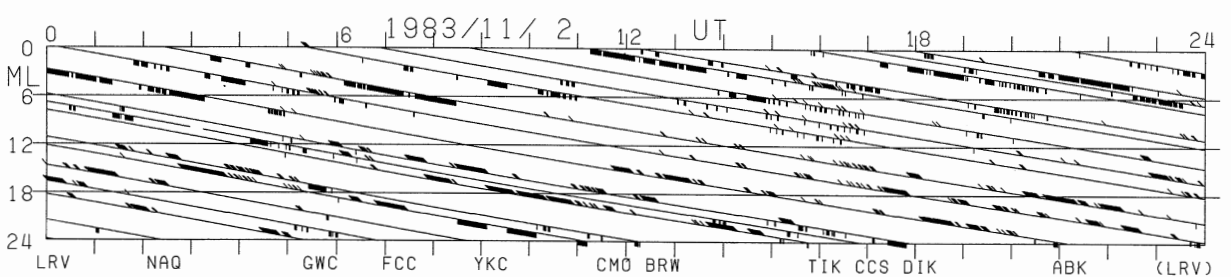
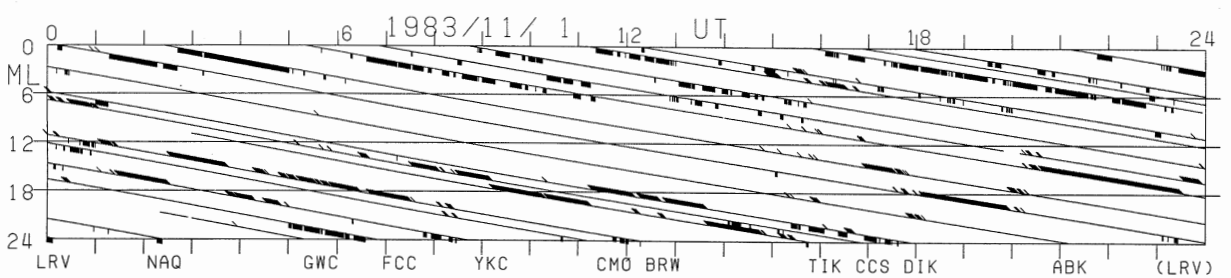
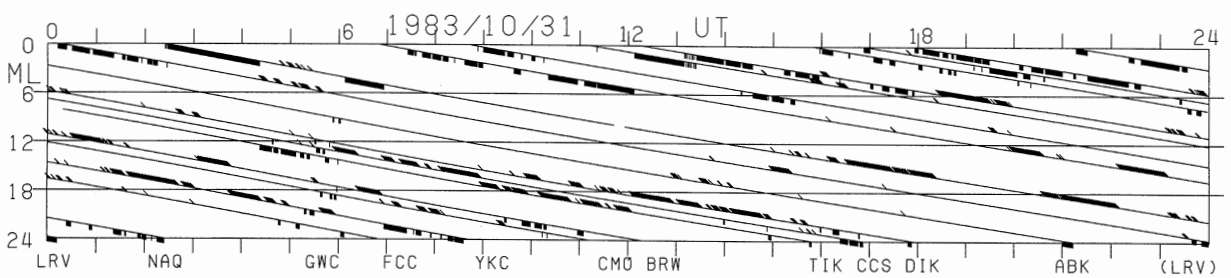
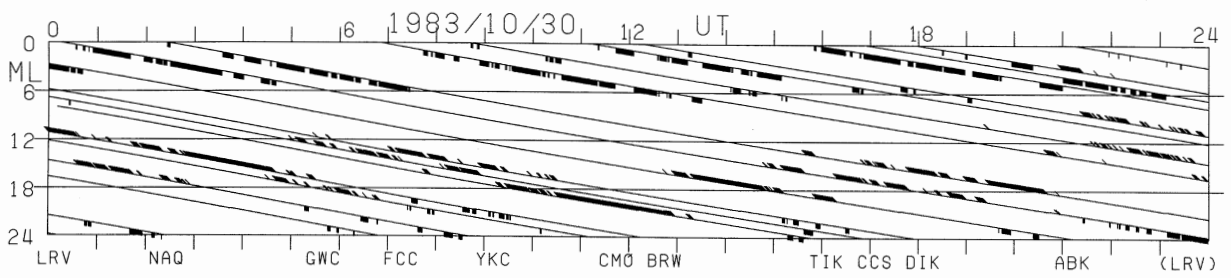
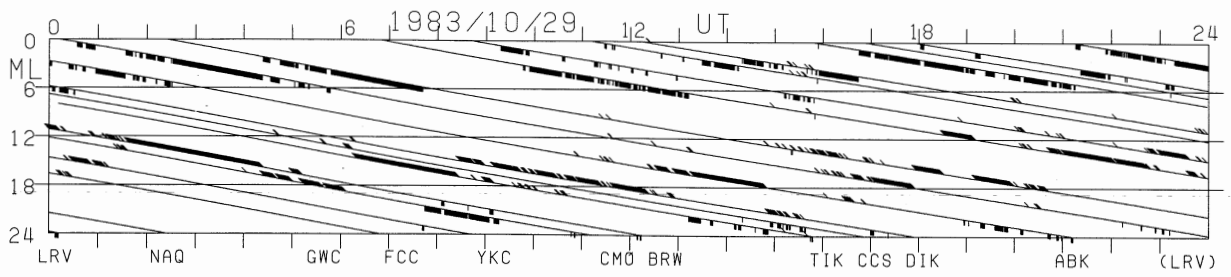


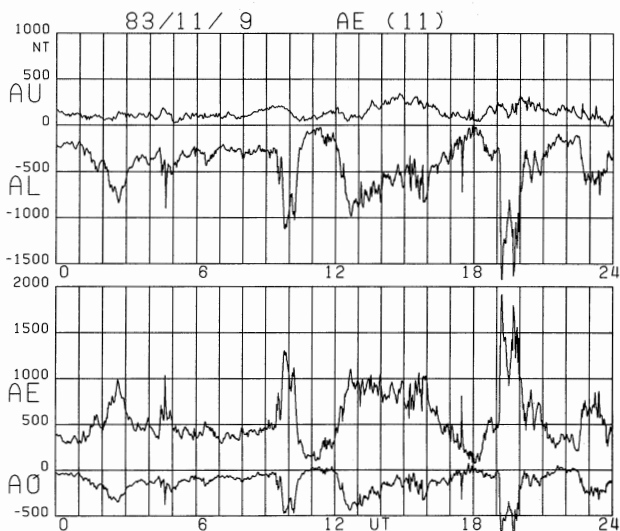
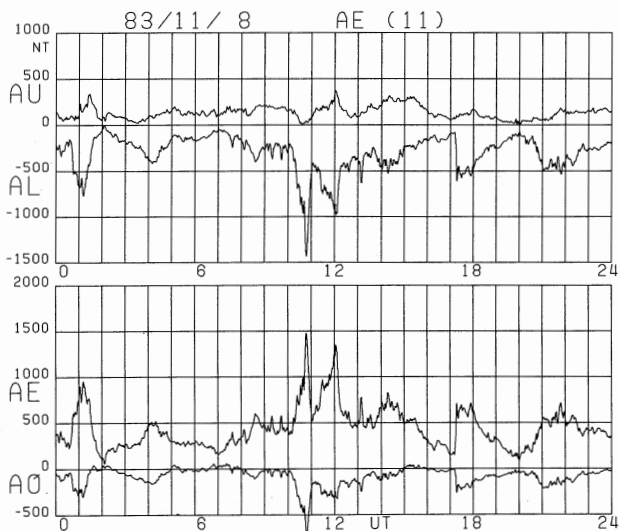
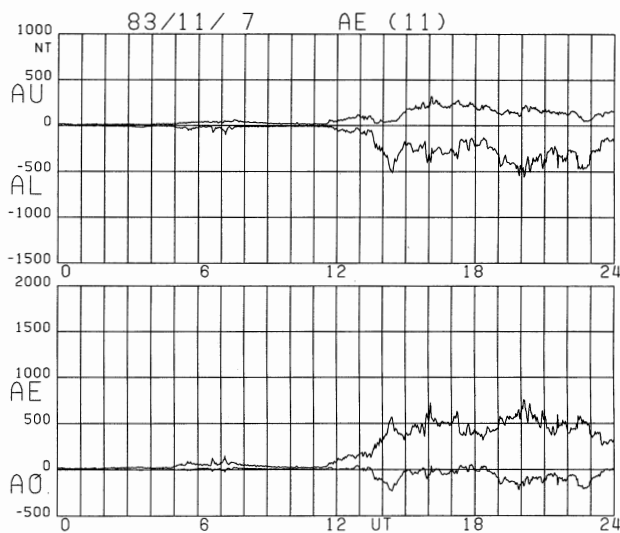
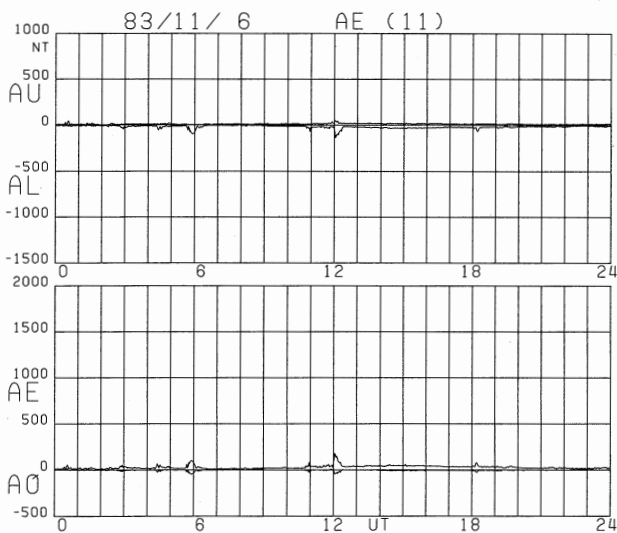
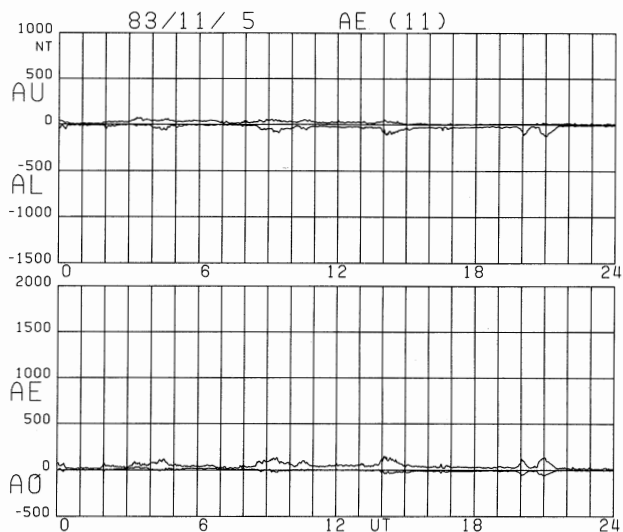
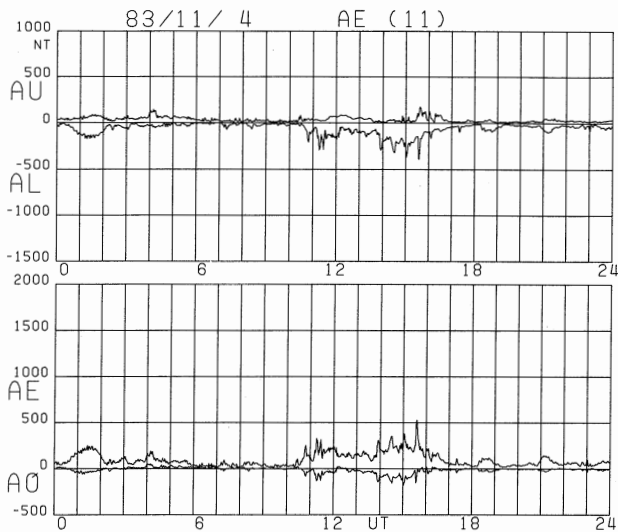


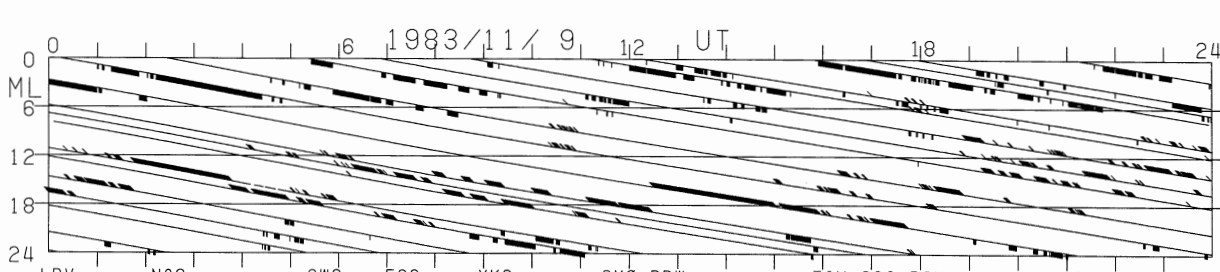
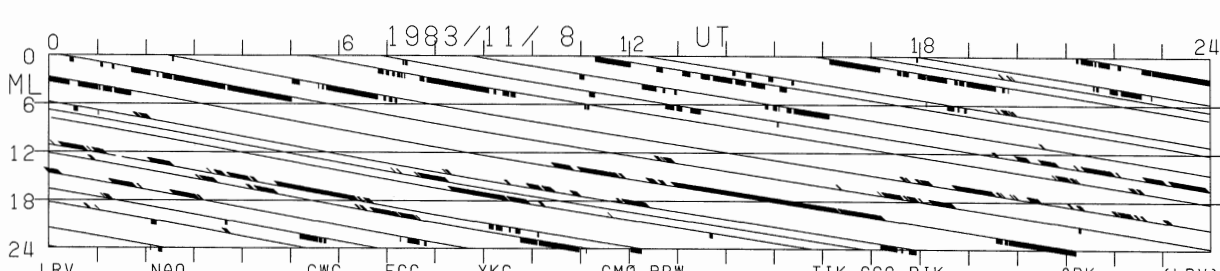
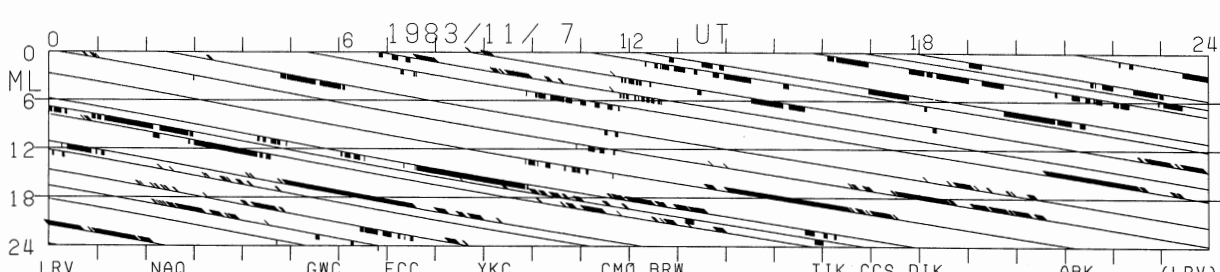
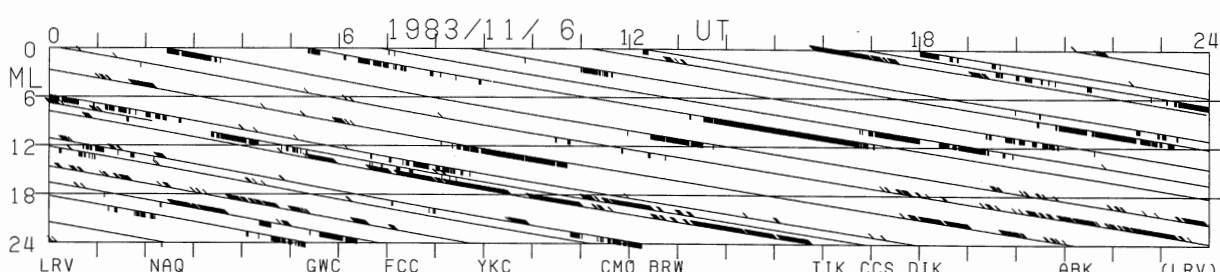
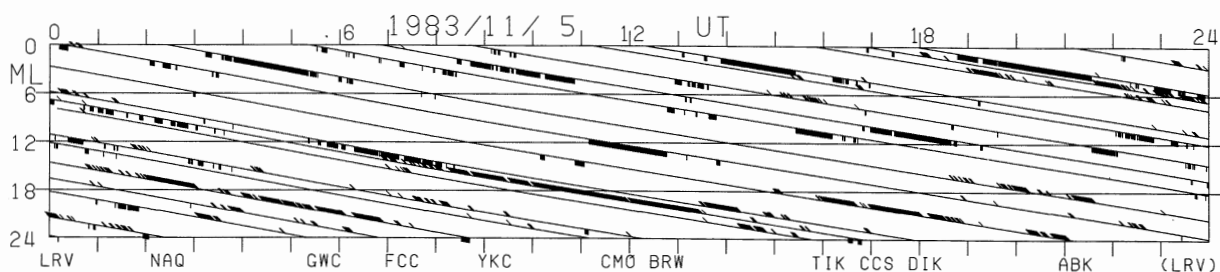
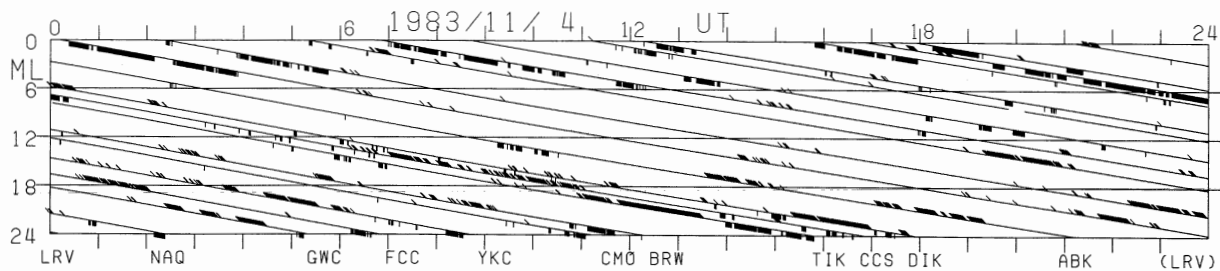


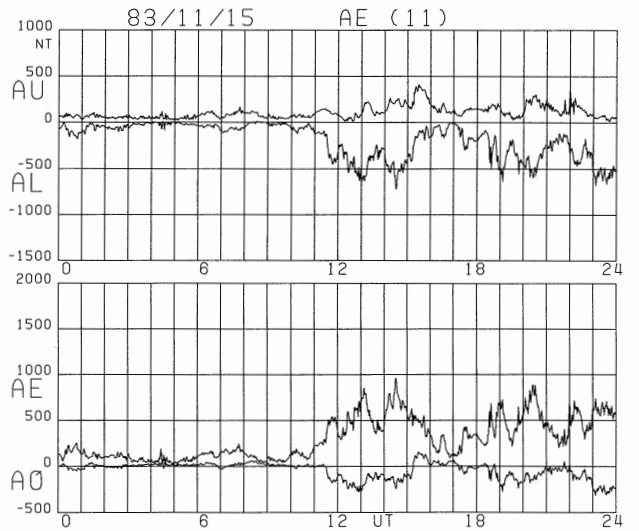
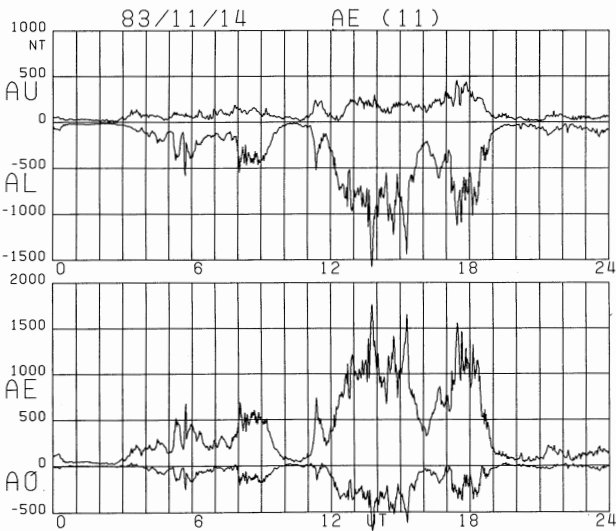
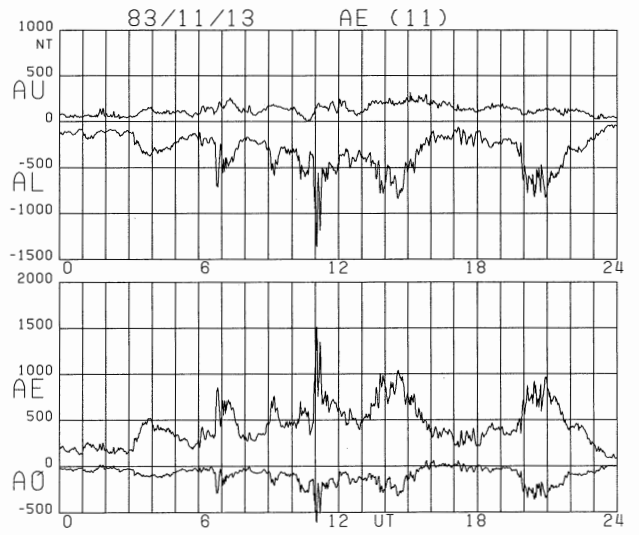
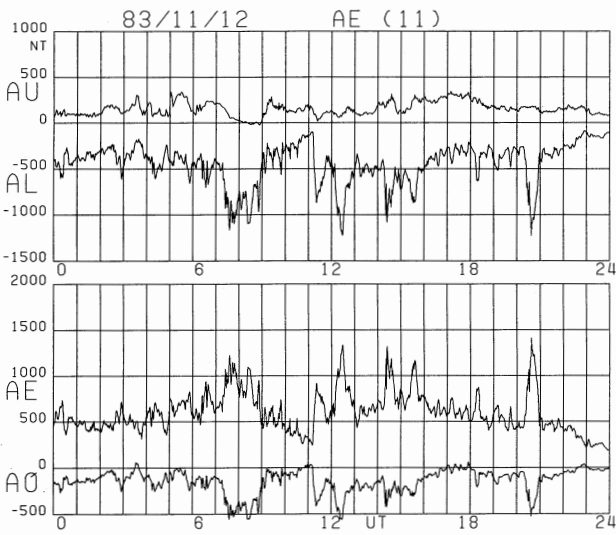
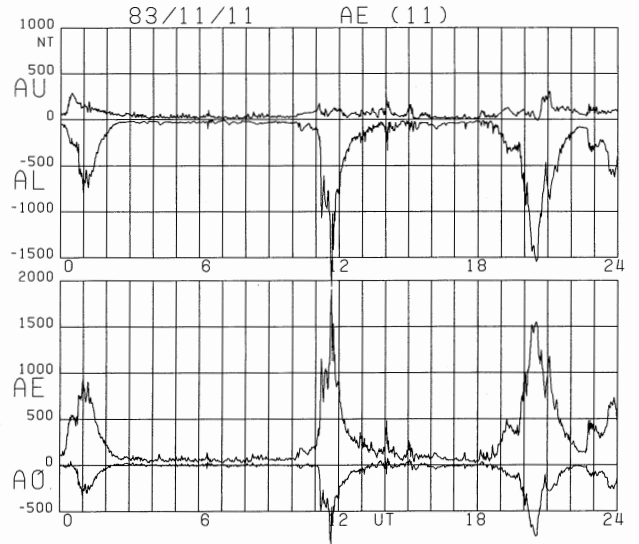
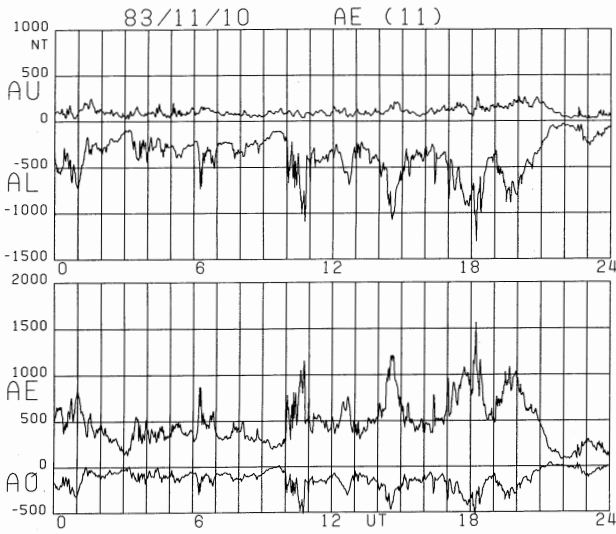




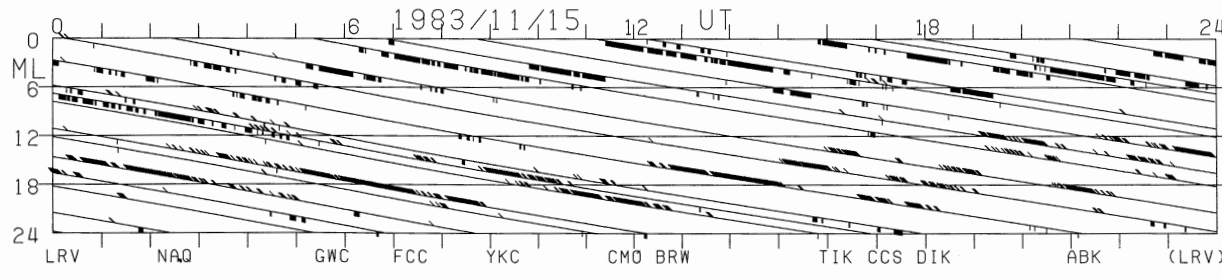
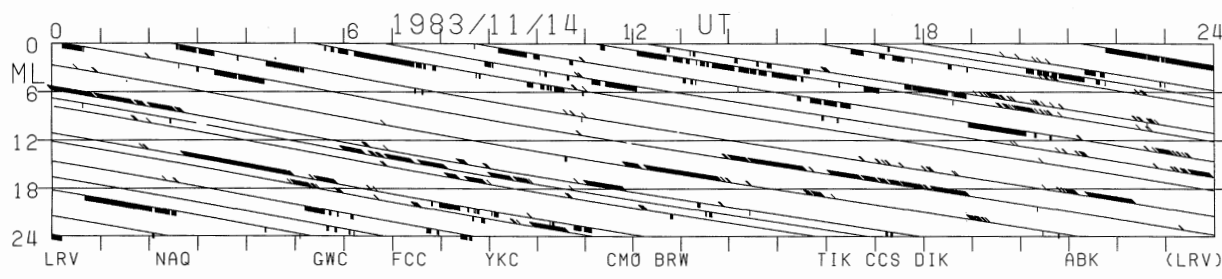
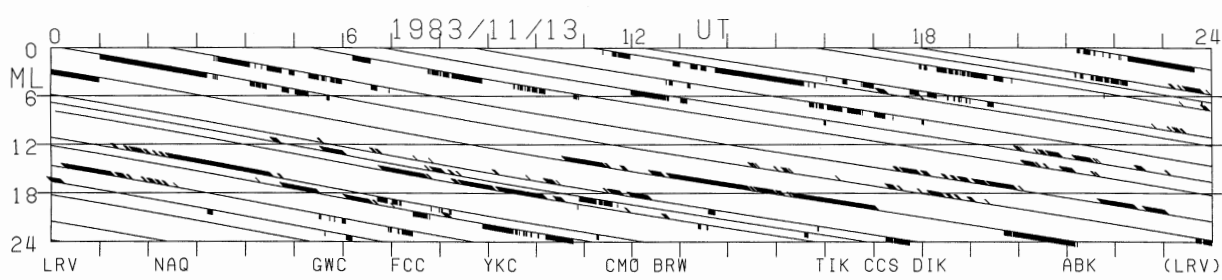
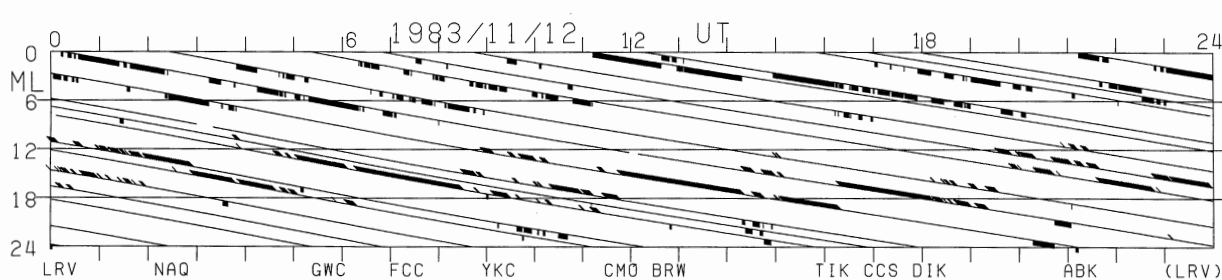
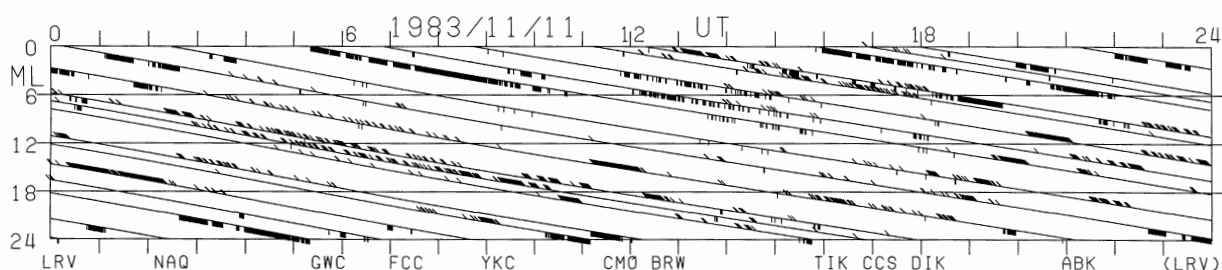
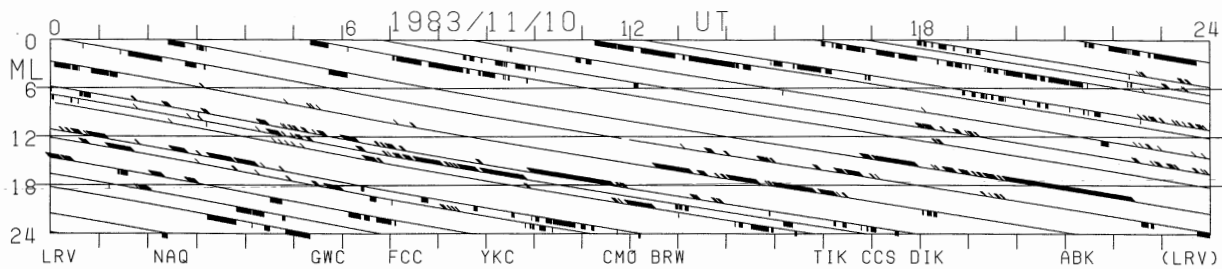


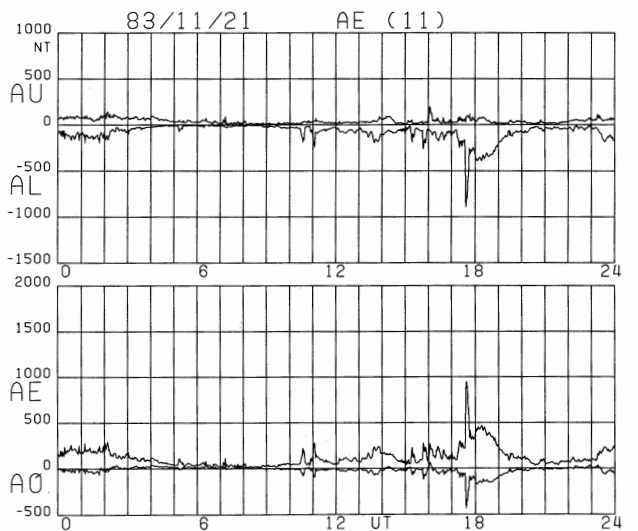
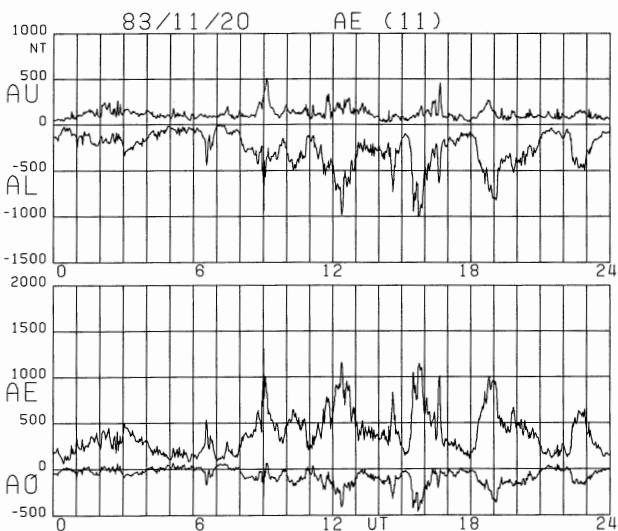
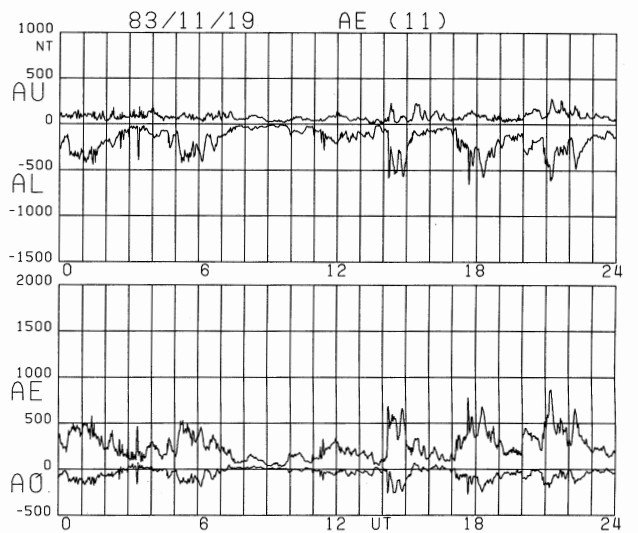
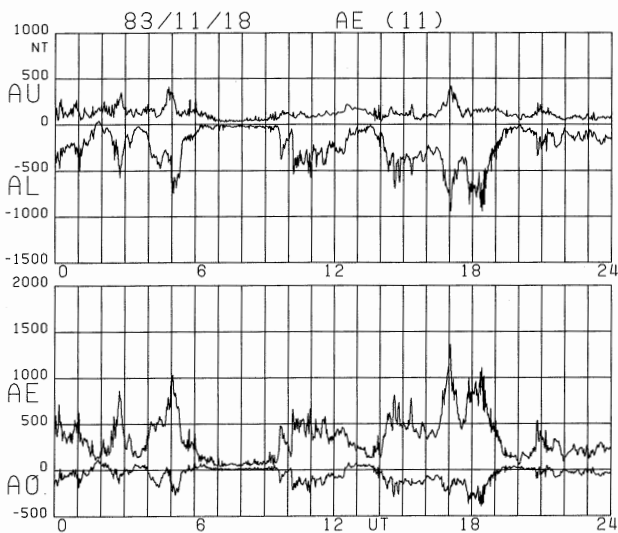
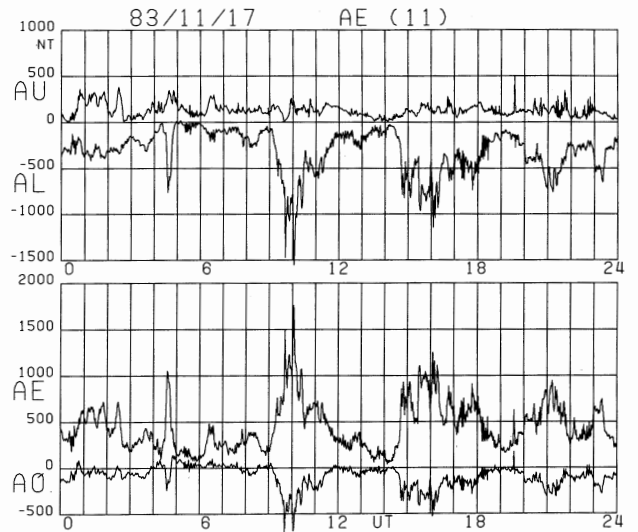
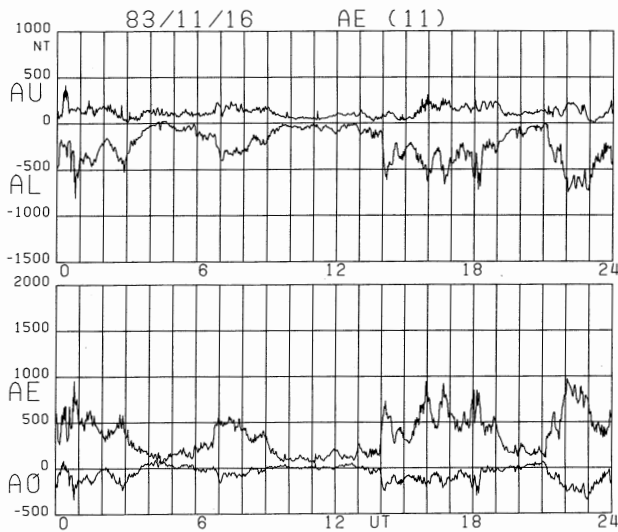


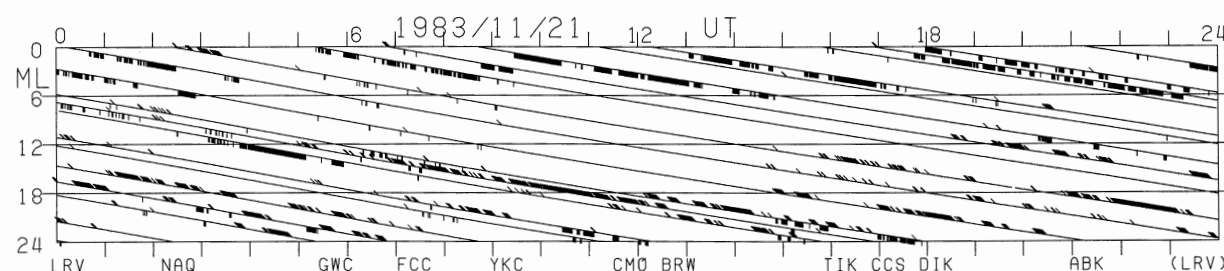
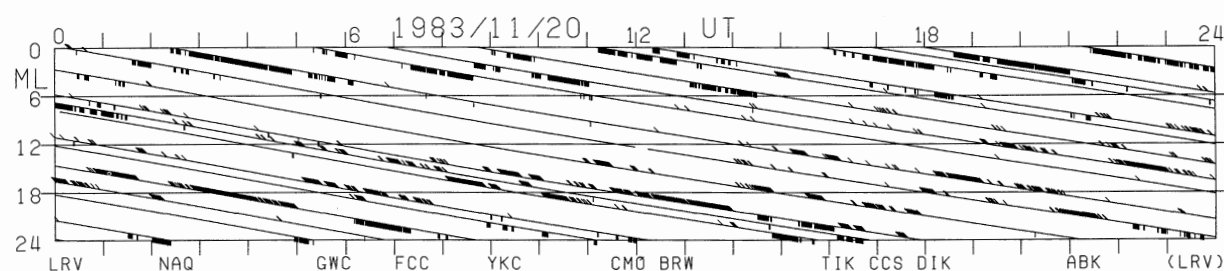
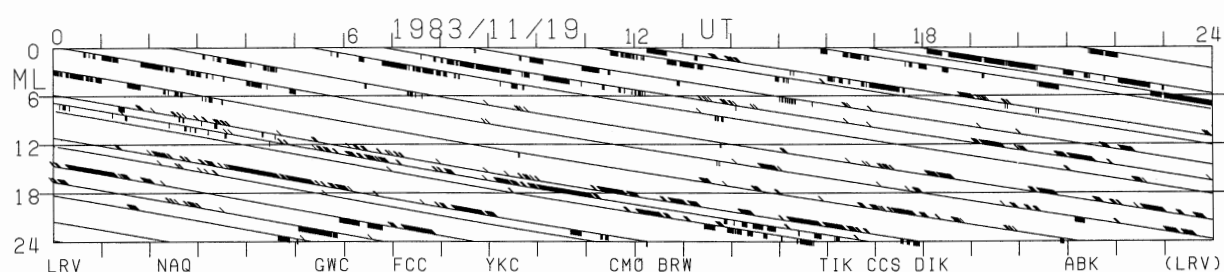
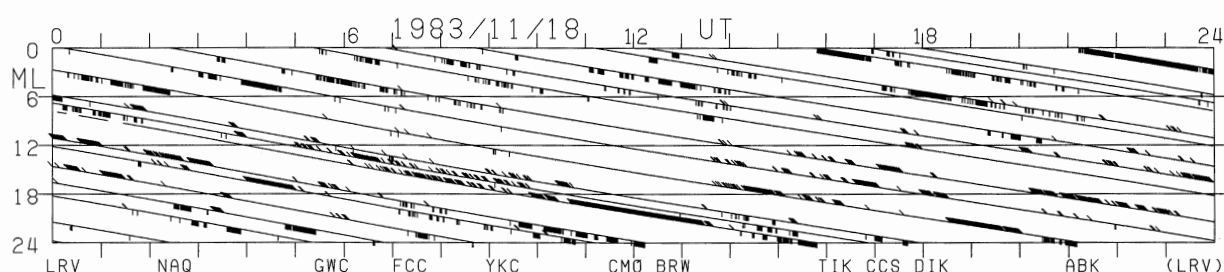
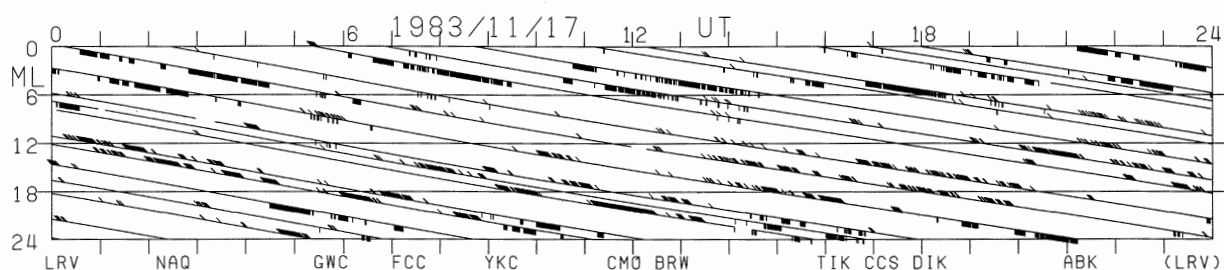
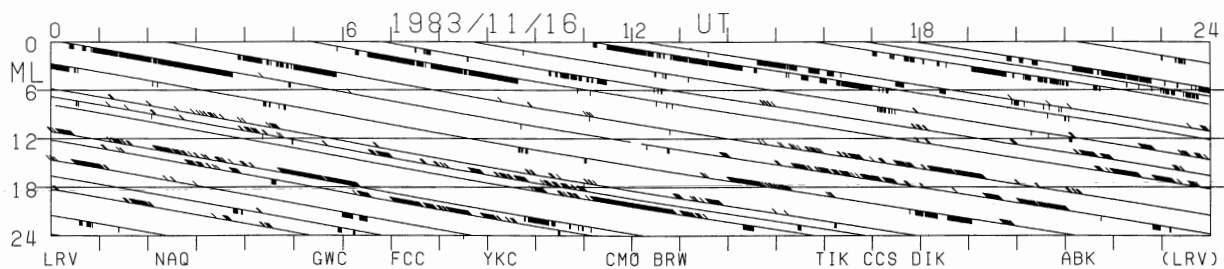


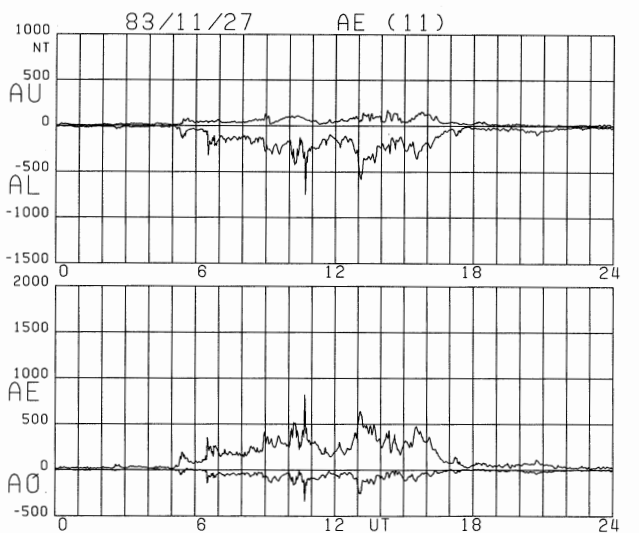
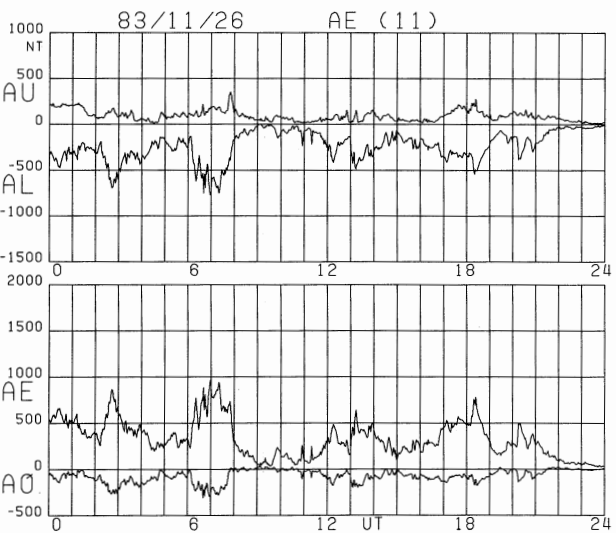
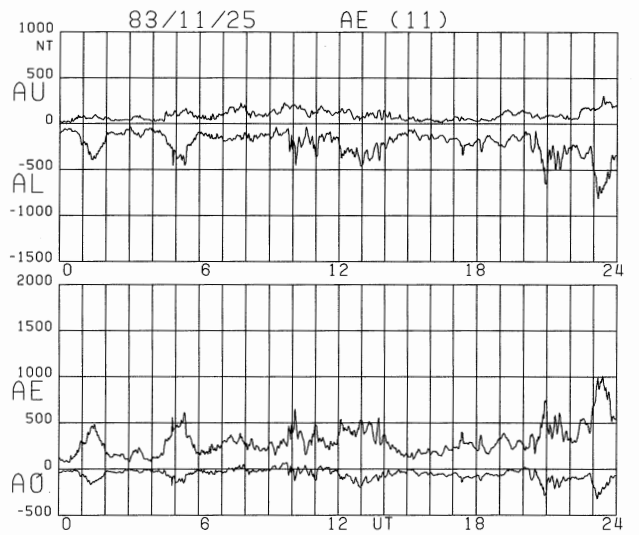
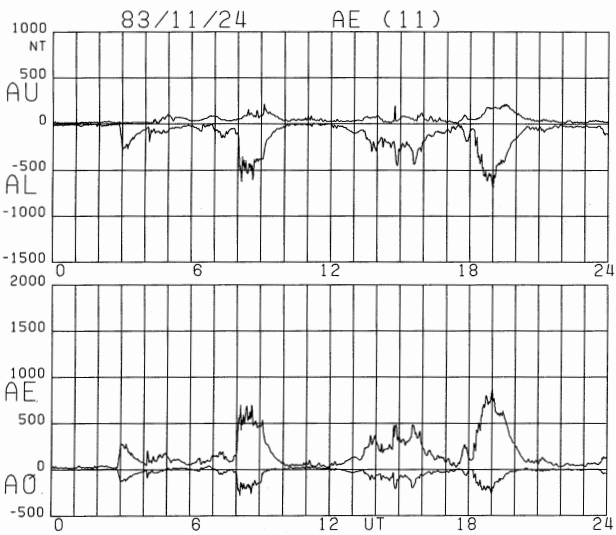
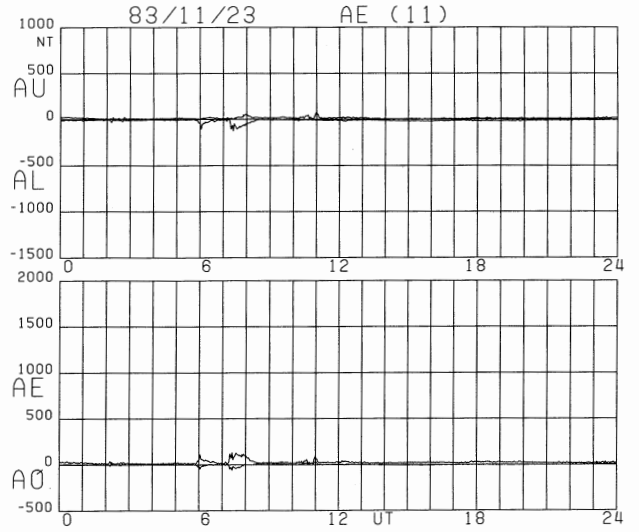


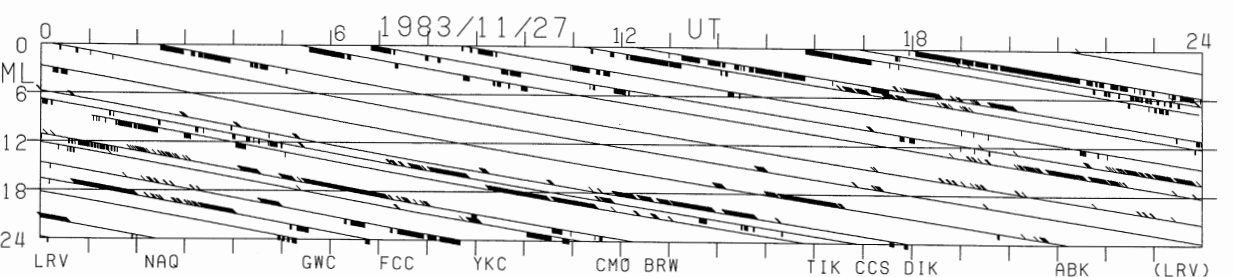
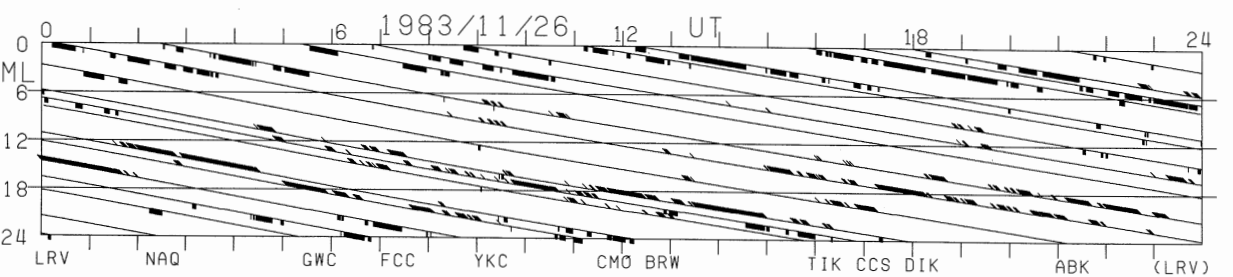
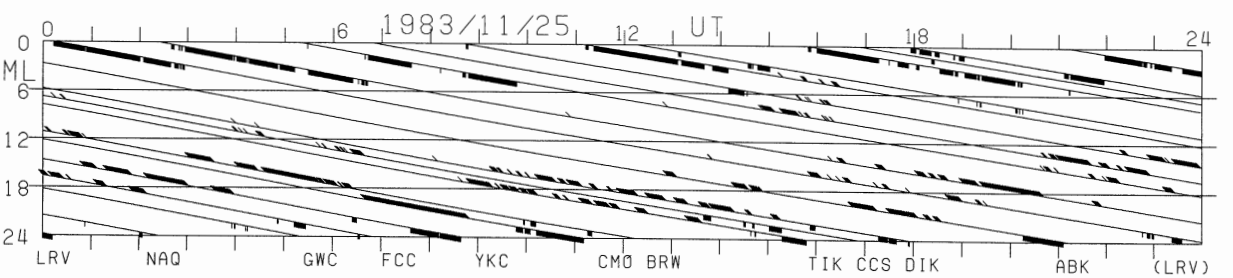
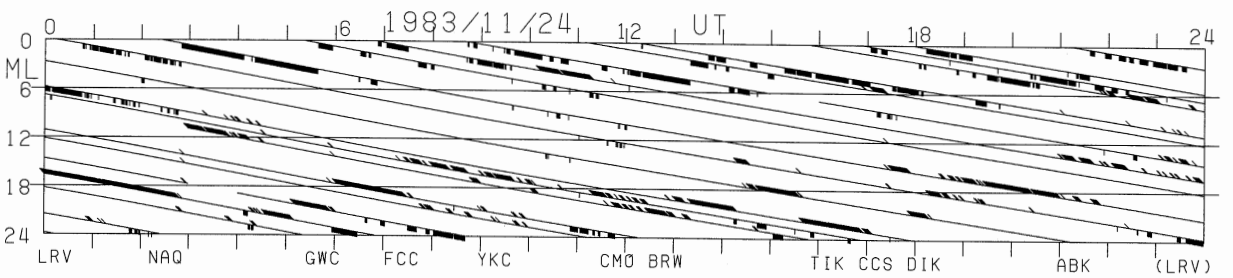
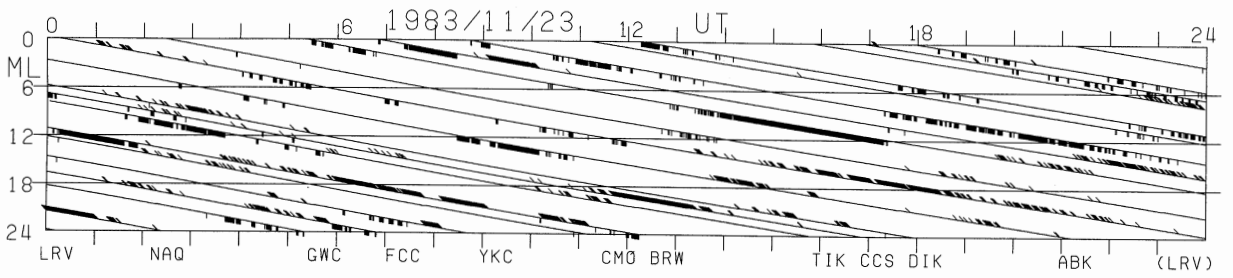
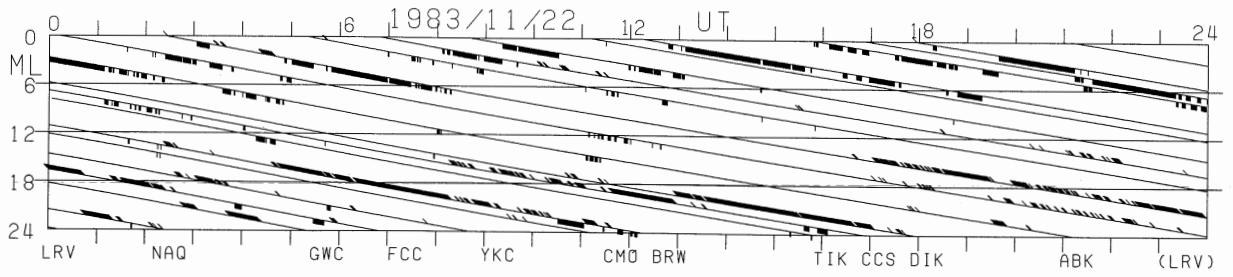


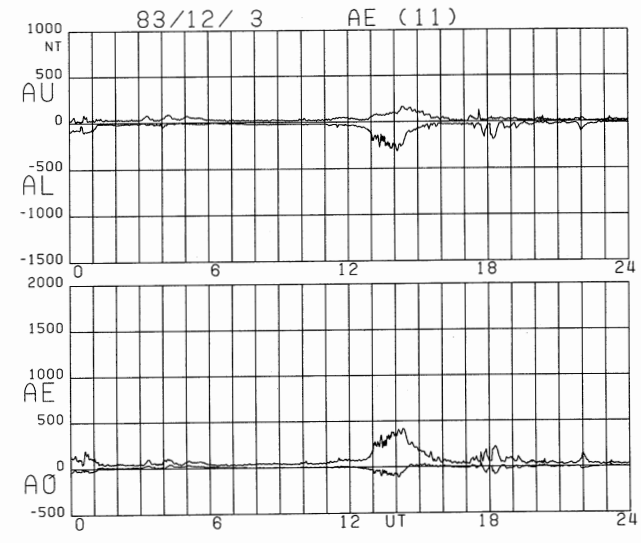
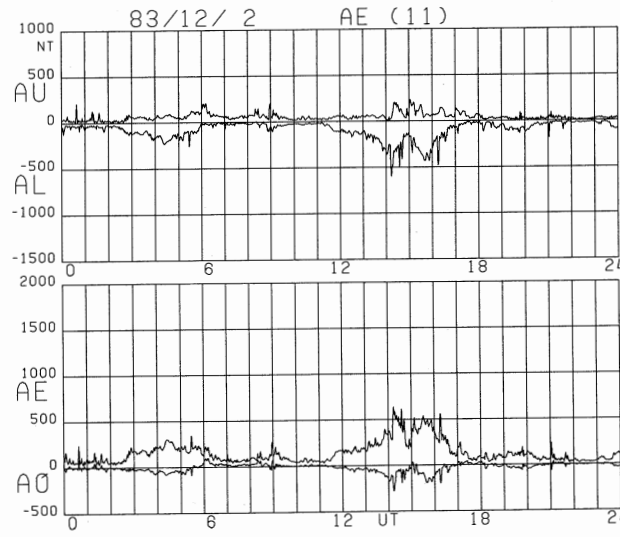
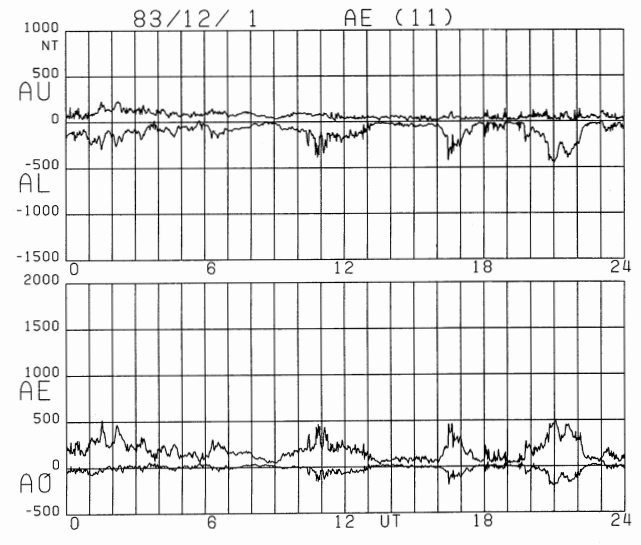
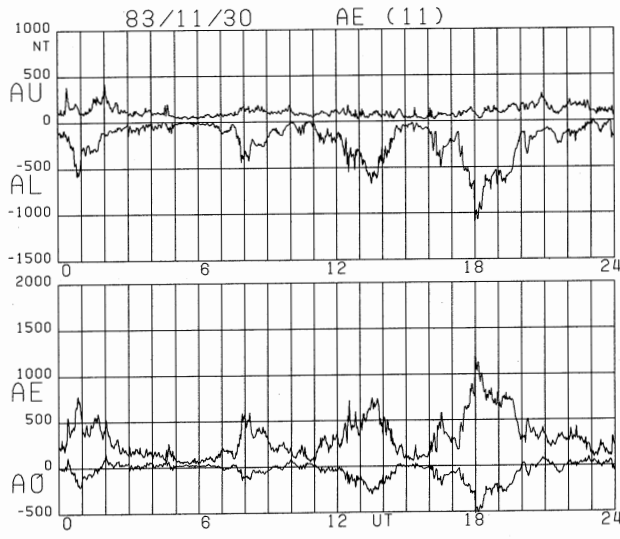
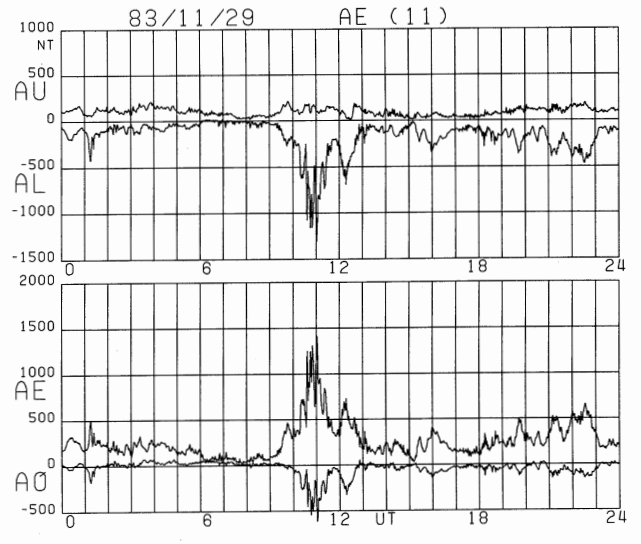
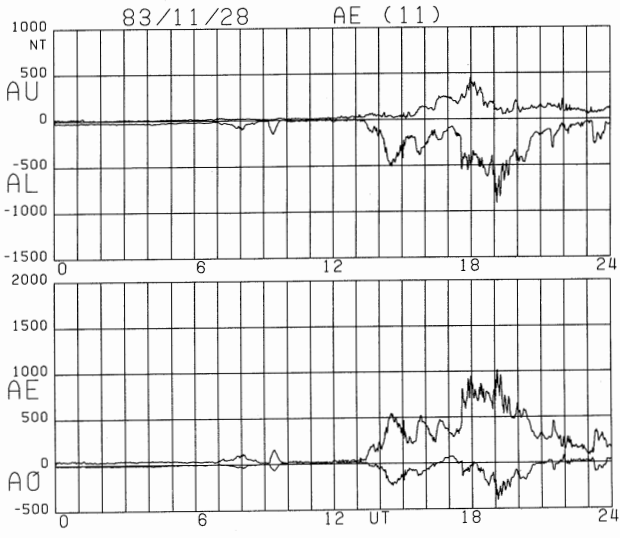


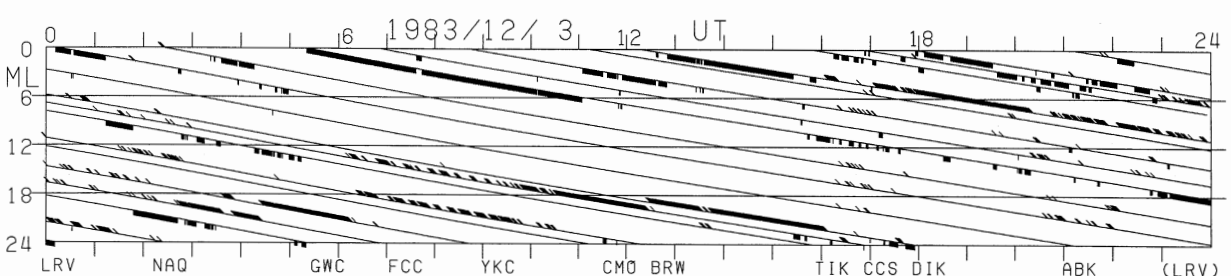
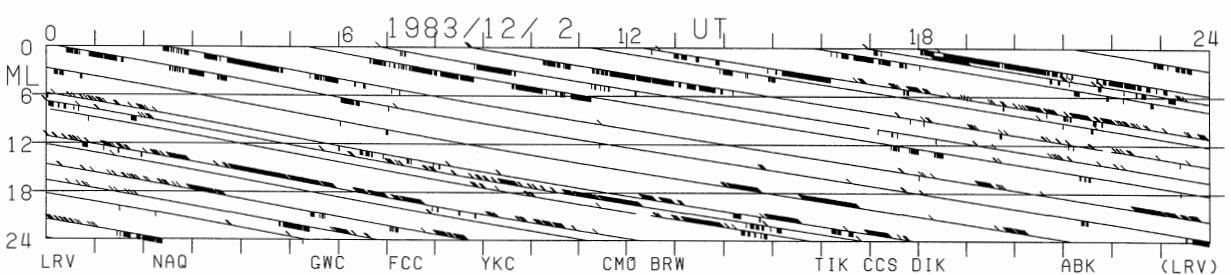
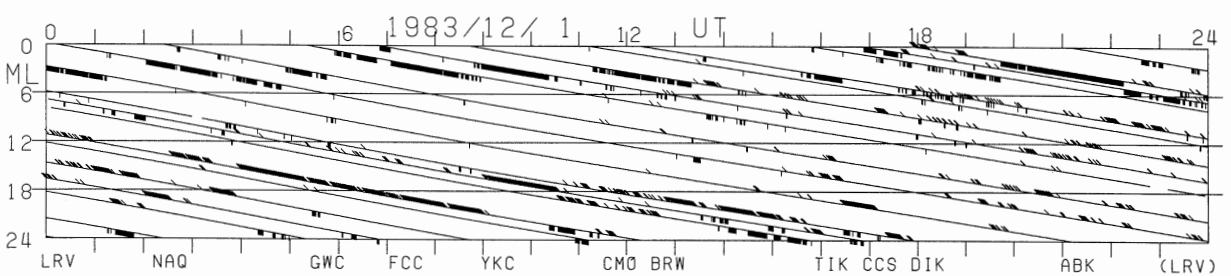
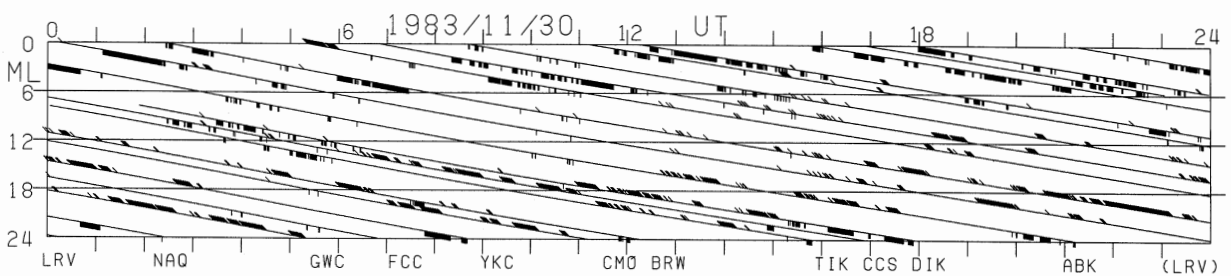
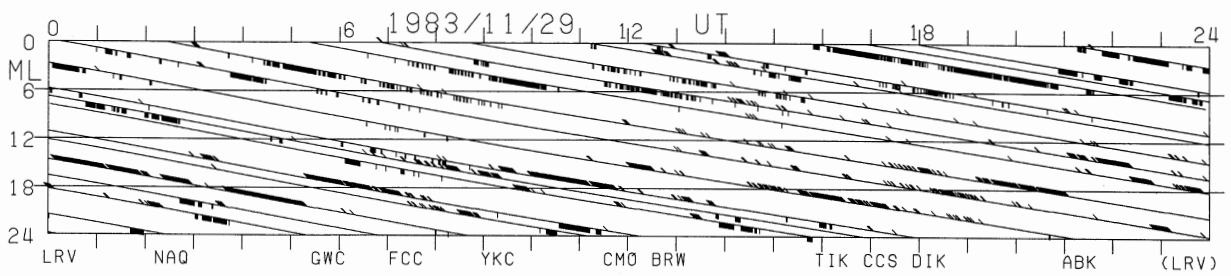
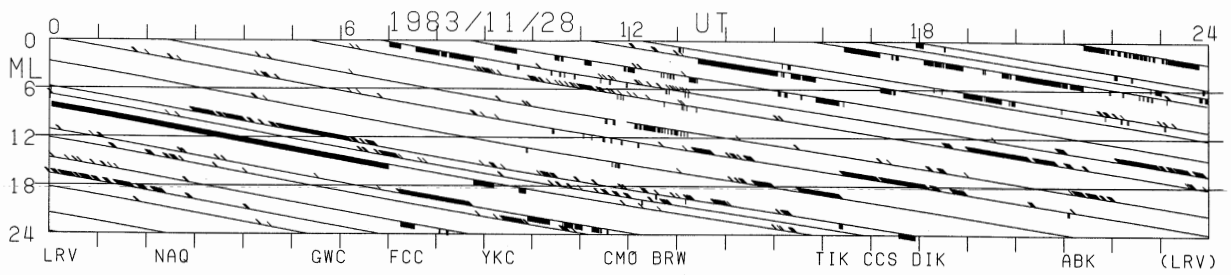


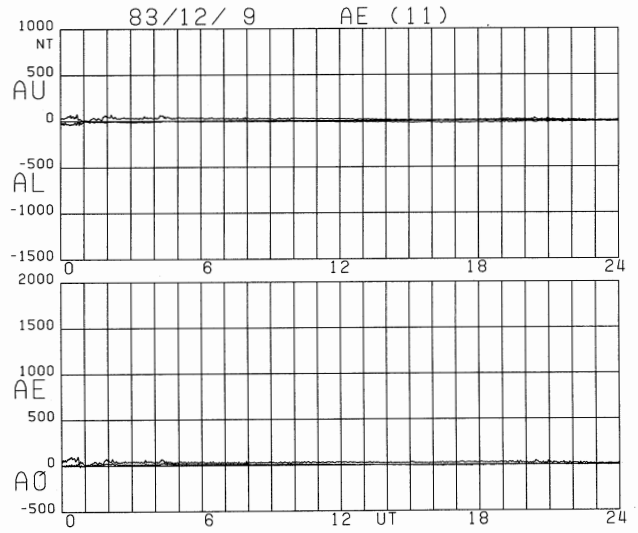
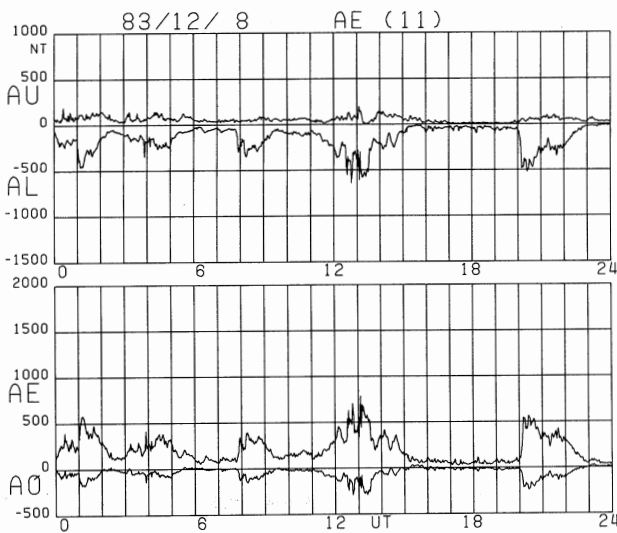
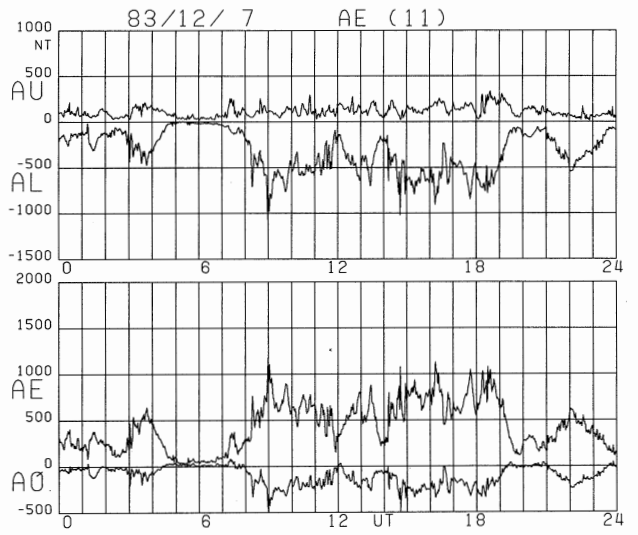
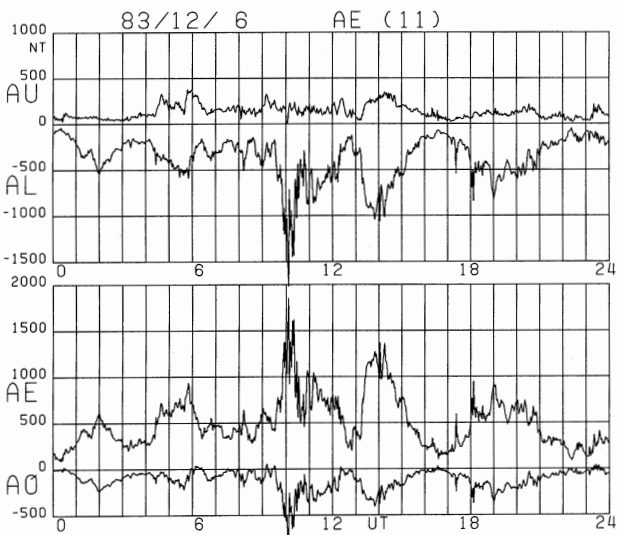
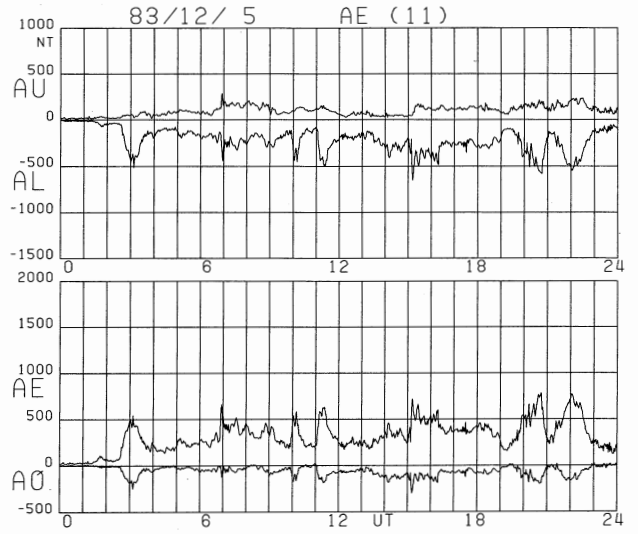
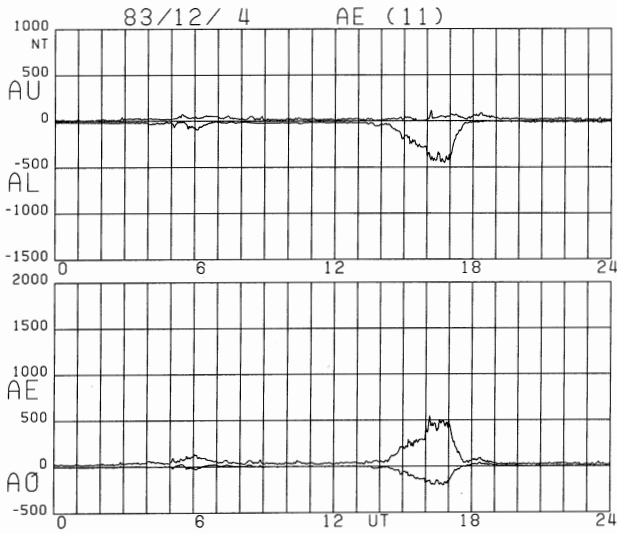




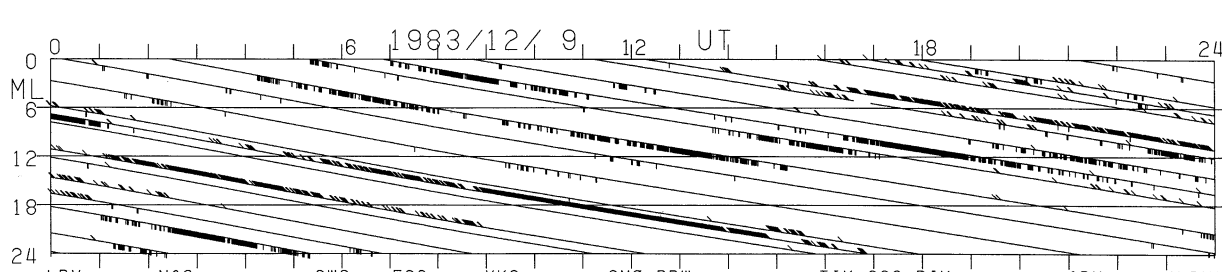
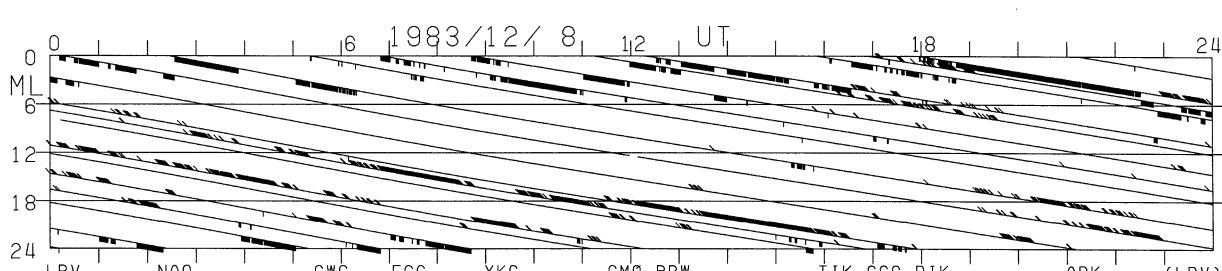
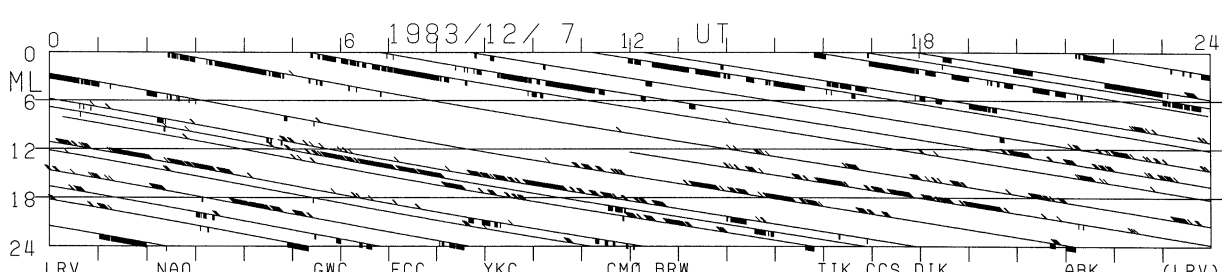
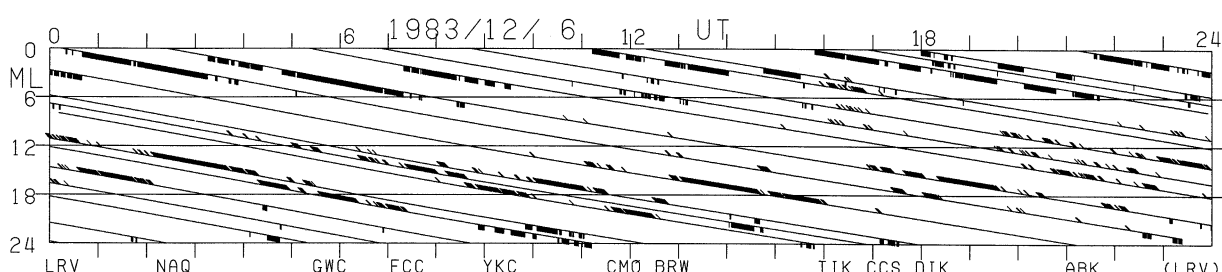
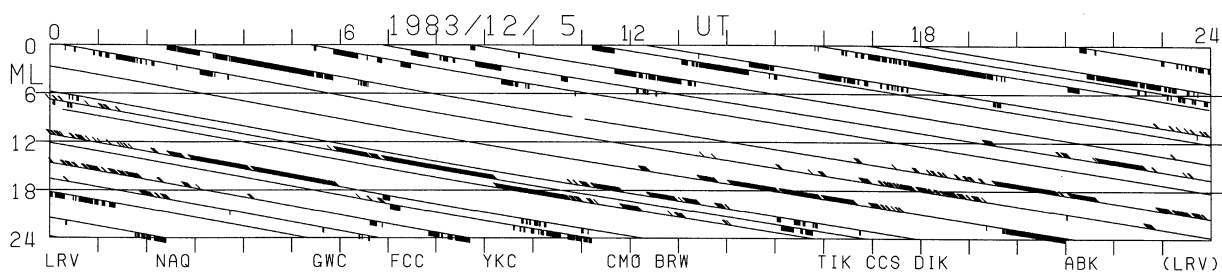
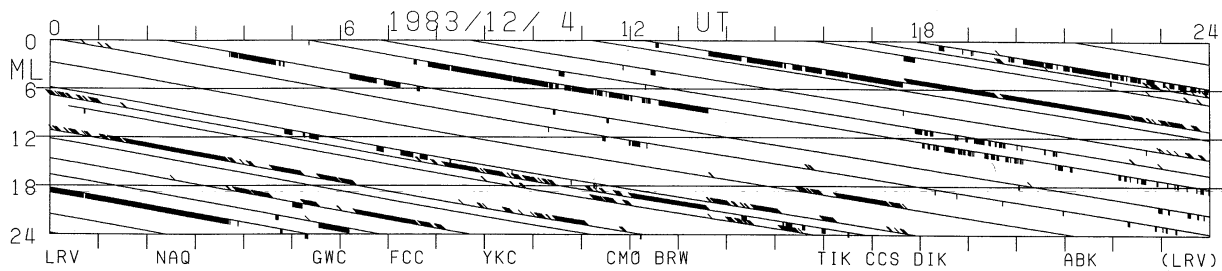


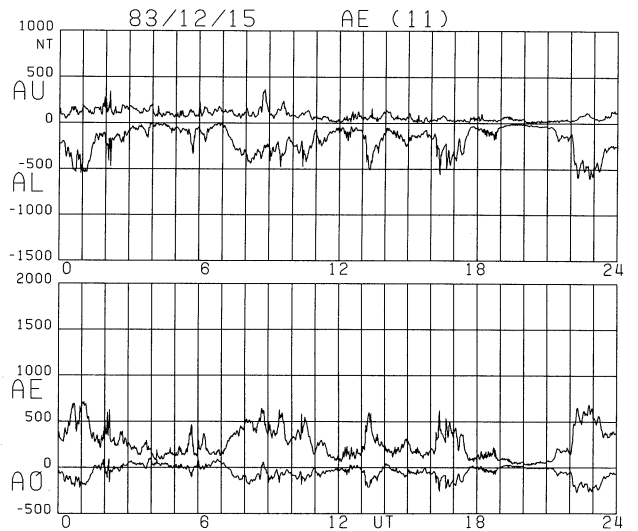
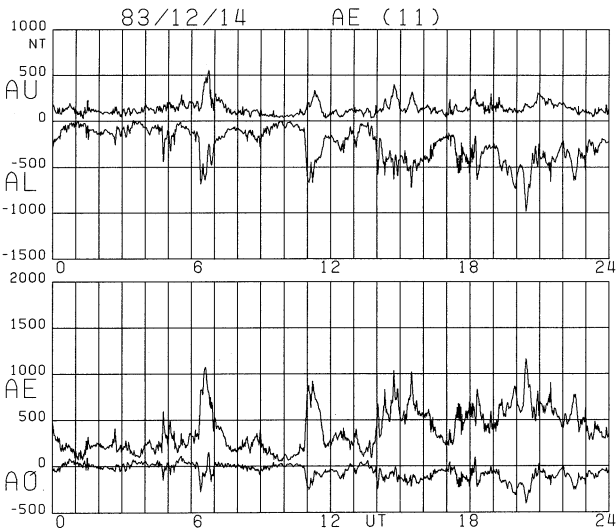
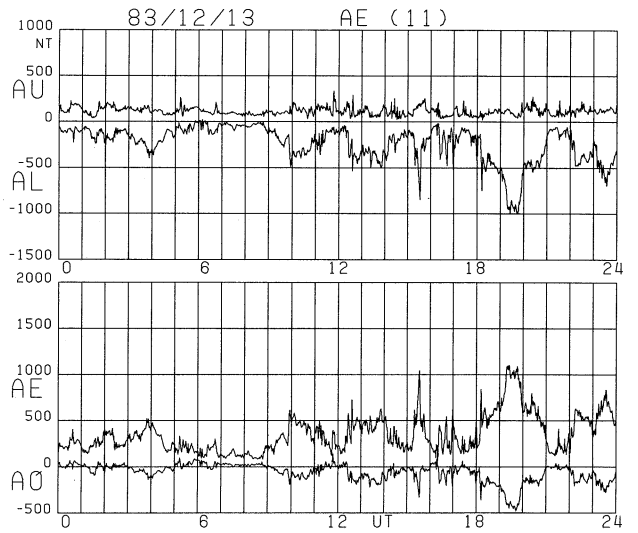
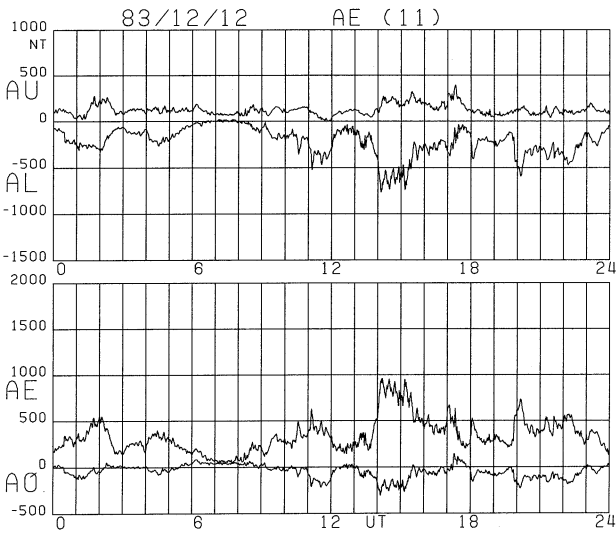
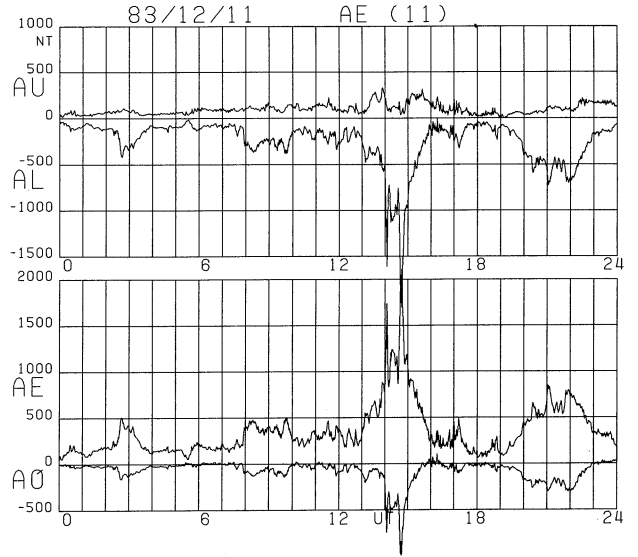
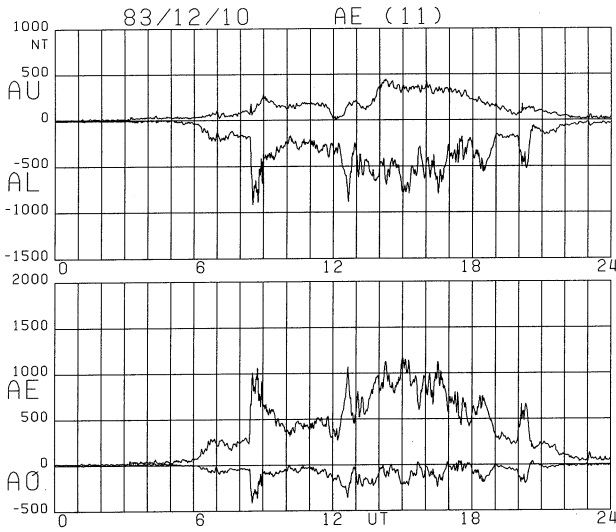


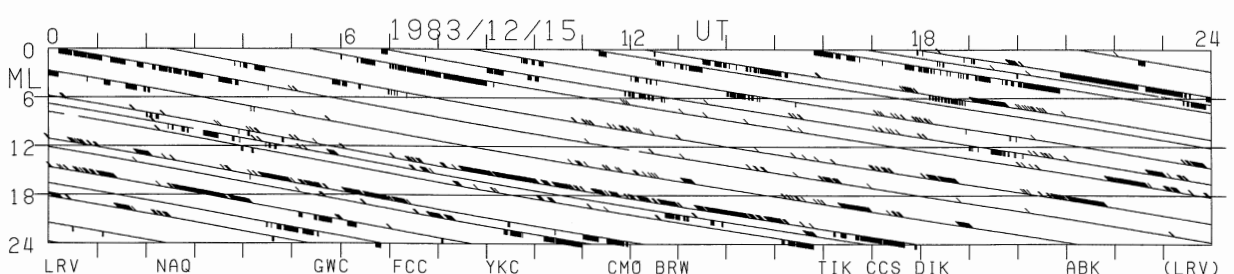
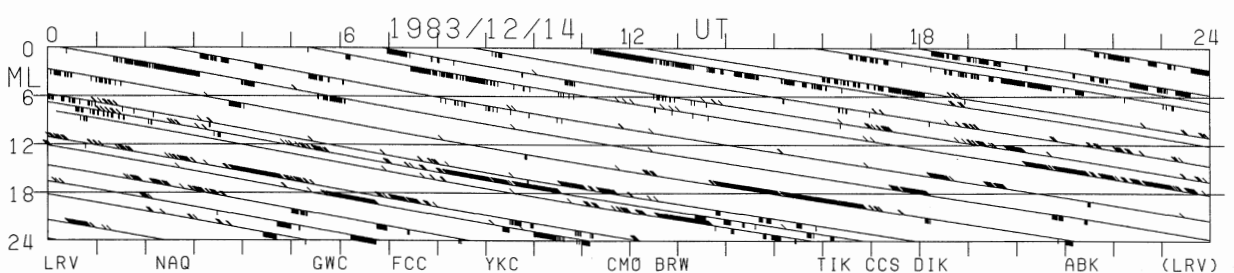
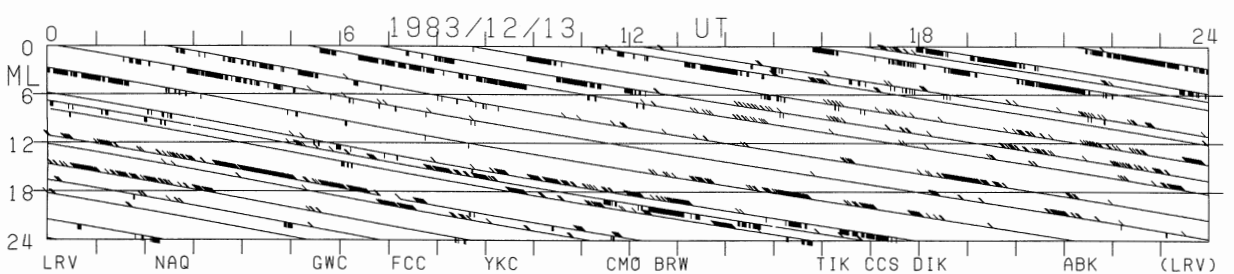
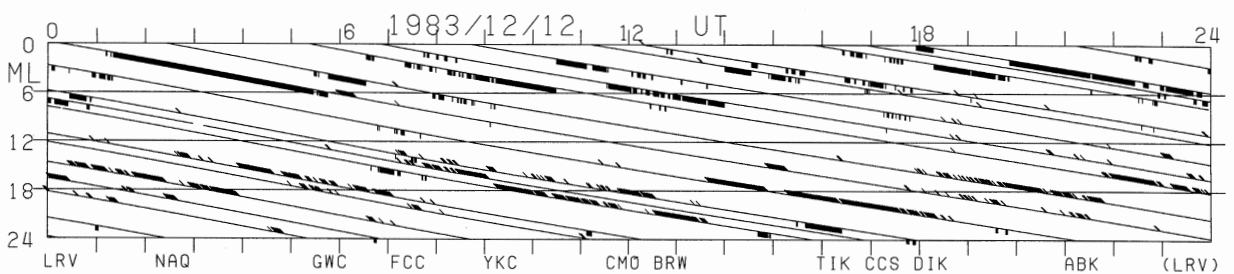
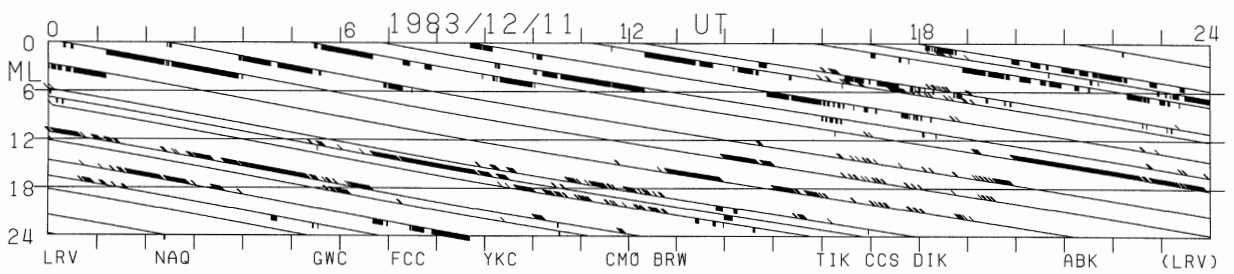
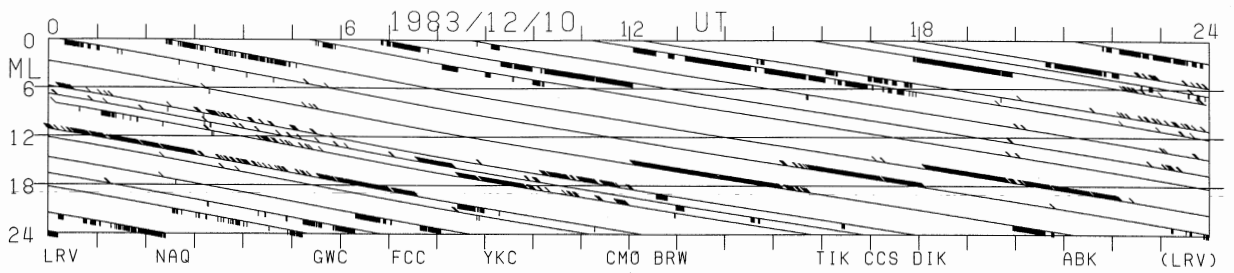


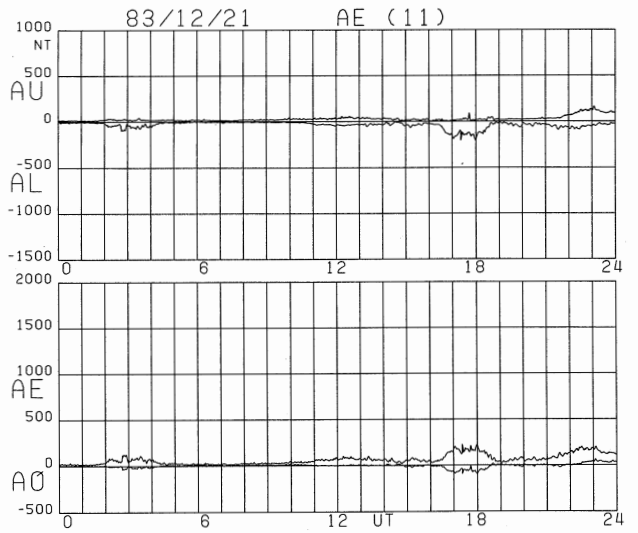
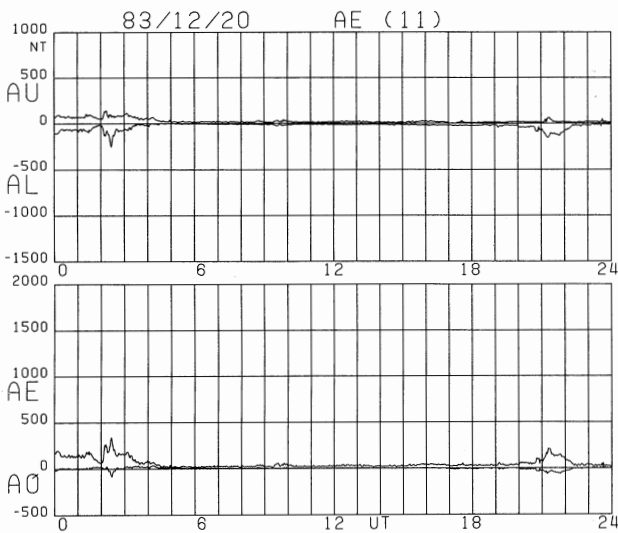
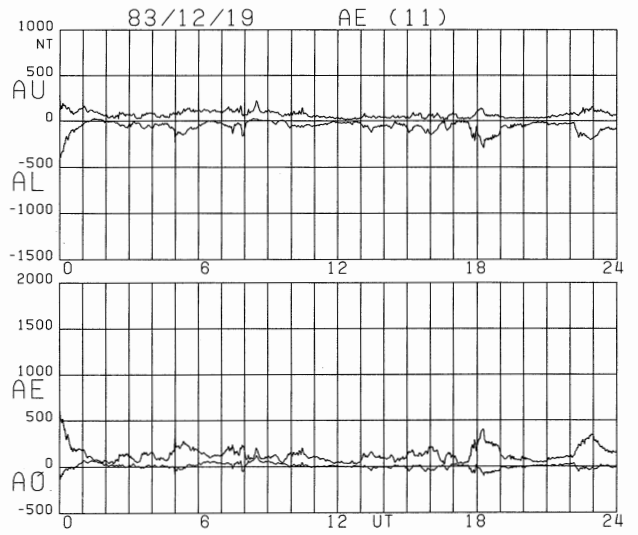
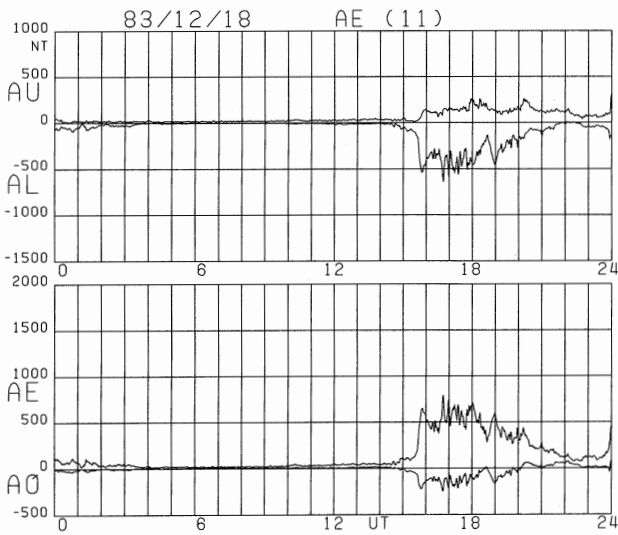
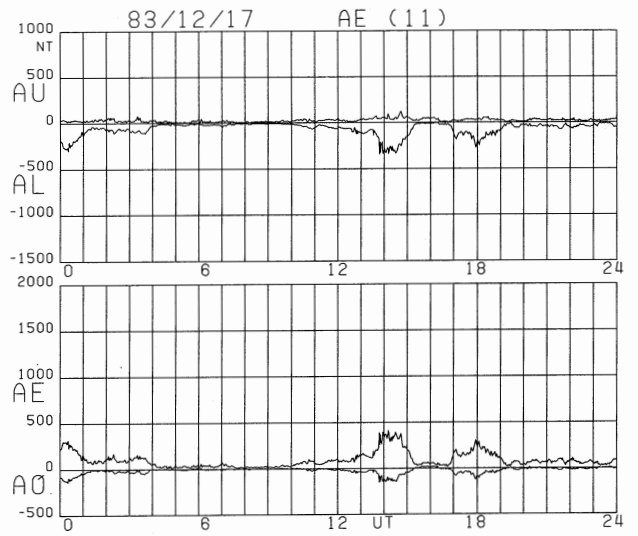
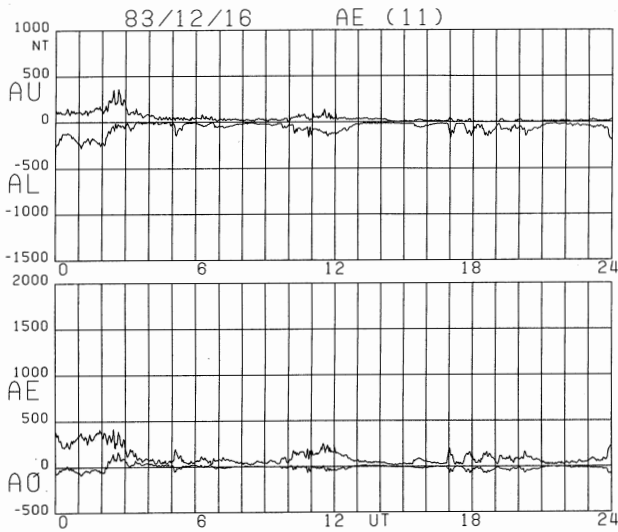


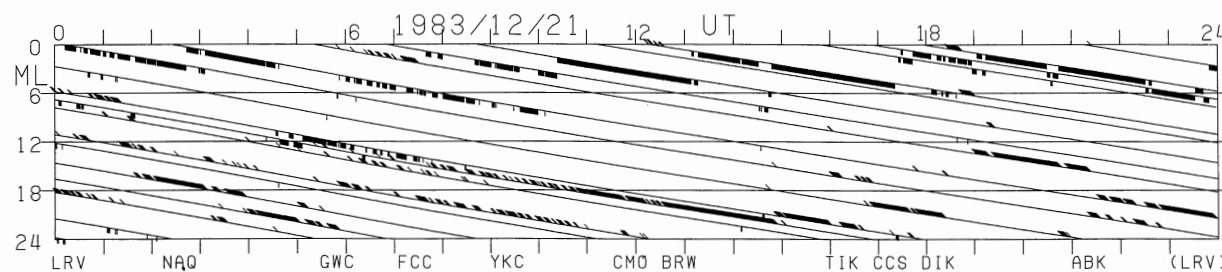
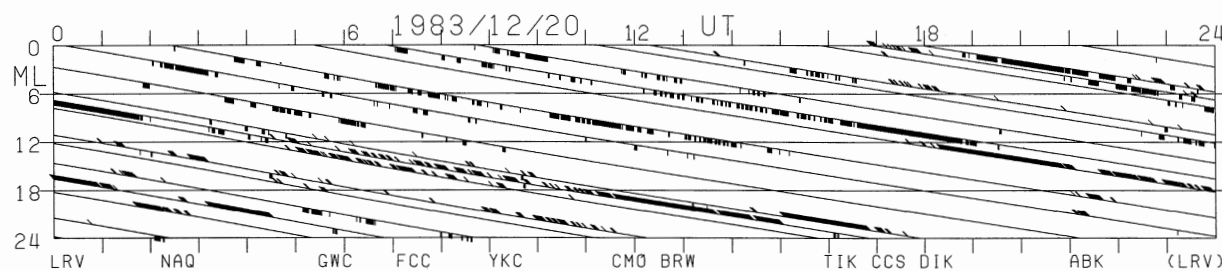
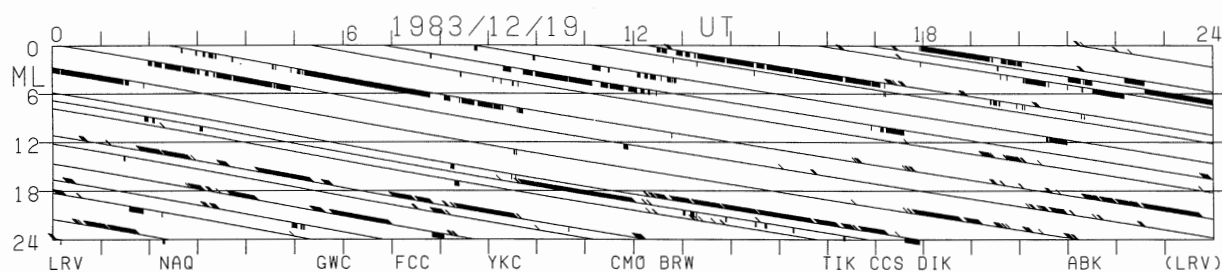
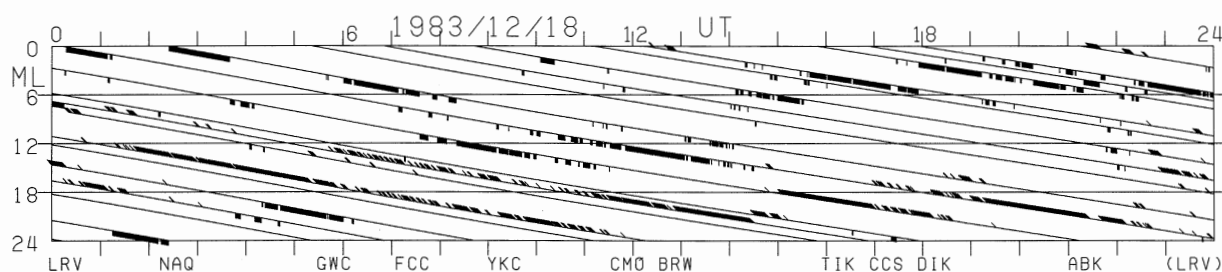
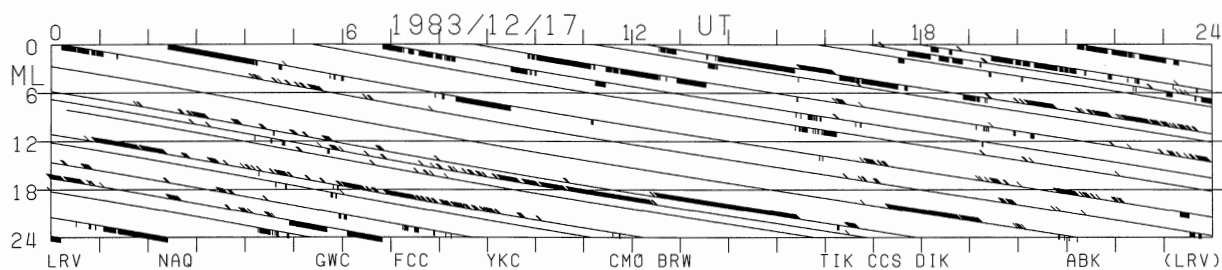
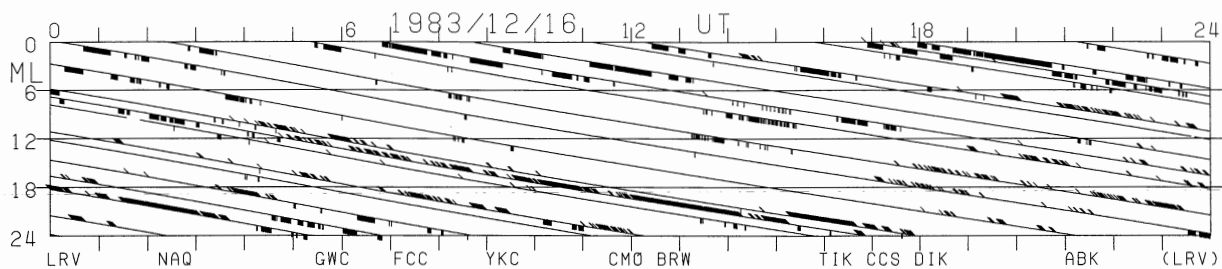


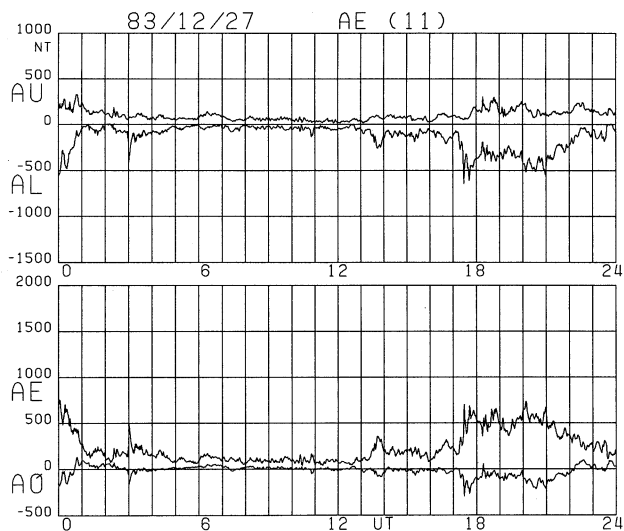
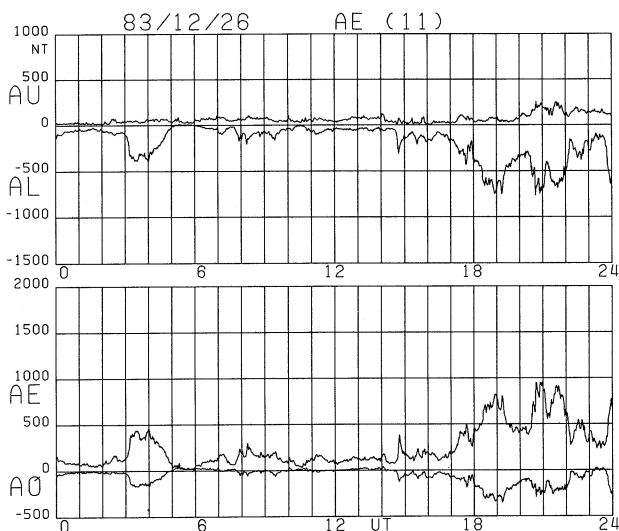
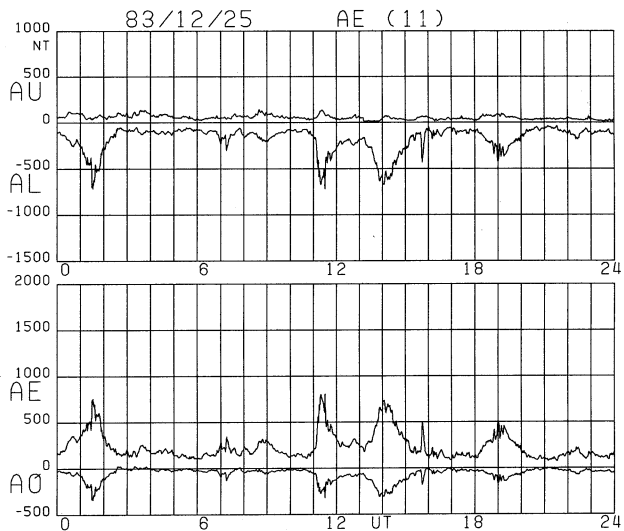
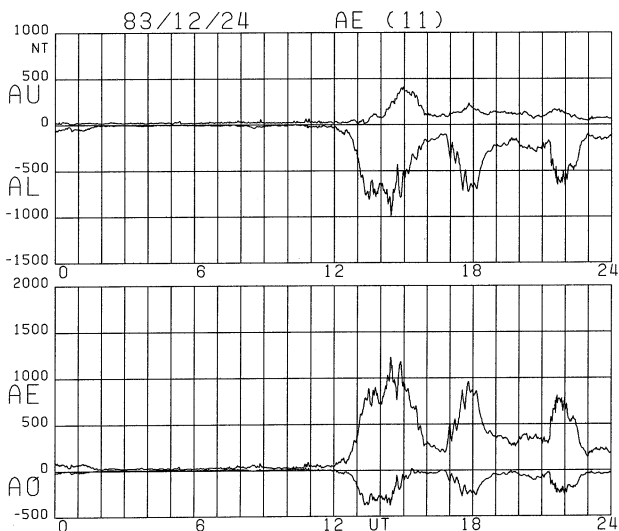
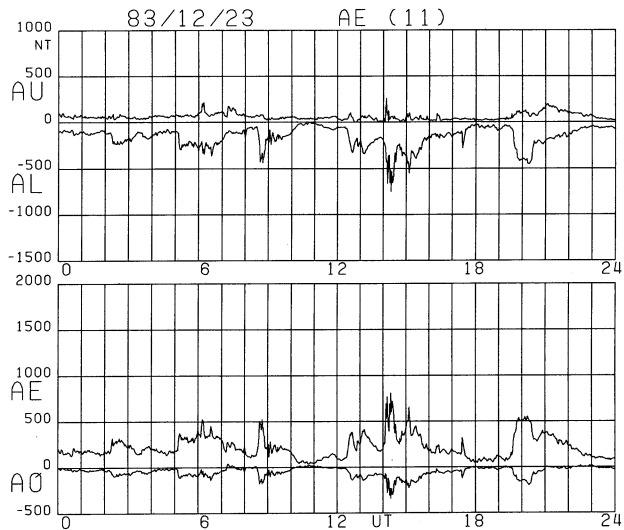
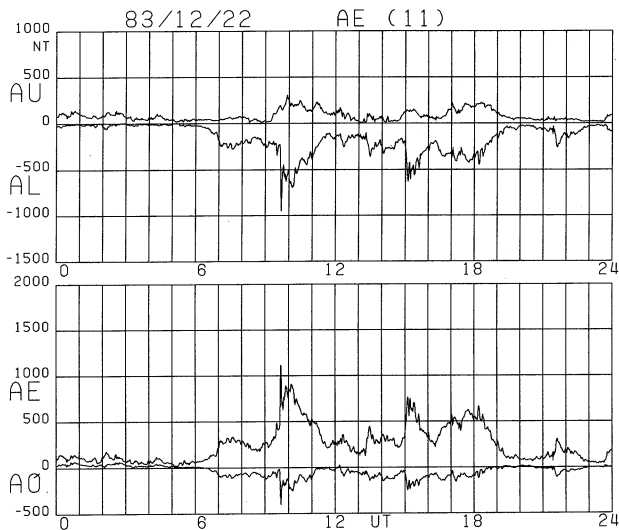


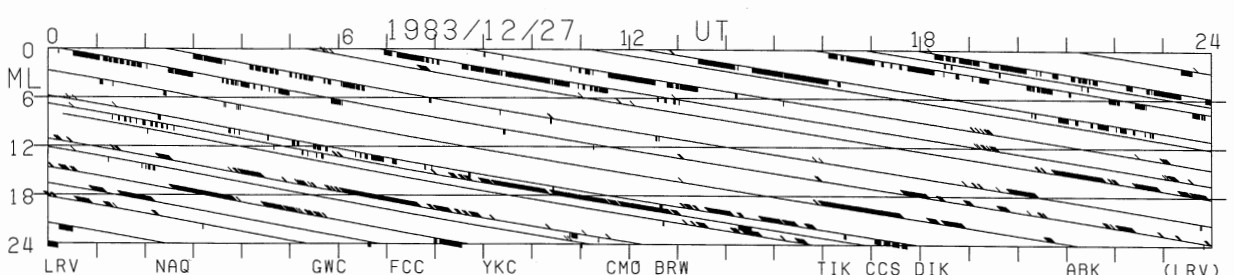
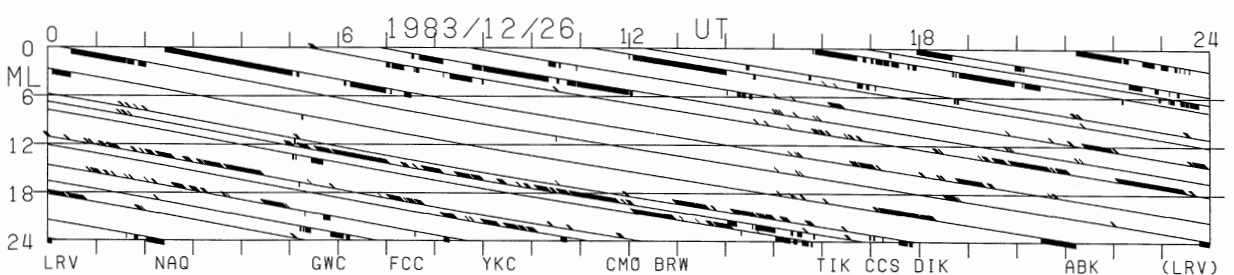
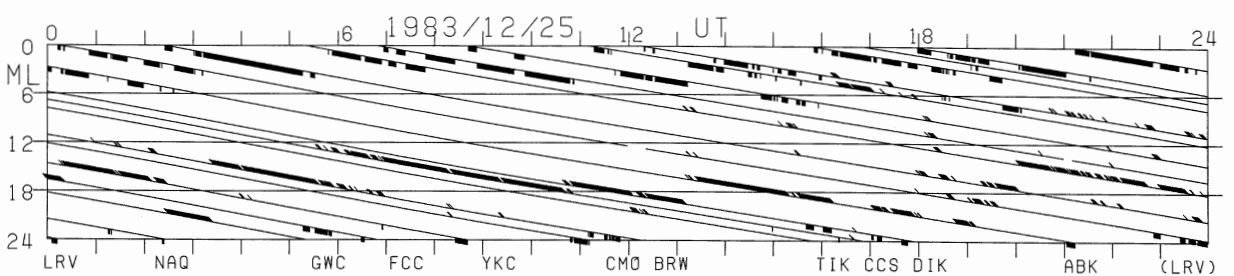
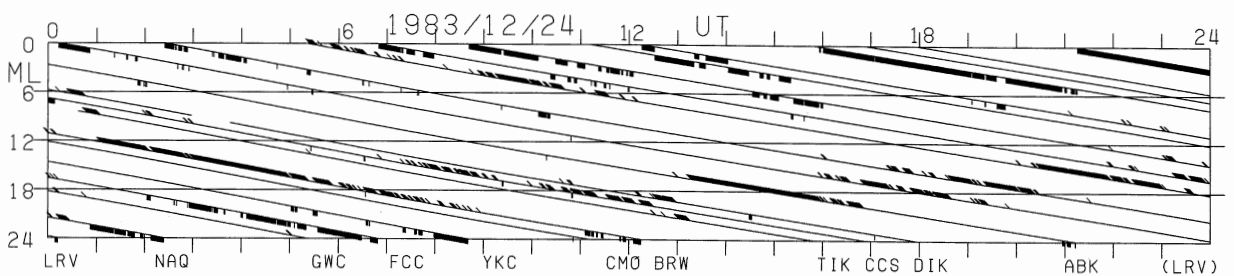
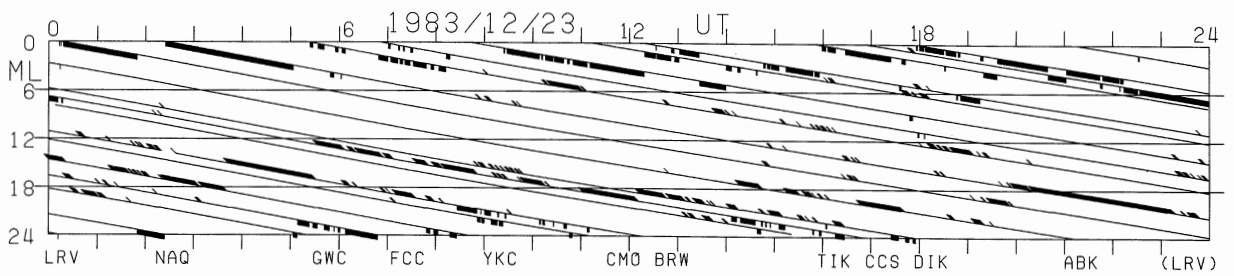
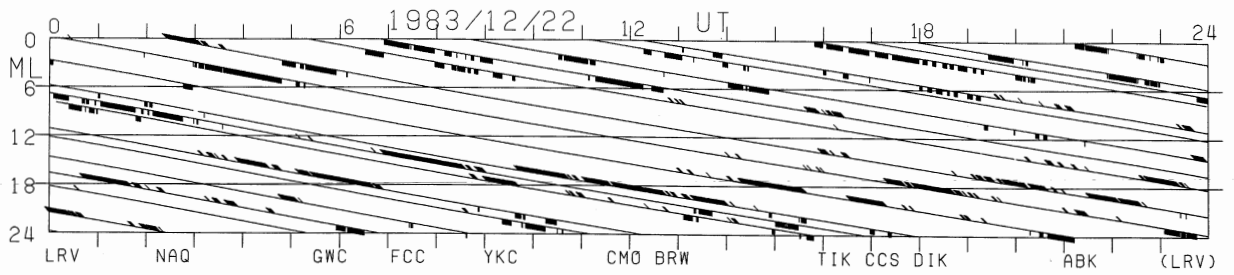


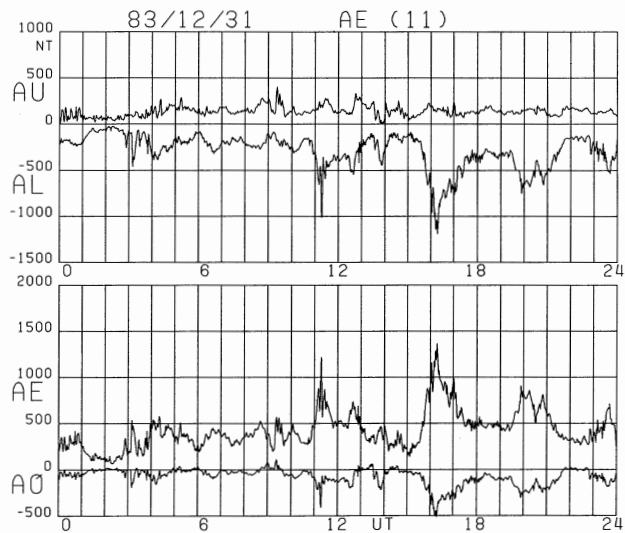
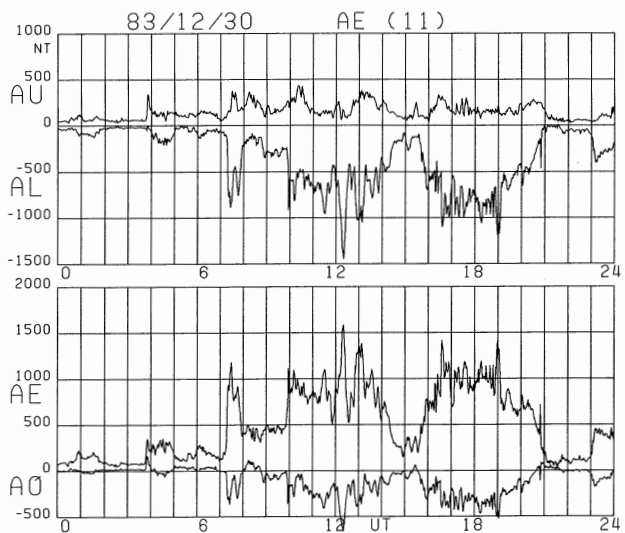
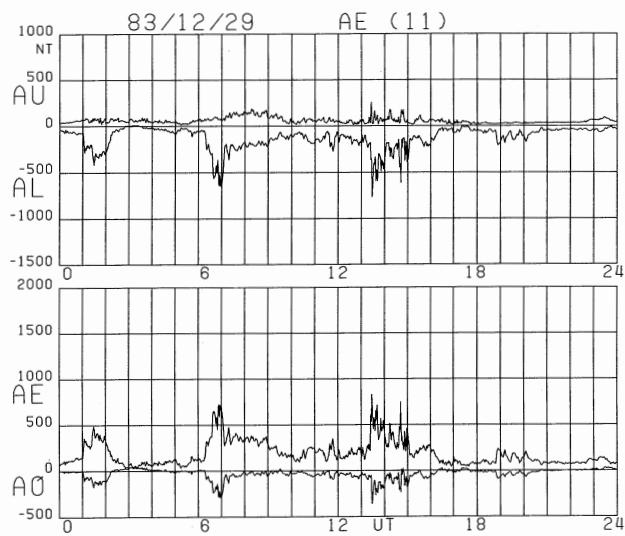
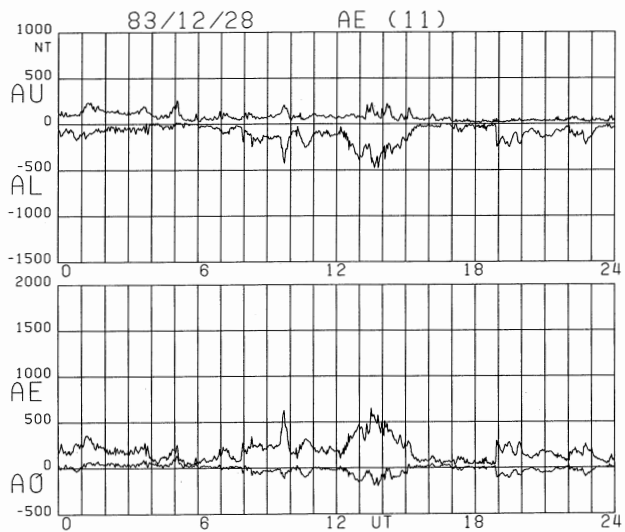




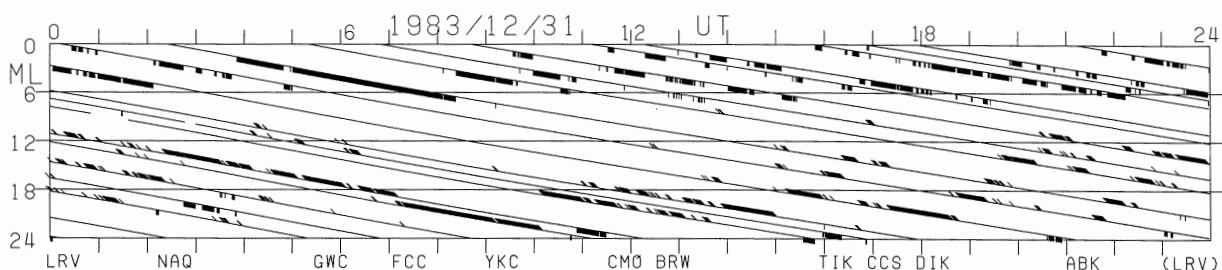
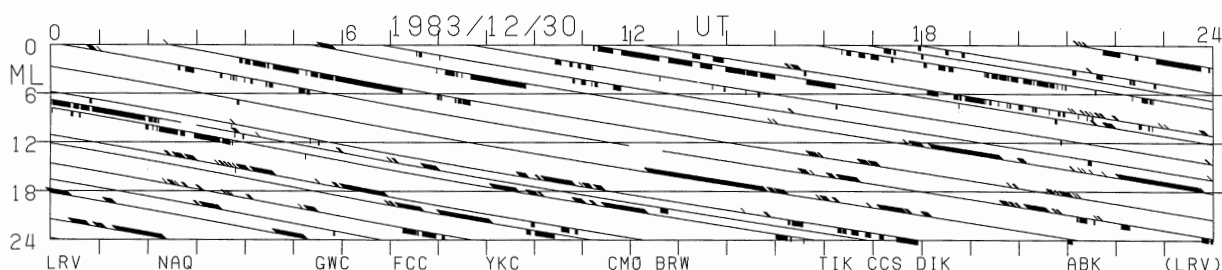
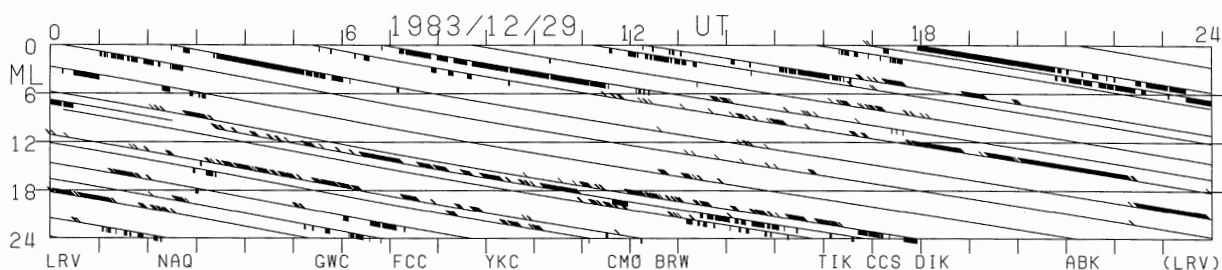
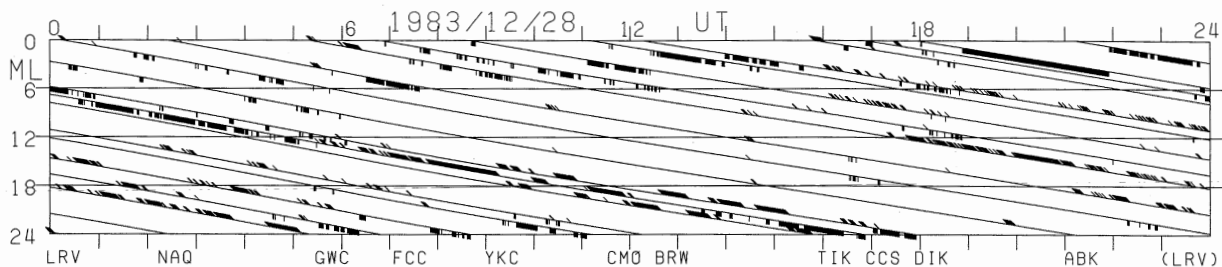












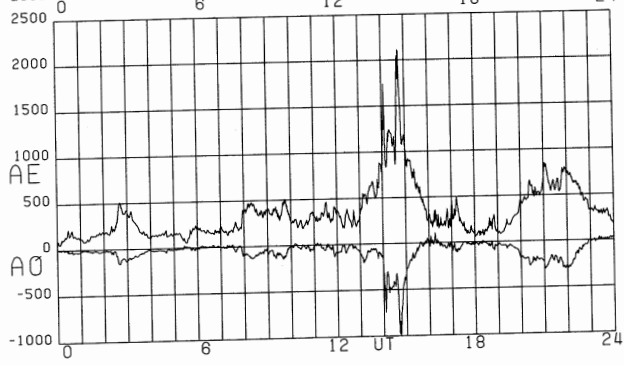
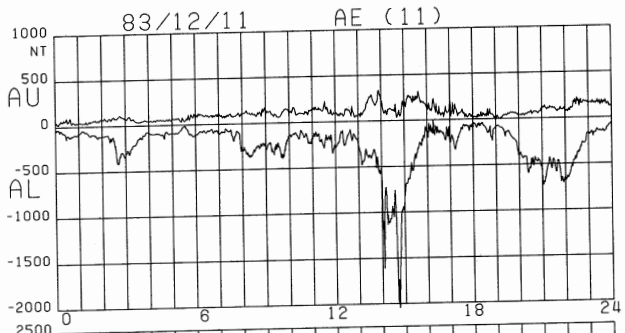
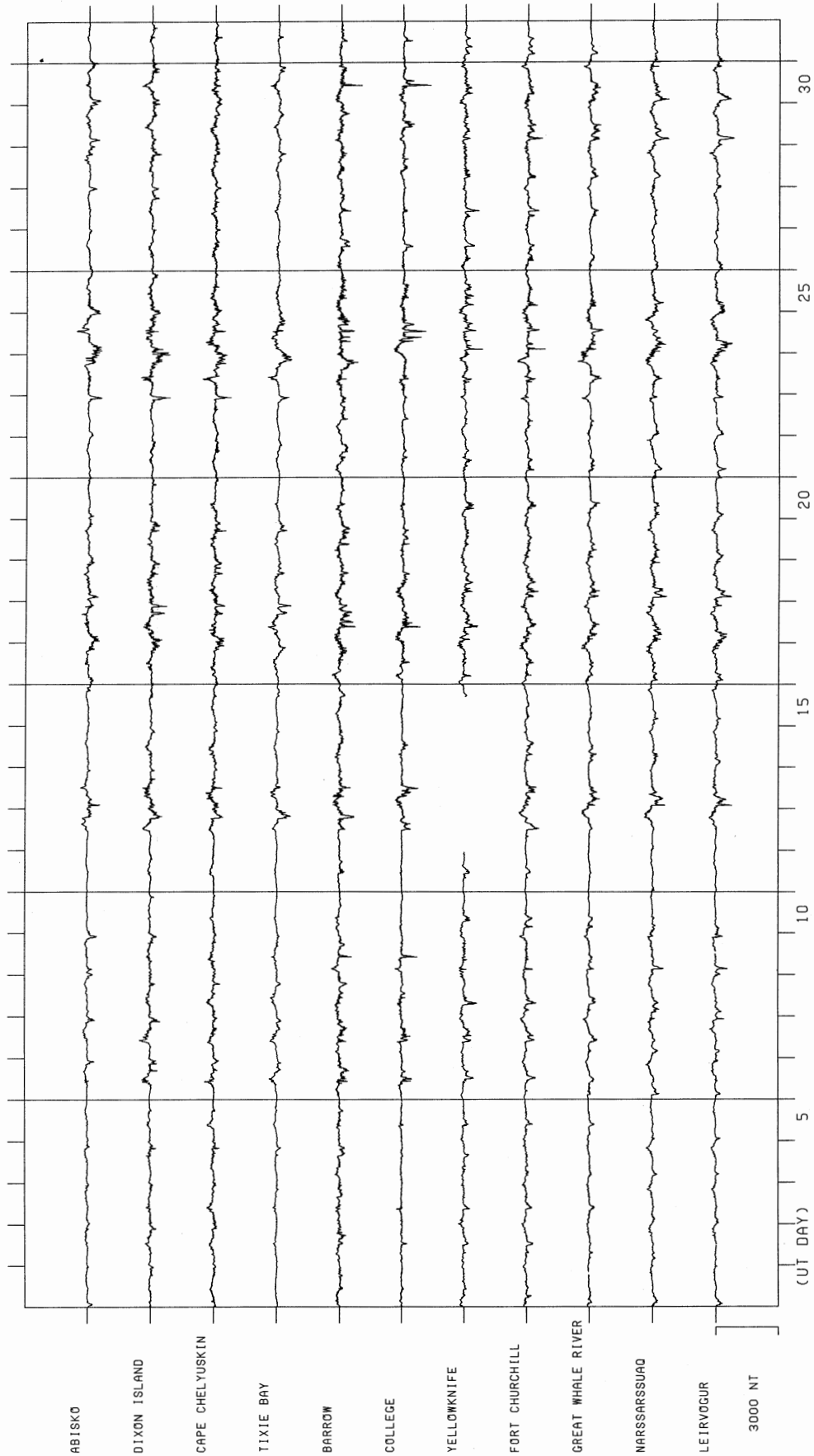
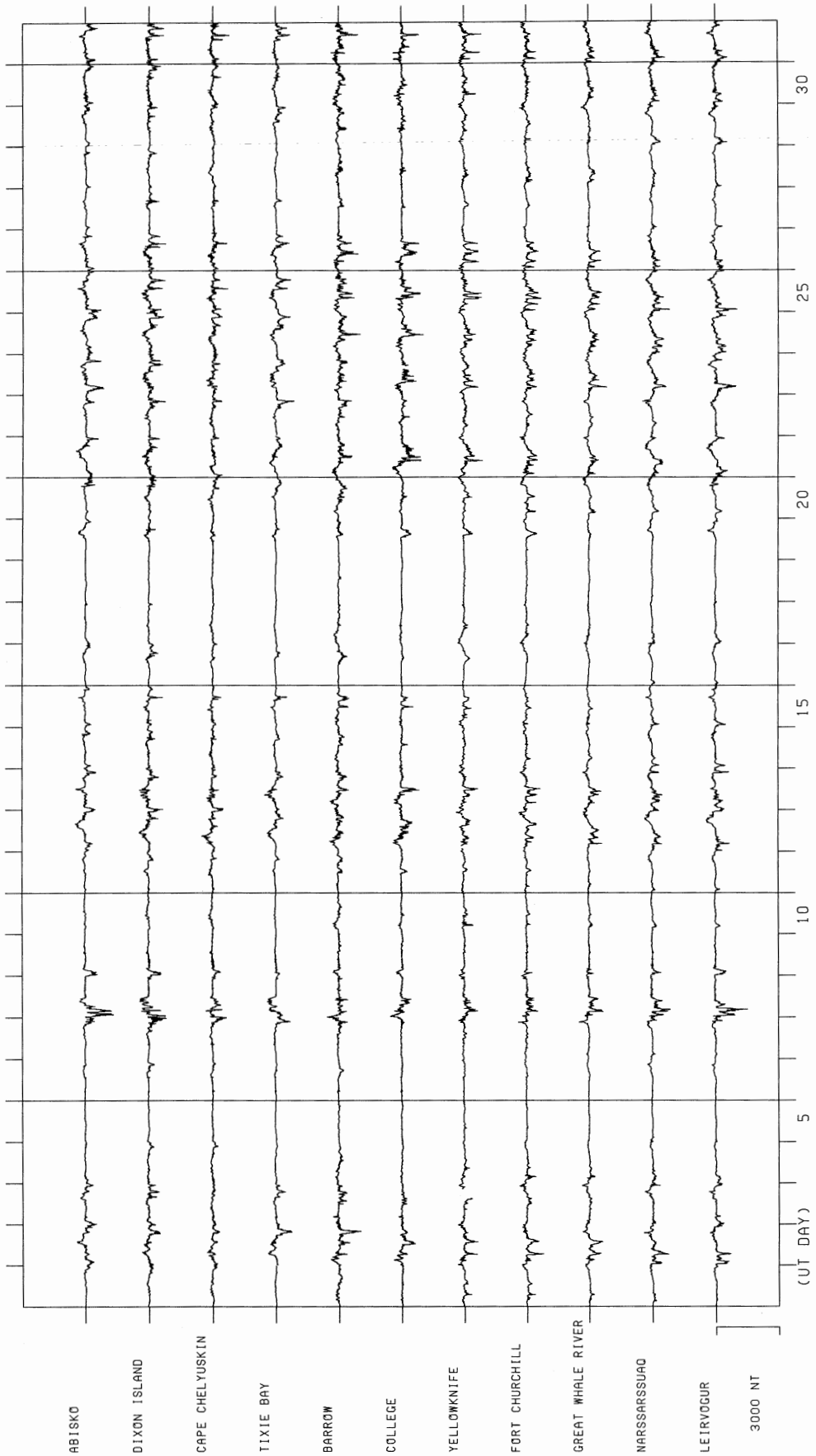


FIGURE 6

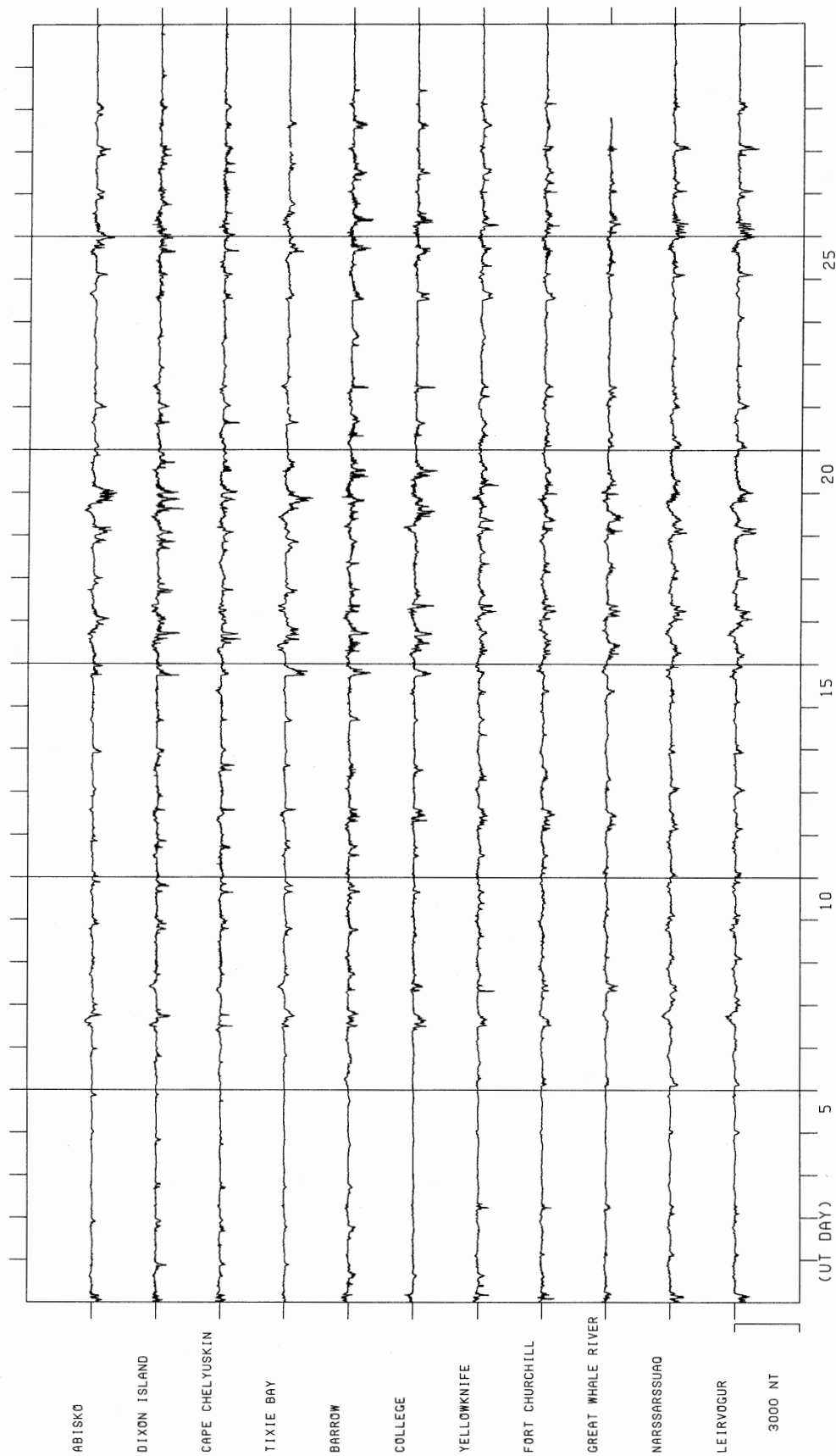
The H traces of magnetograms  
from AE(11) stations  
in each month  
for July-December 1983.



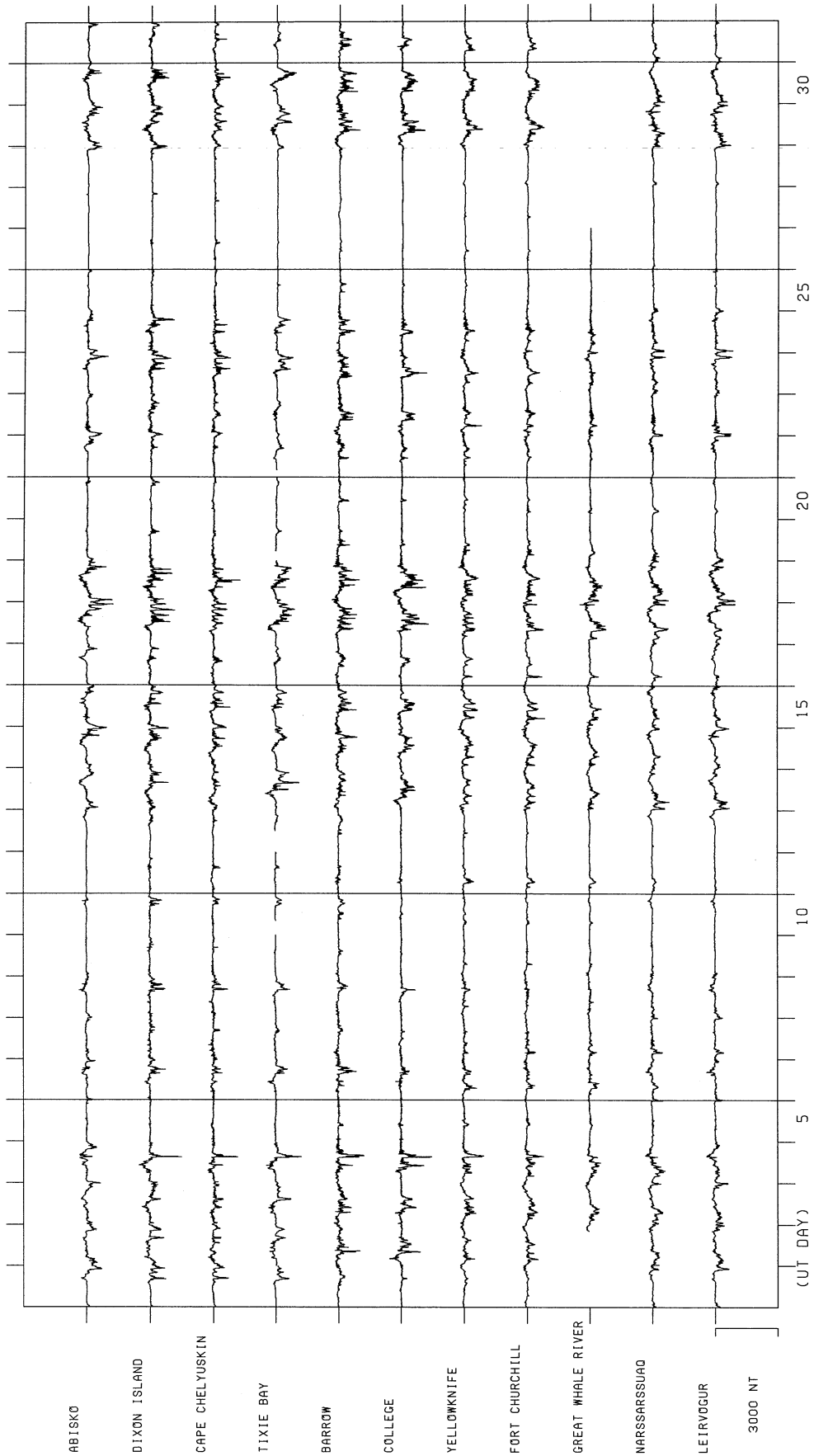
STACKED COMMON SCALE MAGNETOGRAMS FOR JULY 1983



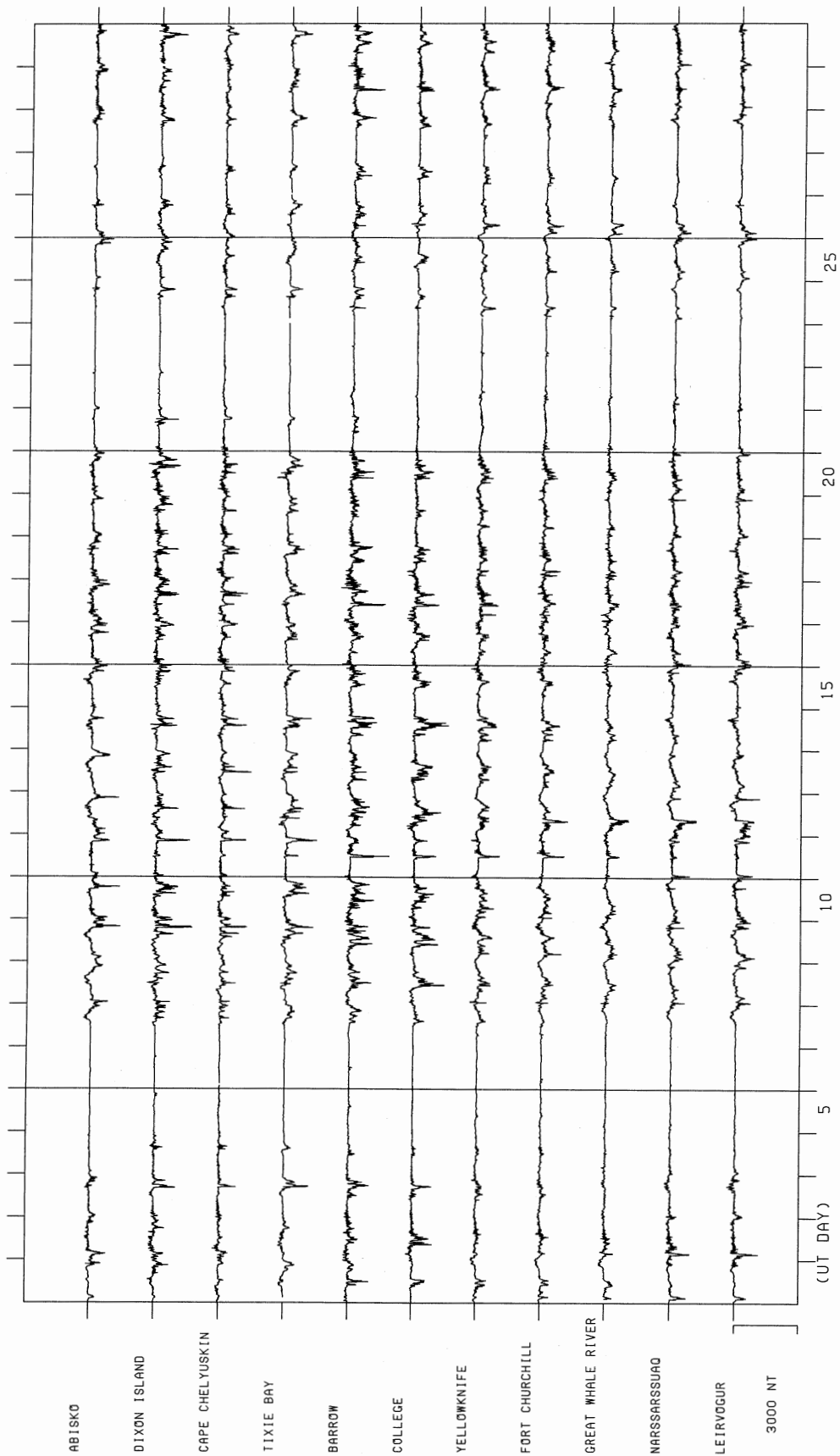
STACKED COMMON SCALE MAGNETOGRAMS FOR AUGUST 1983



STACKED COMMON SCALE MAGNETOGRAMS FOR SEPTEMBER 1983

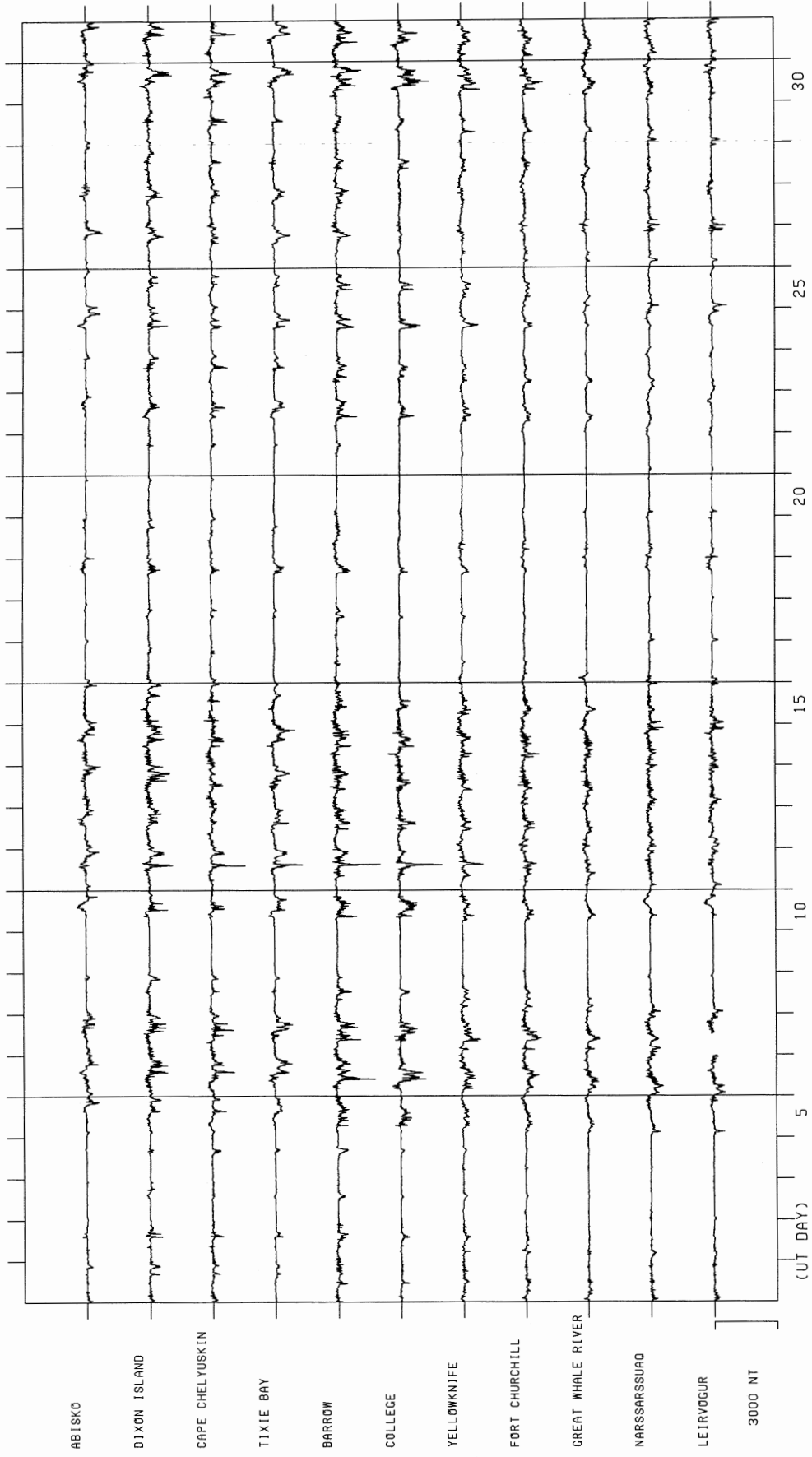


STACKED COMMON SCALE MAGNETOGRAMS FOR OCTOBER 1983



STACKED COMMON SCALE MAGNETOGRAMS FOR NOVEMBER 1983

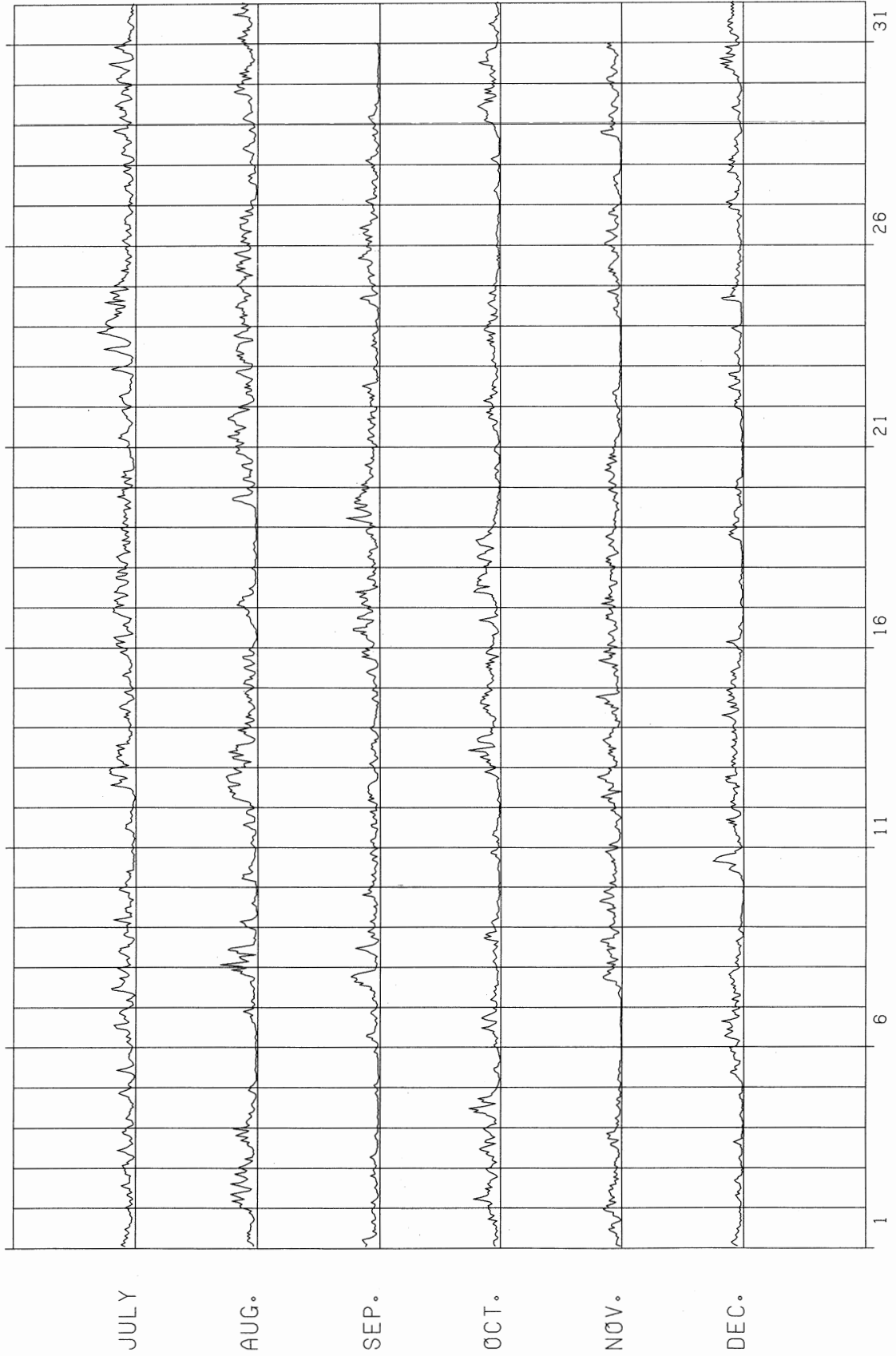




STACKED COMMON SCALE MAGNETOGRAMS FOR DECEMBER 1983

FIGURE 7

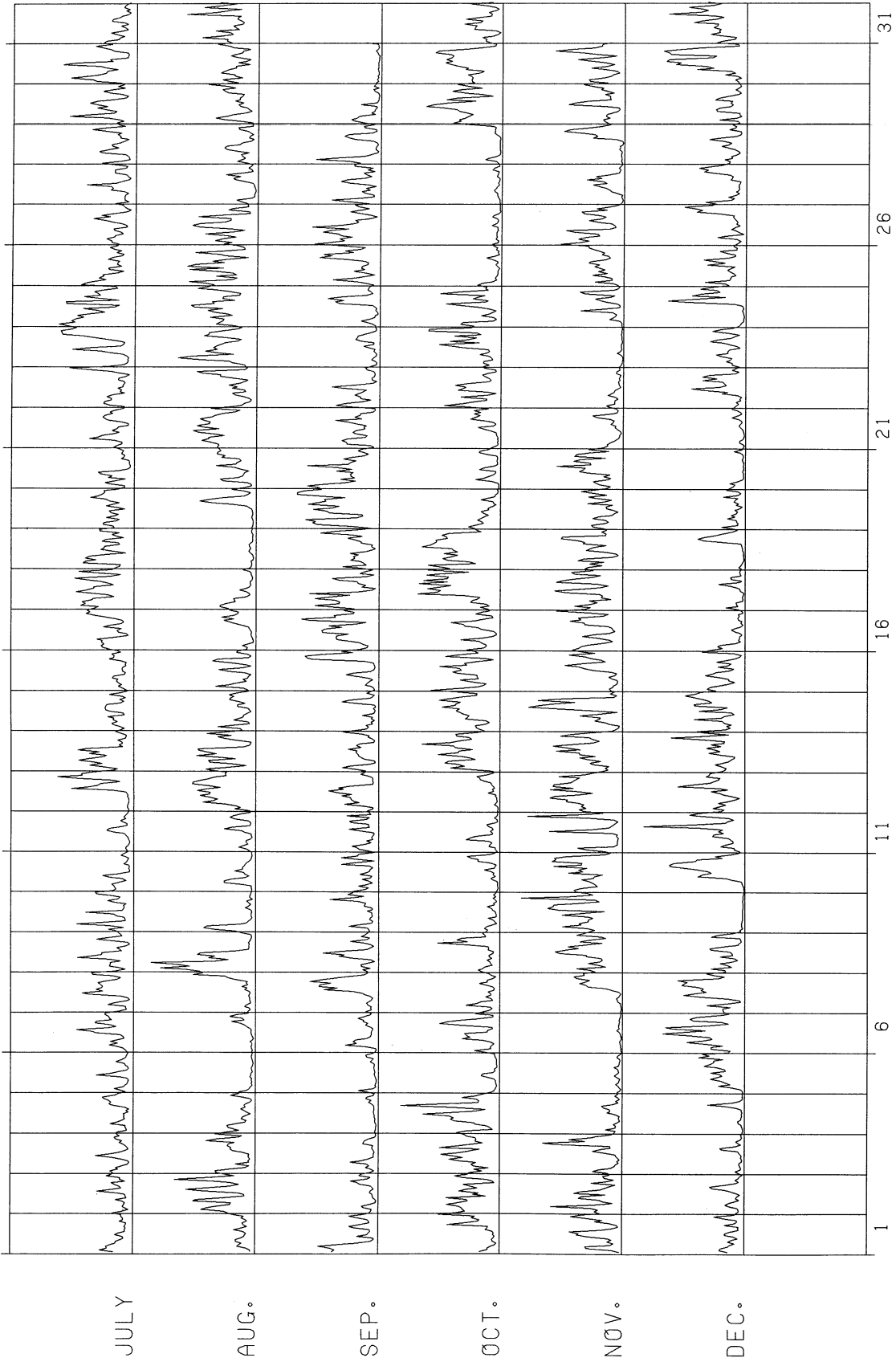
Plots of hourly values of each index  
(AU, AL, AE and AO)  
for July-December 1983.



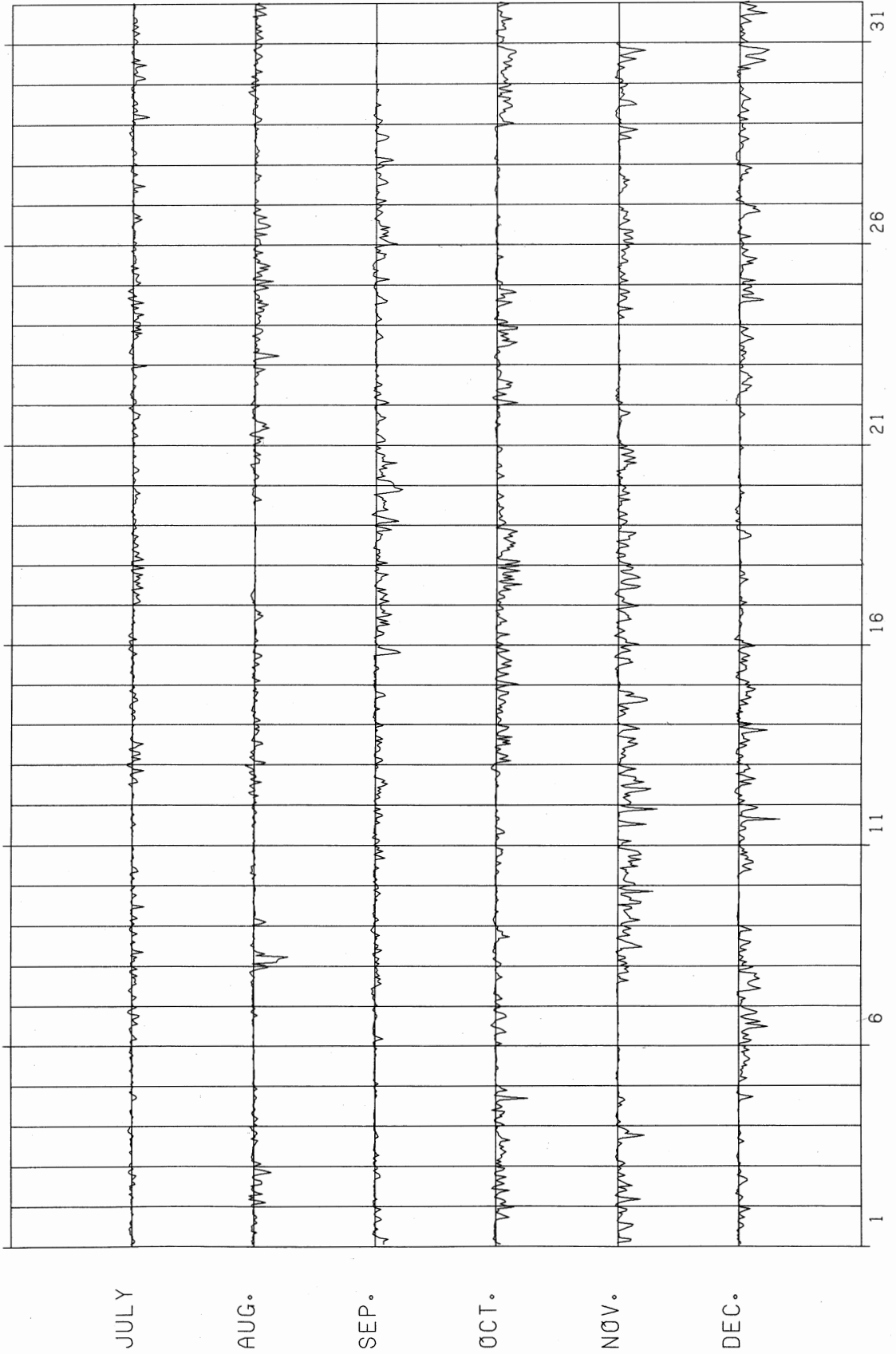
AU HOURLY VALUES FOR THE LAST HALF OF 1983 (15000T/DIV)



AL HOURLY VALUES FOR THE LAST HALF OF 1983 (1500NT/DIV)



AE HOURLY VALUES FOR THE LAST HALF OF 1983 (15000T/DIV)



A0 HOURLY VALUES FOR THE LAST HALF OF 1983 (1500NT/DIV)

Publications by the World Data Center C2 for Geomagnetism.

1. Data Catalogue

Data Catalogue of World Data Center C2 for Geomagnetism	Published in 1984
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2. Data Book

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 indices (AE) for January-June 1978	1981
No. 4	Auroral electrojet indices (AE) for July-December 1978	1981
No. 5	Auroral electrojet indices (AE) for January-June 1979	1982
No. 6	Auroral electrojet indices (AE) for July-December 1979	1982
No. 7	Auroral electrojet indices (AE) for January-June 1980	1983
No. 8	Auroral electrojet indices (AE) for July-December 1980	1983
No. 9	Auroral electrojet indices (AE) for January-June 1981	1984
No.10	Auroral electrojet indices (AE) for July-December 1981	1984
No.11	Auroral electrojet indices (AE) for January-June 1983	1985
No.12	Auroral electrojet indices (AE) for July-December 1982	1985
No.13	Auroral electrojet indices (AE) for July-December 1983 (AE-index for the first half of 1982 will be published in Data Book No.14)	1986

3. Others

Report of Aeromagnetic Survey in Japan	1966
Japanese WMS Magnetic Charts for 1965	1966
WMA Inventory ; First Issue	1970
WMA Inventory ; Second Issue	1971

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

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

WDC-C2 for Geomagnetism  
Faculty of Science, Kyoto University  
Kyoto 606, Japan

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