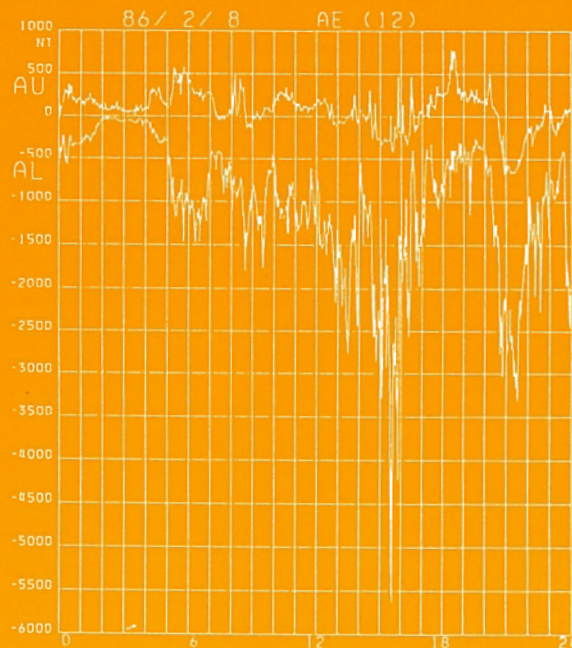


World Data Center C2 for Geomagnetism

# DATA BOOK

No. 19

Auroral electrojet (AE) indices  
for January-June 1986



JANUARY 1990

Data Analysis Center for  
Geomagnetism and Space Magnetism  
FACULTY OF SCIENCE  
KYOTO UNIVERSITY  
KYOTO

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

SPECIAL NOTICE

The tentatively planned order of publication of the Data Books is as follows.

Data Book No. 20	AE indices for July - December 1986.
Data Book No. 21	AE indices for January - June 1987.
Data Book No. 22	AE indices for July - December 1987.
Data Book	AE indices for January - June 1977.
Data Book	AE indices for July - December 1977.

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## PPREFACE

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

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

When it became difficult for the WDC-A for STP to continue the production of the AE index, a question was raised if the index could be produced at the WDC-C2 for Geomagnetism, which is operated by the Data Analysis Center for Geomagnetism and Space Magnetism, Faculty of Science, Kyoto University. Responding to this request we decided to produce the index for the two years, 1978-1979, of the International Magnetospheric Study (IMS), and published 1.0 min values of the AE index for these years in the "WDC-C2 for Geomagnetism Data Book" series.

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

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# AURORAL ELECTROJET (AE) INDICES

FOR JANUARY - JUNE 1986

## 1. Derivation and Representation

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

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

## 2. Data Used

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

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
Poste-de-la-Baleine (Great Whale River)	PBQ	PBQ	55.27	282.22	66.58	347.36
Narssarssuaq	NAQ	NAS	61.20	314.16	71.21	36.79
Leirvogur	LRV	LR	64.18	338.30	70.22	71.04

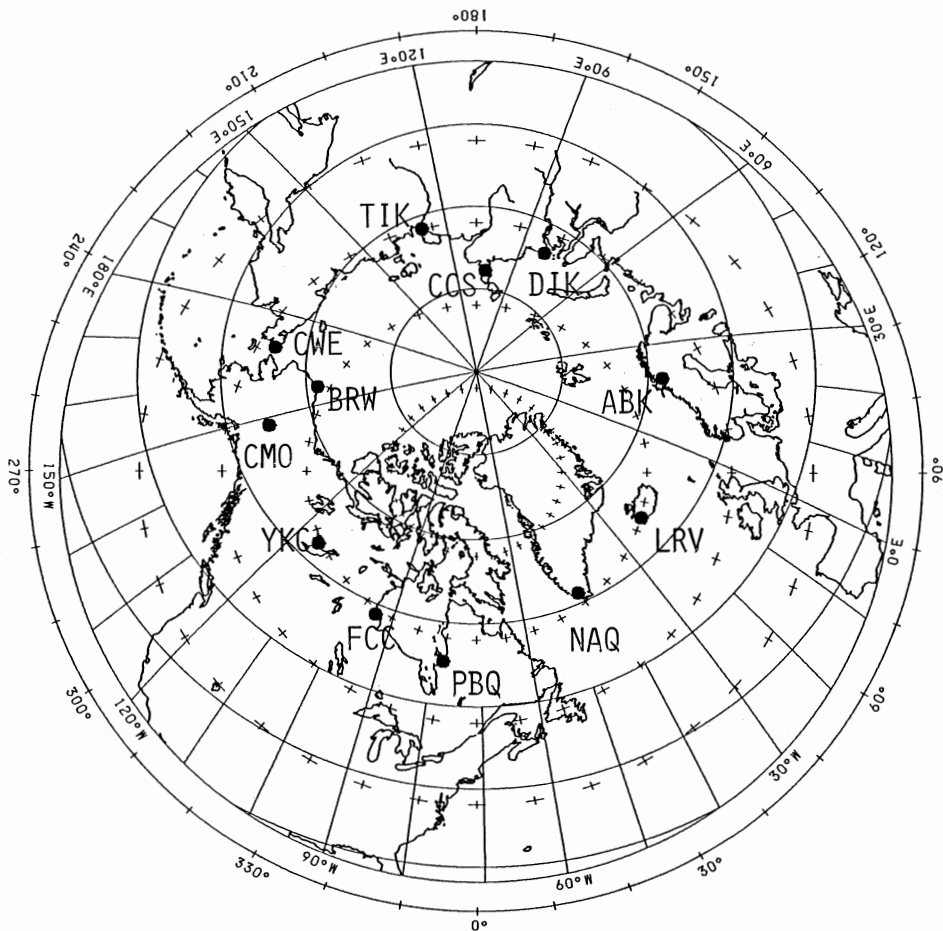


Figure 1. Distribution of AE(12) stations.

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



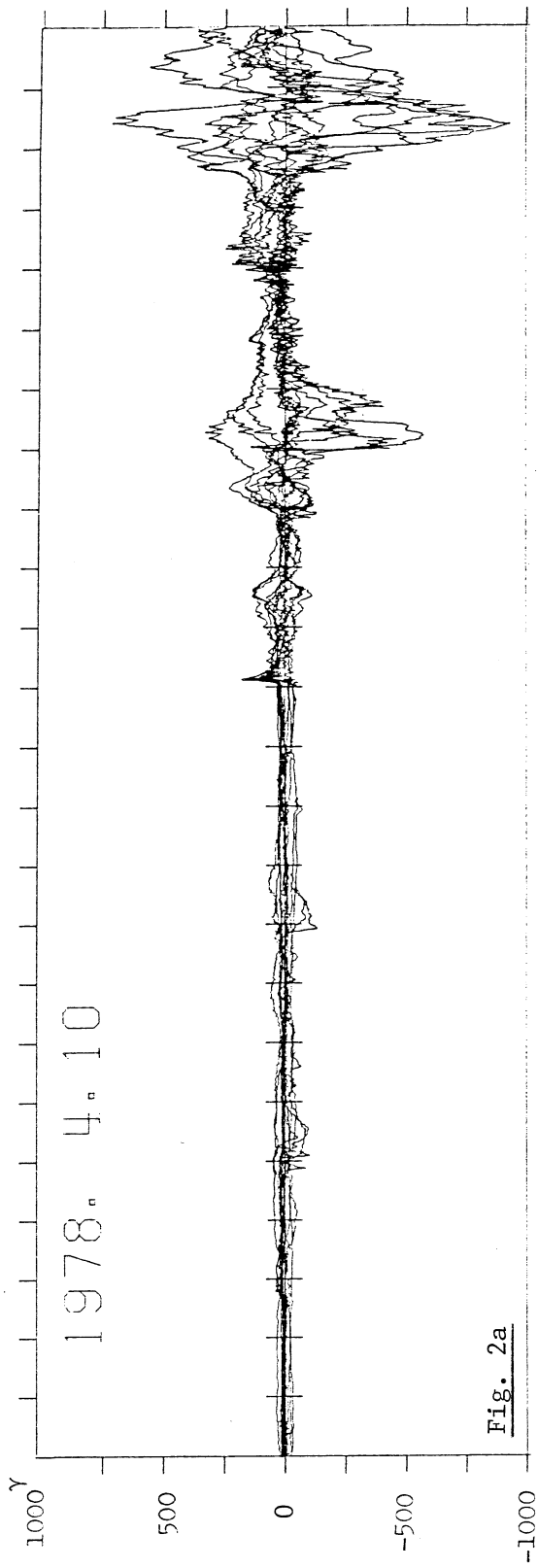


Fig. 2a

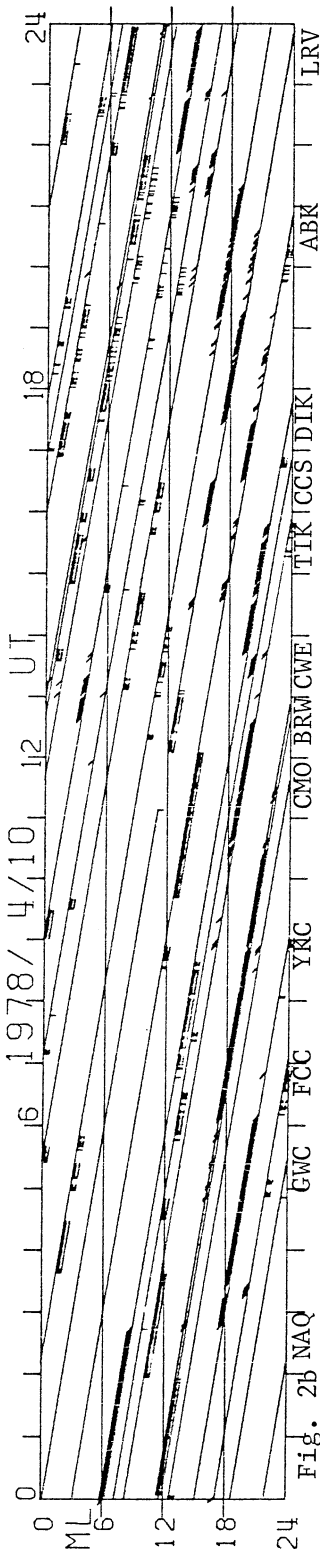


Fig. 2b

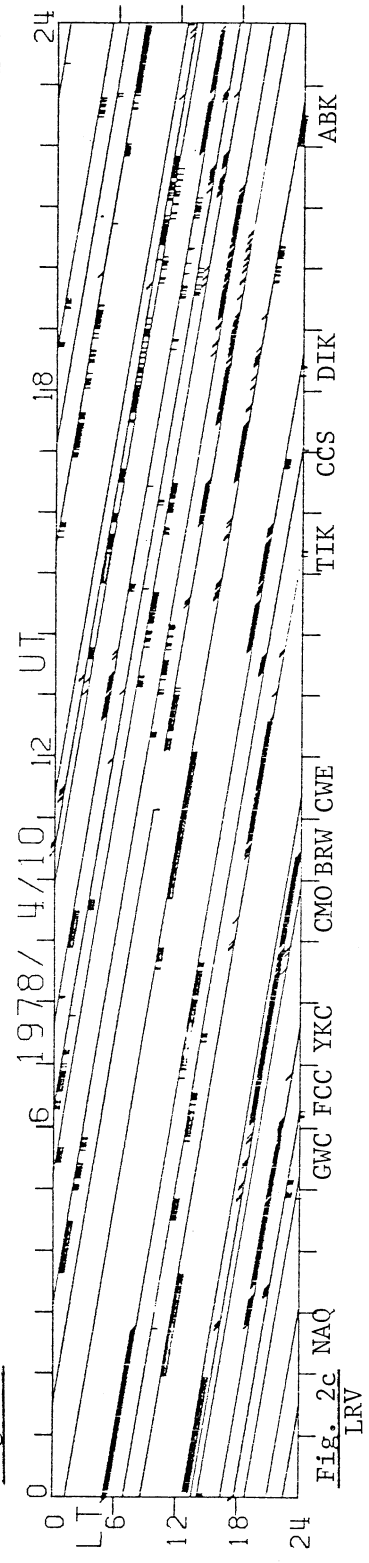


Fig. 2c

We used twelve observatories listed in Table 1. The distribution of the stations is shown in Fig. 1. The station Great Whale River was closed in July 1984 due to the high replacement cost of a broken power line and a new station Poste-de-la-Baleine (PBQ) was opened near the old site in September 1984.

Of the twelve observatories six are taking digital data; these stations are referred to as digital stations below. Three of the digital stations, Fort Churchill, Poste-de-la-Baleine, and Yellowknife, give data in the X, Y, Z coordinate system. To make these data compatible with the other stations, we convert the X and Y components to the H component by  $H = \sqrt{X^2 + Y^2}$ . If either X or Y is missing, H is also treated as being missing. For the other three digital stations, Barrow, College, and Narssarsuaq, the original digital H component data are used.

If there is any interval during which the digital recording appears faulty, the analog magnetogram is digitized whenever available. We used Abisko data digitized from analog records by the station. For the other non-digital stations the digitization was performed at this Data Center.

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

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

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

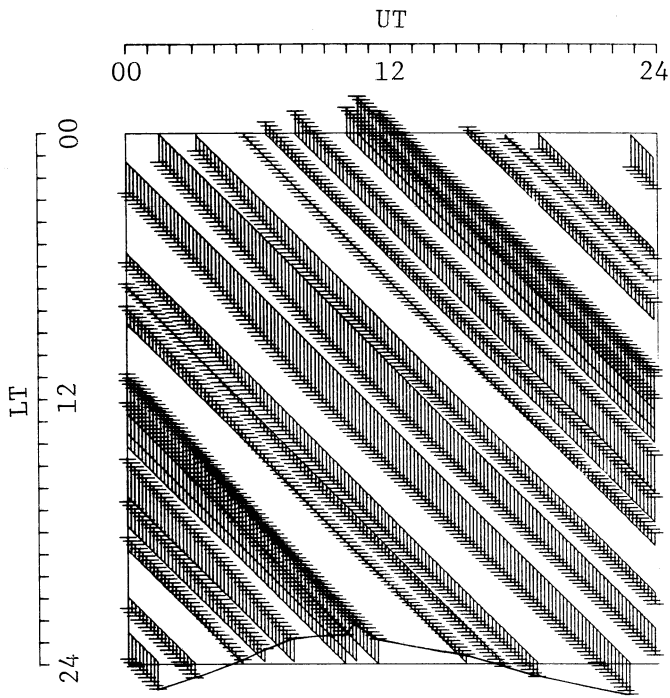


Fig. 3a Difference between GLT and MLT in winter.

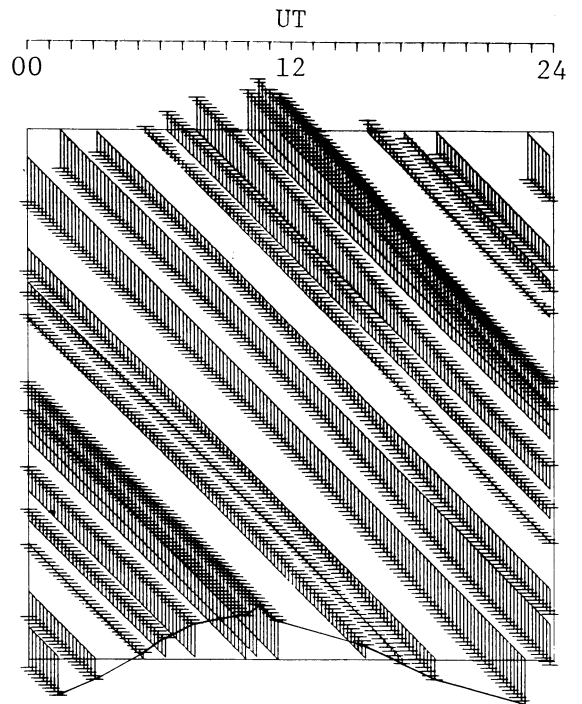


Fig. 3b Difference between GLT and MLT in summer.

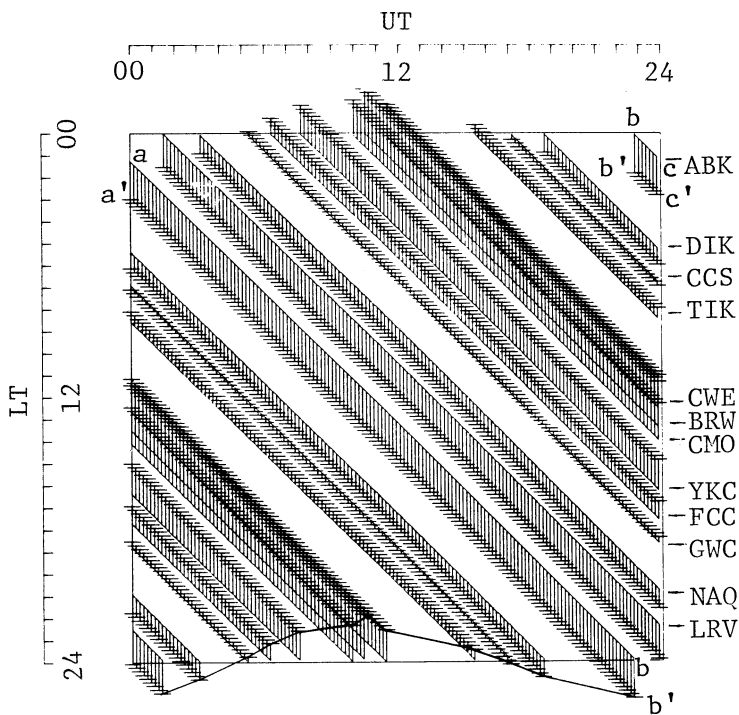


Fig. 3c Difference between GLT and MLT in equinox.

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.

vertical line of T from the diagonal line is the difference between GLT and MLT. Note that for some stations the difference between GLT and MLT is as much as 2 hours.

#### 4. Results

Monthly quiet-time H reference values for January-June 1986 are listed in Table 2. Table 3 gives hourly average values of the AE indices for each day from January to June 1986.

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. Supplemental plots for disturbed days are given at the end of Fig. 4. Figure 6 shows the H-traces of magnetograms from AE(12) stations for each month from January to June 1986. An insensitive plot of the H traces for February 1986 is added at the end of Fig. 6. Figure 7 shows hourly mean values of each index for one half year on each page. Finally, a summary plot of hourly values of AU and AL indices is given in Fig. 8.

#### 5. Acknowledgements

The calculation of the AE indices in this volume was made possible by the data provided by the AE stations through the World Data Centers. We thank Ms. Y. Yamamoto, Mr. T. Matsumoto and Dr. T. Iyemori of WDC-C2 for Geomagnetism for their assistance in the computation and production of plots, and also to Dr. T. Ono and Dr. H. Miyaoka of National Institute of Polar Research for their contributions in printing and distribution.

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Table 2. Monthly quiet-time H reference values (unit in nT)  
(Year 1986)

STATION	Jan.	Feb.	Mar.	Apr.	May	June
Abisko	11671	11662	11663	11661	11656	11662
Dixon Island	-582	-594	-602	-596	-616	-617 (H0+)
Cape Chelyuskin	295	290	287	289	287	293 (H0+)
Tixie Bay	65	55	49	56	49	49 (H0+)
Cape Wellen	11	5	3	2	3	184 (H0+)
Barrow	9667	9655	9647	9652	9651	9652
College	12881	12881	12880	12875	12879	12883
Yellowknife	8728	8725	8726	8727	8732	8731
Fort Churchill	7732	7730	7726	7728	7752	7761
Poste-de-la-Baleine	10750	10753	10756	10768	10781	10779
Narssarssuaq	12212	12206	12202	12207	12216	12217
Leirvogur	12429	12421	12419	12425	12428	12427

(H0+) : Deviation from the H base line on the ordinary magnetograms.

TABLE 3

Hourly average AE indices (AU, AL, AE and AO)  
for January-June 1986.

January 1986

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 1	112	151	146	122	83	88	80	105	155	79	187	142	73	69	160	65	74	137	64	98	72	89	73	64	104
2	92	86	106	117	123	96	138	106	59	25	47	84	125	90	85	104	59	44	35	41	33	32	24	21	74
3	12	13	19	24	22	32	43	55	90	83	81	74	65	48	63	44	105	43	29	17	16	21	25	31	44
4	33	24	39	54	30	26	23	13	21	20	19	29	24	38	26	20	34	24	14	12	7	11	13	25	24
5	14	17	13	14	15	19	20	28	28	47	28	35	41	25	17	11	13	16	16	19	15	10	12	11	20
6	11	13	11	10	14	19	16	16	17	21	37	34	26	27	31	21	19	20	26	76	102	-27	68	41	27
D 7	157	196	141	116	128	159	194	142	74	46	59	101	99	97	62	71	44	75	40	20	30	29	68	117	94
8	156	98	51	59	34	48	47	62	52	40	47	77	58	41	25	30	63	23	18	23	22	15	24	27	47
9	58	56	52	81	72	40	28	22	41	61	74	40	31	21	23	25	13	53	92	135	177	184	126	75	66
10	89	112	121	82	62	49	37	43	28	23	20	40	32	50	19	6	9	9	3	11	3	5	7	8	36
Q 11	8	13	23	45	34	33	43	12	17	6	4	18	12	11	13	5	3	19	7	5	8	10	10	11	15
12	10	10	23	12	18	24	37	46	88	36	9	9	16	10	9	6	8	16	5	9	18	10	21	24	20
Q 13	26	16	19	31	35	22	16	22	37	26	19	33	23	19	15	8	9	9	10	10	8	9	5	5	18
Q 14	7	11	11	11	8	8	9	11	21	24	23	26	22	21	14	7	12	16	8	9	10	10	7	7	13
15	8	8	12	13	9	9	12	15	22	24	37	32	38	52	22	15	22	53	22	23	23	14	13	10	21
Q 16	14	13	10	10	7	9	10	12	19	27	35	20	15	16	18	17	14	14	15	12	11	7	5	6	14
17	6	8	9	17	16	25	22	33	26	33	49	44	36	30	25	32	24	27	35	93	99	185	161	103	47
18	121	85	78	61	55	53	87	53	78	133	141	61	31	18	9	4	4	8	13	9	22	20	40	26	50
Q 19	37	27	27	32	28	36	24	23	20	30	42	29	31	20	44	34	14	20	13	23	42	144	177	175	46
20	234	232	193	135	154	156	130	250	163	120	120	83	62	37	16	18	12	10	24	59	132	167	151	68	114
21	153	212	111	103	71	43	42	42	48	56	56	60	153	203	145	184	166	81	137	132	106	83	115	107	109
22	48	43	47	53	45	47	62	90	80	61	42	45	54	86	87	50	34	44	33	36	54	37	40	22	52
23	24	28	28	21	32	49	47	63	77	111	153	72	84	41	67	83	88	99	73	45	87	81	56	69	66
24	71	49	30	28	57	93	115	108	140	99	161	93	79	38	53	10	12	12	49	41	47	66	34	25	63
D 25	42	13	55	108	87	81	56	45	87	107	56	26	59	51	93	91	81	157	188	166	108	130	134	145	90
26	124	117	107	89	46	41	67	48	39	42	41	46	52	78	44	63	31	14	11	13	13	22	20	22	50
D 27	23	37	43	115	133	131	178	191	134	124	154	130	136	198	109	161	179	103	95	73	74	95	83	126	118
D 28	106	80	149	98	121	106	125	103	123	118	119	81	112	104	142	107	110	59	38	98	117	105	113	132	107
29	92	77	73	58	65	71	63	54	56	69	76	58	105	75	123	89	32	50	63	46	58	83	80	68	70
30	53	71	74	64	70	80	97	51	97	98	85	88	50	38	38	42	36	41	31	37	44	47	39	27	58
31	36	50	56	76	124	83	62	50	35	52	61	57	34	62	39	17	3	21	12	8	8	8	12	11	41
Mean	63	63	60	59	58	57	62	61	63	59	67	57	57	55	52	46	42	42	39	45	50	54	56	51	55
5Q Mean	18	16	18	25	22	21	20	16	22	22	24	25	20	17	20	14	10	15	10	11	17	36	40	40	21
5D Mean	88	95	106	111	110	113	126	117	114	94	115	96	95	103	113	99	97	106	85	91	80	89	94	116	102

AU Index ( Hourly mean values, unit nT ) February 1986

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	14	14	18	27	25	18	20	28	30	28	41	62	56	44	63	36	63	57	54	41	42	36	39	25	37
2	24	32	36	38	57	33	43	32	41	41	46	45	35	35	37	29	35	29	33	59	41	49	39	41	39
Q 3	29	22	25	32	33	35	47	35	43	38	43	32	29	29	33	39	46	35	28	27	25	49	60	53	36
4	27	27	33	20	21	21	21	30	42	30	26	27	25	24	33	43	19	18	19	20	23	20	19	24	26
5	16	17	24	18	27	21	24	20	31	34	43	48	41	32	41	42	57	43	43	31	38	65	55	49	36
6	39	49	52	54	54	59	55	68	73	49	61	81	121	113	112	106	256	251	107	88	64	82	94	106	91
7	65	46	35	60	110	114	64	33	98	146	103	42	117	115	206	231	137	499	222	106	176	-230	167	68	114
D 8	198	157	85	65	206	375	280	50	96	38	229	104	83	-10	-47	-236	-78	144	410	216	-27	-529	-99	-27	70
D 9	173	442	305	201	205	72	39	23	27	39	5	4	3	16	50	13	24	124	211	83	16	13	32	88	92
10	57	27	32	-4	-7	-3	-4	-10	-7	-7	-8	-14	-9	-11	-9	0	0	-2	-4	-2	17	7	10	29	3
11	15	25	43	41	65	20	28	31	46	10	24	99	146	137	82	32	166	145	234	185	152	171	127	113	89
12	107	119	121	155	124	121	139	109	115	82	73	63	127	89	47	65	80	91	123	134	134	191	160	125	112
13	106	117	119	112	74	43	50	43	54	68	84	90	159	160	88	35	39	32	59	71	196	181	149	229	98
14	212	97	113	103	139	99	79	57	52	59	44	20	13	21	19	68	25	34	16	35	50	49	32	26	61
Q 15	37	42	33	58	84	48	29	21	17	15	17	23	6	11	9	16	12	10	4	4	6	6	7	2	22
Q 16	1	2	4	12	11	10	16	21	13	10	7	7	11	3	5	16	6	9	15	11	9	18	23	7	10
17	13	12	7	8	6	8	9	18	28	17	25	24	18	28	45	20	20	29	49	63	74	111	80	90	33
18	143	186	75	50	63	119	128	63	44	67	80	34	58	35	21	16	59	59	43	21	23	69	106	132	71
19	107	54	36	17	31	23	32	23	21	32	39	49	19	15	5	11	7	19	20	30	51	19	30	19	30
20	37	60	74	114	56	77	75	55	57	61	83	68	36	122	39	60	195	165	147	152	131	88	76	100	89
D 21	62	100	79	65	47	78	155	108	84	207	117	130	59	80	50	28	36	33	37	36	78	67	120	185	85
22	172	104	120	66	53	99	172	155	61	71	128	87	98	92	49	83	237	164	133	167	122	99	62	159	115
D 23	165	169	204	89	180	126	96	85	142	105	84	104	76	59	153	211	268	173	128	136	112	117	71	54	129
24	53	54	54	62	120	76	108	66	86	124	69	49	103	92	99	44	35	32	53	35	75	68	83	74	71
25	83	54	70	64	94	90	87	66	71	133	85	46	64	58	46	46	52	61	83	89	74	98	57	42	71
26	21	27	52	50	47	99	65	115	133	101	99	120	88	94	146	263	133	80	54	55	49	74	51	115	89
27	105	62	121	125	106	139	119	121	62	85	118	110	33	32	34	35	21	36	46	81	34	70	69	83	77
28	60	69	84	86	87	64	60	70	74	72	83	94	60	74	84	117	143	216	161	174	177	112	109	70	100
Mean	76	78	73	63	75	74	72	55	58	62	65	58	60	56	55	52	74	92	90	76	70	41	65	74	67
5Q Mean	21	21	22	29	34	26	26	27	29	24	26	30	25	22	28	30	29	25	24	20	21	25	29	22	26
5D Mean	132	182	141	96	149	153	126	59	89	107	107	76	67	52	82	49	77	194	201	115	71	-112	58	73	98



March 1986

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	80	47	56	39	36	40	73	112	129	88	79	70	54	82	65	94	169	160	180	149	115	78	46	41	87
2	45	35	49	50	63	72	79	92	82	57	83	133	56	28	44	29	16	20	30	30	32	39	32	25	51
3	40	38	31	29	28	31	40	34	32	43	48	33	33	25	20	28	21	24	35	62	76	92	131	176	48
4	68	69	62	28	36	41	56	28	51	41	23	15	17	49	71	51	38	15	41	124	89	95	125	85	55
5	85	60	107	99	41	25	23	34	43	34	46	57	59	112	104	46	91	157	118	144	194	154	172	175	91
D 6	144	158	167	159	49	46	18	29	38	60	144	160	123	288	291	307	294	319	270	193	253	251	205	149	171
D 7	181	105	101	116	123	171	157	152	142	125	253	245	165	111	176	213	218	104	235	165	216	242	156	139	167
D 8	130	97	157	112	96	85	96	97	47	47	82	56	81	125	90	56	111	149	116	120	144	122	64	34	96
Q 9	41	29	62	51	34	32	40	45	19	20	19	19	15	9	6	13	6	9	7	7	7	9	7	9	21
Q 10	8	9	10	9	9	9	5	8	9	10	11	14	8	12	11	13	15	14	9	9	7	11	8	10	10
Q 11	8	7	10	6	5	10	7	9	9	11	11	16	24	22	17	15	14	15	22	26	27	20	16	18	14
12	18	14	13	7	14	16	21	32	43	67	116	91	34	28	19	17	12	14	12	13	15	18	23	32	29
13	32	56	88	112	106	86	107	142	114	177	168	234	81	215	173	263	233	160	79	33	44	85	90	88	124
14	100	122	115	46	27	20	32	47	22	13	40	36	17	17	23	26	19	20	61	61	51	20	39	35	42
15	26	31	26	29	40	90	129	97	52	77	67	49	23	19	25	32	15	21	28	74	135	85	81	58	54
16	71	66	50	30	57	55	67	58	84	69	68	36	39	21	17	17	13	14	8	25	19	29	37	22	41
17	30	28	24	27	25	26	36	31	27	43	55	34	29	27	34	28	30	25	20	28	34	21	17	28	29
18	35	39	32	47	69	68	96	88	106	200	203	109	57	39	53	98	115	68	40	29	49	28	35	28	72
19	24	45	50	64	41	33	58	68	51	46	41	33	19	12	15	28	40	46	24	35	42	18	20	12	36
20	12	14	10	10	16	18	17	16	22	26	23	31	24	43	46	26	34	27	25	29	25	22	18	15	23
21	26	25	32	46	81	54	41	95	100	122	68	69	82	144	162	108	46	60	49	95	99	61	50	121	76
22	155	125	167	135	141	109	63	41	36	26	50	55	83	102	118	108	65	52	38	55	109	98	70	91	87
23	62	46	29	30	30	83	78	49	40	35	74	68	76	41	36	31	30	29	51	115	148	77	64	54	57
D 24	73	55	53	53	99	129	131	101	79	88	132	197	178	136	156	108	132	76	51	92	75	53	48	51	98
D 25	73	81	93	107	129	137	100	139	136	93	76	62	55	77	139	116	60	55	74	170	225	133	192	137	111
26	83	82	47	21	36	54	49	35	25	18	19	38	38	61	45	79	104	79	36	35	85	83	92	129	57
27	106	90	221	108	82	86	68	98	114	182	72	156	157	93	54	79	59	26	47	54	32	48	33	33	87
28	47	65	50	56	62	53	80	94	71	51	48	55	39	38	65	37	64	96	135	135	95	62	37	74	67
29	56	88	73	62	77	46	39	37	20	24	38	68	68	92	84	143	119	101	129	88	56	65	72	59	71
30	39	26	25	17	28	23	22	34	32	30	21	30	33	43	46	42	38	35	48	45	86	44	40	39	36
31	32	24	22	30	27	23	22	45	38	36	33	53	36	62	52	51	35	26	62	102	40	32	32	34	39
Mean	62	57	65	55	55	58	59	64	59	63	70	73	58	70	72	74	72	65	67	75	84	70	66	64	66
5Q Mean	21	17	23	18	18	18	18	22	18	19	17	22	20	25	25	21	21	20	22	22	31	22	17	18	20
5D Mean	120	99	114	109	99	113	100	103	88	82	137	144	120	147	170	160	163	140	149	148	182	160	133	102	128

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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	18	20	24	33	23	37	17	23	39	92	71	64	33	18	16	11	22	23	41	110	96	73	34	26	40
2	27	45	61	25	42	33	15	24	35	42	33	34	21	16	16	11	11	17	30	16	22	38	35	45	29
D 3	67	127	145	200	84	56	102	30	28	20	23	53	54	46	24	33	27	68	53	34	34	30	24	18	57
Q 4	16	15	19	31	17	14	17	34	27	26	13	10	14	12	9	7	4	10	16	18	11	28	17	16	17
5	20	16	24	48	72	31	23	17	21	22	16	19	18	21	16	15	23	74	160	139	93	107	141	60	50
Q 6	44	18	9	16	27	36	37	28	26	18	16	39	23	13	17	13	16	22	21	22	29	63	32	27	25
7	32	23	40	53	28	19	48	32	22	19	23	26	48	38	49	46	46	28	16	25	19	23	30	30	32
8	24	23	21	12	17	17	23	17	44	93	70	97	76	52	28	26	14	14	12	15	21	31	53	68	36
D 9	68	49	82	69	91	156	93	79	36	19	27	31	71	105	98	70	88	149	164	94	87	128	144	150	90
D 10	72	131	152	144	147	234	305	346	307	159	59	25	29	43	118	227	116	82	41	30	25	15	9	16	118
11	15	12	31	56	89	51	21	20	14	18	17	21	17	17	7	31	28	31	43	37	49	79	104	121	39
12	121	144	226	129	101	153	82	98	157	148	91	128	226	154	89	111	117	162	215	246	234	190	168	69	148
13	64	84	77	59	18	14	29	44	35	44	67	108	162	75	60	53	22	32	43	64	99	115	125	106	67
14	111	104	101	118	98	77	57	52	73	96	83	154	89	144	98	58	27	19	33	32	30	29	30	31	73
15	35	25	16	15	22	27	44	61	67	49	41	58	103	118	82	55	47	31	39	39	27	20	20	88	47
16	115	134	80	69	57	61	24	21	18	37	83	78	27	22	39	61	65	48	46	30	37	39	35	26	52
17	32	24	17	18	17	17	22	36	23	42	76	78	64	89	64	34	44	81	110	90	69	85	101	65	54
18	78	104	122	122	70	54	107	89	44	51	54	43	29	21	19	18	20	26	26	23	21	50	55	63	54
19	99	106	86	84	106	44	32	52	50	109	92	87	131	75	38	58	55	63	85	105	111	64	36	37	75
20	26	34	47	43	45	32	24	18	19	23	22	46	33	29	28	27	26	28	41	57	72	84	77	70	40
21	94	80	60	41	40	30	27	34	21	41	57	69	41	26	24	22	20	26	38	27	28	29	28	50	40
D 22	40	43	42	105	103	114	47	42	89	211	146	46	27	18	26	35	30	58	114	99	91	90	91	61	74
23	37	26	22	34	24	59	119	61	60	49	54	51	49	36	30	28	36	37	98	187	98	66	65	109	60
D 24	102	44	28	30	22	44	52	41	74	48	90	108	67	41	55	38	44	55	71	80	60	44	44	49	55
25	48	102	105	89	75	54	54	37	39	50	62	101	100	51	14	15	21	28	30	36	35	29	33	39	52
26	58	74	89	76	65	54	32	45	77	107	144	137	54	29	27	15	25	19	21	21	22	17	25	30	53
27	34	28	28	20	21	19	21	20	40	27	42	32	22	21	20	23	24	26	25	27	28	32	46	55	28
28	83	129	135	163	80	42	137	131	131	188	107	45	30	23	55	35	30	50	31	25	28	19	22	72	28
29	24	49	69	62	53	107	73	52	83	47	47	83	86	48	17	20	22	36	38	31	28	18	16	47	17
Q 30	15	18	33	29	30	29	31	39	49	24	41	73	61	59	35	53	45	49	38	33	32	22	20	26	37
Mean	53	61	66	66	56	57	57	54	58	63	58	64	60	48	40	41	37	46	57	59	54	55	55	52	55
5Q Mean	44	36	38	42	38	35	32	34	43	38	39	61	41	49	35	30	23	25	26	26	26	34	29	31	36
5D Mean	69	78	89	109	89	120	119	107	106	91	69	52	49	50	64	80	61	82	88	67	59	61	62	58	78

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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	35	33	29	20	16	27	23	37	36	35	27	40	36	39	45	29	18	21	26	31	45	40	48	48	33
D	55	59	59	68	77	116	73	128	126	98	190	235	262	318	535	440	413	471	304	256	335	266	207	175	219
D	176	240	239	222	257	255	192	206	131	111	59	56	40	58	65	58	58	59	66	114	98	82	64	57	123
D	43	64	70	71	119	160	207	193	140	114	169	110	127	203	84	75	75	57	40	35	38	96	144	114	106
5	95	110	86	58	52	117	79	71	53	38	36	122	142	97	87	118	162	209	261	255	236	238	159	87	124
D	198	148	237	155	265	480	455	370	297	345	260	196	294	366	338	315	236	179	281	224	336	226	230	160	275
7	142	148	130	60	23	24	125	135	109	94	142	61	80	99	75	116	134	133	162	99	56	38	38	35	94
8	66	61	33	15	15	21	48	63	77	88	69	90	136	134	107	50	45	27	45	78	56	30	41	58	61
9	62	61	56	50	62	40	27	55	57	65	41	77	45	60	45	32	29	27	35	28	27	27	28	31	44
10	84	111	92	47	15	12	20	38	52	33	54	63	50	70	25	25	31	63	63	80	74	51	47	31	51
11	29	21	36	44	56	59	54	63	35	44	40	59	44	45	43	48	39	36	34	31	49	63	48	46	44
12	38	44	101	141	103	50	25	26	37	89	132	104	121	86	85	90	35	20	29	18	26	30	39	34	63
13	28	26	27	40	33	35	32	41	45	40	35	54	63	56	29	23	31	40	57	56	30	45	64	33	40
Q	39	46	34	29	45	96	48	51	71	38	27	23	33	25	17	15	23	26	28	33	38	37	23	23	36
Q	15	21	26	37	34	62	60	68	66	51	71	122	94	62	55	69	54	37	41	66	103	149	158	139	117
16	102	102	116	101	119	157	99	160	116	92	133	129	83	148	104	78	121	183	255	282	229	231	211	186	147
17	219	175	155	205	118	47	34	64	53	58	70	89	100	138	135	100	47	40	36	30	31	51	52	48	87
18	33	27	32	36	34	40	101	73	145	154	149	111	95	58	27	17	26	36	37	31	29	31	62	73	61
19	152	136	127	61	60	69	73	30	24	58	33	44	37	46	71	115	183	130	122	81	48	45	38	50	76
20	36	29	79	68	36	28	41	48	60	76	85	108	67	60	67	45	49	38	43	57	63	55	35	38	55
21	30	23	18	29	35	33	77	77	107	125	62	69	52	64	49	51	51	51	80	103	81	36	31	26	57
22	17	19	20	20	8	13	24	26	40	33	30	40	43	30	30	27	38	40	50	52	40	40	38	39	32
Q	65	87	52	38	46	62	69	108	110	124	142	145	92	55	41	27	28	32	40	51	36	69	81	88	70
24	90	76	69	59	66	51	35	44	28	54	67	93	120	122	124	103	47	47	38	38	37	49	41	38	64
25	36	53	95	126	150	205	235	111	51	37	157	210	84	97	62	47	32	26	36	27	31	50	47	48	86
26	79	38	33	19	15	98	111	129	91	140	164	81	59	31	56	57	121	105	84	80	48	29	45	42	73
27	81	113	83	57	29	37	117	105	57	64	79	66	61	50	35	31	35	33	28	40	33	51	112	131	64
28	114	68	42	31	29	18	11	21	18	22	31	39	43	20	30	12	11	15	23	21	21	24	31	34	30
Q	29	39	29	20	16	11	13	21	29	34	46	57	50	37	29	19	18	17	23	22	30	47	94	159	37
Q	103	39	23	17	14	20	15	10	18	33	32	56	88	85	58	39	60	116	236	222	203	179	143	121	80
D	86	168	212	136	153	262	206	213	171	221	216	176	139	87	79	66	73	110	190	223	171	176	195	154	162
Mean	77	77	78	67	68	87	88	89	78	84	93	93	88	91	85	74	74	78	90	90	87	83	83	74	82
5Q Mean	46	39	32	26	32	39	32	37	41	39	51	50	46	33	35	25	25	27	38	46	55	61	65	74	41
5D Mean	111	135	161	130	174	254	226	222	173	177	178	154	172	206	220	190	171	175	176	170	195	169	168	132	177

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AU Index ( Hourly mean values, unit nT )

June

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	197	140	207	143	160	208	132	102	191	165	165	87	79	86	94	69	115	187	197	130	132	159	242	218	150
2	99	146	97	82	78	76	65	36	76	88	71	53	63	68	55	41	36	63	84	96	131	93	110	141	81
3	147	157	104	118	161	169	109	96	111	157	131	92	73	96	65	69	53	67	54	106	178	94	77	75	107
4	91	126	149	147	145	58	30	85	125	167	242	255	141	89	43	38	27	33	73	110	116	48	44	44	101
Q 5	77	57	45	25	21	14	15	66	124	147	106	49	35	31	27	29	21	35	49	39	35	32	52	92	51
6	136	190	164	152	98	49	91	47	31	64	115	56	52	77	92	182	131	106	107	104	68	43	33	30	92
7	32	40	21	22	93	39	107	126	137	244	265	119	41	78	78	64	79	68	85	67	113	147	90	58	92
8	52	51	67	84	96	151	139	134	162	170	144	51	41	37	22	17	20	24	30	42	64	119	152	203	86
9	167	121	106	77	60	30	25	20	34	34	35	35	44	66	73	90	101	135	147	146	147	114	118	137	86
D 10	181	221	170	145	127	165	165	205	219	278	220	110	109	89	86	65	44	50	59	96	80	74	70	128	131
11	174	166	103	117	96	81	46	51	103	108	73	94	48	53	87	68	28	23	29	26	34	30	29	46	71
12	33	63	61	63	89	97	51	77	38	27	65	73	74	42	37	42	56	39	69	86	113	121	121	135	70
13	62	44	67	63	56	77	136	88	64	38	36	65	75	63	51	51	56	88	112	122	110	105	80	47	73
14	56	70	64	82	55	90	76	65	49	56	75	79	62	39	35	35	29	43	72	117	231	128	71	54	72
Q 15	35	30	14	31	66	72	101	88	68	70	90	118	87	55	61	74	90	64	50	40	25	30	24	24	59
16	21	26	29	21	29	35	56	75	55	51	42	32	42	84	143	80	59	50	74	121	104	97	66	47	60
17	39	34	33	70	43	32	47	71	49	47	69	145	100	79	92	46	40	54	52	70	57	50	49	65	60
18	87	110	184	185	168	119	90	46	48	48	126	132	109	76	68	66	80	73	60	36	32	37	28	26	85
19	31	50	37	15	14	13	7	9	9	10	13	19	32	28	21	29	28	30	32	50	92	123	92	111	37
Q 20	84	34	39	31	40	90	83	49	39	50	44	69	85	60	71	73	39	45	60	61	78	44	54	85	59
21	156	129	97	91	84	60	164	103	136	169	188	114	56	39	33	10	22	36	52	107	82	33	29	38	85
22	71	110	99	152	98	51	35	27	28	27	45	57	57	81	84	93	67	47	65	67	58	60	86	82	69
Q 23	91	147	132	98	105	156	144	84	49	48	26	27	37	35	27	24	22	25	31	41	50	28	17	19	61
24	19	21	20	43	67	103	169	165	143	63	93	91	95	71	87	75	88	91	63	47	37	38	31	45	74
Q 25	48	55	29	20	25	17	44	53	25	16	20	26	53	34	36	41	25	27	40	48	44	26	18	25	33
Q 26	30	49	24	21	12	64	66	100	42	49	103	83	63	49	27	16	23	25	36	46	59	97	93	90	53
D 27	50	52	97	104	194	178	210	144	51	144	134	131	102	121	139	81	107	241	239	337	278	291	218	122	157
D 28	158	278	213	342	249	266	124	67	68	50	33	19	21	53	52	36	26	40	48	78	101	72	95	96	108
29	77	41	43	37	34	23	51	42	48	68	120	142	173	138	124	119	108	202	128	94	140	145	140	195	101
Q 30	112	152	189	105	69	40	17	24	31	55	63	68	53	35	66	55	84	56	38	40	62	107	117	171	75
Mean	87	97	90	89	87	87	86	78	78	90	98	83	70	65	65	59	56	68	74	85	95	86	81	88	81
5Q Mean	56	67	48	39	45	64	74	78	61	66	69	60	55	40	35	36	36	35	41	42	42	42	40	50	51
5D Mean	123	146	141	151	164	171	147	128	133	176	163	93	70	85	89	63	74	117	125	141	140	148	143	124	127

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	-186	-374	-227	-124	-193	-109	-123	-160	-334	-375	-375	-141	-103	-201	-585	-338	-221	-312	-325	-363	-247	-308	-133	-95	-248
D 2	-351	-211	-110	-244	-268	-187	-181	-71	-161	-144	-92	-186	-657	-541	-473	-421	-330	-370	-284	-105	-91	-74	-72	-22	-235
D 3	-11	-26	-81	-74	-20	-21	-47	-61	-76	-168	-338	-90	-34	-77	-409	-365	-161	-53	-15	-48	-27	-31	-33	-33	-96
D 4	-50	-39	-48	-67	-24	-27	-10	-6	-15	-10	-19	-34	-94	-150	-68	-25	-123	-14	-22	-15	-35	-15	-50	-44	-42
D 5	-31	-11	-44	-14	-7	-10	-32	-42	-136	-109	-43	-89	-146	-150	-13	-12	-23	-9	-9	-7	-7	-23	-13	-17	-36
D 6	-15	-10	-14	-11	-9	-6	-7	-24	-8	-6	-37	-78	-48	-4	-2	-9	-12	-17	-20	-117	-371	-565	-366	-493	-94
D 7	-396	-249	-340	-449	-152	-179	-218	-307	-174	-59	-72	-357	-298	-212	-210	-164	-93	-366	-167	-39	-33	-69	-159	-231	-208
D 8	-375	-80	-31	-49	-29	-31	-38	-17	-21	-120	-182	-64	-34	-24	-63	-245	-99	-58	-40	-123	-186	-108	-44	-20	-87
D 9	-33	-51	-57	-40	-23	-3	-13	-21	-58	-121	-74	-3	-12	-23	-20	-21	-65	-352	-448	-542	-358	-126	-312	-330	-129
D 10	-144	-97	-77	-178	-42	-35	-34	-92	-61	-43	-31	-98	-217	-138	-48	-12	-12	-107	-138	-48	-12	-12	-10	-9	-67
Q 11	-11	-14	-25	-27	-34	-38	-13	-6	-13	-18	-14	-32	-57	-18	-8	-18	-16	-72	-55	-29	-14	-9	-2	-4	-23
Q 12	-6	-19	-31	-12	-9	-13	-48	-171	-51	-11	-12	-12	-14	-13	-17	-12	-13	-43	-58	-31	-102	-115	-24	-2	-35
Q 13	-11	-6	-8	-5	-3	-6	-9	-48	-67	-27	-11	-12	-10	-10	-11	-12	-13	-36	-10	-7	-6	-4	-6	-7	-14
Q 14	-9	-10	-14	-6	-4	-28	-4	-23	-15	-59	-58	-40	-18	-7	-7	-10	-14	-52	-43	-17	-2	-1	-2	-1	-19
Q 15	-1	-7	-6	-5	-4	-3	-2	-1	0	0	-40	-171	-152	-109	-31	-35	-145	-270	-57	-22	-17	-12	-10	-5	-46
Q 16	-5	-5	-6	-9	-11	-15	-16	-20	-20	-89	-58	-15	-12	-10	-14	-14	-17	-10	-7	-4	-4	-4	-5	-5	-16
Q 17	-4	-5	-3	-3	-7	-8	-48	-46	-5	-7	-61	-45	-24	-10	-8	-9	-11	-14	-68	-213	-97	-67	-147	-122	-43
Q 18	-123	-72	-40	-14	-21	-13	-30	-14	-43	-310	-230	-10	-9	-20	-18	-25	-33	-55	-120	-80	-81	-66	-82	-20	-64
Q 19	-30	-4	-5	-11	-38	-50	-15	-12	-43	-39	-19	-26	-29	-24	-91	-112	-38	-56	-60	-42	-84	-119	-101	-122	-49
Q 20	-157	-186	-152	-133	-227	-166	-172	-264	-338	-195	-107	-25	-10	-30	-26	-12	-18	-11	-92	-235	-107	-149	-226	-361	-141
D 21	-459	-235	-49	-35	-11	-5	-11	-14	-24	-21	-37	-94	-214	-329	-346	-618	-850	-655	-576	-480	-426	-113	-321	-541	-269
D 22	-187	-72	-86	-217	-172	-144	-145	-175	-154	-268	-198	-154	-164	-172	-159	-194	-217	-248	-92	-59	-85	-158	-75	-55	-152
D 23	-105	-175	-23	-13	-12	-41	-146	-215	-269	-199	-148	-160	-124	-271	-520	-568	-304	-458	-268	-150	-431	-171	-155	-378	-221
D 24	-130	-11	-32	-42	-77	-217	-170	-140	-257	-241	-409	-249	-317	-223	-116	-41	-43	-119	-317	-233	-95	-168	-180	-44	-161
D 25	-40	-34	-76	-325	-238	-33	-22	-14	-156	-322	-77	-36	-154	-299	-498	-456	-200	-334	-505	-701	-416	-688	-581	-364	-274
D 26	-243	-357	-209	-68	-43	-37	-111	-76	-116	-74	-222	-271	-349	-290	-215	-134	-63	-108	-51	-41	-28	-58	-34	-9	-133
D 27	-7	-28	-141	-527	-265	-105	-313	-427	-166	-114	-251	-428	-478	-1169	-559	-526	-561	-541	-303	-224	-360	-380	-250	-390	-355
D 28	-225	-89	-511	-446	-369	-175	-258	-262	-260	-417	-445	-521	-494	-600	-260	-340	-497	-227	-147	-364	-600	-281	-197	-419	-350
D 29	-172	-129	-143	-76	-240	-178	-26	-43	-46	-84	-68	-175	-356	-318	-515	-305	-244	-269	-340	-160	-159	-337	-227	-85	-196
D 30	-38	-130	-252	-126	-62	-213	-214	-149	-238	-309	-288	-97	-72	-82	-44	-115	-115	-262	-131	-183	-174	-298	-201	-134	-164
D 31	-19	-102	-138	-267	-266	-169	-53	-31	-108	-147	-84	-53	-88	-151	-52	-16	-117	-102	-37	-11	-17	-32	-6	-9	-86
Mean	-115	-91	-95	-116	-92	-73	-81	-95	-110	-132	-132	-121	-154	-176	-173	-167	-151	-180	-155	-151	-150	-147	-129	-141	-130
5Q Mean	-13	-7	-11	-11	-18	-27	-11	-21	-31	-46	-32	-25	-25	-13	-26	-33	-19	-45	-35	-19	-22	-27	-23	-27	-24
5D Mean	-170	-154	-259	-374	-243	-120	-186	-234	-218	-257	-244	-296	-305	-496	-422	-364	-314	-356	-289	-338	-331	-345	-264	-299	-286

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
Q	-4	-12	-42	-42	-6	0	-1	0	-5	-26	-48	-175	-111	-73	-82	-201	-285	-63	-36	-71	-48	-22	-3	-2	-56
Q	0	0	-5	-87	-104	-15	-25	-56	-96	-7	-26	-29	-138	-80	-18	-79	-71	-95	-99	-101	-107	-3	3	2	-51
Q	0	-2	-12	-37	-16	-11	0	-7	-38	-86	-61	-10	-21	-12	-19	-144	-50	-9	-9	-2	-4	-24	-163	-140	-37
Q	-60	-16	-8	0	-3	-4	-3	-7	-44	-36	-7	-10	-12	-12	-10	-78	-78	-96	-202	-63	-3	-8	-10	-8	-33
Q	-9	-5	-1	0	-1	-2	-1	-21	-2	-5	-71	-44	-53	-78	-109	-278	-59	-13	-33	-102	-26	-24	-36	-60	-43
Q	-10	-9	-25	-36	-2	3	0	-13	-2	-32	-27	-68	-254	-290	-327	-299	-331	-187	-63	-62	-39	-30	-339	-183	-109
D	-51	-13	-7	-25	-80	-291	-176	-33	-41	-311	-1136	-963	-564	-742	-668	-1205	-1153	-1055	-541	-231	-537	-1564	-707	-642	-531
D	-381	-214	-42	-62	-215	-924	-1095	-592	-1044	-988	-991	-1104	-1389	-1870	-1595	-2740	-1463	-800	-574	-454	-1437	-2402	-1291	-1086	-1031
D	-1425	-1217	-992	-826	-604	-592	-239	-135	-78	-113	-84	-77	-87	-104	-125	-85	-69	-225	-524	-152	-78	-141	-203	-289	-353
D	-267	-146	-107	-42	-44	-45	-40	-36	-39	-40	-43	-40	-39	-37	-44	-50	-121	-48	-42	-66	-68	-97	-45	-54	-67
Q	-41	-66	-192	-74	-130	-41	-30	-38	-41	-33	-60	-291	-637	-311	-53	-53	-581	-872	-420	-329	-190	-278	-270	-230	-219
Q	-186	-260	-214	-211	-145	-141	-314	-224	-114	-85	-121	-199	-406	-292	-157	-142	-429	-240	-276	-485	-318	-224	-234	-104	-230
Q	-134	-148	-236	-203	-6	-29	-59	-112	-186	-95	-255	-166	-242	-267	-163	-118	-116	-92	-224	-309	-242	-100	-194	-397	-171
Q	-208	-73	-286	-234	-45	-25	-17	-58	-140	-91	-14	-17	-15	-19	-26	-87	-67	-29	-35	-65	-36	-50	-27	-27	-70
Q	-84	-101	-55	-31	-6	-3	-7	-12	-15	-16	-18	-24	-27	-20	-23	-24	-24	-23	-23	-23	-18	-16	-19	-21	-26
Q	-22	-20	-17	-23	-15	-9	-18	-50	-34	-20	-19	-24	-24	-18	-16	-25	-37	-35	-17	-16	-7	-18	-13	-13	-21
Q	-11	-17	-8	-10	-5	-5	-4	-10	-8	-11	-17	-11	-13	-19	-32	-31	-78	-228	-146	-80	-72	-332	-272	-446	-78
Q	-341	-145	-76	-126	-151	-128	-118	-69	-87	-101	-144	-117	-150	-139	-56	-86	-350	-218	-39	-19	-23	-152	-596	-480	-163
Q	-134	-48	-21	-6	-18	-21	-48	-74	-90	-79	-97	-149	-127	-57	-16	-26	-54	-84	-78	-59	-122	-74	-20	-15	-63
Q	-185	-271	-342	-150	-36	-91	-287	-165	-25	-35	-38	-131	-385	-170	-98	-201	-639	-415	-425	-374	-213	-48	-354	-396	-228
D	-163	-250	-175	-215	-202	-117	-308	-298	-67	-363	-553	-299	-113	-212	-52	-44	-82	-183	-178	-61	-189	-202	-367	-733	-226
D	-394	-188	-212	-94	-105	-441	-661	-247	-45	-81	-354	-364	-339	-386	-238	-247	-812	-499	-272	-336	-372	-189	-132	-510	-313
D	-582	-492	-715	-236	-476	-469	-287	-171	-289	-399	-205	-317	-185	-310	-752	-913	-681	-549	-257	-306	-431	-299	-133	-147	-400
D	-181	-220	-109	-102	-310	-331	-112	-106	-102	-140	-338	-300	-261	-464	-183	-226	-209	-317	-369	-178	-236	-317	-284	-174	-232
D	-327	-206	-212	-365	-207	-142	-195	-156	-127	-380	-253	-125	-189	-220	-52	-273	-253	-146	-285	-344	-166	-498	-86	-39	-219
D	-72	-149	-190	-83	-63	-286	-300	-384	-297	-249	-404	-479	-334	-356	-441	-994	-418	-185	-366	-209	-56	-151	-60	-362	-287
D	-321	-141	-221	-486	-213	-217	-263	-268	-89	-61	-273	-506	-100	-46	-28	-45	-40	-106	-166	-317	-203	-128	-308	-298	-202
D	-152	-105	-203	-292	-107	-21	-81	-81	-78	-34	-170	-435	-199	-169	-268	-538	-440	-538	-902	-661	-196	-339	-190	-195	-266
Mean	-205	-161	-168	-146	-118	-157	-167	-122	-115	-139	-208	-231	-229	-241	-201	-329	-321	-262	-235	-195	-194	-276	-226	-251	-204
5Q Mean	-34	-30	-26	-27	-9	-5	-5	-15	-27	-36	-30	-48	-39	-27	-30	-94	-94	-45	-57	-35	-16	-17	-41	-36	-34
5D Mean	-520	-437	-386	-272	-315	-478	-421	-245	-303	-434	-593	-552	-467	-647	-638	-997	-689	-562	-414	-240	-534	-921	-540	-579	-508

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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	-268	-230	-73	-75	-88	-24	-67	-275	-299	-199	-161	-320	-221	-157	-45	-333	-728	-348	-377	-295	-134	-76	-59	-181	-210
2	-108	-45	-90	-161	-154	-201	-244	-188	-159	-55	-184	-367	-133	-58	-38	-84	-129	-59	-55	-136	-74	-82	-80	-60	-123
3	-69	-68	-51	-73	-18	-9	-19	-10	-52	-139	-152	-60	-37	-172	-45	-19	-44	-36	-25	-262	-187	-333	-268	-375	-105
4	-76	-56	-52	-62	-50	-50	-170	-183	-80	-39	-70	-16	-12	-46	-169	-109	-85	-75	-54	-224	-292	-188	-103	-52	-96
5	-40	-39	-55	-76	-20	-15	-7	-14	-52	-84	-72	-89	-88	-137	-115	-86	-145	-349	-240	-165	-172	-197	-197	-154	-109
D	-289	-252	-391	-233	-19	-35	-38	-10	-5	-62	-173	-412	-413	-419	-419	-484	-594	-595	-553	-604	-593	-433	-386	-581	-333
D	-399	-102	-232	-403	-416	-268	-341	-267	-325	-577	-449	-304	-287	-558	-463	-512	-265	-294	-338	-338	-555	-704	-440	-371	-381
D	-391	-382	-340	-160	-336	-297	-160	-209	-33	-23	-239	-274	-267	-414	-279	-173	-228	-317	-488	-305	-267	-129	-102	-88	-246
Q	-59	-48	-66	-135	-89	-8	-30	-30	-42	-55	-68	-15	-16	-14	-13	-22	-19	-29	-17	-15	-7	-9	-14	-19	-35
Q	-15	-13	-12	-10	-7	-11	-30	-22	-13	-13	-17	-20	-24	-24	-16	-16	-16	-14	-7	-6	-6	-12	-18	-21	-15
Q	-19	-17	-14	-9	-15	-22	-21	-14	-30	-18	-22	-36	-29	-25	-19	-27	-22	-27	-21	-97	-130	-24	-21	-25	-29
11	-24	-21	-16	-16	-13	-9	-42	-48	-263	-169	-171	-179	-56	-21	-12	-17	-13	-9	-2	-3	-8	-11	-21	-41	-49
13	-30	-99	-490	-351	-145	-96	-209	-440	-392	-296	-301	-404	-441	-614	-385	-471	-452	-181	-43	-33	-31	-134	-337	-211	-274
14	-182	-424	-279	-61	-36	-31	-27	-82	-41	-46	-66	-100	-23	-23	-14	-15	-25	-38	-110	-135	-99	-21	-57	-103	-85
15	-39	-13	-21	-28	-168	-156	-101	-81	-38	-38	-128	-59	-19	-10	-10	-26	-127	-69	-42	-151	-352	-262	-148	-54	-89
16	-128	-95	-52	-23	-57	-103	-167	-106	-179	-400	-283	-68	-181	-39	-10	-6	-21	-27	-56	-77	-14	-12	-36	-29	-90
17	-106	-82	-19	-17	-8	-7	-16	-209	-89	-156	-101	-21	-20	-47	-28	-118	-67	-24	-14	-7	-37	-18	-12	-22	-52
18	-175	-135	-122	-139	-125	-47	-47	-80	-214	-249	-155	-79	-49	-31	-178	-379	-263	-179	-65	-36	-3	-2	-9	-13	-116
19	-20	-93	-241	-205	-41	-10	-42	-85	-128	-175	-70	-37	-45	-19	-27	-94	-374	-229	-148	-26	-40	-16	-35	-25	-93
Q	-20	-18	-15	-14	-14	-15	-14	-12	-17	-18	-14	-53	-44	-16	-50	-21	-5	-66	-158	-54	0	-6	-13	-17	-28
21	-21	-20	-21	-36	-82	-33	-16	-66	-86	-253	-46	-94	-181	-689	-543	-99	-45	-142	-189	-281	-147	-163	-166	-699	-172
22	-678	-500	-445	-270	-174	-429	-120	-53	-61	-42	-24	-39	-147	-274	-486	-316	-189	-79	-34	-63	-107	-307	-143	-263	-218
23	-230	-155	-40	-24	-32	-191	-259	-190	-40	-22	-152	-208	-138	-52	-67	-131	-27	-14	-71	-254	-403	-150	-75	-102	-126
D	-155	-144	-75	-62	-93	-128	-233	-239	-83	-40	-261	-502	-360	-356	-523	-264	-507	-321	-168	-130	-155	-68	-86	-163	-213
D	-344	-149	-429	-312	-481	-385	-337	-393	-454	-107	-21	-70	-39	-186	-338	-363	-223	-138	-134	-439	-694	-344	-684	-376	-310
26	-208	-161	-28	-25	-108	-180	-131	-64	-142	-25	-19	-65	-91	-176	-309	-350	-447	-213	-70	-21	-58	-109	-242	-403	-152
27	-344	-487	-545	-219	-120	-145	-121	-640	-291	-320	-127	-282	-433	-81	-34	-239	-167	-68	-59	-37	-41	-36	-29	-27	-204
28	-85	-106	-218	-98	-77	-100	-131	-390	-161	-83	-62	-296	-137	-116	-90	-276	-255	-320	-274	-281	-203	-69	-72	-134	-168
29	-77	-175	-185	-105	-131	-111	-36	-30	-20	-8	-16	-18	-171	-400	-360	-370	-321	-197	-293	-147	-116	-107	-91	-50	-147
Q	-20	-20	-18	-13	-17	-19	-17	-25	-39	-23	-23	-40	-27	-38	-63	-46	-83	-56	-88	-41	-143	-135	-49	-19	-44
31	-23	-24	-17	-10	-15	-20	-23	-76	-60	-47	-41	-72	-80	-119	-220	-139	-197	-40	-61	-159	-23	-24	-27	-30	-64
Mean	-149	-134	-150	-110	-101	-101	-101	-148	-123	-113	-123	-153	-136	-163	-176	-179	-204	-145	-135	-155	-164	-134	-129	-151	-141
5Q Mean	-27	-23	-25	-36	-28	-15	-22	-20	-28	-25	-28	-32	-28	-23	-32	-26	-29	-38	-58	-42	-57	-37	-23	-20	-30
5D Mean	-315	-205	-293	-234	-269	-222	-207	-238	-168	-111	-254	-341	-276	-332	-423	-349	-412	-327	-327	-363	-452	-335	-339	-315	-236

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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	-25	-18	-16	-44	-44	-62	-29	-26	-30	-311	-210	-98	-34	-27	-27	-29	-71	-66	-32	-324	-235	-71	-24	-24	-78
2	-48	-44	-109	-32	-77	-83	-23	-20	-76	-153	-67	-135	-42	-56	-123	-74	-50	-30	-40	-25	-54	-84	-52	-61	-65
D	-151	-410	-490	-462	-134	-39	-166	-260	-39	-26	-23	-36	-55	-154	-45	-41	-50	-335	-317	-37	-24	-43	-13	-9	-140
Q	-13	-20	-32	-63	-33	-24	-29	-39	-53	-121	-61	-31	-22	-22	-24	-30	-17	-11	-6	-12	-8	-29	-18	-18	-31
5	-19	-29	-32	-154	-313	-90	-25	-21	-25	-63	-28	-28	-22	-20	-13	-17	-18	-109	-304	-200	-81	-176	-365	-18	-94
Q	-24	-26	-25	-19	-15	-76	-89	-62	-46	-31	-22	-28	-24	-26	-36	-23	-15	-20	-83	-33	-26	-125	-100	-18	-41
7	-17	-19	-57	-76	-36	-24	-62	-55	-32	-29	-30	-29	-28	-47	-156	-196	-208	-115	-51	-25	-33	-26	-24	-50	-59
8	-47	-21	-18	-16	-10	-14	-21	-24	-22	-191	-244	-206	-71	-78	-39	-21	-21	-18	-13	-1	-3	-7	-15	-116	-51
D	-102	-23	-59	-93	-98	-243	-69	-34	-28	-20	-18	-21	-72	-424	-355	-177	-80	-143	-243	-102	-53	-234	-160	-149	-125
D	-258	-570	-177	-161	-141	-211	-270	-294	-257	-110	-40	-34	-25	-45	-193	-522	-240	-148	-110	-19	-13	-18	-18	-20	-162
11	-16	-17	-35	-155	-342	-194	-37	-16	-24	-81	-36	-38	-31	-27	-29	-75	-157	-97	-34	-55	-51	-100	-164	-129	-81
12	-207	-122	-165	-60	-32	-77	-140	-87	-153	-132	-67	-120	-203	-179	-148	-211	-224	-271	-321	-219	-167	-116	-97	-140	-152
13	-151	-178	-131	-39	-17	-22	-13	-49	-76	-27	-35	-185	-186	-120	-95	-101	-57	-37	-60	-54	-123	-234	-179	-56	-93
Q	-59	-84	-65	-66	-44	-21	-25	-38	-31	-32	-39	-173	-98	-107	-102	-82	-49	-22	-26	-11	-11	-30	-10	-26	-52
15	-16	-15	-17	-23	-20	-21	-55	-58	-64	-45	-28	-28	-49	-169	-221	-159	-78	-66	-46	-10	-6	-1	-7	-15	-82
16	-340	-265	-176	-86	-102	-40	-24	-22	-28	-25	-64	-210	-63	-18	-52	-151	-267	-134	-27	-18	-25	-121	-34	-13	-96
17	-13	-16	-18	-19	-20	-19	-11	-23	-23	-51	-122	-115	-113	-150	-70	-48	-217	-317	-194	-112	-47	-76	-61	-17	-78
18	-64	-280	-397	-204	-23	-20	-66	-140	-43	-20	-44	-25	-28	-24	-11	-13	-11	-26	-22	-29	-1	-27	-126	-100	-73
19	-243	-325	-249	-235	-208	-90	-40	-30	-41	-116	-232	-114	-215	-220	-22	-18	-76	-110	-50	-159	-246	-189	-49	-16	-137
20	-15	-20	-23	-35	-56	-29	-24	-32	-28	-26	-21	-31	-52	-35	-34	-18	-21	-16	-8	-38	-60	-128	-69	-73	-37
21	-227	-273	-153	-34	-25	-24	-28	-75	-16	-13	-24	-151	-39	-21	-17	-20	-12	-3	-7	-5	-15	-16	-10	-19	-51
D	-16	-20	-30	-261	-276	-137	-40	-27	-46	-404	-273	-59	-19	-19	-37	-19	-73	-85	-243	-167	-81	-113	-281	-111	-118
23	-31	-20	-19	-28	-27	-64	-241	-180	-24	-25	-53	-39	-25	-26	-29	-20	-15	-16	-109	-474	-130	-35	-41	-200	-78
D	-248	-73	-14	-16	-15	-104	-79	-130	-153	-167	-92	-259	-40	-51	-162	-48	-19	-55	-78	-38	-30	-78	-21	-25	-83
25	-24	-92	-273	-200	-68	-36	-86	-40	-50	-128	-106	-136	-138	-95	-39	-44	-25	-19	-21	-66	-33	-26	-28	-28	-75
26	-44	-95	-266	-208	-78	-28	-27	-31	-143	-338	-257	-194	-56	-26	-19	-18	-10	-15	-17	-16	-20	-15	-16	-22	-77
Q	-21	-22	-93	-17	-17	-24	-23	-25	-20	-25	-39	-28	-33	-24	-17	-14	-24	-17	-16	-24	-11	-14	-29	-40	-26
28	-96	-361	-327	-225	-36	-20	-70	-276	-248	-323	-159	-28	-32	-20	-70	-43	-17	-18	-31	-44	-19	-20	-24	-22	-105
29	-19	-40	-71	-270	-191	-110	-88	-250	-169	-83	-61	-167	-415	-208	-28	-32	-20	-46	-14	-6	-9	-17	-25	-29	-99
Q	-28	-27	-32	-32	-26	-79	-28	-44	-34	-36	-42	-54	-127	-164	-73	-55	-96	-148	-61	-22	-8	-11	-15	-15	-52
Mean	-86	-117	-118	-111	-84	-67	-64	-80	-67	-101	-84	-94	-82	-88	-74	-74	-74	-83	-84	-78	-53	-72	-69	-57	-82
5Q Mean	-29	-35	-49	-39	-27	-44	-38	-41	-36	-49	-40	-62	-60	-68	-50	-40	-40	-43	-38	-20	-12	-41	-34	-23	-40
5D Mean	-155	-219	-154	-198	-132	-146	-124	-149	-104	-145	-89	-81	-42	-138	-158	-161	-92	-153	-198	-72	-40	-97	-98	-62	-125



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May

AL 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	-12	-19	-16	-12	-20	-32	-20	-57	-45	-39	-27	-31	-38	-40	-129	-51	-32	-27	-18	-10	-19	-9	-11	-29	-31
D	-63	-43	-22	-85	-100	-114	-48	-240	-235	-115	-208	-467	-639	-705	-785	-867	-773	-750	-470	-434	-548	-637	-690	-769	-409
D	-677	-756	-619	-477	-501	-607	-487	-416	-223	-273	-192	-93	-70	-86	-165	-130	-72	-108	-99	-97	-176	-95	-75	-68	-273
D	-42	-67	-180	-70	-73	-113	-170	-98	-61	-42	-39	-67	-433	-410	-130	-106	-221	-93	-32	-22	-40	-68	-401	-269	-135
5	-127	-88	-162	-97	-66	-250	-243	-158	-47	-47	-30	-147	-406	-227	-263	-334	-384	-393	-460	-487	-325	-396	-416	-291	-244
D	-320	-371	-293	-242	-468	-744	-766	-722	-695	-363	-186	-377	-617	-699	-745	-712	-848	-867	-584	-325	-375	-743	-406	-143	-526
7	-477	-393	-191	-32	-23	-24	-126	-339	-204	-85	-368	-94	-74	-121	-180	-166	-149	-205	-392	-182	-47	-36	-22	-51	-166
8	-214	-137	-62	-17	-29	-37	-49	-45	-36	-55	-36	-90	-380	-407	-202	-105	-65	-24	-50	-122	-101	-22	-39	-135	-102
9	-175	-101	-73	-82	-109	-57	-41	-28	-32	-97	-50	-137	-103	-81	-62	-46	-18	-15	-14	-12	-10	-21	-23	-17	-58
10	-144	-294	-186	-63	-15	-17	-14	-26	-57	-25	-30	-65	-58	-104	-35	-53	-26	-115	-198	-89	-57	-21	-18	-17	-72
11	-19	-21	-22	-42	-83	-164	-101	-20	-14	-30	-32	-108	-50	-30	-28	-21	-111	-91	-67	-26	-36	-52	-26	-23	-51
12	-14	-38	-94	-422	-203	-29	-16	-12	-94	-122	-156	-192	-185	-101	-166	-74	-46	-28	-24	-22	-24	-33	-31	-30	-90
13	-19	-22	-21	-19	-25	-47	-46	-40	-73	-101	-42	-27	-46	-168	-61	-44	-32	-39	-114	-91	-23	-26	-60	-47	-51
14	-42	-70	-73	-37	-42	-166	-108	-69	-59	-62	-47	-28	-24	-20	-17	-21	-31	-17	-16	-31	-76	-80	-23	-24	-49
15	-23	-23	-37	-32	-106	-68	-39	-33	-109	-119	-81	-68	-92	-72	-71	-73	-181	-89	-37	-38	-76	-151	-103	-50	-74
16	-38	-37	-40	-44	-39	-58	-97	-84	-40	-63	-147	-135	-57	-185	-203	-191	-306	-298	-369	-295	-217	-108	-179	-396	-151
17	-250	-264	-278	-219	-102	-31	-16	-35	-38	-28	-26	-83	-136	-394	-390	-191	-34	-12	-21	-19	-21	-49	-52	-45	-114
18	-14	-13	-18	-16	-37	-31	-76	-65	-212	-164	-110	-168	-186	-53	-24	-33	-27	-23	-16	-15	-18	-26	-65	-76	-62
19	-97	-123	-80	-85	-149	-83	-136	-57	-32	-17	-29	-14	-29	-35	-178	-221	-313	-241	-207	-60	-21	-31	-32	-43	-96
20	-21	-33	-69	-165	-48	-22	-47	-50	-70	-99	-52	-52	-35	-31	-38	-47	-52	-41	-37	-50	-68	-100	-42	-24	-54
21	-17	-18	-18	-20	-21	-36	-129	-99	-186	-230	-111	-30	-29	-165	-110	-88	-91	-87	-49	-56	-162	-33	-21	-12	-76
22	-15	-13	-8	-12	-14	-32	-41	-36	-43	-33	-34	-45	-33	-26	-22	-31	-70	-56	-82	-53	-23	-25	-23	-21	-33
23	-32	-34	-79	-19	-82	-122	-72	-58	-118	-44	-91	-131	-99	-76	-36	-43	-145	-78	-49	-22	-23	-88	-111	-55	-71
24	-70	-126	-79	-55	-32	-17	-12	-18	-19	-23	-23	-68	-166	-219	-189	-147	-41	-26	-4	1	-10	-25	-14	-58	-14
25	-13	-33	-69	-154	-200	-188	-220	-164	-25	-28	-57	-283	-99	-45	-44	-71	-69	-18	-27	-21	-32	-34	-18	-22	-81
26	-106	-17	-22	-17	-24	-107	-189	-418	-206	-166	-370	-108	-23	-10	-46	-76	-437	-362	-153	-125	-57	-20	-25	-20	-129
27	-45	-189	-100	-52	-24	-13	-77	-205	-131	-29	-43	-22	-26	-63	-60	-53	-28	-16	-16	-11	-9	-21	-67	-174	-62
28	-161	-100	-78	-53	-29	-15	-20	-27	-11	-20	-37	-28	-60	-11	-21	-28	-18	-8	-12	-18	-22	-27	-30	-24	-36
29	-27	-30	-24	-20	-22	-26	-21	-20	-20	-24	-53	-29	-44	-25	-20	-22	-21	-18	-22	-20	-20	-29	-100	-193	-37
30	-54	-42	-24	-21	-25	-20	-21	-18	-15	-22	-20	-21	-27	-60	-66	-29	-48	-188	-627	-199	-74	-223	-155	-76	-86
D	-69	-109	-395	-239	-117	-300	-428	-324	-188	-216	-254	-154	-251	-227	-146	-148	-152	-188	-254	-394	-152	-149	-148	-247	-219
Mean	-109	-116	-110	-94	-91	-115	-125	-128	-107	-89	-96	-108	-145	-157	-150	-136	-156	-145	-145	-107	-92	-108	-110	-109	-119
5Q Mean	-53	-47	-44	-30	-42	-61	-45	-37	-48	-51	-50	-39	-50	-30	-36	-35	-64	-37	-33	-32	-43	-62	-55	-62	-45
5D Mean	-234	-269	-301	-222	-251	-375	-379	-360	-280	-201	-175	-231	-402	-425	-394	-392	-413	-401	-287	-254	-258	-338	-344	-299	-312

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June

AL 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 1	-219	-362	-718	-243	-216	-164	-53	-44	-178	-251	-206	-144	-129	-95	-168	-108	-99	-346	-369	-122	-50	-85	-294	-324	-208
2	-162	-129	-168	-203	-173	-124	-101	-81	-156	-88	-68	-23	-93	-164	-74	-100	-121	-127	-115	-75	-132	-94	-139	-198	-121
3	-192	-322	-285	-116	-116	-345	-228	-159	-64	-164	-135	-116	-88	-118	-149	-162	-100	-58	-29	-39	-243	-152	-72	-65	-147
4	-64	-87	-181	-276	-258	-84	-29	-54	-222	-153	-229	-325	-199	-192	-147	-61	-38	-46	-142	-101	-190	-49	-34	-29	-133
Q 5	-74	-87	-38	-16	-22	-20	-20	-20	-134	-188	-120	-37	-18	-15	-15	-38	-47	-46	-110	-35	-26	-25	-44	-116	-56
6	-176	-192	-149	-124	-59	-26	-41	-85	-47	-48	-93	-38	-26	-130	-330	-370	-299	-300	-191	-135	-94	-17	-18	-22	-125
7	-22	-27	-22	-24	-21	-29	-50	-162	-294	-184	-241	-158	-41	-50	-230	-338	-211	-90	-67	-31	-46	-224	-172	-20	-115
8	-29	-32	-93	-121	-190	-283	-243	-329	-299	-321	-103	-50	-21	-28	-31	-27	-32	-19	-21	-13	-69	-168	-284	-286	-129
9	-288	-206	-150	-137	-82	-27	-20	-17	-29	-27	-43	-54	-59	-61	-160	-132	-161	-258	-305	-273	-149	-112	-112	-121	-124
D 10	-156	-193	-135	-100	-257	-253	-224	-580	-400	-336	-177	-81	-170	-175	-100	-40	-56	-86	-74	-101	-51	-42	-49	-154	-166
11	-307	-210	-43	-86	-148	-80	-24	-28	-144	-219	-155	-78	-57	-32	-89	-130	-43	-21	-18	-15	-13	-18	-23	-49	-85
12	-37	-55	-112	-114	-132	-238	-104	-33	-26	-27	-36	-62	-145	-44	-32	-26	-51	-125	-72	-69	-51	-188	-145	-166	-87
13	-40	-38	-50	-181	-138	-61	-68	-296	-67	-18	-16	-84	-72	-56	-60	-112	-125	-169	-109	-181	-85	-66	-49	-34	-91
14	-90	-59	-85	-84	-77	-175	-87	-48	-16	-92	-99	-110	-164	-105	-57	-42	-14	-17	-46	-47	-210	-170	-56	-11	-82
Q 15	-16	-30	-29	-38	-64	-71	-135	-100	-48	-55	-99	-129	-134	-45	-30	-260	-307	-103	-19	-17	-13	-20	-25	-24	-76
16	-25	-24	-23	-31	-28	-29	-24	-38	-57	-165	-96	-38	-31	-29	-75	-128	-114	-118	-38	-62	-103	-53	-35	-50	-59
17	-20	-16	-28	-43	-74	-23	-43	-103	-24	-21	-69	-151	-285	-128	-180	-251	-93	-94	-74	-124	-54	-33	-55	-30	-84
18	-62	-104	-217	-283	-176	-136	-52	-46	-33	-29	-101	-229	-148	-81	-37	-66	-85	-157	-54	-24	-23	-42	-23	-16	-93
19	-29	-38	-37	-22	-25	-24	-27	-26	-26	-31	-33	-34	-26	-28	-22	-31	-28	-28	-24	-34	-137	-174	-126	-90	-46
20	-134	-22	-23	-22	-21	-80	-132	-111	-26	-37	-27	-25	-25	-17	-28	-141	-99	-28	-32	-78	-73	-12	-26	-82	-54
21	-224	-178	-65	-95	-159	-32	-109	-131	-198	-143	-251	-252	-48	-25	-26	-19	-26	-38	-81	-172	-132	-29	-27	-36	-104
22	-124	-268	-139	-245	-161	-43	-32	-15	-19	-31	-71	-106	-57	-56	-93	-188	-176	-109	-49	-35	-53	-56	-70	-78	-95
Q 23	-67	-163	-165	-72	-68	-114	-52	-27	-23	-50	-54	-30	-16	-12	-13	-17	-17	-26	-43	-162	-96	-36	-26	-24	-57
24	-22	-28	-27	-28	-77	-173	-116	-94	-64	-32	-39	-45	-58	-53	-87	-84	-133	-136	-70	-23	-21	-21	-21	-45	-62
Q 25	-31	-39	-28	-20	-26	-24	-15	-53	-34	-25	-26	-29	-27	-47	-68	-90	-88	-38	-20	-69	-23	-18	-19	-21	-37
26	-24	-32	-23	-32	-29	-15	-31	-58	-38	-18	-40	-58	-41	-33	-39	-65	-23	-14	-12	-52	-83	-128	-144	-94	-47
D 27	-38	-35	-51	-305	-299	-167	-157	-107	-31	-72	-215	-144	-68	-152	-207	-93	-137	-386	-689	-569	-494	-446	-346	-404	-234
D 28	-395	-325	-398	-503	-634	-396	-191	-37	-20	-25	-30	-29	-25	-109	-140	-111	-69	-66	-63	-94	-156	-109	-137	-205	-178
29	-102	-54	-48	-66	-41	-43	-59	-38	-105	-171	-89	-157	-252	-340	-353	-115	-192	-438	-221	-94	-53	-116	-274	-381	
30	-222	-164	-394	-245	-78	-29	-33	-11	-19	-102	-72	-82	-50	-93	-106	-148	-266	-117	-47	-57	-75	-137	-114	-264	-122
Mean	-113	-117	-130	-129	-128	-110	-83	-97	-94	-104	-101	-96	-85	-83	-104	-116	-108	-120	-106	-96	-99	-94	-98	-114	-105
5Q Mean	-42	-70	-56	-35	-41	-48	-50	-51	-55	-67	-67	-56	-47	-31	-32	-93	-96	-51	-40	-67	-48	-45	-51	-55	-54
5D Mean	-166	-188	-264	-235	-285	-201	-135	-186	-184	-173	-173	-111	-86	-116	-169	-138	-114	-194	-252	-183	-159	-181	-199	-221	-180

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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	298	526	375	246	277	199	204	266	490	456	563	284	176	271	747	404	296	449	390	461	320	398	207	160	353
	444	297	218	362	392	284	320	177	221	170	140	270	783	632	560	525	390	414	321	148	126	107	98	44	310
	24	39	101	100	44	54	91	117	168	252	419	165	100	125	473	410	267	97	45	66	43	53	60	65	141
	84	64	89	122	55	55	34	20	36	31	39	63	119	188	94	46	159	39	36	27	43	27	65	71	67
	46	29	27	28	23	29	54	71	164	157	71	125	188	65	31	24	38	26	26	27	23	34	26	29	57
	27	23	25	22	24	26	24	42	26	28	75	113	75	32	33	31	32	38	47	194	474	537	435	535	122
D	553	446	482	566	281	339	413	450	248	106	131	459	398	310	273	236	138	442	209	60	63	100	228	349	303
	532	179	84	109	64	80	87	80	74	160	230	142	93	66	89	276	163	82	58	147	208	125	69	48	135
	91	107	110	122	96	44	42	44	100	183	149	45	44	45	44	46	79	406	541	677	536	310	439	406	196
	234	210	199	261	105	86	72	137	90	68	52	139	250	92	34	32	52	116	142	60	16	17	18	18	104
Q	20	28	49	73	69	72	57	19	31	25	18	51	70	29	22	24	20	92	62	35	24	21	13	15	39
	17	30	54	24	27	38	87	219	140	48	22	22	31	25	26	18	22	60	63	40	121	127	46	26	55
Q	38	24	28	37	39	29	26	71	106	54	30	45	35	30	27	22	23	47	21	18	14	14	12	13	33
Q	18	22	26	17	13	37	14	36	37	84	81	67	41	28	21	19	26	69	53	26	13	11	10	9	32
	10	16	19	18	13	13	15	16	22	24	78	204	191	162	54	51	168	324	80	46	41	28	24	16	68
Q	20	19	17	19	20	25	28	34	40	117	94	36	29	26	32	32	32	25	22	17	16	12	10	12	31
	11	14	13	22	23	34	72	81	33	41	111	89	61	41	34	42	35	42	104	307	197	253	309	226	91
	245	158	120	76	77	67	118	68	122	443	372	71	41	38	28	30	37	64	135	91	104	86	124	47	115
Q	68	32	33	43	67	88	40	36	64	69	62	56	61	45	135	147	53	77	75	65	133	264	279	297	95
	393	419	346	269	383	323	303	515	502	316	228	108	72	68	42	31	31	22	117	296	239	317	377	429	256
	613	448	161	139	83	49	54	57	74	78	94	155	369	533	492	803	1017	736	714	613	532	197	437	649	379
	236	116	134	271	218	193	208	266	236	329	240	200	220	259	247	245	252	293	126	95	140	196	116	79	205
	129	204	51	34	44	91	194	279	346	311	302	232	208	313	588	652	393	558	342	196	519	253	212	447	287
	202	61	64	71	135	311	286	249	398	341	571	343	396	262	169	53	56	132	366	274	144	235	215	70	225
D	84	48	132	433	326	115	79	60	244	429	134	64	214	350	592	548	281	492	694	868	526	819	716	510	365
	368	476	317	158	90	79	179	125	156	117	264	317	401	368	259	198	94	123	63	55	42	81	55	32	184
D	32	67	185	643	399	238	492	619	301	239	406	558	614	1367	668	687	741	645	398	298	434	477	334	517	473
D	332	170	662	545	492	281	384	365	384	535	565	603	607	705	402	448	608	288	186	463	718	387	311	552	458
	265	207	217	135	306	251	91	98	103	154	145	234	461	394	639	395	277	320	404	206	218	420	309	154	267
	91	202	328	191	133	295	311	201	336	407	374	185	124	120	83	158	151	304	162	221	220	345	242	163	223
	56	153	195	343	392	252	117	83	143	200	145	110	122	213	92	34	121	123	50	20	26	41	20	21	128
Mean	180	155	156	177	151	131	145	158	175	192	200	179	212	232	226	215	195	224	195	197	202	202	187	193	187
5Q Mean	32	25	30	37	41	50	33	39	55	69	57	51	47	31	47	48	30	62	46	32	40	64	64	69	46
5D Mean	259	251	367	486	355	234	314	352	333	353	359	393	401	600	536	464	412	463	375	430	412	436	359	417	390

AE Index ( Hourly mean values, unit nT ) February 1986

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	19	27	60	70	32	19	21	28	37	55	90	237	167	118	146	237	349	121	91	113	91	59	41	27	94
Q 2	24	31	41	127	162	49	69	100	129	48	68	76	184	115	56	109	106	125	133	162	149	52	35	38	91
Q 3	30	24	38	70	50	47	46	44	82	125	105	43	51	42	53	184	97	45	38	30	74	223	194	74	
Q 4	88	44	41	27	25	26	24	37	87	67	34	38	38	36	44	122	97	115	223	30	27	29	30	33	59
Q 5	26	23	25	19	29	24	26	43	34	40	115	93	95	110	150	321	117	57	78	134	66	90	92	110	80
Q 6	49	59	78	91	56	55	57	81	76	82	90	150	376	403	440	406	587	438	170	150	104	113	434	289	201
D 7	118	59	43	86	190	407	241	67	139	458	1240	1006	682	858	875	1437	1291	1556	765	338	715	1334	875	710	645
D 8	581	372	128	128	422	1300	1376	642	1141	1028	1221	1209	1473	1859	1548	2503	1384	945	985	671	1411	1872	1191	1058	1102
D 9	1598	1659	1298	1028	810	665	278	160	106	153	90	82	90	121	176	98	94	350	736	235	94	156	236	377	445
D 10	325	174	139	37	36	41	35	25	32	33	34	26	29	26	34	50	120	45	37	63	85	105	55	84	70
D 11	58	91	235	116	197	62	58	71	88	43	85	391	784	449	135	87	748	1019	655	515	342	449	398	344	309
D 12	294	380	336	367	271	263	454	334	230	168	195	263	534	382	205	208	510	332	400	620	453	415	395	229	343
D 13	242	266	356	316	81	73	110	155	242	164	340	257	403	428	251	154	157	125	284	381	439	282	344	627	270
D 14	421	172	400	338	185	125	97	116	193	151	58	39	29	42	46	156	93	64	52	101	87	101	61	53	132
Q 15	121	144	88	90	92	52	37	35	33	32	37	48	33	31	33	40	36	34	28	28	25	23	27	24	49
Q 16	24	23	22	36	27	20	35	73	48	31	27	32	36	22	21	42	44	46	34	29	18	36	37	21	33
Q 17	25	30	17	19	12	14	15	29	38	30	42	36	31	48	78	52	99	258	196	144	148	444	353	537	112
Q 18	486	332	153	177	214	247	246	133	131	168	226	152	209	174	78	102	410	278	83	41	48	222	703	614	235
Q 19	242	103	58	24	50	46	81	98	112	111	137	199	148	73	23	38	62	105	99	91	175	94	52	35	94
Q 20	223	333	416	265	93	170	363	221	83	98	122	200	422	293	138	262	835	582	574	527	344	137	431	497	318
D 21	226	351	255	280	250	197	463	406	151	571	671	430	173	292	103	73	119	218	216	98	268	270	488	919	312
D 22	567	293	333	161	159	541	834	403	107	154	483	453	438	480	288	331	1050	664	407	504	496	289	195	670	429
D 23	748	662	920	326	657	597	383	257	432	505	290	422	261	370	907	1125	950	723	387	443	544	417	205	201	530
D 24	235	274	164	165	432	409	221	172	189	265	408	349	365	557	283	271	246	351	423	214	312	386	369	249	304
D 25	411	261	283	429	303	233	283	222	198	514	340	172	254	279	99	320	305	208	369	434	241	596	144	82	291
D 26	94	177	243	134	111	386	366	499	430	351	503	599	423	452	588	1258	551	266	421	265	106	225	112	478	377
D 27	427	203	343	611	320	356	382	389	152	146	392	617	133	79	63	81	62	144	213	400	238	198	377	382	280
D 28	212	175	288	379	196	86	142	151	153	107	255	530	260	245	353	655	584	755	1064	836	375	452	299	266	367
Mean	282	240	242	211	195	232	240	178	174	203	274	291	290	299	257	382	396	356	327	273	265	318	292	326	273
5Q Mean	56	52	49	58	45	32	32	43	57	62	58	79	65	49	59	125	124	72	82	56	38	44	71	59	61
5D Mean	654	620	528	369	465	633	548	306	393	543	702	629	535	700	721	1047	767	758	617	357	606	809	599	653	607

AE Index ( Hourly mean values, unit nr ) 1986 March

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	348	279	129	115	125	65	140	387	429	289	241	391	276	240	111	429	898	510	558	445	249	155	105	223	297
2	154	81	140	212	217	274	324	280	242	113	268	502	189	87	83	114	147	80	85	167	107	121	113	85	174
3	110	106	82	102	47	42	59	44	84	183	200	93	170	199	66	49	66	61	61	324	263	425	399	551	154
4	145	126	115	92	87	94	227	212	132	80	95	31	31	96	241	161	124	91	96	348	381	284	229	137	152
5	126	100	163	176	62	41	31	48	95	119	118	147	148	249	219	132	238	507	360	309	366	351	370	330	200
D	434	411	559	394	69	82	57	39	44	123	318	574	537	708	712	792	888	915	824	799	847	685	591	731	506
7	581	208	334	520	540	441	426	494	410	451	830	696	469	399	736	677	731	369	531	503	772	947	597	511	549
D	522	479	497	273	432	383	257	308	81	72	323	331	349	540	370	230	340	468	604	425	412	252	167	123	343
9	100	78	130	187	124	41	71	75	62	75	88	36	31	23	21	37	26	39	25	23	15	19	22	29	57
Q	25	24	23	20	18	21	36	30	23	24	29	35	34	37	28	31	33	29	17	14	17	28	27	32	26
Q	27	25	26	17	21	33	30	24	39	30	34	52	54	49	37	43	38	43	43	124	157	44	38	43	45
12	43	37	31	24	28	27	64	81	307	237	289	272	91	50	32	35	27	24	15	16	23	29	44	74	79
13	63	156	579	463	252	183	317	582	508	474	470	639	523	830	559	736	686	343	124	67	76	219	427	239	399
14	283	547	396	108	63	52	59	129	64	60	106	138	41	41	39	42	46	60	172	197	151	42	96	138	128
15	66	46	49	57	208	247	231	178	91	116	196	110	43	30	36	59	144	91	71	226	487	347	230	113	145
16	200	163	103	53	114	159	235	165	263	470	353	105	220	62	28	24	35	42	66	103	33	42	74	53	132
17	137	110	44	45	33	34	52	240	116	200	157	56	51	75	63	147	98	50	35	36	72	40	29	51	82
18	210	174	155	187	195	116	143	169	321	450	359	190	107	71	233	478	380	249	106	66	52	31	45	42	189
19	45	138	293	270	83	44	100	154	181	222	112	71	65	32	43	123	414	275	172	62	82	35	56	38	130
Q	33	33	25	25	30	33	32	29	39	45	37	85	68	60	97	49	40	94	183	83	25	28	32	32	52
21	48	46	53	83	164	87	58	162	187	375	116	165	263	834	705	208	92	204	239	377	246	225	217	822	249
22	834	626	613	406	316	539	183	95	98	69	75	94	231	377	606	425	254	132	73	118	216	406	214	355	306
23	293	202	70	55	63	275	337	240	81	57	228	277	215	94	104	164	59	45	123	369	552	228	140	156	184
D	229	200	129	116	193	258	364	341	162	129	394	700	539	494	680	374	640	397	220	223	230	122	135	214	312
D	418	231	524	419	611	523	439	533	591	200	97	133	95	263	478	479	284	193	208	610	919	478	876	513	422
26	292	245	75	48	144	234	181	100	168	43	38	104	130	238	355	430	553	293	107	56	143	192	334	532	210
27	452	578	767	328	203	231	191	739	407	504	200	439	591	174	89	319	227	95	106	92	73	85	63	60	292
28	132	172	269	154	140	154	212	485	232	135	110	351	177	155	156	315	320	417	410	417	299	121	110	208	235
29	134	264	259	168	208	188	83	69	57	29	40	57	240	493	445	514	440	299	422	236	173	173	163	110	219
30	63	48	44	30	46	43	39	60	72	54	45	71	61	82	110	89	123	92	136	87	230	180	90	59	81
Q	57	49	40	40	43	44	45	122	99	83	76	127	116	181	273	192	233	68	124	261	64	56	60	65	105
Mean	213	192	216	167	157	160	162	213	183	177	194	228	195	234	250	254	278	212	203	231	249	206	196	217	208
5Q	49	41	49	55	47	34	41	43	47	45	46	55	49	50	58	49	52	59	80	66	88	59	41	39	52
5D	436	305	408	344	369	337	308	343	257	195	392	486	397	480	595	510	576	468	477	512	636	496	473	418	426

1986

April

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	44	39	41	78	68	100	48	50	70	403	282	162	67	45	43	41	94	90	74	434	332	145	59	51	119
2	76	90	171	59	120	117	39	45	112	195	100	169	64	72	139	85	61	48	71	41	76	122	88	107	95
3	219	538	636	663	220	97	269	291	68	47	47	89	109	201	70	75	79	404	371	72	59	73	38	28	198
4	30	37	52	96	52	39	48	75	82	147	74	41	36	34	33	37	21	23	23	31	20	57	36	35	48
5	40	47	58	203	387	123	50	40	47	86	42	47	40	42	30	32	42	184	465	340	175	284	507	156	144
6	68	45	35	36	43	113	128	91	73	51	39	68	48	40	53	36	32	43	105	56	56	188	133	47	68
7	51	44	99	131	66	45	111	88	55	49	54	56	77	86	206	242	255	143	68	52	53	50	56	81	92
8	72	45	40	30	28	33	45	42	67	284	314	304	148	130	68	47	36	33	26	16	25	39	68	184	89
9	170	74	142	164	190	400	163	115	66	40	46	53	144	530	454	248	168	293	409	198	141	363	305	300	216
10	331	702	330	306	288	446	575	642	565	270	99	60	55	89	311	750	357	232	152	51	40	35	28	38	281
11	32	30	68	212	432	247	59	37	39	100	54	59	48	44	37	106	186	129	78	93	101	179	268	252	120
12	329	267	393	190	134	232	223	186	310	281	158	248	430	334	239	322	341	434	537	466	402	308	267	210	302
13	216	263	209	99	37	38	43	94	112	71	103	294	350	197	155	154	79	70	104	118	223	350	306	163	160
14	170	189	167	185	144	99	83	91	105	128	123	328	188	251	202	141	76	41	60	44	42	60	42	58	126
15	52	41	34	40	43	49	101	117	132	95	70	108	273	341	241	134	114	79	50	46	29	29	36	172	101
16	455	399	257	157	161	102	50	44	46	62	147	289	90	41	92	212	333	183	74	49	62	161	70	40	149
17	46	42	37	38	39	37	35	61	47	94	199	194	178	240	135	83	262	398	304	202	117	162	162	83	133
18	143	384	521	328	95	75	175	229	87	73	99	69	58	45	31	32	32	52	49	52	23	79	182	164	128
19	343	432	336	321	316	135	73	84	91	226	325	202	347	297	60	77	131	174	137	266	357	254	87	54	213
20	42	56	71	80	101	61	49	51	49	50	43	78	86	65	62	46	48	45	50	96	132	213	146	144	78
21	321	354	215	76	66	55	56	110	39	56	81	221	81	48	42	43	33	30	46	33	43	46	40	70	92
22	57	64	73	368	380	253	88	70	136	616	420	105	46	37	64	55	104	144	357	267	173	203	373	172	193
23	69	47	42	63	53	125	362	242	86	75	108	91	75	62	59	49	52	53	207	661	229	102	108	310	139
24	351	119	44	47	39	149	133	172	227	215	183	368	108	93	218	87	63	110	150	119	91	122	66	75	140
25	74	194	379	291	145	91	142	79	90	178	169	238	238	146	54	60	46	48	51	103	69	56	62	68	128
26	103	169	357	285	144	83	60	78	221	345	401	331	110	56	46	34	36	35	40	38	43	34	43	53	131
27	56	51	122	39	39	45	46	47	62	53	82	61	57	46	37	38	48	44	42	52	40	46	76	96	55
28	181	491	462	389	117	63	209	407	380	512	266	74	64	44	126	79	48	69	63	71	47	40	44	44	179
29	45	90	142	334	246	219	163	302	253	131	109	251	502	256	46	53	43	83	53	39	39	36	45	47	147
30	45	47	66	62	58	110	61	85	85	61	84	128	188	224	109	109	142	198	100	57	41	35	37	43	91
Mean	141	179	186	179	141	126	122	135	126	166	144	159	143	137	115	116	112	130	143	138	109	129	125	111	138
5Q Mean	73	73	88	83	67	81	73	77	81	88	80	125	103	119	86	72	63	69	66	48	39	77	64	55	77
5D Mean	225	299	245	309	223	269	245	258	212	237	159	135	92	190	223	243	154	236	287	141	100	159	162	122	205

1986

May

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	
D	1	48	53	45	33	36	60	43	95	82	74	54	71	75	79	175	80	50	48	45	42	65	49	59	78	64
D	2	119	102	83	154	179	232	123	369	362	214	400	703	902	1023	1321	1307	1186	1221	774	690	884	904	897	945	629
D	3	855	997	849	700	759	863	680	623	355	385	252	150	111	145	230	189	130	167	165	211	275	178	140	126	397
D	4	86	132	251	143	194	274	379	292	202	157	209	177	561	614	214	181	297	150	73	58	79	166	546	385	243
D	5	224	200	249	157	120	368	324	230	100	85	67	270	548	325	350	452	547	603	721	743	561	635	576	379	368
D	6	520	520	531	398	735	1226	1223	1094	993	710	447	574	911	1065	1085	1028	1085	1047	866	549	711	971	637	305	801
D	7	621	542	322	92	46	49	253	474	315	180	510	157	154	221	255	282	283	338	555	282	104	75	60	88	261
D	8	282	199	96	33	45	59	98	110	114	144	106	180	516	541	309	155	111	51	96	201	158	52	81	195	164
D	9	239	164	130	133	169	98	70	85	91	163	91	214	148	142	107	79	47	42	49	41	37	49	52	48	104
D	10	229	406	280	111	31	30	34	65	109	59	85	129	108	175	61	79	58	180	261	170	132	72	66	49	124
D	11	48	43	59	86	141	224	155	84	50	74	72	169	94	75	71	69	150	128	102	58	86	116	75	70	96
D	12	53	84	196	565	307	79	41	40	133	212	289	296	306	188	251	164	82	48	53	40	51	63	71	65	153
D	13	48	48	48	59	59	84	79	82	119	142	78	82	110	225	92	68	64	80	173	149	54	72	125	81	92
Q	14	83	118	109	67	88	264	156	121	131	101	75	52	59	47	35	37	55	44	44	65	116	118	47	47	87
Q	15	44	51	76	67	169	130	108	100	161	191	203	162	155	128	141	127	219	130	104	141	226	310	243	168	148
D	16	142	140	157	146	159	217	197	245	157	156	281	265	141	334	308	270	427	482	625	578	446	340	391	583	299
D	17	470	440	434	426	221	78	51	100	92	86	97	173	236	533	526	291	82	52	58	49	53	100	105	93	202
D	18	47	41	50	53	72	72	178	139	358	318	260	279	282	111	52	51	54	60	53	47	48	58	129	150	123
D	19	251	261	209	147	210	154	210	88	57	76	63	60	67	82	249	337	496	371	330	142	70	76	71	95	174
D	20	58	63	149	235	85	51	90	99	131	176	137	160	102	93	105	92	102	79	80	108	133	156	78	62	109
D	21	47	42	36	49	57	70	207	177	294	355	174	100	82	229	160	139	143	138	129	160	244	70	52	39	133
D	22	33	33	30	33	23	47	66	63	85	67	66	87	78	57	54	59	109	97	133	107	64	65	62	60	66
Q	23	98	123	132	58	130	185	142	168	229	170	234	277	192	132	78	71	174	111	90	73	59	158	193	143	142
D	24	161	204	150	116	99	69	48	63	48	78	92	162	286	342	314	251	89	73	43	37	48	75	55	54	123
D	25	50	87	165	281	352	395	457	276	77	66	215	494	184	143	107	119	101	45	64	49	63	85	66	71	167
D	26	187	57	56	37	39	207	302	549	298	307	534	190	83	43	103	133	559	467	239	206	106	50	72	63	204
D	27	127	304	184	111	54	51	195	312	189	94	123	90	88	113	95	85	64	50	45	52	43	73	181	307	126
D	28	276	169	121	85	60	34	32	49	31	44	70	68	104	33	52	41	29	23	36	40	44	53	62	59	67
Q	29	67	70	54	41	39	38	34	42	50	59	100	87	96	62	79	41	40	35	45	43	51	76	195	354	75
Q	30	158	83	48	39	40	37	28	35	57	53	78	116	146	125	69	109	304	864	421	278	403	299	198	168	
D	31	156	279	609	376	272	563	636	538	361	439	470	331	390	314	225	215	226	298	445	618	324	326	344	403	382
Mean	187	195	190	162	160	203	214	219	187	175	190	202	235	250	236	211	231	224	237	199	181	193	194	185	202	202
5Q Mean	100	88	78	58	75	102	79	75	91	92	102	91	98	65	72	61	90	65	72	79	100	124	121	137	88	
5D Mean	347	406	464	354	427	631	608	583	454	381	355	387	575	632	615	584	584	576	464	425	454	509	512	432	490	

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	417	503	926	388	378	374	186	147	370	417	372	231	209	181	262	178	215	533	566	253	183	246	537	543	359
D 2	262	276	267	287	253	201	167	118	233	178	140	77	157	233	130	141	158	191	199	173	264	189	250	340	203
D 3	340	481	391	236	278	516	338	256	176	322	266	208	161	214	214	232	153	126	84	146	421	247	151	141	254
D 4	156	215	331	424	405	143	61	141	347	321	472	580	340	281	191	100	65	81	216	212	307	99	79	74	235
Q 5	152	145	84	42	44	35	37	87	260	335	227	87	55	48	42	68	69	110	159	76	62	58	97	209	108
D 6	313	384	315	277	158	76	133	133	79	113	209	95	78	207	422	552	431	406	300	240	163	61	52	52	219
D 7	54	68	45	46	115	69	159	289	433	430	507	278	82	129	310	402	291	158	153	99	160	373	263	79	208
D 8	82	84	161	207	288	436	384	464	463	492	248	102	63	66	53	45	53	44	52	56	134	288	437	490	216
D 9	456	328	257	215	144	58	46	39	65	62	78	89	104	128	233	223	263	394	452	421	297	227	231	259	211
D 10	338	416	307	246	385	420	391	786	620	615	398	192	279	265	186	106	102	137	133	198	133	117	121	283	299
D 11	483	377	147	205	246	163	71	81	248	328	229	173	105	85	177	198	72	44	48	41	48	48	53	96	157
D 12	70	119	175	178	222	337	156	111	65	55	101	135	219	87	70	68	108	165	142	157	165	311	268	303	158
D 13	103	83	119	246	196	140	205	385	133	57	53	150	148	120	111	164	182	258	221	305	196	173	131	82	165
D 14	147	130	150	167	134	266	165	115	66	148	175	189	226	144	92	78	43	60	119	165	443	299	128	65	155
Q 15	52	61	44	71	131	145	238	189	118	126	189	248	221	103	91	334	397	167	71	58	40	51	50	49	135
D 16	47	51	53	53	59	65	81	115	113	217	138	71	74	114	219	209	173	169	113	184	208	152	103	97	120
D 17	61	50	62	115	119	56	92	175	75	69	139	297	386	207	273	297	134	148	127	194	112	84	105	97	145
D 18	150	215	402	469	346	257	144	93	83	77	229	362	257	158	105	134	166	230	116	62	56	81	52	43	179
D 19	62	90	76	46	40	39	35	36	36	43	47	54	59	56	44	61	56	58	57	85	230	299	220	202	85
D 20	220	57	64	54	62	171	216	161	66	89	73	95	111	79	99	214	138	69	93	140	153	58	81	169	114
D 21	381	309	163	187	245	94	275	235	336	314	439	366	106	65	60	31	49	75	134	280	215	62	58	75	190
D 22	196	379	239	399	261	96	68	43	49	59	117	163	114	137	178	282	243	156	115	102	112	117	158	161	164
Q 23	159	311	299	172	174	271	197	113	73	98	82	58	55	52	40	38	39	52	76	205	147	66	44	43	119
D 24	42	51	49	72	145	278	287	261	208	96	134	136	154	124	174	159	222	228	134	72	59	60	53	91	137
Q 25	80	95	59	41	53	43	60	107	61	42	47	56	82	81	104	131	114	65	61	118	69	45	38	47	71
Q 26	56	83	48	54	43	81	98	159	82	68	144	142	105	83	67	82	46	39	49	100	143	226	238	186	101
D 27	89	88	149	411	495	347	368	253	83	217	349	275	171	274	347	175	244	628	929	907	773	738	565	527	392
D 28	554	605	612	847	884	664	315	106	89	76	64	50	46	162	192	147	96	107	112	174	259	183	233	302	287
D 29	180	96	92	104	77	67	112	81	154	240	209	300	425	479	479	235	301	641	350	190	194	262	416	577	261
Q 30	336	318	584	352	149	70	51	37	51	157	135	151	104	128	172	204	351	173	87	98	139	246	232	436	198
Mean	201	215	222	220	217	199	171	177	174	195	200	180	156	149	171	176	165	190	182	183	196	182	181	203	188
5Q Mean	99	139	106	76	89	115	126	131	118	134	137	118	103	73	68	130	133	86	83	111	92	89	93	106	106
5D Mean	290	336	407	387	451	374	283	316	319	351	338	205	157	202	259	201	189	312	378	326	301	331	343	346	308



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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	-36	-111	-40	0	-54	-10	-21	-27	-89	-147	-93	0	-14	-65	-211	-135	-73	-87	-129	-132	-86	-109	-29	-15	-71
2	-129	-61	-2	-62	-71	-44	-21	17	-50	-59	-21	-50	-265	-225	-193	-157	-134	-162	-123	-31	-28	-20	-23	0	-80
3	0	-6	-30	-24	1	5	-2	2	6	-42	-127	-8	15	-14	-172	-159	-27	-4	7	-15	-5	-4	-3	0	-25
4	-8	-7	-4	-5	2	0	6	3	2	4	0	-2	-34	-55	-20	-1	-44	4	-4	-1	-13	-1	-18	-9	-8
5	-8	2	0	0	3	4	-6	-6	-53	-30	-7	-26	-51	-6	1	0	-5	2	2	5	3	-5	0	-2	-7
6	-1	1	0	0	2	6	3	-3	3	6	0	-21	-10	11	14	5	2	1	2	-19	-134	-296	-148	-225	-33
D 7	-119	-26	-98	-166	-12	-10	-12	-82	-49	-6	-6	-127	-98	-57	-73	-45	-24	-144	-63	-9	-1	-19	-45	-56	-56
8	-109	8	9	4	2	8	4	22	14	-39	-67	6	11	8	-18	-107	-17	-17	-10	-49	-81	-46	-9	3	-19
9	12	2	-3	20	24	17	7	0	-8	-29	0	18	9	-1	1	1	-25	-148	-177	-203	-90	28	-92	-127	-31
10	-27	7	21	-47	9	6	1	-24	-15	-9	-4	-28	-91	4	2	-8	-16	-48	-67	-17	-4	-3	-1	0	-15
Q 11	-1	0	0	8	0	-2	14	2	1	-5	-4	-6	-21	-3	1	-6	-6	-25	-23	-11	-2	0	3	3	-3
12	1	-4	-3	0	3	5	-5	-62	18	11	-1	0	-1	-3	2	-2	-2	-13	-26	-10	-41	-51	-1	10	-7
Q 13	6	4	4	12	15	7	3	-12	-14	0	3	10	5	4	1	-1	-2	-13	0	0	0	1	0	-1	1
Q 14	0	0	-1	2	1	-9	2	-5	2	-17	-17	-6	1	6	3	-1	0	-17	-17	-3	3	4	2	2	-12
15	2	0	2	3	2	2	4	6	10	12	-1	-69	-56	-27	-4	-9	-61	-107	-17	0	2	1	1	1	-12
Q 16	3	3	1	0	-1	-3	-2	-4	0	-30	-11	2	1	2	1	1	-1	1	3	3	3	1	0	0	0
17	0	1	2	6	4	7	-13	-6	10	12	-6	0	5	9	7	11	6	5	-16	-59	1	58	6	-9	1
18	-1	6	18	23	17	19	28	18	16	-87	-44	24	10	0	-4	-9	-13	-22	-52	-34	-28	-22	-20	2	-6
Q 19	3	11	11	10	-4	-6	4	5	-11	-4	10	1	0	-1	-22	-38	-11	-17	-22	-9	-17	12	37	25	-1
20	37	22	19	0	-35	-4	-20	-7	-87	-37	6	28	25	3	-4	3	-2	0	-33	-87	12	8	-37	-146	-13
21	-152	-12	30	33	29	18	15	13	11	17	8	-16	-30	-62	-100	-216	-341	-286	-219	-173	-159	-14	-102	-216	-80
22	-68	-14	-18	-81	-63	-47	-40	-41	-36	-103	-77	-54	-54	-42	-35	-71	-91	-101	-29	-11	-15	-59	-17	-16	-49
23	-40	-73	2	4	9	4	-48	-75	-95	-43	2	-43	-19	-114	-225	-241	-107	-179	-96	-52	-171	-44	-48	-153	-77
24	-28	18	-1	-6	-9	-61	-27	-15	-58	-70	-123	-76	-118	-91	-30	-15	-15	-52	-133	-95	-23	-50	-72	-9	-48
D 25	0	-9	-9	-107	-74	23	16	14	-35	-107	-10	-4	-46	-123	-201	-181	-58	-88	-157	-266	-153	-278	-223	-109	-91
26	-59	-119	-50	10	1	2	-21	-13	-38	-15	-90	-111	-147	-105	-84	-34	-15	-46	-19	-13	-7	-17	-6	6	-41
D 27	7	4	-48	-204	-65	13	-67	-117	-16	4	-47	-148	-170	-484	-224	-181	-190	-218	-103	-75	-142	-141	-82	-131	-118
D 28	-58	-4	-180	-173	-123	-33	-66	-79	-68	-148	-162	-219	-190	-247	-58	-116	-193	-83	-53	-132	-240	-87	-42	-143	-121
29	-39	-25	-34	-8	-87	-53	18	5	4	-7	3	-58	-124	-120	-195	-107	-104	-108	-137	-56	-64	-126	-72	-8	-62
30	7	-29	-88	-30	4	-65	-58	-48	-70	-104	-100	-4	-10	-21	-2	-36	-39	-110	-49	-72	-64	-125	-80	-52	-52
31	8	-25	-40	-94	-70	-42	4	9	-36	-47	-11	1	-25	-43	-6	0	-56	-40	-12	-1	-4	-11	2	0	-22
Mean	-25	-14	-17	-28	-17	-7	-9	-16	-23	-36	-32	-31	-48	-60	-59	-59	-53	-68	-57	-52	-49	-45	-36	-44	-37
5Q Mean	2	3	3	6	2	-2	4	-2	-4	-11	-3	0	-2	1	-3	-9	-4	-14	-11	-4	-2	3	8	5	-1
5D Mean	-41	-29	-75	-130	-65	-3	-30	-58	-51	-80	-63	-99	-103	-195	-153	-131	-107	-124	-101	-122	-124	-126	-84	-90	-91

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
Q 1	4	0	-11	-6	9	8	9	14	11	0	-3	-55	-26	-14	-9	-81	-110	-3	8	-14	-2	6	17	11	-9
Q 2	11	16	15	-23	-22	8	8	-6	-31	16	7	8	-46	-22	9	-24	-17	-32	-32	-20	-32	23	21	22	-5
Q 3	14	9	6	-2	8	11	23	13	2	-23	-8	11	3	8	5	-52	-1	12	9	12	10	12	-50	-43	0
Q 4	-16	5	11	6	8	8	10	10	-1	-3	9	8	6	5	10	-17	-29	-38	-90	-21	9	5	4	7	0
Q 5	3	5	11	8	12	9	10	0	14	14	-13	2	-5	-22	-33	-117	-1	14	-4	-35	5	20	9	-5	-3
6	14	19	12	8	25	31	27	27	35	8	16	6	-66	-88	-107	-96	-37	31	21	13	12	25	-122	-38	-9
D 7	6	16	13	17	15	-88	-55	0	28	-82	-515	-459	-222	-312	-230	-486	-507	-277	-159	-62	-180	-897	-269	-286	-208
D 8	-90	-27	21	1	-4	-274	-407	-270	-473	-380	-499	-652	-939	-820	-1488	-770	-327	-82	-118	-732	-1465	-695	-556	-480	-480
D 9	-625	-386	-342	-311	-198	-259	-99	-55	-24	-36	-39	-36	-41	-43	-37	-35	-21	-50	-155	-34	-30	-63	-85	-99	-129
10	-104	-58	-36	-23	-25	-24	-22	-23	-23	-23	-25	-27	-24	-24	-26	-25	-60	-25	-23	-34	-25	-44	-16	-12	-31
11	-12	-20	-73	-16	-32	-9	0	-3	2	-11	-16	-95	-244	-86	14	-10	-207	-362	-92	-71	-18	-53	-71	-57	-64
12	-39	-69	-45	-27	-10	-10	-87	-57	0	-1	-23	-67	-139	-101	-54	-38	-174	-74	-75	-175	-91	-16	-36	10	-58
13	-13	-14	-57	-44	33	7	-3	-33	-65	-13	-84	-37	-41	-53	-36	-40	-37	-29	-82	-118	-22	39	-22	-83	-35
14	2	11	-86	-65	46	36	30	0	-43	-15	14	1	-1	0	-3	-9	-20	2	-9	-14	6	0	2	0	-4
Q 15	-23	-28	-10	13	38	21	10	4	1	0	0	0	-9	-4	-6	-4	-5	-5	-8	-9	-6	-4	-5	-9	-2
Q 16	-10	-8	-6	-5	-1	0	-1	-14	-9	-4	-5	-7	-5	-7	-4	-4	-15	-12	0	-2	0	0	4	-2	-5
17	1	-1	0	0	0	0	1	3	9	3	4	6	2	4	6	-5	-28	-98	-47	-8	0	-109	-95	-177	-22
18	-98	20	0	-37	-43	-4	5	-2	-20	-16	-31	-41	-45	-51	-17	-34	-145	-79	1	0	0	-41	-244	-173	-45
19	-13	2	7	5	6	0	-7	-24	-34	-22	-28	-49	-53	-20	-5	-7	-22	-32	-28	-13	-35	-27	4	1	-16
20	-73	-104	-133	-17	9	-7	-105	-54	15	12	22	-31	-174	-23	-28	-69	-221	-124	-138	-110	-40	19	-138	-147	-69
D 21	-49	-74	-47	-74	-77	-19	-76	-94	8	-77	-217	-83	-26	-65	-1	-7	-22	-74	-69	-11	-55	-67	-122	-273	-70
22	-110	-40	-45	-13	-25	-170	-244	-45	7	-4	-112	-137	-119	-146	-93	-81	-286	-166	-68	-84	-124	-44	-34	-175	-98
D 23	-207	-160	-254	-73	-147	-170	-94	-42	-73	-146	-59	-106	-54	-125	-298	-350	-206	-186	-64	-84	-158	-90	-30	-45	-134
24	-63	-82	-26	-19	-94	-127	-1	-19	-7	-7	-133	-124	-79	-185	-41	-90	-86	-142	-157	-71	-79	-124	-99	-49	-79
25	-121	-75	-69	-149	-56	-25	-53	-44	-27	-122	-83	-38	-61	-80	-2	-112	-100	-41	-100	-127	-45	-199	-13	0	-73
26	-24	-60	-68	-16	-8	-93	-116	-133	-81	-73	-151	-179	-122	-130	-146	-364	-141	-51	-155	-76	-3	-37	4	-122	-98
27	-107	-39	-50	-179	-53	-38	-71	-72	-13	12	-77	-197	-32	-6	3	-4	-8	-34	-59	-117	-84	-29	-119	-107	-62
28	-45	-17	-58	-102	-9	21	-10	-5	-1	18	-43	-169	-68	-47	-91	-209	-147	-160	-370	-242	-9	-113	-39	-62	-82
Mean	-63	-41	-47	-40	-21	-41	-47	-33	-28	-38	-70	-85	-83	-92	-72	-137	-122	-84	-72	-58	-61	-116	-80	-88	-67
5Q Mean	-6	-4	-2	1	12	9	9	5	0	-6	-1	-8	-6	-2	0	-31	-32	-9	-16	-6	2	3	-6	-7	-4
5D Mean	-193	-126	-121	-88	-82	-162	-146	-92	-106	-163	-242	-236	-199	-296	-277	-473	-305	-182	-105	-61	-231	-516	-240	-251	-204

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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	-93	-91	-8	-17	-25	7	2	-81	-84	-55	-40	-124	-82	-37	9	-118	-279	-93	-97	-72	-10	0	-6	-69	-61
2	-31	-5	-20	-55	-45	-63	-82	-47	-37	0	-50	-116	-38	-14	2	-27	-55	-19	-12	-52	-20	-21	-23	-16	-35
3	-14	-14	-10	-21	4	10	9	11	-10	-47	-51	-12	-1	-73	-12	4	-11	-5	4	-99	-55	-119	-68	-99	-28
4	-3	5	4	-16	-7	-3	-56	-77	-14	0	-23	0	2	1	-49	-28	-23	-29	-6	-49	-100	-46	10	15	-20
5	21	10	25	11	9	4	7	9	-4	-24	-13	-15	-13	-12	-5	-19	-26	-95	-60	-10	10	-21	-12	9	-8
D 6	-72	-46	-111	-36	14	4	-9	8	15	0	-14	-126	-145	-64	-63	-87	-149	-137	-140	-205	-169	-90	-89	-215	-80
D 7	-108	1	-65	-142	-146	-48	-54	-94	-62	-99	-161	-101	-68	-87	-189	-124	-146	-80	-29	-86	-169	-230	-141	-115	-106
D 8	-129	-142	-91	-24	-119	-106	-32	-55	6	11	-78	-108	-92	-143	-93	-58	-58	-83	-185	-92	-61	-3	-18	-26	-74
Q 9	-8	-9	-1	-41	-26	11	4	6	-11	-17	-24	1	0	-2	-2	-4	-6	-9	-4	-3	0	0	-2	-4	-6
Q 10	-2	-1	0	0	0	0	-12	-6	-1	-1	-1	-2	-7	-5	-2	-1	0	0	0	0	1	1	-4	-4	-2
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D 24	-40	-44	-11	-4	2	0	-50	-68	-1	23	-64	-151	-90	-109	-182	-77	-186	-122	-58	-18	-39	-7	-18	-55	-57
D 25	-135	-33	-167	-102	-175	-124	-118	-126	-158	-7	26	-3	7	-54	-98	-122	-80	-41	-30	-134	-234	-105	-245	-118	-99
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5Q Mean	-2	-2	0	-8	-5	1	-2	0	-4	-3	-5	-5	-3	1	-2	-2	-3	-8	-17	-9	-13	-7	-1	0	-4
5D Mean	-96	-52	-89	-61	-84	-54	-52	-67	-40	-14	-58	-97	-77	-91	-125	-93	-123	-92	-88	-107	-134	-87	-102	-105	-83

Date		AO Index ( Hourly mean values, unit nr )																							Mean
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	2	-10	0	-24	-3	-17	-25	-4	1	-20	-54	-16	-50	-10	-19	-53	-31	-19	-6	-4	-4	-15	-22	-8	-7
D	3	-41	-141	-172	-130	-24	8	-31	-114	-5	-2	0	8	0	-53	-10	-3	-11	-133	-131	-1	4	-6	5	3
Q	4	1	-2	-6	-15	-7	-4	-5	-2	-12	-47	-23	-10	-3	-4	-7	-11	-6	0	4	2	0	0	0	0
	5	0	-6	-4	-52	-120	-29	-1	-2	-1	-20	-4	-4	-1	0	1	-1	2	-17	-71	-30	5	-34	-111	-18
Q	6	9	-3	-7	-1	5	-19	-25	-16	-9	-6	-3	4	0	-5	-9	-4	0	0	-30	-5	0	-30	-34	3
	7	7	1	-8	-11	-4	-2	-6	-11	-4	-4	-3	-1	9	-4	-52	-74	-80	-43	-17	0	-6	-1	2	-9
	8	-11	0	1	-1	3	1	0	-3	10	-48	-86	-54	2	-12	-5	2	-3	-1	0	6	7	11	18	-23
D	9	-16	12	11	-11	-3	-43	11	21	4	0	3	4	0	-159	-127	-53	4	2	-39	-3	16	-53	-8	0
D	10	-92	-218	-12	-8	3	10	17	25	24	23	9	-4	1	0	-37	-147	-61	-32	-33	5	5	-1	-4	-1
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Q	14	24	9	17	25	26	27	15	6	20	31	21	-9	-4	17	-2	-11	-10	-1	3	10	9	0	9	2
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	18	7	-87	-137	-40	22	16	19	-25	0	15	4	8	0	-1	3	1	3	0	1	-3	9	10	-35	-18
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	26	6	-10	-88	-65	-7	12	1	6	-33	-65	-56	-28	-1	1	3	-1	6	1	1	2	1	0	3	3
Q	27	5	2	-32	1	1	-2	-1	-2	9	0	1	1	-5	0	0	3	0	3	3	0	7	8	7	7
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5Q	Mean	6	0	-5	1	5	-4	-3	-3	2	-5	0	-1	-9	-8	-7	-4	-8	-9	-6	2	5	-3	-3	3
5D	Mean	-42	-70	-32	-44	-21	-13	-2	-21	0	-26	-10	-14	3	-43	-46	-40	-15	-35	-53	-2	8	-17	-18	-2

1986

May

AO Index ( Hourly mean values, unit nT )

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D 2	-3	7	17	-8	-11	0	12	-55	-53	-7	-9	-115	-188	-193	-124	-213	-179	-139	-82	-88	-105	-184	-240	-296	-94
D 3	-250	-257	-194	-127	-121	-175	-147	-104	-45	-80	-66	-17	-14	-14	-49	-35	-6	-24	-16	8	-38	-6	-5	-5	-74
D 4	0	-2	-54	0	22	23	17	47	38	35	64	21	-152	-103	-22	-15	-72	-18	3	5	-1	13	-128	-77	-14
D 5	-15	10	-38	-19	-6	-65	-81	-42	2	-4	3	-12	-131	-64	-87	-107	-111	-91	-98	-115	-43	-78	-128	-101	-59
D 6	-60	-111	-28	-43	-101	-131	-155	-175	-199	-8	37	-90	-161	-166	-202	-198	-305	-343	-150	-50	-18	-258	-87	8	-125
D 7	-167	-122	-30	13	0	0	0	-101	-46	4	-112	-15	3	-10	-52	-24	-7	-35	-114	-41	4	0	7	-8	-35
D 8	-73	-37	-14	-1	-6	-7	0	8	20	16	15	0	-121	-136	-47	-27	-9	1	-2	-21	-22	3	0	-37	-20
D 9	-55	-19	-8	-15	-21	-8	6	13	12	-15	-3	-29	-28	-10	-8	-7	4	5	10	7	7	2	2	6	-6
D 10	-30	-91	-46	-8	0	-2	2	5	-1	3	11	0	-4	-17	-4	-13	2	-25	-67	-4	7	14	13	6	-10
D 11	4	0	6	0	-13	-52	-22	21	9	6	3	-24	-2	6	7	12	-35	-27	-16	2	5	4	10	10	-3
D 12	11	2	3	-140	-49	10	4	6	-28	-15	-11	-43	-31	-7	-40	7	-5	-3	2	-1	0	-1	3	1	-13
D 13	3	1	2	10	3	-5	-6	0	-13	-29	-3	12	8	-55	-15	-9	0	0	-28	-17	2	8	1	-6	-5
Q 14	-1	-11	-18	-3	1	-34	-29	-8	6	-11	-9	-2	3	2	0	-2	-4	4	5	1	-19	-21	0	0	-6
Q 15	-1	1	0	0	-21	-4	13	16	-28	-23	20	12	-14	-7	-1	-9	-72	-23	13	31	35	3	17	33	0
D 16	31	31	37	27	39	49	0	37	37	14	-6	-2	12	-18	-48	-55	-92	-57	-56	-6	5	60	15	-104	-2
D 17	-15	-44	-61	-6	7	7	8	14	7	14	21	3	-18	-127	-127	-44	6	14	7	5	4	0	0	1	-13
D 18	8	6	6	9	-1	4	12	3	-32	-4	19	-28	-45	2	1	-7	0	6	9	7	4	2	-1	0	0
D 19	26	6	22	-11	-43	-6	-31	-12	-3	19	1	14	3	5	-53	-52	-64	-55	-42	9	12	6	2	3	-10
D 20	7	-2	4	-48	-5	2	-3	0	-4	-10	16	27	15	14	14	0	-1	-1	2	2	-2	-22	-3	6	0
D 21	5	2	0	4	6	-1	-25	-10	-38	-51	-23	19	11	-50	-30	-18	-19	-17	14	22	-40	1	4	6	-9
D 22	0	2	5	4	-2	-8	-7	-4	-1	0	-1	-2	4	1	3	-1	-15	-8	-15	0	8	6	6	8	0
D 23	16	25	-13	9	-17	-29	1	24	-3	40	25	6	-3	-9	2	-7	-57	-22	-5	13	5	-9	-14	15	0
D 24	9	-24	-4	1	16	16	10	12	4	14	21	12	-22	-48	-32	-21	2	10	16	19	13	11	12	11	2
D 25	11	10	12	-13	-24	8	7	-26	12	4	49	-36	-7	25	8	-11	-18	3	3	2	0	8	14	12	2
D 26	-12	10	5	1	-3	-4	-38	-143	-57	-12	-102	-13	18	10	4	-9	-157	-128	-34	-21	-4	3	9	10	-27
D 27	17	-37	-8	2	2	11	19	-49	-36	16	17	21	16	-6	-12	-10	3	8	5	13	11	14	22	-21	0
Q 28	-23	-15	-17	-10	0	1	-4	-2	2	0	-3	5	-8	4	-7	-3	3	4	1	0	0	-1	0	4	-2
Q 29	5	4	2	0	-2	-7	-3	0	3	4	-3	13	2	5	-9	-1	-1	0	0	0	4	8	-2	-16	0
D 30	23	-1	0	-1	-4	0	-2	-3	1	5	5	16	29	11	-4	4	6	-36	-195	11	63	-21	-5	21	-3
D 31	7	29	-91	-51	17	-19	-110	-55	-8	2	-18	10	-55	-69	-33	-40	-39	-38	-31	-84	8	12	23	-45	-28
Mean	-16	-20	-16	-13	-10	-13	-18	-19	-14	-2	-1	-7	-28	-33	-32	-29	-40	-33	-27	-9	-2	-13	-14	-17	-18
5Q Mean	-4	-3	-5	-1	-4	-10	-6	0	-3	-6	0	5	-2	1	0	-4	-19	-4	1	6	5	-1	4	5	-1
5D Mean	-61	-66	-70	-45	-38	-60	-76	-68	-53	-11	1	-38	-114	-109	-86	-100	-120	-112	-55	-41	-30	-84	-87	-83	-67

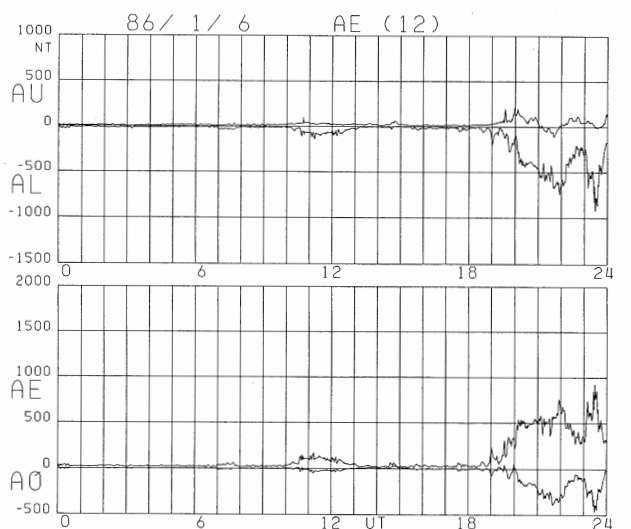
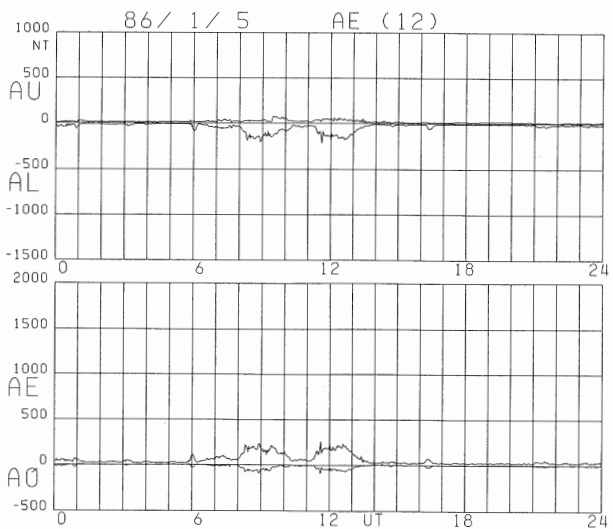
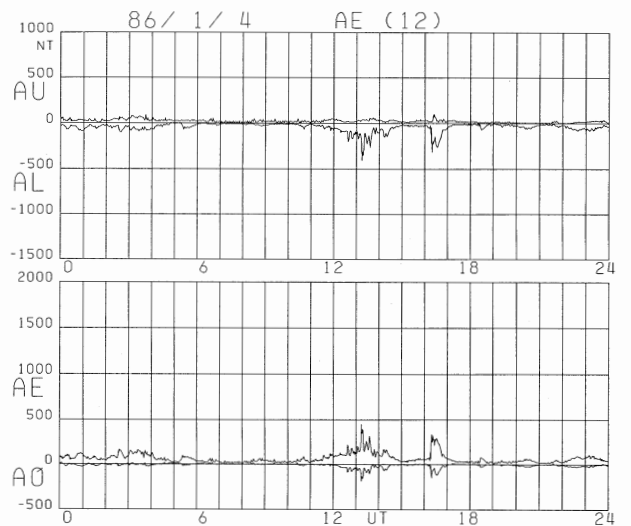
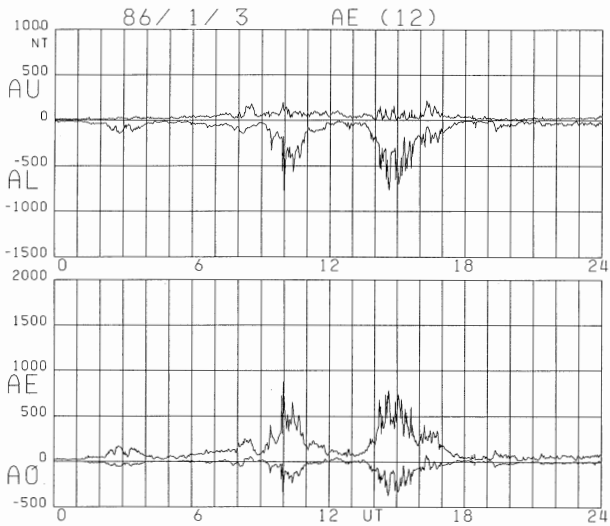
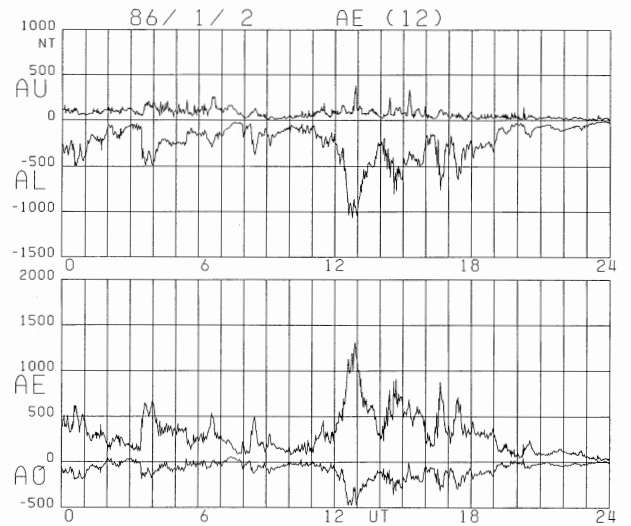
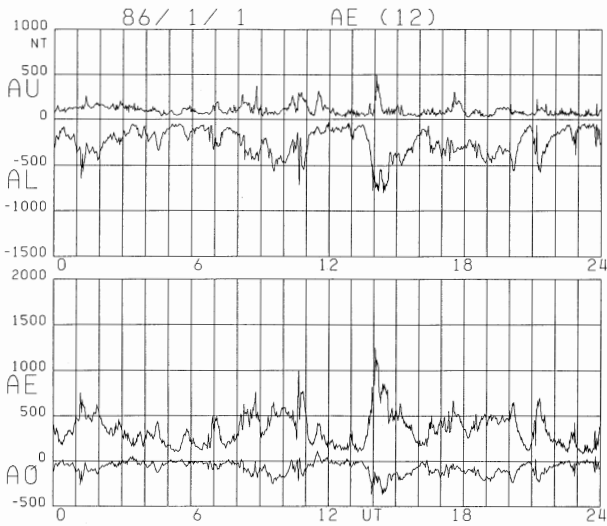
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		June																								
		AO Index ( Hourly mean values, unit nT )																								
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	2	-31	7	-35	-59	-46	-23	-17	-21	-39	0	1	14	-14	-47	-9	-28	-41	-31	-15	10	0	0	-14	-28	-19
	3	-22	-82	-90	1	22	-87	-58	-31	22	-3	-2	-11	-7	-10	-41	-46	-23	4	12	32	-32	-28	2	5	
	4	12	18	-15	-63	-56	-12	0	15	-48	7	5	-34	-27	-51	-51	-10	-5	-6	-34	4	-36	0	4	6	
Q	5	1	-14	2	4	0	-2	-2	22	-5	-20	-6	6	7	6	5	-4	-12	-19	-29	1	4	2	4	-11	-2
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D	7	4	5	0	0	35	5	28	-18	-77	29	11	-18	0	12	-75	-136	-65	-10	8	17	32	-38	-40	18	-11
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	9	-59	-41	-22	-29	-10	1	2	1	2	3	-3	-8	-6	2	-43	-20	-29	-60	-78	-63	0	0	2	7	-18
D	10	12	13	17	21	-64	-43	-29	-186	-90	-29	20	13	-30	-42	-6	12	-5	-17	-7	-2	14	15	10	-13	-17
	11	-66	-21	29	15	-25	0	10	11	-20	-55	-40	8	-4	10	0	-30	-7	0	5	5	9	5	2	-1	-6
	12	-2	3	-24	-25	-20	-69	-25	21	5	0	14	5	-35	0	2	7	2	-42	-1	7	30	-33	-11	-14	-8
	13	10	2	-8	-58	-40	7	33	-103	-1	9	-9	-9	1	3	-3	-29	-34	-40	1	-29	11	18	14	6	-8
	14	-16	5	-10	0	-10	-41	-5	8	16	-17	-11	-14	-50	-32	-10	-2	7	12	12	34	10	-20	7	20	-4
Q	15	8	0	-7	-2	1	0	-16	-5	9	6	-4	-5	-22	4	14	-92	-107	-19	14	11	5	4	0	0	-8
	16	-2	0	2	-4	0	2	15	18	0	-55	-26	-3	5	27	33	-23	-25	-33	17	28	0	21	15	-1	0
	17	8	8	2	12	-14	4	2	-15	12	12	0	-2	-92	-24	-43	-101	-25	-19	-10	-26	1	8	-2	17	-12
	18	12	2	-16	-48	-4	-8	18	0	6	9	12	-48	-18	-2	14	0	-2	-41	2	5	3	-2	2	4	-4
	19	1	5	0	-7	-5	-5	-9	-7	-7	-9	-9	-6	3	0	0	0	0	1	3	7	-22	-25	-16	9	-4
	20	-24	5	7	4	9	5	-24	-30	6	6	8	21	29	20	20	-33	-28	10	13	-9	2	15	13	1	2
	21	-34	-24	15	-1	-37	14	27	-13	-30	12	-31	-68	3	6	3	-4	-1	0	-13	-31	-24	1	0	0	-9
	22	-26	-78	-19	-45	-30	4	1	5	4	-1	-12	-23	0	12	-4	-46	-53	-30	7	15	2	2	8	2	-12
Q	23	11	-7	-15	13	18	21	45	28	13	0	-13	-1	9	8	7	5	2	0	-6	-60	-22	-3	-4	-1	1
	24	-1	-3	-2	7	-5	-34	25	35	39	15	26	22	18	8	0	-4	-21	-22	-3	11	7	7	4	0	5
Q	25	8	7	0	0	0	-2	14	0	-4	-3	-2	-1	12	-6	-15	-23	-30	-5	9	-10	9	3	0	2	-1
	26	2	8	0	-4	-7	24	16	20	2	15	31	12	10	8	-5	-23	0	5	11	-3	-11	-15	-24	-1	3
D	27	6	8	22	-99	-51	5	26	18	10	35	-39	-5	16	-14	-33	-5	-14	-72	-224	-115	-107	-76	-63	-140	-38
D	28	-118	-23	-91	-80	-192	-64	-33	14	23	11	1	-4	-1	-27	-43	-37	-20	-12	-7	-7	-27	-17	-20	-53	-34
	29	-11	-5	-2	-14	-3	-9	-3	2	-27	-50	15	-7	-39	-100	-113	2	-41	-118	-46	0	43	14	-66	-92	-28
	30	-53	-6	-101	-69	-3	4	-7	6	5	-22	-4	-6	1	-28	-19	-45	-90	-30	-4	-8	-5	-15	1	-46	-22
	Mean	-12	-10	-20	-19	-19	-11	1	-9	-8	-6	-1	-6	-7	-9	-19	-27	-25	-25	-16	-5	-2	-4	-8	-13	-12
5Q	Mean	6	-1	-4	2	2	8	11	13	3	0	1	2	3	4	1	-27	-29	-7	0	-12	-3	-1	-4	-2	-1
5D	Mean	-21	-21	-61	-41	-59	-15	6	-28	-25	0	-5	-8	-8	-15	-38	-36	-19	-37	-63	-20	-9	-16	-27	-48	-25

FIGURE 4 (on even pages)

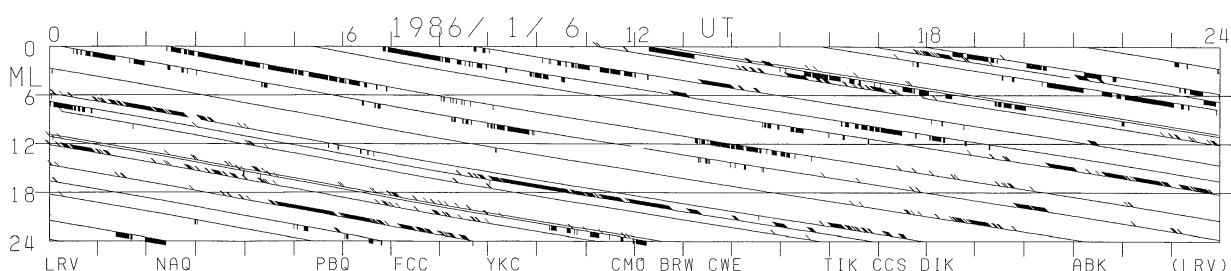
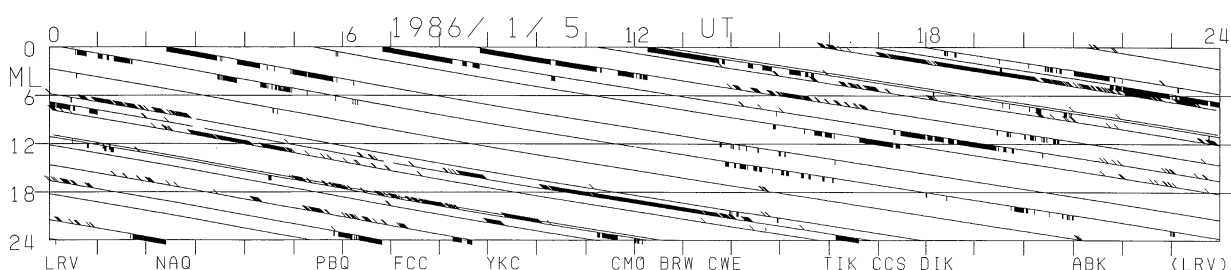
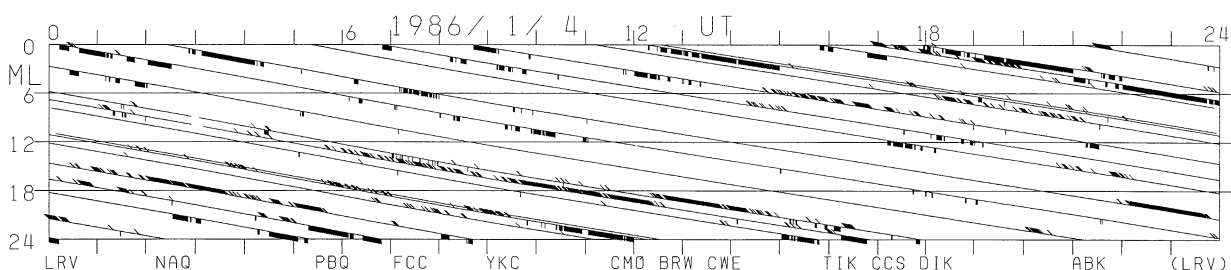
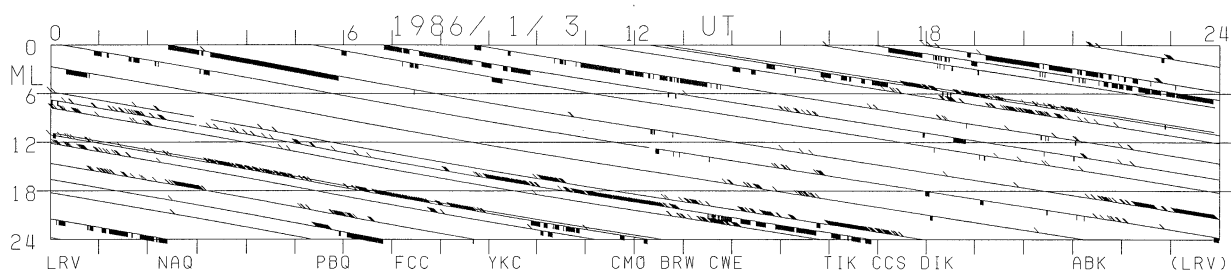
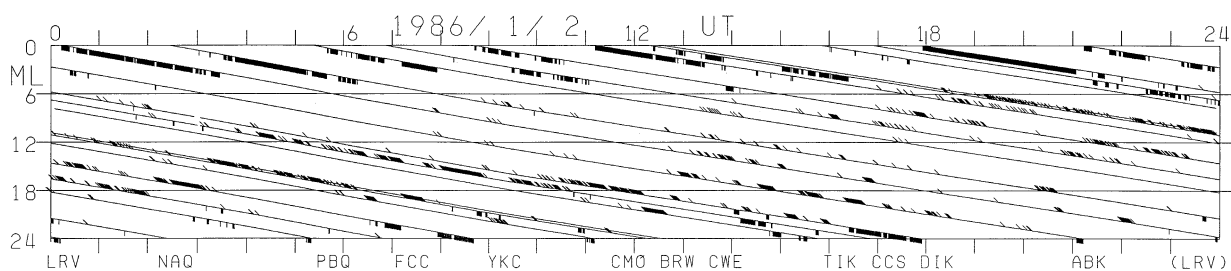
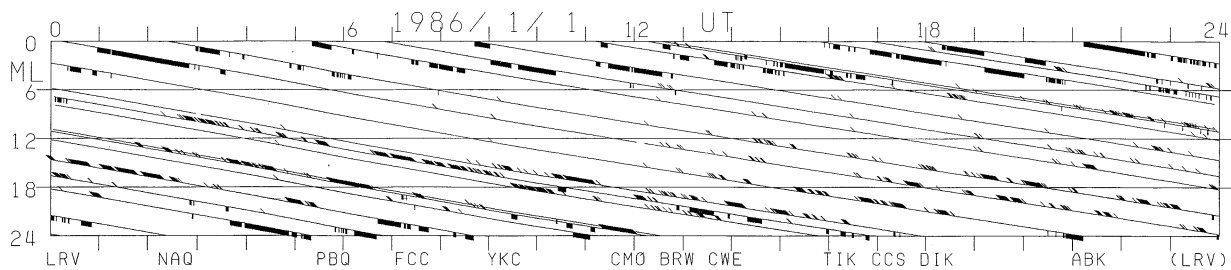
Daily graphs of 1.0 min AE indices (AU, AL, AE and AO) for January-June 1986. Graphs on disturbed days (Jan. 27, Feb. 7, Feb. 8 and Feb. 9) are reproduced on pages 94 and 96.

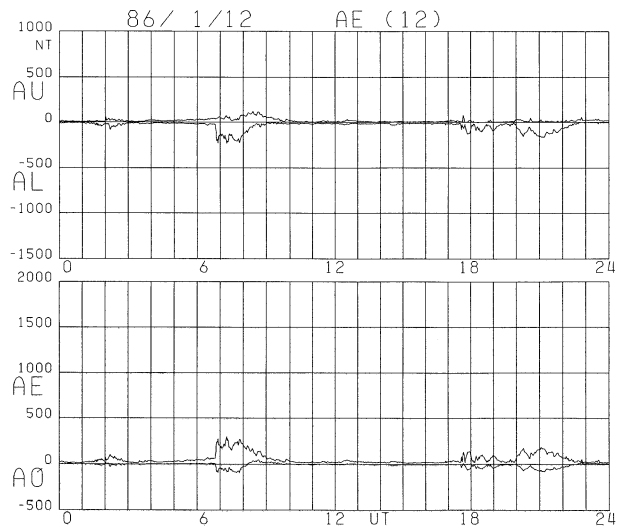
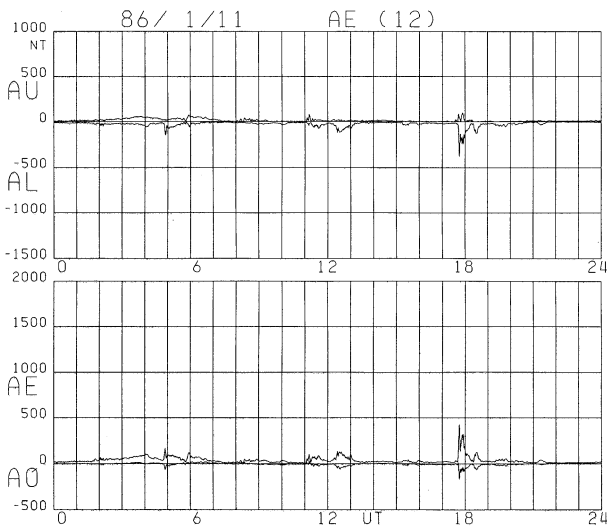
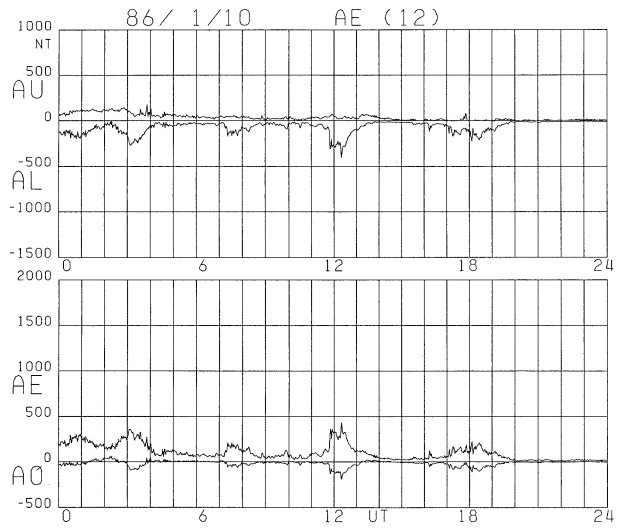
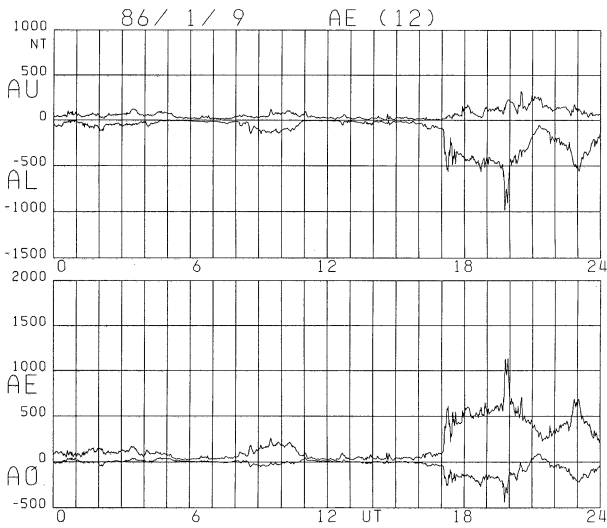
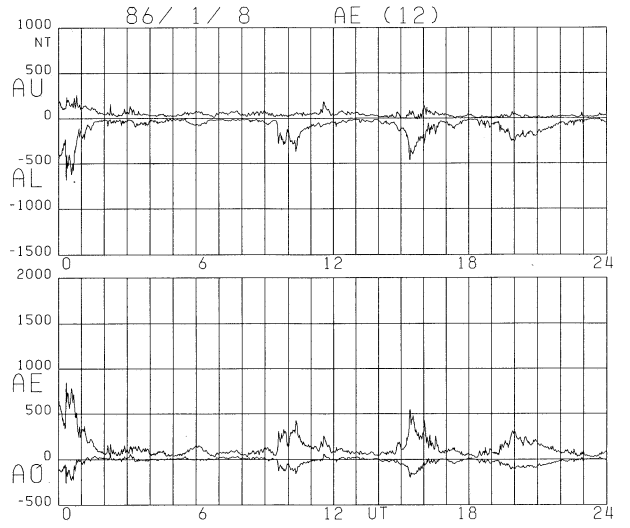
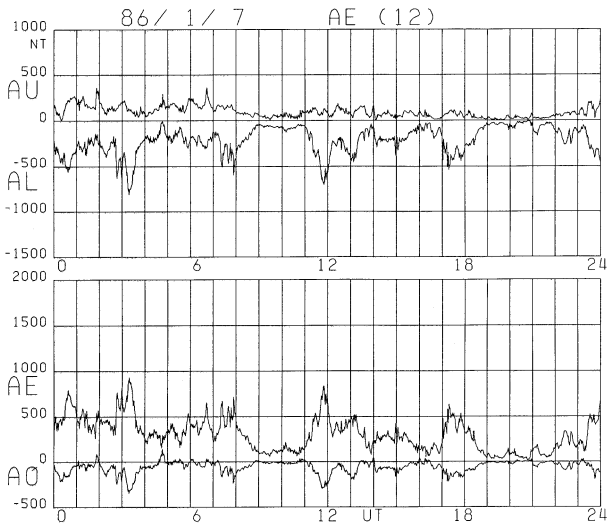
FIGURE 5 (on odd pages)

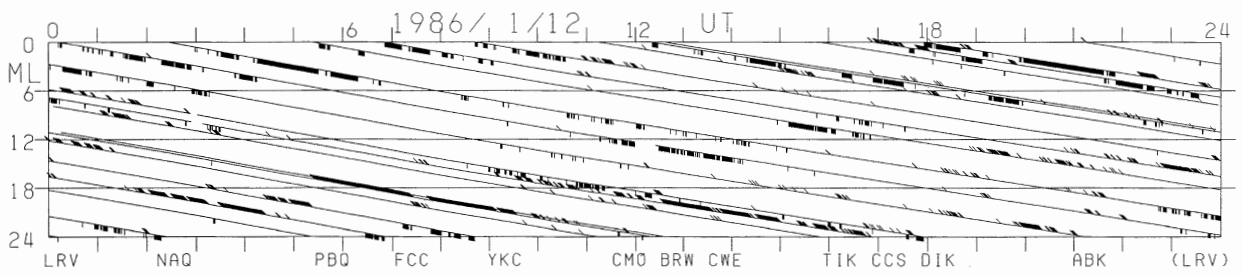
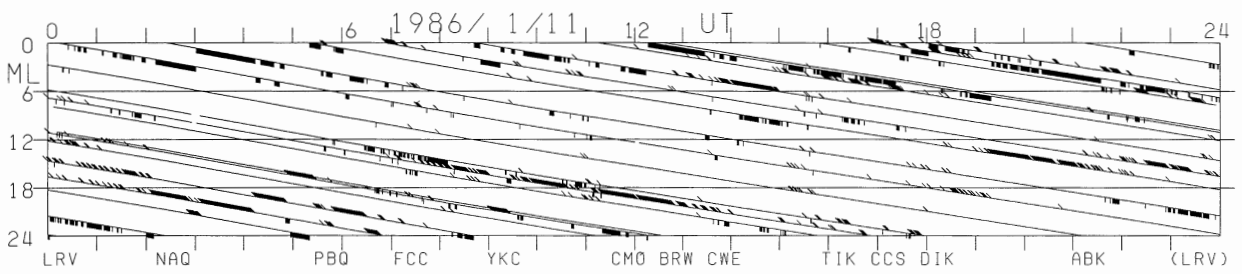
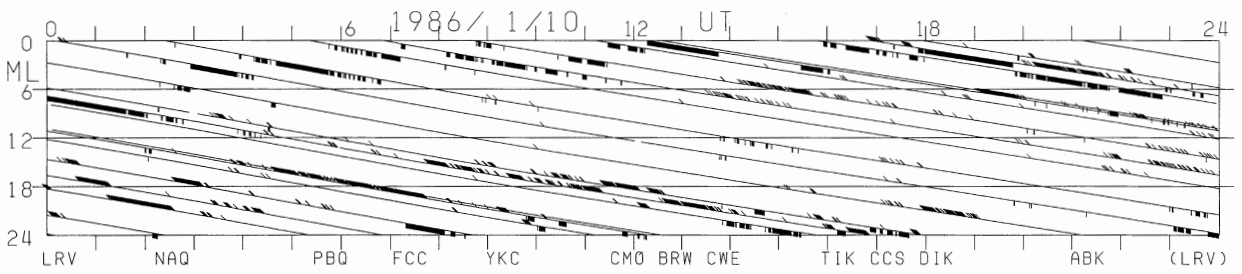
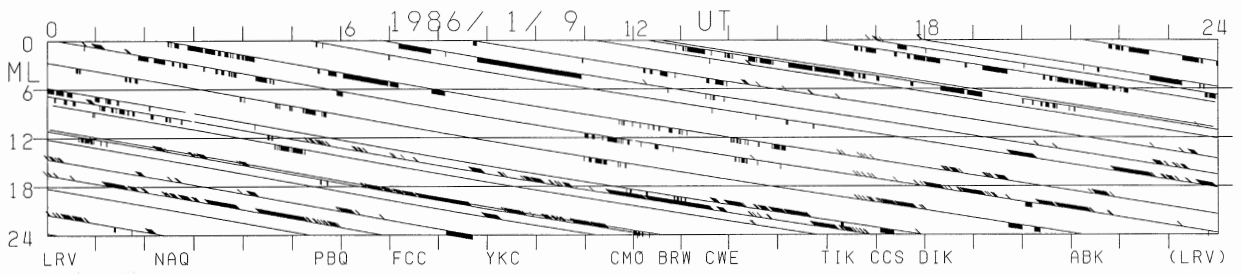
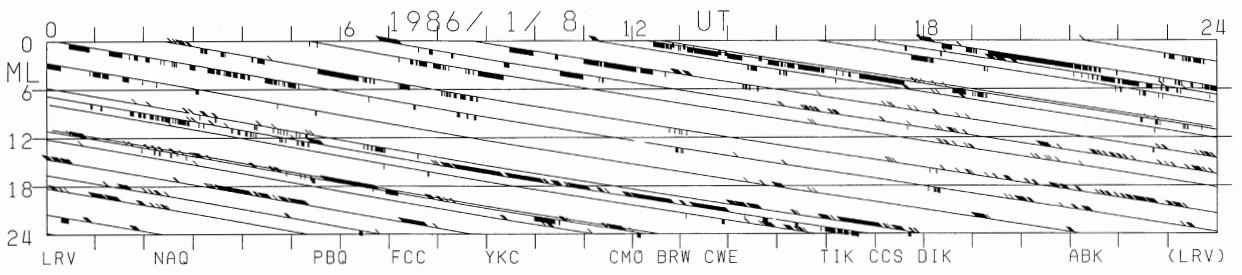
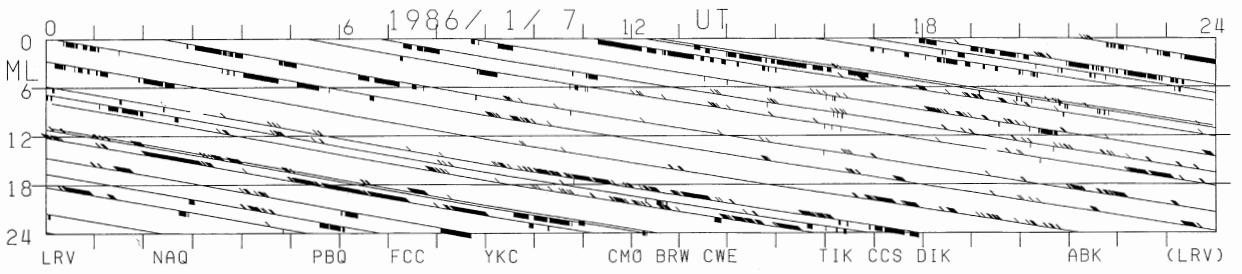
Plots of the contributing station to the AU (upper plumes) and AL (lower plumes) indices, showing which station contributes to these indices at each UT minute.

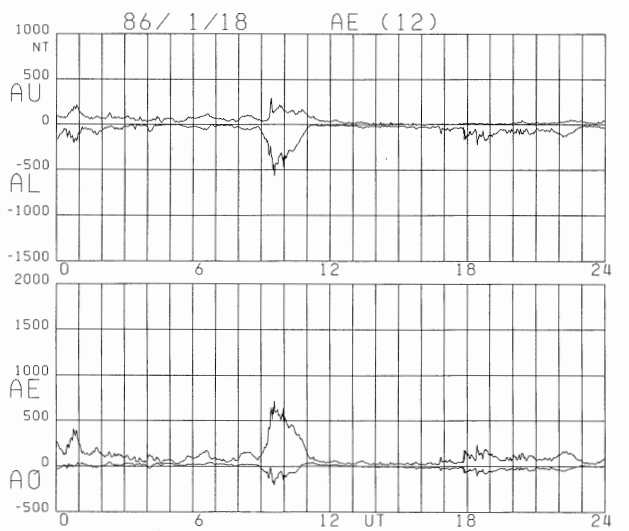
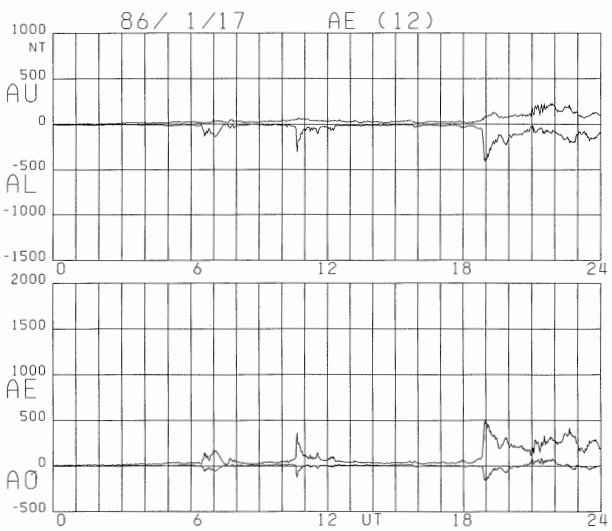
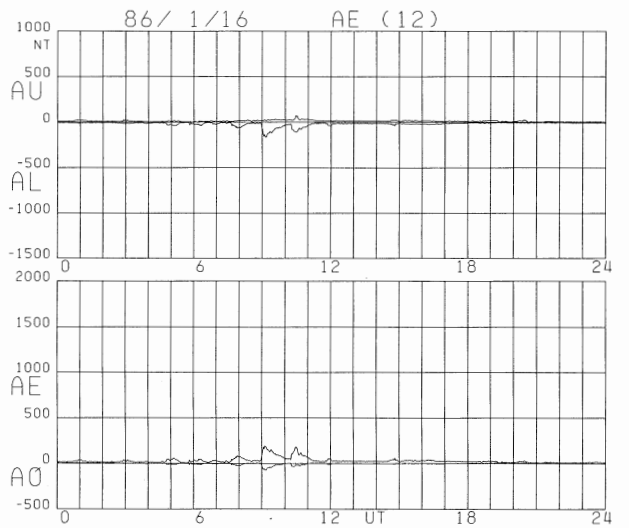
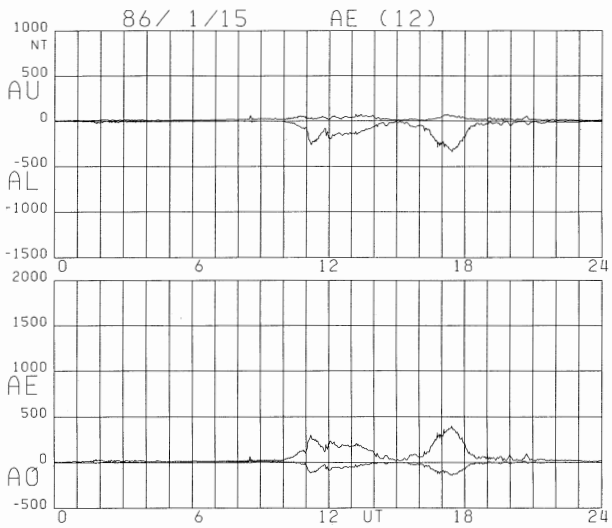
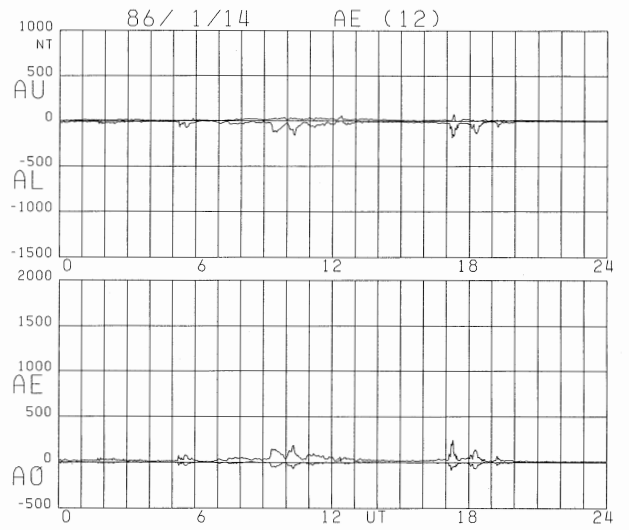
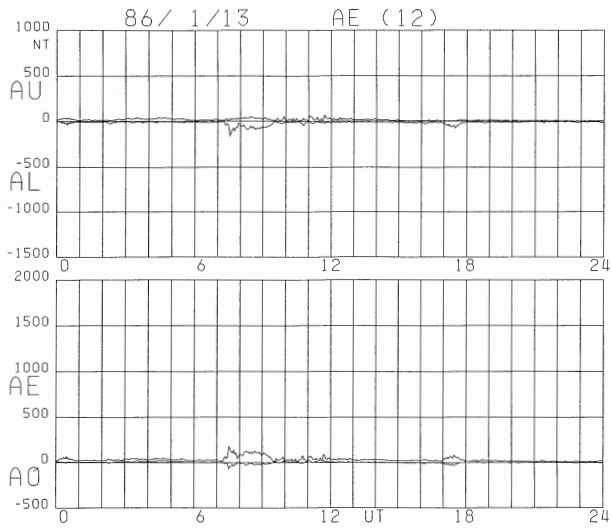


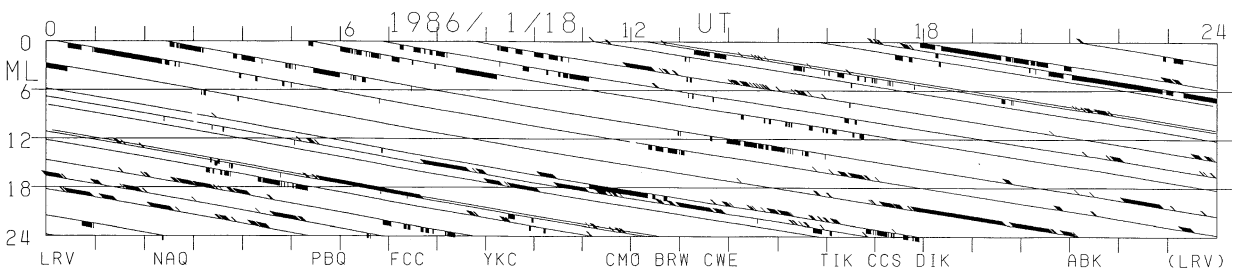
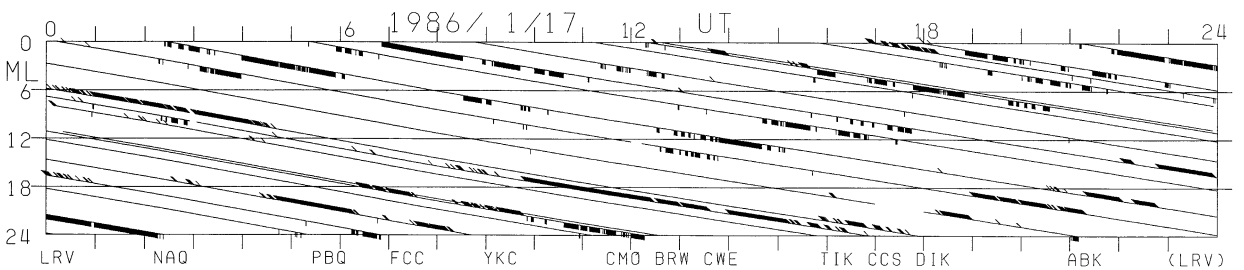
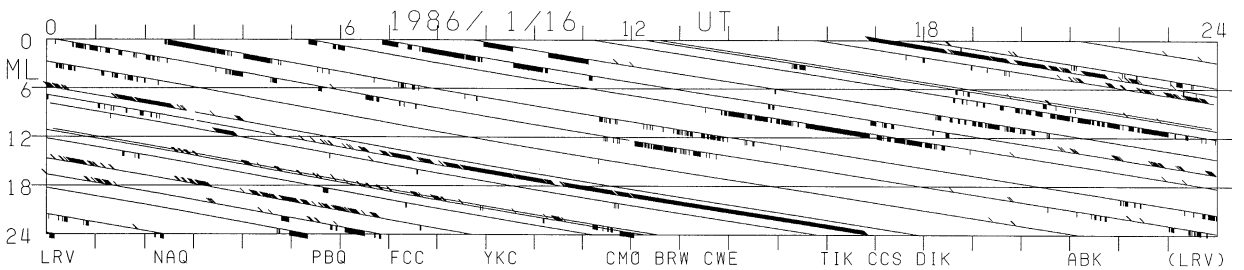
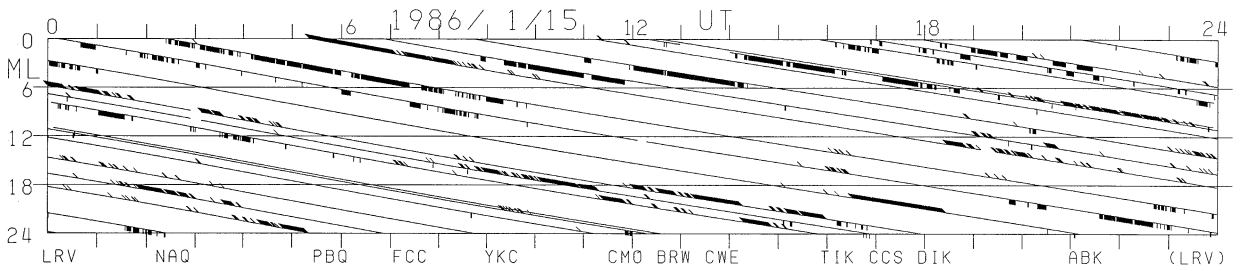
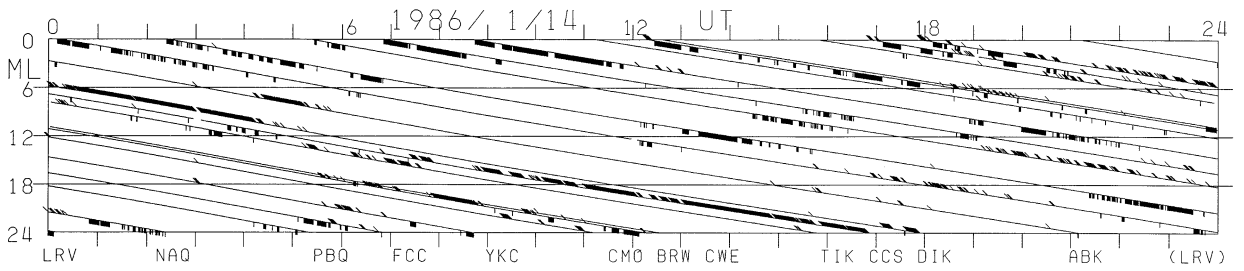
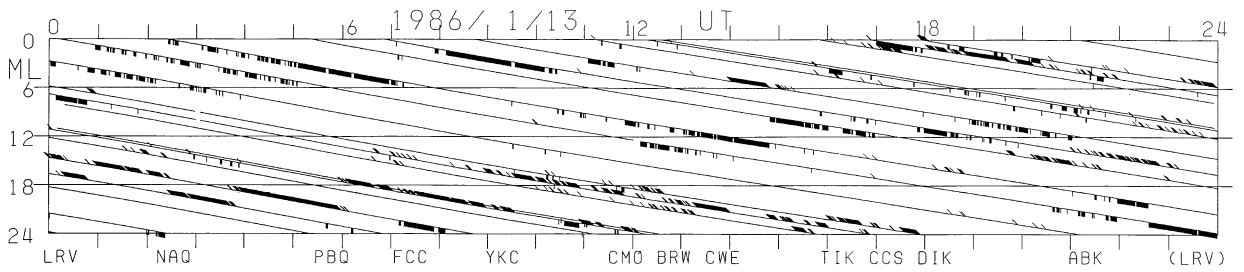


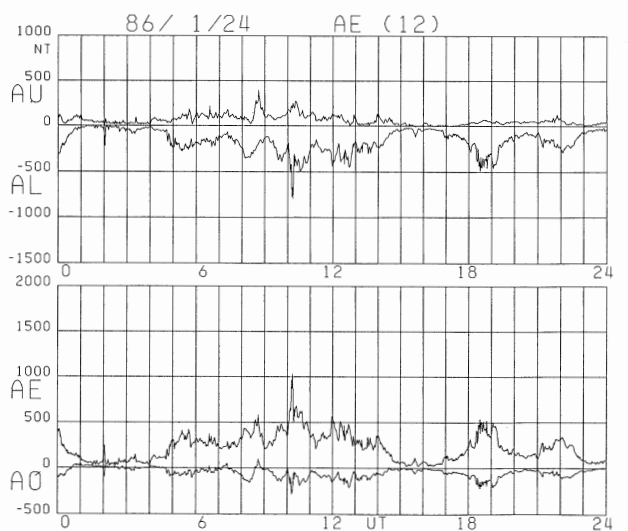
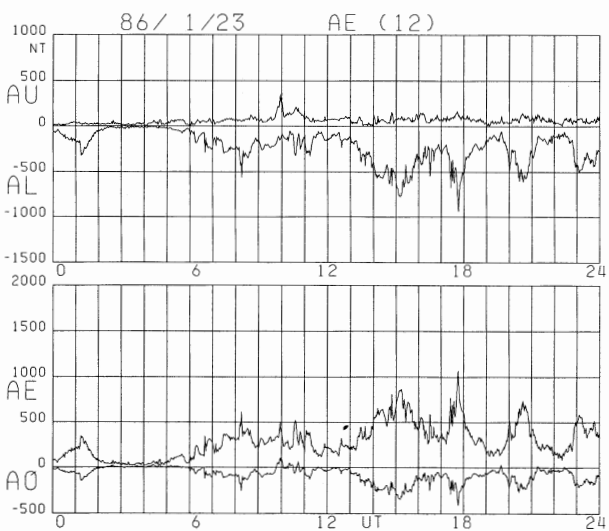
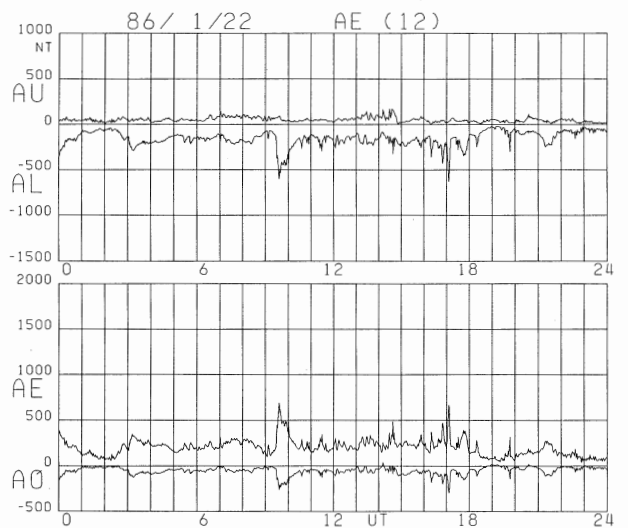
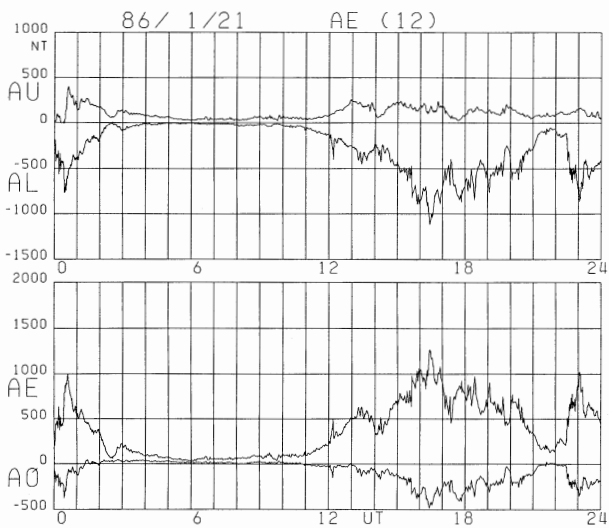
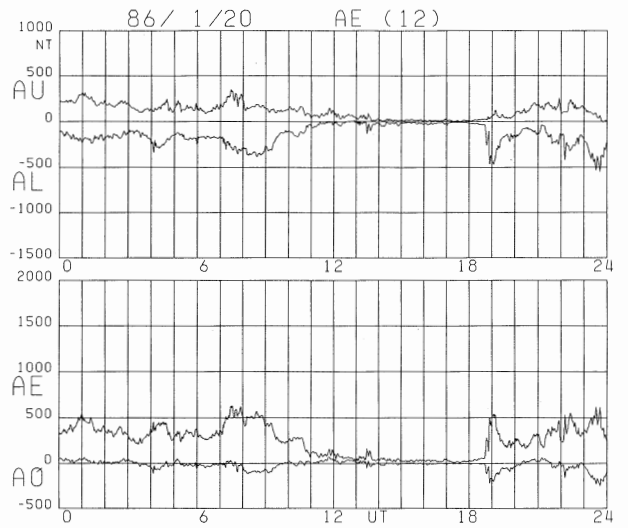
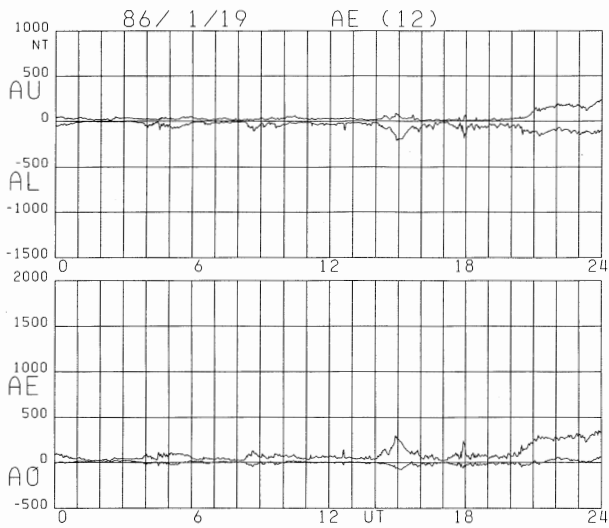


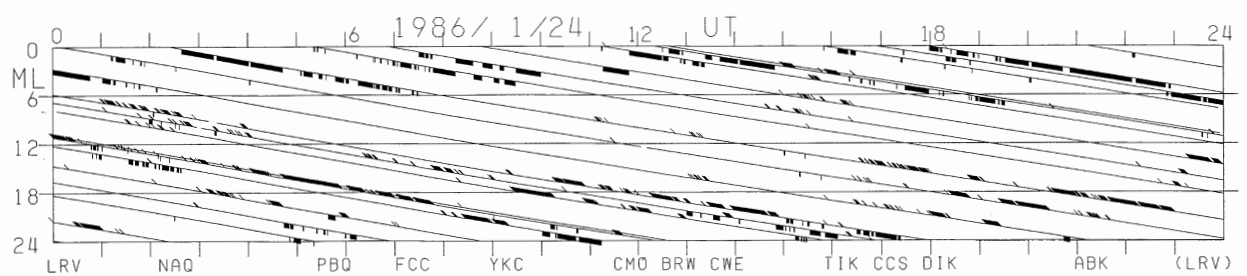
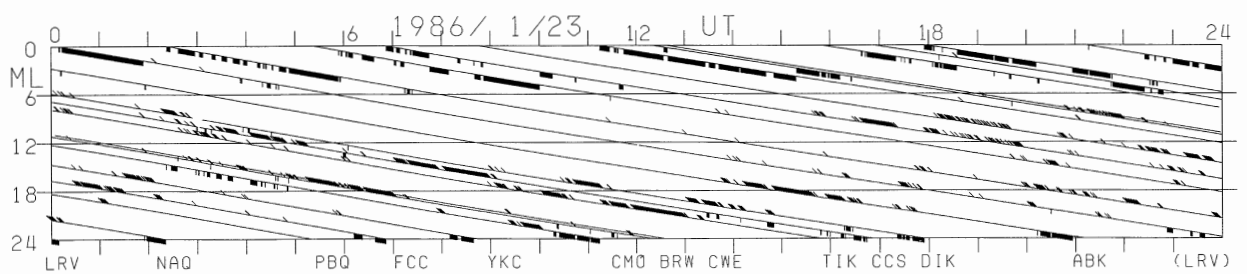
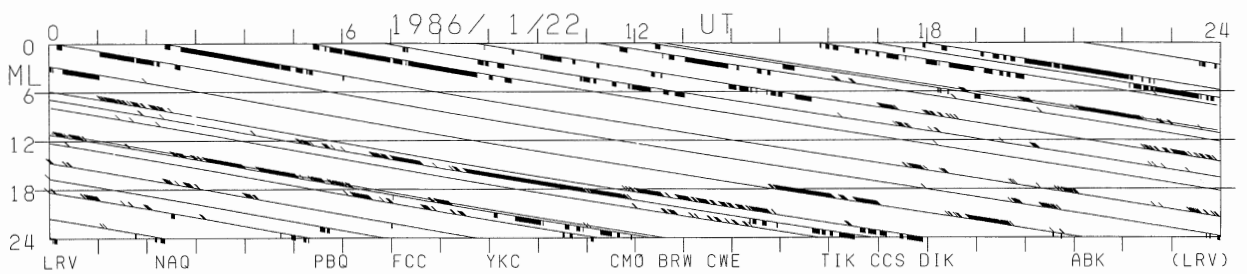
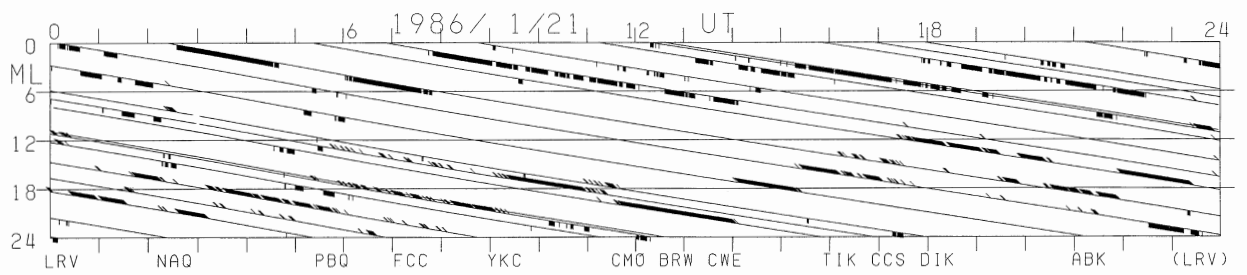
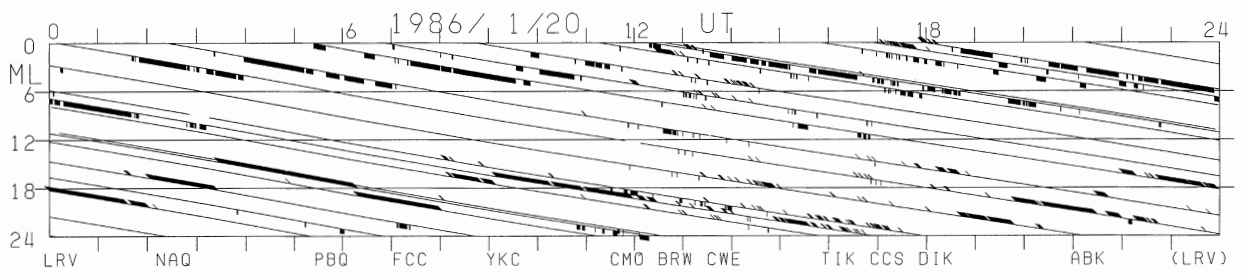
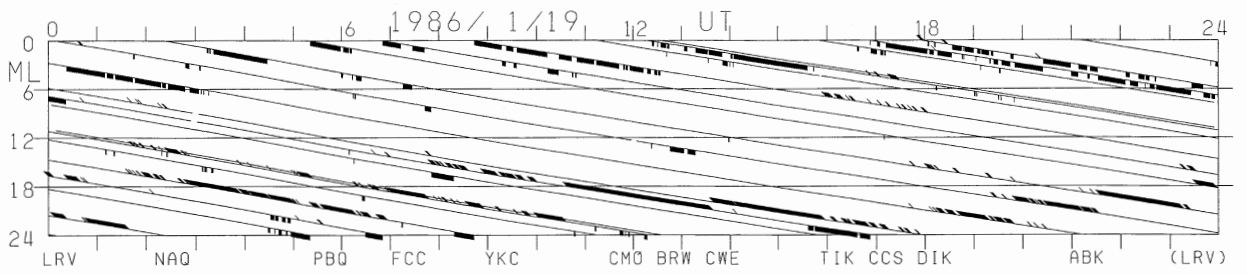


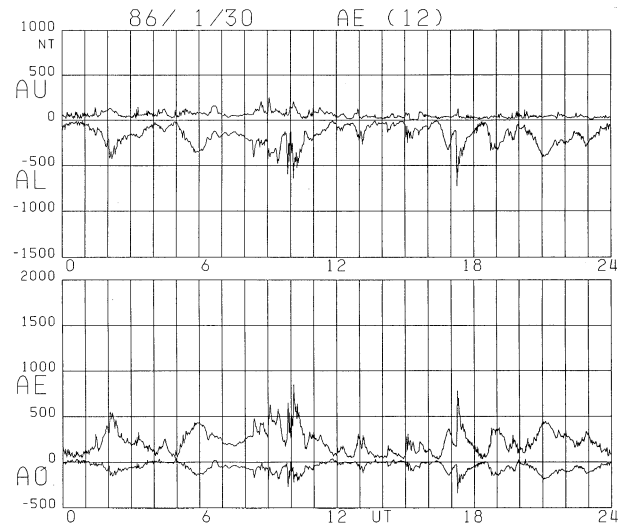
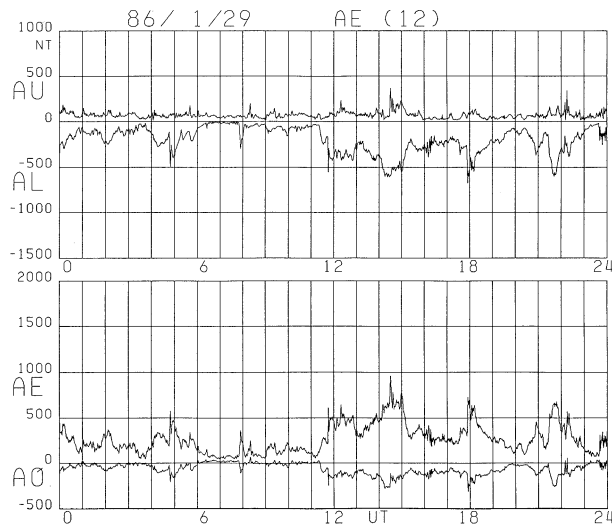
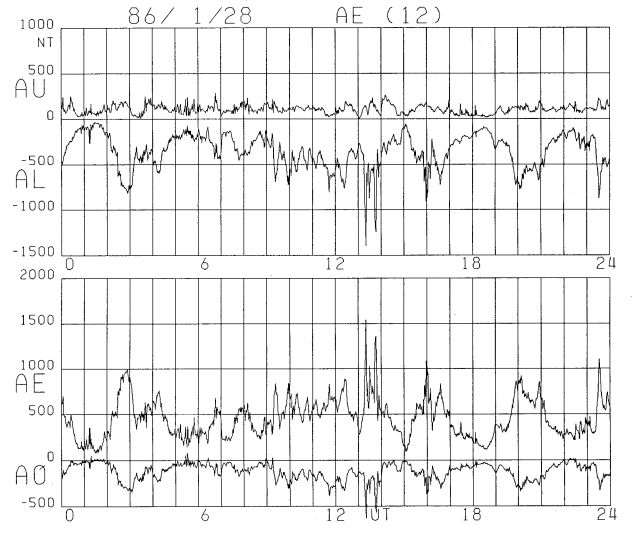
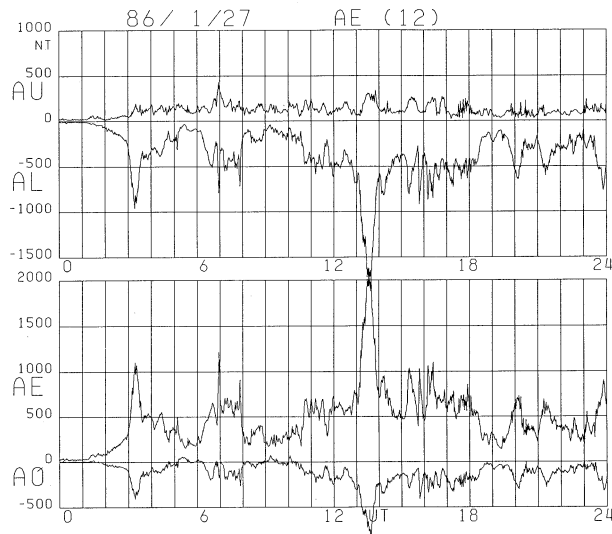
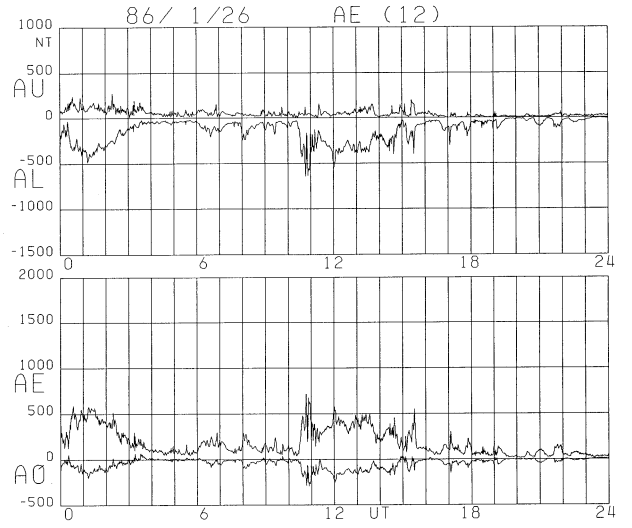
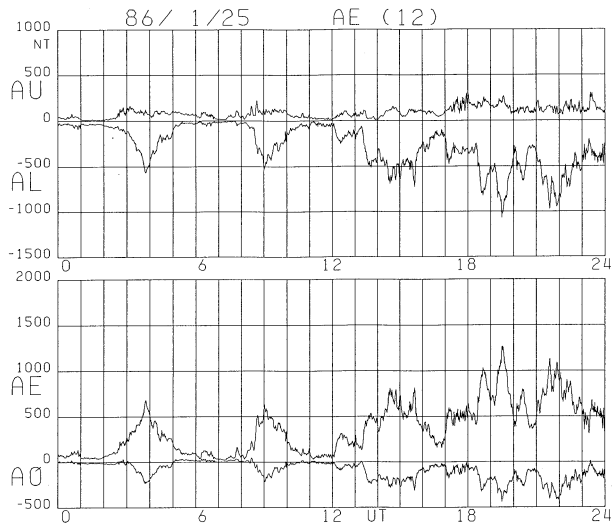




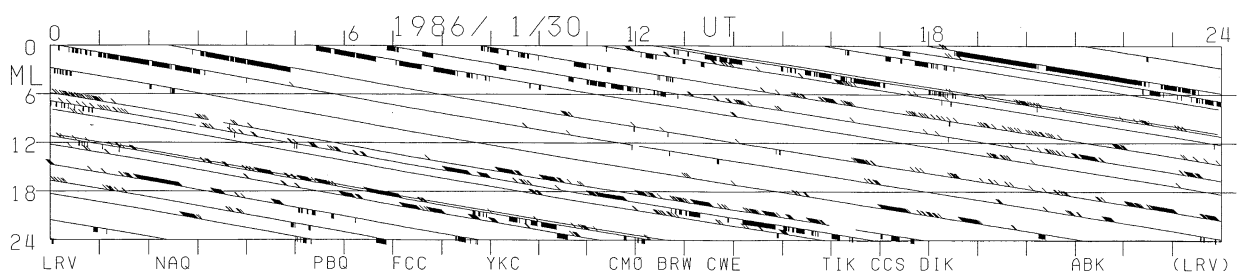
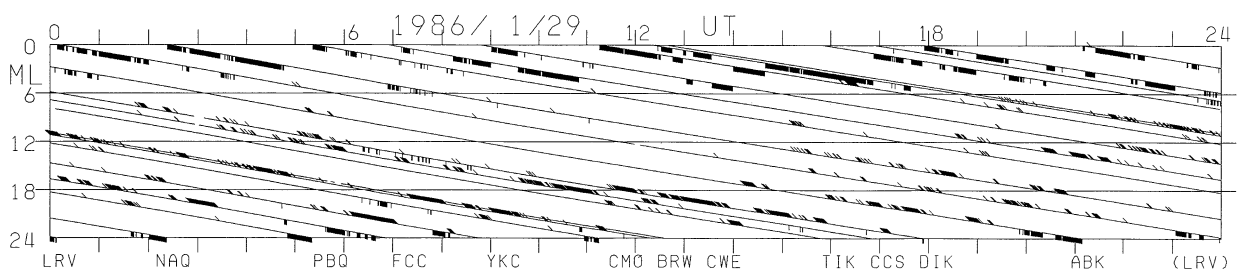
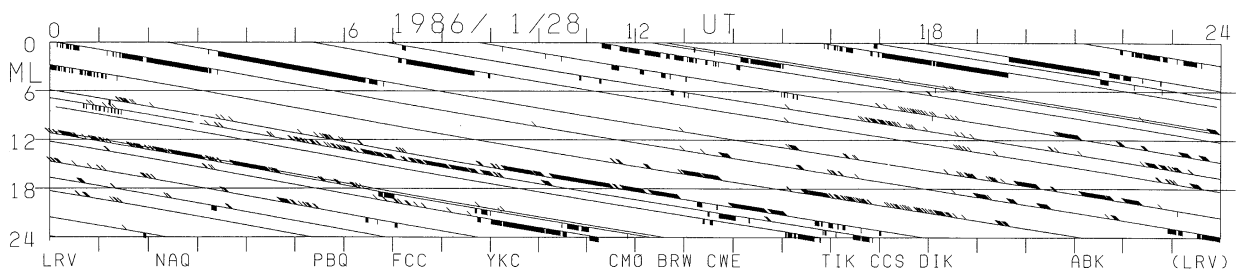
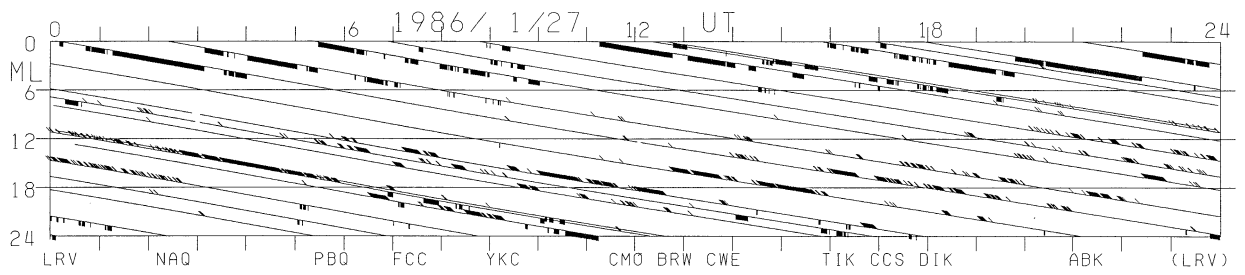
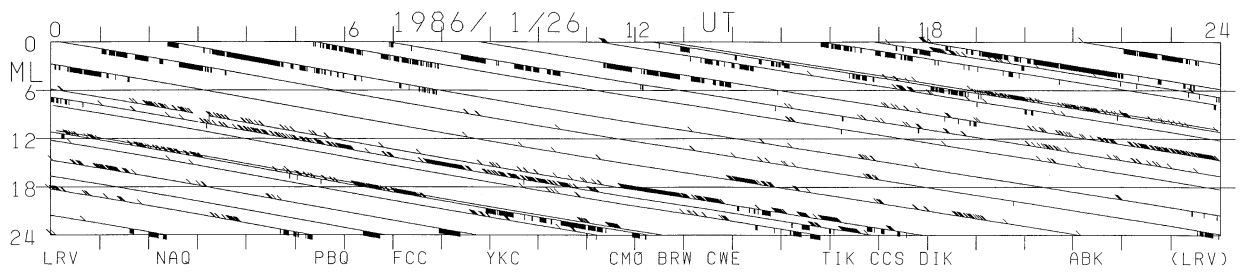
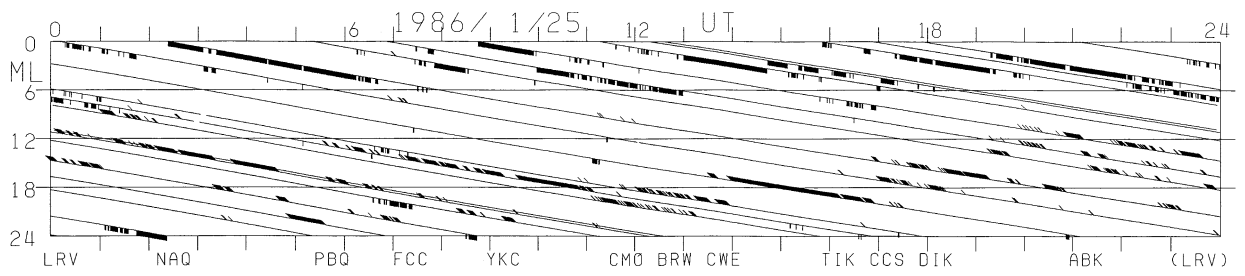


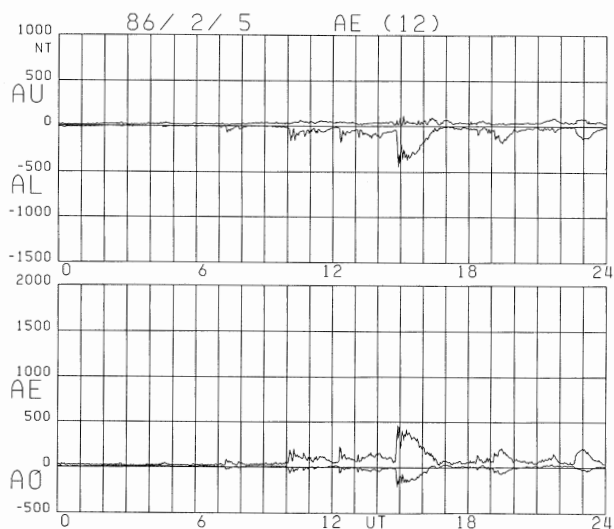
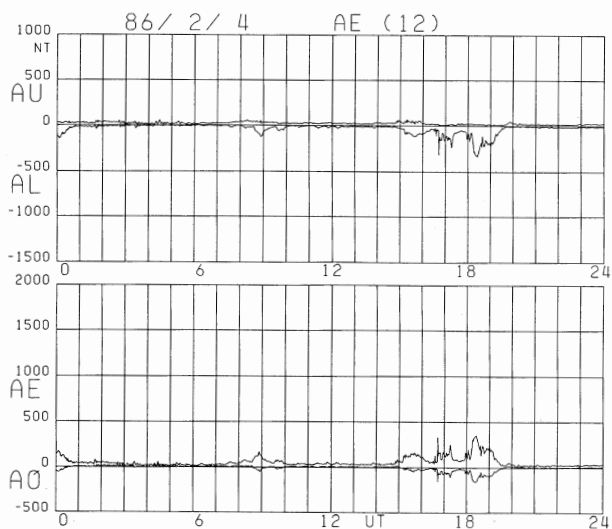
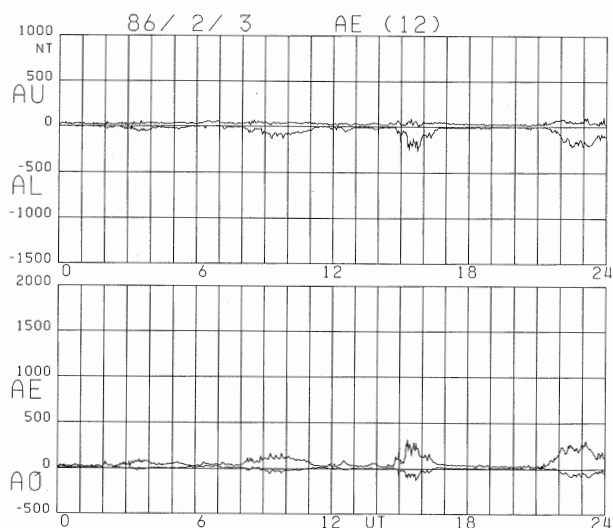
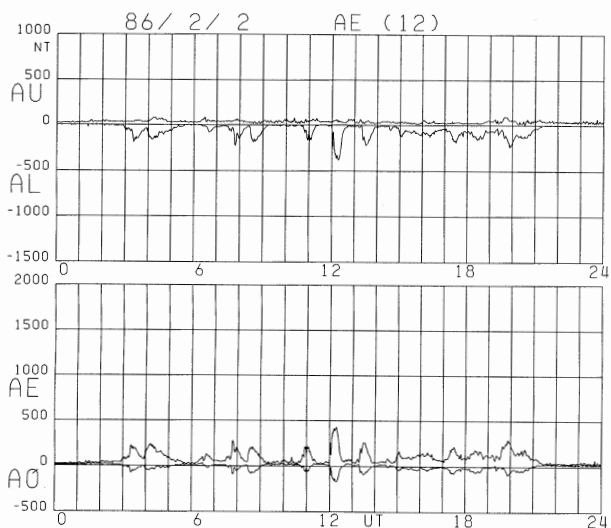
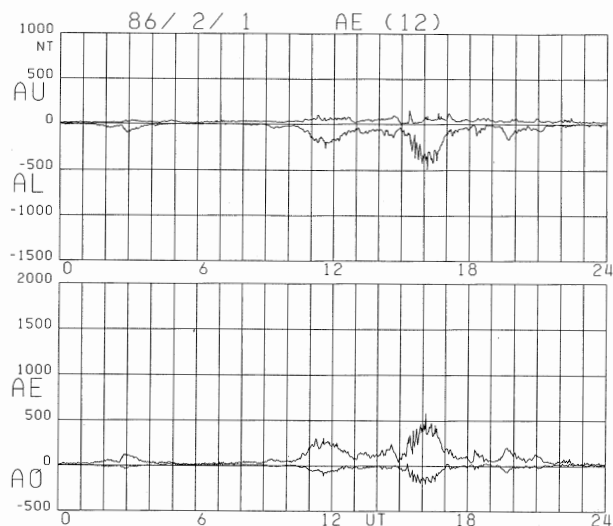
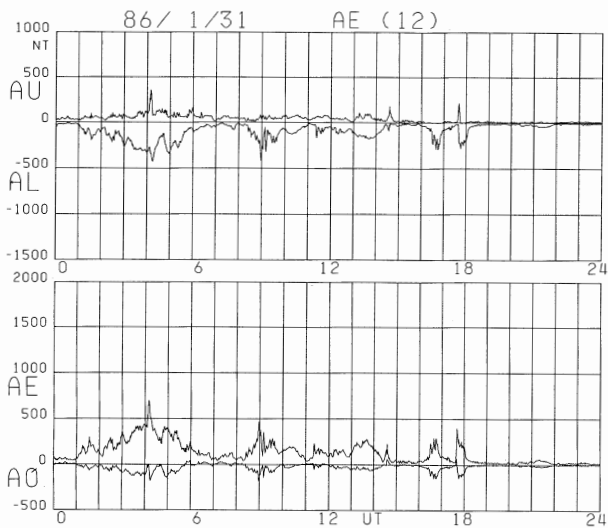


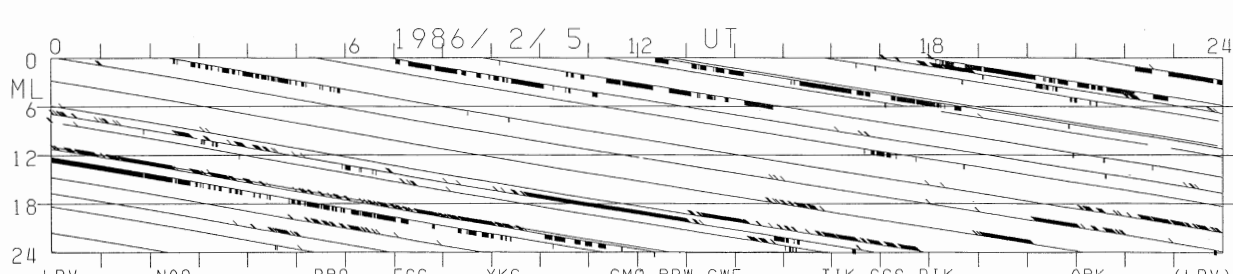
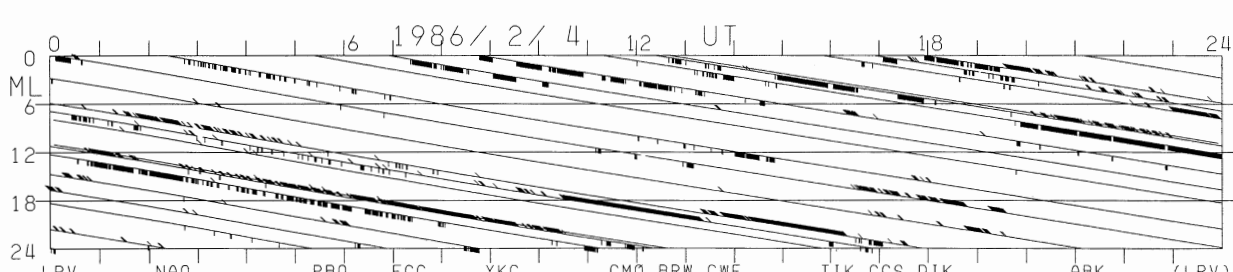
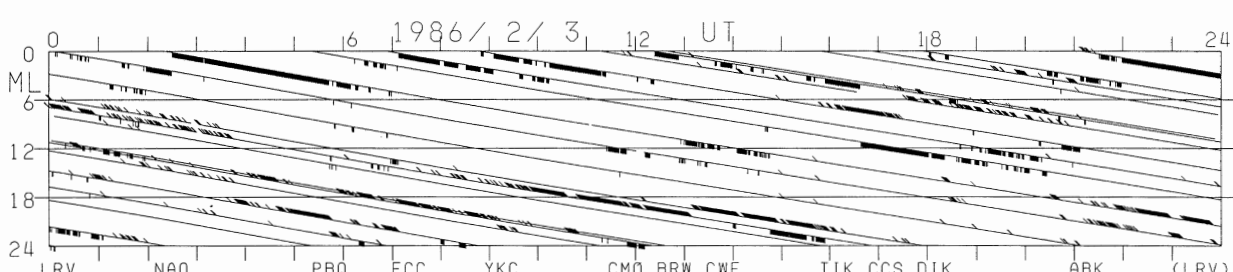
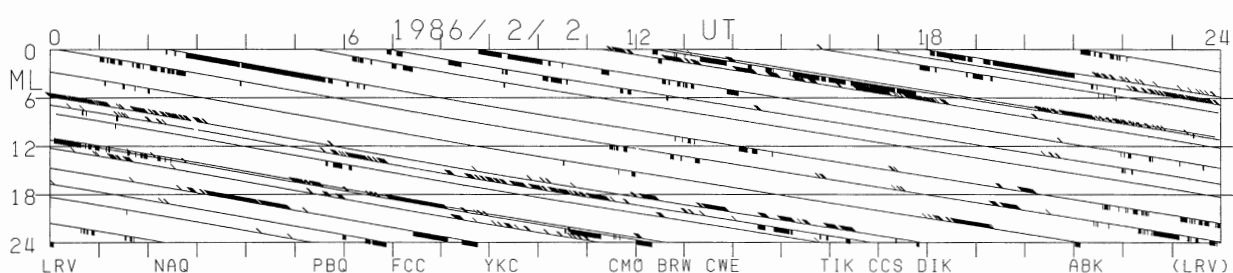
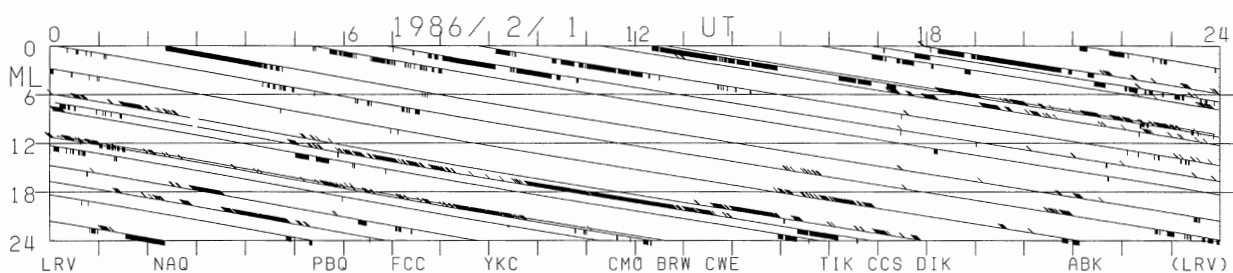
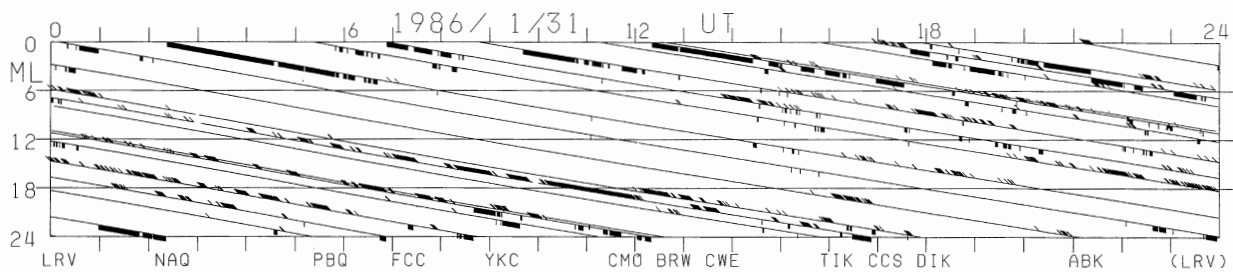


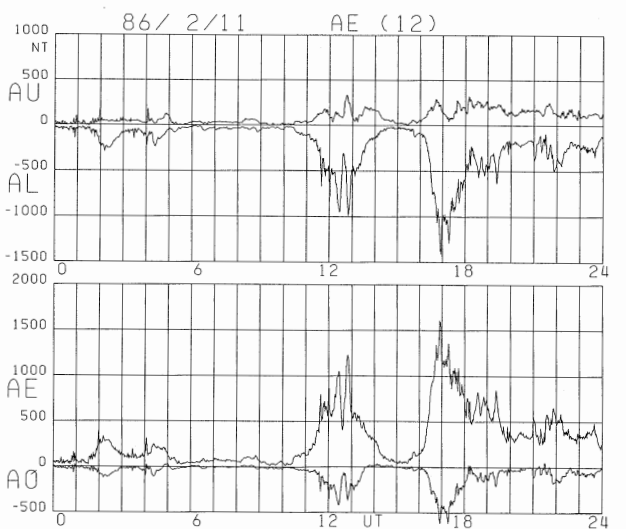
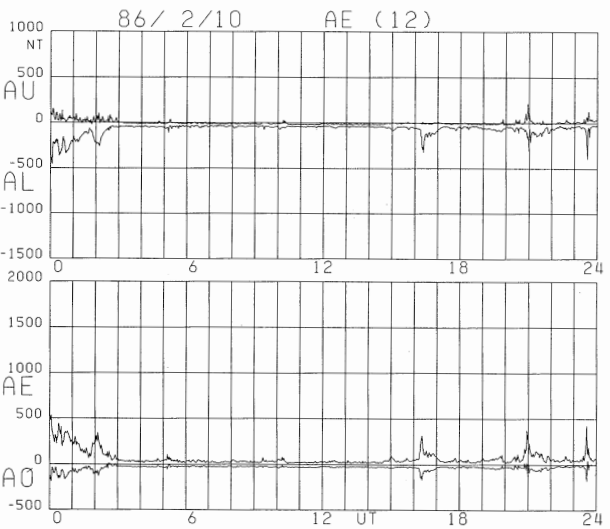
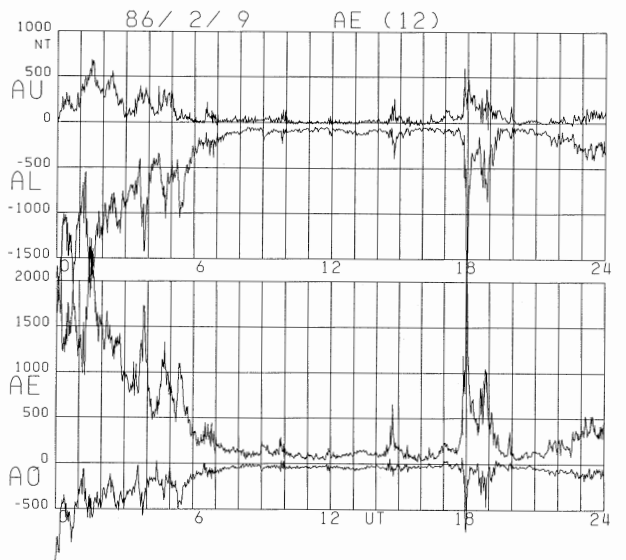
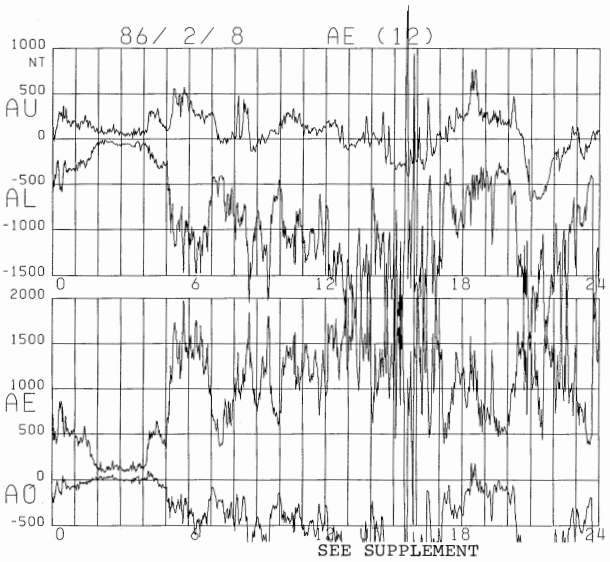
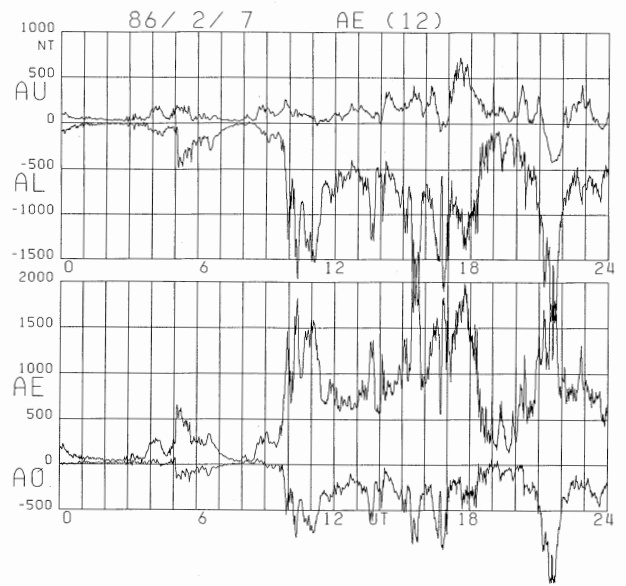
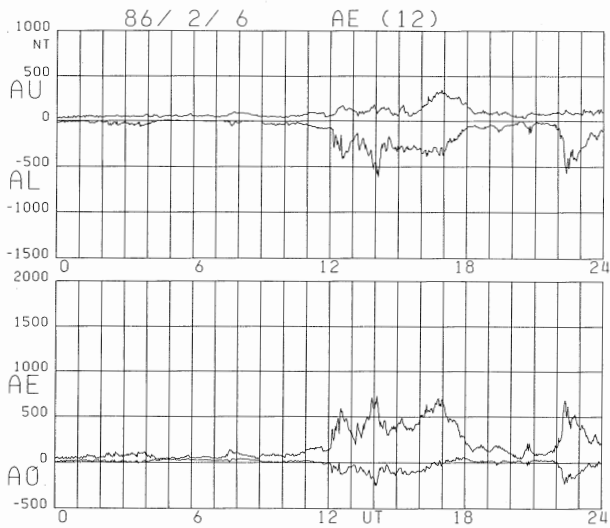


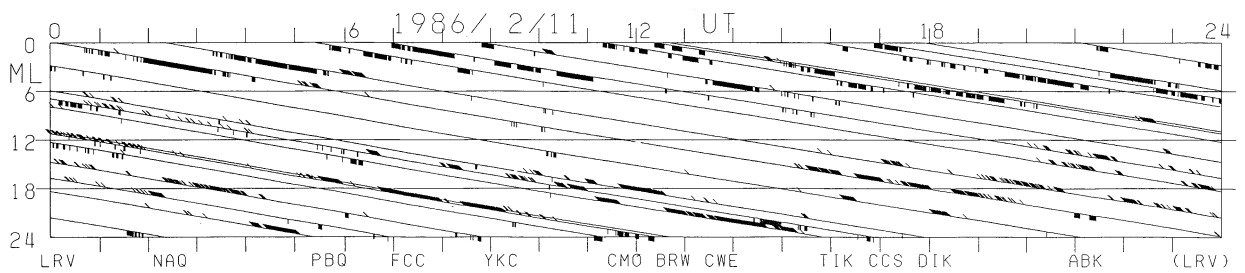
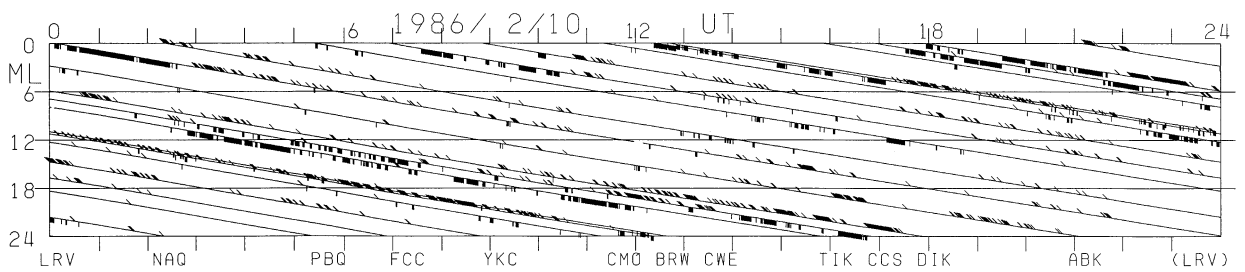
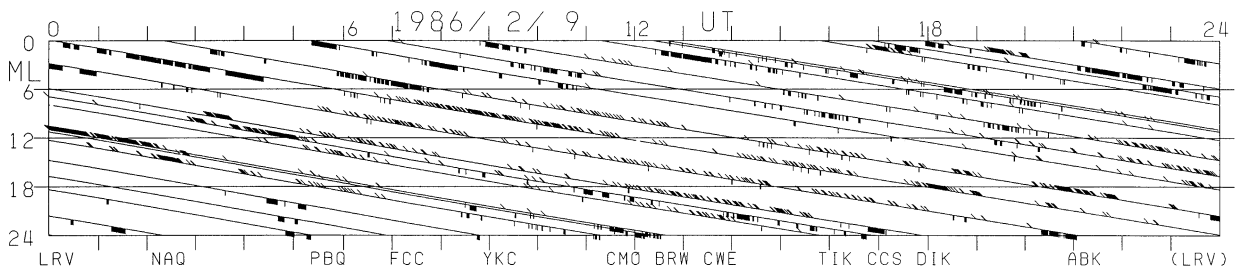
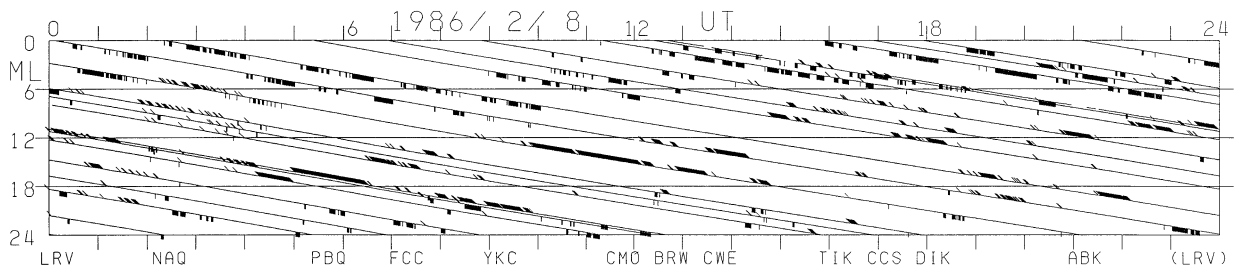
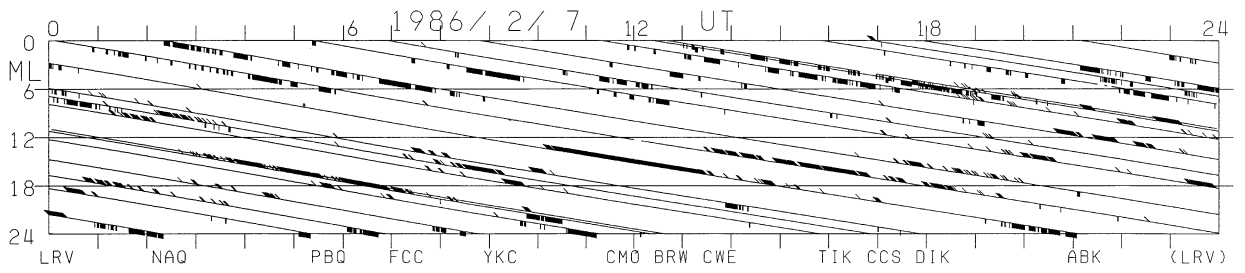
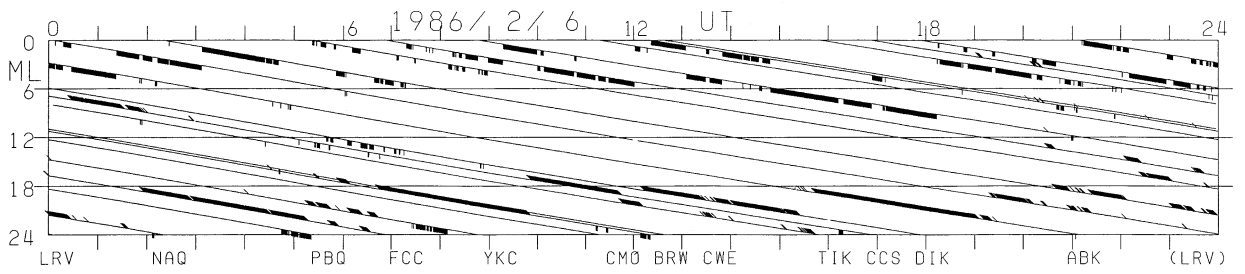


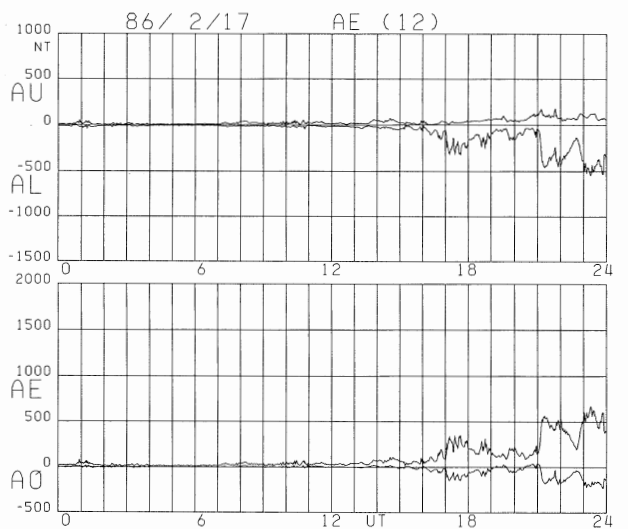
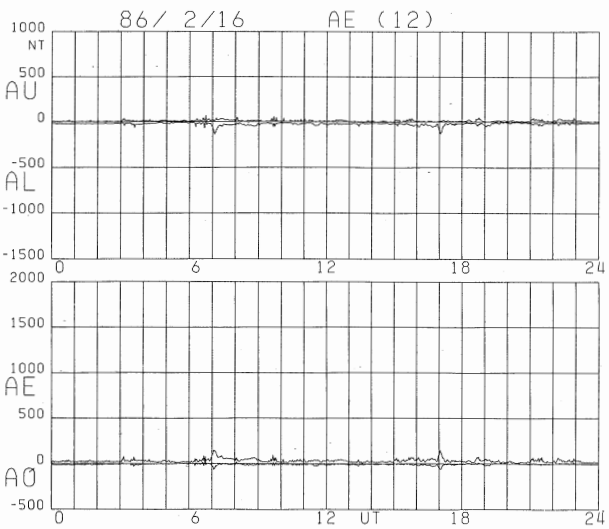
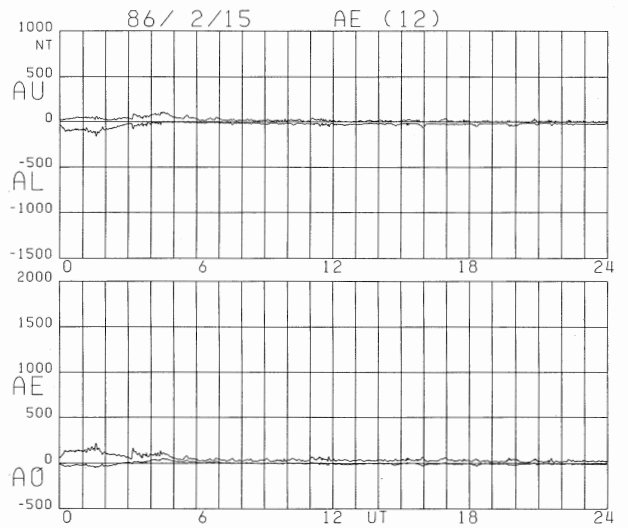
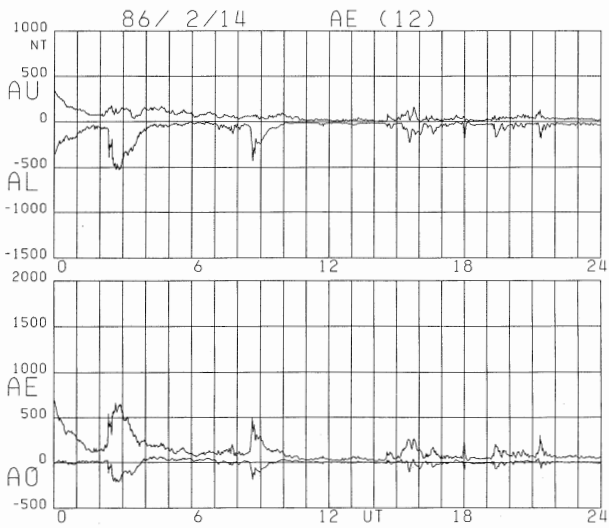
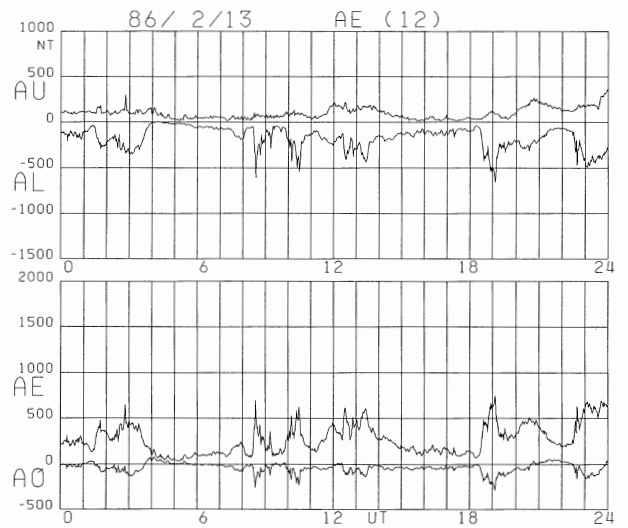
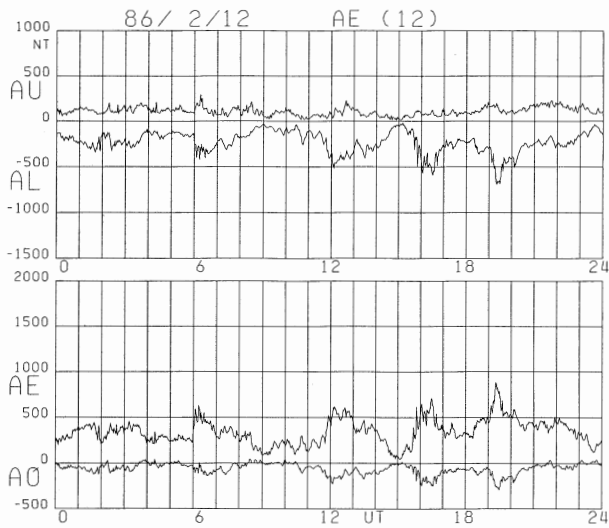


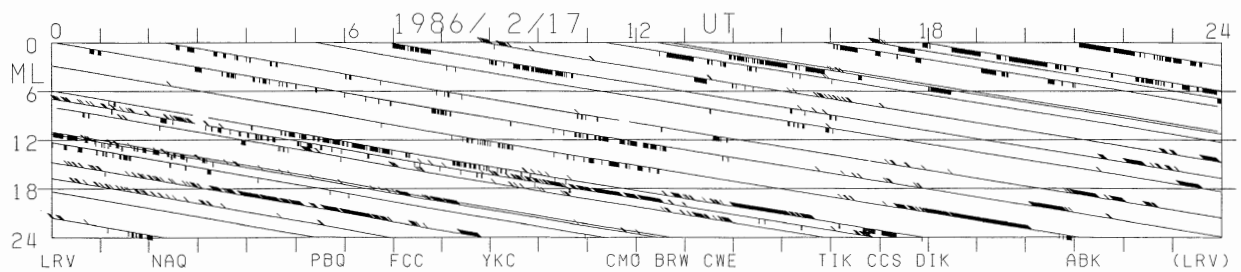
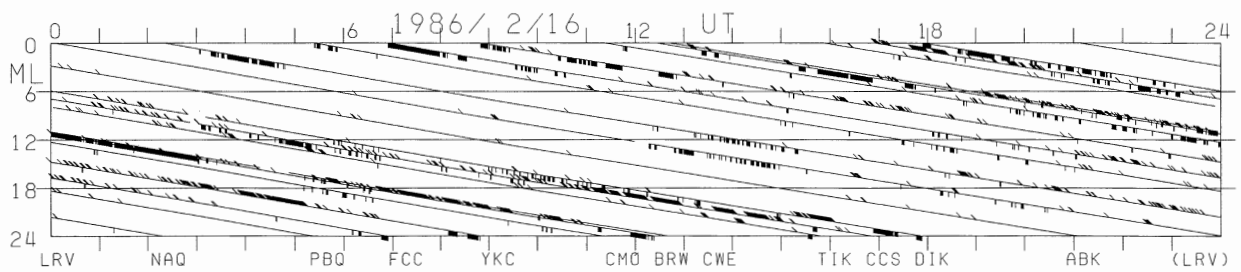
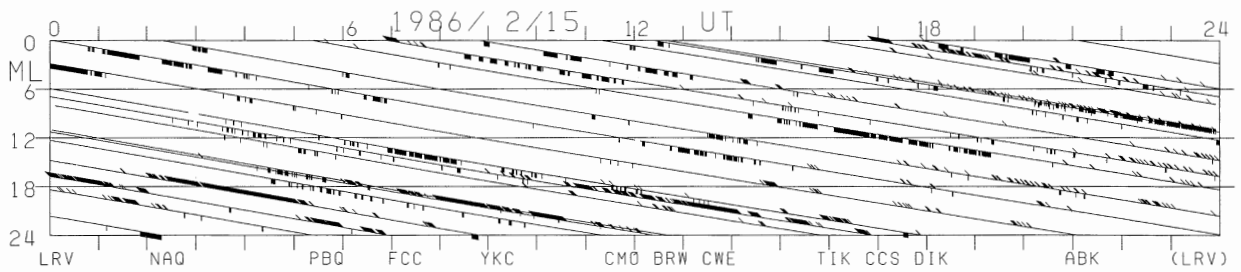
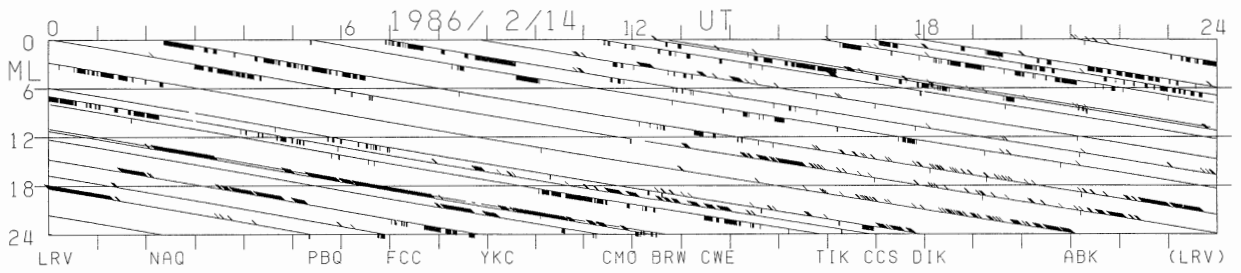
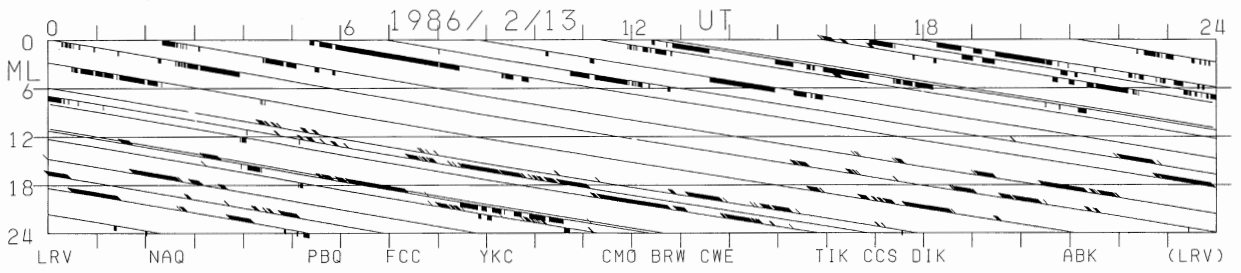
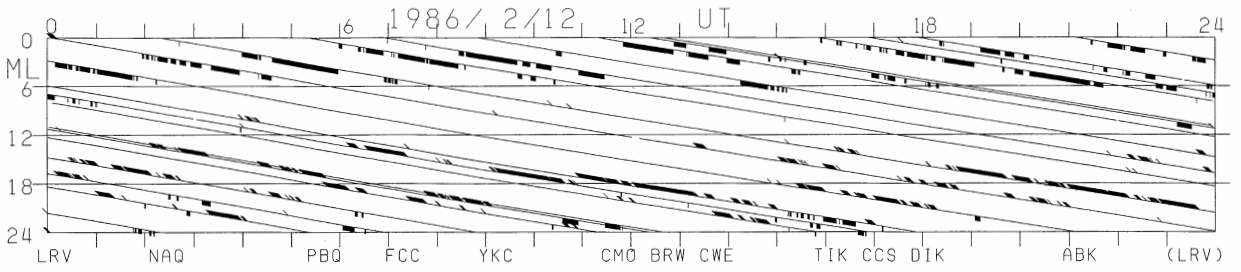


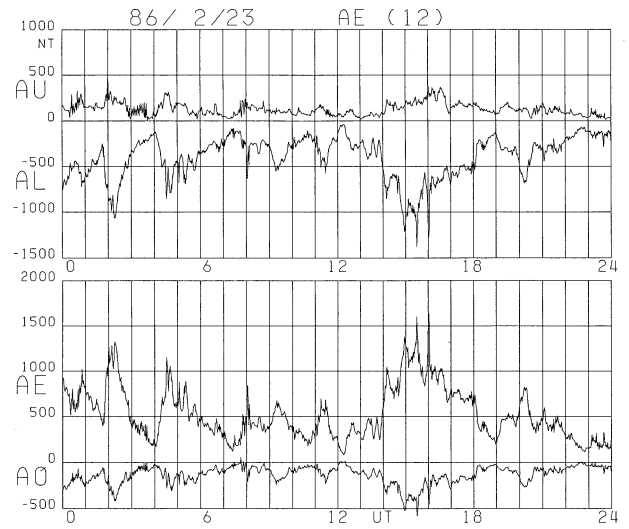
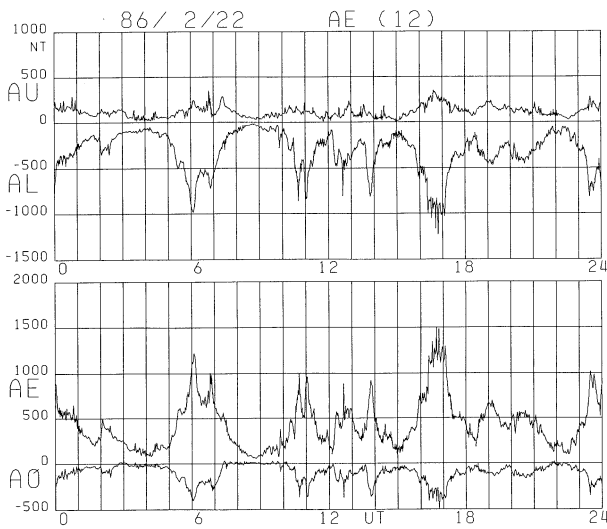
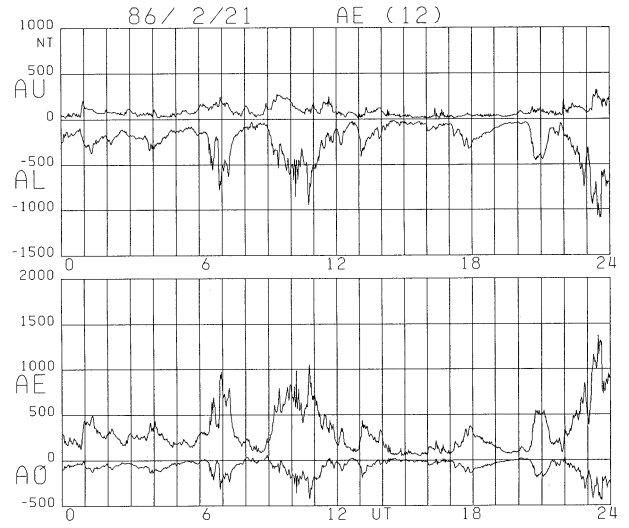
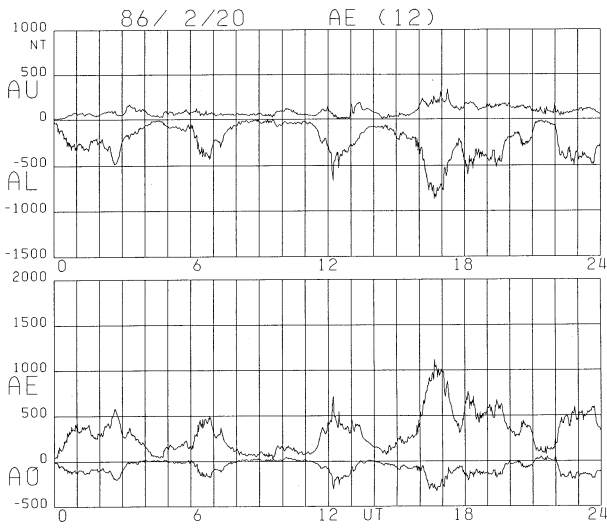
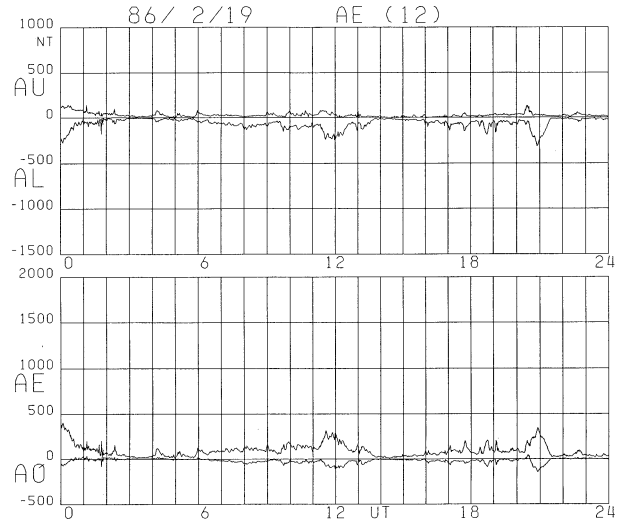
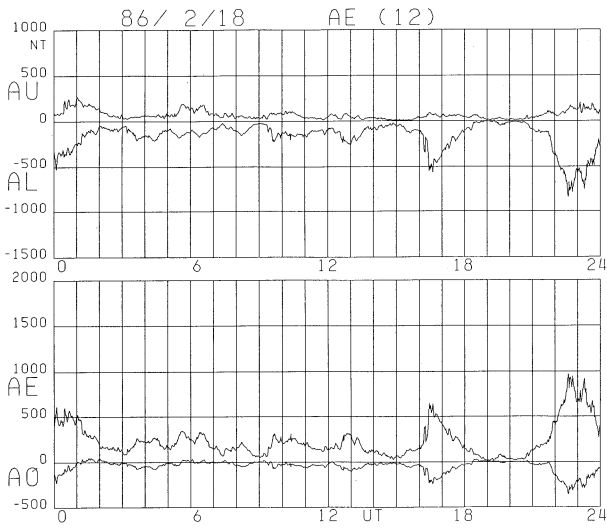




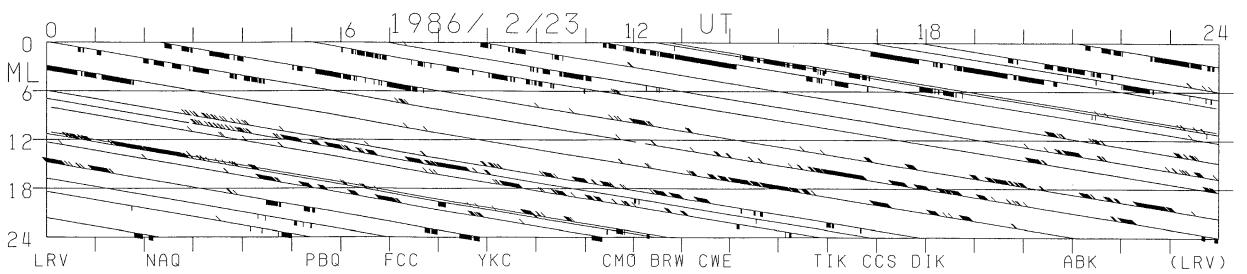
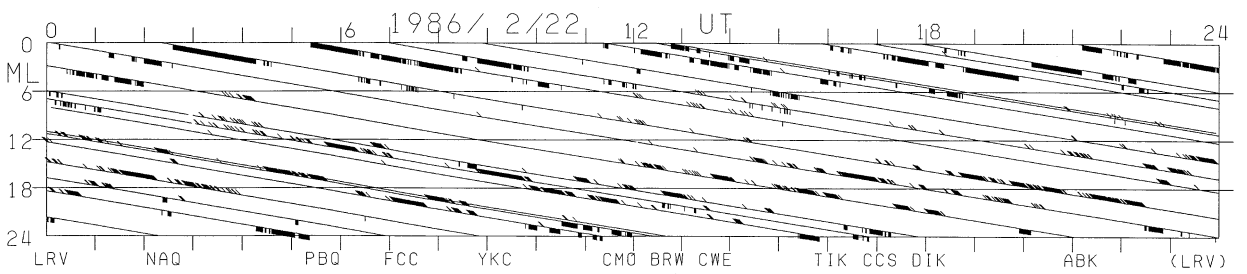
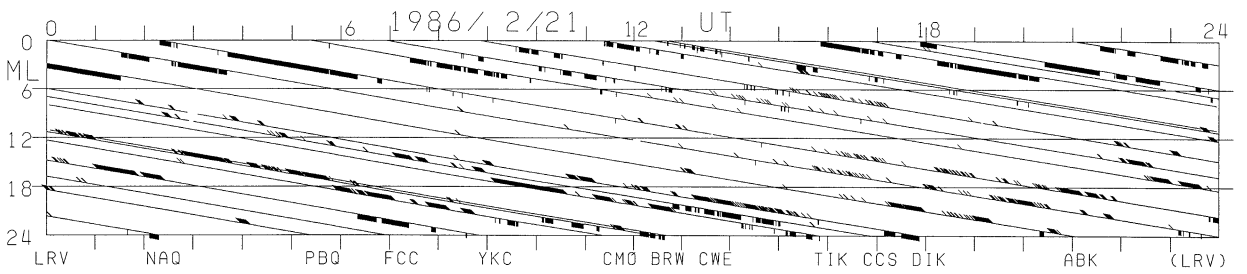
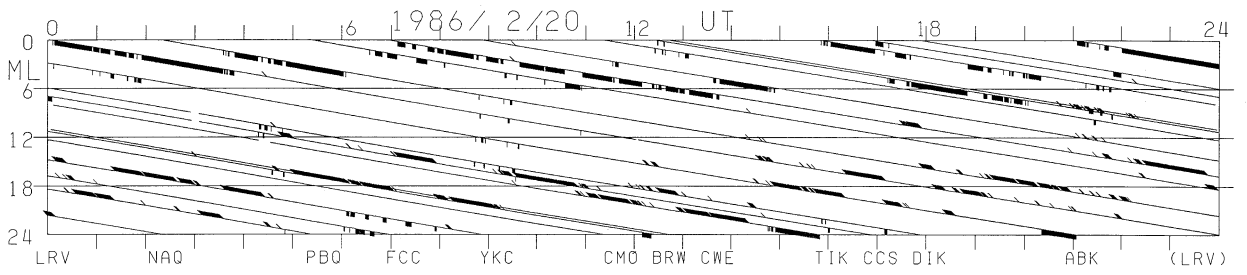
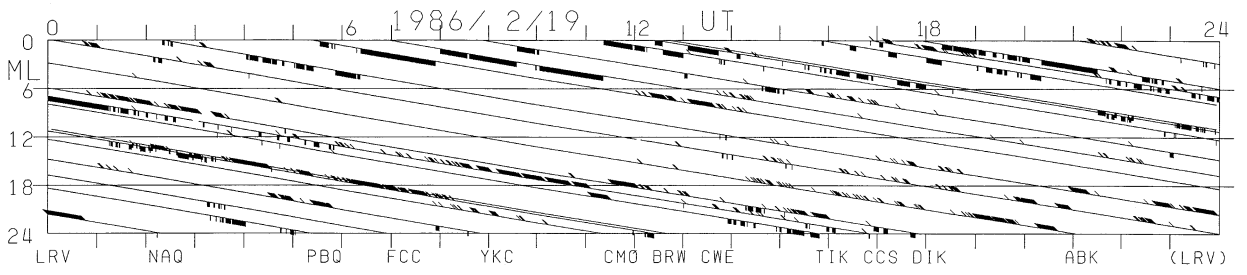
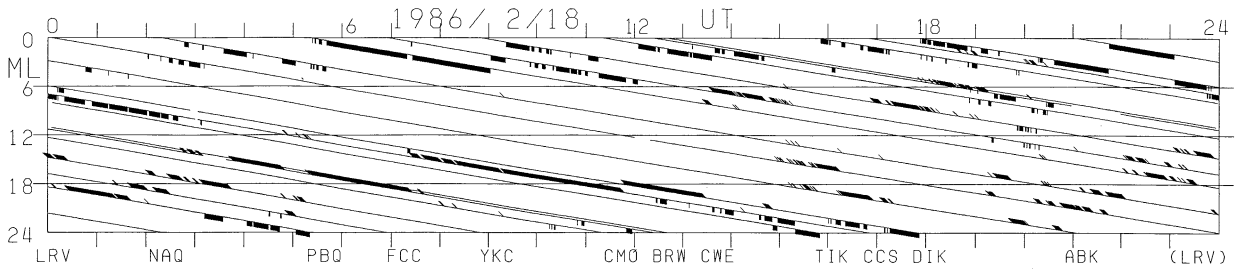


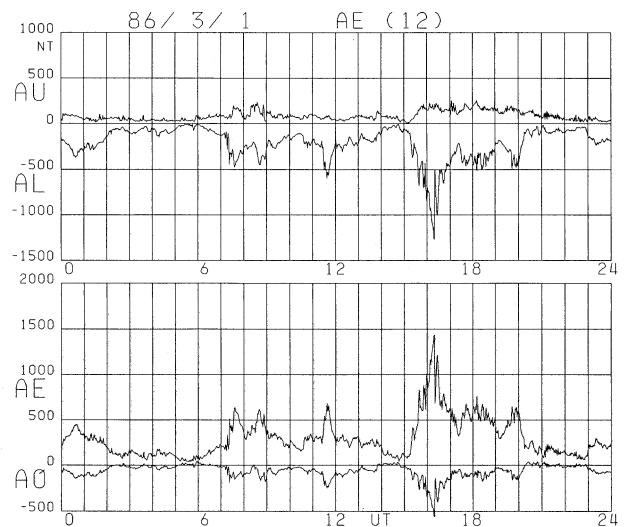
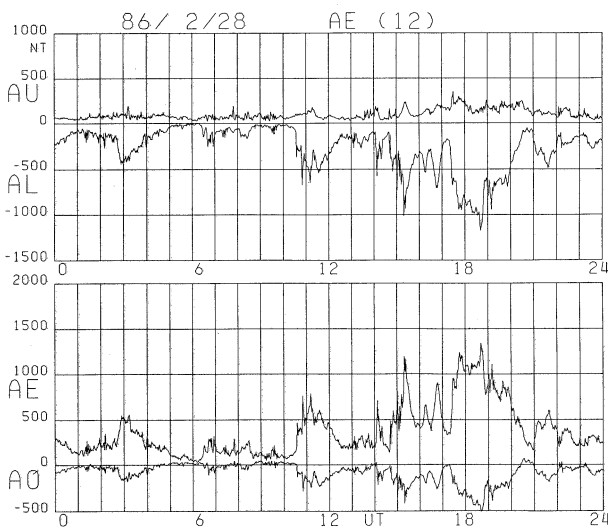
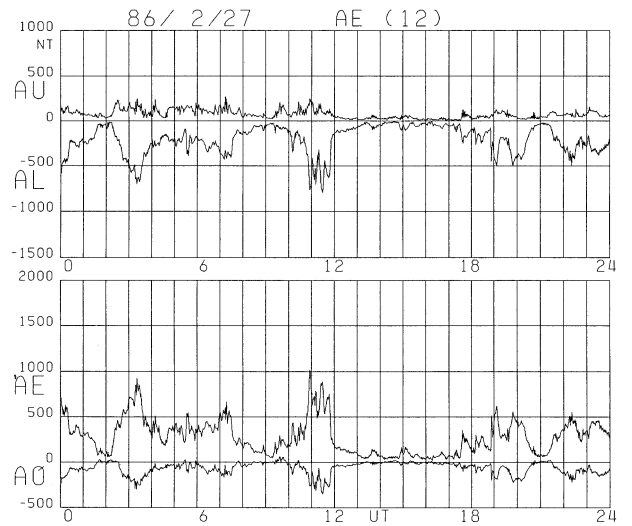
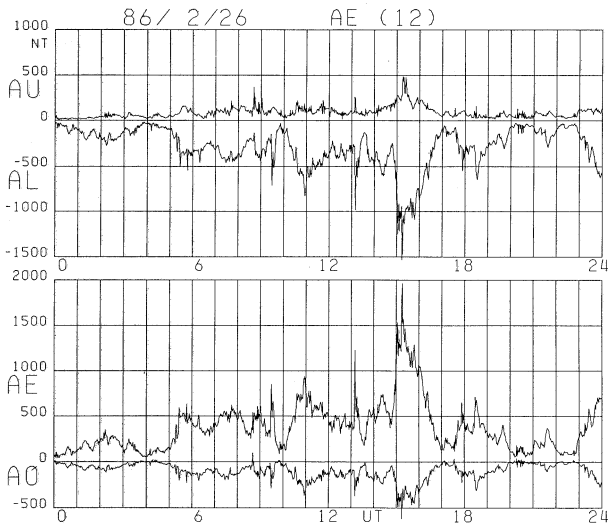
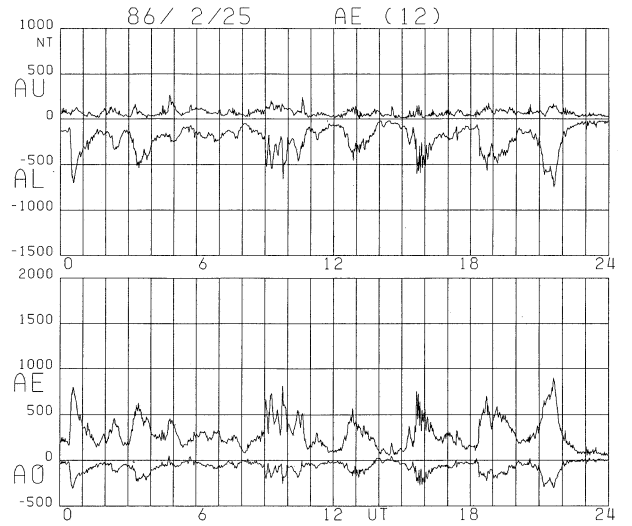
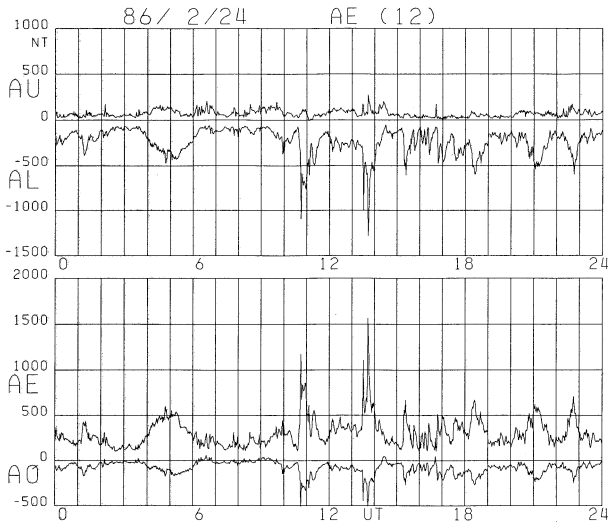


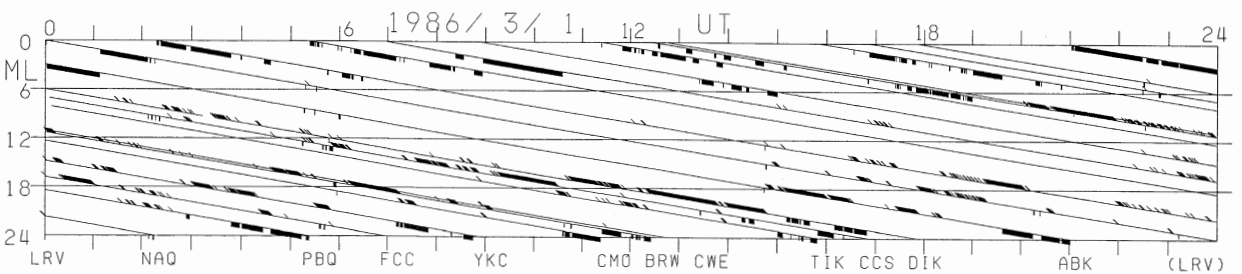
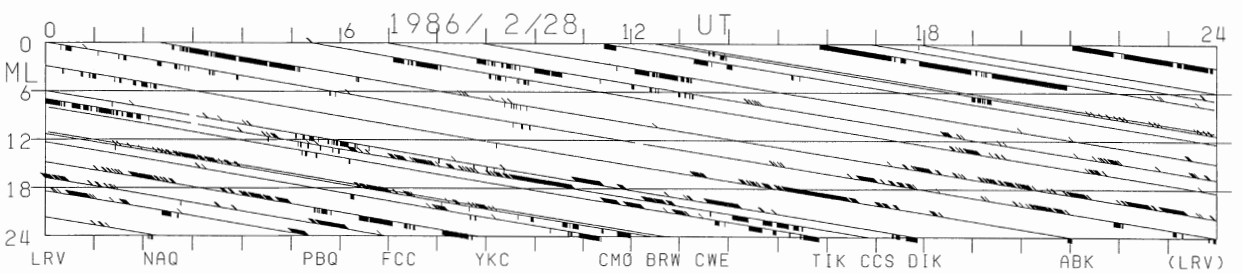
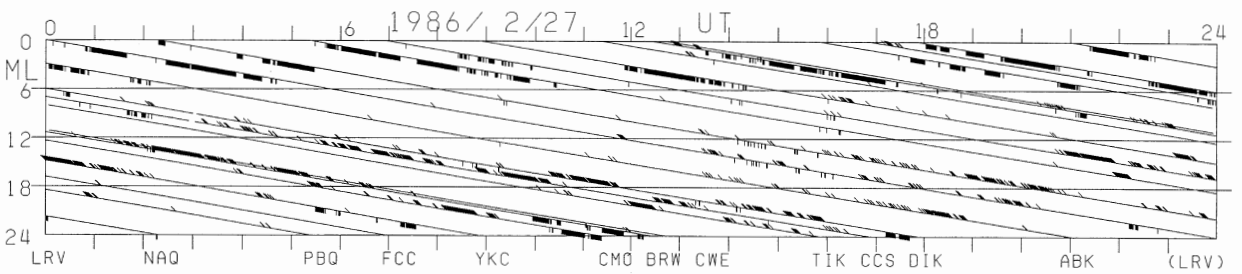
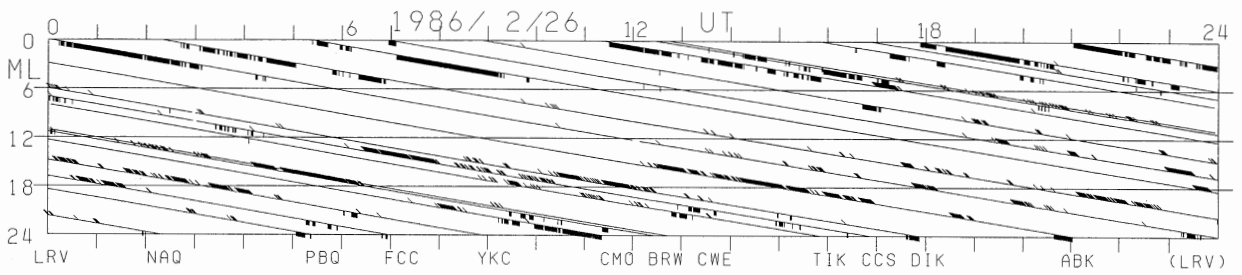
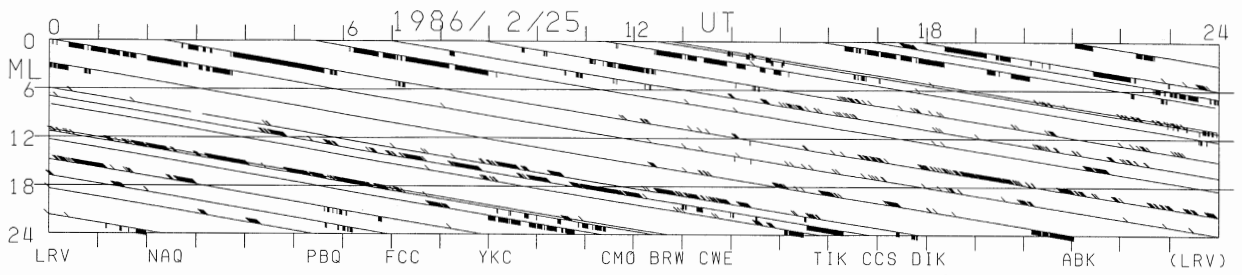
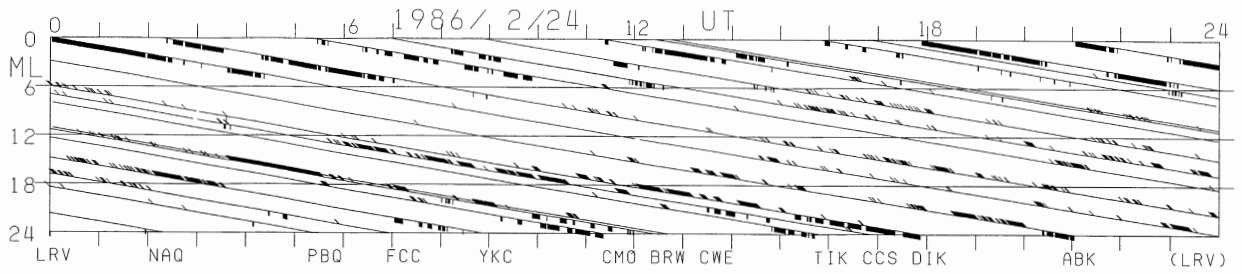


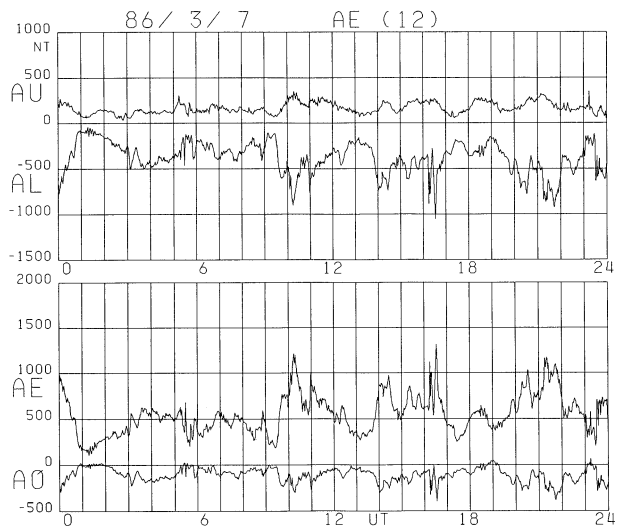
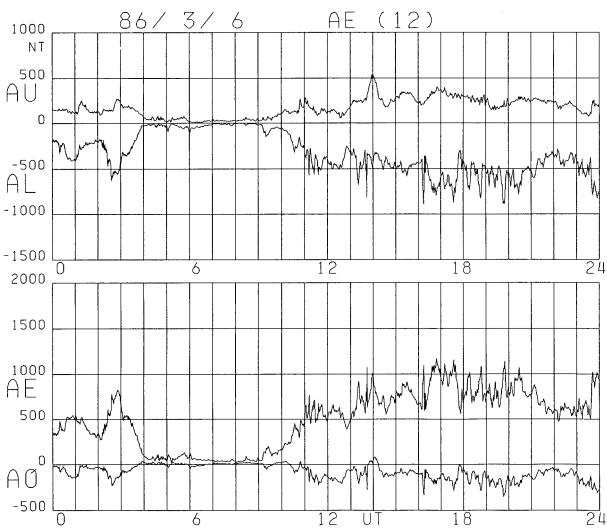
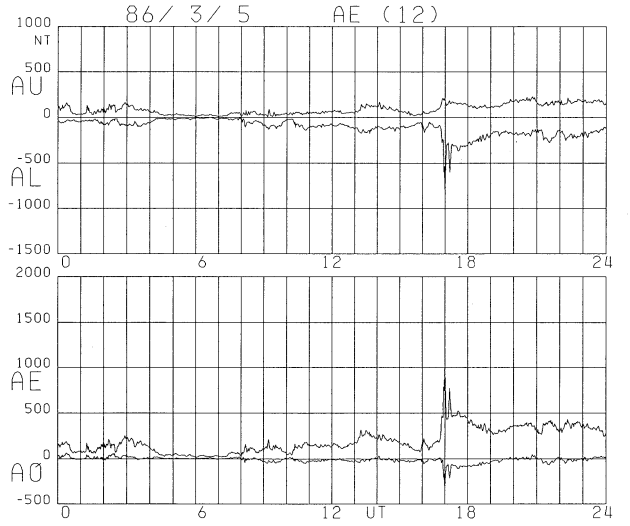
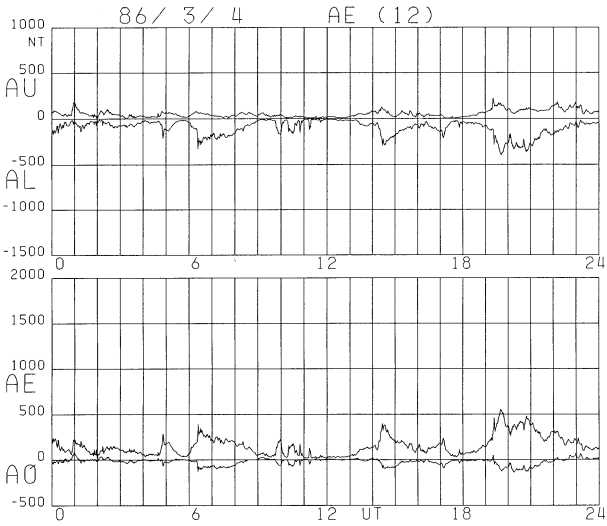
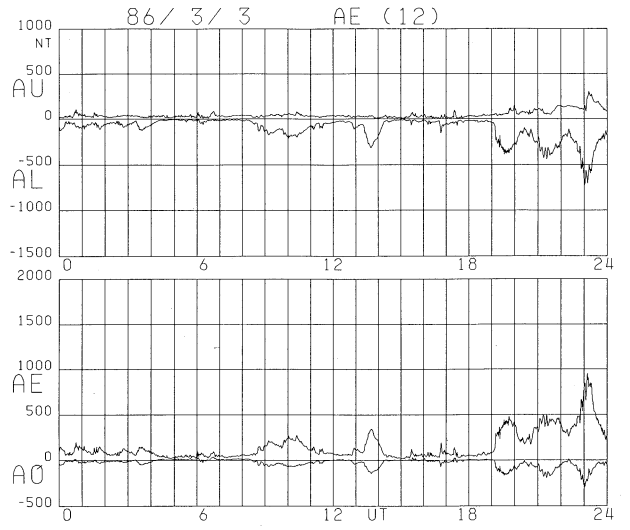
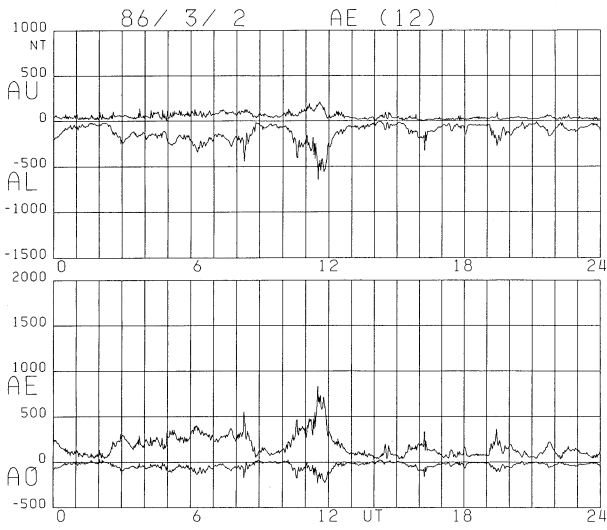


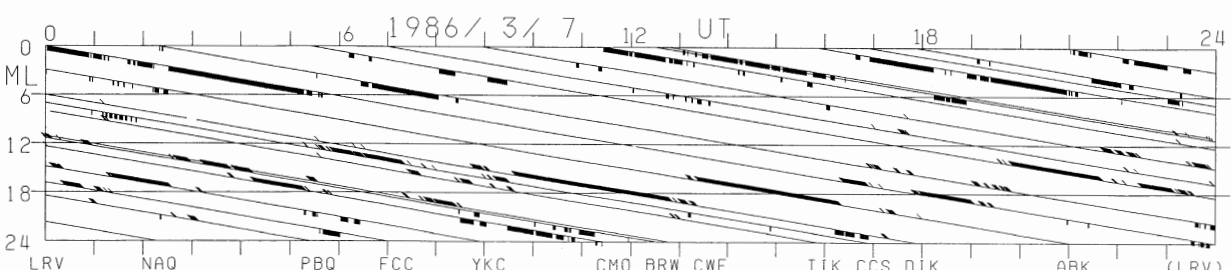
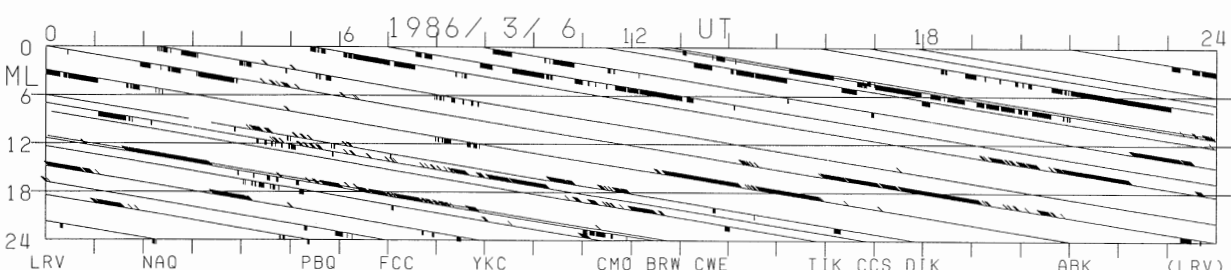
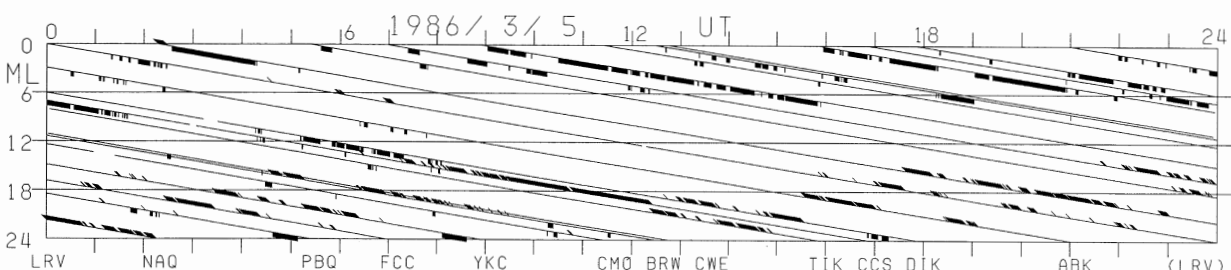
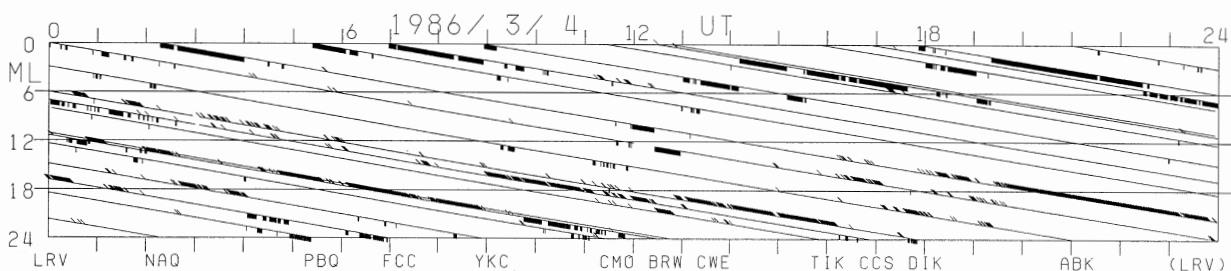
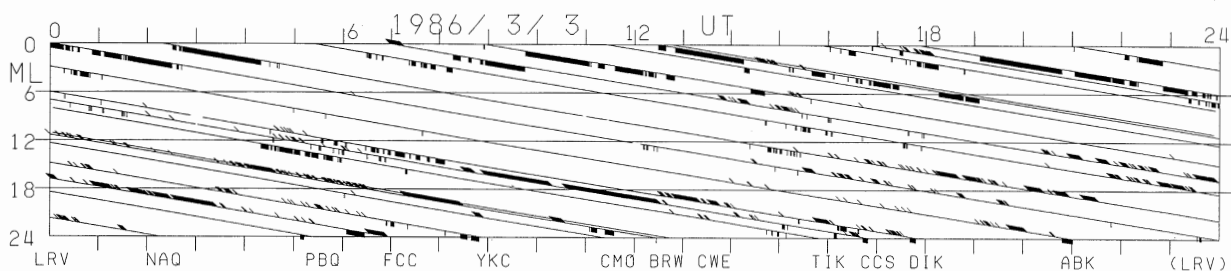
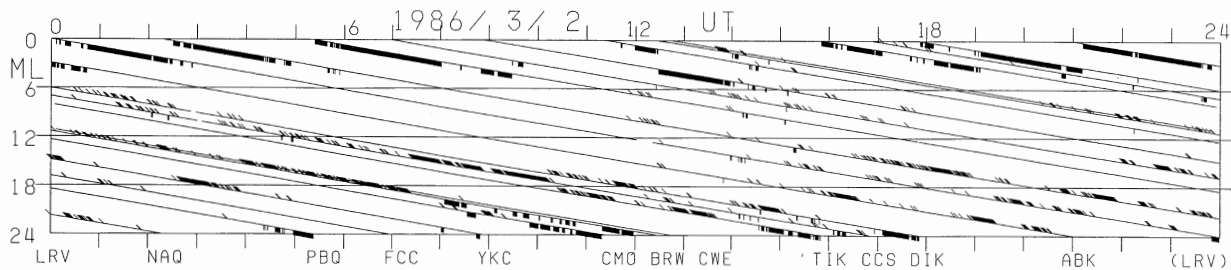


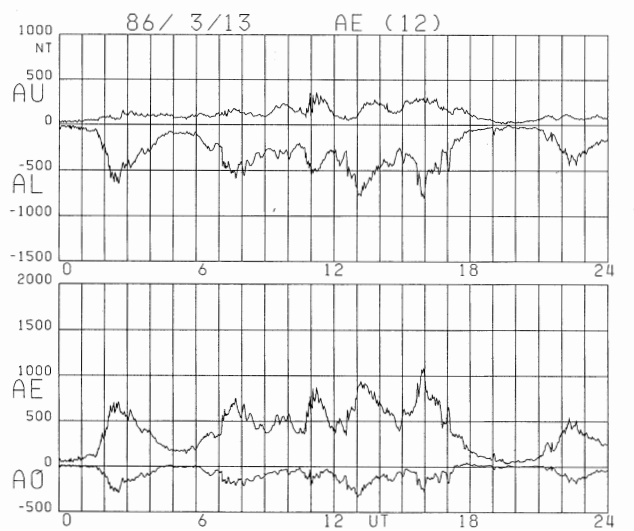
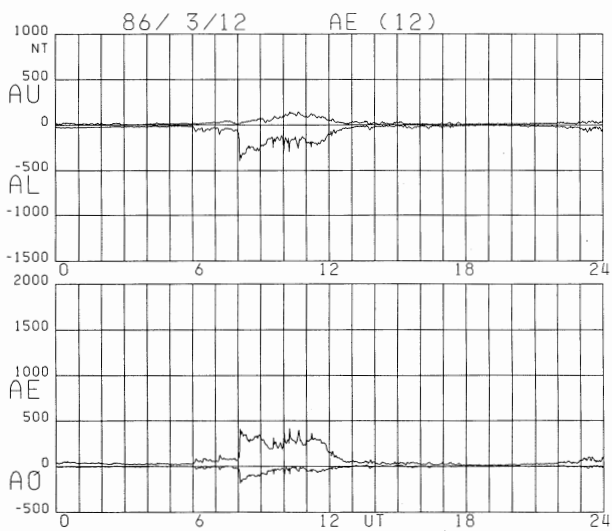
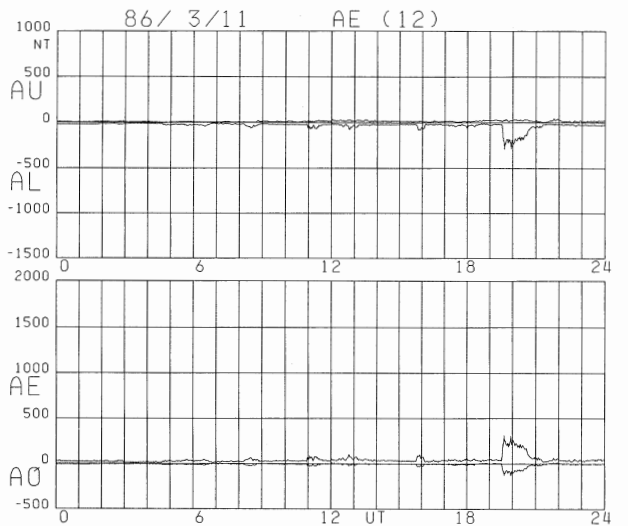
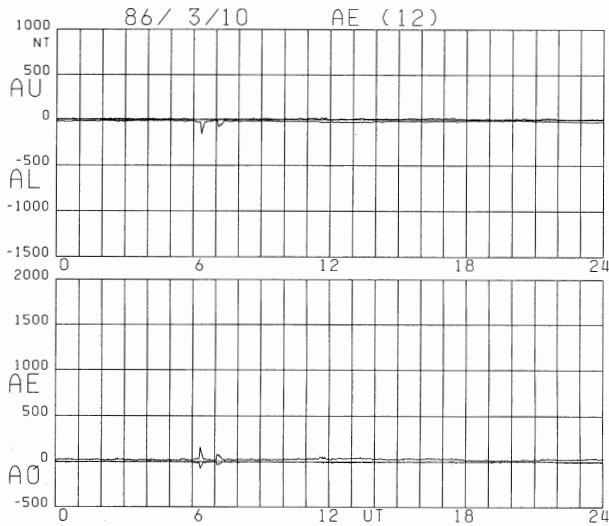
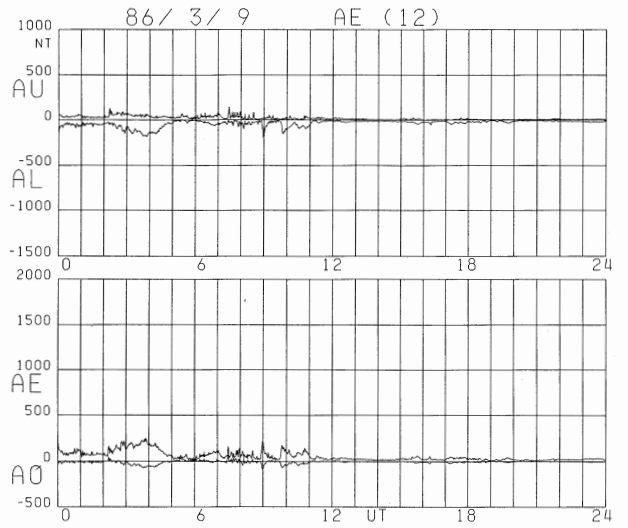
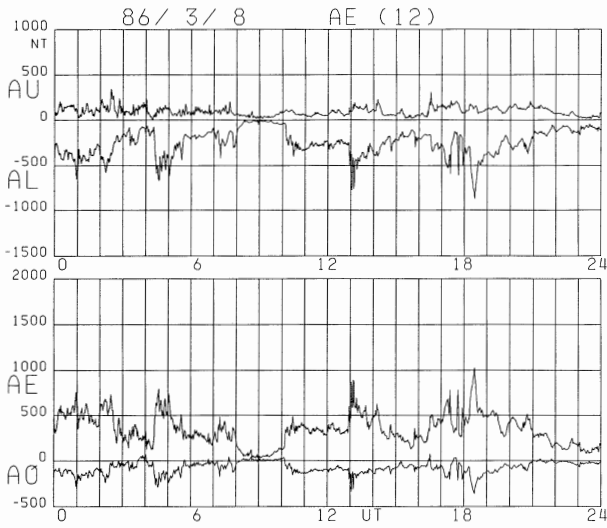


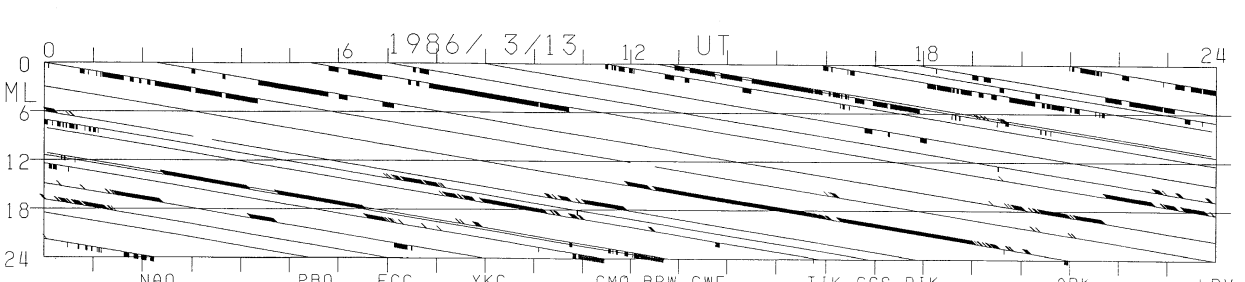
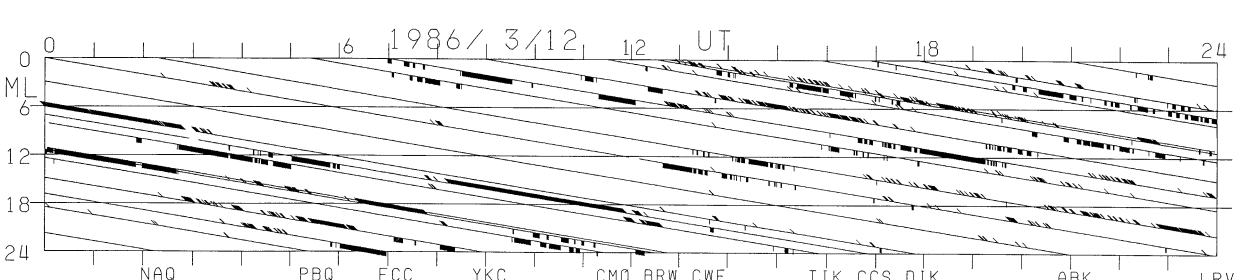
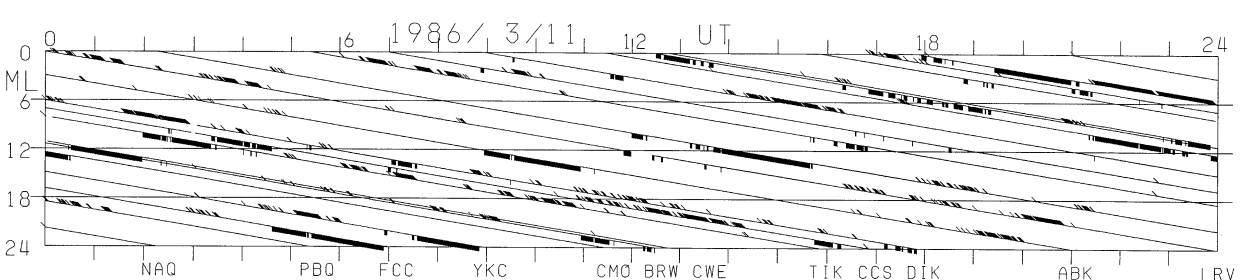
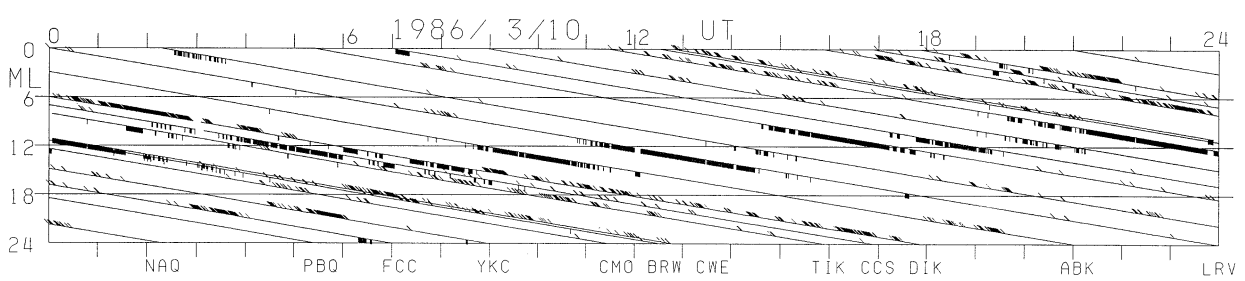
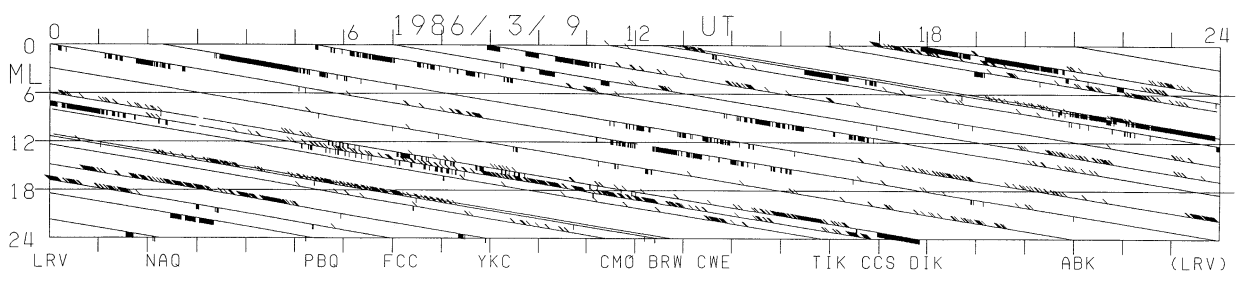
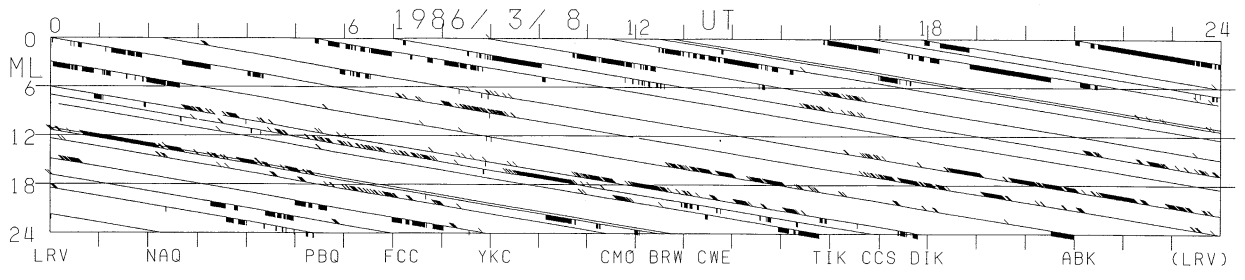


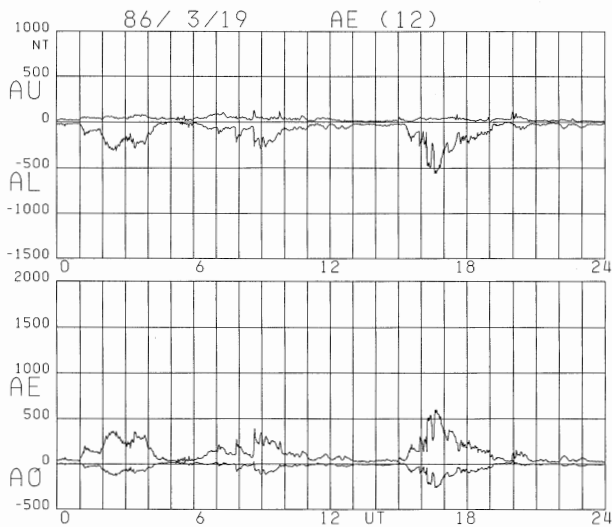
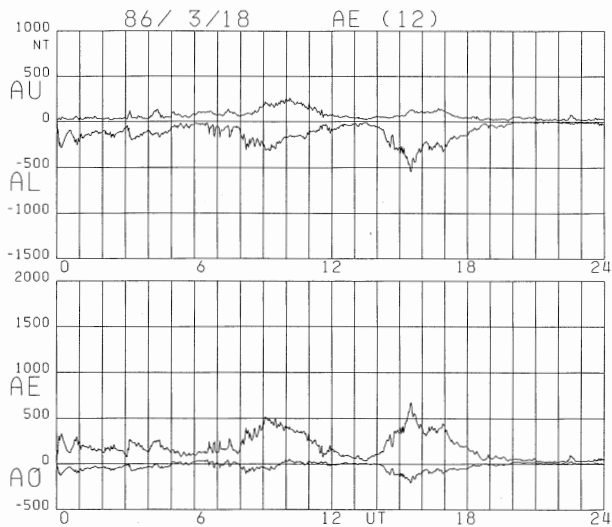
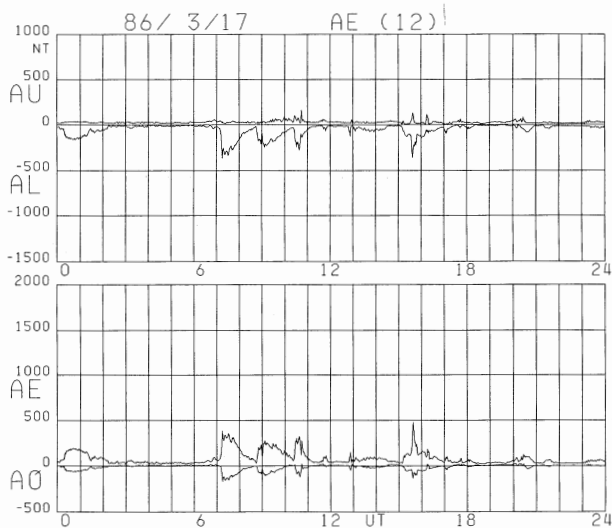
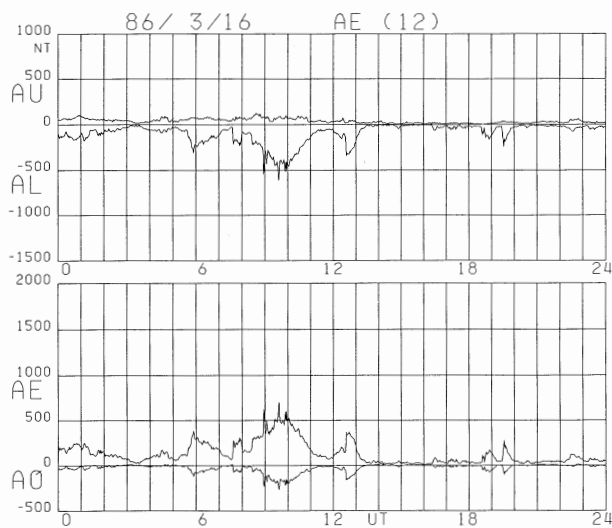
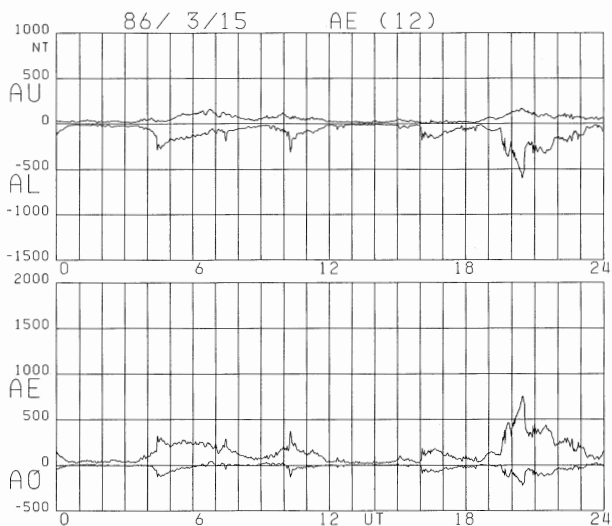
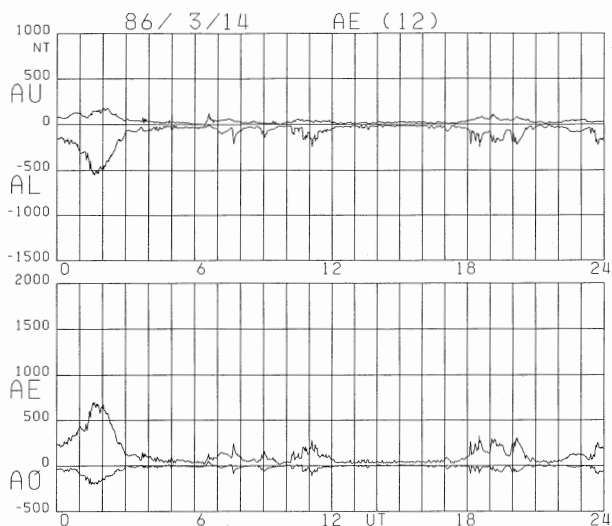




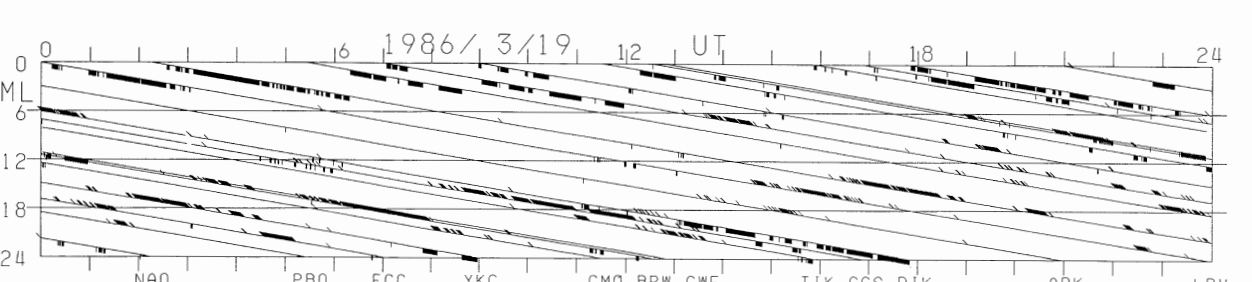
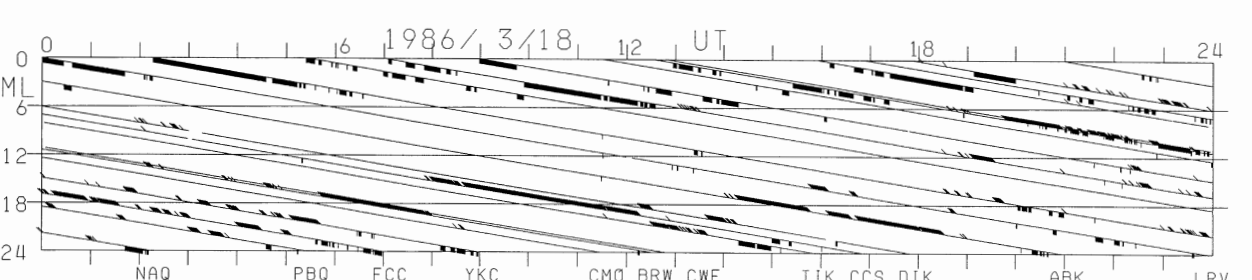
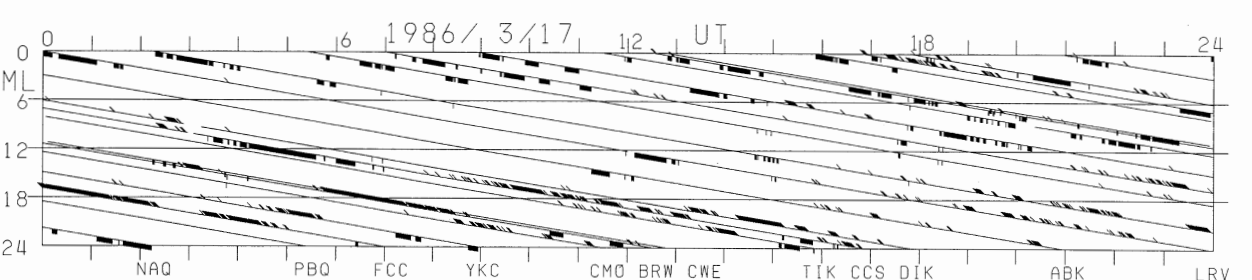
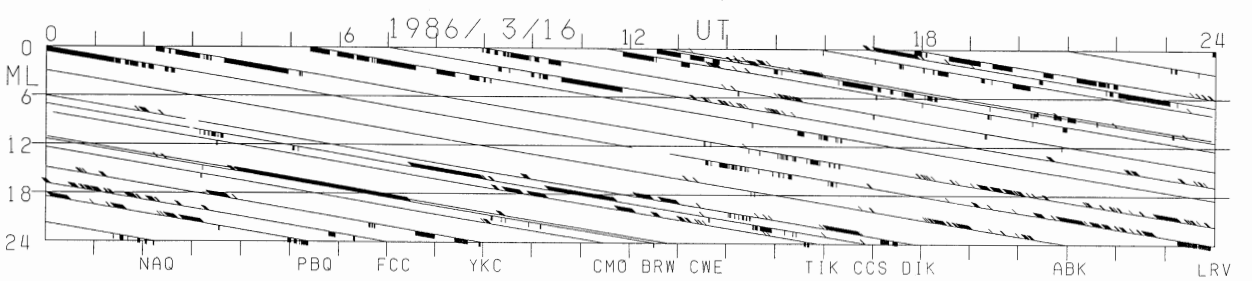
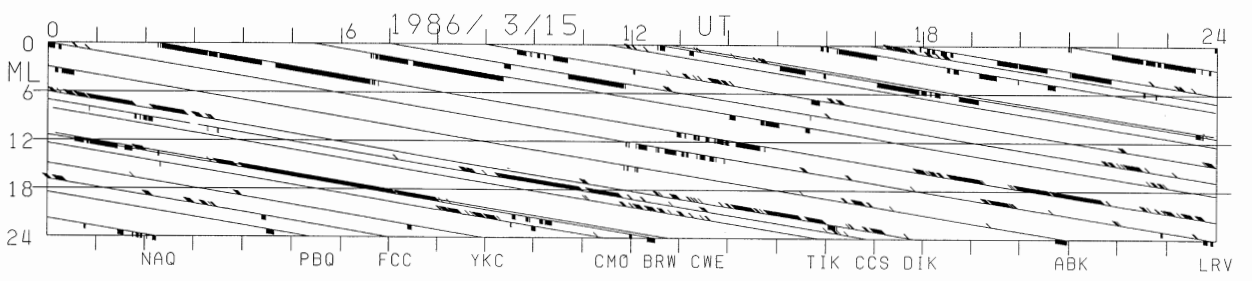
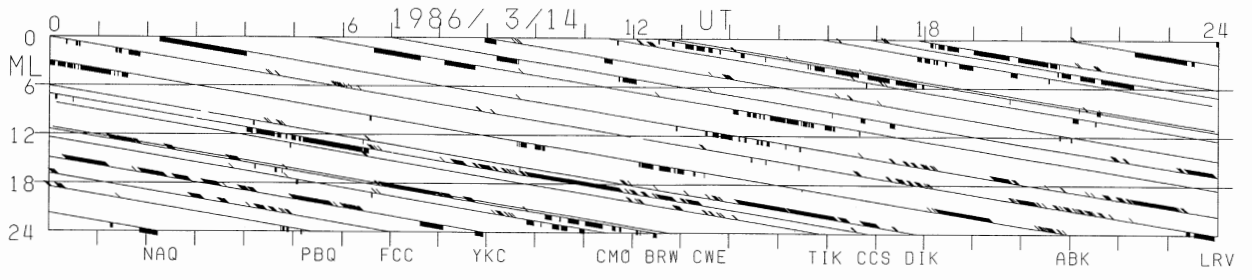


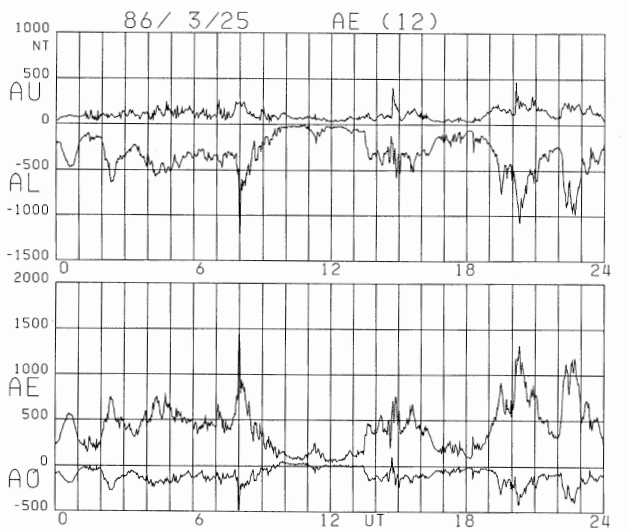
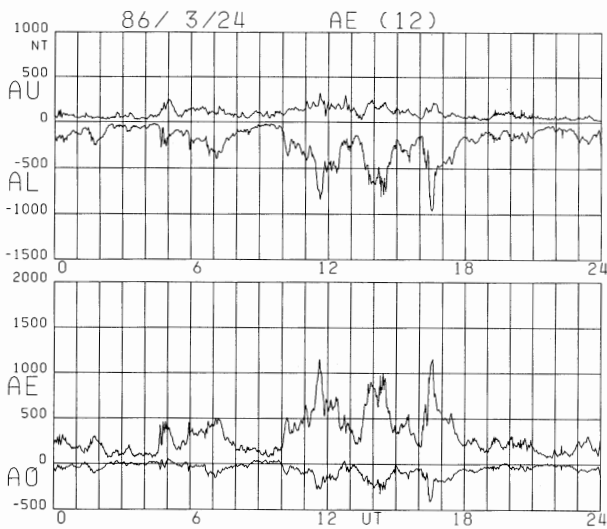
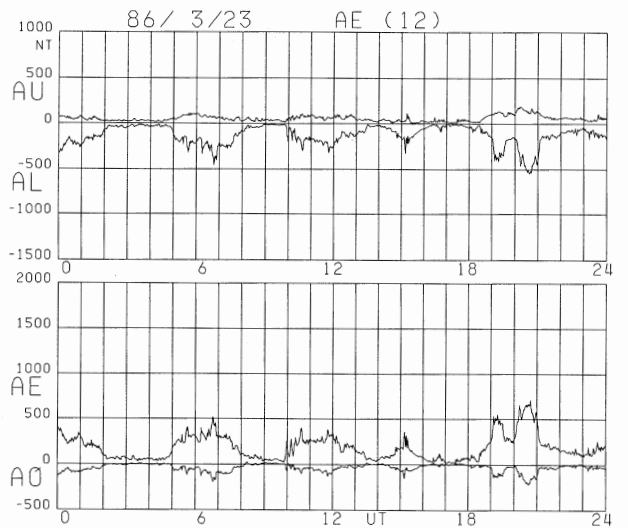
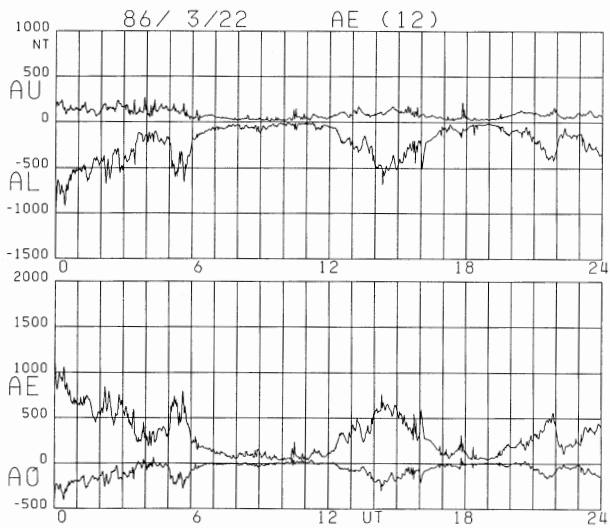
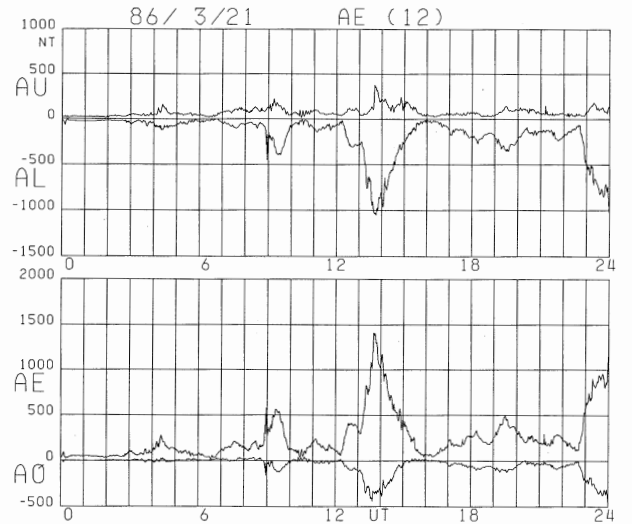
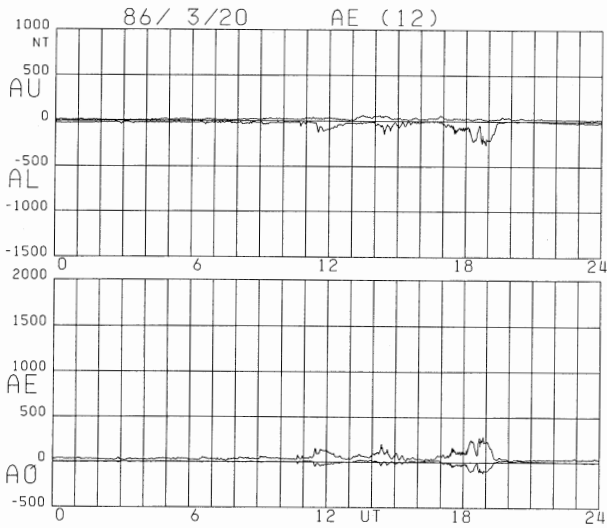


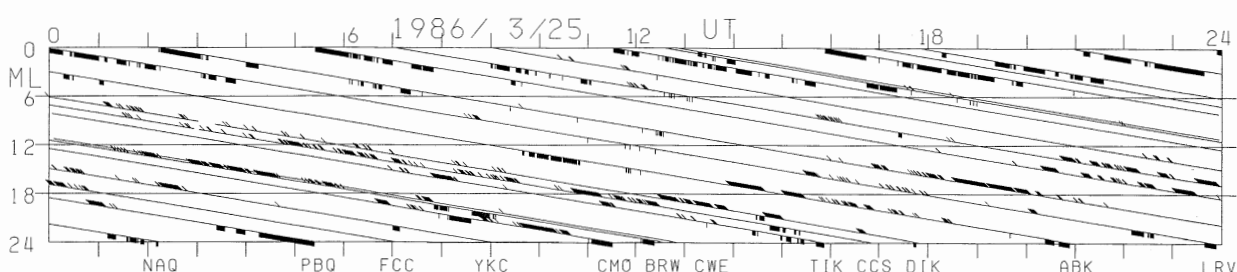
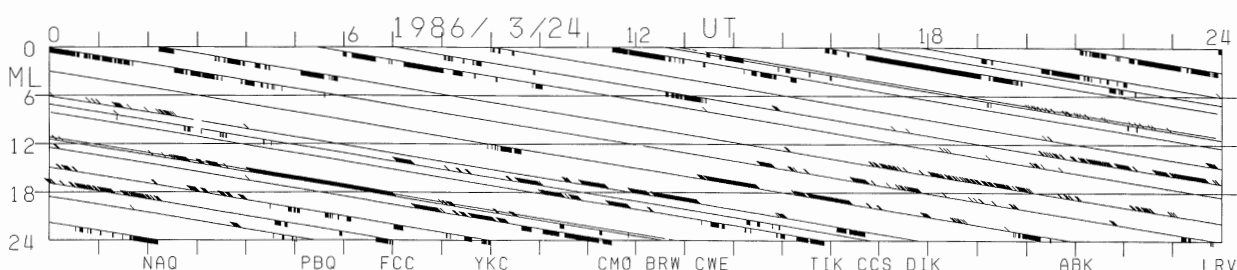
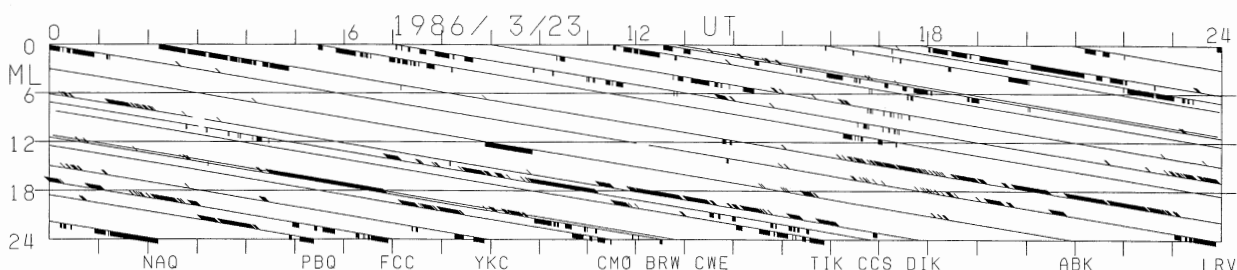
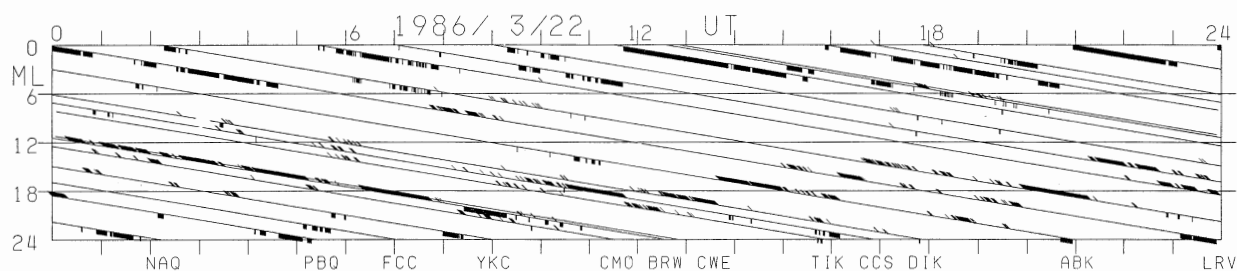
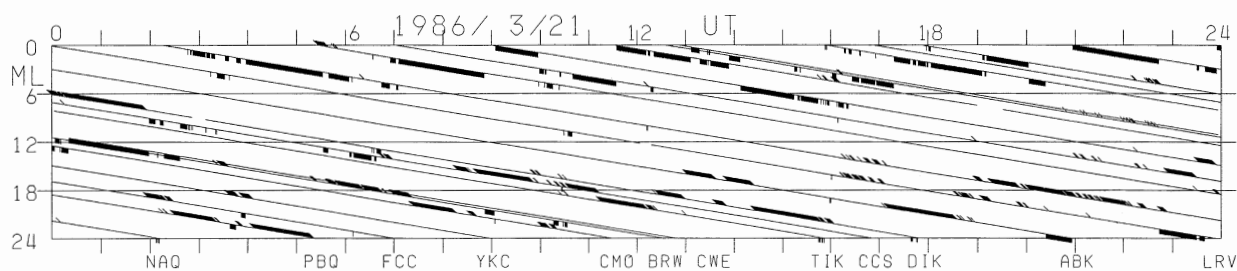
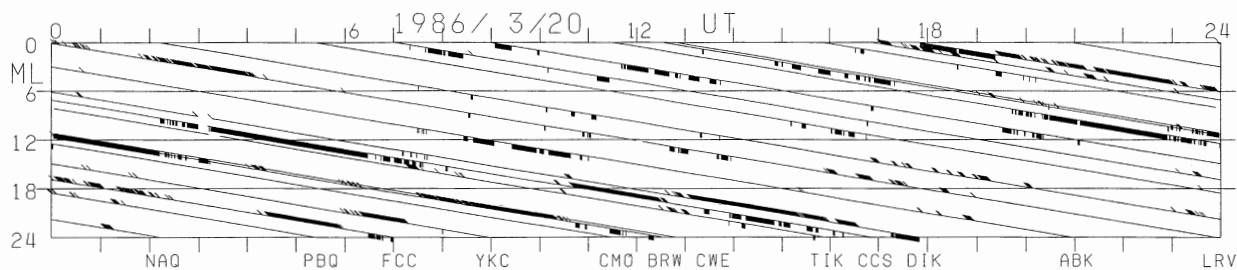


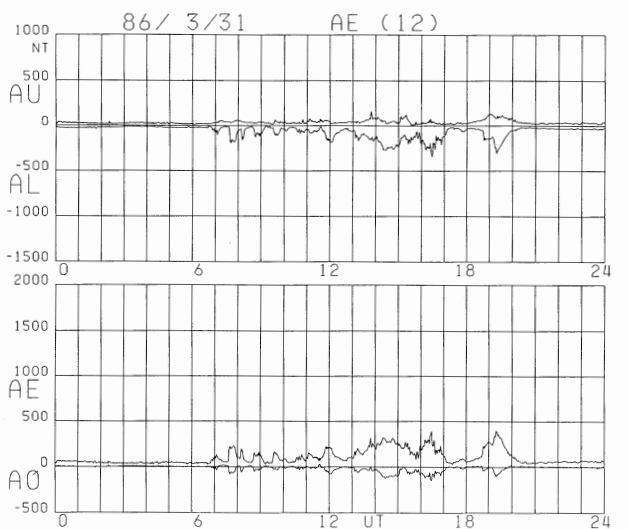
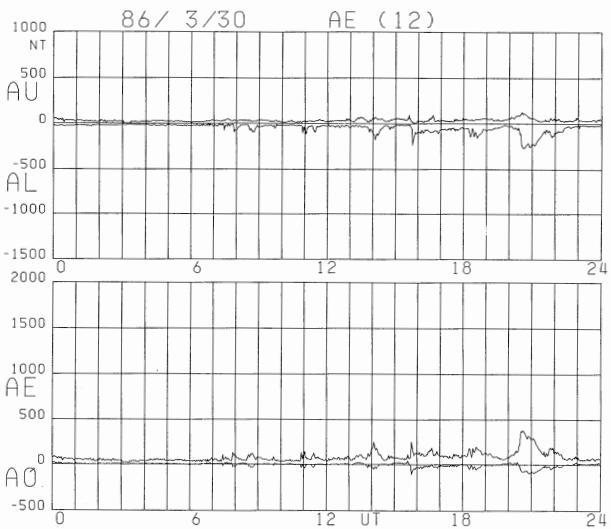
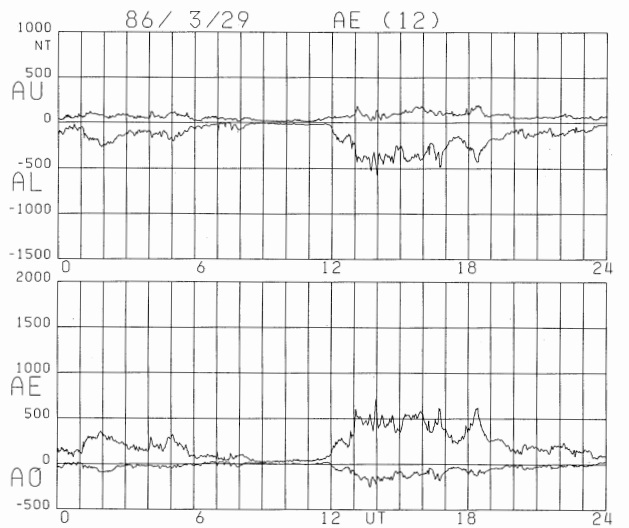
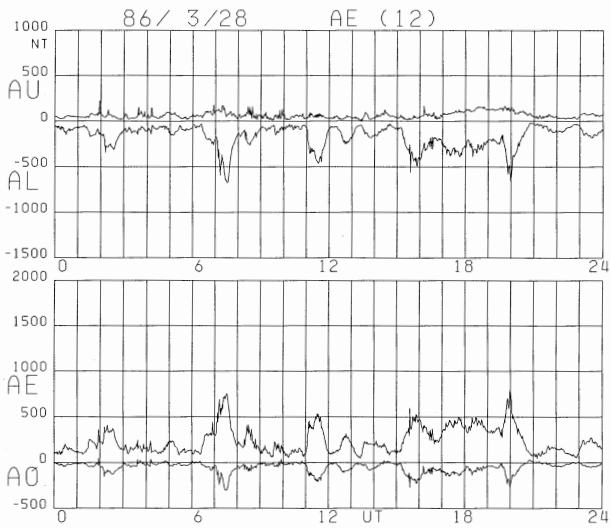
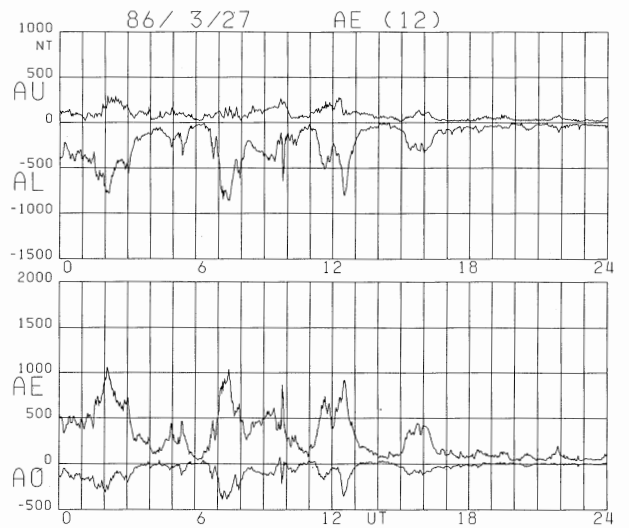
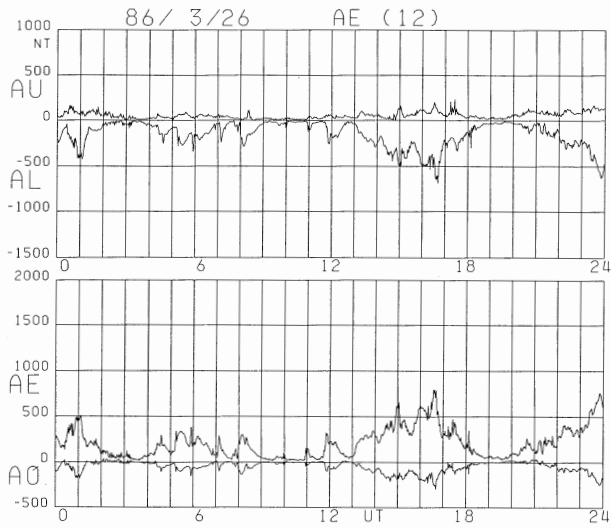


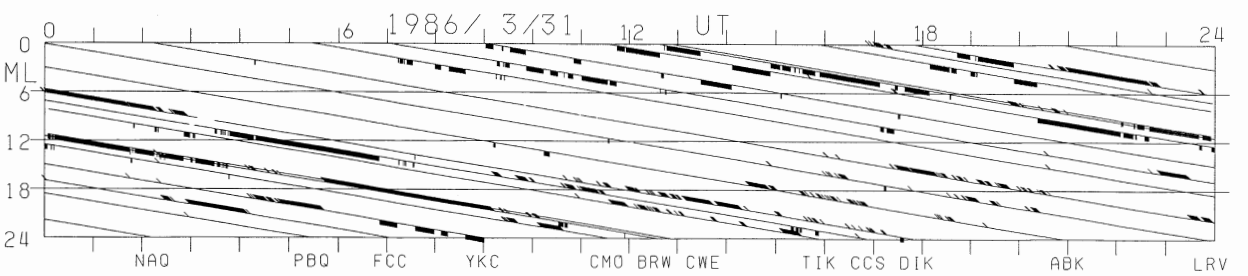
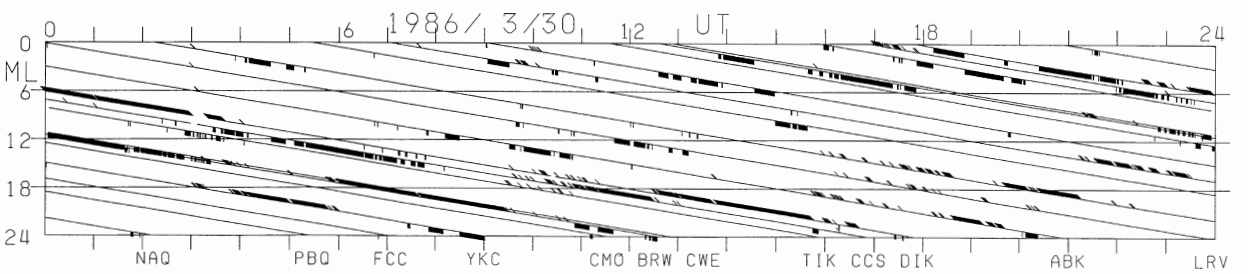
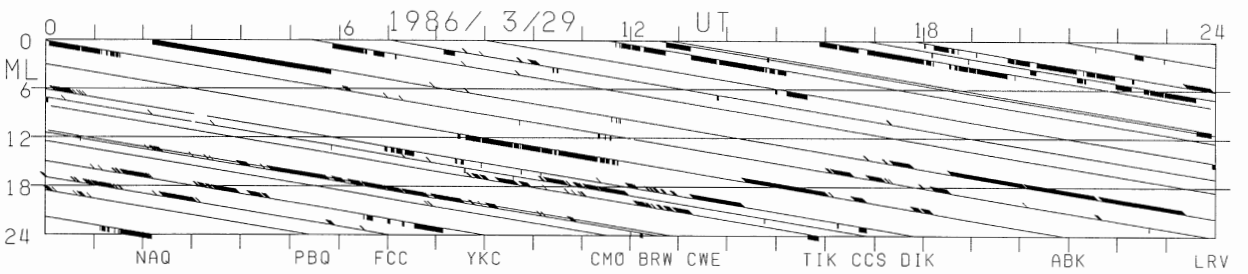
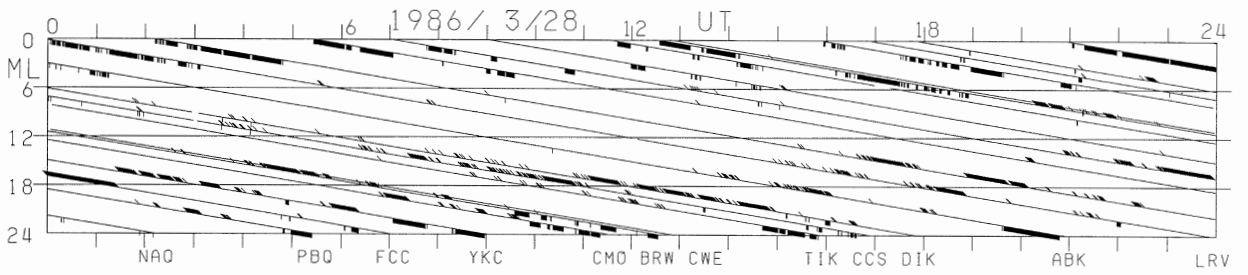
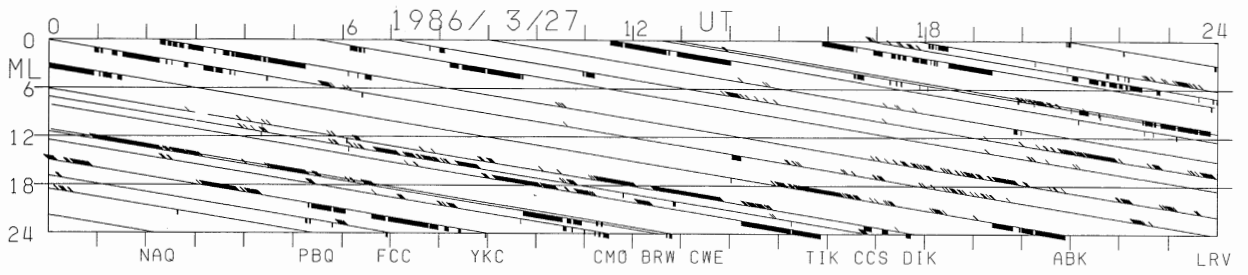
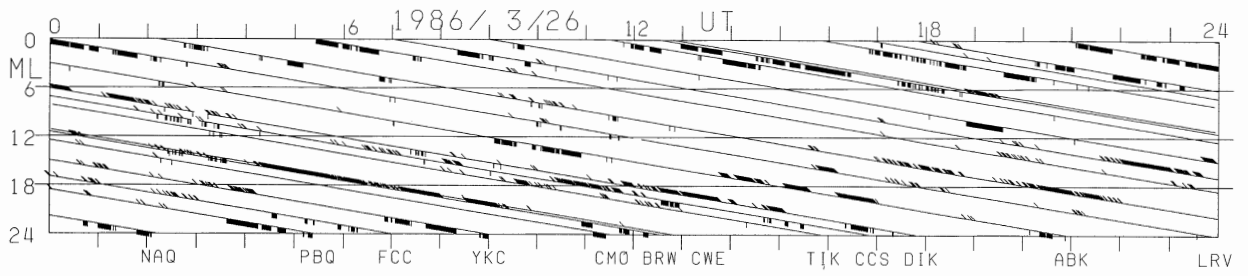


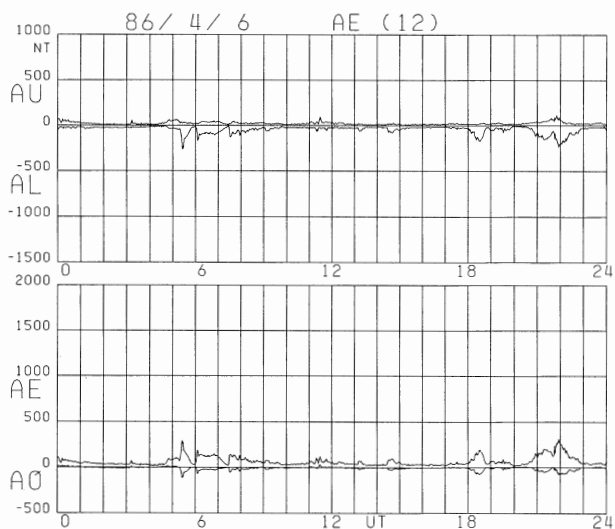
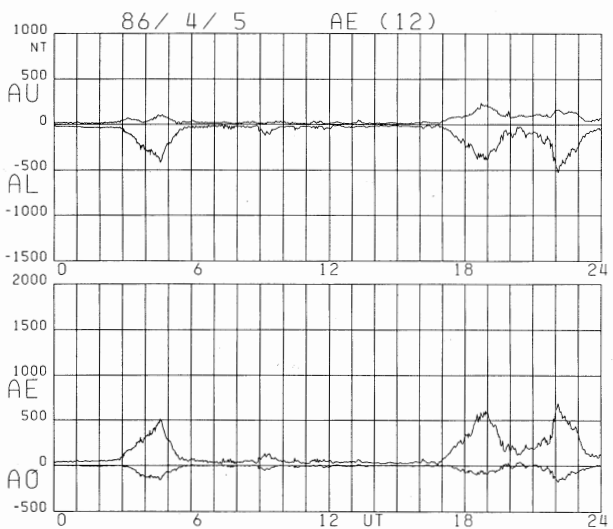
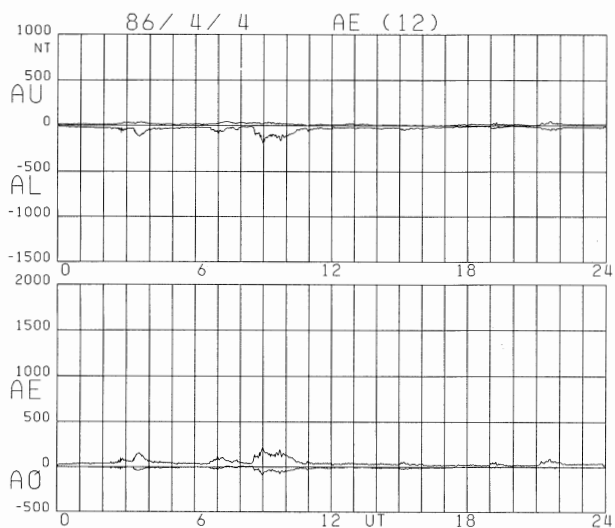
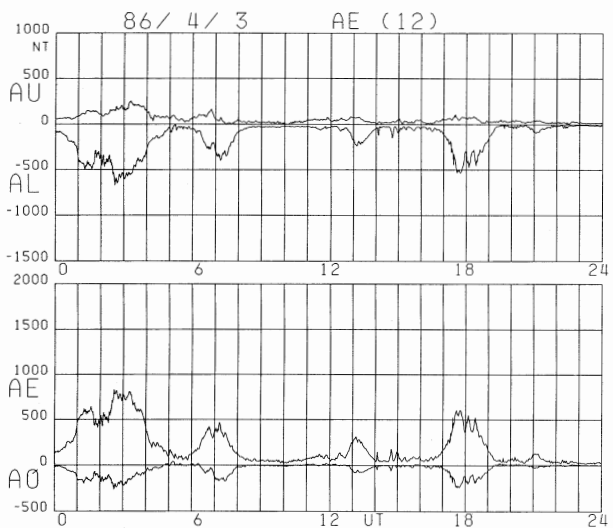
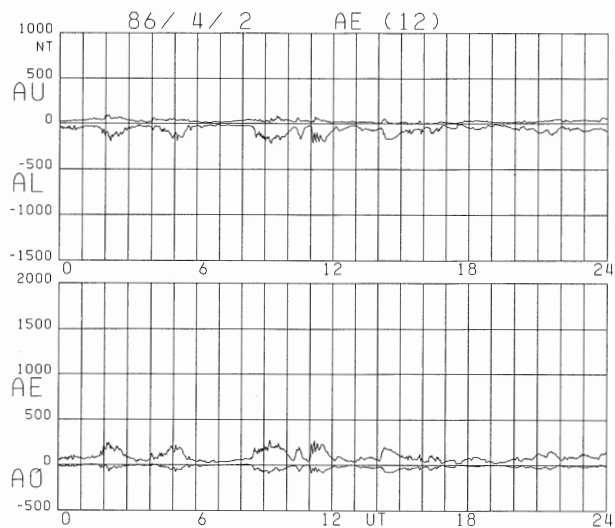
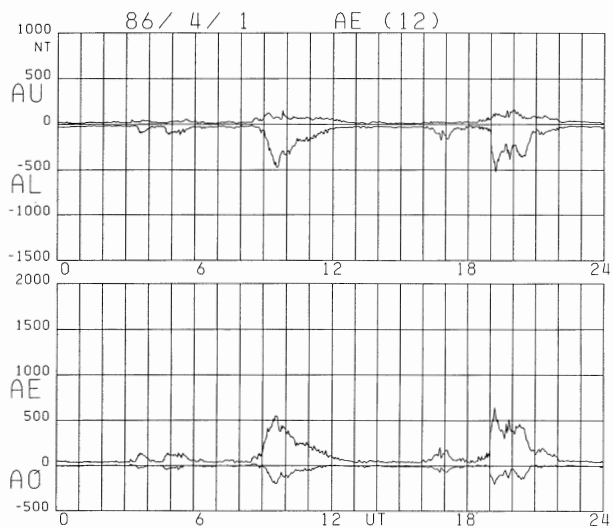


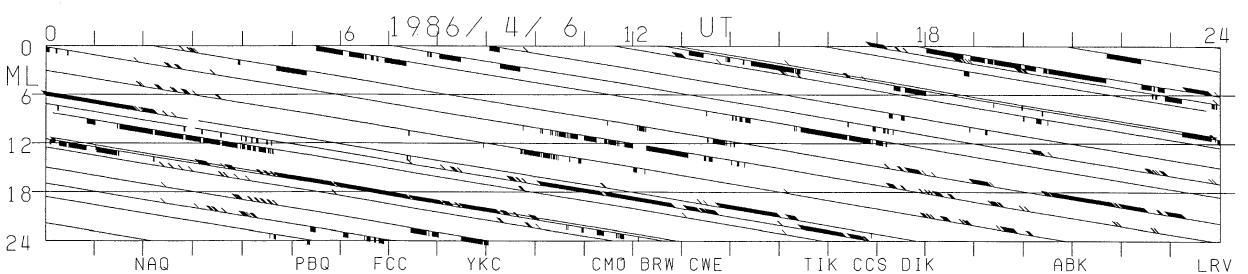
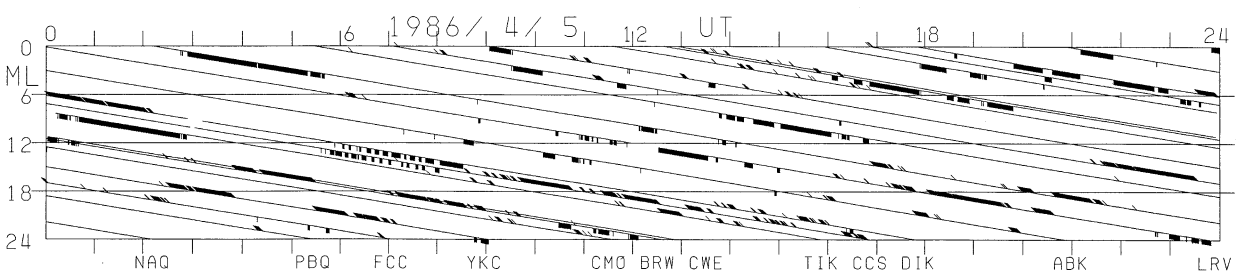
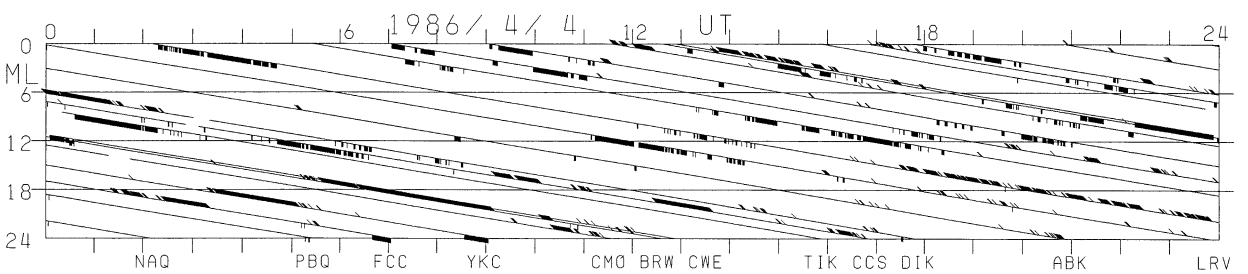
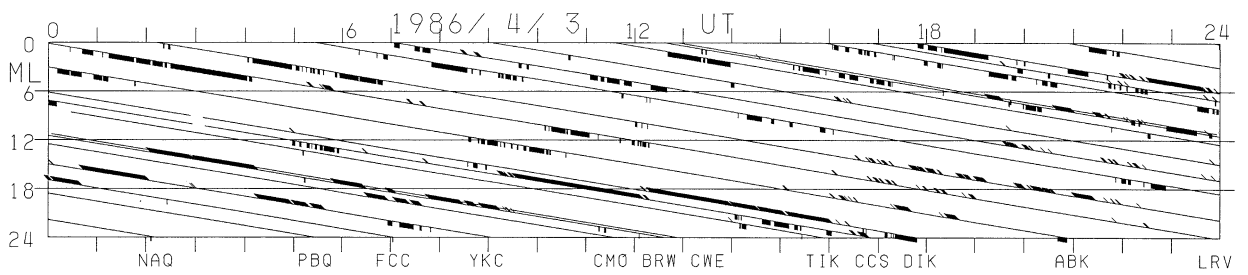
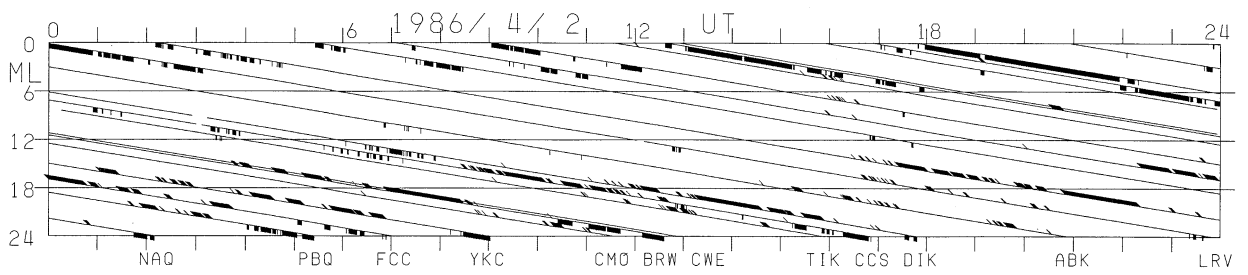
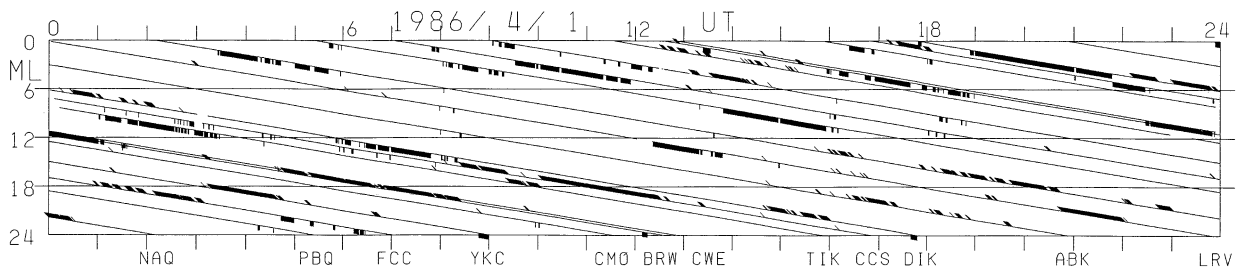


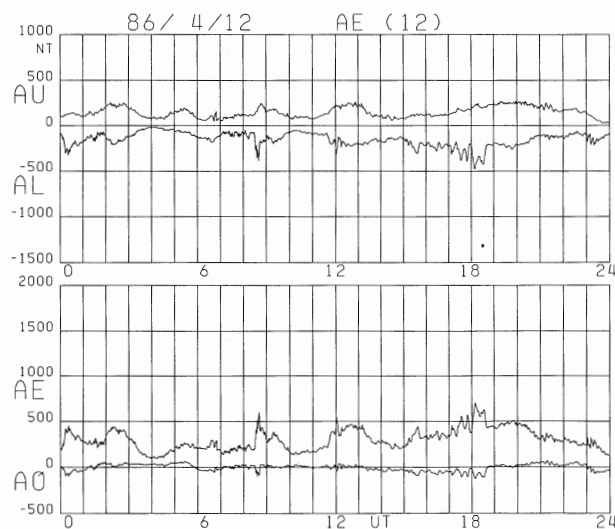
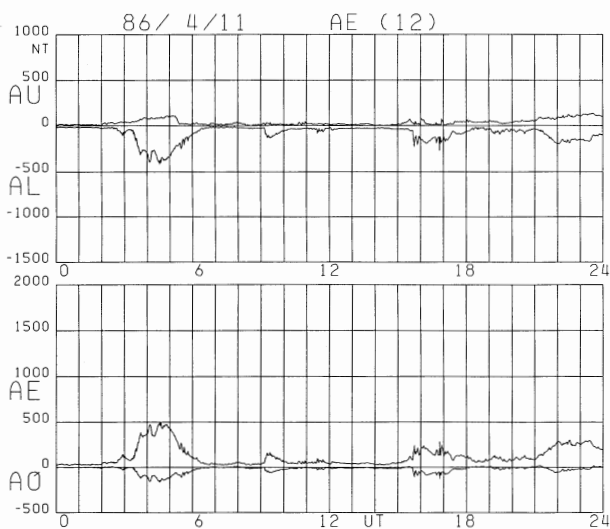
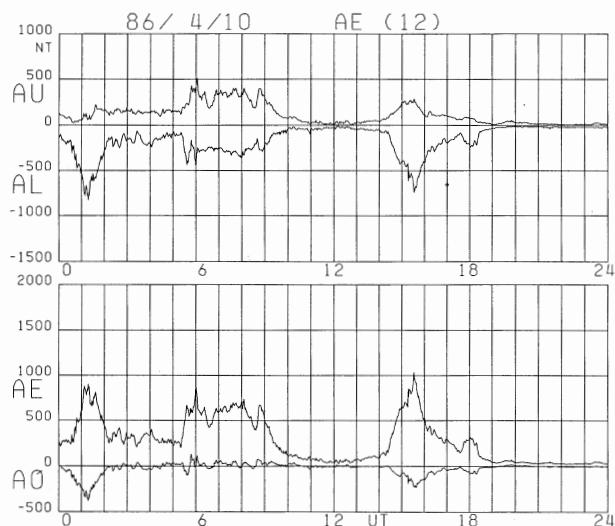
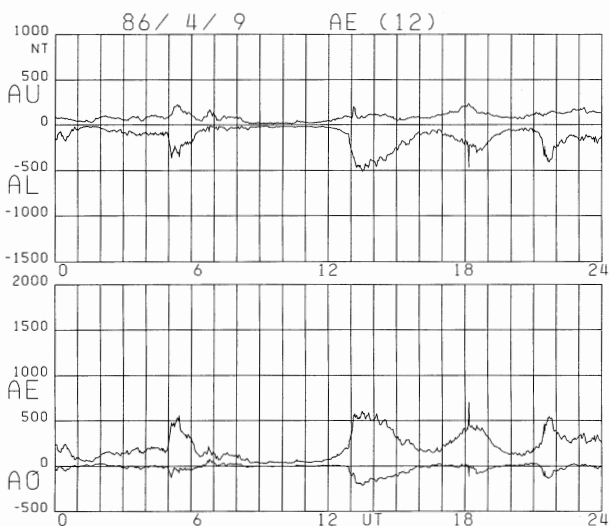
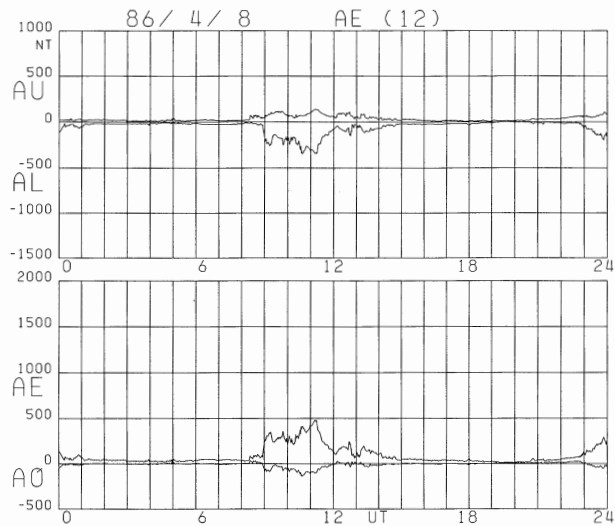
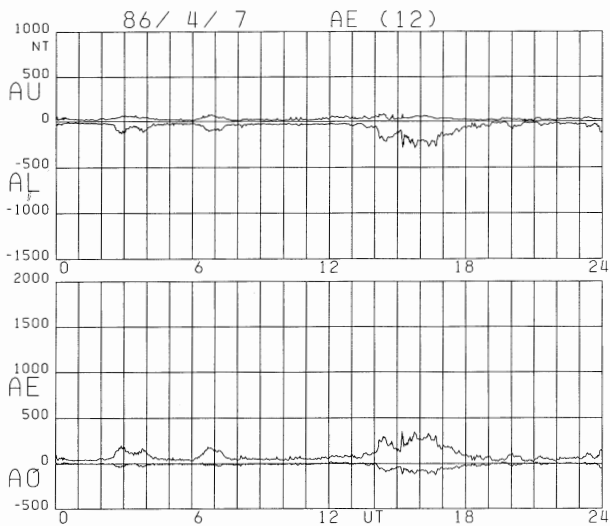




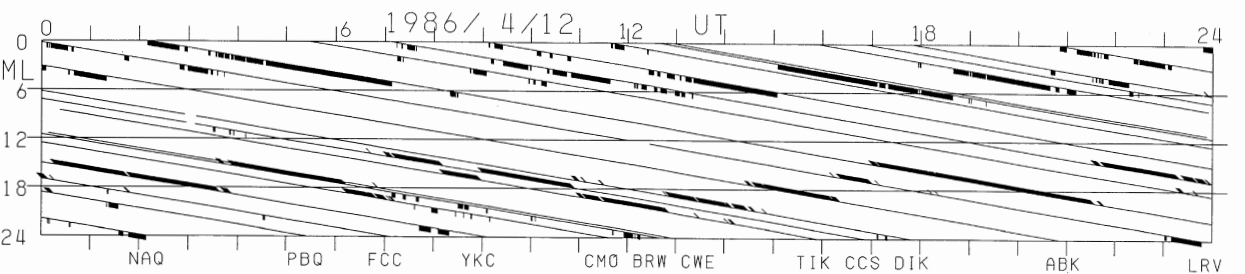
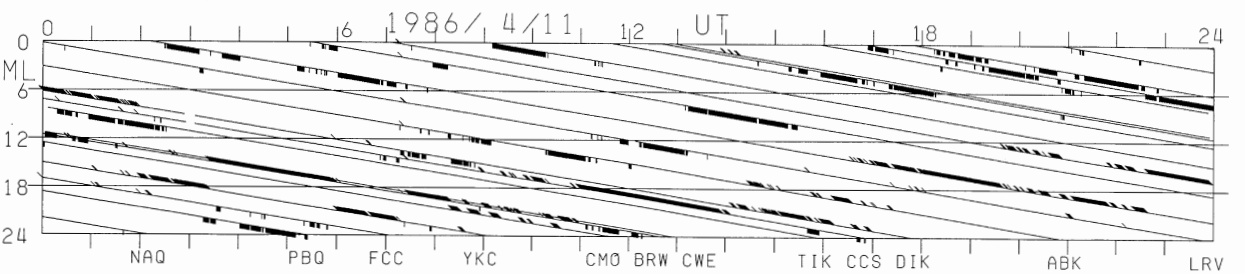
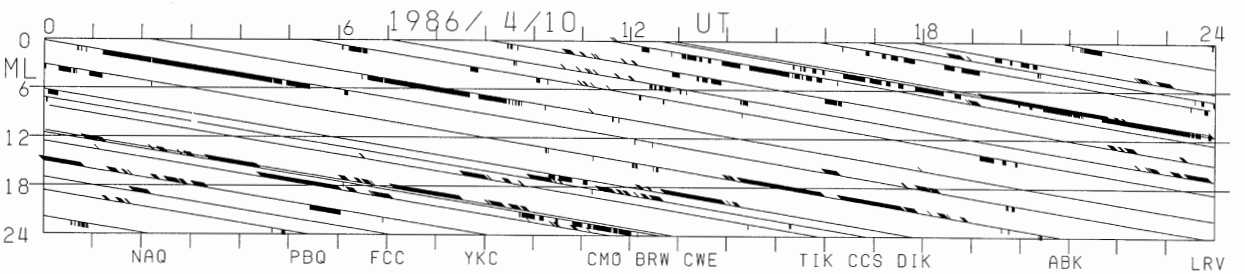
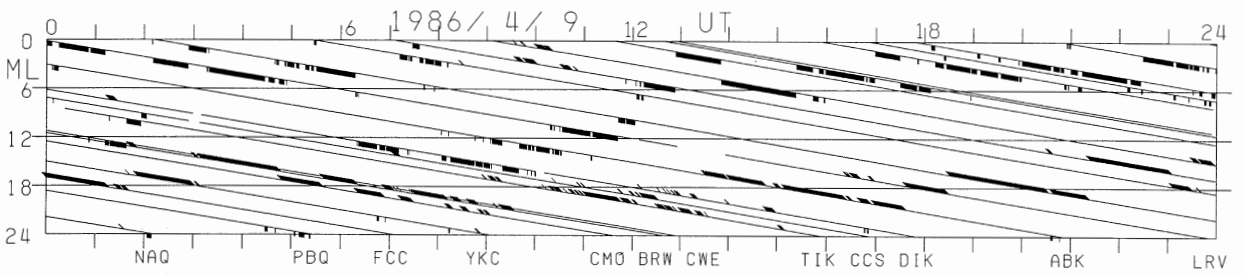
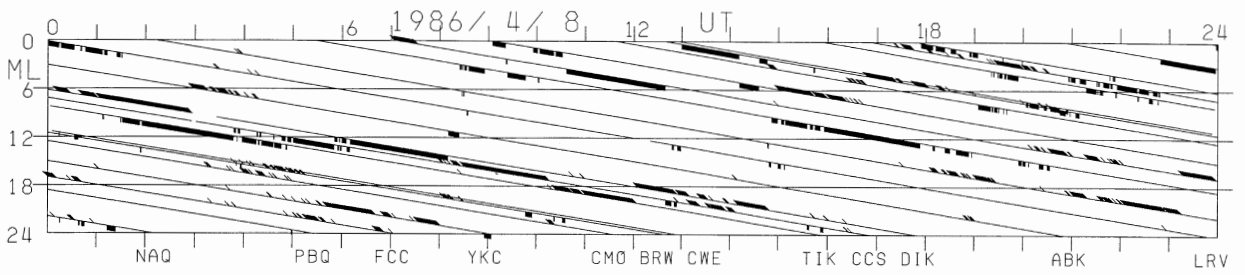
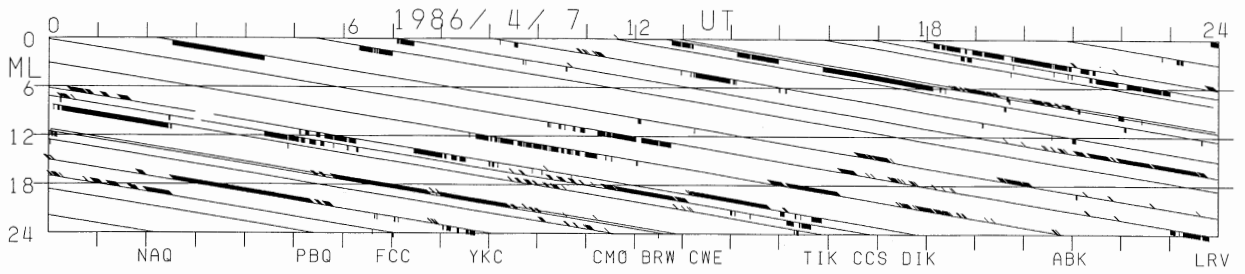


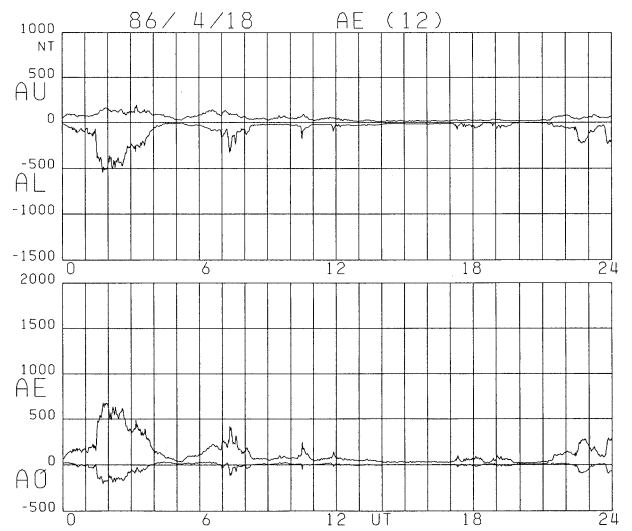
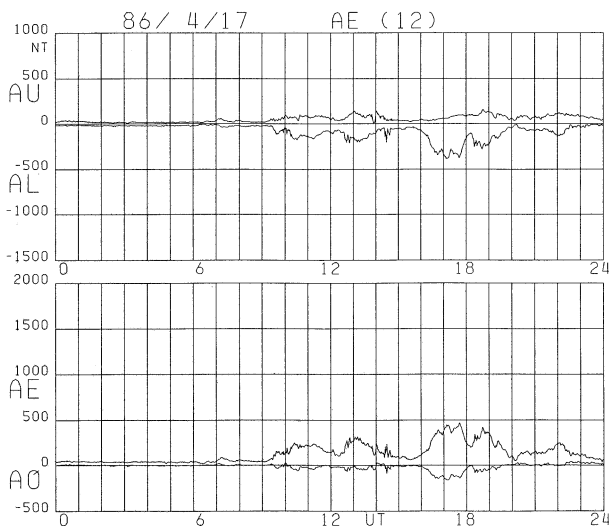
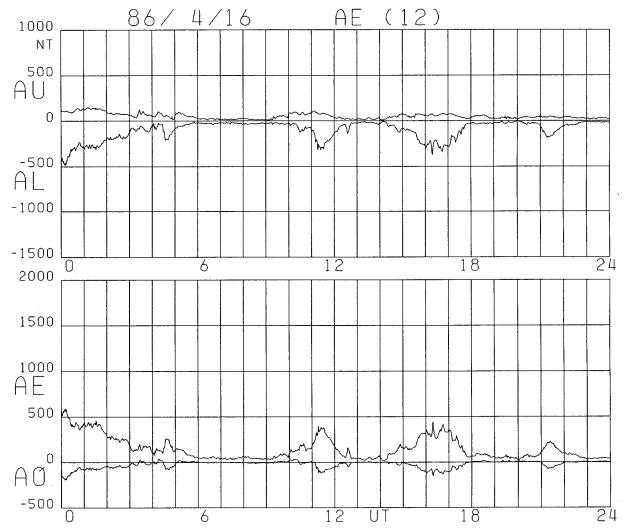
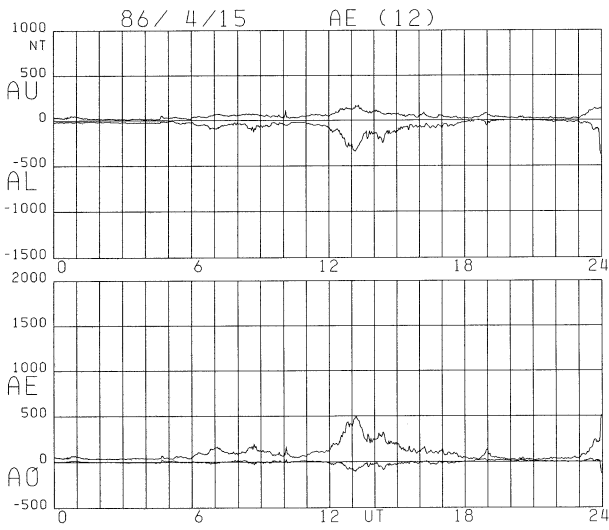
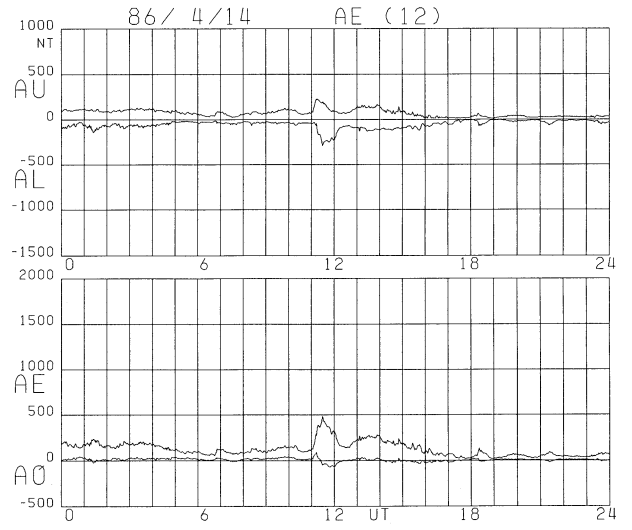
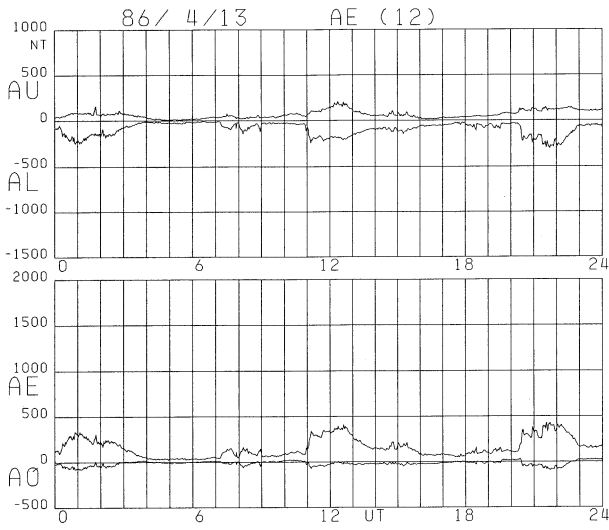


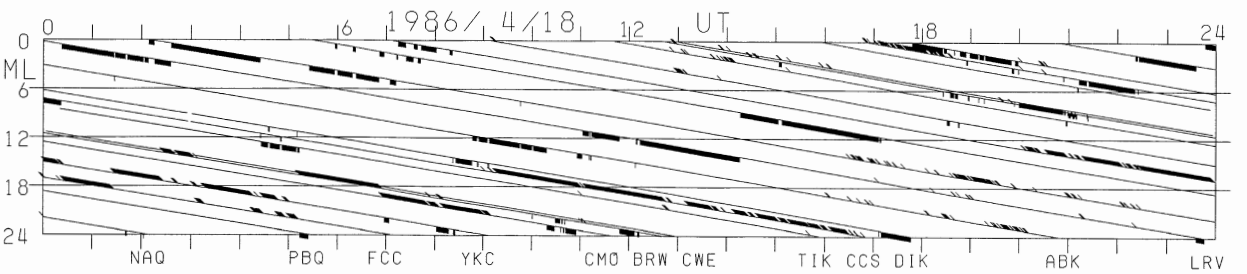
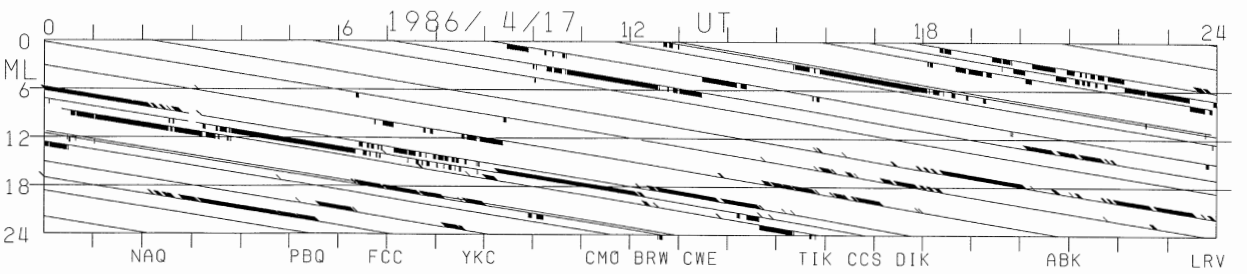
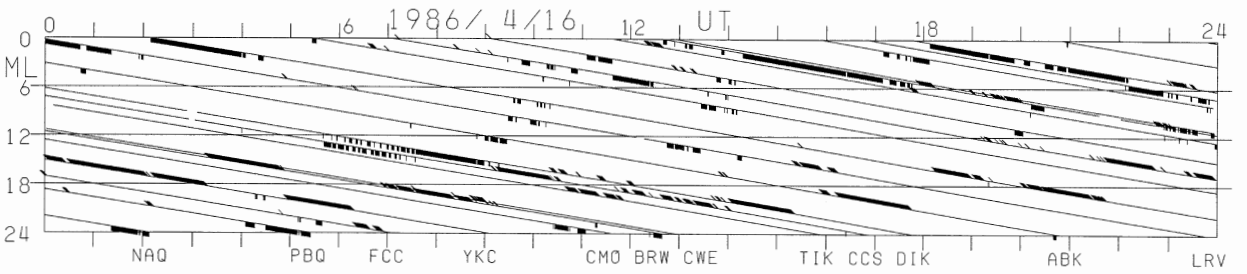
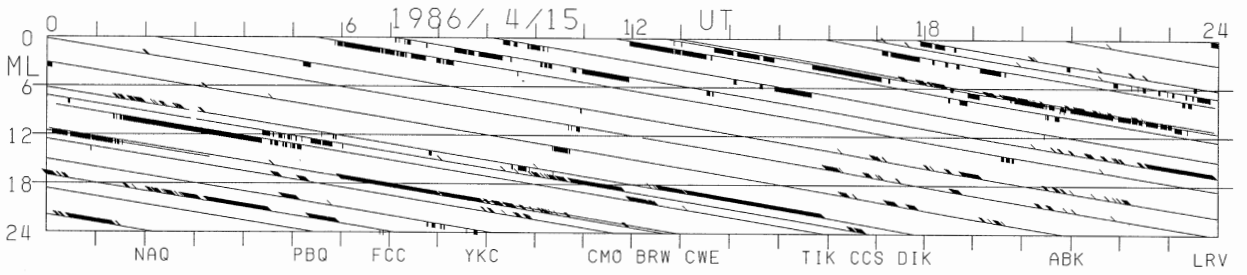
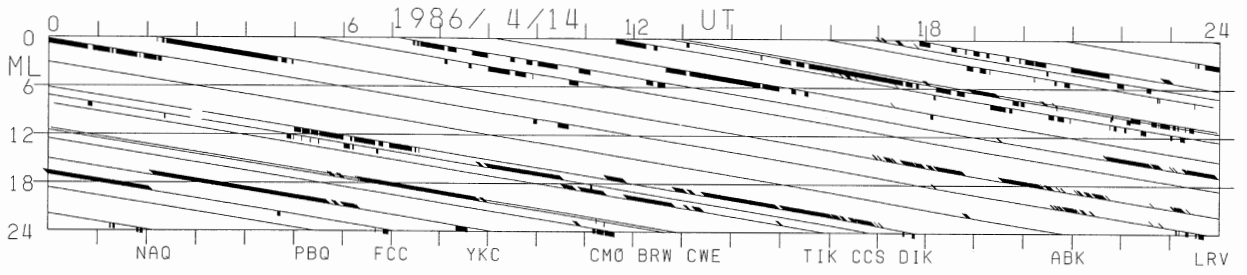
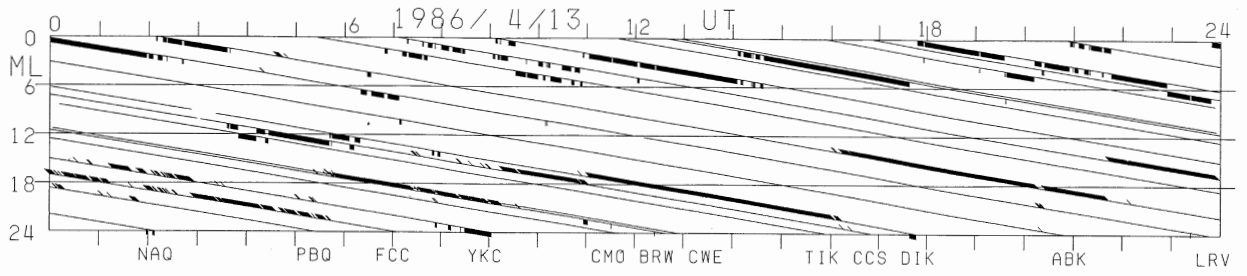


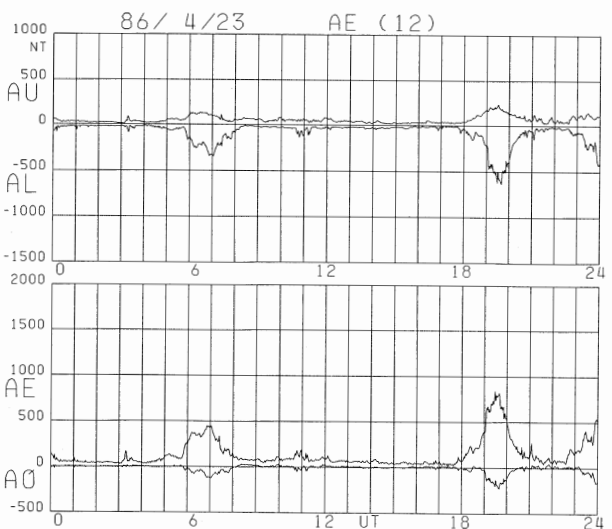
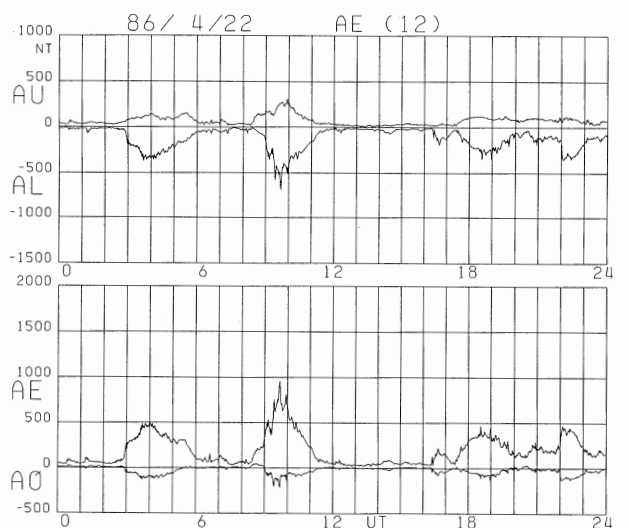
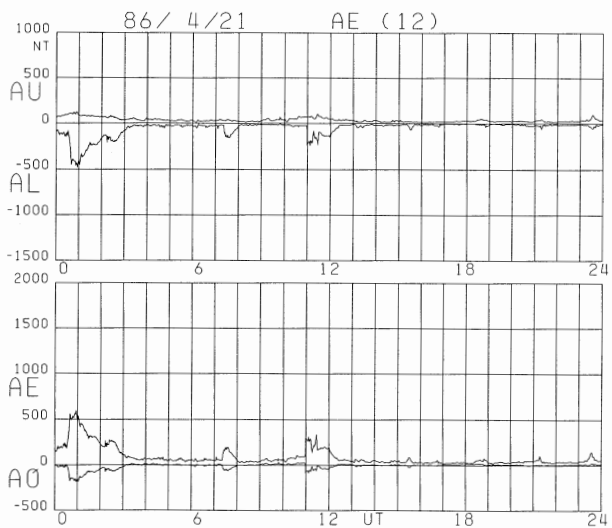
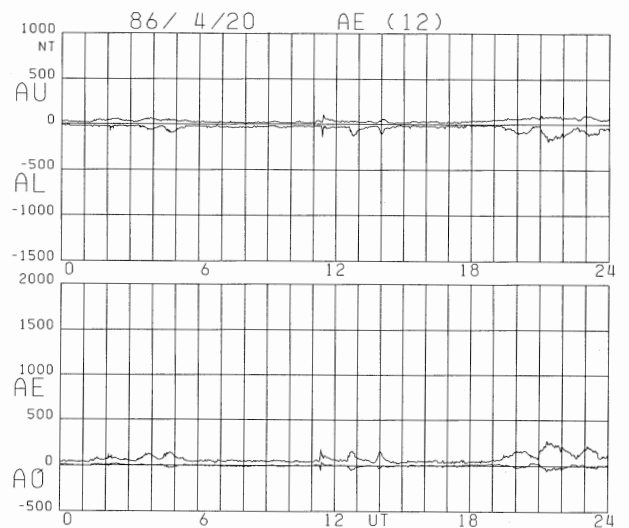
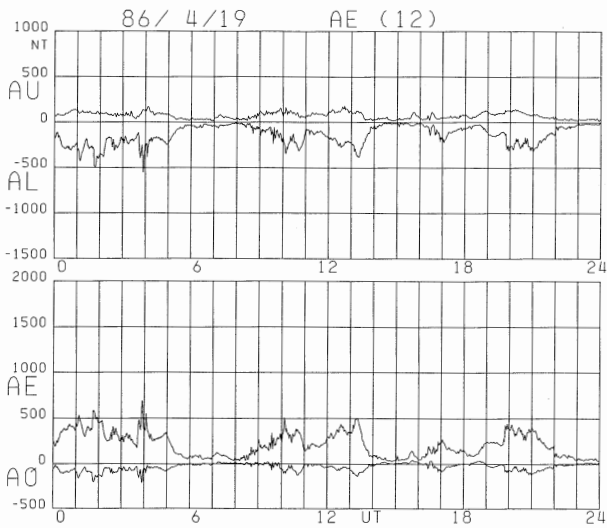


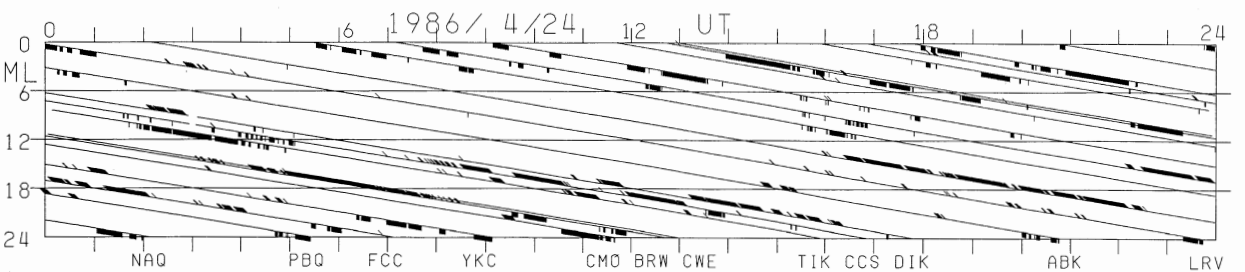
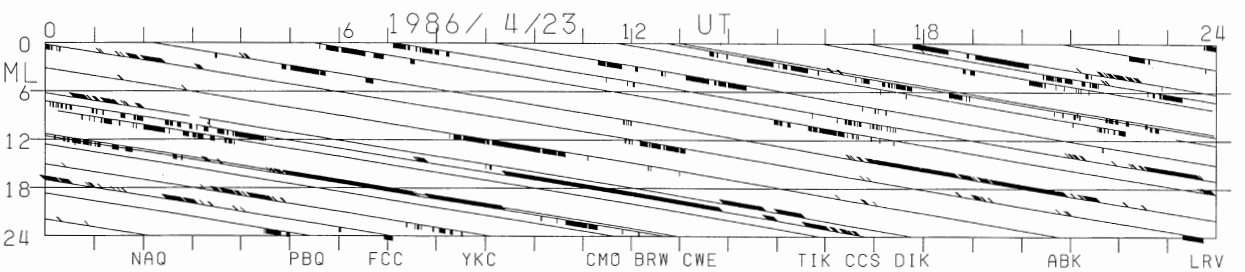
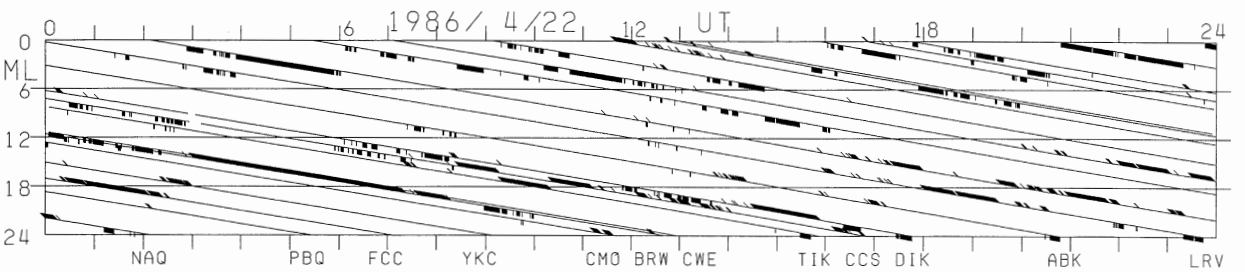
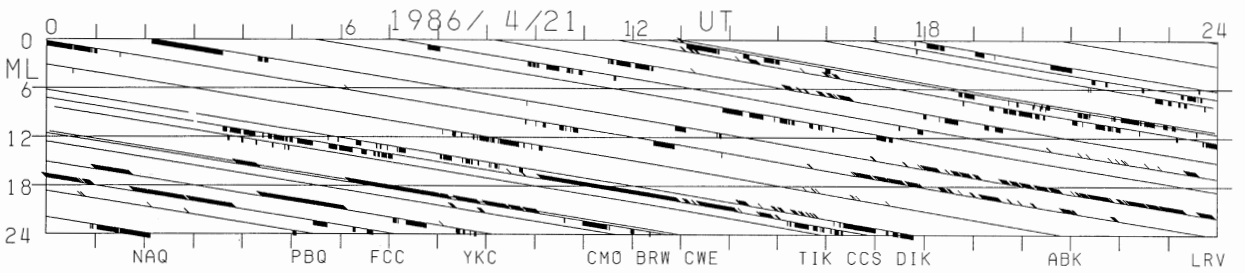
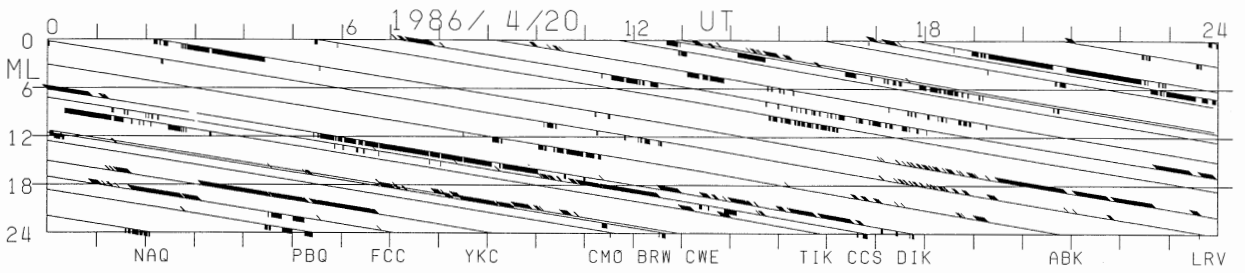
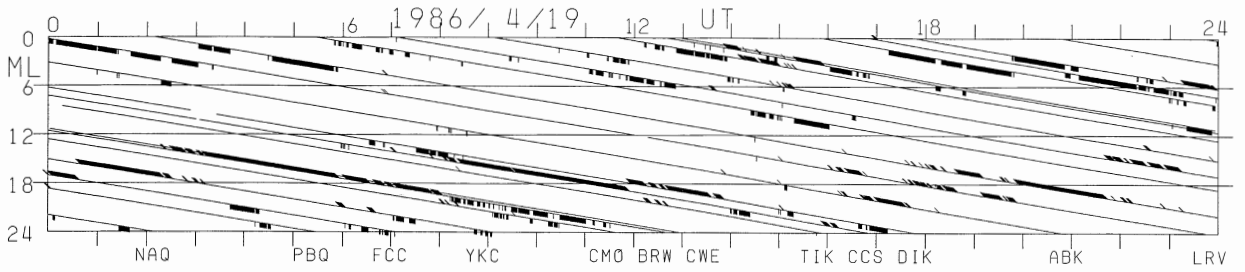


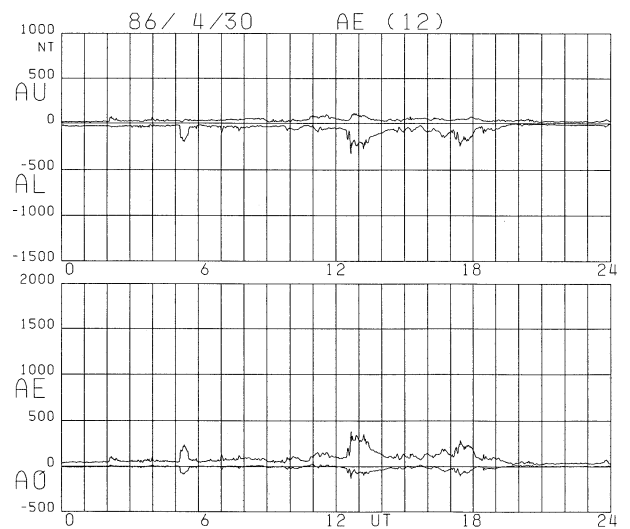
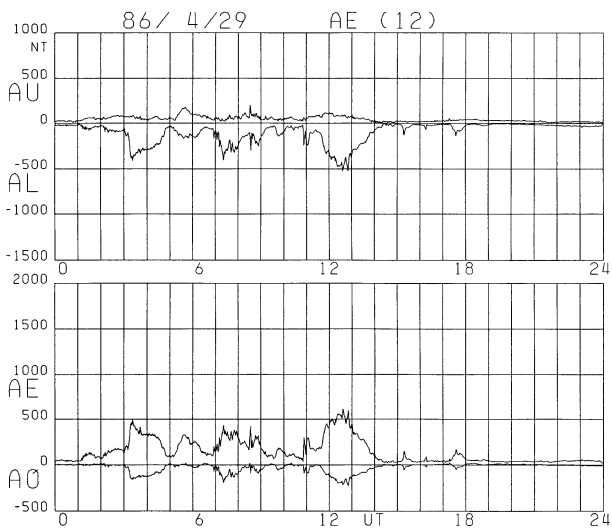
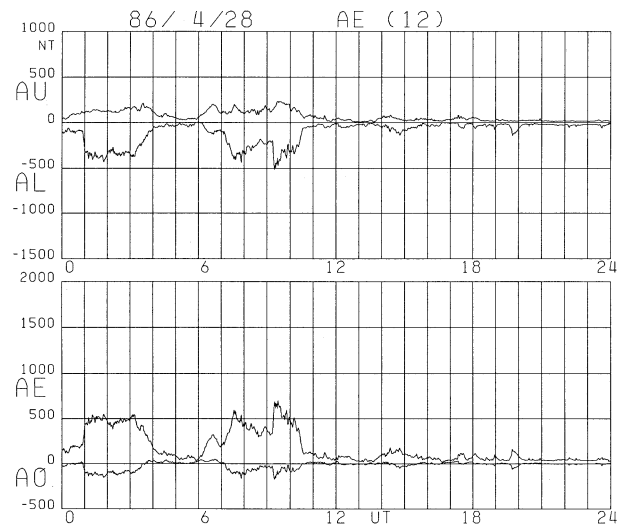
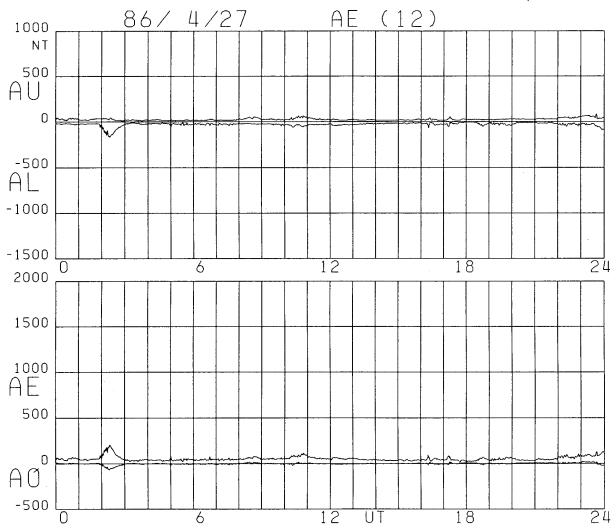
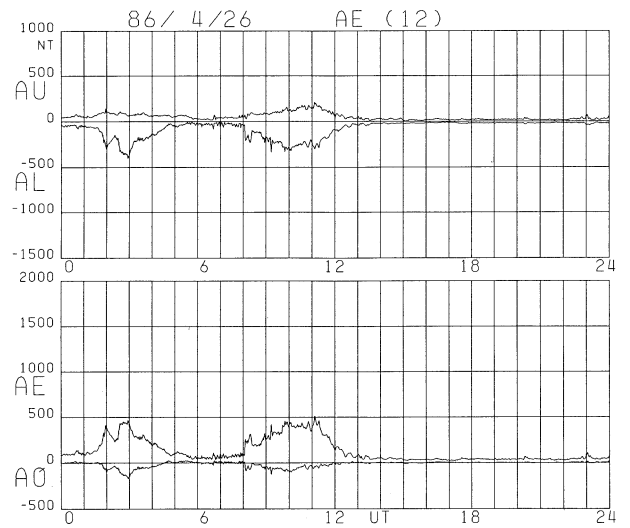
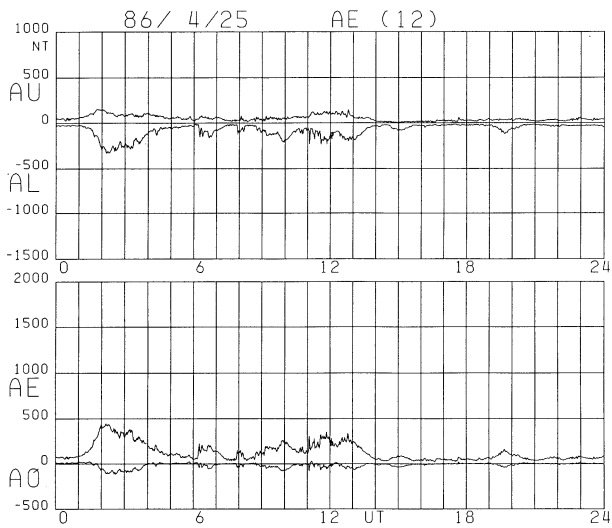


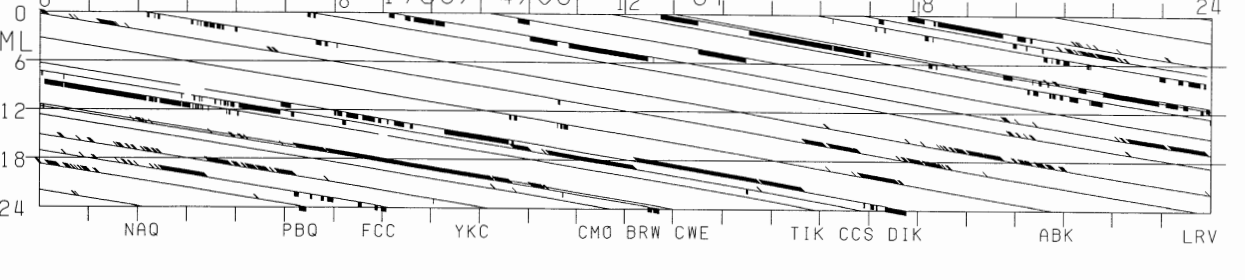
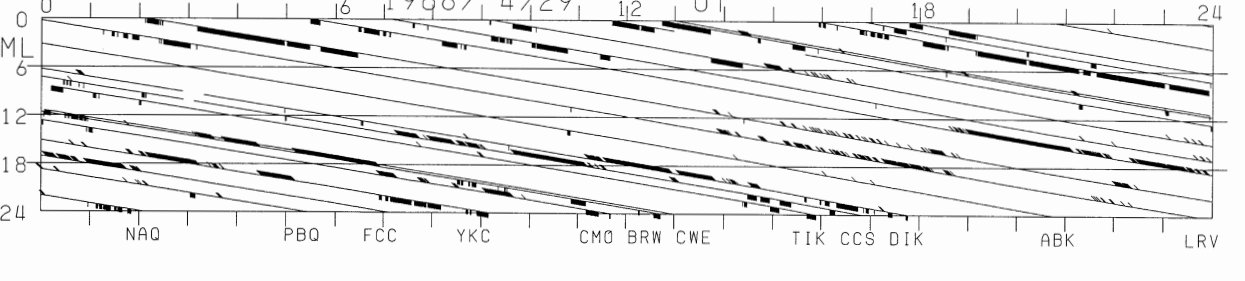
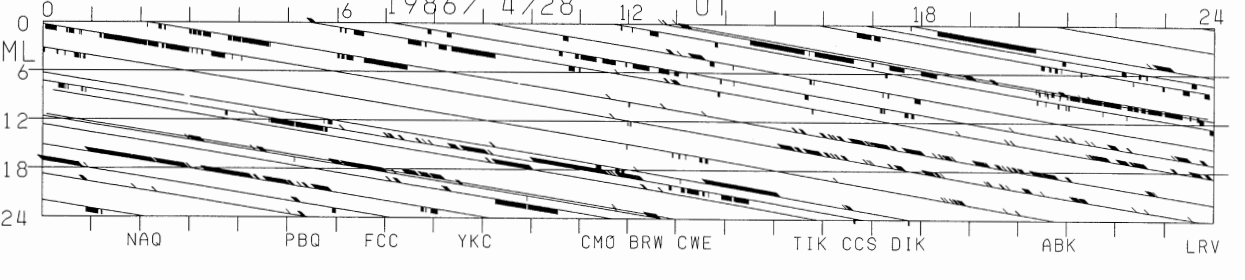
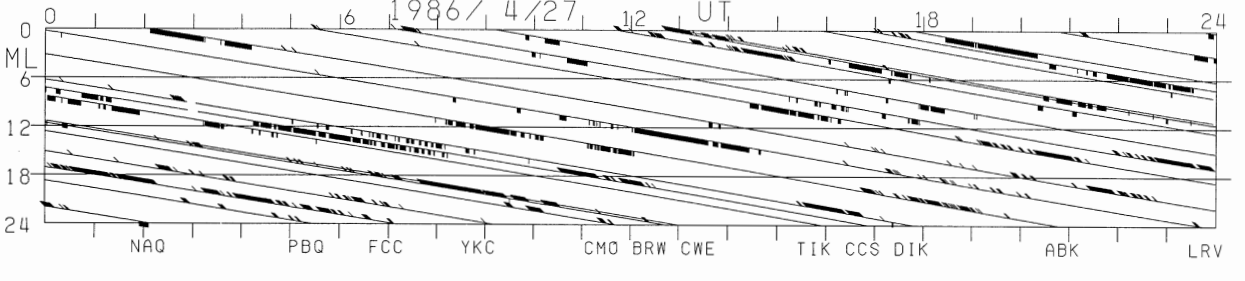
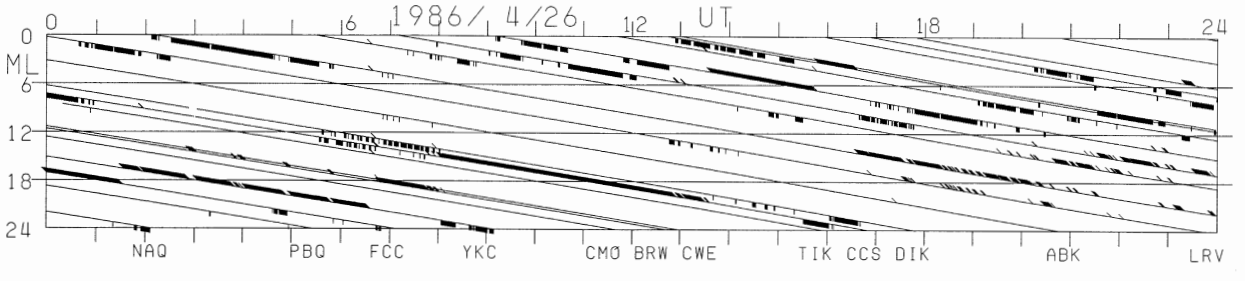
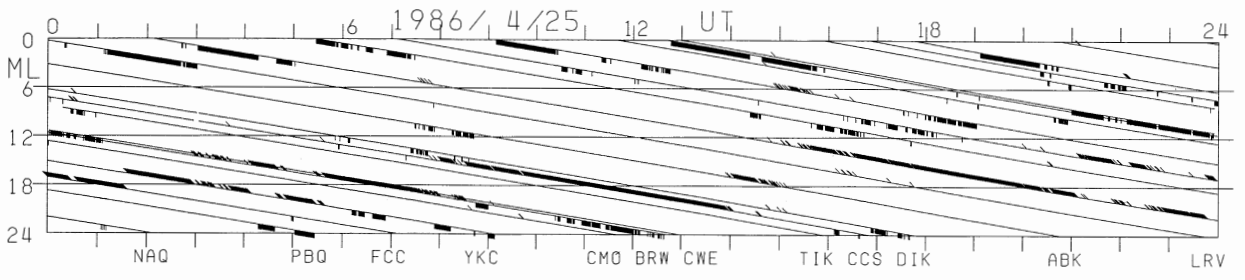


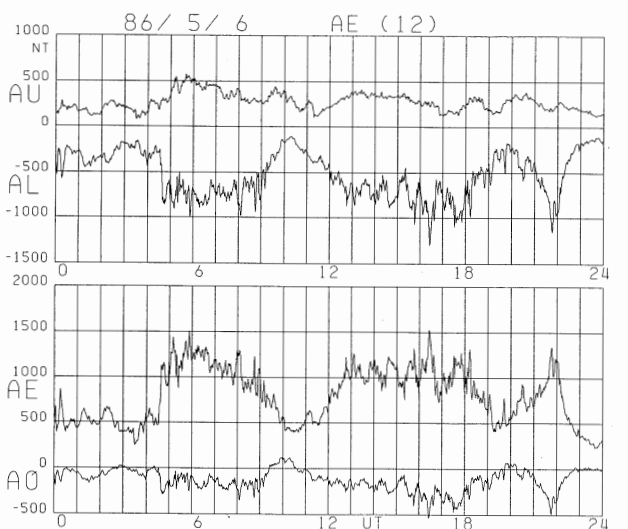
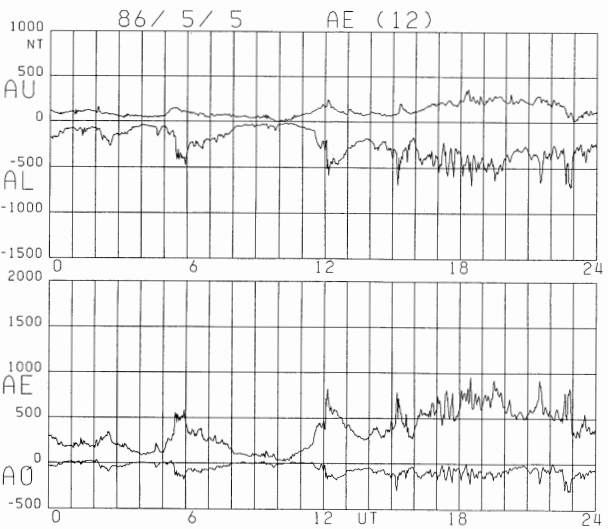
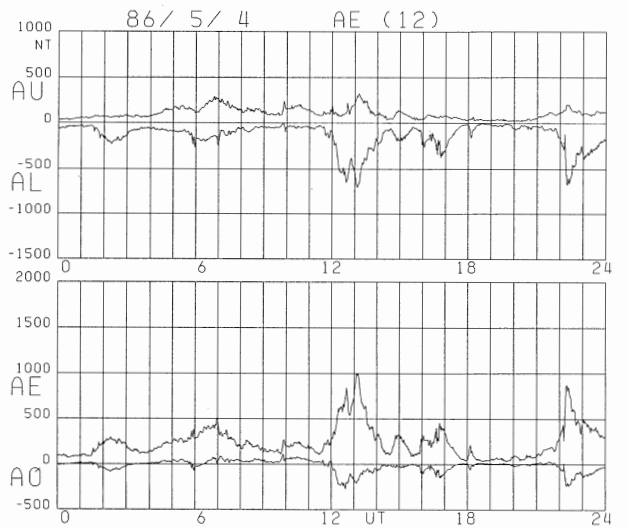
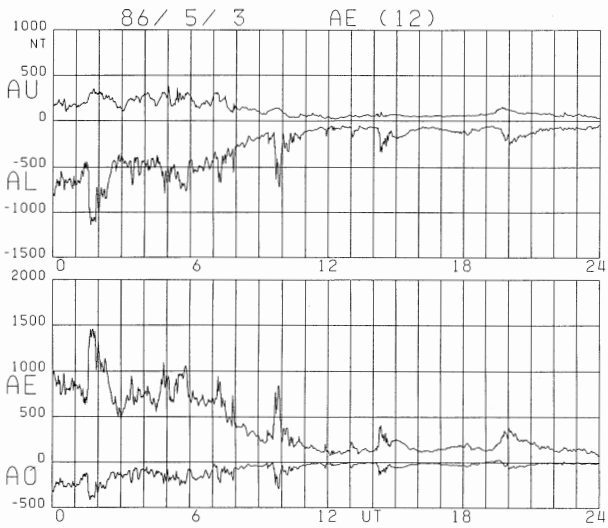
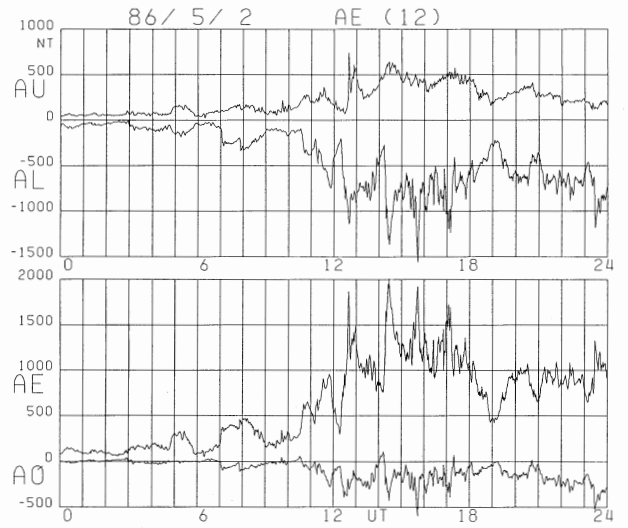
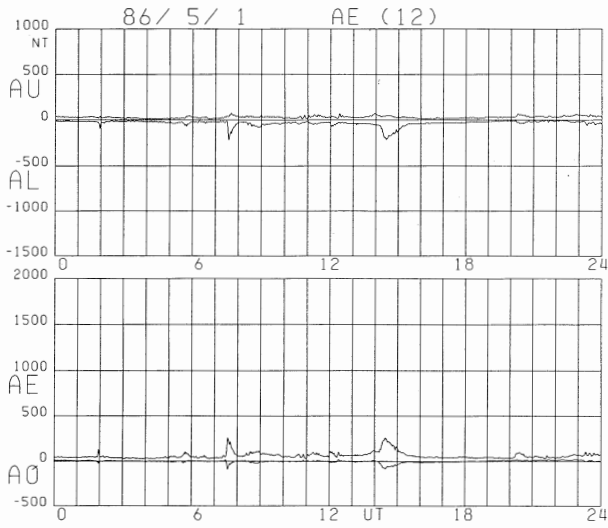




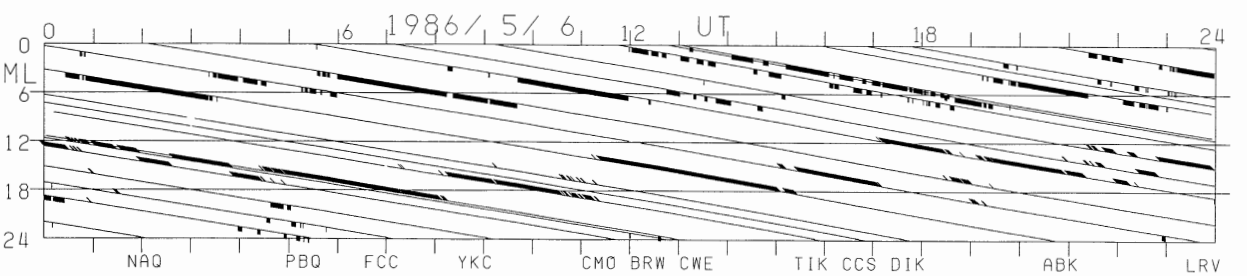
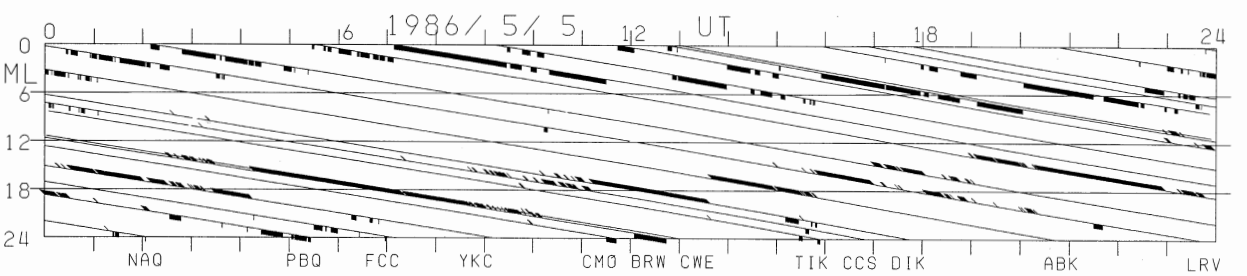
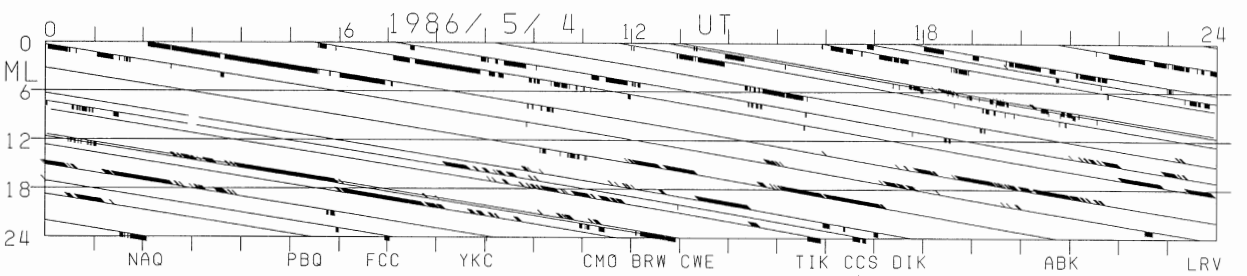
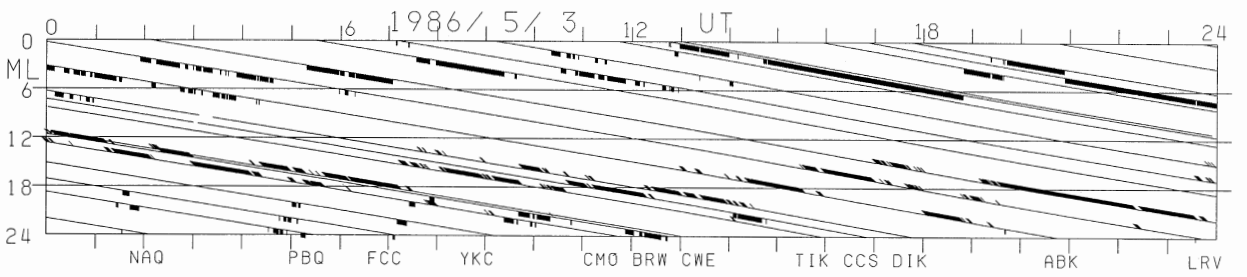
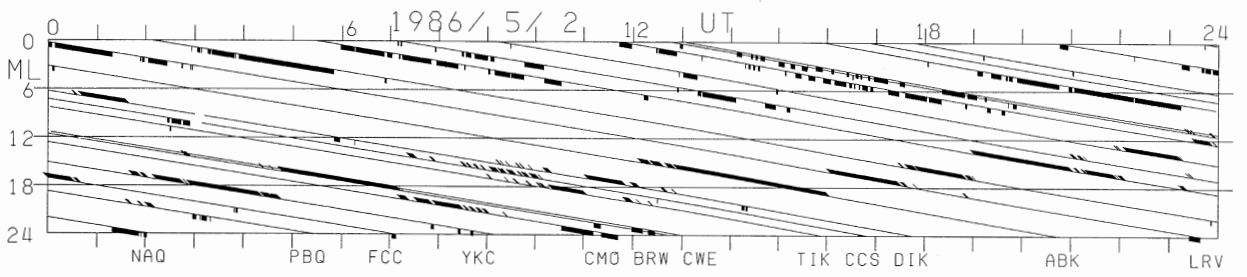
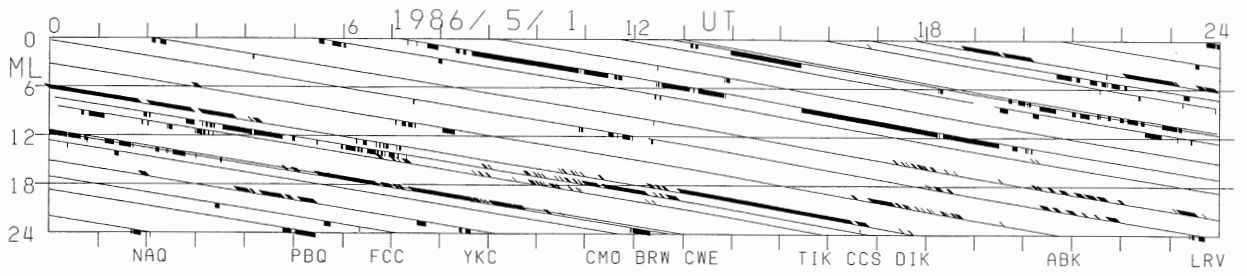


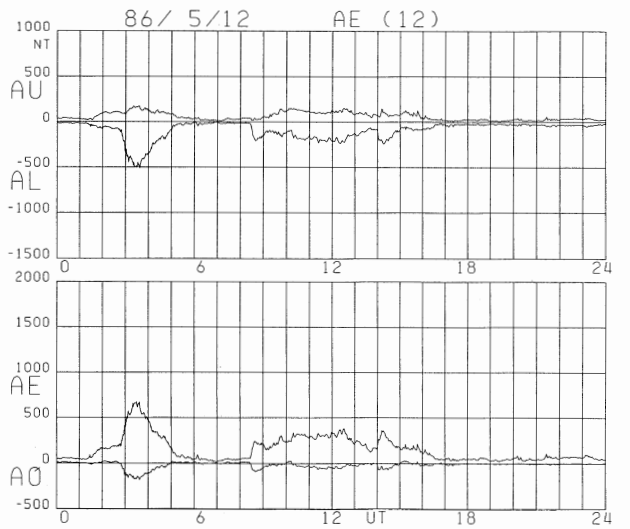
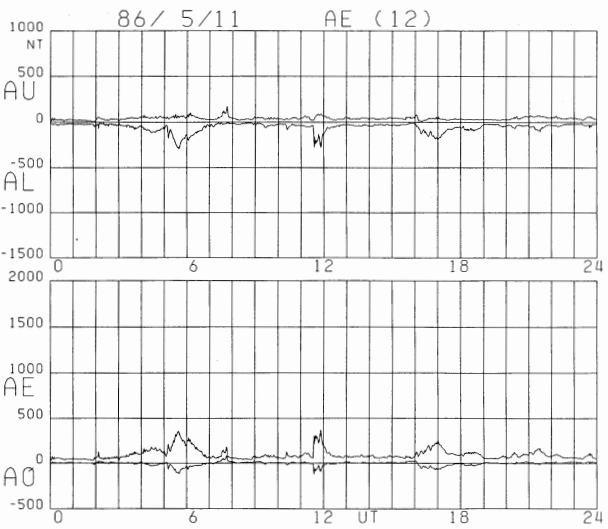
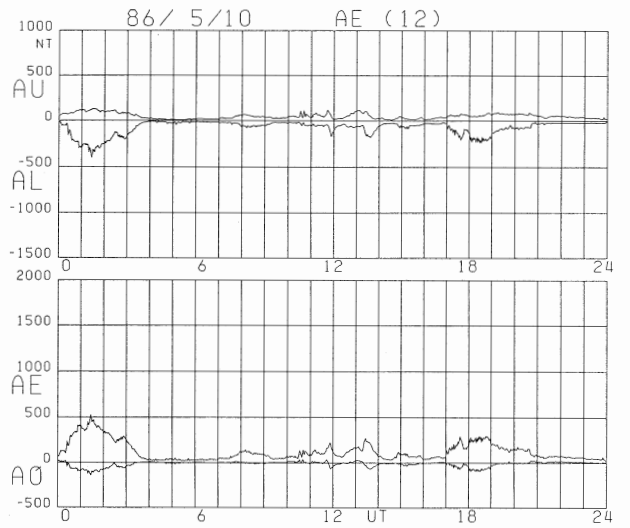
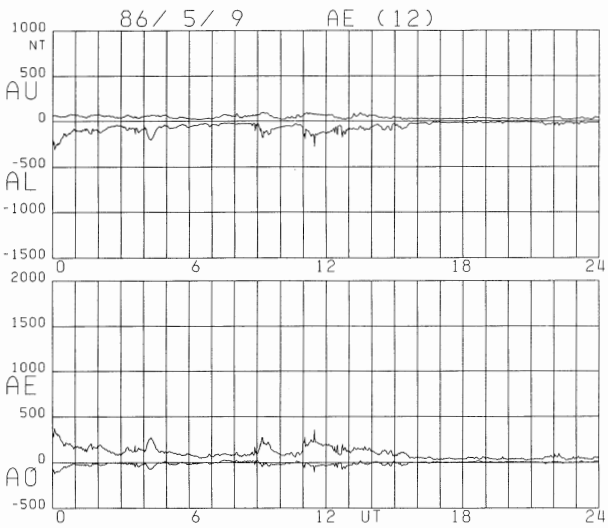
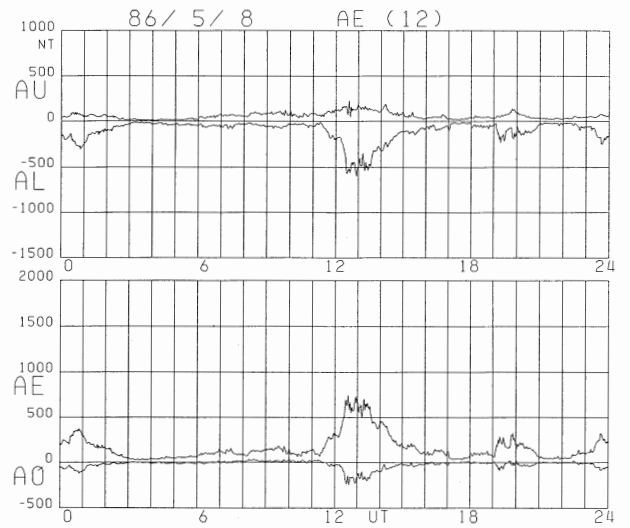
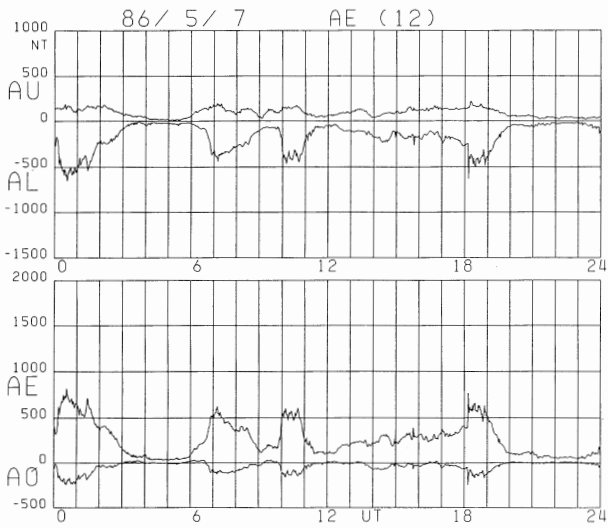


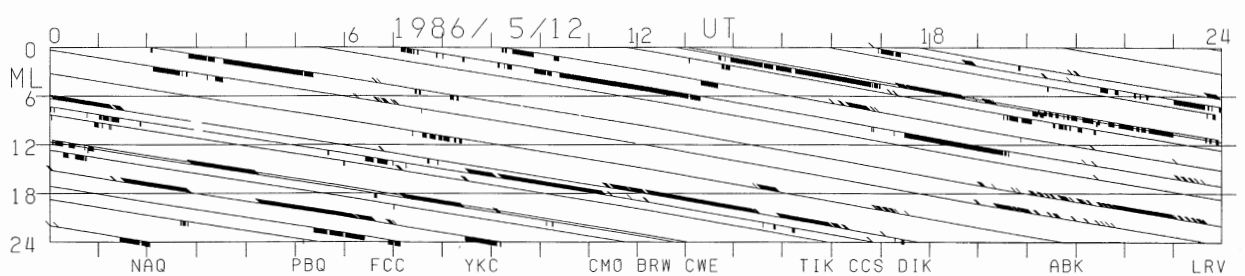
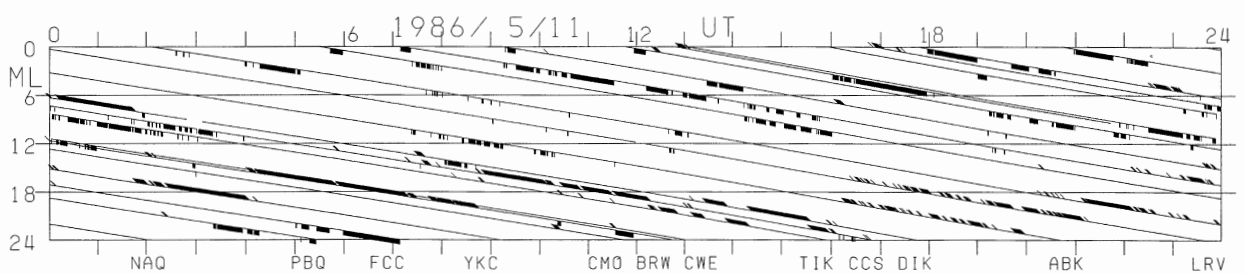
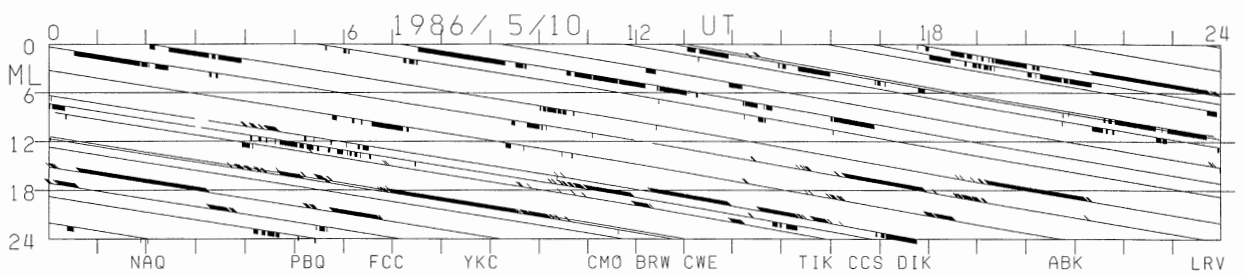
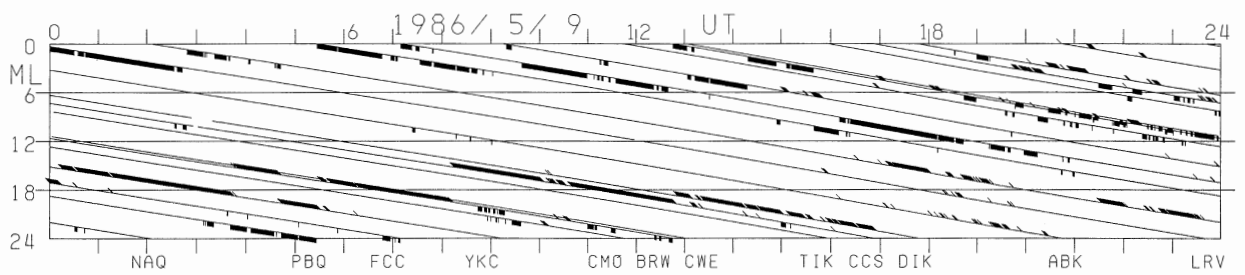
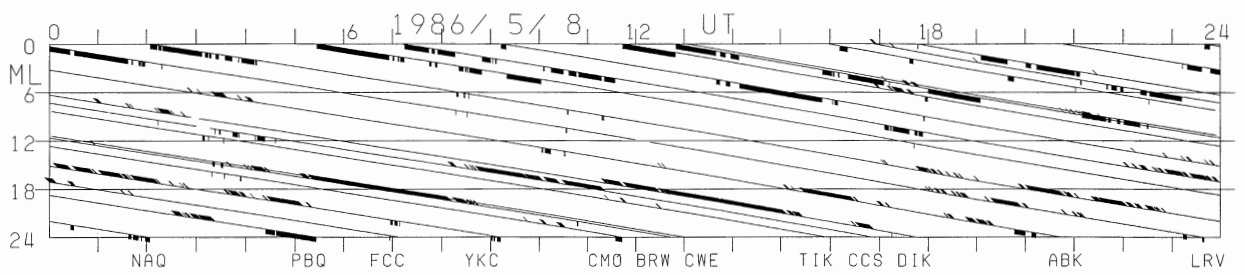
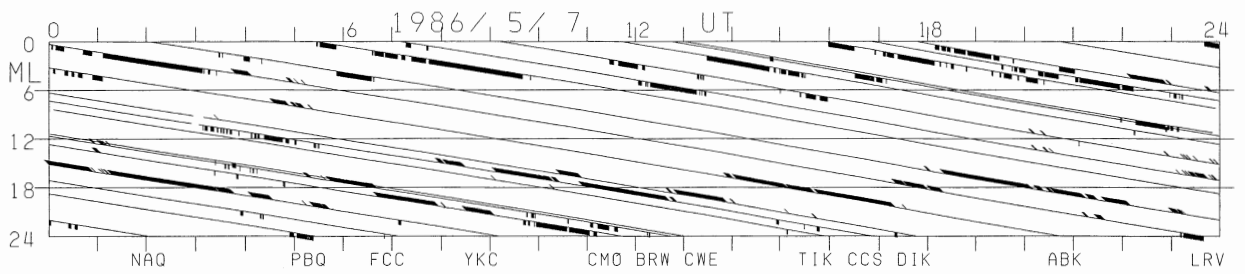


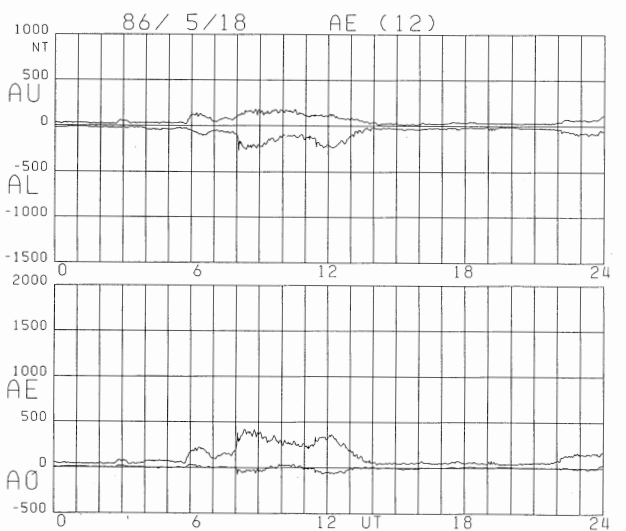
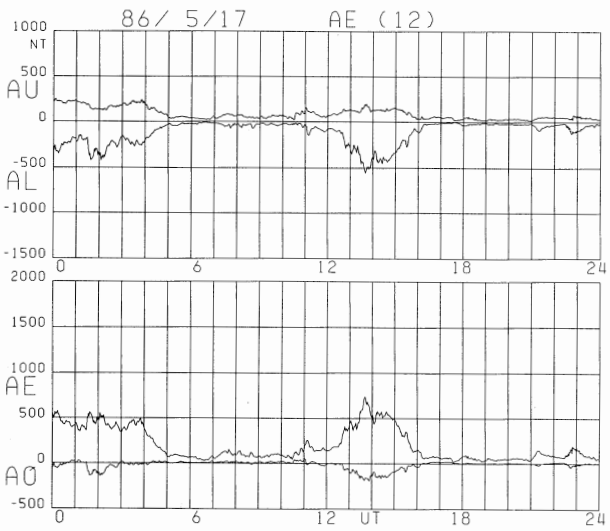
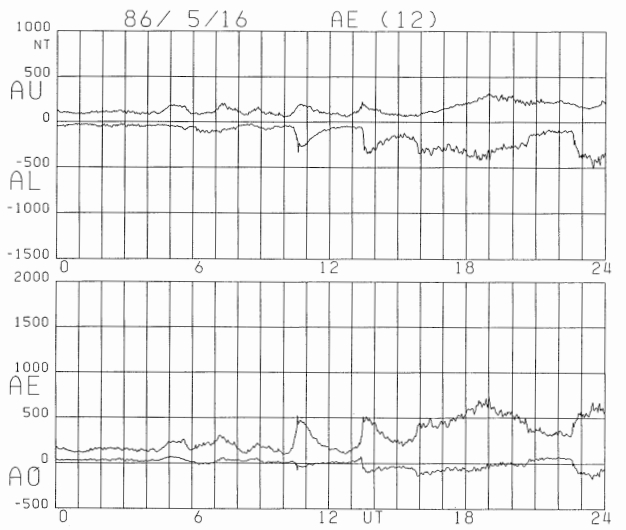
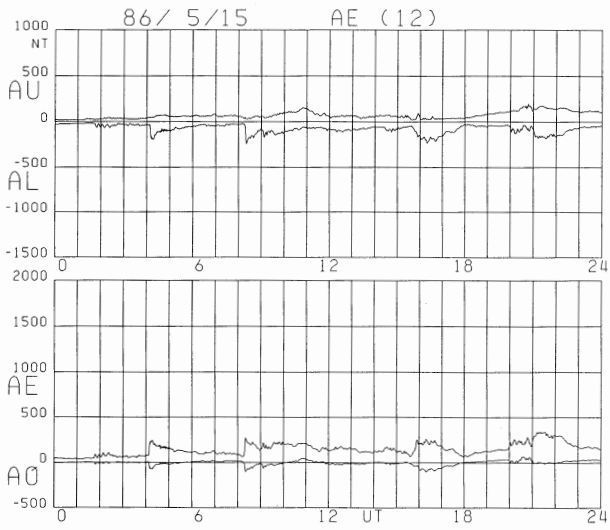
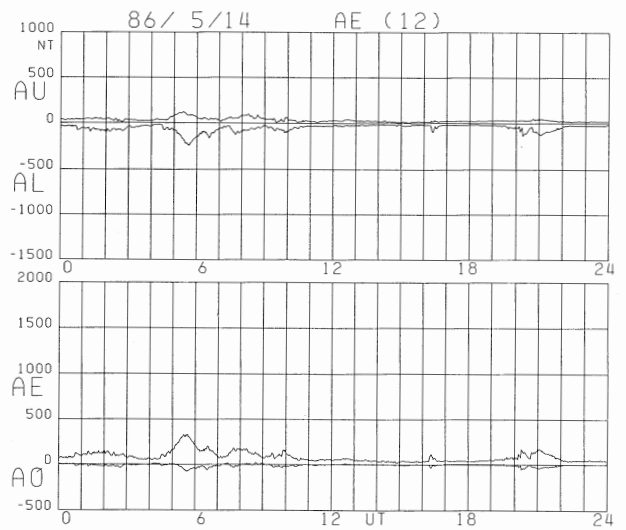
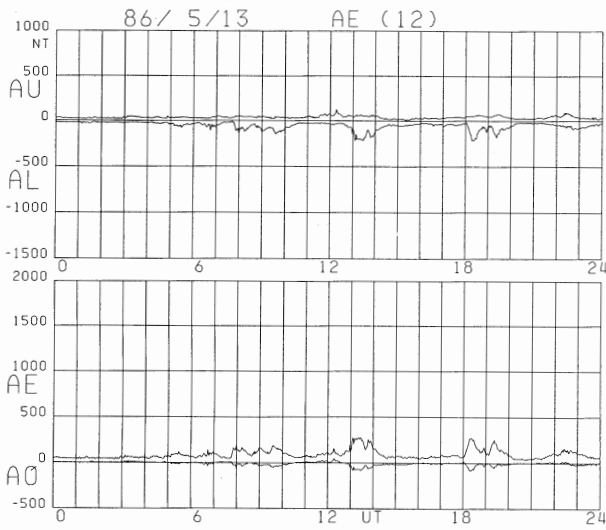


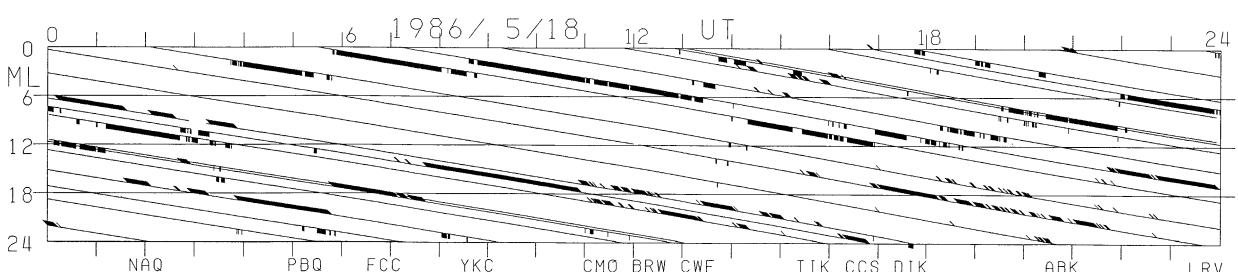
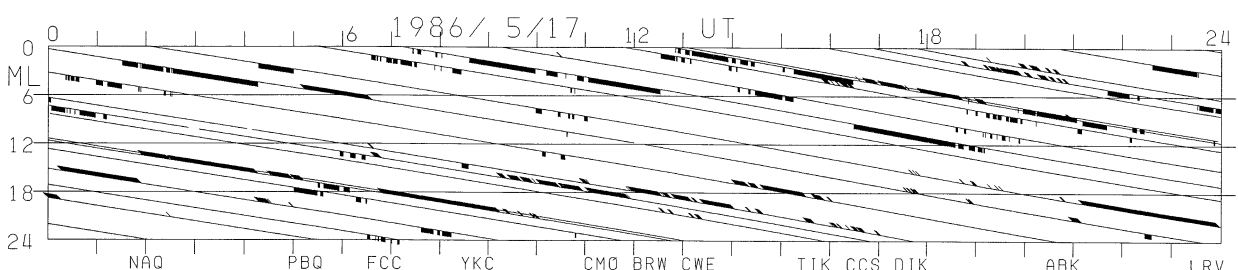
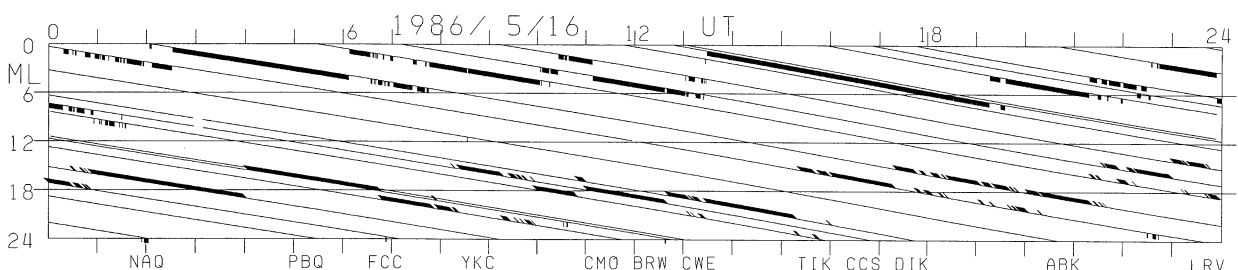
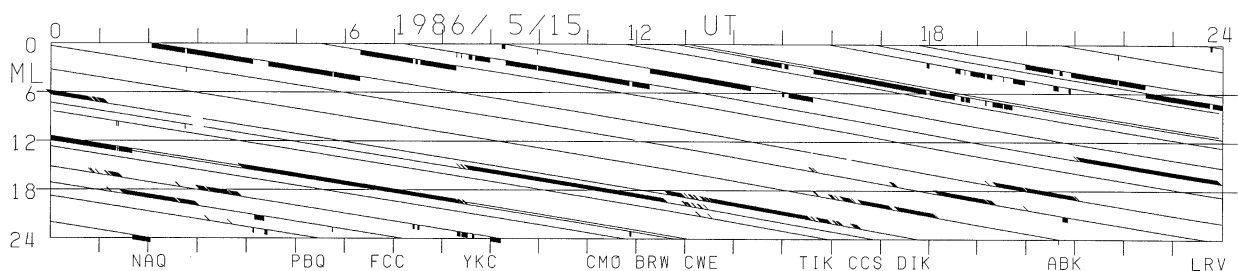
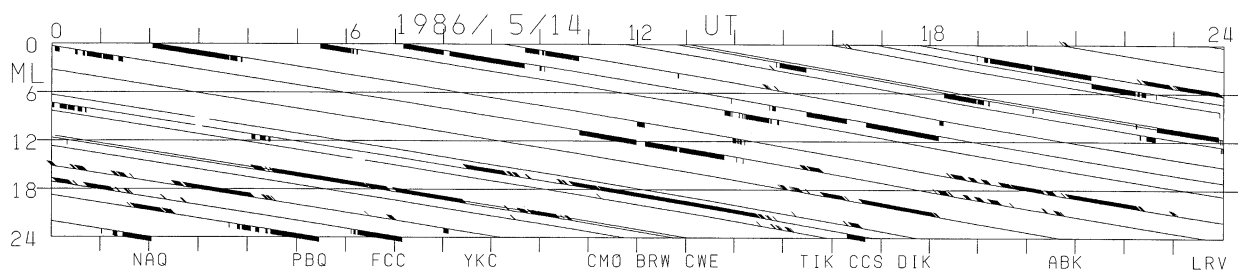
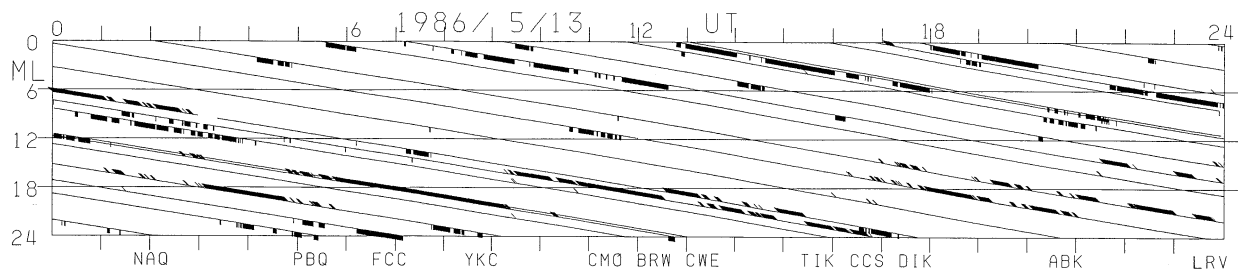


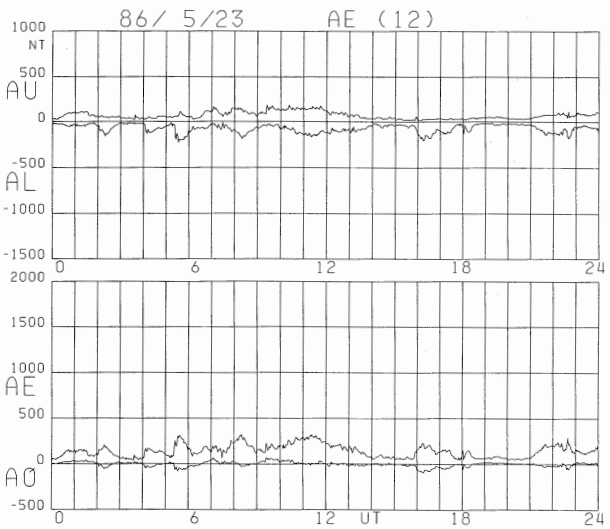
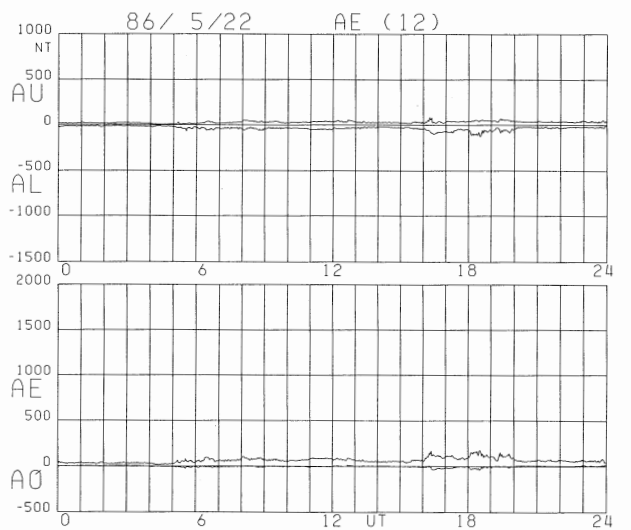
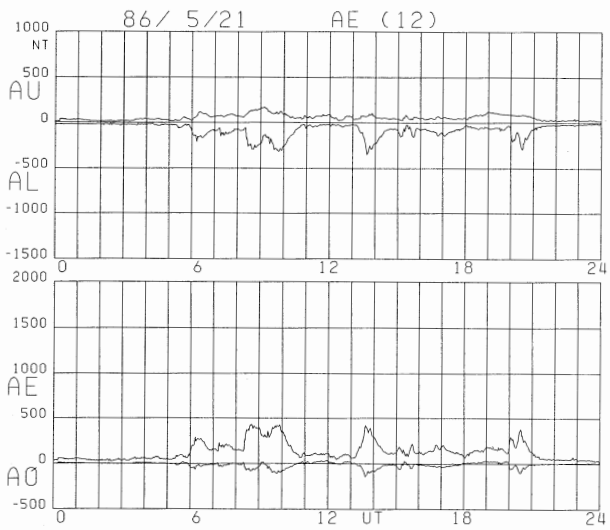
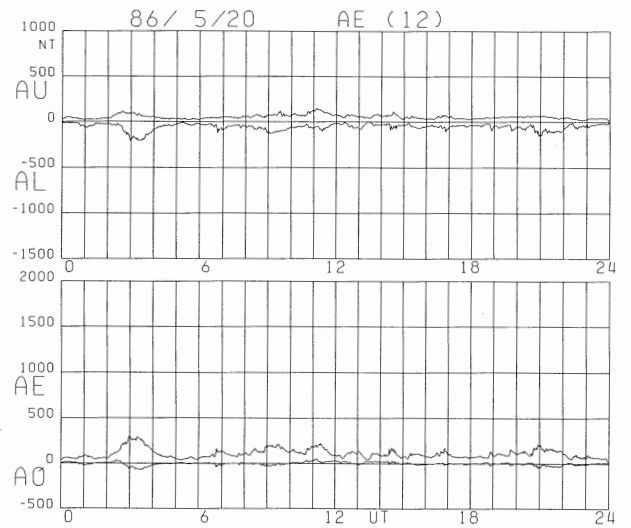
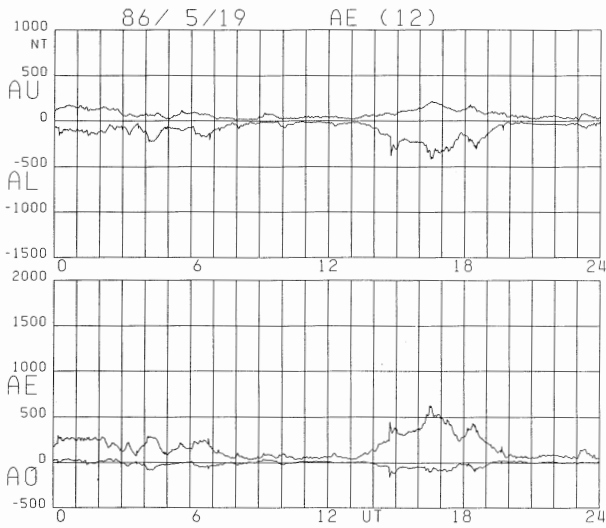


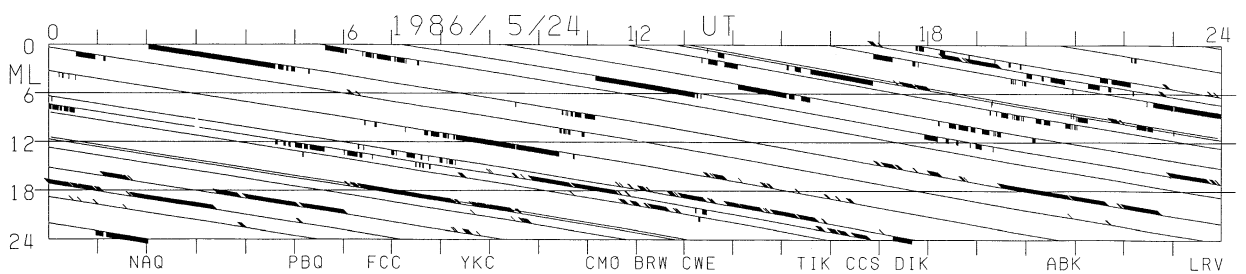
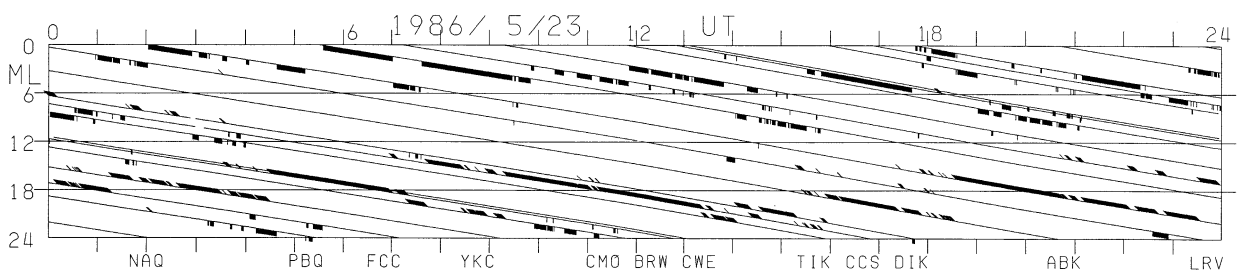
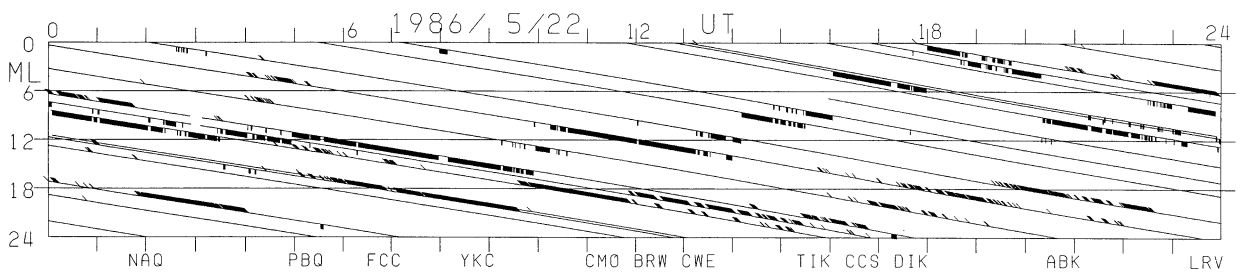
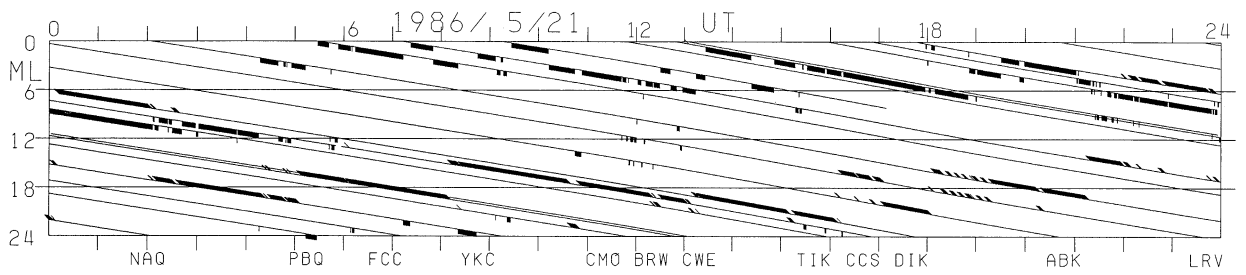
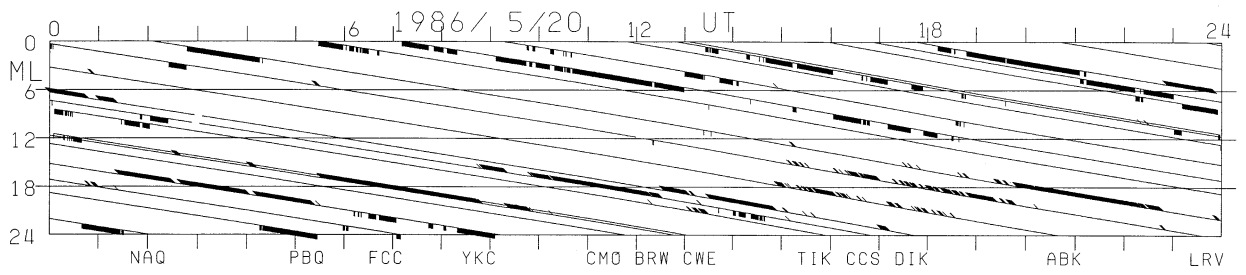
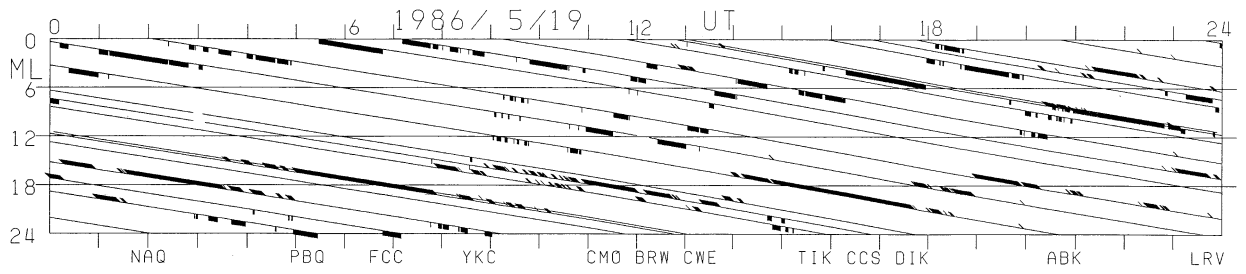


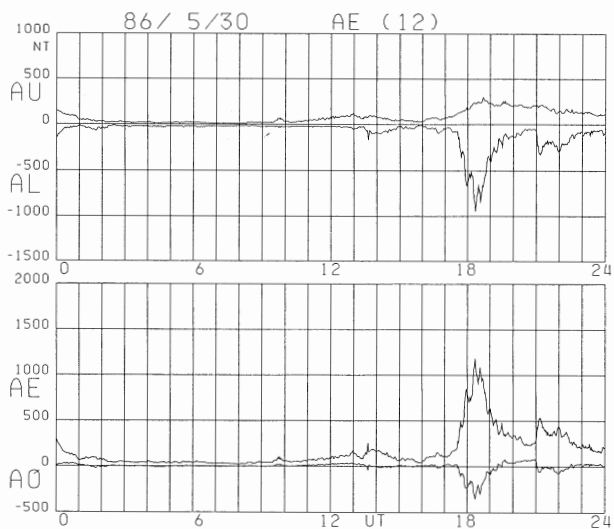
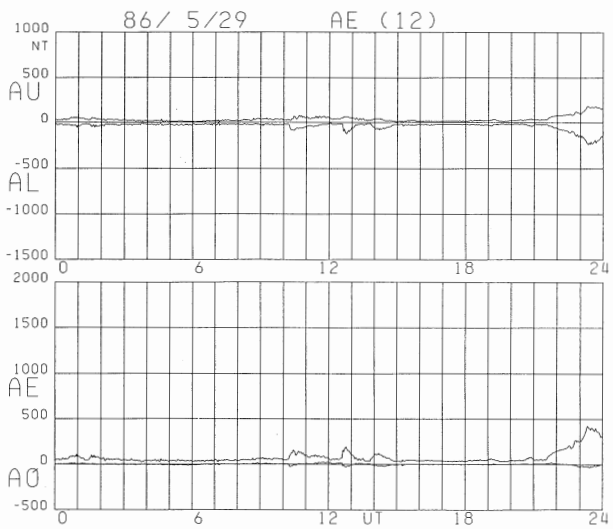
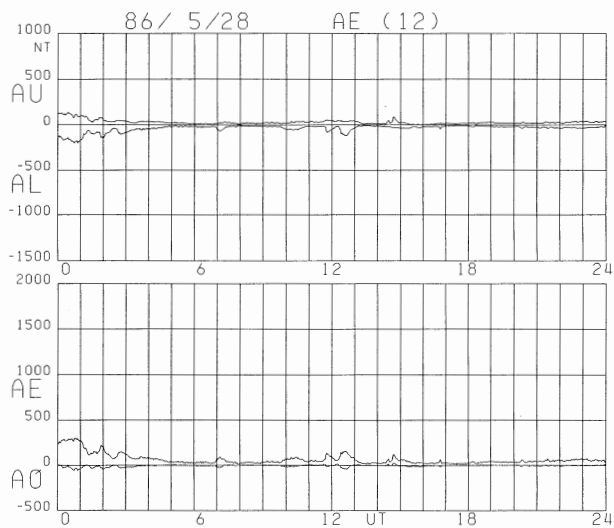
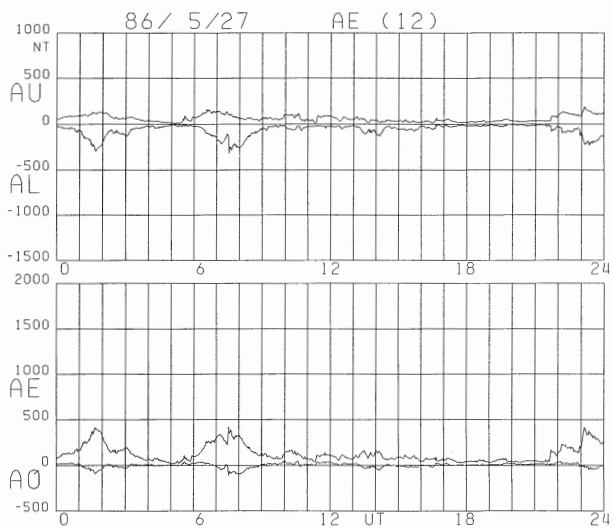
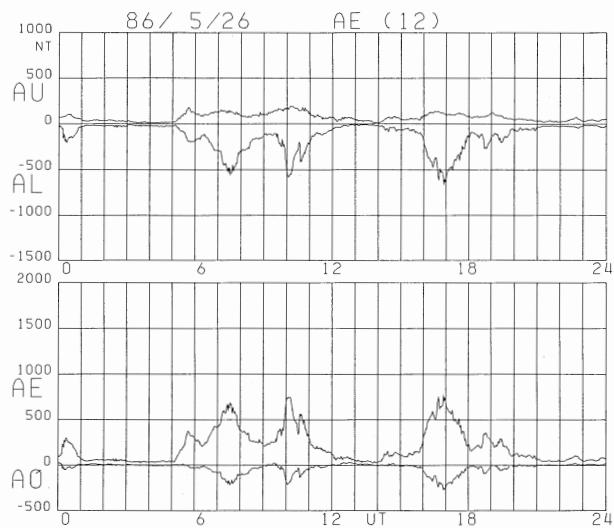
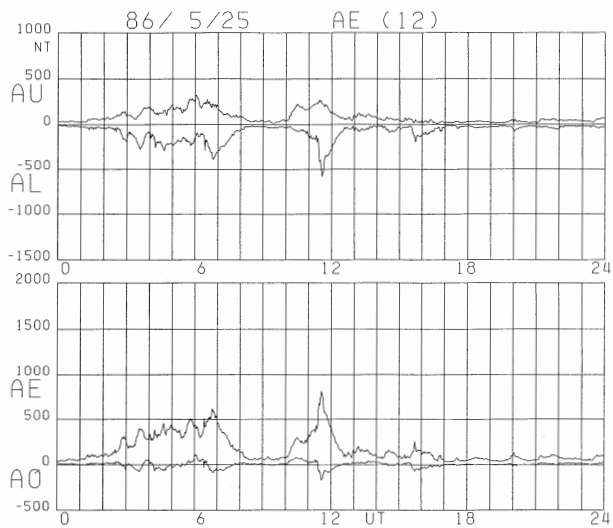




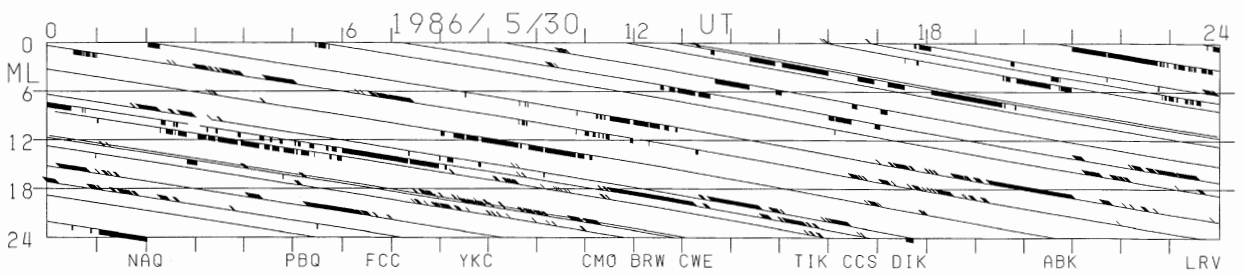
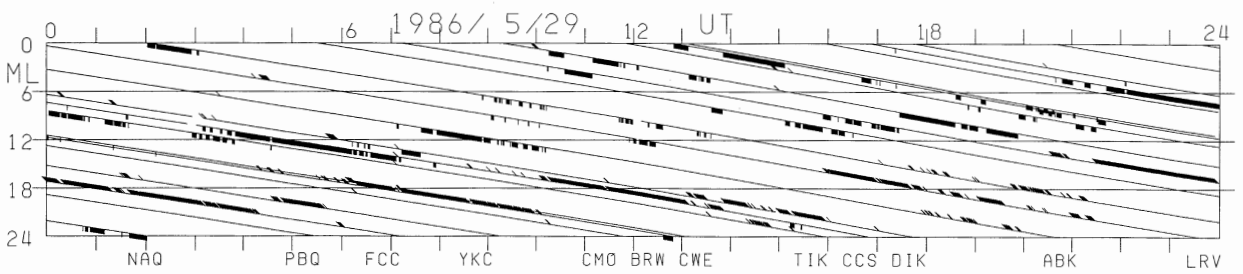
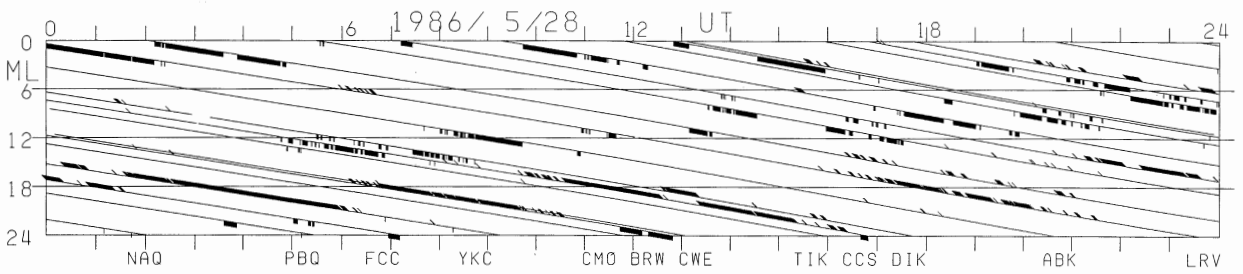
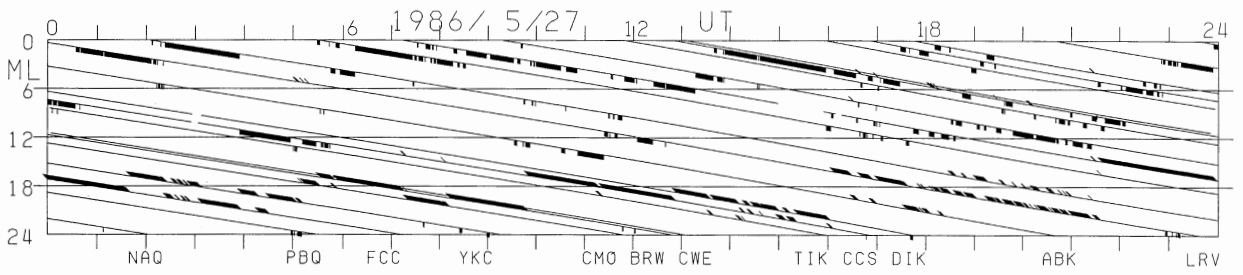
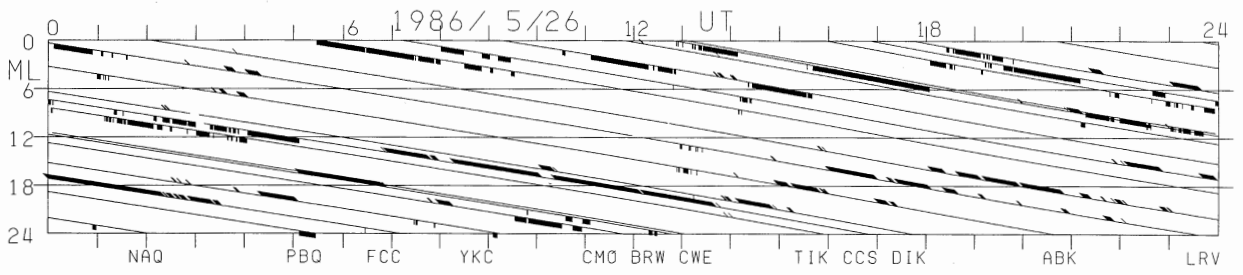
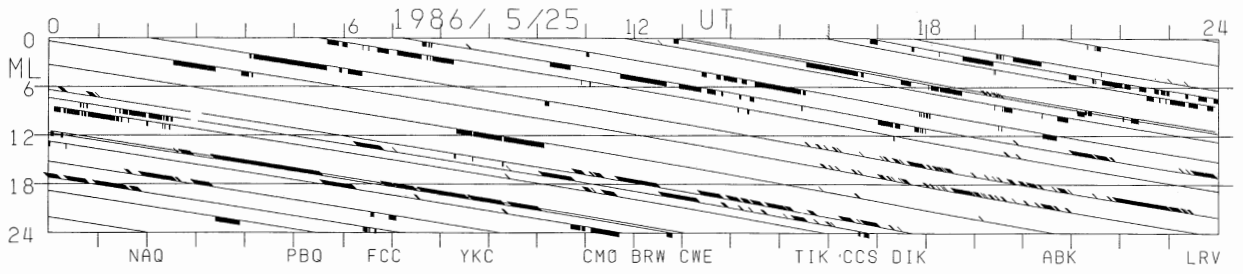


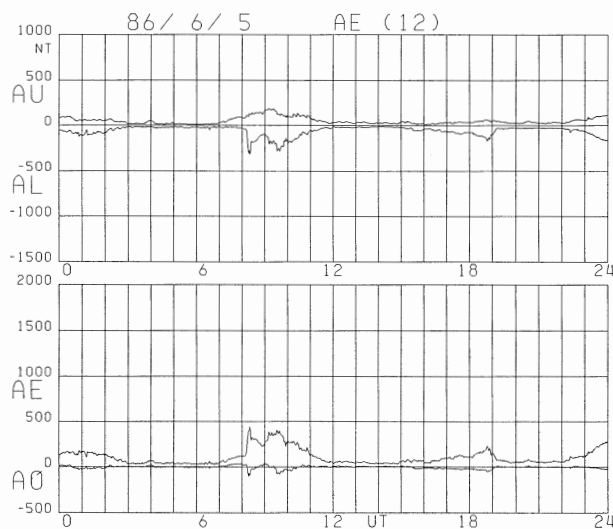
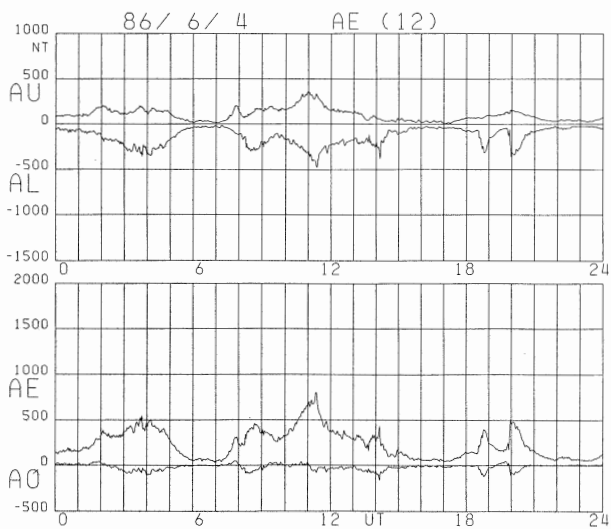
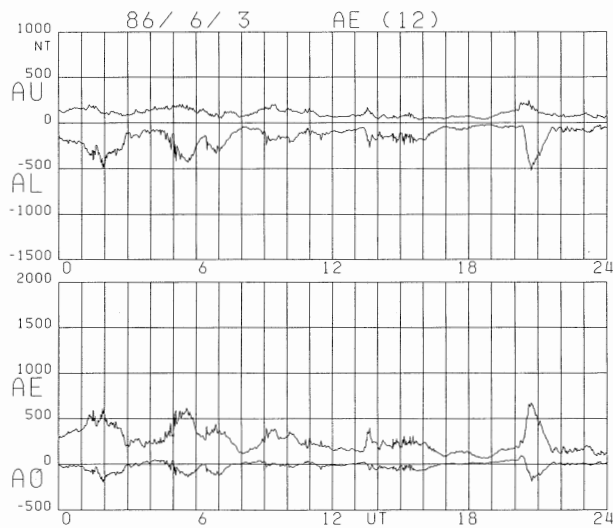
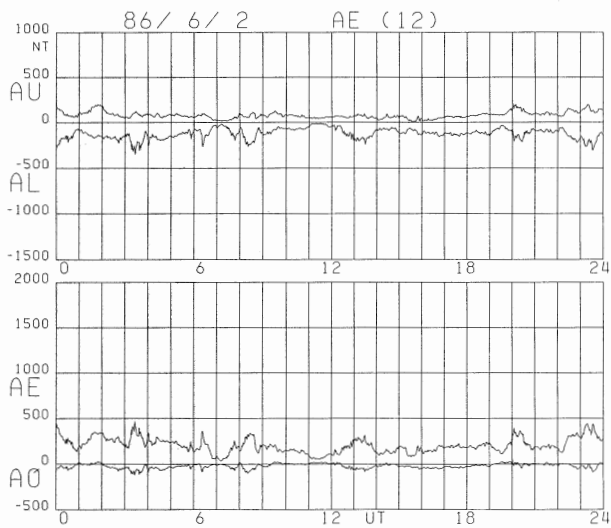
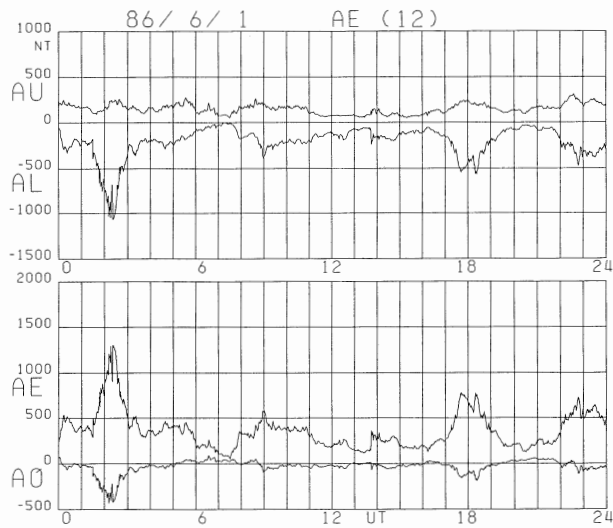
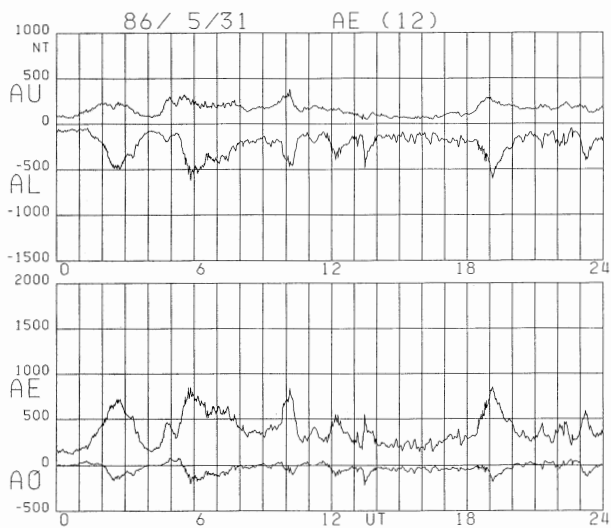


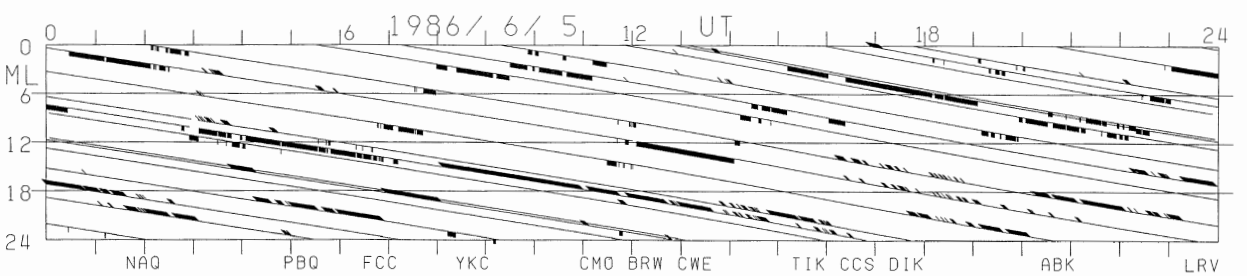
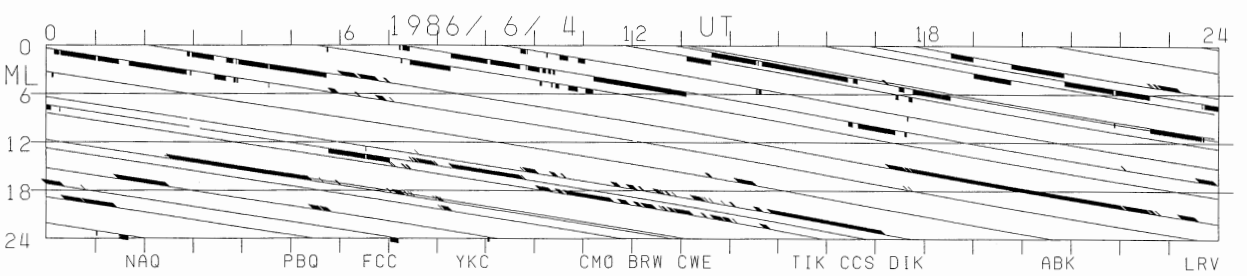
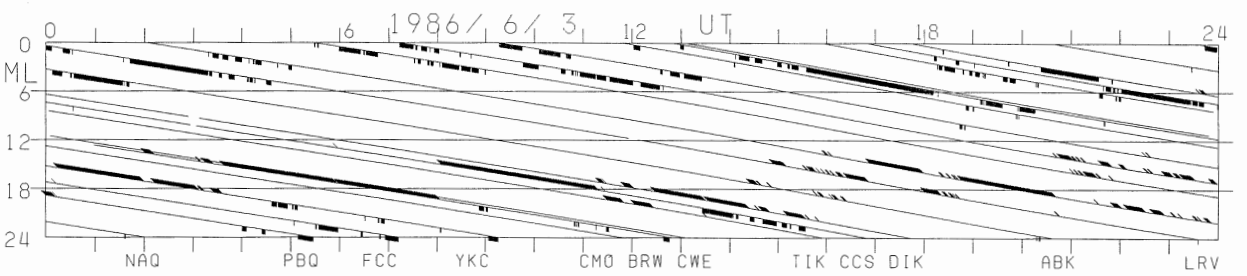
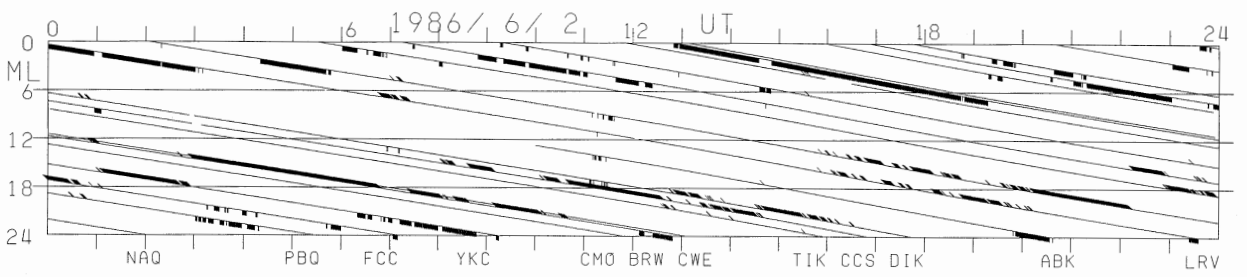
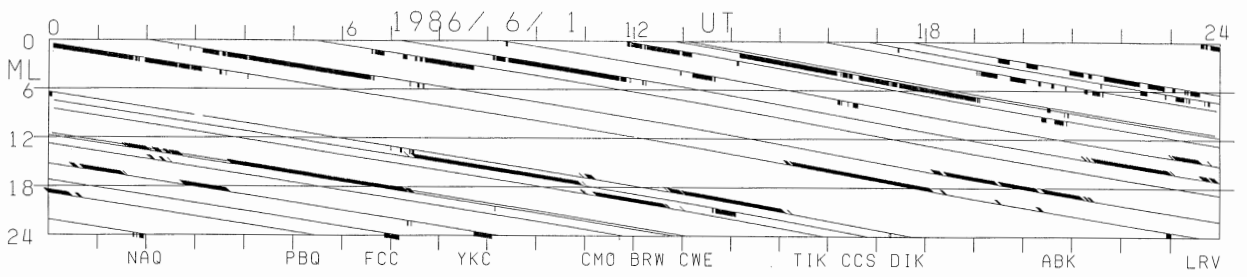
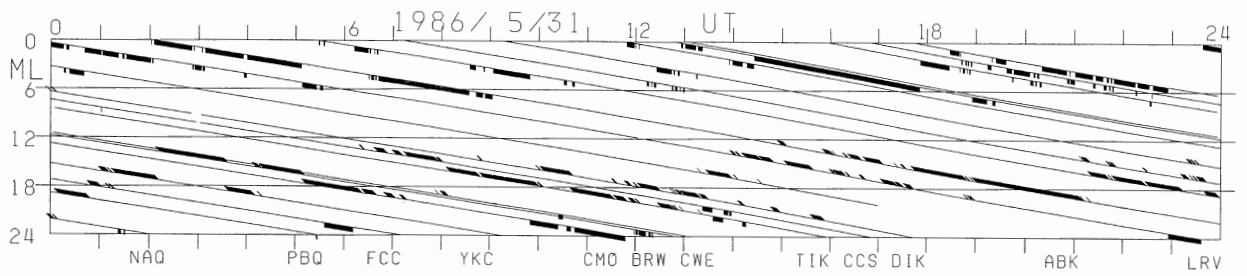


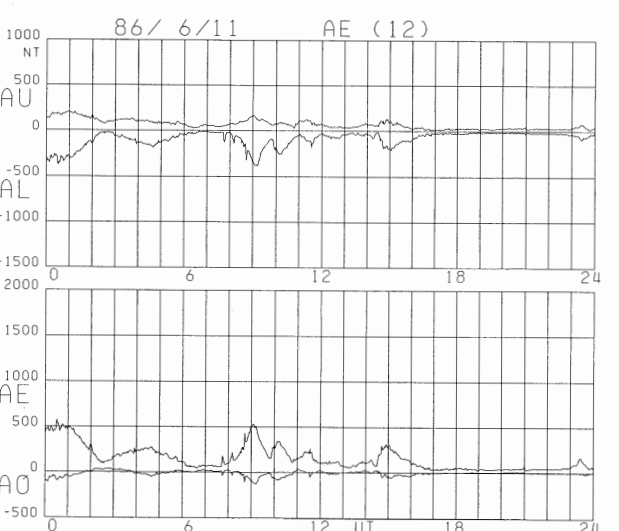
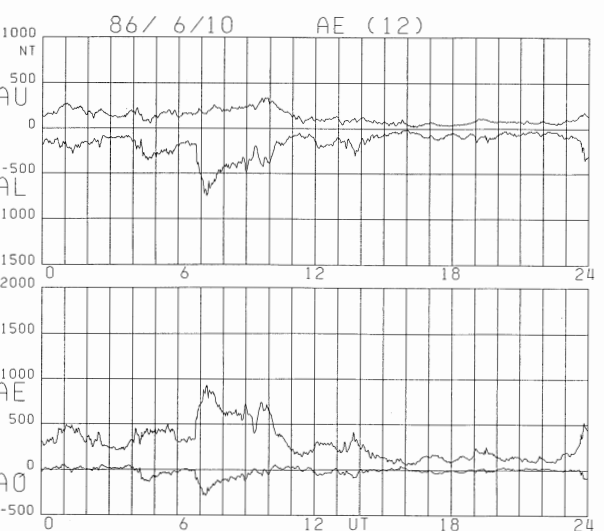
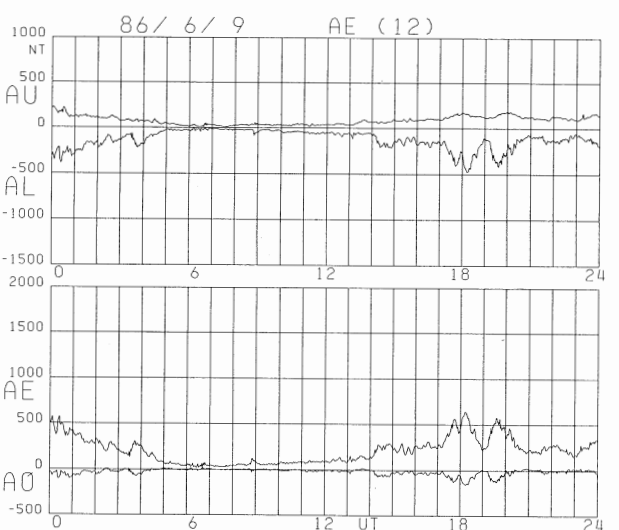
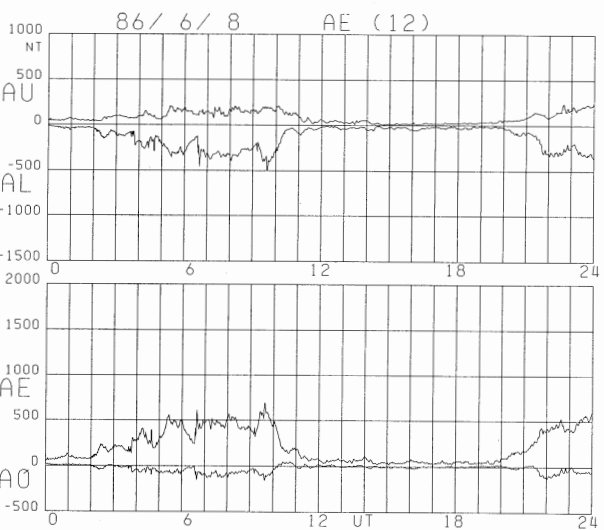
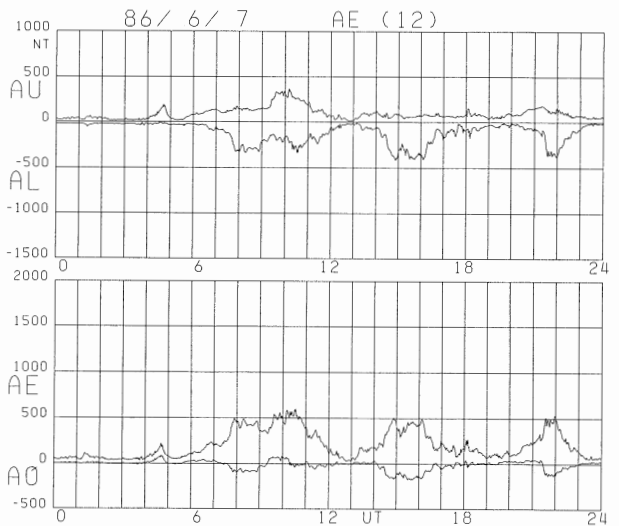
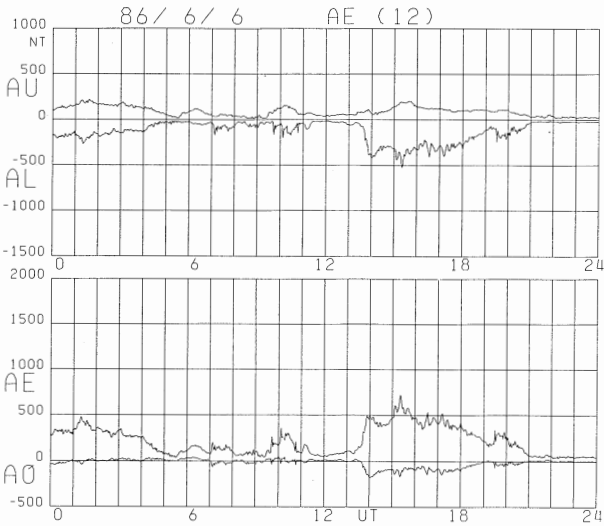


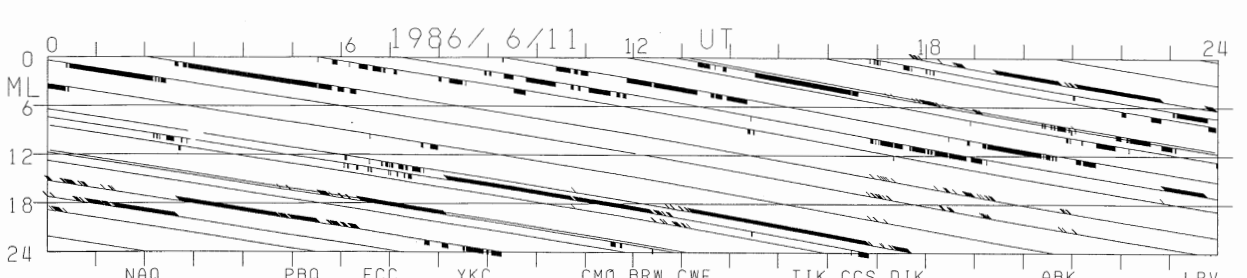
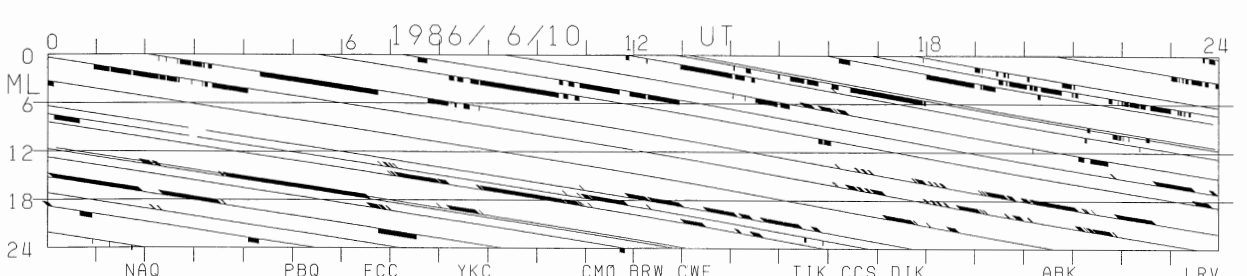
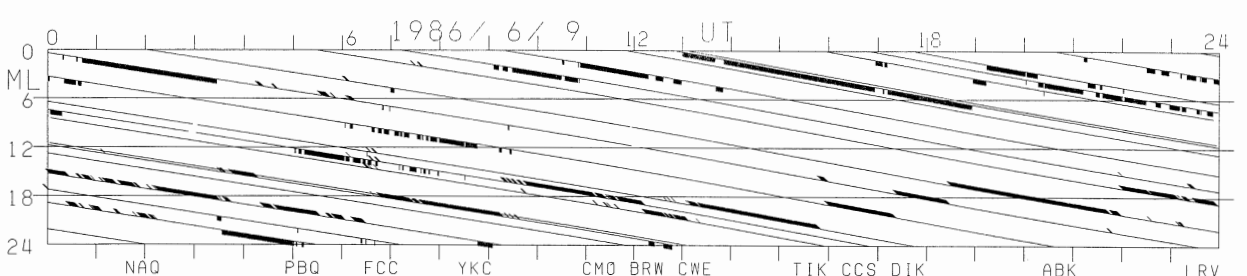
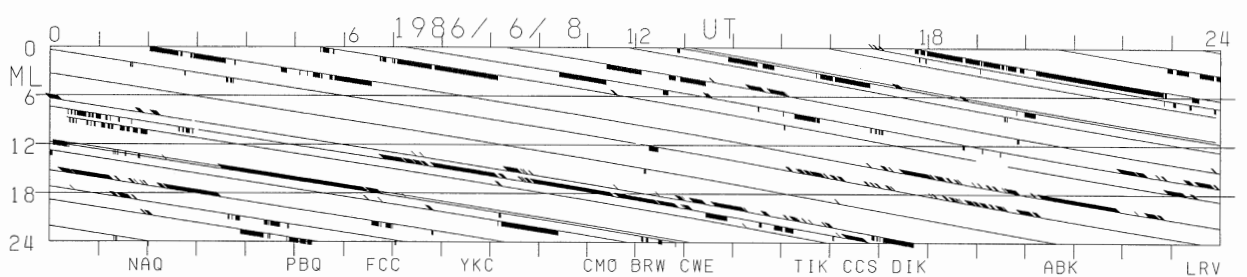
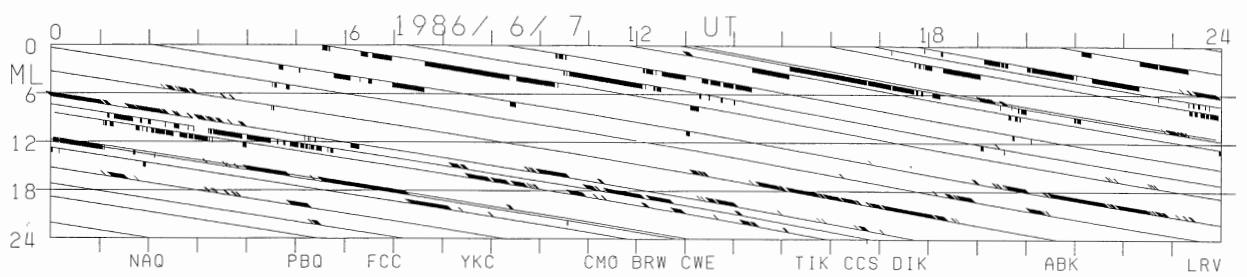
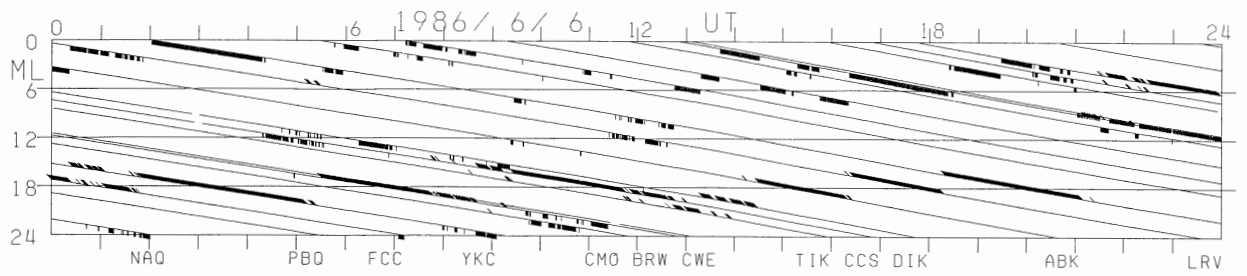


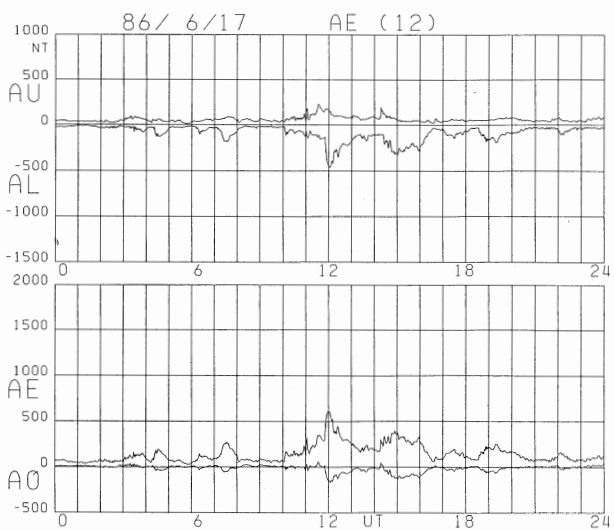
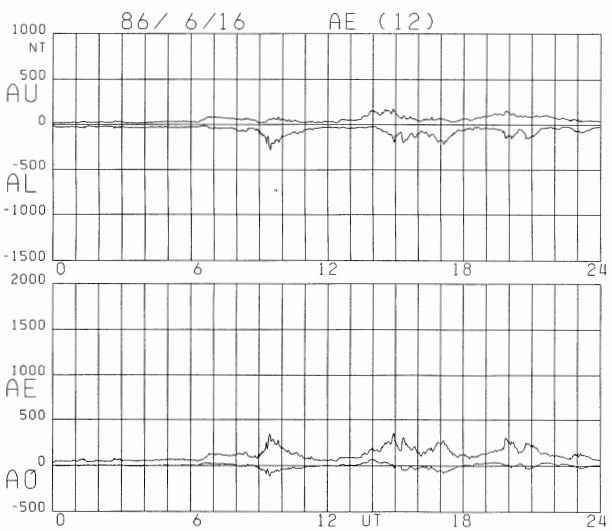
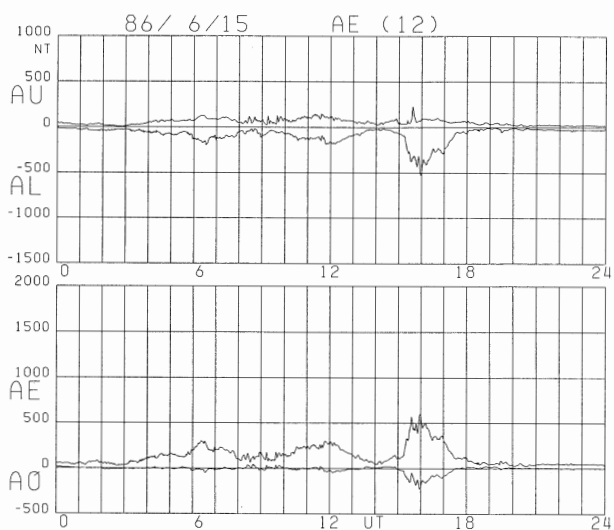
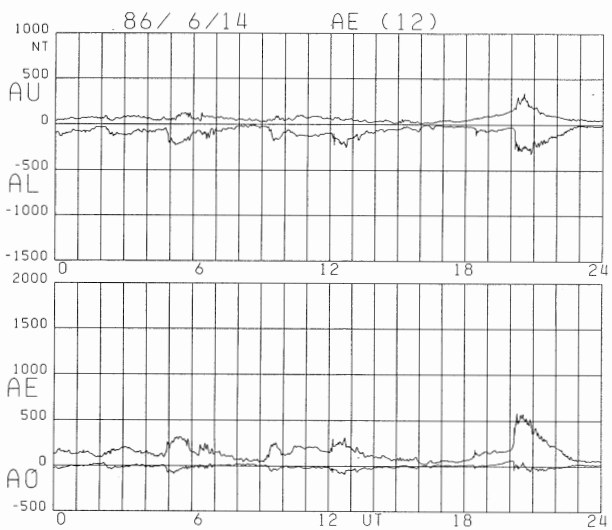
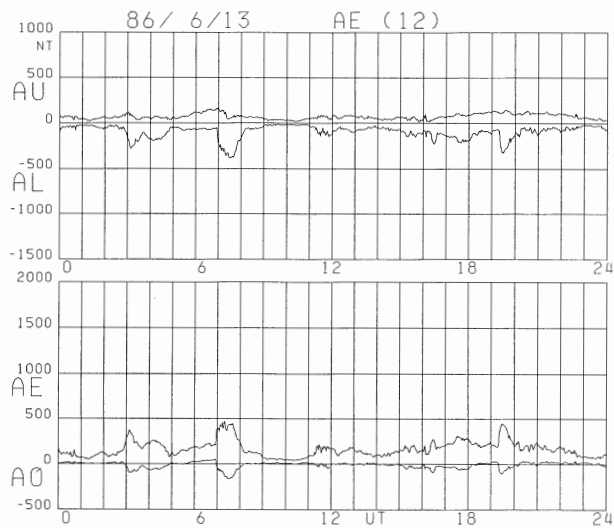
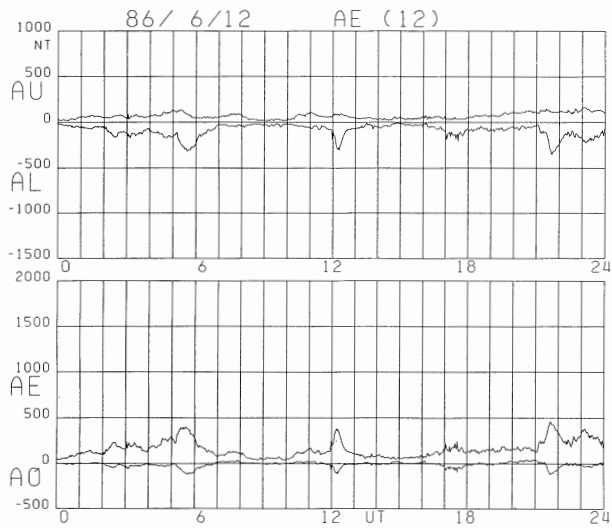


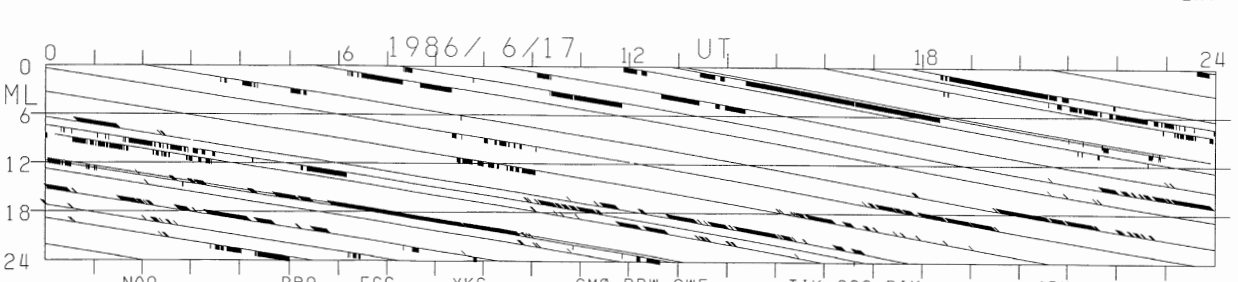
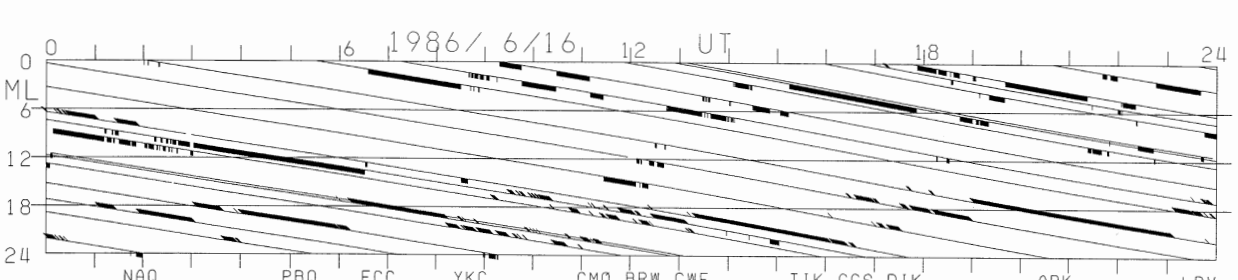
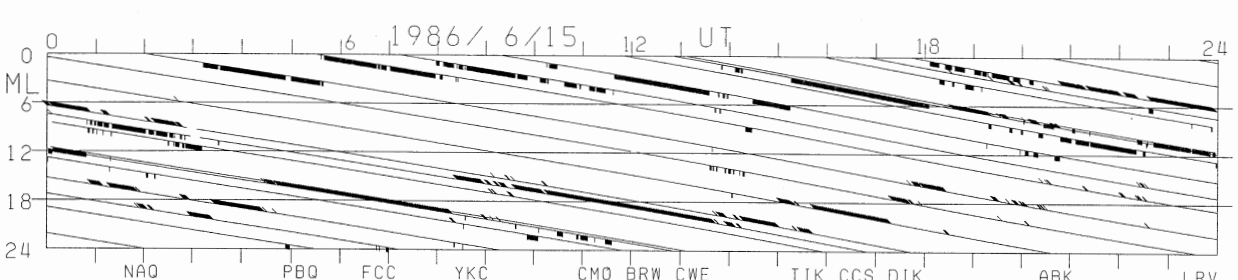
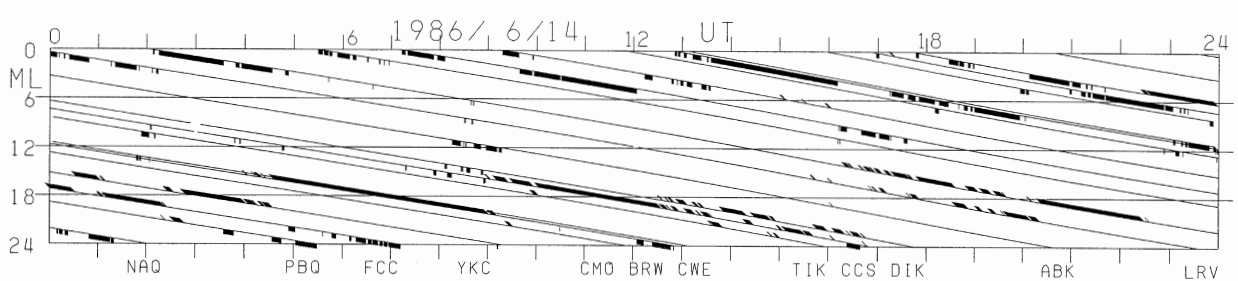
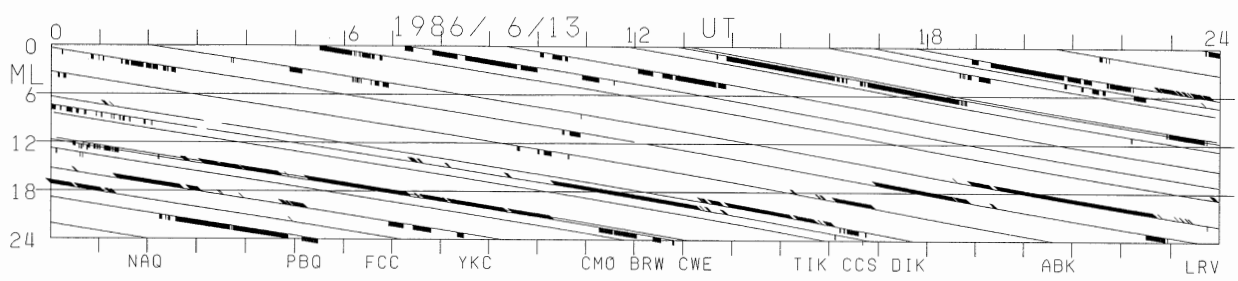
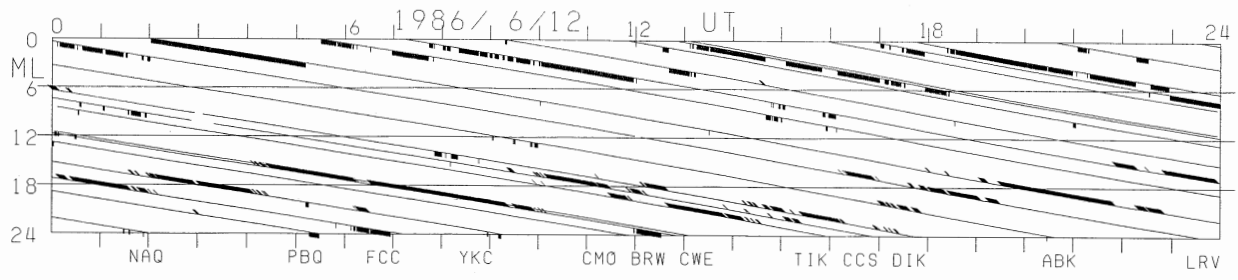


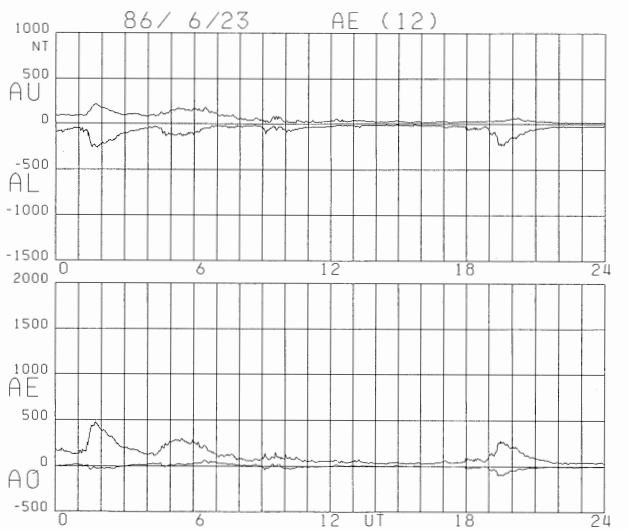
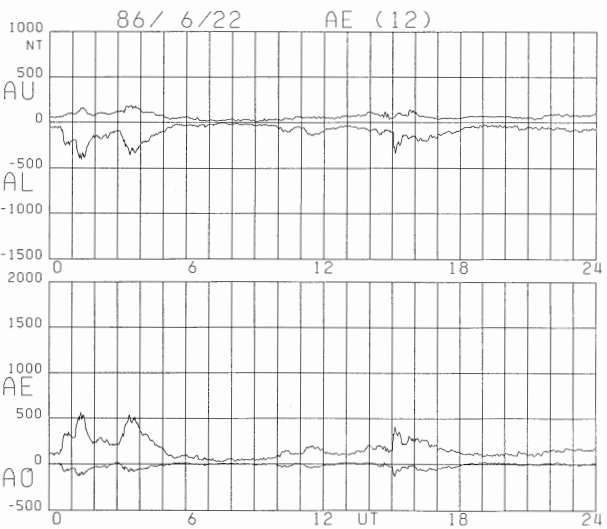
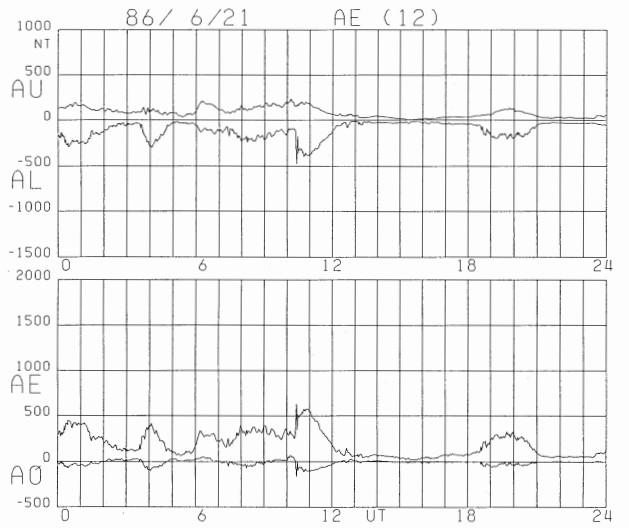
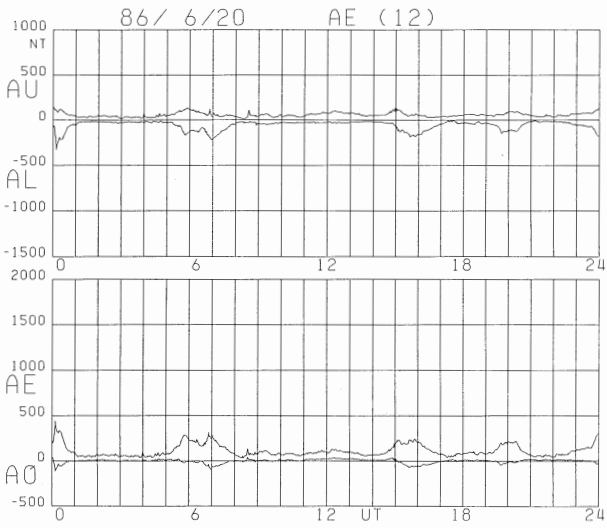
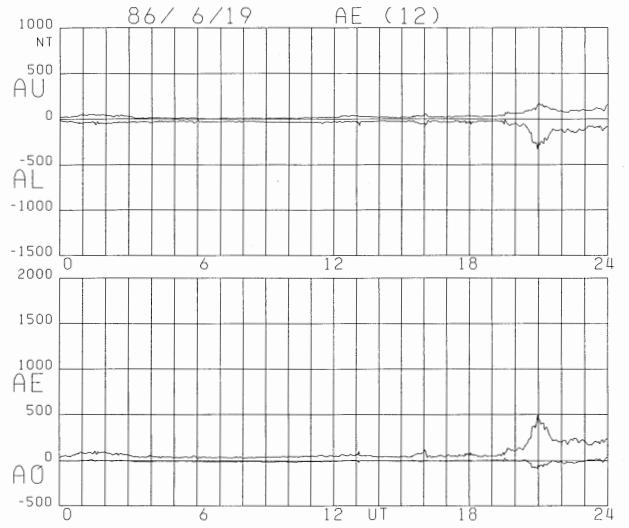
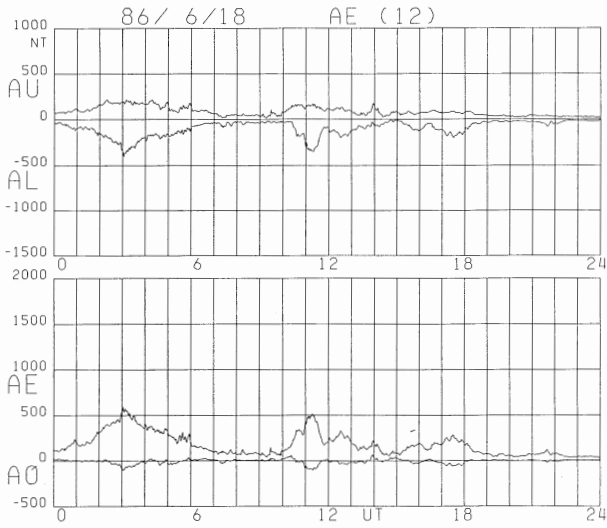




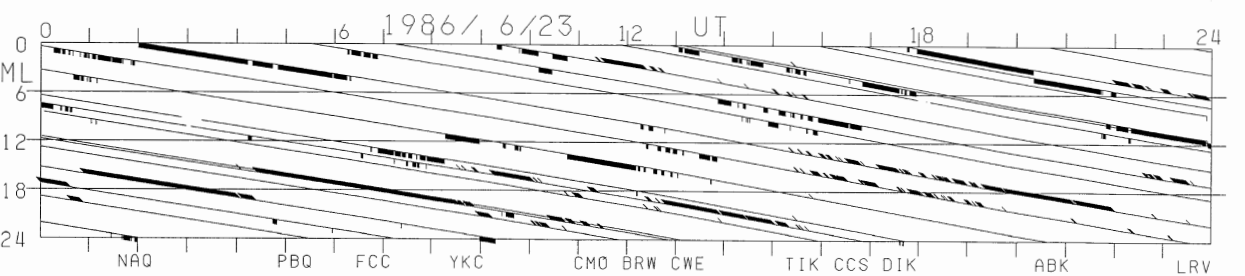
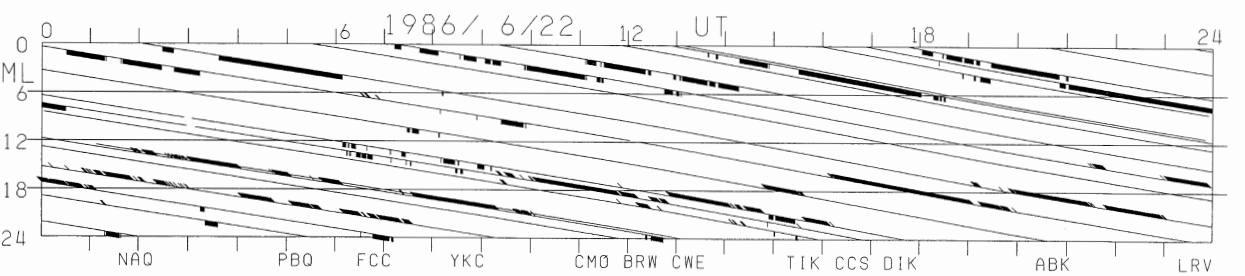
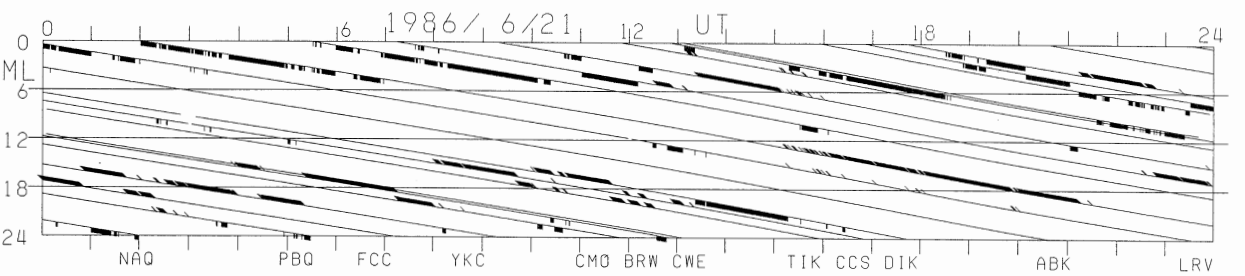
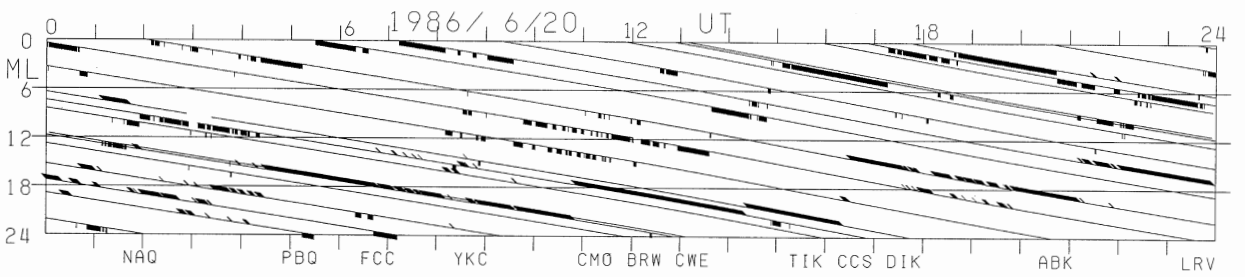
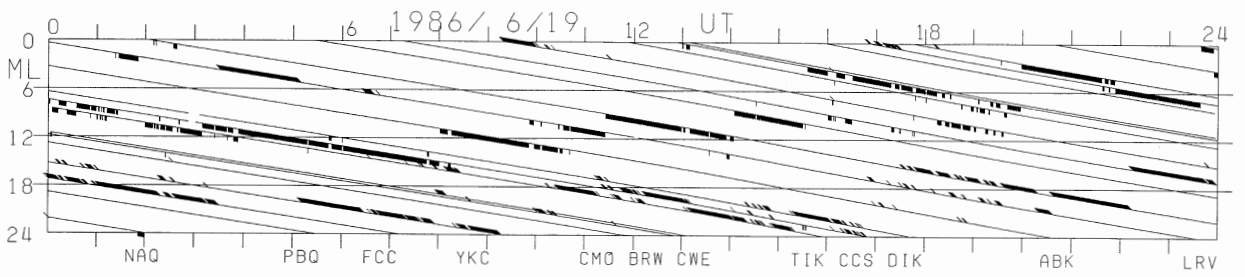
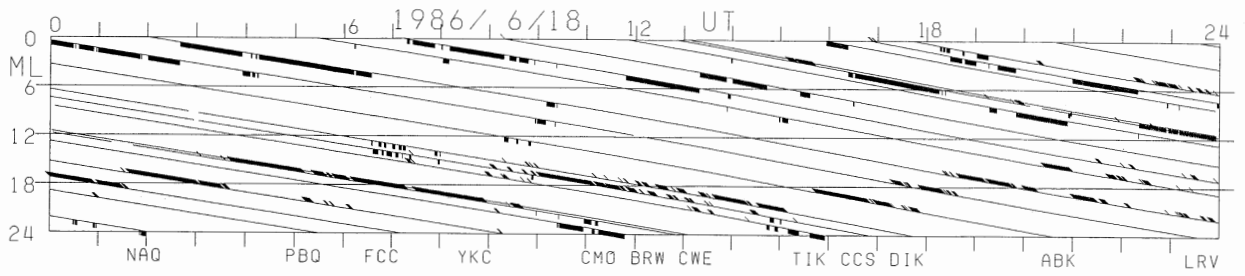


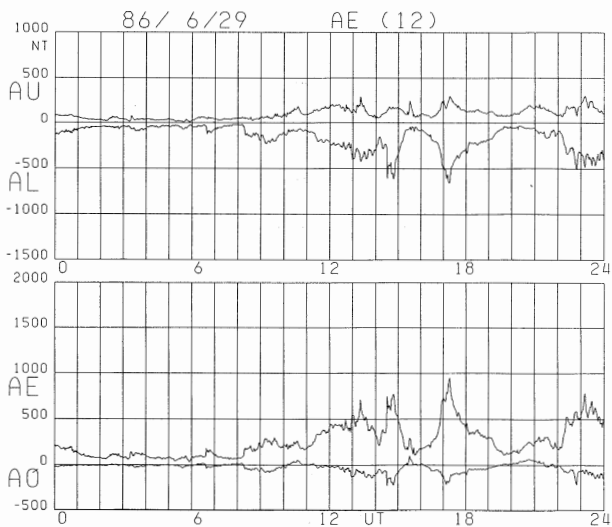
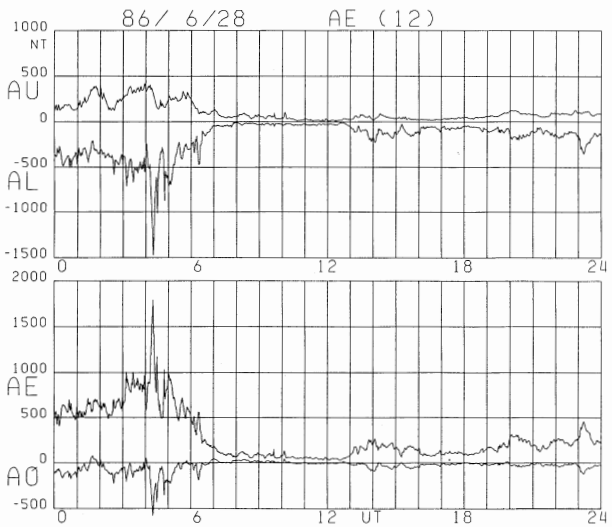
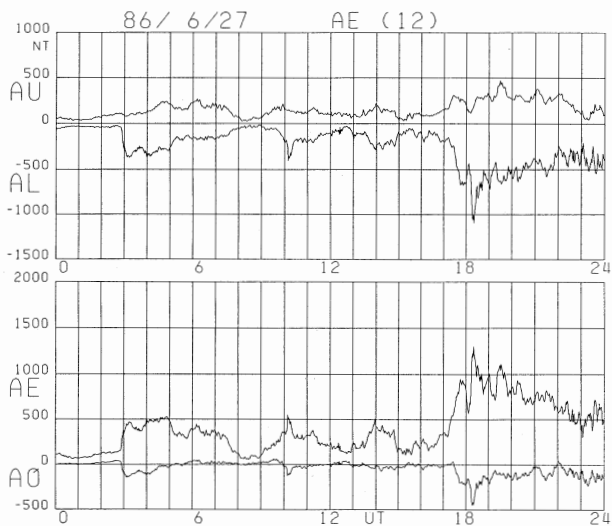
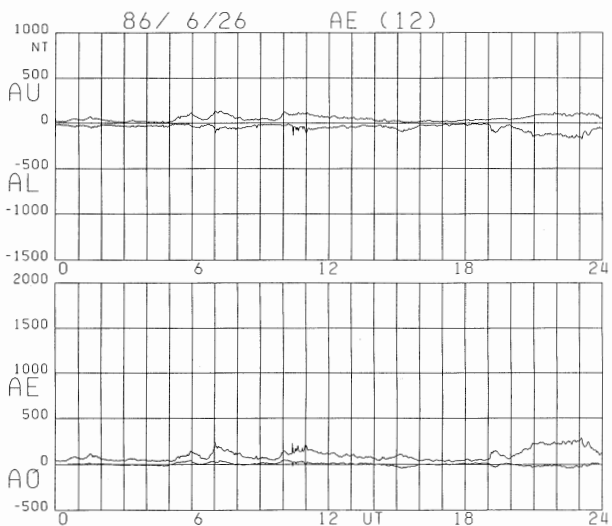
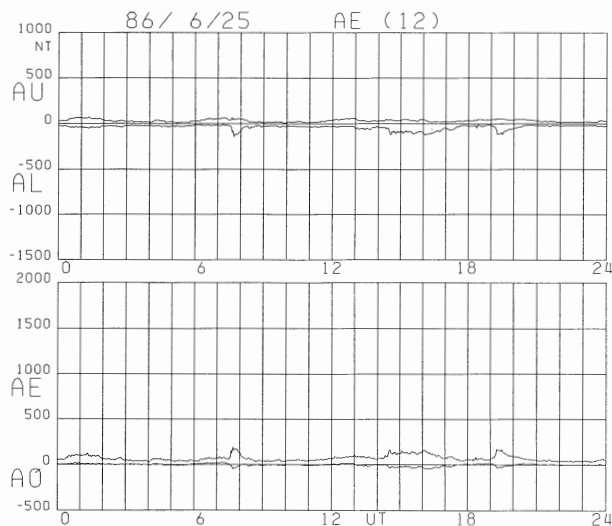
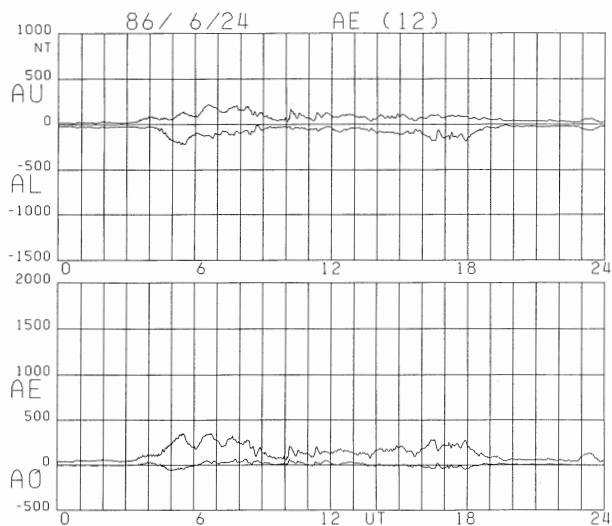


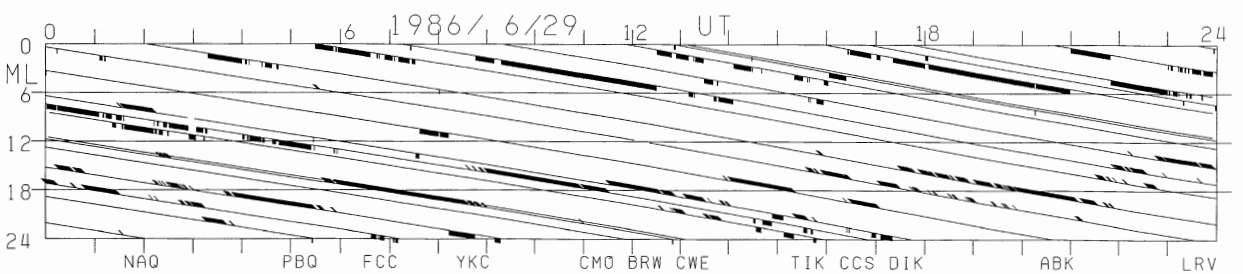
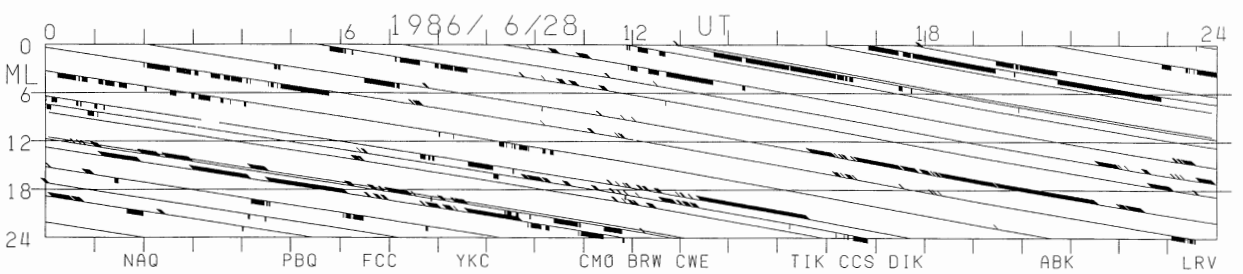
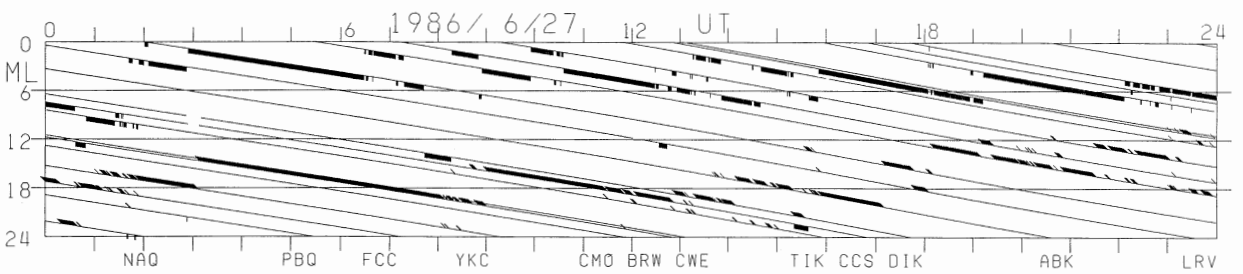
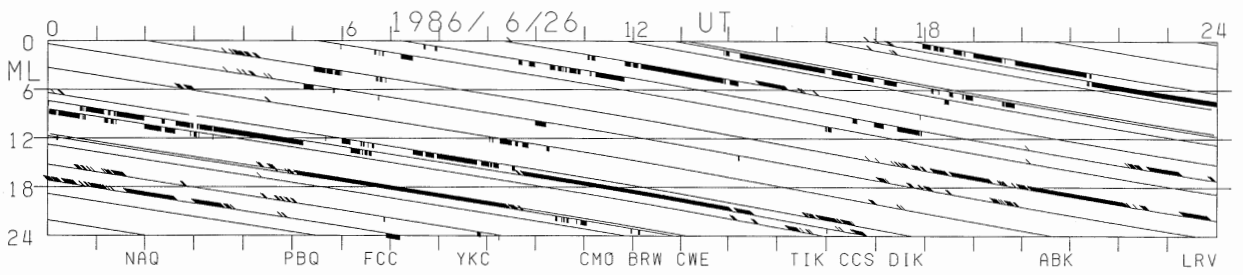
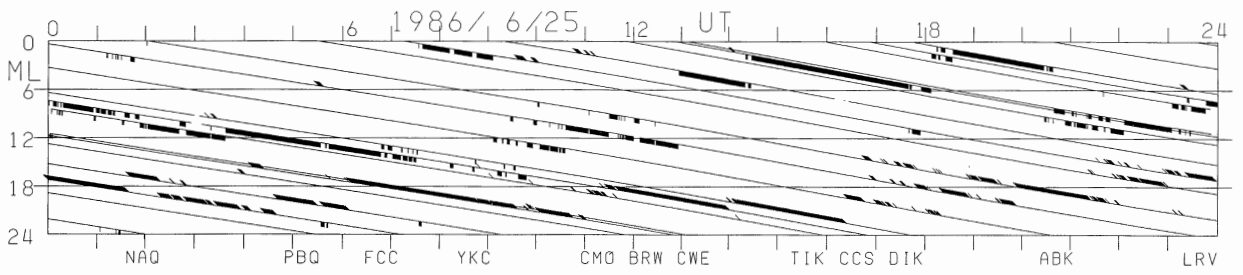
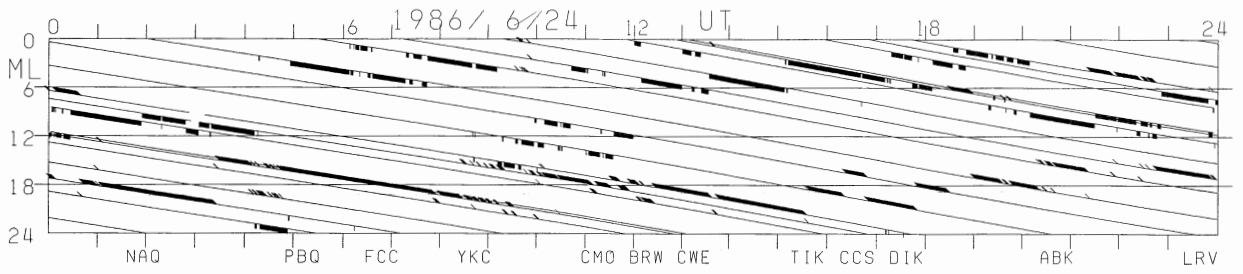


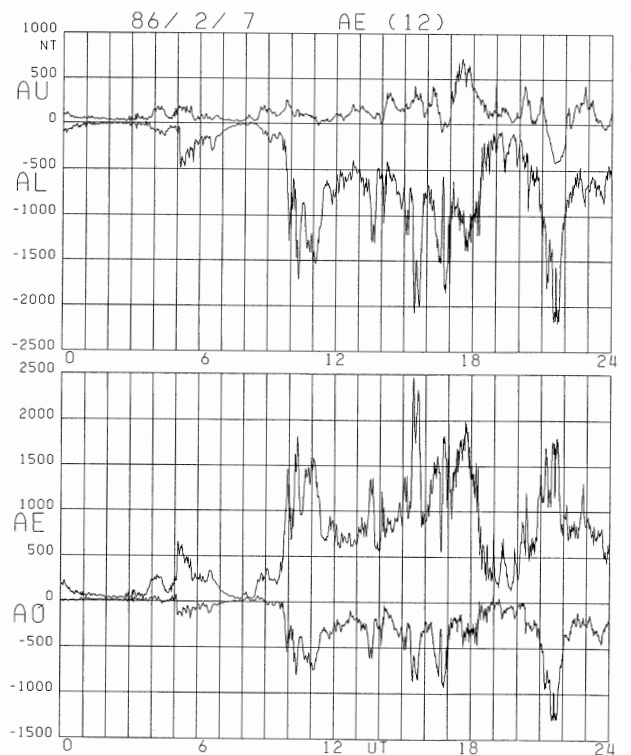
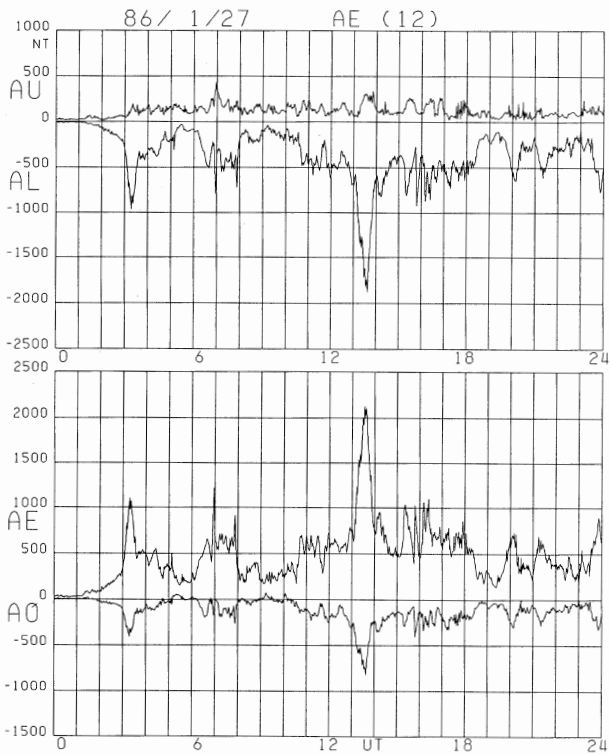
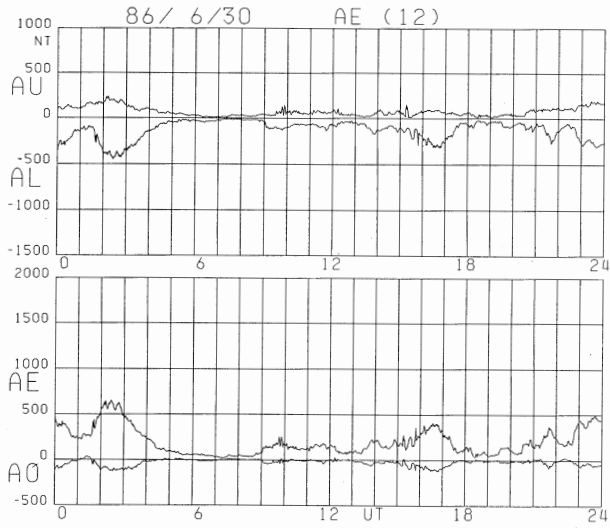


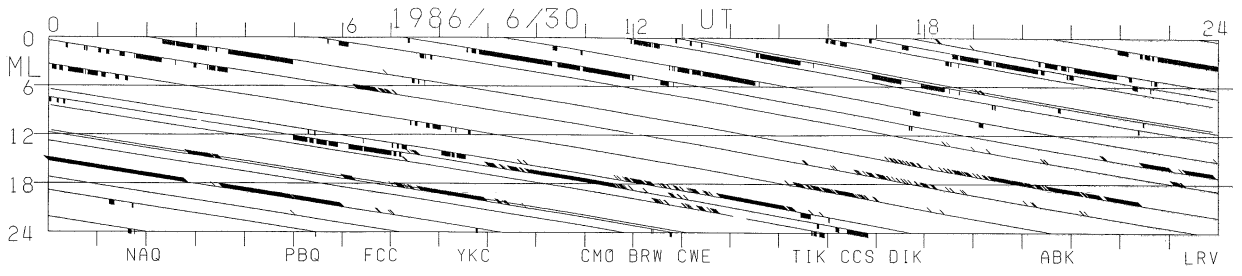












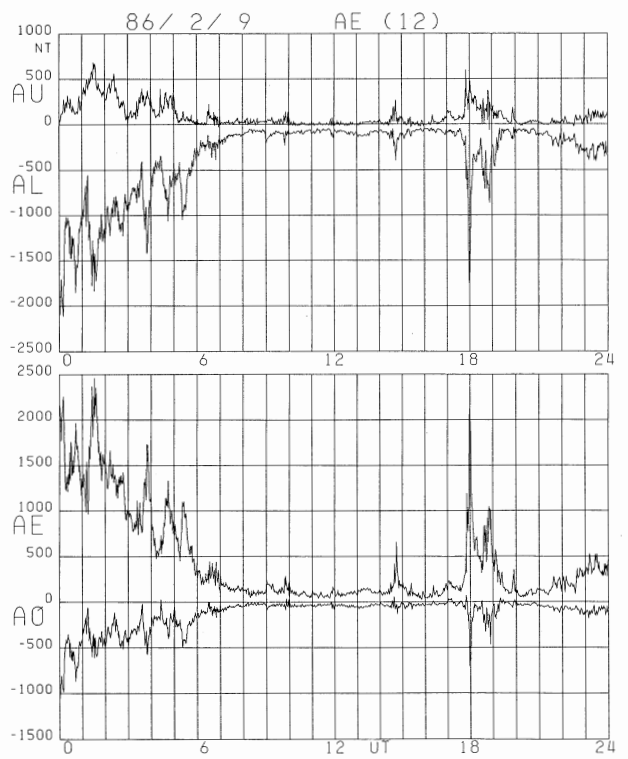
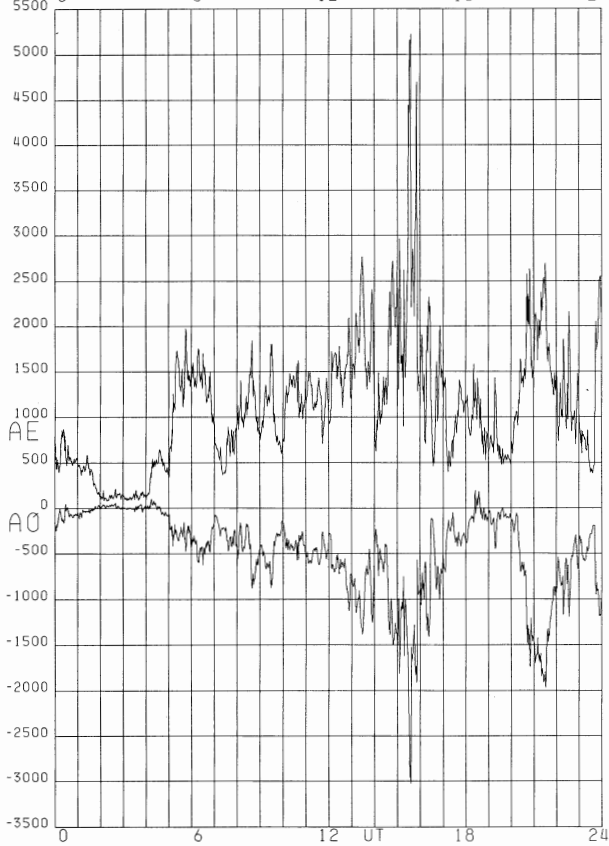
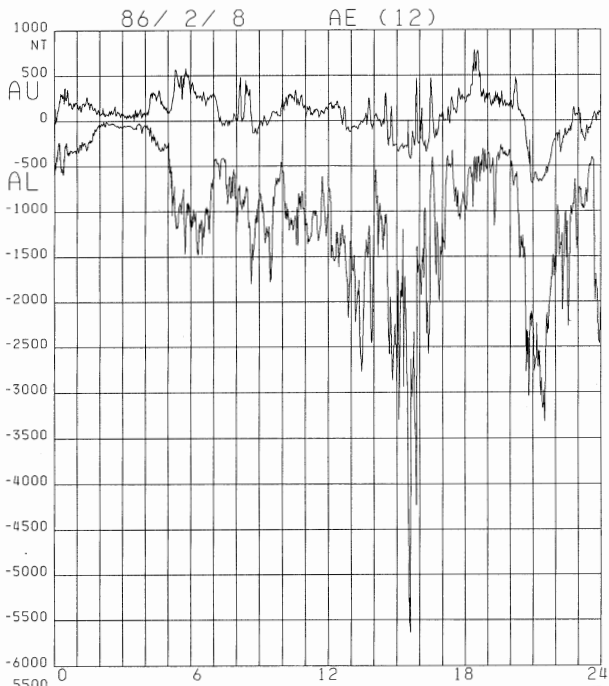
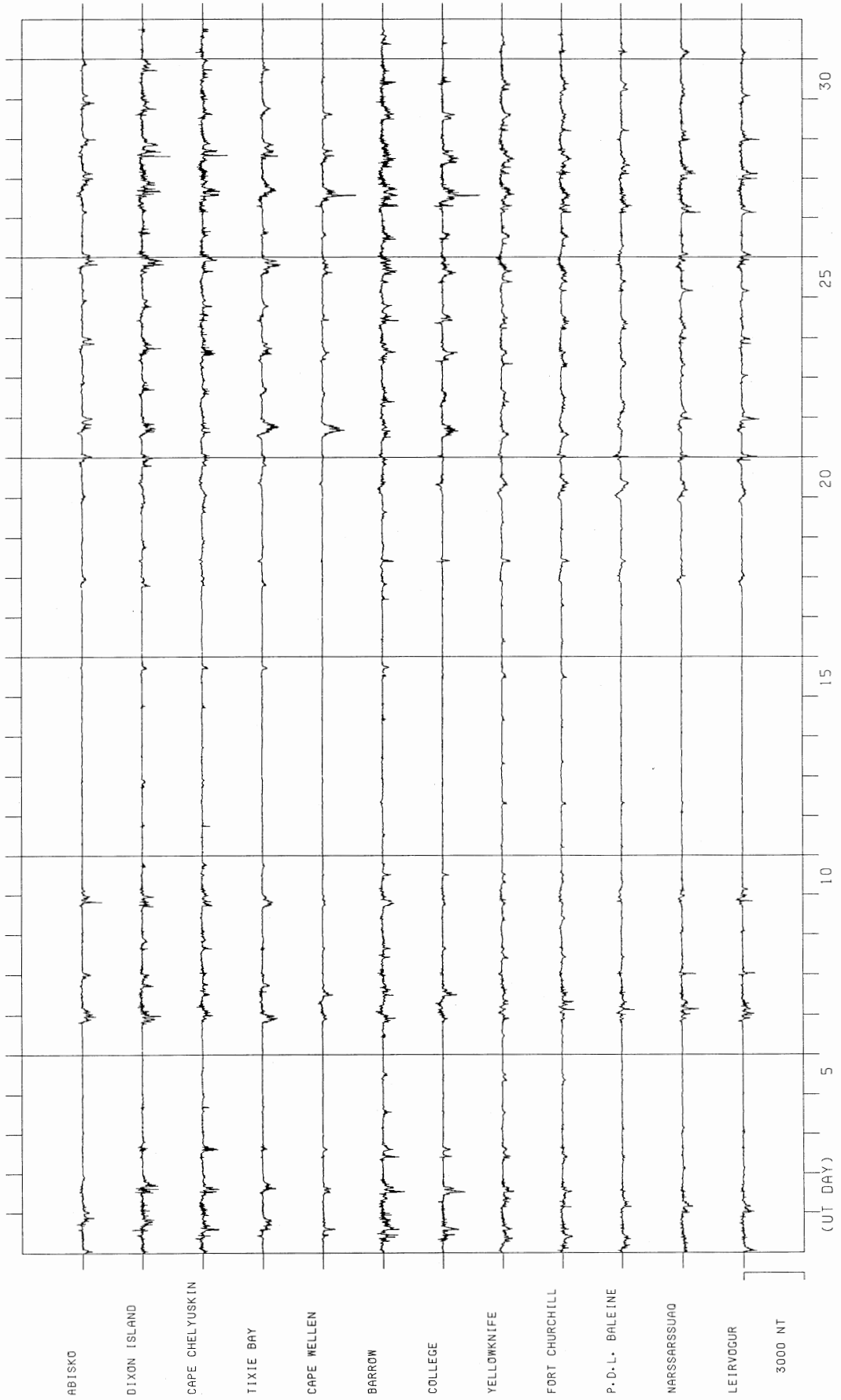


FIGURE 6

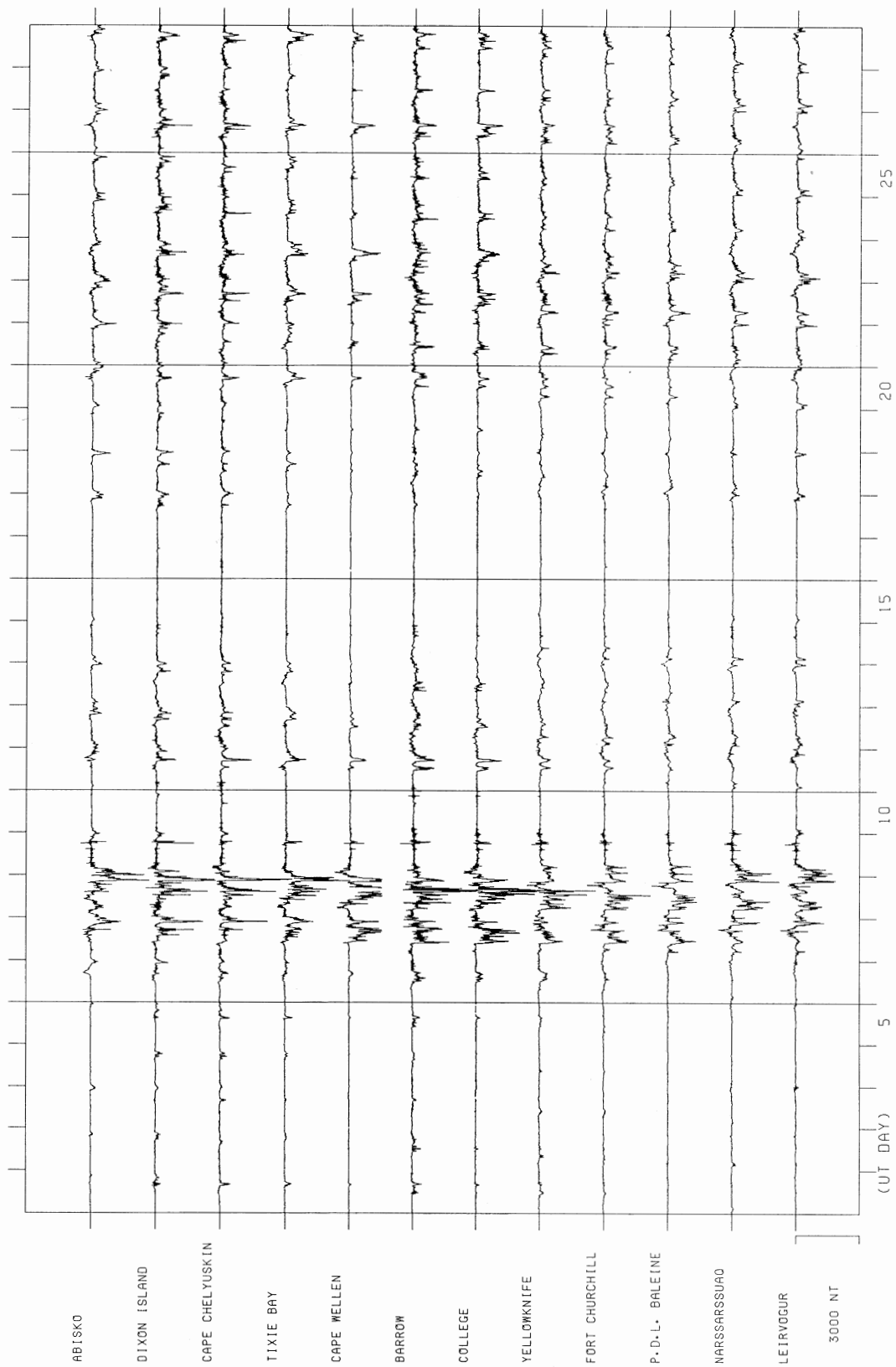
The H traces of magnetograms  
from AE(12) stations  
in each month  
for January-June 1986.

Insensitive traces are shown for  
February 1986 on page 104.

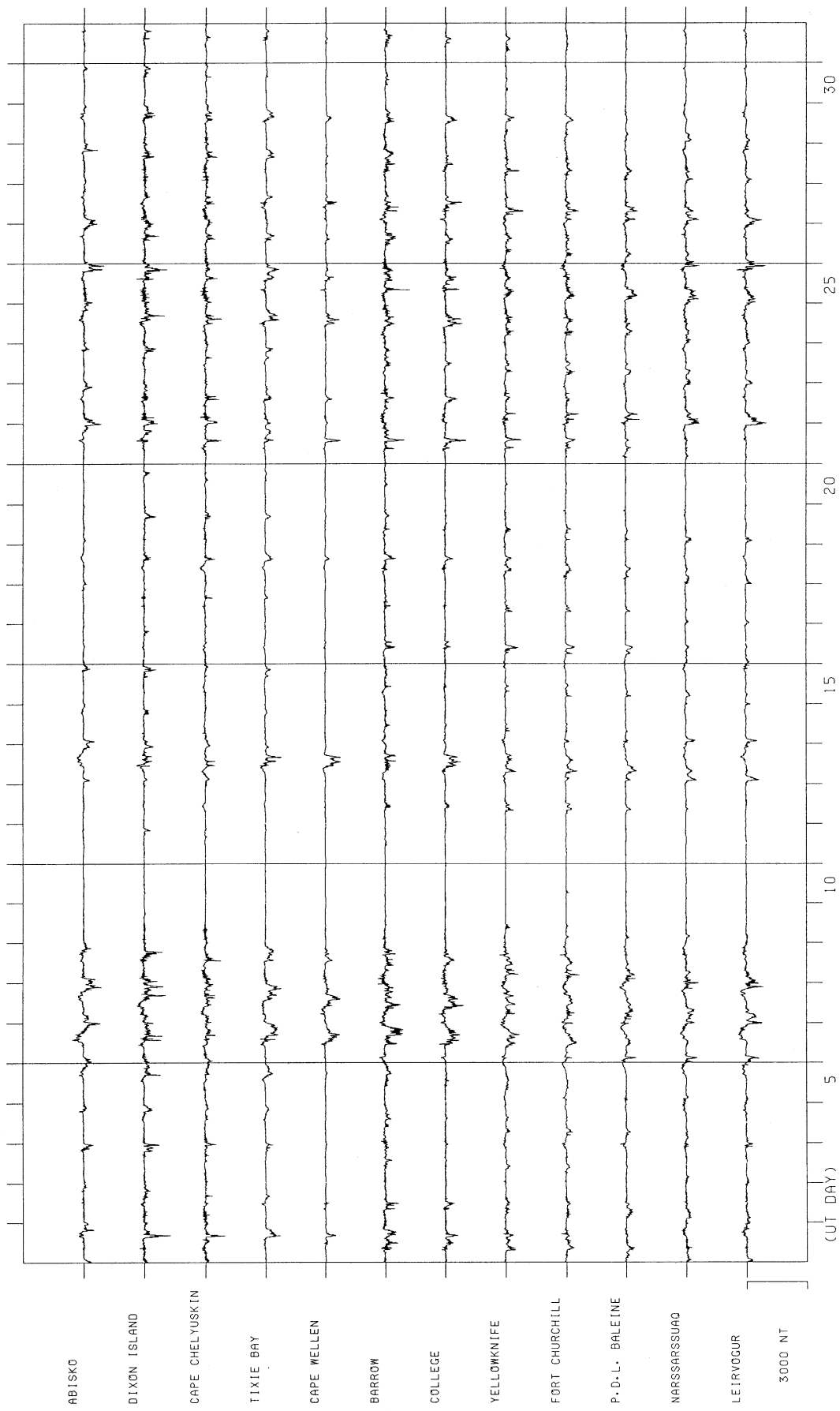


STACKED COMMON SCALE MAGNETOGRAMS FOR JANUARY 1986

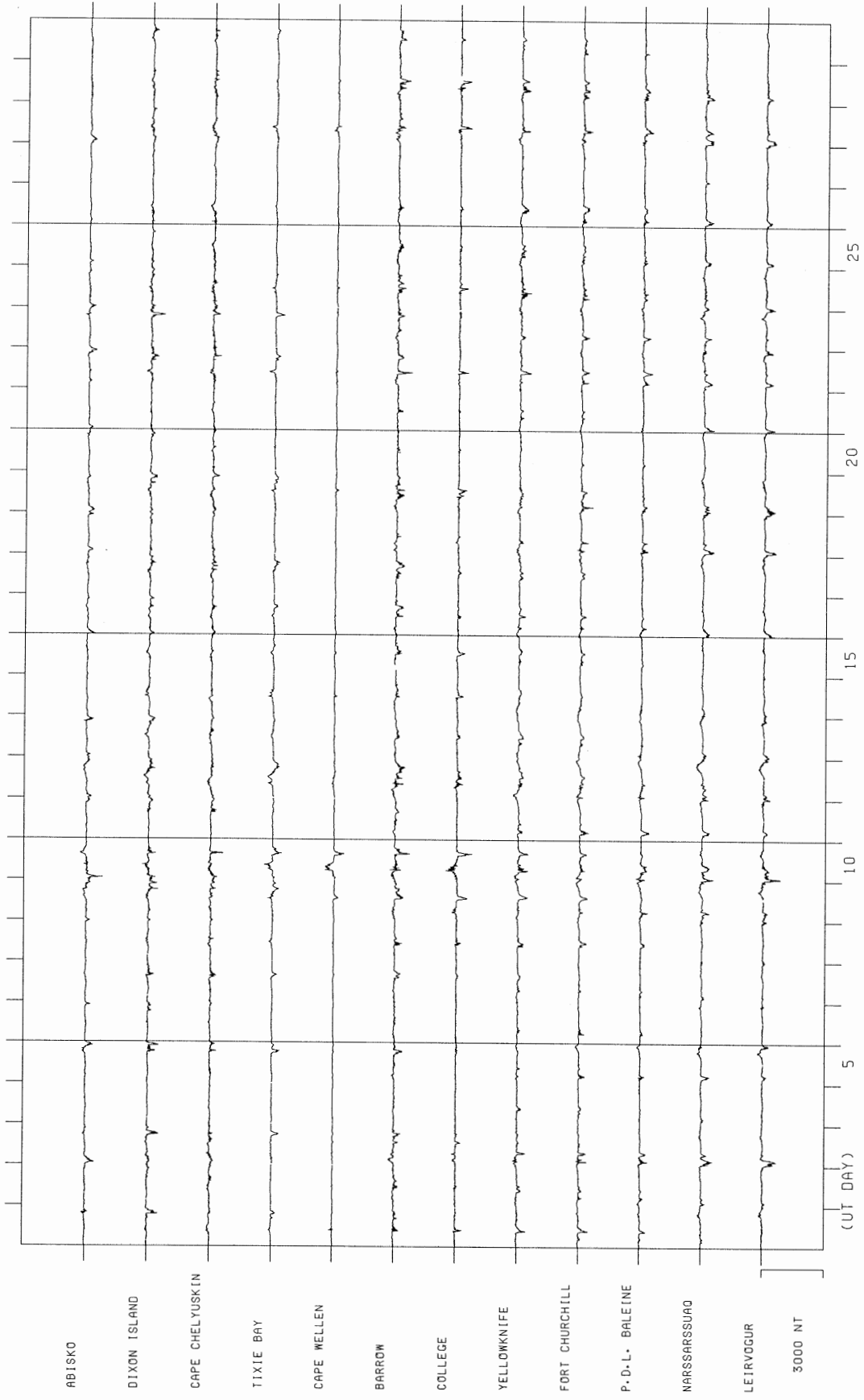




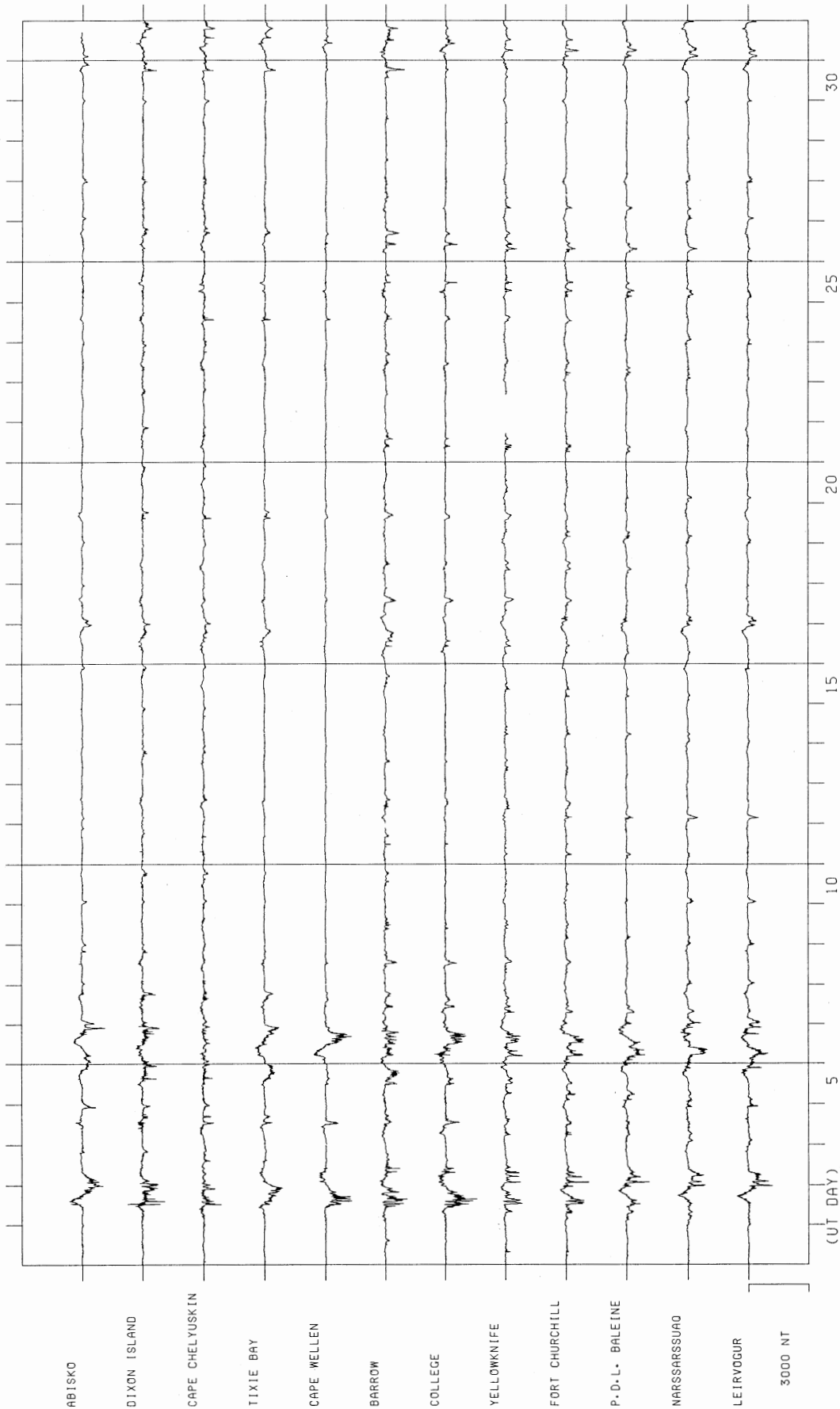
STACKED COMMON SCALE MAGNETOGRAMS FOR FEBRUARY 1986



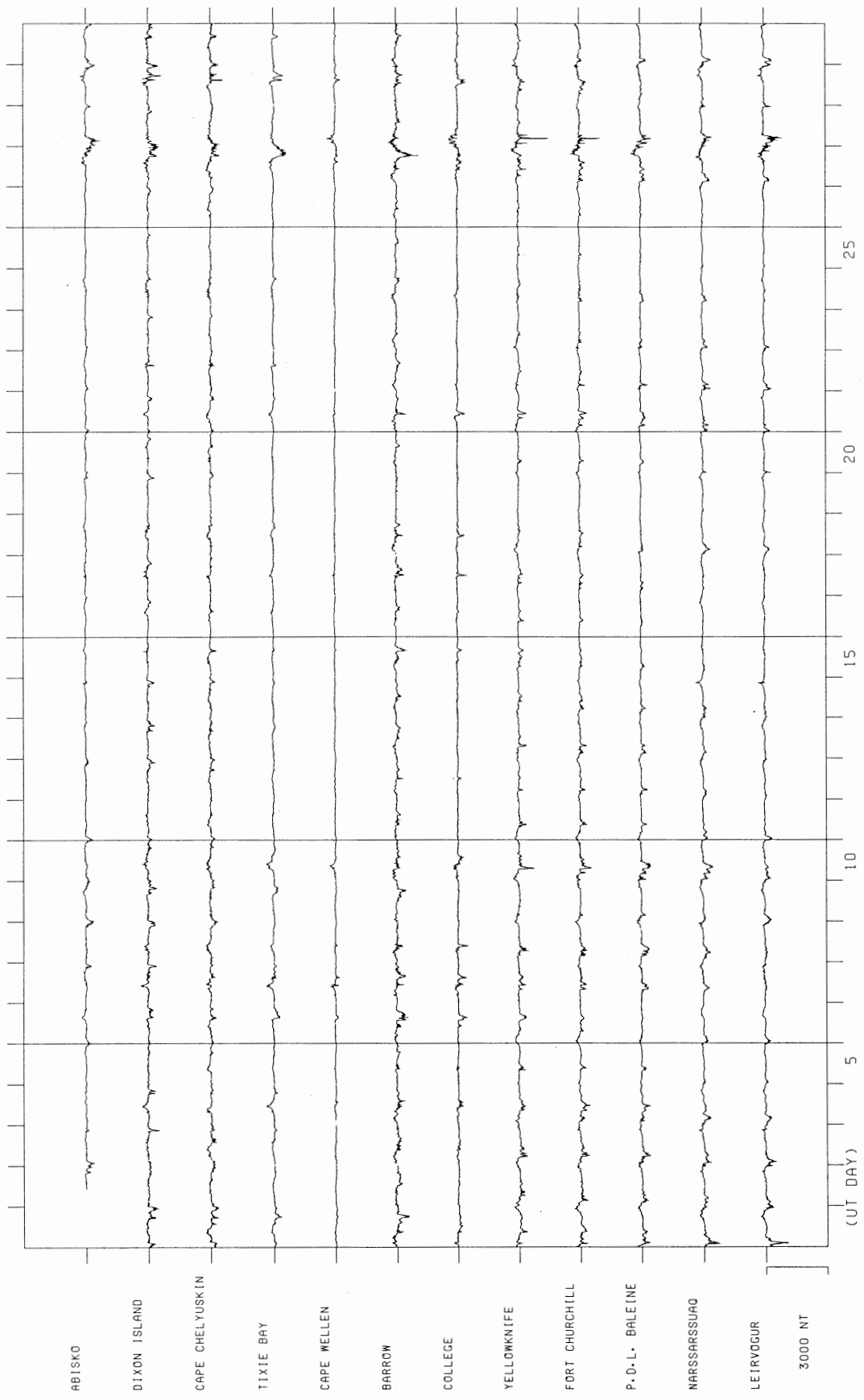
STACKED COMMON SCALE MAGNETOGRAMS FOR MARCH 1986



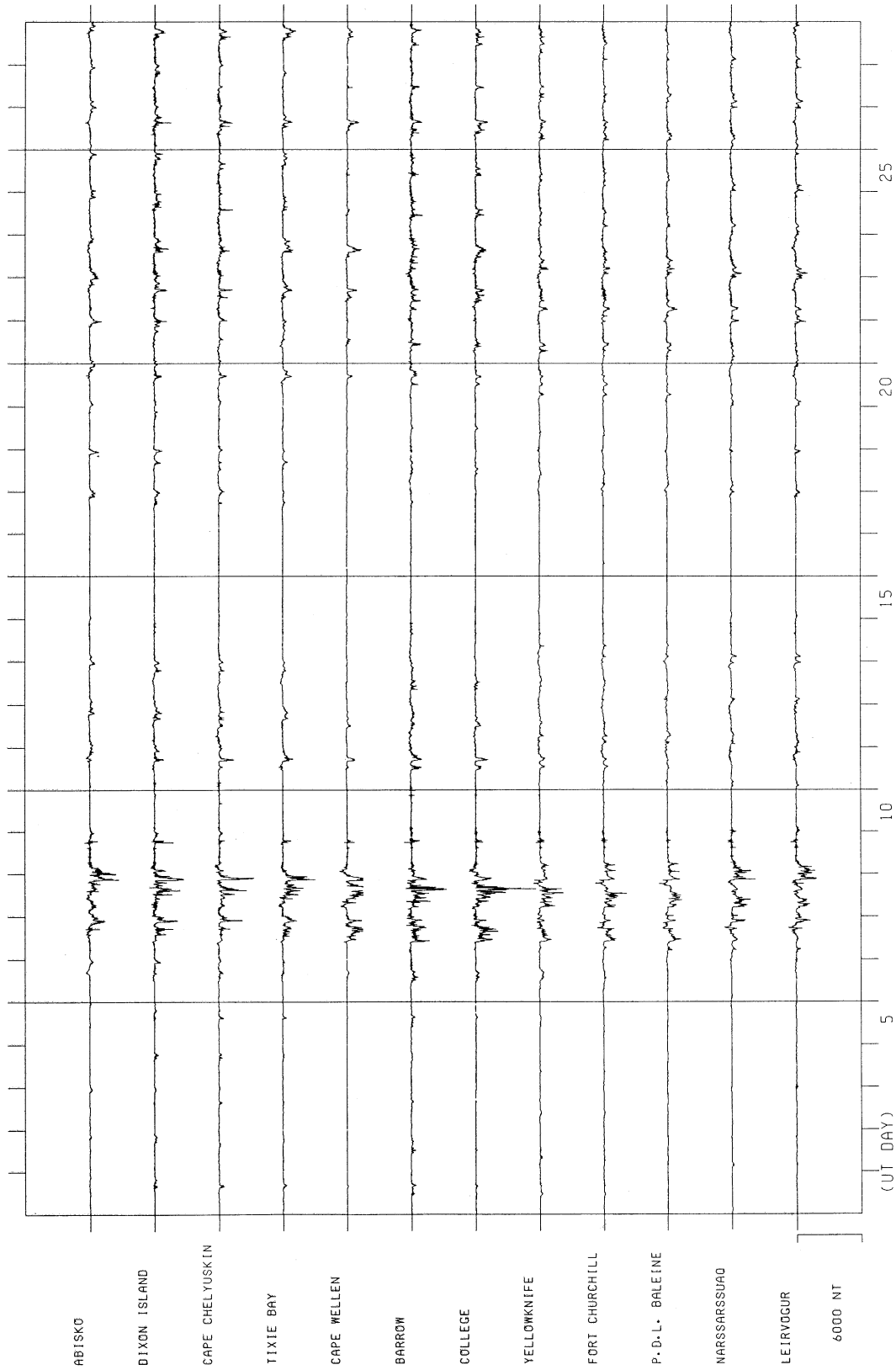
STACKED COMMON SCALE MAGNETOGRAMS FOR APRIL 1986



STACKED COMMON SCALE MAGNETOGRAMS FOR MAY 1986



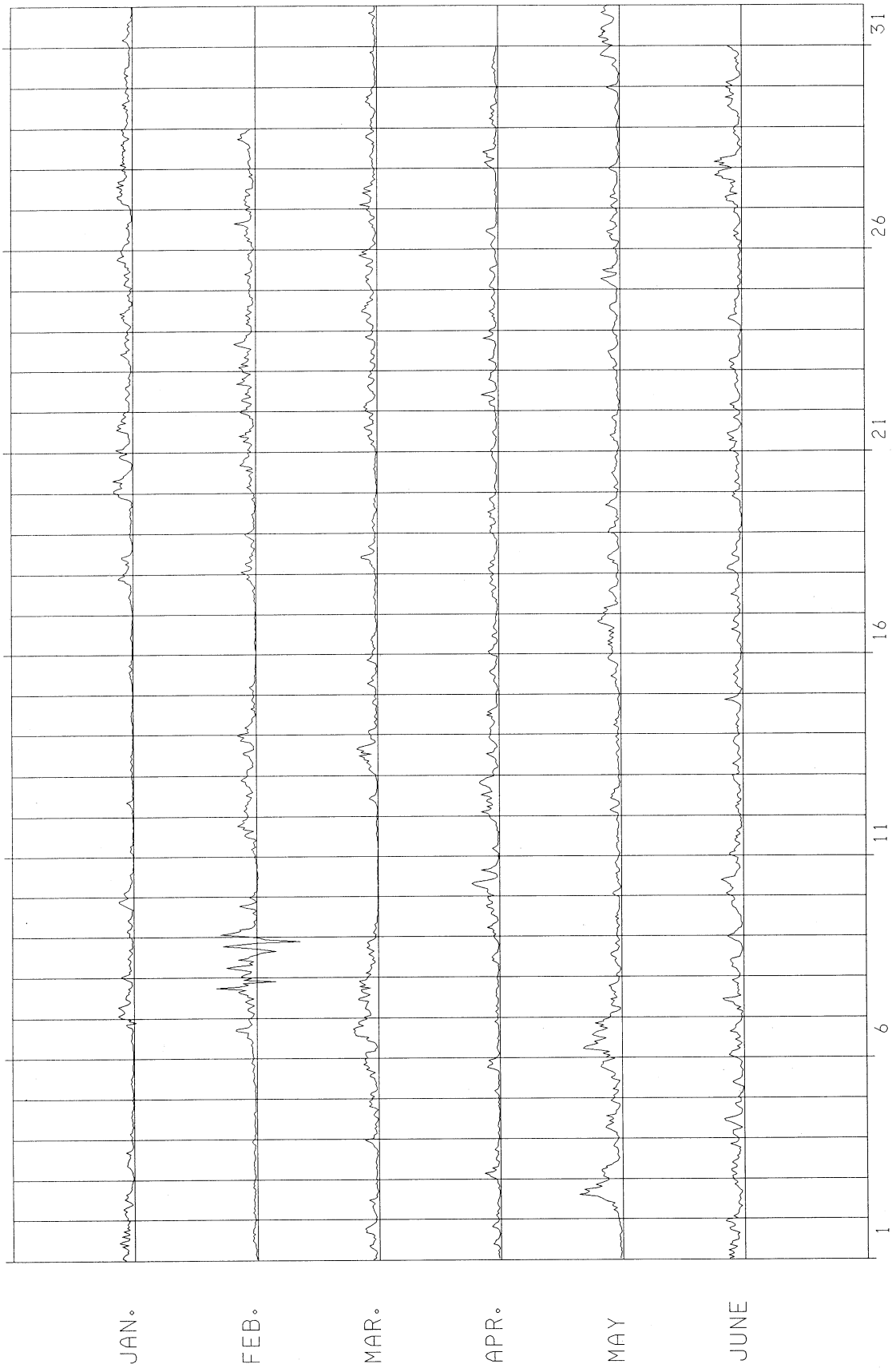
STACKED COMMON SCALE MAGNETOGRAMS FOR JUNE 1986



INSENSITIVE COMMON SCALE MAGNETOGRAMS FOR FEBRUARY 1986

FIGURE 7

Plots of hourly values of each index  
(AU, AL, AE and AO)  
for January-June 1986.

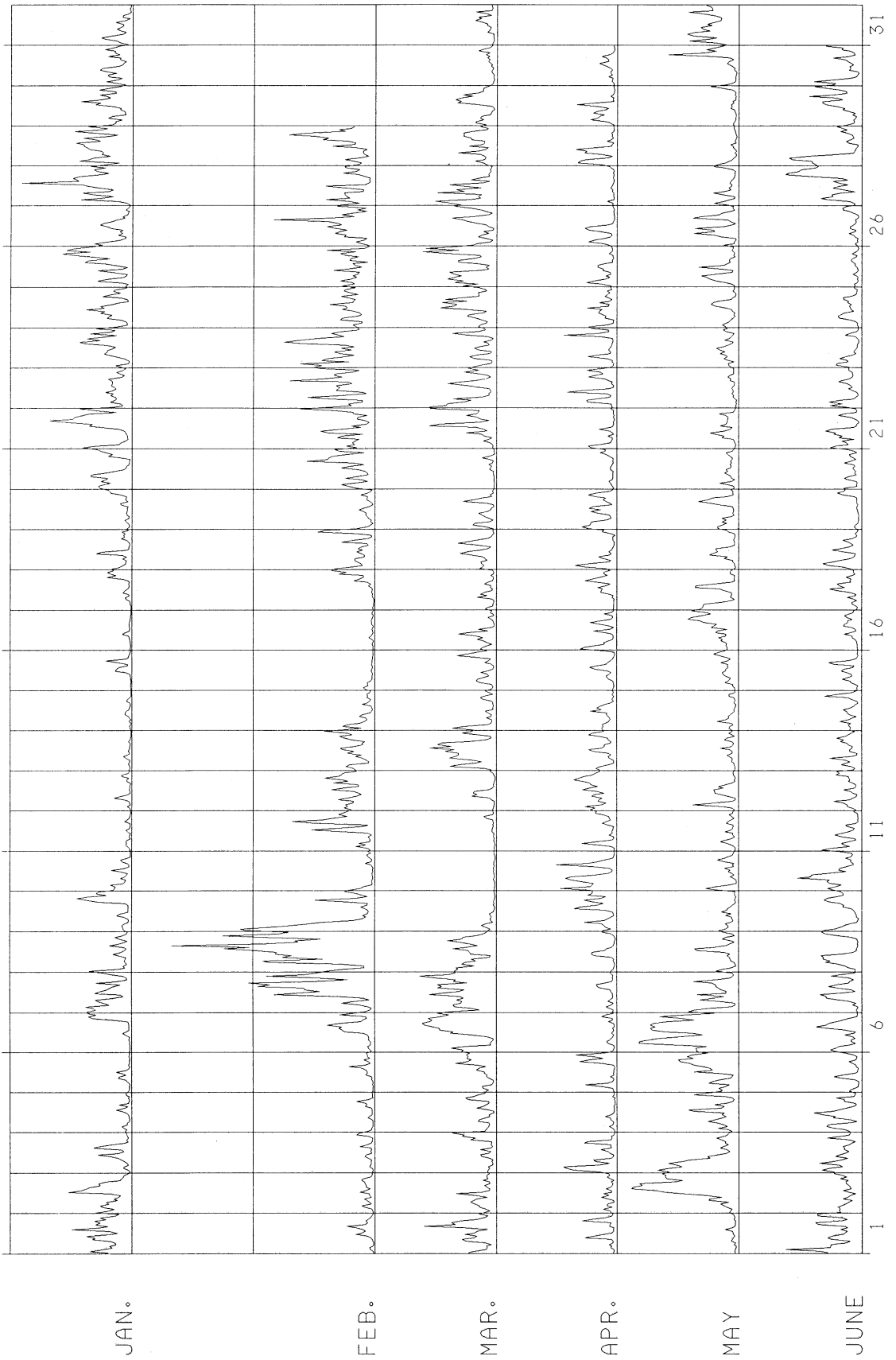


AU HOURLY VALUES FOR THE FIRST HALF OF 1986 (1500NT/DIV)

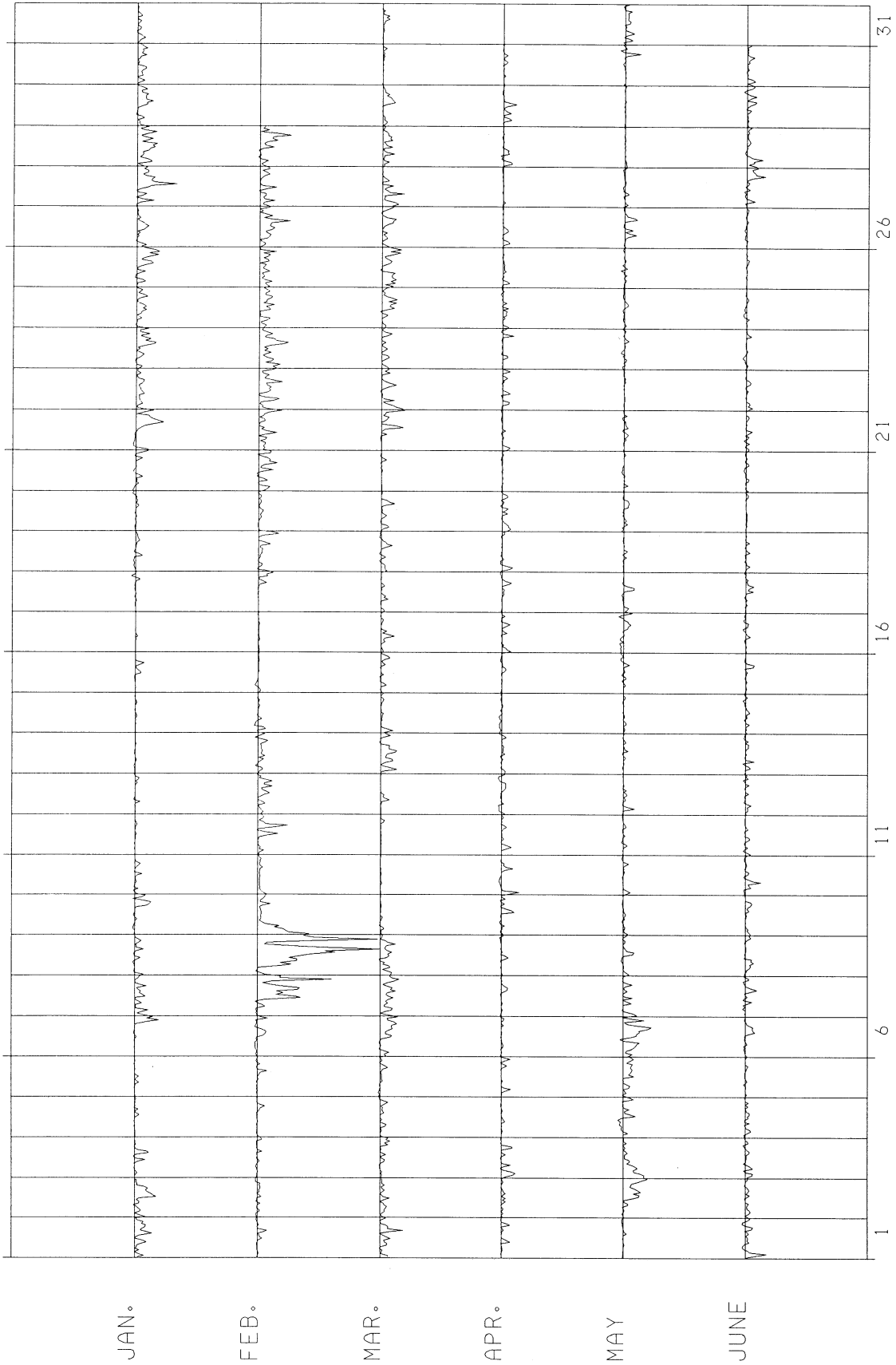




AL HOURLY VALUES FOR THE FIRST HALF OF 1986 (1500NT/DIV)



AE HOURLY VALUES FOR THE FIRST HALF OF 1986 (1500NT/DIV)

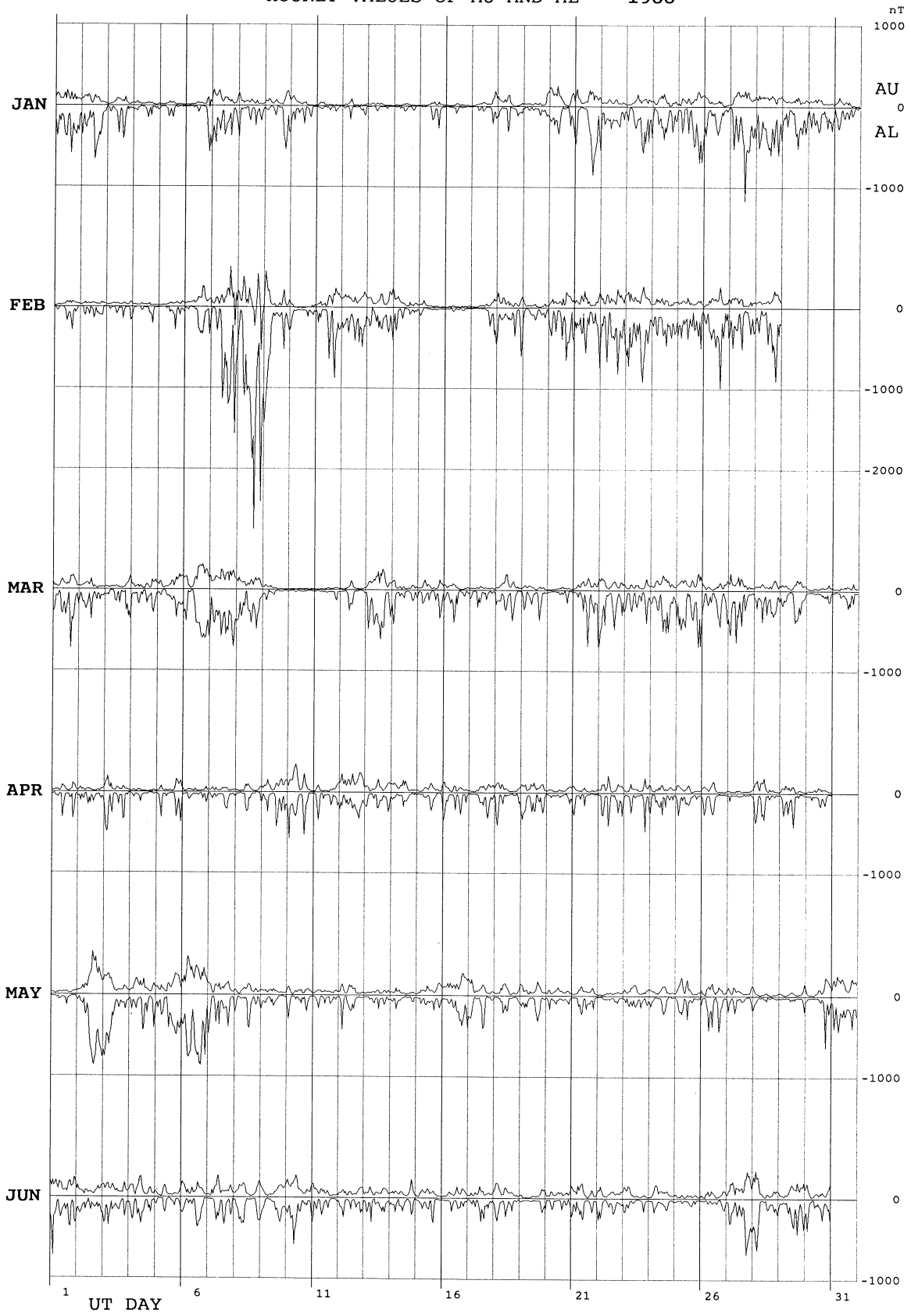


AO HOURLY VALUES FOR THE FIRST HALF OF 1986 (1500NT/DIV)

FIGURE 8

A summary plot of hourly values of  
AU and AL indices  
for January-June 1986.

HOURLY VALUES OF AU AND AL 1986



1. Data Catalogue

	Published in
Data Catalogue of World Data Center C2 for Geomagnetism	1987

2. Data Books

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

3. Other publications

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

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

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

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

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



