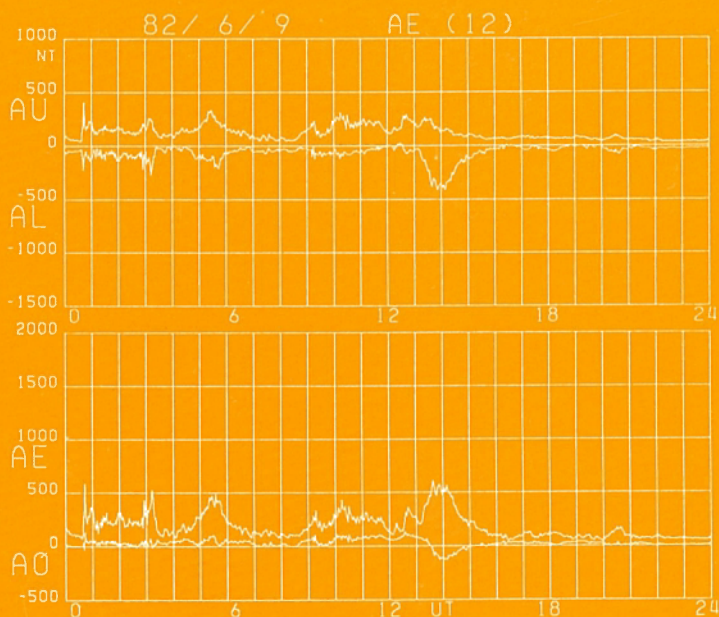


World Data Center C2 for Geomagnetism

DATA BOOK

No. 14

Auroral electrojet indices (AE)
for January-June 1982



JUNE 1986

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

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

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

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

When it became difficult to continue the production of the AE index at the WDC-A, it was requested that the index be produced at the WDC-C2 for Geomagnetism which is operated by Data Analysis Center for Geomagnetism and Spacemagnetism, Faculty of Science, Kyoto University. We decided to produce the index for the two years, 1978-1979, of the International Magnetospheric Study (IMS). We have published the 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 a continuation of the production of the AE index at the WDC-C2, we could not extend it beyond IMS because of the constraints in manpower and computing facility.

Increasing demands for the AE index, however, motivated us to resume its production and we published Data Book No.7 for the first half of 1980. After this publication, various possibilities of financial support for the production of the index were explored by the Subcommittee on Solar Terrestrial Physics of the Special Committee for International Cooperation, Science Council of Japan. As a result, National Institute of Polar Research (NIPR), Tokyo, offered assistance. Beginning with the Data Book No.8, the production of the AE index was continued at the Kyoto University, but the printing and distribution of the Data Book were done by NIPR.

For the derivation of the AE index in the Data Book Nos. 11, 12 and 13, we used digitized data which were especially prepared by the WDC-A for STP for the analyses of the ISEE-3 obtained during its magnetospheric tail crossing. Thus the AE index for this special period was produced by a cooperation among the three organizations, WDC-C2 for Geomagnetism, NIPR, and WDC-A for STP.

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AURORAL ELECTROJET INDICES (AE)

FOR JANUARY - JUNE 1982

1. Derivation and Representation

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

The AU and AL indices are intended to express the strongest current density of the eastward and westward auroral electrojets, respectively. The AE index is understood to represent the overall activity of the electrojets, and the AO index is regarded as a measure of the equivalent zonal current.

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

2. Data Used

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

Table 1. List of AE(12) stations.

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

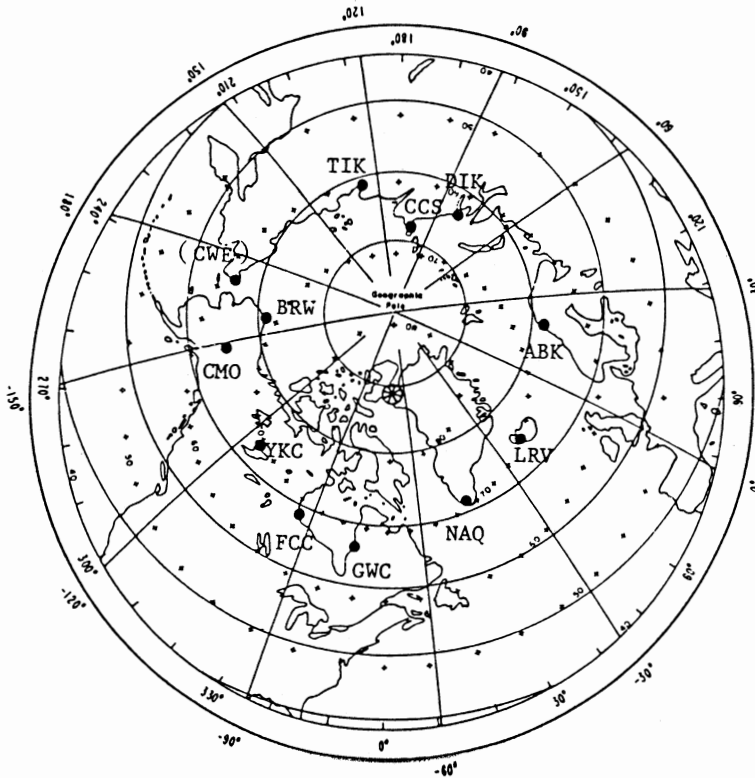
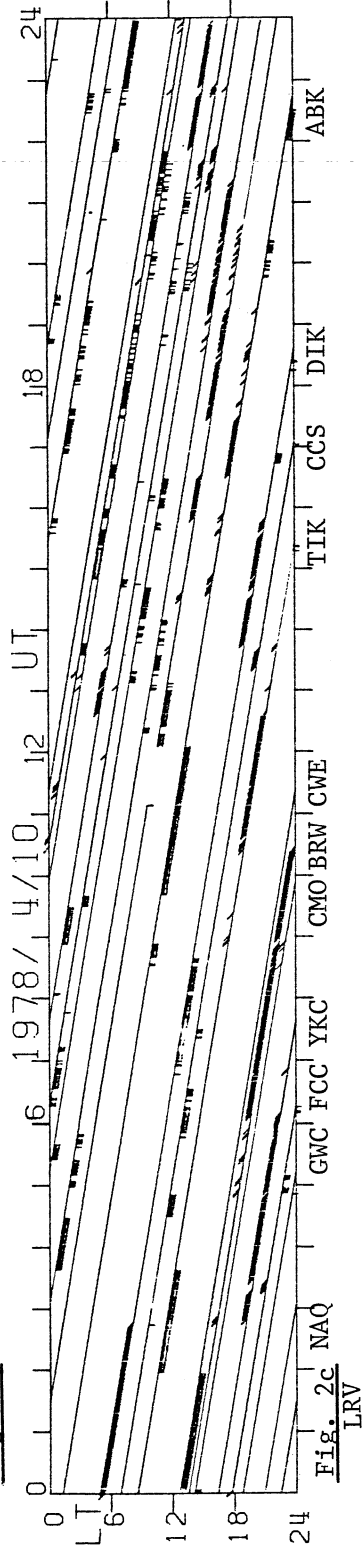
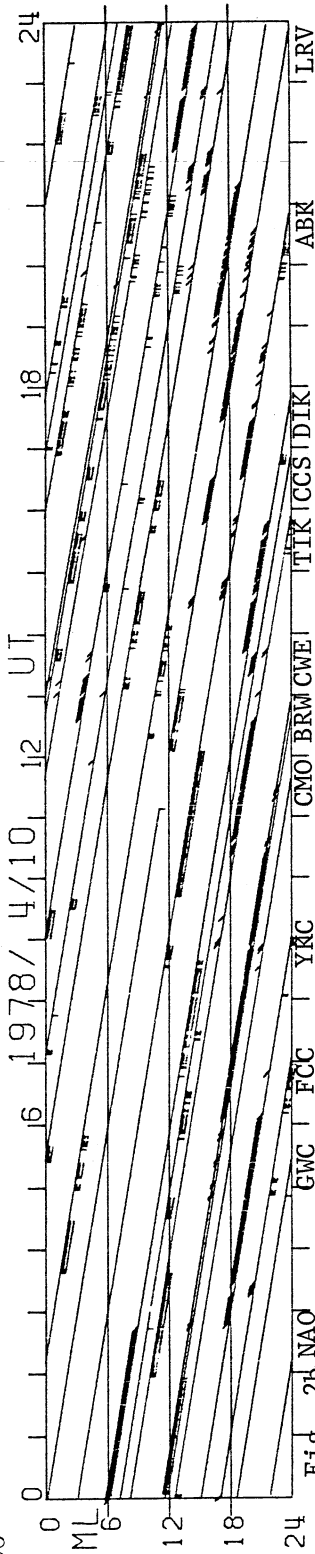
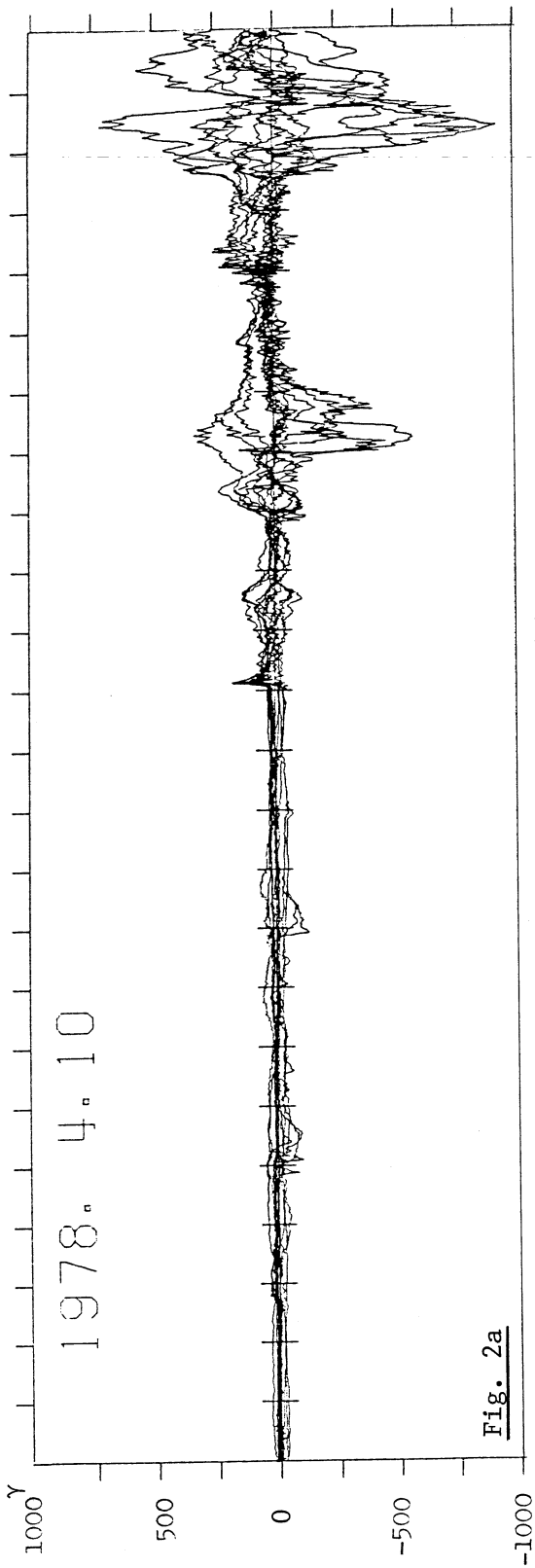


Fig. 1. Distribution of AE(12) stations.

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



We used twelve observatories listed in Table 1. The distribution of the stations are shown in Fig. 1. 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, Great Whale River, and Yellowknife, are stations which give data in the X, Y, Z coordinate system. To make these data more compatible with the other stations, we converted the X and Y components to the H component by $H = \sqrt{X^2 + Y^2}$. If either X or Y is missing, H is also treated as being missing. For the other three digital stations, Barrow, College, and Narssarssuaq, the original digital H-component data were used.

If a digital station has any interval during which the digital recording appears faulty, we digitized the analog magnetogram whenever available. We used Abisko data digitized from analog records by the station. For 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 on April 10, 1978. The upper envelope gives the AU index and the lower envelope, the AL index; Figs. 2b and 2c show sample plots of the contributing stations in geomagnetic (2b) and geographic (2c) local time, for the same day as in Fig. 2a. In these figures, the upper and lower plumes on a diagonal line for each station show the contribution of this station to the AU and AL indices, 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 this is a key station for the AL index for this time interval, the exact AL values might be lower than was calculated for this interval.

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, season, and universal time. Figures 3a, 3b, and 3c show the difference between geographic local time GLT and MLT of the stations used to derive the AE indices for winter, summer and equinox, respectively. In these figures GLT is represented for each station by a straight line which runs diagonally, and MLT is shown by the top of T shaped mark (or the bottom of inverted T). The length of the vertical line of T from the diagonal line is the difference between GLT and MLT. Note that for some stations the difference between GLT and MLT is as much as 2 hours.

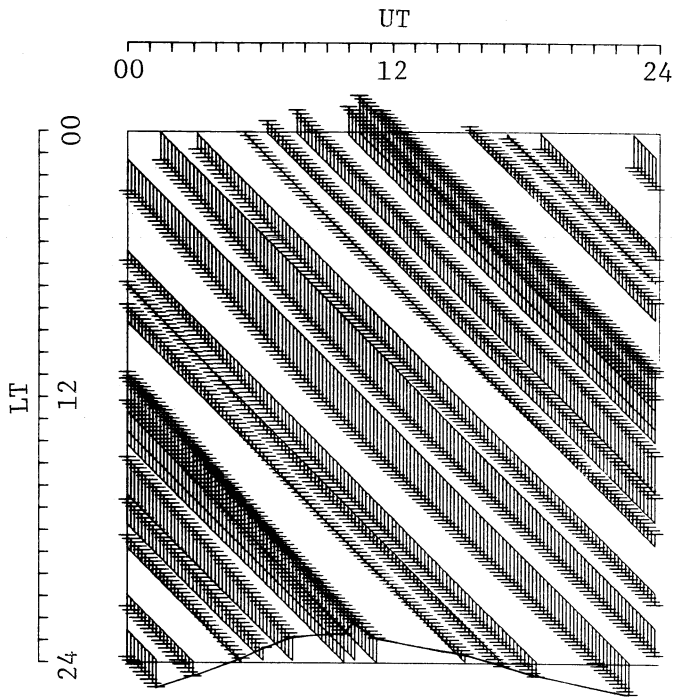


Fig. 3a Difference between GLT and MLT in winter.

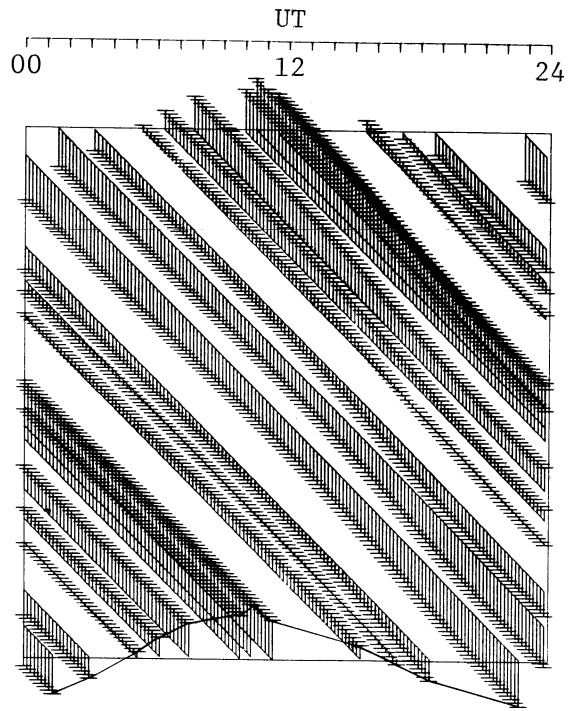


Fig. 3b Difference between GLT and MLT in summer.

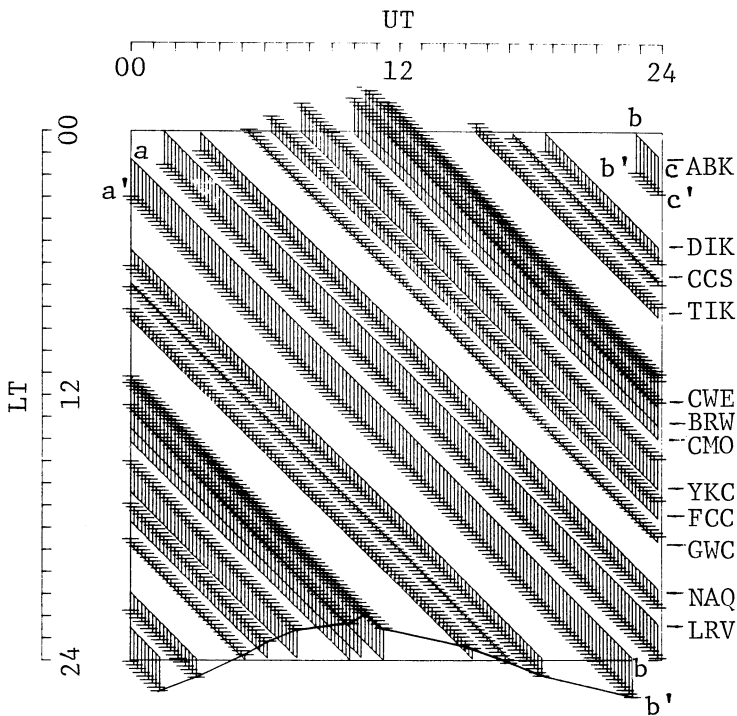


Fig. 3c Difference between GLT and MLT in equinox.

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.

4. Results

Monthly quiet-time H reference values for January-June 1982 are listed in Table 2. Table 3 gives hourly average values of the AE indices on each day from January to June 1982.

Daily graphs of 1.0-min AE indices (AU, AL, AE and AO) are shown in Fig. 4, and corresponding plots of the contributing stations are given in Fig. 5. Figure 6 shows the H-traces of magnetograms from AE(12) stations for each month from January to June 1982. Finally, Fig. 7 shows hourly mean values of each index for the one half year on one page.

5. Acknowledgements

The calculation of the AE indices in this volume has been made possible by the data provided by the AE stations through the World Data Centers. We thank Ms. Y. Yamamoto, Mr. S. Yokoyama, 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. M. Ayukawa and Dr. T. Ono of National Institute of Polar Research for their contribution to the effort of printing and distribution. We thank Dr. T. Bergmark and Mr. M. Reuter of the Geological Survey of Sweden and Dr. E. Friis-Christensen of the Danish Meteorological Institute for special efforts in rapidly transmitting digital data.

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Table 2. Monthly quiet-time H reference values (unit in nT)
(Year 1982)

STATION	Jan.	Feb.	Mar.	Apr.	May	June
Abisko	11765	11756	11751	11749	11756	11746
Dixon Island	6377	6356	6368	6356	6364	6374
Cape Chelyuskin	3427	3404	3421	3410	3425	3428
Tixie Bay	7897	7868	7879	7874	7886	7884
Cape Wellen	14197	14167	14183	14178	14191	14192
Barrow	9785	9748	9767	9756	9776	9787
College	12986	12949	12975	12952	12975	12982
Yellowknife	8749	8706	8727	8723	8752	8756
Fort Churchill	7627	7598	7623	7624	7635	7637
Great Whale River	10759	10733	10763	10754	10783	10781
Narssarssuaq	12137	12123	12130	12137	12136	12142
Leirvogur	12417	12409	12406	12420	12426	12408

TABLE 3

Hourly average AE indices (AU, AL, AE and AO)
for January-June 1982.

January 1982

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	16	17	21	17	19	14	13	23	5	16	15	18	23	46	33	47	108	65	22	13	17	12	10	17	25
2	18	16	15	9	17	14	19	12	8	13	22	43	67	88	42	139	197	123	144	237	141	125	94	94	71
3	60	45	67	73	104	75	61	52	43	77	100	77	51	27	16	71	156	75	93	99	106	93	88	39	73
4	156	120	75	61	35	28	16	33	23	32	22	29	30	32	56	38	116	167	148	68	30	31	36	20	58
5	29	29	17	19	48	48	26	16	36	58	51	21	18	11	10	7	8	10	9	5	7	3	7	11	21
6	13	24	42	49	38	68	110	102	114	210	123	116	148	83	32	24	21	16	22	45	75	34	34	37	66
7	30	50	83	106	114	104	102	103	115	53	30	34	63	59	50	44	51	49	61	112	68	76	85	57	71
8	90	97	92	118	74	49	34	50	25	47	69	57	33	20	33	64	32	32	50	97	119	95	103	85	65
9	65	45	43	54	111	76	54	53	35	31	44	28	18	24	24	45	41	25	43	21	19	25	63	73	44
10	65	37	35	16	13	14	9	11	8	7	6	5	4	3	4	8	18	19	21	27	72	172	188	88	36
11	65	66	55	105	75	42	63	80	81	74	55	54	38	47	56	39	41	22	34	36	26	17	12	20	50
12	31	66	87	56	47	48	21	20	31	21	31	32	9	6	4	6	7	13	17	3	4	10	12	8	25
13	9	11	11	13	22	20	20	49	69	69	56	28	17	10	11	6	9	15	15	11	9	12	11	11	21
14	10	10	11	11	14	14	14	14	11	8	9	14	14	11	11	11	10	14	10	12	12	12	26	24	13
15	21	16	25	90	80	37	42	28	41	28	36	167	194	104	78	65	38	25	79	107	79	82	59	38	65
16	39	40	23	30	64	37	54	61	79	75	91	68	43	48	67	199	244	150	141	87	192	76	55	92	86
17	59	50	110	90	34	32	20	30	59	101	202	177	99	63	30	26	46	30	22	28	20	12	6	16	57
18	15	21	12	34	36	29	28	15	18	35	55	40	32	37	28	23	69	25	97	76	123	183	121	80	51
19	35	48	22	12	9	10	7	9	10	13	15	9	12	8	7	8	2	10	8	2	10	8	7	11	12
20	10	19	15	16	21	39	29	26	38	42	28	20	9	8	10	14	12	7	5	14	7	7	7	10	17
21	11	18	23	48	43	94	116	197	232	174	138	125	87	48	46	32	31	101	122	46	40	24	16	41	77
22	53	37	58	79	140	217	149	144	145	186	178	89	142	126	86	126	174	250	163	237	130	135	86	87	134
23	171	199	104	57	71	137	158	159	84	32	95	106	92	119	103	114	74	38	27	100	110	76	82	57	99
24	112	115	87	55	83	93	99	95	79	43	55	76	90	73	78	134	89	72	54	88	66	72	82	59	83
25	76	43	31	28	22	29	32	25	13	11	12	12	4	14	35	56	34	8	3	3	8	23	9	6	22
26	9	13	20	17	16	18	15	16	10	15	30	15	8	23	17	12	7	11	23	54	62	85	89	77	28
27	69	40	38	26	62	99	86	37	20	19	26	31	43	110	81	72	100	52	37	57	71	61	122	97	61
28	46	49	44	39	33	16	18	42	77	118	196	216	67	32	27	21	7	6	6	2	3	8	16	4	46
29	2	-2	0	1	1	21	28	12	15	10	4	0	6	12	41	50	51	43	116	108	41	30	30	24	27
30	64	168	136	93	86	90	102	145	173	116	81	96	64	64	38	46	36	37	25	21	4	4	11	5	70
31	1	39	43	87	200	231	148	69	108	66	120	179	142	188	406	319	405	389	319	125	74	40	14	6	155
Mean	45	46	47	50	56	59	54	54	57	59	65	63	54	49	50	60	72	61	62	62	56	53	51	43	55
5Q Mean	30	36	34	29	40	33	23	29	31	28	31	22	14	11	11	15	13	15	18	9	10	13	23	25	23
5D Mean	62	76	88	86	121	149	121	105	105	106	121	106	104	104	129	135	169	157	125	116	84	69	56	38	105

February 1982

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
	34	37	62	120	139	202	184	129	118	117	115	201	229	164	152	191	142	291	125	51	220	157	336	131	152
D	117	198	137	273	271	536	404	65	246	228	175	205	268	196	104	90	76	32	18	18	26	46	43	36	159
	27	76	61	68	127	285	269	340	222	165	243	229	103	112	188	164	62	60	120	108	81	177	190	133	150
D	130	158	136	143	184	258	273	263	192	126	102	195	177	208	155	200	180	162	186	159	225	117	61	217	175
	105	105	144	115	284	296	189	159	195	181	201	179	105	121	75	79	268	287	176	158	95	148	165	99	164
	113	78	107	79	136	182	195	259	261	230	216	128	158	131	190	217	60	135	275	60	157	119	69	142	154
	107	99	143	67	96	88	125	153	137	108	186	161	145	132	90	38	53	71	111	148	128	105	88	125	113
	120	168	149	117	103	115	199	282	178	242	255	140	172	144	98	58	163	312	312	238	150	151	125	118	171
	57	24	61	118	121	135	128	178	180	154	157	195	243	111	59	50	31	42	79	89	129	124	102	77	110
Q	84	88	142	113	66	76	58	69	72	92	133	77	218	291	211	272	90	248	165	126	197	185	120	30	134
	35	108	85	115	148	280	315	155	75	107	85	125	108	210	353	473	229	133	98	213	175	275	315	212	185
	90	30	41	32	20	39	52	45	59	61	95	223	175	137	102	83	57	94	132	249	244	229	110	5	100
	71	114	125	146	149	138	288	244	251	246	134	157	173	177	203	181	95	94	78	81	100	129	178	104	152
D	124	106	156	110	140	165	258	302	228	214	139	131	201	140	117	169	134	175	188	174	258	195	87	127	168
	208	138	84	64	90	102	90	168	177	188	249	211	281	194	227	107	75	72	54	47	47	41	40	36	125
Q	44	49	46	40	57	72	61	41	29	25	20	22	68	64	70	48	32	32	27	35	34	24	23	22	41
	23	22	24	29	42	58	77	157	176	155	180	136	81	117	288	317	334	257	171	140	161	154	137	100	139
	104	88	102	80	101	126	102	109	222	156	73	55	111	59	136	112	52	61	84	143	146	120	149	187	112
	189	165	109	158	169	225	163	154	126	144	90	51	103	147	105	161	201	167	155	182	142	92	106	90	141
	86	121	104	88	109	101	97	93	92	120	94	126	94	136	79	51	86	52	110	164	124	187	144	119	107
	111	81	51	48	44	37	51	67	79	75	81	179	95	86	55	53	40	39	62	57	138	223	175	170	87
	227	147	161	78	194	177	166	96	52	96	209	289	239	200	379	337	342	169	83	204	285	181	58	110	187
D	129	189	88	60	39	65	52	27	40	55	65	128	176	158	161	166	214	184	197	258	183	213	108	176	131
	130	168	216	146	217	215	154	171	112	103	82	78	140	96	205	92	89	77	91	98	134	91	158	220	137
	146	168	132	228	441	466	346	550	237	247	213	152	166	115	236	84	64	83	291	123	64	76	60	40	197
	56	116	118	214	248	193	263	246	191	180	246	266	107	55	39	35	64	69	61	80	206	186	137	166	148
	118	95	88	84	81	65	51	51	82	97	108	129	64	50	30	33	25	53	41	41	47	47	64	52	66
Q	51	46	53	43	39	34	39	47	45	62	45	38	35	45	37	38	47	67	59	171	134	62	55	43	56
Q	101	106	104	106	137	168	166	165	145	141	142	150	151	135	148	139	118	125	126	129	143	137	121	110	134
Mean	95	70	66	69	77	81	73	97	102	105	115	119	138	92	84	55	42	53	52	76	78	59	56	46	79
5Q	116	145	128	151	189	277	289	164	163	160	141	194	193	198	238	256	184	118	92	135	162	149	131	135	171
5D																									

Date	AU Index (Hourly mean values, unit nT)																March					Mean			
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		21	22	23
D 1	31	35	51	60	42	73	160	176	121	85	46	72	152	147	224	459	292	142	113	58	58	96	87	202	124
D 2	148	240	213	127	259	277	155	48	183	-16	175	156	249	204	282	248	197	179	134	160	125	132	107	88	169
D 3	114	55	29	25	13	28	22	22	29	61	38	67	94	72	120	93	113	121	137	113	70	35	31	30	64
D 4	21	32	22	14	14	15	24	35	31	46	126	212	74	32	16	23	35	59	15	20	27	37	89	106	47
D 5	223	145	45	55	121	149	141	84	56	100	53	27	13	8	8	4	16	20	32	29	32	26	17	10	59
Q 6	5	8	6	7	9	11	11	8	9	6	10	10	6	10	24	40	15	12	21	27	22	20	18	26	14
Q 7	41	31	19	11	9	15	15	20	24	24	24	23	28	32	33	30	26	46	18	18	15	23	37	53	26
Q 8	72	144	161	138	100	77	61	63	52	64	63	89	66	66	71	64	128	199	228	212	290	186	162	163	122
Q 9	91	131	124	40	53	93	76	38	69	115	208	213	126	105	87	204	279	297	230	162	159	127	138	143	138
Q 10	54	112	159	112	113	95	152	129	148	194	100	52	21	32	46	48	52	31	27	14	37	60	80	108	82
Q 11	127	121	108	81	87	116	144	77	46	28	20	35	57	75	52	59	67	140	154	175	233	208	120	83	101
Q 12	36	32	45	61	56	37	33	42	40	49	33	24	17	23	37	67	177	265	153	208	232	264	164	173	94
Q 13	92	48	104	78	87	143	109	145	135	99	127	217	175	144	107	45	36	38	36	54	74	89	154	195	106
Q 14	150	143	90	67	27	30	35	27	30	50	100	174	204	129	118	101	169	188	258	334	278	159	154	179	133
Q 15	170	120	69	71	43	49	63	65	55	31	45	63	52	34	27	27	39	60	72	70	46	65	113	75	63
Q 16	68	68	61	88	63	53	56	57	73	82	67	86	55	27	20	31	26	44	46	63	53	59	57	40	56
Q 17	32	26	36	41	34	36	45	50	40	50	106	136	216	230	133	65	54	67	88	72	79	72	76	81	78
Q 18	42	59	81	64	83	72	62	100	115	81	132	112	34	47	30	73	114	71	44	33	84	58	44	73	71
Q 19	95	130	103	145	91	38	39	57	42	45	57	71	56	35	24	15	17	18	18	22	39	46	33	22	52
Q 20	23	21	19	19	23	57	92	196	136	109	89	49	64	107	82	97	95	57	111	90	53	73	64	68	75
D 21	30	38	24	69	85	96	92	204	157	156	147	136	260	157	176	302	188	65	183	180	185	124	84	162	137
D 22	122	112	271	202	280	201	186	167	89	163	179	147	184	157	176	178	174	268	185	120	45	39	38	16	154
D 23	15	8	13	17	10	10	12	9	24	79	120	62	43	100	52	26	14	27	19	24	27	29	28	22	33
D 24	15	18	15	25	25	26	26	32	36	57	74	51	38	48	58	77	106	183	110	201	126	76	65	36	64
D 25	81	82	79	96	63	41	81	71	80	142	223	162	128	136	99	82	99	78	63	53	104	55	74	93	94
D 26	45	51	79	61	42	26	33	31	34	62	77	74	37	40	35	63	113	86	46	27	36	70	88	44	54
D 27	44	70	81	85	77	60	49	63	42	38	40	88	63	50	45	27	17	17	22	20	36	23	19	22	46
D 28	20	24	22	41	99	80	29	42	23	30	27	17	17	24	20	18	15	15	17	19	20	26	20	20	30
Q 29	22	26	27	41	122	130	167	189	172	123	88	31	31	23	14	15	17	25	38	33	42	71	103	87	68
Q 30	97	79	84	95	200	174	80	69	67	88	105	147	224	195	89	63	90	105	32	60	114	108	143	142	110
Q 31	255	202	135	151	156	223	258	289	172	61	77	146	152	156	132	59	203	291	296	302	194	139	153	164	182
Mean	76	77	76	71	80	81	80	84	75	74	89	95	94	85	78	87	96	103	95	95	94	83	82	87	85
5Q Mean	60	50	35	51	44	41	34	38	36	34	34	39	31	25	24	29	24	35	34	39	31	38	49	42	37
5D Mean	82	101	127	110	145	137	134	133	126	106	154	134	194	160	191	253	190	146	135	114	103	89	78	112	135

AU Index (Hourly mean values, unit nT)

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April

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	154	185	80	62	59	60	42	57	46	113	92	66	55	76	99	68	44	41	36	51	189	178	191	186	93
D	128	189	151	218	253	206	164	193	319	161	83	59	147	281	365	318	301	334	399	325	247	210	96	305	227
	154	150	110	237	207	216	253	176	143	180	197	203	261	363	433	379	374	270	318	256	160	189	134	180	231
	163	157	145	151	160	126	195	163	152	174	143	91	104	150	142	122	116	235	230	191	197	269	287	166	168
	87	130	162	179	214	128	83	156	216	307	219	131	63	65	35	23	24	125	197	192	81	182	173	95	136
	104	163	169	165	168	224	184	158	163	152	266	229	165	176	227	105	207	310	212	164	149	108	108	103	174
Q	139	97	49	52	30	43	44	35	70	66	50	51	47	41	34	39	44	57	68	57	50	50	44	36	54
	27	31	28	24	23	88	109	111	178	149	120	106	100	101	170	92	38	60	63	89	152	146	74	115	91
	119	108	172	185	159	99	58	75	99	82	83	86	80	97	138	92	122	140	249	245	132	118	98	117	123
D	144	231	215	219	252	263	223	244	251	232	286	229	253	207	284	306	167	150	112	202	263	148	54	141	212
D	206	152	155	201	148	197	282	192	252	295	181	110	96	98	228	240	132	79	252	222	143	143	64	41	171
	38	33	17	83	97	124	45	84	92	166	265	178	116	70	172	93	40	53	107	183	82	54	62	100	98
	59	41	123	143	96	164	145	99	44	45	57	61	71	41	36	34	26	23	18	22	27	92	94	60	68
Q	35	20	13	13	17	23	46	103	86	69	40	37	39	34	45	46	40	37	42	43	44	71	43	37	43
	29	29	34	38	31	27	54	69	154	183	155	93	111	126	47	56	46	53	45	62	103	137	67	126	78
	64	47	76	56	132	103	120	105	43	42	36	22	24	28	24	33	27	185	200	134	122	92	73	58	77
	56	49	80	43	30	47	126	207	269	183	129	332	236	144	240	141	53	62	62	78	58	44	61	57	116
	25	21	27	22	22	37	39	101	54	32	30	41	74	130	90	111	198	228	133	196	151	212	160	68	92
Q	54	72	42	26	39	44	33	35	36	40	43	50	64	74	76	144	187	201	118	94	64	120	120	187	82
	122	125	145	202	156	167	74	206	245	158	67	99	182	114	60	67	57	69	72	77	77	95	86	204	122
	194	109	42	71	46	48	110	175	110	90	207	191	145	160	148	171	216	295	196	180	107	77	116	243	144
	231	177	151	261	200	131	94	62	81	63	52	64	49	45	46	41	62	66	55	45	47	32	33	39	89
Q	63	40	55	61	53	51	59	75	117	103	153	181	73	58	45	42	76	83	66	69	78	101	59	90	77
	24	73	99	72	65	90	62	66	53	60	48	53	67	48	81	79	106	57	49	52	101	113	89	76	73
D	91	178	235	328	282	352	436	263	334	140	197	346	202	108	79	100	104	121	199	127	77	68	52	43	186
Q	35	30	29	25	30	40	32	64	115	173	135	50	32	49	61	71	85	93	136	130	130	184	192	72	83
	41	23	11	13	25	169	159	145	62	40	37	49	88	61	48	174	353	296	259	159	78	200	197	178	119
	106	173	166	232	227	206	227	207	152	145	204	266	162	196	112	82	90	113	179	212	196	180	243	271	181
	198	149	176	157	207	200	150	230	159	220	101	165	166	59	137	172	142	275	288	254	157	189	112	213	178
	249	235	310	250	202	187	226	261	158	169	184	177	110	94	218	167	300	155	162	155	104	169	205	252	196
Mean	106	108	108	126	121	128	129	137	141	134	128	127	112	109	130	120	125	142	150	142	118	132	112	128	126
5Q Mean	65	51	37	35	33	40	42	62	84	90	84	73	51	51	52	68	86	94	86	78	73	105	91	84	67
5D Mean	144	180	173	240	228	246	271	213	259	201	188	189	191	211	277	268	215	190	256	226	178	151	80	142	205

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May

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	173	179	135	86	106	175	185	235	295	218	243	220	218	187	240	229	337	272	287	135	126	77	83	95	189
2	59	151	192	187	195	152	136	74	152	241	167	212	137	259	295	295	339	262	190	166	267	212	225	139	196
D 3	164	234	167	109	200	311	268	277	241	137	294	250	287	218	115	228	397	291	314	152	87	162	240	217	223
4	66	63	37	40	40	35	66	32	42	167	228	177	126	134	196	235	174	51	43	57	58	38	28	40	91
5	63	96	113	167	206	219	113	131	166	179	180	165	104	118	117	152	108	53	65	109	71	32	35	39	117
6	54	75	102	88	75	63	75	75	69	73	81	62	93	71	44	53	94	58	47	63	81	68	60	59	70
Q 7	67	34	51	74	50	19	13	13	15	48	45	48	70	72	55	58	57	65	69	101	134	122	87	73	60
Q 8	73	121	132	159	109	89	89	92	54	74	69	71	55	54	67	53	99	94	87	103	81	79	119	107	89
9	151	203	232	218	212	176	104	83	82	78	43	58	73	111	70	53	56	48	65	100	77	53	38	42	101
10	62	103	57	47	45	16	35	30	27	36	39	70	84	64	38	36	42	33	36	44	50	31	55	121	50
11	99	71	64	80	84	98	58	46	40	80	140	145	119	91	79	54	74	56	56	90	124	102	84	95	85
12	52	79	96	65	61	129	146	185	134	103	161	90	51	44	62	38	42	40	51	68	36	31	35	44	77
13	95	118	116	91	95	41	26	33	62	66	46	28	32	47	41	33	67	84	174	169	164	59	42	45	74
14	43	40	44	87	35	29	25	33	121	127	112	110	54	42	42	43	65	51	46	55	39	34	33	59	56
15	50	107	163	95	112	63	98	106	64	111	254	207	137	151	145	95	135	112	320	147	132	96	70	70	127
16	43	78	121	75	50	52	52	102	191	155	81	57	58	67	58	54	113	151	137	94	68	59	67	120	88
17	93	90	139	122	71	69	56	58	80	185	272	167	98	80	103	115	76	95	70	86	140	124	97	86	107
18	225	244	180	206	206	227	88	74	54	172	264	226	172	109	68	62	87	142	165	124	93	99	245	177	155
19	120	110	137	149	114	62	44	84	99	131	136	120	113	140	120	85	75	125	90	142	111	126	98	148	112
20	110	102	63	39	41	72	76	98	99	132	81	67	67	71	40	41	48	29	28	40	35	41	43	61	64
21	36	23	17	15	25	63	122	144	177	89	63	174	175	139	124	64	40	33	34	35	48	50	105	90	79
22	51	37	33	24	15	24	52	52	65	121	69	38	23	22	18	26	30	34	37	38	38	26	19	24	38
Q 23	67	72	110	58	13	8	8	17	19	33	25	33	31	31	33	28	38	35	31	24	21	25	30	28	34
Q 24	31	32	20	19	11	21	37	81	90	77	57	99	129	156	100	59	50	48	51	45	53	49	42	40	58
25	43	36	40	31	29	26	24	26	20	25	61	90	125	88	41	48	30	45	53	46	41	50	93	180	54
26	162	164	152	219	148	88	130	120	97	67	76	109	123	156	154	168	270	222	336	366	228	307	248	277	183
D 27	155	80	187	195	204	399	480	388	493	501	320	150	150	338	527	336	374	434	282	307	231	227	112	191	294
D 28	196	350	276	385	418	351	268	249	273	158	214	285	216	338	467	428	318	279	269	147	212	221	271	166	281
D 29	161	265	393	301	292	255	97	199	322	231	58	88	207	270	328	230	230	201	272	268	191	288	316	281	239
D 30	157	137	284	196	144	105	141	219	278	220	197	248	195	209	270	246	302	333	237	176	197	214	260	176	214
31	246	251	243	300	223	320	390	290	330	326	266	183	136	119	83	132	209	241	196	160	241	191	224	261	232
Mean	102	120	132	126	117	121	113	117	134	140	140	130	119	129	133	121	141	129	133	117	112	106	113	114	123
5Q Mean	57	59	69	66	39	32	39	51	48	70	53	57	61	67	54	44	54	55	55	62	65	60	59	54	55
5D Mean	166	213	261	237	251	284	250	266	321	249	216	204	211	274	341	293	324	307	274	210	183	222	239	206	250

Date	AU Index (Hourly mean values, unit nT)												June												Mean
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
1	191	227	142	194	195	158	139	219	169	135	138	92	68	69	127	89	176	180	256	357	282	247	278	158	
2	259	168	228	255	142	120	112	178	135	115	84	109	114	77	55	87	97	102	190	231	209	166	142	168	
Q	183	146	165	224	139	109	80	52	33	26	61	107	101	77	58	96	94	100	110	79	123	143	124	146	
Q	247	247	172	159	96	40	34	34	14	23	49	58	67	108	102	97	53	69	78	111	151	178	183	247	
Q	138	82	101	123	75	62	93	97	60	83	126	108	99	114	95	118	56	51	49	45	76	91	92	59	
6	66	95	89	116	128	280	382	307	167	180	164	172	148	79	80	64	93	110	94	67	94	101	47	116	
7	266	190	222	174	112	238	237	309	424	416	448	209	64	57	99	131	112	75	85	67	65	69	70	50	
8	35	24	23	22	20	20	16	14	20	27	38	118	187	188	100	182	225	153	199	73	134	165	211	218	
9	112	152	140	137	136	234	125	72	81	149	223	203	189	200	117	79	70	76	67	66	66	51	40	39	
D	61	48	249	305	380	464	419	399	260	110	80	308	236	455	512	445	365	108	80	52	55	60	189	152	
D	91	132	197	248	289	303	183	328	152	89	146	242	130	71	85	97	177	331	299	351	300	201	247	196	
D	263	186	234	197	68	129	117	155	103	112	160	144	120	85	158	586	659	679	640	537	329	363	390	471	
D	341	187	217	190	166	244	244	397	275	182	238	331	310	346	342	166	218	305	373	408	283	331	311	254	
14	93	91	64	105	257	234	336	307	371	364	306	272	146	74	77	107	136	113	275	282	194	120	89	93	
15	156	105	126	137	143	186	263	355	352	150	135	91	64	161	255	154	288	310	162	199	237	154	155	178	
16	164	80	64	36	47	57	48	45	78	120	142	155	142	179	143	155	136	154	192	188	130	69	75	64	
Q	99	50	79	52	66	98	72	21	43	70	173	115	151	109	80	67	68	61	50	46	39	32	25	20	
Q	19	20	27	55	89	78	74	69	132	89	38	22	23	24	40	37	49	71	85	120	92	62	41	35	
19	28	23	68	87	88	158	218	219	218	249	326	203	129	195	338	265	350	487	544	369	451	412	255	84	
20	155	271	200	209	286	279	188	348	388	381	183	72	100	167	127	211	191	142	175	273	235	169	64	115	
21	107	69	115	55	54	163	186	224	358	178	95	117	151	165	124	64	62	65	91	98	148	213	263	276	
22	242	201	228	167	167	191	206	176	230	278	288	252	227	234	127	144	191	268	438	436	315	408	465	479	
23	339	311	295	302	290	261	440	458	365	378	374	308	270	316	309	274	254	282	294	278	188	166	145	219	
24	193	103	78	114	106	162	78	91	252	265	251	229	168	95	46	22	31	48	57	139	357	86	195	205	
25	138	123	234	238	83	27	107	223	245	239	222	154	92	107	54	49	44	56	71	70	83	87	59	24	
26	17	12	72	118	242	221	241	224	247	222	149	135	124	160	210	317	334	366	318	388	298	315	268	264	
27	206	372	257	273	257	212	217	286	232	236	127	55	175	108	59	50	60	43	60	350	242	227	326	258	
28	193	198	196	192	230	288	250	145	207	349	149	59	90	129	104	137	233	268	175	219	184	229	196	254	
29	270	235	175	85	60	52	72	90	61	123	203	123	47	46	56	64	89	190	117	50	81	112	164	206	
D	127	202	177	271	289	430	328	271	229	157	217	191	99	56	56	64	97	139	158	150	175	195	201	315	
Mean	159	145	154	161	156	183	183	203	196	183	177	158	134	141	137	147	166	180	192	203	187	174	177	178	
5Q Mean	137	109	108	122	93	77	70	54	56	58	89	82	88	86	75	83	64	70	74	80	96	101	93	101	
5D Mean	176	151	214	242	238	314	258	310	203	130	168	243	179	202	230	271	303	312	310	299	228	230	267	277	

AL Index (Hourly mean values, unit nT)

January 1982

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	-31	-80	-133	-135	-86	-48	-68	-114	-84	-47	-48	-75	-168	-236	-101	-293	-456	-97	-44	-37	-44	-51	-43	-29	-106
2	-26	-36	-24	-22	-28	-55	-32	-19	-30	-59	-162	-199	-209	-233	-308	-446	-437	-324	-385	-402	-416	-306	-150	-124	-185
D 3	-176	-179	-227	-112	-171	-218	-115	-156	-192	-326	-243	-157	-59	-47	-114	-511	-599	-122	-227	-240	-639	-361	-152	-312	-236
4	-295	-131	-94	-19	-53	-20	-18	-54	-41	-100	-108	-82	-85	-204	-253	-388	-656	-410	-259	-86	-40	-76	-139	-174	-158
5	-58	-21	-17	-11	-25	-47	-47	-18	-28	-93	-93	-24	-27	-21	-21	-21	-25	-29	-25	-19	-19	-23	-21	-20	-31
6	-16	-98	-79	-96	-143	-197	-175	-165	-221	-155	-121	-167	-183	-52	-13	-21	-29	-26	-25	-51	-37	-93	-29	-20	-92
7	-18	-17	-31	-9	-15	0	-28	-147	-123	-27	-19	-21	-73	-183	-140	-391	-365	-167	-36	-207	-244	-118	-93	-148	-109
8	-114	-123	-112	-77	-19	-26	-10	-34	-103	-142	-151	-40	-12	-21	-72	-178	-36	-144	-197	-245	-95	-92	-58	-28	-89
Q 9	-30	-43	-20	-22	-16	-5	-4	-13	-23	-44	-95	-41	-15	-17	-88	-150	-59	-91	-121	-48	-18	-25	-40	-57	-45
10	-57	-12	-8	-10	-9	-5	-4	-3	-5	-6	-10	-12	-25	-22	-19	-20	-24	-40	-36	-42	-73	-78	-78	-44	-27
11	-24	-17	-88	-110	-10	-13	-14	-9	-12	-24	-29	-31	-60	-100	-69	-72	-113	-53	-68	-24	-12	-7	-12	-12	-41
Q 12	-16	-74	-9	-4	0	-2	-5	-5	-11	-43	-32	-11	-8	-9	-11	-16	-17	-21	-49	-21	-10	-10	-9	-12	-17
13	-12	-8	-4	0	-2	0	-1	-3	-41	-3	0	0	-4	-9	-12	-15	-14	-12	-16	-7	-5	-7	-3	-4	-8
Q 14	-7	-4	0	0	-1	-1	-1	0	0	0	-2	-2	-6	-8	-9	-12	-15	-15	-14	-6	-9	-37	-63	-39	-10
15	-28	-9	-89	-317	-81	0	-23	-38	-47	-100	-87	-396	-369	-273	-275	-151	-72	-52	-182	-474	-132	-215	-75	-39	-147
16	-60	-61	-47	-64	-106	-62	-55	-102	-406	-300	-146	-100	-58	-273	-568	-585	-314	-206	-272	-468	-237	-107	-137	-349	-212
17	-136	-58	-175	-126	-21	-11	-20	-21	-153	-410	-434	-276	-176	-112	-106	-146	-240	-169	-49	-24	-18	-23	-25	-32	-123
18	-89	-76	-43	-94	-74	-13	-17	-15	-16	-47	-91	-80	-57	-84	-97	-85	-74	-92	-417	-781	-546	-584	-166	-131	-157
Q 19	-69	-76	-57	-34	-22	-20	-21	-22	-21	-29	-39	-57	-70	-90	-21	-25	-29	-69	-48	-54	-28	-26	-21	-16	-40
20	-27	-54	-24	-17	-87	-178	-46	-6	-16	-44	-29	-26	-27	-20	-19	-20	-24	-23	-23	-135	-26	-32	-22	-20	-39
21	-17	-9	-4	-9	-15	-39	-50	-114	-136	-33	-40	-19	-16	-34	-44	-37	-29	-163	-179	-43	-30	-39	-21	-61	-49
D 22	-156	-155	-120	-201	-272	-387	-272	-220	-248	-343	-435	-410	-471	-357	-400	-311	-378	-603	-224	-345	-465	-411	-280	-183	-319
D 23	-256	-217	-228	-201	-199	-233	-200	-172	-114	-65	-192	-262	-543	-463	-242	-248	-230	-195	-91	-185	-196	-431	-487	-207	-244
24	-297	-184	-48	-90	-193	-223	-89	-124	-108	-158	-200	-153	-254	-531	-549	-396	-282	-163	-75	-325	-320	-273	-247	-337	-234
25	-120	-27	-30	-50	-124	-123	-85	-71	-67	-38	-46	-71	-64	-54	-231	-159	-29	-19	-25	-41	-56	-101	-29	-26	-70
26	-23	-22	-26	-11	-11	-11	-16	-17	-15	-22	-72	-80	-95	-53	-39	-30	-29	-27	-148	-402	-461	-263	-87	-116	-87
27	-161	-51	-24	-18	-154	-297	-94	-11	-15	-29	-73	-283	-342	-440	-239	-249	-234	-159	-149	-142	-135	-189	-267	-238	-166
28	-77	-54	-146	-247	-49	-37	-65	-146	-404	-566	-689	-342	-108	-57	-52	-41	-61	-52	-51	-66	-46	-37	-61	-41	-146
29	-44	-43	-35	-26	-41	-38	-11	-13	-16	-26	-28	-38	-45	-56	-107	-121	-66	-64	-296	-164	-21	-30	-31	-138	-62
D 30	-112	-404	-419	-294	-132	-152	-127	-247	-405	-629	-305	-245	-306	-238	-251	-378	-209	-115	-186	-102	-47	-55	-86	-93	-231
D 31	-78	-213	-205	-333	-442	-321	-193	-107	-150	-112	-307	-612	-535	-595	-597	-590	-498	-458	-324	-194	-84	-62	-55	-50	-296
Mean	-84	-82	-82	-89	-83	-89	-61	-70	-104	-129	-139	-139	-144	-157	-163	-196	-182	-134	-136	-173	-145	-134	-96	-100	-121
5Q Mean	-26	-41	-18	-12	-8	-5	-6	-8	-19	-23	-33	-22	-20	-26	-28	-43	-26	-41	-49	-27	-14	-21	-27	-25	-24
5D Mean	-155	-233	-239	-228	-243	-262	-181	-180	-221	-295	-296	-337	-382	-340	-320	-407	-382	-298	-210	-213	-286	-264	-212	-169	-265

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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	-62	-53	-60	-113	-206	-304	-232	-150	-181	-204	-258	-616	-874	-636	-171	-161	-85	-423	-1085	-1084	-688	-450	-392	-60	-356
D 2	-52	-267	-472	-419	-590	-223	-372	-585	-483	-159	-150	-481	-541	-576	-132	-94	-71	-73	-70	-45	-35	-32	-136	-76	-256
D 3	-49	-60	-31	-84	-192	-305	-335	-481	-222	-128	-220	-282	-93	-383	-713	-125	-51	-131	-428	-195	-76	-398	-544	-474	-250
D 4	-475	-381	-332	-324	-343	-360	-501	-324	-255	-473	-647	-586	-795	-750	-500	-492	-180	-234	-358	-613	-474	-486	-522	-397	-450
D 5	-375	-618	-474	-402	-248	-220	-177	-186	-244	-106	-114	-102	-196	-156	-62	-144	-818	-587	-276	-262	-190	-389	-350	-158	-286
D 6	-106	-59	-55	-155	-209	-305	-383	-234	-409	-195	-283	-484	-468	-380	-457	-554	-764	-504	-374	-468	-266	-488	-395	-312	-346
D 7	-171	-542	-404	-257	-295	-155	-163	-167	-59	-115	-292	-240	-208	-154	-80	-59	-227	-240	-289	-253	-283	-262	-305	-218	-227
D 8	-314	-178	-68	-42	-97	-60	-88	-126	-102	-234	-261	-130	-208	-305	-178	-129	-187	-392	-383	-225	-483	-32	-26	-79	-180
D 9	-200	-257	-201	-61	-175	-77	-89	-168	-132	-106	-77	-169	-234	-16	0	-2	-17	-32	-175	-157	-88	-110	-105	-68	-113
D 10	-44	-101	-74	-13	5	-8	1	9	6	-16	-81	-508	-598	-424	-777	-591	-608	-365	-277	-456	-315	-135	-110	-339	-242
D 11	-437	-240	-188	-383	-525	-289	-231	-78	-51	-97	-54	-206	-390	-640	-848	-869	-276	-237	-138	-158	-166	-755	-556	-349	-340
D 12	-264	-76	-59	-31	-103	-71	-23	-22	-25	-27	-61	-358	-152	-220	-107	-185	-134	-157	-328	-964	-809	-515	-322	-383	-225
D 13	-368	-190	-491	-213	-182	-211	-249	-261	-289	-333	-312	-608	-430	-443	-674	-769	-758	-643	-765	-474	-495	-695	-325	-83	-428
D 14	-51	-189	-224	-196	-357	-499	-484	-320	-310	-292	-216	-372	-549	-306	-187	-249	-233	-545	-540	-536	-445	-359	-362	-192	-334
D 15	-48	-21	-32	2	-21	-75	-136	-342	-180	-237	-352	-489	-451	-638	-547	-325	-110	-55	-29	-30	-31	-29	-32	-32	-177
D 16	-50	-126	-65	-96	-94	-62	-16	-13	-18	-23	-22	-18	-57	-150	-163	-76	-27	-67	-212	-49	-6	-2	-2	-2	-59
D 17	-9	-14	-16	-14	0	-56	-258	-361	-195	-108	-172	-326	-612	-236	-352	-402	-552	-344	-114	-187	-379	-340	-192	-261	-229
D 18	-215	-156	-258	-236	-150	-178	-135	-231	-439	-75	-69	-169	-207	-373	-570	-361	-102	-108	-222	-836	-397	-343	-166	-695	-279
D 19	-290	-234	-226	-224	-559	-439	-330	-116	-76	-214	-139	-37	-228	-661	-388	-389	-514	-453	-322	-388	-236	-132	-363	-202	-298
D 20	-184	-316	-146	-131	-296	-220	-129	-124	-360	-130	-142	-487	-580	-337	-70	-98	-271	-196	-279	-304	-368	-662	-367	-300	-271
D 21	-264	-181	-66	-5	-9	-5	-36	-61	-170	-32	-133	-692	-714	-350	-85	-27	-14	-13	-30	-33	-205	-428	-150	-97	-158
D 22	-178	-78	-205	-264	-376	-191	-90	-41	-33	-56	-450	-319	-290	-454	-773	-677	-612	-706	-753	-268	-591	-461	-611	-399	-370
D 23	-433	-375	-104	-28	-25	-36	-71	-11	-12	-47	-151	-254	-375	-261	-376	-658	-495	-335	-583	-577	-384	-331	-343	-335	-275
D 24	-413	-376	-259	-317	-241	-196	-98	-85	-98	-230	-251	-59	-177	-261	-576	-206	-136	-154	-150	-118	-86	-58	-342	-458	-223
D 25	-438	-258	-277	-286	-649	-481	-444	-446	-376	-293	-168	-145	-419	-202	-344	-102	-37	-84	-417	-202	-16	-40	-144	-52	-263
D 26	-53	-172	-331	-396	-356	-139	-227	-401	-260	-174	-488	-304	-72	-82	-39	-85	-99	-232	-154	-89	-450	-646	-393	-176	-243
D 27	-96	-122	-91	-67	-68	-21	-6	-11	-53	-223	-305	-165	-88	-97	-62	-32	-64	-98	-173	-84	-13	-18	-26	-145	-89
D 28	-102	-102	-21	-9	-7	-9	-11	-7	-18	-65	-35	-31	-21	-67	-17	-9	-192	-235	-145	-376	-295	-11	-20	-15	-76
Mean	-205	-205	-186	-170	-227	-185	-189	-190	-180	-156	-210	-308	-358	-341	-330	-281	-272	-272	-323	-336	-295	-307	-271	-227	-251
5Q Mean	-99	-125	-82	-46	-73	-48	-51	-108	-80	-130	-158	-174	-170	-193	-157	-88	-82	-97	-146	-139	-86	-34	-37	-52	-102
5D Mean	-302	-231	-337	-320	-403	-254	-288	-257	-222	-223	-322	-440	-489	-572	-585	-580	-379	-378	-416	-311	-352	-485	-430	-260	-368

		AL Index (Hourly mean values, unit nT)																								
		1982												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
D	1	-42	-96	-58	-60	-81	-70	-139	-193	-78	-20	-19	-32	-124	-239	-469	-912	-559	-171	-148	-107	-140	-188	-614	-949	-230
D	2	-402	-516	-1114	-604	-325	-320	-409	-541	-628	-729	-866	-473	-646	-944	-720	-719	-370	-445	-322	-307	-595	-419	-263	-268	-539
	3	-301	-144	-66	-99	-155	-144	-56	-72	-271	-475	-359	-223	-237	-358	-414	-238	-271	-218	-164	-114	-195	-69	-33	-39	-196
	4	-34	-56	-34	-13	-13	-19	-8	-23	-34	-37	-250	-526	-177	-53	-51	-124	-154	-161	-70	-47	-68	-102	-220	-325	-108
	5	-235	-87	-30	-25	-136	-306	-294	-78	-78	-204	-249	-156	-93	-41	-27	-125	-111	-61	-102	-138	-78	-43	-32	-32	-115
Q	6	-64	-26	-23	-17	-13	-19	-19	-17	-17	-43	-44	-23	-21	-27	-84	-109	-53	-26	-27	-33	-41	-33	-22	-26	-35
Q	7	-29	-25	-24	-30	-21	-25	-26	-14	-12	-17	-24	-22	-21	-33	-20	-11	-17	-37	-15	-16	-15	-22	-24	-57	-23
	8	-99	-83	-103	-81	-63	-38	-21	-20	-34	-68	-64	-31	-25	-32	-38	-96	-231	-275	-266	-250	-131	-178	-155	-140	-105
	9	-259	-193	-69	-31	-18	-21	-68	-18	-29	-87	-147	-78	-91	-153	-119	-156	-495	-465	-262	-134	-187	-433	-186	-167	-161
	10	-308	-301	-371	-230	-147	-183	-173	-142	-427	-195	-3	-19	-21	-40	-37	-109	-248	-55	-17	-14	-48	-188	-207	-167	-152
	11	-87	-88	-149	-171	-230	-240	-183	-60	-28	-16	-18	-22	-69	-199	-143	-76	-156	-167	-262	-238	-228	-131	-81	-42	-129
	12	-39	-37	-45	-44	-29	-16	-9	-71	-141	-35	-20	-19	-24	-22	-37	-80	-352	-424	-211	-158	-227	-96	-42	-86	-94
	13	-39	-83	-447	-125	-57	-151	-126	-108	-129	-104	-90	-92	-91	-128	-125	-73	-68	-71	-22	-42	-171	-111	-129	-140	-113
	14	-112	-88	-135	-49	-45	-49	-8	-13	-9	-17	-54	-159	-208	-109	-76	-166	-322	-254	-352	-306	-174	-73	-66	-83	-122
Q	15	-126	-105	-231	-201	-68	-29	-109	-100	-27	-27	-26	-39	-50	-34	-36	-43	-67	-177	-115	-45	-31	-49	-55	-45	-76
Q	16	-38	-37	-25	-121	-27	-18	-12	-19	-32	-15	-16	-54	-49	-30	-25	-30	-37	-44	-55	-47	-30	-21	-29	-54	-36
	17	-33	-27	-14	-12	-13	-3	-21	-65	-18	-27	-67	-69	-158	-235	-114	-24	-21	-18	-46	-11	3	-16	-89	-136	-51
	18	-43	-142	-269	-249	-183	-124	-94	-118	-175	-219	-163	-189	-44	-44	-49	-194	-290	-97	-17	-20	-163	-189	-100	-191	-140
	19	-232	-289	-266	-199	-15	-25	-42	-190	-118	-61	-47	-157	-121	-40	-31	-27	-31	-24	-24	-20	-33	-86	-42	-26	-89
	20	-27	-28	-26	-20	-27	-183	-294	-141	-170	-157	-163	-50	-48	-147	-460	-348	-221	-141	-195	-164	-65	-95	-101	-140	-142
D	21	-23	-17	-26	-62	-255	-223	-401	-364	-241	-162	-102	-280	-402	-315	-524	-436	-286	-77	-199	-612	-262	-116	-133	-370	-245
D	22	-687	-723	-261	-632	-353	-291	-124	-105	-89	-182	-247	-225	-342	-278	-273	-245	-186	-373	-267	-120	-6	-30	-24	-15	-253
	23	-18	-24	-30	-26	-29	-28	-26	-37	-19	-164	-249	-98	-56	-247	-136	-47	-34	-28	-26	-9	-8	-8	-11	-15	-57
	24	-16	-19	-30	-18	-38	-28	-28	-24	-23	-18	-41	-64	-29	-16	-31	-65	-198	-372	-181	-188	-42	-14	-25	-41	-65
D	25	-223	-355	-266	-153	-57	-55	-205	-202	-161	-218	-342	-179	-404	-464	-257	-150	-187	-245	-59	-47	-151	-111	-126	-172	-200
	26	-43	-36	-164	-116	-50	-19	-52	-56	-54	-42	-118	-129	-60	-38	-51	-153	-354	-357	-20	-11	-29	-127	-278	-100	-102
	27	-51	-96	-421	-179	-39	-25	-46	-122	-111	-49	-30	-197	-170	-33	-44	-43	-42	-34	-27	-27	-27	-21	-27	-26	-79
Q	28	-24	-26	-24	-111	-227	-128	-49	-57	-52	-51	-25	-26	-25	-29	-38	-33	-26	-37	-28	-38	-24	-23	-30	-31	-48
	29	-26	-24	-42	-27	-149	-326	-403	-401	-215	-149	-131	-30	-25	-32	-30	-21	-14	-14	-16	-11	-20	-50	-75	-217	-102
	30	-148	-92	-135	-88	-220	-102	-29	-23	-29	-82	-41	-207	-366	-442	-142	-80	-125	-164	-14	-29	-46	-64	-171	-192	-126
	31	-351	-235	-208	-134	-283	-158	-136	-288	-135	-30	-55	-135	-293	-311	-213	-39	-118	-494	-740	-310	-276	-227	-192	-281	-235
Mean		-134	-132	-164	-126	-108	-108	-116	-118	-115	-119	-131	-129	-144	-164	-155	-160	-182	-178	-137	-116	-113	-107	-115	-147	-134
5Q Mean		-56	-43	-65	-96	-71	-43	-43	-41	-28	-30	-27	-32	-33	-30	-40	-45	-40	-64	-48	-35	-28	-29	-32	-42	-43
5D Mean		-275	-341	-345	-302	-214	-191	-255	-281	-239	-262	-315	-237	-383	-448	-448	-492	-317	-262	-199	-238	-230	-172	-232	-354	-293

AL Index (Hourly mean values, unit nT)

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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	-109	-109	-59	-58	-10	-8	-12	-19	-18	-45	-116	-58	-28	-51	-74	-11	-20	-22	-22	-7	-151	-590	485	498	-108
D	-626	-622	-591	-410	-327	-277	-111	-334	-302	-121	-48	-31	-157	-649	-717	-896	-616	-565	-515	-509	-567	-474	-431	-441	-431
D	-343	-405	-389	-364	-455	-335	-359	-283	-178	-290	-316	-489	-394	-368	-589	-684	-574	-492	-382	-418	-315	-374	-196	-224	-384
D	-263	-484	-416	-191	-158	-301	-318	-145	-141	-235	-101	-31	-73	-253	-279	-194	-168	-248	-431	-416	-313	-442	-248	-235	-254
D	-446	-276	-208	-258	-269	-148	-67	-93	-329	-308	-468	-121	-51	-36	-57	-29	-50	-134	-457	-369	-73	-120	-455	-149	-207
Q	-45	-141	-246	-94	-215	-229	-253	-363	-99	-186	-208	-325	-195	-336	-379	-160	-209	-393	-235	-148	-146	-95	-212	-297	-217
Q	-242	-131	-17	-21	-25	-134	-36	-20	-23	-94	-78	-67	-41	-48	-37	-45	-60	-156	-182	-59	-12	-26	-14	-15	-66
Q	-15	-16	-15	-18	-21	-25	-153	-203	-113	-140	-66	-113	-184	-194	-313	-128	-29	-87	-48	-96	-236	-403	-83	-106	-117
D	-190	-117	-211	-194	-67	-26	-8	-102	-49	-24	-36	-46	-75	-59	-129	-149	-180	-230	-295	-271	-221	-43	-26	-77	-118
D	-120	-159	-133	-118	-120	-123	-141	-144	-295	-416	-382	-229	-353	-499	-804	-501	-734	-952	-782	-776	-580	-491	-550	-267	-403
D	-395	-620	-544	-339	-96	-130	-502	-249	-229	-382	-143	-68	-117	-198	-246	-442	-145	-83	-205	-378	-241	-256	-55	-24	-254
D	-19	-37	-47	-40	-111	-136	-72	-38	-33	-57	-79	-157	-453	-255	-303	-93	-42	-50	-84	-207	-85	4	-22	-58	-103
D	-92	-111	-248	-546	-190	-143	-135	-75	-34	-35	-37	-55	-53	-41	-32	-26	-16	-18	-9	-7	-4	-36	-88	-61	-87
Q	-23	-25	-25	-26	-39	-40	-19	-78	-90	-32	-28	-35	-33	-29	-29	-30	-114	-67	-14	-3	-1	-27	-13	-17	-35
Q	-13	-15	-13	-37	-23	-22	-44	-33	-86	-182	-132	-53	-97	-210	-192	-119	-53	-27	-46	-11	-48	-227	-120	-108	-80
Q	-58	-46	-80	-88	-84	-183	-82	-21	-20	-31	-32	-42	-39	-29	-21	-28	-26	-94	-207	-140	-62	-93	-48	-19	-66
Q	-4	-1	-24	-19	-14	-10	-150	-339	-361	-421	-357	-482	-287	-202	-354	-293	-67	-18	-32	-9	-24	-40	-38	-69	-151
Q	-36	-14	-17	-15	-15	-22	-35	-138	-64	-43	-34	-41	-96	-279	-222	-224	-205	-338	-167	-205	-284	-267	-233	-33	-126
Q	-21	-41	-20	-12	-20	-44	-30	-16	-26	-34	-34	-37	-34	-29	-85	-367	-417	-287	-132	-28	-2	-93	-230	-267	-96
D	-203	-283	-267	-317	-294	-262	-54	-194	-388	-180	-28	-50	-149	-214	-98	-113	-66	-95	-96	-105	-15	-36	-38	-279	-159
D	-504	-148	-35	-35	-53	-50	-227	-452	-262	-58	-186	-384	-401	-273	-174	-171	-195	-251	-245	-429	-94	-18	-106	-652	-225
D	-507	-599	-473	-469	-303	-108	-45	-38	-27	-6	-17	-19	-23	-23	-24	-35	-101	-73	-14	-10	-16	-12	-18	-19	-124
D	-23	-29	-90	-115	-62	-35	-50	-134	-140	-93	-236	-315	-75	-33	-15	-16	-71	-153	-76	-65	-33	-179	-109	-66	-92
D	-42	-150	-222	-101	-70	-111	-71	-25	-22	-23	-24	-30	-22	-24	-76	-183	-309	-74	-5	-20	-45	-199	-84	-28	-82
D	-30	-115	-296	-420	-395	-388	-344	-340	-606	-982	-731	-613	-388	-275	-131	-78	-45	-214	-238	-156	-74	-8	-15	-29	-288
Q	-23	-32	-44	-36	-34	-36	-46	-51	-162	-344	-233	-126	-73	-66	-103	-56	-80	-170	-226	-119	-88	-154	-308	-44	-111
Q	-18	-24	-25	-31	-25	-73	-412	-296	-94	-33	-34	-39	-95	-68	-34	-208	-644	-430	-377	-194	-55	-119	-479	-380	-174
Q	-75	-296	-453	-315	-409	-269	-143	-215	-182	-105	-99	-143	-195	-288	-137	-78	-77	-235	-234	-296	-149	-169	-207	-183	-206
Q	-235	-251	-116	-98	-253	-172	-214	-244	-215	-164	-68	-73	-128	-227	-151	-242	-103	-190	-637	-699	-773	-509	-355	-289	-271
Q	-544	-371	-219	-177	-235	-523	-521	-264	-232	-179	-269	-255	-177	-169	-359	-255	-470	-172	-153	-226	-157	-277	-305	-509	-292
Mean	-175	-188	-184	-165	-146	-145	-155	-164	-160	-174	-154	-150	-149	-180	-208	-195	-196	-210	-218	-212	-162	-192	-185	-181	-177
5Q Mean	-66	-51	-39	-42	-36	-57	-36	-59	-88	-119	-121	-116	-51	-41	-53	-102	-148	-166	-126	-54	-27	-95	-134	-81	-79
5D Mean	-302	-384	-390	-330	-278	-250	-291	-270	-322	-438	-324	-286	-281	-397	-497	-520	-422	-461	-424	-447	-355	-320	-249	-197	-351

1982
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
1	-479	-410	-255	-103	-100	-144	-189	-331	-350	-219	-99	-350	-413	-370	-360	-422	-626	-732	-368	-131	-129	-135	-76	-130	-288
2	-98	-104	-488	-389	-386	-289	-155	-114	-151	-347	-168	-173	-176	-553	-633	-665	-573	-407	-759	-966	-605	-296	-118	-285	-371
D	-367	-329	-311	-380	-232	-377	-409	-474	-248	-128	-254	-641	-695	-549	-302	-384	-743	-713	-507	-433	-106	-99	-73	-538	-387
4	-231	-44	-40	-28	-33	-70	-86	-62	-44	-123	-531	-452	-99	-196	-360	-573	-331	-71	-39	-33	-72	-98	-55	-46	-155
5	-37	-54	-194	-212	-338	-210	-128	-175	-339	-277	-239	-193	-183	-151	-148	-326	-140	-36	-47	-142	-178	-42	-38	-41	-161
6	-38	-109	-182	-144	-153	-108	-112	-106	-111	-73	-73	-72	-107	-79	-82	-86	-157	-105	-31	-85	-161	-152	-120	-115	-107
7	-73	-54	-50	-153	-76	-18	-26	-40	-30	-33	-48	-48	-136	-177	-166	-181	-157	-160	-73	-69	-69	-58	-63	-40	-83
Q	-112	-154	-160	-169	-95	-39	-38	-34	-33	-29	-42	-150	-79	-52	-64	-80	-154	-158	-79	-48	-39	-42	-76	-86	-84
9	-102	-177	-237	-165	-185	-116	-183	-98	-31	-31	-31	-40	-69	-94	-47	-23	-116	-14	-19	-50	-20	-31	-27	-31	-81
10	-39	-97	-104	-53	-41	-71	-66	-41	-32	-38	-37	-37	-99	-91	-25	-30	-16	-8	-2	-11	-12	-8	-38	-94	-45
11	-274	-127	-55	-32	-78	-156	-47	-35	-19	-27	-91	-185	-179	-112	-75	-69	-74	-44	-25	-44	-180	-148	-62	-64	-92
12	-42	-51	-83	-86	-49	-68	-243	-203	-162	-40	-65	-37	-20	-16	-32	-38	-71	-112	-42	-21	-11	-3	-13	-22	-64
13	-59	-74	-125	-129	-71	-63	-41	-25	-63	-42	-34	-33	-35	-25	-22	-32	-96	-125	-148	-135	-144	-34	-19	-21	-66
14	-28	-26	-44	-104	-34	-28	-37	-25	-20	-31	-34	-34	-161	-87	-38	-26	-40	-50	-31	-5	6	0	-4	-33	-38
15	-40	-55	-306	-105	-51	-34	-40	-83	-97	-43	-138	-189	-123	-338	-425	-318	-154	-99	-291	-224	-113	-85	-71	-28	-144
16	-38	-55	-132	-129	-24	-27	-31	-54	-167	-290	-130	-32	-41	-35	-41	-46	-76	-145	-183	-86	-34	-32	-49	-104	-83
17	-69	-68	-62	-270	-226	-39	-38	-32	-43	-145	-337	-202	-106	-78	-241	-262	-83	-36	-65	-53	-146	-236	-52	-7	-121
18	-99	-153	-279	-354	-187	-232	-65	-40	-32	-65	-561	-499	-236	-49	-46	-101	-96	-178	-123	-127	-69	-71	-498	-333	-187
19	-229	-151	-272	-325	-242	-79	-32	-52	-89	-83	-146	-43	-104	-188	-230	-198	-98	-219	-169	-127	-64	-132	-225	-177	-153
20	-216	-198	-131	-108	-65	-93	-90	-52	-160	-271	-96	-36	-38	-114	-156	-170	-110	-52	-39	-37	-24	-39	-33	-44	-99
21	-26	-27	-26	-36	-37	-49	-260	-334	-346	-121	-30	-83	-233	-308	-236	-98	-49	-43	-20	-30	-45	-44	-74	-150	-113
22	-56	-44	-50	-48	-44	-31	-62	-40	-44	-119	-72	-35	-33	-22	-19	-42	-48	-39	-31	-47	-48	-43	-32	-28	-45
Q	-55	-124	-131	-65	-31	-34	-38	-32	-31	-33	-30	-25	-26	-21	-25	-24	-41	-31	-31	-24	-25	-17	-24	-23	-39
24	-21	-23	-19	-25	-35	-30	-34	-33	-42	-44	-42	-50	-129	-262	-177	-102	-62	-18	-3	-9	-13	-13	-12	-14	-51
25	-9	-15	-17	-19	-32	-26	-28	-26	-30	-31	-24	-39	-53	-78	-47	-16	-15	-27	-26	-20	-19	-28	-54	-262	-39
26	-298	-230	-142	-115	-91	-31	-53	-45	-71	-47	-30	-46	-36	-69	-147	-311	-228	-134	-223	-430	-321	-237	-168	-105	-150
D	-173	-54	-156	-283	-233	-272	-619	-664	-591	-614	-603	-250	-239	-606	-580	-669	-595	-443	-586	-513	-270	-333	-805	-474	-443
D	-177	-345	-589	-570	-933	-631	-451	-217	-365	-237	-312	-482	-585	-682	-554	-773	-508	-384	-224	-203	-255	-197	-245	-477	-433
D	-359	-496	-399	-399	-490	-320	-215	-222	-472	-435	-164	-128	-470	-639	-718	-470	-297	-231	-282	-357	-134	-324	-518	-373	-371
D	-192	-77	-342	-306	-156	-123	-91	-220	-580	-399	-269	-312	-297	-486	-446	-405	-449	-325	-459	-301	-171	-257	-606	-625	-329
31	-330	-357	-460	-660	-600	-393	-392	-323	-349	-250	-233	-399	-195	-18	-52	-277	-410	-276	-291	-200	-309	-158	-232	-338	-313
Mean	-140	-138	-188	-192	-172	-135	-138	-136	-165	-150	-160	-170	-174	-211	-209	-232	-213	-174	-168	-160	-121	-109	-144	-164	-165
5Q Mean	-63	-79	-82	-92	-56	-30	-39	-35	-36	-51	-46	-61	-80	-106	-90	-85	-92	-81	-43	-39	-38	-34	-41	-38	-60
5D Mean	-253	-260	-359	-387	-408	-344	-357	-359	-451	-362	-320	-362	-457	-592	-520	-540	-518	-419	-411	-361	-187	-242	-449	-497	-392

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	-404	-610	-361	-252	-245	-260	-146	-221	-221	-132	-293	-94	-81	-56	-58	-75	-166	-215	-331	-435	-504	-419	-363	-377	-263
2	-331	-172	-430	-383	-152	-161	-198	-272	-362	-164	-99	-147	-109	-112	-64	-73	-116	-180	-305	-318	-198	-117	-111	-110	-195
Q	-171	-367	-142	-255	-120	-101	-241	-198	-32	-14	-72	-107	-185	-178	-57	-93	-151	-164	-99	-55	-94	-187	-198	-154	-143
Q	-236	-261	-146	-206	-120	-52	-49	-42	-41	-28	-31	-29	-24	-48	-88	-216	-167	-73	-75	-88	-106	-154	-201	-198	-112
Q	-169	-48	-37	-48	-91	-83	-50	-45	-17	-83	-104	-114	-111	-61	-22	-83	-92	-20	-21	-23	-37	-36	-19	-10	-59
6	-15	-140	-82	-141	-87	-91	-306	-318	-165	-53	-98	-91	-69	-26	-21	-5	-5	-48	-53	5	-17	-38	-18	-80	-82
7	-155	-245	-336	-164	-72	-72	-375	-613	-491	-371	-479	-167	-27	-20	-74	-89	-148	-104	-42	-24	-37	-39	-48	-48	-177
8	-46	-34	-36	-27	-39	-31	-43	-38	-31	-31	-25	-36	-190	-164	-90	-152	-217	-219	-202	-64	-135	-109	-204	-246	-100
9	-70	-78	-96	-70	-38	-126	-36	-46	-33	-64	-66	-31	-20	-209	-247	-67	-10	-24	-25	-7	-46	-21	-27	-21	-62
D	-30	-27	-149	-530	-884	-674	-682	-429	-334	-98	-70	-358	-671	-513	-605	-595	-384	-41	-37	-43	-22	-51	-161	-222	-317
D	-118	-101	-277	-604	-649	-432	-68	-290	-88	-45	-102	-301	-183	-68	-35	-28	-88	-129	-591	-417	-368	-172	-268	-411	-243
D	-663	-500	-340	-166	-153	-99	-33	-225	-93	-67	-64	-70	-102	-148	-282	-877	-505	-560	-480	-363	-399	-524	-538	-398	-319
D	-812	-494	-336	-484	-418	-211	-167	-349	-73	-49	-79	-500	-537	-607	-303	-148	-112	-238	-549	-609	-670	-585	-895	-218	-393
14	-41	-33	-41	-88	-276	-243	-432	-385	-434	-545	-466	-576	-174	-96	-72	-128	-149	-111	-332	-306	-232	-107	-63	-85	-226
15	-180	-178	-153	-188	-153	-277	-396	-493	-477	-216	-102	-53	-58	-238	-429	-239	-304	-468	-63	-159	-198	-178	-211	-329	-239
16	-296	-67	-68	-45	-43	-76	-102	-64	-58	-64	-107	-101	-140	-335	-258	-214	-109	-69	-132	-210	-49	-35	-43	-40	-114
17	-35	-45	-53	-83	-59	-206	-309	-77	-40	-29	-57	-170	-293	-187	-63	-39	-10	-17	-23	-17	-11	-15	-21	-27	-79
Q	-30	-31	-44	-53	-141	-262	-206	-90	-132	-74	-25	-24	-15	-12	-23	-18	-23	-58	-45	-100	-111	-58	-38	-47	-69
18	-34	-35	-60	-52	-110	-111	-102	-227	-385	-157	-348	-189	-101	-243	-479	-385	-272	-229	-315	-621	-590	-520	-461	-188	-259
19	-114	-229	-408	-294	-175	-193	-160	-136	-154	-254	-167	-122	-73	-158	-111	-202	-118	-85	-108	-243	-287	-158	-39	-121	-171
20	-89	-85	-68	-122	-57	-59	-226	-278	-283	-111	-52	-48	-106	-262	-195	-59	-7	-18	-61	-45	-106	-216	-260	-254	-128
21	-210	-152	-139	-129	-83	-80	-199	-133	-132	-180	-243	-205	-310	-309	-314	-140	-204	-102	-181	-282	-243	-356	-428	-354	-213
22	-348	-334	-364	-370	-209	-473	-413	-352	-413	-379	-302	-338	-331	-328	-310	-270	-192	-147	-271	-318	-196	-168	-132	-280	-302
23	-170	-35	-31	-81	-67	-53	-67	-119	-223	-323	-264	-248	-243	-139	-112	-96	-72	-59	-79	-119	-334	-706	-361	-100	-171
24	-91	-167	-249	-309	-103	-56	-72	-286	-662	-432	-200	-115	-105	-135	-158	-99	-59	-68	-65	-61	-56	-95	-58	-48	-156
25	-55	-59	-50	-72	-136	-148	-183	-123	-152	-199	-152	-146	-148	-187	-452	-500	-469	-452	-683	-684	-582	-535	-628	-487	-303
26	-567	-358	-500	-269	-389	-514	-385	-278	-174	-216	-189	-91	-281	-203	-104	-54	-54	-47	-64	-394	-620	-337	-439	-370	-288
27	-191	-432	-458	-333	-348	-369	-312	-312	-199	-445	-260	-45	-105	-247	-194	-154	-329	-457	-247	-116	-129	-262	-447	-275	
28	-367	-345	-389	-79	-47	-60	-69	-118	-87	-76	-260	-349	-76	-74	-46	-83	-111	-351	-195	-35	-58	-69	-215	-436	-166
29	-172	-200	-324	-411	-280	-357	-283	-183	-225	-232	-302	-445	-209	-168	-91	-64	-171	-346	-356	-185	-216	-351	-274	-327	-257
D	-207	-195	-205	-210	-191	-197	-210	-224	-207	-171	-169	-177	-169	-184	-178	-174	-160	-169	-201	-214	-221	-216	-232	-214	-195
5Q	-128	-150	-84	-129	-106	-140	-171	-90	-52	-45	-57	-88	-125	-97	-50	-89	-88	-66	-52	-56	-71	-90	-95	-87	-92
5D	-359	-264	-285	-439	-476	-354	-246	-295	-162	-98	-123	-334	-340	-300	-263	-342	-252	-262	-402	-323	-335	-336	-427	-315	-305

AE Index (Hourly mean values, unit nT) January 1982

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	48	98	154	153	105	63	82	139	90	64	64	95	192	282	134	341	564	163	67	51	62	64	54	47	132
2	44	53	39	32	46	70	53	32	39	73	185	242	277	323	351	586	635	447	529	639	557	431	244	219	256
D 3	237	225	294	186	276	295	178	209	237	405	345	235	112	75	131	583	756	199	321	340	746	455	240	351	309
4	451	252	170	81	89	49	35	89	66	133	131	113	116	236	309	427	773	578	407	154	71	108	176	195	217
5	88	51	35	30	75	96	75	35	65	152	146	46	45	32	32	30	35	40	35	26	27	27	28	31	53
6	29	123	121	146	182	266	286	268	336	366	246	284	331	136	46	46	51	43	49	97	113	128	63	58	159
7	49	68	114	116	129	104	131	251	239	82	50	57	137	242	192	435	417	216	98	319	314	194	179	205	181
8	204	221	205	196	93	76	45	85	130	190	222	98	45	42	105	242	69	177	248	342	215	188	162	115	155
Q 9	97	90	64	77	128	82	59	67	60	76	141	70	33	41	113	195	100	117	164	69	38	52	105	131	90
10	124	50	43	27	23	20	14	15	13	14	16	17	30	25	23	28	43	59	57	69	146	252	268	133	63
11	89	83	144	215	86	56	79	90	95	99	86	86	99	148	126	111	155	75	103	61	39	24	25	32	92
12	48	141	97	61	48	50	27	25	43	65	64	44	18	16	16	22	25	36	67	25	15	20	22	21	42
Q 13	22	20	17	14	25	21	21	53	112	73	56	28	22	20	23	22	25	28	32	19	15	20	15	16	30
14	17	15	15	12	15	15	15	15	11	9	13	16	21	19	21	24	26	30	26	19	22	50	90	64	24
15	50	25	114	408	162	36	66	68	89	129	124	564	564	378	353	216	111	77	262	583	212	299	135	78	213
16	100	101	70	96	171	101	110	164	486	376	239	170	102	322	636	785	560	357	414	556	429	184	193	441	298
17	195	109	285	217	55	45	41	52	214	512	637	455	276	176	137	173	288	200	72	54	39	36	31	48	181
18	105	97	55	128	110	43	46	32	35	84	148	121	90	122	126	109	144	117	515	857	670	767	288	212	209
19	105	125	80	46	32	31	30	32	32	43	55	67	83	98	28	34	32	80	58	58	39	36	30	29	53
Q 20	38	74	39	34	109	218	77	33	56	87	58	47	37	28	30	35	38	32	29	150	33	40	31	32	58
21	29	28	28	58	58	133	167	313	369	208	179	145	103	83	92	70	61	265	302	91	71	64	39	103	127
D 22	210	192	178	280	413	606	421	364	394	531	615	501	613	485	487	438	553	854	388	583	596	547	366	271	454
D 23	428	417	333	259	271	371	360	332	200	98	288	369	636	584	346	364	306	233	119	287	307	508	569	265	344
24	410	300	136	147	277	317	189	220	188	203	257	230	345	605	628	531	372	235	131	414	387	346	330	436	318
25	196	71	62	78	147	152	118	98	81	51	59	85	69	70	266	216	64	28	29	45	66	124	38	33	94
26	33	36	47	30	28	30	32	35	26	38	103	96	103	77	57	42	37	39	172	457	525	348	177	193	115
27	230	92	63	46	217	397	181	48	35	49	100	316	386	551	321	322	335	213	187	199	207	251	390	335	228
28	124	104	191	288	83	54	84	189	482	685	886	559	176	91	80	63	68	58	58	70	50	46	78	47	192
29	46	40	36	28	43	60	40	26	32	38	33	38	53	70	149	171	119	108	412	273	63	61	62	162	90
D 30	141	469	587	430	227	239	218	350	551	803	422	327	403	302	291	426	246	153	213	124	51	60	98	99	301
D 31	79	253	248	421	643	553	342	176	259	179	428	792	678	784	1004	910	904	848	644	320	160	103	70	57	452
Mean	131	129	131	140	140	149	116	125	163	190	206	203	199	208	214	257	255	196	200	237	202	188	148	143	178
5Q Mean	57	78	54	42	49	39	30	38	51	53	65	45	35	38	40	59	41	58	69	38	25	35	52	52	48
5D Mean	219	311	328	315	366	412	303	286	328	403	419	444	488	446	451	544	553	457	337	330	372	334	268	208	372

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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	97	92	124	235	346	507	417	280	301	322	374	817	1104	800	324	353	228	714	1211	1136	909	608	729	192	509
D	169	466	610	694	863	760	777	651	730	388	326	687	809	771	236	185	149	106	89	64	62	79	180	113	415
D	77	138	93	154	321	591	606	823	446	294	463	512	197	496	901	290	115	191	549	303	157	575	735	608	401
D	606	541	470	468	529	619	775	588	449	600	750	782	972	959	656	692	361	397	545	773	699	604	584	615	626
D	482	724	620	519	533	518	368	347	440	289	317	282	302	277	137	223	1087	874	452	421	286	537	516	258	450
D	219	138	163	236	346	489	580	494	671	427	501	613	627	512	648	771	824	640	650	529	424	607	464	455	501
D	430	642	549	325	392	245	289	321	198	224	479	402	353	287	170	97	281	312	400	402	411	368	394	344	340
D	285	347	217	160	200	177	289	409	281	477	517	270	381	449	276	187	351	705	695	463	633	183	152	198	352
Q	259	282	263	181	296	213	218	348	313	262	236	365	479	128	59	53	48	75	254	247	217	235	208	146	224
Q	129	190	216	126	60	86	57	59	65	108	215	585	817	716	989	864	699	614	443	583	513	321	231	370	377
D	473	349	274	500	674	571	548	234	127	206	140	332	499	850	1201	1342	505	370	237	372	342	1031	872	562	526
D	355	107	101	64	124	112	77	68	85	90	157	582	328	358	210	269	192	251	460	1214	1054	745	432	389	326
D	441	306	618	361	332	350	539	506	541	580	448	766	604	620	877	950	853	738	844	555	596	825	504	188	581
D	177	297	381	308	499	665	744	624	539	508	356	503	750	447	305	418	368	720	728	711	704	555	449	319	503
Q	257	161	118	61	112	179	228	511	358	427	602	701	732	833	774	433	185	129	84	78	79	71	73	69	302
Q	96	176	112	138	152	136	77	55	49	50	43	41	125	214	233	125	60	100	240	85	42	28	26	25	101
Q	33	37	41	44	43	115	336	519	372	265	353	463	694	354	641	719	886	602	286	328	328	541	330	362	369
D	319	245	361	317	251	305	238	342	663	232	143	225	319	432	707	473	156	170	307	981	545	464	316	882	391
D	479	401	337	383	730	665	495	271	203	359	229	89	332	808	493	551	716	620	478	571	379	225	470	294	441
D	271	439	251	220	406	322	228	219	453	251	236	614	674	475	150	150	358	248	390	469	493	850	513	420	379
D	376	263	119	55	54	43	88	129	249	108	215	871	810	437	141	82	55	53	93	91	343	651	326	268	247
D	405	226	367	344	571	370	257	139	86	154	660	609	529	654	1152	1014	955	876	837	473	876	643	670	509	557
D	564	565	193	89	66	103	124	39	54	104	217	383	552	419	538	824	710	520	781	835	567	544	452	512	406
D	544	546	477	465	459	412	253	257	211	333	334	138	317	357	781	298	225	232	241	217	221	150	501	680	360
D	586	427	410	515	1092	949	791	997	614	541	382	298	585	317	580	187	102	168	709	326	81	117	205	93	461
D	111	289	451	611	605	333	492	648	452	356	735	571	179	138	79	121	164	302	215	170	656	833	531	343	391
Q	215	218	180	152	151	88	58	64	136	320	414	295	153	148	93	66	90	152	215	126	60	66	92	197	156
Q	154	149	75	52	47	44	52	55	65	129	82	69	57	112	55	48	239	303	205	547	430	74	76	59	132
Mean	307	312	292	277	366	355	357	357	326	300	354	459	510	477	478	420	391	399	451	466	440	445	393	338	386
5Q Mean	196	197	149	116	151	132	126	206	184	237	275	294	309	287	242	145	124	151	199	216	165	94	95	99	183
5D Mean	418	377	467	473	593	534	579	423	386	385	464	635	682	770	824	836	564	497	510	447	515	636	562	397	541

		AE Index (Hourly mean values, unit nT)																				March		1982		
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	74	132	110	120	124	144	300	369	200	107	66	105	277	388	694	1372	851	314	262	166	199	285	702	1153	355
D	2	551	757	1327	731	584	597	564	590	812	713	1042	629	896	1149	1003	969	568	625	457	468	720	551	370	358	710
	3	416	199	95	125	168	174	78	95	301	537	398	291	331	431	535	331	385	340	302	228	267	105	65	70	261
	4	56	88	57	29	27	35	33	59	65	85	377	738	252	86	68	148	189	221	86	69	97	140	311	432	156
	5	459	234	75	81	258	455	436	163	135	305	303	184	107	49	36	130	128	83	135	169	112	71	50	43	175
Q	6	69	34	31	26	23	31	31	25	27	49	55	35	38	109	150	69	69	39	50	62	65	55	41	53	50
Q	7	71	58	44	42	32	41	41	35	37	43	50	46	51	66	54	42	44	83	34	34	31	46	62	112	50
	8	171	228	265	220	163	115	82	83	86	133	129	121	92	99	110	161	361	476	496	463	422	365	317	305	228
	9	350	325	194	72	71	114	145	57	98	203	357	293	218	259	208	361	775	764	494	297	348	561	325	311	300
	10	363	414	532	344	261	278	326	272	576	390	104	73	44	73	84	157	301	87	45	29	87	250	289	276	235
	11	214	210	259	252	317	357	328	138	75	45	40	58	128	274	196	136	224	309	418	414	463	341	203	126	230
	12	77	70	91	105	85	54	42	114	182	84	54	43	42	47	75	148	530	690	365	368	460	362	207	259	190
	13	131	132	551	204	144	295	236	253	266	205	218	310	267	273	233	119	105	111	59	98	247	202	284	336	220
	14	263	232	226	117	73	80	44	40	39	68	155	334	412	239	194	267	492	443	611	642	454	233	222	262	256
Q	15	297	226	302	273	111	78	173	166	83	59	72	102	102	69	64	71	108	238	189	116	79	115	170	120	141
Q	16	106	105	87	210	91	71	68	77	106	97	84	140	105	58	47	62	64	89	103	111	84	82	87	94	93
	17	67	54	52	54	48	40	66	116	59	78	173	206	375	466	248	91	76	86	135	84	75	89	165	218	130
	18	86	202	350	314	267	197	157	220	291	302	296	301	78	92	79	268	406	169	62	55	248	248	144	265	212
	19	327	421	371	344	107	65	82	248	161	107	106	229	178	76	57	43	48	43	43	44	73	134	76	48	143
	20	51	50	47	39	50	240	387	338	307	268	253	100	113	255	544	445	317	199	307	256	120	168	166	209	218
D	21	53	55	51	132	340	319	494	570	399	318	250	417	663	473	701	739	474	143	383	793	448	241	218	533	384
D	22	811	836	532	835	634	493	311	273	179	345	426	372	526	436	451	424	361	641	453	242	52	69	63	31	408
	23	34	33	43	44	41	40	39	47	44	245	370	161	99	348	189	75	50	55	46	34	36	38	39	39	91
	24	32	38	46	44	64	54	56	57	61	76	115	116	69	65	91	143	304	556	293	390	170	91	91	78	129
D	25	305	438	346	249	121	96	287	274	241	362	565	342	533	601	357	233	287	324	124	101	256	167	201	267	295
	26	88	88	243	177	93	46	86	87	89	105	197	204	98	79	87	217	468	444	68	39	66	199	367	145	157
	27	96	166	502	264	117	86	96	186	153	88	71	285	235	84	90	71	60	52	51	48	65	45	47	49	125
Q	28	45	52	47	193	327	208	78	100	76	81	53	45	43	54	59	52	42	53	47	58	45	50	50	52	80
	29	49	51	70	68	272	457	571	591	389	273	219	61	58	56	45	37	33	41	54	45	64	123	179	306	171
	30	246	171	220	183	421	277	109	93	97	171	147	355	591	637	232	143	215	270	47	90	161	173	315	336	237
	31	606	438	345	286	440	381	395	578	308	92	133	282	446	468	346	99	322	786	1038	613	471	367	346	446	418
Mean		211	210	242	199	189	190	198	203	191	194	221	225	240	251	235	248	279	283	234	213	209	192	199	236	220
5Q	Mean	117	95	102	148	116	85	78	80	65	65	62	73	66	57	66	75	65	100	84	76	60	69	82	86	82
5D	Mean	358	443	473	413	360	329	391	415	366	369	469	373	579	609	641	747	508	409	335	354	335	262	310	468	430

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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	264	295	140	121	71	70	55	77	65	160	209	125	84	128	174	81	65	65	59	59	341	769	677	685	202
D 2	755	812	743	630	582	484	276	528	621	283	131	90	304	931	1083	1214	918	900	916	834	814	685	528	747	659
D 3	499	557	501	602	662	551	614	460	322	471	514	693	657	732	1023	1063	948	762	700	674	476	564	332	405	616
4	427	642	562	343	319	428	514	310	294	410	246	123	178	403	423	317	285	483	662	608	510	711	536	402	422
5	535	407	372	438	484	277	151	249	546	616	687	253	114	102	92	52	74	260	656	563	155	304	629	245	344
6	149	305	417	260	385	455	438	522	263	339	476	554	361	513	607	266	417	704	448	313	296	204	321	400	392
7	382	229	67	75	57	179	82	57	94	161	130	119	89	90	73	84	104	213	250	117	62	77	58	52	121
8	42	48	43	44	46	114	264	316	292	290	187	220	285	296	484	221	68	147	112	186	390	550	158	222	209
9	309	226	385	380	228	126	68	178	149	108	120	133	155	157	267	242	303	370	544	516	353	163	125	195	242
D 10	265	391	349	339	373	387	366	389	547	649	669	459	607	707	1089	807	902	1102	894	978	844	640	605	409	615
D 11	602	774	700	541	245	329	785	442	482	677	324	179	213	297	476	683	278	163	458	602	385	400	120	66	426
12	57	71	66	125	210	261	118	123	126	224	344	336	569	326	477	187	83	105	192	391	168	50	84	158	202
13	152	153	372	691	287	309	282	176	79	82	96	117	126	83	69	61	44	42	28	29	32	128	183	121	156
14	60	46	39	41	57	64	67	182	177	102	70	73	73	64	75	77	155	104	56	47	46	99	57	55	78
15	43	44	48	76	55	51	100	104	240	366	289	147	210	337	240	175	100	81	92	74	151	366	189	235	159
16	123	93	157	146	218	288	203	128	65	74	69	66	64	59	46	62	54	279	408	275	186	185	121	77	144
17	60	51	106	63	45	58	278	547	631	604	487	815	524	348	595	436	121	81	95	89	83	85	100	127	268
18	62	36	45	38	39	60	75	241	119	76	65	84	171	409	312	336	404	567	301	403	436	480	394	102	219
19	76	114	63	39	60	89	65	52	63	76	78	88	99	104	162	512	605	489	251	124	66	214	351	454	179
Q 20	326	409	414	520	452	431	130	401	634	339	96	150	331	329	158	181	125	166	169	183	92	132	124	484	282
21	699	258	77	108	100	100	339	629	373	150	395	575	546	435	323	343	412	547	442	610	202	96	223	897	370
22	740	778	626	731	504	240	140	101	109	70	70	84	73	69	71	78	164	139	70	55	63	45	51	59	214
Q 23	87	71	146	178	116	88	111	210	258	197	390	497	149	92	61	59	147	237	143	136	113	281	169	158	171
24	117	251	295	168	165	202	135	92	76	84	74	84	91	74	159	263	415	132	55	74	146	314	174	104	156
D 25	121	294	533	749	678	741	781	604	940	1124	930	960	590	384	211	179	150	335	438	284	152	76	68	74	475
Q 26	60	63	74	63	66	78	79	117	279	517	369	176	105	116	164	128	167	263	362	251	220	339	500	117	195
27	59	47	37	45	52	243	573	442	157	75	71	89	184	130	83	383	997	726	637	353	133	320	677	559	295
28	182	471	621	549	637	476	372	424	335	251	304	411	358	485	250	161	168	349	414	508	346	350	450	455	389
29	435	401	294	257	462	373	366	475	375	385	170	238	294	287	389	415	246	466	926	953	931	698	468	503	450
30	794	608	530	429	439	712	748	525	391	349	454	433	287	264	578	423	771	329	316	383	262	447	511	762	489
Mean	282	298	294	292	269	275	285	303	303	310	283	279	263	291	340	316	323	353	369	355	281	325	299	310	304
5Q Mean	133	104	77	79	71	99	80	123	174	210	207	190	103	93	107	172	235	261	212	135	101	202	227	167	148
5D Mean	448	565	565	572	508	498	564	484	582	640	513	476	474	610	776	789	639	652	681	674	534	473	330	340	558

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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	653	591	391	190	207	319	375	568	646	439	344	571	632	558	600	652	964	1006	657	267	256	214	161	226	479	
2	158	257	681	577	581	442	291	188	304	588	336	387	313	812	928	960	912	671	950	1133	873	510	344	425	568	
D	3	532	564	479	490	432	689	677	752	491	266	549	892	767	418	612	1141	1005	822	586	614	262	314	756	611	
4	298	107	78	70	74	105	153	95	88	291	759	630	226	331	557	809	506	124	84	91	132	137	84	87	246	
5	102	151	308	380	545	430	241	308	506	457	419	359	288	270	267	479	249	89	113	251	249	74	73	81	279	
6	93	185	285	233	228	171	188	183	182	147	155	135	201	152	127	140	252	165	79	148	243	220	180	174	178	
Q	7	141	88	103	228	127	39	54	46	82	94	97	207	250	222	240	216	226	142	170	204	180	150	114	144	
Q	8	187	276	292	329	205	129	127	126	88	104	113	222	136	107	132	135	254	253	168	151	120	121	195	174	
9	253	381	470	384	398	292	287	182	114	111	75	99	143	207	119	76	172	62	84	152	98	86	66	74	183	
10	101	201	162	100	87	88	101	72	61	76	77	109	184	157	63	67	59	42	38	55	63	40	94	216	96	
11	375	199	121	113	163	254	106	81	60	109	232	331	300	205	156	124	149	101	82	135	304	250	147	159	177	
12	95	131	180	152	110	197	390	389	297	145	227	129	73	62	95	78	113	153	94	90	47	35	48	67	141	
13	154	193	242	221	167	105	67	59	126	109	82	63	67	74	64	66	163	209	324	305	309	93	62	67	141	
14	71	66	89	192	70	58	67	51	53	154	162	147	273	143	82	70	105	102	78	60	32	34	38	93	95	
15	92	162	469	201	164	98	139	190	162	156	393	397	261	490	571	414	290	212	612	373	246	182	142	99	271	
16	81	134	255	205	75	79	84	156	359	446	212	89	100	103	99	102	190	297	322	182	104	92	117	224	171	
17	162	159	201	393	298	109	95	91	124	331	610	370	205	158	345	378	160	132	136	140	287	360	150	93	229	
18	325	398	459	560	394	460	154	115	86	238	826	725	410	159	115	164	183	321	289	252	163	171	744	511	343	
19	350	261	410	475	357	141	76	138	190	216	284	164	218	330	350	284	173	345	261	270	175	259	323	325	266	
20	327	301	195	147	106	166	167	151	260	405	179	105	107	187	197	213	159	82	68	77	60	81	76	106	163	
21	63	51	43	52	62	113	383	479	524	212	95	259	409	449	360	162	90	77	55	67	95	95	179	241	192	
Q	22	107	81	84	73	59	56	114	93	109	241	142	75	56	45	38	70	79	74	69	86	87	69	52	84	
Q	23	122	197	243	125	44	46	51	52	68	55	60	59	54	59	54	80	68	63	49	48	44	55	52	75	
Q	24	52	56	40	45	47	71	115	134	123	101	151	259	420	278	162	114	67	55	54	67	63	55	55	110	
25	53	52	58	50	62	52	52	53	52	58	86	130	179	167	89	65	45	73	80	67	62	79	149	443	94	
26	461	394	294	335	240	120	183	166	168	116	107	157	161	226	302	480	499	358	560	797	550	545	417	384	334	
D	27	329	135	343	479	438	672	1100	1054	1085	1116	924	401	390	944	1108	1006	970	878	870	822	503	561	918	666	738
D	28	373	697	866	957	1352	983	720	467	639	397	527	768	802	1021	1022	1203	827	664	494	352	468	419	517	643	716
D	29	521	763	793	701	782	577	313	422	796	667	223	678	910	1047	701	528	433	556	626	325	613	834	655	612	
D	30	349	215	627	502	301	228	232	440	860	619	467	561	493	696	717	652	752	659	697	478	369	472	867	803	
31	576	609	704	961	823	713	783	614	681	578	500	584	331	138	135	410	620	518	488	361	551	350	457	599	545	
Mean	243	259	321	320	290	257	252	254	301	292	301	302	294	341	343	355	355	305	302	278	234	216	258	280	290	
5Q Mean	121	139	152	160	96	64	79	87	85	123	101	121	143	175	145	132	148	137	99	102	105	95	101	93	117	
5D Mean	420	474	621	625	661	629	608	627	774	613	538	567	669	867	862	834	843	727	687	572	371	465	690	704	644	

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June

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	596	839	505	447	441	419	285	440	391	268	432	186	150	125	185	165	342	396	588	793	788	666	642	536	443
2	592	342	660	640	296	282	311	450	498	280	183	257	224	190	120	161	214	284	497	549	408	284	254	279	344
Q	355	515	308	479	260	212	322	250	66	41	133	214	286	256	116	190	246	265	210	134	218	332	323	301	251
Q	484	510	319	366	218	93	84	76	56	52	81	87	91	156	192	315	221	144	155	200	258	333	386	447	222
Q	309	131	139	172	167	147	144	144	78	167	231	222	211	176	119	202	148	72	71	69	113	127	112	71	148
6	83	235	172	259	217	371	690	627	333	234	263	264	218	106	101	69	99	159	148	62	112	140	66	197	218
7	422	437	559	339	185	311	613	923	917	788	928	376	92	78	174	221	260	181	128	92	103	109	119	99	352
8	81	59	59	49	60	52	61	53	57	60	65	155	377	352	191	334	443	373	402	137	270	275	416	466	202
9	184	232	238	208	176	362	162	120	115	214	289	234	210	410	365	147	81	101	93	73	113	73	68	61	180
D	92	76	399	836	1265	1138	1101	829	594	209	151	667	907	968	1117	1041	750	149	118	95	77	113	352	375	559
D	210	234	475	853	939	737	253	619	241	134	249	544	313	140	121	126	266	461	891	770	668	373	516	608	447
D	927	687	576	364	222	228	152	380	196	179	224	214	222	234	441	1464	1165	1240	1120	900	729	888	929	869	606
D	1154	682	554	675	585	456	412	747	349	233	317	832	848	954	645	315	331	544	923	1017	953	918	1207	474	672
14	135	125	107	195	534	478	769	693	807	910	774	848	320	171	150	236	286	224	608	589	427	228	153	179	414
15	337	284	281	327	298	464	660	849	830	366	238	145	123	399	685	393	593	779	226	359	436	334	368	508	428
16	462	148	133	82	91	134	152	110	136	184	249	256	282	514	402	370	246	224	325	398	179	105	119	106	225
Q	135	97	134	136	127	305	382	99	84	100	231	285	444	296	143	107	79	80	75	64	51	48	47	48	150
Q	49	52	72	109	231	341	282	160	264	164	64	47	40	36	64	55	72	130	130	220	204	120	80	82	128
19	62	59	129	140	200	271	322	447	604	407	676	393	230	439	817	651	622	717	859	990	1042	933	717	273	500
20	270	501	609	504	462	473	349	485	543	637	352	195	174	326	239	414	310	228	284	516	523	327	104	237	378
21	197	155	185	179	112	224	413	503	642	289	148	165	258	428	320	123	69	84	154	144	255	429	524	531	272
22	453	355	369	297	252	273	406	311	362	459	533	457	537	543	442	284	395	370	620	719	559	765	893	833	479
23	688	646	660	674	501	735	854	811	779	759	677	647	602	644	619	545	447	431	566	596	385	334	278	500	599
24	364	139	110	197	175	216	147	211	476	589	516	478	412	234	159	119	104	108	137	258	691	793	557	307	312
25	230	291	484	548	187	84	180	510	908	673	424	271	197	242	213	149	104	125	137	132	139	183	118	73	275
26	73	72	123	192	379	370	425	347	400	422	302	281	273	348	662	818	803	818	1002	1073	881	850	897	752	524
27	775	731	759	544	648	727	603	565	407	453	316	146	457	312	165	106	115	91	124	745	863	566	766	629	484
28	385	632	655	525	580	658	563	458	407	795	410	105	195	377	299	291	562	726	424	422	300	359	459	702	470
29	638	581	566	165	108	113	143	209	149	200	465	473	125	122	103	147	201	541	313	85	140	182	380	643	283
D	300	403	503	683	571	788	612	456	455	390	520	637	309	225	147	128	269	486	514	335	392	547	476	644	450
Mean	368	341	361	372	349	382	395	429	404	355	348	336	304	326	317	322	328	351	394	417	409	391	410	394	367
5Q Mean	266	261	194	252	200	219	242	145	109	104	148	171	214	184	126	173	153	138	128	137	168	192	189	189	179
5D Mean	536	416	501	682	716	669	506	606	367	229	292	578	519	504	494	614	556	576	713	623	563	567	696	594	546

1982

January

AO Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-6	-30	-55	-58	-33	-16	-27	-44	-38	-14	-16	-27	-72	-94	-33	-122	-173	-15	-10	-11	-13	-19	-15	-5	-39
2	-3	-9	-3	-6	-5	-20	-6	-3	-10	-22	-69	-77	-70	-72	-132	-153	-119	-99	-120	-82	-137	-90	-27	-14	-56
D 3	-57	-66	-79	-18	-32	-70	-26	-51	-74	-124	-71	-39	-3	-9	-48	-219	-221	-23	-66	-69	-266	-133	-31	-135	-80
4	-68	-5	-8	20	-8	3	-1	-9	-8	-33	-42	-26	-27	-85	-98	-174	-269	-120	-54	-8	-4	-21	-50	-76	-49
5	-14	3	0	3	11	0	-9	0	4	-17	-20	-1	-3	-4	-5	-6	-7	-8	-7	-6	-5	-9	-6	-3	-4
6	-1	-36	-18	-22	-51	-63	-31	-30	-53	27	0	-25	-17	14	8	1	-3	-4	-1	-2	18	-29	2	7	-12
7	5	16	25	48	49	52	36	-21	-3	12	5	6	-5	-61	-44	-172	-156	-58	12	47	-87	-20	-3	-44	-19
8	-11	-13	-9	20	27	11	11	8	-38	-46	-39	8	10	0	-18	-55	-1	-55	-72	-73	11	1	21	28	-11
Q 9	16	1	11	15	47	34	24	19	5	-6	-24	-6	1	3	-31	-51	-8	-32	-38	-13	0	0	11	7	0
10	3	12	13	2	2	4	2	3	1	0	-1	-2	-9	-8	-6	-5	-2	-9	-7	-7	0	46	54	21	4
11	20	23	-16	-2	31	14	24	35	34	24	12	11	-10	-26	-5	-15	-35	-15	-16	5	6	4	0	3	4
12	7	-3	38	25	23	22	7	7	9	-10	0	10	0	0	-3	-4	-4	-3	-15	-8	-2	0	1	0	3
Q 13	-1	1	3	6	9	9	9	22	13	32	28	13	6	0	0	-3	-2	1	0	1	1	1	3	3	6
Q 14	1	2	4	5	6	6	6	7	5	3	2	6	3	1	1	0	-2	0	-1	2	1	-11	-17	-6	1
15	-3	3	-31	-113	0	18	9	-4	-2	-35	-24	-114	-87	-84	-97	-42	-16	-13	-50	-183	-26	-65	-7	0	-40
16	-10	-9	-11	-16	-20	-12	0	-20	-163	-111	-26	-15	-7	-111	-249	-192	-34	-27	-65	-189	-22	-14	-40	-128	-62
17	-38	-3	-31	-17	6	10	0	4	-46	-154	-115	-49	-37	-23	-37	-59	-96	-68	-13	2	1	-5	-8	-7	-32
18	-36	-26	-14	-29	-18	7	5	0	1	-5	-17	-19	-11	-22	-34	-30	-2	-32	-159	-352	-210	-200	-22	-24	-52
Q 19	-16	-13	-16	-10	-6	-4	-5	-5	-4	-7	-11	-23	-28	-40	-6	-7	-13	-28	-19	-25	-8	-8	-6	-1	-13
20	-7	-16	-4	0	-32	-68	-8	9	10	0	0	-2	-8	-5	-4	-2	-5	-7	-8	-60	-9	-11	-7	-4	-10
21	-2	4	9	19	13	27	32	41	47	69	48	52	35	6	0	-2	0	-30	-28	1	4	-6	-2	-9	13
D 22	-50	-58	-30	-60	-65	-84	-60	-37	-51	-78	-127	-159	-163	-115	-155	-91	-101	-175	-30	-53	-166	-137	-96	-47	-91
D 23	-41	-8	-61	-71	-63	-47	-20	-6	-14	-16	-48	-77	-224	-171	-69	-66	-76	-77	-31	-41	-42	-177	-202	-74	-72
24	-92	-33	19	-16	-54	-64	4	-14	-14	-56	-71	-38	-81	-227	-234	-130	-95	-44	-10	-117	-126	-99	-81	-118	-75
25	-21	7	0	-10	-50	-46	-26	-22	-26	-12	-16	-29	-29	-19	-97	-51	2	-5	-10	-18	-23	-38	-9	-9	-23
26	-6	-3	-2	2	1	2	0	0	-2	-3	-20	-31	-42	-14	-10	-8	-10	-7	-61	-173	-198	-88	0	-18	-29
27	-45	-5	6	4	-45	-98	-4	12	1	-4	-22	-125	-149	-164	-78	-87	-66	-52	-55	-42	-31	-63	-72	-69	-52
28	-14	-2	-50	-103	-7	-10	-22	-51	-162	-223	-245	-62	-20	-12	-12	-9	-26	-22	-21	-31	-20	-13	-21	-17	-49
29	-20	-22	-17	-12	-19	-8	8	0	0	-7	-11	-18	-19	-21	-32	-34	-7	-9	-89	-27	9	0	0	56	-17
D 30	-41	-168	-124	-78	-19	-32	-18	-72	-129	-227	-94	-81	-104	-86	-105	-165	-86	-38	-79	-40	-21	-25	-36	-43	-80
D 31	-37	-86	-80	-121	-120	-44	-22	-18	-20	-22	-93	-215	-196	-202	-95	-135	-46	-34	-2	-33	-4	-10	-19	-21	-70
Mean	-18	-17	-17	-19	-13	-15	-3	-7	-23	-34	-36	-37	-44	-53	-55	-67	-54	-35	-36	-54	-44	-39	-22	-27	-32
5Q Mean	1	-2	8	8	15	13	8	10	5	2	-1	0	-3	-7	-7	-13	-5	-12	-14	-8	-1	-3	-1	0	0
5D Mean	-45	-77	-74	-69	-59	-55	-29	-36	-57	-93	-86	-114	-138	-116	-94	-135	-106	-69	-41	-47	-99	-96	-76	-64	-78

February 1982

AO Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D 1	-12	-7	1	3	-33	-50	-23	-9	-30	-43	-70	-207	-321	-235	-9	14	27	-65	-479	-515	-233	-145	-27	35	-101
D 2	32	-34	-166	-72	-158	156	16	-259	-118	34	12	-137	-135	-189	-13	-2	2	-20	-25	-12	-4	7	-46	-19	-48
D 3	-10	8	14	-7	-31	-9	-32	-69	0	18	11	-26	5	-134	-261	19	5	-34	-153	-43	2	-110	-176	-169	-49
D 4	-171	-110	-97	-89	-78	-50	-113	-29	-31	-173	-272	-194	-307	-270	-172	-145	0	-35	-85	-226	-123	-184	-229	-89	-136
D 5	-134	-255	-164	-143	18	37	5	-12	-23	37	43	38	-45	-17	6	-31	-274	-149	-49	-51	-46	-119	-92	-28	-60
D 6	3	9	26	-37	-36	-61	-92	12	-73	17	-32	-177	-154	-123	-132	-167	-351	-183	-48	-203	-53	-184	-161	-84	-95
D 7	-31	-220	-129	-93	-98	-33	-18	-7	38	-3	-52	-39	-30	-10	5	-9	-86	-83	-88	-51	-76	-77	-108	-46	-56
D 8	-96	-5	39	37	3	27	55	77	37	4	-2	5	-17	-79	-39	-34	-11	-39	-35	6	-165	59	49	18	-4
D 9	-70	-116	-70	28	-26	28	19	5	23	23	39	13	4	47	30	23	7	5	-46	-33	20	6	-1	4	-1
D 10	20	-6	33	49	36	33	29	39	39	37	25	-214	-189	-66	-282	-158	-257	-58	-55	-164	-58	24	4	-154	-53
D 11	-200	-65	-50	-133	-187	-4	41	38	12	5	15	-40	-140	-214	-246	-197	-22	-51	-19	27	4	-239	-119	-68	-77
D 12	-86	-22	-8	0	-40	-15	13	11	16	16	16	-67	11	-41	-1	-50	-38	-31	-97	-356	-281	-141	-105	-188	-62
D 13	-147	-37	-182	-33	-16	-36	19	-8	-19	-43	-88	-224	-128	-132	-235	-293	-330	-273	-342	-195	-196	-282	-72	10	-137
D 14	36	-41	-33	-42	-107	-166	-112	-8	-40	-38	-38	-120	-173	-82	-34	-39	-48	-184	-175	-180	-92	-81	-136	-32	-82
D 15	79	58	25	33	34	13	-22	-86	-1	-23	-50	-138	-84	-221	-159	-108	-16	8	12	8	7	5	3	2	-25
D 16	-2	-38	-8	-27	-17	5	22	13	5	1	0	2	5	-42	-45	-13	2	-17	-91	-6	13	10	10	9	-8
D 17	6	3	4	7	20	1	-89	-101	-9	23	4	-94	-264	-58	-31	-41	-108	-42	27	-23	-107	-92	-27	-79	-44
D 18	-54	-33	-77	-77	-23	-24	-15	-60	-107	39	1	-56	-46	-156	-216	-123	-24	-23	-68	-346	-124	-110	-8	-253	-83
D 19	-49	-34	-58	-32	-194	-106	-82	19	25	-34	-24	7	-62	-256	-141	-112	-155	-142	-82	-102	-46	-19	-127	-55	-77
D 20	-48	-96	-21	-21	-92	-58	-15	-15	-133	-5	-23	-179	-242	-99	4	-22	-91	-71	-84	-69	-121	-237	-110	-90	-81
D 21	-76	-49	-7	21	17	15	7	3	-44	21	-26	-255	-308	-131	-14	12	12	13	16	11	-33	-101	12	35	-35
D 22	24	33	-21	-92	-90	-6	37	27	9	19	-119	-15	-25	-126	-196	-169	-133	-267	-334	-31	-152	-139	-275	-144	-91
D 23	-150	-92	-7	15	6	13	-8	7	13	3	-42	-62	-98	-50	-106	-245	-139	-75	-192	-158	-99	-58	-116	-78	-71
D 24	-141	-102	-21	-84	-11	9	27	42	7	-63	-83	9	-17	-81	-184	-55	-22	-37	-28	-9	23	16	-92	-118	-42
D 25	-145	-44	-71	-28	-103	-7	-48	51	-68	-22	22	3	-126	-42	-53	-8	13	0	-62	-39	23	17	-41	-5	-32
D 26	1	-26	-106	-90	-53	26	17	-77	-33	2	-120	-19	17	-13	0	-24	-17	-80	-46	-4	-121	-229	-127	-5	-47
D 27	10	-13	-1	8	6	21	21	19	14	-62	-98	-17	-11	-22	-15	0	-18	-21	-65	-21	16	14	18	-46	-10
D 28	-24	-27	16	17	15	12	13	19	13	-1	4	3	6	-10	9	14	-72	-83	-42	-101	-80	25	17	13	-10
Mean	-51	-48	-40	-31	-44	-8	-11	-12	-17	-7	-33	-78	-102	-101	-90	-70	-76	-72	-97	-103	-75	-84	-74	-58	-58
5Q Mean	-1	-27	-7	11	2	15	10	-6	10	-12	-21	-27	-16	-49	-36	-16	-19	-21	-46	-30	-4	12	9	-3	-11
5D Mean	-92	-42	-103	-83	-105	12	0	-46	-29	-31	-90	-122	-147	-186	-172	-161	-96	-129	-161	-87	-94	-167	-148	-62	-97

1982
April

AO Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	22	37	10	1	23	25	14	18	13	33	-11	3	12	12	11	27	11	9	7	21	18	-205	-146	-155	-7
D 2	-248	-215	-219	-95	-36	-35	26	-70	8	19	17	13	-5	-183	-175	-288	-156	-115	-57	-91	-159	-131	-166	-67	-101
D 3	-94	-127	-139	-63	-123	-59	-52	-53	-16	-54	-59	-142	-66	-2	-77	-152	-99	-110	-31	-80	-77	-92	-30	-22	-76
4	-49	-163	-135	-19	1	-86	-61	8	5	-30	20	29	14	-51	-67	-35	-25	-6	-100	-111	-58	-86	18	-34	-42
5	-179	-72	-22	-39	-27	-9	8	31	-56	0	-123	4	5	13	-10	-3	-12	-4	-129	-88	3	30	-140	-26	-35
6	28	10	-38	34	-23	-2	-34	-102	31	-16	28	-47	-14	-79	-75	-27	0	-41	-11	7	1	6	-51	-96	-21
7	-51	-17	15	14	2	-45	4	7	22	-13	-13	-7	2	-3	-1	-2	-7	-48	-56	0	18	11	14	9	-6
8	5	6	6	2	0	31	-21	-45	32	3	26	-4	-41	-46	-70	-17	4	-12	7	-3	-41	-127	-4	4	-12
9	-34	-4	-19	-4	45	36	24	-13	24	28	23	19	2	18	3	-28	-28	-44	-22	-12	-44	36	35	19	2
D 10	12	35	40	50	65	70	40	49	-22	-92	-47	0	-49	-146	-258	-97	-283	-400	-334	-286	-158	-171	-247	-62	-95
D 11	-93	-233	-193	-68	25	33	-109	-28	10	-43	18	20	-10	-50	-9	-100	-6	-2	22	-77	-48	-56	4	7	-41
12	8	-1	-14	21	-6	-6	-12	22	28	53	92	10	-167	-91	-65	0	-1	1	10	-12	-1	29	19	19	-2
13	-16	-34	-61	-201	-46	10	5	11	4	4	9	3	8	0	1	3	4	2	3	7	10	27	2	0	-9
14	5	-2	-5	-6	-10	-7	12	11	-1	18	5	0	2	2	7	-36	-14	-14	13	19	21	21	14	9	3
15	7	5	9	0	3	2	4	17	33	0	10	19	6	-41	-72	-31	-3	12	0	24	27	-44	-26	8	0
16	2	0	-2	-15	23	-40	18	41	11	5	1	-9	-6	0	1	2	0	44	-3	-3	29	0	12	18	5
17	25	23	27	11	7	17	-12	-65	-45	-119	-113	-74	-25	-28	-56	-75	-6	21	14	33	16	2	11	-6	-17
18	-5	3	4	2	3	6	1	-18	-4	-4	-1	0	-11	-74	-65	-55	-3	-54	-16	-4	-65	-28	-36	17	-17
19	15	14	10	6	8	0	1	9	4	2	4	5	14	22	-4	-111	-114	-42	-7	32	30	13	-54	-39	-7
Q 20	-39	-78	-60	-56	-68	-46	9	5	-71	-11	18	23	15	-50	-19	-22	-4	-12	-11	-14	30	28	23	-37	-18
21	-154	-19	3	17	-3	0	-57	-138	-75	15	10	-96	-127	-56	-13	0	10	21	-24	-123	6	29	4	-204	-40
22	-137	-210	-161	-103	-50	11	23	11	26	27	16	21	12	10	10	2	-19	-3	19	16	14	9	6	9	-18
Q 23	19	4	-17	-26	-4	7	4	-28	-11	4	-40	-66	-1	12	14	12	2	-34	-4	1	21	-38	-25	11	-7
24	15	-25	-75	-17	10	-10	-4	20	15	18	11	10	21	11	2	-51	-100	-8	21	15	27	-42	2	23	-4
D 25	29	30	-30	-45	-55	-17	46	-38	-135	-420	-266	-133	-92	-82	-25	10	29	-46	-19	-14	1	29	18	6	-50
Q 26	5	-1	-7	-4	-1	2	-6	6	-23	-85	-48	-37	-20	-8	-21	7	2	-38	-44	5	20	14	-57	14	-13
27	10	0	-6	-8	0	47	-125	-74	-15	3	1	4	-3	-3	6	-16	-144	-66	-58	-17	11	39	-140	-101	-27
28	14	-61	-142	-41	-89	-31	41	-3	-14	19	52	60	-16	-45	-12	1	5	-60	-27	-41	22	5	17	43	-12
29	-18	-50	29	29	-22	13	-31	-7	-27	27	15	45	18	-83	-56	-34	19	41	-174	-222	-307	-159	-121	-37	-46
30	-146	-68	44	35	-16	-167	-146	-1	-36	-4	-42	-38	-32	-36	-69	-43	-84	-8	4	-35	-26	-53	-49	-127	-48
Mean	-34	-40	-38	-19	-12	-8	-13	-13	-9	-20	-12	-12	-18	-35	-38	-37	-34	-33	-33	-35	-21	-30	-36	-26	-25
5Q Mean	-1	0	0	-3	-1	-8	3	1	-1	-14	-18	-21	0	5	-1	-17	-30	-35	-19	11	22	4	-21	0	-6
5D Mean	-78	-102	-108	-44	-24	-1	-9	-28	-31	-118	-67	-48	-44	-92	-108	-125	-103	-134	-83	-109	-88	-84	-84	-27	-72

1982

May

AO Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-153	-115	-59	-8	2	14	-1	-47	-27	0	71	-65	-97	-91	-59	-96	-144	-229	-40	1	-1	-28	3	-17	-49
2	-19	22	-148	-100	-95	-68	-9	-19	0	-52	0	18	-19	-146	-168	-184	-116	-72	-284	-399	-168	-41	53	-72	-87
D	-101	-47	-71	-135	-15	-32	-70	-97	-3	4	19	-195	-203	-165	-92	-77	-172	-210	-96	-140	-9	31	82	-160	-81
4	-82	8	-1	5	2	-17	-10	-14	0	21	-151	-137	13	-31	-82	-168	-78	-9	1	11	-6	-29	-13	-3	-32
5	12	20	-40	-22	-65	4	-7	-21	-86	-48	-29	-14	-39	-16	-15	-86	-16	7	8	-16	-53	-4	0	0	-22
6	7	-16	-39	-27	-38	-22	-18	-14	-20	0	3	5	-7	-4	-18	-16	-31	-23	6	-11	-39	-41	-29	-27	-18
7	-3	-9	0	-39	-12	0	-6	-13	-7	6	-1	0	-33	-52	-55	-60	-49	-47	-2	15	31	11	11	15	-11
Q	-19	-16	-13	-5	6	24	24	28	9	22	13	-39	-12	0	1	-13	-27	-31	3	26	20	17	20	9	2
Q	23	12	-2	25	13	29	-38	-7	24	22	5	8	1	7	11	14	-29	16	22	24	27	10	5	5	9
10	10	2	-23	-3	1	-27	-15	-5	-2	-1	0	16	-7	-13	5	2	12	11	16	15	18	10	7	12	1
11	-87	-27	3	23	2	-28	5	5	9	25	24	-19	-29	-10	1	-7	0	5	14	21	-28	-22	10	14	-3
12	4	13	5	-11	5	29	-48	-8	-13	31	47	25	14	13	13	0	-14	-36	4	22	11	13	10	10	6
13	17	21	-4	-19	11	-10	-7	3	0	11	5	-2	-1	10	9	0	-14	-20	12	16	9	11	10	11	3
14	6	6	0	-8	0	-4	0	5	44	46	46	38	-25	-16	1	8	11	0	6	24	22	17	13	12	8
15	4	25	-71	-5	29	13	28	11	-16	33	57	8	6	-93	-140	-111	-9	6	13	-38	8	5	0	20	-8
16	2	11	-5	-26	12	11	9	23	11	-66	-24	11	7	15	8	3	17	2	-22	3	16	12	8	7	2
17	11	10	37	-73	-77	14	8	12	18	19	-31	-16	-4	0	-68	-72	-3	28	1	16	-3	-56	21	38	-7
18	62	44	-49	-73	8	-2	11	16	10	53	-148	-136	-31	29	10	-18	-4	-18	20	-1	11	13	-126	-78	-16
19	-54	-20	-67	-87	-63	-8	5	15	5	23	-5	37	4	-23	-54	-56	-11	-47	-39	6	23	-3	-63	-14	-20
20	-52	-47	-33	-34	-11	-10	-6	22	-30	-69	-7	15	13	-21	-57	-64	-30	-10	-4	1	4	1	4	7	-17
21	4	-2	-4	-10	-5	6	-68	-94	-84	-15	15	44	-29	-84	-55	-16	-4	-5	6	2	1	2	14	-29	-17
22	-2	-3	-8	-11	-14	-3	-5	5	9	0	-1	1	-4	0	0	-7	-8	-2	2	-4	-4	-8	-6	-1	-3
Q	5	-26	-10	-3	-8	-12	-14	-7	-5	0	-2	3	2	4	3	1	-1	1	0	0	-2	3	2	2	-2
Q	3	0	0	-2	-11	-4	1	22	23	15	6	24	0	-52	-38	-21	-6	14	23	17	19	17	14	12	3
Q	16	9	10	5	-1	0	-1	0	-4	-3	17	24	34	4	-3	15	7	8	12	12	10	9	18	-41	6
26	-67	-32	4	51	27	28	37	37	12	9	22	31	43	42	3	-70	20	43	55	-32	-46	34	39	85	15
27	-8	12	15	-43	-14	63	-69	-137	-48	-56	-140	-49	-44	-133	-26	-166	-110	-4	-151	-102	-19	-52	-345	-140	-74
D	8	2	-156	-92	-257	-139	-91	15	-45	-39	-49	-98	-184	-171	-43	-172	-94	-52	21	-27	-21	11	12	-155	-75
D	-98	-115	-3	-48	-99	-32	-58	-11	-74	-101	-52	-20	-131	-184	-194	-119	-33	-15	-5	-44	27	-18	-100	-45	-65
D	-17	29	-28	-54	-6	-8	24	0	-150	-89	-36	-31	-51	-138	-88	-79	-73	3	-111	-62	12	-21	-172	-224	-57
31	-41	-52	-108	-179	-188	-36	0	-16	-9	37	16	-107	-29	50	15	-72	-100	-17	-47	-20	-33	15	-4	-38	-40
Mean	-19	-8	-28	-32	-27	-7	-12	-9	-15	-5	-10	-20	-27	-40	-37	-55	-35	-22	-17	-21	-5	-1	-16	-25	-21
5Q Mean	-3	-10	-6	-12	-7	1	0	7	5	8	3	-2	-9	-20	-17	-20	-18	-13	5	10	12	12	8	7	-2
5D Mean	-43	-23	-48	-74	-78	-29	-52	-46	-64	-56	-51	-78	-122	-158	-88	-122	-96	-55	-68	-75	-2	-9	-104	-144	-70

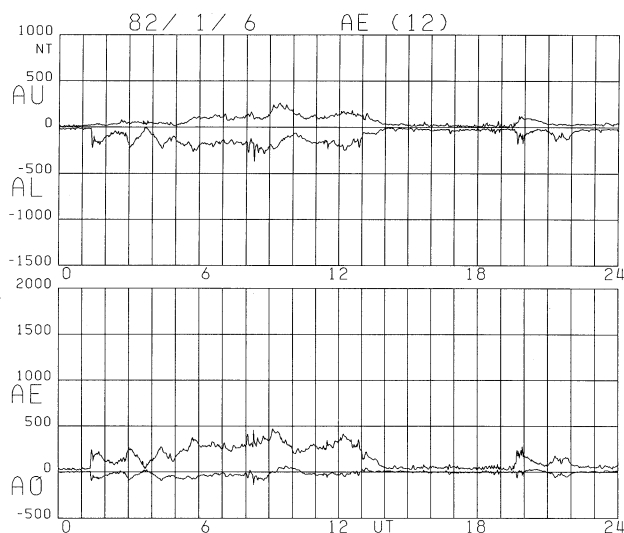
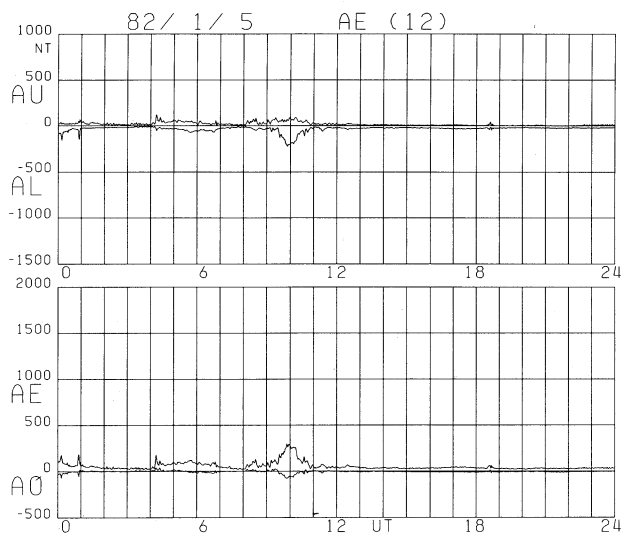
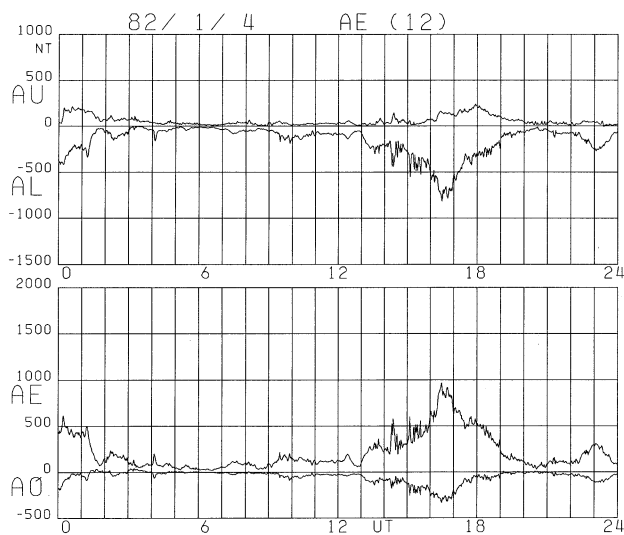
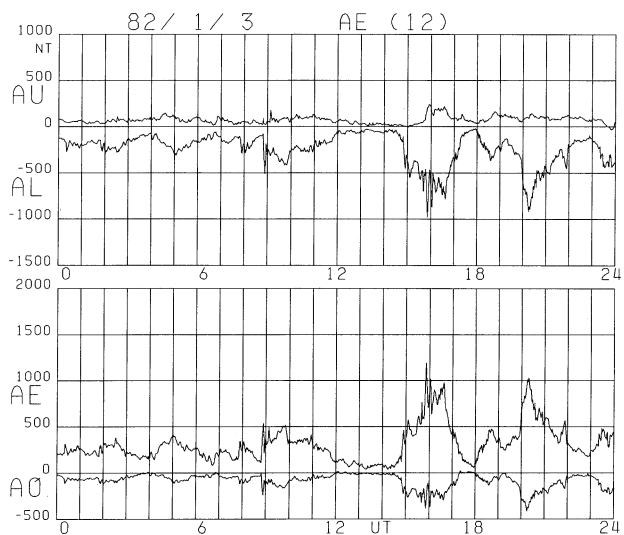
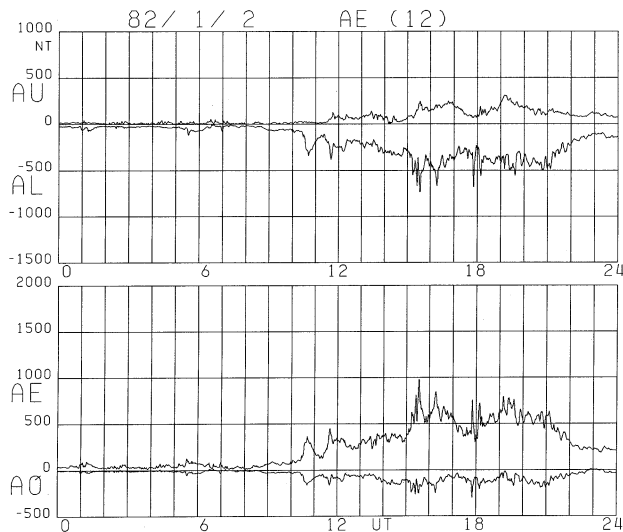
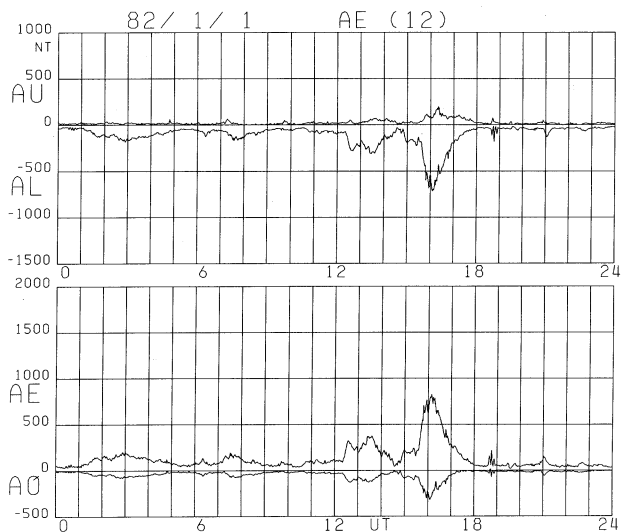
Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	-106	-191	-109	-28	-25	-50	-3	-1	-26	1	-77	-1	-6	6	34	6	5	-17	-37	-39	-110	-85	-41	-109	-42
2	-36	-2	-100	-63	-5	-20	-42	-46	-112	-24	-7	-18	3	-16	-4	6	-9	-38	-57	-43	5	23	14	28	-23
Q	5	-110	11	-15	8	3	-80	-72	0	6	-5	0	-41	-50	0	1	-28	-31	5	11	14	-22	-36	-3	-17
Q	5	-6	12	-23	-12	-6	-7	-4	-13	-2	8	13	20	29	7	-59	-56	-2	1	11	22	11	-8	24	-1
Q	-15	16	30	37	-7	-9	21	25	20	0	10	-3	-5	26	36	17	-17	15	13	10	19	27	35	23	13
6	25	-22	3	-12	19	93	38	-5	0	62	32	40	39	25	29	29	43	30	19	36	37	31	14	17	26
7	55	-27	-56	5	19	82	-68	-151	-33	22	-14	20	17	18	12	20	-18	-14	21	20	13	14	11	0	-1
8	-5	-4	-6	-2	-9	-5	-13	-11	-4	-1	6	40	-1	12	4	14	3	-32	-1	4	0	27	3	-13	0
9	20	36	21	33	48	53	43	12	23	41	77	85	84	-4	-64	5	29	25	20	28	9	14	5	8	27
D	10	15	10	49	-112	-251	-105	-131	-14	-36	5	-24	-216	-29	-46	-74	-9	32	20	4	15	4	13	-35	-37
D	11	-13	15	-40	-177	-179	-64	56	18	30	21	-28	-25	1	24	33	43	101	-145	-32	-34	13	-9	-107	-19
D	12	-199	-156	-52	15	-42	14	41	-34	4	21	47	36	9	-61	-145	76	59	80	86	-35	-80	-73	36	-15
D	13	-235	-153	-59	-146	-125	16	37	23	100	65	79	-83	-113	-129	18	52	33	-87	-100	-193	-126	-290	17	-57
14	25	28	11	8	-9	-4	-47	-38	-31	-89	-79	-151	-14	-10	2	-10	-6	0	-28	-12	-18	6	12	3	-18
15	-12	-36	-14	-24	-5	-44	-66	-68	-62	-32	16	18	3	-37	-86	-42	-8	-78	48	19	18	-12	-27	-75	-25
16	-65	6	-2	-4	1	-8	-26	-9	9	27	16	26	1	-77	-57	-29	12	42	29	-10	40	16	15	11	-1
17	31	2	12	-15	3	-53	-117	-27	1	20	57	-27	-70	-38	8	13	28	21	12	13	13	8	1	-3	-4
18	-4	-4	-8	0	-25	-91	-65	-10	0	6	5	0	3	5	7	9	12	6	18	10	-9	2	1	-5	-5
19	-2	-5	4	16	-11	22	57	-4	-83	45	-10	6	14	-23	-70	-60	38	128	114	-125	-69	-53	-102	-51	-9
20	20	-104	-41	-41	55	42	13	105	116	62	7	-24	13	4	8	4	35	27	33	14	-25	5	11	-2	16
21	8	-7	22	-32	-1	51	-20	-27	36	32	21	34	22	-47	-34	2	27	22	14	26	20	-1	1	11	7
22	15	23	43	18	41	54	2	20	47	48	22	23	-40	-37	-93	1	-6	82	127	76	35	25	18	61	25
23	-4	-11	-34	-33	40	-106	13	52	-23	0	35	-14	-29	-6	-1	1	30	67	11	-20	-4	-1	6	-30	-2
24	11	33	22	16	18	53	5	-13	14	-28	-6	-9	-36	-21	-32	-36	-20	-5	-10	9	11	-309	-83	51	-15
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26	-18	-22	10	22	52	35	27	49	46	11	-1	-4	-11	-13	-120	-91	-67	-42	-182	-147	-141	-109	-179	-111	-42
27	-180	6	-121	1	-65	-150	-83	3	28	9	-31	-18	-52	-47	-22	-2	2	-2	-2	-22	-188	-54	-56	-56	-46
28	0	-116	-130	-70	-58	-40	-30	-83	3	-47	-54	6	-7	-58	-44	-8	-47	-94	-35	7	33	49	-32	-95	-39
29	-48	-54	-106	2	5	-4	1	-13	-13	22	-28	-112	-14	-13	4	-9	-10	-80	-38	6	11	20	-25	-114	-25
D	30	-22	0	-73	-69	4	36	22	43	1	-37	-42	-125	-54	-16	0	-36	-102	-98	-17	-20	-77	-36	-5	-32
Mean	-23	-25	-25	-24	-17	-7	-13	-10	-5	5	4	-9	-17	-20	-20	-14	3	4	-4	-5	-17	-21	-27	-17	-12
5Q Mean	4	-20	11	-3	-6	-31	-49	-17	1	6	15	-3	-18	-5	11	-3	-12	1	9	11	11	5	-1	7	-3
5D Mean	-90	-56	-35	-97	-118	-20	5	7	19	15	22	-44	-79	-48	-16	-35	25	24	-46	-11	-53	-53	-79	-18	-32

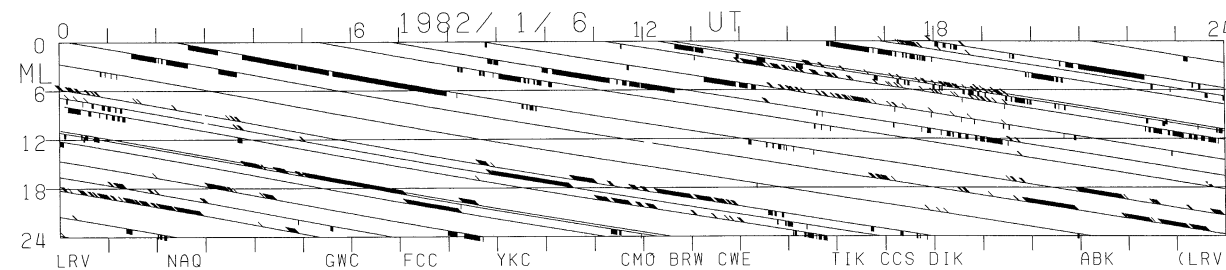
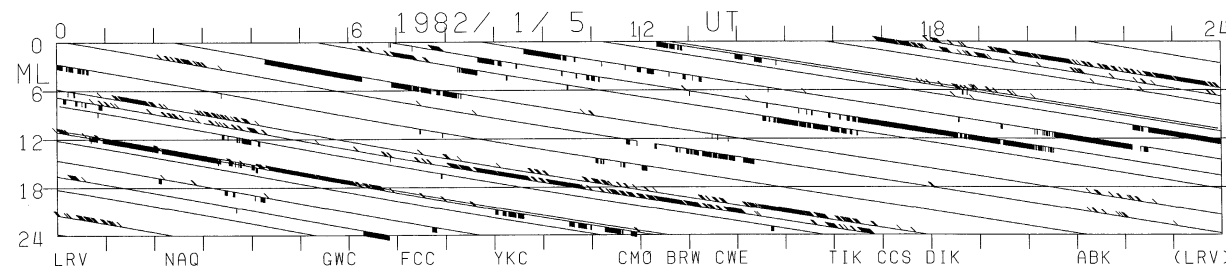
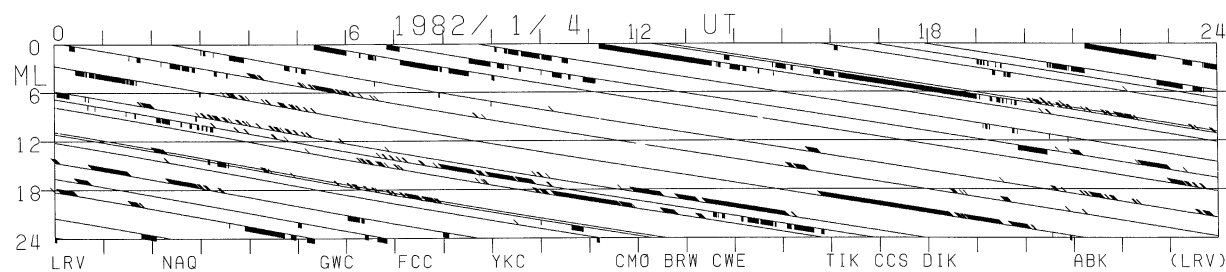
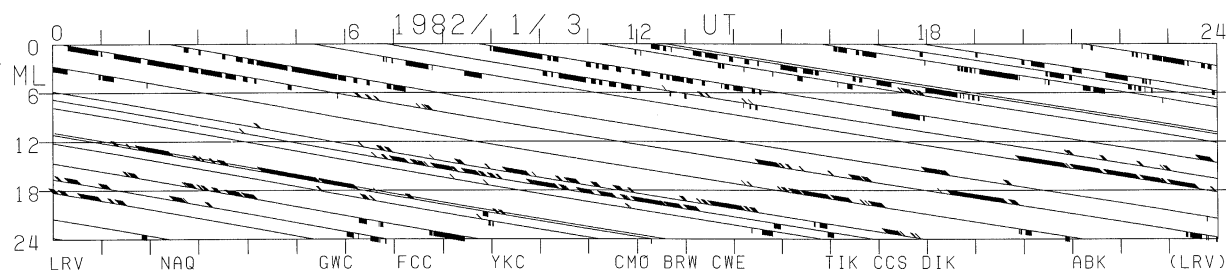
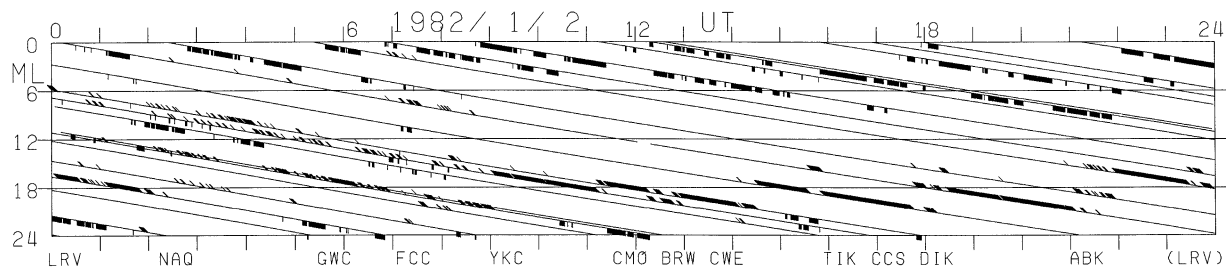
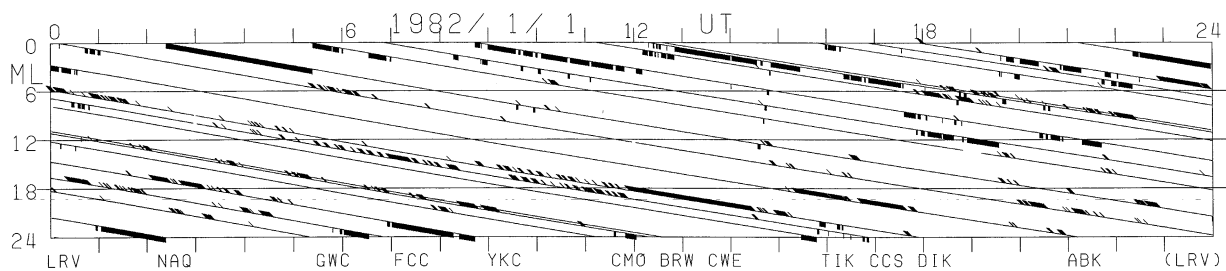
FIGURE 4 (on even pages)

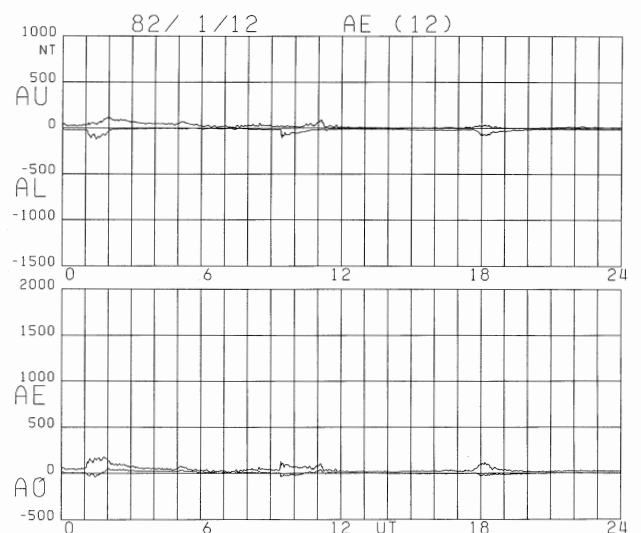
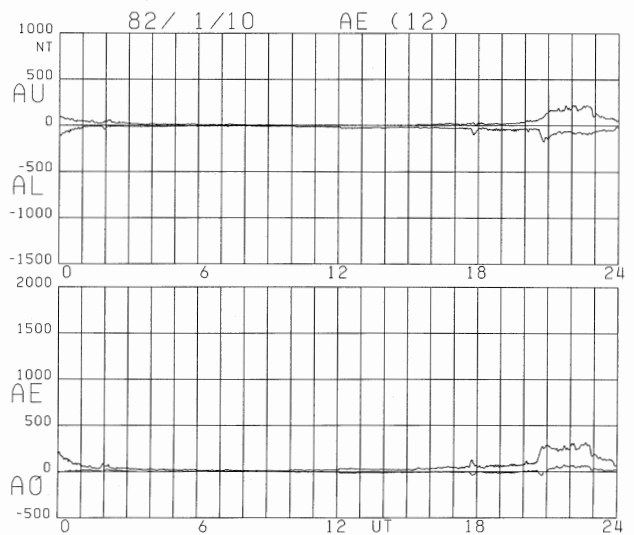
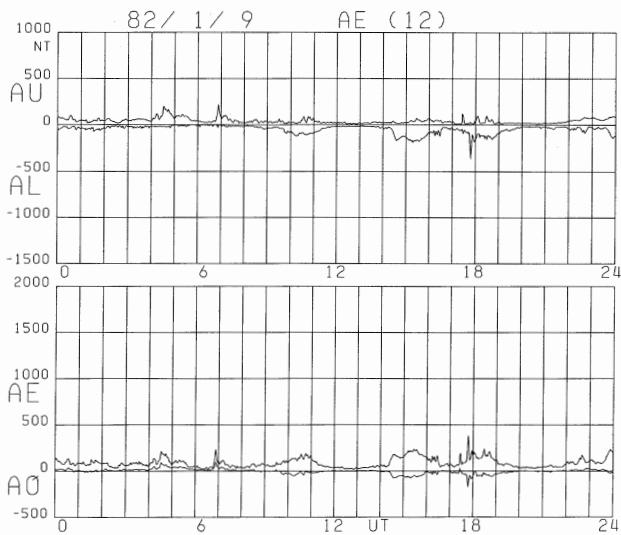
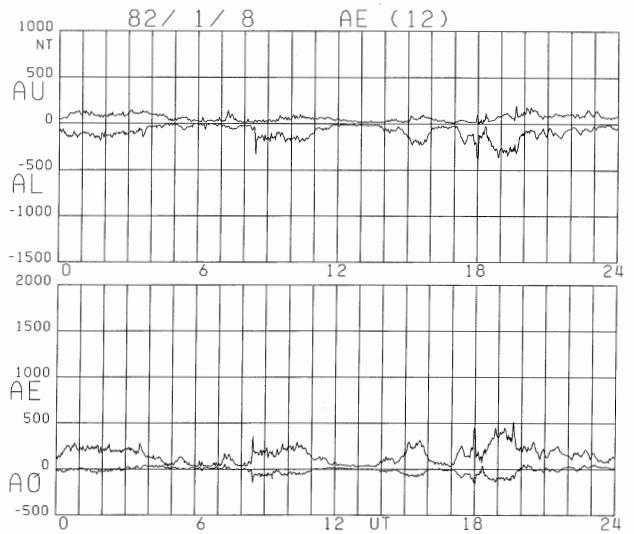
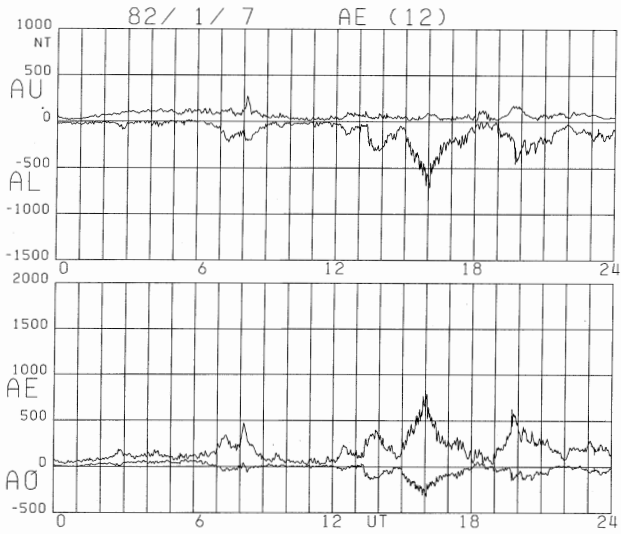
Daily graphs of 1.0 min AE indices (AU, AL, AE and AO) for January-June 1982. Graphs on disturbed days (Feb. 1 and Mar. 1) are reproduced on page 94.

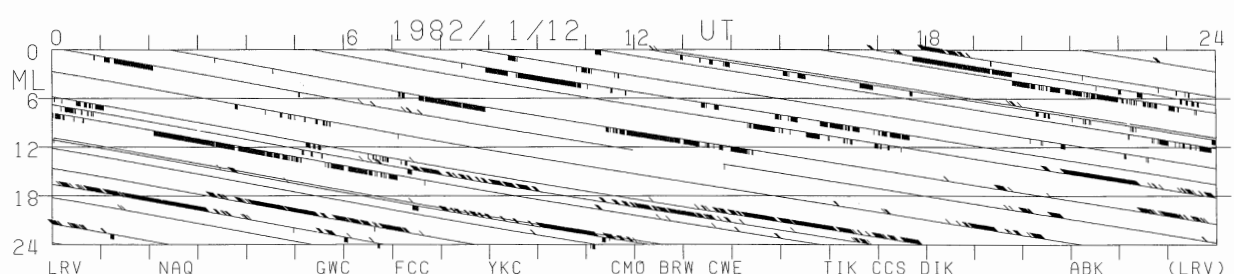
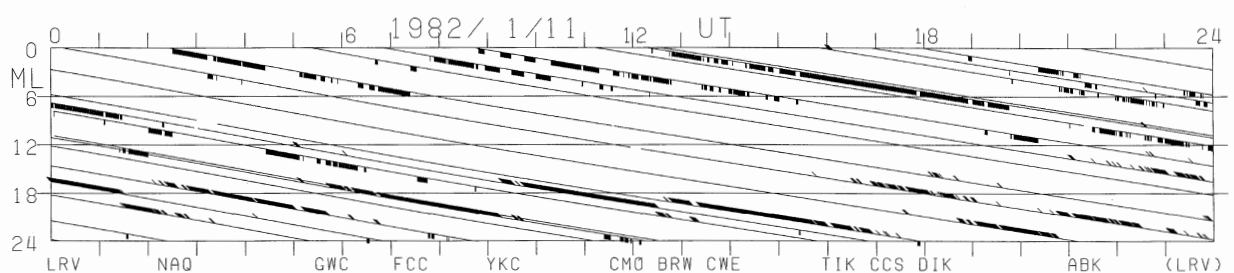
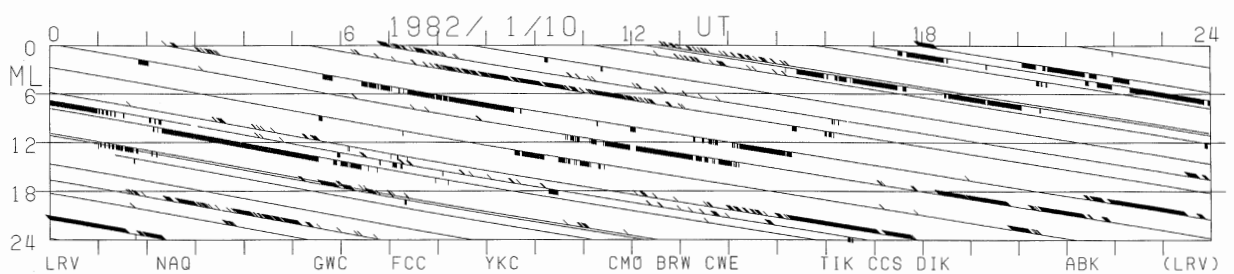
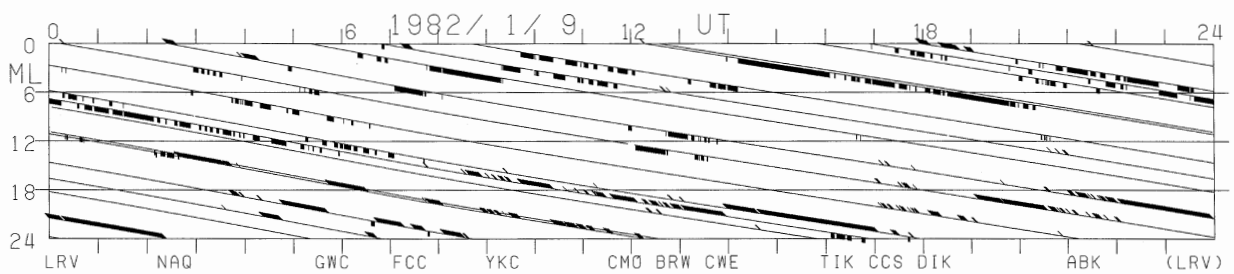
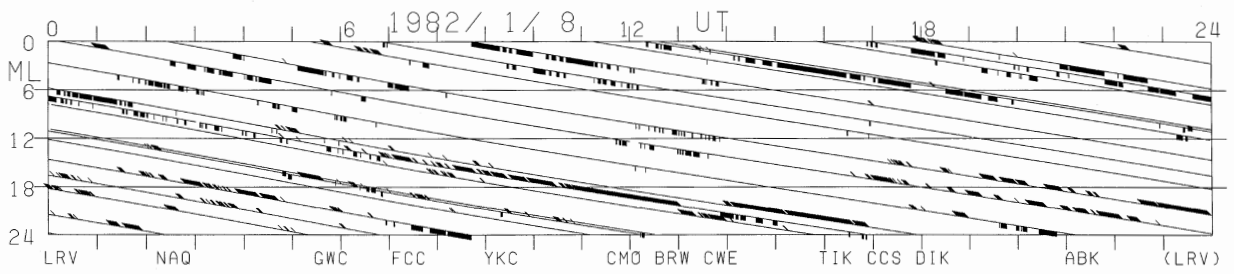
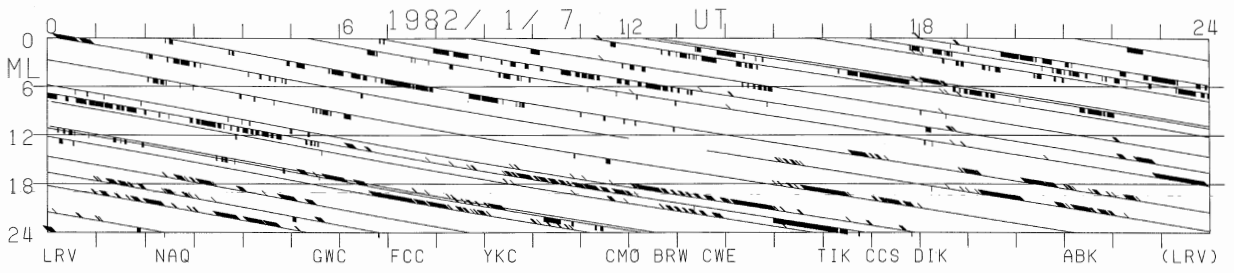
FIGURE 5 (on odd pages)

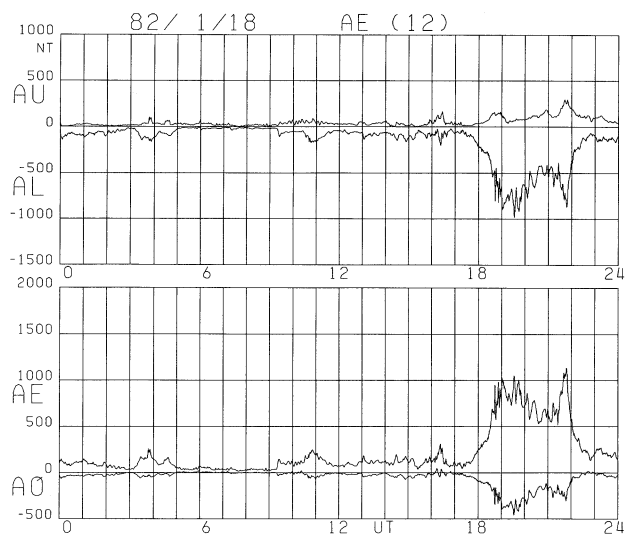
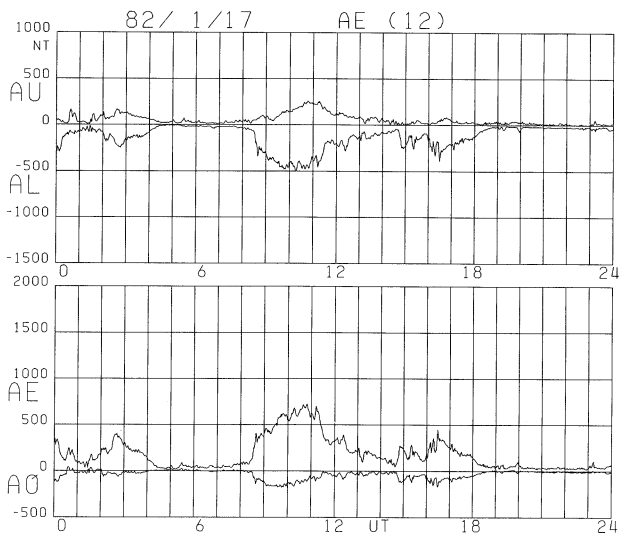
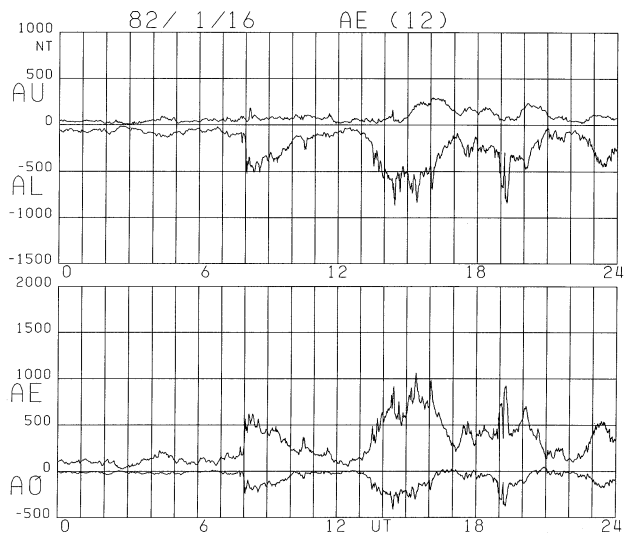
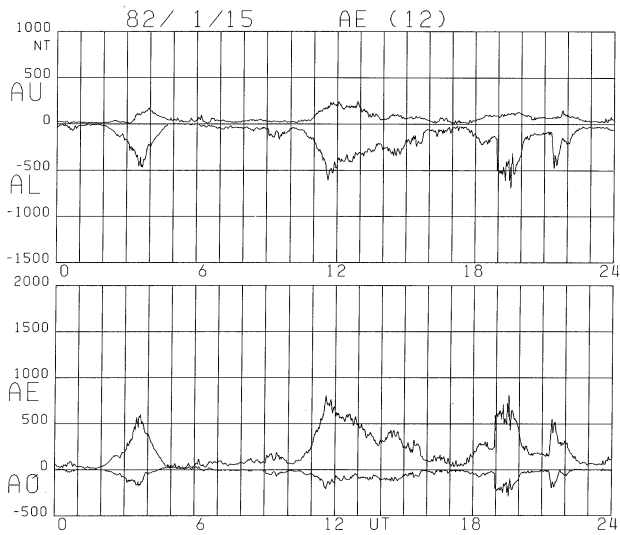
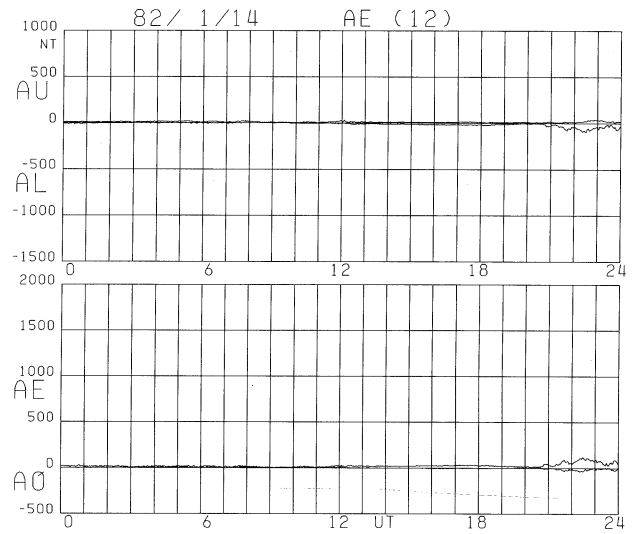
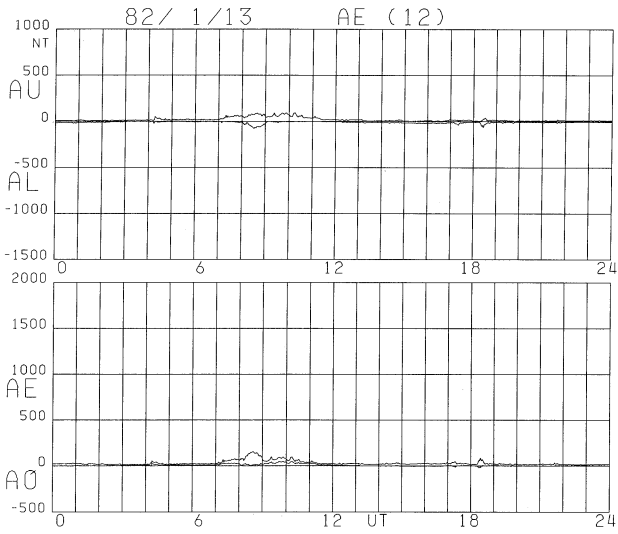
Plots of the contributing station to the AU (upper plumes) and AL (lower plumes) indices, where you can see which station contributes to these indices at each UT minute.

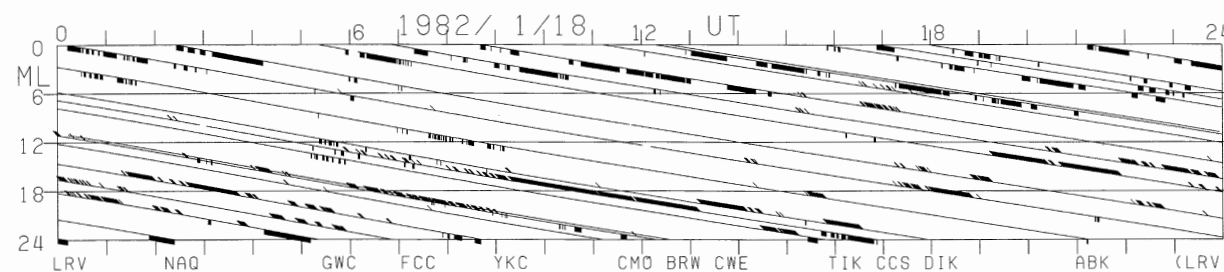
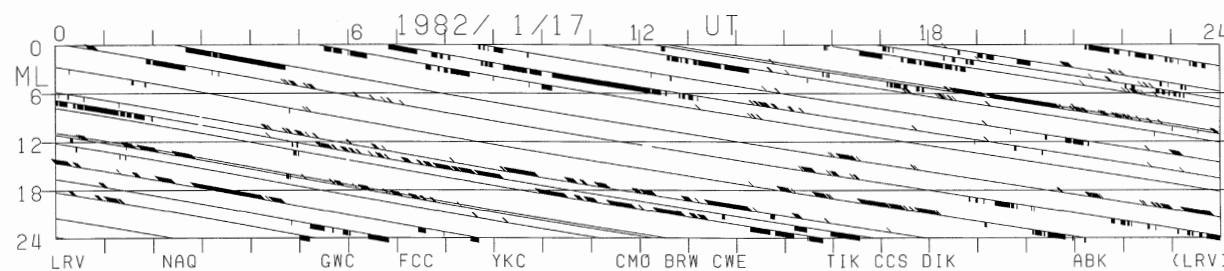
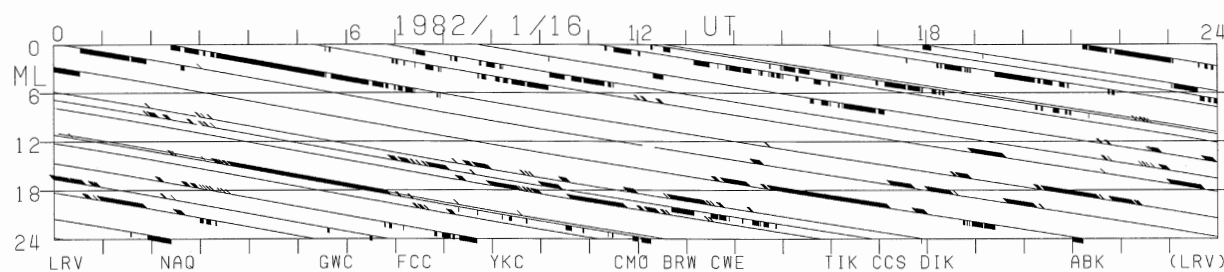
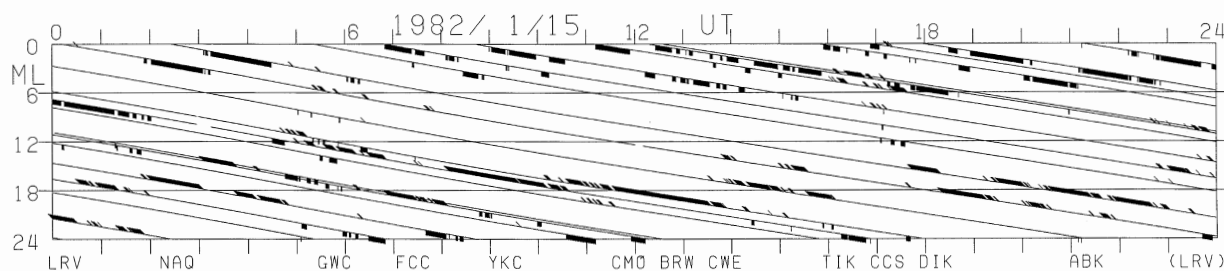
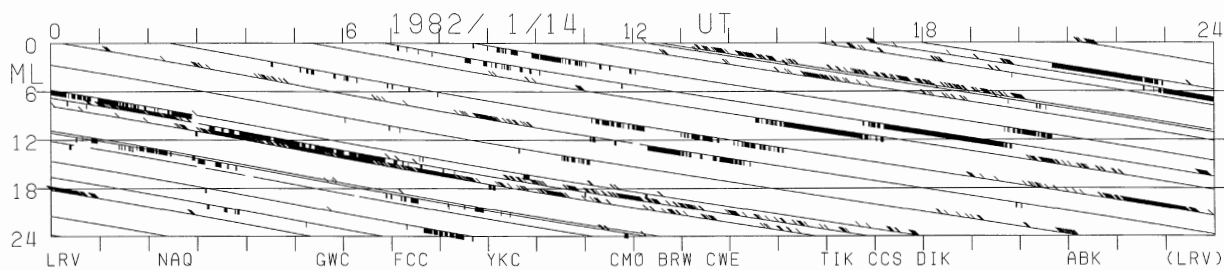
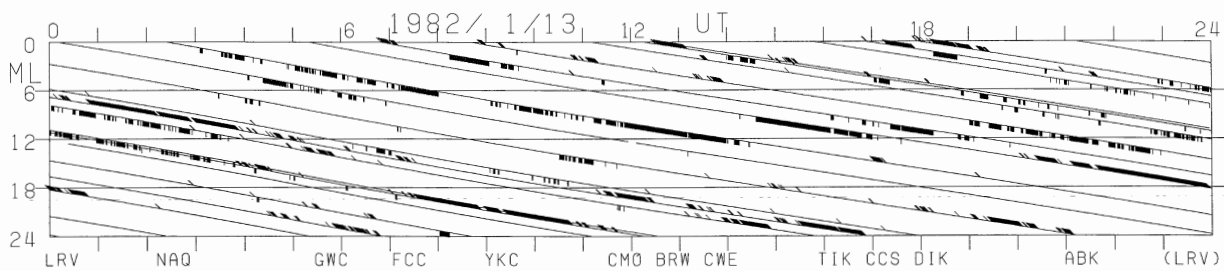


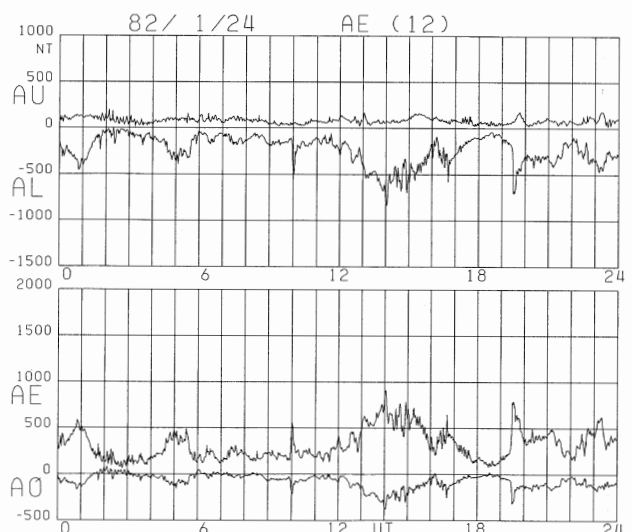
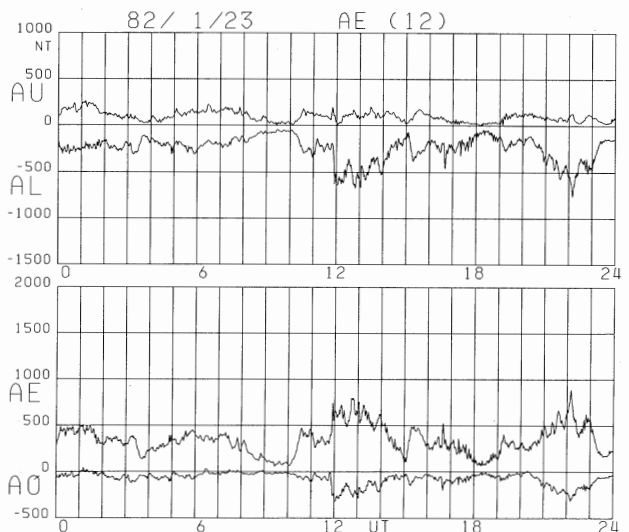
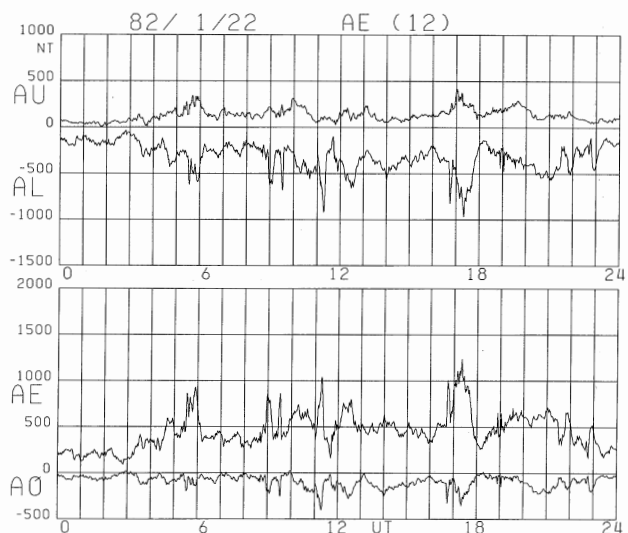
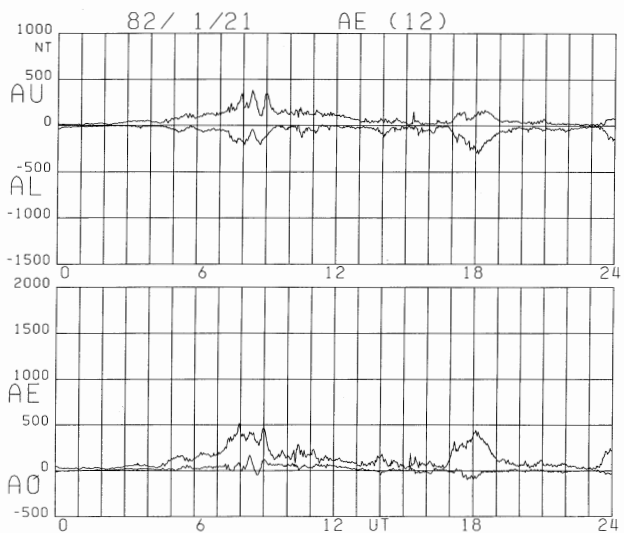
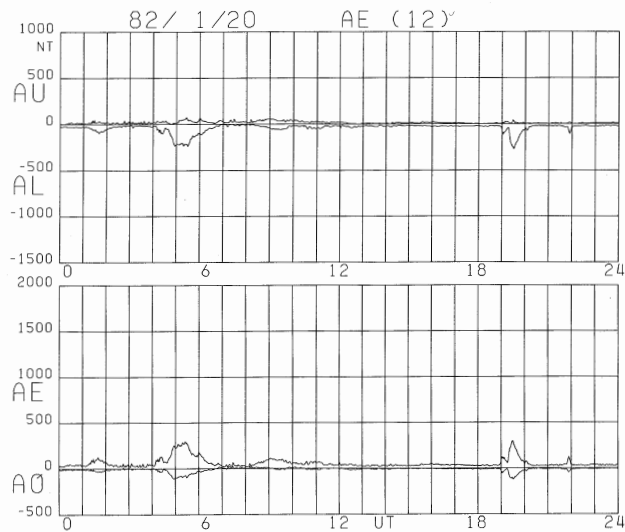
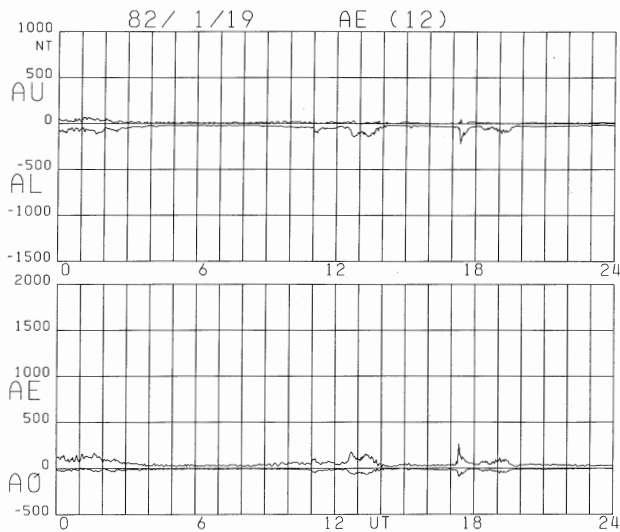


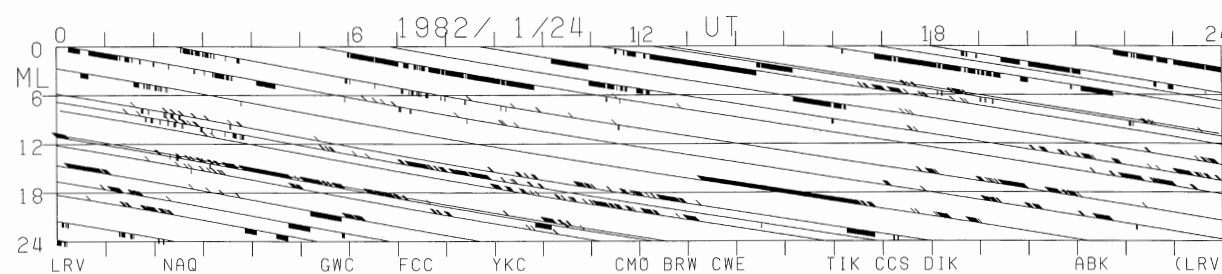
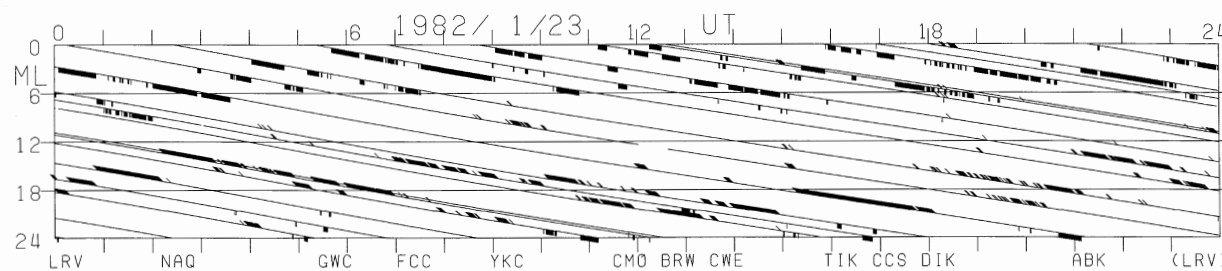
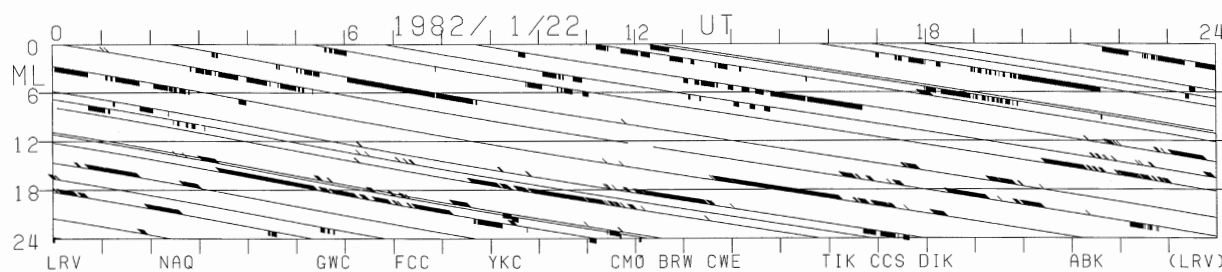
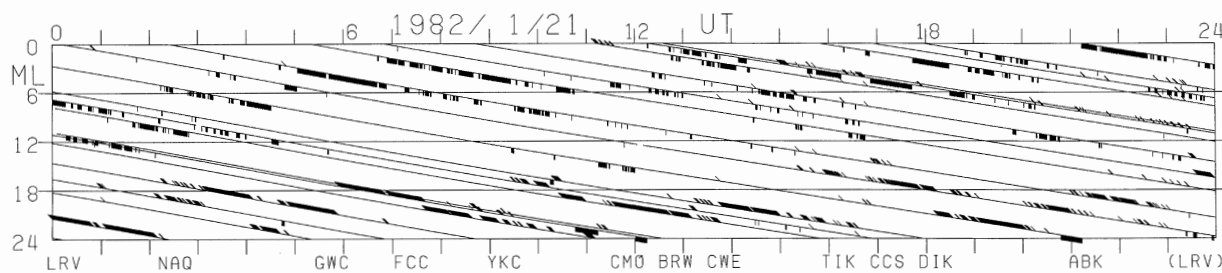
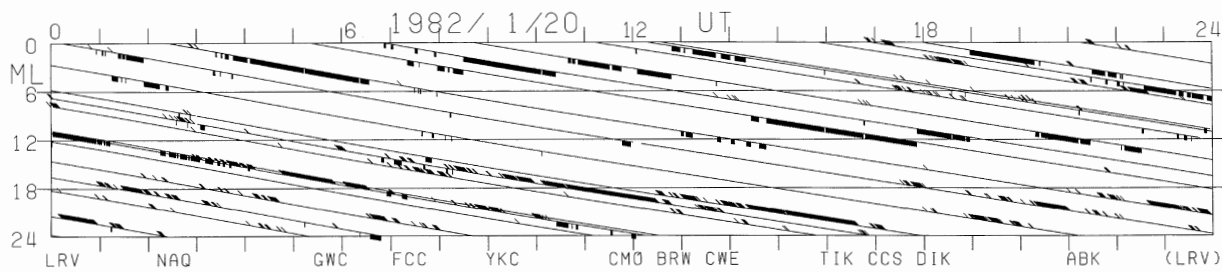
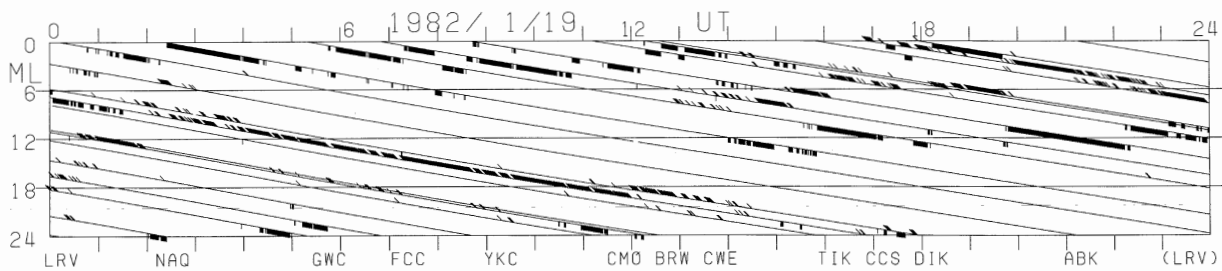


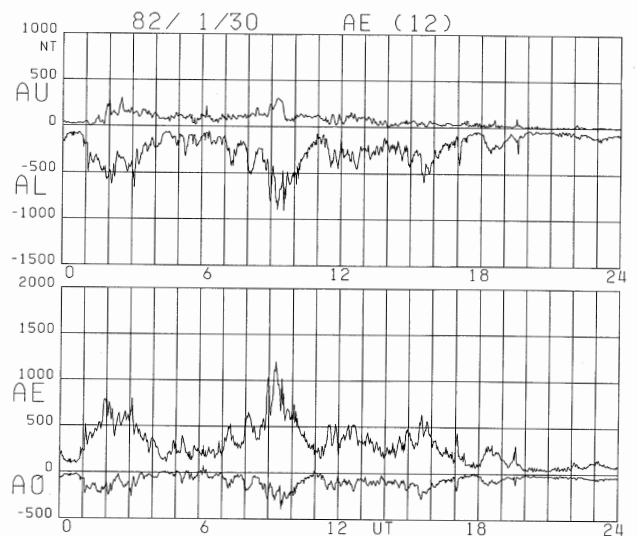
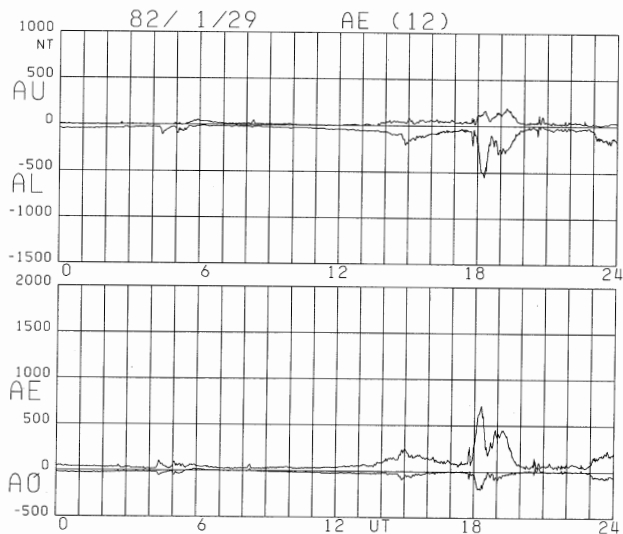
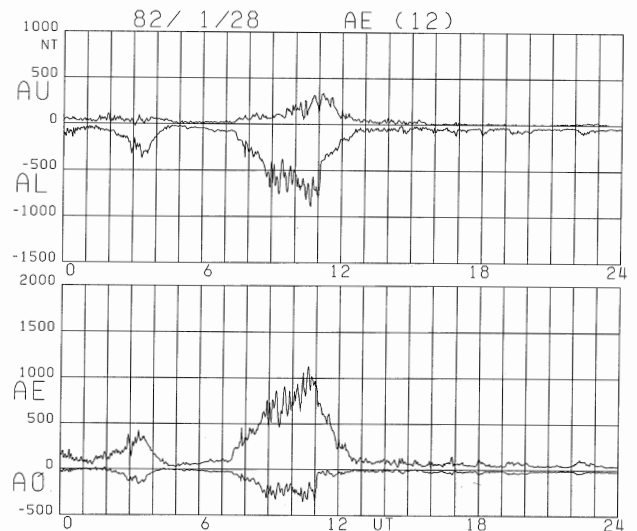
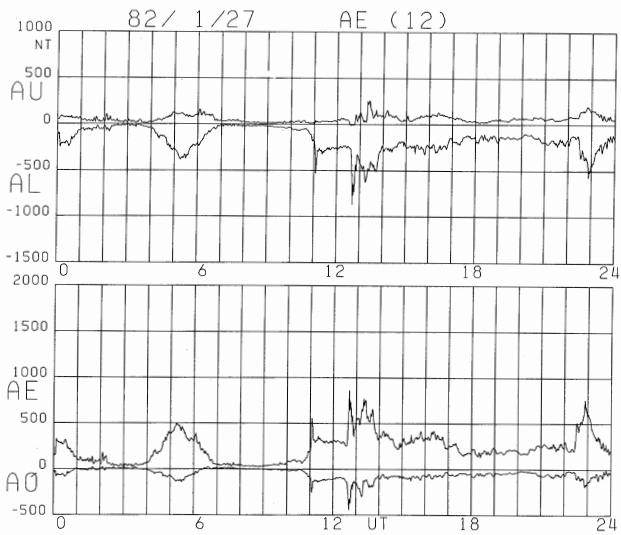
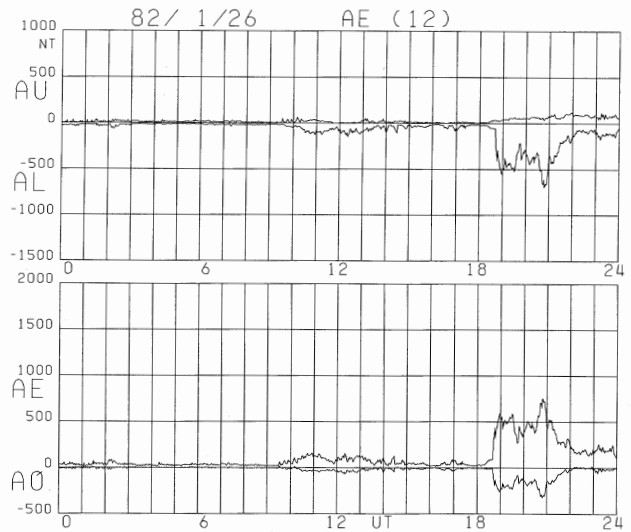
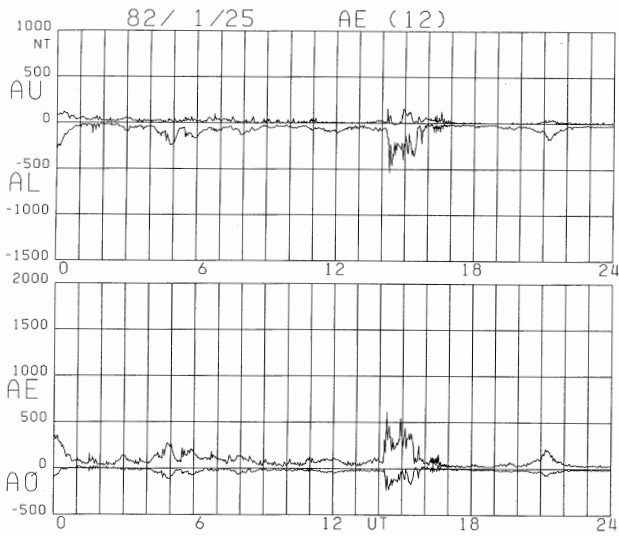


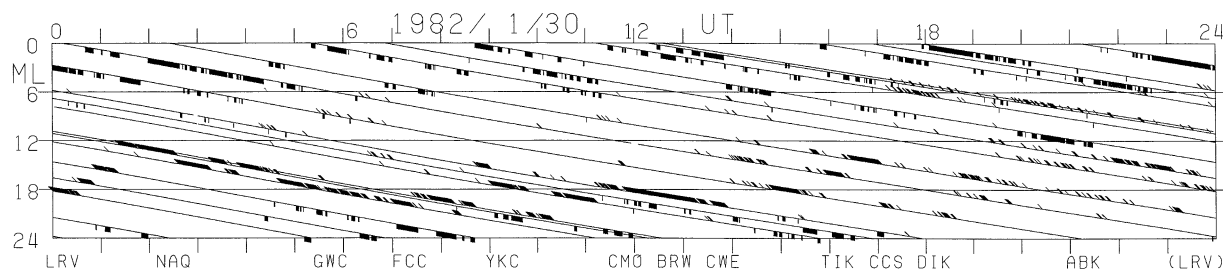
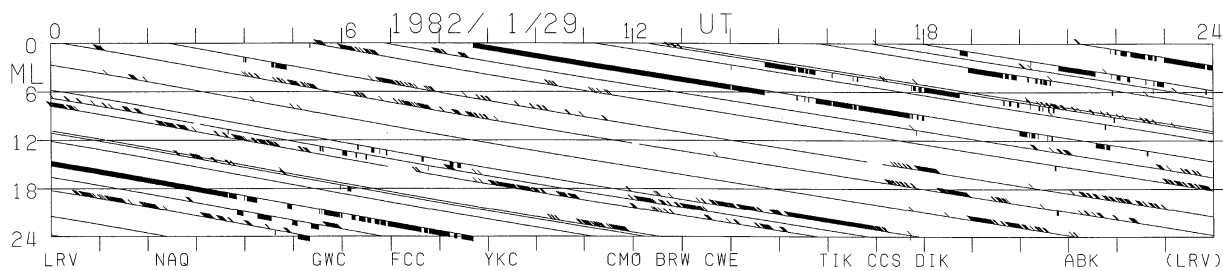
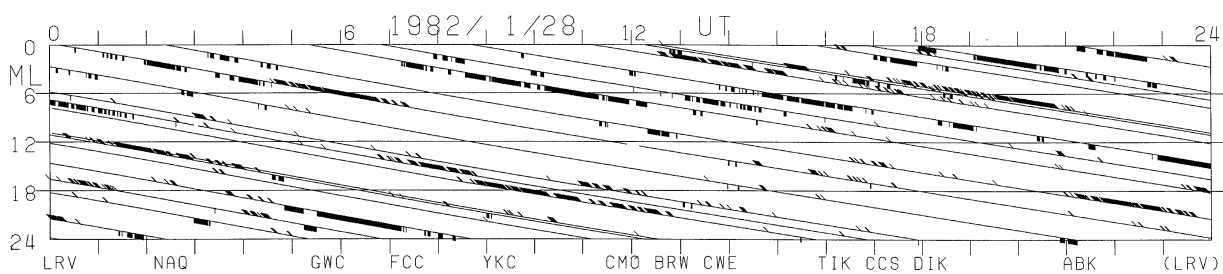
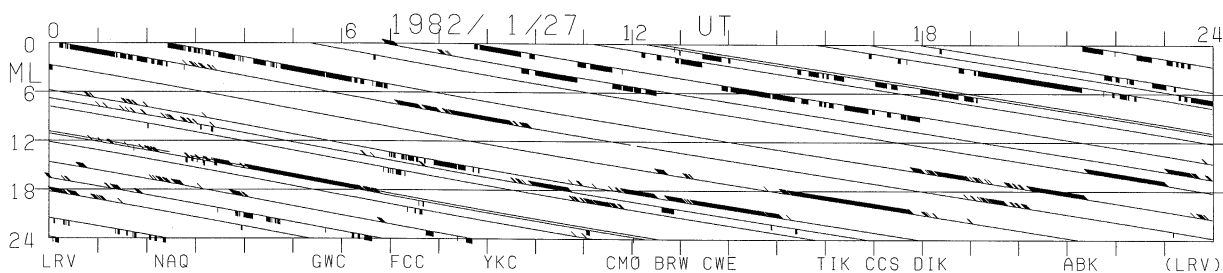
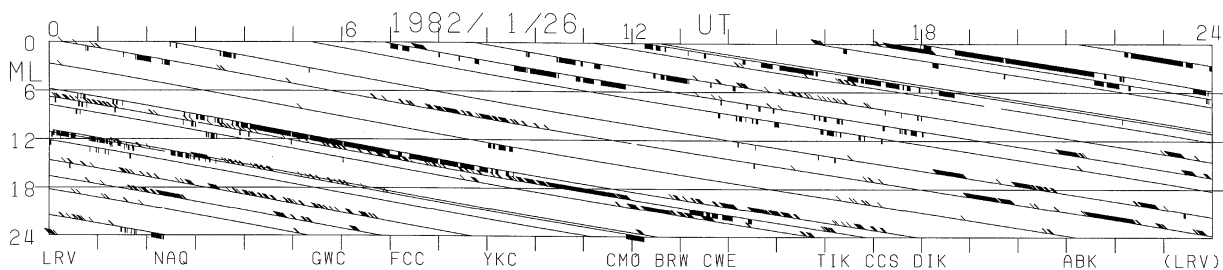
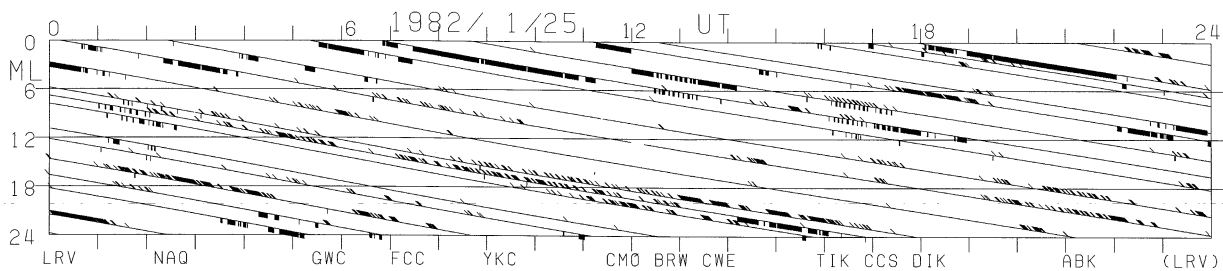


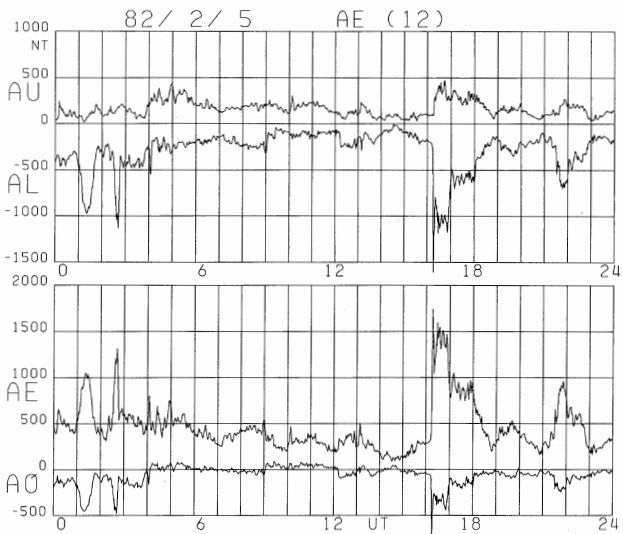
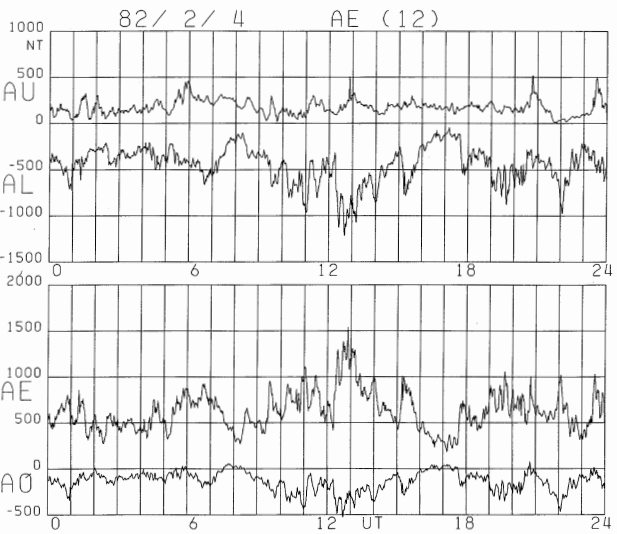
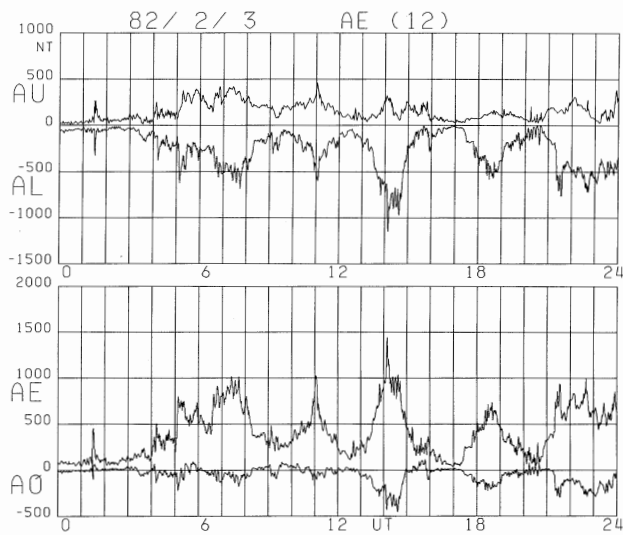
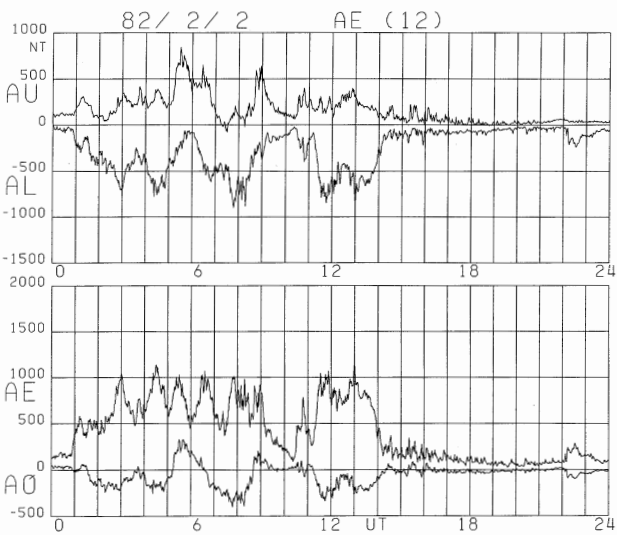
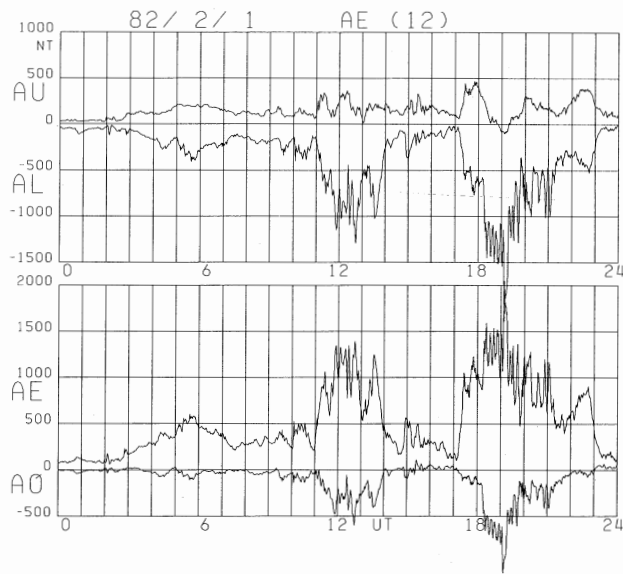
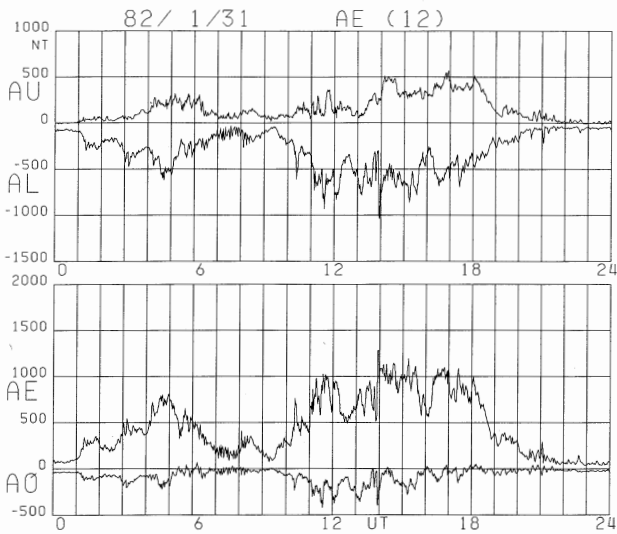


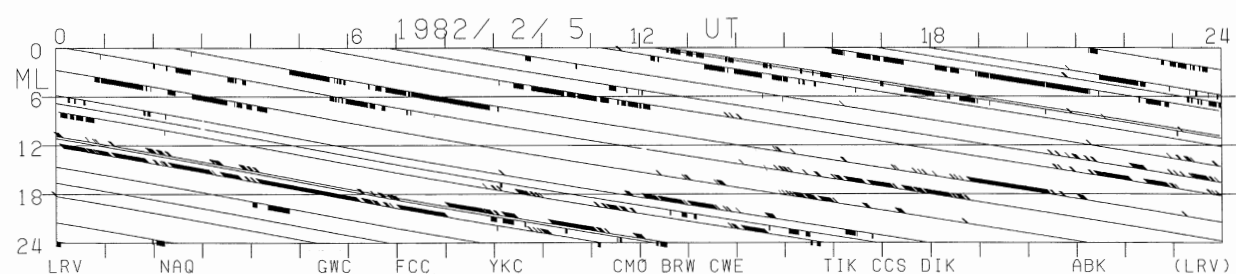
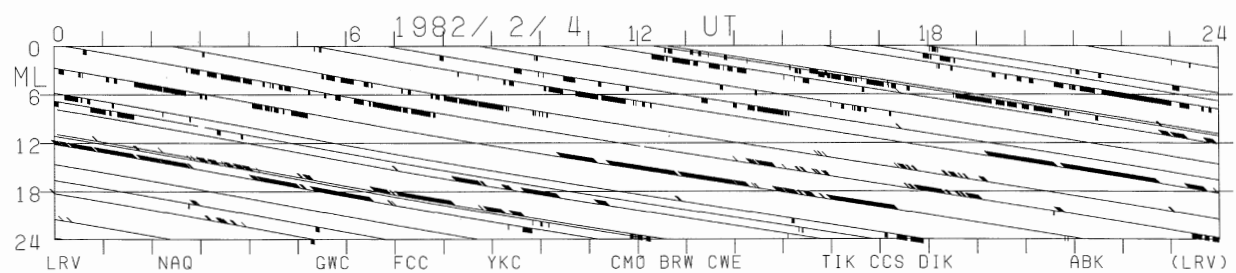
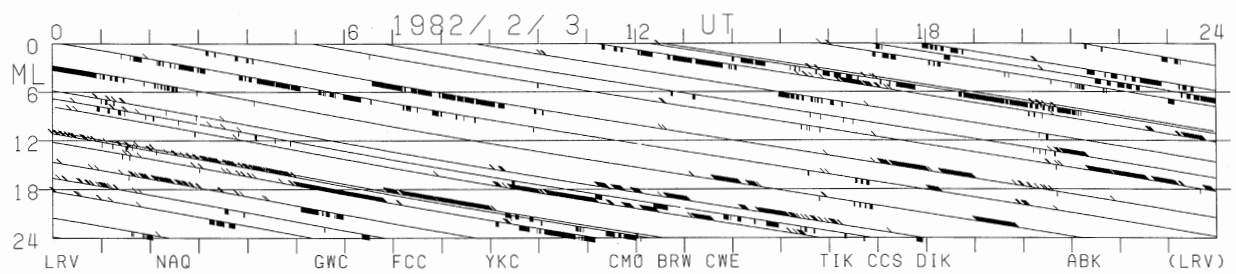
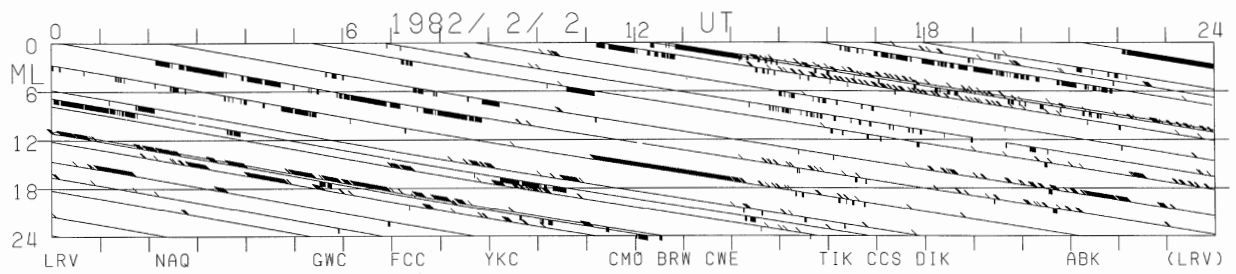
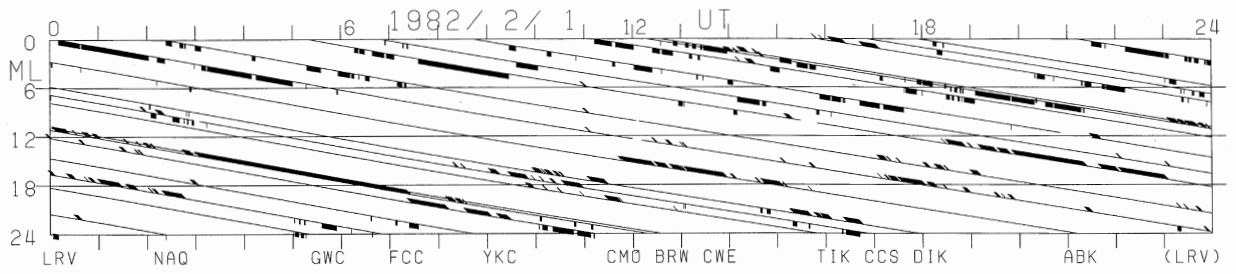
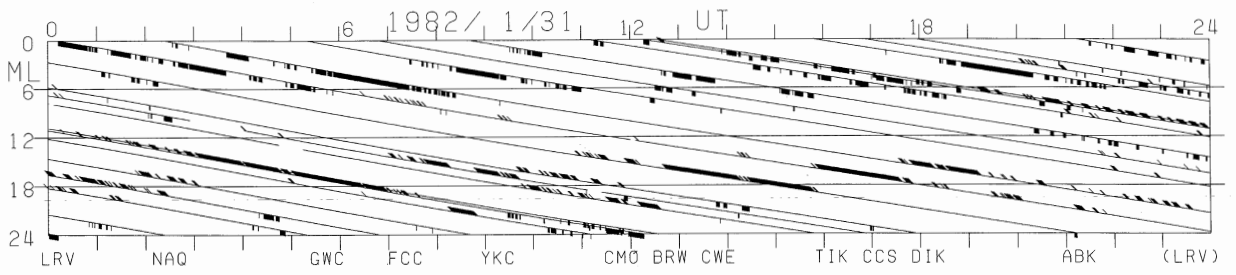


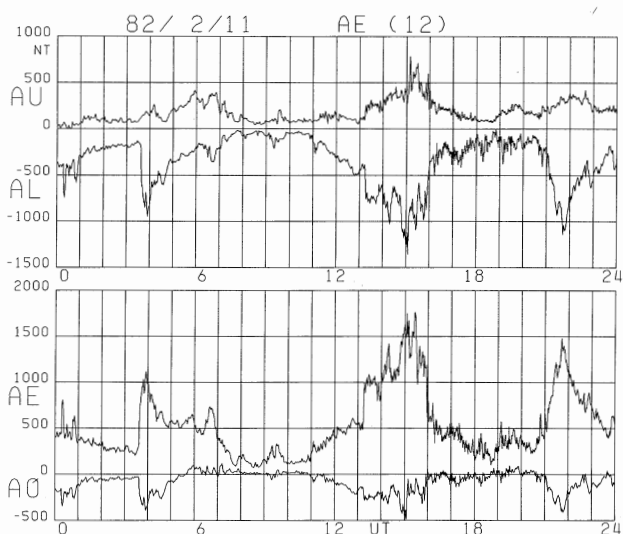
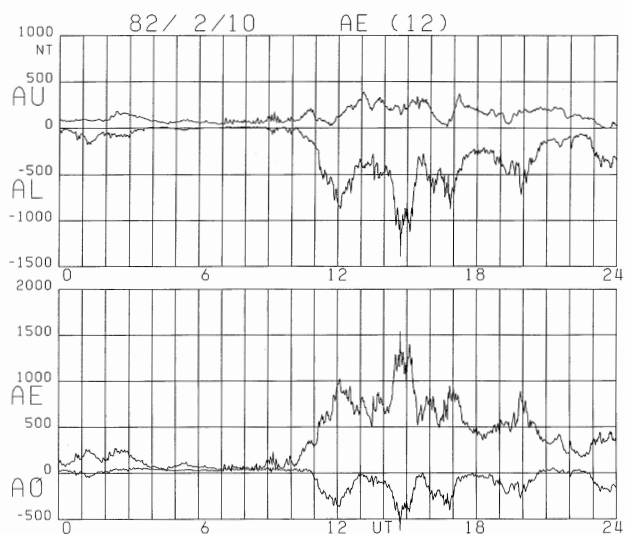
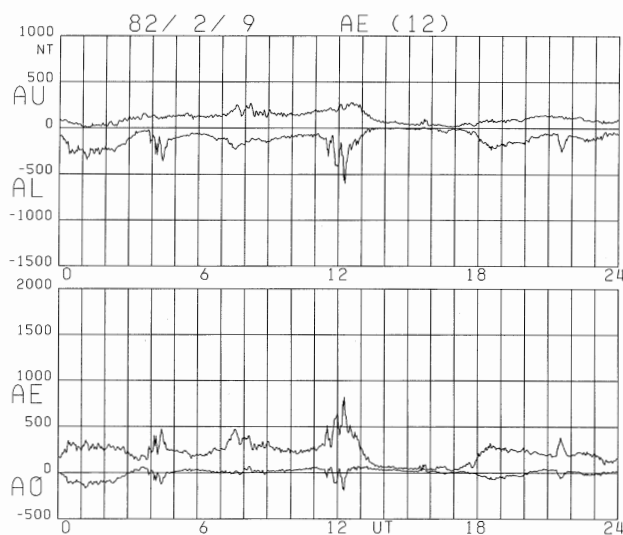
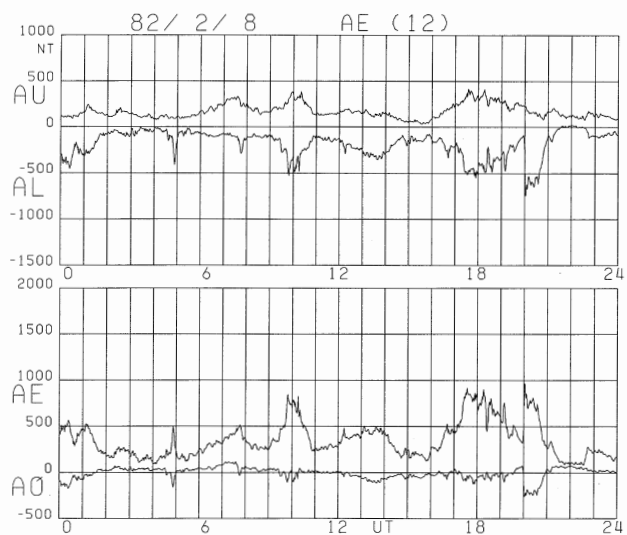
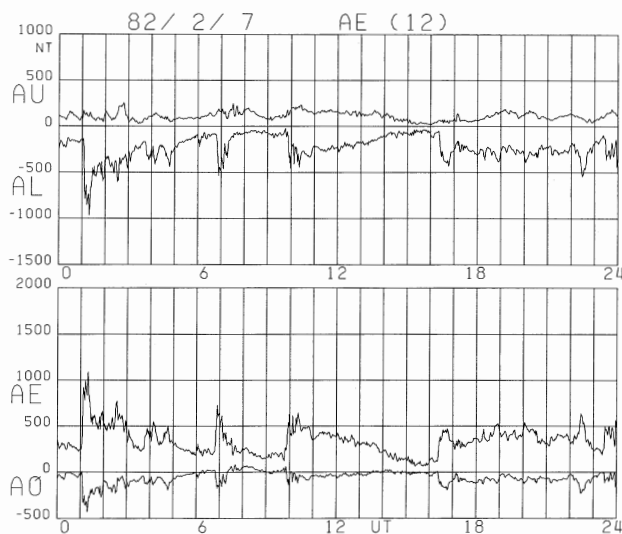
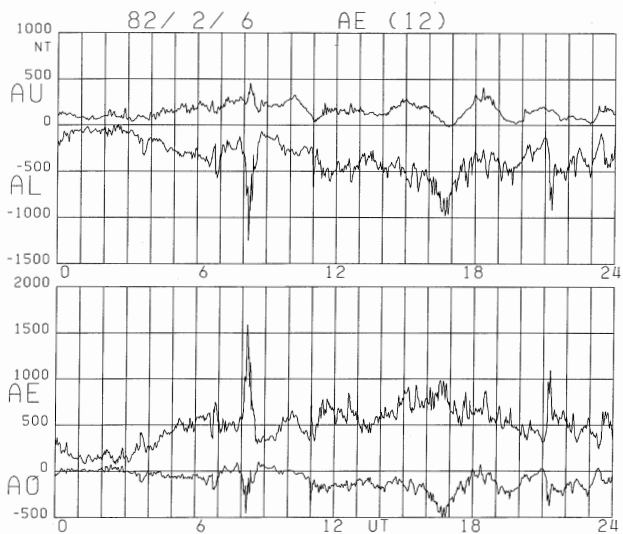


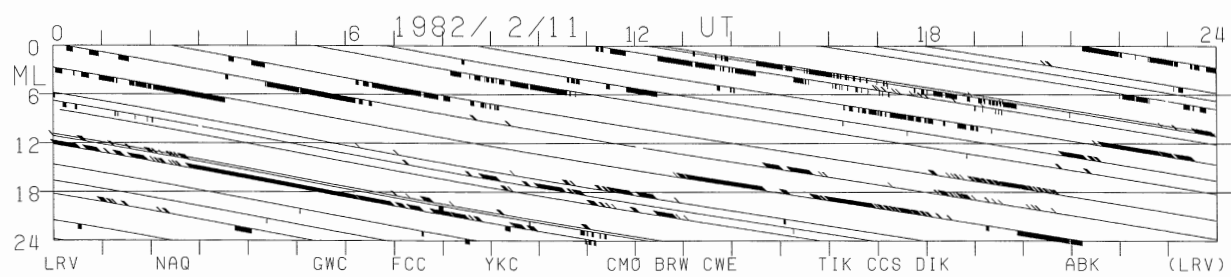
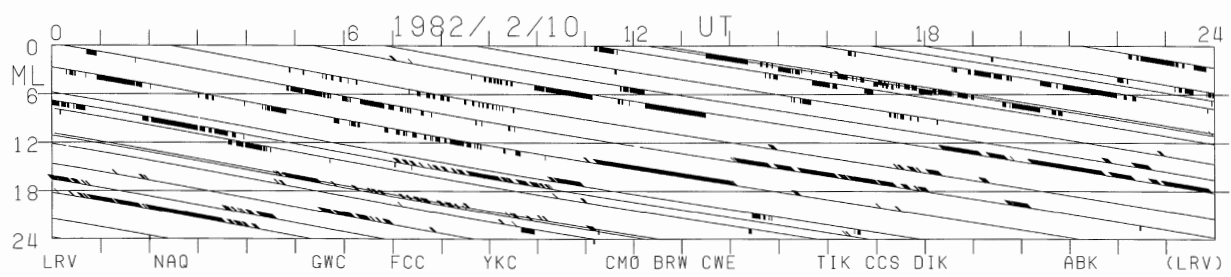
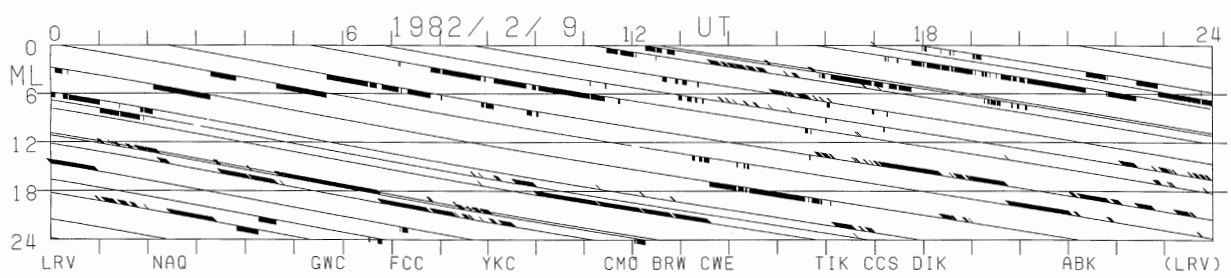
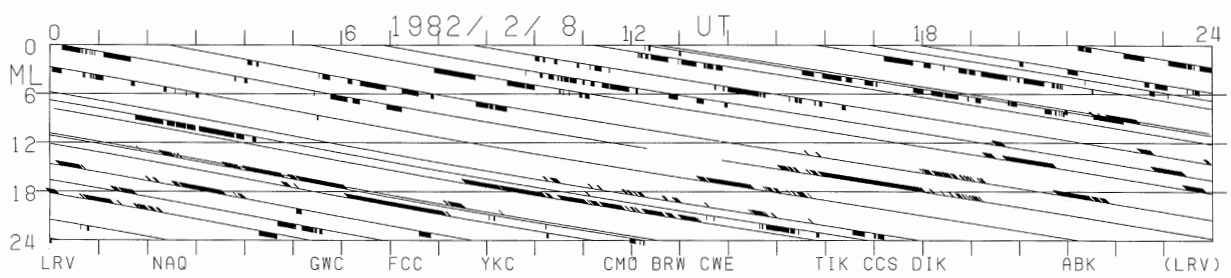
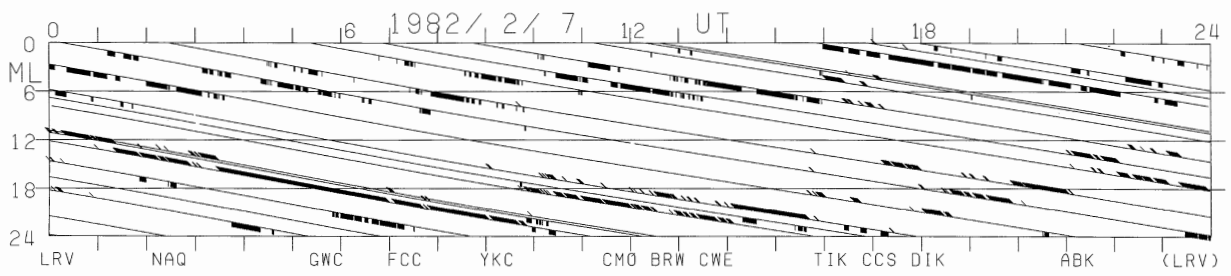
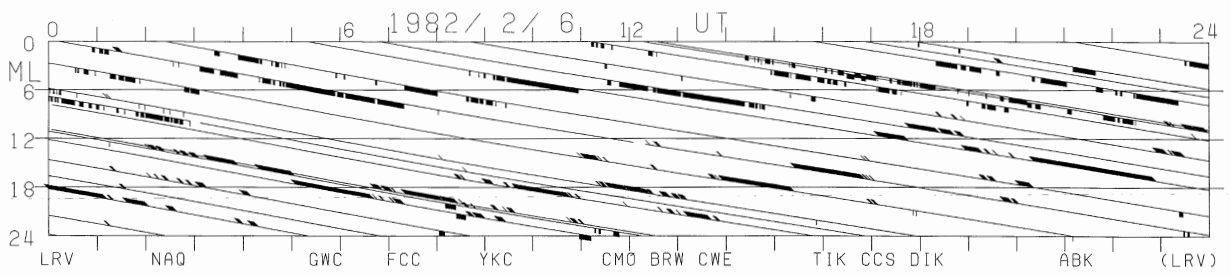


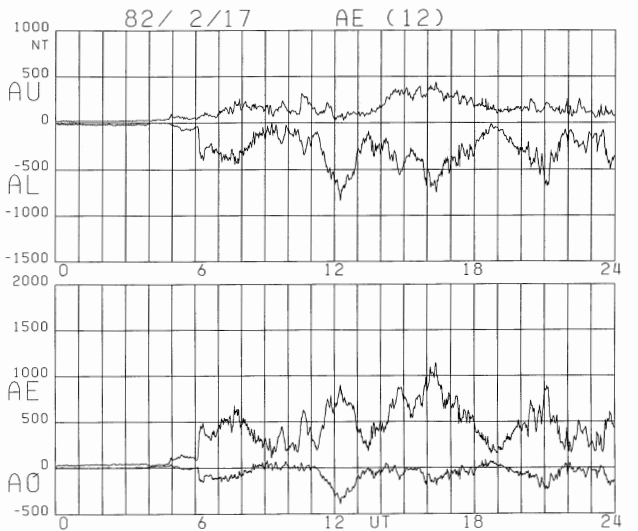
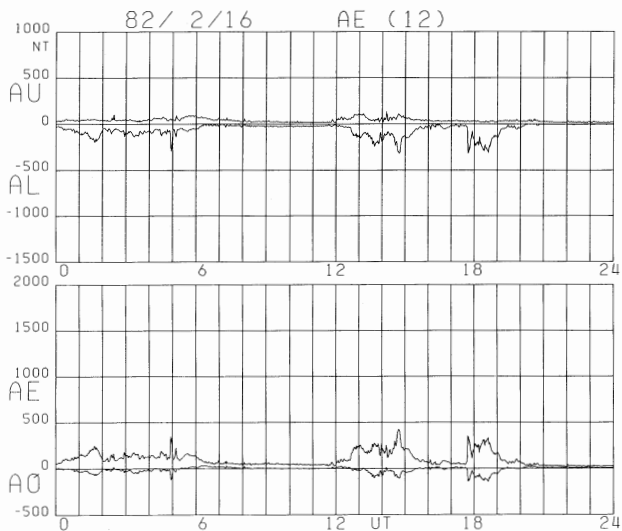
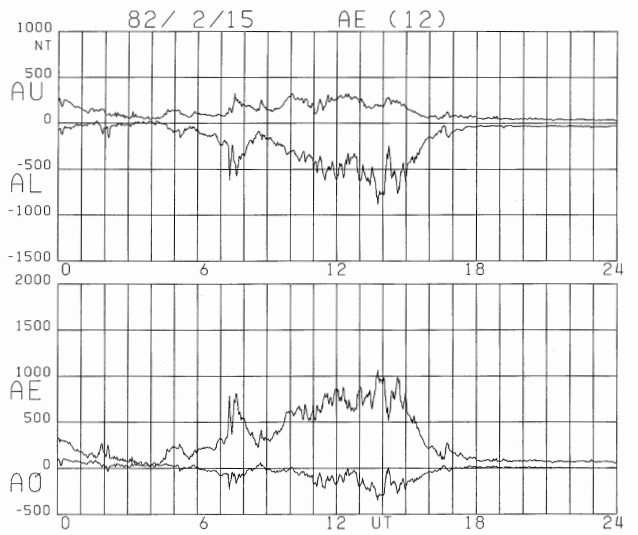
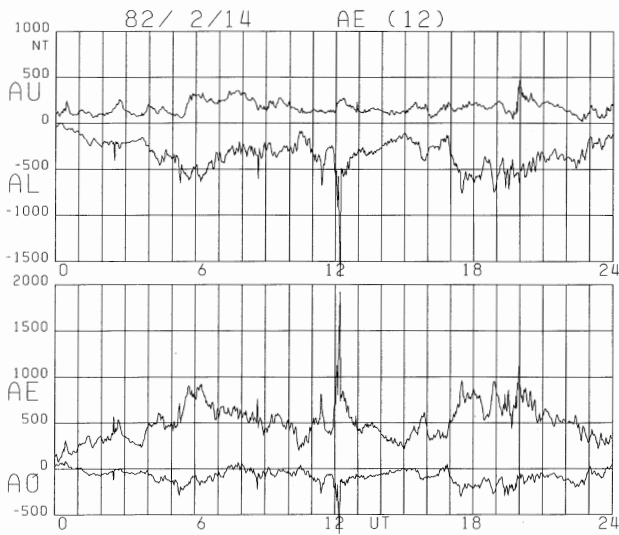
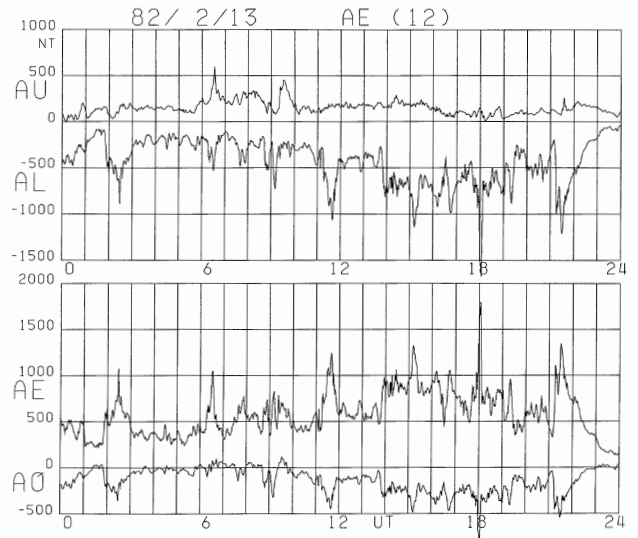
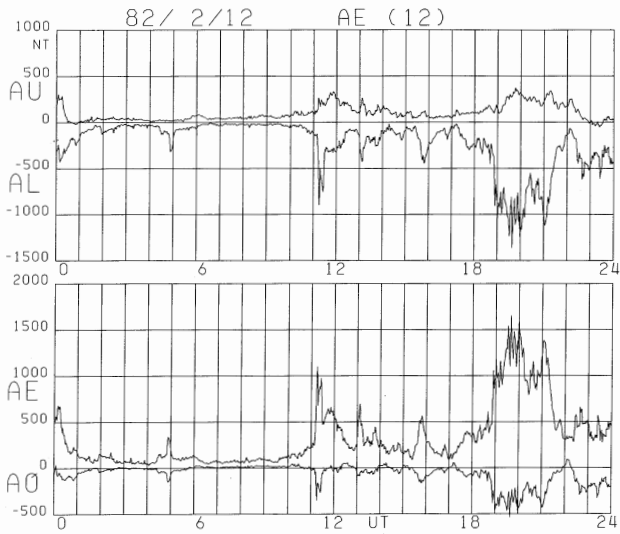


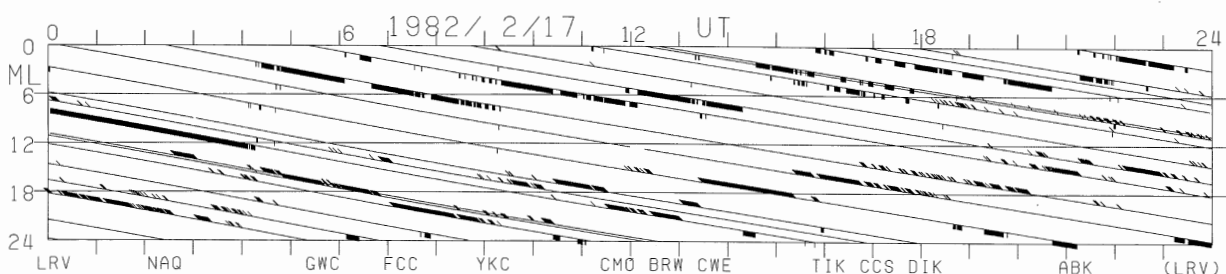
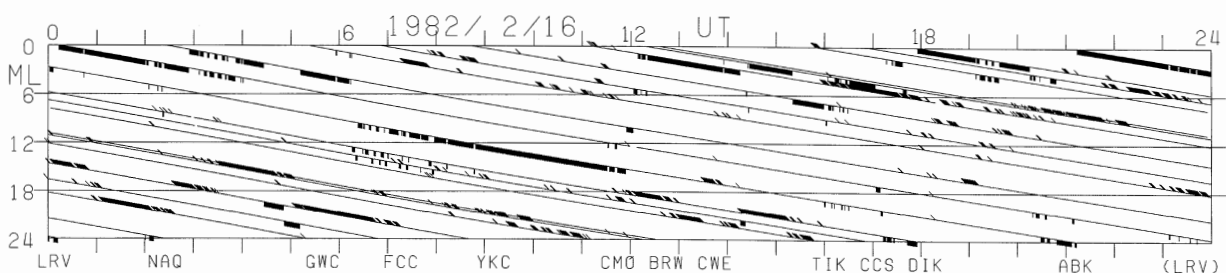
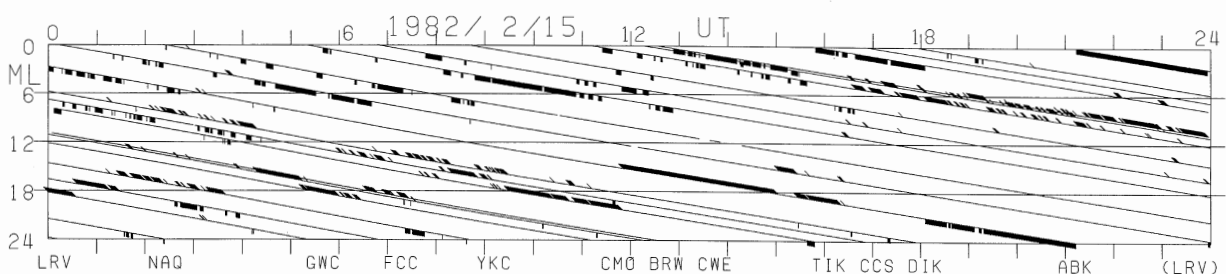
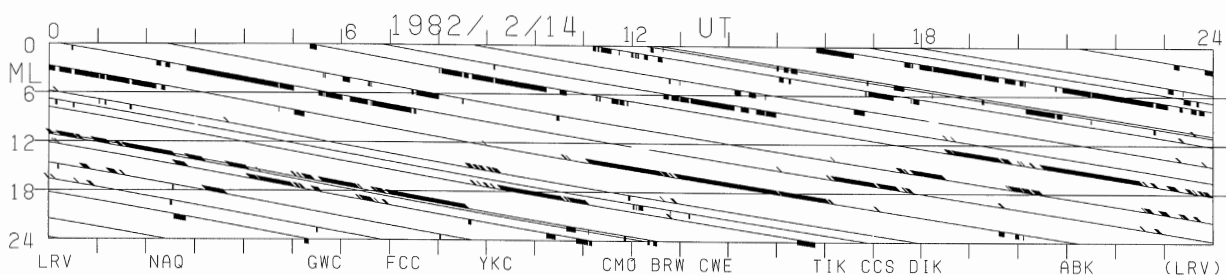
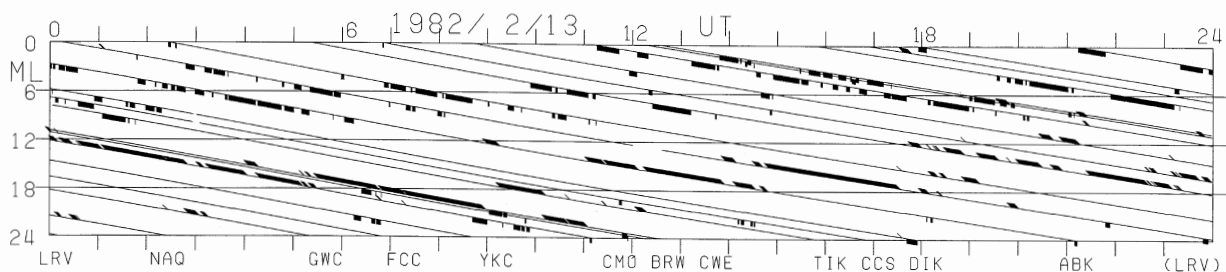
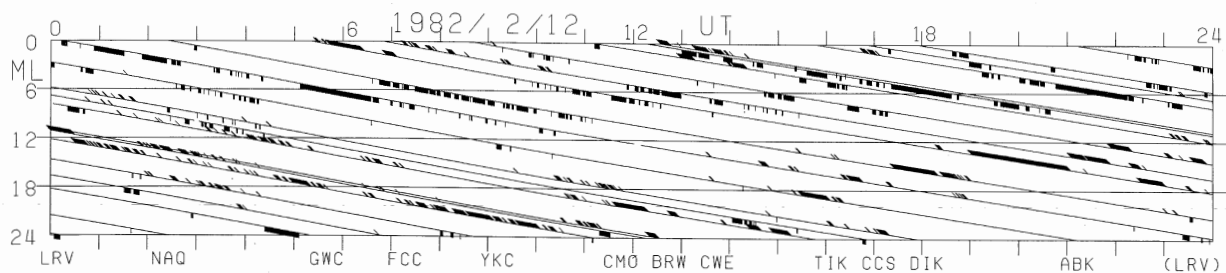


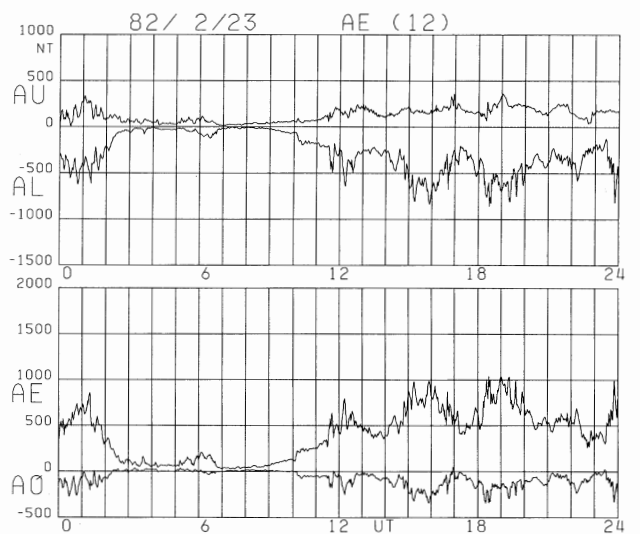
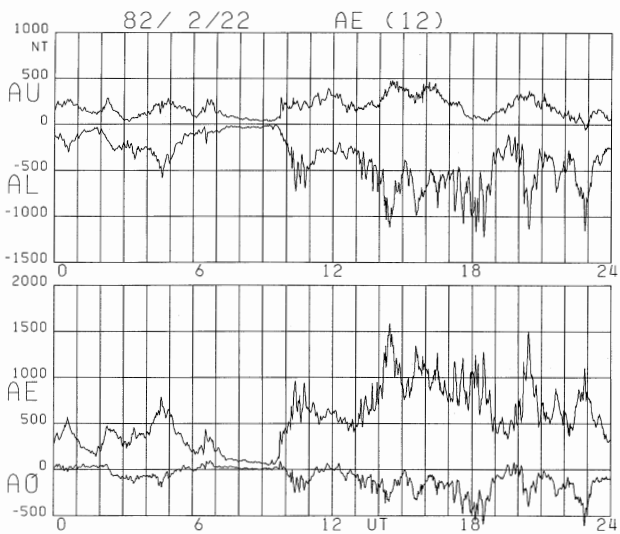
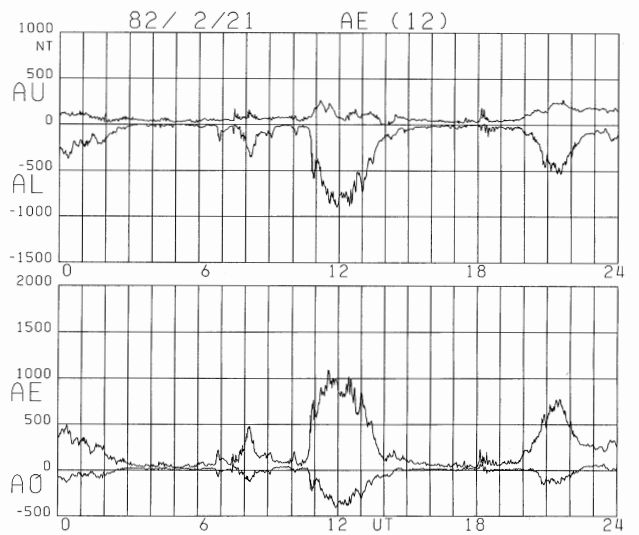
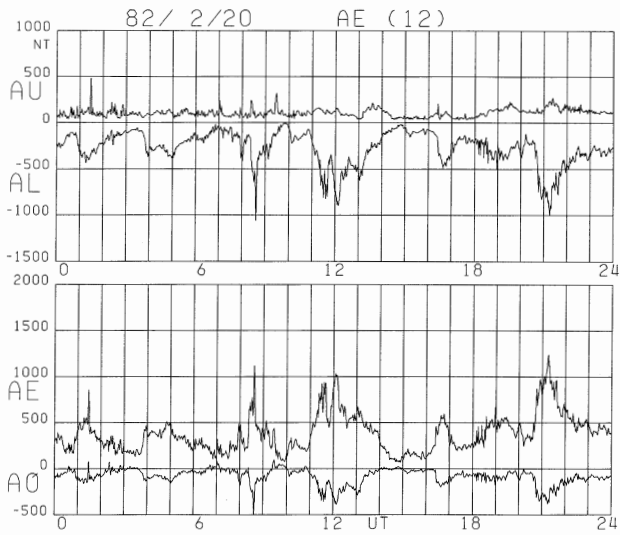
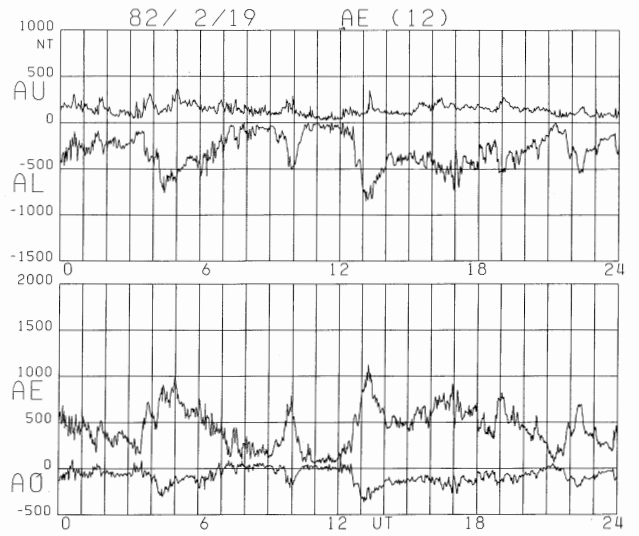
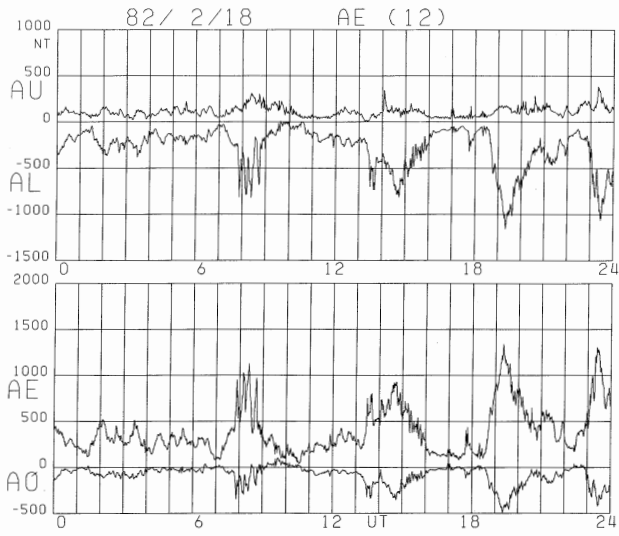


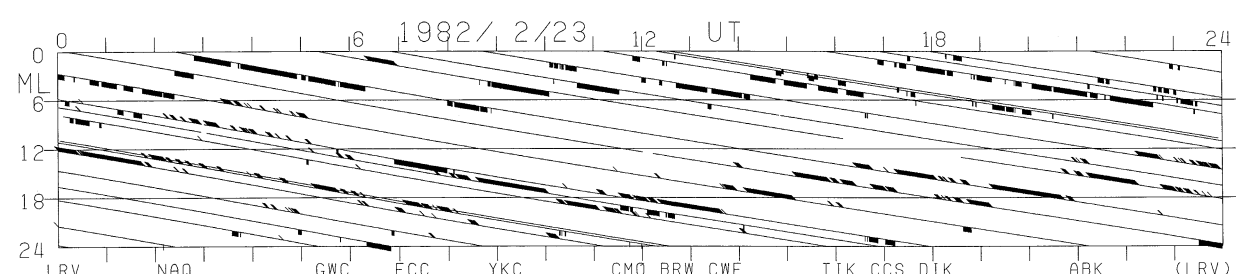
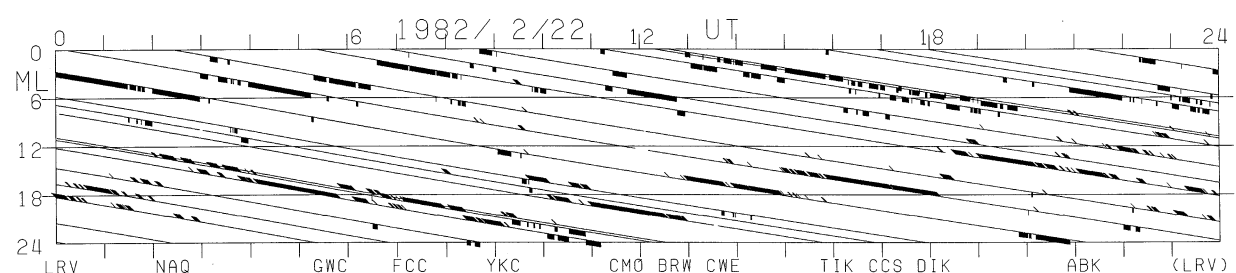
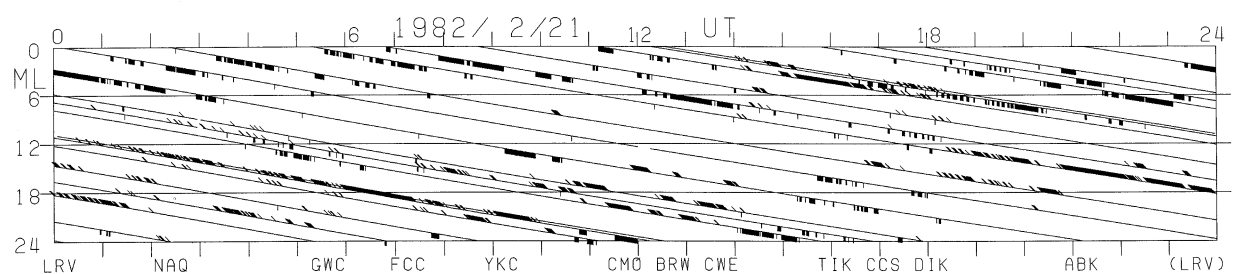
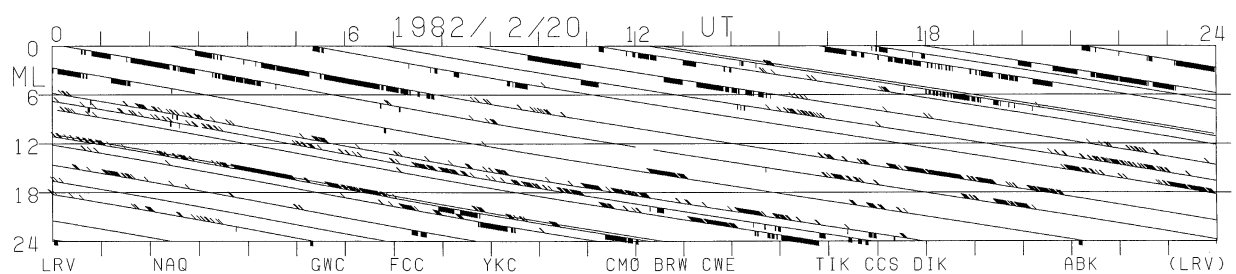
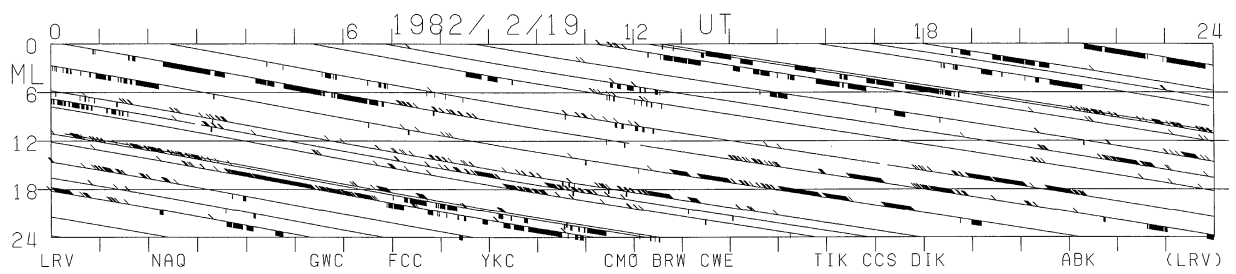
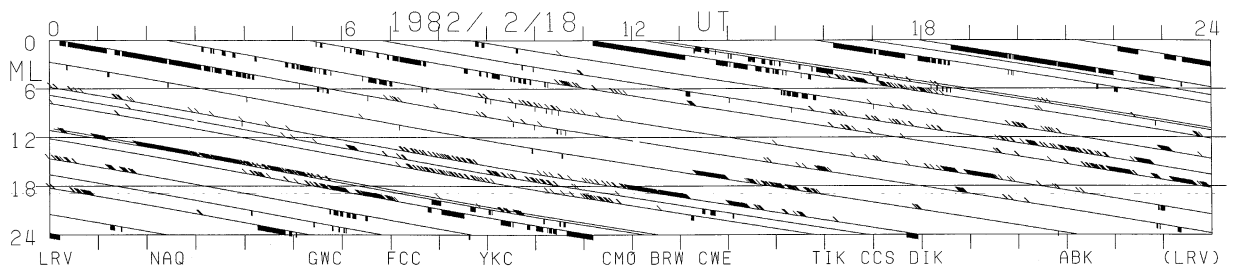


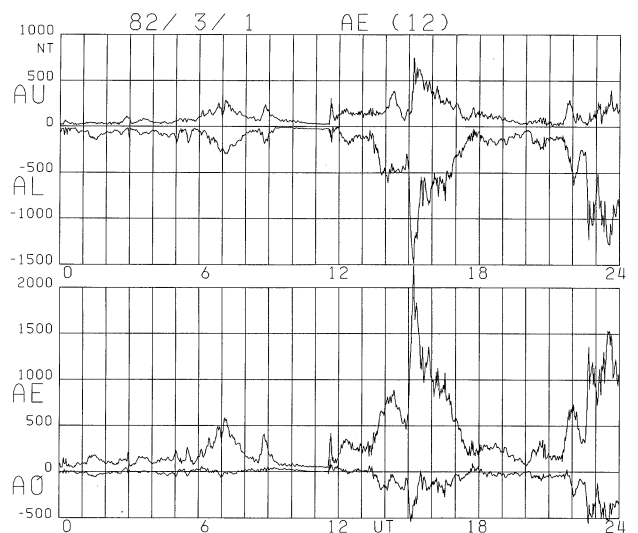
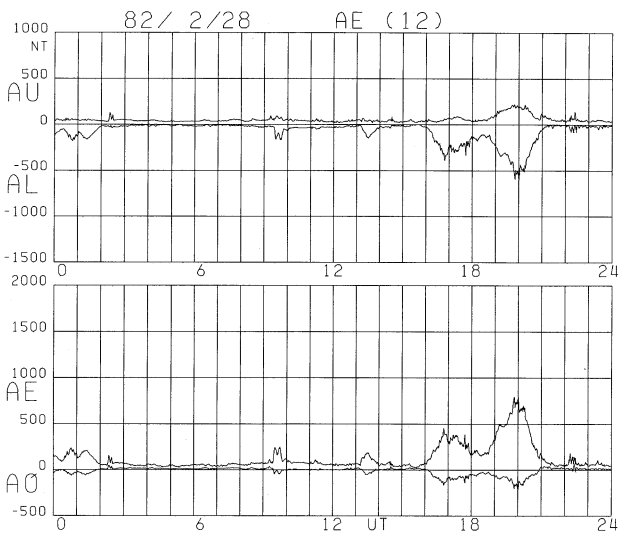
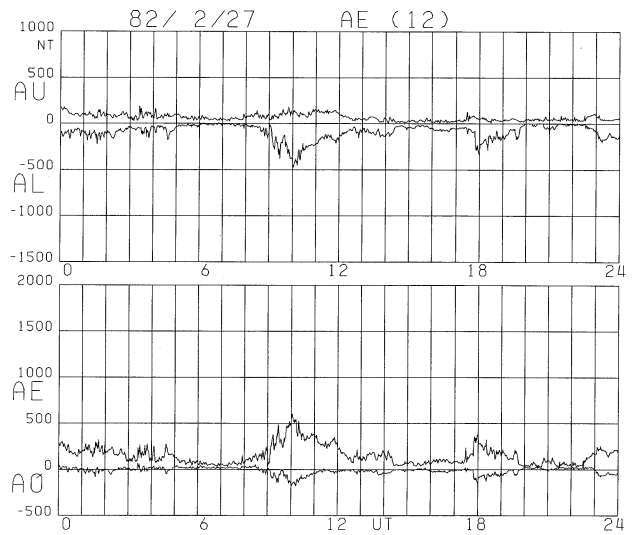
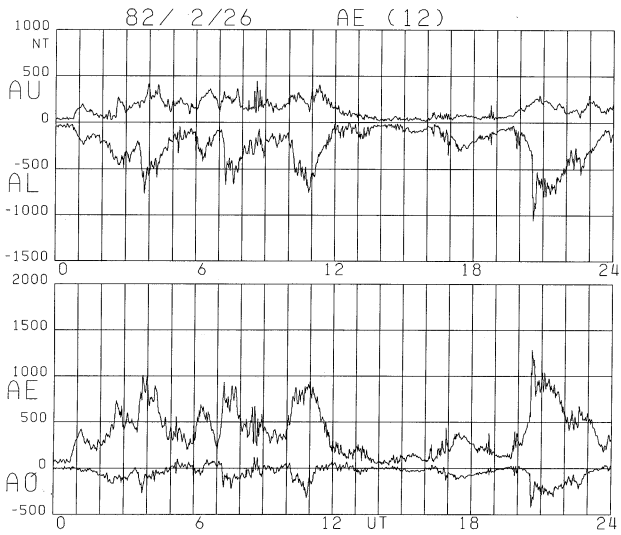
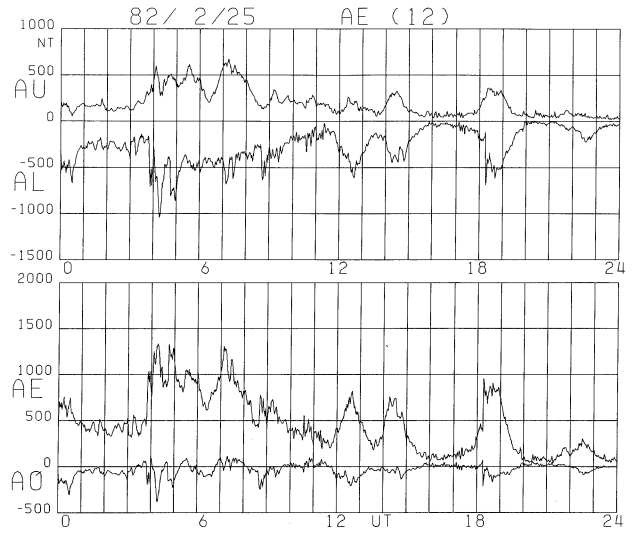
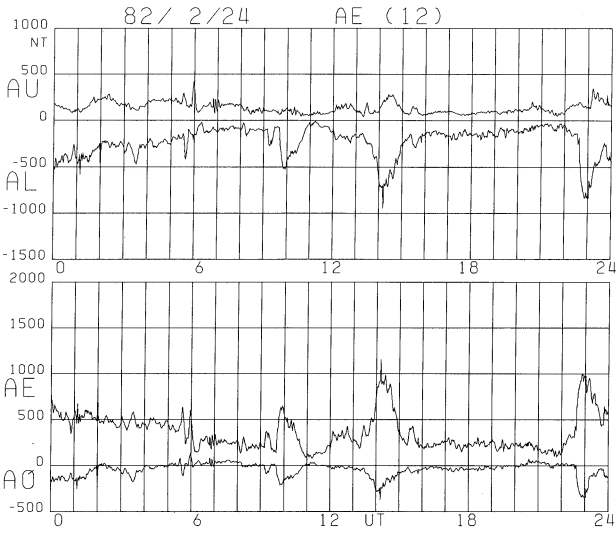


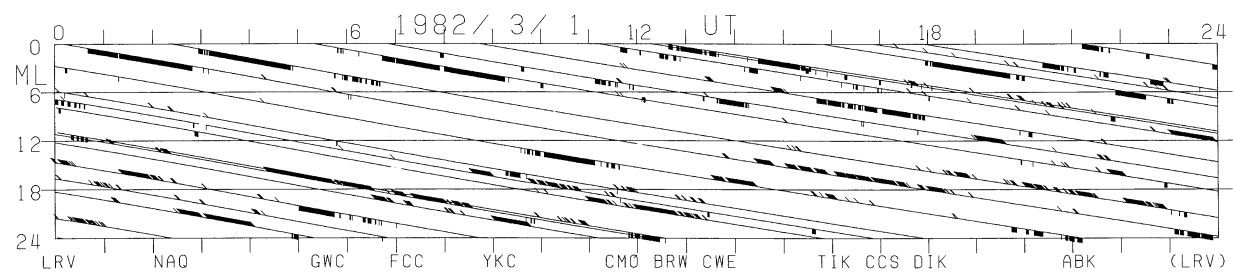
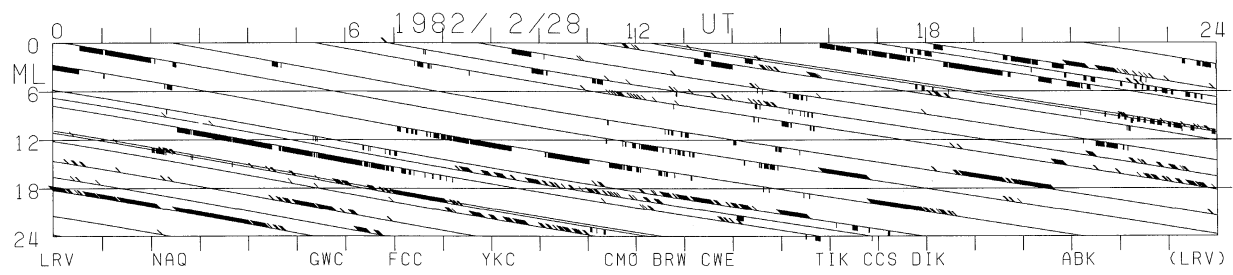
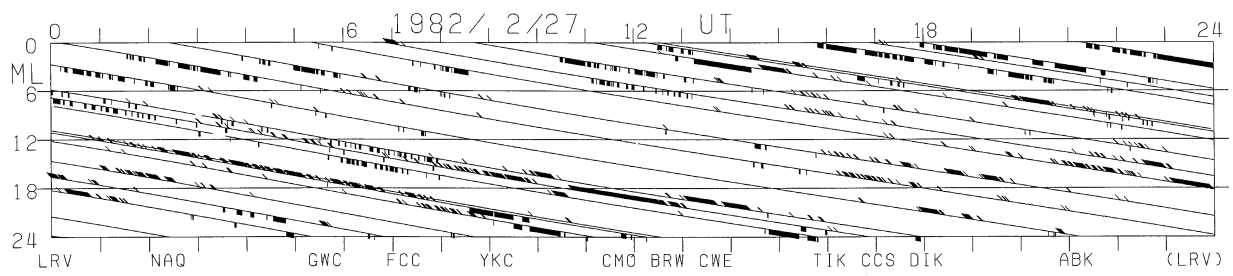
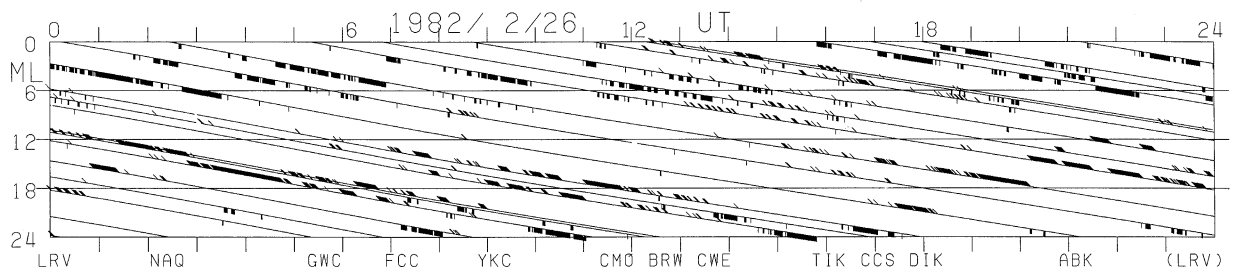
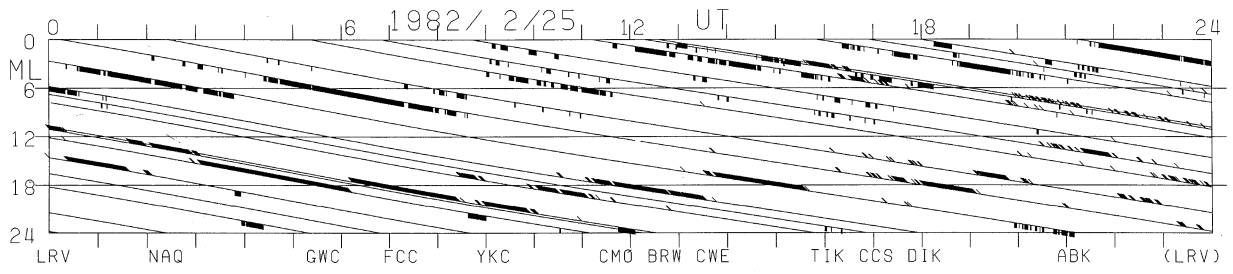
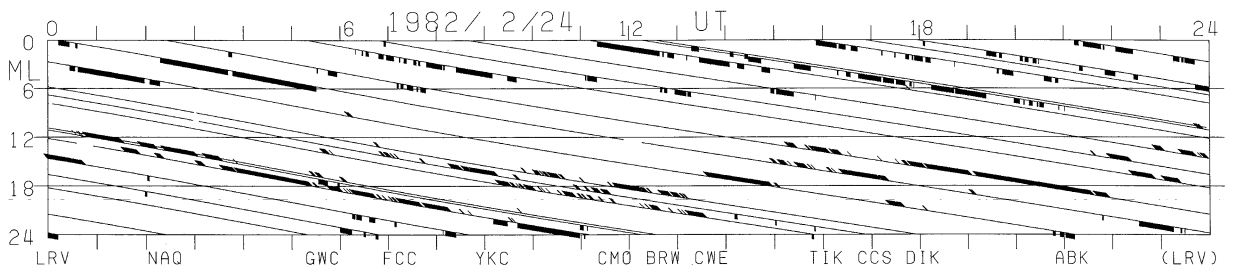


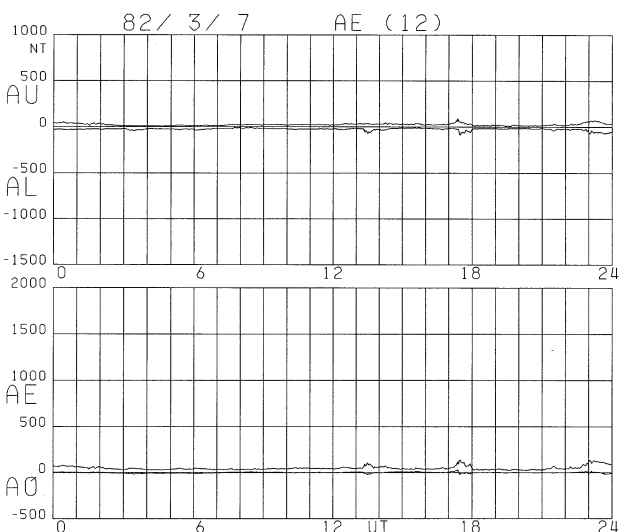
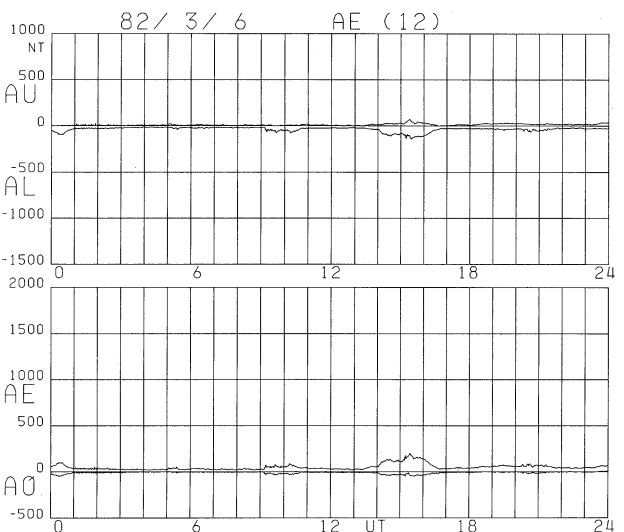
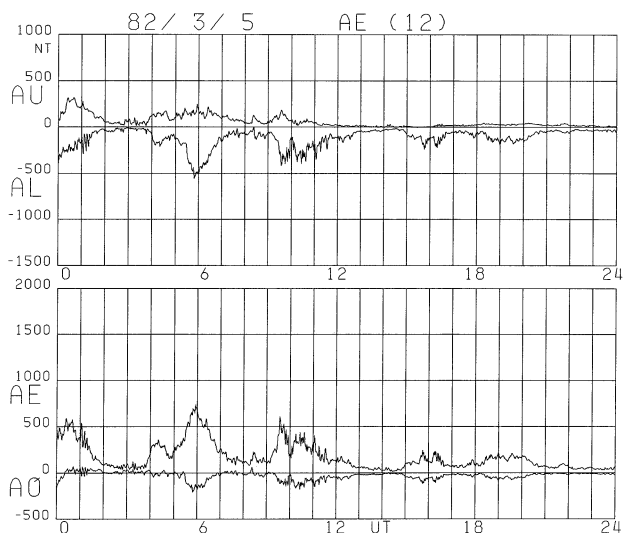
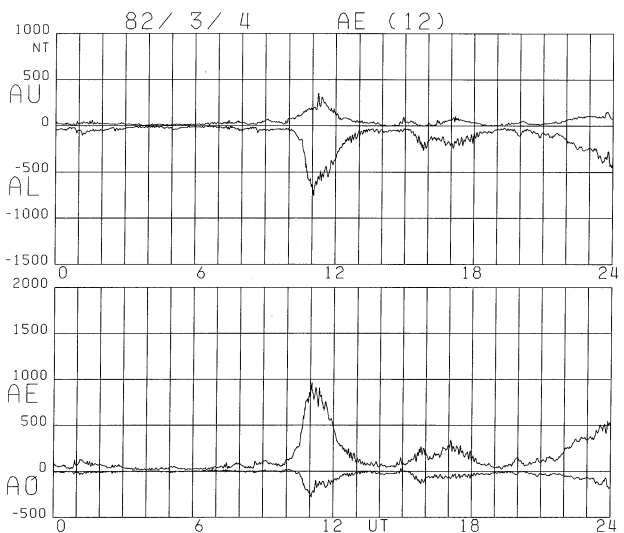
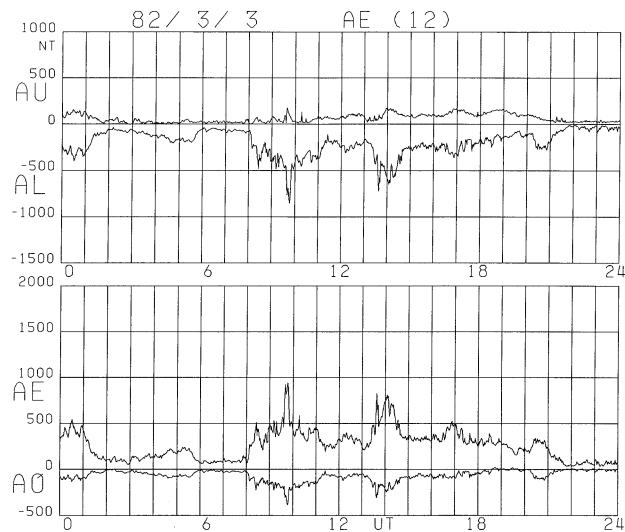
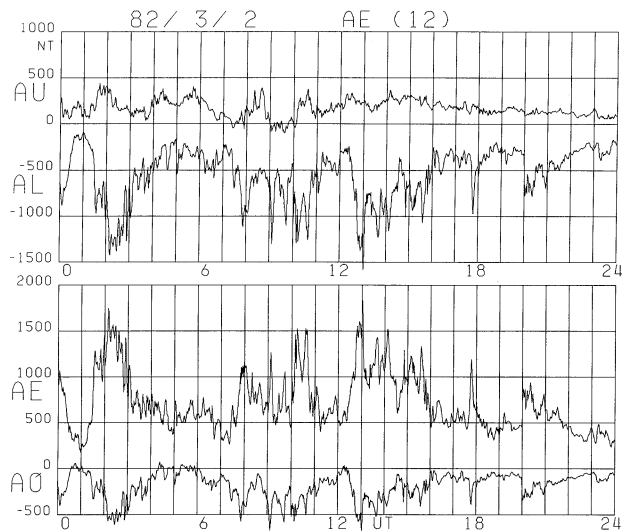


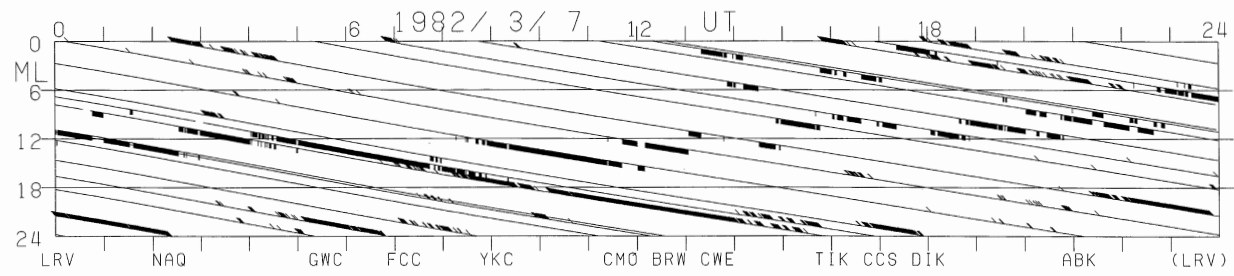
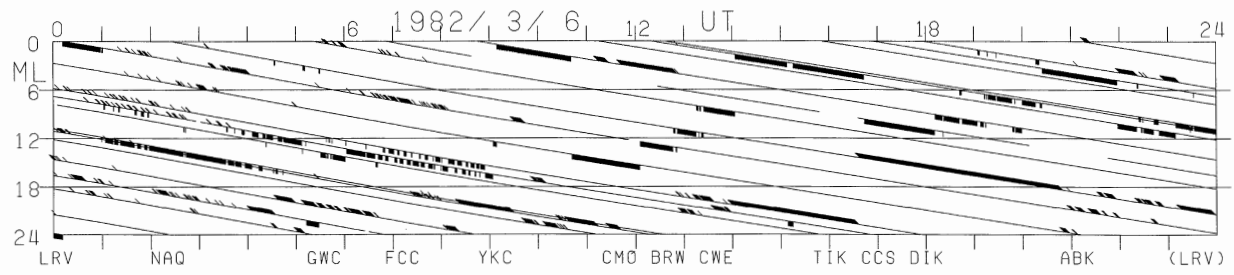
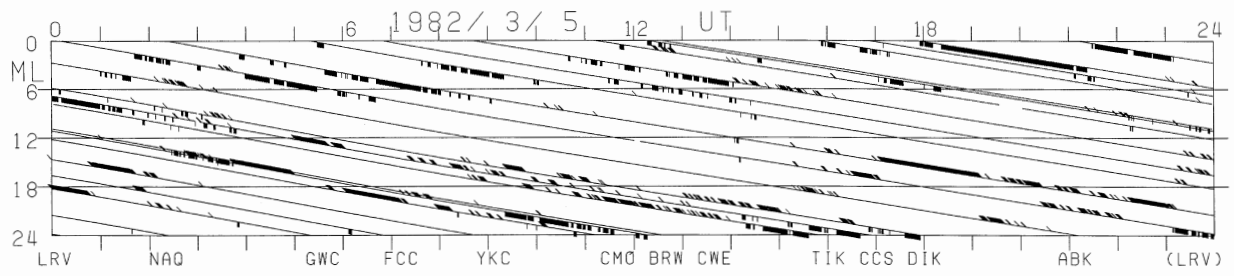
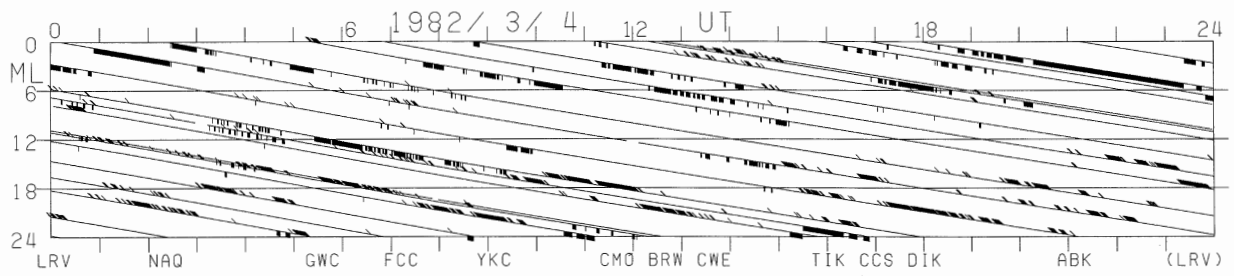
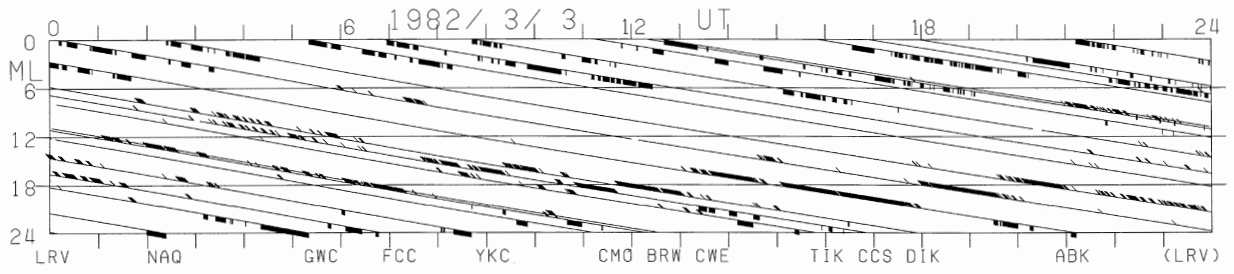
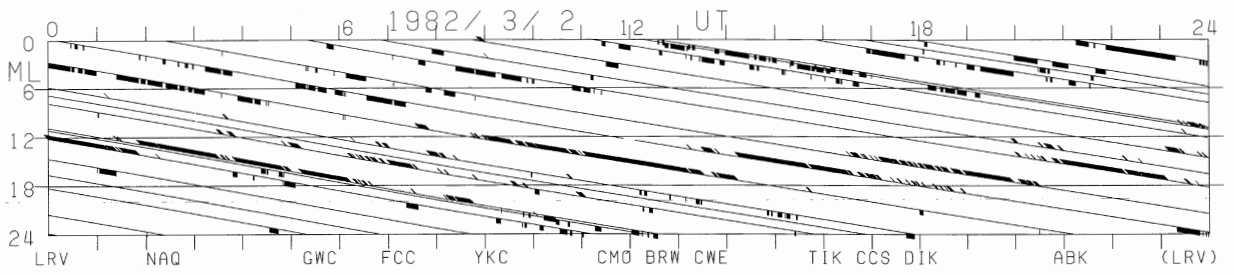


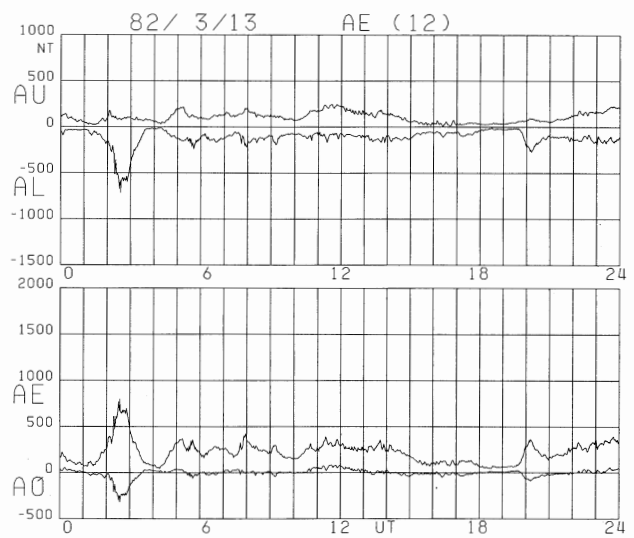
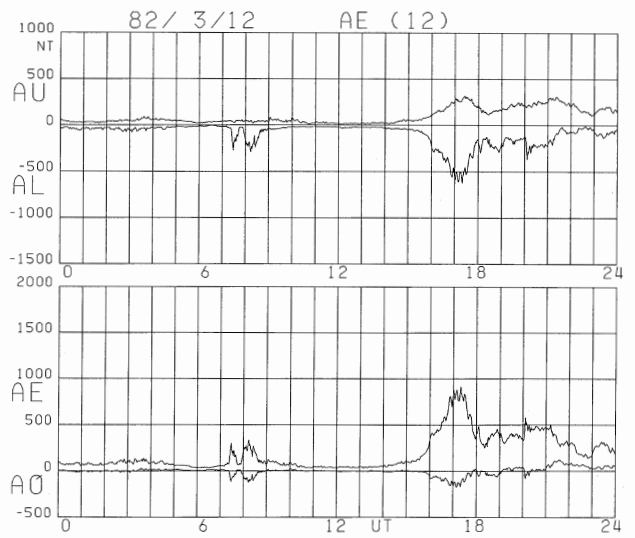
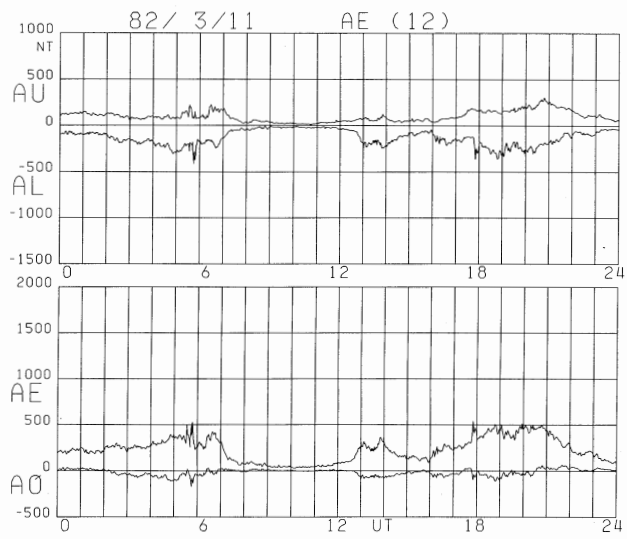
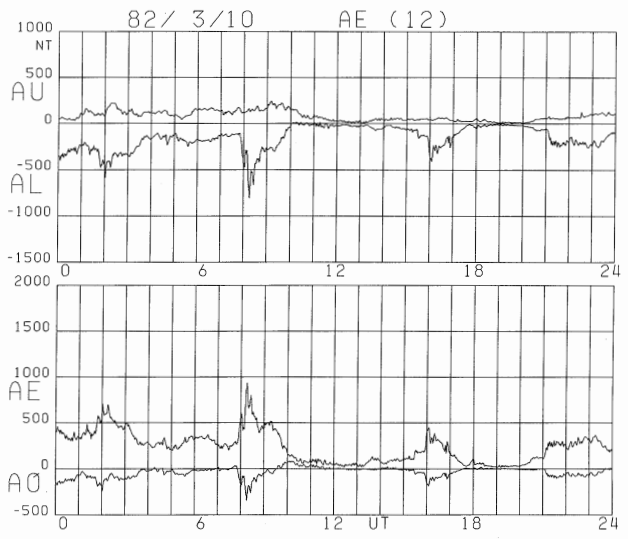
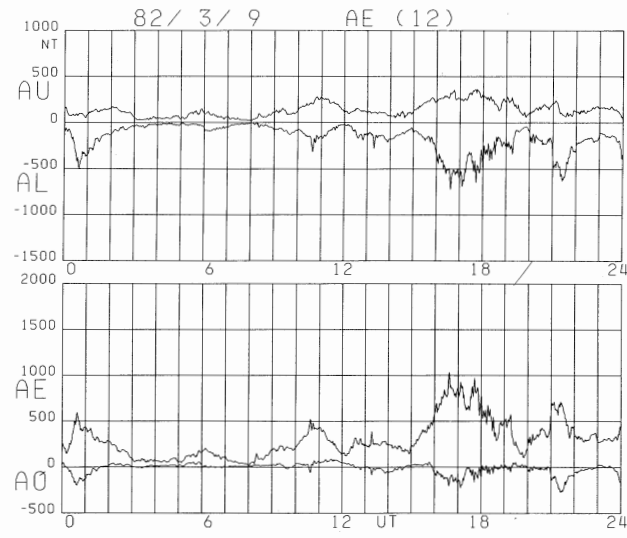
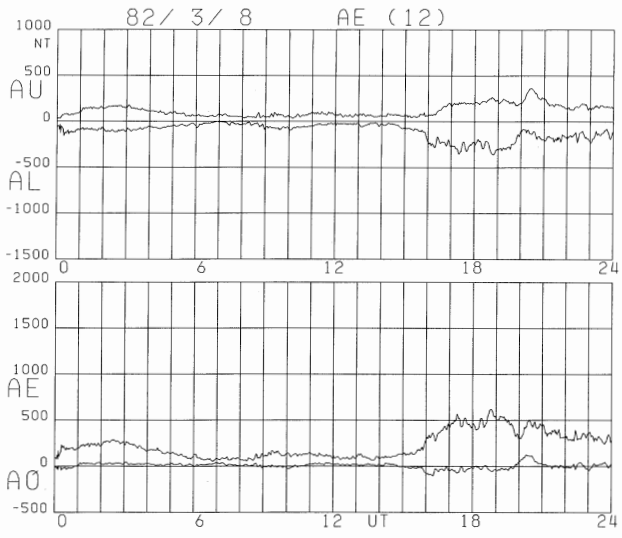


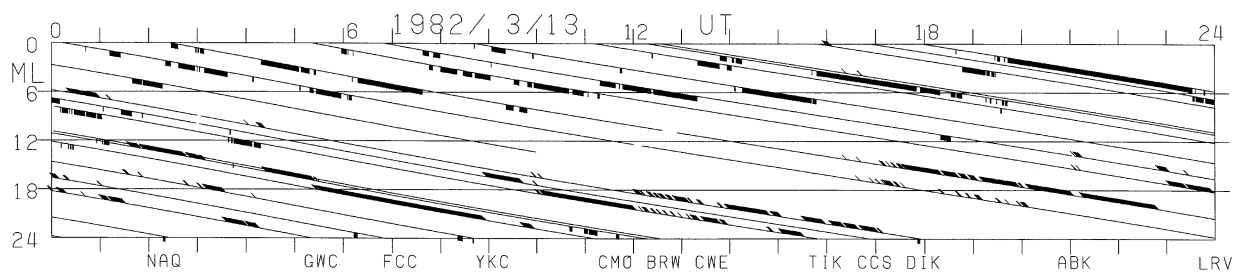
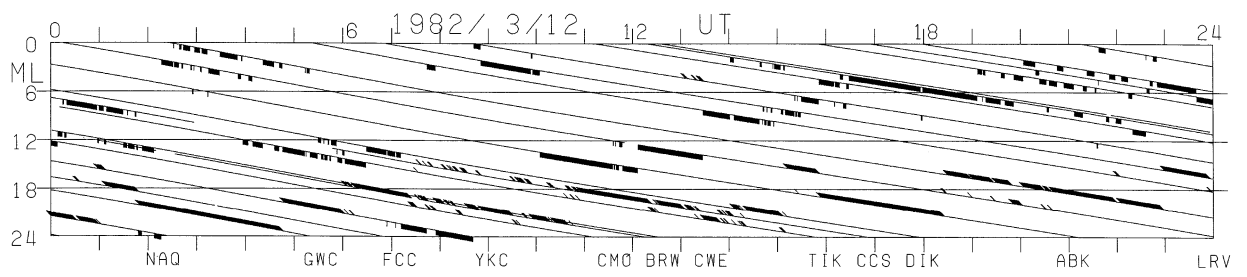
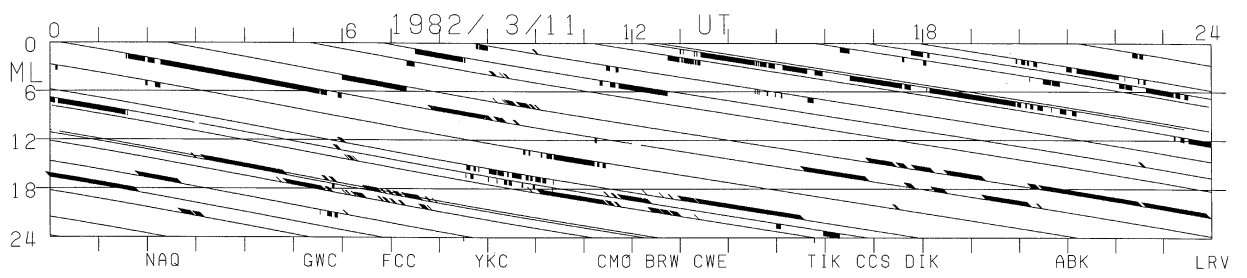
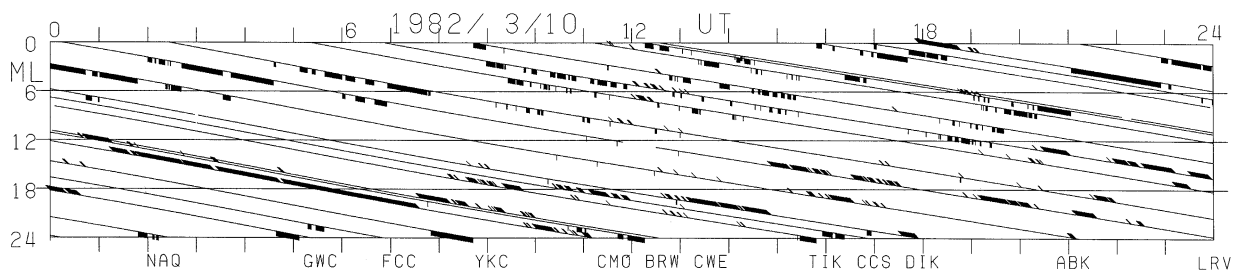
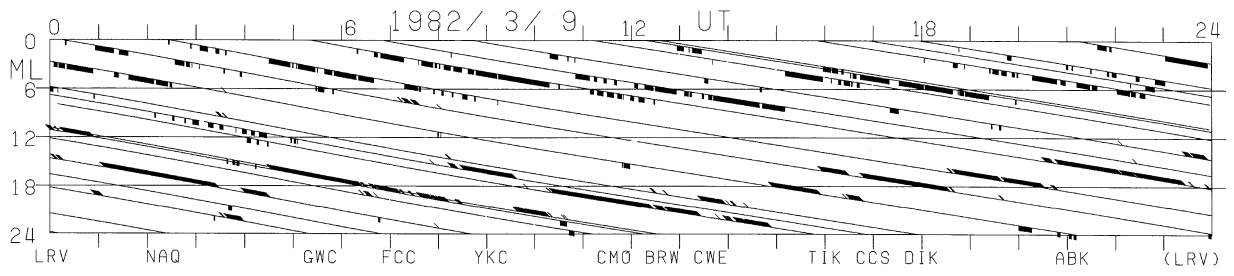
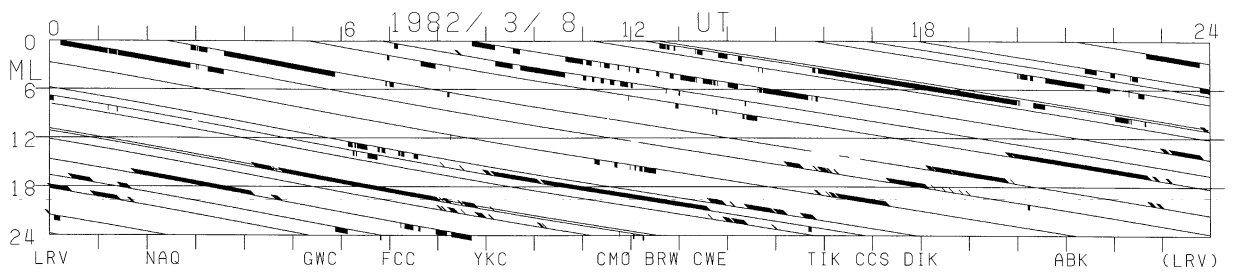


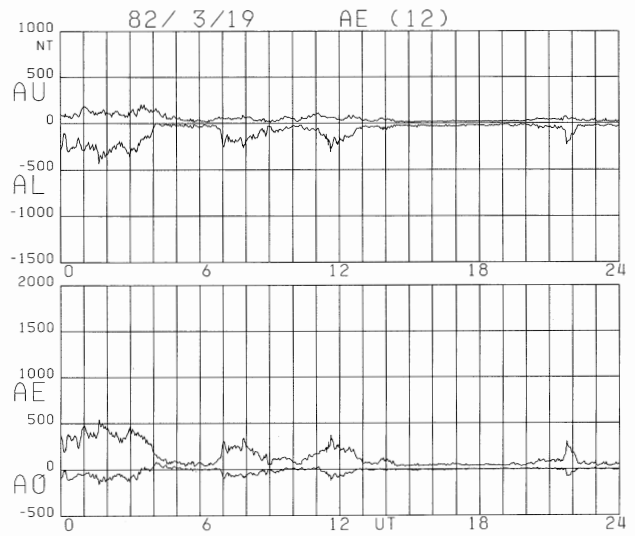
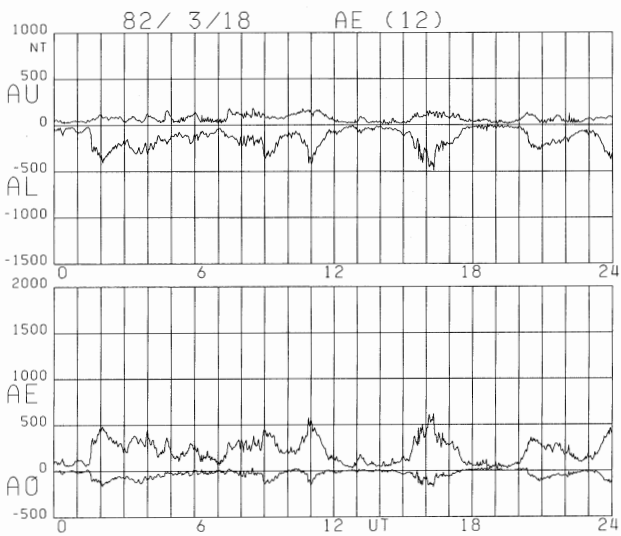
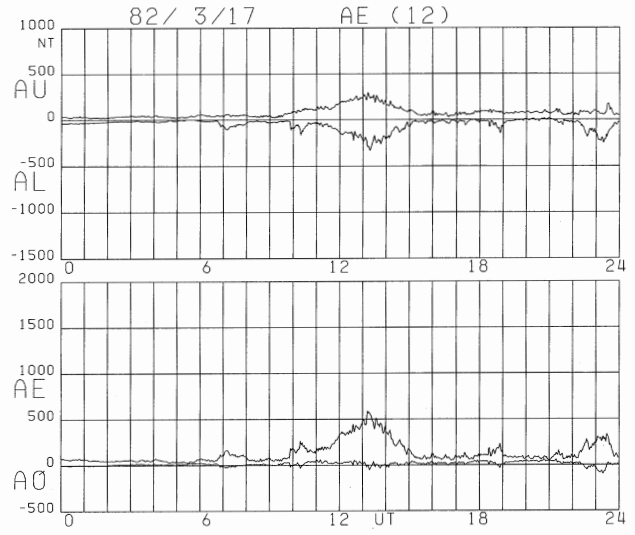
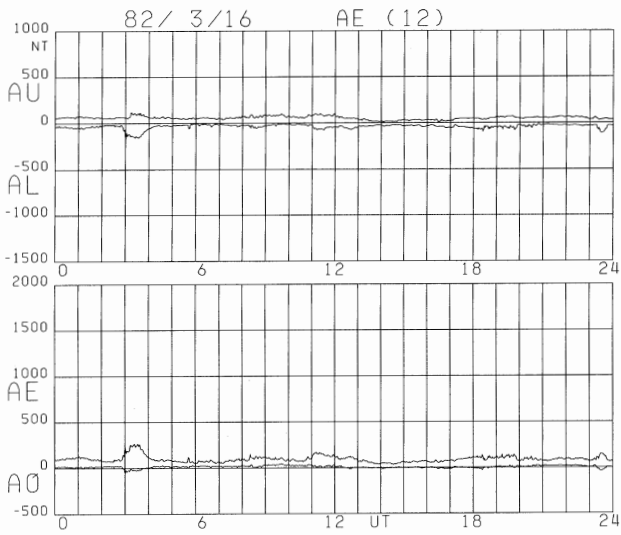
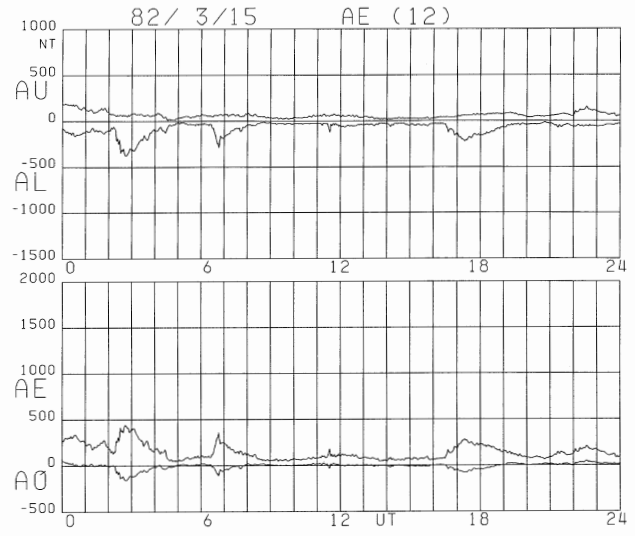
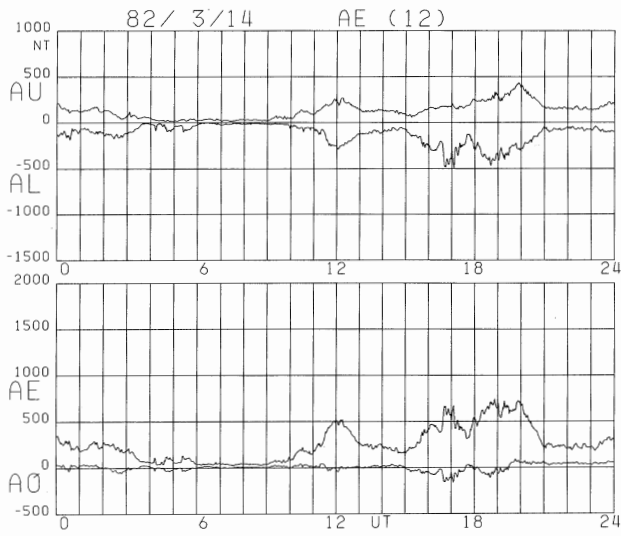


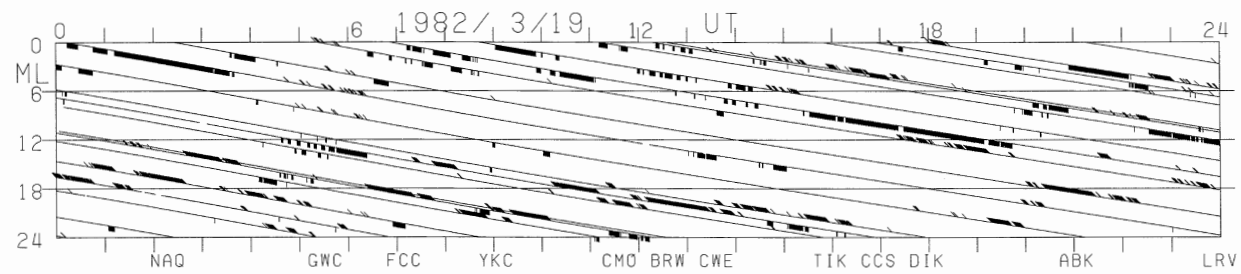
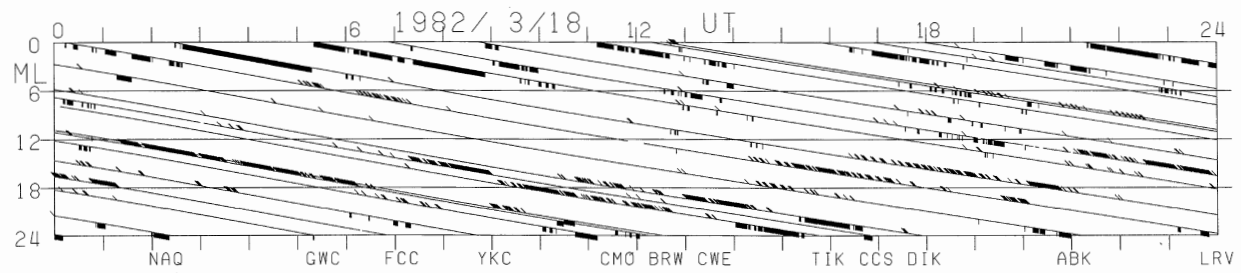
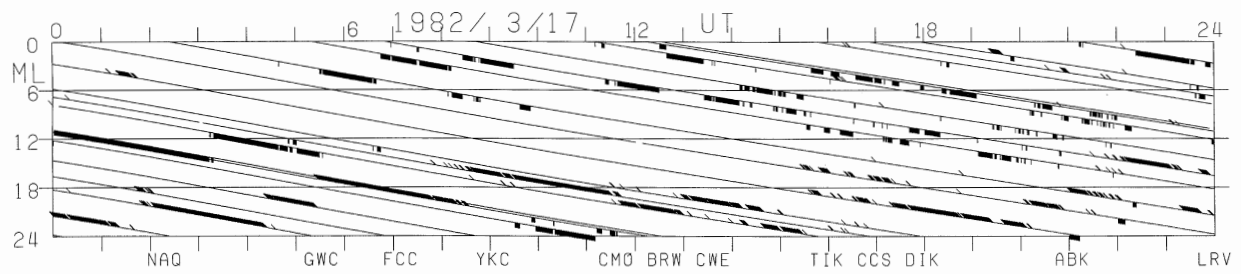
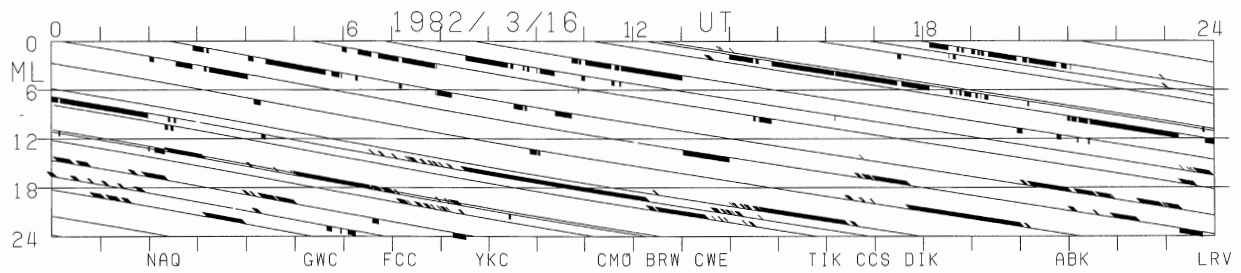
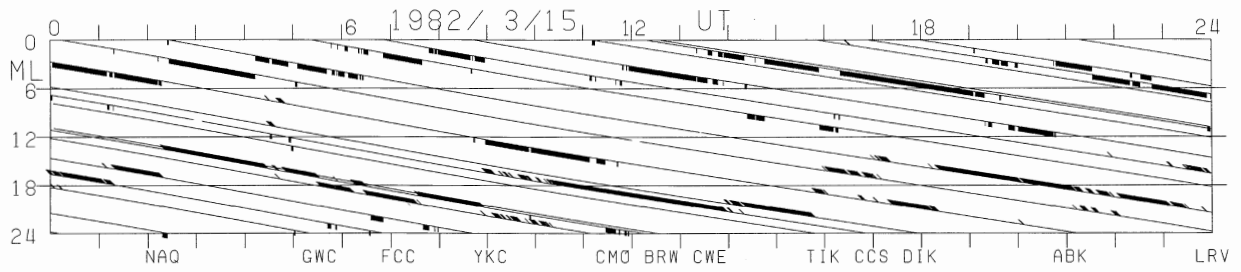
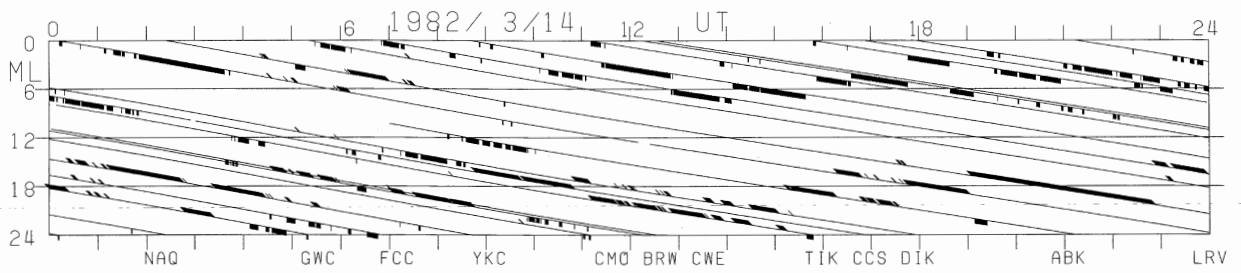


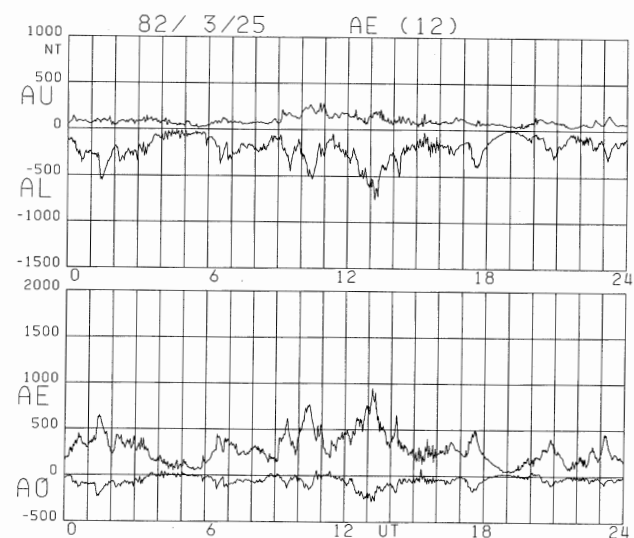
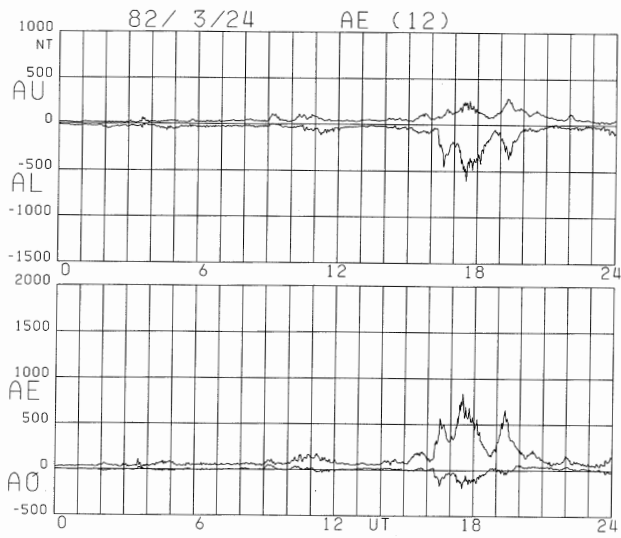
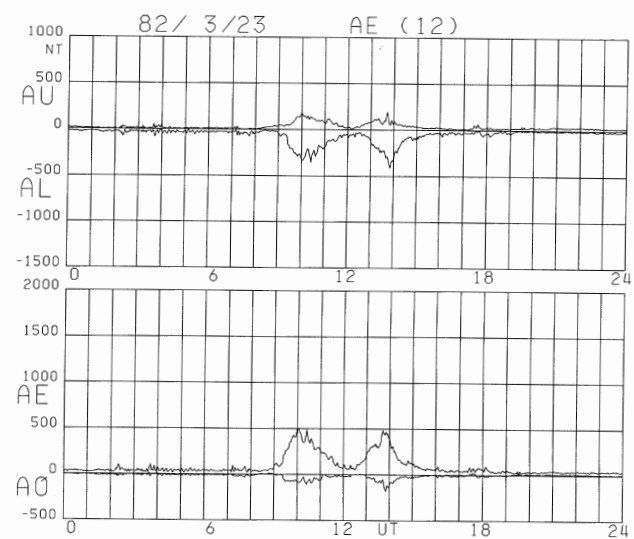
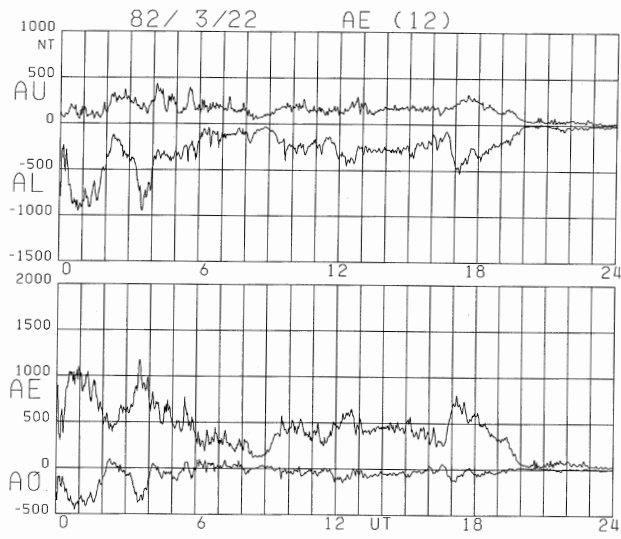
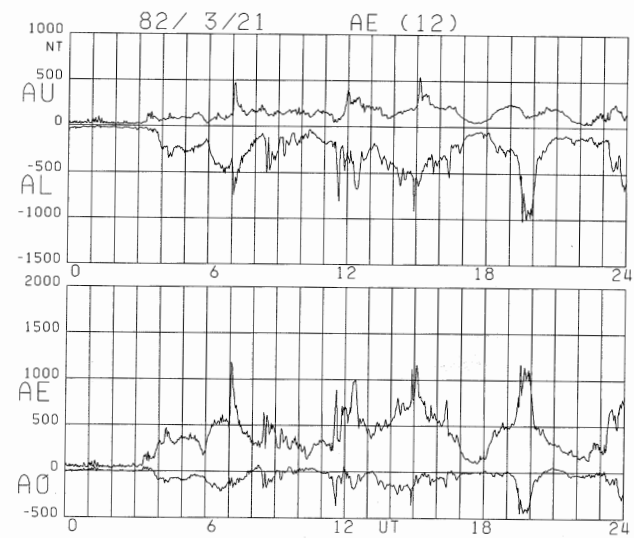
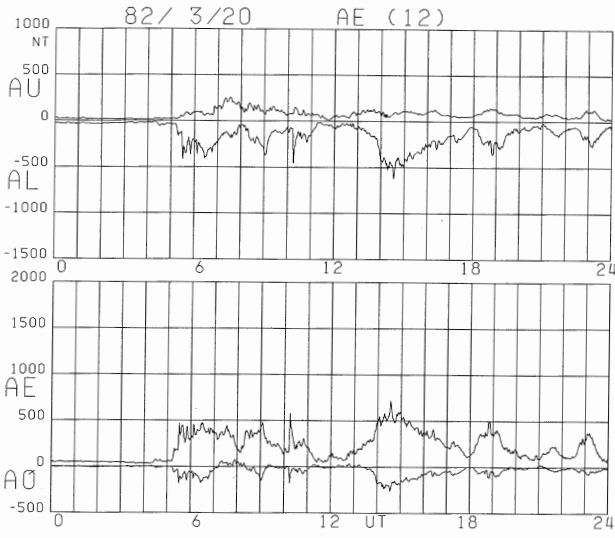


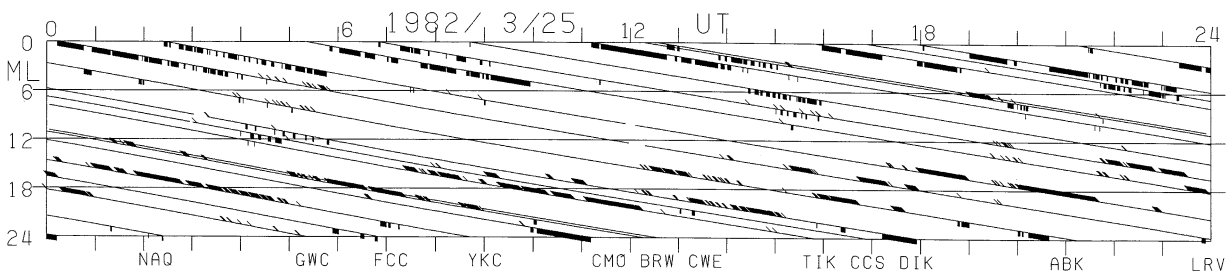
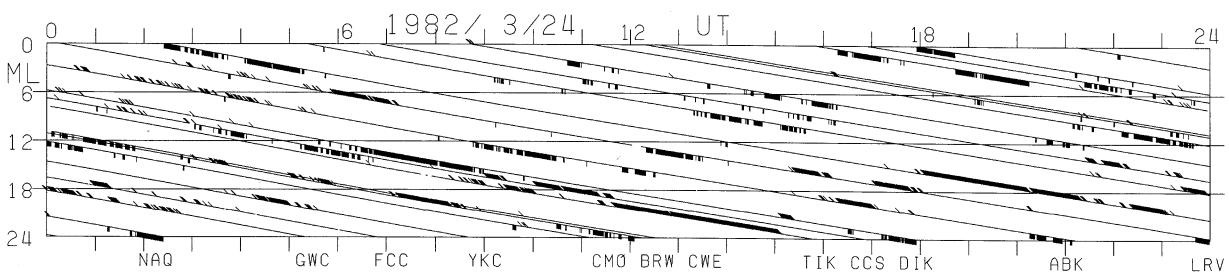
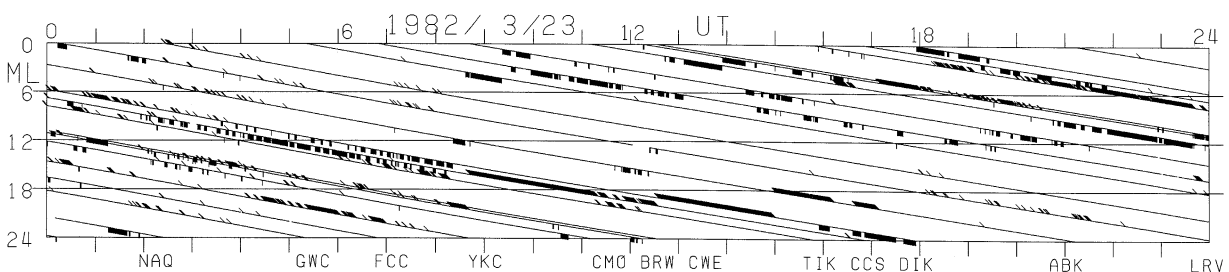
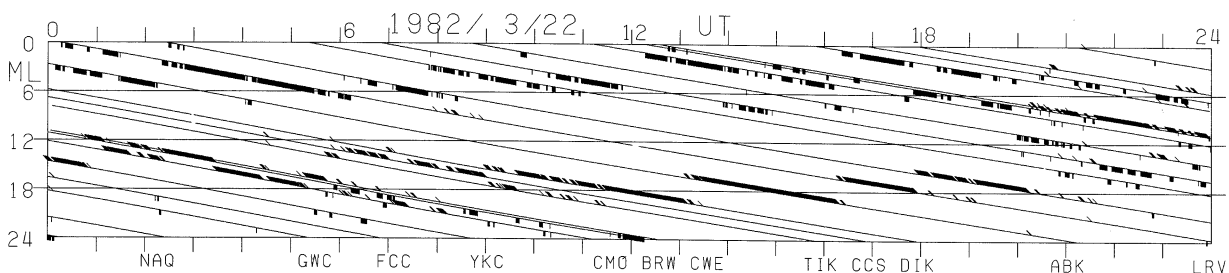
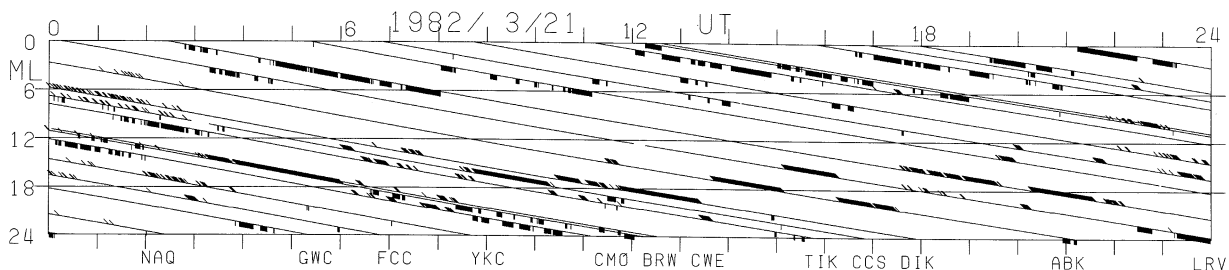
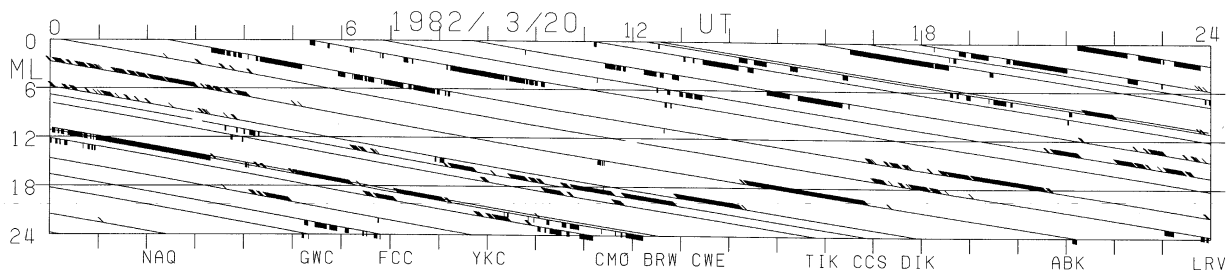


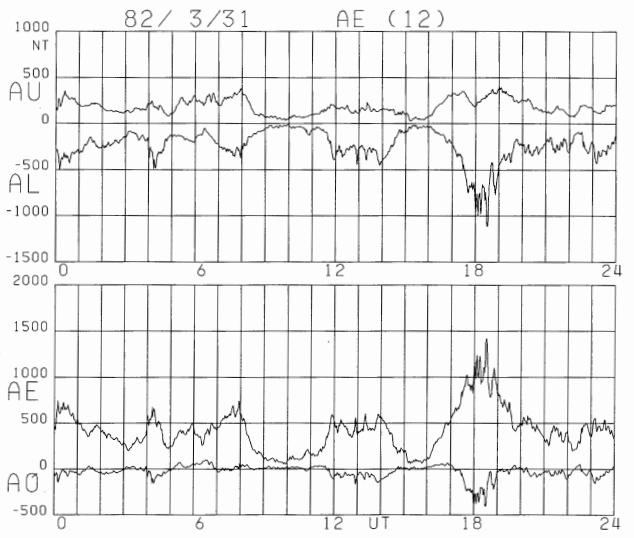
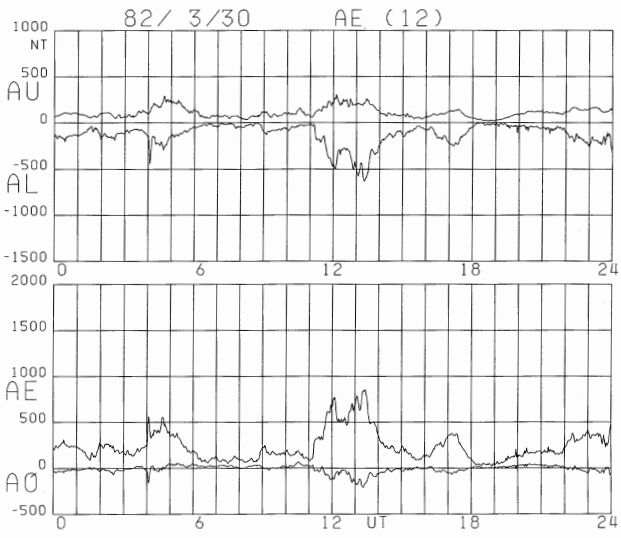
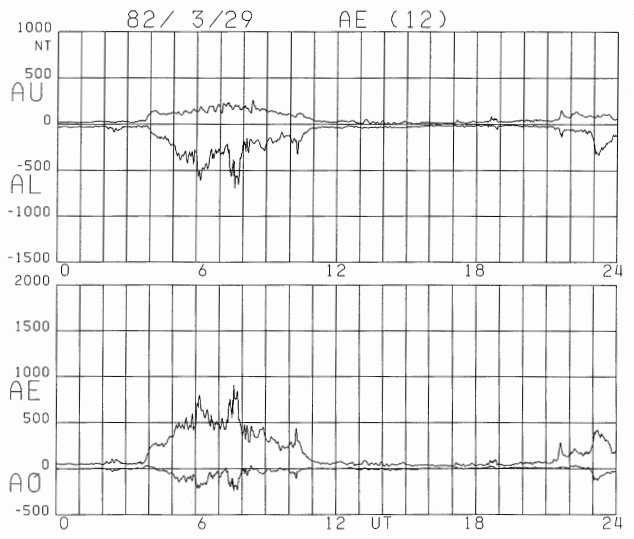
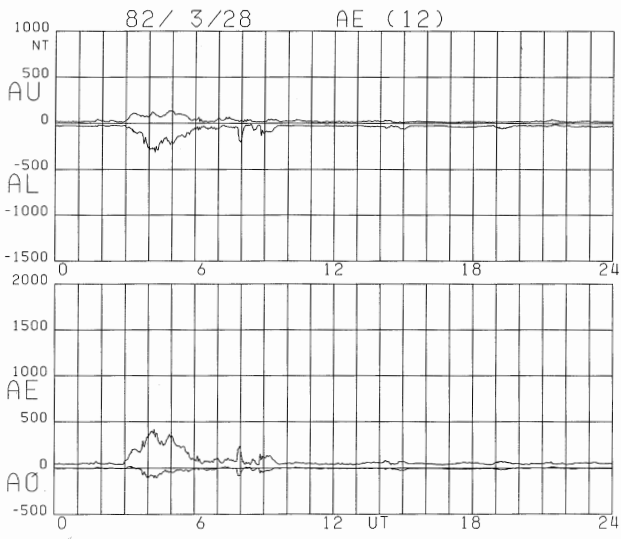
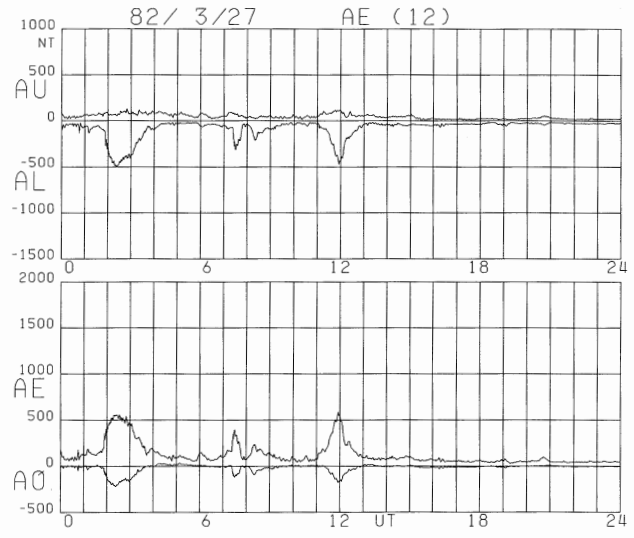
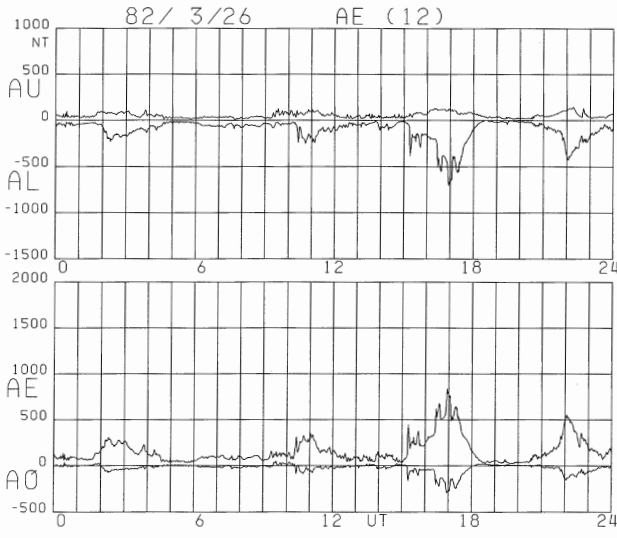


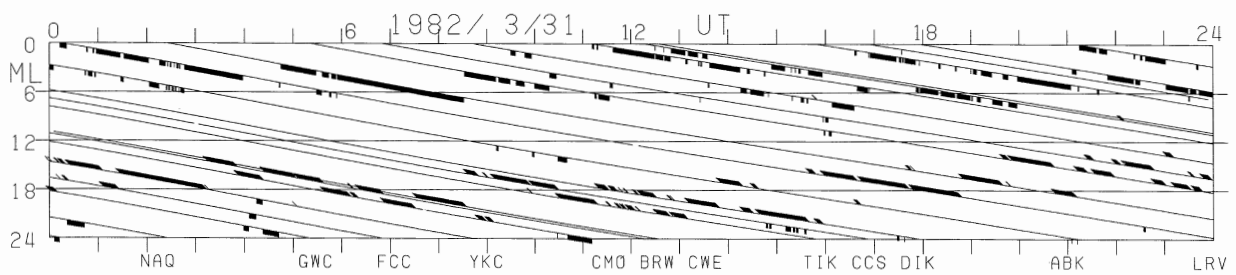
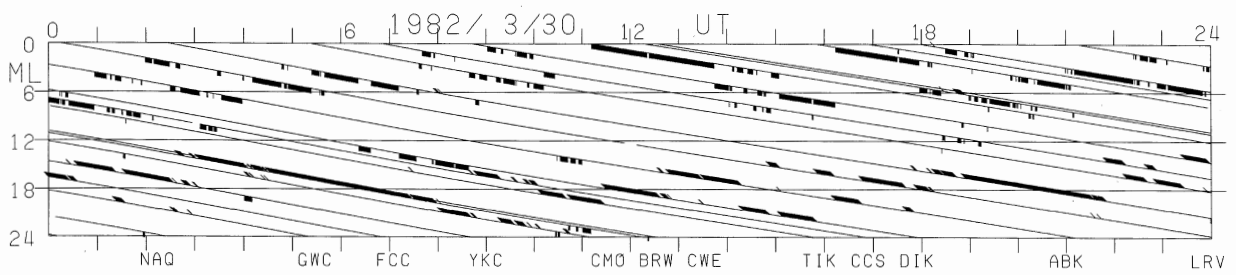
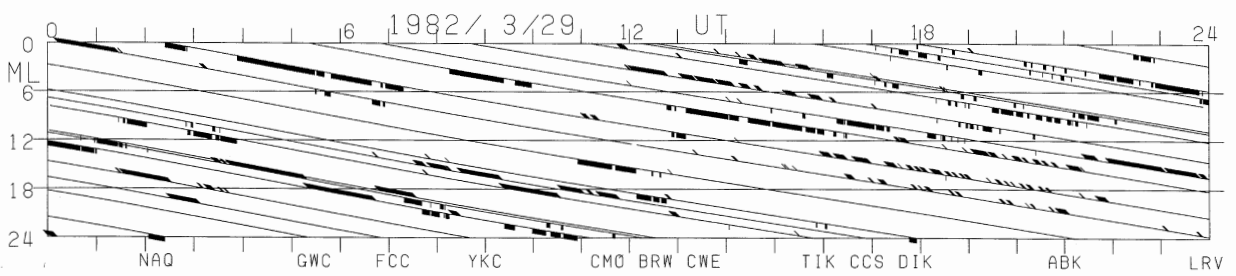
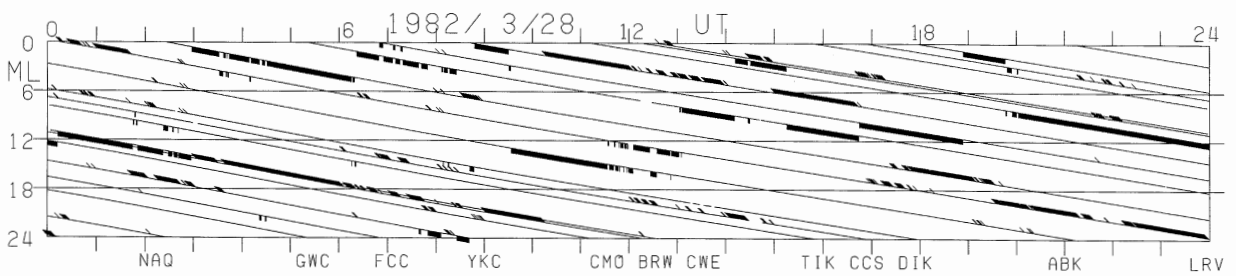
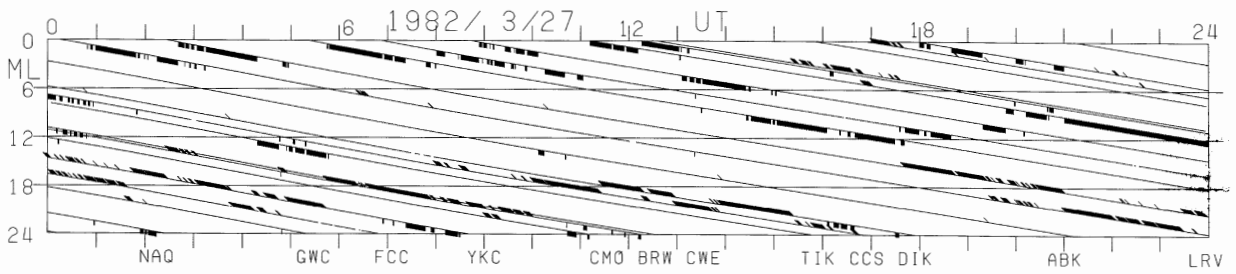
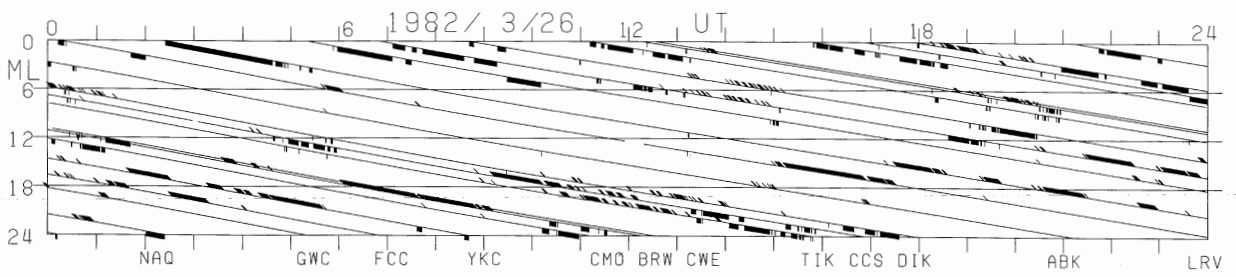


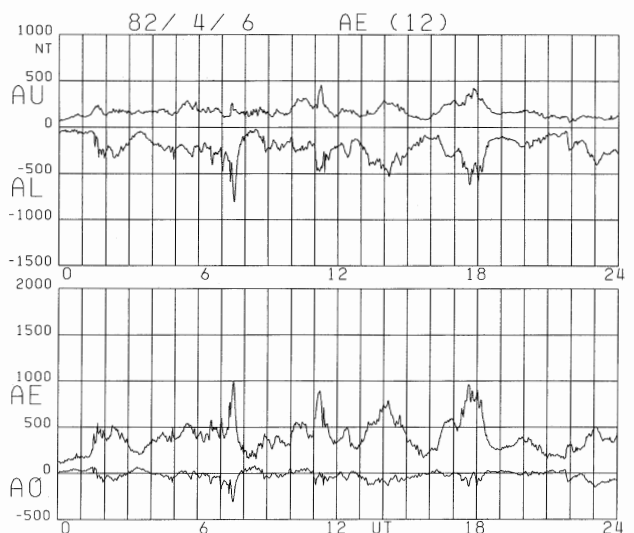
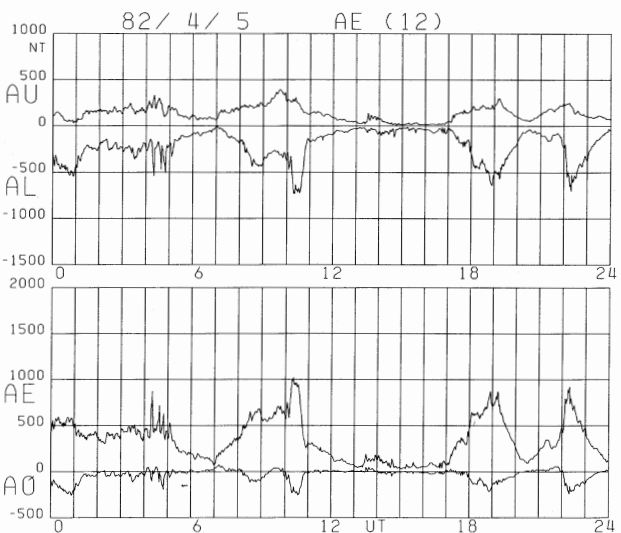
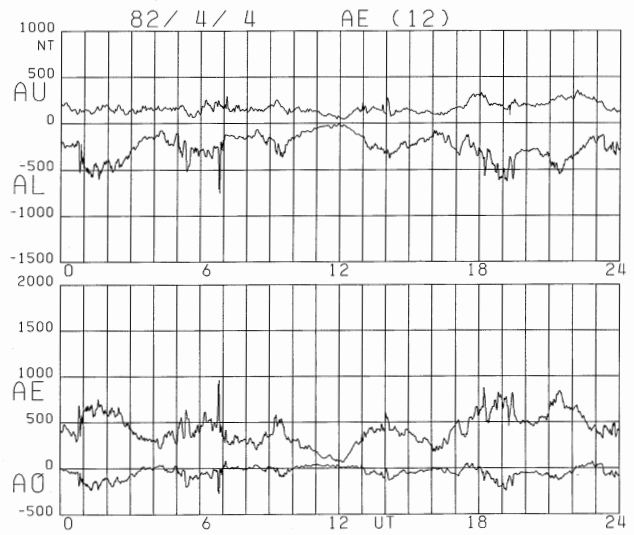
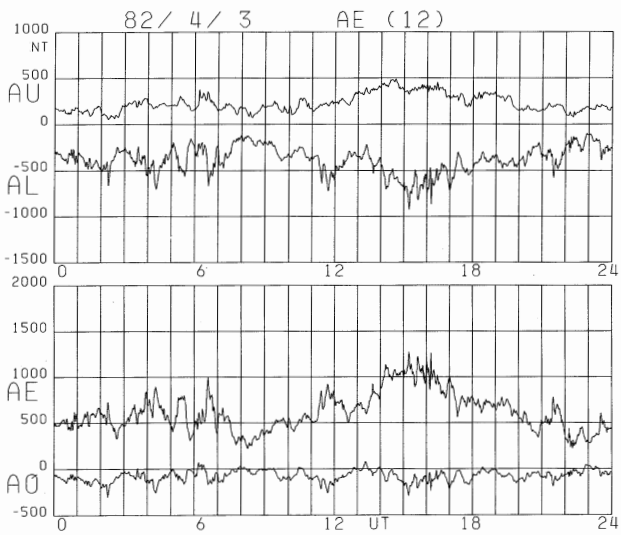
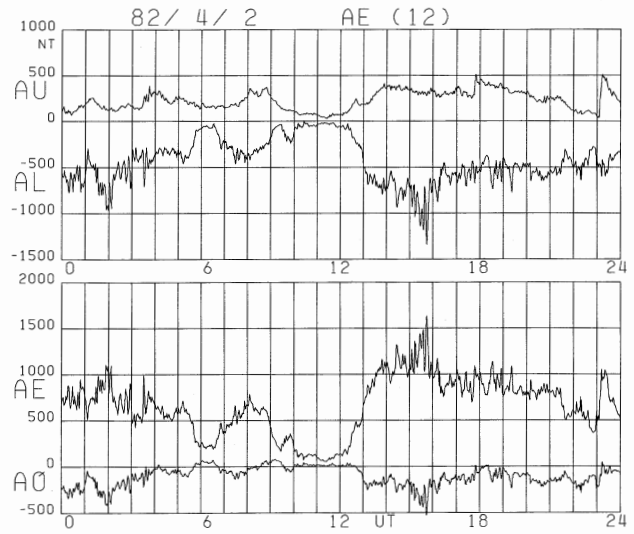
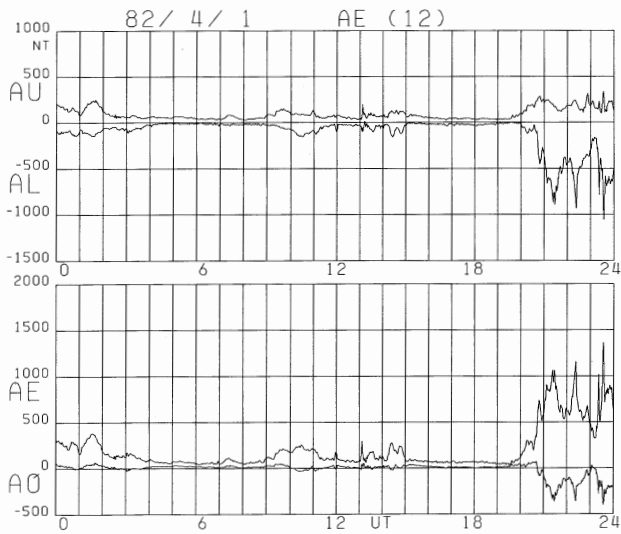


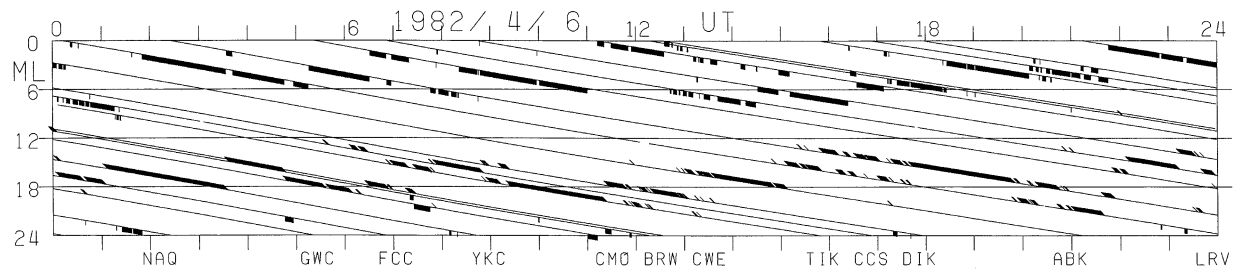
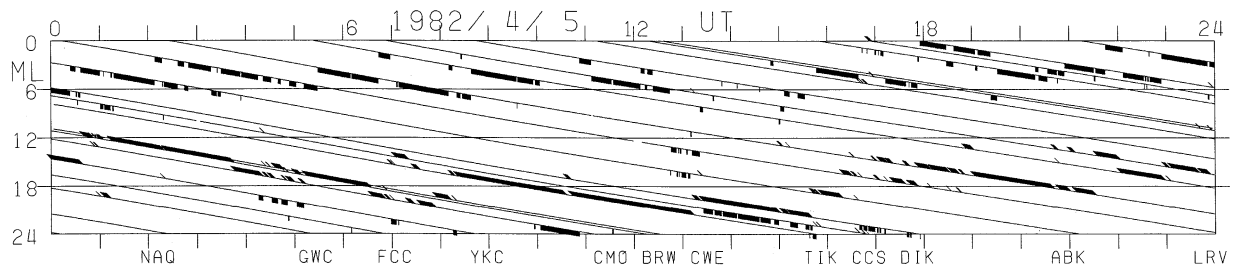
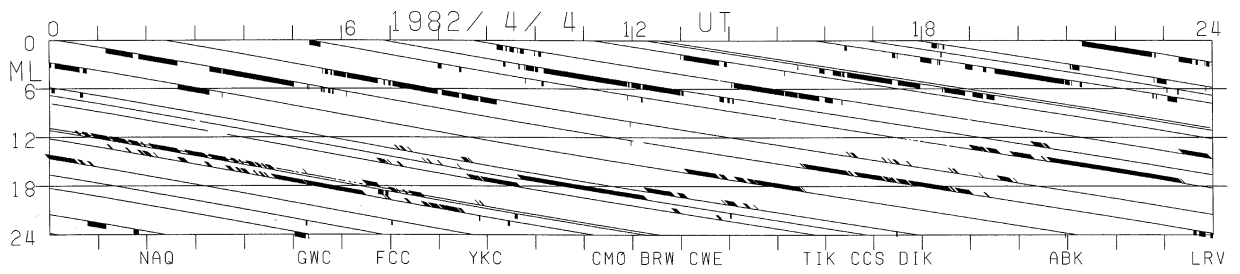
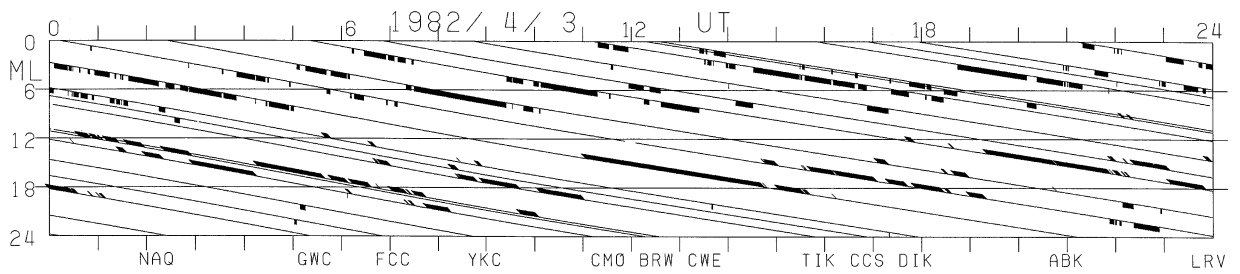
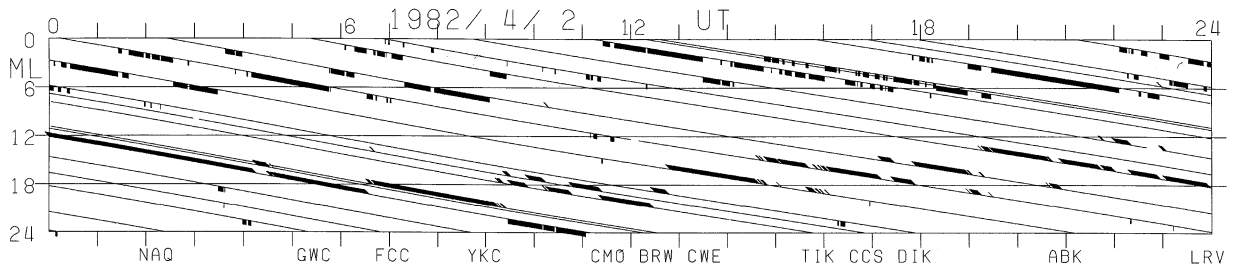
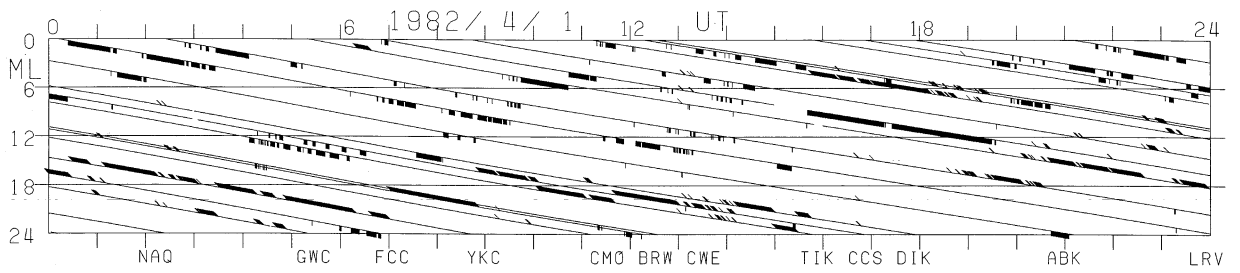


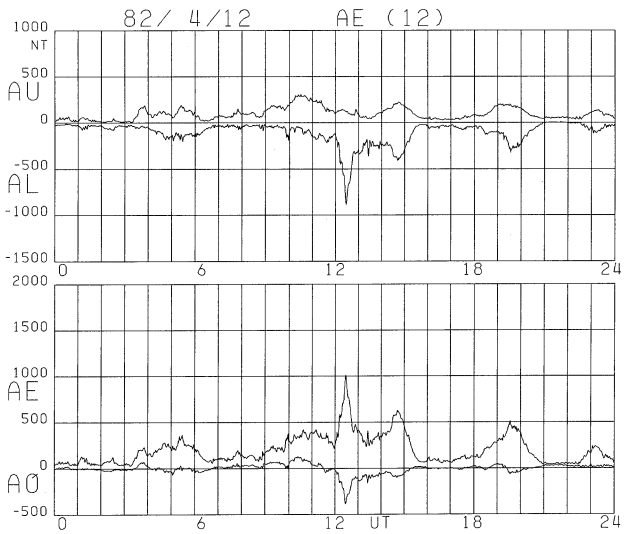
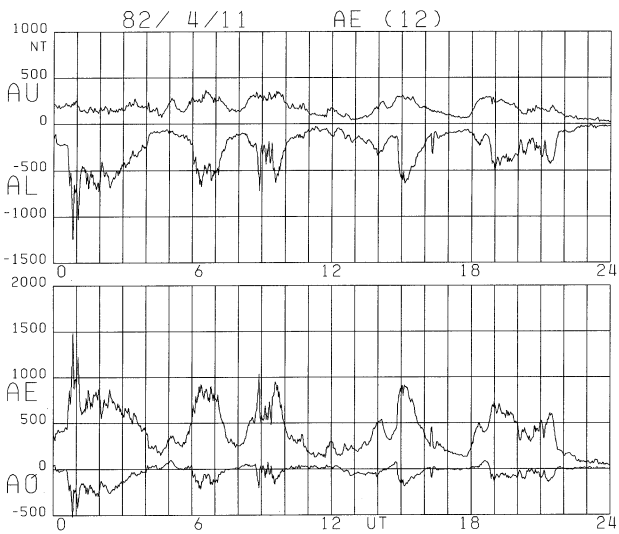
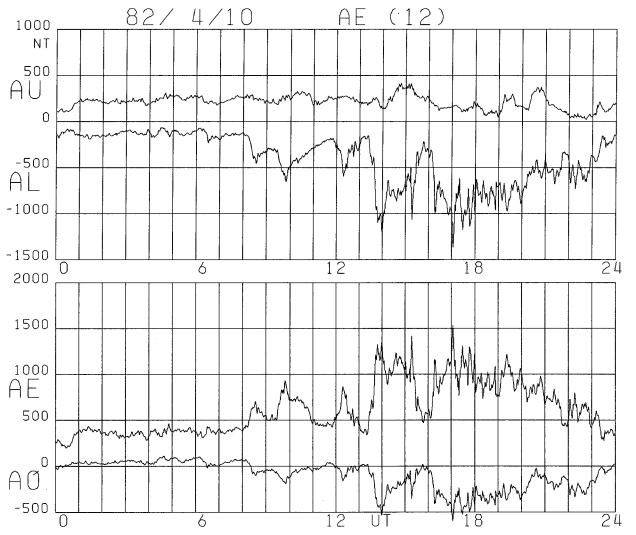
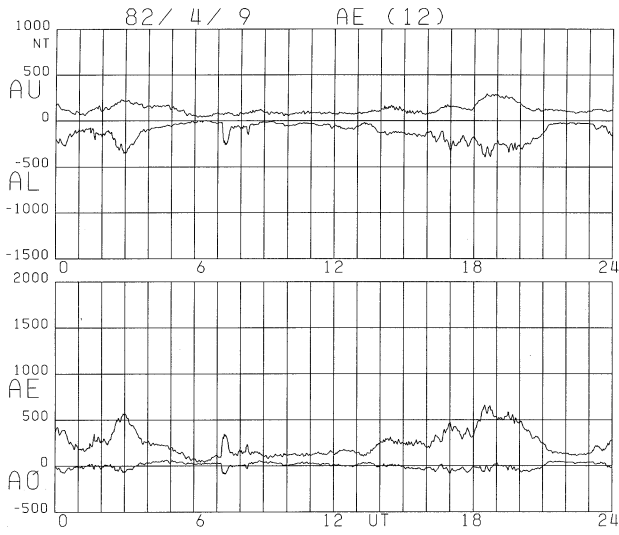
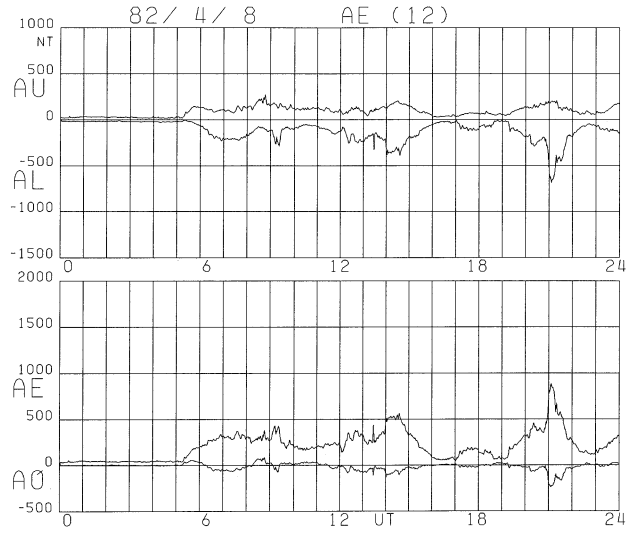
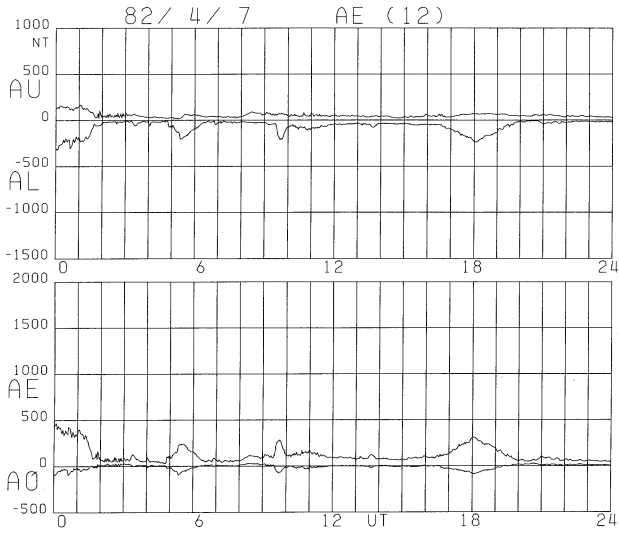


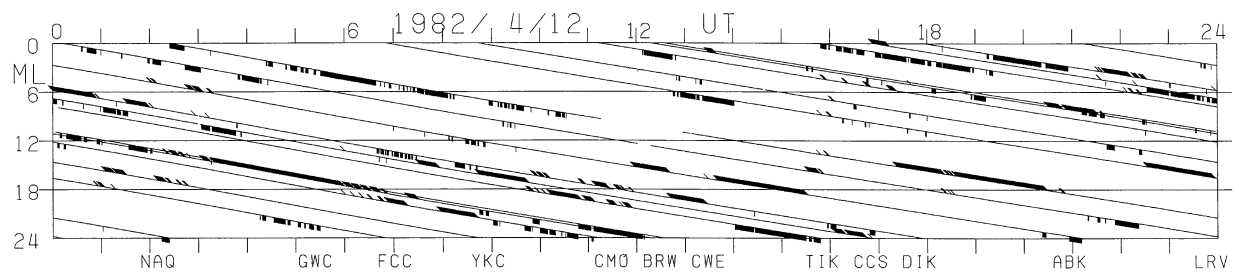
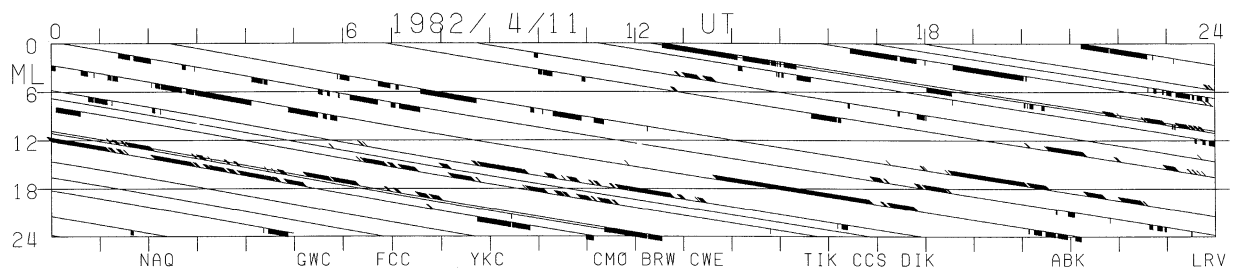
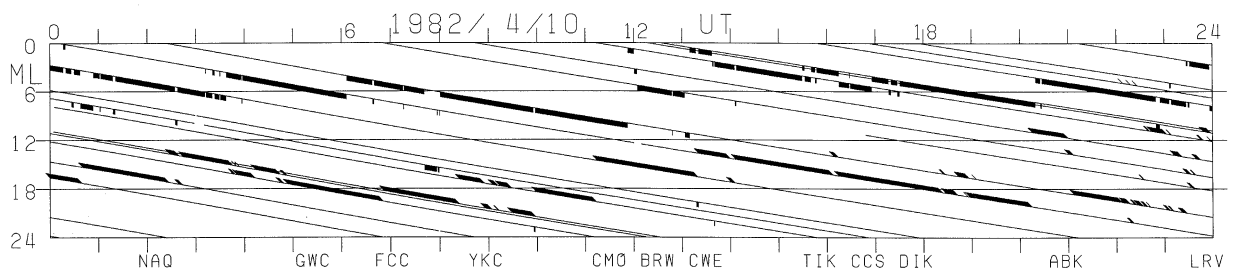
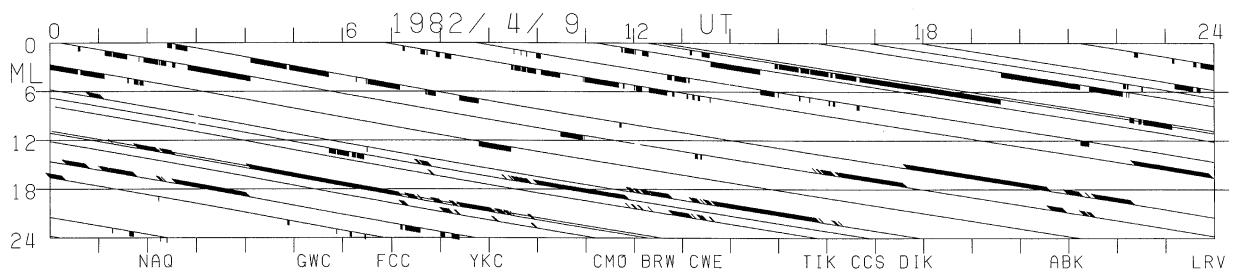
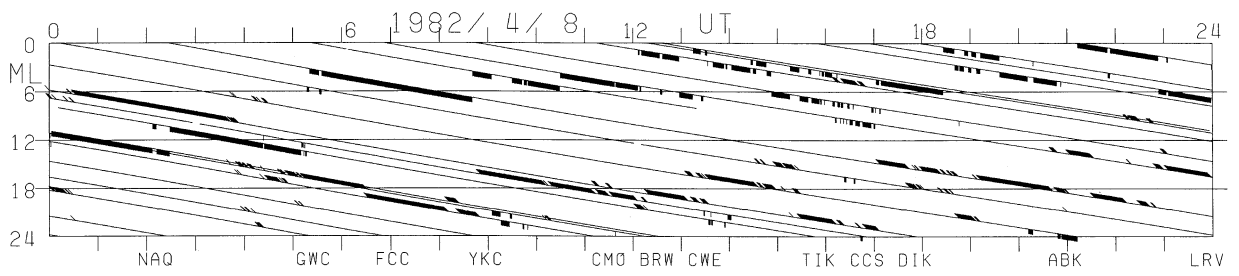
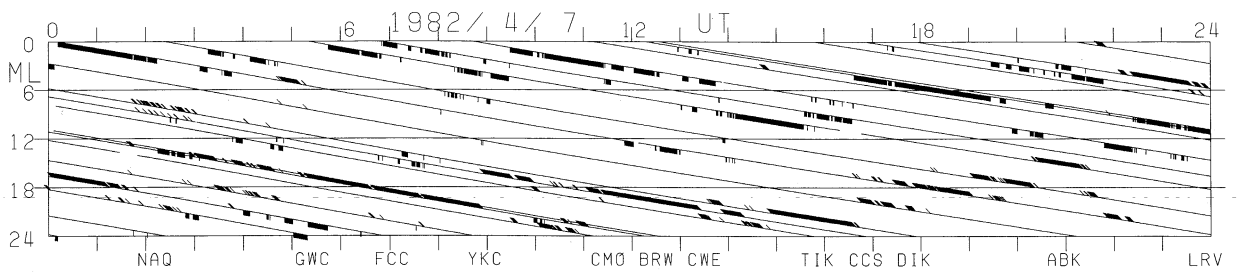


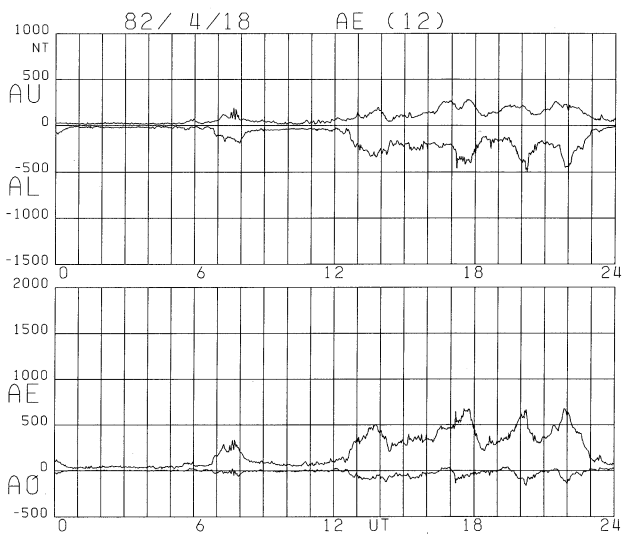
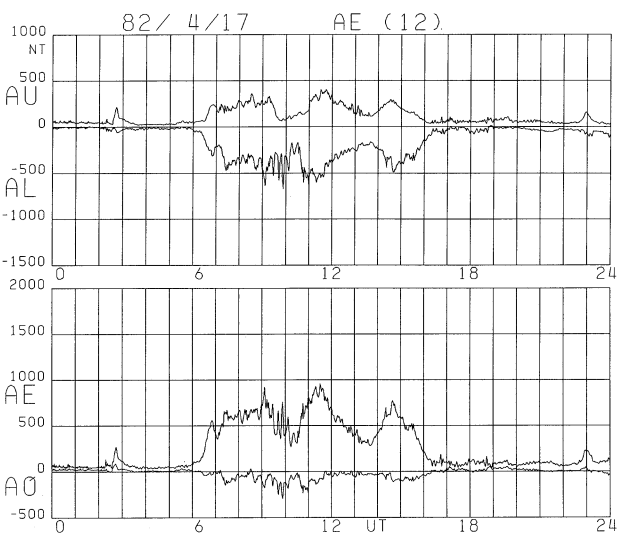
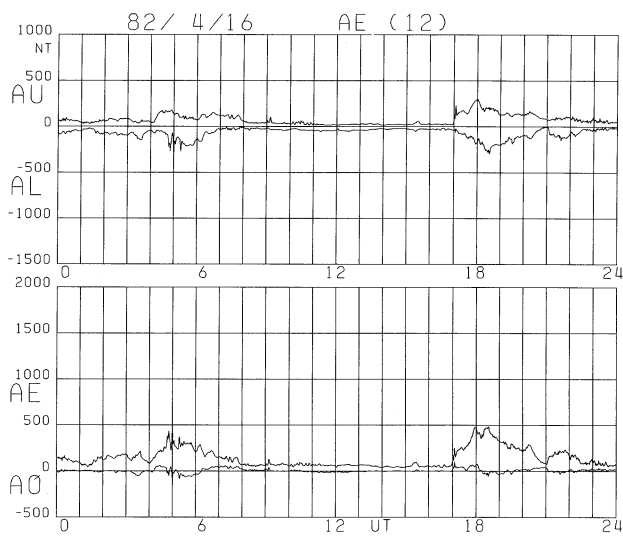
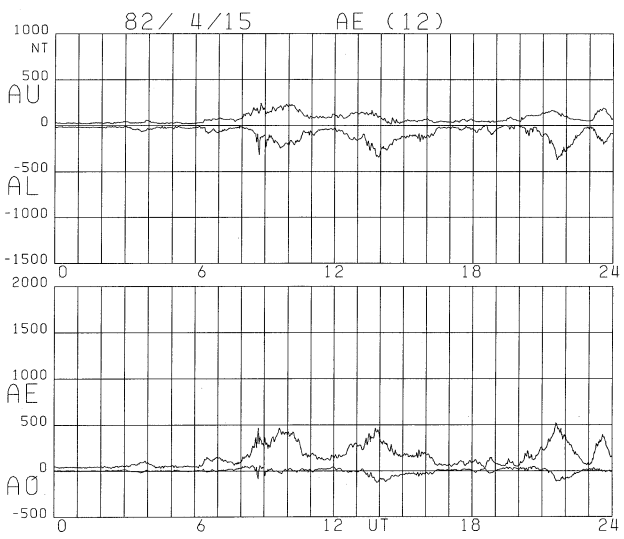
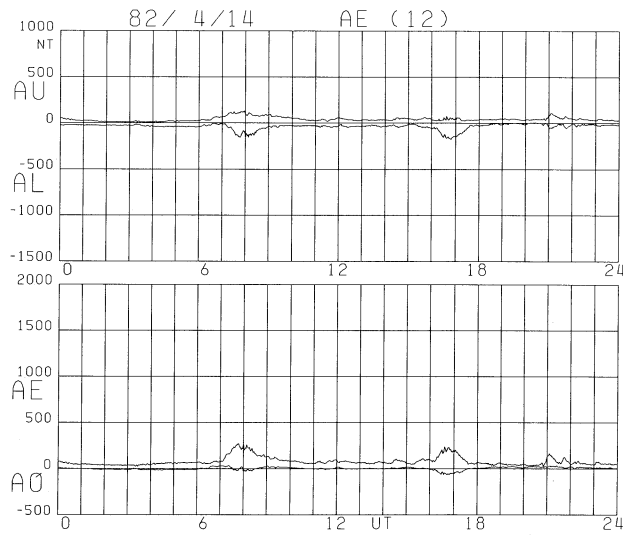
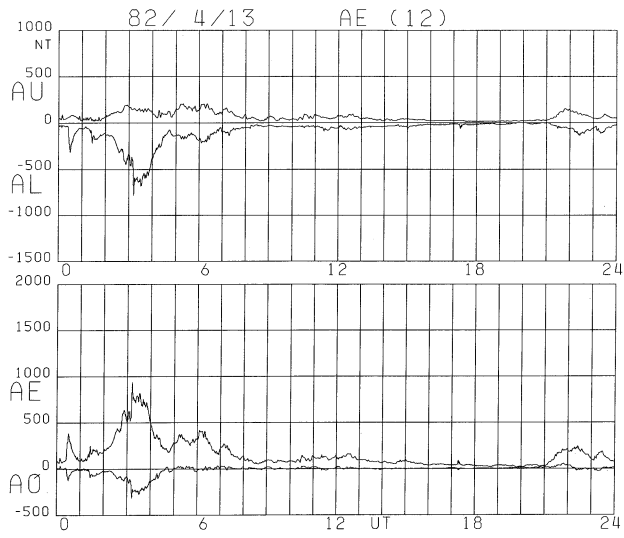


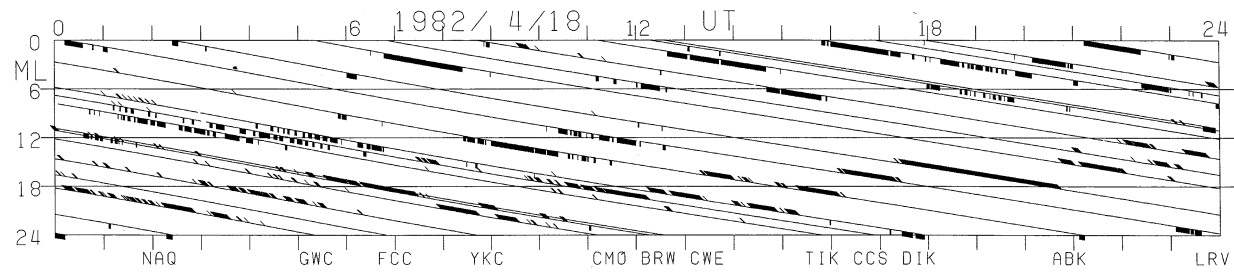
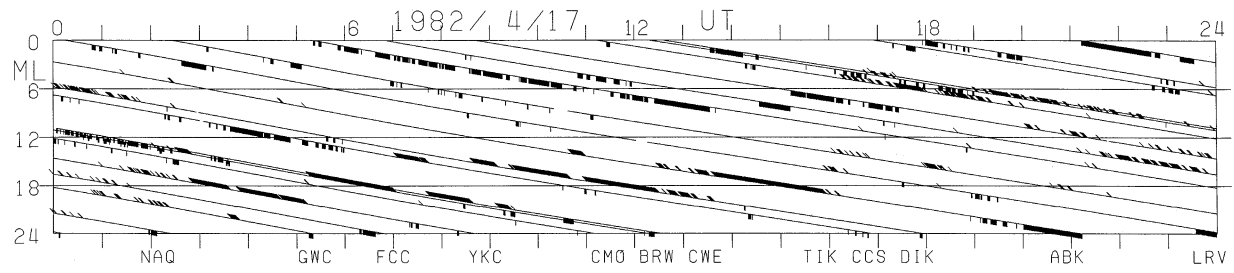
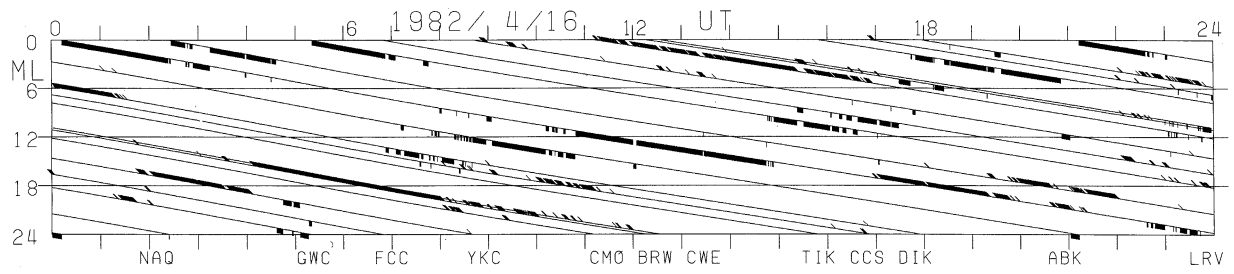
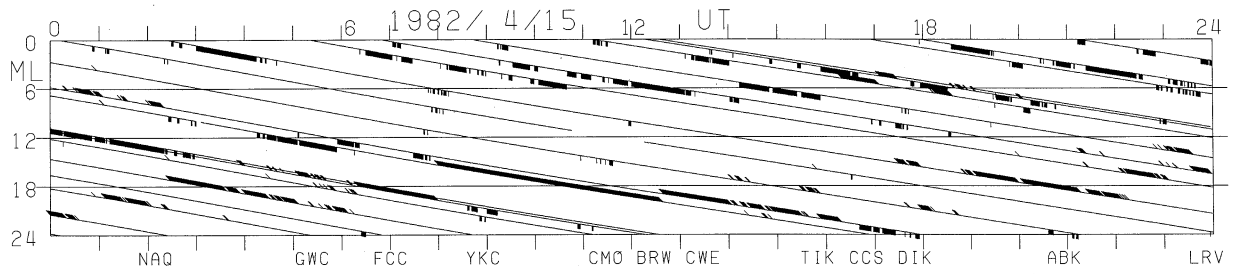
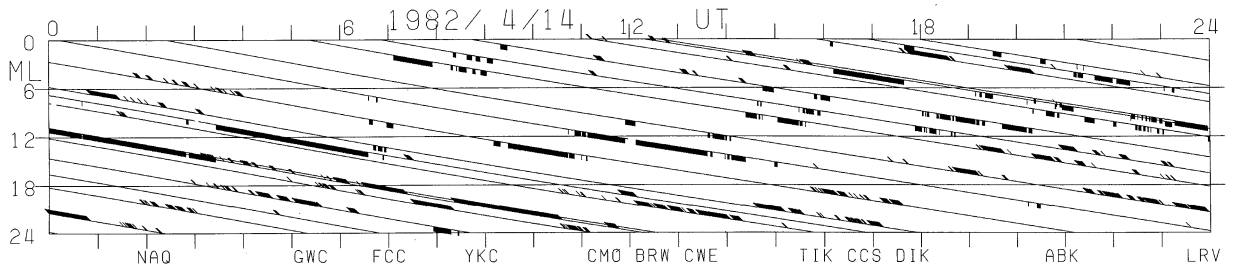
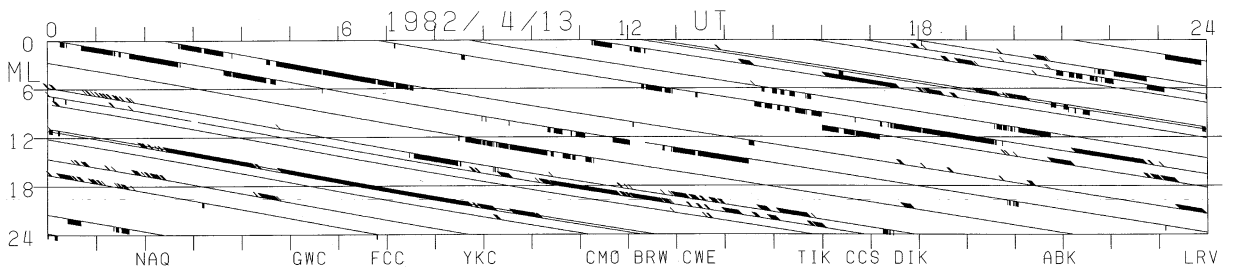


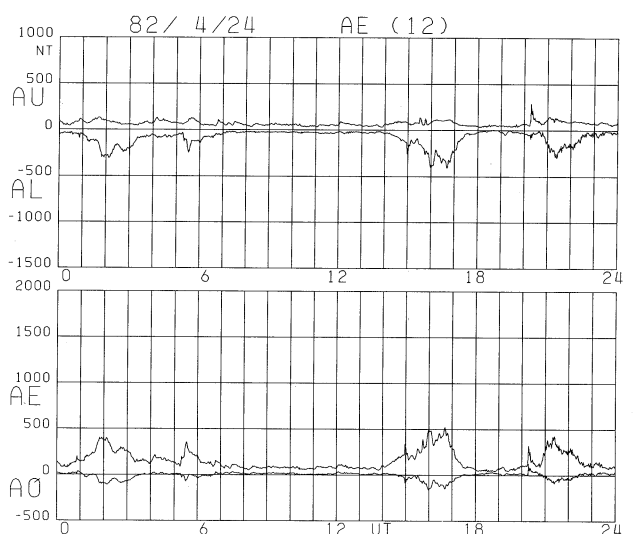
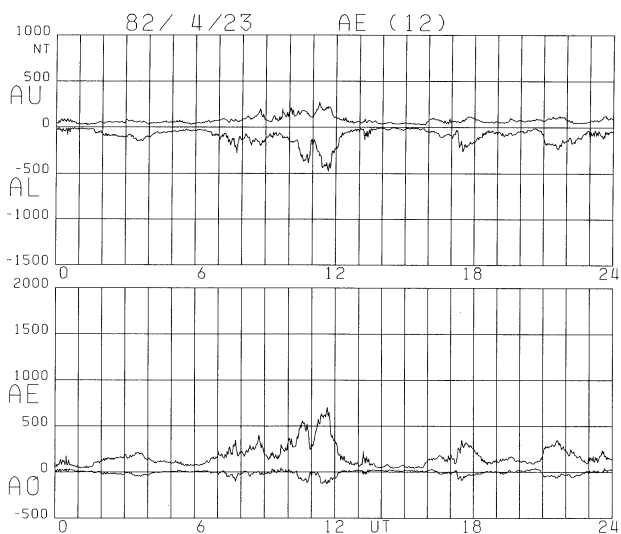
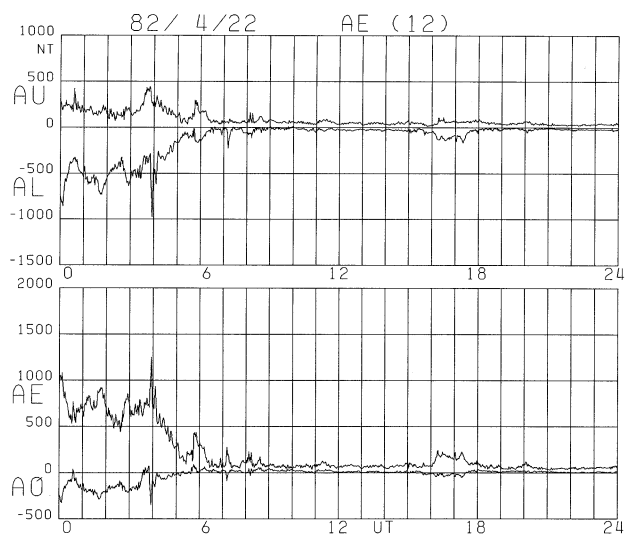
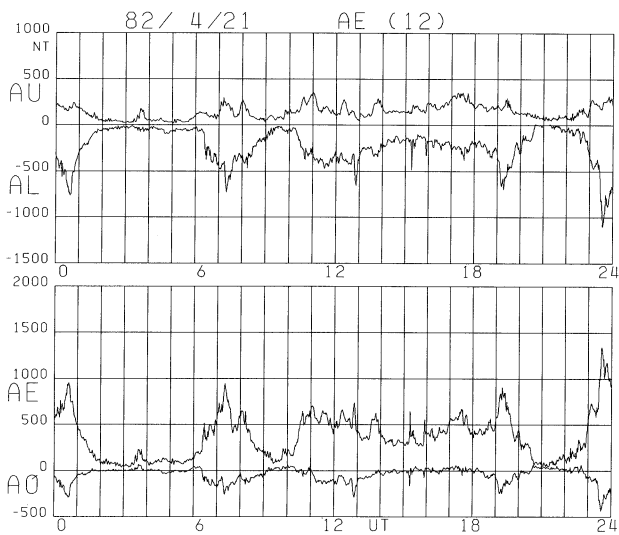
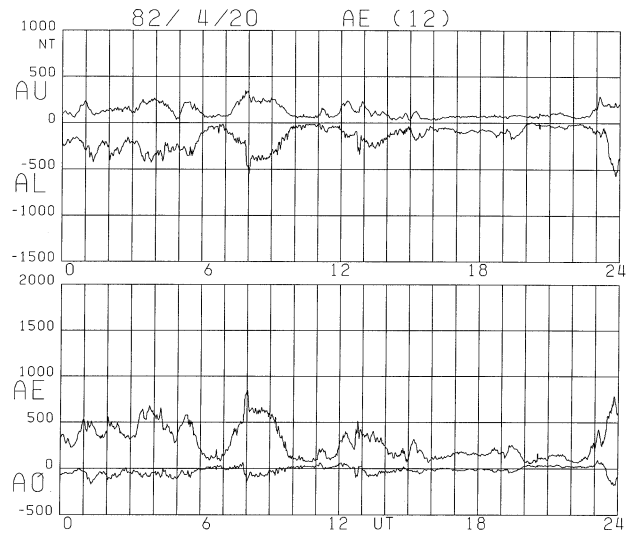
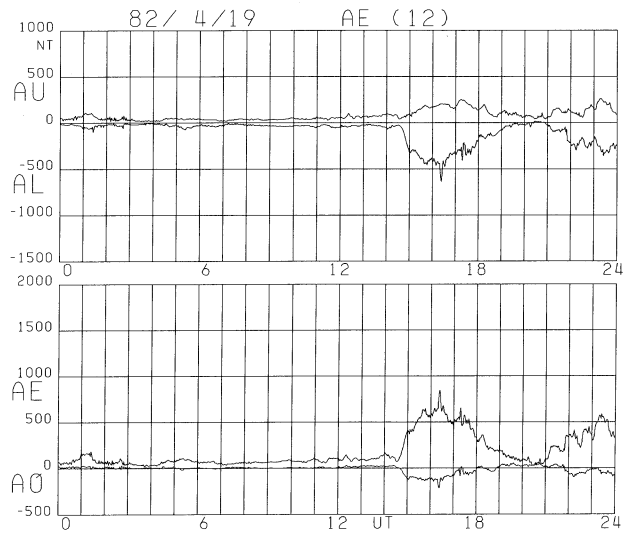


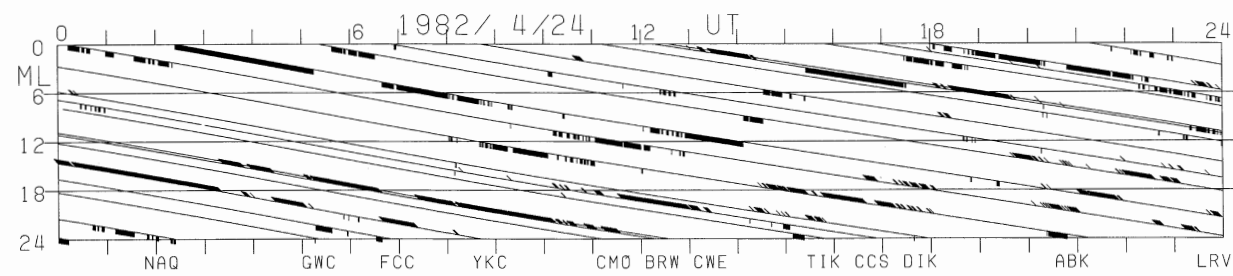
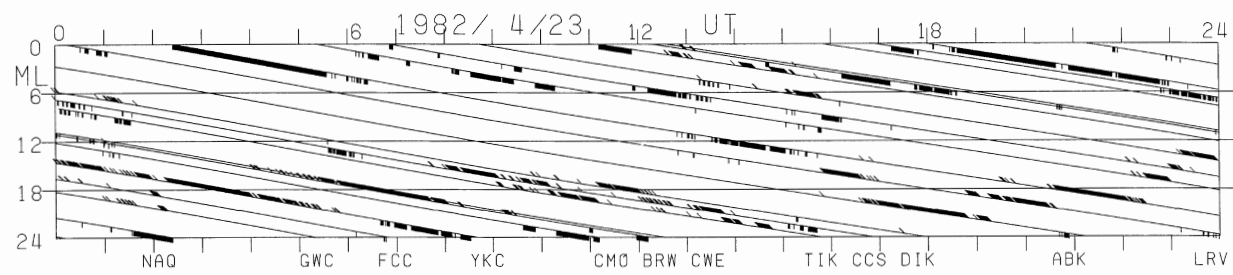
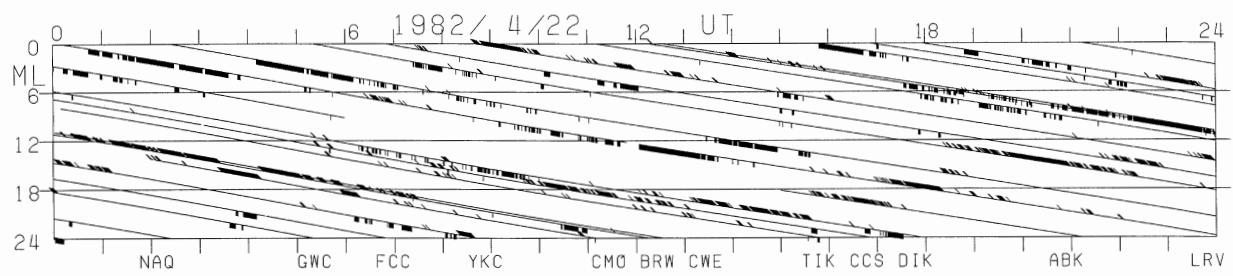
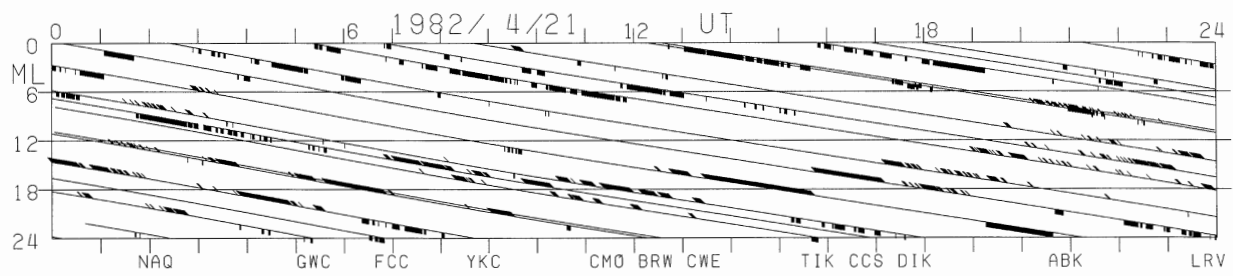
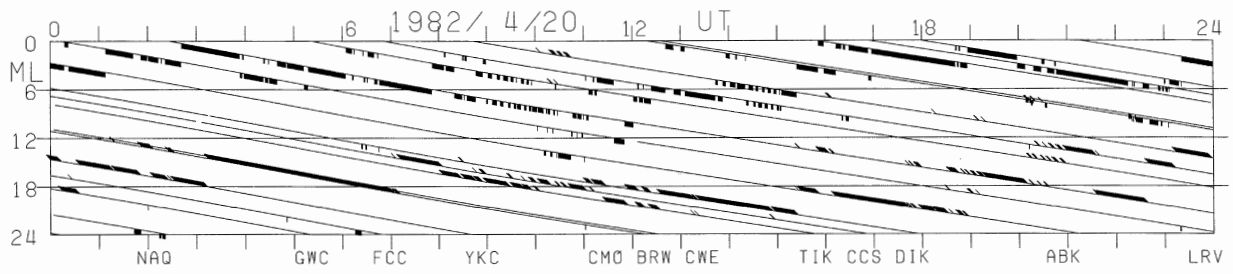
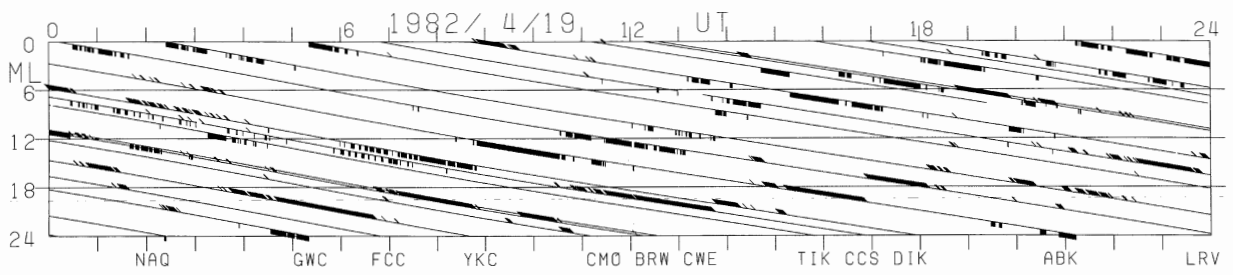


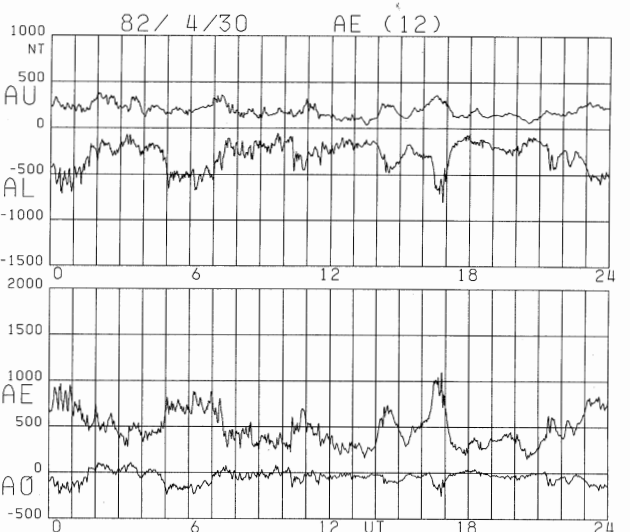
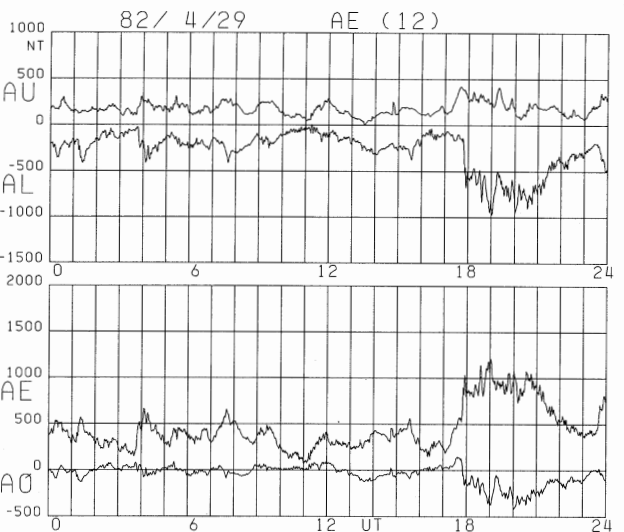
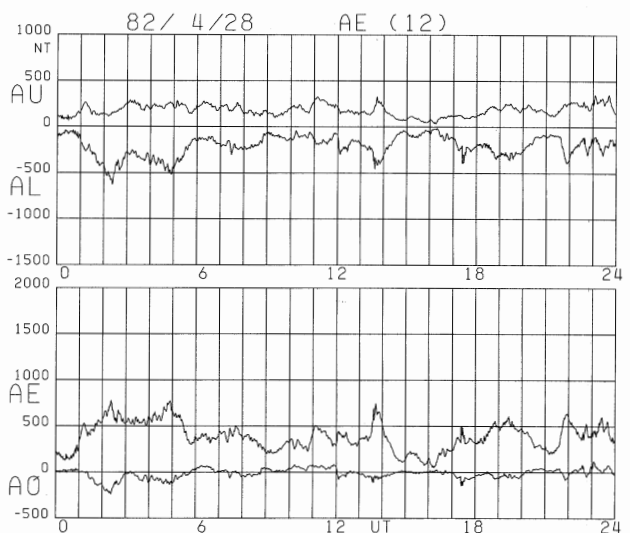
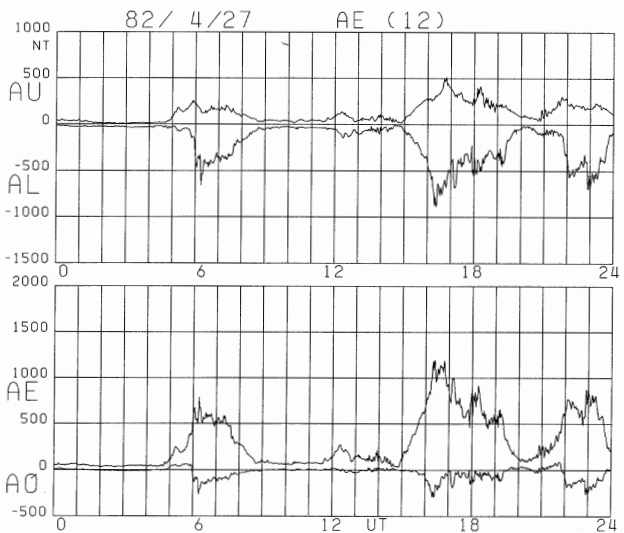
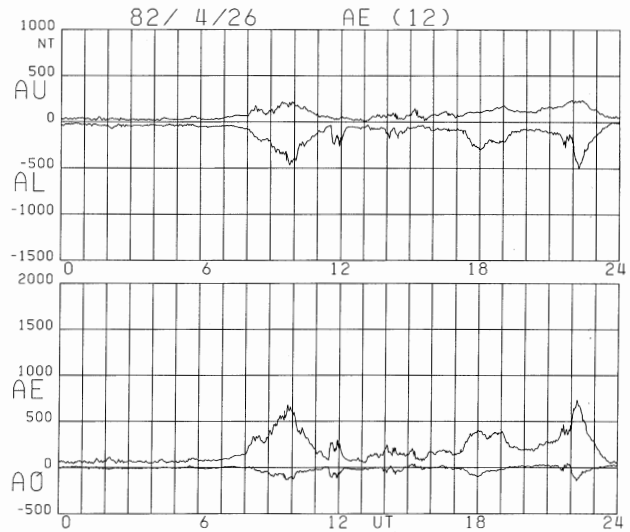
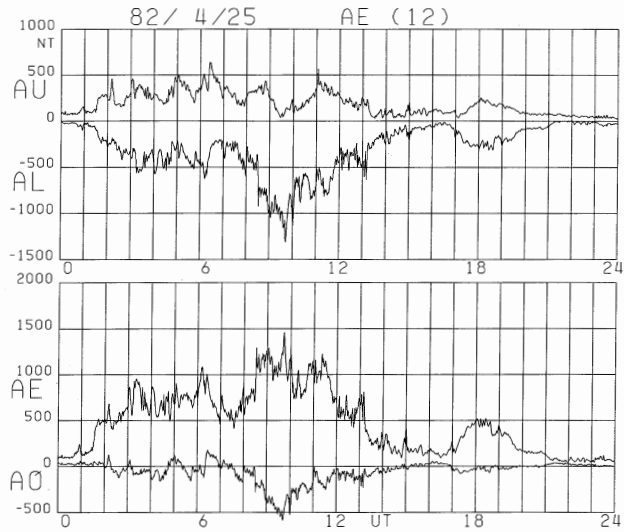


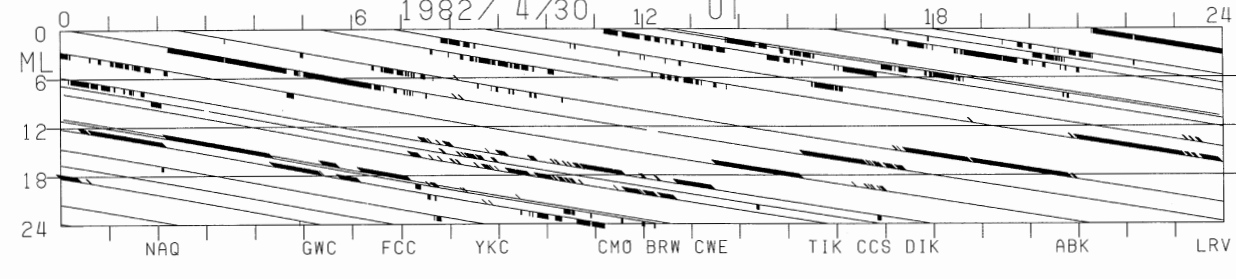
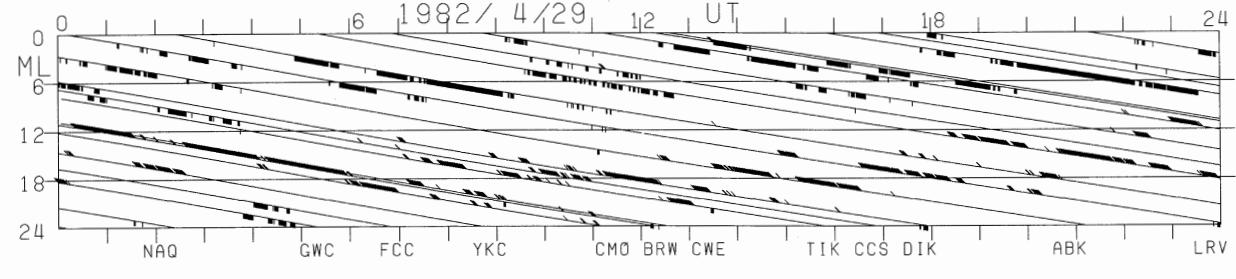
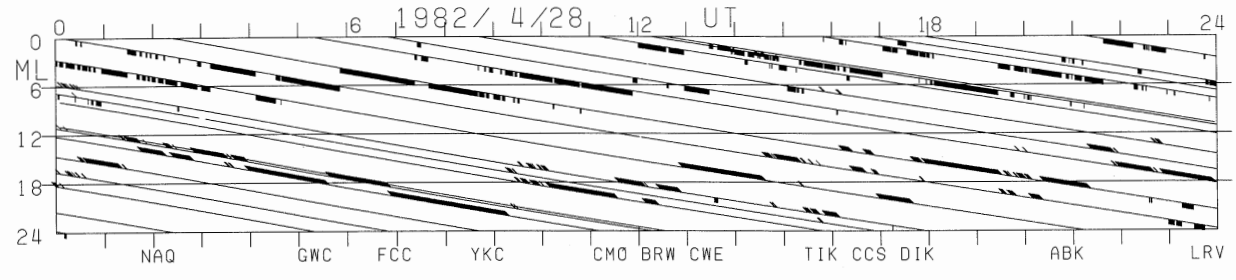
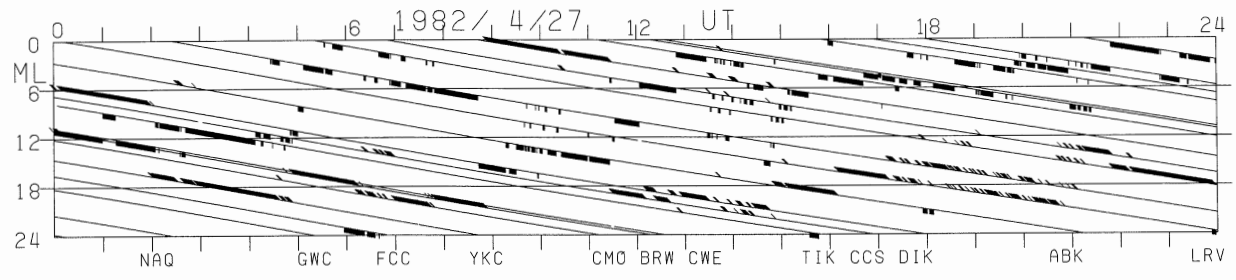
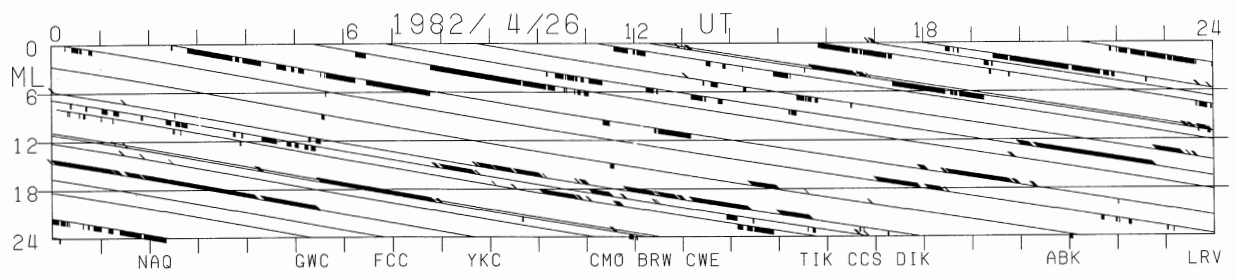
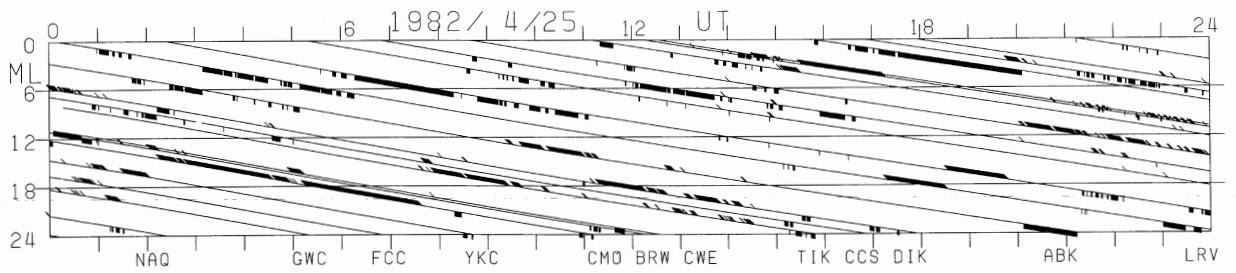


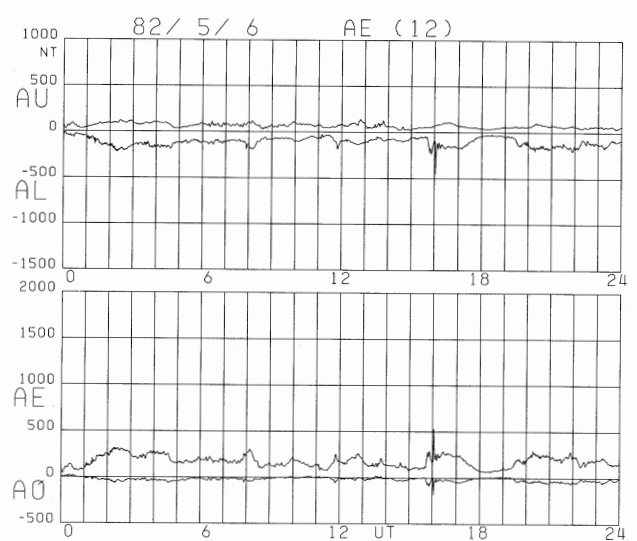
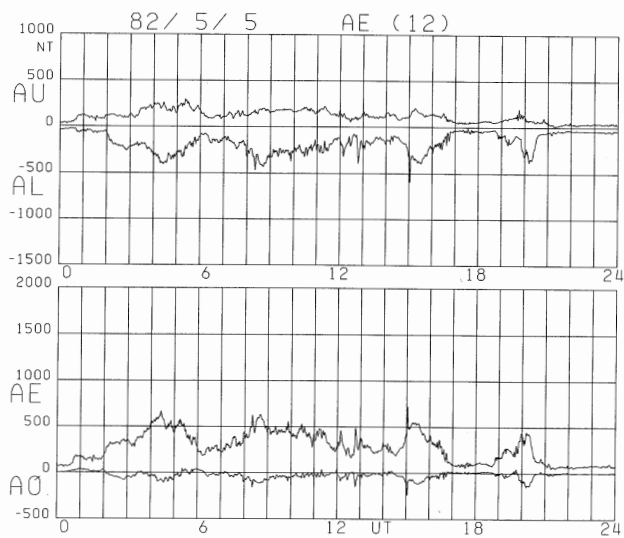
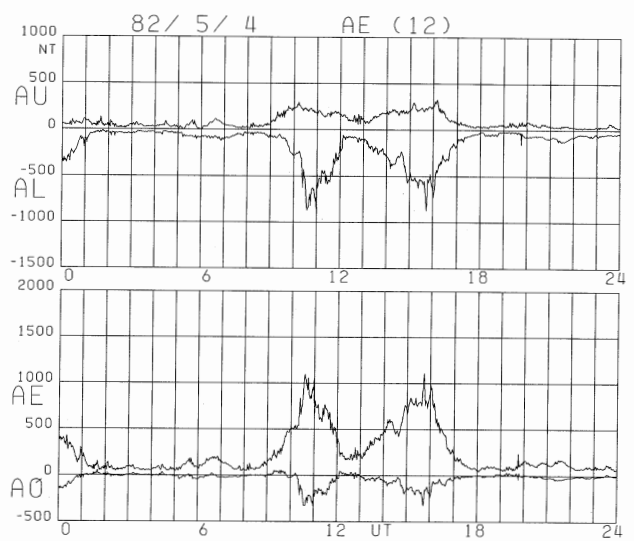
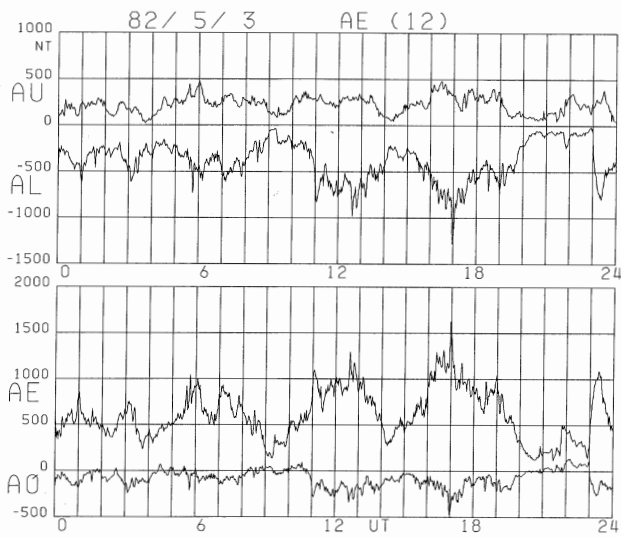
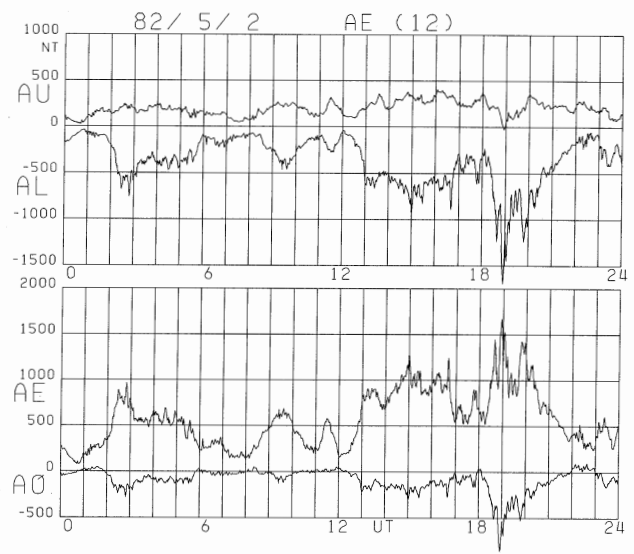
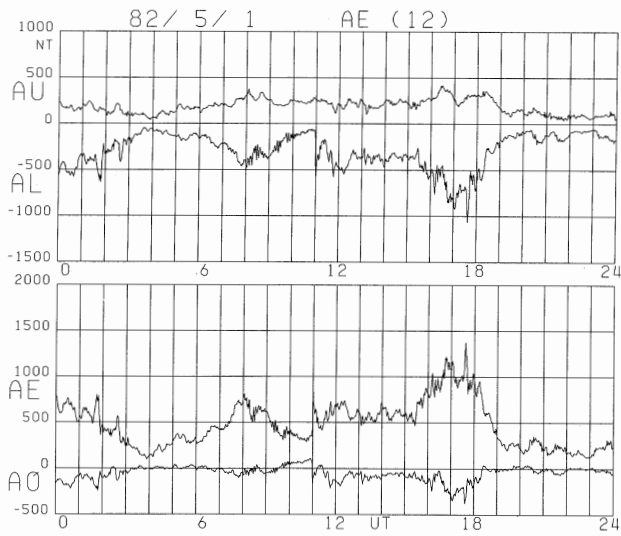


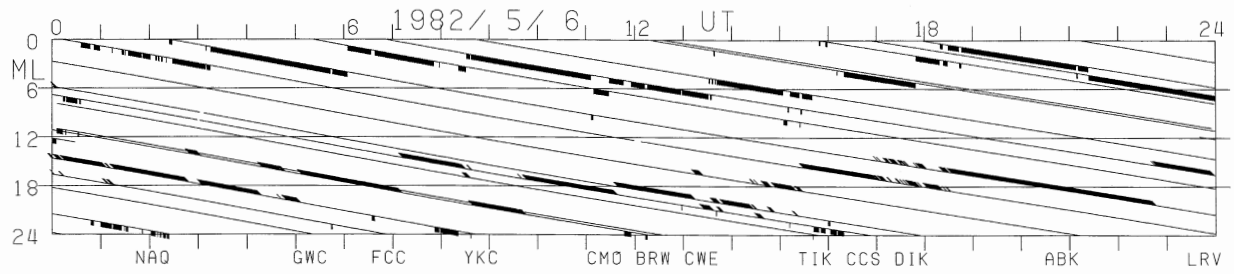
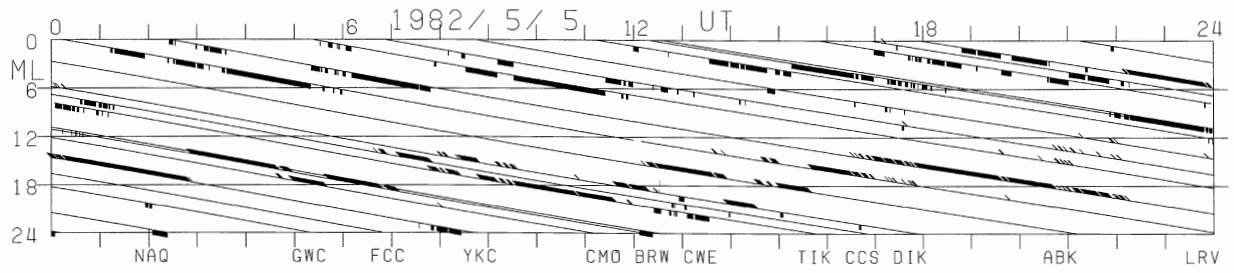
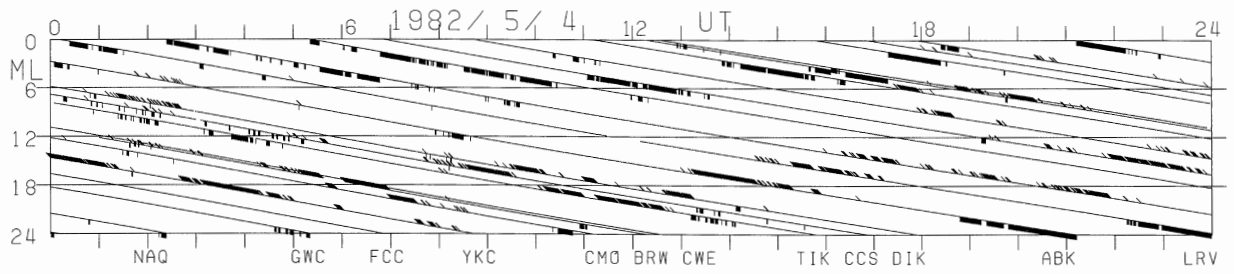
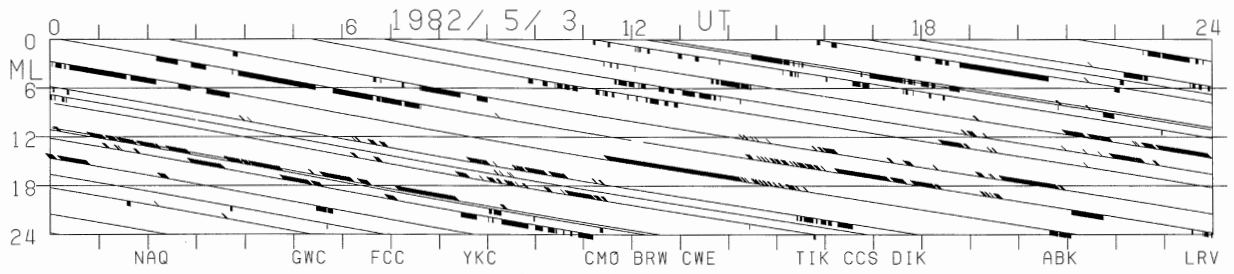
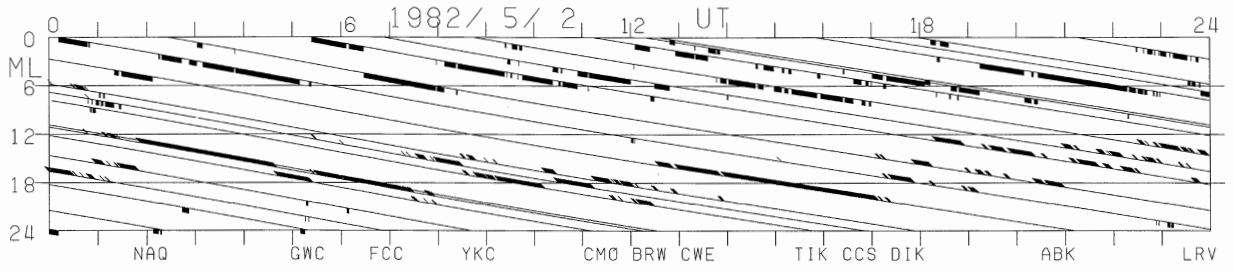
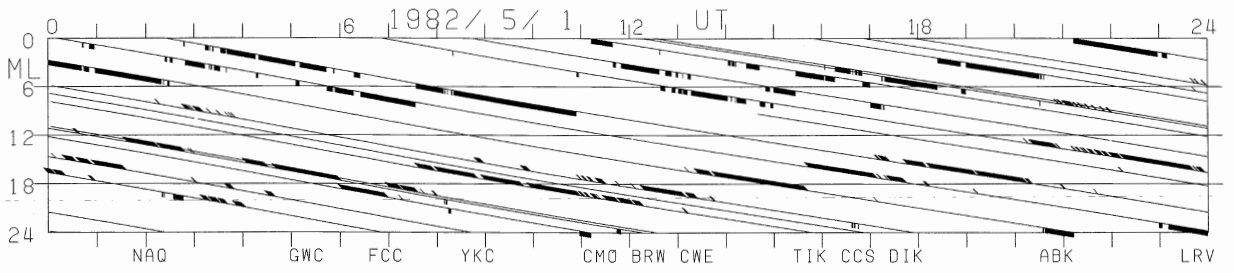


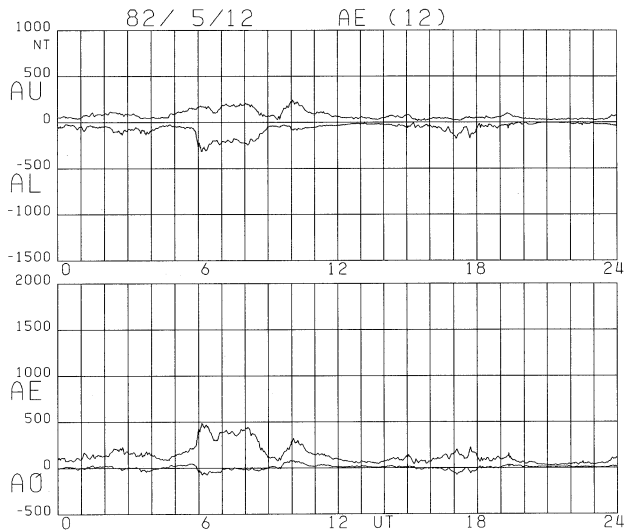
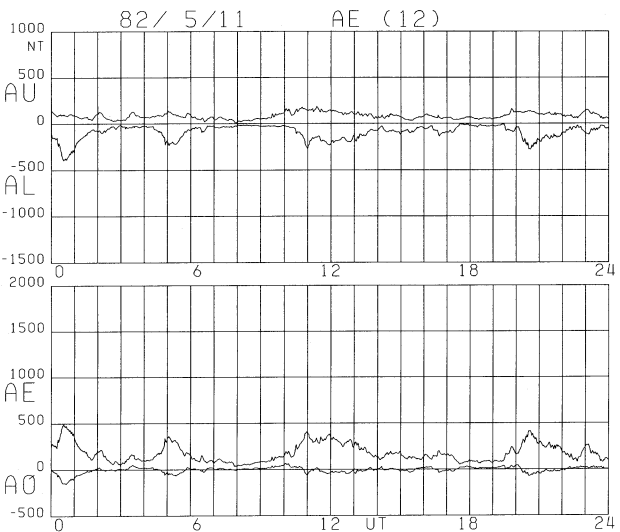
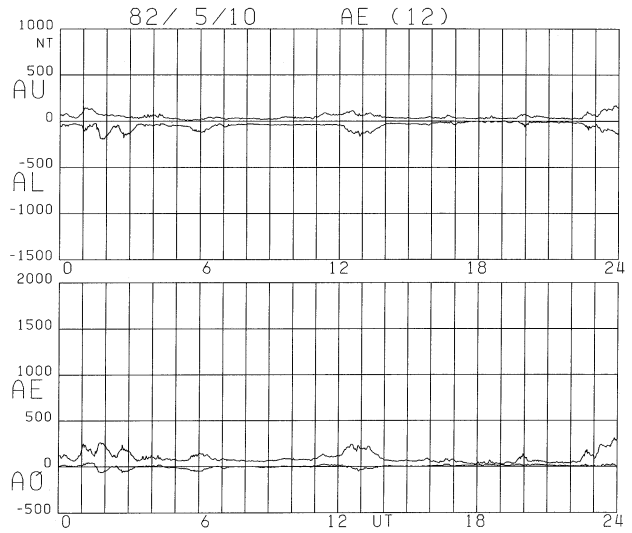
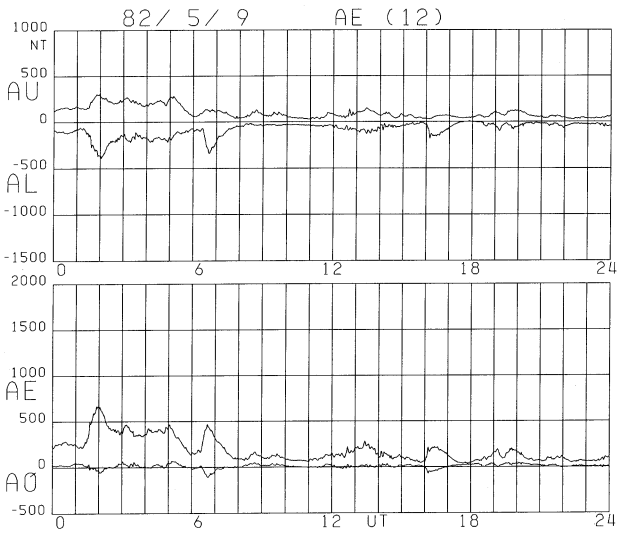
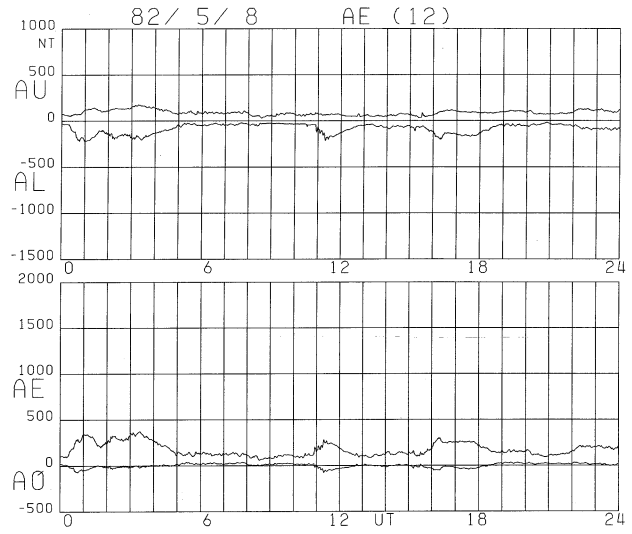
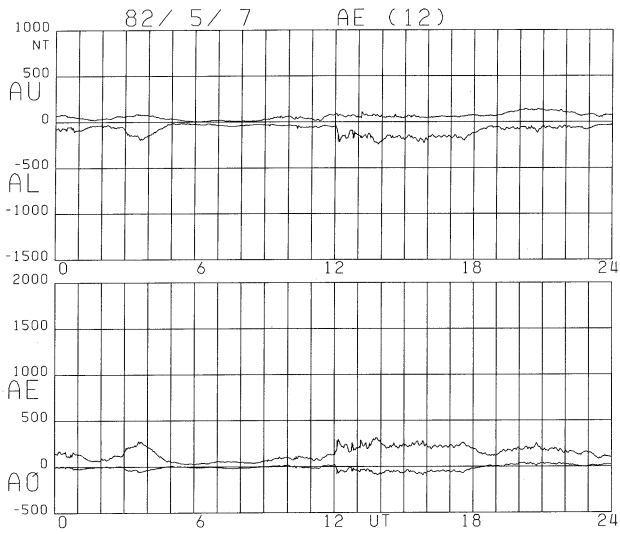


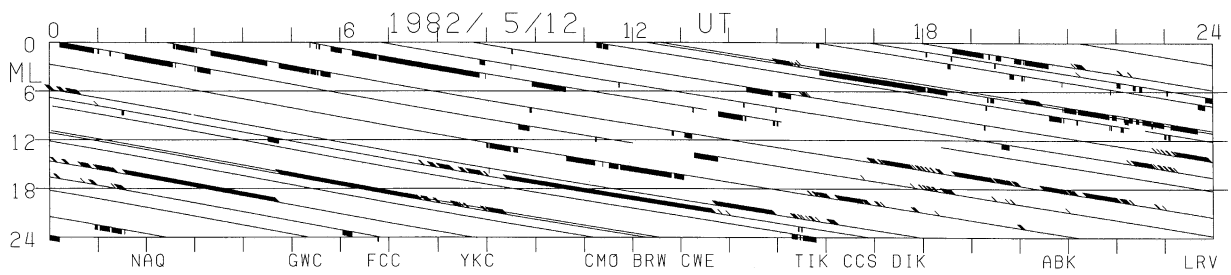
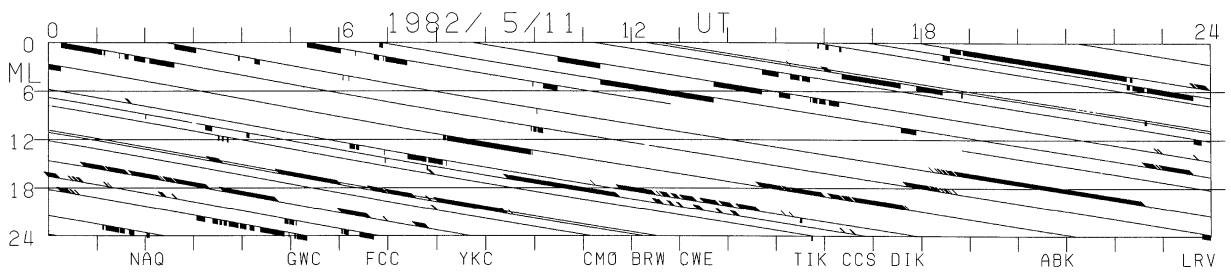
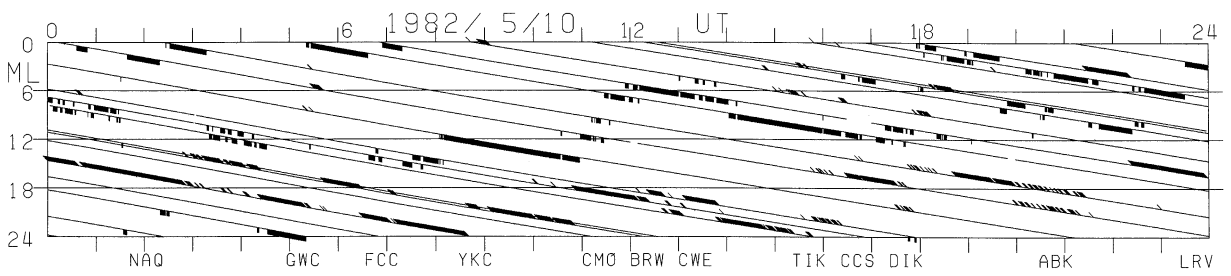
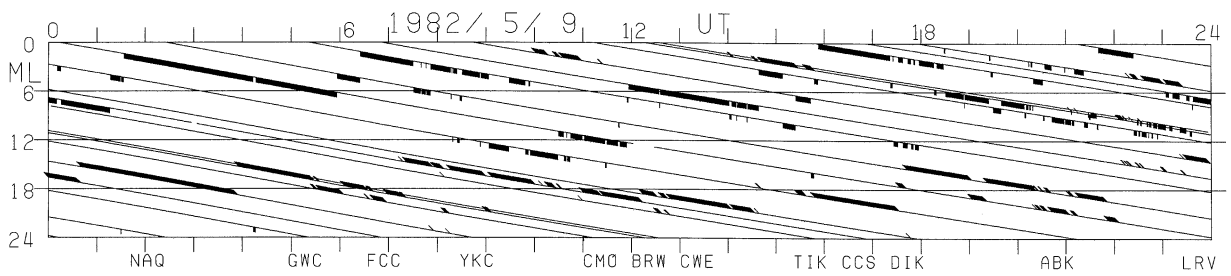
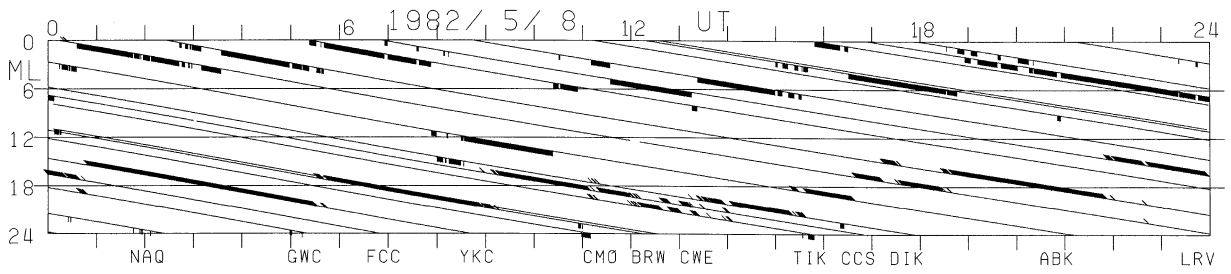
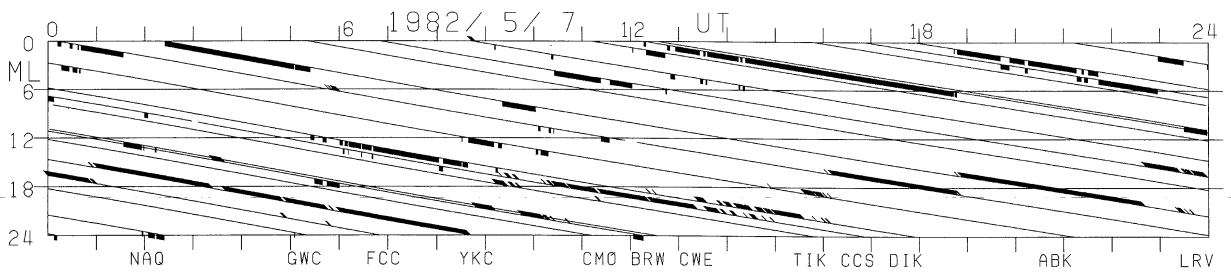


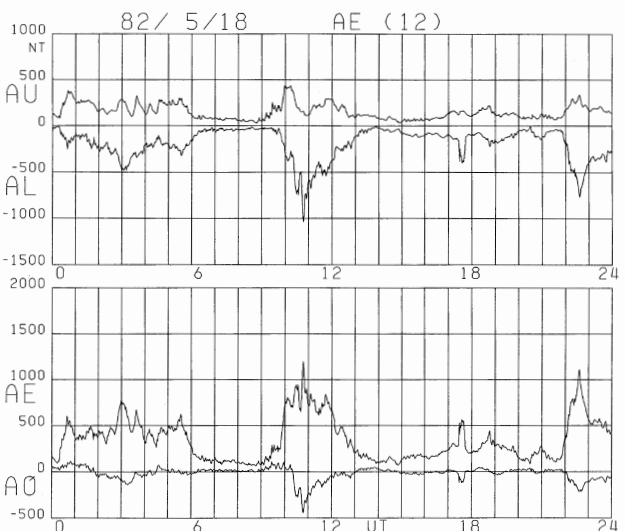
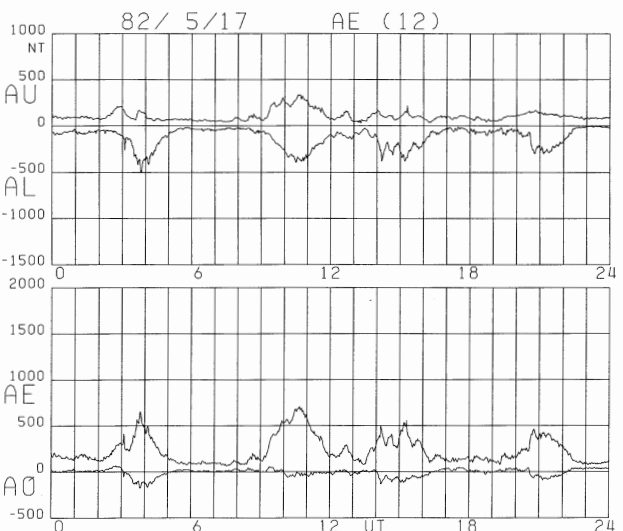
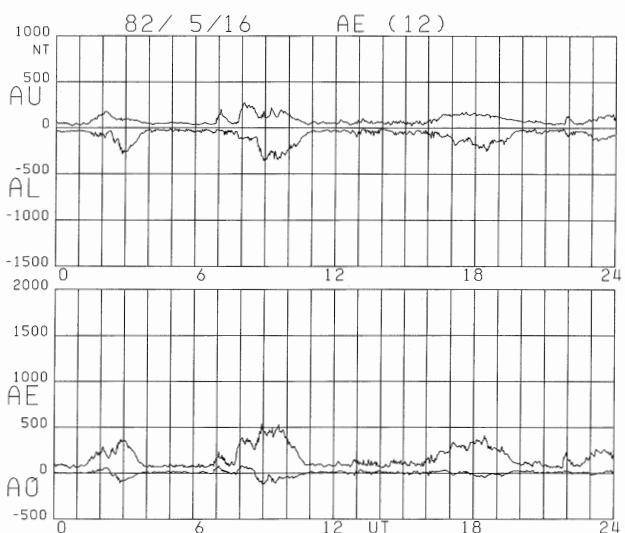
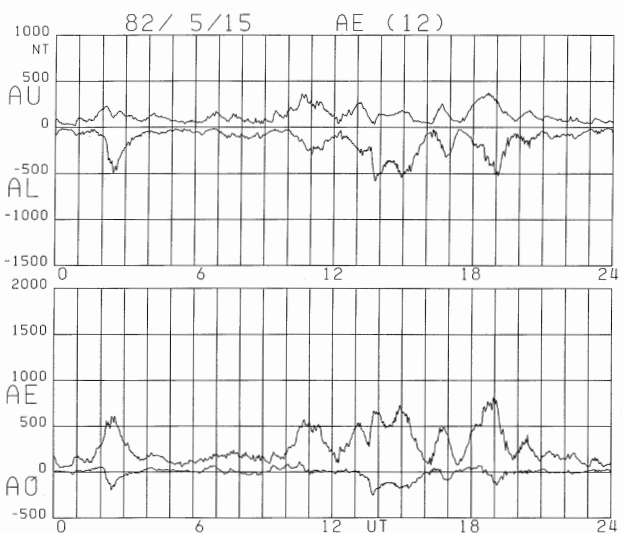
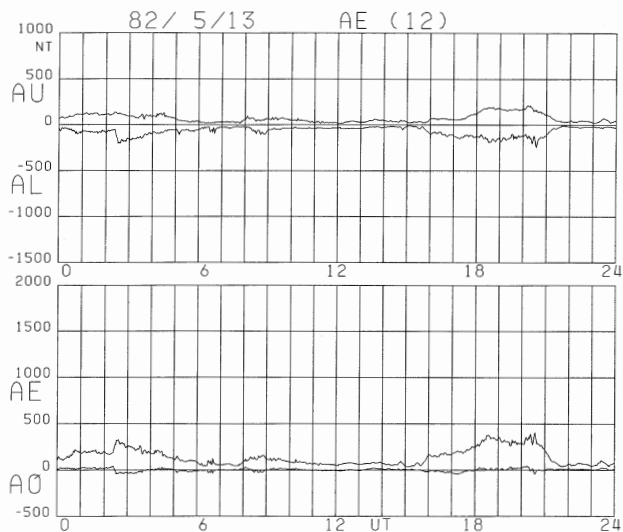


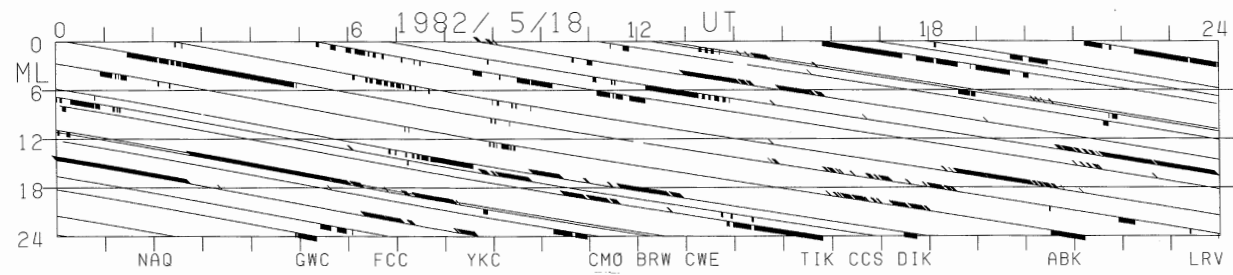
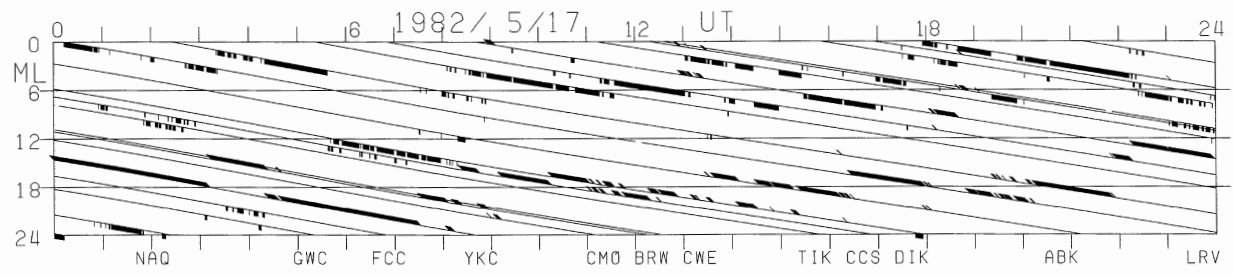
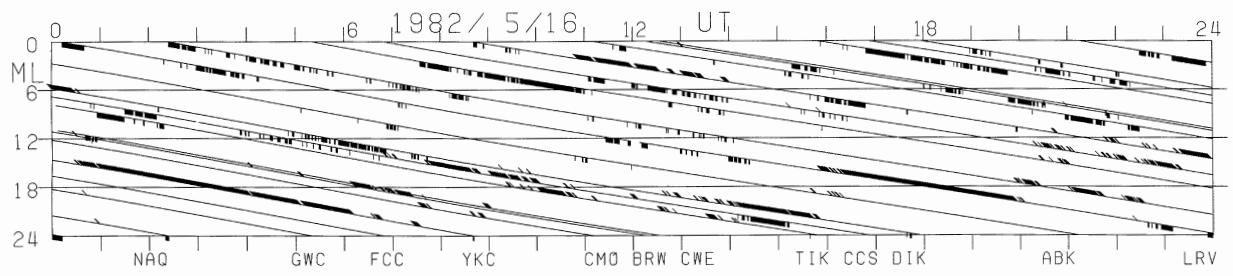
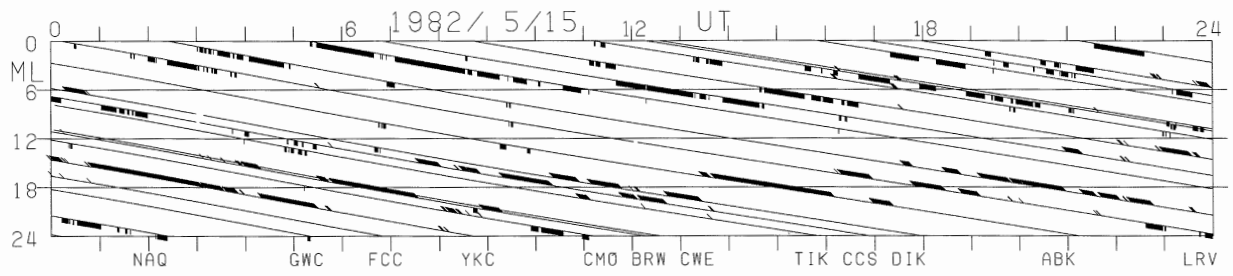
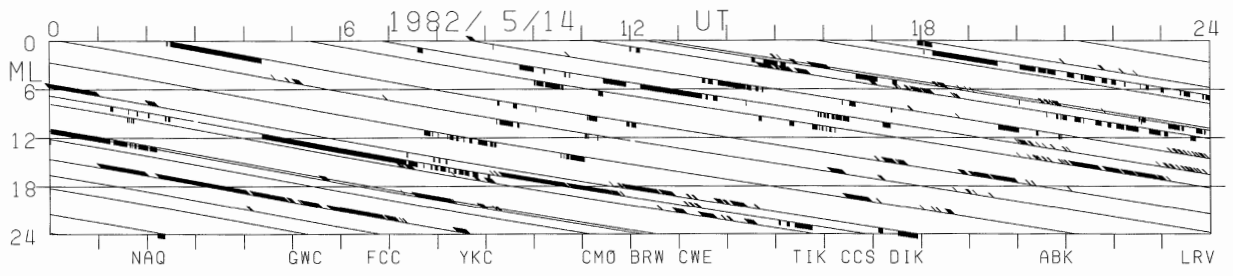
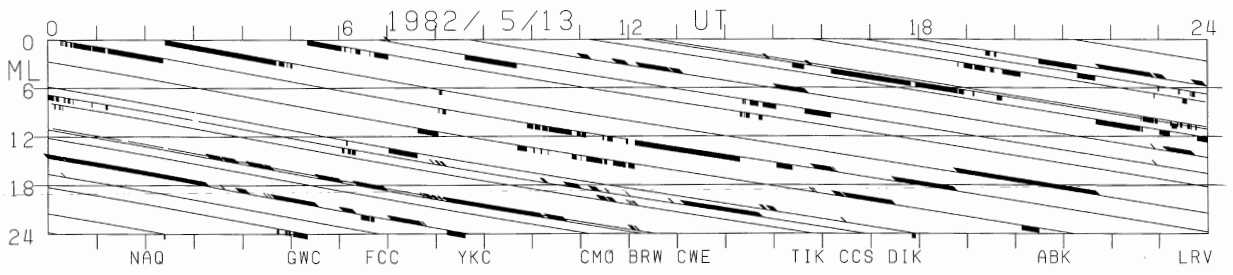


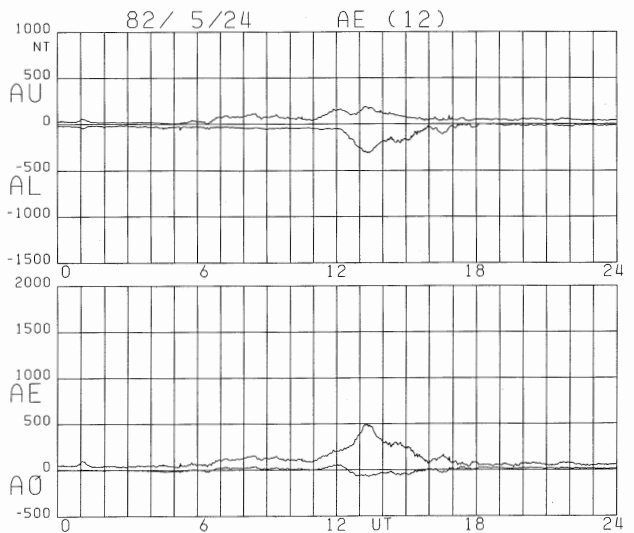
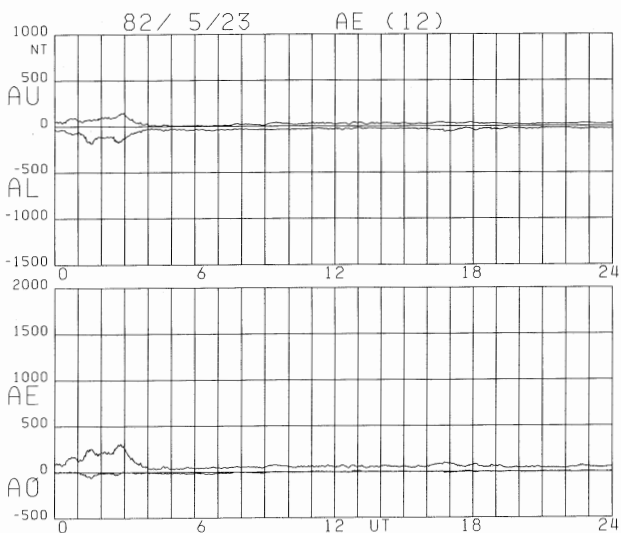
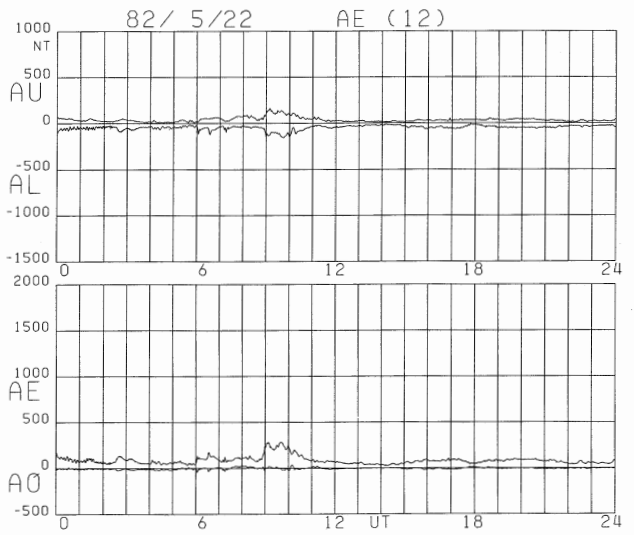
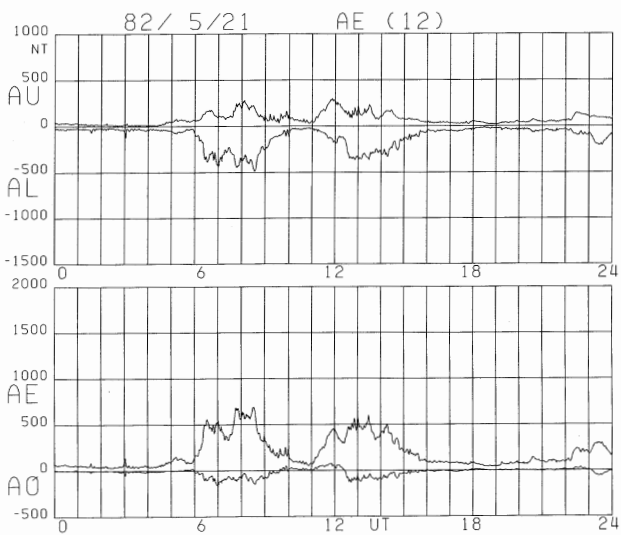
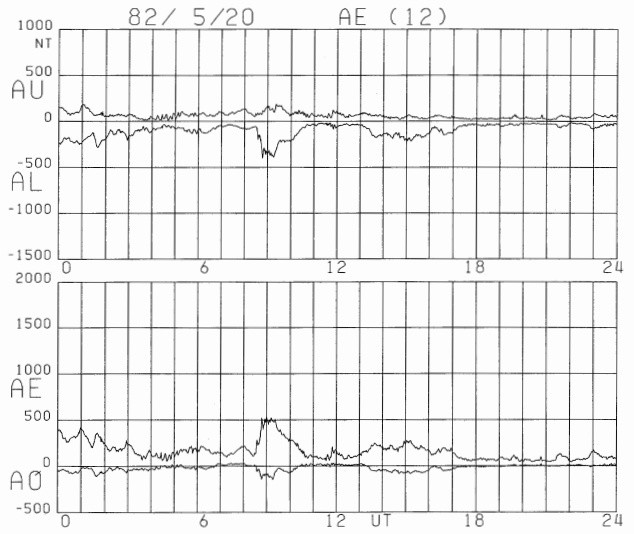
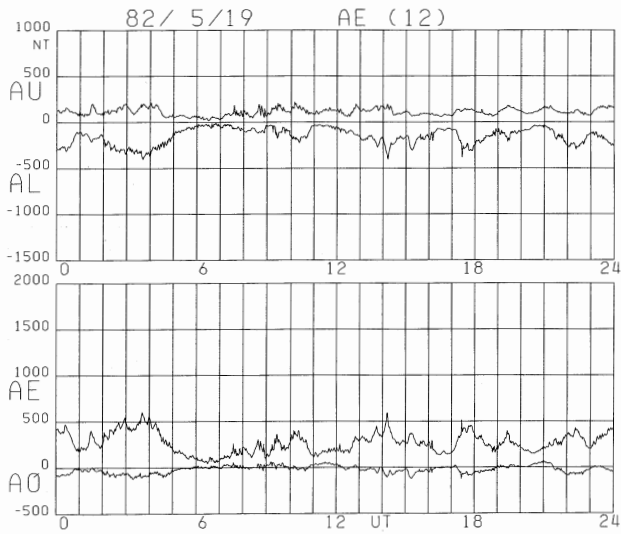


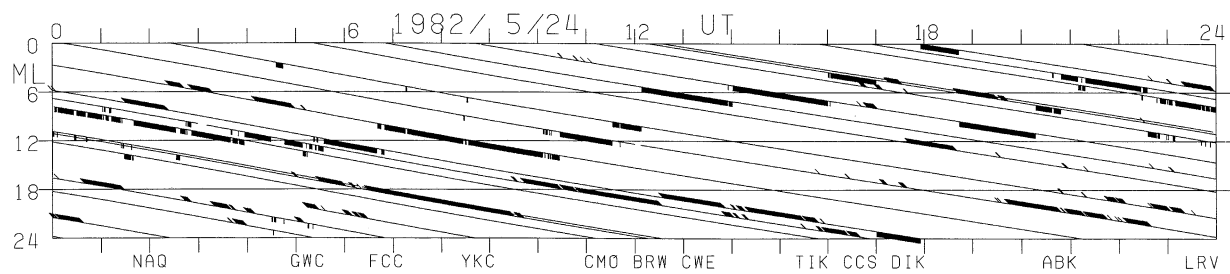
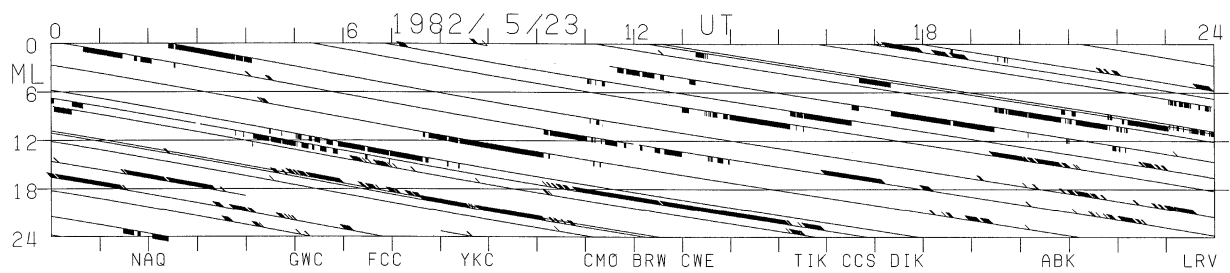
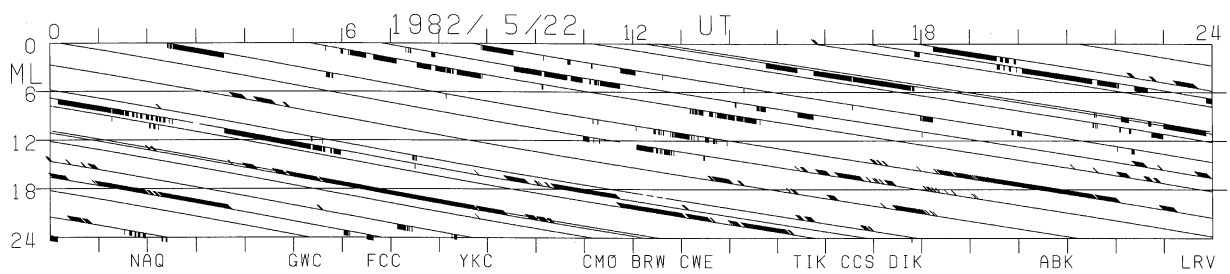
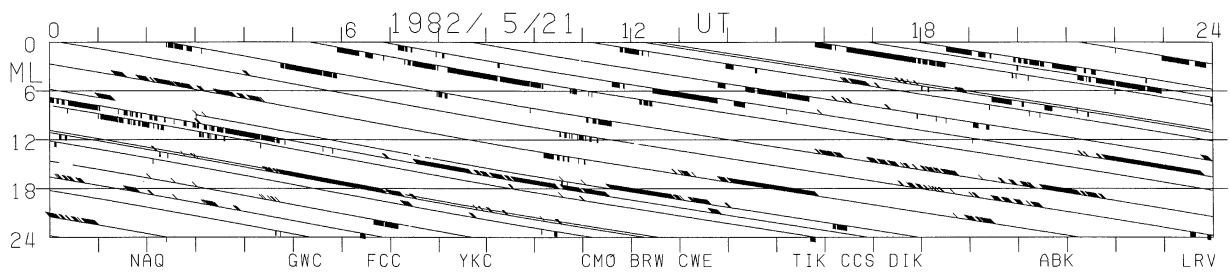
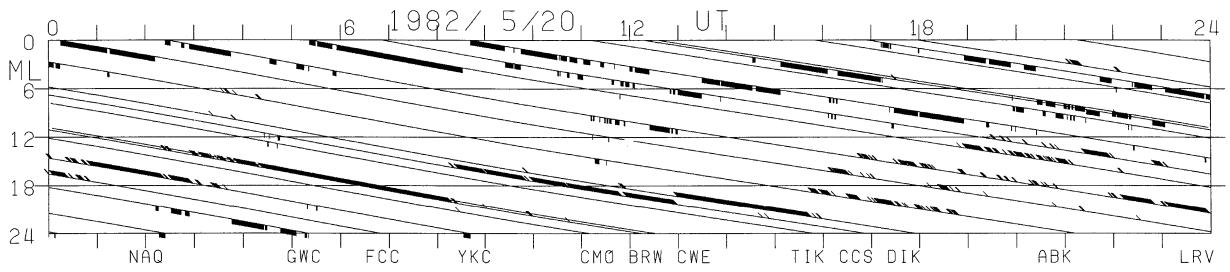
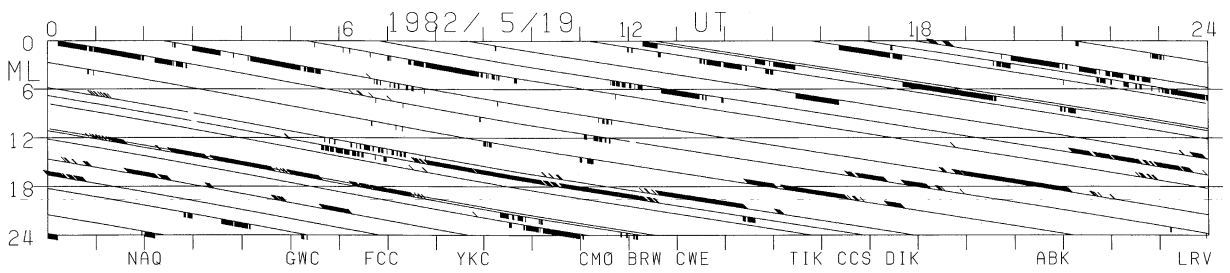


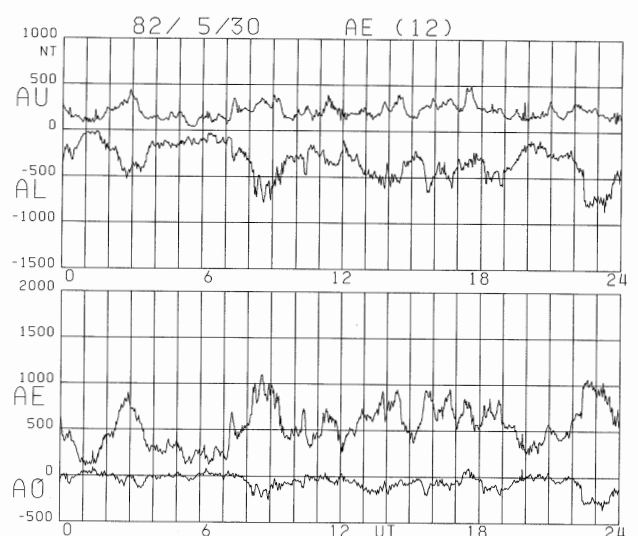
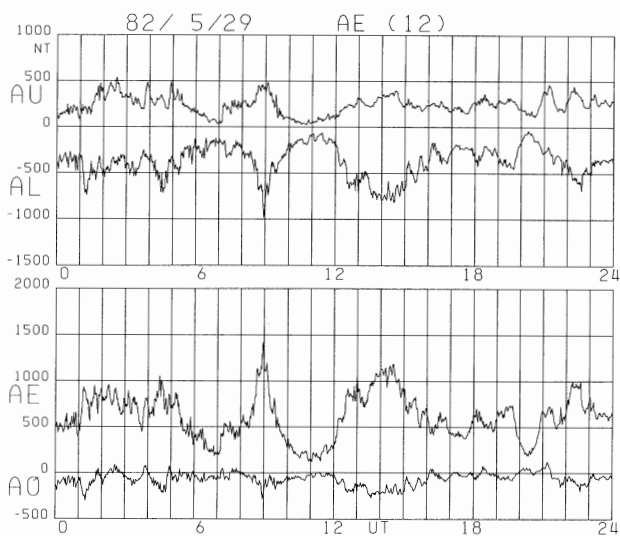
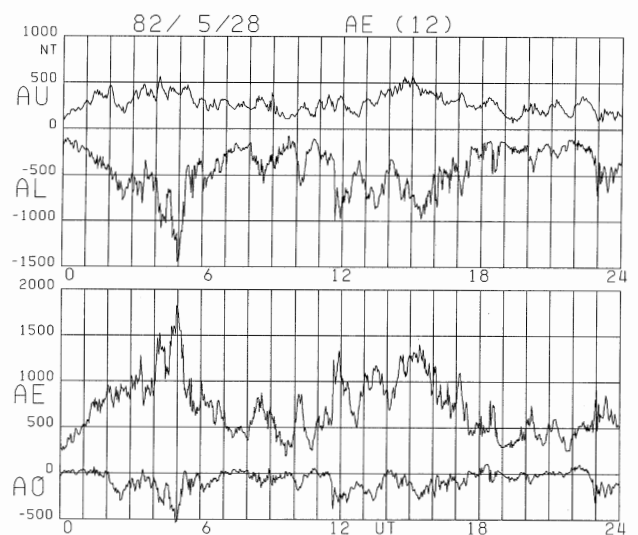
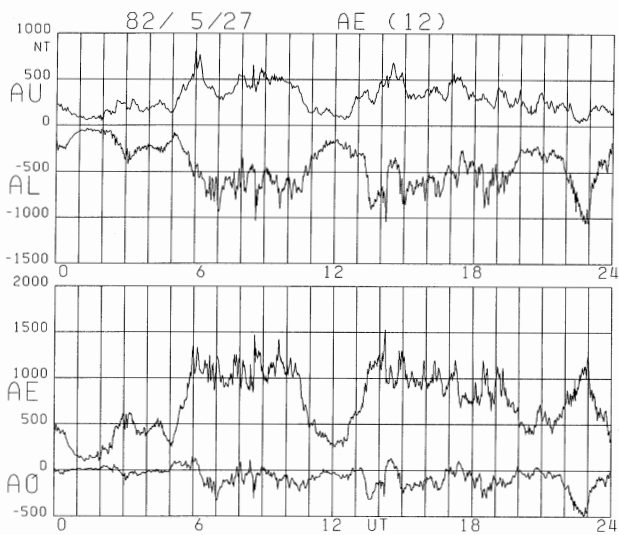
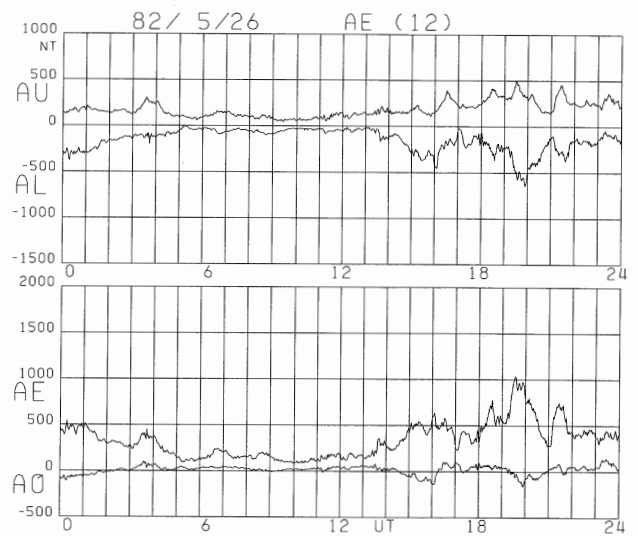
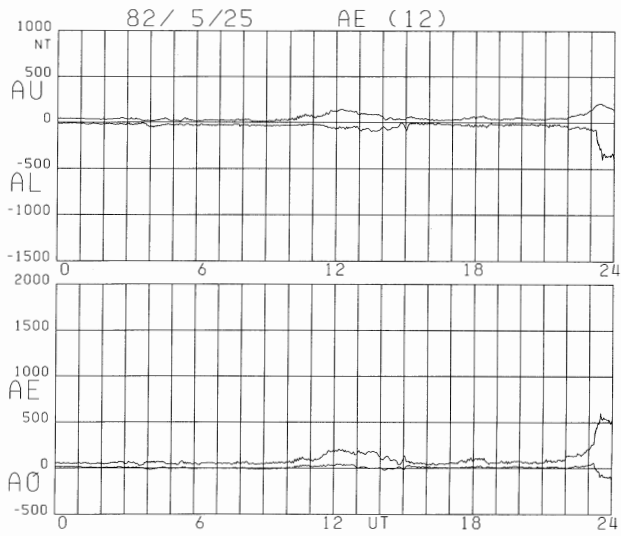


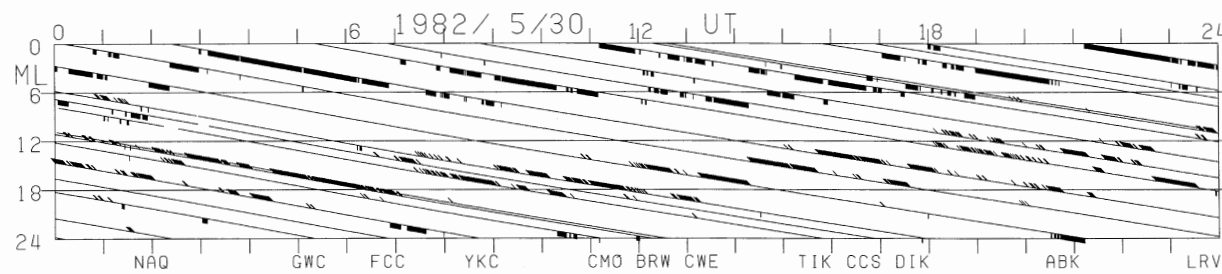
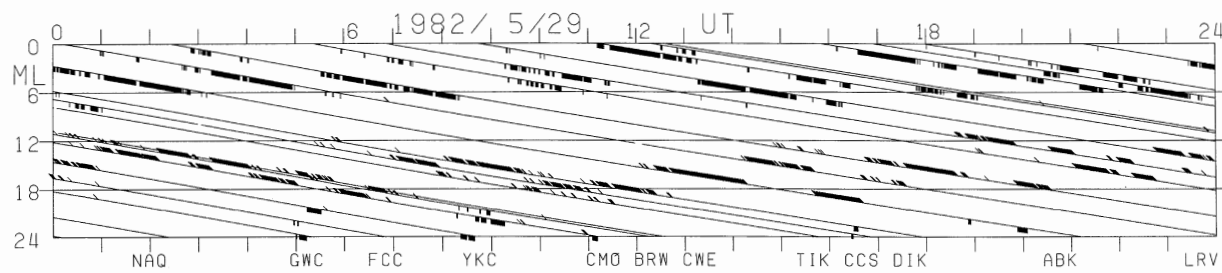
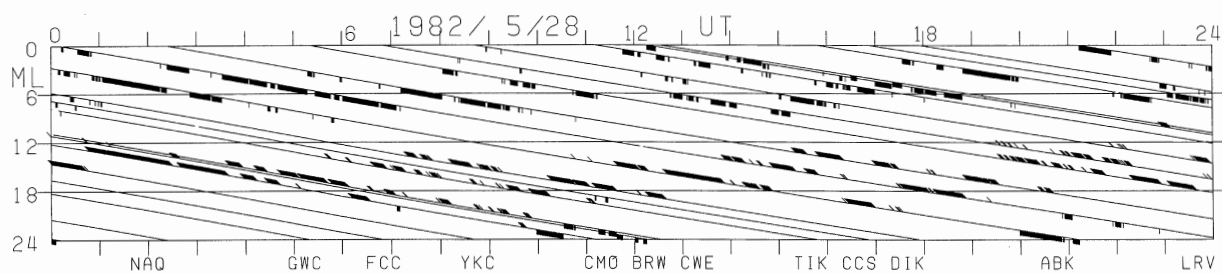
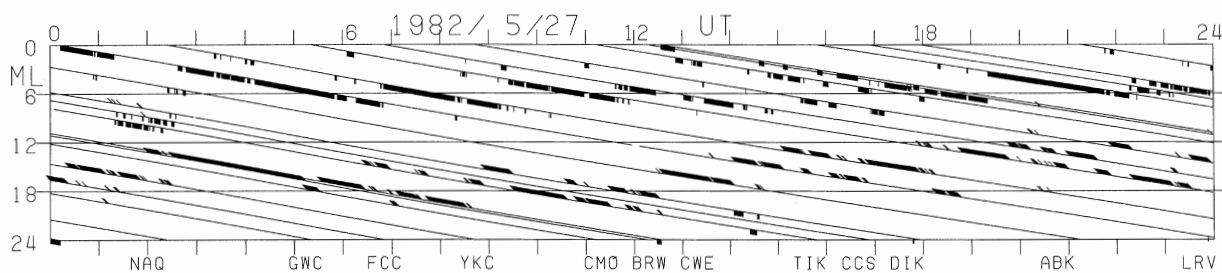
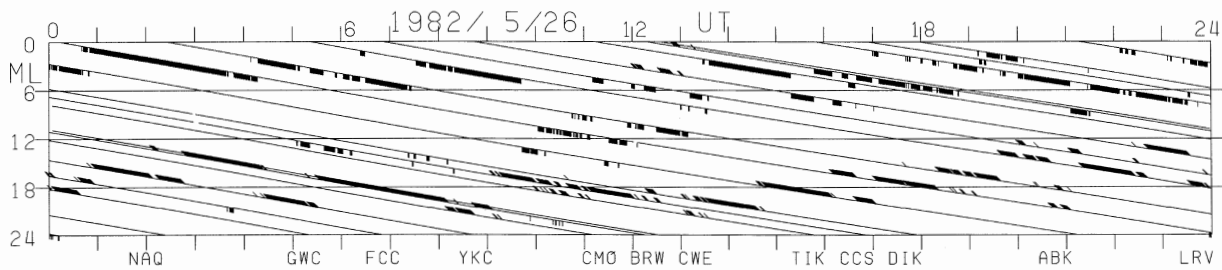
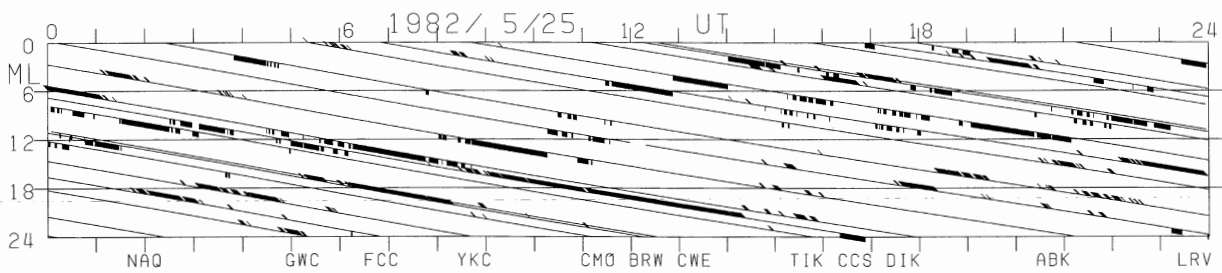


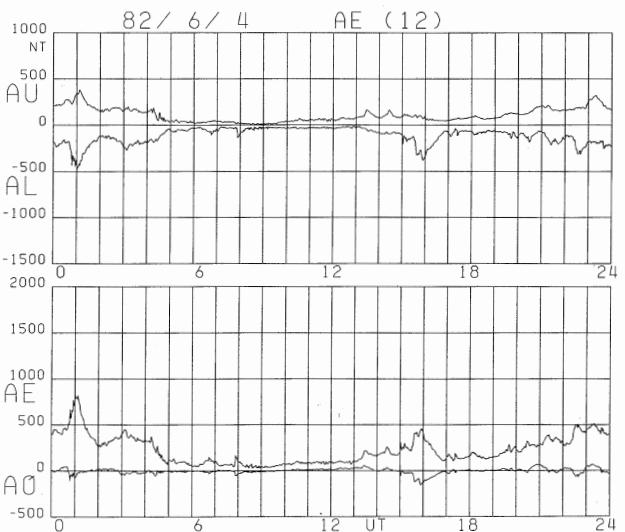
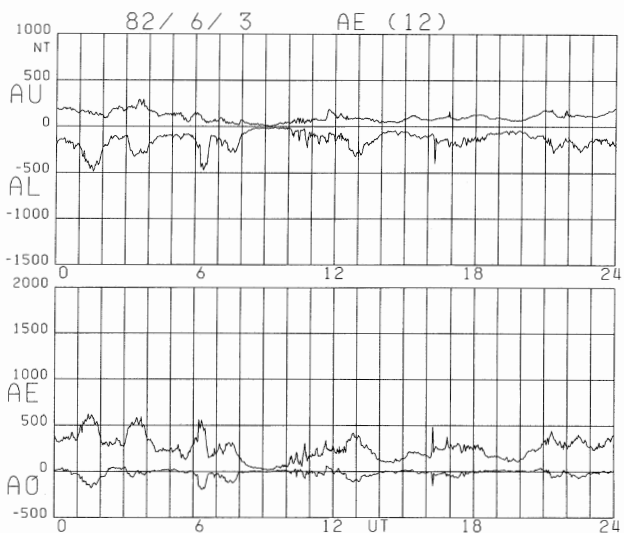
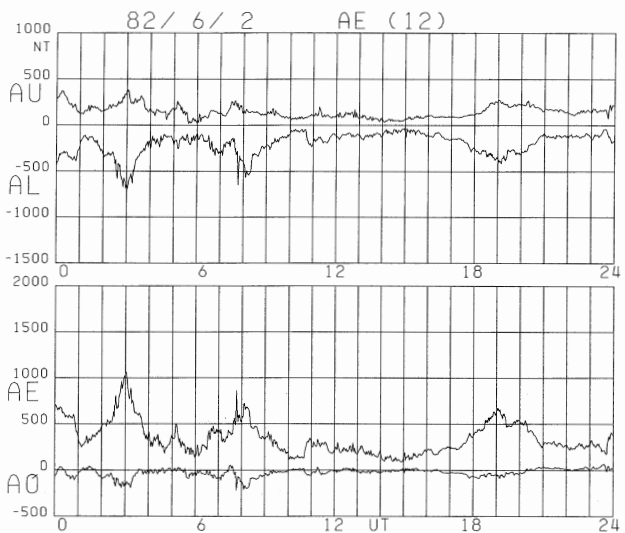
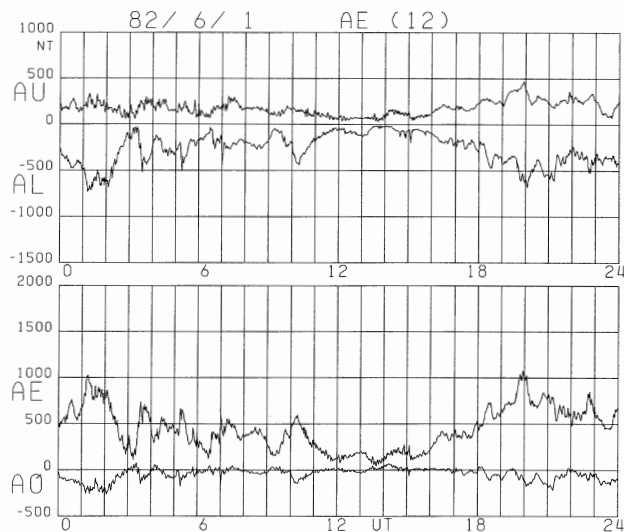
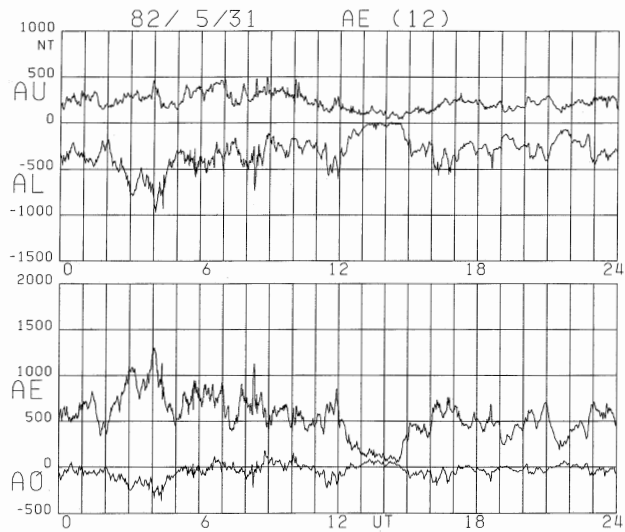


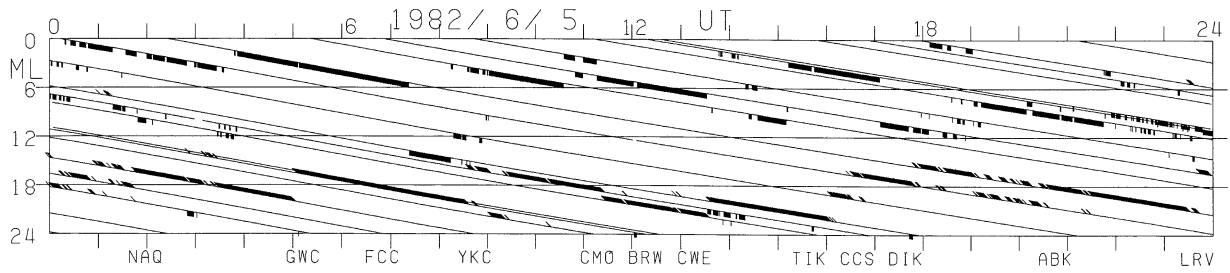
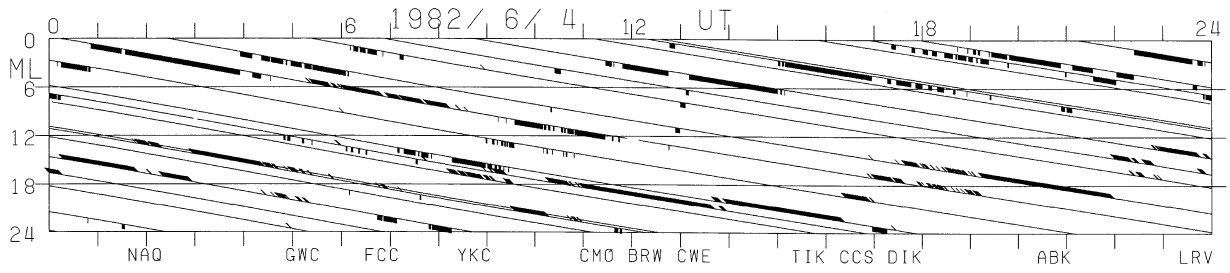
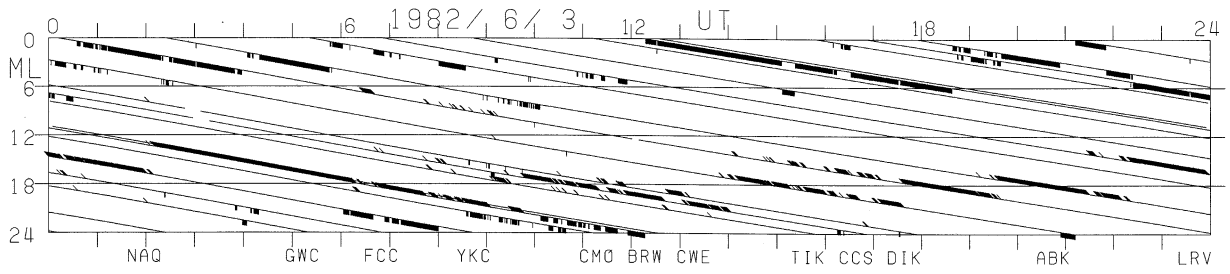
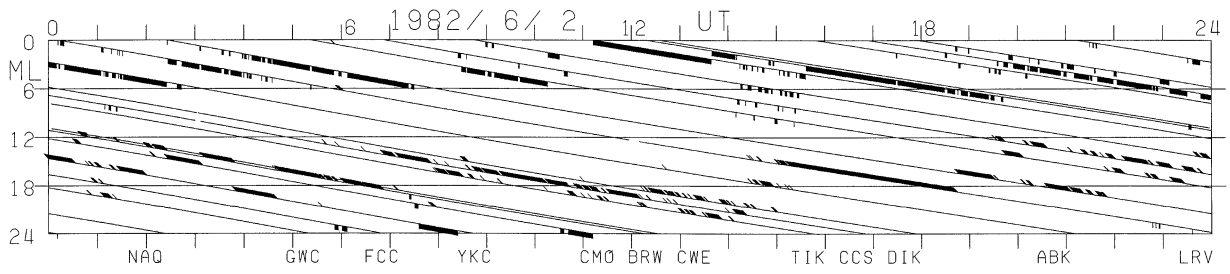
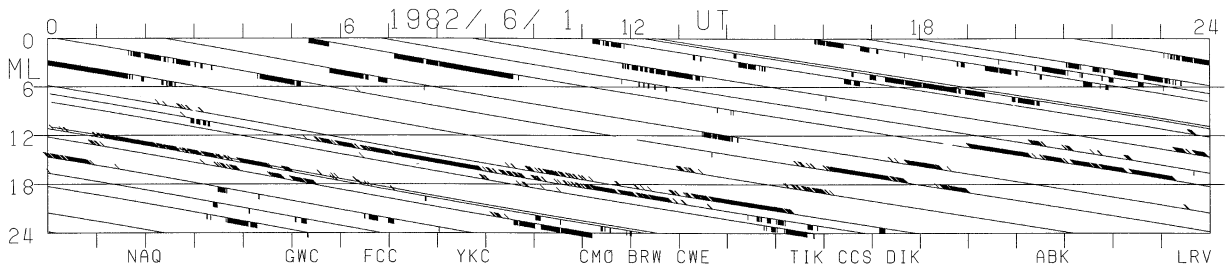
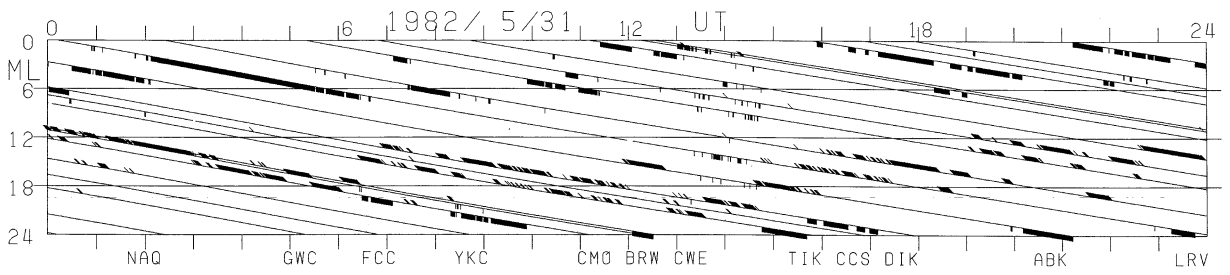


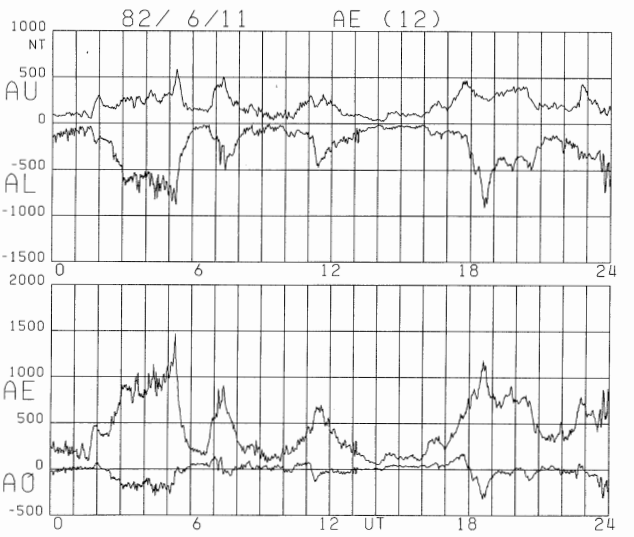
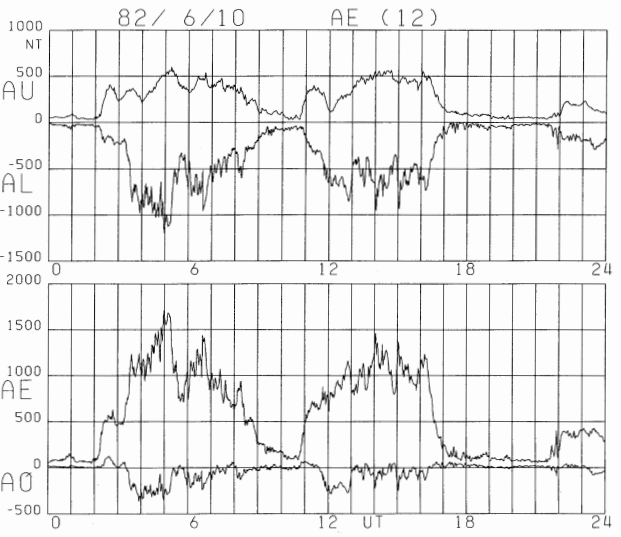
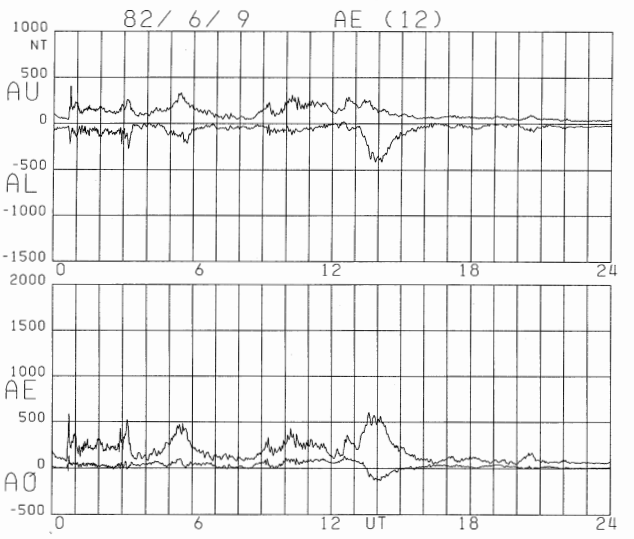
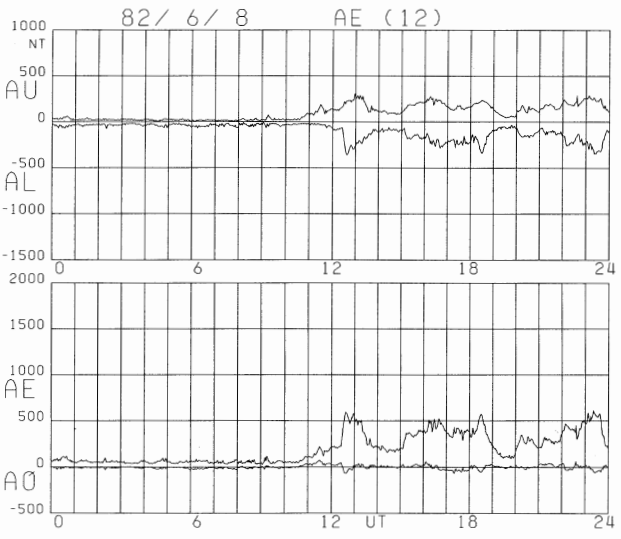
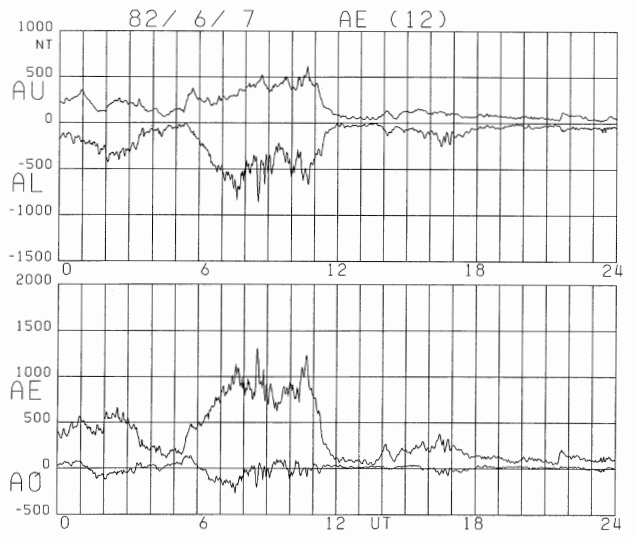
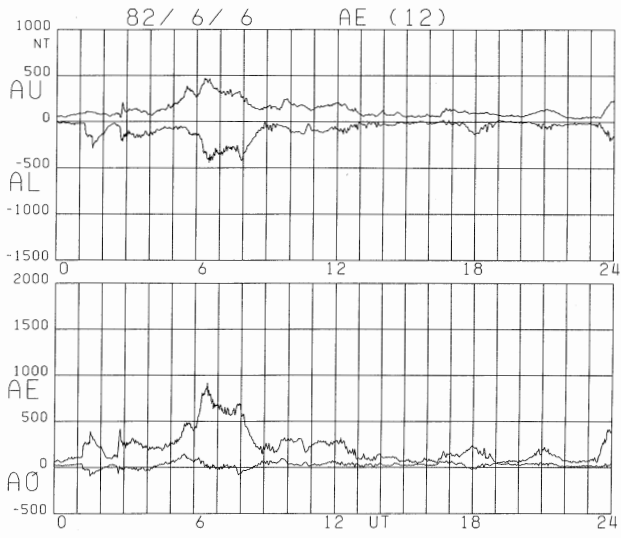


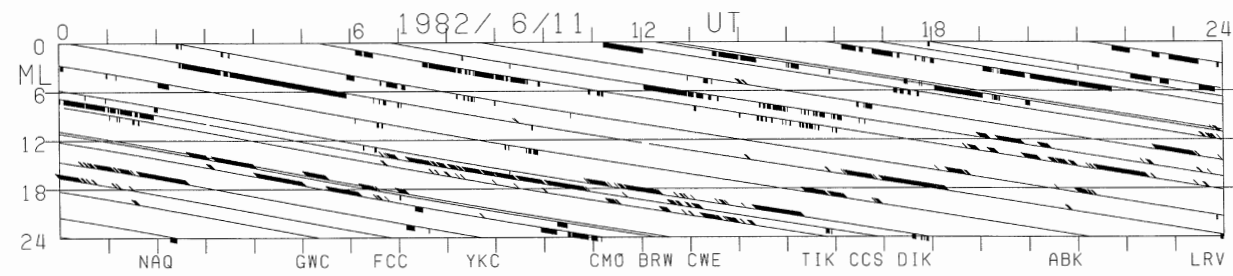
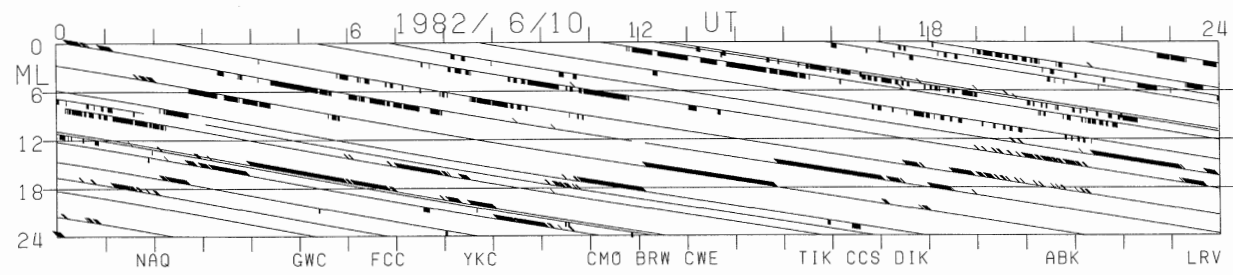
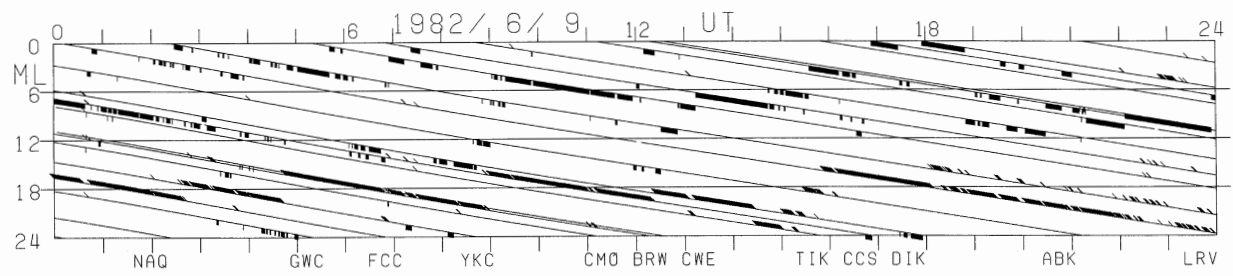
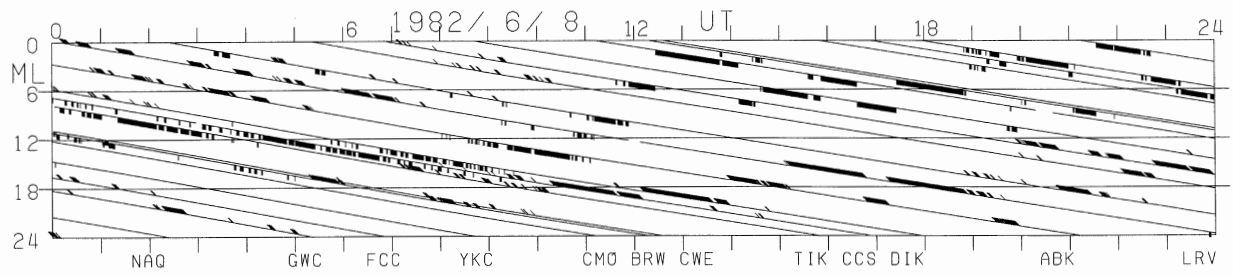
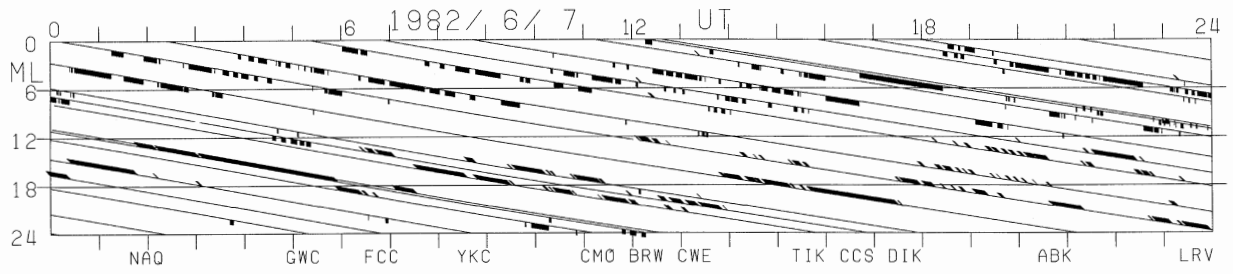
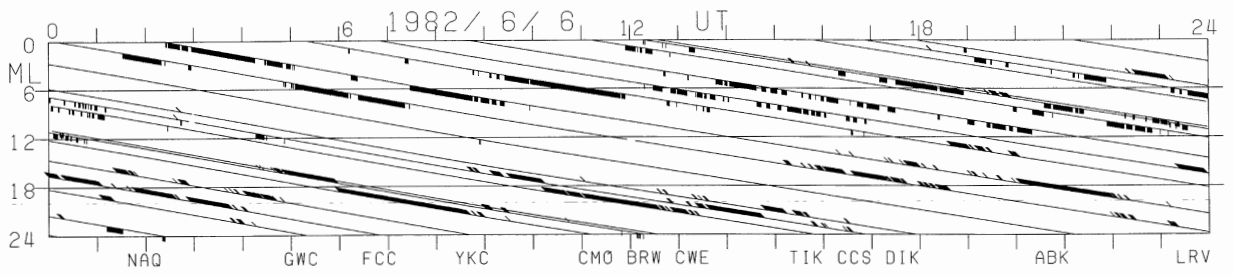


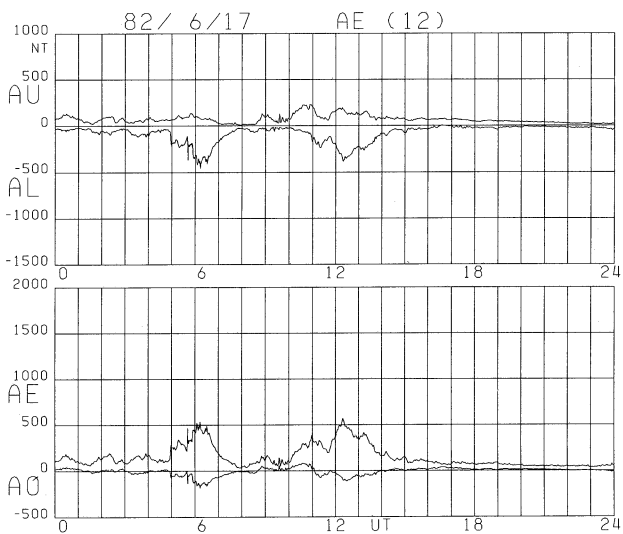
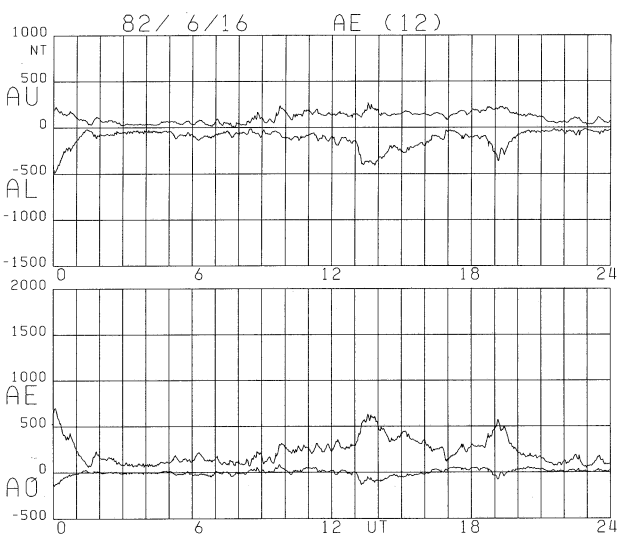
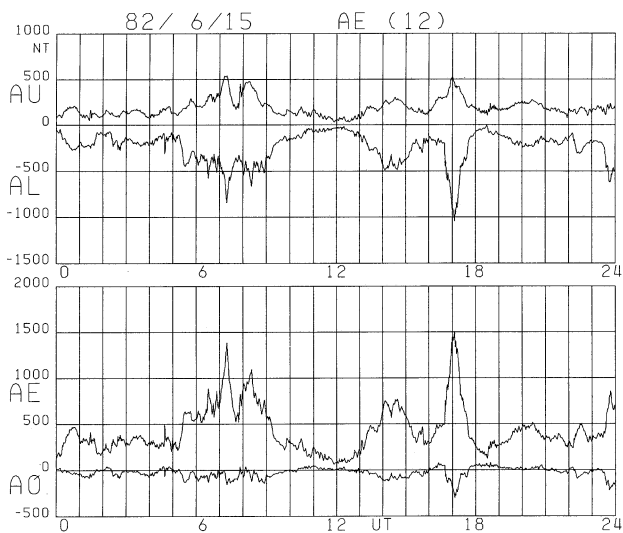
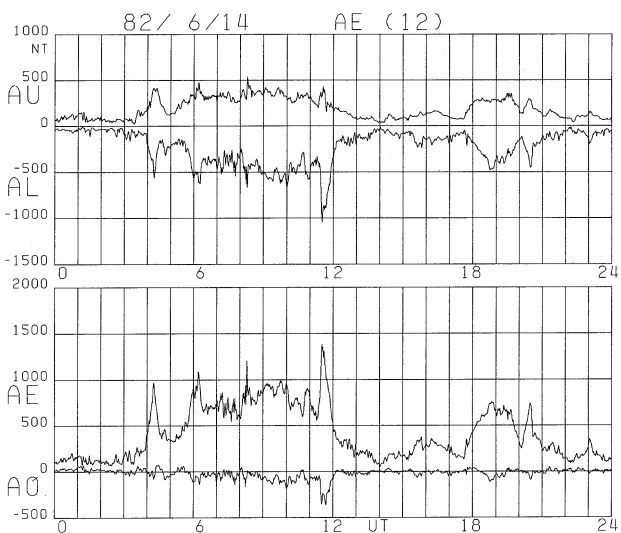
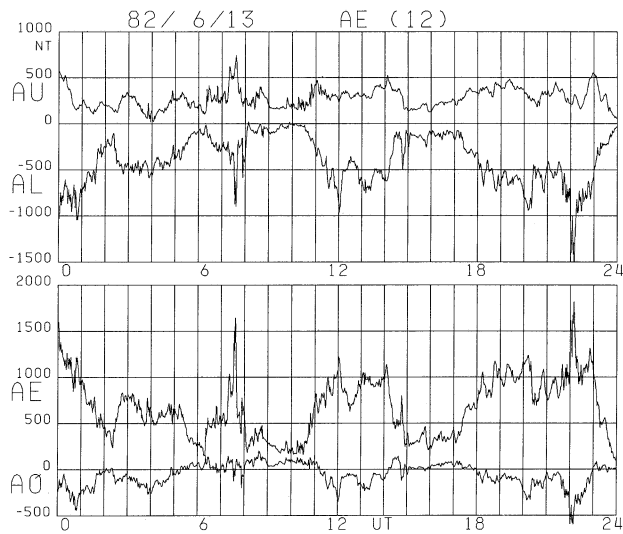
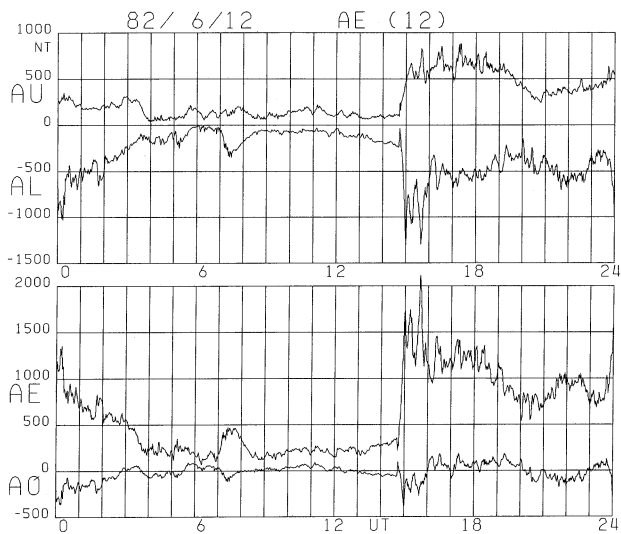


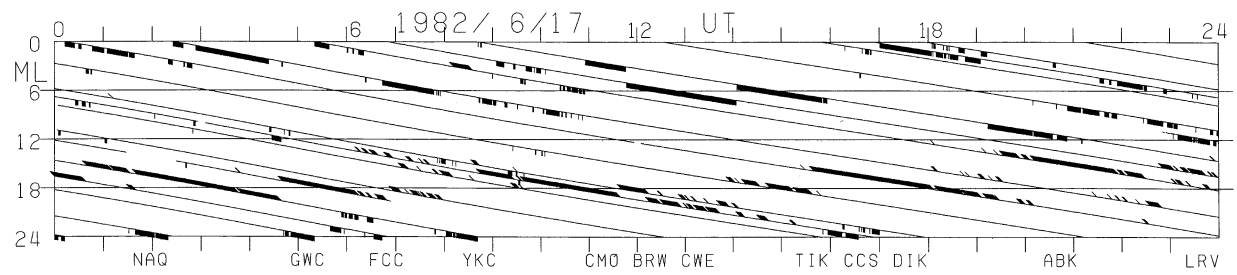
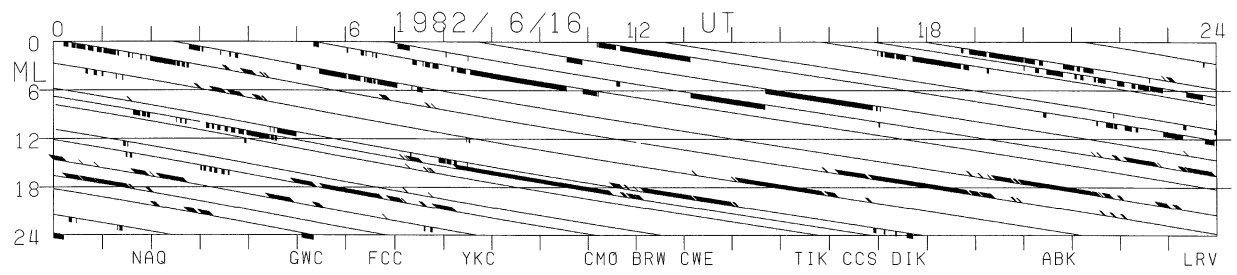
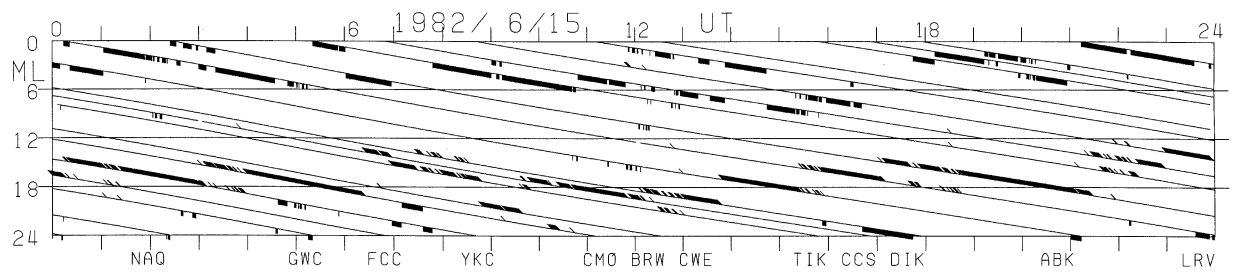
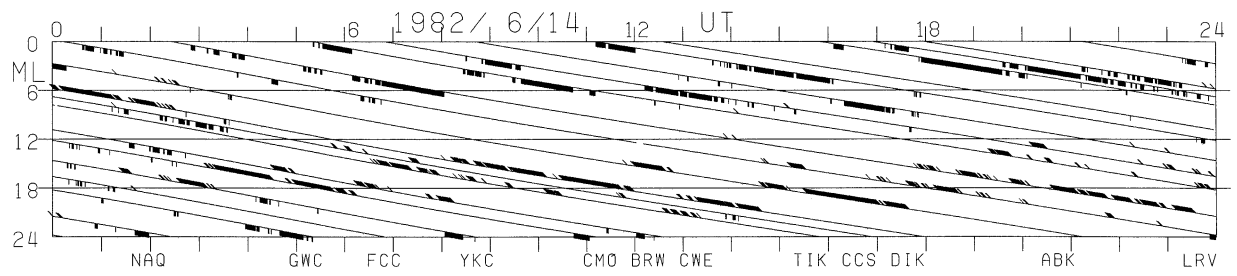
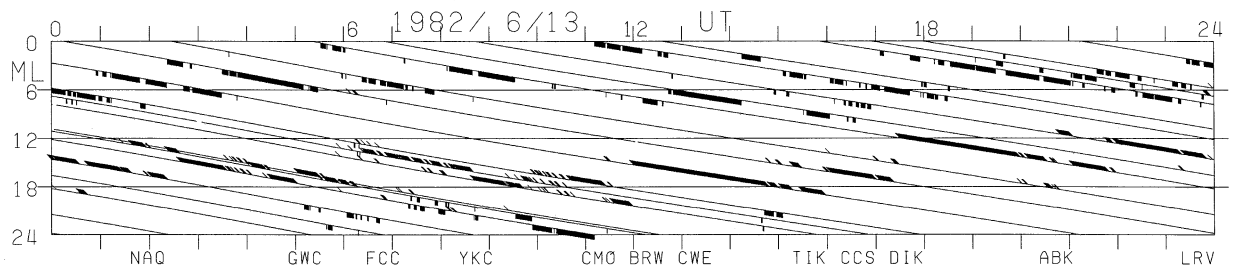
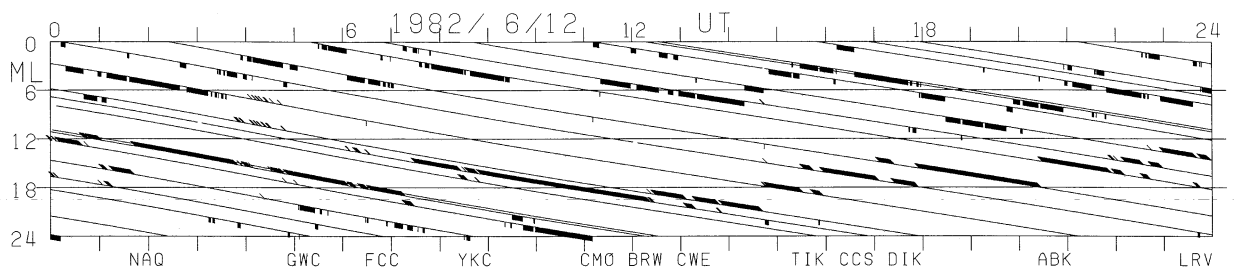


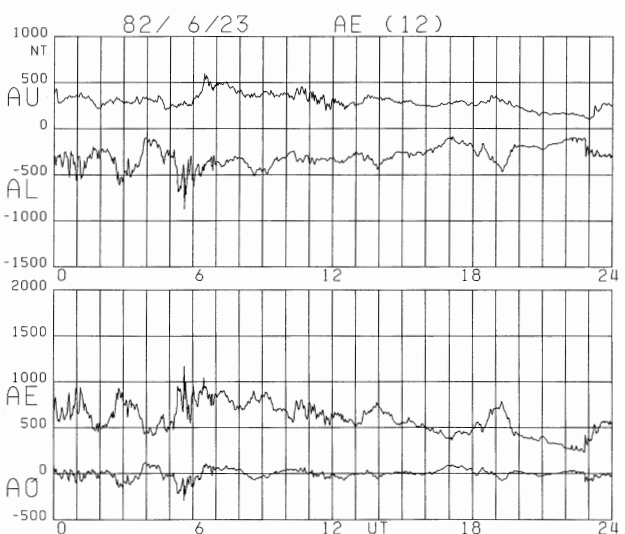
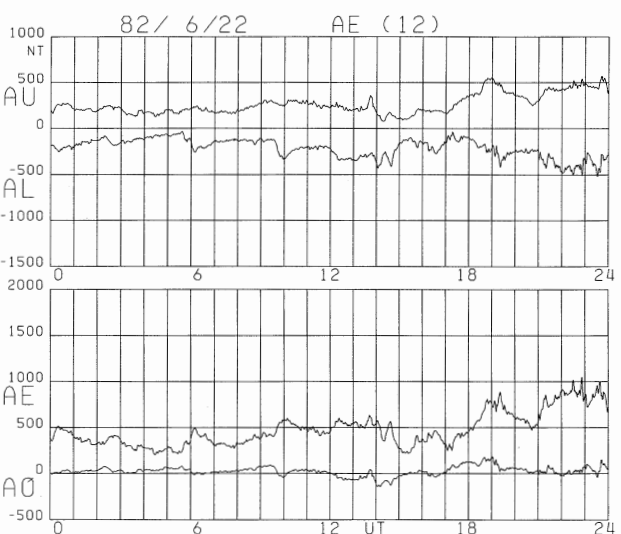
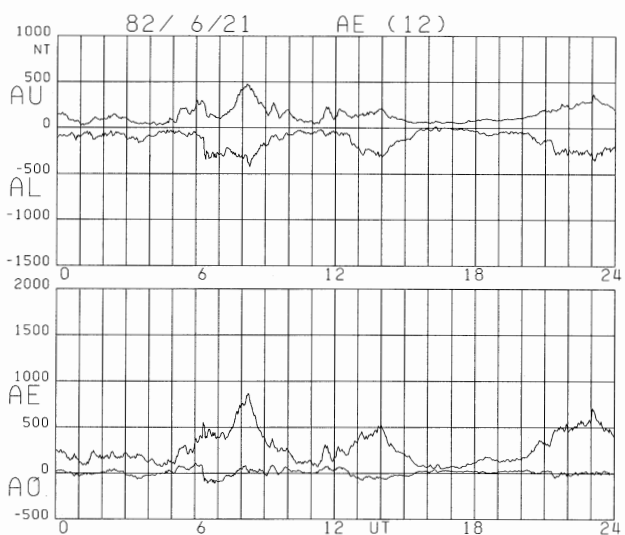
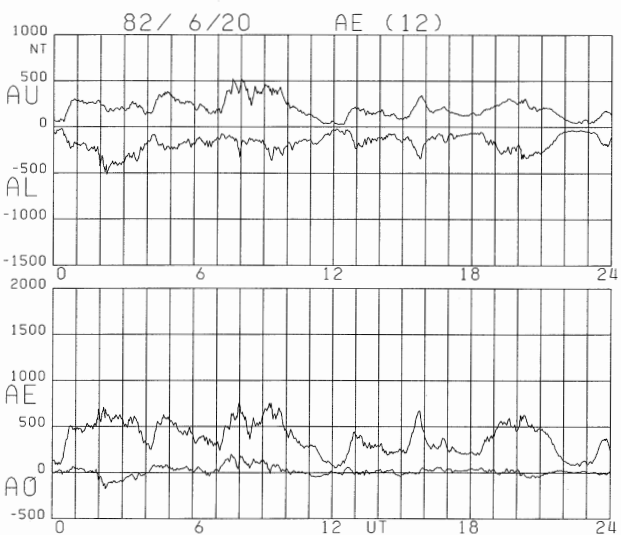
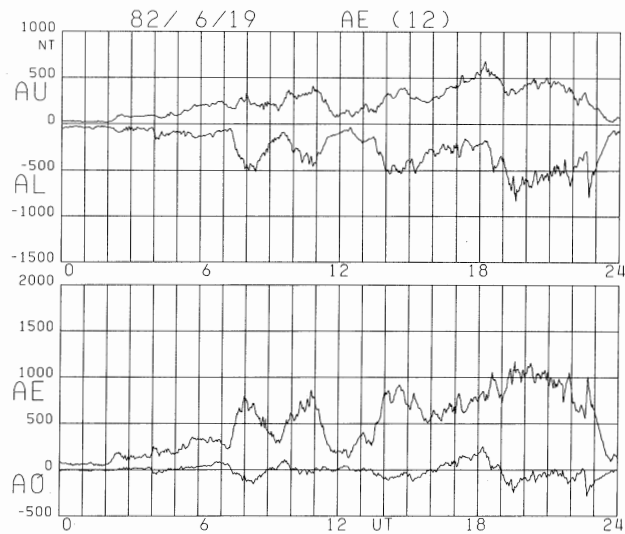
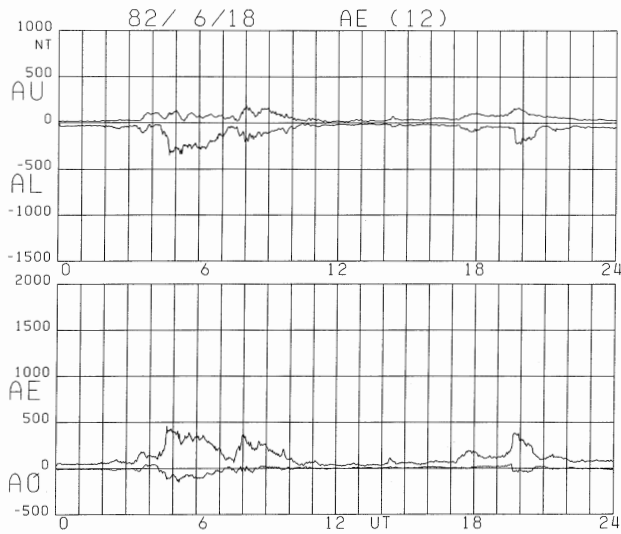


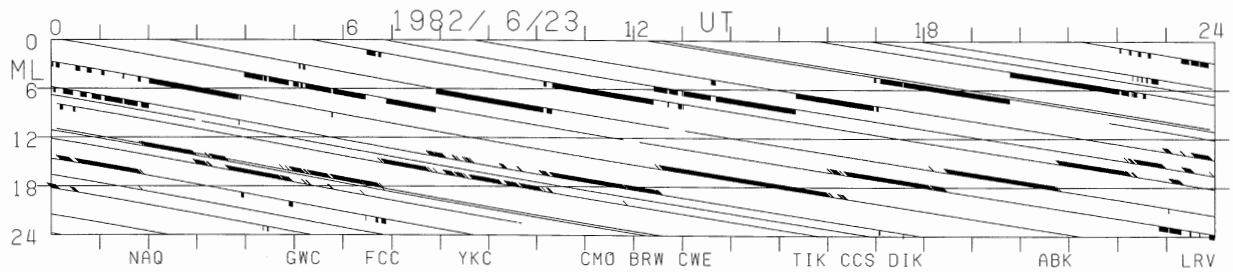
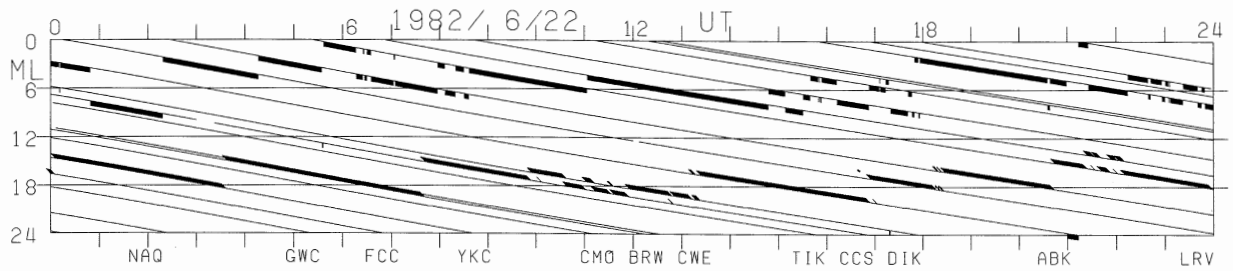
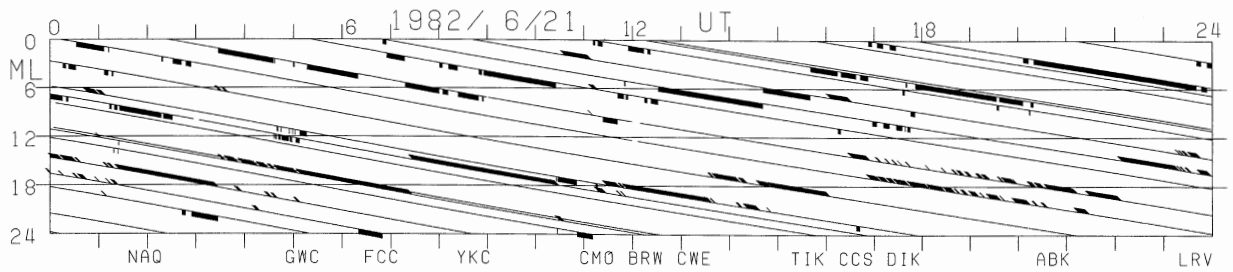
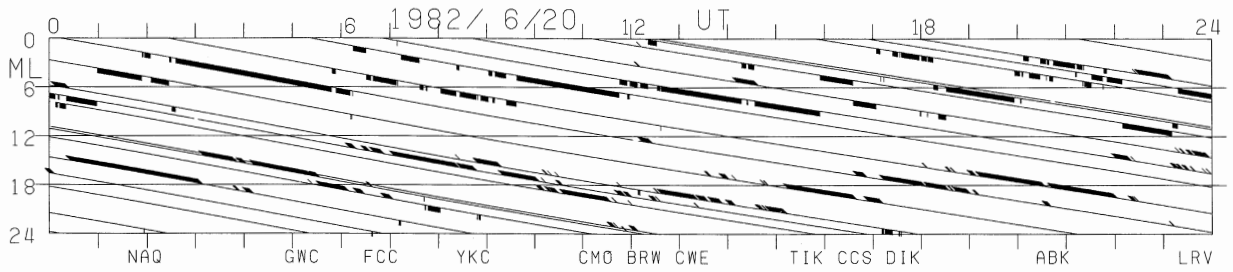
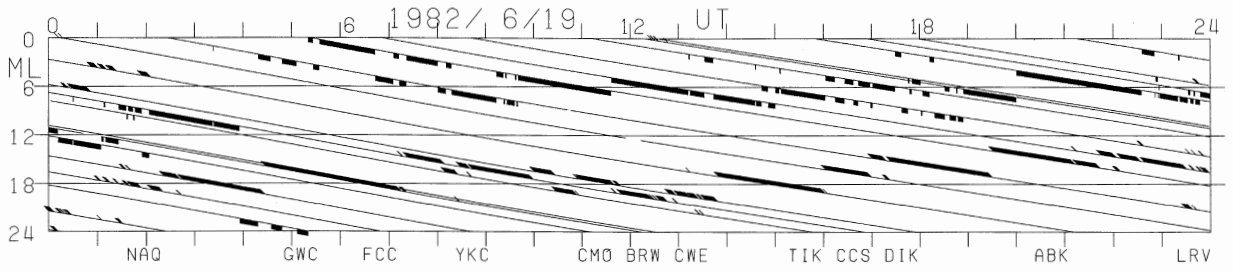
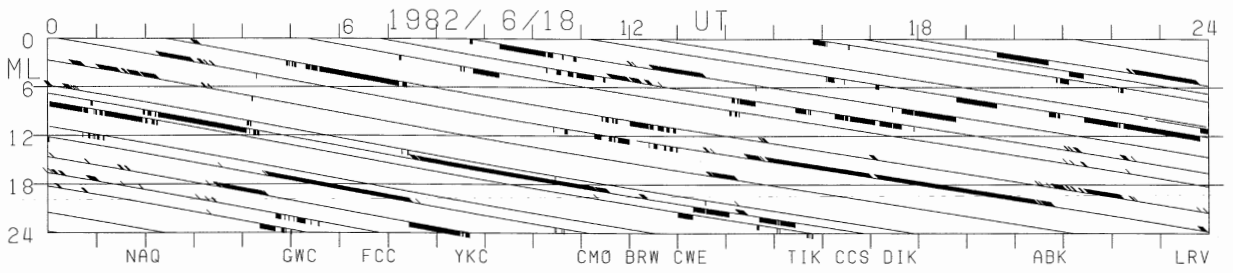


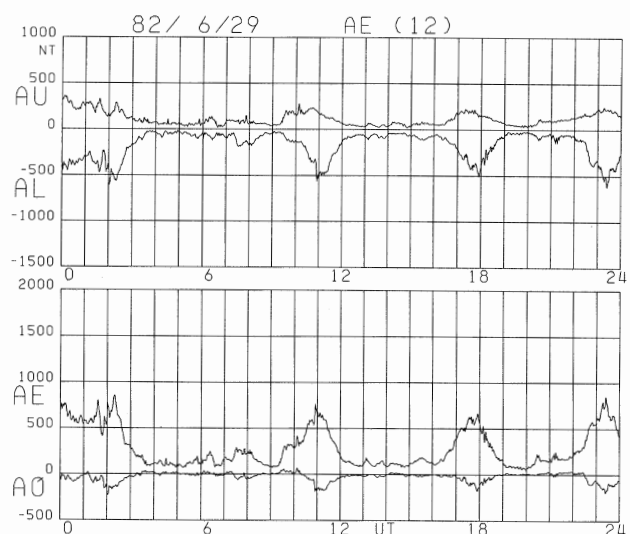
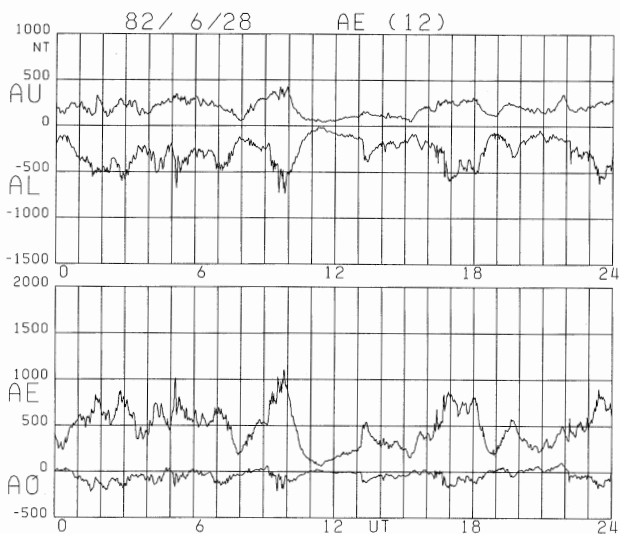
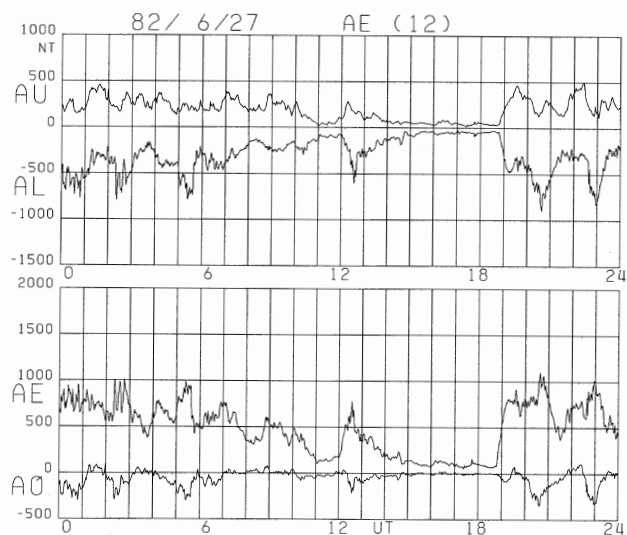
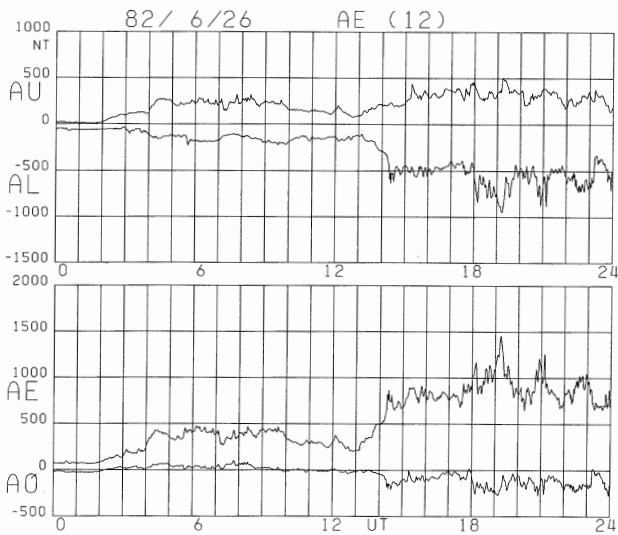
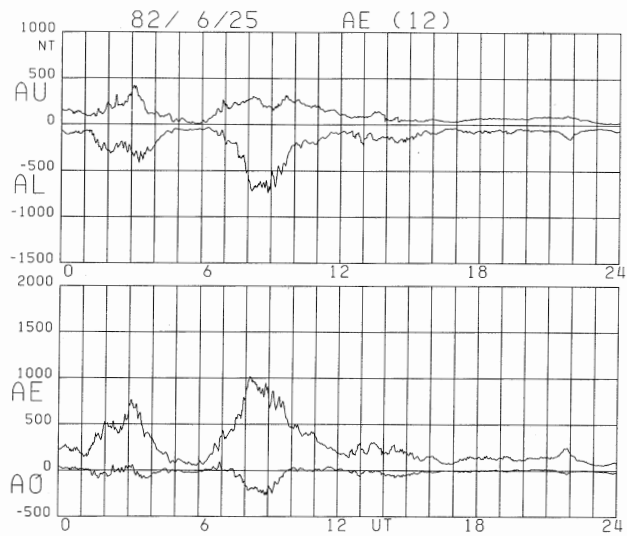
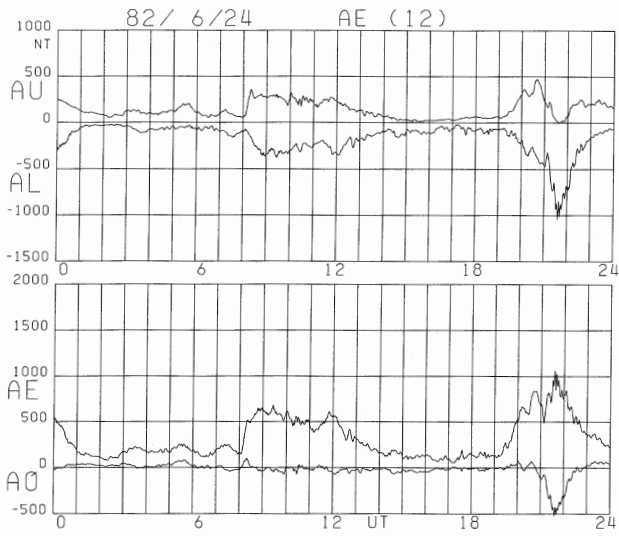


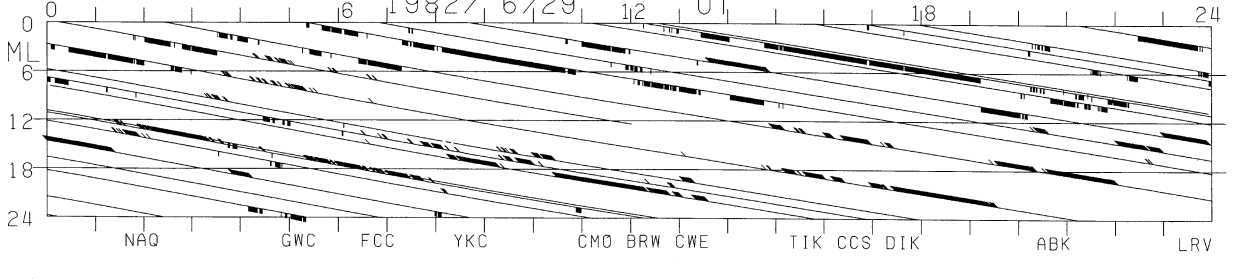
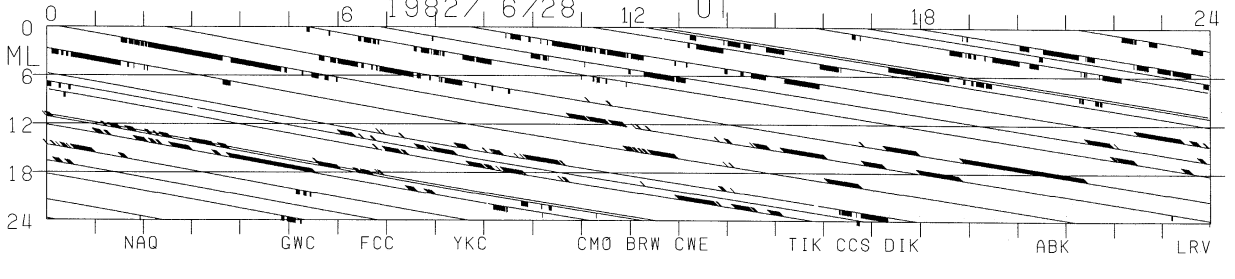
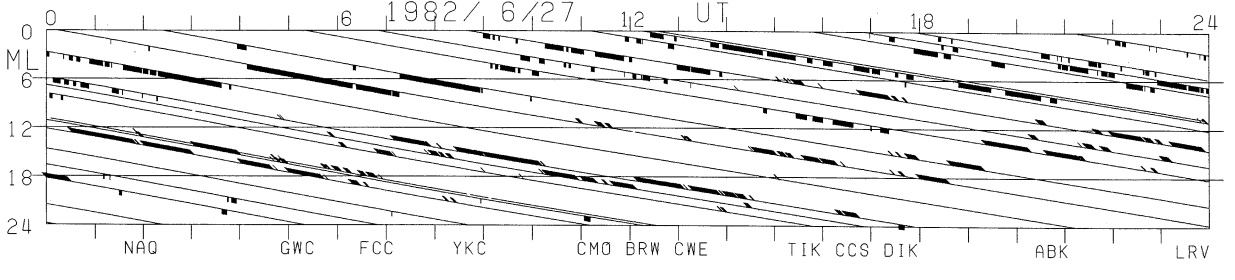
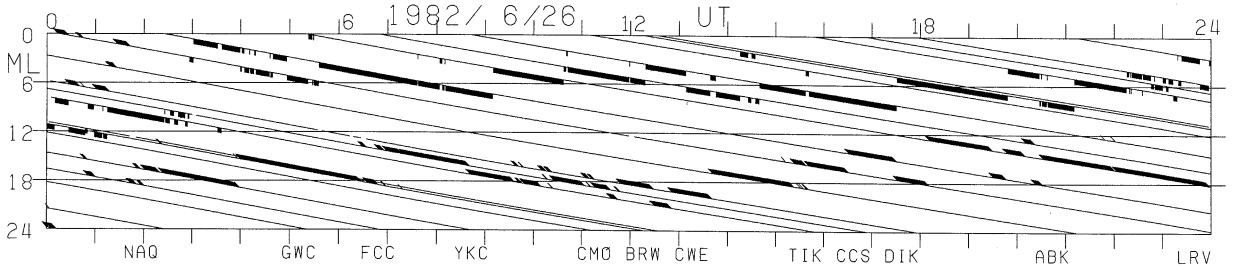
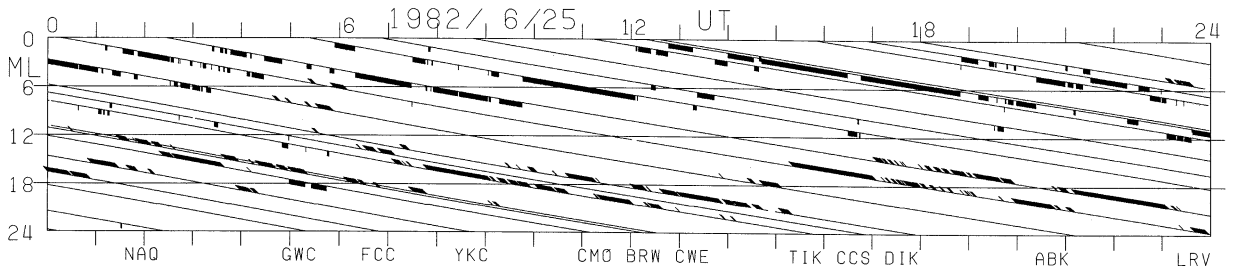
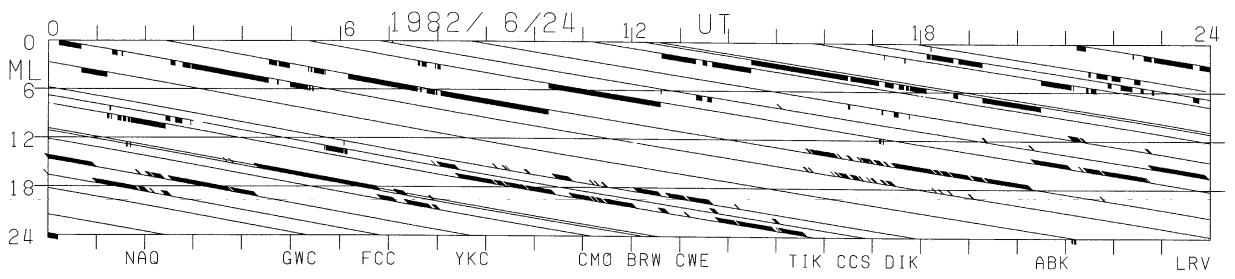


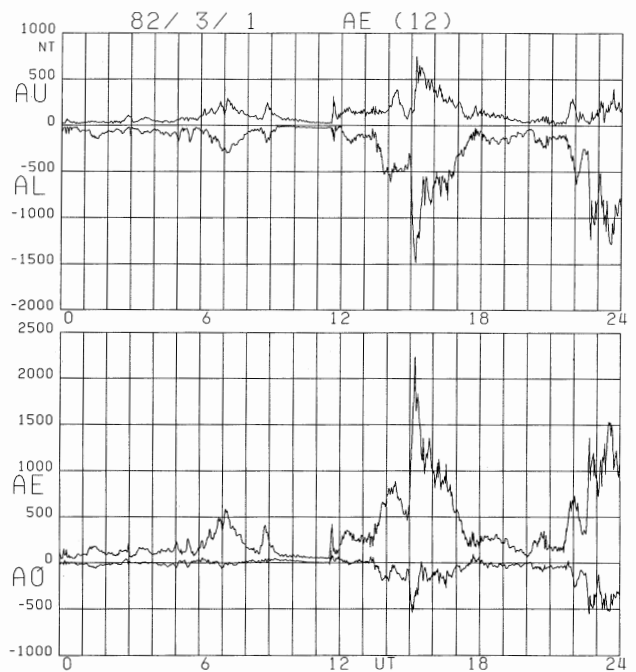
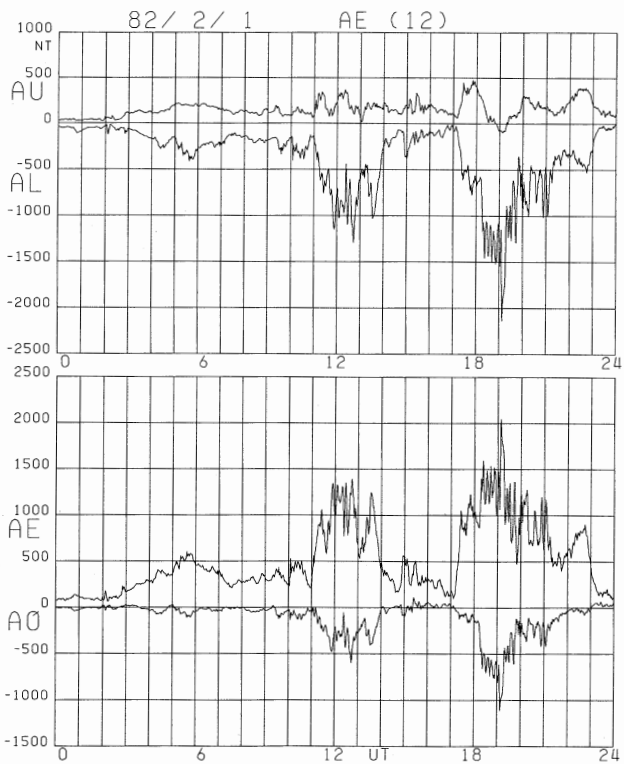
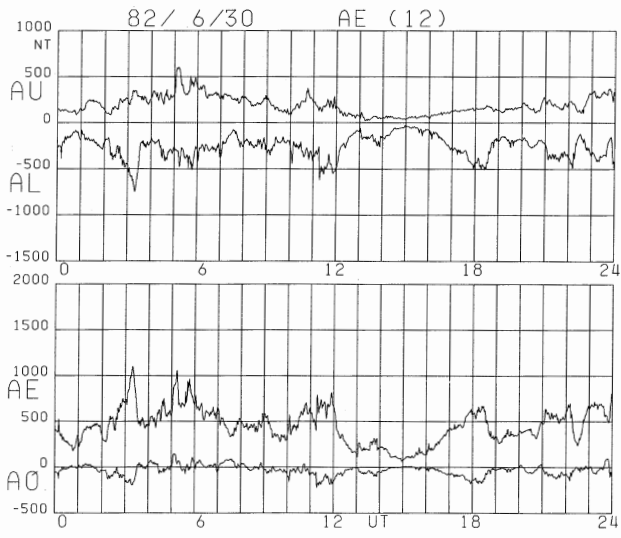












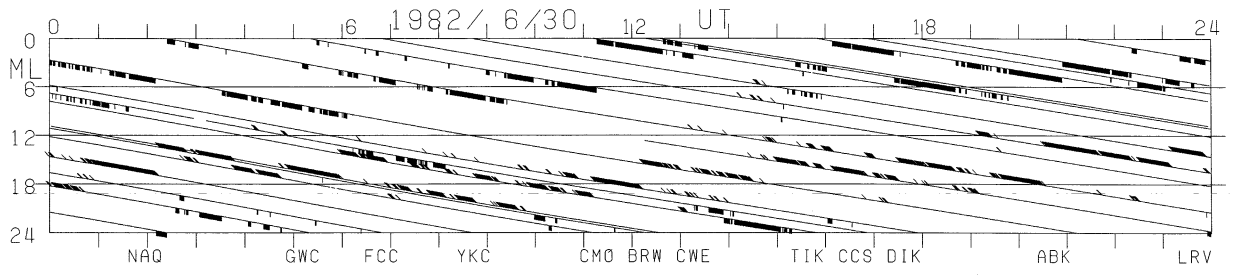
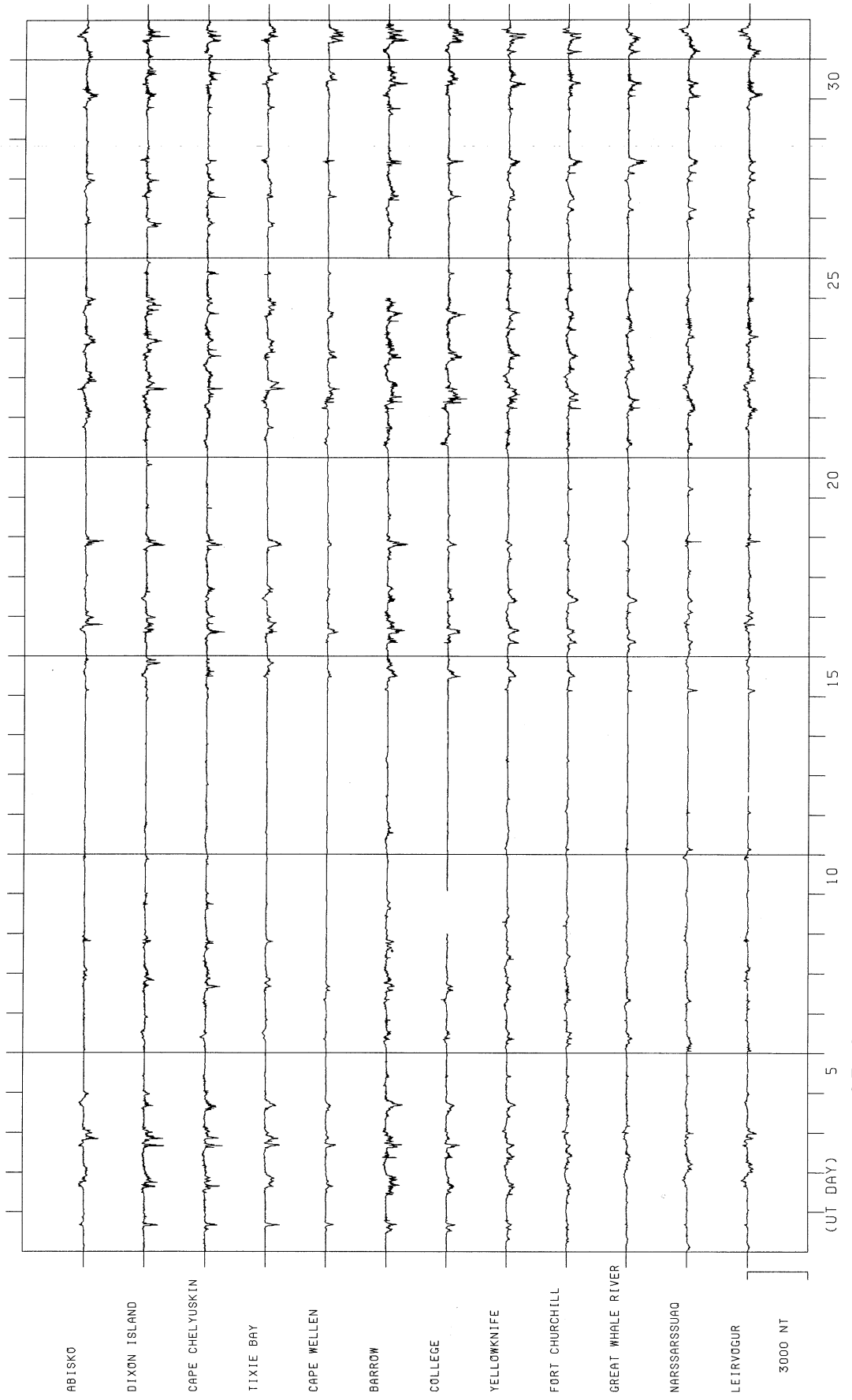
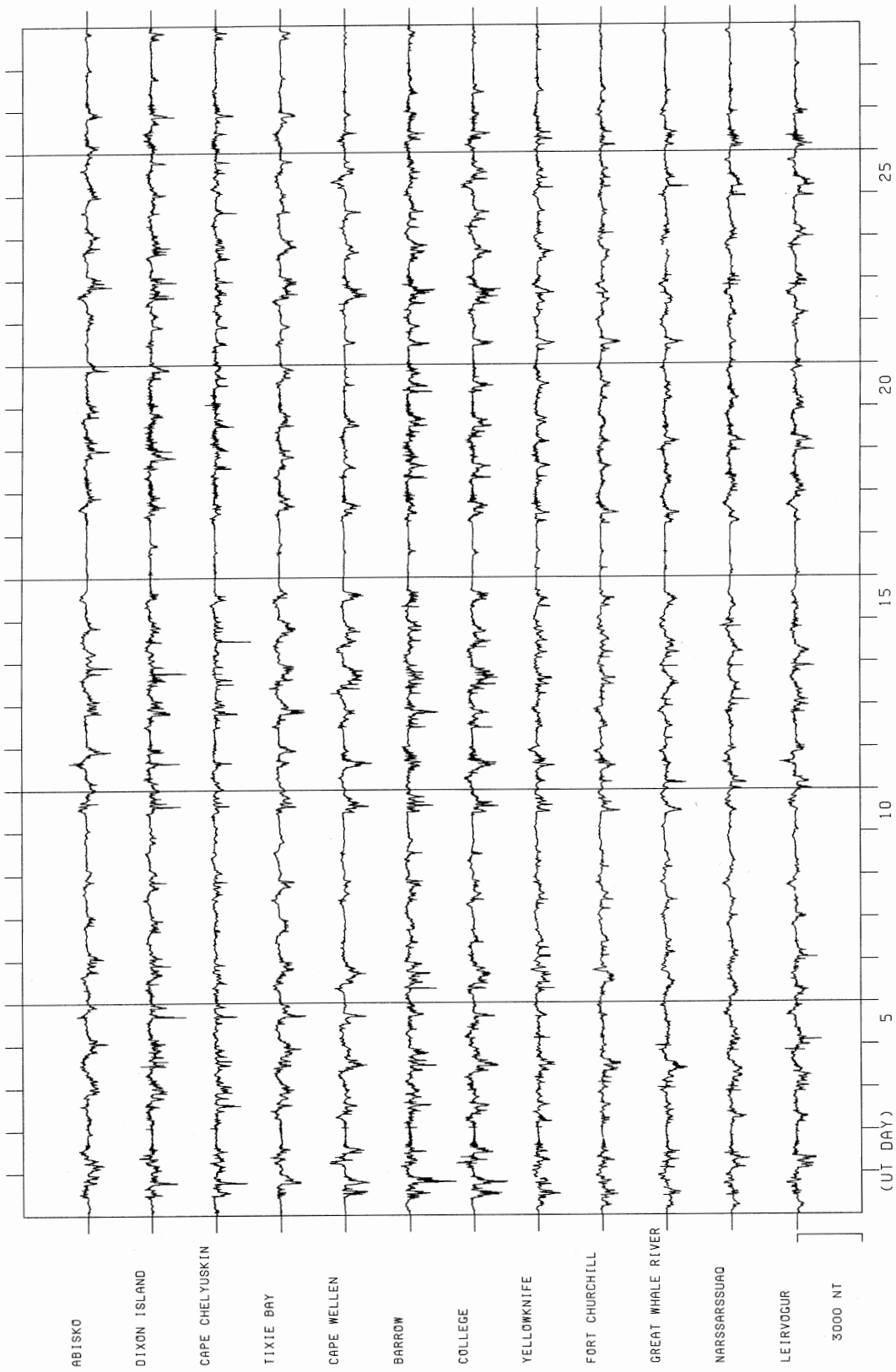


FIGURE 6

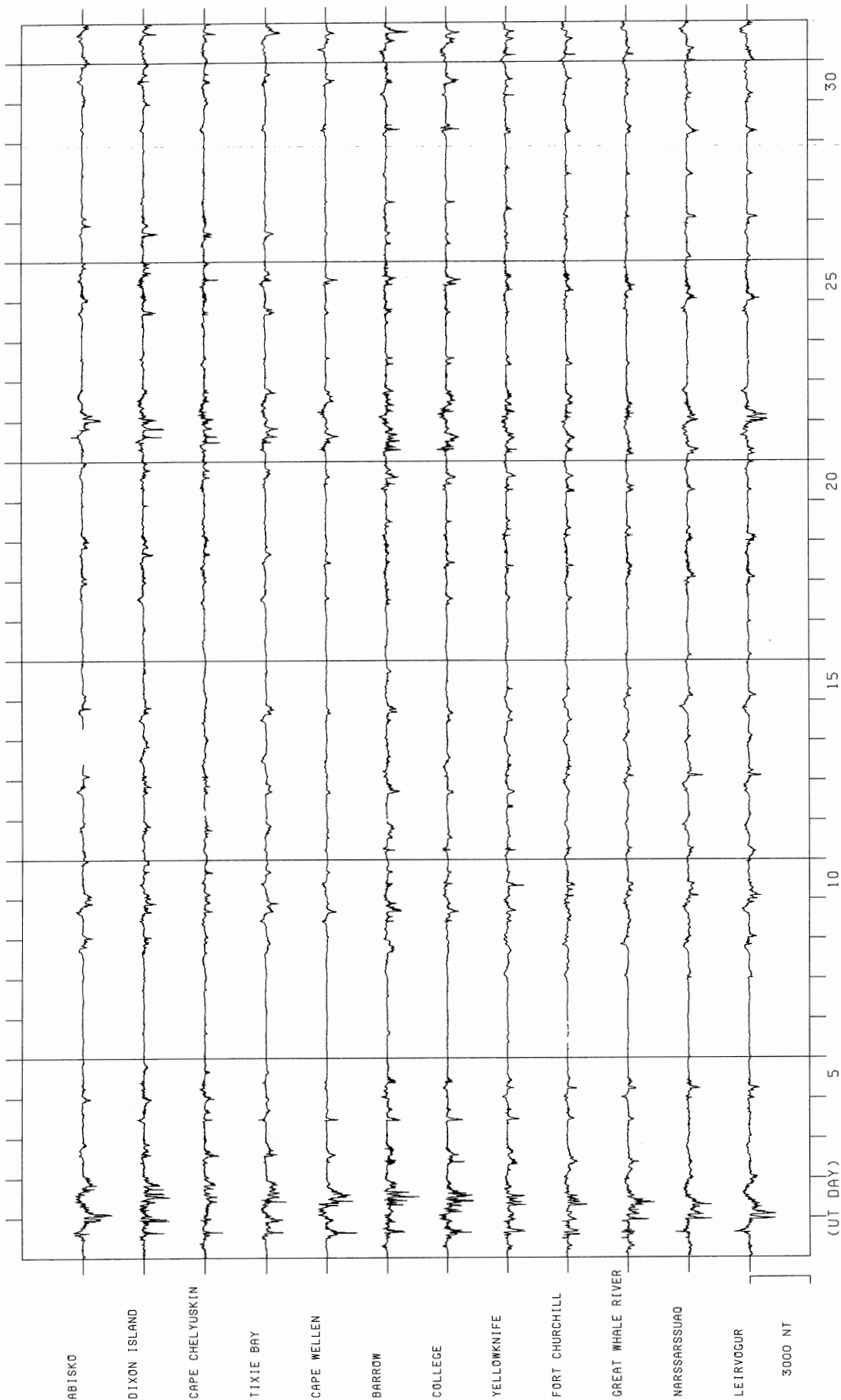
The H traces of magnetograms
from AE(12) stations
in each month
for January-June 1982.



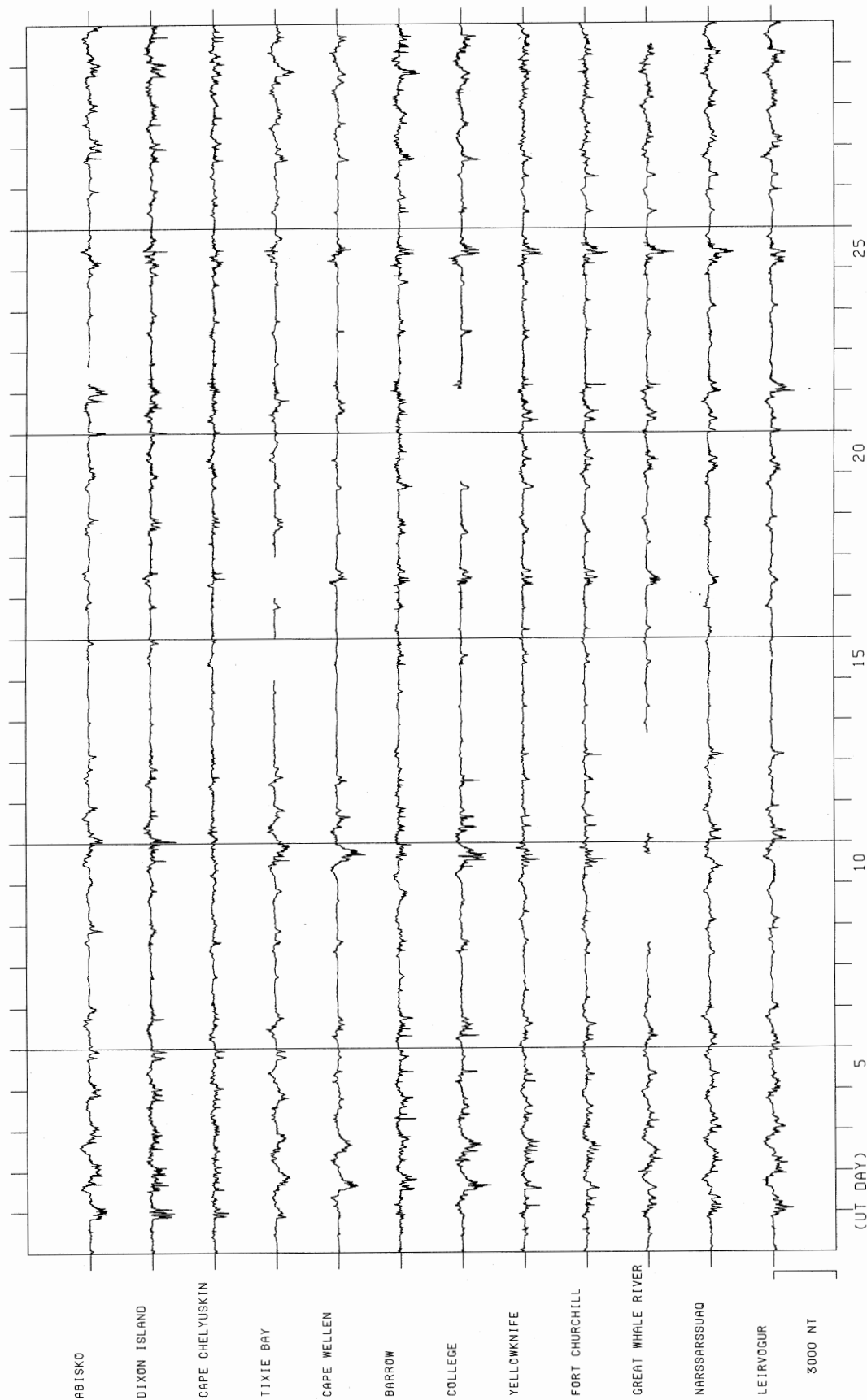
STACKED COMMON SCALE MAGNETOGRAMS FOR JANUARY 1982



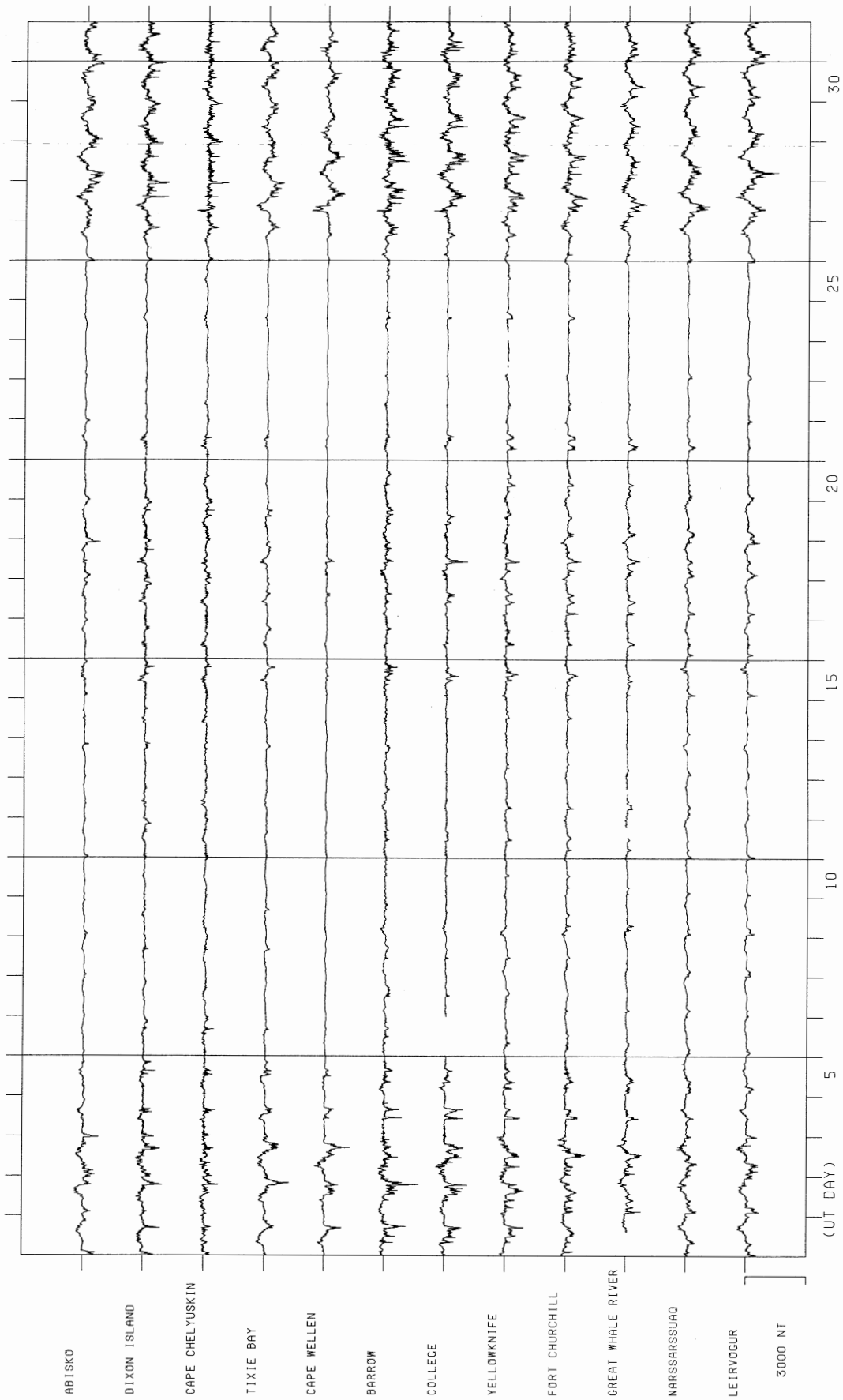
STACKED COMMON SCALE MAGNETOGRAMS FOR FEBRUARY 1982



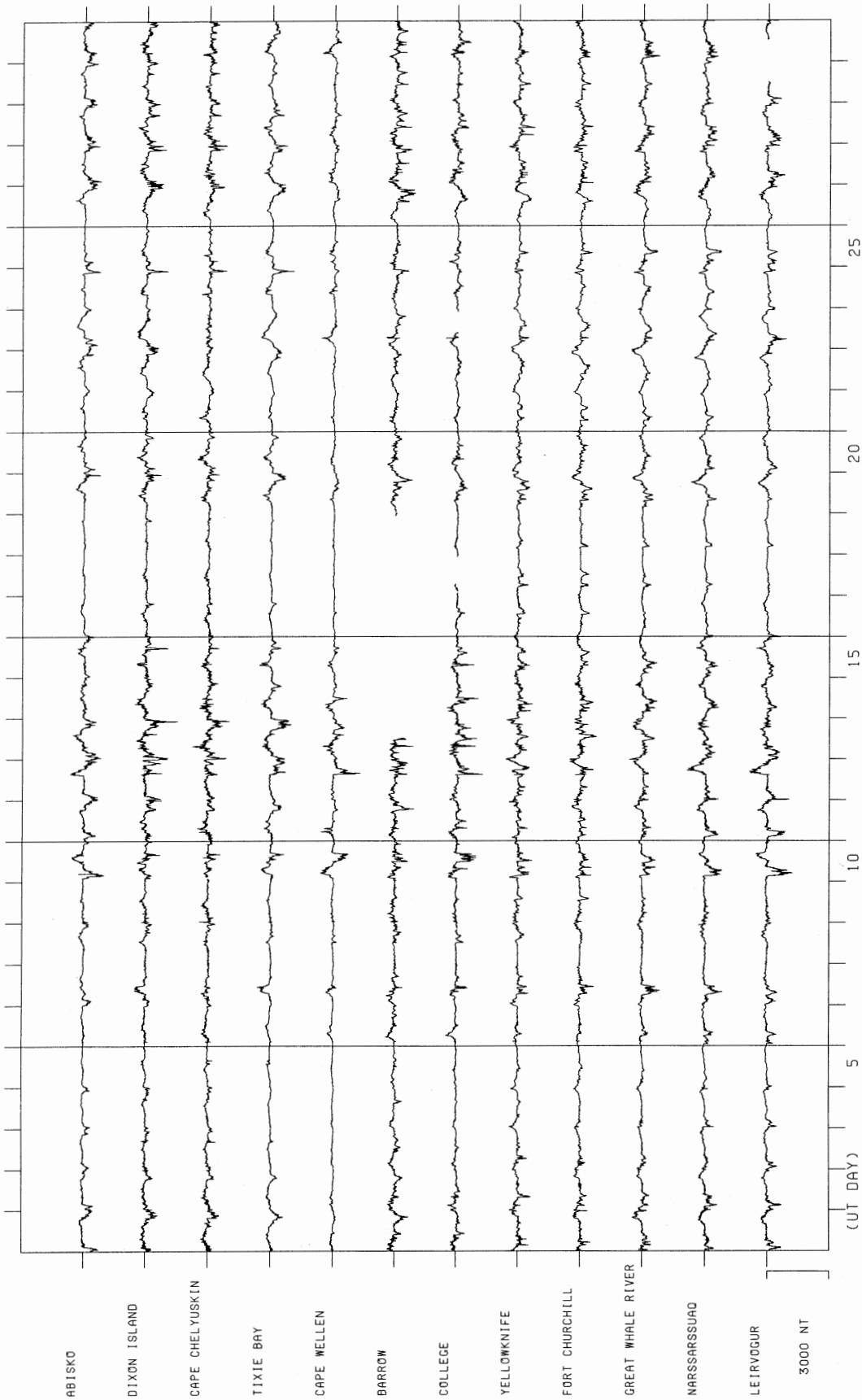
STACKED COMMON SCALE MAGNETOGRAMS FOR MARCH 1982



STACKED COMMON SCALE MAGNETOGRAMS FOR APRIL 1982



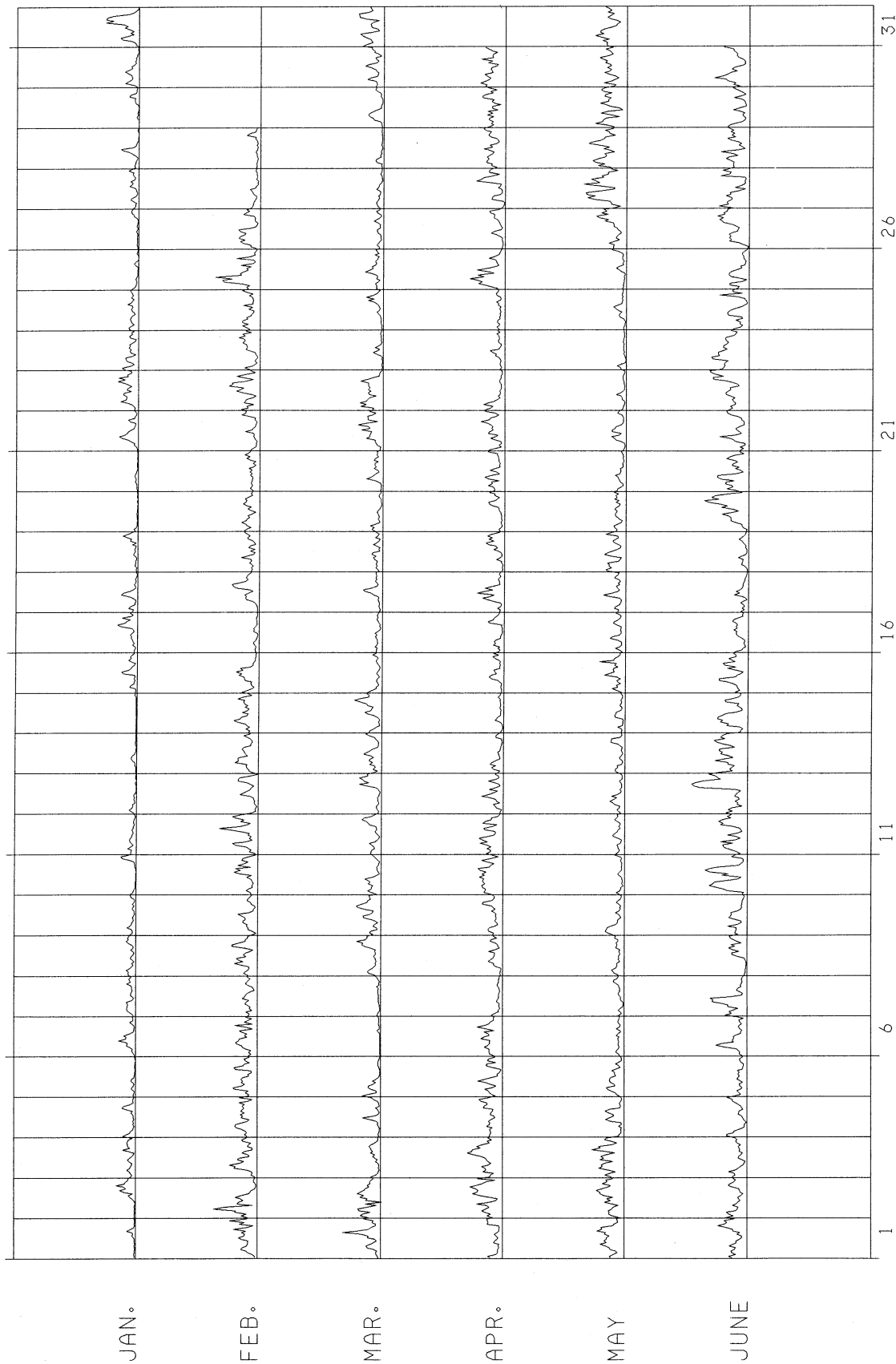
STACKED COMMON SCALE MAGNETOGRAMS FOR MAY 1982



STACKED COMMON SCALE MAGNETOGRAMS FOR JUNE 1982

FIGURE 7

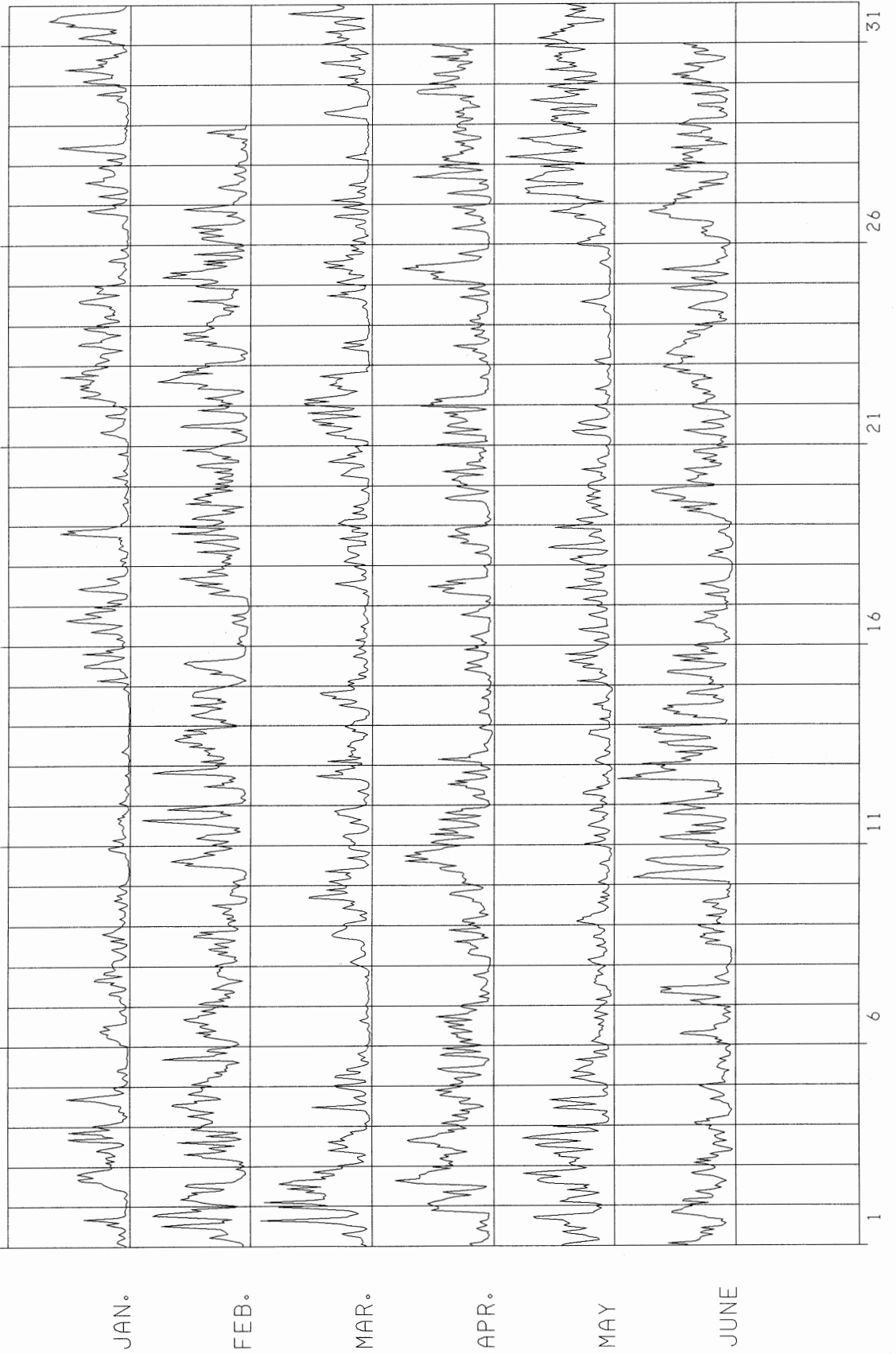
Plots of hourly values of each index
(AU, AL, AE and AO)
for January-June 1982.



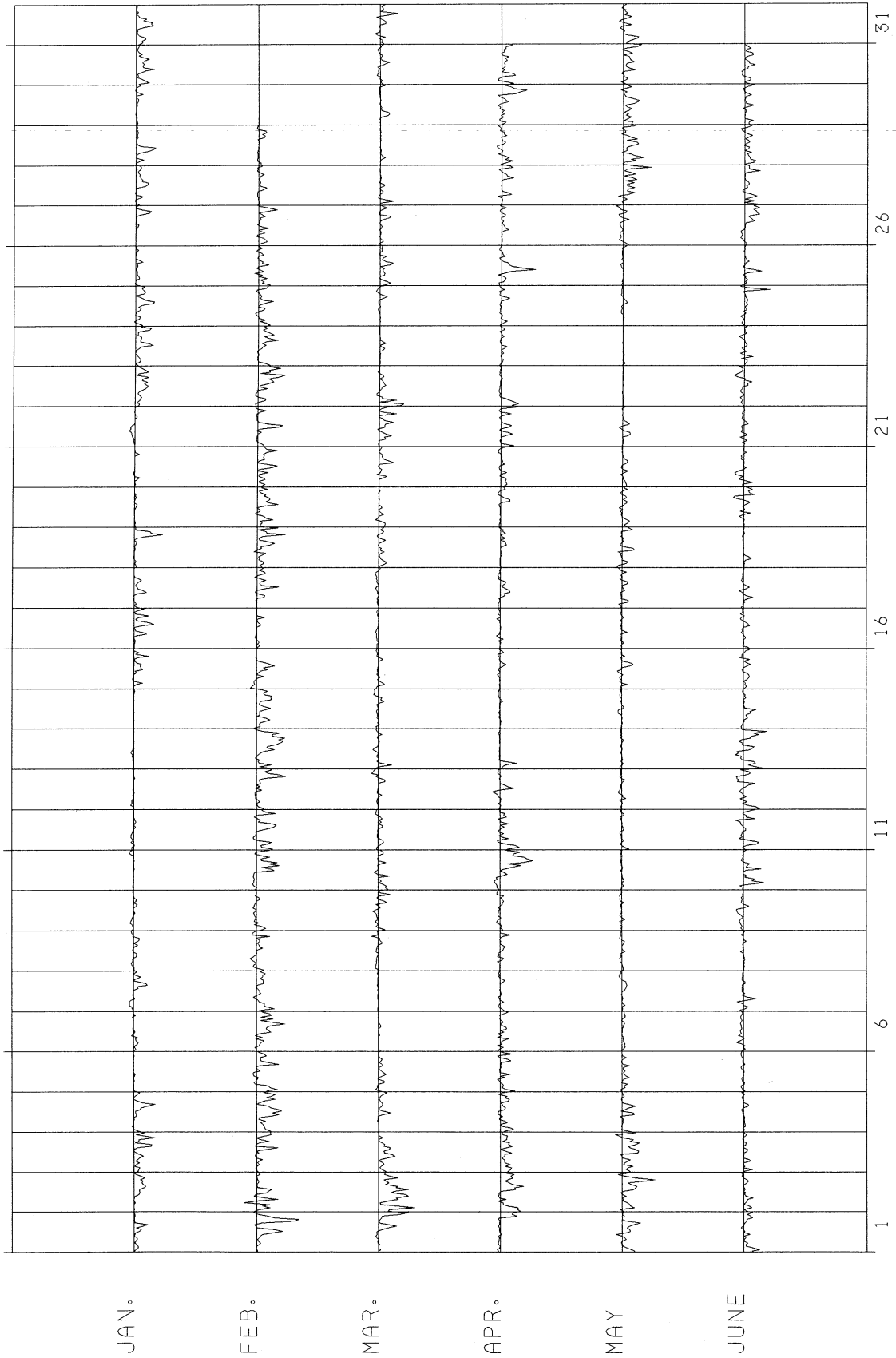
AU HOURLY VALUES FOR THE FIRST HALF OF 1982 (15000T/DIV)



AL HOURLY VALUES FOR THE FIRST HALF OF 1982 (1500NT/DIV)



AE HOURLY VALUES FOR THE FIRST HALF OF 1982 (1500NT/DIV)



AO HOURLY VALUES FOR THE FIRST HALF OF 1982 (1500NT/DIV)

1. Data Catalogue

	Published in
Data Catalogue of World Data Center C2 for Geomagnetism	1984

2. Data Book

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

3. Others

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

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

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

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

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

