

World Data Center C2 for Geomagnetism

DATA BOOK No. 8

Auroral electrojet indices (AE)
for July-December 1980



NOVEMBER 1983

Data Analysis Center for
Geomagnetism and Spacemagnetism
FACULTY OF SCIENCE
KYOTO UNIVERSITY
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Division of
Data Collection and Processing
NATIONAL INSTITUTE OF
POLAR RESEARCH
TOKYO

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PREFACE

The Auroral Electrojet (AE) index was originally introduced by Davis and Sugiura in 1966 as a measure of global electrojet activity in the auroral zone, and it is now widely used for studying 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 value was then tried at the Goddard Space Flight Center of NASA, and the results from September 1964 to June 1968 were published.

After that, the index was regularly published at the World Data Center A (WDC-A) in Boulder, Colorado, and the Center published 2.5 min values for the years 1966 to 1974 and 1.0 min values for 1975 and 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 two years (1978-1979) during the International Magnetospheric Study (IMS) and have published 1.0 min values as a part of "WDC-C2 for Geomagnetism Data Book" series (No.3 and 4 for 1978, and No.5 and 6 for 1979).

Although the International Association of Geomagnetism and Aeronomy (IAGA) recommended the continuation of the production of the AE-index at the WDC-C2, we could not extend it to the period after IMS because the available man-power and computing facilities were not sufficient for the continuous derivation.

Increasing demands for the index, however, moved us to resume the production of the AE-index and we published Data Book No.7 which contained the index for the first half of 1980. After that, the possibilities of financial support necessary for the production of the index were explored at the Subcommittee on Solar Terrestrial Physics of the Special Committee for International Cooperation, Japan Science Council, and the support was asked to National Institute of Polar Research (NIPR), Tokyo.

This Data Book No.8 is the first result of the co-operation between Kyoto University and National Institute of Polar Research. The index in this Book was derived at the WDC-C2 for Geomagnetism and the printing and distribution were made by Division of Data Collection and Processing, NIPR.

All inquiries about the Data Book and its distribution should be addressed to

World Data Center C2 for Geomagnetism
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Auroral Electrojet Indices (AE) for July - December 1980

1. Derivation and Representation

The AE index is derived from the horizontal component of geomagnetic variations observed at some (10-13) observatories along the auroral zone in the northern hemisphere. To normalize the data from each station, a base value of each station for each month is first calculated by averaging all the data of the station on the five international quiet days, and this base value is subtracted from every-day data of the station in that month. Then the largest and smallest values are selected from all the stations. The largest value is called the AU index and the smallest value is called the AL index. These names came from the upper and lower envelopes of the overlapped figure of the data from these stations. The difference between the AU and AL indices gives the AE index, and the mean value of the AU and AL indices gives the AO index. The term "AE indices" is usually used to describe those four indices (AU, AL, AE and AO) in all.

The AU and AL indices are understood to express the strongest current density of the eastward and westward auroral electrojet, 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 shall present every-day diagrams and hourly values of the AE indices and "Contributing stations plot" of the AE indices which may give more information about the indices. That is, we named stations which give the AU and AL indices "the contributing stations of the AU and the AL index, respectively, and a pair of these AU and AL contributing stations "the contributing stations of AE indices". The plot gives these AE contributing stations on a plane whose coordinates are UT in abscissa and LT in ordinate at the stations. For users who want to check the AE indices precisely, this plot gives information about data availability

of each station. Thus the plot will give us an idea which data are to be checked. For these users, we would like to suggest to check our way of derivation of the AE indices and our estimation of errors. Please see Data Book No.3 or No.4 for the estimation of errors of our AE data.

2. Selection of Observatories

To obtain good AE indices, we must use as many observatories as possible, but we meet two big difficulties: One is that the distribution of observatories in operation are not uniform over the auroral zone, and the other is that the digitization of analogue data (magnetograms) is a heavy job.

We selected 12 observatories listed in Table 1. Of these, 6 stations are taking digital data directly (called digital stations). Our selection is almost the same as that of the WDC-A (see Fig. 1).

Three of digital stations (Fortchurchill, Great Whale River, and Yellowknife) are stations which give data in the X, Y, Z coordinate system. To make these data more compatible to other stations, we converted the X and Y components to H component by $H = (X^2 + Y^2)^{1/2}$, and we treated the resulted H component to be missing for the period either X or Y is missing. For other two digital stations (Barrow and College), we used the original digital H-component data.

Narssarssuaq recorded data digitally as test operation from July to December 1980. We used its H-component values for most of this period.

We digitized magnetograms on microfilms from non-digital stations. If a digital station has troubles in digital recording, we also digitized its magnetograms on microfilm if they are available.

3. Digitization of Analogue Data

We used a sonic digitizing machine with a large microfilm reader. The magnetogram on 35 mm microfilm is projected directly on the microfilm reader. The projected figure is almost the same size as the original magnetogram whose size is about 2 cm/hour or 48 cm/day.

Usually, the magnetograms are digitized day by day. When the time

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
Narssarssuaq	NAQ	NAS	61.20	314.16	71.21	36.79
Leirvogur	LRV	LR	64.18	338.30	70.22	71.04

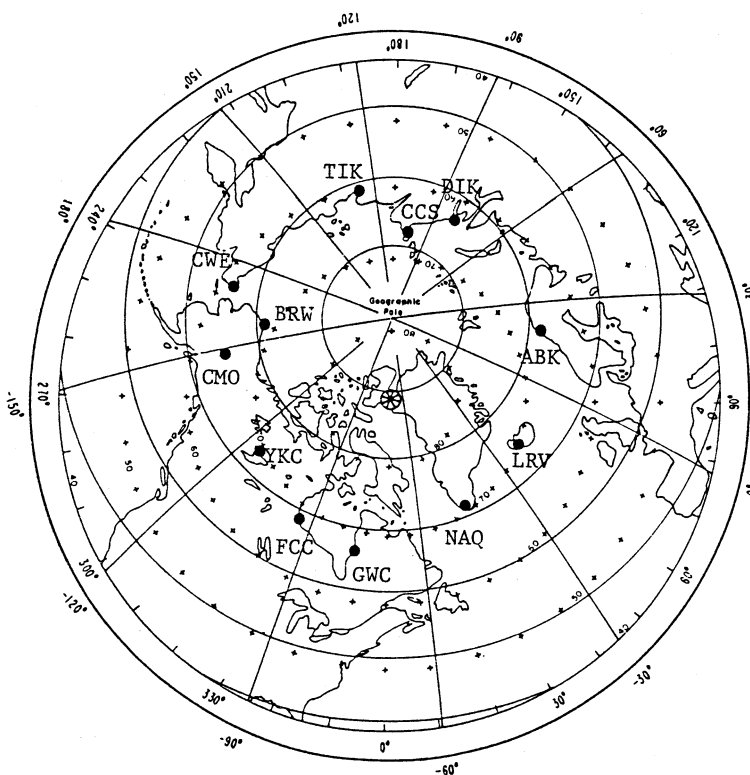


Fig. 1. Distribution of AE(12) stations.

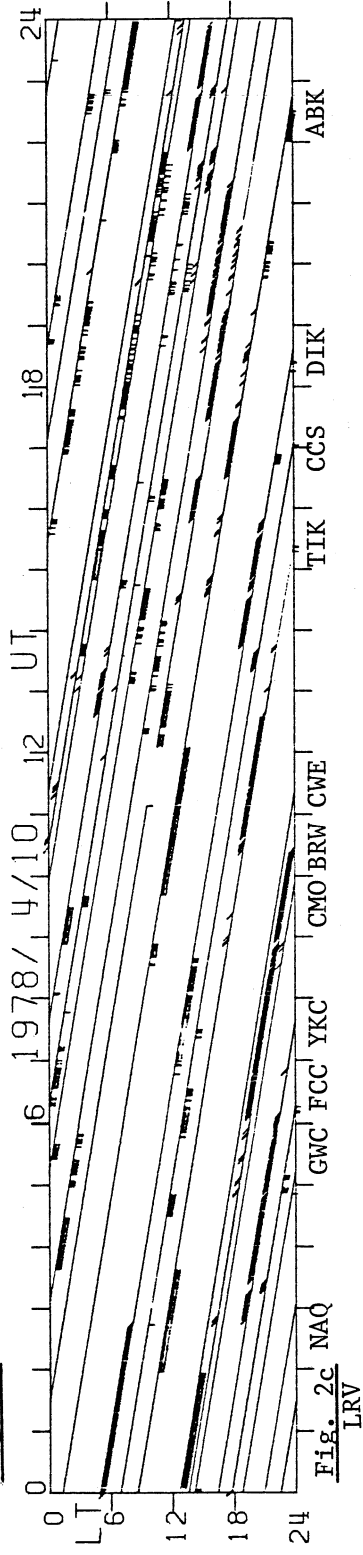
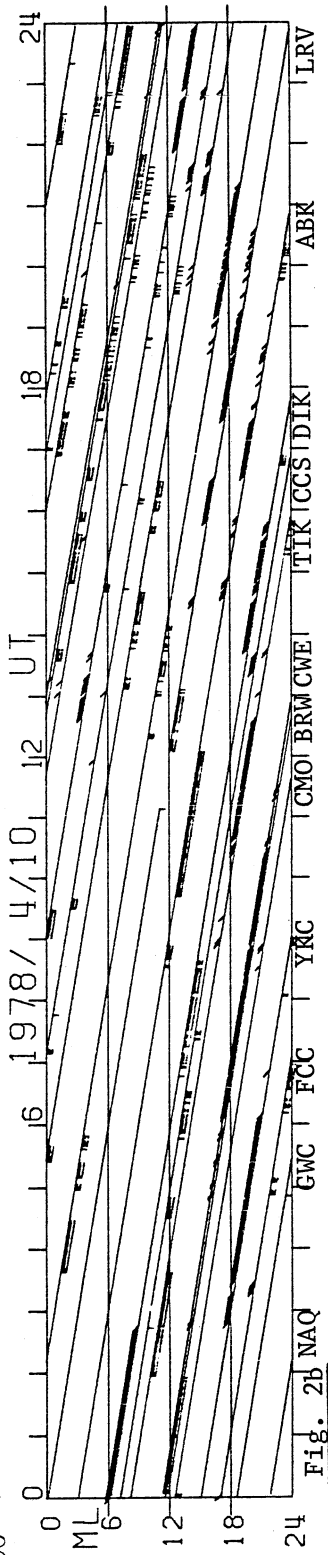
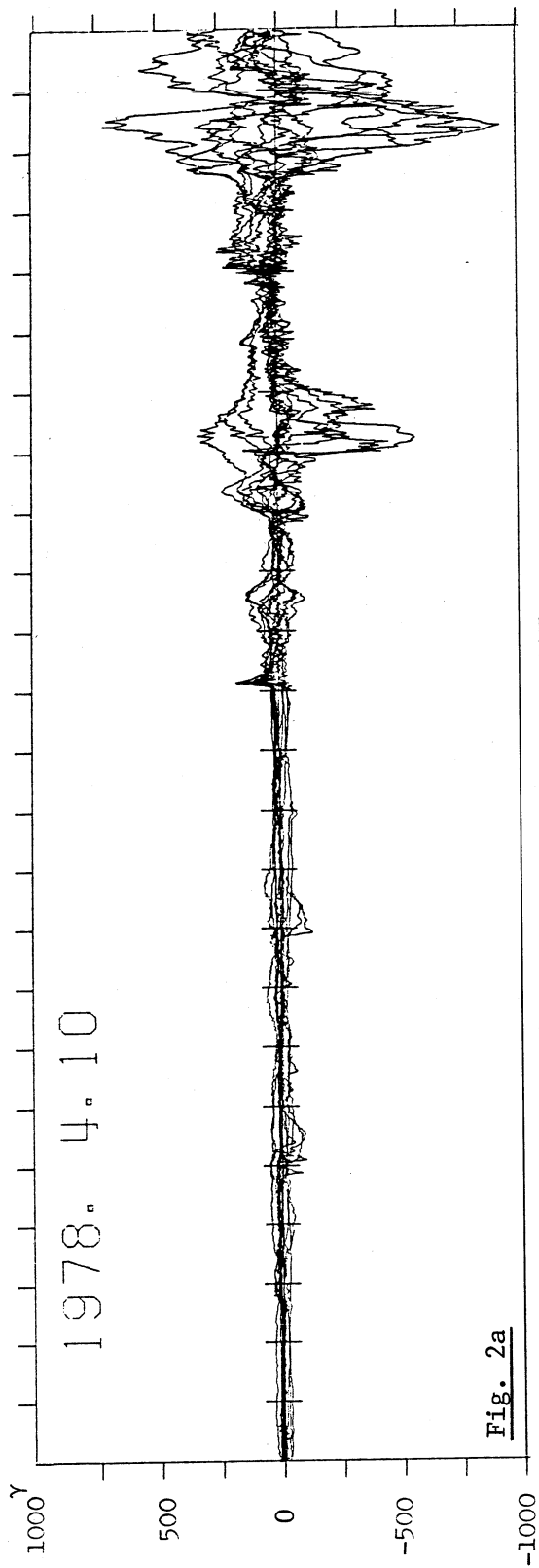
Geographic latitude is indicated by the concentric circles of solid lines. Geomagnetic latitude is indicated by the numbered concentric circles formed by + signs. Geographic longitude is given by the outer circle of numerical values with meridians shown as solid lines every 30°. Geomagnetic longitude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

marks on the magnetogram are not spaced uniformly or base lines are not straight enough, one magnetogram is divided into several uniform parts and then digitized. We tried to use the ordinary magnetogram for all days. When the H trace crosses other traces, we tried to identify the H trace by referring to the insensitive or storm magnetogram. When we trace the H component on magnetograms, we also feed three basic points to define the time and the absolute value of the digitized data, and feed other necessary information like the station identification and observation date.

In digitizing analogue data, we could have trouble from the digitizer noise. To be free from such a noise, we digitized as many points as possible to get one value. In determining the three basic points we digitized each point as more than 20 times, and we picked the point only when these consecutive 20 readings are all within a limited area. The traced digital data are logically checked by a quality control program to reject spikes caused by the noise. After cleaned by the quality control program, the data are averaged to get the final one minute value. Usually, a one-min value is determined from an average of 3 or 4 digital readings. We checked all the digitized data visually by the plot on a monitoring graphic display at the reading stage and by the finer common scale plot made by a X-Y plotter after processed by the quality control program. Please see Data Book No.6 for further detail of our digitizing process and our digitizing machine.

4. The Overlapped Plot and the Plot of the Contributing Stations of the AE indices

Fig. 2a shows an example of the overlapped plot of the H traces from the AE stations on April 10, 1978. The upper envelope gives the AU index and the lower envelope gives the AL index, Figs. 2b and 2c show example plots of the contributing stations for the same day as in Fig. 2a, in the geomagnetic (2b) and geographic (2c) local times, where the upper and lower plumes on a diagonal line for each station show the contribution to the AU and AL indices of this station. In Fig. 2b, for example, the data of Dixon Island (DIK) give the AU index from 0000 to 0240 UT and



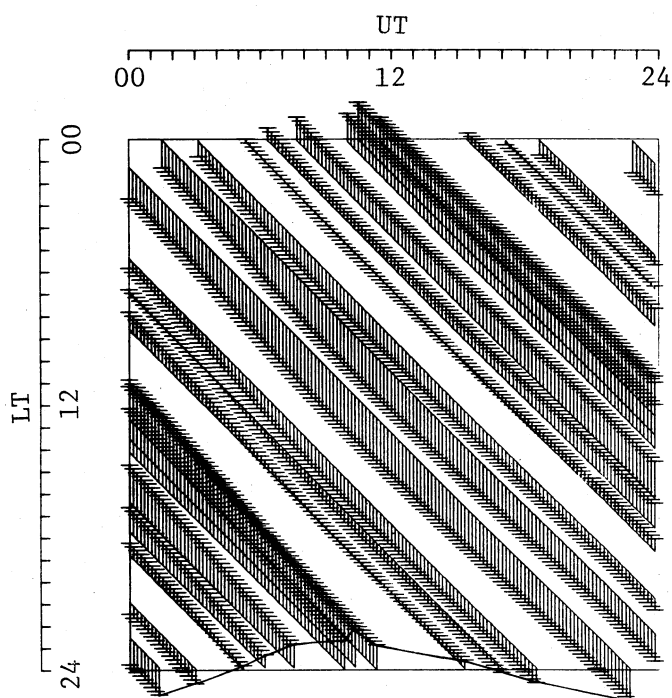


Fig. 3a Difference between GLT and MLT in winter.

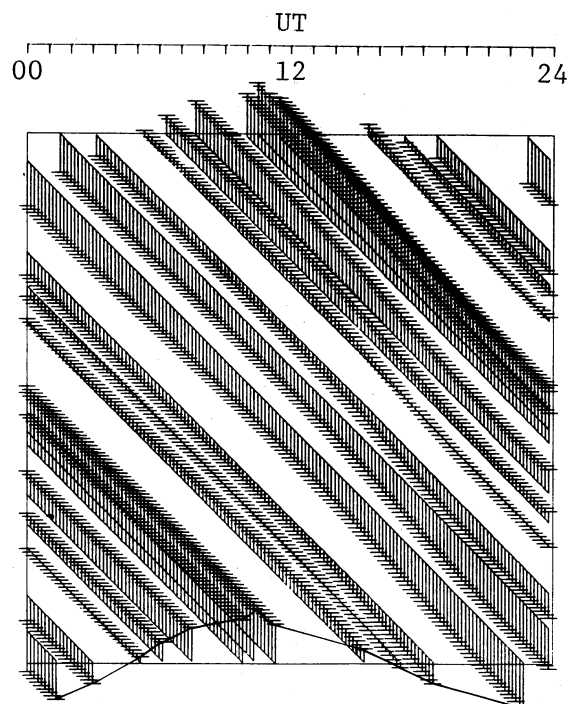


Fig. 3b Difference between GLT and MLT in summer.

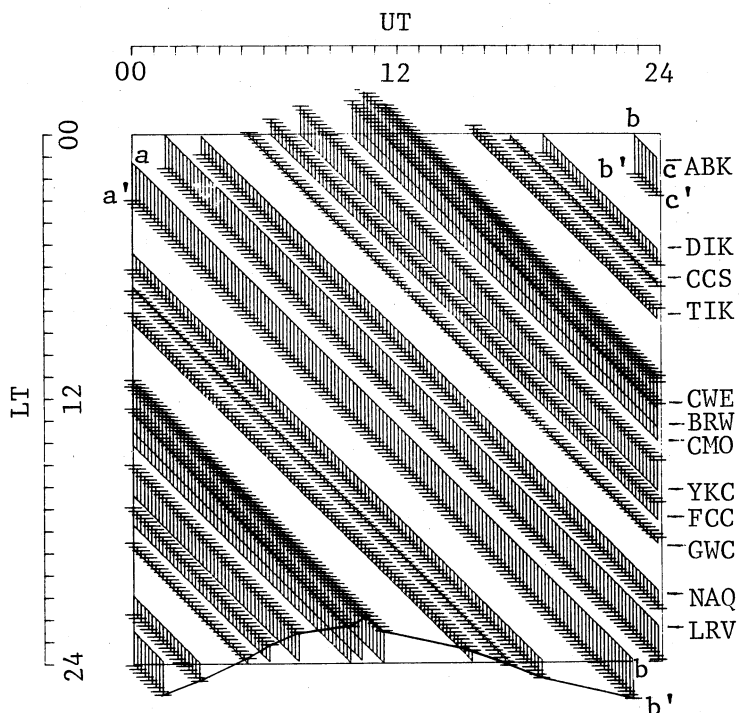


Fig. 3c Difference between GLT and MLT in equinox.

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.

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 at that time, the exact AL values at that time have been lost.

We think some explanations are necessary for our trial plots of the contributing stations. On the plots hereafter, the ordinate is the geomagnetic local time (MLT). The MLT is defined by the difference of the geomagnetic longitude of the station and the geomagnetic longitude of the Sun, and it is a function of the geomagnetic longitude of the station, season, and universal time. Figs. 3a, 3b, 3c show the difference between the GLT and the MLT of the stations used to derive AE indices for winter, summer and equinox, respectively. In these figures the GLT is shown by the straight line which runs diagonally, and the MLT is shown by the T (or inverted T) shaped mark. The length of the vertical line between the T (or inverted T) shaped mark and 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. The geomagnetic longitude of Cape Wellen (CWE) and Barrow (BRW) are very close, and so it is difficult to separate these two stations on the contributing stations plot. Sometimes, Cape Wellen gives AU and Barrow gives AL, and vice versa. This is thought to be an effect of local current system between the high latitude station and the low latitude station.

5. Results

Monthly quiet-time H reference values for July-December 1980 are listed in Table 2.

Table 3 gives the hourly average of AE indices on every day from July to December 1980.

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. Fig. 6 shows the H-traces of magnetograms from AE(12) stations in every month from July to December 1980. Finally, Fig. 7 shows a half year of hourly mean values of each index in one page.

Table 2. MONTHLY QUIET-TIME H REFERENCE VALUES (UNITS : NT = GAMMAS)
(YEAR 1980)

STATION	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
ABISKO	11812	11793	11791	11790	11789	11795
DIXON ISLAND	6423	6414	6412	6402	6402	6402
CAPE CHELYUSKIN	3477	3467	3462	3450	3439	3440
TIXIE BAY	7927	7921	7915	7913	7907	7919
CAPE WELLEN	14229	14223	14228	14208	14205	14212
BARROW	9819	9812	9794	9790	9786	9805
COLLEGE	13017	13008	13003	12997	12994	13002
YELLOWKNIFE	8743	8730	8720	8721	8720	8726
FORT CHURCHILL	7575	7564	7566	7569	7570	7571
GREAT WHALE RIVER	10682	10713	10709	10716	10687	10687
NARSSARSSUAQ	12105	12095	12092	12097	12101	12104
LEIRVOGUR	12415	12403	12405	12405	12401	12406

6. Acknowledgements

This volume has been accomplished by the data supply from the AE stations through the World Data Centers. We thank Prof. T. Nagata, Prof. T. Hirasawa, Prof. N. Fukushima, Prof. H. Kamiyama, Prof. S. Kato, Prof. T. Obayashi, Prof. H. Maeda, Prof. T. Ichinohe, Prof. T. Hoshiai and Dr. M. Ayukawa for their various helps. Acknowledgements are due to Ms. Yohko Yamamoto and Mr. Shinji Yokoyama for their assistances in digitizing magnetograms and also to Mr. Y. Katsuta in printing and distribution.

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TABLE 3

Hourly average AE indices (AU, AL, AE and AO)
for July-December 1980.

1980
JULY

AU INDEX (HOURLY VALUES)

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q 1	164	80	88	62	30	20	27	39	60	54	31	25	28	48	47	37	25	24	37	33	22	36	68	53	47
Q 2	38	28	23	20	12	12	13	28	46	39	24	17	12	15	21	27	24	41	61	75	79	58	50	72	35
Q 3	82	65	78	108	132	163	177	188	227	227	157	87	40	27	40	29	23	27	31	27	26	29	26	28	85
4	22	19	17	17	13	13	12	33	31	59	190	133	82	118	137	82	55	58	53	64	85	126	198	283	79
D 5	320	386	223	218	240	204	223	205	146	105	153	76	124	185	199	263	317	457	376	131	70	46	61	51	199
6	67	58	26	18	32	29	27	53	94	51	28	53	64	61	96	66	38	47	77	91	118	126	156	166	68
7	144	103	111	124	175	120	69	85	192	121	65	102	104	50	61	73	103	53	82	138	140	169	122	100	109
8	163	193	208	164	187	89	82	79	56	156	112	76	126	101	102	120	173	308	322	247	225	230	228	137	162
9	123	86	123	182	193	108	72	72	176	117	110	159	101	76	51	44	41	50	64	97	113	60	40	45	93
Q 10	21	15	15	13	16	6	9	12	19	23	23	38	57	33	39	34	42	52	55	57	62	46	67	79	35
11	67	123	122	200	233	118	53	27	35	56	82	81	98	104	69	69	38	61	99	193	147	83	171	244	107
12	120	121	107	50	22	16	22	66	79	50	47	53	50	63	56	66	92	69	56	43	40	54	72	108	63
13	154	94	214	185	277	221	111	68	40	20	23	52	90	123	133	229	269	188	91	103	76	37	41	65	121
14	49	142	163	120	47	20	32	106	145	252	244	142	95	57	88	44	46	61	130	169	106	83	98	67	104
15	50	70	154	101	79	27	21	17	19	24	28	49	70	62	33	35	43	38	45	41	42	38	38	50	49
16	78	124	110	72	40	26	91	144	109	34	28	102	72	80	87	67	65	60	55	46	41	94	95	97	76
17	72	95	105	105	137	102	54	71	177	151	132	75	57	41	37	44	40	59	82	104	131	106	63	110	90
18	127	225	186	164	129	126	109	83	83	127	162	160	135	102	92	87	137	216	340	452	520	325	406	608	213
19	487	366	277	311	210	217	306	57	49	41	50	35	31	41	92	106	72	42	68	67	67	93	175	179	143
20	117	71	126	112	73	26	20	91	71	38	53	169	155	101	45	155	88	67	59	105	100	42	46	90	84
21	100	195	288	266	199	149	135	67	155	99	73	80	105	138	201	206	201	219	186	281	318	386	265	315	193
22	278	241	226	210	122	92	76	63	38	25	44	63	50	55	43	30	13	35	70	90	97	128	158	85	97
Q 23	32	18	11	6	-1	1	11	9	3	17	41	38	62	61	49	42	60	32	32	44	45	74	44	32	32
24	30	26	47	65	54	84	52	22	13	20	19	20	70	55	16	26	35	46	96	200	195	125	114	93	63
D 25	56	62	67	30	20	29	69	42	35	33	81	199	143	87	89	109	195	316	394	409	326	264	279	197	147
D 26	246	244	125	78	35	61	83	118	77	86	62	62	69	123	138	82	115	128	129	115	157	113	162	220	118
D 27	190	135	140	139	86	171	101	95	89	155	135	183	142	111	66	63	13	34	49	53	84	109	147	159	110
28	188	122	200	164	211	140	49	93	144	89	210	242	179	134	147	63	142	66	136	119	55	40	35	40	125
29	40	31	31	39	65	85	76	23	23	22	29	35	43	46	60	56	69	160	223	164	81	68	104	102	70
30	162	156	146	92	46	30	41	51	62	76	80	115	45	20	28	46	52	97	148	76	67	103	206	254	92
31	172	69	80	97	157	154	98	115	160	155	134	156	131	62	30	48	37	57	60	60	59	62	99	44	96
MEAN	127	121	123	113	103	85	74	71	85	81	85	92	84	76	77	78	85	102	119	125	118	107	124	135	100
50 MEAN	67	41	43	41	37	40	47	55	71	72	55	41	39	36	39	33	34	35	43	47	44	42	57	55	46
5D MEAN	187	210	148	125	102	118	117	108	86	101	118	136	122	121	116	120	155	230	257	292	231	171	211	247	157

AU INDEX (HOURLY VALUES)

AUGUST

1980

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	
0	1	24	19	24	92	140	125	101	59	79	69	123	73	50	37	27	30	39	49	64	84	98	64	46	66	
	2	35	29	22	35	23	38	25	48	56	81	103	146	94	89	68	58	61	88	113	204	172	214	215	88	
	3	250	286	212	226	273	320	253	367	339	370	299	291	256	299	148	80	94	56	58	45	50	61	79	199	
	4	49	54	35	30	28	27	123	53	39	26	21	68	185	91	43	86	81	76	66	50	49	48	37	63	
0	5	32	34	17	12	18	10	15	18	53	78	108	104	103	66	30	31	42	44	54	45	35	30	26	43	
D	6	120	170	187	102	56	56	41	31	38	96	87	28	29	68	83	65	110	221	262	177	215	222	216	114	
	7	204	165	167	202	183	127	177	164	175	152	145	145	129	84	67	56	73	86	180	151	175	246	180	173	150
0	8	154	135	148	100	47	26	19	22	26	32	22	28	22	29	28	41	35	43	46	51	91	117	107	59	
	9	75	49	34	32	31	23	56	58	35	40	36	43	59	51	40	51	34	31	33	85	175	96	115	172	61
	10	62	36	44	65	254	310	192	65	107	149	82	68	52	38	30	33	38	43	78	57	43	37	48	83	
	11	51	75	60	36	57	121	123	76	106	141	175	138	71	59	28	23	43	74	108	112	119	86	251	91	
	12	206	147	51	36	34	50	48	76	75	64	62	47	48	44	48	37	32	30	32	40	42	67	86	60	
	13	91	74	33	28	23	22	11	15	21	22	48	77	118	129	67	64	85	81	45	44	37	55	96	58	
	14	76	40	29	30	23	27	43	81	123	110	78	119	114	73	73	70	67	104	109	85	51	31	57	70	
	15	86	68	56	73	121	57	60	47	66	115	152	80	104	101	73	56	49	46	43	54	55	45	48	71	
D	16	66	86	107	109	148	158	161	156	172	177	121	121	209	309	434	536	692	516	281	179	88	68	48	208	
	17	42	31	17	18	20	17	44	15	93	140	91	70	96	129	81	87	118	95	221	245	201	187	78	64	
D	18	76	46	38	100	217	217	169	230	301	323	129	111	113	63	34	83	102	68	37	38	27	41	122	177	
D	19	113	152	170	188	166	224	191	149	163	85	134	143	160	123	190	270	91	58	79	199	186	182	85	57	
	20	43	32	22	26	24	23	23	28	28	45	60	89	117	74	47	25	90	128	206	317	226	272	197	99	
	21	193	236	174	143	157	157	171	139	134	68	33	25	33	14	25	9	13	25	39	45	43	31	29	84	
	22	39	27	58	97	151	112	63	105	32	28	48	103	51	69	89	73	98	197	237	226	199	327	202	92	
	23	113	31	21	12	16	21	20	27	29	27	92	57	46	29	26	19	22	22	28	31	29	27	27	114	
0	24	65	66	65	45	75	39	34	31	27	20	21	22	19	17	16	12	17	30	25	28	38	40	38	34	
	25	20	18	19	22	20	16	17	19	14	16	19	22	17	21	27	33	46	54	54	52	55	80	151	185	
	26	255	208	180	227	165	83	24	46	135	89	42	31	35	60	66	48	35	38	50	61	65	102	84	66	
D	27	69	132	166	107	53	194	174	235	287	281	174	227	166	244	211	195	183	136	153	156	92	61	42	41	
0	28	60	54	46	53	26	59	52	53	51	46	27	23	25	31	52	44	29	27	27	25	19	17	20	37	
	29	16	12	14	19	18	17	17	18	17	16	15	12	14	11	8	13	25	66	50	126	118	78	69	33	
	30	42	46	57	126	159	88	59	60	89	84	49	31	34	34	20	27	95	145	149	142	92	35	30	46	
	31	135	164	205	176	83	39	27	51	95	76	31	25	25	22	16	14	11	15	37	43	50	54	52	51	
	MEAN	92	87	81	83	90	90	81	82	96	98	85	82	81	83	74	74	79	79	91	100	93	96	90	92	87
50	MEAN	67	65	60	60	61	51	44	36	47	47	62	48	48	36	28	30	31	35	37	43	47	56	53	44	
50	MEAN	88	117	133	121	128	169	147	160	192	192	129	126	135	159	187	233	226	177	154	166	114	111	107	107	

SEPTEMBER 1980

AU INDEX (HOURLY VALUES)

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q	59	49	131	81	68	131	135	48	41	35	29	23	28	39	48	44	33	35	31	28	34	31	29	36	52
	34	32	58	45	55	40	42	33	36	30	31	56	38	26	11	10	21	29	36	40	37	28	24	22	34
	20	24	21	22	26	28	29	31	38	41	46	40	41	71	115	167	320	366	237	272	202	240	218	204	118
D	153	192	187	148	159	214	147	105	145	97	58	58	62	79	63	49	90	83	137	121	176	140	171	206	127
	186	226	206	205	191	195	243	168	168	134	136	174	161	129	142	207	351	327	331	275	332	321	220	115	214
	117	61	31	30	26	45	39	18	24	26	19	21	28	40	40	121	97	32	23	20	18	34	119	207	51
	221	85	44	68	38	31	24	43	49	66	94	82	34	44	40	56	83	171	238	292	220	145	138	190	104
	170	221	154	60	40	33	51	34	51	93	94	88	80	42	52	81	56	58	48	47	62	77	56	37	74
D	41	48	67	37	30	70	58	29	28	56	41	86	67	68	112	122	265	211	121	62	89	180	221	187	96
Q	189	134	53	29	26	22	18	17	16	17	16	17	16	21	31	37	55	53	35	32	26	27	21	26	39
	32	29	37	50	76	43	43	34	47	63	90	77	104	101	63	65	109	78	95	92	88	127	162	149	77
D	126	132	142	115	124	165	195	281	277	318	250	195	163	182	141	288	349	316	247	284	174	183	184	155	208
D	173	209	233	162	282	244	183	214	280	373	398	208	195	190	181	101	44	46	44	116	78	56	40	31	170
	30	66	92	107	80	22	18	11	26	85	79	42	38	37	30	12	17	20	21	22	26	54	111	118	48
	125	77	40	28	31	78	73	42	32	29	82	96	98	92	79	57	70	137	116	62	50	81	61	70	71
	23	15	17	45	63	93	161	93	114	92	29	23	13	14	19	15	12	20	34	91	161	84	57	38	55
D	42	49	64	36	31	40	53	78	120	165	202	184	199	65	70	40	74	35	46	49	32	91	103	49	80
	41	21	14	15	34	51	57	76	92	76	48	15	10	7	5	7	18	32	50	54	33	29	31	28	35
	21	30	20	22	16	23	18	18	16	18	33	82	153	79	34	44	32	40	69	79	105	95	107	106	53
	71	70	89	97	94	57	42	68	45	35	35	39	25	20	35	49	27	19	25	43	40	33	29	34	47
	38	18	13	15	26	28	18	35	27	27	25	21	21	23	17	35	23	18	14	23	18	20	23	26	23
Q	27	23	38	43	45	47	84	79	94	72	54	44	43	46	91	73	55	113	59	38	49	35	29	20	54
	37	24	23	15	16	18	26	23	30	63	70	93	45	33	33	31	30	25	19	33	54	71	65	33	38
	28	20	18	20	28	28	49	56	37	52	30	32	32	35	28	30	33	52	43	25	23	41	52	56	35
Q	28	65	65	83	70	82	74	58	86	118	107	75	41	38	22	24	46	43	80	63	44	29	25	22	59
	22	22	24	29	31	47	35	52	67	79	73	102	74	42	37	36	19	32	48	52	40	29	25	23	43
	21	19	20	30	25	23	29	43	38	33	34	37	38	30	26	35	36	34	83	65	57	70	81	38	39
	32	42	29	39	41	46	56	54	59	40	31	30	35	53	85	63	30	32	59	85	70	119	128	47	54
	41	37	55	48	55	54	68	80	57	32	26	20	25	34	38	46	49	67	151	202	103	92	82	76	64
	48	64	54	74	55	32	27	50	25	22	21	21	19	17	17	15	17	19	29	34	24	29	27	27	32
MEAN	74	70	67	59	62	67	69	65	72	79	76	69	64	56	56	65	82	84	85	90	82	86	87	79	73
5Q MEAN	62	45	33	27	33	33	32	38	36	41	35	45	36	29	24	29	30	36	35	34	28	29	29	30	34
5D MEAN	107	126	138	99	125	146	127	141	170	201	189	146	137	116	113	120	164	138	119	126	109	130	143	125	136

		OCTOBER												1980												
		AU INDEX (HOURLY VALUES)																								
DATE		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
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	2	27	27	28	28	31	28	31	28	34	46	32	25	37	30	25	24	21	21	18	20	30	21	22	28	27
	3	24	23	22	22	21	21	26	29	37	38	41	47	32	24	24	25	26	26	31	41	91	86	131	200	45
D	4	92	52	119	90	144	80	201	131	151	102	54	67	150	221	257	191	316	236	171	158	131	67	96	140	
	5	85	133	116	144	97	130	131	100	100	140	173	108	127	121	169	151	174	196	177	182	195	123	117	106	137
	6	64	77	77	111	85	177	208	231	200	136	92	64	17	3	7	33	52	66	84	100	39	52	78	79	89
	7	70	78	143	152	44	39	49	109	84	98	78	80	96	84	47	27	28	30	46	68	32	55	50	48	68
	8	49	51	52	104	82	74	94	63	78	84	34	29	26	34	28	26	29	27	30	81	128	75	99	108	80
	9	133	101	58	82	49	62	105	79	115	95	166	125	76	39	17	29	75	48	150	86	82	64	48	62	82
	10	46	65	76	89	91	85	83	105	84	60	98	129	210	170	158	94	262	215	231	266	193	98	267	110	137
D	11	136	130	173	162	258	171	255	345	199	283	247	135	194	54	35	4	10	29	23	31	30	33	14	39	124
	12	24	15	11	11	30	62	43	27	18	12	8	10	18	27	27	19	19	21	25	54	21	20	24	11	23
	13	7	8	5	8	11	11	20	15	14	14	10	16	21	16	24	11	10	16	23	14	16	18	30	29	15
	14	23	31	26	21	24	20	32	26	25	27	20	28	20	13	29	22	35	74	37	51	91	101	90	83	40
	15	95	114	109	86	62	142	146	152	163	208	137	159	154	79	26	38	57	51	43	30	57	62	86	66	97
	16	42	35	17	11	15	19	16	20	23	19	13	12	9	9	8	7	7	11	8	7	12	24	17	20	16
	17	18	18	19	21	22	37	39	42	48	46	59	58	61	47	27	13	23	27	26	31	38	49	94	98	40
	18	103	120	107	169	196	174	206	193	322	203	199	158	159	57	33	38	65	143	193	215	236	68	42	34	143
	19	21	15	26	28	46	50	74	110	102	123	56	60	78	45	10	48	126	163	175	170	136	147	179	66	86
0	20	59	52	40	41	37	16	18	19	25	18	39	28	37	40	52	20	16	25	29	37	44	64	50	32	35
	21	33	51	40	28	36	78	74	36	53	73	57	44	46	47	29	58	35	21	23	68	102	89	72	40	51
	22	25	36	62	82	201	204	287	217	135	151	182	179	136	69	43	40	18	28	116	135	259	234	122	155	130
D	23	116	63	41	70	60	134	244	238	183	107	89	125	217	158	244	233	190	212	108	109	100	119	110	148	142
	24	104	58	30	41	21	31	28	48	57	70	83	71	36	52	53	45	40	27	22	30	58	29	47	91	49
D	25	58	72	56	43	32	62	84	117	83	106	187	167	62	73	87	124	194	173	199	167	140	137	120	62	109
	26	117	151	123	53	80	146	219	137	157	284	182	54	31	20	18	25	18	19	16	16	15	8	7	6	79
0	27	7	4	8	11	22	23	19	22	63	24	21	17	19	16	12	14	9	5	9	12	10	17	17	16	16
0	28	14	15	14	18	19	10	11	13	12	17	18	13	11	13	10	12	13	10	9	11	12	17	18	19	14
0	29	21	25	27	23	25	24	25	26	34	36	21	16	13	13	15	11	12	19	35	39	29	37	41	46	26
	30	42	67	78	90	116	213	193	126	114	59	22	9	8	10	10	28	31	27	36	31	51	71	88	48	65
D	31	34	24	22	99	84	62	42	165	178	108	34	36	63	185	246	249	272	235	163	214	86	108	98	71	120
	MEAN	55	55	56	63	66	77	97	96	93	90	79	67	70	58	57	54	71	71	73	80	80	68	74	64	71
	50 MEAN	24	23	21	21	24	18	17	19	30	22	23	18	19	21	23	16	14	16	21	25	25	33	30	27	22
	50 MEAN	87	68	82	92	115	101	165	199	158	141	122	106	137	138	173	160	196	177	132	135	97	92	87	81	127

AU INDEX (HOURLY VALUES)

NOVEMBER 1980

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	100	60	49	84	60	75	103	94	127	205	197	196	103	78	86	117	170	75	55	38	32	29	35	46	92
2	33	30	33	56	67	27	29	48	41	24	35	66	108	58	46	40	95	71	80	90	32	33	34	29	50
3	24	14	14	15	25	35	38	33	37	75	116	97	48	41	63	45	40	57	37	18	22	31	32	33	41
4	24	23	33	34	72	93	118	113	134	218	112	252	89	33	17	13	5	53	102	75	60	32	30	30	74
5	37	51	41	28	23	29	34	30	26	29	25	21	24	16	21	22	17	23	24	17	15	13	18	24	25
6	16	16	14	18	24	36	45	67	54	55	63	48	39	60	58	29	32	30	30	28	60	70	66	92	44
7	95	63	81	52	74	41	37	29	23	22	27	30	24	18	18	15	16	16	22	21	18	22	36	37	35
8	40	52	55	41	44	40	37	23	23	34	30	26	19	19	19	15	19	31	65	27	26	23	26	28	32
9	21	19	27	45	54	45	45	36	35	33	29	41	91	140	128	61	93	120	68	76	90	68	60	52	62
10	54	63	59	64	51	68	49	38	48	63	156	96	110	110	76	59	40	30	24	33	20	31	67	79	62
11	72	118	40	142	148	89	90	86	97	86	70	48	61	50	30	31	52	102	134	201	130	105	110	153	94
12	110	92	166	152	109	90	94	57	94	70	82	90	52	47	53	48	30	23	23	25	25	62	80	90	74
13	71	56	85	29	23	25	30	25	44	36	61	61	36	44	52	43	35	23	66	40	44	85	68	37	47
14	33	24	47	62	49	43	35	25	47	32	46	64	112	77	42	147	54	47	103	101	85	49	38	45	59
15	58	58	89	80	197	225	105	94	165	306	233	132	118	66	110	156	203	139	148	133	105	107	131	73	135
16	52	72	40	144	153	166	111	120	95	162	172	163	106	96	151	207	161	128	82	50	38	40	44	52	108
17	30	41	46	32	33	31	53	51	24	24	36	41	78	81	41	25	39	38	42	82	40	46	45	50	44
18	64	65	36	42	38	73	51	52	88	54	124	85	75	55	63	44	81	70	78	132	186	111	79	91	76
19	61	48	59	118	68	59	60	54	113	108	152	67	68	38	71	122	200	149	122	116	102	110	69	89	93
20	88	45	38	57	61	55	50	79	110	101	106	155	126	61	135	141	185	114	119	120	86	43	44	39	90
21	45	35	40	60	126	201	167	98	86	63	75	63	36	36	27	18	25	22	38	54	60	104	130	92	71
22	86	78	97	92	79	72	65	92	63	62	93	84	39	50	60	64	49	25	22	21	28	48	61	51	62
23	46	76	68	51	35	35	45	31	37	32	28	25	26	20	22	35	94	98	190	137	123	100	102	142	67
24	72	75	89	127	120	185	188	149	102	67	53	43	41	64	74	67	76	40	31	90	81	33	37	118	84
25	114	144	181	203	178	174	130	132	86	57	66	52	69	43	117	62	36	34	93	177	96	146	113	99	108
26	95	32	45	31	107	112	87	192	167	104	123	86	92	155	68	40	44	56	55	47	37	41	29	33	78
27	48	94	141	86	54	84	88	69	64	158	199	221	185	219	200	126	179	240	174	175	97	116	105	79	133
28	125	188	212	144	148	80	81	135	132	142	290	162	122	124	76	37	58	27	27	33	63	98	77	81	111
29	98	76	55	103	92	88	137	133	113	121	109	124	28	84	33	28	41	35	32	43	65	73	64	67	77
30	126	89	124	82	71	52	47	61	43	42	66	89	76	40	60	29	70	171	177	175	167	178	64	76	91
MEAN	64	63	70	75	79	80	74	74	77	86	99	90	73	67	67	62	74	69	75	79	67	68	63	66	73
50 MEAN	53	47	55	33	37	34	35	28	30	39	51	47	30	27	34	28	25	30	42	24	25	34	36	31	35
5D MEAN	95	97	102	95	134	111	82	113	120	136	156	103	93	87	68	58	85	99	108	117	100	105	82	83	101

DECEMBER 1980

AU INDEX (HOURLY VALUES)

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	137	123	89	56	47	54	48	49	62	61	43	54	69	34	28	18	11	11	12	24	17	23	25	24	47
D 2	16	17	19	21	17	15	15	14	16	14	21	25	35	24	19	26	20	24	36	37	38	52	72	77	28
D 3	81	68	39	50	113	142	126	160	280	314	274	137	74	55	105	45	41	136	77	57	53	82	63	56	109
D 4	68	66	78	43	81	63	82	66	48	47	46	48	30	26	19	9	7	10	14	4	5	11	14	11	37
Q 5	13	29	37	56	57	45	42	43	21	37	38	36	31	18	37	38	29	14	8	4	7	16	12	10	28
Q 6	12	17	30	39	32	35	42	45	45	55	84	53	46	34	26	20	31	19	17	17	14	16	19	16	32
Q 7	17	25	29	26	44	48	40	32	35	36	44	51	63	56	33	24	14	15	18	23	21	31	91	82	38
Q 8	95	98	96	93	78	87	40	31	40	24	30	23	16	14	17	17	16	17	29	53	56	24	51	90	47
Q 9	38	36	35	39	57	32	59	80	153	58	43	38	35	25	30	37	93	70	98	71	77	124	124	225	70
Q 10	245	190	121	39	92	125	67	59	50	56	44	42	31	21	27	32	23	16	32	46	48	57	41	45	65
Q 11	42	38	32	40	53	61	52	54	66	51	128	129	146	156	111	110	166	248	117	159	97	139	225	140	107
Q 12	164	204	105	93	160	110	77	65	99	93	40	38	26	20	14	11	13	7	24	30	31	26	25	20	62
Q 13	15	16	15	13	12	10	10	7	4	15	10	51	34	18	19	23	19	18	9	9	17	15	17	22	16
Q 14	19	13	15	16	13	12	12	15	16	14	23	42	46	45	48	75	196	231	189	129	72	39	72	70	59
Q 15	50	46	31	45	50	51	50	62	66	54	29	49	56	72	63	23	30	70	41	67	32	28	34	24	47
Q 16	31	37	76	84	56	40	43	20	51	53	94	119	179	88	46	86	152	174	84	38	36	15	24	21	69
Q 17	25	24	17	18	22	20	16	11	15	6	9	10	14	8	12	20	21	24	45	20	32	24	22	21	19
Q 18	22	22	12	21	29	59	84	124	171	307	161	72	66	52	59	30	81	143	149	201	192	129	52	45	95
D 19	54	56	30	30	74	195	172	239	251	130	131	183	136	9	-173	-173	0	-57	-39	1	67	92	6	28	60
D 20	43	18	30	46	17	-4	7	-8	-8	-8	-13	-6	-13	-2	6	32	54	12	26	22	25	10	21	27	14
D 21	33	51	39	53	45	64	98	52	92	187	180	151	107	47	68	116	57	70	109	112	117	99	59	52	86
D 22	86	106	77	101	89	79	78	56	73	52	61	106	75	34	45	33	40	29	31	32	43	40	26	30	59
D 23	31	29	28	27	24	29	37	29	30	87	50	53	36	24	16	21	26	19	27	18	21	25	19	20	30
D 24	12	12	10	10	15	10	10	10	10	13	16	21	21	21	17	15	17	15	18	16	17	13	13	14	14
D 25	10	11	18	23	26	23	36	33	27	26	33	51	72	77	37	23	23	12	13	13	20	49	65	85	34
D 26	50	57	58	37	107	86	99	64	62	65	51	43	101	77	39	29	16	12	14	10	11	15	13	11	47
D 27	9	10	11	15	12	21	51	129	116	80	58	183	171	54	23	28	21	17	16	19	16	33	18	15	47
D 28	18	14	17	13	9	8	19	35	44	23	14	15	14	10	18	19	19	9	9	11	9	12	9	10	16
D 29	7	11	17	35	17	31	46	23	32	23	23	35	89	117	66	36	29	39	47	74	65	54	65	60	43
D 30	88	69	33	48	61	62	91	85	208	278	205	173	206	89	34	18	11	10	8	14	18	28	26	29	79
D 31	31	67	97	114	108	92	60	55	38	30	34	34	19	10	13	22	109	139	134	112	69	52	103	70	67
MEAN	50	51	43	43	52	55	55	56	71	73	64	66	65	43	29	27	44	50	45	46	43	44	46	46	50
50 MEAN	16	19	22	27	27	23	25	28	27	26	32	27	25	18	22	22	23	16	19	13	15	16	15	14	21
5D MEAN	69	63	45	47	59	90	90	98	135	136	123	103	74	28	6	7	32	34	37	43	55	61	34	37	63

AL INDEX (HOURLY VALUES)

JULY

1980

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
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0 2	-25	-35	-38	-34	-37	-43	-42	-25	-32	-40	-44	-40	-36	-29	-22	-15	-21	-22	-37	-53	-138	-39	-30	-34	-38
0 3	-32	-37	-57	-81	-51	-88	-85	-57	-80	-132	-117	-109	-36	-28	-25	-13	-15	-14	-14	-12	-12	-14	-19	-34	-48
0 4	-38	-33	-32	-28	-39	-44	-41	-27	-32	-32	-57	-137	-96	-121	-278	-188	-83	-66	-18	-22	-30	-135	-245	-237	-86
D 5	-208	-268	-170	-137	-308	-94	-101	-149	-85	-29	-52	-22	-54	-194	-148	-255	-319	-381	-494	-75	-16	-23	-26	-20	-151
6	-53	-53	-38	-36	-38	-39	-35	-38	-66	-61	-41	-33	-32	-30	-81	-119	-94	-82	-50	-73	-101	-181	-152	-94	-67
7	-117	-98	-74	-122	-72	-55	-48	-44	-189	-270	-82	-58	-117	-105	-60	-81	-248	-172	-75	-93	-98	-237	-142	-71	-114
8	-127	-383	-300	-217	-149	-132	-143	-72	-64	-65	-186	-128	-125	-224	-179	-230	-429	-341	-411	-294	-262	-200	-215	-158	-210
9	-124	-76	-177	-272	-238	-133	-36	-32	-109	-158	-143	-261	-183	-81	-93	-91	-117	-131	-121	-169	-127	-73	-41	-34	-126
0 10	-40	-50	-45	-37	-34	-32	-35	-28	-23	-27	-36	-35	-28	-27	-49	-103	-113	-71	-104	-84	-67	-24	-36	-44	-49
11	-40	-146	-145	-143	-225	-116	-40	-22	-34	-41	-73	-70	-73	-65	-42	-48	-34	-39	-65	-172	-57	-38	-116	-211	-86
12	-163	-69	-76	-82	-32	-36	-30	-28	-47	-41	-32	-24	-21	-25	-31	-30	-72	-215	-68	-20	-27	-41	-52	-65	-55
13	-67	-46	-105	-203	-252	-274	-106	-56	-42	-40	-37	-37	-46	-132	-271	-359	-286	-206	-71	-107	-37	-30	-37	-44	-120
14	-42	-143	-231	-130	-27	-25	-22	-45	-134	-165	-101	-65	-45	-39	-41	-60	-118	-54	-113	-82	-26	-66	-109	-65	-81
15	-29	-45	-158	-198	-56	-39	-46	-50	-38	-39	-45	-47	-42	-32	-22	-29	-73	-66	-41	-19	-25	-34	-38	-51	-53
16	-45	-61	-75	-41	-22	-24	-26	-81	-71	-39	-42	-50	-52	-32	-46	-168	-134	-84	-4	-8	-23	-81	-121	-100	-60
17	-41	-58	-89	-58	-99	-102	-29	-27	-57	-63	-45	-43	-24	-8	-23	-9	-5	-1	-12	-15	-46	-36	-39	-72	-42
D 18	-76	-221	-181	-109	-100	-88	-120	-52	-35	-22	-15	-19	-32	-154	-168	-177	-186	-284	-315	-375	-543	-556	-693	-432	-206
19	-541	-259	-202	-466	-185	-98	-203	-136	-106	-15	-23	-52	-30	-22	-89	-150	-73	-85	-99	-83	-47	-65	-77	-153	-136
20	-150	-77	-70	-118	-152	-58	-45	-75	-105	-54	-52	-106	-152	-177	-110	-165	-97	-102	-65	-87	-65	-47	-51	-54	-93
21	-87	-99	-216	-276	-231	-192	-138	-102	-80	-51	-47	-41	-31	-81	-473	-425	-286	-294	-329	-227	-202	-250	-253	-250	-194
22	-232	-166	-107	-90	-84	-58	-53	-57	-47	-51	-44	-53	-40	-44	-66	-85	-63	-82	-70	-55	-69	-134	-209	-85	-85
0 23	-55	-65	-57	-48	-41	-45	-40	-43	-46	-49	-45	-44	-84	-91	-122	-160	-165	-46	-33	-29	-30	-49	-91	-64	-64
24	-42	-52	-51	-63	-53	-83	-35	-37	-50	-60	-62	-53	-43	-65	-51	-94	-33	-20	-45	-167	-177	-92	-128	-85	-68
D 25	-53	-54	-42	-27	-22	-23	-40	-53	-38	-48	-55	-205	-249	-101	-59	-163	-198	-506	-223	-349	-608	-899	-497	-450	-207
D 26	-510	-224	-152	-203	-79	-37	-44	-75	-42	-65	-86	-76	-125	-195	-233	-147	-161	-94	-101	-61	-107	-114	-129	-189	-135
D 27	-208	-203	-199	-180	-41	-64	-74	-72	-36	-45	-144	-139	-178	-144	-121	-152	-71	-34	-33	-35	-48	-96	-226	-287	-118
28	-404	-210	-136	-244	-256	-104	-56	-48	-131	-95	-81	-117	-265	-361	-250	-86	-103	-100	-154	-79	-31	-22	-36	-44	-142
29	-41	-38	-30	-42	-90	-133	-53	-30	-34	-35	-35	-38	-37	-36	-46	-51	-72	-304	-283	-100	-81	-67	-88	-126	-79
30	-217	-178	-110	-132	-108	-54	-29	-39	-74	-83	-50	-89	-158	-55	-53	-48	-51	-105	-198	-82	-38	-72	-216	-272	-105
31	-105	-44	-70	-104	-206	-162	-81	-81	-163	-109	-64	-137	-178	-121	-150	-165	-145	-97	-115	-23	-27	-61	-134	-65	-104
MEAN	-131	-114	-112	-130	-109	-81	-61	-55	-68	-67	-63	-76	-85	-92	-110	-125	-125	-133	-118	-99	-103	-123	-138	-126	-102
50 MEAN	-62	-49	-51	-64	-48	-48	-46	-36	-45	-62	-54	-51	-41	-42	-47	-61	-67	-35	-43	-42	-58	-35	-46	-40	-49
50 MEAN	-211	-194	-148	-131	-110	-61	-75	-80	-47	-41	-70	-92	-127	-157	-145	-178	-187	-259	-233	-179	-264	-337	-314	-275	-163

AL INDEX (HOURLY VALUES) AUGUST 1980

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
0 1	-39	-47	-38	-55	-148	-111	-66	-71	-65	-46	-90	-85	-71	-96	-80	-45	-60	-26	-26	-24	-63	-123	-83	-51	-67
2	-31	-33	-33	-49	-36	-23	-26	-100	-37	-29	-36	-133	-72	-105	-177	-187	-166	-60	-39	-45	-147	-324	-327	-227	-102
3	-194	-359	-192	-291	-391	-320	-325	-466	-345	-350	-221	-274	-341	-482	-218	-49	-11	-13	-19	-8	-11	-19	-36	-42	-207
4	-14	-22	-15	-25	-31	-26	-78	-77	-47	-17	-16	-67	-230	-385	-205	-93	-130	-177	-64	-69	-51	-31	-34	-39	-81
5	-38	-45	-36	-31	-25	-29	-26	-33	-33	-66	-86	-153	-215	-86	-27	-13	-11	-17	-21	-28	-22	-25	-26	-29	-47
6	-60	-433	-424	-231	-39	-56	-26	-25	-24	-54	-111	-57	-26	-37	-17	-17	-33	-136	-320	-413	-158	-83	-196	-186	-132
7	-150	-143	-202	-227	-228	-132	-148	-226	-133	-108	-118	-126	-246	-61	-82	-158	-159	-155	-251	-121	-130	-331	-178	-114	-164
8	-169	-105	-74	-43	-21	-17	-66	-28	-21	-21	-31	-29	-30	-23	-20	-30	-36	-41	-44	-42	-52	-137	-81	-84	-52
9	-43	-20	-23	-21	-24	-27	-9	-46	-33	-20	-25	-26	-34	-31	-27	-47	-34	-24	-30	-73	-156	-46	-85	-166	-45
10	-84	-40	-43	-41	-243	-365	-170	-18	-40	-51	-152	-33	-24	-25	-20	-52	-63	-58	-57	-72	-39	-35	-35	-29	-74
11	-14	-43	-41	-57	-56	-162	-204	-60	-33	-112	-171	-117	-68	-39	-75	-62	-50	-25	-26	-49	-54	-83	-27	-143	-74
12	-421	-109	-43	-50	-28	-28	-33	-73	-59	-92	-47	-31	-27	-13	-16	-52	-35	-22	-23	-39	-66	-56	-61	-81	-63
13	-50	-50	-34	-33	-37	-30	-33	-29	-25	-39	-41	-35	-44	-103	-72	-49	-36	-133	-34	-18	-25	-53	-88	-77	-49
14	-35	-31	-36	-27	-34	-27	-14	-14	-111	-120	-32	-68	-100	-84	-111	-41	-56	-125	-101	-82	-38	-25	-34	-35	-58
15	-52	-68	-42	-36	-97	-36	-23	-27	-23	-26	-40	-53	-45	-89	-178	-193	-87	-17	-23	-35	-36	-37	-35	-31	-55
16	-44	-59	-82	-109	-116	-65	-79	-70	-68	-55	-48	-44	-363	-630	-367	-293	-518	-430	-145	-175	-28	1	-14	-22	-159
17	-24	-21	-23	-21	-24	-24	-22	-28	-52	-105	-111	-69	-170	-238	-148	-128	-135	-263	-340	-341	-85	-79	-69	-57	-107
18	-50	-44	-29	-37	-141	-398	-412	-402	-316	-326	-104	-91	-132	-44	-33	-135	-86	-121	-38	-12	-34	-47	-67	-101	-133
19	-65	-132	-408	-317	-241	-150	-146	-121	-43	-29	-63	-84	-88	-76	-171	-330	-109	-35	-60	-168	-283	-168	-45	-56	-141
20	-55	-42	-36	-27	-20	-21	-23	-24	-29	-26	-30	-43	-123	-146	-32	-12	-90	-217	-458	-363	-192	-168	-196	-141	-105
21	-349	-315	-145	-93	-131	-68	-99	-231	-160	-27	-18	-15	-17	-27	-66	-72	-26	-13	-11	-22	-30	-36	-37	-42	-85
22	-47	-43	-36	-91	-114	-98	-24	-87	-61	-25	-34	-174	-60	-78	-94	-209	-202	-307	-369	-309	-139	-206	-164	-49	-126
23	-90	-44	-34	-32	-24	-19	-16	-12	-16	-20	-50	-41	-42	-29	-30	-33	-28	-26	-30	-26	-30	-32	-24	-27	-32
24	-46	-84	-129	-27	-44	-138	-27	-23	-27	-32	-29	-33	-35	-31	-31	-33	-34	-48	-35	-35	-34	-34	-36	-34	-44
25	-36	-36	-28	-20	-24	-19	-19	-20	-23	-32	-31	-28	-29	-30	-24	-17	-8	-14	-30	-33	-42	-75	-72	-285	-41
26	-304	-252	-254	-232	-84	-44	-32	-27	-126	-113	-42	-12	-25	-56	-74	-61	-31	-25	-28	-30	-43	-142	-99	-40	-90
27	-42	-248	-273	-154	-33	-85	-332	-346	-365	-367	-427	-532	-351	-548	-241	-279	-213	-111	-198	-188	-45	-36	-16	-24	-227
28	-52	-37	-65	-63	-64	-113	-72	-90	-82	-52	-50	-40	-33	-31	-44	-113	-179	-60	-22	-20	-33	-36	-38	-28	-59
29	-35	-44	-40	-32	-35	-35	-33	-36	-41	-46	-50	-46	-49	-56	-53	-41	-23	-25	-61	-47	-135	-222	-90	-47	-55
30	-32	-42	-37	-97	-180	-52	-62	-73	-82	-91	-58	-61	-68	-122	-73	-71	-185	-424	-330	-153	-62	-41	-43	-44	-103
31	-130	-241	-247	-163	-86	-33	-30	-49	-124	-112	-48	-45	-70	-84	-77	-59	-43	-29	-31	-39	-78	-46	-47	-40	-81
MEAN	-90	-104	-101	-87	-91	-88	-86	-94	-85	-84	-77	-85	-104	-125	-93	-95	-92	-102	-105	-99	-75	-89	-76	-76	-92
50 MEAN	-68	-63	-68	-43	-60	-81	-51	-49	-45	-43	-57	-68	-76	-53	-40	-46	-64	-38	-29	-29	-40	-71	-52	-45	-53
50 MEAN	-52	-183	-243	-169	-114	-150	-199	-192	-163	-166	-150	-161	-192	-267	-165	-210	-191	-166	-152	-191	-109	-66	-67	-77	-158

SEPTEMBER 1980

AL INDEX (HOURLY VALUES)

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q 1	-40	-36	-147	-157	-63	-57	-264	-96	-30	-38	-35	-37	-46	-56	-41	-30	-25	-44	-18	-11	-22	-27	-31	-22	-57
Q 2	-21	-24	-33	-71	-38	-26	-29	-28	-24	-28	-31	-32	-38	-46	-47	-31	-19	-19	-20	-22	-33	-36	-35	-25	-32
Q 3	-14	-13	-16	-14	-21	-19	-17	-21	-19	-26	-21	-28	-35	-53	-113	-154	-289	-371	-395	-402	-213	-223	-137	-180	-116
D 4	-294	-245	-247	-203	-86	-67	-58	-41	-32	-29	-31	-25	-54	-69	-77	-76	-132	-193	-173	-70	-219	-112	-121	-137	-116
Q 5	-159	-137	-172	-184	-196	-250	-242	-229	-110	-56	-79	-175	-238	-201	-180	-211	-320	-420	-492	-352	-398	-353	-153	-72	-224
Q 6	-54	-45	-25	-25	-28	-18	-27	-29	-26	-32	-31	-28	-21	-24	-44	-109	-104	-46	-24	-20	-27	-45	-115	-252	-50
Q 7	-257	-100	-35	-49	-90	-22	-24	-48	-44	-35	-137	-81	-37	-37	-27	-36	-85	-247	-307	-393	-243	-238	-243	-194	-125
Q 8	-175	-216	-147	-31	-22	-25	-87	-21	-45	-123	-120	-46	-79	-55	-41	-88	-72	-175	-38	-27	-41	-54	-79	-30	-76
D 9	-20	-16	-103	-79	-12	-68	-227	-219	-104	-43	-44	-167	-143	-127	-203	-351	-432	-222	-140	-90	-91	-227	-266	-290	-154
Q 10	-195	-98	-25	-34	-16	-16	-15	-11	-9	-15	-31	-47	-52	-44	-35	-48	-96	-149	-57	-31	-46	-57	-38	-32	-50
Q 11	-23	-37	-140	-126	-114	-100	-20	-9	-24	-69	-90	-157	-218	-190	-223	-193	-216	-193	-130	-62	-107	-82	-117	-100	-114
D 12	-111	-138	-166	-131	-143	-182	-328	-399	-468	-307	-293	-289	-200	-313	-199	-532	-529	-446	-246	-227	-279	-342	-375	-216	-286
D 13	-256	-226	-216	-188	-249	-227	-241	-308	-315	-373	-414	-393	-566	-458	-330	-159	-82	-52	-35	-124	-55	-95	-28	-24	-226
Q 14	-21	-41	-165	-211	-144	-14	-19	-34	-29	-45	-52	-55	-36	-32	-38	-23	-19	-15	-17	-21	-24	-32	-258	-341	-70
Q 15	-173	-69	-59	-53	-37	-42	-136	-116	-33	-45	-55	-160	-168	-165	-117	-88	-155	-340	-192	-107	-58	-84	-119	-36	-109
Q 16	-28	-27	-27	-16	-60	-82	-102	-84	-63	-67	-41	-35	-34	-29	-29	-17	-26	-27	-22	-70	-250	-118	-32	-40	-55
Q 17	-53	-37	-271	-146	-60	-27	-59	-143	-288	-396	-300	-369	-350	-73	-134	-80	-201	-58	-32	-27	-18	-87	-295	-41	-147
Q 18	-21	-31	-35	-31	-20	-39	-53	-84	-233	-52	-36	-33	-29	-21	-18	-16	-25	-81	-80	-113	-50	-15	-12	-33	-48
Q 19	-25	-27	-30	-25	-21	-17	-22	-19	-26	-36	-28	-141	-306	-215	-97	-132	-158	-100	-87	-116	-54	-141	-173	-111	-88
Q 20	-58	-34	-213	-145	-88	-27	-19	-29	-45	-47	-46	-37	-26	-29	-38	-64	-101	-50	-19	-46	-62	-14	-13	-14	-53
Q 21	-12	-13	-14	-11	-9	-11	-21	-28	-32	-45	-48	-49	-44	-45	-33	-48	-48	-20	-11	-13	-12	-26	-12	-8	-25
Q 22	-2	-1	-3	-65	-28	-9	-36	-56	-41	-38	-166	-24	-25	-67	-316	-212	-131	-211	-91	-25	-37	-15	-10	-35	-69
Q 23	-36	-23	-31	-7	-9	-13	-15	-17	-15	-59	-120	-181	-91	-71	-33	-26	-31	-23	-11	-24	-48	-158	-86	-41	-49
Q 24	-8	-13	-12	-11	-11	-35	-75	-94	-49	-83	-42	-32	-32	-22	-23	-25	-42	-155	-80	-13	-16	-16	-33	-73	-41
Q 25	-68	-75	-131	-225	-164	-43	-21	-84	-150	-161	-96	-86	-42	-28	-31	-123	-210	-90	-161	-100	-27	-32	-31	-28	-92
Q 26	-19	-28	-30	-27	-104	-174	-127	-105	-91	-54	-75	-114	-74	-43	-65	-50	-65	-55	-180	-139	-25	-23	-20	-20	-71
Q 27	-28	-29	-27	-22	-94	-71	-18	-21	-17	-23	-34	-37	-62	-31	-30	-84	-73	-58	-281	-100	-88	-80	-73	-29	-59
Q 28	-23	-17	-15	-8	-9	-11	-28	-28	-23	-20	-28	-32	-27	-35	-193	-168	-33	-26	-56	-118	-44	-99	-79	-27	-48
Q 29	-30	-30	-27	-20	-21	-25	-13	-5	-17	-32	-38	-37	-29	-21	-16	-35	-59	-89	-153	-257	-209	-88	-58	-37	-56
Q 30	-34	-23	-55	-41	-25	-16	-16	-22	-25	-29	-28	-26	-26	-29	-22	-20	-21	-22	-24	-32	-28	-31	-29	-38	-28
MEAN	-74	-61	-87	-78	-66	-57	-78	-80	-80	-80	-86	-98	-104	-87	-93	-107	-126	-133	-119	-105	-94	-98	-102	-84	-91
50 MEAN	-51	-35	-22	-30	-35	-52	-53	-53	-41	-45	-45	-54	-48	-40	-60	-40	-54	-79	-69	-63	-26	-31	-27	-31	-43
5D MEAN	-142	-132	-200	-149	-110	-114	-182	-222	-241	-229	-216	-248	-262	-208	-188	-239	-275	-194	-125	-107	-132	-172	-217	-141	-185

AL INDEX (HOURLY VALUES)

OCTOBER 1980

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q	1	-12	-13	-11	-10	-7	-3	-7	-11	-12	-13	-16	-24	-27	-25	-30	-26	-22	-18	-15	-12	-5	-8	-8	-15
	2	-5	-8	-4	-2	-3	-9	-4	-15	-18	-11	-13	-26	-24	-20	-20	-14	-17	-13	-16	-13	-8	-7	-5	-12
	3	-12	-14	-10	-9	-7	-5	-3	-2	-7	-52	-34	-65	-38	-27	-22	-28	-32	-15	-47	-79	-274	-125	-336	-242
D	4	-66	-18	-48	-139	-289	-138	-139	-176	-225	-137	-134	-381	-622	-579	-621	-376	-385	-206	-212	-201	-211	-181	-201	-250
	5	-336	-448	-304	-289	-355	-342	-201	-214	-258	-452	-392	-416	-258	-343	-454	-257	-245	-282	-259	-282	-167	-318	-180	-301
	6	-95	-68	-166	-236	-137	-167	-265	-303	-317	-163	-55	-76	-32	-27	-35	-39	-102	-212	-119	-140	-23	-37	-60	-153
	7	-156	-134	-264	-65	-1	-13	-26	-109	-96	-215	-124	-124	-215	-386	-73	-21	-36	-37	-59	-126	-120	-98	-153	-104
	8	-29	-13	-15	-85	-71	-63	-56	-37	-45	-53	-30	-32	-23	-27	-36	-68	-63	-24	-35	-91	-355	-211	-128	-79
	9	-53	-117	-21	-20	-16	-35	-146	-183	-157	-81	-230	-155	-19	-22	-20	-32	-221	-261	-377	-336	-112	-117	-74	-118
	10	-24	-86	-258	-251	-144	-34	-73	-159	-125	-43	-43	-105	-187	-206	-137	-109	-299	-344	-404	-431	-427	-442	-230	-191
D	11	-261	-261	-313	-225	-417	-482	-411	-618	-388	-652	-485	-407	-439	-186	-106	-97	-49	-31	-22	-47	-18	-28	-27	-52
	12	-29	-30	-33	-33	-24	-108	-126	-64	-33	-41	-51	-51	-47	-83	-39	-46	-54	-51	-49	-65	-42	-26	-30	-34
	13	-26	-22	-21	-19	-17	-18	-20	-25	-28	-34	-41	-41	-40	-42	-37	-44	-45	-43	-45	-25	-20	-18	-26	-25
	14	-27	-26	-36	-31	-25	-22	-36	-32	-25	-31	-48	-90	-39	-35	-29	-39	-47	-276	-174	-102	-125	-85	-87	-31
	15	-89	-150	-58	-58	-175	-155	-111	-169	-245	-236	-185	-400	-322	-184	-185	-242	-142	-133	-121	-47	-160	-193	-262	-247
	16	-179	-10	-20	-24	-24	-18	-8	-10	-19	-24	-29	-31	-37	-42	-41	-37	-32	-26	-19	-19	-19	-18	-14	-18
	17	-16	-14	-13	-14	-14	-51	-154	-128	-145	-65	-169	-102	-152	-177	-59	-32	-68	-57	-29	-9	-13	-13	-10	-88
	18	-238	-296	-141	-141	-92	-134	-150	-245	-238	-156	-135	-307	-190	-34	-20	-16	-42	-146	-301	-555	-281	-64	-89	-123
	19	-78	-61	-47	-66	-74	-103	-184	-218	-216	-132	-68	-125	-177	-176	-91	-127	-241	-285	-215	-245	-244	-354	-171	-31
Q	20	-40	-63	-53	-84	-140	-38	-15	-9	-16	-28	-64	-107	-74	-64	-57	-117	-111	-118	-91	-74	-90	-81	-40	-30
	21	-112	-167	-67	-52	-47	-117	-111	-11	-17	-67	-135	-72	-121	-113	-140	-200	-46	-90	-90	-154	-100	-91	-35	-10
	22	-7	-15	-101	-261	-291	-268	-298	-271	-179	-121	-139	-445	-225	-67	-171	-142	-30	-77	-223	-780	-609	-211	-237	-46
D	23	-39	-111	-57	-118	-188	-275	-605	-615	-600	-707	-612	-537	-891	-436	-528	-524	-406	-378	-451	-106	-61	-59	-51	-121
	24	-45	-33	-24	-37	-50	-34	-23	-47	-147	-52	-53	-201	-94	-160	-161	-122	-46	-56	-50	-36	-175	-170	-126	-326
D	25	-296	-80	-27	-20	-13	-38	-122	-437	-379	-224	-268	-223	-50	-118	-321	-405	-404	-130	-247	-42	-147	-452	-535	-408
	26	-215	-186	-63	-36	-69	-61	-177	-71	-189	-248	-178	-47	-43	-27	-27	-30	-38	-27	-28	-27	-20	-14	-11	-13
Q	27	-18	-13	-14	-16	-27	-40	-28	-15	-17	-21	-25	-27	-31	-34	-34	-36	-33	-27	-29	-27	-39	-14	-13	-24
Q	28	-9	-12	-15	-12	-12	-11	-7	-9	-13	-23	-28	-32	-34	-32	-28	-32	-34	-30	-19	-15	-15	-14	-12	-12
Q	29	-11	-10	-12	-13	-7	-2	-4	-6	-14	-22	-25	-27	-35	-32	-43	-52	-47	-31	-85	-116	-42	-29	-17	-18
	30	-27	-55	-30	-80	-154	-205	-207	-158	-109	-55	-39	-35	-31	-39	-50	-71	-59	-41	-31	-14	-11	-18	-34	-45
D	31	-71	-179	-220	-167	-93	-181	-208	-437	-342	-148	-43	-66	-236	-612	-612	-748	-483	-275	-335	-349	-63	-231	-301	-163
	MEAN	-84	-87	-79	-84	-96	-102	-126	-154	-149	-138	-125	-154	-153	-140	-136	-133	-125	-120	-135	-147	-129	-115	-117	-101
	50 MEAN	-18	-22	-21	-27	-38	-18	-12	-10	-14	-21	-31	-43	-39	-36	-38	-52	-50	-45	-48	-49	-39	-28	-18	-16
	50 MEAN	-146	-129	-133	-133	-200	-222	-297	-456	-386	-373	-308	-322	-447	-386	-437	-430	-345	-204	-253	-149	-100	-190	-223	-212

AL INDEX (HOURLY VALUES) NOVEMBER 1980

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	-68	-79	-96	-161	-242	-298	-252	-221	-332	-343	-402	-365	-269	-309	-98	-279	-485	-183	-29	-31	-28	-55	-57	-114	-200
2	-58	-23	-44	-107	-253	-90	-40	-45	-49	-31	-30	-113	-66	-102	-95	-92	-353	-315	-275	-183	-41	-24	-23	-28	-103
3	-20	-24	-18	-16	-33	-90	-123	-69	-71	-117	-149	-97	-56	-189	-187	-157	-188	-188	-87	-40	-42	-15	-24	-17	-84
4	-17	-37	-92	-113	-146	-85	-113	-147	-181	-216	-641	-461	-45	-20	-37	-28	-33	-107	-387	-213	-31	-12	-19	-30	-134
5	-40	-77	-128	-75	-14	-17	-22	-31	-9	-30	-12	-18	-25	-35	-38	-38	-33	-27	-18	-13	-13	-15	-11	-11	-31
6	-19	-18	-14	-23	-16	-60	-121	-15	-20	-12	-34	-23	-27	-27	-65	-109	-56	-69	-27	-15	-82	-166	-75	-126	-51
7	-61	-90	-55	-61	-35	-3	-1	-2	-6	-8	-18	-25	-29	-32	-30	-20	-16	-15	-18	-12	-7	-7	-36	-80	-28
8	-49	-17	-7	-12	-6	-1	-2	-1	-3	-10	-20	-30	-31	-34	-34	-32	-28	-73	-187	-52	-10	-9	-9	-10	-28
9	-9	-13	-6	-3	-27	2	-2	0	-2	-7	-9	-21	-114	-157	-76	-47	-223	-247	-65	-41	-67	-39	-9	-13	-50
10	-15	-22	-8	-27	-18	-12	-3	0	-18	-127	-169	-123	-143	-328	-178	-42	-43	-38	-32	-22	-15	-15	-74	-88	-65
D 11	-26	-105	-213	-230	-40	0	-13	-41	-410	-228	-47	-76	-51	-38	-51	-44	-165	-212	-553	-560	-182	-150	-109	-255	-158
12	-158	-131	-184	-148	-48	-16	-76	-61	-183	-269	-158	-155	-151	-185	-160	-71	-49	-46	-41	-39	-19	-68	-100	-94	-109
13	-60	-23	-23	-10	-9	-15	-17	-17	-24	-34	-76	-30	-27	-33	-94	-53	-37	-44	-234	-112	-102	-104	-31	-46	-52
14	-12	-7	-4	-12	-4	-1	-2	-3	-18	-11	-28	-157	-333	-44	-82	-300	-163	-98	-115	-37	-77	-46	-17	-13	-66
D 15	-13	-129	-191	-183	-183	-112	7	-103	-393	-409	-371	-722	-268	-379	-443	-423	-441	-291	-232	-256	-299	-235	-144	-60	-261
16	-18	-39	-232	-387	-185	-199	-197	-230	-172	-329	-287	-277	-384	-306	-424	-436	-308	-261	-88	-27	-15	-17	-18	-155	-208
17	-143	-11	-4	-1	-7	-10	-158	-130	-30	-29	-106	-207	-288	-232	-67	-64	-161	-165	-178	-209	-62	-93	-196	-197	-115
18	-116	-124	-168	-134	-37	-65	-247	-127	-121	-58	-243	-247	-165	-369	-323	-156	-340	-339	-225	-221	-187	-250	-317	-154	-197
19	-93	-103	-227	-142	-30	-43	-65	-108	-281	-305	-258	-195	-228	-109	-327	-407	-388	-251	-252	-266	-329	-152	-117	-148	-201
20	-152	-110	-10	-41	-120	-164	-90	-109	-350	-279	-206	-234	-227	-320	-345	-366	-422	-270	-114	-152	-150	-14	-5	2	-177
21	0	-6	0	-3	-197	-227	-111	-29	-51	-83	-118	-83	-25	-36	-22	-32	-38	-41	-36	-66	-85	-99	-100	-98	-66
22	-38	-14	-22	6	-5	-16	-122	-156	-49	-74	-120	-30	-26	-26	-31	-76	-24	-28	-24	-20	-18	-15	-126	-150	-50
23	-46	-62	-155	-101	-120	-14	-1	-10	-10	-18	-10	-19	-18	-22	-26	-50	-71	-152	-339	-284	-53	-6	-53	-165	-75
24	-72	-34	-12	-53	-103	-101	-93	4	-35	-31	-21	-25	-22	-71	-99	-132	-126	-35	-22	-67	-81	-30	-9	-77	-56
25	-95	-37	-22	-145	-31	4	19	-30	6	0	-11	-36	-88	-327	-436	-274	-113	-71	-152	-448	-407	-225	-57	-53	-126
D 26	-182	-26	-4	-2	-24	-6	-60	-90	-24	-12	-86	-380	-581	-236	-97	-62	-70	-219	-184	-52	-11	-1	-17	-115	-106
27	-186	-347	-194	0	0	-49	-150	-319	-109	-392	-298	-364	-448	-543	-410	-209	-381	-322	-236	-295	-356	-265	-161	-254	-262
D 28	-362	-431	-169	-115	-164	-162	-265	-249	-166	-449	-473	-448	-415	-322	-218	-153	-310	-208	-62	-34	-102	-265	-266	-139	-248
29	-37	-87	-124	-237	-31	-31	-82	-279	-380	-181	-138	-428	-406	-291	-103	-144	-156	-254	-164	-143	-101	-486	-312	-133	-197
D 30	-132	-265	-431	-56	-21	-9	-15	-34	-29	-13	-29	-77	-316	-87	-76	-106	-174	-345	-768	-621	-431	-354	-441	-387	-217
MEAN	-76	-83	-95	-86	-71	-63	-80	-88	-117	-136	-152	-182	-175	-173	-155	-146	-179	-163	-171	-151	-113	-107	-97	-106	-124
50 MEAN	-46	-46	-46	-34	-19	-25	-33	-24	-22	-39	-55	-40	-33	-64	-76	-60	-60	-69	-108	-45	-34	-30	-22	-32	-44
5D MEAN	-143	-191	-201	-117	-86	-57	-69	-103	-204	-222	-201	-340	-326	-212	-177	-157	-232	-255	-359	-304	-205	-201	-195	-191	-198

AL INDEX (HOURLY VALUES)

DECEMBER 1980

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	-432	-178	-180	-417	-177	-146	-161	-94	-101	-170	-161	-146	-296	-114	-123	-95	-34	-36	-44	-130	-27	-5	-8	-7	-137
D 2	-10	-11	-9	-5	-5	-4	-4	0	-6	-19	-17	-38	-60	-42	-23	-18	-24	-23	-23	-27	-25	-87	-130	-75	-29
D 3	-70	-6	-89	-156	-89	-94	-16	-134	-259	-238	-289	-230	-253	-298	-91	-25	-99	-585	-300	-54	-54	-92	-296	-151	-165
D 4	-55	-36	-36	-121	-101	-3	-42	-110	-133	-48	-78	-54	-18	-34	-43	-29	-28	-38	-56	-29	-23	-25	-38	-20	-50
D 5	-15	-23	-34	-45	-10	-6	-17	-26	-28	-25	-17	-10	-11	-23	-42	-94	-41	-22	-25	-19	-20	-36	-12	-14	-26
D 6	-14	-14	-14	-9	-4	-2	-2	-2	-6	-31	-36	-3	-9	-6	-7	-8	-11	-11	-14	-15	-3	-4	-9	-11	-10
D 7	-7	-2	-1	-4	-5	-4	-20	-2	-39	-11	-26	-85	-44	-10	-7	0	0	-3	-15	-13	-11	-11	-69	-54	-19
D 8	-51	-23	-8	-12	7	-3	-41	-27	-23	-43	-26	-10	-11	-12	-17	-9	-7	-23	-76	-107	-42	-15	-92	-91	-32
D 9	-16	-11	-5	-7	-12	-17	-198	-164	-14	-12	-22	-22	-84	-44	-31	-51	-228	-248	-81	-26	-35	-108	-178	-192	-75
D 10	-111	-24	-64	-176	-102	-31	-10	-12	-26	-32	-74	-40	-34	-25	-22	-29	-32	-34	-110	-60	-30	-58	-56	-18	-50
D 11	-21	-13	-36	-10	-9	-6	-3	-2	-2	-3	-47	-70	-136	-244	-165	-169	-264	-374	-190	-108	-91	-184	-221	-144	-105
D 12	-451	-372	-96	-123	-89	-14	-25	-45	-129	-5	-12	-16	-22	-23	-22	-26	-17	-17	-24	-23	-18	-16	-13	-9	-67
D 13	-14	-13	-23	-19	-19	-50	-56	-96	-119	-198	-182	-309	-140	-157	-65	-28	-20	-20	-15	-14	-24	-62	-23	-29	-71
D 14	-9	-5	-5	-7	-5	-3	-3	-4	-2	-5	-47	-158	-143	-155	-102	-206	-346	-356	-221	-224	-144	-68	-188	-131	-106
D 15	-58	-99	-125	-153	-180	-170	-57	-89	-93	-228	-79	-183	-216	-169	-130	-84	-233	-358	-126	-166	-58	-64	-133	-79	-139
D 16	-63	-110	-167	-123	-17	-15	-23	-15	-63	-56	-204	-410	-531	-253	-232	-365	-565	-385	-243	-90	-102	-23	-30	-29	-171
D 17	-32	-23	-14	-27	-31	-21	-9	-15	-19	-26	-19	-18	-21	-19	-16	-179	-203	-258	-204	-33	-8	-11	-12	-15	-51
D 18	-21	-59	-123	-117	-115	-122	-288	-329	-330	-289	-181	-138	-127	-128	-233	-117	-355	-615	-448	-330	-242	-110	-33	-93	-206
D 19	-250	-163	-50	-34	-43	-247	-349	-314	-296	-124	-93	-75	-115	-463	-1296	-1029	-810	-952	-726	-485	-580	-362	-295	-343	-396
D 20	-262	-263	-356	-342	-328	-314	-252	-271	-212	-307	-169	-107	-107	-129	-60	-70	-101	-98	-129	-71	-69	-89	-178	-163	-185
D 21	-205	-299	-264	-75	-20	-40	-64	-176	-166	-205	-200	-127	-135	-139	-114	-446	-180	-266	-297	-397	-280	-226	-87	-60	-186
D 22	-161	-136	-80	-81	-55	-41	-61	-55	-113	-137	-111	-108	-80	-68	-56	-137	-150	-51	-66	-85	-59	-19	-16	-15	-81
D 23	-20	-12	-11	-18	-53	-20	-22	-12	-26	-214	-101	-66	-120	-75	-58	-64	-57	-116	-185	-121	-49	-12	-7	-9	-60
D 24	-10	-9	-6	-4	-3	-5	-5	-6	-6	-7	-12	-10	-10	-13	-12	-24	-58	-42	-21	-15	-16	-12	-9	-8	-13
D 25	-13	-8	-26	-16	-15	-5	-16	3	3	-1	-15	-86	-165	-127	-34	-12	-18	-17	-14	-13	-71	-84	-315	-119	-49
D 26	-28	-15	-20	-35	-121	-55	-51	-36	-58	-44	-86	-147	-201	-148	-5	-15	-20	-19	-18	-14	-11	-10	-10	-10	-49
D 27	-8	-8	-4	-6	-10	-105	-202	-223	-170	-140	-184	-465	-360	-125	-162	-59	-45	-45	-85	-61	-38	-59	-30	-24	-111
D 28	-17	-26	-42	-19	-15	-81	-15	-56	-61	-67	-29	-48	-81	-43	-146	-35	-25	-29	-34	-39	-27	-9	-9	-13	-38
D 29	-13	-17	-20	-91	-9	-34	-127	-131	-108	-68	-130	-157	-267	-284	-179	-202	-81	-44	-117	-304	-86	-47	-115	-290	-122
D 30	-269	-165	-94	-74	-159	-99	-138	-189	-341	-377	-302	-316	-259	-73	-23	-16	-20	-21	-27	-25	-24	-46	-14	-18	-129
D 31	-22	-224	-144	-148	-67	-26	-40	-44	-37	-16	-20	-15	-17	-20	-23	-89	-377	-405	-288	-413	-461	-329	-182	-57	-144
MEAN	-88	-76	-69	-79	-60	-56	-74	-86	-96	-101	-95	-118	-131	-111	-113	-120	-143	-179	-136	-113	-88	-73	-90	-73	-99
50 MEAN	-17	-19	-22	-20	-12	-14	-9	-21	-24	-31	-22	-17	-26	-20	-44	-68	-67	-72	-59	-24	-14	-14	-10	-12	-27
50 MEAN	-243	-181	-187	-204	-131	-168	-168	-197	-206	-208	-182	-137	-181	-228	-336	-333	-244	-387	-299	-227	-202	-154	-172	-144	-213

AE INDEX (HOURLY VALUES)

DATE	JULY															1980															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							
0 1	323	140	146	183	111	57	60	67	109	120	62	58	53	88	70	55	47	49	65	68	67	88	124	82							
0 2	64	63	61	56	51	56	56	54	80	81	69	58	48	45	44	43	47	65	99	130	218	98	81	107							
0 3	114	103	136	189	183	251	262	247	309	360	275	198	78	56	66	44	40	43	47	41	39	43	45	62							
0 4	61	54	50	46	52	57	54	61	64	92	248	271	180	240	415	271	139	126	72	88	116	262	444	521							
D 5	528	654	394	356	550	299	325	355	232	135	206	99	179	380	348	518	637	838	872	207	87	70	87	71							
0 6	121	112	64	54	70	68	63	92	161	114	70	86	96	91	178	186	132	130	128	166	220	307	309	260							
0 7	261	201	185	246	248	175	118	131	382	392	149	161	222	157	122	155	352	226	158	233	239	407	264	172							
0 8	291	577	509	381	337	222	227	152	122	222	299	206	252	326	281	350	604	660	735	543	487	431	443	296							
0 9	247	163	301	456	372	242	108	105	286	276	253	421	285	158	146	136	159	183	185	267	241	134	82	80							
0 10	62	67	61	51	51	39	44	40	43	51	59	75	86	61	88	138	156	123	160	142	129	70	103	125							
0 11	107	270	267	344	460	235	93	50	69	98	156	152	173	171	112	119	73	101	165	367	206	122	288	455							
0 12	284	191	183	132	55	52	54	96	128	93	80	78	72	89	88	98	165	284	125	64	68	96	125	174							
0 13	222	140	319	388	530	496	218	126	84	61	60	90	137	256	404	589	557	395	163	211	115	68	78	109							
0 14	92	286	394	250	75	46	55	152	281	418	346	208	141	97	130	106	165	116	245	252	133	150	208	133							
0 15	80	116	313	301	135	67	67	68	58	63	74	97	113	96	57	64	116	105	86	62	68	73	77	102							
0 16	123	185	185	113	62	50	118	226	181	74	70	153	126	113	134	235	200	145	60	55	66	175	217	197							
0 17	114	154	195	164	237	205	85	100	235	215	178	120	82	50	61	53	46	61	96	120	179	143	103	182							
D 18	204	447	368	274	229	215	230	137	119	150	179	180	168	257	261	265	324	501	657	828	1064	882	1099	1041							
0 19	1029	626	480	779	396	317	510	194	156	58	74	88	61	64	181	257	146	128	169	151	116	160	254	333							
0 20	267	149	196	231	225	85	66	167	177	94	107	276	308	280	156	321	186	169	125	193	166	90	98	145							
0 21	188	294	505	544	431	342	274	170	237	151	122	123	137	220	675	632	488	515	516	509	521	637	518	565							
0 22	510	408	334	301	208	152	129	121	86	77	89	117	92	101	110	117	78	118	141	147	167	264	368	171							
0 23	88	83	69	56	40	46	52	53	51	68	87	83	148	153	172	202	226	80	67	74	62	94	166	108							
0 24	73	79	100	129	108	169	87	60	64	80	81	74	114	122	67	121	69	68	142	369	373	217	243	179							
D 25	109	117	110	58	43	52	109	97	74	82	137	405	394	189	149	273	394	822	618	759	936	1165	777	648							
D 26	757	468	279	283	115	98	128	194	121	153	150	139	195	319	372	230	278	223	231	178	265	228	292	410							
D 27	398	338	340	319	128	236	176	169	127	201	280	322	321	255	188	216	84	70	84	90	133	206	373	447							
0 28	592	332	336	409	468	245	106	143	276	185	293	359	445	496	398	151	246	167	291	200	87	63	72	85							
0 29	82	71	62	81	156	220	129	54	58	58	65	74	81	83	107	108	142	465	507	266	164	136	193	229							
0 30	379	335	256	225	155	85	71	92	136	160	132	205	205	75	82	95	105	204	347	158	106	176	424	526							
0 31	277	114	151	201	363	317	180	197	325	265	200	294	310	184	181	213	183	154	76	84	86	123	233	110							
MEAN	259	236	237	245	214	167	137	128	155	149	150	170	171	170	188	205	212	236	239	226	223	231	264	262							
50 MEAN	130	91	94	107	87	89	94	92	118	136	110	94	82	80	88	96	103	72	87	91	103	78	103	96							
5D MEAN	399	404	298	258	213	180	193	190	134	144	190	229	251	280	263	300	343	490	492	412	497	510	525	523							

AE INDEX (HOURLY VALUES)

AUGUST

1980

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q	64	68	63	147	289	237	168	131	144	115	214	159	137	147	117	73	91	67	76	90	149	222	148	98	134
	67	63	56	85	61	63	53	148	94	110	140	279	172	200	266	256	225	122	129	159	352	497	543	442	191
	445	647	406	517	664	641	579	834	684	721	520	565	598	782	367	130	105	69	78	55	62	74	98	123	407
	65	78	51	56	61	55	202	130	86	43	39	136	376	571	297	137	218	259	141	137	102	80	82	78	145
Q	72	81	55	45	45	40	43	52	87	144	195	257	318	153	58	45	37	61	66	83	69	61	56	56	91
D	180	605	611	334	96	112	68	58	63	150	198	86	56	95	86	101	99	248	542	677	336	299	418	402	247
	356	309	371	430	412	259	325	390	308	260	263	271	376	145	149	215	234	242	433	274	307	578	360	288	315
Q	325	261	224	145	69	45	87	51	47	44	64	52	59	46	49	58	78	77	88	89	104	230	199	187	112
	9	119	69	58	55	51	66	105	69	60	62	71	94	83	67	98	68	56	63	159	333	143	201	344	106
	146	77	88	107	498	675	362	84	148	200	235	101	76	64	51	123	97	97	102	151	98	78	73	78	159
	67	119	102	95	113	284	328	136	139	253	347	255	140	96	134	91	74	69	101	159	167	203	114	395	166
	629	257	95	88	86	80	77	150	134	157	109	78	75	56	61	101	73	55	54	71	107	99	129	168	125
	142	125	68	62	62	53	45	45	47	61	89	112	162	233	140	114	122	215	81	63	62	109	185	174	107
	113	72	67	59	58	55	58	96	234	231	111	188	214	157	185	112	124	230	211	169	91	57	93	95	128
	139	136	99	110	219	95	85	76	89	141	192	134	105	194	280	267	144	67	70	79	91	94	81	79	128
D	111	146	191	220	264	224	240	226	241	233	170	165	573	941	802	829	1210	947	428	356	116	57	83	72	368
	66	53	41	40	46	42	67	44	146	245	203	139	267	368	230	216	255	359	563	587	287	267	149	122	200
D	126	91	68	138	359	616	582	633	618	650	234	203	247	108	68	219	189	190	76	52	61	89	191	279	254
D	179	285	578	507	408	375	338	270	207	115	198	229	249	200	362	601	201	94	141	368	470	351	131	113	290
	99	74	58	54	45	45	48	54	58	72	90	132	242	220	80	39	181	346	666	681	420	394	469	339	204
	553	509	382	268	274	225	271	371	295	96	51	41	51	42	92	81	39	39	52	68	75	68	67	74	170
	87	70	95	190	266	210	88	192	93	54	83	277	112	147	184	283	301	506	608	537	340	534	368	142	240
	205	75	56	46	42	42	38	40	46	48	143	98	89	59	57	53	51	49	58	58	60	61	53	70	66
Q	111	152	196	73	121	178	63	56	55	53	51	56	55	48	48	46	52	78	60	64	73	76	75	60	79
	57	55	48	43	46	36	38	40	38	48	51	50	46	51	51	50	41	62	85	86	99	156	224	472	82
	560	461	435	450	251	128	57	74	262	202	85	44	60	117	141	110	67	64	79	92	109	246	185	107	183
D	113	381	440	262	87	280	507	581	652	649	602	760	517	793	453	474	397	248	353	346	138	98	59	66	386
Q	28	113	92	112	117	90	173	124	143	134	98	63	58	59	76	166	224	90	49	46	54	54	57	49	97
	51	56	55	52	55	54	52	55	58	64	67	62	62	72	65	49	37	51	128	98	263	341	170	117	89
	75	89	95	224	339	140	122	134	171	176	107	93	103	157	93	99	282	570	480	296	154	77	73	90	177
	266	406	454	340	170	73	58	100	219	188	80	70	95	107	94	74	55	44	69	83	130	102	99	92	145
MEAN	183	192	184	172	182	180	169	177	182	183	163	168	186	210	167	171	173	182	197	201	170	186	168	170	180
50 MEAN	137	130	130	105	122	134	97	86	93	90	120	117	125	90	69	77	96	74	67	74	89	128	107	90	102
5D MEAN	141	301	377	292	242	321	347	353	356	359	280	288	328	427	354	444	419	345	308	359	224	178	176	186	308

SEPTEMBER 1980

AE INDEX (HOURLY VALUES)

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q	100	86	279	238	132	189	400	146	72	74	65	61	76	97	90	75	58	80	51	40	57	59	60	58	110
	56	56	93	117	95	67	72	63	62	59	63	89	77	72	60	42	41	49	57	63	71	65	61	48	67
	35	37	38	37	48	49	48	53	58	69	69	69	77	125	228	322	610	738	632	675	416	463	355	385	235
D	449	439	435	353	246	282	205	147	178	127	90	84	117	149	140	125	222	277	311	193	397	253	292	344	244
	346	364	380	390	389	446	485	398	279	191	216	351	400	332	323	419	672	749	824	628	730	675	374	188	439
	172	106	57	56	56	65	67	48	51	59	51	50	50	65	85	231	202	80	48	41	46	79	235	460	103
	479	186	79	118	128	55	49	92	94	103	231	165	72	81	68	93	170	419	547	686	464	383	381	385	231
	346	439	303	91	62	59	140	56	97	217	214	135	160	98	94	169	128	234	87	75	103	132	136	68	152
D	63	65	171	117	44	139	286	249	133	101	87	253	210	195	316	474	698	435	263	153	182	407	488	478	250
Q	385	232	79	64	42	39	34	29	27	34	48	65	68	66	67	86	151	203	93	64	73	85	60	59	90
	55	67	178	176	191	144	64	44	72	134	181	235	323	292	286	259	325	272	227	156	196	209	280	249	192
D	238	272	309	248	268	348	524	681	745	625	545	486	365	497	342	821	878	762	495	512	454	526	560	372	495
D	431	436	450	352	533	472	425	523	595	746	813	602	762	650	512	261	126	100	81	242	135	152	69	56	397
	52	108	259	319	225	38	39	45	55	131	132	98	75	70	69	37	37	37	40	45	51	87	370	461	120
	300	147	99	82	68	120	210	159	66	75	138	256	268	257	196	146	226	477	309	170	109	167	181	107	181
	52	43	45	62	123	175	263	178	179	160	72	59	48	44	49	34	40	48	56	162	413	203	91	78	111
D	76	87	335	183	92	68	114	221	409	562	503	555	550	140	204	121	276	94	79	77	50	179	399	92	228
	64	53	49	47	55	90	111	160	325	130	85	49	40	29	23	24	43	114	131	169	84	45	44	62	84
	48	57	51	48	37	41	41	39	44	55	62	224	459	294	132	177	190	141	157	197	160	237	281	218	141
	130	105	303	244	183	86	62	99	91	84	83	78	53	51	74	113	128	70	45	91	104	49	43	48	101
	51	32	28	27	36	40	40	64	61	74	75	72	66	70	51	84	72	39	26	37	31	48	36	35	50
	30	26	42	109	74	57	121	136	136	112	221	70	70	114	407	285	188	325	151	65	87	51	40	56	124
	75	48	54	23	26	33	43	42	46	122	192	275	137	105	67	58	62	49	31	59	103	229	152	75	88
Q	36	34	32	31	41	65	125	152	87	136	73	65	65	59	52	56	77	208	124	38	40	58	86	130	78
	133	141	195	309	234	126	96	143	237	280	204	163	84	68	54	148	256	134	242	164	72	62	57	51	152
	41	50	55	57	136	222	163	158	160	134	149	217	149	86	102	87	84	87	229	192	66	53	46	44	115
	50	49	48	53	120	95	47	64	57	58	69	75	100	63	58	120	109	92	365	167	147	151	155	69	99
	56	60	45	47	51	58	85	84	83	62	60	63	62	89	279	231	64	60	117	204	116	220	208	75	103
	72	68	83	68	76	80	82	86	76	66	65	58	54	56	55	82	109	157	305	460	313	182	142	114	121
	82	88	110	116	80	49	44	74	52	52	50	49	46	46	40	37	39	42	54	68	53	60	57	65	61
MEAN	150	132	156	139	129	126	149	147	154	161	163	169	169	145	150	173	209	219	205	196	177	185	191	164	165
5Q MEAN	113	80	57	59	70	86	86	93	79	87	81	101	85	70	66	71	85	117	105	78	56	61	57	63	79
5D MEAN	251	259	340	250	236	261	310	364	412	432	407	396	400	326	302	360	440	333	245	235	243	303	361	268	322

AE INDEX (HOURLY VALUES)

OCTOBER 1980

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	
0	1	33	34	29	27	25	20	24	30	28	31	35	42	46	52	57	50	48	47	45	42	43	38	37	34	37
	2	34	35	31	31	32	38	36	44	53	58	46	51	61	55	45	39	38	39	33	37	35	30	31	30	40
	3	36	38	33	32	30	27	25	29	37	89	73	107	87	59	46	54	58	42	79	121	367	468	443	408	108
D	4	159	72	168	230	433	218	340	308	377	241	189	449	773	801	880	569	702	444	385	360	343	249	298	403	391
	5	421	582	420	434	453	474	333	315	360	594	566	525	386	465	625	410	420	478	438	466	363	293	435	287	439
	6	160	146	243	349	223	344	474	534	518	301	148	140	49	31	43	74	155	280	205	241	63	91	140	233	216
	7	227	212	408	217	45	54	76	219	181	314	203	204	312	470	121	49	68	107	196	152	154	204	153	184	184
	8	79	65	68	189	154	138	151	101	124	138	64	61	50	62	65	96	92	66	73	484	288	229	187	132	132
	9	187	219	80	102	65	98	252	263	273	177	397	282	96	62	39	63	298	310	528	424	195	181	123	64	199
	10	71	151	334	341	235	120	156	264	210	104	142	235	398	377	296	205	562	560	636	698	621	541	497	302	336
D	11	398	391	487	389	675	653	666	964	588	936	733	543	634	241	142	102	60	60	45	79	49	62	42	91	376
	12	54	46	45	45	55	171	169	93	52	54	60	62	66	112	67	67	74	73	76	121	65	48	56	46	74
	13	34	32	28	29	29	30	42	42	43	49	52	58	62	59	62	57	56	60	69	41	37	37	57	55	47
	14	51	58	62	53	50	44	70	59	51	58	68	119	60	49	59	62	83	352	213	154	217	187	177	115	103
	15	185	265	168	145	238	298	257	322	409	445	323	561	476	264	212	281	200	186	166	79	219	256	349	314	276
	16	221	46	38	36	39	38	24	31	43	44	42	44	47	52	50	45	40	37	28	28	32	32	32	38	47
	17	35	33	33	35	36	89	195	171	194	112	229	161	213	224	87	46	92	85	56	42	52	63	106	187	107
	18	341	417	249	310	290	309	356	438	560	360	335	466	350	92	53	55	108	291	495	771	518	133	131	158	316
	19	100	77	74	95	121	155	259	330	319	257	125	186	257	222	102	176	368	449	391	417	381	501	350	98	242
0	20	100	116	94	126	178	54	34	29	42	103	136	111	104	110	138	128	144	122	112	136	146	92	63	103	103
	21	145	219	107	80	84	195	186	48	71	142	193	117	168	161	170	260	83	112	113	224	203	180	108	52	142
	22	33	52	164	343	493	472	586	489	316	274	322	626	363	137	215	183	49	106	339	916	869	446	360	201	348
D	23	156	174	99	189	249	409	849	853	784	816	703	663	1109	595	773	738	597	592	560	217	162	179	161	269	497
	24	150	93	55	78	73	66	52	96	205	123	137	274	132	213	216	168	87	83	73	67	235	200	174	417	144
D	25	334	152	85	65	46	100	207	555	463	331	457	391	113	192	410	531	599	305	447	210	288	590	656	471	334
	26	333	338	187	90	150	208	396	209	347	533	360	102	74	47	46	56	56	47	45	44	36	24	19	20	157
0	27	26	17	23	28	50	65	48	38	80	45	47	45	47	47	46	51	43	34	39	40	50	32	32	30	42
0	28	25	27	30	32	33	22	18	22	26	41	47	46	46	43	39	45	49	41	30	28	28	32	32	30	34
0	29	33	37	40	37	33	27	30	33	48	58	46	45	48	45	59	64	61	51	121	156	73	67	59	65	56
	30	70	124	109	171	271	419	401	285	224	115	61	44	41	49	61	100	92	70	69	47	63	91	123	93	133
D	31	106	204	242	267	178	244	250	603	522	258	78	102	301	799	860	998	757	511	500	565	151	341	400	235	395
MEAN		140	144	136	148	163	180	224	252	243	230	205	222	225	199	195	188	197	193	210	229	210	185	192	167	195
50 MEAN		43	46	43	50	63	37	30	30	44	44	55	62	59	58	62	69	65	63	71	75	66	63	50	44	54
5D MEAN		234	198	216	228	316	324	462	656	546	516	432	429	586	525	613	591	543	382	387	286	198	284	311	293	398

AE INDEX (HOURLY VALUES) NOVEMBER 1980

DATE	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	MEAN
Q	169	140	146	246	302	374	356	317	460	550	600	561	372	388	185	397	656	258	85	69	61	85	94	161	293
Q	91	54	78	164	320	117	70	94	92	56	66	180	175	161	142	133	448	387	356	273	74	58	57	57	154
Q	45	40	33	32	58	126	162	102	109	193	266	195	105	231	252	203	229	245	125	59	65	48	57	52	126
Q	41	60	126	147	219	178	232	260	323	435	754	714	135	54	55	42	39	161	490	288	92	45	50	61	208
Q	78	128	170	103	38	47	56	62	37	61	38	40	50	51	59	61	51	51	43	31	29	29	30	36	58
Q	36	34	29	41	41	96	167	83	75	68	98	72	67	88	124	139	88	100	57	43	143	238	142	219	95
Q	157	154	137	113	110	44	39	32	30	31	46	55	53	51	48	35	33	32	40	34	26	29	72	118	63
Q	91	70	63	53	51	41	39	24	27	45	51	57	51	54	54	49	48	105	252	80	37	33	37	40	60
Q	32	33	34	49	82	42	47	37	38	41	38	64	206	298	206	109	317	367	133	118	157	107	70	66	112
Q	70	85	68	92	70	81	52	39	66	192	326	220	255	439	254	101	84	69	57	55	35	46	143	167	128
D	98	224	254	373	189	89	103	127	508	315	118	125	112	89	83	76	218	315	688	761	313	255	221	410	253
D	269	224	350	301	158	106	171	119	279	340	241	247	203	232	213	119	80	70	65	66	45	131	182	185	183
Q	131	79	109	39	32	41	47	43	69	71	137	92	65	79	148	97	74	68	300	152	147	190	101	85	100
Q	46	32	52	74	54	45	39	28	66	44	75	222	447	122	125	447	218	146	219	138	163	97	55	60	126
D	72	187	281	263	382	337	97	198	560	717	605	855	386	445	554	579	645	430	380	390	405	342	276	134	397
D	71	111	272	532	338	365	310	351	268	492	460	440	491	402	576	644	470	389	170	78	53	58	63	208	317
D	174	52	51	34	41	42	212	181	55	55	143	250	367	314	109	89	201	204	220	292	103	140	241	248	159
D	181	189	205	177	76	138	298	179	210	113	369	333	240	425	386	201	421	410	303	354	375	363	397	246	275
D	154	152	286	261	100	102	126	163	395	414	412	263	298	148	399	530	589	400	374	383	432	263	187	238	295
D	240	156	49	99	182	220	141	189	461	381	313	390	354	382	480	508	607	385	234	273	237	57	50	36	268
D	43	42	40	63	324	429	279	126	138	147	194	147	62	73	49	51	63	64	74	120	146	204	231	191	138
D	125	93	119	85	84	88	187	249	113	138	214	116	66	77	91	141	74	54	47	42	47	64	188	202	113
D	93	139	224	152	156	50	46	41	48	50	39	45	46	42	49	86	166	251	530	422	176	106	156	308	142
D	145	110	102	181	224	287	282	145	138	100	75	69	64	137	174	200	203	76	54	158	163	64	47	196	141
D	209	181	204	349	210	169	110	163	80	59	78	90	158	371	553	336	151	106	246	626	505	372	171	152	235
D	278	58	49	33	132	118	147	283	192	117	210	467	674	392	165	102	116	275	240	100	49	41	47	150	185
D	235	442	335	86	53	133	239	390	175	551	499	586	635	762	610	336	560	562	411	471	455	383	267	334	396
D	489	619	382	259	313	243	347	385	299	592	764	611	537	447	295	190	369	236	89	69	166	364	343	220	360
D	136	164	179	341	123	120	220	412	494	303	249	553	435	376	137	173	199	289	198	187	166	560	377	201	275
D	260	356	555	140	92	61	62	96	73	56	96	168	393	128	136	136	244	517	946	797	598	533	506	464	309
MEAN	141	146	166	162	151	144	156	163	195	224	252	274	250	241	223	210	255	234	247	230	182	176	161	174	198
50 MEAN	100	94	102	68	57	59	68	52	54	80	107	87	64	93	112	89	87	100	152	71	60	65	59	66	81
5D MEAN	239	288	304	213	221	169	151	217	326	359	358	445	420	300	246	216	318	354	468	423	306	307	278	275	300

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AE INDEX (HOURLY VALUES)

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D 1	570	302	271	474	224	202	210	144	165	232	205	202	366	150	153	114	46	49	56	154	45	28	34	32	184
D 2	27	32	29	26	23	19	19	15	22	34	40	64	96	67	43	45	45	48	59	65	64	140	203	152	57
D 3	151	75	129	207	203	237	142	295	541	554	564	368	328	354	197	71	141	721	378	112	108	175	359	208	276
D 4	124	102	114	165	183	67	125	176	181	95	125	103	49	61	63	40	37	50	71	35	30	37	52	32	88
0 5	28	53	72	102	67	51	60	71	50	63	56	47	44	42	81	133	71	37	35	25	28	52	25	25	55
0 6	26	32	45	48	37	38	45	48	52	87	122	57	56	41	34	29	44	32	32	33	18	21	29	29	43
0 7	24	28	31	31	49	53	68	41	75	48	72	137	108	68	42	24	15	19	34	37	33	43	160	136	57
0 8	147	121	104	106	70	90	82	59	64	68	57	35	28	27	35	27	24	41	105	160	99	39	144	182	80
0 9	55	48	41	46	70	50	257	245	169	71	66	61	120	70	62	89	322	319	179	97	112	233	303	418	146
0 10	356	214	186	216	194	156	78	72	77	89	118	84	65	47	51	63	56	51	142	106	78	116	98	64	116
0 11	64	52	68	50	63	68	56	56	68	55	177	200	284	401	277	279	430	622	307	268	189	324	446	285	212
0 12	614	577	201	217	251	125	103	111	230	99	53	55	49	44	37	38	31	26	49	54	50	43	39	30	130
0 13	30	29	38	32	32	32	67	105	124	215	194	361	175	175	85	51	40	39	26	24	41	78	40	52	88
0 14	28	18	20	24	19	16	20	20	18	19	71	201	190	201	152	282	542	588	411	354	216	108	260	202	166
0 15	109	145	157	199	231	221	108	153	161	284	110	234	273	242	194	108	264	428	168	234	91	93	168	105	187
0 16	94	148	244	207	74	56	67	37	115	110	299	530	711	342	269	452	718	560	327	129	139	39	55	51	241
0 17	58	47	32	46	53	43	27	28	35	33	29	29	36	28	30	200	225	283	250	54	42	36	36	38	72
0 18	43	82	136	138	144	181	372	455	502	597	344	212	195	181	293	147	437	758	597	532	435	240	86	139	302
D 19	305	220	80	65	117	443	523	554	548	256	226	258	252	473	1122	855	810	894	686	485	648	455	301	372	456
D 20	306	282	387	389	346	309	260	263	203	298	155	99	92	126	67	103	155	112	156	94	95	101	200	191	200
D 21	239	352	305	129	66	105	164	230	260	393	381	280	243	187	183	562	238	336	407	510	398	326	146	112	273
D 22	247	242	157	183	144	121	140	112	187	191	173	216	156	103	102	170	190	81	97	118	102	60	43	46	141
D 23	52	42	39	46	77	50	60	42	58	303	152	121	157	100	75	85	84	135	212	140	71	38	27	31	92
0 24	22	21	16	14	18	16	16	16	17	21	30	32	32	35	31	39	76	57	39	32	33	26	23	24	29
0 25	24	20	44	39	42	28	53	29	23	28	50	139	238	204	71	36	42	30	28	27	92	134	380	204	84
0 26	79	74	79	74	229	142	151	102	121	111	138	191	304	227	45	44	37	32	34	25	24	26	24	22	97
0 27	18	19	15	21	23	127	254	353	288	222	243	649	532	180	186	87	67	107	102	81	54	93	49	39	159
0 28	36	40	61	32	25	49	35	93	106	91	45	64	96	54	165	55	45	38	44	51	37	22	20	24	55
0 29	21	28	38	126	28	66	174	155	142	93	155	194	358	402	246	238	110	84	166	379	151	102	181	350	166
0 30	358	235	128	123	221	161	230	274	551	656	509	491	466	163	58	35	32	32	36	41	43	75	42	48	209
0 31	54	292	242	263	176	119	101	100	76	47	55	50	37	30	37	112	486	544	422	526	531	382	286	128	212
MEAN	139	128	113	123	112	111	131	143	168	176	161	185	197	155	144	148	189	230	182	160	132	118	137	121	150
50 MEAN	34	38	45	48	40	39	36	51	52	59	56	45	52	40	68	91	92	89	80	39	31	31	26	28	50
50 MEAN	314	246	234	252	191	259	297	297	343	346	306	241	256	258	344	341	278	422	336	271	258	217	208	183	277

AO INDEX (HOURLY VALUES)

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0 2	5	-3	-7	-6	-11	-14	-13	1	7	0	-9	-10	-11	-6	0	5	1	9	11	10	-29	9	9	18	-1
0 3	23	12	9	13	40	36	45	65	73	46	19	-10	2	0	7	7	3	5	8	7	7	6	2	2	18
0 4	-7	-6	-7	-4	-12	-14	-13	2	0	13	66	-1	-6	-1	-70	-52	-13	-3	16	20	26	-4	-23	22	-3
D 5	55	58	26	40	-33	54	60	27	30	37	50	26	34	-4	24	4	-1	38	-58	28	26	11	16	15	23
6	6	2	-5	-8	-2	-4	-4	7	13	-4	-6	9	15	15	7	-26	-27	-17	13	8	8	-26	2	35	0
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8	18	-94	-45	-26	18	-21	-30	3	33	45	-36	-25	0	-60	-37	-54	-126	-21	-44	-23	-18	14	6	-10	-23
9	0	4	-26	-44	-51	-12	17	20	33	-20	-16	-50	-40	-20	-20	-22	-37	-39	-27	-35	-6	5	0	5	-15
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11	13	-11	-11	28	4	1	6	2	0	7	4	5	12	18	13	10	2	11	16	10	44	22	27	16	10
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13	43	23	54	-8	12	-25	2	5	0	-9	-6	7	21	-4	-68	-63	-8	-8	10	-2	18	3	1	10	0
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16	15	31	17	15	8	0	31	31	18	-2	-6	25	10	23	20	-50	-34	-11	25	18	8	6	-12	-1	7
17	14	17	7	23	18	0	12	21	59	43	43	15	15	16	6	17	17	28	34	44	41	34	11	18	23
D 18	25	2	2	27	14	19	-4	15	23	52	72	70	51	-25	-37	-44	-23	-33	12	38	-11	-115	-143	87	3
19	-27	53	37	-76	12	59	51	-39	-27	12	12	-7	0	9	0	-21	0	-20	-14	-7	9	13	48	12	3
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0 23	-11	-23	-23	-20	-21	-21	-14	-16	-20	-15	-1	-3	-10	-14	-36	-58	-52	-6	0	6	1	-1	-7	-9	-15
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D 25	1	3	11	1	-1	3	14	-5	-1	-7	12	-3	-52	-6	14	-26	-1	-94	85	29	-140	-317	-108	-126	-29
D 26	-131	10	-13	-61	-21	11	19	21	17	10	-11	-6	-27	-35	-47	-32	-22	16	14	26	24	0	15	14	-8
D 27	-8	-33	-28	-19	22	53	13	11	25	54	-4	21	-17	-16	-27	-43	-28	0	7	8	18	6	-39	-63	-3
28	-107	-43	31	-39	-22	17	-3	22	6	-2	64	62	-42	-113	-50	-10	19	-16	-8	19	11	8	0	-1	-8
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MEAN	-1	3	5	-7	-2	2	6	8	8	7	11	8	0	-7	-16	-22	-19	-14	0	12	7	-8	-7	4	0
50 MEAN	2	-4	-4	-10	-4	-3	0	9	13	5	0	-4	0	-2	-4	-14	-16	0	0	2	-6	3	5	7	-1
5D MEAN	-11	8	0	-2	-3	28	20	13	18	29	23	21	-2	-17	-14	-28	-15	-14	12	25	-16	-83	-51	-14	-3

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	2	1	-2	-4	-6	-5	7	0	-25	9	25	32	5	13	-5	-59	-53	0	23	33	27	-75	-56	-5	-6	
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50 MEAN	17	-33	-54	-23	6	9	-26	-16	14	12	-11	-18	-28	-53	10	11	17	5	1	-12	2	22	19	14	-4	

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AO INDEX (HOURLY VALUES)

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0 3	2	4	2	3	2	4	5	4	8	6	12	5	2	8	1	6	15	-2	-78	-64	-5	8	40	12	0
D 4	-70	-25	-29	-26	36	73	44	31	55	33	12	16	3	4	-6	-13	-20	-54	-17	25	-21	13	24	33	5
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AO INDEX (HOURLY VALUES)

OCTOBER

1980

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NOVEMBER 1980

AO INDEX (HOURLY VALUES)

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AO INDEX (HOURLY VALUES)

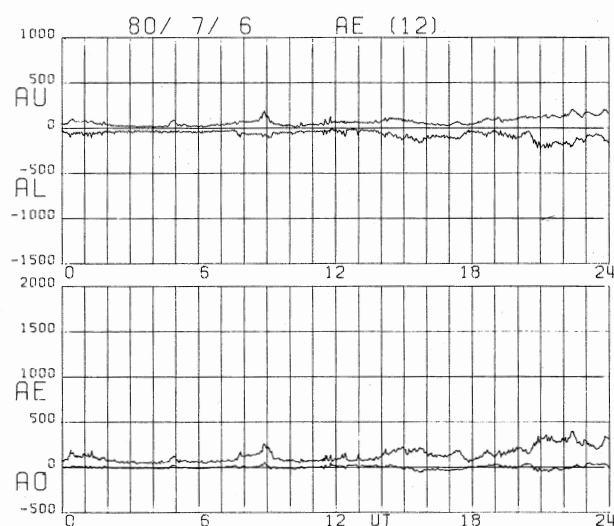
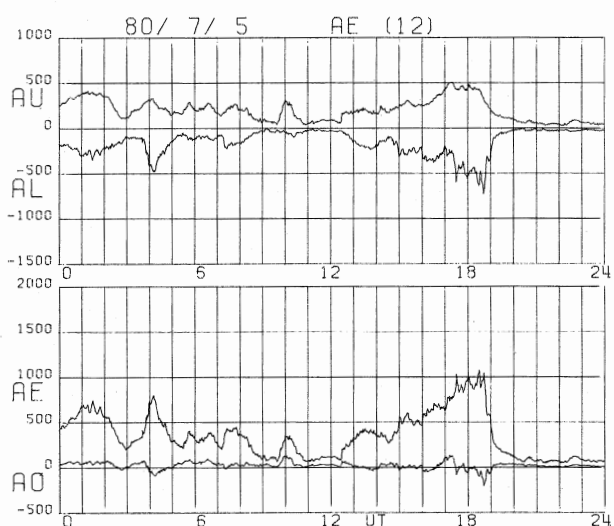
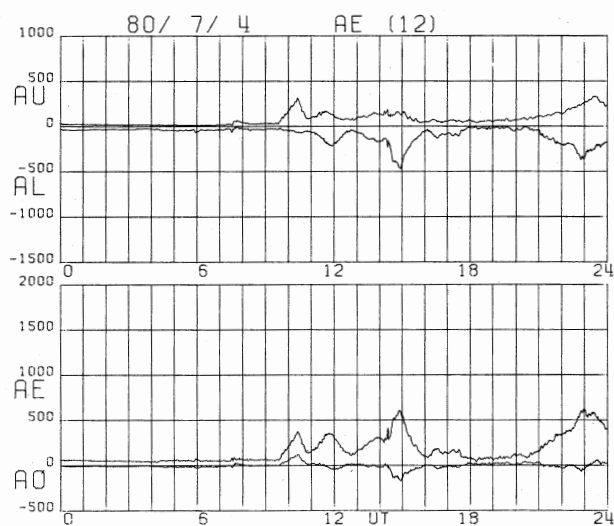
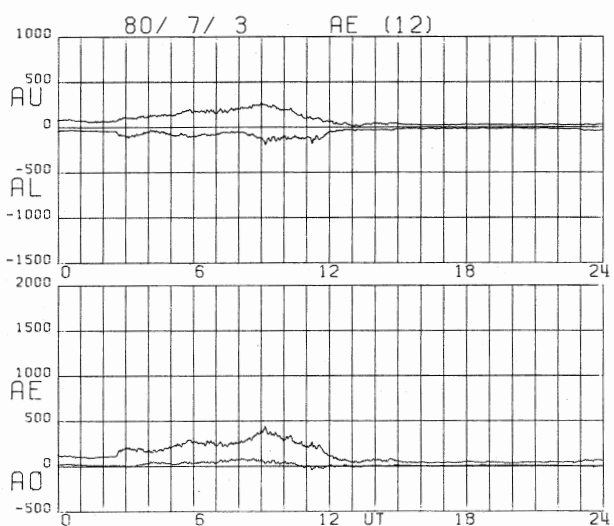
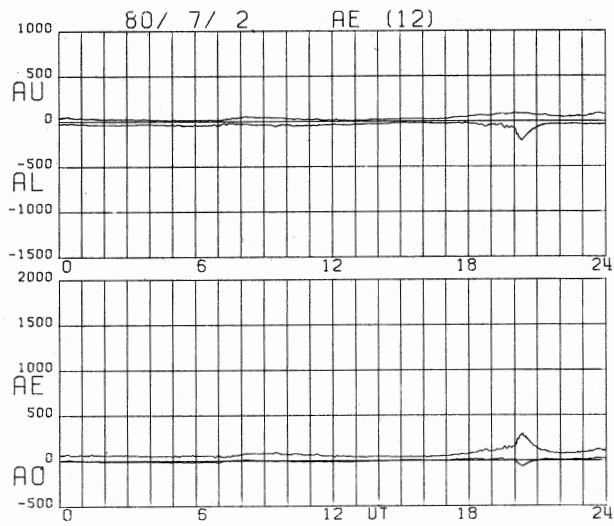
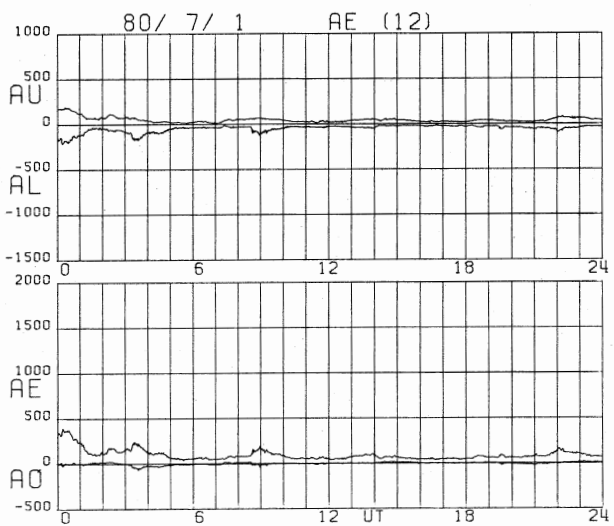
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D 15	-3	-26	-46	-53	-64	-58	-3	-13	-12	-86	-24	-66	-79	-47	-33	-30	-100	-142	-42	-49	-12	-17	-49	-26	-45
D 16	-15	-36	-45	-19	19	12	9	2	-6	-1	-54	-145	-175	-81	-87	-139	-205	-104	-78	-25	-32	-3	-2	-3	-50
D 17	-3	0	1	-4	-4	0	2	-1	-1	-9	-4	-4	-3	-4	-1	-79	-90	-116	-78	-6	11	5	4	2	-15
D 18	0	-17	-54	-47	-41	-31	-101	-101	-78	8	-9	-32	-30	-37	-86	-42	-136	-235	-149	-64	-24	9	9	-23	-54
D 19	-97	-53	-9	-2	15	-25	-88	-36	-22	3	18	53	10	-226	-735	-601	-405	-504	-382	-241	-255	-134	-144	-157	-167
D 20	-109	-121	-162	-147	-155	-159	-121	-139	-110	-157	-91	-57	-60	-65	-26	-18	-22	-42	-51	-23	-21	-38	-77	-67	-85
D 21	-85	-123	-111	-11	12	11	16	-61	-36	-8	-10	11	-13	-45	-22	-164	-60	-97	-93	-142	-81	-62	-13	-3	-49
D 22	-37	-14	-1	10	16	18	8	0	-19	-41	-24	-1	-2	-16	-5	-51	-54	-10	-16	-26	-7	10	4	6	-10
D 23	5	8	7	4	-13	4	7	8	1	-63	-25	-6	-41	-25	-20	-20	-14	-47	-78	-50	-13	5	5	5	-14
D 24	1	1	2	2	5	2	2	1	1	3	1	4	4	3	1	-4	-19	-13	-1	0	0	0	1	1	0
D 25	-1	1	-3	3	5	8	10	17	15	12	8	-17	-45	-23	1	5	2	-2	0	0	-24	-17	-123	-16	-7
D 26	10	20	18	0	-6	15	23	13	1	10	-17	-51	-49	-35	16	7	-1	-2	-1	-1	0	2	1	0	-1
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D 29	-2	-2	-1	-27	3	-1	-40	-53	-37	-21	-52	-60	-88	-82	-55	-82	-25	-2	-34	-114	-10	3	-24	-114	-38
D 30	-90	-47	-30	-12	-48	-17	-22	-51	-65	-49	-48	-71	-26	8	5	0	-4	-5	-9	-5	-3	-8	5	5	-24
D 31	4	-78	-23	-17	20	32	10	5	0	6	6	8	1	-4	-5	-32	-133	-132	-76	-150	-196	-137	-39	6	-38
MEAN	-18	-12	-12	-18	-4	0	-9	-15	-12	-13	-15	-25	-32	-33	-41	-45	-48	-63	-44	-32	-21	-14	-22	-13	-23
5Q MEAN	0	0	0	3	6	4	7	3	1	-2	4	4	0	-1	-11	-22	-21	-27	-19	-5	0	0	1	0	-3
5D MEAN	-86	-58	-70	-78	-36	-39	-39	-49	-35	-35	-29	-16	-52	-99	-164	-162	-105	-175	-130	-91	-72	-46	-68	-53	-74

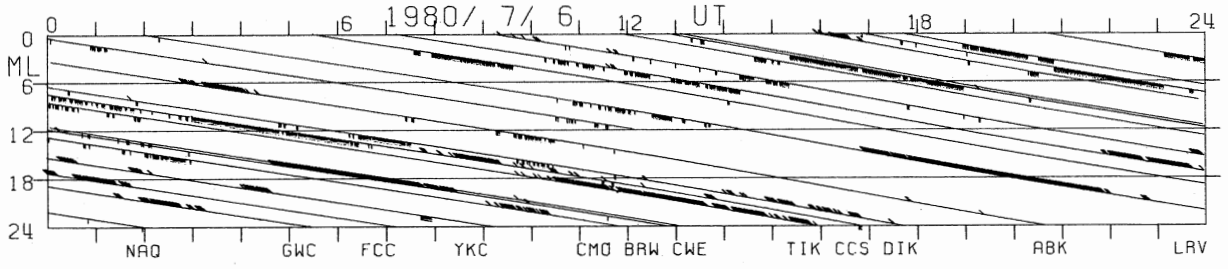
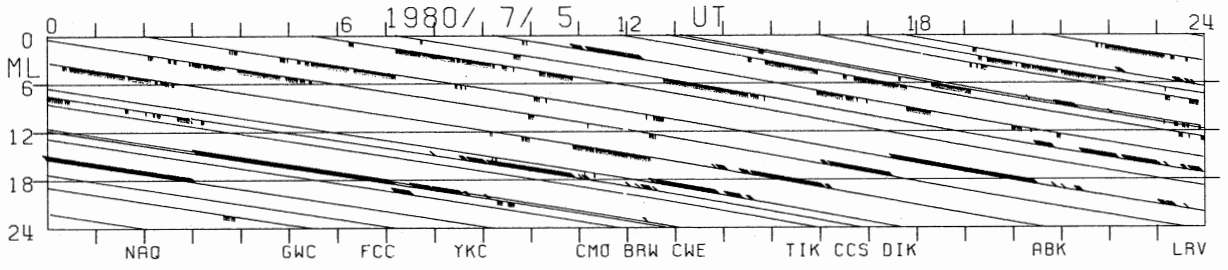
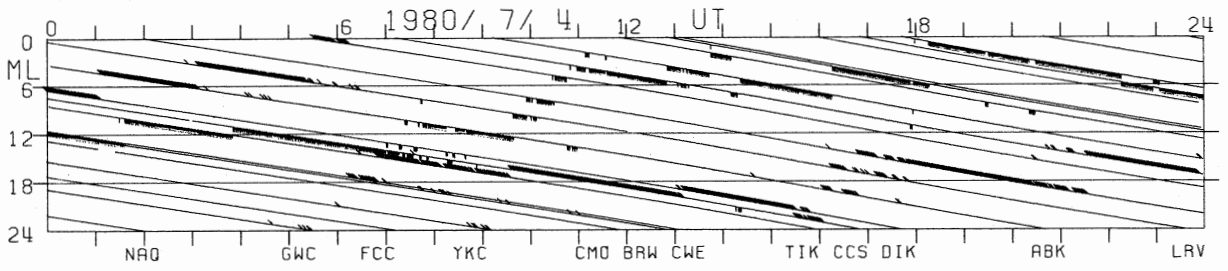
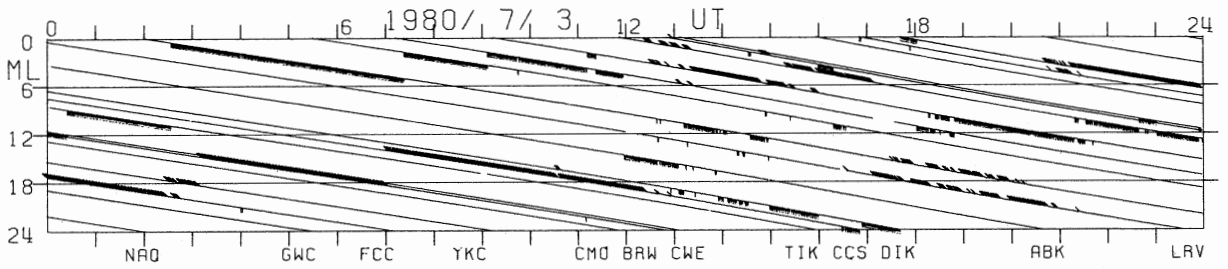
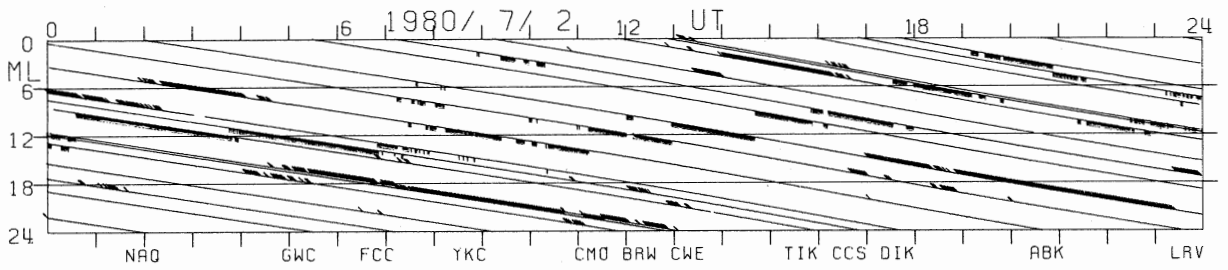
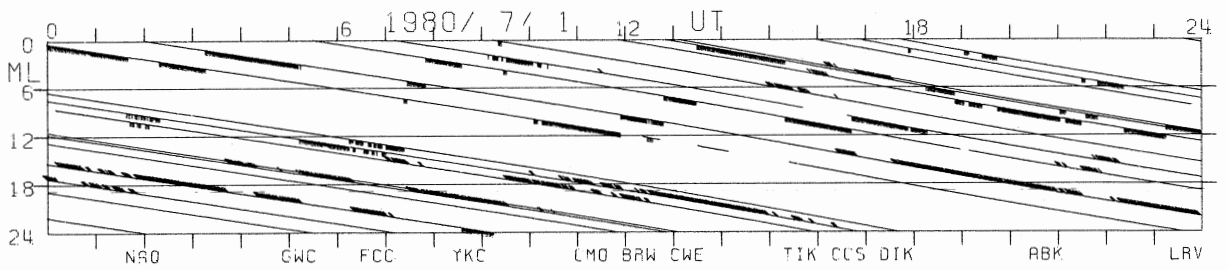
FIGURE 4 (on even pages)

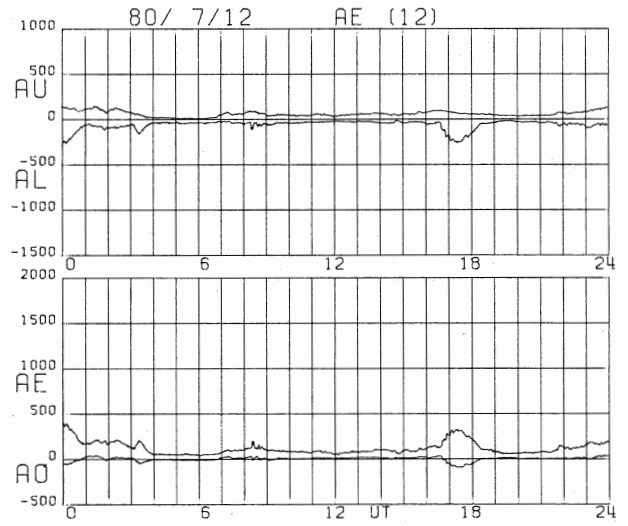
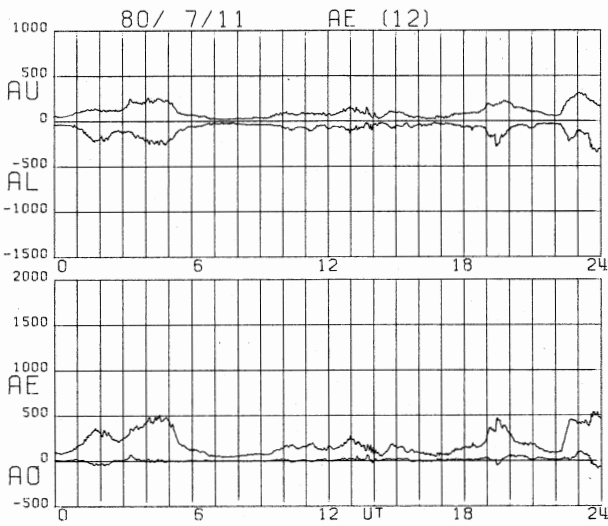
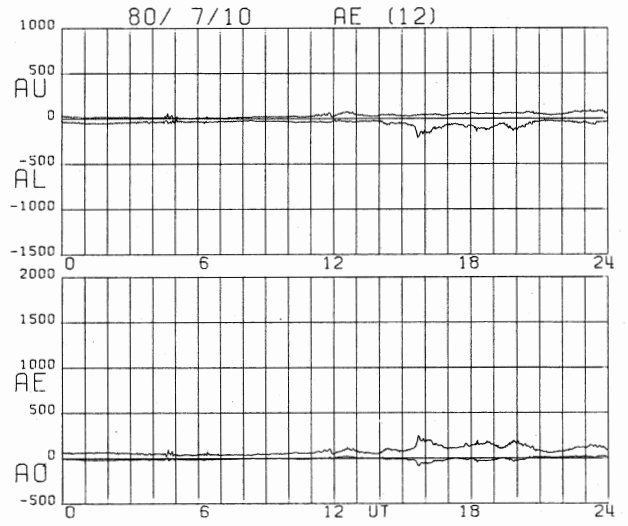
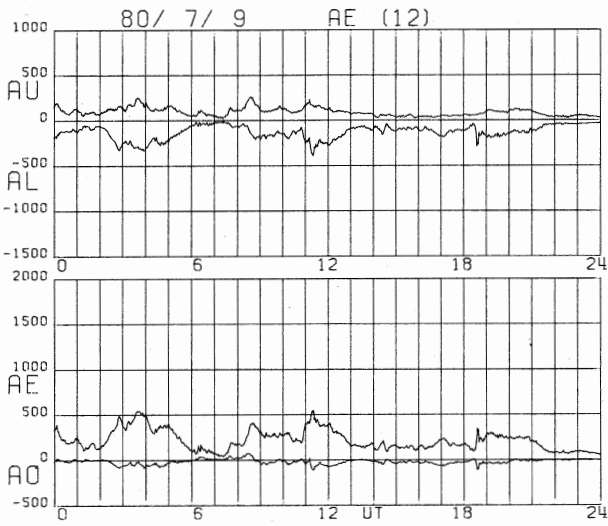
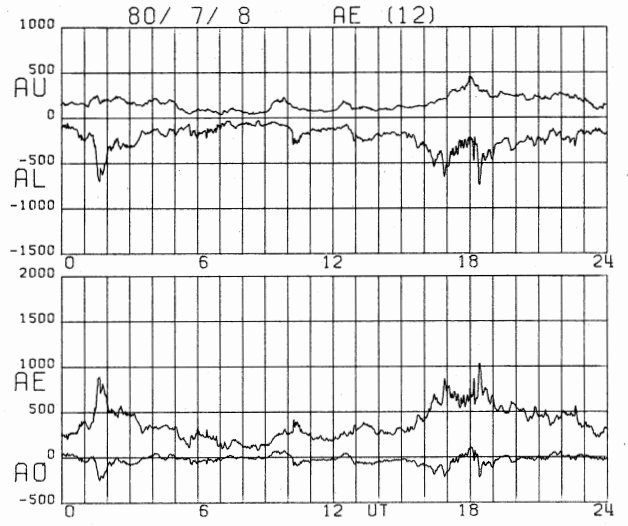
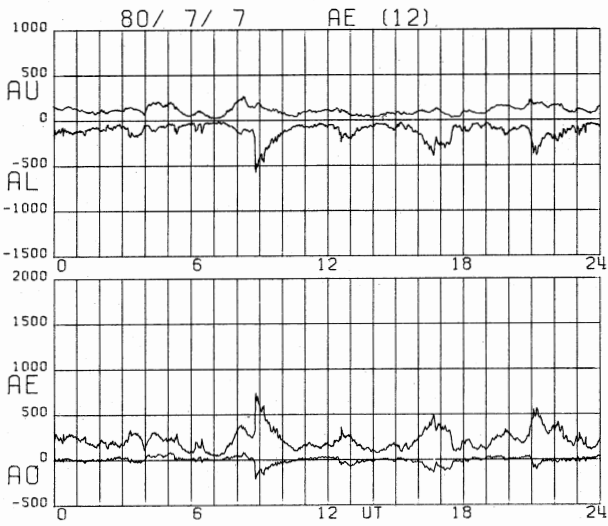
Daily graphs of 1.0-min AE indices (AU, AL, AE and AO) for July-December 1980.

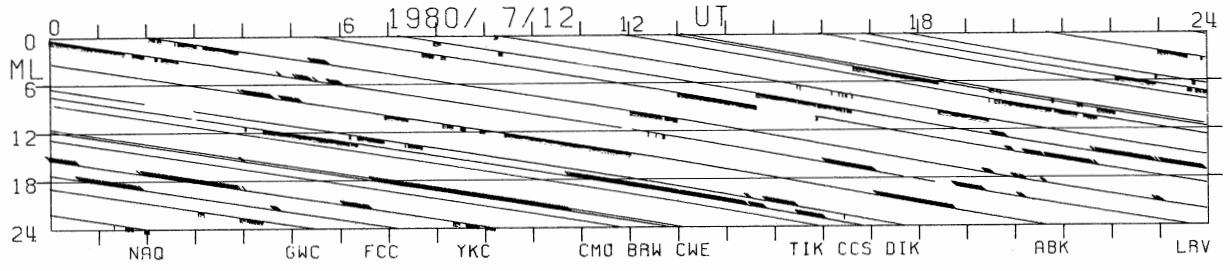
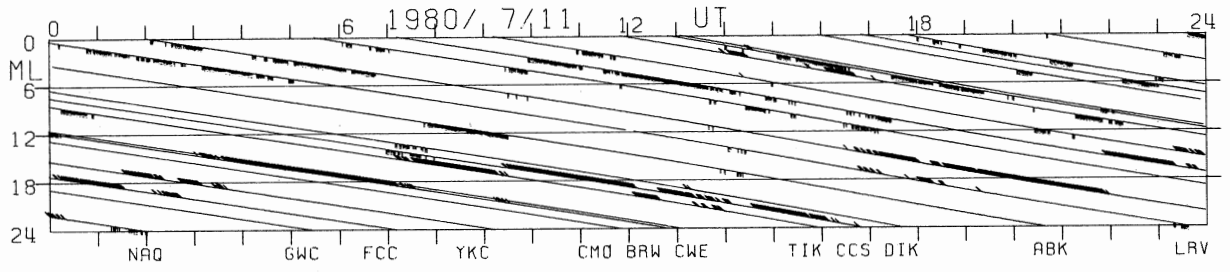
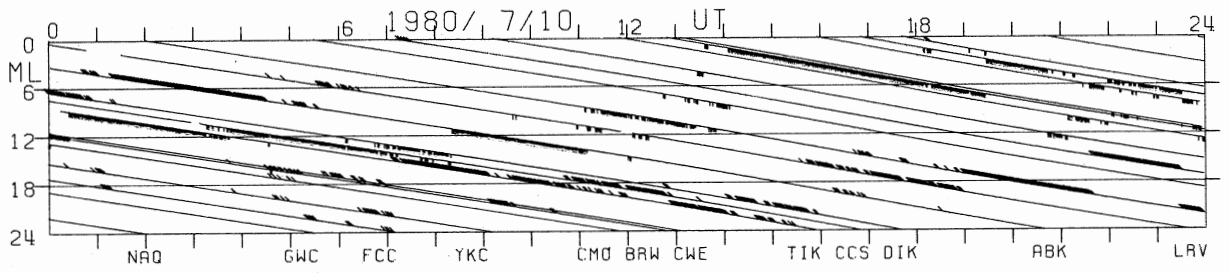
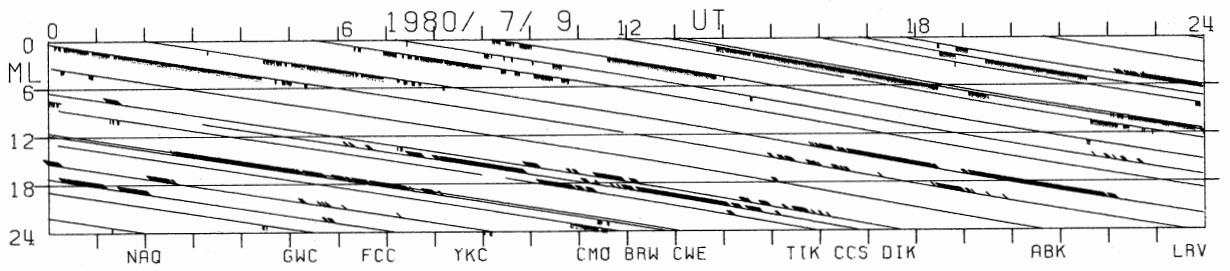
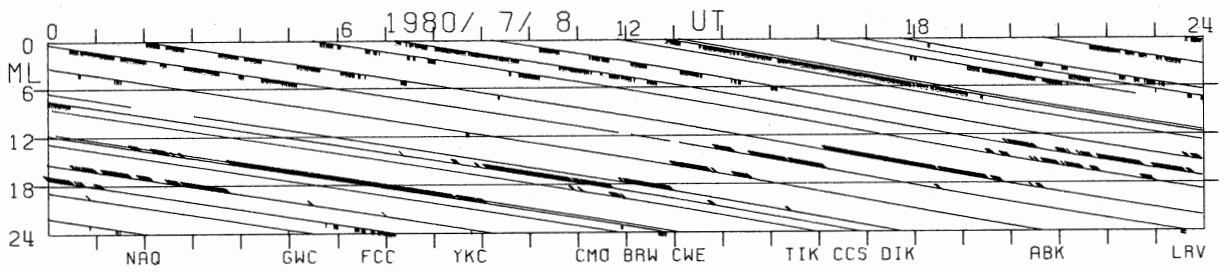
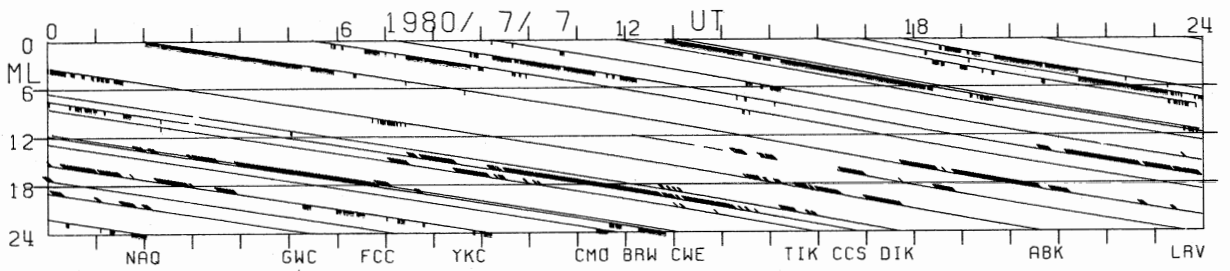
FIGURE 5 (on odd pages)

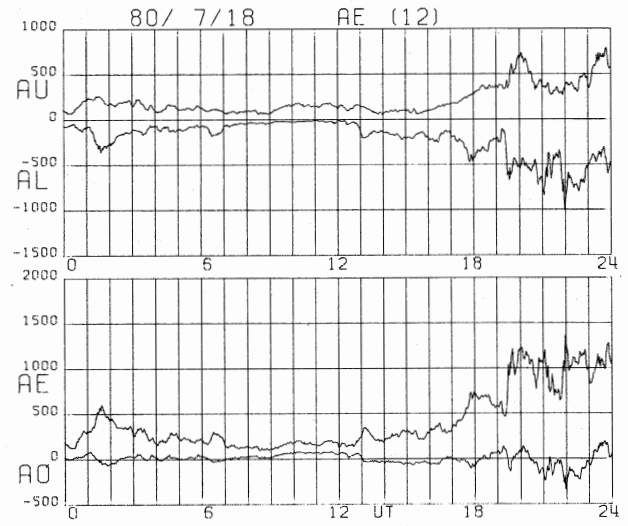
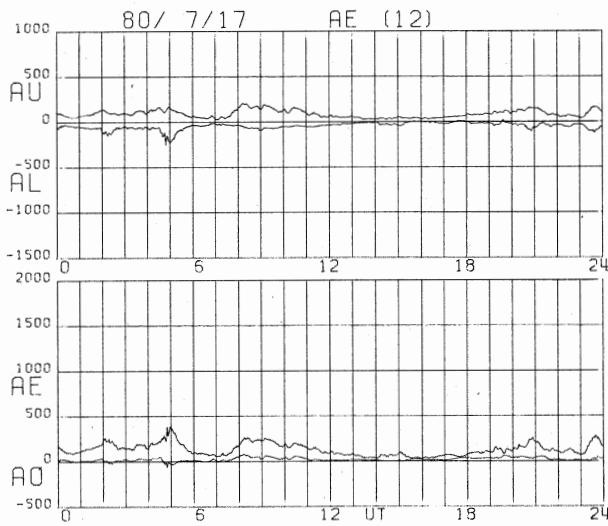
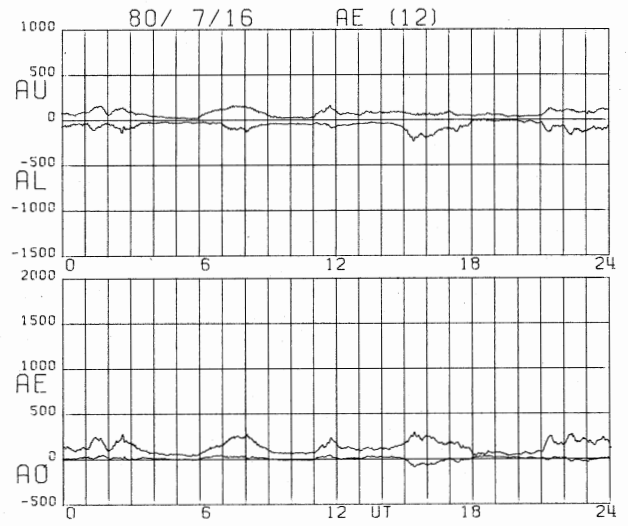
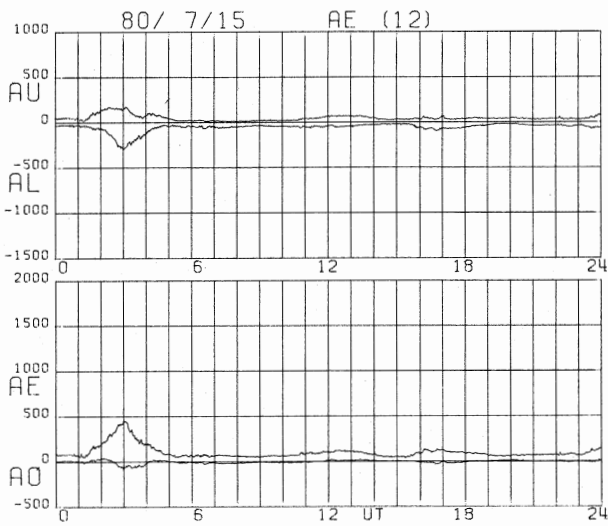
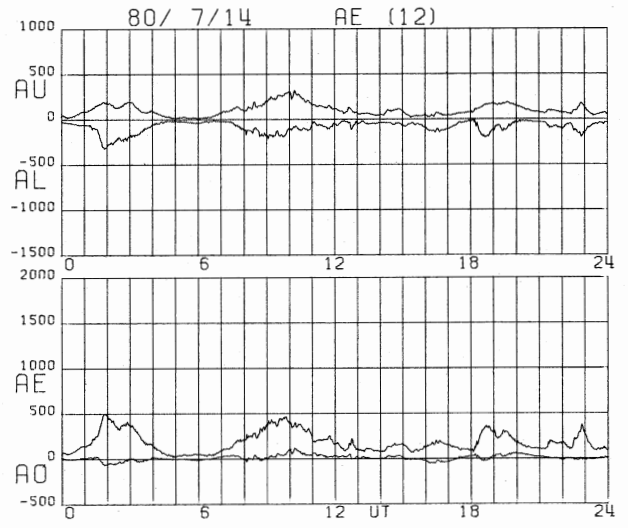
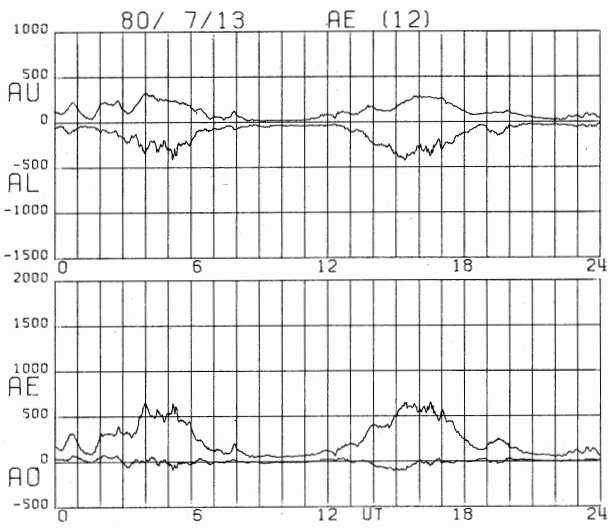
Plots of the contributing stations to the AU (upper plumes) and AL (lower plumes) indices, where you can see which station contributes to these indices at each UT minute.

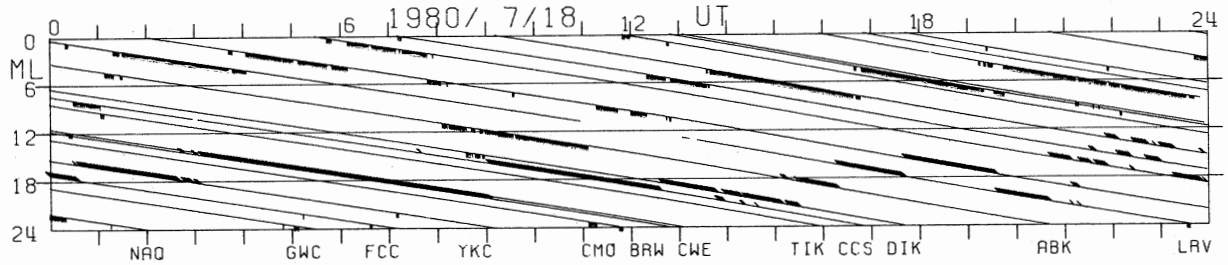
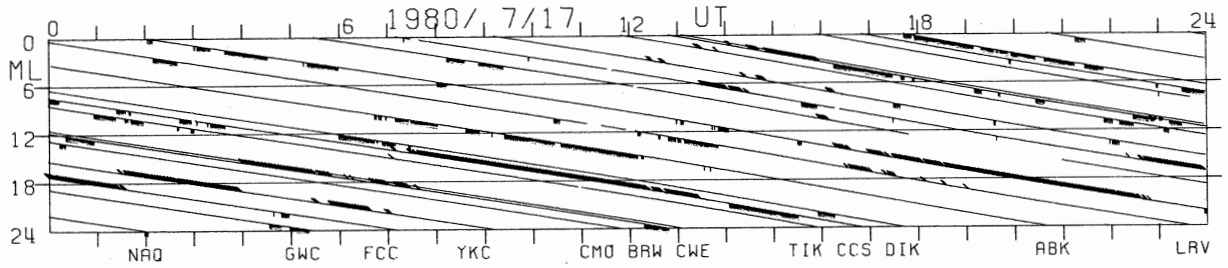
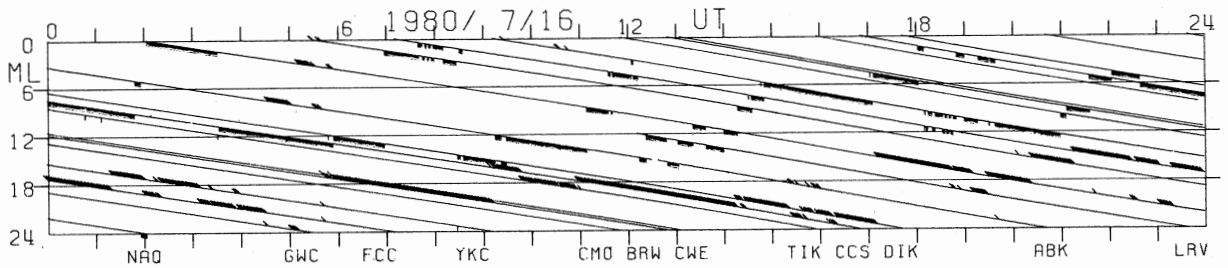
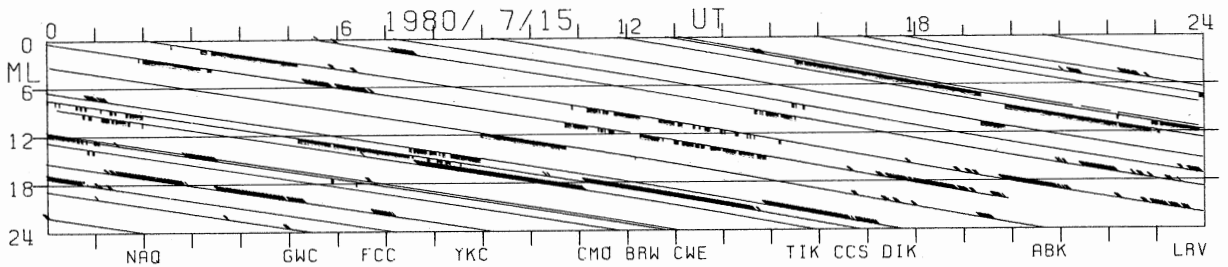
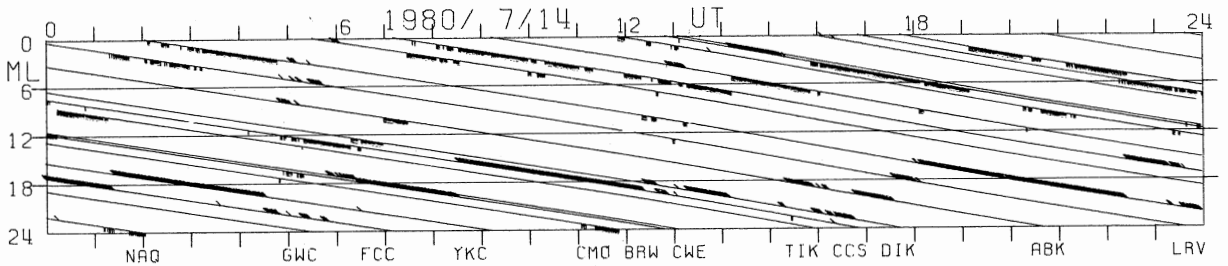
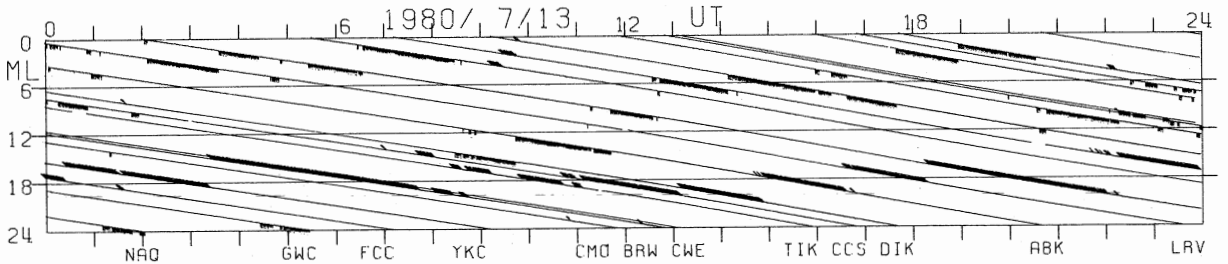


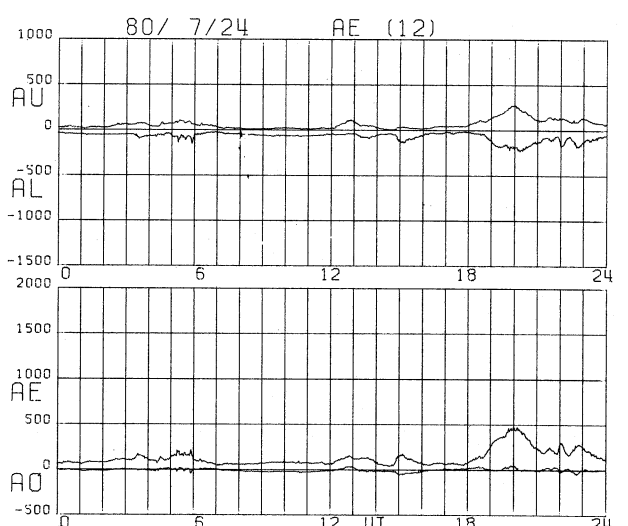
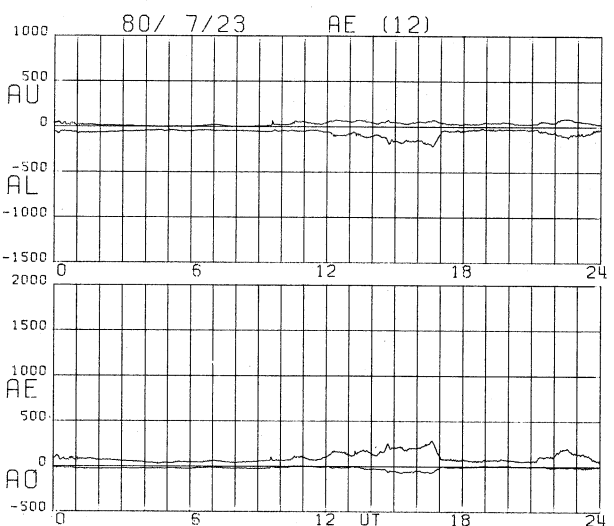
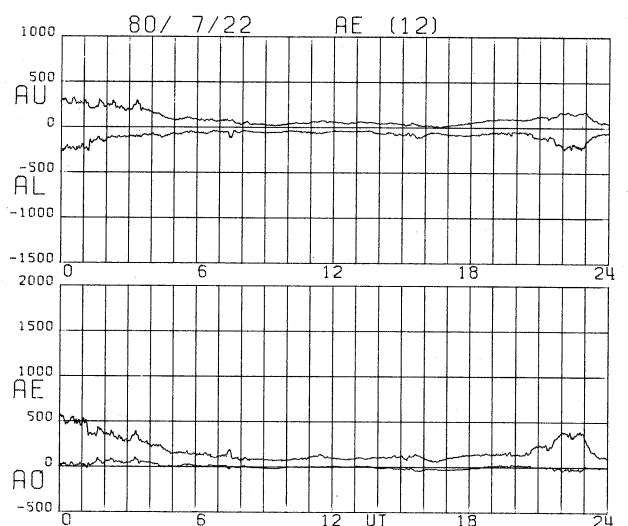
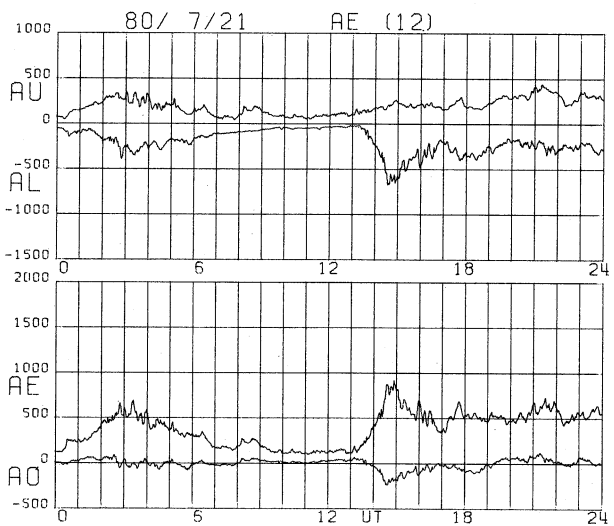
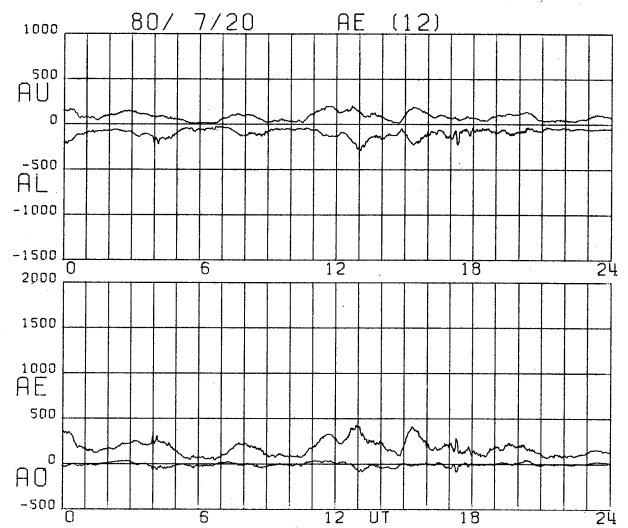
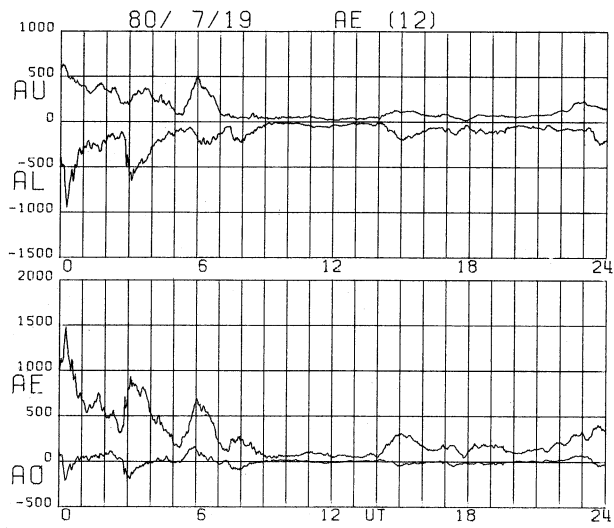


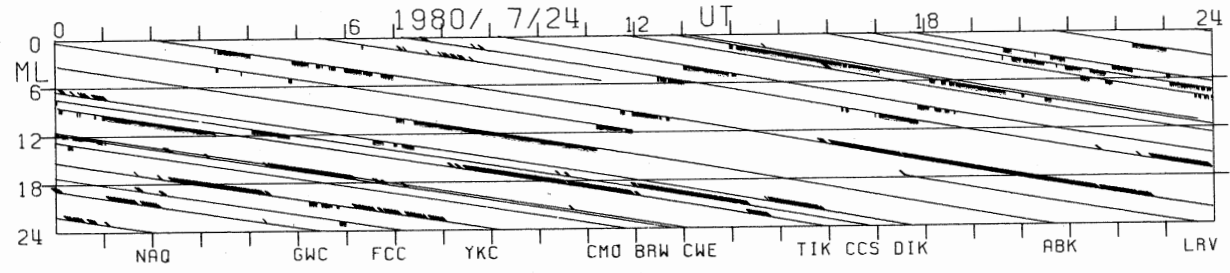
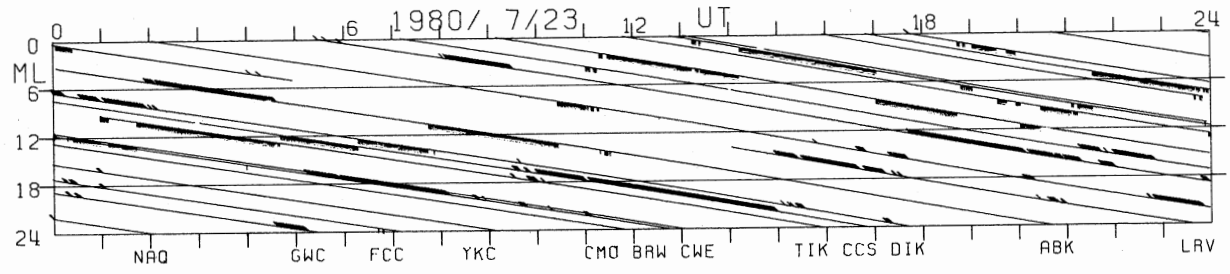
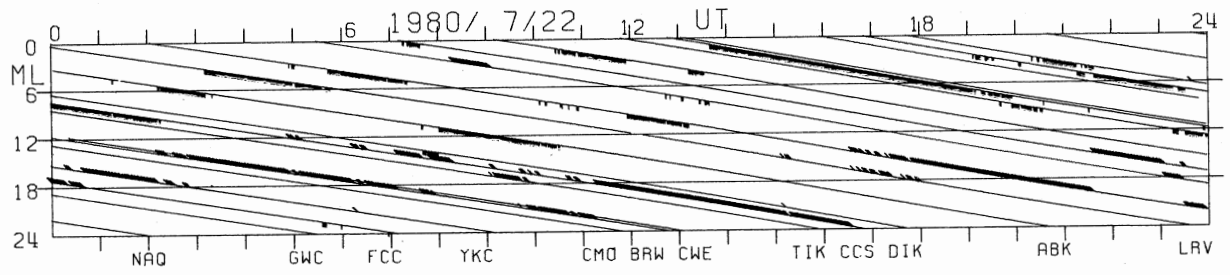
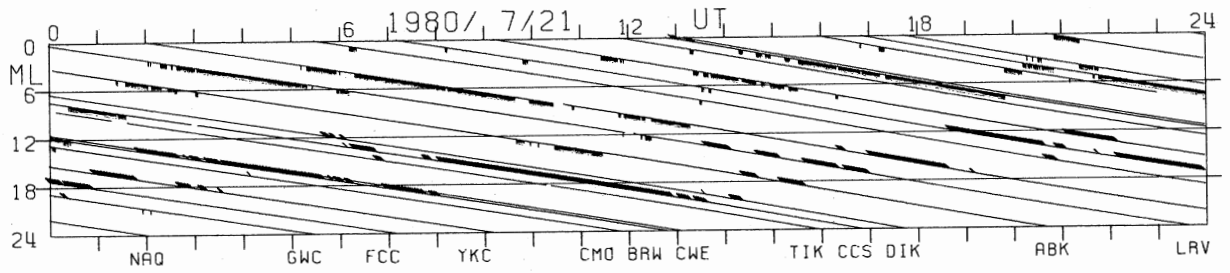
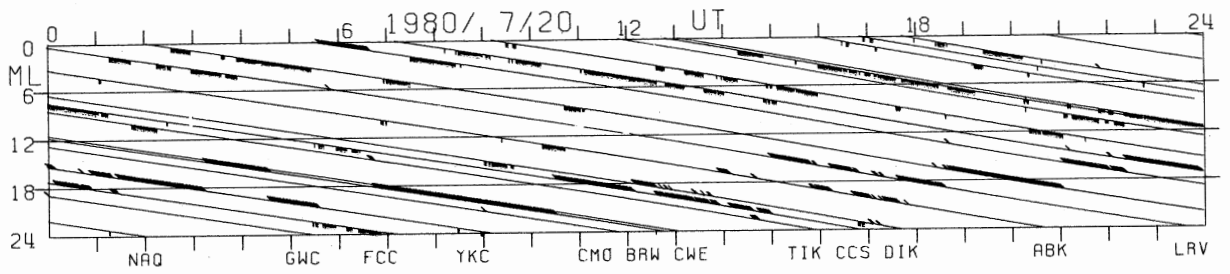
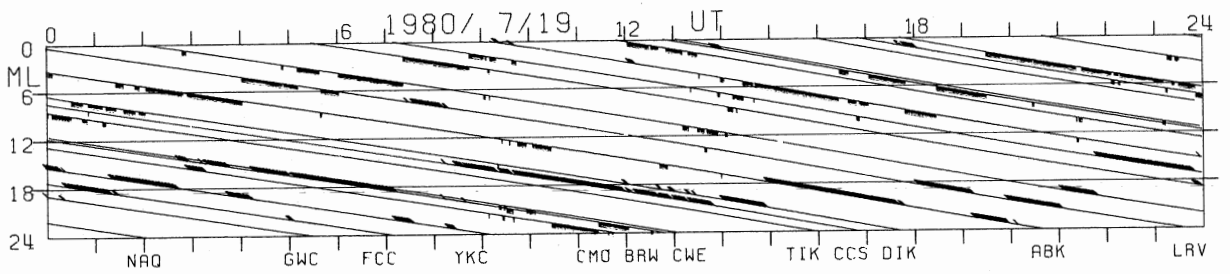


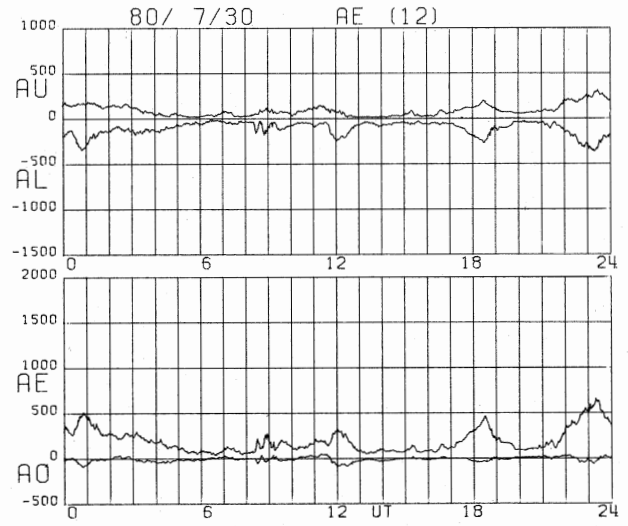
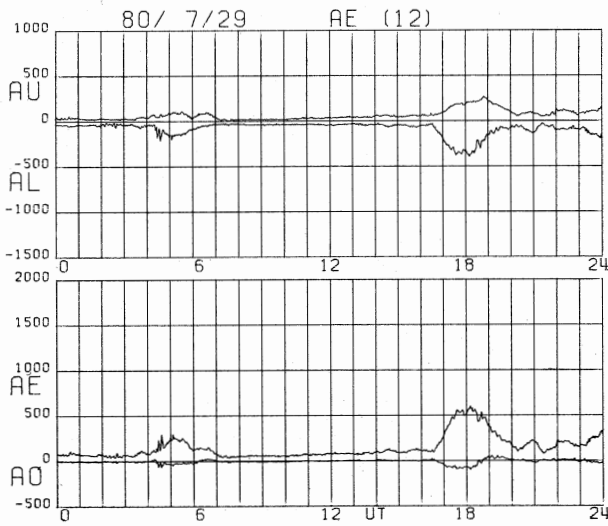
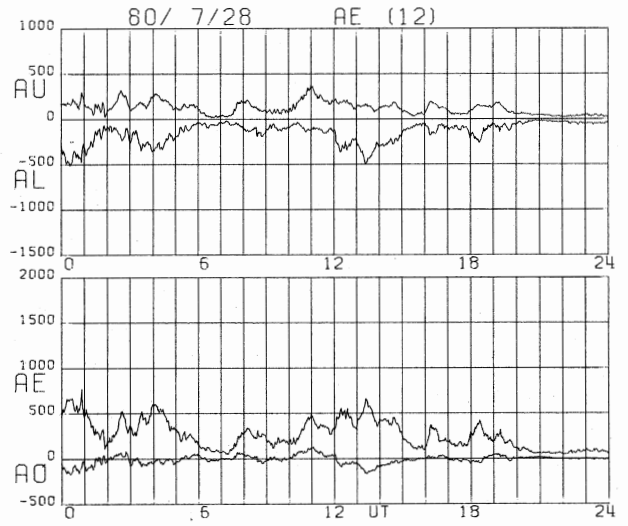
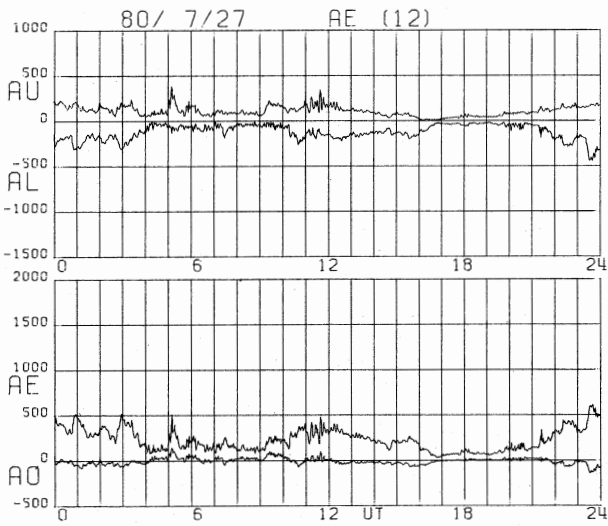
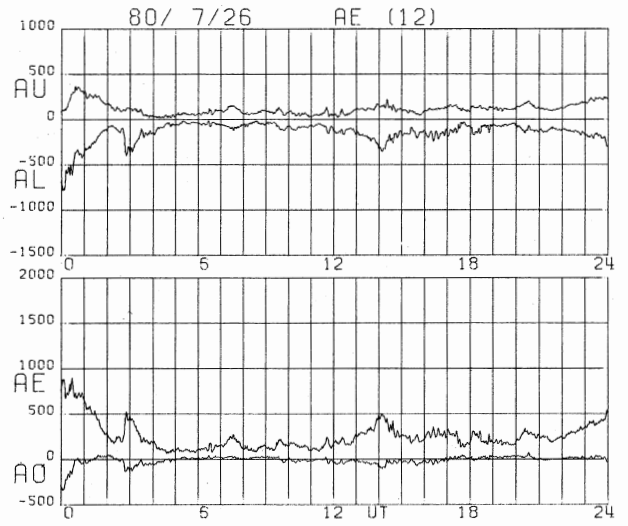
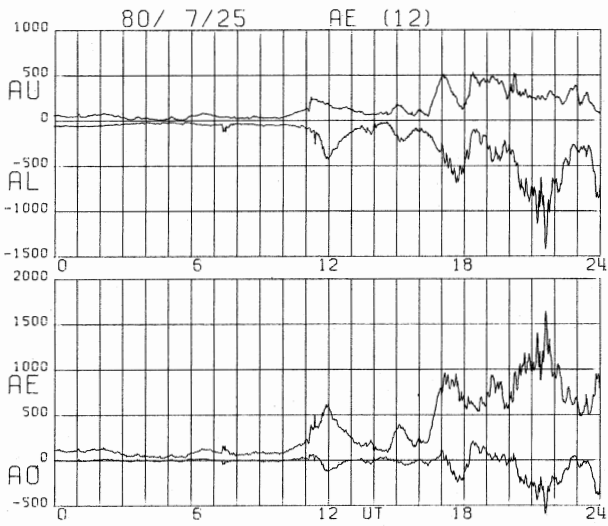


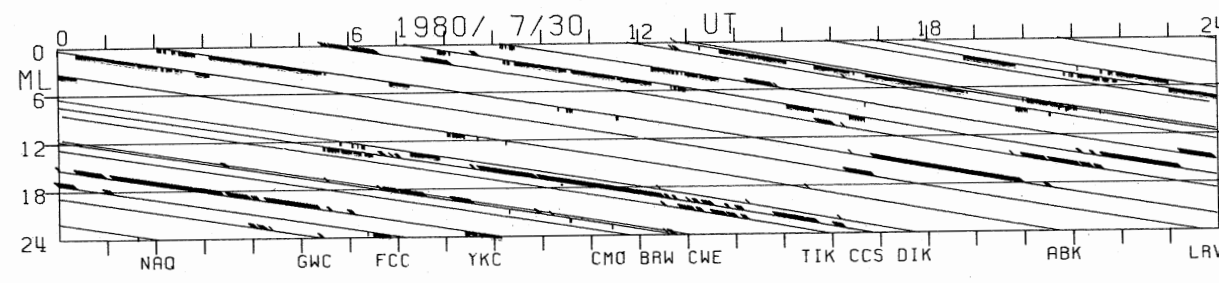
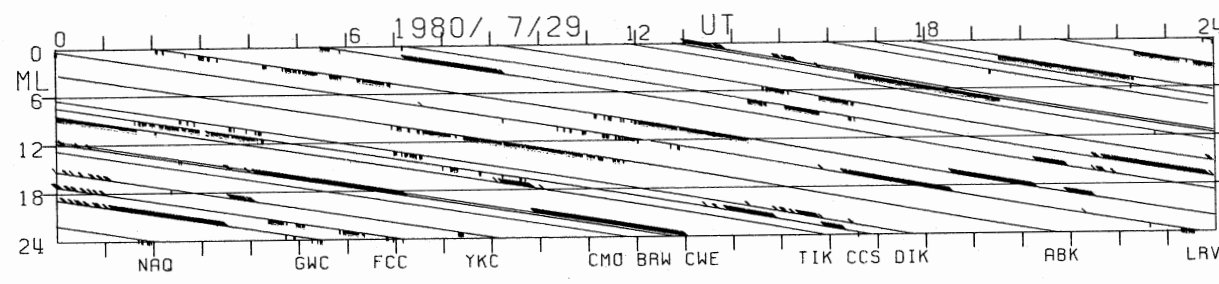
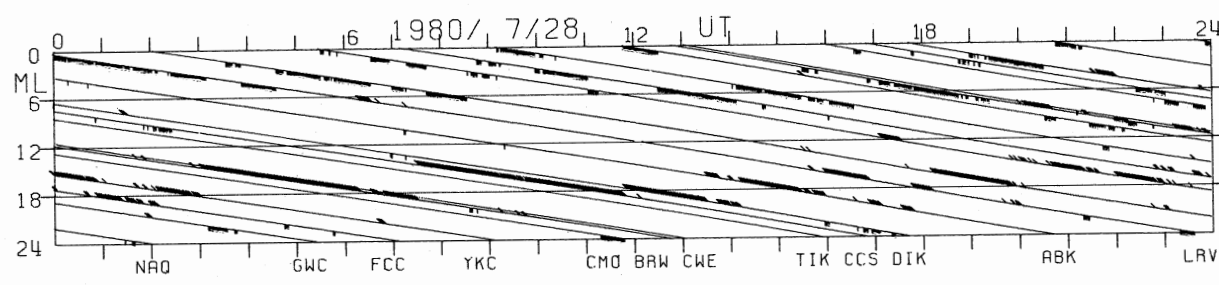
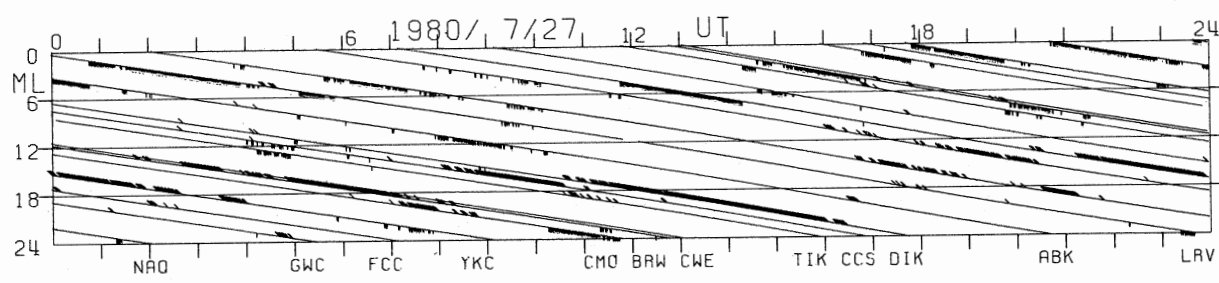
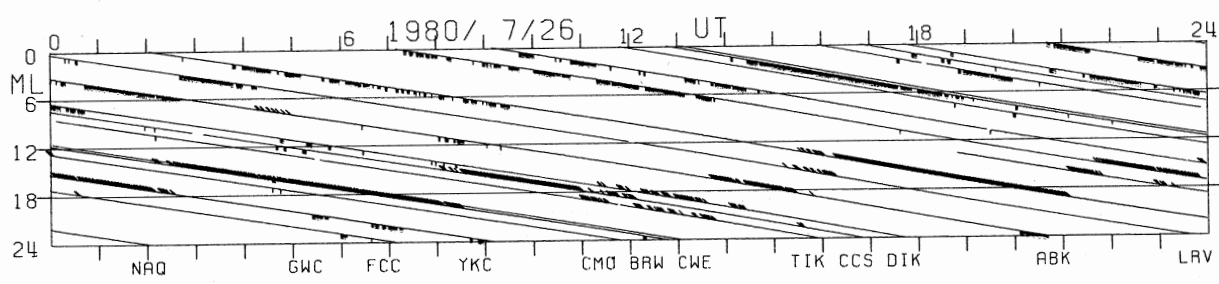
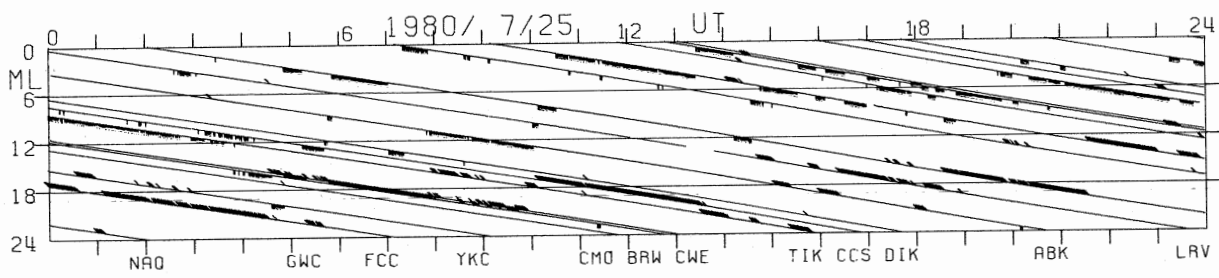


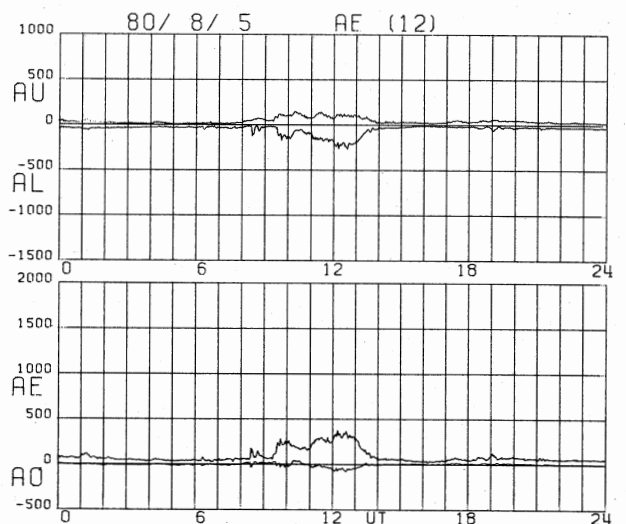
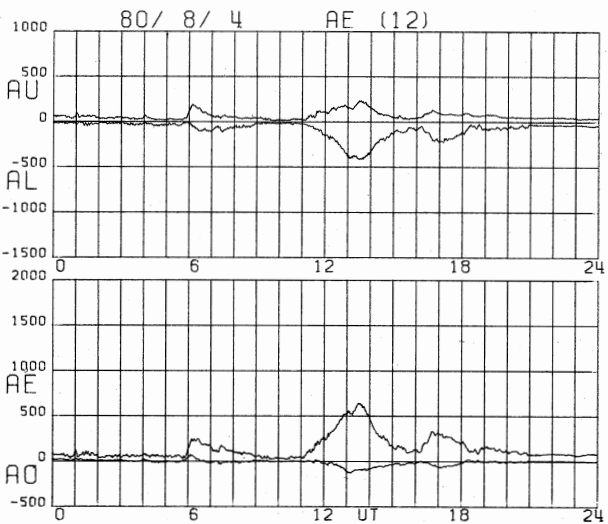
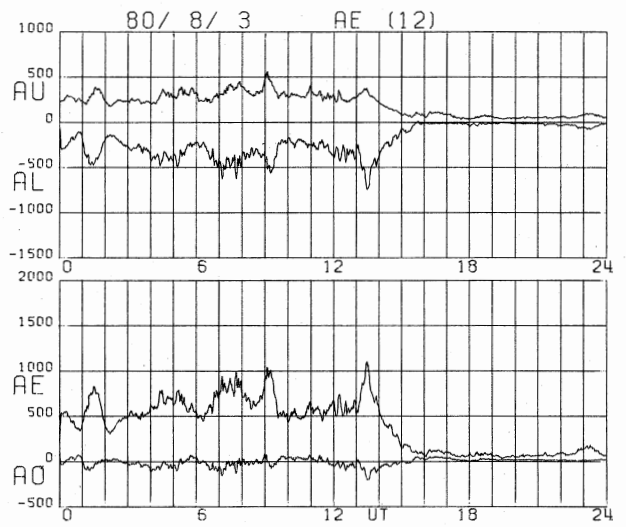
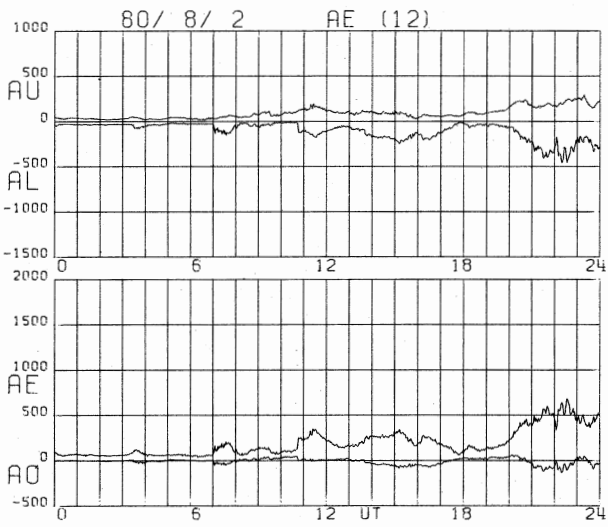
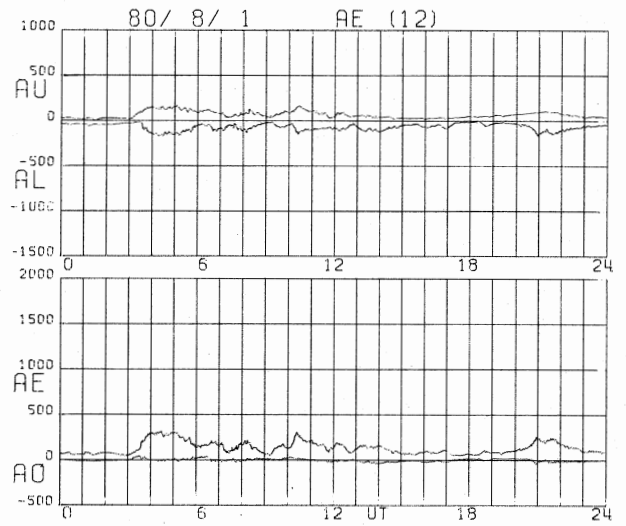
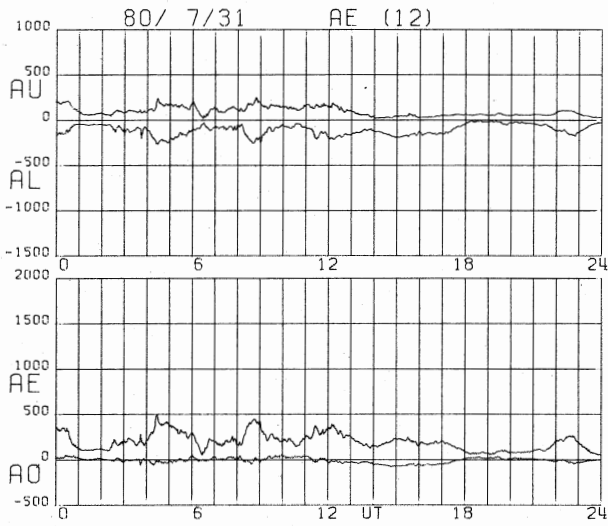


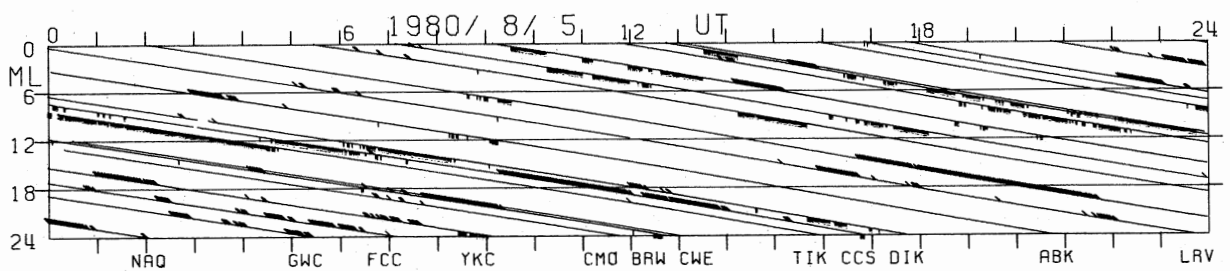
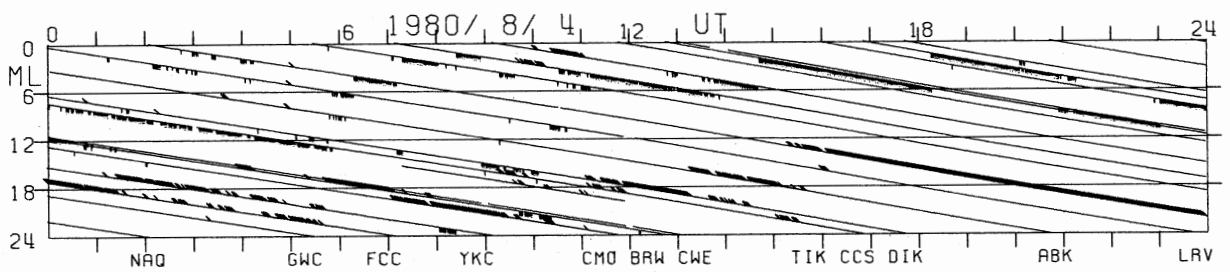
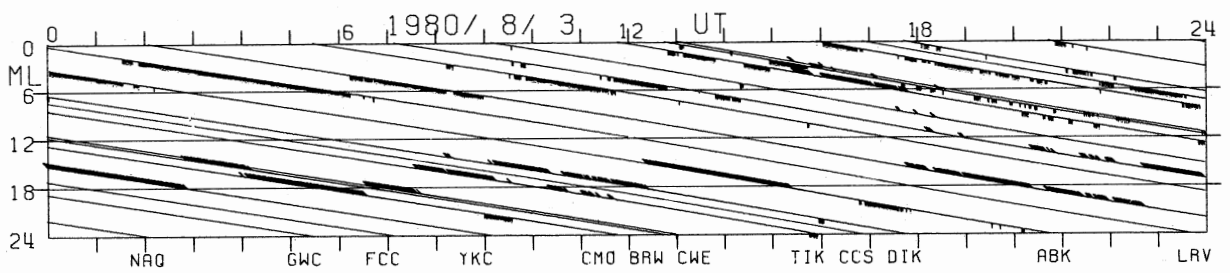
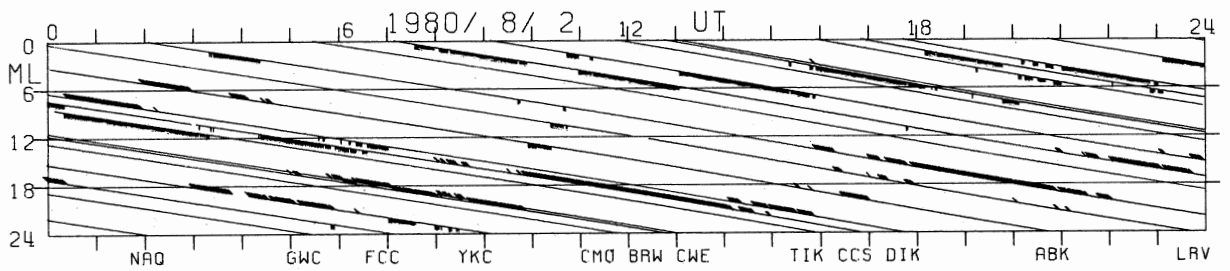
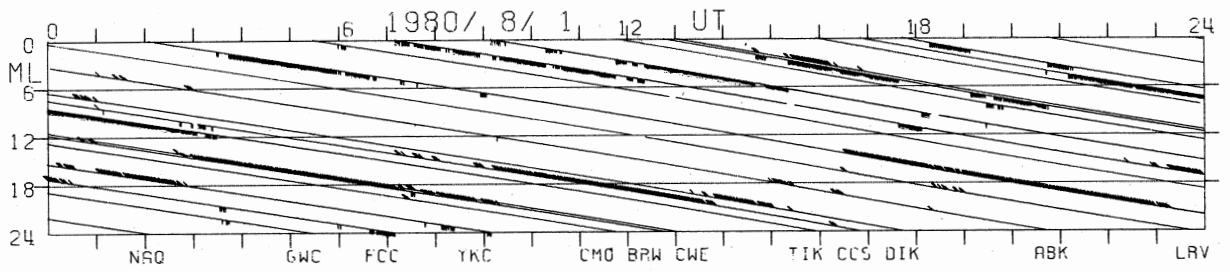
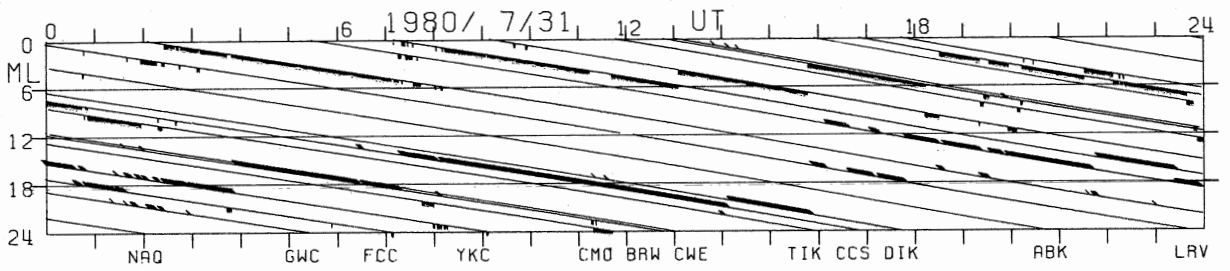


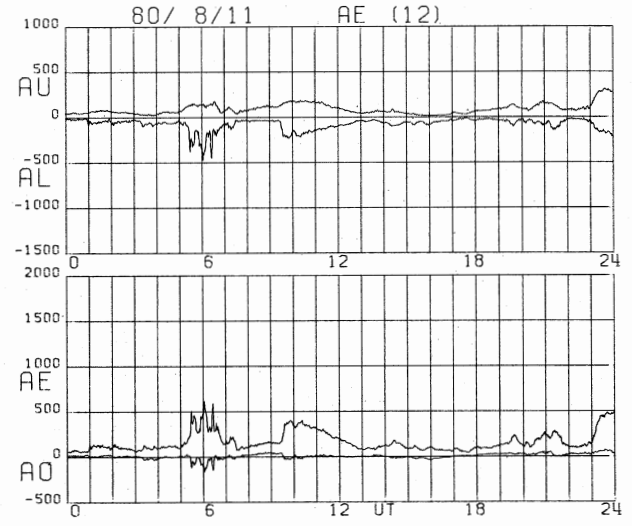
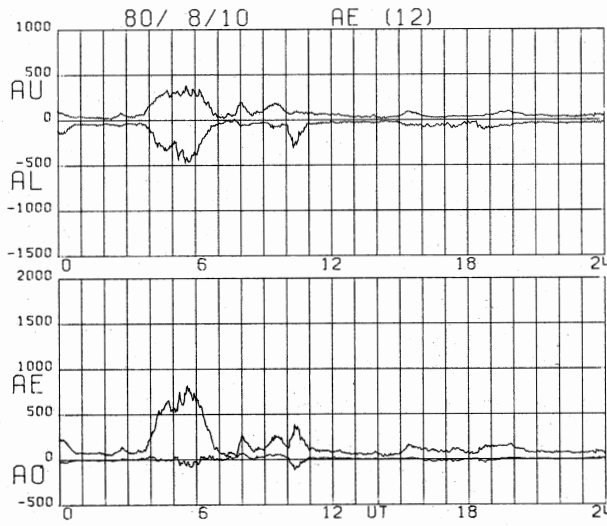
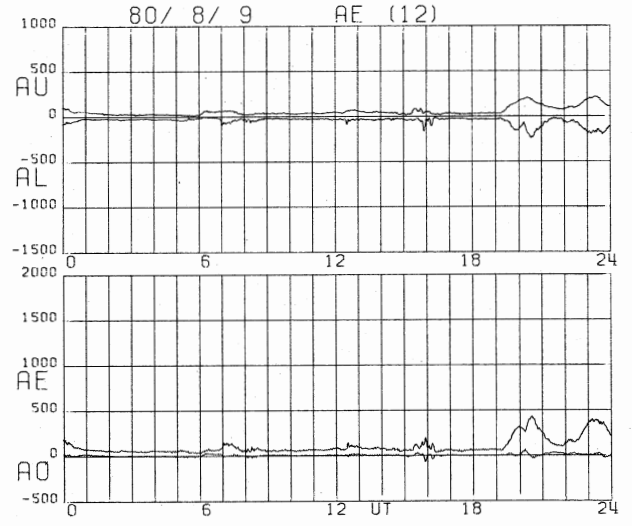
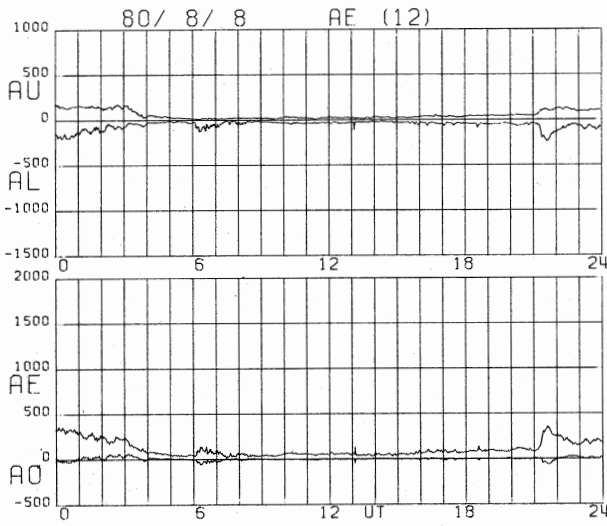
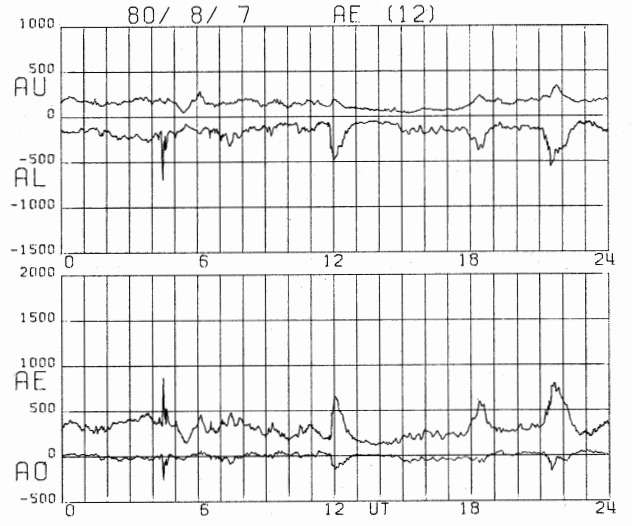
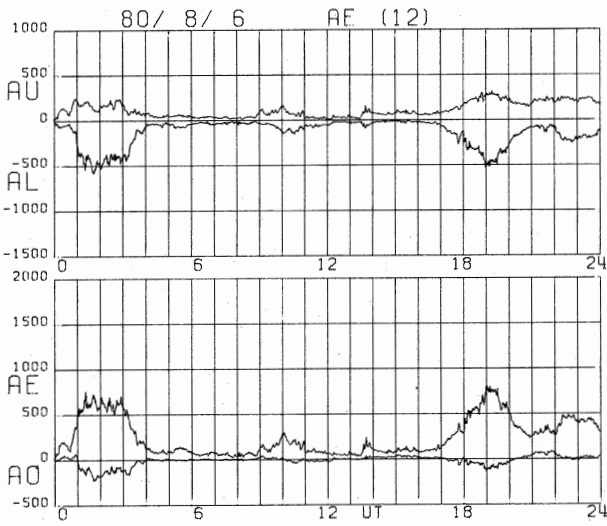


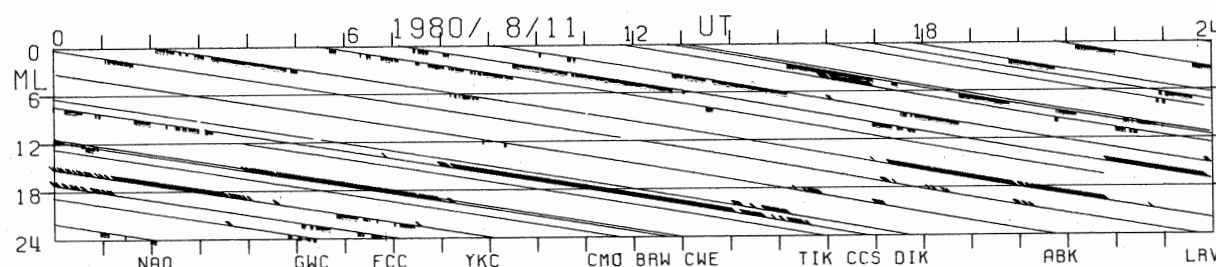
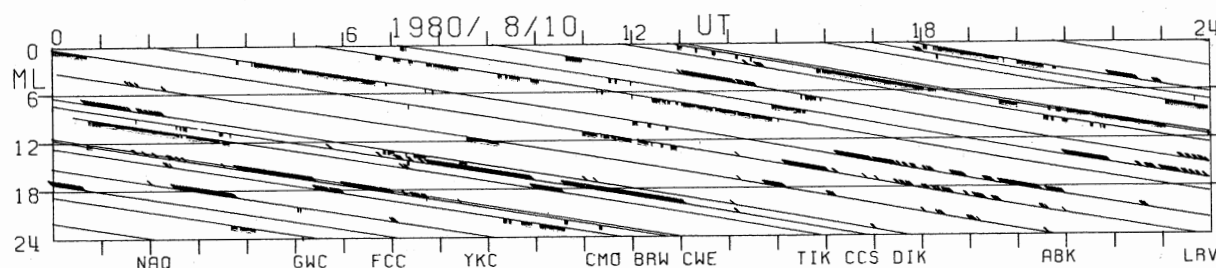
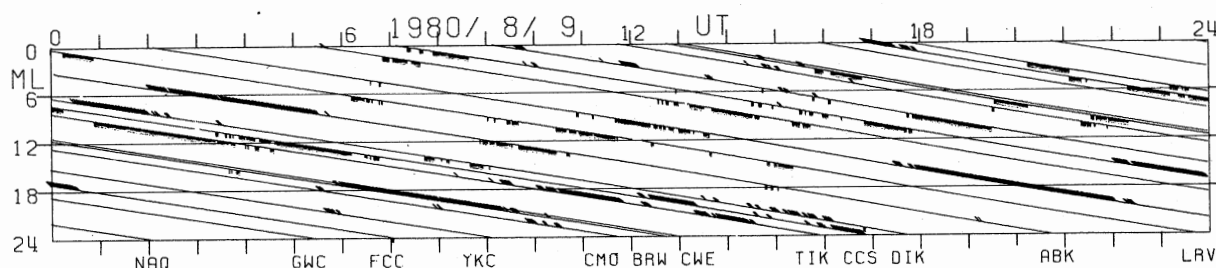
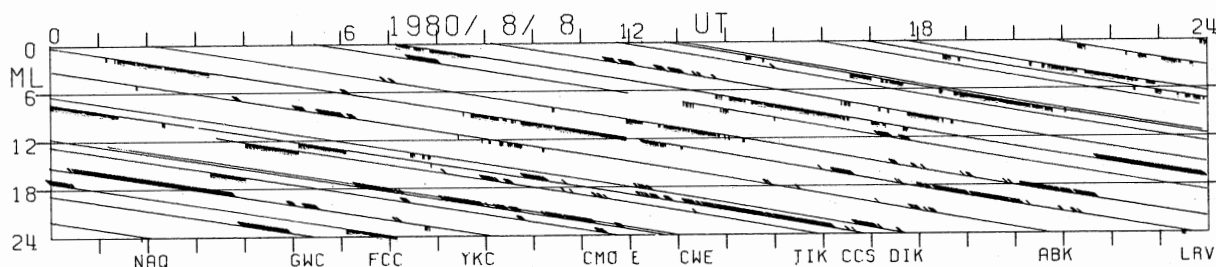
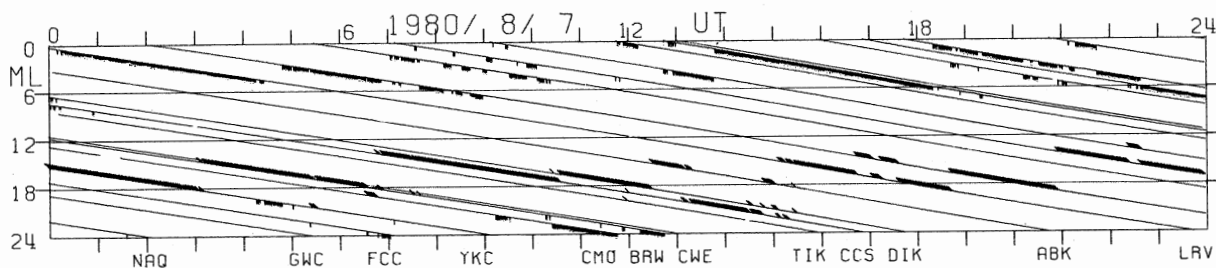
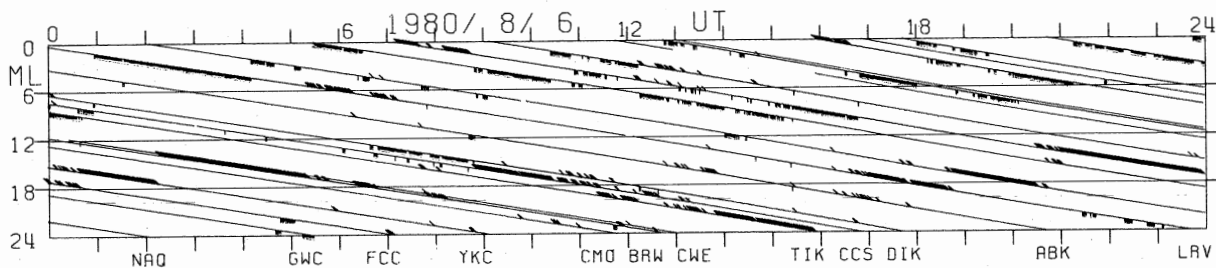


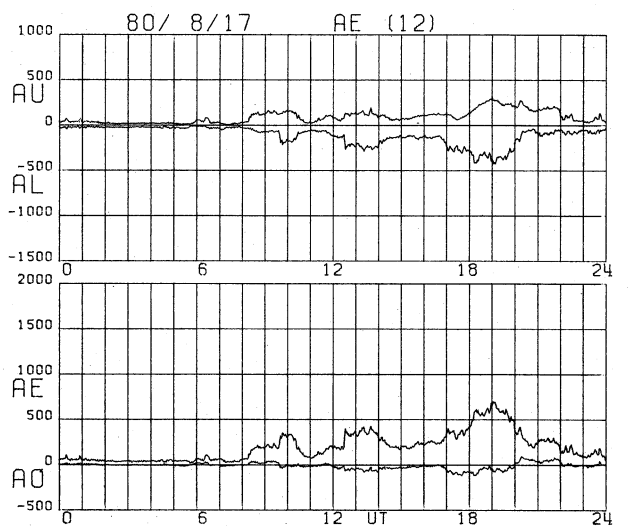
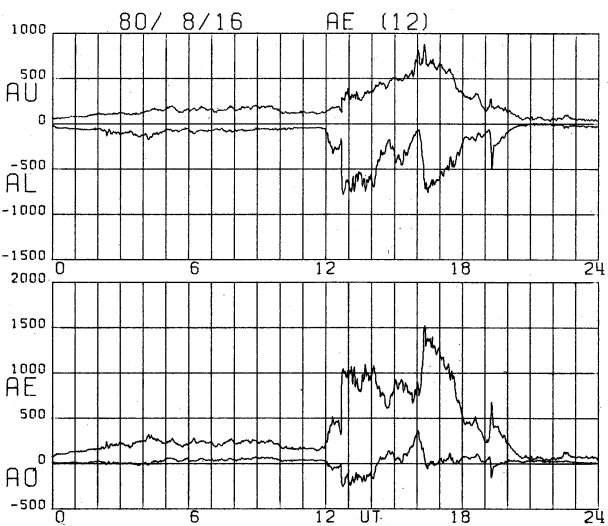
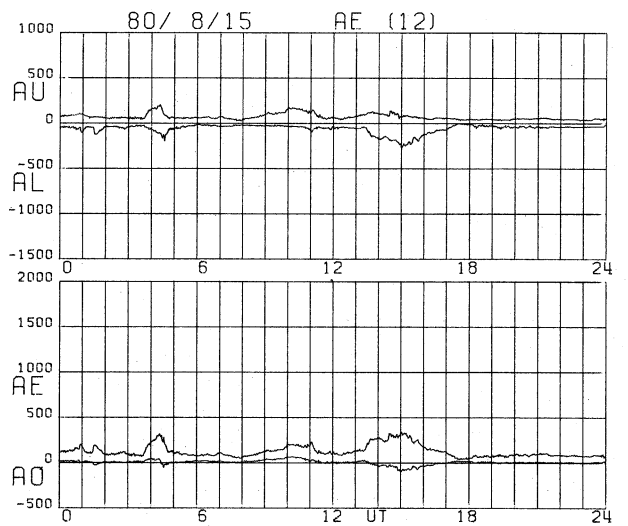
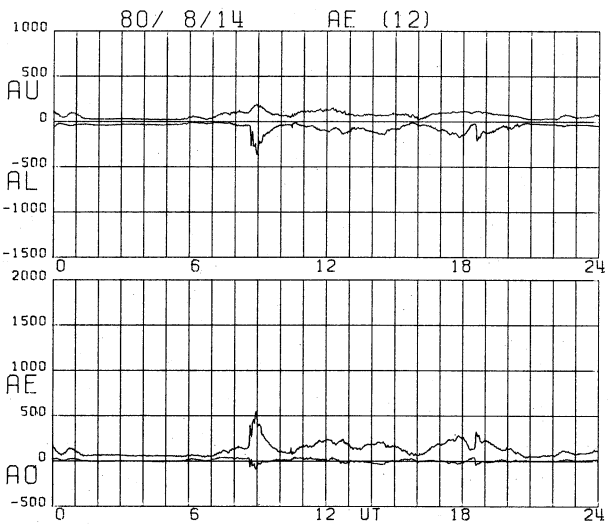
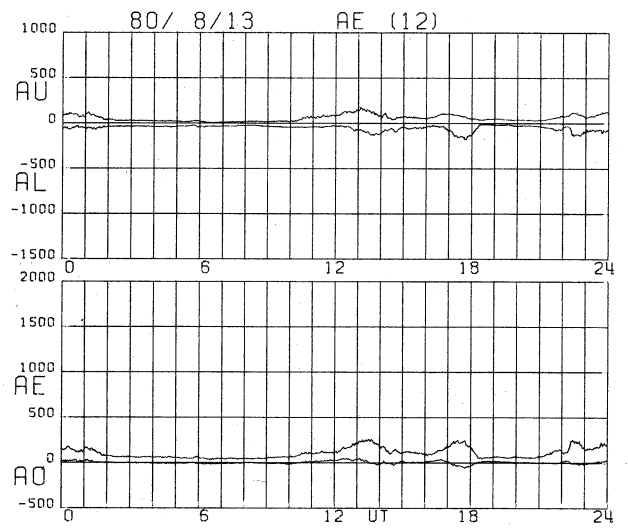
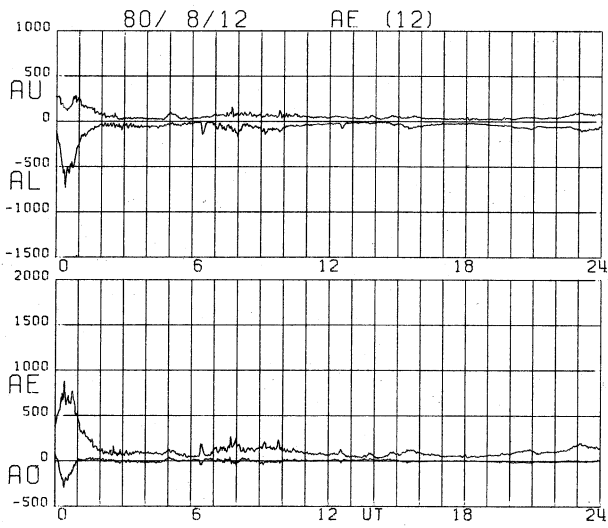


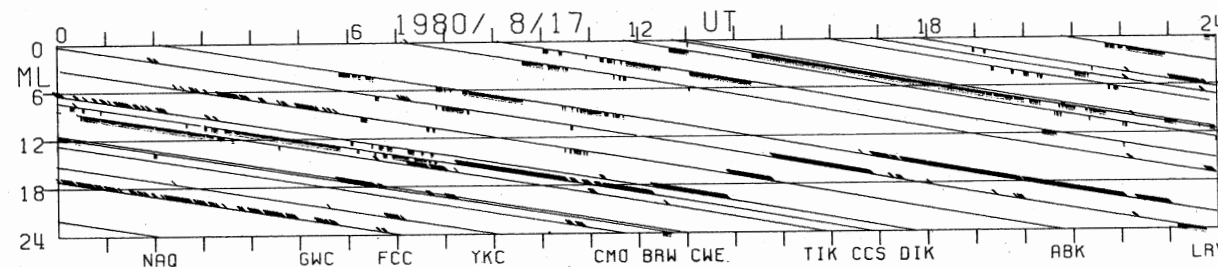
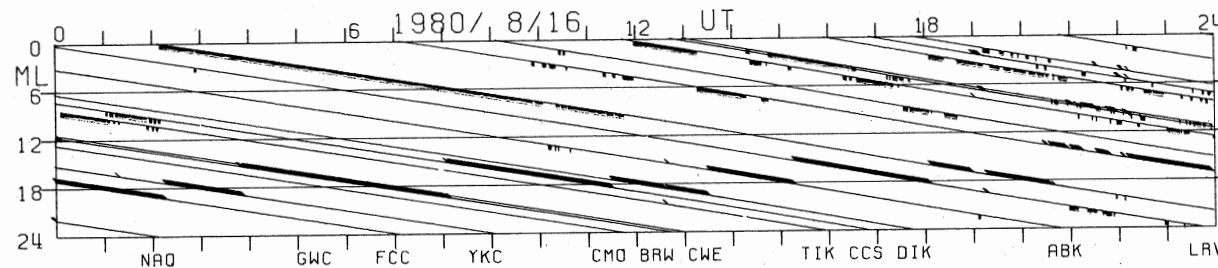
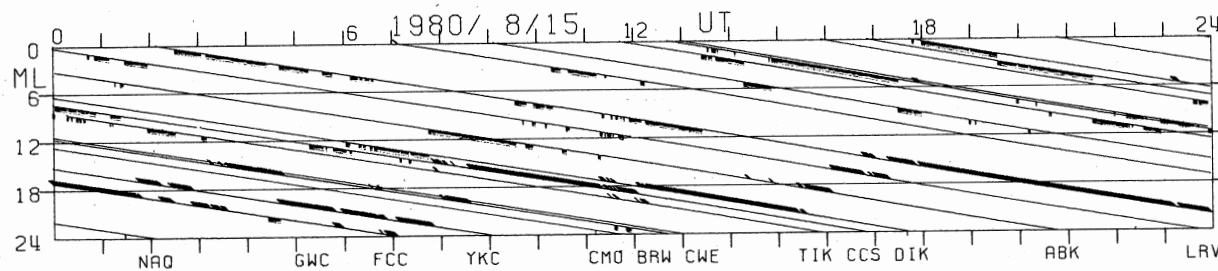
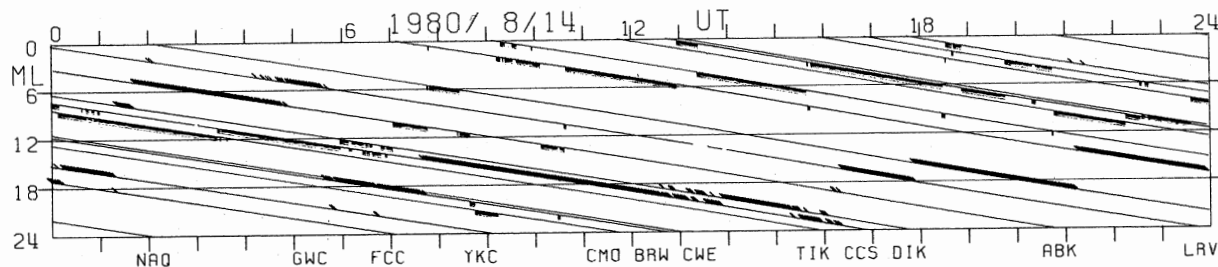
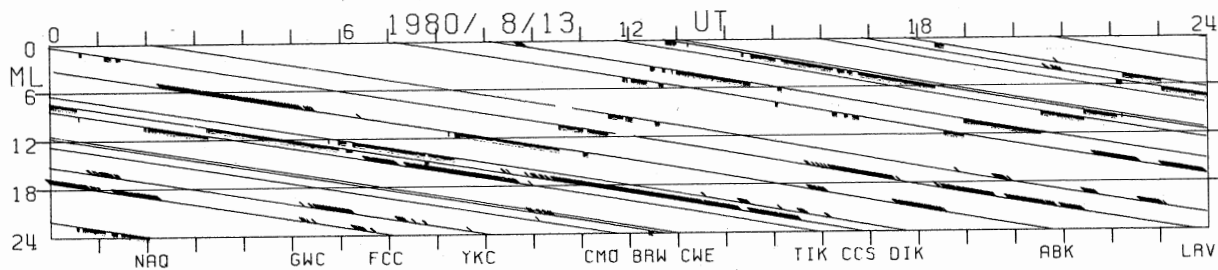
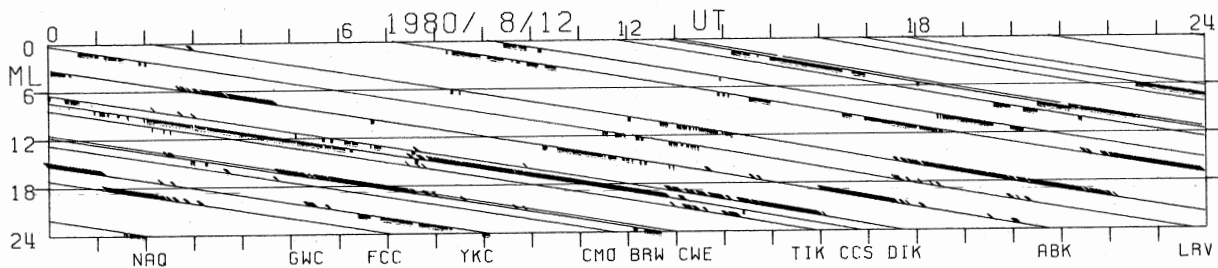


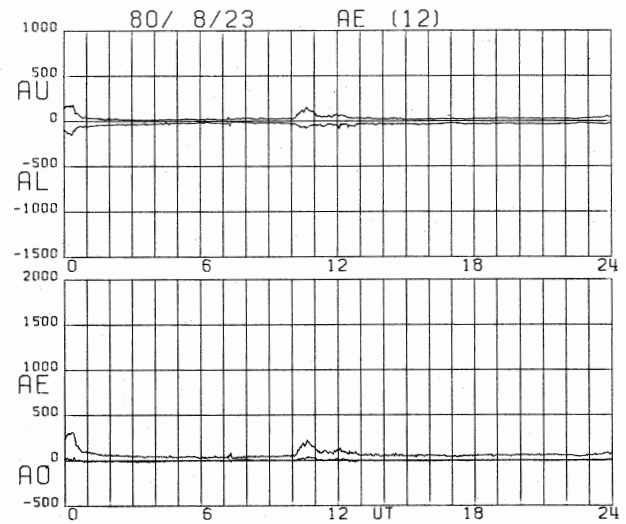
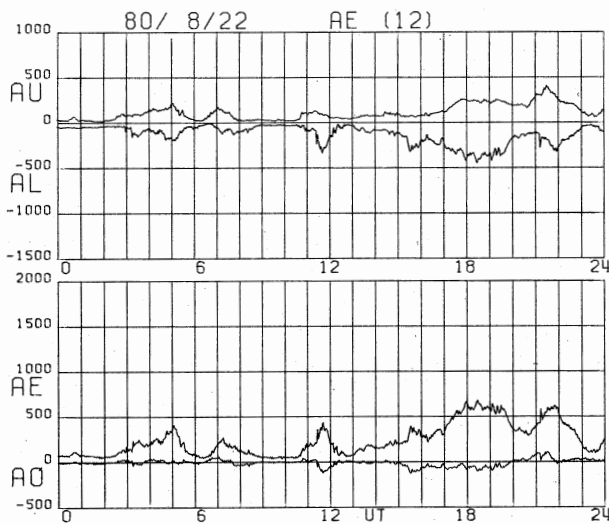
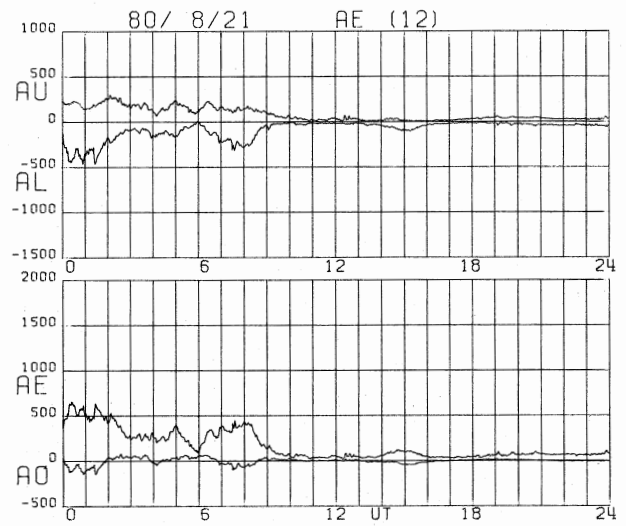
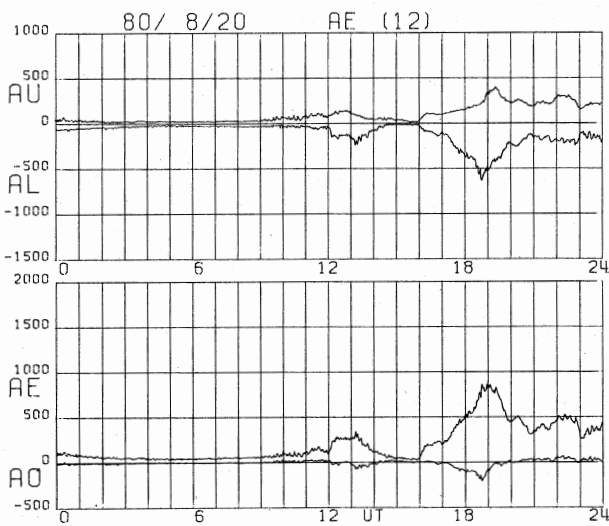
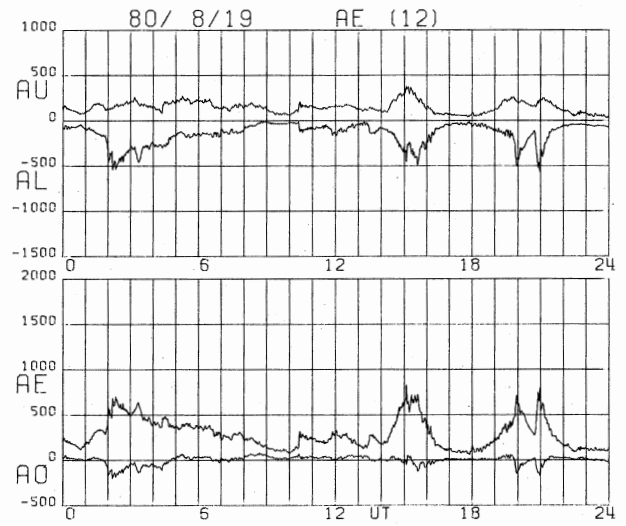
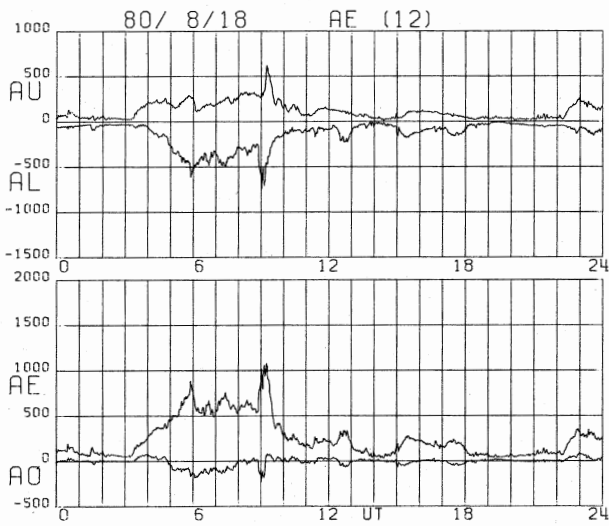


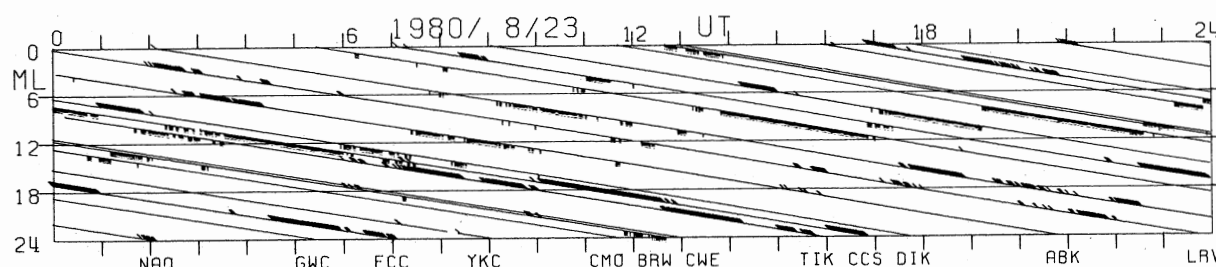
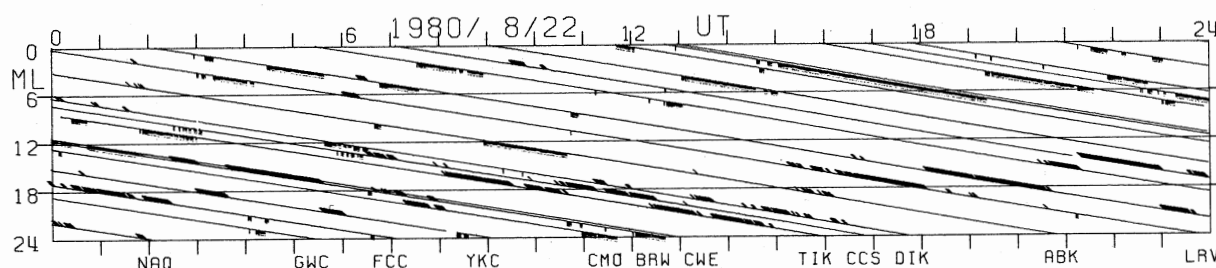
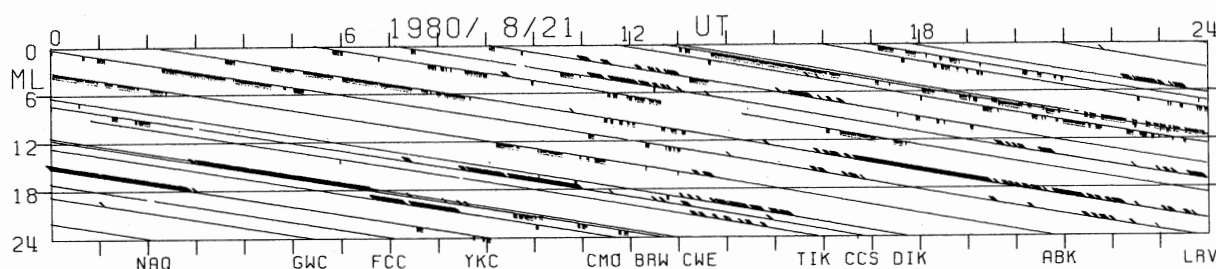
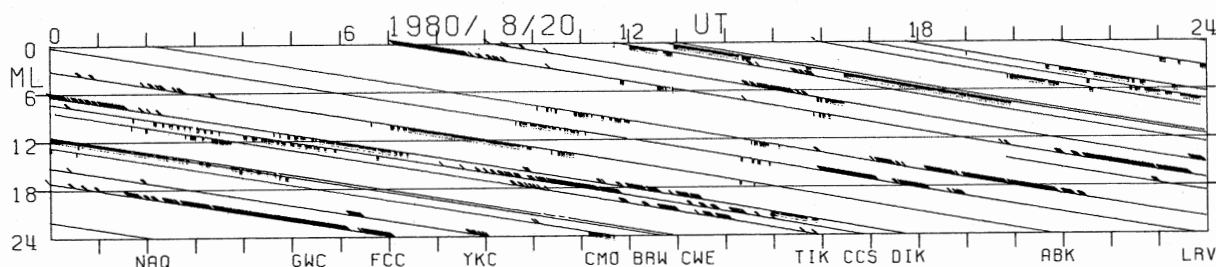
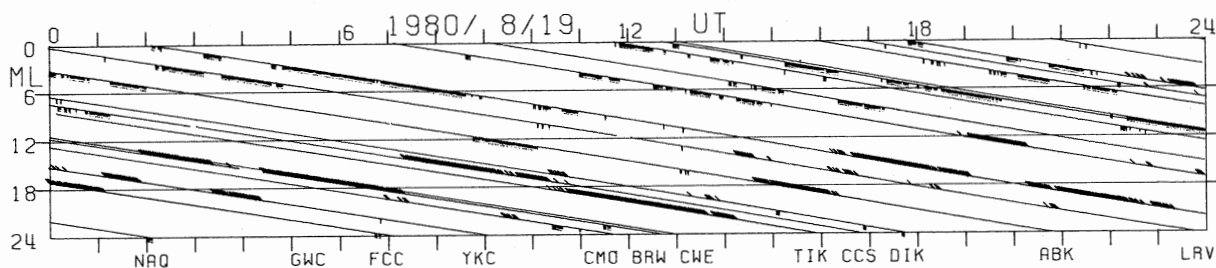
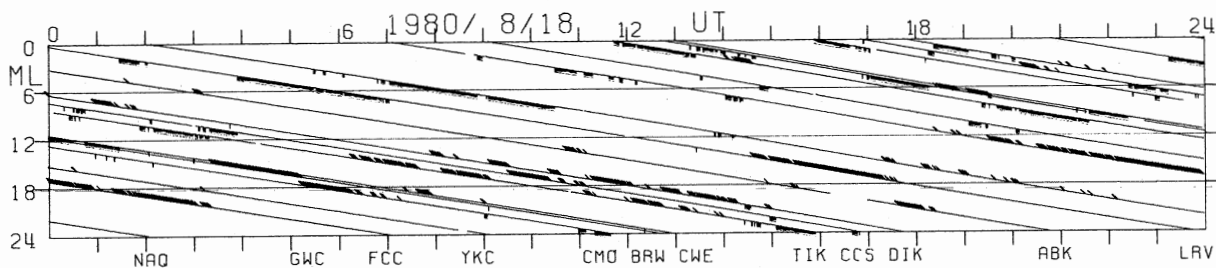


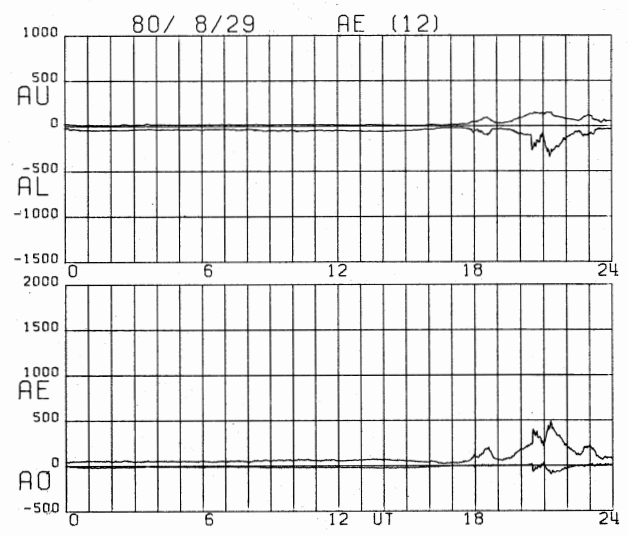
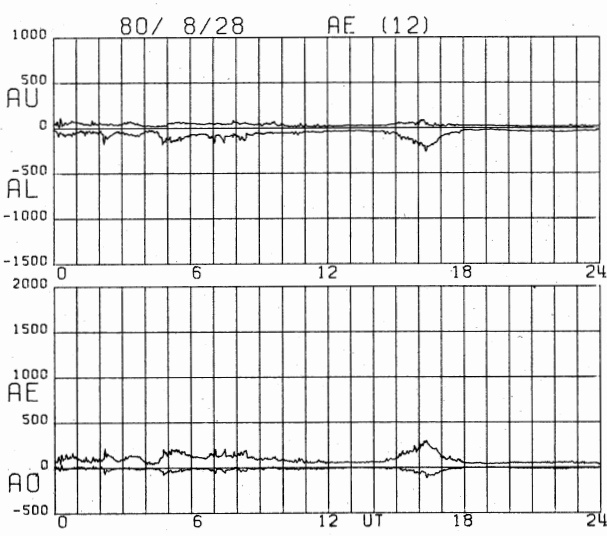
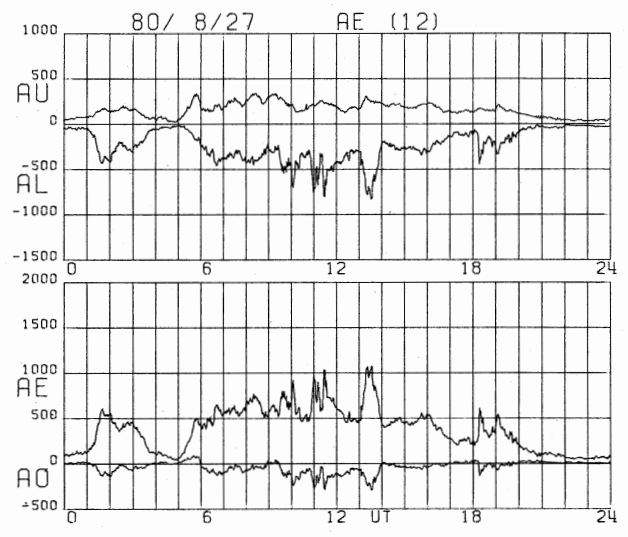
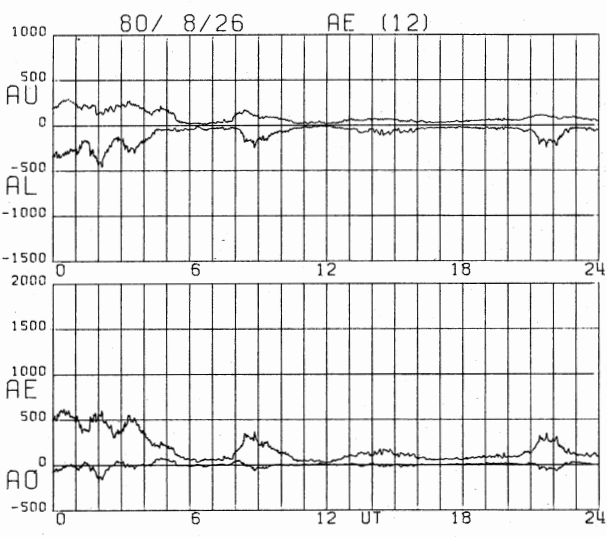
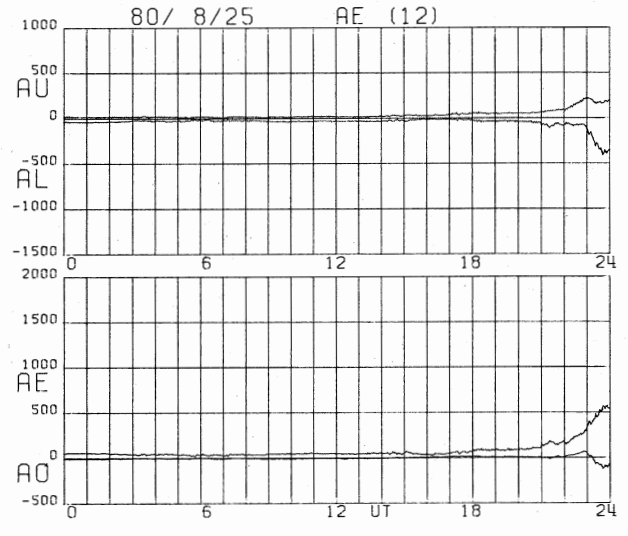
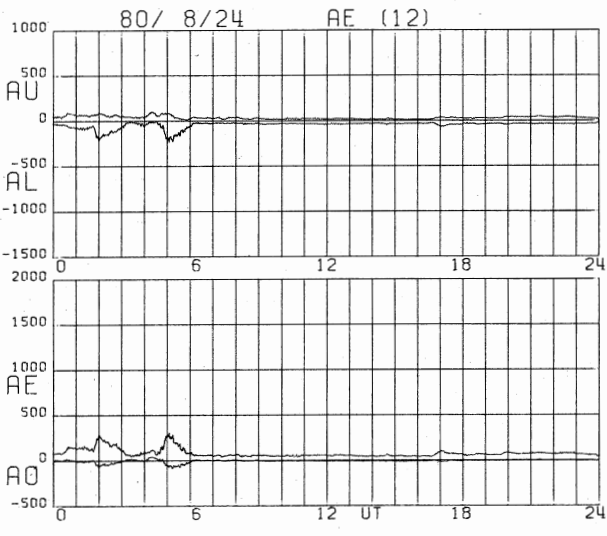


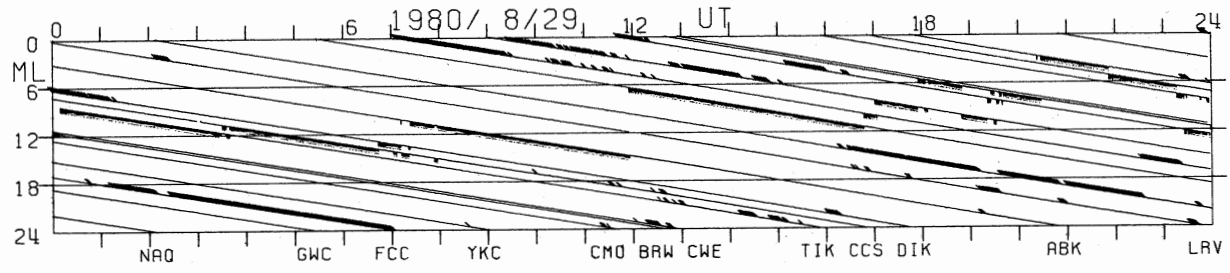
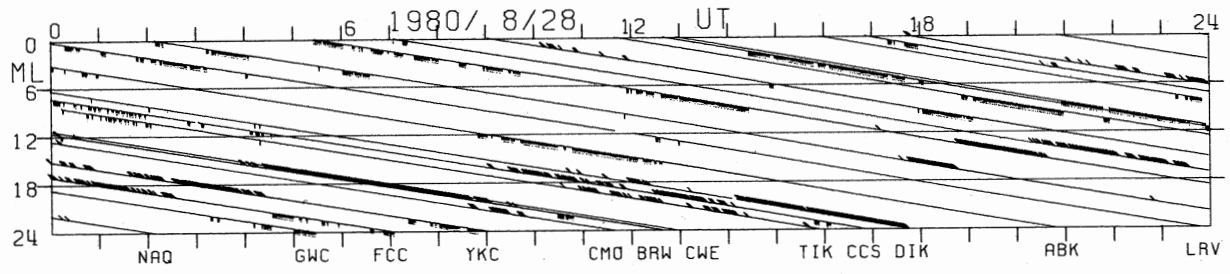
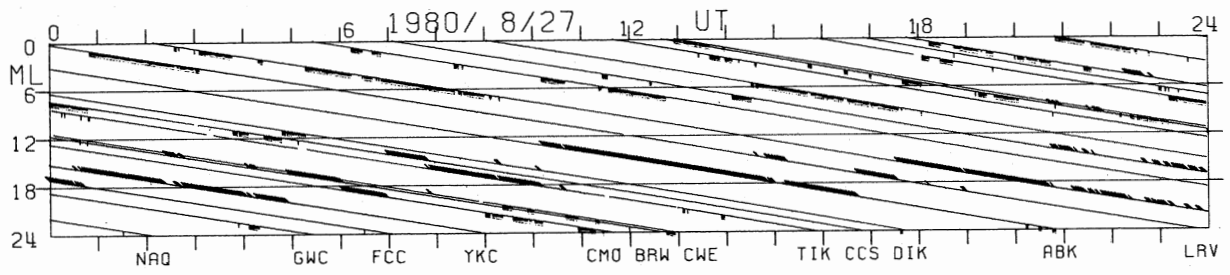
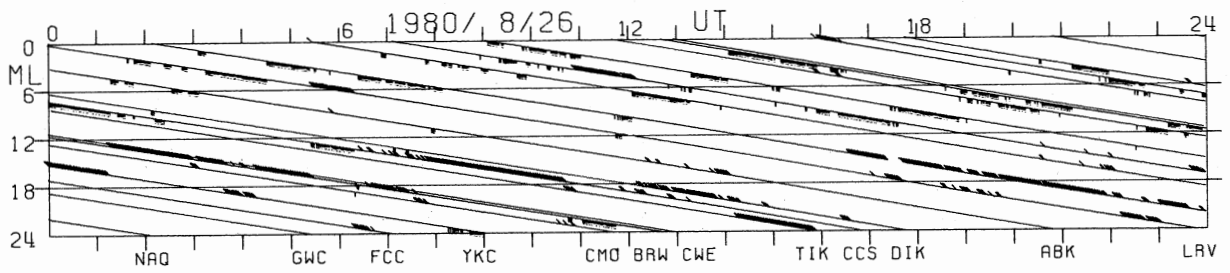
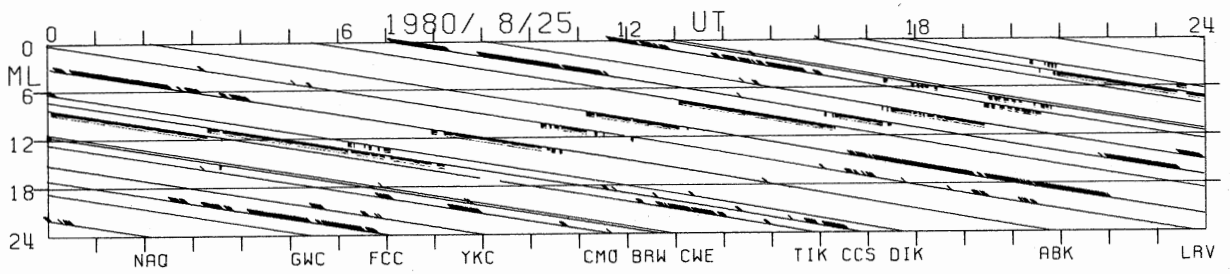
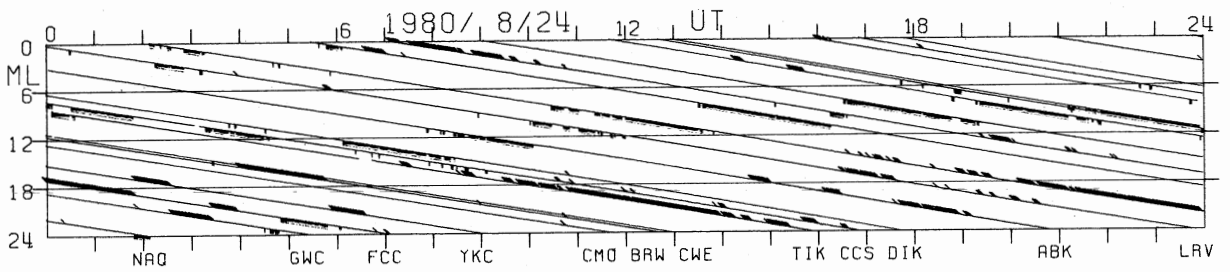


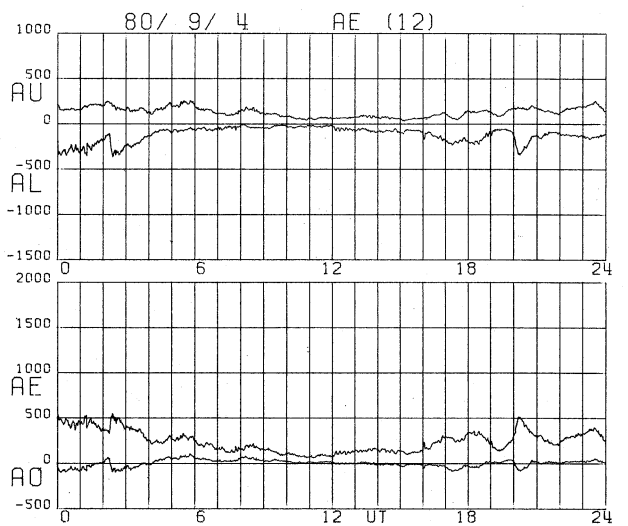
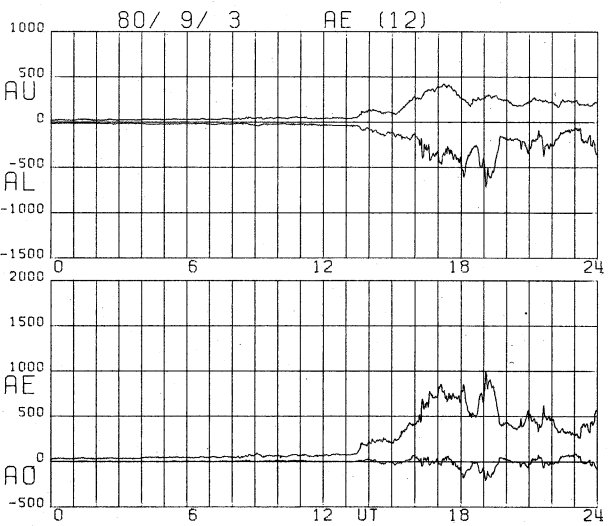
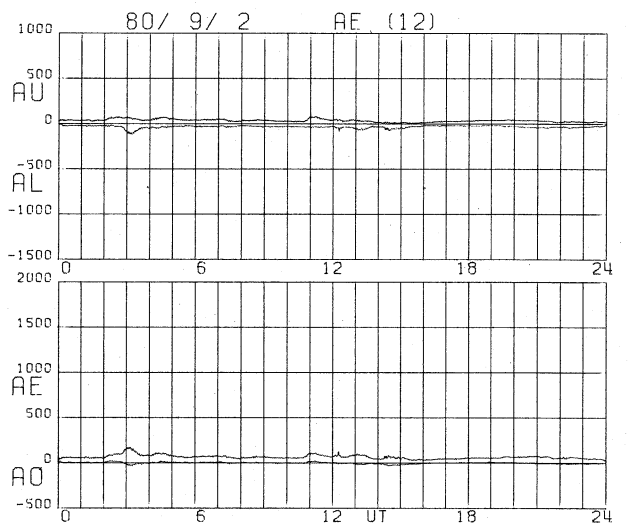
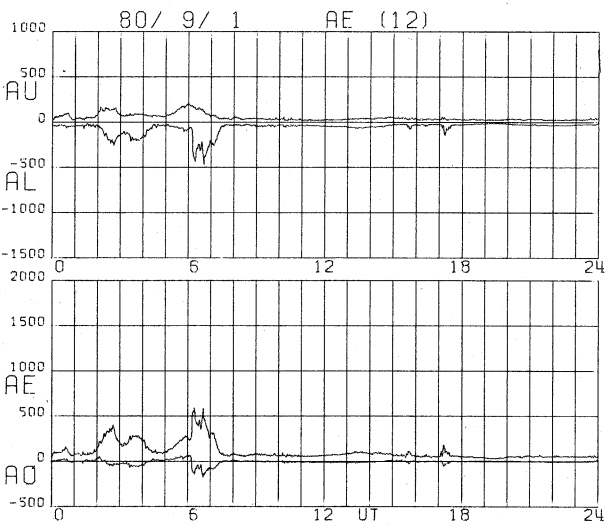
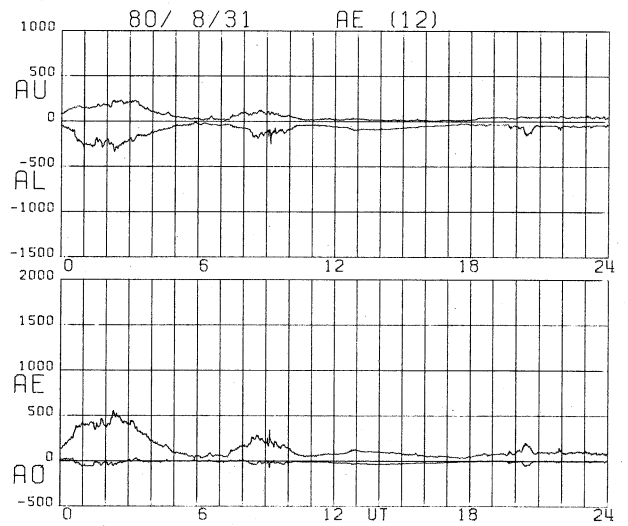
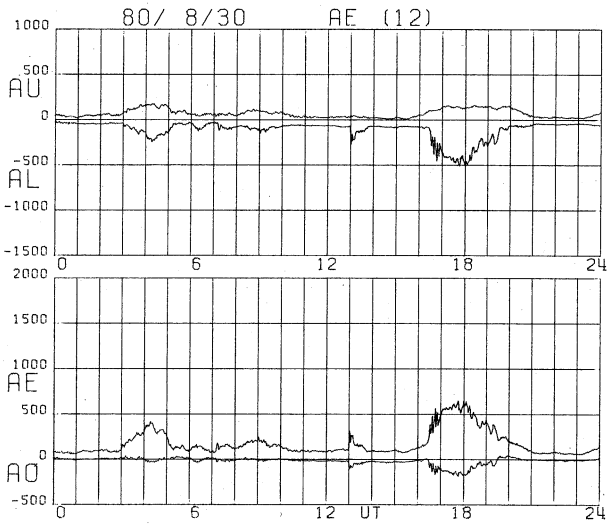


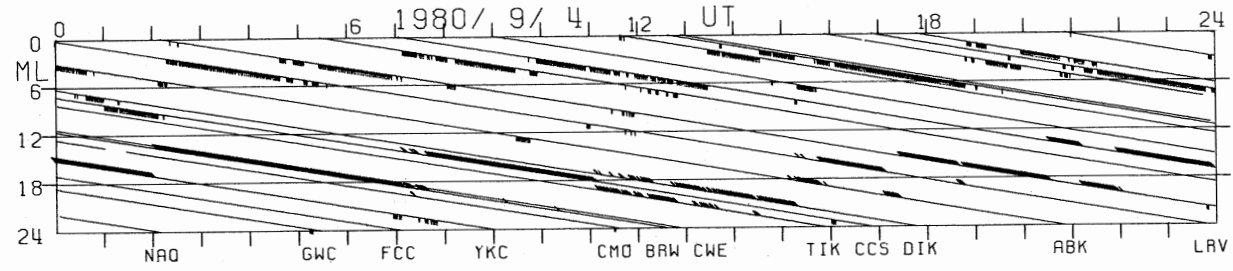
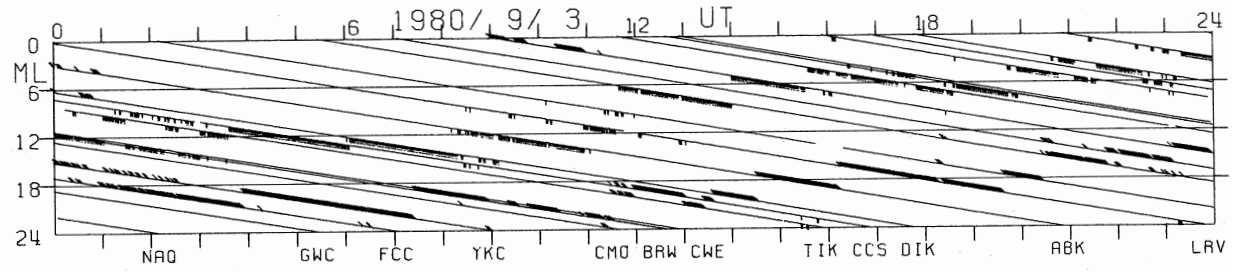
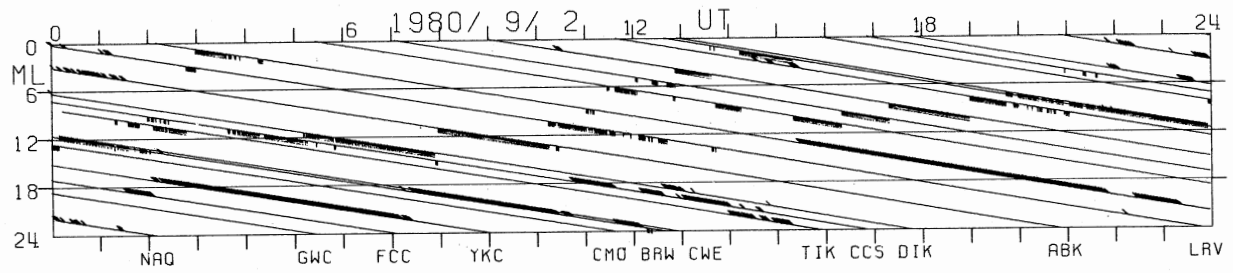
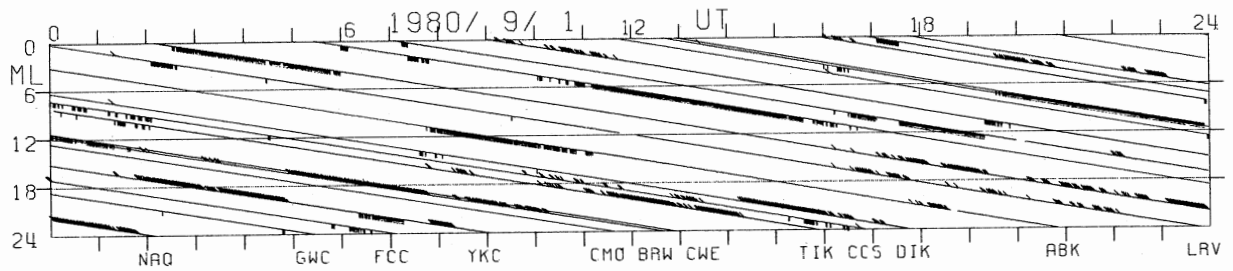
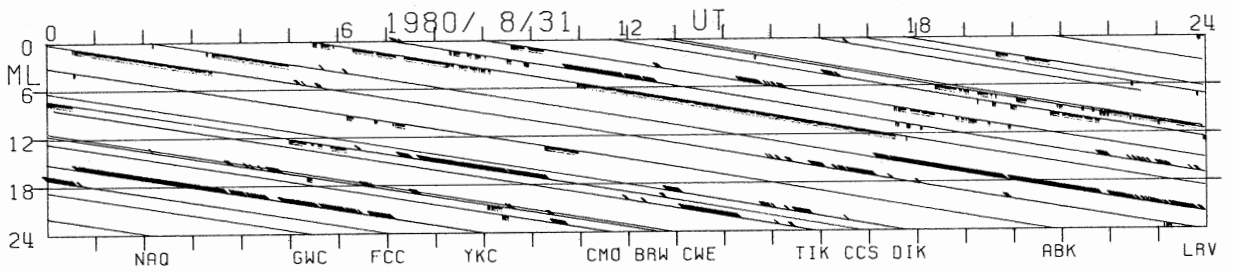
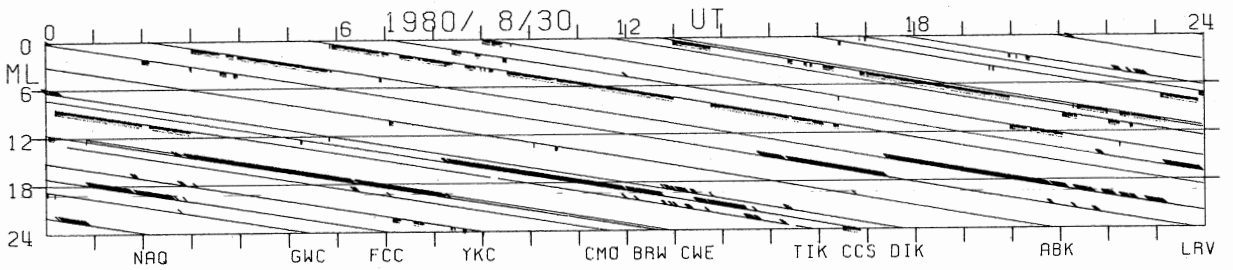


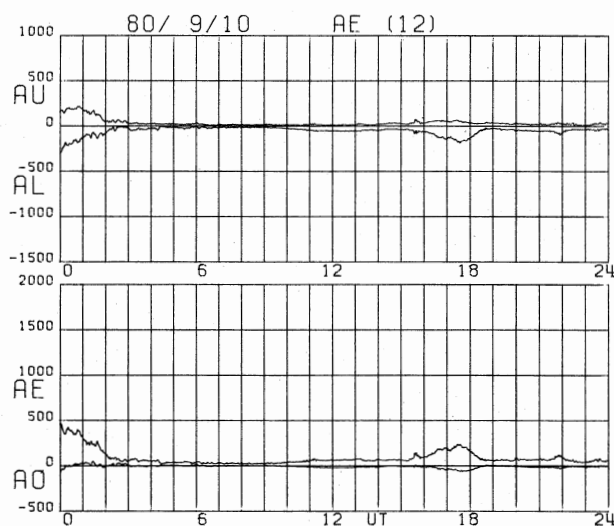
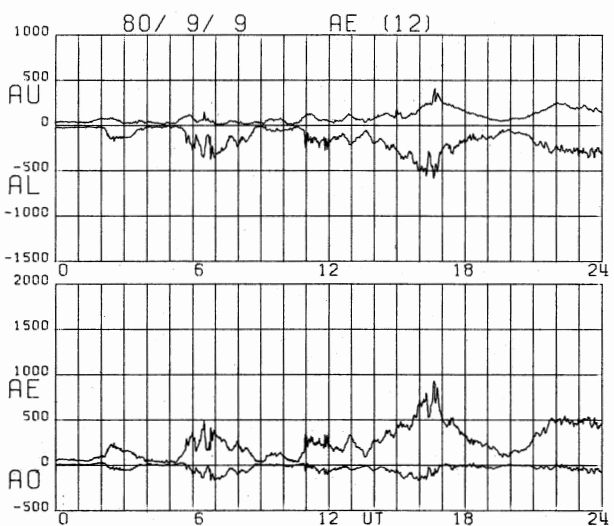
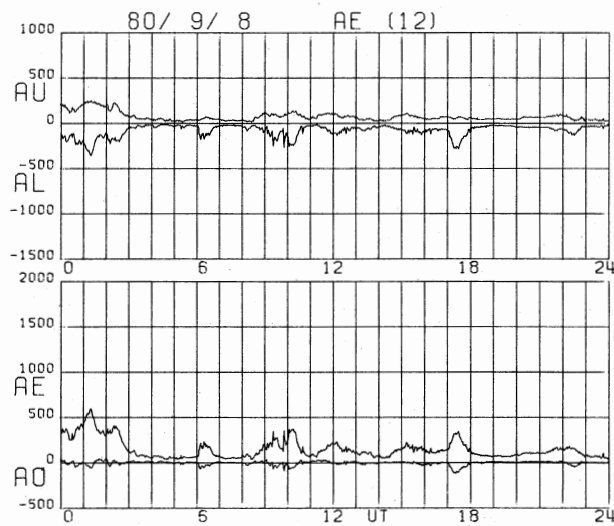
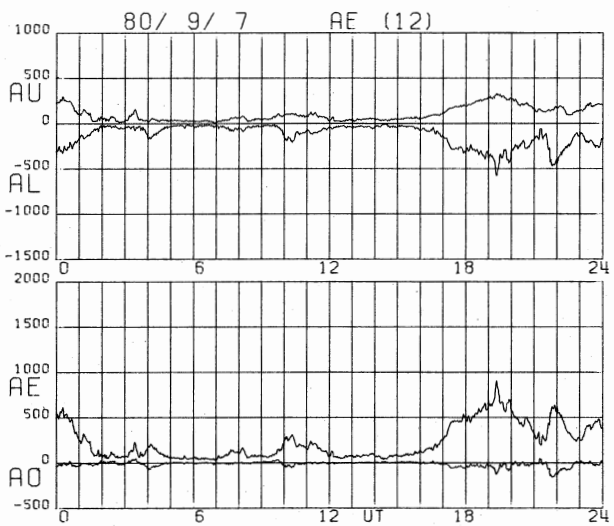
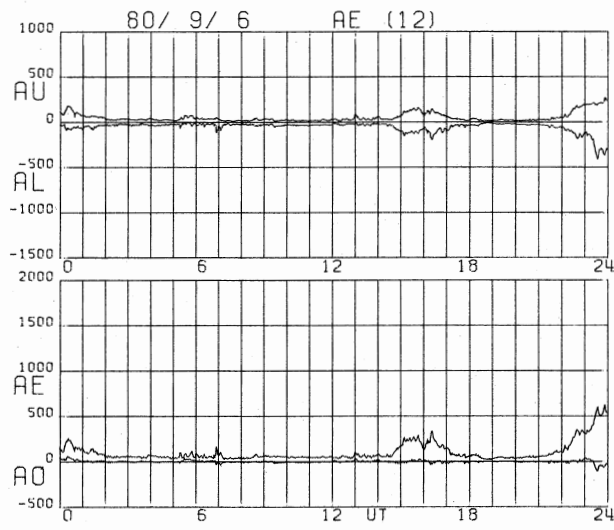
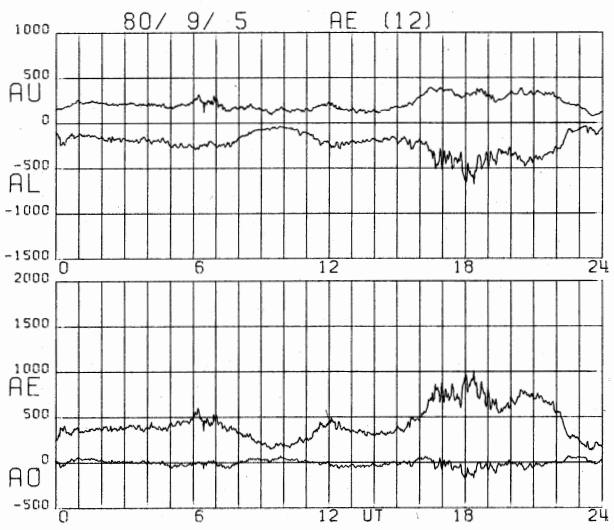


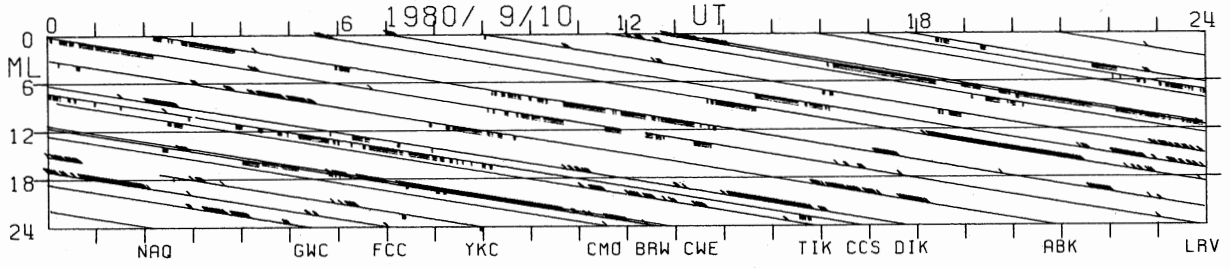
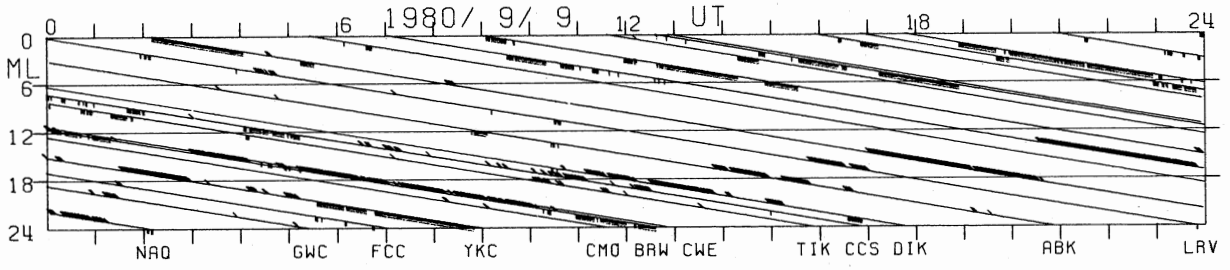
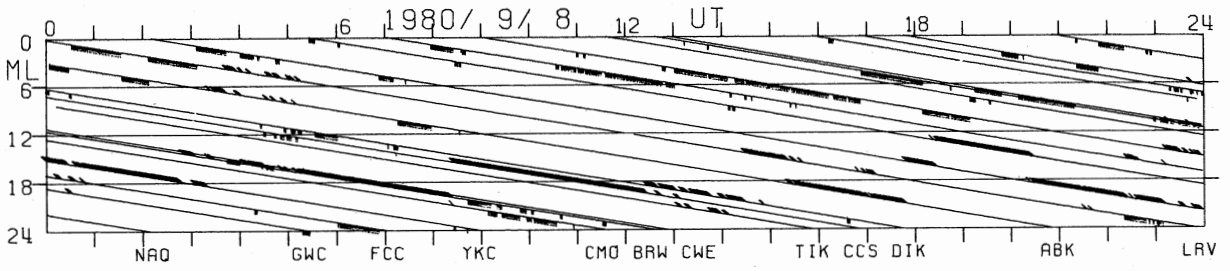
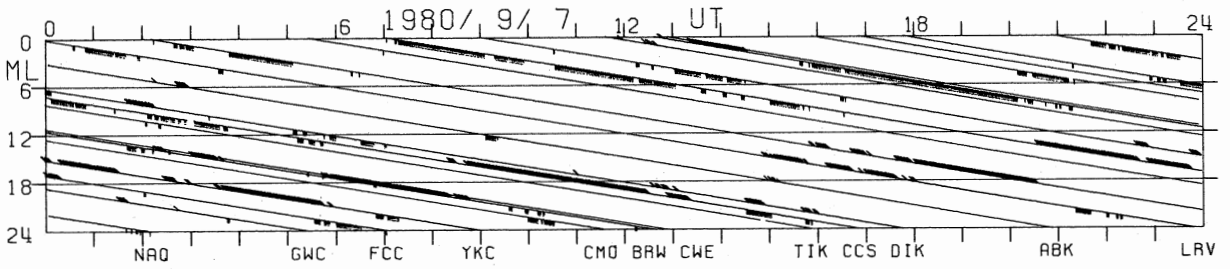
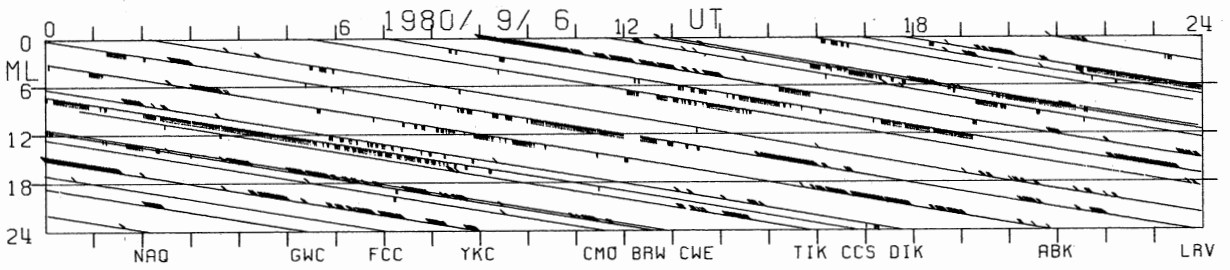
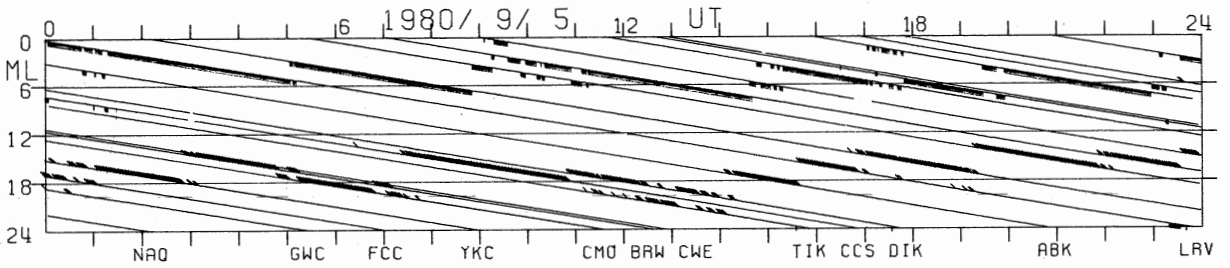


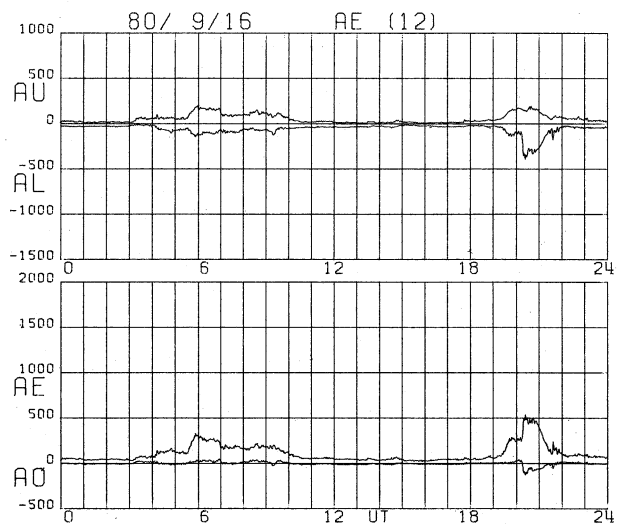
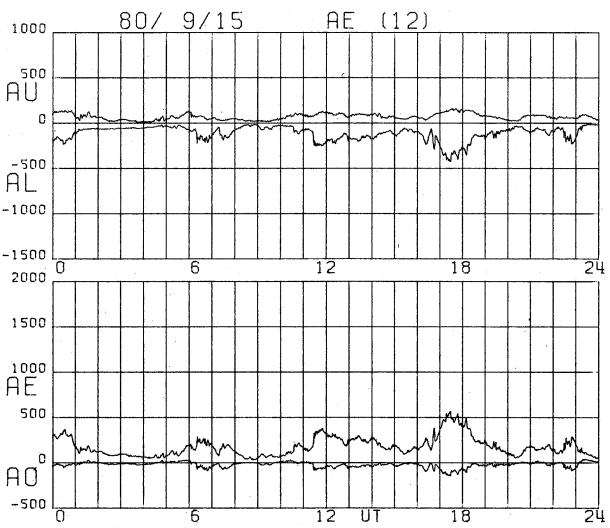
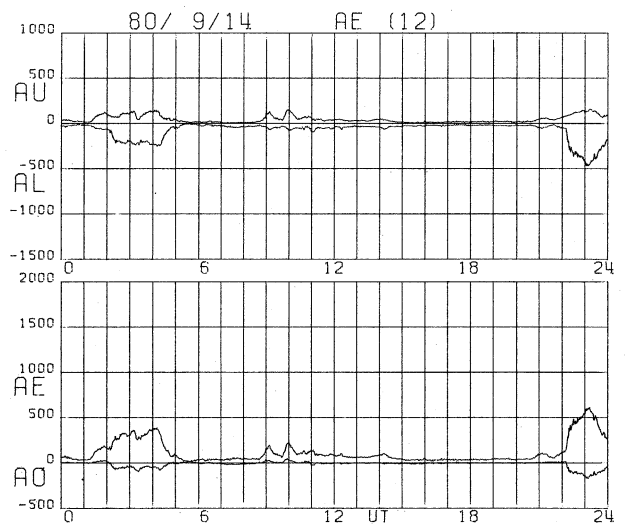
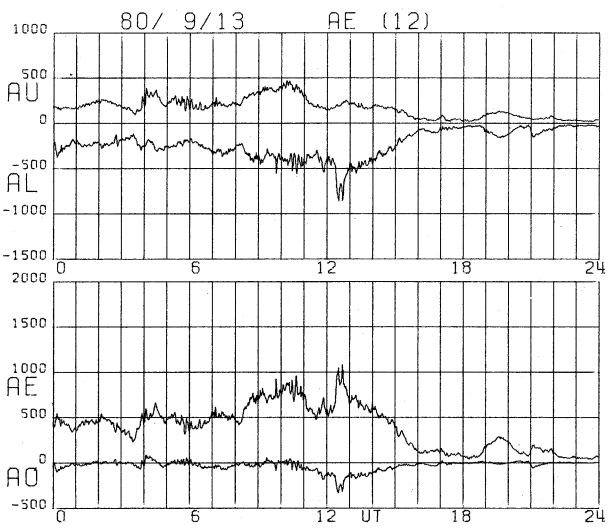
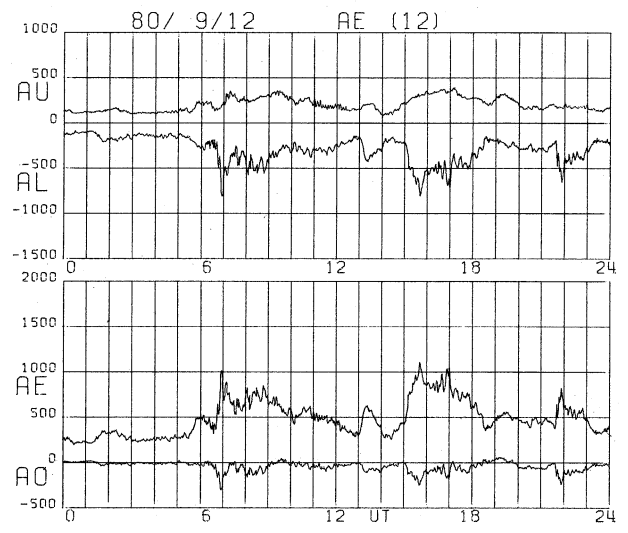
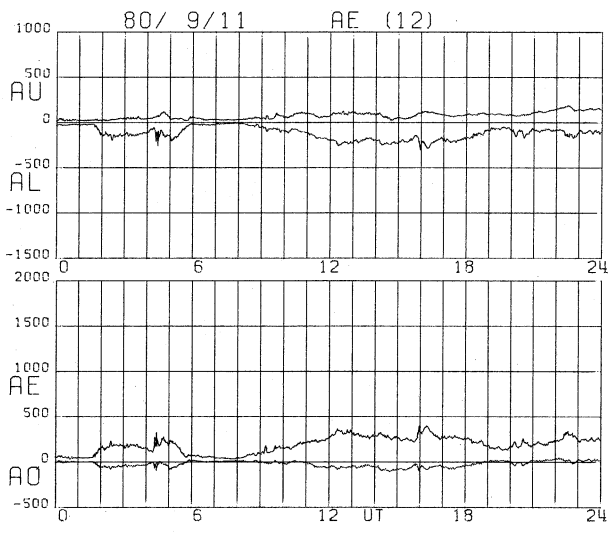


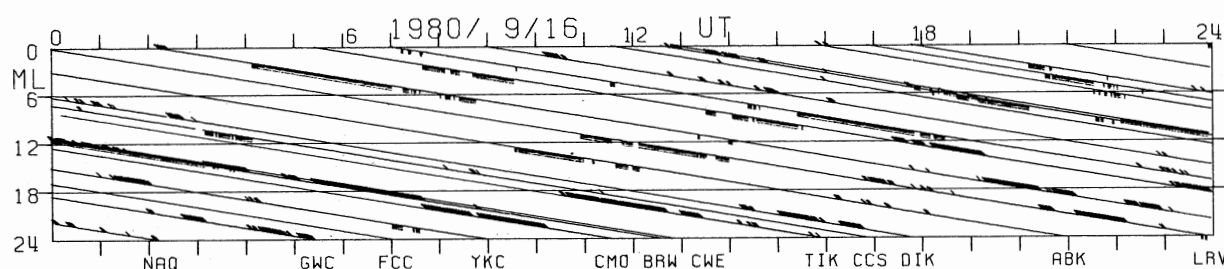
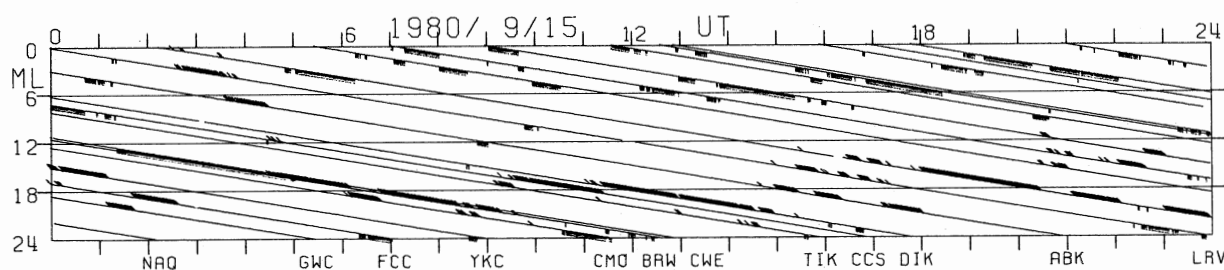
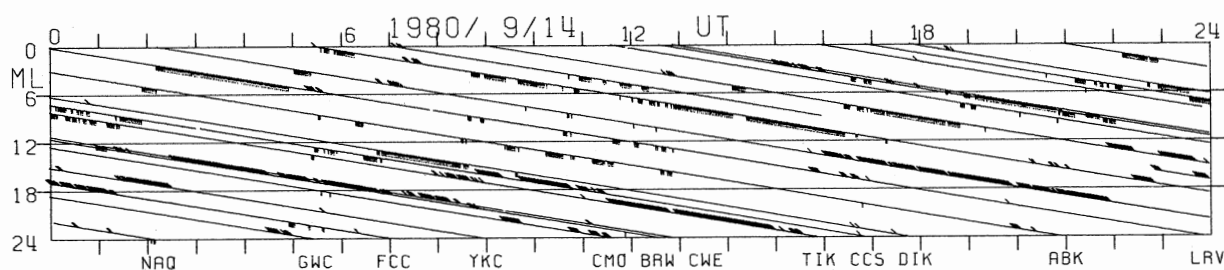
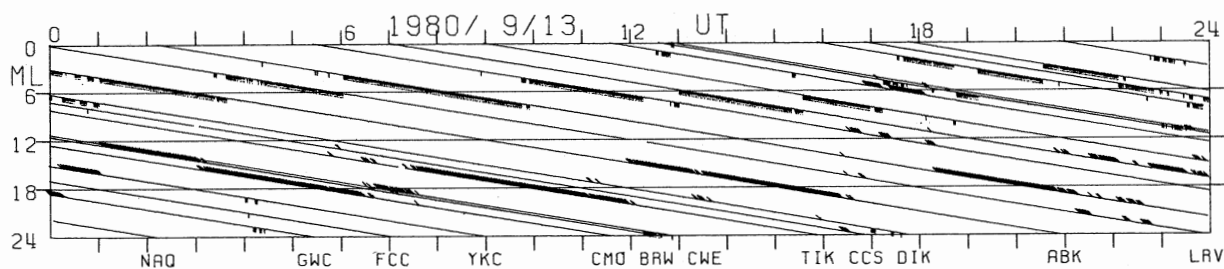
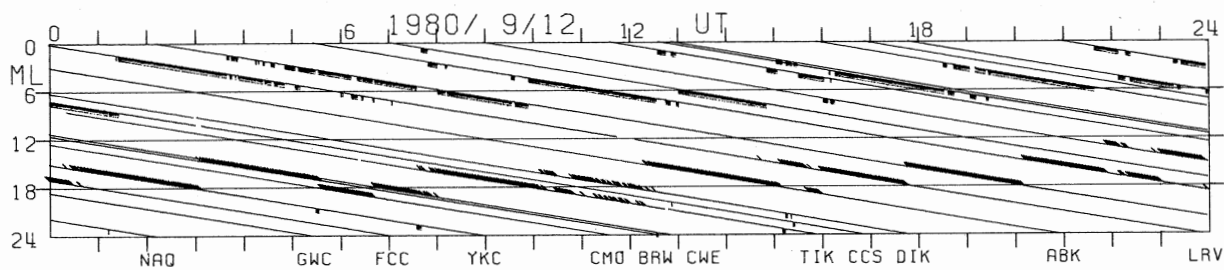
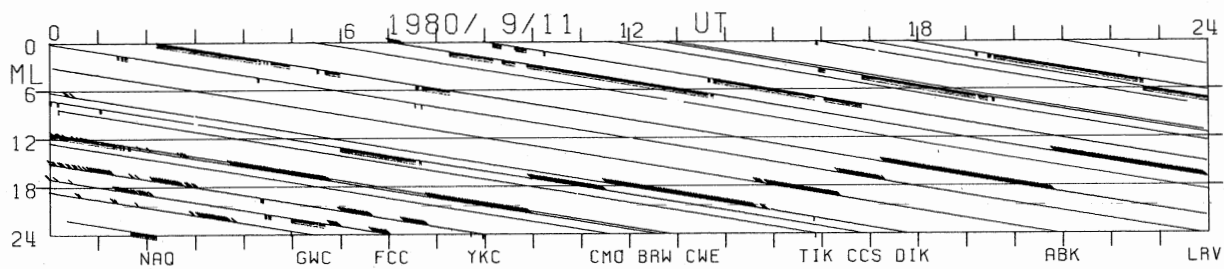


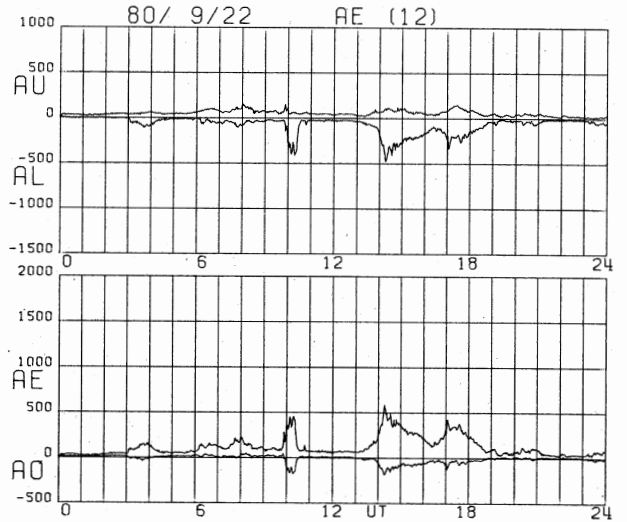
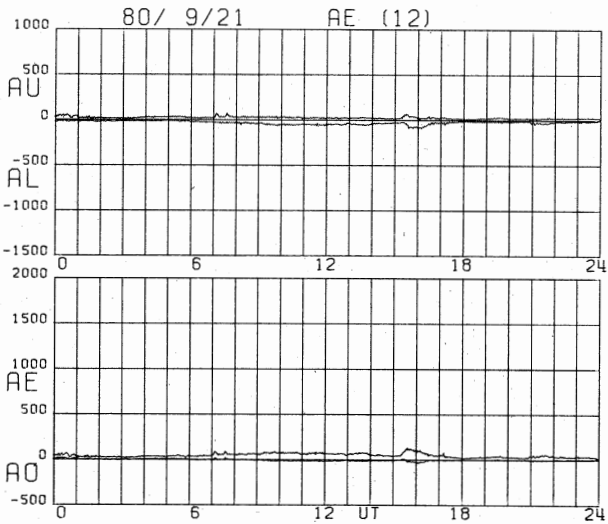
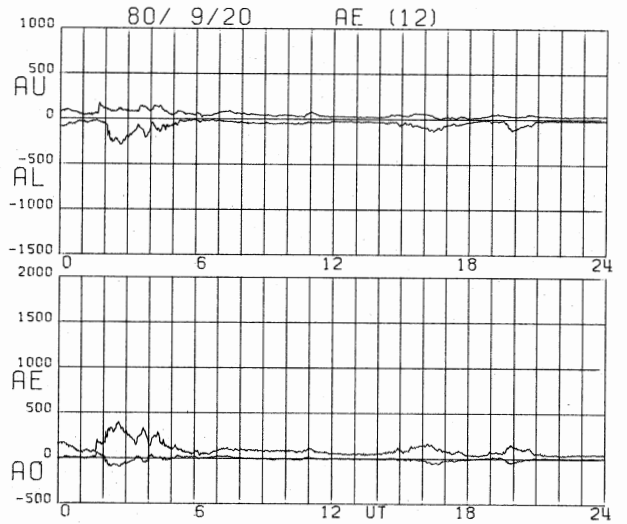
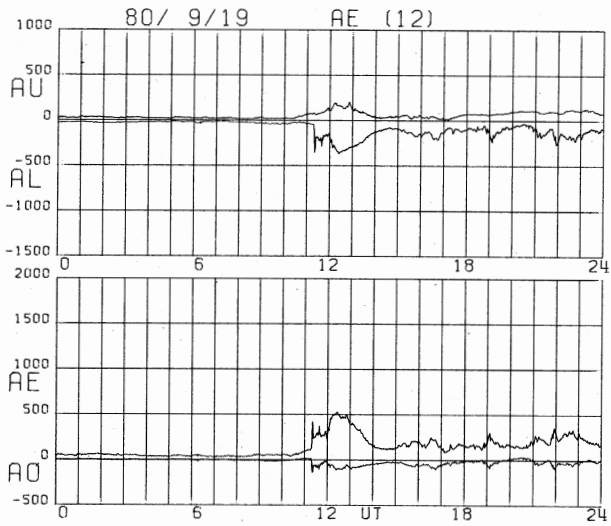
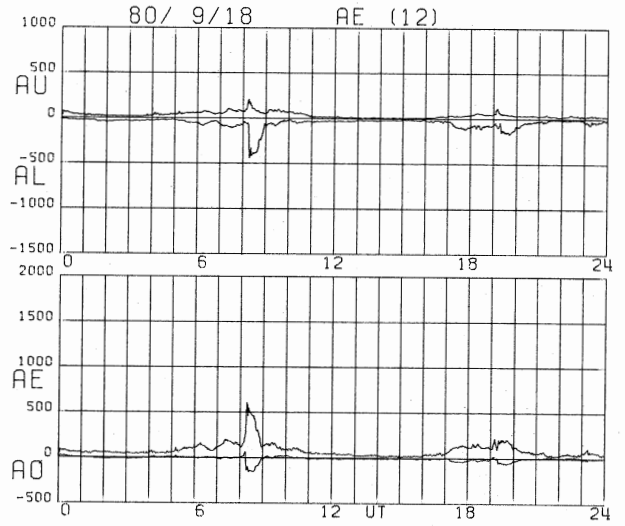
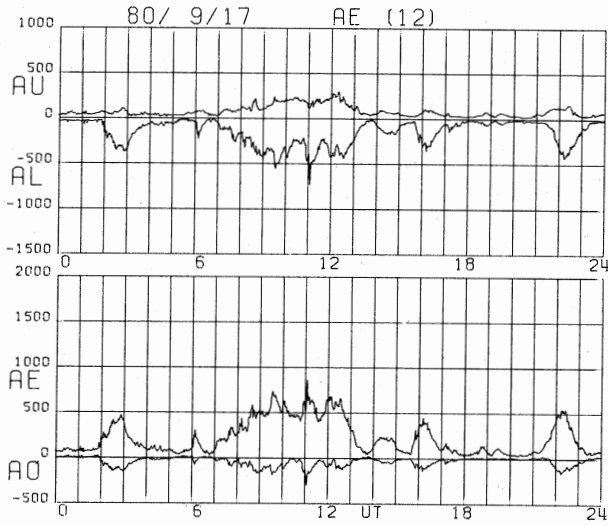


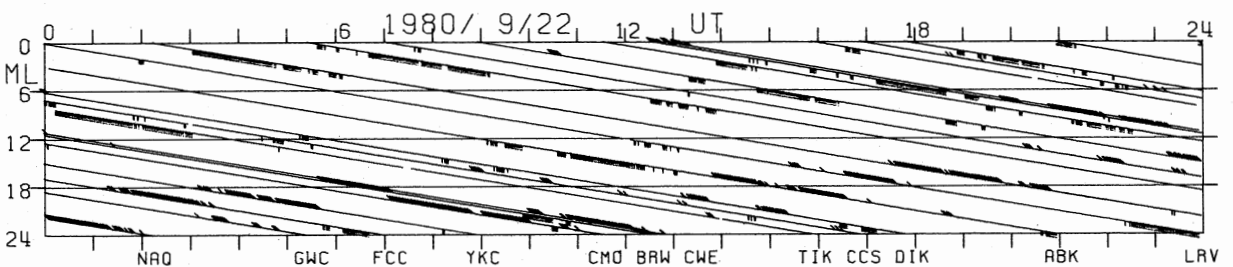
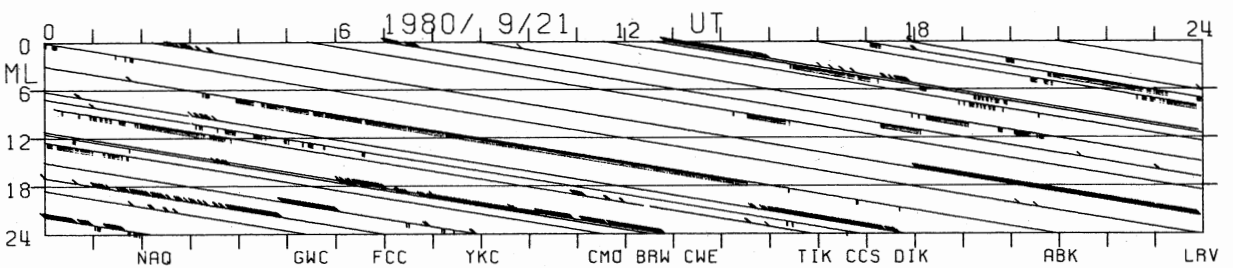
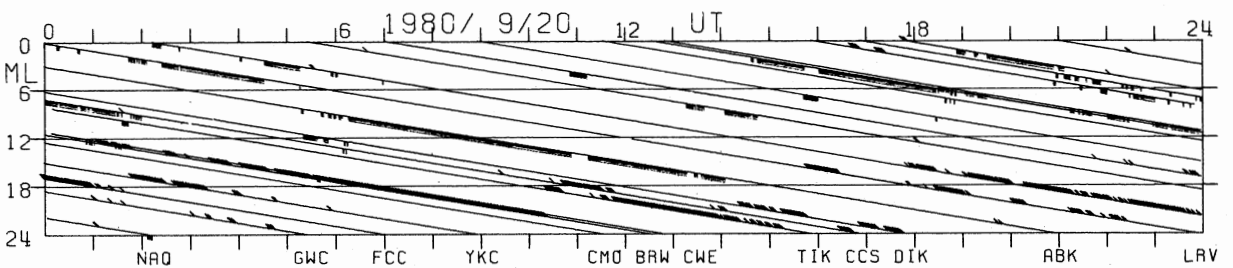
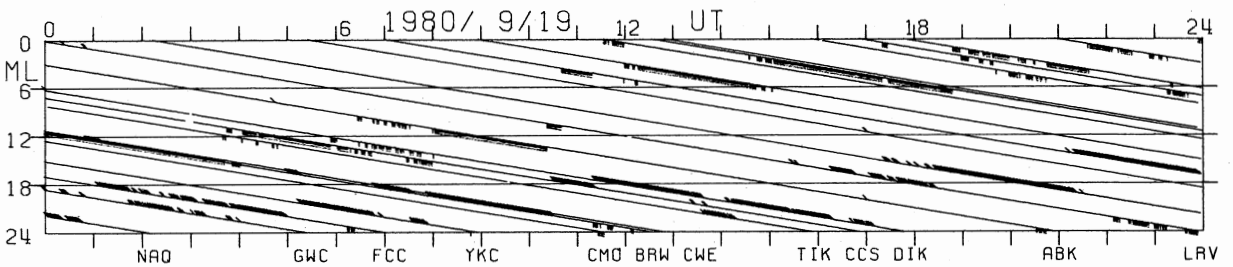
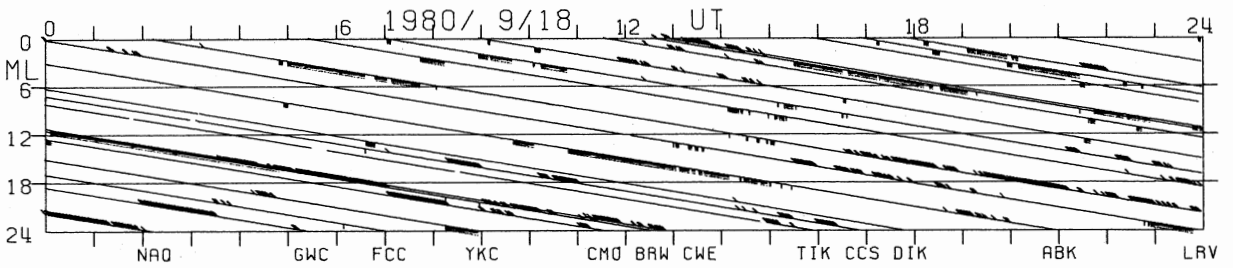
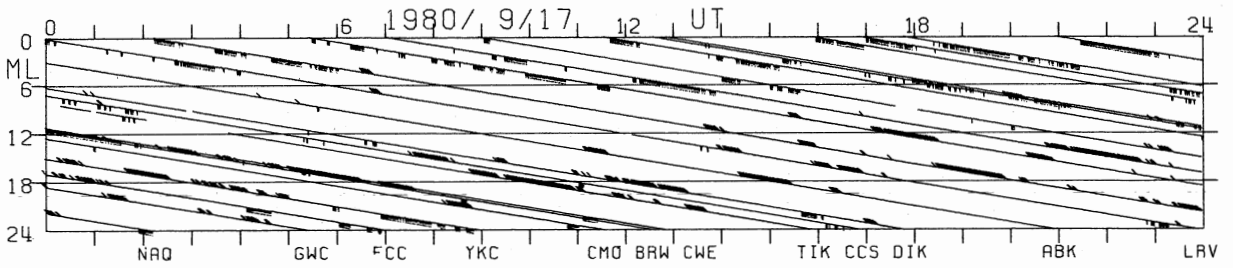


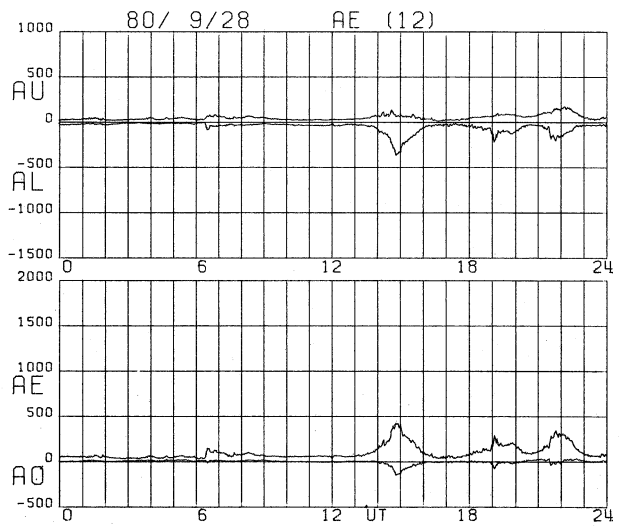
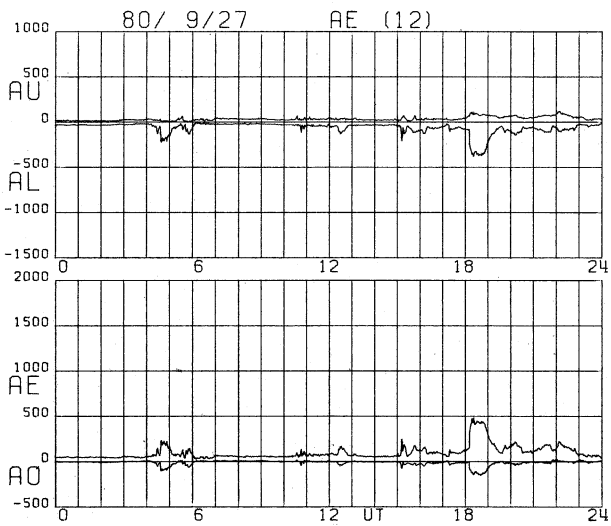
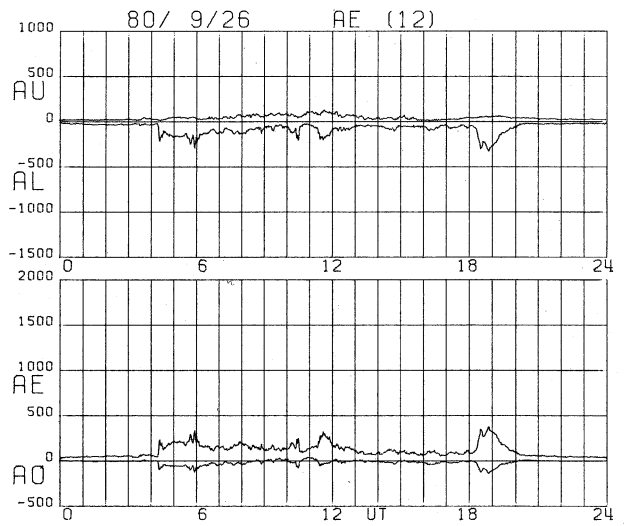
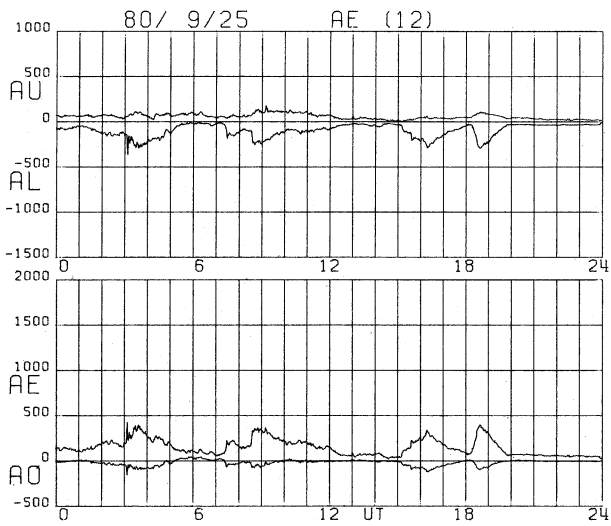
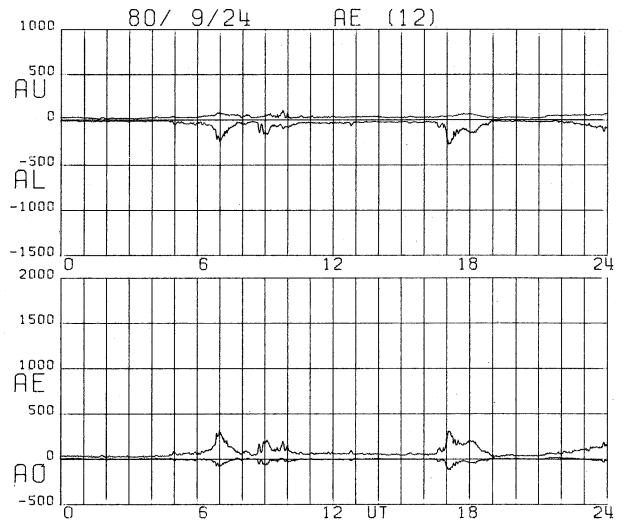
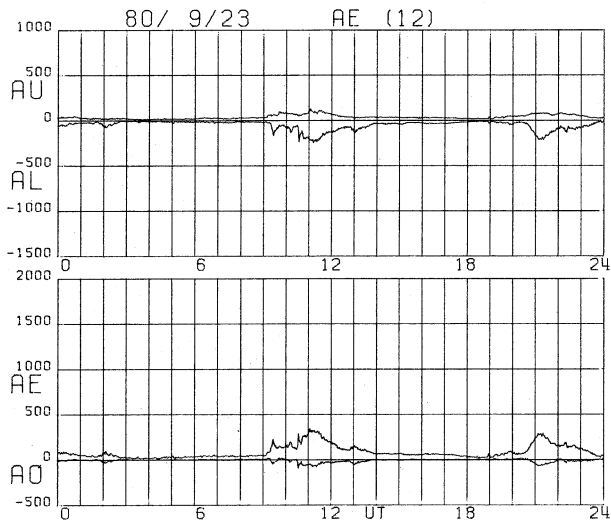


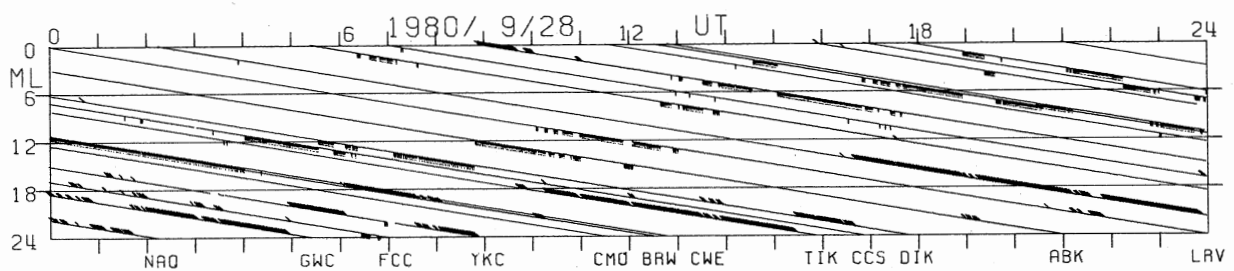
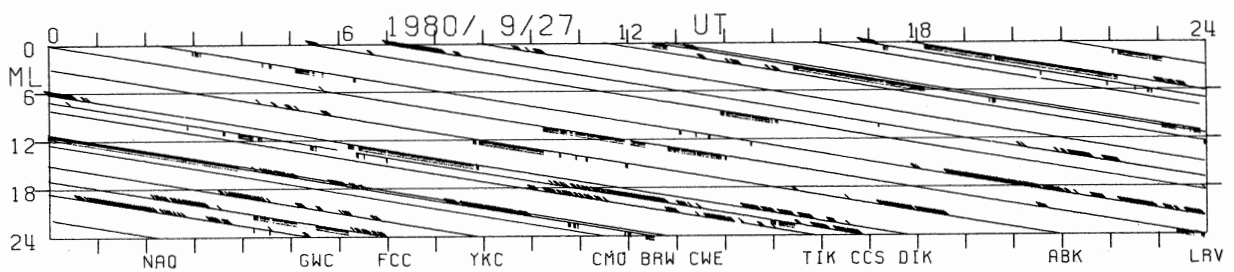
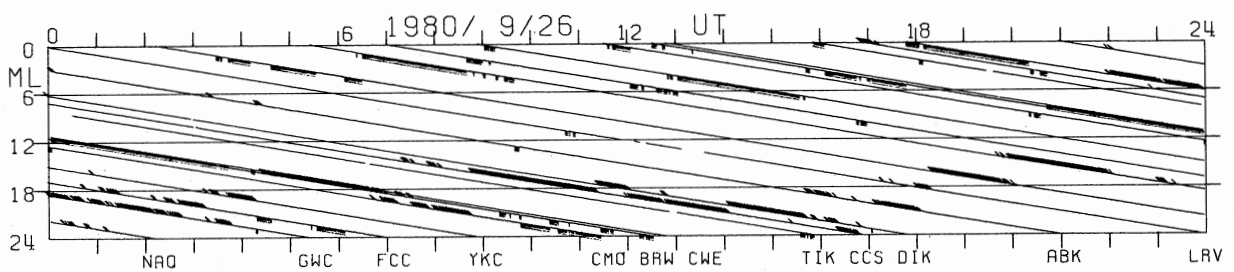
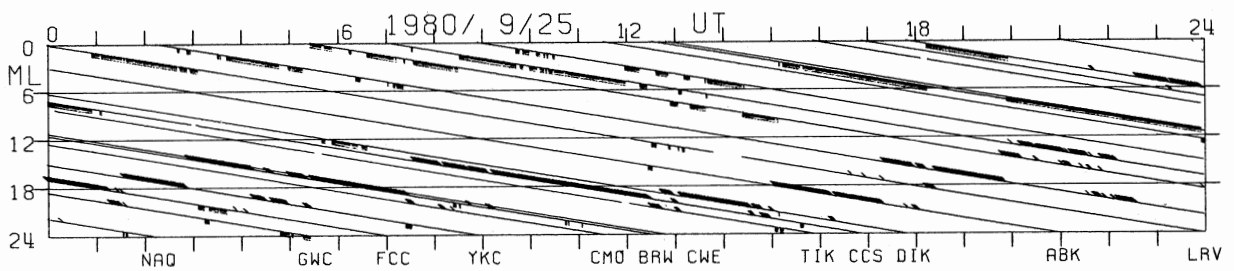
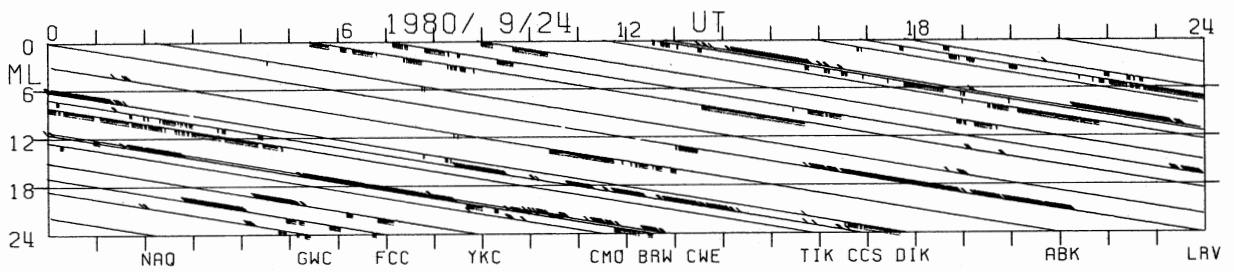
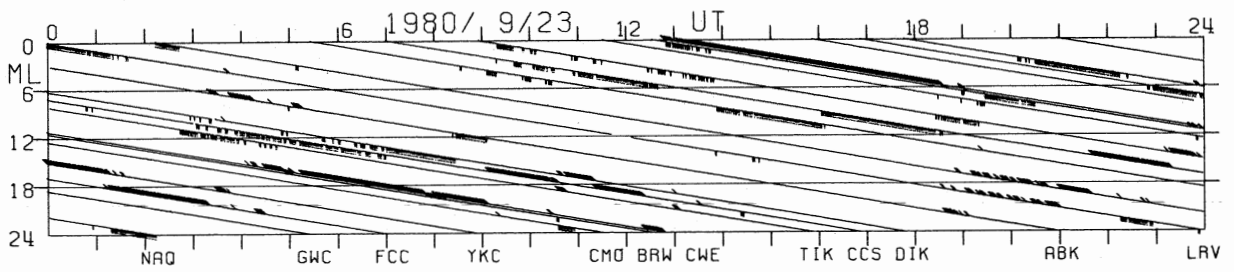


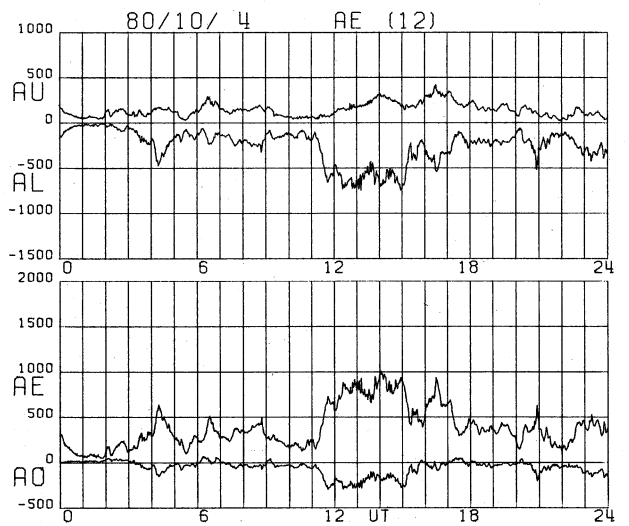
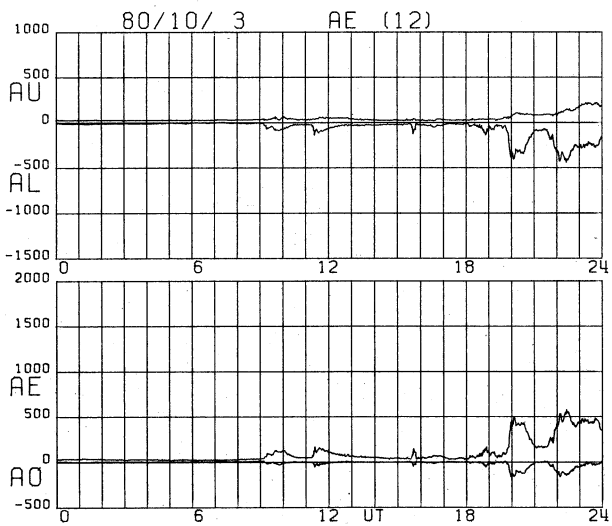
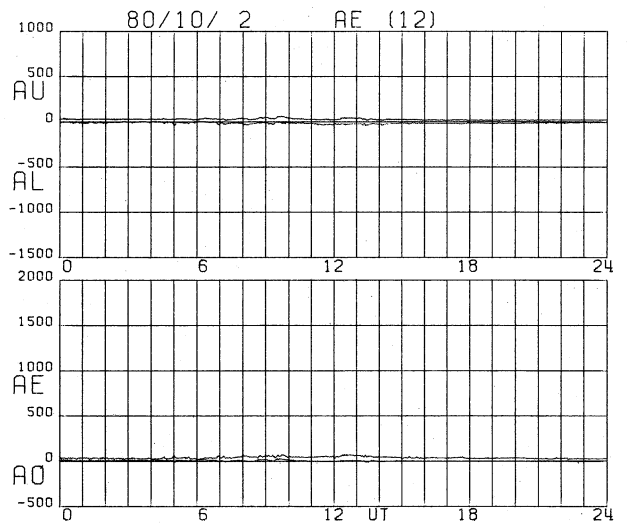
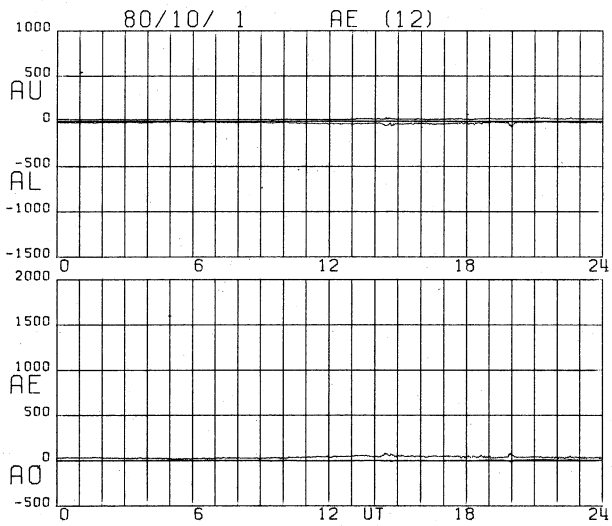
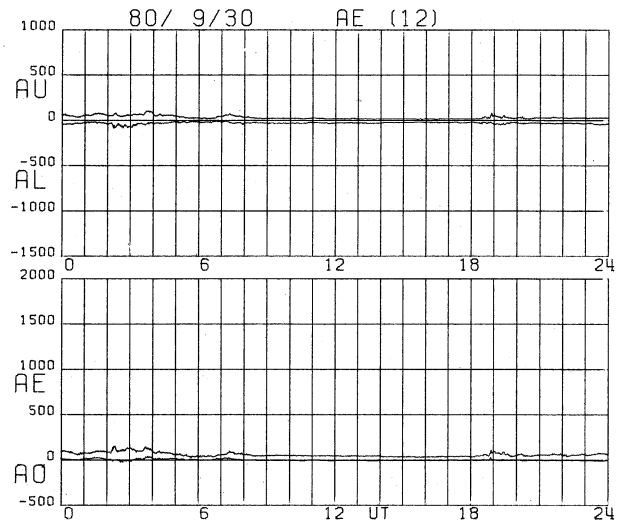
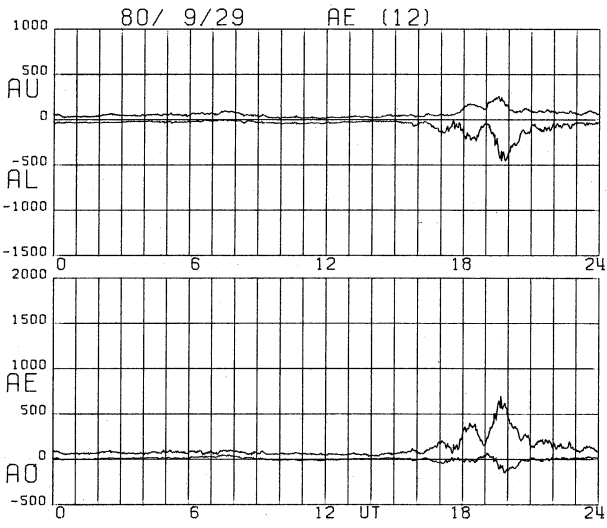


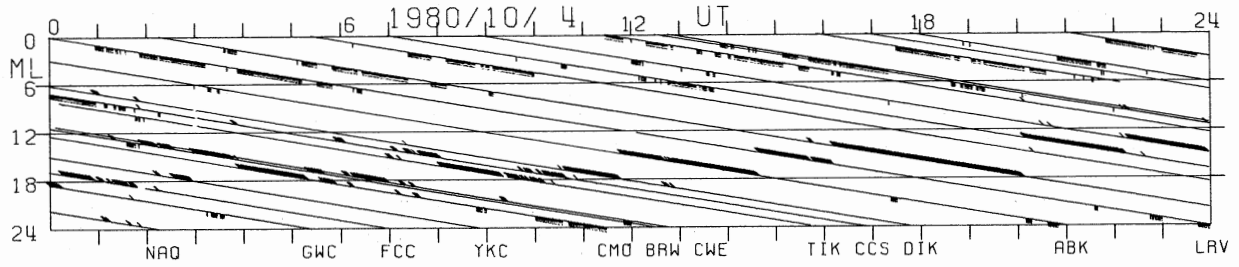
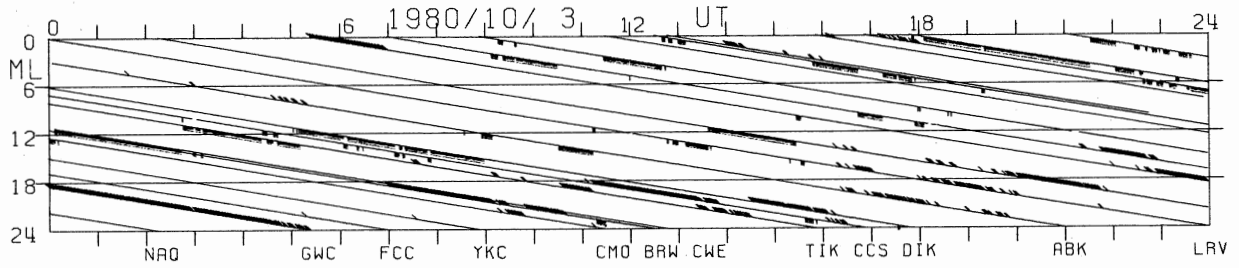
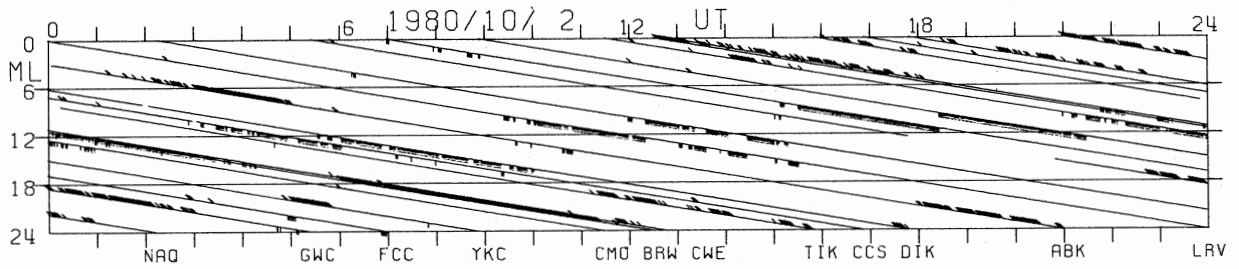
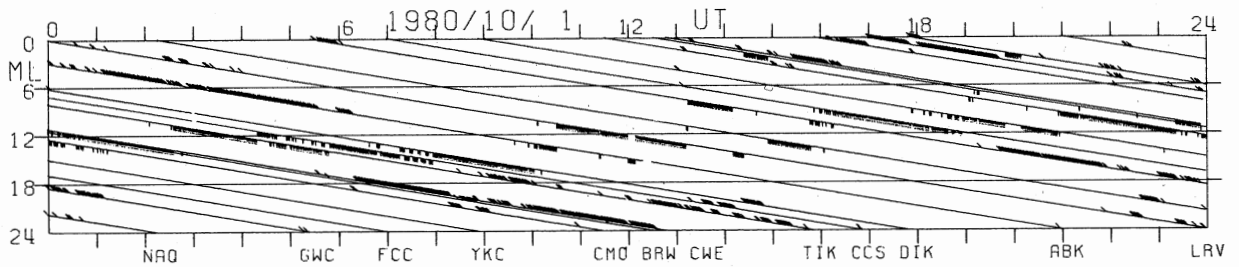
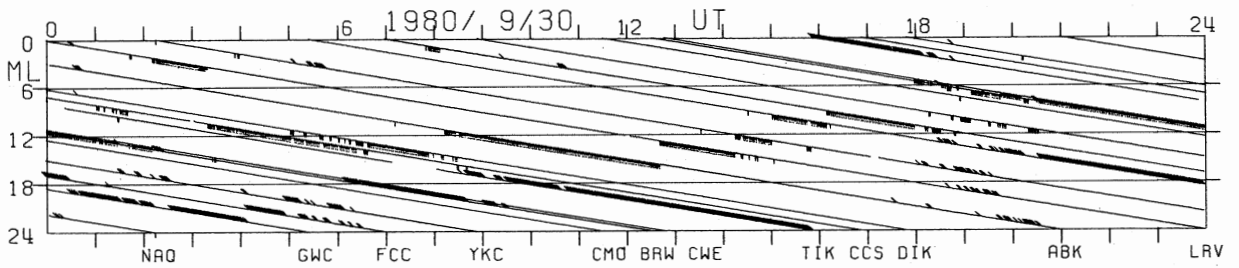
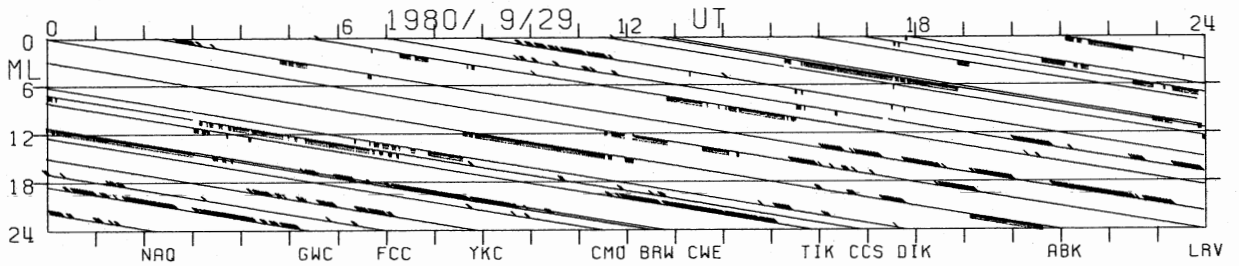


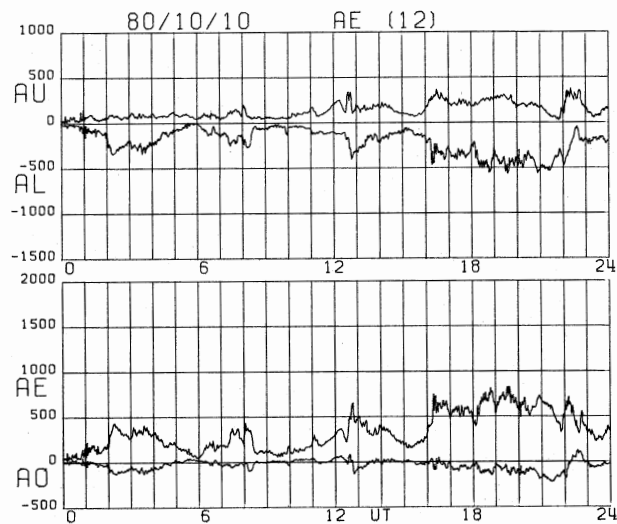
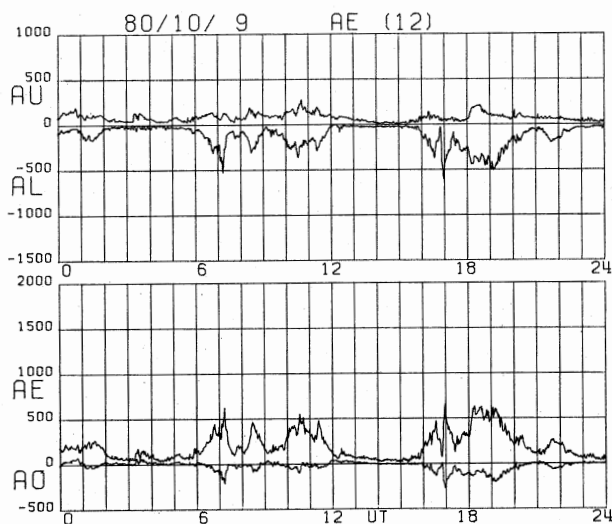
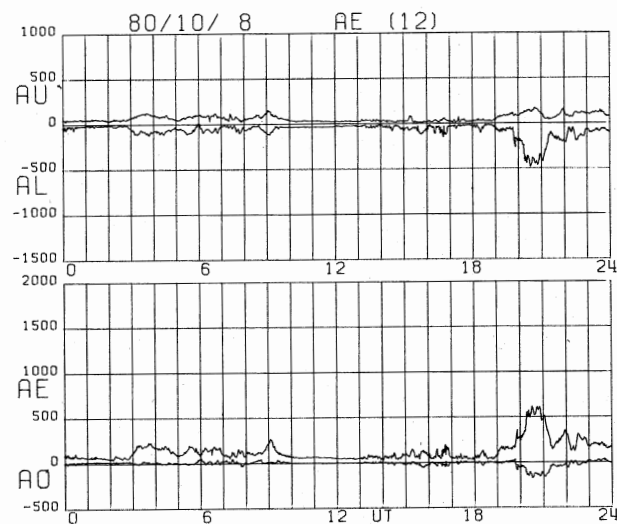
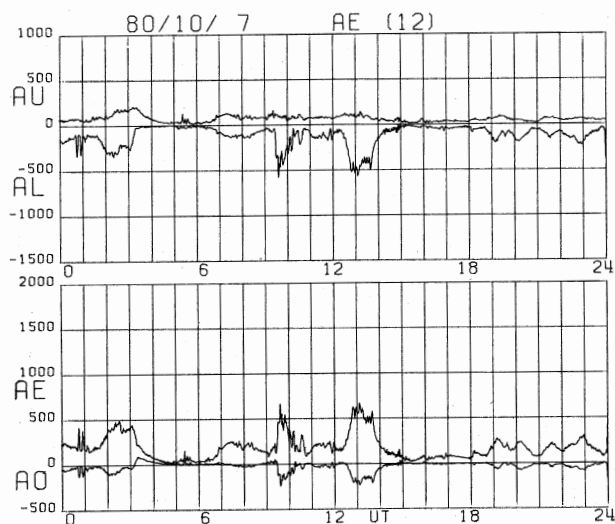
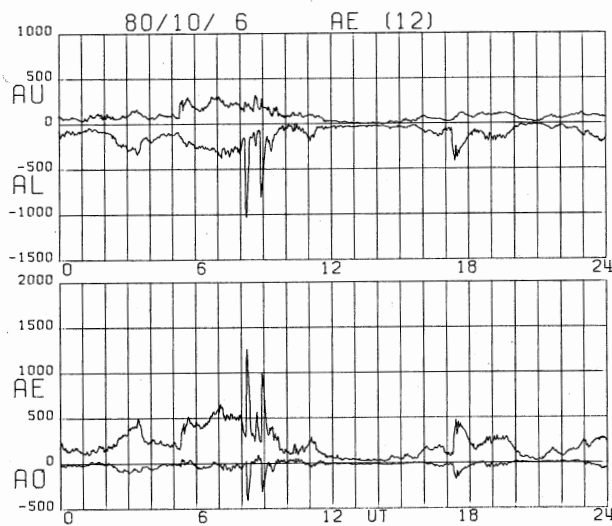
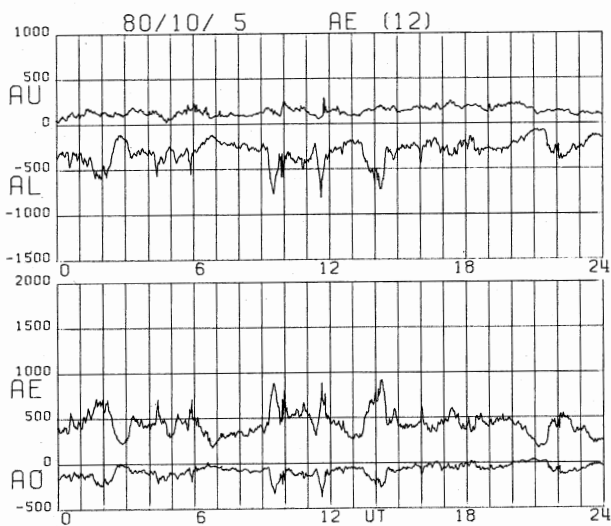


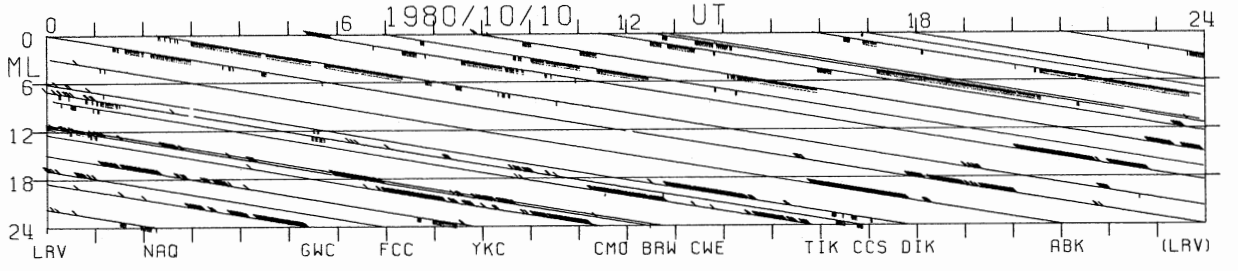
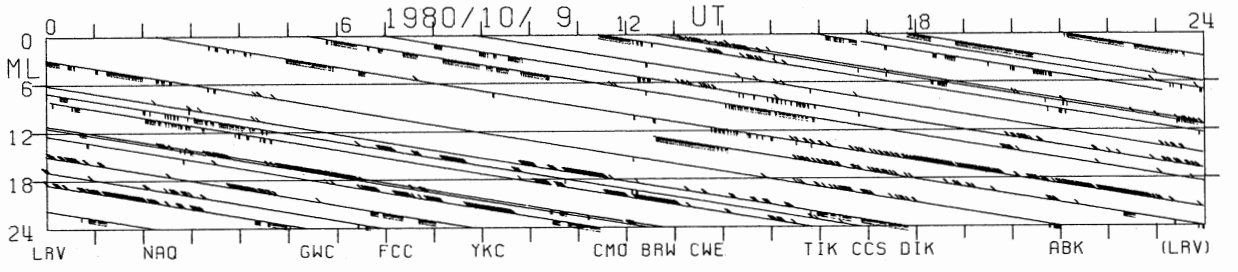
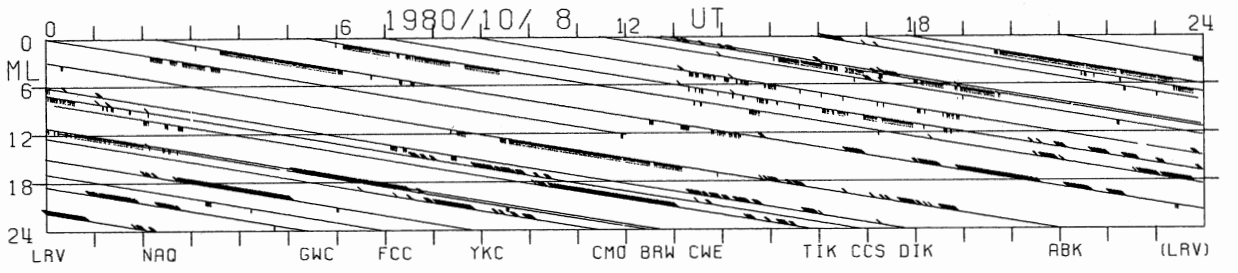
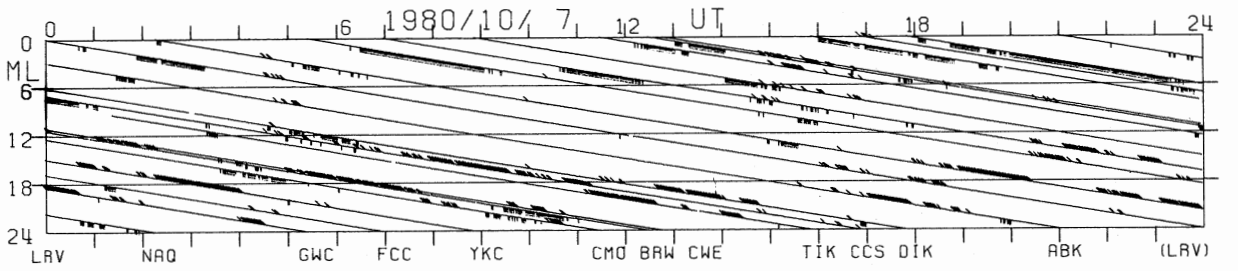
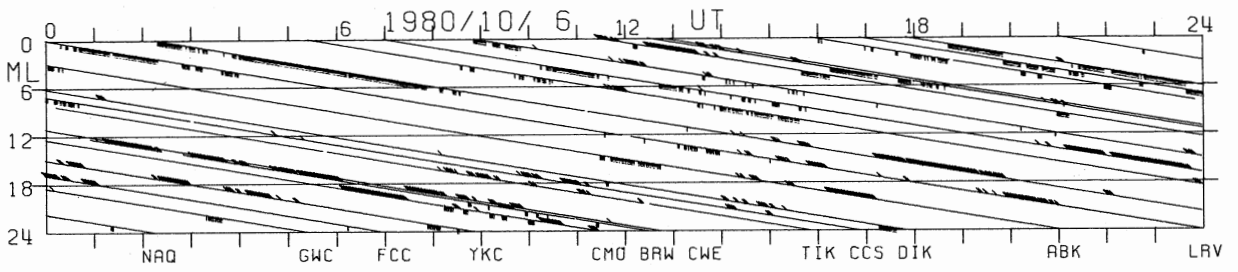
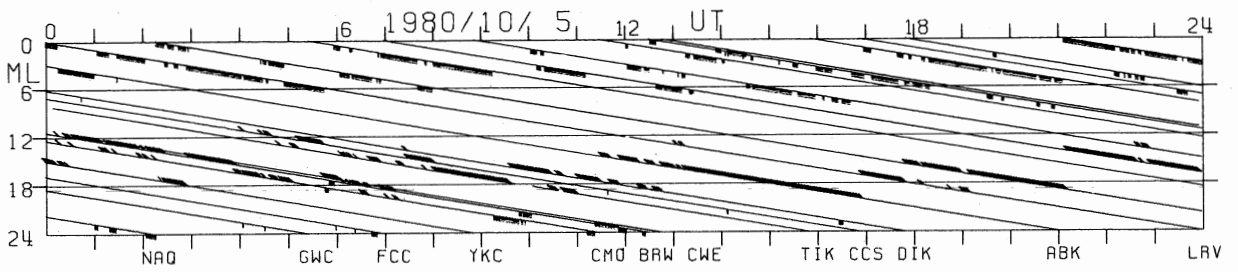


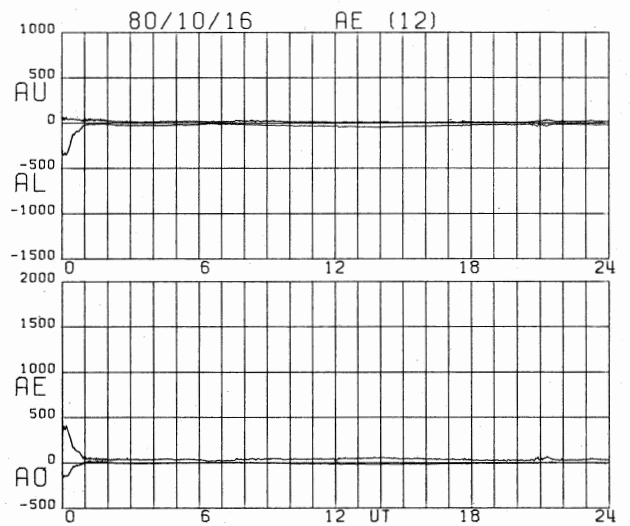
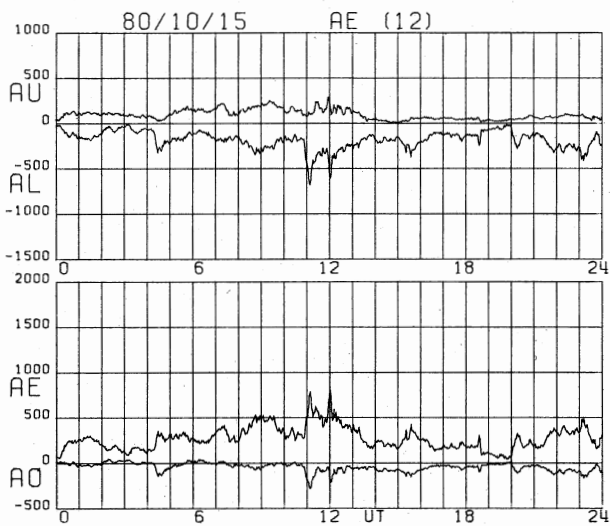
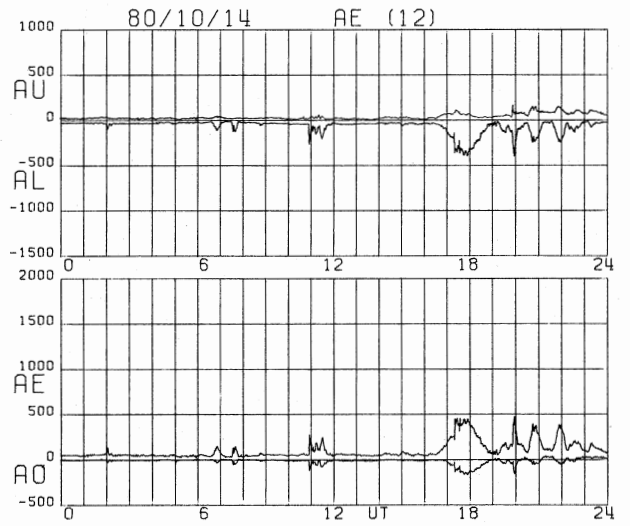
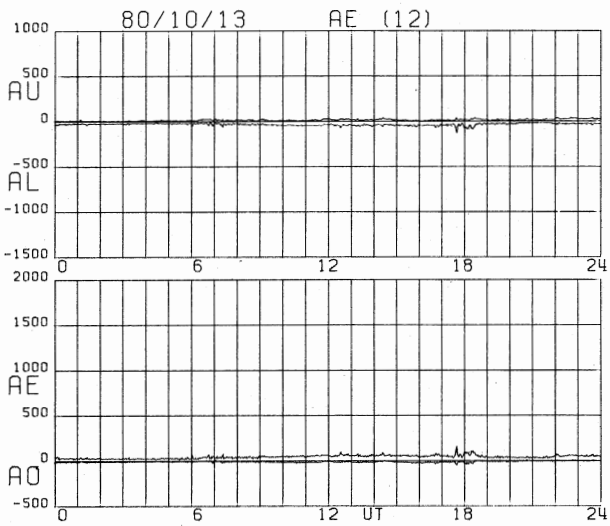
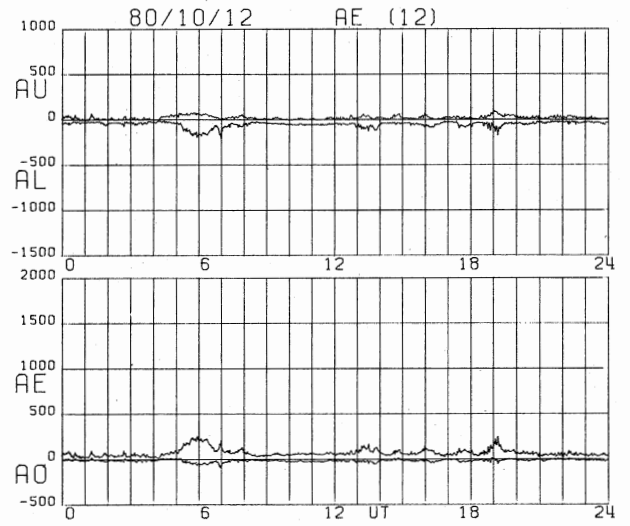
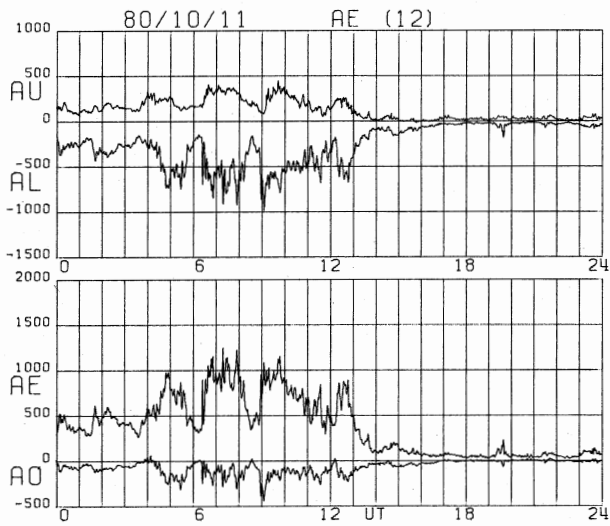


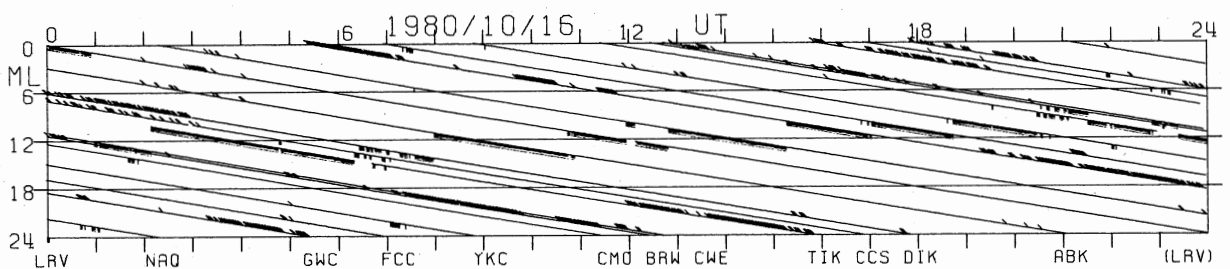
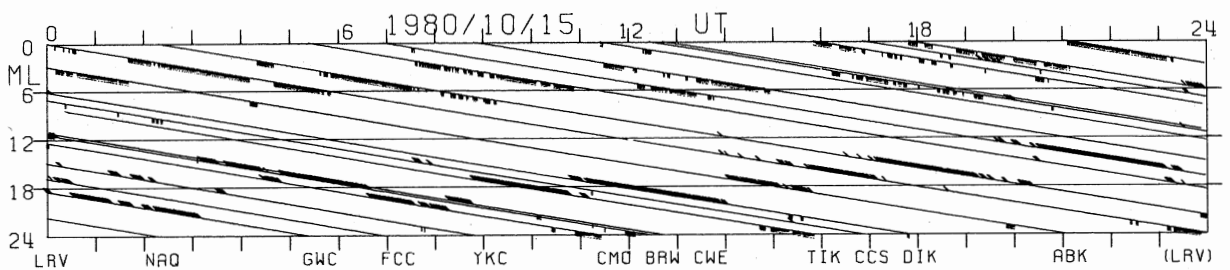
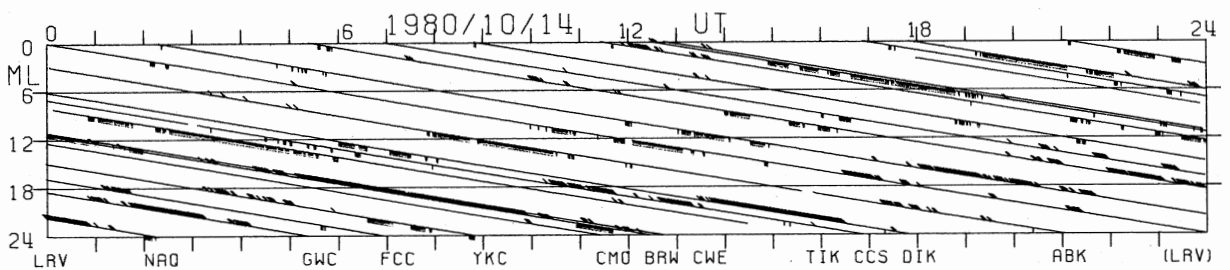
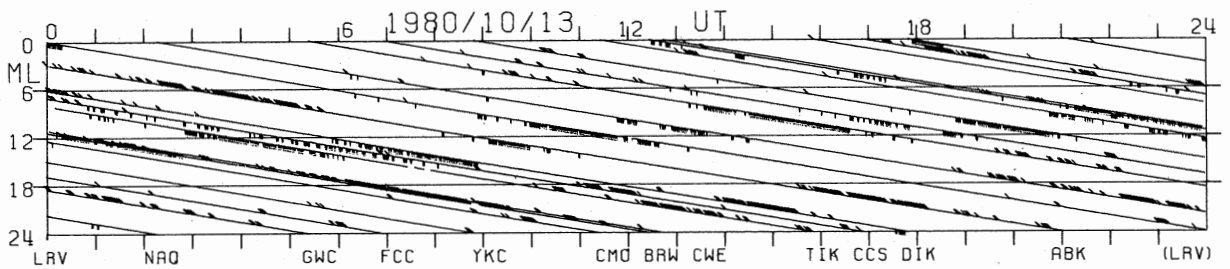
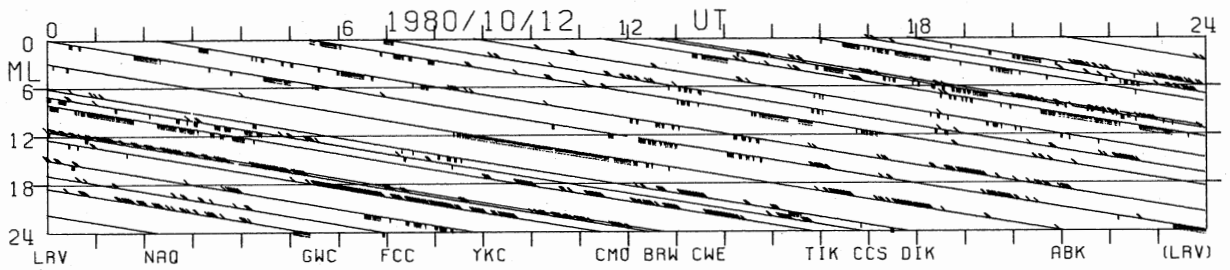
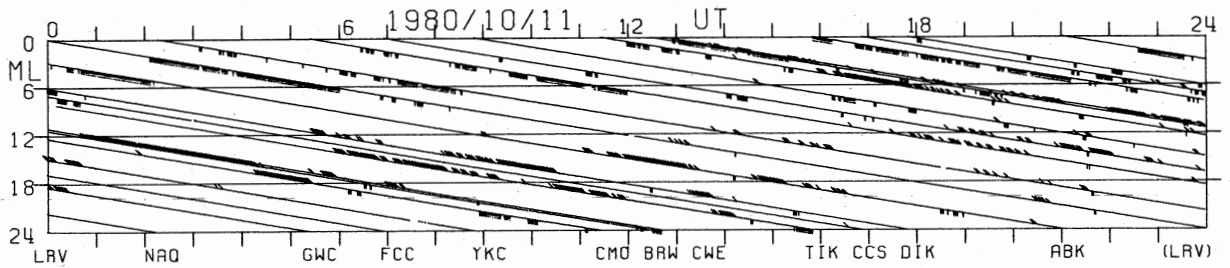


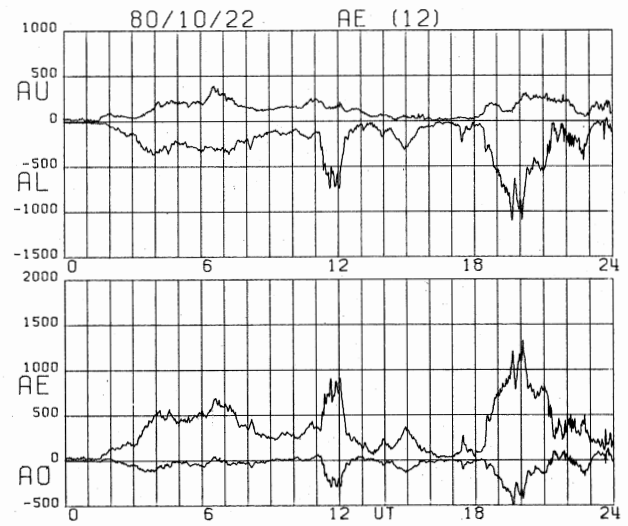
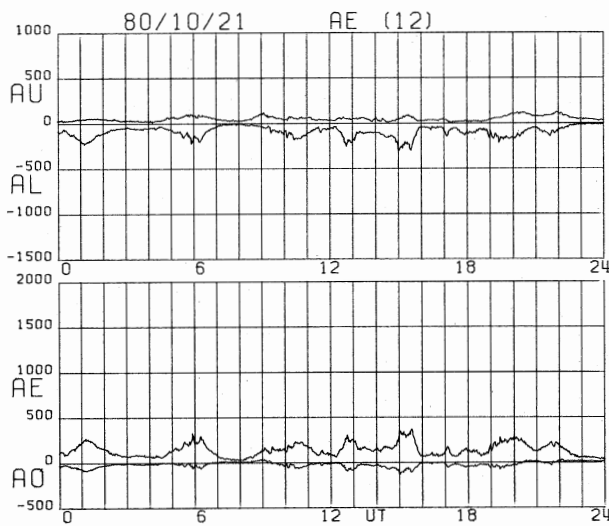
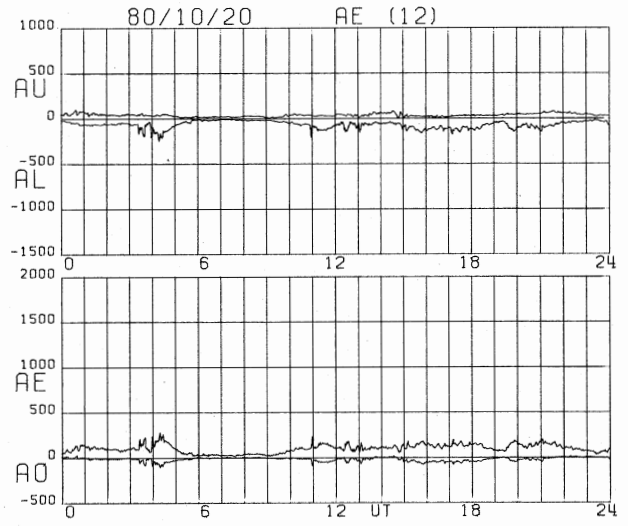
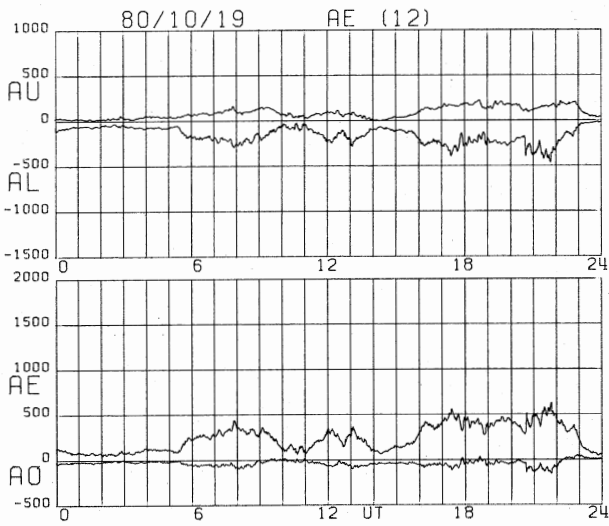
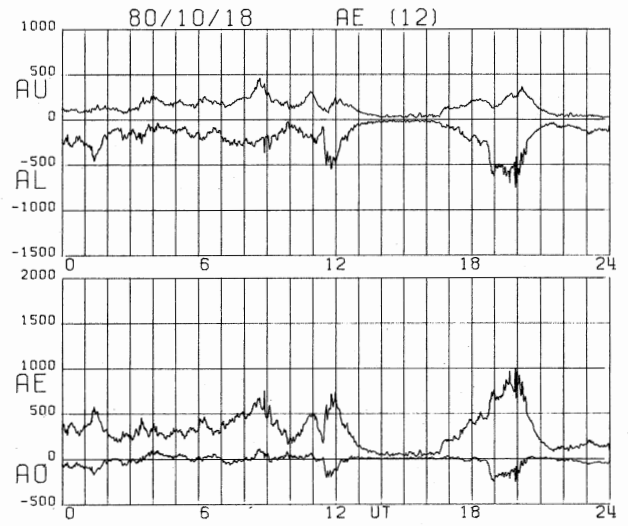
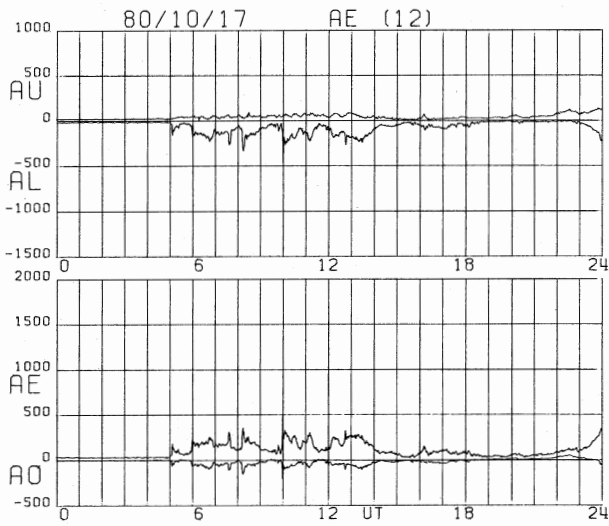


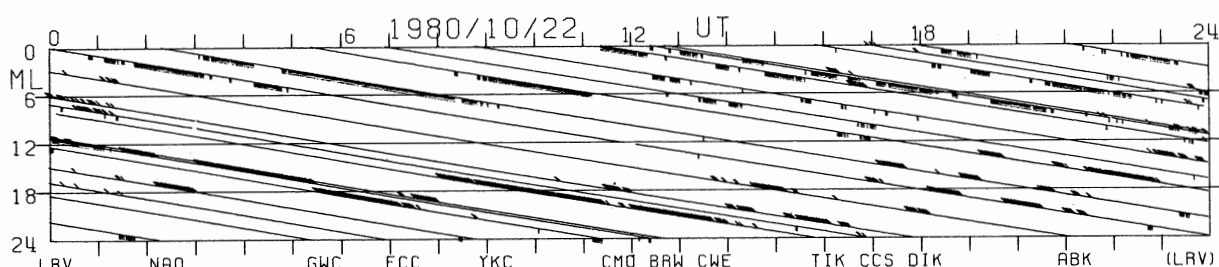
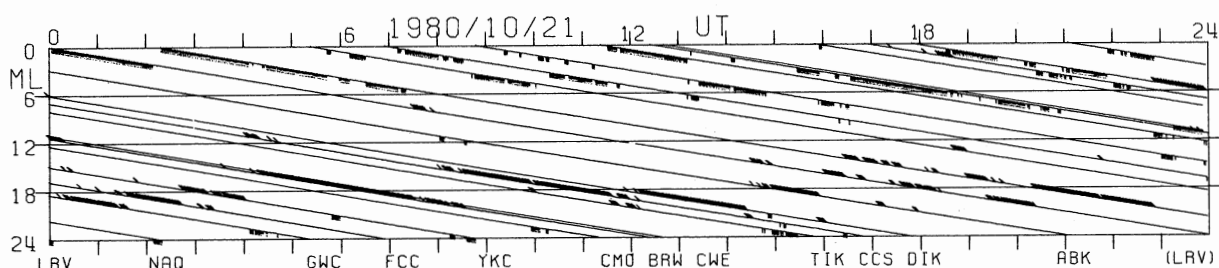
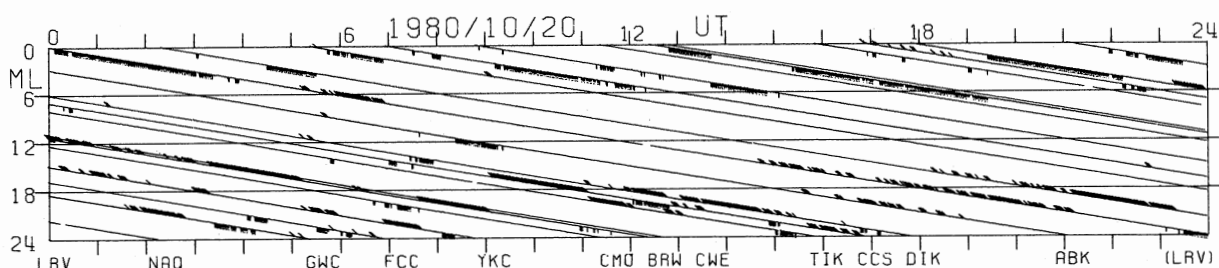
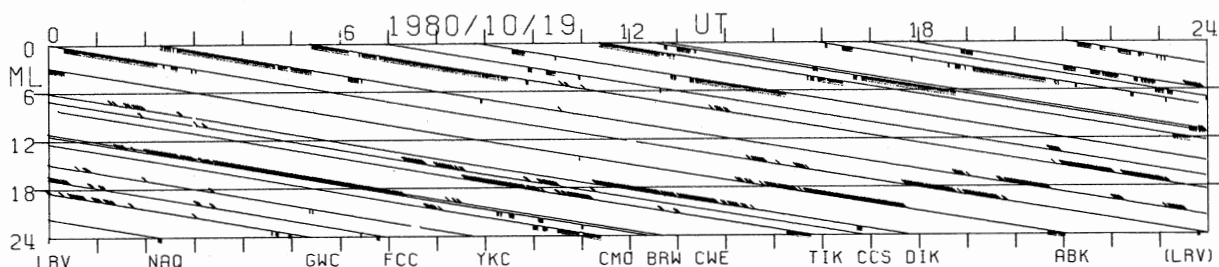
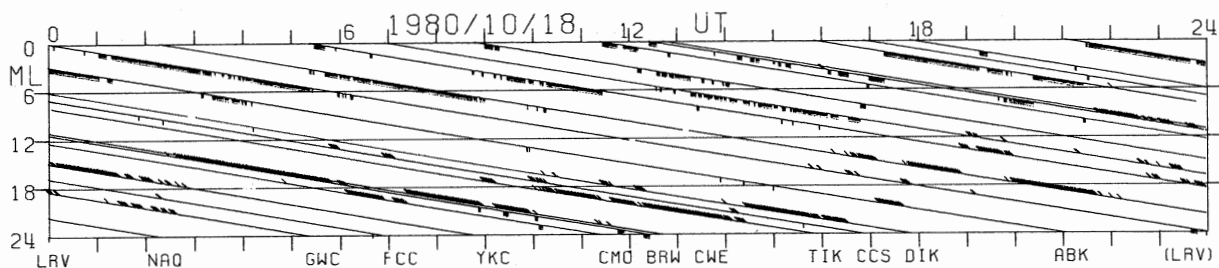
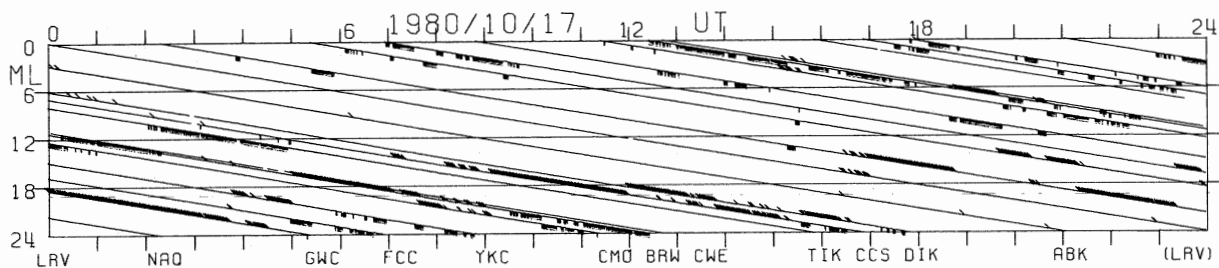


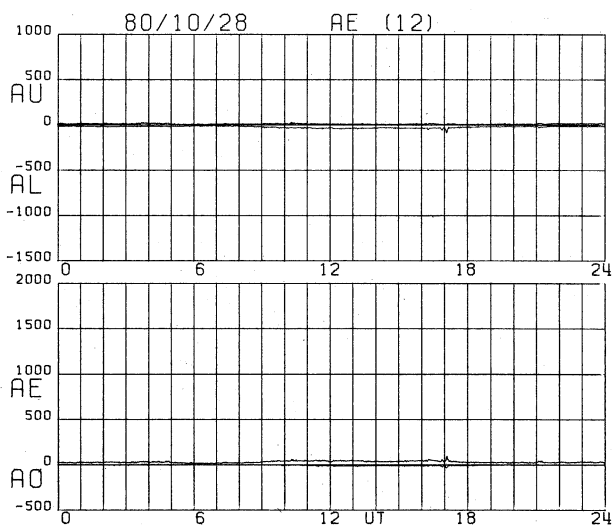
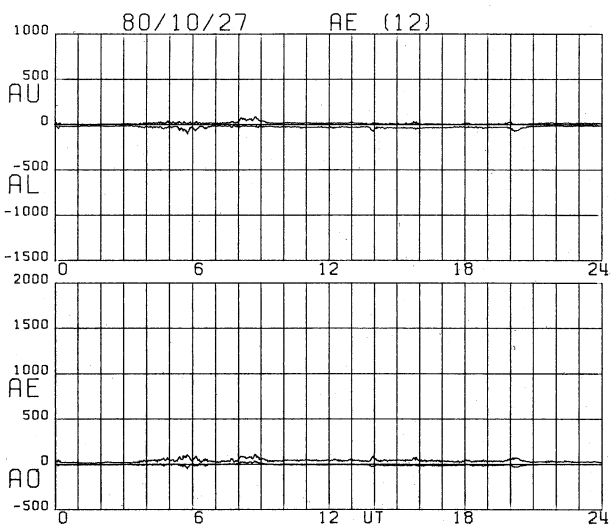
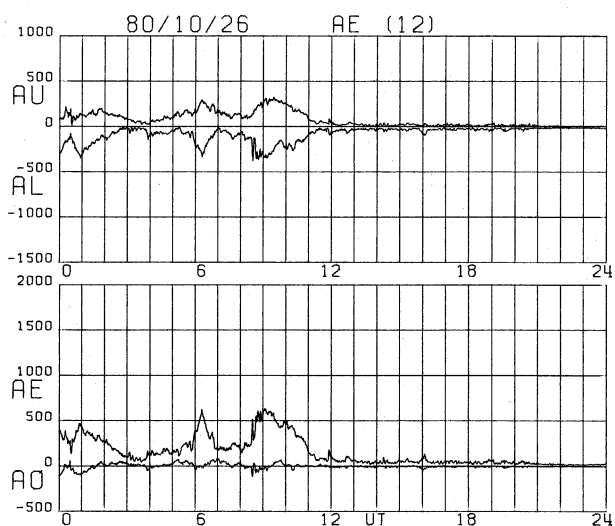
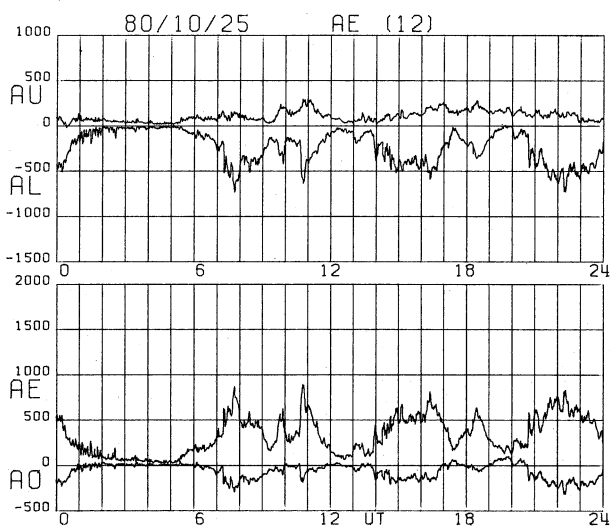
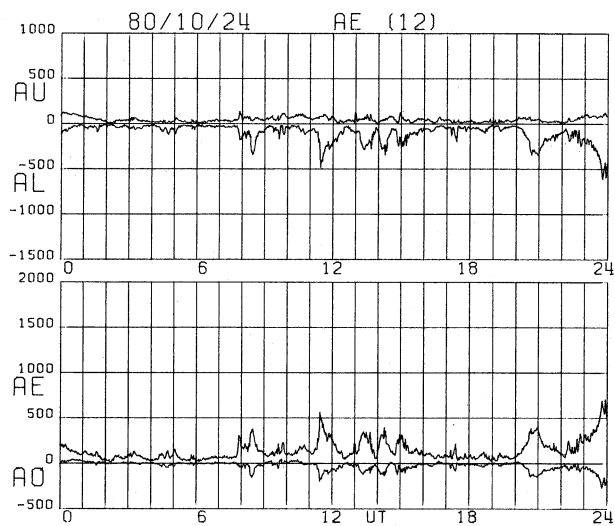
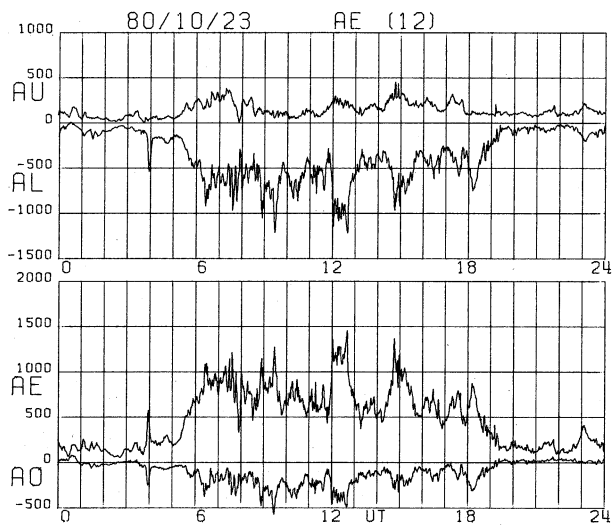


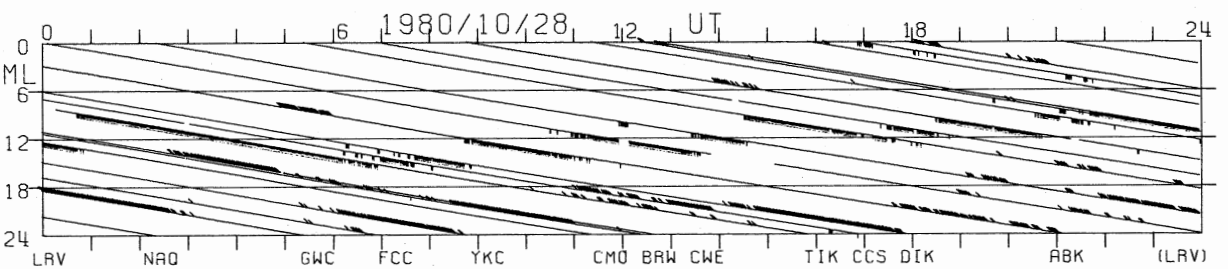
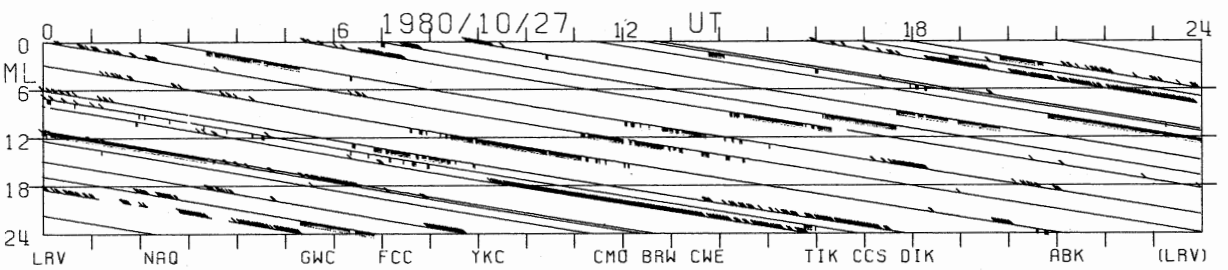
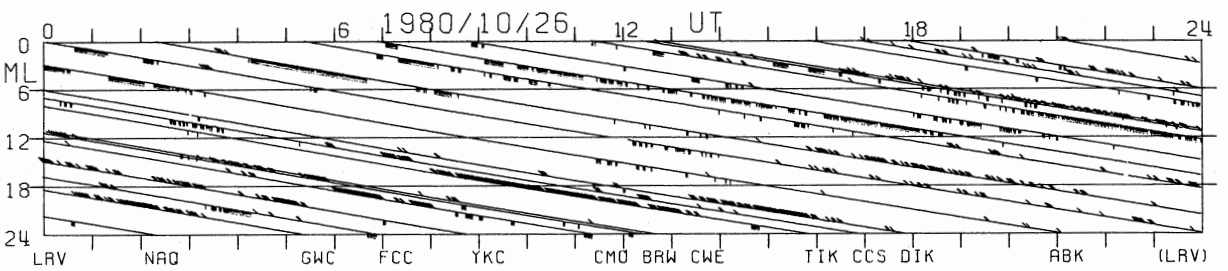
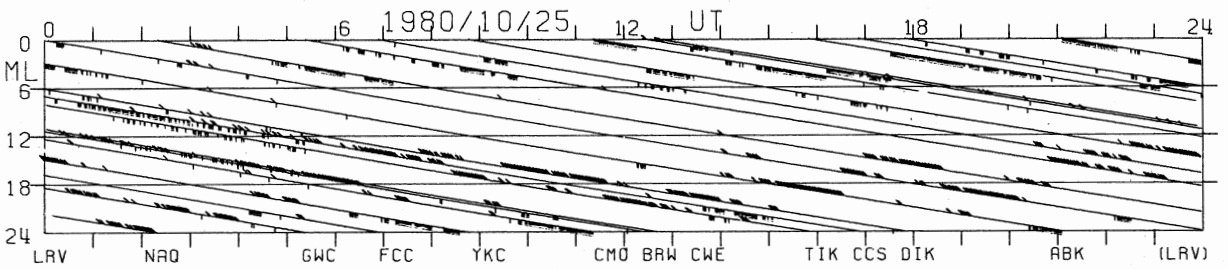
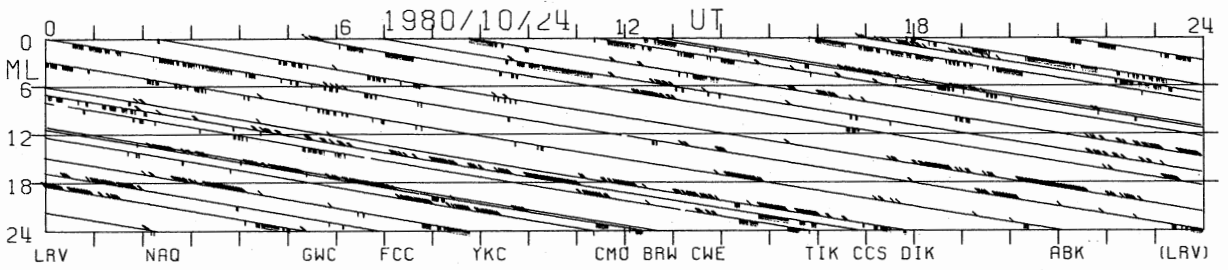
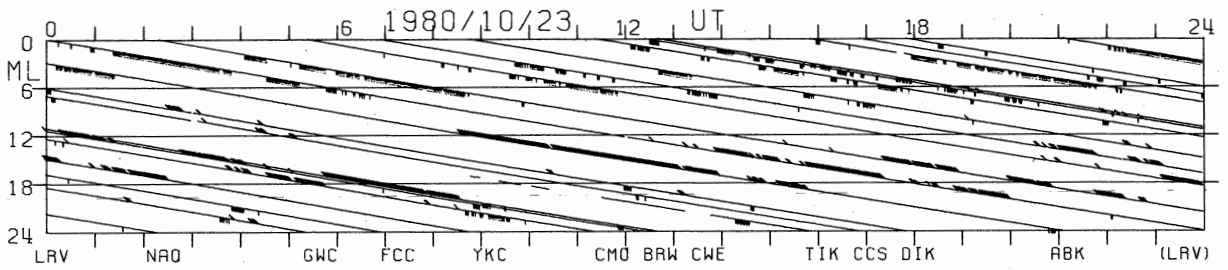


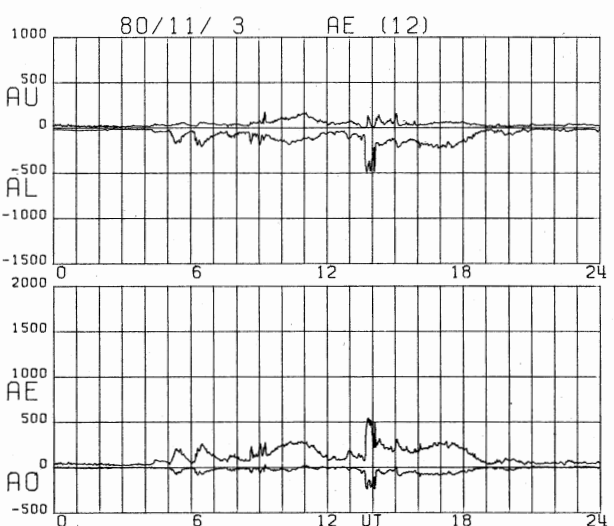
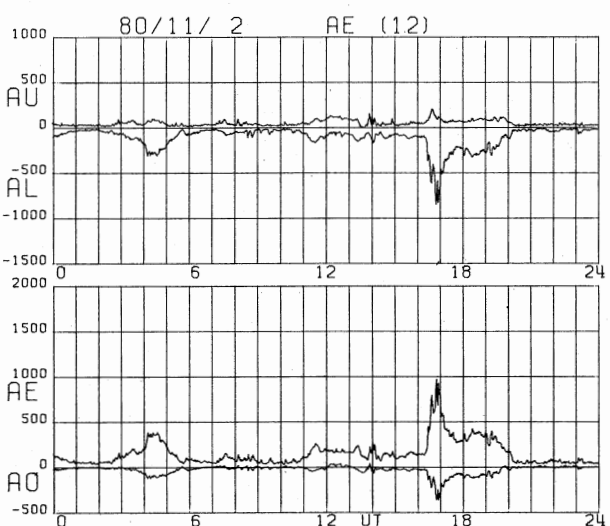
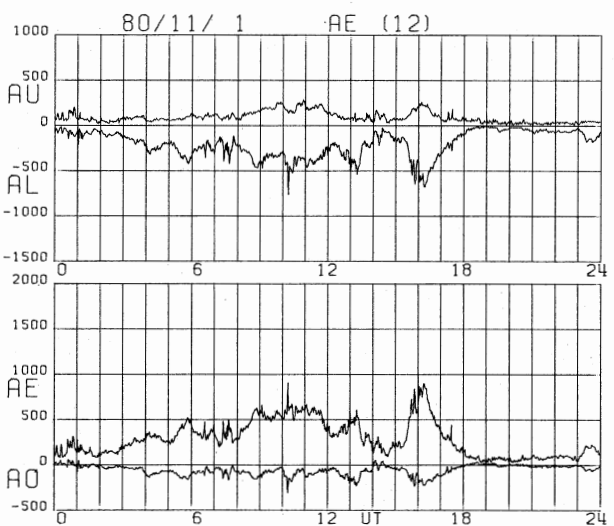
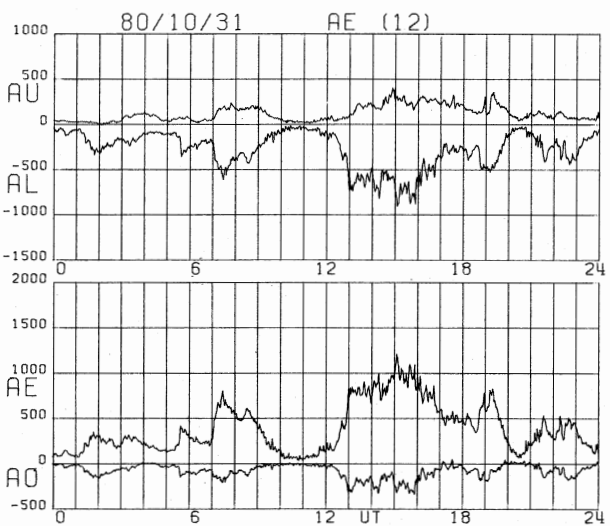
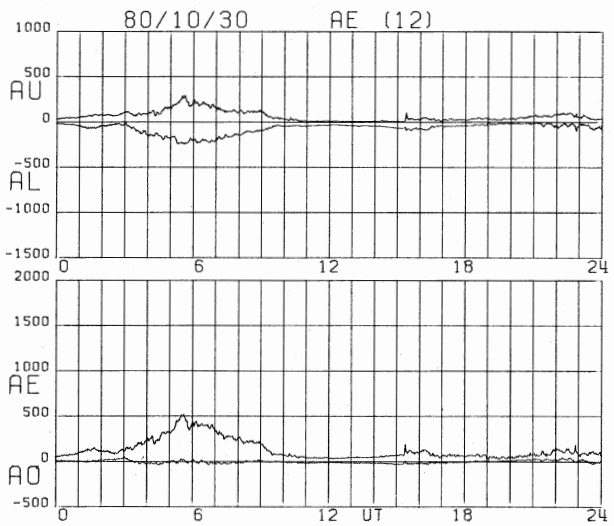
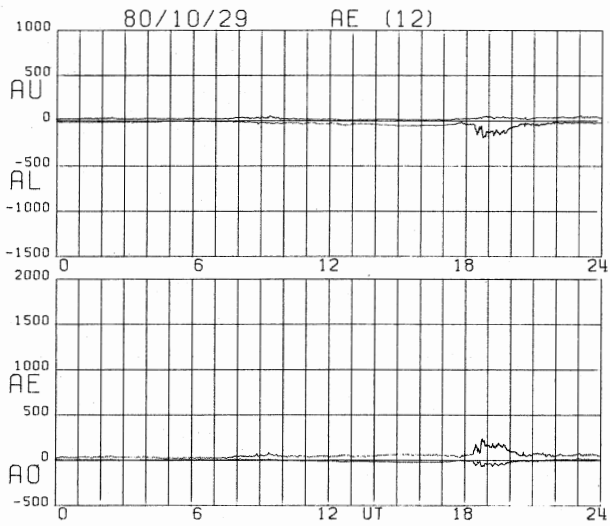


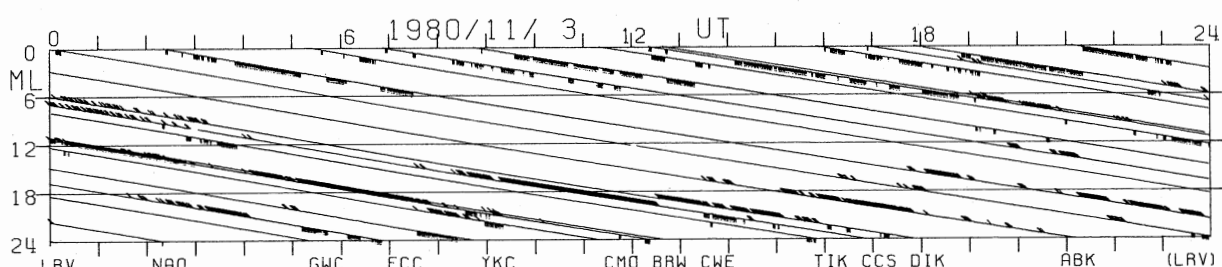
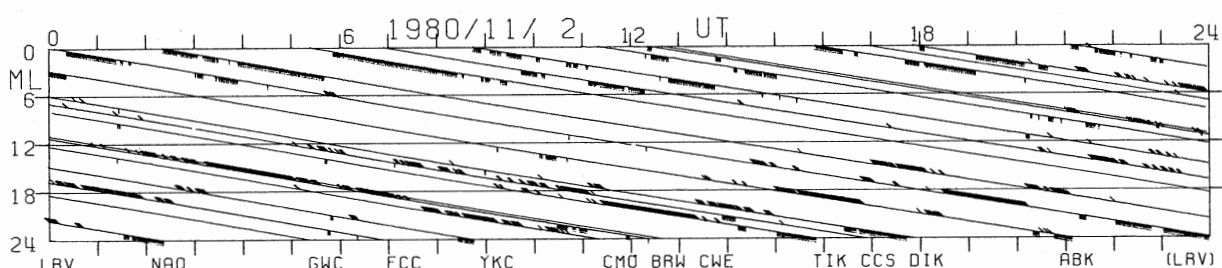
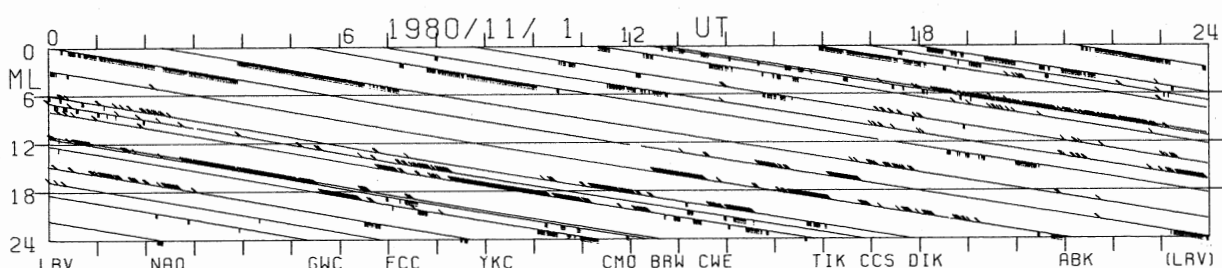
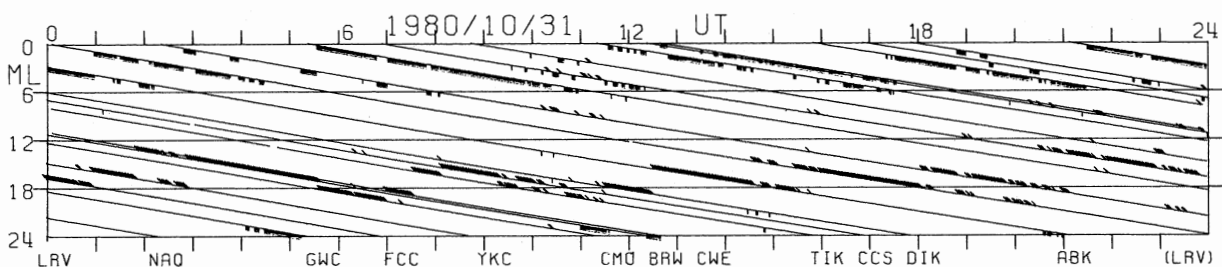
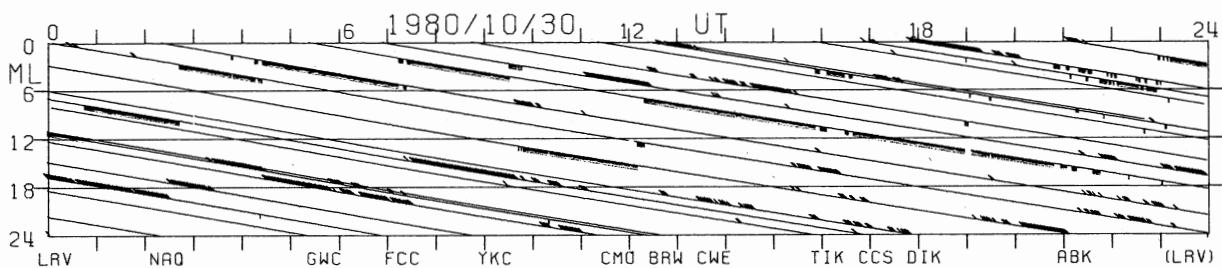
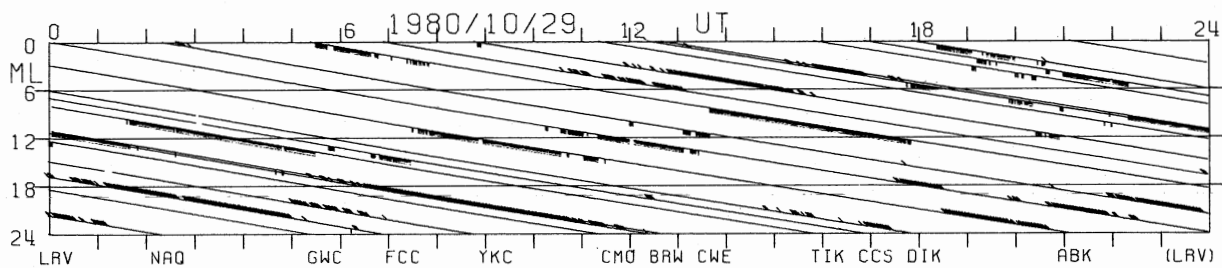


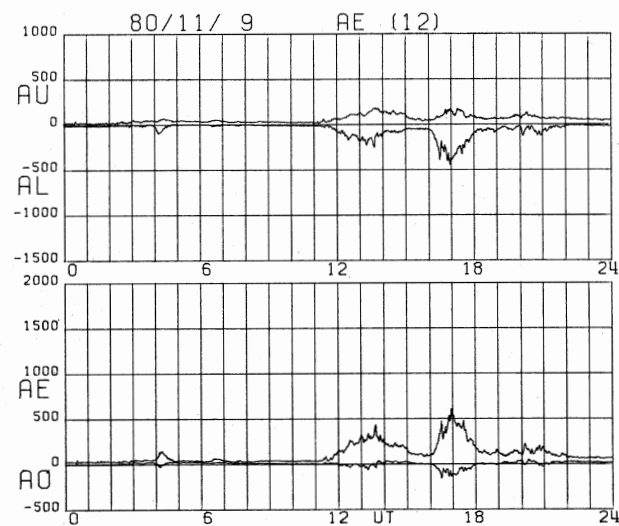
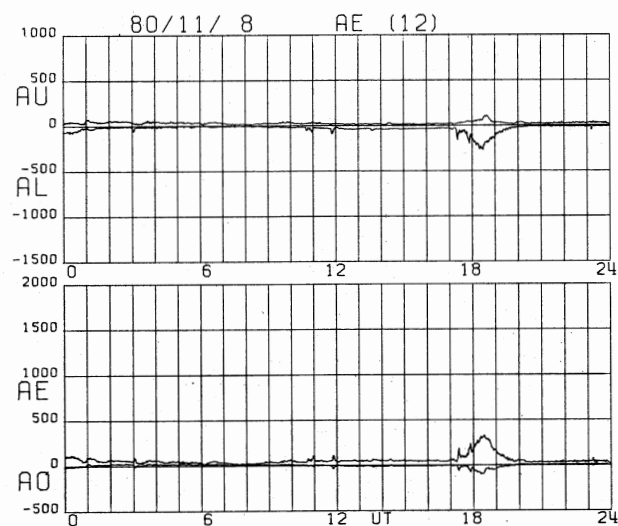
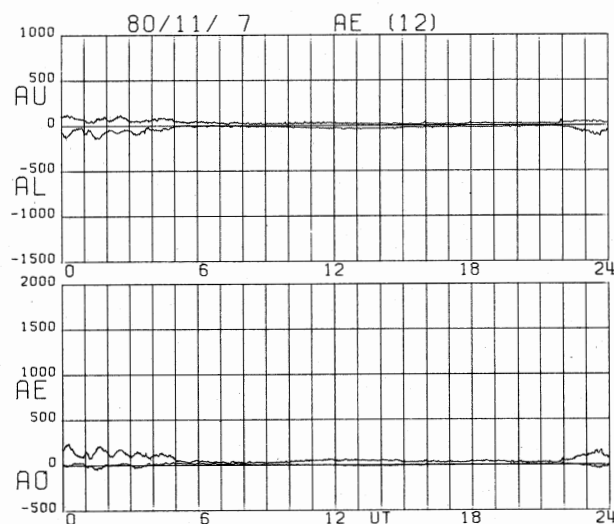
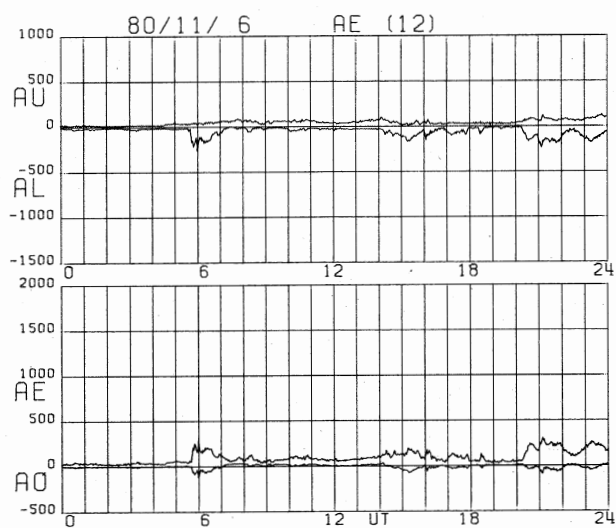
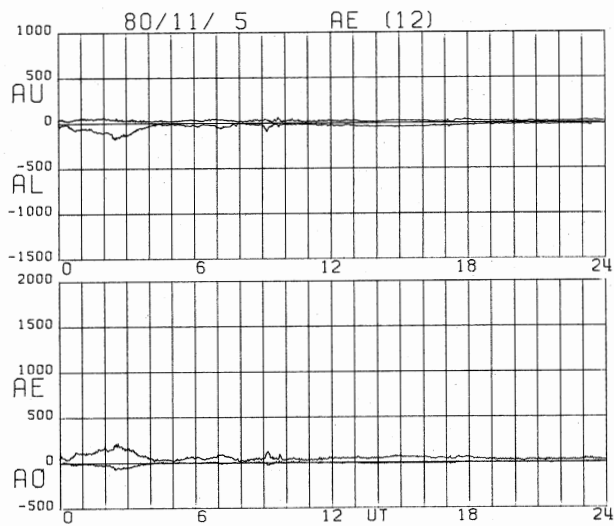
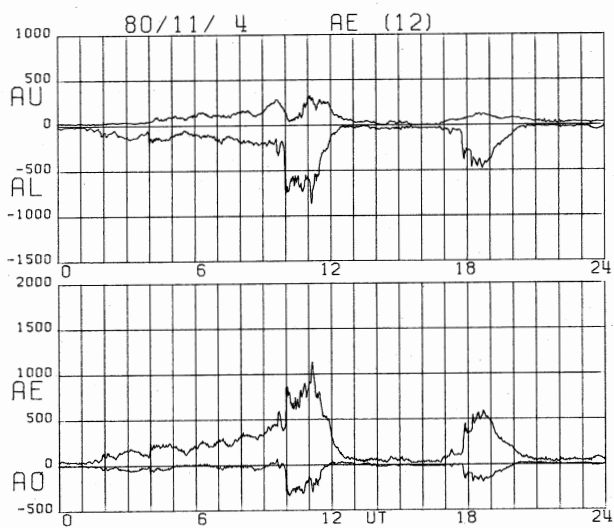


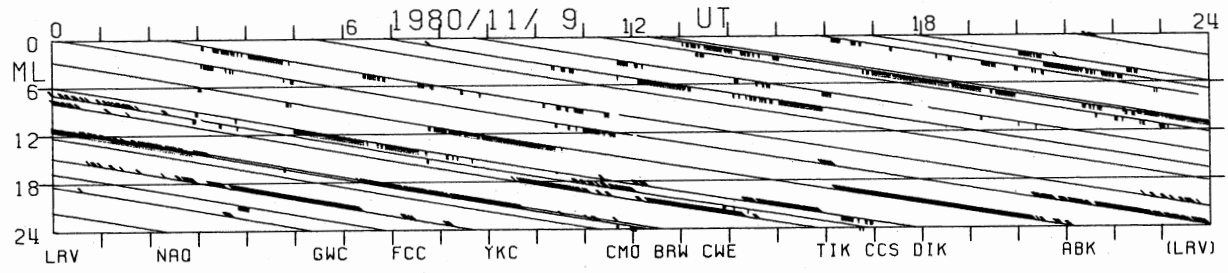
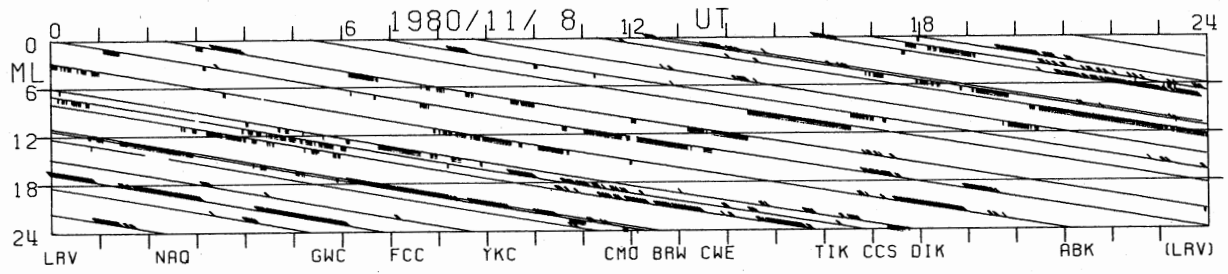
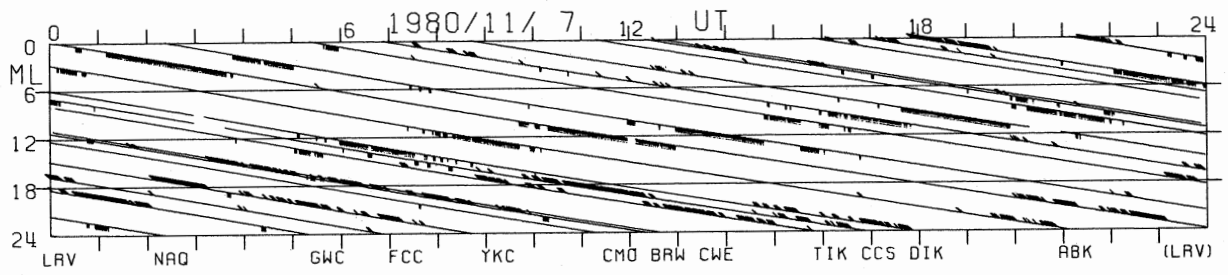
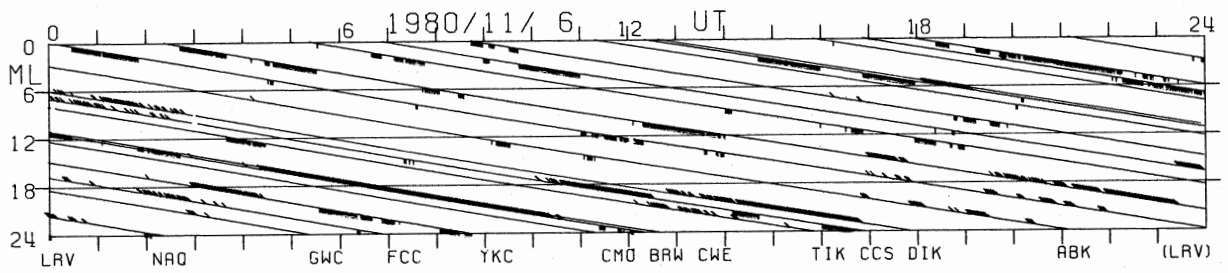
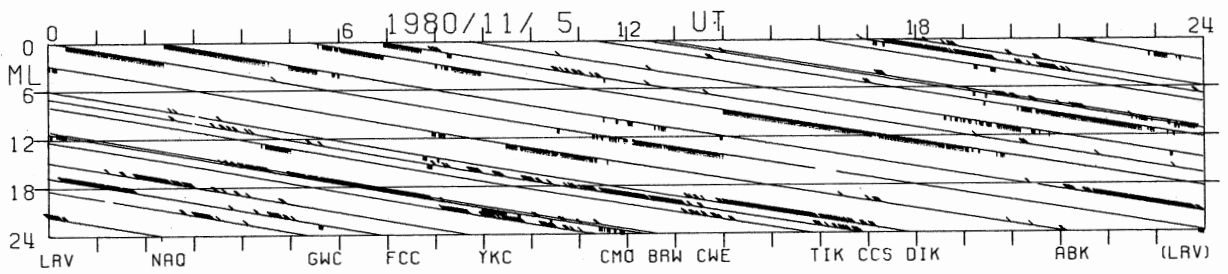
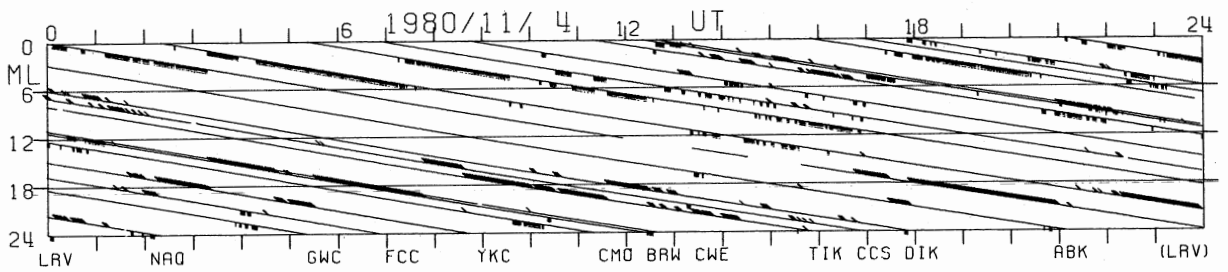


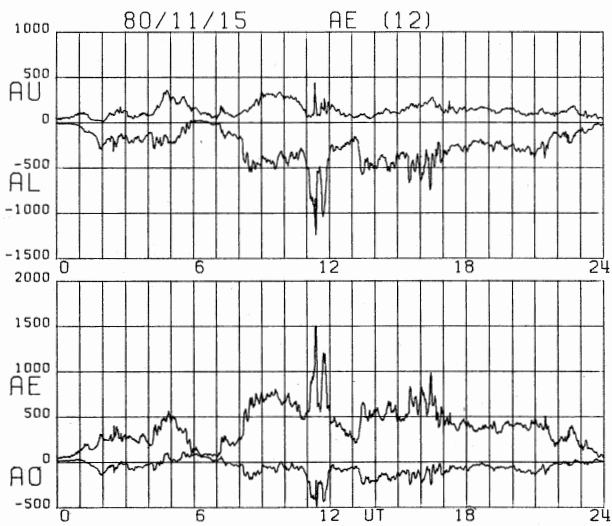
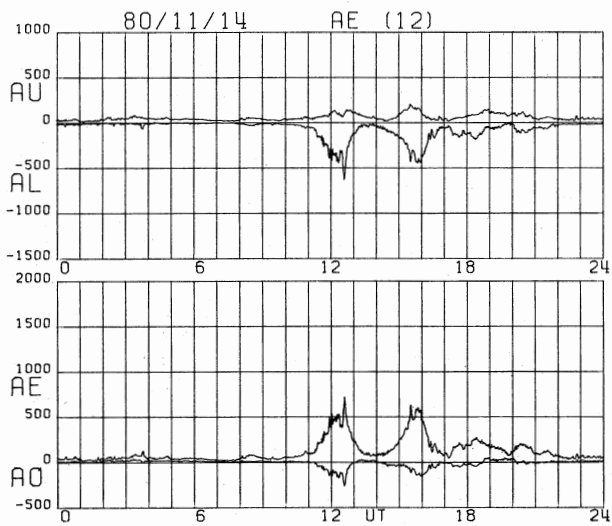
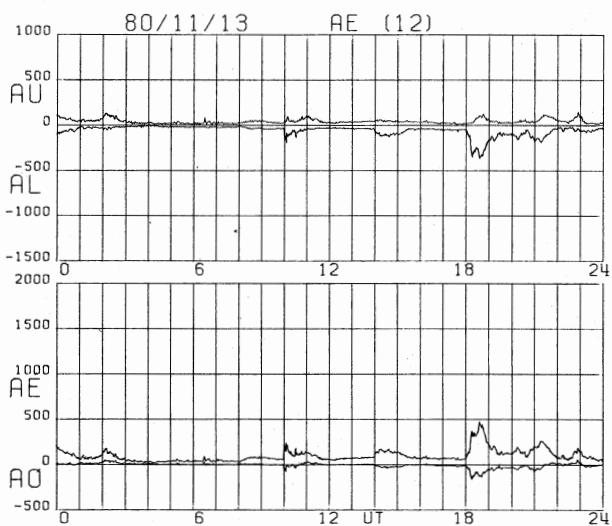
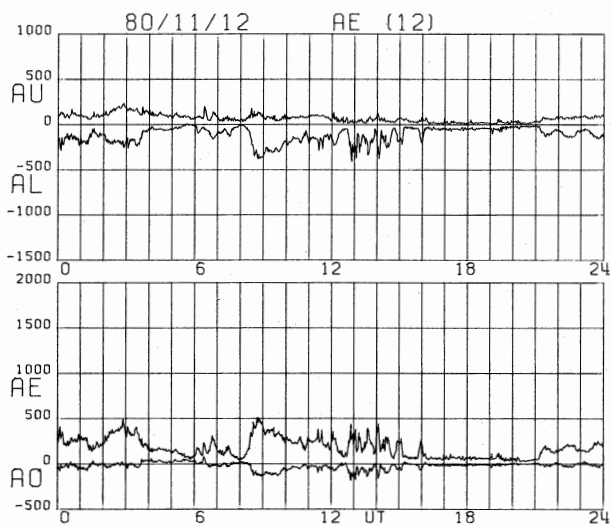
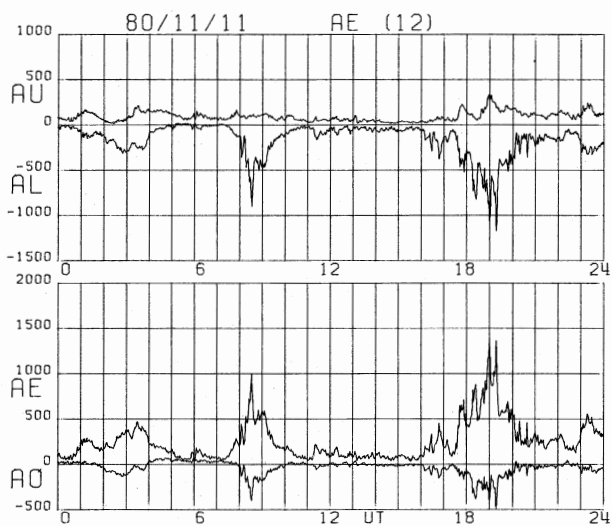
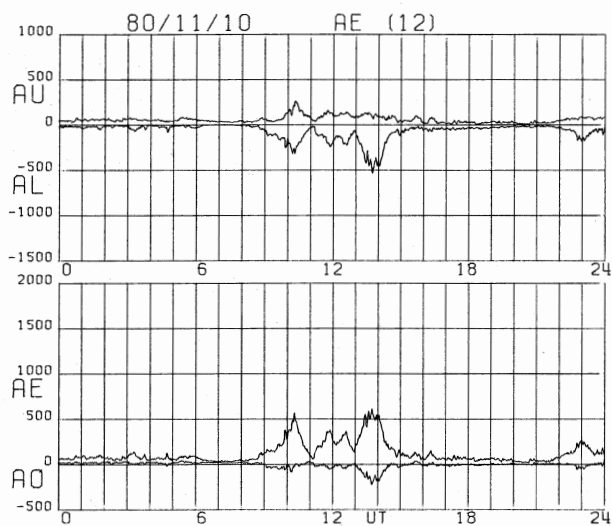


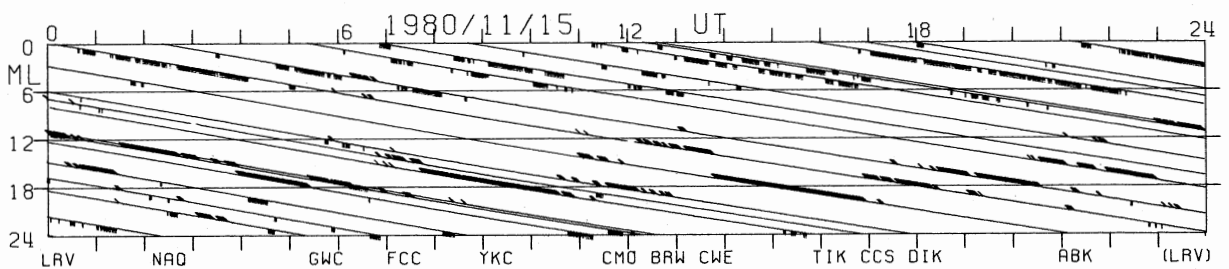
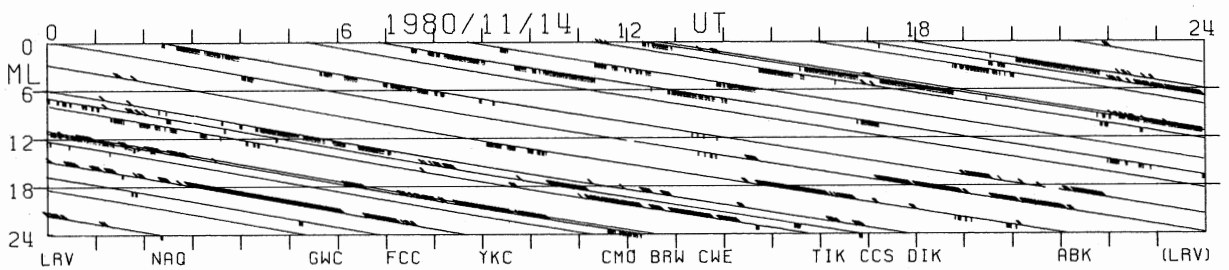
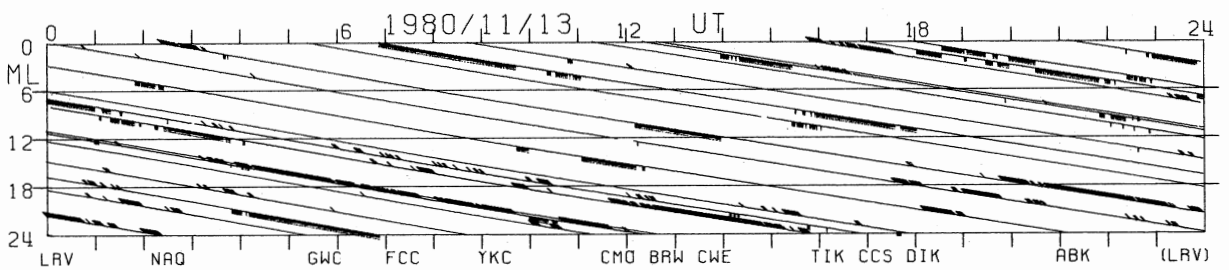
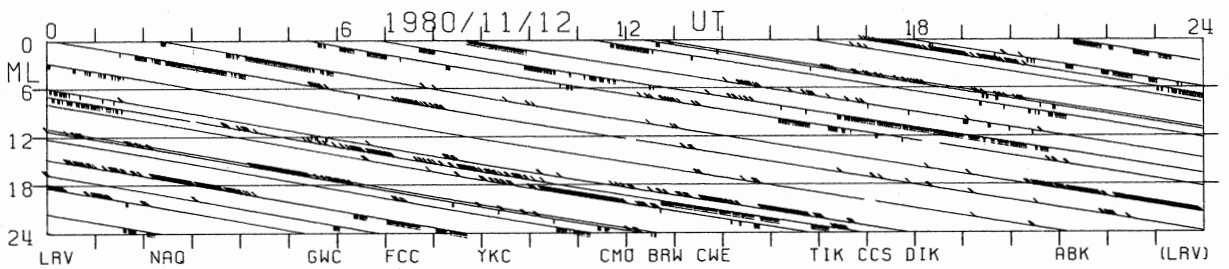
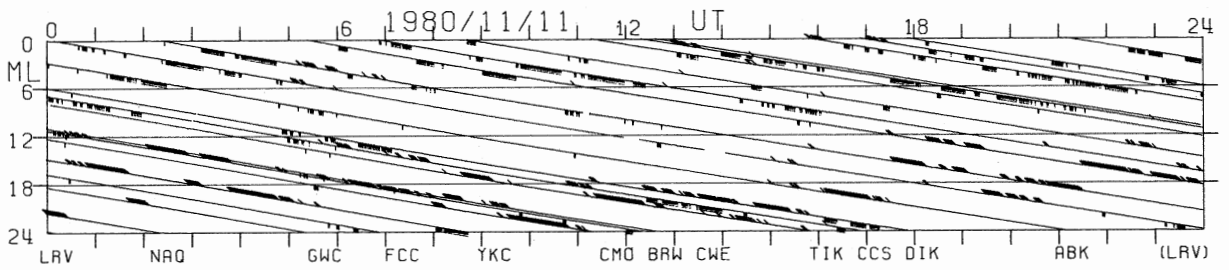
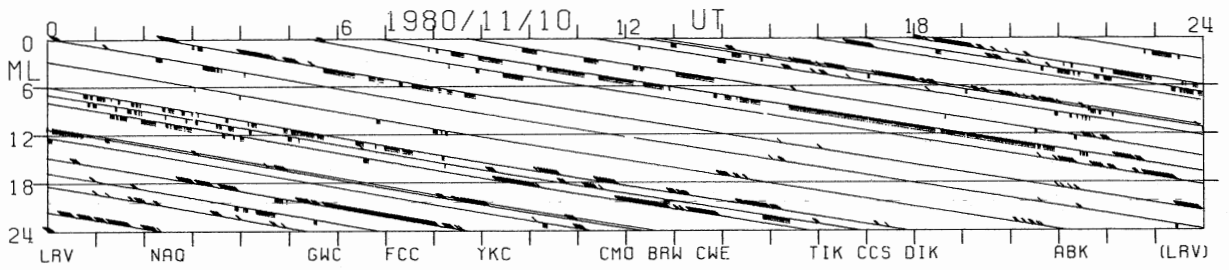


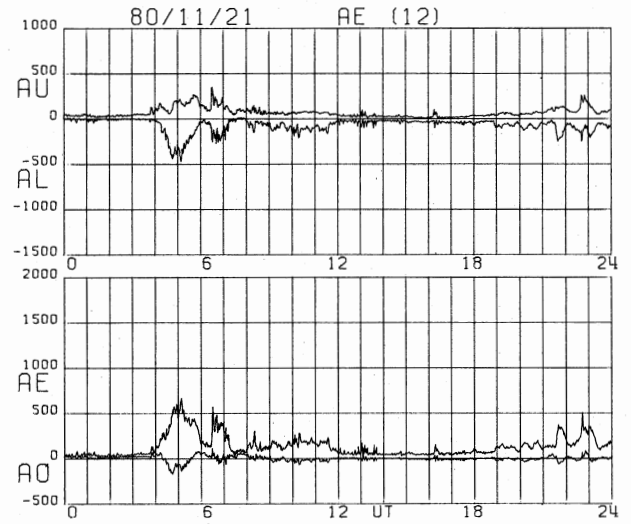
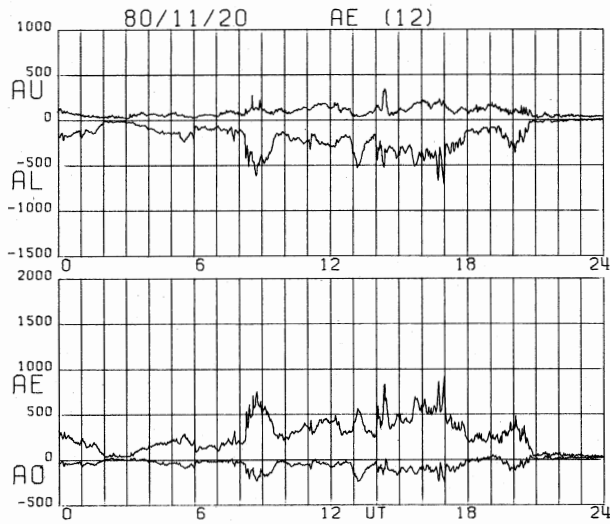
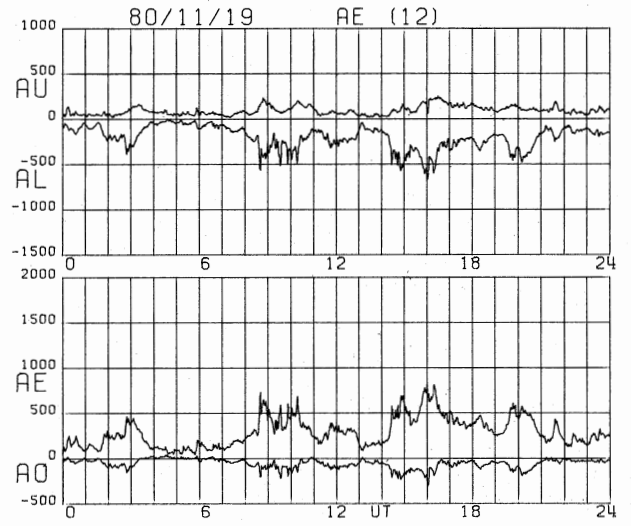
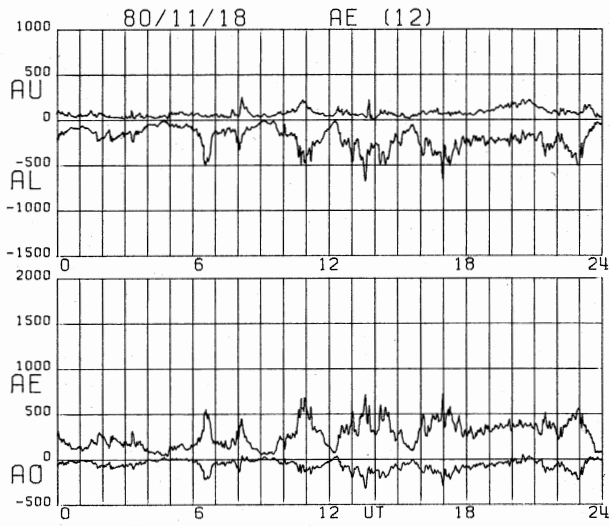
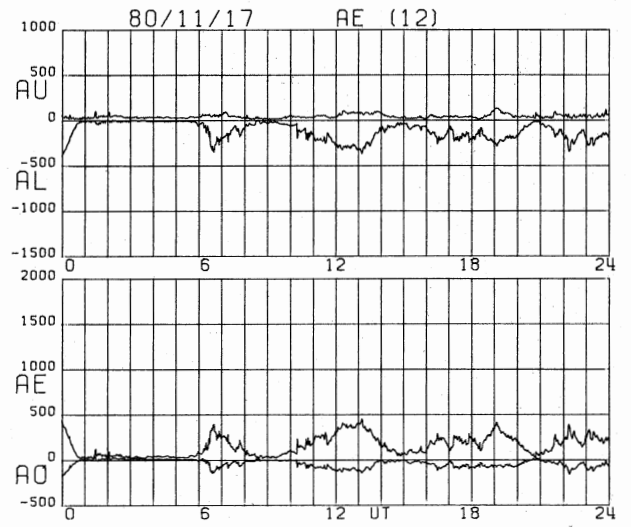
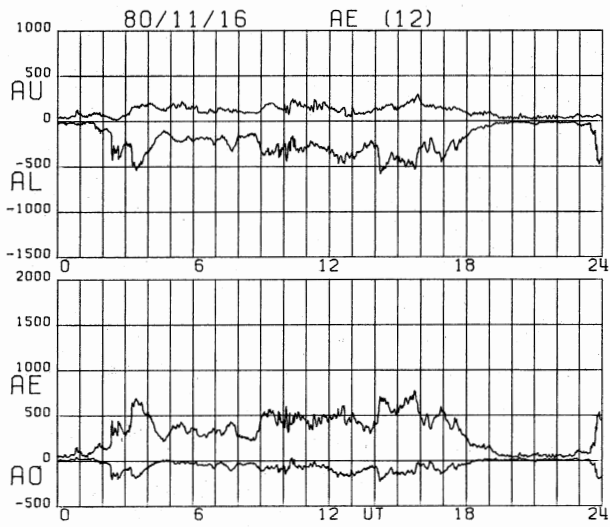


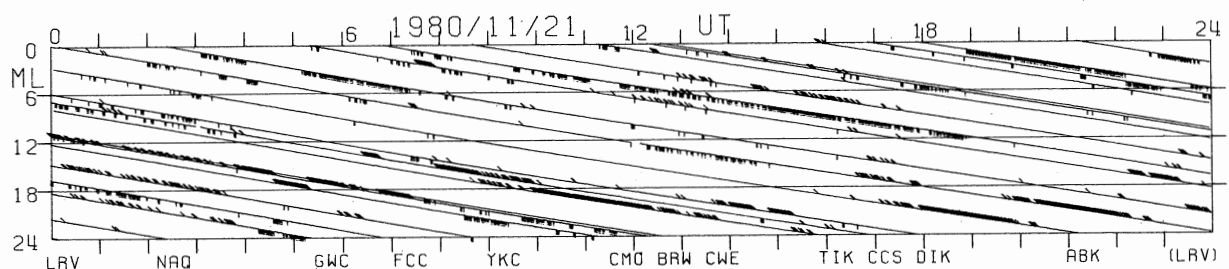
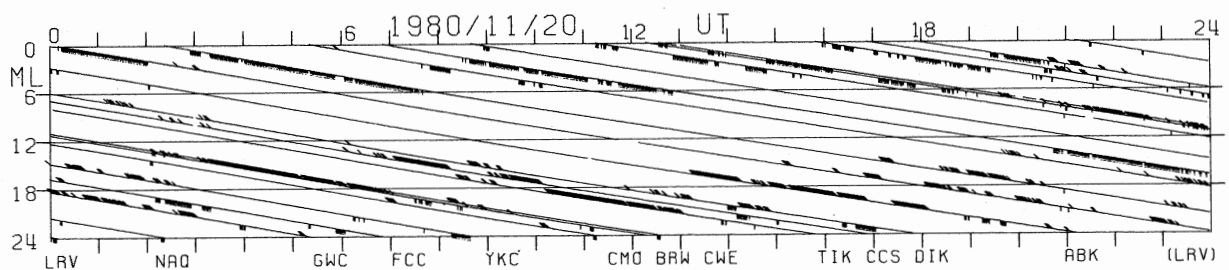
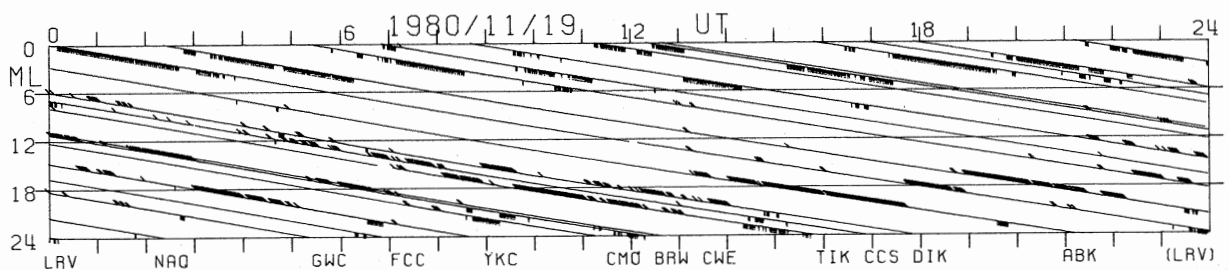
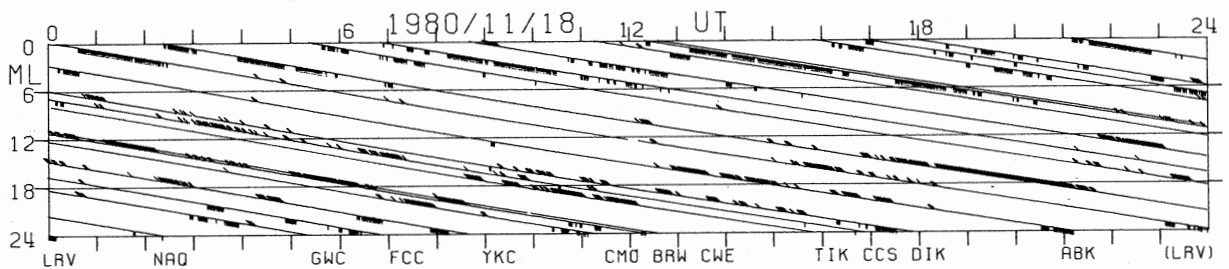
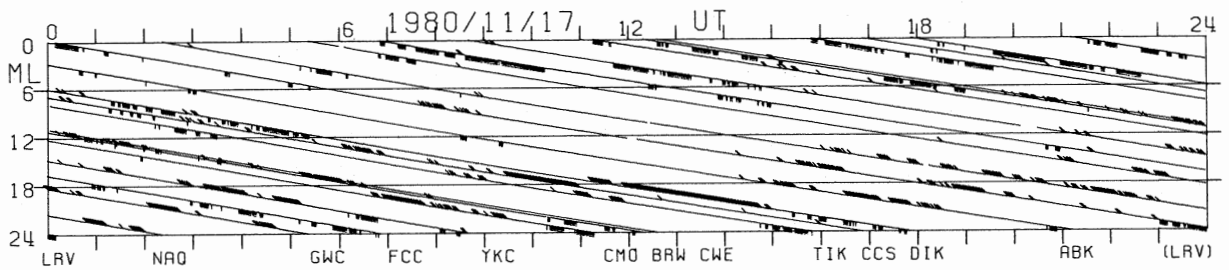
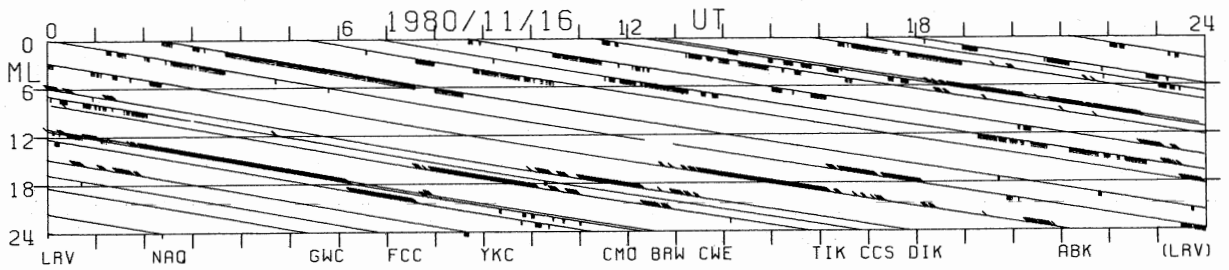


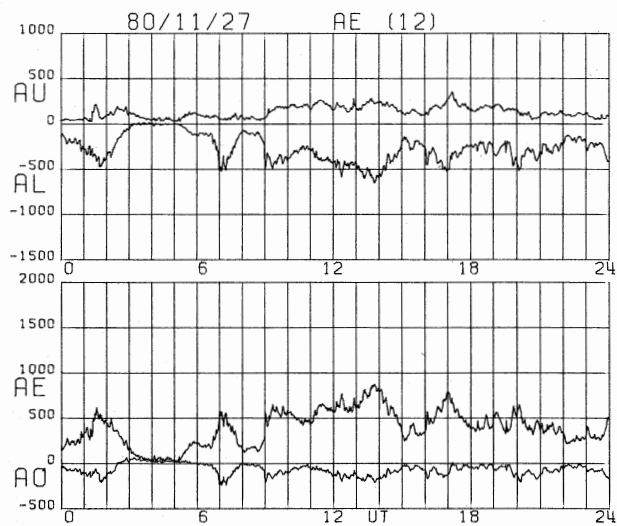
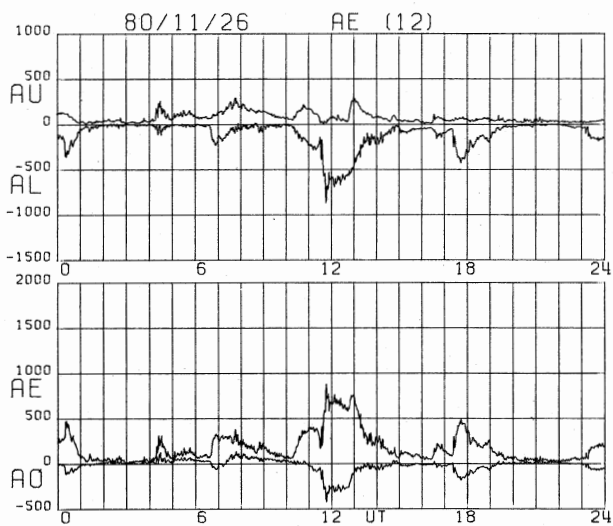
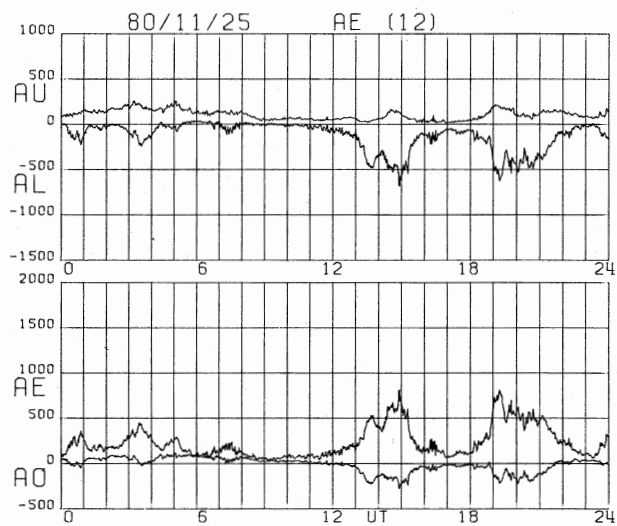
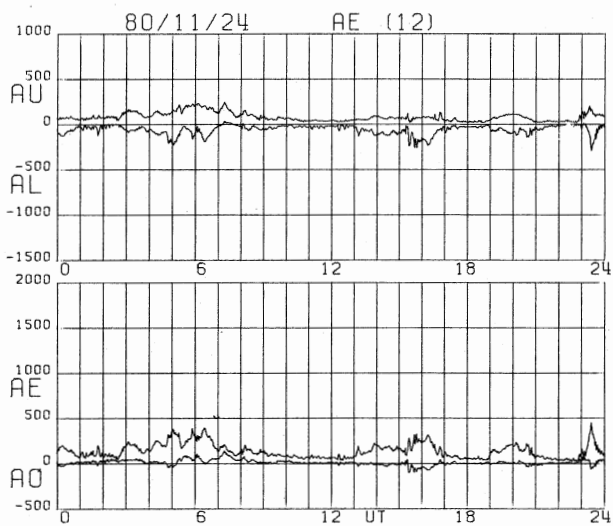
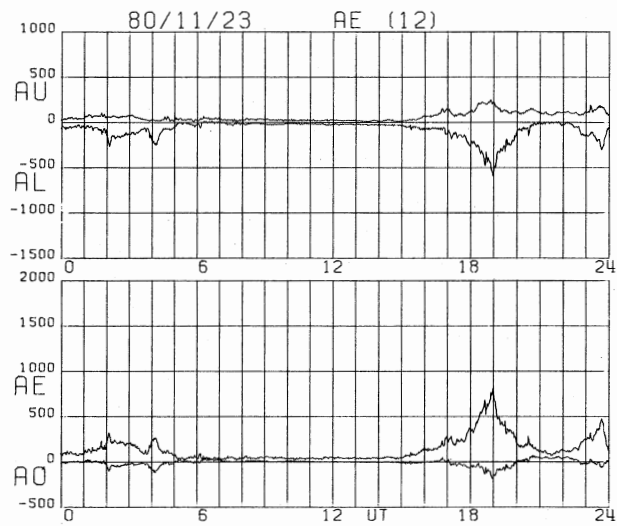
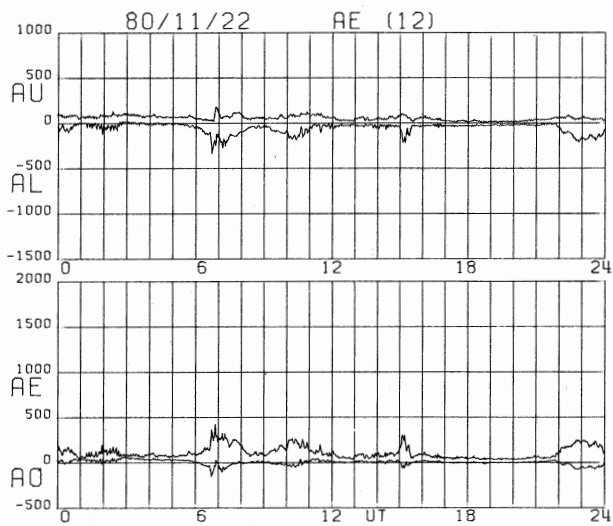


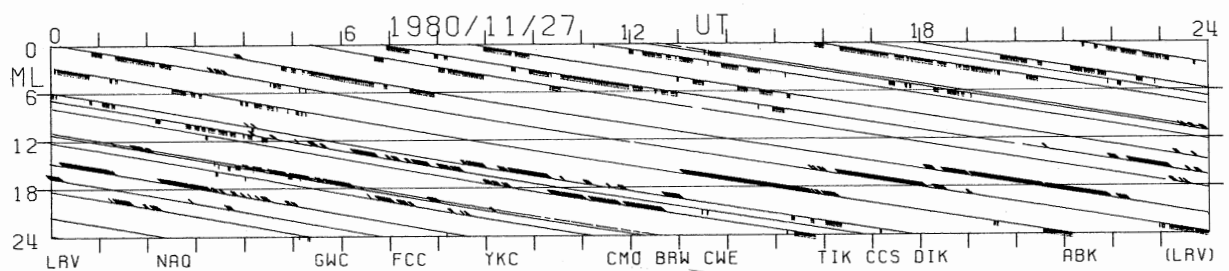
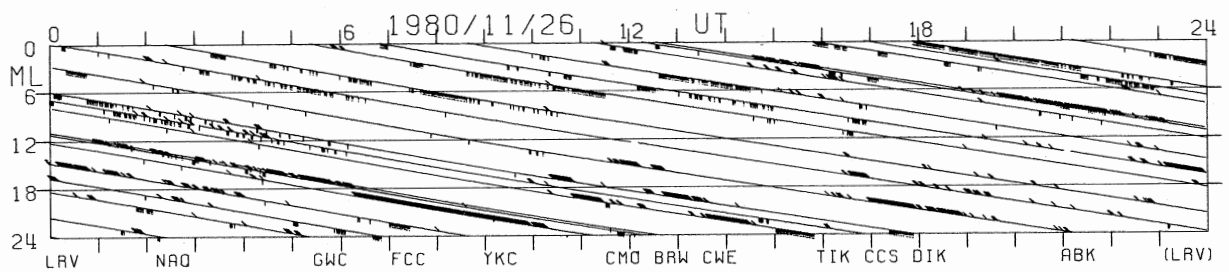
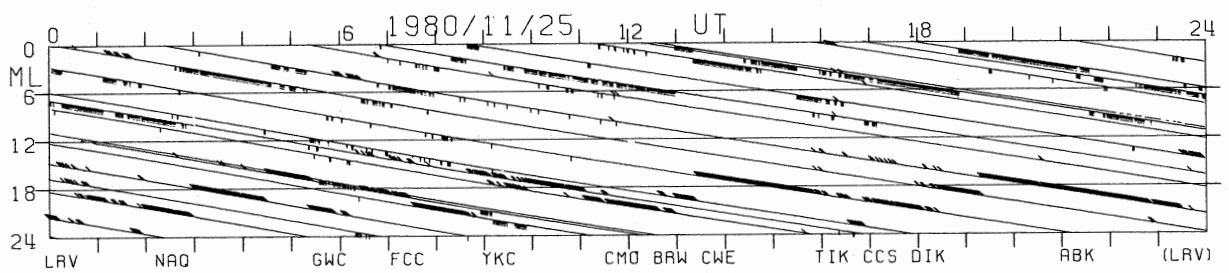
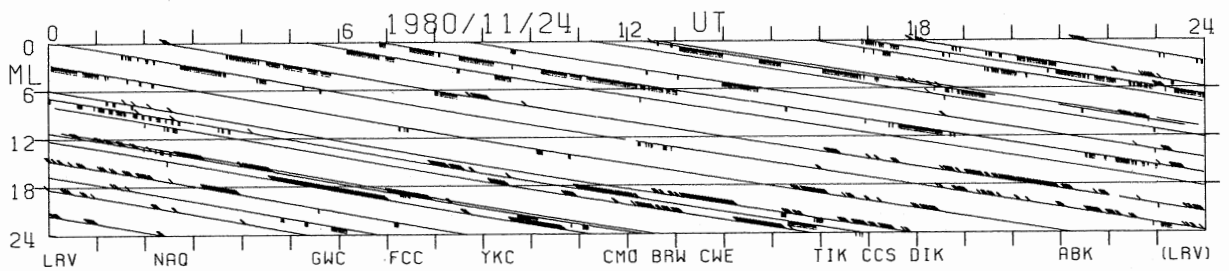
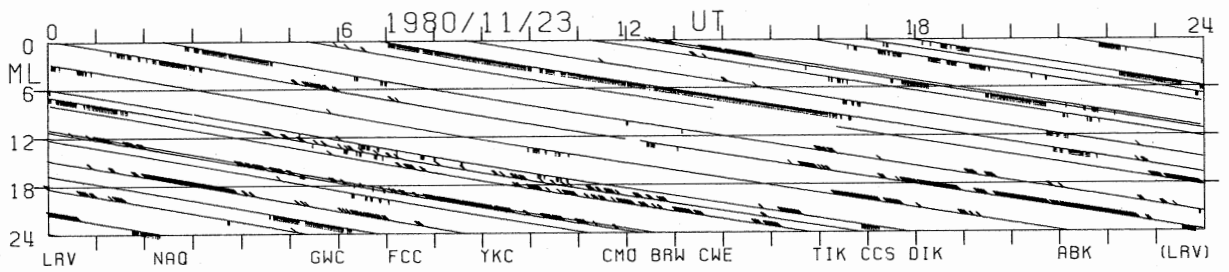
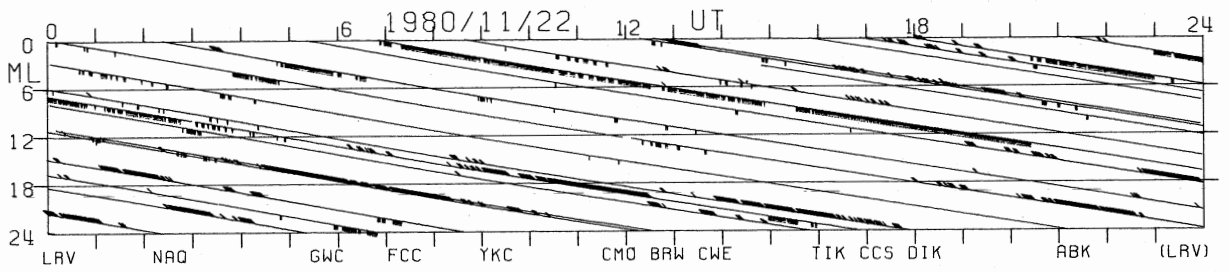


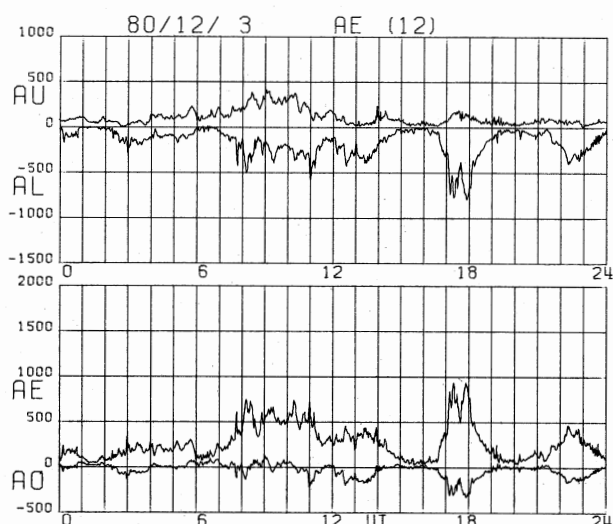
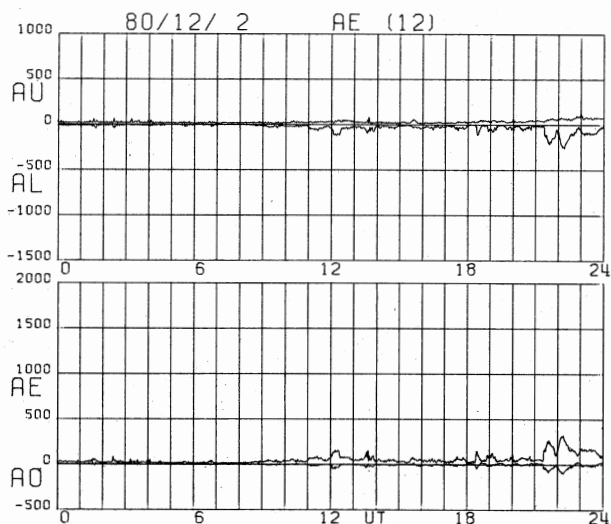
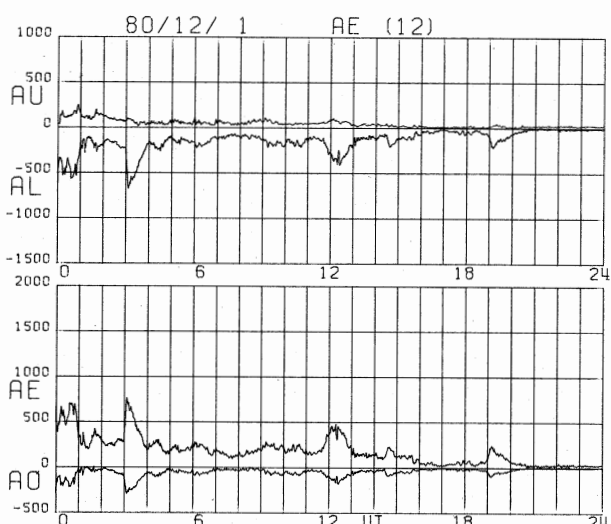
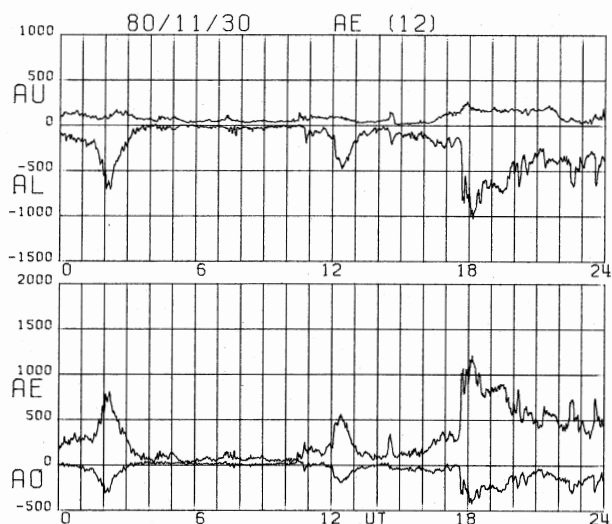
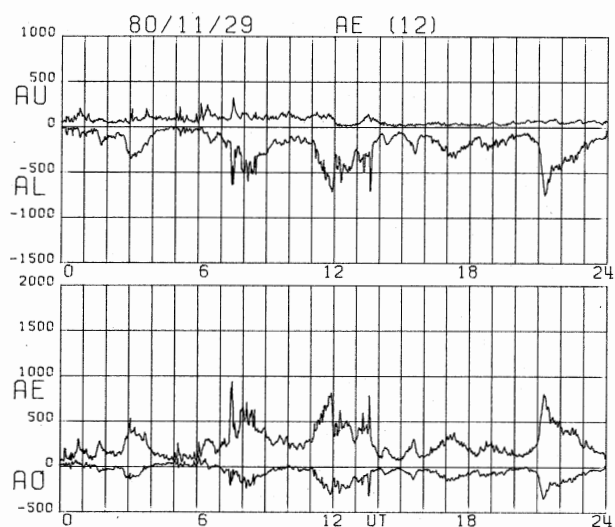
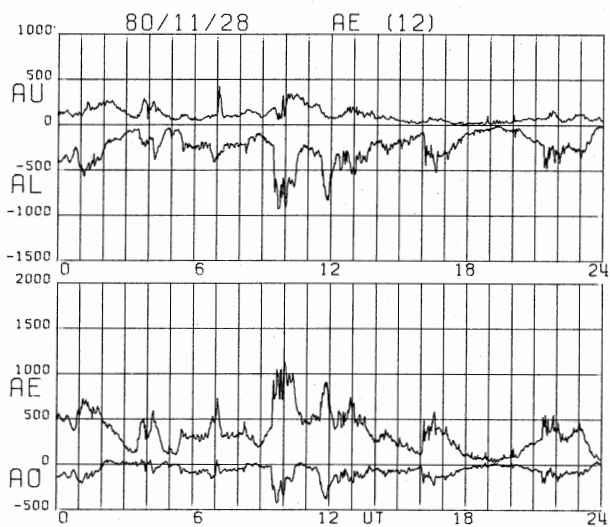


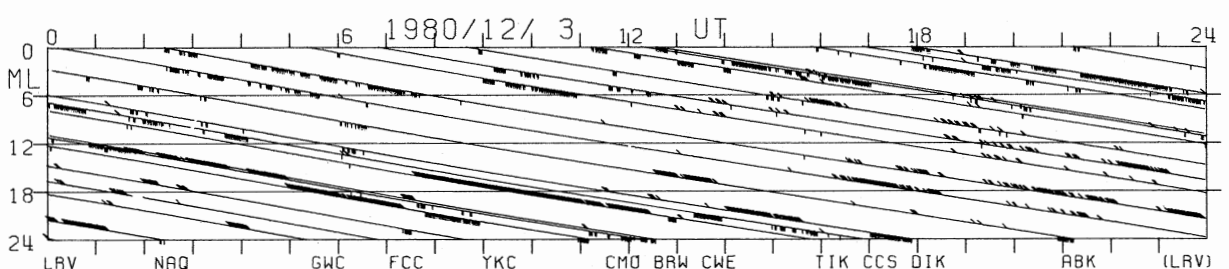
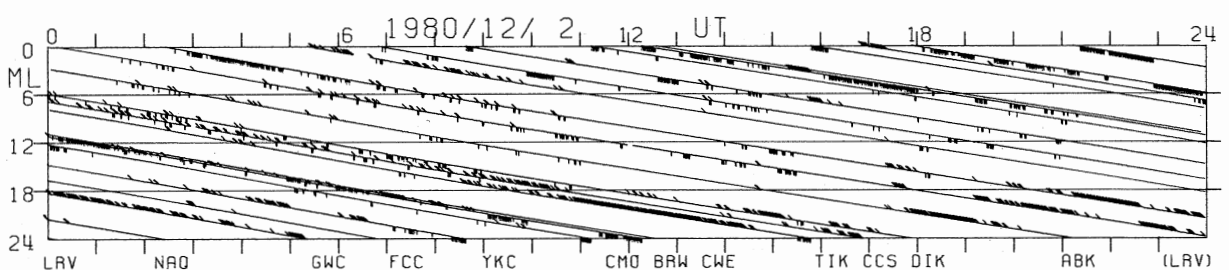
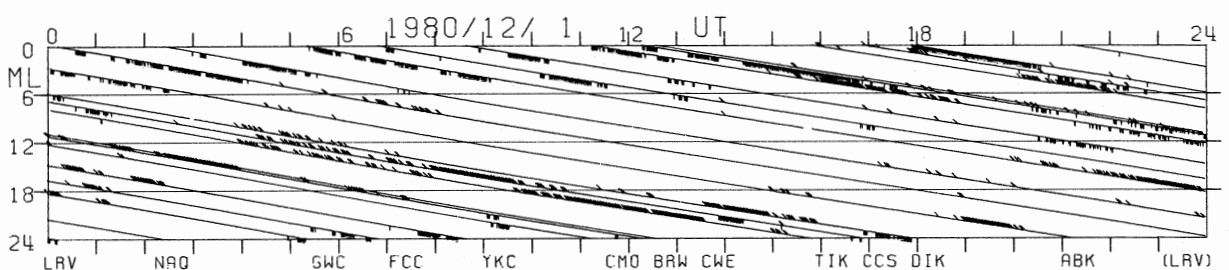
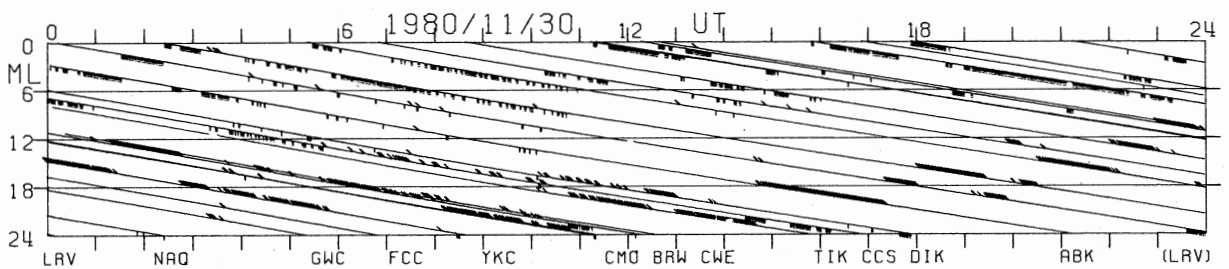
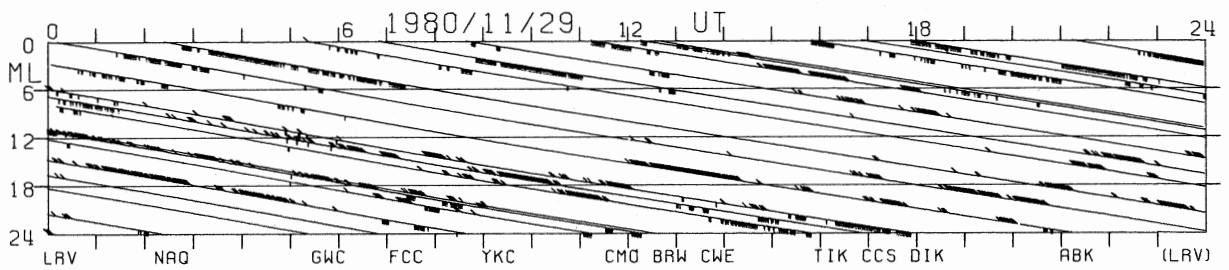
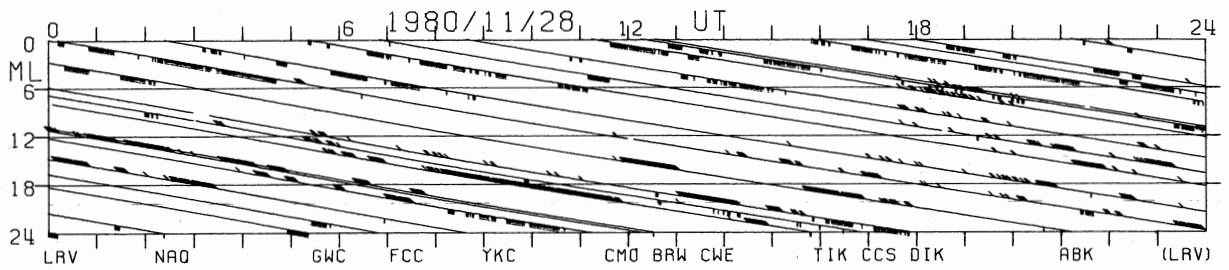


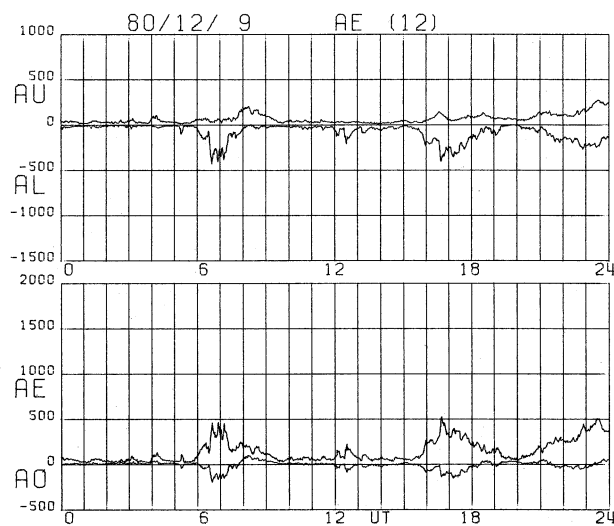
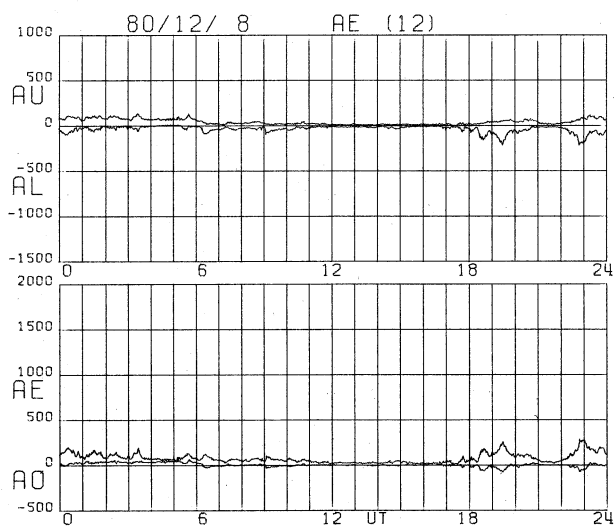
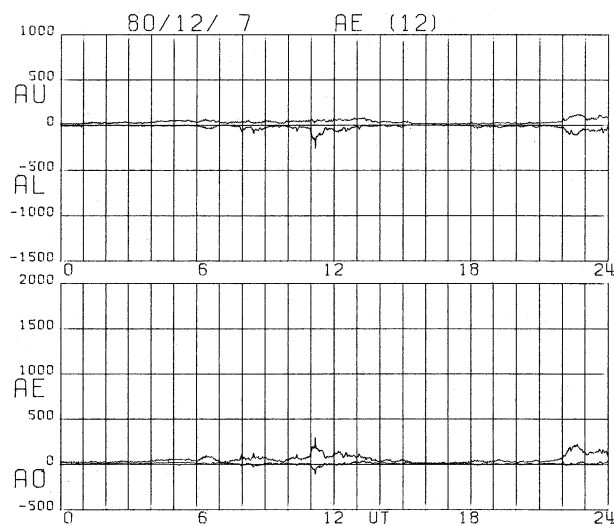
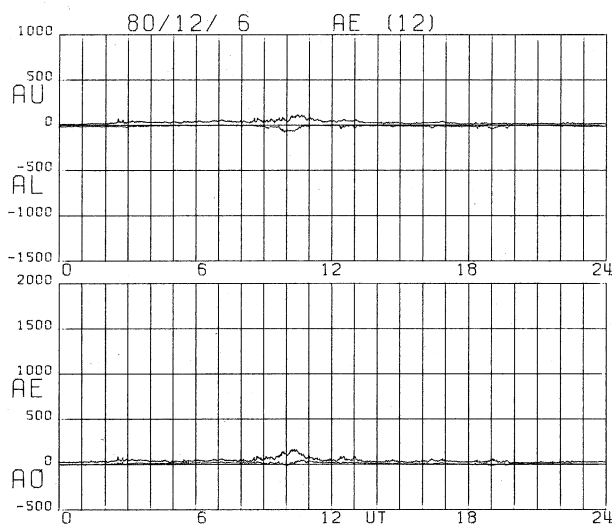
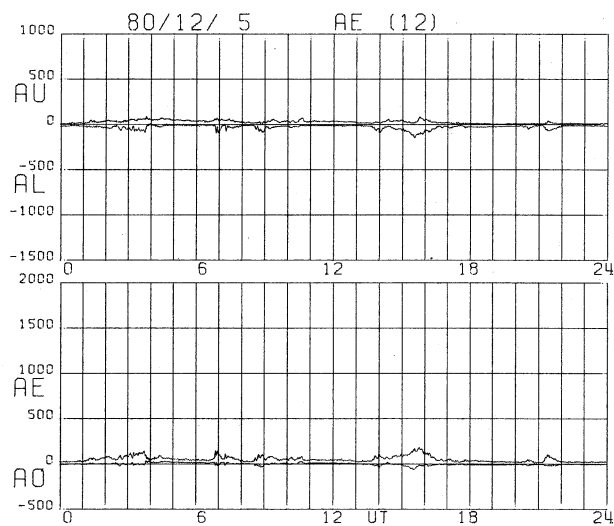
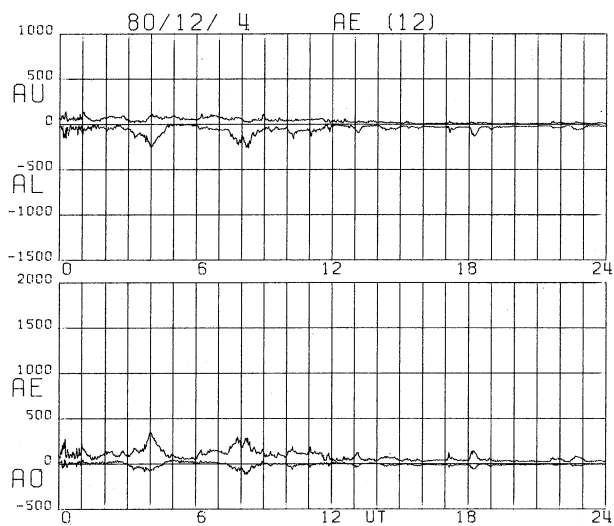


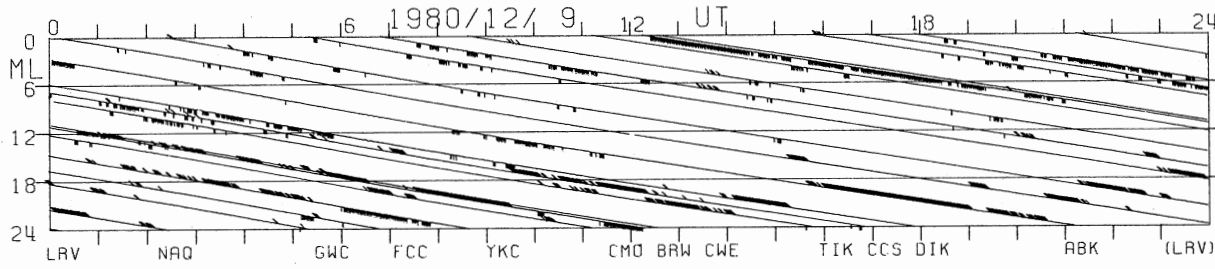
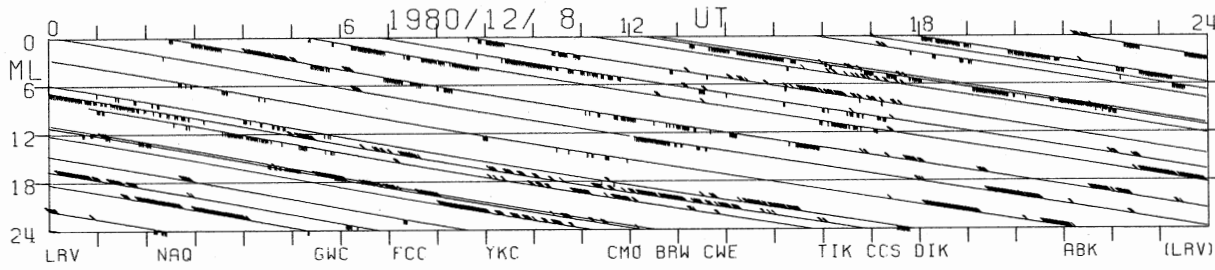
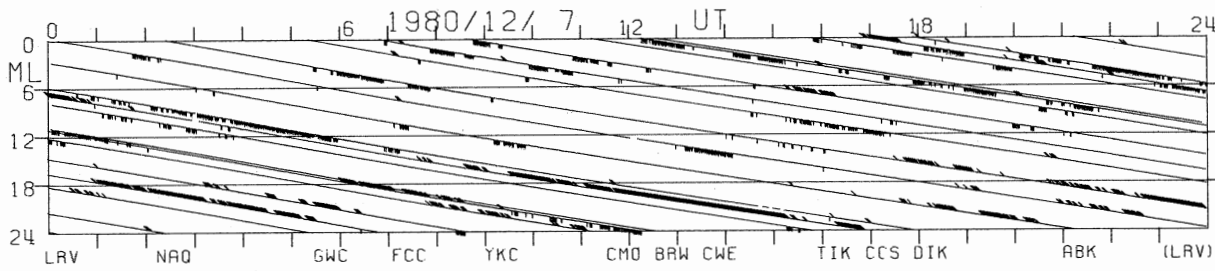
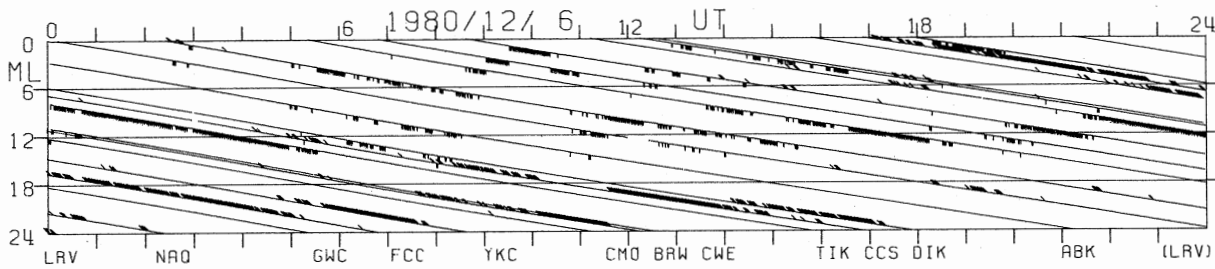
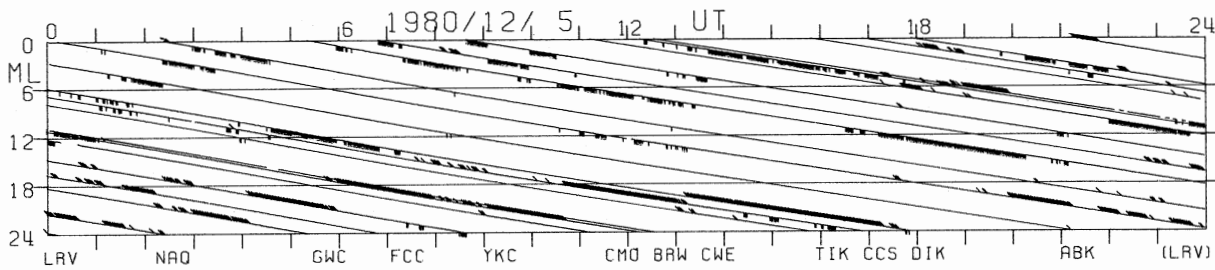
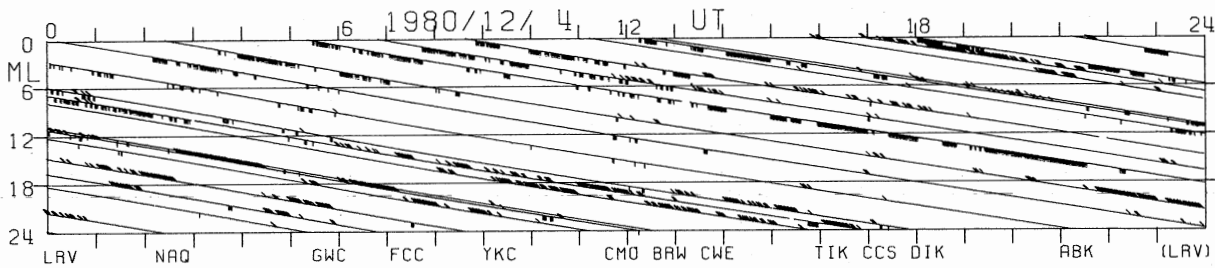


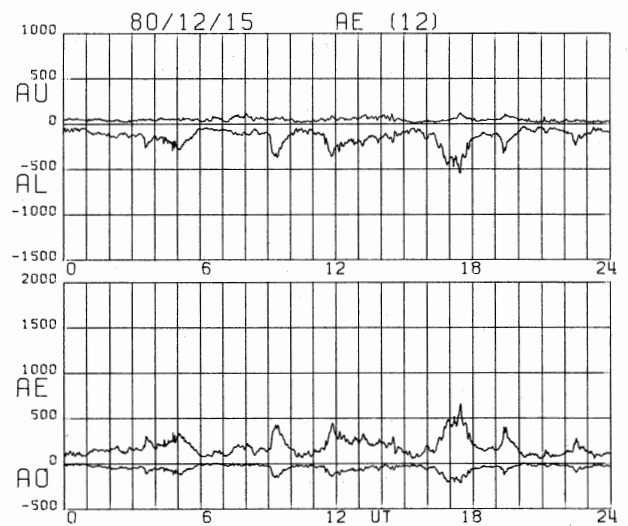
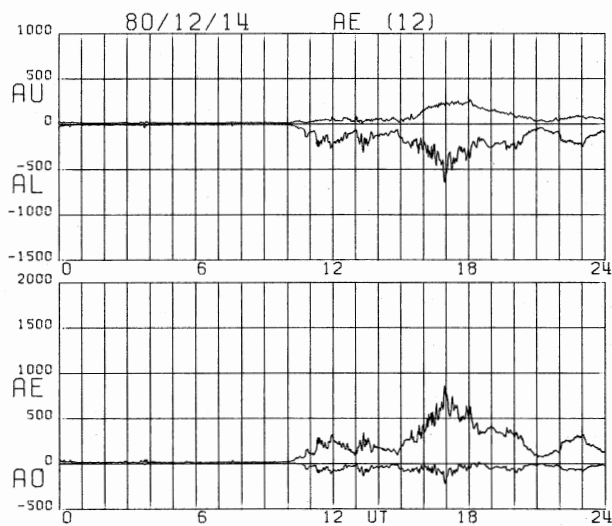
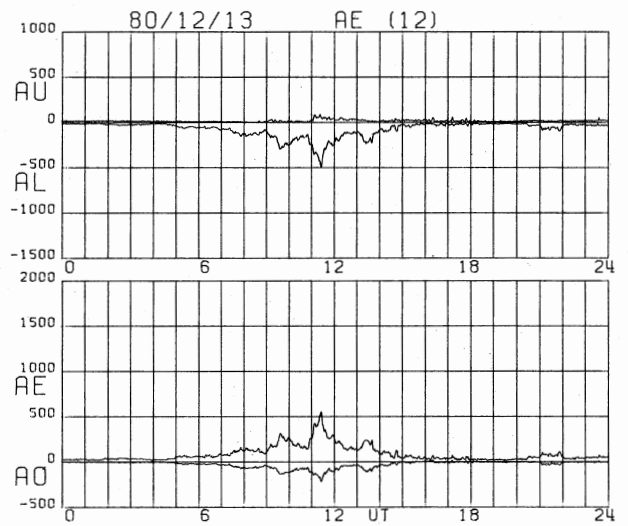
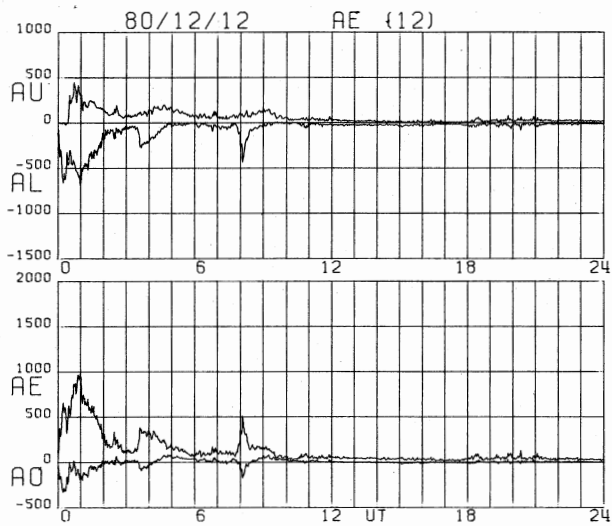
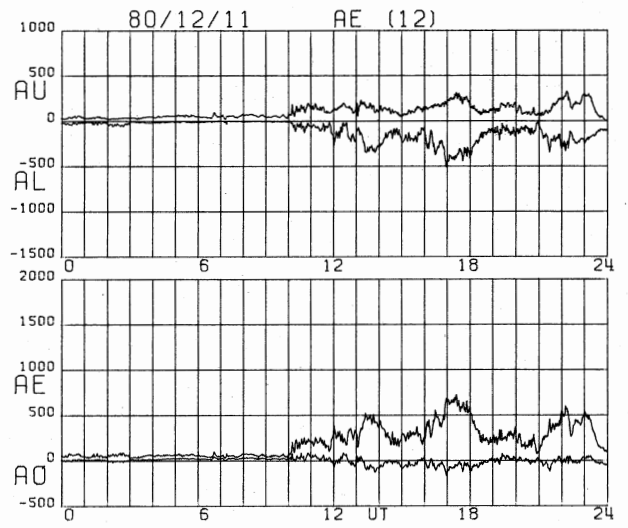
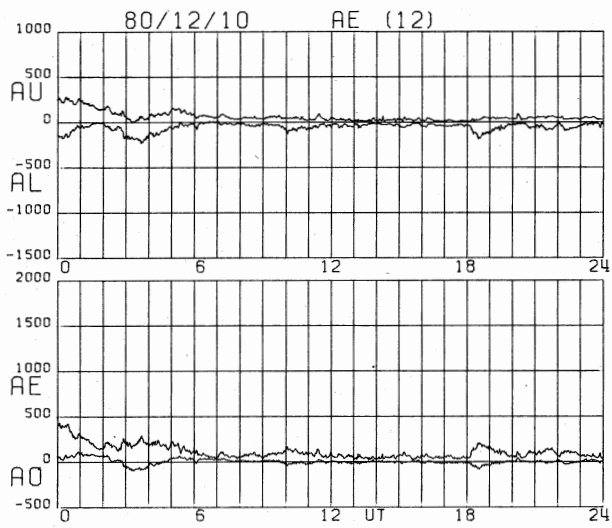


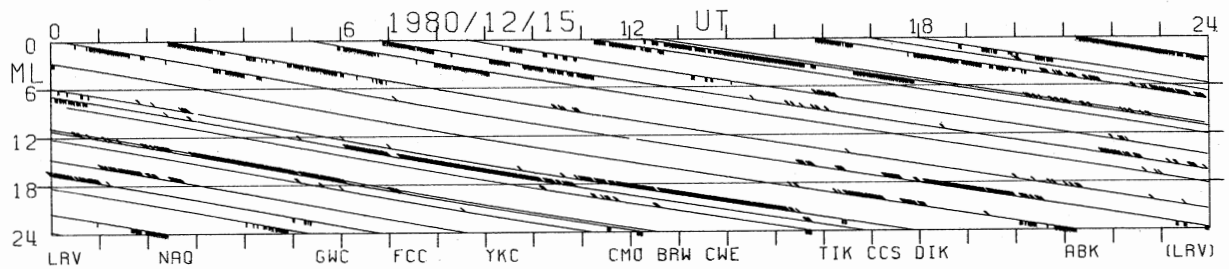
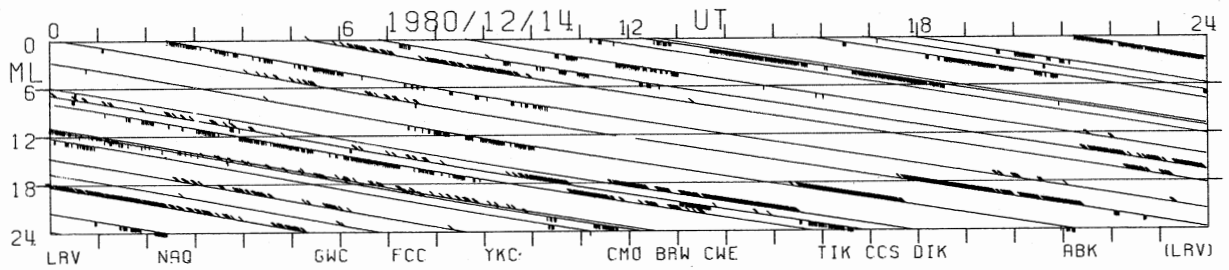
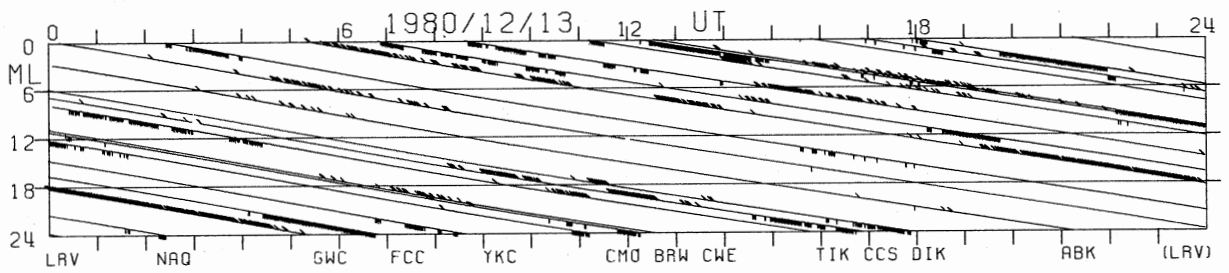
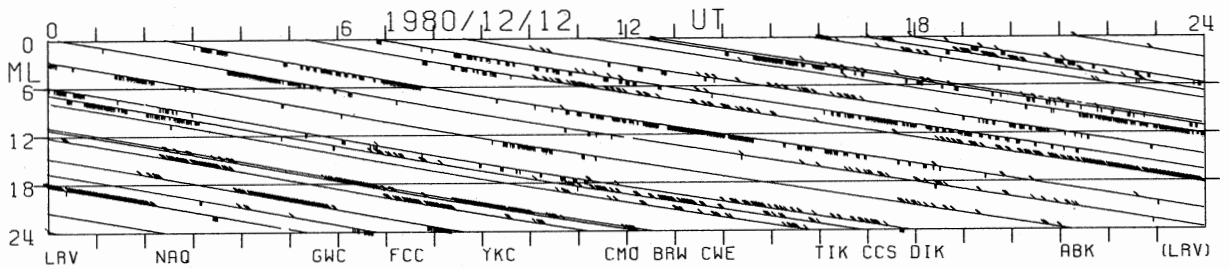
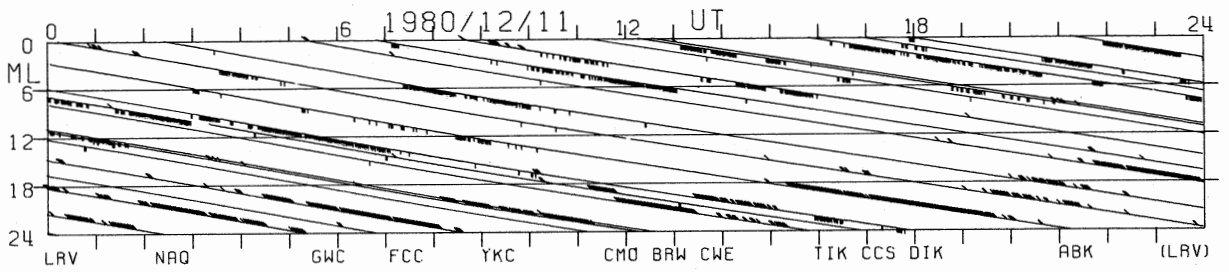
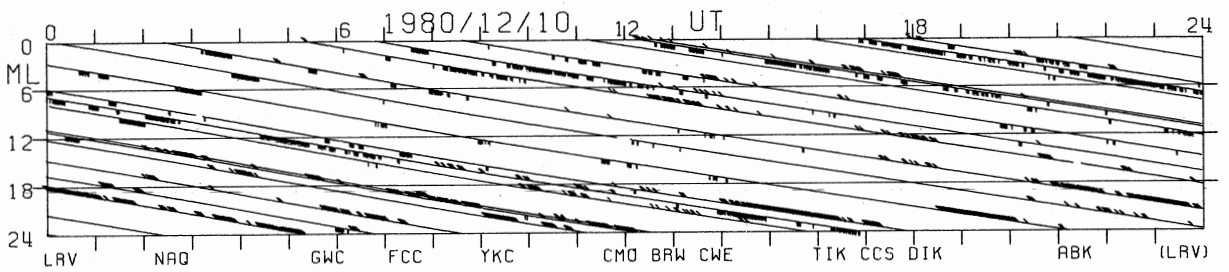


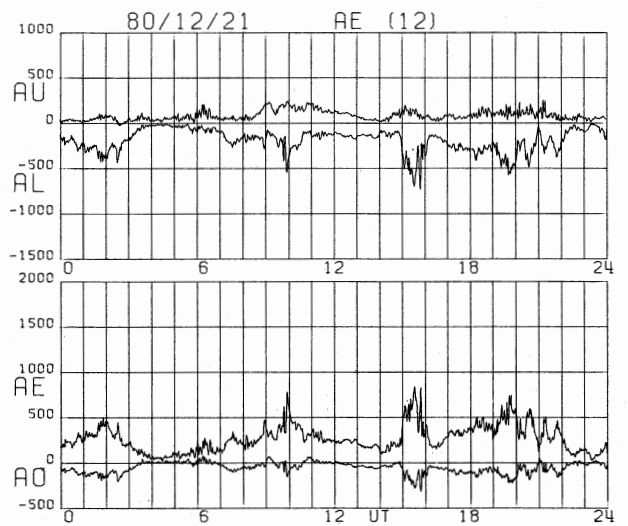
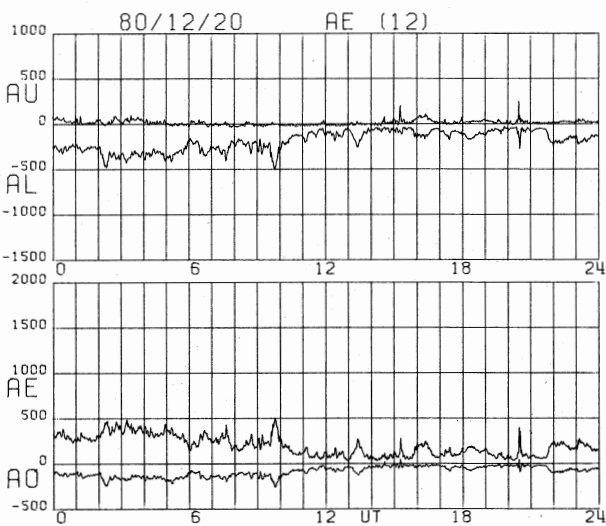
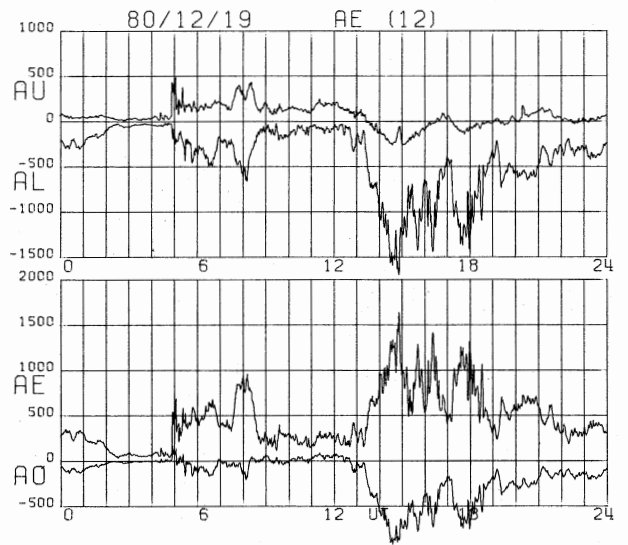
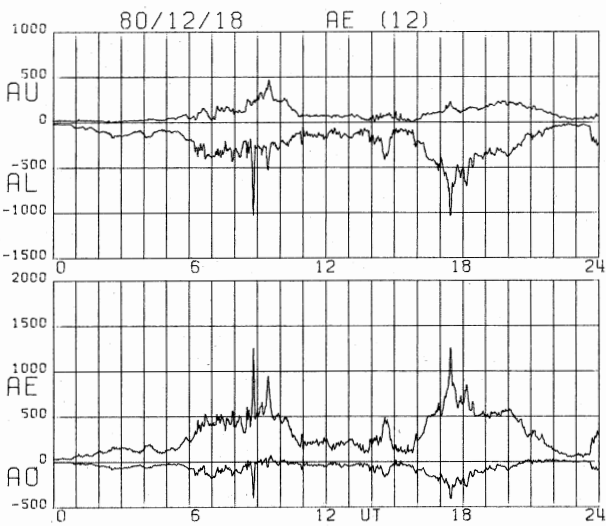
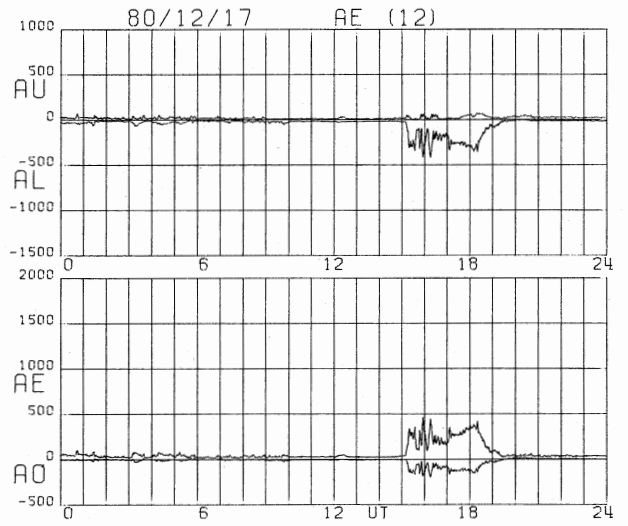
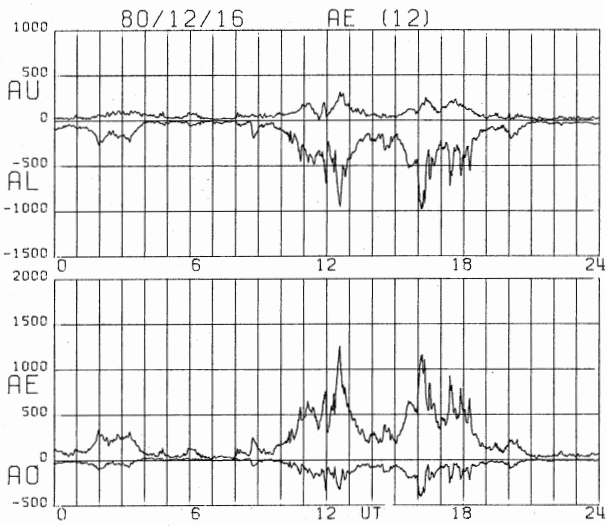


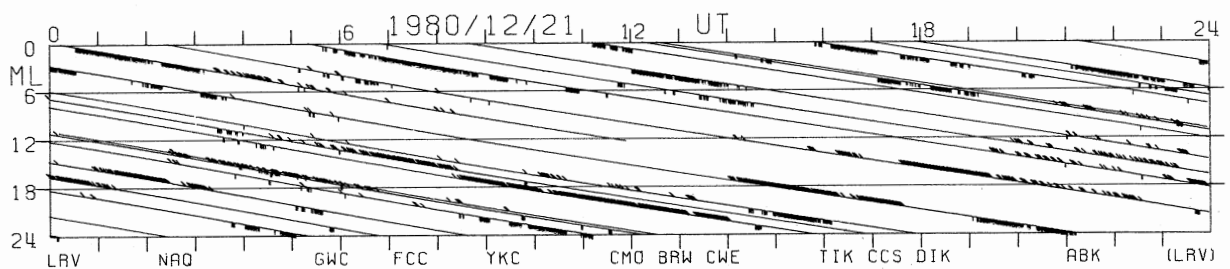
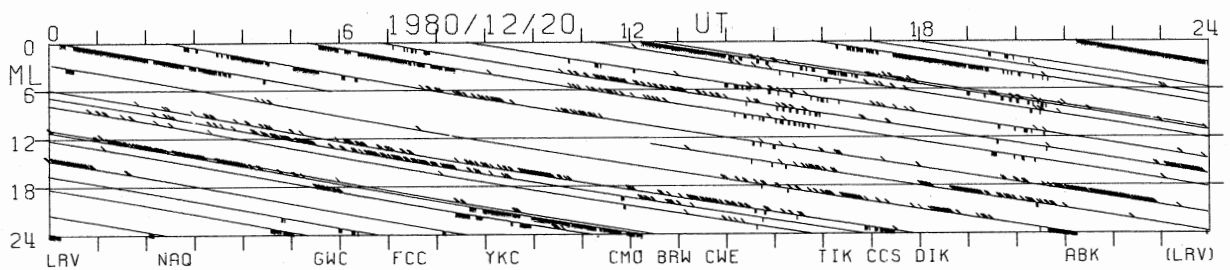
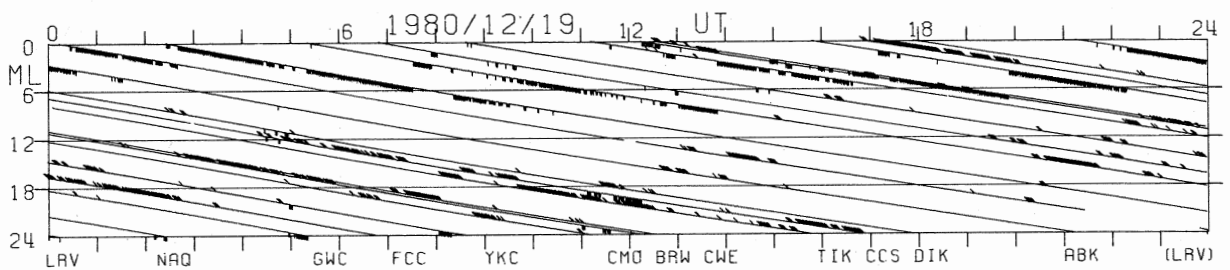
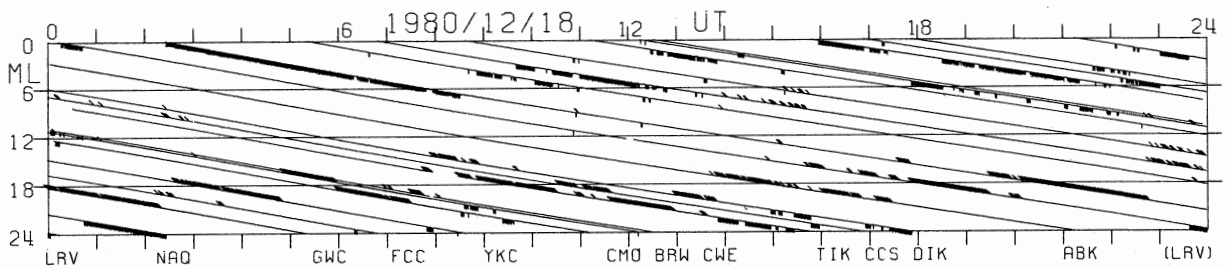
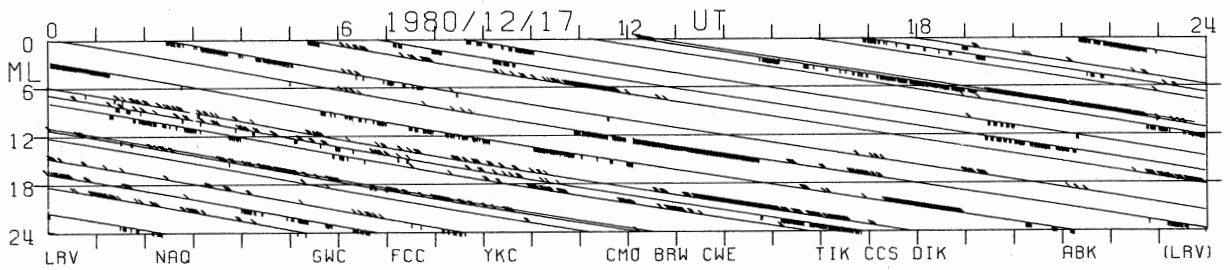
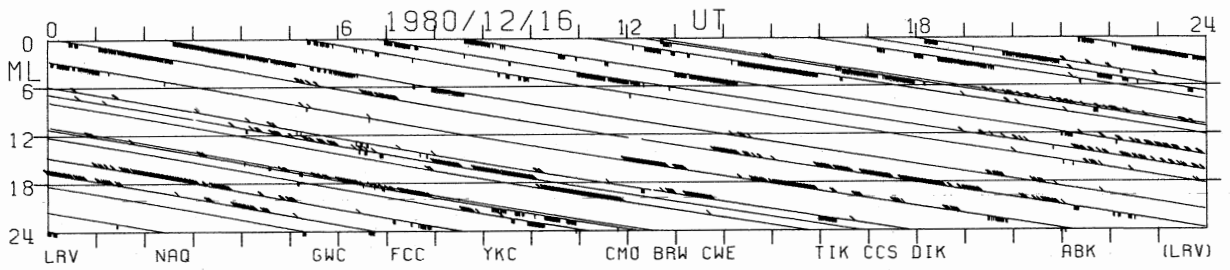


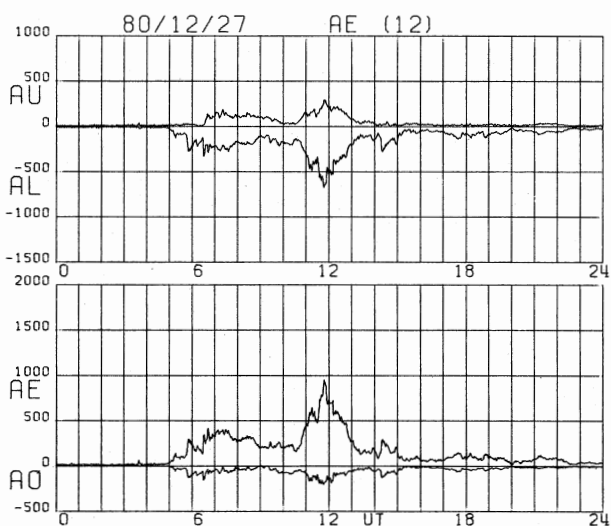
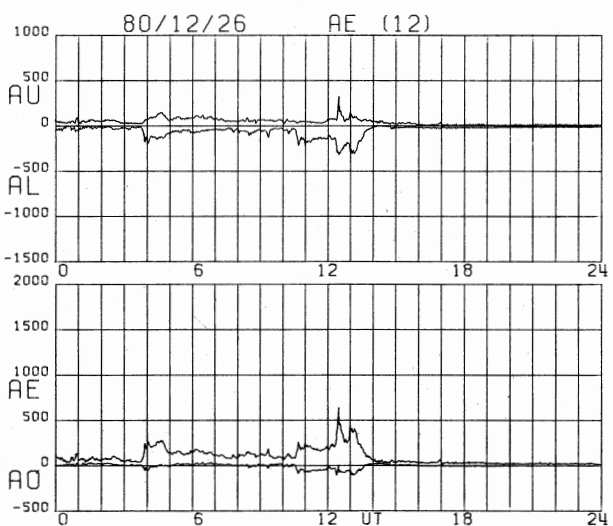
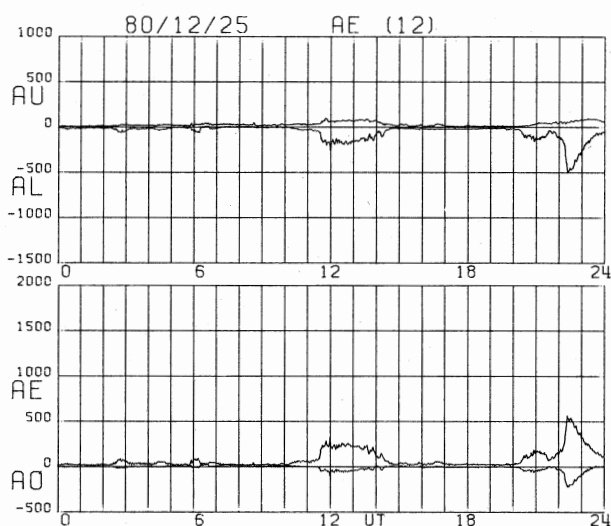
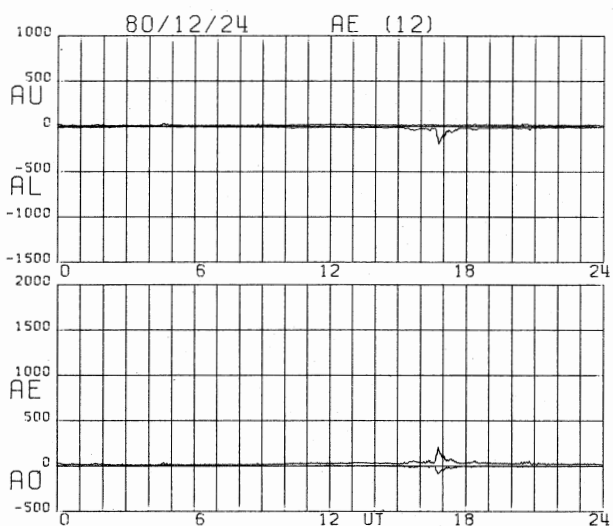
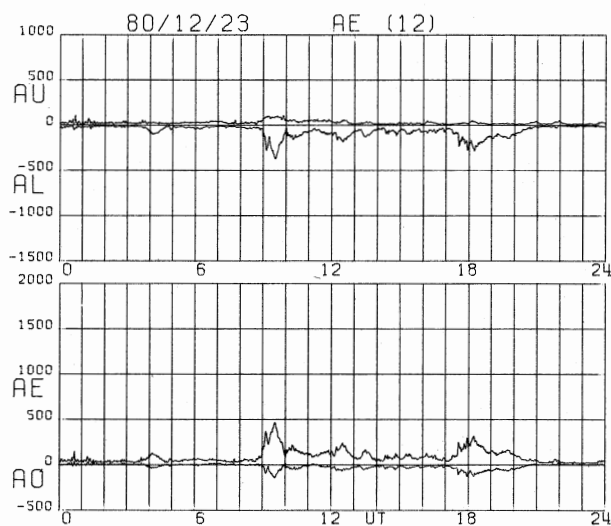
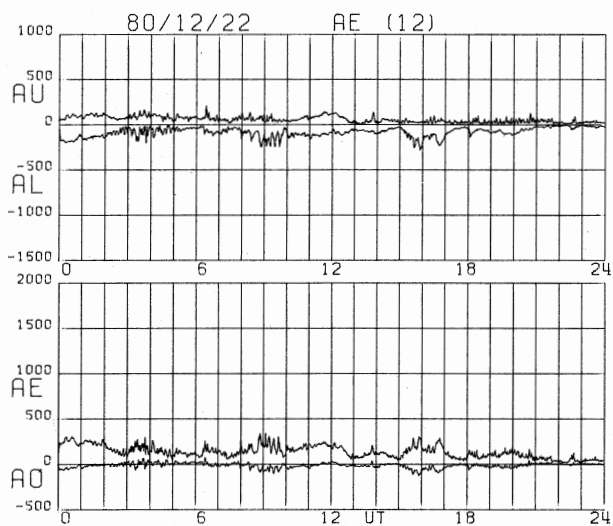


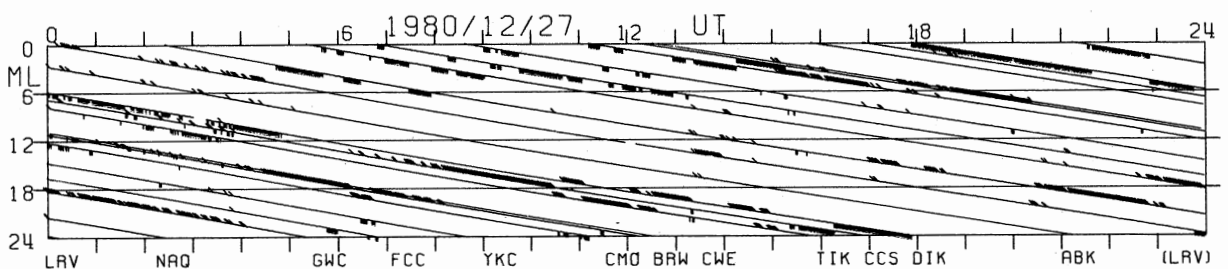
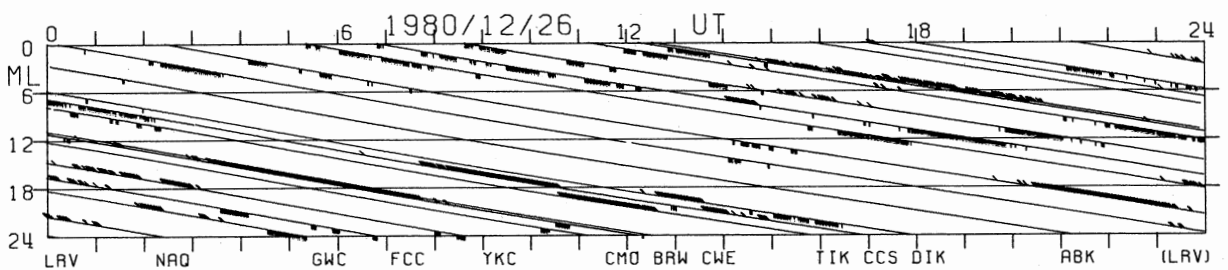
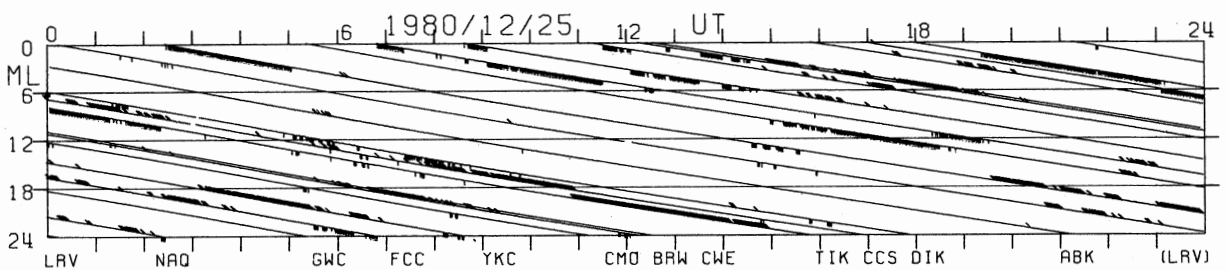
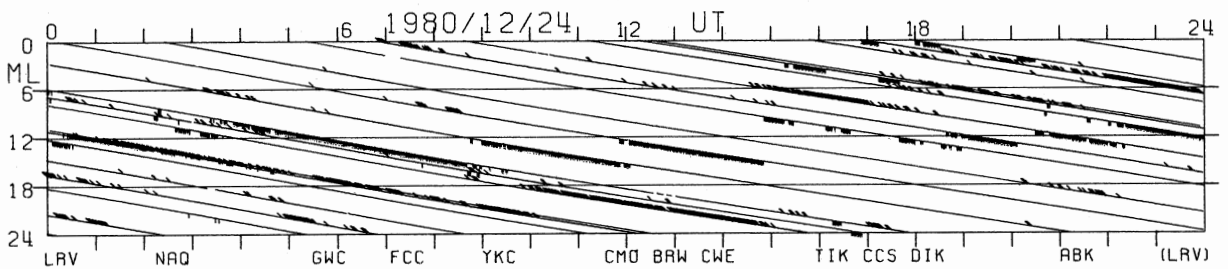
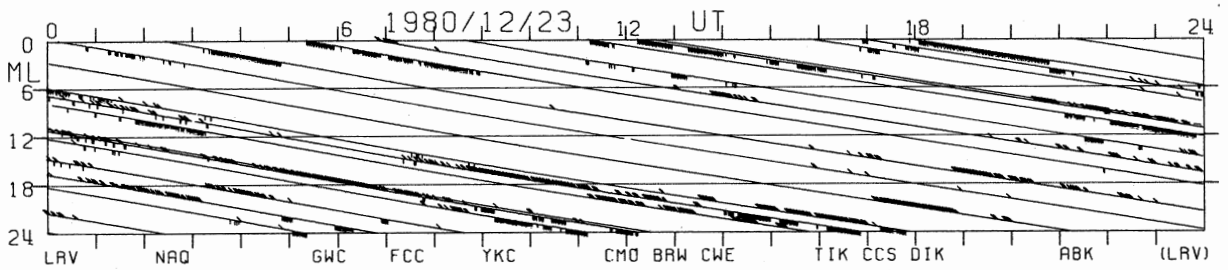
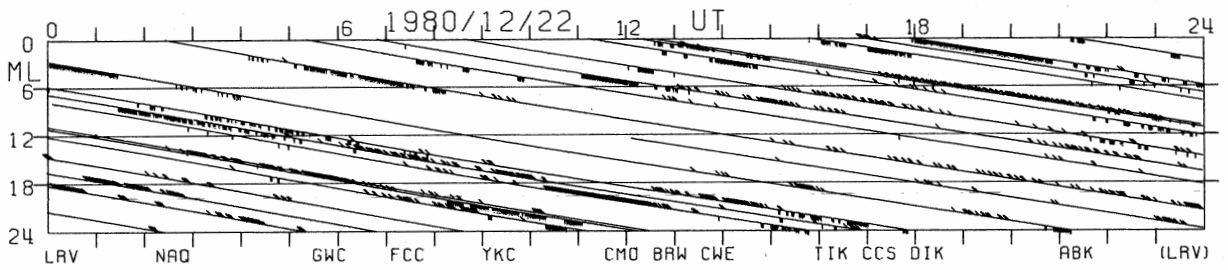


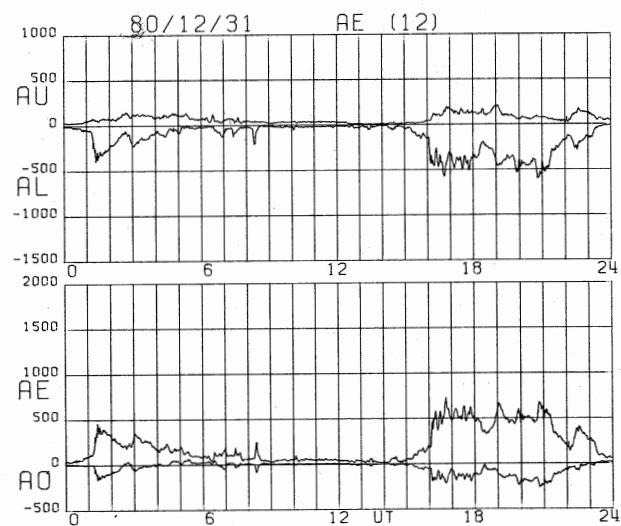
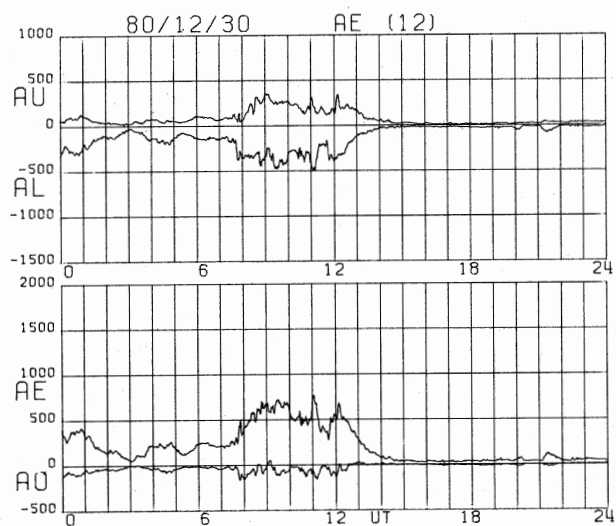
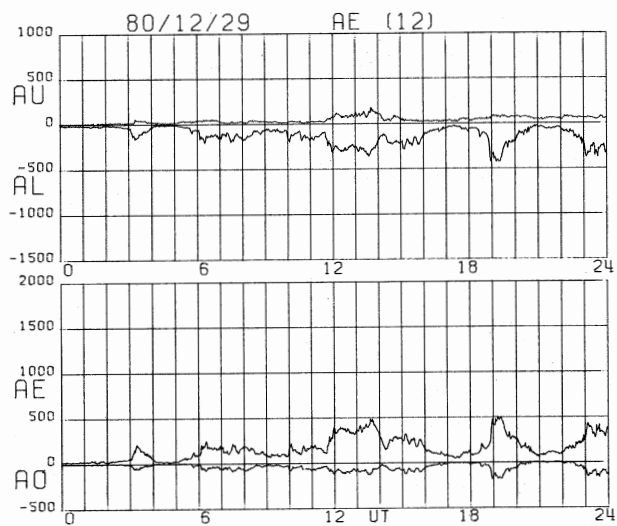
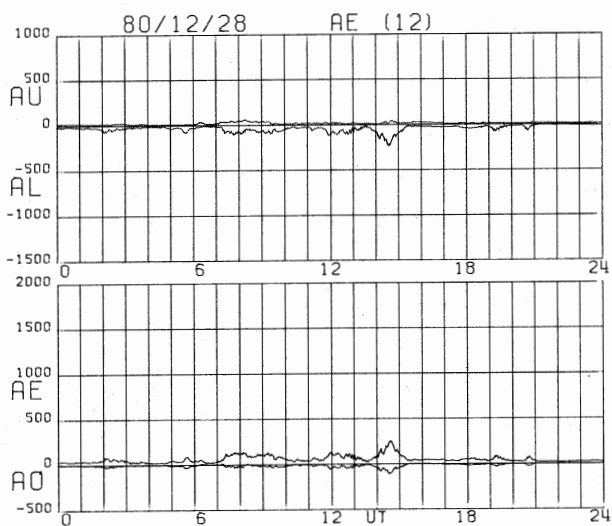












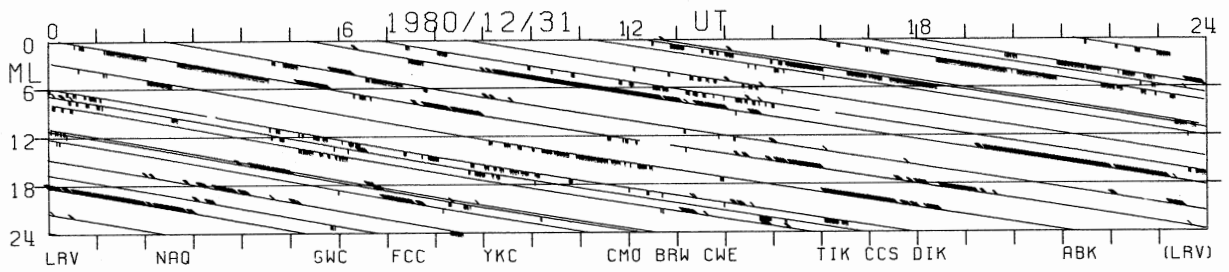
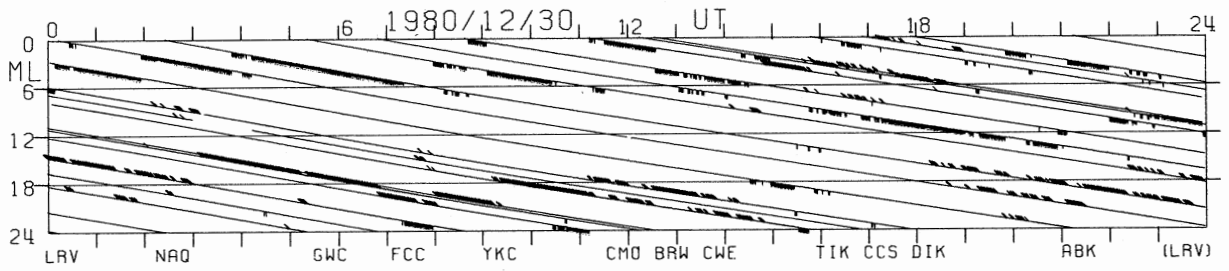
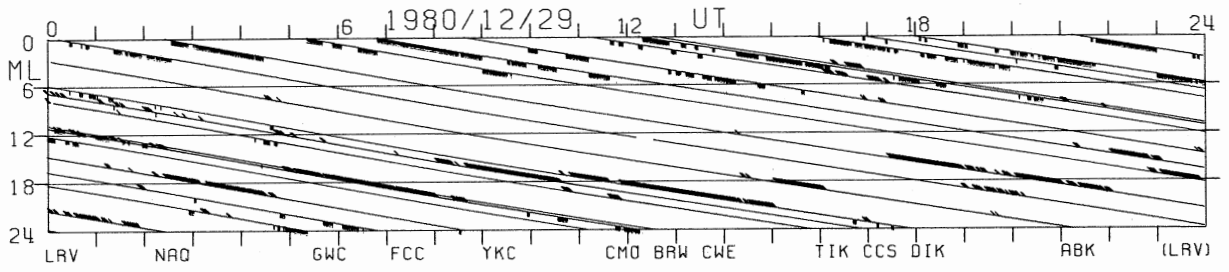
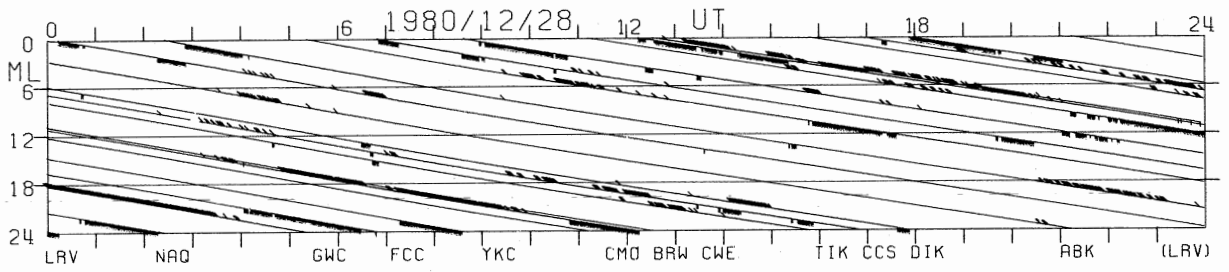
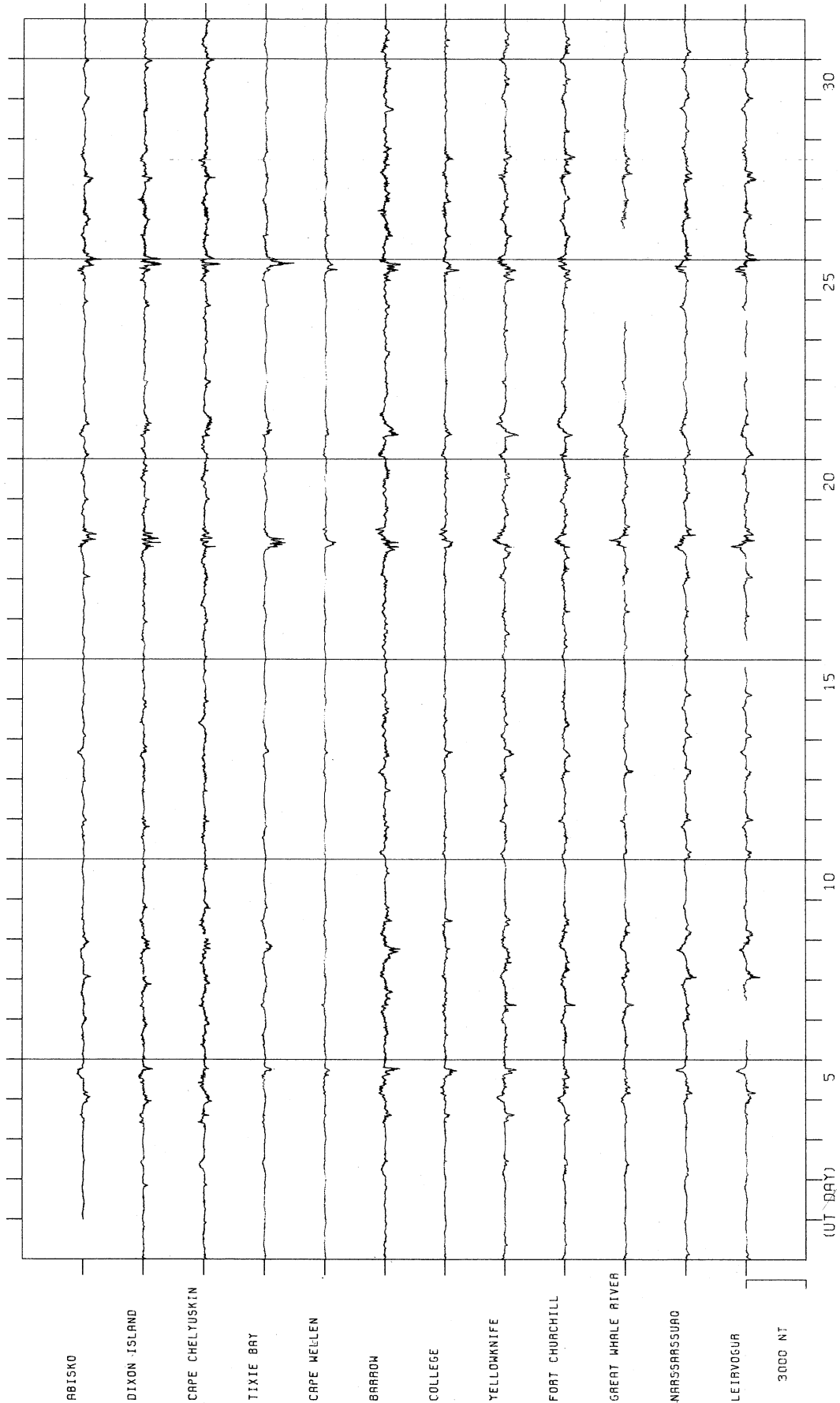


FIGURE 6

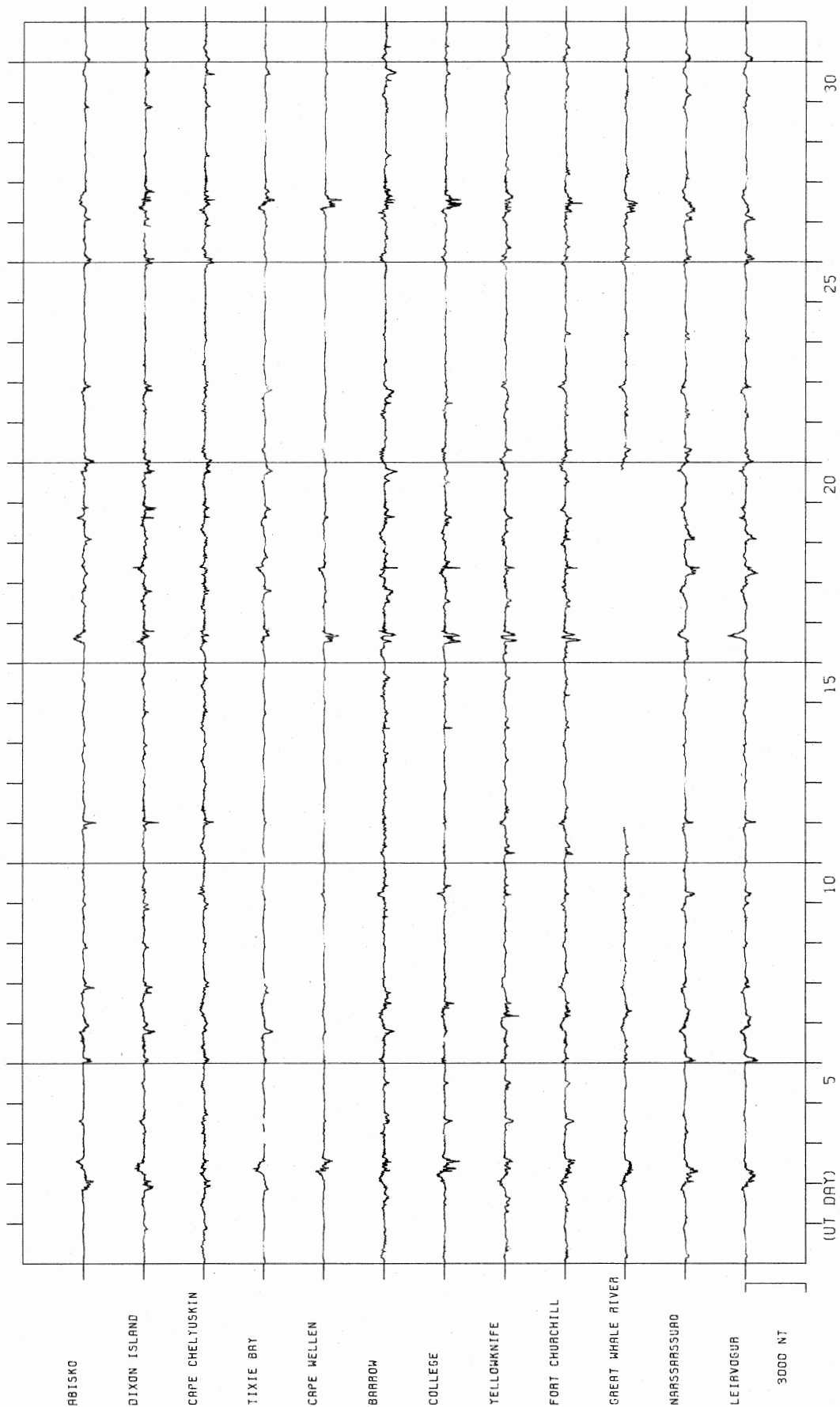
The H traces of magnetograms from AE(12) stations in every month from July to December 1980.

FIGURE 7

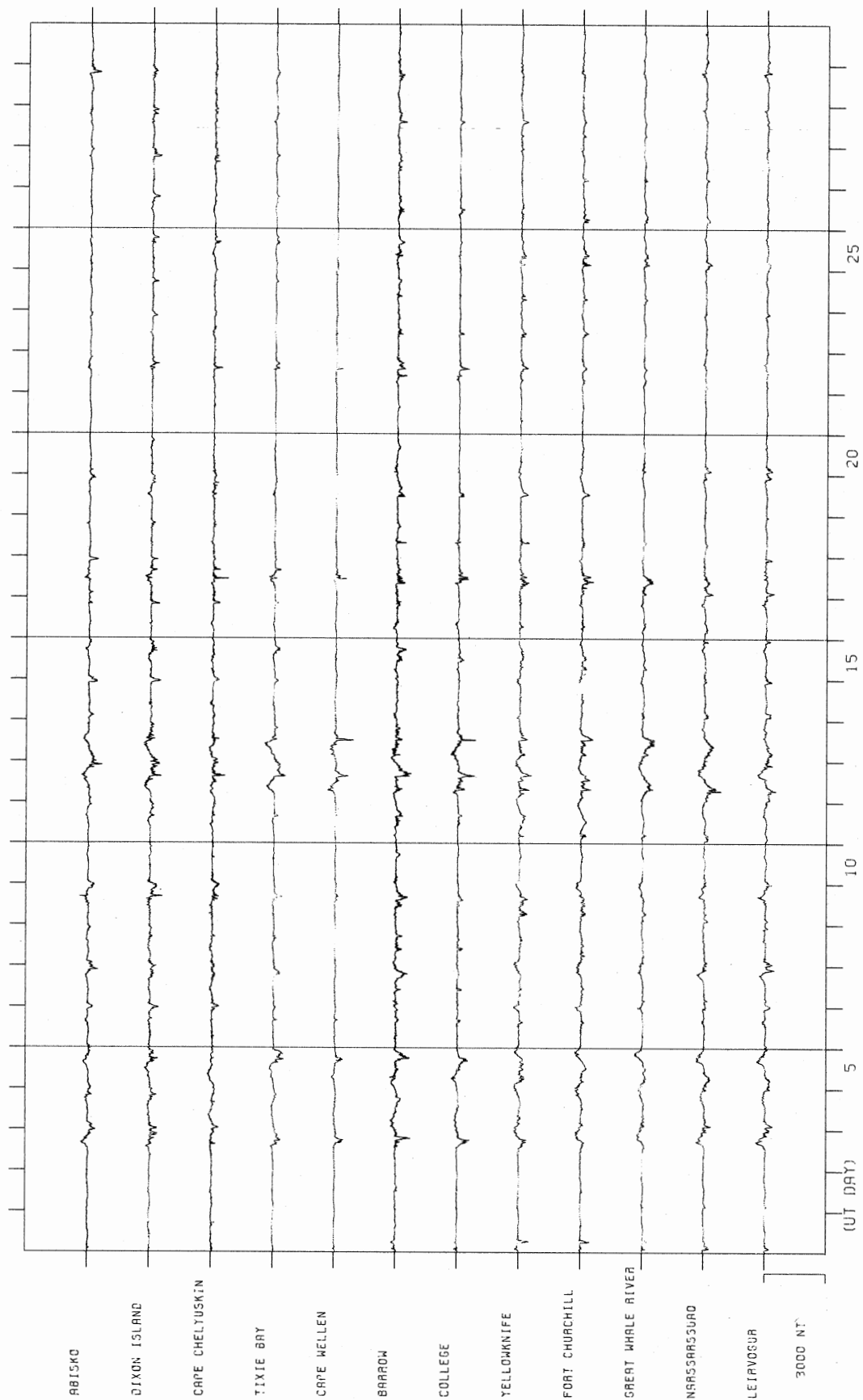
Plots of hourly values for each index from July to December 1980.



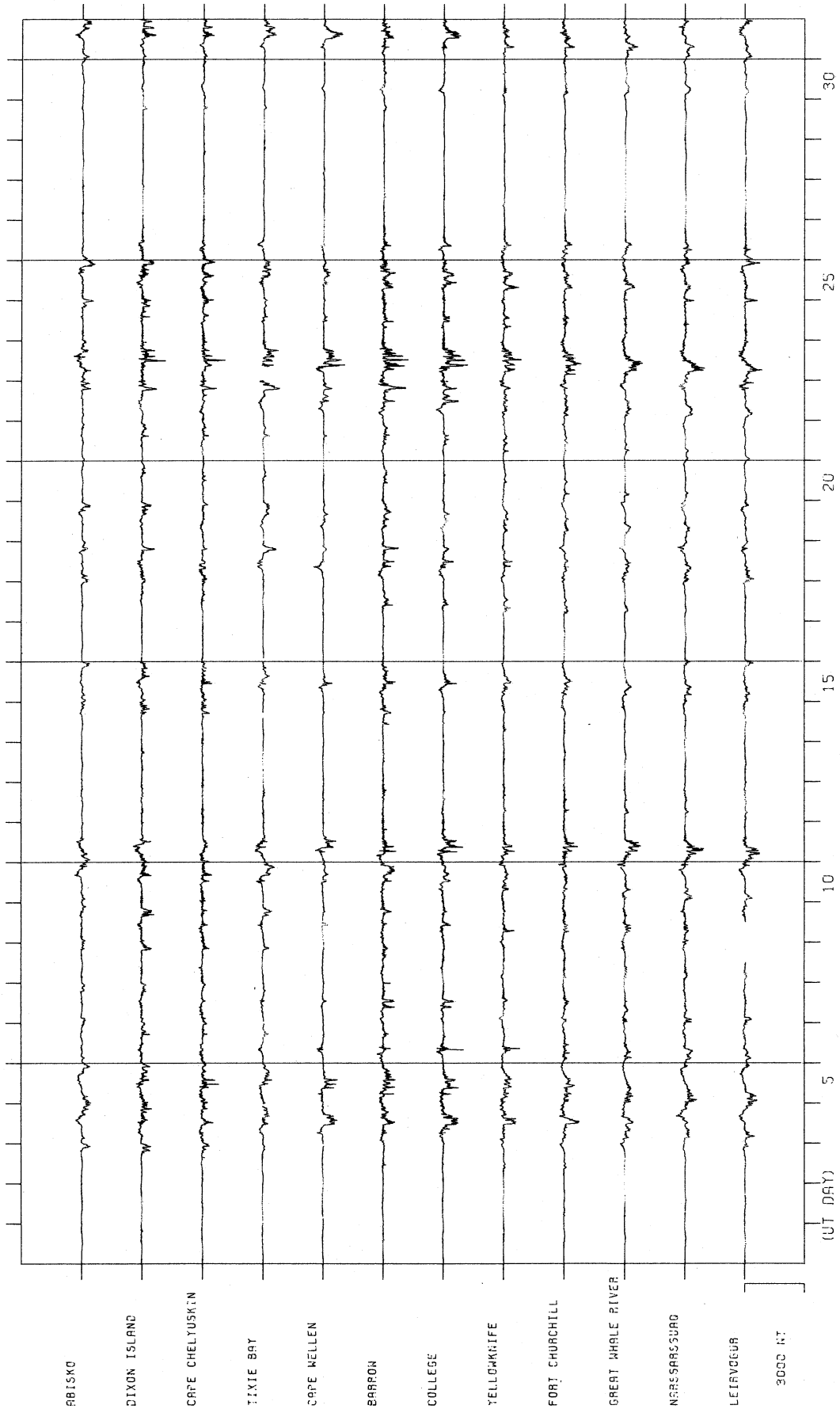
STACKED COMMON SCALE MAGNETOGRAMS FOR JULY 1980



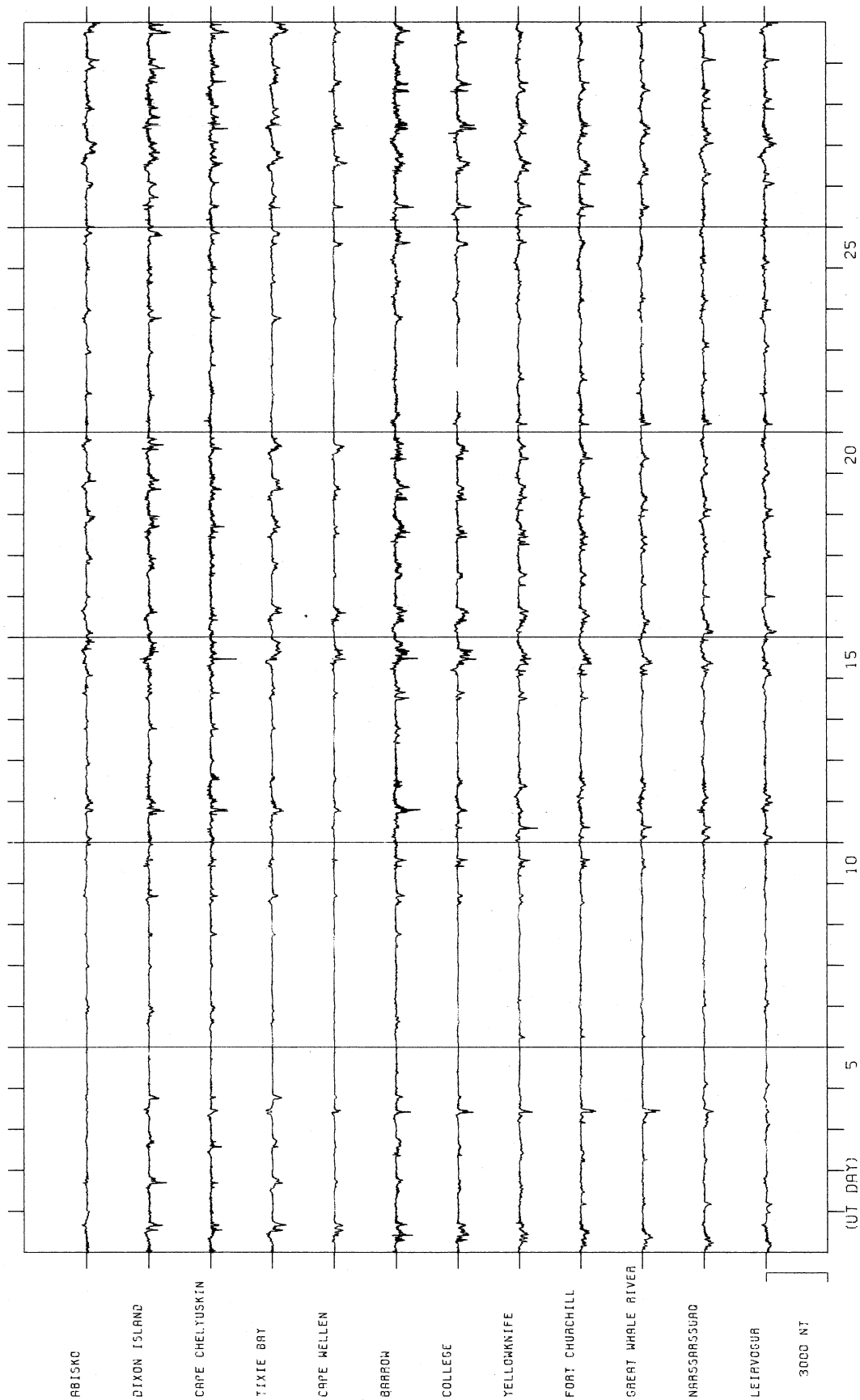
STACKED COMMON SCALE MAGNETOGRAMS FOR AUGUST 1980



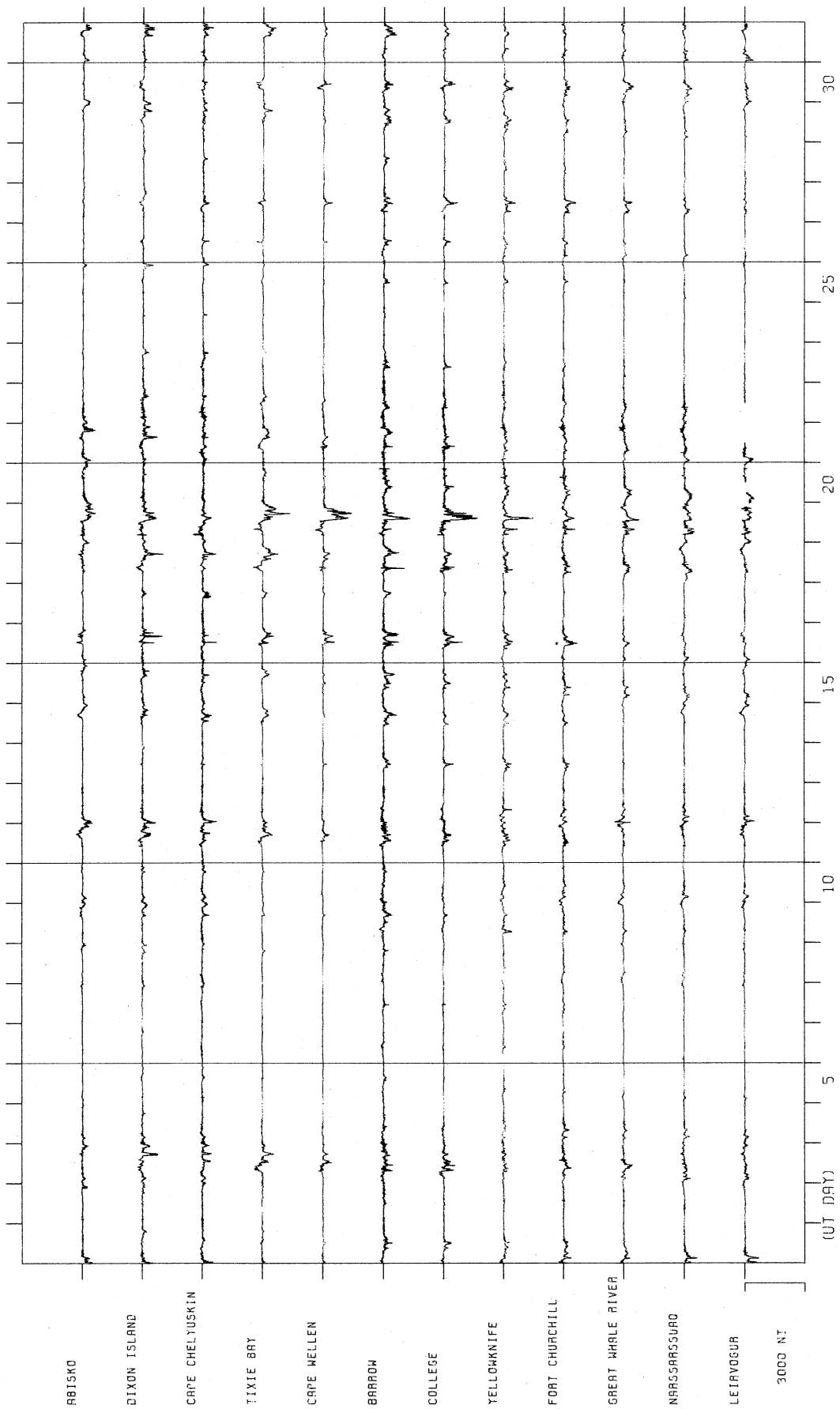
STACKED COMMON SCALE MAGNETOGRAMS FOR SEPTEMBER 1980



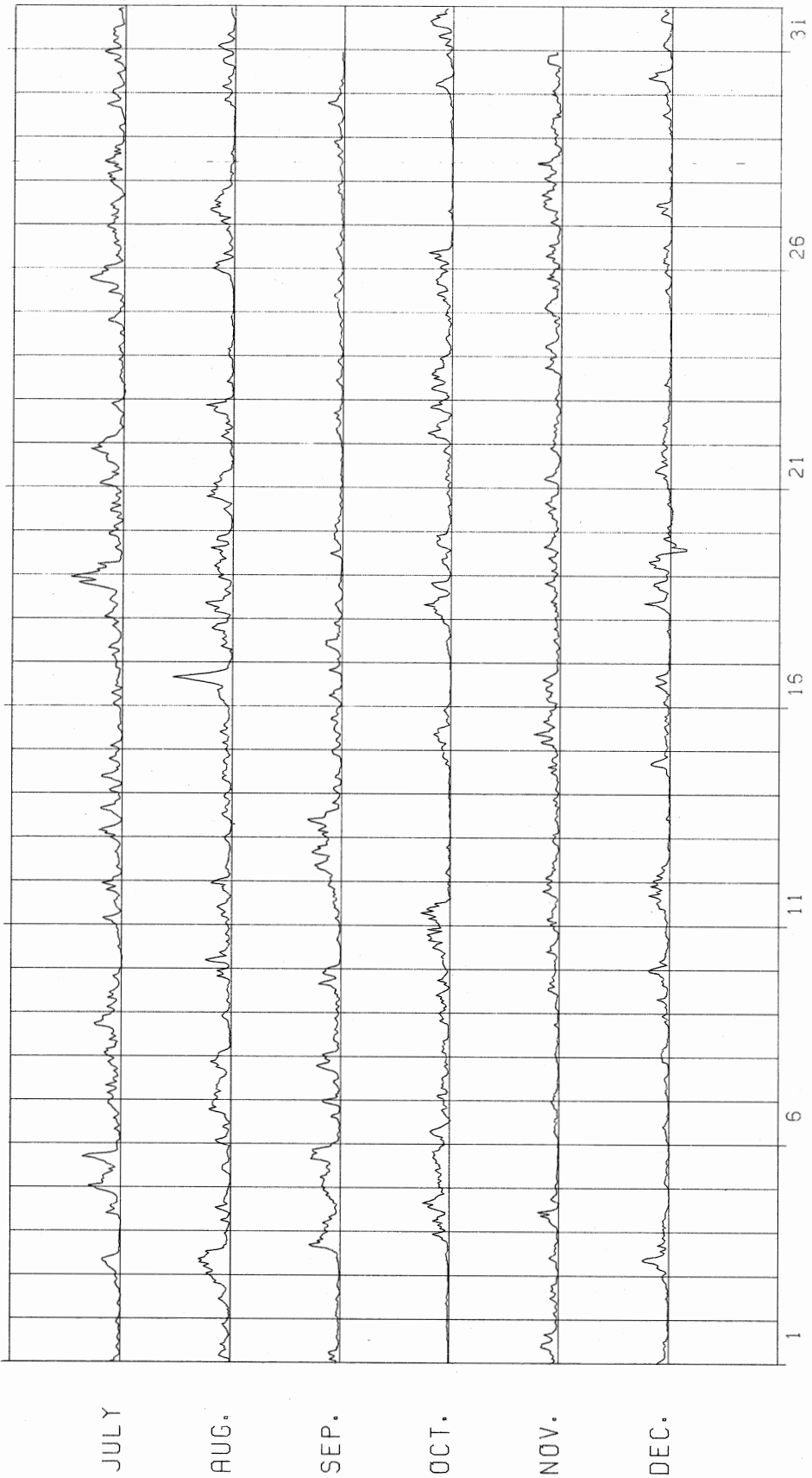
STACKED COMMON SCALE MAGNETOGRAMS FOR OCTOBER 1980



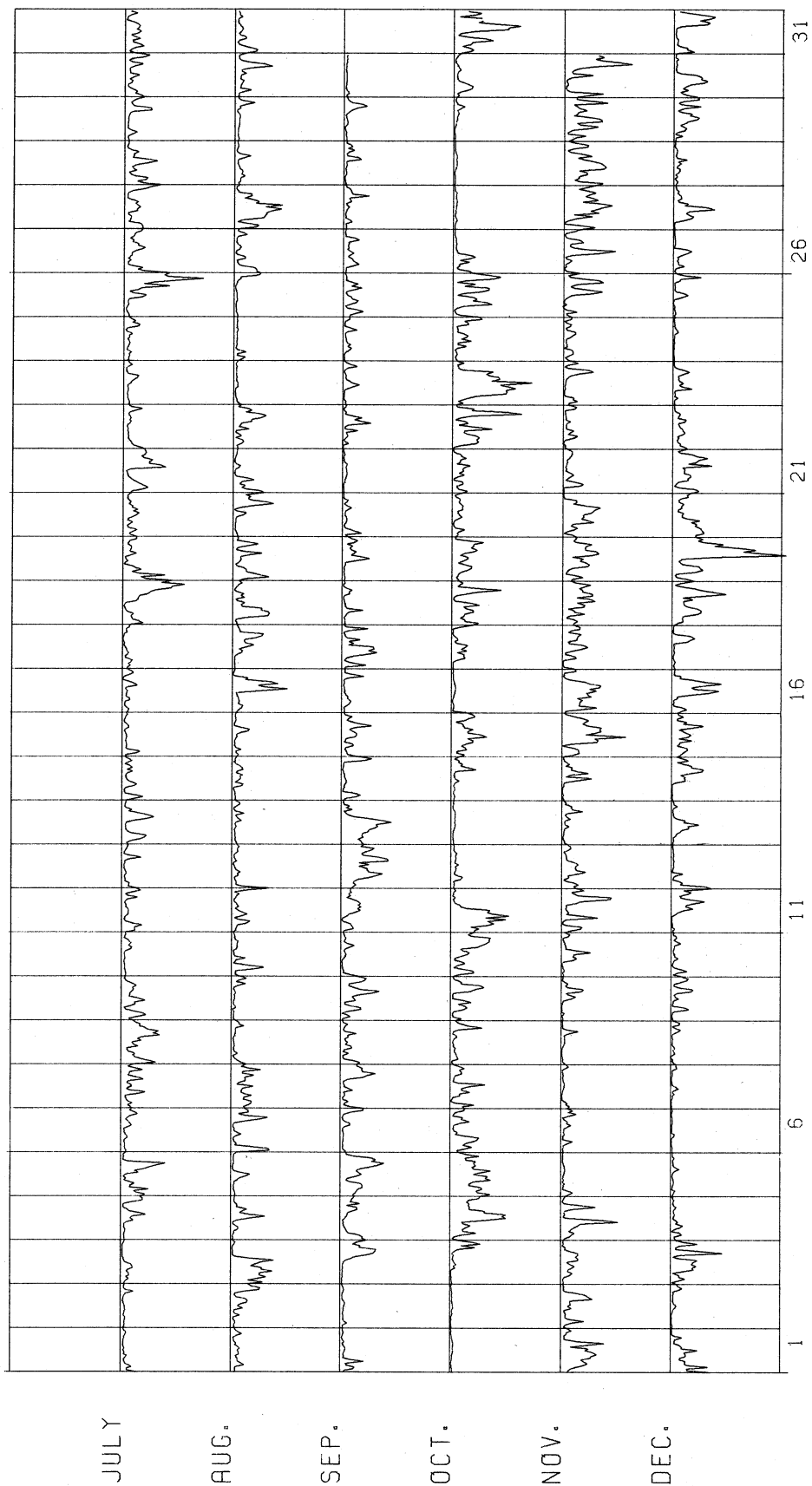
STACKED COMMON SCALE MAGNETOGRAMS FOR NOVEMBER 1980



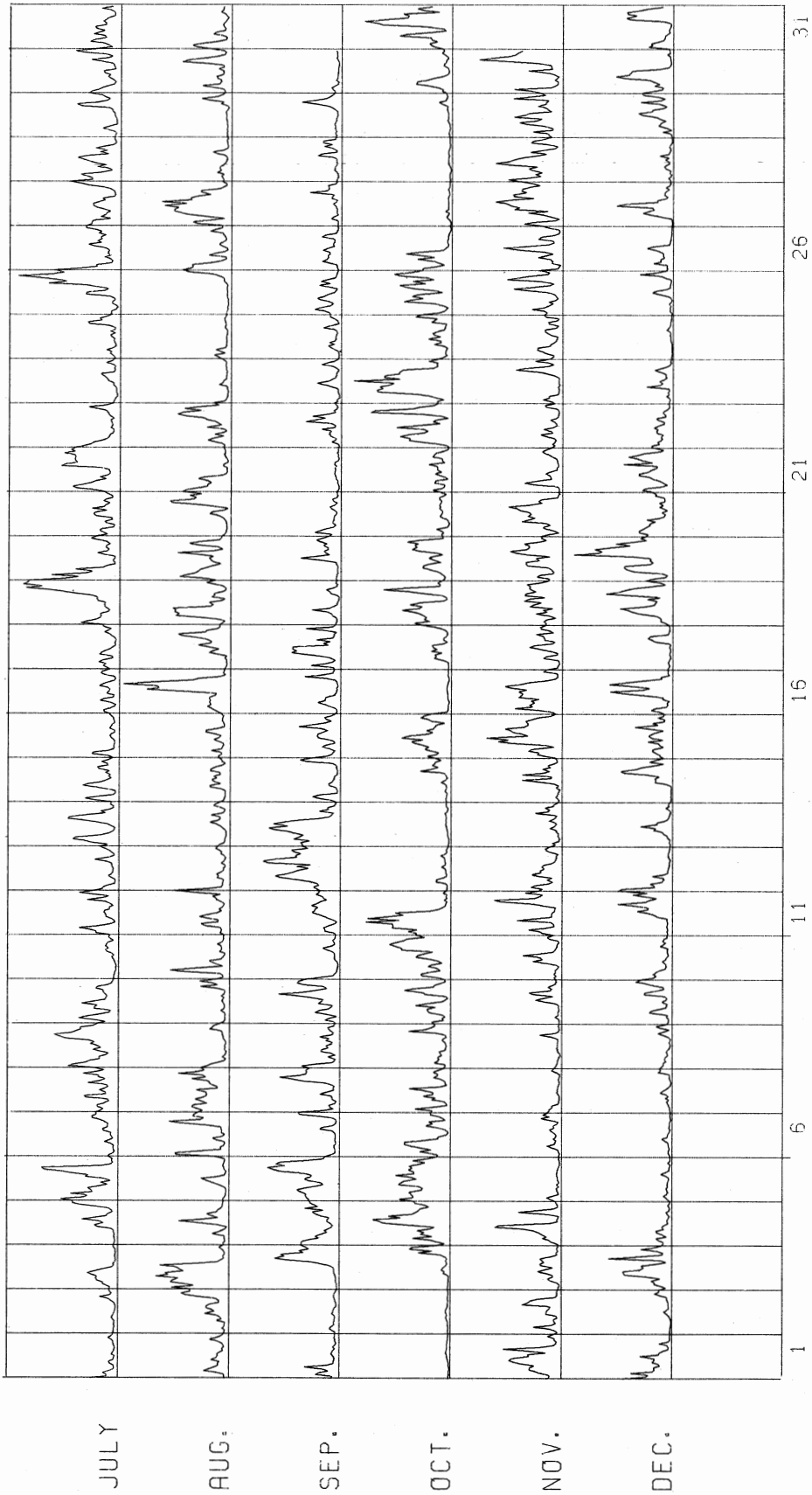
STACKED COMMON SCALE MAGNETOGRAMS FOR DECEMBER 1980



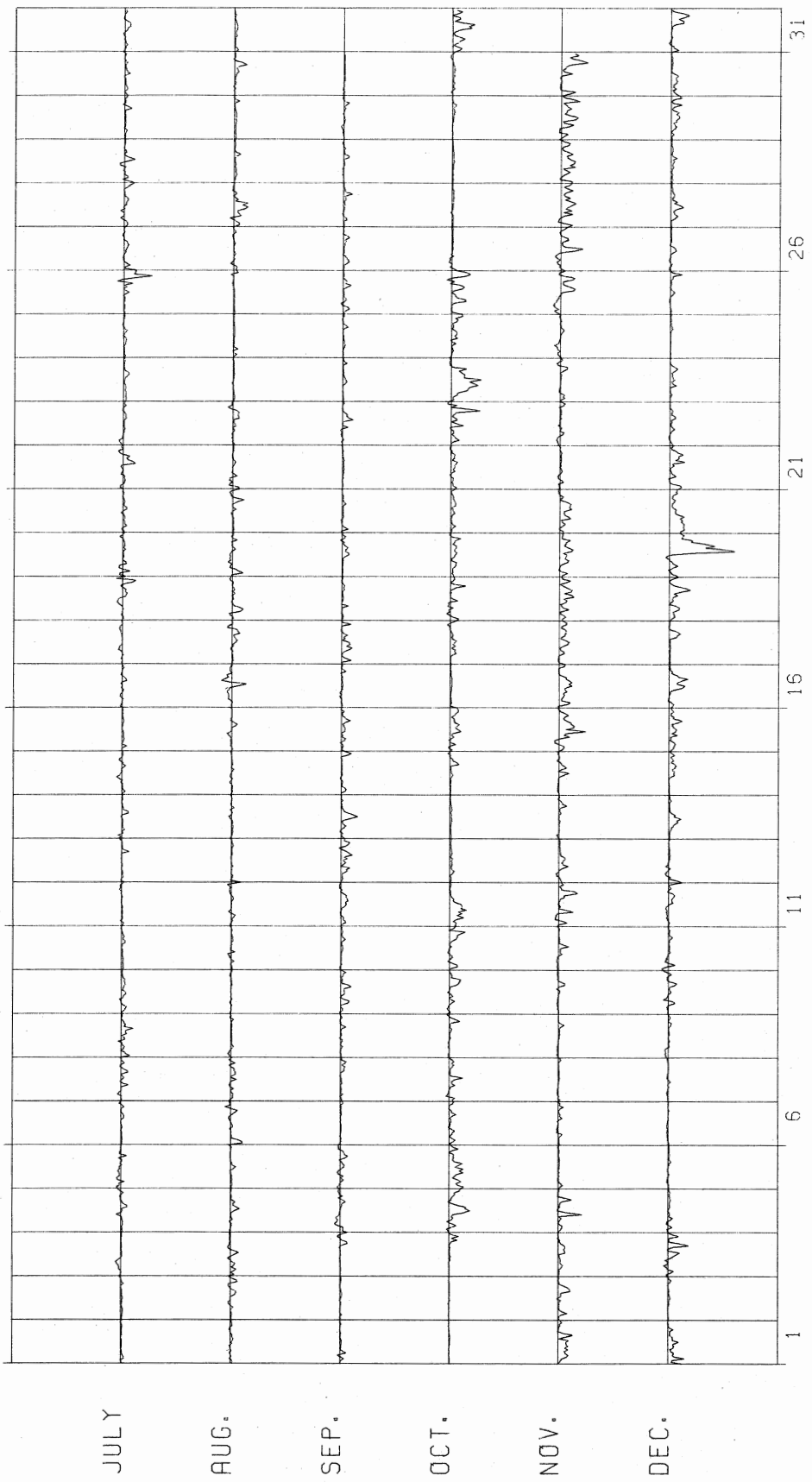
AU HOURLY VALUES FOR THE LAST HALF OF 1980 (1250NT/DIV)



AL HOURLY VALUES FOR THE LAST HALF OF 1980 (1250NT/DIV)



RE HOURLY VALUES FOR THE LAST HALF OF 1980 (1250NT/DIV)



AO HOURLY VALUES FOR THE LAST HALF OF 1980 (1250NT/DIV)

