

World Data Center C2 for Geomagnetism

Prompt Report

Provisional

AURORAL ELECTROJET INDICES (AE11)

for January - December 1990

January 1995

Data Analysis Center for
Geomagnetism and Space Magnetism
FACULTY OF SCIENCE
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Division of
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NATIONAL INSTITUTE OF
POLAR RESEARCH
TOKYO

SPECIAL NOTICE

Plans are being made to publish Prompt Reports for Provisional AE indices on a monthly basis as the required data become available for each month. Taking into consideration of the anticipated schedule for the data collection and digitization where needed, the following order of publication of Provisional AE indices is tentatively contemplated: January to December 1991, January to December 1993, January to December 1994, and January to December 1992.

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Provisional Auroral Electrojet Indices (AE11) for January - December 1990

1. Introduction

This report, prepared as part of the contribution of the WDC-C2 for Geomagnetism, Kyoto to the STEP program, gives provisional Auroral Electrojet Indices for the year 1990. For the details on the AE indices, reference is made to Data Books Nos. 3-23 published from the WDC-C2 for Geomagnetism, UAG reports published from WDC-A for Solar-Terrestrial Physics, and the paper by T. Davis and M. Sugiura (1966).

To facilitate a rapid publication of provisional AE indices, less rigorous screening was applied to the data used than is normally done for the derivation of the AE indices. Final AE indices will be calculated and published in the Data Book series at a later date. The version of provisional AE indices reported here, which we call the provisional AE(11), does not include the data from Dixon Island which were not available at the time of its derivation.

2. Data Used

The data from the eleven observatories listed in Table 1 are used. Digital values recorded by digital magnetometers were supplied directly to us by the following stations: CMO, BRW, YKC, FCC, PBQ, NAQ and LRV. ABK data were digitized at the station and supplied to us. CCS data digitized by AARI and TIK and CWE data digitized by IZMIRAN have been supplied to us through STEP WG 6.4.

3. Results

The monthly quiet-time H reference values for January - June are listed in Table 2a, those for July - December are listed in Table 2b. Table 3 gives the hourly average values of the provisional AE(11) indices (AU, AL, AE and AO).

Daily graphs of 1.0-min AE indices (AU, AL, AE and AO) are shown in Fig. 2, and corresponding plots of the contributing stations are given in Fig. 3. Supplemental plots for disturbed days are given at the end of Fig. 2. Figure 4 shows the H-traces of magnetograms from AE(11) stations from January to December 1990. A summary plot of of hourly values of AU and AL indices is given in Fig. 5.

5. Acknowledgements

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

Table 1. List of AE(12) stations.

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

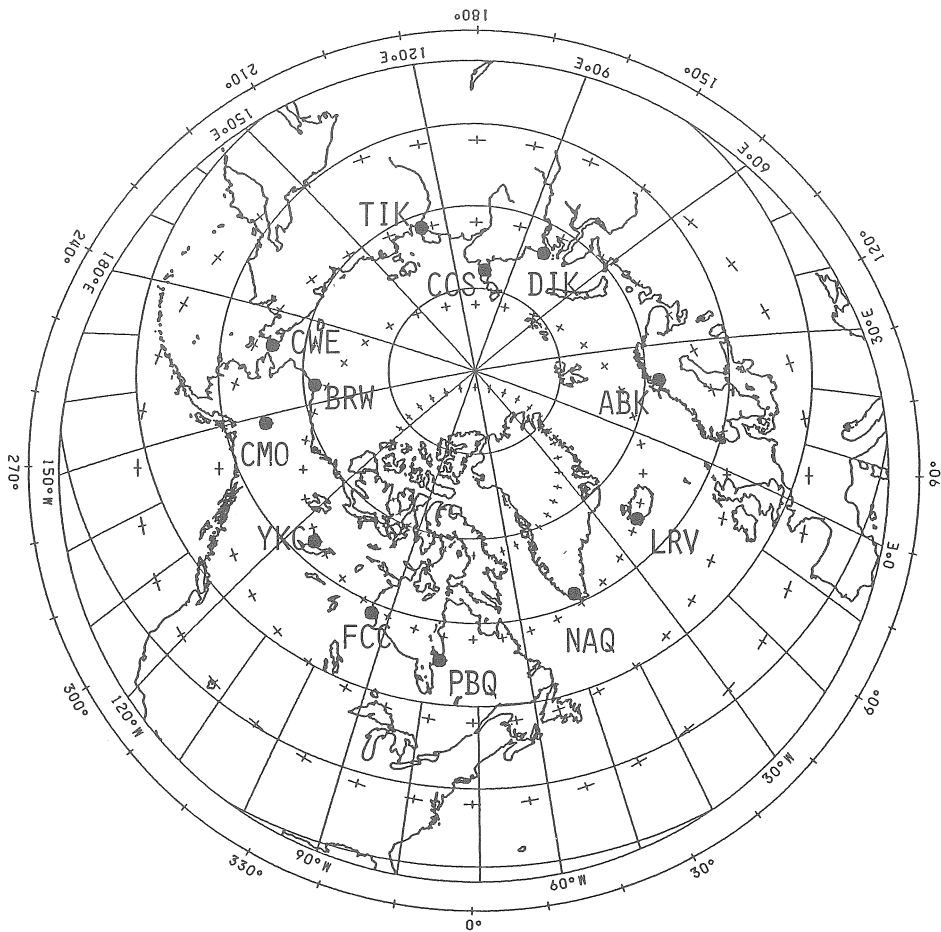


Figure 1. Distribution of AE(12) stations.

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

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

We thank Dr. T. Saemundsson of Leirvogur Observatory for very quick transmission of data, Dr. E. Friis-Christensen and Mr. B. Pederson of Danish Meteorological Institute, Mr. G. Jansen van Beek of Geological Survey of Canada, Mr. L. Wilson and Mr. D. Herzog of United States Geological Survey for their cooperations. Dr. B. Belov of IZMIRAN for digitization of Tixie Bay and Cape Wellen, Dr. O. Troshichev of Arctic and Antarctic Research Institute for digitization of Cape Chelyuskin data, Ms. B. Olafsdottir and Dr. A. Gustafsson of Geological Survey of Sweden for digitization and quality control of Abisko data. We also thank Dr. M. Teague of NASA for the coordination of digitization effort as a STEP WG 6.4 project, Dr. V. Papitashvili for check and transmission of Russian data through STEP WG6.4, Dr. W. Green of USGS for the support of Russian AE stations and coordination of data supply through INTERMAGNET, Dr. Z. Kharin of WDC-B for STP for preparation of microfilm copies of magnetograms from the Russian stations, Mr. J. Allen of WDC-A for STP for assistance in data exchange.

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

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Table 2. Monthly quiet-time H reference values (unit in nT)
(provisional)
(Year 1990)

STATION	Jan.	Feb.	Mar.	Apr.	May	June
Abisko	11588	11574	11569	11568	11581	11575
Dixon Island	* not available *					
Cape Chelyuskin	3176	3172	3169	3173	3191	3181
Tixie Bay	7616	7617	7603	7603	7625	7617
Cape Wellen	13950	13951	13937	13931	13938	13936
Barrow	9535	9530	9524	9519	9549	9525
College	12786	12780	12776	12761	12781	12775
Yellowknife	8756	8742	8745	8737	8752	8751
Fort Churchill	7890	7877	7879	7887	7896	7903
Poste-de-la-Baleine	10954	10945	10945	10955	10957	10975
Narsarsuaq	12280	12263	12271	12280	12282	12285
Leirvogur	12425	12406	12410	12418	12424	12422

STATION	July	Aug.	Sep.	Oct.	Nov.	Dec.
Abisko	11570	11567	11554	11564	11560	11561
Dixon Island	* not available *					
Cape Chelyuskin	3181	3162	3160	3159	3161	3156
Tixie Bay	7618	7609	7608	7600	7598	7611
Cape Wellen	13933	13917	13923	13919	13922	13922
Barrow	9540	9509	9509	9498	9515	9510
College	12780	12763	12767	12763	12764	12767
Yellowknife	8758	8746	8748	8737	8760	8759
Fort Churchill	7908	7905	7904	7893	7912	7908
Poste-de-la-Baleine	10973	10969	10972	10968	10981	10982
Narsarsuaq	12288	12280	12272	12279	12283	12284
Leirvogur	12426	12414	12408	12416	12414	12416

TABLE 3

Monthly tables of
provisional hourly average AE indices
(AU, AL, AE and AO)
for January-December 1990.

Date	AU Index (Hourly mean values, unit nT)																								Mean	
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		
1	14	11	16	39	79	39	119	194	122	88	138	99	115	66	34	36	84	105	87	86	154	92	30	68	80	
2	74	85	82	47	25	24	24	16	9	18	67	81	49	92	131	57	69	119	129	111	163	126	118	47	73	
3	112	93	64	110	120	49	47	37	31	32	22	26	31	52	54	77	55	122	41	38	29	34	12	17	54	
4	18	24	39	40	40	32	37	42	32	25	33	42	72	122	119	68	28	42	38	42	40	58	73	102	50	
5	125	78	56	42	69	58	84	99	65	48	51	41	58	46	52	22	114	137	174	71	105	84	65	99	77	
Q	101	148	140	66	48	36	50	36	34	34	43	35	31	19	5	8	4	5	18	24	54	48	73	87	48	
Q	72	70	76	60	53	108	107	100	36	36	36	32	26	22	10	6	2	1	8	20	42	35	55	36	44	
8	46	35	36	45	60	57	25	29	25	17	18	23	26	25	27	27	107	107	55	72	100	79	114	85	52	
9	57	175	121	74	43	70	56	58	30	25	26	54	110	106	47	19	19	11	16	6	6	13	50	170	57	
10	94	22	21	22	48	44	55	55	90	71	76	116	69	90	71	98	16	52	79	62	57	66	78	114	65	
11	68	131	32	47	37	62	52	92	103	139	88	71	79	53	41	26	74	133	103	86	76	98	45	29	74	
12	57	44	64	34	70	52	64	80	54	42	84	119	157	69	45	35	59	36	51	63	94	67	48	60	64	
13	51	41	47	39	20	42	54	48	18	29	54	40	56	50	18	8	17	22	10	14	12	23	24	17	31	
14	11	19	31	22	15	9	20	19	16	30	31	32	42	43	25	22	38	17	14	11	7	10	12	19	22	
15	18	24	27	12	19	66	47	62	36	31	43	68	69	34	36	33	53	60	21	23	18	11	8	15	35	
16	15	18	20	22	16	15	31	18	14	22	40	31	23	30	33	25	47	106	163	86	91	177	155	135	55	
17	169	138	96	95	71	70	89	39	37	60	54	57	64	60	115	29	82	44	35	65	53	66	112	189	79	
18	201	114	86	32	33	30	50	40	26	31	35	66	44	37	33	13	15	16	52	78	36	60	91	57	53	
19	17	9	24	27	22	18	17	19	19	21	19	15	16	16	17	14	10	12	16	16	19	14	22	40	18	
20	62	60	76	64	32	33	28	74	49	41	101	111	103	117	38	53	137	162	172	115	174	105	60	79	85	
21	61	145	57	28	28	36	63	166	178	133	221	90	109	52	53	92	91	49	48	112	151	287	227	160	110	
D	152	121	37	44	126	68	51	45	135	109	91	103	162	107	56	35	69	93	147	128	166	173	163	155	106	
D	112	70	71	85	146	140	116	101	57	67	138	175	243	184	65	35	34	50	102	166	144	136	166	66	111	
D	132	53	179	100	90	102	176	120	77	152	274	179	114	89	67	37	152	156	93	197	132	105	114	29	122	
25	48	105	129	62	60	43	56	80	70	52	38	82	85	38	60	45	36	26	33	8	10	27	53	30	53	
26	49	19	13	14	23	29	56	119	88	11	43	46	53	28	29	32	17	53	22	18	25	29	41	37	37	
Q	27	58	42	58	105	71	45	28	21	20	20	10	19	13	13	8	3	10	18	17	7	6	9	5	26	
Q	28	4	6	11	8	11	14	20	19	16	17	18	15	20	26	20	14	22	49	83	144	70	91	87	33	
D	29	156	194	77	58	65	361	322	88	58	39	116	106	74	37	34	41	21	64	173	178	141	120	110	114	
D	30	134	134	102	136	114	73	44	49	123	83	49	38	62	74	102	143	178	123	125	109	90	85	65	78	96
31	91	85	139	110	62	36	80	79	101	118	176	101	83	57	81	147	79	55	77	103	47	33	39	33	84	
Mean	76	74	65	54	55	51	67	73	58	53	69	68	73	60	49	42	56	63	66	71	78	76	74	72	64	
5Q Mean	50	55	61	53	41	43	43	39	25	25	27	22	21	18	14	11	6	10	21	32	53	34	50	51	33	
5D Mean	137	114	93	84	108	95	149	127	96	93	118	122	137	105	65	56	94	88	106	154	142	128	125	87	109	

		1990																								
		January																								
AL Index (Hourly mean values, unit nT)		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		-40	-33	-19	-26	-73	-129	-193	-144	-65	-188	-108	-98	-175	-159	-25	-72	-205	-213	-190	-457	-602	-566	-326	-231	-181
Q		-171	-65	-3	-10	-27	-32	-33	-22	-28	-32	-121	-263	-69	-107	-127	-278	-129	-111	-220	-241	-233	-176	-276	-365	-131
Q		-277	-173	-209	-65	-11	-42	-83	-68	-58	-58	-33	-31	-31	-126	-175	-45	-84	-355	-87	-25	-46	-21	-19	-26	-89
Q		-58	-63	-162	-68	-24	-8	-16	-20	-8	-51	-45	-151	-177	-117	-117	-27	-35	-47	-49	-31	-22	-21	-73	-190	-62
Q		-126	-75	-15	-8	-26	-61	-74	-104	-15	-72	-81	-95	-48	-17	-26	-60	-337	-569	-187	-44	-141	-246	-201	-294	-122
Q		-237	-107	-34	-22	-24	-23	-40	-42	-47	-43	-128	-104	-53	-23	-22	-30	-39	-44	-131	-32	-23	-29	-26	-41	-56
Q		-126	-35	-37	-36	-68	-11	-57	-70	-45	-23	-30	-54	-47	-21	-16	-18	-20	-37	-41	-30	-16	-15	-12	-14	-37
Q		-17	-48	-63	-52	-83	-27	-8	-7	-10	-10	-16	-20	-24	-17	-62	-393	-489	-244	-211	-354	-345	-209	-75	-117	
Q		-281	-176	-83	-78	-76	-111	-139	-76	-40	-53	-47	-135	-235	-240	-83	-64	-46	-54	-30	-33	-30	-34	-129	-297	-107
Q		-201	-69	-55	-23	-99	-106	-93	-207	-414	-232	-144	-301	-238	-272	-265	-212	-74	-137	-290	-185	-103	-115	-238	-276	-181
Q		-123	-136	-51	-37	-45	-85	-122	-189	-338	-260	-296	-674	-513	-221	-98	-206	-343	-390	-262	-205	-314	-224	-89	-105	-222
Q		-279	-296	-143	-106	-237	-252	-137	-174	-104	-54	-145	-588	-491	-270	-311	-386	-359	-251	-191	-102	-136	-99	-58	-138	-221
Q		-245	-191	-155	-102	-60	-62	-113	-165	-78	-106	-270	-277	-193	-77	-37	-39	-189	-211	-41	-38	-36	-36	-73	-79	-120
Q		-44	-53	-107	-82	-20	-19	-20	-38	-77	-64	-168	-111	-75	-275	-302	-169	-65	-33	-31	-38	-38	-39	-27	-26	-80
Q		-20	-30	-105	-30	-53	-190	-91	-39	-55	-34	-160	-171	-79	-64	-133	-97	-185	-310	-88	-21	-31	-32	-27	-16	-86
Q		-14	-11	-14	-11	-12	-31	-36	-30	-57	-62	-108	-64	-55	-50	-32	-39	-230	-263	-243	-93	-209	-314	-88	-84	-90
Q		-90	-115	-49	-69	-3	-12	-34	-8	-46	-36	-44	-92	-61	-48	-99	-122	-214	-119	-73	-69	-49	-28	-93	-154	-72
Q		-124	-73	-51	-64	-7	-6	-26	-29	-16	-41	-42	-177	-363	-103	-34	-119	-252	-98	-159	-101	-39	-34	-57	-50	-86
Q		-17	-14	-8	-6	-8	-8	-8	-8	-10	-23	-21	-21	-20	-25	-34	-25	-32	-42	-39	-35	-40	-31	-28	-29	-23
Q		-30	-33	-23	-3	0	1	-16	-20	-28	-32	-72	-72	-66	-57	-307	-331	-265	-284	-260	-244	-138	-76	-96	-60	-102
Q		-57	-83	-2	-11	-12	-25	-130	-213	-210	-131	-177	-72	-173	-272	-278	-204	-46	-32	-65	-215	-299	-211	-126	-122	-132
Q		-122	-87	-317	-199	-49	-19	-36	-98	-93	-78	-165	-51	-79	-39	-39	-136	-222	-253	-320	-174	-199	-216	-107	-80	-132
Q		-63	-214	-136	-94	-63	-45	-90	-72	-30	-20	-149	-301	-290	-124	-238	-133	-70	-68	-129	-285	-388	-348	-159	-184	-154
Q		-199	-212	-71	-82	-44	-223	-112	-65	-168	-376	-277	-140	-284	-201	-105	-123	-269	-468	-486	-359	-236	-401	-254	-580	-239
Q		-335	-420	-178	-15	-49	-81	-220	-115	-24	-63	-92	-219	-347	-111	-284	-345	-208	-97	-56	-32	-20	-30	-28	-35	-142
Q		-58	-37	-27	-25	-44	-58	-74	-43	-20	-17	-128	-227	-49	-41	-189	-176	-149	-241	-135	-51	-41	-36	-58	-38	-82
Q		-19	-18	-22	-76	-11	-7	-4	-11	-14	-21	-27	-30	-35	-34	-32	-35	-37	-39	-87	-43	-19	-19	-18	-19	-28
Q		-24	-21	-14	-10	-2	-3	-2	-5	-10	-15	-19	-23	-24	-24	-23	-27	-33	-30	-83	-199	-189	-39	-26	-20	-35
Q		-65	-179	-13	-22	-40	-109	-358	-114	-34	-34	-46	-301	-342	-79	-35	-65	-132	-68	-86	-192	-300	-297	-270	-125	-138
Q		-283	-129	-107	-85	7	-17	-29	-39	-102	-50	-24	-49	-97	-277	-239	-263	-187	-376	-509	-319	-347	-65	-153	-125	-161
Q		-162	-259	-173	-90	-53	-44	-90	-64	-143	-136	-199	-160	-304	-460	-250	-378	-268	-154	-129	-199	-66	-22	-23	-20	-160
Q		-126	-111	-78	-51	-42	-59	-79	-74	-77	-76	-107	-159	-161	-129	-127	-138	-165	-189	-159	-138	-152	-134	-108	-125	-115
Q		-84	-39	-23	-30	-22	-10	-22	-27	-26	-23	-44	-45	-36	-27	-23	-28	-34	-37	-75	-68	-57	-26	-22	-24	-35
Q		-146	-164	-128	-96	-37	-82	-125	-77	-85	-111	-132	-168	-218	-144	-131	-144	-176	-246	-306	-265	-294	-265	-188	-218	-164

1990
January

AE Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean	
1	54	44	35	66	152	169	314	340	189	277	247	198	290	226	60	109	291	319	278	544	758	659	357	301	262	
2	245	152	86	58	52	56	57	39	37	51	189	345	120	199	259	335	200	231	350	354	398	303	396	413	205	
3	389	267	274	176	133	92	131	105	90	91	56	58	63	178	229	122	141	479	129	63	76	56	31	43	145	
4	77	88	201	109	65	41	54	72	53	35	85	88	225	239	237	96	64	90	88	75	63	80	148	293	114	
5	251	154	72	51	96	121	159	204	81	121	133	138	107	64	79	83	453	708	362	116	246	330	267	393	200	
Q	339	256	176	89	73	60	91	78	81	77	171	140	85	43	28	39	44	50	150	58	78	79	100	129	105	
Q	199	106	114	97	122	120	165	171	83	59	67	87	75	44	28	26	23	39	51	52	60	51	68	51	82	
8	64	83	99	98	145	86	33	36	36	28	35	40	47	50	45	90	502	598	300	284	455	426	325	161	169	
9	339	352	204	153	121	182	196	135	71	78	74	190	335	347	131	83	66	65	47	40	44	49	179	468	165	
10	296	92	77	46	148	151	149	262	505	304	220	417	307	363	337	312	92	190	370	248	161	183	316	390	247	
11	191	268	84	85	83	148	175	281	442	400	385	746	593	275	140	233	418	525	367	292	390	322	135	134	296	
12	336	341	207	141	308	305	202	255	159	97	229	707	649	341	358	422	420	288	242	166	231	167	107	198	286	
13	297	232	203	142	80	105	168	214	97	136	324	317	250	127	56	48	207	235	52	53	49	60	97	152	152	
14	56	73	139	105	37	29	41	59	95	95	200	144	117	318	328	192	104	51	47	50	46	50	40	46	103	
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16	29	30	34	34	29	48	68	48	72	86	149	96	80	80	66	65	279	371	408	180	300	492	243	220	146	
17	260	254	146	165	74	83	125	47	85	96	100	150	125	109	214	152	298	165	109	135	103	94	206	344	152	
18	325	188	137	97	42	37	77	70	44	73	78	244	408	140	68	133	268	115	213	181	76	95	148	108	140	
Q	35	24	33	33	30	27	26	30	44	44	42	36	42	51	43	47	52	52	52	56	60	46	51	70	43	
20	93	94	100	68	36	33	27	91	70	69	134	184	169	175	345	385	403	447	434	360	312	182	157	140	188	
21	120	229	59	40	40	61	194	380	390	264	399	163	283	325	332	297	139	82	113	328	451	498	353	282	243	
22	275	208	355	243	176	88	88	144	230	188	257	155	241	146	95	172	292	348	469	303	365	390	270	235	239	
D	176	284	208	180	210	187	207	174	87	88	288	477	534	309	305	169	105	119	233	453	533	485	326	251	266	
D	333	265	251	182	134	326	288	186	246	529	552	319	399	290	174	162	422	625	580	558	368	507	369	609	361	
25	384	525	308	78	110	124	276	196	94	116	132	302	433	150	346	391	245	125	91	41	30	57	82	66	196	
26	107	57	41	40	69	88	132	163	109	29	172	273	103	70	220	210	167	295	159	71	67	66	87	80	120	
Q	27	78	60	80	82	53	32	33	36	42	47	41	55	48	46	44	40	50	106	61	27	26	28	25	55	
Q	29	29	26	19	14	16	18	23	25	27	32	38	39	46	50	47	48	53	133	284	335	111	118	107	69	
D	29	222	373	90	81	105	206	720	438	123	92	85	417	449	153	74	100	174	90	152	367	480	439	391	236	252
D	30	418	263	210	222	107	91	74	90	227	133	74	89	160	352	342	408	366	499	635	430	439	151	219	204	258
31	253	345	313	201	116	81	171	144	245	255	376	263	388	518	333	527	349	210	207	303	114	55	63	54	245	
Mean	203	186	144	107	98	111	148	148	136	130	178	229	236	191	178	181	222	254	227	211	231	211	184	199	181	
5Q Mean	136	95	85	83	64	55	66	67	53	49	71	68	59	46	39	40	41	48	98	102	112	62	73	76	70	
5D Mean	284	278	222	181	146	179	275	206	182	206	251	291	356	250	198	202	271	336	413	422	437	394	315	307	275	

AO Index (Hourly mean values, unit nT)

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January

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	-13	-10	0	6	2	-44	-36	24	28	-50	14	0	-29	-46	4	-17	-59	-53	-51	-184	-223	-236	-147	-80	-50
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3	-81	-39	-71	22	53	3	-17	-15	-12	-12	-4	-2	0	-36	-60	15	-13	-115	-22	6	-8	5	-2	-4	-17
4	-19	-18	-60	-13	7	12	10	6	5	8	-9	-1	-39	-27	1	20	-3	-2	-5	5	8	18	0	-43	-5
5	0	1	20	16	21	-1	4	-2	24	-12	-14	-26	4	14	12	-19	-110	-215	-6	13	-17	-80	-67	-96	-22
6	-67	20	52	21	11	5	5	-2	-5	-4	-42	-34	-10	-1	-8	-10	-16	-18	-55	-4	15	9	23	22	-3
7	-26	17	18	12	-6	48	24	14	-4	6	2	-10	-10	0	-2	-5	-8	-17	-15	-4	12	9	20	10	3
8	14	-5	-12	-3	-11	14	8	10	7	2	1	3	2	0	4	-17	-142	-190	-94	-69	-126	-132	-46	5	-32
9	-111	0	18	-2	-15	-20	-40	-8	-4	-13	-10	-39	-57	-66	-17	-21	-13	-20	-6	-12	-15	-9	-39	-62	-24
10	-52	-22	-16	0	-25	-30	-18	-75	-161	-79	-33	-92	-84	-90	-96	-56	-28	-41	-105	-61	-22	-23	-79	-80	-57
11	-26	-2	-8	5	-3	-10	-34	-47	-116	-60	-103	-300	-216	-83	-28	-89	-133	-127	-78	-59	-118	-62	-21	-37	-73
12	-110	-125	-39	-35	-82	-99	-35	-46	-24	-5	-30	-233	-166	-99	-132	-174	-149	-106	-69	-19	-20	-15	-4	-38	-77
13	-96	-74	-53	-31	-19	-9	-29	-57	-29	-37	-107	-117	-68	-13	-9	-14	-85	-93	-15	-11	-11	-6	-24	-30	-43
14	-16	-16	-37	-30	-1	-4	0	-8	-29	-15	-67	-39	-16	-115	-137	-73	-12	-7	-7	-12	-14	-14	-7	-3	-28
15	0	-3	-38	-8	-16	-61	-21	10	-9	-1	-58	-51	-4	-14	-48	-31	-65	-123	-33	0	-6	-10	-9	0	-25
16	0	2	2	4	1	-7	-2	-5	-21	-19	-34	-15	-15	-9	0	-7	-90	-77	-39	-3	-58	-68	32	24	-17
17	39	11	23	12	33	28	26	15	-4	11	4	-17	1	5	7	-46	-64	-36	-18	-1	2	18	9	17	3
18	37	20	17	-15	12	11	12	5	4	-4	-3	-55	-158	-32	0	-52	-117	-39	-52	-10	-1	12	16	3	-16
19	0	-2	7	10	6	5	4	3	-1	0	0	-2	-3	-8	-4	-8	-15	-12	-8	-11	-9	-8	-2	5	-2
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21	2	31	26	8	7	5	-33	-22	-15	0	21	8	-32	-109	-112	-55	22	8	-8	-50	-73	37	49	18	-11
22	15	17	-139	-76	38	23	7	-26	21	15	-36	25	41	33	8	-49	-76	-79	-85	-22	-16	-20	27	37	-13
23	24	-71	-31	-4	41	47	12	14	13	22	-5	-62	-23	29	-85	-48	-17	-8	-12	-58	-120	-105	3	-58	-21
24	-33	-79	53	8	22	-59	31	27	-45	-111	-1	19	-84	-55	-18	-42	-58	-155	-196	-80	-51	-146	-69	-275	-58
25	-143	-156	-24	22	5	-18	-81	-17	22	-5	-26	-67	-130	-35	-110	-149	-85	-35	-11	-11	-1	12	-2	-43	-43
26	-4	-8	-6	-4	-10	-13	-8	37	33	-2	-42	-90	1	-6	-79	-71	-65	-93	-55	-15	-7	-3	-13	1	-22
27	18	11	17	14	29	18	11	4	2	0	-3	-9	-7	-9	-9	-12	-16	-14	-33	-12	-5	-5	-4	-6	0
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30	-73	2	-2	25	61	27	6	4	10	16	12	-5	-17	-100	-68	-59	-4	-125	-191	-103	-127	9	-43	-22	-32
31	-35	-86	-16	10	4	-4	-5	7	-20	-8	-11	-29	-110	-200	-83	-114	-93	-48	-25	-47	-9	5	7	5	-38
Mean	-24	-18	-6	1	6	-3	-5	0	-9	-11	-18	-45	-43	-34	-38	-47	-53	-62	-45	-33	-36	-28	-16	-26	-25
5Q Mean	-16	7	18	11	8	15	9	5	0	0	-8	-11	-6	-4	-4	-7	-12	-13	-25	-17	-1	4	13	12	0
5D Mean	-4	-24	-17	-6	34	6	11	24	5	-9	-6	-23	-40	-19	-32	-42	-39	-77	-98	-54	-74	-67	-31	-65	-27

Date	February 1990																								
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1	30	26	17	33	80	101	144	52	22	26	25	73	62	150	123	66	274	132	129	300	173	65	53	115	95
2	101	102	106	60	124	133	134	80	76	120	132	99	67	102	78	186	302	284	174	109	143	138	104	70	126
3	63	50	51	37	25	18	28	36	25	26	47	29	19	23	28	35	29	93	212	127	79	113	88	146	59
4	172	119	106	178	124	98	134	125	41	50	76	105	106	93	63	77	180	90	176	196	205	195	97	82	120
5	83	111	152	99	110	128	120	104	89	127	91	131	77	40	44	47	72	137	77	47	39	49	32	27	85
6	34	31	35	59	67	50	35	40	67	18	14	11	15	12	7	20	34	34	26	23	20	17	17	15	29
7	14	15	28	20	35	43	61	100	254	261	112	124	198	177	197	279	221	184	296	202	193	89	67	170	139
8	132	84	71	53	44	61	73	79	64	83	67	43	29	20	13	16	17	15	15	10	17	10	7	9	43
9	10	13	16	17	16	19	59	34	29	19	32	47	36	25	34	27	39	33	32	18	17	22	18	26	27
10	46	65	55	32	29	27	24	35	44	70	45	25	26	62	54	75	47	53	32	27	41	35	41	27	42
11	34	29	36	40	76	67	58	52	36	69	60	81	25	24	34	44	98	164	168	100	80	47	82	41	64
12	48	98	130	126	68	68	65	38	36	57	64	33	19	20	18	14	17	13	13	14	14	14	15	17	42
13	14	13	16	20	18	18	20	19	19	22	37	31	39	34	28	28	32	49	47	57	68	62	91	153	39
14	46	115	126	209	358	319	326	291	251	175	64	31	16	18	11	15	13	19	13	11	11	29	25	21	105
15	11	10	8	6	11	19	55	55	63	65	68	55	44	59	67	206	279	286	234	147	167	130	190	138	99
16	219	86	189	406	265	332	244	146	107	87	52	74	150	76	160	129	71	123	99	111	184	192	47	42	150
17	124	96	106	70	133	139	126	95	102	176	195	106	169	146	150	193	296	217	99	64	105	177	224	199	146
18	180	113	94	115	122	128	122	92	132	175	115	104	90	98	87	71	84	168	179	136	165	185	273	165	133
19	73	49	119	153	88	134	59	77	104	164	192	112	106	206	176	305	226	218	189	240	192	225	177	159	156
20	158	175	79	179	129	97	93	123	138	175	109	292	145	169	120	76	166	334	246	231	199	163	142	125	161
21	203	247	198	137	78	103	68	44	29	42	31	34	32	45	37	38	19	56	84	50	58	48	34	73	73
22	42	52	87	130	119	87	82	137	115	53	72	60	68	85	101	97	64	133	186	266	144	108	158	344	116
23	113	101	165	134	68	59	125	136	153	166	148	140	80	179	221	219	205	283	301	155	195	273	161	70	160
24	102	80	215	196	149	153	92	106	78	133	161	91	106	98	248	260	233	243	246	279	129	89	98	41	151
25	54	157	152	94	138	168	210	171	128	200	104	148	256	173	187	116	104	222	180	218	169	184	273	233	168
26	84	104	84	96	41	59	96	73	70	109	206	200	157	217	82	41	15	17	14	170	178	219	213	75	109
27	131	99	143	83	77	95	176	223	115	63	119	104	128	159	144	48	27	43	75	85	79	37	43	78	199
28	79	69	106	131	258	190	347	186	66	47	174	80	68	147	77	67	65	61	98	159	170	224	127	98	129
Mean	85	82	96	104	101	104	113	98	87	99	93	87	83	94	92	99	115	132	130	126	115	112	104	97	102
5Q Mean	50	54	57	49	35	38	48	41	38	50	49	35	29	32	29	32	30	32	27	25	31	28	34	46	38
5D Mean	137	101	131	188	136	152	129	115	120	153	139	144	130	155	165	184	192	235	186	160	175	206	150	119	154

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AL Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
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2	-462	-347	-91	-15	-109	-268	-131	-35	-96	-276	-271	-233	-322	-467	-222	-364	-573	-576	-246	-240	-172	-254	-64	-103	-247
3	-163	-68	-7	-6	-8	-9	-7	-11	-20	-52	-106	-112	-64	-94	-290	-177	-101	-262	-428	-169	-44	-99	-167	-122	-108
4	-101	-114	-178	-79	-51	-64	-76	-21	-2	-8	-17	-113	-82	-80	-113	-172	-252	-656	-466	-248	-556	-406	-134	-146	-172
5	-314	-427	-617	-147	-121	-183	-253	-117	-278	-304	-602	-332	-106	-145	-207	-348	-408	-400	-352	-94	-44	-94	-139	-122	-256
6	-149	-184	-303	-302	-194	-251	-152	-148	-202	-14	-13	-13	-21	-15	-21	-56	-163	-51	-16	-15	-7	-9	-16	-20	-97
7	-22	-37	-44	-17	-34	-121	-260	-342	-419	-479	-489	-434	-599	-314	-284	-312	-459	-539	-325	-396	-504	-410	-399	-248	-312
8	-122	-65	-163	-63	-34	-179	-69	-47	-34	-40	-21	-43	-22	-19	-18	-12	-14	-15	-15	-10	-9	-11	-14	-14	-44
9	-16	-17	-14	-21	-7	-29	-209	-76	-28	-45	-85	-166	-72	-21	-44	-111	-185	-14	-11	-7	-5	-7	-15	-19	-51
Q 10	-34	-44	-9	-1	-1	-1	-1	-53	-73	-199	-30	-8	-27	-33	-308	-211	-38	3	-1	-11	-23	-16	-65	-19	-50
11	-18	-34	-37	-56	-106	-79	-35	-41	-49	-188	-159	-107	-29	-20	-149	-292	-363	-318	-242	-123	-113	-24	-84	-52	-113
Q 12	-31	-361	-201	-55	-100	-69	-30	-60	-104	-119	-126	-24	-10	-13	-61	-26	-22	-19	-15	-7	-1	-1	-7	-13	-62
Q 13	-8	-8	-3	-24	-1	-7	-24	-3	-5	-40	-100	-119	-95	-29	-16	-21	-19	-33	-11	-5	3	-60	-317	-39	-39
14	-368	-221	-105	-321	-507	-423	-172	-64	-47	-30	-32	-43	-65	-37	-25	-23	-22	-25	-29	-21	-22	-28	-20	-23	-111
15	-29	-25	-24	-25	-79	-109	-155	-124	-143	-151	-285	-154	-152	-486	-517	-632	-516	-484	-342	-553	-715	-642	-499	-617	-311
16	-723	-612	-599	-469	-354	-250	-218	-101	-186	-148	-147	-161	-276	-303	-383	-311	-122	-254	-215	-146	-532	-606	-483	-431	-335
D 17	-545	-467	-257	-240	-308	-97	-22	-55	-111	-409	-365	-489	-424	-405	-318	-486	-484	-343	-65	-63	-197	-368	-378	-200	-296
18	-96	-166	-336	-192	-179	-90	-77	-277	-208	-196	-90	-256	-349	-247	-88	-72	-209	-309	-411	-331	-465	-404	-207	-258	-230
D 19	-361	-204	-205	-14	-20	-62	-54	-134	-129	-245	-194	-217	-344	-593	-679	-348	-204	-160	-404	-474	-718	-439	-342	-624	-299
D 20	-271	-250	-252	-167	-64	-113	-271	-514	-304	-397	-454	-123	-151	-647	-437	-127	-176	-337	-305	-509	-676	-687	-232	-314	-324
21	-263	-149	-42	-42	-60	-105	-14	-21	-29	-108	-222	-240	-78	-287	-280	-140	-30	-105	-228	-231	-86	-67	-64	-40	-122
22	-142	-232	-212	-187	-15	-82	-253	-206	-96	-4	-39	-107	-122	-215	-519	-395	-124	-111	-224	-484	-412	-305	-216	-388	-212
D 23	-315	-123	-143	-72	-11	-13	-109	-334	-218	-253	-129	-419	-370	-377	-723	-788	-302	-300	-375	-184	-179	-386	-366	-345	-285
24	-231	-267	-250	-219	-103	-133	-94	-224	-195	-299	-171	-89	-318	-263	-384	-463	-363	-441	-536	-683	-428	-422	-338	-359	-303
25	-391	-291	-294	-347	-175	-138	-129	-116	-98	-291	-455	-590	-455	-371	-489	-308	-170	-388	-391	-450	-320	-256	-313	-191	-309
26	-159	-150	-55	-112	-163	-51	-15	-5	-30	-206	-304	-416	-439	-448	-202	-52	-29	-15	-22	-238	-630	-380	-235	-288	-194
27	-170	-111	-82	-19	-38	-317	-483	-120	-69	-56	-173	-584	-405	-356	-418	-65	-20	-72	-154	-214	-69	-21	-29	-62	-171
28	-60	-48	-220	-746	-513	-428	-407	-242	-73	-115	-361	-79	-108	-337	-172	-100	-138	-66	-235	-409	-307	-238	-173	-98	-236
Mean	-199	-180	-170	-141	-126	-139	-134	-124	-116	-167	-194	-207	-204	-244	-268	-232	-205	-250	-244	-237	-262	-235	-183	-201	-194
5Q Mean	-42	-99	-78	-32	-28	-57	-66	-47	-48	-88	-72	-72	-45	-23	-89	-76	-55	-15	-10	-8	-7	-6	-32	-76	-49
5D Mean	-443	-331	-291	-192	-151	-107	-134	-227	-189	-290	-257	-281	-313	-465	-508	-412	-257	-278	-272	-275	-460	-497	-360	-382	-307

AE Index (Hourly mean values, unit nT)		February 1990																									
		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	
Date	1	52	64	37	50	263	344	185	59	32	37	43	204	297	363	274	167	515	863	899	627	282	82	144	317	258	
	2	564	450	198	76	234	402	267	117	174	397	405	333	391	570	302	551	877	862	421	349	316	392	169	173	375	
	3	226	120	58	44	33	28	36	48	46	79	153	141	83	118	319	213	131	357	642	297	125	212	256	269	168	
	4	274	235	284	258	177	163	211	148	44	59	94	220	189	174	176	250	434	746	643	444	761	602	231	229	294	
	5	398	539	770	247	233	313	375	223	368	432	694	464	184	185	253	396	481	538	430	142	84	143	171	150	342	
	6	184	216	339	362	263	302	189	190	270	33	28	25	38	28	28	78	199	86	43	39	28	27	34	35	128	
	7	37	54	73	38	71	166	322	443	675	741	603	559	798	493	482	592	681	724	622	598	698	500	466	418	452	
	8	254	149	235	117	79	241	144	127	99	125	90	88	52	40	32	30	32	31	31	21	27	22	23	24	88	
Q	9	28	32	32	32	39	24	49	269	112	58	65	118	214	109	47	79	140	225	49	45	26	23	30	35	47	79
Q	10	81	110	65	35	31	29	27	90	118	270	77	34	54	96	364	287	85	50	34	39	66	51	107	46	94	
	11	53	64	74	97	183	148	94	95	87	257	220	188	55	45	185	338	462	484	412	224	193	72	167	93	179	
	12	81	460	332	183	170	138	96	100	141	177	191	58	31	35	80	41	40	34	29	22	17	17	23	31	105	
Q	13	22	22	20	45	19	26	44	22	25	62	137	151	135	64	46	50	52	82	59	63	65	59	151	470	79	
Q	14	415	336	232	531	865	743	498	355	299	206	96	75	82	56	37	39	36	44	43	33	34	58	47	45	217	
	15	41	36	33	32	91	129	212	180	207	216	354	210	196	547	585	840	797	771	577	701	882	773	690	755	411	
D	16	944	698	789	876	620	583	463	248	294	236	200	236	427	380	545	441	194	379	315	258	716	798	530	473	485	
D	17	669	564	363	311	443	238	150	152	215	586	560	596	595	552	470	680	781	561	165	128	303	545	603	399	443	
	18	277	280	430	308	302	219	200	370	342	371	205	361	440	346	176	144	294	478	591	468	630	589	481	423	364	
D	19	434	255	324	168	110	197	114	212	235	411	387	331	451	801	857	654	432	380	595	715	910	665	519	783	456	
D	20	430	425	332	347	194	212	364	639	444	573	563	416	297	817	558	204	343	673	552	740	875	851	375	440	486	
	21	467	397	241	180	138	209	83	66	59	151	254	275	111	333	318	179	50	162	314	283	145	115	114	74	197	
	22	185	285	299	317	135	169	337	344	212	58	111	167	191	301	621	494	190	245	410	750	557	413	375	732	329	
D	23	429	225	309	207	81	73	235	471	372	420	278	561	451	558	945	1008	508	584	677	341	375	659	527	416	446	
	24	334	347	467	416	253	288	186	331	274	433	333	181	425	362	633	724	597	686	783	963	557	511	436	401	455	
	25	445	448	447	442	314	307	340	289	227	493	560	740	713	546	678	425	275	611	571	669	490	441	587	424	478	
	26	243	255	140	210	204	111	112	79	101	316	512	617	597	666	286	94	45	33	37	409	809	600	449	363	304	
	27	301	210	226	103	116	413	660	344	186	119	293	689	534	516	584	115	48	116	229	300	149	59	72	141	271	
	28	139	117	327	878	772	619	756	429	139	163	536	160	177	485	250	168	204	127	333	569	478	463	301	197	366	
Mean		285	264	267	247	229	244	248	224	205	267	289	296	289	340	362	333	321	384	375	364	378	348	288	298	298	
5Q Mean		93	154	136	83	64	96	116	90	88	139	122	109	76	56	120	109	86	49	39	34	39	35	67	123	88	
5D Mean		581	433	423	381	289	260	265	344	312	445	397	428	444	621	675	597	451	515	460	436	635	703	510	502	463	

February 1990

AO Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	3	-5	0	7	-49	-69	51	22	6	6	4	-28	-85	-30	-13	-16	17	-298	-318	-13	31	23	-18	-43	-34
2	-179	-122	7	22	7	-66	1	21	-9	-77	-68	-65	-127	-181	-71	-88	-134	-145	-35	-65	-14	-57	19	-16	-60
3	-49	-8	21	15	8	4	9	11	2	12	-29	-40	-21	-34	-130	-70	-35	-83	-107	-20	17	6	-38	11	-23
4	34	2	-35	48	36	15	28	51	19	20	28	-3	12	6	-24	-46	-35	-282	-143	-22	-175	-105	-18	-31	-25
5	-114	-157	-231	-23	-5	-27	-66	-6	-93	88	-255	-99	-13	-52	-80	-149	-167	-130	-137	-22	-2	-22	-53	-47	-85
6	-56	-75	-133	-121	-62	-100	-57	-53	-66	1	0	0	-2	-1	-6	-17	-63	-8	4	3	5	3	0	-2	-33
7	-3	-10	-7	0	0	-38	-99	-120	-82	-108	-188	-154	-199	-68	-42	-16	-118	-177	-14	-96	-155	-160	-165	-38	-86
8	5	9	-45	-4	4	-58	1	15	15	21	22	0	3	0	-2	1	1	0	0	0	3	0	-3	-2	0
9	-2	-1	1	-2	4	-4	-74	-20	0	-12	-25	-58	-17	2	-4	-41	-72	8	9	4	5	7	1	3	-12
Q	6	10	22	15	13	12	11	-9	-14	-63	7	7	0	14	-126	-67	4	28	15	7	9	9	-11	3	-3
11	7	-2	0	-7	-14	-5	11	5	-6	-59	-48	-12	-1	1	-57	-123	-131	-76	-36	-10	-16	11	-1	-5	-24
12	8	-131	-34	35	-15	0	17	-10	-33	-30	-30	4	4	2	-21	-6	-2	-2	-1	2	6	6	3	0	-9
13	2	2	5	-2	8	5	-1	8	6	-8	-30	-43	-27	2	5	3	5	7	17	25	35	32	14	-82	0
14	-160	-52	10	-55	-73	-52	76	112	101	72	15	-5	-23	-8	-6	-3	-3	-3	-7	-4	-5	0	2	0	-3
15	-8	-6	-7	-8	-33	-44	-49	-33	-39	-42	-107	-48	-53	-212	-224	-212	-117	-98	-54	-202	-273	-255	-154	-238	-105
D	-251	-262	-204	-30	-43	40	12	22	-38	-30	-46	-43	-61	-112	-110	-90	-24	-65	-57	-17	-173	-207	-217	-193	-92
17	-210	-185	-74	-84	-86	20	51	19	-4	-116	-84	-190	-126	-128	-83	-146	-93	-61	16	0	-45	-94	-76	-1	-74
18	41	-26	-120	-38	-28	18	21	-92	-37	-10	12	-75	-128	-74	0	0	-61	-69	-115	-96	-149	-109	33	-46	-48
D	-143	-76	-42	68	32	35	2	-28	-12	-40	-1	-52	-118	-192	-250	-21	10	28	-106	-116	-262	-106	-81	-232	-71
D	-56	-37	-85	6	31	-7	-88	-195	-82	-110	-172	84	-2	-238	-157	-25	-5	-1	-29	-138	-238	-262	-44	-94	-81
21	-30	48	77	47	9	0	26	10	0	-33	-95	-102	-22	-119	-121	-50	-5	-24	-71	-90	-13	9	-7	-3	-24
22	-49	-89	-62	-28	51	2	-84	-34	9	24	16	-23	-26	-64	-208	-148	-29	11	-18	-108	-133	-98	-28	-21	-47
D	-100	-10	10	30	27	22	7	-98	-32	-43	8	-138	-143	-98	-249	-283	-48	-8	-36	-13	7	-56	-102	-136	-61
23	-64	-93	-17	-11	22	9	0	-58	-57	-82	-4	1	-105	-82	-66	-100	-64	-98	-144	-201	-149	-166	-119	-158	-75
24	-168	-66	-70	-126	-18	14	39	26	14	-45	-174	-220	-98	-98	-150	-94	-32	-82	-104	-115	-75	-35	-19	20	-70
25	-37	-23	14	-7	-60	4	40	33	19	-47	-48	-107	-140	-114	-59	-4	-6	0	-3	-34	-226	-80	-11	-106	-41
27	-19	-5	30	31	19	-110	-153	51	22	3	-27	-239	-137	-98	-135	-8	2	-14	-39	-63	4	7	6	7	-36
28	8	9	-57	-306	-126	-118	-29	-27	-3	-33	-92	0	-19	-93	-46	-15	-36	-2	-68	-124	-68	-7	-22	0	-53
Mean	-56	-48	-36	-18	-12	-17	-10	-13	-14	-33	-50	-58	-59	-73	-86	-65	-44	-58	-56	-54	-73	-61	-39	-51	-45
5Q Mean	3	-22	-10	8	2	-9	-9	-3	-5	-18	-11	-18	-7	4	-29	-22	-12	8	8	7	11	10	0	-15	-5
5D Mean	-152	-114	-79	-2	-7	22	-3	-56	-33	-67	-59	-67	-90	-153	-169	-113	-32	-21	-42	-56	-142	-145	-104	-131	-75

Date	AU Index (Hourly mean values, unit nT)																								
	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	111	169	76	100	88	62	61	61	113	130	134	65	111	144	109	181	202	103	116	97	135	91	179	121	115
2	87	113	104	137	143	124	129	115	139	271	484	223	75	74	65	51	47	122	119	176	160	107	118	69	135
3	48	62	42	42	42	65	82	76	77	66	39	29	48	38	32	54	70	130	147	139	89	51	35	26	64
4	19	18	18	16	25	20	23	59	75	127	64	20	26	17	17	19	24	43	61	71	151	170	266	57	72
Q	177	185	160	148	122	114	46	53	60	54	59	35	27	35	27	29	32	38	32	27	26	74	84	95	72
6	155	162	224	175	172	118	104	84	157	85	64	83	65	54	125	263	265	184	70	69	56	42	29	25	118
7	28	28	45	67	89	41	24	61	44	69	73	78	89	89	149	43	27	17	29	38	14	20	29	49	52
8	45	21	31	43	20	20	27	41	43	68	142	59	32	46	31	80	56	26	24	24	29	34	58	34	43
9	47	46	45	31	39	55	56	53	42	59	99	62	32	42	18	34	28	29	32	28	24	52	25	22	42
Q	23	19	30	34	24	35	54	46	61	62	41	52	58	64	45	26	26	19	30	68	55	28	23	24	39
11	29	30	59	40	34	37	40	36	35	47	70	93	44	52	51	62	42	59	71	74	49	32	30	39	48
12	32	27	56	64	88	69	63	67	79	89	41	30	31	38	47	229	197	213	152	140	198	-29	68	282	95
13	32	-26	-15	12	25	1	14	8	10	7	23	16	12	51	72	83	110	160	149	138	124	232	167	88	62
14	76	87	157	160	78	98	62	35	27	34	89	98	81	29	75	108	54	61	76	80	45	68	64	44	74
15	75	103	91	79	55	77	89	81	73	65	69	74	72	57	65	64	84	44	60	102	83	118	107	116	79
Q	119	165	116	89	111	158	238	183	152	121	96	78	68	27	34	37	27	28	31	61	90	111	89	113	98
17	76	53	44	50	44	41	52	62	34	33	27	25	26	33	44	27	22	25	25	28	29	33	34	31	37
18	29	27	40	49	33	32	35	71	137	152	151	217	142	161	340	251	215	227	173	191	285	176	113	192	143
19	145	99	144	72	34	33	37	52	54	46	93	58	45	76	69	44	19	19	30	21	36	44	40	129	60
20	162	140	124	155	133	137	100	106	98	165	248	180	92	137	337	492	444	394	341	444	384	167	151	182	221
D	171	236	331	379	339	370	209	356	345	295	156	139	80	129	400	357	213	220	136	257	273	150	79	20	235
22	39	130	116	88	67	74	200	142	206	159	129	183	184	140	113	88	238	237	228	295	264	129	195	132	157
23	100	165	118	166	102	180	143	113	96	186	237	171	167	158	260	168	187	240	226	188	220	165	112	141	167
24	140	132	159	140	142	126	127	108	131	111	102	87	65	108	68	45	64	148	201	157	171	192	219	229	132
D	187	187	199	154	60	44	34	55	115	237	234	164	152	227	315	315	482	275	186	110	165	195	126	101	180
D	111	202	135	151	263	187	173	114	85	103	270	204	134	71	99	333	310	243	275	323	237	183	218	223	194
27	134	159	161	104	228	246	195	129	82	106	110	73	42	24	37	196	315	305	359	332	295	290	171	109	175
28	61	112	85	157	157	163	191	129	153	130	170	187	122	156	118	237	210	229	244	284	312	332	210	226	182
29	151	64	86	143	83	100	61	40	69	84	111	164	195	269	292	349	305	359	334	321	294	260	130	119	183
D	244	215	167	231	268	201	170	243	-61	28	-72	146	223	198	163	142	126	72	59	58	59	61	51	40	126
Q	49	29	16	13	16	26	37	43	36	39	10	22	47	53	43	16	1	3	9	15	61	93	85	75	35
Mean	93	101	102	106	100	100	93	89	89	103	114	100	83	90	118	142	143	137	129	140	139	117	103	108	110
5Q Mean	57	56	44	40	44	56	80	78	71	76	47	39	45	38	36	24	19	19	27	46	61	83	80	101	53
5D Mean	149	173	177	195	203	174	129	167	112	150	125	136	124	132	204	275	265	204	161	177	186	112	108	133	165

Date	AL Index (Hourly mean values, unit nT)																								
	March												1990												
	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	-399	-137	-29	-76	-297	-139	-27	-66	-151	-234	-92	-89	-184	-565	-199	-338	-366	-229	-239	-218	-256	-142	-216	-182	-203
2	-18	-88	-171	-107	-84	-219	-244	-100	-242	-411	-316	-101	-55	-136	-192	-152	-84	-223	-377	-497	-380	-272	-49	-63	-191
3	-29	-54	-111	-26	-22	-112	-170	-156	-49	-96	-8	-19	-63	-49	-134	-104	-200	-364	-382	-193	-167	-104	-14	-15	-110
4	-14	-10	-11	-9	-5	-3	-2	-127	-146	-277	-55	-18	-25	-27	-27	-21	-20	-23	-47	-115	-130	-155	-183	-210	-69
5	-220	-124	-130	-81	-73	-66	-33	-56	-57	-37	-77	-57	-21	-20	-8	-42	-33	-24	-23	-18	-16	-44	-93	-202	-65
6	-193	-509	-377	-290	-260	-254	-176	-117	-154	-92	-17	-156	-149	-217	-311	-418	-333	-261	-133	-92	-39	-23	-14	-28	-192
7	-35	-69	-98	-206	-248	-133	-22	-13	-40	-8	-89	-84	-137	-333	-299	-77	-68	-58	-26	-44	-14	-10	-10	-39	-90
8	-125	-66	-64	-132	-79	-22	-12	-30	-75	-53	-335	-139	-27	-36	-44	-221	-134	-23	-11	-12	-9	-8	-31	-18	-71
9	-18	-19	-16	-22	-44	-119	-102	-47	-128	-122	-441	-88	-56	-176	-62	-48	-130	-41	-11	-5	-2	-35	-14	-18	-74
10	-19	-14	-35	-53	-6	-25	-88	-207	-169	-109	-35	-50	-89	-131	-214	-105	-28	-32	-36	-106	-80	-13	-15	-17	-70
11	-20	-62	-278	-139	-19	-30	-26	-13	-9	-9	-83	-256	-70	-83	-76	-239	-150	-108	-123	-116	-27	-26	-13	-23	-83
12	-23	-38	-170	-195	-189	-32	-16	-33	-123	-299	-95	-28	-16	-22	-37	-735	-489	-488	-101	-80	-307	-836	-489	-401	-218
13	-249	-170	-126	-121	-64	-70	-49	-66	-94	-125	-178	-185	-414	-369	-197	-302	-386	-379	-327	-341	-385	-720	-550	-376	-260
14	-413	-512	-257	-67	-46	-63	-67	-43	-20	-31	-56	-355	-230	-246	-206	-96	-78	-69	-106	-122	-24	-46	-108	-125	-141
15	-187	-217	-295	-312	-181	-94	-228	-204	-187	-103	-89	-76	-77	-169	-204	-127	-119	-103	-75	-166	-65	-39	-67	-198	-149
16	-190	-63	-68	-34	-63	-156	-151	-102	-99	-94	-44	-34	-31	-35	-78	-55	-41	-22	-14	-35	-47	-84	-98	-146	-74
17	-55	-19	-14	-12	-19	-23	-14	-12	1	-2	-5	-13	-24	-25	-23	-27	-30	-33	-28	-18	-8	-7	-12	-14	-18
18	-18	-18	-20	-15	-10	-9	-11	-32	-87	-43	-52	-147	-470	-276	-474	-467	-220	-184	-222	-256	-325	-536	-414	-84	-183
19	-100	-477	-184	-34	-15	-6	-29	-38	-44	-49	-53	-37	-33	-33	-32	-54	-28	-30	-30	-22	-29	-34	-38	-97	-64
20	-198	-170	-160	-173	-45	-32	-10	-51	-22	-50	-213	-162	-213	-311	-453	-472	-520	-315	-367	-361	-267	-127	-37	-456	-216
21	-911	-469	-317	-380	-695	-661	-483	-189	-335	-251	-470	-213	-90	-129	-536	-670	-540	-399	-644	-564	-555	-504	-309	-390	-446
22	-206	-158	-261	-239	-154	-197	-147	-209	-270	-329	-239	-296	-395	-275	-185	-110	-321	-444	-524	-368	-476	-279	-209	-198	-270
23	-242	-281	-238	-208	-314	-268	-236	-121	-123	-287	-452	-488	-453	-282	-525	-422	-296	-404	-340	-319	-288	-173	-50	-161	-290
24	-204	-167	-136	-170	-208	-149	-213	-291	-241	-191	-152	-59	-44	-215	-225	-123	-106	-182	-390	-380	-279	-246	-991	-609	-224
25	-605	-374	-177	-177	-45	-16	-14	-28	-121	-275	-470	-473	-429	-320	-451	-556	-535	-513	-549	-621	-501	-445	-731	-518	-373
26	-376	-456	-500	-220	-176	-342	-258	-151	-123	-96	-461	-318	-50	-89	-131	-527	-737	-664	-489	-408	-407	-200	-132	-201	-313
27	-303	-417	-254	-85	-289	-256	-194	-200	-163	-141	-86	-79	-33	-38	-58	-302	-567	-633	-462	-639	-546	-442	-307	-99	-275
28	-74	-120	-317	-341	-268	-231	-209	-188	-202	-193	-198	-329	-164	-243	-256	-263	-365	-285	-264	-300	-469	-437	-235	-170	-255
29	-96	-39	-43	-165	-81	-21	-7	-15	-8	-35	-147	-331	-581	-661	-448	-484	-566	-565	-439	-379	-489	-508	-439	-424	-290
30	-318	-181	-270	-245	-391	-287	-398	-989	-1461	-793	-1220	-832	-190	-376	-368	-215	-99	-39	-75	-34	-34	-26	-26	-43	-371
31	-51	-65	-87	-52	-31	-49	-120	-37	-21	-29	-38	-40	-97	-235	-101	-31	-35	-33	-25	-33	-63	-100	-125	-63	-65
Mean	-190	-179	-168	-141	-142	-131	-121	-126	-160	-156	-202	-179	-158	-197	-211	-251	-245	-231	-221	-221	-215	-213	-174	-180	-184
5Q Mean	-65	-34	-43	-32	-24	-51	-75	-97	-86	-102	-35	-31	-53	-90	-88	-47	-30	-28	-30	-61	-65	-71	-86	-90	-59
5D Mean	-446	-303	-286	-243	-299	-267	-233	-278	-432	-342	-543	-372	-155	-187	-304	-540	-460	-420	-371	-341	-360	-402	-337	-310	-344

Date	AE Index (Hourly mean values, unit nT)																				Mean				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19		20	21	22	23
1	510	307	106	177	386	203	89	128	266	365	228	154	296	709	309	520	569	332	356	315	392	233	396	304	319
2	105	202	276	244	228	343	373	216	383	683	801	326	131	211	258	204	132	345	497	673	540	379	168	132	327
3	78	117	153	69	65	179	253	233	162	48	49	112	88	167	159	270	495	530	333	258	156	50	43	175	
4	35	29	29	26	30	24	25	187	223	405	120	39	52	45	43	40	40	48	91	177	203	307	354	477	
5	397	310	290	231	196	181	80	110	118	93	137	93	49	56	36	73	66	64	56	46	43	118	178	298	
6	349	672	602	466	432	372	280	203	312	179	83	241	215	273	437	683	599	445	203	162	95	66	44	54	
7	64	97	144	275	338	223	63	38	102	53	159	159	217	423	449	120	95	76	56	82	29	31	40	89	
8	171	88	95	177	100	42	40	72	119	123	478	199	64	84	76	302	191	49	35	37	39	43	89	53	
9	66	66	62	54	84	176	159	102	172	182	542	151	89	220	81	83	159	71	45	34	28	88	41	117	
Q 10	43	33	65	88	30	61	143	254	232	172	76	104	148	196	261	131	55	52	67	175	136	43	39	42	
11	50	93	338	180	54	69	67	50	45	58	154	350	115	137	128	302	193	167	195	190	77	60	44	63	
12	55	65	227	260	278	102	80	101	202	390	137	59	48	62	85	964	686	701	254	221	506	806	558	684	
13	282	142	109	133	90	71	64	75	105	134	203	202	427	421	269	385	497	540	477	480	509	952	718	465	
14	490	599	414	228	125	162	130	80	48	66	146	454	313	276	282	205	132	131	182	203	71	114	172	170	
15	262	321	387	393	237	172	318	287	262	169	159	151	151	227	270	192	203	148	135	268	148	158	175	315	
16	309	229	185	124	175	315	389	286	252	216	141	114	100	63	113	93	68	51	46	97	137	196	188	261	
Q 17	132	73	58	62	64	65	67	76	33	36	33	39	52	59	68	56	53	59	54	47	39	41	47	46	
18	48	45	60	64	44	41	48	105	224	195	204	366	614	438	816	719	436	411	395	448	611	713	528	277	
19	246	577	328	106	49	40	68	91	98	96	147	96	79	110	103	99	47	49	61	45	66	79	80	227	
20	360	311	285	329	179	170	110	159	120	215	463	344	306	449	792	966	966	710	708	805	651	294	189	639	
21	1083	705	649	760	1035	1032	694	546	681	547	627	354	171	259	937	1028	754	619	780	822	828	654	388	410	
22	246	289	379	329	222	272	349	352	477	489	369	480	580	416	300	199	560	682	753	663	741	409	404	331	
23	342	446	357	375	417	448	380	235	220	475	691	660	622	441	786	591	484	644	567	508	508	339	164	303	
24	345	299	295	311	350	277	340	400	374	304	255	148	111	325	294	169	171	331	591	537	450	438	611	839	
D 25	793	563	376	332	105	61	49	85	238	513	705	639	583	548	767	872	1019	789	736	732	667	641	858	619	
D 26	488	658	635	372	440	530	431	266	209	200	732	523	185	161	231	861	1048	908	765	731	644	383	351	425	
27	438	576	416	190	517	503	389	329	246	249	198	153	75	63	96	499	884	939	822	971	842	732	479	209	
28	136	232	403	500	426	395	401	318	356	325	369	518	287	401	376	501	576	514	508	584	781	769	446	396	
29	248	103	130	309	166	122	69	57	78	120	259	497	777	932	741	834	872	924	773	700	783	768	570	543	
D 30	563	397	439	477	660	490	569	1233	1400	821	1148	979	414	575	533	358	226	112	135	93	94	88	77	83	
Q 31	100	95	104	66	48	77	159	80	58	69	50	63	145	289	145	48	36	37	34	50	125	193	211	139	
Mean	284	281	270	248	244	232	215	217	251	261	318	280	242	288	330	395	389	369	351	362	356	331	279	289	295
5Q Mean	123	91	88	73	69	108	156	176	159	179	84	71	99	130	126	73	50	49	58	109	128	156	167	193	
5D Mean	596	477	465	440	503	443	364	446	546	494	669	510	280	321	510	816	746	625	534	519	547	514	446	444	

Date	AO Index (Hourly mean values, unit nT)																														
	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	34	12	-33	14	28	-46	-57	6	-51	-69	84	60	9	-30	-63	-49	-18	-49	-128	-159	-109	-81	34	2	-27						
3	9	4	-34	7	9	-22	-43	-39	13	-14	15	4	-7	-5	-50	-24	-64	-116	-116	-26	-38	-25	9	4	-23						
4	1	3	3	3	9	8	9	9	-33	-35	-74	4	1	0	-5	-1	0	0	-2	-26	-28	-1	-6	27	-6						
5	-21	29	14	32	23	23	5	-1	1	8	-8	-10	2	7	9	-6	0	6	4	4	4	14	-4	-53	3						
6	-18	-173	-76	-56	-44	-67	-36	-16	1	-3	22	-35	-41	-80	-92	-77	-33	-37	-30	-10	8	9	7	-1	-36						
7	-3	-19	-26	-69	-78	-21	9	5	9	17	-10	-5	-29	-121	-74	-16	-19	-20	1	-2	0	4	9	4	-19						
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9	14	13	13	3	-2	-31	-21	3	-42	-30	-170	-12	-11	-65	-21	-6	-50	-6	10	10	10	7	4	1	-15						
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11	4	-16	-108	-49	7	3	6	11	12	18	-6	-80	-12	-15	-12	-87	-53	-23	-25	-20	10	3	8	7	-17						
12	4	-5	-56	-64	-49	17	23	16	-21	-104	-26	0	7	7	4	-252	-145	-137	25	30	-54	-433	-209	-58	-61						
13	-107	-98	-71	-53	-19	-33	-16	-28	-41	-58	-77	-83	-200	-158	-61	-108	-136	-108	-87	-100	-129	-243	-191	-143	-98						
14	-167	-212	-49	45	15	17	-2	-3	3	1	16	-128	-74	-107	-65	6	-11	-3	-14	-20	10	10	-22	-40	-33						
15	-55	-56	-101	-115	-62	-7	-69	-61	-56	-18	-10	0	-2	-55	-69	-30	-16	-29	-7	-31	9	39	19	-41	-34						
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21	-369	-116	6	0	-177	-144	-136	83	4	21	-156	-36	-4	0	-68	-156	-162	-88	-253	-153	-140	-176	-114	-184	-105						
22	-83	-13	-71	-74	-43	-61	26	-33	-31	-84	-54	-55	-104	-67	-35	-10	-40	-102	-147	-35	-105	-74	-7	-32	-56						
23	-70	-57	-59	-20	-105	-43	-45	-3	-13	-49	-106	-157	-142	-61	-132	-126	-54	-80	-56	-64	-33	-3	30	-9	-61						
24	-31	-17	11	-14	-32	-11	-42	-90	-54	-39	-25	13	10	-52	-78	-38	-20	-16	-93	-111	-53	-26	-85	-189	-45						
25	-208	-93	10	-11	7	13	9	13	-2	-18	-117	-154	-137	-46	-67	-120	-26	-119	-181	-254	-167	-124	-301	-207	-96						
26	-131	-126	-181	-34	42	-77	-42	-17	-18	3	-94	-56	41	-8	-15	-96	-213	-210	-106	-41	-84	-8	42	10	-59						
27	-83	-128	-46	9	-30	-4	0	-34	-40	-17	11	-2	4	-6	-10	-52	-125	-163	-50	-152	-125	-75	-67	4	-49						
28	-5	-4	-115	-91	-55	-33	-9	-29	-23	-30	-13	-70	-20	-43	-68	-12	-76	-27	-9	-7	-77	-51	-12	27	-36						
29	26	12	21	-10	1	38	26	11	30	24	-18	-82	-192	-195	-77	-67	-130	-102	-51	-28	-96	-123	-153	-152	-53						
30	-37	16	-50	-7	-61	-42	-113	-372	-761	-382	-646	-343	16	-88	-102	-35	13	16	-8	11	12	17	11	-1	-122						
31	0	-17	-34	-18	-7	-10	-40	2	7	4	-13	-9	-25	-90	-28	-7	-16	-14	-7	-8	-1	-2	-19	6	-14						
Mean	-48	-38	-32	-17	-20	-15	-13	-18	-35	-26	-43	-39	-37	-53	-46	-53	-50	-46	-45	-39	-37	-47	-35	-35	-36						
5Q Mean	-4	10	0	4	9	2	3	-9	-7	-13	5	3	-4	-25	-25	-10	-5	-4	0	-7	-2	5	-3	5	-3						
5D Mean	-148	-64	-54	-23	-47	-46	-51	-55	-159	-96	-207	-117	-15	-27	-49	-131	-106	-107	-104	-81	-86	-144	-114	-88	-88						

Date	AU Index (Hourly mean values, unit nT)																	April 1990																
	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	78	68	26	17	13	16	32	34	38	25	48	38	38	27	24	16	27	72	66	66	21	24	48	38									
	26	25	23	24	28	35	39	47	44	74	68	52	75	58	93	94	65	87	68	49	48	31	38	35	51									
	34	52	37	40	82	117	82	59	127	114	175	134	273	100	46	98	159	172	250	193	165	90	105	82	116									
	40	37	47	31	47	98	105	99	75	91	84	92	59	40	86	41	39	44	109	105	47	40	26	20	63									
	31	17	18	24	24	29	49	91	144	237	74	30	48	58	92	61	32	67	86	33	36	38	33	29	58									
Q	25	17	20	20	27	45	66	41	36	105	89	53	40	60	64	29	27	23	24	27	35	27	58	85	44									
Q	32	21	24	33	36	26	37	24	68	77	101	66	45	49	44	100	159	172	102	51	32	34	61	81	61									
Q	113	83	39	43	31	25	21	25	30	36	46	45	56	65	53	45	46	63	33	30	24	38	55	68	46									
	27	20	19	36	33	39	106	191	235	453	306	225	134	54	116	142	151	168	98	68	70	53	58	74	120									
D	141	173	236	286	239	313	339	83	-31	126	167	141	140	0	258	256	115	126	65	104	64	234	273	171	167									
D	203	277	161	210	263	236	276	277	271	178	159	235	238	297	248	237	350	271	185	201	212	190	150	159	229									
D	188	113	207	600	367	291	293	268	96	255	172	154	201	99	47	97	188	259	231	265	285	216	175	103	215									
	13	152	134	116	158	139	165	217	182	325	138	188	208	263	257	159	108	119	234	225	178	300	371	227	174									
D	173	186	185	198	184	180	260	341	154	119	232	229	146	171	297	322	287	345	253	313	287	229	133	247	228									
	148	169	167	260	141	129	148	112	136	210	208	179	181	262	226	249	128	158	183	144	100	69	38	126	161									
	170	126	153	135	76	71	55	153	160	148	215	120	113	80	130	83	73	82	62	169	147	149	204	145	126									
D	211	66	85	95	110	170	76	158	244	238	224	362	390	363	242	205	193	296	424	265	206	267	397	296	237									
	216	212	187	262	335	264	180	149	142	136	104	102	139	111	84	49	26	73	151	228	211	203	189	137	162									
	120	100	123	74	55	57	50	56	79	70	60	65	73	92	62	88	91	100	177	232	186	106	118	180	101									
Q	120	178	125	101	95	177	234	197	87	66	47	107	119	81	103	119	221	281	360	324	443	407	291	241	189									
	125	166	201	183	168	152	70	125	142	105	85	35	28	40	43	27	29	19	41	55	34	29	23	23	81									
	29	36	73	83	185	114	62	100	213	147	133	129	104	195	296	147	118	83	171	124	75	169	272	305	140									
	339	272	291	321	319	303	155	230	150	131	153	145	337	457	414	370	459	355	153	103	170	218	185	236	261									
	182	133	72	53	32	153	170	275	205	193	192	262	154	43	85	169	198	275	292	229	182	164	210	214	172									
	218	158	204	178	209	183	177	142	215	258	181	177	102	62	78	75	102	114	140	158	129	135	146	218	157									
	227	209	184	241	269	330	156	20	18	24	33	40	39	33	31	21	16	17	19	34	36	62	63	86	92									
	69	84	178	198	257	254	189	133	177	209	281	266	179	177	252	267	200	220	254	270	296	279	190	217	212									
	151	207	205	207	243	190	168	147	325	291	318	218	251	199	58	72	114	173	229	340	454	447	373	227	234									
	194	194	289	321	323	310	341	412	275	161	220	212	142	200	281	263	189	164	195	199	215	243	307	131	241									
	183	293	380	236	220	228	247	192	164	269	275	179	117	103	142	108	109	118	134	163	152	158	190	240	192									
Mean	131	127	137	155	151	156	146	145	144	156	153	142	141	128	138	132	133	152	159	160	156	157	153	146	146									
5Q Mean	69	59	54	39	33	33	38	35	49	65	64	50	52	60	50	57	67	77	81	81	68	45	63	92	57									
5D Mean	183	163	174	277	232	238	248	225	146	183	190	224	223	186	218	223	226	259	231	251	210	227	225	195	215									

		AL Index (Hourly mean values, unit nT)																								Mean	
		April												1990													
Date	Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Q	1	-52	-111	-90	-24	-14	-16	-16	-17	-24	-63	-31	-33	-59	-163	-136	-32	-30	-32	-83	-73	-89	-21	-15	-20		
	2	-21	-21	-19	-17	-20	-16	-9	-12	-10	-36	-45	-196	-150	-283	-384	-304	-89	-97	-79	-22	-29	-7	-8	-11		
	3	-13	-23	-11	-17	-16	-83	-82	-39	-59	-132	-163	-285	-403	-138	-45	-132	-314	-259	-172	-252	-283	-124	-64	-125		
	4	-200	-57	-52	-119	-55	-183	-139	-90	-77	-108	-127	-150	-86	-35	-116	-87	-25	-40	-101	-164	-14	0	-1	-4		
	5	-23	-50	-22	-10	-8	-9	-23	-166	-243	-261	-84	-52	-168	-321	-196	-53	-84	-174	-57	-26	-11	-14	-37	-85		
Q	6	-36	-16	-10	-10	-17	-74	-111	-32	-13	-59	-203	-79	-34	-34	-108	-136	-44	-2	-1	0	-1	-2	-25	-134		
Q	7	-41	-6	-15	-22	-55	-101	-95	-35	-21	-31	-137	-47	-41	-40	-57	-216	-214	-206	-93	-6	-7	-16	-37	-99		
Q	8	-222	-163	-112	-103	-27	-17	-25	-22	-16	-13	-26	-32	-43	-68	-34	-29	-36	-36	-14	-14	-5	-22	-26	-68		
	9	-29	-19	-21	-29	-38	-125	-195	-241	-344	-904	-588	-322	-172	-67	-62	-73	-95	-114	-86	-33	-173	-39	-101	-192		
D	10	-328	-539	-483	-305	-502	-610	-744	-576	-1095	-566	-1256	-723	-511	-1026	-512	-170	-702	-836	-411	-433	-672	-424	-447	-598		
D	11	-358	-655	-758	-554	-529	-628	-578	-260	-260	-645	-531	-764	-515	-419	-413	-426	-473	-536	-477	-341	-230	-151	-98	-97		
D	12	-296	-499	-337	-954	-1142	-702	-684	-634	-384	-414	-146	-158	-900	-317	-115	-114	-140	-454	-429	-455	-605	-653	-423	-287		
	13	-213	-335	-178	-157	-363	-344	-369	-668	-396	-165	-278	-410	-482	-491	-194	-132	-183	-537	-749	-515	-335	-458	-427	-163		
D	14	-271	-433	-252	-206	-312	-241	-434	-578	-687	-432	-461	-444	-411	-231	-295	-556	-493	-380	-196	-358	-502	-529	-193	-286		
	15	-351	-450	-346	-232	-401	-394	-189	-143	-167	-322	-249	-194	-325	-495	-517	-422	-134	-185	-281	-171	-87	-55	-40	-76		
	16	-199	-127	-137	-159	-66	-9	-20	-167	-233	-241	-462	-192	-171	-175	-167	-152	-82	-109	-99	-152	-135	-109	-217	-245		
D	17	-391	-93	-43	-40	-94	-158	-107	-111	-194	-667	-715	-372	-338	-847	-357	-190	-333	-271	-231	-464	-304	-254	-382	-386		
	18	-339	-483	-423	-342	-365	-211	-160	-169	-146	-237	-95	-96	-237	-257	-134	-51	-74	-113	-213	-320	-209	-126	-197	-267		
Q	19	-118	-73	-162	-93	-26	-19	-14	-22	-54	-47	-45	-67	-78	-102	-124	-154	-113	-156	-143	-156	-179	-115	-84	-158		
	20	-146	-190	-99	-72	-61	-101	-232	-145	-67	-39	-33	-62	-167	-120	-183	-176	-322	-445	-527	-387	-424	-593	-310	-130		
	21	-527	-270	-126	-324	-351	-160	-55	-72	-111	-62	-47	-39	-30	-24	-27	-31	-90	-37	-35	-35	-24	-36	-40	-108		
	22	-43	-43	-31	-66	-218	-238	-84	-71	-191	-88	-127	-99	-161	-424	-366	-260	-177	-91	-160	-205	-49	-54	-277	-474		
	23	-212	-298	-502	-538	-524	-438	-171	-140	-54	-93	-107	-217	-309	-619	-602	-400	-639	-548	-134	-35	-104	-218	-208	-180		
	24	-119	-39	-21	-20	-22	-57	-197	-648	-675	-586	-458	-361	-302	-65	-170	-203	-357	-537	-406	-372	-355	-166	-96	-304		
	25	-302	-232	-292	-312	-202	-145	-216	-213	-426	-391	-105	-178	-127	-206	-75	-48	-93	-131	-186	-157	-59	-91	-122	-238		
	26	-423	-181	-312	-428	-430	-399	-147	-35	-29	-27	-27	-40	-20	-17	-16	-23	-44	-20	-23	-28	-28	-30	-56	-124		
	27	-72	-42	-131	-505	-335	-164	-117	-66	-179	-298	-196	-206	-253	-360	-367	-319	-223	-201	-453	-347	-291	-291	-266	-241		
	28	-220	-111	-137	-208	-226	-232	-153	-238	-523	-248	-279	-275	-422	-245	-42	-82	-109	-148	-408	-532	-539	-515	-458	-273		
	29	-179	-155	-298	-313	-387	-505	-577	-416	-378	-351	-470	-438	-305	-344	-452	-356	-271	-230	-176	-119	-288	-116	-224	-312		
	30	-342	-352	-233	-198	-251	-213	-162	-153	-74	-85	-166	-158	-204	-134	-234	-153	-149	-167	-261	-153	-140	-100	-155	-199		
Mean		-202	-202	-188	-212	-235	-219	-203	-205	-237	-253	-255	-222	-243	-263	-219	-187	-203	-233	-226	-211	-206	-177	-166	-188		
5Q Mean		-93	-73	-77	-50	-27	-45	-52	-25	-25	-42	-88	-51	-51	-81	-91	-113	-87	-86	-66	-49	-56	-35	-37	-95		
5D Mean		-328	-443	-374	-411	-515	-467	-509	-431	-524	-544	-621	-492	-535	-568	-338	-291	-428	-495	-348	-410	-462	-402	-308	-305		

Date	AE Index (Hourly mean values, unit nr)																				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
Q 1	112	190	158	50	32	30	33	49	59	102	56	59	108	203	164	58	47	60	157	139	156	43	40	69	91
2	48	47	43	42	48	52	49	60	54	111	114	249	227	342	478	399	155	184	148	72	78	40	47	46	131
3	48	75	49	58	99	201	164	100	188	247	339	420	677	239	93	231	473	432	423	446	448	214	170	208	252
4	241	95	100	151	102	281	245	189	154	201	213	244	147	77	203	130	64	86	210	270	61	41	27	25	148
5	55	68	41	35	33	39	72	258	388	500	159	61	102	228	414	258	86	153	262	92	62	49	48	67	147
Q 6	62	34	31	31	45	120	178	75	50	166	294	133	76	96	174	166	73	26	26	26	36	29	83	220	94
Q 7	74	28	39	56	92	128	133	61	90	110	238	114	88	91	102	317	374	378	196	58	40	51	98	180	131
Q 8	335	246	153	147	59	44	47	49	47	50	74	78	101	134	88	75	83	99	48	46	30	60	82	137	96
Q 9	56	40	41	66	72	165	302	434	581	1358	895	549	307	122	179	217	247	283	185	102	243	93	159	267	290
D 10	469	713	720	592	742	924	1083	660	1063	693	1424	866	652	1025	770	427	818	964	477	538	738	658	721	644	766
D 11	561	934	921	766	793	866	855	538	533	825	692	1000	755	718	663	663	824	808	663	543	443	341	249	256	675
D 12	485	613	545	1555	1510	995	978	902	481	670	319	313	1102	418	163	212	329	714	661	721	890	870	599	331	685
D 13	366	470	295	316	504	511	587	852	722	305	468	619	746	750	354	241	303	771	974	694	635	830	654	338	554
D 14	445	620	439	405	497	422	696	920	842	552	654	673	558	403	593	878	781	726	449	672	790	759	327	534	611
D 15	501	620	514	493	543	525	338	255	305	533	459	374	507	758	744	672	264	344	464	316	187	124	79	203	422
Q 16	369	253	292	296	143	80	75	321	394	391	679	313	285	256	298	235	156	191	163	322	283	259	422	391	286
D 17	604	160	129	136	205	329	184	270	439	906	940	736	728	1211	600	395	526	568	656	838	510	522	779	683	544
D 18	557	696	611	606	701	476	341	320	289	375	200	199	378	370	220	101	102	188	364	549	421	330	386	404	333
Q 19	239	174	286	168	83	77	65	79	134	117	106	133	153	196	188	243	205	256	321	389	365	221	202	338	197
D 20	267	370	226	174	157	279	467	343	155	106	82	170	288	202	287	296	543	727	888	711	868	991	602	372	399
Q 21	653	437	328	509	520	313	127	198	254	169	133	75	59	66	71	60	120	56	77	90	60	67	61	64	190
D 22	73	80	106	150	404	353	147	173	406	236	261	229	267	620	663	408	295	176	332	331	125	224	550	780	308
D 23	551	571	795	860	844	742	328	371	204	225	261	364	647	1078	1017	771	1098	904	288	138	274	436	393	416	566
D 24	302	173	95	74	55	210	367	925	881	780	650	624	458	110	206	372	556	813	699	602	538	330	306	519	444
D 25	520	390	497	491	412	329	395	357	642	650	288	357	230	269	153	123	195	246	326	315	189	226	269	457	347
Q 26	651	391	497	670	701	730	305	56	48	52	61	80	60	51	48	45	61	38	43	63	66	92	120	210	214
D 27	141	126	310	705	594	419	307	201	357	508	478	474	433	539	620	587	424	422	708	618	587	570	457	459	460
D 28	371	318	343	416	471	424	323	386	849	540	599	495	674	445	102	155	233	321	638	874	994	962	832	500	511
D 29	373	350	588	635	712	816	920	828	655	513	691	651	448	546	735	620	461	395	372	319	504	359	532	444	561
D 30	527	646	614	435	473	442	409	347	239	355	443	338	323	238	376	262	258	287	397	317	293	259	346	440	378
Mean	335	330	326	369	388	377	350	352	383	411	410	366	386	393	358	320	338	387	387	373	363	335	321	335	362
5Q Mean	164	134	133	90	62	79	91	62	76	109	153	103	105	144	143	171	156	163	149	131	125	80	101	188	121
5D Mean	512	608	550	690	749	707	759	658	671	729	813	717	759	755	557	515	655	756	581	662	674	630	535	501	656

Date	AO Index (Hourly mean values, unit nT)																								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	
Q 1	3	-16	-11	1	1	0	0	7	4	-12	-2	-3	-5	-61	-53	-3	-6	-2	-5	-3	-10	0	4	13	-6
2	1	1	1	3	4	8	15	17	16	18	11	-71	-36	-111	-144	-104	-11	-4	-5	13	9	11	14	11	-13
3	10	14	12	11	32	16	0	9	33	-8	6	-74	-64	-18	0	-16	-76	-42	38	-28	-58	-16	19	-21	-9
4	-79	-10	-2	-43	-3	-41	-16	4	0	-8	-21	-28	-13	2	-15	-22	6	2	3	-28	16	19	12	8	-10
5	4	-15	-1	6	7	9	12	-36	-48	-12	-4	0	-1	-54	-114	-66	-9	-8	-43	-11	4	13	8	-4	-15
6	-5	0	5	4	5	-14	-22	4	11	22	-56	-13	2	12	-21	-52	-7	10	11	13	16	12	16	-23	-2
Q 7	-4	7	4	5	-9	-36	-28	-4	23	22	-17	9	1	3	-5	-57	-26	-16	4	22	11	8	11	-8	-3
Q 8	-53	-39	-36	-29	1	3	-1	1	6	11	9	6	6	0	9	7	5	13	9	7	9	7	14	0	-1
9	0	0	0	3	-2	-42	-44	-24	-54	-224	-140	-47	-18	-6	26	34	27	26	5	17	-51	7	-21	-57	-24
D 10	-92	-183	-123	-9	-130	-148	-202	-245	-563	-219	-543	-290	-184	-512	-126	42	-293	-354	-172	-163	-303	-94	-86	-149	-214
D 11	-76	-188	-297	-171	-132	-195	-150	8	6	-232	-185	-263	-137	-60	-81	-93	-61	-132	-145	-69	-8	19	26	30	-108
D 12	-54	-192	-64	-176	-386	-204	-195	-182	-143	-78	13	-1	-349	-108	-33	-8	23	-97	-98	-94	-158	-217	-123	-91	-126
13	-30	-100	-30	0	-111	-89	-75	-242	-34	-12	-44	-100	-109	-116	-17	-11	-31	-150	-261	-167	-16	-43	-99	5	-78
D 14	-48	-122	-33	-3	-63	-29	-86	-117	-266	-155	-114	-106	-132	-29	0	-116	-102	-17	28	-21	-106	-149	-29	-18	-76
15	-100	-139	-89	14	-129	-131	-20	-14	-14	-55	-19	-7	-71	-115	-144	-85	-2	-12	-48	-13	6	6	-1	24	-48
16	-13	0	7	-12	4	30	17	-7	-35	-45	-122	-35	-28	-47	-17	-34	-4	-13	-18	8	6	19	-6	49	-16
17	-89	-13	20	27	7	5	-14	23	25	-213	-245	-4	26	-241	-56	7	-69	12	96	-44	-47	6	7	-44	-34
18	-60	-134	-117	-39	-14	26	9	-9	-2	-49	4	2	-48	-72	-24	-1	-23	-18	-30	-45	1	38	-3	-64	-28
Q 19	1	13	-19	-9	13	18	17	16	12	11	7	0	-2	-4	-30	-32	-10	-27	17	38	3	-4	16	11	2
20	-13	-6	12	13	17	37	1	25	9	13	6	21	-23	-18	-39	-27	-49	-81	-83	-31	9	-87	-9	55	-10
21	-200	-52	37	-69	-90	-4	7	26	15	20	18	-1	0	7	7	-2	-29	-8	2	9	4	-2	-6	-7	-13
22	-7	-3	20	8	-16	-61	-10	14	11	29	2	14	-27	-113	-34	-56	-29	-3	5	-39	12	56	-2	-83	-13
23	63	-12	-104	-107	-102	-67	-7	44	47	19	22	-35	13	-80	-93	-14	-89	-96	9	33	32	0	-10	28	-21
24	31	46	25	16	4	47	-13	-185	-234	-195	-132	-48	-73	-10	-17	-16	-79	-130	-57	-70	-85	0	56	-44	-48
25	-41	-36	-43	-66	3	19	-19	-34	-105	-65	38	0	-11	-71	1	13	4	-18	-22	0	34	21	11	-9	-16
26	-97	13	-63	-92	-79	-34	4	-6	-4	-1	2	0	9	7	7	0	-13	-1	-1	2	3	15	3	-18	-14
27	-1	20	23	-153	-38	44	35	33	0	-43	42	29	-36	-90	-57	-25	-11	9	-98	-38	3	-5	-37	-11	-17
28	-34	47	33	0	8	-20	7	-44	-98	21	19	-27	-84	-22	7	-4	2	12	-88	-95	-41	-33	-42	-22	-20
29	7	19	-4	4	-31	-96	-117	-2	-51	-94	-124	-112	-80	-71	-84	-45	-40	-33	9	40	-35	63	41	-89	-38
30	-78	-29	73	18	-15	8	42	18	44	92	53	10	-42	-14	-45	-22	-19	-23	-62	4	6	29	17	20	3
Mean	-35	-36	-25	-28	-41	-31	-28	-30	-46	-48	-50	-39	-50	-67	-39	-26	-34	-39	-33	-25	-24	-10	-6	-20	-34
5Q Mean	-11	-7	-11	-5	2	-5	-6	4	11	10	-11	0	0	-10	-20	-27	-8	-4	7	15	5	4	12	-1	-2
5D Mean	-71	-139	-99	-66	-140	-114	-129	-102	-188	-179	-214	-132	-155	-190	-59	-33	-100	-117	-58	-78	-124	-87	-41	-54	-111

Date	AE Index (Hourly mean values, unit nT)																														
	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	127	58	58	62	281	208	39	31	81	88	90	77	97	170	106	123	68	46	57	164	106	76	68	46	97						
2	46	65	64	38	63	137	244	306	117	79	362	433	587	229	124	55	48	52	69	56	73	203	127	82	152						
3	73	140	63	40	188	430	220	42	58	262	524	332	541	417	111	64	41	64	83	286	439	317	388	559	237						
4	610	200	100	71	95	109	295	160	107	137	120	407	358	106	64	67	118	45	196	205	137	89	87	252	172						
5	139	59	54	49	48	47	85	406	447	495	451	89	63	38	54	138	98	97	129	319	243	91	58	64	157						
Q	38	46	65	61	150	186	180	112	168	367	207	164	89	70	71	81	84	71	43	67	106	127	117	77	115						
7	71	97	102	111	71	117	170	78	55	80	203	83	95	156	132	342	158	99	39	36	49	52	52	144	108						
8	173	83	51	60	194	395	277	153	69	61	97	126	162	173	200	180	82	58	42	48	88	142	312	515	156						
9	468	276	177	115	158	346	431	702	497	414	333	509	583	906	755	755	591	554	616	861	983	927	846	633	560						
D	438	433	396	495	395	554	881	949	774	515	566	281	171	345	204	159	205	435	489	499	448	357	185	128	429						
11	416	636	797	870	796	579	631	676	465	267	179	158	380	652	635	733	835	931	733	819	906	811	737	597	635						
12	505	445	528	384	280	309	225	168	51	69	86	71	47	39	26	28	47	55	56	82	76	53	63	67	157						
13	58	64	75	109	128	106	117	59	52	55	54	51	45	49	59	182	521	449	573	432	476	470	495	497	216						
Q	107	63	47	42	66	83	47	48	43	54	50	64	72	66	45	38	36	72	79	79	79	94	112	117	67						
Q	114	113	87	99	100	163	144	79	60	66	85	106	93	119	78	44	33	70	83	52	57	56	52	50	84						
Q	46	54	51	50	54	52	52	54	58	69	79	75	84	77	64	62	62	55	46	48	46	53	56	64	59						
Q	63	66	70	95	122	99	134	129	69	61	85	106	159	162	103	75	70	79	78	112	134	102	101	98	99						
D	199	183	59	58	61	73	108	114	288	484	699	648	462	424	972	1352	1297	490	429	531	437	626	913	644	481						
19	310	404	527	658	499	164	119	196	347	342	285	301	475	383	88	115	316	387	663	526	484	506	627	635	390						
20	573	688	764	597	471	264	80	75	221	275	287	309	466	347	327	339	718	668	751	821	910	954	716	473	504						
21	549	327	384	345	158	68	47	37	66	134	331	587	455	280	470	776	1245	898	605	582	634	566	493	135	424						
D	115	195	223	453	226	568	1009	1130	855	1094	1004	766	782	940	926	749	805	924	797	628	642	818	702	564	705						
23	611	479	332	309	420	377	390	458	450	513	459	419	394	374	440	333	422	538	231	107	106	226	216	135	364						
24	104	83	88	107	164	101	106	143	108	152	223	126	62	69	70	170	307	197	106	107	185	448	278	291	158						
25	597	512	604	511	519	281	161	150	539	803	704	682	777	870	672	538	656	913	882	681	606	551	532	449	592						
D	362	388	422	466	597	635	203	74	257	390	375	157	374	317	618	584	316	154	144	215	464	1051	1044	1054	444						
D	309	210	405	880	1063	760	802	1085	990	627	589	420	191	312	364	400	669	605	299	144	229	373	262	251	510						
28	199	110	72	59	56	87	109	106	131	223	210	79	123	112	80	83	234	304	224	148	112	106	91	212	136						
29	277	219	151	99	73	53	73	133	112	127	137	120	164	223	166	195	328	257	158	104	87	119	370	582	180						
30	211	140	184	436	726	525	420	492	409	818	692	372	354	379	253	411	309	565	834	720	349	283	311	274	436						
31	223	206	386	452	206	75	59	58	110	210	249	208	245	359	311	331	190	135	170	414	537	280	191	178	241						
Mean	262	227	238	263	271	256	253	271	259	301	316	268	288	295	277	306	351	331	313	319	329	352	342	318	292						
5Q Mean	73	68	64	69	98	116	111	84	79	123	101	103	99	98	72	60	57	69	65	71	84	86	87	81	84						
5D Mean	284	281	301	470	468	518	600	670	632	622	646	454	396	467	616	648	658	521	431	403	444	645	621	528	513						

Date	1990																									
	AO Index (Hourly mean values, unit nT)																									
	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	7	-10	-17	-10	48	-52	-11	-3	7	15	-2	-7	8	-34	-11	-30	-12	-2	1	-17	7	0	3	-2	-5	
	2	-8	-7	-5	11	-3	-22	-23	14	16	19	-95	-190	-27	-16	0	0	-4	0	3	2	-7	-13	6	-15	
	3	4	-25	0	-5	21	-60	-23	5	7	50	-60	-107	-63	-2	6	4	0	8	0	-35	4	8	-89	-14	
	4	-108	-42	-16	-4	-28	-85	-33	0	2	-3	-51	-87	-25	8	-4	-11	3	0	20	27	13	10	-34	-19	
	5	-7	-5	-7	-12	-8	5	-80	-90	-80	-98	8	9	3	-2	-19	-9	-2	11	-32	-26	5	6	-18	-18	
	6	-5	-4	-7	-12	22	-31	8	25	26	-48	13	-1	-4	-11	-29	-23	-12	-1	0	-9	15	8	8	-3	
	7	4	0	-9	-26	6	28	-25	-5	-4	7	8	0	8	13	-61	-38	-25	0	10	1	0	0	7	-3	
	8	15	8	-3	-5	21	-50	3	37	2	-6	10	-19	-28	-49	-52	-6	13	18	18	13	5	-4	-41	-3	
	9	-87	-35	0	-3	27	79	4	-52	-31	-27	4	-6	-89	-138	-94	-38	-45	24	52	-59	-66	-52	-107	-35	
D	10	-79	-66	-73	-34	-14	4	-129	-144	-143	64	-59	-13	-40	-32	-30	5	2	-90	-3	26	39	1	-1	-36	
	11	0	-87	-93	-103	-151	2	-72	-7	1	3	22	-4	-57	-86	-41	-113	-117	-108	-20	81	6	14	-76	-37	-43
	12	-48	-51	-56	-37	-39	-16	-15	12	-7	-7	-9	-18	-15	-12	-8	-13	-6	-12	-17	-21	-20	-17	-9	-7	-19
	13	-11	-7	-6	4	5	-12	-16	-5	-9	-9	-12	-13	-12	-11	-10	-8	-43	-26	32	27	4	6	76	30	-1
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Q	15	7	13	1	0	9	-42	-28	-4	2	1	5	23	9	8	8	10	9	13	2	2	-7	-1	-5	-4	2
Q	16	-6	-8	-8	-9	-11	-8	-1	-3	0	0	2	1	1	5	7	3	3	3	10	6	2	-3	-4	-3	-1
Q	17	0	7	5	17	16	-1	-14	-24	-5	7	2	2	-22	-20	6	-2	-4	6	22	30	37	23	14	7	4
D	18	-16	-6	-2	-4	4	11	-13	11	41	67	-1	62	0	54	84	-29	-39	52	64	57	-36	-20	-62	42	13
	19	46	40	-25	-55	-65	-24	-24	11	-31	9	22	25	-53	-21	-7	0	-27	-2	-65	-54	38	9	8	2	-10
	20	7	-145	-153	-41	-32	34	-14	2	14	-22	4	-12	-69	-61	-40	-43	-9	-99	-76	35	-4	-73	-91	-18	-37
	21	-17	14	9	-30	2	-9	-9	3	10	23	7	-68	-51	-21	20	-45	-132	2	114	58	29	17	72	1	0
	22	2	17	4	19	-39	10	-155	-119	-71	-107	-10	-29	20	-125	4	29	26	-74	20	50	75	55	65	56	-11
	23	54	21	26	32	57	41	-7	64	72	-10	-2	-15	-10	51	12	24	14	-24	-22	2	14	-1	-1	-4	16
	24	4	-3	-5	4	-11	7	18	10	10	40	29	22	8	1	-4	-20	-57	-12	-1	13	24	4	7	34	5
	25	-47	-25	-75	14	38	45	7	29	70	28	-5	-24	-13	86	108	65	28	-8	32	20	-16	-4	8	46	17
D	26	16	-37	-11	-24	-26	18	-11	11	67	11	-11	8	14	-70	-55	-34	-10	13	14	14	3	-134	76	200	1
D	27	48	34	-13	-36	-130	-105	-64	-229	-244	-27	-133	-80	-34	2	-35	-9	24	-31	12	11	7	-31	-10	-15	-45
	28	-23	-24	-16	-16	-24	-4	-6	-18	-6	-12	-25	0	22	-10	-5	19	-5	-58	-37	1	7	-5	-4	0	-10
	29	-10	-41	5	-17	-16	-15	-3	7	8	13	18	15	0	-34	-21	-30	-8	-20	-6	26	20	9	12	-103	-8
	30	-25	-1	13	-34	-52	-34	-37	-48	-17	22	-18	20	-7	-14	-10	-27	32	-40	-85	40	42	24	-12	-7	-11
	31	-7	-35	-46	-53	-17	6	0	10	6	0	-23	-28	-99	-71	-50	0	3	-5	-16	-76	-19	-3	-16	-22	-22
Mean	-9	-16	-19	-16	-12	-7	-24	-18	-9	0	-9	-8	-26	-23	-8	-17	-15	-14	0	10	1	-4	1	-1	-10	-10
5Q Mean	-1	-1	-4	-3	6	-18	-8	-2	3	-10	2	5	-3	0	1	-4	-4	0	0	9	7	4	7	3	2	0
5D Mean	-5	-11	-19	-15	-41	-12	-74	-94	-70	1	-42	-10	-8	-38	-6	-14	1	-7	-7	4	25	15	-18	14	56	-15

Date	AU Index (Hourly mean values, unit nT)																								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
1	34	64	97	137	192	144	219	174	136	179	60	90	71	73	49	82	66	94	94	145	137	122	85	37	108
2	48	78	27	58	60	109	170	143	112	106	172	77	54	36	26	34	36	40	58	46	28	22	23	32	66
3	20	22	48	76	90	78	48	45	33	92	86	82	102	83	58	33	25	36	47	85	57	32	59	45	58
4	28	20	29	60	92	132	215	105	182	174	210	134	122	77	63	55	50	37	44	35	49	99	92	69	91
Q	64	28	42	23	39	63	29	31	47	79	84	156	129	100	87	88	105	92	57	57	84	76	65	114	72
6	172	240	300	220	72	40	83	30	59	71	74	157	150	87	195	165	89	60	60	80	103	133	212	205	127
D	291	309	258	328	299	317	342	214	111	112	164	158	159	94	112	136	181	156	254	255	235	334	339	307	228
8	248	267	184	270	143	91	83	188	195	190	286	179	121	88	94	82	145	114	89	146	225	175	191	118	163
D	112	102	274	272	91	142	299	463	435	286	279	218	379	480	358	218	78	82	120	131	84	52	113	157	218
10	219	330	229	241	116	54	35	62	142	126	136	130	159	148	146	165	108	143	156	157	132	235	304	176	160
11	159	146	216	215	225	169	65	59	55	163	123	129	144	253	213	150	136	69	107	147	153	170	192	133	150
D	160	235	342	189	212	321	237	173	229	240	410	285	360	412	624	622	206	571	557	591	549	222	252	277	345
D	203	304	276	272	281	449	300	391	407	204	77	56	60	47	85	51	72	81	114	151	102	104	72	178	181
D	326	214	473	298	273	344	215	130	121	159	219	231	222	579	351	360	395	240	147	126	77	23	43	34	233
15	25	19	12	64	92	23	20	18	13	19	23	24	16	23	30	41	100	121	87	93	81	36	57	122	48
Q	154	116	133	94	89	46	59	64	57	31	27	15	34	40	36	24	24	35	65	65	44	48	26	14	56
17	5	2	2	1	2	6	4	18	23	34	19	10	12	17	16	14	14	14	16	36	30	32	28	19	16
18	23	30	28	46	59	102	172	196	163	105	132	174	121	109	53	64	96	219	139	116	180	157	160	169	117
19	246	237	232	171	155	178	104	98	35	40	139	85	72	87	68	33	38	48	47	34	36	34	24	14	94
Q	2	10	14	16	16	26	63	105	71	29	17	15	30	38	25	13	12	31	46	32	33	19	19	24	29
21	23	22	19	27	26	93	91	44	26	37	35	32	37	63	67	31	42	96	95	97	128	183	200	253	74
22	216	199	245	288	170	198	151	156	151	94	31	24	44	51	53	55	46	27	31	65	96	116	228	271	125
23	269	202	118	39	111	136	160	156	120	160	167	182	160	118	83	70	60	78	75	74	72	56	50	49	115
24	46	64	53	78	130	102	138	105	130	109	92	96	68	110	82	87	91	110	87	63	89	111	140	121	96
25	95	88	98	66	146	206	195	182	167	126	123	87	126	89	44	49	55	52	77	63	105	106	87	54	104
26	75	108	61	83	103	224	94	97	167	159	176	150	98	51	38	87	104	109	141	145	144	151	160	221	123
27	109	52	20	22	15	17	25	112	130	152	190	161	192	119	79	46	50	69	102	98	97	209	254	203	105
28	132	128	123	224	307	340	211	136	201	149	161	91	80	40	42	39	72	48	53	41	33	26	18	18	113
29	19	21	26	41	231	270	151	135	124	103	117	139	119	120	68	78	85	112	218	149	85	78	81	77	110
Q	57	86	93	59	31	17	22	30	30	43	56	101	78	64	56	54	51	30	35	35	47	60	75	65	53
Mean	119	124	135	132	128	147	133	128	129	119	129	115	117	123	110	100	87	100	107	111	110	107	121	119	119
5Q Mean	56	48	56	38	35	31	35	49	45	43	40	59	56	51	44	38	41	40	43	45	47	47	42	47	45
5D Mean	218	232	324	271	231	314	278	274	260	200	229	189	236	322	306	277	186	226	238	250	209	147	163	190	240

Date	AL Index (Hourly mean values, unit nT)																													
	1990															June														
	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	-24	-16	-26	-18	-30	-27	-25	-16	-15	-20	-22	-113	-130	-119	-90	-62	-79	-44	-33	-6	-22	-66	-40	-54	-46					
6	-134	-271	-364	-305	-58	-36	-37	-25	-33	-27	-29	-41	-190	-376	-174	-130	-129	-97	-35	-32	-54	-42	-138	-213	-124					
D	-271	-408	-407	-415	-553	-479	-351	-177	-39	-41	-106	-117	-268	-204	-253	-232	-327	-230	-336	-217	-175	-260	-249	-198	-263					
8	-309	-257	-123	-252	-279	-98	-28	-100	-359	-303	-392	-208	-127	-91	-105	-220	-204	-195	-41	-69	-100	-209	-224	-107	-183					
D	-90	-74	-326	-321	-91	-103	-238	-717	-720	-495	-395	-451	-439	-522	-426	-370	-119	-185	-170	-85	-11	-47	-118	-272	-164					
10	-259	-481	-311	-278	-93	-24	-36	-55	-94	-142	-157	-113	-175	-280	-130	-159	-65	-122	-131	-101	-81	-156	-324	-178	-164					
11	-130	-212	-186	-271	-448	-355	-125	-51	-17	-57	-62	-91	-197	-335	-313	-217	-189	-90	-75	-63	-119	-139	-214	-139	-171					
D	-166	-326	-324	-279	-177	-186	-181	-118	-285	-290	-431	-284	-409	-222	-579	-852	-862	-540	-386	-406	-384	-346	-620	-805	-394					
D	-435	-780	-948	-675	-422	-522	-371	-368	-577	-290	-72	-63	-68	-99	-83	-53	-43	-90	-46	-61	-140	-134	-80	-98	-272					
D	-118	-574	-613	-481	-264	-99	-149	-120	-143	-147	-320	-514	-321	-743	-1013	-1235	-736	-336	-98	-116	-95	-77	-76	-353	-76					
15	-59	-49	-56	-61	-85	-52	-41	-25	-23	-29	-40	-35	-35	-35	-67	-85	-137	-211	-212	-112	-92	-59	-74	-150	-76					
Q	-207	-100	-100	-77	-60	-46	-31	-35	-46	-106	-48	-26	-47	-54	-77	-81	-88	-110	-99	-89	-89	-45	-32	-35	-38					
17	-43	-48	-50	-44	-34	-35	-34	-26	-26	-37	-47	-37	-33	-33	-43	-33	-22	-27	-42	-50	-47	-41	-39	-37	-38					
18	-36	-43	-47	-41	-27	-52	-73	-85	-176	-111	-72	-281	-238	-222	-145	-63	-91	-223	-220	-55	-65	-91	-222	-153	-118					
19	-203	-224	-350	-342	-149	-141	-68	-36	-17	-34	-70	-190	-158	-174	-126	-48	-16	-13	-23	-26	-62	-74	-52	-43	-110					
Q	-36	-40	-34	-28	-28	-25	-43	-74	-43	-39	-37	-39	-37	-28	-39	-80	-46	-24	-30	-38	-39	-24	-29	-38	-38					
21	-34	-42	-44	-39	-32	-23	-50	-47	-40	-36	-42	-30	-32	-63	-185	-83	-32	-93	-138	-141	-63	-190	-239	-197	-80					
22	-159	-144	-168	-201	-113	-134	-129	-71	-90	-54	-31	-24	-30	-29	-82	-117	-131	-45	-26	-79	-106	-90	-144	-190	-99					
23	-165	-108	-71	-34	-40	-97	-65	-35	-27	-61	-162	-184	-225	-145	-19	-19	-23	-38	14	17	3	-14	-15	-19	-64					
24	-25	-29	-38	-46	-32	-32	-32	-68	-56	-30	-31	-30	-42	-27	-50	-83	-116	-56	-11	-9	-44	-58	-65	-66	-45					
25	-59	-49	-74	-46	-44	-185	-220	-96	-66	-47	-65	-73	-101	-123	-81	-75	-22	-7	-35	-28	-72	-41	-67	-25	-71					
26	-29	-73	-35	-84	-100	-149	-95	-36	-96	-263	-235	-250	-184	-50	-5	-31	-84	-257	-299	-124	-112	-110	-101	-160	-124					
27	-75	-49	-30	-31	-24	-20	-19	-26	-124	-69	-46	-59	-322	-273	-34	-5	-1	-1	-46	-70	-16	-100	-72	-94	-67					
28	-102	-235	-159	-156	-222	-246	-230	-197	-138	-111	-98	-136	-162	-56	-1	-15	-56	-48	-6	1	2	-20	-23	-102	-32					
29	-34	-37	-37	-25	-119	-349	-331	-184	-43	-80	-94	-125	-128	-162	-96	-138	-219	-241	-157	-82	-79	-89	-91	-79	-126					
Q	-36	-35	-141	-75	-26	-19	-23	-27	-29	-34	-31	-42	-54	-68	-54	-122	-150	-105	-28	-25	-33	-37	-58	-47	-54					
Mean	-113	-164	-179	-165	-136	-132	-126	-112	-124	-108	-114	-132	-151	-163	-159	-164	-143	-120	-96	-75	-74	-91	-118	-116	-128					
5Q Mean	-69	-47	-70	-48	-35	-30	-31	-35	-31	-47	-37	-51	-60	-58	-60	-75	-77	-62	-46	-41	-37	-43	-39	-41	-49					
5D Mean	-216	-432	-523	-434	-301	-277	-258	-300	-352	-252	-264	-285	-301	-358	-470	-548	-417	-276	-207	-177	-161	-165	-214	-259	-310					

Date	1990																								
	June																								
	AE Index (Hourly mean values, unit nT)																								
	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	95	166	292	320	481	306	600	465	353	361	122	153	189	198	254	199	141	204	206	251	283	243	148	70	254
2	97	141	94	133	134	252	357	290	205	132	282	267	131	81	60	80	193	83	105	98	52	53	63	69	144
3	51	55	89	150	195	133	75	72	59	122	163	176	195	181	239	171	87	62	65	122	55	44	105	97	115
4	53	42	56	80	174	202	381	197	273	236	268	221	221	191	167	79	86	45	67	55	63	150	153	114	149
5	89	46	69	42	69	91	55	47	63	100	107	271	260	220	179	151	185	136	91	64	106	143	106	168	119
Q																									
6	307	512	664	527	130	77	121	56	93	100	105	200	341	464	369	296	218	157	95	112	157	177	351	418	252
7	562	718	667	744	852	797	693	392	151	155	272	275	428	299	365	368	508	387	591	473	412	595	588	506	492
8	558	524	308	524	423	190	111	290	554	493	678	388	248	180	200	303	349	309	130	215	326	385	416	225	347
9	202	176	601	594	183	246	538	1182	1156	782	675	669	818	1002	784	590	198	268	290	216	96	65	162	276	490
10	479	812	541	520	210	80	71	118	238	269	293	243	334	428	277	326	174	267	288	258	214	393	630	355	326
11	289	358	403	487	674	524	192	112	73	221	187	221	341	589	528	369	325	159	183	210	273	310	407	273	321
12	327	562	667	468	391	508	419	293	516	532	842	570	770	635	1203	1475	1069	1112	944	999	934	569	874	1083	740
13	639	1085	1225	948	704	971	671	761	985	495	150	119	129	147	169	104	116	172	161	213	244	240	153	277	453
14	445	790	1088	780	538	444	366	251	264	306	540	746	543	1323	1364	1597	1132	576	246	243	173	99	121	111	587
15	84	69	68	126	177	76	62	44	37	50	65	60	52	59	98	128	238	332	299	206	174	96	132	273	125
16	362	216	233	172	150	94	92	100	104	138	76	43	83	96	115	106	113	146	165	155	90	80	62	53	127
17	49	51	53	46	36	41	38	44	50	72	67	48	47	51	60	48	36	42	60	88	79	74	68	58	54
18	61	74	77	88	87	155	247	283	340	217	205	456	360	332	199	128	187	443	360	172	246	250	383	323	236
19	449	461	583	514	306	321	173	136	54	75	210	276	231	262	195	82	55	61	70	61	98	108	77	58	205
20	38	50	49	45	44	52	108	181	115	70	54	56	68	67	66	94	58	56	76	72	73	59	44	53	69
21	58	65	65	68	59	118	142	93	68	74	79	64	70	127	252	115	75	189	233	239	192	374	440	450	154
22	375	343	414	490	285	333	281	229	243	149	63	50	75	81	136	173	178	72	58	145	203	207	373	461	226
23	435	310	190	74	152	235	226	193	149	222	330	367	386	265	103	90	84	117	61	57	68	71	67	69	180
24	73	94	91	125	163	136	171	174	188	140	125	128	111	139	134	171	208	166	99	73	134	170	206	187	142
25	154	137	173	113	191	393	417	279	234	174	190	162	229	213	126	125	78	60	113	93	178	147	155	80	176
26	105	182	97	167	204	374	190	135	264	423	412	401	283	102	44	120	189	367	440	270	257	262	262	381	247
27	184	101	51	54	40	38	44	139	255	223	238	221	515	393	114	52	51	71	149	169	113	309	328	298	173
28	235	364	283	382	531	588	443	334	340	262	260	229	242	98	43	55	128	97	60	39	30	46	42	51	216
29	54	60	64	68	352	621	483	320	169	185	213	266	248	284	166	217	304	353	375	231	164	167	172	157	237
30	94	121	234	136	59	37	46	58	61	79	88	145	133	123	111	176	201	136	64	62	81	97	133	113	108
Q																									
Mean	233	289	316	299	266	281	260	242	255	228	245	249	269	287	270	266	232	221	204	188	185	199	240	236	248
5Q Mean	126	96	127	88	71	63	67	86	78	91	78	112	118	111	106	115	118	103	91	88	85	90	82	89	95
5D Mean	435	666	849	706	533	593	537	575	614	454	495	475	537	681	777	826	604	503	446	428	371	313	379	450	552

Date	AO Index (Hourly mean values, unit nT)																													
	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	-13	-18	-48	-21	-46	-7	-79	-56	-39	0	0	14	-21	-24	-77	-16	-4	-7	-7	19	-3	1	11	2	-18					
2	0	7	-19	-8	-6	-15	-7	0	9	40	32	-54	-11	-4	-2	-4	-59	-1	6	-2	2	-3	-7	-1	-4					
3	-4	-4	3	1	-6	11	10	8	3	30	5	-4	5	-7	-60	-51	-18	5	14	24	29	9	6	-2	0					
4	2	0	0	20	5	31	25	7	46	56	76	24	11	-17	-19	15	6	14	10	7	17	24	15	12	16					
Q	19	5	7	2	3	17	2	7	15	29	31	21	0	-9	-1	12	12	23	11	24	30	5	12	29	13					
6	18	-15	-32	-41	6	2	22	2	12	21	22	57	-19	-144	9	16	-19	-17	12	23	23	44	36	-3	1					
7	9	-49	-73	-42	-125	-81	-4	18	35	34	28	20	-54	-55	-70	-47	-71	-36	-40	18	30	36	44	53	-17					
8	-30	4	29	9	-67	-3	27	43	-81	-56	-52	-14	-2	-1	-5	-67	-28	-39	23	37	62	-16	-16	5	-10					
D	10	13	-25	-24	0	19	29	-126	-142	-104	-57	-116	-29	-20	-33	-75	-20	-50	-25	22	36	19	32	19	-26					
10	-20	-75	-40	-17	11	14	0	3	24	-7	-10	8	-8	-65	7	2	21	10	12	27	24	39	-10	0	-2					
11	14	-32	14	-27	-110	-92	-29	3	18	52	30	18	-25	-40	-49	-33	-26	-10	15	41	16	15	-10	-2	-10					
12	-3	-45	8	-44	17	67	28	27	-27	-24	-10	0	-24	94	22	-114	-327	15	85	92	82	-61	-183	-263	-24					
D	13	-237	-335	-201	-70	-36	-35	11	-85	-42	2	-3	-4	-25	1	0	13	-5	34	44	-18	-15	-3	39	-45					
D	14	103	-179	-69	-90	5	121	32	5	-11	5	-50	-141	-49	-81	-330	-437	-170	-46	23	4	-8	-25	-16	-20					
15	-16	-14	-22	1	3	-14	-9	-3	-4	-4	-7	-4	-9	-6	-17	-21	-18	-44	-61	-8	-5	-11	-8	-14	-13					
16	-26	7	15	8	14	0	13	14	5	-36	-9	-5	-6	-6	-19	-28	-31	-36	-16	-11	0	7	-4	-11	-6					
17	-18	-22	-23	-20	-15	-13	-14	-3	-1	-1	-12	-12	-10	-7	-12	-8	-3	-6	-12	-6	-8	-4	-5	-8	-10					
18	-6	-5	-8	2	15	24	48	55	-6	-2	29	-52	-57	-56	-45	0	2	-2	-40	30	56	32	-30	7	0					
19	20	6	-58	-84	3	18	17	30	8	3	34	-51	-42	-43	-28	-7	10	17	11	3	-12	-19	-13	-14	-7					
Q	20	-16	-14	-9	-5	0	9	15	13	-4	-9	-11	-3	5	-6	-32	-15	2	7	-2	-2	-9	-2	-2	-4					
21	-4	-9	-11	-5	-2	34	20	-1	-6	0	-3	0	2	0	-58	-24	5	1	-20	-20	31	-3	-19	28	-2					
22	27	27	37	43	28	32	10	42	30	19	0	0	6	11	-13	-30	-41	-8	2	-6	-4	13	41	40	12					
23	51	46	22	2	34	19	47	60	46	49	2	0	-31	-12	31	25	18	19	44	46	38	20	16	14	25					
24	9	17	7	15	48	34	52	18	36	39	30	32	12	40	15	1	-11	26	37	25	21	26	36	27	25					
25	17	19	12	9	50	10	-11	42	50	39	28	7	12	-16	-18	-12	16	22	20	17	16	31	9	14	16					
26	22	17	12	0	1	37	0	30	35	-51	-28	-49	-42	0	16	27	9	-73	-78	10	15	20	28	30	0					
27	16	1	-4	-4	-3	-1	2	42	2	41	71	50	-64	-76	21	20	24	33	27	13	40	53	90	53	18					
28	14	-53	-17	33	42	46	-9	-30	31	19	31	-21	-40	-7	20	11	7	0	23	21	18	2	-2	-6	5					
29	-7	-7	-4	7	56	-39	-89	-24	39	11	11	7	-4	-20	-13	-29	-66	-63	30	32	2	-4	-4	0	-7					
Q	30	9	25	-23	-7	2	0	1	0	4	12	29	11	2	1	-33	-48	-36	3	4	6	11	8	8	0					
Mean	2	-19	-21	-16	-3	7	3	8	1	5	7	-8	-16	-19	-24	-31	-27	-9	5	17	17	7	1	1	-4					
5Q Mean	-6	0	-6	-4	0	2	6	6	-1	2	4	-1	-3	-7	-82	-134	-115	-24	15	36	24	2	1	3	-1					
5D Mean	0	-99	-98	-80	-34	18	10	-13	-46	-26	-17	-48	-32	-17	-82	-134	-115	-24	15	36	24	-9	-25	-34	-34					

Date	AU Index (Hourly mean values, unit nT)																								
	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	63	43	40	90	77	69	130	114	179	174	112	85	109	68	47	36	21	44	78	130	169	209	162	227	103
2	290	246	214	197	328	291	208	154	136	56	26	32	26	31	56	43	22	33	25	36	42	29	20	18	107
3	25	64	77	107	339	281	99	61	47	55	71	127	79	48	36	44	45	48	56	60	55	33	18	36	80
4	70	71	44	31	40	75	99	72	58	89	43	44	52	46	45	53	92	125	117	174	200	122	161	193	88
5	147	128	97	254	213	68	74	36	36	92	195	253	223	305	265	237	241	222	235	235	157	62	46	56	162
6	26	25	33	35	54	80	47	35	29	29	46	49	42	46	36	92	161	195	232	194	141	88	58	44	76
7	23	20	21	20	80	183	166	133	152	125	101	98	94	71	55	31	34	47	78	96	105	186	178	123	93
8	51	34	45	109	260	223	227	201	253	203	194	142	88	75	145	147	176	112	139	170	140	61	101	144	143
Q 9	168	167	173	116	48	10	16	16	21	25	30	30	27	22	21	31	26	23	33	38	31	33	32	38	49
D 10	43	49	54	51	75	193	69	61	43	52	48	118	102	59	45	38	29	37	46	43	46	38	34	29	58
11	22	22	34	51	28	26	85	127	73	53	52	56	56	89	61	70	55	62	84	129	166	121	122	125	74
12	131	127	180	184	283	233	281	229	167	168	187	133	54	48	79	71	40	57	54	58	39	18	59	142	126
13	168	212	197	279	231	205	156	135	261	64	28	16	28	25	23	20	34	142	157	281	230	155	108	105	136
14	129	38	23	17	16	8	9	24	22	28	92	175	178	164	82	42	95	112	207	334	281	225	209	231	114
15	199	156	255	236	266	217	179	143	99	111	45	67	63	45	62	42	42	77	101	166	176	144	102	66	127
16	151	114	63	66	80	29	25	11	11	18	22	48	29	32	21	12	16	17	34	32	36	33	28	32	40
17	23	25	28	41	127	212	172	112	98	52	18	24	26	48	57	31	26	47	65	56	81	137	212	222	81
18	233	268	176	115	50	27	38	63	130	37	24	16	22	45	31	42	62	107	154	136	106	63	24	23	83
D 19	24	40	85	115	183	172	97	75	117	205	207	253	206	179	133	73	60	111	188	196	181	128	132	223	141
D 20	155	207	140	177	343	359	182	276	335	204	100	164	127	160	64	47	101	149	267	240	172	146	84	77	178
21	61	34	15	10	15	15	12	19	63	144	158	146	108	86	82	71	93	118	124	133	108	91	80	60	77
22	76	89	68	68	33	52	111	103	97	56	20	21	77	90	70	43	41	36	35	39	76	105	86	87	66
Q 23	34	23	51	80	54	48	7	17	25	31	33	60	66	56	32	35	48	72	89	104	89	71	75	60	52
Q 24	21	13	15	28	132	151	107	69	50	115	102	60	13	24	28	41	42	38	60	85	52	22	19	16	54
Q 25	35	51	37	46	71	41	81	133	117	74	34	38	41	37	34	28	25	29	42	45	40	31	35	32	49
26	25	25	24	21	21	17	18	17	27	22	22	29	34	26	28	40	41	100	51	49	70	121	105	203	47
27	112	59	32	60	97	136	110	101	191	264	91	35	27	21	36	76	52	56	124	190	135	97	72	38	91
D 28	87	120	60	69	128	211	348	358	281	486	359	192	148	415	436	429	553	473	350	303	321	244	154	264	283
D 29	199	277	385	324	678	674	485	189	354	388	245	221	413	155	94	201	226	158	105	154	120	196	89	43	268
30	10	8	10	33	36	53	40	114	114	126	94	61	44	47	33	20	18	16	24	40	54	117	125	164	58
31	178	144	87	20	15	0	104	137	60	24	16	33	28	9	1	-3	-3	0	2	1	19	49	25	29	41
Mean	96	93	89	97	141	140	122	107	117	115	90	91	84	82	72	70	81	92	110	127	117	102	88	101	101
5Q Mean	64	59	63	72	76	63	68	69	78	83	62	54	51	41	32	34	32	41	60	80	76	73	64	74	61
5D Mean	101	138	144	147	281	321	236	191	226	267	191	189	199	193	154	157	193	185	203	187	168	150	98	127	185

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Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
Q 1	-43	-40	-42	-55	-47	-37	-76	-92	-136	-194	-154	-66	-43	-64	-49	-88	-98	-116	-84	-73	-78	-157	-162	-181	-91
2	-204	-142	-224	-204	-229	-207	-264	-192	-79	-23	-24	-26	-30	-30	-75	-93	-132	-59	-27	-32	-27	-27	-29	-26	-100
3	-29	-49	-36	-54	-181	-339	-95	-15	-20	-29	-29	-46	-63	-22	-10	1	-13	-3	4	-24	-32	-32	-21	-30	-48
4	-54	-49	-59	-37	-29	-13	-49	-18	-17	-46	-39	-38	-36	-45	-53	-91	-235	-322	-175	-84	-128	-159	-122	-150	-85
5	-141	-116	-70	-72	-184	-105	-29	-17	-33	-47	-107	-193	-424	-529	-332	-276	-273	-194	-192	-191	-75	-22	-13	-38	-153
6	-40	-29	-30	-26	-21	-59	-29	-26	-35	-43	-48	-49	-44	-90	-83	-76	-135	-284	-272	-185	-67	-40	-46	-61	-76
7	-50	-42	-40	-33	-28	-112	-133	-106	-70	-80	-63	-60	-75	-119	-106	-96	-65	-76	-103	-133	-103	-93	-81	-72	-85
8	-44	-39	-35	-72	-114	-272	-293	-166	-228	-166	-120	-258	-207	-155	-171	-141	-299	-250	-163	-180	-124	-85	-127	-197	-163
Q 9	-124	-77	-80	-43	-32	-30	-20	-25	-29	-32	-32	-36	-37	-41	-39	-40	-44	-59	-54	-72	-57	-48	-61	-48	-61
D 10	-40	-36	-35	-26	-19	-115	-11	-8	-15	-25	-17	-65	-128	-43	-38	-14	-14	-33	-30	-33	-25	-27	-25	-23	-35
11	-33	-40	-39	-42	-30	-17	-21	-68	-43	-25	-33	-61	-37	-153	-276	-138	-108	-98	-123	-133	-227	-122	-110	-93	-86
12	-62	-84	-123	-164	-169	-367	-402	-383	-243	-212	-253	-258	-66	-39	-42	-42	-73	-106	-131	-71	-79	-51	-66	-157	-152
13	-166	-225	-480	-556	-553	-378	-154	-139	-274	-96	-32	-37	-29	-30	-24	-26	-26	-205	-205	-531	-317	-195	-95	-83	-202
14	-132	-79	-49	-43	-37	-29	-26	-17	-13	-12	-39	-83	-358	-327	-78	-74	-140	-223	-380	-328	-247	-152	-176	-174	-134
15	-116	-67	-243	-298	-262	-317	-231	-144	-77	-55	-41	-67	-89	-65	-98	-83	-106	-140	-144	-151	-183	-193	-150	-70	-141
16	-129	-130	-48	-39	-113	-42	-14	-18	-22	-29	-27	-32	-30	-30	-51	-59	-35	-35	-19	-18	-29	-30	-29	-30	-43
17	-32	-30	-29	-34	-49	-150	-120	-81	-62	-26	-19	-22	-35	-38	-28	-36	-39	-32	-88	-45	-72	-125	-194	-196	-66
18	-192	-224	-109	-62	-48	-32	-28	-61	-139	-39	-20	-22	-24	-47	-32	-45	-112	-216	-255	-143	-73	-51	-43	-36	-86
19	-30	-36	-33	-61	-173	-308	-140	-34	-23	-73	-244	-294	-344	-269	-133	-100	-31	-58	-131	-157	-56	-39	-42	-119	-122
D 20	-131	-188	-113	-90	-310	-281	-150	-363	-409	-122	-50	-83	-293	-239	-37	-38	-120	-129	-346	-286	-148	-103	-112	-92	-176
21	-93	-102	-87	-54	-32	-23	-36	-30	-79	-79	-148	-251	-196	-124	-228	-208	-251	-285	-162	-43	-35	-34	-84	-106	-115
22	-137	-104	-105	-146	-65	-20	-50	-110	-85	-56	-20	-22	-58	-139	-228	-106	-58	-14	-16	-44	-82	-68	-77	-79	-79
Q 23	-31	-45	-51	-125	-61	-19	-24	-27	-33	-34	-25	-25	-24	-28	-47	-75	-122	-198	-169	-68	-38	-90	-119	-37	-63
Q 24	-38	-44	-44	-39	-73	-207	-129	-118	-79	-77	-111	-76	-38	-35	-42	-40	-49	-28	-44	-97	-47	-57	-56	-49	-67
Q 25	-45	-41	-57	-47	-70	-45	-102	-66	-112	-41	-42	-42	-36	-30	-24	-27	-32	-20	-6	-16	-33	-33	-32	-32	-43
26	-36	-44	-44	-44	-38	-37	-31	-28	-29	-38	-45	-46	-43	-39	-24	-17	-27	-67	-37	-26	-53	-89	-132	-59	-45
27	-68	-60	-30	-40	-46	-136	-107	-66	-78	-146	-126	-45	-26	-22	-47	-195	-117	-126	-159	-183	-125	-73	-35	-34	-87
D 28	-54	-54	-47	-40	-78	-72	-156	-212	-254	-317	-321	-80	-74	-162	-1021	-1012	-533	-373	-399	-445	-776	-936	-749	-598	-365
D 29	-655	-393	-681	-743	-465	-308	-701	-525	-500	-500	-469	-721	-565	-335	-171	-259	-180	-117	-111	-126	-89	-117	-243	-51	-376
30	-29	-35	-38	-41	-44	-55	-55	-75	-51	-137	-193	-175	-71	-73	-54	-51	-77	-61	-44	-45	-50	-124	-138	-273	-83
31	-263	-205	-107	-64	-38	-42	-77	-282	-170	-44	-40	-41	-50	-41	-76	-45	-37	-33	-36	-37	-46	-56	-48	-48	-80
Mean	-104	-91	-103	-109	-117	-134	-121	-113	-110	-91	-94	-107	-115	-109	-119	-115	-115	-127	-132	-128	-114	-110	-113	-105	-112
5Q Mean	-56	-49	-54	-61	-56	-67	-70	-65	-77	-75	-72	-49	-35	-39	-40	-53	-68	-81	-72	-61	-53	-78	-83	-72	-62
5D Mean	-182	-141	-181	-192	-209	-216	-231	-228	-240	-207	-220	-248	-260	-209	-280	-284	-175	-142	-203	-209	-218	-244	-234	-176	-214

Date	AE Index (Hourly mean values, unit nT)																	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
Q 1	108	84	83	146	124	107	208	208	317	369	266	151	153	132	97	124	120	160	163	204	248	367	325	410	195
2	496	389	439	403	558	499	473	347	216	79	51	59	57	62	132	137	154	92	54	68	70	56	50	46	208
3	55	114	115	162	521	621	195	78	68	85	101	174	142	72	47	42	59	51	51	84	88	65	39	68	129
4	125	122	104	70	70	89	149	91	76	136	83	83	88	91	99	144	327	448	292	258	329	283	284	344	174
5	289	245	169	328	399	174	105	55	70	140	303	448	647	835	598	514	515	417	428	427	234	85	59	96	316
6	67	56	64	62	76	141	77	61	66	73	95	99	87	137	120	168	296	480	505	380	209	129	105	106	153
7	74	63	62	55	109	297	300	241	223	206	165	158	169	190	161	128	100	123	182	231	209	280	361	196	178
8	97	74	81	182	376	497	520	368	482	370	315	401	296	231	317	288	476	362	303	351	265	148	229	342	307
Q 9	293	246	254	160	81	42	37	42	52	56	63	67	65	64	61	70	67	68	93	92	103	90	81	101	98
D 10	84	87	90	79	95	310	81	70	59	78	66	184	230	103	83	53	44	71	77	77	71	66	60	53	95
11	56	63	74	94	60	45	108	196	117	79	86	117	93	242	338	208	163	160	208	262	393	245	233	220	161
12	194	213	304	349	453	602	684	613	412	381	441	392	121	88	122	113	114	164	186	130	120	70	126	300	279
13	336	438	678	836	785	584	311	274	536	161	61	53	57	56	48	47	61	348	363	813	547	351	204	189	339
14	262	118	73	61	54	39	36	43	36	40	131	259	536	492	161	116	235	336	588	662	529	379	386	405	249
15	316	225	499	536	529	535	411	289	177	167	87	135	153	111	161	126	149	217	245	318	360	338	253	138	270
16	282	246	112	106	195	72	40	31	34	49	51	81	60	63	72	72	52	53	54	52	66	64	58	62	84
17	56	55	59	77	177	363	294	195	161	79	39	47	62	86	85	67	65	80	154	102	154	263	408	420	148
18	426	493	287	178	99	60	68	125	270	77	45	39	47	93	64	88	175	323	410	280	180	115	69	60	170
D 19	54	78	120	176	358	482	238	110	141	279	452	549	552	449	267	174	92	170	319	353	238	169	175	343	264
D 20	288	397	254	268	654	641	333	640	745	327	150	248	421	400	102	86	221	279	613	528	322	250	198	171	356
21	155	137	103	64	49	39	49	50	143	224	307	398	304	210	310	280	344	404	286	178	144	127	166	168	193
22	213	194	174	215	99	74	163	214	184	113	42	44	136	230	299	149	100	52	52	84	159	174	164	168	146
23	66	69	103	206	116	68	32	45	60	67	59	86	90	85	80	111	170	270	258	173	128	162	195	98	117
Q 24	60	57	59	68	207	359	237	188	129	193	213	137	52	59	71	82	92	67	105	182	101	80	75	67	123
Q 25	82	93	95	94	143	88	184	200	231	115	78	81	78	67	59	56	58	51	49	62	74	65	67	65	93
26	63	70	69	67	61	55	51	46	57	61	69	76	78	66	53	59	68	168	88	76	124	211	238	263	93
27	181	120	63	71	145	273	219	168	270	411	218	81	54	45	84	272	170	183	284	374	262	171	109	73	179
D 28	143	176	108	110	207	285	505	570	535	803	681	273	223	578	1458	1441	1087	846	750	749	1098	1181	904	863	649
D 29	854	671	1067	1069	1145	983	1188	715	855	888	716	944	979	491	266	461	408	275	277	280	210	314	333	95	645
30	39	44	49	75	82	109	96	190	166	264	288	237	116	121	87	73	96	77	69	85	105	242	265	439	142
31	442	350	195	85	55	44	183	421	231	69	56	75	79	51	76	41	34	34	38	39	66	105	74	79	122
Mean	201	186	193	208	260	276	244	222	229	207	186	199	200	193	192	186	197	220	243	256	232	214	203	208	215
5Q Mean	121	109	118	134	132	139	136	157	160	135	104	87	81	73	88	101	123	133	133	142	130	152	148	148	124
5D Mean	284	281	327	340	491	540	469	421	467	475	413	439	481	404	435	443	370	328	407	397	387	396	334	305	401

Date	AO Index (Hourly mean values, unit nT)																	1990					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
Q 1	9	1	0	17	14	15	26	10	20	-9	-20	9	32	1	0	-24	-37	-35	-3	28	45	26	0	23	6
2	42	51	-5	-3	48	41	-27	-18	27	15	1	2	-2	0	-8	-24	-54	-12	0	1	6	0	-4	-3	3
3	-1	7	19	26	78	-28	2	23	13	12	20	40	8	12	12	22	15	22	30	17	11	0	-1	3	15
4	7	10	-7	-2	5	30	24	26	20	21	2	7	0	-3	-18	-70	-97	-28	44	35	-17	19	21	1	1
5	3	5	12	90	14	-18	22	8	1	22	43	29	-99	-110	-32	-19	-16	14	21	21	40	19	16	8	4
6	-6	-1	1	3	15	10	8	4	-2	-5	-1	0	-1	-21	-22	7	12	-44	-19	4	36	24	5	-8	0
7	-12	-10	-8	-5	25	35	16	13	40	21	18	18	9	-23	-24	-32	-15	-13	-11	-17	1	46	-1	25	4
8	3	-2	4	17	73	-24	-32	17	12	18	36	-57	-58	-39	-12	3	-60	-68	-11	-4	7	-11	-12	-25	-9
Q 9	21	44	46	35	8	-9	-1	-4	-3	-1	-2	-4	-8	-8	-3	-6	-9	-11	-7	-20	-11	-7	-10	0	0
D 10	1	5	9	11	27	38	28	26	13	13	15	26	-12	7	3	11	7	1	7	4	9	5	4	2	11
11	-5	-8	-2	4	0	4	31	29	14	13	8	-2	8	-31	-106	-33	-25	-17	-18	-1	-29	0	6	15	-6
12	33	20	27	9	56	-66	-59	-76	-37	-21	-32	-61	-5	4	18	14	-15	-23	-37	-6	-19	-15	-3	-6	-12
13	1	-6	-14	-137	-160	-86	1	-1	-6	-15	-1	-9	0	-2	0	-3	4	-31	-23	-124	-42	-19	6	11	-32
14	-1	-20	-12	-12	-10	-9	-7	3	4	7	26	45	-89	-80	2	-15	-22	-54	-85	2	16	36	16	27	-9
15	41	44	5	-30	2	-49	-25	0	10	27	1	0	-12	-10	-17	-19	-31	-30	-21	7	-3	-23	-23	-1	-6
16	10	-8	7	13	-16	-5	4	-3	-4	-4	-2	7	0	0	-13	-22	-8	-8	7	6	3	1	0	1	-1
17	-3	-2	0	3	38	31	25	15	17	12	0	0	-4	5	14	-2	-6	7	-10	5	4	6	9	12	7
18	19	21	32	26	0	-2	5	1	-4	-1	1	-2	-1	0	0	-1	-24	-53	-49	-2	16	6	-8	-6	-1
D 19	-2	2	25	26	4	-67	-20	20	46	65	-18	-20	-68	-44	0	-13	14	26	28	19	62	44	45	51	9
D 20	11	8	13	42	16	38	16	-43	-36	40	24	39	-82	-39	13	4	-9	10	-38	-22	11	21	-13	-6	0
21	-16	-33	-35	-21	-8	-4	-11	-5	-7	32	5	-51	-43	-18	-72	-68	-78	-82	-18	44	36	28	-1	-22	-18
22	-30	-7	-17	-38	-15	15	30	-3	6	0	0	0	9	-24	-78	-30	-8	10	9	-2	-2	17	4	4	-6
Q 23	1	-10	0	-21	-2	14	-8	-4	-3	-1	3	17	20	13	-6	-19	-36	-62	-39	18	25	-9	-21	11	-5
Q 24	-8	-14	-14	-5	29	-27	-10	-24	-14	18	-4	-7	-12	-4	-6	0	-2	4	7	-5	2	-16	-18	-16	-6
Q 25	-4	4	-9	0	0	-2	-10	33	2	16	-3	-2	2	3	4	0	-3	4	17	14	3	0	0	0	2
26	-4	-8	-8	-10	-7	-9	-6	-4	0	-7	-10	-8	-4	-5	1	10	6	16	7	10	8	15	-12	71	1
27	21	0	1	-4	25	0	1	17	55	58	-17	-4	0	0	-5	-58	-32	-34	-17	3	5	11	18	2	2
D 28	16	32	6	14	24	68	95	72	13	84	19	55	36	126	-292	-290	9	49	-24	-70	-226	-345	-297	-166	-41
D 29	-227	-58	-147	-209	106	182	-107	-167	-72	-55	-111	-249	-75	-89	-37	-28	22	20	26	13	14	39	-76	-3	-53
30	-8	-13	-13	-3	-3	0	-7	19	31	-6	-49	-56	-13	-12	-9	-15	-29	-21	-8	-1	2	-2	-6	-53	-11
31	-41	-30	-9	-21	-11	-20	12	-72	-54	-9	-11	-3	-10	-15	-37	-24	-20	-16	-16	-17	-12	-3	-10	-8	-19
Mean	-4	0	-7	-5	12	3	0	-2	3	11	-1	-7	-14	-13	-23	-22	-16	-16	-10	0	1	-4	-11	-1	-5
5Q Mean	3	5	4	5	9	-1	0	2	0	4	-5	3	7	1	-3	-9	-16	-19	-5	9	11	-2	-9	1	0
5D Mean	-40	-2	-18	-23	35	51	2	-18	-7	29	-14	-29	-40	-7	-62	-63	8	21	0	-11	-26	-47	-67	-24	-14

Date	AU Index (Hourly mean values, unit nT)																			Mean					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		19	20	21	22	23
1	33	37	26	14	13	24	70	87	163	137	120	67	156	227	411	184	130	93	311	318	522	470	278	263	173
2	417	309	254	159	86	76	158	148	145	58	72	28	33	60	20	12	18	23	27	31	52	121	121	177	109
3	178	208	70	84	35	31	63	93	127	179	207	175	97	153	138	48	55	91	153	200	197	174	205	288	135
4	289	128	124	109	50	64	153	127	79	32	39	40	63	58	34	25	21	22	79	87	52	46	26	19	73
Q	10	43	42	17	15	33	29	28	32	23	45	125	138	117	95	124	116	102	81	67	60	80	100	126	69
6	87	48	84	89	71	45	116	102	78	118	56	50	66	40	36	58	108	229	202	213	194	140	110	115	102
7	168	111	46	34	30	46	46	57	40	60	49	50	76	62	53	71	112	134	73	51	39	50	143	138	72
Q	110	50	154	242	111	100	116	95	73	48	31	25	27	39	48	28	42	48	39	21	16	24	59	109	69
Q	176	186	236	156	57	13	19	23	30	24	51	45	43	43	47	58	83	120	139	102	50	44	24	75	75
Q	17	21	29	34	74	48	44	29	27	28	95	109	83	50	37	34	30	78	97	79	91	85	86	128	60
11	209	96	24	73	94	63	131	218	179	46	30	27	75	95	48	28	42	81	43	61	64	48	124	151	85
12	173	196	217	271	231	187	53	37	53	114	107	89	53	42	25	30	29	39	48	48	75	80	154	145	104
13	130	145	128	180	250	218	288	277	176	183	209	162	95	97	150	158	138	172	168	119	86	77	101	141	160
14	167	141	110	137	201	184	132	280	387	408	296	177	138	102	91	107	116	112	71	79	165	133	78	46	161
15	65	96	108	114	88	92	69	84	69	131	240	263	128	143	140	244	353	403	429	210	170	122	179	235	174
16	234	149	123	137	184	205	167	335	273	283	224	197	87	89	86	256	279	127	106	106	58	102	228	168	175
17	271	170	185	144	221	93	122	119	81	51	49	57	89	79	55	102	192	253	258	187	93	92	192	167	138
18	225	185	177	285	221	178	123	161	126	129	137	77	70	48	77	78	112	85	94	40	46	36	70	169	123
19	145	216	248	161	152	152	71	95	147	178	187	151	92	46	64	47	66	118	132	91	55	72	121	188	125
20	187	82	168	198	292	289	314	204	209	312	269	231	214	103	118	210	186	178	212	141	99	85	178	125	192
D	97	83	40	18	53	135	302	260	269	232	195	189	89	87	343	550	521	534	477	413	452	452	386	234	267
D	284	346	261	333	312	215	321	325	239	345	275	98	174	181	275	335	413	422	370	338	213	280	283	218	286
D	198	241	244	265	266	367	299	443	310	169	208	305	379	374	519	454	437	513	347	432	286	183	117	224	316
24	184	192	212	342	305	246	270	145	82	39	114	104	148	181	188	107	78	153	132	89	35	29	23	41	143
25	66	51	30	43	46	56	31	14	24	21	13	18	75	81	42	45	73	135	133	212	233	132	112	60	73
D	76	38	20	36	76	130	224	356	339	145	199	378	375	200	485	411	331	345	206	143	65	65	206	138	208
27	117	82	60	23	20	45	22	28	23	3	16	22	27	23	23	15	14	17	13	19	33	31	30	17	30
Q	28	9	7	21	8	5	7	5	12	17	12	12	22	14	15	11	24	18	17	21	25	35	15	9	15
29	4	6	17	36	72	115	83	62	48	63	135	108	72	40	28	20	20	30	162	256	236	151	37	38	77
D	60	70	72	92	186	130	100	54	135	177	209	267	246	275	166	269	356	292	200	113	92	61	155	254	168
31	223	204	89	76	50	160	126	147	121	106	126	61	67	59	47	36	36	27	39	56	34	18	23	60	83
Mean	148	127	116	126	124	120	131	143	132	124	129	119	112	103	125	134	146	161	156	140	125	113	127	135	130
50 Mean	64	61	96	94	53	39	43	36	34	28	46	63	62	52	48	51	59	73	74	58	48	53	56	79	57
5D Mean	143	155	127	148	178	195	249	287	258	213	217	247	252	223	357	403	411	421	320	287	221	208	229	213	248

Date	1990																	Mean						
	August																							
AL Index (Hourly mean values, unit nT)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
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2	-307	-209	-130	-172	-79	-45	-61	-88	-111	-45	-37	-27	-49	-69	-47	-33	-36	-30	-26	-25	-67	-167	-233	-158
3	-111	-144	-60	-32	-23	-22	-24	-61	-165	-233	-347	-287	-182	-269	-312	-107	-65	-139	-235	-244	-215	-154	-158	-267
4	-292	-173	-78	-58	-25	-25	-176	-144	-52	-24	-29	-31	-47	-31	-54	-87	-101	-36	-49	-70	-42	-46	-42	-43
Q 5	-44	-49	-31	-27	-32	-20	-18	-25	-48	-33	-34	-103	-197	-196	-227	-301	-235	-200	-97	-21	-24	-45	-51	-191
6	-164	-46	-36	-81	-136	-25	-27	-37	-27	-120	-31	-26	-37	-45	-32	-36	-171	-327	-232	-196	-215	-148	-85	-111
7	-86	-75	-44	-9	-18	-15	-23	-18	-24	-28	-28	-38	-43	-71	-77	-150	-140	-141	-78	-34	-43	-43	-136	-163
Q 8	-112	-38	-80	-238	-130	-32	-106	-77	-156	-90	-31	-29	-29	-29	-47	-81	-61	-102	-64	-47	-53	-49	-43	-80
9	-191	-178	-191	-175	-51	-21	-19	-17	-23	-30	-37	-29	-21	-21	-21	-35	-57	-234	-366	-139	-42	-33	-30	-30
Q 10	-29	-30	-25	-16	-12	-30	-12	-11	-22	-26	-45	-63	-72	-35	-23	-19	-22	-83	-203	-73	-82	-50	-66	-46
11	-353	-117	-35	-32	-75	-50	-56	-176	-151	-22	-29	-35	-54	-190	-80	-30	-40	-73	-25	-27	-33	-26	-86	-176
12	-111	-91	-165	-287	-397	-175	-21	-13	-19	-40	-94	-101	-54	-29	-34	-37	-36	-27	-23	-34	-78	-56	-82	-135
13	-82	-65	-33	-138	-404	-352	-227	-194	-51	-161	-283	-104	-39	-76	-201	-274	-158	-164	-271	-173	-17	-17	-86	-166
14	-217	-208	-106	-256	-254	-192	-45	-184	-441	-335	-280	-118	-67	-219	-87	-127	-238	-119	-68	-41	-137	-176	-140	-172
15	-85	-136	-134	-174	-221	-117	-41	-29	-2	-28	-251	-663	-695	-568	-358	-342	-415	-363	-397	-289	-117	-74	-176	-215
16	-257	-139	-68	-129	-146	-232	-206	-379	-325	-377	-161	-355	-368	-587	-453	-432	-297	-212	-158	-76	-29	-36	-121	-188
17	-237	-68	-264	-212	-267	-154	-150	-306	-50	-19	-29	-38	-83	-162	-82	-58	-234	-546	-573	-221	-108	-37	-66	-63
18	-209	-301	-212	-232	-268	-369	-139	-103	-193	-101	-95	-63	-39	-40	-103	-125	-87	-101	-55	-4	-18	-33	-52	-79
19	-334	-374	-561	-481	-219	-151	-19	-54	-203	-142	-102	-141	-139	-235	-160	-102	-100	-138	-91	-21	-14	-21	-68	-299
20	-249	-140	-83	-334	-510	-346	-336	-211	-241	-230	-233	-412	-395	-443	-328	-315	-255	-162	-164	-21	-8	-24	-70	-232
D 21	-80	-165	-60	-41	-64	-143	-356	-330	-234	-187	-202	-222	-228	-349	-398	-745	-589	-363	-307	-615	-355	-389	-621	-334
D 22	-355	-331	-223	-288	-547	-634	-406	-366	-421	-553	-450	-838	-452	-392	-428	-205	-402	-435	-315	-224	-338	-366	-261	-384
D 23	-528	-419	-483	-539	-577	-505	-425	-463	-433	-439	-931	-253	-378	-415	-388	-492	-438	-493	-396	-479	-254	-140	-72	-220
D 24	-398	-299	-171	-403	-567	-507	-154	-135	-50	-36	-183	-218	-447	-312	-168	-92	-68	-175	-156	-68	-18	-21	-23	-30
25	-144	-96	-47	-39	-44	-107	-53	-24	-35	-41	-47	-48	-63	-105	-149	-156	-102	-114	-99	-159	-209	-72	-154	-88
D 26	-141	-41	-32	-29	-51	-99	-385	-611	-769	-708	-368	-249	-610	-410	-380	-410	-529	-509	-80	-73	-26	-50	-107	-179
27	-112	-75	-56	-38	-43	-54	-47	-50	-61	-60	-50	-46	-61	-49	-42	-35	-32	-36	-18	-25	-28	-35	-22	-26
Q 28	-34	-39	-40	-44	-35	-38	-34	-33	-41	-56	-55	-48	-47	-44	-37	-44	-54	-48	-45	-28	-33	-33	-27	-29
29	-35	-37	-41	-28	-40	-118	-68	-77	-68	-40	-81	-91	-40	-40	-34	-28	-48	-37	-124	-382	-420	-160	-39	-34
D 30	-41	-61	-33	-28	-217	-339	-153	-52	-96	-294	-274	-591	-649	-527	-198	-258	-332	-378	-263	-23	-20	-15	-70	-188
31	-144	-277	-342	-40	-24	-320	-306	-340	-163	-62	-257	-124	-88	-108	-68	-43	-55	-23	-31	-34	-17	-22	-31	-44
Mean	-178	-144	-125	-149	-177	-169	-133	-150	-159	-149	-164	-174	-187	-208	-182	-175	-180	-189	-168	-138	-116	-98	-115	-140
5Q Mean	-82	-66	-73	-100	-52	-28	-37	-32	-58	-47	-40	-54	-73	-65	-73	-100	-107	-133	-155	-61	-46	-42	-43	-79
5D Mean	-231	-203	-166	-185	-291	-344	-345	-364	-390	-436	-445	-430	-463	-418	-358	-422	-458	-435	-272	-282	-198	-192	-226	-325

Date	AE Index (Hourly mean values, unit nT)																								
	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	73	81	56	41	41	49	102	131	426	214	144	97	290	612	1041	399	230	150	555	748	1074	982	638	526	363
2	726	520	386	332	167	122	220	238	258	104	110	56	83	129	68	47	55	54	54	56	120	288	354	335	203
3	290	354	131	118	60	54	88	155	293	413	555	462	280	423	451	156	231	388	444	413	330	363	557	297	
4	583	302	204	168	76	90	331	272	133	57	69	72	112	91	90	112	123	59	128	158	94	92	69	62	148
Q	55	93	74	45	48	54	49	55	81	57	81	230	336	314	322	425	352	303	179	90	84	126	152	319	163
6	251	96	122	170	208	72	144	140	107	239	89	77	105	86	70	96	280	557	426	410	410	290	197	228	203
7	255	188	91	43	49	62	71	77	66	90	78	89	120	134	130	221	253	276	152	85	82	93	281	302	137
8	223	89	235	481	242	134	224	173	230	139	62	55	57	69	96	110	104	151	104	68	69	73	102	189	145
Q	367	364	429	332	109	35	39	41	54	55	90	75	65	65	83	116	248	355	506	242	93	78	55	55	165
Q	47	53	55	51	87	78	57	41	50	55	141	173	157	87	60	55	53	161	301	153	174	136	153	195	107
11	563	214	61	107	171	115	189	395	331	69	61	63	130	286	128	59	82	155	69	89	98	74	211	327	169
12	285	287	383	560	629	364	75	51	74	155	201	191	108	72	60	68	67	67	72	82	153	137	236	281	194
13	212	211	163	320	656	572	517	473	228	346	492	267	136	174	351	433	296	338	440	294	104	95	188	308	317
14	386	350	217	394	456	377	178	465	829	744	578	296	206	322	179	235	355	233	140	121	303	310	220	118	334
15	151	234	244	289	311	211	111	114	72	160	492	927	824	711	499	587	769	767	818	500	288	198	356	451	420
16	492	289	193	267	332	439	375	715	599	662	386	552	456	677	540	689	576	340	265	183	88	140	351	357	415
17	510	239	450	358	489	248	273	426	132	72	80	97	173	242	138	161	427	799	831	409	203	130	259	231	307
18	436	487	391	519	491	549	264	265	321	232	234	142	110	89	181	204	200	187	151	45	64	70	122	248	250
19	480	591	811	643	373	305	92	150	352	321	291	293	232	283	225	151	167	257	225	113	70	94	190	488	300
20	436	223	252	533	803	636	651	416	451	544	502	644	610	547	447	526	442	341	377	163	108	109	249	177	425
D	177	249	100	60	119	279	659	591	504	420	399	411	318	436	742	1296	1110	897	785	1029	808	841	1008	569	575
D	651	679	485	622	861	851	728	692	661	900	726	937	627	575	704	542	815	857	685	563	553	646	545	603	688
D	727	661	729	806	844	873	725	908	745	609	1139	559	759	790	907	947	876	1006	743	911	541	324	190	445	740
24	583	492	385	746	874	753	424	281	133	76	298	323	596	494	356	200	148	329	290	159	54	52	48	72	340
25	210	148	78	84	91	164	86	39	60	63	62	68	140	187	192	202	175	250	233	372	444	205	268	149	165
D	218	81	53	67	128	231	610	968	1109	853	567	628	986	611	866	821	860	854	286	217	93	117	314	318	494
27	230	159	117	62	64	101	70	80	85	64	67	69	89	73	66	51	48	55	33	45	62	67	54	44	77
Q	44	47	63	66	44	44	42	39	54	74	68	61	71	59	54	56	78	66	63	49	59	69	44	39	56
29	40	45	59	66	114	234	153	140	116	104	218	200	113	81	63	50	68	68	287	638	657	313	77	73	166
D	102	132	106	121	404	471	255	107	233	471	483	858	896	803	365	527	689	671	464	137	113	77	226	442	381
31	367	482	432	117	74	481	433	488	285	169	383	186	156	167	116	79	91	52	71	91	51	40	55	105	207
Mean	328	272	243	277	303	291	265	294	292	275	295	295	301	312	309	310	327	351	326	279	242	212	244	277	288
5Q Mean	147	129	171	195	106	69	82	69	93	76	88	118	137	118	123	152	167	207	230	120	95	96	101	159	127
5D Mean	375	360	294	335	471	541	595	653	650	650	662	678	717	643	716	826	870	857	592	571	421	401	456	475	575

AO Index (Hourly mean values, unit nT)

August 1990

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	-2	-2	-1	-6	-5	0	19	22	-49	30	48	18	11	-78	-108	-15	14	18	33	-55	-15	-21	-41	1	-7
2	54	49	61	-5	3	15	48	29	16	6	17	0	-7	-4	-12	-10	-8	-3	0	2	-6	-22	-55	9	7
3	33	31	4	25	5	3	19	15	-18	-27	-70	-56	-41	-57	-86	-28	-4	-23	-39	-21	-8	9	22	10	-12
4	-1	-22	22	24	12	18	-11	-8	13	3	4	4	7	13	-9	-30	-39	-47	14	8	4	0	-7	-11	0
Q	-16	-3	4	-4	-7	6	5	1	-7	-4	5	11	-28	-38	-65	-88	-58	-48	-7	22	17	17	24	-32	-12
6	-38	1	24	4	-32	9	44	32	25	0	11	11	14	-2	2	10	-31	-48	-9	8	-10	-4	12	1	1
7	40	17	1	12	5	15	11	19	7	15	10	5	16	-4	-11	-39	-13	-3	-2	8	-1	3	3	-12	4
8	-1	6	36	2	-9	33	5	9	-40	-20	0	-1	-1	4	0	-25	-9	-25	-11	-12	-18	-11	7	14	-2
Q	-7	4	22	-9	2	-3	0	3	2	-3	6	7	10	10	5	0	-40	-56	-112	-18	3	5	-2	-2	-7
Q	-5	-3	1	8	30	8	16	8	2	1	24	23	5	7	6	7	3	-2	-52	3	4	16	9	30	6
11	-71	-10	-5	19	9	6	37	20	13	11	0	-3	10	-46	-15	-1	0	4	8	16	14	10	18	-11	1
12	30	51	25	-7	-82	6	15	11	16	36	6	-6	0	5	-4	-3	-3	5	12	6	-1	11	35	5	7
13	24	39	47	20	-76	-66	30	41	61	10	-37	28	27	9	-25	-57	-10	3	-51	-26	33	29	7	-12	2
14	-24	-33	1	-59	-25	-3	43	47	-27	35	7	28	35	-57	1	-10	-61	-3	1	18	13	-21	-30	-11	-5
15	-10	-19	-12	-29	-66	-12	13	26	33	50	-5	-199	-283	-212	-108	-48	-30	19	20	-39	25	23	1	9	-35
16	-11	4	26	4	19	-13	-19	-22	-25	-46	30	-78	-140	-248	-182	-87	-8	-42	-25	14	14	32	52	-9	-31
17	16	50	-38	-33	-22	-30	-13	-93	15	16	9	9	2	-41	-13	21	-21	-145	-156	-17	-7	27	62	51	-14
18	7	-57	-17	25	-23	-95	-8	28	-33	14	20	6	15	3	-12	-23	11	-7	18	17	13	1	8	44	-1
19	-94	-78	-155	-159	-33	0	25	20	-27	17	42	4	-23	-94	-47	-26	-17	-9	19	34	19	24	25	-55	-24
20	-31	-28	42	-67	-108	-27	-10	-3	-15	40	17	-89	-90	-169	-104	-51	-34	7	24	59	44	30	53	36	-19
D	8	-40	-9	-10	-5	-4	-27	-34	17	21	-3	-16	-69	-130	-27	-96	-34	85	84	-100	47	31	-117	-49	-20
D	-40	7	18	22	-117	-209	-42	-20	-90	-103	-87	-369	-138	-104	-76	64	5	-6	26	56	-62	-42	10	-83	-57
D	-164	-87	-118	-136	-155	-68	-62	-9	-61	-134	-361	25	0	-20	64	-19	0	10	-24	-23	15	20	22	1	-53
24	-106	-52	20	-30	-130	-130	57	4	15	1	-34	-56	-148	-65	9	7	4	-11	-11	9	8	4	0	4	-26
25	-38	-21	-7	2	0	-25	-10	-4	-5	-9	-16	-14	5	-11	-53	-55	-14	9	16	25	11	29	-20	-13	-9
D	-32	-1	-5	3	12	14	-80	-127	-214	-281	-84	63	-117	-105	52	0	-98	-81	62	34	19	7	49	-20	-38
27	2	3	1	-6	-10	-4	-12	-10	-18	-27	-16	-11	-16	-12	-8	-9	-8	-8	-2	-2	2	-1	3	-3	-7
Q	-12	-15	-8	-11	-12	-15	-12	-12	-13	-18	-20	-16	-12	-14	-10	-15	-14	-14	-13	-3	-3	1	-5	-9	-12
29	-15	-15	-11	4	15	-1	7	-6	-9	11	26	8	15	0	-2	-3	-13	-2	18	-62	-92	-4	0	2	-5
D	9	4	18	31	-15	-103	-25	1	19	-58	-32	-161	-201	-125	-16	5	11	-42	-31	44	35	22	41	32	-22
31	38	-36	-125	17	12	-79	-89	-95	-20	21	-65	-31	-9	-24	-10	-3	-8	1	4	11	7	-1	-3	7	-20
Mean	-14	-8	-4	-11	-26	-24	0	-3	-13	-12	-17	-27	-37	-51	-27	-20	-17	-13	-6	0	4	7	5	-2	-13
5Q Mean	-8	-2	11	-2	0	5	2	1	-11	-8	3	4	-5	-6	-12	-24	-23	-29	-39	-1	0	5	6	0	-5
5D Mean	-43	-23	-19	-18	-56	-74	-47	-37	-65	-111	-113	-91	-105	-96	0	-9	-23	-6	23	2	10	7	1	-23	-38

Date	AU Index (Hourly mean values, unit nT)																				September					1990	Mean
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
D 1	49	28	66	120	63	36	31	23	28	40	151	150	342	242	133	120	65	254	331	303	120	56	57	41	119		
Q 2	29	21	11	7	4	3	5	4	6	6	7	7	6	2	-1	0	7	14	25	34	18	10	10	10	10		
Q 3	9	10	8	6	9	31	33	22	20	17	40	26	17	14	9	15	24	24	23	25	22	31	21	19	85		
4	19	20	28	19	19	20	26	19	24	61	63	71	68	65	45	119	210	228	257	263	125	89	168	185			
5	87	151	144	178	125	112	119	142	101	108	159	168	91	31	84	100	120	73	65	48	75	101	67	105			
6	132	167	103	62	54	67	57	113	143	176	106	77	83	60	49	36	53	92	67	78	140	88	99	93			
7	95	105	160	106	46	118	106	76	142	211	239	139	166	269	276	290	79	76	46	82	68	51	65	99			
8	64	50	86	65	45	90	99	91	59	102	110	98	68	51	30	30	85	45	50	121	142	165	67	111			
9	103	82	101	77	44	40	51	50	42	91	90	93	103	46	50	89	105	136	66	78	139	81	75	78			
10	148	151	82	58	57	121	73	69	45	34	30	21	26	17	16	19	20	28	34	58	142	120	314	270			
D 11	61	93	64	62	58	62	107	117	167	215	132	153	213	286	315	224	223	211	255	158	192	200	223	273			
12	157	177	226	150	204	176	93	75	90	132	105	86	71	57	96	103	154	154	133	233	231	205	84	44			
13	113	189	175	135	101	30	27	27	92	176	175	113	68	108	107	185	179	215	162	142	157	86	209	221			
14	217	216	135	90	158	130	117	90	101	82	76	107	49	65	149	98	91	122	123	165	115	85	42	27			
D 15	39	77	133	122	169	180	115	162	73	66	75	108	104	86	97	171	199	131	215	206	201	116	61	34			
D 16	93	182	219	172	226	141	75	201	133	192	211	170	109	211	182	158	65	80	63	56	42	37	46	124			
17	99	47	73	70	44	50	111	99	81	74	124	73	117	66	28	31	49	74	114	88	132	150	152	55			
18	28	19	19	24	52	93	106	150	176	278	197	212	150	214	256	303	256	155	62	106	181	103	43	145			
19	111	134	154	72	39	93	94	111	107	101	37	41	36	42	7	20	148	217	154	158	146	85	73	171			
20	183	199	73	38	40	44	25	25	27	31	35	38	47	29	26	73	123	158	99	145	268	387	216	196			
D 21	130	146	70	45	47	84	52	90	125	119	178	178	157	82	106	131	81	140	143	219	147	117	153	137			
22	193	191	189	193	177	205	139	140	81	88	72	77	54	74	156	238	224	71	51	48	120	173	132	157			
23	146	195	128	154	78	49	99	118	105	105	142	73	39	27	39	135	84	31	36	65	57	38	28	83			
24	35	33	28	59	100	96	154	193	179	293	338	241	129	133	58	116	232	175	54	110	97	47	31	50			
25	48	83	82	65	89	79	103	132	82	106	63	38	34	27	15	25	29	50	122	163	158	92	64	29			
26	16	22	56	55	31	40	32	33	22	20	78	40	40	57	62	96	122	60	81	243	147	54	46	27			
27	81	49	87	85	53	107	77	73	102	65	51	49	76	79	42	37	32	32	32	32	49	78	35	28			
28	30	44	52	64	70	44	24	29	31	41	39	79	44	44	20	10	13	27	32	28	30	36	43	51			
Q 29	74	107	74	44	30	66	44	28	21	30	39	30	34	29	23	17	15	19	33	58	53	43	68	162			
Q 30	50	32	26	20	19	16	16	17	21	32	15	18	16	17	14	14	16	21	20	24	60	38	25	31			
Mean	87	100	95	80	74	80	73	84	80	101	105	92	85	84	83	97	99	102	96	117	124	101	87	98			
5Q Mean	48	43	41	32	22	40	34	31	34	30	25	28	31	28	18	15	15	20	24	32	44	39	33	50			
5D Mean	87	114	134	133	138	124	93	128	96	120	128	131	164	179	176	182	155	149	183	154	135	116	103	125			

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AL Index (Hourly mean values, unit nT)

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Mean
D	-115	-75	-39	-156	-113	-6	-8	-16	-20	-21	-106	-215	-723	-653	-191	-72	-88	-273	-704	-326	-35	-34	-22	-27	-168
Q	-29	-28	-25	-21	-12	-13	-12	-16	-17	-19	-23	-27	-29	-29	-35	-37	-32	-28	-34	-34	-51	-23	-16	-24	-26
Q	-29	-28	-26	-20	-18	-15	-12	-12	-16	-21	-21	-32	-33	-28	-29	-25	-20	-13	-16	-17	-20	-21	-24	-22	-22
Q	-18	-19	-12	-6	-6	-7	-6	-5	-12	-20	-32	-65	-81	-107	-87	-70	-102	-425	-475	-296	-173	-52	-91	-220	-99
5	-107	-154	-337	-303	-124	-31	-14	-132	-104	-65	-88	-81	-63	-107	-74	-203	-244	-96	-25	-22	-27	-37	-30	-32	-105
6	-97	-204	-32	-18	-12	-14	0	-28	-184	-183	-47	-112	-69	-40	-33	-33	-63	-100	-70	-58	-77	-73	-51	-74	-70
7	-50	-41	-173	-76	-9	-48	-165	-140	-215	-324	-241	-200	-283	-426	-486	-465	-151	-26	-25	-48	-38	-35	-38	-70	-157
8	-75	-45	-44	-31	-16	-51	-176	-138	-29	-31	-134	-217	-58	-31	-39	-60	-73	-154	-58	-79	-148	-271	-54	-103	-88
9	-164	-90	-74	-118	-16	0	-2	-12	-19	-30	-110	-176	-143	-55	-41	-62	-198	-264	-119	-43	-89	-113	-62	-39	-85
10	-161	-218	-23	-13	-11	-84	-180	-28	-10	-15	-14	-22	-27	-29	-37	-40	-47	-35	-22	-36	-117	-117	-211	-269	-74
11	-80	-113	-53	-28	-16	-5	-3	-46	-145	-170	-192	-454	-309	-234	-435	-286	-202	-95	-170	-189	-242	-181	-417	-326	-183
12	-344	-249	-259	-207	-390	-279	-123	-29	-51	-447	-376	-148	-167	-277	-227	-123	-168	-185	-152	-247	-346	-176	-22	-39	-210
13	-177	-494	-184	-116	-110	-39	-11	-23	-29	-174	-347	-125	-114	-336	-386	-217	-94	-229	-282	-180	-158	-75	-170	-328	-183
14	-461	-170	-293	-122	-122	-566	-202	-34	-35	-37	-29	-336	-181	-71	-198	-288	-192	-200	-156	-264	-179	-156	-29	-21	-181
D	-26	-60	-406	-345	-310	-253	-159	-131	-49	-68	-41	-467	-445	-115	-137	-329	-446	-235	-331	-318	-284	-124	-58	-13	-214
16	-72	-287	-443	-223	-201	-111	-57	-309	-178	-175	-567	-393	-199	-301	-326	-281	-45	-57	-41	-19	-16	-19	-30	-134	-187
17	-212	-120	-76	-153	-137	-33	-221	-277	-124	-128	-187	-195	-314	-188	-85	-73	-77	-183	-224	-119	-123	-208	-249	-31	-156
18	-12	-20	-22	-18	-49	-174	-256	-223	-292	-621	-379	-420	-376	-347	-303	-424	-339	-251	-45	-66	-308	-246	-30	-119	-222
19	-427	-526	-347	-58	-37	-67	-249	-231	-172	-108	-59	-42	-48	-53	-74	-58	-199	-518	-320	-231	-161	-130	-44	-455	-192
20	-355	-274	-96	-19	-24	-28	-16	-17	-13	-17	-17	-27	-81	-24	-47	-98	-295	-391	-93	-126	-313	-391	-180	-237	-132
21	-138	-224	-77	-15	-44	-241	-221	-204	-182	-318	-340	-188	-182	-208	-266	-214	-130	-152	-213	-411	-167	-87	-214	-278	-196
22	-254	-230	-185	-149	-196	-252	-325	-165	-76	-49	-172	-121	-49	-99	-283	-469	-291	-42	-16	-14	-154	-256	-180	-168	-177
23	-274	-307	-58	-260	-182	-63	-149	-347	-222	-48	-132	-106	-15	-9	-40	-242	-184	-33	-28	-41	-25	-29	-19	-17	-118
24	-81	-111	-45	-122	-144	-210	-193	-325	-325	-304	-216	-278	-363	-279	-146	-203	-333	-200	-37	-123	-119	-27	-1	-34	-176
25	-27	-59	-385	-157	-134	-32	-51	-134	-44	-41	-20	-28	-23	-26	-32	-36	-60	-86	-146	-231	-277	-145	-51	-76	-96
26	-71	-33	-20	-97	-98	-7	-2	-8	-7	-16	-48	-44	-32	-53	-107	-274	-242	-127	-86	-234	-130	-26	-46	-16	-76
27	-89	-21	-143	-90	-17	-76	-166	-183	-29	-3	-20	-39	-154	-132	-94	-74	-51	-34	-11	-8	-26	-48	-11	-13	-64
28	-5	-16	-211	-148	-32	-10	-2	0	-5	-18	-40	-112	-228	-93	-20	-19	-15	-21	-23	-37	-22	-15	-66	-118	-53
Q	-29	-178	-204	-100	-24	-13	-22	-80	-87	-24	-66	-20	-31	-26	-24	-25	-29	-18	-12	-19	-56	-113	-48	-53	-186
Q	-72	-10	-15	-19	-19	-14	-6	-9	-11	-19	-22	-21	-24	-20	-27	-26	-22	-12	-4	-8	-41	-37	-5	-20	-20
Mean	-140	-149	-140	-104	-87	-91	-102	-110	-87	-118	-134	-157	-161	-147	-143	-161	-147	-149	-131	-129	-132	-106	-82	-116	-126
5Q	-79	-58	-61	-34	-15	-28	-55	-61	-19	-25	-21	-30	-53	-46	-42	-38	-28	-19	-16	-24	-50	-35	-21	-53	-38
5D	-109	-165	-225	-180	-167	-125	-110	-133	-93	-96	-215	-330	-345	-280	-274	-287	-214	-140	-252	-173	-146	-122	-141	-133	-185

Date	September 1990																Mean								
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20	21	22	23
D 1	166	105	106	278	176	44	40	40	49	63	258	365	1067	896	325	193	155	528	1036	629	157	91	81	69	288
Q 2	59	50	38	29	17	18	18	20	23	26	32	35	36	31	33	36	33	36	49	60	86	43	28	36	36
Q 3	40	39	37	30	25	25	44	46	39	42	38	74	60	45	44	35	35	38	41	42	47	45	56	44	42
4	39	40	42	27	26	27	26	32	33	46	94	129	153	175	152	116	222	636	703	554	438	178	180	388	186
5	195	305	482	482	251	144	133	275	206	173	247	250	154	159	160	303	365	170	91	70	103	139	98	103	211
6	229	372	137	82	68	82	58	142	328	359	154	190	153	100	83	70	116	193	137	137	219	214	140	174	164
7	146	148	333	182	56	167	272	217	357	535	480	340	450	697	763	757	231	103	72	132	107	86	104	170	288
8	140	97	131	97	62	142	277	230	89	135	245	316	126	82	71	91	158	200	108	200	291	436	121	214	169
9	268	172	175	196	62	40	54	63	62	122	201	269	246	102	92	152	304	401	186	122	229	196	138	117	165
10	310	371	107	73	70	207	254	98	57	49	44	43	53	47	54	60	68	63	56	94	259	239	526	540	156
D 11	142	208	119	92	75	68	111	165	313	385	325	607	523	522	752	511	426	307	426	348	436	383	641	599	354
12	502	427	487	358	595	457	217	105	142	579	481	234	239	335	325	228	323	341	287	481	568	382	106	85	345
13	291	685	360	252	212	71	40	51	122	351	523	238	183	445	494	403	275	446	445	323	316	162	380	550	317
14	679	386	430	214	281	697	320	126	137	120	106	444	231	138	348	387	284	323	279	431	295	241	72	49	292
D 15	66	138	541	468	480	435	275	294	122	134	116	576	549	201	236	502	647	368	546	525	486	241	120	48	338
D 16	166	469	663	396	429	254	133	511	312	367	778	563	309	513	509	441	111	138	105	76	59	57	78	259	321
17	311	168	151	225	183	84	333	377	205	203	312	268	432	255	114	105	127	257	339	209	256	359	402	86	240
18	41	41	43	44	103	268	363	374	468	899	577	633	527	562	560	728	596	406	108	173	491	350	74	264	362
19	539	660	502	130	77	161	343	343	280	210	97	85	85	96	83	79	348	737	474	391	308	216	118	627	291
20	539	473	170	58	65	73	42	44	40	49	53	66	129	54	75	173	419	550	194	272	582	780	397	434	239
21	269	371	148	62	92	327	274	295	308	438	518	366	340	291	373	346	212	292	357	630	315	205	367	416	317
D 22	448	482	375	343	373	458	465	306	157	137	246	199	104	174	440	708	516	114	69	63	275	431	313	326	313
23	420	502	186	415	261	113	250	466	328	153	275	179	55	37	80	378	269	64	65	107	83	67	48	50	202
24	117	145	74	182	246	307	349	519	504	598	554	520	494	413	206	320	566	376	92	234	218	74	32	85	301
25	76	143	467	224	224	112	154	267	127	147	84	67	58	53	47	61	90	136	268	395	435	237	116	107	171
26	88	56	77	153	130	48	35	42	30	37	127	85	72	111	170	372	365	188	168	477	278	81	93	44	139
Q 27	172	70	231	176	72	185	245	257	133	69	72	49	231	211	137	111	84	66	44	41	76	127	46	41	124
28	36	61	263	214	103	55	26	29	37	60	80	192	272	133	41	30	29	49	56	66	53	51	110	169	92
Q 29	252	311	175	69	44	90	126	116	46	96	60	62	61	53	48	47	33	32	52	114	167	92	122	350	109
Q 30	123	43	41	40	39	31	23	26	33	52	38	40	41	38	41	41	39	35	25	33	102	76	31	52	45
Mean	228	251	236	186	163	173	176	195	169	221	240	250	247	232	228	259	248	253	229	247	257	209	171	216	220
5Q Mean	129	102	104	68	39	69	91	93	54	57	48	60	85	75	60	54	44	41	42	58	95	76	56	104	71
5D Mean	197	280	360	315	306	251	204	263	190	217	344	462	510	461	452	471	371	291	436	328	282	240	246	260	322

AO Index (Hourly mean values, unit nr)

September 1990

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	-32	-23	13	-17	-25	14	10	3	4	8	22	-32	-190	-204	-28	23	-11	-9	-185	-11	41	10	16	5	-24
Q 2	0	-3	-6	-7	-4	-3	-5	-5	-5	-7	-9	-9	-11	-13	-18	-19	-15	-10	-9	-4	-8	-2	-2	-6	-7
Q 3	-9	-9	-7	-5	-5	9	10	2	0	-1	3	3	-3	-5	-6	-7	-2	4	3	2	1	0	2	0	-1
4	0	0	7	5	5	6	10	3	1	14	0	-5	-19	-10	-12	8	-107	-123	-19	44	35	0	-25	-7	
5	-10	-1	-95	-62	0	40	52	4	-1	20	35	42	13	-47	4	-50	-61	-11	18	11	23	31	17	18	0
6	16	-18	34	21	20	25	28	41	-20	-3	28	-17	6	9	7	1	-4	-3	-1	9	31	32	17	11	11
7	21	31	-6	14	17	34	-28	-31	-36	-56	-1	-30	-58	-78	-104	-87	-35	24	9	16	14	7	12	14	-14
8	-6	2	20	16	14	18	-37	-22	14	34	-11	-59	4	9	-4	-14	5	-53	-3	20	-3	-52	6	3	-4
9	-29	-4	13	-20	13	19	23	18	10	29	-9	-41	-19	-4	4	12	-46	-63	-25	16	24	-15	5	18	-2
10	-6	-33	28	21	21	18	-53	19	17	8	7	0	0	-6	-9	-10	-12	-3	4	10	11	1	51	0	3
D 11	-9	-9	5	16	20	28	51	34	10	21	-29	-150	-47	25	-59	-30	10	57	42	-15	-24	9	-96	-26	-6
12	-92	-35	-16	-27	-92	-51	-15	21	18	-157	-135	-30	-47	-110	-65	-10	-7	-15	-9	-6	-62	13	30	2	-37
13	-31	-151	-4	9	-4	7	2	30	0	-85	-6	-22	-113	-138	-16	41	-7	-60	-18	0	5	18	-53	-25	-25
14	-121	22	-78	-15	17	-217	-42	27	32	22	23	-114	-65	-3	-24	-94	-49	-38	-16	-49	-31	-35	6	2	-35
D 15	5	8	-135	-110	-70	-35	-22	14	11	-1	16	-179	-169	-14	-19	-78	-123	-51	-57	-55	-41	-3	1	9	-45
D 16	9	-52	-111	-25	12	14	8	-53	-22	8	-177	-110	-44	-44	-71	-61	9	11	10	17	12	8	7	-5	-27
17	-55	-36	-1	-40	-45	7	-55	-89	-21	-27	-31	-60	-98	-60	-28	-20	-13	-54	-54	-15	4	-28	-47	11	-35
18	7	0	-1	2	0	-39	-74	-36	-57	-171	-90	-103	-112	-65	-23	-60	-40	-47	8	19	-63	-71	6	12	-41
19	-157	-195	-96	6	0	12	-77	-60	-32	-3	-10	0	-5	-5	-33	-18	-25	-150	-82	-36	-8	-22	14	-141	-47
20	-85	-37	-11	9	7	7	3	3	6	6	8	4	-16	1	-10	-12	-85	-116	2	9	-22	-1	17	-20	-13
21	-4	-38	-3	14	1	-77	-84	-56	-28	-98	-80	-4	-12	-62	-79	-41	-24	-6	-34	-95	-10	14	-29	-70	-38
22	-30	-48	2	21	-9	-23	-92	-12	2	19	-50	-21	2	-12	-62	-115	-33	13	16	16	-17	-40	-23	-5	-21
23	-63	-55	34	-52	-51	-6	-24	-114	-58	27	4	-16	11	8	0	-53	-49	-1	3	11	15	3	4	6	-17
24	-23	-38	-8	-31	-22	-56	-19	-66	-72	-5	60	-18	-116	-72	-43	-43	-50	-12	7	-6	-10	9	14	7	-25
25	9	11	-151	-45	-21	23	25	-1	18	31	20	4	4	0	-8	-5	-14	-17	-11	-34	-59	-26	5	-23	-11
26	-27	-6	17	-20	-33	15	14	11	7	1	14	-1	3	1	-22	-88	-59	-32	-2	4	7	13	0	4	-7
27	-4	13	-27	-2	17	15	-44	-54	36	30	14	4	-39	-26	-25	-17	-8	0	10	11	11	14	11	6	-2
28	11	13	-79	-41	18	16	10	14	12	10	0	-16	-91	-27	0	-4	-1	2	3	-4	3	-9	-10	-32	-7
Q 29	-51	-48	-13	9	7	21	-17	-29	-1	-17	9	0	3	2	-1	-6	-1	2	6	0	-29	-2	7	-12	-6
Q 30	-11	10	5	0	0	0	3	3	4	6	-3	-1	-3	-1	-6	-5	-2	4	7	7	9	0	9	4	1
Mean	-25	-24	-22	-11	-6	-6	-14	-13	-3	-8	-14	-32	-37	-31	-29	-31	-23	-22	-17	-6	-4	-2	2	-9	-16
5Q Mean	-15	-7	-9	-1	3	6	-10	-15	7	2	2	0	-10	-8	-11	-10	-5	0	3	3	-3	2	5	-1	-3
5D Mean	-11	-24	-45	-23	-14	0	-9	-2	1	11	-43	-98	-89	-49	-47	-52	-29	4	-34	-9	-5	-3	-19	-4	-25

Date	AU Index (Hourly mean values, unit nT)																								October												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													
Q	17	14	44	57	60	75	52	36	27	25	26	27	26	26	24	22	20	22	22	22	23	20	20	19	31												
Q	24	22	27	24	26	27	28	40	59	111	104	50	55	132	89	33	22	36	66	49	37	45	45	32	49												
	43	45	59	54	63	89	76	79	58	77	62	64	59	51	34	39	32	29	39	95	78	83	102	66	61												
	41	42	40	53	53	118	118	86	74	59	110	55	45	41	68	87	72	114	255	126	63	90	46	34	79												
	60	67	71	93	72	88	72	110	75	67	96	53	81	51	40	22	16	23	28	27	33	50	89	89	61												
	37	57	21	66	33	85	51	94	104	213	131	100	107	37	33	35	29	58	92	65	54	80	57	59	71												
	59	79	72	56	39	50	51	77	67	96	64	39	35	38	26	15	25	30	56	63	48	63	74	66	54												
Q	50	26	33	37	28	34	44	63	77	77	55	59	34	25	23	26	22	22	19	17	19	21	26	25	36												
	39	57	57	47	37	40	43	46	49	44	45	47	75	81	60	42	47	100	194	303	221	126	162	198	90												
D	10	86	61	158	134	239	395	322	31	30	196	186	63	58	99	266	100	72	72	46	56	29	18	108	124												
D	11	78	121	133	160	107	102	123	210	204	85	71	82	79	68	72	181	203	230	297	264	163	148	194	150												
D	12	135	81	168	173	84	220	263	164	148	184	139	72	44	69	39	40	75	152	153	131	143	159	103	129												
	66	101	119	139	90	77	81	97	63	54	49	50	31	27	48	53	25	25	16	94	126	92	67	64	69												
	59	87	146	97	90	128	119	122	89	39	33	26	25	33	26	68	88	175	133	100	90	72	132	174	90												
D	15	123	98	106	97	116	59	76	98	117	147	121	167	103	221	262	228	258	166	80	94	131	136	125	51	133											
	73	49	45	36	64	104	130	120	82	82	62	40	36	20	13	8	12	27	8	9	34	61	76	90	58	52											
	73	52	69	48	38	74	81	56	35	52	32	21	19	12	9	15	11	11	7	5	7	11	11	13	19	32											
Q	17	21	26	31	30	26	38	32	43	68	48	57	28	3	37	64	100	142	77	41	51	90	122	125	55												
	134	118	76	65	110	99	83	85	70	50	109	104	73	80	20	13	16	21	12	21	51	100	75	46	68												
	42	41	55	49	65	47	66	76	125	248	261	183	65	48	159	298	102	37	105	141	203	158	123	65	115												
	62	100	79	32	71	76	52	71	81	149	232	221	72	59	46	8	11	6	8	14	20	28	29	37	65												
	51	51	110	111	95	71	81	65	69	28	55	51	50	45	57	23	25	30	32	27	15	15	23	27	50												
	32	34	38	39	29	25	32	28	30	36	28	34	25	22	23	34	35	20	31	35	96	163	182	210	53												
	79	106	158	207	167	221	163	172	172	163	134	56	61	127	159	183	46	54	88	88	43	41	36	66	116												
	72	82	70	80	100	76	46	34	81	40	50	31	28	26	22	8	18	17	18	16	28	28	46	65	45												
	31	29	24	30	39	27	41	40	38	41	39	29	33	30	63	53	120	106	118	104	80	49	46	67	53												
	43	39	33	58	70	107	112	95	61	32	61	109	60	31	40	20	31	62	31	28	21	32	37	37	52												
Q	28	45	41	34	33	52	61	77	101	77	30	25	11	19	13	19	16	12	8	6	4	8	11	13	31	31											
	14	17	20	25	32	40	37	35	39	56	61	103	58	42	23	17	38	95	78	73	133	151	95	129	59												
	152	66	209	89	55	39	23	23	27	24	12	13	9	16	22	12	12	54	61	46	36	71	57	86	50												
D	31	59	50	58	84	60	96	79	174	145	129	180	117	57	36	118	116	123	121	165	177	194	140	179	112	115											
Mean	61	59	76	74	71	89	85	82	78	86	85	69	49	53	56	66	57	65	76	75	76	77	76	80	72												
5Q Mean	30	24	32	36	39	44	47	54	56	62	52	43	31	41	37	33	36	46	38	27	26	36	44	42	40												
5D Mean	96	82	124	129	121	174	172	135	128	148	139	100	68	107	118	166	151	148	153	142	147	125	114	122	129												

AL Index (Hourly mean values, unit nT) October 1990

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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Q 2	-8	-11	-11	-9	-6	-9	-11	-8	-18	-89	-81	-31	-30	-53	-83	-23	-18	-78	-209	-61	-2	0	0	-2	-35
Q 3	-6	-7	-15	-22	-66	-17	5	1	-7	-15	-25	-21	-17	-21	-9	-19	-18	-6	-14	-54	-35	-33	-51	-133	-25
Q 4	-39	-25	-28	-32	-19	-152	-166	-21	-19	-24	-112	-37	-30	-32	-180	-366	-314	-335	-379	-177	-23	-112	-135	-100	-119
Q 5	-68	-137	-179	-211	-89	-62	-53	-116	-98	-65	-111	-92	-94	-65	-319	-55	-39	-29	-18	-7	-11	-25	-142	-132	-92
Q 6	-29	-24	-13	-18	-10	-110	-228	-232	-454	-390	-283	-247	-111	-28	-38	-114	-140	-171	-311	-106	-29	-104	-134	-22	-139
Q 7	-31	-86	-28	-23	-6	-9	-32	-22	-94	-95	-133	-64	-27	-120	-151	-143	-48	-66	-66	-89	-50	-69	-130	-159	-73
Q 8	-63	-8	-6	-11	-9	-8	0	-40	-39	-53	-35	-51	-51	-36	-46	-155	-60	-30	-19	-11	-14	-13	-13	-9	-32
Q 9	-11	-10	-9	-4	-3	-2	-1	-1	-10	-12	-17	-18	-28	-150	-148	-58	-32	-94	-315	-429	-253	-107	-130	-340	-91
D 10	-489	-572	-435	-407	-229	-498	-488	-514	-699	-773	-391	-87	-269	-744	-332	-376	-95	-53	-84	-29	-43	-22	-32	-116	-324
D 11	-477	-554	-224	-178	-255	-457	-617	-684	-334	-69	-129	-479	-243	-113	-98	-540	-746	-540	-395	-407	-366	-518	-426	-298	-381
D 12	-228	-242	-375	-302	-388	-387	-456	-215	-291	-442	-519	-396	-286	-96	-69	-48	-265	-391	-572	-583	-458	-362	-187	-273	-326
D 13	-101	-173	-214	-218	-125	-132	-138	-167	-130	-89	-54	-33	-60	-46	-212	-288	-181	-107	-30	-71	-254	-192	-174	-276	-144
D 14	-129	-400	-496	-91	-94	-191	-263	-215	-153	-65	-55	-42	-46	-140	-214	-136	-211	-381	-350	-172	-224	-69	-398	-500	-210
D 15	-424	-426	-208	-254	-126	-122	-112	-143	-128	-383	-331	-353	-345	-804	-640	-434	-534	-379	-158	-146	-373	-272	-125	-60	-303
D 16	-106	-82	-169	-84	-71	-154	-289	-245	-126	-38	-112	-107	-30	-49	-32	-41	-85	-162	-36	-34	-104	-311	-153	-106	-113
D 17	-155	-220	-64	-21	-13	-44	-193	-190	-73	-49	-22	-23	-27	-23	-26	-29	-26	-17	-16	-21	-19	-17	-15	-18	-55
D 18	-22	-22	-17	-13	-11	-9	-25	-25	-137	-227	-160	-76	-48	-157	-222	-231	-301	-347	-109	-14	-13	-58	-95	-132	-103
D 19	-136	-140	-290	-210	-109	-55	-103	-102	-108	-79	-286	-207	-130	-136	-111	-78	-63	-59	-20	-10	-51	-145	-118	-35	-116
D 20	-30	-55	-61	-142	-120	-56	-27	-74	-343	-477	-306	-295	-98	-287	-478	-137	-32	-159	-361	-159	-526	-536	-347	-203	-216
D 21	-157	-231	-126	-27	-90	-219	-188	-124	-248	-328	-257	-320	-308	-302	-173	-91	-67	-31	-22	-19	-28	-19	-28	-41	-143
D 22	-206	-146	-283	-200	-120	-55	-45	-18	-25	-24	-34	-52	-71	-62	-263	-239	-150	-141	-47	-11	-16	-19	-19	-17	-94
D 23	-15	-13	-11	-13	-12	-11	-5	-5	-9	-26	-80	-182	-55	-31	-21	-30	-33	-31	-24	-28	-184	-416	-315	-157	-71
D 24	-266	-266	-376	-279	-299	-118	-77	-72	-90	-130	-43	-92	-225	-273	-443	-345	-140	-77	-198	-113	-15	-25	-18	-69	-169
D 25	-208	-221	-129	-200	-155	-13	-7	-11	-46	-185	-43	-16	-40	-34	-181	-67	-31	-17	-20	-11	-27	-27	-59	-77	-76
D 26	-30	-13	-21	-21	-18	-14	-8	-6	-9	-16	-21	-25	-14	-64	-28	-19	-119	-329	-254	-129	-107	-80	-19	-26	-58
D 27	-48	-26	-20	-42	-101	-63	-32	-35	-11	-29	-119	-194	-132	-45	-27	-98	-148	-279	-80	-39	-26	-45	-76	-125	-77
D 28	-98	-24	-38	-70	-112	-67	-83	-203	-152	-24	-12	-14	-15	-22	-31	-17	-16	-13	-10	-21	-17	-21	-23	-22	-47
Q 29	-23	-18	-23	-21	-17	-12	-11	-7	-17	-70	-134	-59	-8	-11	-16	-17	-166	-300	-177	-63	-51	-147	-42	-23	-60
Q 30	-55	-382	-551	-120	-15	-21	-16	-50	-186	-89	-21	-17	-21	-24	-81	-80	-84	-131	-214	-48	-38	-44	-54	-166	-105
D 31	-58	-31	-26	-68	-204	-267	-287	-320	-80	-151	-374	-229	-27	-42	-432	-468	-194	-221	-410	-506	-511	-276	-307	-216	-238
Mean	-120	-147	-143	-110	-95	-108	-127	-123	-125	-142	-145	-125	-100	-123	-158	-164	-144	-156	-152	-121	-124	-131	-121	-124	-130
5Q Mean	-40	-15	-16	-43	-39	-21	-24	-57	-73	-85	-65	-41	-34	-57	-78	-86	-79	-93	-68	-21	-8	-18	-26	-33	-47
5D Mean	-335	-365	-253	-241	-240	-346	-392	-375	-306	-363	-348	-308	-234	-359	-314	-373	-366	-316	-323	-334	-350	-290	-215	-192	-314

AE Index (Hourly mean values, unit nT) October 1990

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	29	26	53	170	118	92	55	49	49	58	63	61	56	46	37	33	27	18	19	18	20	20	20	20	48
Q 2	32	33	39	34	33	37	40	48	78	201	186	82	87	186	172	57	42	114	276	111	40	46	45	35	86
3	50	54	75	78	130	106	69	78	66	93	89	85	77	73	44	58	51	35	53	149	114	117	154	199	87
4	81	68	69	86	73	271	286	108	94	84	222	94	76	74	250	453	387	449	635	305	87	203	182	136	199
5	129	205	251	306	162	152	127	227	175	133	209	146	176	117	359	78	57	54	47	36	46	76	232	222	155
6	67	82	34	86	44	197	280	327	559	605	415	348	219	67	72	150	170	230	404	172	84	184	192	83	211
7	92	166	102	80	45	60	85	100	162	193	198	105	64	158	178	159	74	96	123	153	99	133	205	225	127
8	114	35	40	48	38	42	45	105	117	132	92	111	86	62	70	182	83	54	39	29	34	35	40	36	70
Q 9	51	68	66	52	40	44	45	48	61	57	63	66	104	232	208	100	80	195	509	734	476	234	292	539	182
D 10	576	634	593	542	469	894	810	546	730	970	578	151	329	887	432	643	197	125	158	75	100	52	52	224	449
D 11	557	677	359	339	363	560	741	895	539	154	201	562	322	183	172	722	950	770	693	672	580	683	575	492	532
D 12	364	324	544	477	473	608	720	380	439	627	660	469	332	166	110	89	341	544	726	714	601	521	291	422	456
13	168	275	334	358	216	210	220	265	195	144	104	84	92	75	261	341	207	133	47	167	381	285	242	340	214
14	189	488	644	189	185	320	383	338	243	105	90	69	72	174	241	205	300	557	484	274	315	141	531	675	301
D 15	547	525	316	352	244	183	189	242	247	531	452	521	449	1027	904	663	793	546	239	242	505	408	252	113	437
16	180	132	215	120	136	260	419	366	209	101	153	144	51	63	41	54	112	171	45	69	166	387	244	166	167
17	228	273	135	69	52	120	275	248	109	103	55	44	47	36	36	46	38	25	22	29	32	29	29	38	88
Q 18	40	43	43	44	42	36	65	58	181	296	209	134	77	160	260	296	403	489	187	57	65	149	218	257	159
19	271	258	367	277	220	155	187	189	179	130	395	312	204	217	131	93	81	82	34	32	103	246	193	82	185
20	72	97	117	192	186	104	94	105	200	593	739	490	361	147	447	778	240	70	265	503	730	695	470	269	332
21	220	332	206	60	162	296	242	197	330	478	491	541	381	362	219	100	79	38	32	34	48	48	57	78	210
22	257	199	394	313	216	127	127	84	96	53	91	103	122	107	321	263	175	172	80	39	33	35	42	45	146
23	48	48	50	53	42	36	38	34	40	63	109	217	81	54	45	64	69	52	57	64	281	580	498	367	125
24	346	372	535	487	467	340	242	245	263	294	178	149	286	401	603	529	187	131	287	202	59	68	55	136	286
25	281	305	200	281	255	90	54	47	129	226	95	48	69	61	204	75	50	36	39	29	56	57	105	143	122
26	61	44	45	53	58	42	49	47	49	58	61	54	49	95	93	73	239	435	373	235	189	130	66	94	112
27	92	67	55	100	172	171	145	132	76	63	181	304	194	76	68	119	180	341	112	68	48	78	113	163	130
Q 28	144	67	73	104	165	129	162	306	230	55	43	40	28	42	44	37	33	27	19	28	23	30	35	35	79
29	38	37	45	48	50	53	49	42	57	128	196	163	67	54	39	35	204	395	256	137	185	299	138	152	119
30	207	448	761	210	71	62	41	75	214	115	34	31	31	35	98	103	97	185	276	94	75	116	113	252	156
D 31	118	81	85	154	266	364	368	494	227	182	554	347	86	79	552	584	318	344	576	683	706	417	487	329	354
Mean	182	208	220	185	167	198	214	207	204	229	232	195	150	177	216	231	202	223	229	198	202	209	198	205	203
5Q Mean	71	40	49	80	79	67	73	113	131	148	118	85	66	99	116	121	117	140	108	48	36	56	71	76	88
5D Mean	432	448	379	372	363	521	565	511	436	512	489	410	303	468	434	540	519	465	478	477	498	416	331	316	445

		1990																								Mean
		October																								
AO Index (Hourly mean values, unit nT)		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Q	1	2	1	17	-27	0	28	24	11	1	-3	-4	-2	0	3	7	7	7	8	10	13	12	13	10	10	8
Q	2	7	4	7	9	7	7	15	20	10	10	11	9	11	39	2	4	4	1	-19	-70	-6	17	21	22	14
	3	17	18	21	15	-1	35	40	40	25	30	17	20	20	14	11	9	7	11	11	19	20	24	25	-33	
	4	0	7	5	10	16	-16	-23	31	27	16	-1	8	7	3	-56	-139	-120	-109	-61	-25	19	-10	-43	-32	
	5	-4	-34	-53	-59	-8	12	8	-3	-11	0	-7	-19	-6	-7	-138	-16	-11	-3	4	9	10	12	-26	-21	
	6	3	16	3	23	10	-12	-87	-68	-175	-88	-75	-73	-2	3	-2	-39	-55	-56	-109	-20	12	-11	-37	17	
	7	13	-3	21	15	15	20	9	27	-13	0	-34	-12	3	-40	-62	-63	-11	-17	-4	-12	0	-3	-27	-46	
Q	8	-5	8	13	12	8	12	21	11	18	11	9	3	-8	-4	-10	-63	-18	-3	0	2	2	3	5	7	
	9	13	22	23	20	16	18	20	22	18	15	14	13	23	-34	-43	-8	7	2	-60	-62	-15	9	15	-70	
D	10	-200	-255	-138	-136	5	-51	-82	-241	-334	-288	-102	-11	-105	-300	-116	-55	2	8	-5	8	6	3	-6	-4	
D	11	-199	-215	-45	-9	-73	-177	-246	-237	-64	7	-29	-198	-81	-22	-12	-178	-271	-154	-48	-71	-75	-177	-138	-51	
D	12	-46	-79	-103	-64	-151	-83	-96	-25	-70	-128	-189	-161	-120	-13	-15	-4	-95	-119	-208	-225	-157	-101	-41	-61	
	13	-16	-35	-47	-39	-17	-27	-28	-34	-33	-16	-2	8	-14	-9	-81	-117	-77	-40	-6	11	-63	-49	-53	-105	
	14	-34	-156	-174	2	-1	-31	-71	-46	-31	-13	-10	-7	-10	-53	-93	-33	-60	-102	-108	-35	-66	1	-132	-162	
D	15	-150	-163	-50	-78	-5	-31	-17	-22	-5	-117	-104	-93	-120	-231	-188	-102	-137	-106	-38	-26	-120	-67	0	-4	
	16	-16	-16	-61	-23	-3	-24	-78	-61	-22	11	-35	-34	-5	-17	-11	-13	-28	-76	-13	0	-21	-117	-31	-23	
	17	-40	-83	2	12	12	14	-56	-67	-18	1	4	-1	-3	-4	-8	-6	-7	-4	-4	-7	-3	-2	0	0	
	18	-2	0	3	7	8	7	5	2	-46	-79	-55	-9	-10	-76	-91	-83	-99	-102	-15	12	18	15	12	-3	
Q	19	0	-10	-106	-72	0	21	-10	-8	-18	-14	-88	-51	-27	-27	-44	-31	-23	-18	-3	5	0	-22	-21	5	
	20	5	-7	-3	-46	-26	-4	19	23	24	-47	-107	-61	-114	-25	-63	-89	-17	2	-26	-109	-161	-188	-111	-68	
	21	-47	-65	-23	1	-8	-71	-67	-26	-83	-89	-12	-49	-117	-120	-63	-41	-27	-12	-6	-2	-3	4	0	-1	
	22	-77	-47	-85	-43	-12	7	17	23	21	2	10	0	-10	-8	-102	-107	-61	-55	-7	7	0	-1	1	4	
	23	7	9	12	12	7	6	13	11	9	4	-25	-73	-14	-4	0	1	1	-5	3	3	-44	-125	-66	25	
	24	-93	-79	-109	-35	-66	50	42	49	40	15	44	-17	-81	-73	-141	-80	-46	-11	-55	-12	13	7	8	-1	
	25	-67	-69	-29	-59	-27	31	18	10	17	-72	3	6	-5	-4	-78	-28	-6	0	0	2	0	0	-5	-6	
	26	0	7	1	3	10	5	15	16	14	12	8	1	8	-16	17	16	0	-110	-67	-12	-13	-14	12	20	
	27	-2	5	6	7	-15	21	39	30	25	1	-29	-42	-35	-6	6	-38	-58	-107	-24	-5	-2	-6	-19	-43	
Q	28	-26	7	-2	-18	-29	-3	-3	-50	-37	2	8	4	-2	-1	-8	0	0	0	-1	-6	-6	-6	-5	-4	
	29	-4	0	-1	6	13	12	13	10	-6	-36	21	24	15	3	0	-63	-101	-49	5	40	1	26	52	0	
	30	47	-158	-170	-15	19	8	2	-13	-79	-32	-4	-1	-5	-7	-32	-28	-35	-37	-76	0	-1	12	1	-40	
D	31	0	9	15	7	-71	-84	-103	-72	31	-11	-96	-55	14	-3	-156	-175	-34	-49	-122	-164	-158	-67	-63	-51	
Mean		-29	-43	-33	-18	-12	-9	-21	-20	-23	-27	-29	-28	-25	-35	-50	-48	-43	-44	-37	-22	-23	-27	-22	-21	
5Q Mean		-4	4	7	-3	0	10	10	-2	-8	-11	-6	1	-1	-7	-20	-27	-21	-22	-14	2	8	8	8	4	
5D Mean		-119	-140	-64	-56	-59	-85	-108	-119	-88	-107	-104	-103	-82	-125	-97	-102	-107	-84	-84	-84	-95	-100	-81	-34	

AU Index (Hourly mean values, unit nT) November 1990

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	69	47	36	51	30	34	48	23	14	16	38	39	22	18	15	5	8	19	16	13	48	70	74	78	35
2	79	33	75	49	84	67	39	36	20	25	27	25	22	17	11	12	25	19	27	47	88	82	37	36	41
3	46	42	48	56	54	31	32	41	52	81	72	62	54	85	52	18	16	13	23	44	33	51	66	60	47
Q	4	66	60	53	38	56	28	18	19	16	7	7	9	8	6	7	6	11	15	12	10	11	10	9	21
Q	5	8	7	7	9	9	10	10	18	10	9	8	8	7	7	8	7	8	9	12	16	17	19	23	10
Q	6	17	14	11	10	11	16	23	17	13	12	10	10	11	11	10	11	12	11	15	14	21	20	16	14
7	15	13	12	13	14	14	14	14	15	26	39	123	140	35	15	12	58	68	41	18	18	33	56	63	36
8	38	16	16	25	17	62	82	137	100	97	33	56	64	43	43	15	81	137	147	128	63	71	66	59	67
9	50	67	131	187	131	59	80	85	72	34	31	59	32	48	19	15	49	87	50	19	18	19	41	43	59
10	73	127	87	92	61	49	46	48	97	87	87	92	69	40	92	145	133	106	85	158	125	95	57	73	88
11	99	71	63	36	77	76	179	120	96	76	95	104	102	53	49	34	37	23	31	28	17	17	21	42	64
12	14	6	6	19	8	9	9	8	9	10	14	12	7	11	16	13	12	12	15	8	11	14	24	21	12
13	13	12	12	10	17	33	30	29	25	10	22	21	28	15	7	13	10	18	14	13	10	12	12	10	17
Q	14	8	11	12	13	11	10	13	11	15	23	13	8	8	8	8	7	11	12	12	12	14	13	14	12
15	18	16	23	20	13	17	17	11	8	8	8	16	15	14	10	11	11	18	20	28	21	19	22	25	16
D	16	20	12	29	16	20	75	141	243	199	88	129	151	130	193	78	90	129	103	45	28	50	61	45	92
D	17	29	20	19	34	30	23	35	76	83	111	207	88	35	74	164	133	92	186	130	71	82	57	48	78
D	18	139	49	33	15	50	44	27	32	35	104	155	68	48	125	266	169	165	85	35	21	33	44	63	77
19	44	93	107	113	101	62	53	45	28	30	23	17	17	13	11	11	18	34	17	21	25	28	23	27	40
20	30	23	52	68	37	92	53	55	80	46	30	23	18	14	12	7	3	4	5	13	18	23	22	39	32
21	29	43	59	116	111	119	98	53	25	30	59	43	35	48	22	27	13	31	38	14	18	54	53	21	48
22	13	13	11	8	12	8	7	7	6	7	8	11	12	11	10	4	7	9	19	23	11	11	12	10	10
23	10	9	11	13	12	20	18	14	13	13	15	21	53	17	6	28	70	83	23	15	19	38	33	46	25
Q	24	37	45	69	34	16	12	15	16	18	19	19	18	18	18	19	19	19	20	19	15	11	10	15	21
25	12	16	19	25	24	24	22	19	20	18	26	26	30	22	20	16	13	16	22	39	85	97	87	42	31
26	23	42	45	60	68	79	70	21	17	31	34	26	45	51	31	23	32	40	28	23	21	19	20	121	40
D	27	92	73	25	84	79	101	82	75	40	42	41	73	61	59	78	-13	-43	69	129	134	82	48	22	64
D	28	30	39	95	106	87	129	76	73	31	13	22	3	4	1	5	15	44	80	104	68	20	32	34	46
29	23	18	42	33	36	33	29	28	26	25	19	7	11	9	6	12	5	9	10	14	39	45	29	32	22
30	39	58	87	65	27	17	27	37	61	95	56	44	92	61	23	85	141	82	40	51	46	33	66	83	59
Mean	39	36	43	47	43	45	46	46	41	39	42	44	41	32	36	37	38	45	40	38	37	38	37	41	40
5Q Mean	27	27	30	20	20	15	14	15	17	14	14	11	10	10	10	10	10	12	13	13	12	14	14	15	15
5D Mean	62	38	40	51	53	74	72	99	77	71	92	89	63	62	114	112	70	96	93	76	66	48	46	48	71

Date	AL Index (Hourly mean values, unit nT)																								
	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	-108	-81	-53	-33	-107	-61	-55	-49	-11	-20	-88	-184	-98	-59	-24	-23	-42	-84	-32	-30	-32	-155	-116	-133	-70
2	-147	-65	-99	-67	-264	-35	-7	-14	-12	-32	-44	-25	-36	-20	-32	-44	-195	-119	-71	-56	-59	-75	-90	-41	-69
3	-23	-61	-102	-130	-6	0	2	-2	-10	-67	-73	-32	-31	-28	-29	-76	-43	-31	-28	-26	-46	-83	-54	-22	-46
4	-47	-19	-16	-14	-10	-6	-7	-8	-7	-14	-16	-14	-21	-21	-26	-31	-35	-33	-28	-26	-25	-21	-18	-22	-20
Q	-23	-21	-11	-13	-10	-7	-5	-13	-9	-11	-14	-21	-25	-27	-29	-36	-38	-34	-26	-27	-23	-18	-24	-26	-20
Q	-13	-9	-9	-11	-11	-6	-5	-4	-5	-10	-15	-17	-23	-29	-28	-35	-36	-34	-34	-28	-29	-23	-22	-16	-19
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8	-30	-15	-12	-7	-13	-152	-341	-213	-55	-20	-34	-30	-73	-21	-31	-42	-181	-358	-342	-173	-56	-53	-160	-154	-107
9	-130	-173	-342	-236	-190	-134	-78	-144	-288	-105	-48	-87	-147	-168	-93	-134	-159	-360	-213	-23	-18	-31	-62	-185	-148
10	-198	-254	-264	-110	-83	-67	-118	-117	-308	-172	-209	-257	-246	-320	-350	-310	-332	-330	-183	-280	-278	-149	-192	-329	-227
11	-198	-123	-180	-139	-203	-171	-239	-187	-123	-97	-181	-308	-256	-216	-355	-32	-25	-36	-46	-23	-25	-21	-16	-31	-135
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13	-56	-18	-14	-13	-16	-9	-8	-7	-12	-18	-22	-22	-41	-29	-20	-17	-61	-36	-13	-12	-17	-23	-30	-23	-23
Q	-27	-26	-20	-20	-18	-18	-20	-18	-20	-24	-31	-23	-23	-24	-23	-22	-20	-19	-19	-19	-22	-24	-24	-21	-22
15	-15	-16	-14	-13	-12	-8	-3	-1	-8	-9	-14	-15	-14	-15	-19	-17	-19	-19	-22	-17	-14	-9	-8	-6	-13
16	-5	-30	-68	-33	-67	-247	-355	-243	-250	-467	-502	-369	-448	-497	-501	-125	-159	-322	-312	-74	-34	-148	-284	-99	-235
D	-75	-91	-77	-198	-171	-104	-128	-265	-138	-313	-347	-396	-671	-516	-443	-471	-261	-382	-314	-198	-261	-191	-213	-211	-268
D	-187	-33	-23	-59	-195	-195	-54	-113	-202	-338	-301	-232	-188	-568	-620	-422	-303	-318	-96	-16	-21	-60	-72	-254	-203
19	-156	-246	-295	-155	-104	-88	-28	-10	-23	-18	-15	-17	-19	-27	-30	-49	-88	-205	-44	-44	-29	-29	-94	-42	-77
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21	-14	-24	-32	-228	-245	-205	-16	-11	-7	-28	-102	-36	-54	-200	-210	-57	-47	-86	-78	-32	-26	-28	-51	-28	-77
22	-16	-11	-11	-13	-8	-7	-7	-9	-8	-11	-12	-11	-11	-14	-33	-33	-28	-34	-68	-137	-20	-24	-32	-37	-25
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24	-89	-93	-111	-24	-9	-6	-5	-8	-12	-19	-20	-17	-21	-50	-20	-14	-21	-18	-14	-13	-14	-11	-12	-19	-27
Q	-15	-12	-13	-11	-5	-3	-3	-6	-7	-11	-145	-162	-102	-42	-14	-16	-19	-18	-60	-103	-112	-94	-77	-44	-46
26	-18	-54	-189	-107	-180	-100	-8	-7	-9	-30	-72	-100	-253	-412	-314	-198	-65	-36	-29	-15	-10	-9	-6	-91	-96
D	-162	-134	-240	-112	-46	-107	-205	-48	-6	-21	-18	-120	-144	-139	-235	-500	-1092	-1203	-673	-873	-454	-336	-190	-77	-297
D	-179	-225	-223	-245	-131	-123	-50	-48	-36	-63	-42	-52	-46	-41	-48	-131	-138	-252	-299	-462	-147	-57	-87	-37	-132
29	-24	-30	-44	-52	-18	-19	-14	-16	-36	-37	-27	-26	-29	-30	-24	-52	-78	-52	-31	-20	-41	-86	-72	-77	-39
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Mean	-70	-66	-87	-72	-72	-65	-61	-54	-56	-68	-86	-98	-124	-131	-132	-116	-148	-169	-109	-96	-65	-64	-79	-78	-90
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5D Mean	-121	-102	-126	-129	-122	-155	-158	-142	-126	-240	-242	-233	-299	-352	-369	-329	-390	-495	-338	-324	-183	-158	-169	-135	-226

AE Index (Hourly mean values, unit nT) November 1990

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2	227	99	176	117	349	103	47	51	33	58	72	51	59	39	44	57	221	138	98	103	148	158	128	79	111
3	70	104	152	187	61	31	29	43	64	149	145	95	74	176	120	95	60	44	51	74	80	136	120	90	94
4	114	80	71	53	67	35	26	27	28	31	24	22	31	30	33	38	41	44	44	38	36	32	29	32	42
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7	30	27	29	30	27	17	15	16	24	62	163	345	390	84	52	67	231	355	118	49	38	66	177	166	107
8	69	33	29	34	31	216	424	351	156	118	68	88	138	65	76	57	263	496	489	301	119	125	228	215	174
9	182	242	475	424	323	194	159	229	360	140	80	147	180	218	113	150	208	447	263	43	38	51	104	230	208
10	272	382	351	203	145	117	165	166	406	260	296	350	316	361	443	456	466	436	269	438	403	245	250	403	317
11	299	195	244	177	282	247	420	308	220	173	276	414	359	270	405	67	63	60	78	52	42	39	37	74	200
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16	26	43	98	51	89	323	497	487	451	602	592	499	599	627	694	203	249	451	416	120	63	199	347	146	328
17	106	112	97	233	202	128	164	342	223	425	555	485	706	591	607	604	354	569	445	269	344	249	262	290	349
18	328	83	58	75	246	240	83	147	237	393	406	388	257	617	746	689	473	484	181	52	43	94	118	318	282
19	202	341	404	270	207	151	82	56	51	48	39	35	37	41	42	61	106	239	61	66	55	58	118	70	118
20	51	41	91	112	41	173	103	67	104	71	52	37	39	28	41	38	35	36	27	31	36	39	42	55	58
21	44	68	92	345	357	326	115	65	32	59	162	80	89	249	232	85	61	118	117	47	44	84	104	49	126
22	30	25	23	21	21	17	15	17	16	20	22	23	25	27	43	38	36	43	88	160	32	37	45	51	36
23	48	38	28	29	22	29	27	23	20	23	25	58	282	171	192	185	249	209	44	26	28	69	173	151	90
24	127	139	181	59	25	18	21	24	28	28	37	39	40	69	39	33	41	38	33	29	25	22	23	35	48
25	28	29	33	36	29	28	26	26	28	29	171	189	133	65	34	32	33	35	83	143	199	193	165	87	77
26	42	98	235	168	250	181	78	29	26	62	106	126	299	464	346	222	97	77	57	39	32	29	28	213	138
27	256	208	266	198	127	209	287	121	47	64	59	194	206	200	330	580	1079	1160	742	1002	588	418	239	100	362
28	210	266	318	352	219	253	127	122	68	76	65	55	50	42	43	136	153	297	380	567	216	78	120	72	178
29	49	49	88	86	55	53	44	45	62	62	47	34	40	40	31	65	83	62	42	34	81	132	102	109	62
30	102	114	169	83	33	23	36	67	94	117	81	106	306	197	100	401	683	252	90	140	134	105	134	156	155
Mean	111	104	132	120	116	112	108	102	99	109	129	143	166	165	169	154	187	215	150	136	104	103	117	121	132
5Q Mean	68	62	64	37	32	24	23	26	28	30	33	30	34	41	35	38	41	40	38	36	36	35	35	37	38
5D Mean	185	142	167	181	176	230	231	243	205	312	335	324	363	415	484	442	461	592	432	402	250	207	217	185	299

Date	AO Index (Hourly mean values, unit nT)																									
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Q	-7	-6	-1	-2	0	0	1	-1	4	0	-2	-5	-7	-9	-10	-13	-15	-12	-8	-7	-2	0	-2	-1	-4	
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9	-39	-52	-105	-23	-28	-36	0	-29	-107	-35	-7	-13	-57	-59	-36	-59	-54	-136	-80	-2	0	-5	-9	-71	-43	
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D	7	-9	-18	-8	-22	-85	-106	0	-24	-165	-206	-119	-148	-183	-153	-23	-33	-95	-103	-13	-3	-48	-111	-26	-71	
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D	-24	8	4	-21	-71	-74	-12	-40	-82	-140	-98	-37	-59	-260	-247	-77	-66	-75	-5	8	0	-13	-13	-95	-62	
19	-55	-76	-93	-20	-1	-13	12	16	2	5	3	0	0	-6	-8	-18	-34	-84	-12	-10	-1	0	-35	-7	-18	
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23	-13	-8	-2	0	1	5	4	2	2	1	2	-7	-86	-67	-88	-63	-53	-21	0	1	4	3	-52	-28	-19	
Q	-25	-23	-20	5	2	1	4	3	1	0	0	0	-1	-15	0	1	0	0	1	0	-1	0	0	-1	-2	
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Mean	-15	-14	-21	-12	-14	-10	-7	-4	-7	-14	-21	-26	-40	-48	-47	-38	-54	-60	-33	-28	-13	-12	-20	-18	-24	
5Q Mean	-6	-3	-1	2	4	2	2	2	2	0	-2	-2	-5	-9	-6	-8	-9	-7	-5	-4	-3	-1	-2	-2	-2	
5D Mean	-29	-31	-42	-38	-33	-39	-42	-21	-23	-83	-74	-71	-117	-144	-126	-108	-159	-198	-121	-123	-58	-54	-60	-42	-76	

Date	AU Index (Hourly mean values, unit nT)																December 1990											
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3	26	26	30	33	35	39	33	24	28	14	13	9	11	10	11	12	66	120	147	79	39	43	83	39				
4	129	167	96	114	79	34	28	23	42	81	113	80	31	44	67	122	74	49	31	36	34	26	87	144	72			
D	95	57	36	48	28	36	67	89	85	120	132	88	95	80	71	77	123	161	83	47	41	26	18	22	72			
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13	70	170	148	150	81	128	93	79	183	109	44	16	18	10	0	-1	11	9	10	3	3	7	17	13	57			
D	14	36	30	79	79	64	28	36	42	23	17	5	9	6	2	1	2	23	11	16	16	8	4	6	23			
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D	28	14	7	53	24	63	106	53	74	118	70	40	78	58	146	95	133	127	64	122	113	130	93	170	82			
25	206	122	97	89	86	104	111	52	31	19	27	69	84	36	14	27	83	95	70	27	70	45	41	42	69			
Q	23	12	18	19	19	22	33	26	21	15	16	6	7	5	5	11	13	12	9	8	8	9	8	19	14			
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AL Index (Hourly mean values, unit nT) December 1990

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Date	AE Index (Hourly mean values, unit nT)																								
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50 Mean	50	46	44	44	40	35	44	47	53	38	34	29	30	36	34	35	32	34	34	26	25	28	31	34	37
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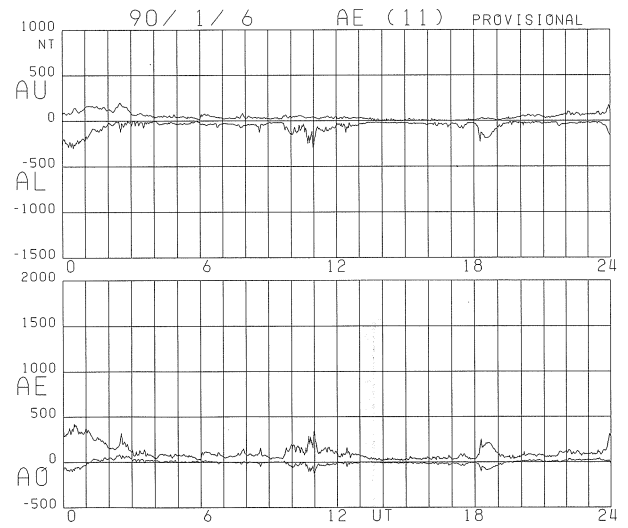
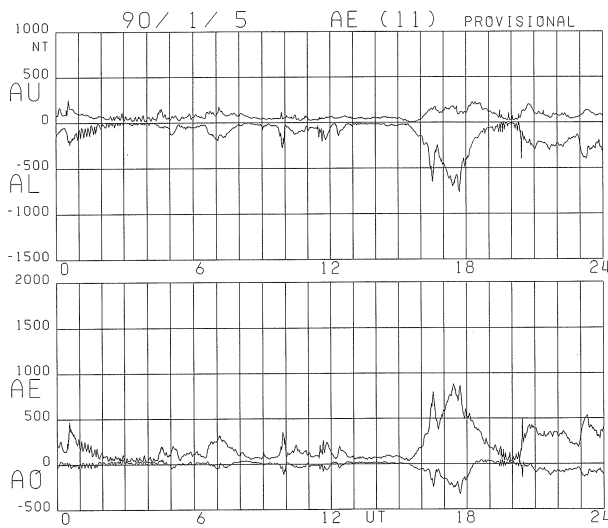
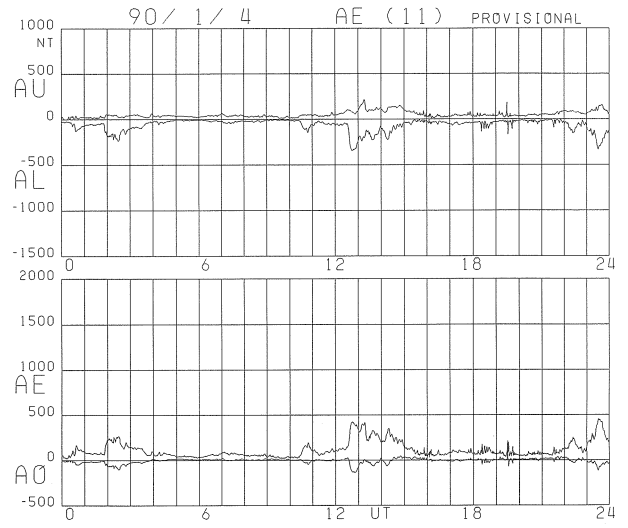
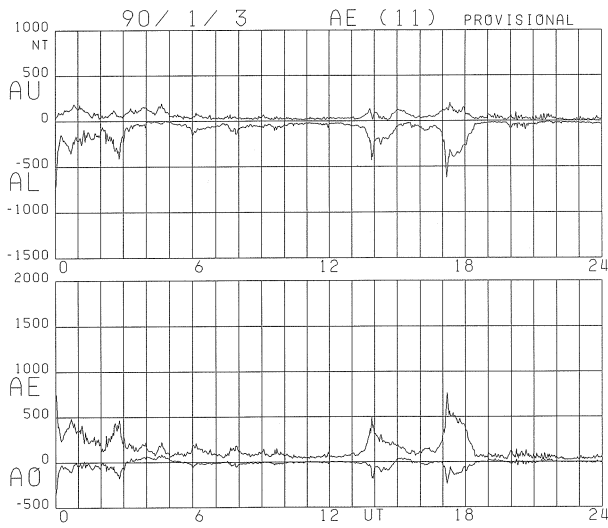
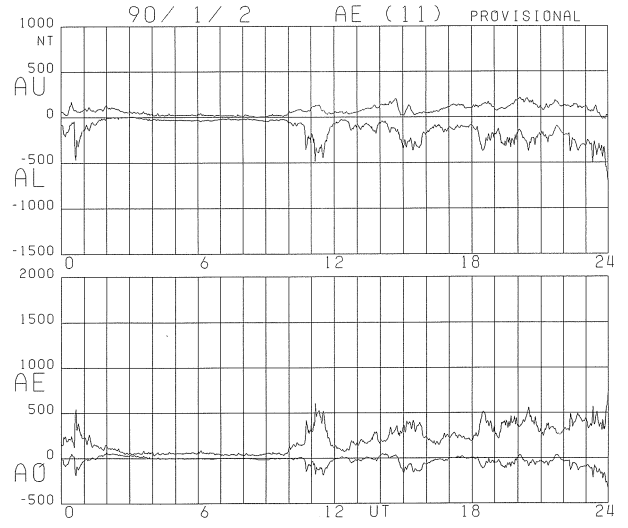
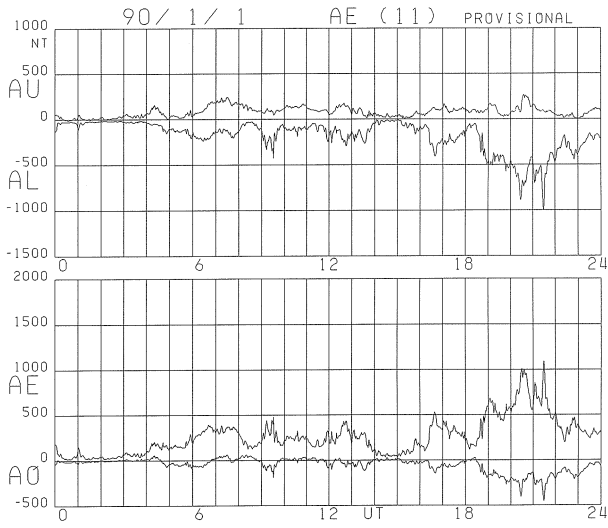
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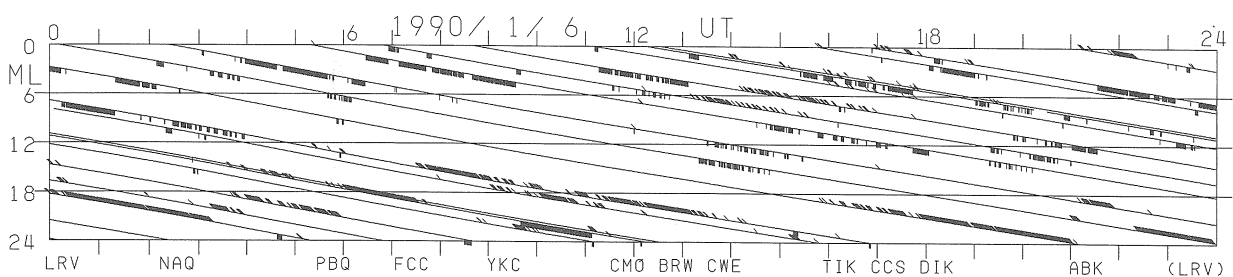
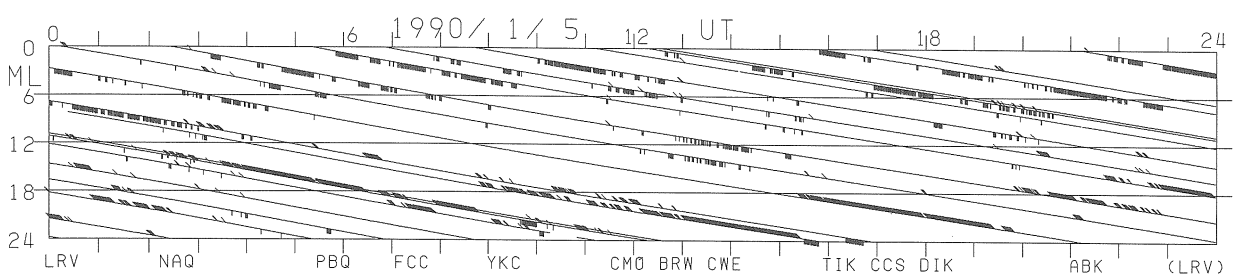
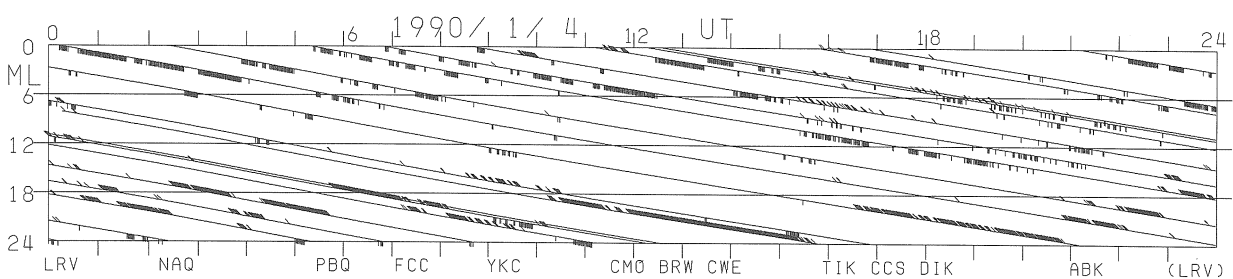
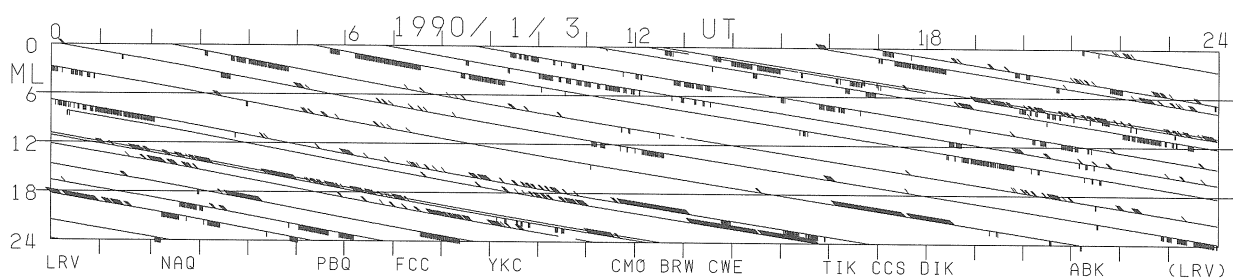
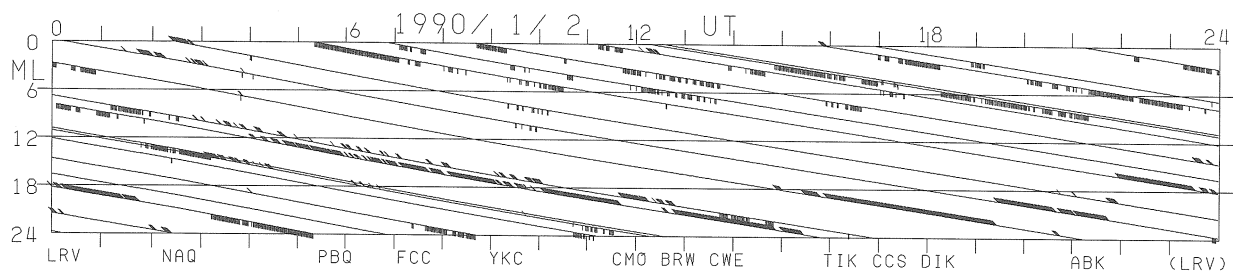
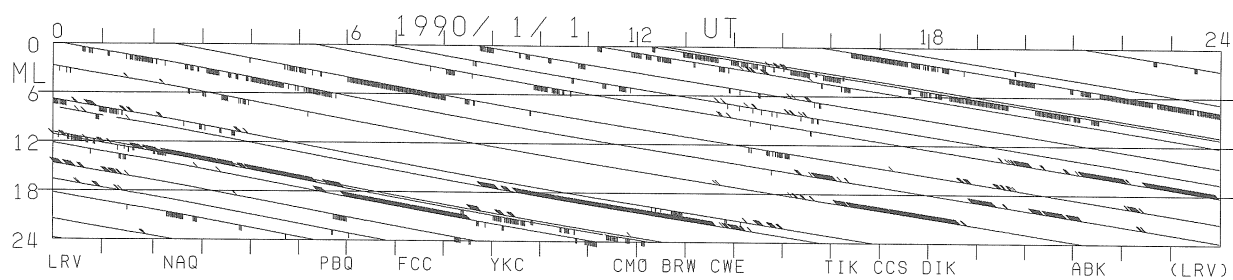
FIGURE 2 (on even pages)

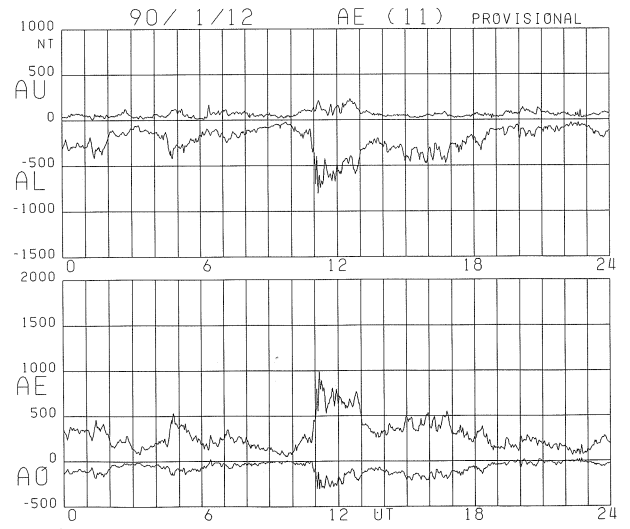
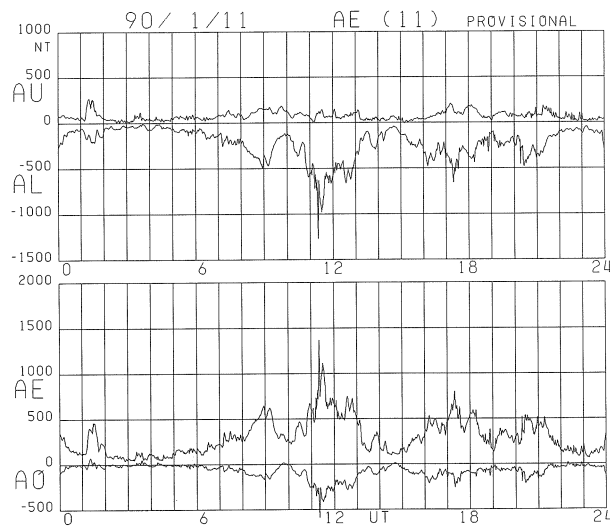
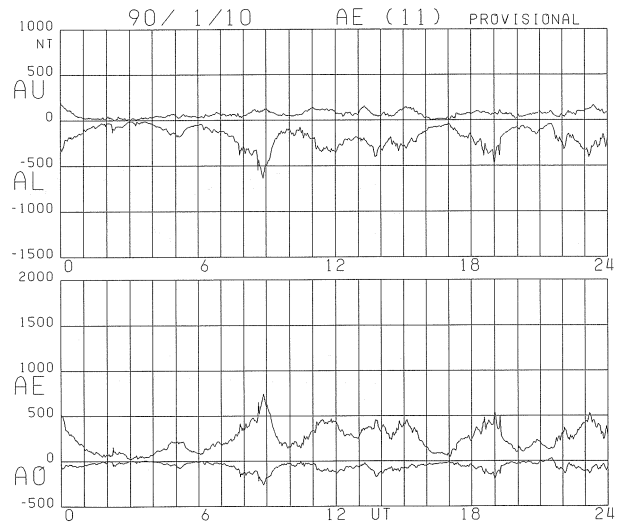
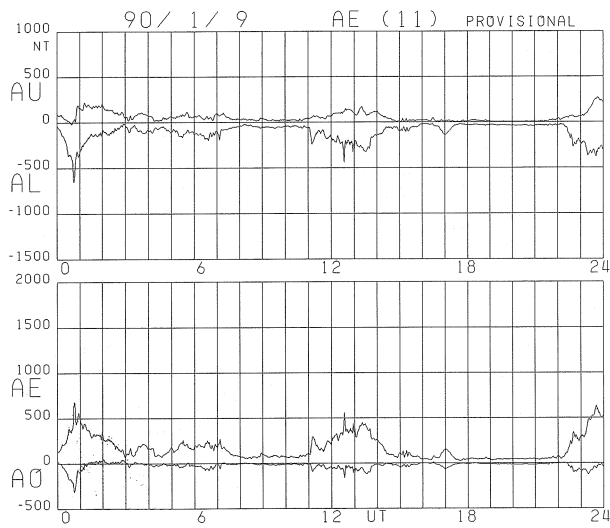
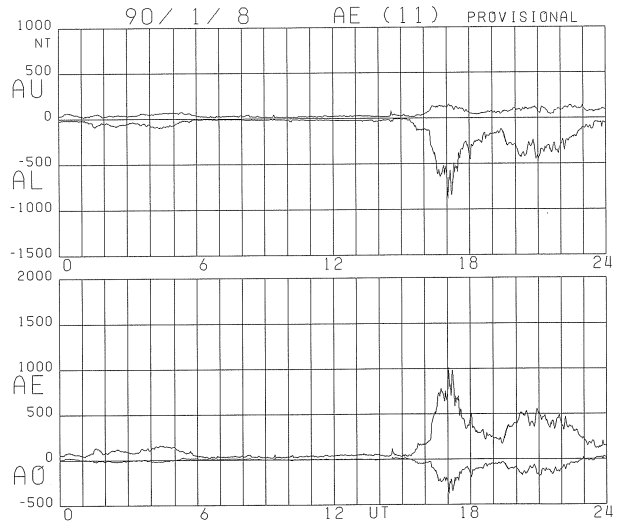
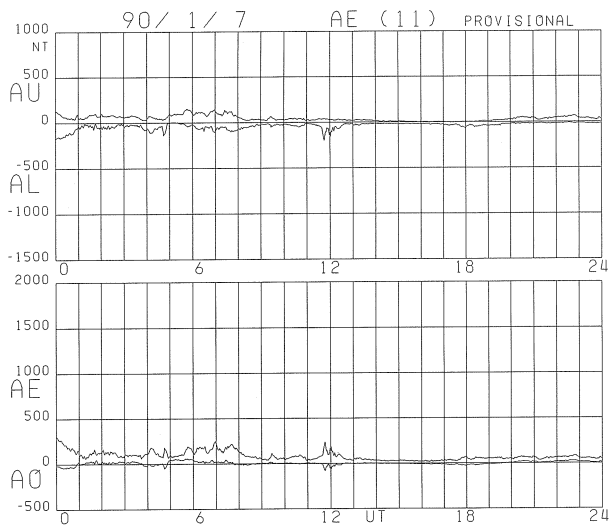
Daily graphs of provisional 1.0 min AE indices (AU, AL, AE and AO) for January-December 1990. Graphs on disturbed days (Feb. 1, Mar. 30, Apr. 10, Apr. 12, Jun. 12, Jun. 14, Jul. 28 and Nov. 27) are reproduced on page 190.

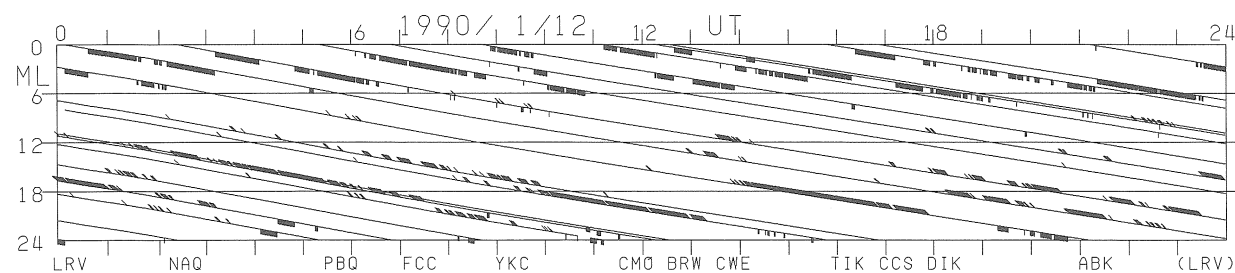
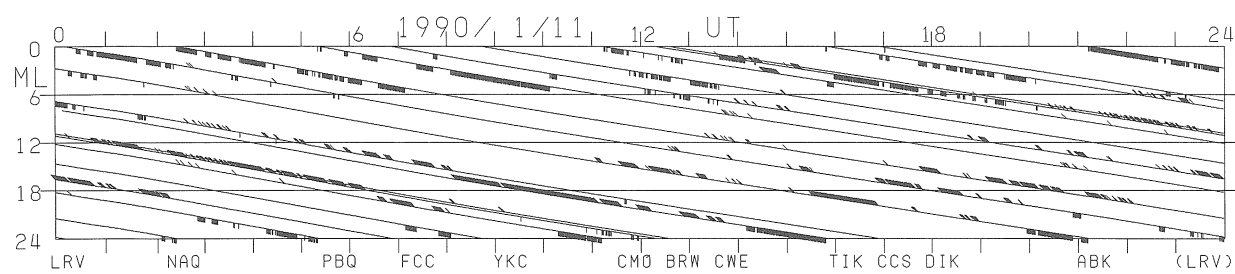
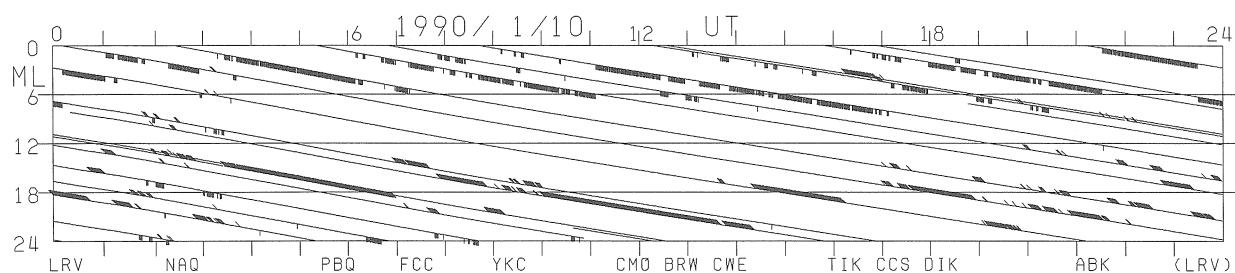
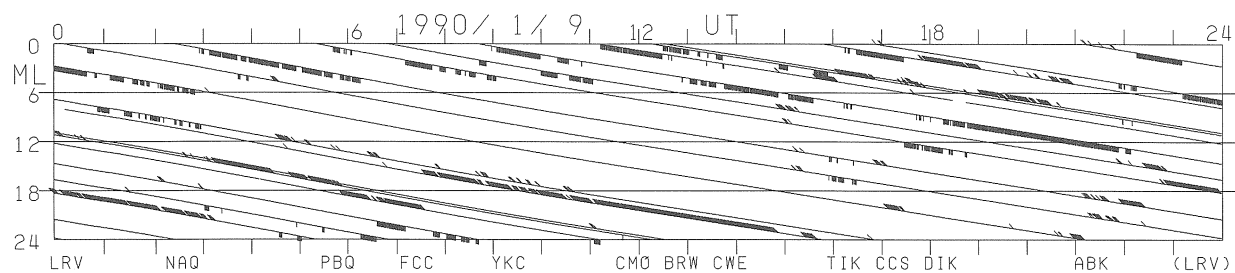
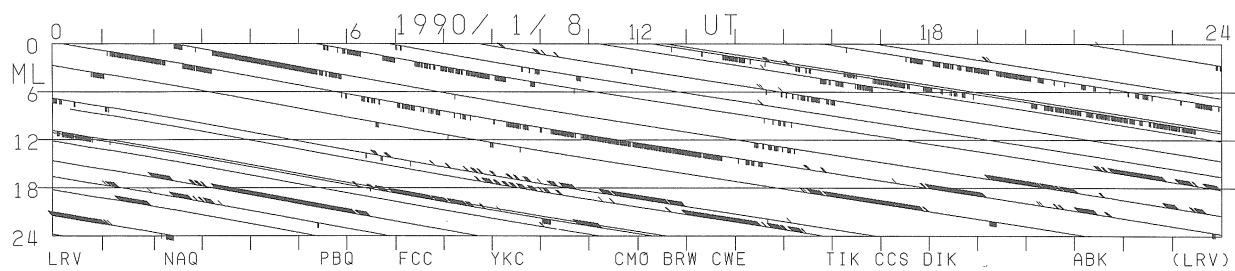
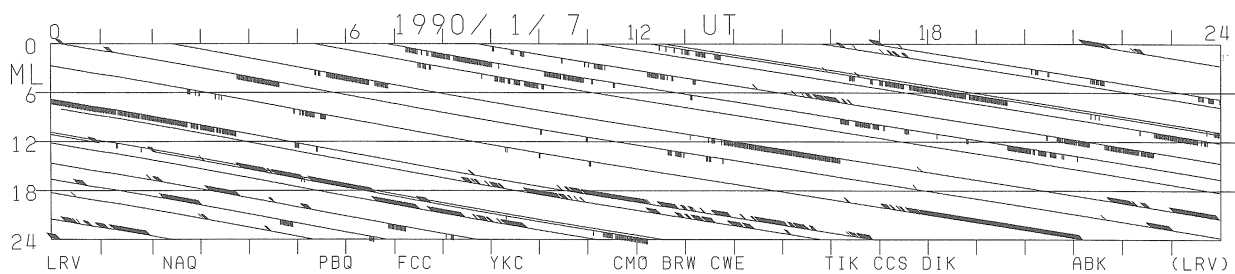
FIGURE 3 (on odd pages)

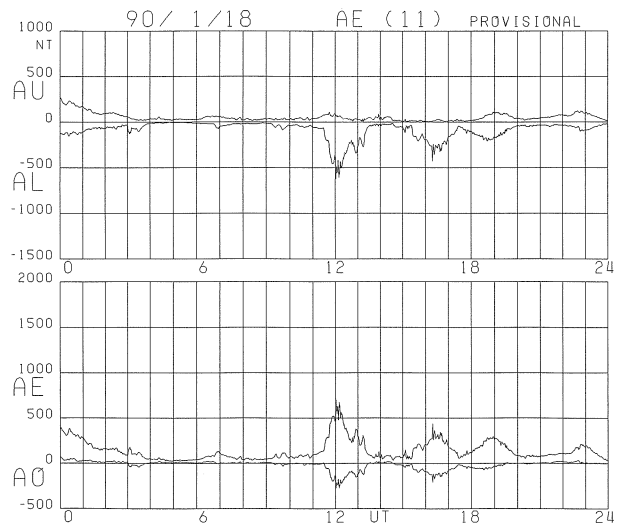
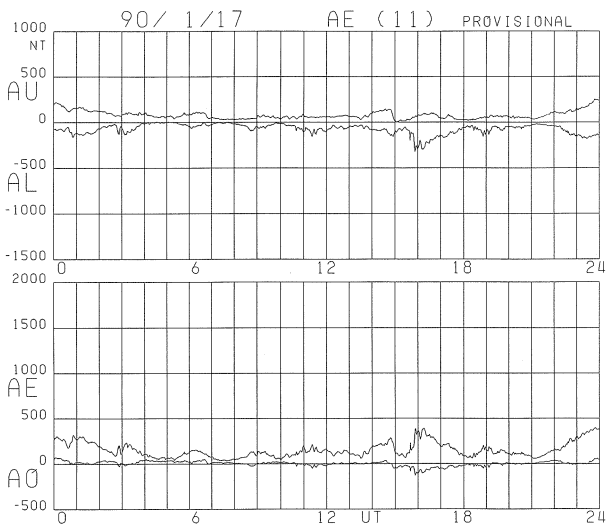
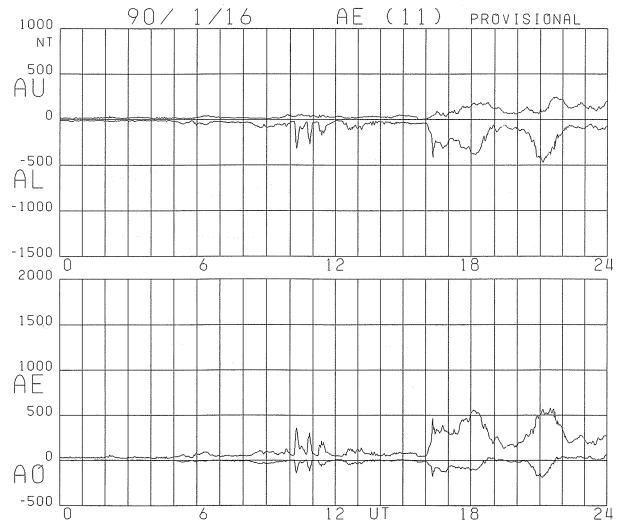
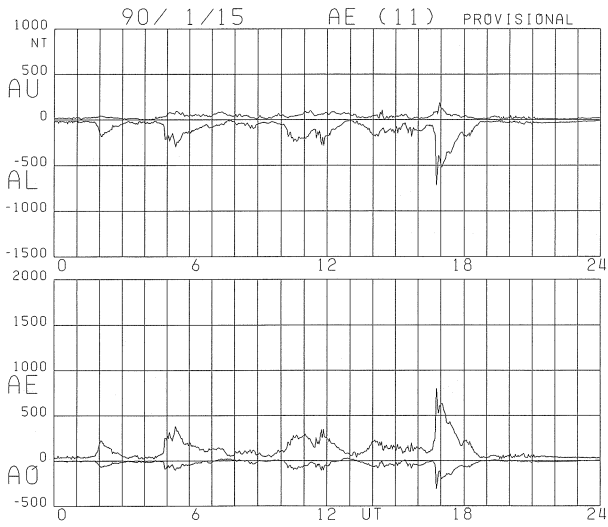
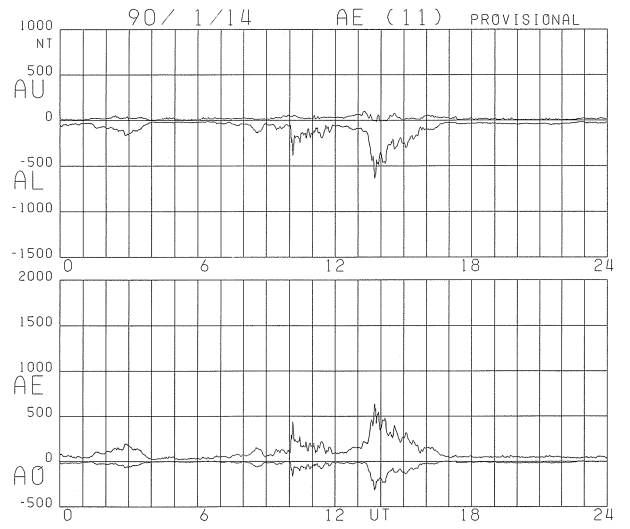
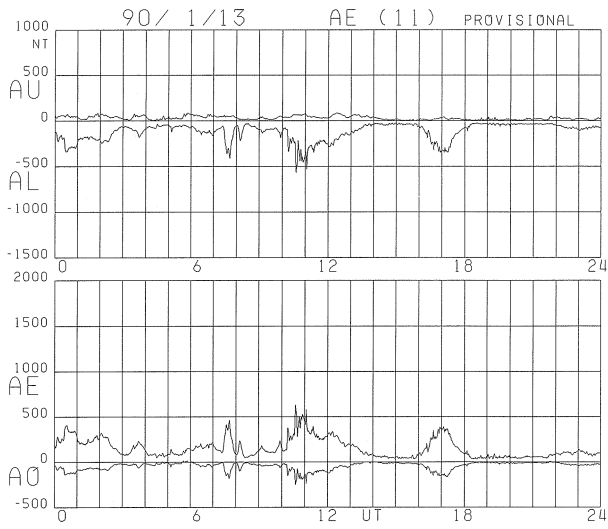
Plots of the contributing station to the AU (upper plumes) and AL (lower plumes) indices, showing which station contributes to these indices at each UT minute.

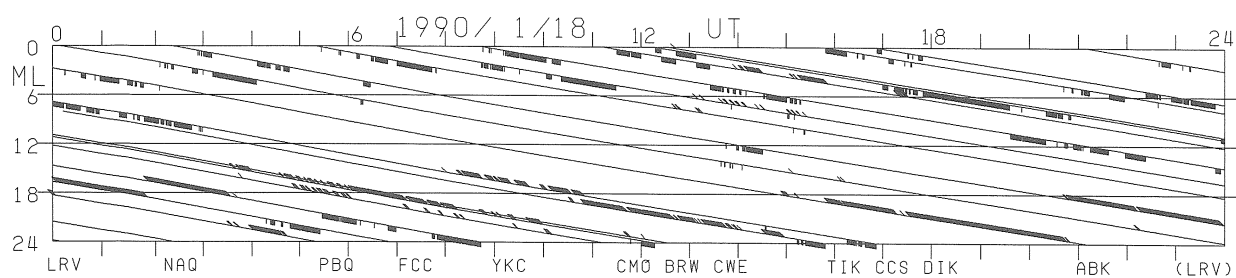
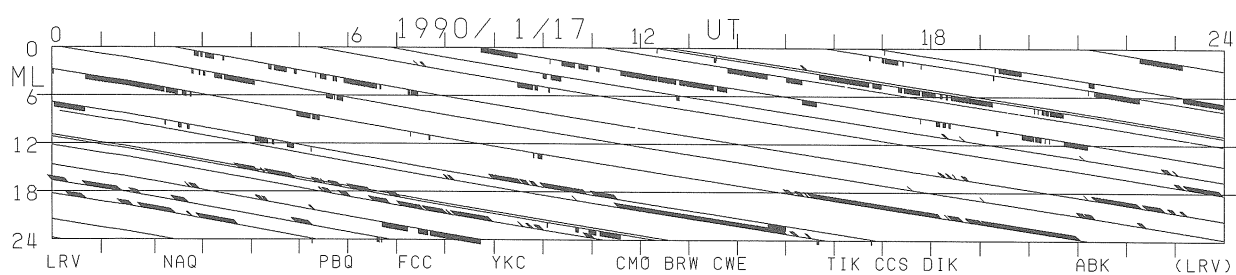
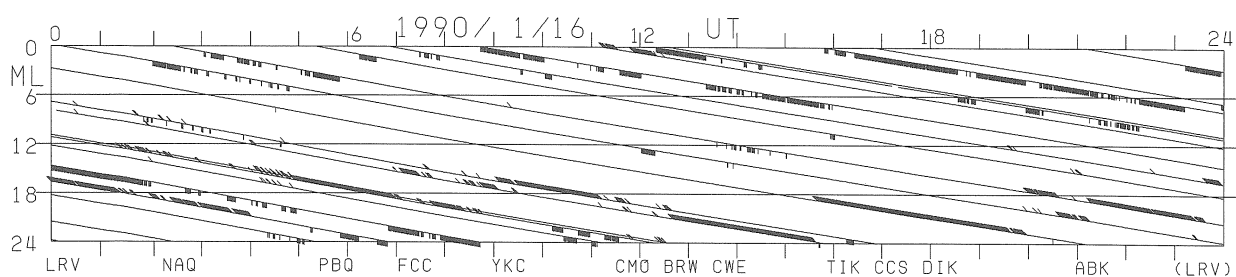
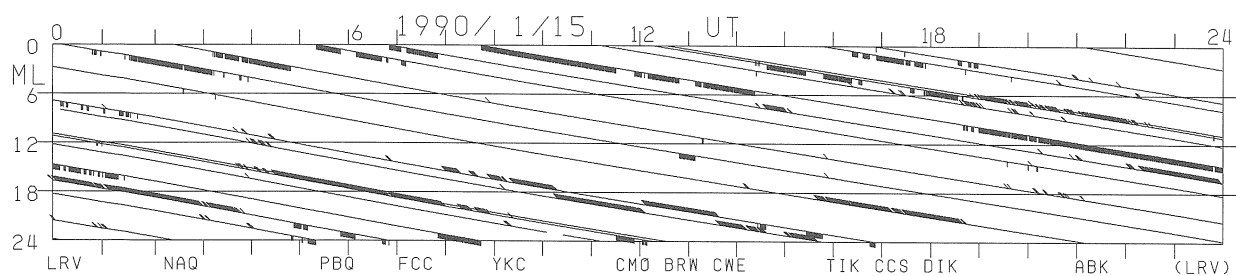
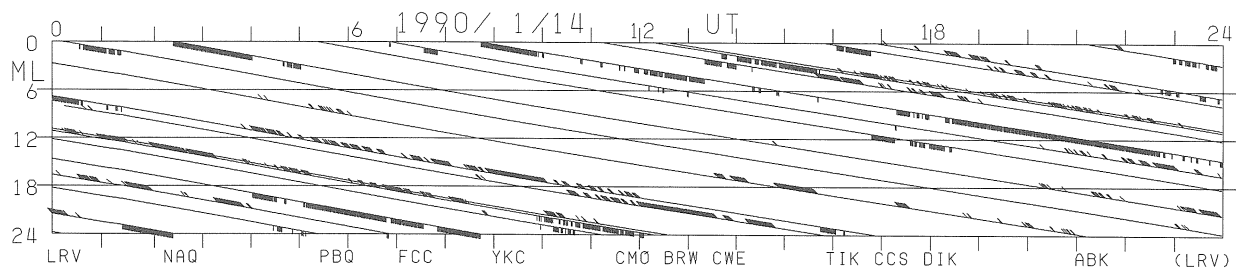
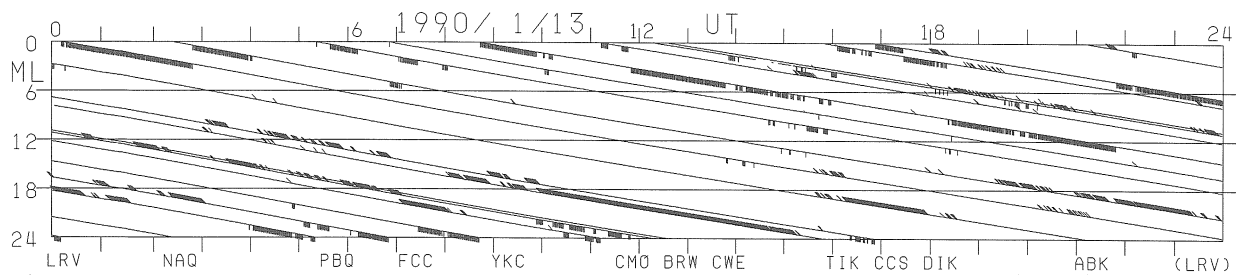


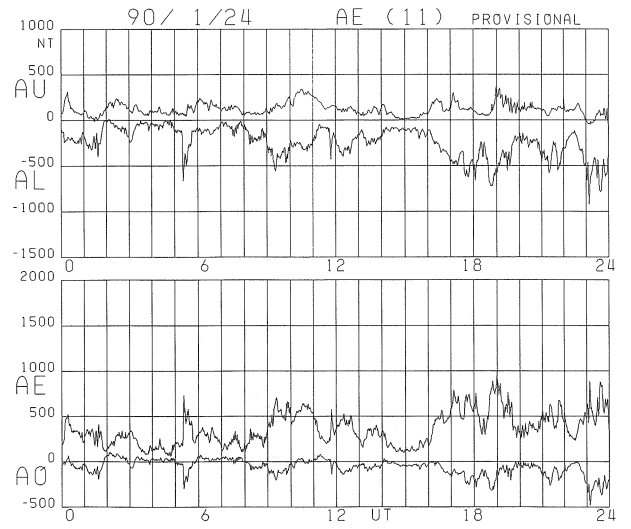
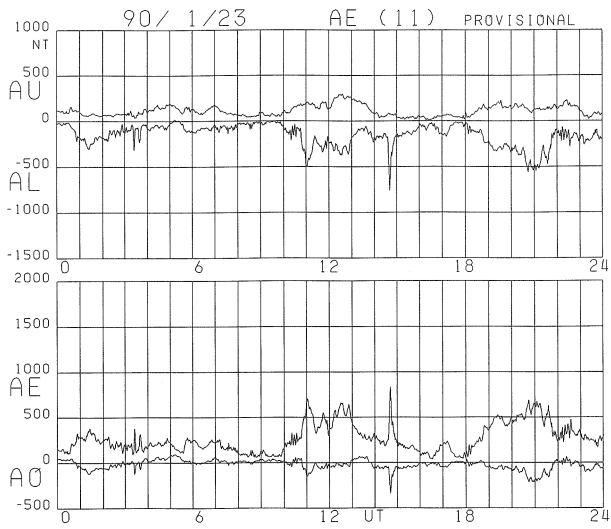
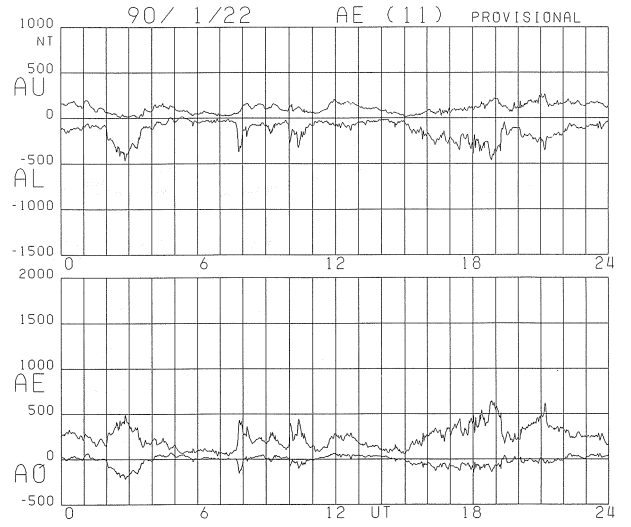
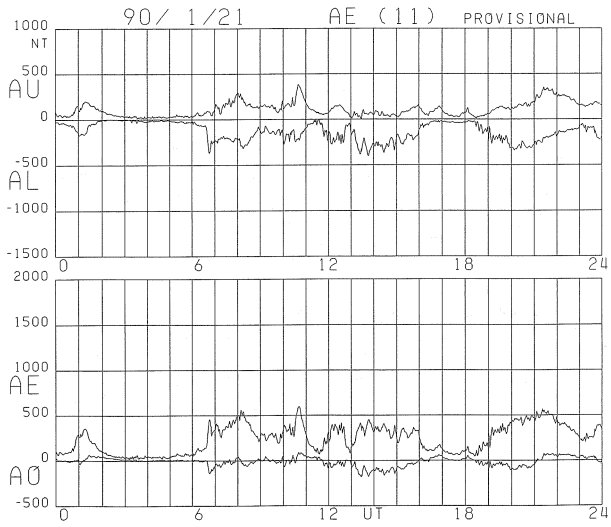
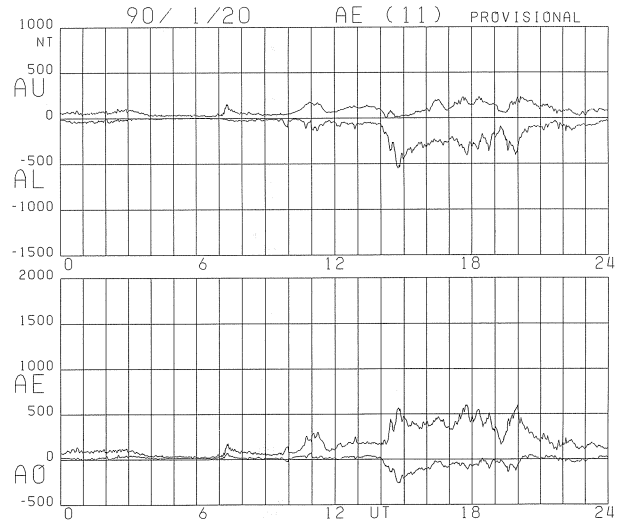
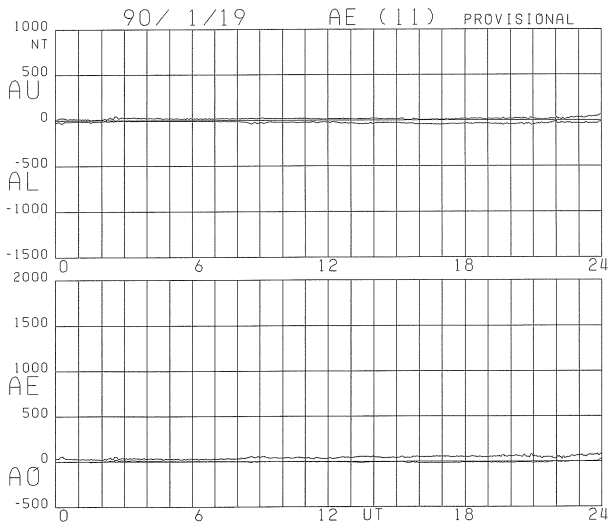


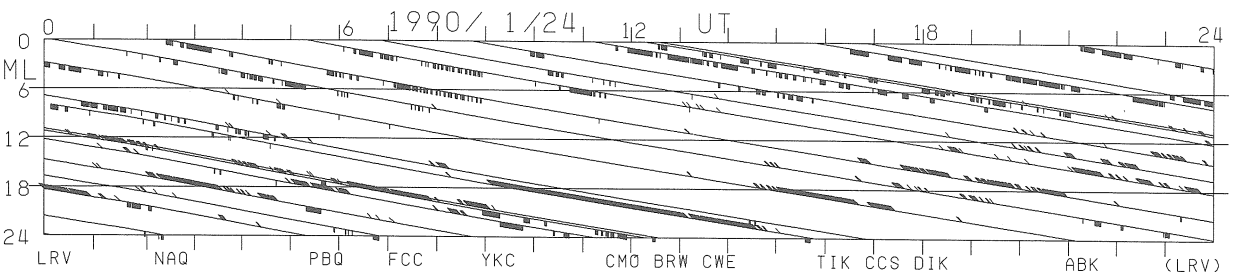
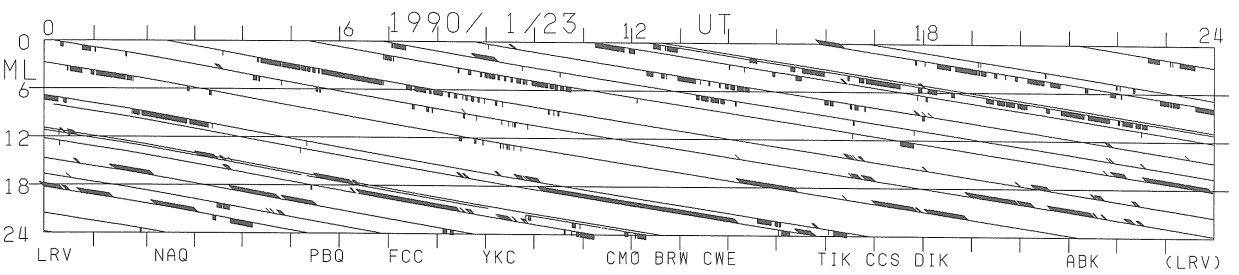
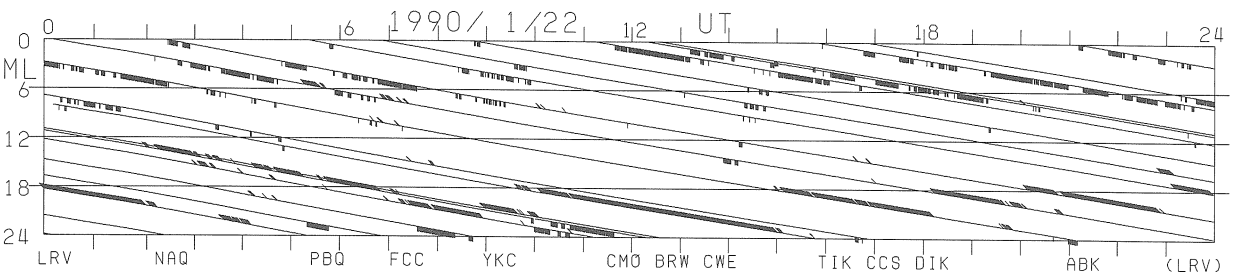
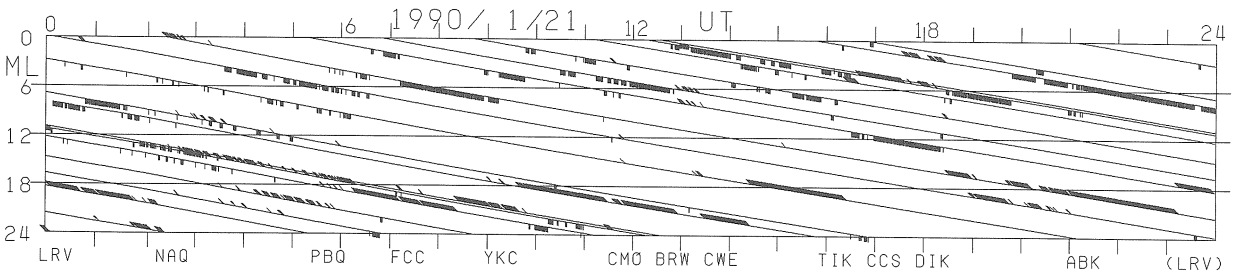
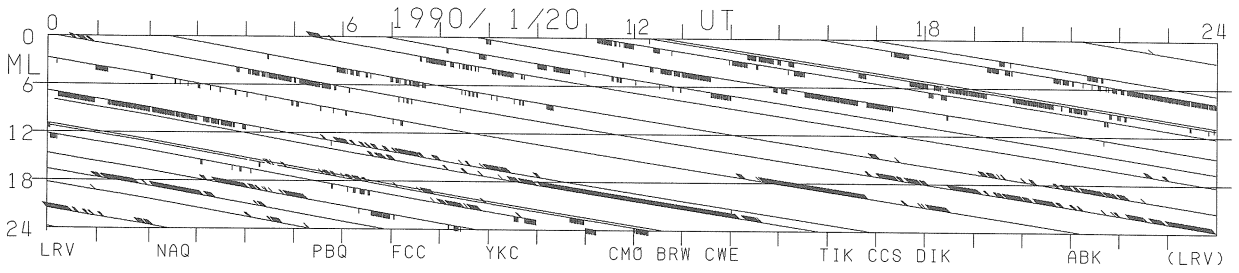
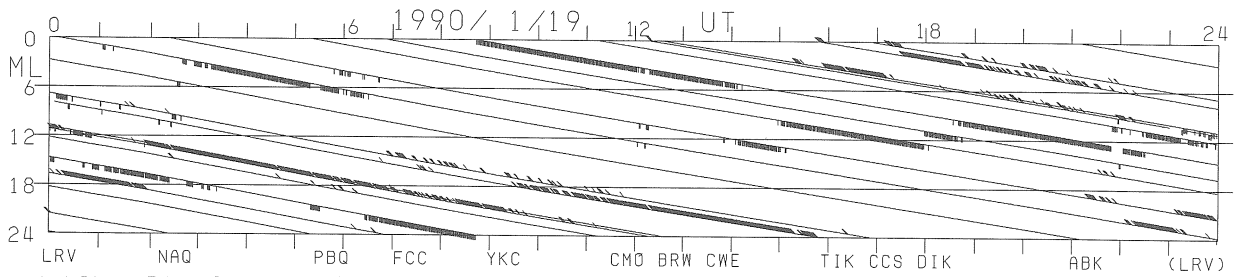


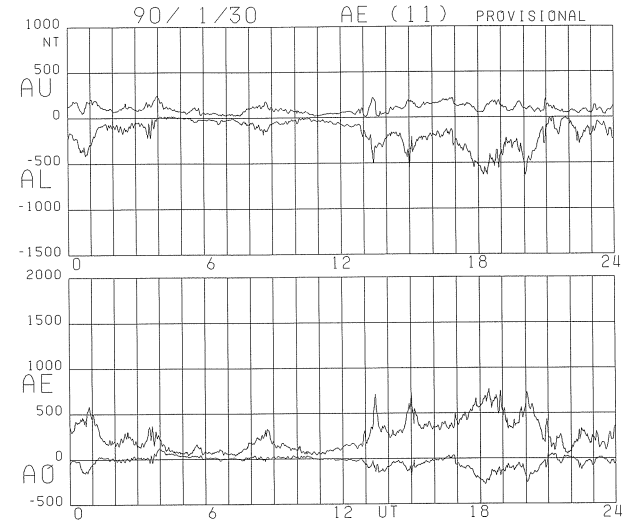
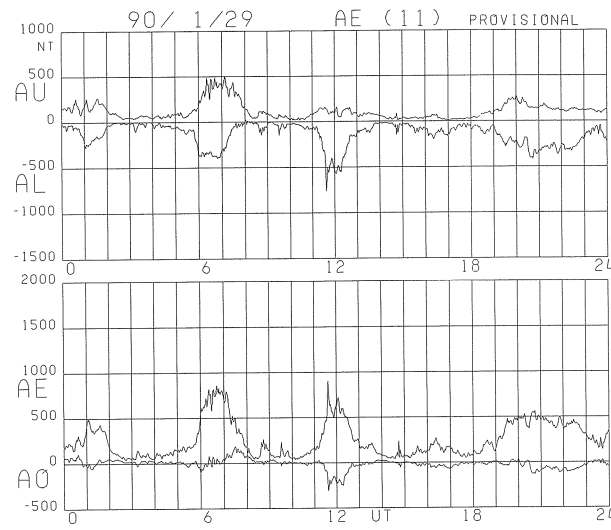
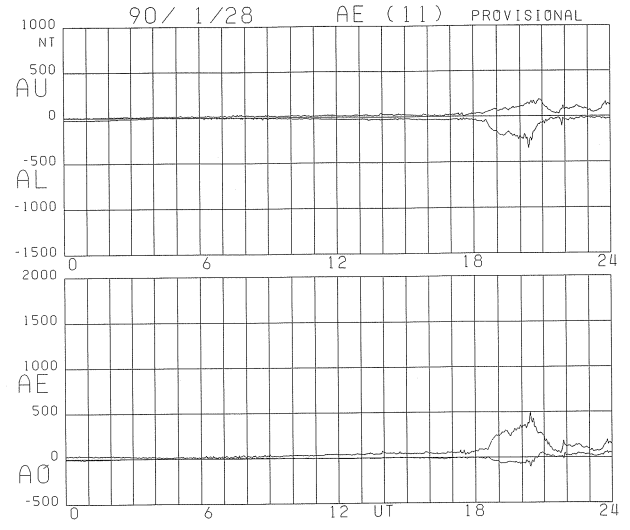
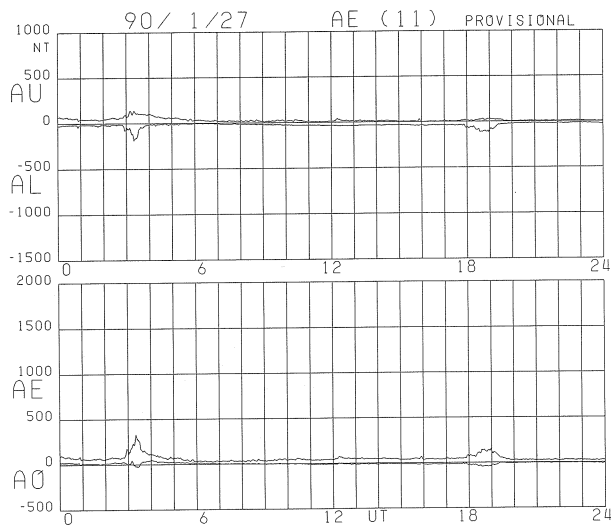
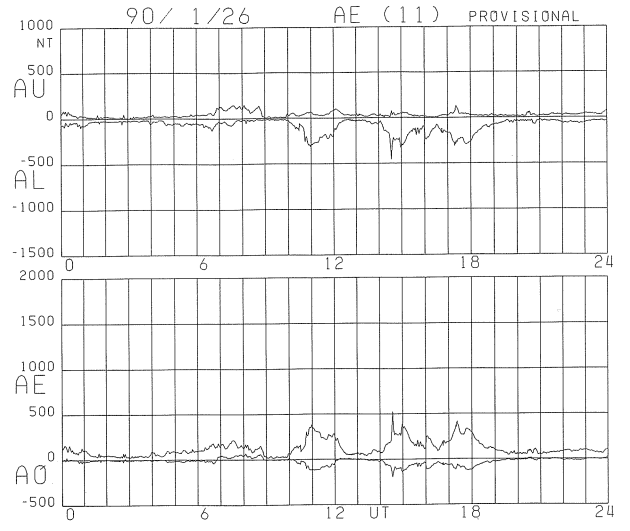
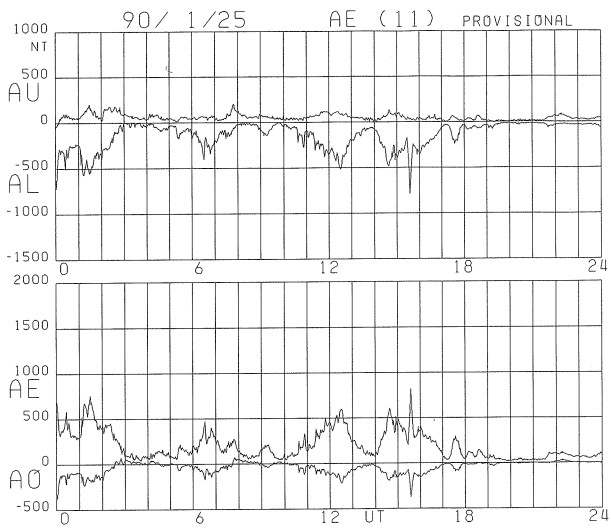


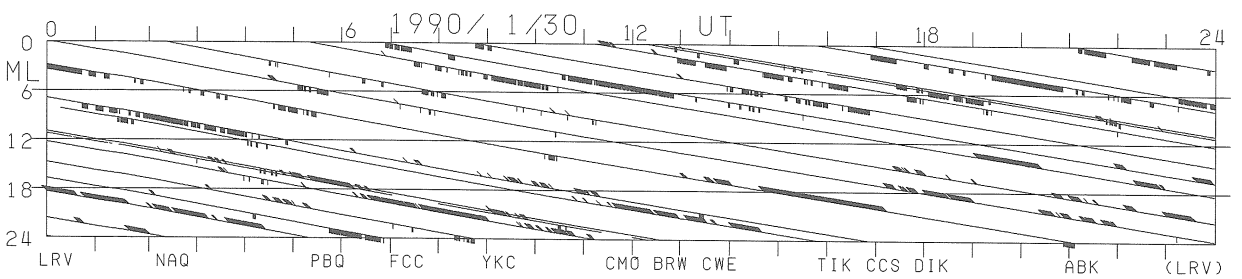
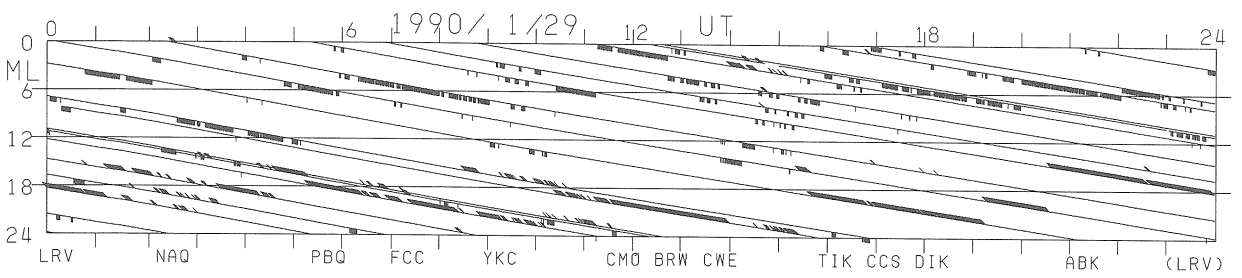
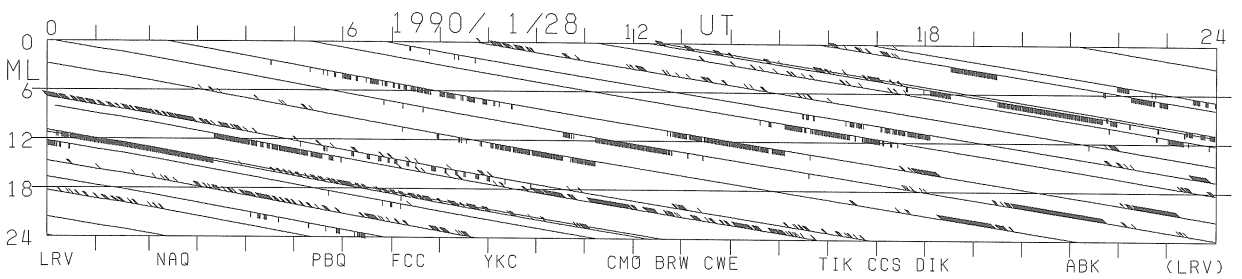
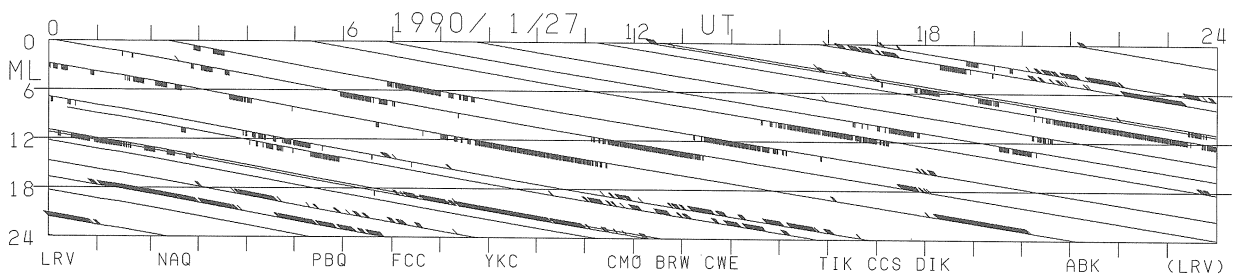
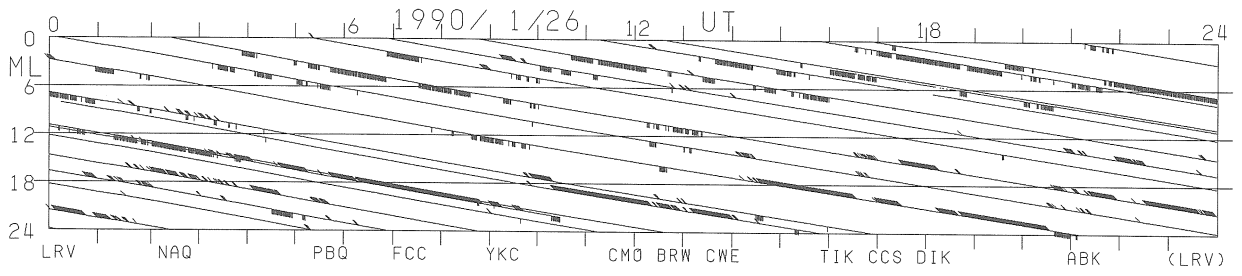
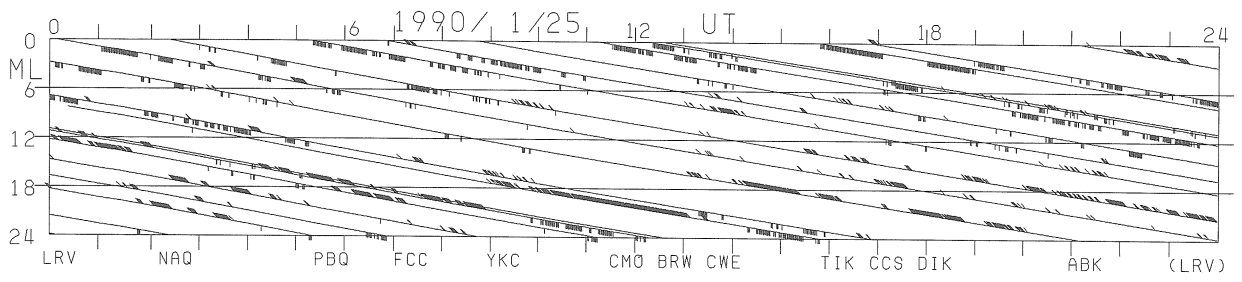


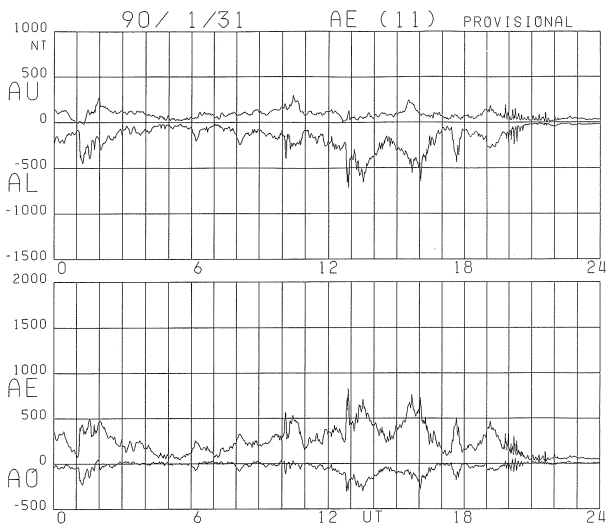


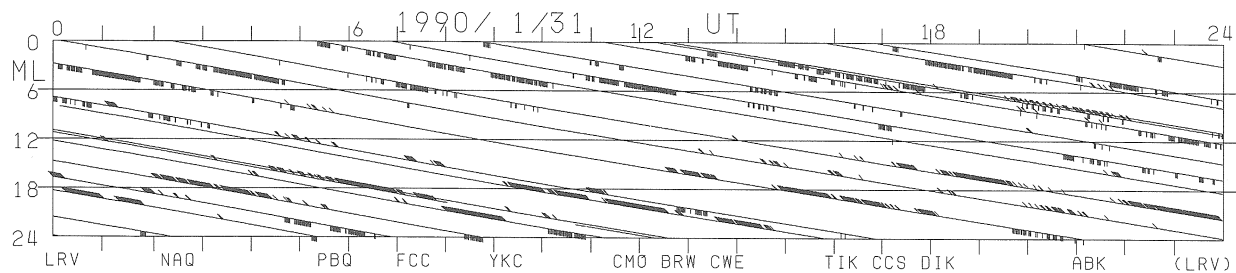


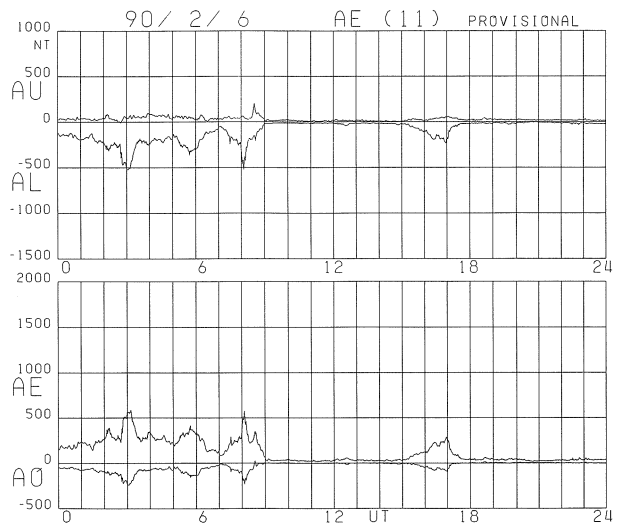
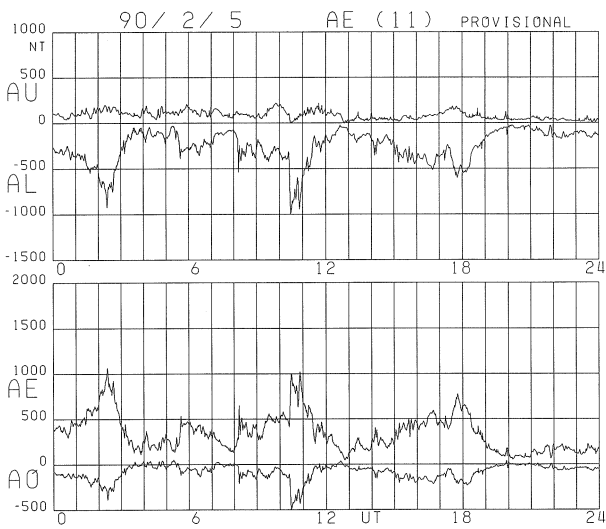
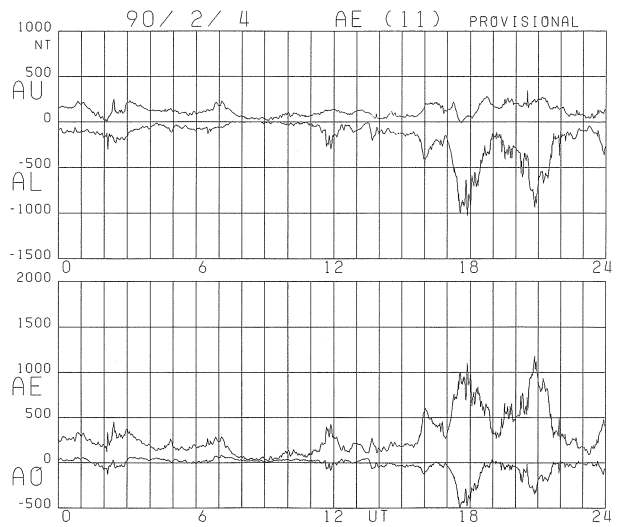
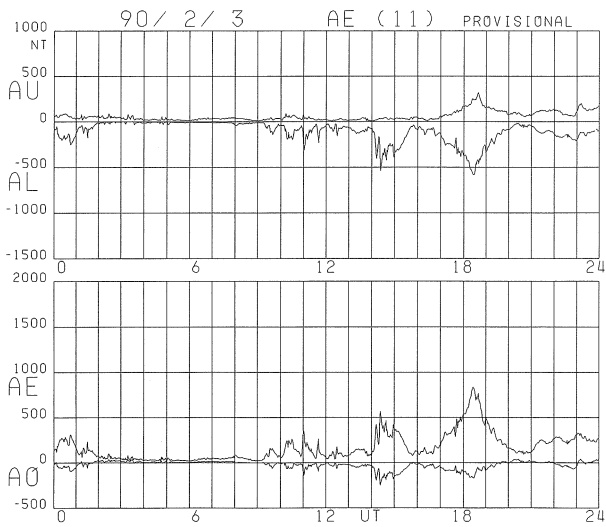
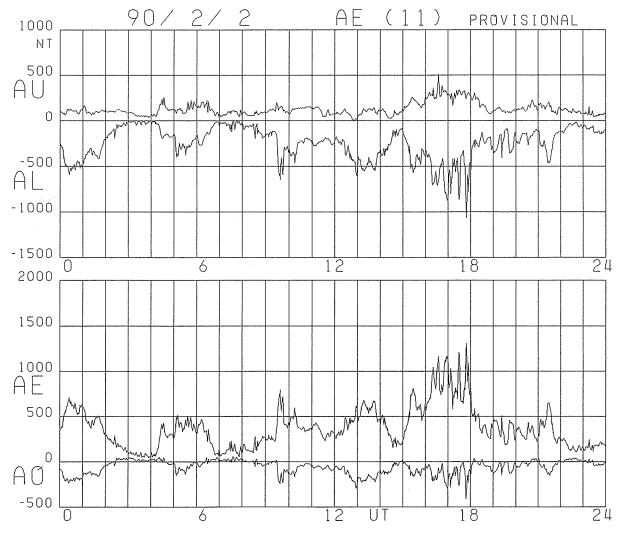
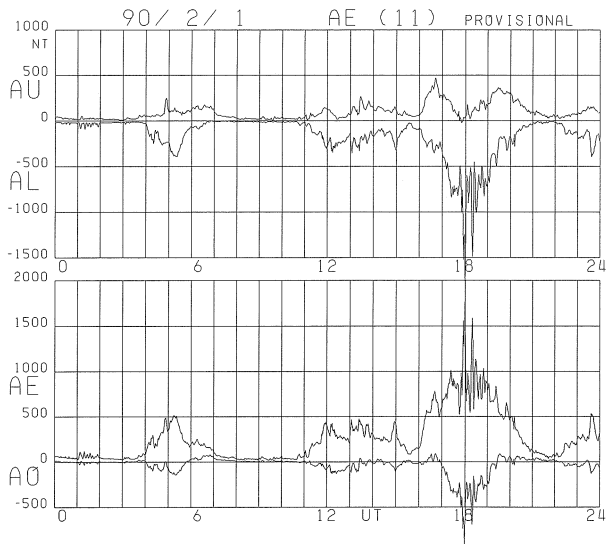


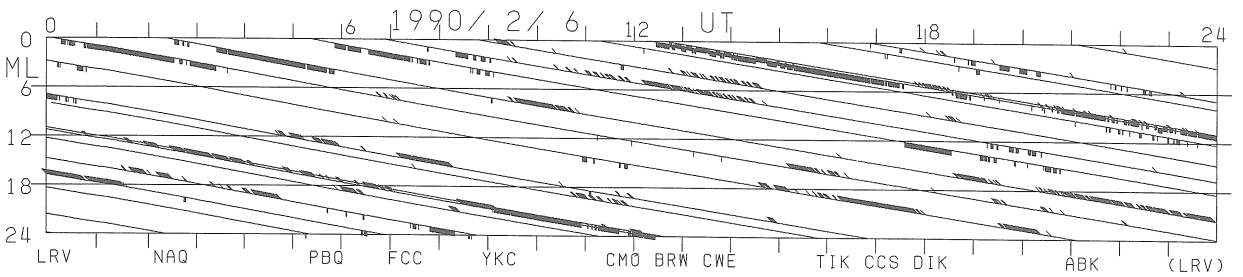
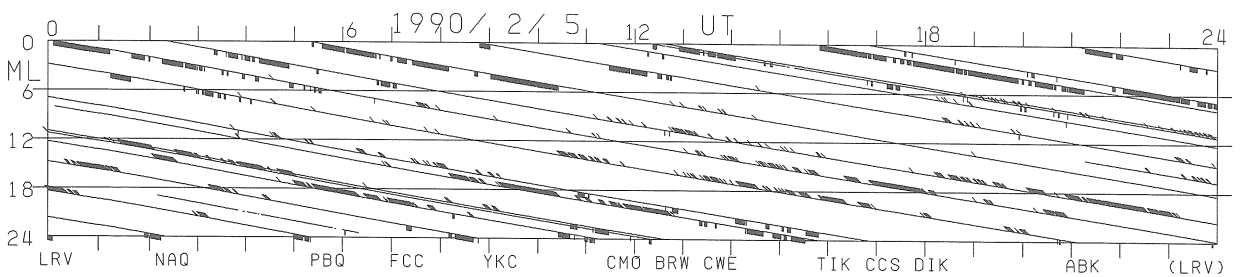
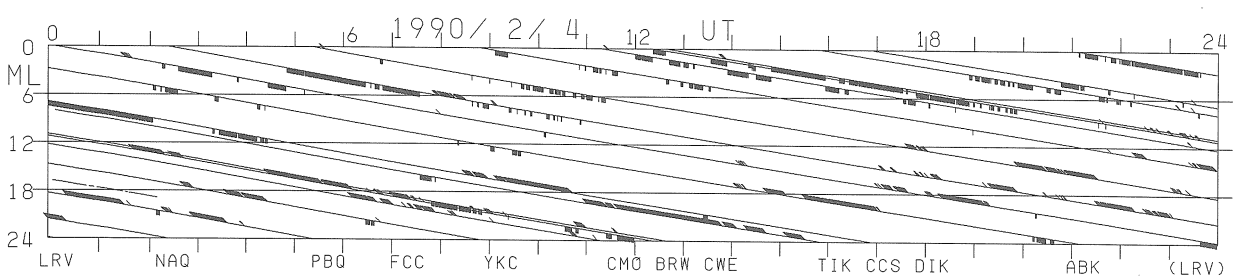
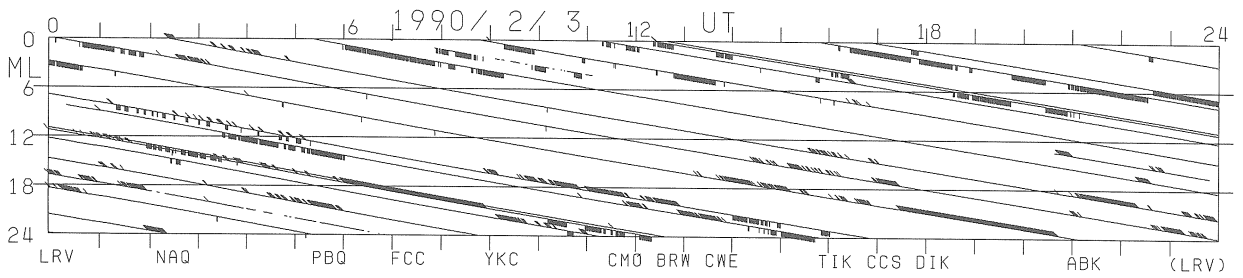
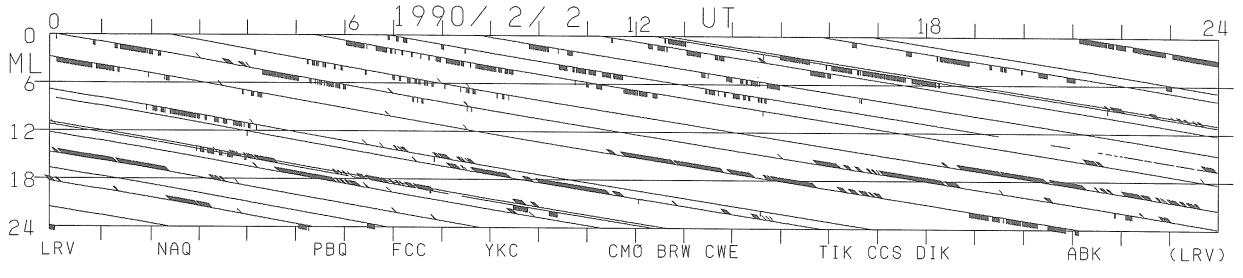
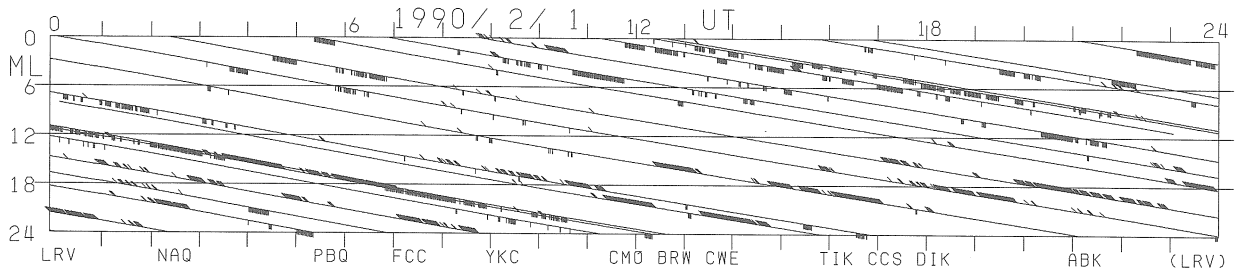


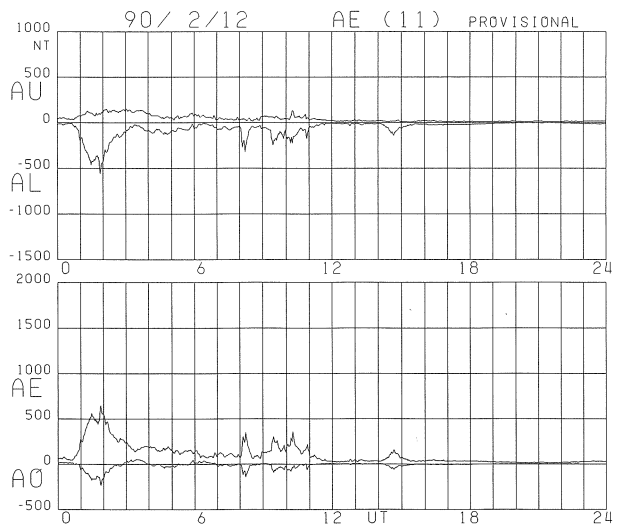
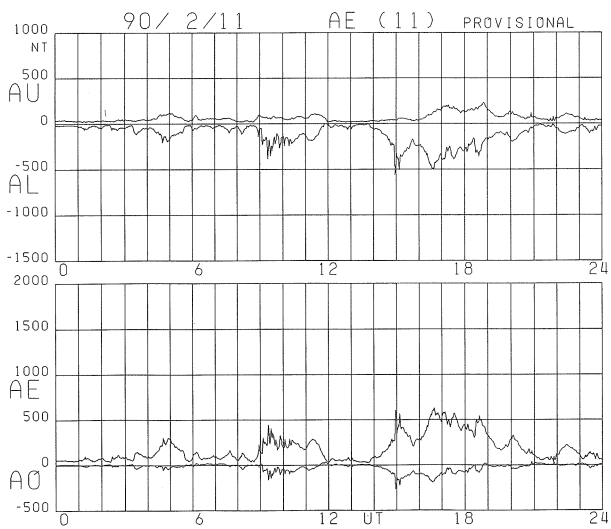
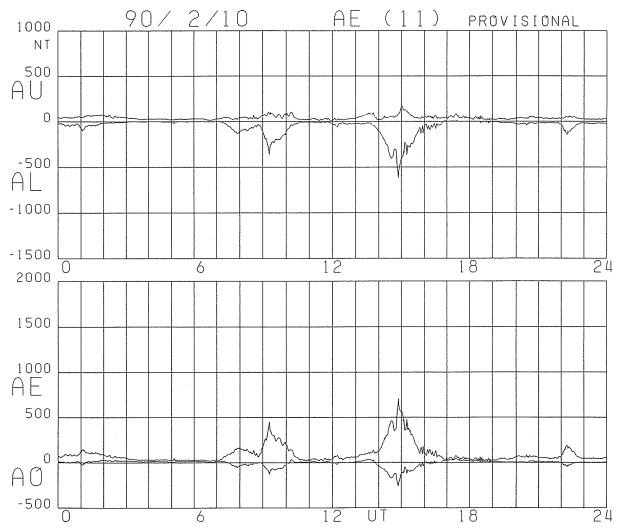
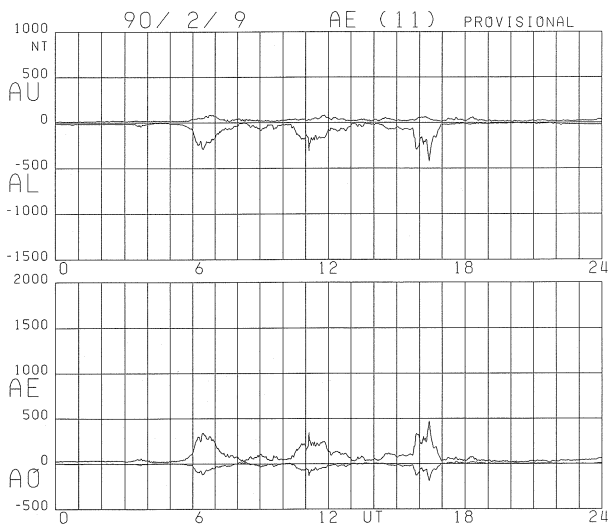
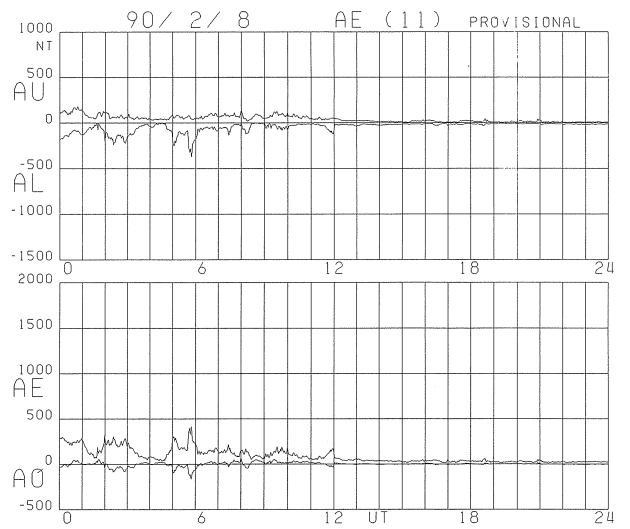
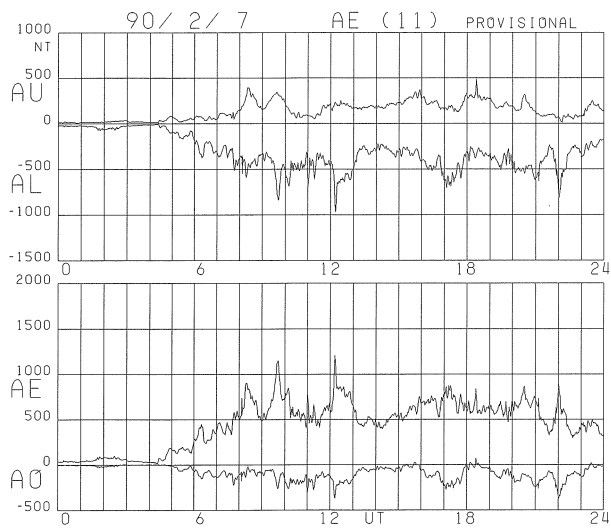


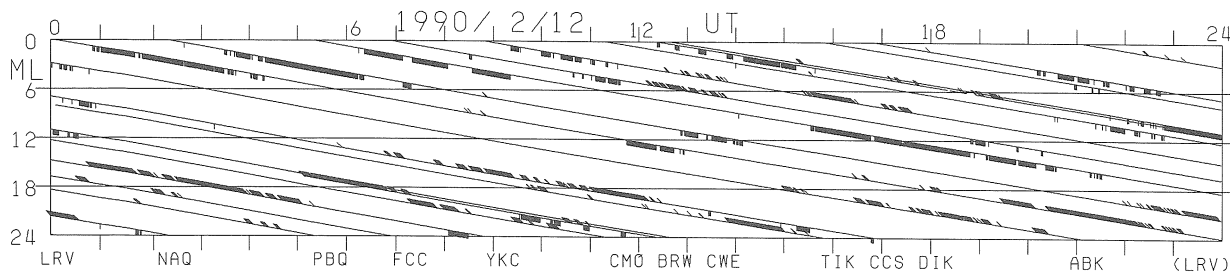
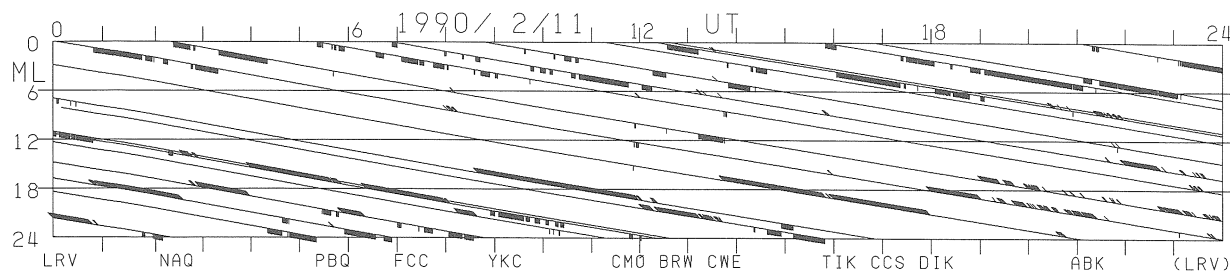
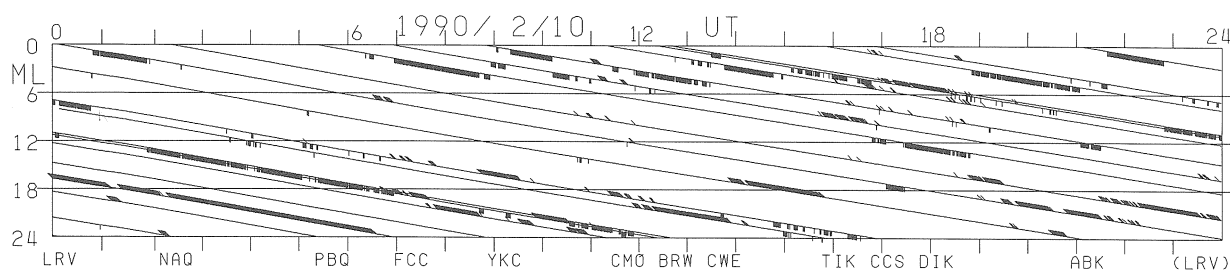
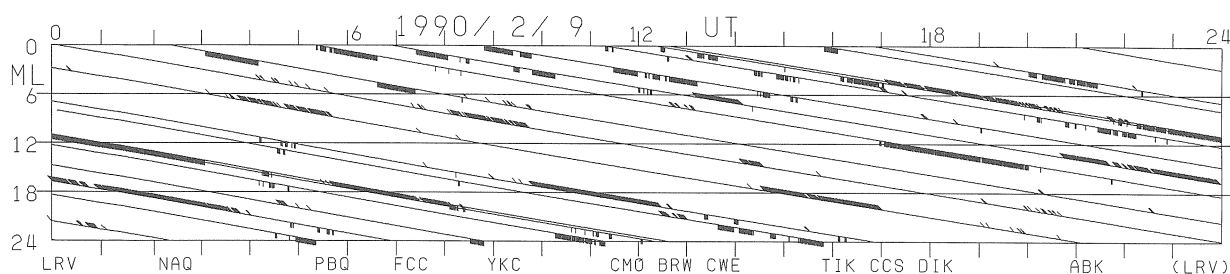
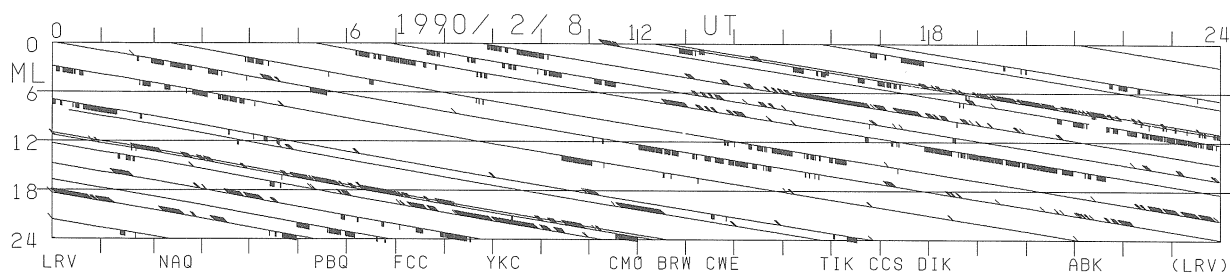
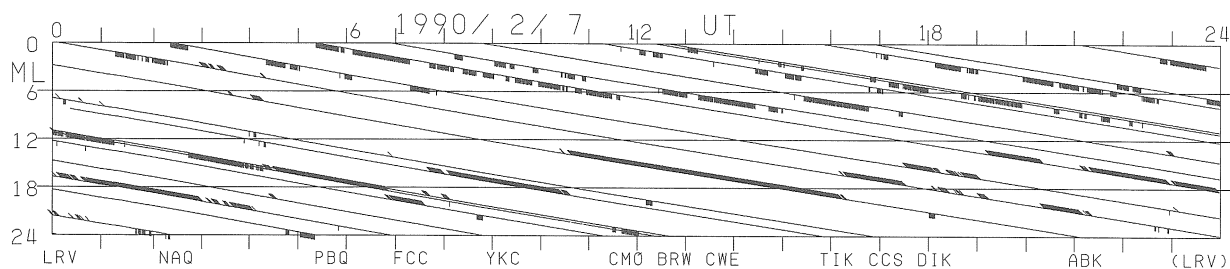


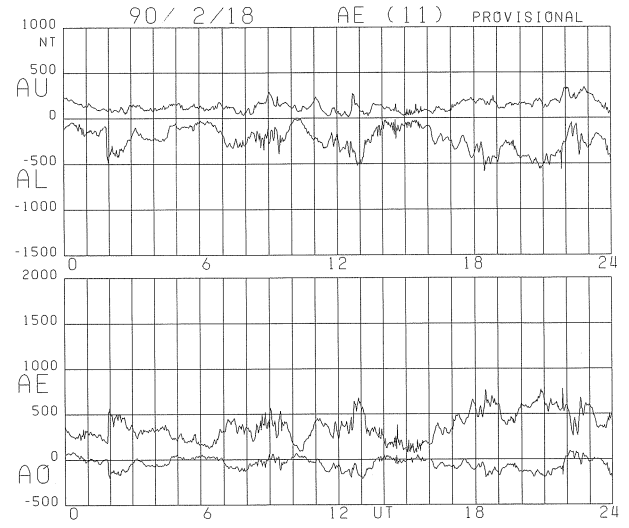
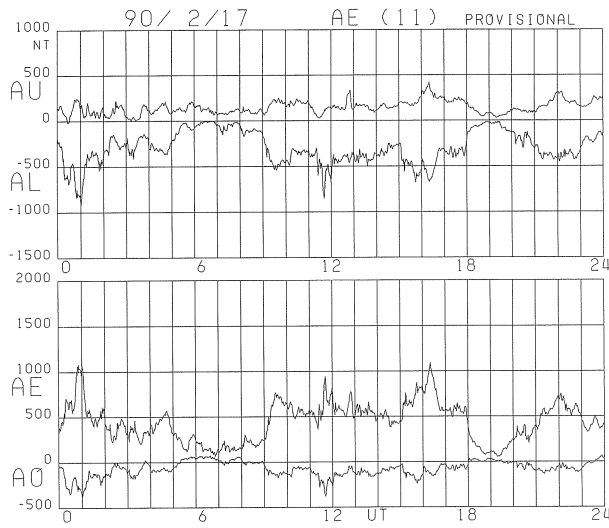
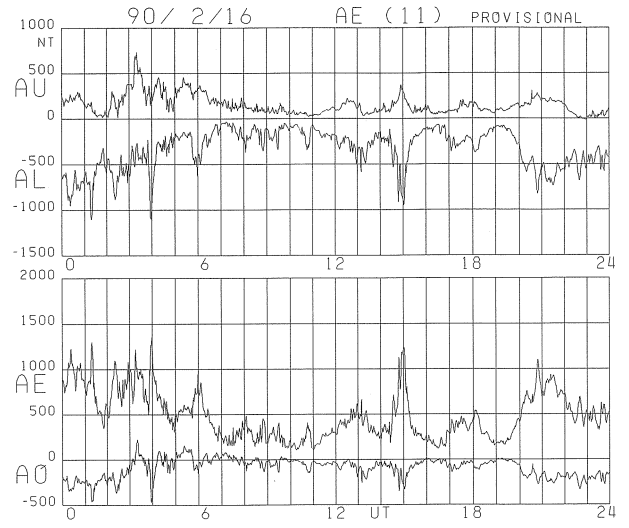
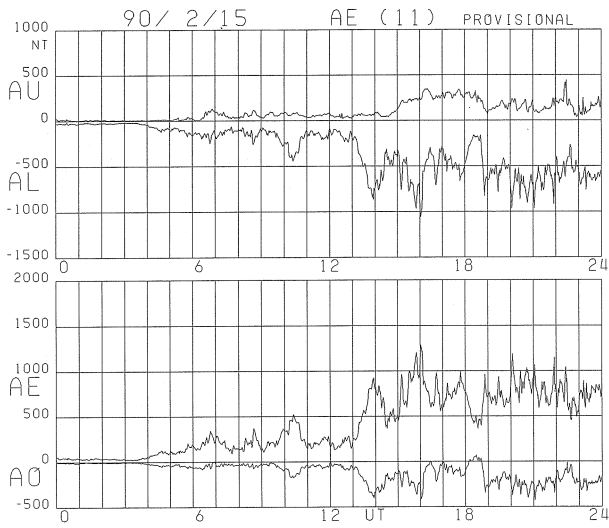
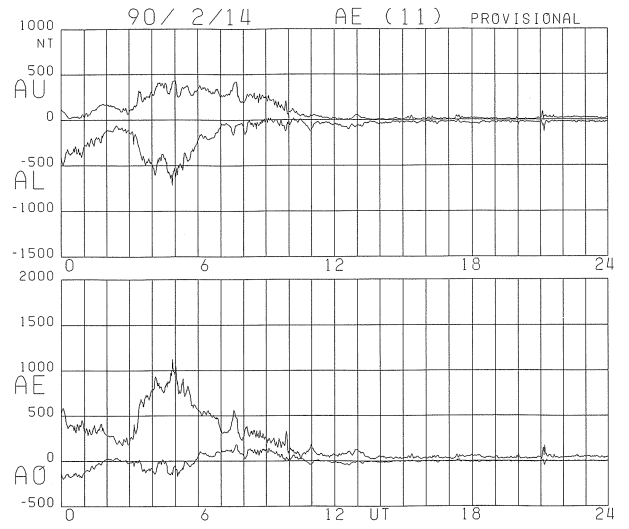
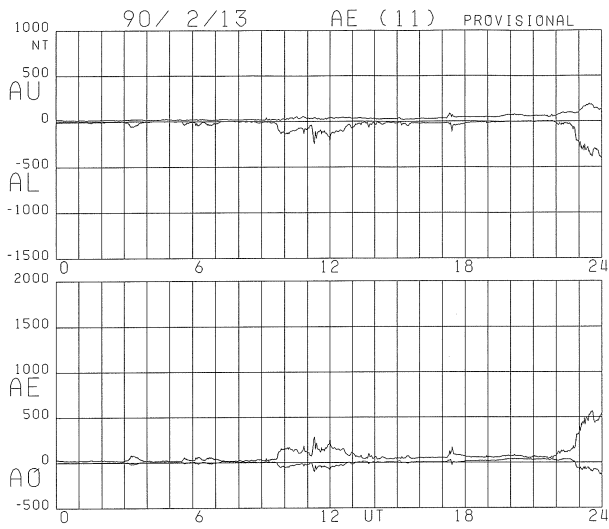


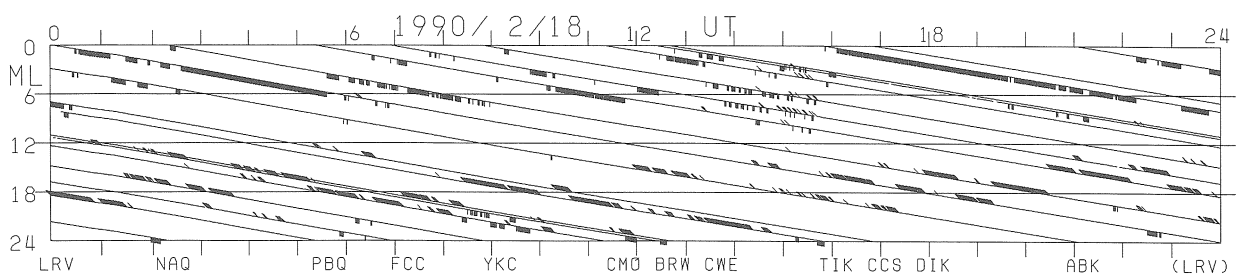
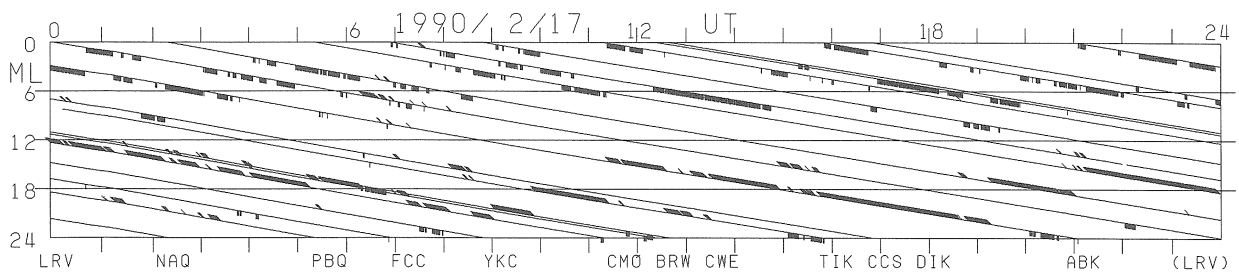
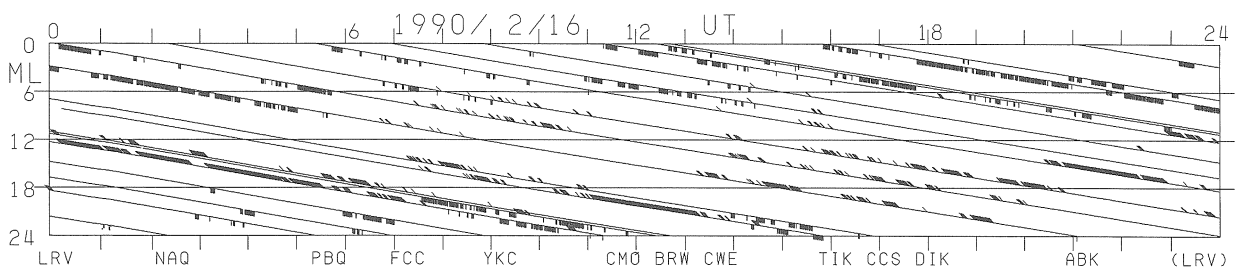
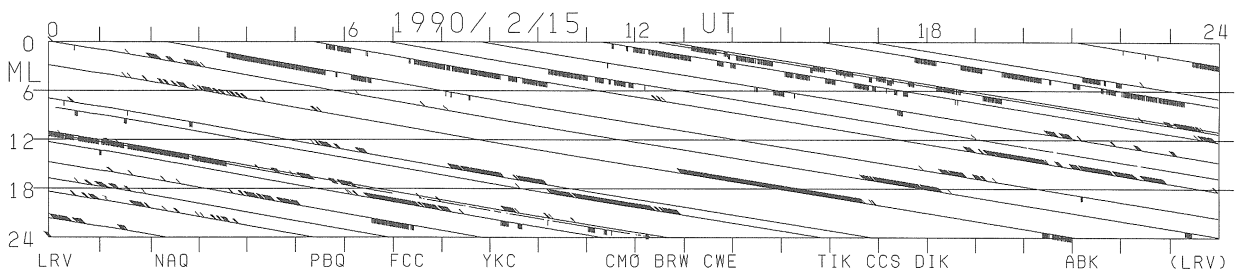
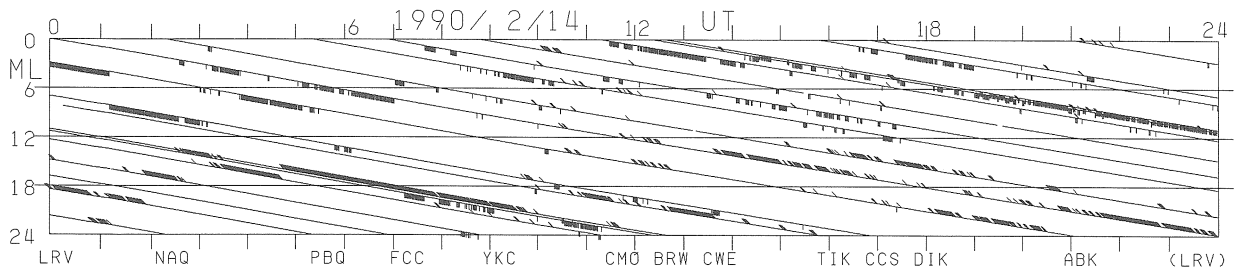
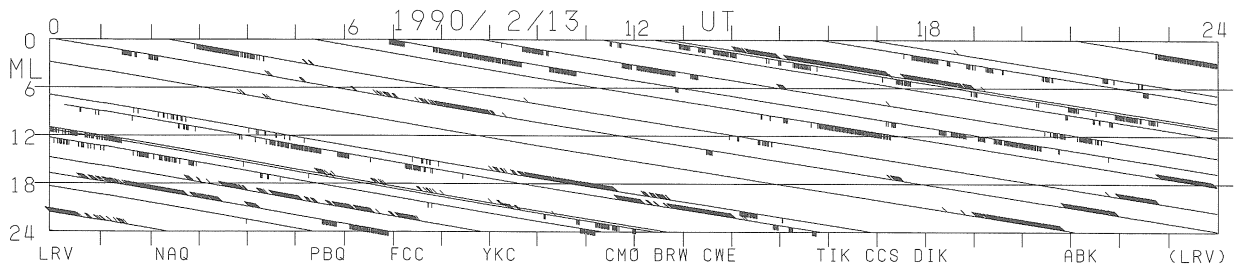


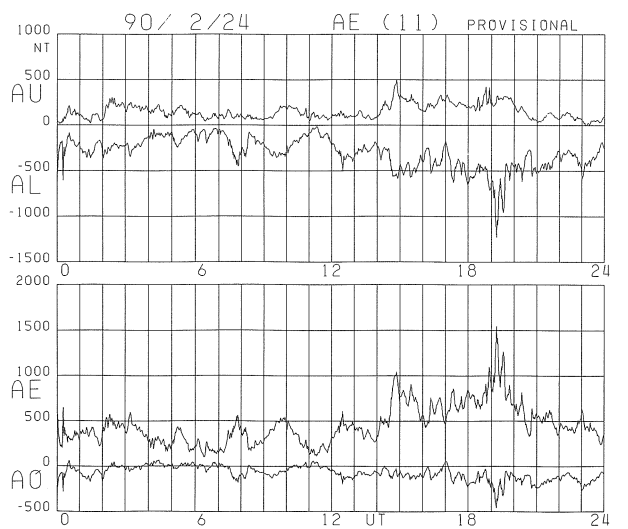
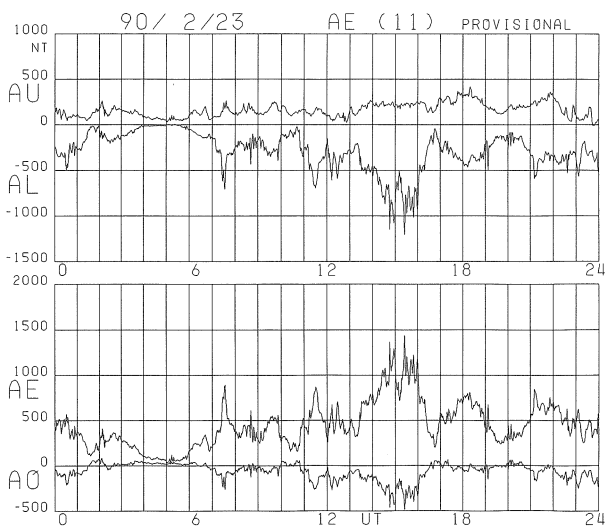
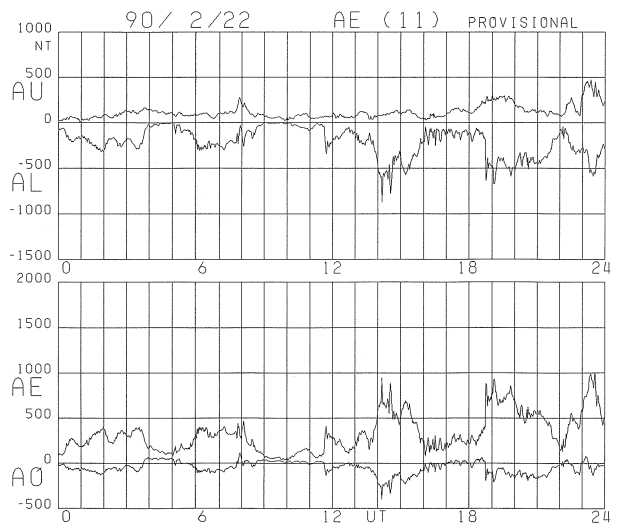
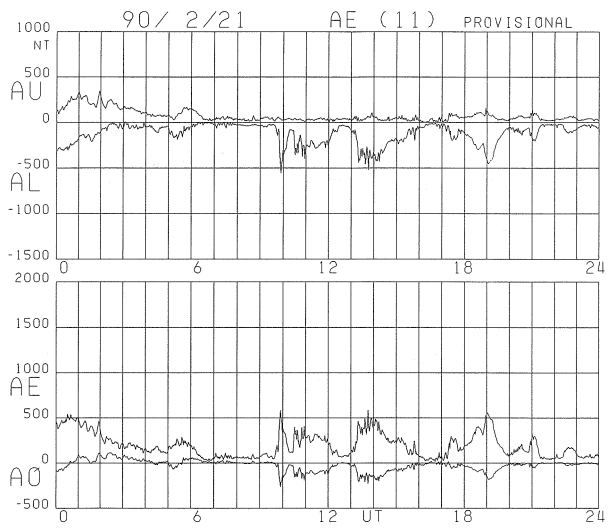
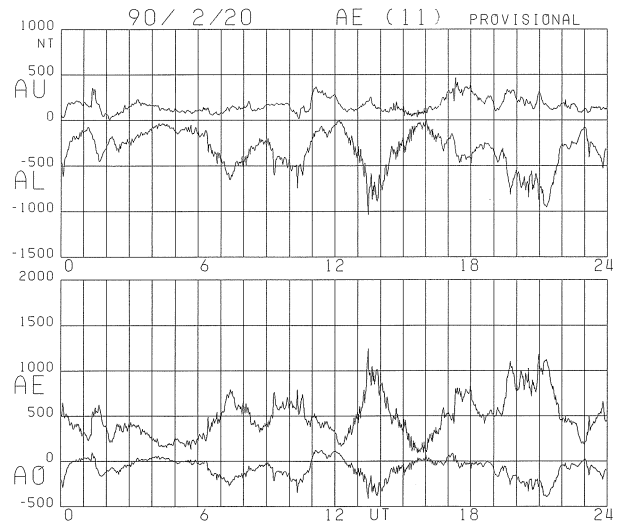
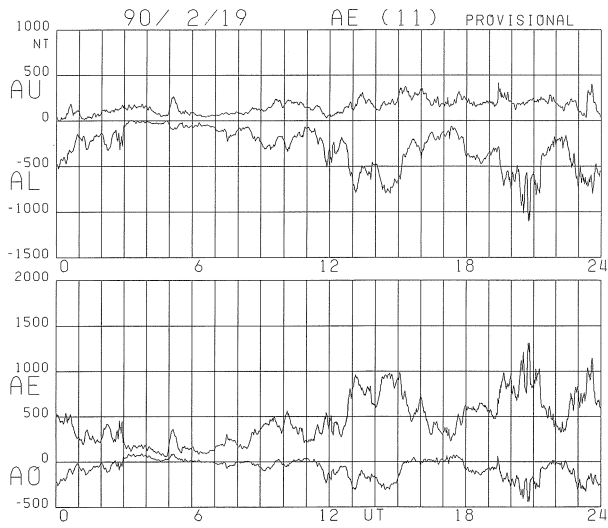


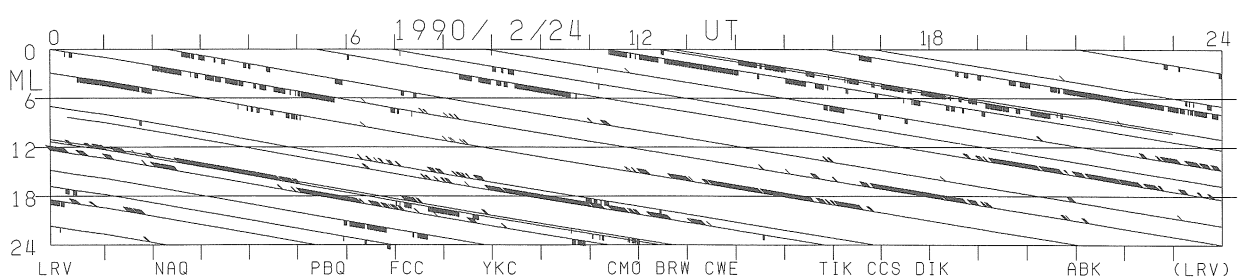
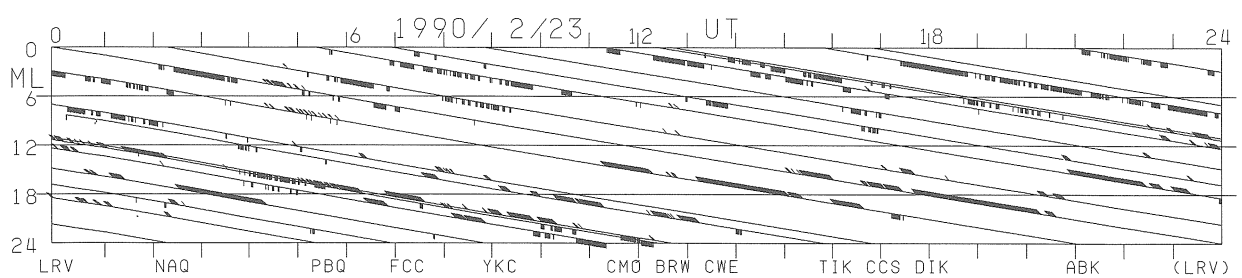
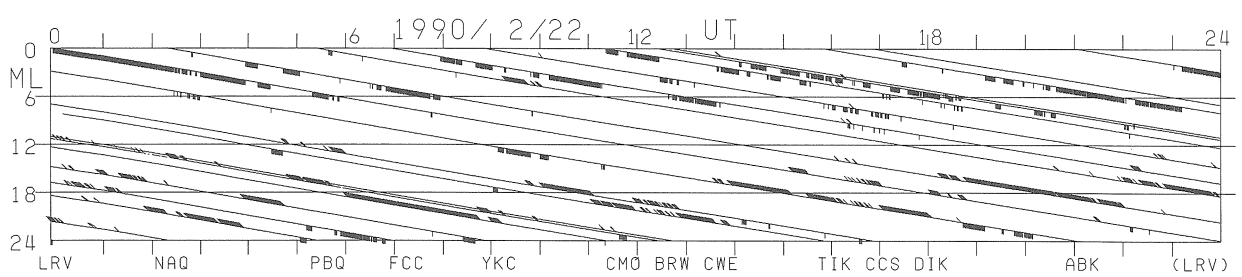
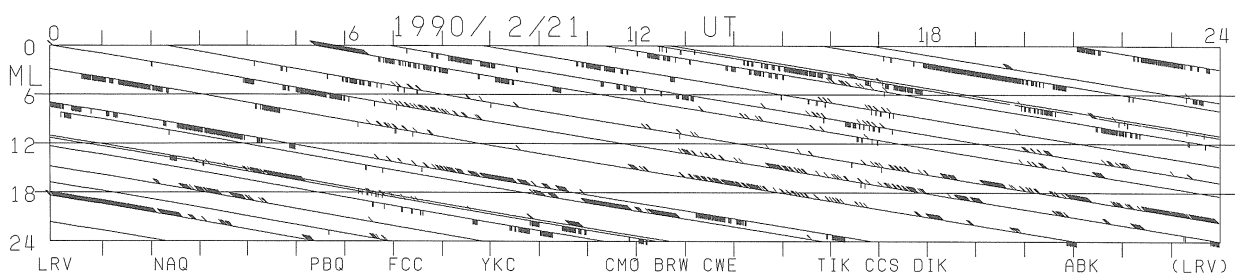
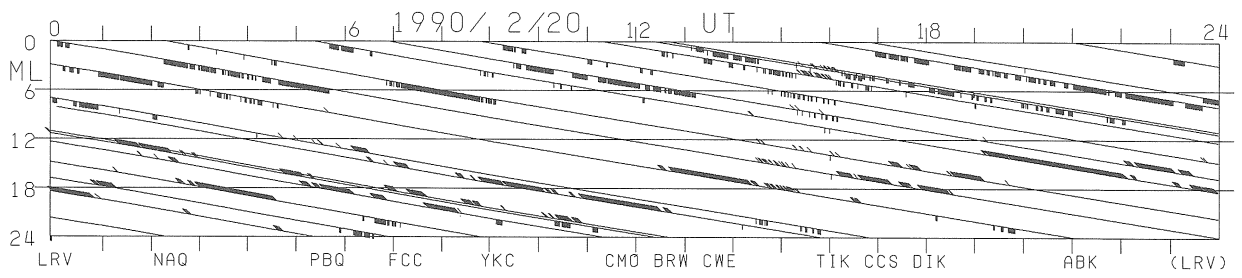
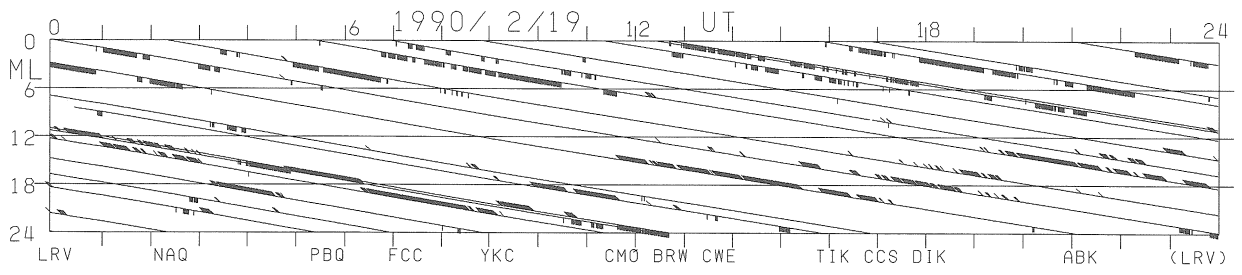


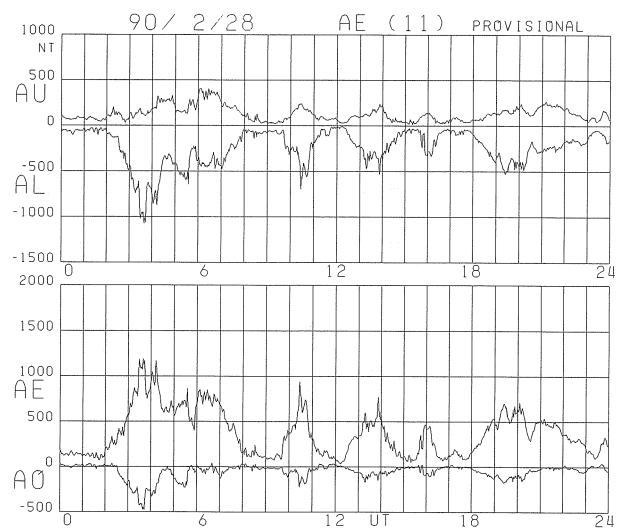
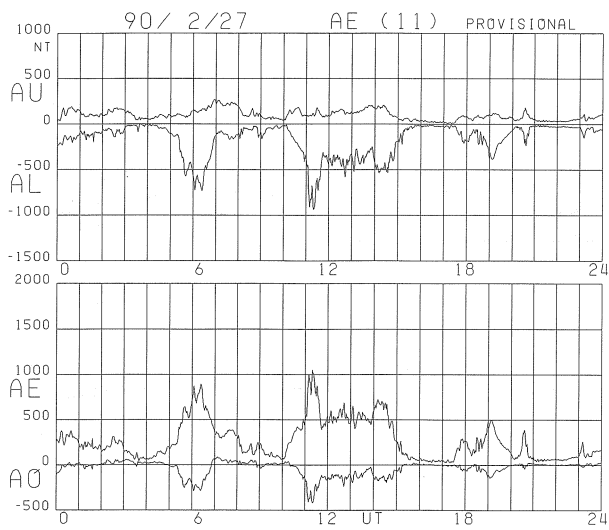
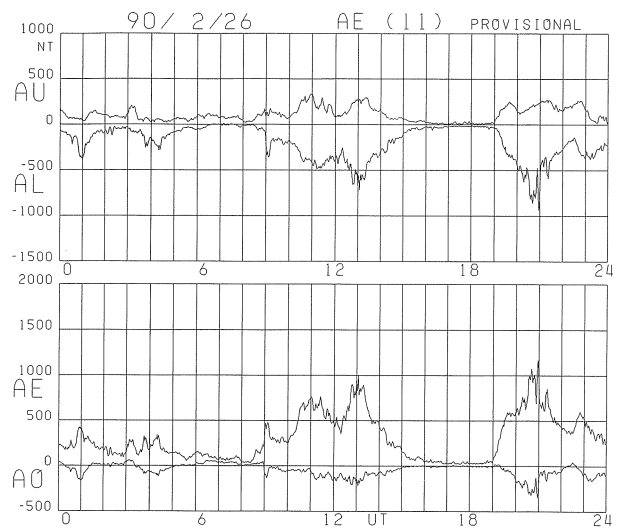
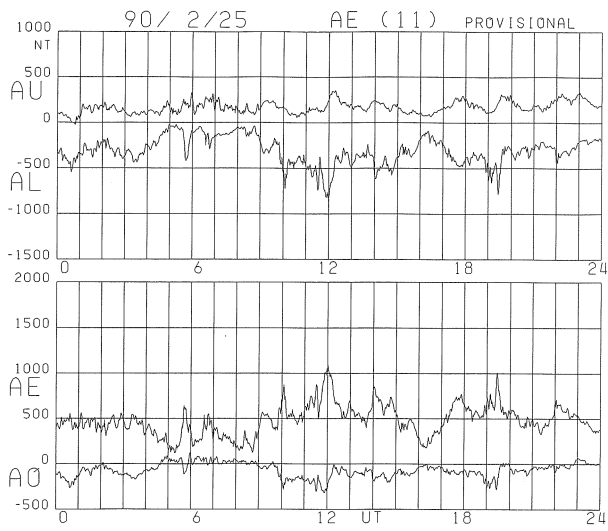


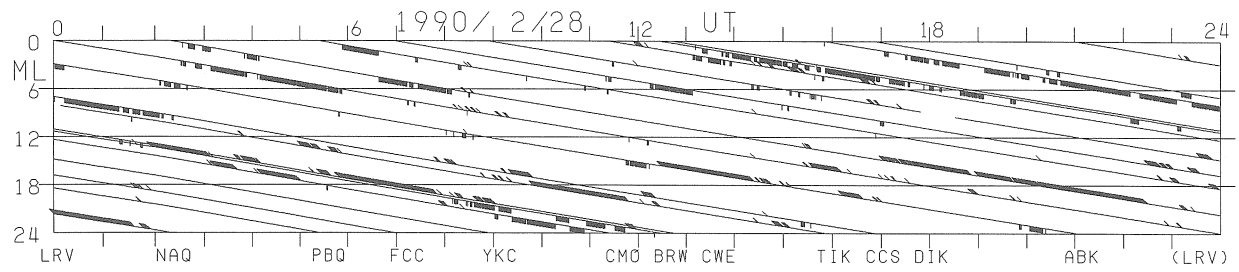
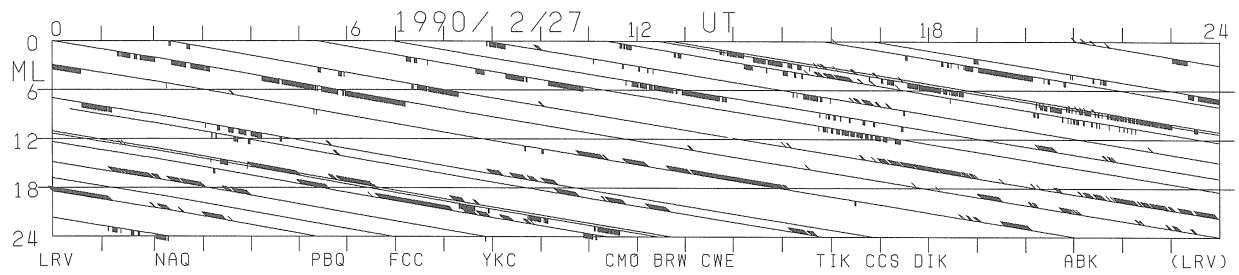
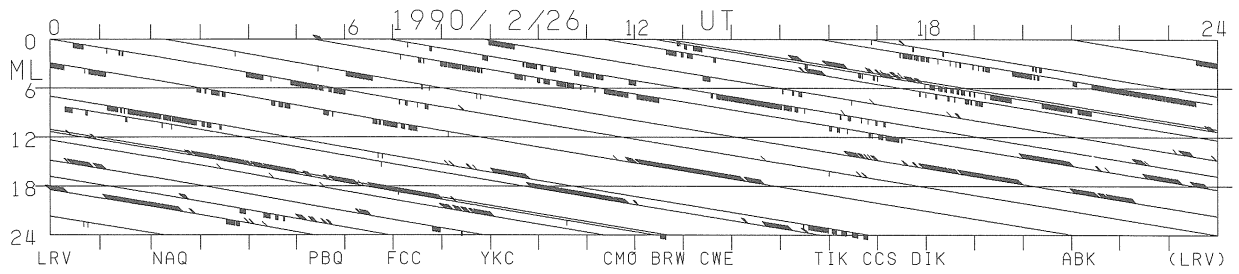
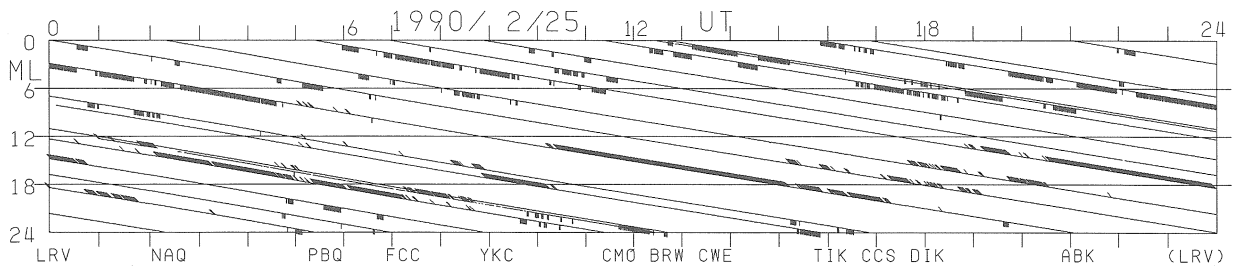


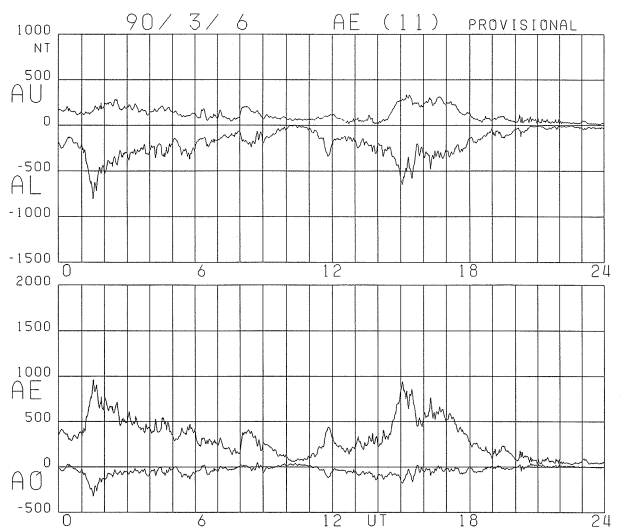
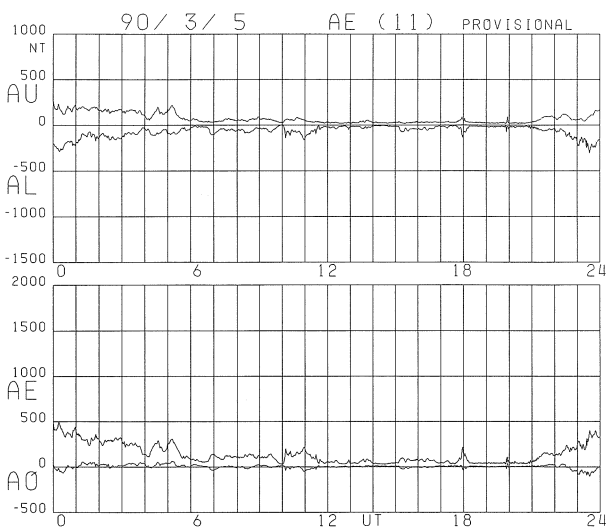
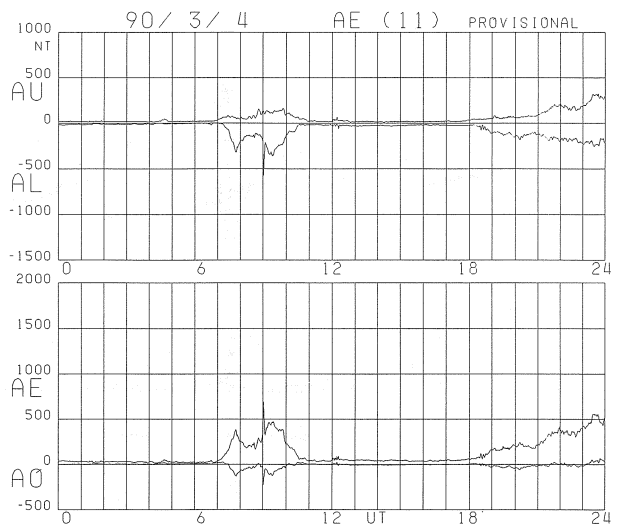
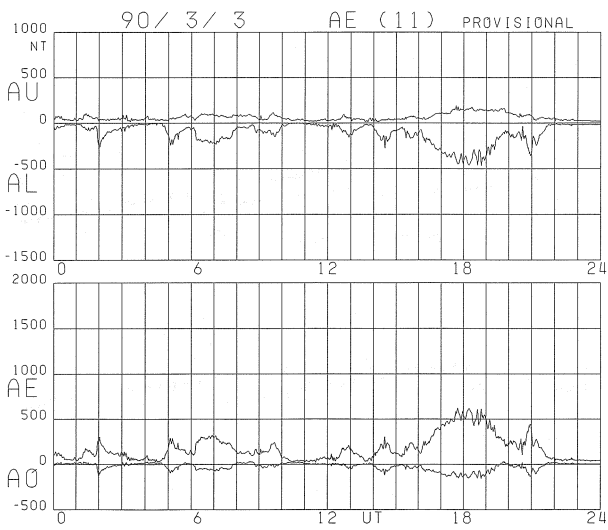
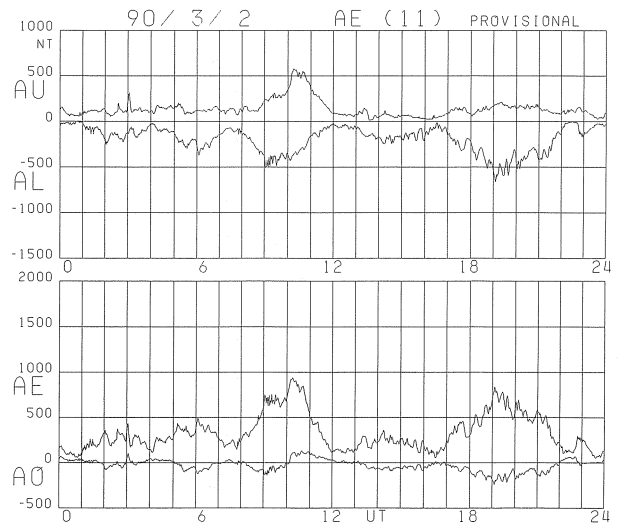
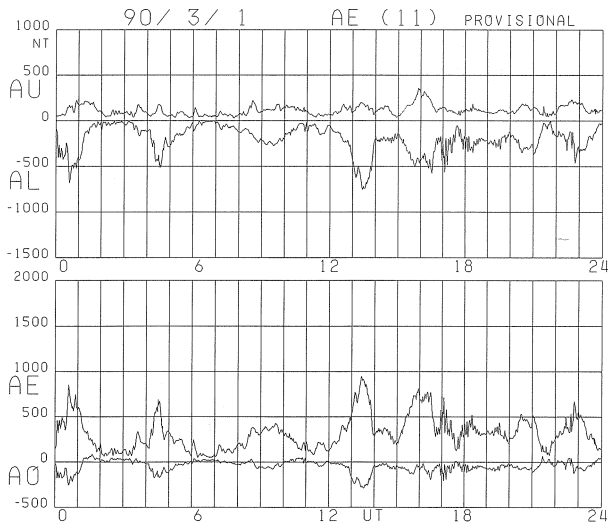


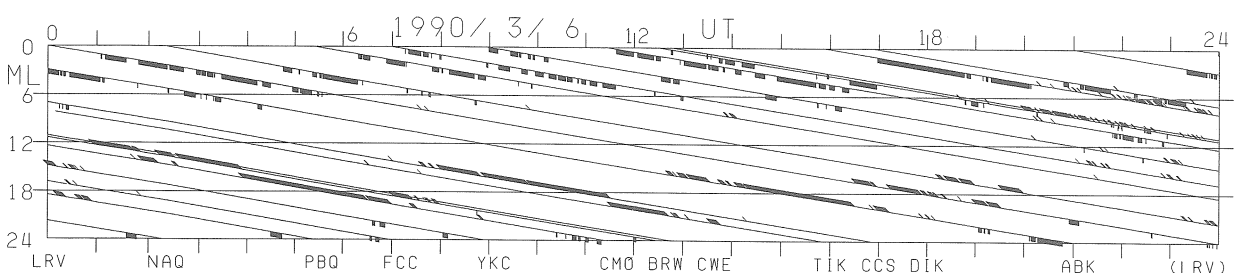
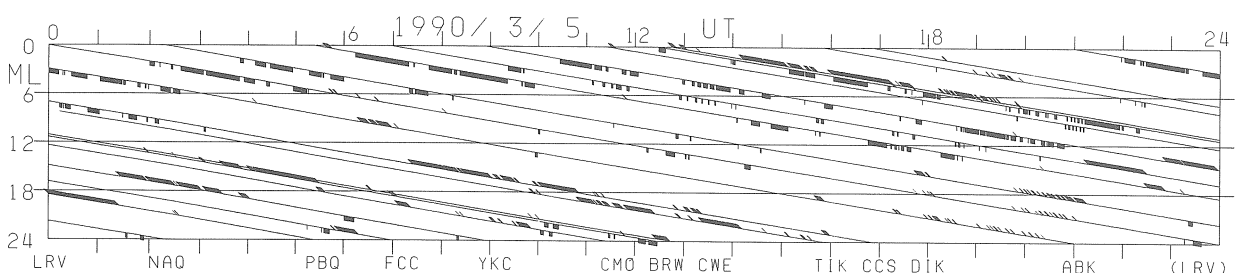
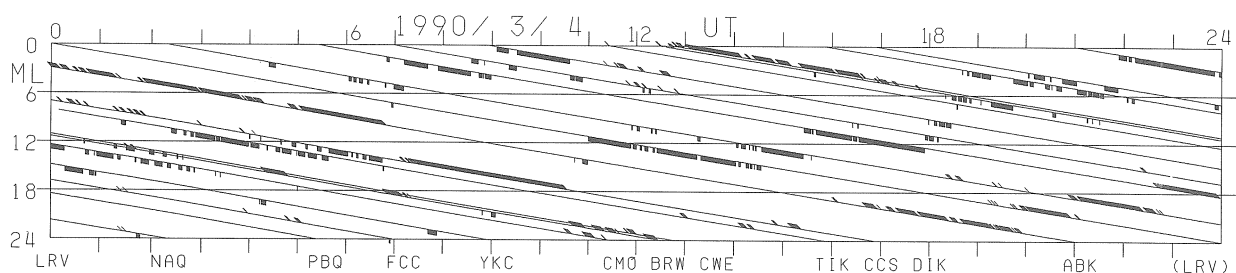
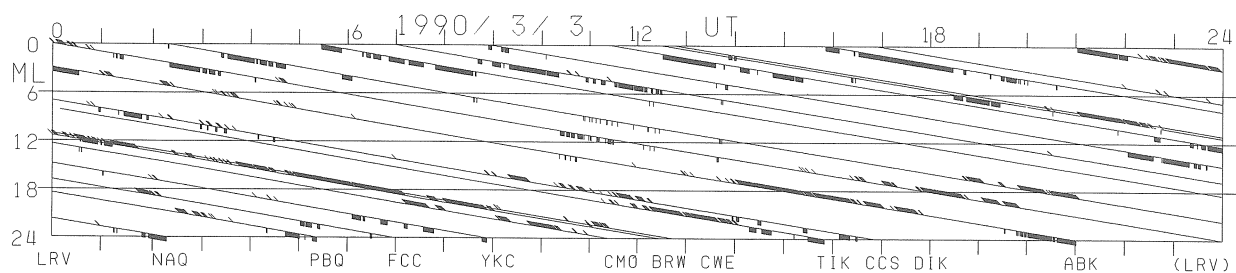
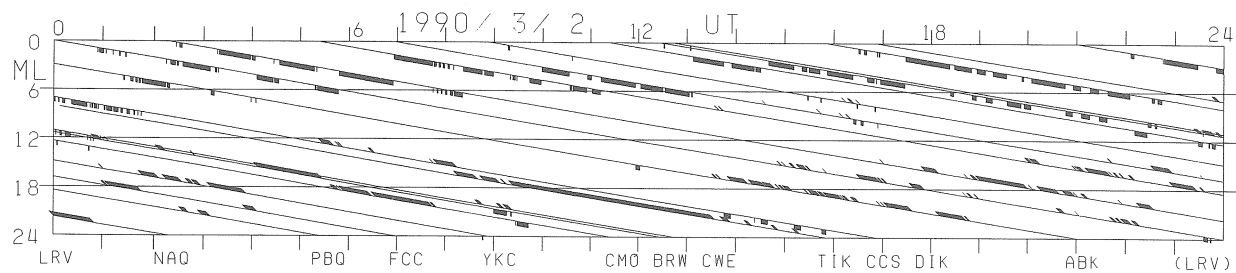
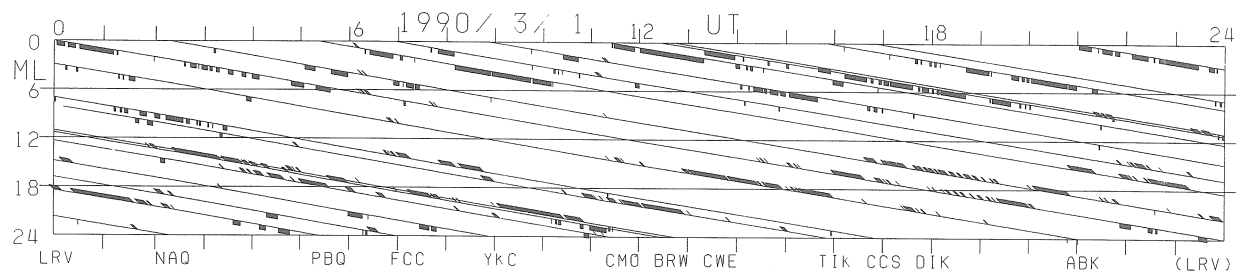


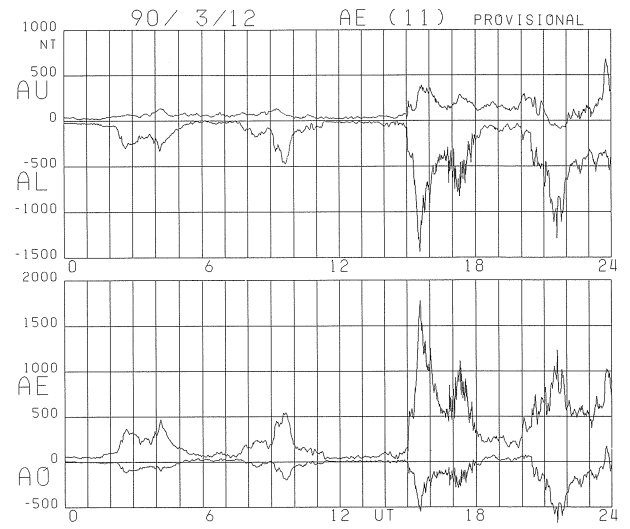
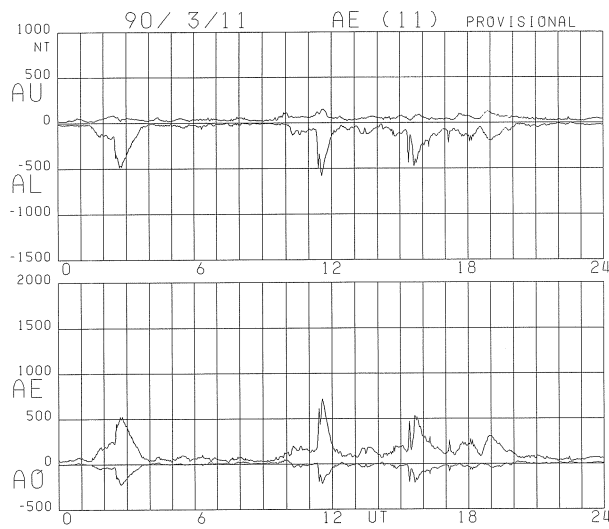
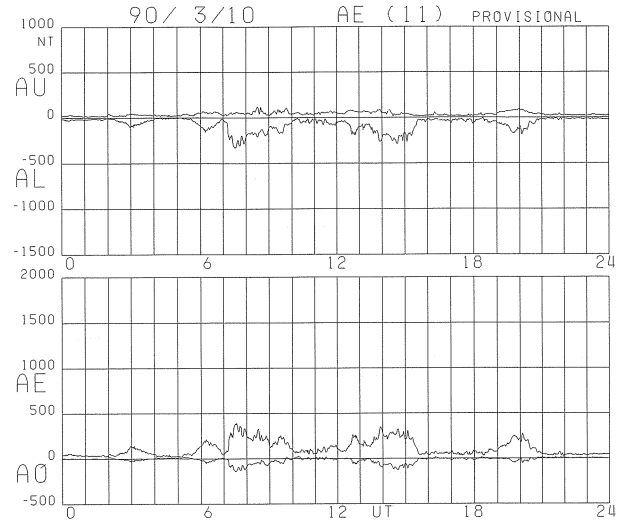
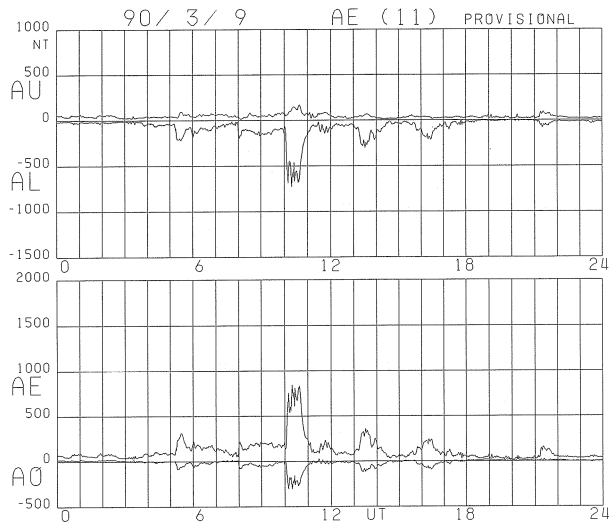
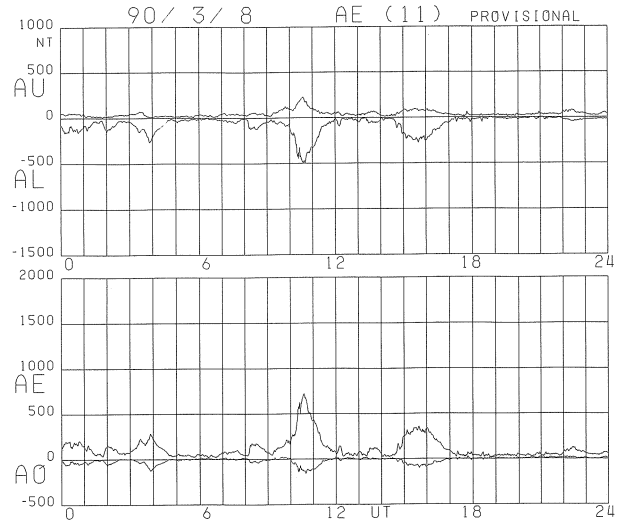
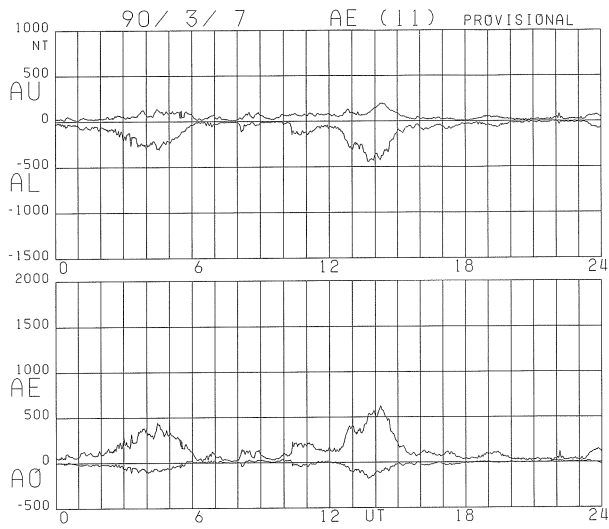


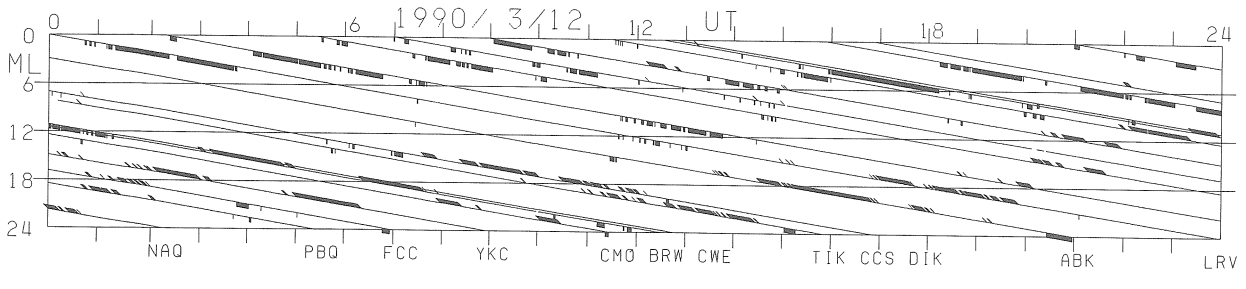
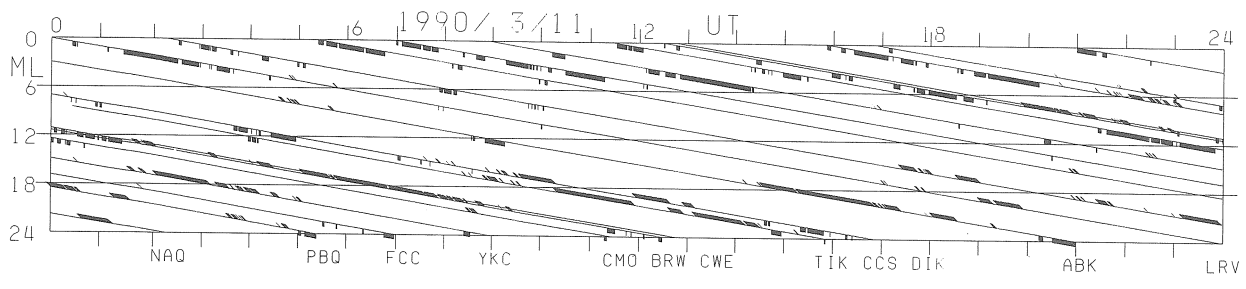
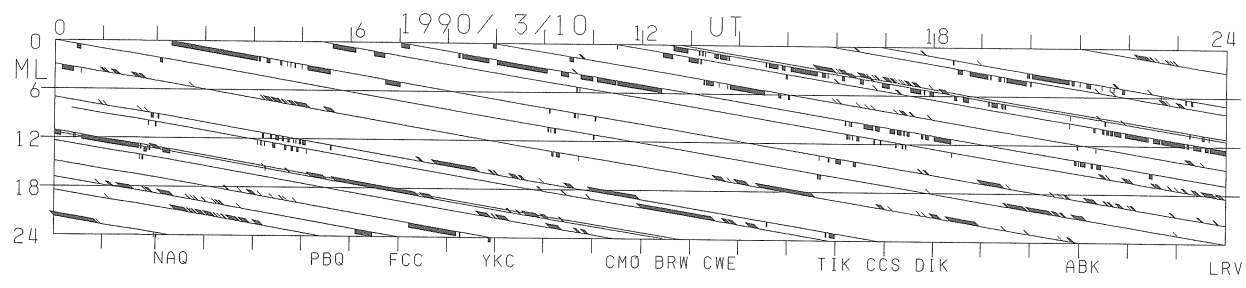
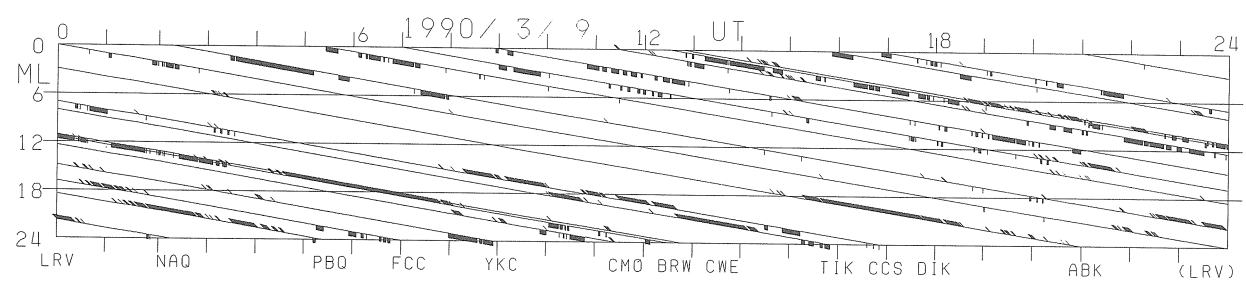
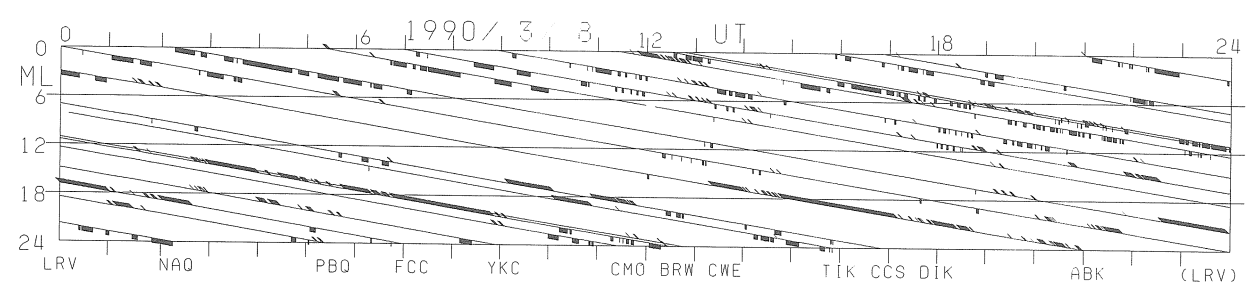
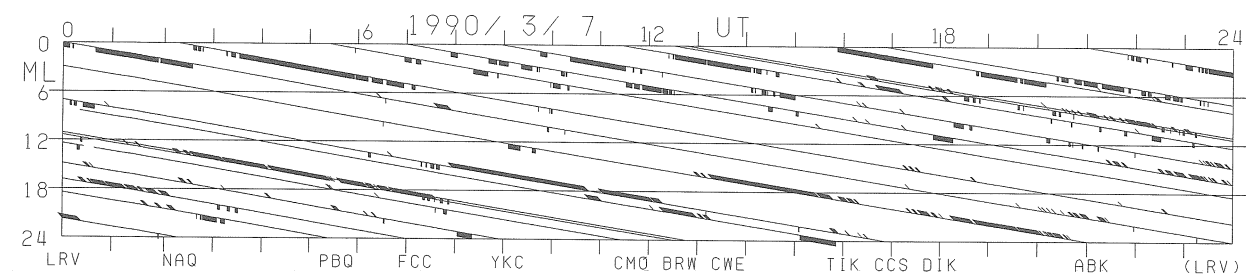


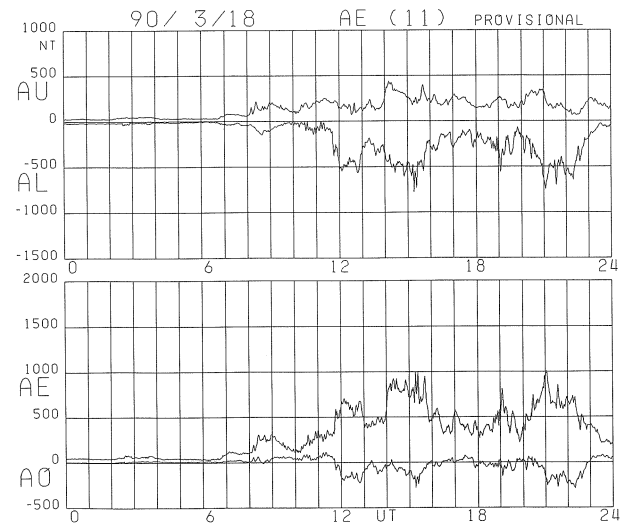
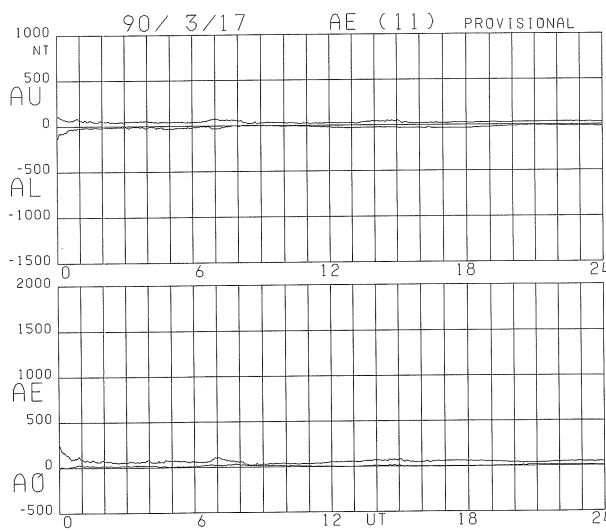
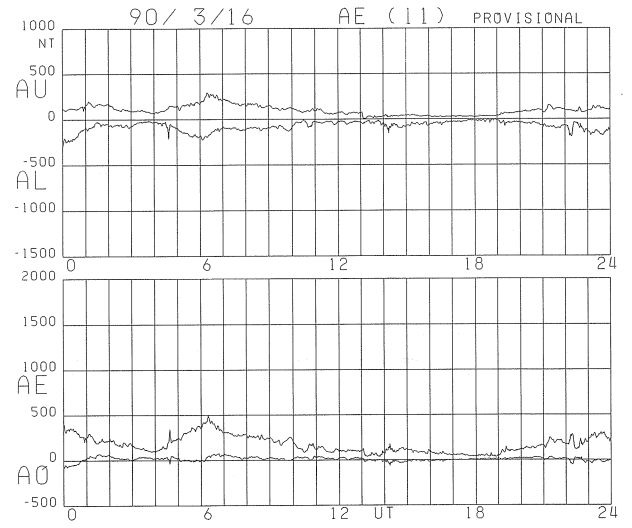
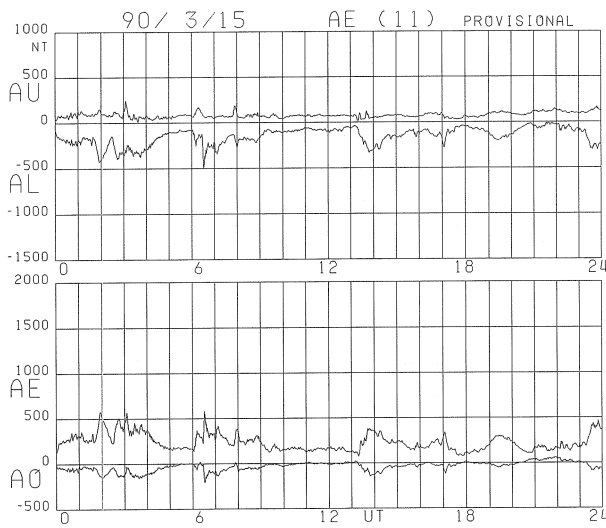
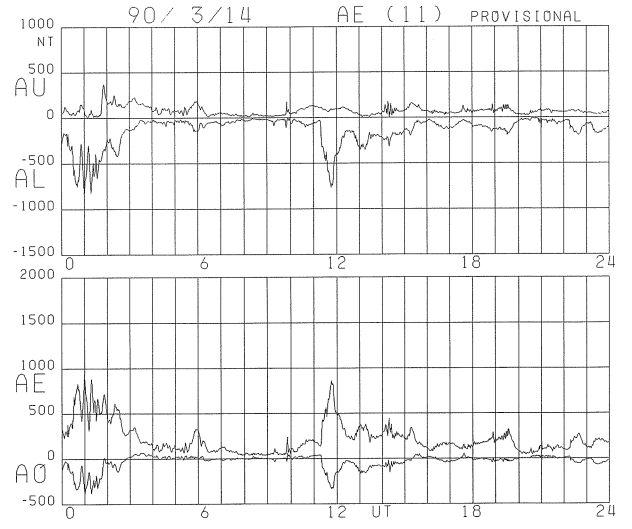
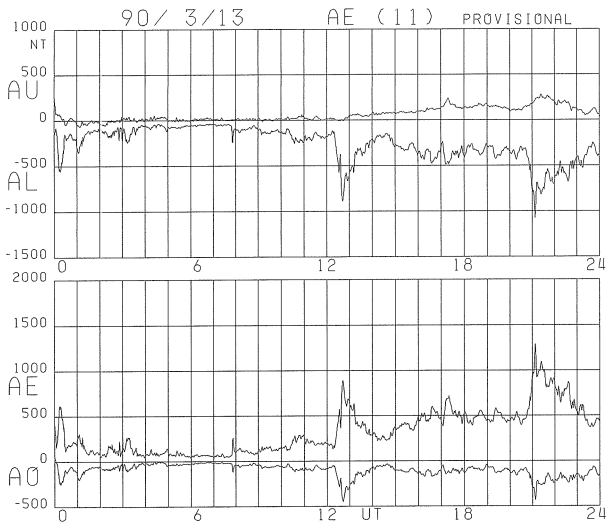


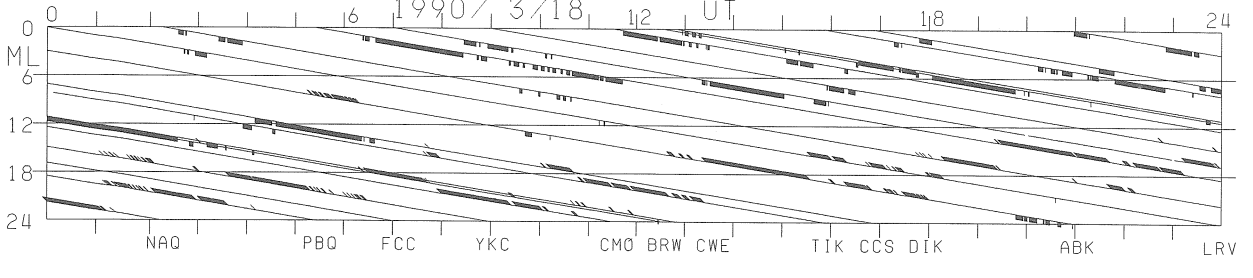
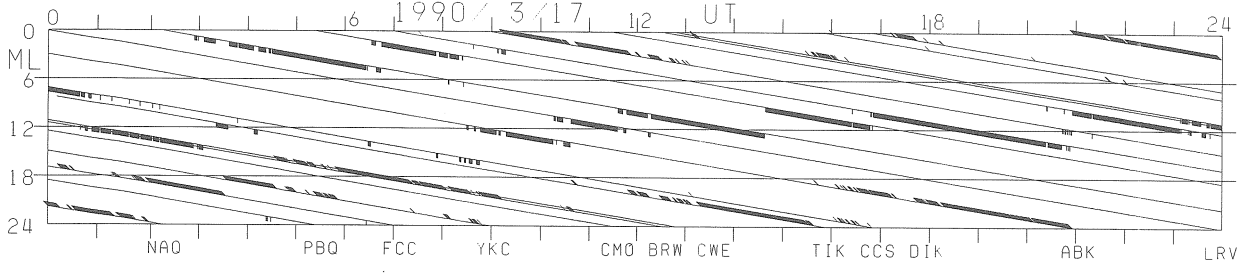
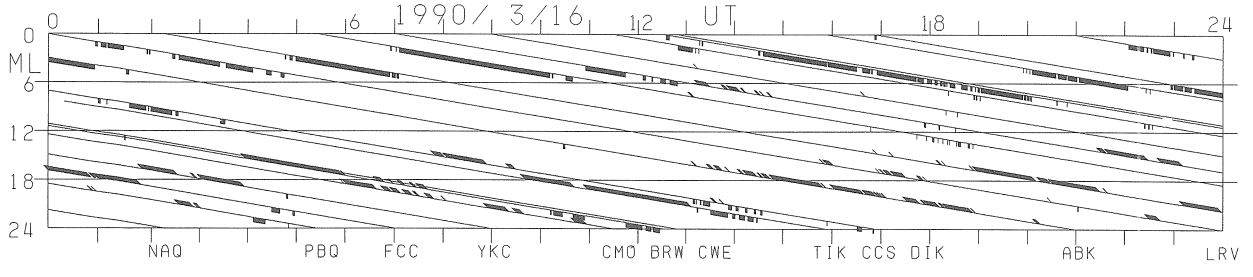
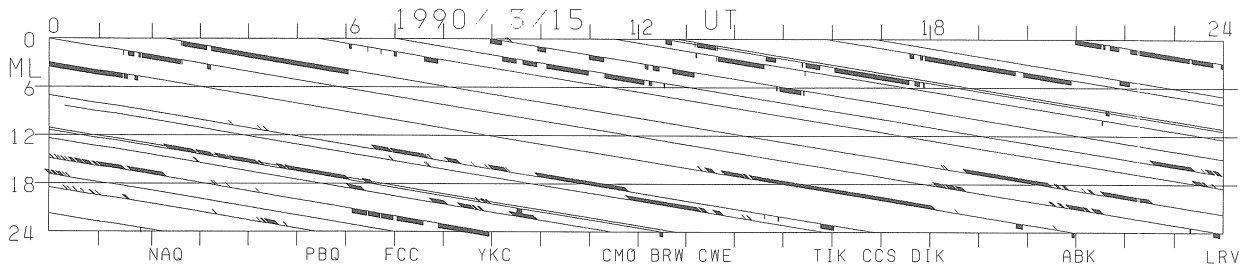
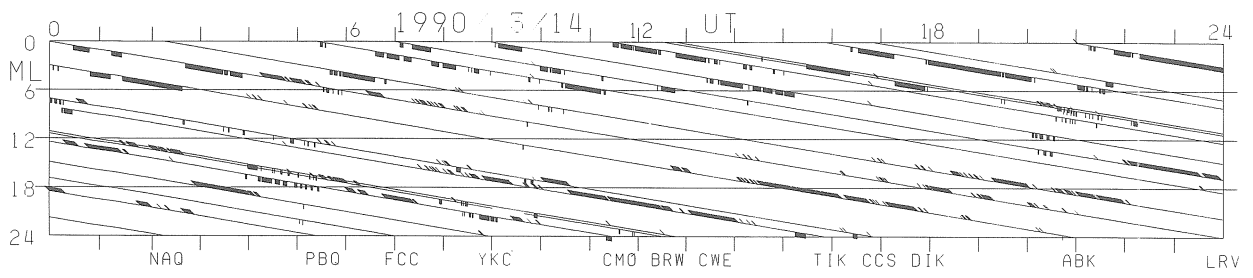
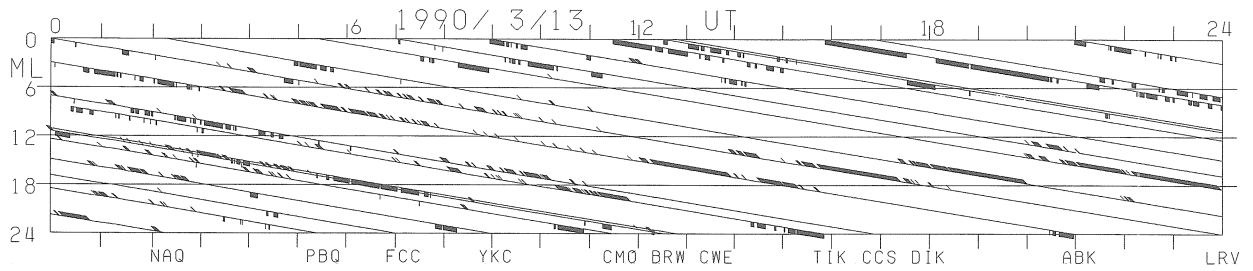


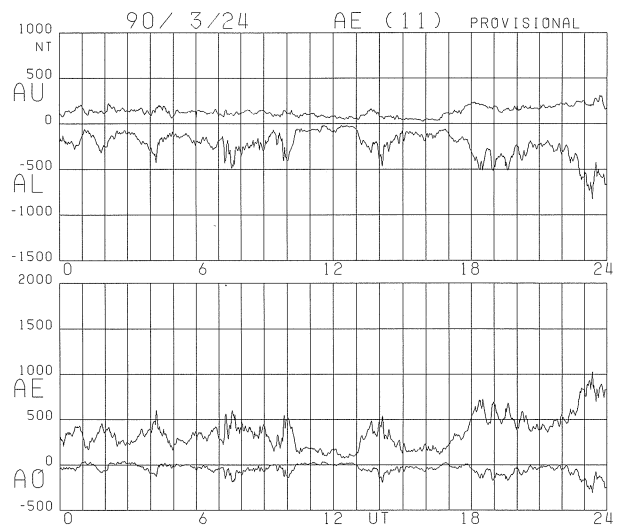
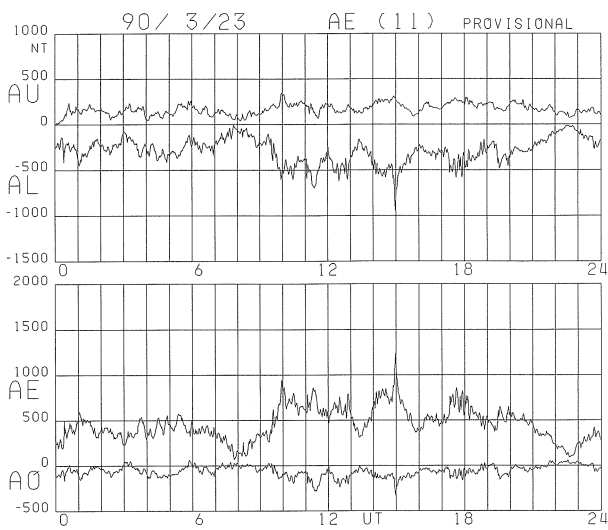
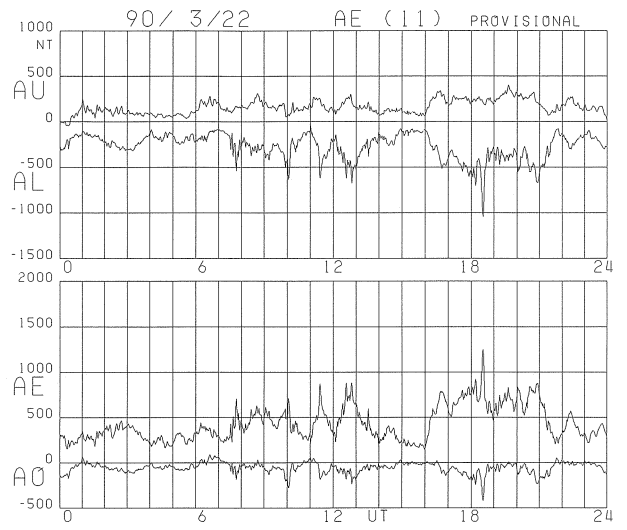
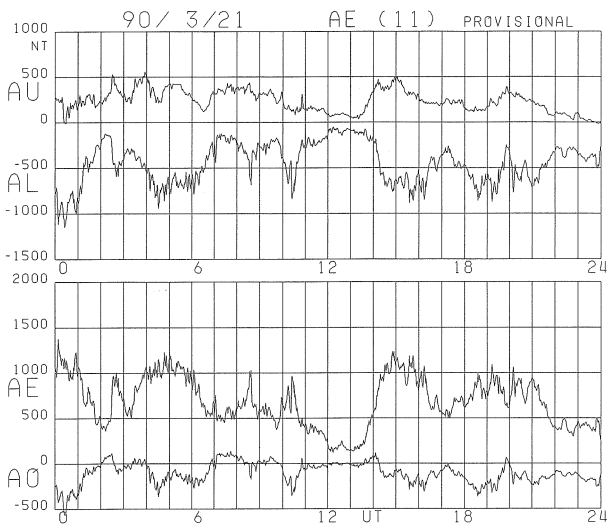
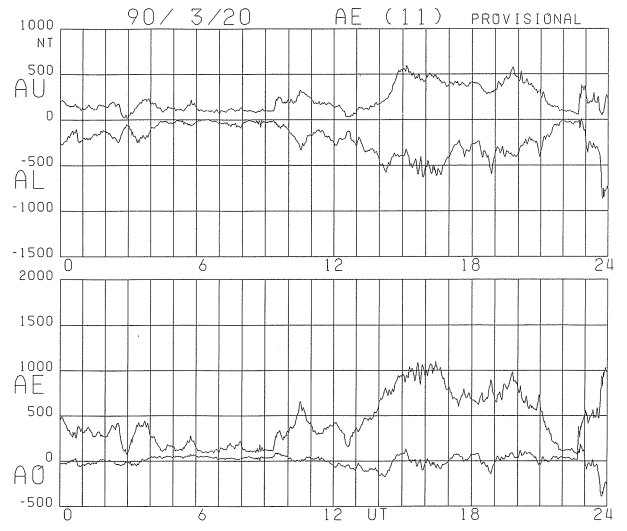
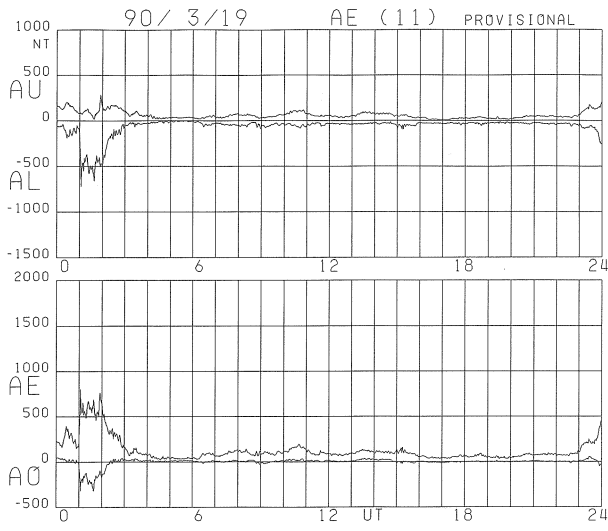


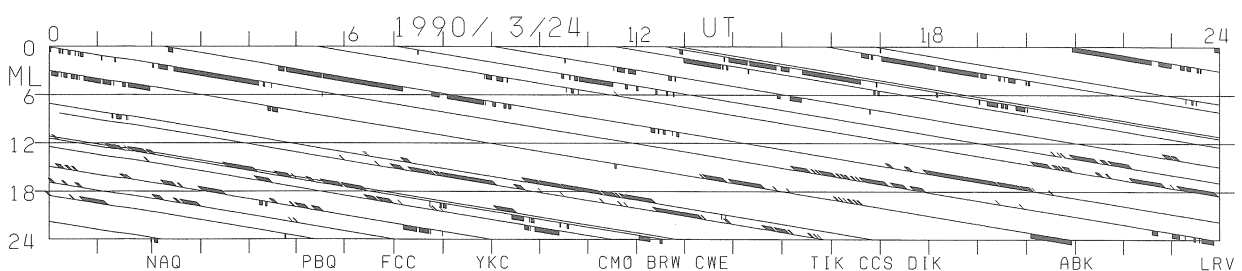
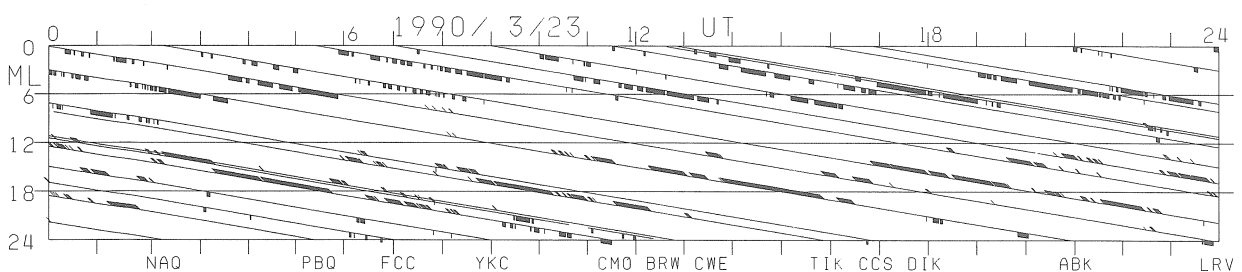
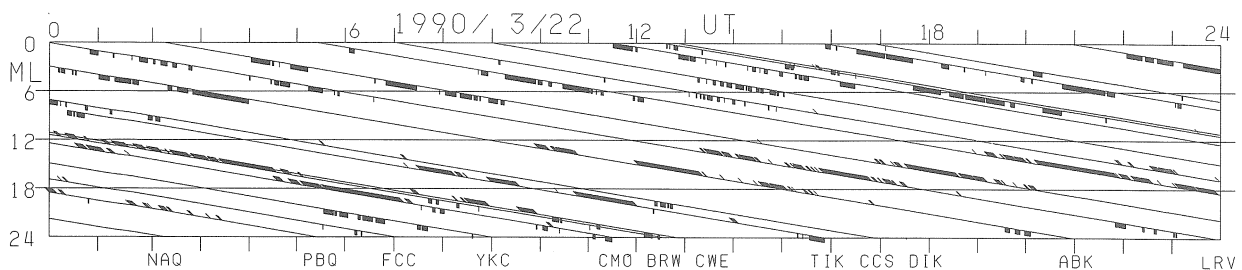
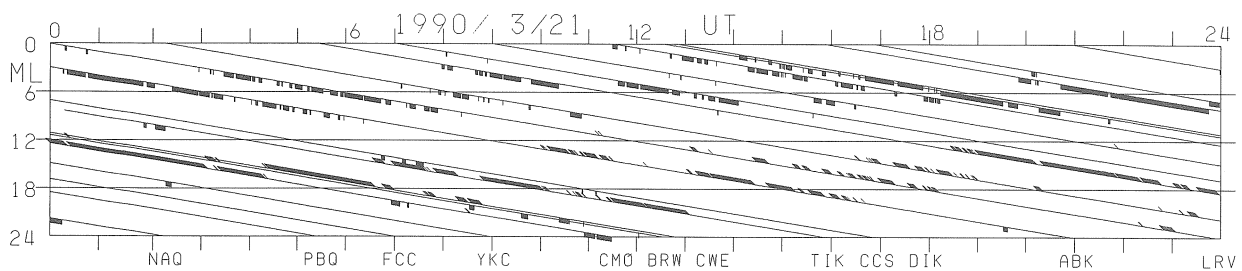
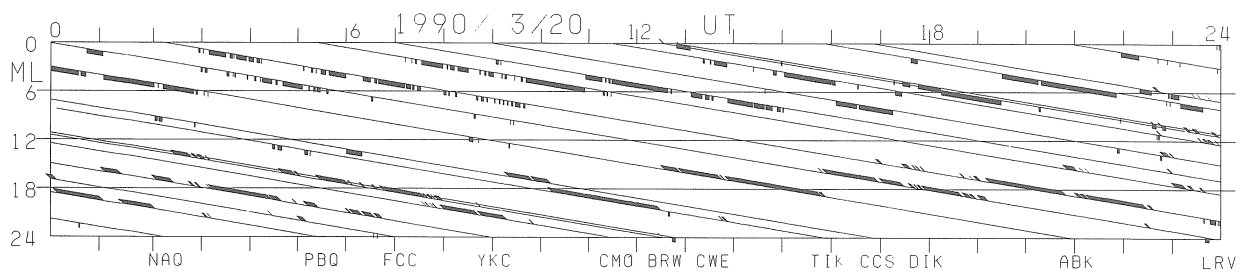
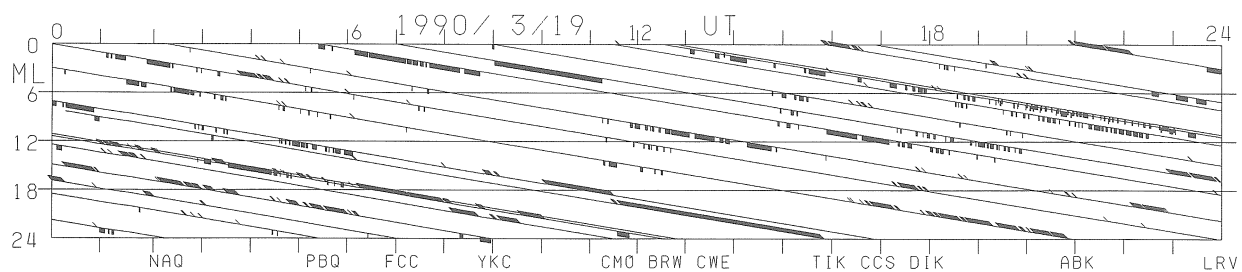


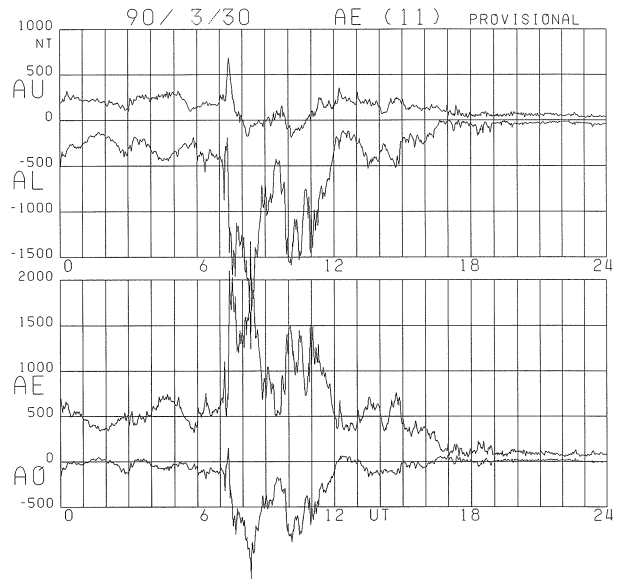
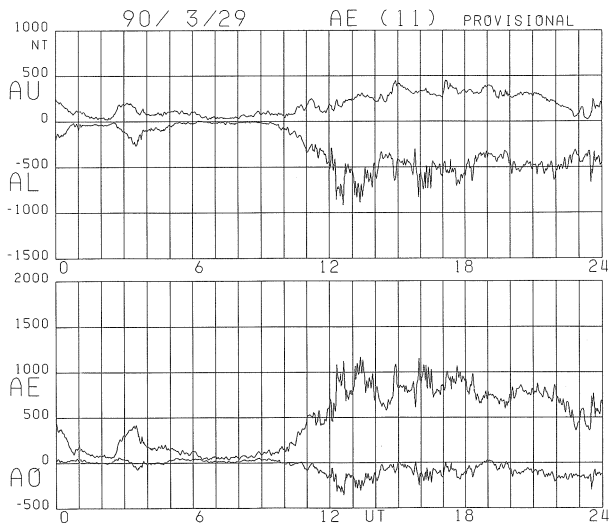
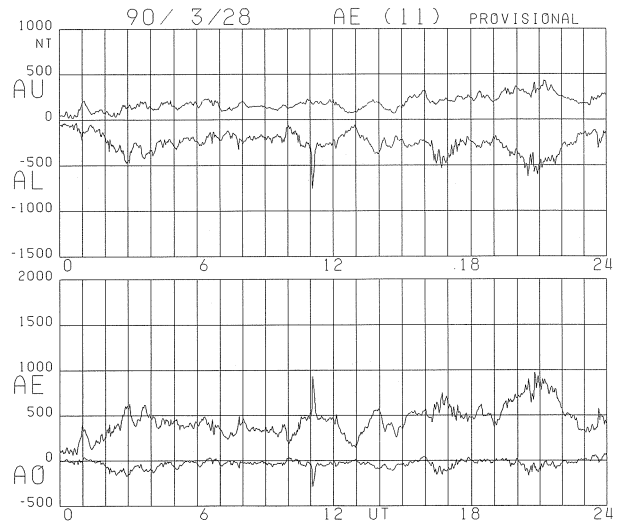
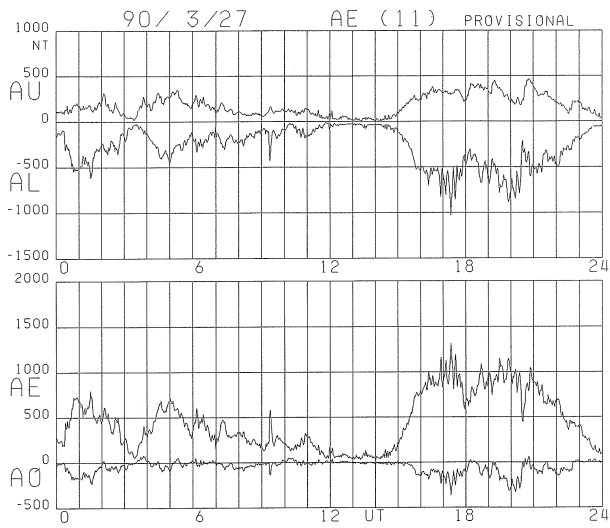
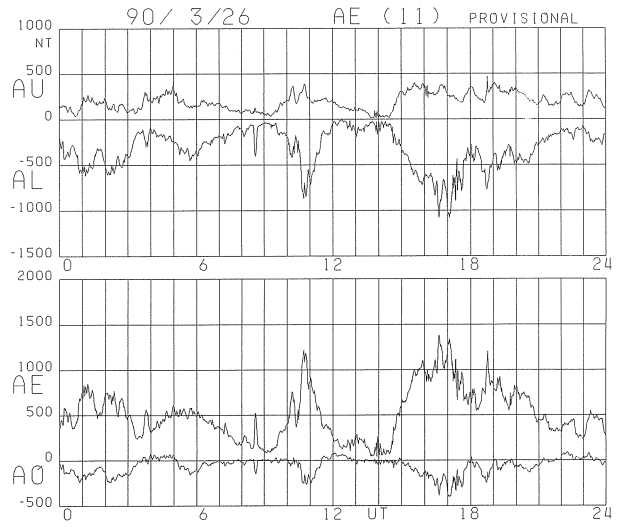
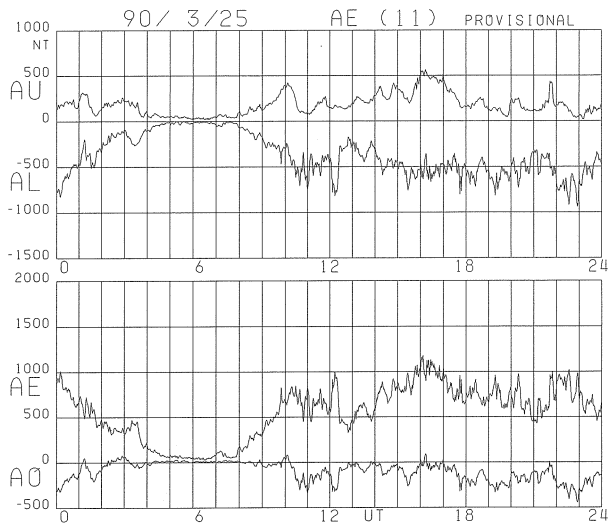


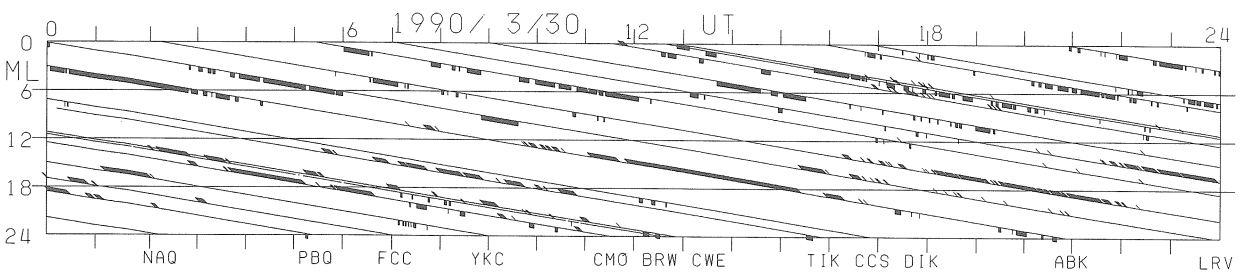
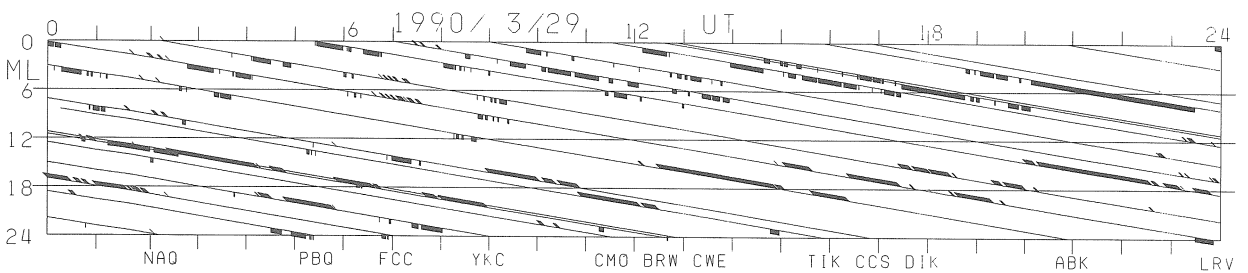
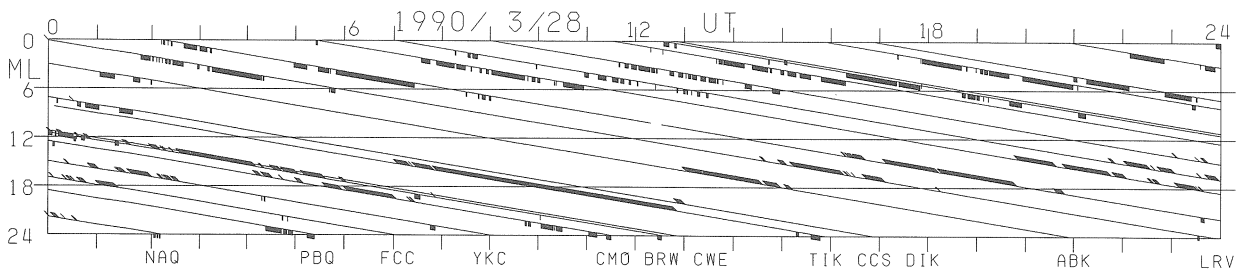
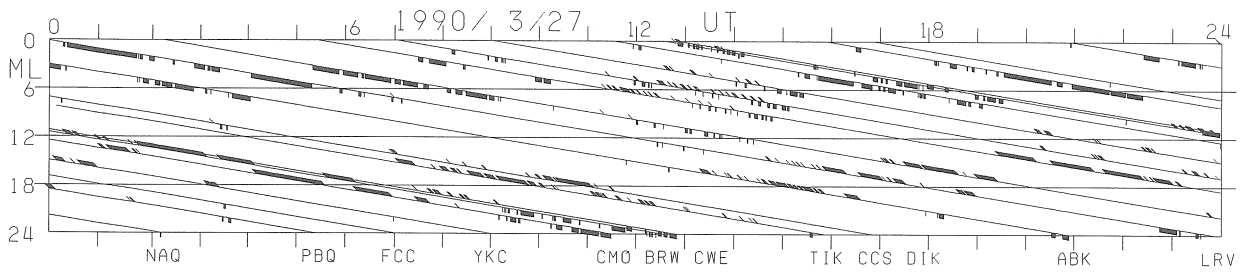
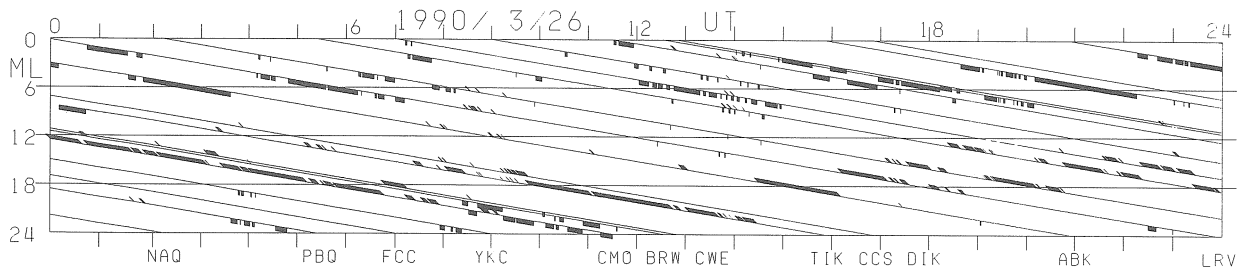
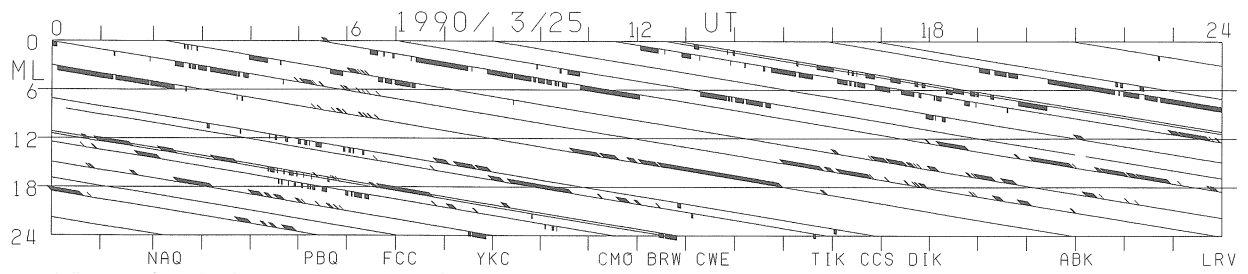




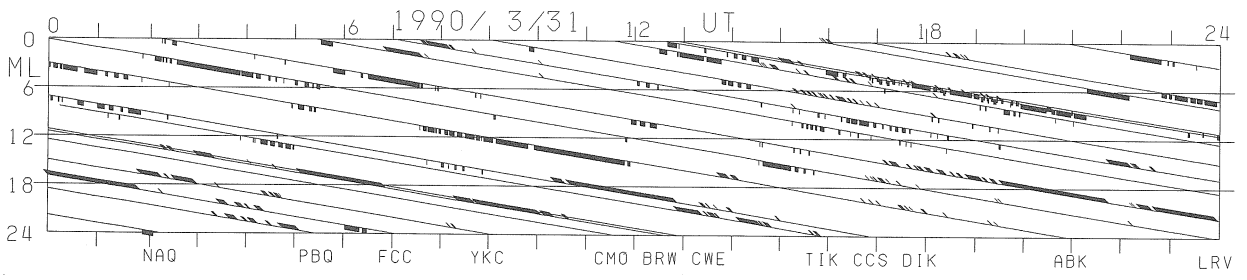


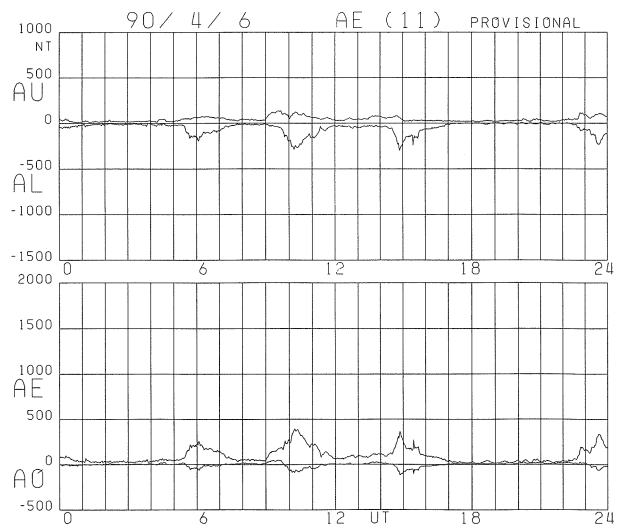
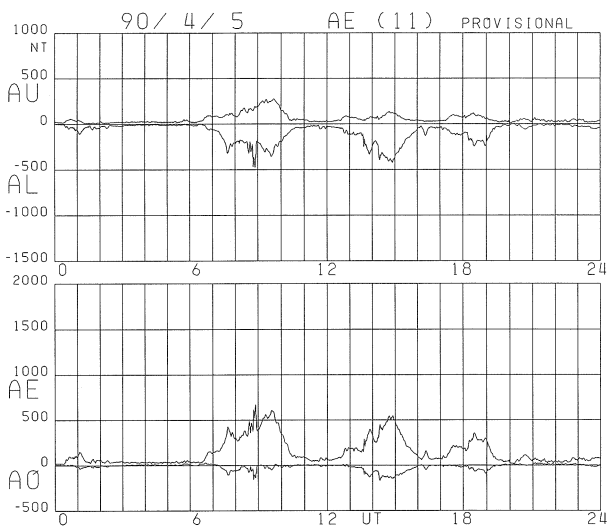
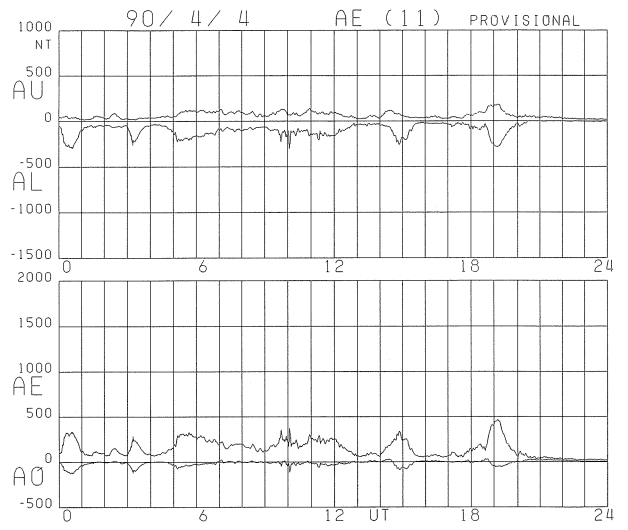
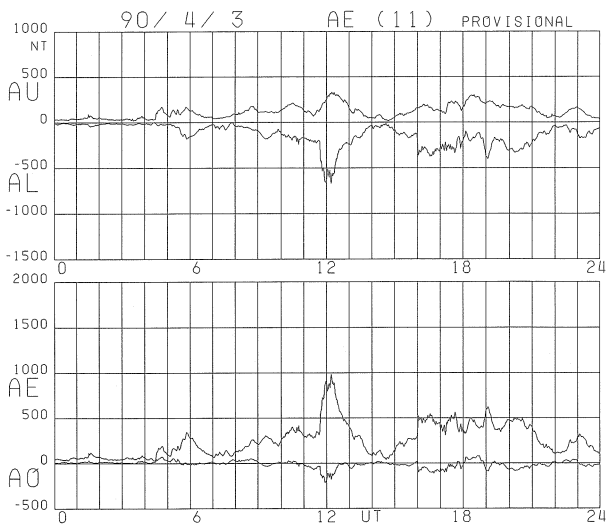
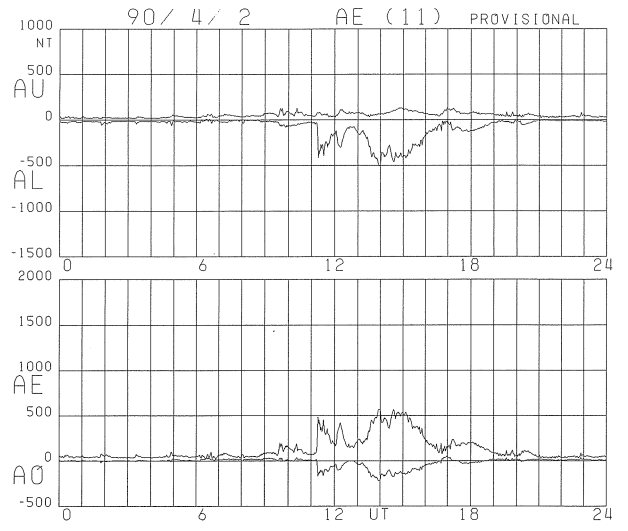
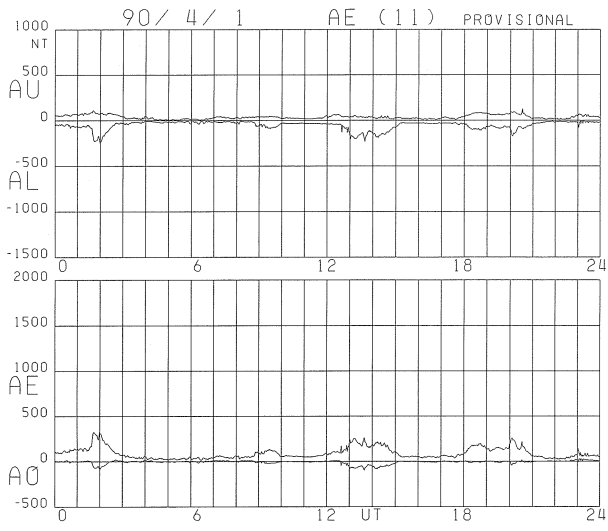


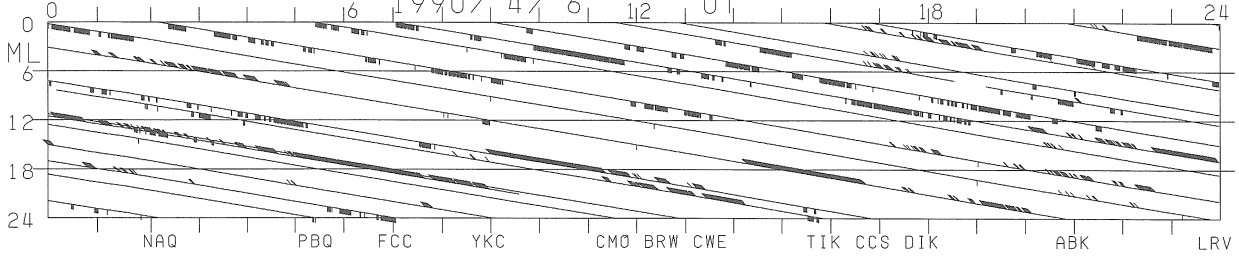
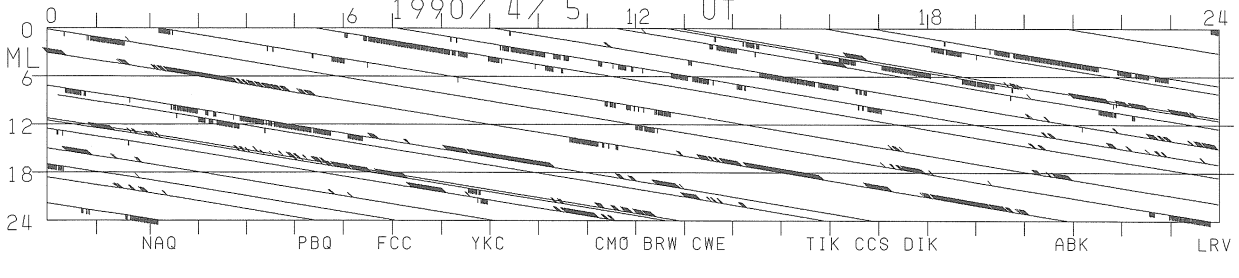
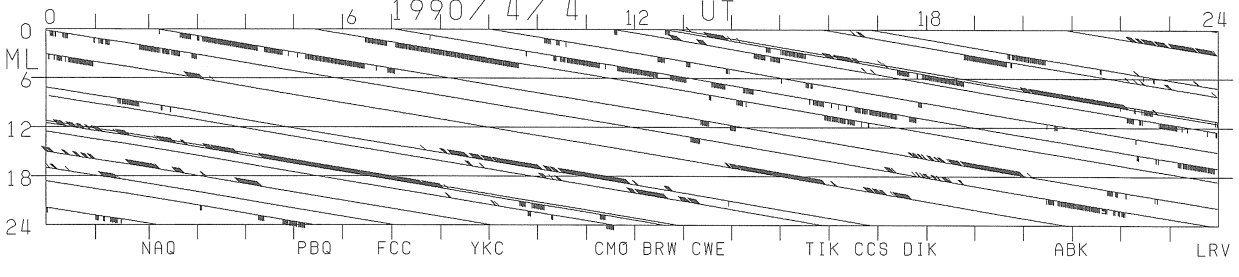
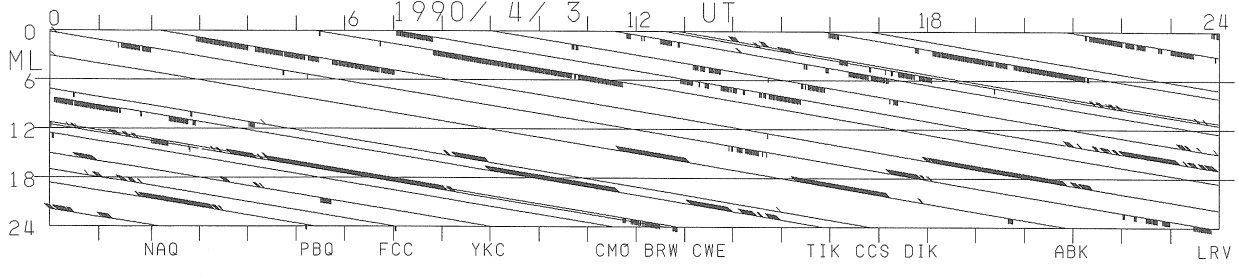
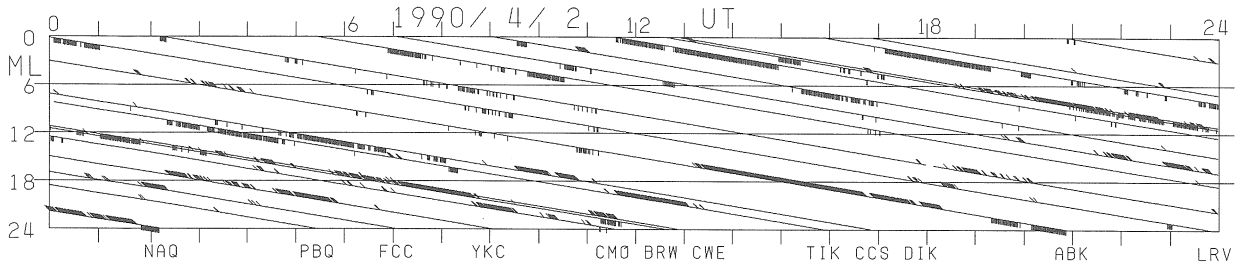
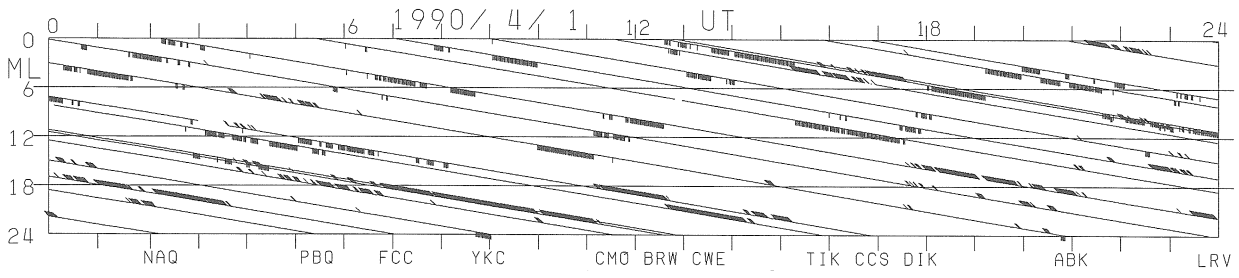


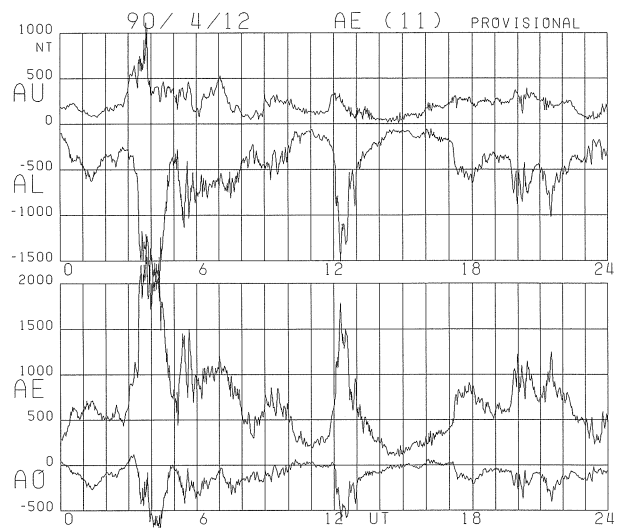
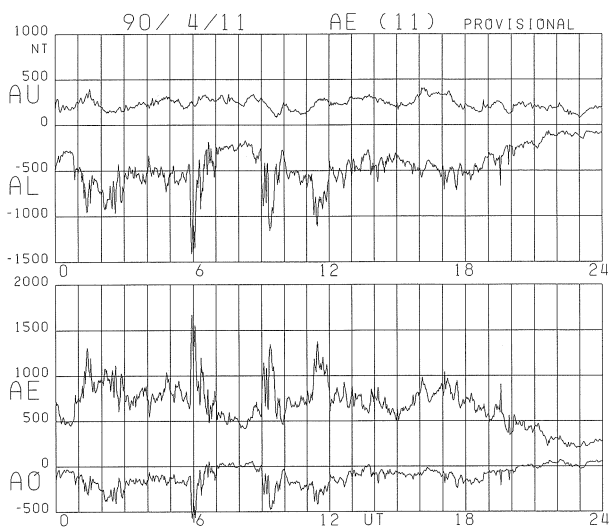
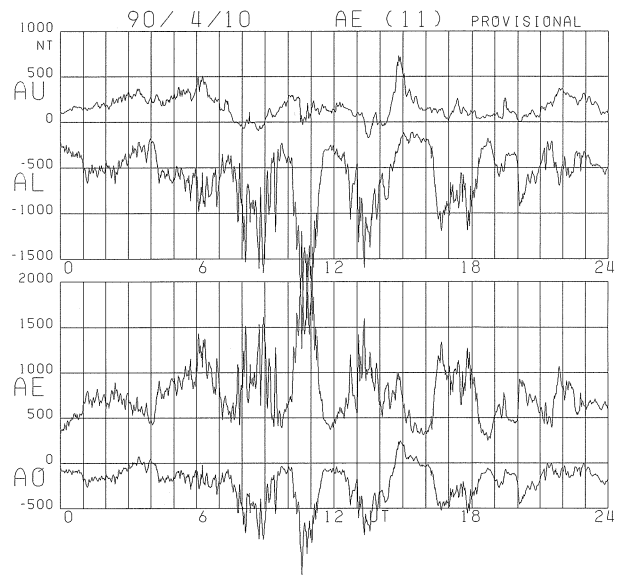
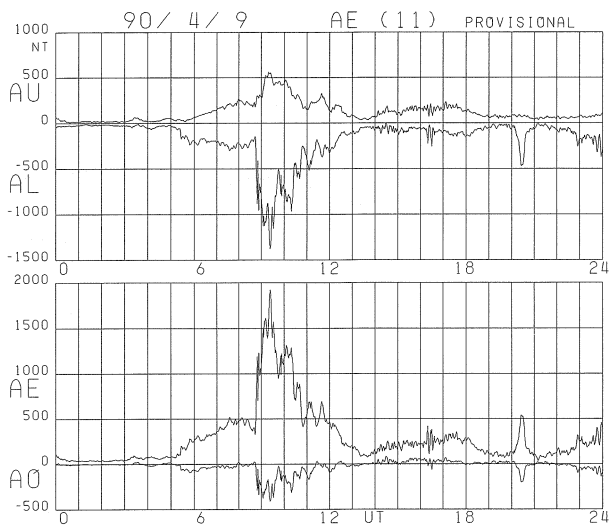
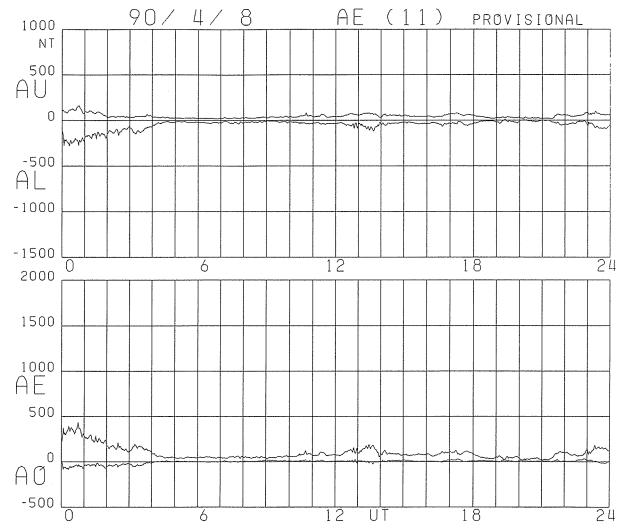
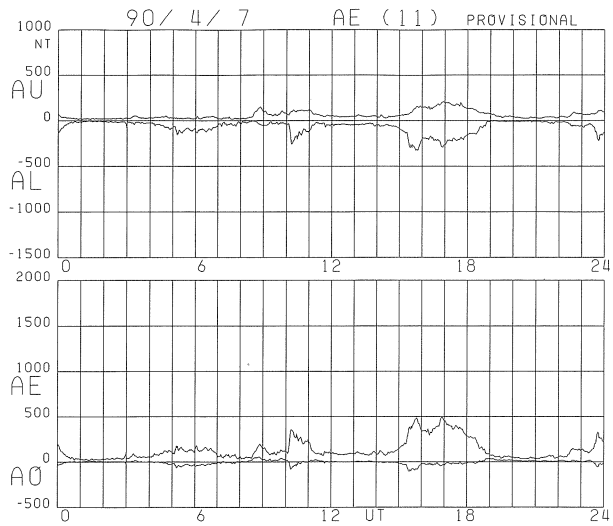


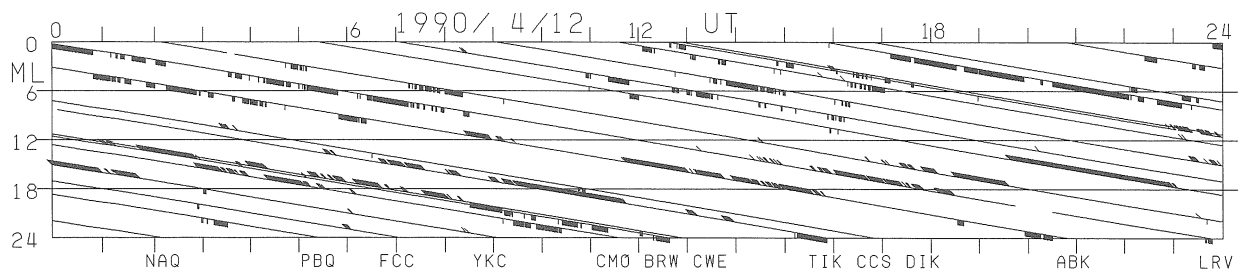
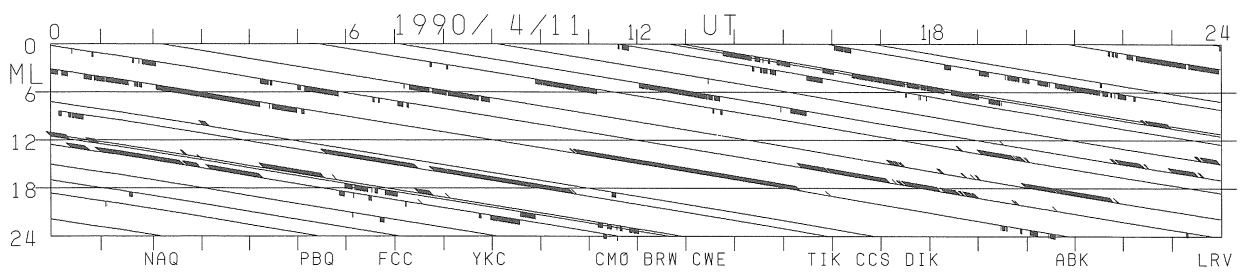
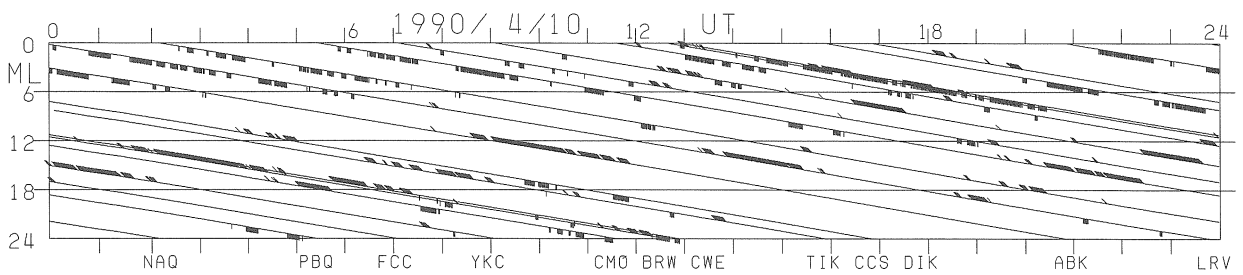
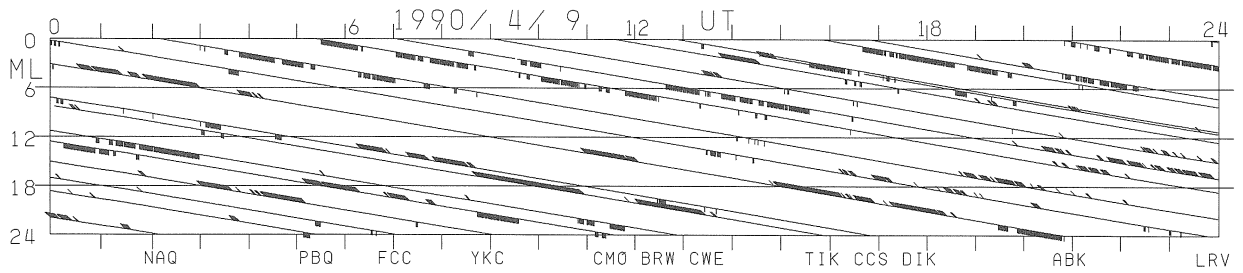
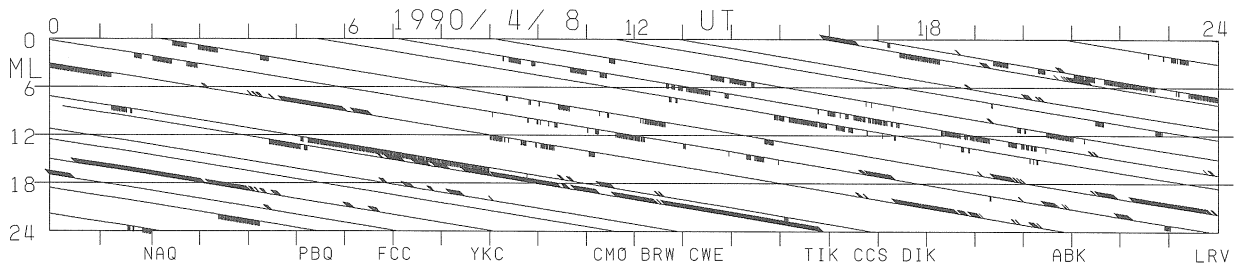
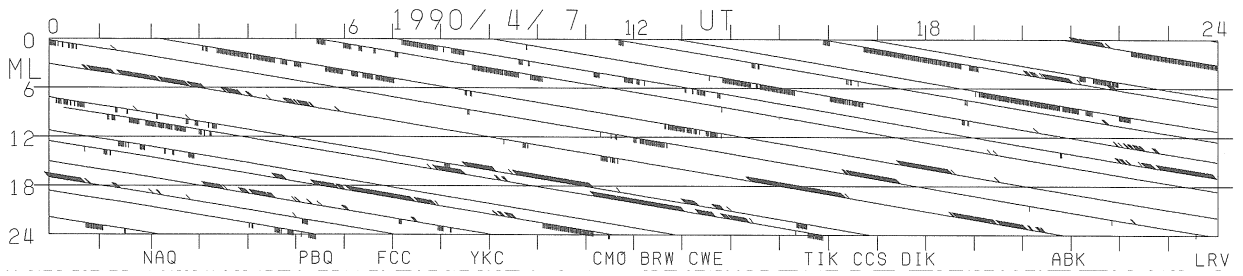


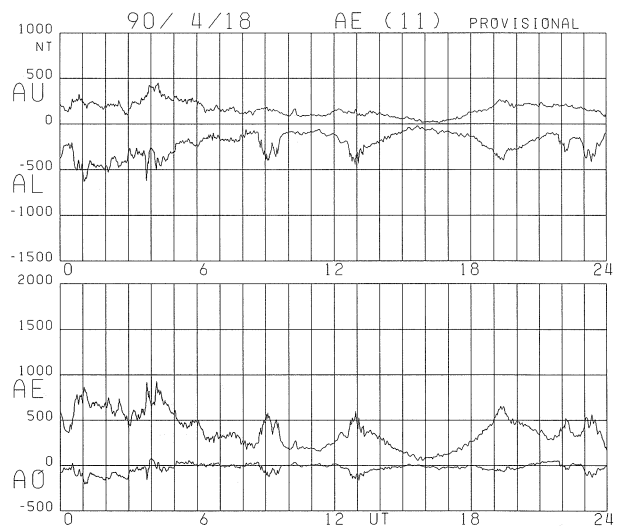
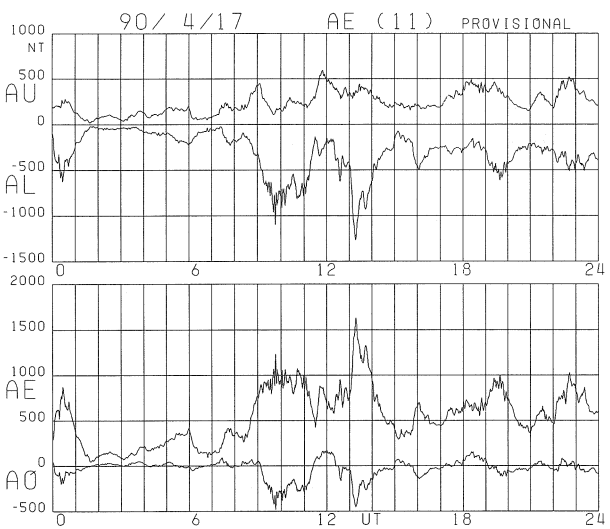
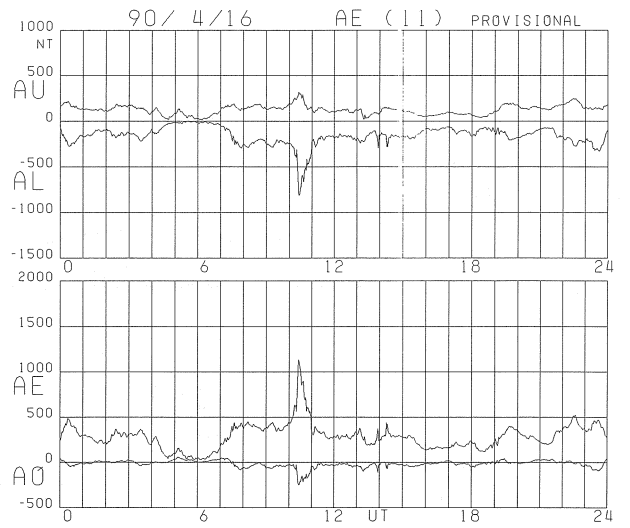
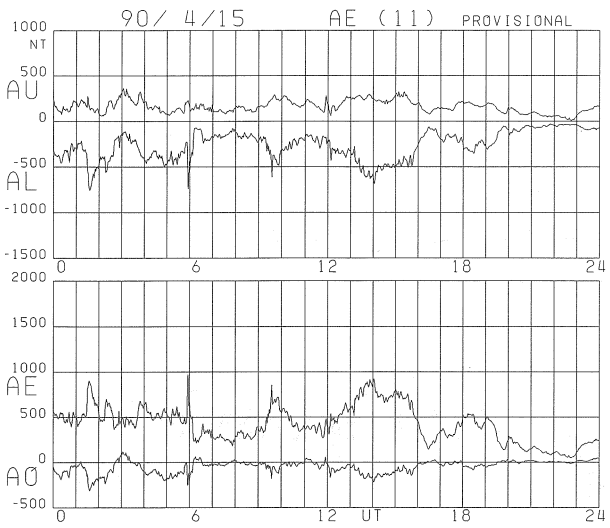
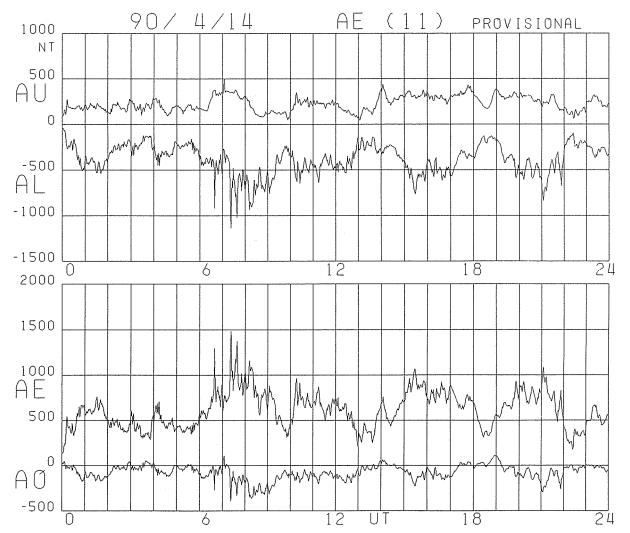
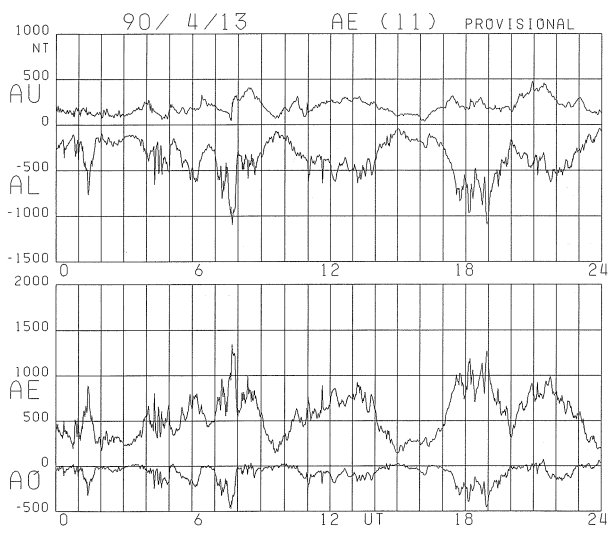


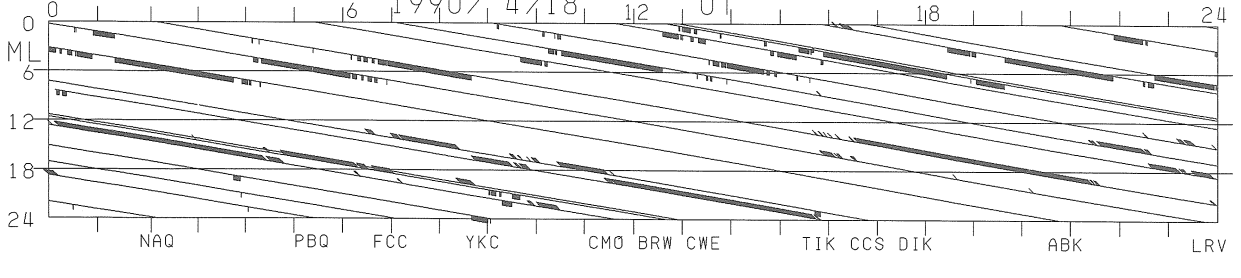
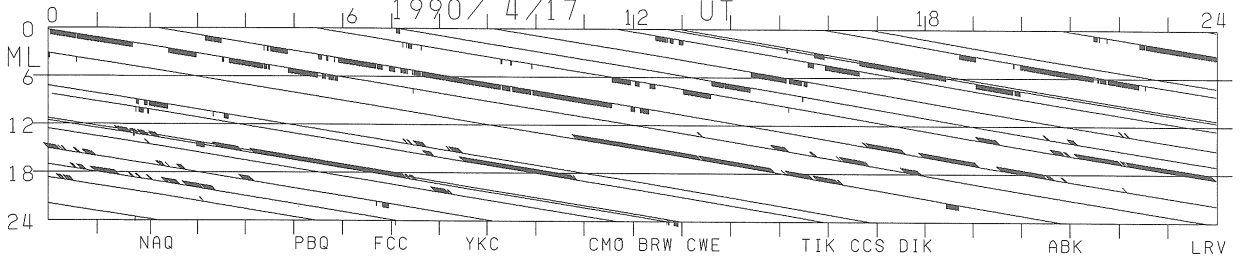
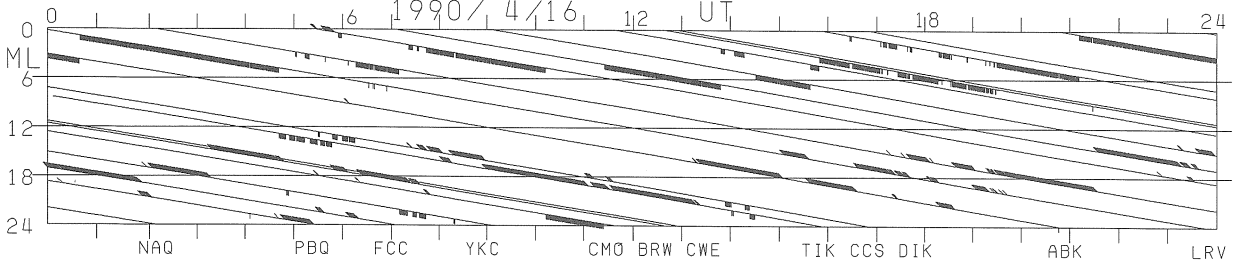
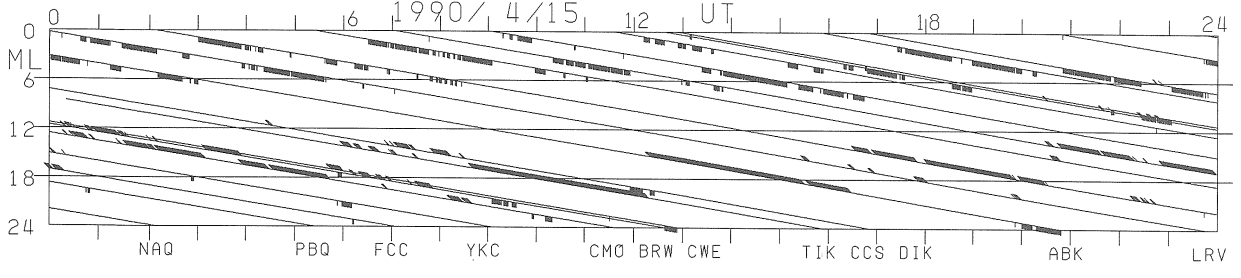
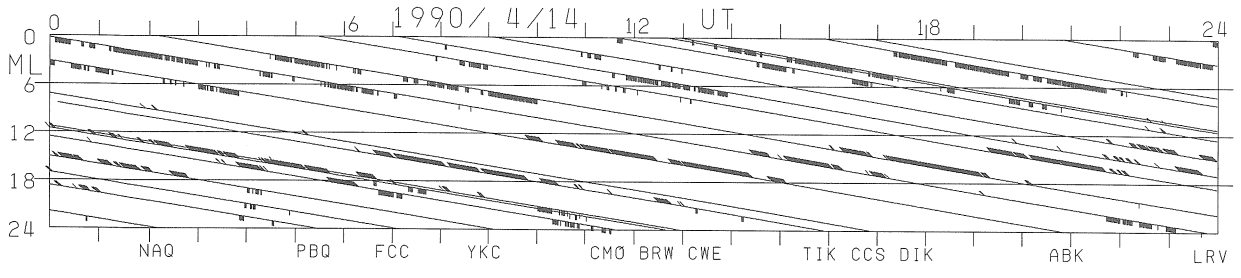
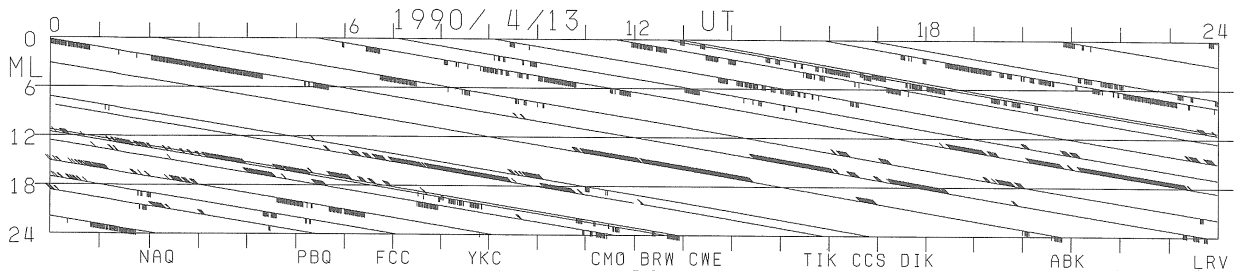


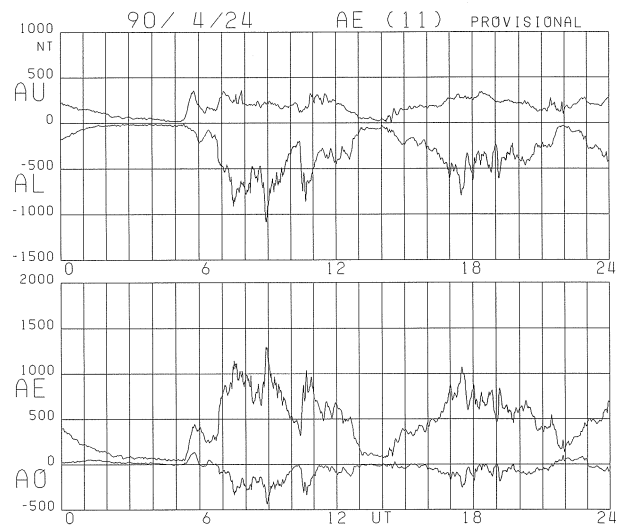
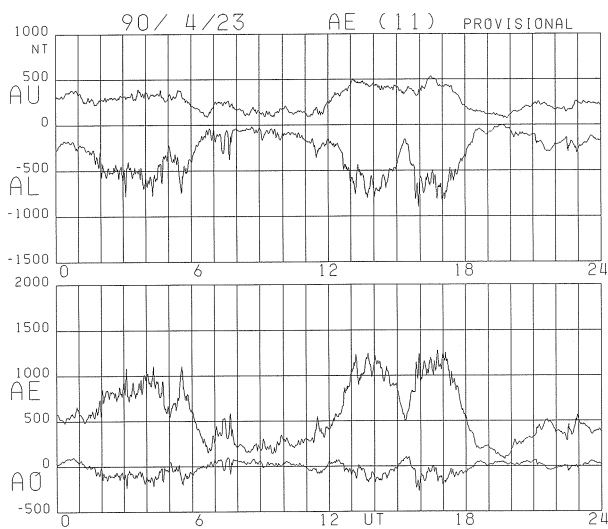
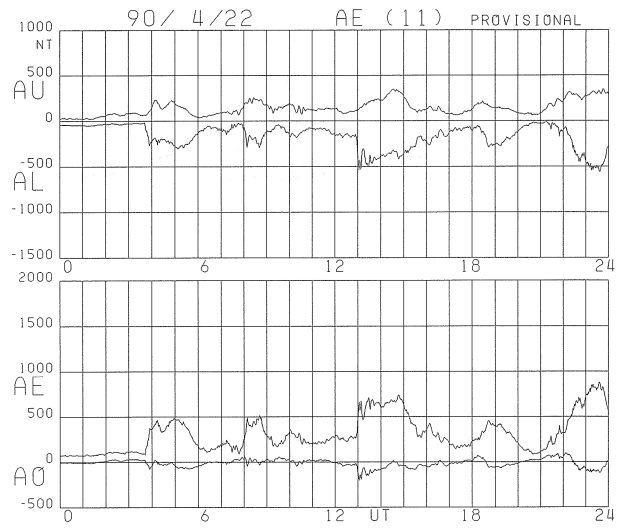
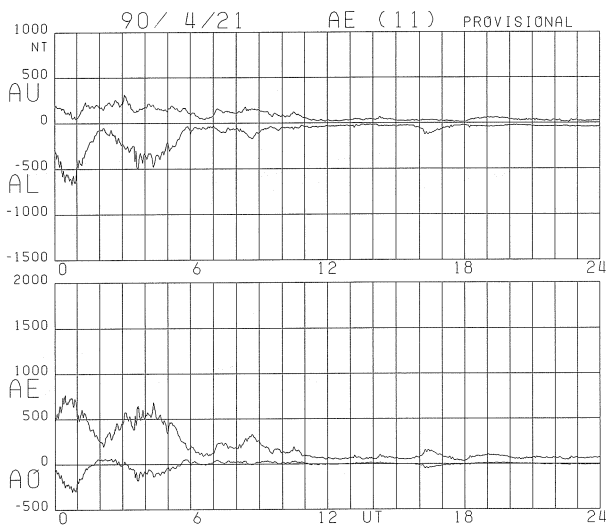
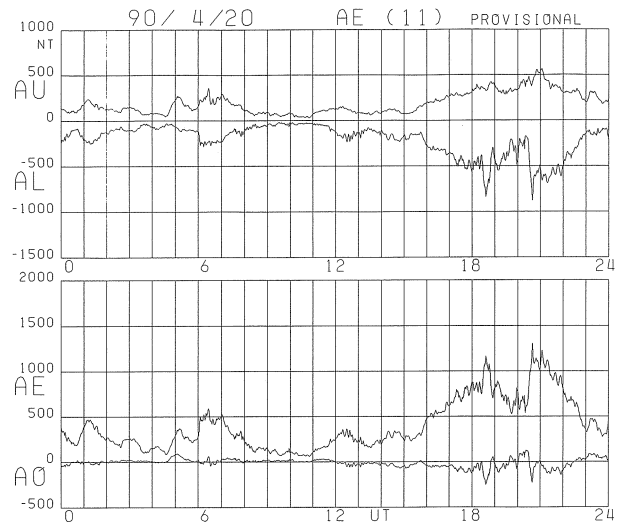
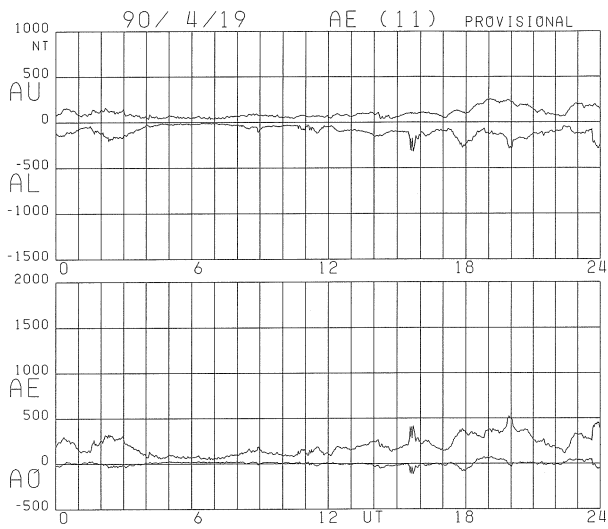


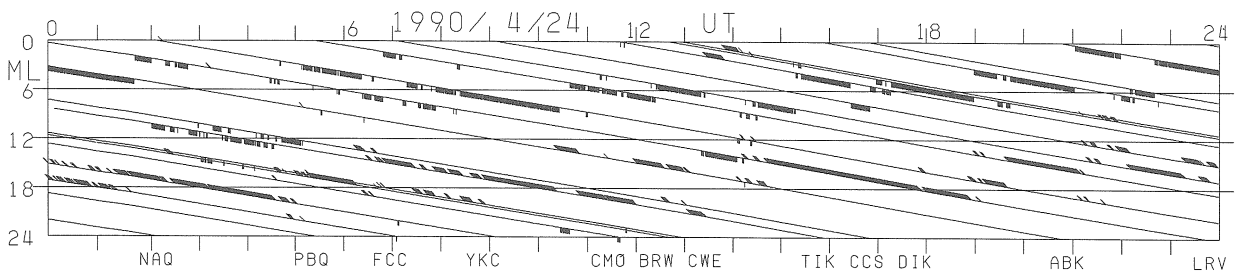
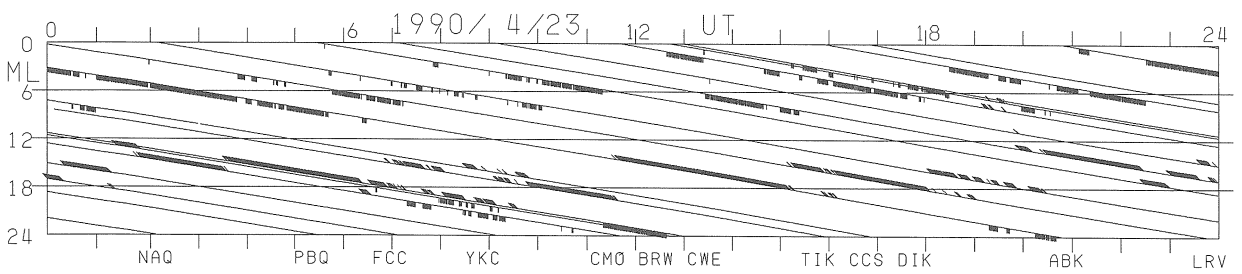
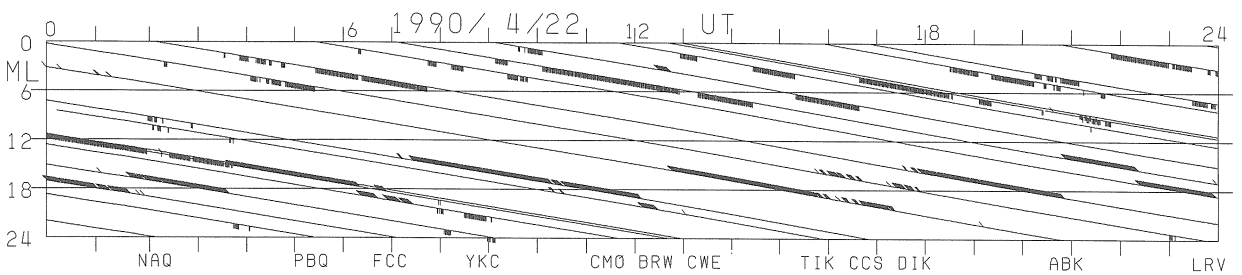
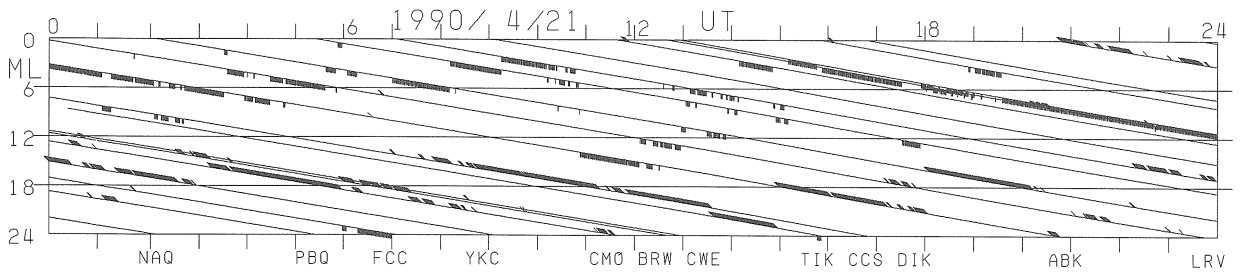
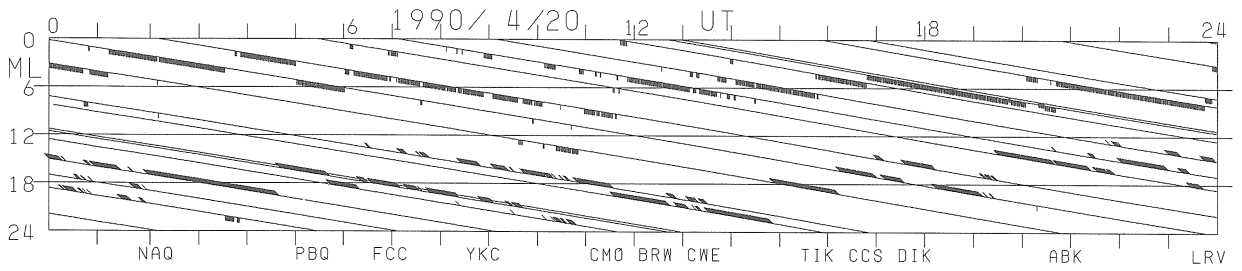
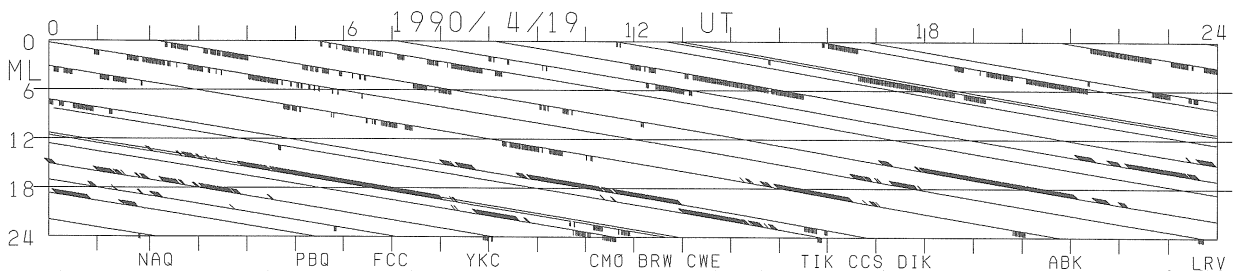


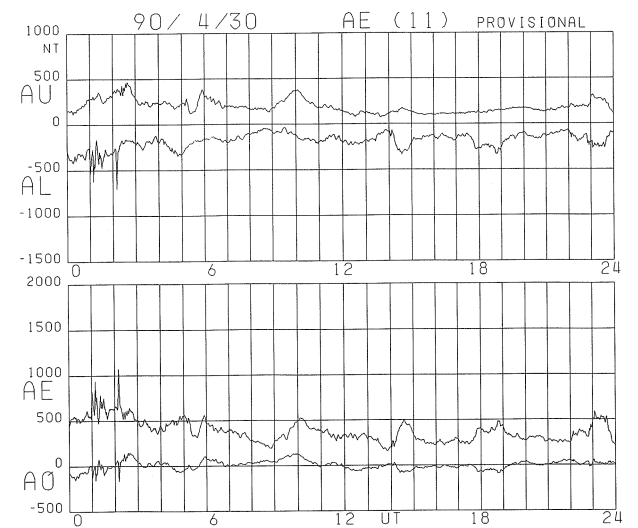
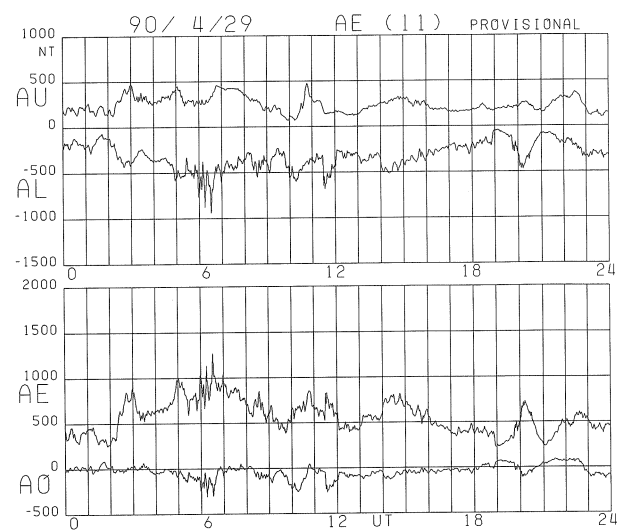
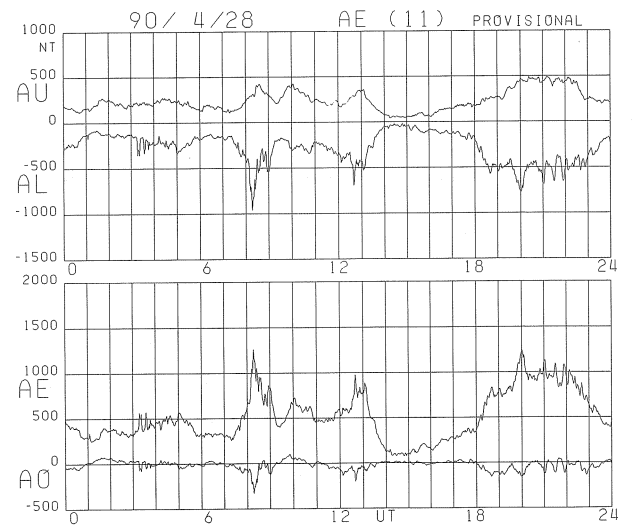
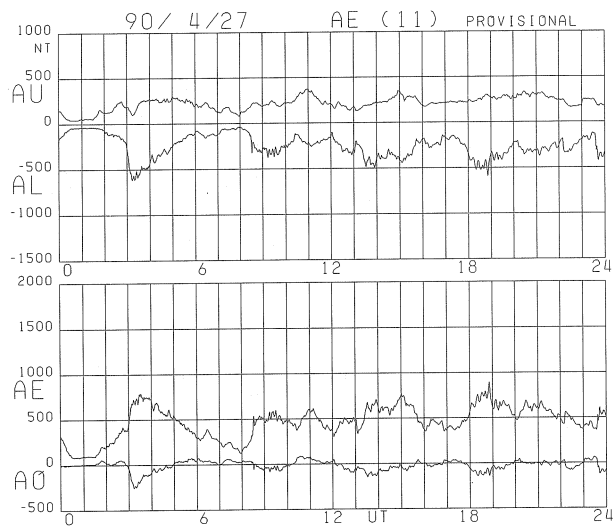
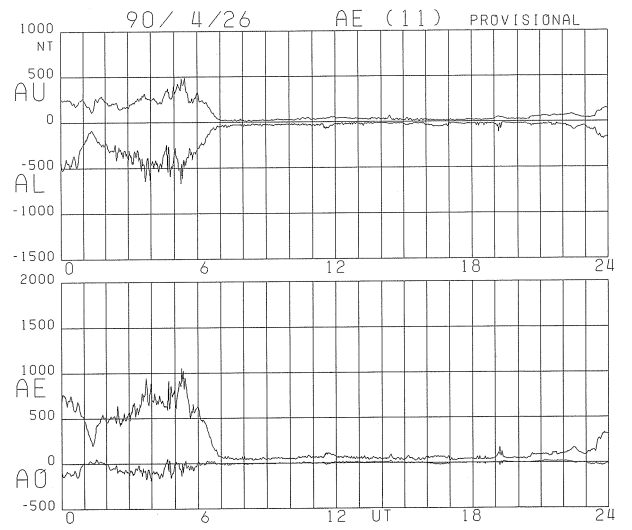
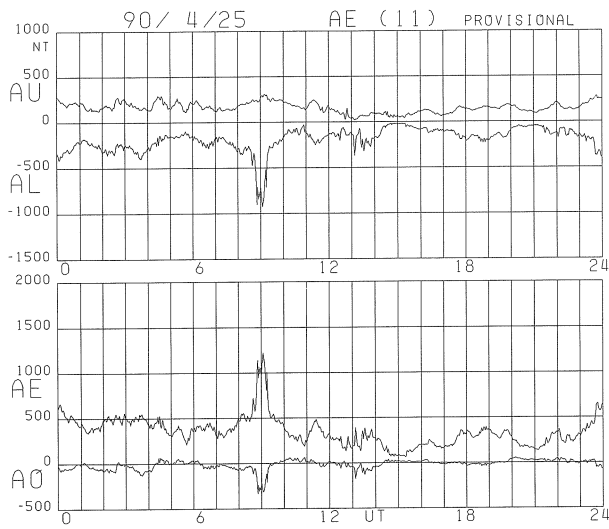


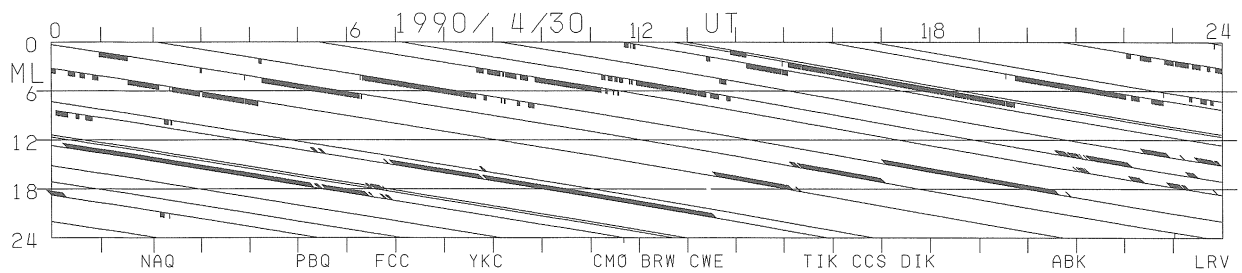
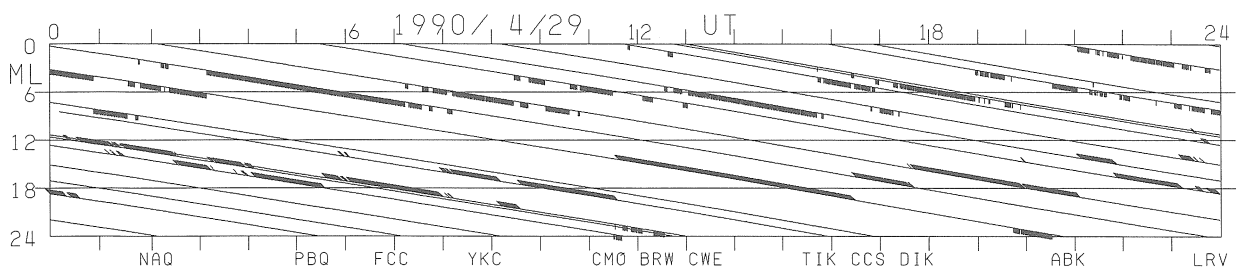
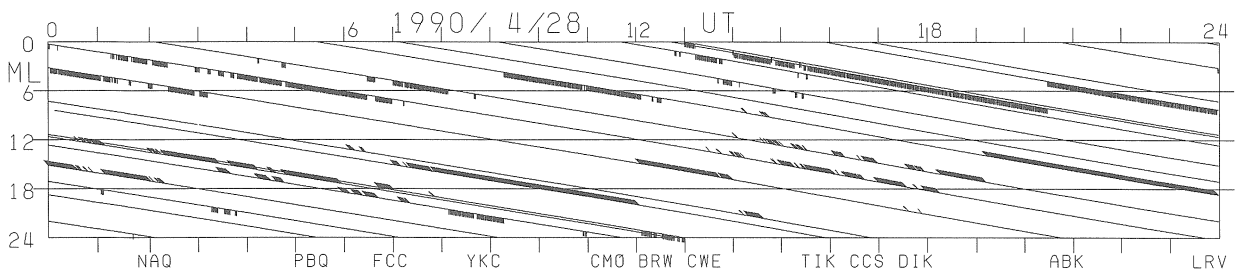
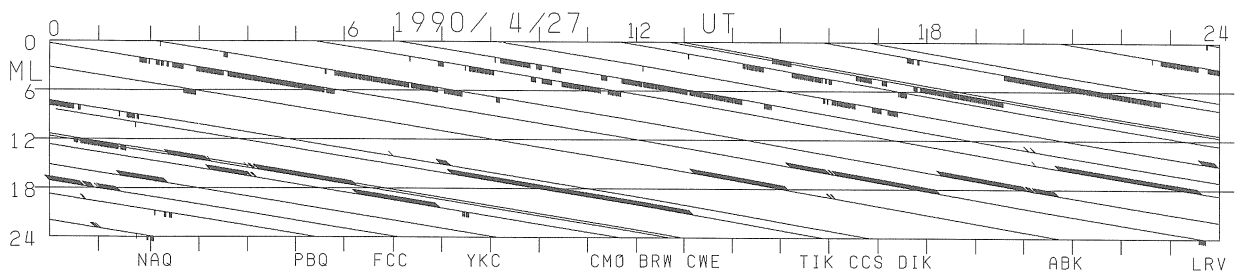
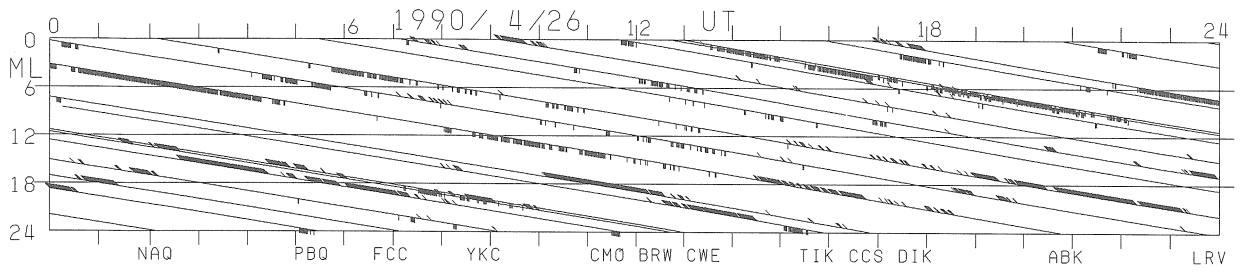
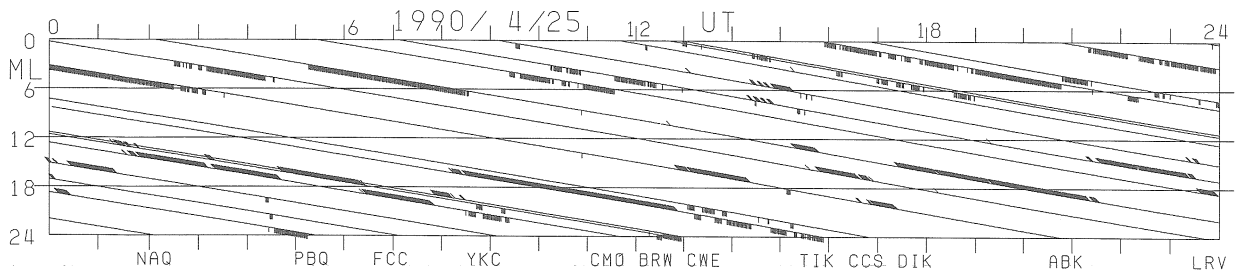


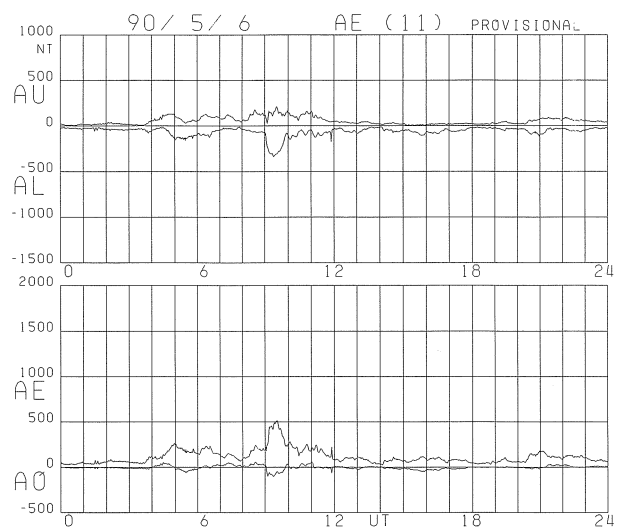
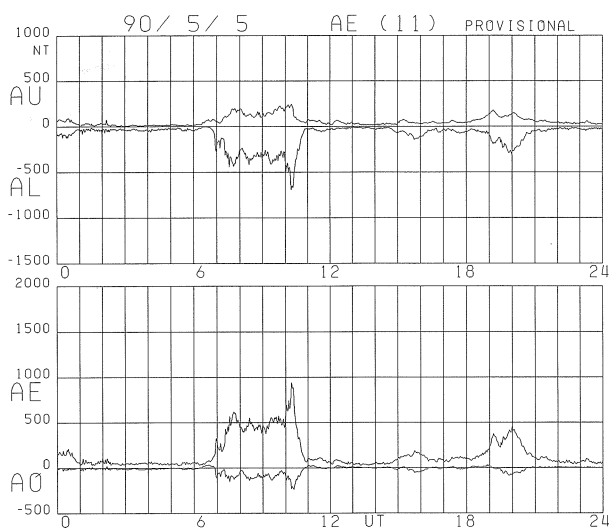
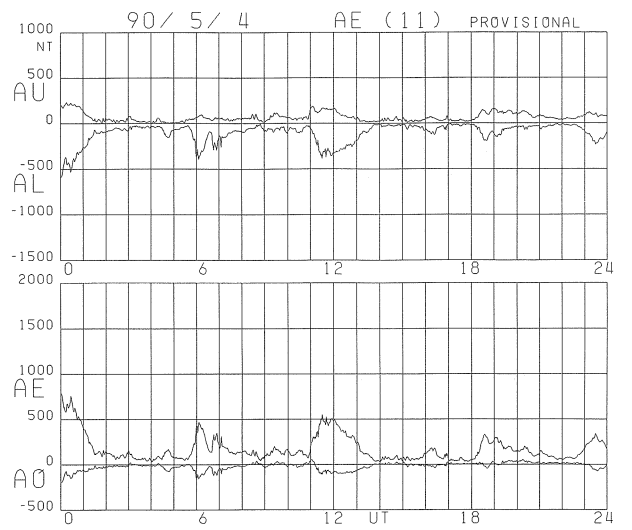
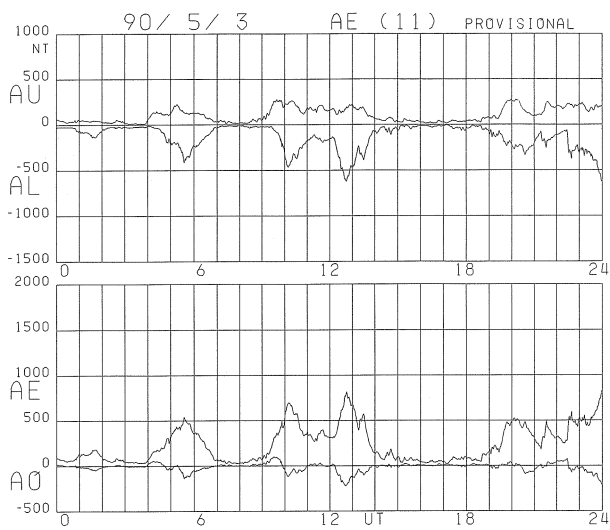
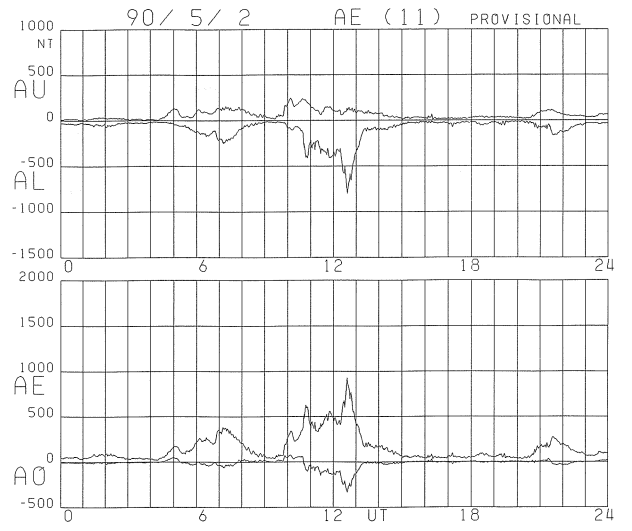
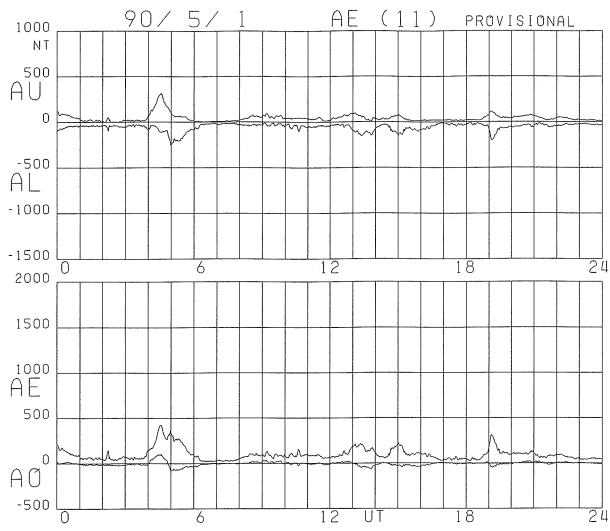


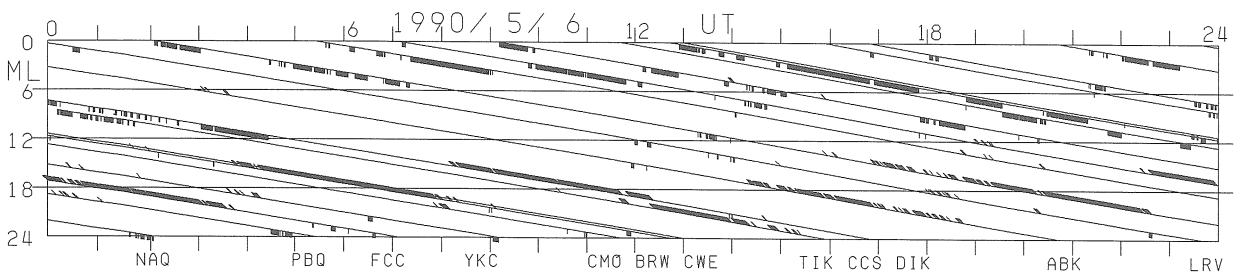
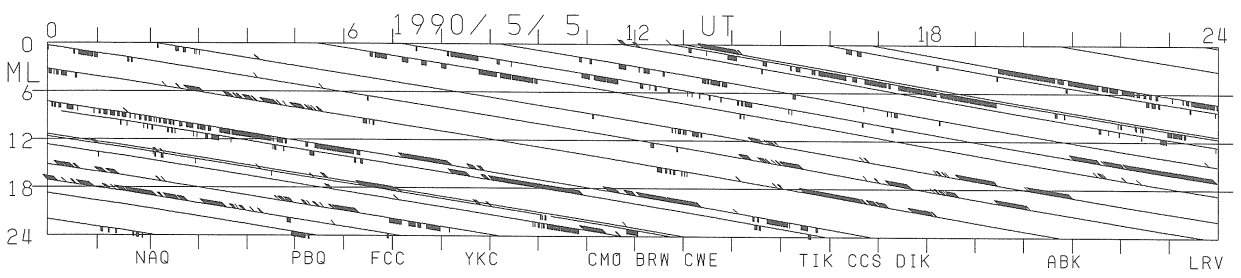
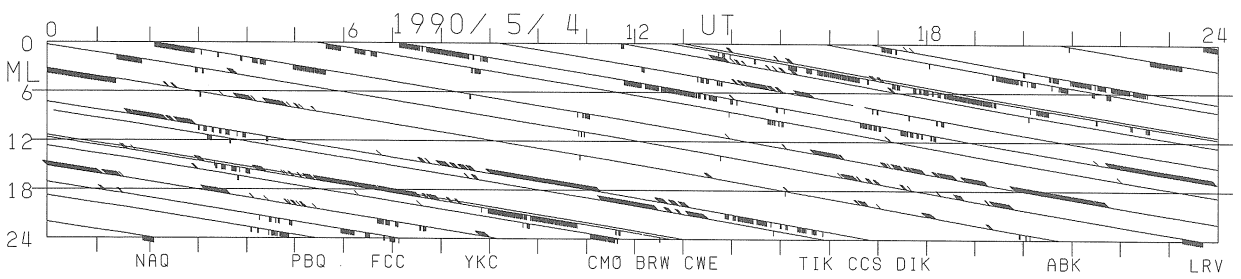
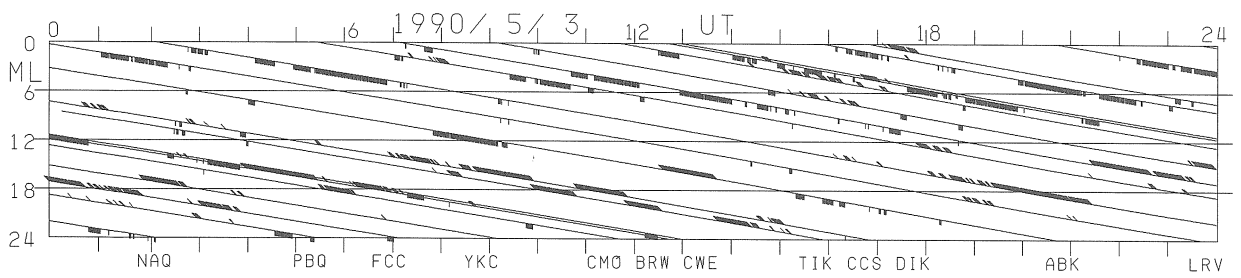
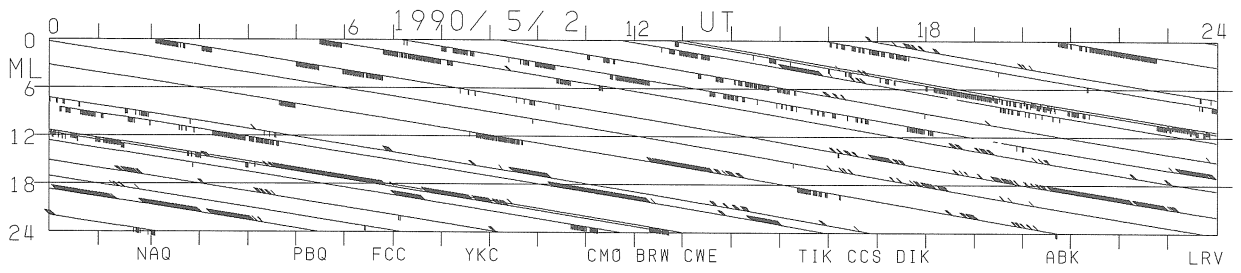
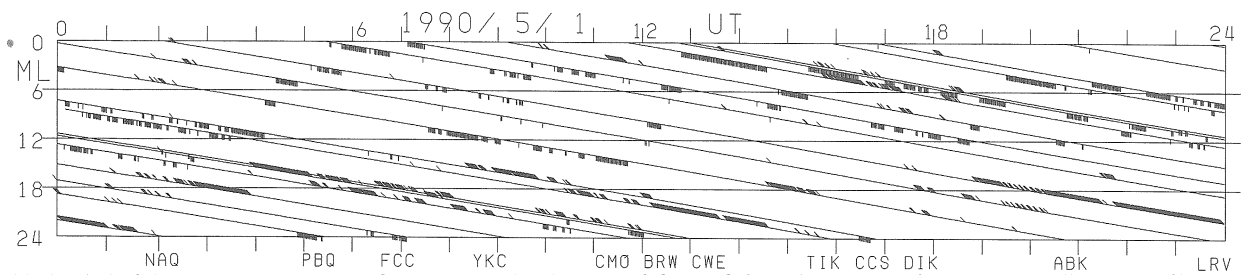


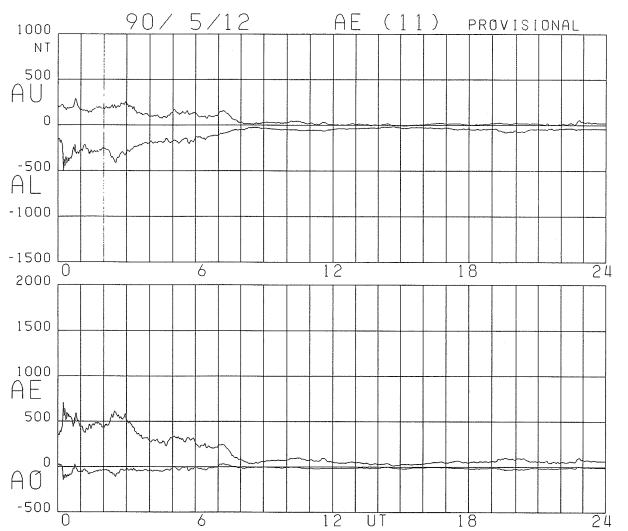
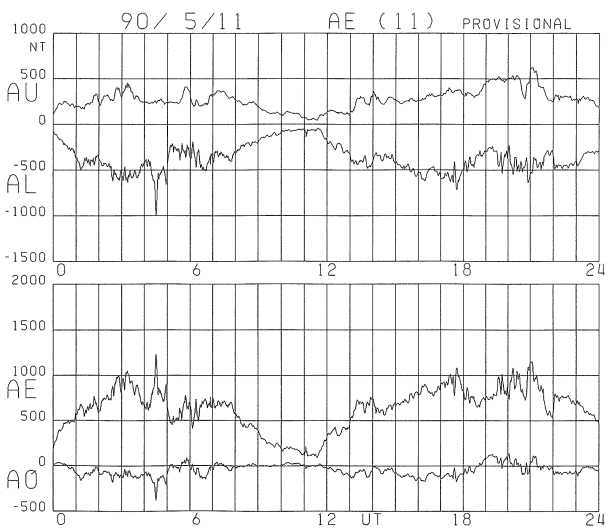
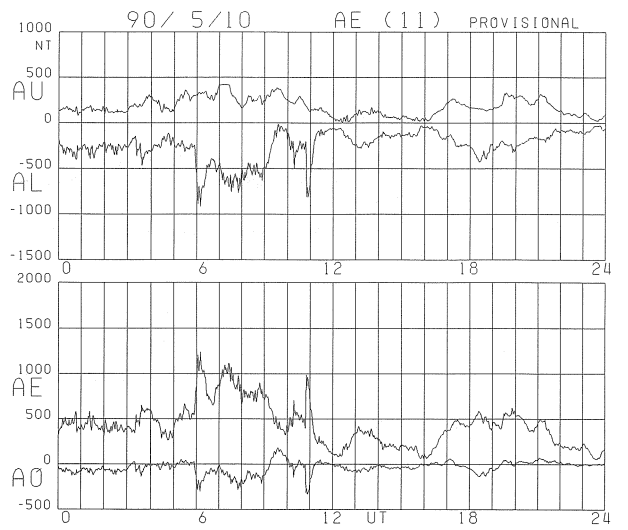
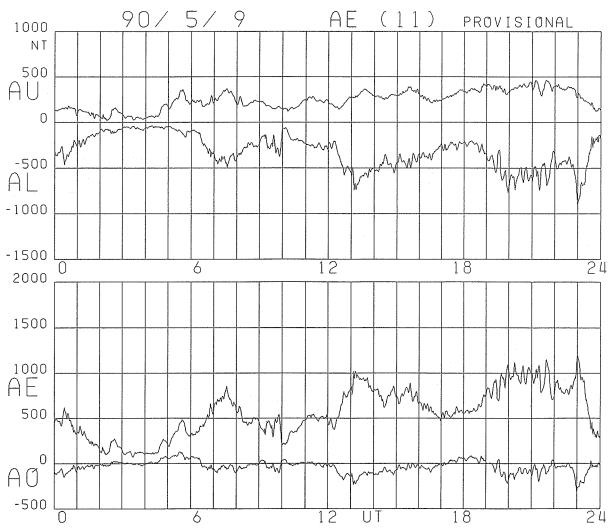
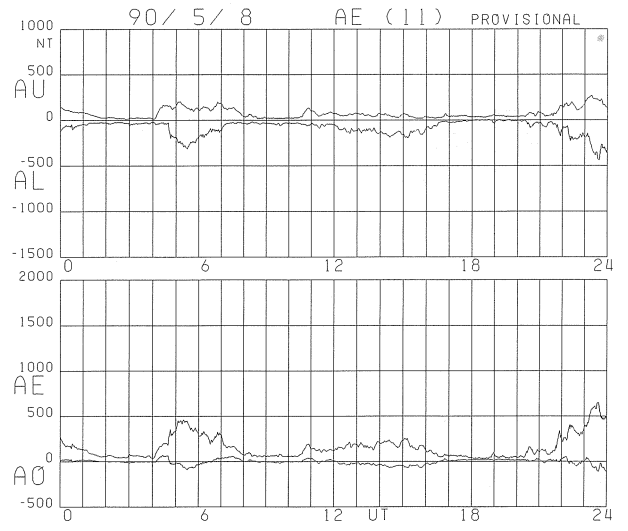
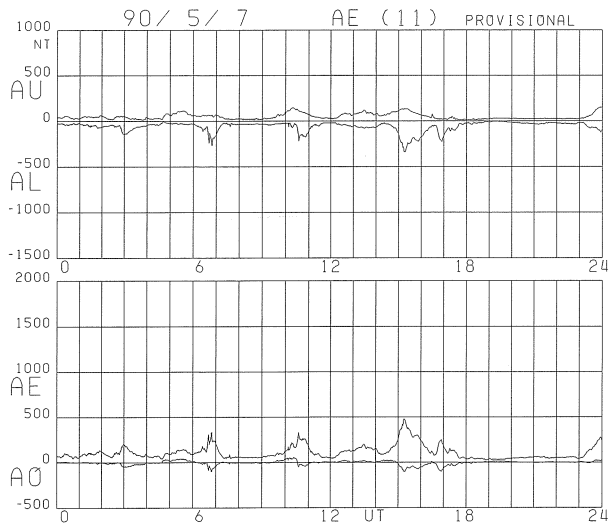


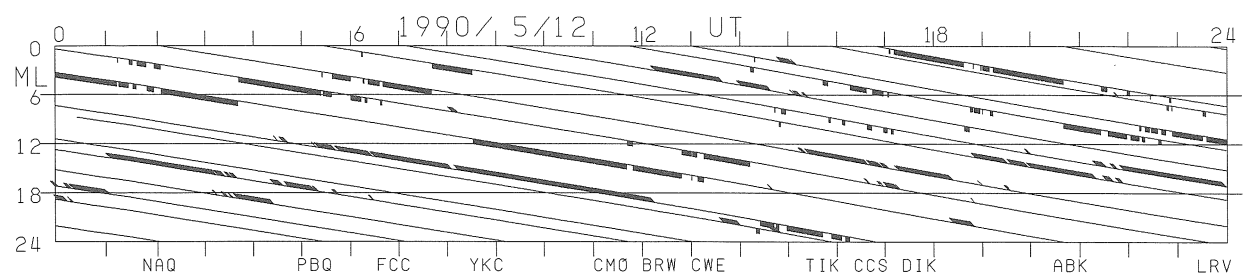
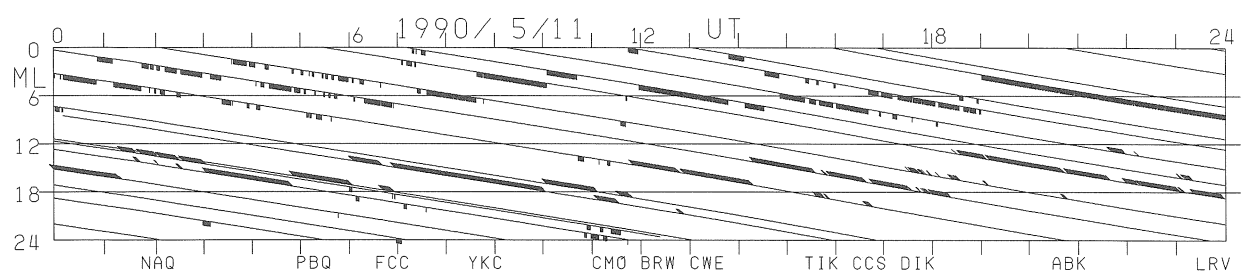
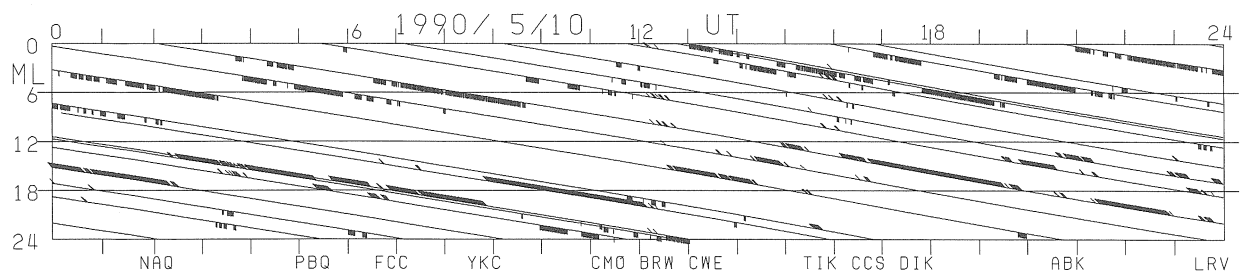
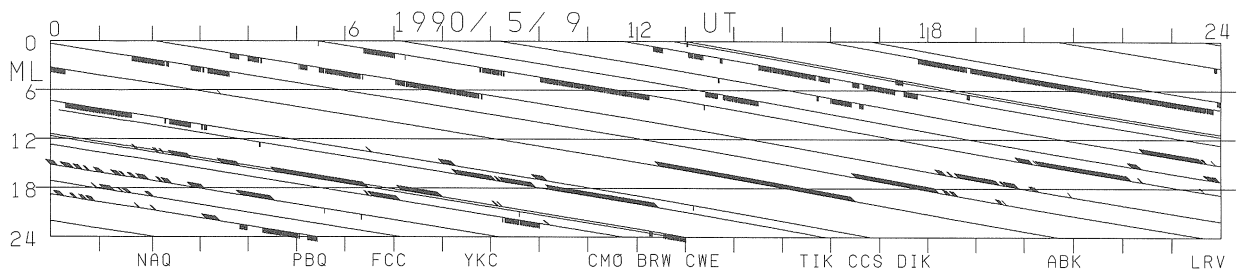
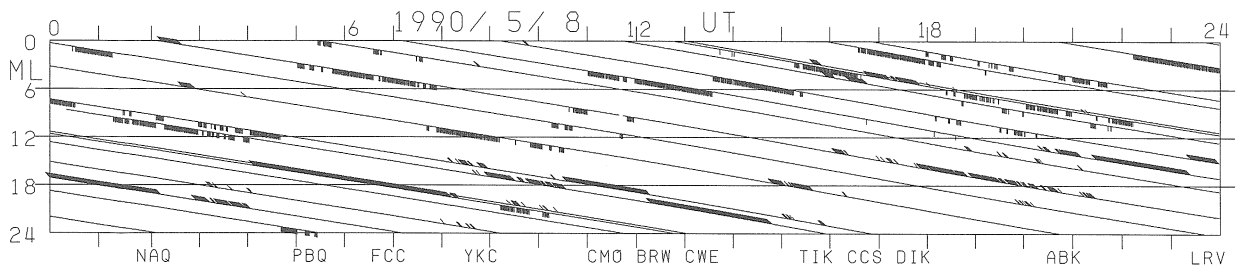
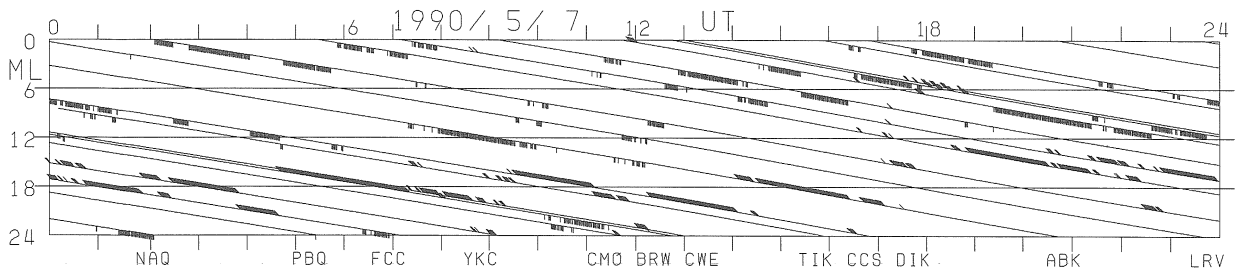


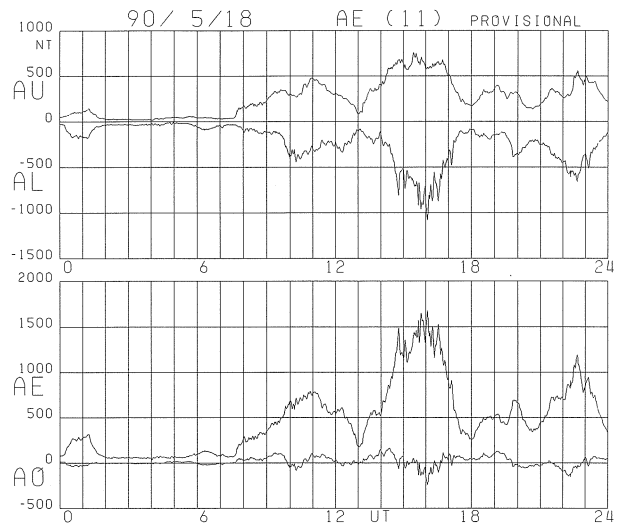
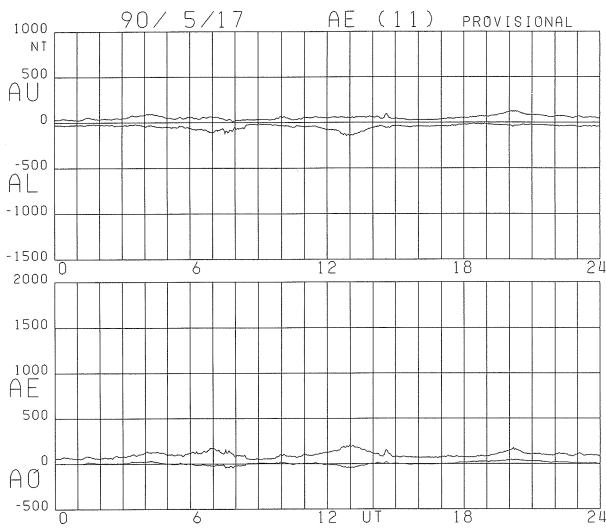
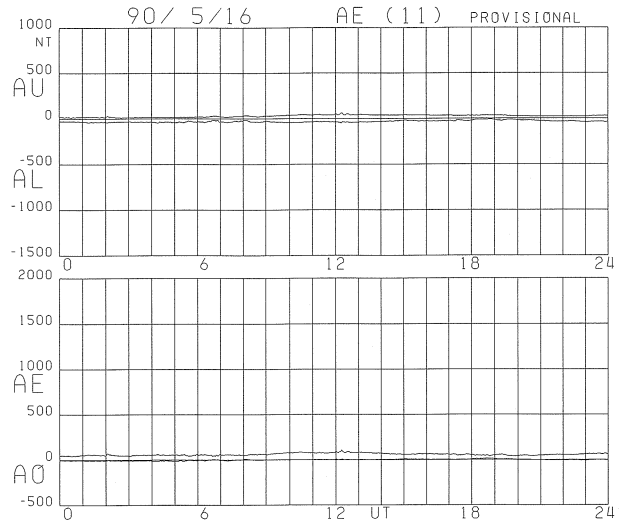
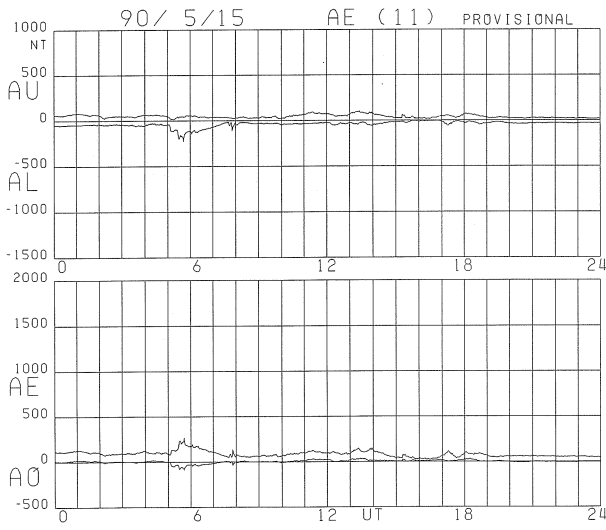
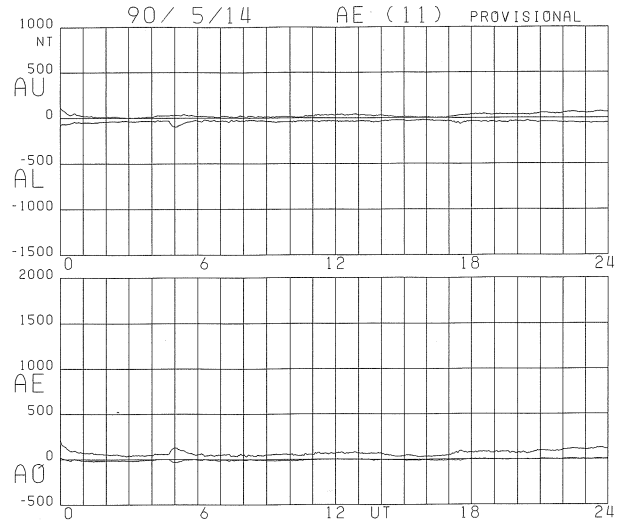
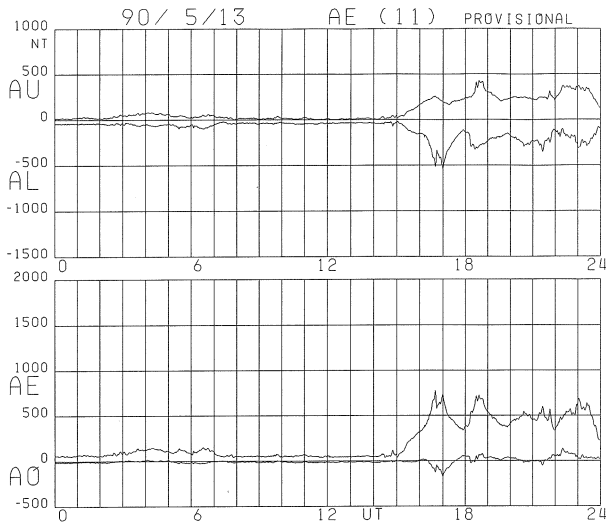


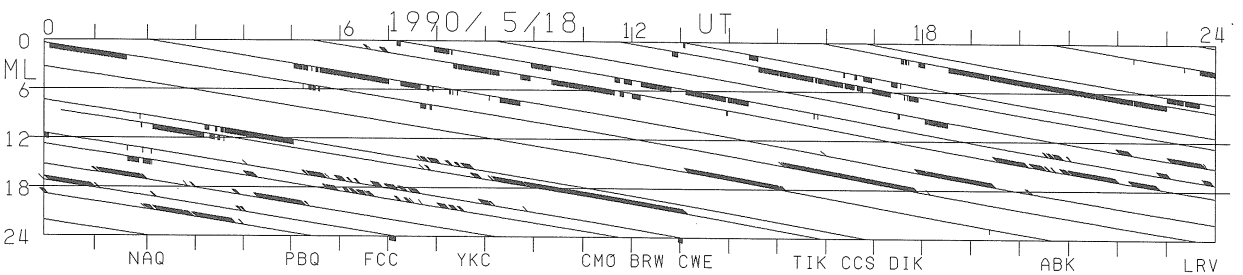
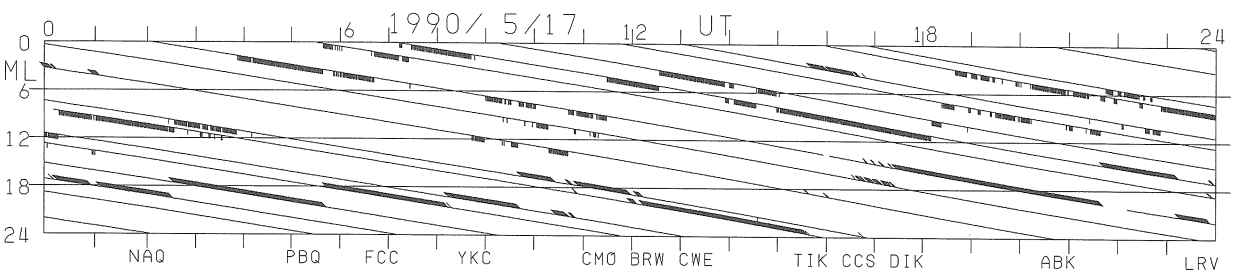
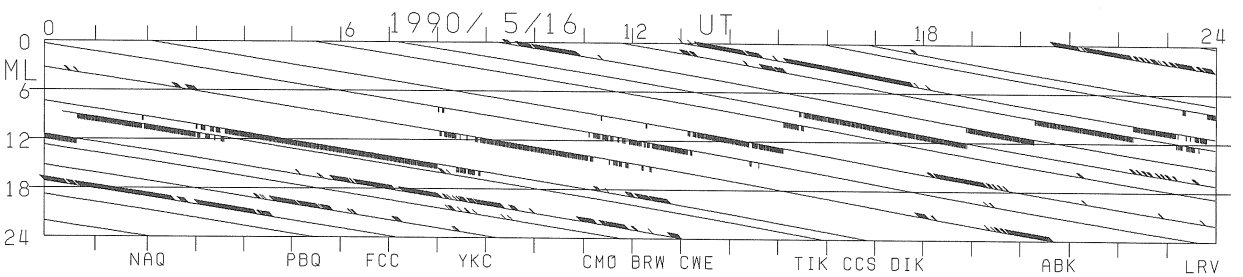
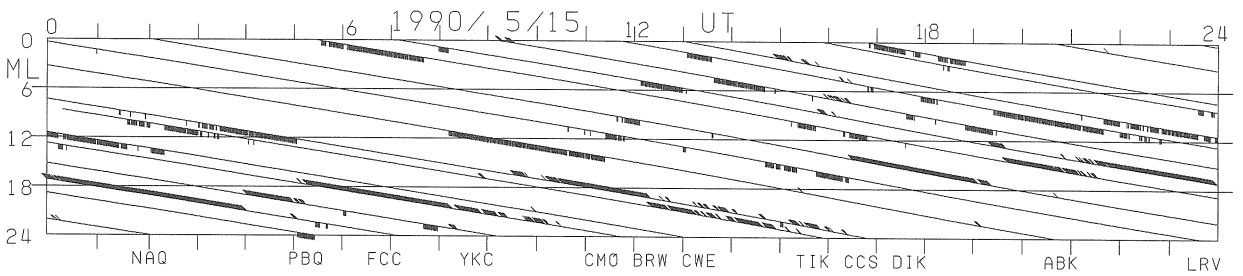
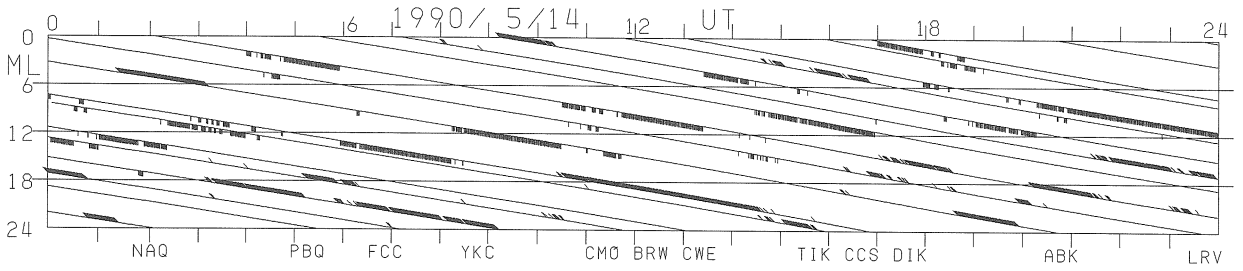
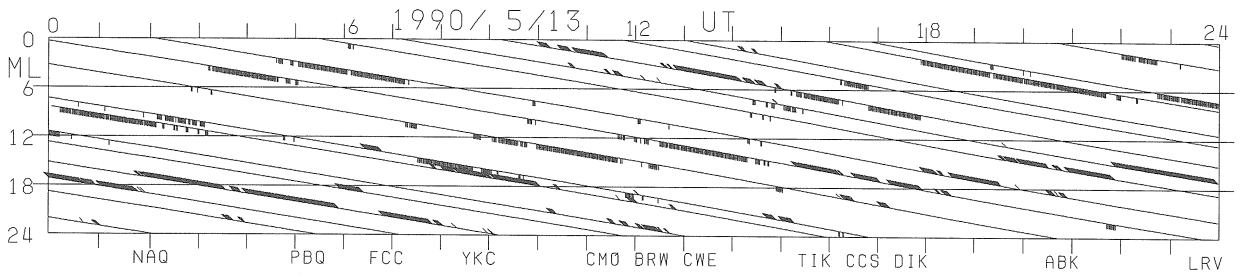


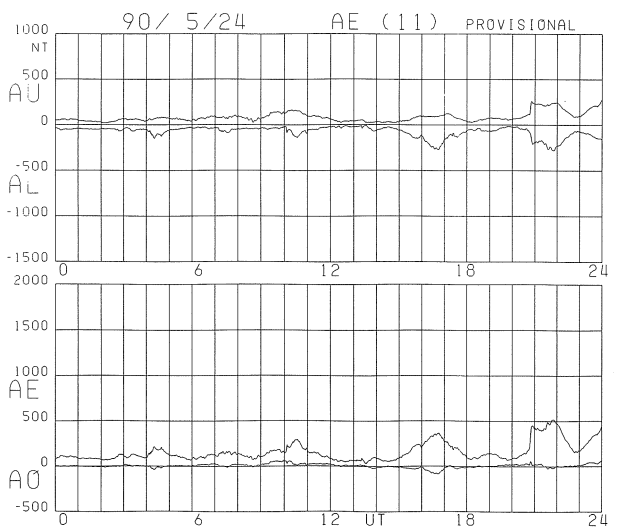
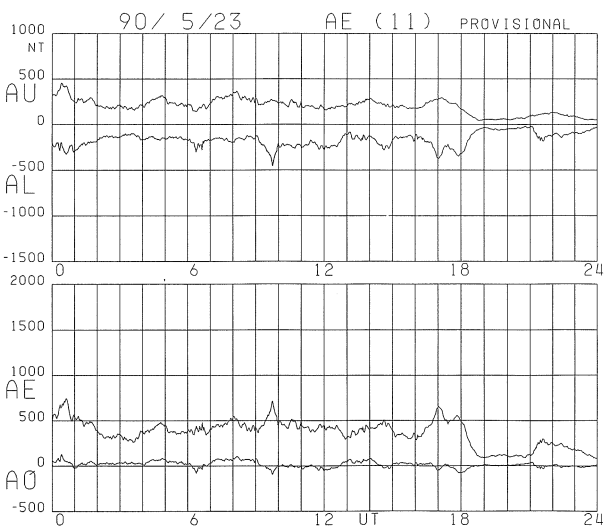
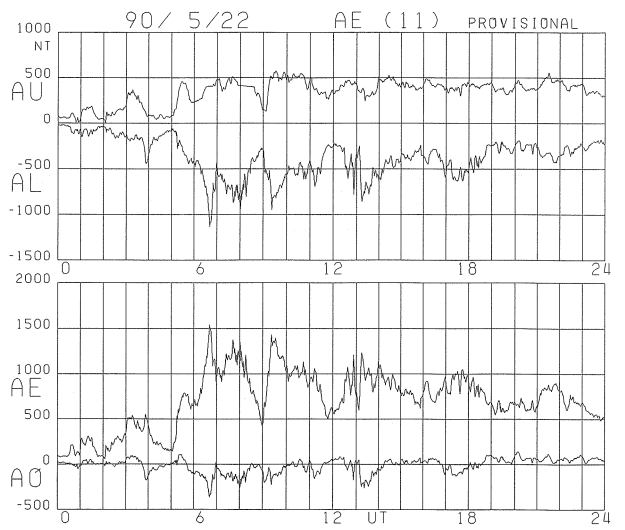
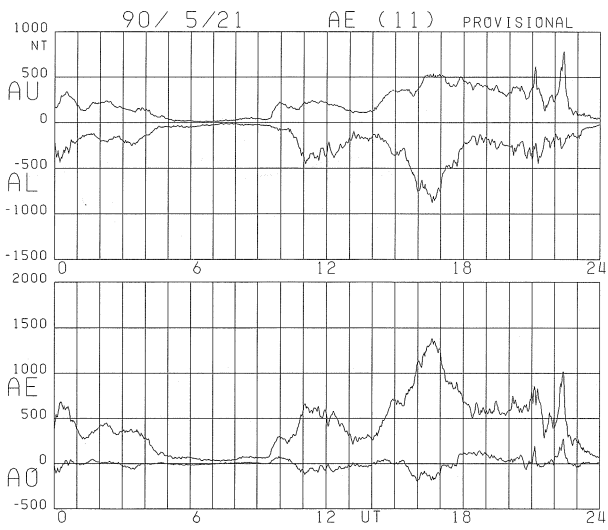
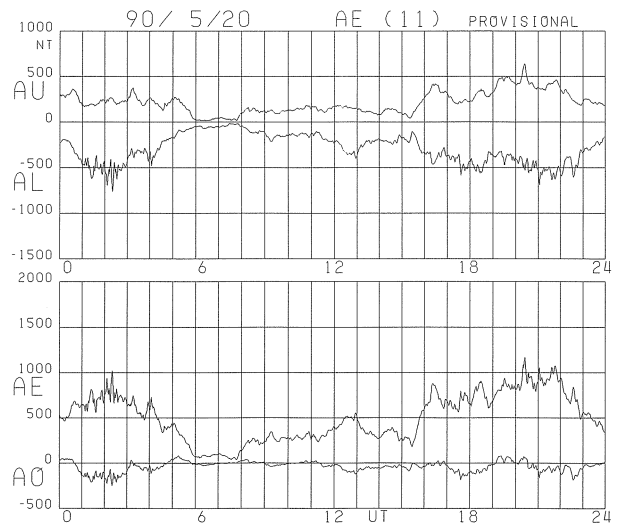
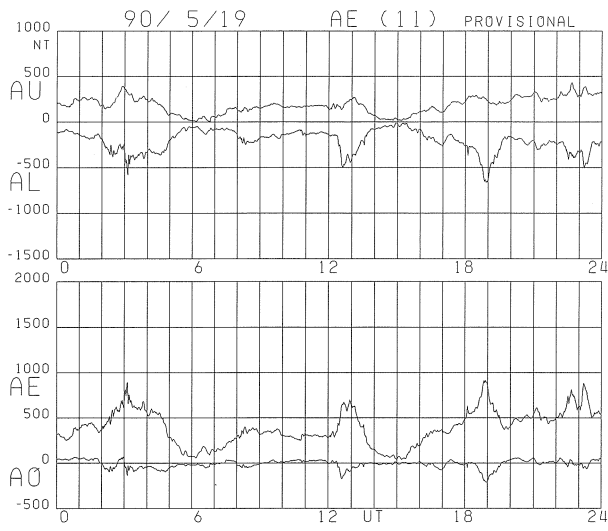


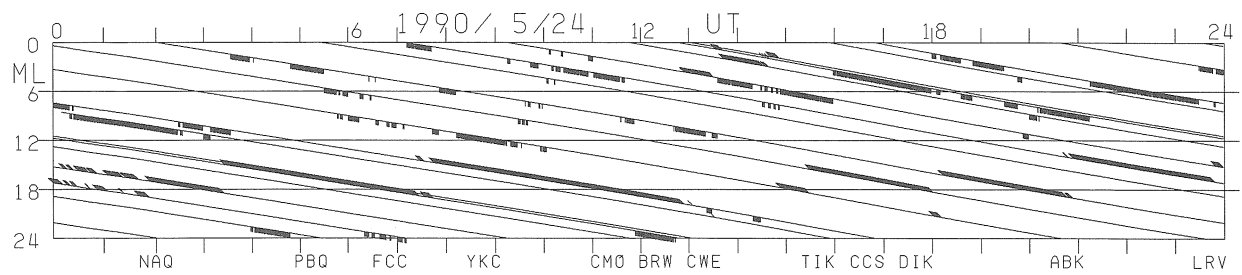
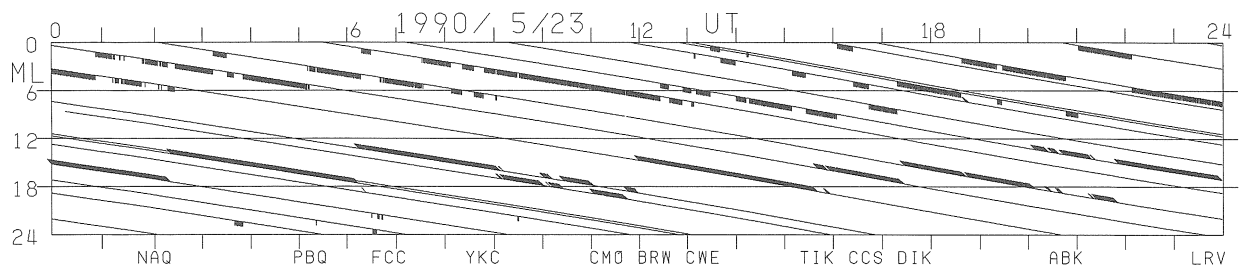
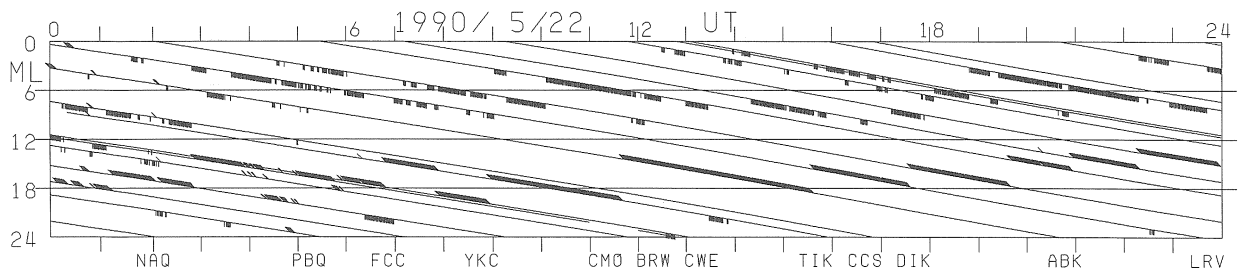
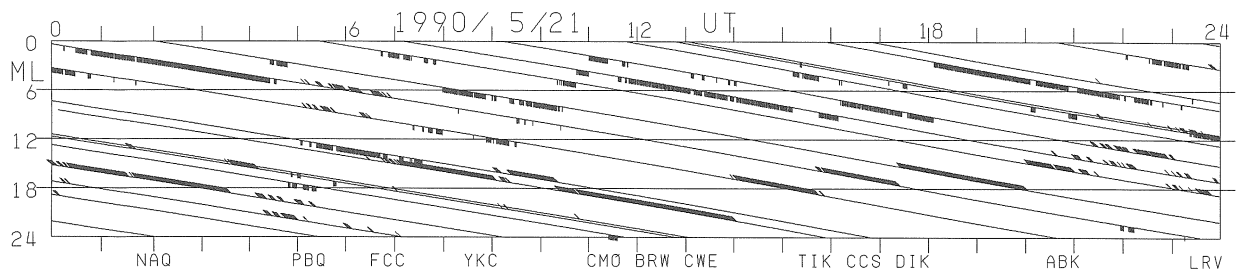
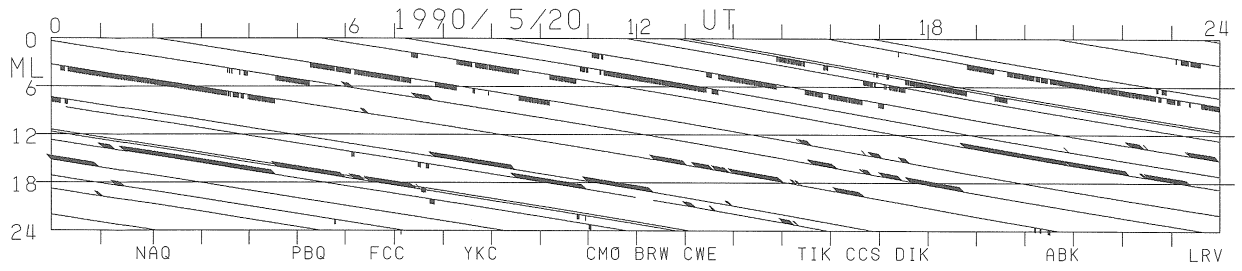
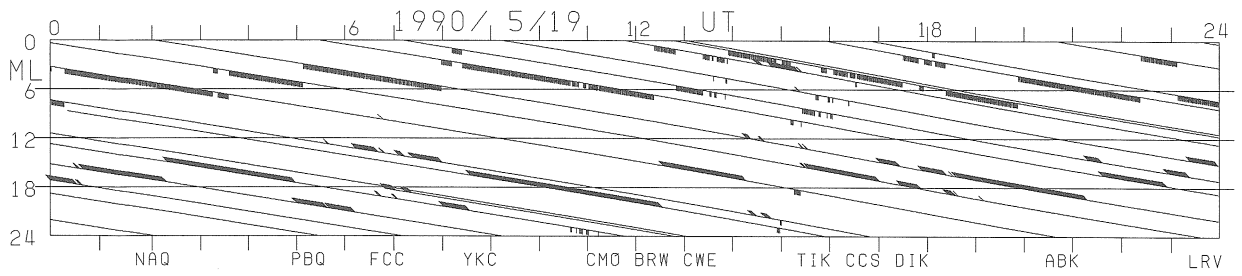


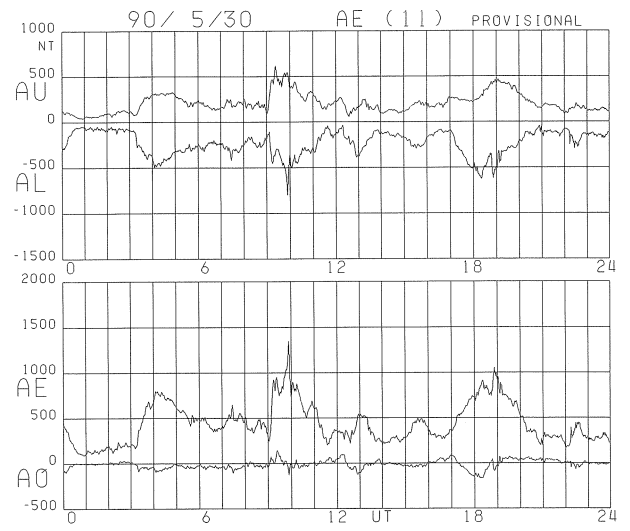
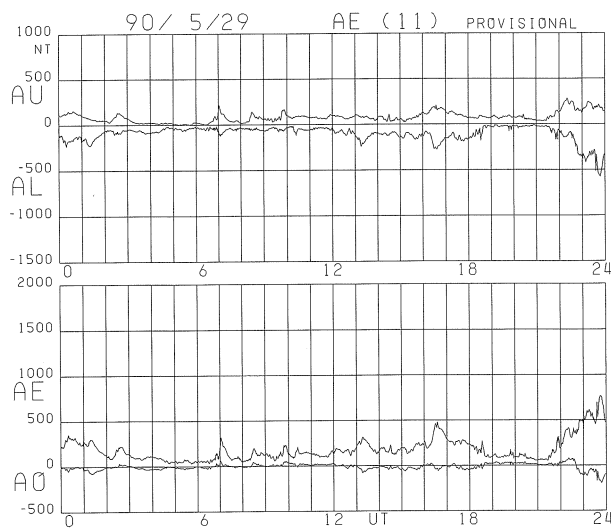
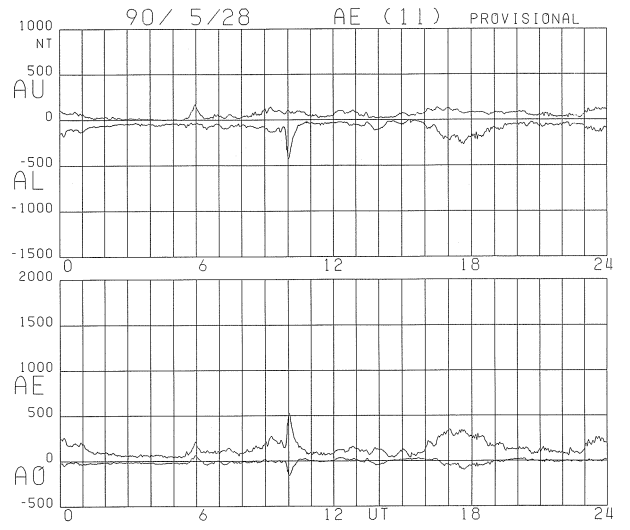
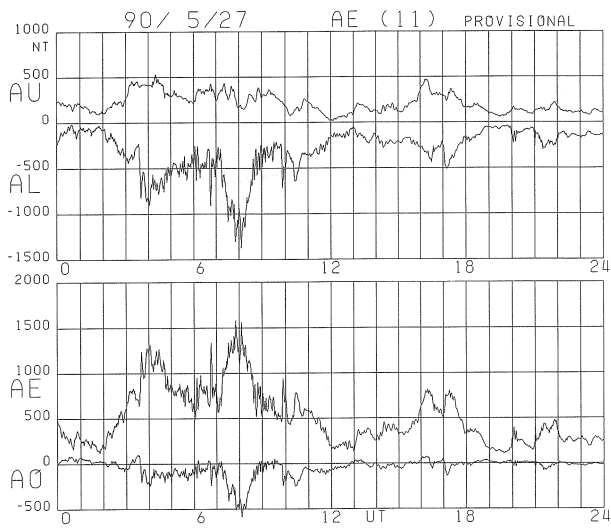
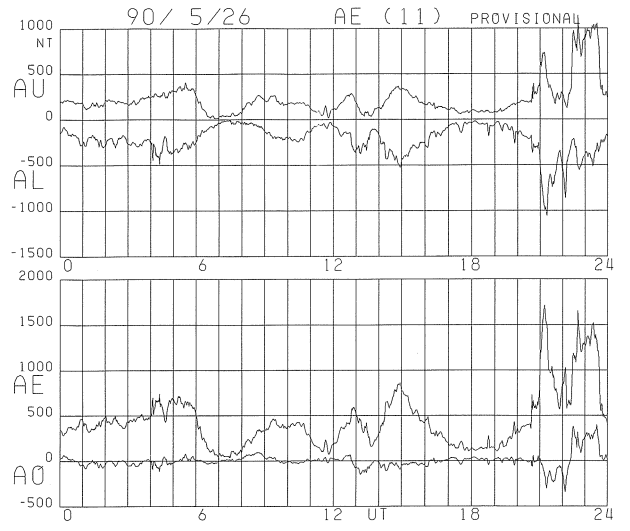
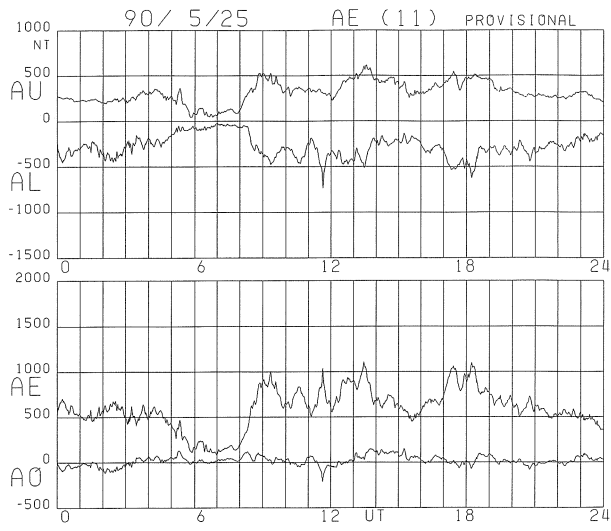


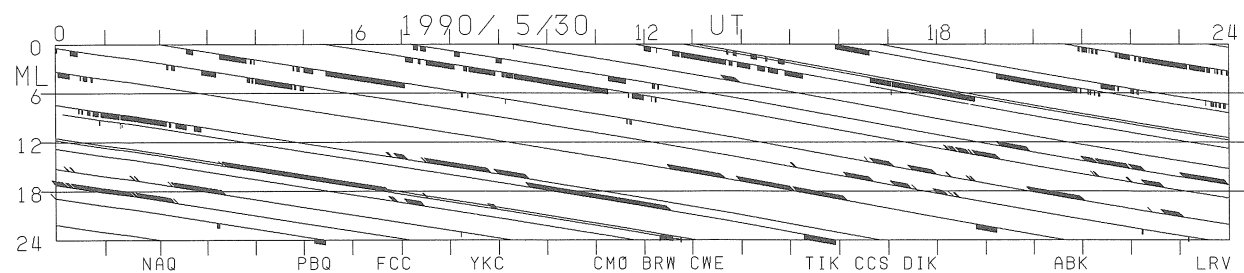
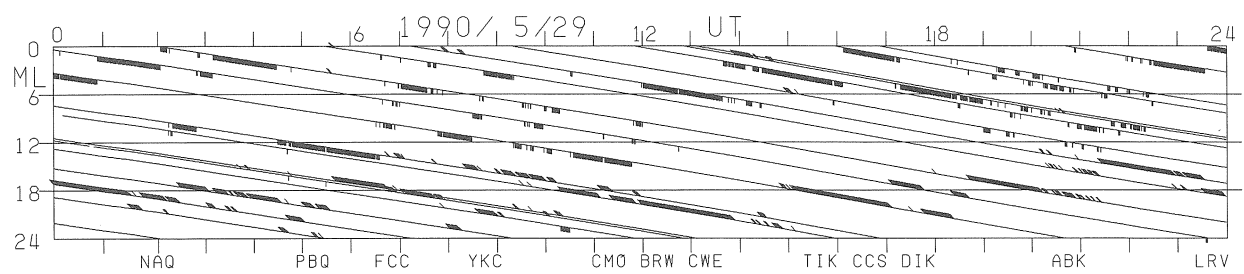
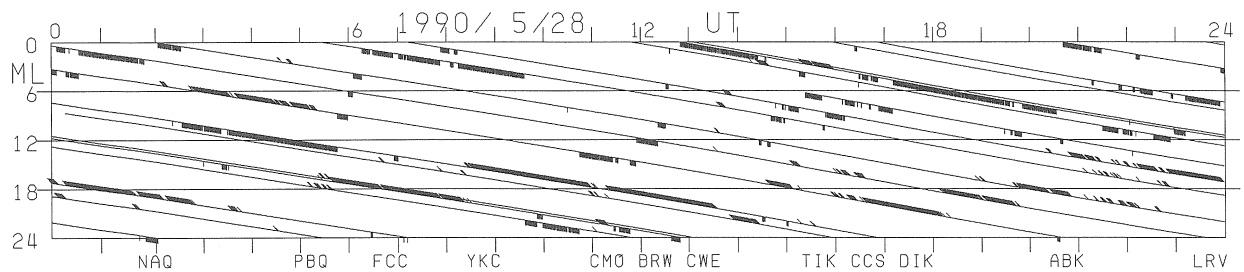
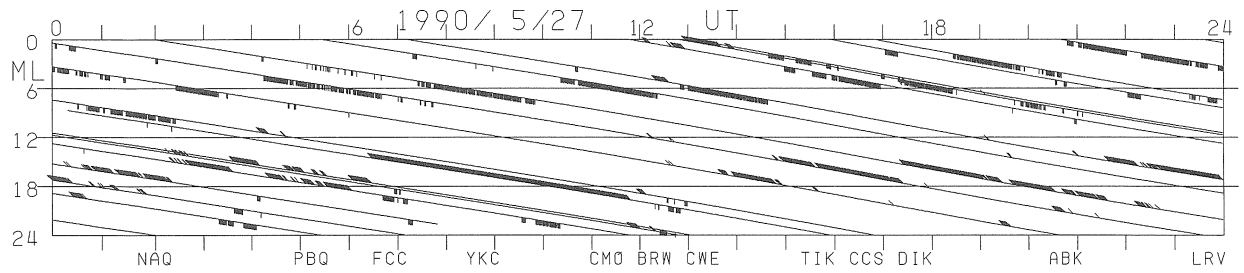
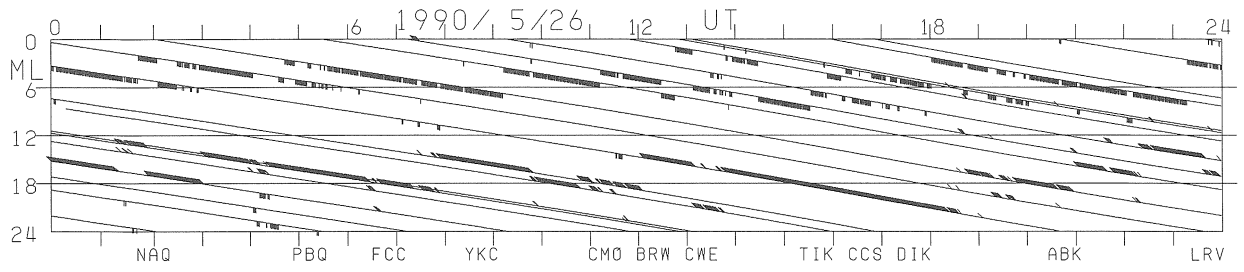
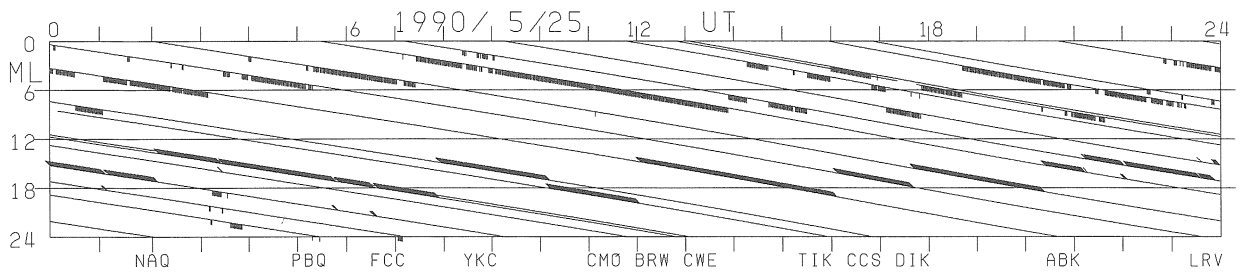


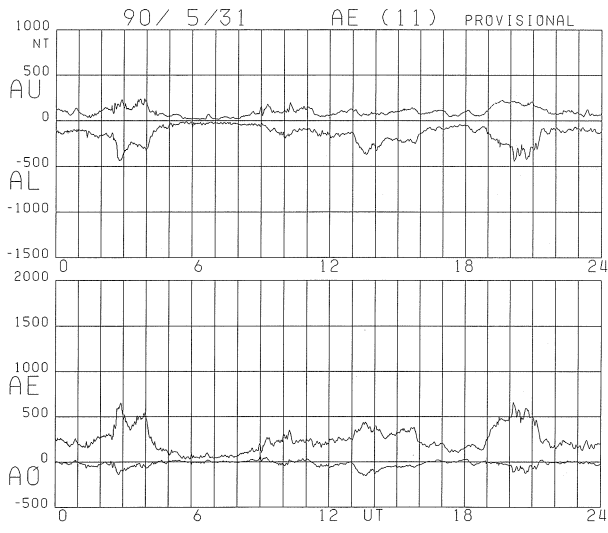


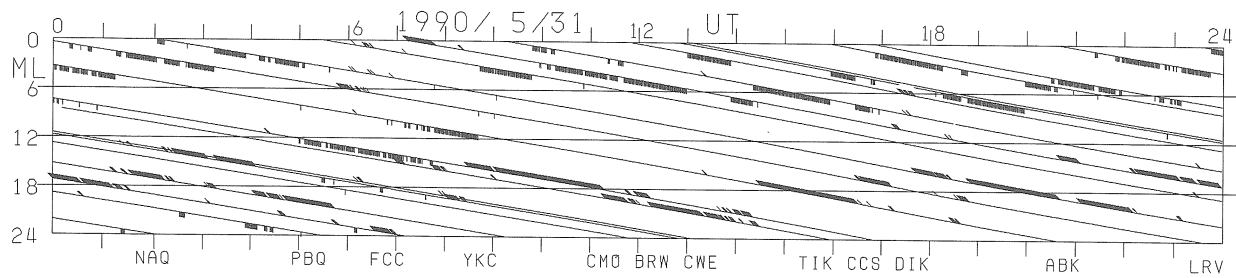


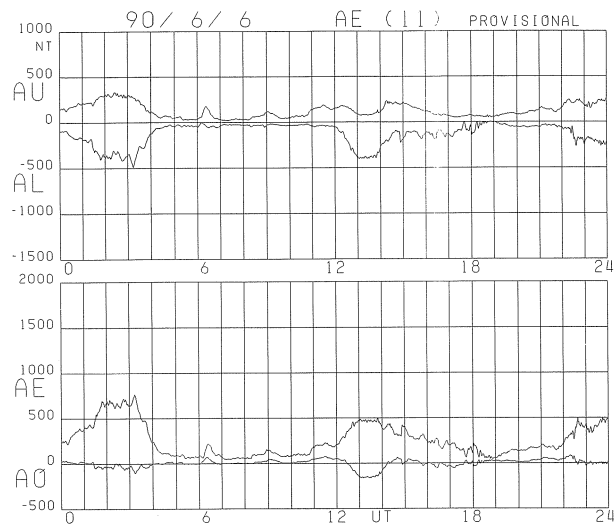
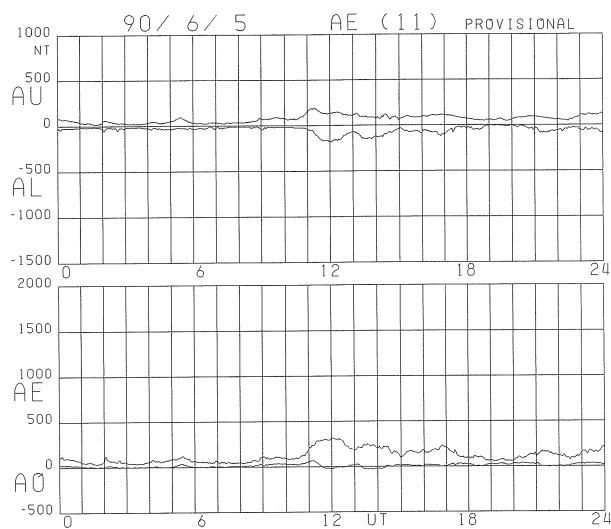
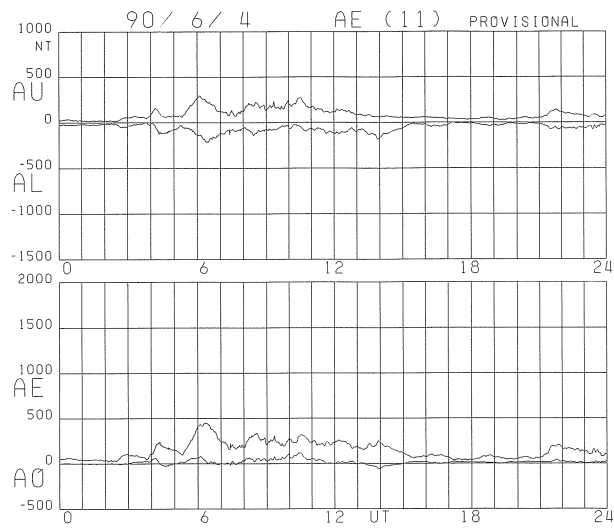
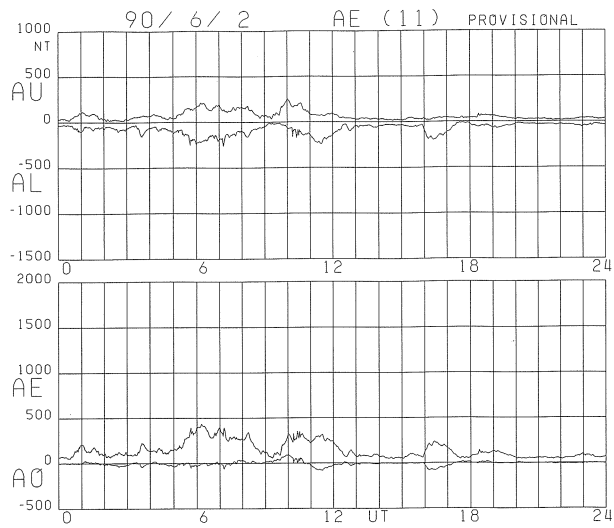
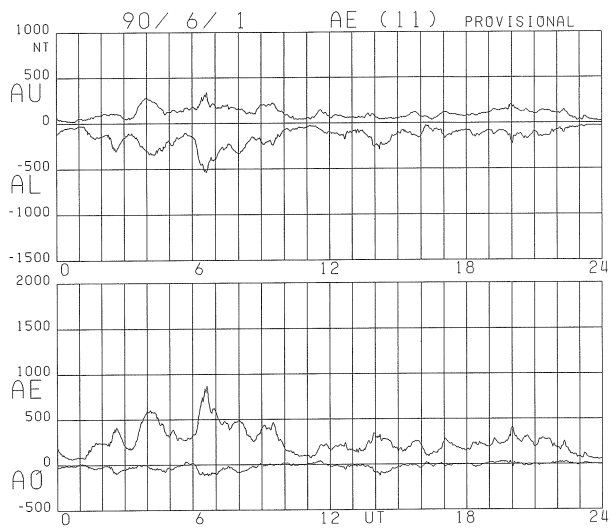


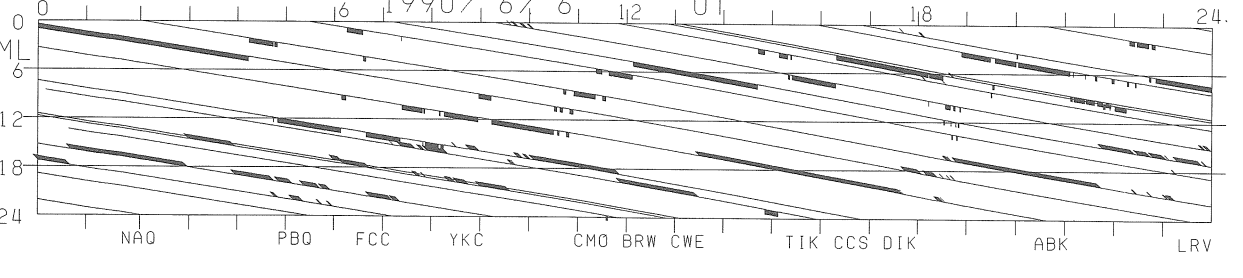
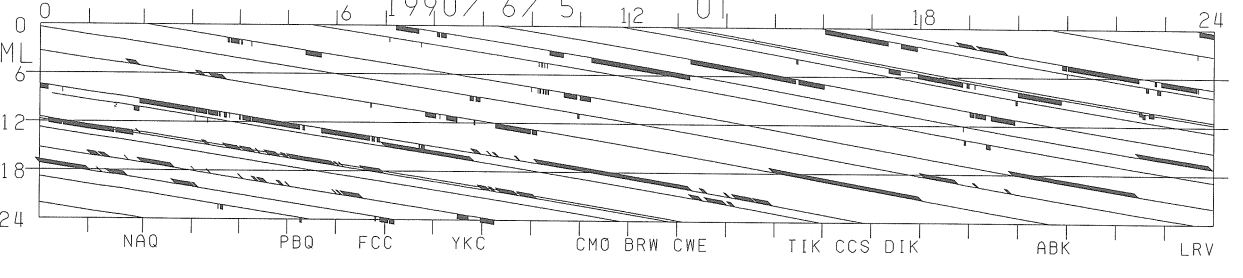
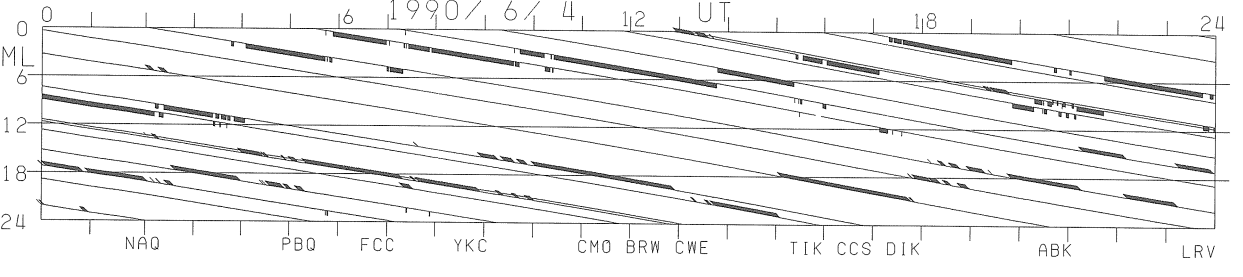
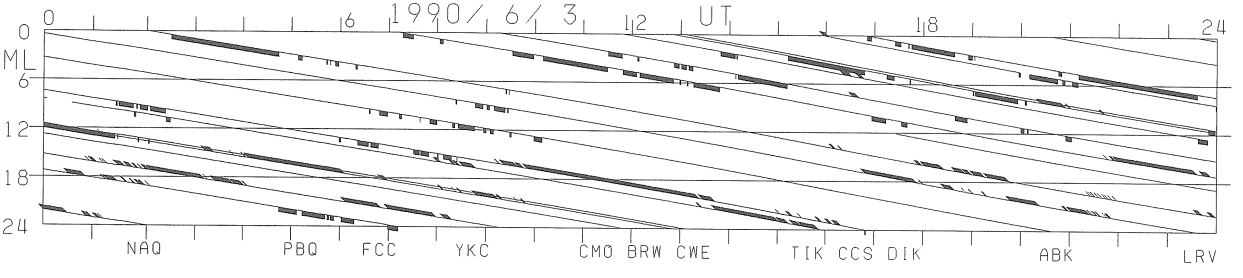
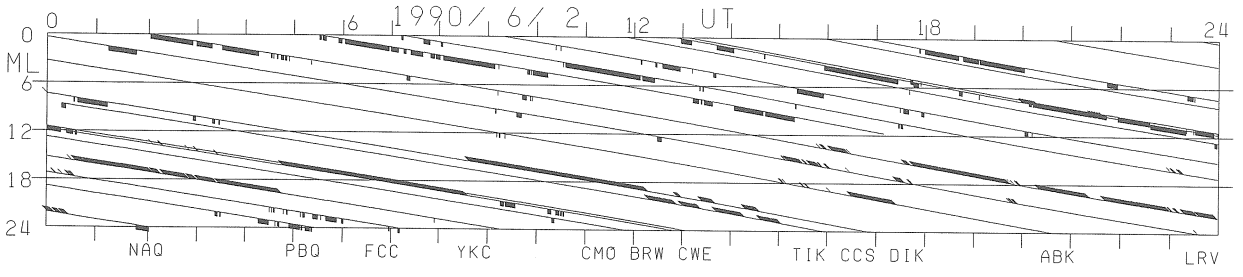
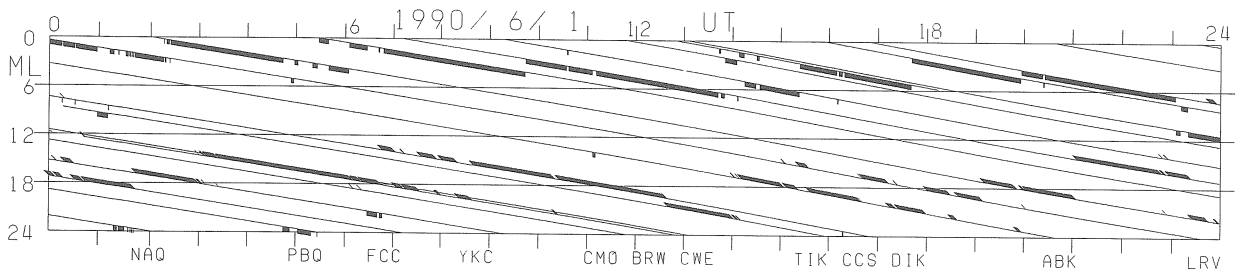


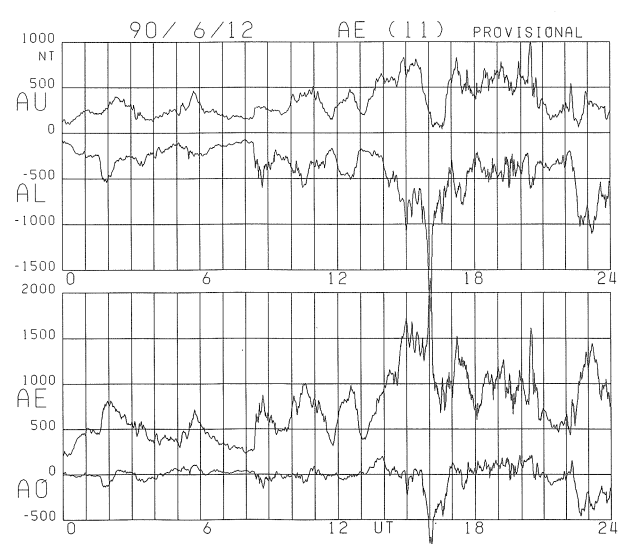
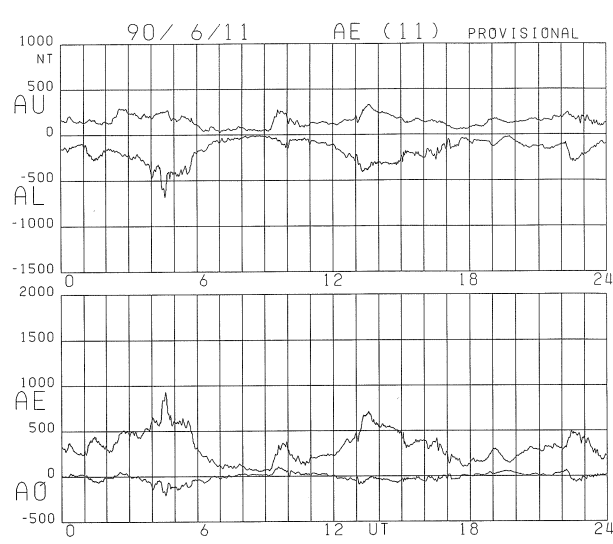
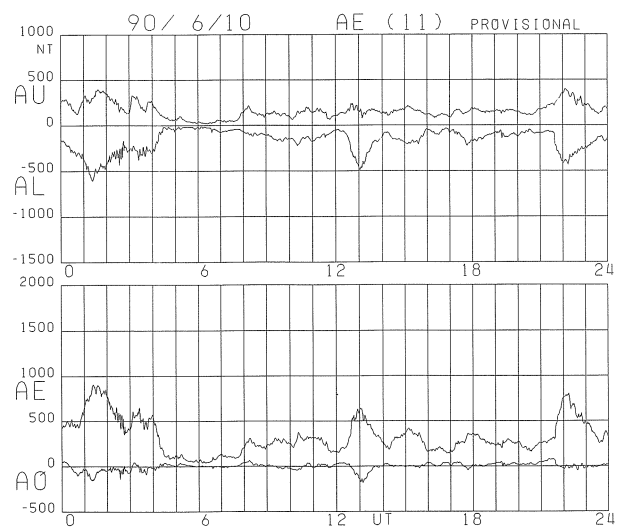
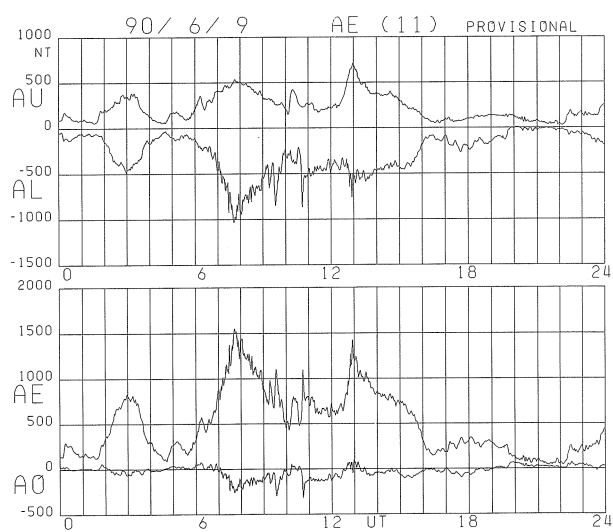
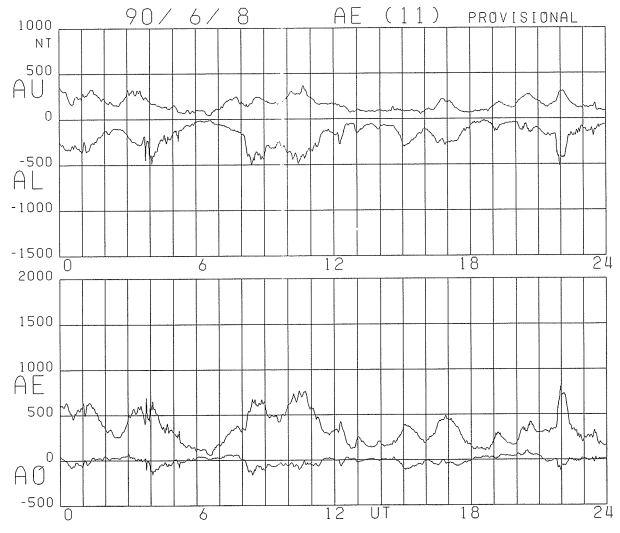
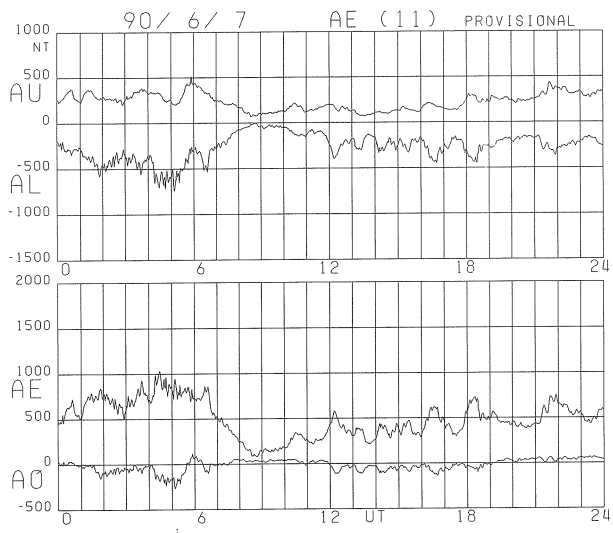


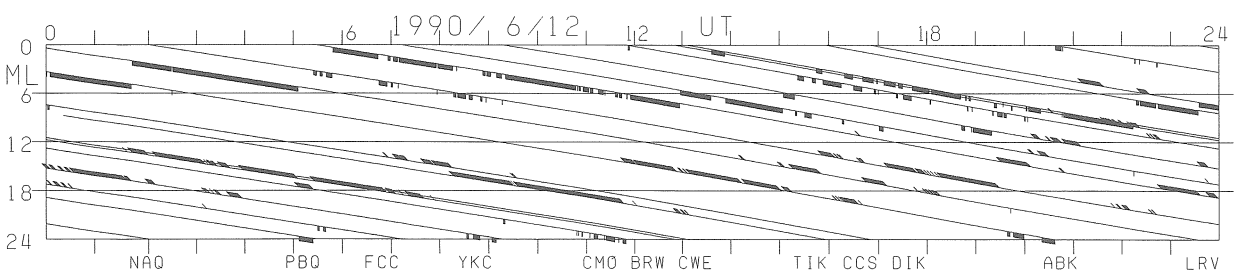
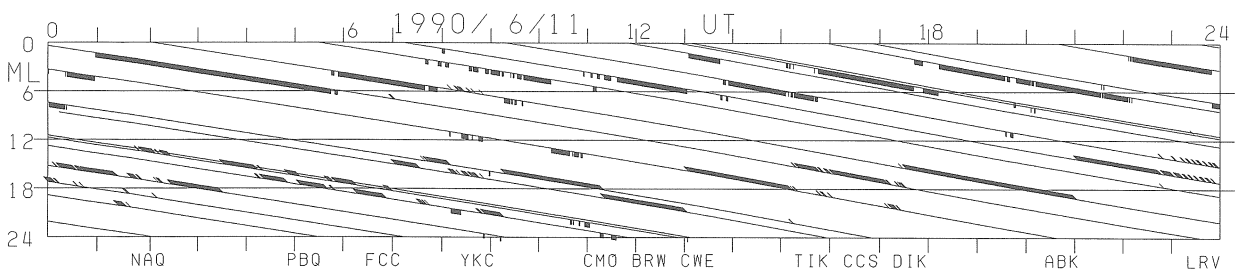
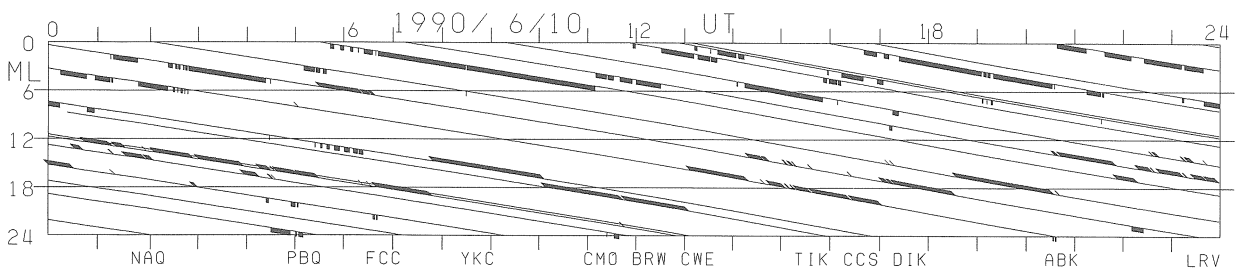
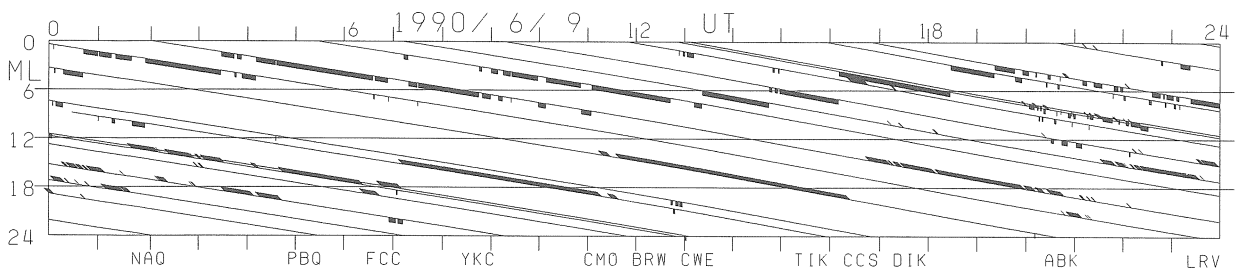
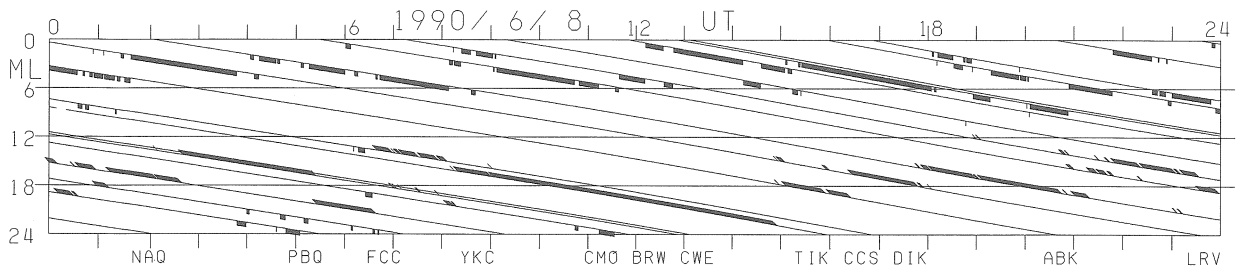
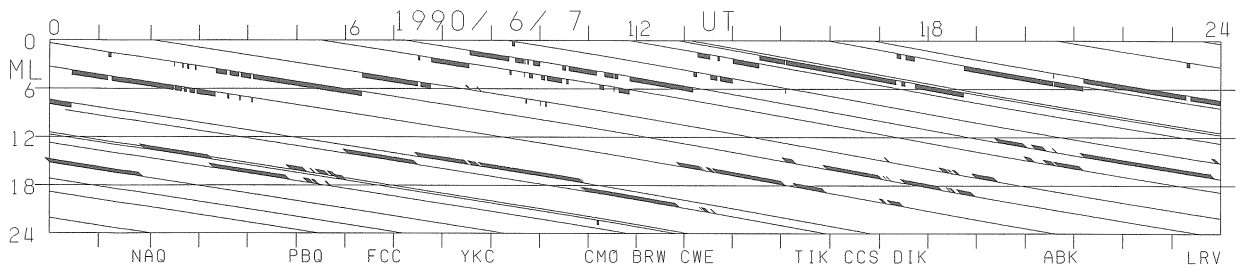


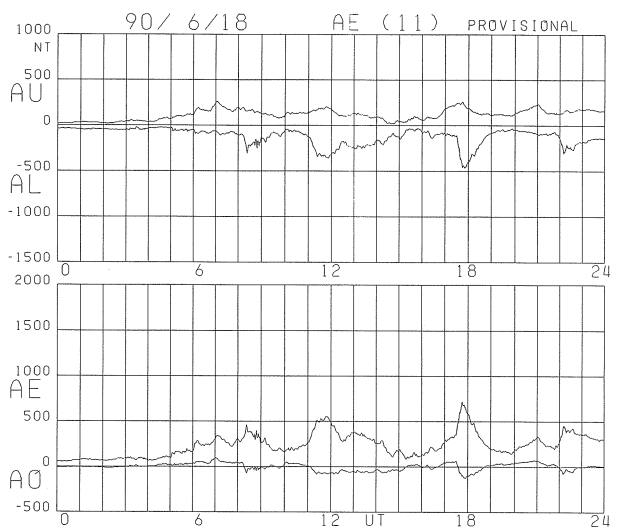
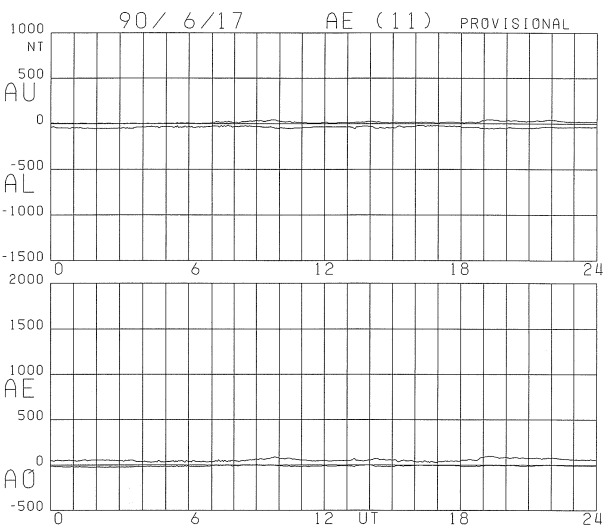
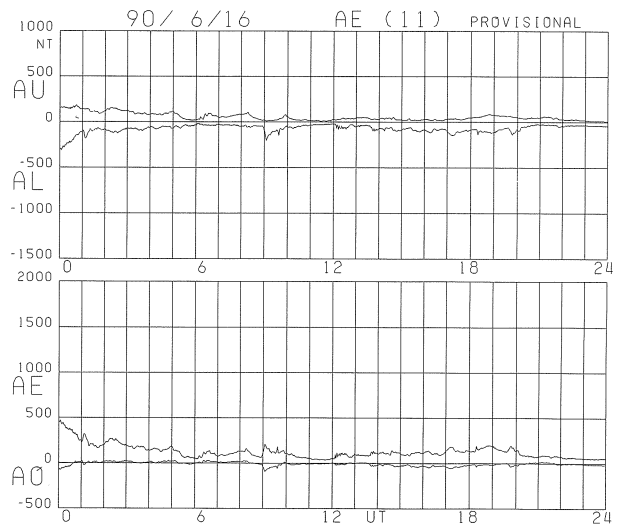
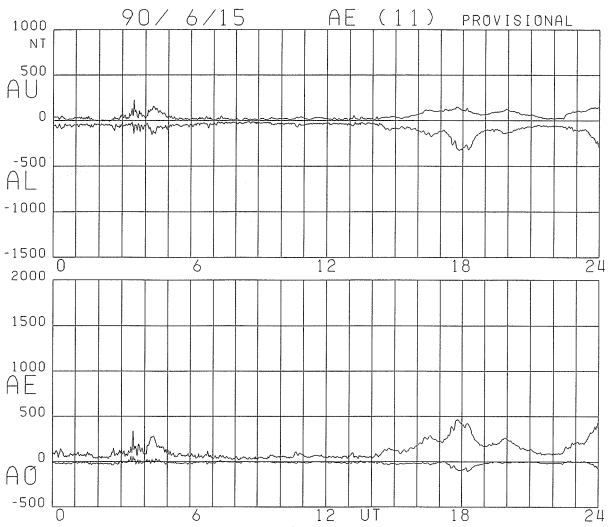
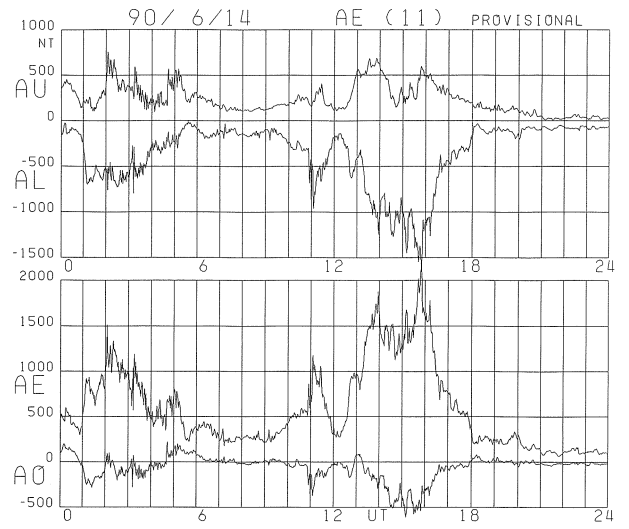
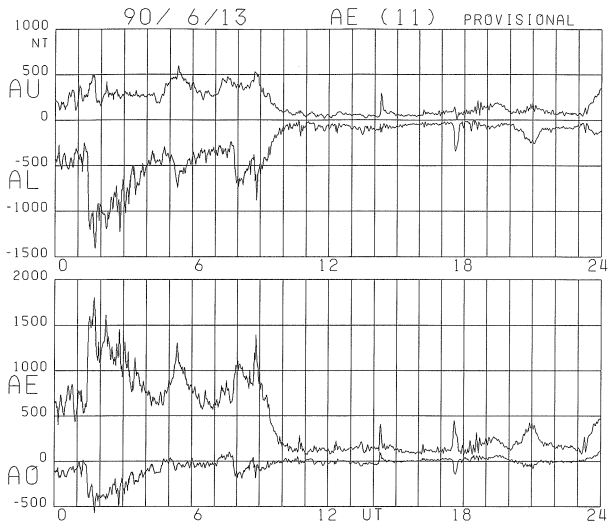


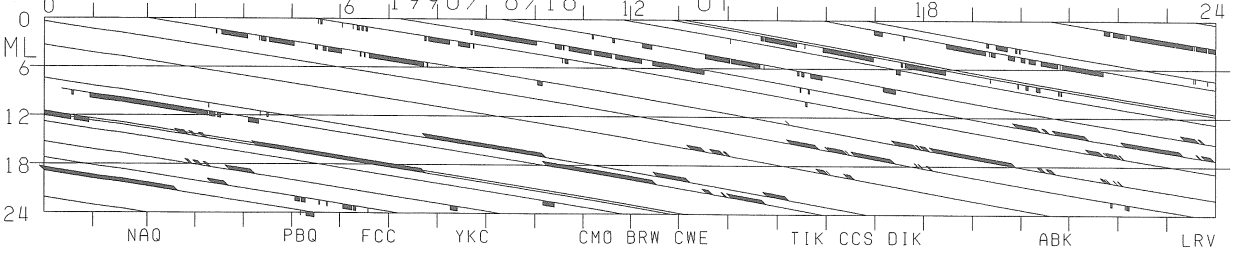
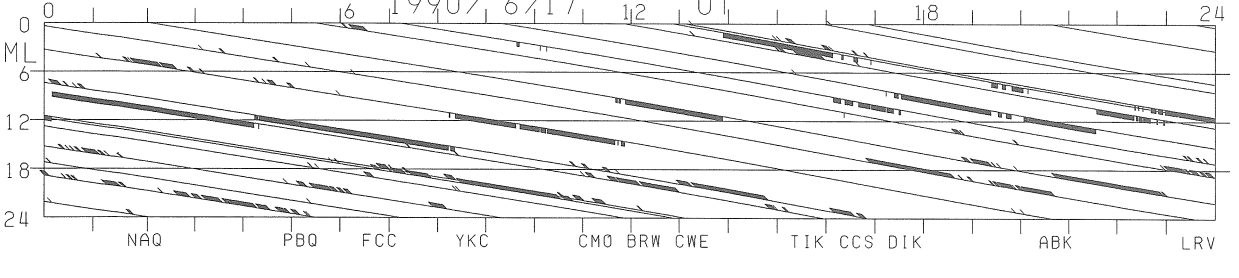
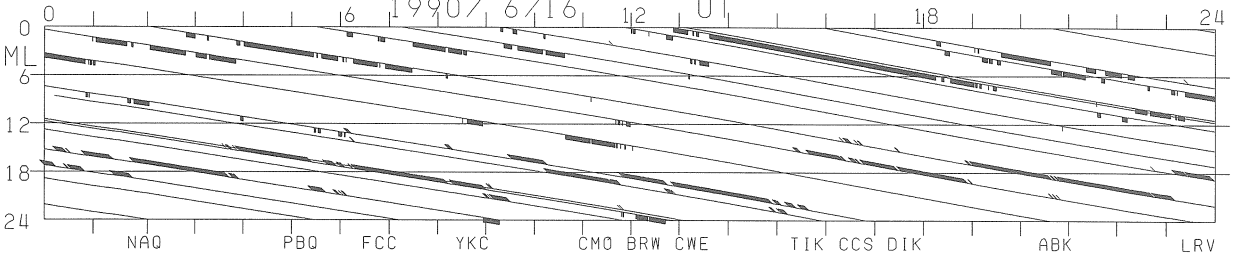
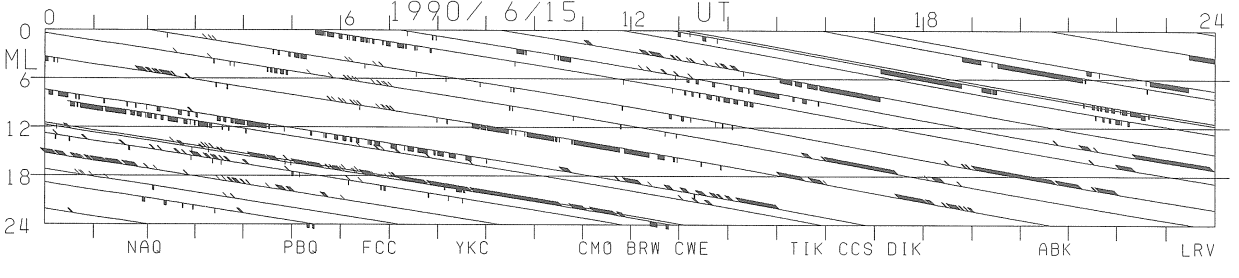
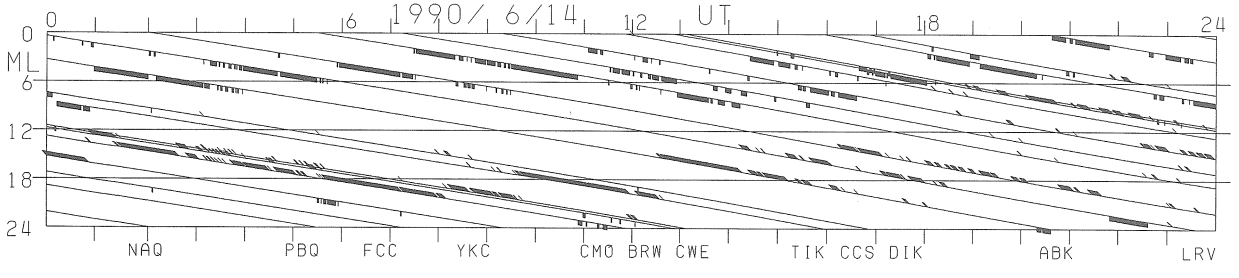
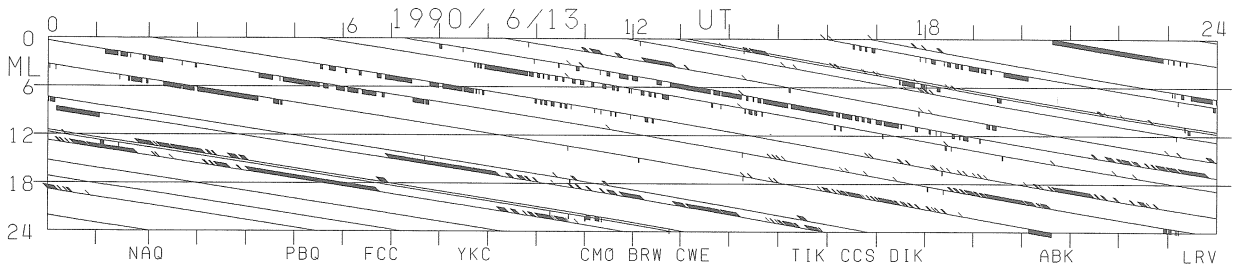


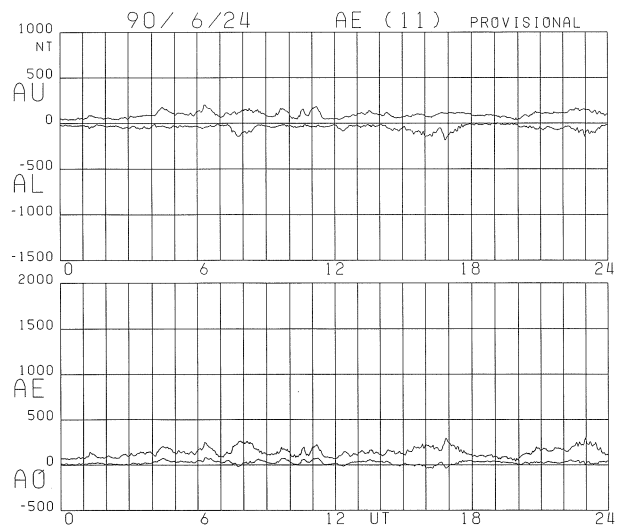
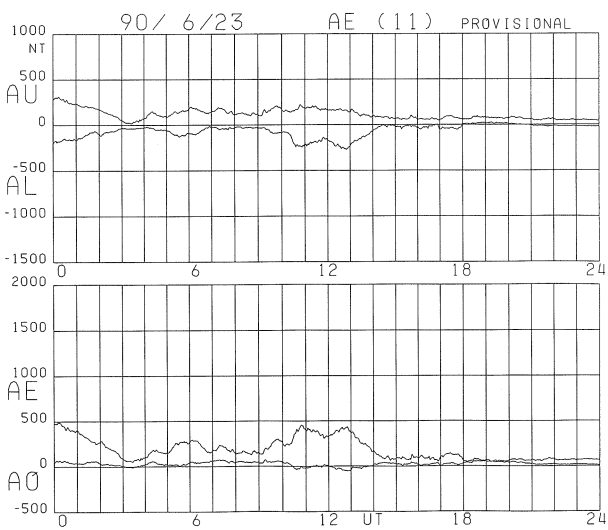
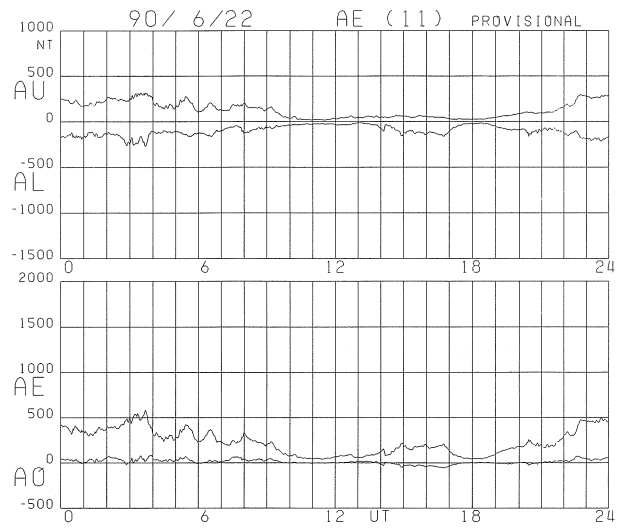
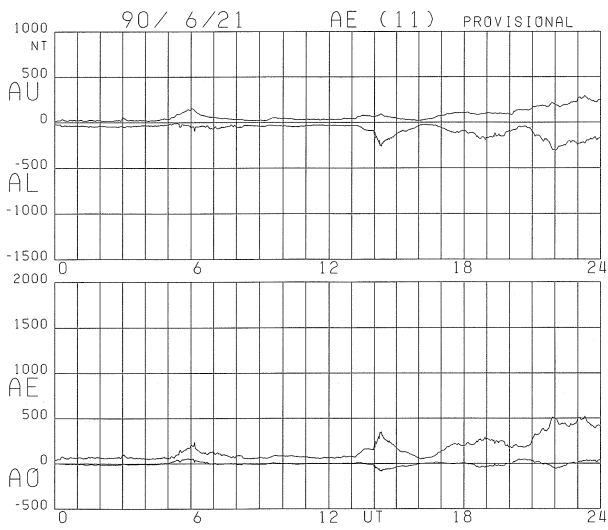
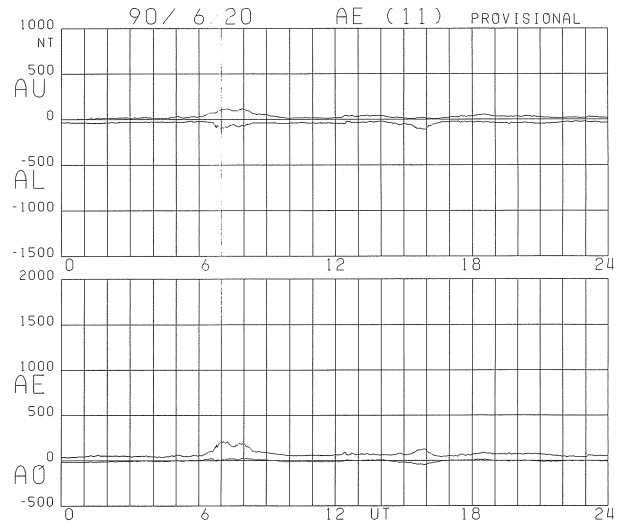
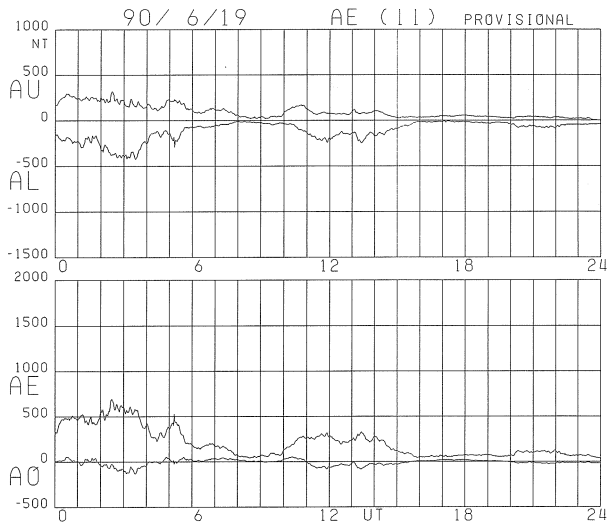


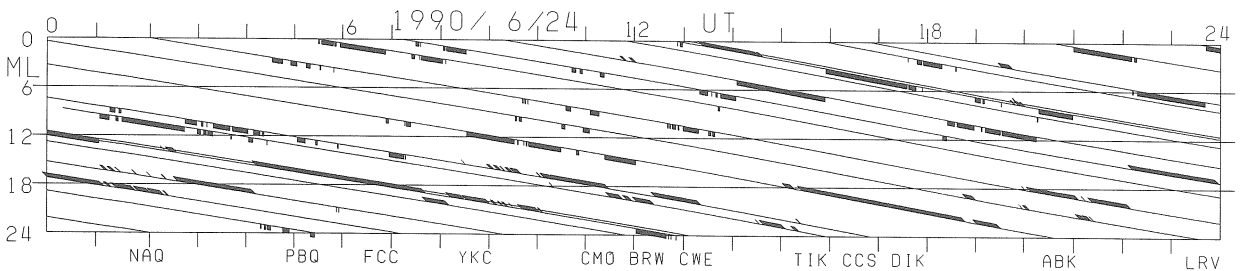
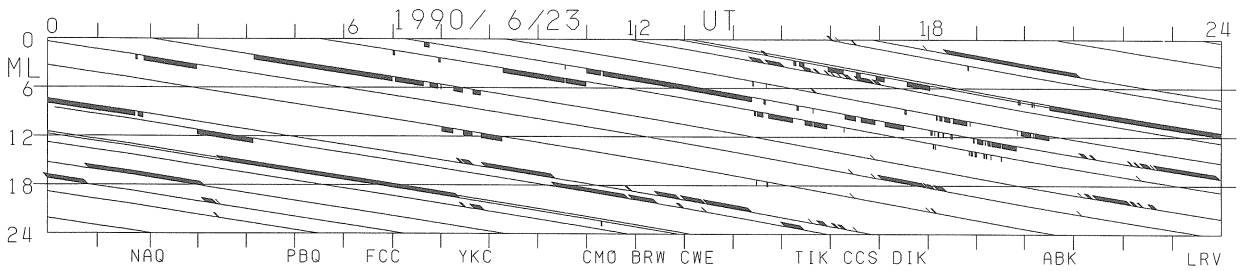
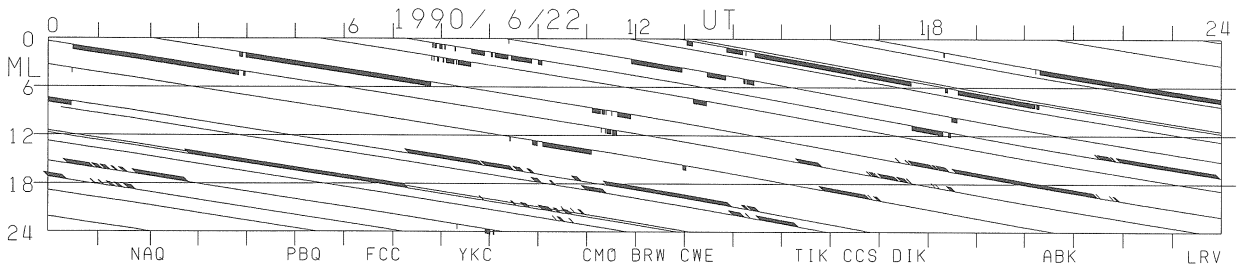
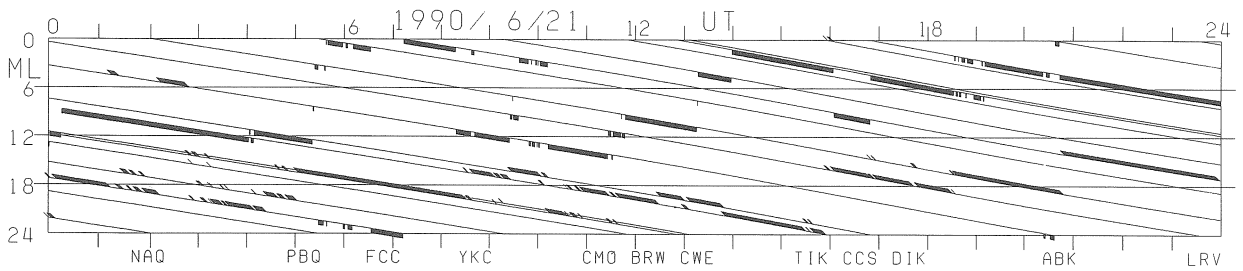
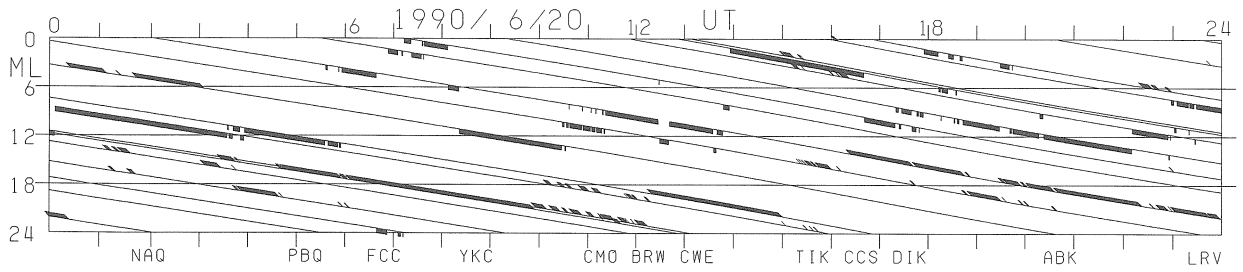
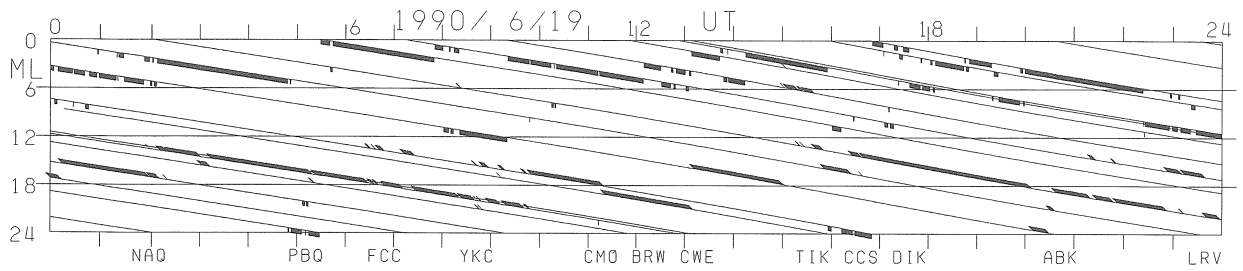


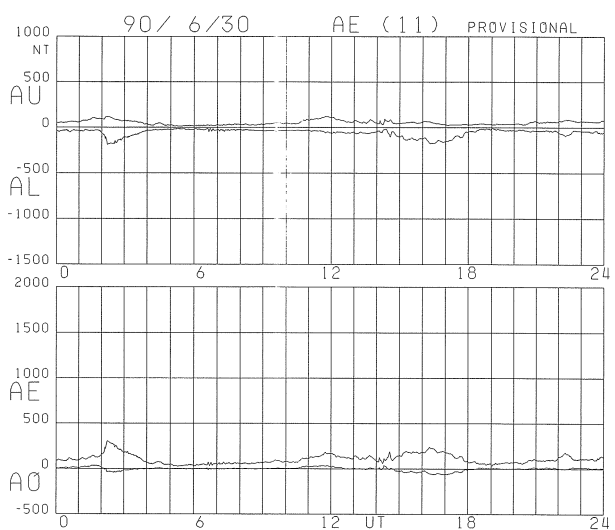
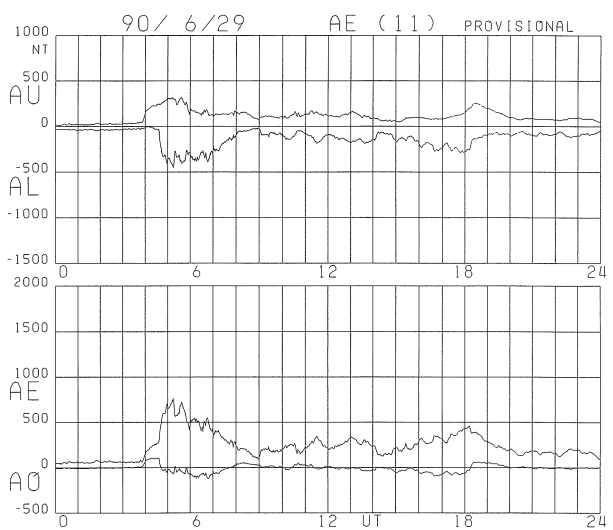
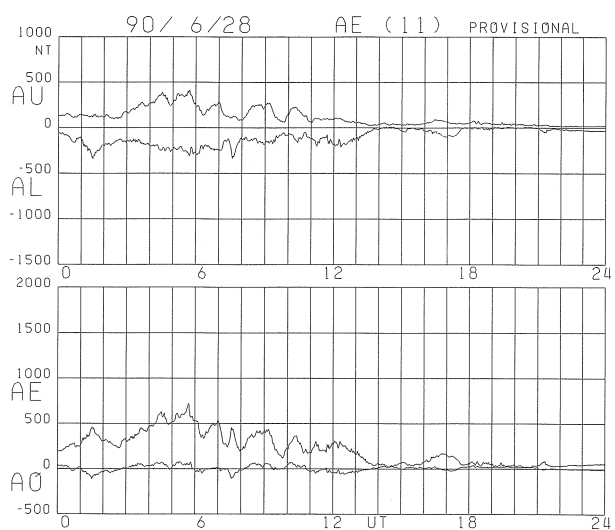
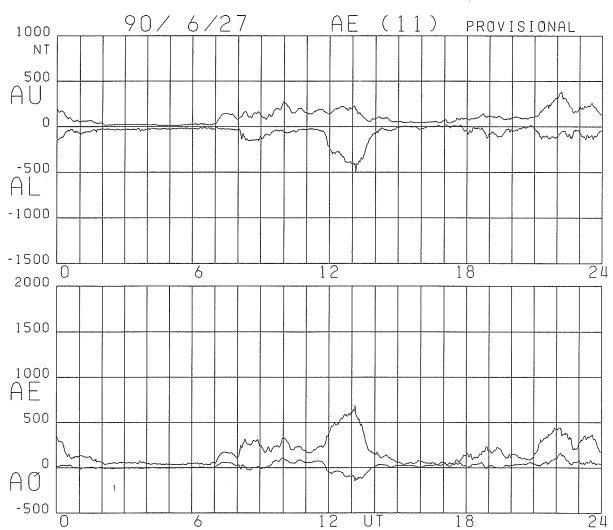
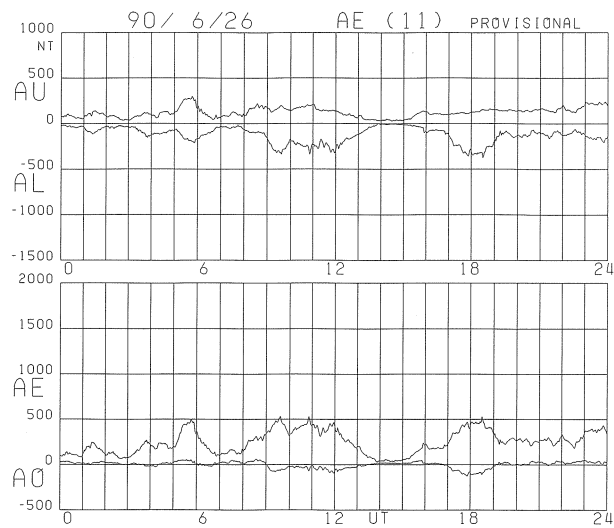
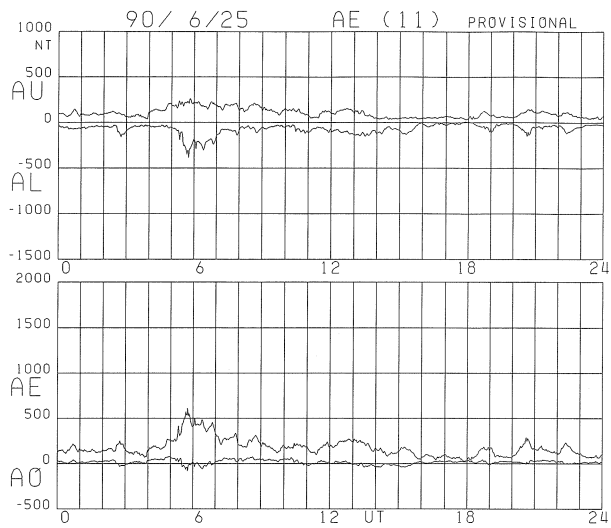


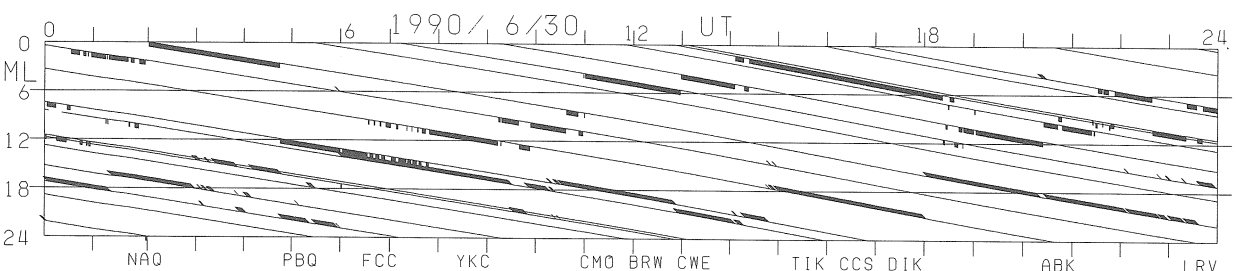
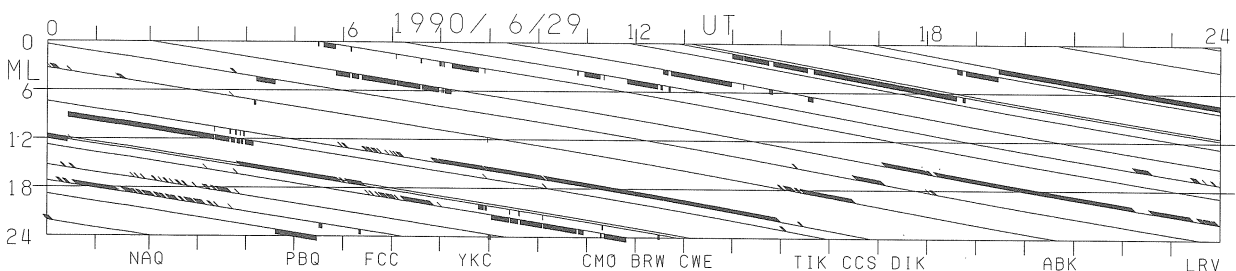
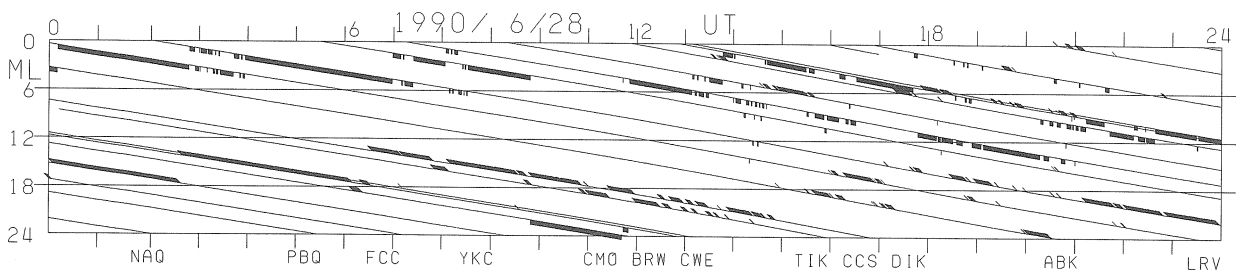
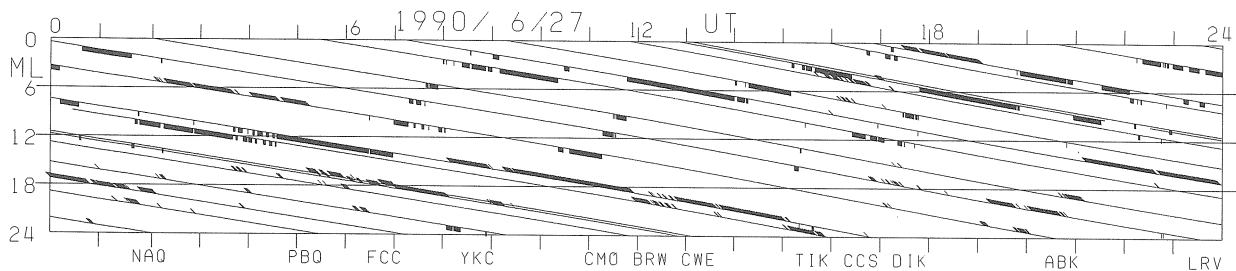
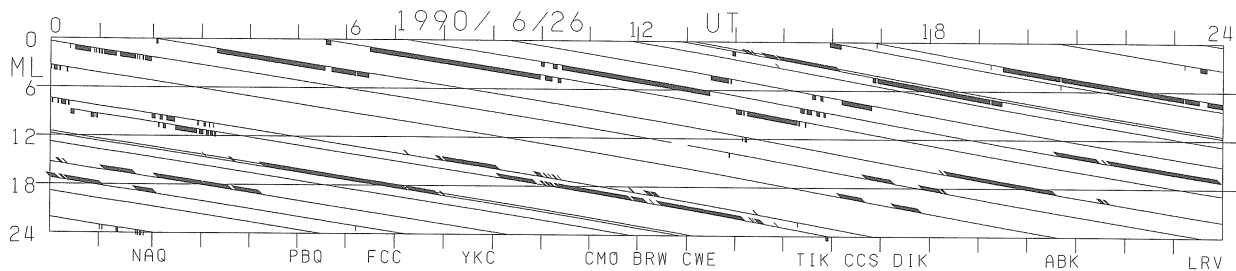
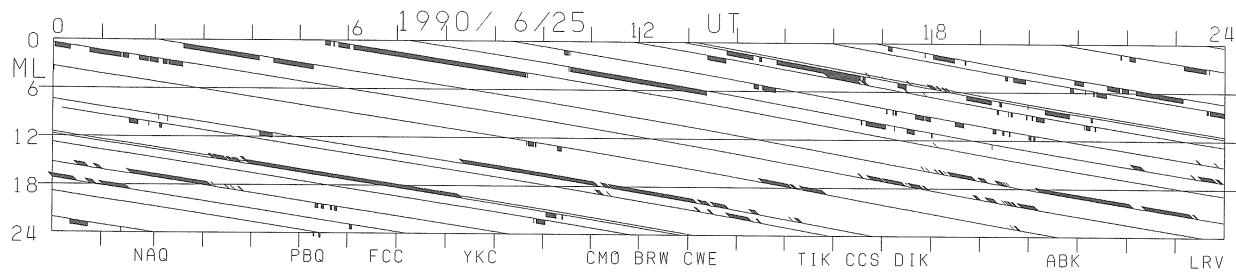


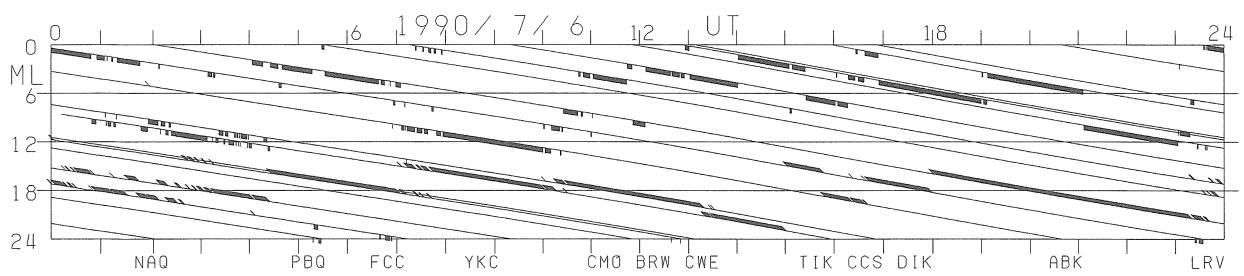
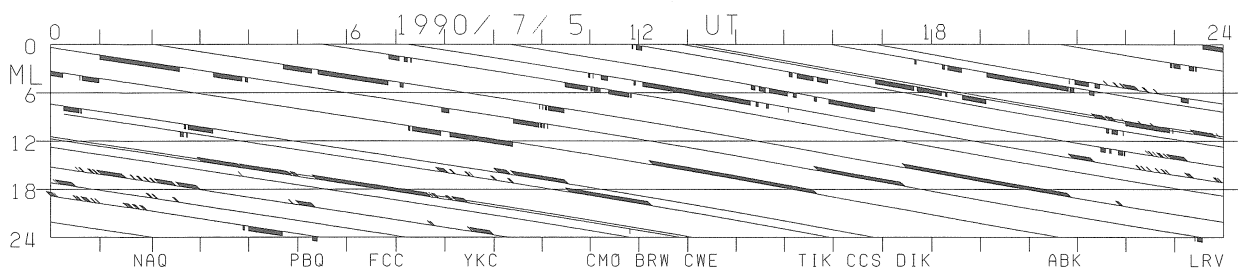
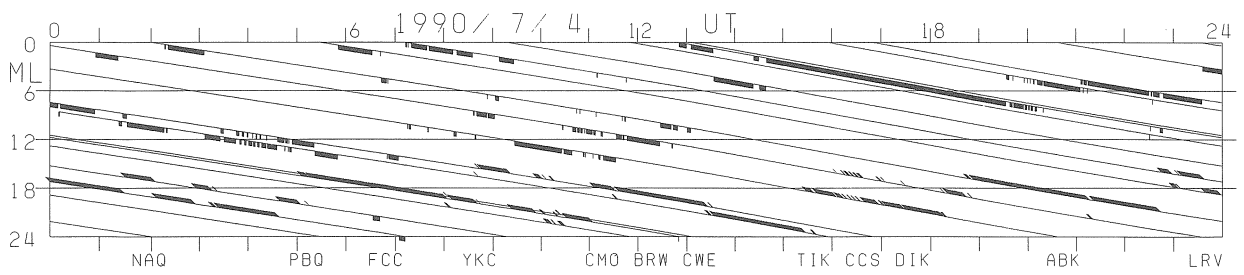
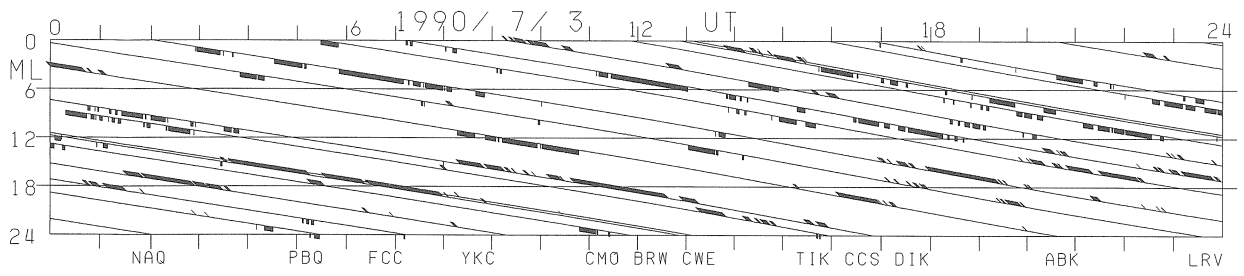
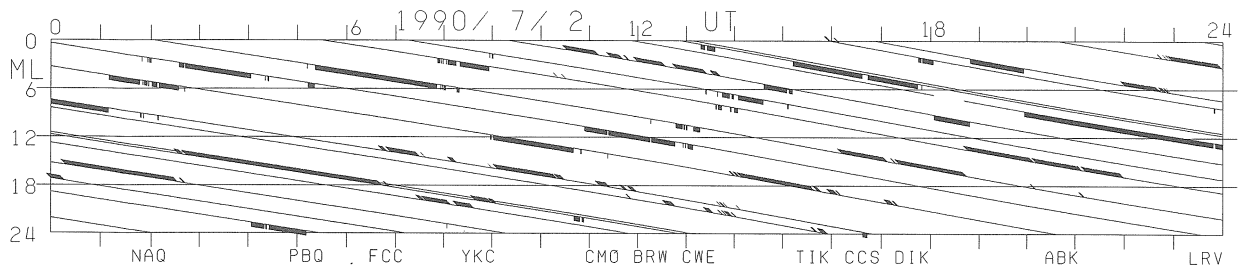
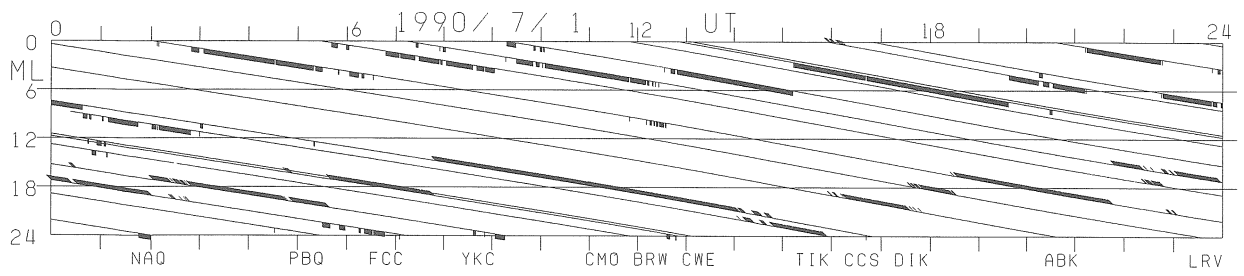


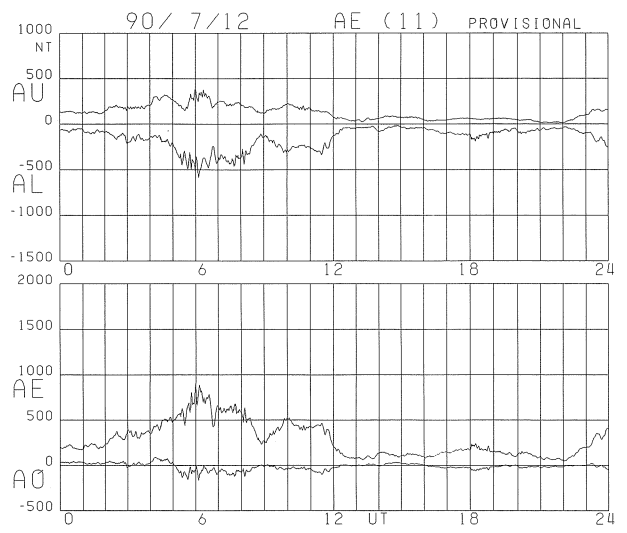
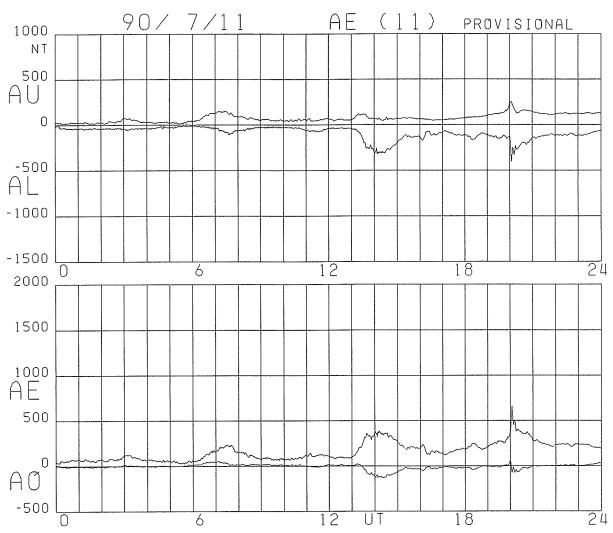
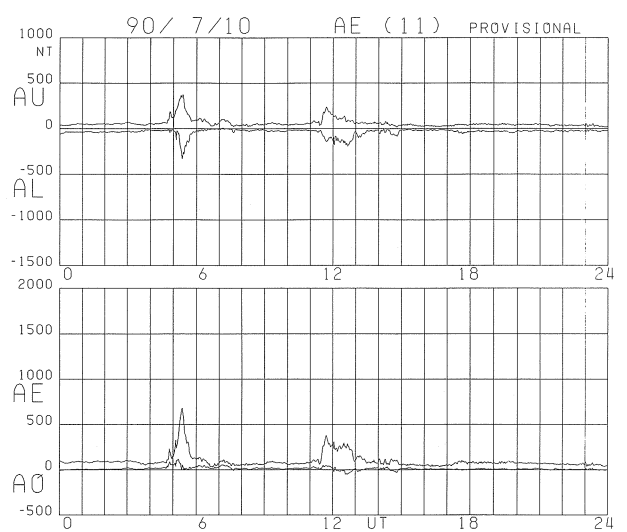
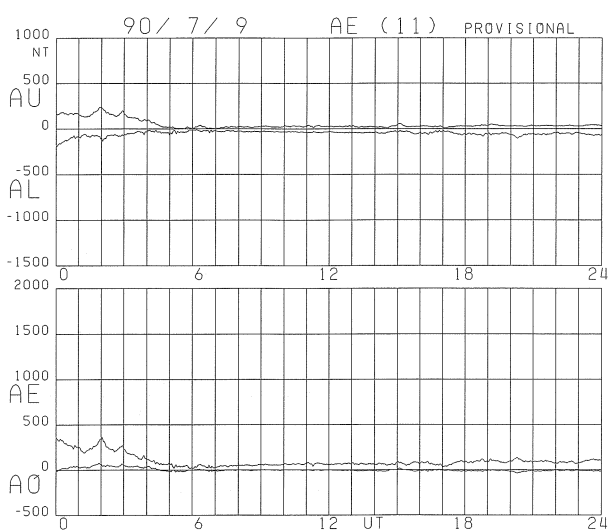
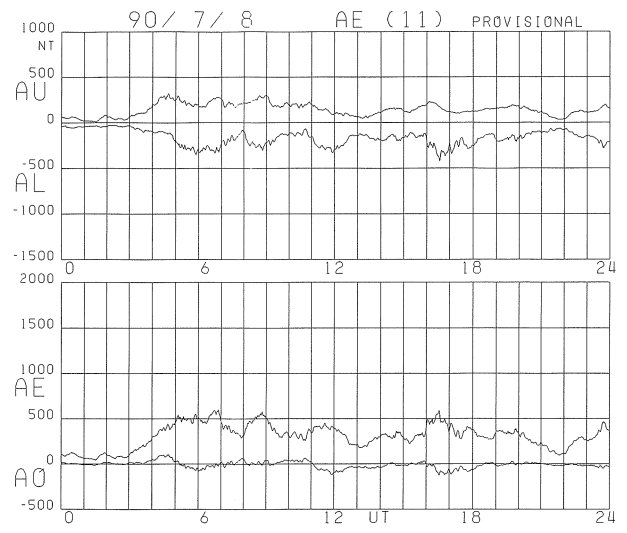
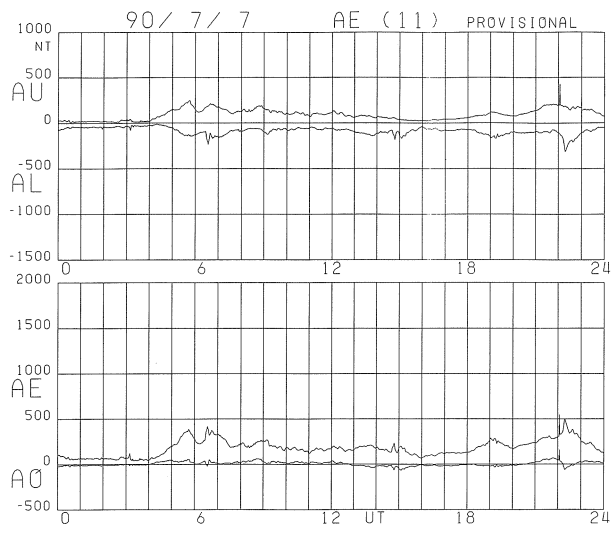


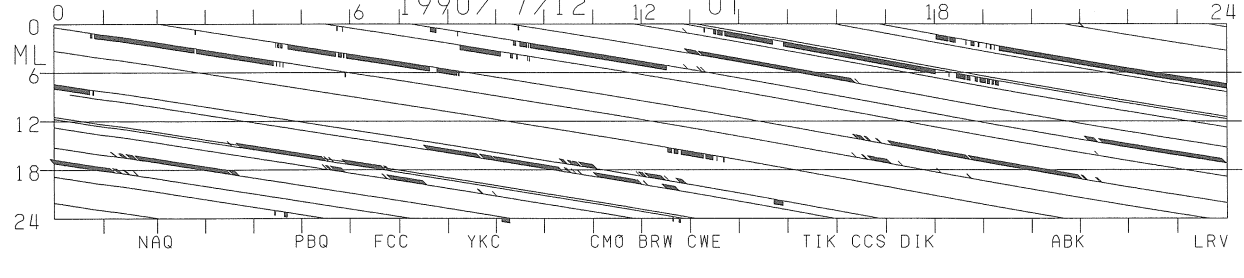
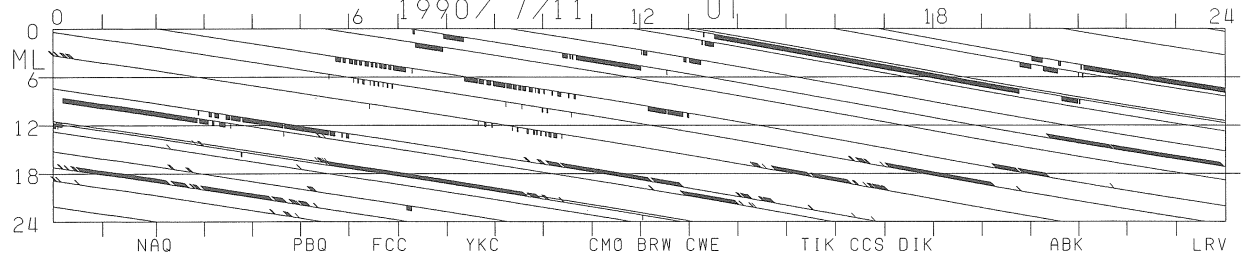
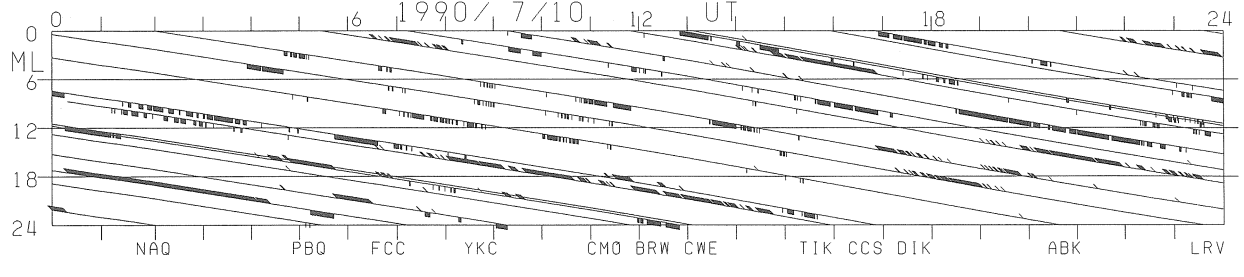
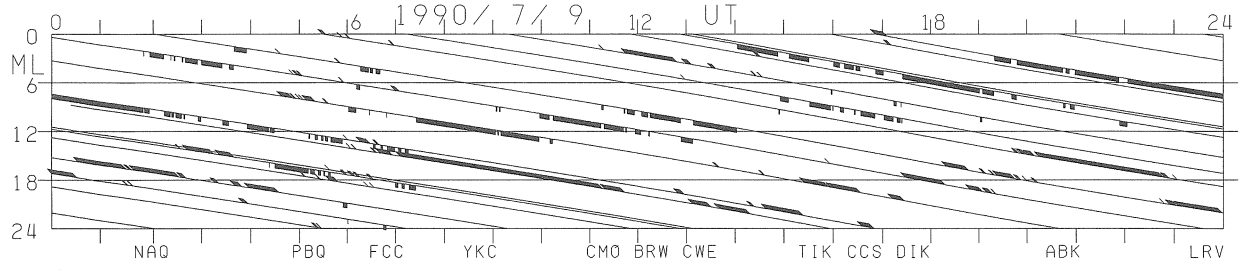
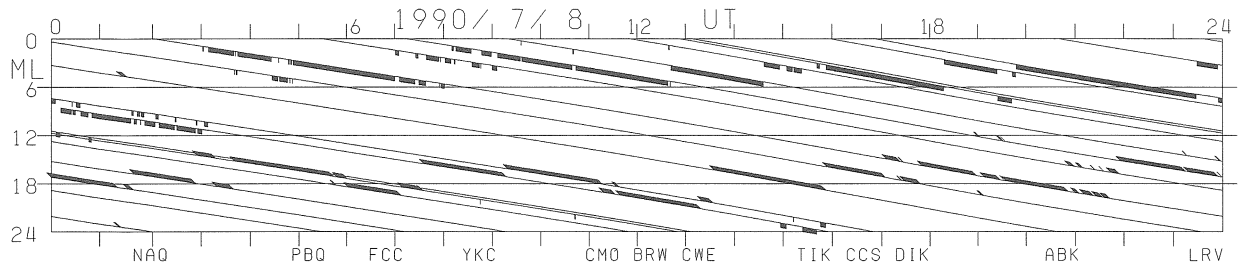
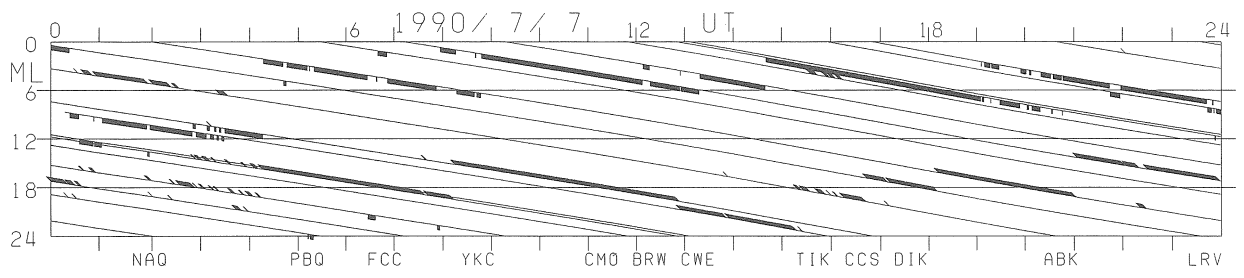


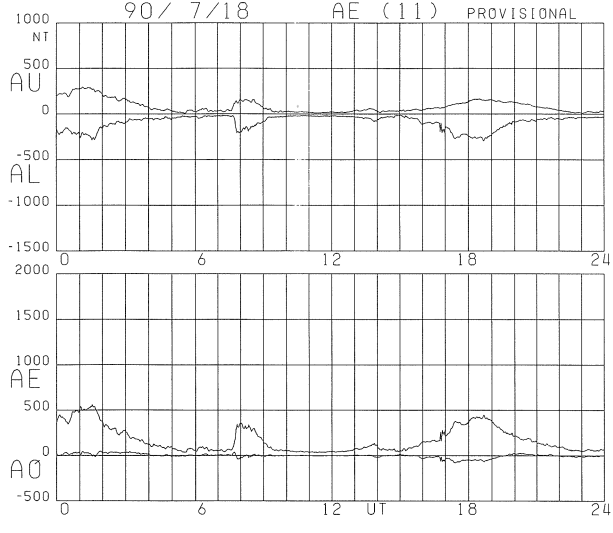
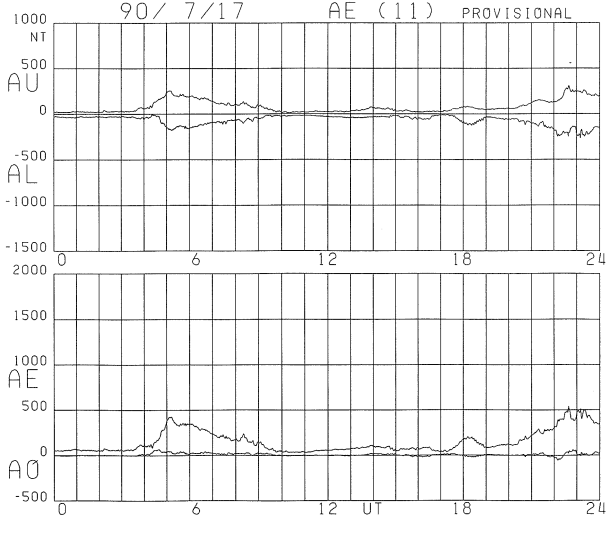
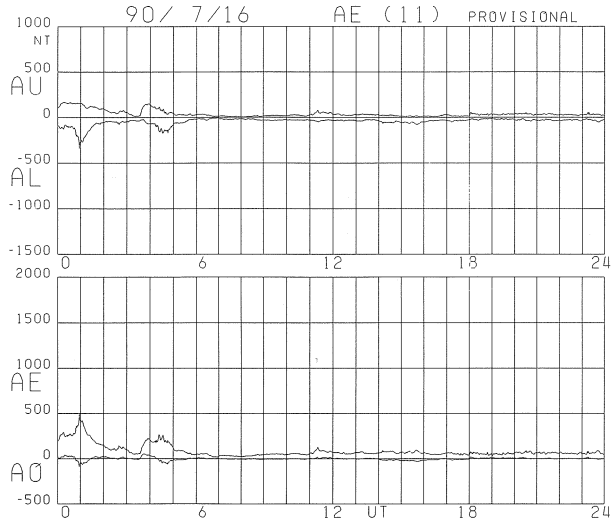
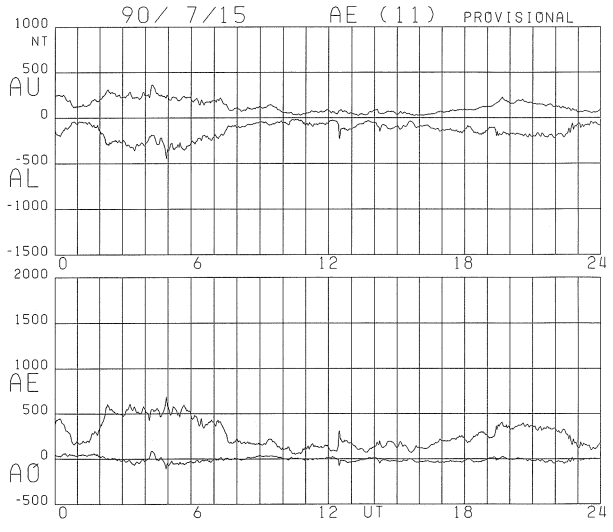
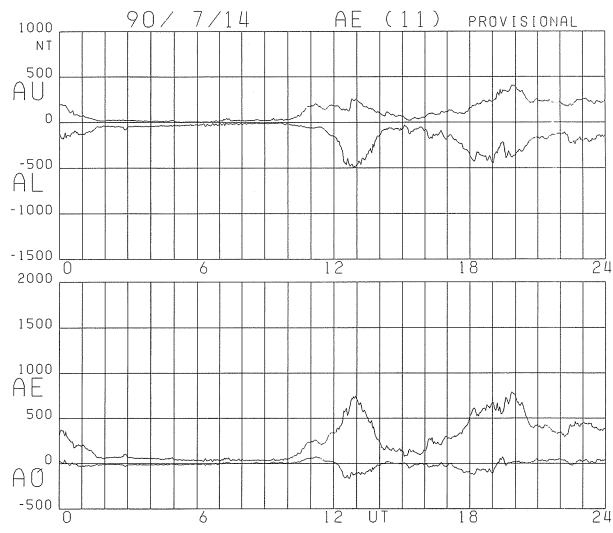
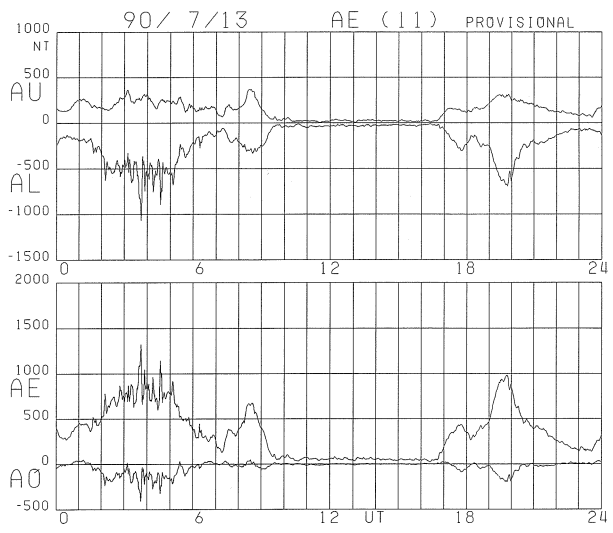


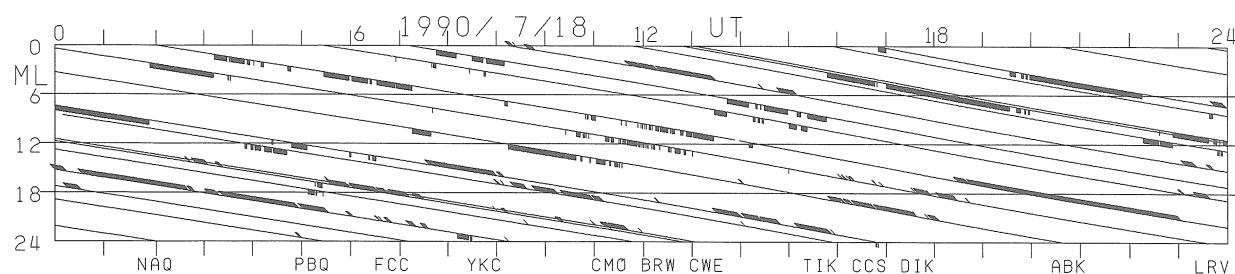
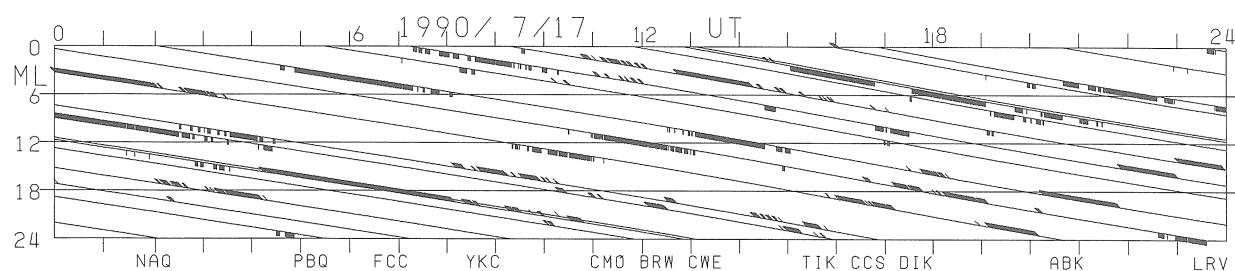
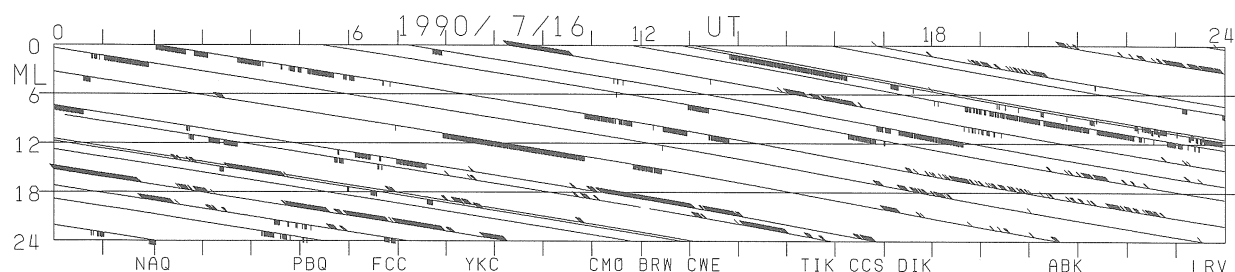
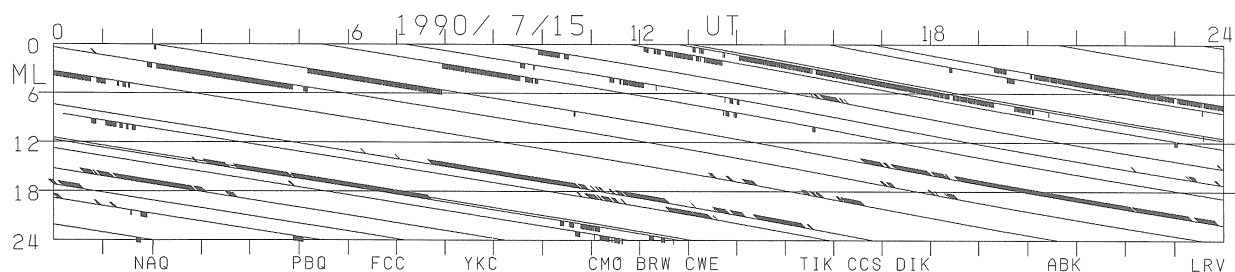
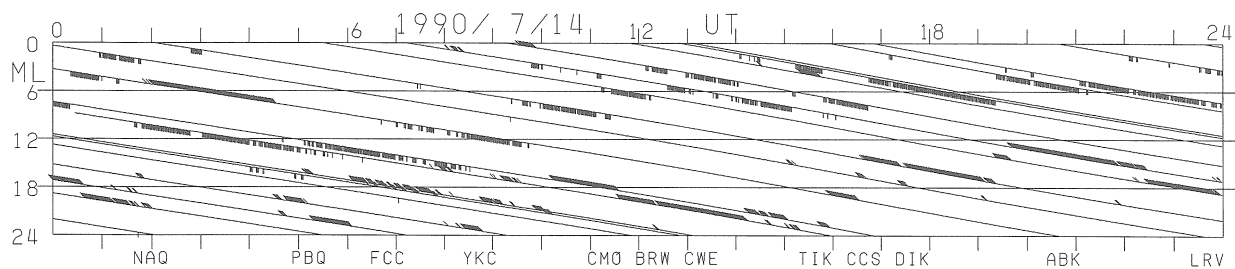
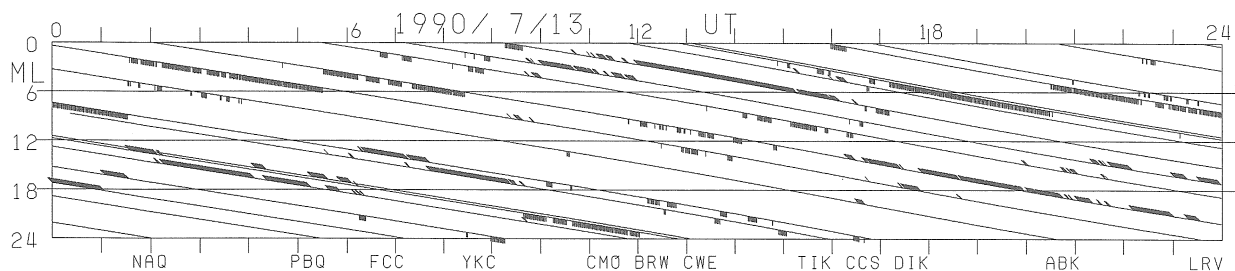


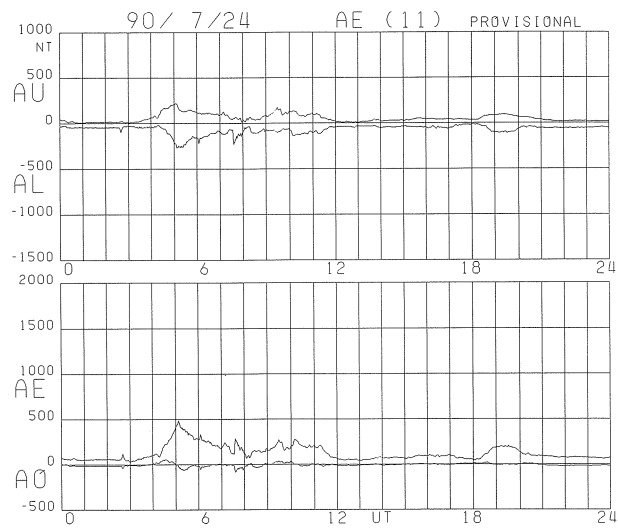
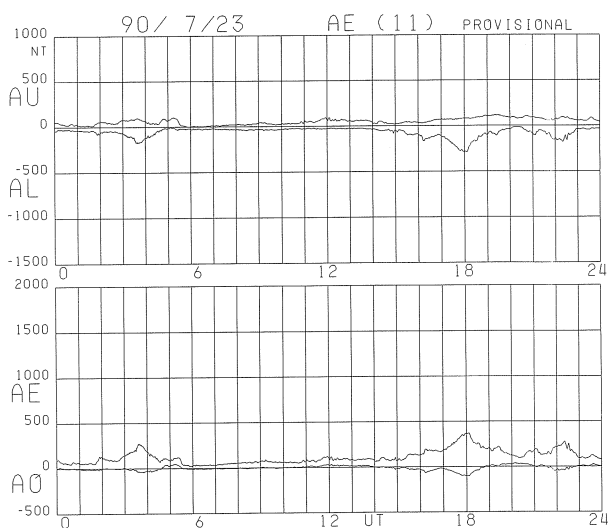
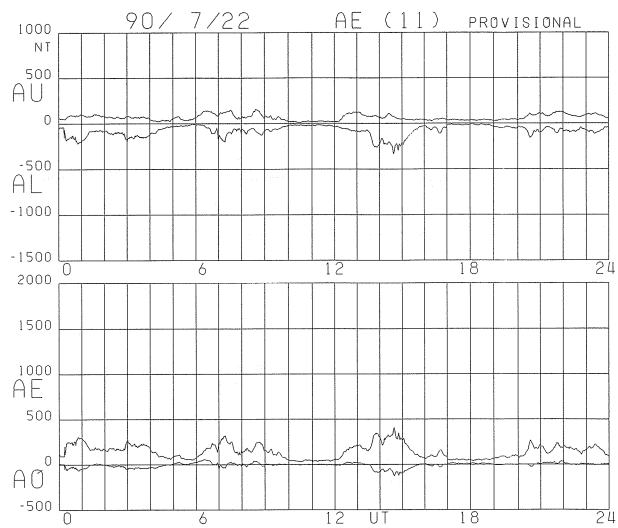
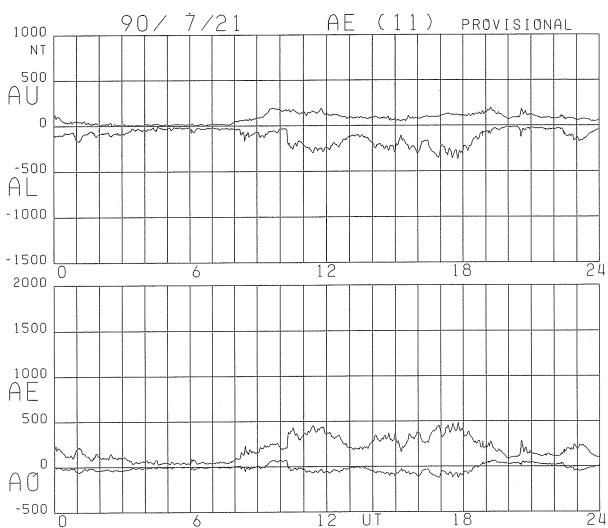
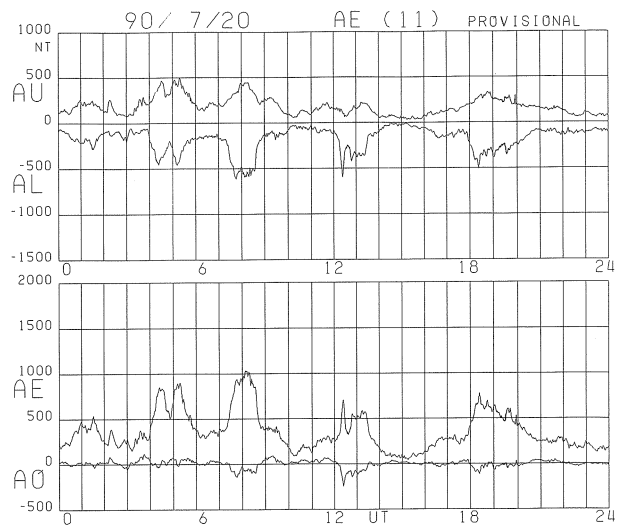
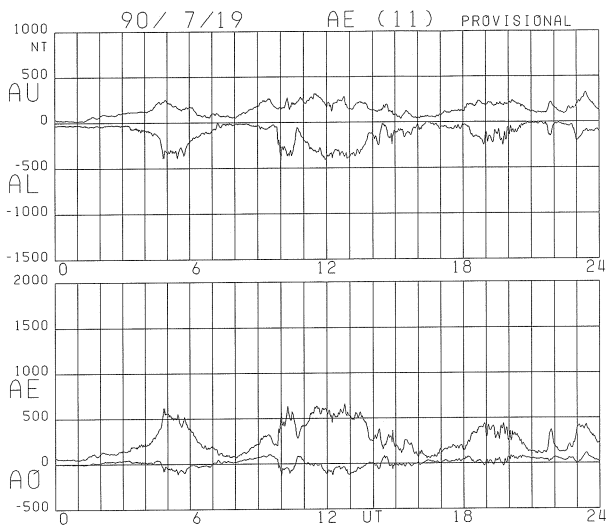


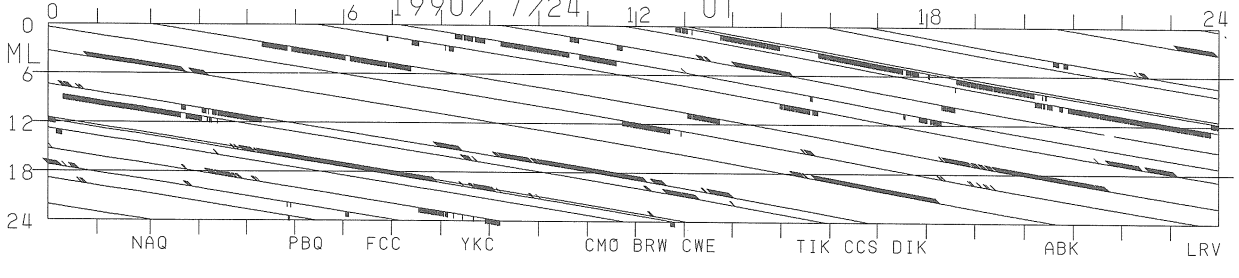
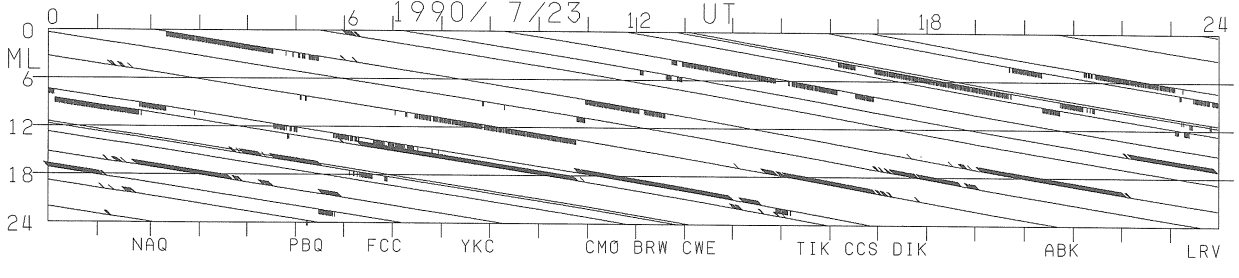
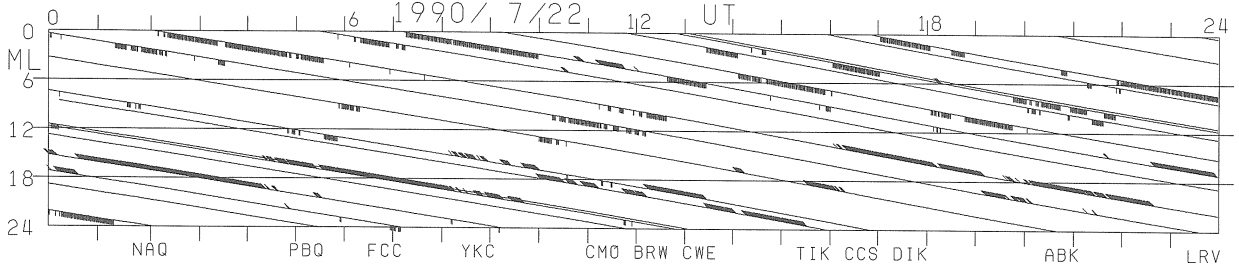
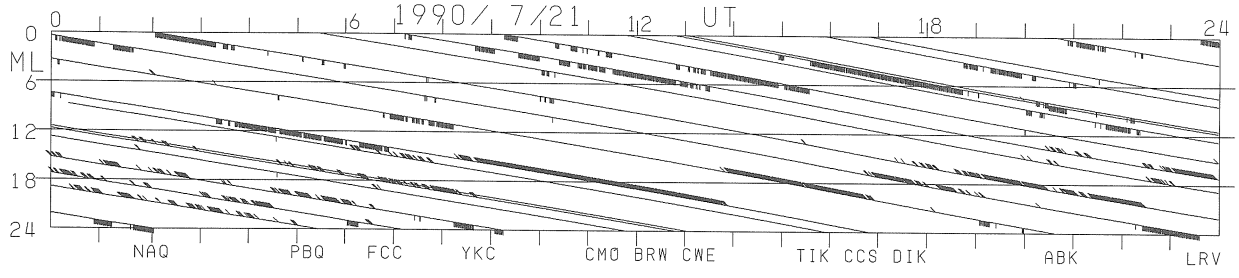
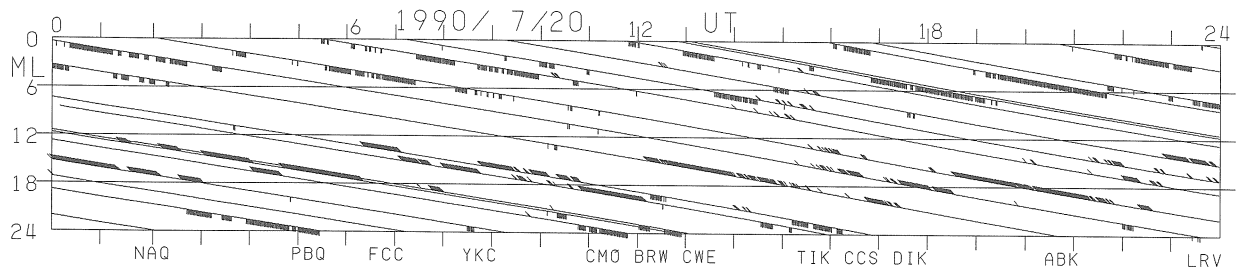
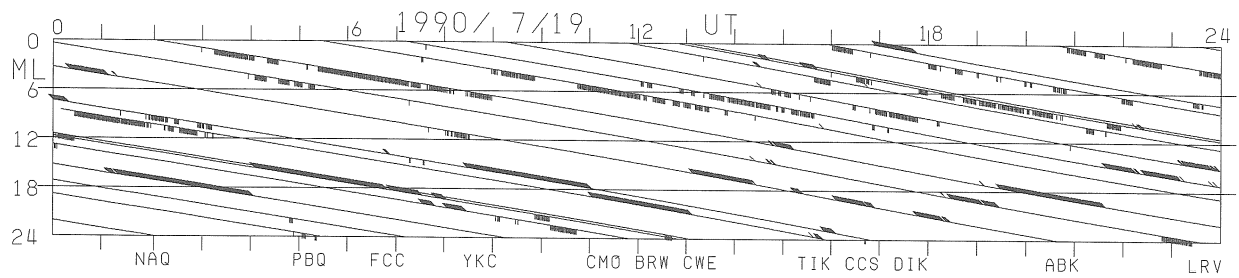


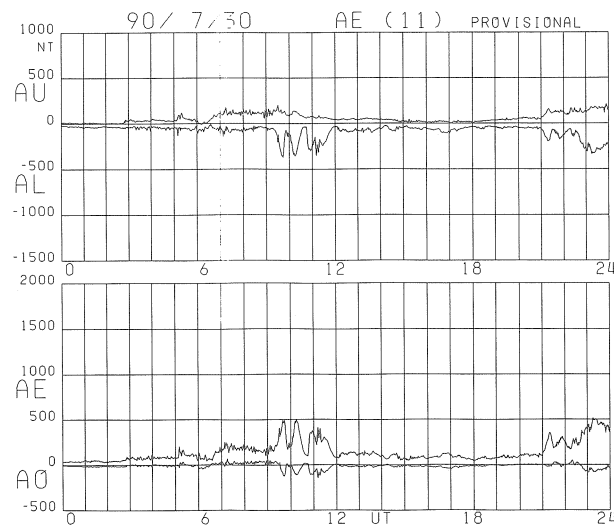
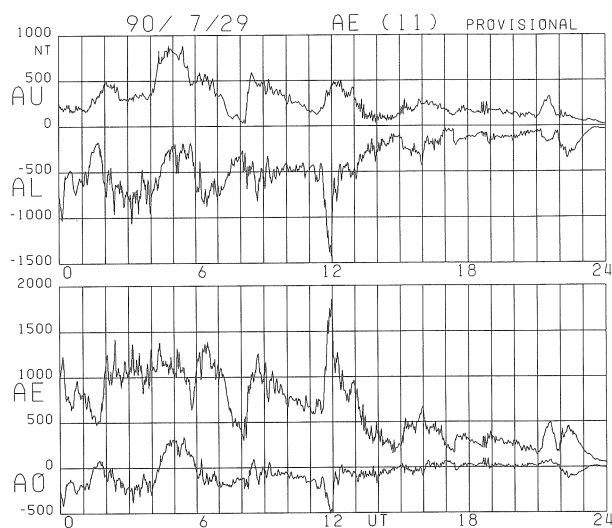
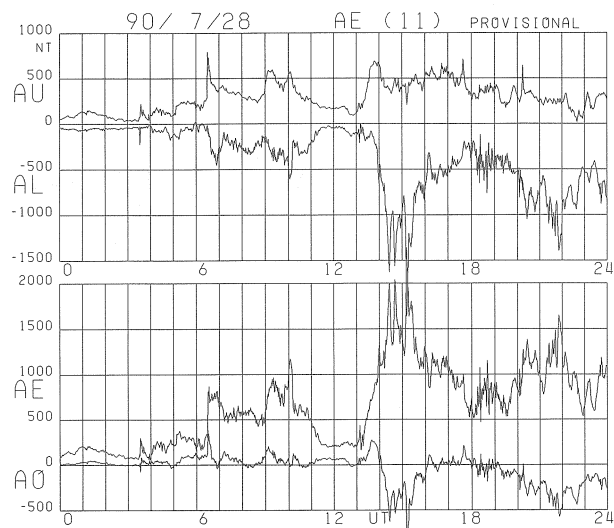
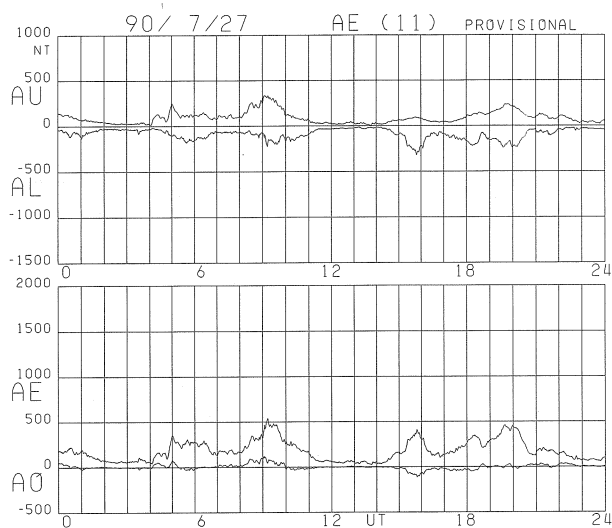
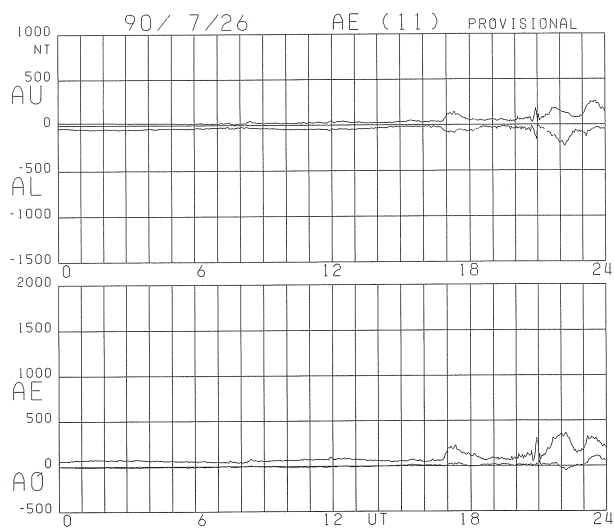
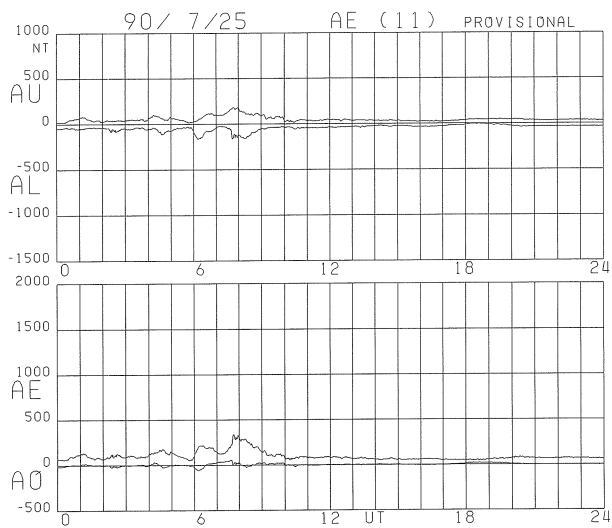


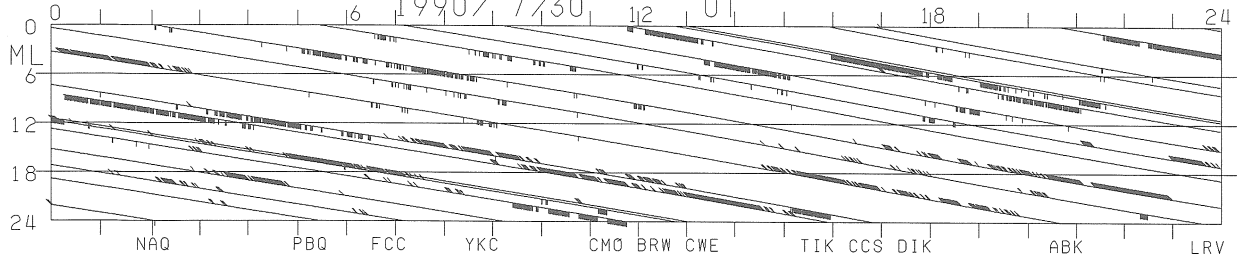
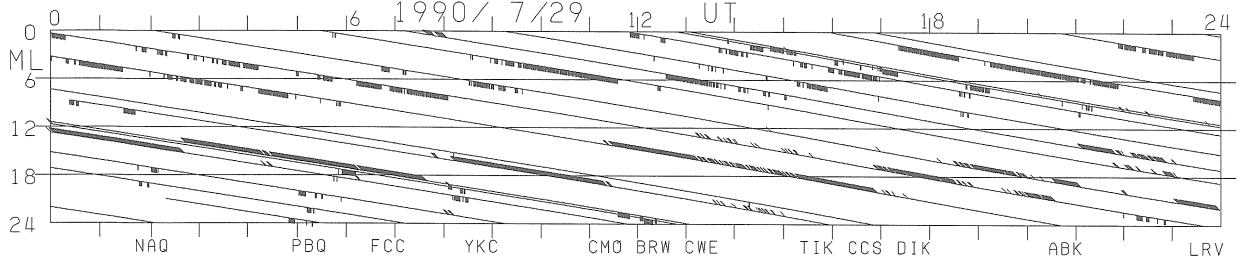
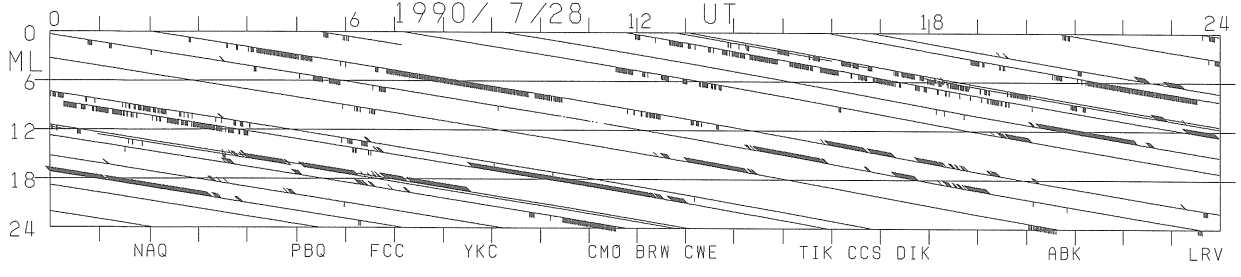
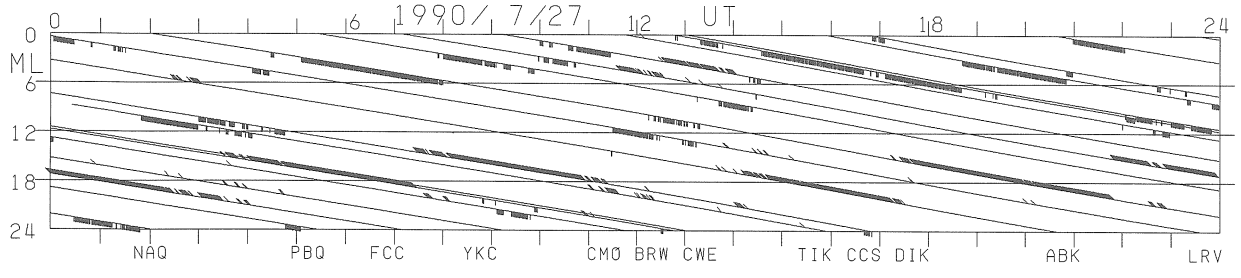
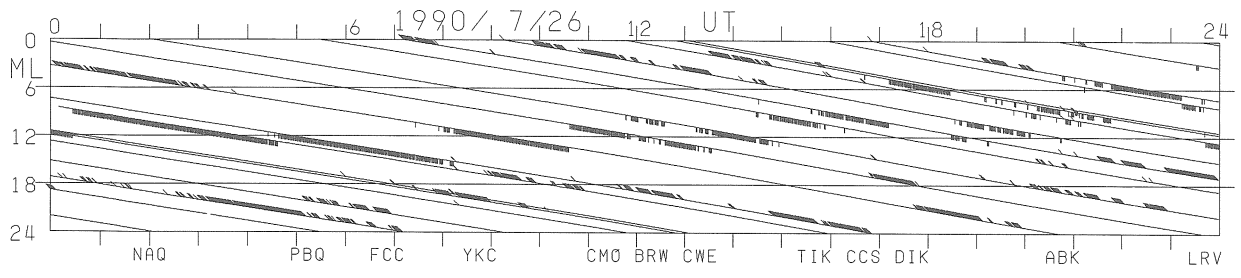
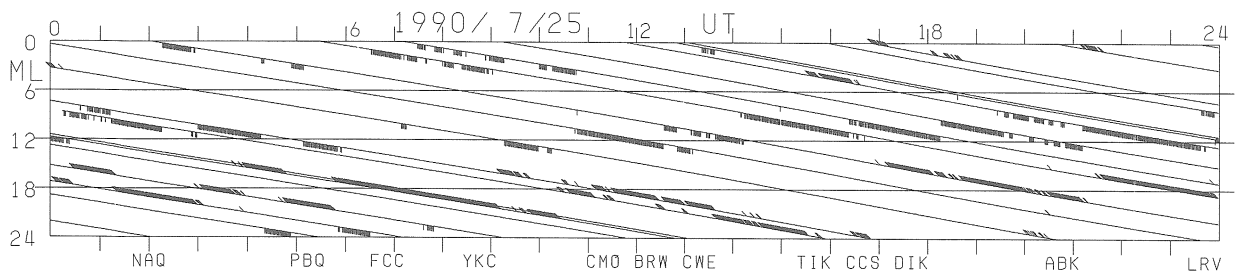


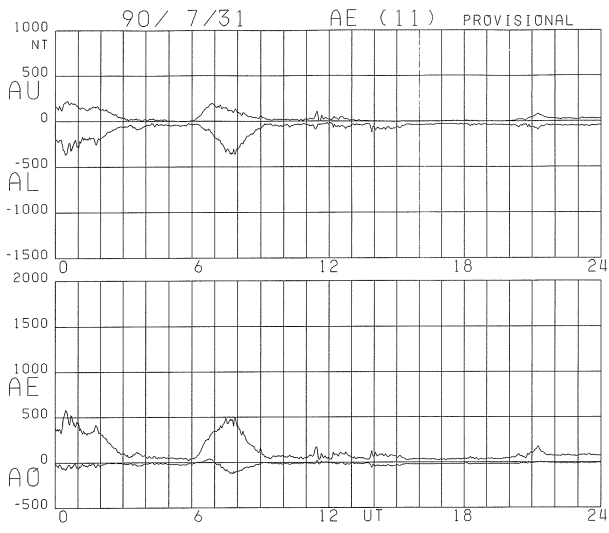


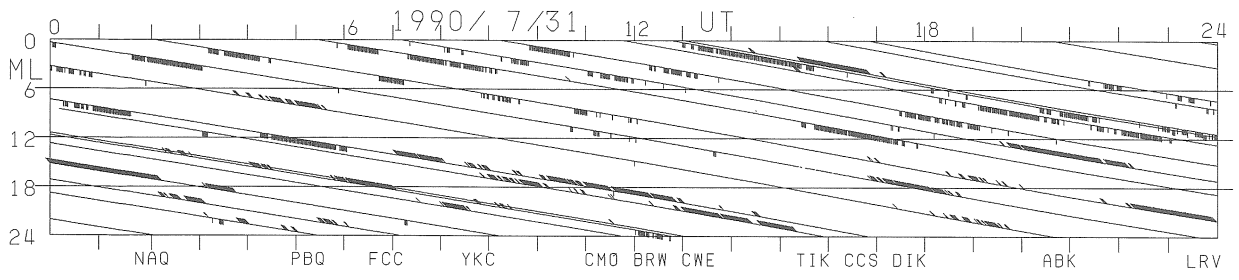


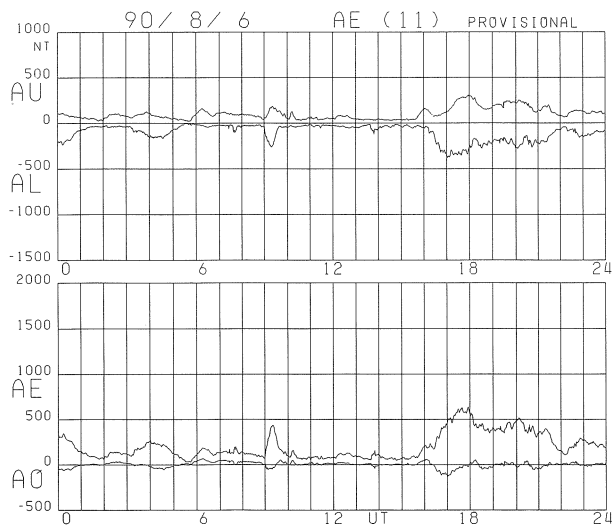
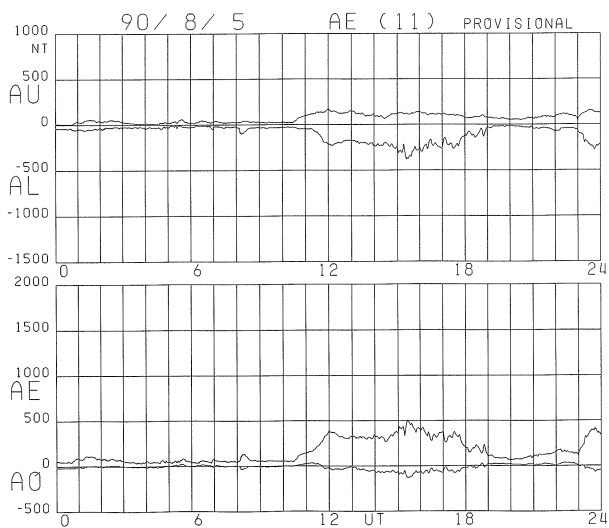
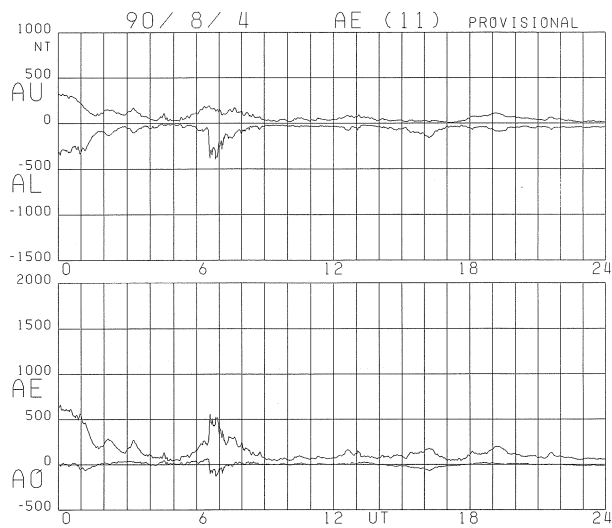
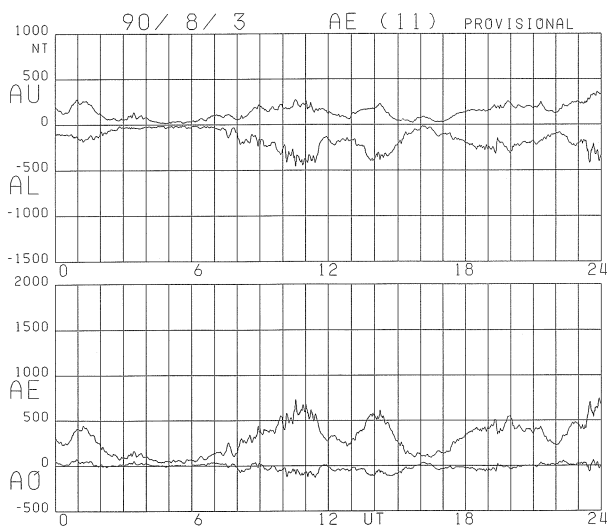
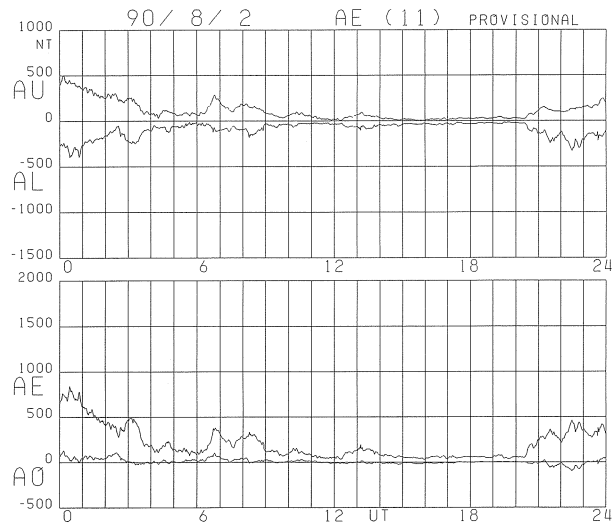
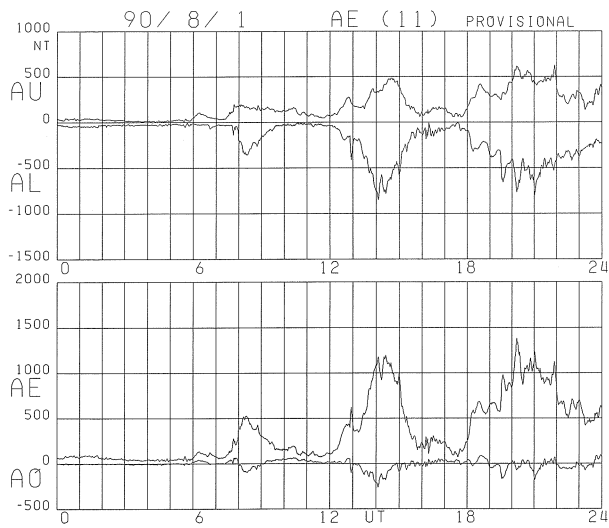


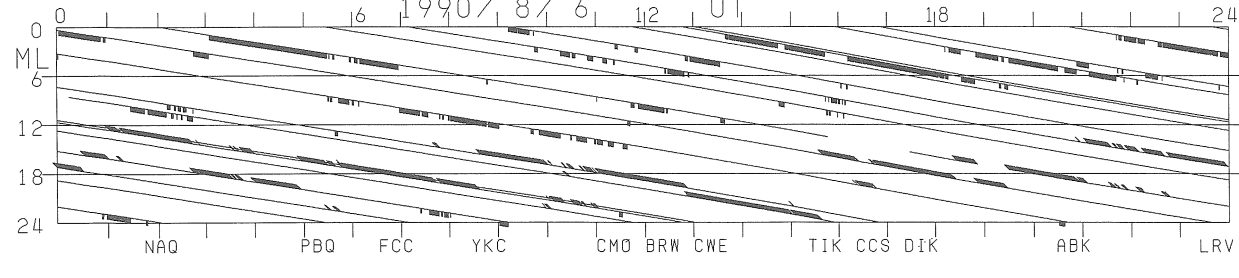
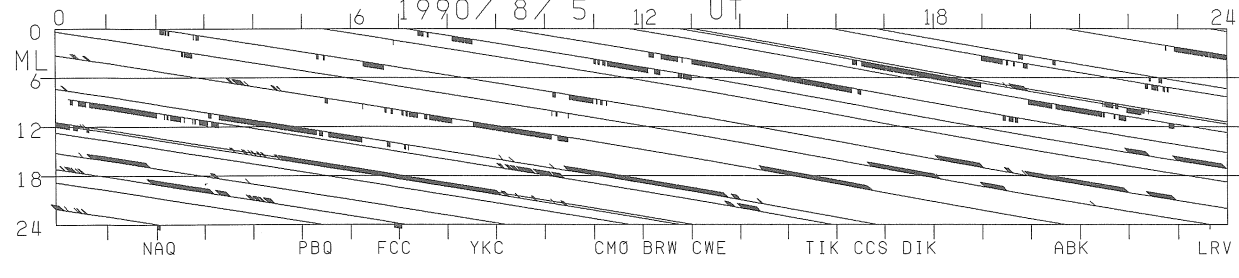
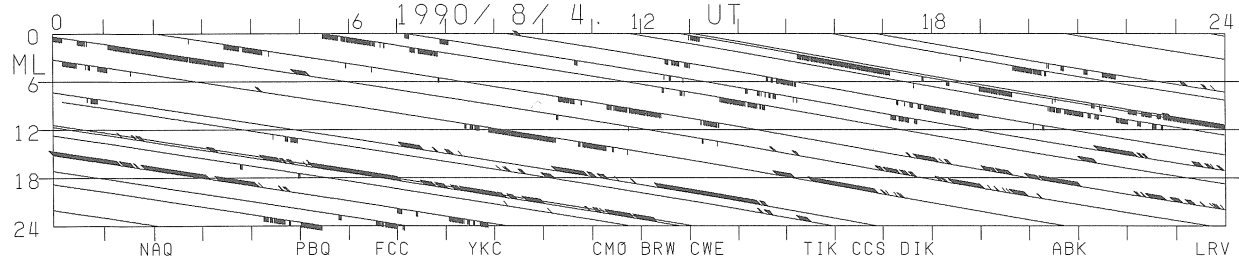
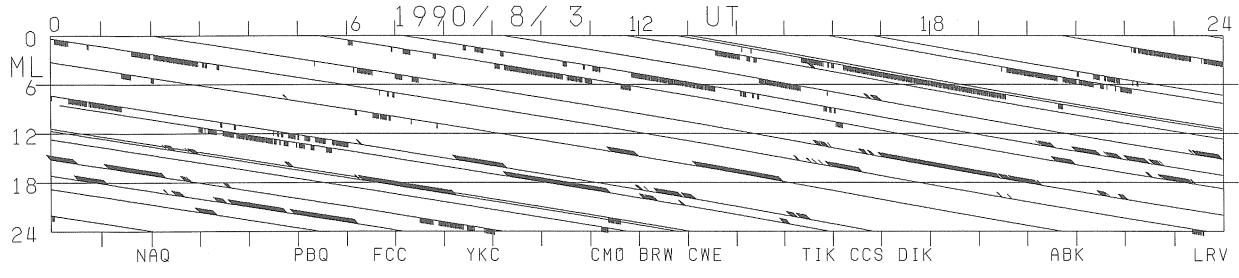
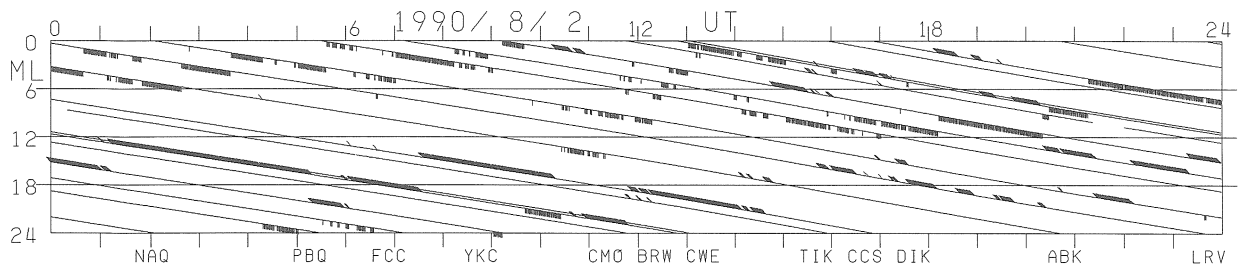
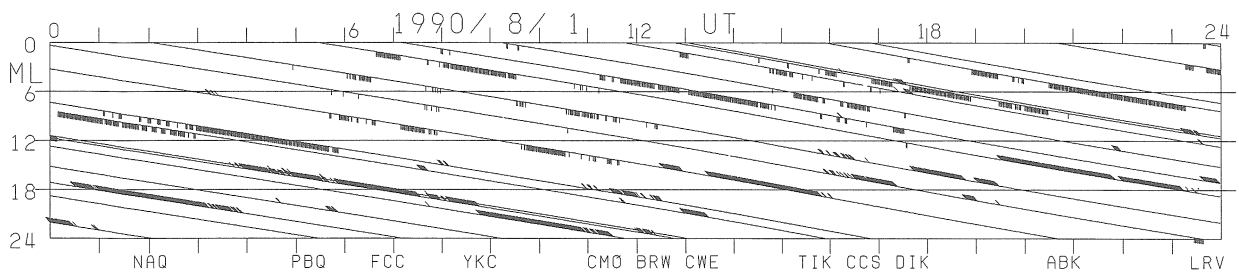


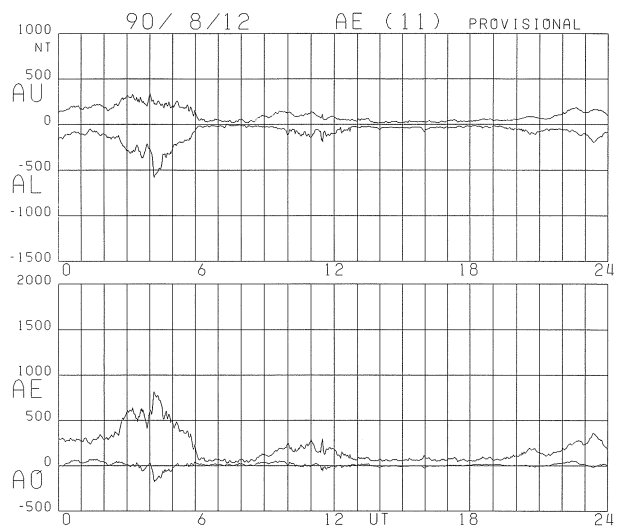
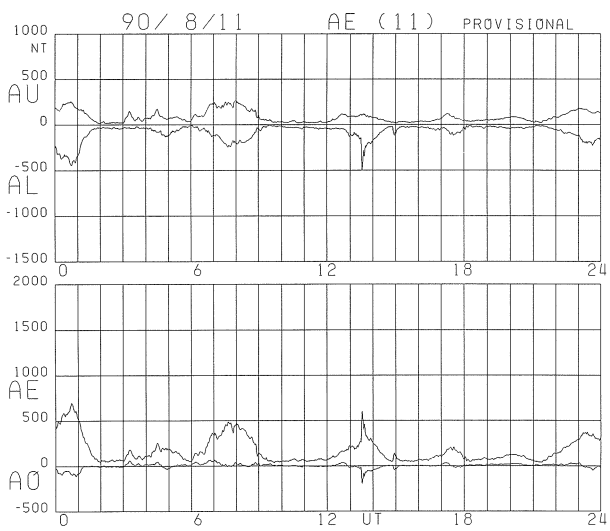
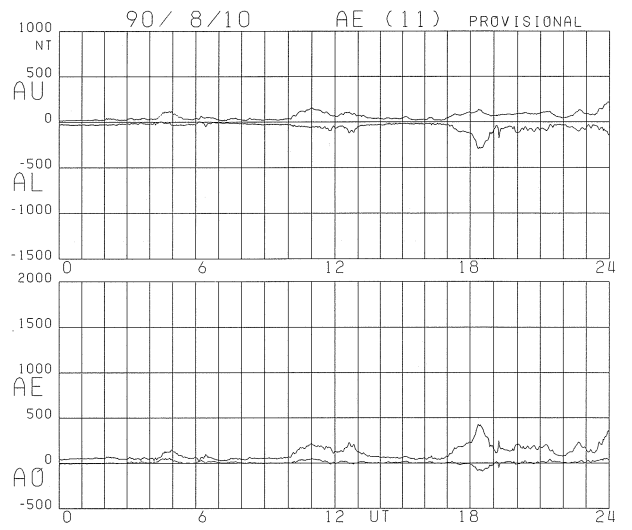
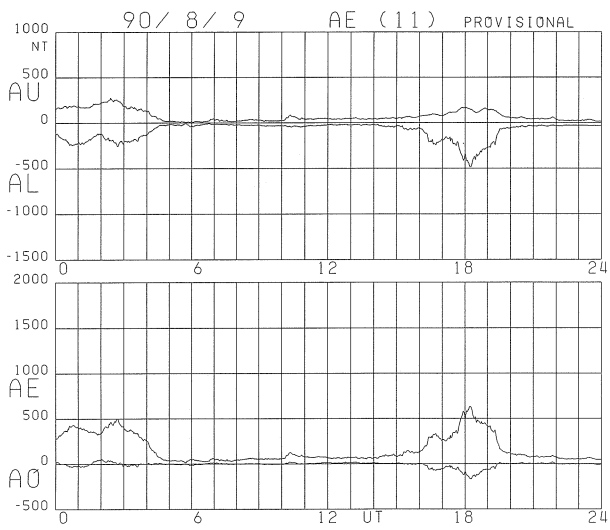
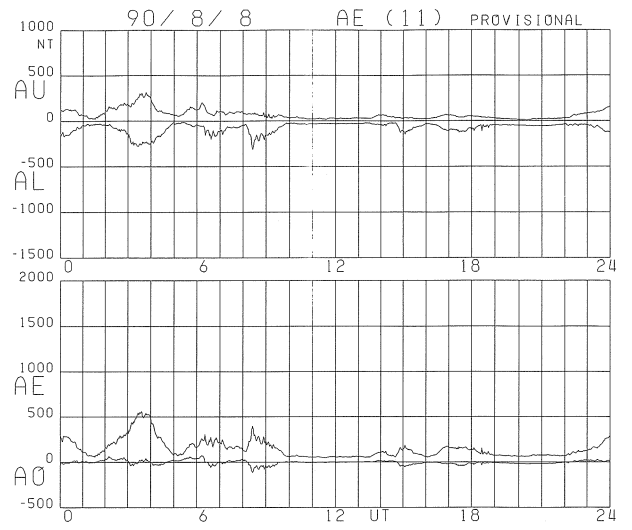
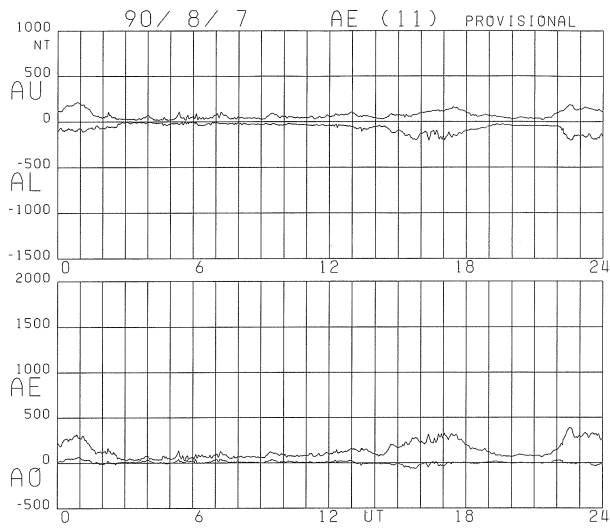


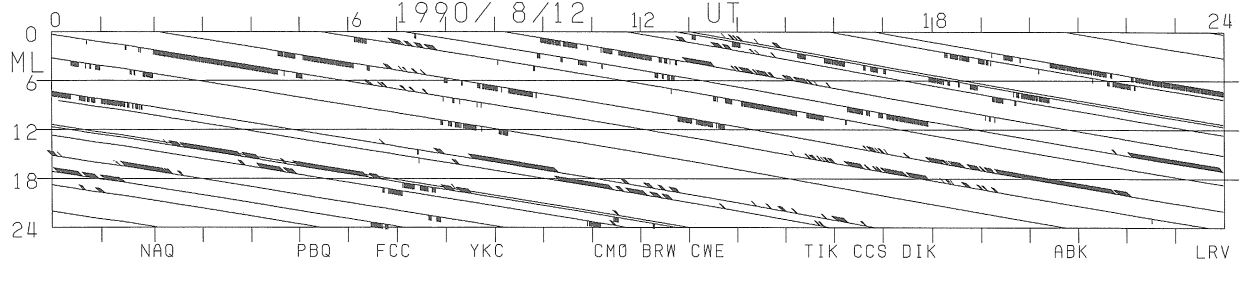
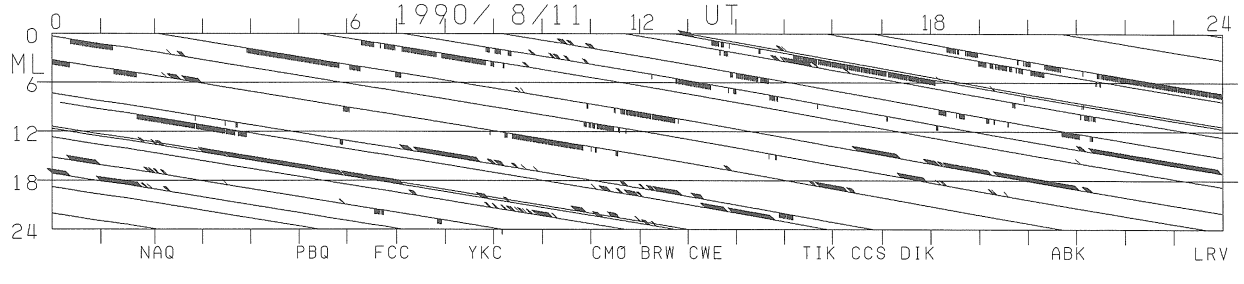
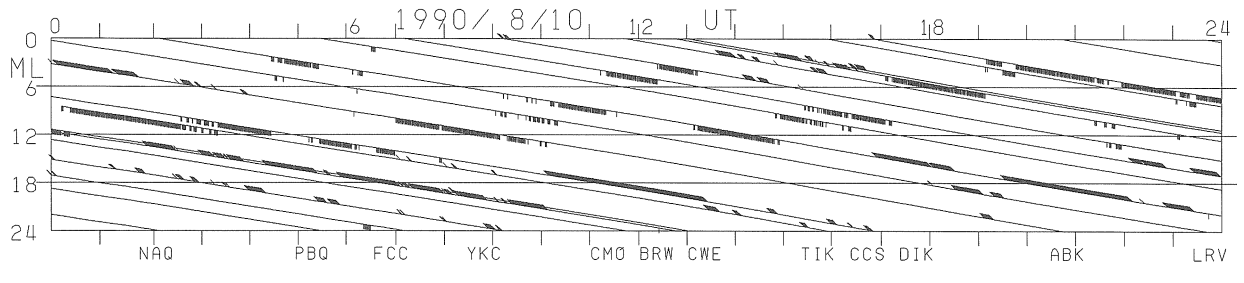
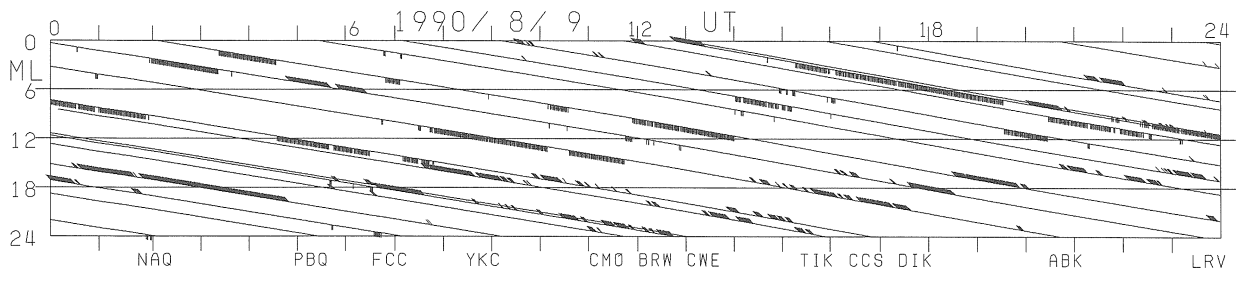
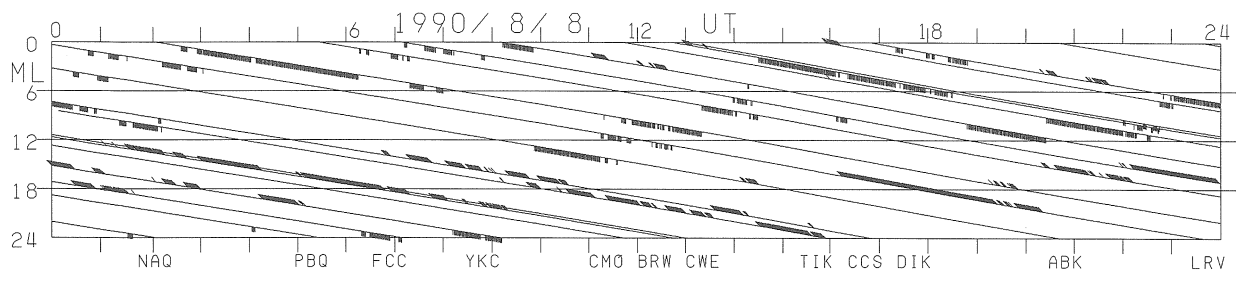
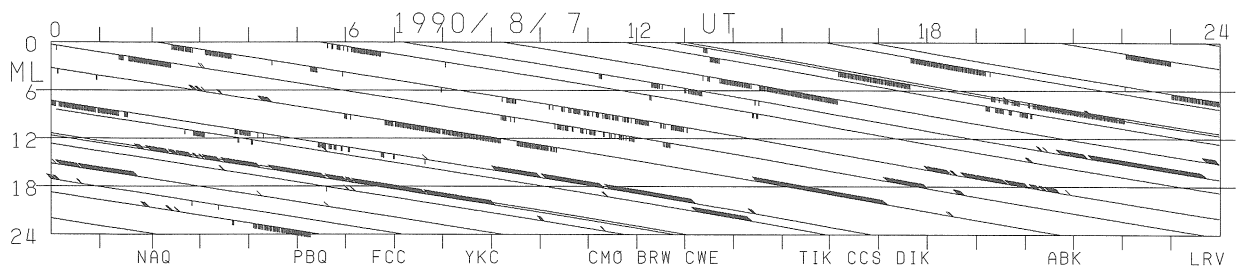


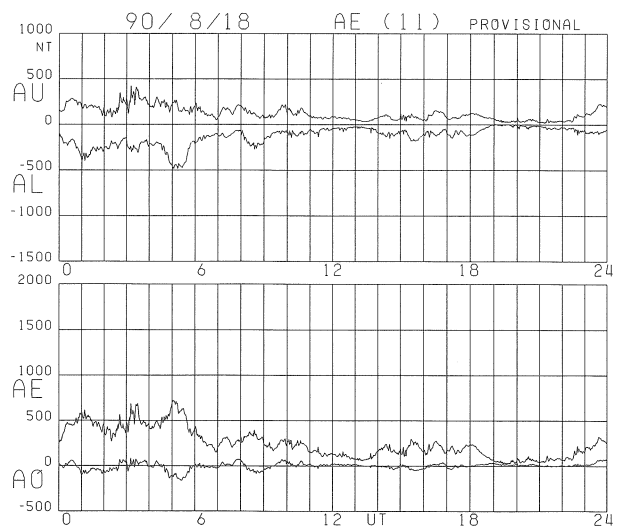
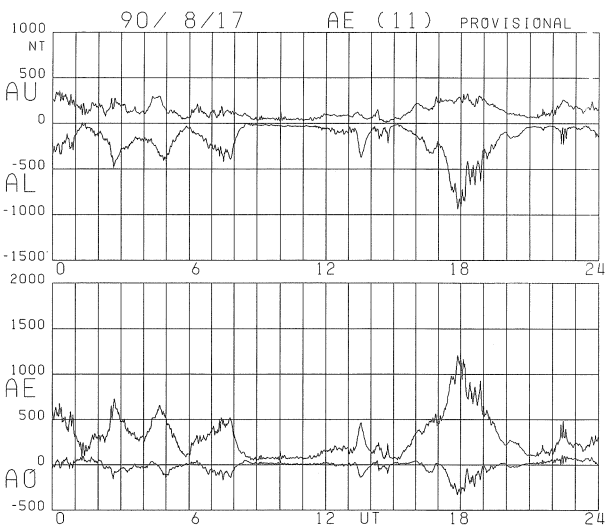
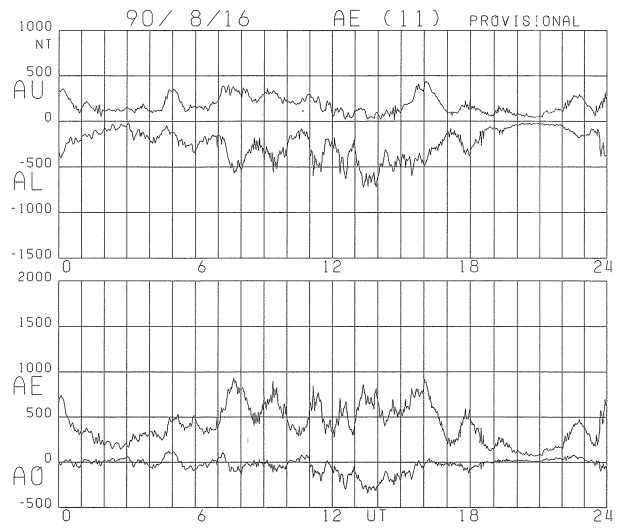
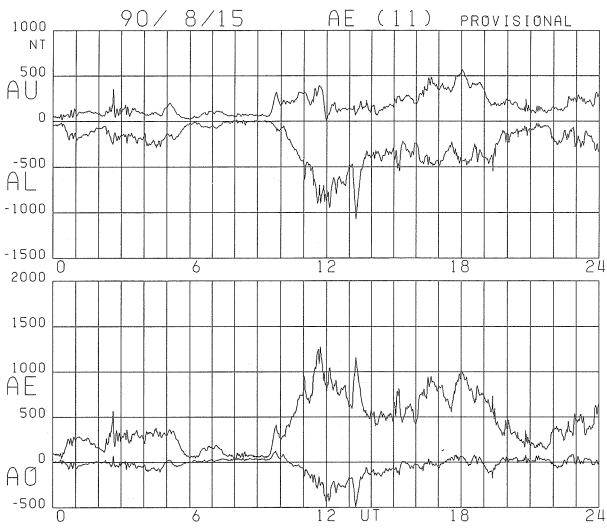
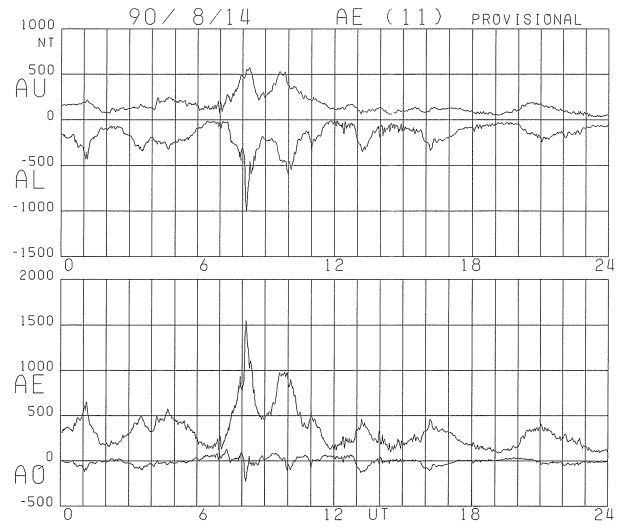
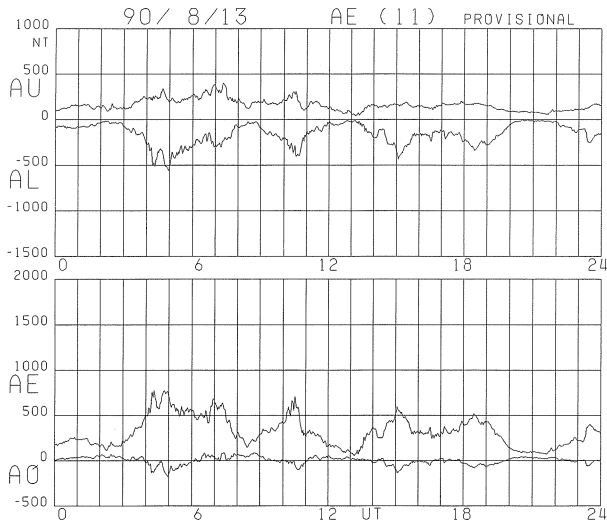


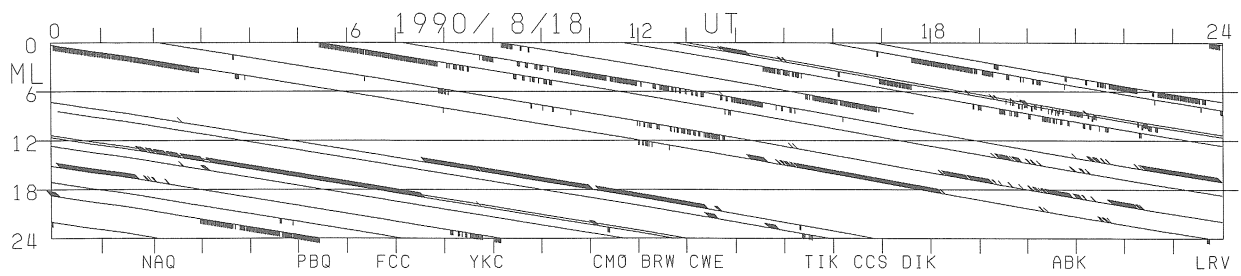
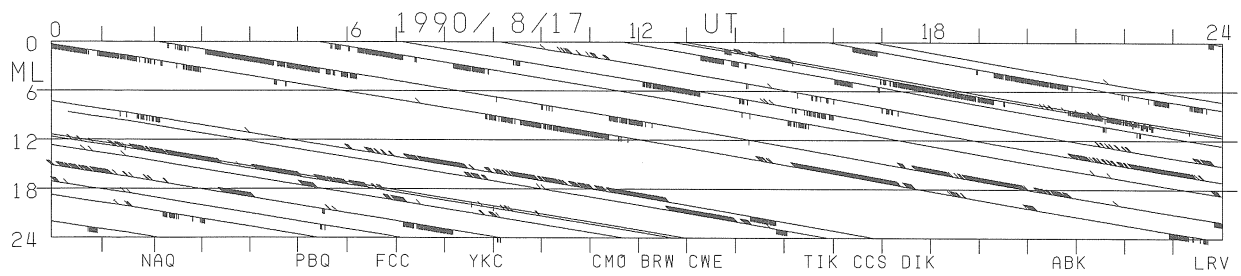
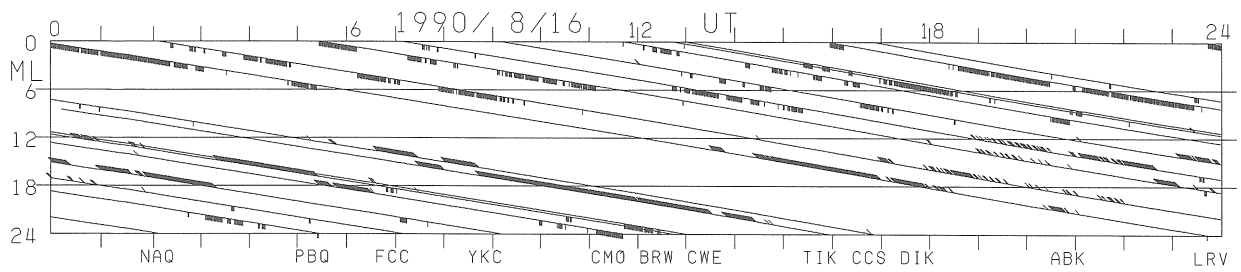
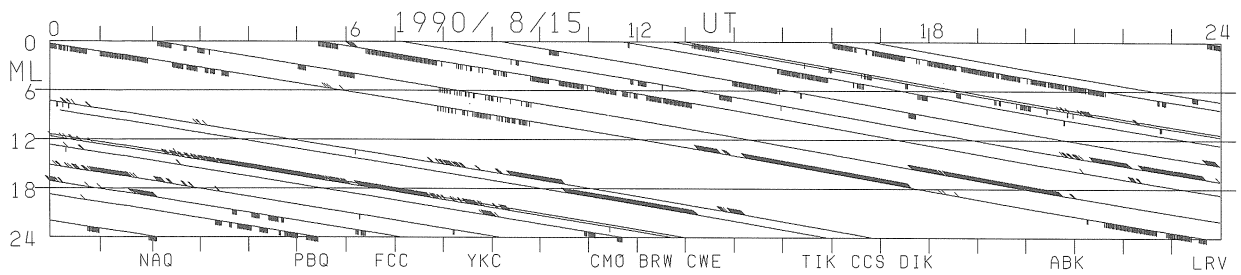
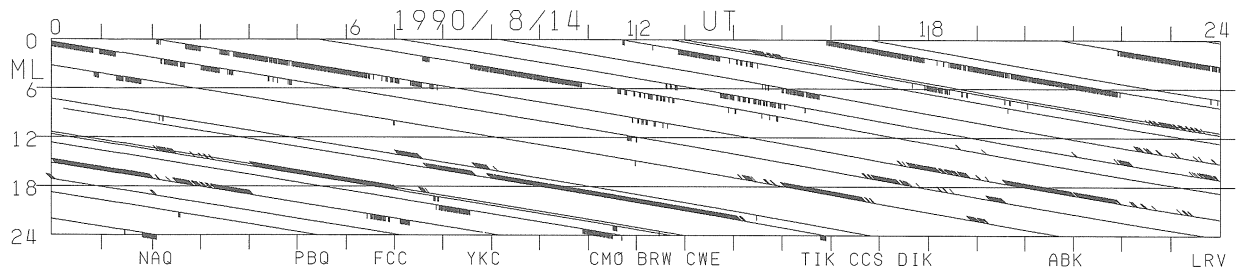
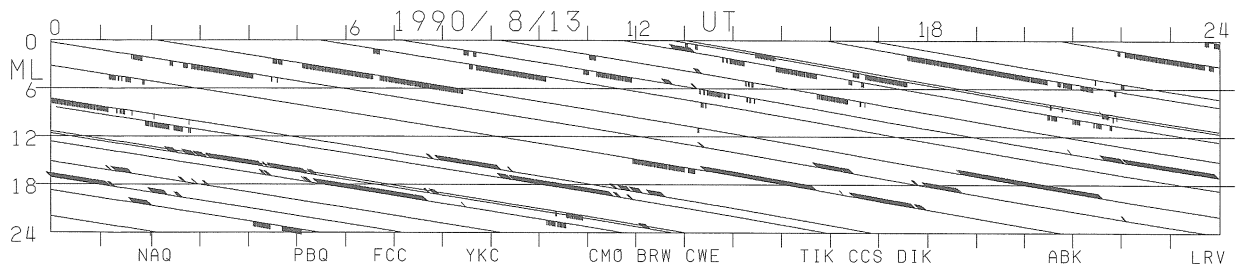


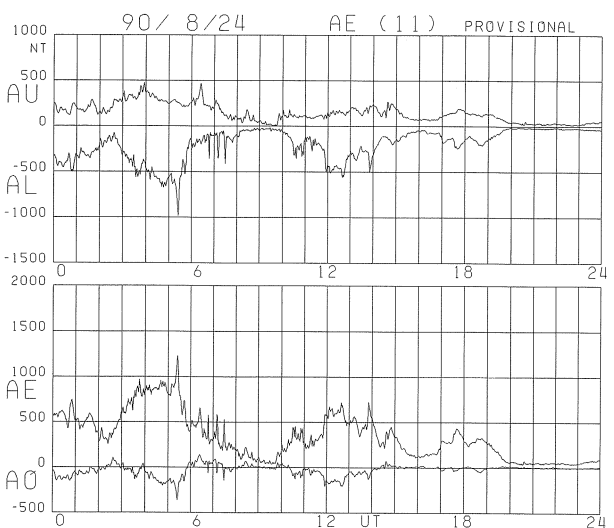
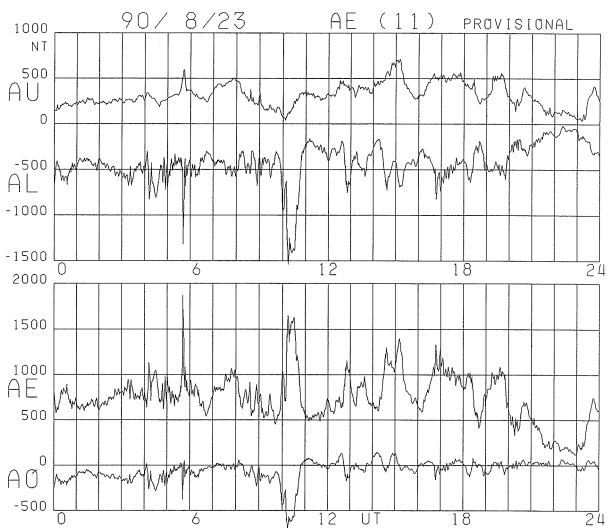
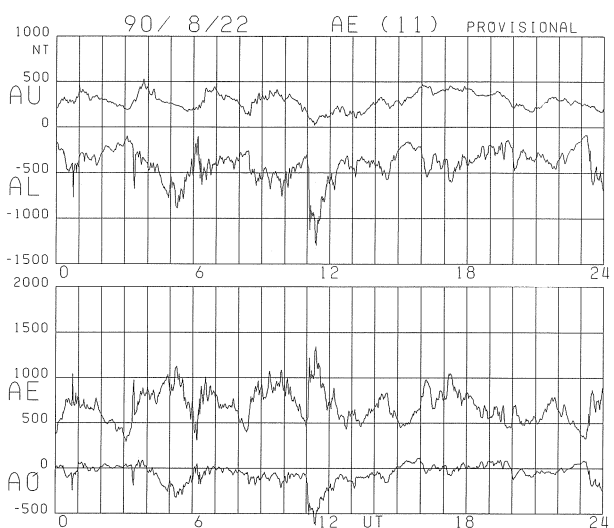
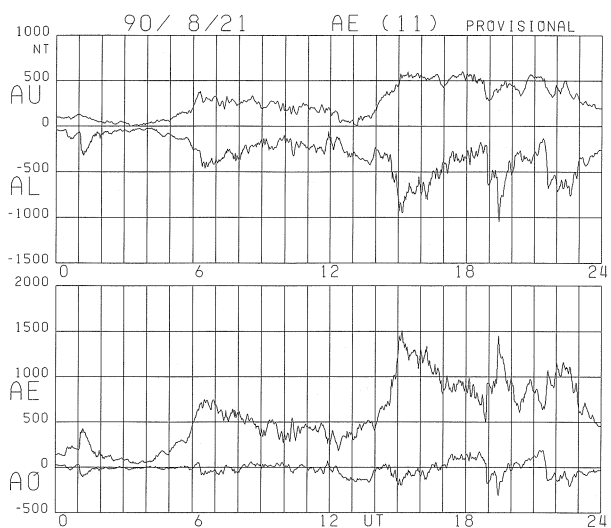
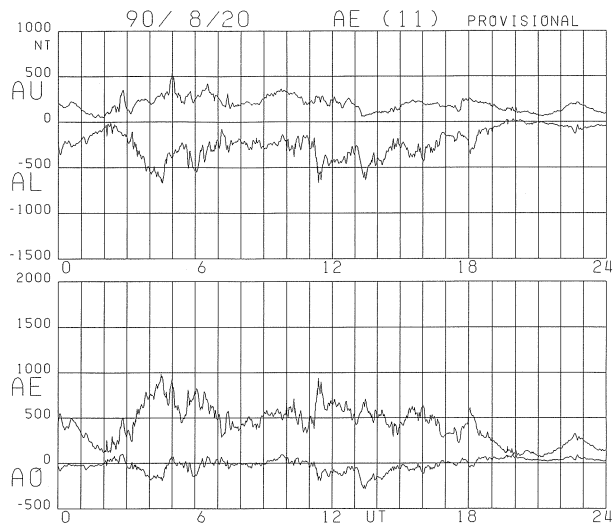
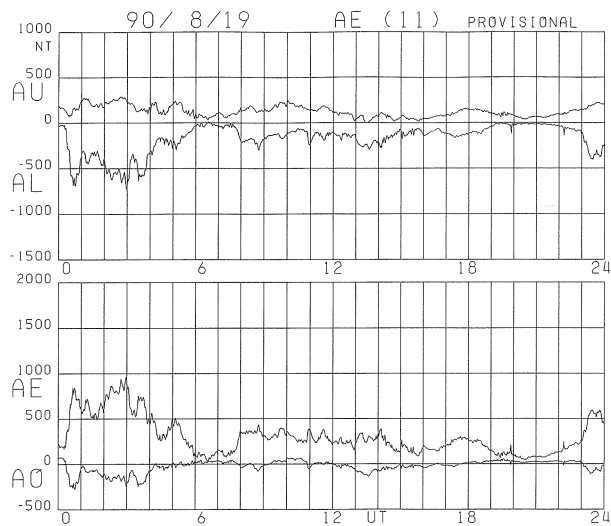


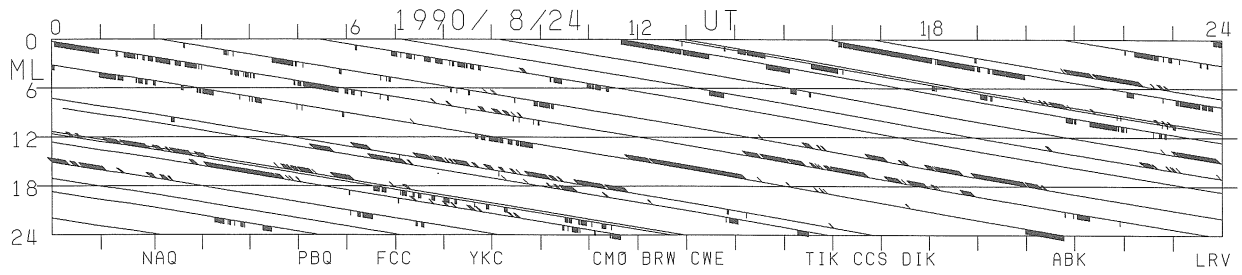
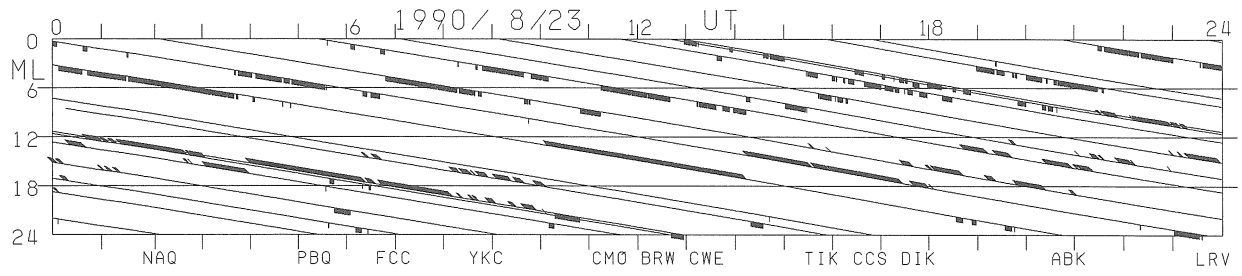
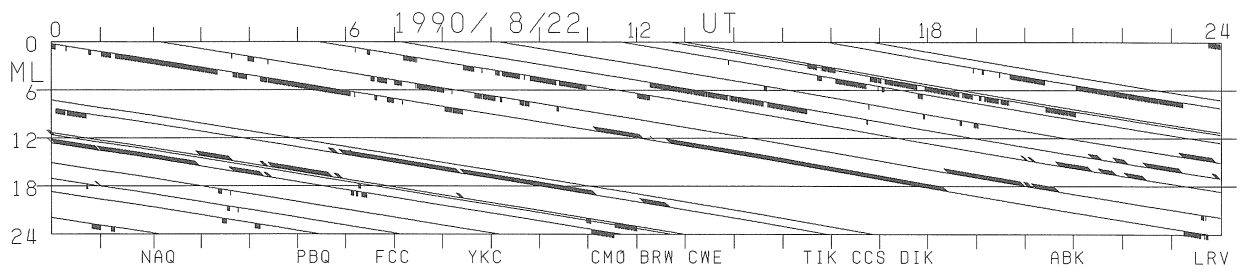
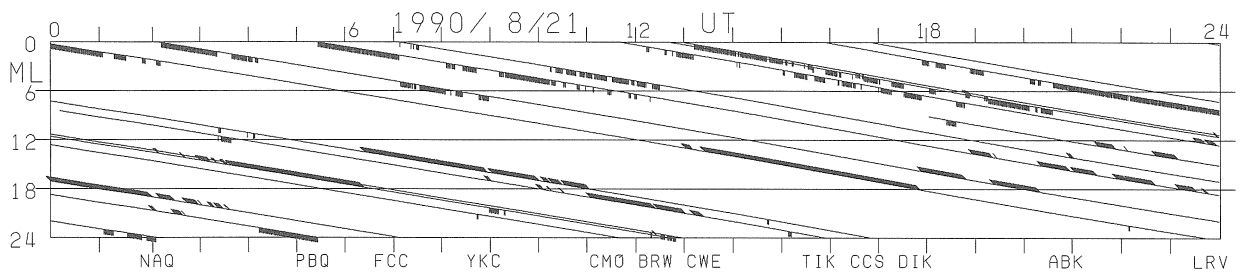
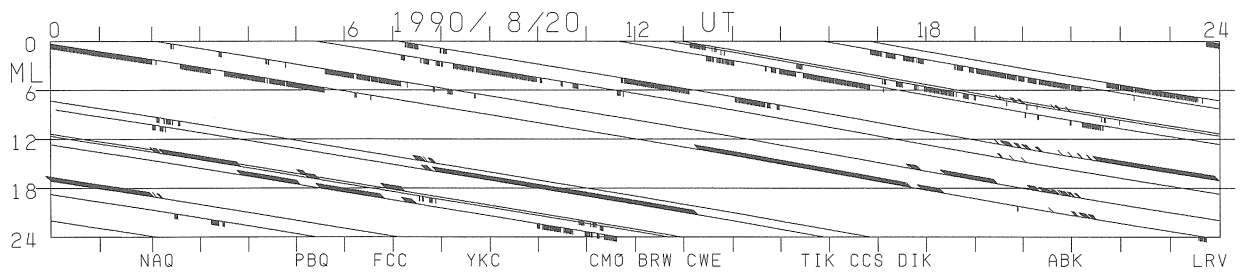
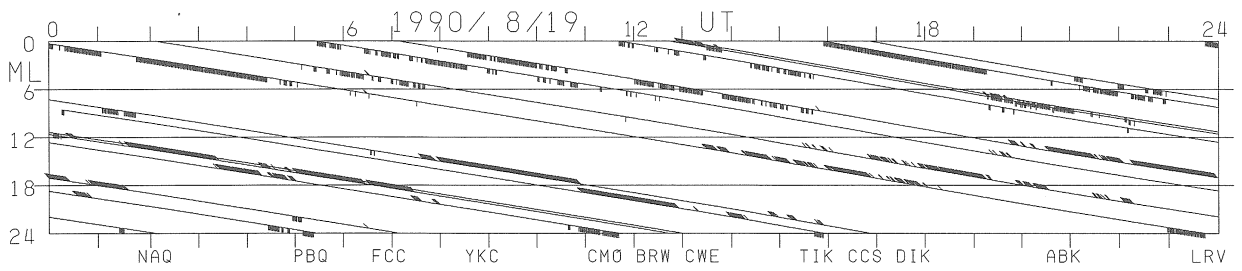


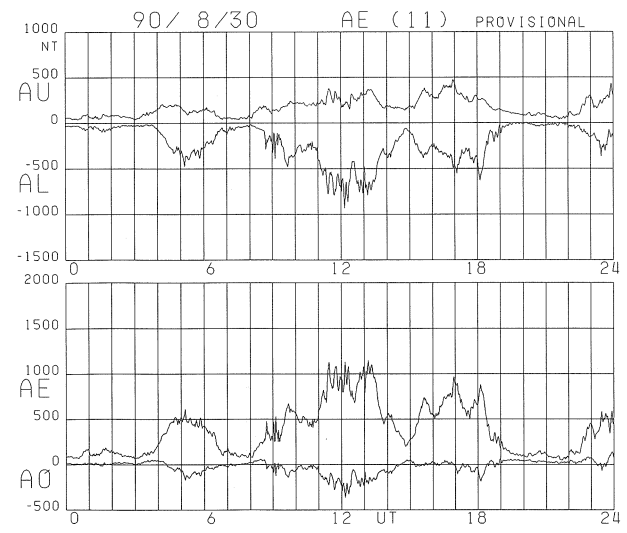
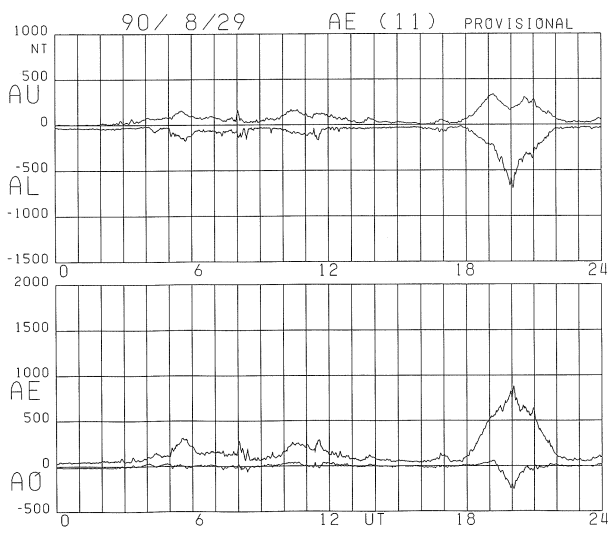
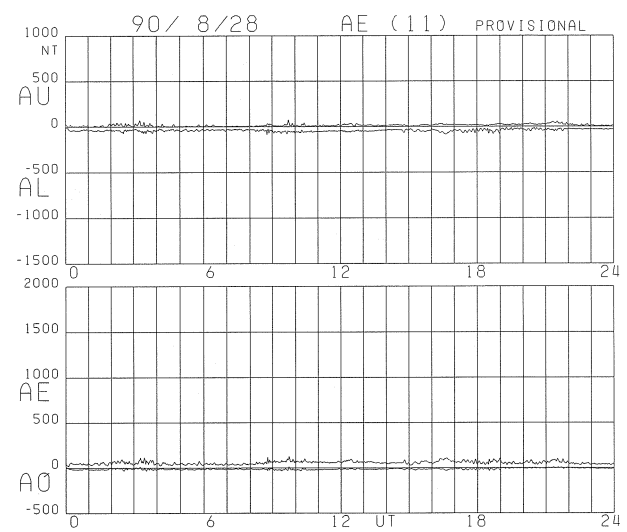
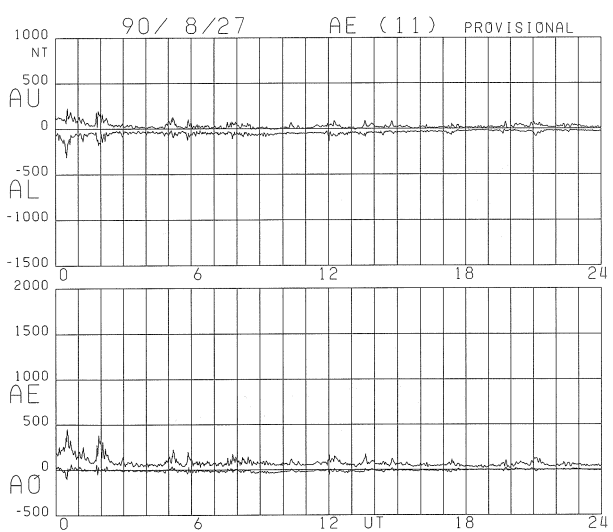
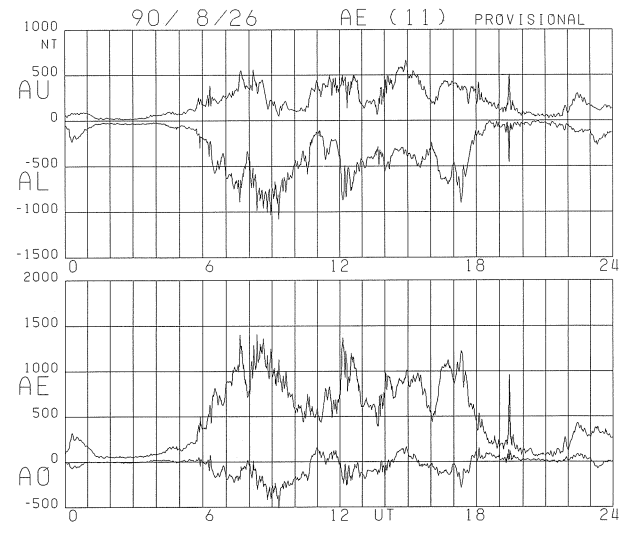
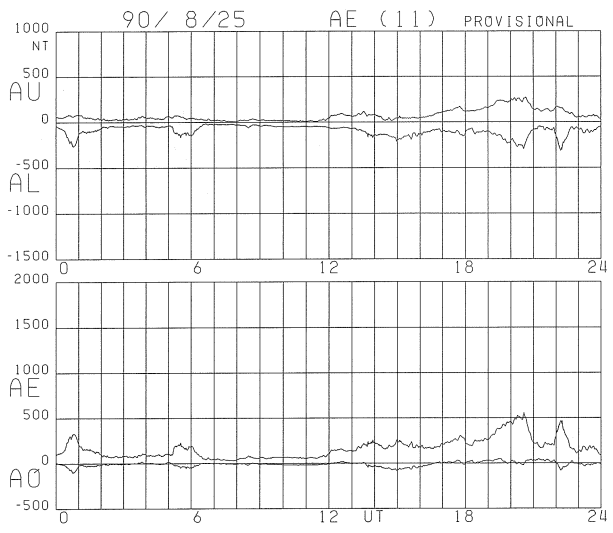


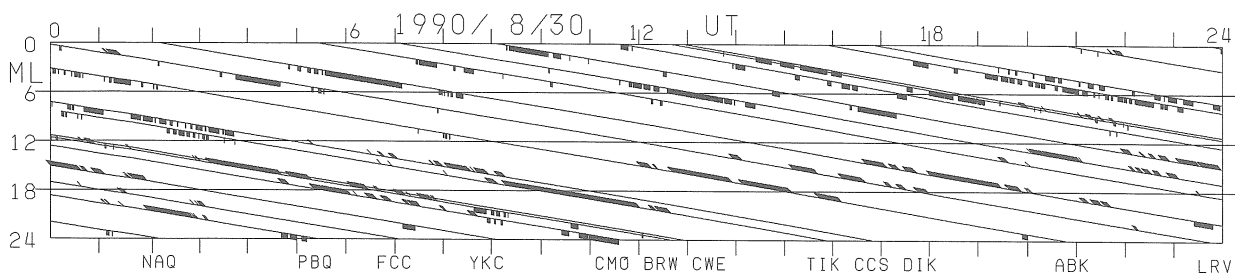
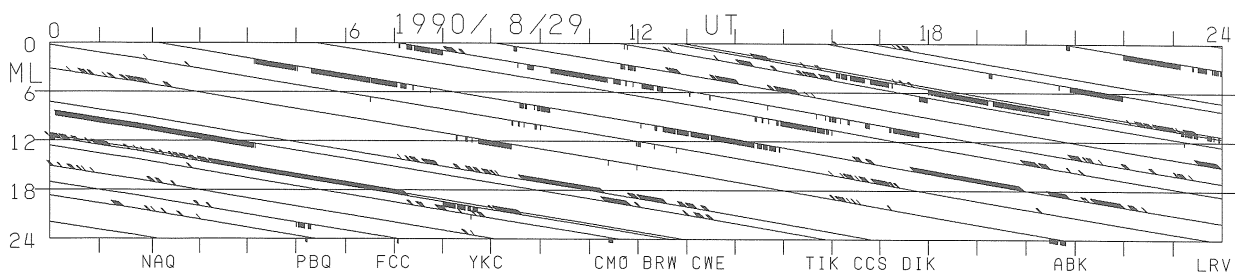
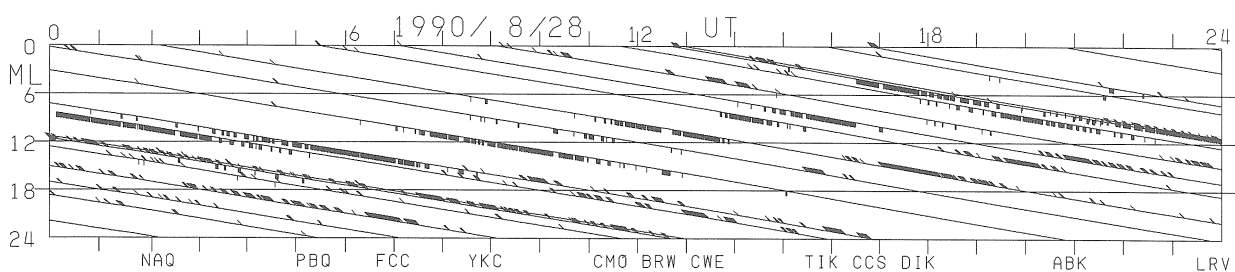
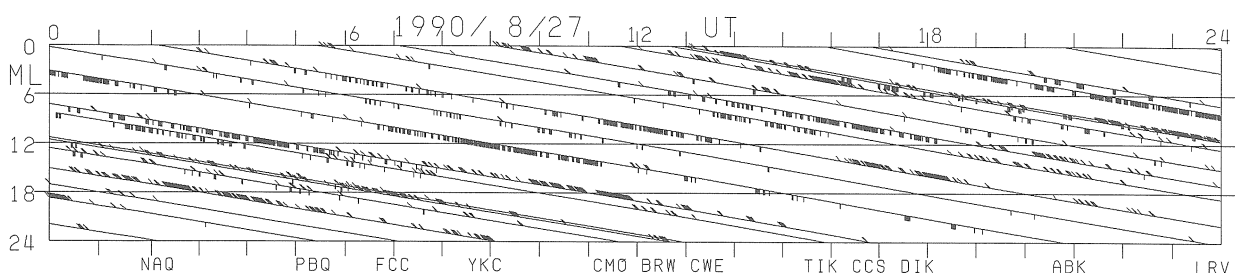
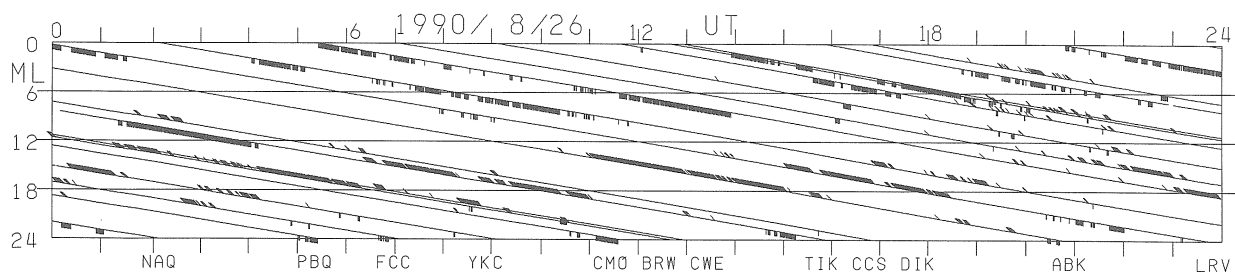
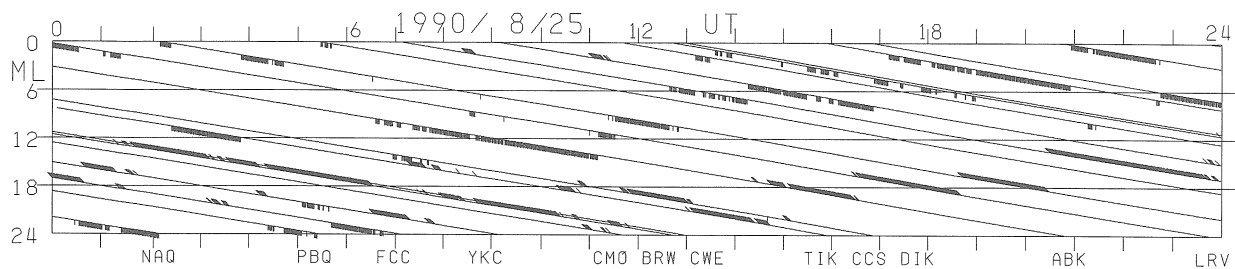


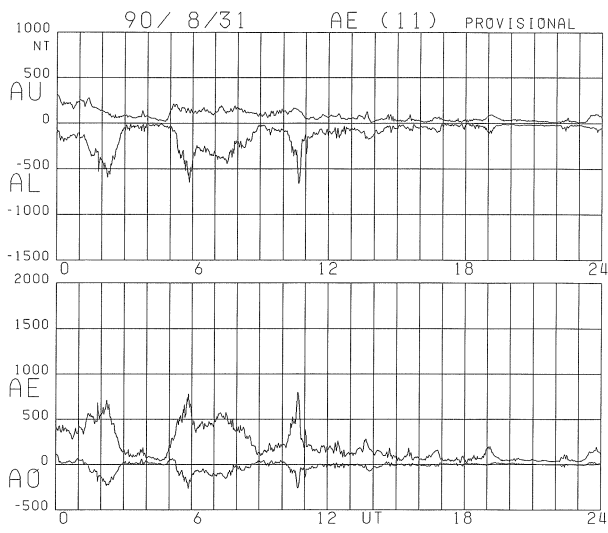


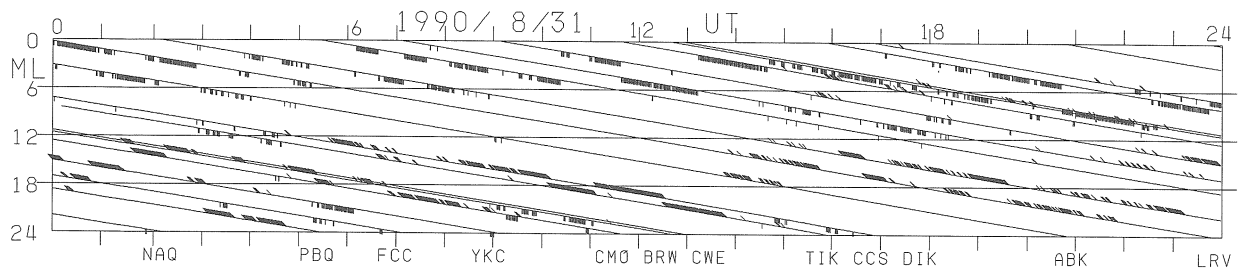


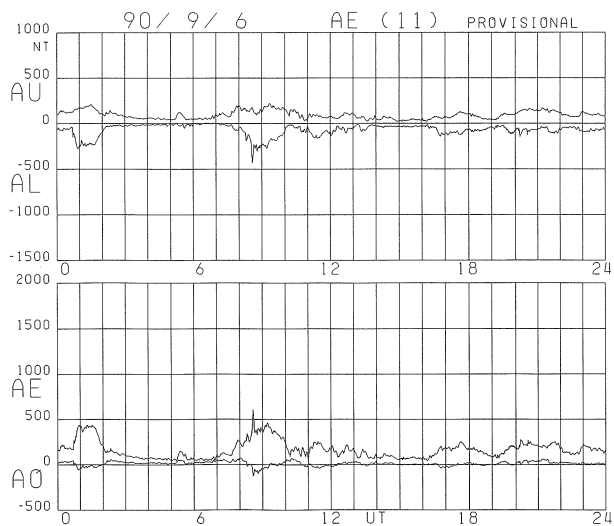
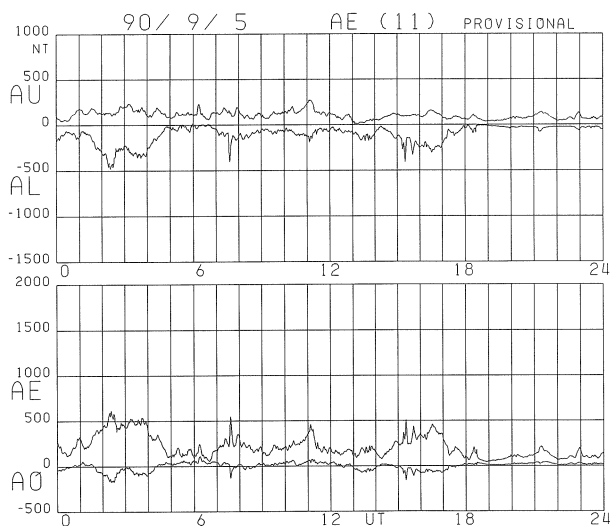
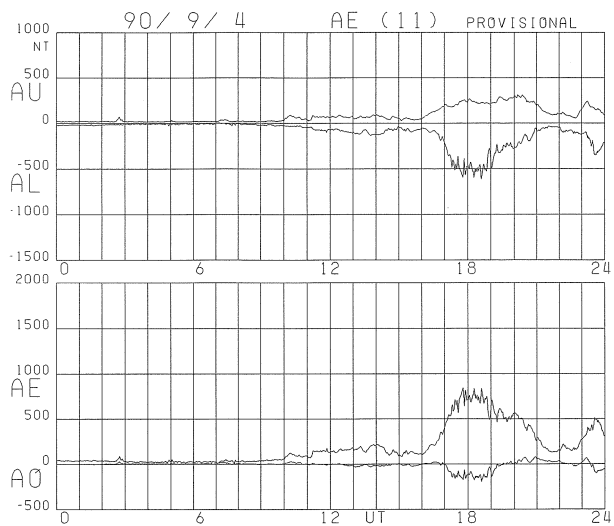
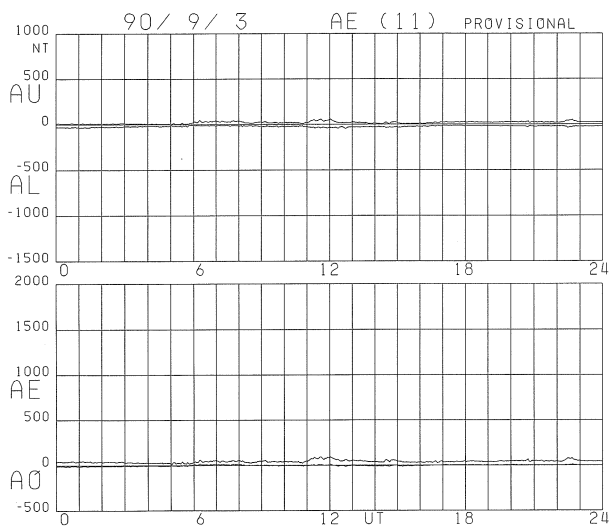
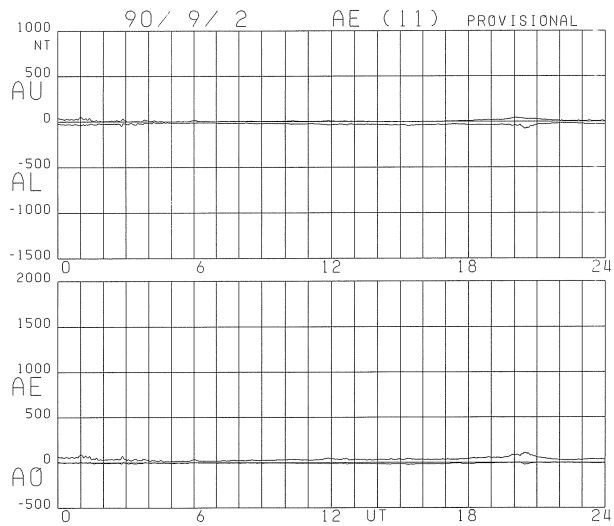
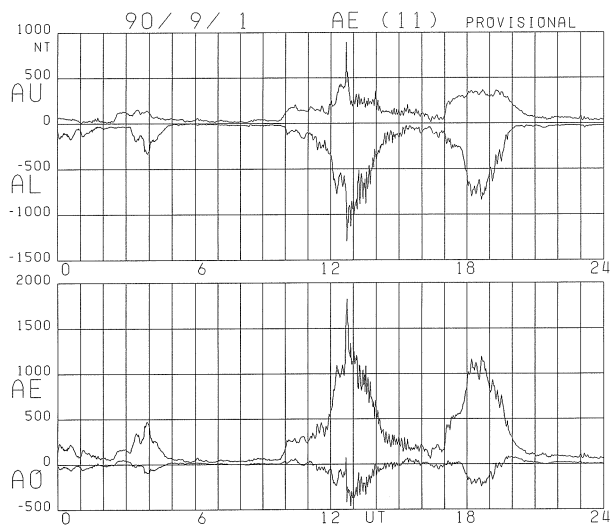


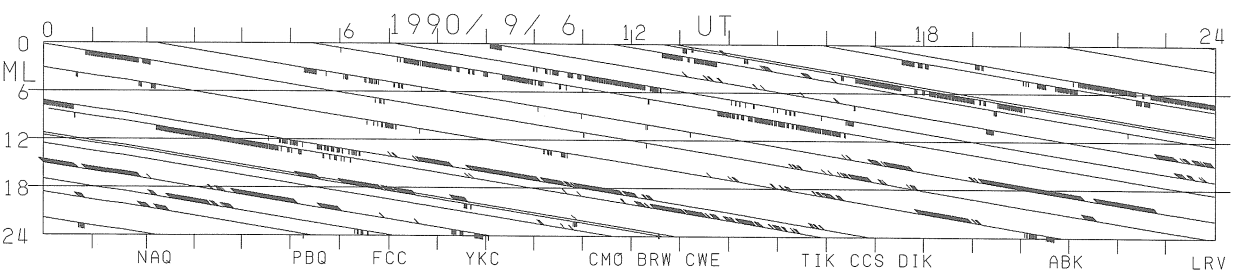
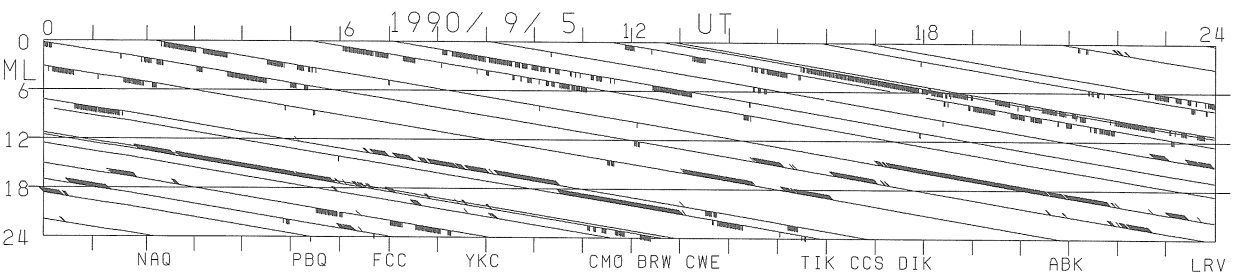
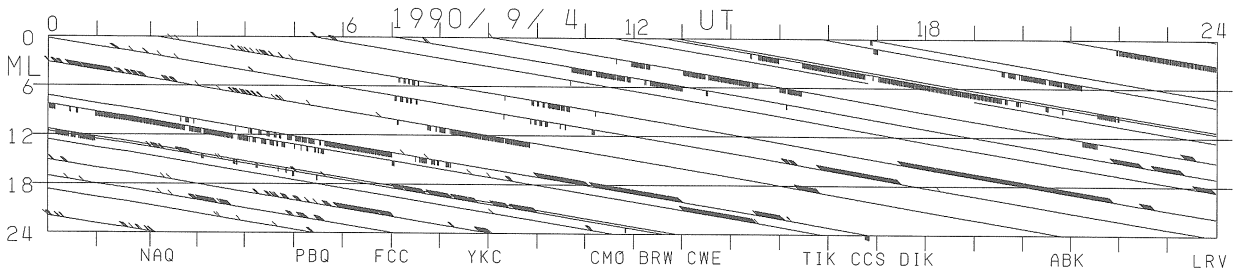
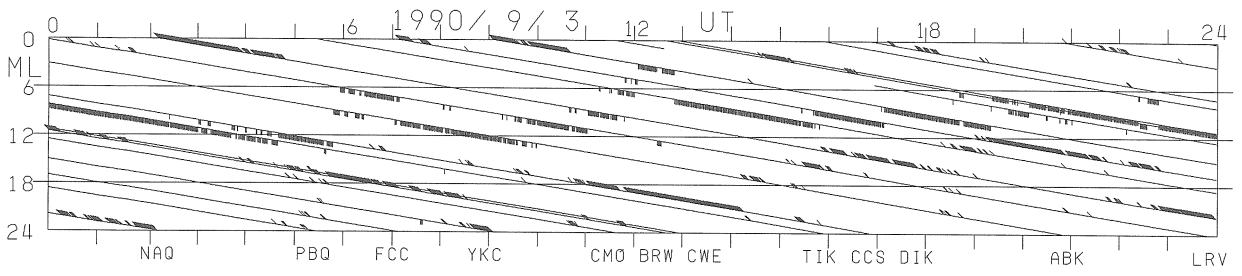
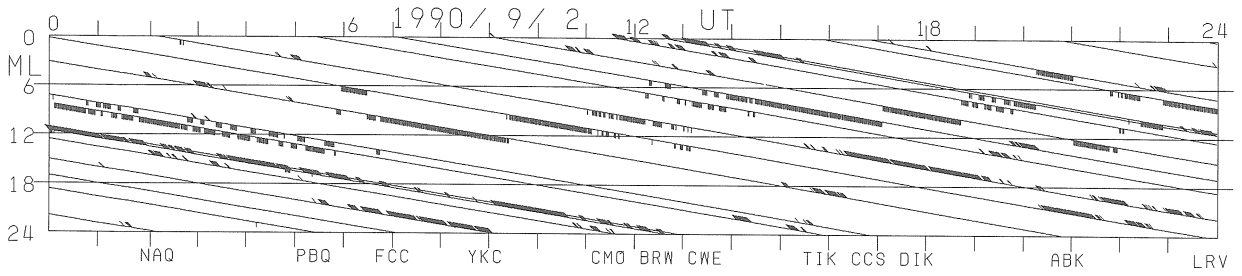
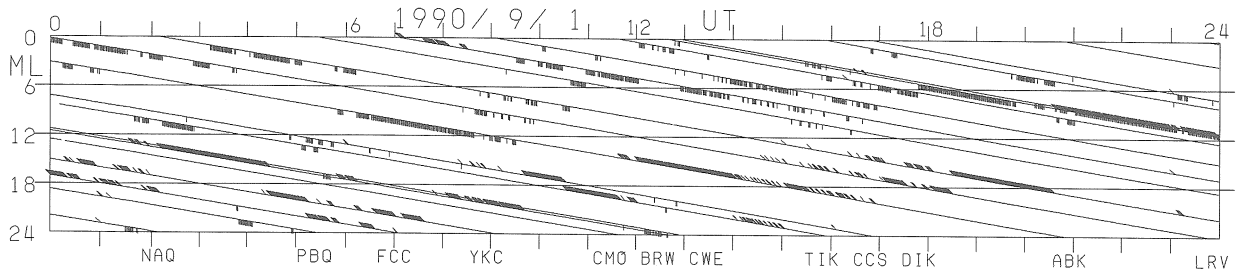


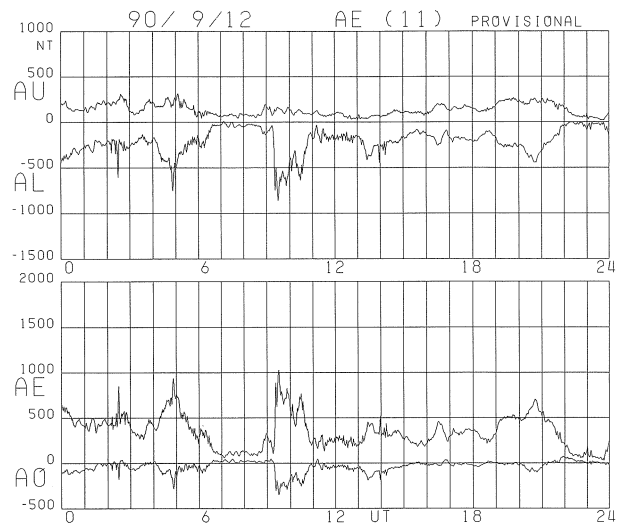
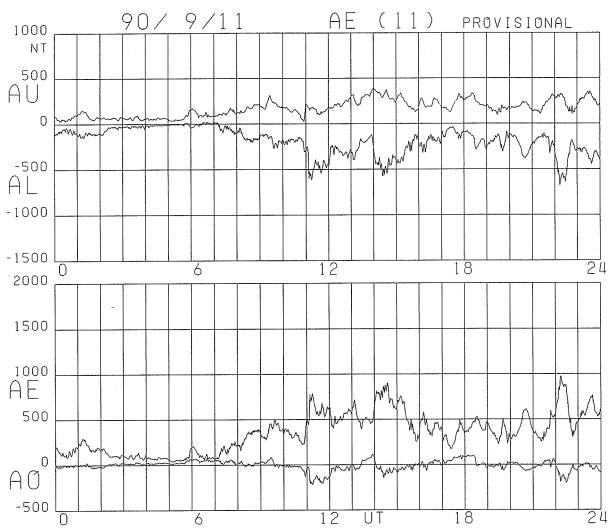
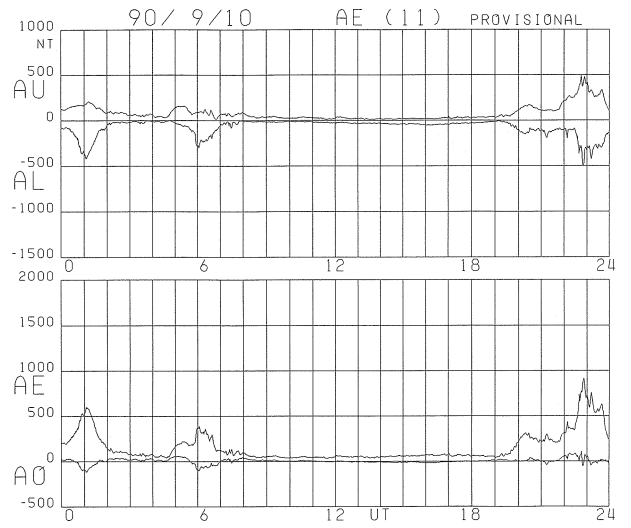
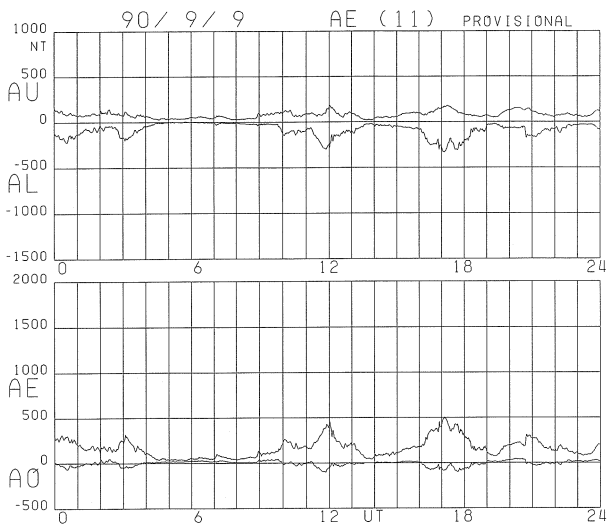
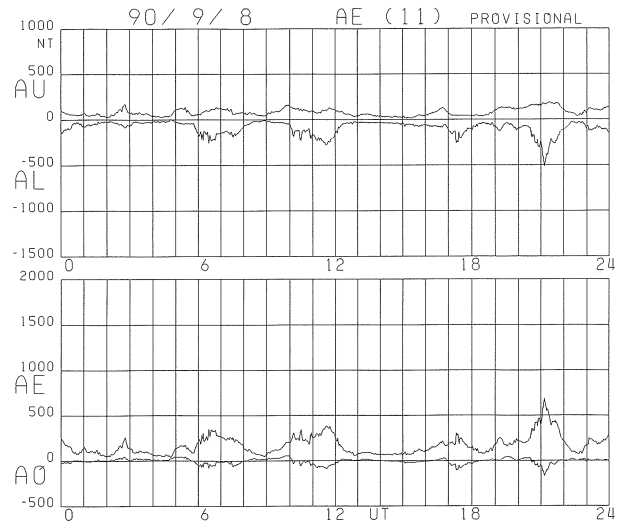
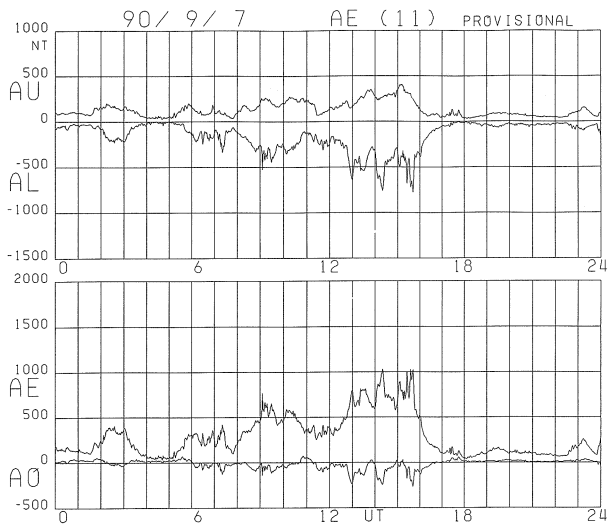


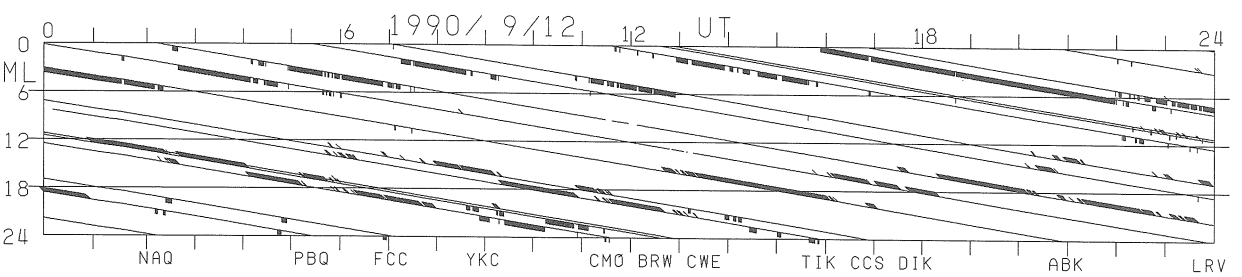
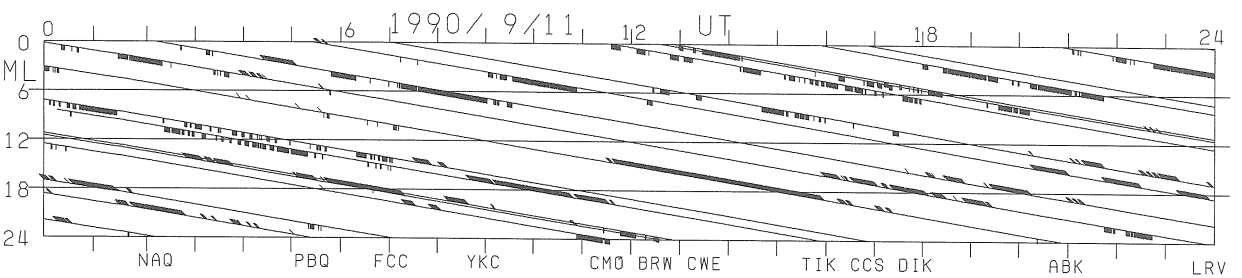
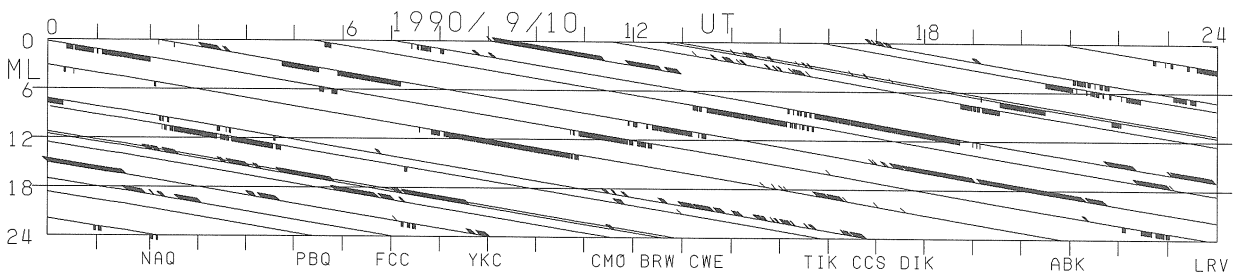
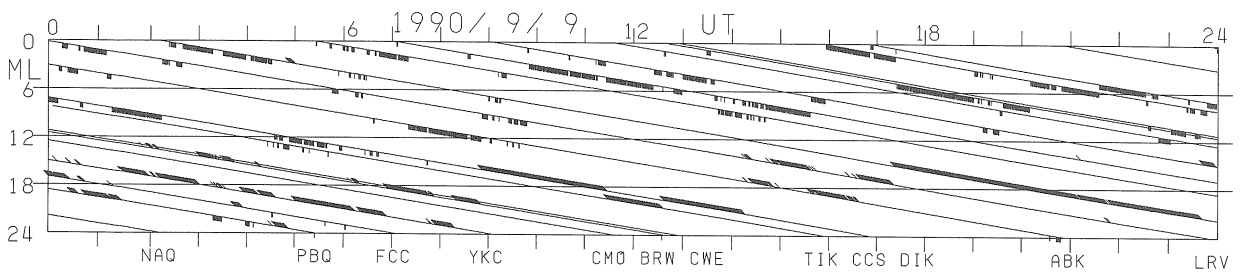
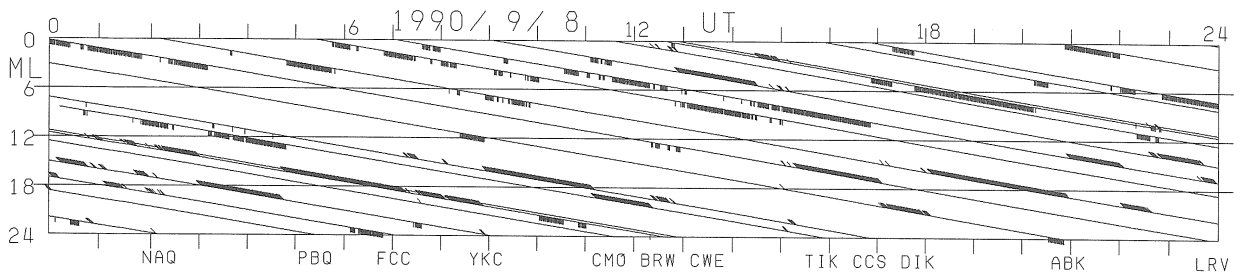
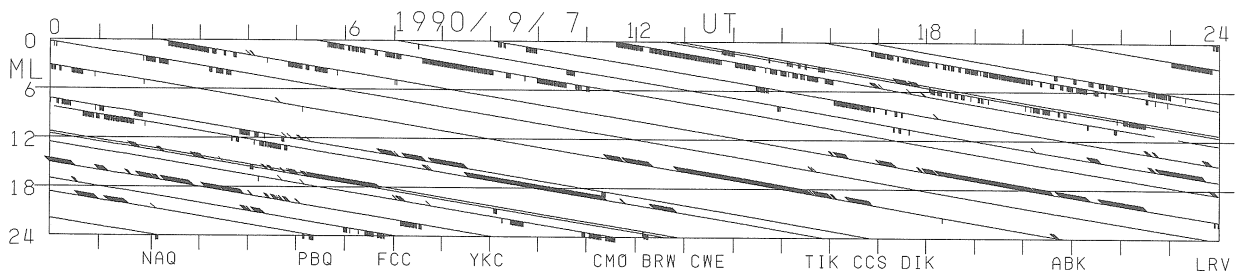


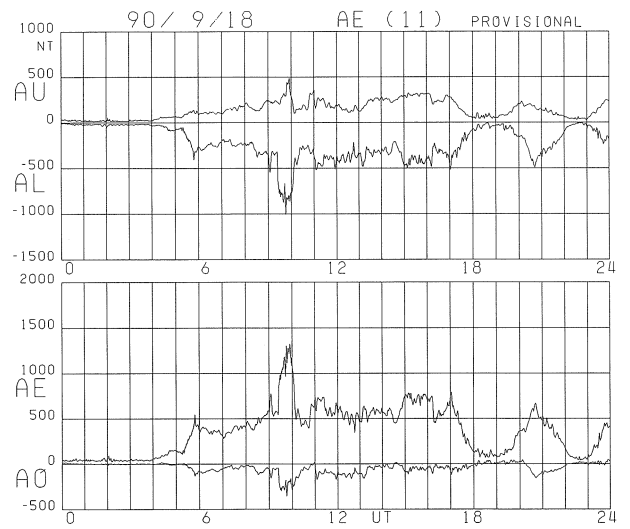
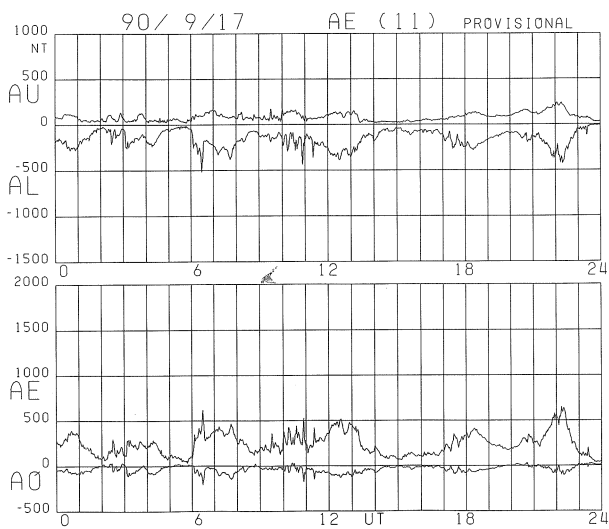
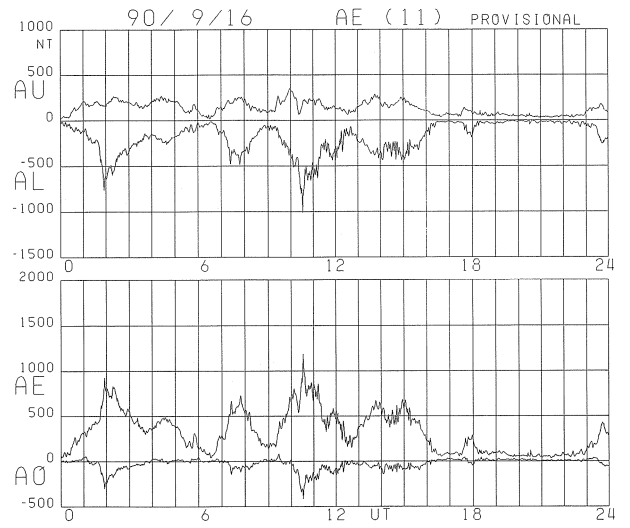
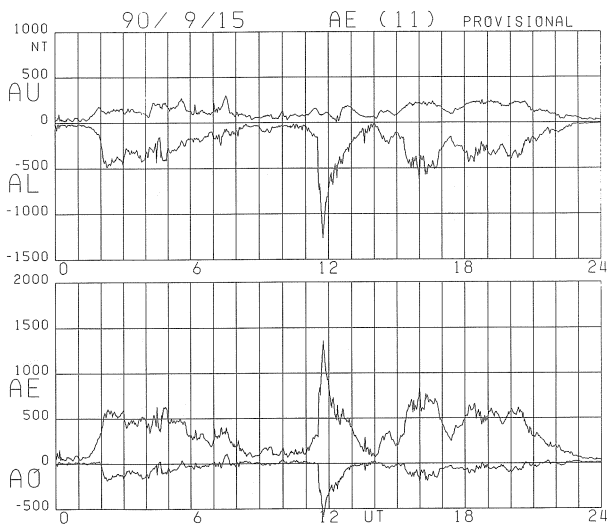
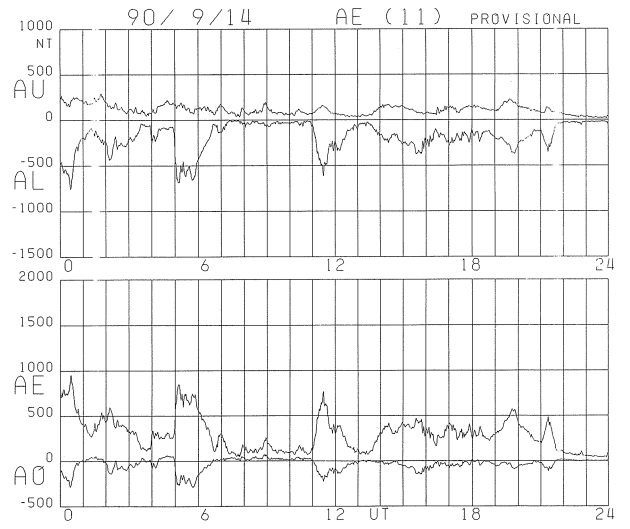
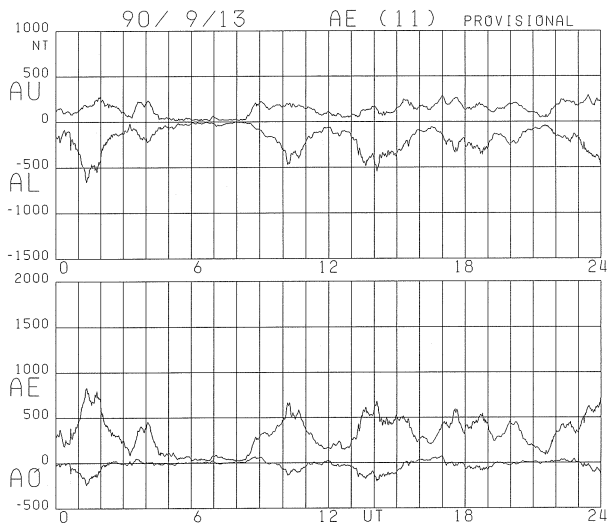


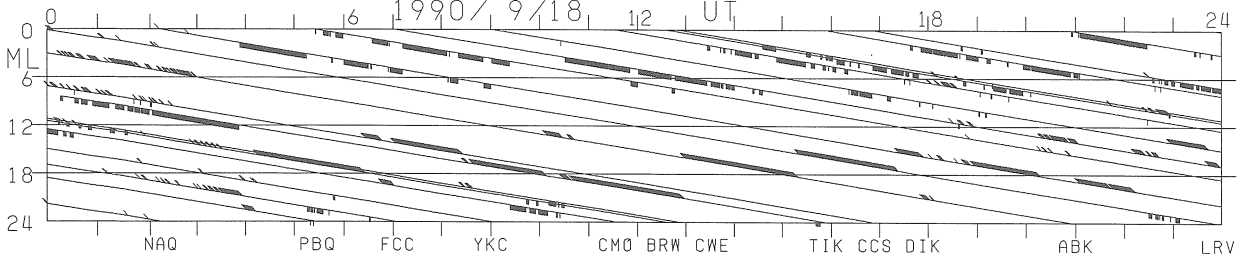
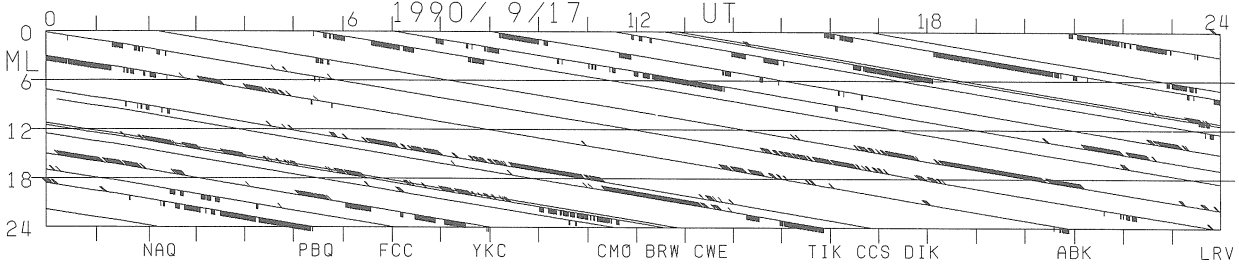
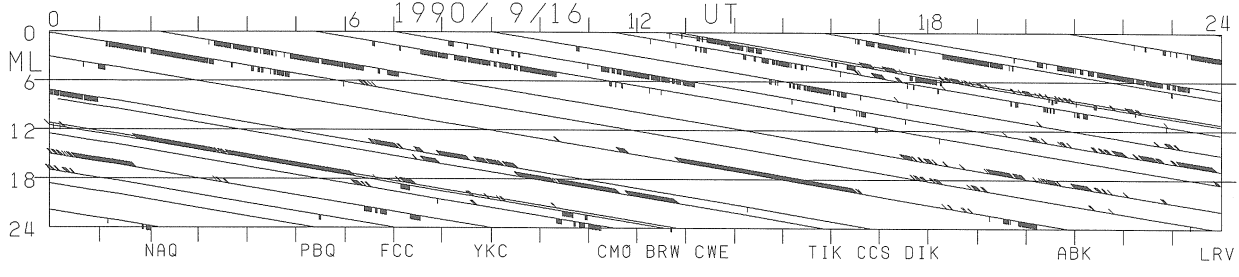
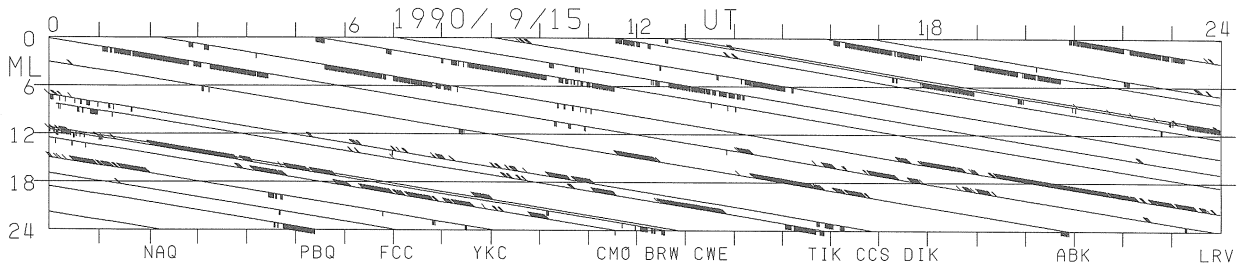
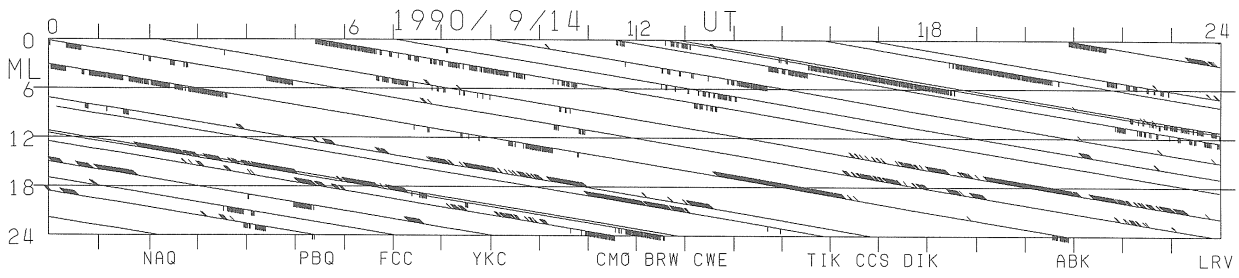
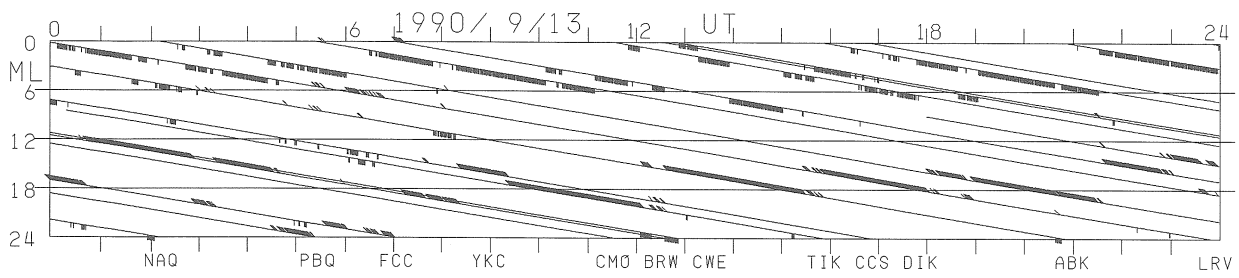


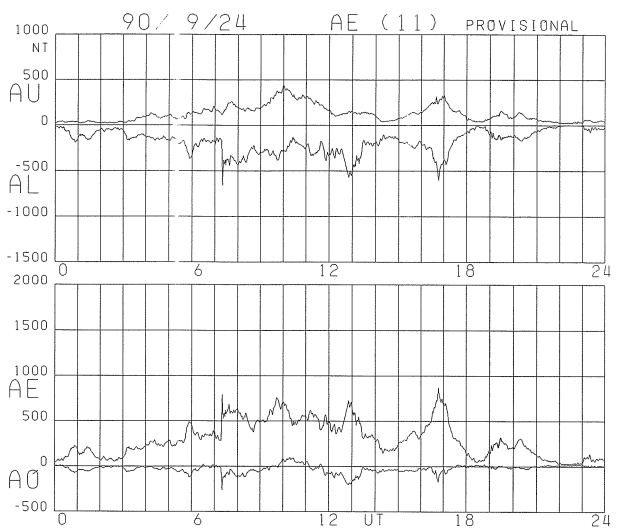
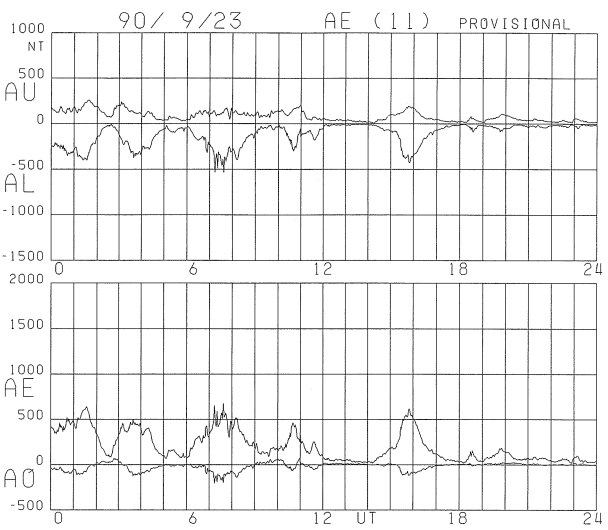
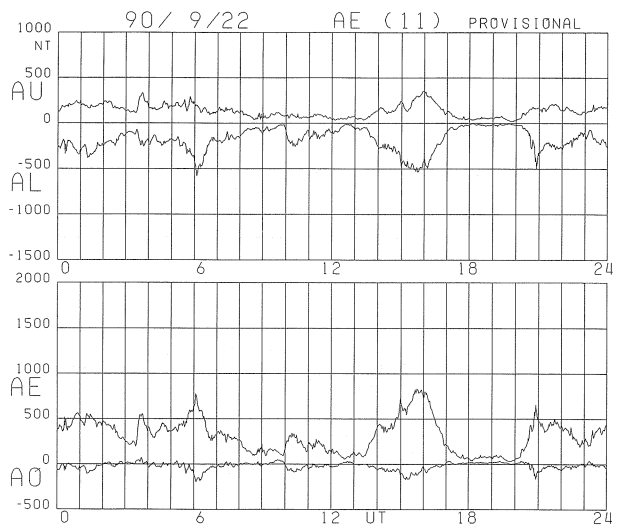
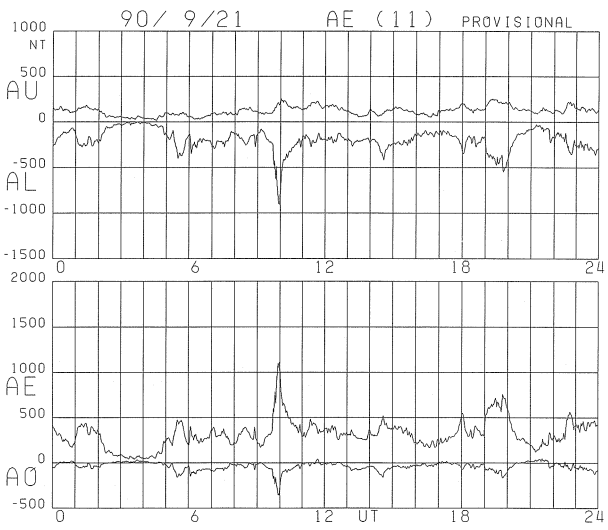
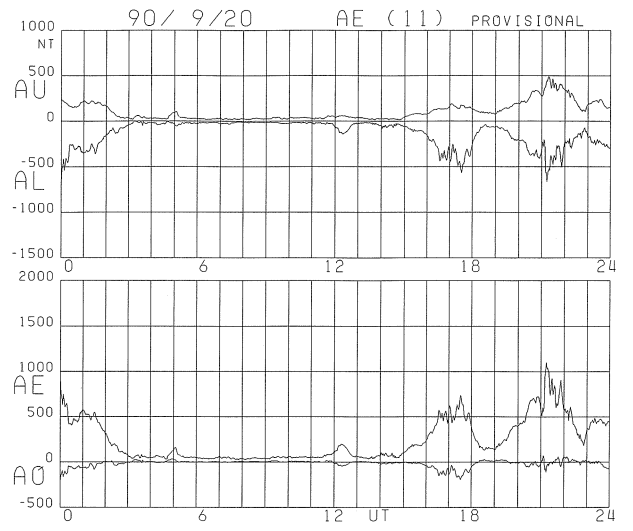
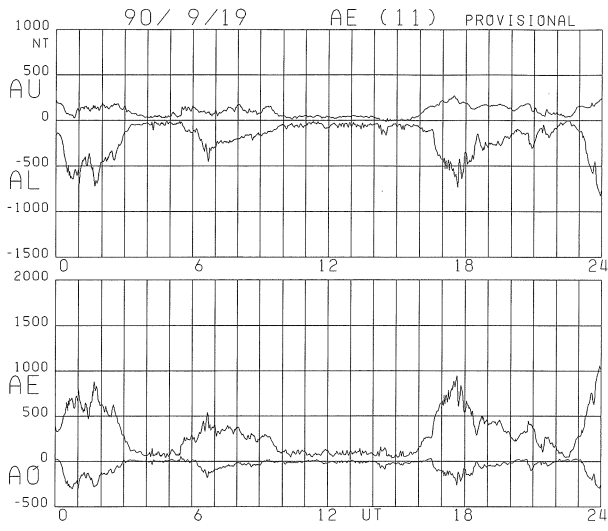


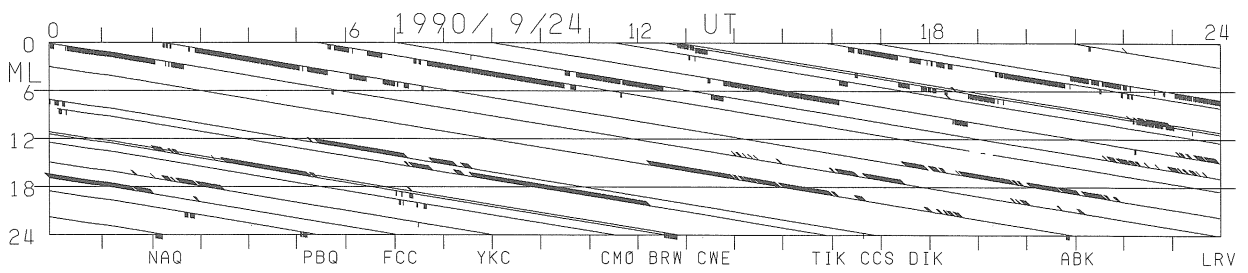
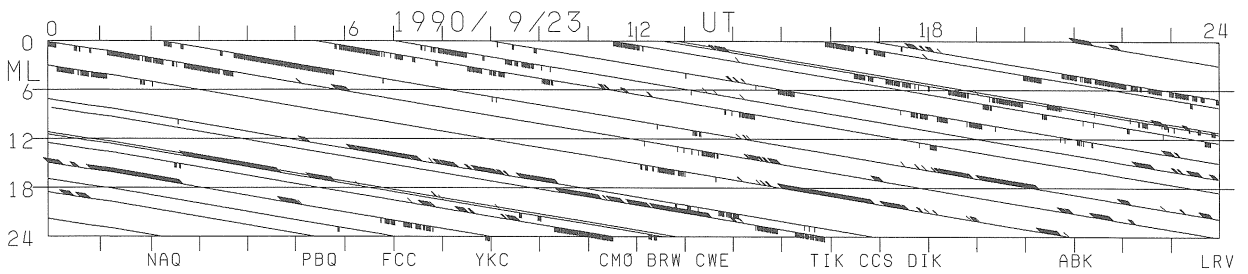
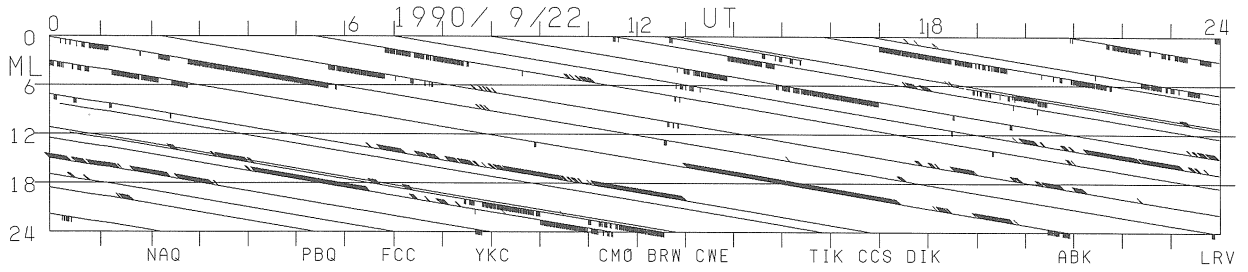
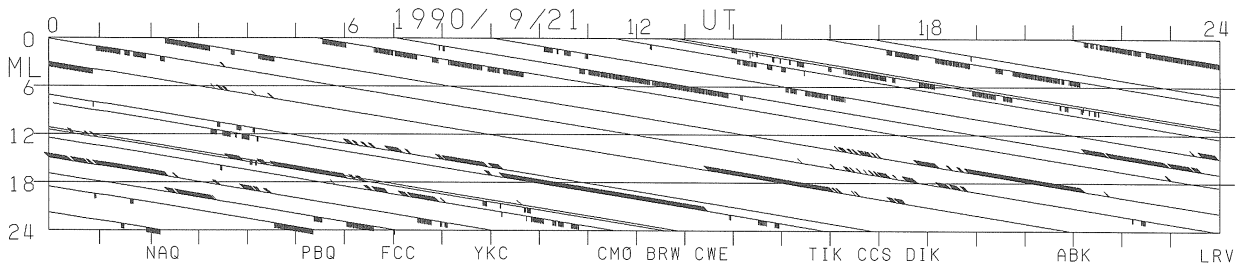
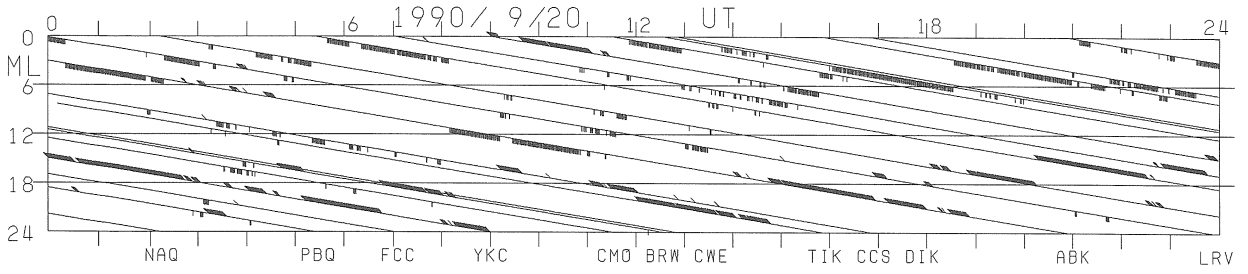
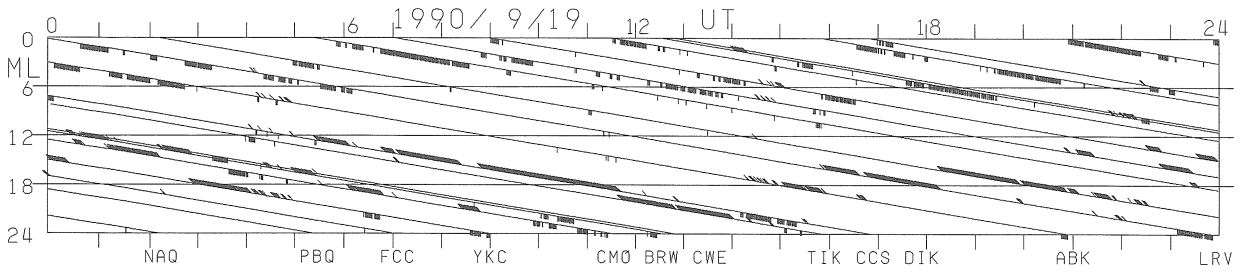


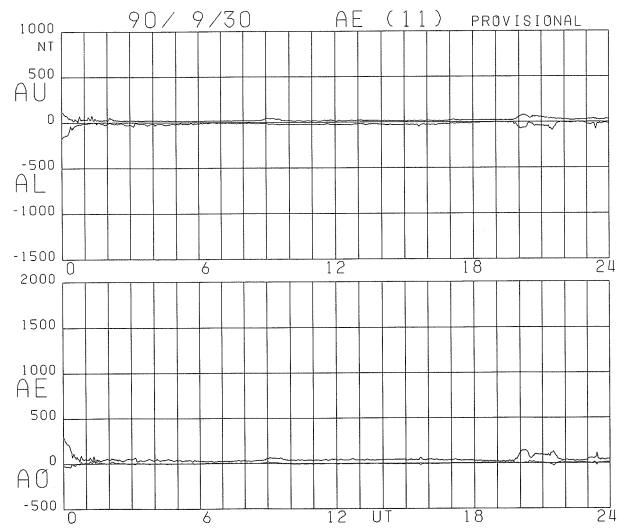
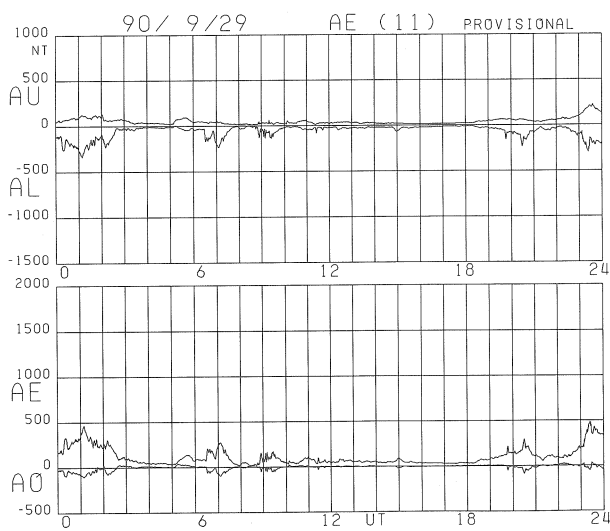
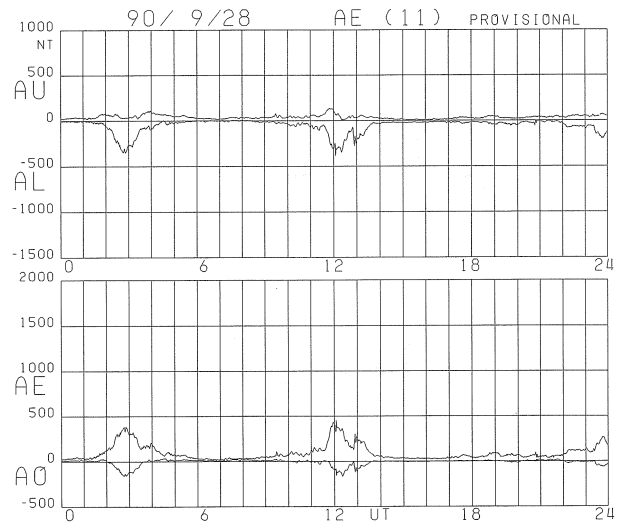
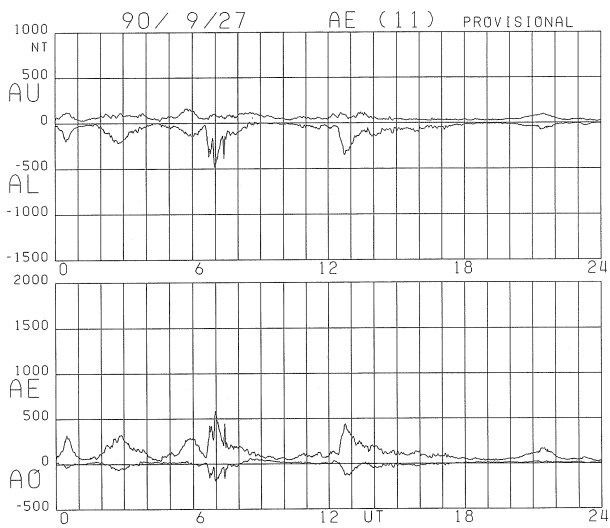
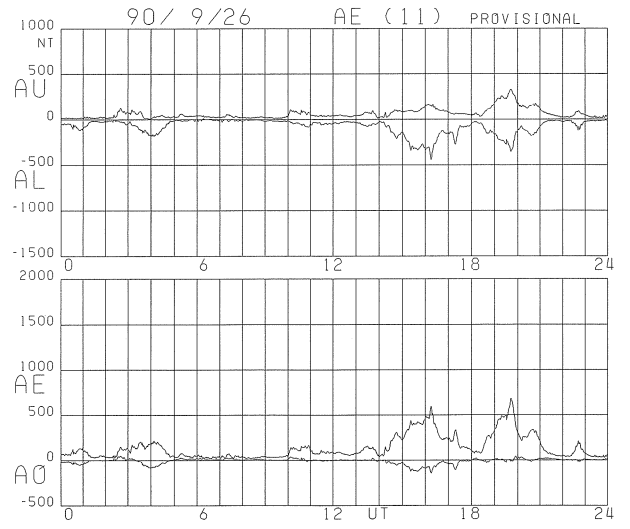
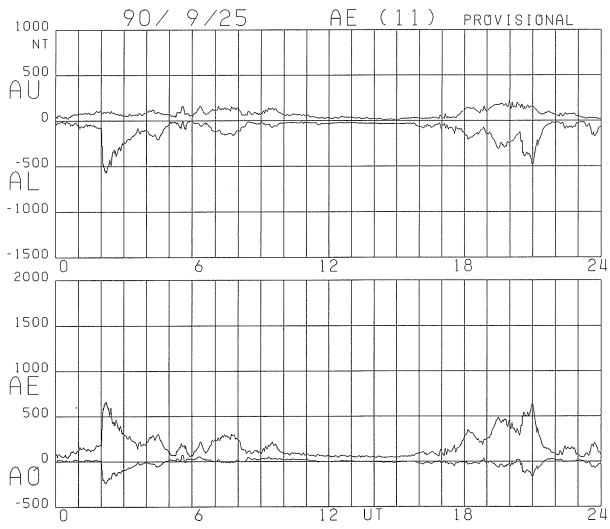


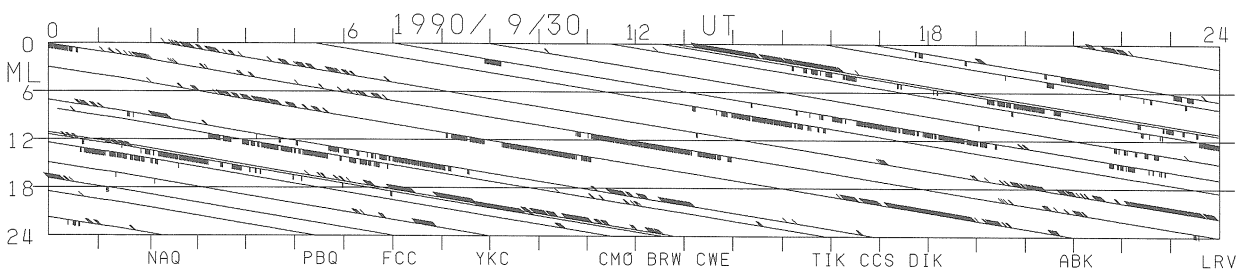
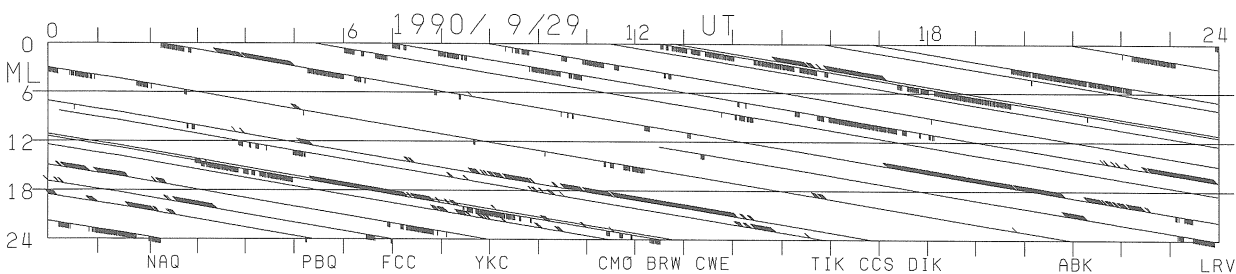
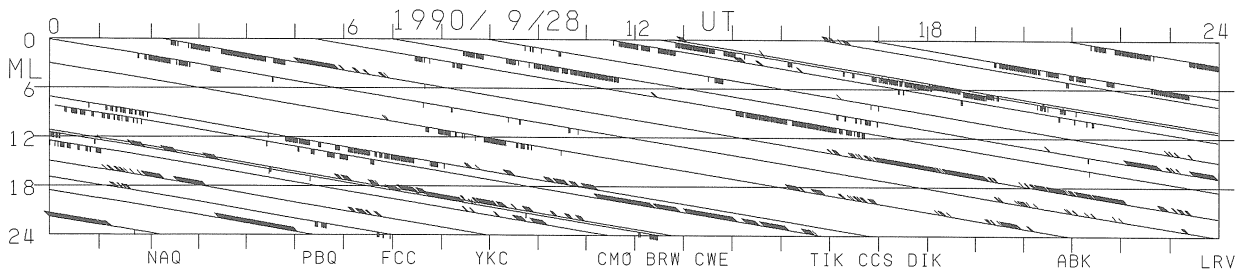
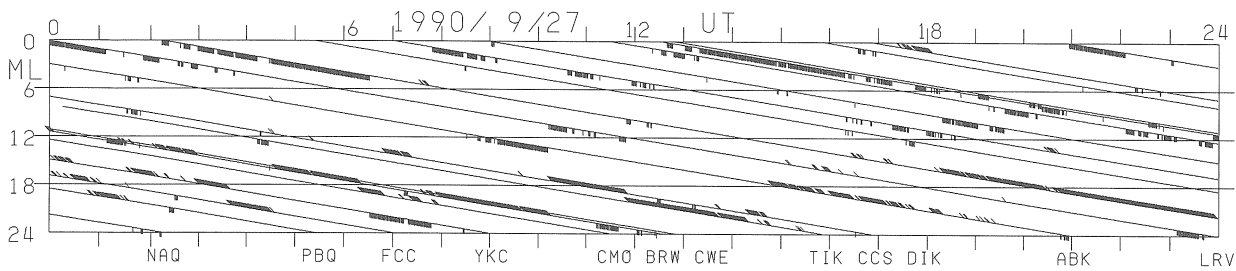
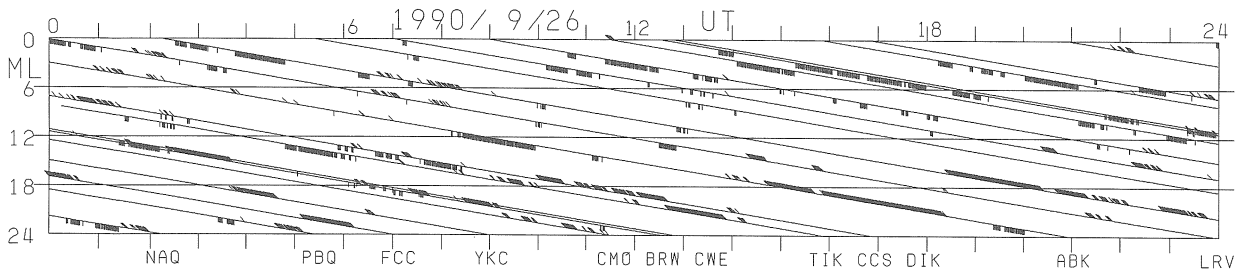
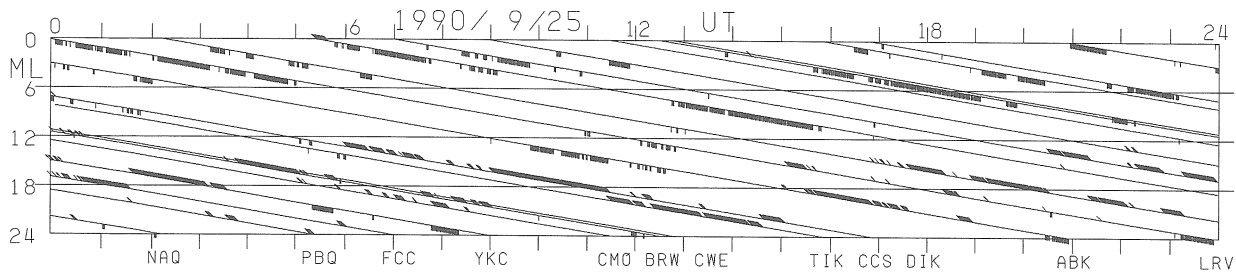


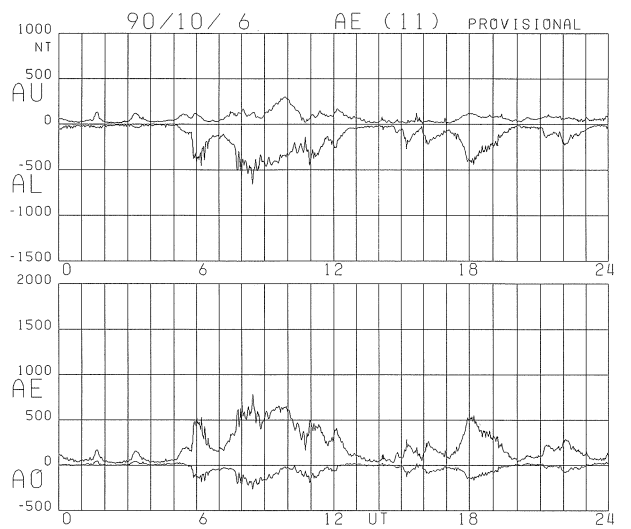
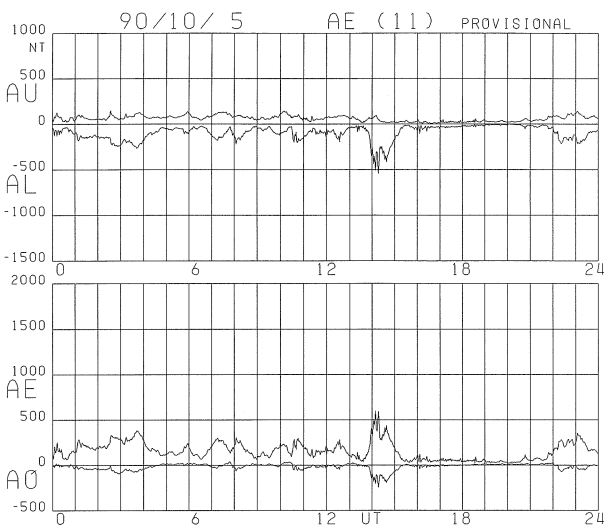
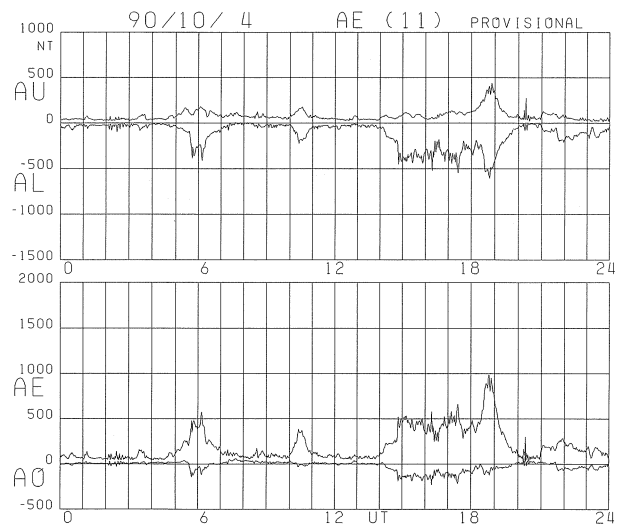
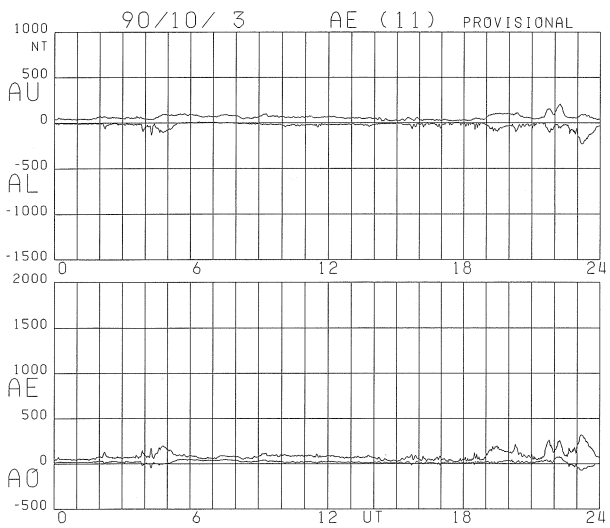
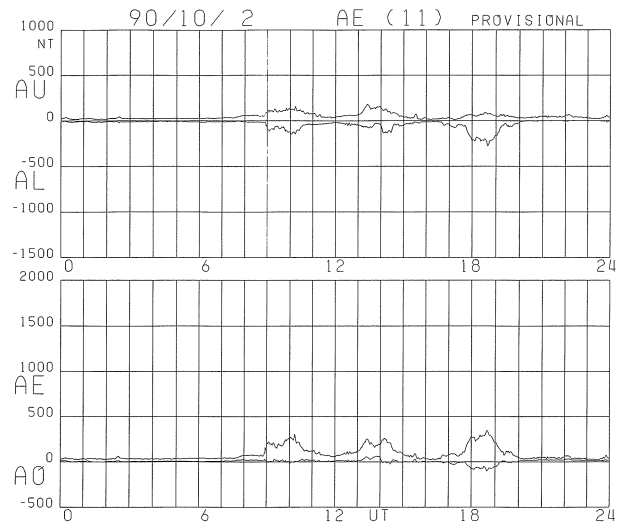
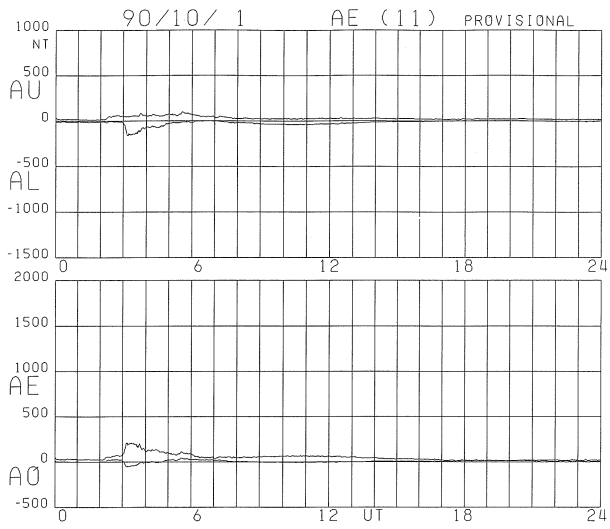


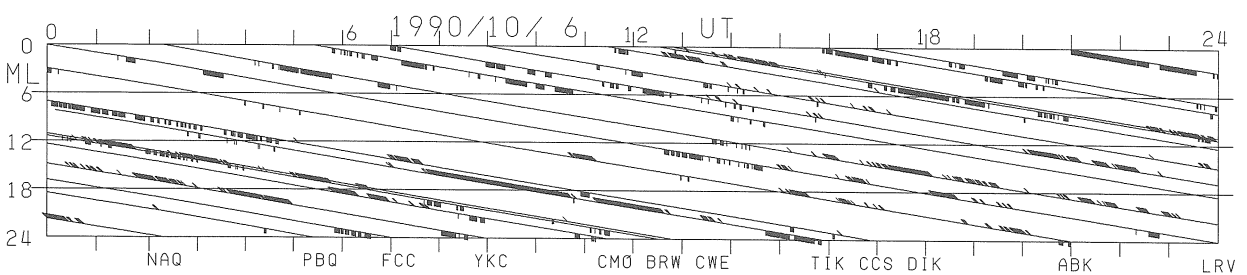
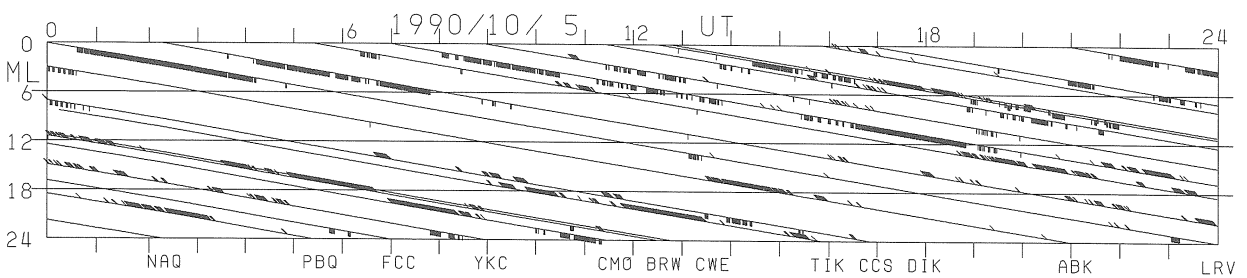
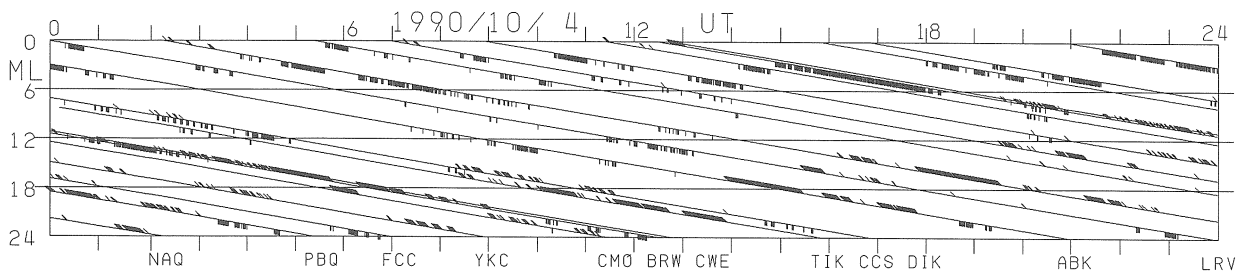
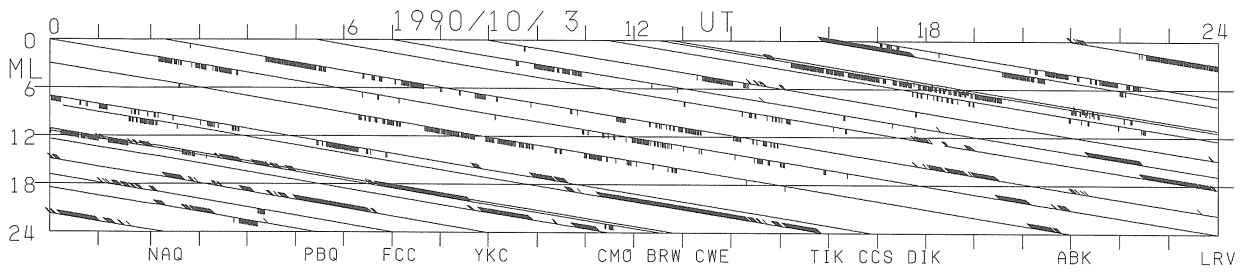
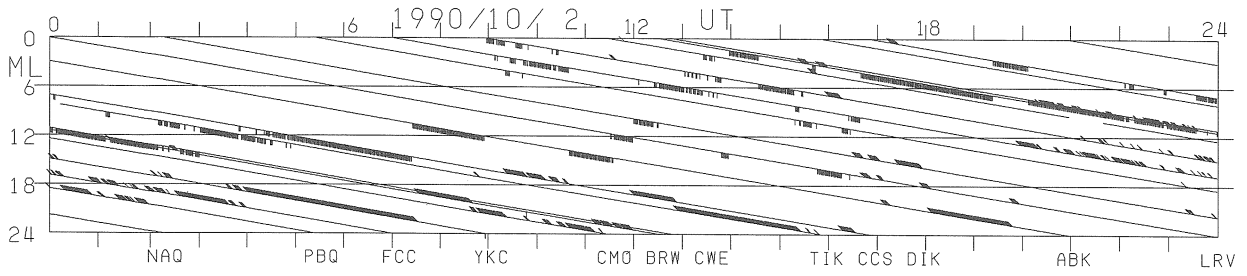
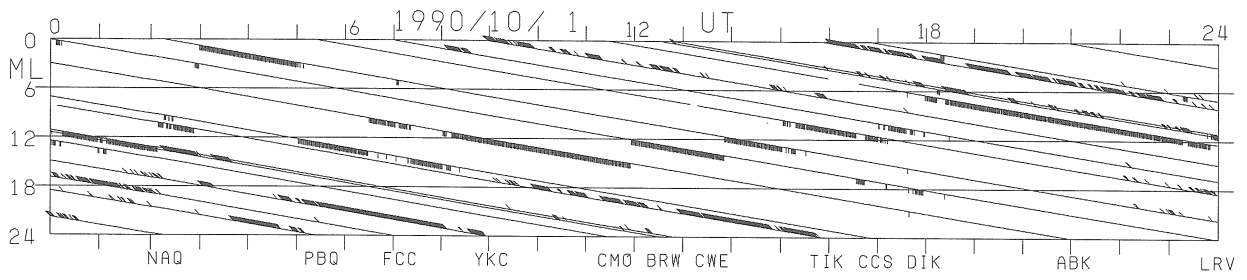


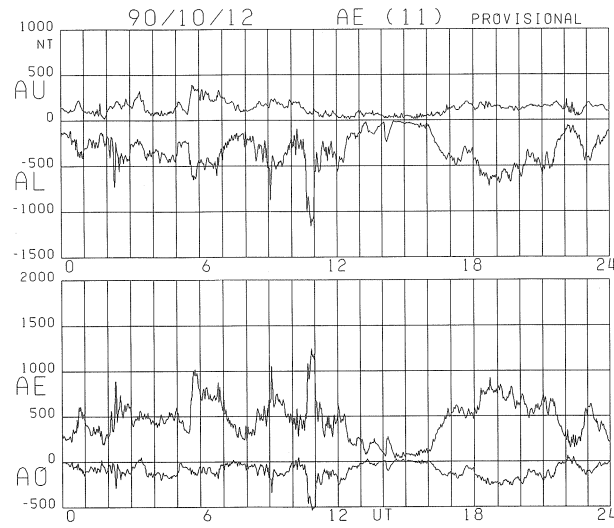
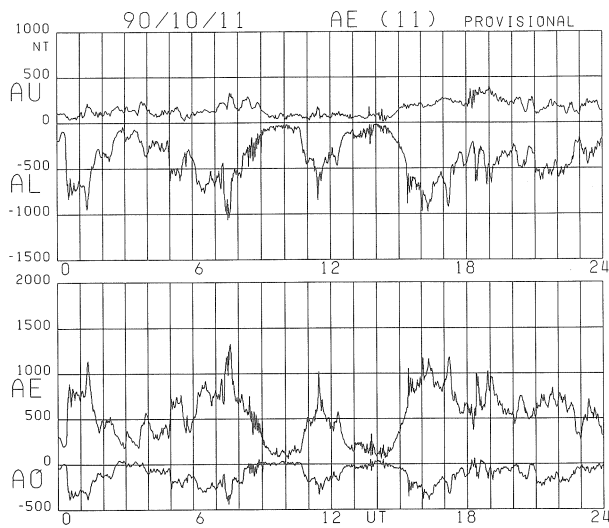
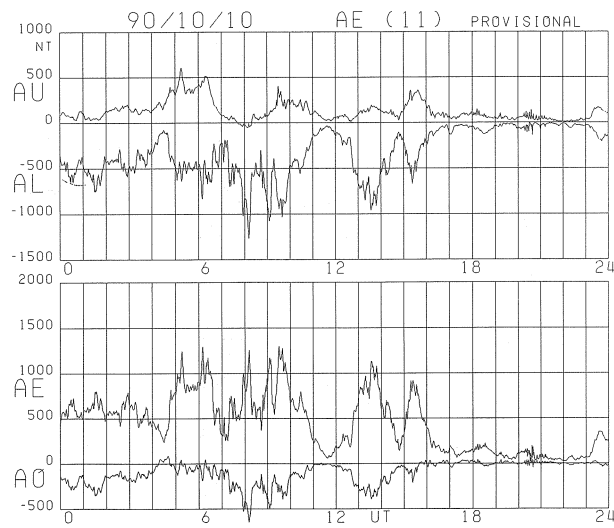
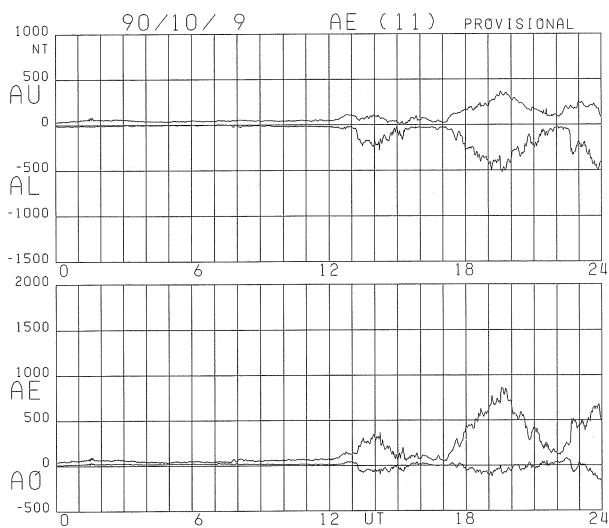
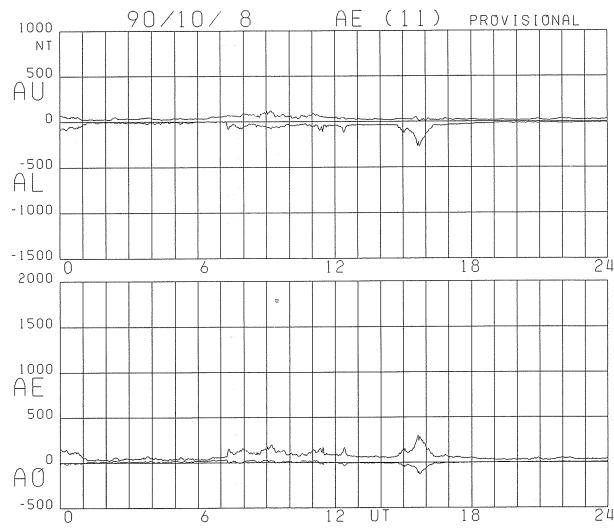
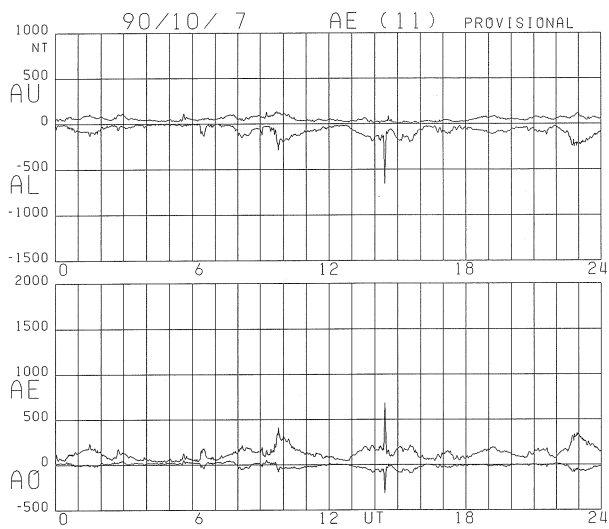


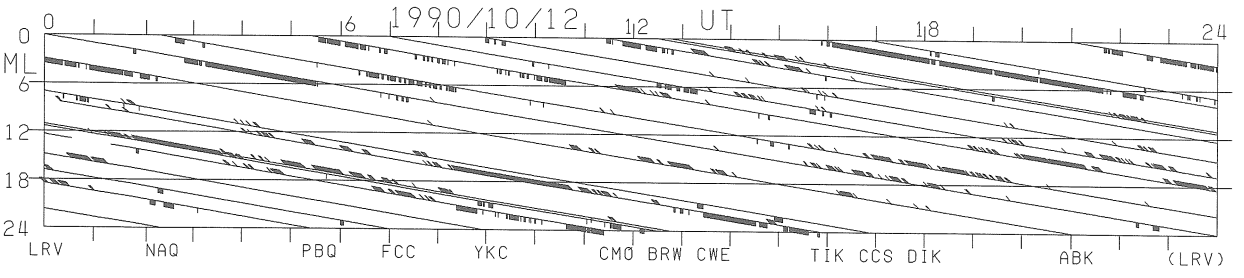
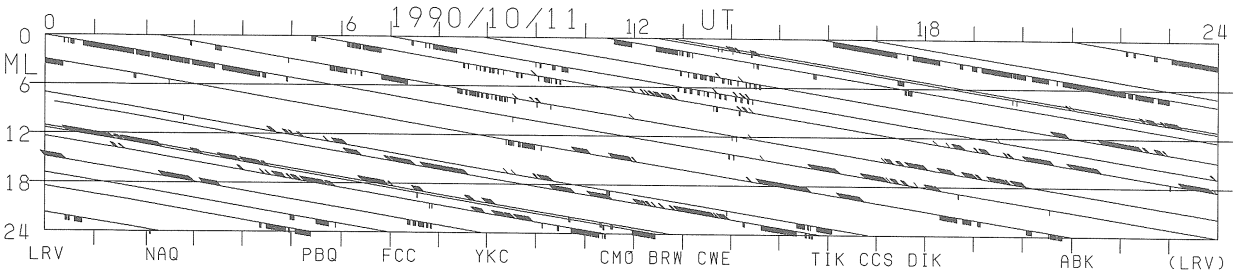
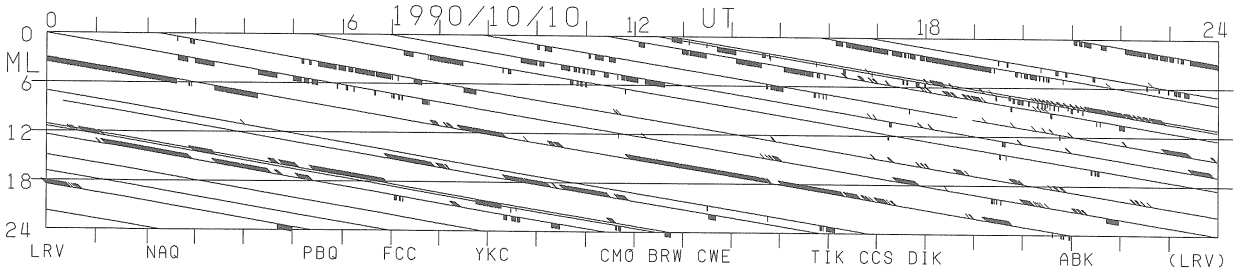
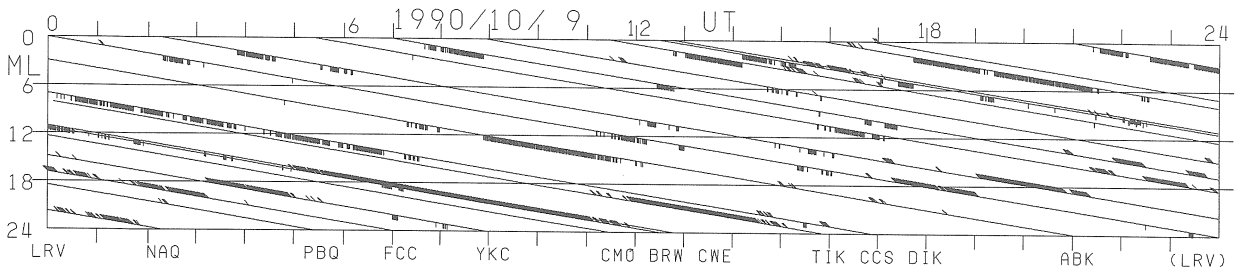
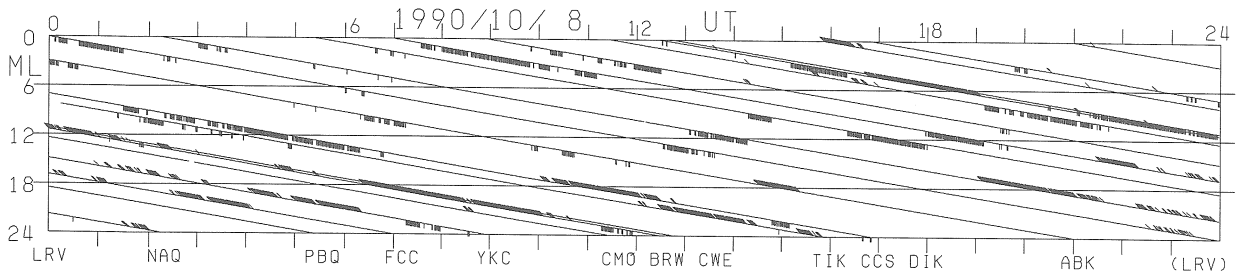
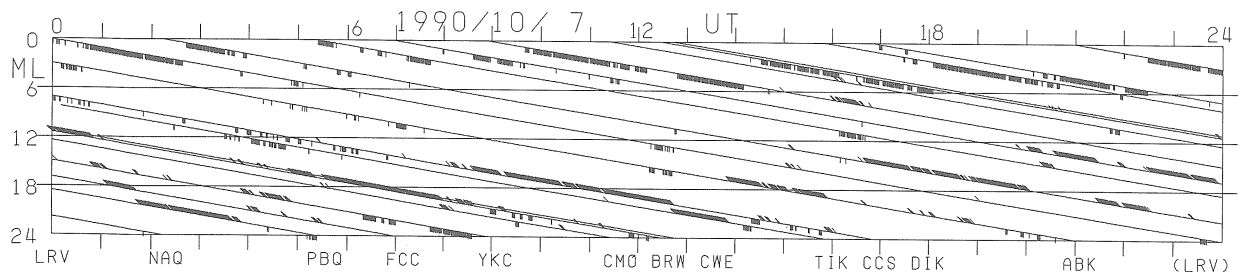


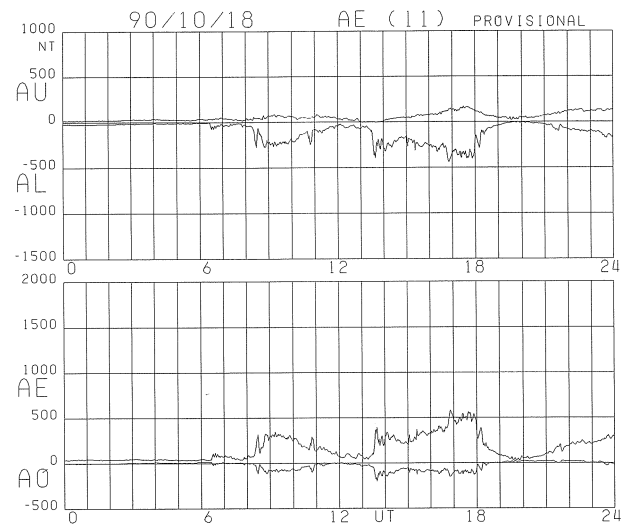
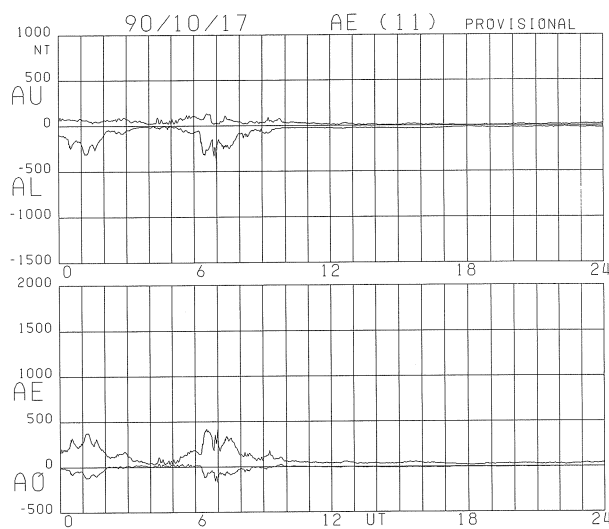
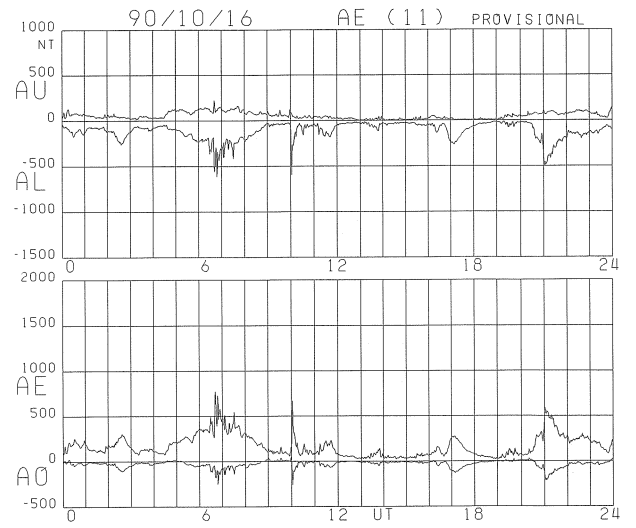
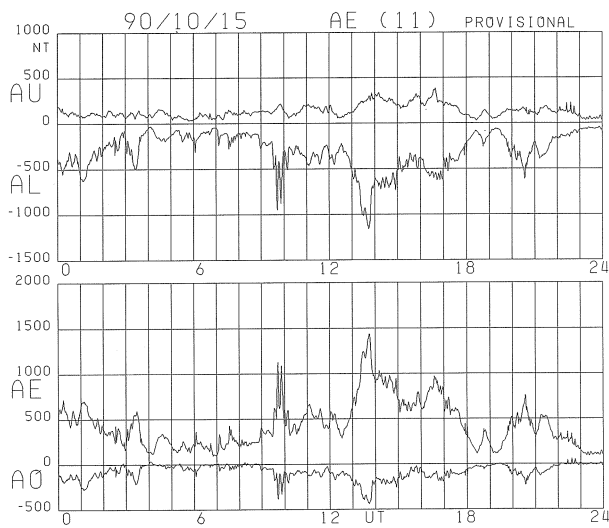
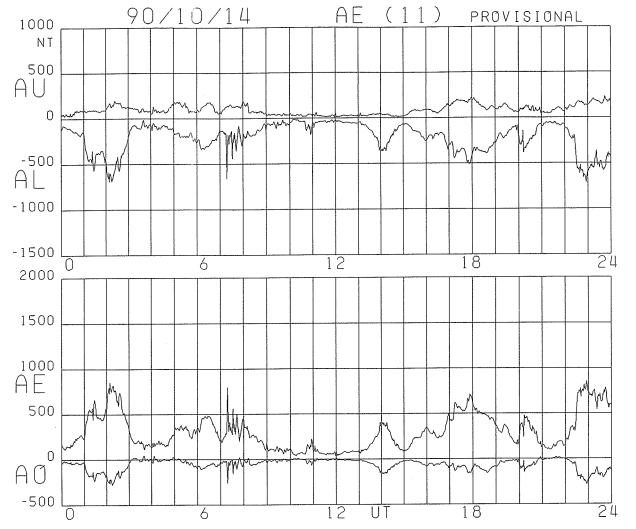
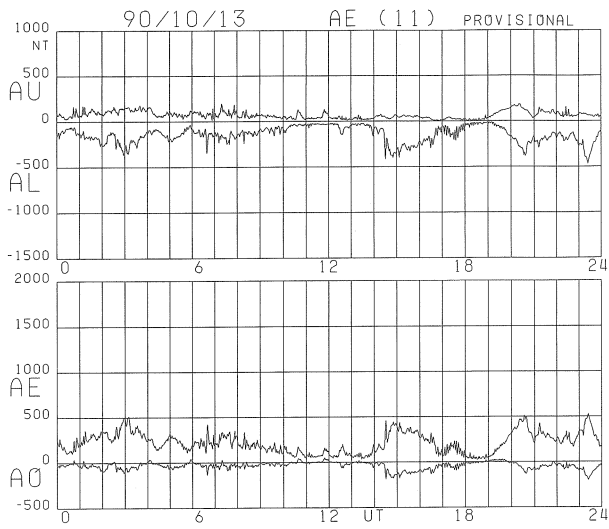


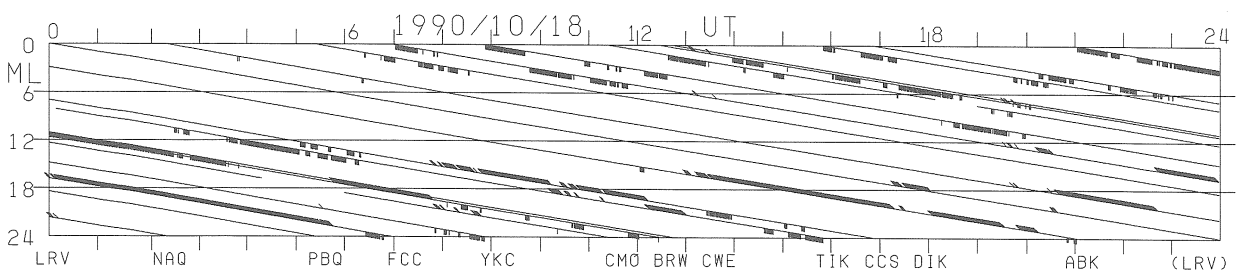
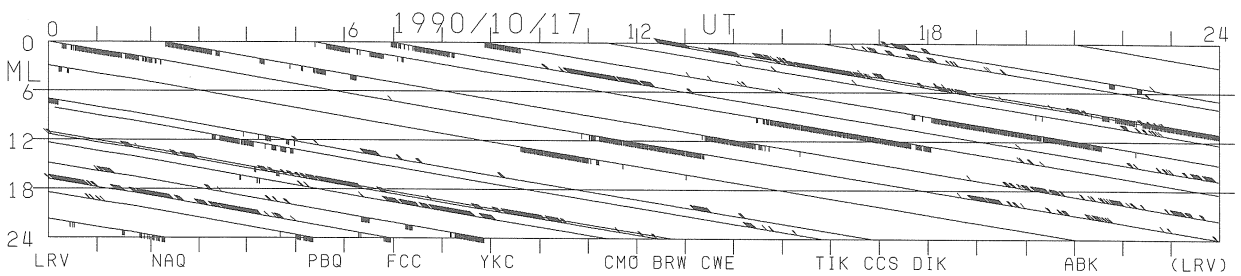
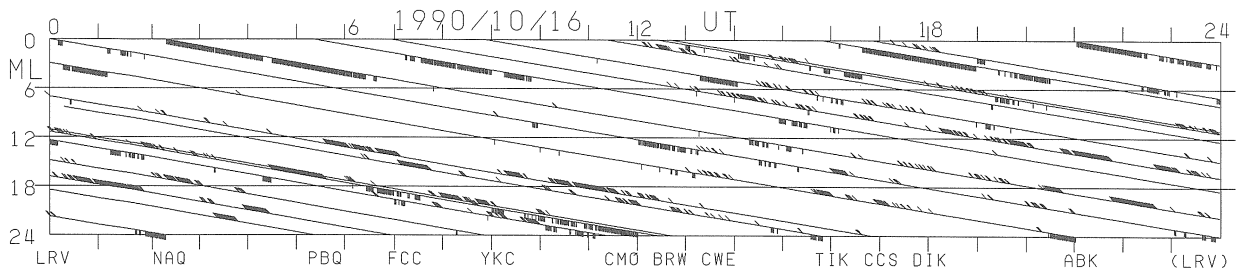
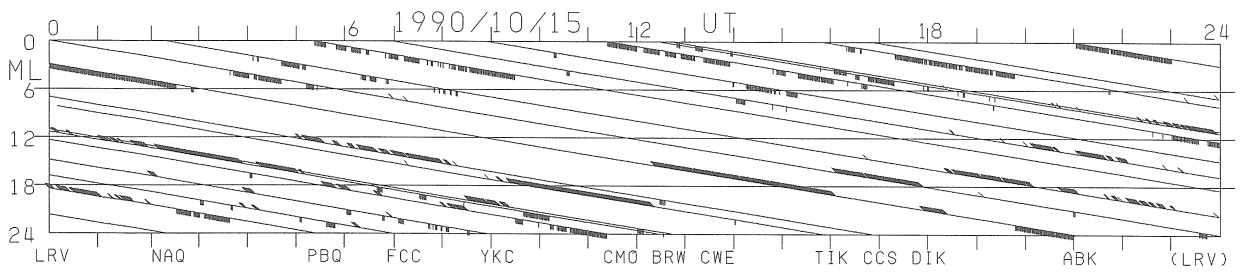
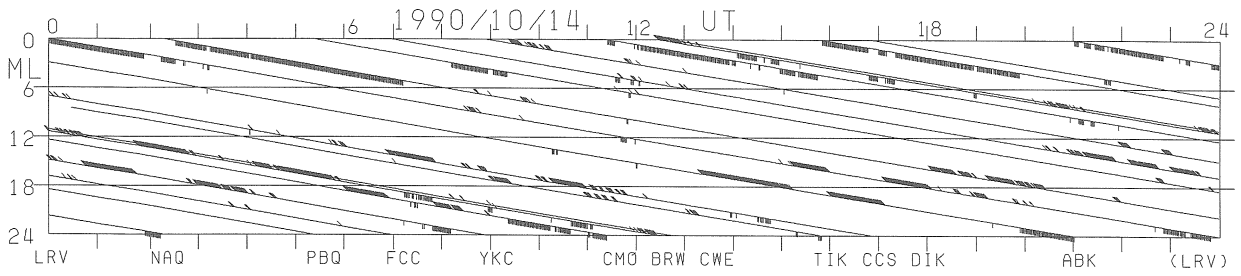
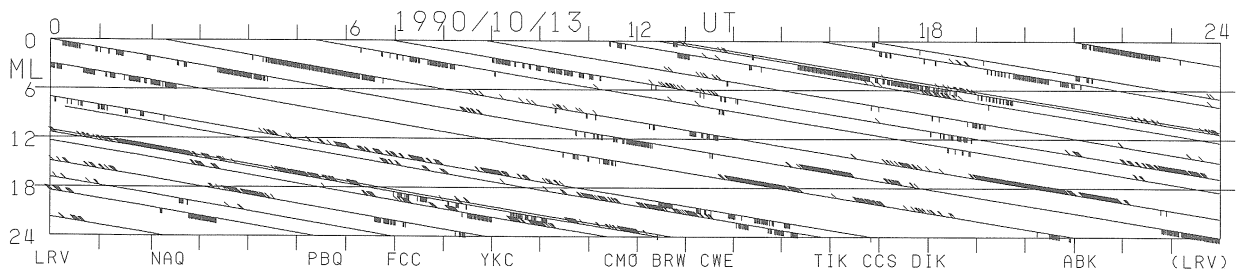


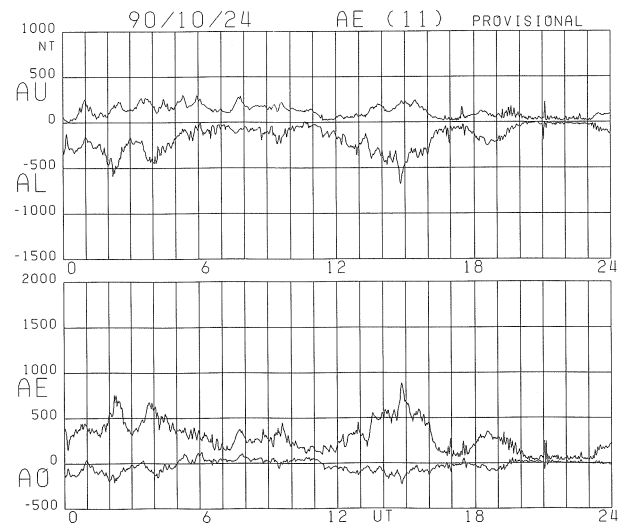
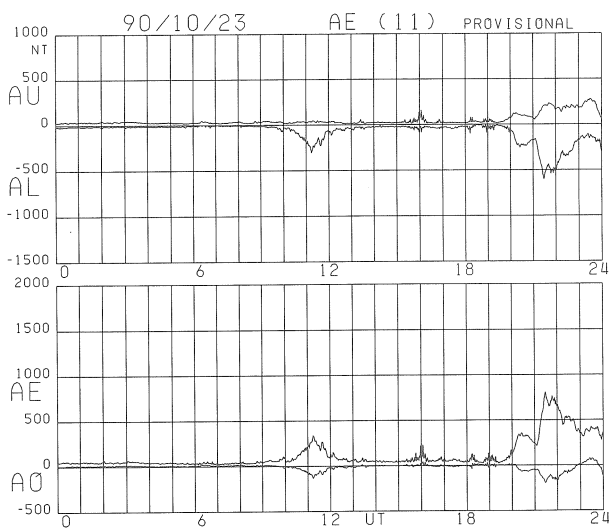
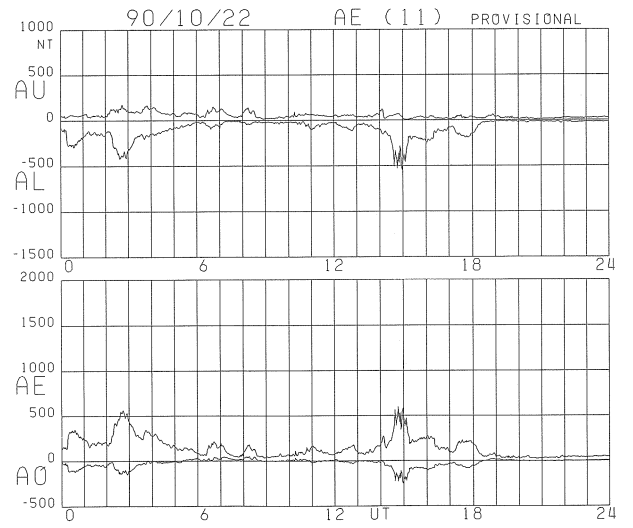
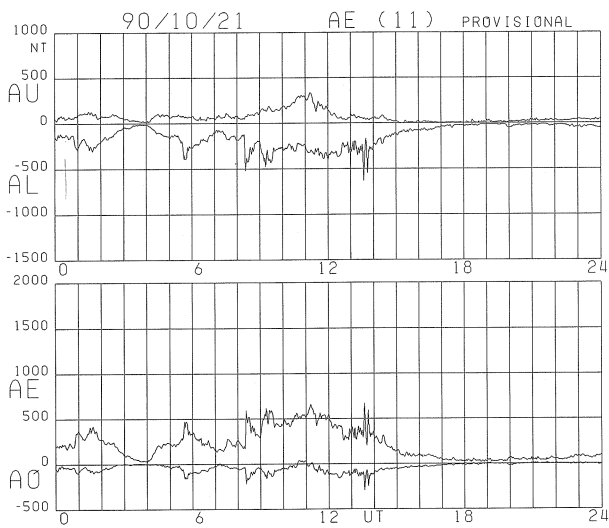
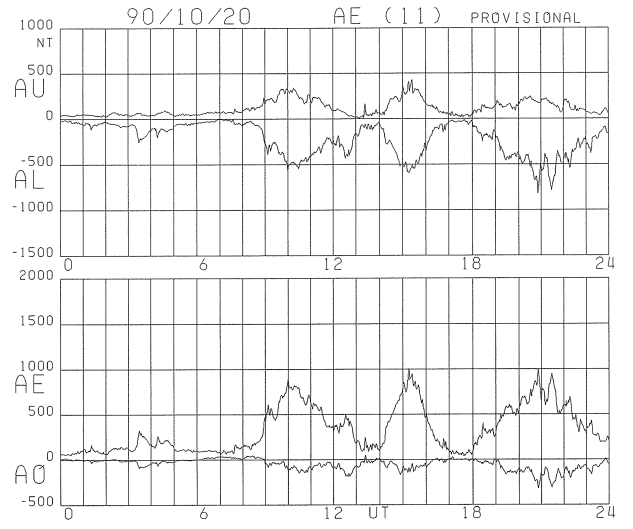
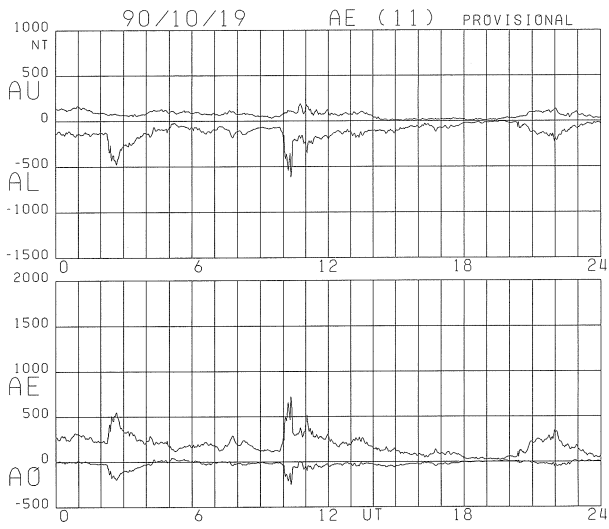


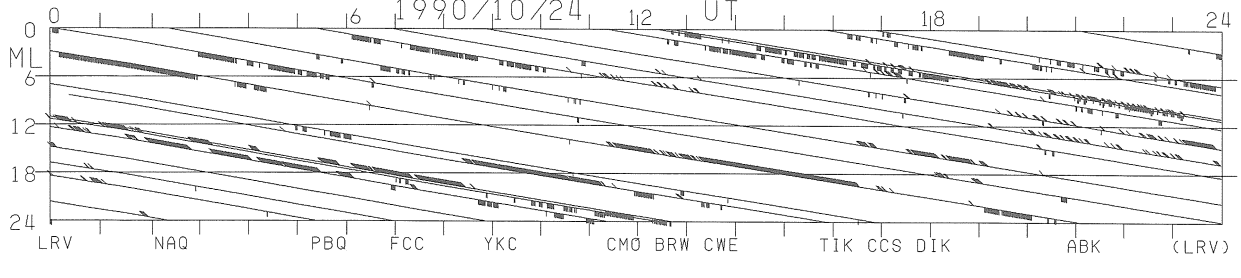
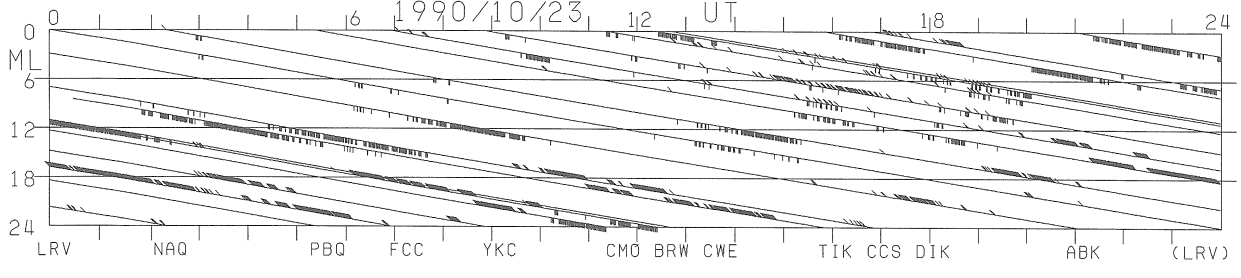
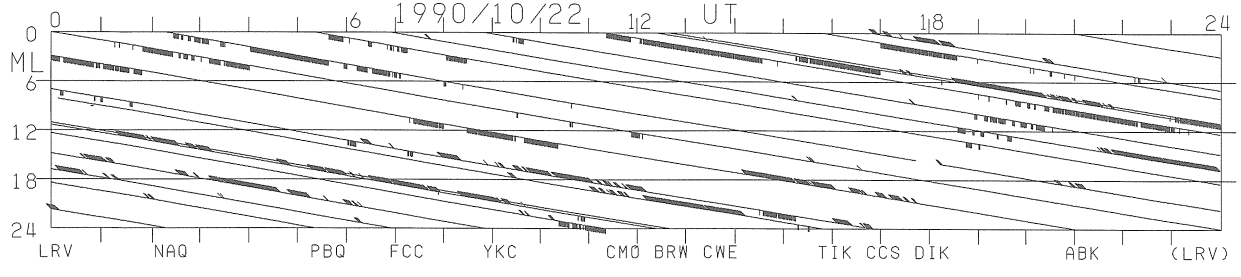
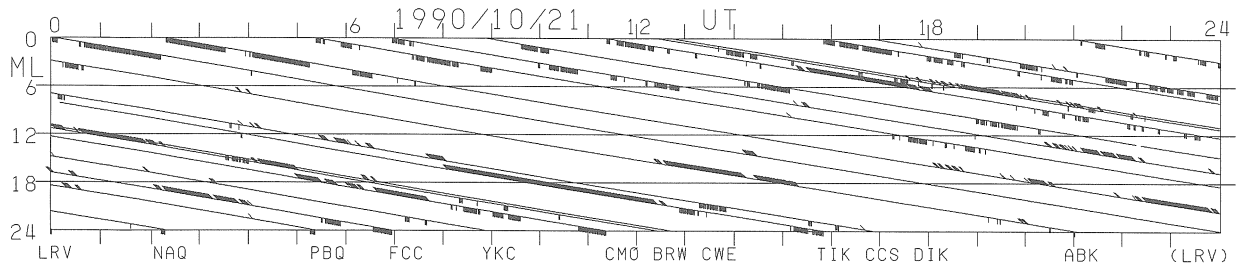
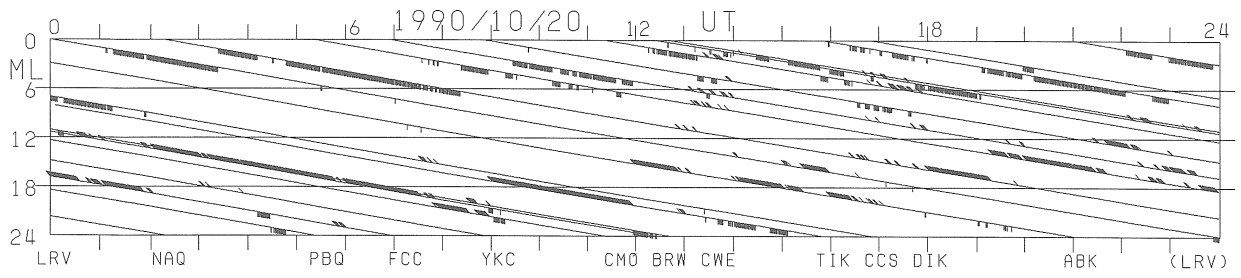
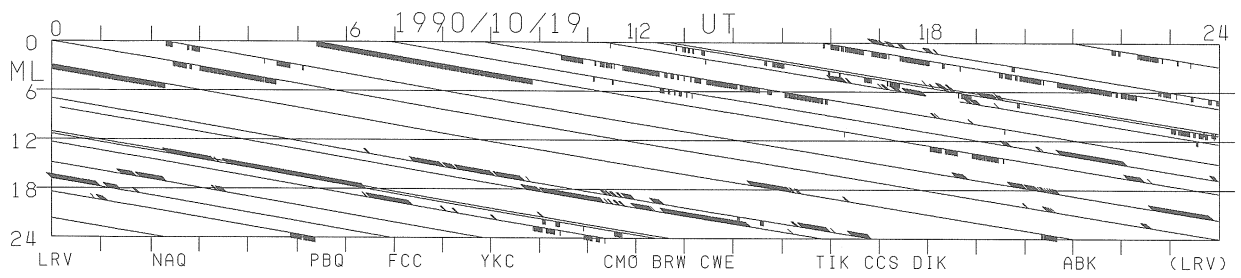


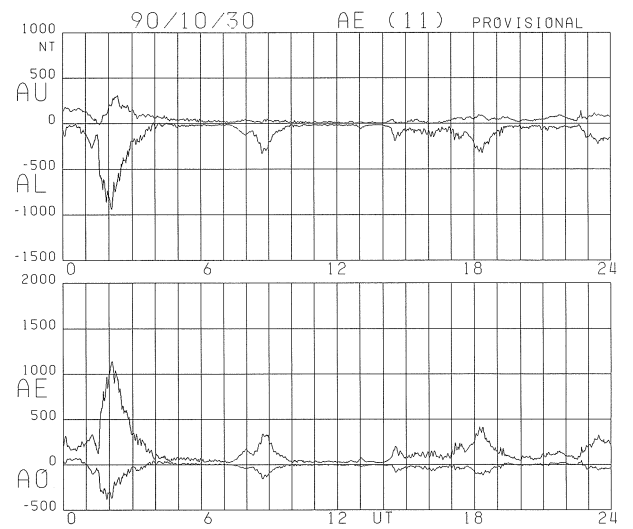
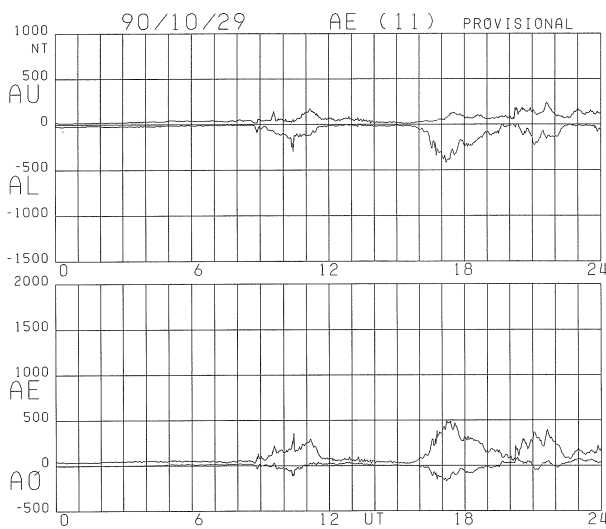
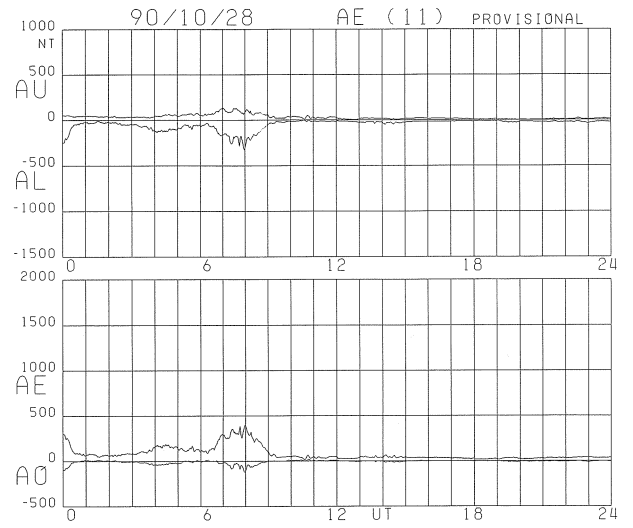
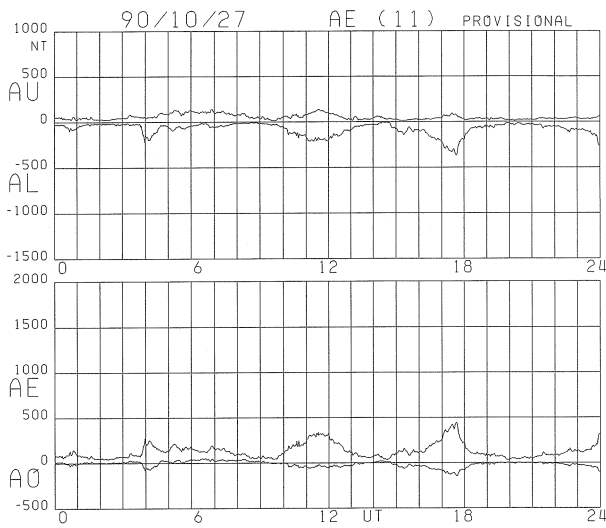
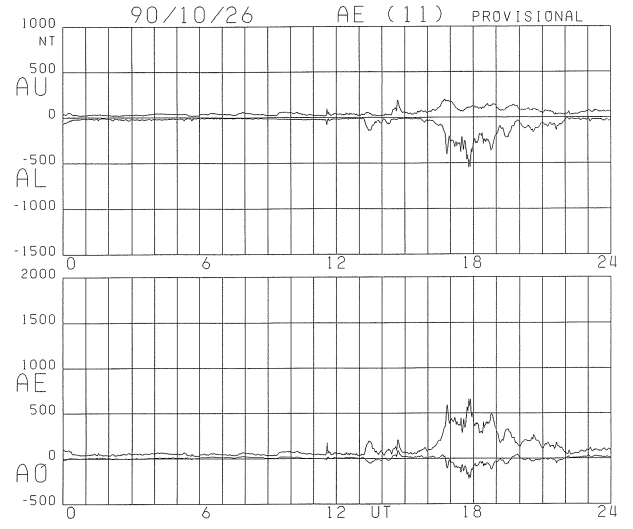
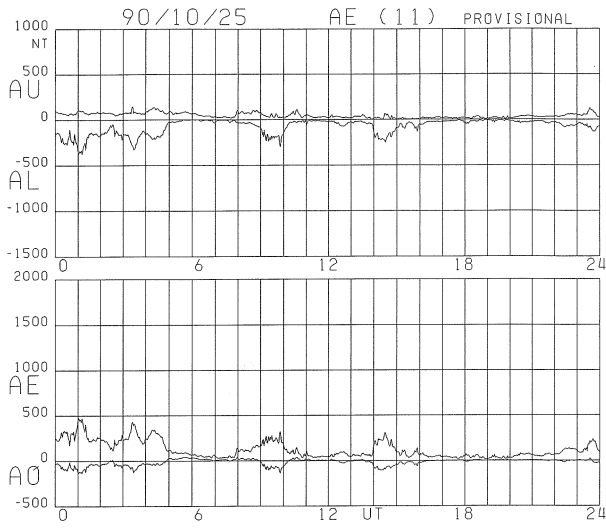


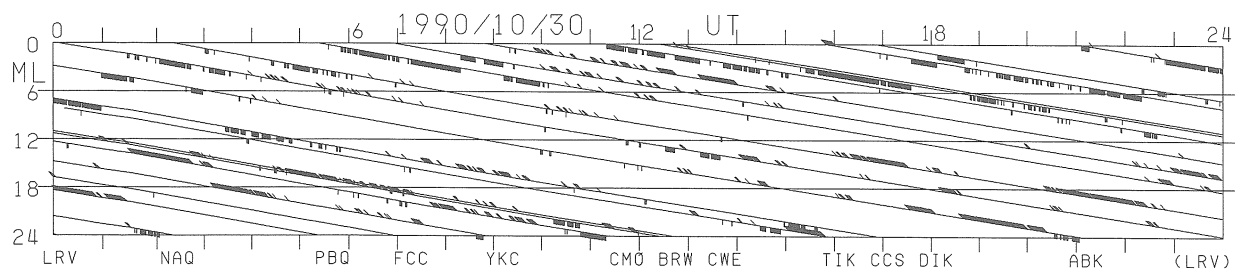
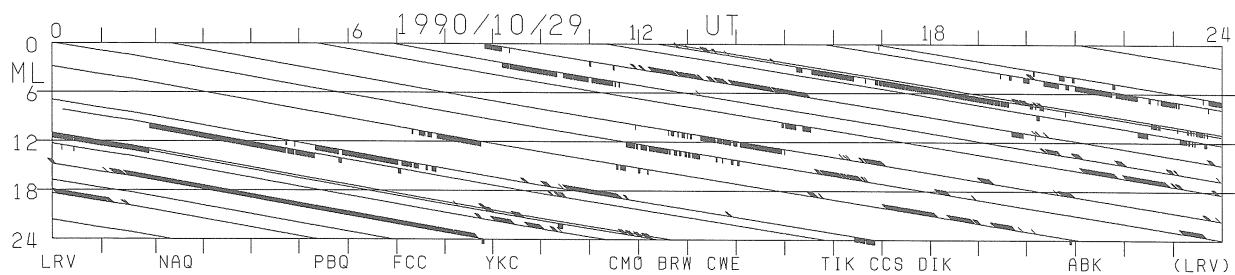
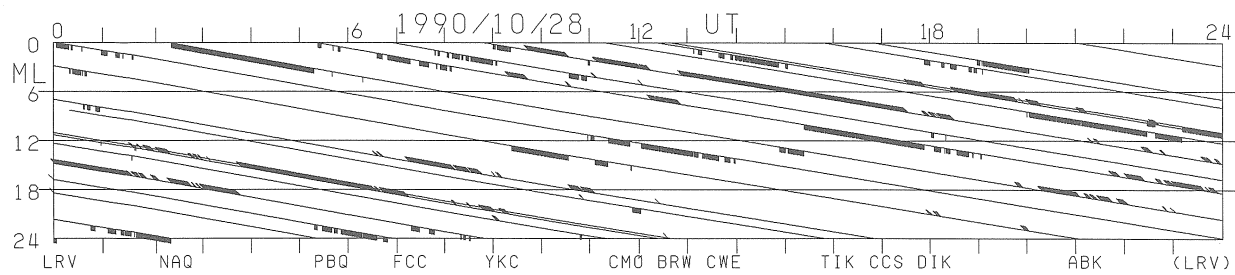
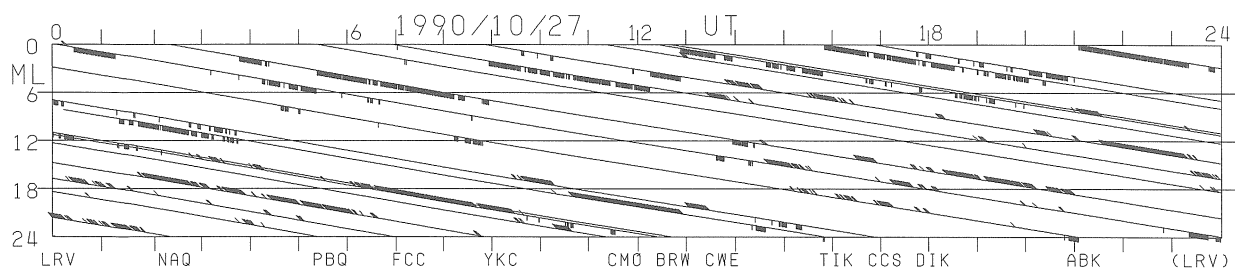
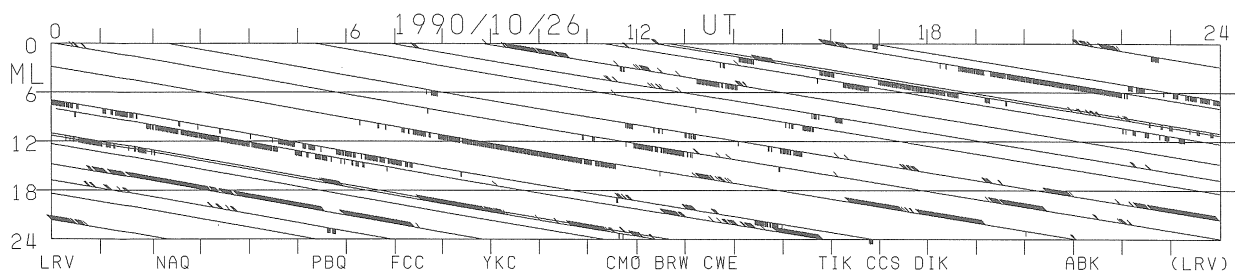
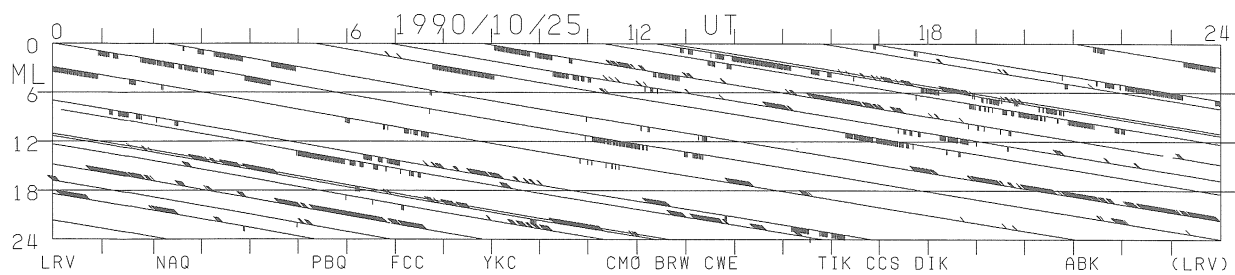


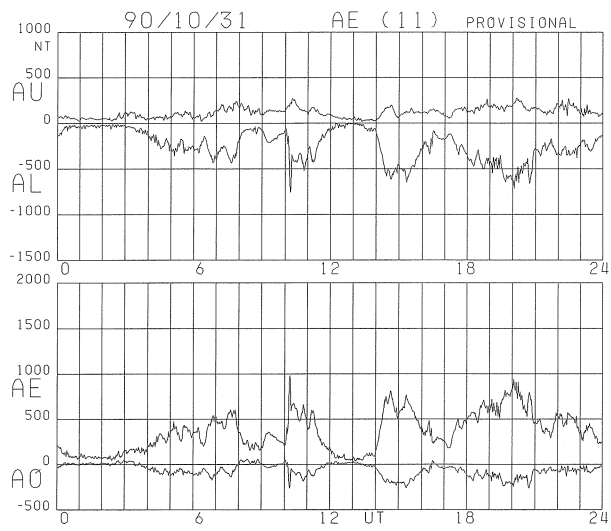


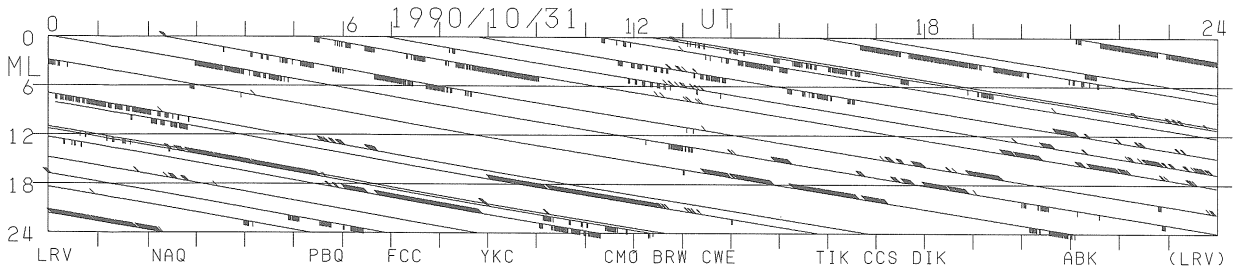


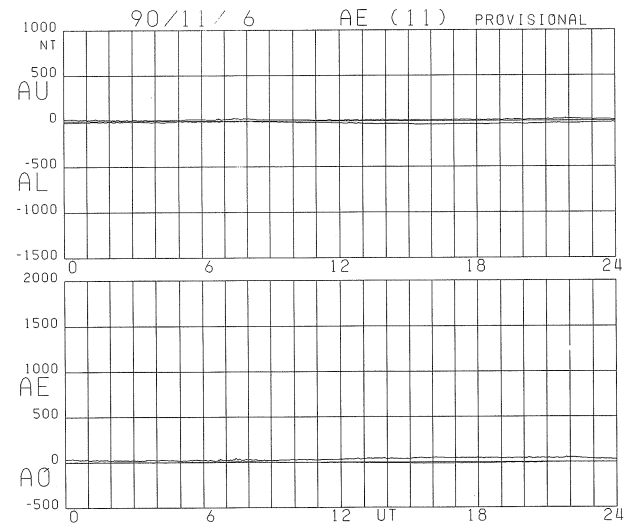
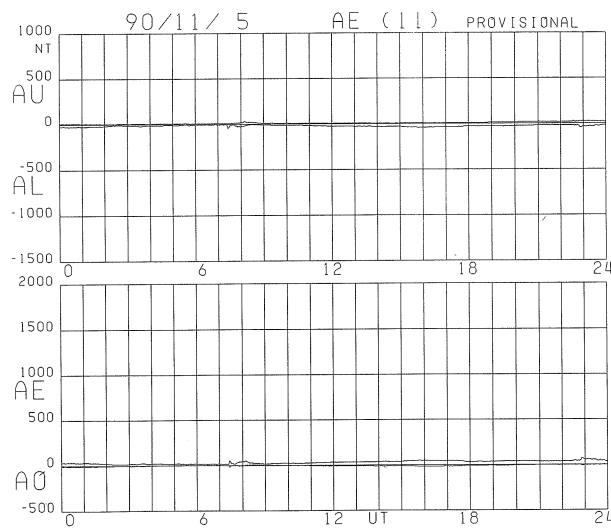
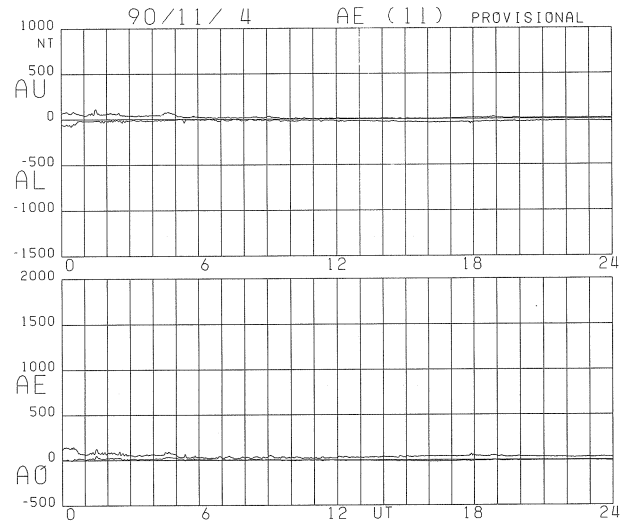
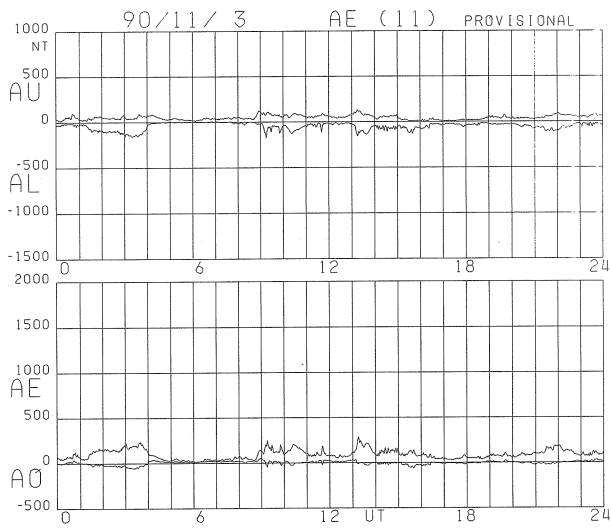
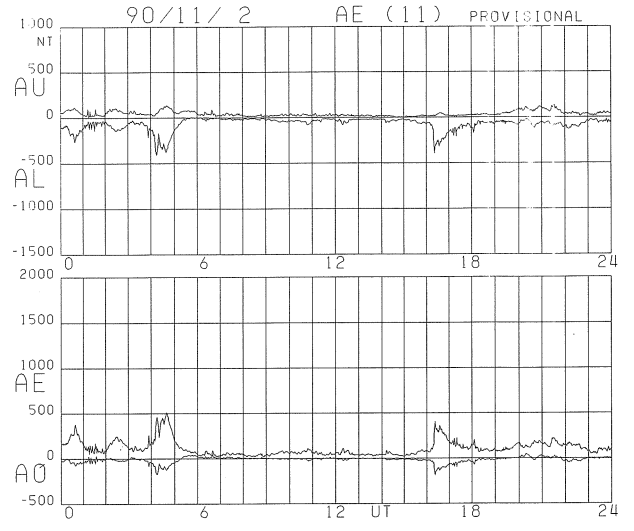
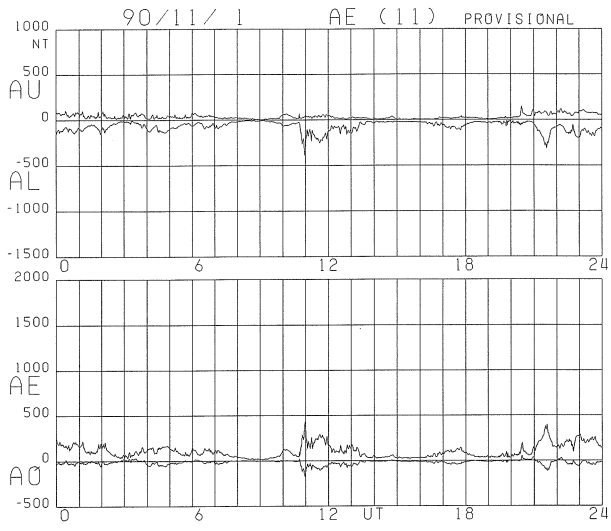


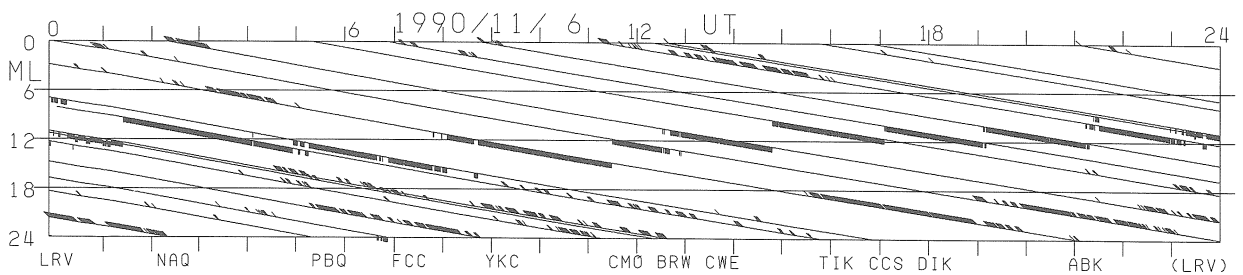
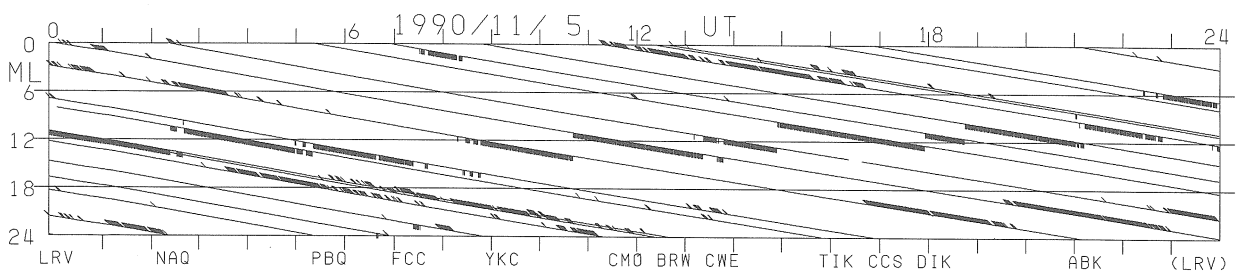
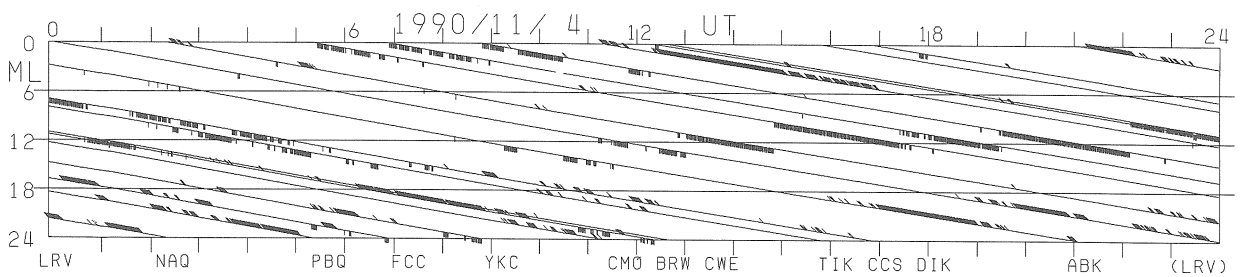
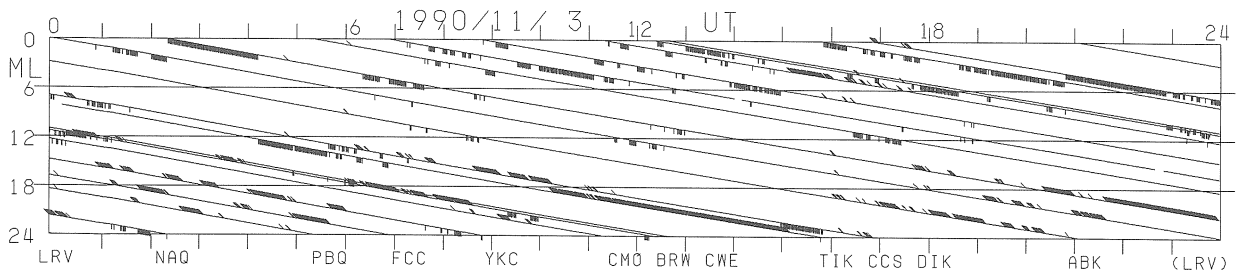
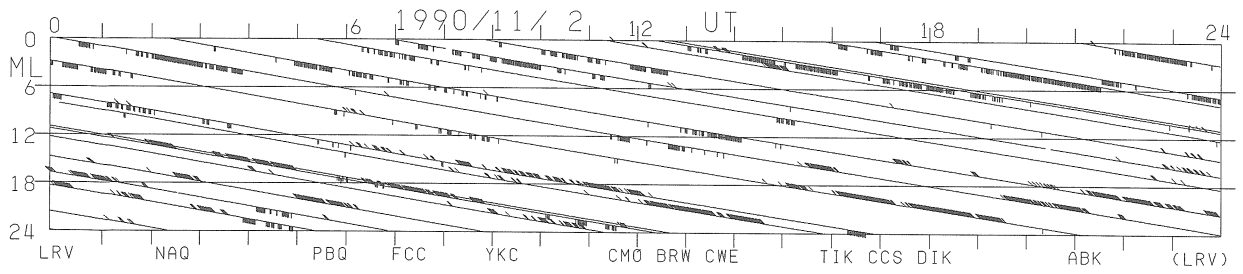
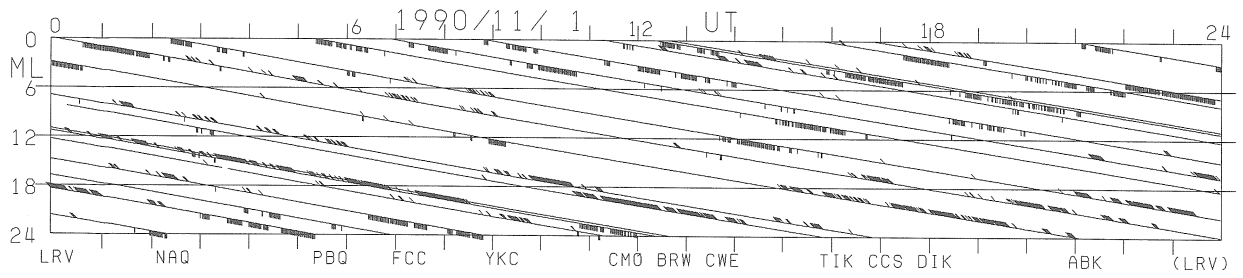


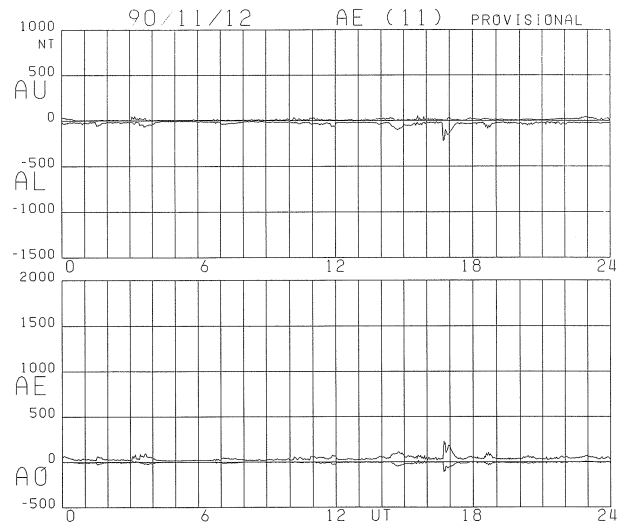
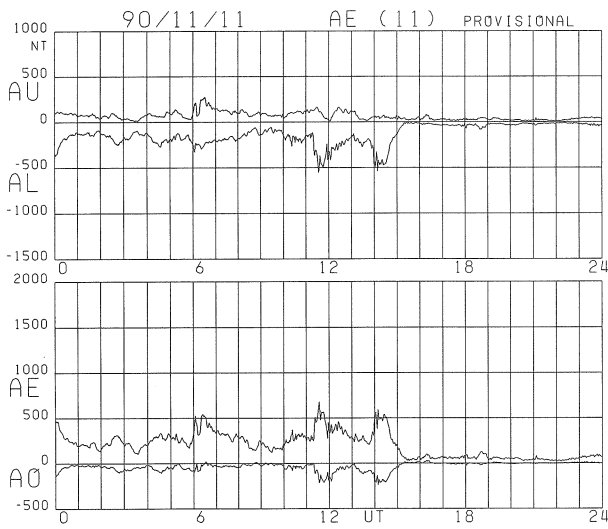
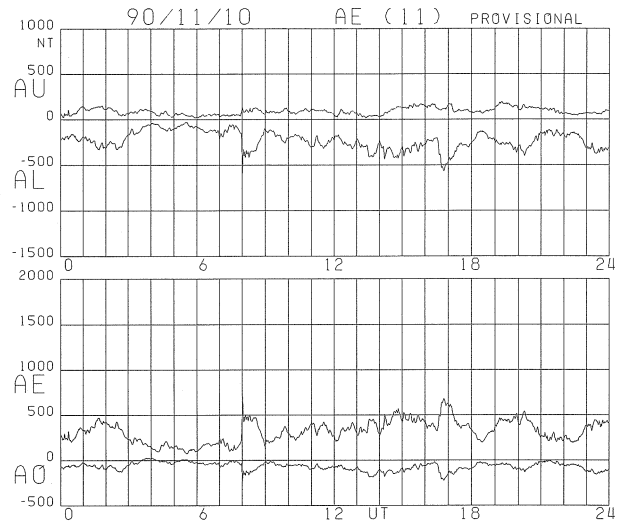
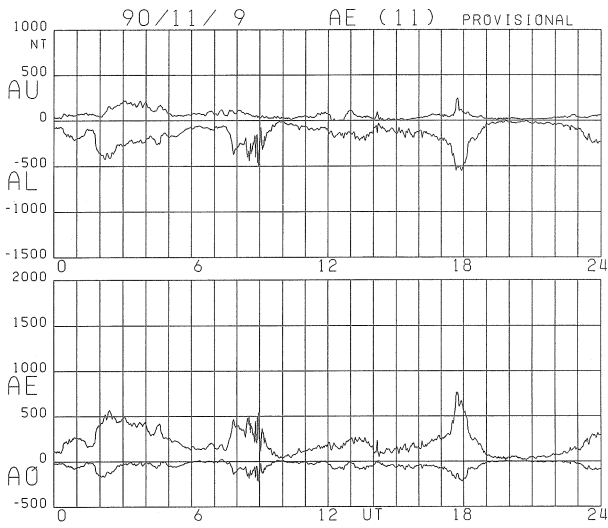
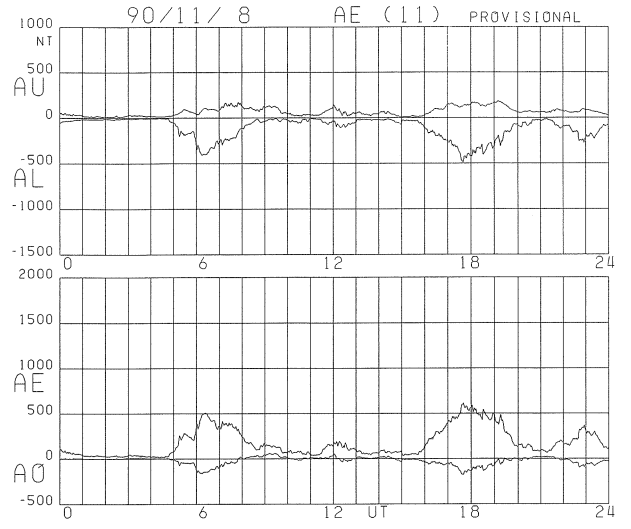
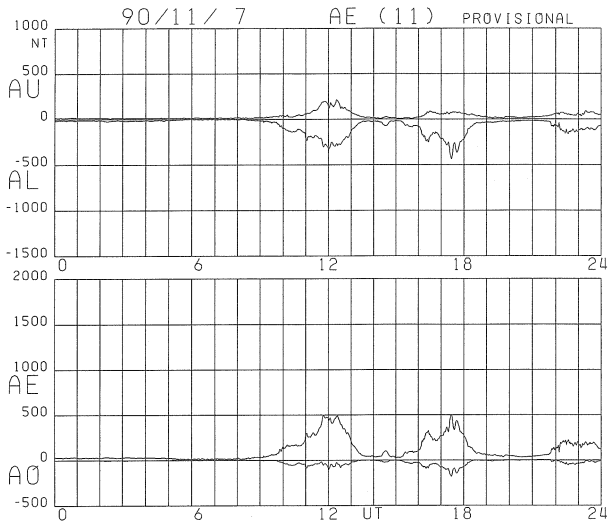


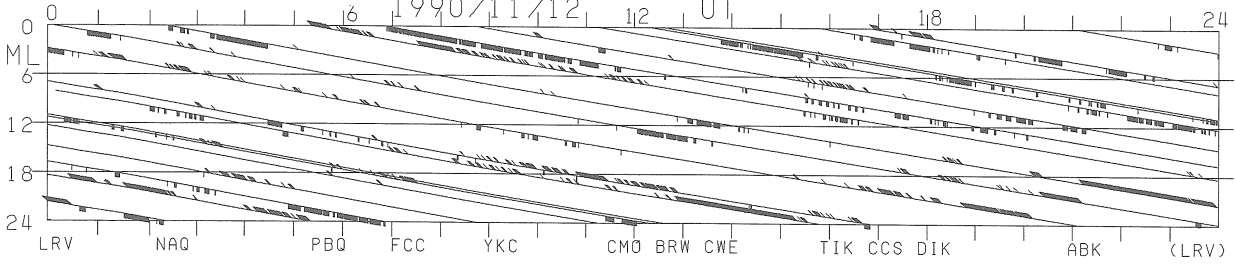
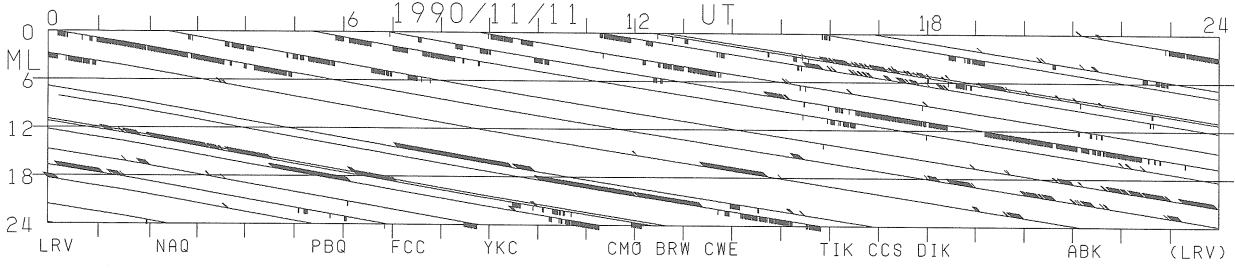
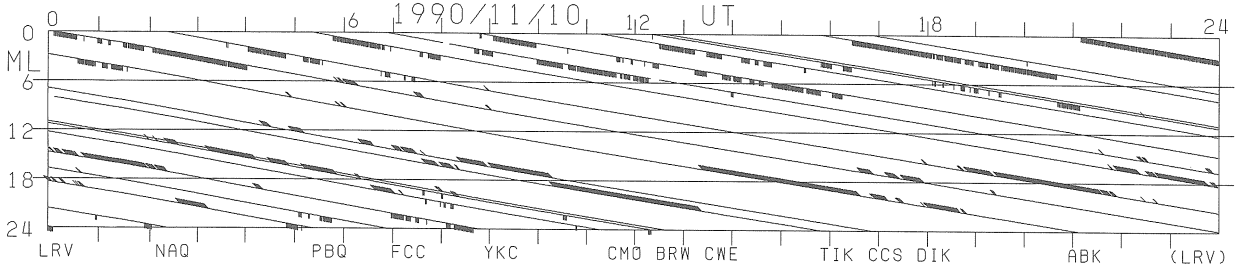
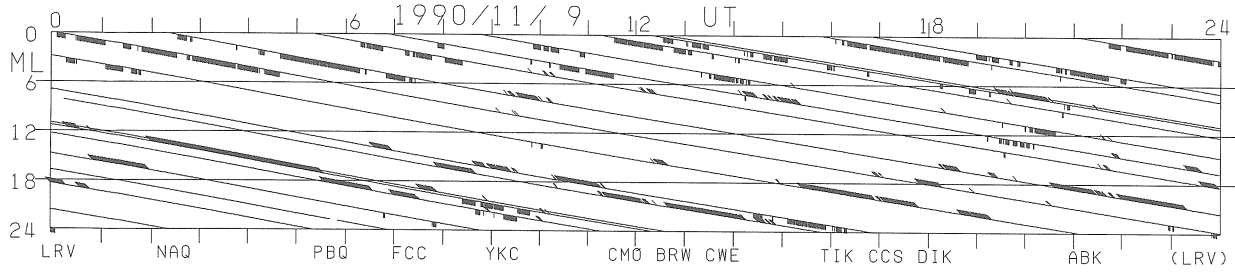
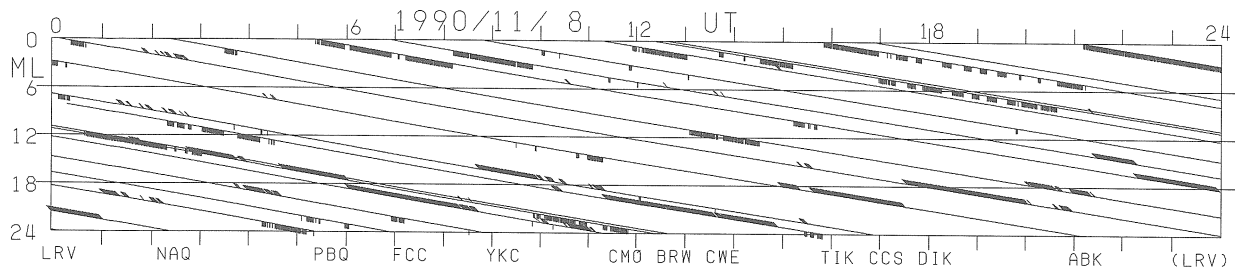
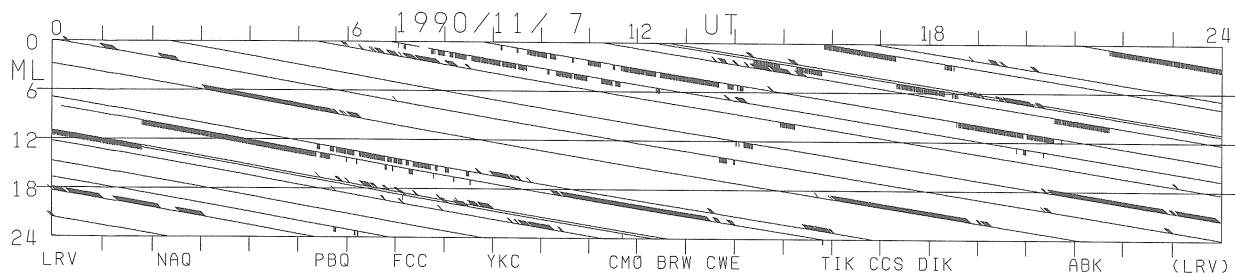


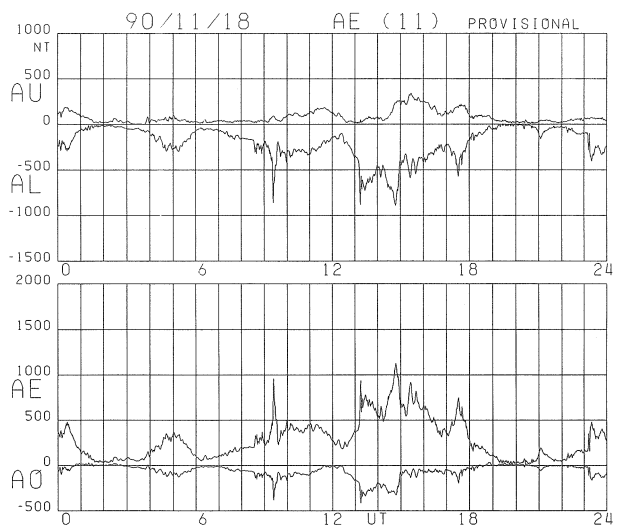
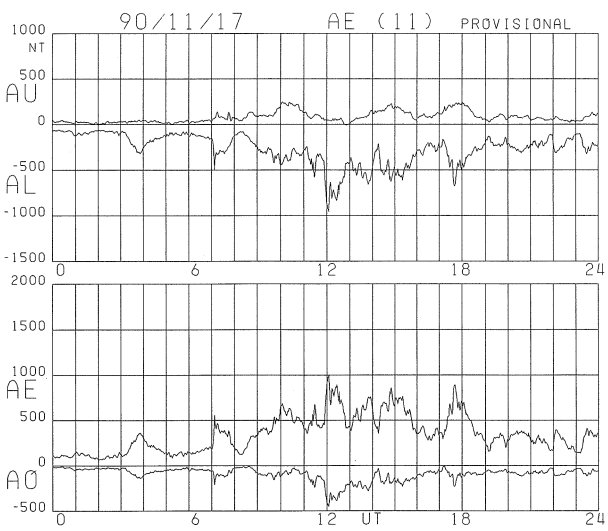
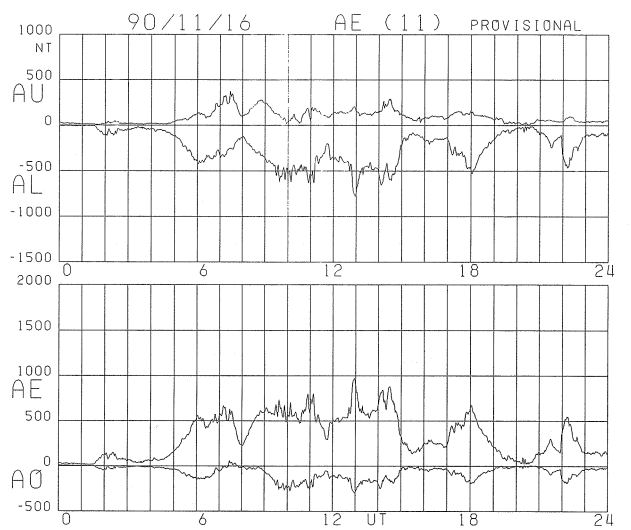
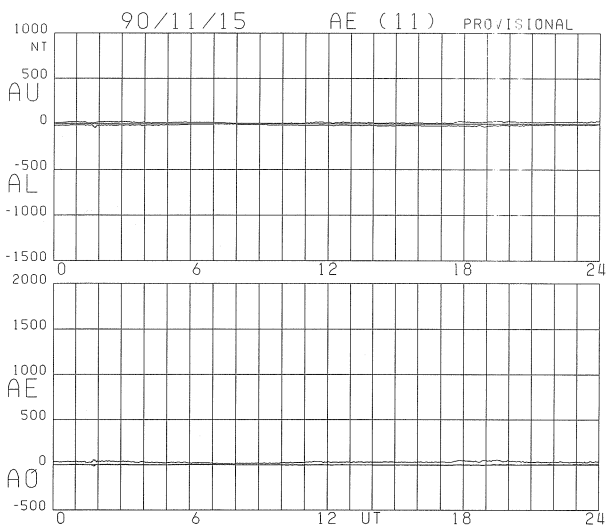
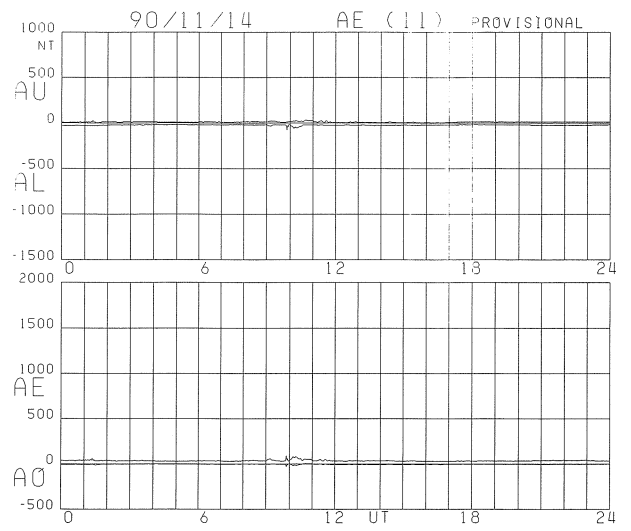
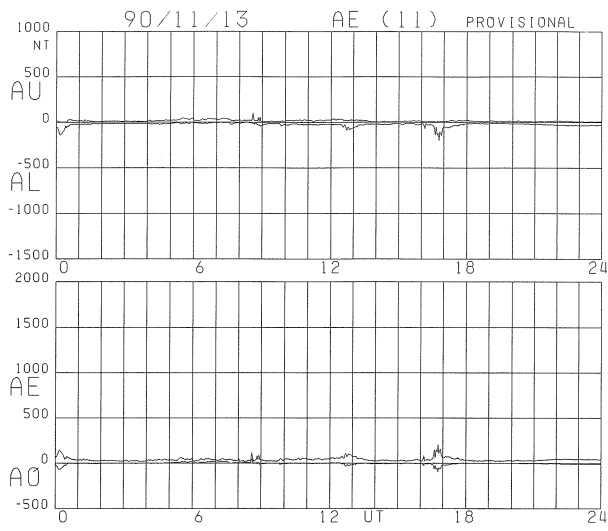


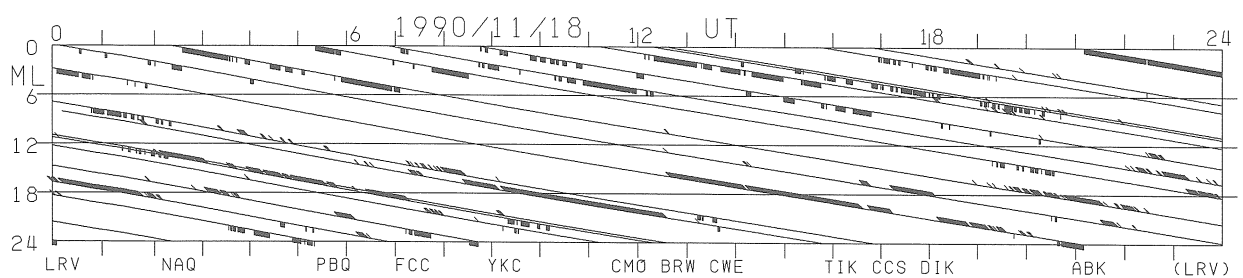
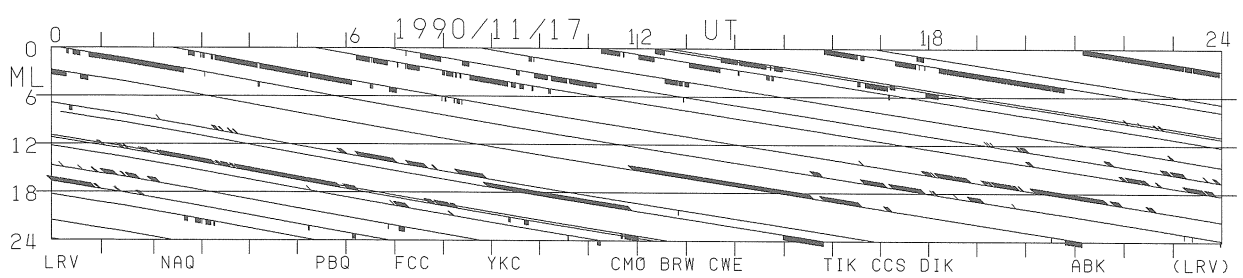
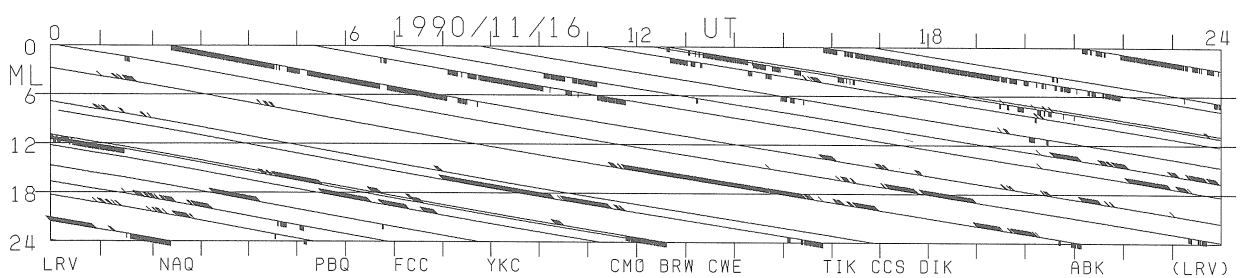
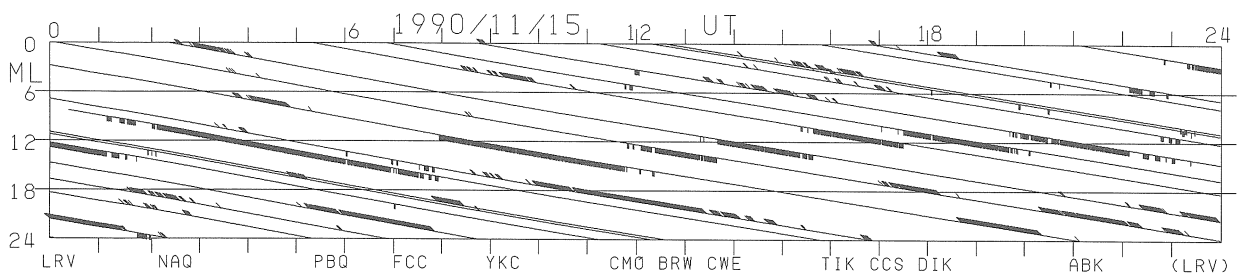
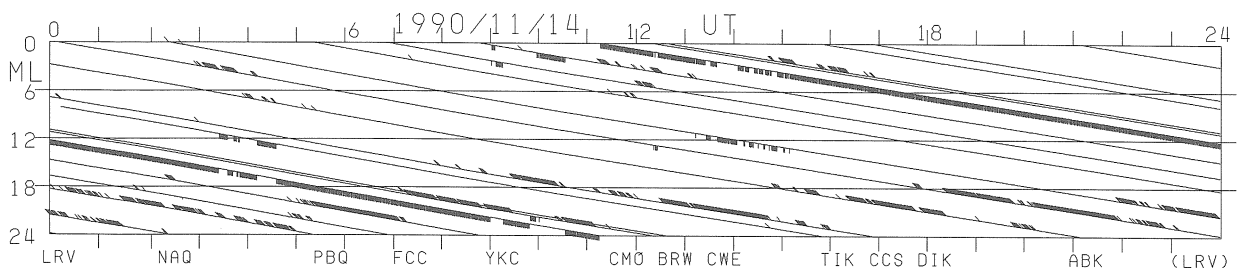
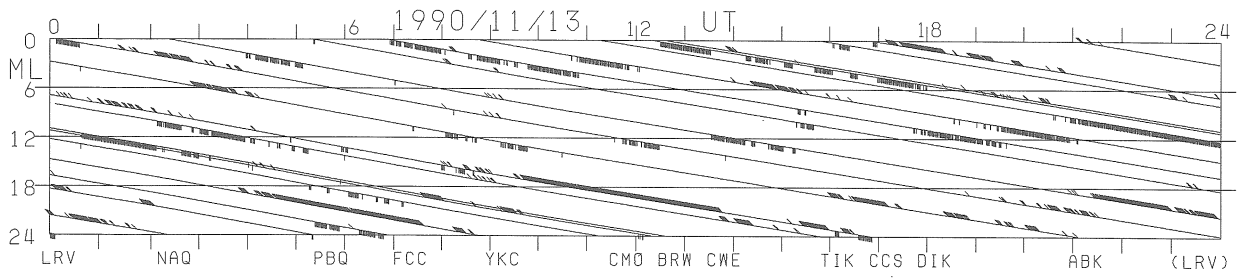


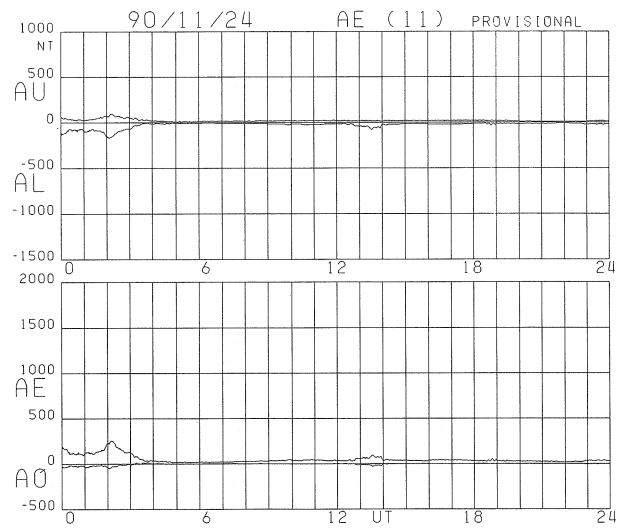
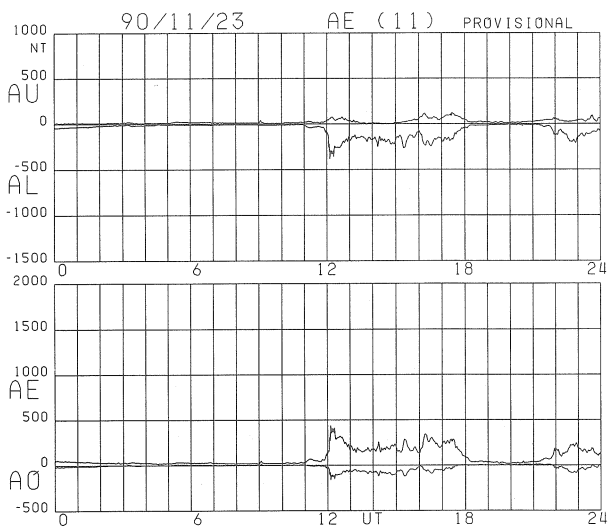
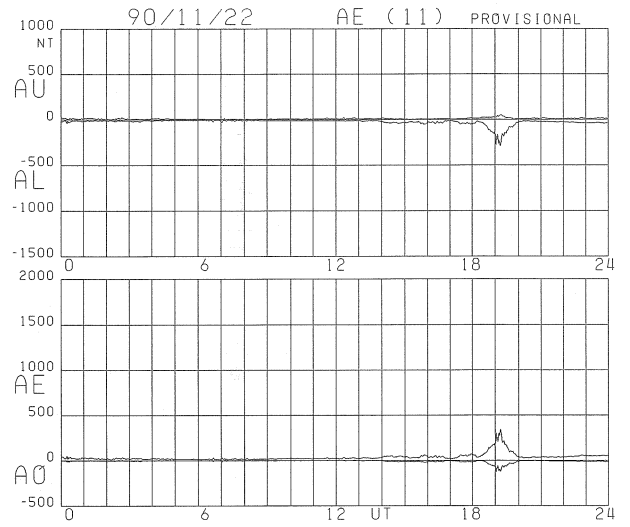
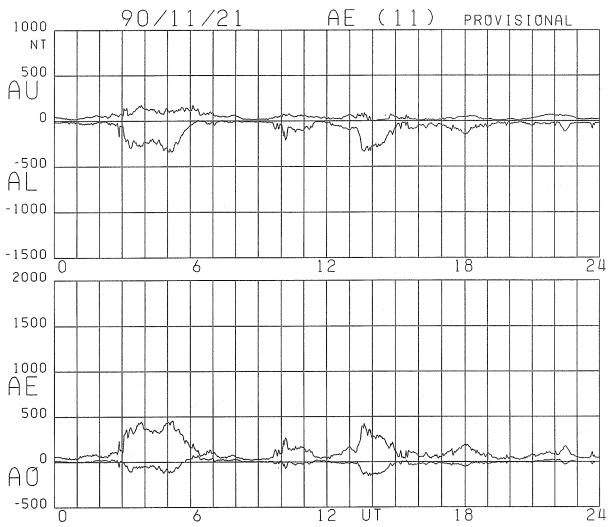
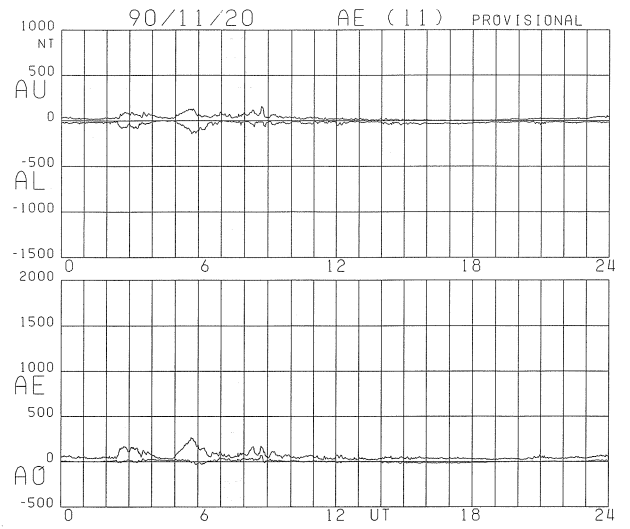
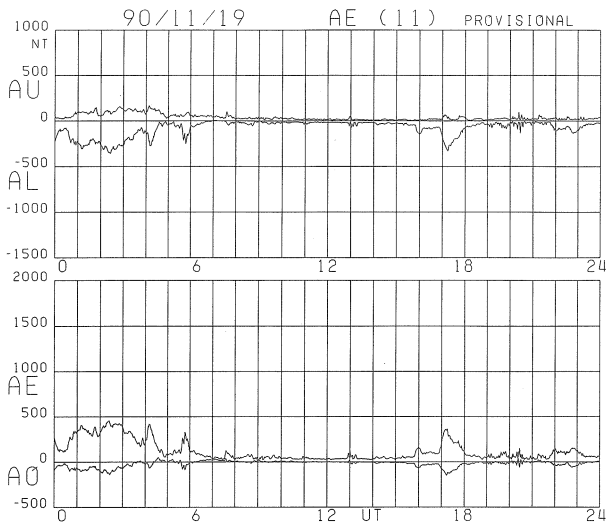


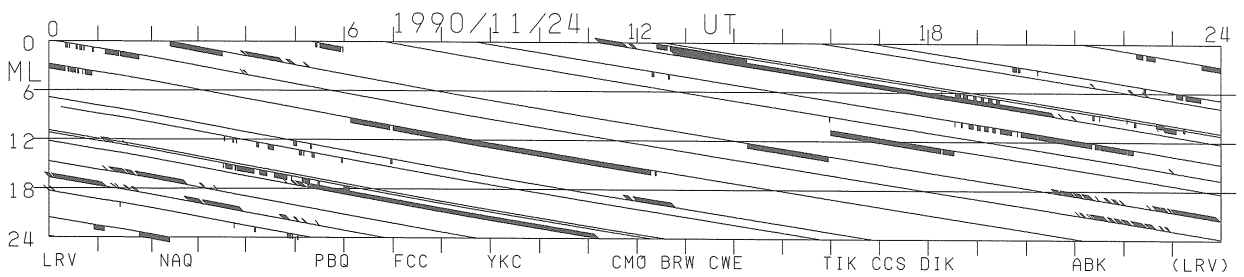
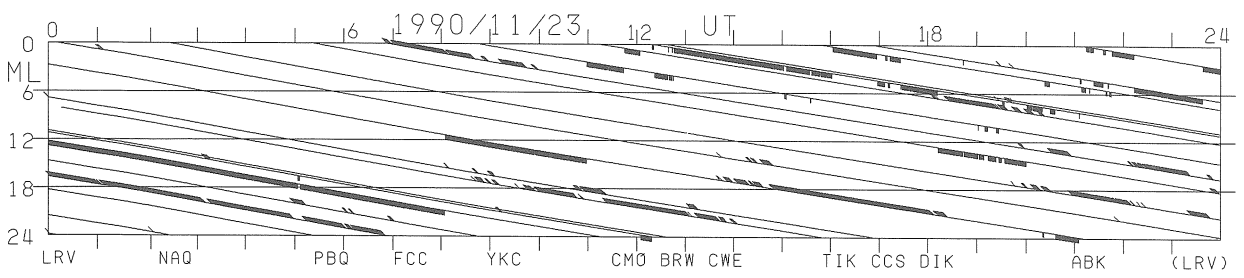
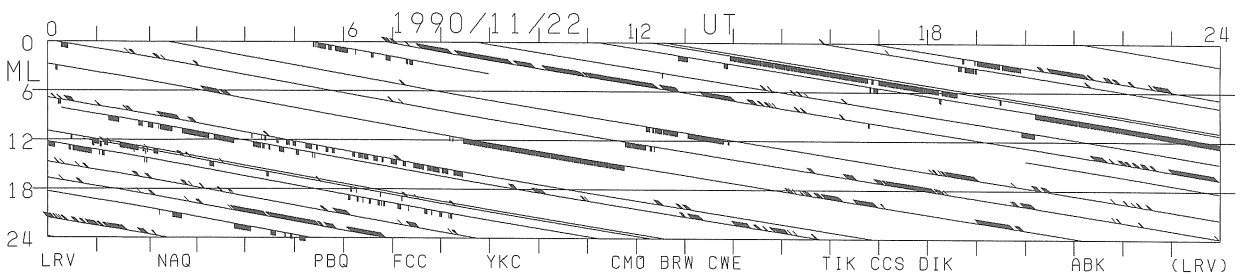
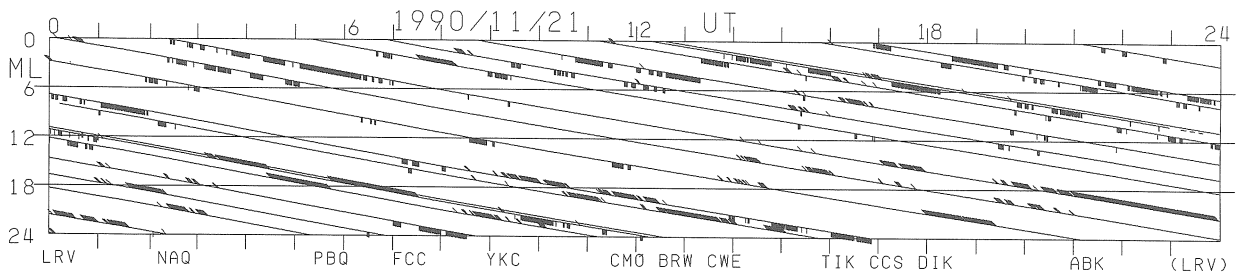
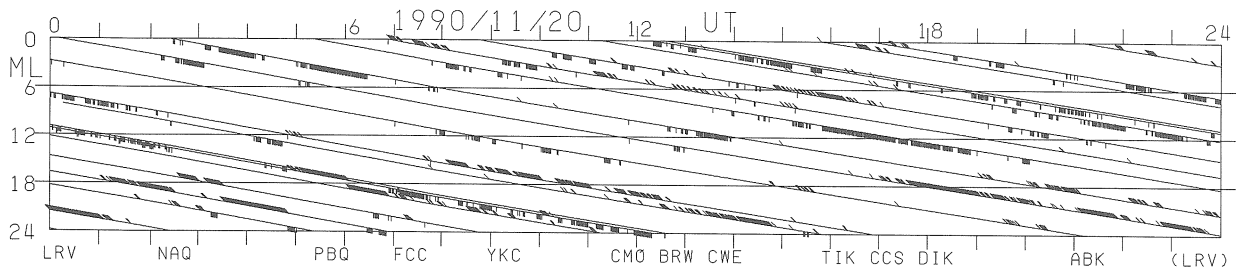
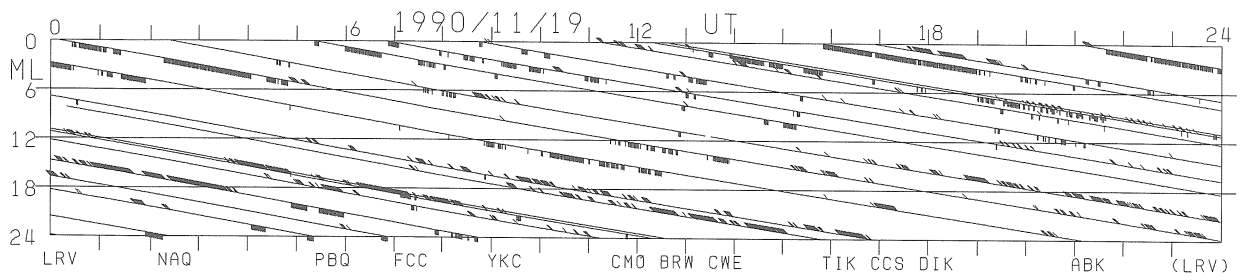


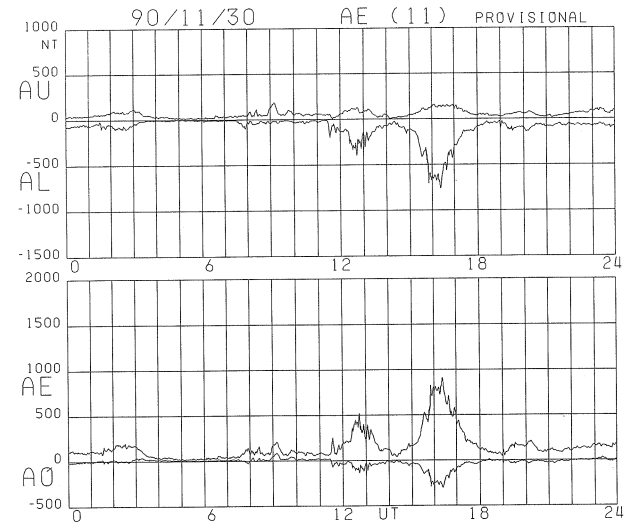
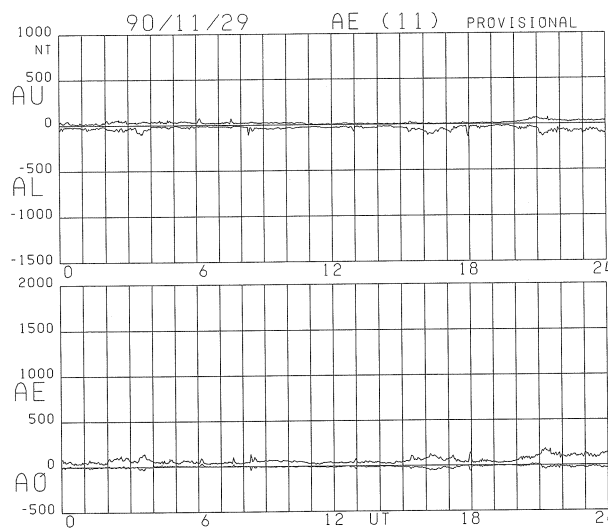
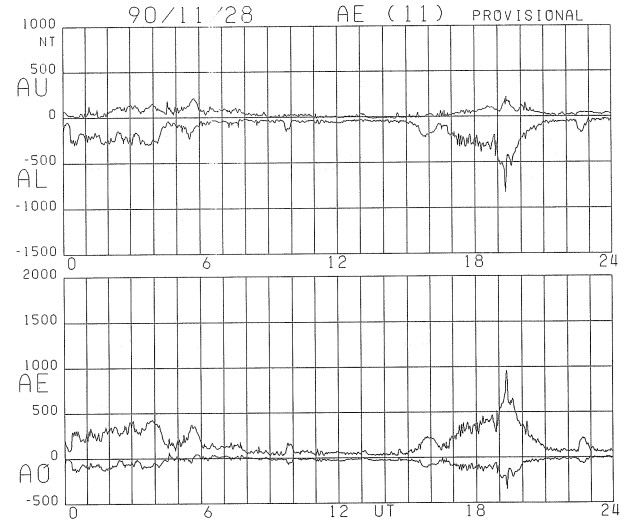
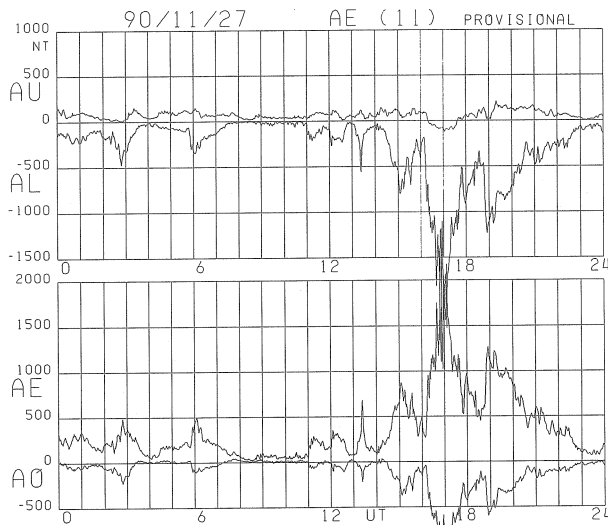
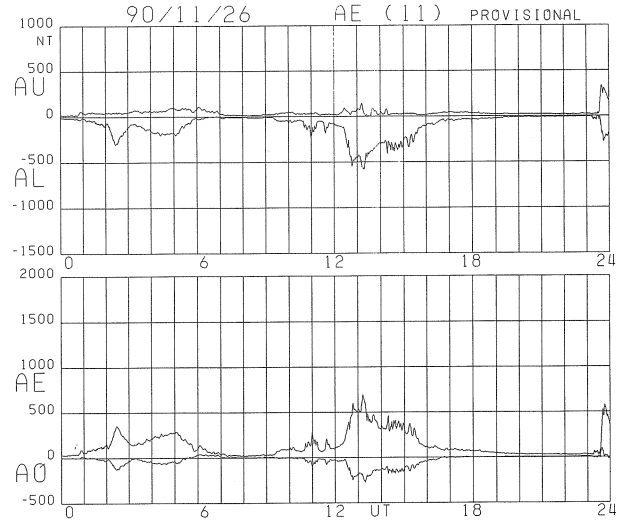
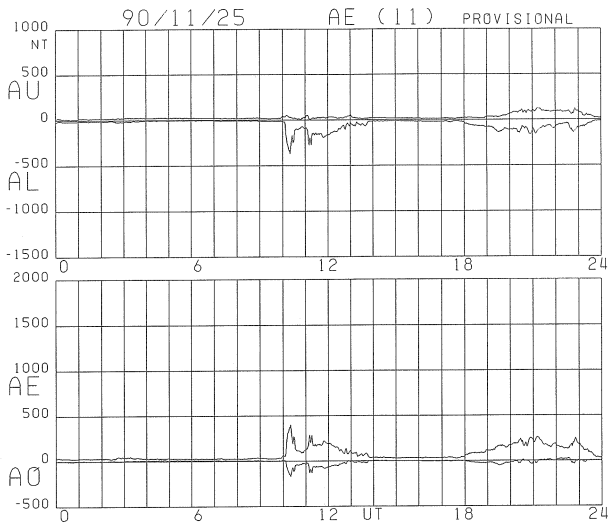


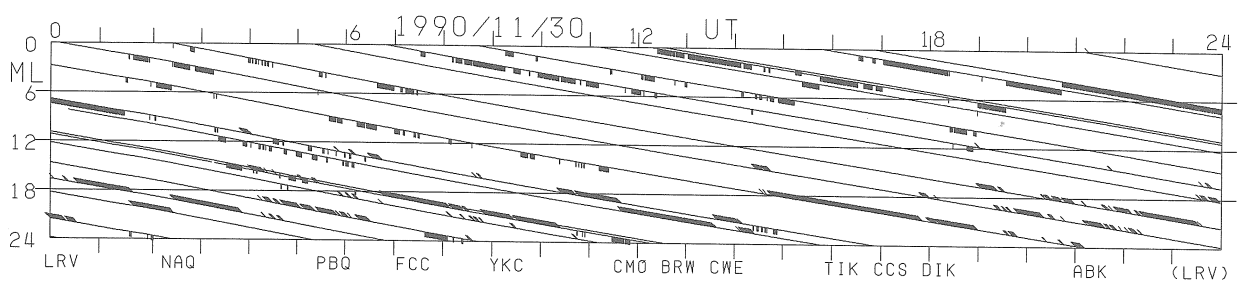
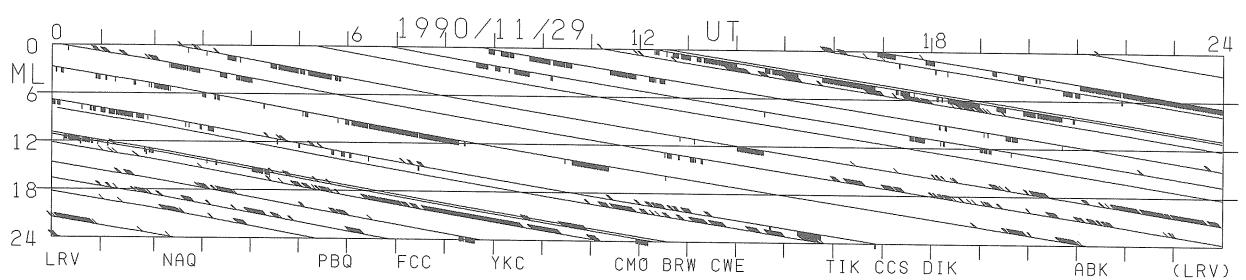
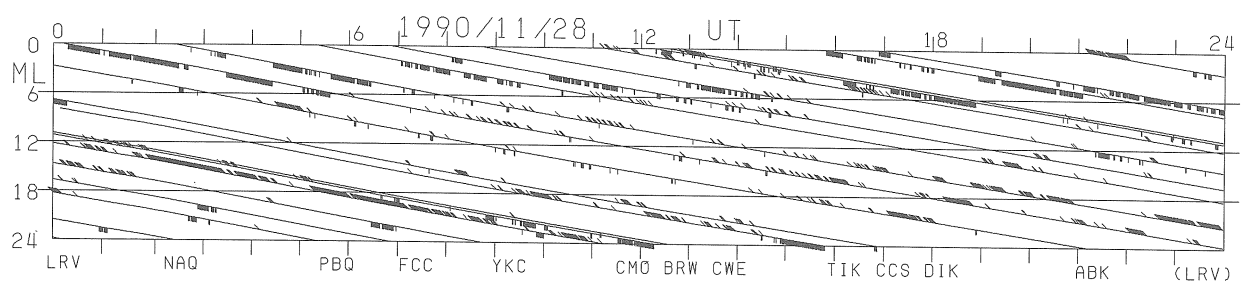
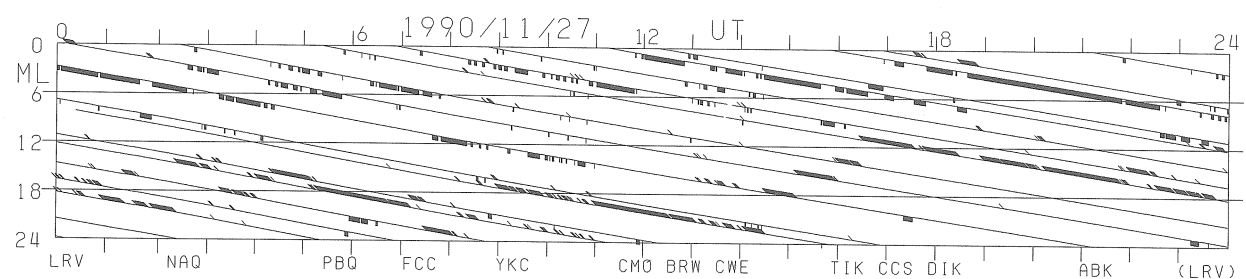
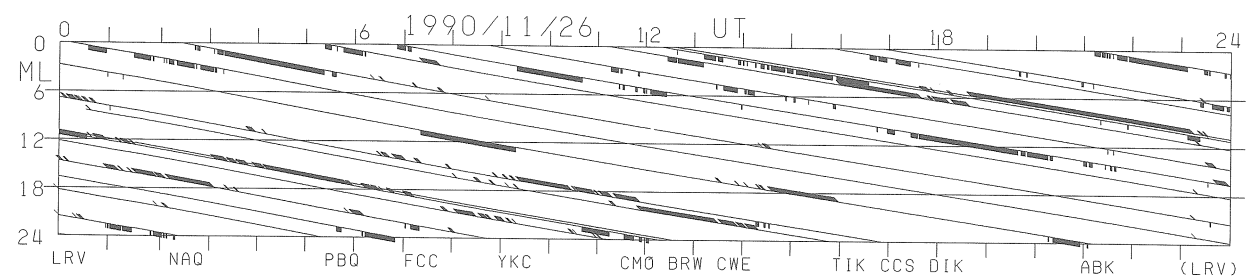
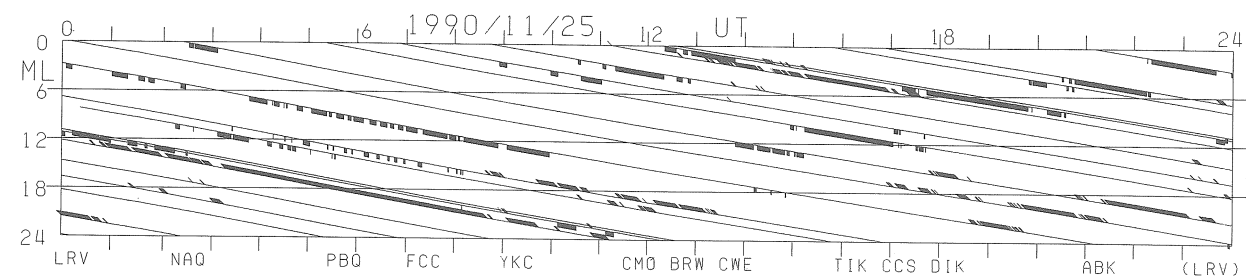


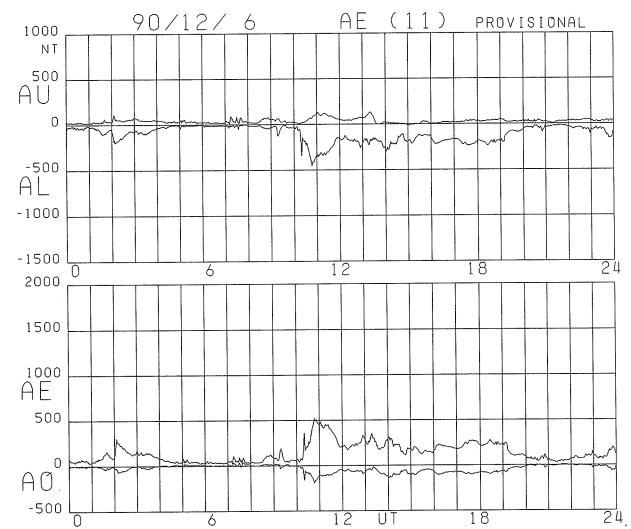
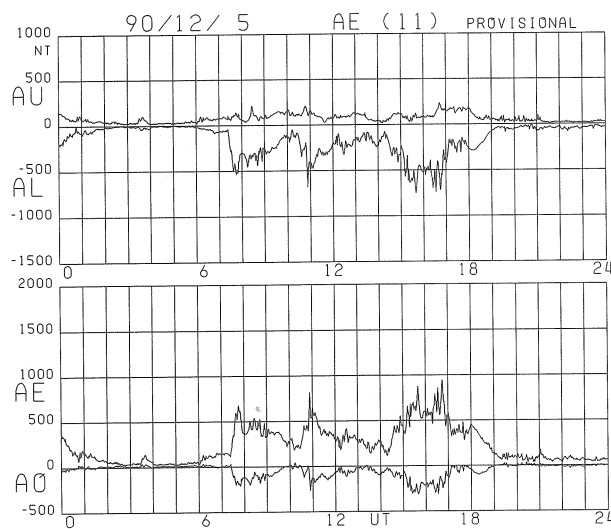
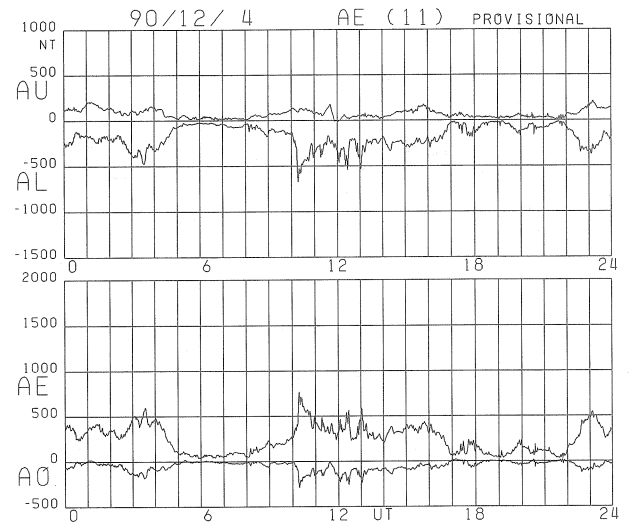
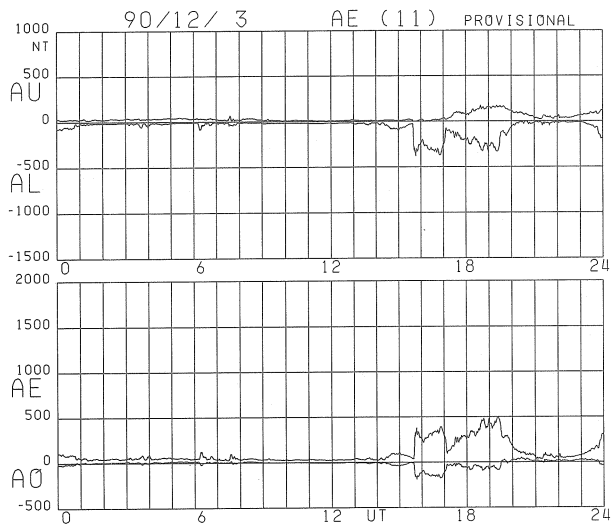
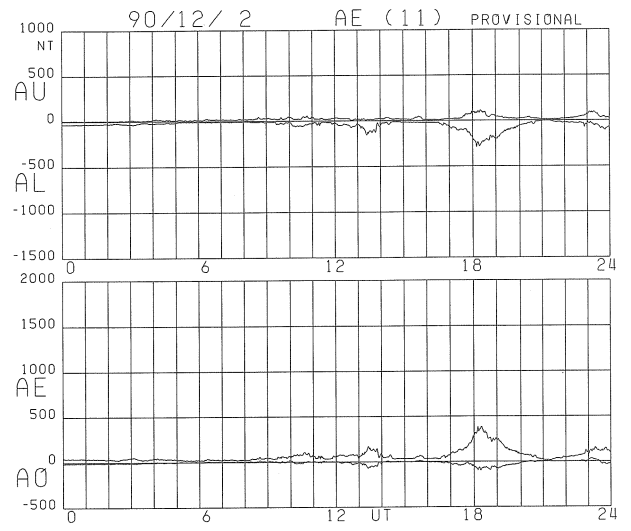
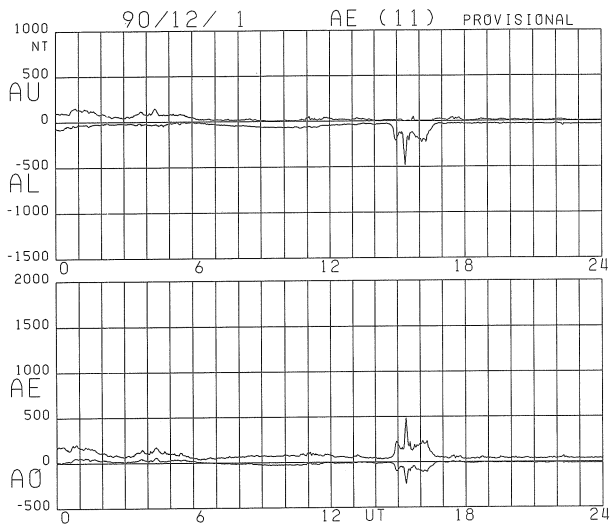


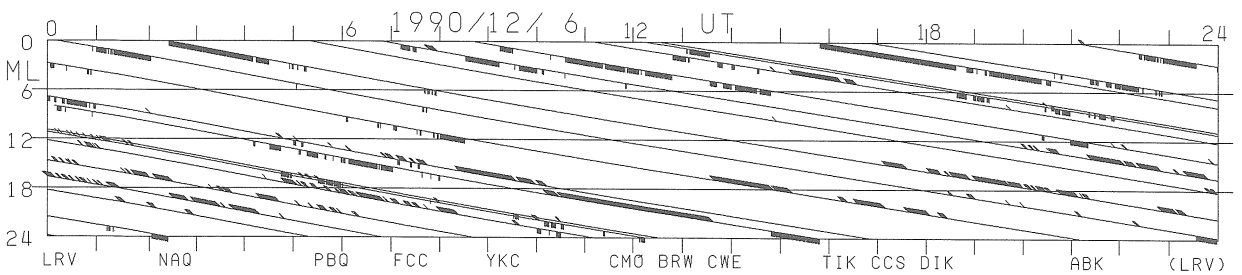
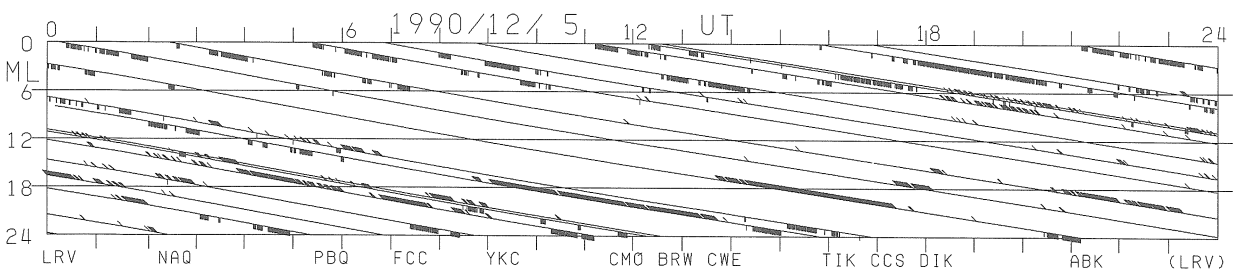
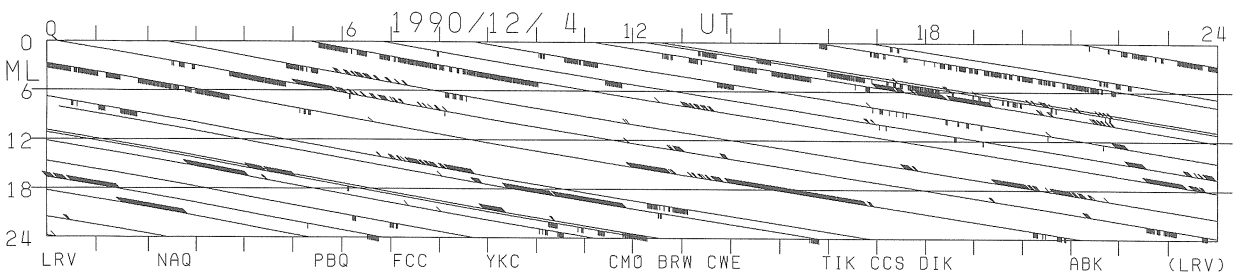
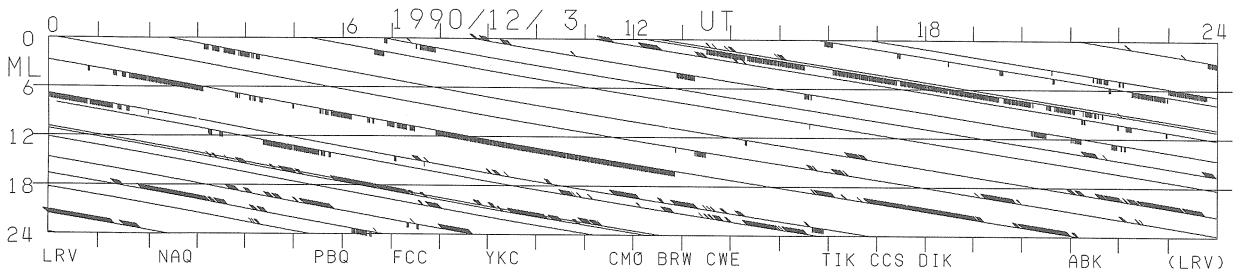
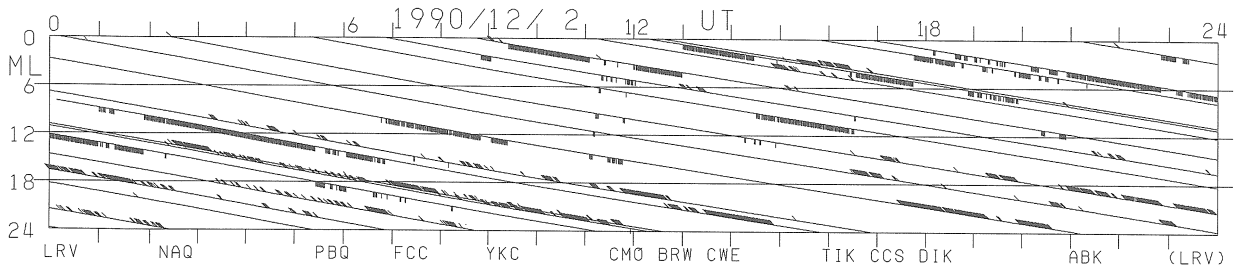
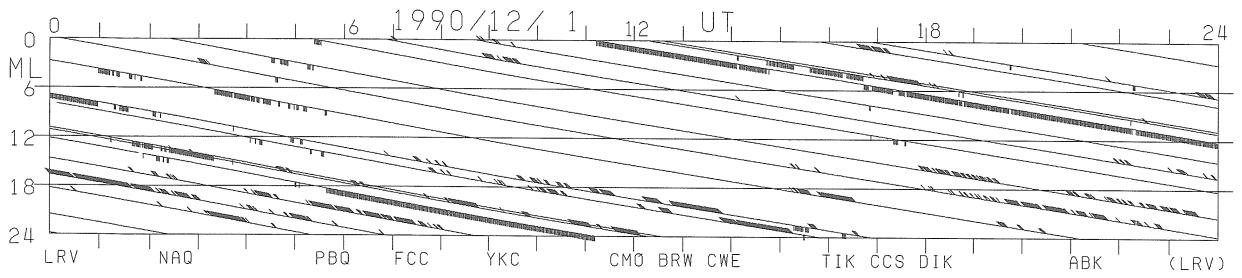


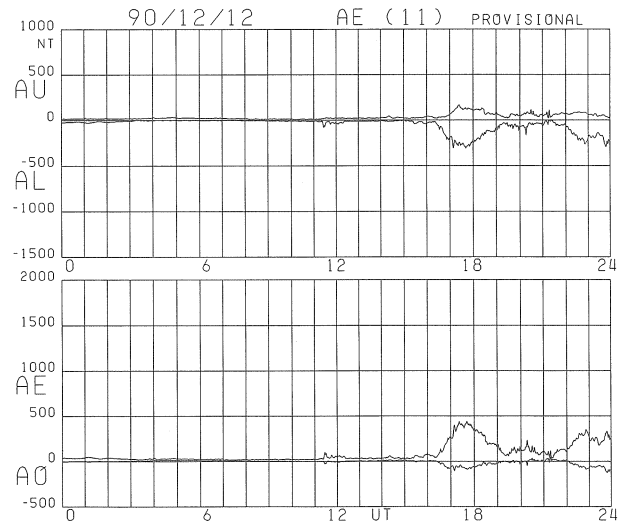
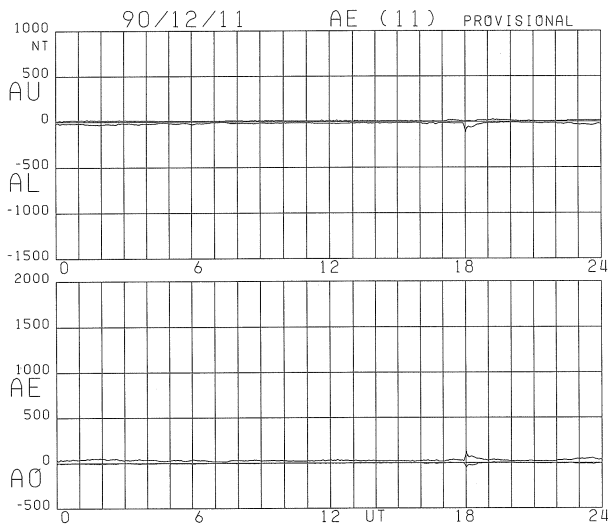
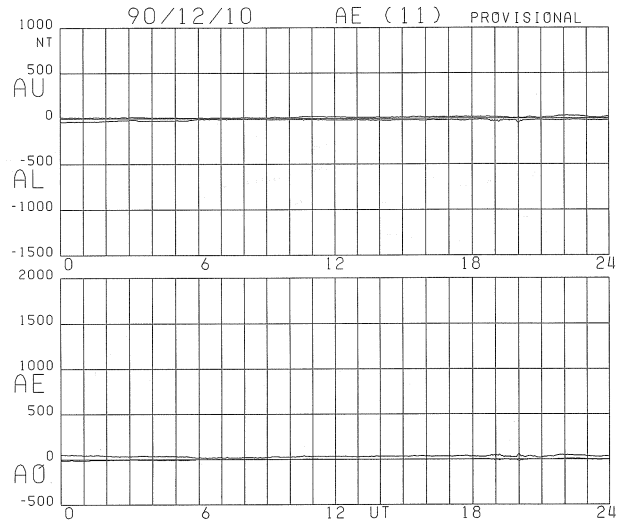
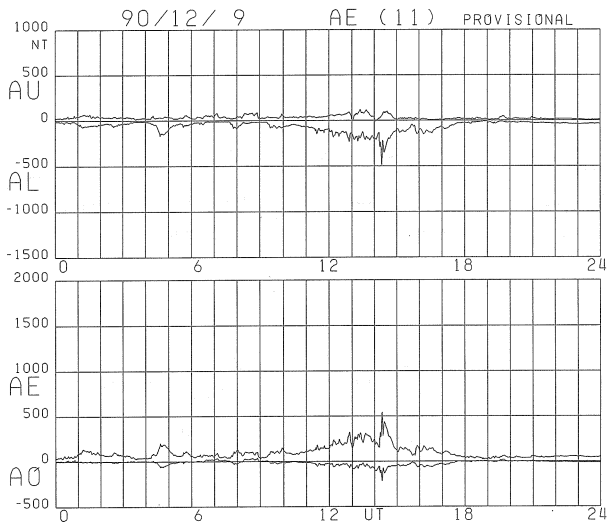
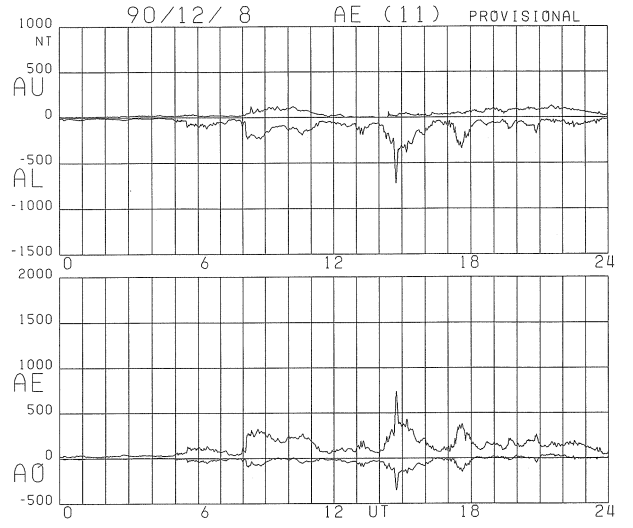
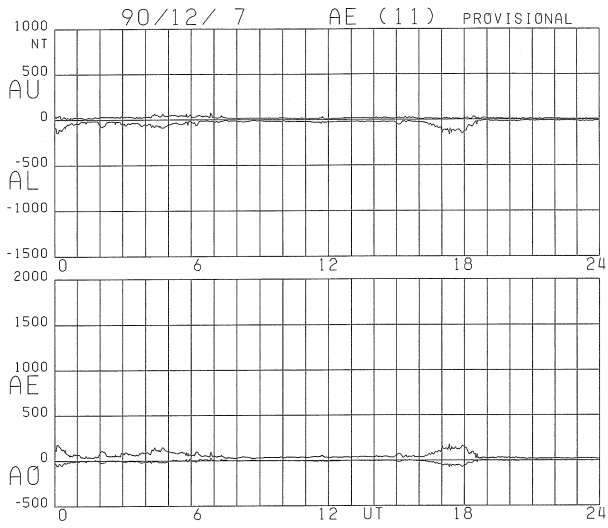


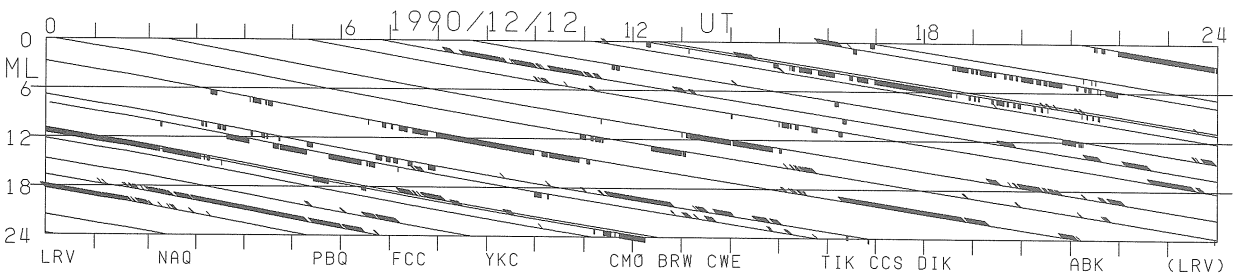
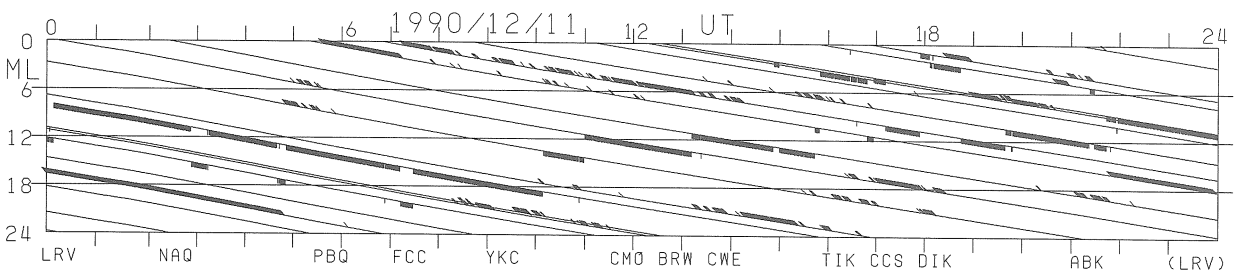
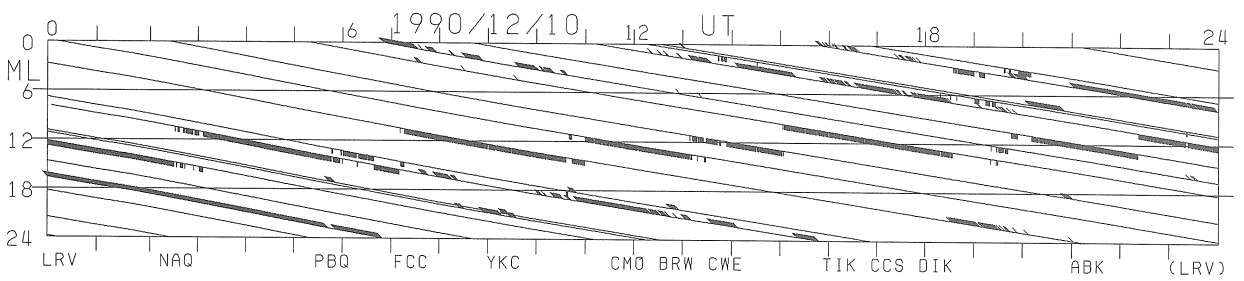
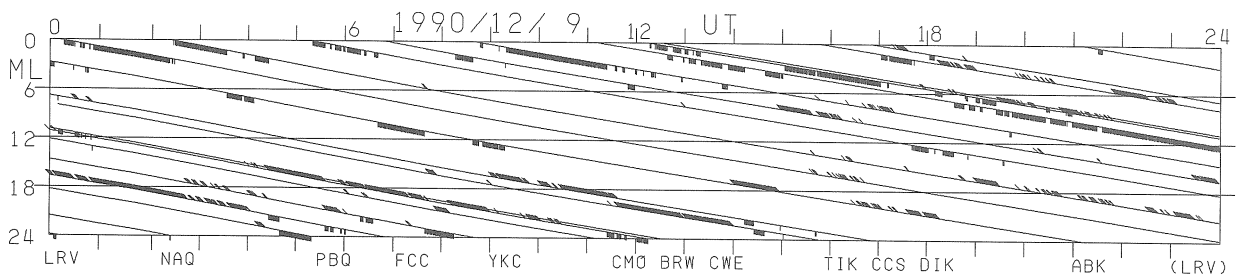
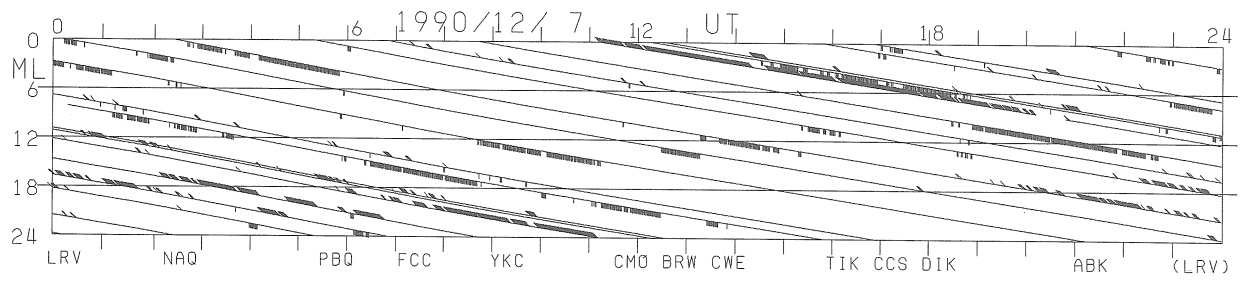


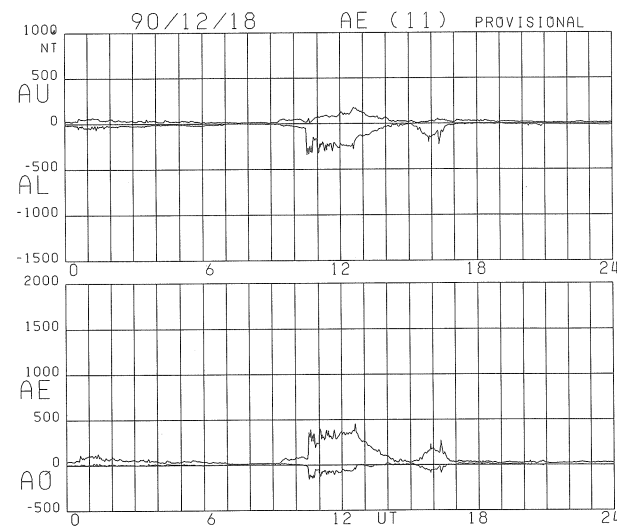
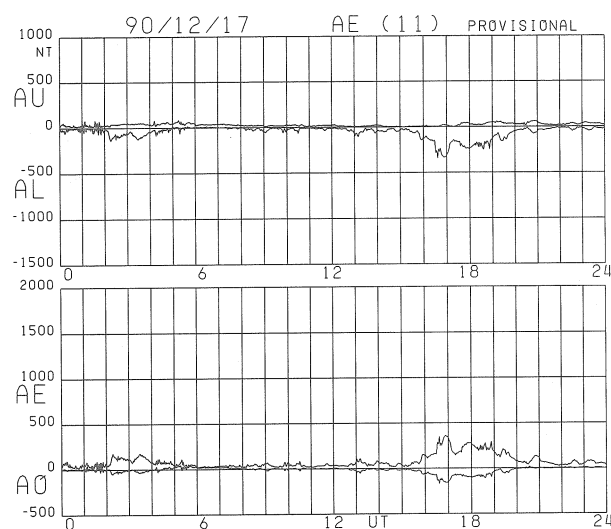
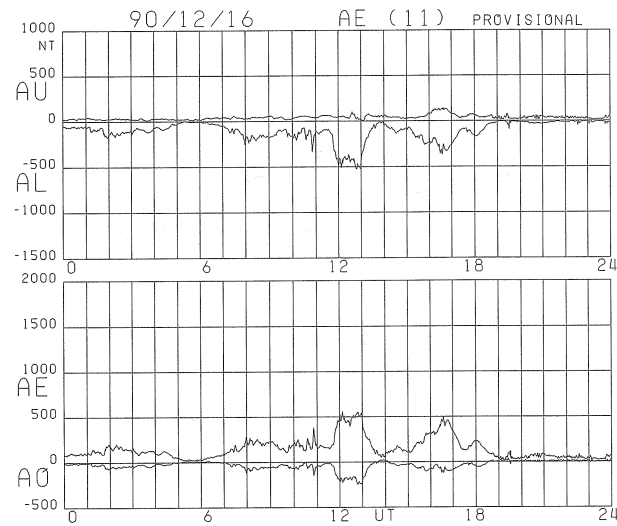
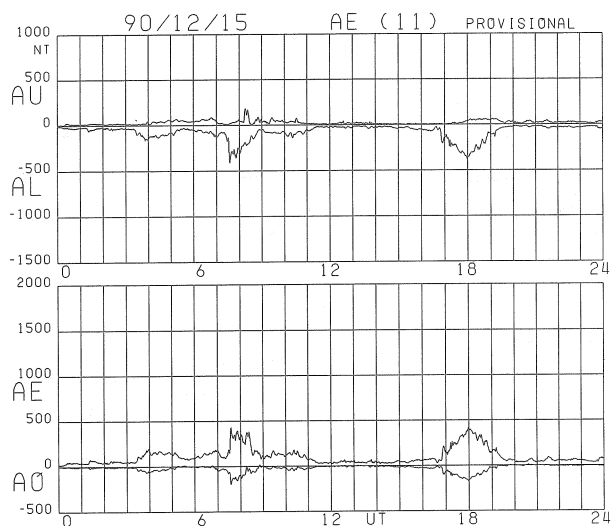
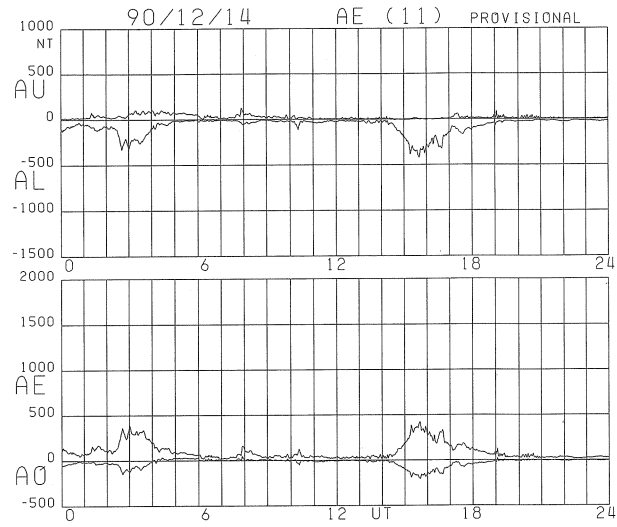
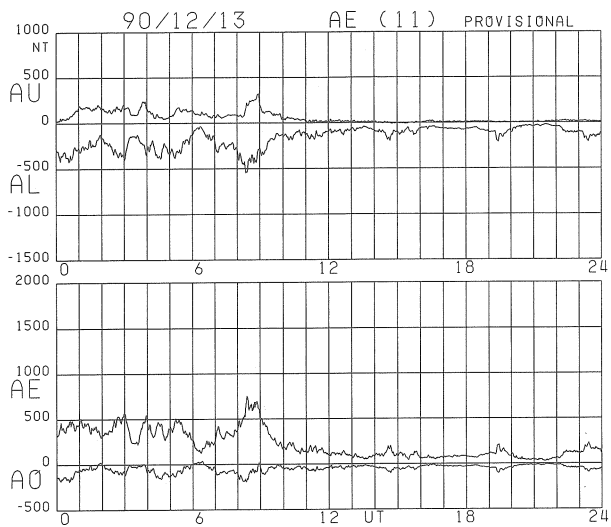


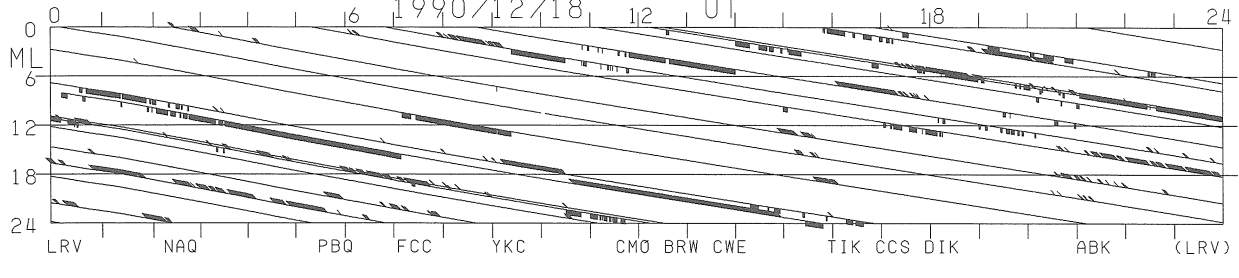
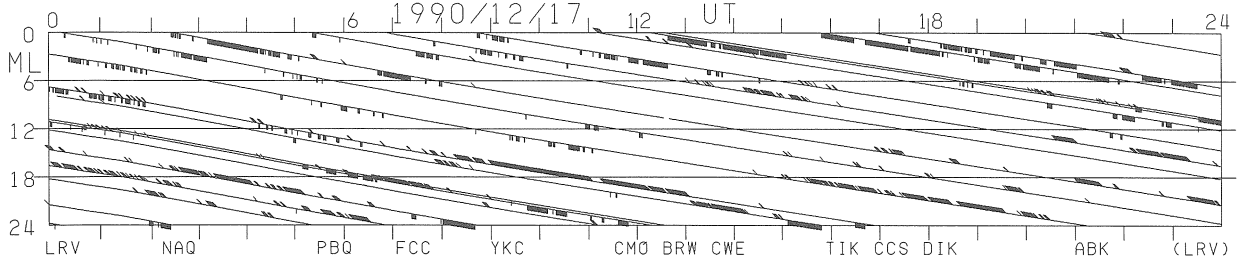
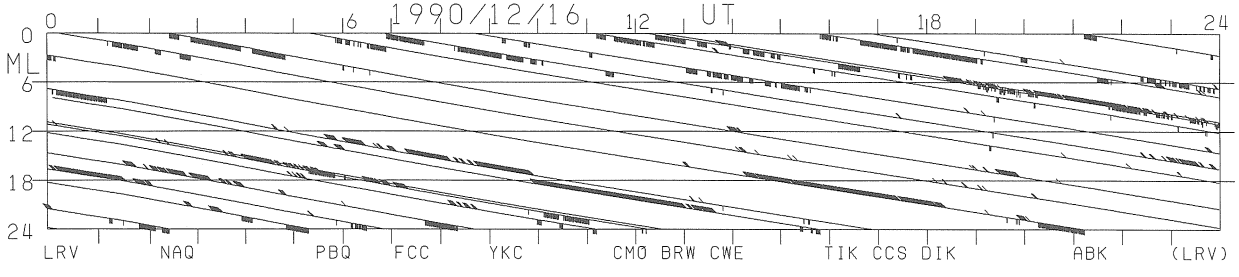
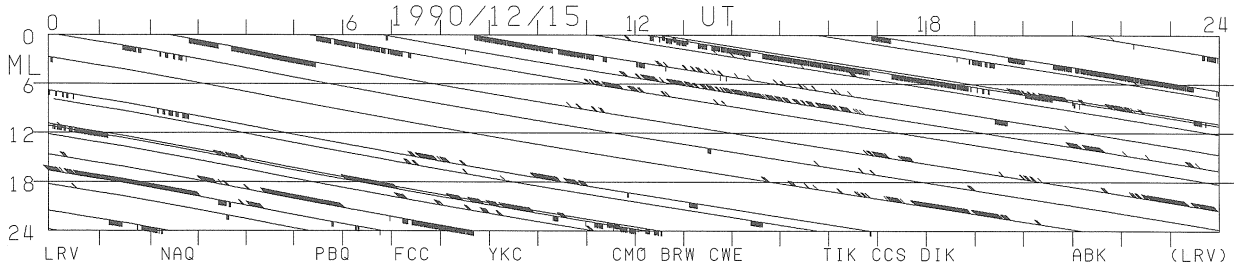
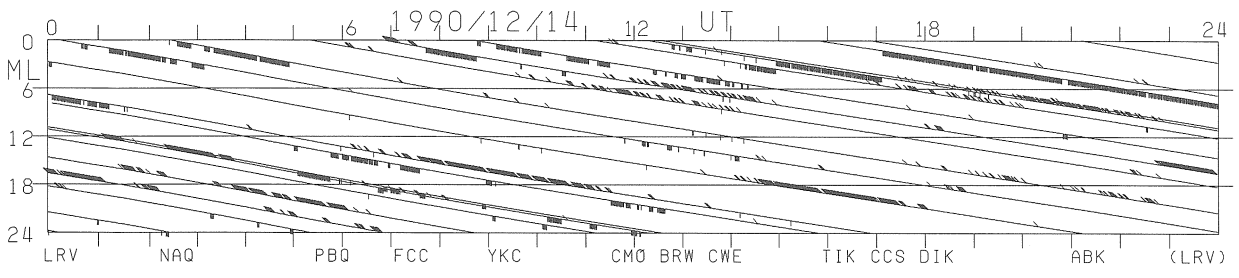
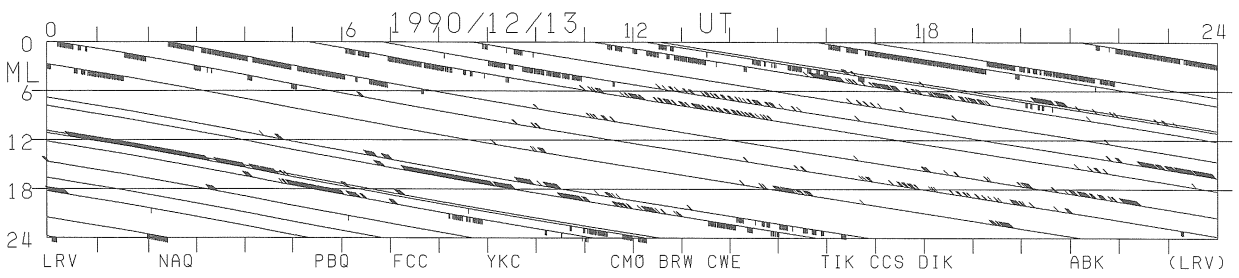


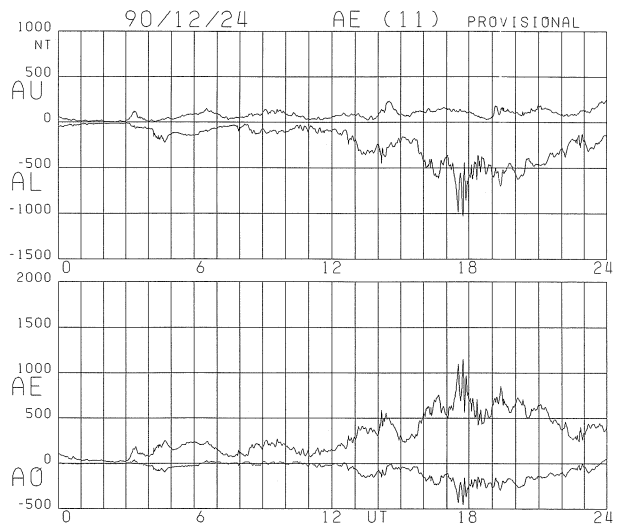
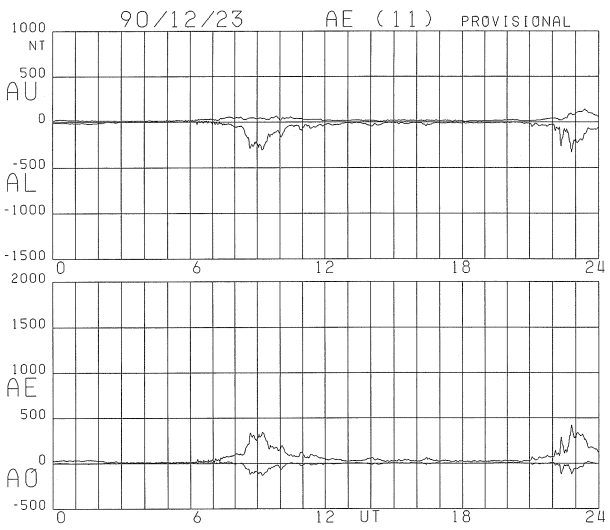
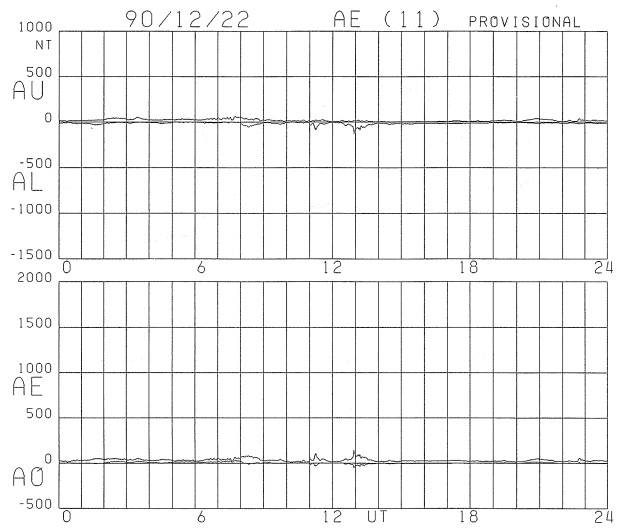
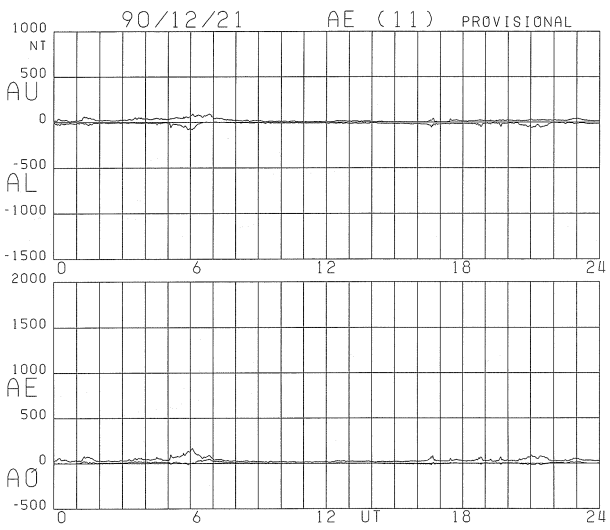
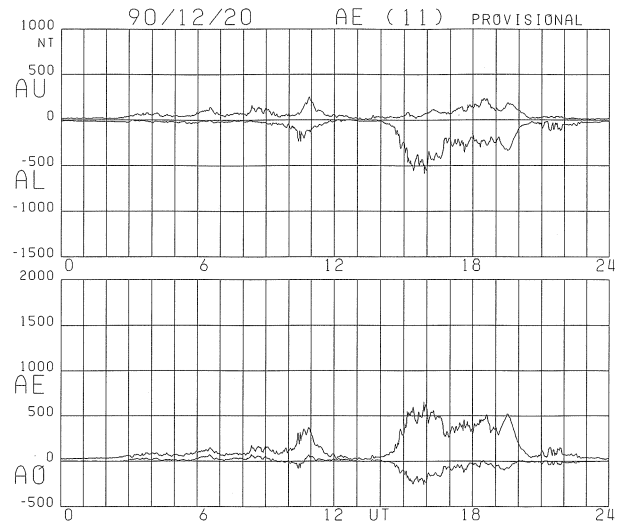
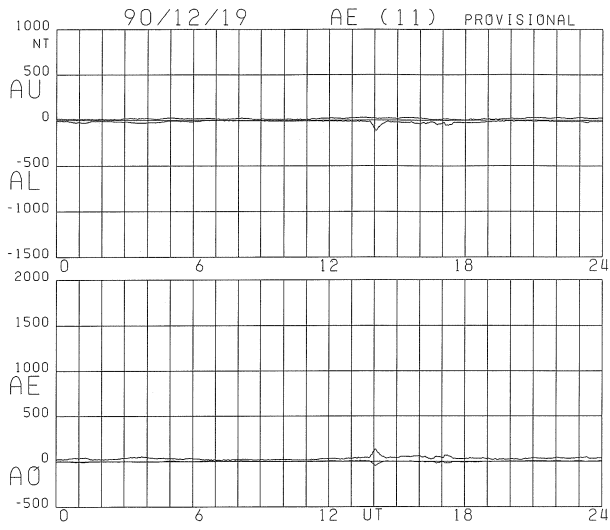


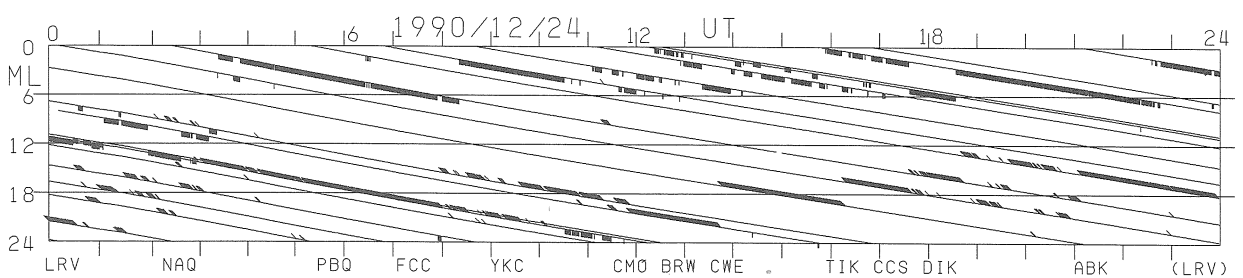
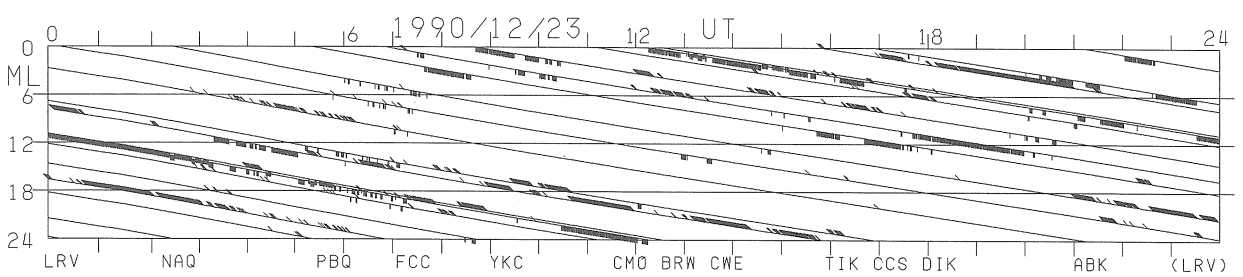
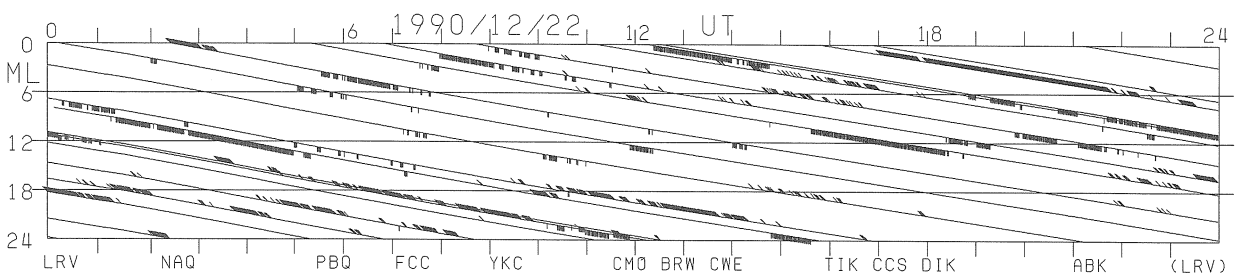
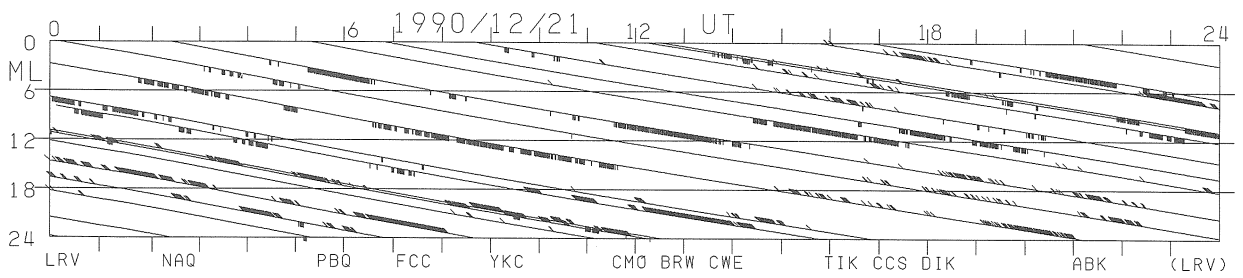
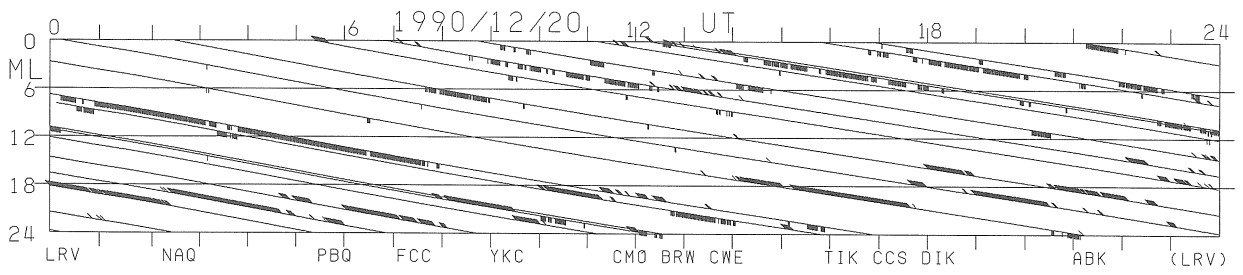
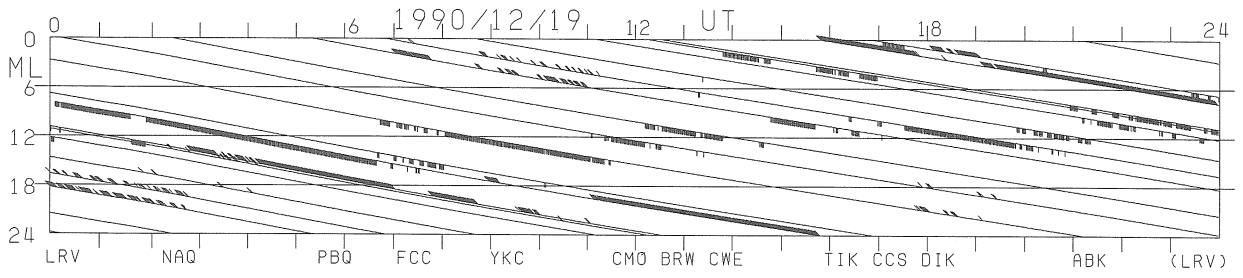


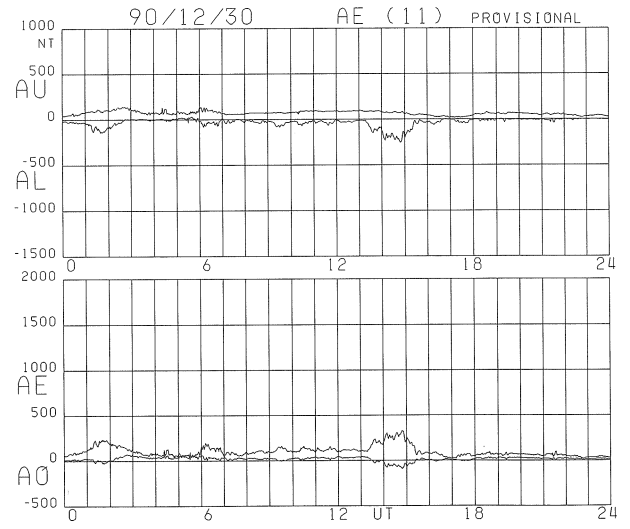
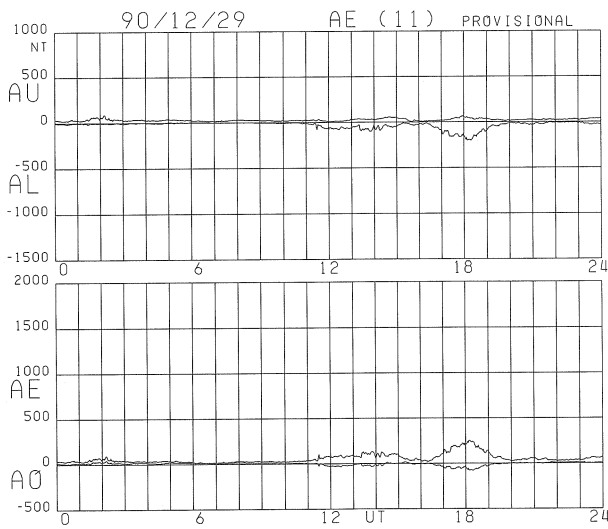
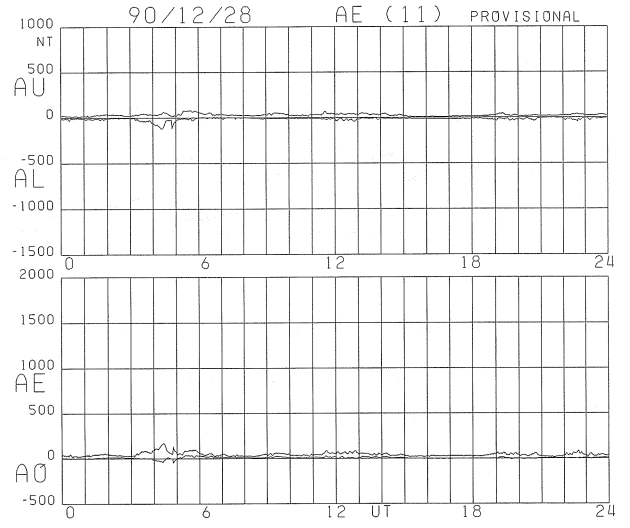
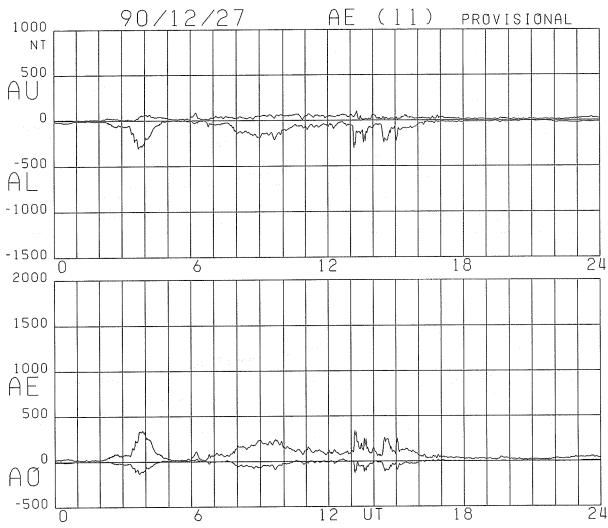
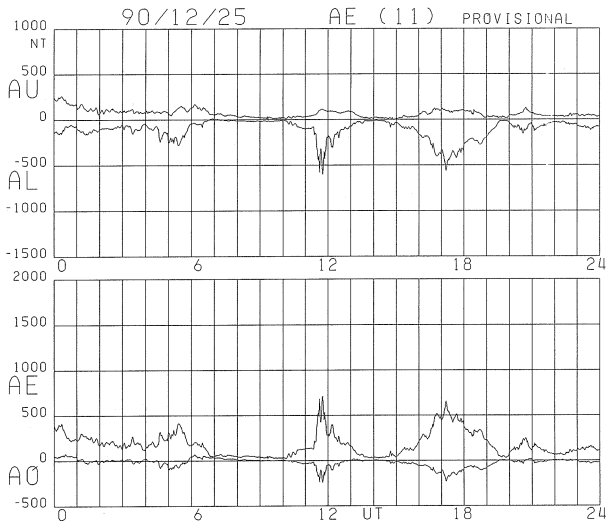


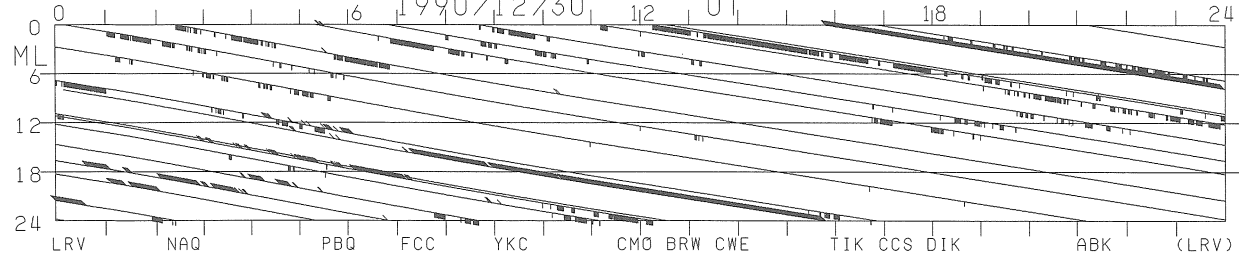
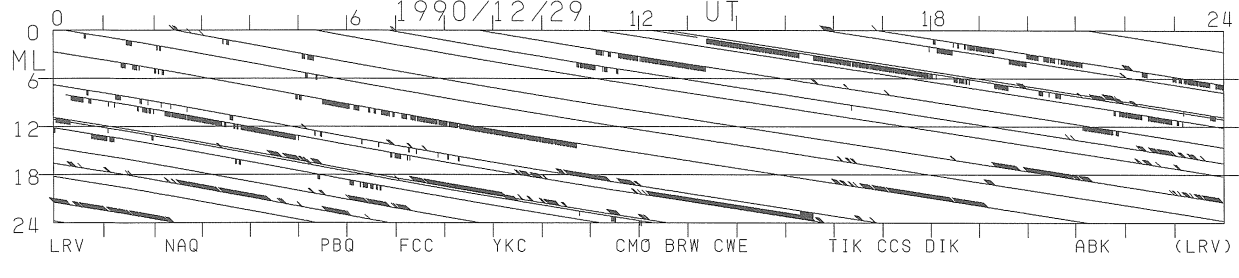
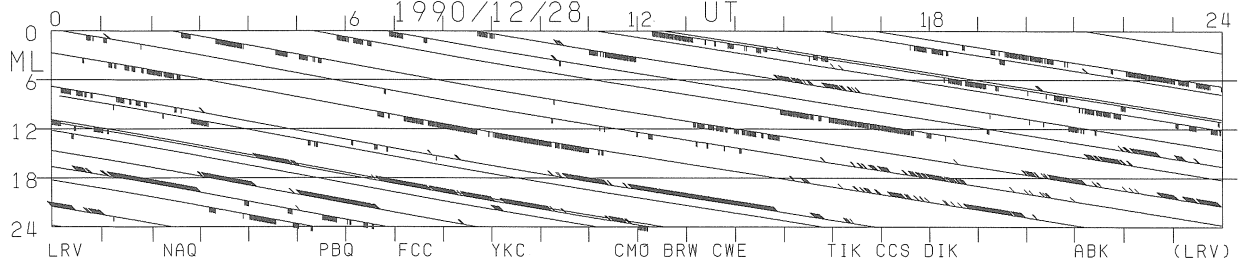
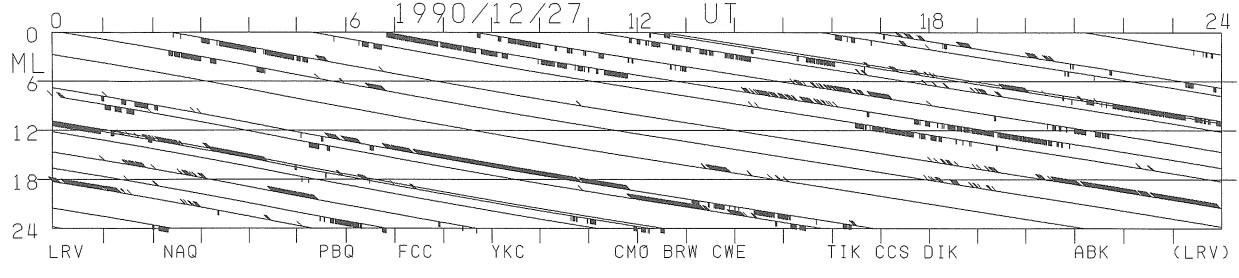
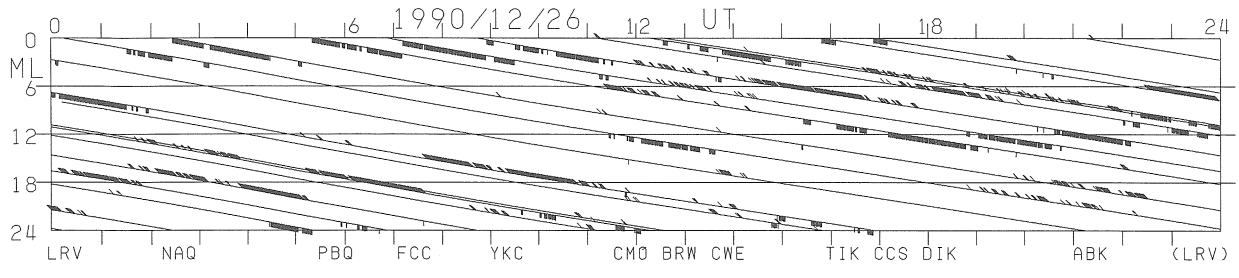
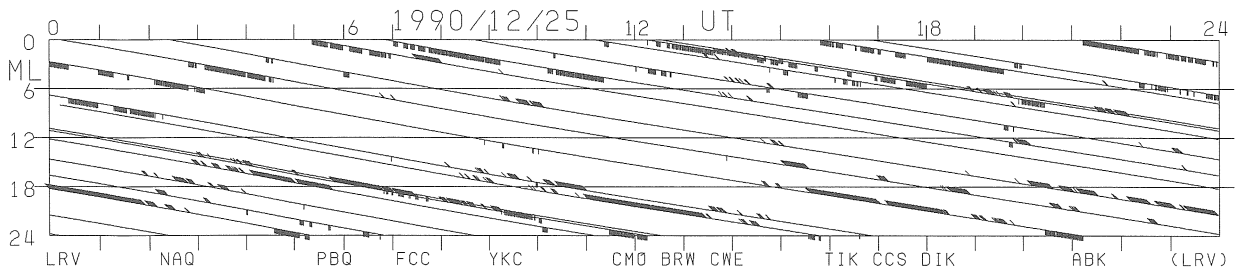


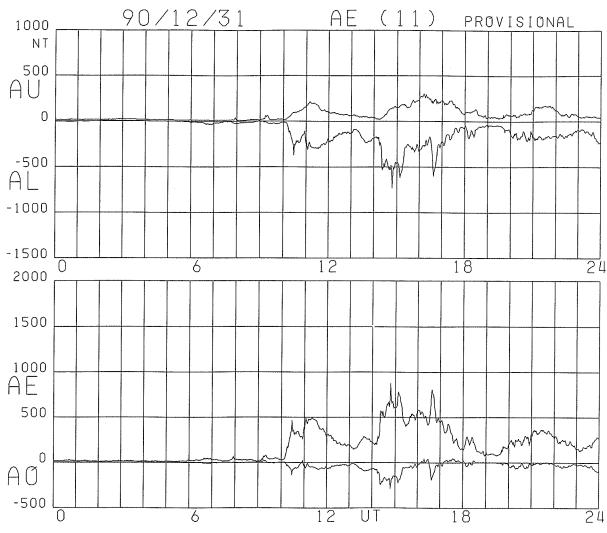


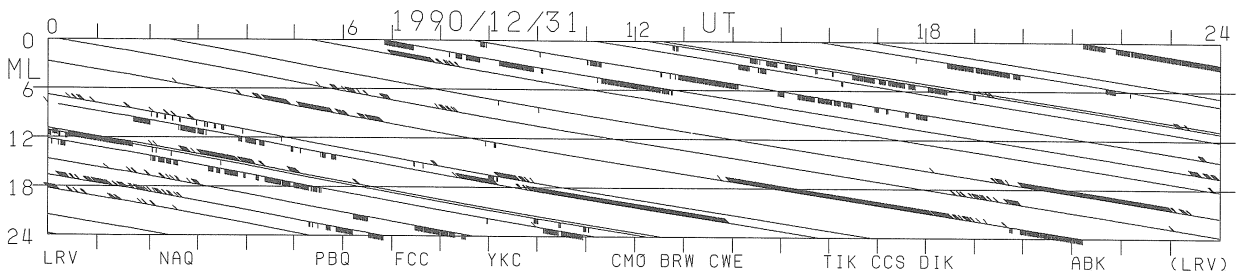


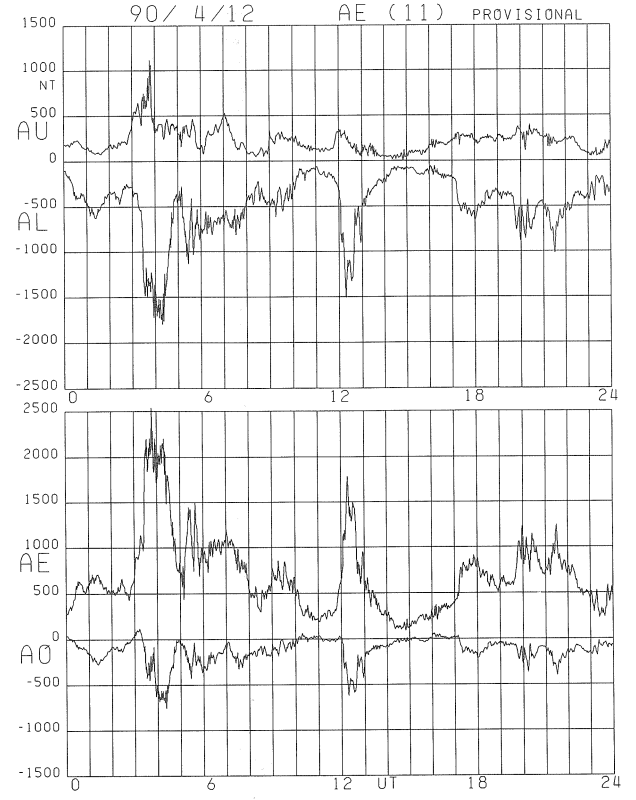
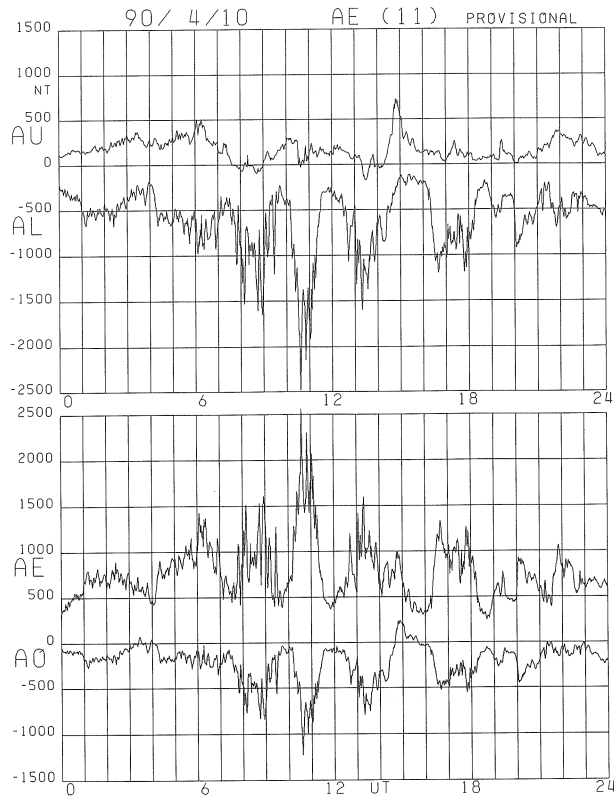
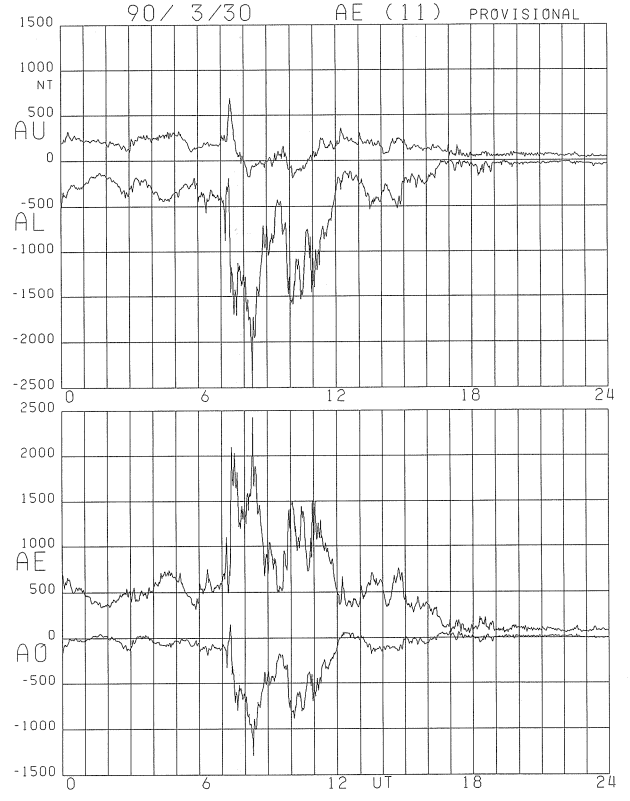
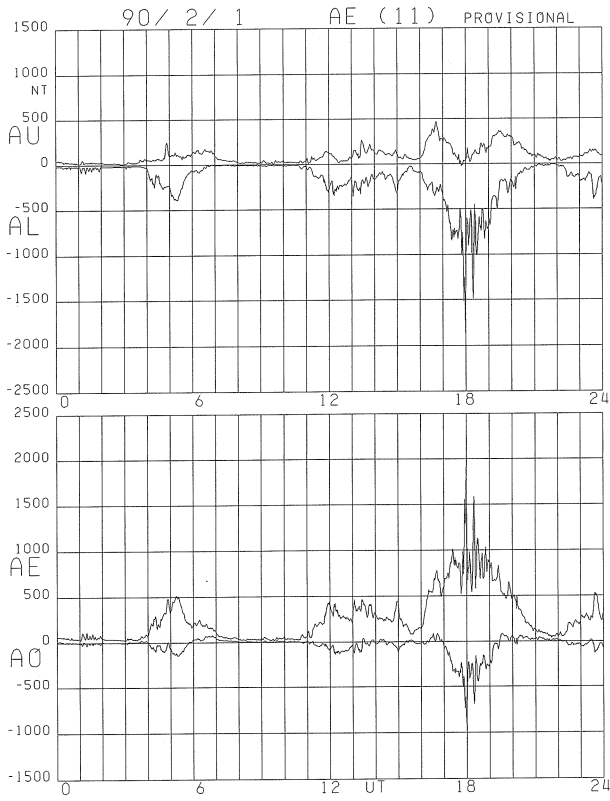












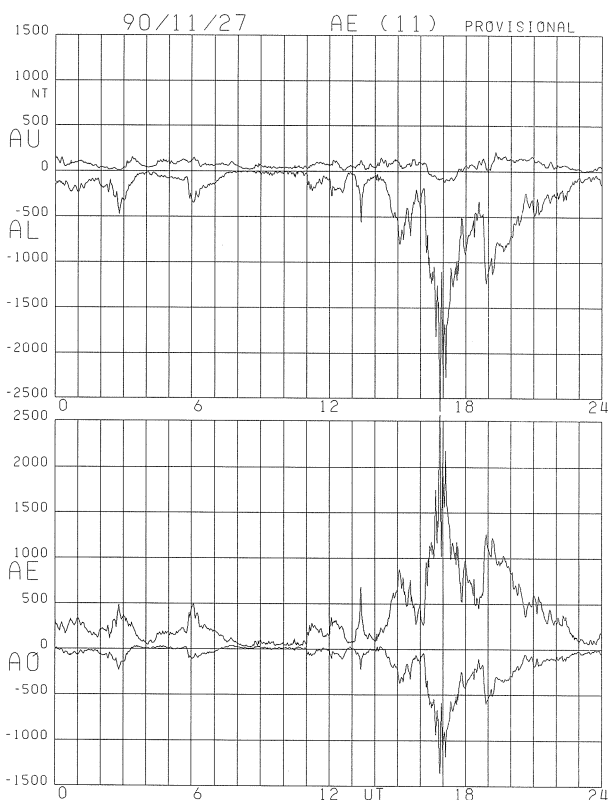
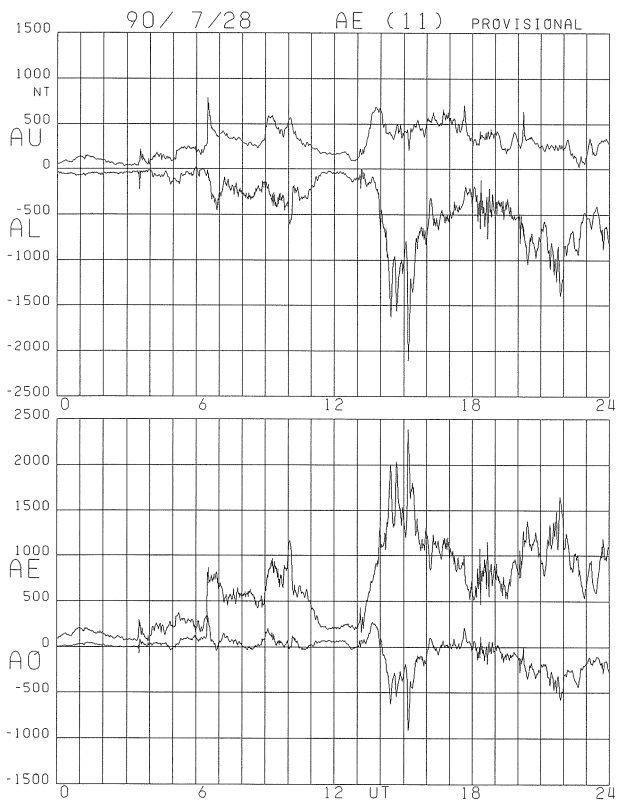
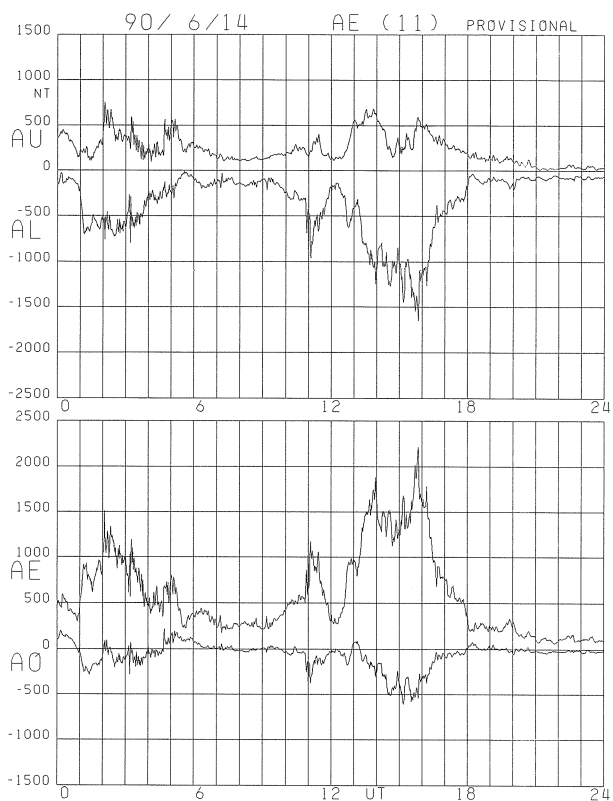
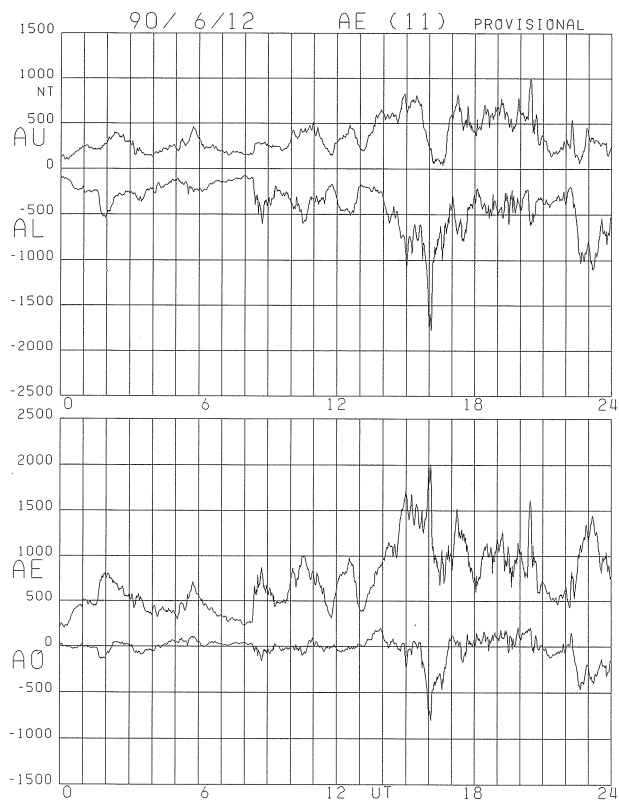
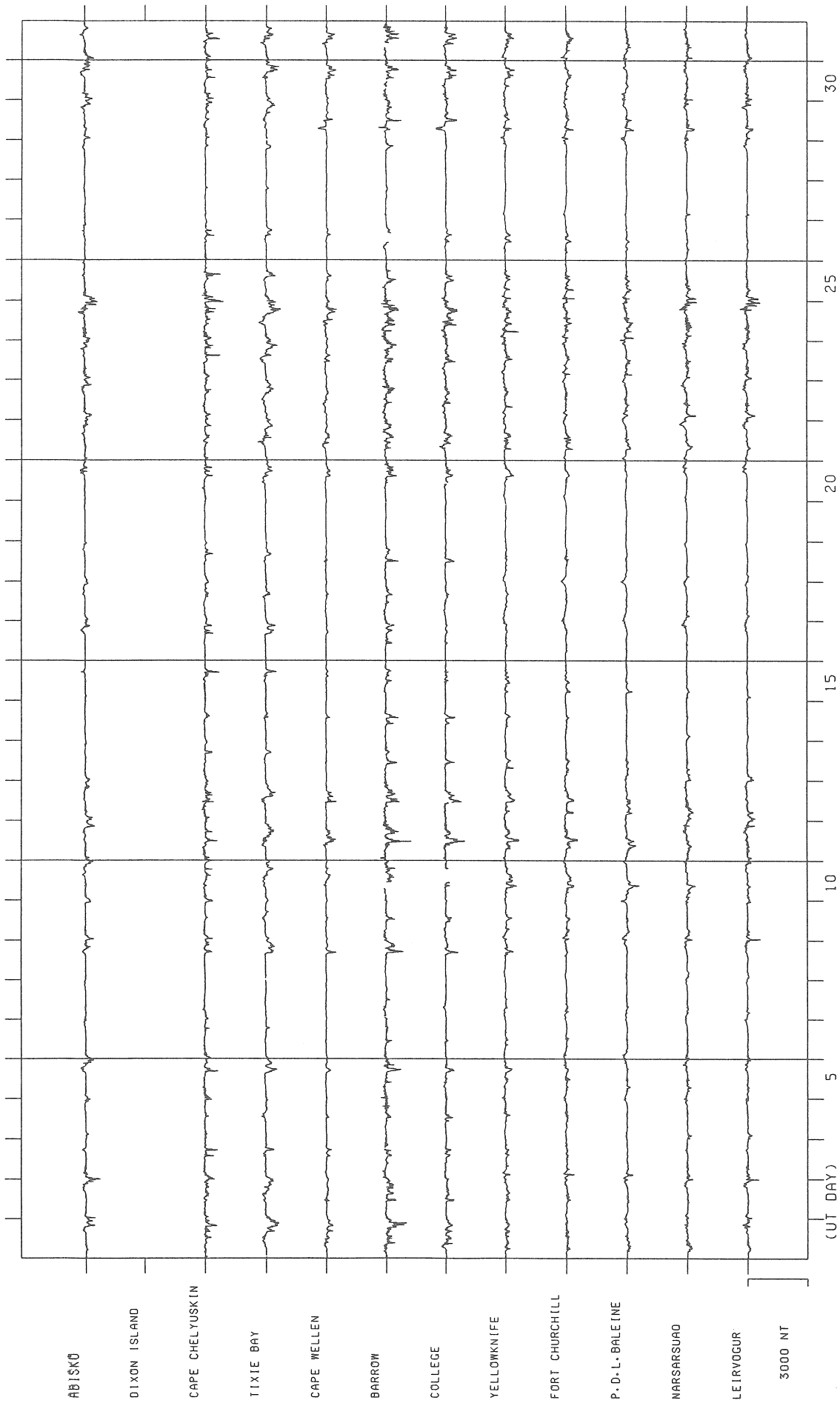
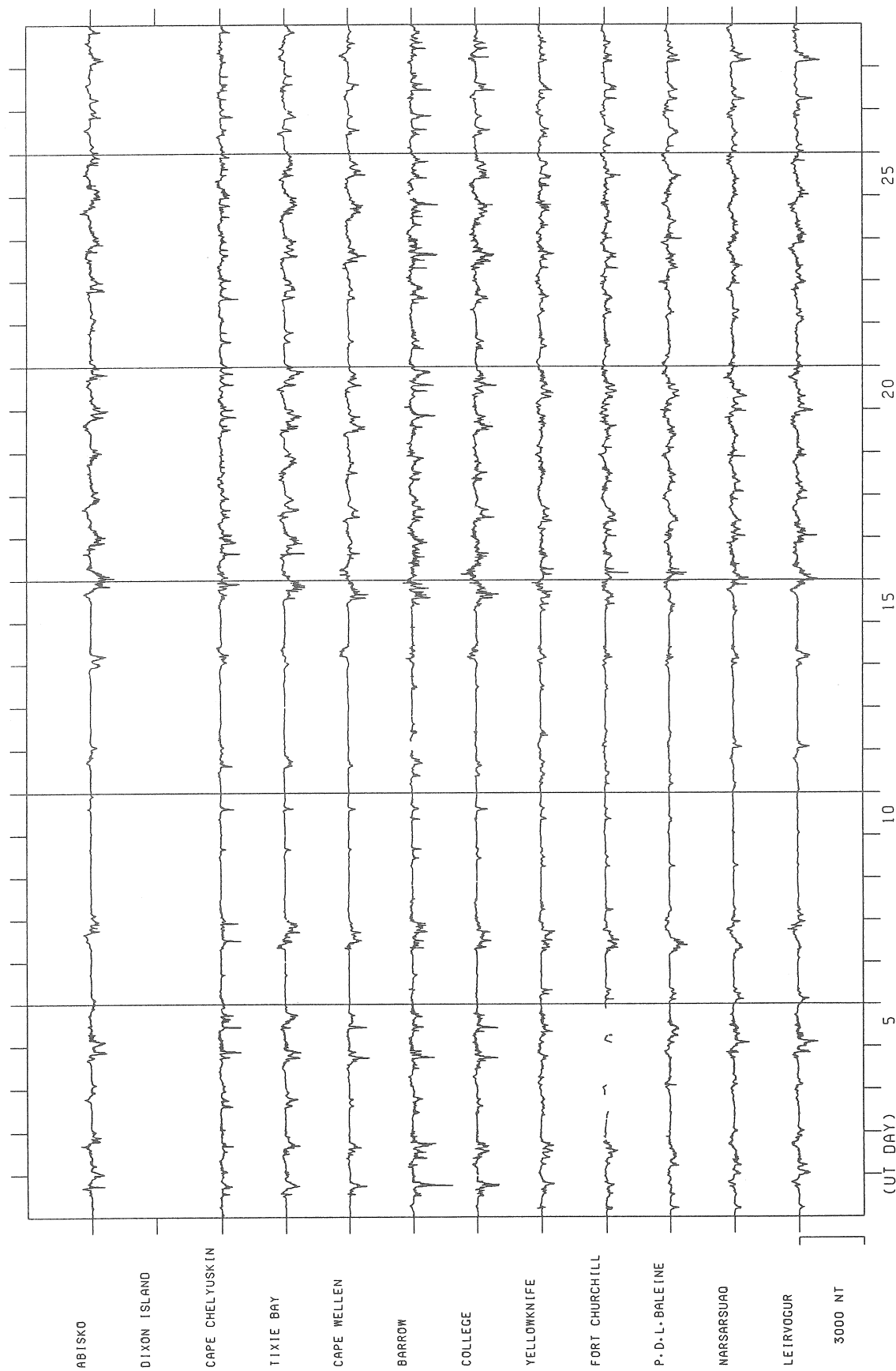


FIGURE 3

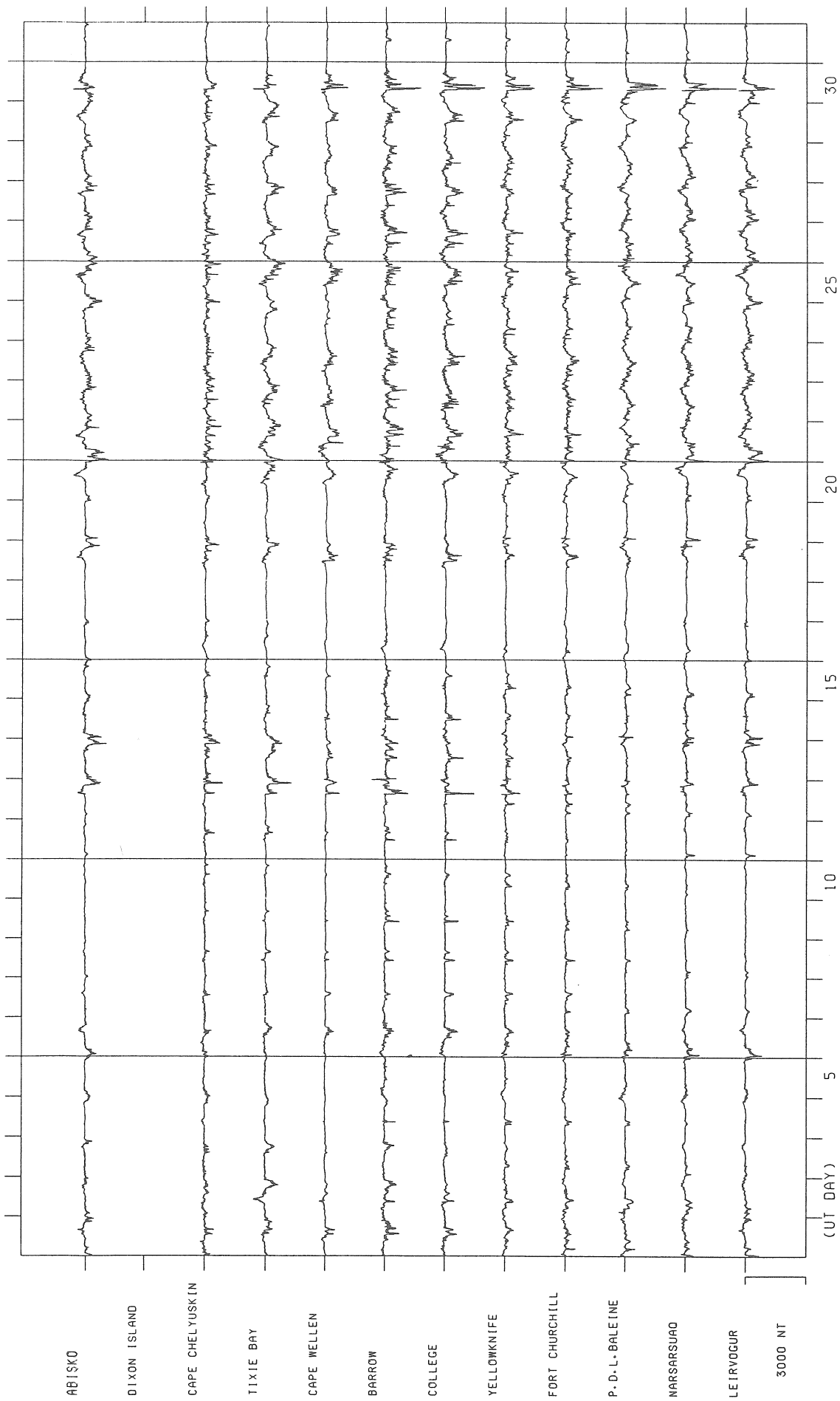
The H traces of magnetograms
from AE(11) stations
in each month
for January-December 1990.
(Provisional)



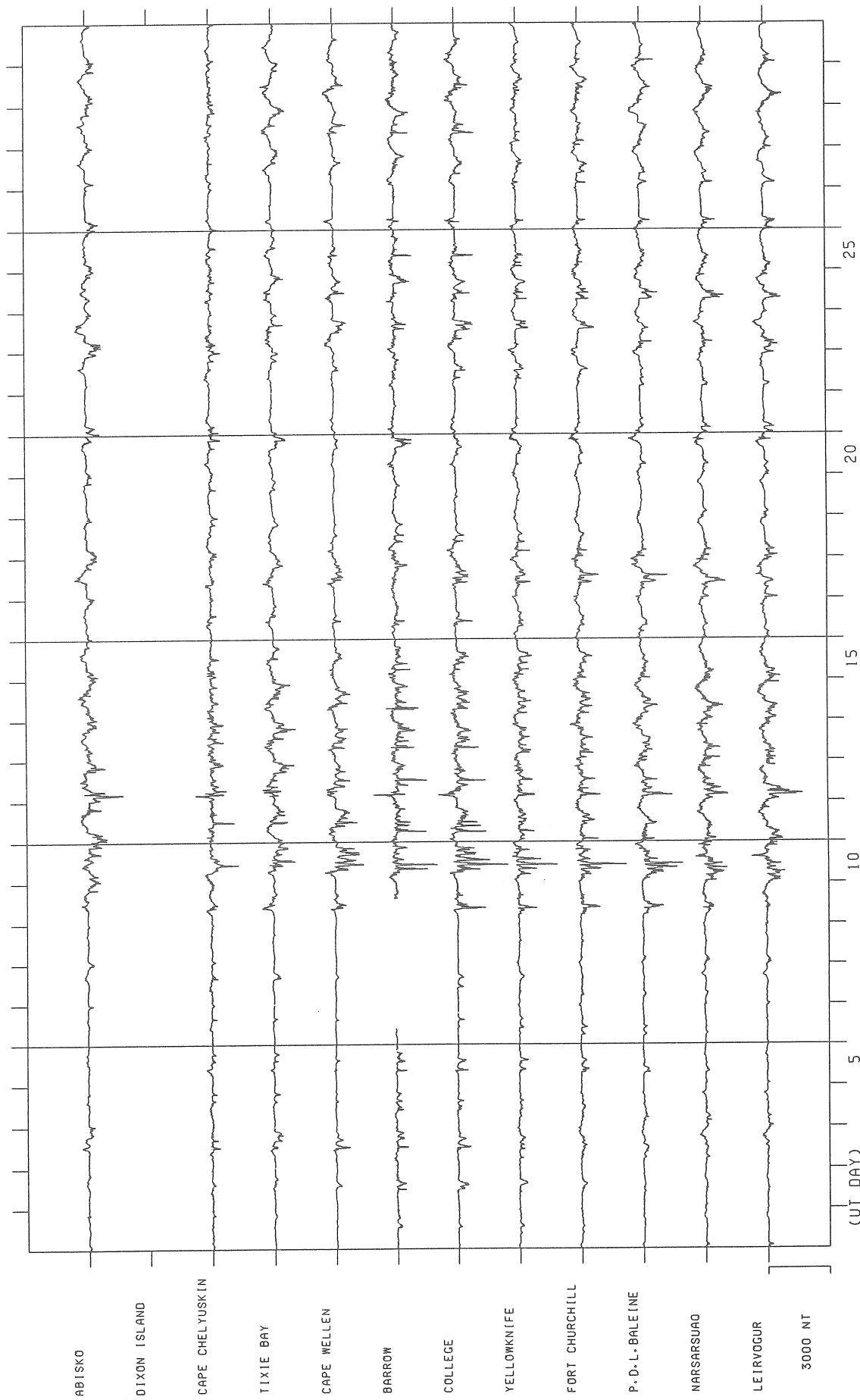
STACKED COMMON SCALE MAGNETOGRAMS FOR JANUARY 1990



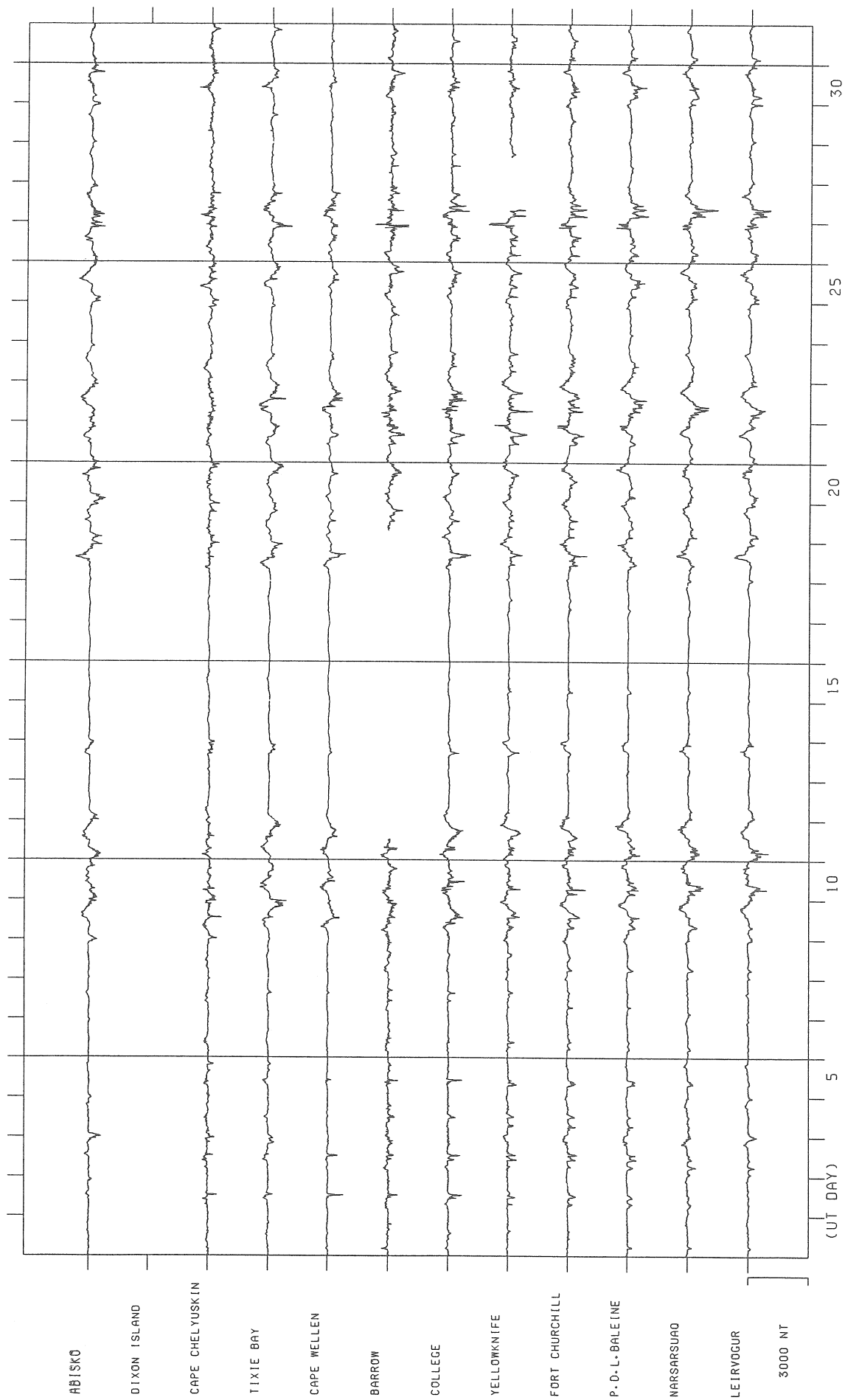
STACKED COMMON SCALE MAGNETOGRAMS FOR FEBRUARY 1990



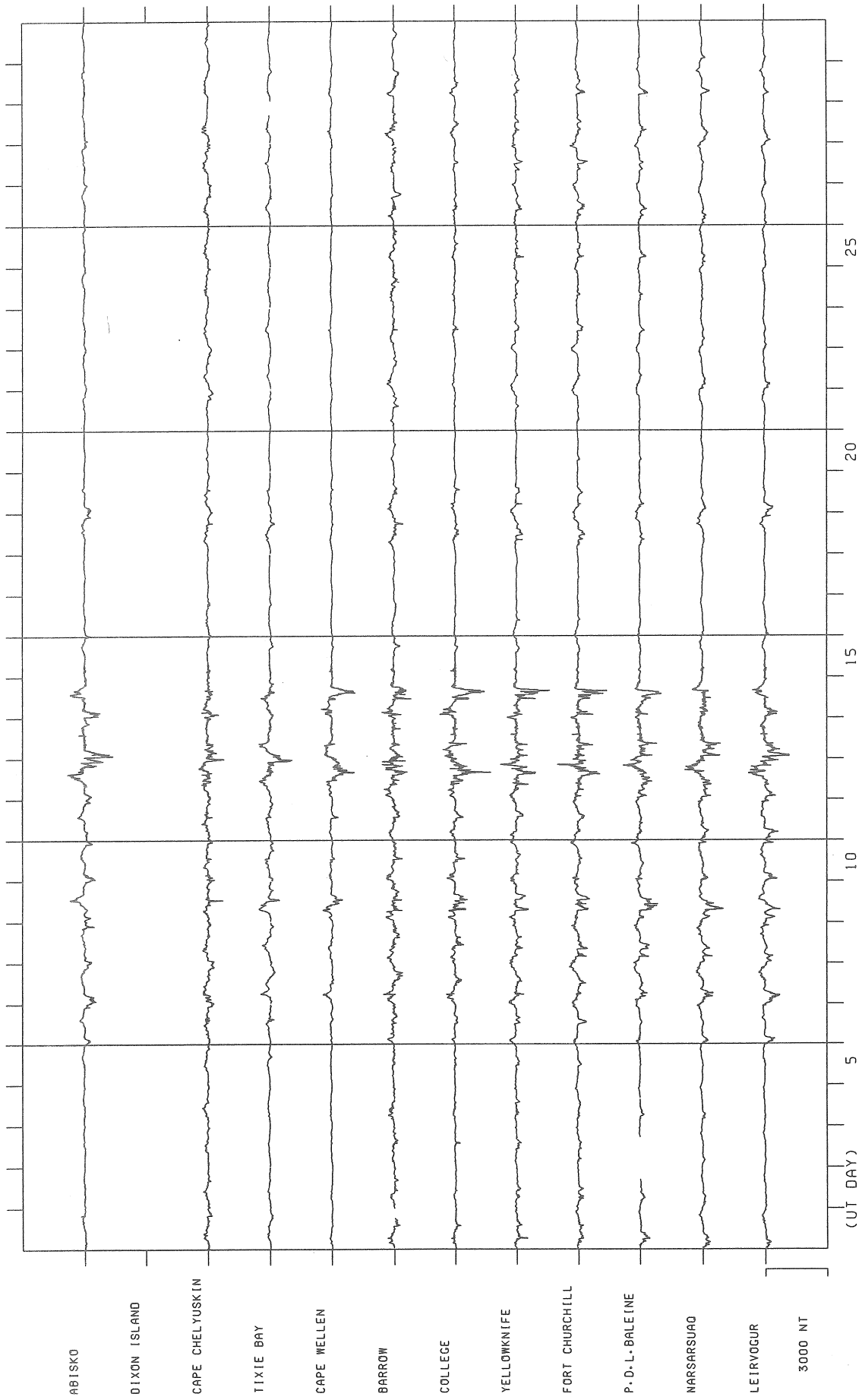
STACKED COMMON SCALE MAGNETOGRAMS FOR MARCH 1990



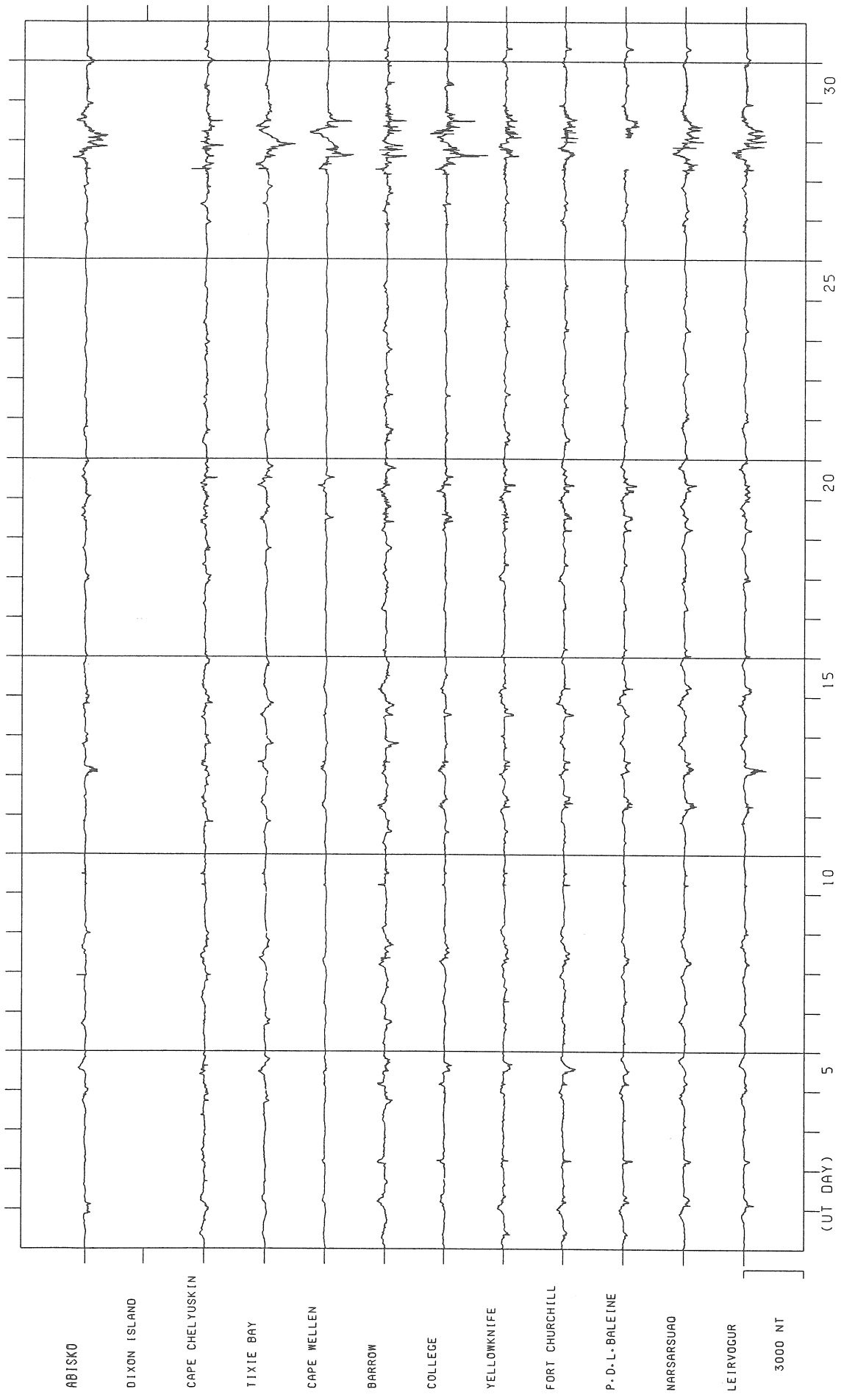
STACKED COMMON SCALE MAGNETOGRAMS FOR APRIL 1990



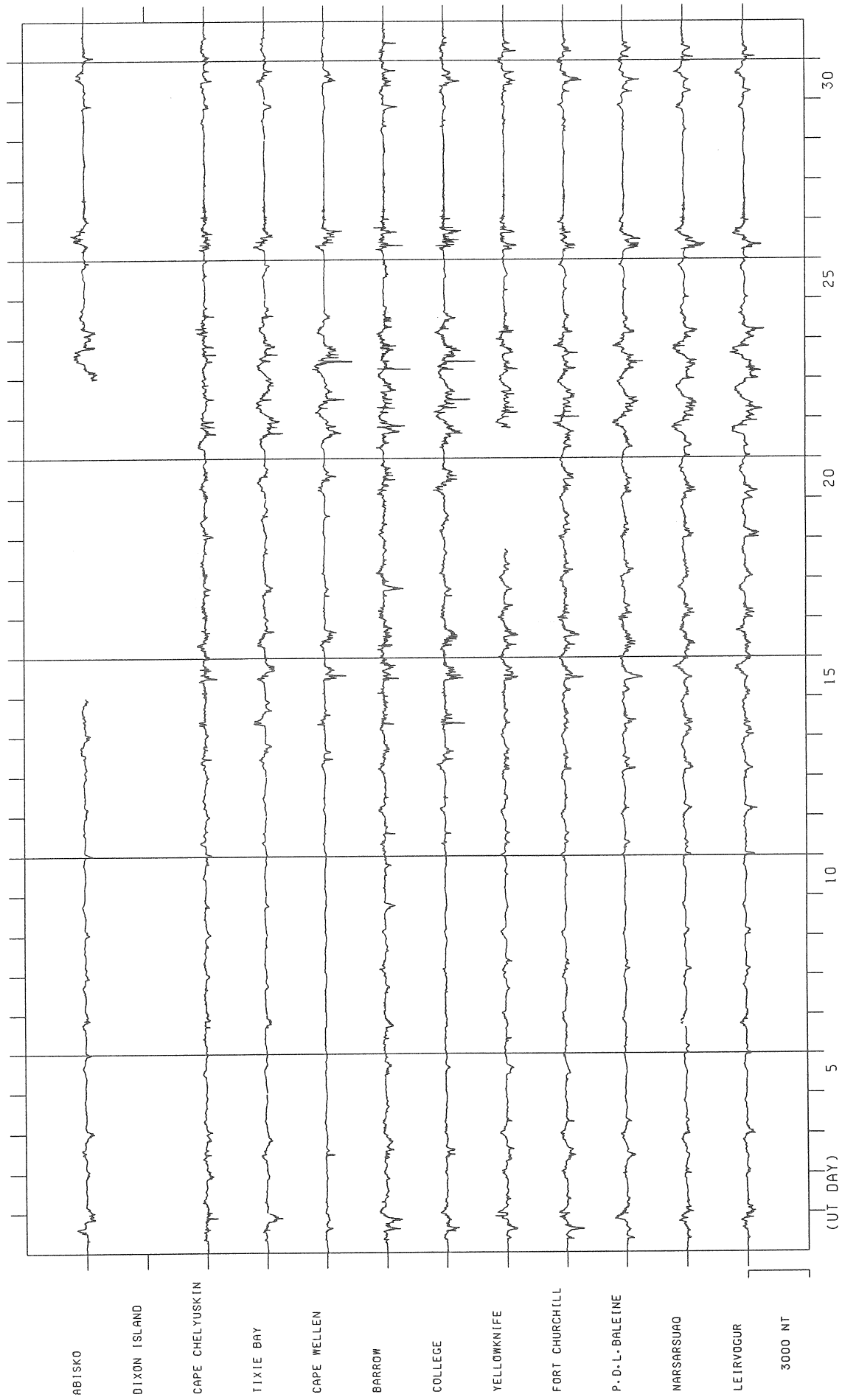
STACKED COMMON SCALE MAGNETOGRAMS FOR MAY 1990



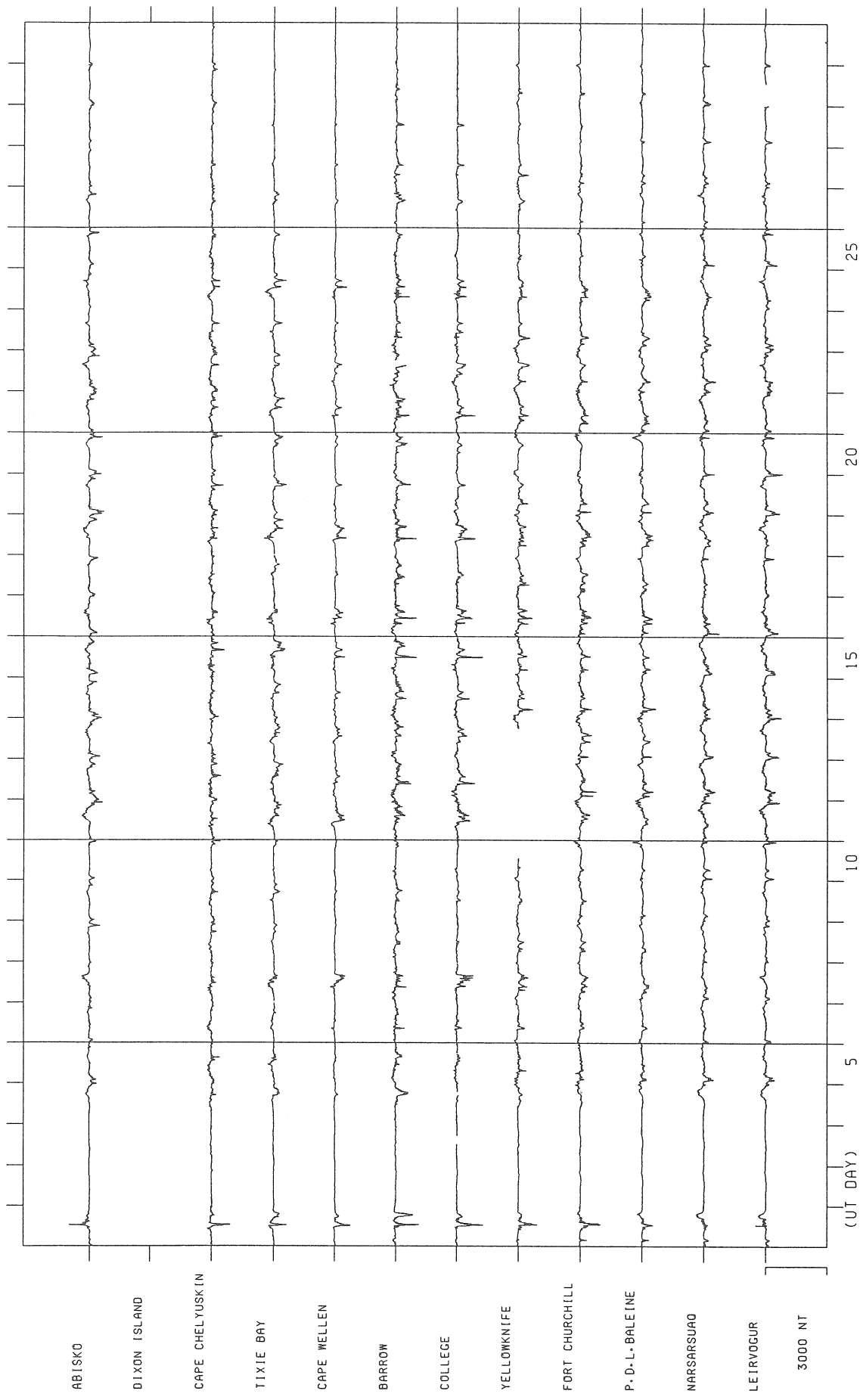
STACKED COMMON SCALE MAGNETOGRAMS FOR JUNE 1990



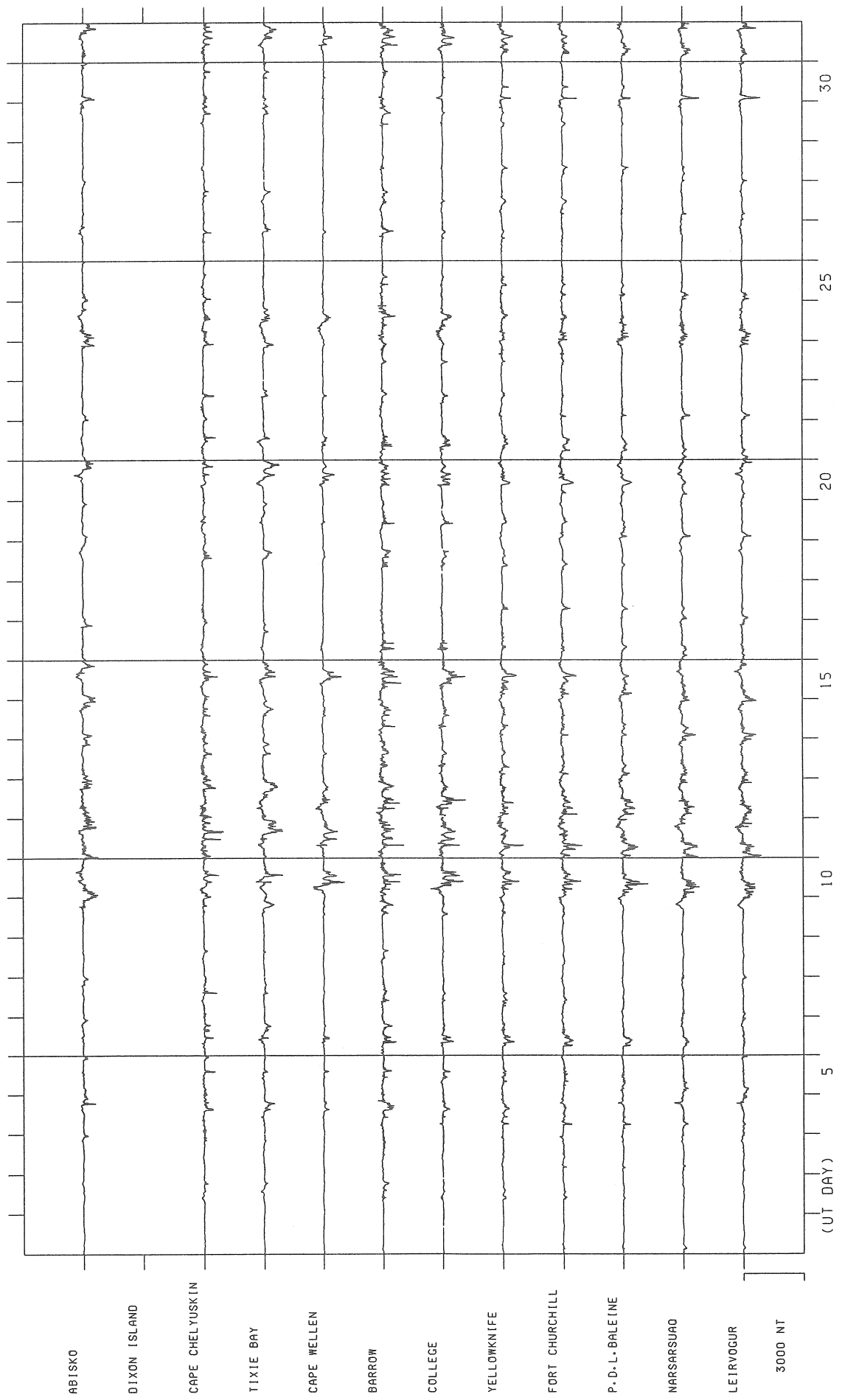
STACKED COMMON SCALE MAGNETOGRAMS FOR JULY 1990



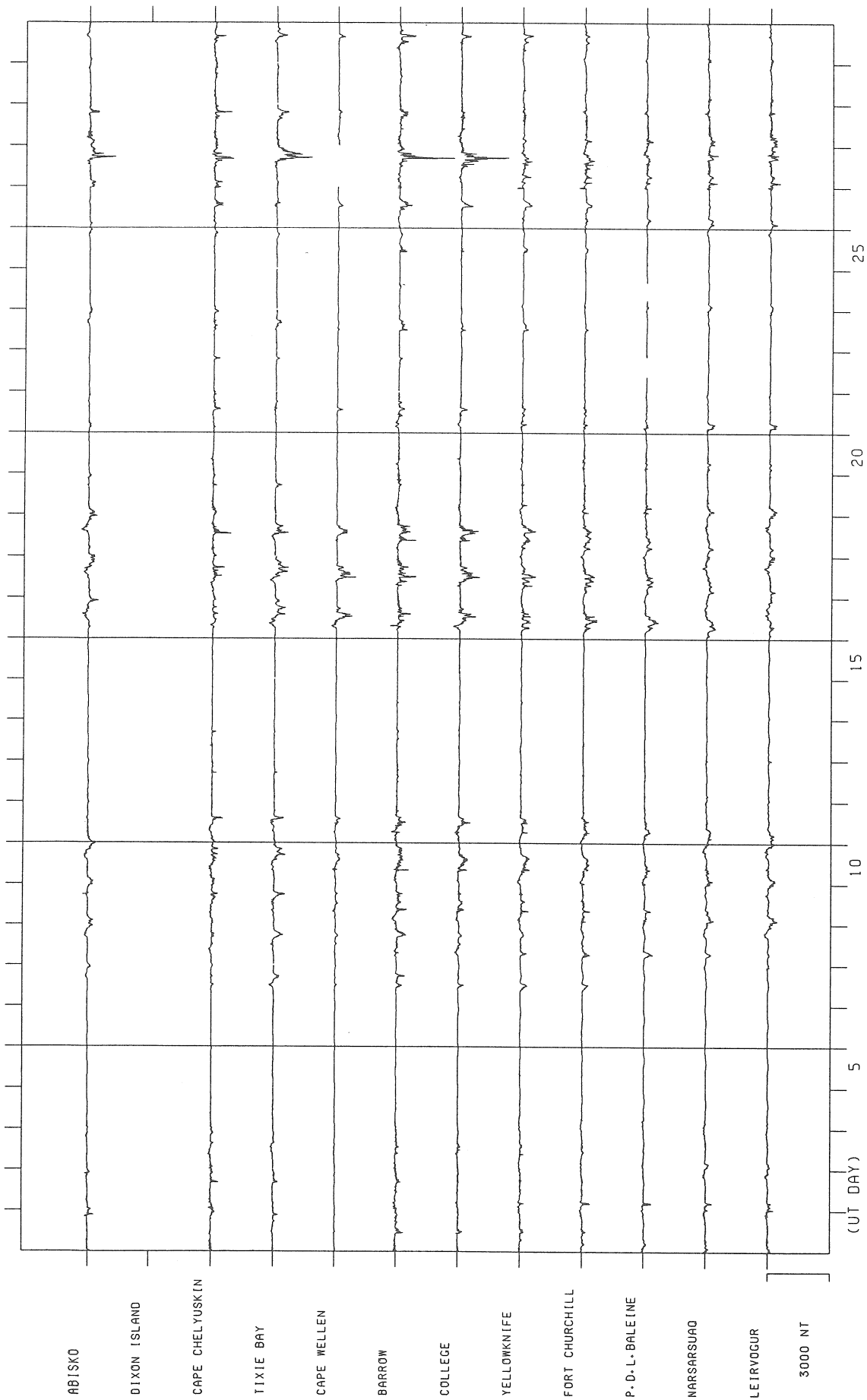
STACKED COMMON SCALE MAGNETOGRAMS FOR AUGUST 1990



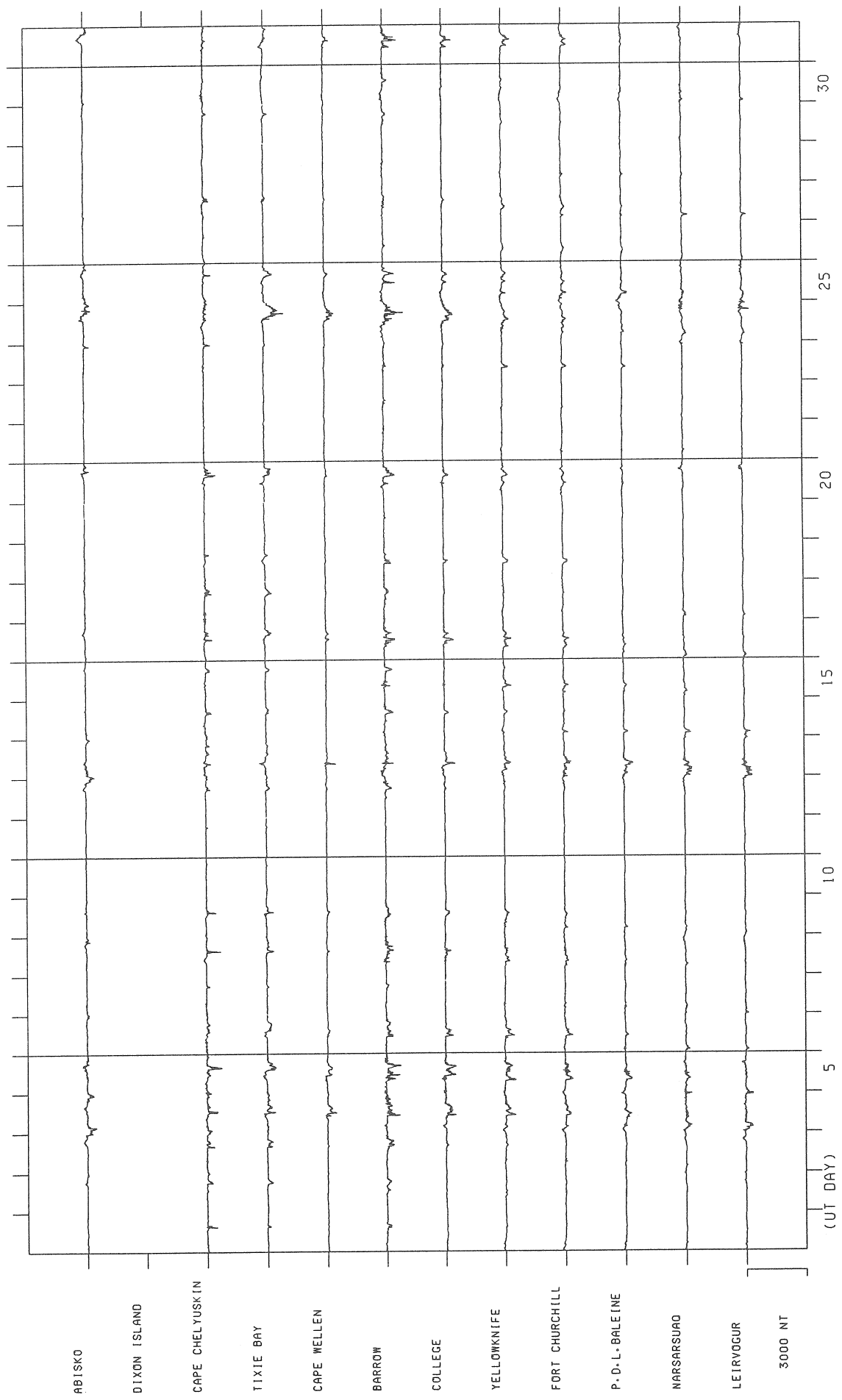
STACKED COMMON SCALE MAGNETOGRAMS FOR SEPTEMBER 1990



STACKED COMMON SCALE MAGNETOGRAMS FOR OCTOBER 1990



STACKED COMMON SCALE MAGNETOGRAMS FOR NOVEMBER 1990



STACKED COMMON SCALE MAGNETOGRAMS FOR DECEMBER 1990

FIGURE 4

A summary plot of provisional hourly values of
AU and AL indices
for January-December 1990.

Provisional Hourly Values of AU and AL for 1990

