REPORT UAG - 62

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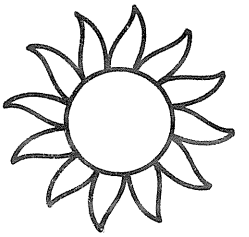
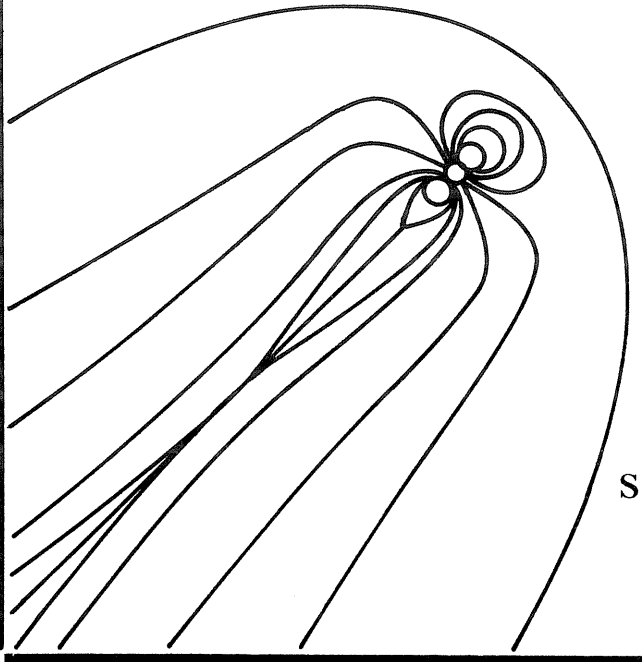


GEOMAGNETIC DATA FOR FEBRUARY 1976

(AE (7) INDICES AND STACKED MAGNETOGRAMS)



September 1977

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REPORT UAG - 62

GEOMAGNETIC DATA FOR FEBRUARY 1976
(AE (7) INDICES AND STACKED MAGNETOGRAMS)

by

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September 1977

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Geomagnetic Data for February 1976
(AE(7) Indices and Stacked Magnetograms)

by

J. H. Allen, C. C. Abston and L. D. Morris
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Boulder, Colorado 80302 USA

SECTION I. GENERAL DISCUSSION

1. Introduction

This is the second of a series of data reports in support of the International Magnetospheric Study (IMS) and includes selected geomagnetic variation data for February 1976; the first (UAG-60) gave similar data for January 1976. Included herein are analog records from seven auroral zone stations, preliminary AE indices based on these data and various related tables, graphs and statistics. It is expected that this series will continue on an increasingly timely schedule and with data from additional stations which may be processed in time for publication.

2. Data Selection and Processing

The seven observatories supplying data for this report are shown in Figure 1. These are Leirvogur (LR), Narssarssuaq (NAS), Fort Churchill (FC), Barrow (BW), Tixie Bay (TI), Dixon Island (DI), and Abisko (AI). They were chosen from among the list of 12 observatories whose records are now routinely

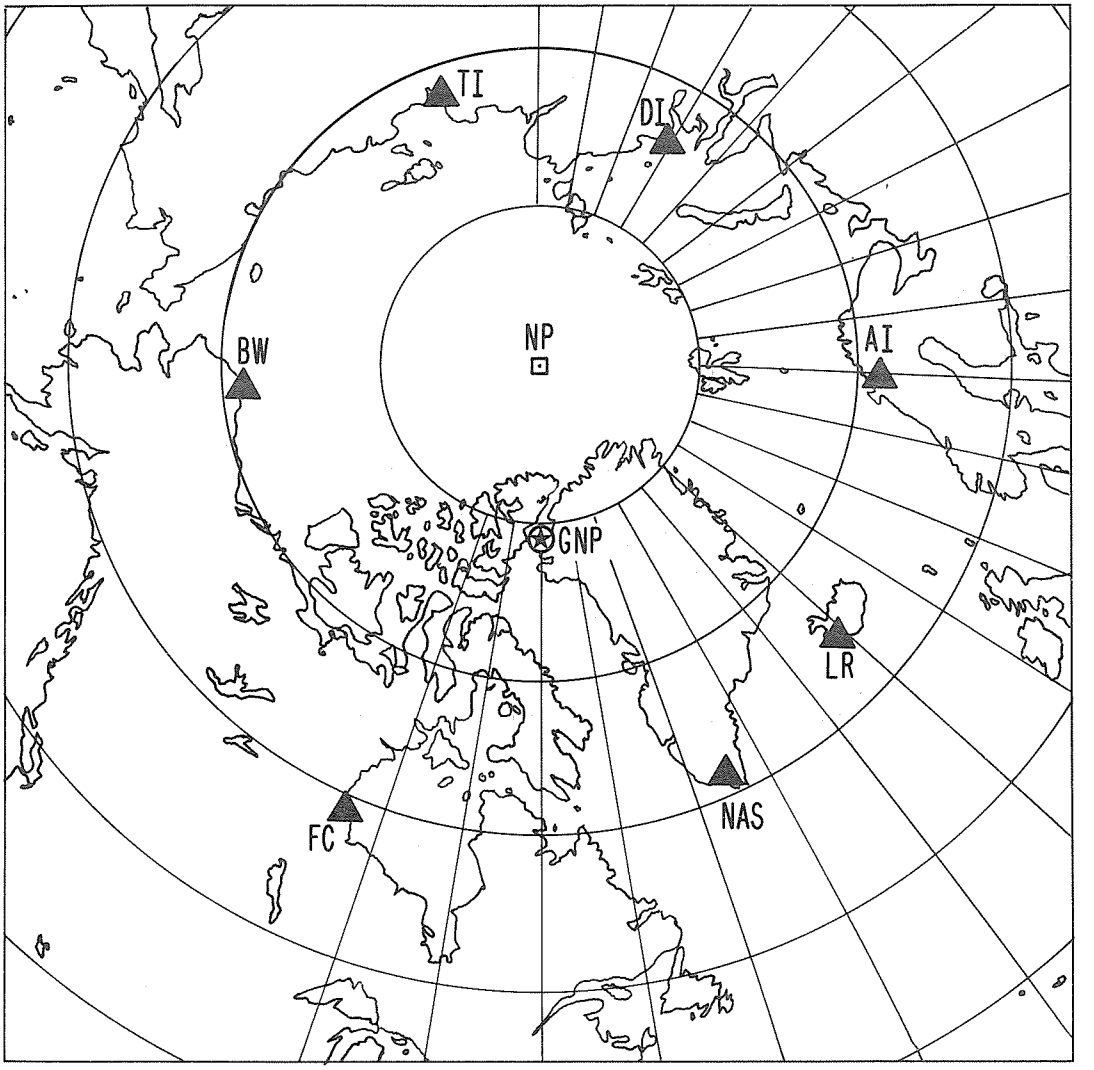

Fig. 1. Provisional AE(7) network.

used by WDC-A for Solar-Terrestrial Physics in the derivation of Auroral Electrojet (AE) magnetic activity indices. Reasons for their selection were (1) records from these sites are most promptly available, (2) the sites are about evenly spaced in longitude, and (3) each location has demonstrated its importance in the prior derivation of AE indices [Allen and Kroehl, 1975]. We hope that as digital data processing from other observatories becomes more routine the network can be expanded, and we can include data from College, Great Whale River, and Yellowknife to improve the station distribution for these prompt indices.

Among the stations supplying data for this publication, only Fort Churchill and Barrow are presently recording digital variations on-site. Both observatories use flux-gate instruments supplemented by proton precession magnetometers and generate more or less routine absolute observations. Each component's amplitude is recorded every 10 s (20 s for BW) on magnetic tape, and analog chart records are prepared as backup data. These high-time-resolution digital data are processed at central facilities responsible for each observatory. Obvious errors (usually spikes) are corrected and 1-min average values are computed. These preliminary data are sent on tape to WDC-A for Solar-Terrestrial Physics where they are plotted and checked for stability of quiet-time levels (baseline drift), presence of noise, and day-to-day continuity. As necessary, remaining spikes are removed, and "temporary" baselines are adopted to compensate for data problems that would affect derivation of AE indices.

All the other observatories record magnetic variations photographically. Their magnetograms are copied on 35 mm microfilm for transfer to WDC-A for Solar-Terrestrial Physics together with calibration information. Here they are reproduced as almost original size magnetograms and digitized at 1-min intervals using semiautomatic scaling equipment. Resulting digital tapes of component amplitudes relative to baselines are passed through the same plotting and other quality control processes as the original digital data described above.

After completion of quality control checks, all digital records are merged and replotted to common time and amplitude scales. These are the monthly D, H, and Z component and daily H (or X) component stacked plots included in this report. For most observatories intervals of missing data are apparent in one or more components. These may arise from (1) loss of on-site digital data, (2) noise in original digital data, (3) movement of traces off magnetograms during large excursions with no secondary trace for that component, (4) lack of low-sensitivity storm magnetograms for disturbed periods, and (5) loss of intermixing of analog traces during large, rapid field fluctuations. Every reasonable effort is made at WDC-A for Solar-Terrestrial Physics to curve-follow disturbed traces. Effects of data gaps are seen in AE indices only when they occur at a critically located station and in the H component. Often they are only apparent in the graphs of AU or AL.

3. Auroral Electrojet Magnetic Activity Indices

The AE index gives a global, quantitative measure of auroral zone magnetic activity resulting from enhanced ionospheric currents associated with magnetospheric substorms. As defined by Davis and Sugiura [1966], AE is the total range of H component deviations from quiet-time levels of the field at a selected group of high-latitude magnetic observatories. Typically, a constant quiet-time H value is determined for each observatory and subtracted from recorded H values. The resultant deviations for all stations may be plotted to common time and amplitude scales and graphically superposed on a common reference or zero level. Then the amplitudes of the enclosing upper and lower envelopes from moment-to-moment give the values of AU and AL, respectively. The range between them is AE, i.e., AU-AL=AE. Their average is (AU+AL)/2=Ao (often indicated AO because many computers lack the ability to produce lower case characters).

Complete discussions of AE and associated indices can be found in the two papers referenced above and in the series of WDC-A for Solar-Terrestrial Physics Reports UAG-22, 29, 31, 33, 37, 39, 45, 47, and 59 which cover the years 1966-1974. Each of these contains precautionary notes about the inherent limitations of AE indices, even when derived from a relatively complete station network. Additional notes on AE are given before the daily index graphs (page 39) and the figures based upon minute-to-minute "frequency of index provision" by each station. Also given in this report are figures showing showing the cumulative amplitude of H deviation for times when each station was providing AU and AL indices (pages 53 and 55).

4. Acknowledgments

The authors of this IMS data report are on the staff of the National Geophysical and Solar-Terrestrial Data Center (NGSDC) of the Environmental Data Service, National Oceanic and Atmospheric Administration. WDC-A for Solar-Terrestrial Physics is colocated with NGSDC and shares the same staff. We wish to recognize the efforts of those persons who operate the high-latitude magnetic observatories and process the data from them. Recognition is also due the operators who patiently curve-follow, check, and correct the data from which this report is compiled. Mr. W. I. Paddock has carefully adopted the temporary baseline values and checked each stage of the digitization. We hope that IMS participants who find this report useful or who can suggest improvements will correspond with the authors.

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ALLEN, J. H., C. C. ABSTON, and L. D. MORRIS 1974a Auroral Electrojet Magnetic Activity Indices AE(11) for 1969, *World Data Center A for Solar-Terrestrial Physics, Report UAG-31.*

ALLEN, J. H., C. C. ABSTON, and L. D. MORRIS 1974b Auroral Electrojet Magnetic Activity Indices AE(10) for 1967, *World Data Center A for Solar-Terrestrial Physics, Report UAG-33.*

ALLEN, J. H., C. C. ABSTON, and L. D. MORRIS 1974c Auroral Electrojet Magnetic Activity Indices AE(10) for 1966, *World Data Center A for Solar-Terrestrial Physics, Report UAG-37.*

ALLEN, J. H., C. C. ABSTON, and L. D. MORRIS 1975a Auroral Electrojet Magnetic Activity Indices AE(11) for 1971, *World Data Center A for Solar-Terrestrial Physics, Report UAG-39.*

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ALLEN, J. H., C. C. ABSTON, and L. D. MORRIS 1975c Auroral Electrojet Magnetic Activity Indices AE(11) for 1973, *World Data Center A for Solar-Terrestrial Physics, Report UAG-47.*

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ALLEN, J. H. and H. W. KROEHL 1975 Spatial and Temporal Distributions of Magnetic Effects as Derived from AE Indices, *J. Geophys. Res. 80,* 3667-3677.

DAVIS, T. N. and M. SUGIURA 1966 Auroral Electrojet Activity Index AE and Its Universal Time Variations, *J. Geophys. Res. 71,* 785-801 .

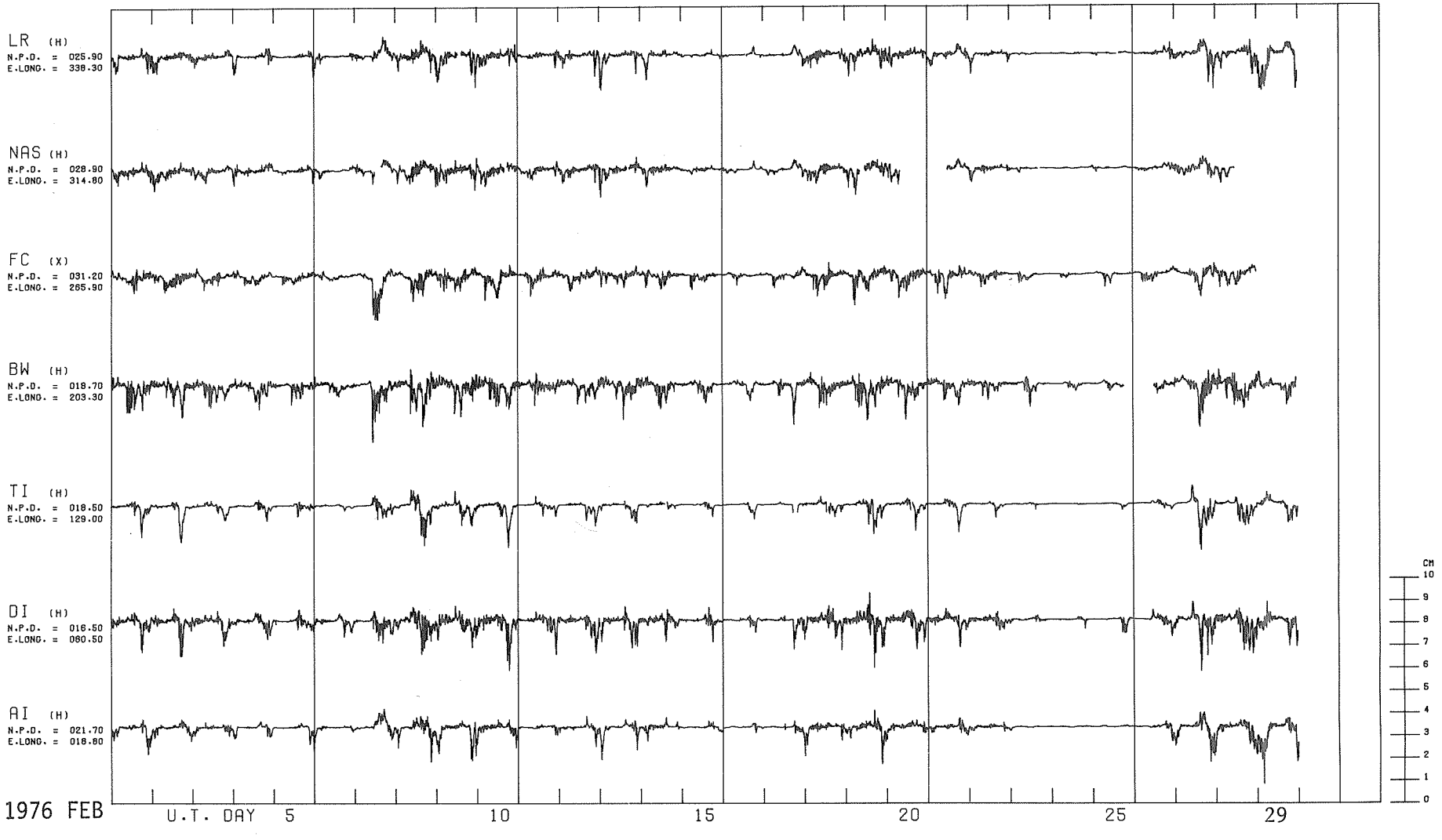
SECTION II. COMMON SCALE MAGNETOGRAMS

1. Stacked Common Scale Magnetograms For Whole Month (H, Z, and D Variations)

The three following graphs display condensed stacked plots of the H, Z, and D variations, respectively, for seven stations minute-by-minute over the entire month. Component intensities are to the nearest 1 gamma, and declination changes are to the nearest 0.1 minute of arc. Positive H, Z, and D changes are north, down, and east, respectively. Amplitude scales given at the bottom of each figure correspond to the original centimeter scale reproduced at lower right. For each station the North Polar Distance (N.P.D.) and East Longitude (E. Long.) are given.

COMMON SCALE MAGNETOGRAMS - H Variations

FEBRUARY 1976



SCALE IS 500 GAMMAS PER CM

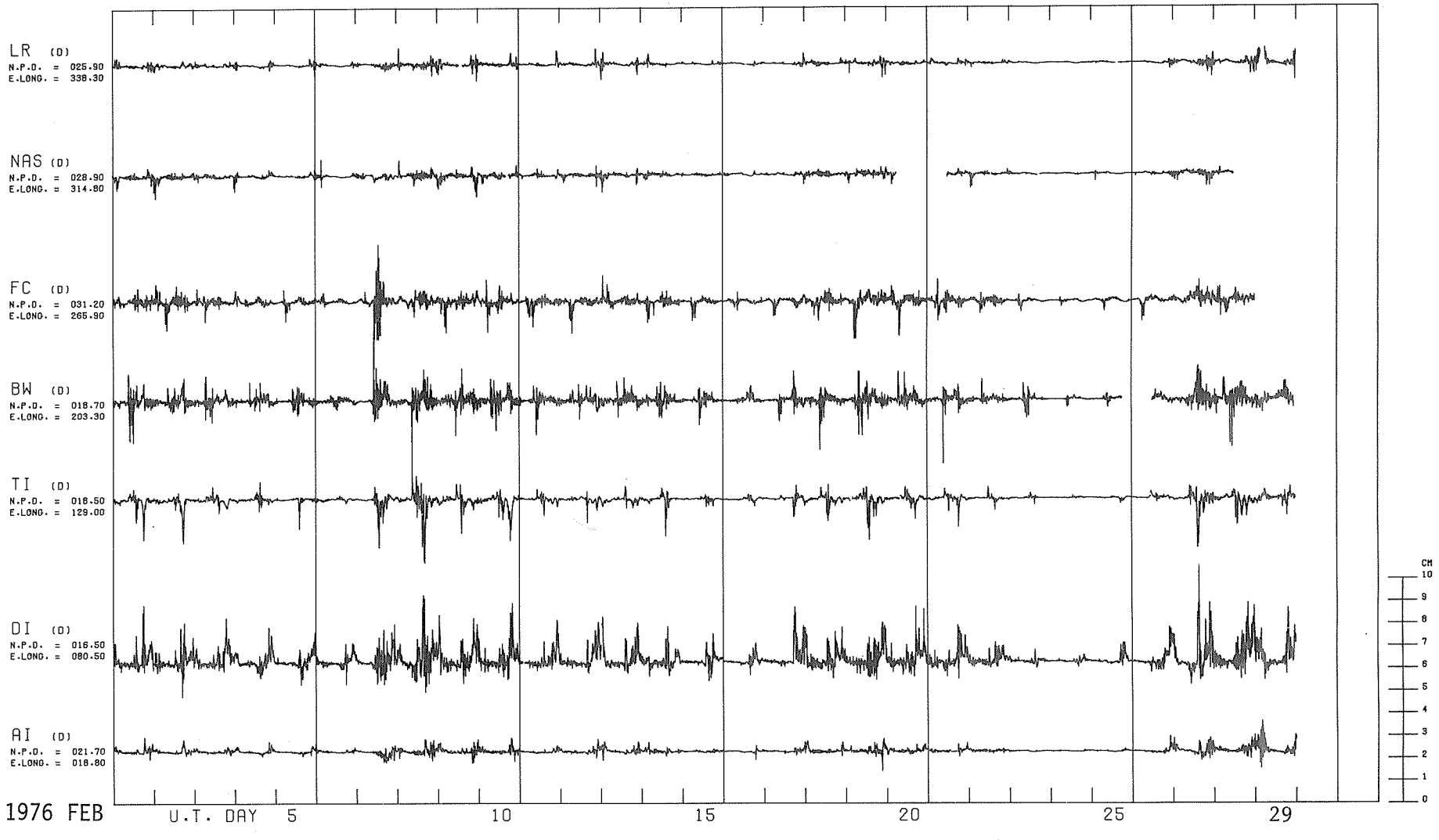
COMMON SCALE MAGNETOGRAMS - Z Variations

FEBRUARY 1976

SCALE IS 500 GAMMAS PER CM

COMMON SCALE MAGNETOGRAMS - D Variations

FEBRUARY 1976



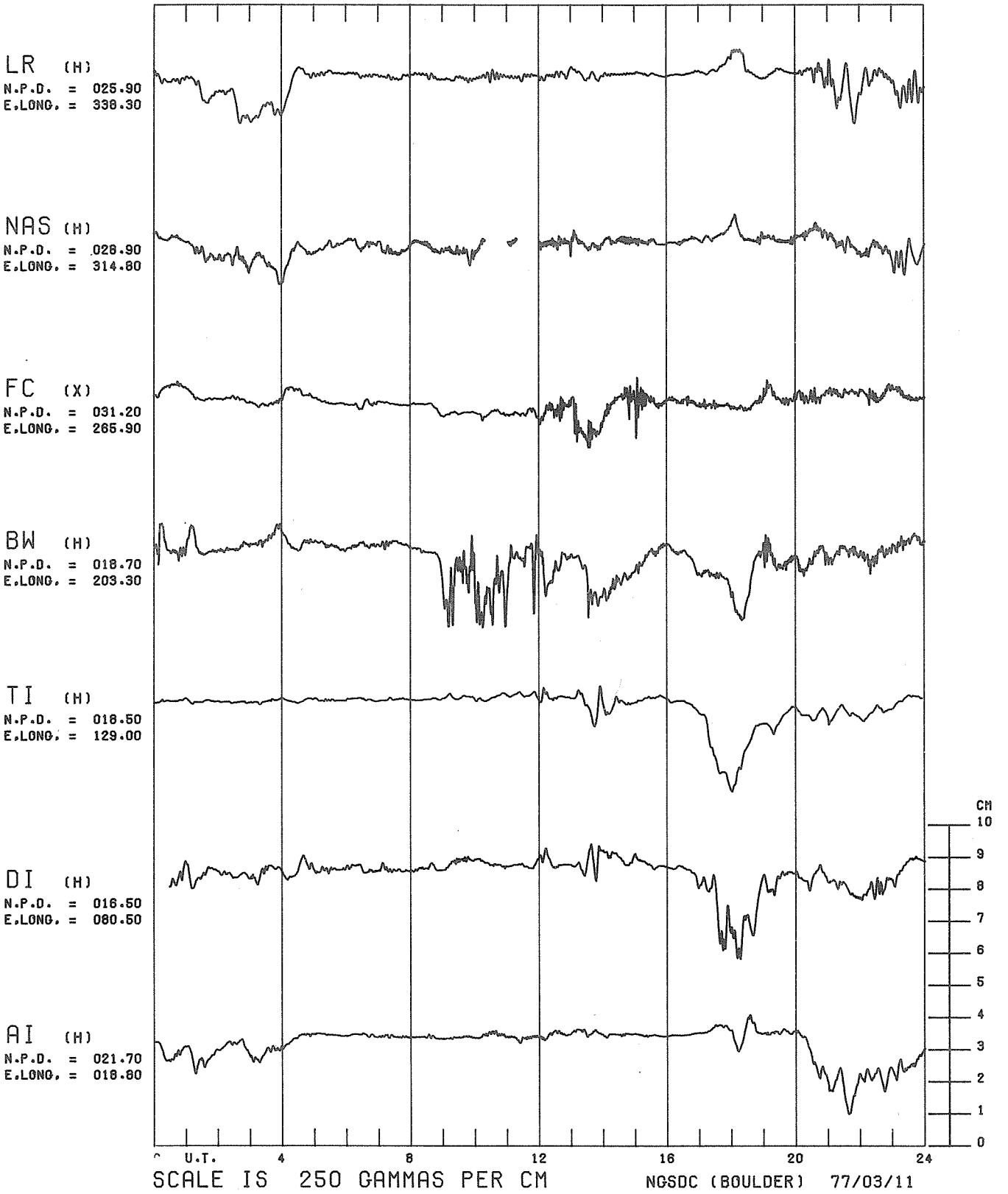
SCALE IS 120 MINUTES PER CM

2. Stacked Common Scale Magnetograms by Station Day (H Variations)

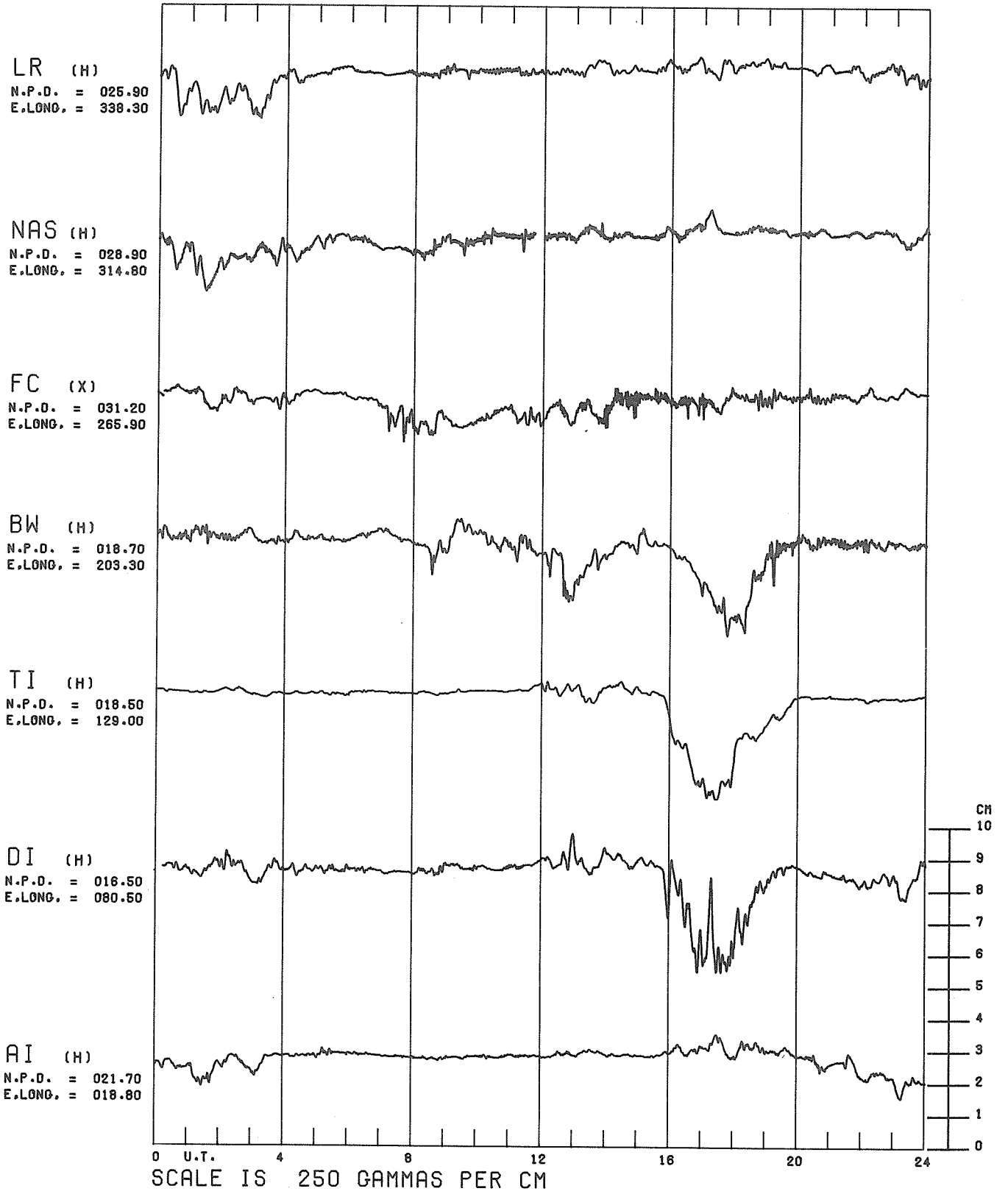
The following stacked plots of H (or X) common scale magnetograms are reproduced from the digital magnetic variations data obtained as described on page 2. Each station is identified by the abbreviation from Figure 1 and two coordinates: North Polar Distance (N.P.D.) and East Longitude (E. Long.). The amplitude scale is given at lower left of each figure and corresponds to the centimeter scale at lower right. The amplitude scale is the same for each day except when the range of deviation would cause a trace to exceed the space reserved for it. For such days (see 7-8 February 1976) the scale is increased in uniform steps to assure nonoverlapping traces. To call attention to the scale change (similar to switching to storm magnetograms), the new value is enclosed in a box.

The label "NGSDC (BOULDER) yy/mm/dd", at the bottom of first day plot, identifies the source of the published data and the day on which the plots were prepared. The difference between data recording date and its preparation date provides an indication of the time required to collect the records, to initiate program development, and to process the data.

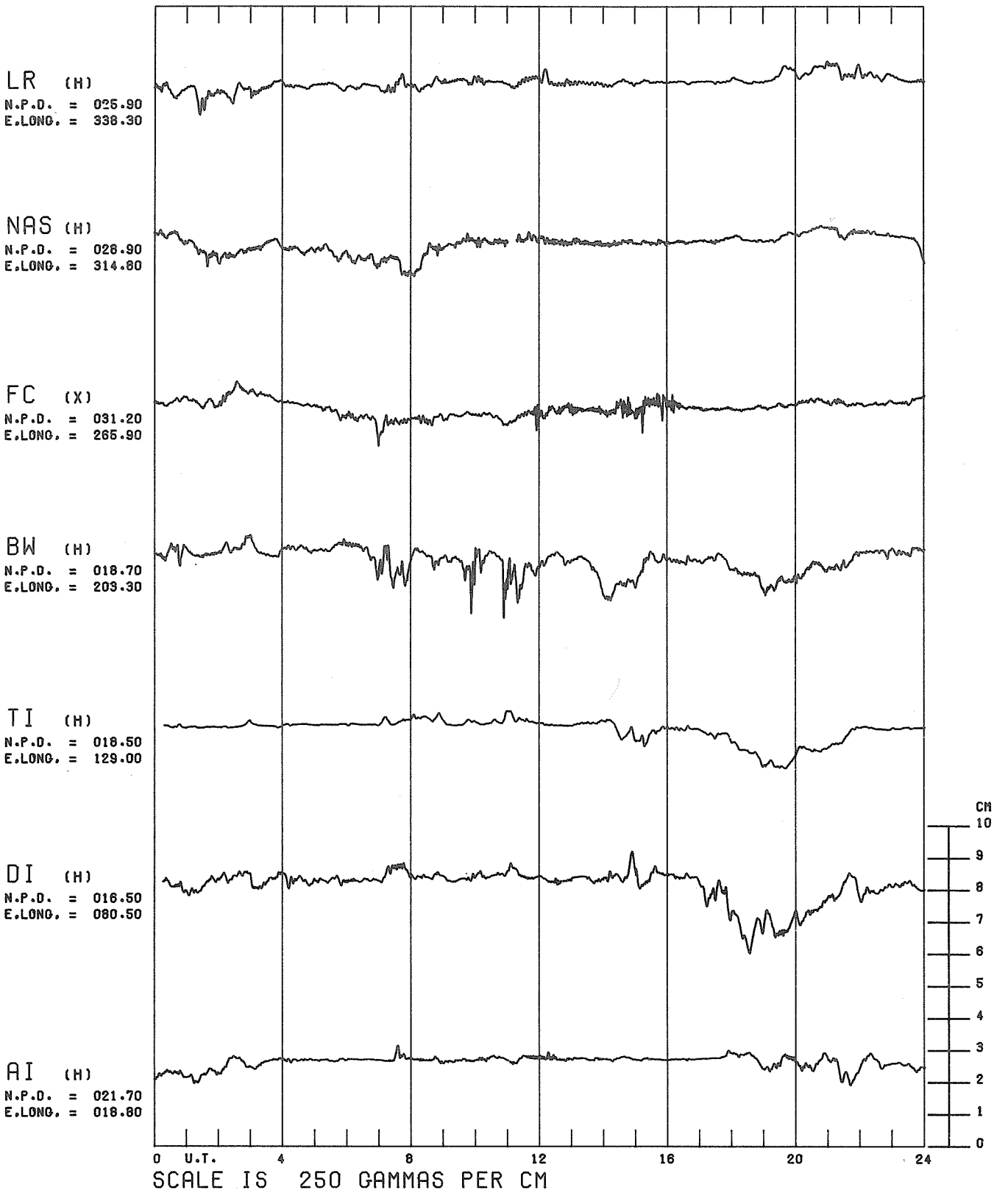
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
1 FEBRUARY 1976



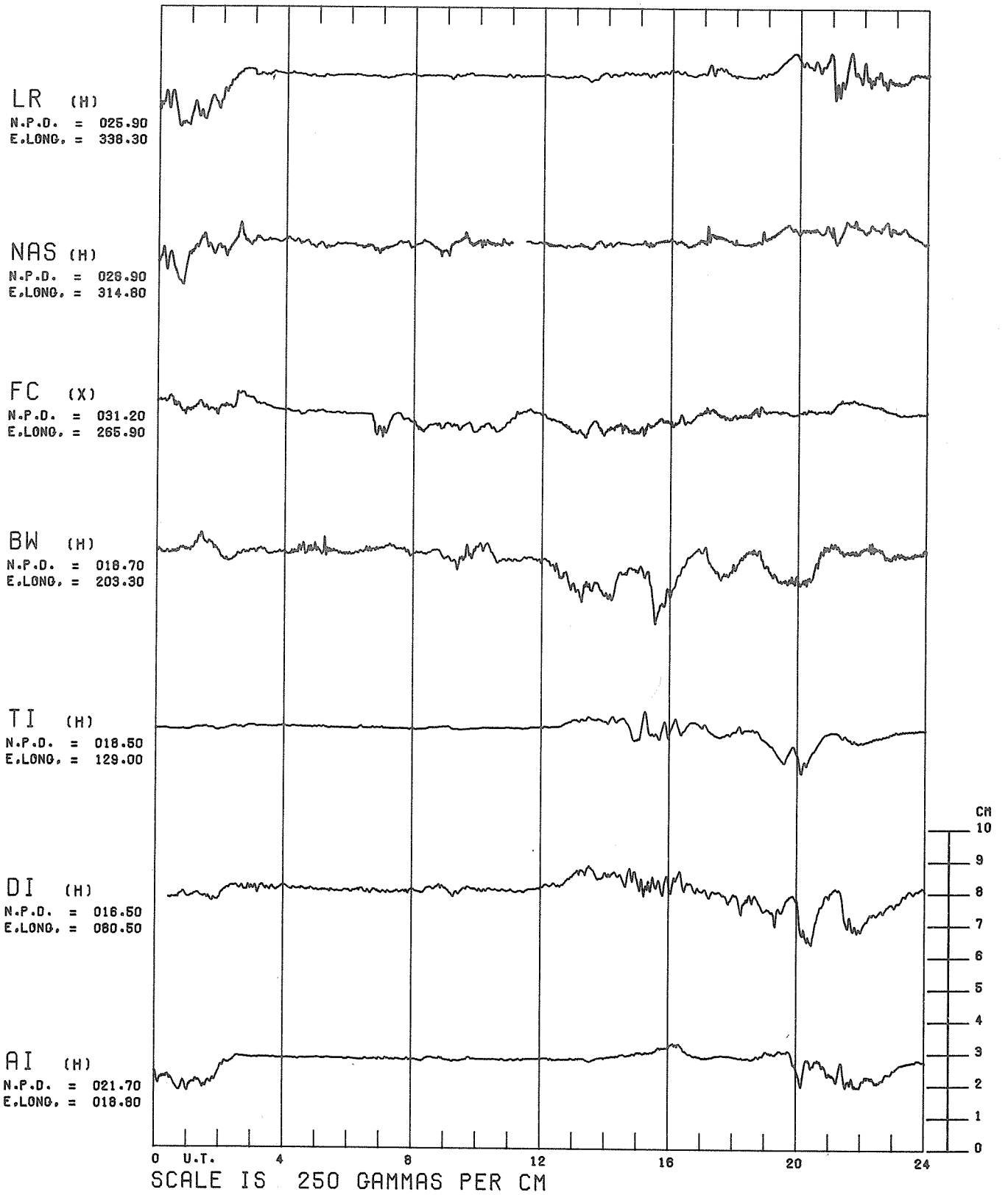
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
2 FEBRUARY 1976



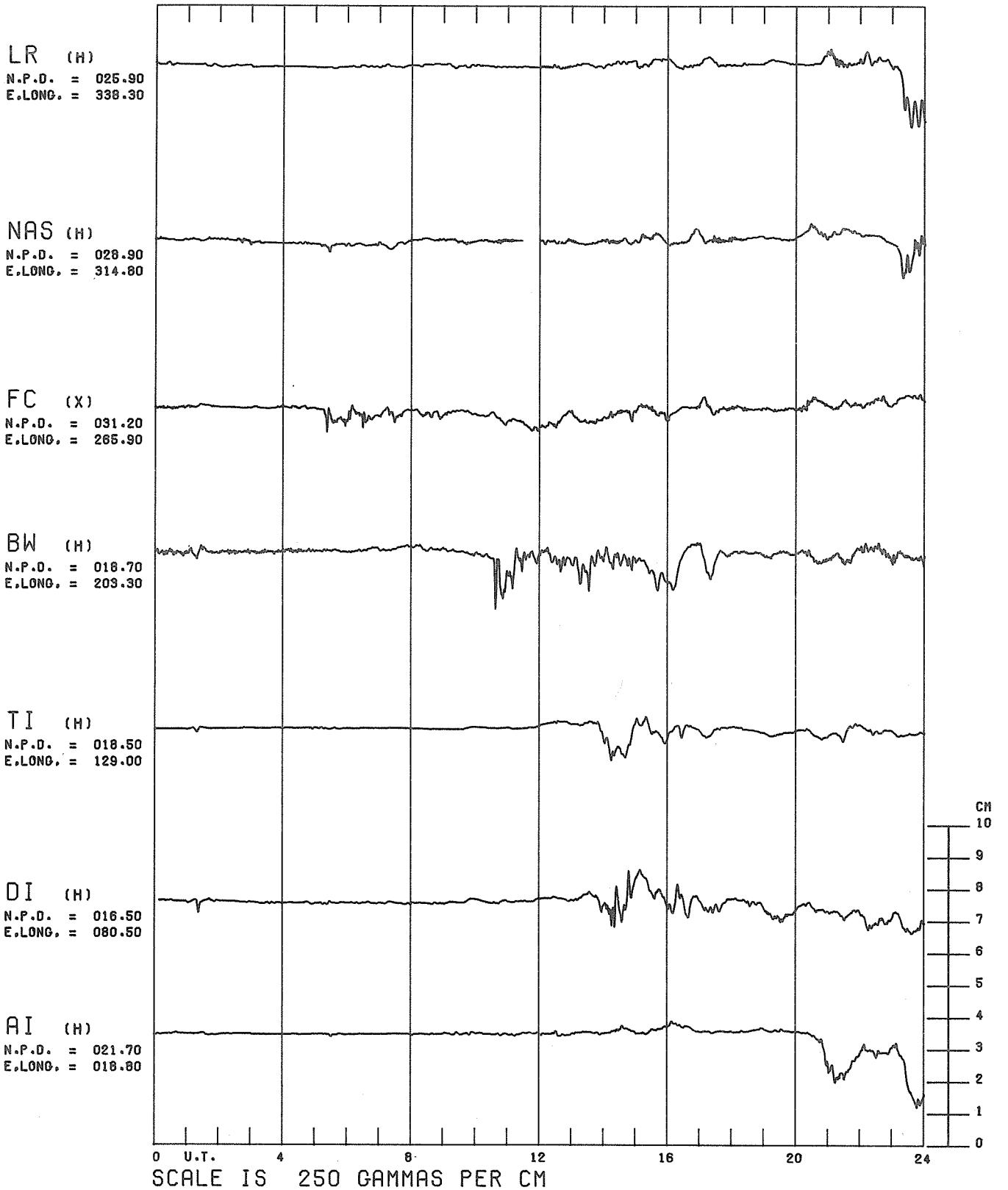
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
3 FEBRUARY 1976



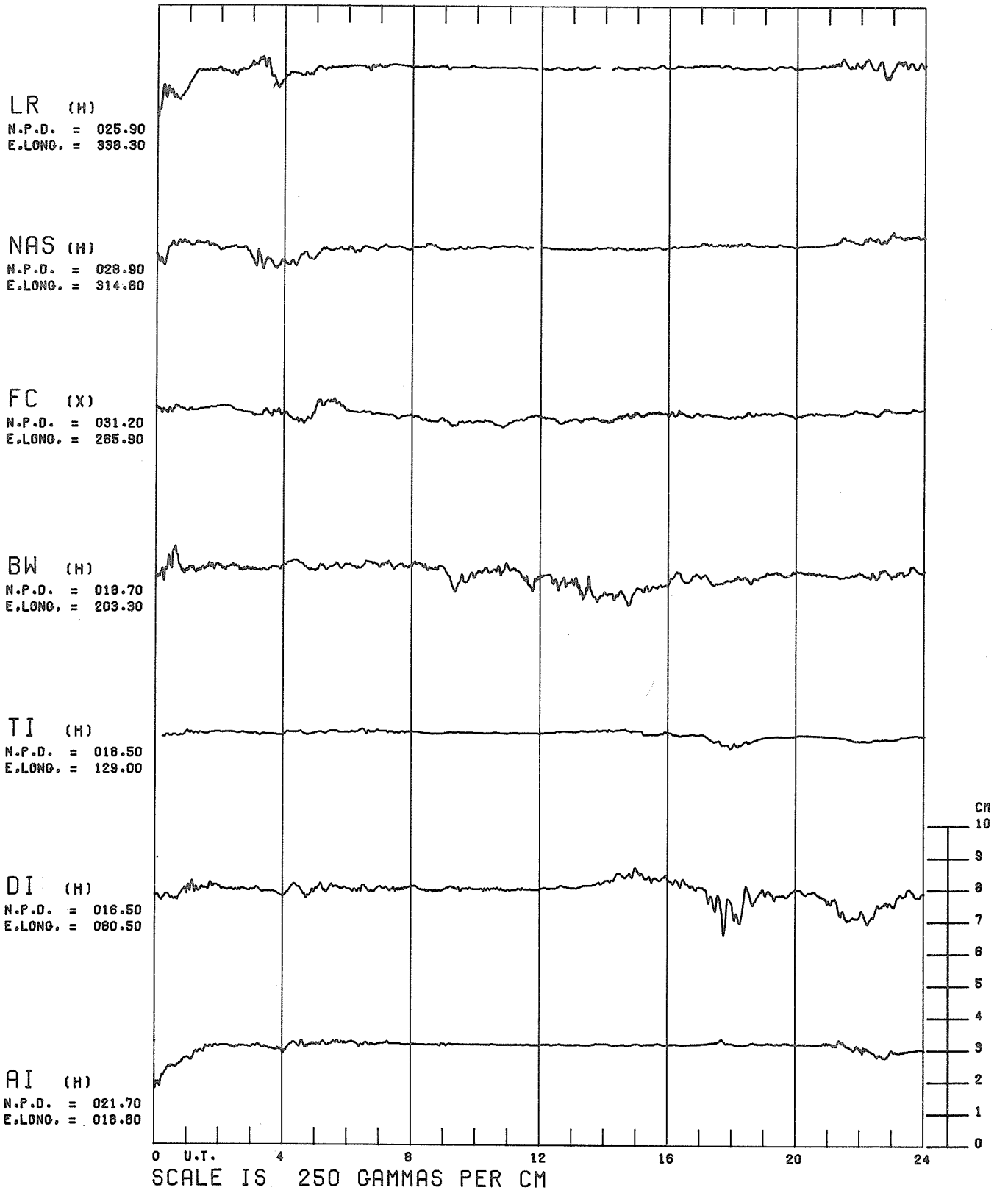
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
4 FEBRUARY 1976



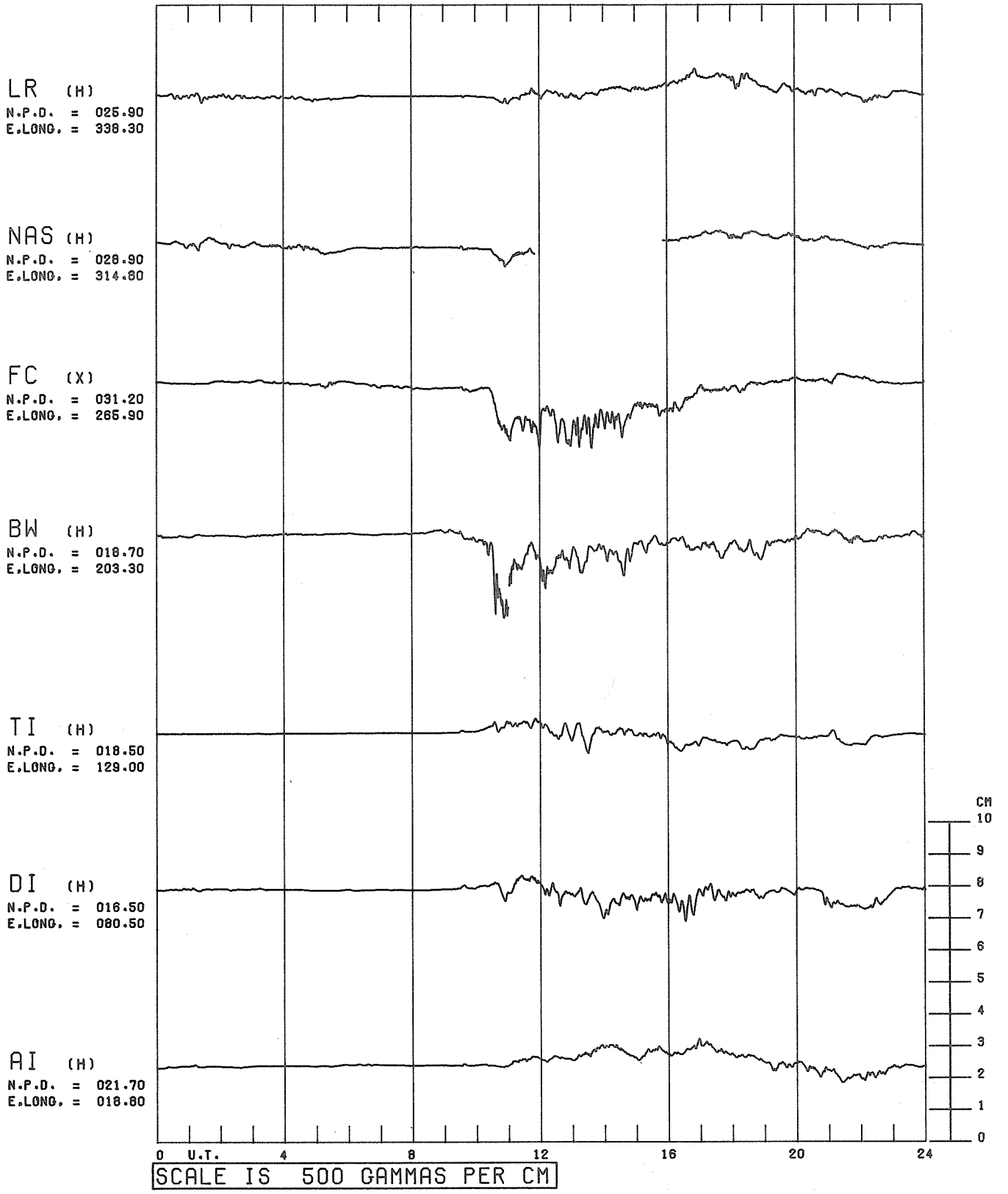
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
5 FEBRUARY 1976



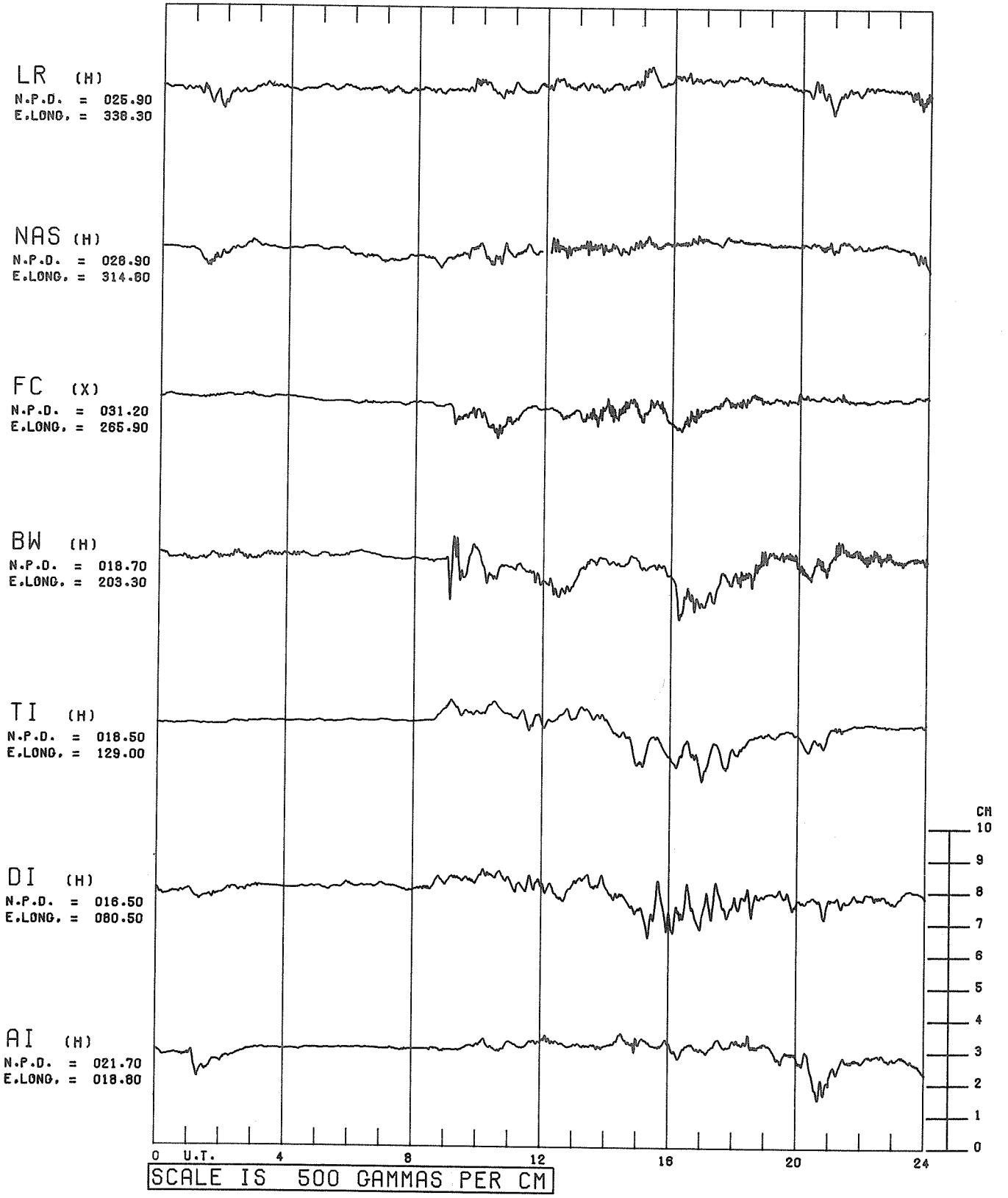
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
6 FEBRUARY 1976



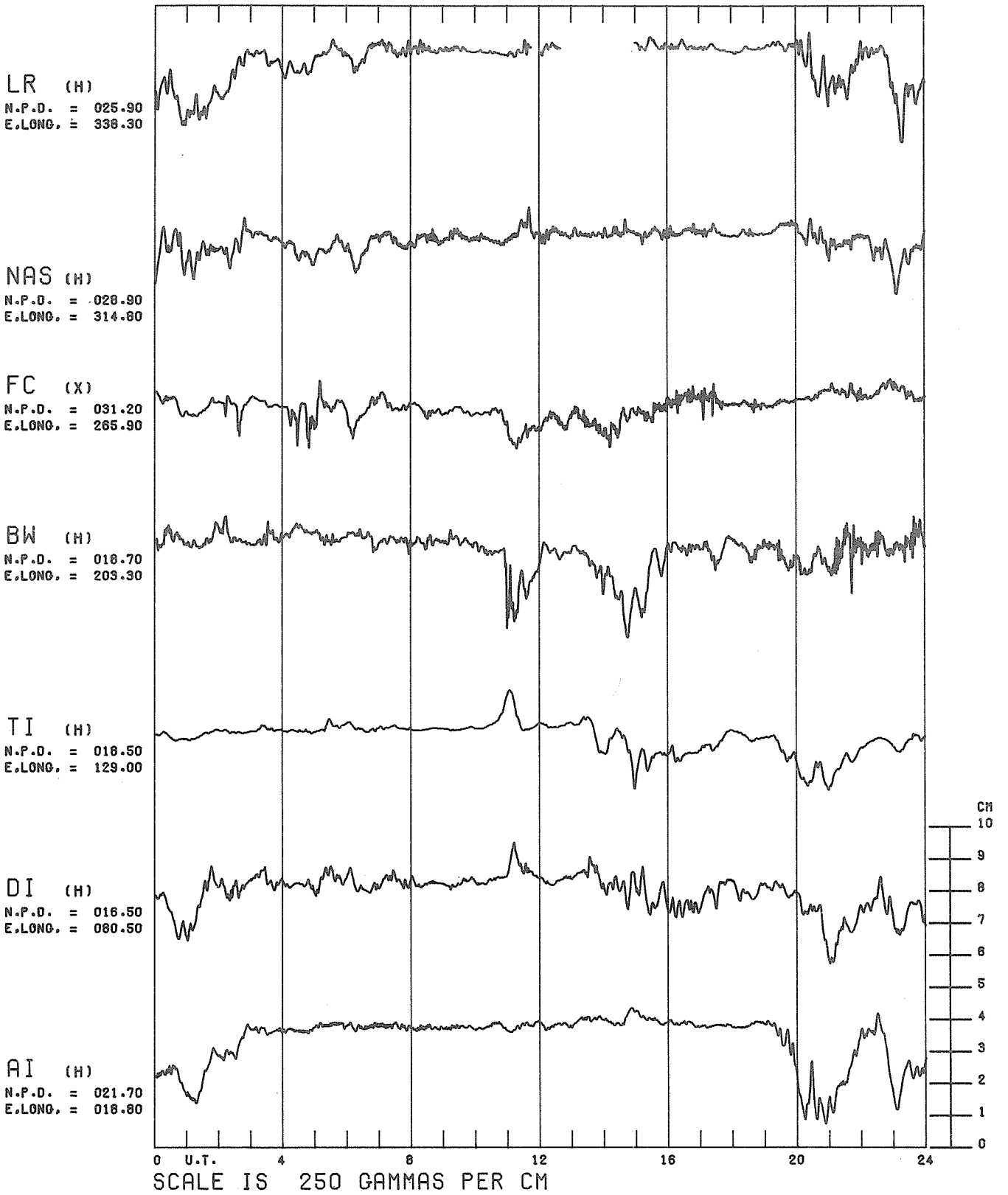
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
7 FEBRUARY 1976



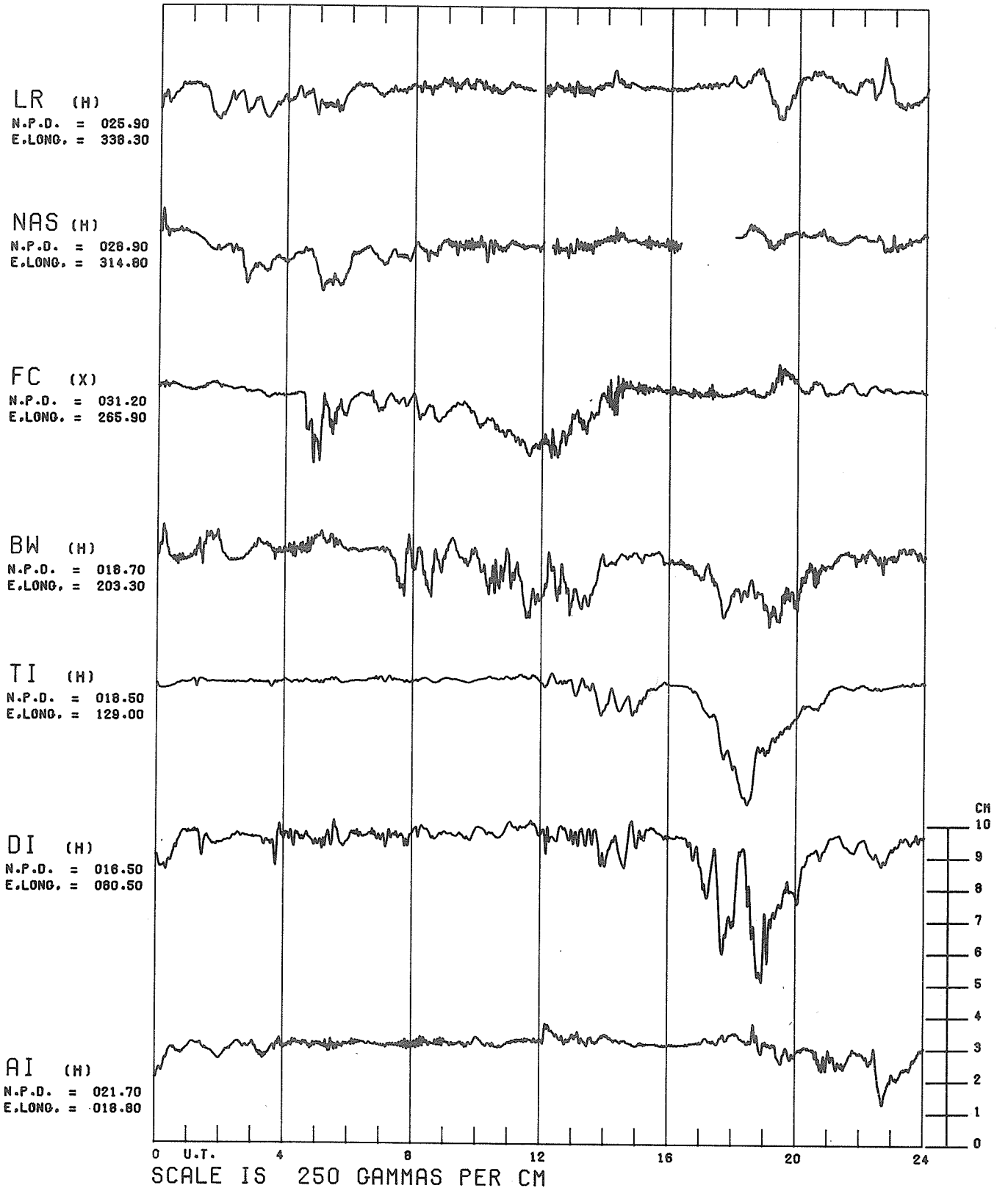
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
8 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
9 FEBRUARY 1976

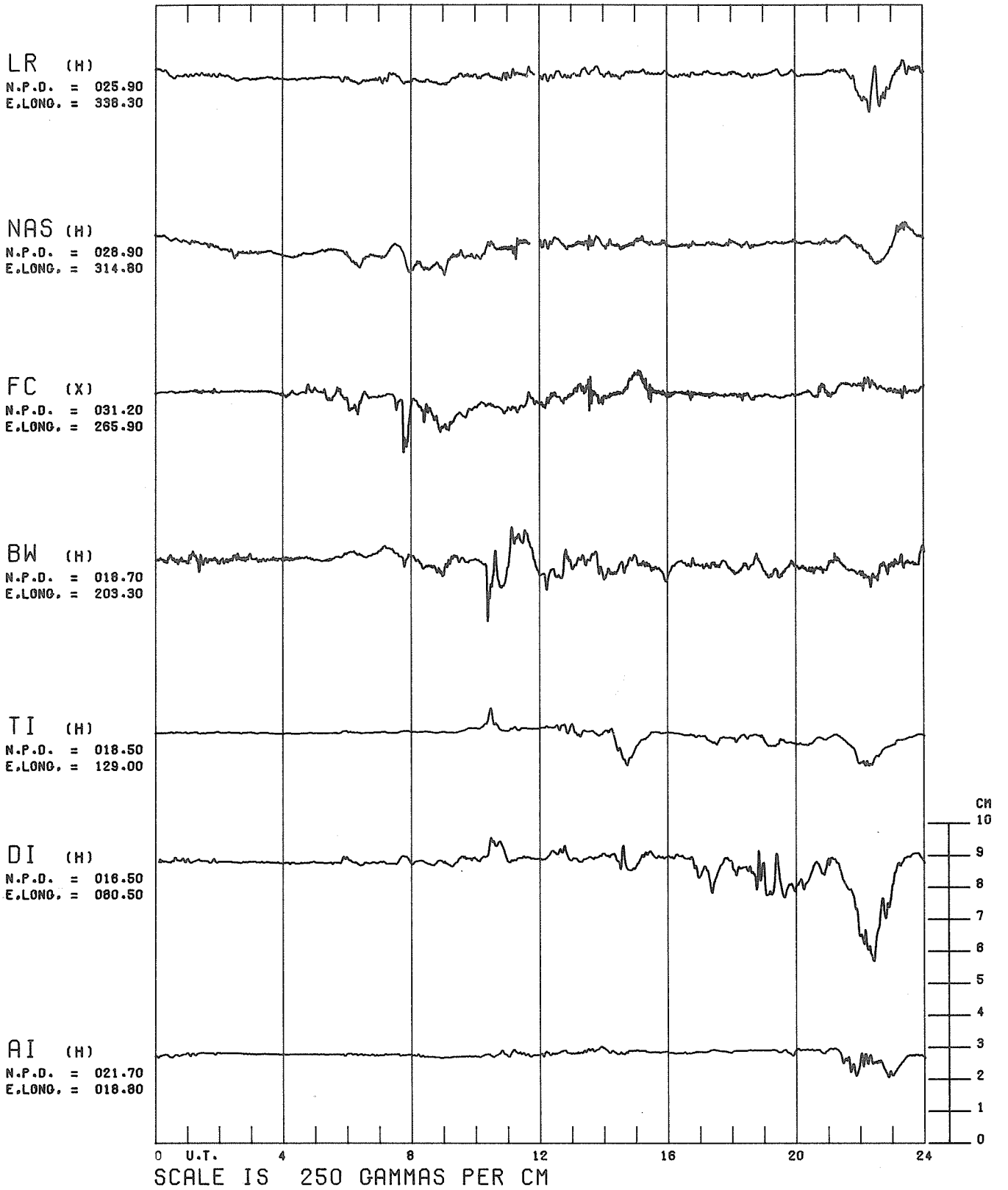


COMMON SCALE MAGNETOGRAMS
BY STATION DAY
10 FEBRUARY 1976

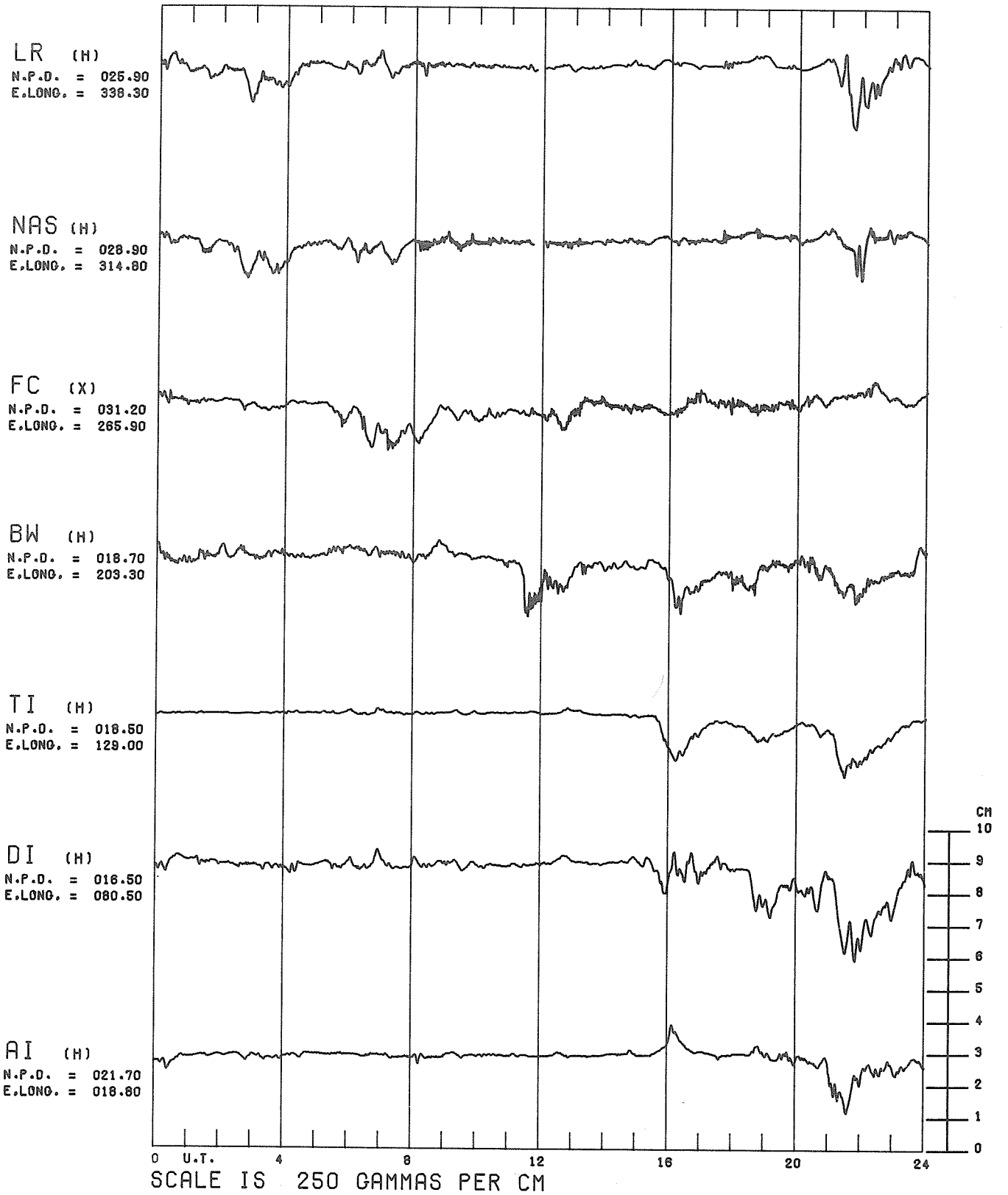


SCALE IS 250 GAMMAS PER CM

COMMON SCALE MAGNETOGRAMS
BY STATION DAY
11 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
12 FEBRUARY 1976



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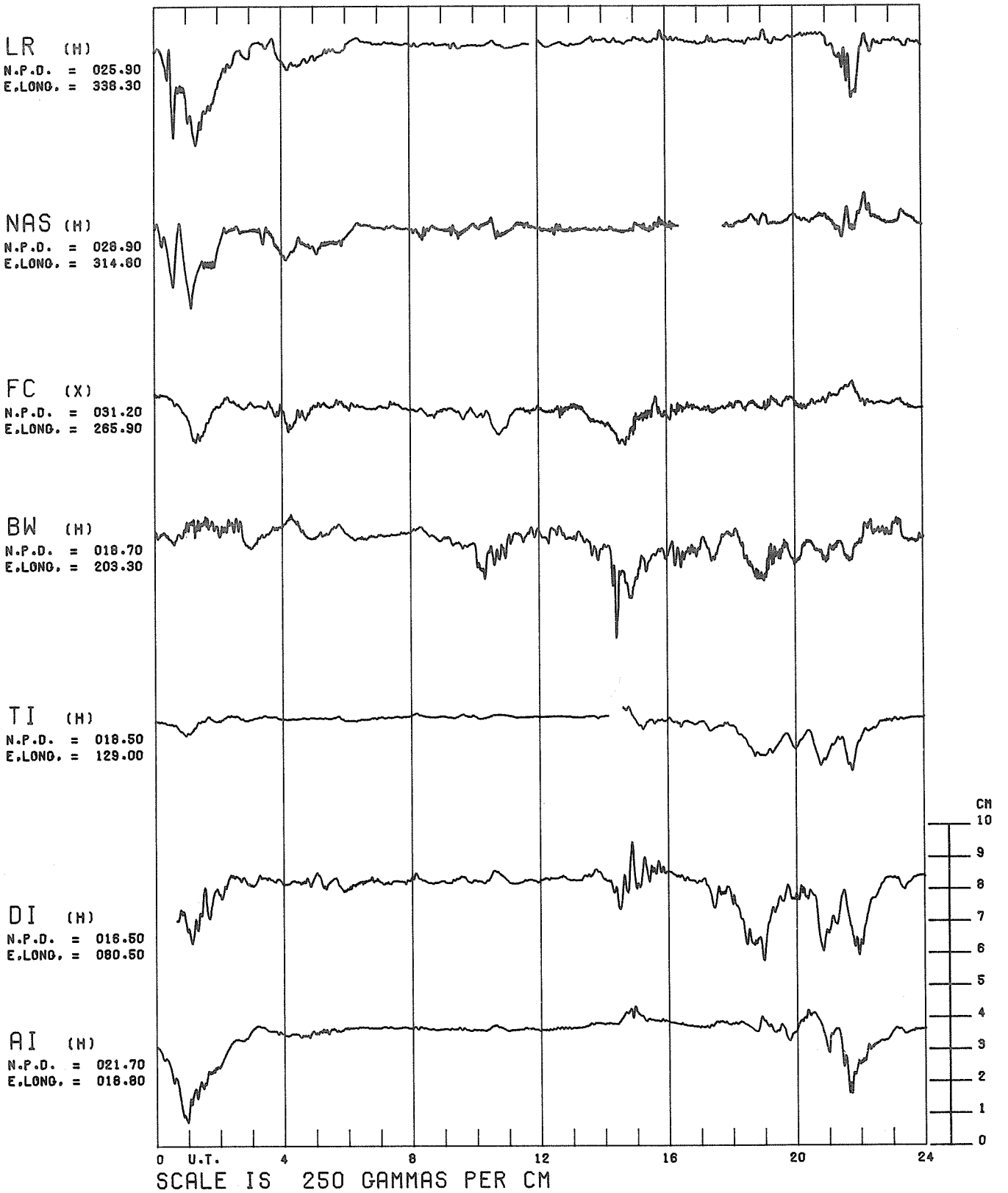
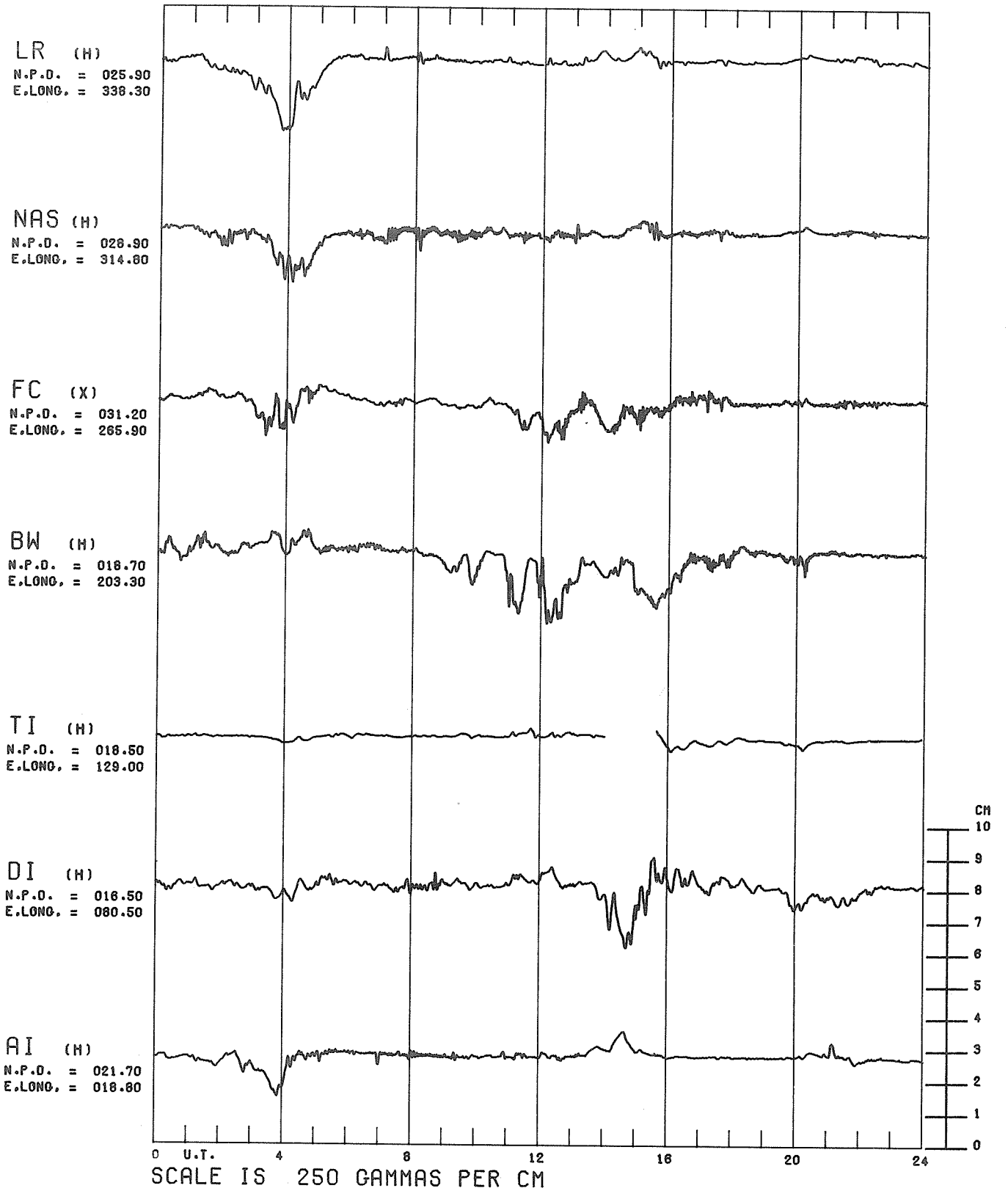
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
13 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
14 FEBRUARY 1976



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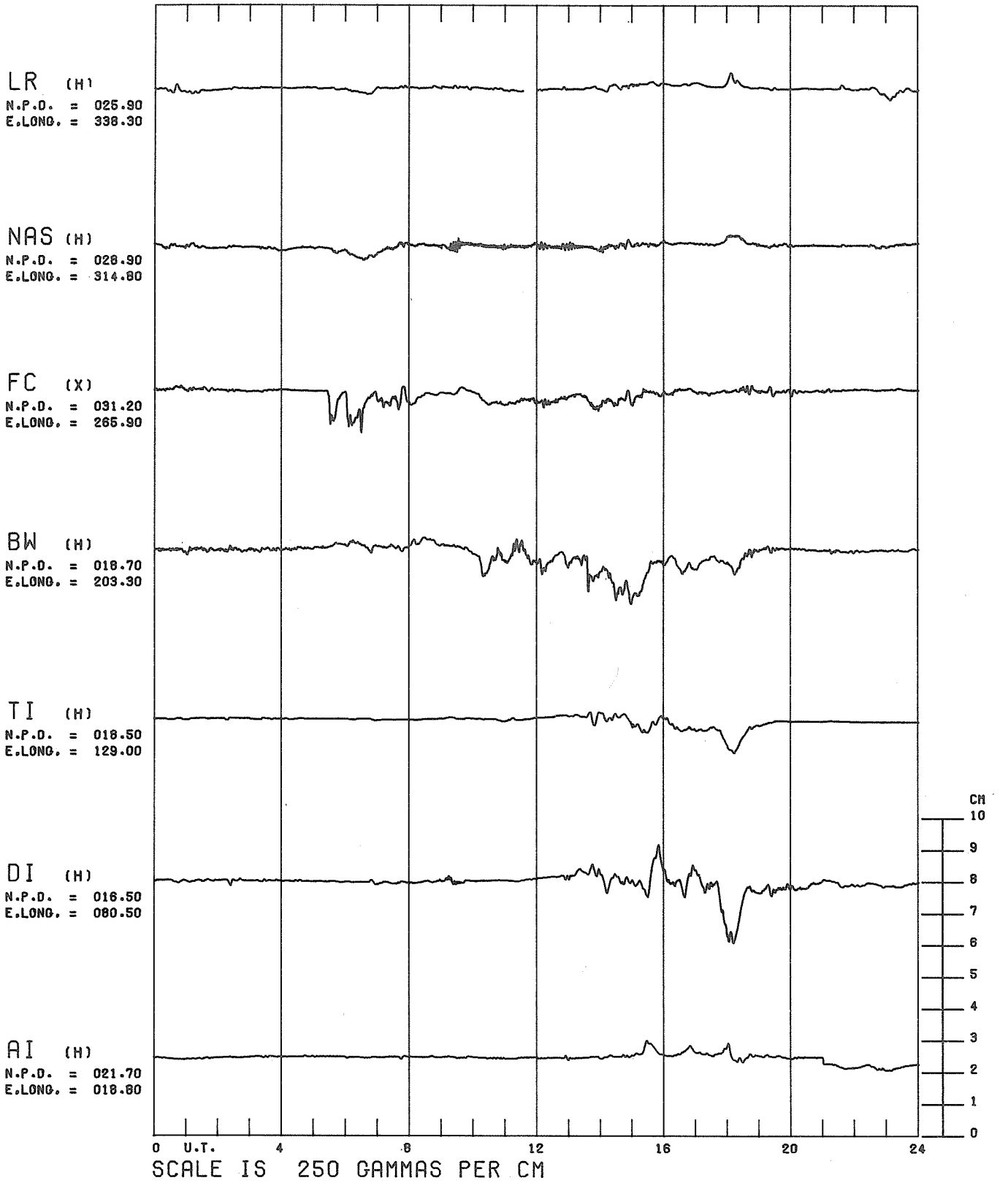
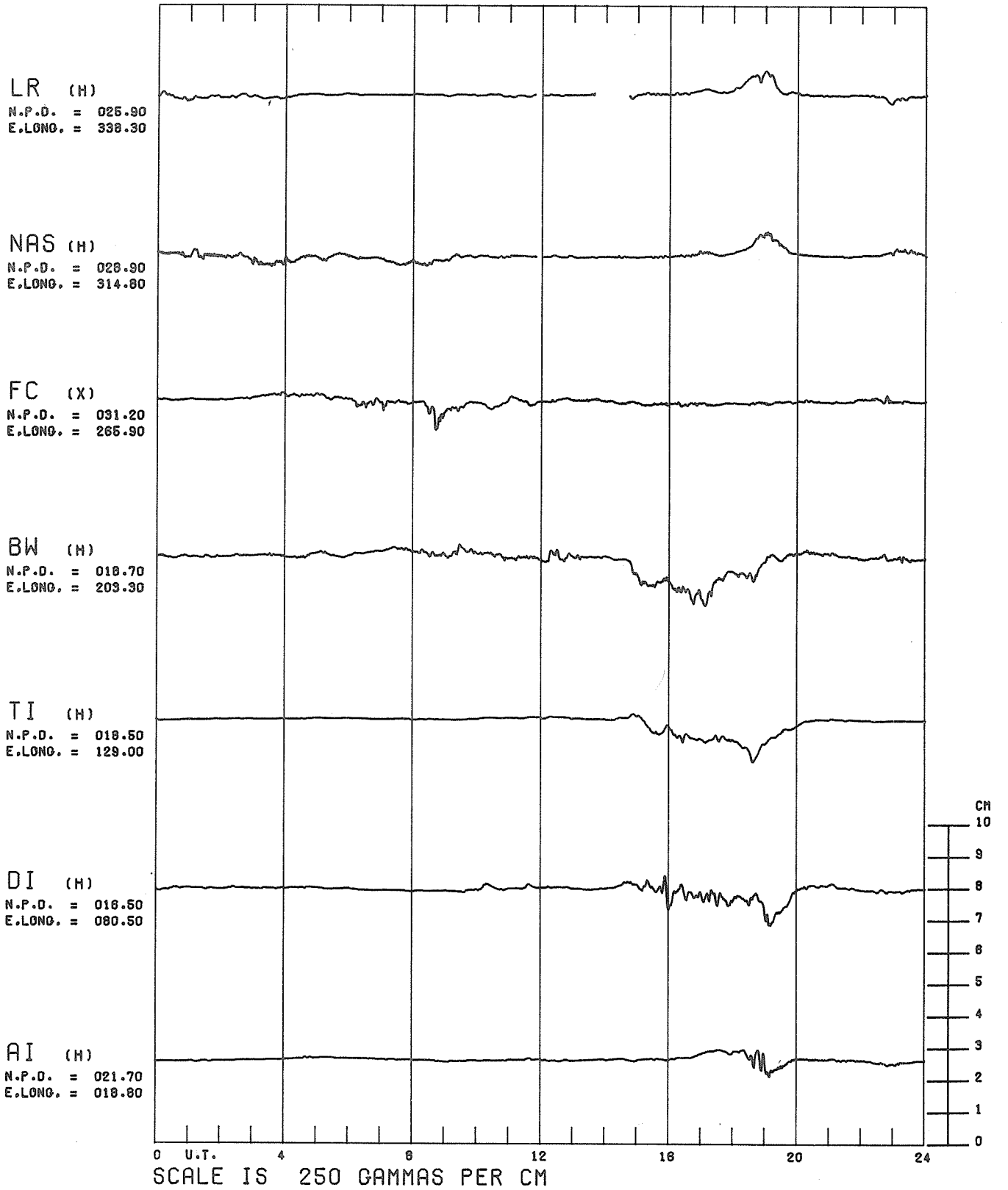
BY STATION DAY
15 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
16 FEBRUARY 1976



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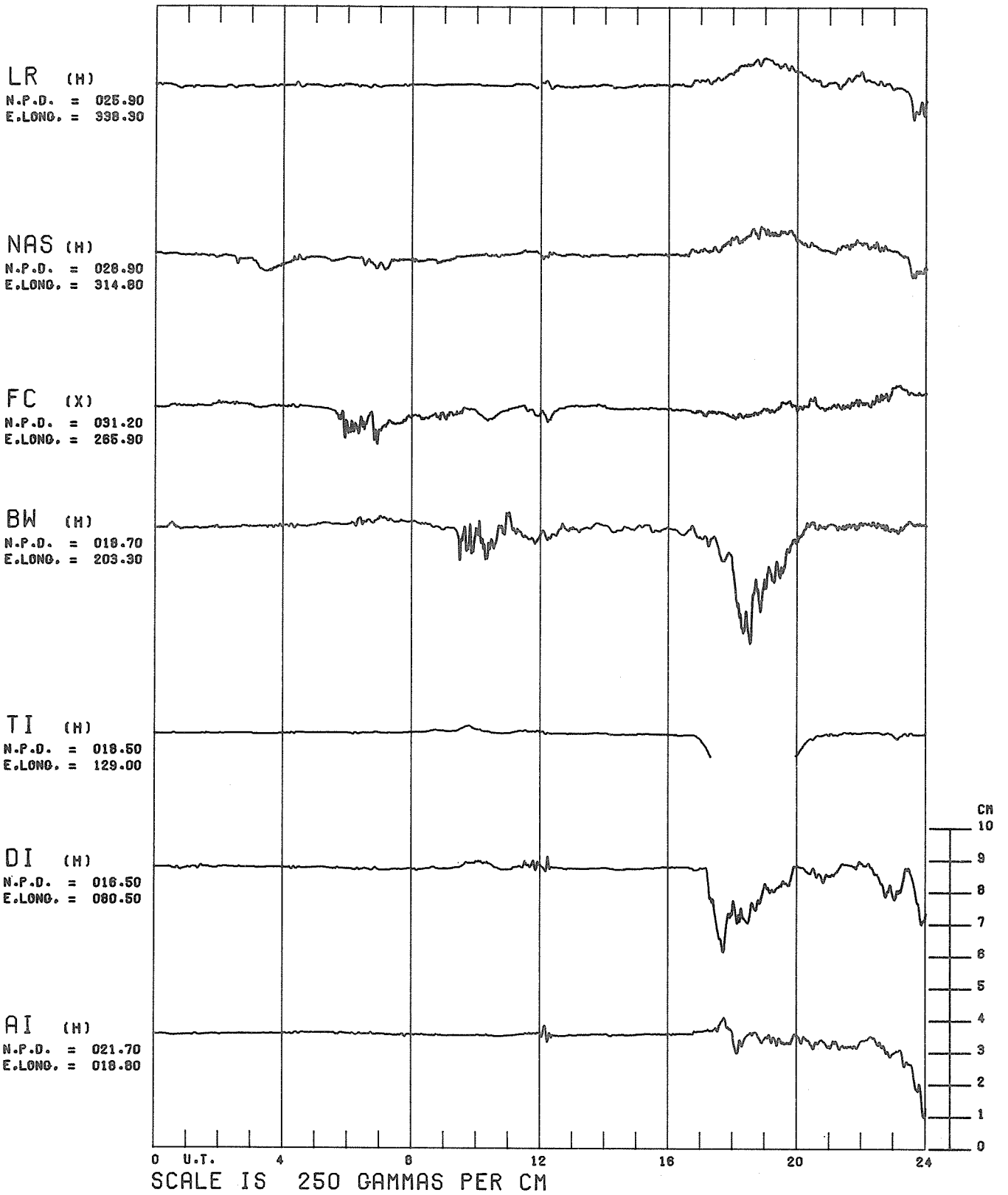
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
17 FEBRUARY 1976



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BY STATION DAY
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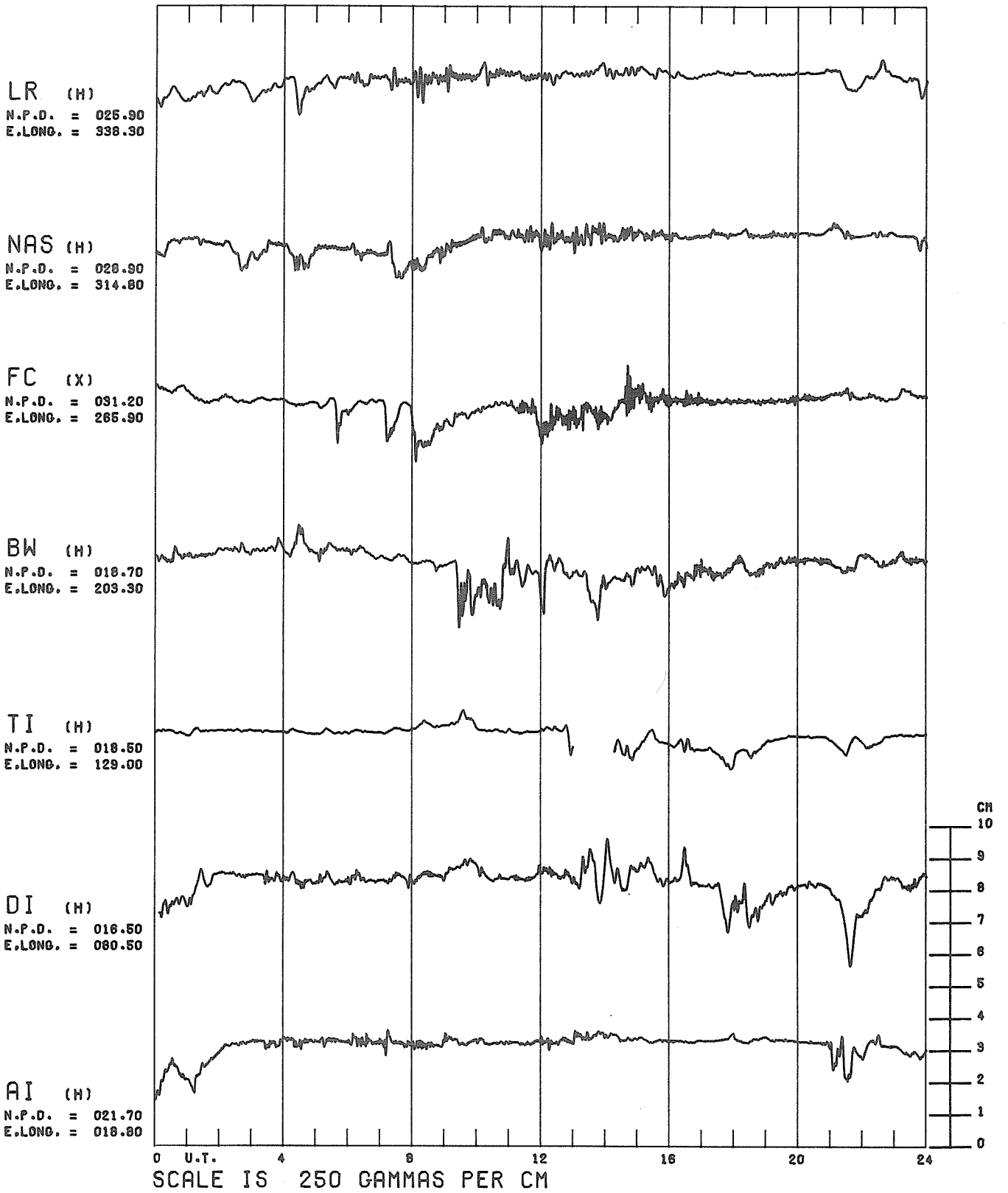

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BY STATION DAY
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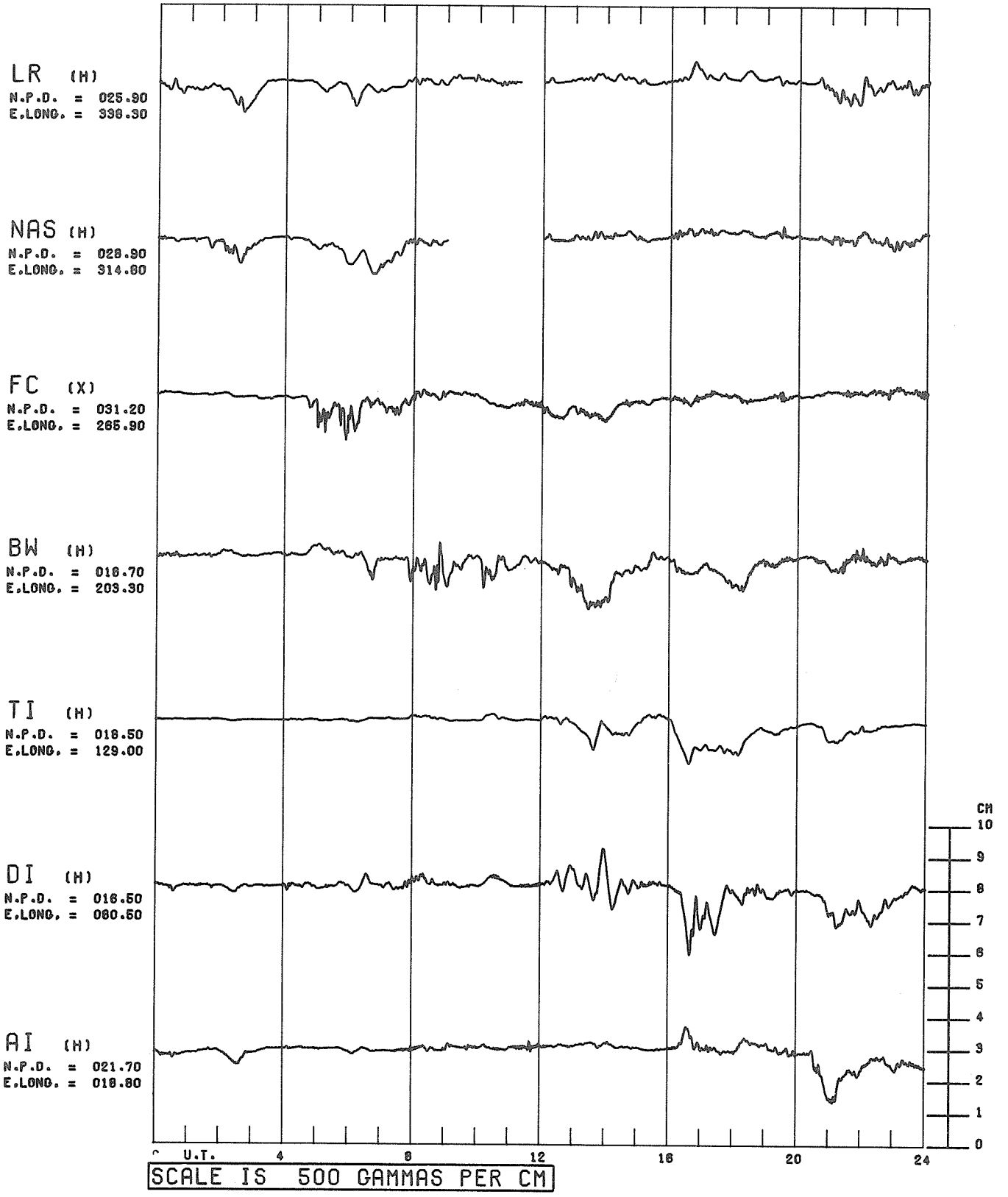

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BY STATION DAY
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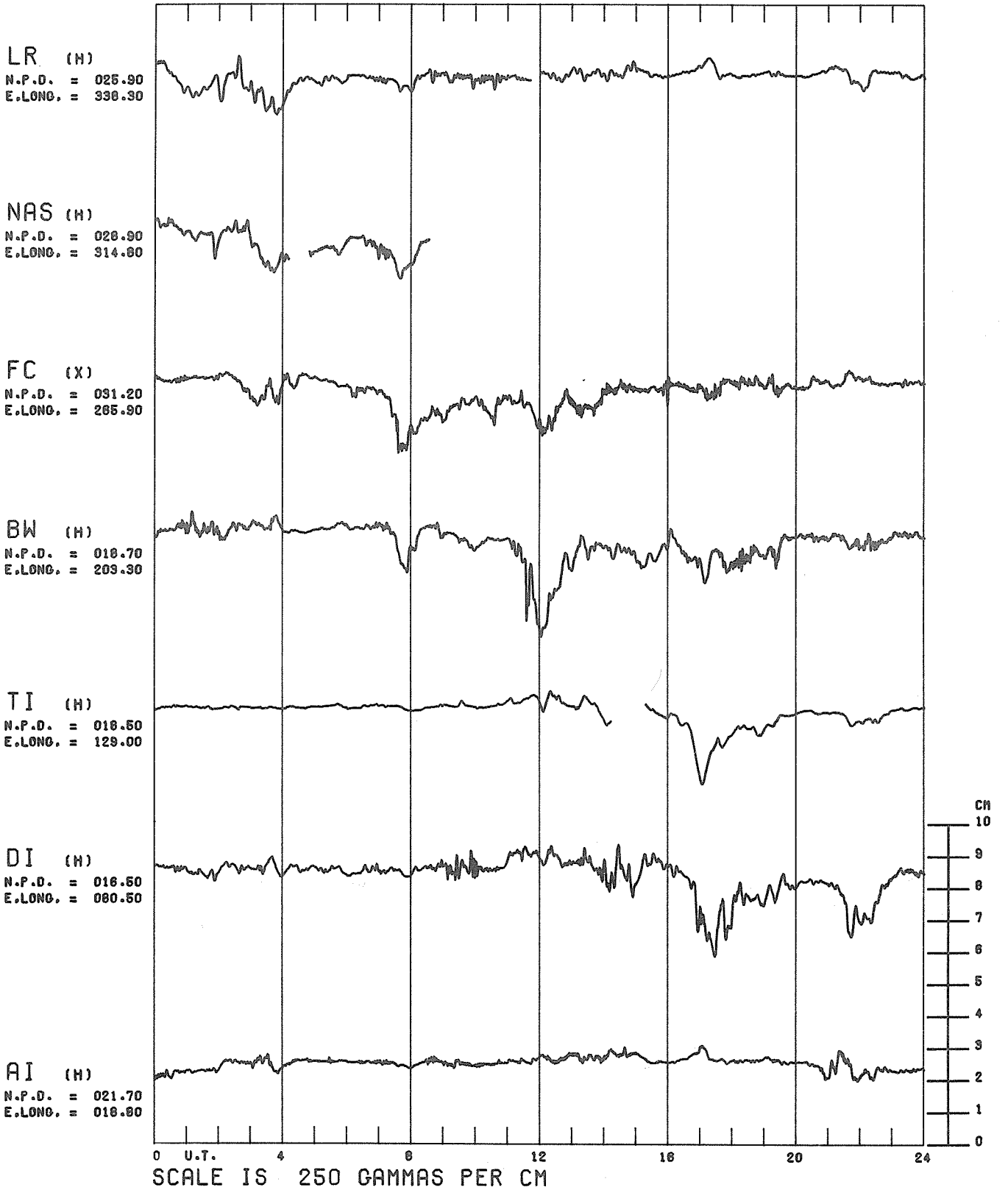

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COMMON SCALE MAGNETOGRAMS
BY STATION DAY
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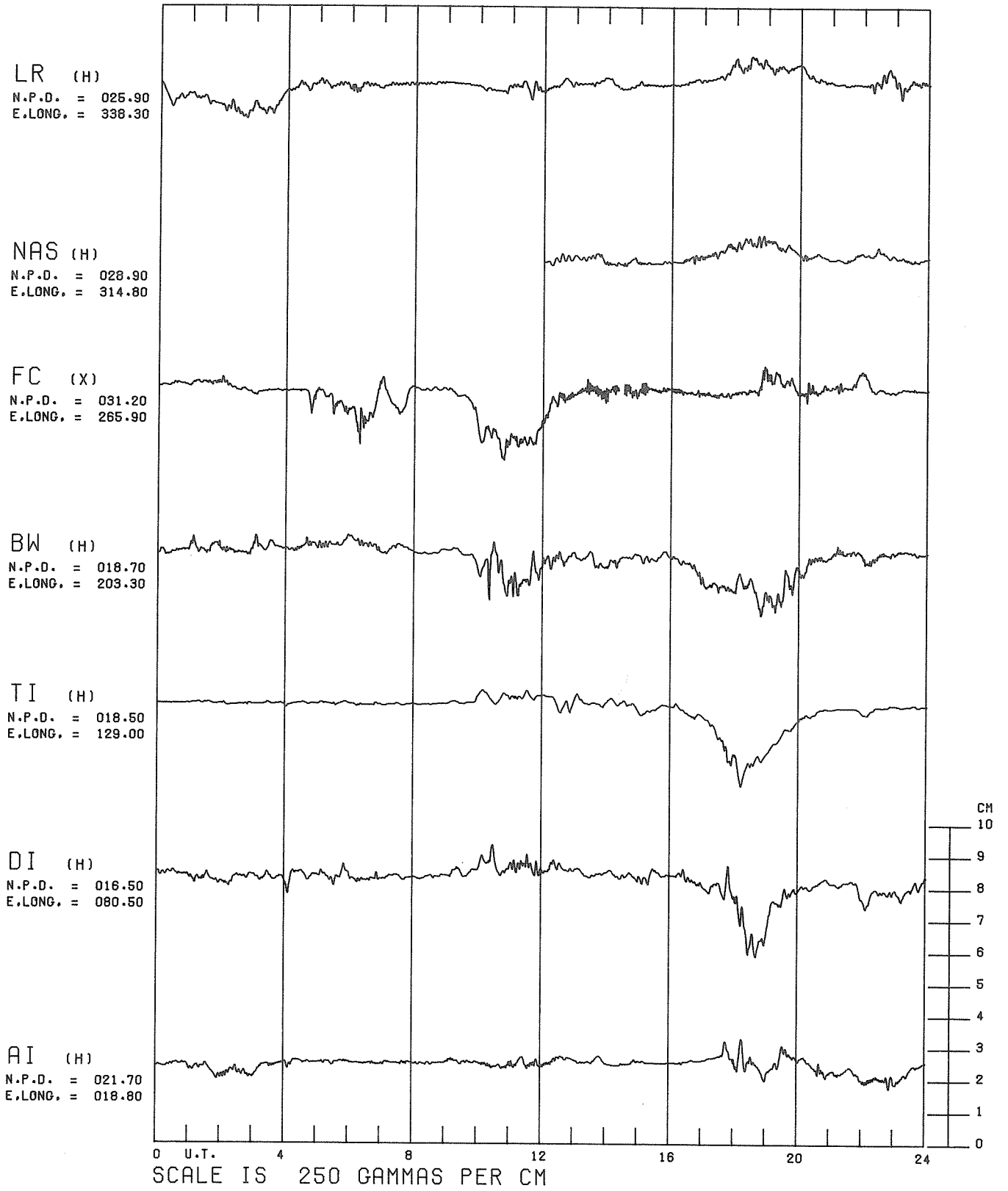
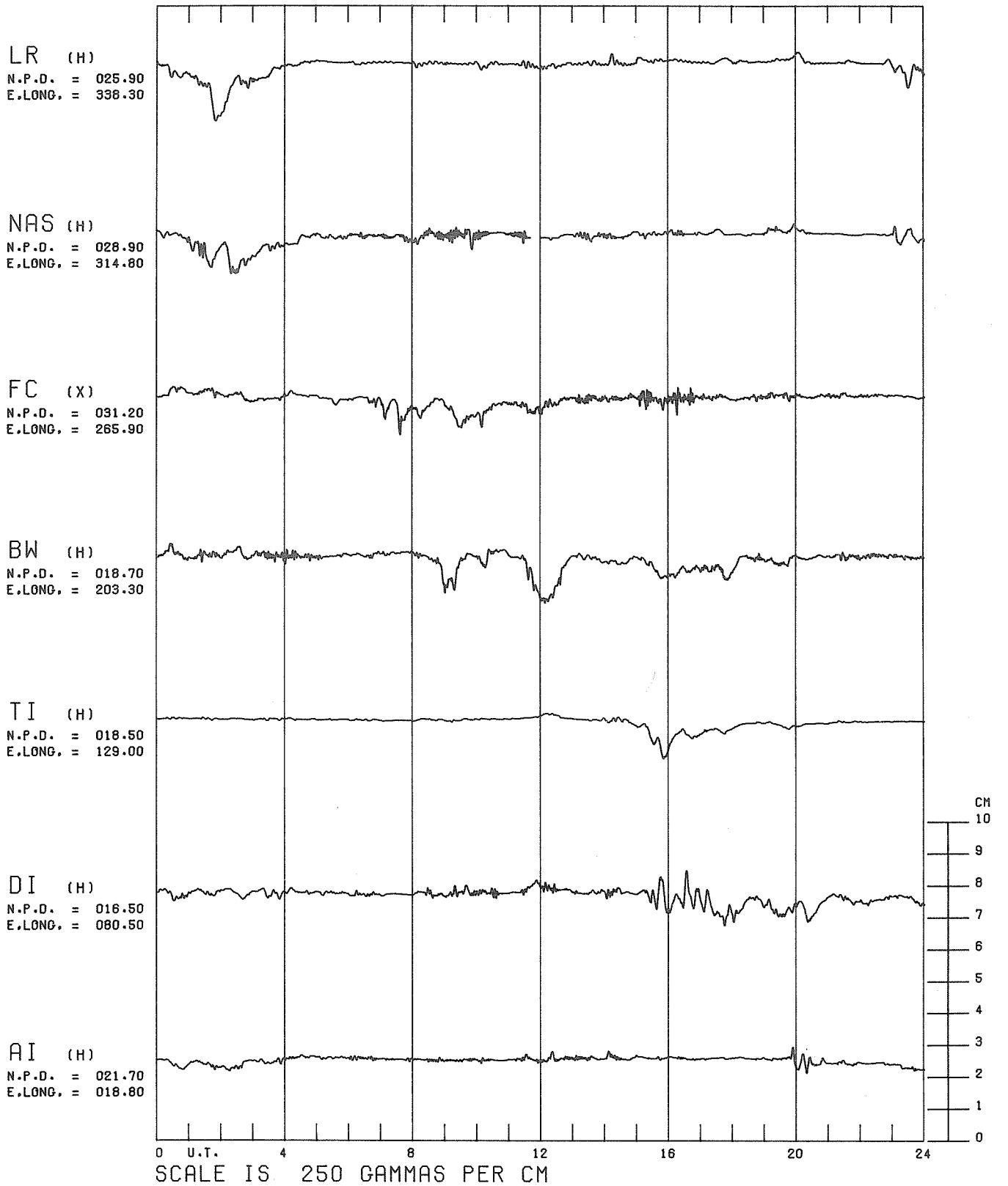
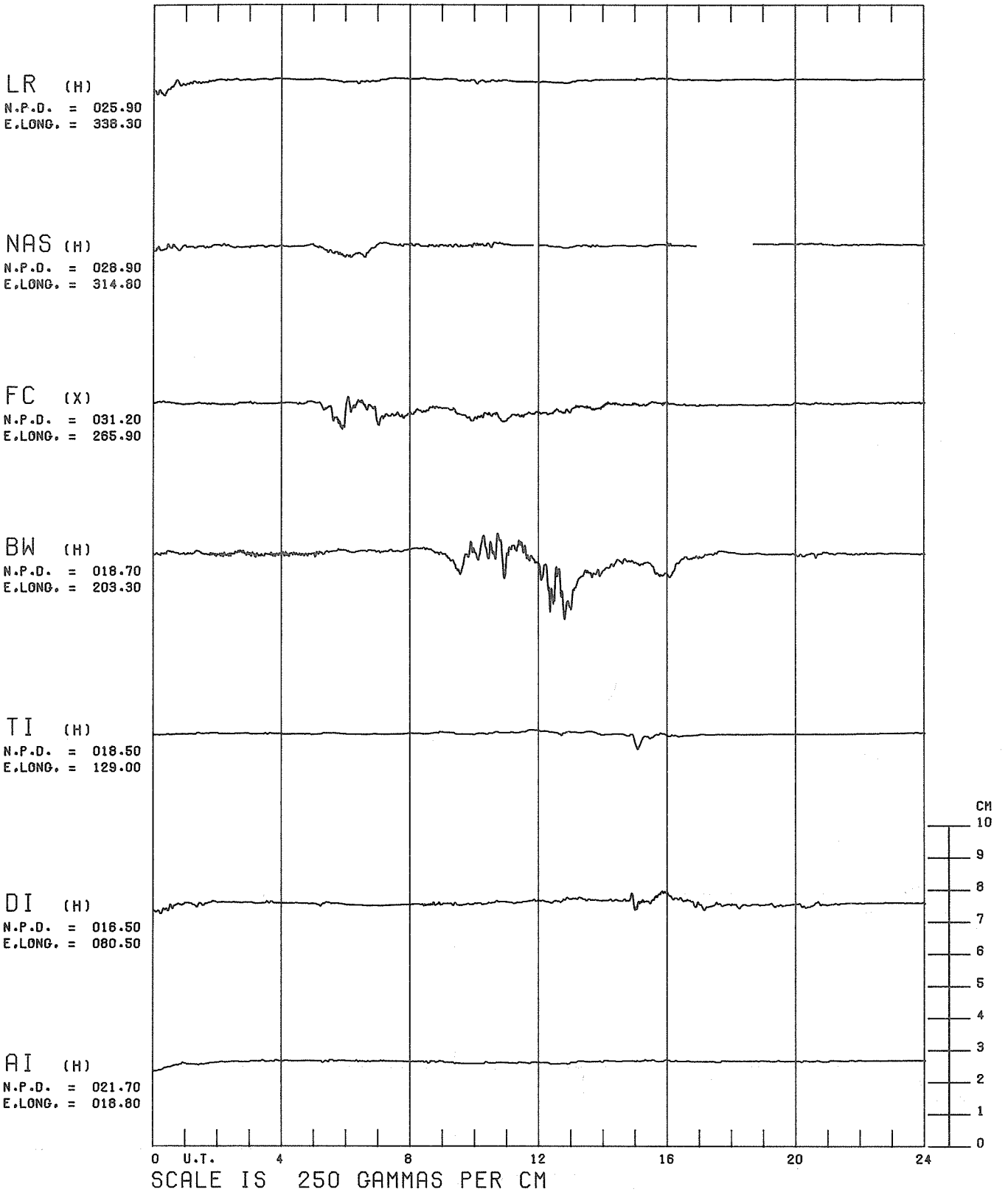


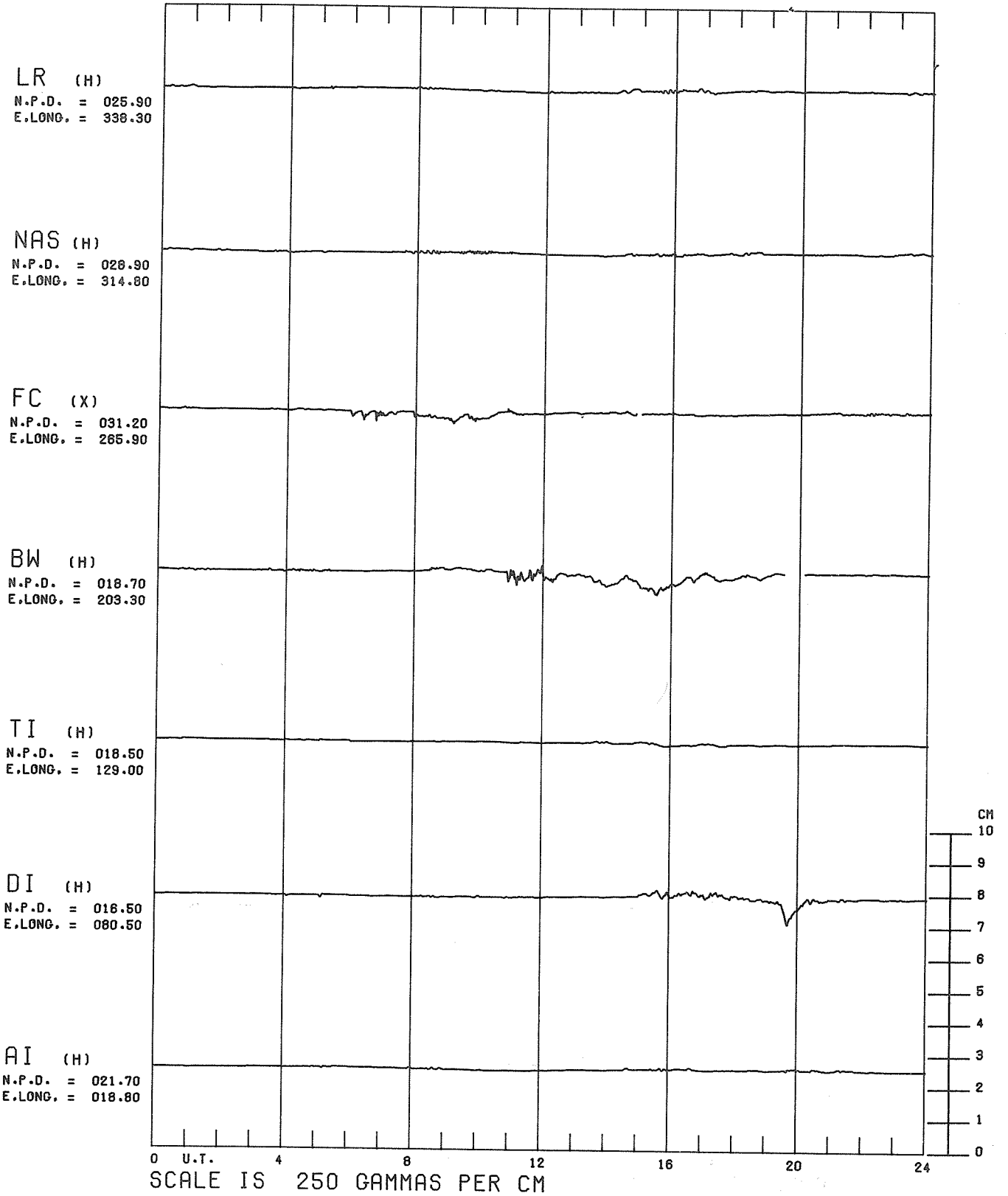
COMMON SCALE MAGNETOGRAMS
BY STATION DAY
22 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
23 FEBRUARY 1976

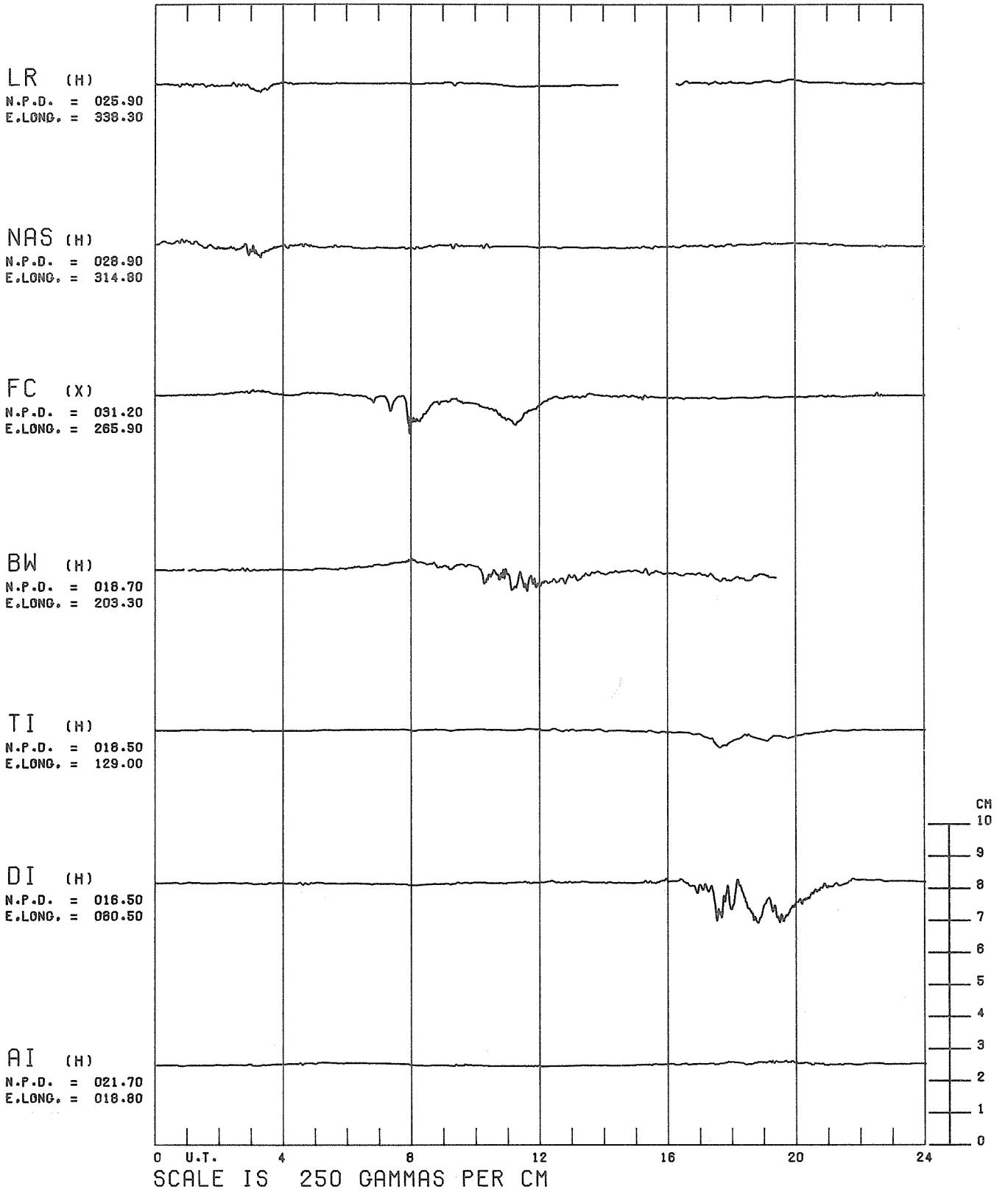


COMMON SCALE MAGNETOGRAMS
BY STATION DAY
24 FEBRUARY 1976

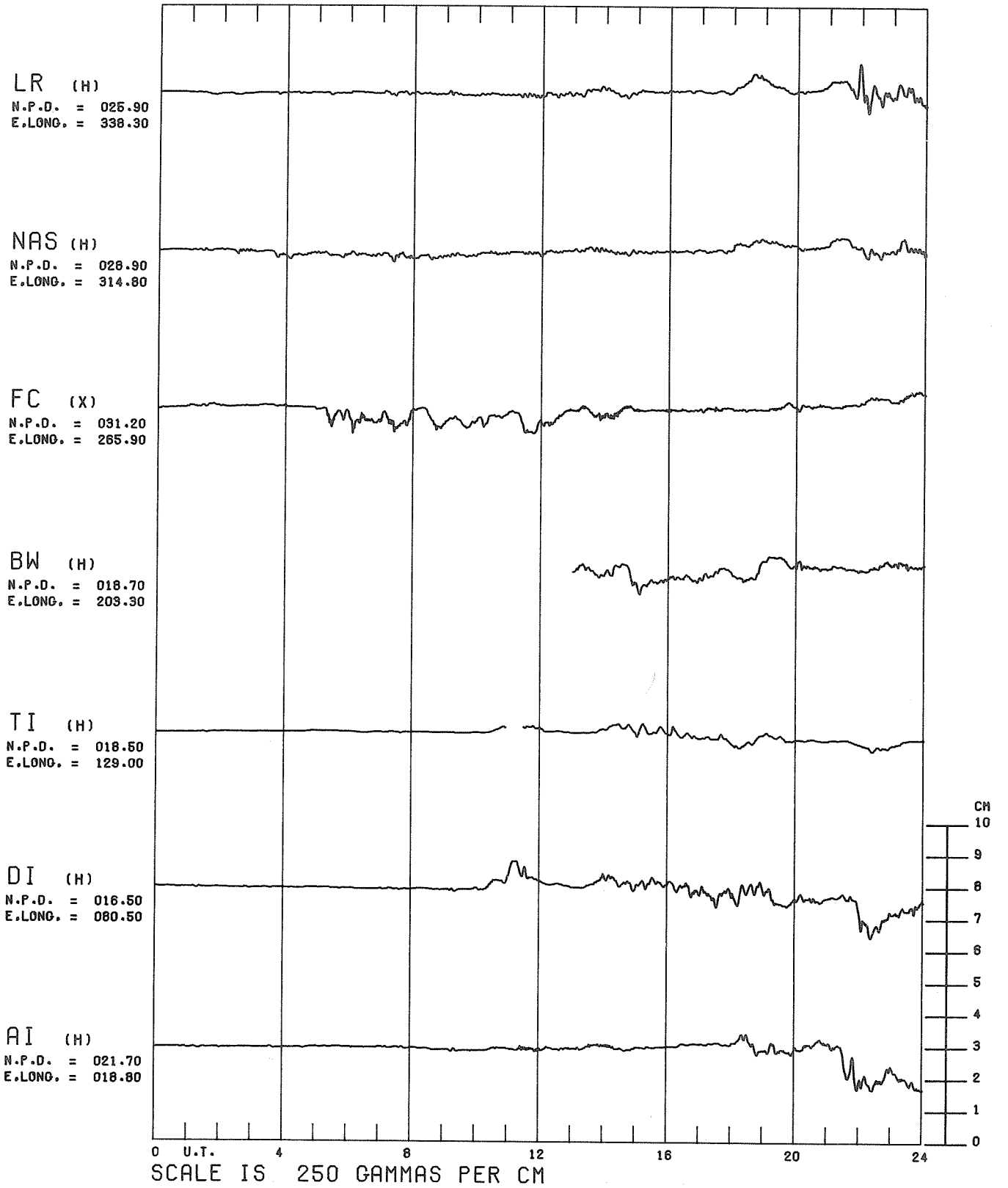


COMMON SCALE MAGNETOGRAMS
BY STATION DAY

25 FEBRUARY 1976

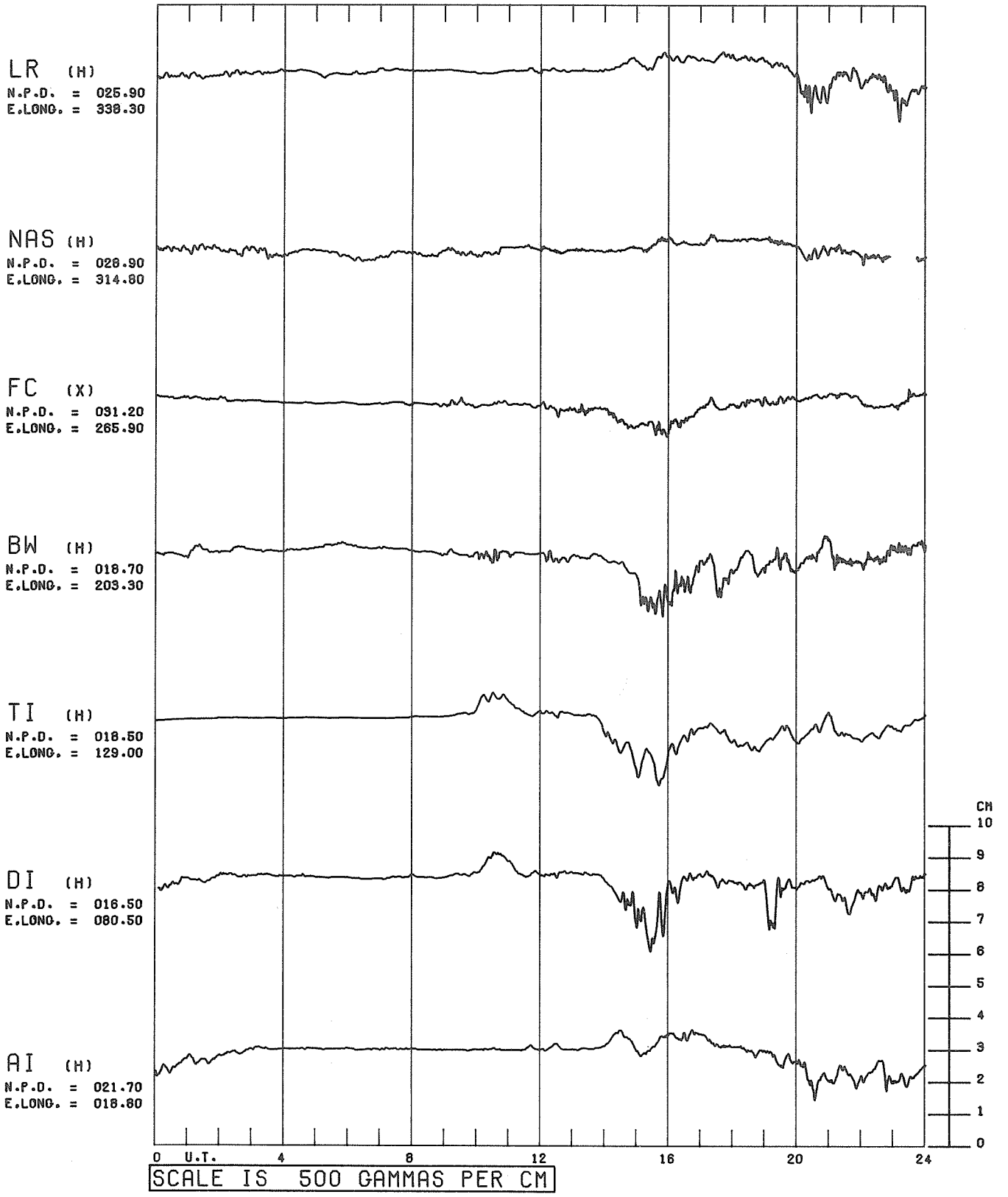


COMMON SCALE MAGNETOGRAMS
BY STATION DAY
26 FEBRUARY 1976

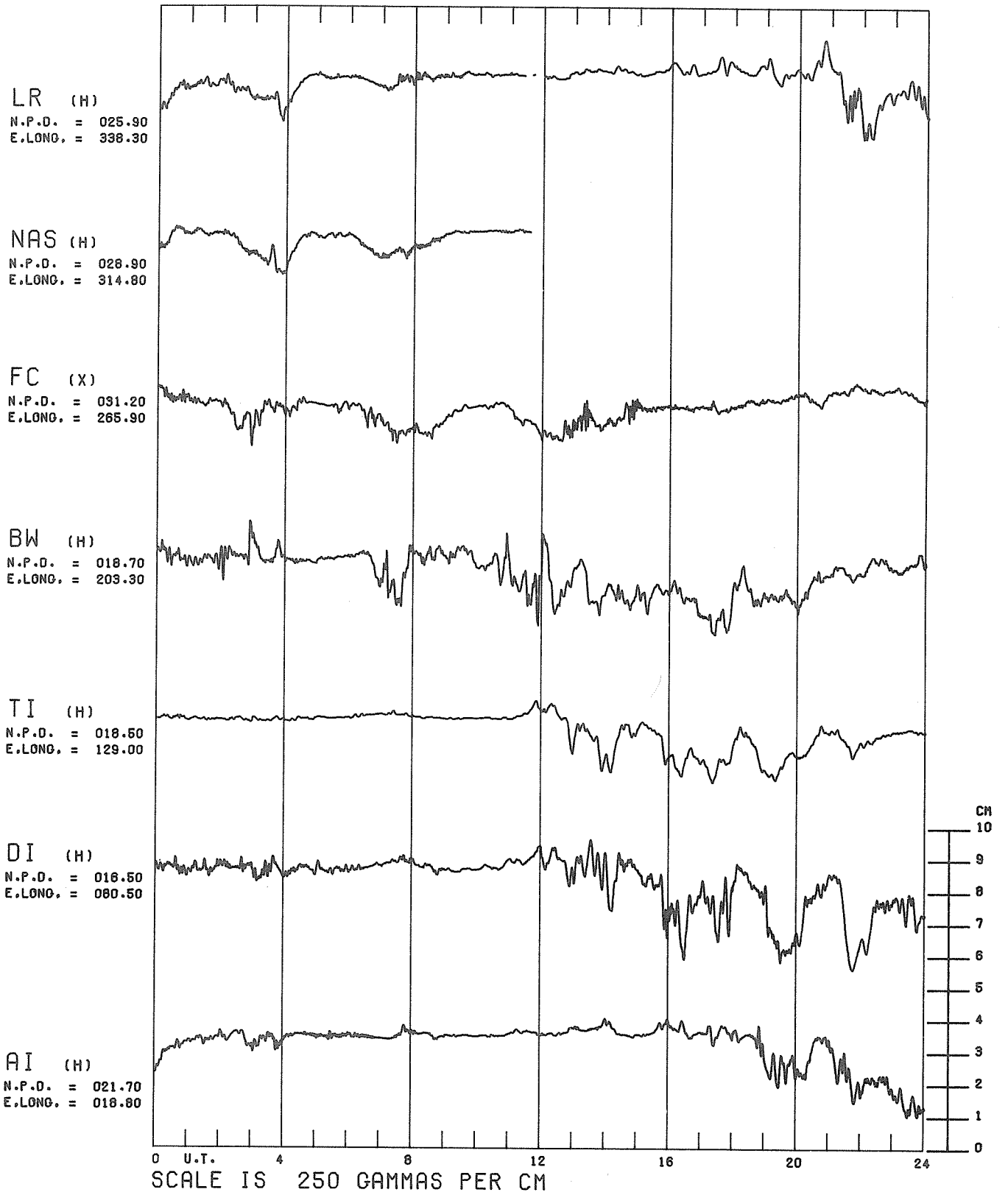


COMMON SCALE MAGNETOGRAMS
BY STATION DAY

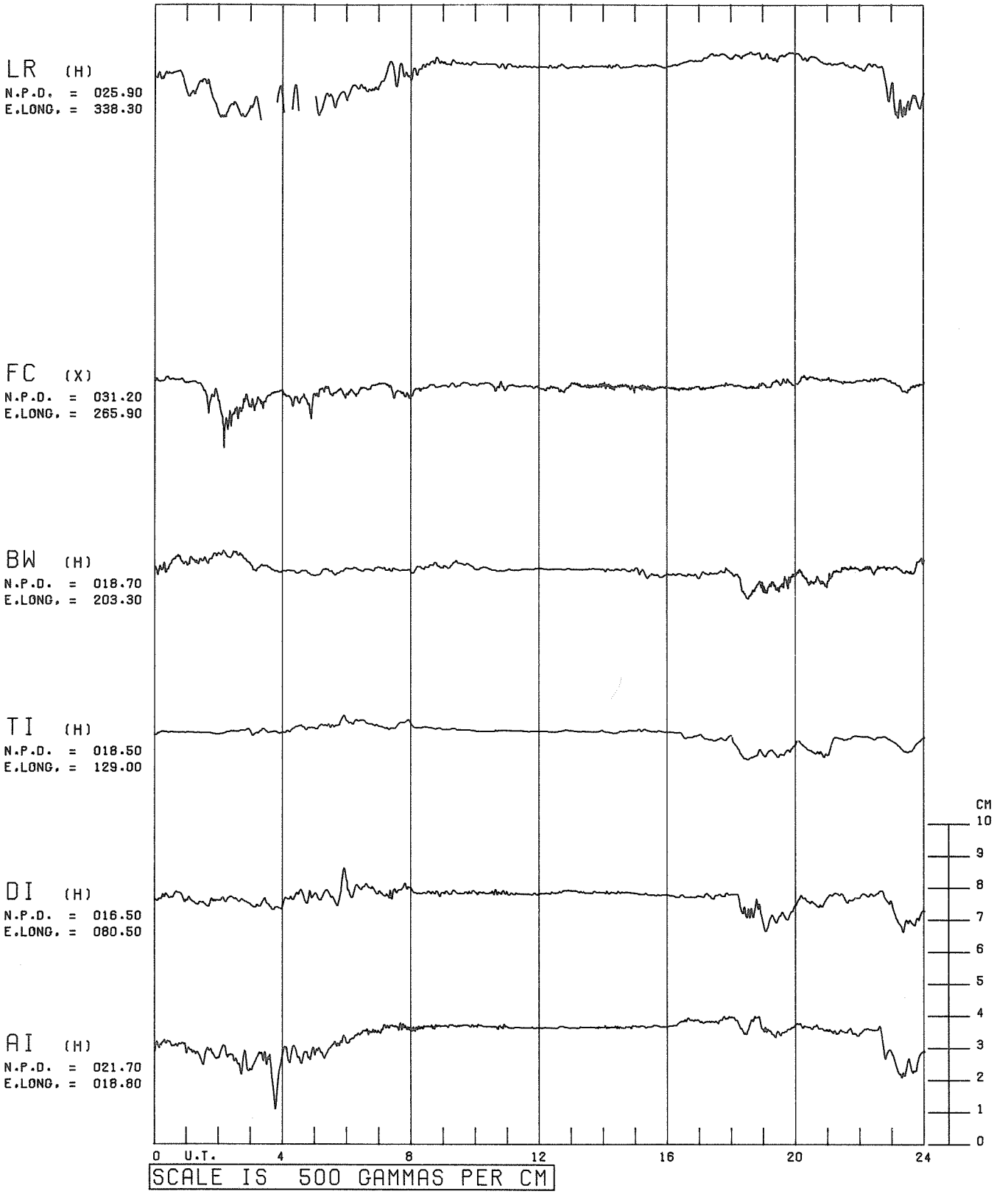
27 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
28 FEBRUARY 1976



COMMON SCALE MAGNETOGRAMS
BY STATION DAY
29 FEBRUARY 1976



SECTION III. PRELIMINARY AE(7) INDICES, FEBRUARY 1976

1. Discussion of Graphs, Tables, and Statistical Information

The following figures display the familiar AU, AL, AE, and AO graphs for each day of the month and are based upon 1-min data samples. As indicated at the top of each frame, these indices are derived from data from only seven auroral zone observatories and, as such, are considered "provisional." WDC-A for Solar-Terrestrial Physics intends to update these indices during and after the IMS and to publish "final" graphs and summary tables in the usual UAG Report format for each year.

Following the pages of AE graphs are Tables 1-4 (pages 45-48) containing the index (AE, AO, AU, AL) amplitudes for each hour of each UT day of the month, the monthly averages for each hour and for the hours of the designated 5Q and 5D days, and the average amplitudes for each day and for the whole month. Tables 5-6 (pages 49-50) give the station having the largest hourly average positive and negative deviations (hourly AU and AL) for each hour of each day in the month. These provide a key to the graphs of AU and AL by usually indicating which station's magnetogram provided the extreme deviations giving AU or AL for that hour. Sometimes the most extreme deviation during an hour will have occurred at another station. The general patterns, however, of UT time of AU and AL provision by each station are the same whether based on hourly averages or on minute-by-minute extremes.

Table 7 (page 51) gives the number of times (1-min intervals) during the month when the indicated station provided the AU and AL index in each hour of the UT day. For the relatively sparse station distribution used in this AE(7) derivation, it is not surprising that each station could produce at least one extreme positive and negative deviation in almost every hour of the day. However, the overall pattern is for the most frequent observation of the maximum positive H deviation to occur around 6 hours before Local Geomagnetic Midnight (LGM) and the most negative H deviation to occur around 3 hours after LGM [Allen and Kroehl, 1975]. Individual station deviations from this pattern may be due to the dominant influence of a few isolated large substorms during a relatively quiet month. This should become apparent as more months of data are similarly analyzed.

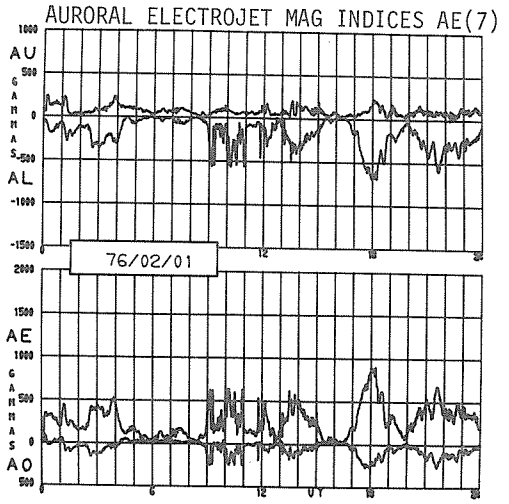
Table 8 (page 51) gives the monthly average of quiet-time H for each observatory. This is computed from the 1-min H scalings on the 5 quiet days of the month, using known or assumed H baselines.

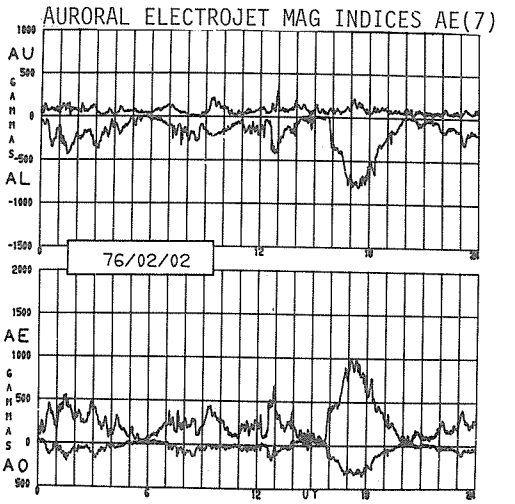
Figures 2-5 (pages 52-55) graphically display the details suggested by the tabulation of hourly station frequency of AU and AL contribution. The "frequency of 1-min AU provision by station" (Figure 2) for the month is a smoothed curve showing the number of times that each station contributed the extreme positive deviation from minute-to-minute, N(AU). An 11-point running mean was used on the raw numbers of contributions for the 1440 1-min intervals of the UT day. Data for the UT day are duplicated (0000-2400 UT shown twice) so that the end of the day will not interrupt the regular pattern of progressive index contribution as each station rotates into the critical region (around 1800 LGT). Arrows mark UT times of LGM for each station. Figure 3, on the opposite page, shows the "total amplitude of most positive H variations." This is a smoothed graph for each station's cumulative amplitude of deviation for each minute when it was providing the AU index. Each scale division on the right side represents +500 gammas. Comparison of these curves with the N(AU) graphs of Figure 2 shows that the largest magnitude positive excursions generally occur at the same time when the stations most often provide AU indices. Occasional postmidnight minor peaks result from disturbances for which the H component at one site is first a negative extreme (giving AL) for several minutes and then swings briefly to a positive extreme before recovery. Such events are infrequently observed in AE indices derived from 10 to 12 stations because usually another station is in position to monitor the true eastward electrojet effect rather than having oscillatory variations near LGM providing AU.

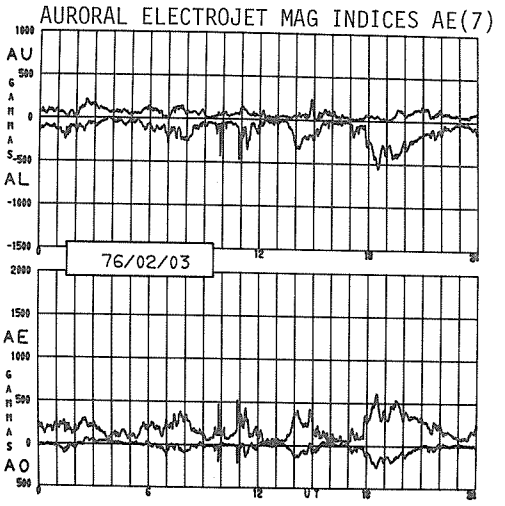
The graph "frequency of 1-min AL provision by station" (Figure 4) shows the smoothed curve for the number of times in the month that each station provided AL during each minute of the UT day, N(AL). Evidently the pattern is for a station to rotate into the most probable region for encountering extreme negative H deviations some hours after LGM. Unusual, asymmetric peaks in frequency of AL provision by any station may be attributed to disturbances on only a few days of the month. Such unevenness due to a few isolated events should average out over the course of a year. Figure 5 shows the corresponding "total amplitude of most negative H variations." This is the cumulative amplitude of negative H observed by each station during those minutes when they were providing AL. Each scale division on the right side is -1000 gammas. Again, the comparison of cumulative amplitudes and N(AL) curves can indicate the most probable time of occurrence of larger amplitude events.

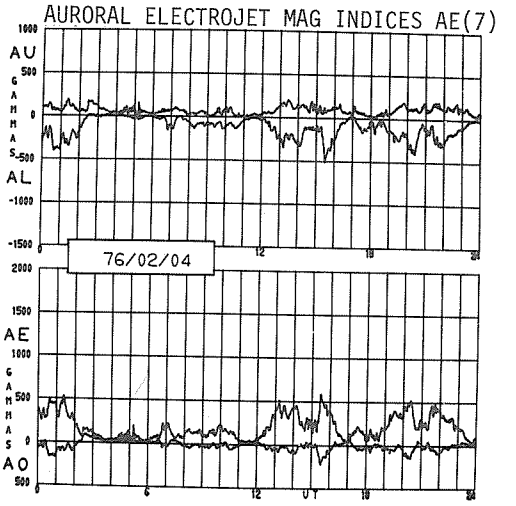
For Figures 2-5 slightly elevated levels of the curve for any station during normally quiet hours indicate possible difficulty with the quiet-time level for some days of the month. This information will be used as a quality control check for the final derivations of AE(12) indices at a later date.

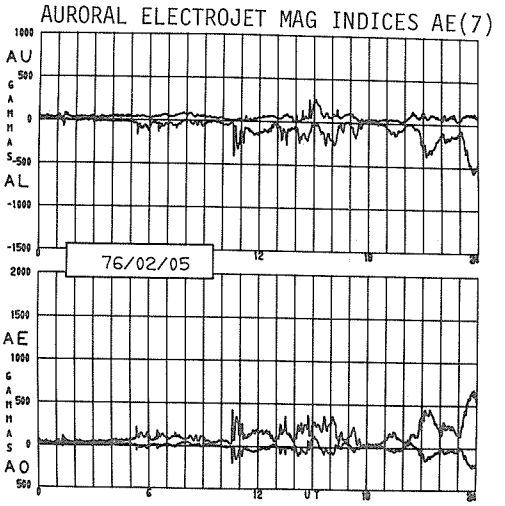
2. Graph of AU, AL, AE, and AO for Each Day of the Month

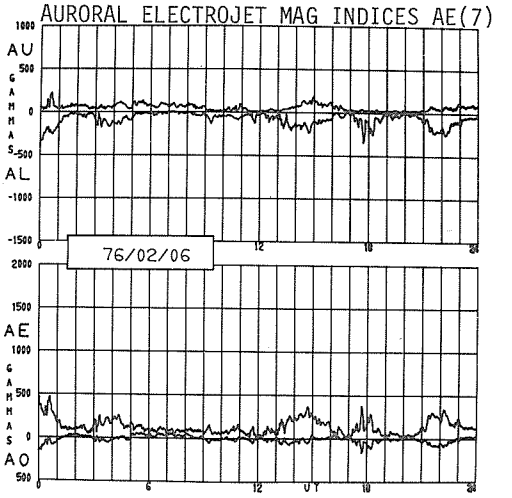


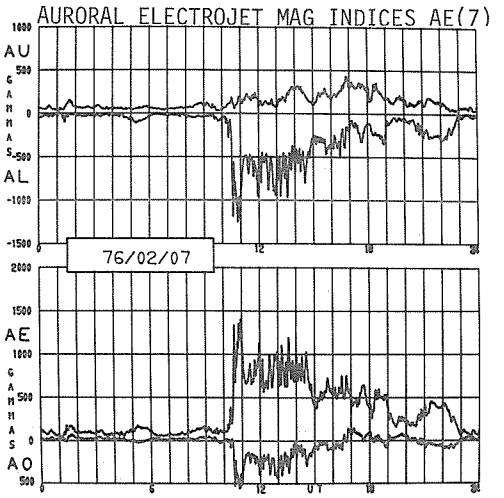


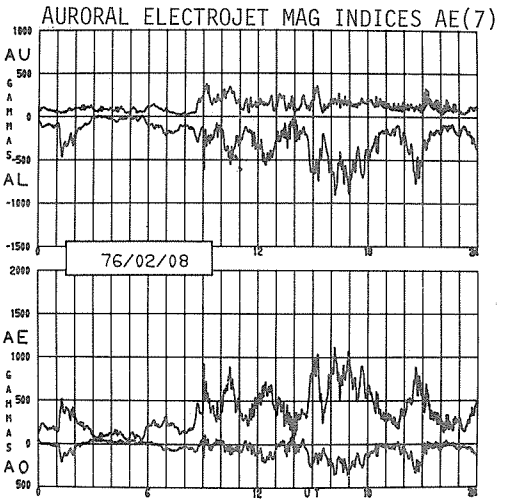









AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/07
AE
AO
UT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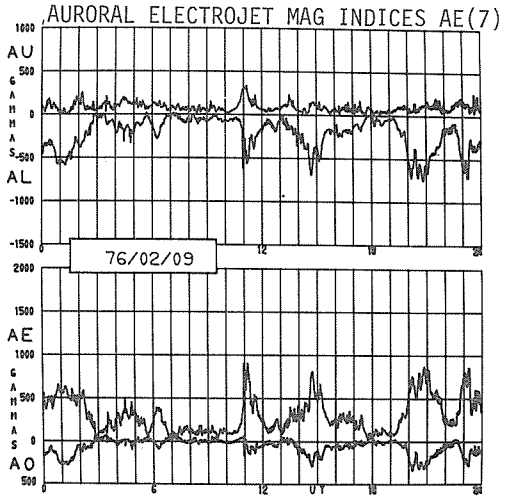
AU
AL
76/02/08
AE
AO
UT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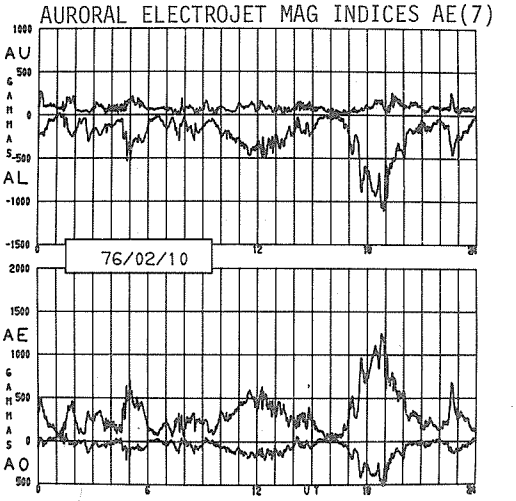
AU
AL
76/02/09
AE
AO
UT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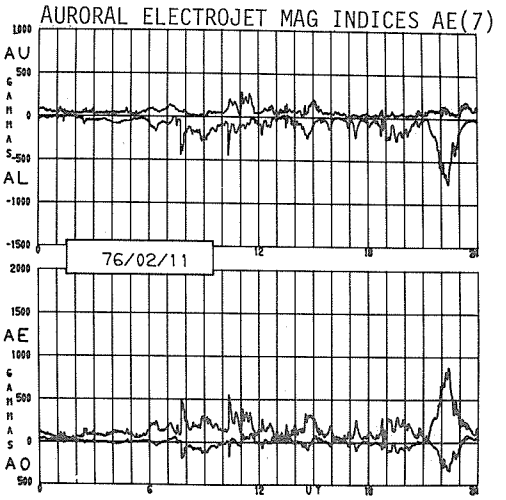
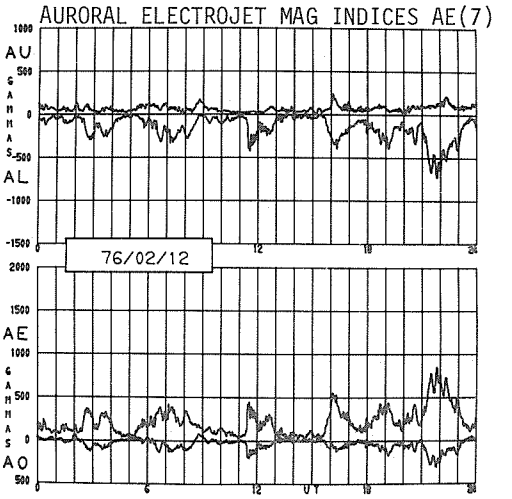
AU
AL
76/02/10
AE
AO
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/11
AE
AO
UT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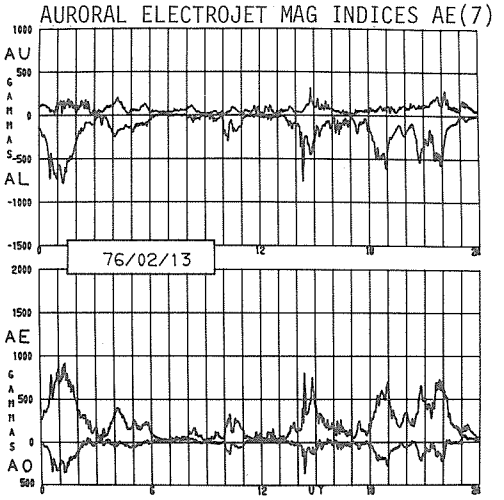
AU
AL
76/02/12
AE
AO
UT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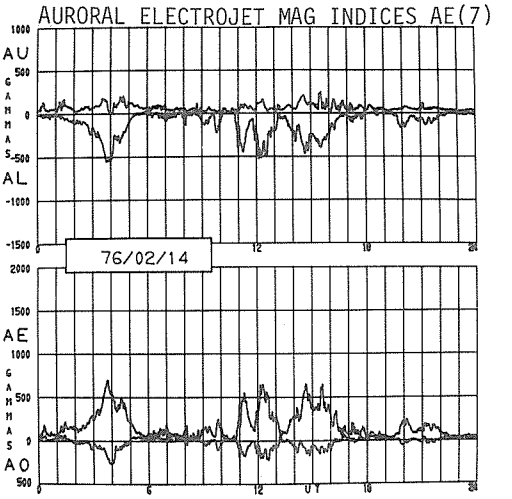
AU
AL
76/02/13
AE
AO
GAMMAS
UT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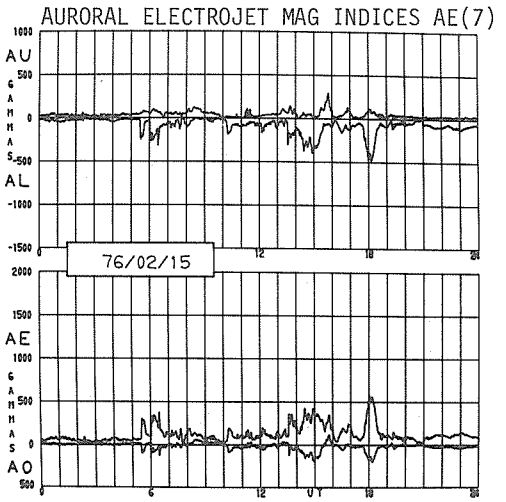
AL
76/02/14
AE
AO
GAMMAS
UT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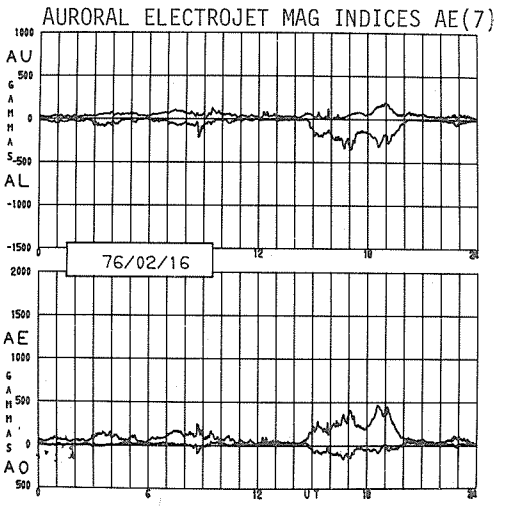
AU
AL
76/02/15
AE
AO
GAMMAS
UT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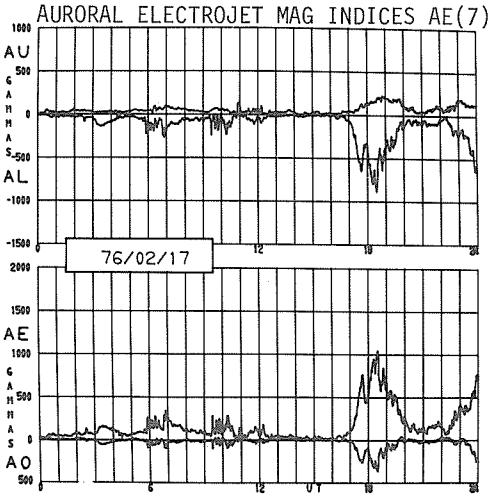
AL
76/02/16
AE
AO
GAMMAS
UT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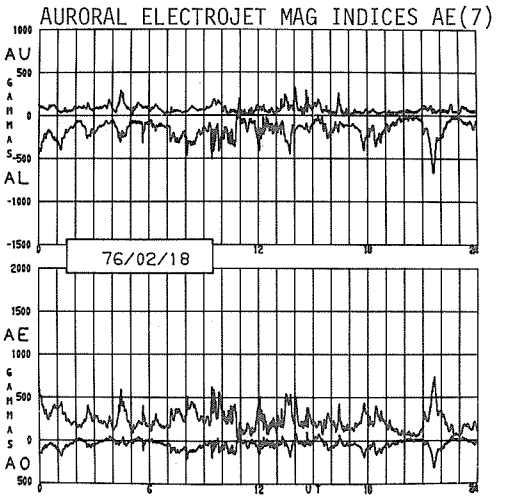
AU
AL
76/02/17
AE
AO
GAMMAS
UT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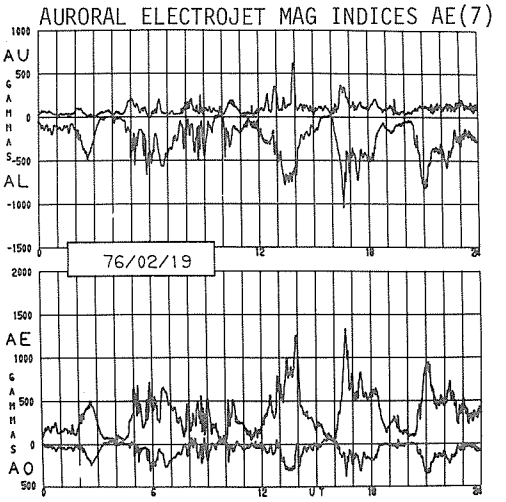
AU
AL
76/02/18
AE
AO
GAMMAS
UT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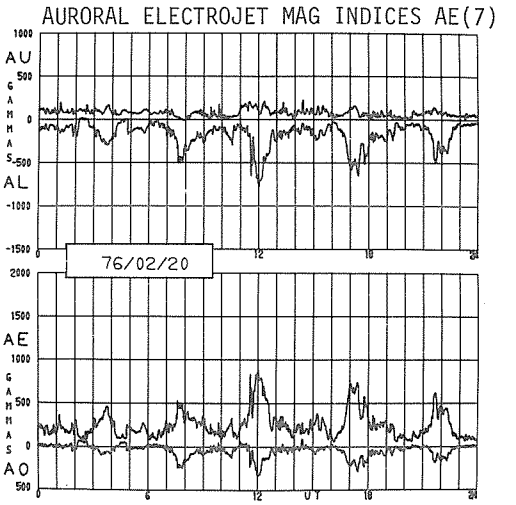
AU
AL
GAMMAS
76/02/19
AE
AO
UT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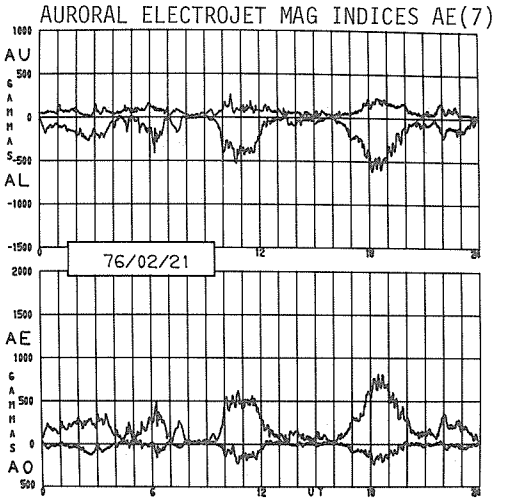
AU
AL
GAMMAS
76/02/20
AE
AO
UT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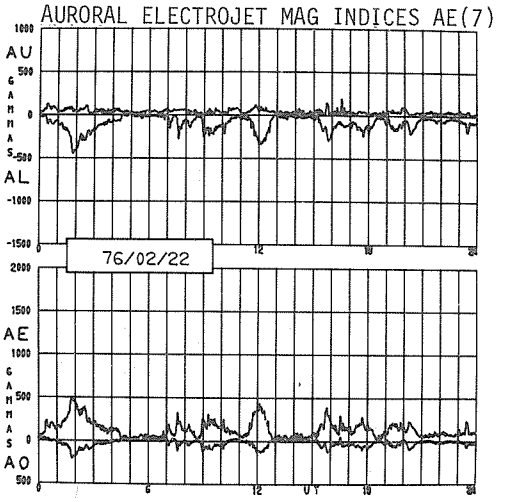
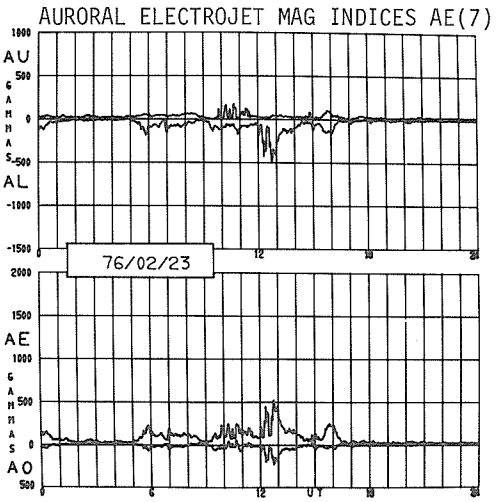
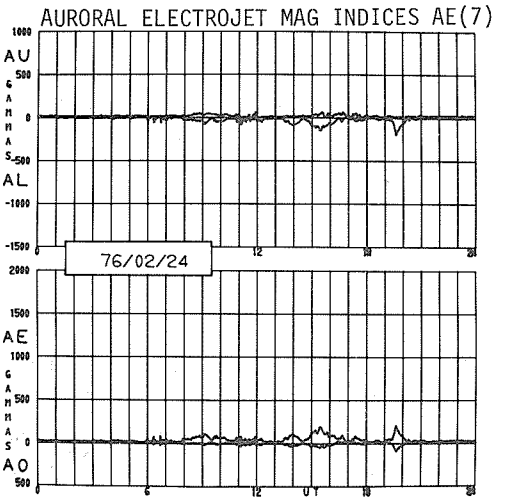
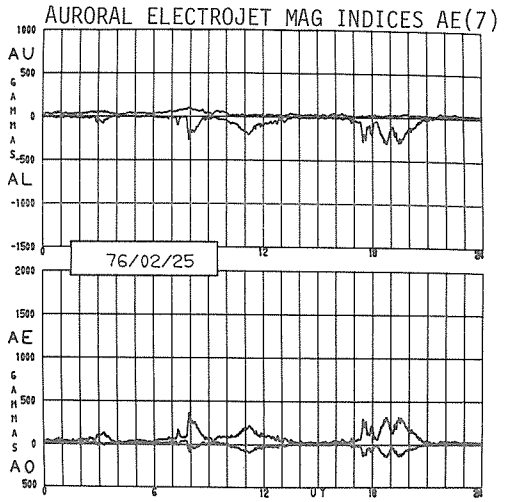
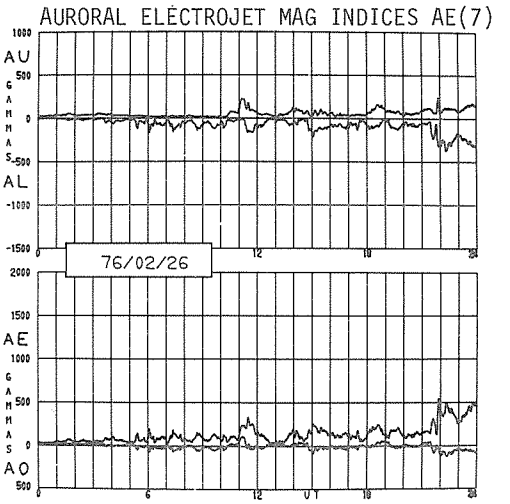
AU
AL
GAMMAS
76/02/21
AE
AO
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
GAMMAS
76/02/22
AE
AO
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
GAMMAS
76/02/23
AE
AO
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
GAMMAS
76/02/24
AE
AO
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/25
AE
AO
GAMMAS
UT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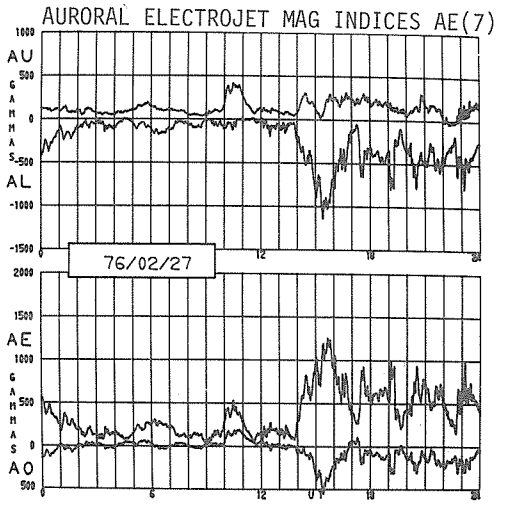
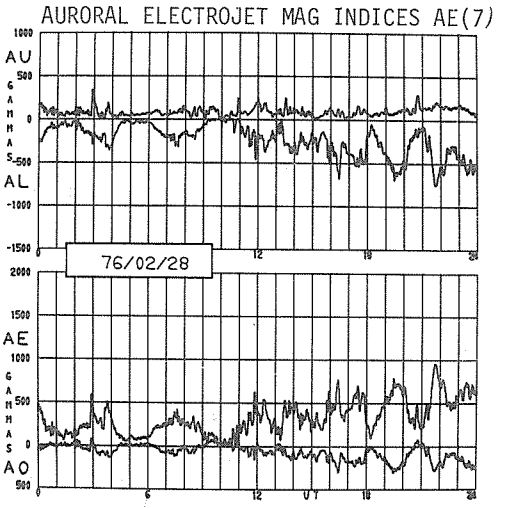
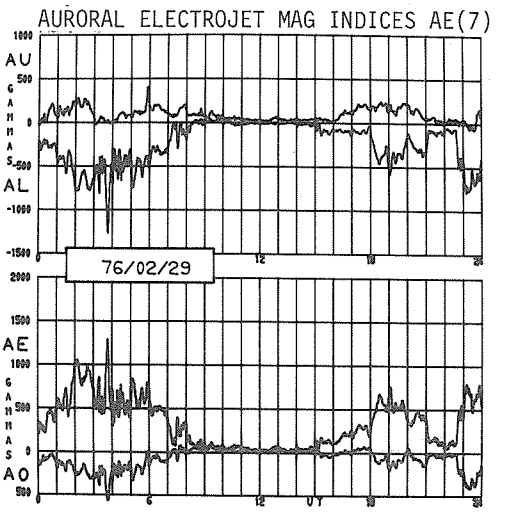
AU
AL
76/02/26
AE
AO
GAMMAS
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/27
AE
AO
GAMMAS
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/28
AE
AO
GAMMAS
UT


AURORAL ELECTROJET MAG INDICES AE(7)
AU
AL
76/02/29
AE
AO
GAMMAS
UT

3. Tables of AE, AO, AU, and AL Indices

Table 1. AE Indices

FEBRUARY 1976

VALUES ARE EXPRESSED IN GAMMAS

UT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
01	259	244	262	402	194	085	083	126	068	293	397	165	197	354	326	096	071	500	580	209	292	491	379	328	267
02	248	392	316	241	171	076	138	224	209	323	160	204	301	273	124	119	569	863	504	195	098	114	200	280	264
03	188	193	228	140	120	145	191	270	198	123	148	212	068	110	310	135	070	140	409	413	340	243	146	120	194
04	369	354	135	056	060	057	096	113	133	132	136	037	175	393	298	359	167	143	125	317	360	338	294	110	198
05	028	044	037	044	057	105	096	098	088	055	127	149	142	153	203	251	173	101	041	127	140	352	223	454	137
06	316	114	096	173	176	120	092	081	090	078	094	065	066	166	271	198	073	130	130	052	051	218	225	141	134
07	086	106	093	085	089	138	068	076	128	113	625	809	773	822	736	534	579	490	466	241	231	390	270	088	335
D 08	180	340	205	090	099	103	232	197	257	453	591	349	567	348	394	655	840	714	452	289	579	388	230	286	368
09	495	530	300	156	313	189	229	114	114	112	174	497	177	245	471	353	262	149	104	215	680	520	318	562	303
D 10	257	231	189	255	272	416	134	176	240	181	310	478	447	326	256	121	099	550	986	652	322	187	319	227	318
11	079	049	084	083	111	078	175	207	202	205	239	222	151	089	211	142	070	100	095	226	136	245	578	173	165
12	129	115	214	231	089	129	268	280	221	118	089	216	206	075	070	118	382	163	281	256	263	581	527	208	218
13	514	683	235	136	268	194	047	052	085	060	211	068	067	109	402	248	140	131	461	301	363	518	281	119	237
14	079	136	179	457	385	102	086	067	063	132	072	292	426	160	412	411	165	101	057	076	135	142	047	038	176
Q 15	056	061	039	047	054	119	206	106	119	060	098	100	115	183	281	278	141	159	274	092	060	099	110	110	124
Q 16	054	053	056	118	078	058	079	142	142	096	067	042	050	037	066	199	264	263	344	248	066	041	060	053	112
17	038	050	073	127	071	098	195	173	102	118	123	083	062	044	025	026	046	404	768	428	148	156	190	464	167
18	368	277	237	221	292	194	186	280	339	349	257	153	215	316	253	207	188	229	257	129	080	383	154	149	238
D 19	168	155	372	094	142	412	482	301	312	179	293	140	409	823	395	140	635	609	394	204	316	614	486	354	351
20	189	200	148	326	161	197	137	317	311	190	177	443	522	229	209	237	234	552	254	155	114	334	270	098	250
21	154	213	243	236	109	173	257	127	033	117	490	457	161	097	074	068	111	388	692	420	153	148	228	118	219
22	128	284	305	146	073	044	050	142	100	200	121	151	226	043	054	182	160	166	094	162	137	074	082	114	135
Q 23	095	044	037	028	031	111	112	123	083	093	151	126	281	192	084	144	078	036	029	023	030	022	021	021	083
Q 24	020	018	018	020	023	019	028	027	064	076	047	037	030	049	060	136	065	046	023	087	034	023	026	025	042
Q 25	040	037	059	074	029	036	055	120	161	073	115	153	082	045	026	028	040	136	187	228	096	024	029	021	079
26	027	050	047	062	062	065	093	096	090	093	090	224	087	085	123	189	129	100	187	158	127	232	380	389	133
D 27	387	258	157	132	112	224	259	150	115	132	392	150	174	150	630	1029	690	534	605	495	613	593	384	585	373
28	247	122	233	333	126	090	195	291	239	101	078	292	350	321	352	305	458	517	289	639	386	587	566	643	323
D 29	386	607	893	673	514	658	491	267	124	067	064	043	068	039	052	120	181	268	522	552	412	199	284	667	340
MEAN	193	206	189	179	148	153	164	164	153	149	205	219	227	216	247	242	244	299	331	262	233	285	252	239	217
5Q MEAN	053	043	042	057	043	069	096	104	114	080	096	092	112	101	103	157	118	128	171	136	057	042	049	046	087
5D MEAN	276	318	363	249	228	363	320	218	210	202	330	232	333	337	345	413	489	535	592	438	448	396	341	424	349

Table 2. AO Indices

FEBRUARY 1976 VALUES ARE EXPRESSED IN GAMMAS

UT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
01	011	-048	-078	-071	016	024	026	018	000	-069	-133	-015	-025	-078	-053	018	009	-165	-153	-030	-046	-159	-114	-053	-049
02	-039	-102	-064	-078	-020	013	020	-040	-084	-030	-023	-038	-045	-034	036	019	-202	-297	-159	-026	016	-001	-036	-065	-053
03	-013	-044	024	033	013	010	-028	-038	-024	-024	-010	-028	007	-014	-076	-002	013	-037	-160	-131	-058	-012	008	008	-024
04	-092	-074	040	034	027	017	005	010	-021	-023	-020	006	-017	-044	-020	-087	009	-008	-013	-027	-055	-027	-015	026	-015
05	016	015	013	010	014	-009	001	014	018	012	-043	-050	-014	-023	-031	009	000	002	019	-024	017	-090	-034	-126	-012
06	-077	005	012	-032	-008	039	031	034	021	-018	-006	-009	-008	-039	-021	007	017	-036	-038	-001	000	-055	-041	018	-009
07	017	031	022	025	012	-004	020	022	027	015	-202	-218	-266	-208	-137	-061	-009	073	009	045	008	-047	-059	024	-036
D 08	-007	-101	-001	035	020	022	-010	-055	-034	005	-044	-044	-131	-006	-067	-143	-239	-198	-063	-033	-183	-037	-018	-060	-058
09	-156	-192	-047	020	-017	011	-012	021	005	011	004	-072	-028	-008	-155	-098	-055	-005	-005	-026	-254	-143	-044	-158	-058
D 10	000	009	-045	-037	-043	-078	005	-030	-052	-013	-089	-137	-132	-099	-030	006	-013	-214	-369	-191	-041	-013	-056	-038	-071
11	027	022	005	-001	-007	008	-009	-012	-074	-056	-008	043	004	029	-021	019	011	-017	-013	-072	-023	-043	-209	040	-015
12	010	-002	-036	-063	-004	017	-037	-082	-019	003	-011	-078	-051	012	012	-006	-064	-016	-055	-072	-051	-182	-127	-002	-038
13	-164	-217	-024	001	-029	-015	018	027	017	001	-057	019	019	004	-100	-018	-025	-021	-154	-065	-076	-104	-017	044	-039
14	022	020	-031	-122	-082	036	027	014	011	-032	000	-078	-127	-018	-085	-094	-002	012	027	000	-011	-010	016	012	-021
Q 15	004	000	006	003	006	-003	-041	-004	031	018	-034	-015	-015	-011	-101	-027	-016	-043	-075	-006	001	-021	-025	-022	-016
Q 16	000	001	004	-003	015	015	020	016	-015	018	012	012	017	011	010	-067	-105	-063	-044	-024	031	020	008	012	-004
17	007	004	005	-036	-004	-004	-034	-013	-006	-011	-015	-001	000	014	002	012	004	-125	-209	-039	-003	-004	001	-084	-022
18	-081	-077	-024	-002	-020	000	-019	-093	-098	-049	-065	-032	-046	-044	-013	-009	-032	-073	-085	-025	009	-115	-014	-004	-042
D 19	-029	-040	-131	000	006	-099	-174	-098	-046	-010	-034	-024	-051	-207	-069	019	-121	-179	-067	-016	-080	-195	-123	-047	-076
20	004	-006	028	-055	001	-013	010	-118	-087	-036	-046	-061	-148	-029	-004	-026	-054	-183	-072	-035	-006	-068	-073	002	-045
21	-021	-025	-084	-045	012	006	-036	-006	012	-004	-123	-126	006	010	005	010	-012	-089	-161	-055	-003	003	-025	-022	-032
22	007	-084	-102	-032	006	010	015	-014	-018	-065	-005	-023	-059	009	007	-042	-032	-048	-021	-030	-029	001	-001	-024	-024
Q 23	-018	002	006	005	009	-015	-012	-015	011	-024	-010	-006	-110	-057	-007	-023	-005	008	009	007	008	011	013	013	-008
Q 24	010	008	007	006	007	007	003	008	003	001	002	-004	-002	-008	-011	-030	005	005	007	-024	006	013	014	012	002
Q 25	015	012	013	008	018	018	019	015	-011	014	-036	-055	-018	004	008	010	005	-049	-070	-081	-021	013	018	014	-006
26	018	020	016	015	003	-004	-023	-025	-020	-026	005	025	001	009	015	-030	-018	-006	021	002	-001	-003	-077	-057	-006
D 27	-080	-029	015	-004	029	041	-010	021	-005	026	152	067	020	-002	-106	-363	-100	-028	-102	-113	-156	-143	-179	-146	-050
28	-017	002	-014	-080	-017	012	-024	-059	-033	036	020	-039	-057	-059	-092	-095	-157	-169	-070	-224	-049	-132	-126	-195	-068
D 29	-066	-155	-246	-314	-187	-181	-085	-010	032	047	019	012	002	016	010	-018	002	047	-062	-093	-053	-013	-036	-303	-068
MEAN	-024	-036	-025	-027	-008	-004	-012	-017	-016	-010	-028	-033	-044	-030	-038	-038	-041	-066	-073	-049	-038	-054	-047	-041	-033
5Q MEAN	002	005	007	004	011	004	-002	004	004	005	-013	-014	-026	-012	-020	-027	-023	-028	-035	-026	005	007	006	006	-006
5D MEAN	-036	-063	-082	-064	-035	-059	-055	-034	-021	011	001	-025	-058	-060	-052	-100	-094	-114	-133	-089	-103	-080	-082	-119	-064

Table 3. AU Indices

FEBRUARY 1976 VALUES ARE EXPRESSED IN GAMMAS

	UT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
	01	141	073	052	129	113	067	068	081	035	076	064	067	072	098	109	067	045	084	136	074	099	086	074	110	084
	02	084	093	093	041	065	051	089	071	020	131	056	063	104	101	098	079	082	133	092	071	065	056	063	074	078
	03	080	052	139	103	073	082	067	096	074	036	064	077	041	041	079	065	048	032	043	074	111	108	081	068	072
	04	091	102	108	063	057	046	053	067	045	042	047	025	070	152	128	091	092	063	048	130	124	141	131	082	083
	05	030	037	032	033	043	042	050	063	062	040	019	024	056	053	070	134	087	052	040	038	087	086	076	100	056
	06	080	062	060	054	079	100	078	075	066	020	040	023	024	043	113	106	054	029	026	025	026	053	071	089	058
	07	060	084	069	068	057	064	055	061	091	071	109	186	120	202	230	205	280	319	243	166	124	147	075	068	131
D	08	082	068	101	080	070	074	105	042	093	232	251	130	152	167	130	183	180	158	162	111	106	156	097	081	125
	09	090	072	102	099	139	106	102	078	063	068	091	176	060	114	080	077	075	069	046	081	086	116	114	122	093
D	10	129	124	049	089	092	129	072	057	067	077	065	101	090	063	097	067	036	060	123	134	119	080	103	074	087
	11	067	047	047	039	048	048	078	091	026	045	110	154	080	074	083	091	047	032	034	040	044	078	079	127	067
	12	075	055	070	051	040	082	096	057	091	062	032	029	051	050	047	052	126	065	085	055	079	108	136	101	071
	13	092	123	092	069	104	081	041	053	060	031	047	053	053	059	100	105	044	044	076	084	104	154	123	104	079
	14	061	088	057	106	110	087	070	048	043	034	036	067	086	061	121	110	080	063	056	038	056	060	040	031	067
Q	15	033	030	026	027	033	056	062	048	091	049	014	034	041	080	038	111	053	036	061	040	031	027	029	032	045
Q	16	027	028	033	056	055	045	060	088	055	067	045	034	042	030	043	032	025	067	128	099	065	041	039	039	052
	17	026	030	042	026	031	044	063	072	045	047	045	040	030	037	015	025	027	076	174	175	070	073	097	147	061
	18	102	061	094	108	126	097	073	046	071	125	062	044	060	113	112	093	062	040	043	039	050	075	063	069	076
D	19	054	036	054	048	077	106	066	051	109	079	112	045	152	204	127	089	196	125	129	085	077	111	119	129	099
	20	099	094	103	107	082	085	079	040	068	058	042	159	112	084	100	092	063	092	054	042	050	098	061	052	080
	21	055	081	036	072	067	093	092	056	028	054	121	101	087	059	042	044	043	104	184	154	073	077	088	036	077
	22	072	058	050	040	042	032	041	056	031	033	055	052	053	031	035	048	047	034	025	050	039	038	039	033	043
Q	23	028	025	026	020	025	039	043	045	052	021	064	056	030	038	034	048	033	026	024	020	023	023	024	024	033
Q	24	020	017	016	017	019	017	017	022	036	039	027	014	012	015	018	037	038	028	019	019	023	025	027	025	023
Q	25	035	031	043	046	033	036	047	075	069	051	021	020	022	027	022	024	025	018	022	032	027	025	033	025	034
	26	031	045	040	046	035	028	022	023	024	020	050	138	045	052	077	063	045	043	115	081	062	112	112	137	060
D	27	113	099	094	061	085	154	119	097	052	092	348	142	107	072	208	150	244	238	199	134	150	153	012	146	136
	28	106	063	102	086	046	058	072	086	086	087	059	106	117	101	083	056	071	088	074	095	143	161	155	125	093
D	29	126	148	200	022	069	147	160	123	095	081	051	034	036	036	036	040	092	181	198	182	152	085	105	029	101
	MEAN	072	066	070	062	066	072	070	064	060	064	074	076	069	078	085	082	081	083	092	082	078	088	078	079	075
5Q	MEAN	029	026	029	033	033	039	046	056	061	045	034	032	029	038	031	050	035	035	051	042	034	028	030	029	037
5D	MEAN	101	095	100	060	079	122	104	074	083	112	165	090	107	108	120	106	150	152	162	129	121	117	087	092	109

Table 4. AL Indices

FEBRUARY 1976

VALUES ARE EXPRESSED IN GAMMAS

UT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	MEAN
01	-118	-171	-210	-272	-080	-018	-014	-044	-033	-216	-332	-098	-125	-256	-217	-029	-026	-415	-444	-134	-193	-405	-304	-217	-182
02	-163	-298	-222	-199	-106	-024	-048	-153	-189	-192	-104	-141	-196	-171	-025	-040	-487	-730	-411	-124	-032	-058	-137	-206	-186
03	-107	-141	-039	-036	-046	-062	-124	-174	-124	-086	-084	-135	-026	-069	-231	-070	-021	-107	-365	-338	-228	-134	-065	-051	-121
04	-278	-251	-027	006	-002	-011	-042	-046	-088	-090	-089	-012	-104	-241	-169	-267	-074	-080	-076	-186	-235	-197	-162	-028	-115
05	002	-006	-005	-011	-014	-062	-046	-034	-025	-015	-107	-125	-085	-100	-132	-116	-086	-048	-001	-088	-053	-266	-146	-353	-080
06	-235	-051	-035	-119	-097	-020	-014	-005	-023	-058	-053	-042	-041	-122	-157	-092	-018	-101	-103	-027	-024	-164	-154	-052	-075
07	-025	-022	-023	-016	-032	-073	-013	-015	-036	-041	-515	-623	-653	-619	-505	-328	-299	-171	-223	-074	-107	-243	-194	-019	-203
D 08	-097	-271	-103	-009	-029	-029	-126	-154	-163	-220	-340	-219	-415	-181	-264	-472	-659	-556	-289	-178	-472	-231	-133	-204	-242
09	-405	-458	-197	-057	-174	-083	-127	-035	-051	-044	-082	-321	-117	-130	-391	-275	-186	-080	-057	-134	-594	-404	-203	-440	-210
D 10	-128	-106	-140	-165	-180	-286	-062	-119	-172	-104	-245	-376	-356	-263	-159	-053	-063	-490	-862	-517	-202	-107	-216	-152	-230
11	-011	-002	-037	-043	-063	-030	-097	-116	-175	-159	-128	-067	-070	-015	-127	-051	-023	-067	-061	-186	-091	-166	-499	-046	-097
12	-054	-060	-144	-179	-049	-046	-171	-222	-129	-055	-056	-187	-154	-024	-022	-065	-256	-097	-196	-200	-183	-473	-391	-107	-147
13	-422	-559	-142	-066	-163	-113	-005	000	-025	-029	-163	-014	-013	-050	-302	-142	-095	-086	-385	-216	-258	-363	-157	-015	-158
14	-017	-047	-121	-350	-275	-014	-015	-018	-019	-098	-036	-224	-340	-098	-291	-300	-085	-037	-001	-038	-079	-081	-006	-006	-108
Q 15	-023	-031	-013	-020	-020	-063	-144	-057	-028	-011	-084	-065	-073	-103	-242	-166	-087	-123	-213	-052	-028	-072	-080	-077	-078
Q 16	-026	-025	-023	-062	-023	-012	-019	-054	-087	-029	-021	-008	-007	-007	-023	-167	-238	-195	-216	-148	-001	000	-021	-013	-059
17	-011	-020	-030	-100	-040	-053	-132	-100	-057	-071	-077	-043	-031	-006	-009	-001	-019	-328	-593	-253	-077	-082	-093	-316	-106
18	-266	-215	-142	-112	-166	-097	-113	-234	-268	-224	-194	-108	-154	-203	-140	-113	-126	-188	-214	-090	-030	-307	-091	-079	-161
D 19	-114	-118	-317	-046	-065	-305	-416	-249	-203	-099	-181	-095	-256	-619	-267	-050	-439	-484	-264	-118	-238	-503	-366	-225	-252
20	-090	-106	-045	-219	-079	-111	-058	-277	-243	-132	-135	-283	-410	-144	-109	-145	-171	-460	-199	-112	-063	-236	-209	-046	-170
21	-099	-132	-206	-164	-041	-080	-164	-070	-004	-063	-368	-355	-074	-038	-031	-023	-068	-283	-507	-265	-080	-070	-140	-081	-142
22	-056	-226	-254	-106	-030	-011	-009	-086	-069	-166	-065	-099	-173	-012	-019	-133	-112	-131	-069	-111	-098	-036	-042	-081	-091
Q 23	-066	-019	-011	-008	-006	-071	-068	-078	-030	-071	-086	-069	-251	-153	-049	-095	-044	-009	-004	-003	-007	000	003	003	-050
Q 24	000	000	-001	-003	-003	-001	-010	-004	-028	-037	-020	-022	-018	-033	-041	-098	-027	-017	-003	-068	-010	002	001	000	-018
Q 25	-004	-006	-016	-028	003	000	-007	-045	-092	-022	-094	-132	-059	-017	-004	-003	-014	-117	-164	-195	-069	000	003	004	-045
26	004	-004	-007	-015	-027	-036	-070	-073	-065	-072	-039	-086	-042	-033	-046	-125	-083	-056	-072	-076	-065	-119	-268	-252	-072
D 27	-273	-158	-062	-070	-026	-070	-140	-053	-063	-039	-043	-007	-066	-077	-422	-878	-446	-295	-405	-361	-463	-440	-372	-439	-236
28	-141	-059	-131	-247	-080	-032	-122	-205	-153	-014	-018	-186	-232	-219	-269	-249	-386	-428	-215	-544	-242	-426	-410	-517	-230
D 29	-260	-459	-692	-651	-444	-510	-330	-144	-029	014	-012	-009	-031	-002	-015	-079	-088	-086	-323	-370	-260	-113	-178	-637	-238
MEAN	-120	-139	-119	-116	-081	-080	-093	-099	-092	-084	-130	-143	-158	-138	-161	-159	-163	-216	-239	-180	-155	-196	-173	-160	-141
5Q MEAN	-024	-016	-013	-024	-010	-029	-050	-048	-053	-034	-061	-059	-082	-063	-072	-106	-082	-092	-120	-093	-023	-014	-019	-017	-050
5D MEAN	-174	-222	-263	-188	-149	-240	-215	-144	-126	-090	-164	-141	-225	-228	-225	-306	-339	-382	-429	-309	-327	-279	-253	-331	-239

4. Tables of Observatories Supplying Hourly AU and AL

Table 5. Observatories Supplying Hourly AU Based on Mean Values.

FEBRUARY 1976 AU = MAXIMUM DELTA H

UT	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	FC	BW	BW	BW	FC	BW	BW	BW	TI	DI	DI	TI	DI	DI	DI	DI	NAS	NAS	LR	FC	NAS	FC	FC	BW
2	BW	BW	BW	BW	BW	BW	BW	BW	TI	BW	BW	DI	DI	DI	DI	BW	AI	NAS	LR	LR	BW	BW	FC	FC
3	NAS	FC	FC	FC	BW	BW	BW	DI	TI	TI	DI	DI	NAS	TI	DI	DI	DI	AI	NAS	LR	NAS	LR	NAS	FC
4	FC	BW	FC	FC	BW	BW	BW	BW	BW	NAS	BW	DI	DI	DI	DI	AI	AI	NAS	AI	LR	NAS	NAS	NAS	NAS
5	BW	BW	BW	BW	BW	BW	BW	BW	BW	BW	TI	DI	TI	DI	AI	DI	AI	LR	NAS	LR	NAS	NAS	FC	FC
6	BW	FC	BW	BW	BW	FC	BW	BW	BW	DI	BW	TI	DI	DI	DI	DI	DI	NAS	NAS	FC	NAS	NAS	NAS	NAS
7	NAS	NAS	FC	FC	BW	BW	BW	BW	BW	BW	TI	TI	AI	AI	AI	AI	LR	LR	LR	NAS	NAS	FC	FC	LR
D 8	FC	FC	FC	FC	BW	BW	BW	TI	TI	TI	DI	AI	AI	TI	AI	LR	LR	NAS	LR	BW	FC	BW	BW	FC
9	BW	BW	BW	BW	BW	BW	BW	BW	BW	BW	TI	DI	TI	DI	AI	AI	FC	FC	AI	NAS	FC	FC	FC	FC
D10	NAS	BW	FC	BW	BW	BW	BW	TI	DI	BW	DI	DI	AI	AI	NAS	FC	FC	LR	NAS	FC	LR	NAS	LR	BW
11	NAS	FC	BW	BW	BW	BW	BW	BW	TI	TI	DI	BW	DI	DI	FC	FC	DI	LR	AI	NAS	NAS	FC	FC	NAS
12	FC	BW	BW	BW	BW	BW	BW	BW	BW	BW	BW	TI	DI	FC	DI	LR	AI	FC	NAS	NAS	FC	FC	FC	NAS
13	FC	BW	BW	BW	BW	BW	BW	BW	BW	TI	DI	BW	BW	DI	AI	DI	DI	AI	NAS	NAS	NAS	FC	NAS	NAS
14	NAS	BW	BW	BW	BW	FC	BW	BW	TI	DI	NAS	DI	DI	AI	AI	NAS	DI	FC	BW	NAS	LR	LR	BW	BW
Q15	FC	FC	BW	BW	BW	BW	BW	BW	BW	BW	DI	DI	DI	DI	TI	DI	AI	AI	NAS	BW	BW	FC	FC	FC
Q16	BW	BW	BW	FC	FC	BW	BW	BW	BW	BW	BW	TI	BW	BW	DI	DI	AI	AI	LR	NAS	BW	BW	FC	NAS
17	FC	FC	FC	BW	BW	BW	BW	BW	BW	TI	DI	TI	TI	FC	BW	BW	NAS	NAS	LR	NAS	NAS	NAS	FC	FC
18	FC	BW	BW	BW	BW	BW	BW	TI	TI	DI	TI	DI	DI	AI	DI	DI	DI	NAS	NAS	NAS	NAS	FC	FC	FC
D19	FC	FC	BW	BW	BW	BW	DI	TI	DI	FC	DI	AI	DI	DI	LR	TI	LR	NAS	LR	NAS	FC	FC	FC	FC
20	BW	FC	BW	BW	FC	BW	BW	TI	DI	DI	DI	DI	DI	DI	AI	DI	LR	LR	FC	LR	FC	FC	FC	FC
21	FC	FC	BW	BW	BW	BW	BW	BW	BW	DI	DI	DI	DI	DI	DI	FC	NAS	LR	LR	LR	LR	FC	NAS	BW
22	FC	FC	BW	BW	FC	BW	BW	BW	TI	DI	BW	DI	DI	DI	DI	LR	LR	NAS	LR	NAS	FC	FC	BW	FC
Q23	BW	BW	BW	FC	FC	BW	BW	BW	BW	TI	BW	BW	DI	DI	DI	DI	DI	BW	BW	BW	BW	BW	BW	BW
Q24	BW	BW	BW	BW	BW	BW	BW	BW	BW	BW	BW	TI	TI	TI	DI	DI	DI	DI	NAS	BW	BW	BW	BW	FC
Q25	NAS	FC	FC	FC	FC	FC	BW	BW	BW	BW	TI	DI	DI	FC	FC	DI	LR	AI	NAS	LR	NAS	FC	DI	DI
26	FC	FC	FC	FC	FC	TI	TI	TI	TI	TI	DI	DI	DI	DI	TI	DI	AI	AI	LR	NAS	FC	LR	FC	FC
D27	FC	FC	BW	BW	BW	BW	BW	BW	TI	TI	TI	TI	TI	DI	AI	LR	AI	LR	LR	NAS	FC	FC	FC	BW
28	FC	FC	BW	BW	FC	BW	TI	DI	BW	BW	DI	DI	DI	AI	LR	AI	LR	LR	LR	FC	LR	FC	FC	FC
D29	FC	BW	BW	TI	TI	TI	TI	TI	TI	LR	LR	TI	TI	DI	DI	TI	AI	LR	LR	LR	LR	FC	FC	BW

IDENTIFICATION	GEOGRAPHIC LAT	GEOGRAPHIC LONG	GEOMAGNETIC LAT	GEOMAGNETIC LONG
* AI = ABISKO	68 21.5	18 49.4	66.0	114.9
* BW = BARROW	71 18.2	-156 44.9	68.5	241.1
CC = C.CHELYUSKIN	77 43.0	104 17.0	66.2	176.4
CO = COLLEGE	64 51.6	-147 50.2	64.6	256.5
GWR= GREAT WHALE R.	55 16.0	-77 47.0	66.5	347.4
* DI = DIXON ISLAND	73 32.6	80 33.7	63.0	161.5

IDENTIFICATION	GEOGRAPHIC LAT	GEOGRAPHIC LONG	GEOMAGNETIC LAT	GEOMAGNETIC LONG
* FC = FT.CHURCHILL	58 48.0	-94 06.0	68.7	322.8
* LR = LEIRVOGUR	64 11.0	-21 42.0	70.2	71.0
* NAS= NARSSARSSUAQ	61 06.0	-45 12.0	71.0	37.0
* TI = TIXIE BAY	71 35.0	129 00.0	60.4	191.4
UE = CAPE WELLEN	66 09.8	-169 50.1	61.7	237.0

* The seven observatories supplying data for this report.
(Data not available at this time from remaining stations)

Table 6. Observatories Supplying Hourly AL Based on Mean Values.

FEBRUARY 1976 AL = MINIMUM DELTA H

UT	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	AI	AI	LR	LR	NAS	NAS	FC	NAS	FC	BW	BW	FC	BW	BW	BW	BW	TI	TI	DI	TI	AI	AI	AI	AI
2	LR	NAS	LR	LR	NAS	NAS	NAS	FC	FC	FC	FC	FC	BW	BW	BW	TI	TI	TI	BW	TI	AI	DI	AI	AI
3	AI	AI	NAS	LR	NAS	NAS	NAS	NAS	NAS	BW	FC	BW	FC	BW	BW	TI	BW	DI	DI	DI	DI	AI	DI	AI
4	LR	LR	LR	LR	LR	NAS	FC	FC	FC	FC	FC	BW	BW	BW	BW	BW	BW	BW	DI	TI	DI	DI	DI	AI
5	AI	AI	LR	NAS	NAS	FC	FC	NAS	FC	FC	BW	FC	FC	FC	TI	BW	BW	BW	TI	DI	AI	AI	DI	AI
6	LR	AI	LR	NAS	NAS	NAS	NAS	NAS	FC	FC	FC	FC	BW	BW	BW	BW	BW	DI	DI	DI	DI	DI	DI	AI
7	AI	AI	AI	LR	LR	NAS	NAS	NAS	FC	FC	BW	FC	FC	FC	FC	FC	FC	BW	BW	BW	AI	DI	DI	AI
D 8	AI	AI	AI	AI	LR	NAS	NAS	NAS	NAS	FC	FC	BW	BW	FC	TI	TI	BW	TI	TI	TI	AI	AI	AI	AI
9	AI	LR	LR	LR	LR	NAS	NAS	NAS	FC	FC	FC	BW	FC	FC	BW	BW	TI	TI	DI	TI	AI	AI	DI	AI
D10	DI	LR	LR	NAS	FC	NAS	NAS	NAS	FC	FC	FC	FC	FC	BW	TI	TI	BW	DI	TI	DI	TI	AI	AI	AI
11	AI	AI	NAS	NAS	NAS	NAS	NAS	FC	NAS	FC	BW	FC	BW	TI	TI	BW	BW	DI	DI	DI	DI	DI	DI	AI
12	AI	LR	NAS	NAS	NAS	FC	FC	FC	FC	FC	FC	BW	BW	BW	BW	TI	TI	BW	BW	DI	DI	DI	DI	DI
13	AI	LR	LR	NAS	NAS	NAS	TI	LR	FC	BW	BW	LR	NAS	FC	BW	BW	BW	DI	DI	TI	DI	DI	AI	AI
14	AI	AI	LR	LR	LR	NAS	NAS	DI	BW	BW	BW	BW	BW	BW	DI	BW	BW	BW	AI	DI	DI	DI	AI	AI
Q15	LR	LR	NAS	NAS	NAS	FC	FC	FC	FC	AI	BW	FC	BW	BW	BW	BW	BW	TI	DI	DI	DI	AI	AI	AI
Q16	LR	LR	LR	NAS	NAS	NAS	NAS	NAS	FC	FC	FC	LR	AI	NAS	LR	BW	BW	BW	TI	DI	LR	LR	AI	AI
17	LR	LR	NAS	NAS	NAS	NAS	FC	FC	FC	BW	BW	BW	BW	LR	LR	LR	BW	DI	BW	BW	AI	AI	AI	AI
18	AI	AI	NAS	LR	NAS	NAS	NAS	NAS	FC	BW	BW	BW	FC	BW	BW	BW	BW	TI	DI	DI	DI	DI	DI	AI
D19	AI	LR	LR	LR	NAS	FC	NAS	NAS	BW	BW	BW	FC	FC	BW	BW	BW	TI	TI	TI	TI	AI	AI	DI	AI
20	AI	LR	LR	NAS	NAS	NAS	NAS	FC	FC	FC	FC	BW	BW	FC	TI	BW	TI	DI	DI	DI	DI	DI	DI	AI
21	LR	LR	LR	LR	LR	FC	FC	FC	AI	FC	FC	FC	FC	BW	BW	TI	BW	TI	TI	BW	TI	AI	AI	DI
22	LR	LR	LR	NAS	NAS	NAS	NAS	FC	FC	FC	FC	BW	BW	NAS	BW	TI	TI	DI	DI	DI	DI	AI	DI	LR
Q23	LR	AI	NAS	NAS	NAS	FC	NAS	FC	FC	FC	FC	FC	BW	BW	BW	BW	BW	DI	DI	DI	DI	NAS	LR	NAS
Q24	AI	AI	LR	NAS	NAS	NAS	FC	AI	FC	FC	AI	LR	LR	BW	BW	BW	BW	BW	BW	DI	DI	DI	AI	AI
Q25	AI	LR	NAS	NAS	TI	NAS	NAS	FC	FC	FC	FC	FC	BW	BW	NAS	NAS	BW	DI	DI	DI	DI	AI	LR	NAS
26	LR	LR	LR	NAS	NAS	NAS	FC	FC	NAS	FC	FC	FC	FC	BW	BW	BW	BW	BW	BW	DI	DI	AI	DI	AI
D27	AI	AI	AI	NAS	NAS	LR	NAS	NAS	NAS	NAS	NAS	FC	FC	FC	TI	TI	BW	BW	TI	DI	AI	AI	AI	AI
28	LR	LR	LR	NAS	NAS	NAS	NAS	FC	FC	FC	NAS	BW	FC	BW	BW	BW	DI	BW	BW	DI	DI	DI	DI	AI
D29	AI	AI	LR	AI	LR	LR	LR	LR	FC	DI	BW	BW	FC	BW	BW	BW	BW	TI	TI	DI	TI	TI	AI	AI

IDENTIFICATION	GEOGRAPHIC LAT	GEOGRAPHIC LONG	GEOMAGNETIC LAT	GEOMAGNETIC LONG
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UE = CAPE WELLEN	66 09.8	-169 50.1	61.7	237.0

* The seven observatories supplying data for this report.
(Data not available at this time from remaining stations)

5. Statistical Information

Table 7. Station Frequency of AU and AL Contribution.

FEBRUARY 1976

STA	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AU- LR	30	1	7	14	3	7	29	25	60	94	61	15	47	86	146	269	357	469	509	397	306	183	181	81
AL- LR	604	981	904	642	427	210	113	87	42	42	35	119	123	112	117	60	35	33	41	0	64	70	93	222
AU- NAS	311	78	26	4	7	0	10	17	37	71	99	73	42	87	76	91	164	392	493	570	521	313	355	349
AL- NAS	66	156	575	885	1082	1161	1044	726	359	153	70	4	51	133	111	64	13	6	4	0	2	37	48	103
AU- FC	827	727	662	497	457	269	26	40	54	39	47	53	81	208	222	161	220	186	158	339	496	845	868	790
AL- FC	0	1	31	23	80	302	465	706	1087	1056	1012	895	641	475	196	134	93	9	12	4	0	0	0	0
AU- BW	487	820	935	1074	1150	1276	1443	1188	957	689	397	263	112	122	54	70	62	113	238	299	344	350	271	417
AL- BW	19	13	5	12	0	2	4	66	114	351	504	613	823	916	887	1019	965	535	337	155	57	2	1	14
AU- TI	6	17	23	47	66	117	143	255	405	448	521	600	429	229	139	131	16	9	4	0	0	0	0	1
AL- TI	11	13	32	15	23	17	31	1	1	7	2	0	20	57	310	339	447	593	565	478	347	75	67	36
AU- DI	79	97	87	103	55	67	88	203	219	395	601	685	889	796	713	782	539	132	31	11	2	31	61	102
AL- DI	61	19	8	13	40	27	64	75	30	49	12	19	3	6	87	85	180	548	752	1038	866	762	748	179
AU- AI	0	0	0	1	2	4	1	12	8	4	14	51	140	212	390	236	382	439	307	124	71	18	4	0
AL- AI	979	557	185	150	88	21	19	79	107	82	105	90	79	41	32	39	7	16	29	65	404	794	783	1186

Table 8. Monthly Quiet-Time H Reference Values.

Station	February 1976
LR	12336 gammas
NAS	11945
FC	7321
BW	9835
TI	7946
DI	6488
AI	11824

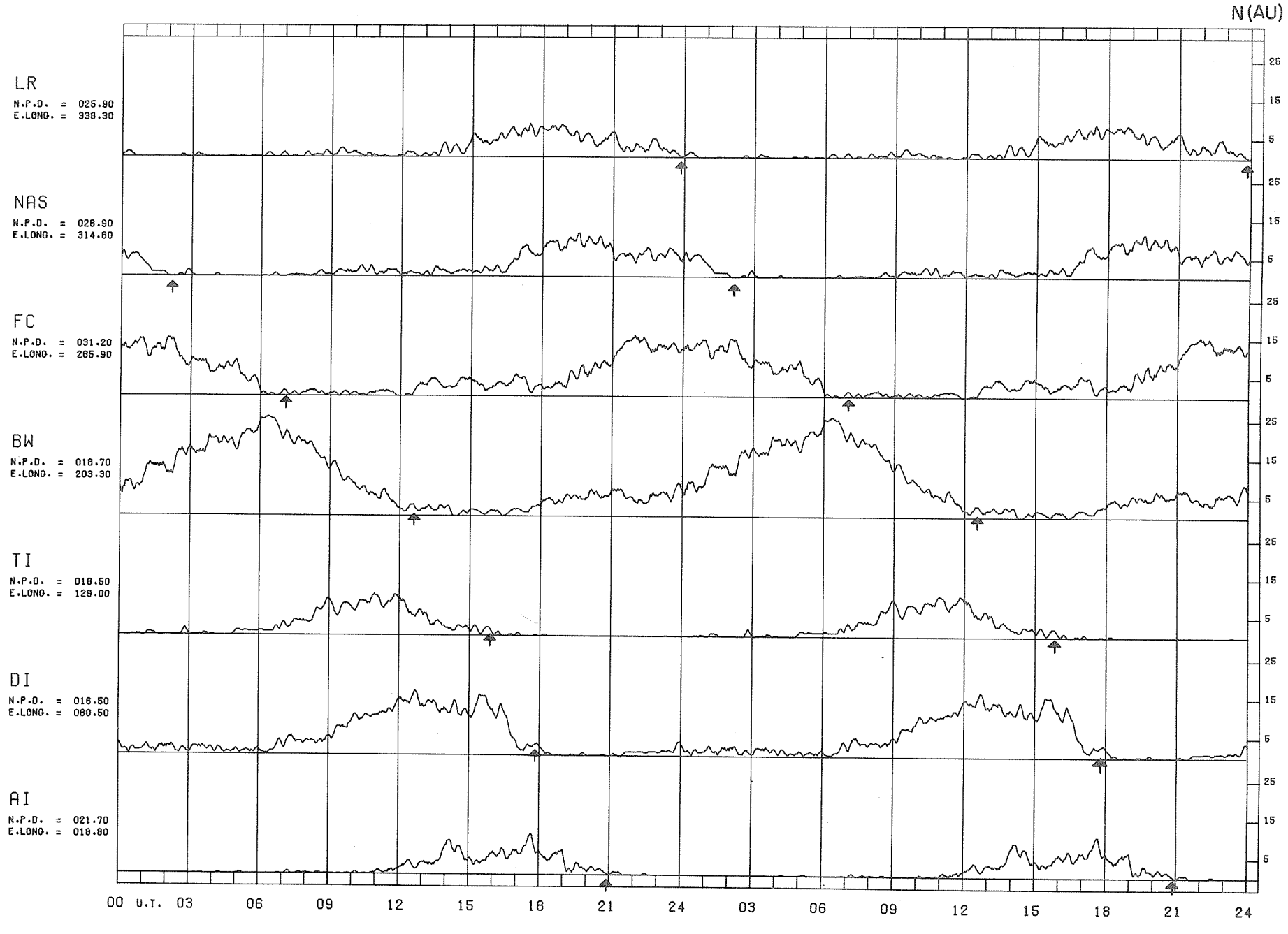

Fig. 2. Frequency of 1-min AU provision by station for February 1976.

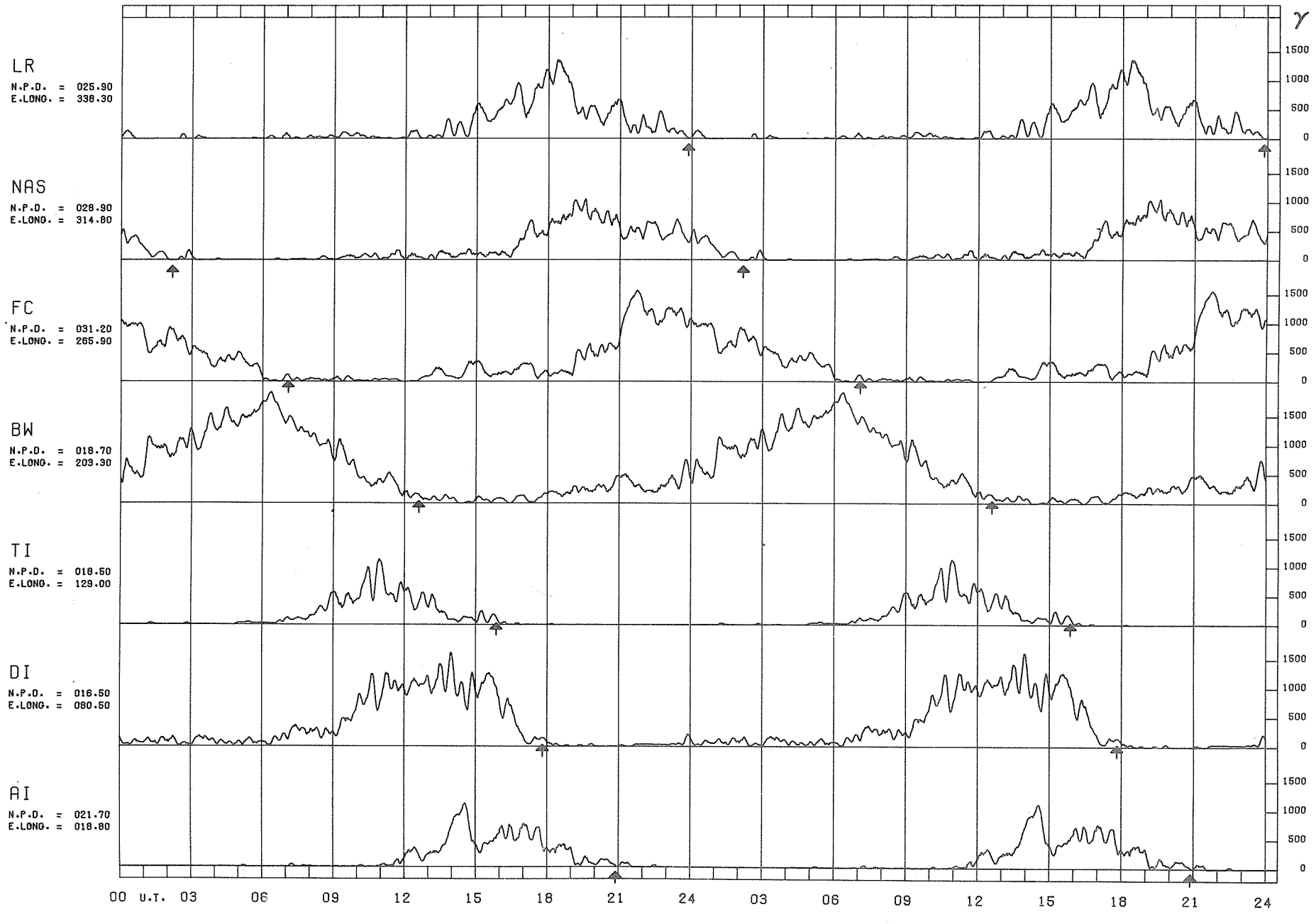

Fig. 3. Total amplitude of most positive H variations for February 1976.

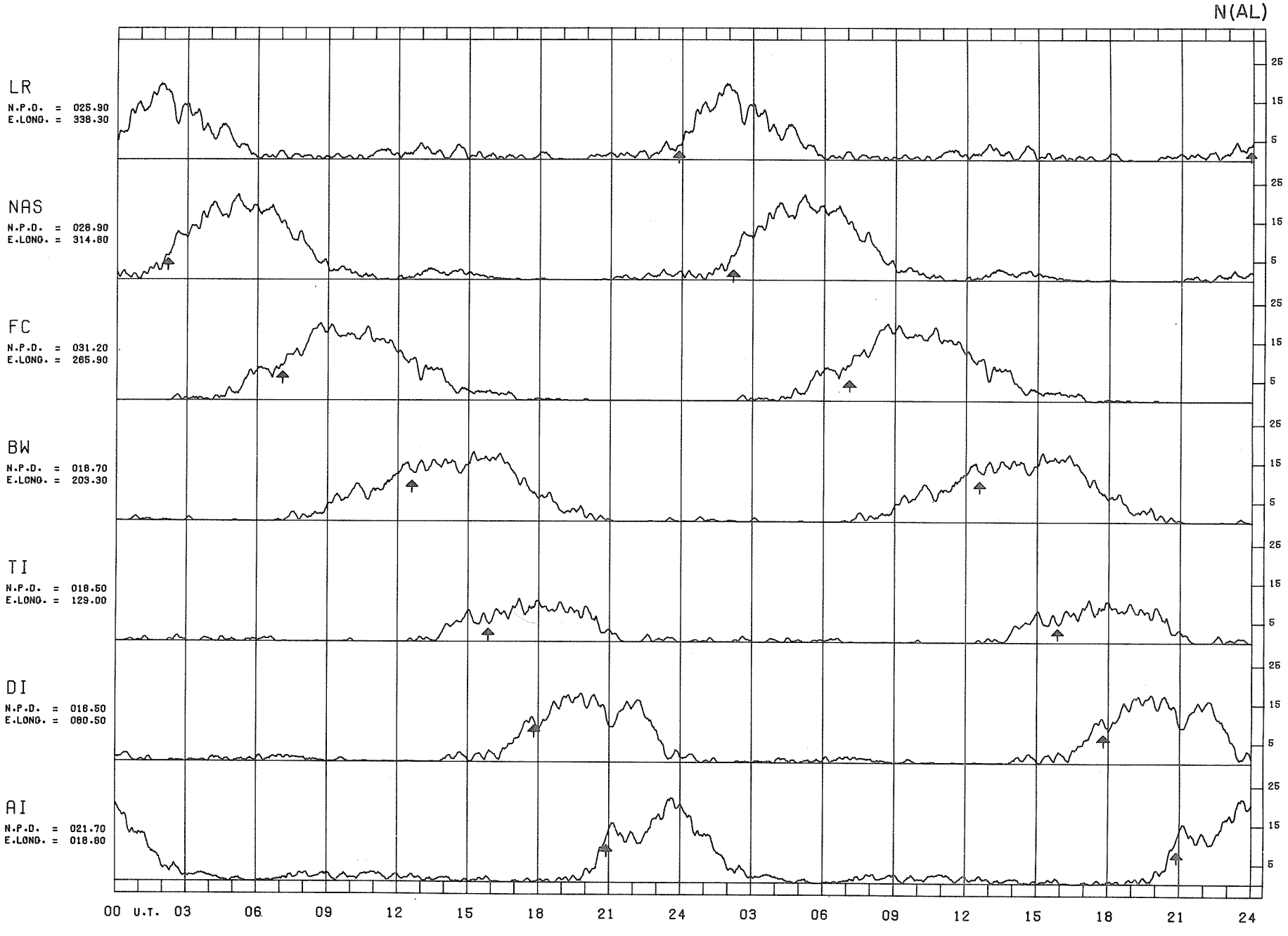

Fig. 4. Frequency of 1-min AL provision by station for February 1976.

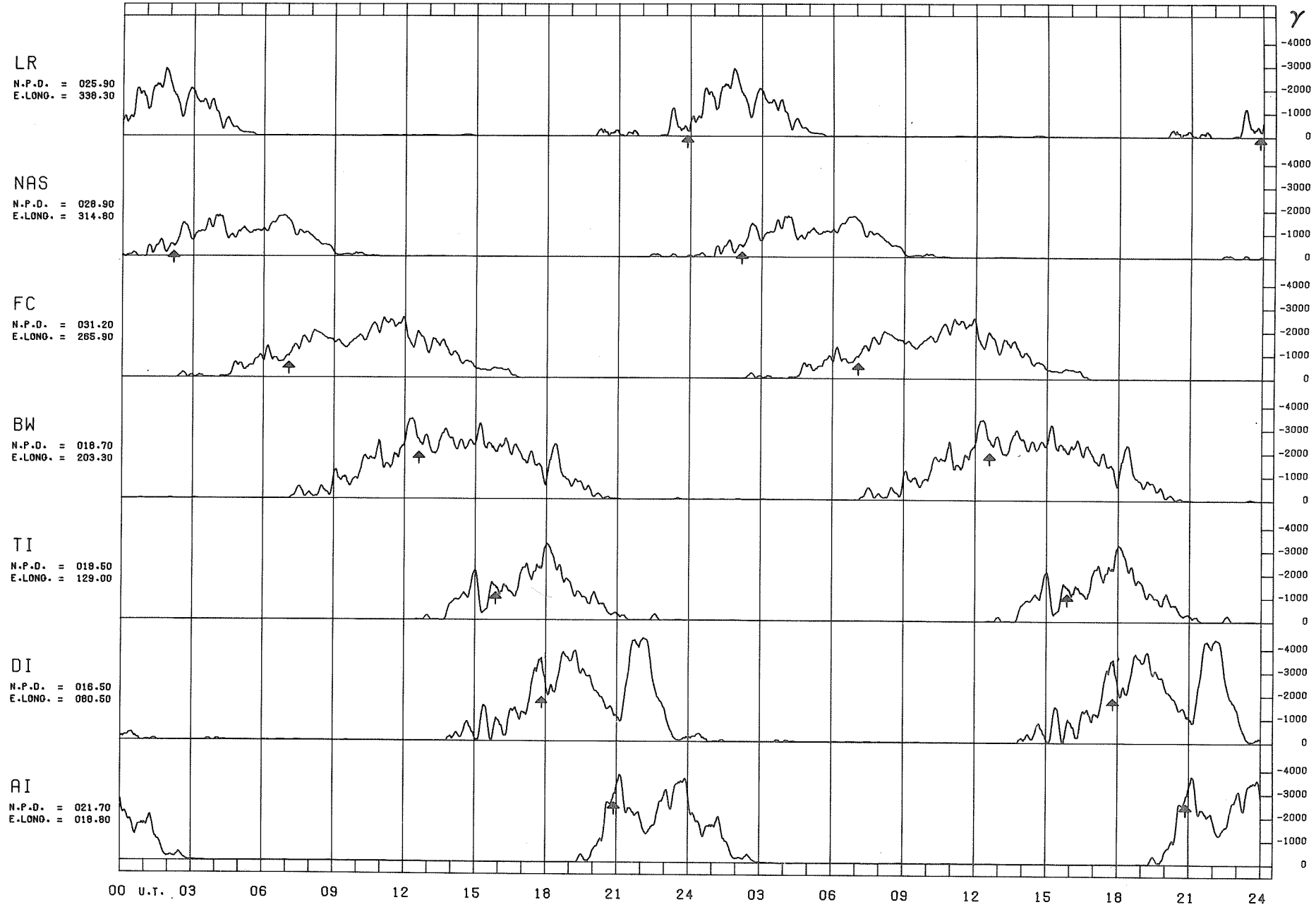

Fig. 5. Total amplitude of most negative H variations for February 1976.

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UAG-42 "Observations of Jupiter's Sporadic Radio Emission in the Range 7.6-80 MHz 10 December 1971 through 21 March 1975", by James W. Warwick, George A. Dulk, and Anthony C. Riddle, Department of Astro-Geophysics, University of Colorado, Boulder, Colorado 80302, April 1975, 49 pages, price $1.15.

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UAG-49 "Catalog of Standard Geomagnetic Variation Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado, August 1975, 125 pages, price $1.85.

UAG-50 "High-Latitude Supplement to the URSI Handbook on Ionogram Interpretation and Reduction", by W. R. Piggott, British Antarctic Survey, c/o SRC, Appleton Laboratory, Ditton Park, Slough, England, October 1975, 292 pages, price $4.00.

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UAG-52 "Experimental Comprehensive Solar Flare Indices for Certain Flares, 1970-1974", compiled by Helen W. Dodson and E. Ruth Hedeman, McMath-Hulbert Observatory, The University of Michigan, 895 Lake Angelus Road North, Pontiac, Michigan 48055 U.S.A., November 1975, 27 pages, price 60 cents.

UAG-53 "Description and Catalog of Ionospheric F-Region Data, Jicamarca Radar Observatory (November 1966 - April 1969)", by W. L. Clark and T. E. Van Zandt, Aeronomy Laboratory, NOAA, Boulder, Colorado 80302 and J. P. McClure, University of Texas at Dallas, Dallas, Texas 75230, April 1976, 10 pages, price 33 cents.

UAG-54 "Catalog of Ionosphere Vertical Soundings Data", prepared by Environmental Data Service, NOAA, Boulder, Colorado 80302, April 1976, 130 pages, price $2.10.

UAG-55 "Equivalent Ionospheric Current Representations by a New Method, Illustrated for 8-9 November 1969 Magnetic Disturbances", by Y. Kamide, Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80302 and Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, H. W. Kroehl, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, M. Kanamitsu, Advanced Study Program, National Center for Atmospheric Research, Boulder, Colorado 80303, J. H. Allen, Data Studies Division, NOAA/EDS/NGSDC, Boulder, Colorado 80302, and S.-I. Akasofu, Geophysical Institute, University of Alaska, Fairbanks, Alaska 99701, April 1976, 91 pages, price $1.60.

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UAG-57 "Manual on Ionospheric Absorption Measurements", edited by K. Rawer, Institut für Physikalische Weltraumforschung, Freiburg, G.F.R., June 1976, 202 pages, price $4.27.

UAG-58 "ATS6 Radio Beacon Electron Content Measurements at Boulder, July 1974 - May 1975", by R. B. Fritz, Space Environment Laboratory (currently with Wave Propagation Laboratory), NOAA, Boulder, Colorado 80302 USA, September 1976, 61 pages, price $1.04.

UAG-59 "Auroral Electrojet Magnetic Activity Indices AE(11) for 1974", by Joe Haskell Allen, Carl C. Abston and Leslie D. Morris, National Geophysical and Solar-Terrestrial Data Center, Environmental Data Service, December 1976, 144 pages, price $2.16.

UAG-60 "Geomagnetic Data for January 1976 (AE(7) Indices and Stacked Magnetograms)" by J. H. Allen, C. A. Abston and L. R. Morris, NGSDC/EDS/NOAA, July 1977, 57 pages, price $1.07.

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