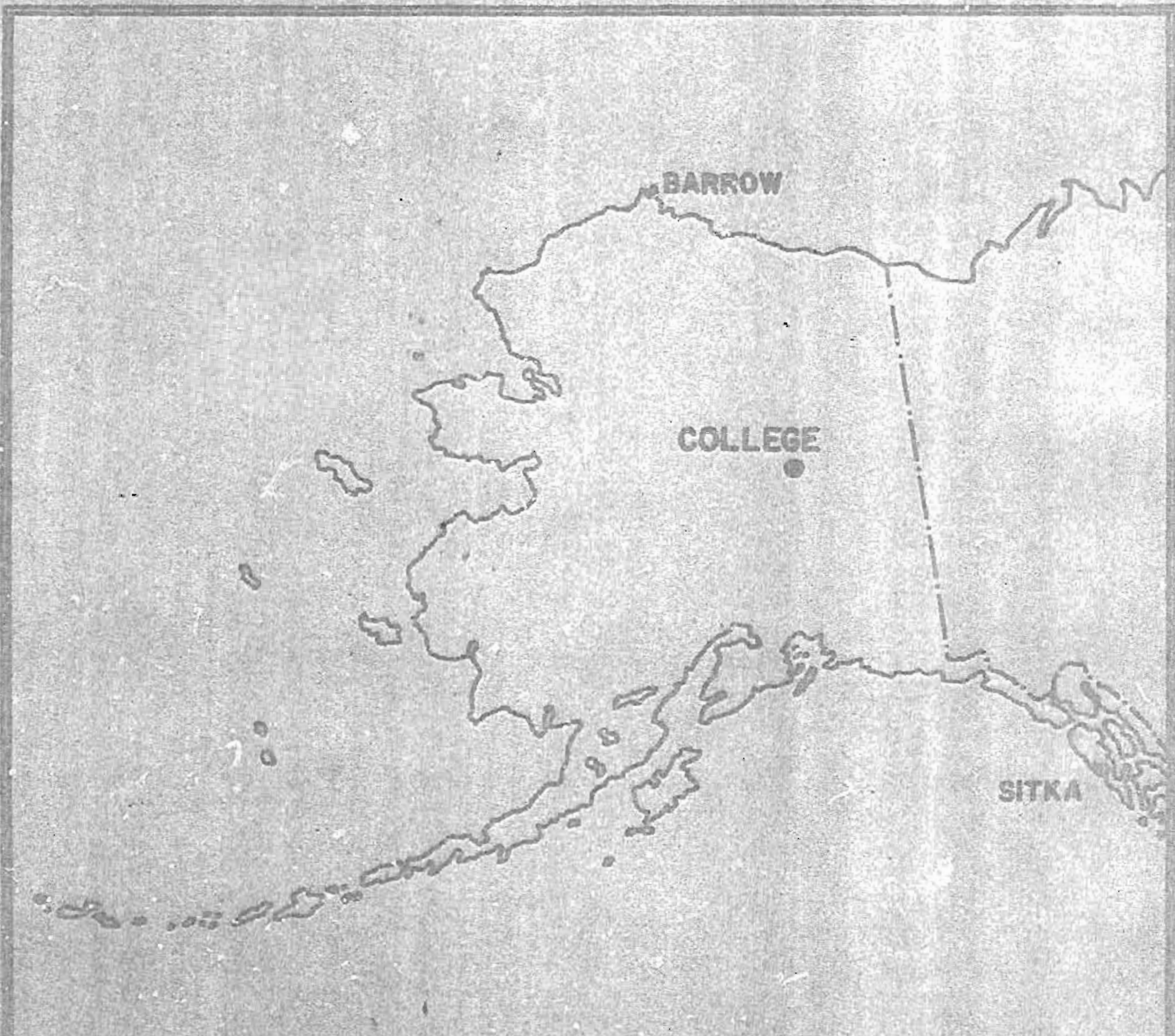
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

FEBRUARY 1979 **OPEN FILE REPORT** 79-300B


BARROW
COLLEGE
SITKA

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THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY WITH THE ASSISTANCE OF OBSERVATORY STAFF MEMBERS J.E. PAPP, E.A. SAUTER, AND S.P. TILTON, AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF ELECTROMAGNETISM AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

INTRODUCTION

The preliminary geomagnetic data included here is made available to scientific personnel and organizations, as part of a cooperative effort and on a data exchange basis because of the early need by some users. To avoid delay, all of the data is copied from original forms processed at the observatory; therefore it should be regarded as preliminary. Inquiries about this report or about the College Observatory should be addressed to:

Chief, College Observatory
U.S. Geological Survey
Yukon Drive on West Ridge
Fairbanks, Alaska 99701

Requests for copies of the magnetograms except for the current month should be addressed to:

World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

OBSERVATORY LOCATION

The College Observatory, operated by the U. S. Geological Survey, is located at the University of Alaska, Fairbanks, Alaska. It is near the Auroral Zone and the northern limit of the world's greatest earthquake belt, the circum-Pacific Seismic belt. Although the observatory's basic operation is in geomagnetism and seismology, it cooperates with other scientists and organizations in areas where the facility and personnel can be of service.

The observatory is one of three operated by the USGS in Alaska. The others are located at Barrow and Sitka.

The position of the observatory site is:

Geographic latitude........	64°51.6'N
Geographic longitude......	147°50.2'W
Geomagnetic latitude......	+64.6°
Geomagnetic longitude......	+256.5°
Elevation..................	200 meters

GEOMAGNETIC DATA

Normal, Storm, and Rapid Run magnetograms and appropriate calibration data are processed daily at the observatory and are available for analysis or copying. Also available are mean hourly scalings, K-Indices, selected magnetic phenomena reports, and on a real-time basis are recordings from a 3-component fluxgate magnetometer and F-component proton magnetometer.

Magnetic Activity

The K-Index. The K-Index is a logarithmic measurement of the range of the most disturbed component (D or H) of the geomagnetic field for eight intervals beginning 0000-0300, 0300-0600...2100-2400 UT. It is a measure of the difference between the highest and lowest deviation from a smooth curve to be expected for a component on a magnetically quiet day, within a three hour interval.

The Equivalent Daily Amplitude, AK. The K-Index is converted into an equivalent range, ak, which is near the center of the limiting gamma ranges for a given K. The average of the eight values is called equivalent daily amplitude AK. The unit 10γ has been chosen so as not to give the illusion of an accuracy not justified.

The schedule for converting gamma range to K, and K to ak is as follows:

Gamma Range	K - Index	ak*
0 < 25	0	0
25 < 50	1	3
50 < 100	2	7
100 < 200	3	15
200 < 350	4	27
350 < 600	5	48
600 <1000	6	80
1000 <1650	7	140
1650 <2500	8	240
2500+	9	400 (10γ)

The Magnetic Daily Character Figure, C. To each Universal day a character is assigned on the basis C=0, if it is quiet; C=1 if it is moderately disturbed; C=2 if it is greatly disturbed. The method used to assign characters at the College Observatory is based on AK as follows:

AK Range	C
0≈11	0
11≈50	1
50+	2

Routine assignment of C was discontinued at College on January 1, 1976.

Selected Phenomena & Outstanding Magnetic Effects

Prior to January 1, 1976, the Normal & Rapid Run records were reviewed at the Observatory for selected magnetic phenomena and the events identified were forwarded to the IUGG Commission on Magnetic Variations and Disturbances. This was discontinued on January 1, 1976, but a report on Outstanding Magnetic Effects is prepared monthly for this report.

Principal Magnetic Storms

Gradual and sudden commencement magnetic disturbances with at least one K-Index of 5 or greater, which are believed to be part of a world-wide disturbance, are classified as principal magnetic storms. The time of the storm beginning and ending; direction and amplitude of sudden commencements; period of maximum activity; and storm range are reported. Monthly reports of these data are forwarded to the World Data Center A in Boulder, Colorado.

Magnetogram Hourly Scalings

Magnetogram hourly scalings are averages for successive periods of one hour for the D, H, and Z elements. The value in the column headed "01" is the average for the hour beginning 0000 and ending 0100. Note that the values on the scaling sheets are in tenths of mm with the decimal point omitted. The user of these scalings should keep in mind that the tabular values are hourly means and if he is interested in the detailed morphology of the magnetic field, he should refer directly to the magnetograms.

Magnetograms

The normal magnetograms in this report are reproduced at about one-third the size of the originals. Preliminary base-line values and scale values adopted for use with the original magnetograms are included. For days when the magnetic field is too disturbed for the Normal magnetogram to be readable, Storm magnetograms are reproduced.

Absolutes, Base-lines, and Scale Values

To determine the absolute value of the magnetic field from the hourly means or from point scalings the following equations should be used:

$D=B_D+d\cdot S_D$; $H=B_H+h\cdot S_H$; $Z=B_Z+z\cdot S_Z$

where D, H, and Z are absolute values;
B_D, B_H and B_Z are base-line values;
S_D, S_H and S_Z are scale values;
and d, h, and z are scalings in millimeters.

NOAA FORM 76-133
(9-72)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

OBSERVATORY
COLLEGE, ALASKA

MONTH AND YEAR
FEBRUARY 1979

TIME SCALE ON MAGNETOGRAMS
20 mm/hr

DATE	K-INDICES								SUM	AK
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24		
1	2	1	2	3	0	0	0	0	08	04
2	2	1	3	4	2	2	3	2	19	11
3	2	1	0	0	0	1	3	2	09	04
4	2	3	2	6	4	6	3	2	28	30
5	3	2	3	5	4	0	0	1	18	14
6	1	4	3	6	6	2	3	2	27	29
7	1	2	1	3	3	1	1	1	13	07
8	1	1	1	4	1	3	2	1	14	08
9	3	1	1	2	4	5	2	1	19	14
10	1	0	0	2	1	2	1	0	07	04
11	2	3	1	2	0	0	1	2	11	05
12	2	4	5	6	6	2	1	0	26	32
13	0	0	0	2	0	0	0	0	02	01
14	0	0	0	0	0	0	0	0	00	00
15	0	0	4	4	4	3	1	0	16	12
16	0	2	1	4	3	0	0	0	10	07
17	0	0	0	2	2	1	1	0	06	03
18	1	2	4	5	5	4	4	3	28	25
19	4	3	4	4	6	2	2	3	28	26
20	1	1	0	2	2	1	1	1	09	04
21	1	5	6	5	4	5	6	6	38	52
22	3	4	6	6	5	5	4	3	36	43
23	4	3	4	6	6	3	3	3	32	34
24	3	3	3	4	4	5	2	2	26	20
25	2	3	4	4	4	1	2	2	22	15
26	3	3	3	6	5	4	4	3	31	30
27	4	4	4	5	5	5	2	2	31	30
28	3	2	2	4	5	5	5	2	28	26
29										
30										
31										

SUDDEN COMMENCEMENTS

d	h	m

POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)

BEGIN			END		
d	h	m	d	h	m

K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 5..........	683.8	321.7		(mm)
CURRENT SCALE VALUE.........	3.75	7.80		(γ/mm)
LOWER LIMIT FOR K = 9	2560	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-887

OUTSTANDING MAGNETIC EFFECTS	OBSERVATORY COLLEGE, ALASKA
	MONTH FEBRUARY — YEAR 1979

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
03	1823	si*	Followed by pc5 activity.
11	0147	si	
18	0304	ssc*	
21	0301	ssc*	

IDENTIFIED BY: JEP

VERIFIED BY: JBT

1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pc1, pc2 - - - pc5, pg, pi 1, pi 2, sfe.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 U.S.A.

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA
FEBRUARY 1979

Obs. 2 letter IAGA code	Geomag.	Commencement			SC - amplitudes			Max. 3 hr - index K			Ranges			UT End	
	lat.	day	hr min (UT)	type	D(')	H(γ)	Z(γ)	day	(3 hr - period)	K	D(')	H(γ)	Z(γ)	day	hr
CO	64°6 N	18	0304	s.c.*	-10	+52	-15	19	5	6	74	820	380	19	17
		21	0301	s.c.*	+17	+115	+30	21	3, 7, 8	6	172	1210	780	24	18
								22	3, 4	6					
								23	4, 5	6					
		26	05XX	..	..	..	..	26	4	6	148	930	530	27	18

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: FEBRUARY 1979

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 2-1-79	2400 U.T., 2-28-79	1.'0/mm	3.8γ/mm	27° 47.'1 E
H	0000 U.T., 2-1-79	2400 U.T., 2-5-79	7.8γ/mm		12748γ
	0000 U.T., 2-6-79	0942 U.T., 2-23-79	"		12742γ
	0943 U.T., 2-23-79	2400 U.T., 2-28-79	"		12750γ
Z	0000 U.T., 2-1-79	2400 U.T., 2-5-79	7.7γ/mm		55129γ
	0000 U.T., 2-6-79	0942 U.T., 2-23-79	"		55138γ
	0943 U.T., 2-23-79	2400 U.T., 2-28-79	7.3γ/mm		55175γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 2-1-79	0942 U.T., 2-23-79	7.'8/mm	29.7γ/mm	24° 23.'2 E
	0943 U.T., 2-23-79	1949 U.T., 2-23-79	"	"	24° 56.'8 E
	1950 U.T., 2-23-79	2400 U.T., 2-28-79	"	"	23° 25.'4 E
H	0000 U.T., 2-1-79	2400 U.T., 2-5-79	44.0γ/mm		11492γ
	0000 U.T., 2-6-79	0942 U.T., 2-23-79	"		11484γ
	0943 U.T., 2-23-79	2400 U.T., 2-28-79	"		11493γ
Z	0000 U.T., 2-1-79	2400 U.T., 2-5-79	48.6γ/mm		54029γ
	0000 U.T., 2-6-79	0942 U.T., 2-23-79	"		54018γ
	0943 U.T., 2-23-79	2400 U.T., 2-28-79	"		54029γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 13.'3 E	13032γ	55381γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: FEB 1, 3, 7, 10, 11, 13, 14, 16, 17, 20

NOAA FORM 76-106
(1-72)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

OBSY.	YEAR	MONTH	ELEMENT
CO	79	FEB	D

Values are in tenths of mm, and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (150W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	I or Q	Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	193	231	212	241	250	251	252	249	281	262	279	261	01	250	270	269	269	280	291	294	302	299	291	269	261	6327
			02	247	209	196	209	200	201	201	224	209	268	262	268	02	300	288	278	281	292	315	332	367	322	294	279	259	6303
			03	217	215	231	221	231	247	253	259	259	261	269	269	03	270	271	271	269	290	312	382	398	352	292	281	247	6565
			04	219	221	200	181	152	195	221	251	229	231	291	279	04	273	372	425	606*	456*	268	289	251	218	198	182	206	6414
			05	247	210	191	221	212	201	248	157	218	241	294	321	05	341	291	271	258	272	288	300	303	303	321	318	282	6309
			06	264	241	210	172	186	138	230	222	139	190	223	294	06	361*	281	242	262	288	299	313	324	269	269	209	269	5895
			07	271	259	241	248	249	255	251	254	251	259	263	280	07	340	289	281	294	292	308	320	305	302	261	233	230	6536
			08	228	239	242	229	219	213	221	228	258	238	243	207	08	308	287	292	329	297	371	310	247	271	279	274	270	6300
			09	229	199	191	187	219	201	249	254	243	228	269	251	09	294	279	310	382	370	300	319	321	302	296	271	229	6399
			10	209	231	235	229	229	248	241	238	250	255	258	266	10	261	279	286	292	279	311	300	291	316	296	291	283	6374
			11	261	218	169	189	208	238	239	234	222	228	229	249	11	250	268	272	270	270	272	280	273	231	204	211	228	5713
			12	209	217	196	200	238	181	74*	239	178	193	264*	288*	12	427	211	260	282	298	296	273	270	259	258	262	263	5836
			13	267	261	258	253	252	251	243	250	241	244	242	258	13	278	259	270	272	280	297	312	311	301	294	286	271	6451
			14	261	251	250	251	249	249	250	250	249	277	272	282	14	288	278	278	271	289	299	313	337	330	299	272	264	6609
			15	251	223	239	231	230	229	228	217	272	174	261	291	15	349	328	312	371	296	269	288	291	277	278	264	256	6425
			16	250	244	225	221	228	203	228	239	242	265	320	323	16	291	279	270	281	289	297	302	309	276	290	281	268	6441
			17	258	247	240	240	240	239	240	242	240	249	269	256	17	260	276	286	305	280	320	324	310	265	264	277	262	6387
			18	259	242	222	229	201	218	230	195	129	260	260	384	18	308	382	320	309	260	299	299	391	311	270	268	250	6430
			19	170	190	218	229	243	249	224	279	221	218	222	279	19	284	314	267	288	285	396	324	320	316	294	278	265	6313
			20	241	245	235	241	243	239	240	241	247	250	280	256	20	250	263	260	267	271	258	298	300	250	292	262	231	6160
			21	219	227	241	252	201	123	187	-128*	7*	167	53	405	21	248	302	317	311	430	374	340*	498*	293*	39*	253	236	5575
			22	231	257	242	252	253	220	272	257	246	179	372*	124	22	319	362	321	452	316	358	368	344	289	283	264	272	6853
			23	264	212	218	192	209	170	191	229	157	243	241	214*	23	104*	251	281	301	304	319	333	342	377	247	139	171	5709
			24	178	221	189	190	199	216	208	211	193	259	219	261	24	279	338	307	462	269	298	306	338	330	243	188	203	6105
			25	221	201	193	168	171	203	219	191	237	241	238	262	25	309	382	278	274	280	273	272	300	258	254	146	206	5777
			26	201	199	181	220	200	128	170	204	159	111	148	302*	26	337	477*	564*	667*	627*	540*	244	274	342	240	250	249	7034
			27	224	159	173	189	250	231	178	246	230	253	209	348	27	302	310	402	503	317	273	290	328	311	321	260	231	6538
			28	222	148	216	228	241	248	251	239	261	251	249	203	28	281	347	405	183	645	439	409	387	295	189	234	229	6800
			29													29													
			30													30													
			31													31													

SCALED BY	SPT, JEP
CHECKED BY	JEP, EAS
STORM REVIEWED BY	JEP
PUNCHED BY	

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated
[ ] Significant portion of hour interpolated.
☐ No record; or no values available because of faulty record.
* Derived from Storm Magh., converted to Normal Magh.
[ ] Scaling uncertain because of magnetic storm.
< > Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM	176572
MONTHLY MEAN	263
DATES WITH GAPS:	

7

NOAA FORM 76-106
11-72

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	79	FEB	H

C	Q or S	Ten Q	Hr. / Day	01	02	03	04	05	06	07	08	09	10	11	12	Hr. / Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	379	375	379	370	383	390	385	381	385	387	366	380	01	371	364	359	362	365	361	361	356	349	340	339	339	8626
			02	336	339	359	391	409	401	439	423	431	362	363	362	02	342	330	370	366	353	309	349	371	319	339	349	309	8721
			03	347	376	381	383	385	397	389	379	373	370	369	362	03	362	362	359	351	351	359	351	379	409	371	364	341	8870
			04	344	350	349	350	457	432	447	469	467	399	-46*	318	04	397	258	163	-160*	-308*	263	421	398	366	339	320	349	7142
			05	339	387	449	414	381	419	437	519	481	236	116	86	05	179	301	390	387	376	371	379	378	370	352	341	341	8433
			06	349	351	374	424	589	600	496	487	509	449	109	171	06	89*	-138*	351	414	387	369	297	339	351	313	302	359	8341
			07	358	358	369	365	370	376	379	378	379	381	379	351	07	285	396	377	359	351	335	363	381	381	361	344	353	8729
			08	366	360	351	381	390	392	415	423	402	422	328	358	08	395	399	376	282	291	359	380	371	380	379	369	352	8921
			09	318	381	402	409	423	421	403	389	391	429	409	374	09	349	359	267	-43	293	404	399	380	371	351	349	336	8564
			10	354	351	370	380	389	381	389	391	393	401	401	404	10	385	371	363	371	390	377	380	387	380	372	361	349	9090
			11	336	362	379	386	461	419	398	387	381	419	421	400	11	379	381	387	385	381	380	370	362	346	330	346	343	9140
			12	387	367	390	400	454	551	509	297	178	399	12*	-311*	12	-59*	394	410	399	390	389	383	369	369	369	361	366	7793
			13	367	367	369	370	369	369	371	368	371	371	367	358	13	372	370	370	369	372	374	370	361	357	351	349	349	8781
			14	350	359	366	368	370	371	371	372	370	364	370	369	14	380	383	389	383	384	380	377	371	362	342	340	341	8892
			15	349	361	363	365	381	379	381	397	367	211	268	279	15	127	256	271	257	258	387	404	390	385	361	350	350	7897
			16	352	360	369	372	380	431	410	398	389	370	357	230	16	325	370	397	390	387	384	380	371	361	350	345	344	8822
			17	347	351	359	369	370	372	380	380	380	375	360	392	17	374	369	381	390	397	399	394	380	370	368	355	360	8972
			18	357	360	374	389	390	401	399	430	460	452	190	178	18	311	60	-11	260	357	361	340	388	351	321	323	310	7752
			19	308	398	401	401	452	402	430	438	386	448	308	344	19	348	-102*	23*	400	410	351	361	336	351	351	352	356	8253
			20	360	358	360	368	369	370	372	371	379	375	380	372	20	351	379	370	365	349	329	338	341	363	350	337	328	8632
			21	343	359	361	383	431	709	457	40*	469	285	289	103	21	371	337	320	353	229	216	-62*	-142*	19	273*	364	350	6857
			22	342	328	339	359	346	413	404	316	216*	191	-170*	361	22	370	259	361	137	321	324	354	346	369	372	358	366	7382
			23	363	391	407	389	437	448	501	487	336	395	376	129*	23	-60*	359	382	361	366	367	361	349	309	233	269	324	8279
			24	376	351	421	401	410	410	451	411	432	391	409	410	24	236	89	259	-21*	231	356	331	339	321	320	319	336	7989
			25	370	381	397	449	451	471	401	462	471	370	382	291	25	161	291	409	389	379	370	363	330	275	291	297	341	8792
			26	369	359	435	449	441	490	526	509	549	461	293	115*	26	86	58*	-122*	-106*	-139	-74	9	147	204	203	320	332	5914
			27	494	583	482	492	581	388	459	526	480	397	335	-21	27	245	57	-69	-13	81	280	439	380	352	333	324	344	7949
			28	380	430	410	360	351	367	373	400	416	400	405	360	28	304	252	136	-169*	-77	-29	52	187	306	370	361	326	6671
			29													29													
			30													30													
			31													31													

SCALED BY	SPT, JEP
CHECKED BY	JEJ, EAS
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated

[ ] Significant portion of hour interpolated.

☐ No record; or no values available because of faulty record.

* Derived from Storm Mgph., converted to Normal Mgph.

[ ] Scaling uncertain because of magnetic storm.

<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM	230344
MONTHLY MEAN	343
DATES WITH GAPS:	

U.S. G.P.O. 1973-789-571/932 REG. #8

NOAA FORM 76-186
(3-73)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	79	FEB	Z

C	Q or S	Ten Q	Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	352	364	361	367	352	349	342	335	337	291	268	323	01	337	337	322	329	331	333	337	338	339	337	340	340	8061
			02	341	332	339	356	362	360	359	323	353	329	306	333	02	336	317	320	338	326	297	273	308	301	296	328	330	7863
			03	339	342	356	357	348	338	332	329	328	329	329	330	03	323	321	319	301	301	303	290	221	263	291	312	319	7621
			04	320	322	324	337	349	368	370	367	333	316	284	243	04	300	282	241	278	306*	91	218	271	282	300	314	331	7147
			05	360	350	357	332	348	346	362	366	346	357	372	489	05	298	267	305	332	339	333	332	331	330	338	326	324	8250
			06	331	326	329	359	410	439	443	394	297	350	237	342	06	464*	214	221	315	341	321	304	279	307	330	331	317	8001
			07	327	330	329	324	320	321	325	320	320	324	328	331	07	243	292	320	317	297	258	262	290	304	313	309	312	7416
			08	321	332	326	335	342	343	350	358	343	337	192	241	08	311	319	321	302	231	241	270	280	299	317	310	313	7334
			09	312	323	350	359	351	347	341	334	319	320	329	321	09	301	301	287	223	191	264	304	317	313	313	317	309	7446
			10	316	330	336	337	330	330	329	328	332	340	337	307	10	330	321	303	284	311	310	319	322	321	318	324	327	7742
			11	320	318	311	331	351	341	327	321	323	300	311	319	11	316	311	313	313	316	319	318	311	298	293	317	349	7647
			12	367	365	348	359	339	197	132	177	271	334	394*	257	12	338	233	319	314	323	311	307	314	329	331	337	338	7334
			13	338	331	329	329	327	326	327	328	329	326	319	312	13	307	301	309	317	311	319	319	319	321	328	330	331	7739
			14	330	326	322	321	320	319	319	318	320	328	320	296	14	305	303	309	310	311	319	318	319	320	323	322	321	7614
			15	320	320	324	320	319	326	339	344	306	269	361	346	15	355	217	223	221	200	256	292	310	311	330	333	337	7279
			16	331	330	329	330	360	371	371	363	339	324	289	261	16	259	275	310	326	323	320	326	328	327	336	340	340	7808
			17	339	330	324	320	319	317	317	317	315	317	301	320	17	311	301	278	278	283	304	310	305	296	295	310	318	7425
			18	330	321	321	317	320	335	349	351	258	304	350	294	18	226	255	170	150	210	270	259	282	300	304	310	331	6895
			19	347	364	372	359	379	350	360	346	278	360	292	281	19	309	382	83	180	289	309	307	309	317	328	332	340	7575
			20	338	333	324	323	323	330	330	330	330	329	320	317	20	288	311	310	306	300	279	247	253	263	259	320	319	7422
			21	329	337	341	353	358	239	173	-56	79	299	371	477	21	340	338	333	313	317	278	337*	645*	381*	275*	314	351	7522
			22	368	364	348	341	343	324	335	245	159	328	601*	320	22	371	442	371	461	317	344	314	311	298	323	340	341	8309
			23	338	319	330	345	390	386	403	281	251	347	308	358	23	220	236	289	290	293	301	300	295	300	269	248	251	7348
			24	291	323	291	310	319	323	340	351	338	179	251	297	24	298	319	197	270	212	249	257	274	288	284	301	300	6862
			25	304	321	325	334	330	329	341	351	294	302	316	377	25	337	171	231	277	290	289	295	306	291	291	280	299	7285
			26	290	327	321	317	279	277	232	288	253	259	248	309	26	249	402*	188*	348*	141*	181*	83	77	161	200	273	308	6011
			27	307	191	236	261	210	330	329	274	337	360	268	294	27	261	399	233	209	261	129	267	310	299	309	308	303	6685
			28	314	310	346	320	306	305	301	299	320	308	309	294	28	423	380	367	289	141	209	63	29	164	226	300	319	6642
			29													29													
			30													30													
			31													31													

SCALED BY	SPT, JEP
CHECKED BY	JEP, ERS
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated

[ ] Significant portion of hour interpolated.

☐ No record; or no values available because of faulty record.

[ ] Scaling uncertain because of magnetic storm.

< > Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

* Derived from Storm Mag., converted to Normal Mag.

MONTHLY SUM	208283
MONTHLY MEAN	310
DATES WITH GAPS:	

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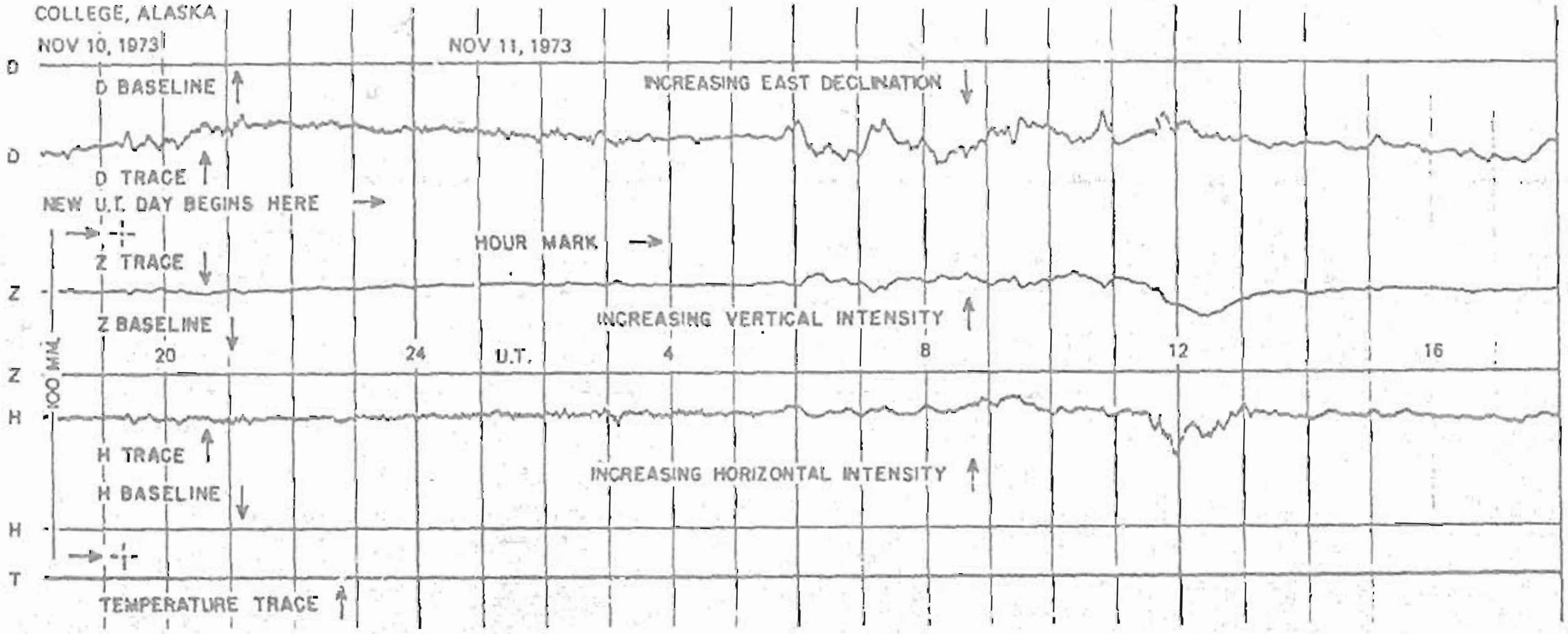
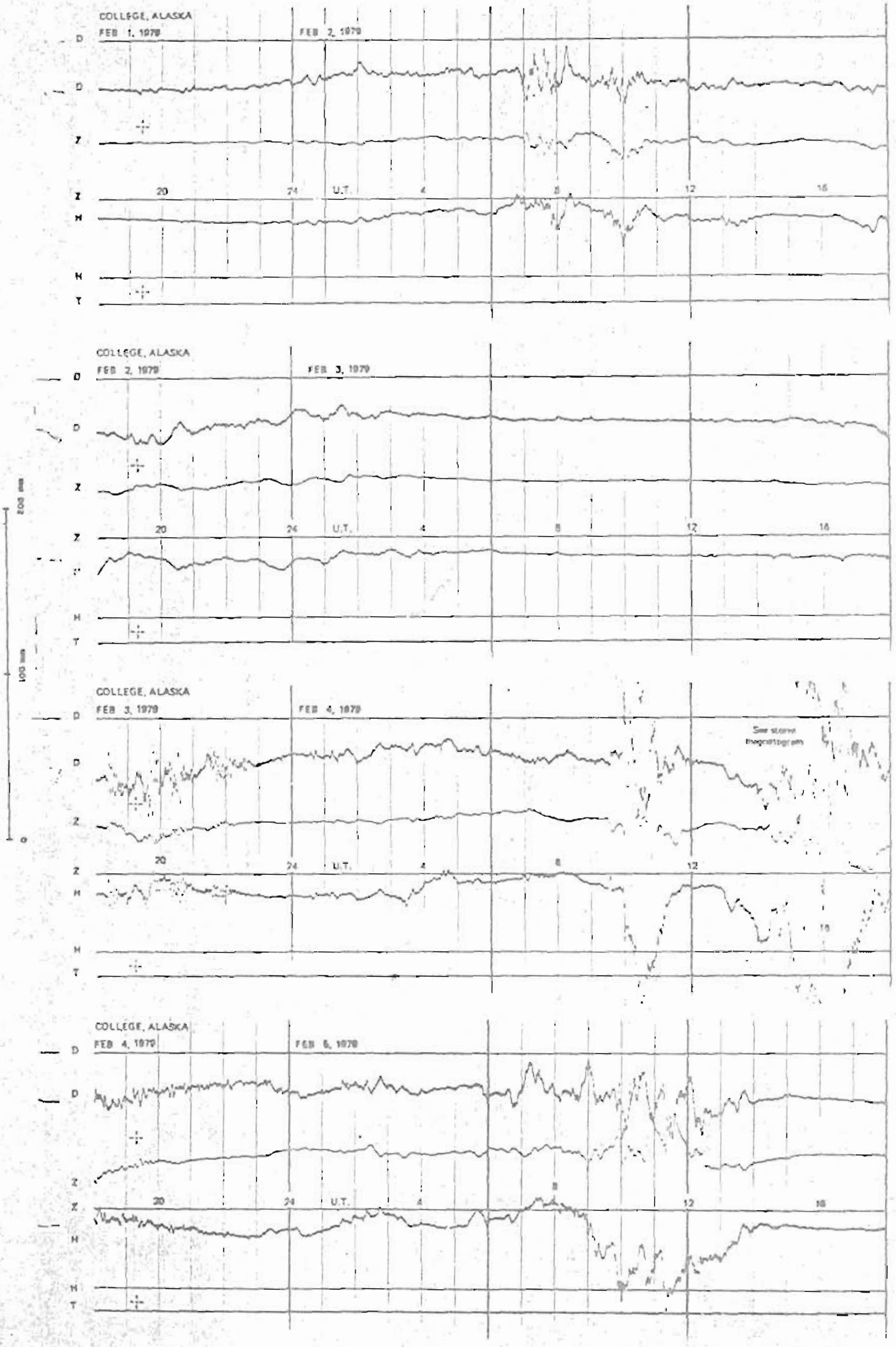
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

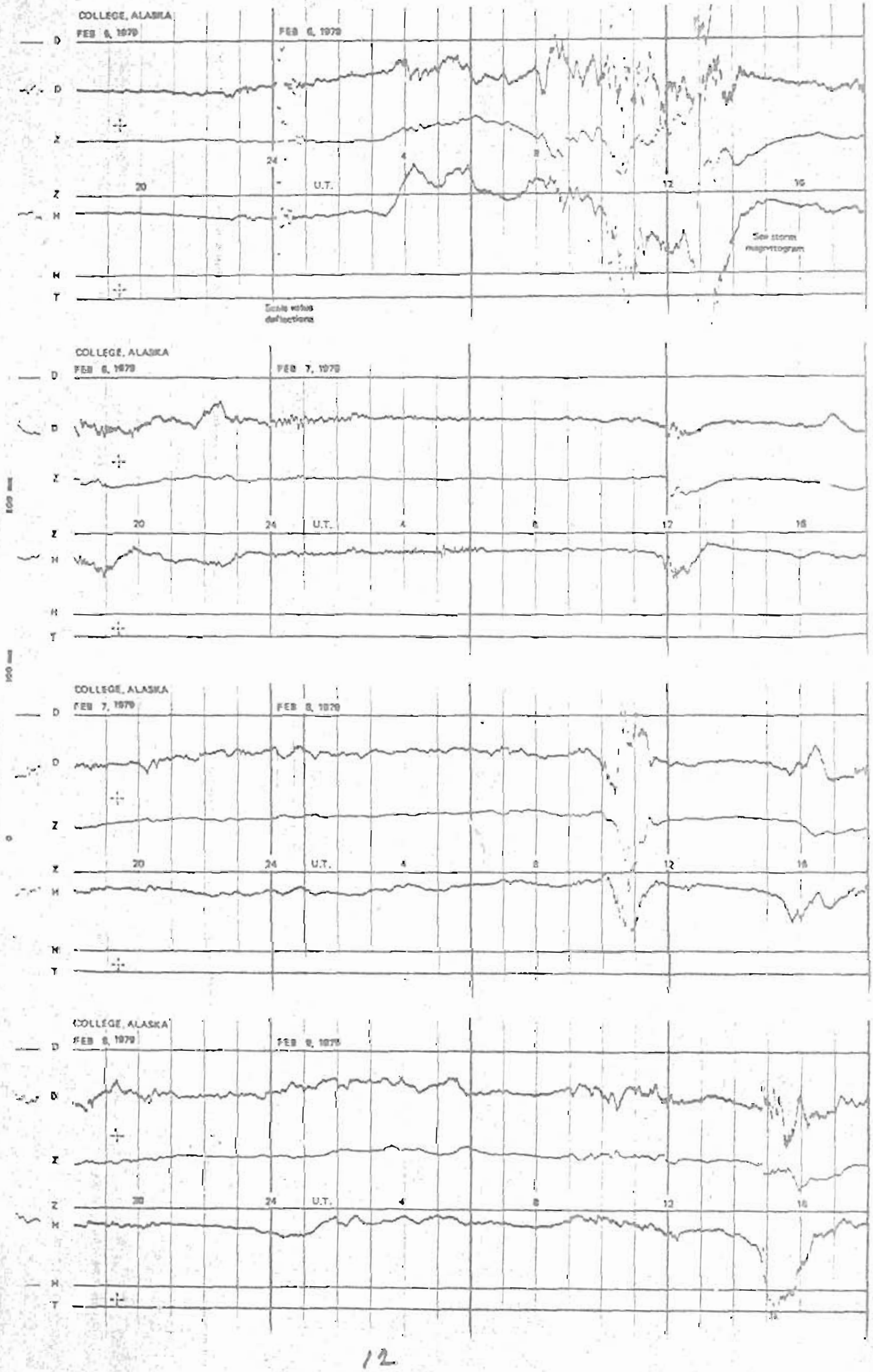


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

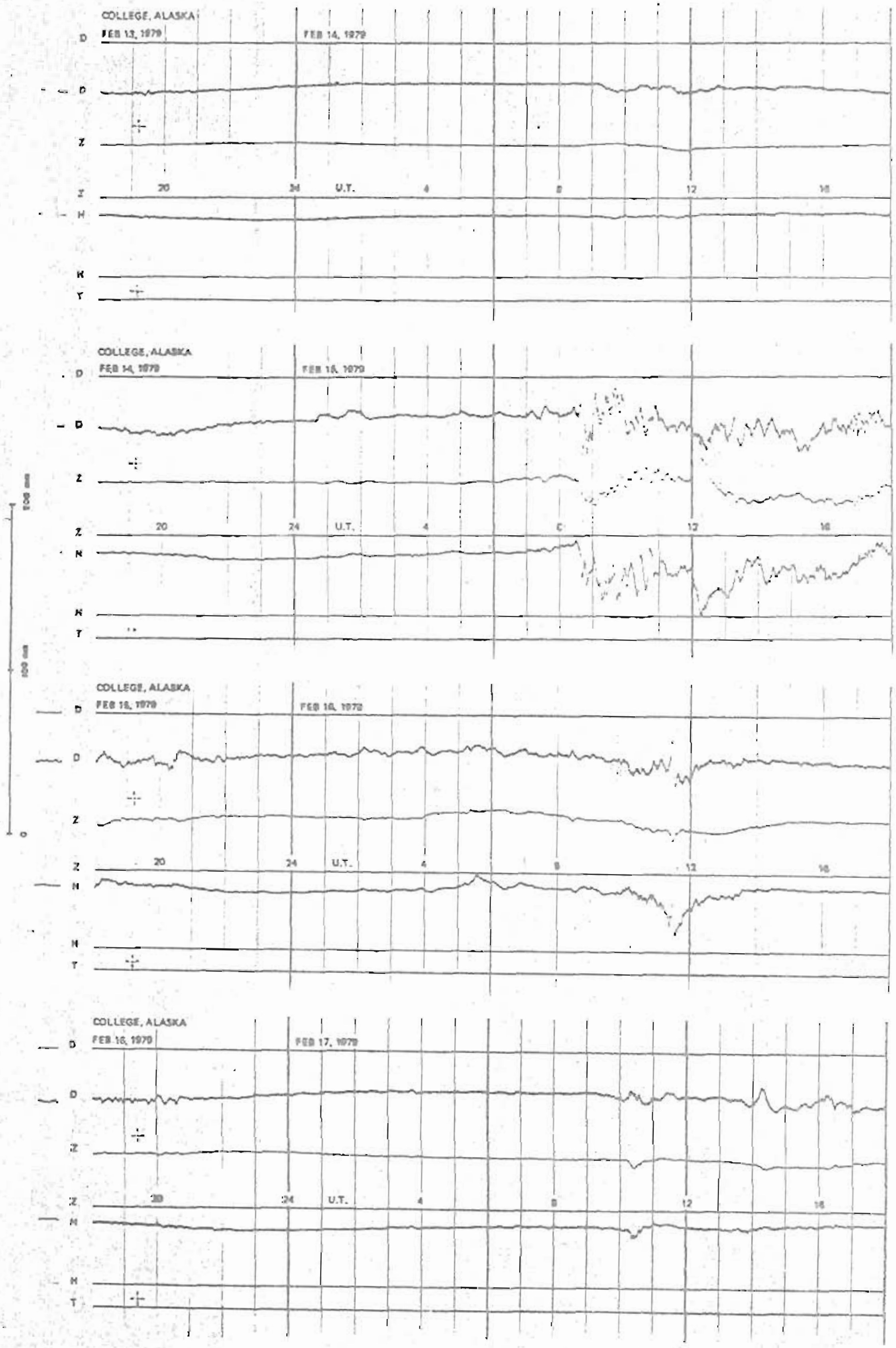
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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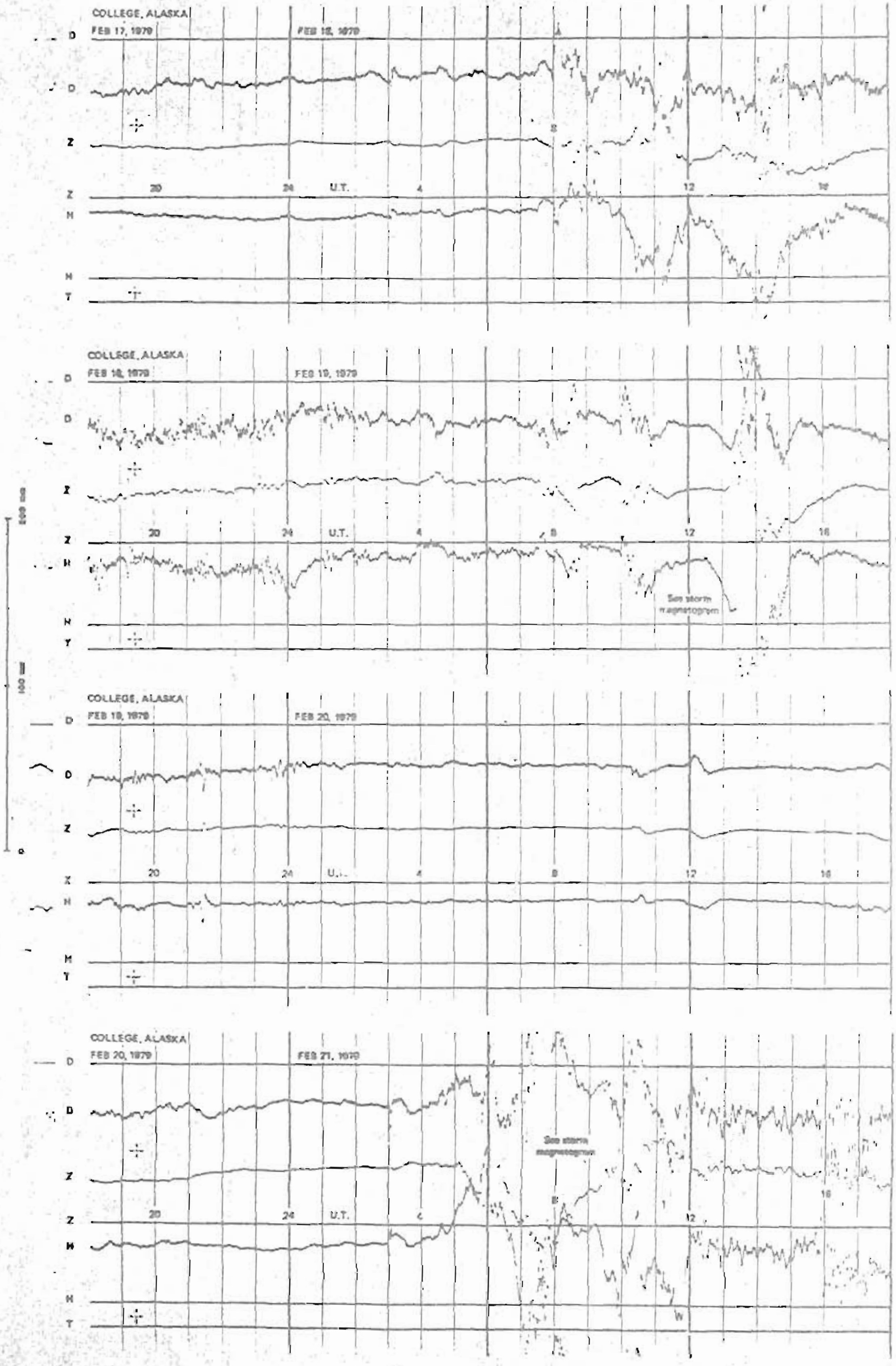

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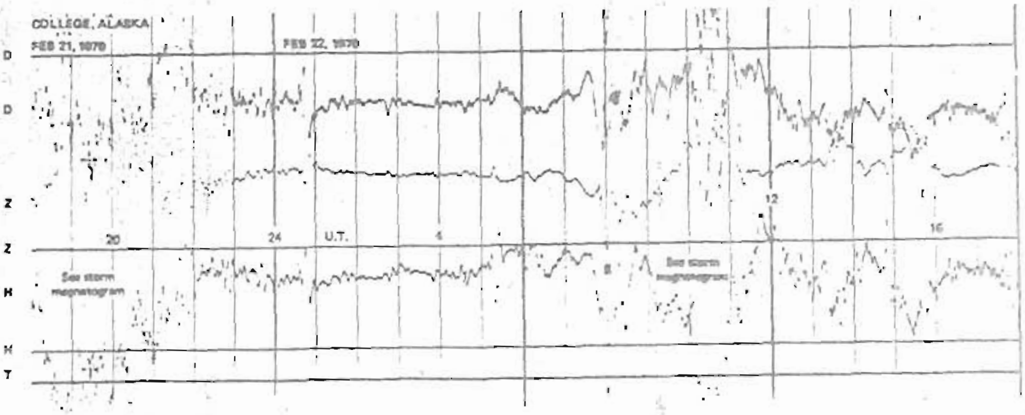

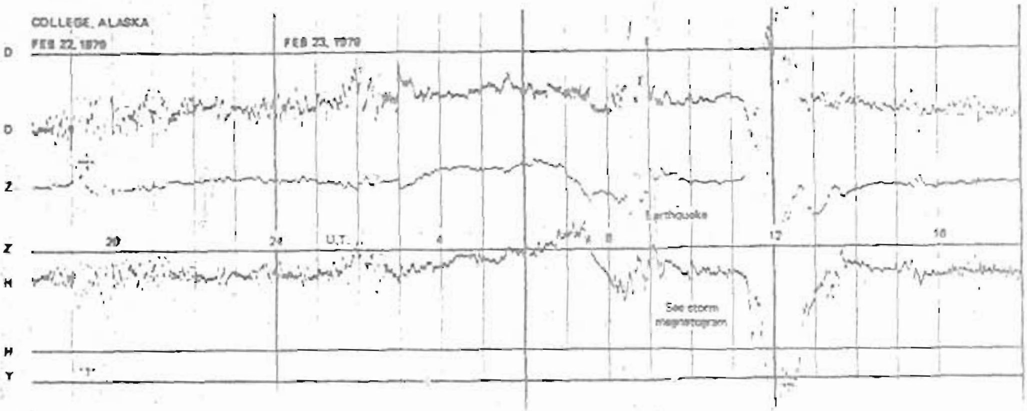

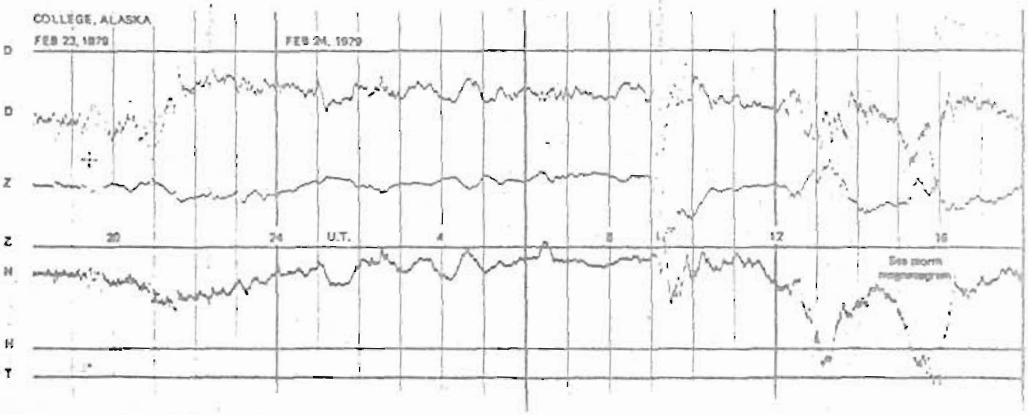

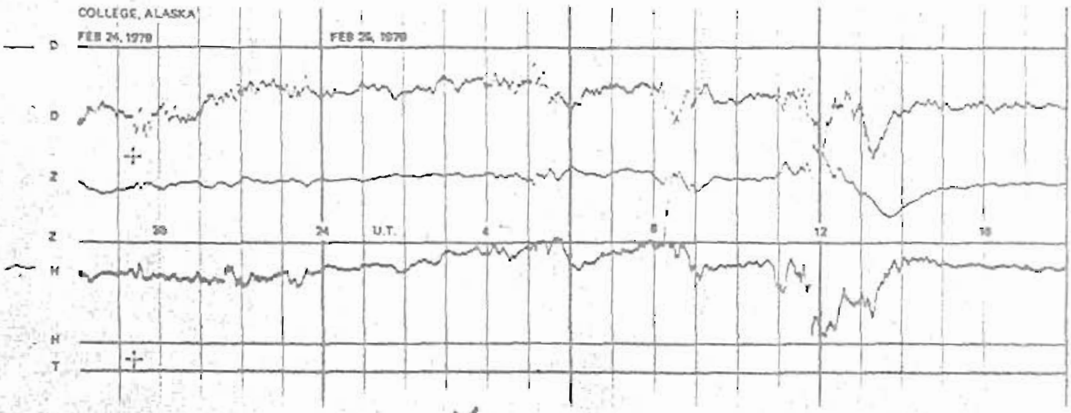

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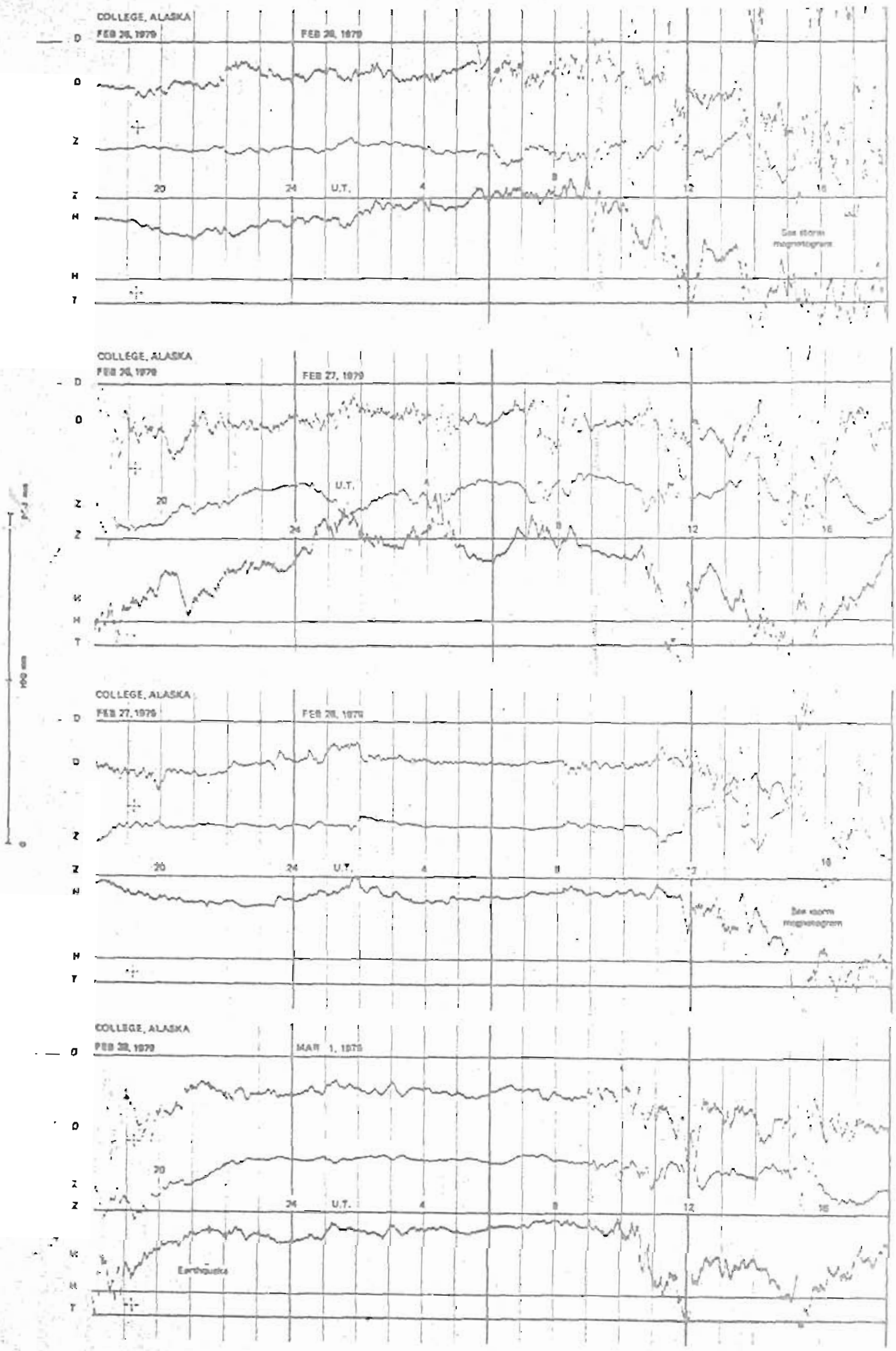
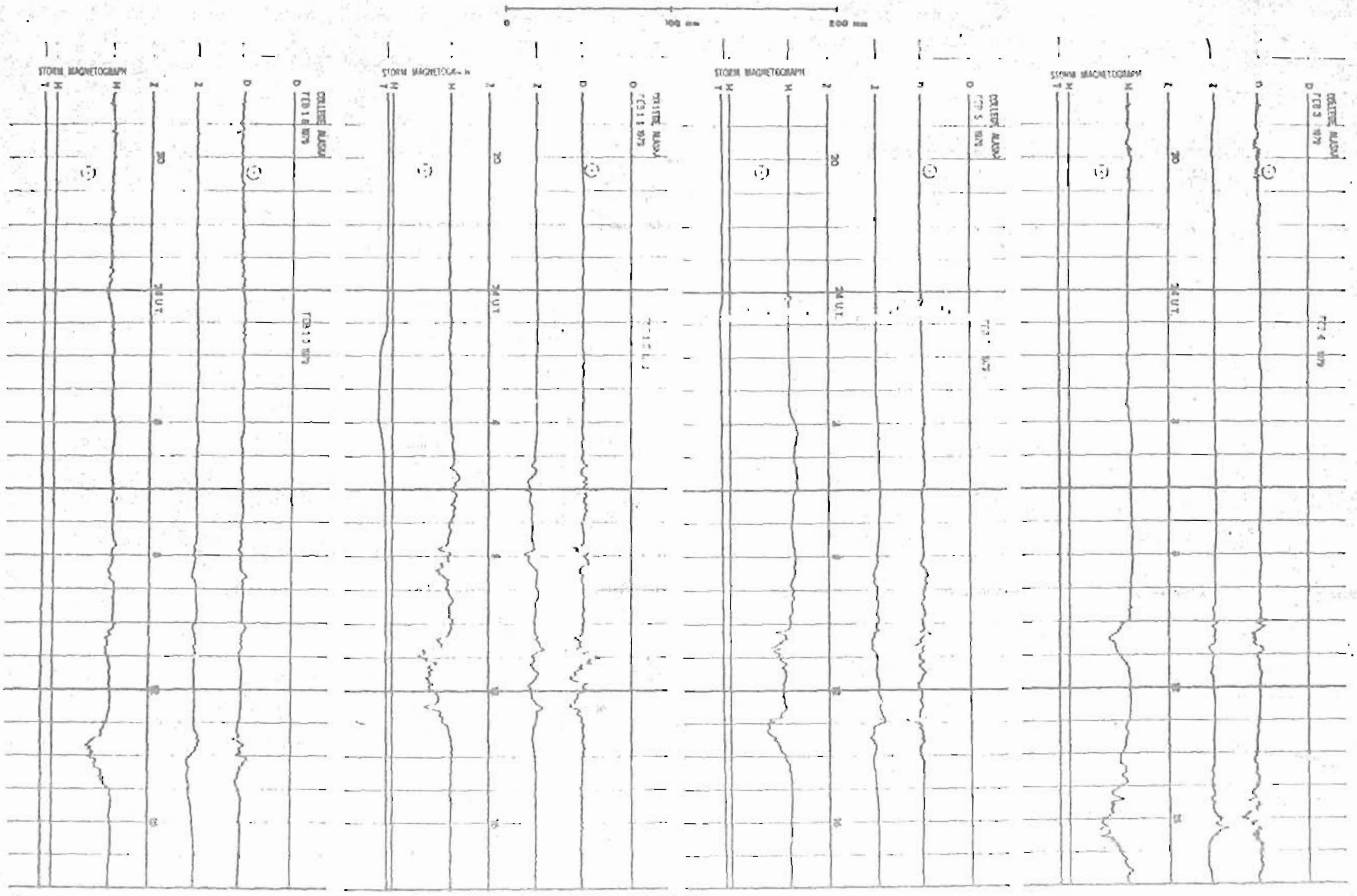


17

31

STORM MAGNETOGRAMS



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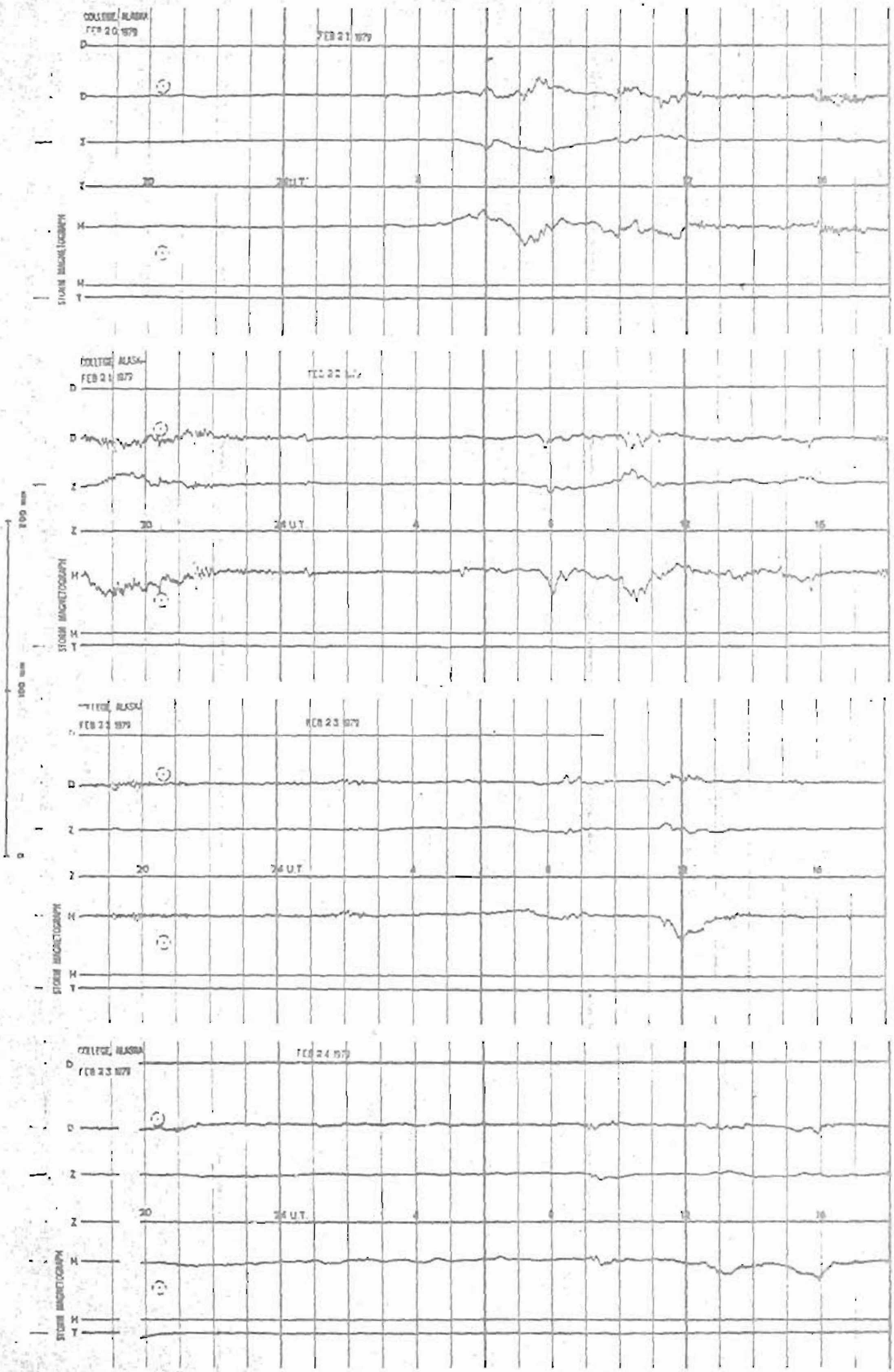

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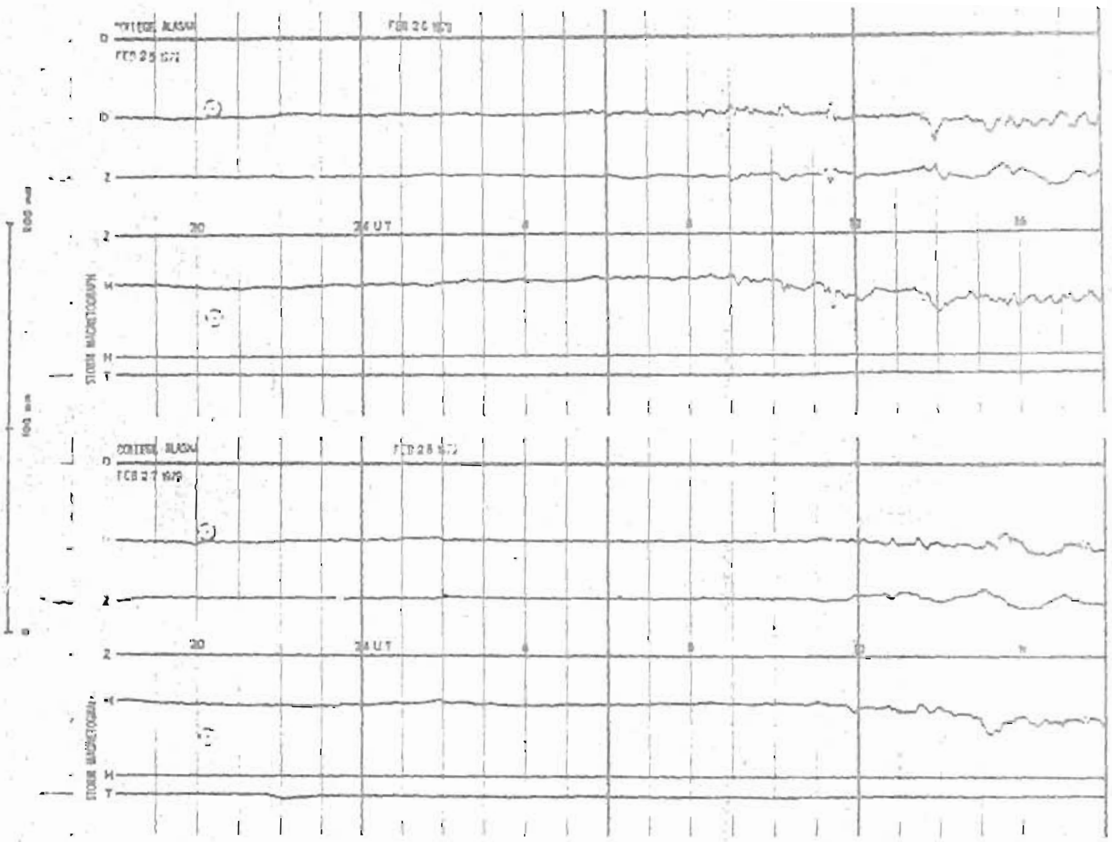

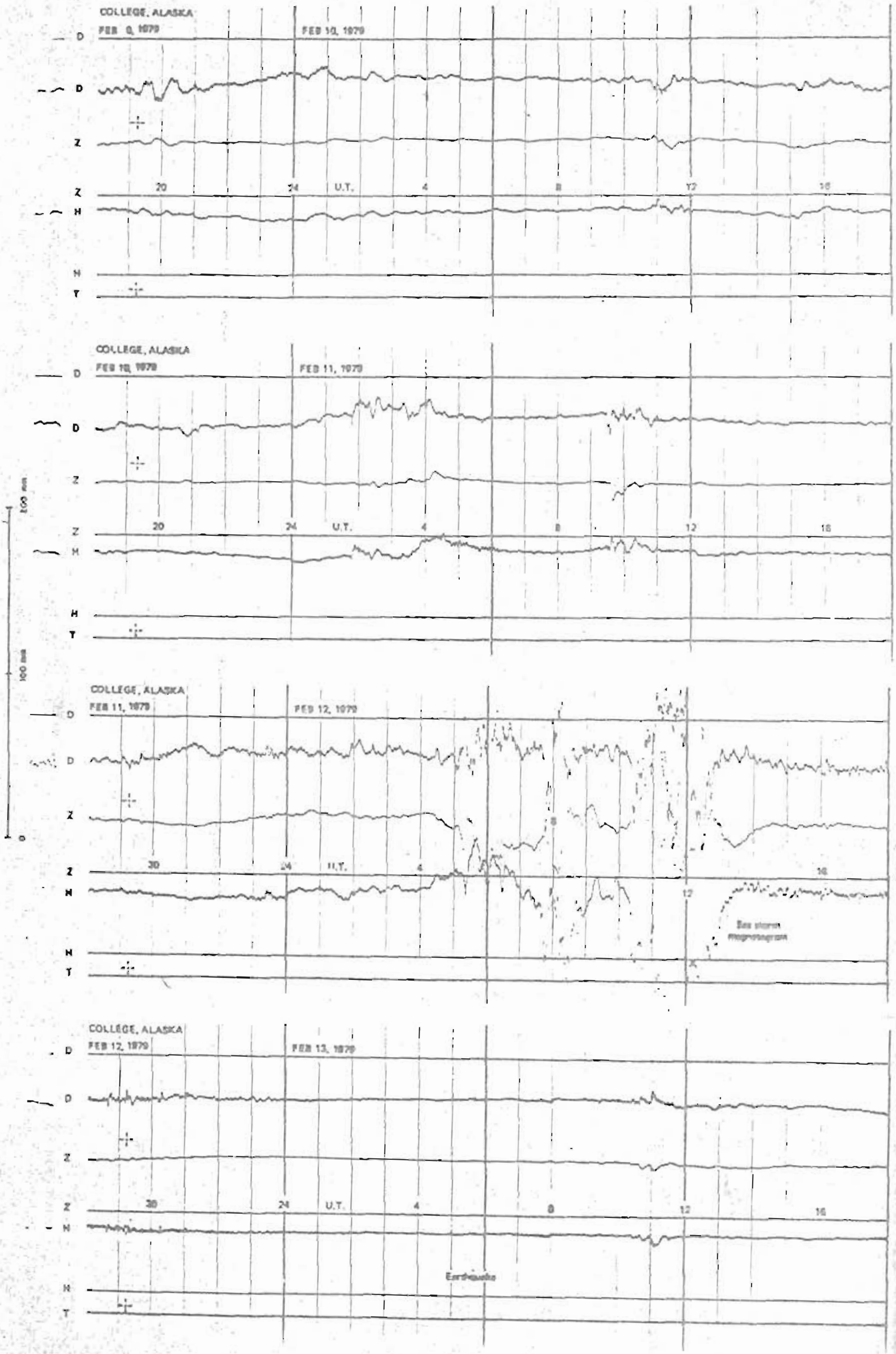NORMAL MAGNETOGRAMS