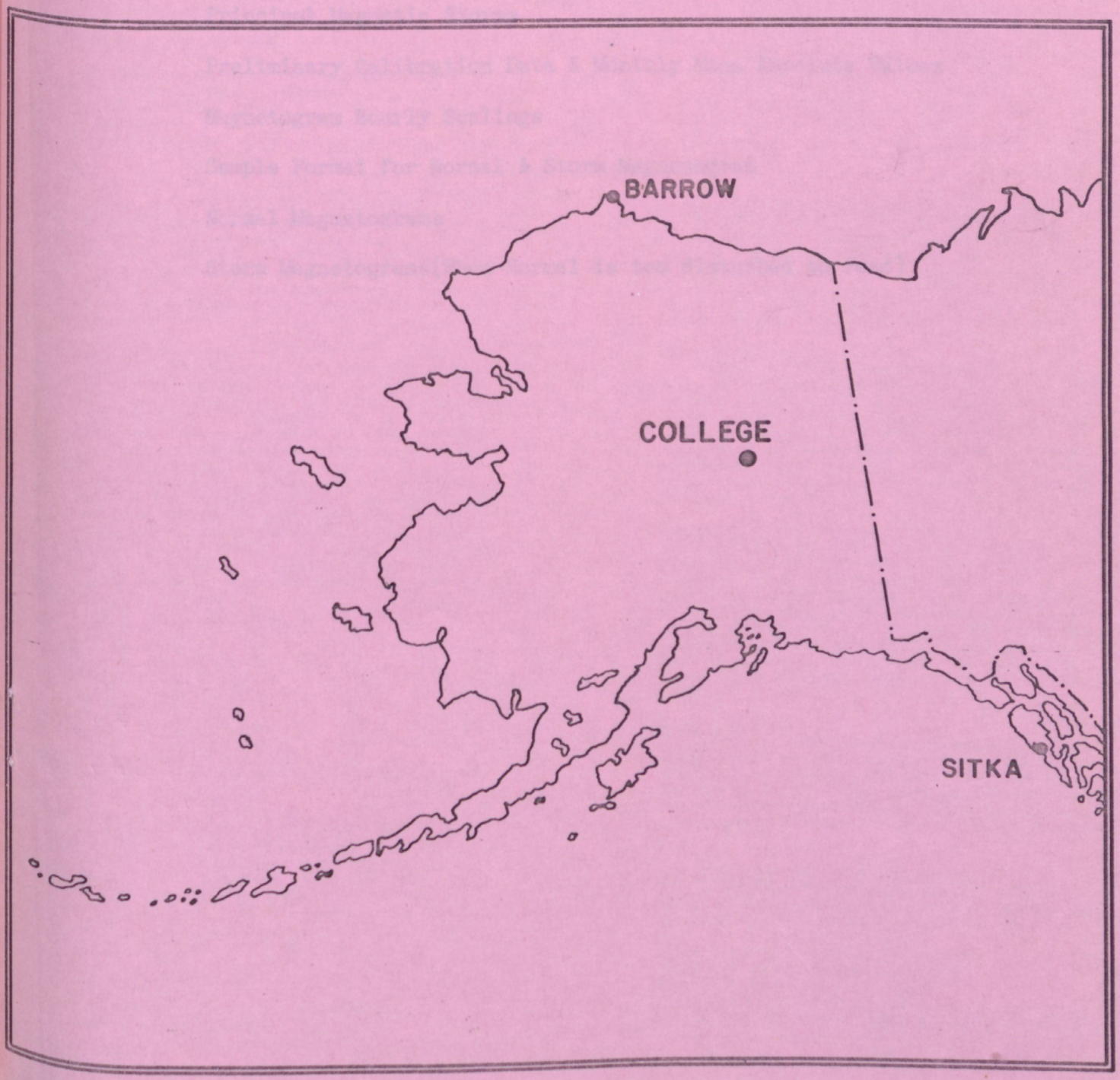
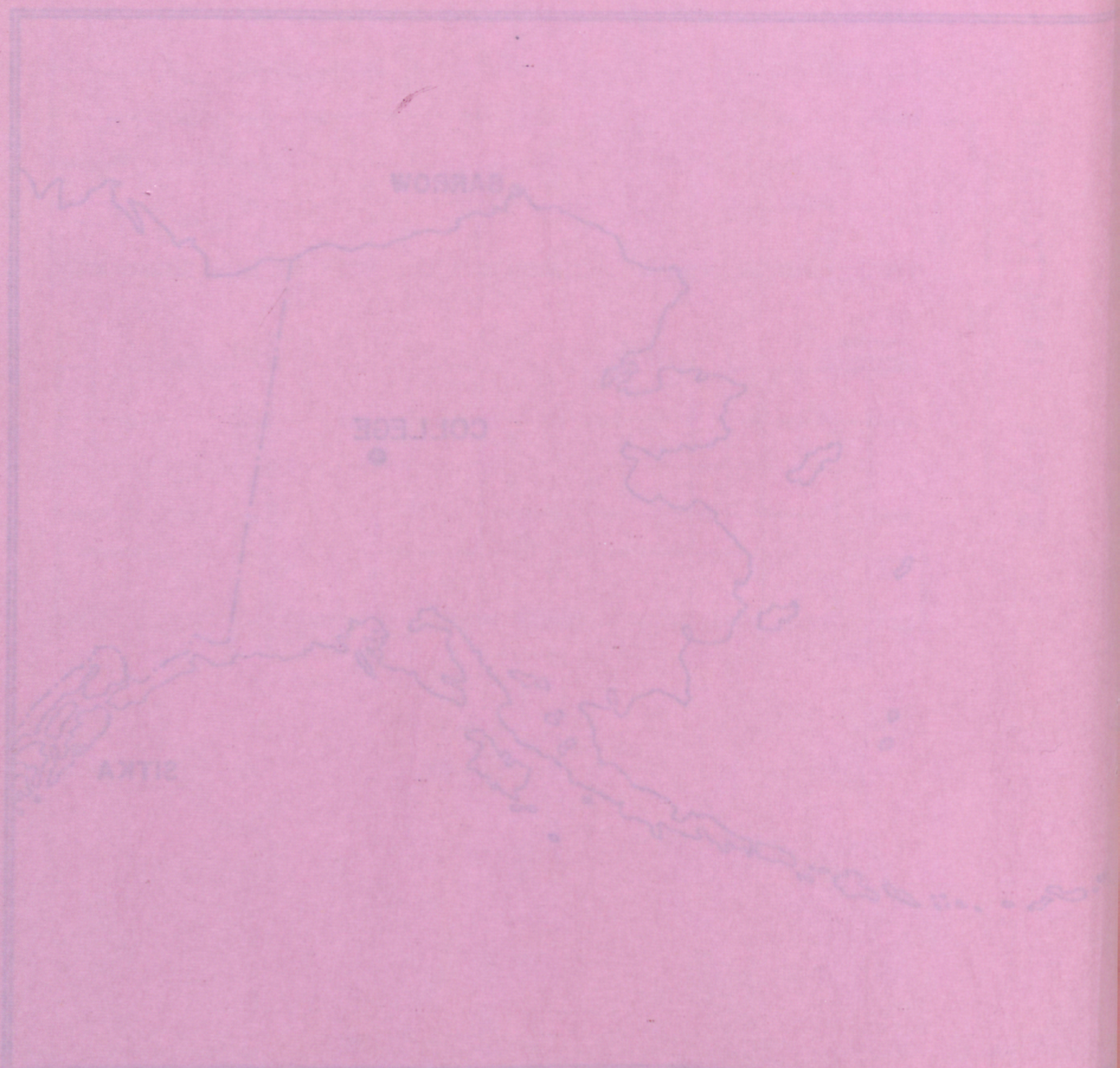
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY [Reports—Open file series]

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

MARCH 1977 OPEN FILE REPORT 77-300C





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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, M. J. MOORMAN, C. E. DEADMON, 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.

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: MARCH 1977

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	0	0	3	1	3	2	2	13	07
2	1	1	1	4	3	1	1	0	12	07
3	0	0	0	0	2	1	0	0	03	01
4	0	0	0	0	2	0	0	0	02	01
5	0	0	0	1	3	0	0	0	04	02
6	0	0	0	0	5	3	1	1	10	09
7	2	1	3	4	3	3	0	0	16	10
8	0	1	0	2	3	4	2	3	15	09
9	3	3	5	7	7	6	3	4	38	60
10	3	3	5	5	5	4	2	2	29	27
11	2	3	3	3	5	4	3	3	26	20
12	4	2	4	4	3	4	4	2	27	21
13	3	2	2	4	4	3	1	2	21	14
14	3	2	3	2	3	1	1	1	16	09
15	1	0	3	4	3	1	0	0	12	08
16	2	1	3	1	0	1	2	2	12	06
17	2	1	0	5	4	4	2	1	19	15
18	2	2	3	5	4	2	1	1	20	15
19	0	1	1	1	0	1	2	1	07	03
20	2	1	1	3	1	1	2	3	14	07
21	1	2	1	2	1	2	2	3	14	07
22	2	3	3	4	1	1	0	0	14	09
23	0	0	4	5	6	3	3	2	23	24
24	3	3	3	2	4	4	1	1	21	14
25	2	1	1	4	3	2	3	3	19	12
26	3	4	3	5	5	5	1	0	26	26
27	1	1	2	0	1	1	1	2	09	04
28	3	3	3	4	4	5	3	3	28	22
29	4	3	1	1	3	2	1	0	15	09
30	0	0	2	3	2	1	1	0	09	04
31	1	0	0	3	1	0	1	0	06	03

TIME SCALE ON MAGNETOGRAMS: mm/hr

SUDDEN COMMENCEMENTS

d	h	m

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

BEGIN d	h	m	END d	h	m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.76	7.82		(γ/mm)
LOWER LIMIT FOR K = 9	2570	2520		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

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

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1972-760-948

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: MARCH

YEAR: 1977

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
03	13XX	pi2	
04	07XX	pi2	
04	12XX	pi2	with small bays
05	13XX	pi2	with bay
06	08XX	pi2	
14	20XX	pc3, pc4	
15	16XX	pc3, pc4	
17	22XX	pc4	
19	06XX	pi2	
22	19XX	pc4	
27	0608	ssc*	
29	13XX	pi2	with bay
30	20XX	pc3, pc4	
31	12XX	pc4	
APR 01	03XX	pc4	

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

MARCH 1977

Obs. 2 letter IAGA code	Geomag. lat.	Commencement			SC - amplitudes			Max. 3 hr - index K			Ranges			UT End	
		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	08	08XX	..	..	..	..	09	4,5	7	240	1630	800	10	20

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: MARCH 1977

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 3-1-77	2400 U.T., 3-31-77	1.0'/mm	3.8 γ/mm	28° 06.9' E
H	0000 U.T., 3-1-77	2400 U.T., 3-31-77	7.8 γ/mm		12748 γ
Z	0000 U.T., 3-1-77	1804 U.T., 3-27-77	7.7 γ/mm		55136 γ
	1805 U.T., 3-27-77	2400 U.T., 3-31-77	"		55118 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 3-1-77	2400 U.T., 3-31-77	7.9'/mm	29.8 γ/mm	24° 23.8' E
H	0000 U.T., 3-1-77	2400 U.T., 3-31-77	44.1 γ/mm		11486 γ
Z	0000 U.T., 3-1-77	2400 U.T., 3-31-77	48.9 γ/mm		53998 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 U.T., 3-1-77	2400 U.T., 3-31-77	0.3'/mm	1.0 γ/mm
H	0000 U.T., 3-1-77	2400 U.T., 3-31-77	1.0 γ/mm	
Z	0000 U.T., 3-1-77	2400 U.T., 3-31-77	2.4 γ/mm	

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 20.1' E	13050 γ	55357 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAR 3, 4, 5, 16, 19, 20, 21, 27, 30, 31

FORM C&GS-4046 (5-67)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

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	77	MAR	D

C	Q	Tens of Yrs.	Yrs.	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	86	117	123	122	122	137	136	131	132	137	158	161	01	158	151	147	151	183	254	271	173	147	113	117	119	3546
				02	122	124	123	129	128	127	131	129	138	157	132	184	02	182	136	163	167	167	173	173	179	154	133	113	102	3466
				03	102	116	118	121	128	132	134	134	133	134	138	147	03	139	141	163	174	163	166	177	173	154	136	121	112	3356
				04	111	112	117	121	127	129	129	133	137	131	133	143	04	133	138	160	151	171	167	170	164	158	141	121	112	3309
				05	88	98	101	102	109	118	118	112	117	131	127	141	05	147	144	161	156	153	166	172	175	162	149	129	121	3197
				06	111	108	108	114	120	123	121	130	121	136	142	156	06	153	212	269	253	199	218	228	161	131	121	111	103	3649
				07	98	101	111	100	97	97	92	107	171	108	172	159	07	183	188	222	212	233	202	192	172	155	139	116	103	3530
				08	111	101	90	97	108	117	112	121	122	112	132	141	08	187	218	241	207	224	173	203	177	208	96	-23	3	3278
				09	67	32	58	23	124	88	285*	335	208	143	98	221*	09	499*	515*	193	187	428*	237*	105	190	157	122	30	11	4356
				10	68	58	81	93	87	100	247	102	102*	103	112	99	10	122	110	133	152	159	203	181	188	154	126	91	74	2945
				11	81	91	81	102	100	118	127	210	127	137	149	178	11	108	214	201	203	309	122	167	152	68	68	42	59	3214
				12	64	66	108	113	79	110	130	218	302	124	128	120	12	110	118	140	171	214	259	158	121	121	8	31	26	3039
				13	74	98	123	108	99	103	138	144	108	37*	143	148	13	109	127	186	188	242	231	203	182	163	132	107	77	3270
				14	41	77	42	111	47	82	54	124	131	142	129	157	14	165	153	150	167	168	179	168	152	140	121	108	91	2899
				15	103	111	113	121	122	119	123	132	136	137	113	141	15	147	124	151	160	171	171	172	161	150	140	117	109	3244
				16	101	91	89	102	107	84	191	121	122	114	130	141	16	149	151	149	161	172	192	192	182	153	129	60	67	3150
				17	92	97	95	71	97	99	124	122	128	129	126	167	17	212	282	212	232	333	263	218	140	131	103	109	98	3680
				18	71	67	57	63	122	84	104	106	122	128	110	203	18	184	141	143	181	150	161	177	172	158	141	121	107	3073
				19	103	108	108	106	108	105	108	111	122	142	153	132	19	137	147	161	169	186	191	192	178	149	119	112	111	3258
				20	76	31	71	92	111	119	116	121	124	121	149	158	20	141	150	162	163	183	201	201	191	162	98	6	67	3014
				21	101	106	111	114	112	121	121	118	101	117	122	117	21	161	152	151	158	209	157	161	150	98	81	99	83	3023
				22	82	93	99	91	78	101	175	123	136	97	108	141	22	153	151	162	170	169	200	187	178	161	142	131	111	3239
				23	89	87	89	101	104	91	90	250	232	127	161	228	23	246	159	151	199	230	208	193	108	73	82	100	93	3491
				24	62	62	54	81	57	91	102	122	128	126	139	132	24	192	178	163	187	187	162	192	151	133	121	112	96	3030
				25	97	93	81	109	94	108	113	112	111	119	191	135	25	145	163	159	161	163	210	208	181	144	49	101	92	3139
				26	90	75	72	64	-8	80	98	207	133	189	162	127	26	233	176	146*	228	272	176	179	149	131	121	117	113	3330
				27	101	100	93	101	112	121	121	122	118	124	131	142	27	149	151	159	172	183	192	211	176	149	123	152	111	3314
				28	71	62	82	27	36	67	120	112	171	101	136	211	28	216	201	228	318	313*	210*	153	151	158	136	79	36	3395
				29	51	31	20	122	120	112	116	122	128	131	133	144	29	161	176	162	160	162	147	153	171	156	147	130	117	3072
				30	111	102	101	108	117	117	116	118	118	148	126	123	30	143	144	158	157	176	172	164	161	153	147	123	108	3211
				31	101	94	101	109	114	112	111	119	110	107	136	152	31	137	151	150	149	147	169	180	174	151	140	121	92	3127

SCALED BY	SPT
CHECKED BY	MIM, JEP
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 Mgph., converted to Normal Mgph.

MONTHLY SUM	101844
MONTHLY MEAN	187
DATES WITH GAPS:	

USCOMM-DC 50058-P67

FORM C&GS-404a (6-67)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY.	YEAR	MONTH	ELEMENT
CO	77	MAR	H

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day 250W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

Y	D/M	Tens D	Hr.	01	02	03	04	05	06	07	08	09	10	11	12	Hr.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	370	379	391	391	396	396	397	396	396	393	371	350	01	406	398	390	314	354	357	374	370	373	340	364	381	9047
			02	379	378	386	383	390	388	387	390	394	403	353	276	02	351	370	396	397	393	392	393	387	374	379	381	370	9090
			03	377	380	389	389	390	391	394	398	394	395	395	396	03	399	383	359	379	399	390	391	388	384	379	380	380	9299
			04	381	382	386	390	393	396	391	391	393	396	397	400	04	393	398	401	400	399	399	398	389	386	380	376	379	9394
			05	379	382	389	396	394	390	396	406	407	410	403	390	05	366	326	387	399	406	400	396	394	386	380	377	377	9336
			06	381	389	393	391	399	397	394	392	397	396	393	396	06	393	182	159	340	404	394	386	386	389	386	383	377	8897
			07	381	385	400	399	390	394	430	447	401	290	353	383	07	351	336	310	326	400	411	399	390	379	374	376	379	9084
			08	387	397	396	400	397	399	405	400	403	416	397	410	08	350	313	387	380	259	283	403	396	364	292	310	386	8930
			09	371	442	426	464	459	529	625	410	408	552	439	-122*	09	-835*	22	339	345	-54*	-65*	426	381	370	296	365	332	6925
			10	399	470	407	430	433	509	423	440	257	311	234	230	10	306	101	180	221	290	341	354	381	377	364	362	374	8194
			11	390	396	379	401	419	413	411	402	416	321	323	330	11	241	297	99	104	69	253	316	358	319	382	362	353	7754
			12	380	544	450	420	423	403	439	430	499	420	416	312	12	344	371	382	330	255	183	180	288	342	301	330	346	8788
			13	384	413	394	401	418	416	409	426	442	346	348	393	13	281	307	370	372	347	331	396	375	369	346	359	351	8994
			14	349	383	443	421	439	421	491	534	484	409	401	397	14	329	397	393	400	399	382	385	380	374	370	364	373	9718
			15	372	383	389	389	391	399	399	441	490	480	421	337	15	270	369	388	391	380	382	383	377	372	370	370	370	9313
			16	374	380	386	379	387	404	437	419	396	394	398	390	16	390	389	399	390	390	374	381	368	346	339	343	303	9216
			17	376	376	400	400	399	389	379	384	380	385	360	128	17	180	107	272	336	240	241	340	356	371	381	389	388	7957
			18	379	381	396	414	424	400	394	410	487	486	389	152	18	254	403	400	362	380	380	386	386	383	380	376	377	9189
			19	377	378	379	386	396	397	409	400	391	391	396	400	19	401	401	397	399	393	390	381	389	380	377	379	389	9376
			20	373	364	367	389	386	388	391	390	397	399	379	411	20	390	396	380	384	371	350	359	360	364	319	311	377	8995
			21	371	376	383	390	400	389	390	400	409	407	411	391	21	387	391	390	389	353	311	319	304	306	359	406	384	9016
			22	401	394	383	396	407	456	490	569	506	446	267	349	22	407	390	376	369	379	380	391	380	379	370	365	364	9614
			23	370	373	380	388	390	399	413	481	380	391	276	89	23	-121*	310	439	406	381	324	215	270	303	370	381	356	7964
			24	436	469	379	361	426	424	509	508	420	403	379	367	24	284	245	380	293	201	396	399	374	376	370	384	383	9166
			25	379	387	410	396	409	393	390	397	398	400	373	431	25	365	361	390	391	394	359	391	369	328	341	399	398	9249
			26	391	390	431	547	489	399	400	471	493	481	398	313	26	165	204	-38	-176	161	400	404	404	390	389	290	377	8193
			27	377	380	383	389	389	390	406	409	416	417	414	414	27	406	393	401	400	400	399	379	390	381	387	380	350	9450
			28	370	417	388	449	508	432	396	429	423	421	377	247	28	245	285	257	253	96	192	356	408	380	339	359	358	8385
			29	404	439	513	421	399	400	391	389	390	391	400	409	29	360	270	381	380	361	369	400	385	379	378	370	369	9348
			30	367	376	382	389	388	392	400	410	447	421	381	390	30	361	380	384	386	373	381	386	390	377	373	365	359	9258
			31	368	380	383	387	391	399	400	397	404	420	396	297	31	399	394	396	388	387	394	397	395	390	380	374	370	9286

SCALED BY	SPT
CHECKED BY	MJM, JEP
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 Mgph., converted to Normal Mgph.

MONTHLY SUM	276425
MONTHLY MEAN	372
DATES WITH GAPS:	

USCOMM-DC 30656-P67

Form C&GS-404a
(4-67)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

Values are in tenths of mm, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150WM.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	77	MAR	Z

C.	Day of S	Day of U	Hr. (LT)	01	02	03	04	05	06	07	08	09	10	11	12	Hr. (UT)	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	286	296	298	297	297	297	294	295	296	294	276	266	01	281	287	286	263	218	219	211	238	261	268	276	279	6579
			02	287	290	291	296	294	293	300	303	309	249	189	107	02	143	187	260	281	289	291	280	276	279	281	283	283	6341
			03	286	291	293	297	294	293	292	293	294	301	299	291	03	289	273	228	218	258	271	278	279	282	285	286	290	6761
			04	291	291	290	290	290	290	296	297	294	290	289	289	04	261	271	260	276	279	281	284	284	284	283	284	283	6827
			05	285	289	289	290	296	309	306	318	330	329	306	290	05	265	236	251	275	286	290	290	288	288	290	291	293	6980
			06	291	290	287	289	289	289	290	295	295	302	293	281	06	280	179	66	121	218	260	250	241	246	260	276	284	6172
			07	289	293	289	297	306	323	339	367	317	248	254	249	07	261	246	221	224	230	256	271	273	280	281	281	286	6681
			08	289	288	289	290	291	289	293	296	303	311	293	288	08	237	222	197	251	220	134	186	228	274	248	226	266	6209
			09	307	313	319	350	334	351	300	125	207	153	271	480*	09	569*	118	132	236	180	124*	136	261	260	288	356	309	6539
			10	328	329	326	321	316	337	346	347	269	297	281	264	10	277	215	197	187	171	206	156	216	256	272	274	298	6486
			11	301	306	311	319	313	317	312	318	223	146	151	228	11	233	197	232	173	203	194	208	259	250	270	289	300	6053
			12	310	360	350	339	302	337	340	332	264	163	284	270	12	253	274	288	279	240	249	242	250	261	257	281	287	6812
			13	317	325	323	316	308	326	332	333	348	238	247	246	13	247	202	260	272	258	196	219	259	258	268	291	299	6688
			14	299	306	331	358	324	351	346	342	347	351	315	303	14	190	269	288	281	286	293	278	290	291	292	299	297	7327
			15	303	304	305	304	303	303	310	329	302	279	294	287	15	238	251	287	297	296	296	297	297	297	297	296	301	7073
			16	301	302	306	309	309	317	323	340	339	312	310	309	16	302	300	302	304	306	308	296	290	280	278	267	274	7290
			17	308	309	316	338	346	332	314	301	303	300	290	251	17	197	136	156	201	136	101	161	237	280	274	289	296	6172
			18	306	319	320	334	351	318	328	346	367	361	328	306	18	156	246	293	296	279	278	289	288	293	294	296	296	7288
			19	300	301	301	299	306	311	348	338	317	314	303	296	19	297	296	296	296	297	296	297	287	286	280	283	283	7228
			20	288	303	339	320	301	299	297	299	296	296	285	309	20	299	287	286	277	271	258	222	207	220	231	233	261	6684
			21	276	279	287	283	294	293	293	297	315	326	326	312	21	291	296	293	288	271	197	156	180	217	243	308	311	6638
			22	319	318	314	319	320	326	326	384	360	339	266	238	22	284	297	290	289	277	280	289	290	289	290	296	301	7301
			23	300	301	309	308	306	308	326	318	236	282	266	298	23	292	158	267	296	286	257	192	173	181	224	283	311	6478
			24	341	348	332	308	310	341	327	356	362	333	308	303	24	246	176	261	259	220	221	280	276	277	279	291	301	7056
			25	311	313	321	311	307	310	303	300	306	306	241	274	25	268	254	276	291	279	284	259	269	272	257	268	293	6913
			26	302	316	347	406	416	412	333	338	329	323	298	258	26	205	278	248	6	-101	109	237	271	287	298	307	306	6529
			27	306	301	291	293	297	298	291	293	291	298	290	287	27	288	291	296	291	293	290	308	286	285	283	301	302	7050
			28	307	327	341	351	419	404	361	353	266	319	331	288	28	212	226	204	166	207	185	212	269	297	308	326	318	6997
			29	338	331	384	390	336	319	319	321	321	329	316	309	29	320	258	268	286	290	281	290	301	309	317	319	321	7573
			30	319	318	319	320	321	317	315	317	340	317	272	289	30	256	267	281	299	310	311	304	301	306	308	311	312	7330
			31	315	315	315	314	315	315	319	324	327	347	338	236	31	280	290	301	304	299	300	301	302	297	299	301	300	7354

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

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

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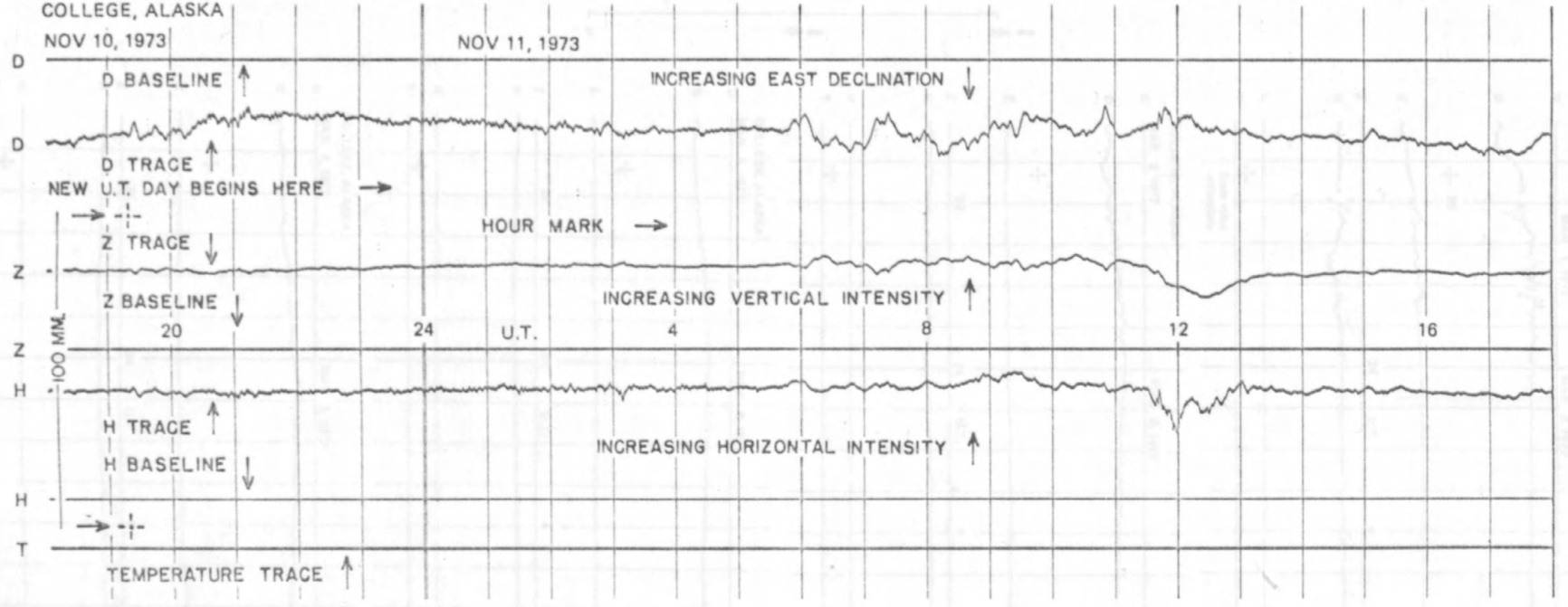
⌈⌋ Significant portion of hour interpolated.
□ No record; or no values available because of faulty record.
[ ] Scaling uncertain because of magnetic storm.
<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.
* Derived from Storm Mgph., converted to Normal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

MONTHLY SUM	211409
MONTHLY MEAN	284
DATES WITH GAPS:	

USCOMM-DC 50050-P67

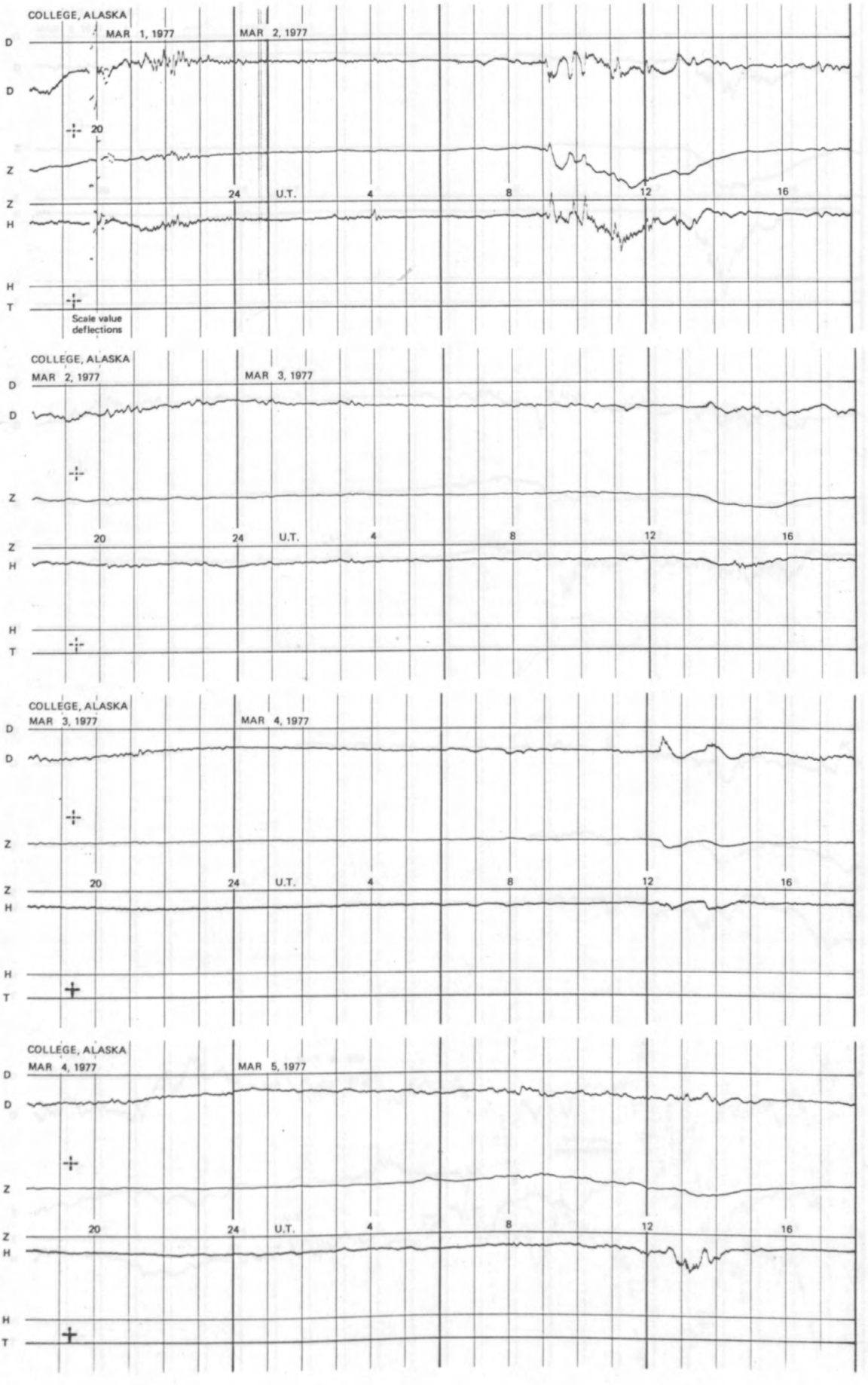
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

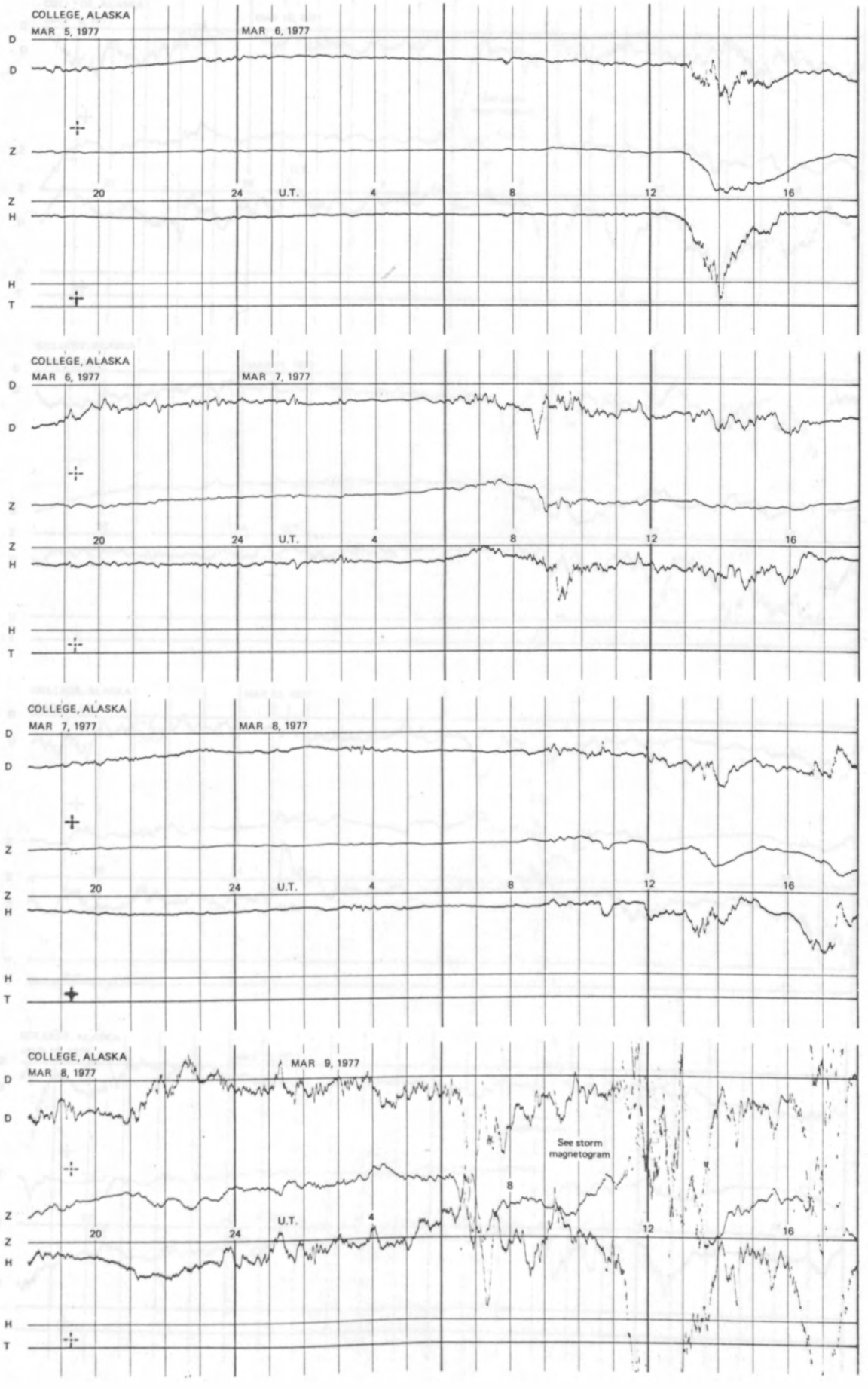


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

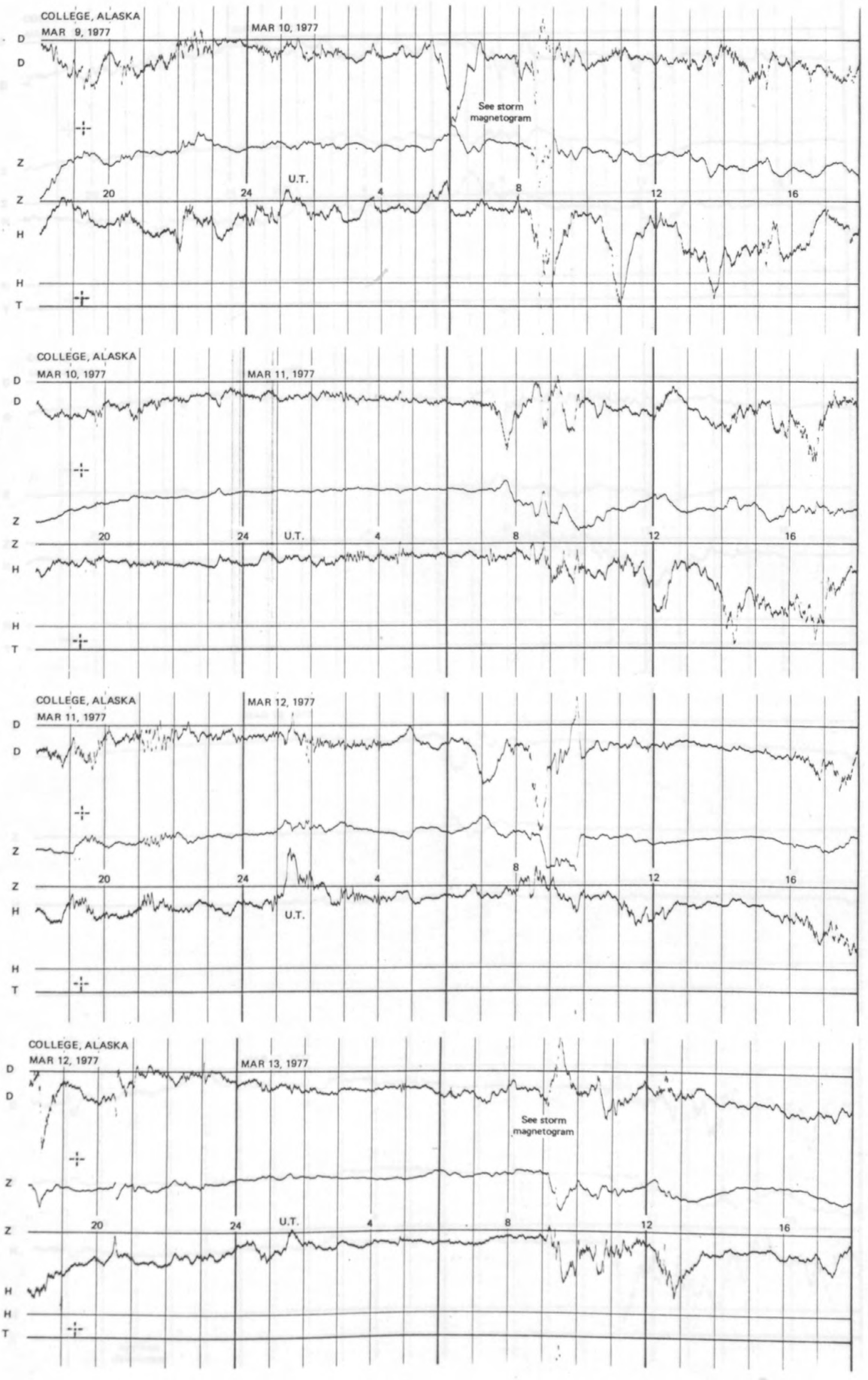
NORMAL MAGNETOGRAMS



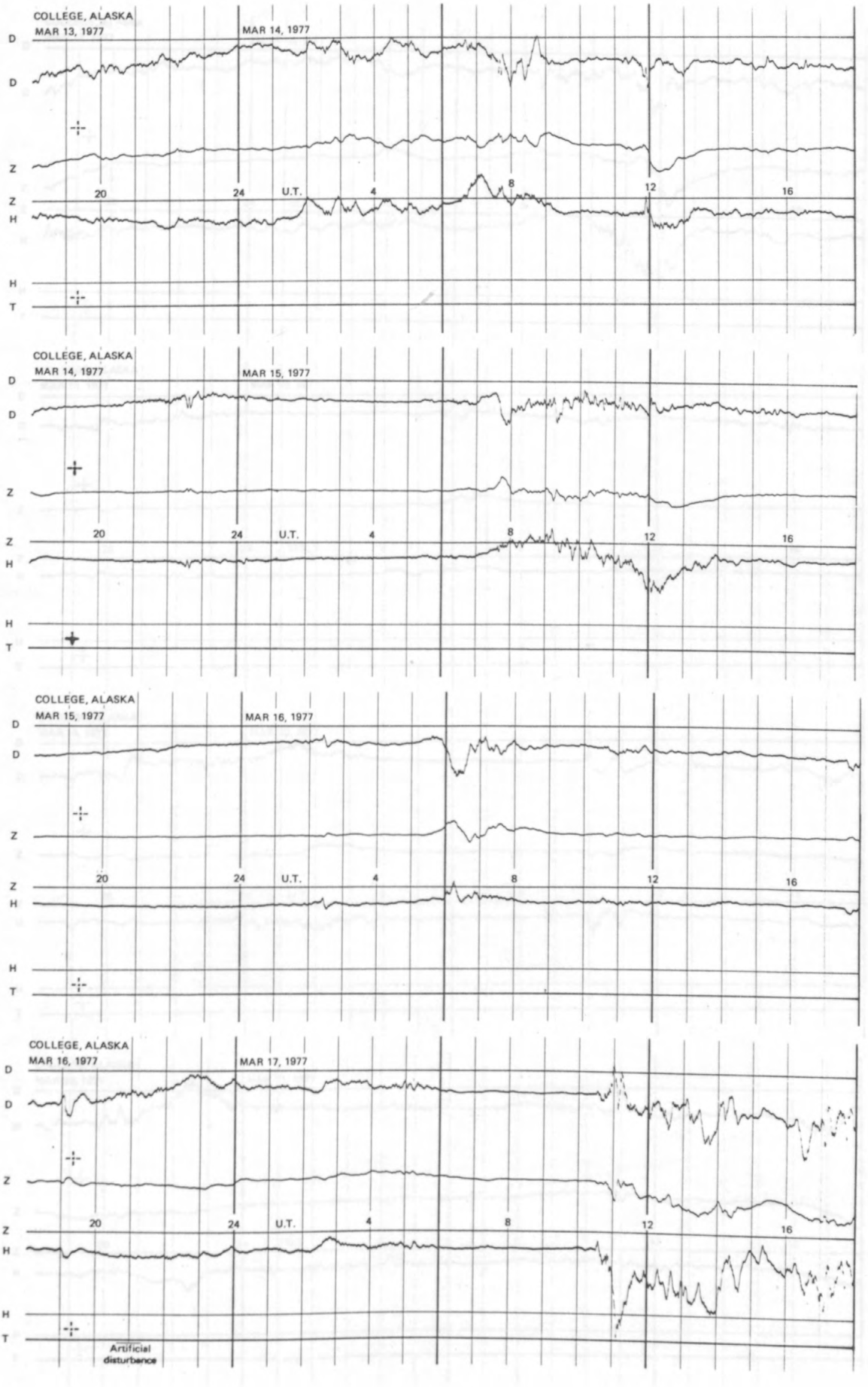
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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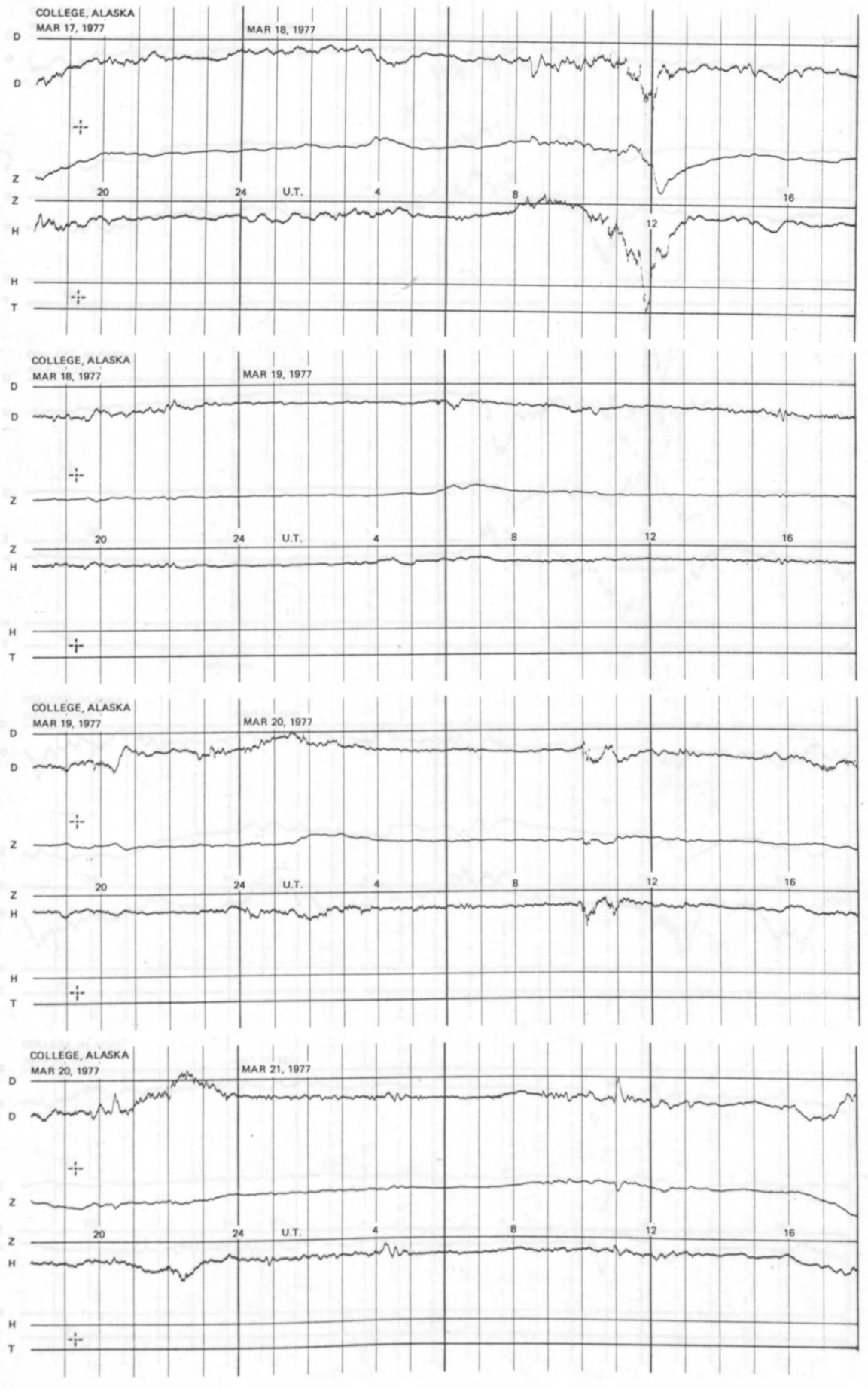

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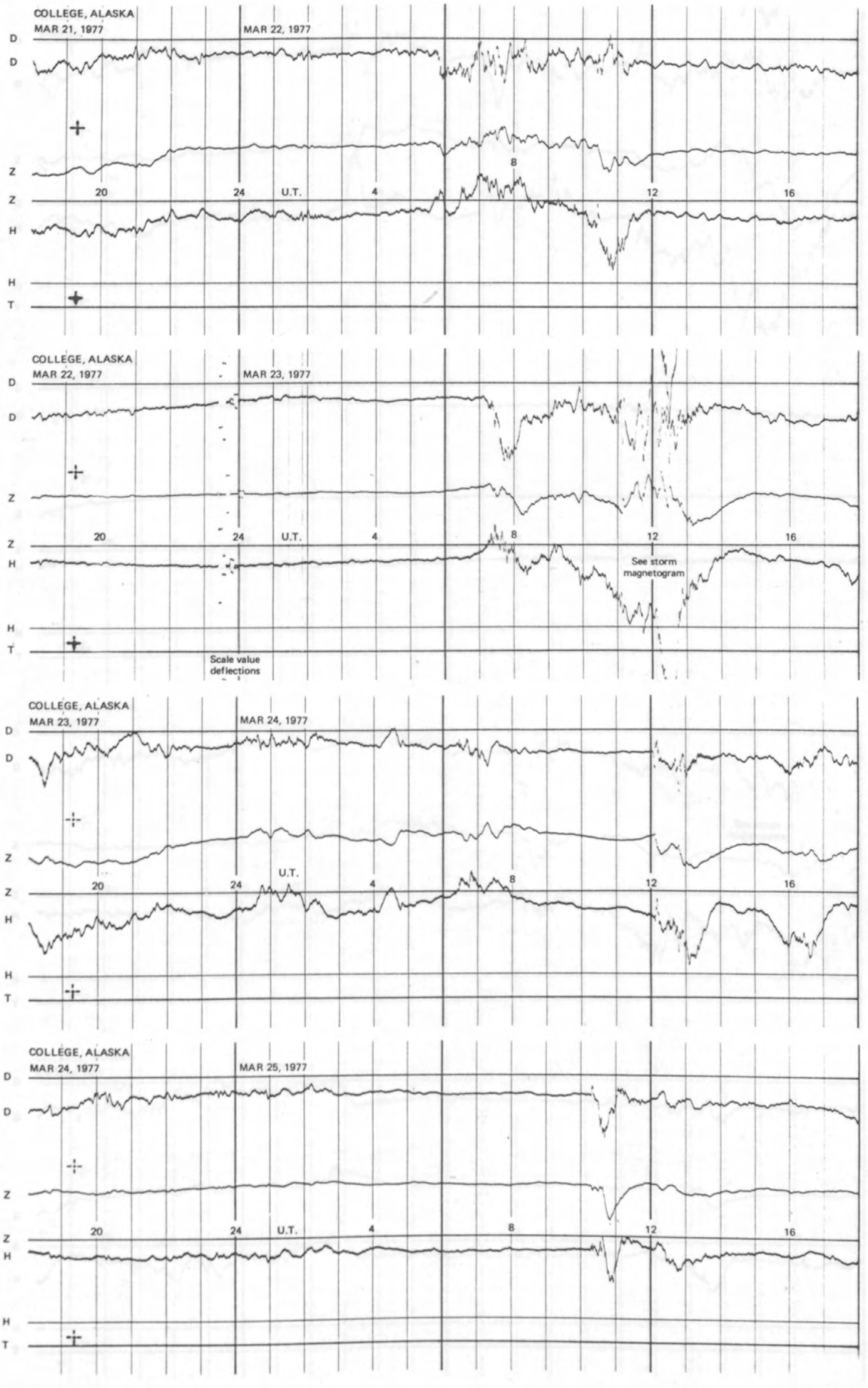

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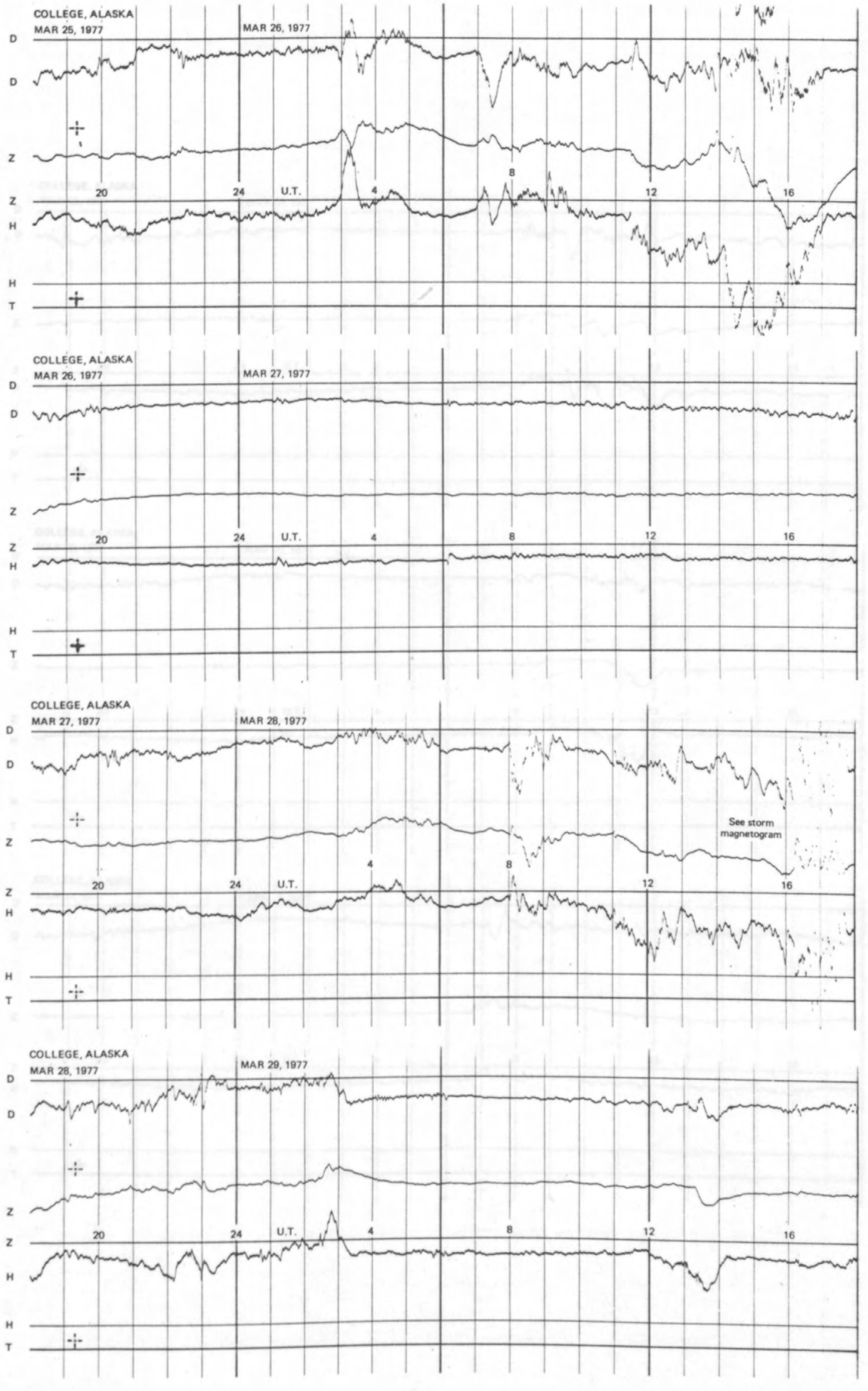

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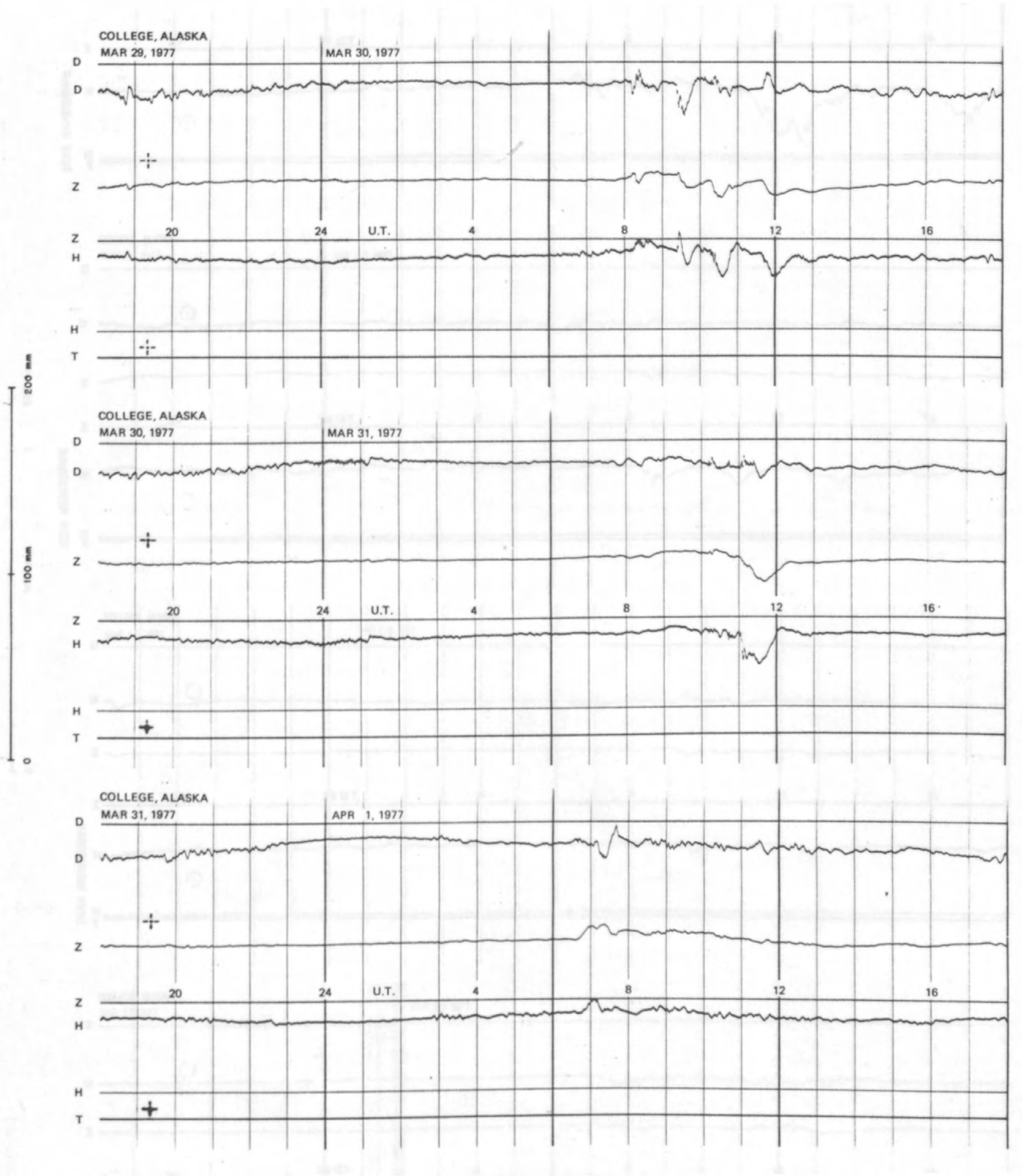
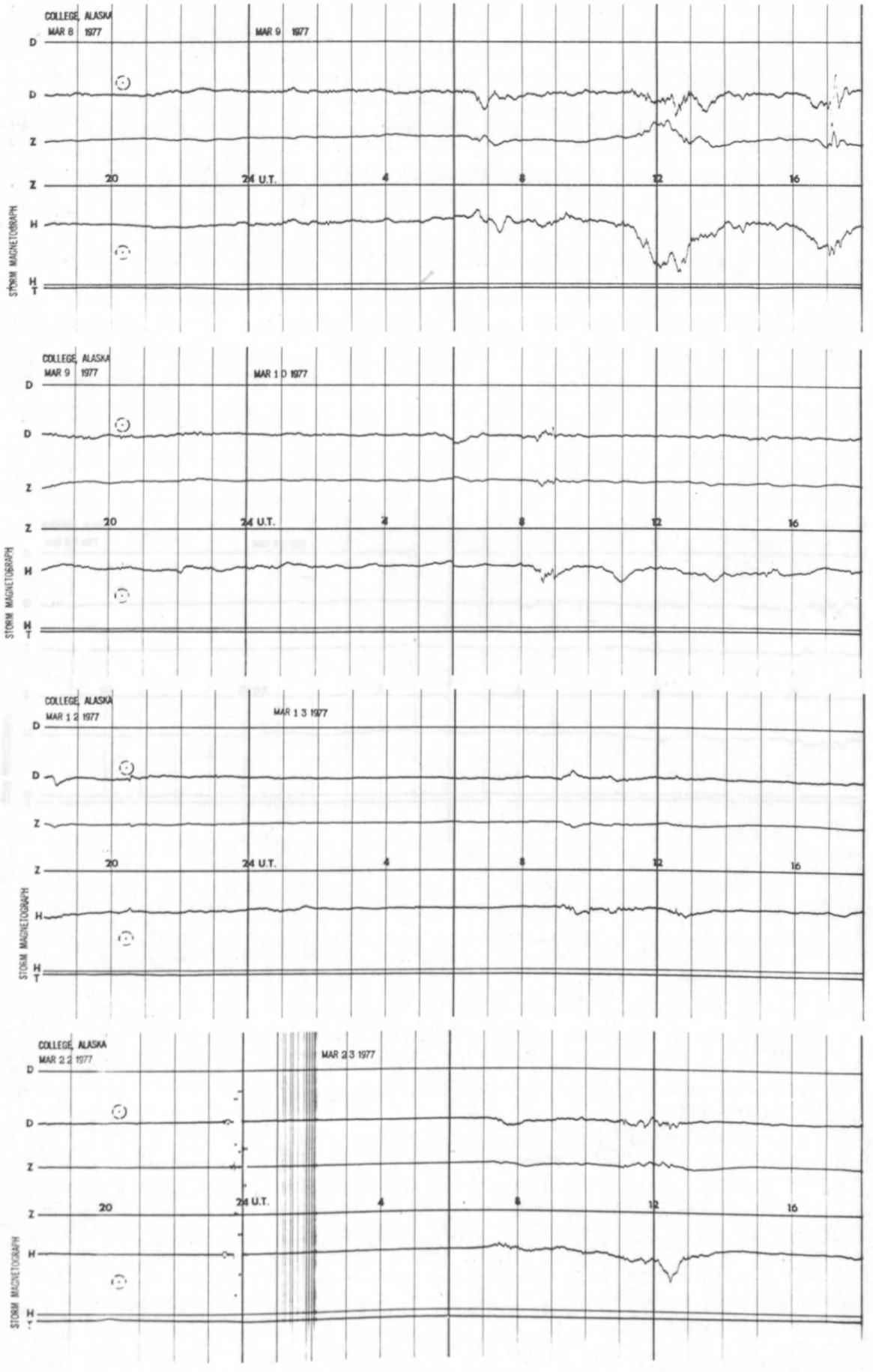


STORM MAGNETOGRAMS



STORM MAGNETOGRAMS