

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

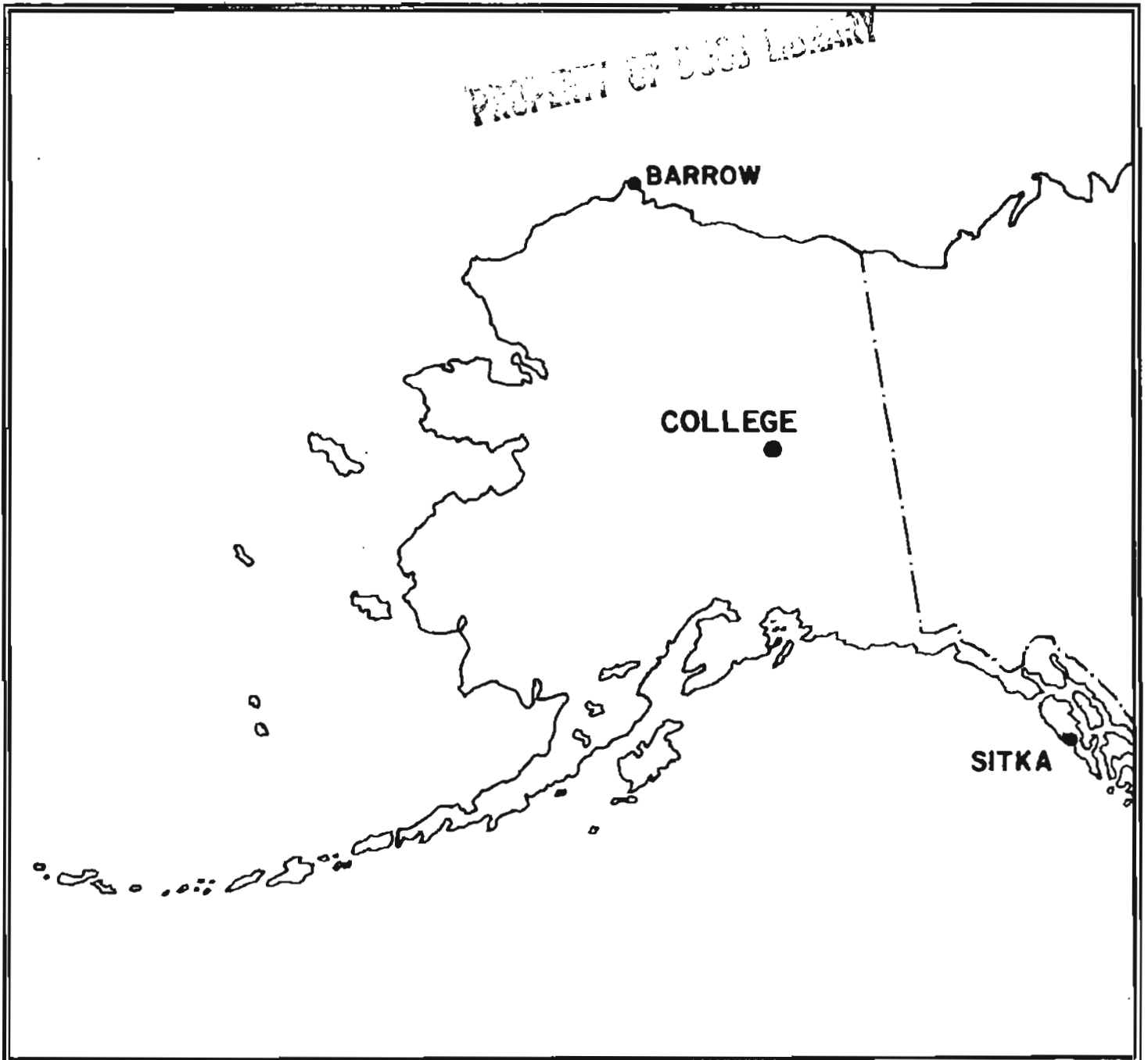
PRELIMINARY GEOMAGNETIC DATA

COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

JANUARY 1977

OPEN FILE REPORT 77-300A



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Normal Magnetograms

Storm Magnetograms(When Normal is too disturbed to read)

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°30.2'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 (20γ)

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
0-50	0
51-50	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 IAGG 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:

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

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.

MAGNETIC ACTIVITY
(Greenwich civil time, counted from midnight to midnight)

DATE	K-INDICES								SUM	AK	TIME SCALE ON MAGNETOGRAMS
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24			
1	2	1	6	5	6	3	2	3	28	32	Sudden Commencements d h m
2	1	1	0	1	0	1	0	0	04	02	
3	0	1	1	1	0	2	3	1	09	04	
4	1	1	0	6	5	5	3	1	22	25	
5	2	2	1	3	3	2	3	2	18	10	
6	2	1	3	3	3	3	2	1	18	10	
7	1	0	2	2	2	2	1	0	10	04	
8	0	1	1	3	3	4	0	0	12	08	
9	0	1	0	1	4	1	1	0	08	05	
10	0	0	0	1	3	1	0	0	05	03	
11	0	0	1	2	4	6	3	3	19	18	
12	3	2	2	3	4	4	3	1	22	15	
13	1	2	0	2	2	2	0	1	10	04	
14	2	2	3	4	3	5	4	3	26	20	
15	3	4	4	3	4	3	1	1	23	17	
16	1	2	2	1	3	3	1	0	13	07	
17	0	1	1	3	5	4	0	0	14	12	
18	1	3	4	2	1	0	0	0	11	07	
19	1	0	0	0	0	1	1	2	05	02	
20	3	3	1	5	3	1	1	1	18	13	
21	1	0	1	5	0	1	0	1	09	08	
22	0	0	1	3	6	3	0	0	13	14	
23	0	0	1	2	2	1	1	1	08	03	
24	1	1	2	2	4	2	2	1	15	08	
25	0	0	2	1	5	2	2	1	13	09	
26	1	0	0	2	1	0	0	0	04	02	
27	0	0	0	2	1	1	1	0	05	02	
28	0	0	1	3	3	1	3	5	16	12	
29	4	3	4	5	3	4	2	1	26	21	
30	3	4	5	6	6	5	4	4	37	44	
31	4	3	4	4	6	1	1	1	24	23	

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

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED John B. Townshend, Chief, College Observatory

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH

YEAR

JANUARY

1977

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
10	06XX	pc5	With pc3's
10	11XX	pi2	With bay on H
14	00XX	pc5	
16	12XX	pi2	
19	00XX	pc1	
24	1845	si	
28	1756	ssc*	
28	2011	si	
IDENTIFIED BY: MJM/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-TERRRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 U.S.A.

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

JANUARY 19 77

Obs. 2 letter IAGA code	Geomag. lat.	Commencement			SC - amplitudes			Max. 3 hr - index K			Ranges			UT End day hr
		day	hr min (UT)	type	D(')	H(γ)	Z(γ)	day (3 hr - period)	K	D(')	H(γ)	Z(γ)		
CO	64.6 N	28	1756	s.c.*	..	-9	+5	30 31	4,5 5	6 6	252	1340	1030	31 15

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 1-1-77	2400 UT, 1-31-77	1.0/mm	3.8 γ/mm	28°07.0E
H	0000 UT, 1-1-77	2400 UT, 1-31-77	7.8 γ/mm		12750 γ
Z	0000 UT, 1-1-77	2400 UT, 1-31-77	7.7 γ/mm		55137 γ

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 1-1-77	2400 UT, 1-31-77	7.9/mm	29.8 γ/mm	24°23.5E
H	0000 UT, 1-1-77	2400 UT, 1-31-77	44.1 γ/mm		11490 γ
Z	0000 UT, 1-1-77	2400 UT, 1-31-77	48.9 γ/mm		54025 γ

RAPID RUN MAGNETOGRAPHS					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		
D	0000 UT, 1-1-77	2400 UT, 1-31-77	0.3/mm	1.0 γ/mm	
H	0000 UT, 1-1-77	2400 UT, 1-31-77	1.0 γ/mm		
Z	0000 UT, 1-1-77	2400 UT, 1-31-77	2.4 γ/mm		

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28°20.6E	13052 γ	55957 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JAN. 2, 3, 7, 9, 10, 13, 19, 23, 26, 27

C		Year		Month		Day		Hour		Minute		Second		Tenth		Hundredth		Thousandth		Ten-thousandth		Hundred-thousandth		Millionth		Tenth-millionth		Hundred-millionth		Billionth	
MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																															
Values are in units of gamma, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1508 U.T.) is hour 11 of the 5886 universal day.																															
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.																															
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
102	124	122	123	132	130	133	137	12	68	168	174	223	172	214	133	154	160	139	145	134	91	109	113	3212							
131	130	136	132	132	133	137	139	146	147	158	169	172	157	148	155	168	188	183	181	169	149	127	114	3602							
113	106	118	114	122	112	111	122	124	148	148	145	151	148	143	143	150	141	82	138	114	119	110	85	3007							
108	131	138	132	131	123	122	133	142	153	166	175	315	360	367	487	329	236	216	171	111	113	107	88	4814							
108	105	104	83	110	173	119	118	119	134	134	142	143	158	128	172	184	170	94	87	67	78	104	110	2945							
91	114	113	157	152	158	143	131	187	138	127	175	218	138	232	244	232	203	180	138	134	108	112	113	3736							
131	134	139	138	143	144	147	195	109	133	137	145	142	138	128	149	188	158	146	142	119	118	128	119	3370							
123	123	131	145	144	157	162	158	130	132	130	151	149	152	101	119	143	152	148	145	140	135	129	123	3314							
128	132	139	142	154	134	130	132	131	141	142	150	162	157	172	182	165	137	135	143	135	122	123	130	3418							
132	135	140	145	150	148	147	139	133	140	139	146	126	148	160	167	150	151	148	147	143	132	122	123	3409							
129	132	137	142	150	148	149	162	138	133	112	152	148	232	270	600	529	388	155	118	73	44	62	90	4393							
79	77	112	124	134	137	122	148	235	85	115	124	193	129	132	239	313	133	126	123	94	111	102	94	3281							
102	112	124	131	136	139	137	138	139	141	103	159	169	186	191	176	163	160	144	147	136	100	82	75	3290							
114	134	143	137	116	119	117	109	141	132	172	81	121	222	218	221	339	377	262	114	77	93	52	38	3649							
71	81	116	88	153	118	111	136	230	72	128	149	192	113	160	174	170	145	149	151	143	127	118	119	3214							
144	142	132	134	133	188	153	129	137	137	133	144	138	159	168	164	227	139	145	157	128	122	98	105	3456							
120	148	143	133	138	132	133	117	151	118	134	167	202	219	195	278	167	157	158	149	137	129	135	118	3679							
109	78	82	62	52	31	58	106	140	128	137	134	140	162	148	152	151	147	143	139	132	133	132	2848								
119	111	112	135	150	149	140	132	129	132	139	152	142	143	146	148	152	140	143	112	67	95	105	78	3071							
49	89	142	113	124	109	151	137	129	138	7	174	162	173	168	177	149	149	159	155	139	114	87	86	3080							
107	148	154	153	149	148	144	142	170	67	27	158	152	153	148	163	155	159	162	143	128	119	122	132	3303							
142	148	148	142	133	130	123	123	119	99	114	128	202	90	230	190	249	180	159	138	129	92	88	95	3391							
132	150	144	145	142	139	139	133	123	133	131	149	152	153	163	178	168	162	127	91	107	95	79	79	3214							
93	124	142	131	137	133	128	179	137	134	124	133	143	69	138	242	188	158	133	109	97	98	103	112	3185							
122	134	142	143	143	138	125	126	123	122	130	142	168	247	261	224	218	204	163	143	87	36	58	92	3491							
100	108	117	118	132	134	135	128	138	139	148	108	154	155	154	148	154	153	147	136	122	116	107	107	3158							
118	124	134	135	137	138	138	142	141	142	156	160	150	162	158	161	148	168	155	155	131	126	120	124	3423							
126	120	131	131	130	128	130	135	127	151	151	150	129	134	175	171	171	185	172	185	159	30	-45	0	3075							
46	82	150	148	114	115	173	10	75	68	73	160	157	148	204	183	238	229	294	207	158	67	62	83	3264							
114	107	74	27	49	-17	25	149	120	64	89	231	271	537	303	406	289	214	170	84	113	148	125	138	3890							
93	69	130	72	85	128	164	163	21	113	98	122	501	133	157	184	162	162	164	149	140	134	131	121	3398							
SCALED BY	SPT, MIM, JEP		Preliminary base-line and scale values:																												
CHECKED BY	MJM, JEP		Interval	Base-line	Scale																										
INSTRUMENTED BY	MJM		Beginning	Value	Value																										
PURCHASED BY																															
<input type="checkbox"/> Interpolated <input type="checkbox"/> Significant portion of base interpolated. <input type="checkbox"/> No record, or no values available because of faulty record. <input type="checkbox"/> Scaling uncertain because of magnetic storm. <input type="checkbox"/> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.																															
* Derived from SLOTR Magb., converted to Normal Magb.																															
																								MONTHLY SUM	105582						
																								MONTHLY MEAN	142						
																								DATES WITH GAPS:							

FORM CAGS-44a
1969

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in order of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (LST) is hour 11 of the UT day. Environmental reference information cost reduction program.

C	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	UT
01	386	395	404	409	389	390	422	420	56	366	406	292	62	299	346	390	361	388	403	399	372	356	406	398	8195	
02	382	372	396	391	395	400	394	399	393	388	385	379	373	380	383	380	376	383	402	406	403	391	383	383	9311	
03	397	403	387	389	397	402	405	408	413	412	396	389	383	383	383	383	384	362	351	403	402	381	380	392	9396	
04	388	395	399	400	390	389	397	393	389	385	277	-23	184	186	79	20	305	316	245	296	368	388	381	391	1342	
05	376	405	428	415	433	433	411	403	393	406	410	593	383	356	271	399	333	303	298	375	374	358	383	400	9089	
06	408	374	414	409	398	391	383	388	402	403	362	316	267	261	295	351	379	396	416	412	411	401	391	392	9013	
07	389	392	377	391	395	389	378	372	400	392	391	374	373	365	328	345	402	406	402	403	385	386	368	380	9197	
08	396	399	398	396	396	387	383	393	392	387	380	391	381	382	383	371	239	401	407	401	392	392	368	372	9053	
09	397	400	399	396	386	372	388	371	387	388	376	381	381	302	345	407	391	395	381	390	387	382	384	389	9246	
10	398	402	398	399	398	393	391	391	388	388	386	376	376	316	374	378	388	385	392	393	392	389	389	371	9327	
11	395	396	408	399	401	378	392	385	402	416	414	393	387	301	202	-116	-217	262	464	391	398	359	362	379	7871	
12	370	365	408	448	423	420	435	466	488	495	418	376	322	189	287	321	263	426	411	382	385	387	379	382	9252	
13	385	394	407	420	388	398	391	386	397	384	387	376	373	382	374	320	328	385	372	386	386	382	362	356	374	9156
14	372	394	396	399	421	424	463	502	448	454	447	417	417	373	336	353	69	39	331	407	399	396	350	355	8105	
15	422	422	483	460	542	410	396	409	405	407	403	341	341	243	372	354	868	332	367	376	389	384	392	392	8407	
16	388	382	389	391	392	378	409	400	399	403	394	389	389	368	328	326	353	364	393	391	389	386	389	391	385	9168
17	388	390	390	390	398	389	392	400	401	403	406	398	398	379	279	151	241	409	398	396	392	396	393	396	392	8913
18	373	377	401	415	450	511	642	497	453	406	381	381	381	389	373	385	388	385	385	394	387	391	393	389	387	9923
19	384	372	382	397	393	392	391	386	387	386	389	387	387	392	387	387	387	376	353	363	360	372	362	353	349	9107
20	361	382	412	418	495	473	393	391	388	391	123	198	198	409	391	385	371	375	391	391	388	398	393	391	360	9068
21	380	386	393	392	389	389	388	383	378	340	302	403	403	386	389	385	372	371	372	383	386	388	393	395	396	9139
22	372	394	394	391	390	382	387	390	393	393	398	398	398	225	47	318	417	375	398	401	402	403	398	403	408	8857
23	405	404	402	402	401	401	395	395	396	413	401	398	398	380	381	406	393	389	389	370	369	388	401	379	387	9441
24	394	396	394	399	401	402	400	413	413	413	423	397	397	380	162	325	372	402	396	382	386	389	398	402	403	9270
25	399	396	395	395	393	383	383	382	415	422	402	391	391	365	91	251	368	386	396	388	381	346	342	366	381	8629
26	379	387	395	392	395	392	395	391	386	383	386	373	373	401	383	378	379	378	379	381	376	381	383	378	379	9220
27	386	390	388	389	389	389	391	388	386	388	396	382	382	381	381	378	366	351	358	374	382	383	377	382	381	9166
28	379	380	383	382	384	386	390	387	398	413	402	382	382	293	393	381	392	402	393	380	380	328	272	202	386	8825
29	372	403	401	405	393	424	423	620	558	557	605	218	218	406	385	396	152	263	345	322	362	364	373	373	382	9472
30	419	413	408	581	490	662	695	678	468	339	312	206	206	414	521	-41	-62	-139	240	257	156	188	204	397	474	6410
31	496	574	494	490	425	397	439	522	593	457	345	270	270	181	311	430	379	389	384	361	379	385	382	392	384	9351

() Interpolated
 () Significant portion of hour interpolated.
 () No record or no value available because of faulty return.
 () Scaling, wherever because of magnetic storm.
 () Record not there for part or all of hour; if value is given, curve was estimated for missing part.
 () Derived sum. Scale Magn., converted to Normal Magn.

SPT, MPM, JEP
 MPM, JEP
 MPM
 Scaled by
 Checked by
 Final Rec. Verified by
 Placed by

MONTHLY SUM
 MONTHLY MEAN
 DATES WITH DATA
 374
 218219

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

CST. YEAR WGRTH CLE-
VENT
CO 77 JAN 7

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hours of local day (1503 M.T.) is hour 11 of the 5120 universal day.
Shoulder corrections have been applied. Negative values are in red, with minus signs shown.

C	Year	Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM
		01	293	303	313	310	314	320	325	339	272	235	285	321	210	170	221	258	284	286	298	293	279	269	278	303	6781
		02	307	310	318	318	311	306	305	301	306	305	309	301	293	288	286	292	285	271	263	264	265	273	281	286	7044
		03	291	295	299	301	303	310	318	338	335	351	313	299	293	291	292	292	291	281	193	221	249	271	289	302	7018
		04	303	303	301	299	301	299	308	313	309	307	206	202	138	209	181	150	121	125	137	132	173	218	252	282	5575
		05	301	319	305	313	320	335	295	296	312	278	279	302	299	286	220	219	231	187	137	148	211	241	275	285	6394
		06	307	315	329	342	317	298	295	313	278	267	278	252	241	170	194	217	237	223	242	257	277	282	288	299	6538
		07	299	299	298	297	297	300	302	321	285	301	281	290	288	284	254	247	270	275	280	290	287	291	295	294	6754
		08	298	299	291	294	293	297	299	291	291	298	288	212	237	229	198	140	228	270	280	284	284	287	288	287	6469
		09	287	286	284	287	292	288	290	292	293	293	287	288	233	163	267	278	271	264	269	267	275	274	281	287	6598
		10	291	288	288	288	288	288	284	287	290	294	292	282	235	251	278	283	269	258	261	269	277	284	292	291	6702
		11	292	293	292	291	291	291	292	297	281	251	302	328	299	250	261	478	56	-81	191	219	253	254	257	290	6251
		12	294	315	333	323	318	322	338	342	359	325	349	324	300	201	178	237	224	223	309	289	277	293	297	303	7073
		13	314	317	316	323	324	311	302	295	296	296	283	287	296	293	289	244	267	270	280	284	282	281	267	287	7004
		14	304	314	321	311	310	338	365	381	375	332	309	263	242	282	243	197	42	-64	6	143	207	241	291	297	5990
		15	318	354	349	324	398	398	313	325	282	231	301	309	271	258	268	279	271	237	248	261	278	277	279	285	7048
		16	298	298	296	299	302	320	295	301	298	294	304	301	276	248	227	248	242	248	261	264	270	283	290	292	6752
		17	300	300	299	294	299	303	306	309	313	306	303	231	255	247	137	73	211	278	281	282	283	286	289	286	6471
		18	289	283	303	323	348	384	398	434	381	335	314	308	303	291	288	293	293	293	291	290	289	289	293	294	7613
		19	291	295	298	300	300	292	291	293	298	299	295	288	283	283	288	290	289	258	220	215	200	244	273	282	6665
		20	317	309	332	323	389	418	359	319	309	302	122	53	212	268	282	270	248	250	262	267	270	272	274	286	6713
		21	299	310	303	297	294	295	296	297	312	287	185	162	287	288	284	277	262	267	271	271	278	280	285	289	6776
		22	292	292	291	291	289	295	295	299	295	259	283	249	191	39	93	240	239	219	230	241	255	261	278	292	6008
		23	308	305	298	292	285	285	287	288	298	330	318	301	278	243	268	277	278	280	259	221	242	260	274	275	6750
		24	298	301	316	318	308	308	318	337	325	328	328	315	293	198	165	231	259	271	275	268	275	280	286	294	6835
		25	299	299	296	294	295	295	304	316	315	348	318	311	308	237	145	212	245	263	275	270	262	253	245	280	6705
		26	303	316	313	310	305	303	305	304	308	310	309	288	307	311	298	293	292	291	288	286	280	286	291	294	7191
		27	299	302	301	299	296	295	290	292	295	299	312	291	275	288	291	278	254	246	251	255	261	274	282	290	6816
		28	291	295	297	299	299	300	307	315	331	339	331	301	235	204	242	271	285	284	273	276	276	281	211	191	6729
		29	275	290	310	309	308	318	366	321	301	262	199	234	285	328	291	194	163	213	190	167	176	194	217	254	6165
		30	303	313	324	334	351	380	276	181	160	165	265	307	148	371	417	369	126	-21	39	112	201	299	353	335	6110
		31	304	277	322	352	363	351	296	188	257	305	292	286	270	134	262	288	293	299	299	293	292	290	290	291	6924

SCALED BY: SPT, MJA, JEP
CHECKED BY: MIM, JEP
SIGNS REVIEWED BY: JCM
PUNCHED BY:

Preliminary base-line and scale values:
Interval Beginning Value
Base-line Value
Scale Value

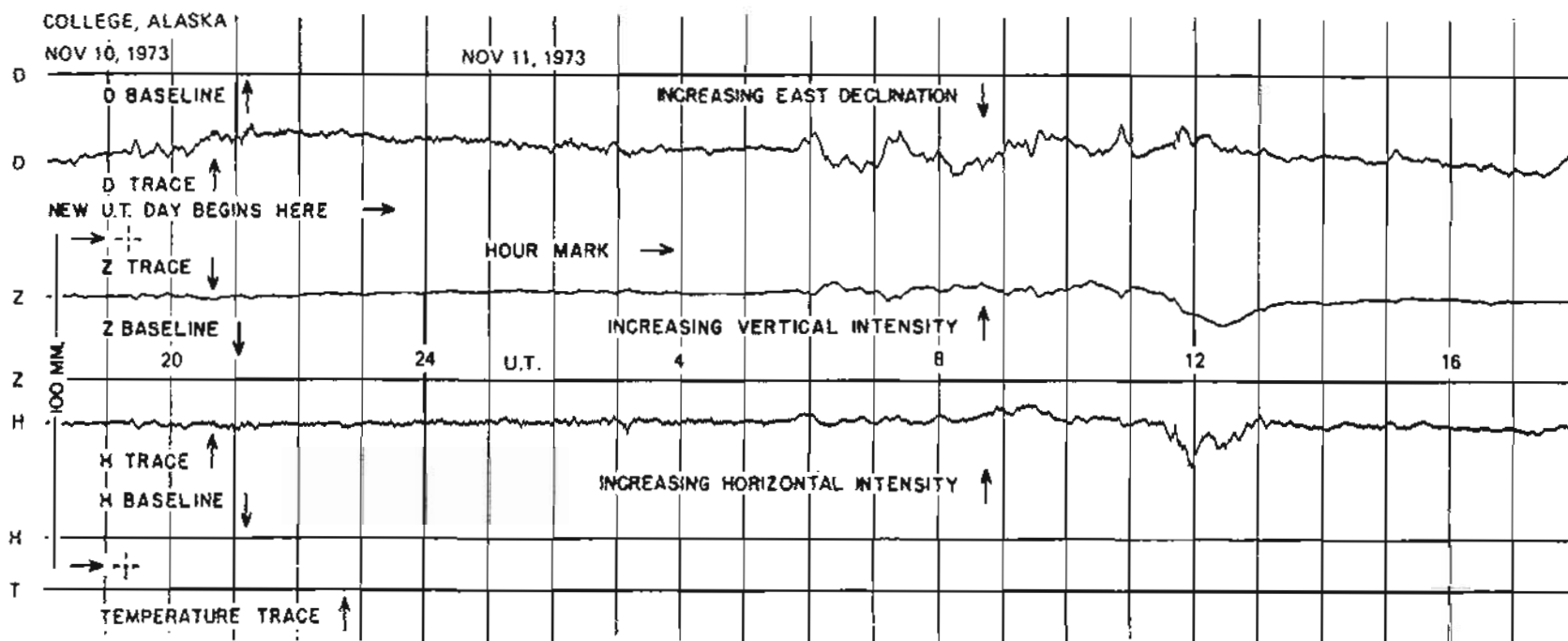
- () Interpolated
- [] Significant portion of hour interpolated.
- No record; or no values available because of faulty record.
- () Scaling excess is because of magnetic storm.
- <> Record all there for part or all of hour; if value is given, curve was estimated for missing part.

* Derived from ST073 Mag. converted to Normal Mag.

MONTHLY SUM: 206644
MONTHLY MEAN: 278

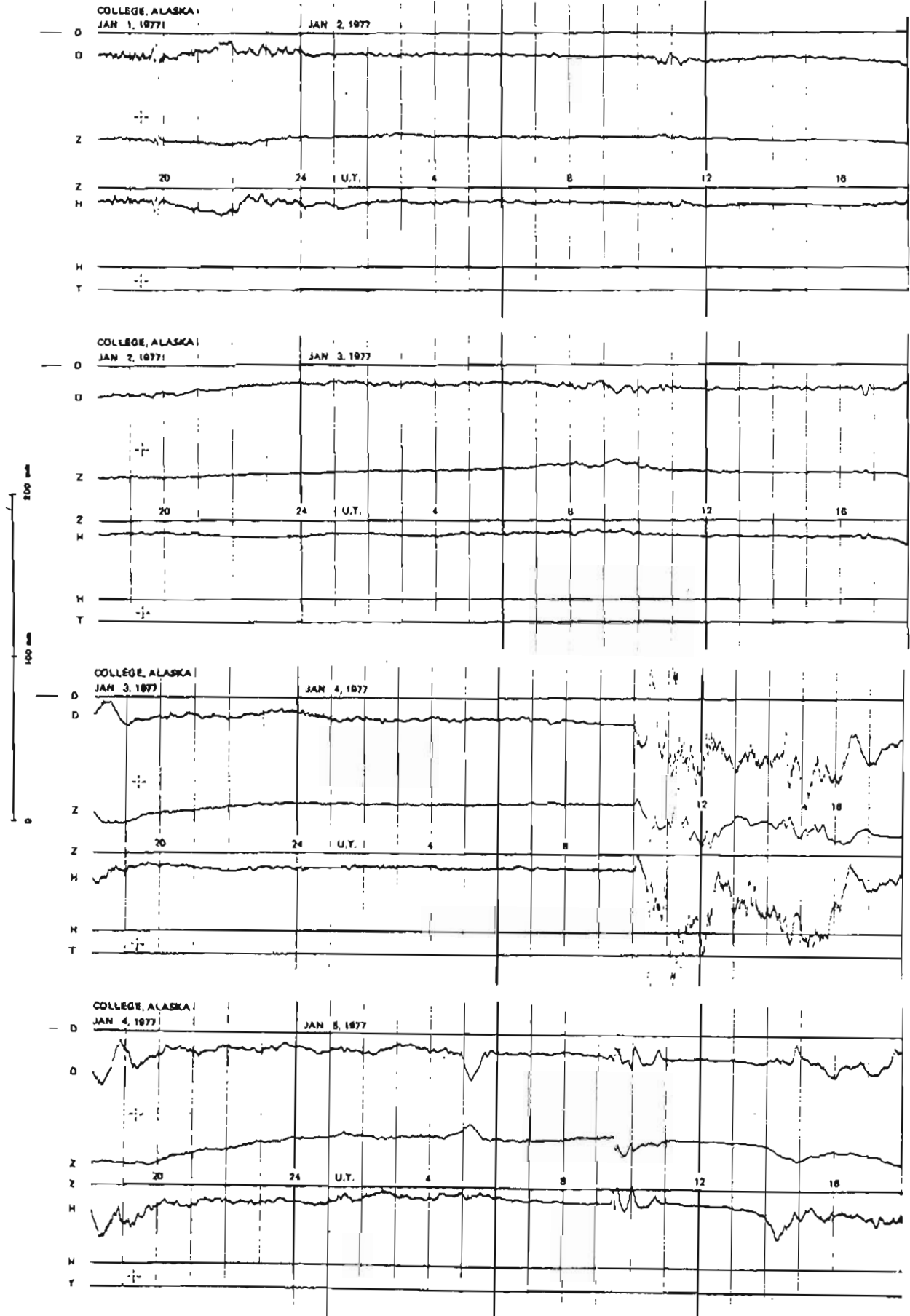
DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

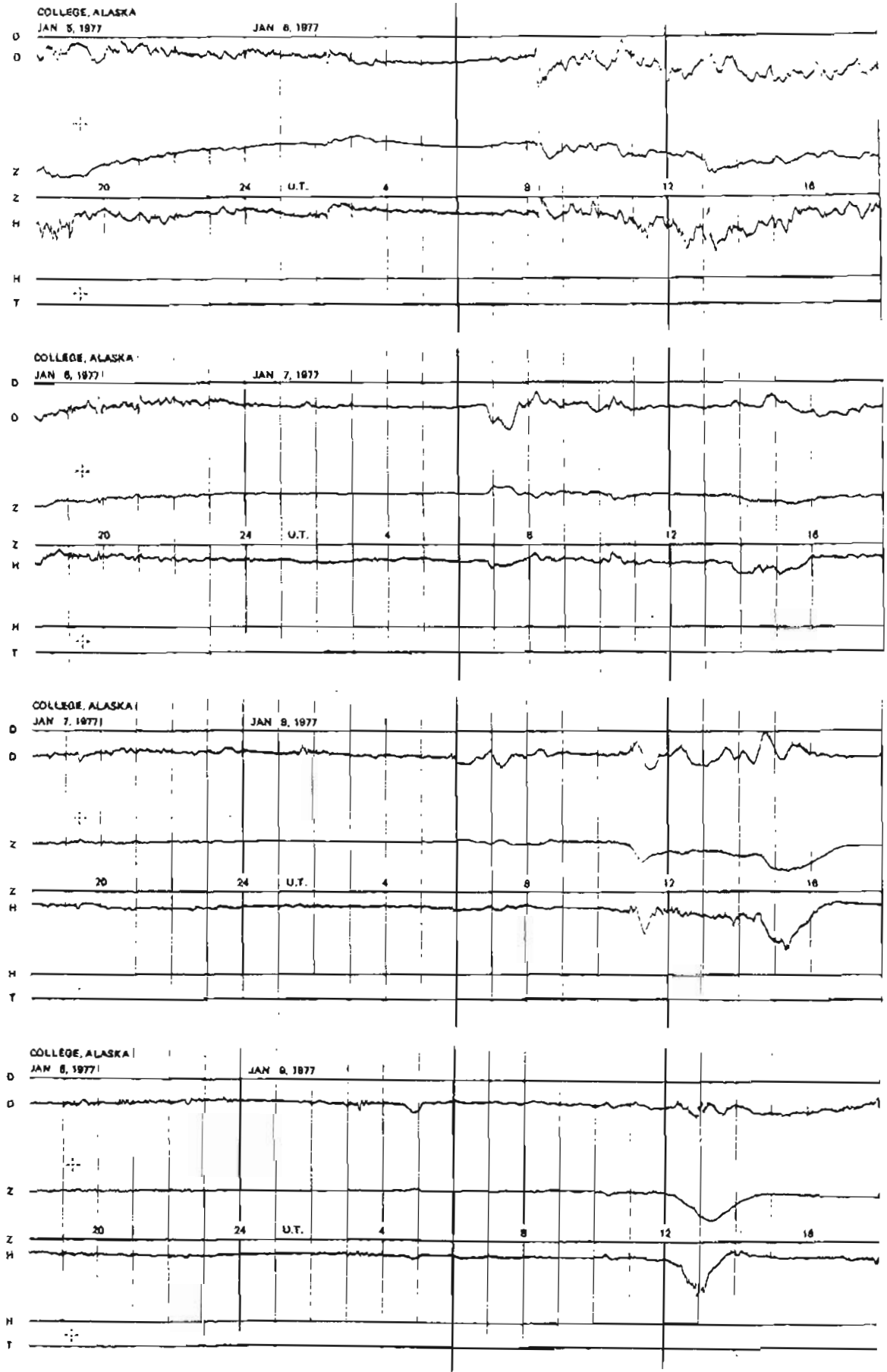


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

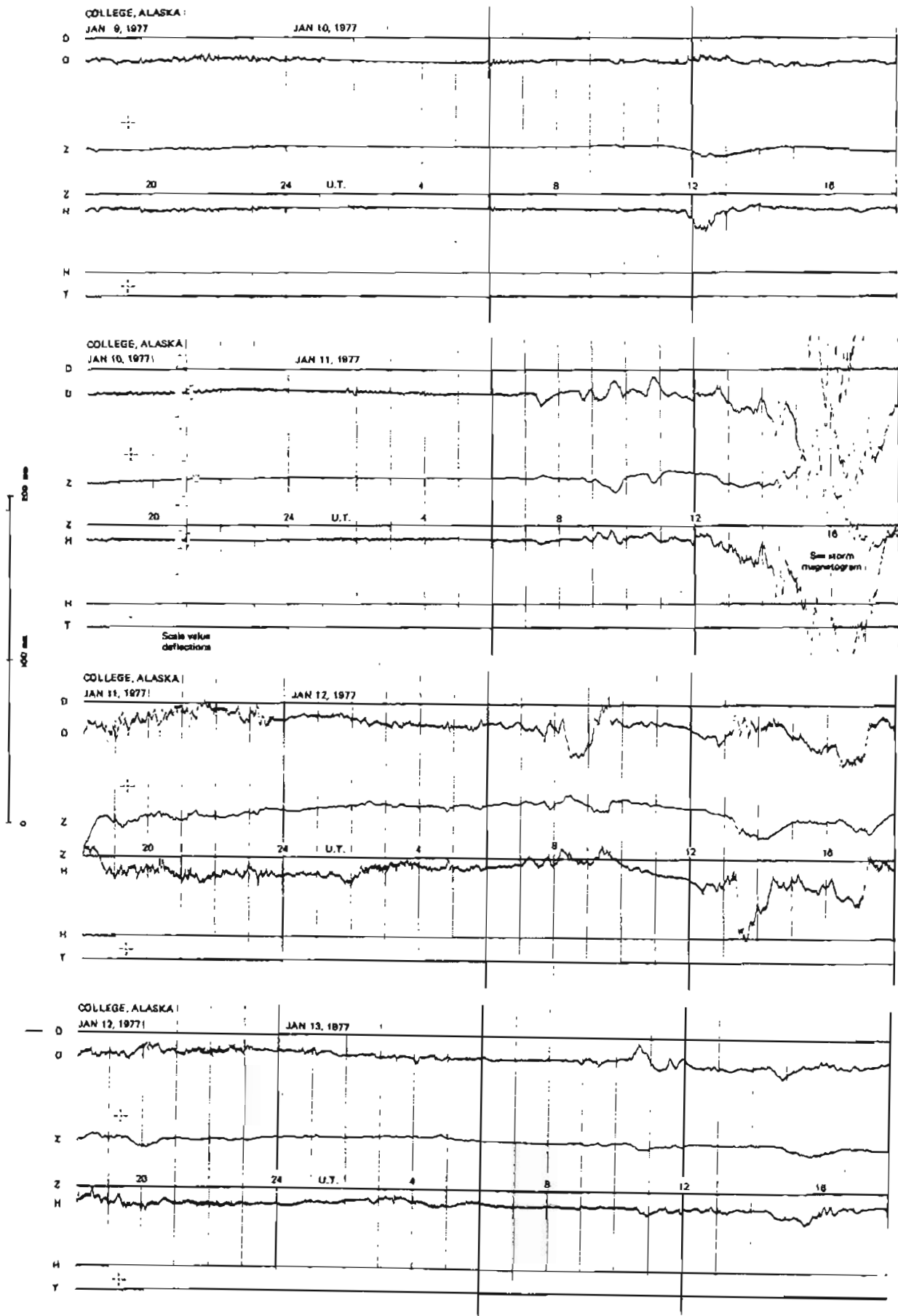
NORMAL MAGNETOGRAMS



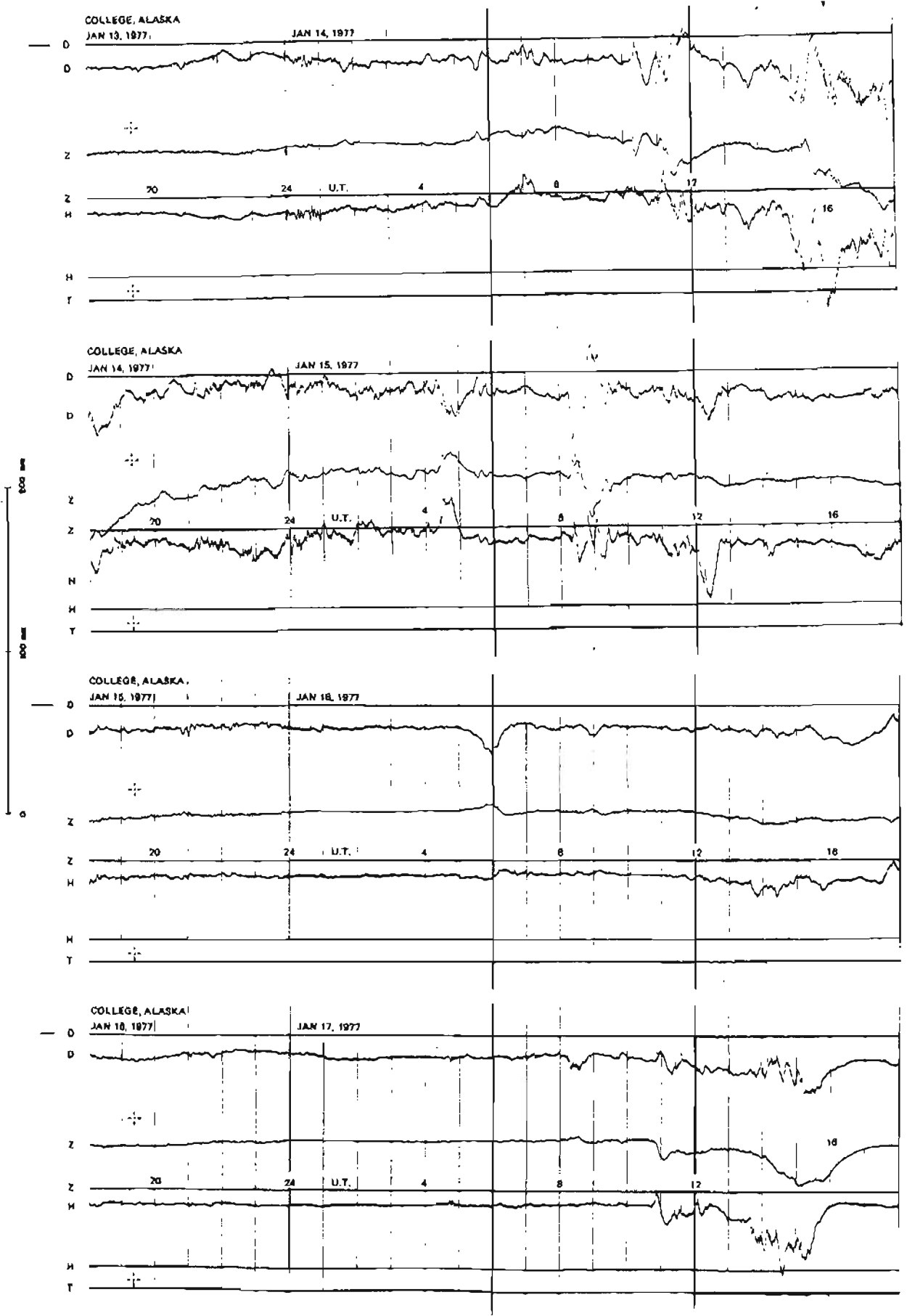
NORMAL MAGNETOGRAMS



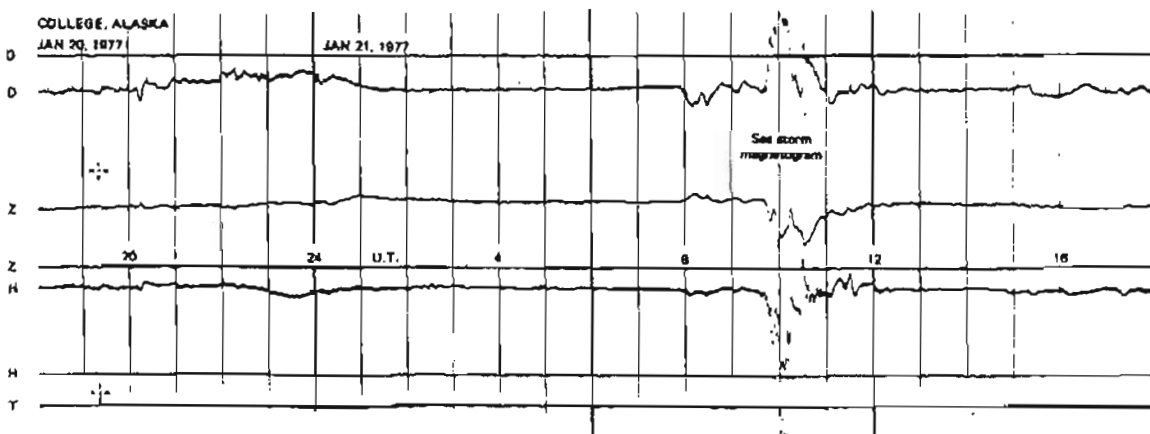
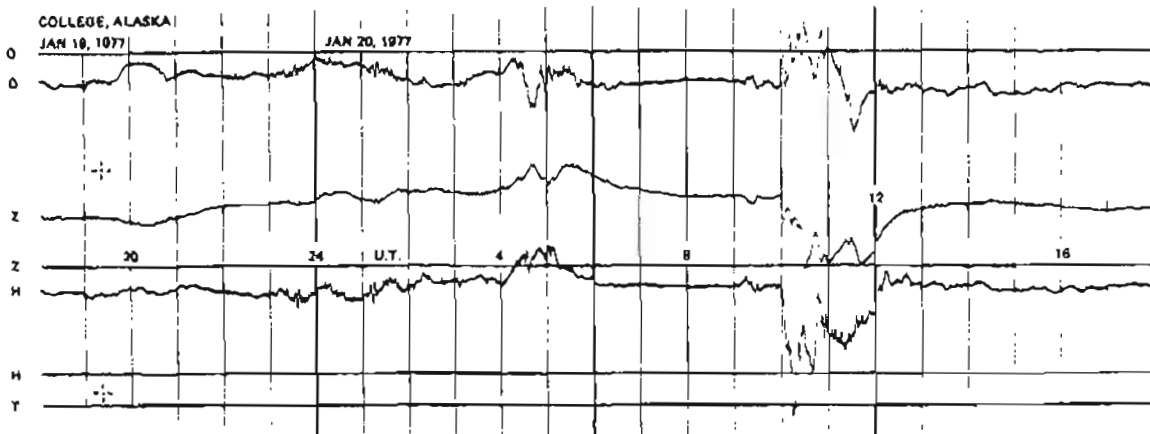
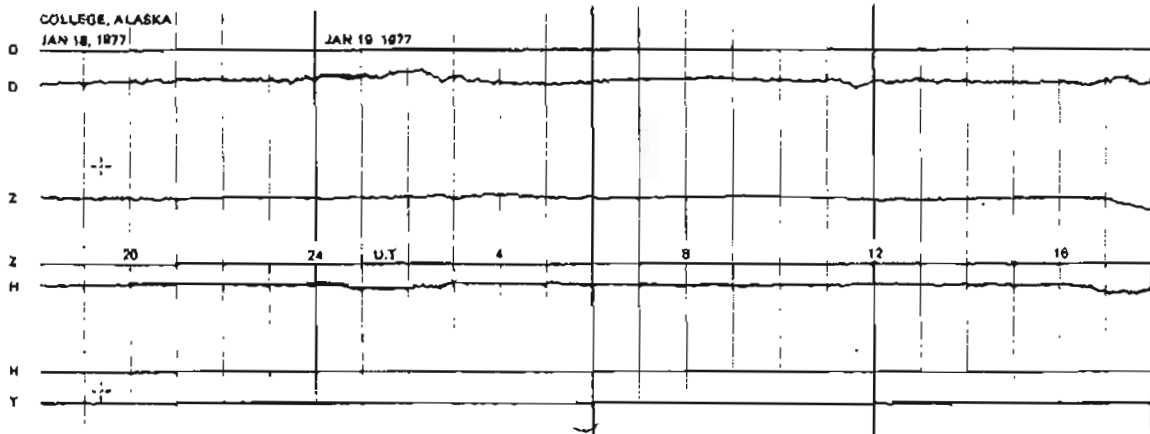
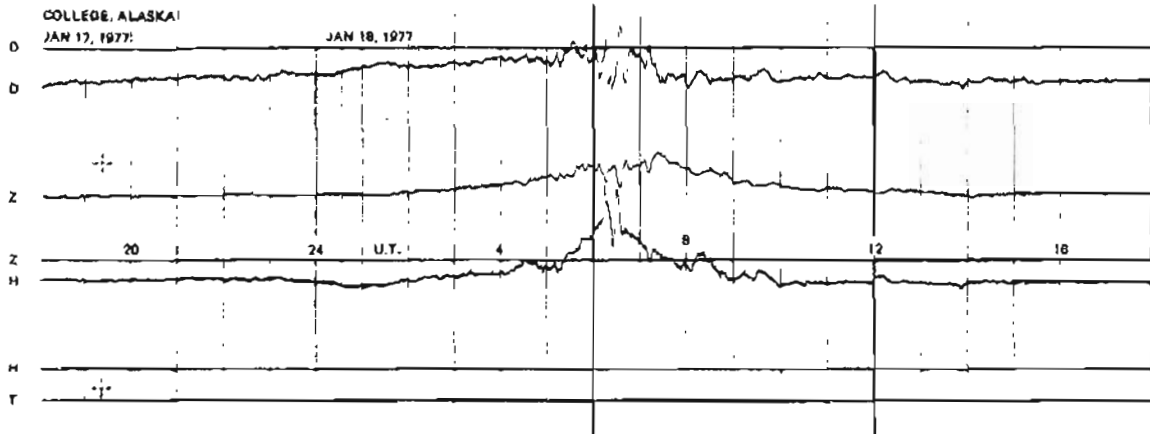
NORMAL MAGNETOGRAMS



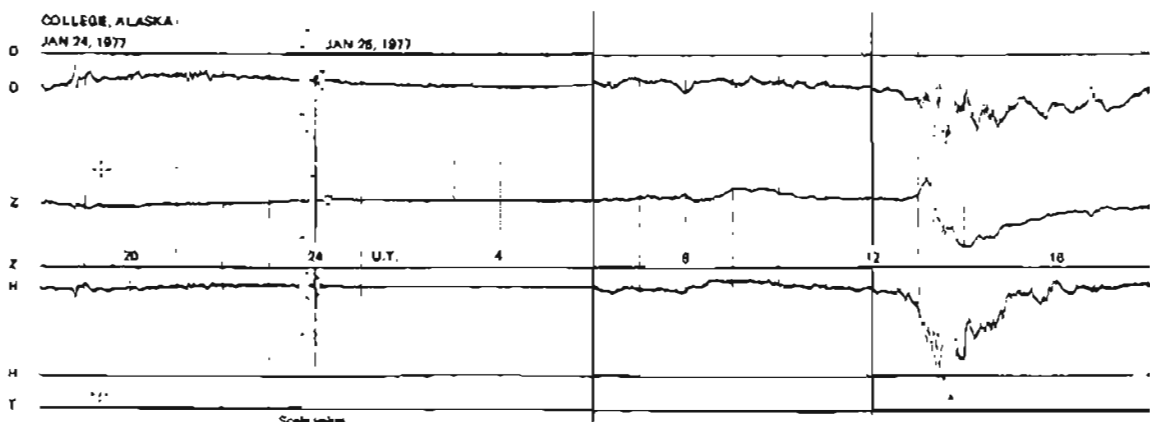
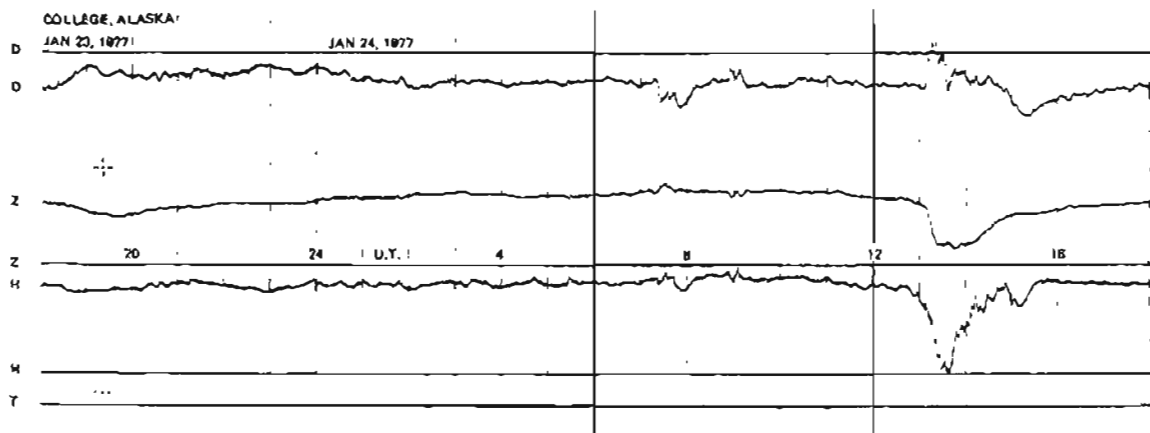
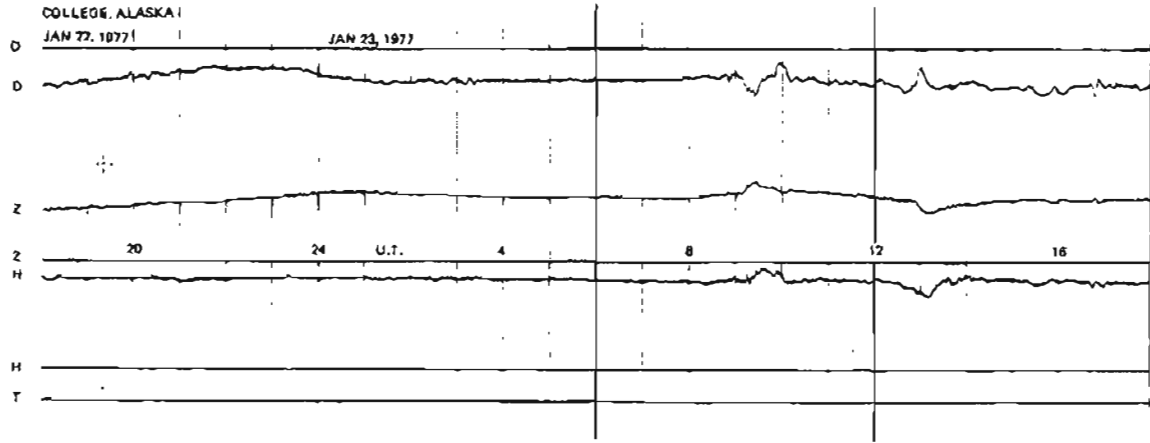
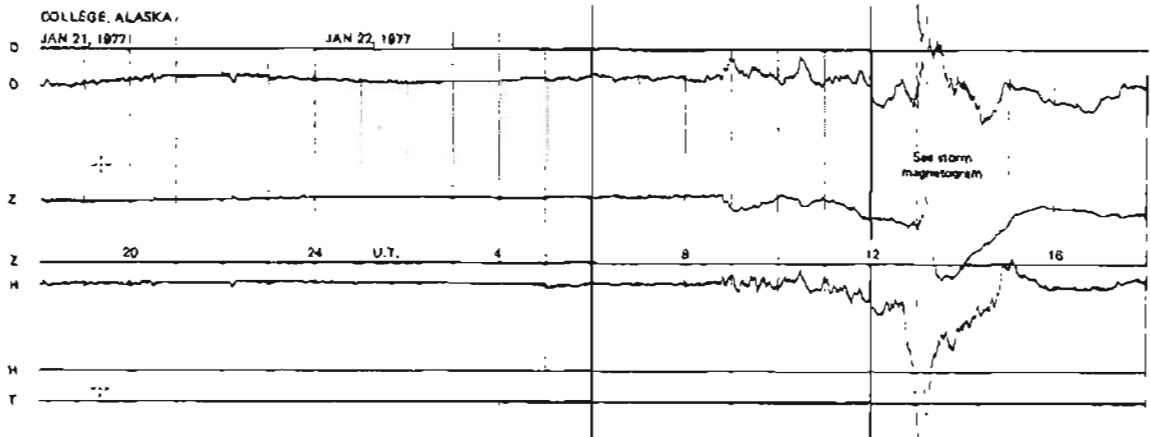
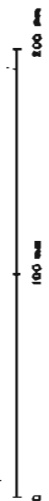
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

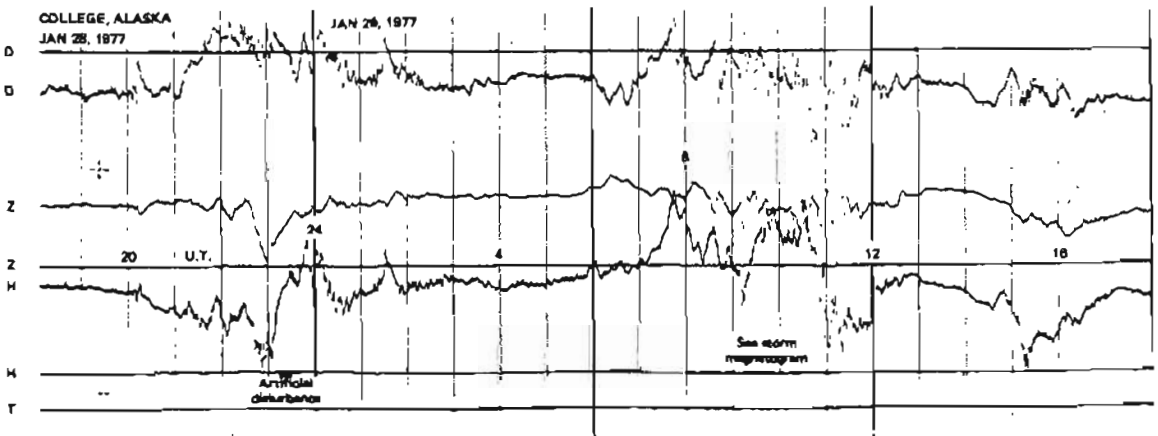
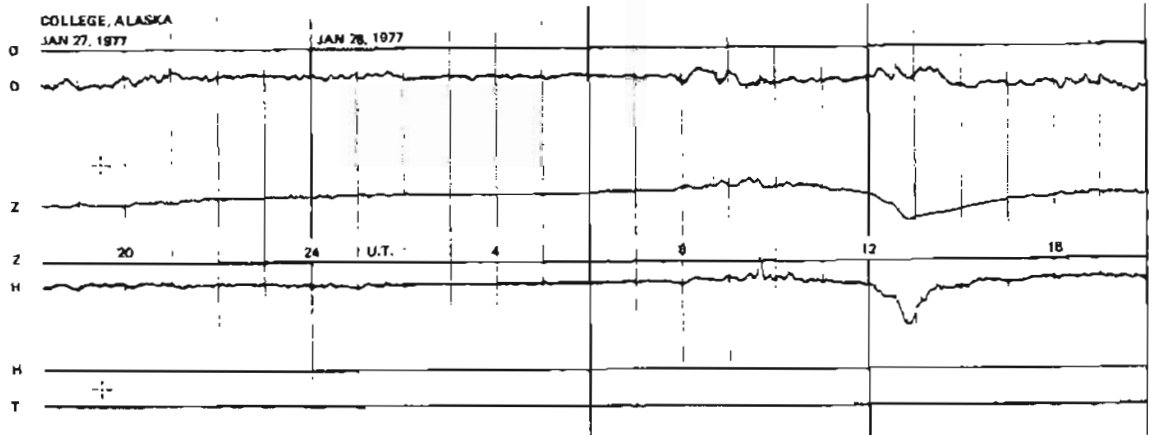
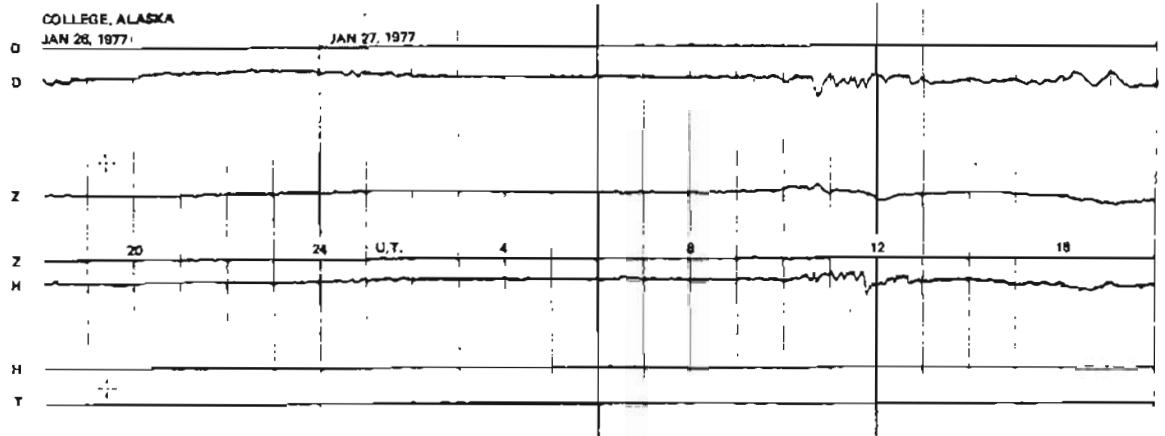
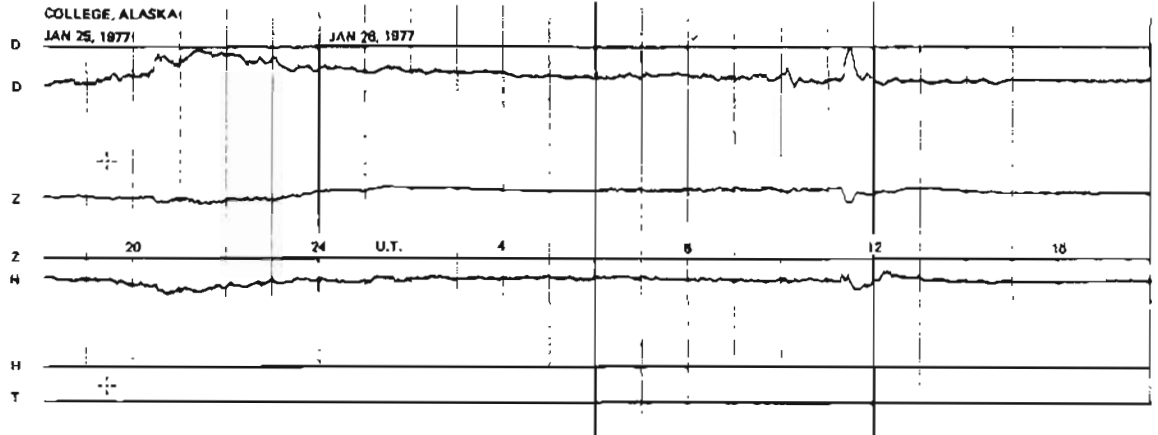


NORMAL MAGNETOGRAMS

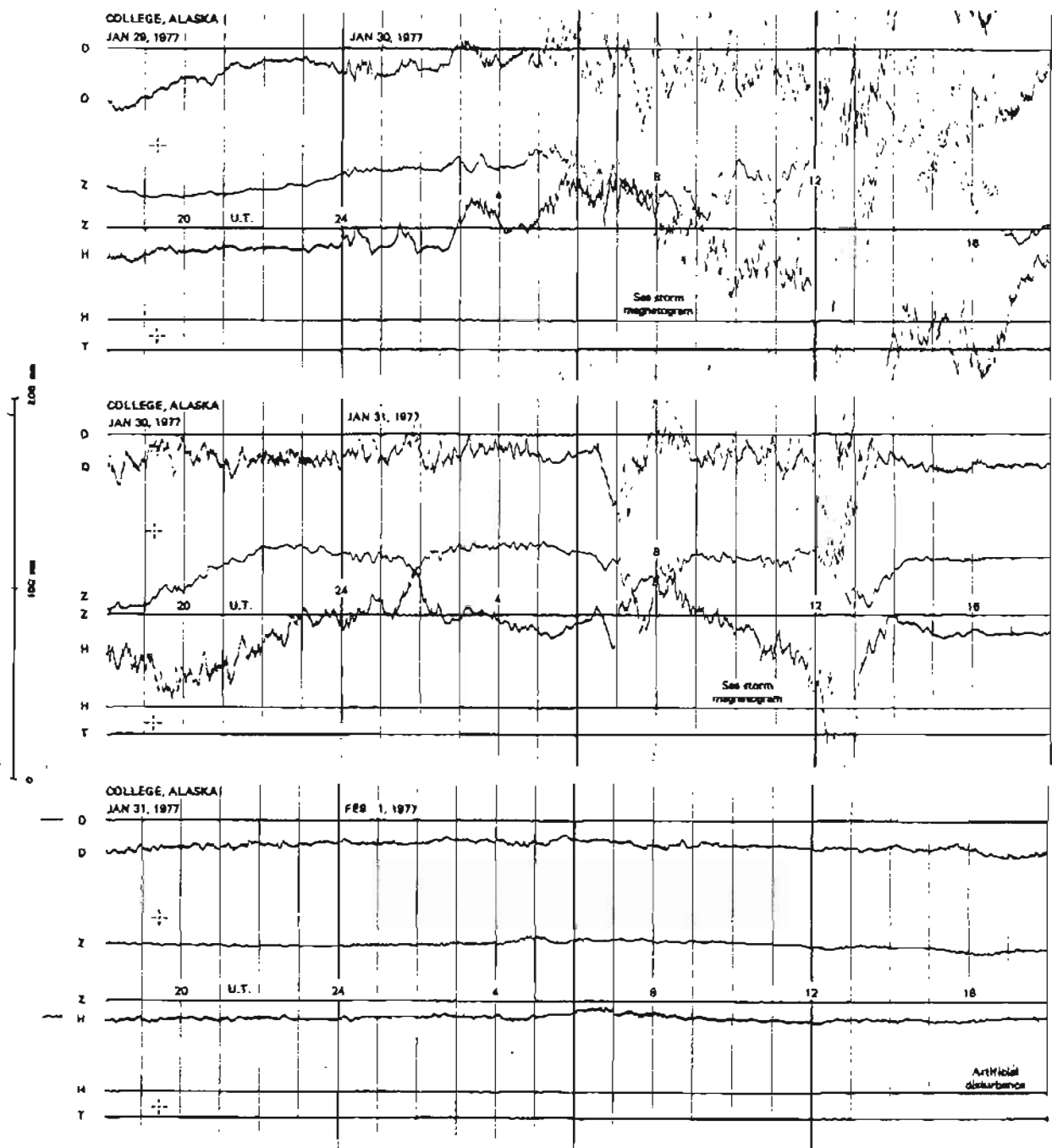


Scale values
deflections

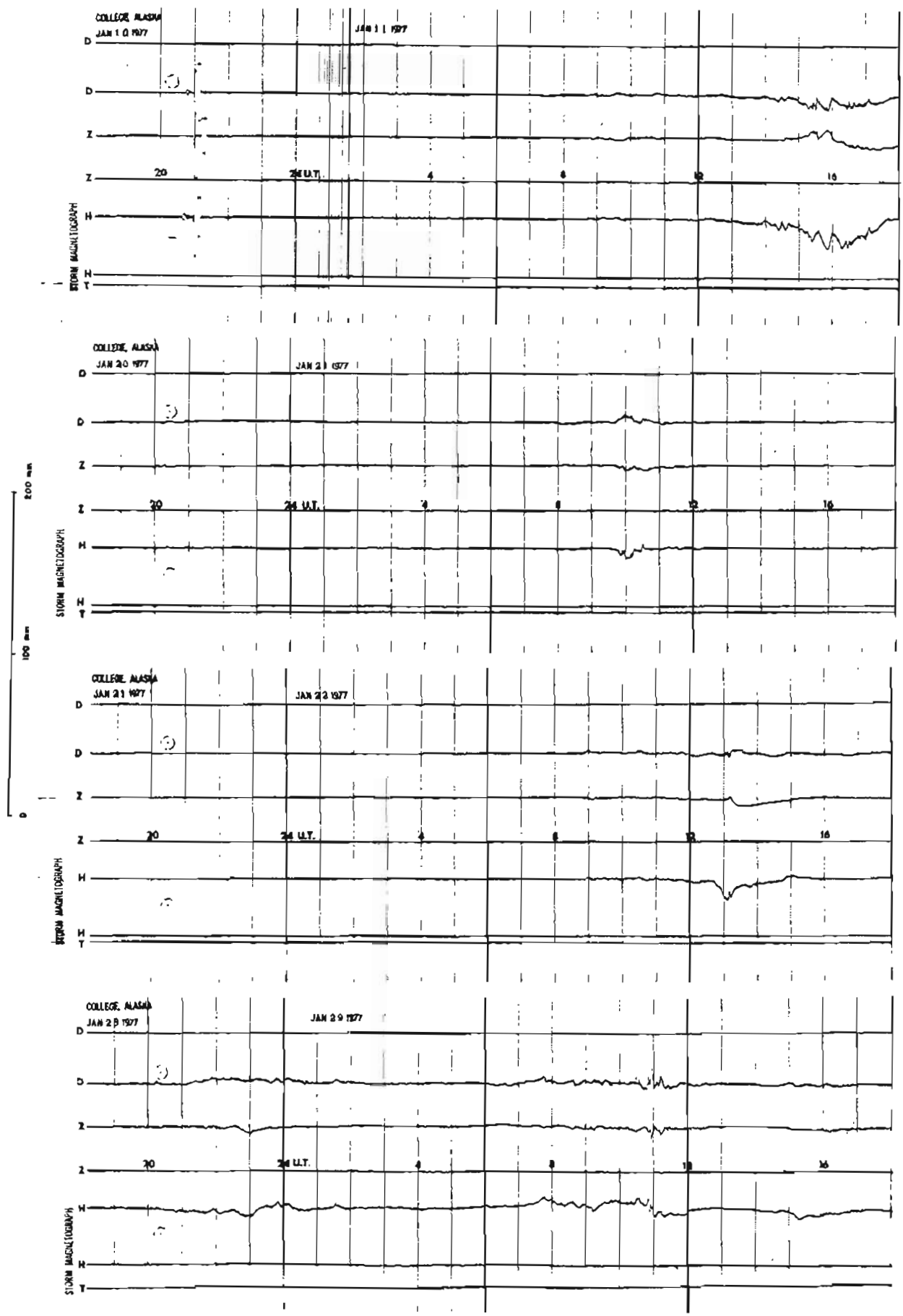
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

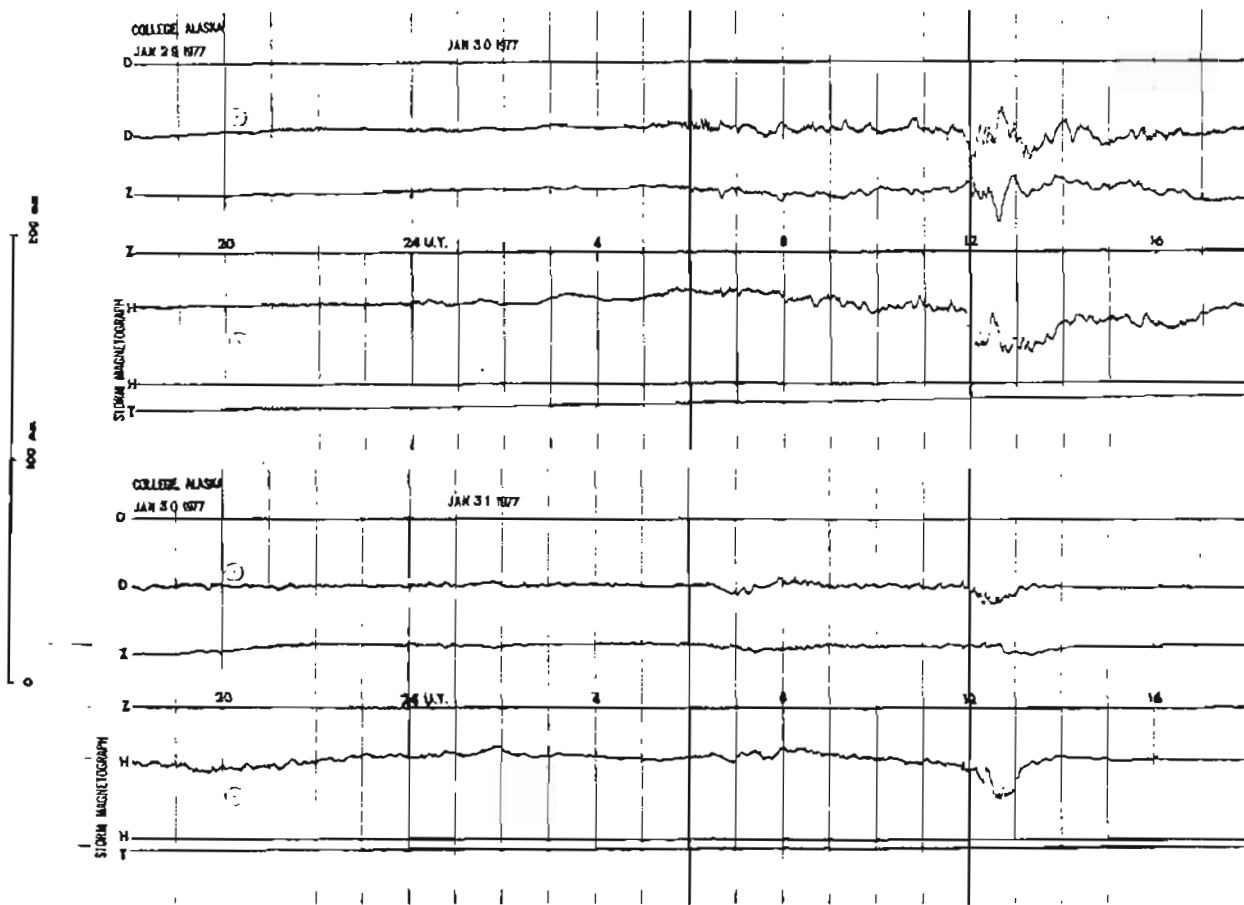


STORM MAGNETOGRAMS



1000

STORM MAGNETOGRAMS



1000