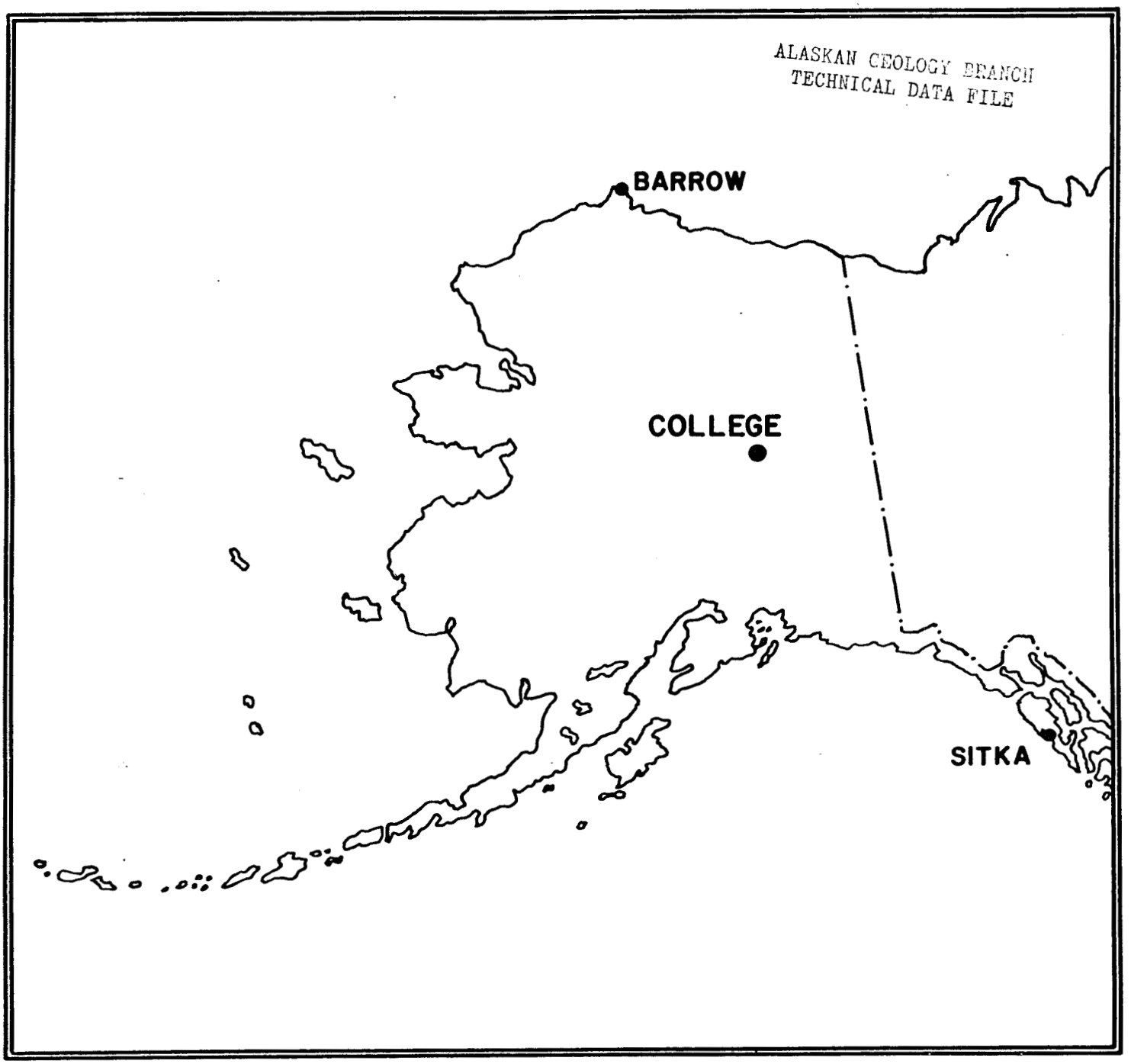
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

NOVEMBER 1978

OPEN FILE REPORT 78-300K



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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, ASST. CHIEF, 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 10 γ 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: NOVEMBER 1978

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	3	6	6	4	2	3	2	27	29
2	1	1	4	5	5	6	3	2	27	29
3	1	2	3	2	1	1	3	3	16	09
4	3	2	4	2	4	2	0	0	17	11
5	1	2	0	3	2	1	0	0	09	04
6	0	0	0	1	2	1	0	1	05	02
7	0	0	0	0	0	0	2	2	04	02
8	4	3	2	1	1	2	2	1	16	09
9	0	1	3	3	4	1	0	0	12	08
10	0	0	1	1	1	6	3	4	16	16
11	2	2	2	2	2	1	1	2	14	06
12	5	3	6	6	6	4	4	4	38	48
13	3	3	3	3	5	6	6	1	30	34
14	1	0	1	1	6	6	4	1	20	25
15	1	3	2	4	2	2	2	2	18	10
16	1	1	2	2	4	2	2	0	14	08
17	0	0	3	4	5	1	1	0	14	12
18	0	1	2	1	1	1	0	1	07	03
19	1	1	2	6	6	3	1	1	21	24
20	1	3	5	4	4	5	4	3	29	26
21	3	2	6	4	1	3	2	2	23	20
22	3	3	5	6	7	7	3	2	36	58
23	1	0	1	4	6	4	3	2	21	20
24	1	1	1	3	6	6	4	3	25	28
25	3	4	5	8	9	8	5	4	46	131
26	4	5	5	5	6	6	4	3	38	47
27	2	3	4	4	5	5	3	2	28	24
28	1	1	1	1	2	3	1	1	11	05
29	0	0	0	4	2	3	2	0	11	07
30	0	0	0	2	4	2	0	1	09	06
31										

TIME SCALE ON MAGNETOGRAMS: 20 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.....	3.75	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

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: NOVEMBER

YEAR: 1978

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
06	2112	si	
08	0152	si*	
12	0100	ssc*	
28	16XX	pc4	

IDENTIFIED BY: JEP

VERIFIED BY: JEP

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

NOVEMBER 1978

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	12	0100	s.c.*	..	+289	-62	12 13	3, 4, 5 6, 7	6 6	225	1630	1100	13	20
		22	05XX	..	..	..	..	22	5, 6	7	207	1370	850	22	24
		24	09XX	..	..	..	..	25	5	9	719	2300	1730	27	23

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: NOVEMBER 1978

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 11-1-78	2400 U.T. 11-30-78	1.0/mm	3.8γ/mm	27° 47.2 E
H	0000 U.T. 11-1-78	2400 U.T. 11-30-78	7.8γ/mm		12755γ
Z	0000 U.T. 11-1-78	2400 U.T. 11-30-78	7.8γ/mm		55130γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 11-1-78	2400 U.T. 11-30-78	7.9/mm	29.7γ/mm	24° 20.6 E
H	0000 U.T. 11-1-78	2400 U.T. 11-30-78	44.1 γ/mm		11510γ
Z	0000 U.T. 11-1-78	2400 U.T. 11-30-78	48.8γ/mm		54009γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 13.8 E	13054 γ	55403 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: NOV 5, 6, 7, 9, 11, 16, 18, 28, 29, 30

NOAA FORM 76-106 (5-72)

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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	78	NOV	D

C	Q or S	Ten Q	Hr. Da.	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Da.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	251	242	230	153	219	239	161	211	102*	158*	316*	339	01	329	322	279	301	309	312	299	297	291	257	262	247	6126
			02	251	252	249	251	252	259	222	232	225	110	180	351*	02	336	509*	431	361	589*	373	361	308	278	231	241	261	7113
			03	241	242	257	239	248	262	261	308	356	231	257	257	03	265	280	308	282	299	331	289	231	227	152	182	241	6246
			04	242	239	269	261	259	237	251	252	199	268	277	300	04	299	316	281	351	332	320	315	301	291	278	264	254	6656
			05	247	248	242	240	249	267	251	257	250	260	261	291	05	279	288	285	291	291	321	329	306	291	278	270	265	6557
			06	260	256	251	252	260	262	262	258	249	262	260	289	06	310	299	294	293	289	309	304	309	298	288	281	264	6659
			07	251	251	249	250	258	261	264	262	260	261	268	272	07	272	277	282	289	298	300	320	316	277	327	318	191	6574
			08	209	201	171	189	253	252	251	251	252	258	262	281	08	292	290	300	292	313	329	319	320	321	291	280	241	6418
			09	232	240	211	222	219	200	241	230	228	212	241	262	09	272	291	301	311	294	300	292	283	279	269	268	268	6166
			10	260	258	256	250	259	260	256	252	282	278	262	270	10	279	293	291	372	571	354	275	348	248	230	268	179	6851
			11	172	192	228	222	242	241	260	242	237	242	249	269	11	301	291	300	300	301	301	309	313	281	238	232	253	6216
			12	254	238	271	259	279	242	168*	33*	138	178	200*	437*	12	153*	158	412	418	417	331	424	358	316	71	169	228	6152
			13	272	257	261	300	232	253	249	242	318	211	213	271	13	247*	334	399	149	168*	295*	231*	169	251	260	255	260	6097
			14	250	253	261	256	259	268	272	268	262	267	270	269	14	268	187	557*	215*	256*	151	298	341	248	262	261	269	6468
			15	256	270	308	308	239	252	273	214	190	211	240	207	15	232	259	264	259	253	272	283	228	279	264	257	251	6069
			16	258	256	268	269	268	267	260	257	298	271	271	270	16	230	249	282	278	301	283	286	286	248	267	262	251	6436
			17	242	245	262	267	265	262	251	253	349	250	271	328	17	388	319	311	321	321	313	300	271	266	249	241	241	6786
			18	247	241	239	251	257	262	259	336	261	259	291	279	18	278	287	270	294	303	313	290	272	268	260	250	218	6485
			19	216	230	235	200	250	251	254	270	258	349	329	382*	19	589*	573*	388	296	277	338	308	315	292	288	278	263	7429
			20	251	248	243	230	215	238	236	271	398*	208*	344	342	20	334	352	549	509*	500	333	221	208	152	202	216	233	7033
			21	229	252	261	261	249	288	304	268	168*	135	281	270	21	281	281	280	272	269	265	287	288	300	283	252	262	6286
			22	218	219	241	232	222	272	248	189	287*	367*	406*	375*	22	192*	779*	628*	811*	605*	106	249	262	263	260	259	261	7972
			23	262	268	269	268	270	269	267	266	252	255	310	317	23	422	279	249	323	361	251	275	309	229	190	227	232	6620
			24	228	248	262	274	261	268	270	261	260	311	190	239	24	331	343	509*	541*	501*	342*	212	232	204	121	201	238	6847
			25	213	208	155	143	192	124	88	-55*	200	114	430*	264*	25	470*	1406*	1621*	422*	160*	661*	337	81	139	191	186	178	7928
			26	182	209	245	261	158	375*	266	199	254	248	384	296	26	253	367	359*	445*	525*	338	271	267	209	201	237	221	6770
			27	230	230	251	247	278	379	291	270	312	232	247	281	27	382*	369	439	459	269	277	292	247	242	248	270	264	6996
			28	249	240	250	251	260	260	268	260	271	288	262	269	28	272	288	256	300	278	280	312	303	295	278	267	262	6519
			29	258	254	262	258	261	260	261	259	259	267	289	269	29	292	288	289	207	292	289	291	300	292	283	260	252	6492
			30	249	249	259	259	256	259	259	258	256	289	322	291	30	246	280	292	287	282	314	307	289	281	280	250	231	6545
			31													31													

SCALED BY	SPT, EAS
CHECKED BY	JEP, SPT
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	199512
MONTHLY MEAN	277
DATES WITH GAPS:	

★ U.S G.P.O. 1973-769-571/932 REG.#8

NOAA FORM 76-106 (3-72)

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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	78	NOV	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	335	349	360	449	429	409	479	421	331*	19*	-235*	179	01	134	153	351	368	354	341	338	326	321	310	331	359	7211
			02	348	346	354	351	352	365	382	421	474	185	153	-2	02	123	-121*	82	-76*	-205*	179	381	370	349	351	348	348	5858
			03	341	352	360	365	355	360	370	368	402	371	372	353	03	360	342	325	355	361	343	302	249	253	265	325	363	8212
			04	362	364	346	349	357	389	380	360	292	349	341	315	04	238	164	251	307	360	372	365	355	354	852	339	332	7993
			05	332	344	357	389	378	370	371	369	361	359	350	287	05	330	356	361	353	350	360	350	340	333	334	338	339	8411
			06	342	348	352	359	360	360	360	363	362	367	366	352	06	352	332	303	331	357	364	360	362	359	350	340	341	8442
			07	346	350	358	362	367	368	366	368	368	369	370	371	07	370	371	372	368	364	355	352	351	354	336	310	309	8575
			08	360	374	391	443	380	406	364	380	380	381	379	353	08	359	357	354	360	359	349	344	339	331	331	330	340	8744
			09	341	349	345	357	380	381	383	406	492	487	409	369	09	231	361	359	358	361	364	365	360	353	350	343	342	8896
			10	340	342	353	360	360	360	363	364	369	390	377	369	10	359	351	350	219	-126*	22	164	209	139	275	369	370	7048
			11	376	390	395	419	409	421	434	398	390	379	362	340	11	310	334	340	343	350	349	333	330	319	313	317	333	8684
			12	347	538	399	431	400	459	813*	626*	517	356	245	-81*	12	186	457	263	276	219	269	215	291	199	229	318	319	8291
			13	339	397	408	422	429	410	397	386	371	344	369	329	13	128*	-58*	79	26	-262*	-139	-137*	301	362	346	341	343	5931
			14	361	357	357	359	359	358	358	357	360	361	361	360	14	343	145*	-432*	-538*	-245*	6	203	210	359	349	344	339	5391
			15	354	360	366	404	464	401	385	403	409	400	256	239	15	321	355	356	349	334	339	324	301	331	353	349	346	8499
			16	351	357	371	379	370	363	361	361	370	360	343	317	16	164	162	237	379	366	350	332	362	356	350	351	352	8064
			17	356	357	362	379	381	379	378	374	409	324	334	303	17	109	276	371	366	369	370	360	353	350	359	354	356	8329
			18	359	350	360	367	389	370	374	363	379	361	364	361	18	362	360	346	340	350	369	374	366	365	360	350	354	8693
			19	351	372	383	406	400	387	380	375	389	419	197	-64*	19	-301*	134	224	282	359	372	372	359	361	360	366	374	7257
			20	373	383	378	379	489	473	480	419	86	168	159	148	20	41	89	-59	-97*	109	159	242	303	329	372	369	346	6138
			21	377	379	387	391	390	411	371	391	213*	234	398	373	21	356	359	350	344	331	348	363	369	361	329	309	323	8457
			22	369	381	369	399	390	407	466	413	290	-1*	-149*	-240*	22	-494*	-595*	-87*	-200*	-183*	376	426	409	379	367	369	364	4225
			23	353	360	360	359	359	358	356	354	356	369	274	288	23	-47*	-76*	268	361	191	324	342	324	300	328	343	351	7155
			24	370	381	379	381	380	374	373	369	356	361	352	354	24	246	91	-268*	-36*	9*	-38	171	267	201	291	373	359	6096
			25	380	399	456	461	559	681	586	476	368	248	-613*	-674*	25	-449*	-613*	-1188*	-578*	-658*	60*	185	381	361	349	289	294	1760
			26	401	444	420	361	449	440*	512	447	379	129	250	273	26	349	267	-346*	-183*	-149*	246	356	287	298	329	359	356	6674
			27	351	368	373	384	370	382	431	401	353	279	310	159	27	-97*	-41*	-73	-54	254	381	343	317	358	332	321	358	6560
			28	360	361	359	351	361	370	382	374	361	363	352	349	28	347	322	264	298	350	361	359	353	343	338	338	341	8357
			29	340	351	351	351	355	353	351	350	351	355	351	211	29	349	359	358	344	270	289	351	356	350	344	343	350	8133
			30	351	354	356	360	360	354	357	358	360	370	364	330	30	211	339	353	330	329	355	361	349	349	343	329	330	8252
			31													31													

SCALED BY	SPT, EAS
CHECKED BY	JEP, SPT
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	220336
MONTHLY MEAN	306
DATES WITH GAPS:	

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

NOAA FORM 76-106 (3-72)

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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	78	NOV	Z

C	Q or S	Ten Q	Hr Da	01	02	03	04	05	06	07	08	09	10	11	12	Hr Da	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	356	354	380	432	454	419	340	257	217*	243*	383	319	01	297	281	274	334	340	342	351	340	341	334	340	344	8052
			02	349	343	341	340	345	347	362	391	312	226	491	613*	02	465	455*	444	418	430*	127	245	289	315	327	350	361	8686
			03	352	352	354	348	351	350	356	350	301	262	319	343	03	340	335	306	315	330	334	310	284	300	289	315	345	7841
			04	350	352	352	340	336	351	360	330	292	331	327	302	04	236	192	198	230	270	308	324	330	331	338	340	340	7460
			05	340	342	353	370	362	354	352	350	344	341	331	264	05	231	300	320	321	310	312	320	320	330	331	335	339	7872
			06	338	334	331	331	330	329	327	329	336	337	330	324	06	300	288	261	281	299	313	321	330	330	331	331	333	7694
			07	331	330	330	330	330	329	327	326	326	329	328	330	07	328	326	325	325	323	328	327	319	309	326	321	348	7851
			08	400	373	369	375	360	349	350	349	348	341	330	327	08	322	327	326	318	321	326	321	322	321	320	329	324	8148
			09	330	331	331	349	342	358	361	350	360	341	360	349	09	308	318	328	316	321	322	323	321	322	327	331	330	8029
			10	329	330	323	324	325	325	325	326	338	337	337	331	10	324	311	307	270	197	-31	-21	113	227	306	351	333	6637
			11	351	359	379	390	372	391	368	351	361	356	349	338	11	318	319	318	320	321	329	330	321	326	331	343	359	8300
			12	360	457	421	351	342	333	108*	121*	-9	256	440	574*	12	434	367	482	367	319	298	278	272	280	242	301	331	7725
			13	339	320	317	331	358	391	386	390	358	288	337	351	13	292	193	152	129	330	732*	581*	259	328	357	364	365	8248
			14	367	367	361	353	351	349	350	348	347	342	341	340	14	339	291	417*	298*	342*	180	318	341	317	332	340	341	8072
			15	348	362	361	351	340	370	358	348	360	349	261	259	15	281	324	329	330	320	310	313	290	304	330	347	341	7886
			16	341	349	341	339	333	331	331	344	356	329	319	279	16	237	222	182	267	311	310	291	300	306	319	330	333	7400
			17	339	338	337	335	334	331	333	343	324	200	268	316	17	199	158	251	289	292	301	308	303	300	313	321	329	7162
			18	331	330	332	340	341	346	340	351	329	330	320	312	18	311	310	290	279	276	280	283	299	305	316	320	321	7592
			19	334	342	347	371	369	348	351	352	328	253	310	338	19	569*	409	267	288	259	264	311	310	311	317	320	317	7985
			20	318	318	323	323	330	316	324	301	412*	371	303	418	20	428	392	409	266*	57	-9	94	194	286	322	340	348	7184
			21	358	359	358	347	353	370	356	351	329	259	329	339	21	332	329	322	319	309	310	316	320	330	339	350	352	8036
			22	391	392	359	370	387	341	314	299	272*	201	391	587*	22	606*	102*	147*	512*	128*	161	290	324	327	334	339	340	7914
			23	341	339	339	337	337	336	336	333	339	320	229	242	23	285*	248*	147	283	244	264	284	292	301	281	321	328	7106
			24	352	372	353	356	347	346	337	330	331	340	228	300	24	267	201	348	98	233	158	160	249	286	279	329	351	6951
			25	340	354	364	411	411	301	234	63	156	328	726*	405*	25	777*	928*	506*	462*	499*	934*	594*	291	350	366	389	392	10581
			26	384	400	412	370	360	259*	302	371	240	361	276	397	26	350	359	486*	141*	2	31	184	260	286	301	349	360	7241
			27	370	370	370	366	376	369	381	396	319	185	233	281	27	353	355	226	208	240	289	303	289	319	330	350	360	7638
			28	358	360	350	358	361	363	362	350	351	340	334	338	28	338	331	286	263	311	331	341	332	334	336	341	342	8111
			29	346	346	348	341	340	340	339	337	337	341	294	248	29	259	305	319	320	292	270	301	327	331	337	336	335	7689
			30	338	339	339	339	340	337	334	332	340	347	319	300	30	227	251	298	300	274	291	316	319	311	318	321	326	7556
			31													31													

SCALED BY: SPT, EAS
CHECKED BY: JEP, SPT
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.
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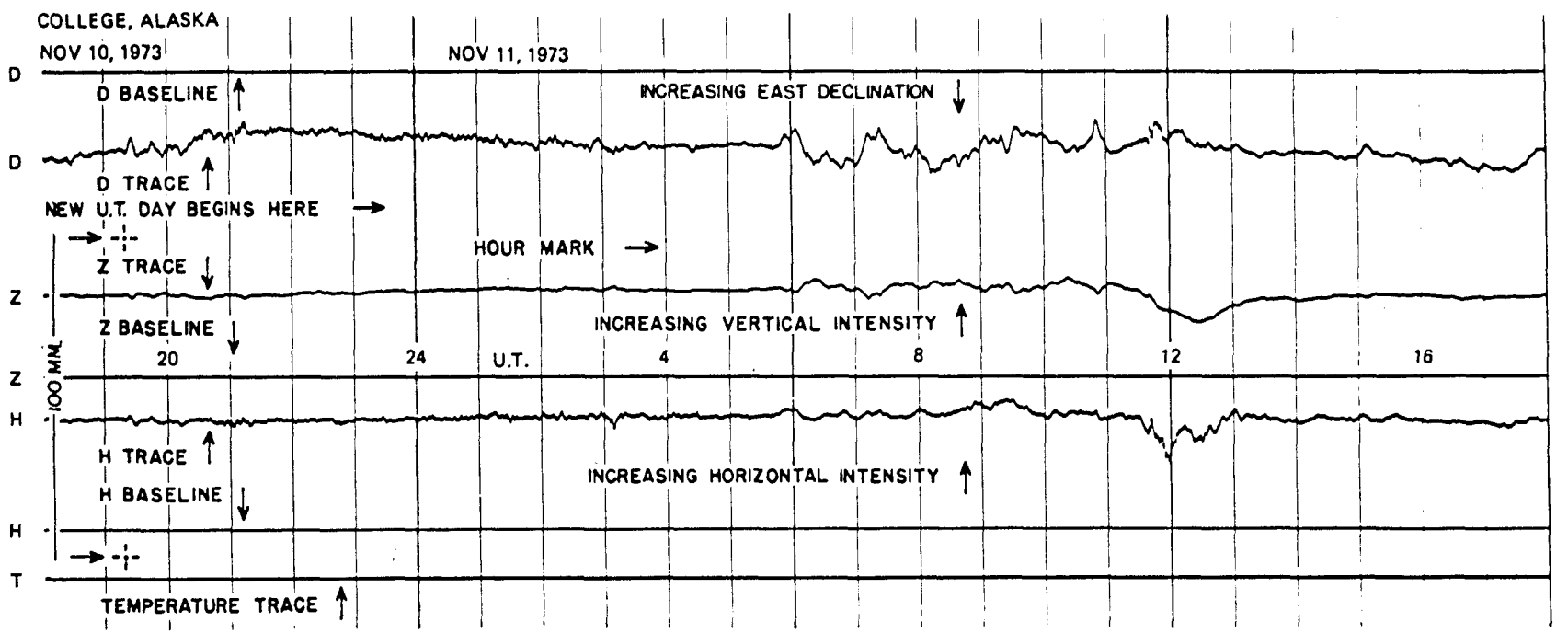
* Derived from Storm Mgph., converted to Normal Mgph.

MONTHLY SUM	234647
MONTHLY MEAN	326
DATES WITH GAPS:	

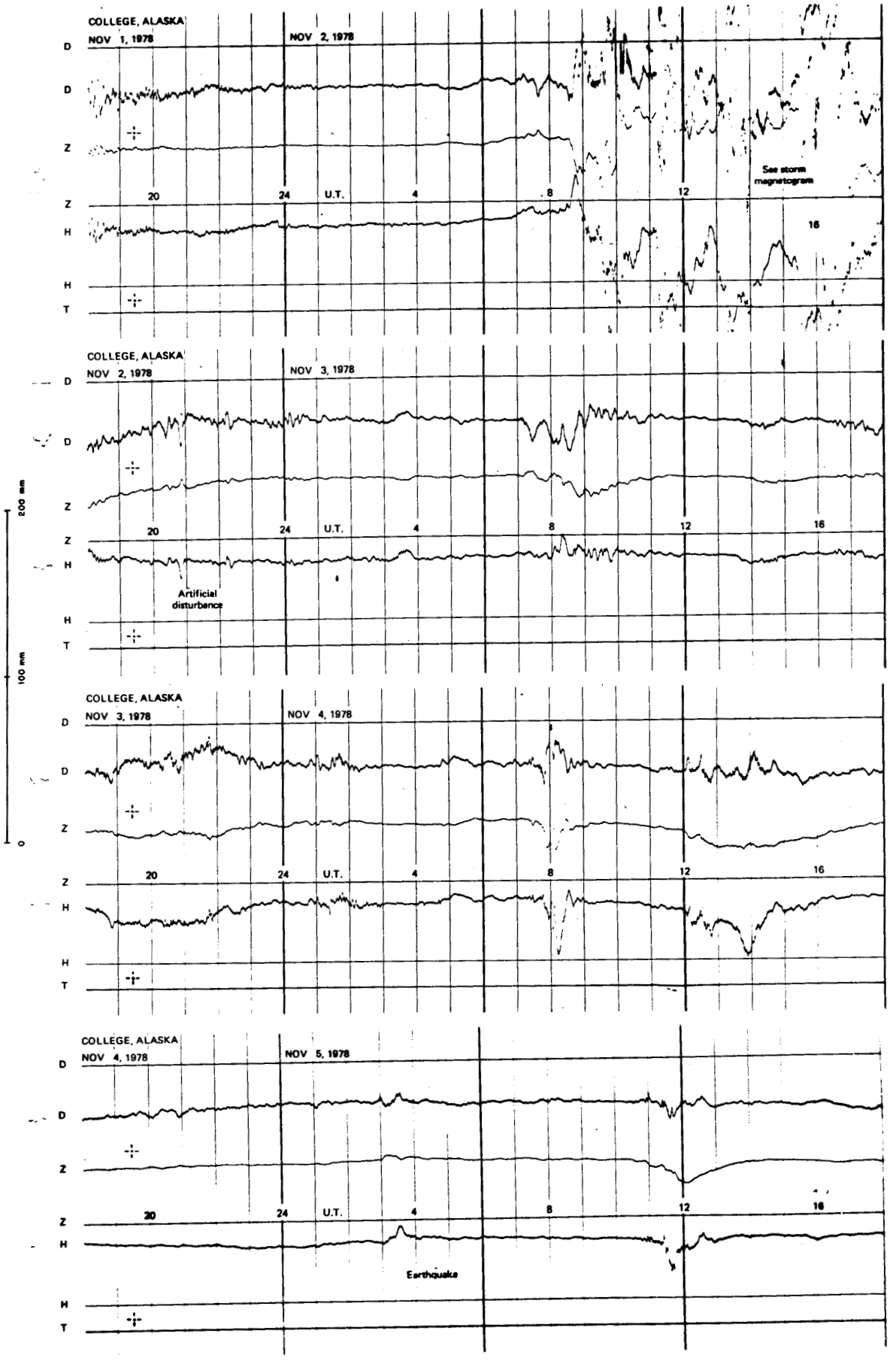
* U.S G.P.O. 1973-789-571/932 REG.#8

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

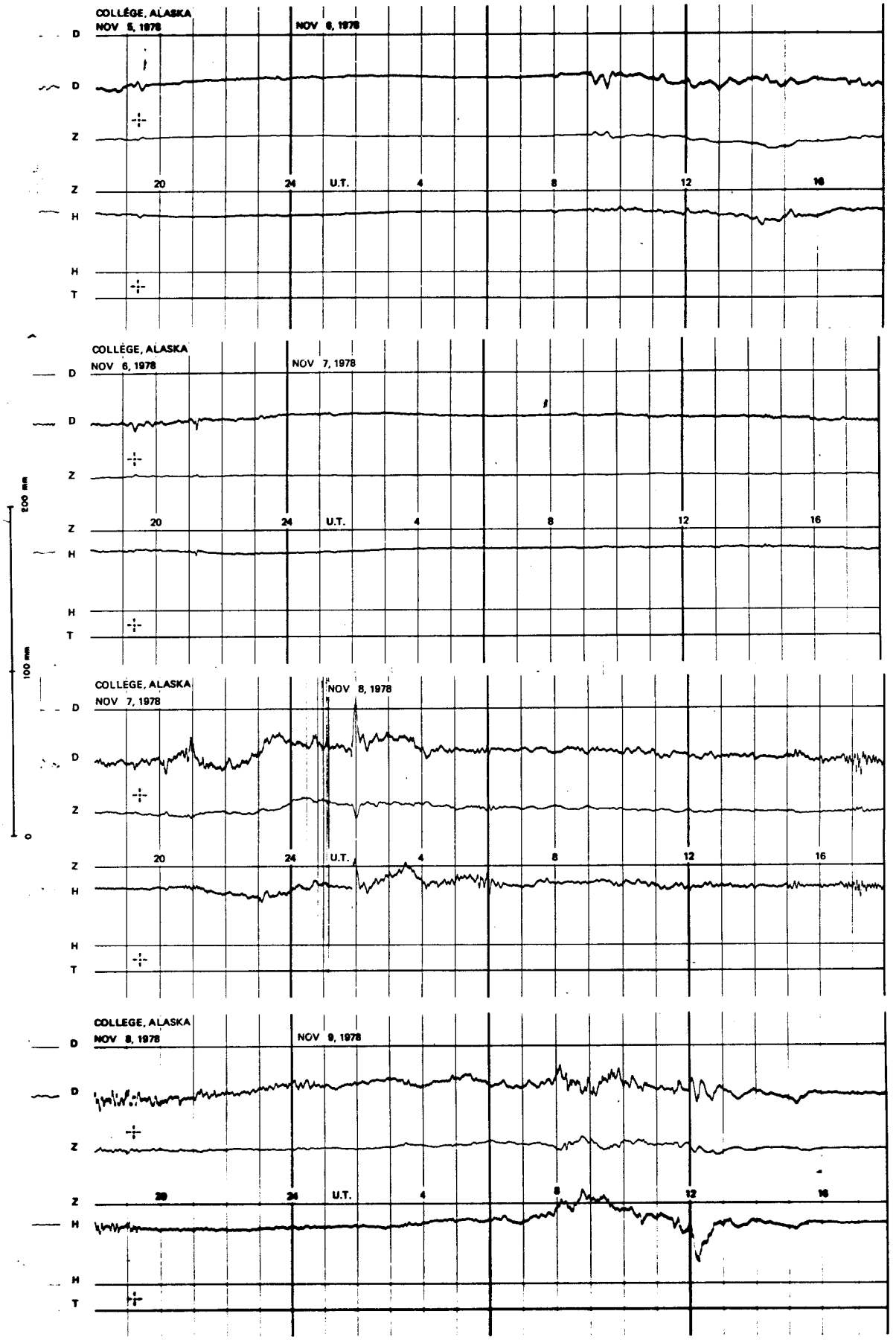


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

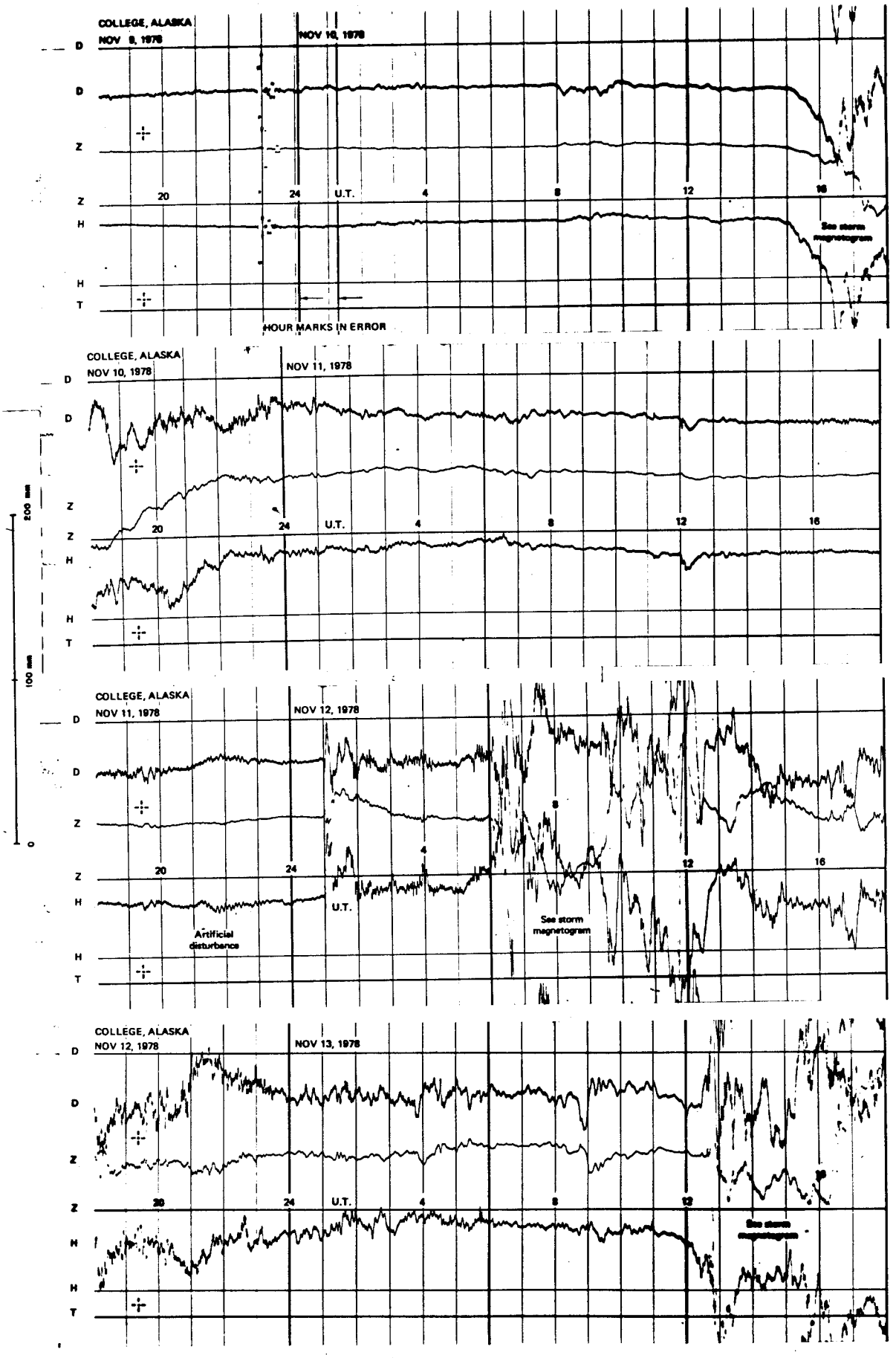
NORMAL MAGNETOGRAMS



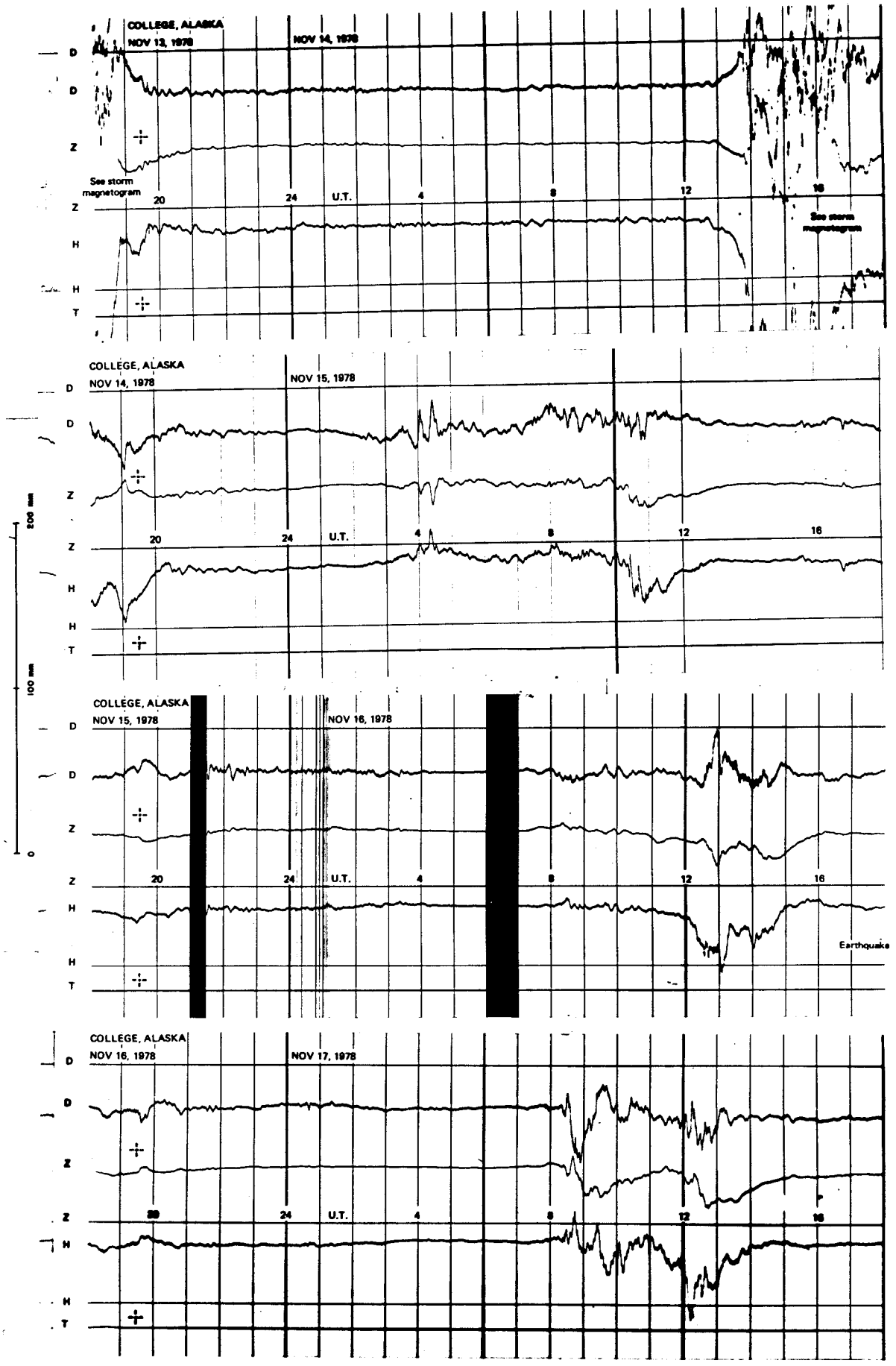
NORMAL MAGNETOGRAMS



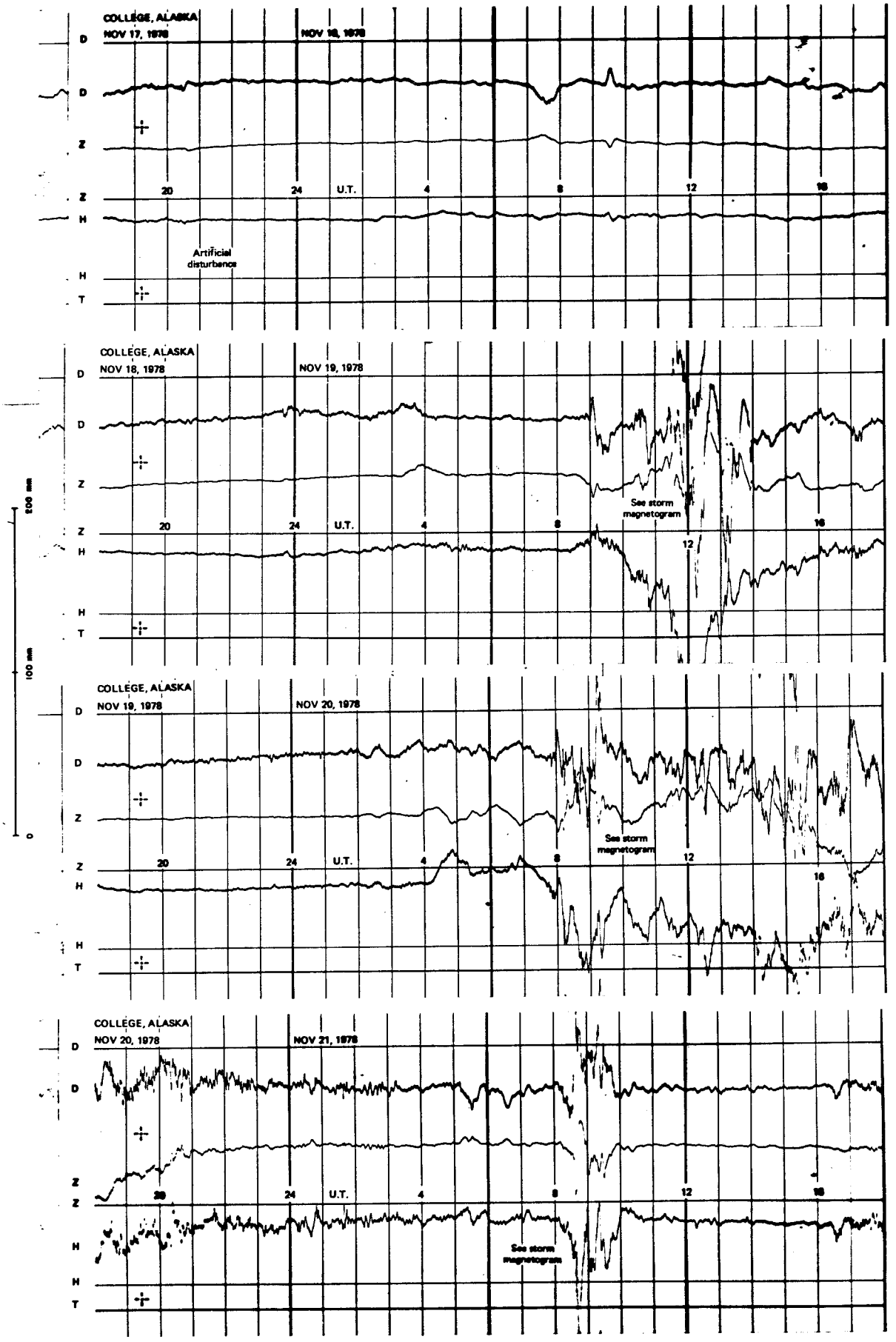
NORMAL MAGNETOGRAMS



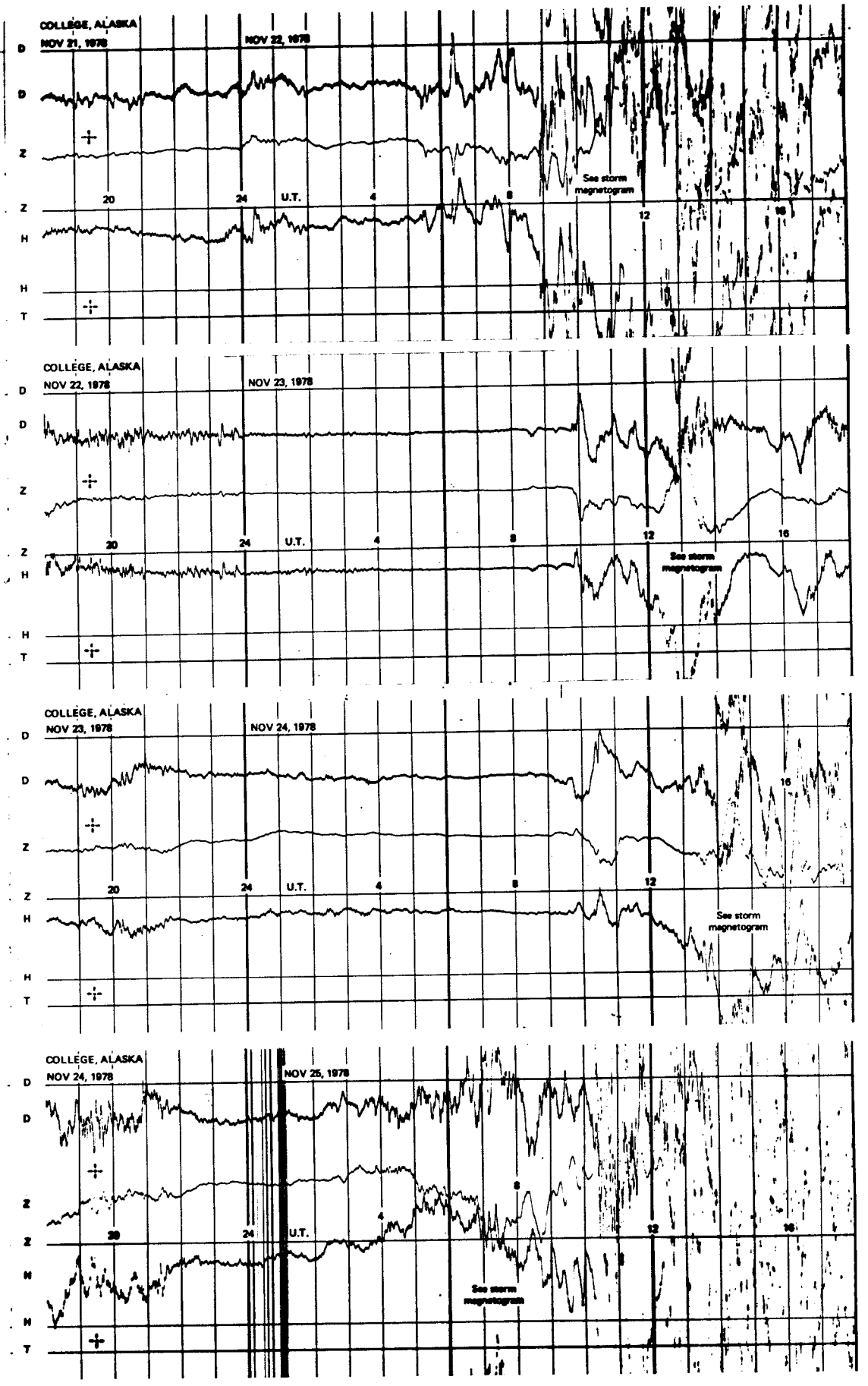
NORMAL MAGNETOGRAMS



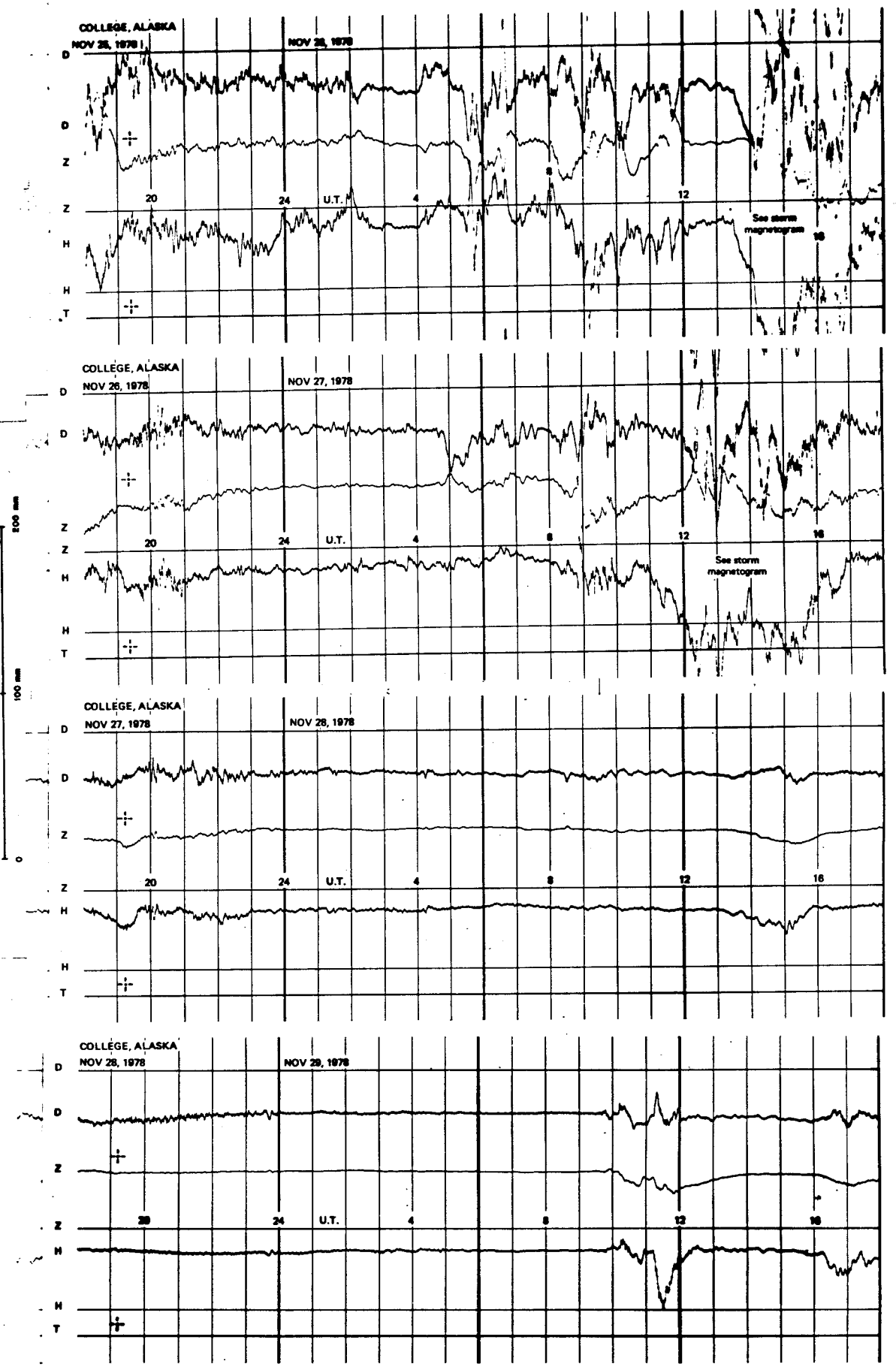
NORMAL MAGNETOGRAMS



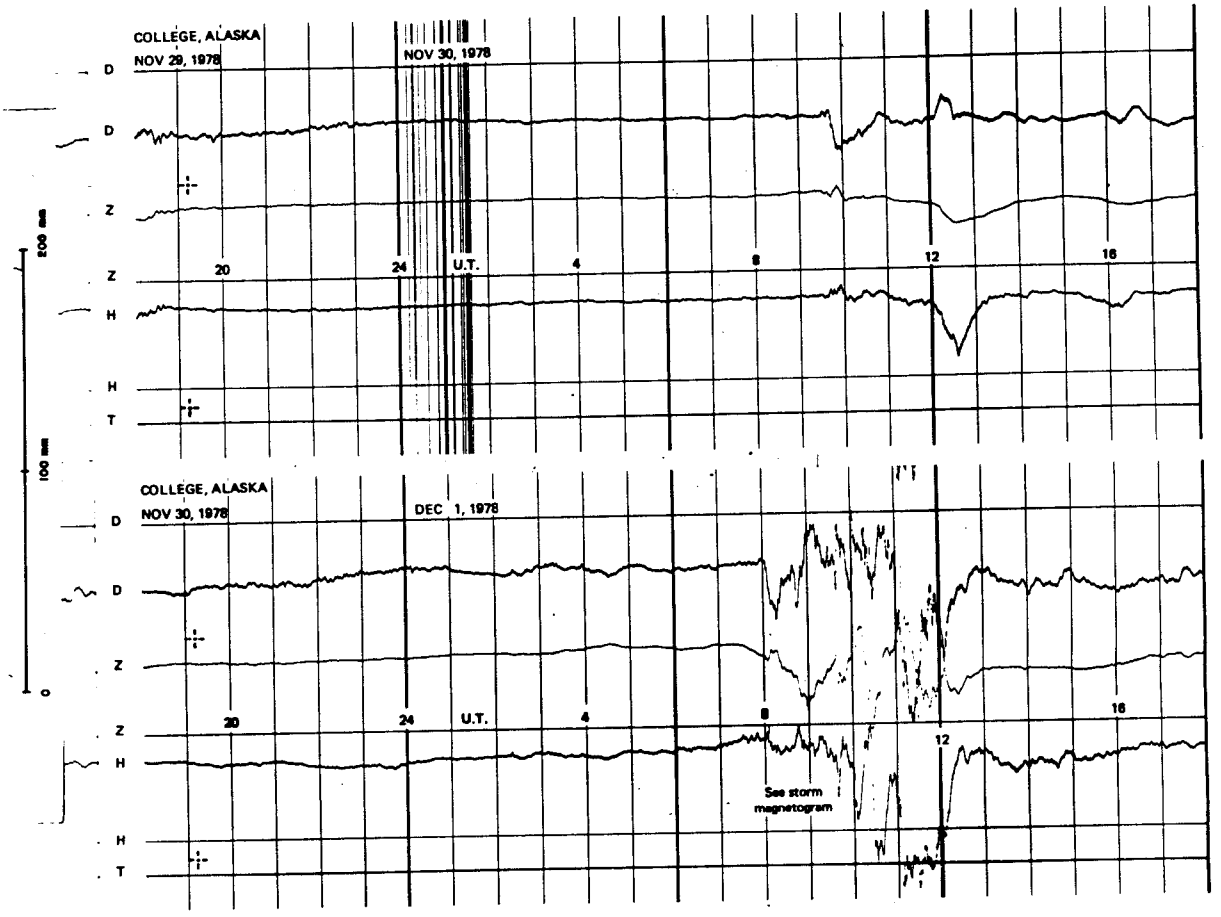
NORMAL MAGNETOGRAMS



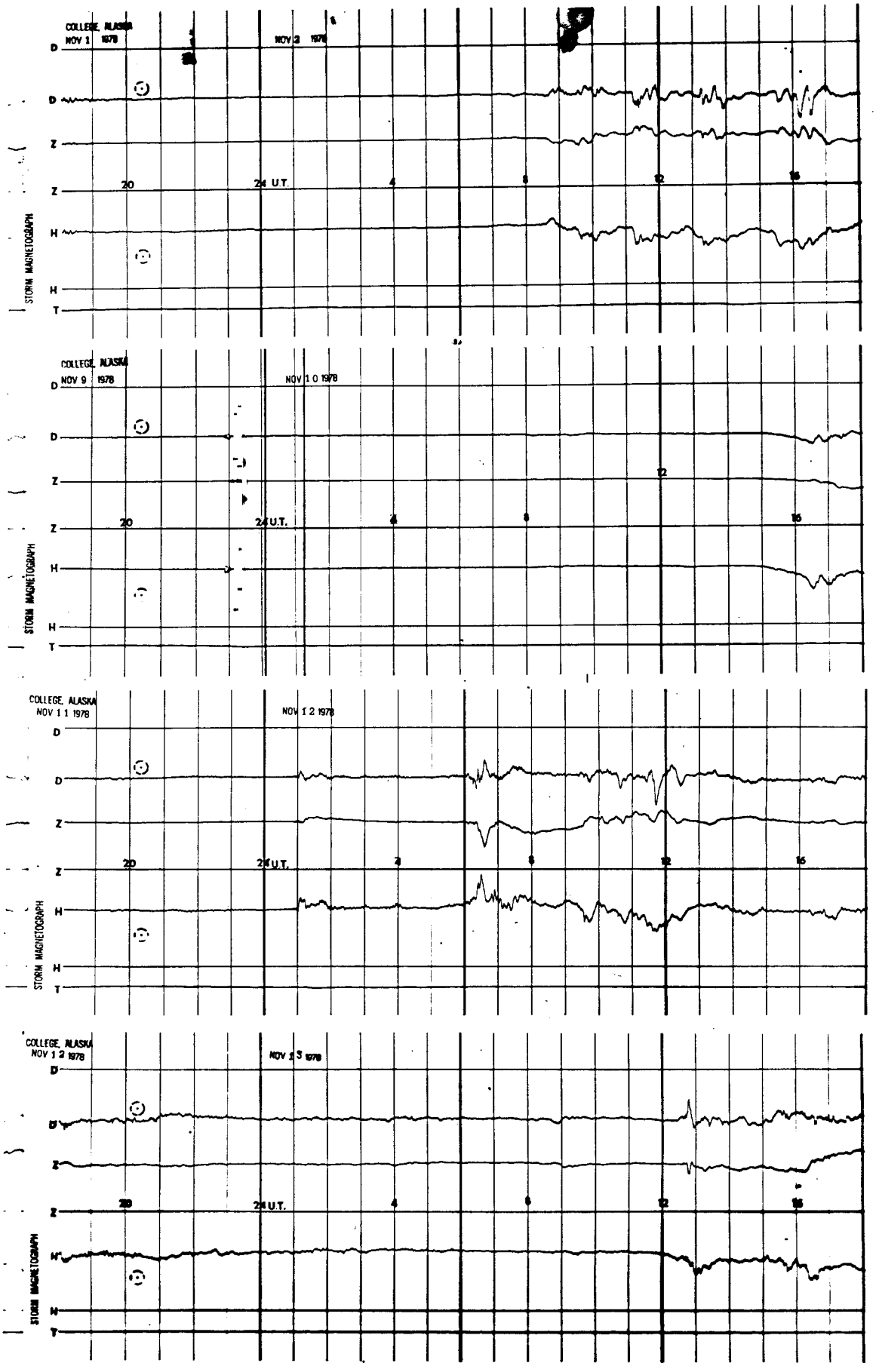
NORMAL MAGNETOGRAMS



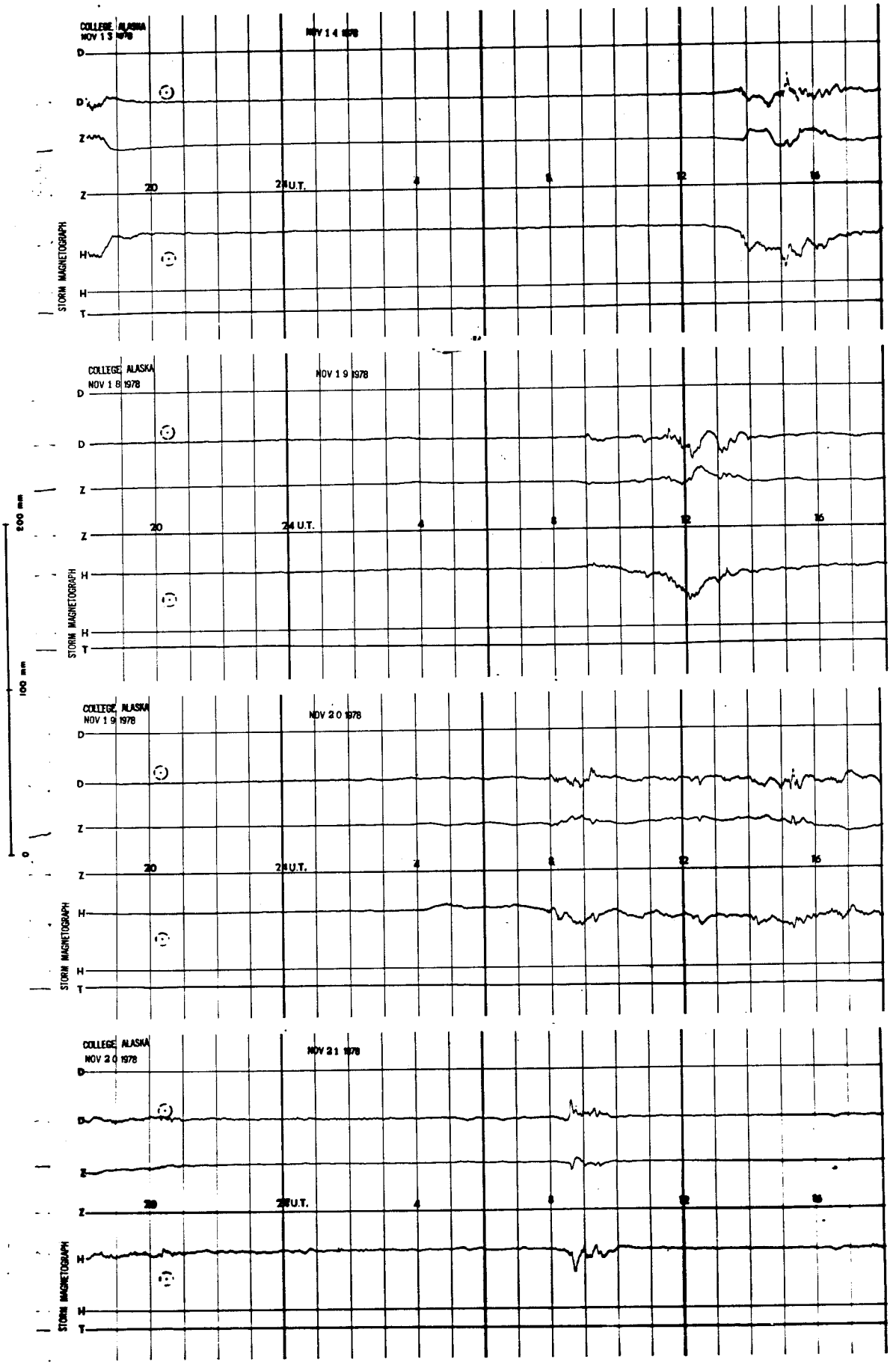
NORMAL MAGNETOGRAMS



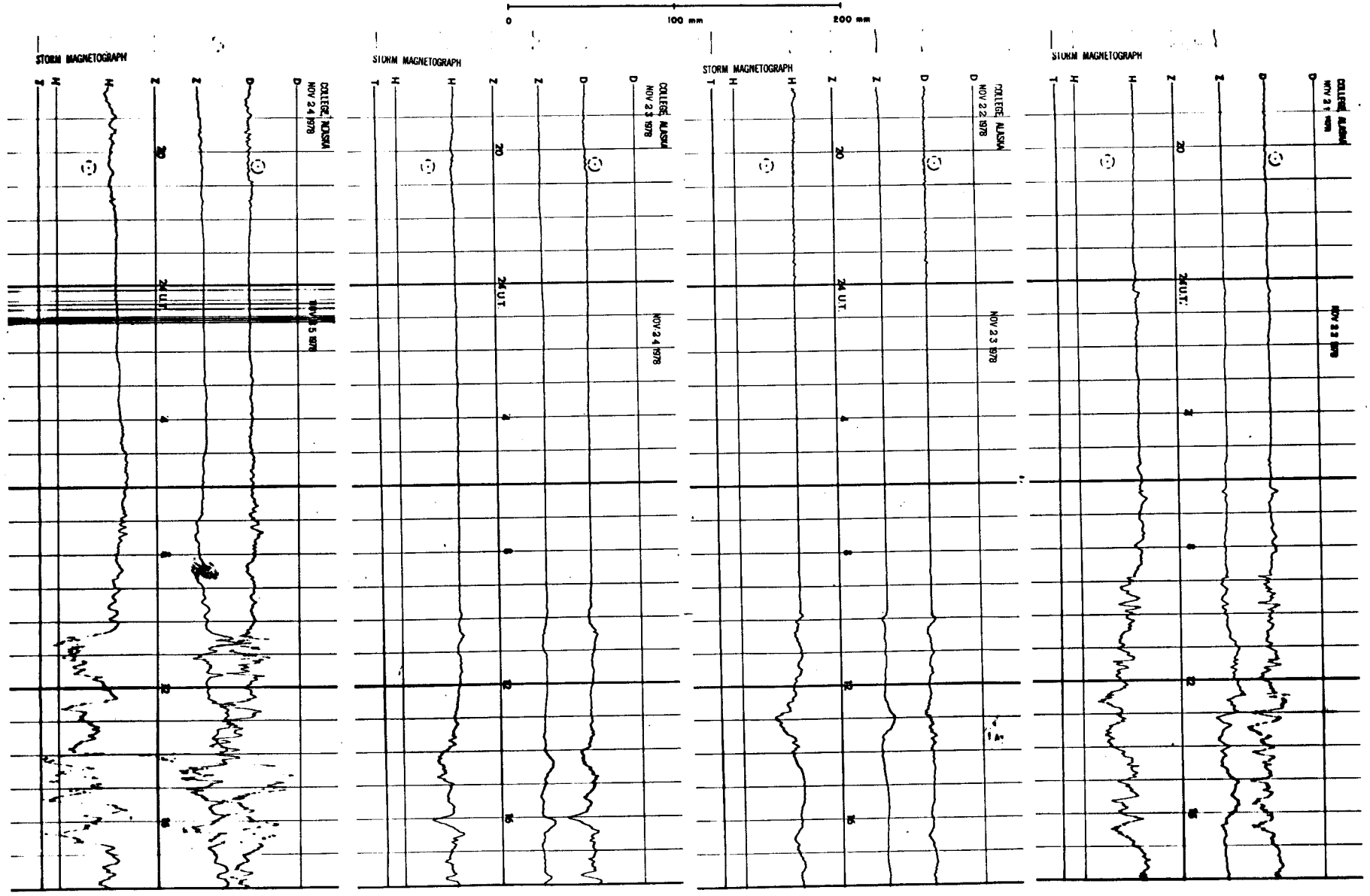
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS