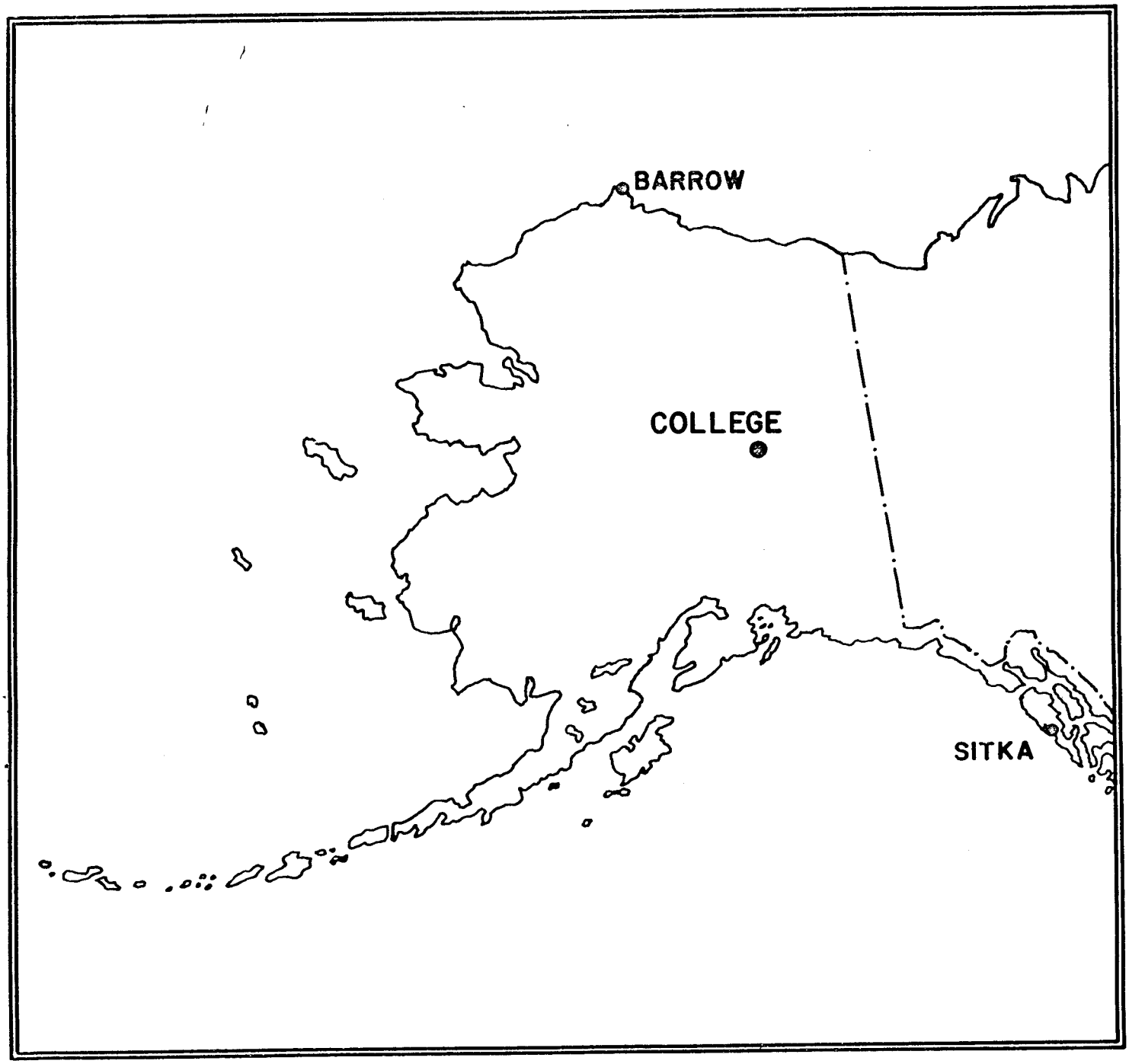
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

NOVEMBER 1979

OPEN FILE REPORT 79-300K



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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, 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 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 1979

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	2	3	4	4	4	4	2	25	18
2	2	4	4	6	5	3	2	1	27	27
3	0	0	0	4	4	4	2	3	17	13
4	2	3	2	5	4	1	1	0	18	14
5	0	0	0	0	1	0	0	0	01	00
6	0	0	0	3	2	0	0	0	05	03
7	0	0	2	3	5	5	5	2	22	22
8	2	1	5	5	3	3	1	1	21	18
9	1	1	2	2	6	6	5	2	25	29
10	1	0	2	2	0	1	1	2	09	04
11	2	3	2	2	1	3	2	1	16	08
12	0	0	3	4	3	2	2	0	14	09
13	3	4	5	5	5	6	5	4	37	43
14	3	4	4	2	1	1	0	0	15	10
15	0	1	0	0	0	0	0	0	01	00
16	1	3	5	5	3	4	3	1	25	22
17	2	2	3	3	1	0	1	1	13	07
18	2	0	0	2	1	1	0	0	06	03
19	0	0	2	5	3	3	0	1	14	11
20	1	0	2	5	4	4	2	0	18	15
21	0	1	3	3	3	3	0	0	13	08
22	0	0	1	3	1	0	0	0	05	03
23	0	0	1	1	1	1	1	1	06	02
24	1	5	7	7	5	5	5	3	38	61
25	3	4	3	4	1	0	1	9	19	13
26	1	0	0	0	1	1	2	1	06	02
27	1	0	3	2	4	1	0	0	11	07
28	0	0	1	0	0	0	0	0	01	00
29	0	0	0	0	0	1	1	0	02	01
30	0	1	5	4	4	2	1	0	17	14
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	7.79		(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: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: NOVEMBER

YEAR: 1979

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
09	18XX	pc5	
11	14XX	pc5	
18	0209	si	
29	1647	si	

IDENTIFIED BY: JEP

VERIFIED BY: EAS

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 1979

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	13	02XX	..	..	..	..	13	6	6	251	1280	710	14	10
		24	03XX	..	..	..	..	24	3,4	7	191	1450	540	25	15

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 11-1-79	2400 U.T., 11-30-79	1.0/mm	3.8'/mm	27° 47.4' E
H	0000 U.T., 11-1-79	2400 U.T., 11-18-79	7.8 γ/mm		12762 γ
	0000 U.T., 11-19-79	2400 U.T., 11-30-79	"		12756 γ
Z	0000 U.T., 11-1-79	2400 U.T., 11-30-79	7.3 γ/mm		55170 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 11-1-79	2400 U.T., 11-30-79	7.8'/mm	29.7'/mm	23° 49.7' E
H	0000 U.T., 11-1-79	2400 U.T., 11-30-79	44.0 γ/mm		11523 γ
Z	0000 U.T., 11-1-79	2400 U.T., 11-30-79	48.6 γ/mm		54028 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION
	FROM	TO	SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 10.6' E	13017 γ	55380 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: NOV 5, 6, 10, 15, 18, 22, 23, 26, 28, 29

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	NOV	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.	Qtr S	Ten Q	Hr Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	189	169	138	121	172	191	223	226	231	231	227	329	01	297	231	249	271	291	221	265	282	268	241	209	195	5467
			02	176	164	189	139	202	224	175	220	245	239	251	269	02	358	482*	239	288	331	312	262	261	242	238	230	241	5977
			03	239	220	221	220	219	219	213	217	220	221	228	247	03	261	238	251	291	297	271	298	259	240	168	166	183	5607
			04	179	201	164	139	219	204	169	231	220	219	239	318	04	401	339	279	273	299	292	302	278	257	219	221	223	5885
			05	220	221	219	219	219	219	220	219	219	219	219	239	05	283	255	249	251	251	289	300	286	278	251	238	229	5812
			06	221	209	204	207	208	211	221	221	213	216	256	251	06	238	237	248	257	263	281	299	303	287	269	252	244	5816
			07	230	218	207	202	200	201	203	171	189	168	238	291	07	258	344	372	271	364	315*	378	364	247	261	266	251	6209
			08	241	220	229	211	209	220	191	145	62*	77	201	339*	08	311	242	240	249	251	281	291	276	268	261	254	251	5520
			09	221	234	213	189	200	192	198	218	200	212	227	247	09	277	408	593*	719*	379*	279	229	268*	229	229	201	200	6562
			10	199	192	189	198	204	210	210	218	198	206	222	223	10	230	241	242	253	257	257	311	310	318	290	204	171	5553
			11	191	188	171	183	141	200	231	247	229	239	229	233	11	243	251	258	277	246	269	271	281	271	273	232	228	5582
			12	208	207	208	209	201	201	184	191	261	331	297	277	12	358	271	259	200	227	198	261	234	260	257	249	236	5785
			13	194	161	137	137	169	9	86	176	109	315*	537*	426*	13	387*	426*	616*	466*	505*	371*	117*	219	237	101	217	209	6327
			14	191	171	143	180	137	219	101	169	191	199	221	233	14	249	256	251	249	251	261	271	261	247	227	219	224	5121
			15	220	220	217	207	209	211	213	219	219	221	224	228	15	232	239	241	249	258	261	278	272	260	251	244	238	5631
			16	222	219	192	221	181	191	136	120	198	91	119	300	16	301	400	399	421	422	340	271	217	207	211	211	222	5812
			17	217	201	188	219	213	188	221	223	259	289	231	225	17	237	241	248	251	258	261	272	258	226	231	232	223	5612
			18	218	211	209	210	212	213	211	219	219	218	240	289	18	236	249	250	248	250	268	271	278	277	257	256	242	5751
			19	230	221	219	219	220	217	210	209	191	192	192	249	19	261	284	251	251	267	282	288	281	278	207	168	190	5577
			20	203	206	219	219	217	211	242	209	239	248	261	428	20	447	411	283	251	343	241	258	280	249	226	217	216	6324
			21	209	202	189	169	180	200	211	284	178	246	221	248	21	257	253	230	246	275	263	250	267	248	240	230	215	5511
			22	207	210	217	216	218	217	219	218	270	268	287	220	22	219	227	216	231	243	252	260	259	257	248	243	240	5662
			23	237	223	215	213	220	217	210	202	200	210	258	246	23	243	248	220	221	252	270	282	280	227	220	200	161	5475
			24	141	156	161	117	137	6*	62	-17*	125*	257	371*	814*	24	513*	390	258	214	302	299	221	242	215	220	171	176	5551
			25	192	186	188	179	179	226	259	210	238	255	177	204	25	229	319	255	263	270	277	277	247	239	237	219	218	5543
			26	219	218	218	216	219	219	218	219	219	220	227	231	26	238	258	249	248	245	246	246	200	162	213	232	212	5392
			27	221	220	217	219	218	208	216	272	195	209	257	267	27	247	309	267	242	248	256	258	241	241	243	241	231	5743
			28	221	214	219	221	222	224	231	231	217	221	220	218	28	221	231	238	240	242	247	251	257	251	244	244	240	5565
			29	227	219	220	223	228	229	228	228	221	222	220	219	29	221	230	238	268	262	262	261	249	210	228	230	221	5564
			30	203	200	209	204	200	197	201	238	188	146	216	270	30	252	292	289	299	289	260	259	257	261	244	241	228	5643
			31													31													

SCALED BY	SPT, EAS, PEF
CHECKED BY	JEP, EAS, 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 (or part or all of hour; if value in given, curve was estimated for missing part.
* Derived from Storm Mgph., converted to Normal Mgph.

MONTHLY SUM	171579
MONTHLY MEAN	238
DATES WITH GAPS:	

☆ U.S G.P.O. 1973-769-571/932 REG.#6

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	79	NOV	H

C	Q or S	Ten Q	Hr Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	299	329	351	371	379	397	433	371	344	333	266	59	01	98	299	334	312	211	206	197	336	299	299	300	316	7139
			02	339	341	352	408	459	519	473	429	325	289	-66*	177	02	131	-94*	138	220	239	242	303	331	336	321	321	319	6852
			03	320	326	321	329	330	331	338	339	331	334	340	149	03	129	332	360	311	66	124	316	310	291	242	317	320	6906
			04	333	321	333	416	356	331	381	397	393	367	271	-11	04	188	251	323	341	321	324	331	311	303	309	316	320	7526
			05	322	329	328	329	333	335	334	339	339	340	338	331	05	324	343	343	339	339	341	336	321	311	301	300	308	7903
			06	316	321	329	339	341	349	339	344	345	347	340	272	06	358	351	347	343	341	340	337	321	311	306	301	305	7943
			07	311	313	326	337	339	343	344	374	397	369	266	299	07	339	175	128	261	-61	-81	-114	24	304	297	300	329	5919
			08	309	320	339	346	359	351	368	389	218	327	136	-117*	08	179	301	319	290	330	351	331	328	321	316	309	309	7029
			09	319	298	306	321	321	331	361	379	369	365	344	321	09	264	9	-254*	-282*	-179*	159	344	329	290	289	300	319	5623
			10	316	321	329	334	339	336	334	331	359	359	330	319	10	319	319	321	313	311	303	306	301	298	291	259	309	7657
			11	313	307	329	339	371	400	349	321	329	319	323	313	11	330	338	339	349	369	370	349	329	311	300	297	296	7990
			12	306	316	321	329	332	336	339	321	291	176	76	121	12	231	231	212	304	314	291	341	329	326	320	320	311	6794
			13	311	304	363	471	468	513	399	201	148	-28*	-243*	-125*	13	-23*	-153*	-288*	-515*	-238*	-96*	27	249	211	353	319	276	2904
			14	361	359	401	399	577	416	441	413	369	373	356	330	14	303	299	298	279	291	308	304	300	291	289	290	291	8338
			15	293	299	309	319	323	326	328	324	329	329	329	329	15	326	326	321	321	320	320	321	319	311	311	310	310	7653
			16	311	314	347	337	346	429	480	516	312	216	94	81	16	79	21	-26	153	229	249	161	298	329	337	341	320	6274
			17	314	346	349	340	341	374	374	363	331	305	340	341	17	336	330	339	339	334	332	327	327	296	314	316	312	8020
			18	310	319	337	340	340	339	340	337	336	339	324	320	18	339	340	344	333	329	339	339	333	330	327	319	319	7972
			19	311	316	327	331	339	340	341	359	361	384	214	269	19	309	289	193	320	359	341	350	341	319	300	300	300	7653
			20	323	327	331	336	339	347	347	364	379	299	14	21	20	71	-94	71	126	173	251	344	350	344	339	330	330	6082
			21	329	338	339	351	365	368	384	383	450	440	369	329	21	300	254	194	278	334	350	337	325	312	308	311.	315	8063
			22	318	325	331	337	337	331	335	332	317	318	248	359	22	349	337	318	342	347	339	335	327	318	317	314	315	7846
			23	317	319	328	336	337	337	335	329	324	319	311	314	23	319	322	339	319	334	337	339	332	318	319	308	307	7799
			24	322	355	348	412	572	731	621	510	80*	307	-100*	-577*	24	-124*	-6	161	342	285	22	6	333	299	257	289	351	5796
			25	330	384	447	459	605	534	440	403	352	360	319	364	25	329	247	291	332	327	319	317	317	325	319	318	319	8757
			26	321	329	331	337	338	339	342	343	347	347	342	339	26	328	337	341	339	342	337	341	317	298	319	324	328	8006
			27	325	319	337	337	338	337	338	340	348	338	317	304	27	288	188	309	327	347	348	351	347	341	333	329	323	7809
			28	324	330	334	339	339	339	331	333	339	340	341	341	28	340	339	336	341	344	346	340	338	337	334	333	331	8089
			29	331	339	341	346	349	350	349	349	344	349	349	350	29	350	349	339	341	356	360	366	350	340	341	334	330	8302
			30	336	341	343	350	347	353	366	376	297	351	319	241	30	271	339	342	351	339	339	341	346	344	340	331	324	8027
			31													31													

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

Preliminary base-line and scale values:

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[ ] 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	218671
MONTHLY MEAN	304
DATES WITH GAPS:	

☆ U.S. G.P.O. 1973-769-571/932 REG. #6

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 SUMO universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	79	NOV	Z

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	309	311	316	359	399	399	382	351	309	282	300	349	01	258	197	249	276	199	209	159	271	299	325	334	331	7173
			02	321	346	341	342	355	349	368	350	316	197	218	223	02	245	287*	166	150	140	219	230	246	289	308	310	318	6634
			03	311	309	307	306	305	305	308	308	300	299	291	299	03	114	156	287	289	193	74	163	231	270	279	288	294	6286
			04	309	323	334	356	362	320	329	341	339	309	260	316	04	194	154	210	259	253	239	253	271	285	289	301	309	6935
			05	307	301	301	300	298	296	291	291	291	294	293	290	05	269	251	269	281	280	289	297	300	301	301	308	310	7009
			06	307	300	299	299	299	298	298	299	298	307	287	229	06	230	281	289	290	291	299	301	305	307	308	305	303	7029
			07	297	296	291	291	297	300	308	314	339	298	298	291	07	271	253	168	207	181	193	248	159	220	293	307	320	6440
			08	323	312	318	318	328	319	316	263	131	239	428	436	08	299	233	276	279	281	303	309	306	307	311	313	317	7265
			09	320	327	318	317	318	321	319	326	311	321	319	309	09	318	503	613*	294*	361*	201	253	291	256	290	308	320	7834
			10	327	322	321	322	320	319	317	318	311	313	311	309	10	310	309	308	303	301	301	309	304	301	308	299	317	7480
			11	337	331	338	341	363	371	349	299	297	270	286	296	11	298	294	293	291	286	291	299	302	300	307	301	309	7449
			12	302	302	306	302	300	300	300	301	271	201	237	278	12	126	130	190	214	240	231	276	281	297	301	303	308	6297
			13	300	301	328	241	221	184	229	216	287	520*	487*	573*	13	634*	660*	380*	480*	280*	240*	119	212	300	300	317	309	8118
			14	288	261	229	229	256	290	261	356	339	321	329	330	14	327	309	310	300	299	310	320	317	314	316	319	320	7252
			15	321	320	319	310	311	310	309	310	307	309	307	307	15	306	306	303	305	309	310	311	309	309	311	319	313	7451
			16	311	310	307	309	318	357	319	247	239	151	229	319	16	247	223	276	121	129	221	201	199	249	280	301	310	6173
			17	310	320	331	336	331	332	339	313	292	230	268	289	17	300	296	299	300	301	306	311	310	301	300	303	303	7321
			18	309	307	300	299	300	300	301	303	301	301	277	228	18	257	249	276	279	278	288	297	300	303	305	310	308	6996
			19	306	304	300	299	297	293	299	307	317	287	230	252	19	279	258	230	239	272	296	268	289	291	281	293	303	6810
			20	320	319	317	310	310	321	336	325	322	287	288	193	20	153	391	247	123	91	178	247	280	279	280	289	298	6504
			21	298	297	302	325	340	350	359	337	302	329	305	298	21	279	255	213	209	250	267	278	293	296	300	306	304	7092
			22	304	305	304	305	306	305	301	298	297	278	209	238	22	282	284	255	268	289	295	299	298	299	302	302	303	6926
			23	301	299	298	298	298	293	293	296	301	299	276	236	23	226	228	230	229	252	268	278	279	268	267	283	291	6587
			24	308	338	327	331	309	179	213	213	323	301	460*	361*	24	521	557	299	259	292	216	30	144	227	291	288	326	7113
			25	320	299	176	120	237	379	328	308	321	218	301	328	25	315	268	261	288	297	297	294	269	299	305	299	303	6850
			26	307	305	300	299	299	299	298	298	297	298	299	298	26	287	278	289	296	296	297	297	287	258	279	296	304	7061
			27	308	307	299	297	298	305	318	279	277	297	278	265	27	250	229	218	228	262	277	281	284	289	297	299	299	6741
			28	297	299	299	299	297	294	298	297	291	290	281	280	28	287	288	283	281	288	290	291	291	291	290	291	290	6983
			29	290	290	290	290	289	290	289	289	290	290	290	289	29	287	281	273	268	274	279	280	276	269	280	290	293	6826
			30	298	296	297	297	300	314	333	202	69	257	319	389	30	249	248	307	279	280	287	279	281	290	291	297	298	6757
			31													31													

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

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

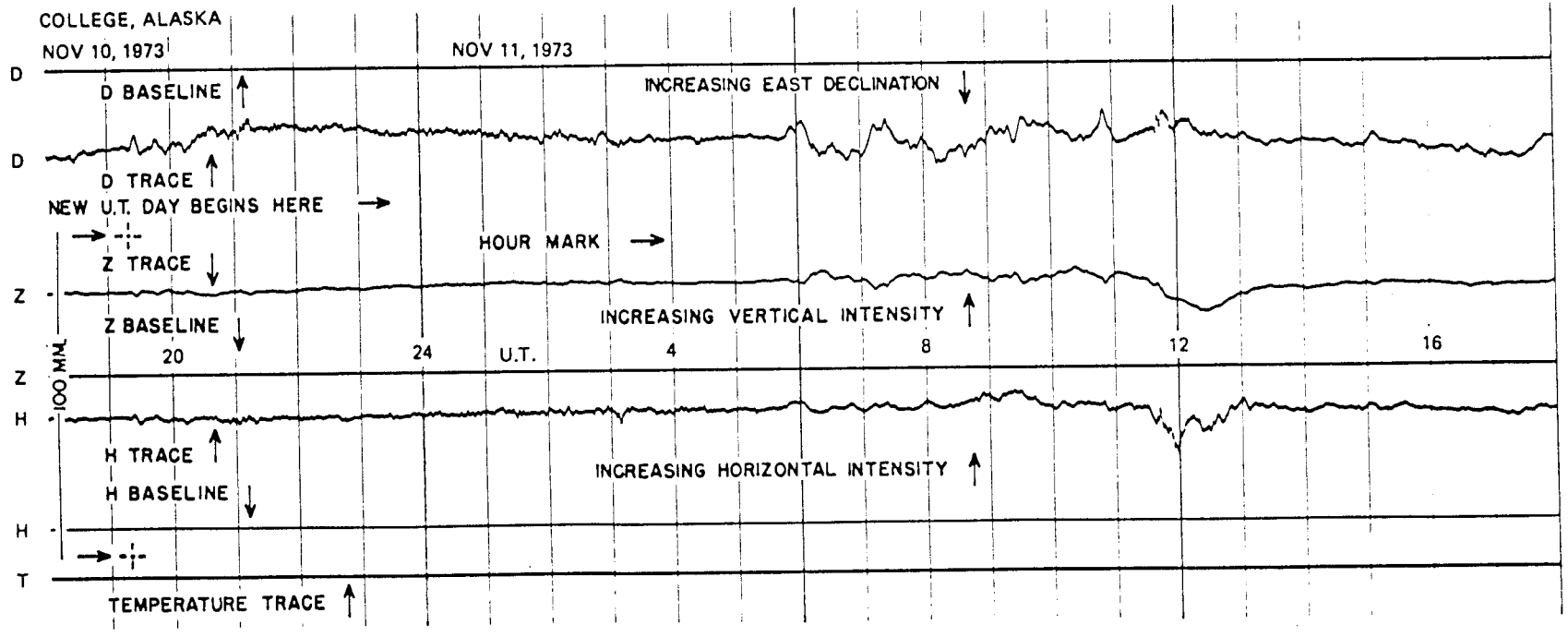
( ) Interpolated
[ ] Significant portion of hour interpolated.
☐ No record; or no values available because of faulty record.
[ ] Scaling uncertain because of magnetic storm.
<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.
• Derived from Storm Mgph.,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

MONTHLY SUM	209392
MONTHLY MEAN	291
DATES WITH GAPS:	

☆ U.S. G.P.O. 1973-769-571/932 REG. #6

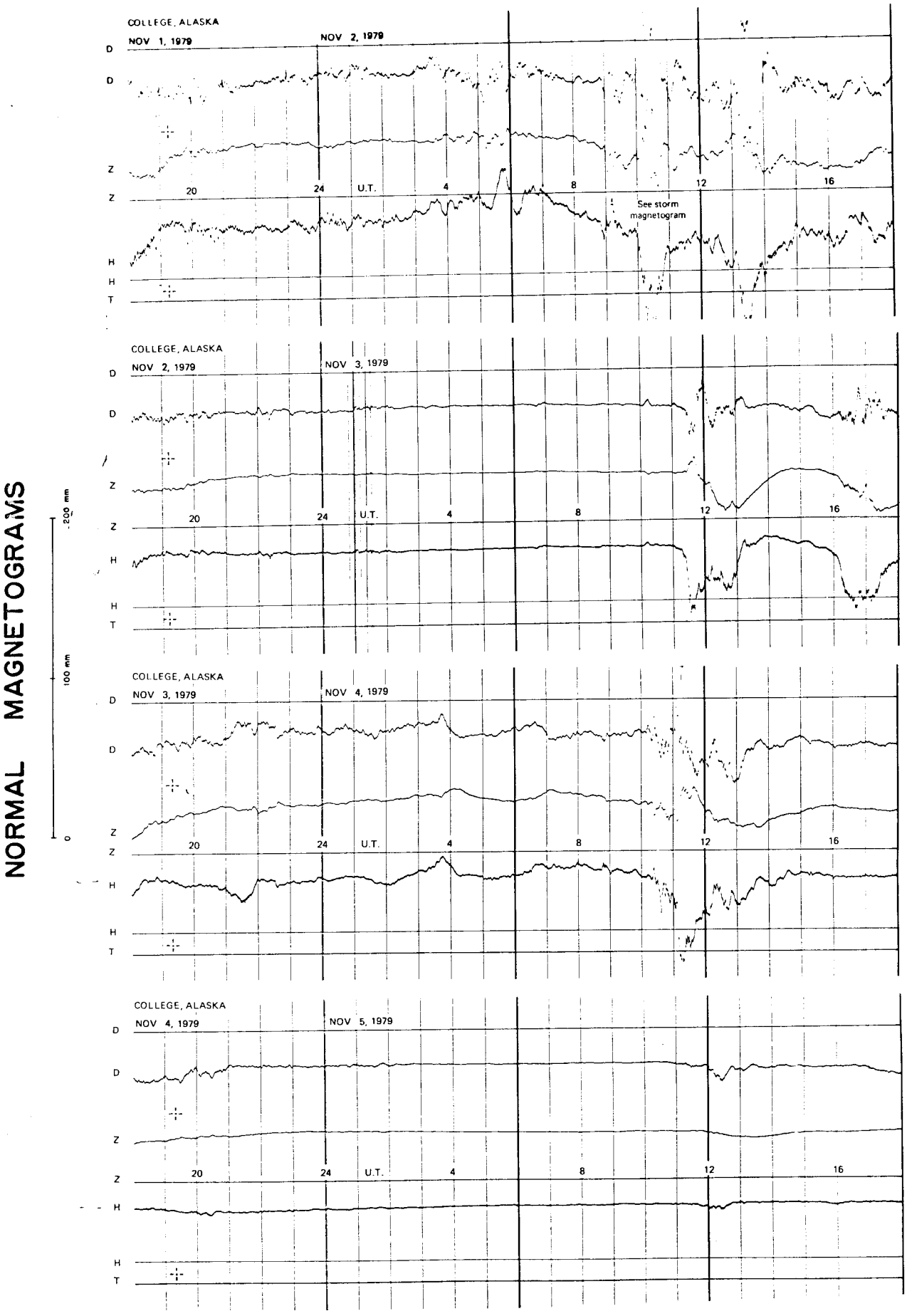
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

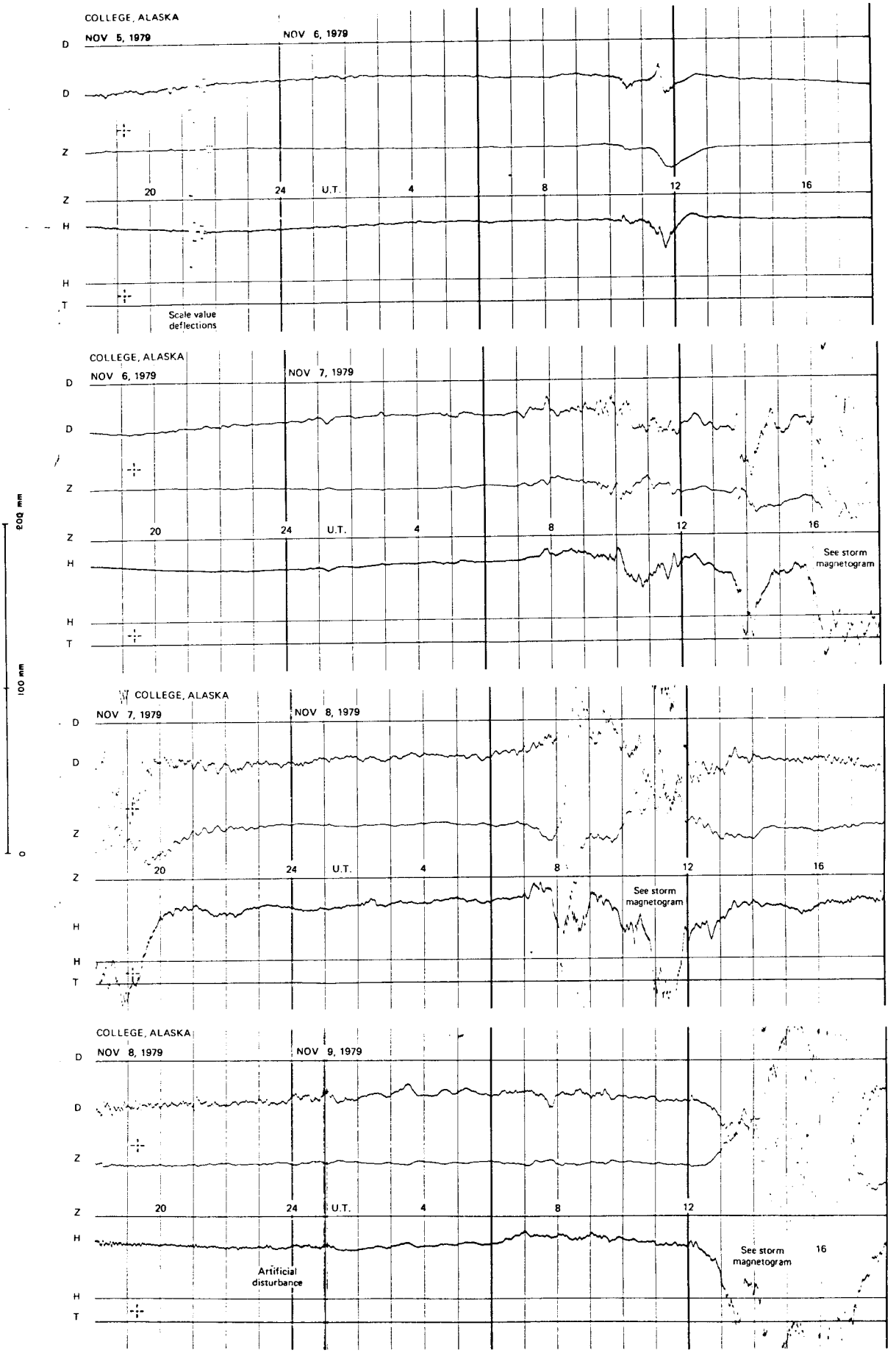


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

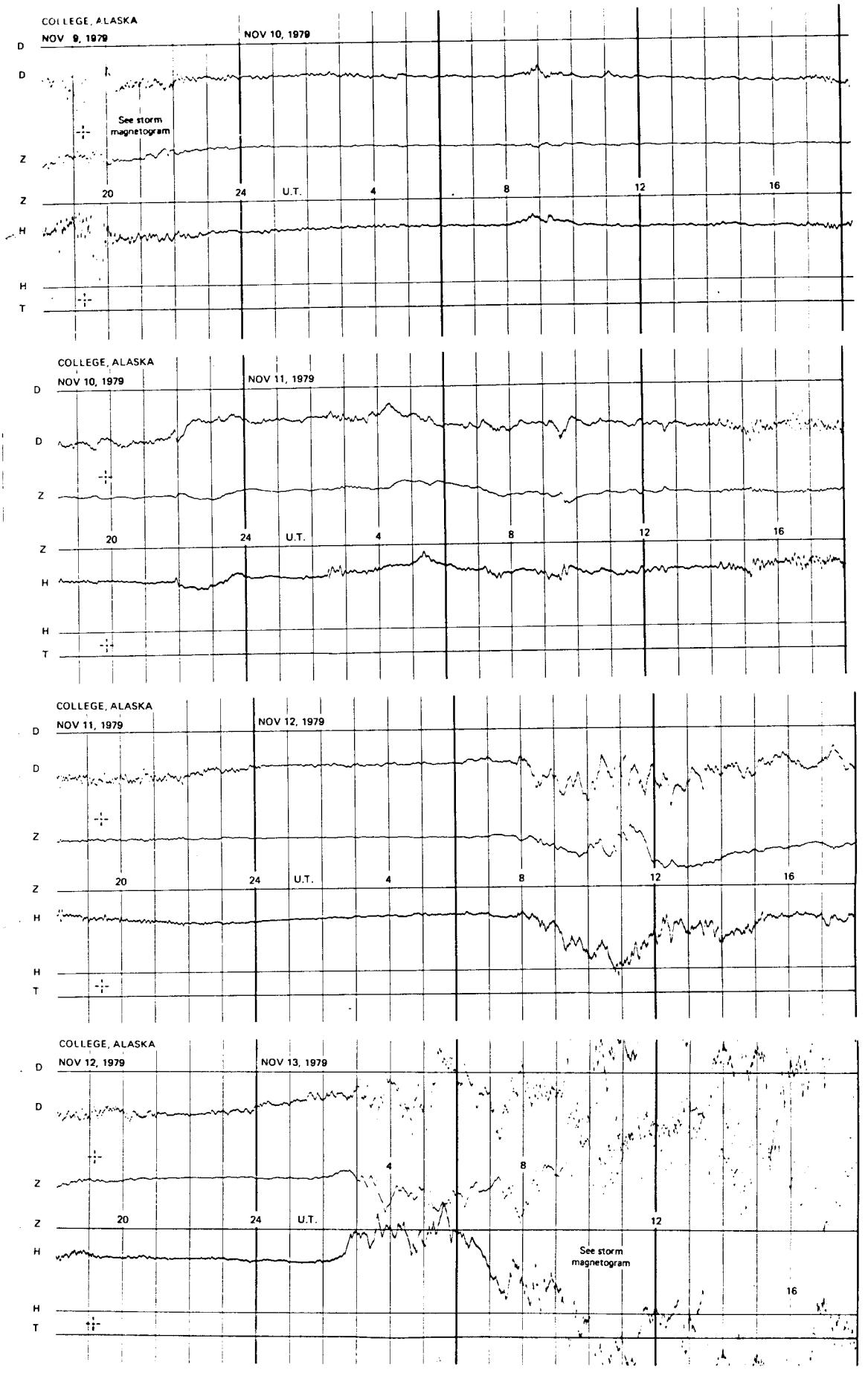
NORMAL MAGNETOGRAMS



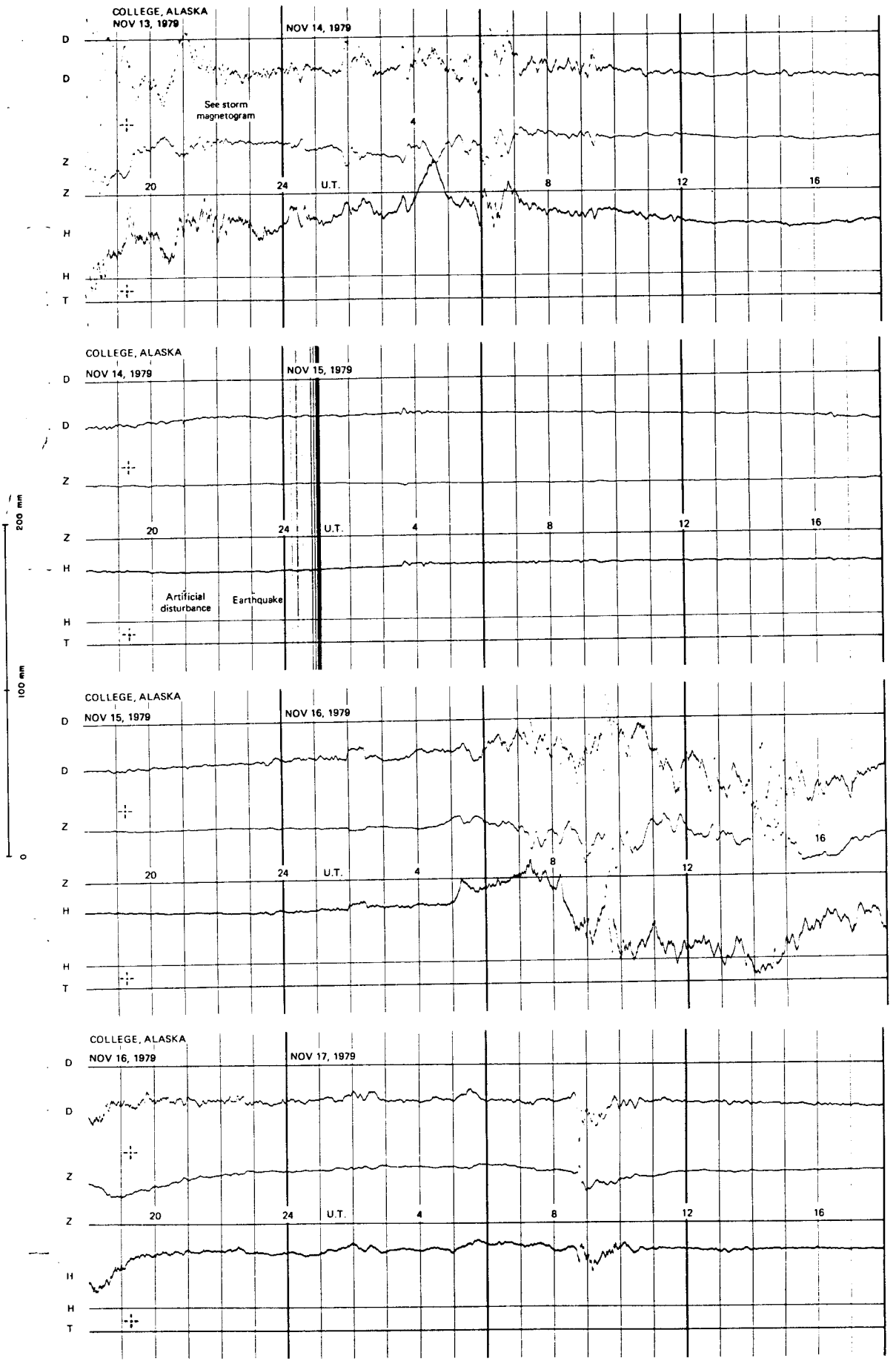
NORMAL MAGNETOGRAMS



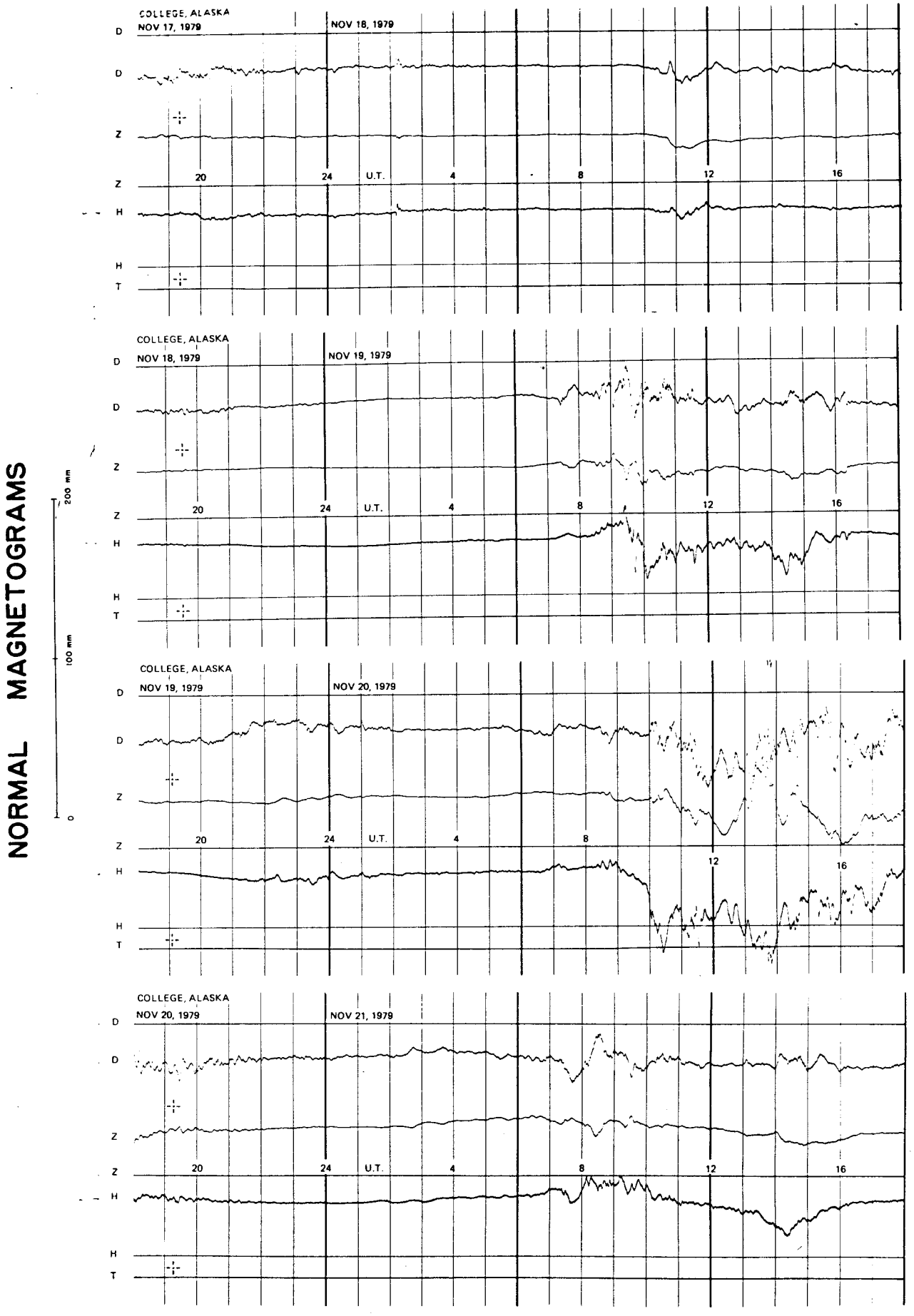
NORMAL MAGNETOGRAMS



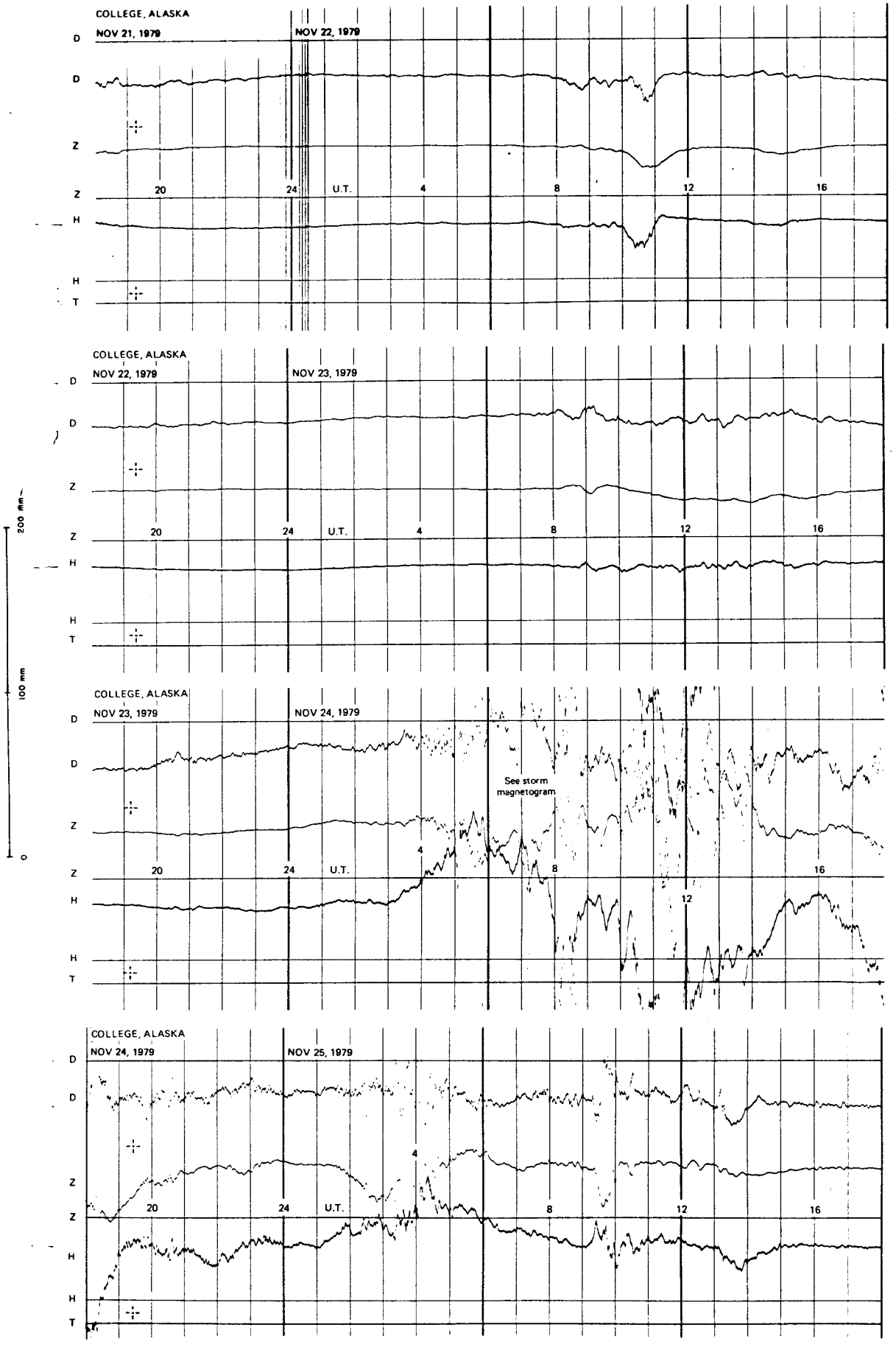
NORMAL MAGNETOGRAMS



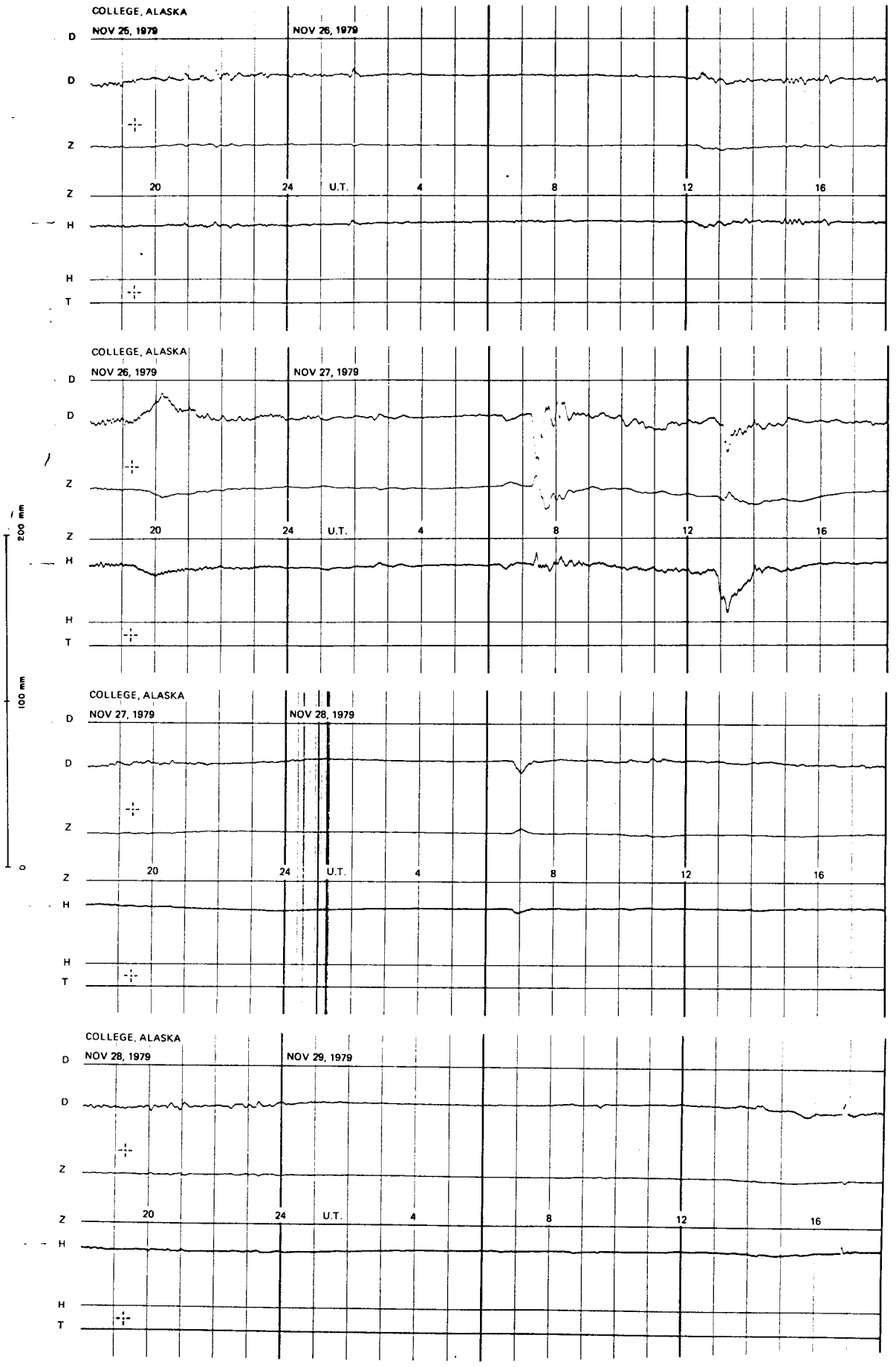
NORMAL MAGNETOGRAMS



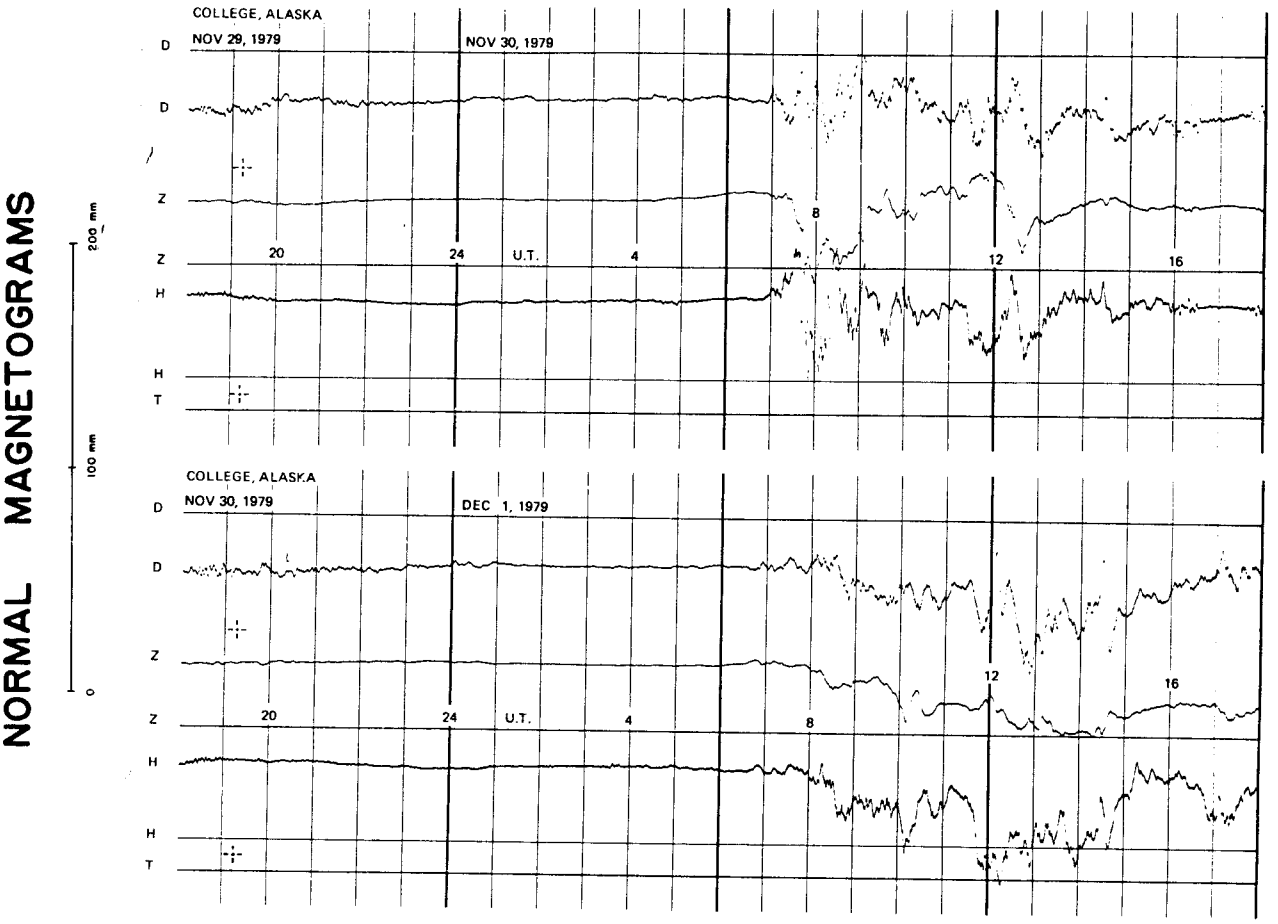
NORMAL MAGNETOGRAMS



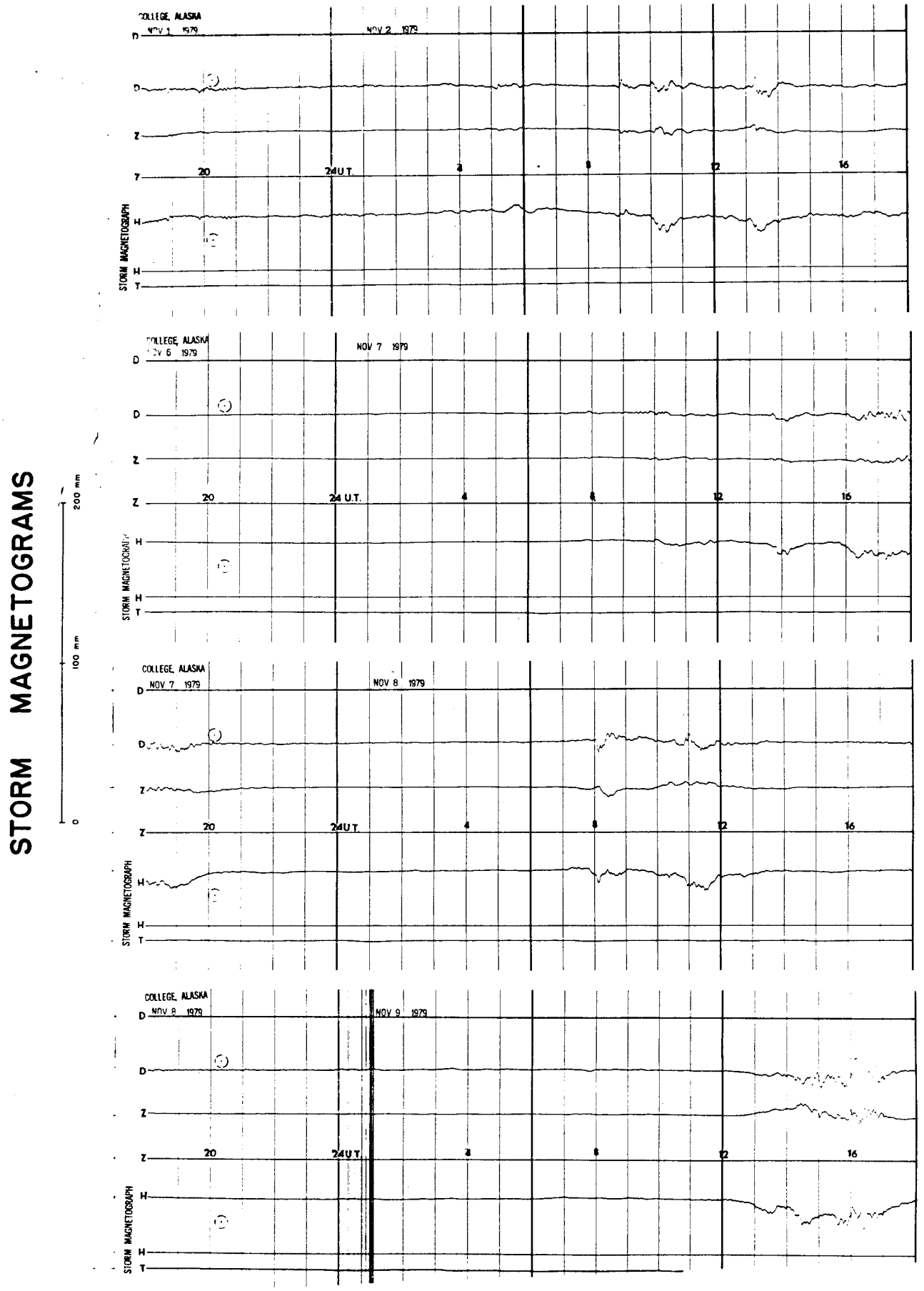
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS