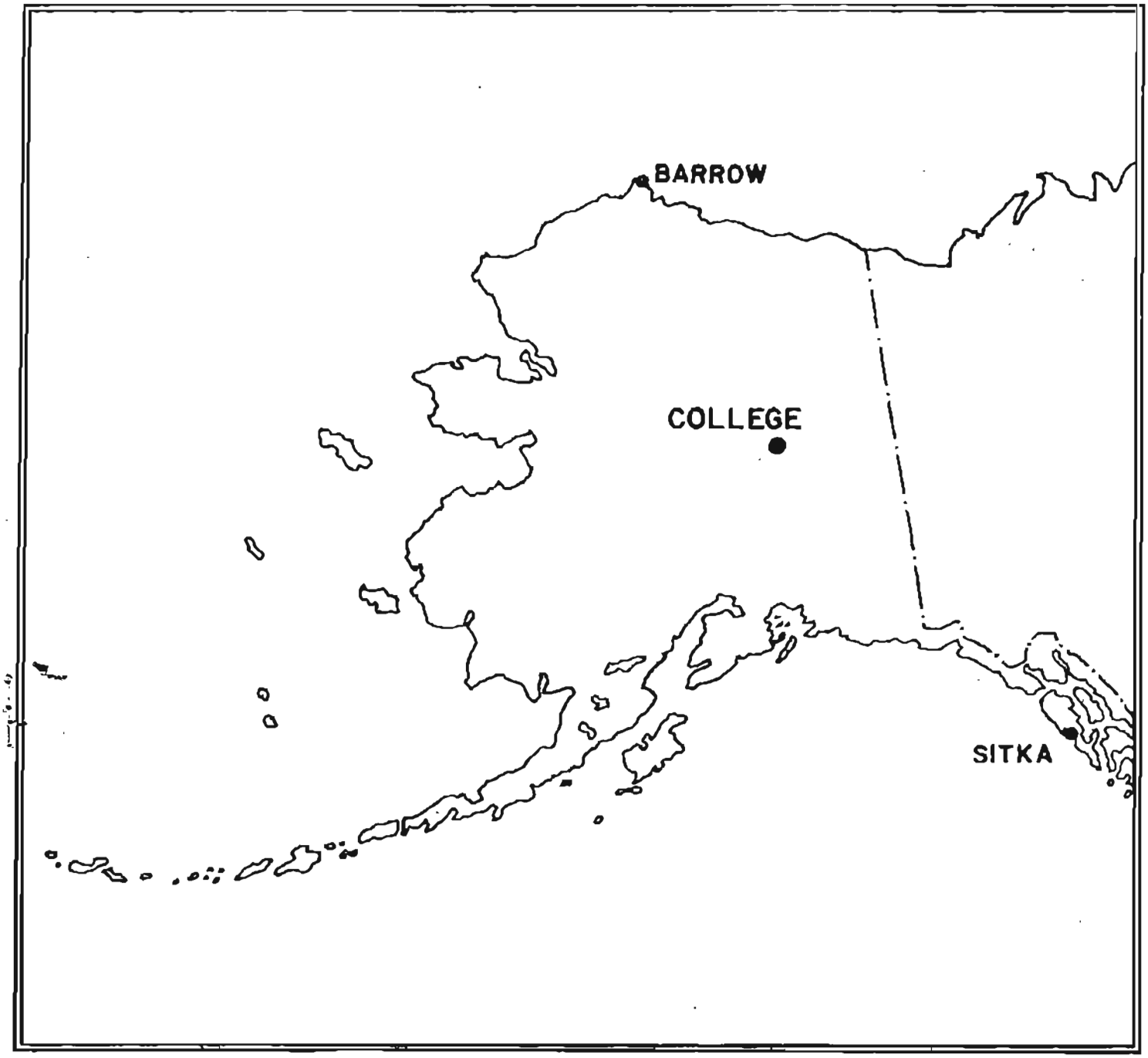
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

PROPERTY OF
LIBRARY
STATE OF ALASKA
DIVISION OF
GEOLOGICAL SURVEY

OCTOBER 1980 OPEN FILE REPORT 80-300J



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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, E.A. SAUTER, AND S.P. TILTON, AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF ELECTROMAGNETISM AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

INTRODUCTION

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

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

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

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

OBSERVATORY LOCATION

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

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

The position of the observatory site is:

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

GEOMAGNETIC DATA

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

Magnetic Activity

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

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

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

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

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

AK Range	C
0≤11	0
11≤50	1
50+	2

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

Selected Phenomena & Outstanding Magnetic Effects

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

Principal Magnetic Storms

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

Magnetogram Hourly Scalings

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

Magnetograms

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

Absolutes, Base-lines, and Scale Values

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

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

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

NOAA FORM 76-133 (9-72)

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

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

OBSERVATORY: COLLEGE, ALASKA

MONTH AND YEAR: OCTOBER 1980

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	0	0	0	0	1	0	0	0	01	00
2	0	0	0	0	1	0	0	0	01	00
3	0	0	0	2	0	0	1	1	04	02
4	3	3	5	6	5	6	3	3	34	40
5	3	6	5	6	5	4	3	1	33	40
6	1	3	7	5	2	3	1	1	23	29
7	3	3	3	5	5	1	2	1	23	19
8	1	2	2	2	2	2	2	2	15	07
9	2	2	3	5	2	3	3	2	22	15
10	2	2	3	3	5	4	2	4	25	19
11	3	5	7	6	6	3	3	3	36	51
12	2	3	2	2	3	2	3	2	19	10
13	1	0	1	0	2	1	0	1	06	02
14	1	1	0	2	1	2	3	2	12	06
15	2	3	4	6	4	3	2	1	25	23
16	1	0	0	0	0	0	0	0	01	00
17	0	0	2	4	3	0	1	1	11	07
18	3	3	5	6	5	3	4	2	31	32
19	1	2	4	4	4	4	1	2	22	16
20	1	1	0	2	2	2	0	0	08	03
21	0	1	1	3	4	4	1	1	15	10
22	1	4	4	6	6	4	6	5	36	47
23	3	4	7	7	7	6	5	3	42	76
24	2	2	3	5	4	3	2	2	23	17
25	3	2	4	6	5	5	4	4	33	35
26	3	3	6	5	3	1	2	0	23	23
27	0	0	0	0	0	0	0	0	00	00
28	0	0	0	0	0	0	0	0	00	00
29	0	0	0	0	0	1	0	0	01	00
30	1	4	3	2	0	2	1	1	14	08
31	1	2	4	3	6	6	4	3	29	32

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	BEGIN h	BEGIN m	END d	END h	END m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.75	7.81		(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

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: OCTOBER

YEAR: 1980

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
01	19XX	pc4	
03	09XX	pi2	
14	11XX	pi2	
30	1519	ssc*	

IDENTIFIED BY: JBT

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

OCTOBER 19 80

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

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	04	01XX	..	..	..	..	04	4, 6	6	267	980	680	05	21
								05	2, 4	6					
		10	07XX	..	..	..	..	11	3	7	181	1270	940	11	17
		22	03XX	..	..	..	..	23	3, 4, 5	7	254	1630	1020	23	23
		30	1418	s.c.*	..	..	..	31	5, 6	6	188	990	920	Nov. 01	19
		30	1519	s.c.*	-8	-73	-23	Nov. 01	3	6					

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: OCTOBER 1980

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 10-1-80	2400 U.T. 10-31-80	1'.0/mm	3.7 γ/mm	27° 47'.4 E
H	0000 U.T. 10-1-80	2400 U.T. 10-10-80	7.8 γ/mm		12770 γ
	0000 U.T. 10-11-80	2400 U.T. 10-31-80	"		12764 γ
Z	0000 U.T. 10-1-80	2400 U.T. 10-10-80	7.3 γ/mm		55162 γ
	0000 U.T. 10-11-80	2400 U.T. 10-31-80	"		55168 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 10-1-80	2400 U.T. 10-31-80	7'.8/mm	29.7 γ/mm	23° 46'.3 E
H	0000 U.T. 10-1-80	2400 U.T. 10-10-80	44.0 γ/mm		11536 γ
	0000 U.T. 10-11-80	2400 U.T. 10-31-80	"		11528 γ
Z	0000 U.T. 10-1-80	2400 U.T. 10-10-80	48.5 γ/mm		54019 γ
	0000 U.T. 10-11-80	2400 U.T. 10-31-80	"		54032 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 07'.3 E	12997 γ	55381 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: OCT 1, 2, 3, 13, 14, 16, 20, 27, 28, 29

FORM 76-106

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225

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 (1500 M.T.) is hour 22 of the 9010 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	80	OCT	D

C	Q or S	Ten Q	Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	172	171	171	169	169	170	179	180	181	180	185	188	01	195	192	197	220	240	261	263	261	243	215	181	170	4753
			02	165	155	157	162	169	170	169	178	167	162	181	190	02	198	215	221	230	240	250	265	263	243	220	187	170	4729
			03	170	166	165	168	168	170	172	172	172	158	156	210	03	225	203	205	215	247	279	272	259	200	181	159	117	4609
			04	129	149	80	92	158	152	10*	82	90	119	257	429	04	493*	486*	937*	351*	311*	173	159	119	122	113	119	169	5299
			05	116	88	102	74	184	2*	18*	101	83	176*	325	311	05	379	410	184*	254	291	220	200	138	96	104	136	130	4122
			06	196	181	184	159	150	103	41	30	-101*	105*	108	190	06	220	221	226	209	265	270	276	219	196	204	189	182	3973
			07	157	144	111	159	189	186	178	147	169	-109*	63	251	07	269	171	221	211	233	261	273	236	221	237	193	169	4340
			08	149	144	144	128	152	159	149	159	161	141	196	197	08	198	216	231	249	279	296	281	315	286	177	161	157	4705
			09	151	138	144	121	152	147	151	201	189	196	191	207	09	198	199	210	216	239	249	249	237	221	178	169	167	4520
			10	164	151	129	151	134	143	125	119	187	158	121	133	10	228	226	291	348	446	403	404	345	285	248	132	168	5239
			11	100	143	118	96	-29	38	25*	-196*	25*	319*	169*	148	11	335*	186	229	246	239	272	275	272	227	191	181	102	3791
			12	181	191	180	177	169	151	184	169	181	179	198	202	12	203	233	229	218	251	264	303	281	238	214	184	188	4968
			13	187	178	181	173	174	172	165	170	176	187	198	203	13	220	221	226	230	254	261	268	272	242	220	211	179	4968
			14	169	151	166	160	158	163	171	187	191	190	191	209	14	201	208	210	218	232	251	272	286	302	223	209	190	4916
			15	153	111	131	83	89	73	53	79	37*	187	237	363*	15	309	251	311	210	200	207	210	223	217	182	171	181	4268
			16	182	178	171	170	169	172	177	179	182	188	191	198	16	200	201	202	217	228	241	259	269	264	239	206	198	4881
			17	188	178	171	161	171	159	224	171	167	171	179	223	17	281	241	228	219	242	269	258	272	261	253	206	179	5072
			18	171	180	156	89	104	121	98	57	-21*	71	100	265*	18	294	232	247	241	246	231	282	168	9	143	163	171	3818
			19	170	179	169	171	161	157	149	94	51	124	208	242	19	333	261	249	289	310	292	241	211	178	149	84	116	4588
			20	157	182	178	173	178	182	187	179	177	187	203	221	20	200	215	222	228	259	263	268	248	213	173	169	174	4836
			21	177	169	168	170	171	159	151	158	161	201	239	217	21	271	273	300	218	239	241	249	201	158	179	158	191	4819
			22	189	181	157	113	82	59	-3	-21*	127	141	108	240*	22	114*	241	301	261	271	298	293	257*	19	75*	217*	116	3836
			23	181	193	175	143	151	84	42*	-100*	-13*	281*	59*	178*	23	360*	518*	415*	788*	265*	344*	257*	201	171	147	144	167	5151
			24	169	181	179	170	169	181	167	199	210	142	172	125	24	181	271	271	224	229	262	258	249	200	182	171	186	4748
			25	134	155	158	191	183	161	177	354	181	129	248*	282	25	213	251	217	356	339	371	304	199	189	167	173	117	5309
			26	147	157	151	161	153	94	119	121	98*	173	204	211	26	216	222	230	242	247	251	271	255	221	199	194	191	4528
			27	187	175	169	171	171	170	179	180	173	181	194	195	27	201	200	205	210	221	258	276	259	245	219	200	181	4820
			28	175	169	170	171	176	179	178	180	181	184	192	203	28	207	203	208	211	218	241	265	269	249	239	212	200	4880
			29	181	170	170	170	169	170	176	178	172	179	188	192	29	201	200	200	204	209	240	270	250	249	226	197	182	4743
			30	180	154	129	89	75	-12	56	128	171	181	208	199	30	200	201	197	209	249	252	265*	277	261	249	189	171	4278
			31	161	144	136	77	147	150	141	192*	171	184	192	209	31	269	471*	542*	399*	328*	332	151	51	191	156	157	147	5098

SCALED BY	SPT, KKR, EAS
CHECKED BY	EAS, SPT, JBT
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 dashy record.

[ ] Scaling uncertain because of magnetic storm.

<> Record all there for part or all of hour; if value is given, cusp was estimated for missing part.

* Derived from SLOTB graph, converted to Normal Graph.

MONTHLY SUM	144625
MONTHLY MEAN	194

DATES WITH GAPS:

GPO 811-481

FORM 78-106

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Gamma Federal Center
DENVER, CO 80225

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in tenths of nts, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500 M.T.) is hour 11 of the 5800 universal day.
Skinkage corrections have been applied. Negative values are in red, with minus sign shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	80	OCT	H

C	Q or S	Tem 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	271	271	280	291	300	303	309	308	308	309	309	308	01	310	316	303	316	309	303	299	288	280	280	276	277	7124
			02	280	289	297	308	312	314	320	312	318	321	319	316	02	330	321	320	312	312	309	287	274	280	278	279	280	7288
			03	271	280	288	291	300	304	309	318	315	330	327	309	03	331	330	315	311	304	302	290	280	265	269	250	249	7138
			04	264	295	335	350	472	382	368	375	253	223	123	-150*	04	-411*	-298*	-444*	-44*	-65*	178	242	300	332	251	339	320	3990
			05	356	432	383	390	419	281	327	340	293	-202*	-38	-75	05	55	-94*	-157*	149	160	220	237	236	269	292	271	285	4829
			06	291	305	299	330	341	372	546	439	137*	198	369	354	06	300	276	272	263	235	239	299	279	283	278	280	271	7221
			07	283	319	363	318	291	303	308	376	371	58*	283	261	07	76*	-9*	285	319	313	300	288	275	268	270	267	252	6438
			08	281	289	300	315	309	332	346	357	389	372	331	317	08	308	302	287	271	292	310	293	274	251	239	247	262	7279
			09	290	281	302	335	320	330	395	381	384	397	128	95	09	239	319	308	305	292	302	196	236	239	262	264	278	6928
			10	299	312	313	323	357	333	351	429	397	362	418	376	10	156	62	227	225	56	83	219	200	167	160	319	335	6479
			11	315	392	428	400	552	389	104*	377	177*	-359*	-44*	-10	11	-190*	172	279	231	308	340	321	291	299	239	289	293	5633
			12	295	293	239	288	303	358	351	331	319	311	286	276	12	279	211	306	303	291	297	276	259	259	261	269	263	6974
			13	276	281	290	289	297	298	301	301	301	309	309	301	13	281	303	297	298	293	297	290	281	281	274	272	270	6975
			14	273	288	287	297	306	304	311	310	311	317	309	251	14	323	312	297	301	293	229	231	281	280	277	268	277	6941
			15	282	282	283	343	359	389	439	481	416	241	112	-95*	15	49	161	154	219	207	273	298	306	281	295	300	280	6355
			16	290	293	289	290	299	300	301	303	308	309	309	308	16	308	307	300	300	300	299	295	286	281	279	279	273	7106
			17	276	283	290	300	304	316	311	336	351	303	109	210	17	184	256	297	310	300	300	309	300	289	283	290	294	6801
			18	287	279	329	424	467	470	549	468	299	368	274	40*	18	129	331	303	309	286	247	109	31	209	280	283	283	7054
			19	270	277	297	297	309	330	369	409	341	221	226	133	19	76	164	243	171	56	248	281	279	253	248	263	266	6027
			20	318	297	290	299	309	299	290	294	301	302	300	266	20	271	261	279	247	289	291	293	291	286	290	290	290	6946
			21	293	286	289	298	313	325	339	311	316	267	204	236	21	149	187	171	169	279	289	290	270	281	289	286	290	6427
			22	297	300	309	317	399	523	669	557	422	383	263	-248*	22	51*	213	121	141	313	299	226	-226*	89	271	259	337	6345
			23	329	291	284	347	360	449	254*	254*	85*	-508*	51	19	23	-530*	-62*	-163*	-271*	-101*	-90*	103*	305	311	307	323	318	2665
			24	314	303	300	298	302	304	306	351	343	349	339	111	24	208	145	191	289	327	301	289	288	269	269	294	289	6779
			25	281	311	311	301	313	326	358	361	221	179	-28*	13	25	267	230	0*	-186*	-41	271	233	356	289	259	259	229	5113
			26	331	340	329	325	364	404	577	458	216*	67	201	259	26	279	310	306	303	293	296	283	279	276	279	280	279	7334
			27	281	285	290	297	299	301	301	306	309	301	300	300	27	299	291	299	293	291	289	280	280	275	277	280	281	7005
			28	281	289	297	300	303	306	306	307	309	309	303	306	28	309	310	311	310	309	304	296	291	284	283	286	287	7202
			29	290	296	300	304	309	313	312	319	319	318	310	312	29	312	311	311	311	312	304	289	276	279	281	284	283	7255
			30	281	281	305	327	419	569	531	441	383	341	319	306	30	297	298	299	289	290	311	329*	301	301	303	291	294	8106
			31	284	286	289	337	359	364	351	337	301	332	314	256	31	80*	-452*	332*	-417*	-180*	41	159	213	316	300	264	281	4917

SCALED BY	SPT, KKR, EAS
CHECKED BY	EAS, SPT, JBT
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary baseline and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated

[ ] Significant portion of hour interpolated.

[ ] No record; or no values available because of faulty record.

* Derived from 3600H Magn., converted to Normal Magn.

[ ] Scaling uncertain because of magnetic storm.

< > Record will agree for part or all of hours if value in given, value was estimated for missing part.

MONTHLY SUM	200669
MONTHLY MEAN	270
DATES WITH GAPS:	

FORM 76-106

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geomagnetic Division
Denver Federal Center
Denver, CO 80225

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

Values are in tenths of nm, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1708 M.T.) is hour 11 of the same universal day.
Skinkage corrections have been applied. Negative values are in red, with minus sign shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	80	OCT	Z

C	Qual S	Qual D	Hr / Day	01	02	03	04	05	06	07	08	09	10	11	12
			01	289	291	290	290	289	289	289	289	287	290	289	290
			02	290	290	290	290	289	289	285	289	285	289	291	290
			03	283	286	287	290	290	290	289	288	290	289	308	270
			04	271	289	299	319	321	309	192	259	329	341	305	485
			05	319	322	322	399	276	200	339	320	259	530*	286	466
			06	329	341	339	352	332	321	335	152	297*	297	246	313
			07	300	311	341	343	320	305	305	321	281	300	263	290
			08	302	310	308	311	328	322	333	339	310	307	319	305
			09	311	321	322	317	322	317	319	316	312	311	428	312
			10	316	309	309	313	316	319	318	328	333	341	323	290
			11	333	334	352	362	329	103	203*	222	283*	577*	502	598
			12	323	323	317	317	313	317	329	329	329	318	319	309
			13	319	313	311	308	303	305	309	307	311	319	308	301
			14	303	309	309	303	301	307	311	307	308	307	298	243
			15	299	300	308	303	340	359	365	302	219	287	367	391*
			16	320	311	308	300	298	299	299	300	303	305	300	299
			17	296	297	299	296	297	299	322	301	319	297	209	227
			18	300	317	309	329	369	338	316	251	109	156	281	268
			19	317	321	319	323	326	323	329	309	262	228	329	331
			20	323	330	321	329	331	319	310	307	309	310	299	293
			21	311	313	312	319	312	329	344	327	311	302	284	268
			22	307	303	310	329	387	408	271	277	289	252	260	312*
			23	356	347	319	318	307	203	-88*	85*	218*	630*	367	999
			24	320	319	316	321	321	329	320	328	271	319	349	341
			25	329	333	330	326	317	318	341	251	127	343	429	281
			26	349	327	319	320	316	318	299	296	317	301	318	297
			27	318	311	308	309	307	309	310	310	306	308	309	307
			28	301	300	301	301	300	300	300	300	300	300	301	300
			29	295	298	298	298	298	299	301	299	302	309	303	300
			30	298	293	295	310	350	319	347	349	329	331	317	309
			31	301	300	306	324	371	348	296	188	299	290	300	306

Hr / Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	290	287	280	282	290	291	291	292	290	288	288	289	6932
02	285	290	289	290	290	291	290	290	288	281	280	279	6910
03	280	278	282	288	290	290	290	280	265	260	269	280	6812
04	451*	383*	504*	490*	504*	248	215	231	279	311	301	330	7961
05	246	281	366	138	101	119	210	237	229	278	319	326	6837
06	309	310	309	305	277	280	281	279	288	299	300	300	7141
07	290	42	191	270	302	309	310	298	300	300	292	302	6886
08	300	298	276	270	276	289	292	297	291	259	278	287	7207
09	274	283	295	299	305	316	291	269	292	300	310	317	7159
10	382	325	201	236	278	183	151	136	172	201	256	318	6654
11	816*	497*	352	334	308	337	339	333	317	316	320	319	8766
12	298	309	289	300	300	311	316	309	309	307	318	323	7524
13	281	290	294	290	300	302	309	310	307	308	305	300	7302
14	281	288	286	280	293	264	228	270	280	264	277	290	6919
15	178	167	198	226	240	281	279	291	303	301	326	331	6961
16	299	298	298	300	304	309	307	303	297	287	287	293	7224
17	191	173	234	267	279	282	269	290	292	291	288	291	6606
18	199	259	291	297	301	288	281	211	158	278	297	327	6570
19	318	219	231	277	253	167	191	257	261	291	287	293	6797
20	257	263	277	250	251	270	270	279	284	282	295	304	7008
21	269	192	213	222	247	269	262	260	243	273	282	303	6767
22	157	277	378	271	249	268	276	189	97	232	301	319	6659
23	405*	565*	625*	319*	299	187	169	218	253	292	307	326	7516
24	295	271	313	295	327	333	322	310	300	296	310	321	7537
25	298	290	297	209	89	182	249	278	307	321	348	343	6876
26	310	327	321	316	310	321	323	311	319	316	319	319	7479
27	309	299	297	301	307	317	315	309	309	303	301	302	7376
28	300	297	299	300	300	301	305	300	299	295	292	296	7190
29	298	299	297	297	300	309	310	291	283	280	287	296	7147
30	309	304	301	296	289	307	305*	300	297	291	288	300	7434
31	461	565*	492*	651*	359*	261	207	248	261	307	339	329	8129

MONTHLY SUM	222531
MONTHLY MEAN	299
DATES WITH GAPS:	

SCALED BY	SPT, KKR, EAS
CHECKED BY	EAS, SPT, JBT
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary baseline 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.

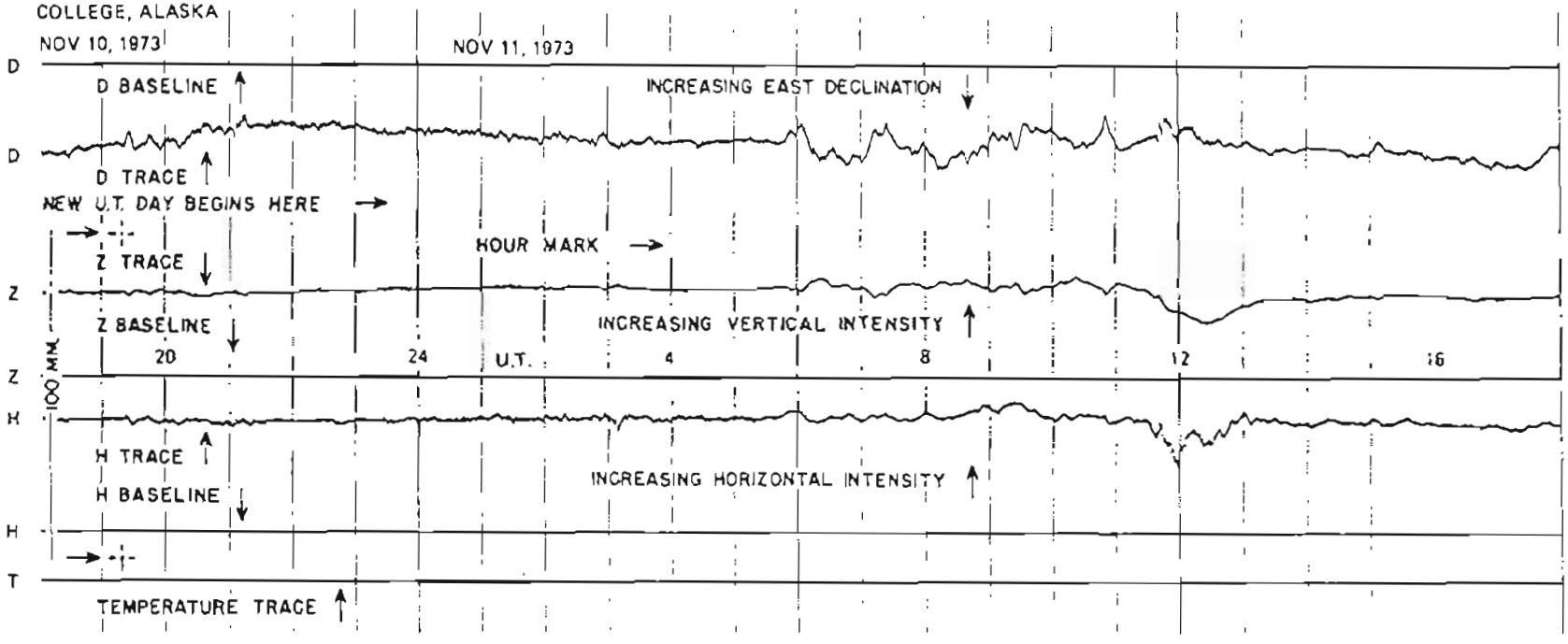
<> Record not taken for part or all of hour, if value is given, curve was estimated for missing part.

* Derived from Sfomu. Magn., converted to Normal Magn.

BRD 76-1-106

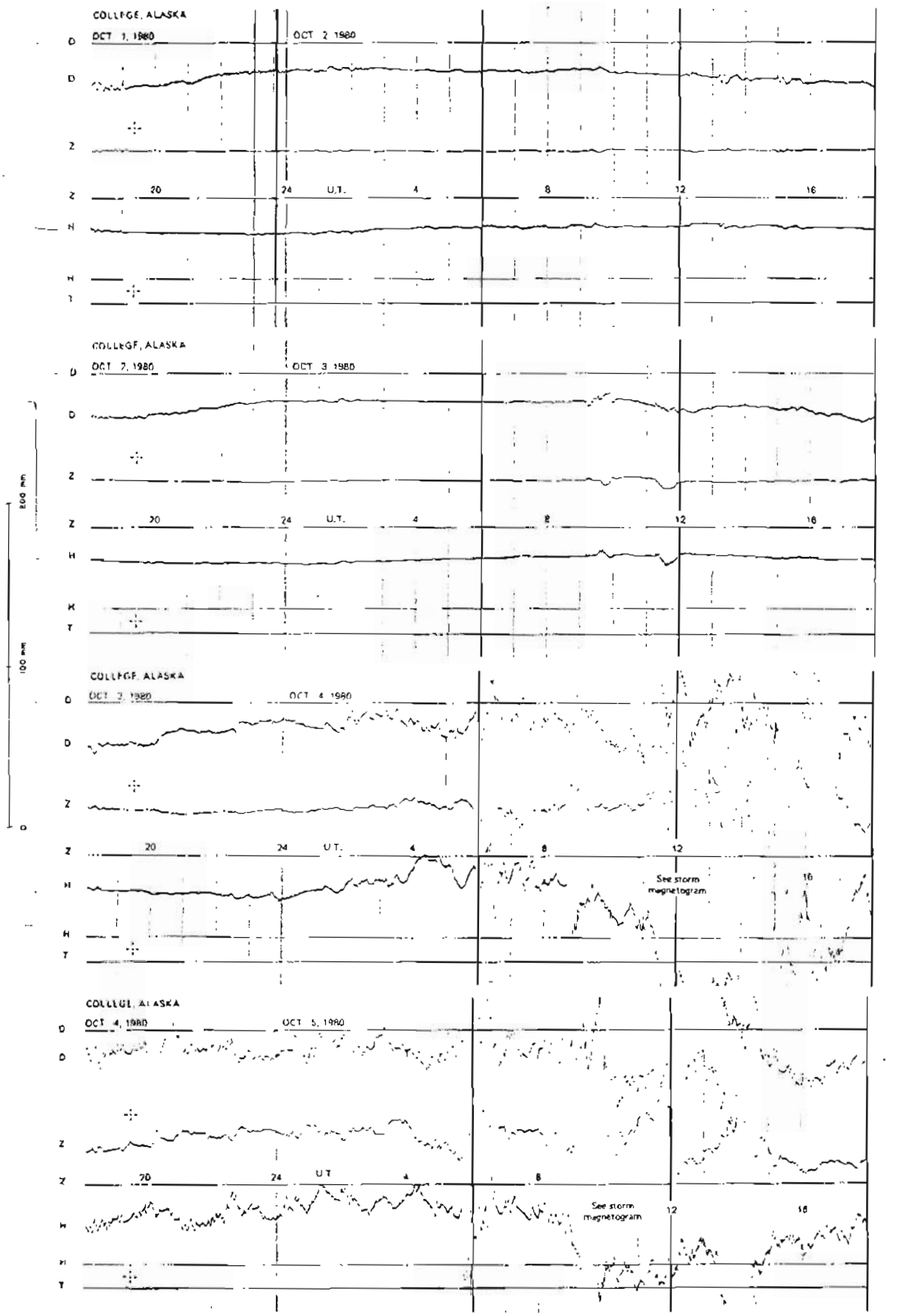
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

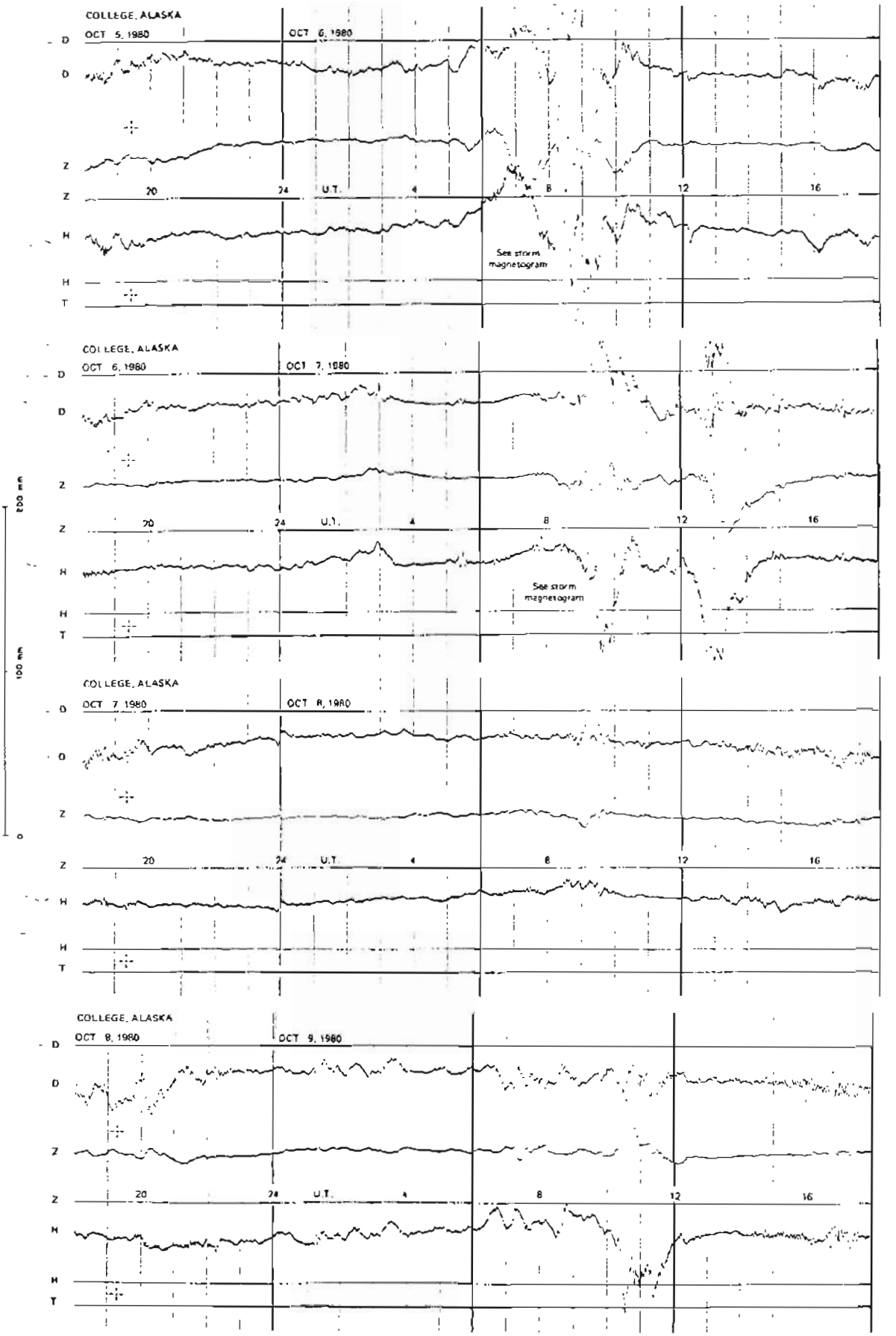


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

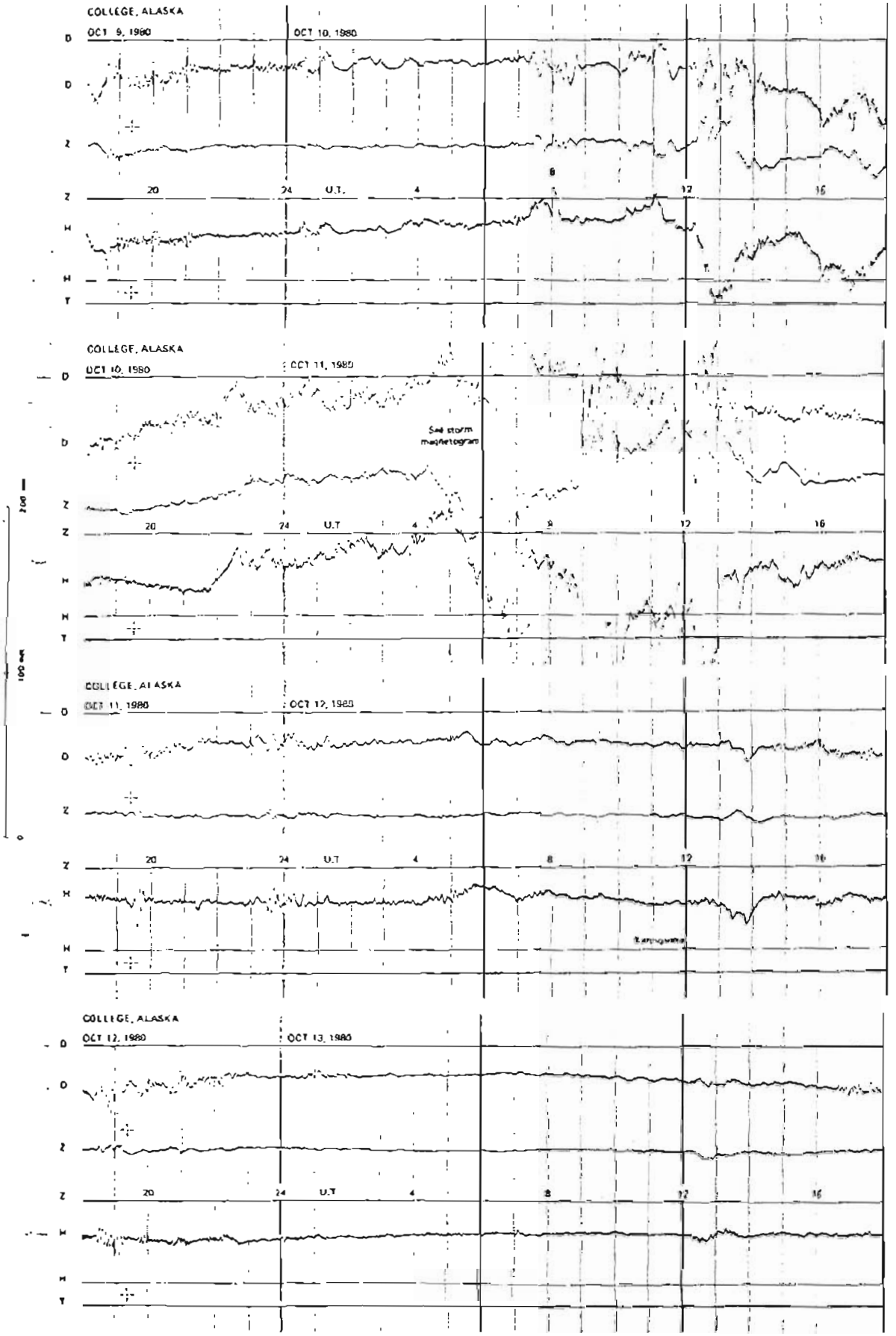
NORMAL MAGNETOGRAMS



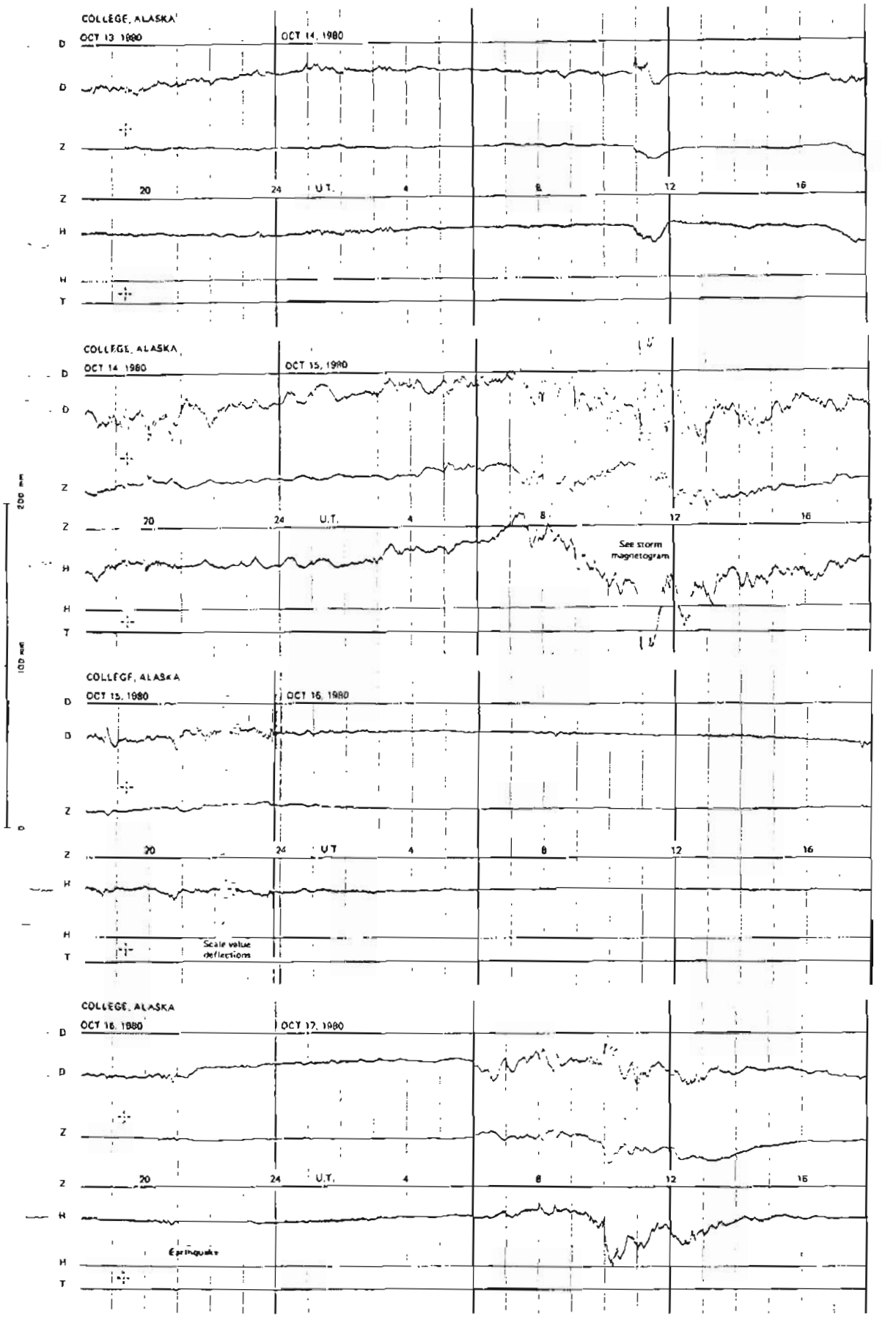
NORMAL MAGNETOGRAMS



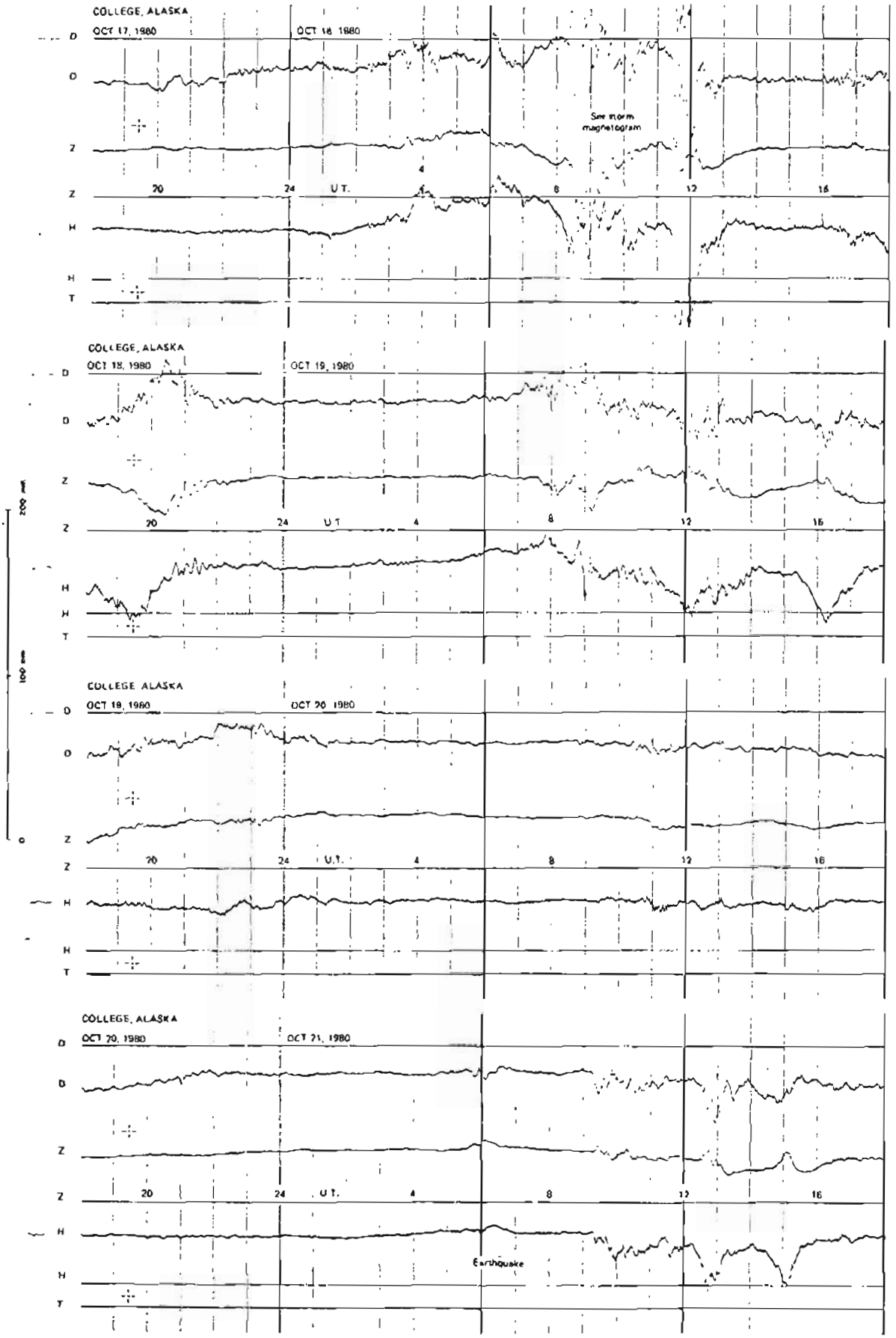
NORMAL MAGNETOGRAMS



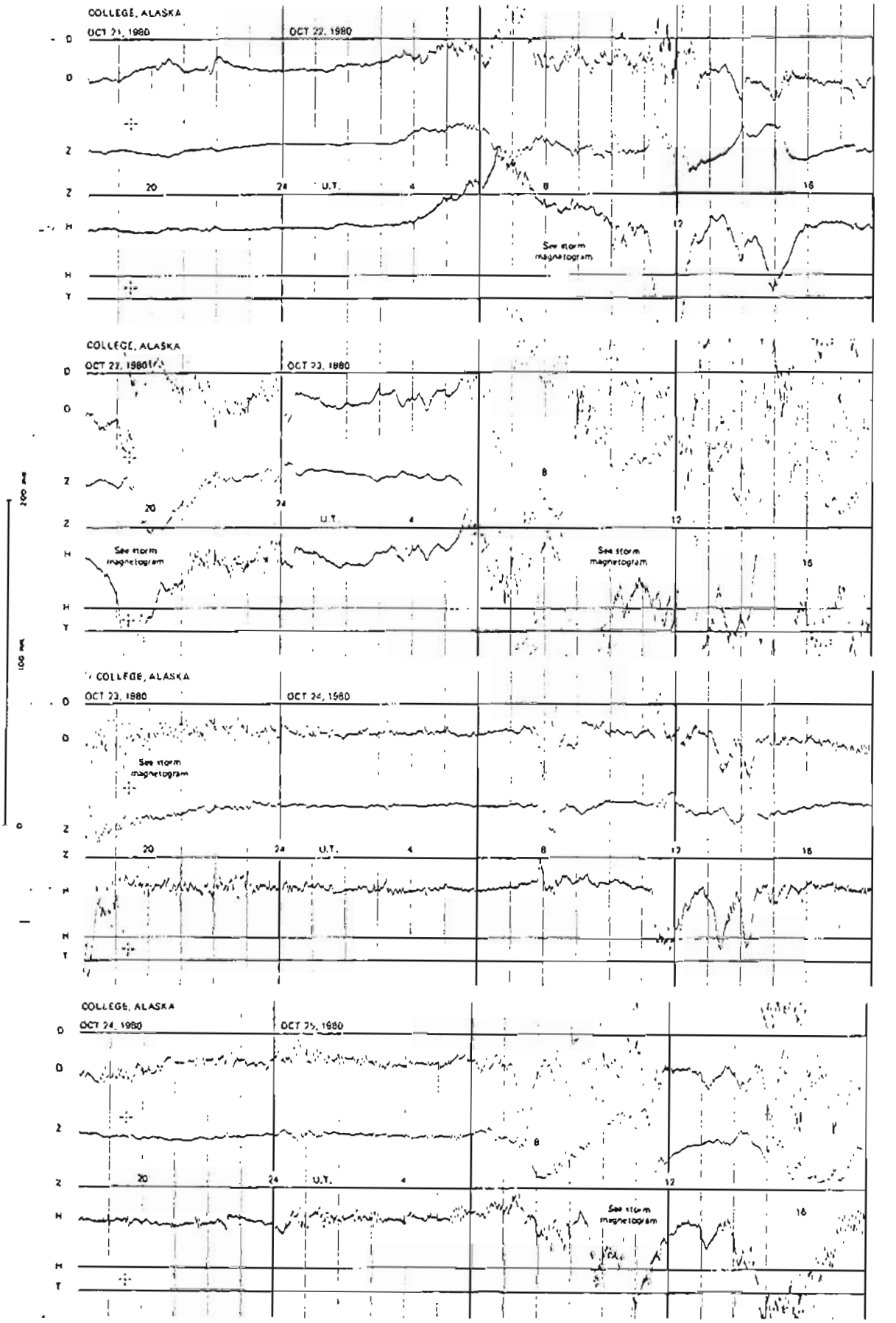
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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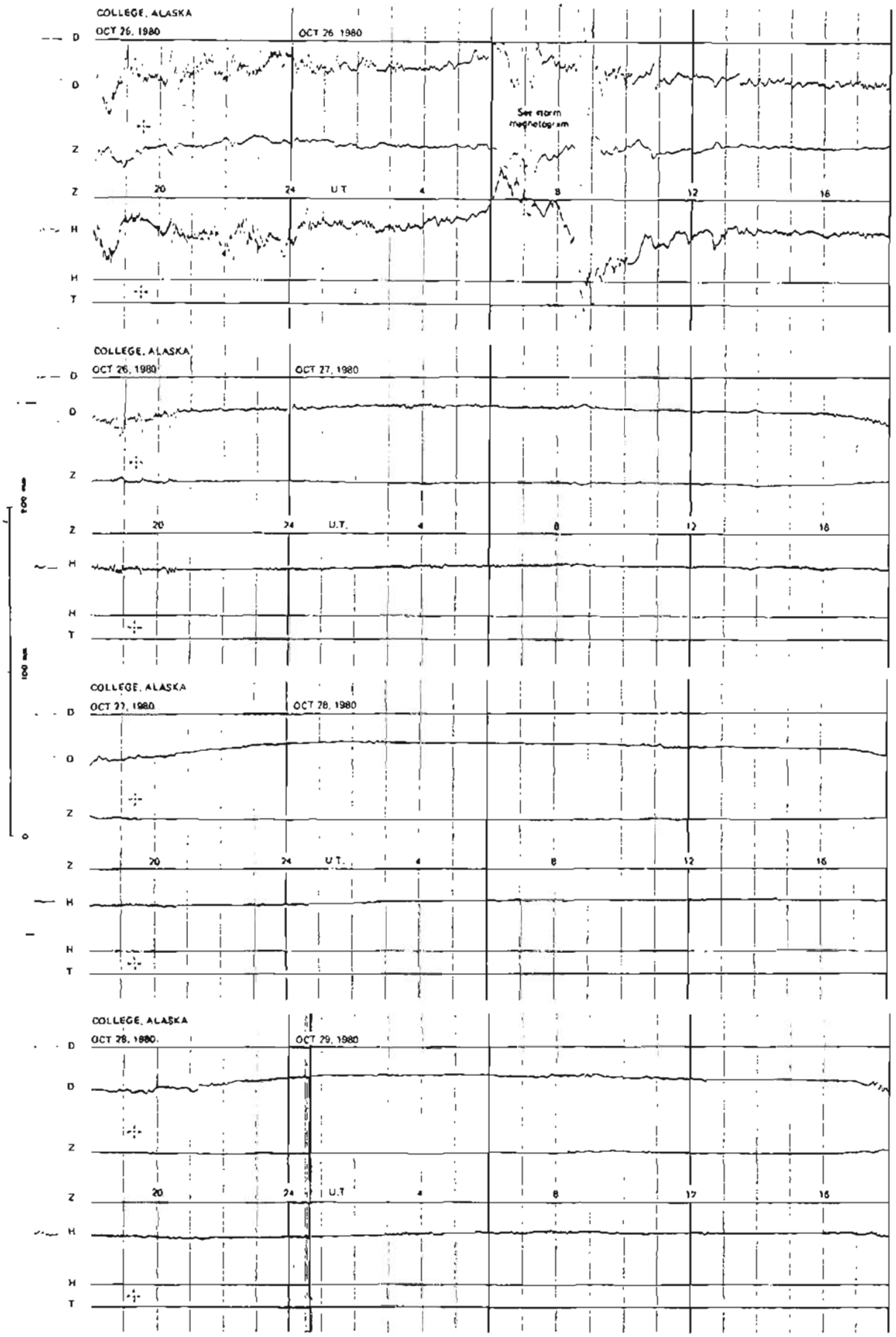
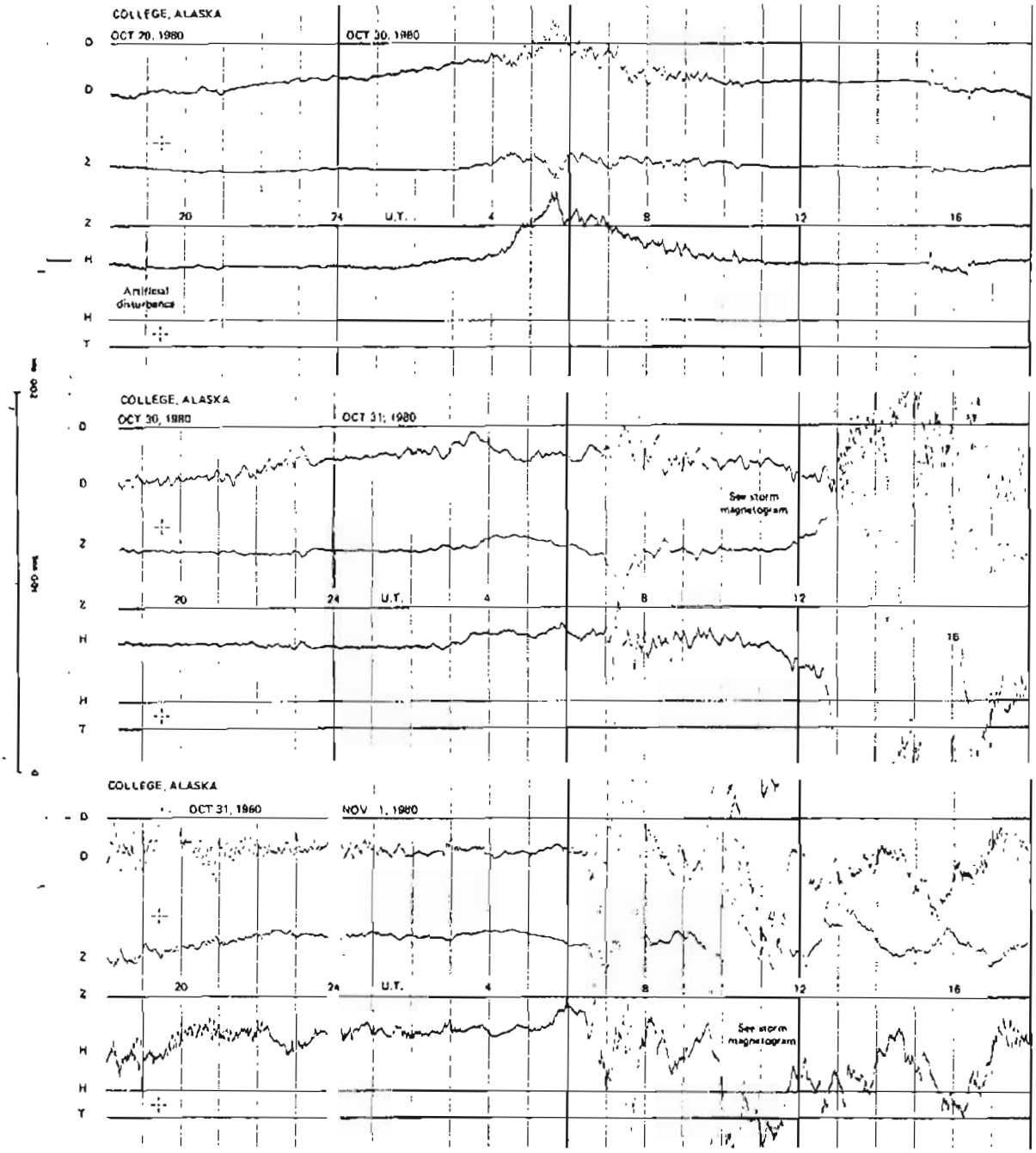
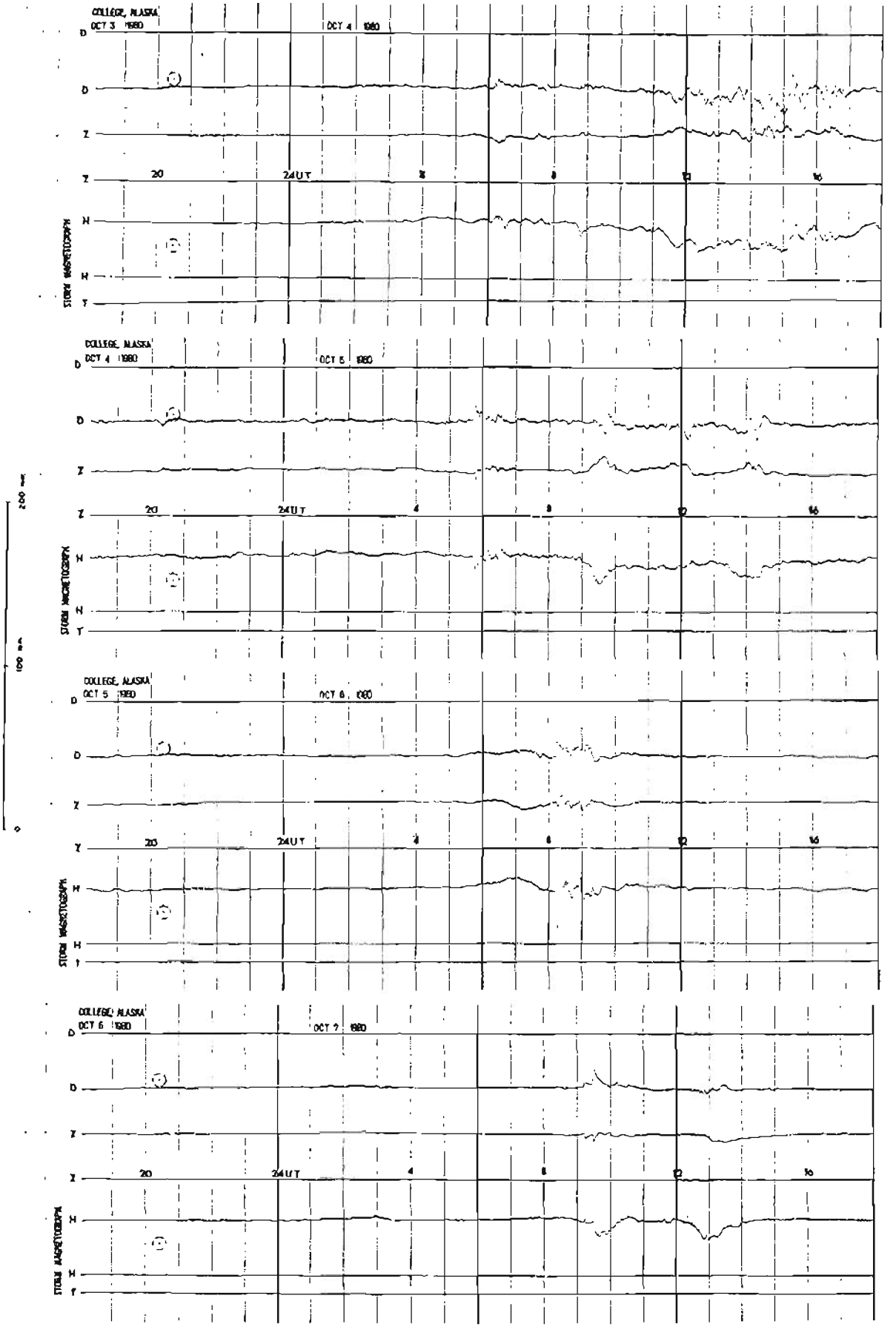


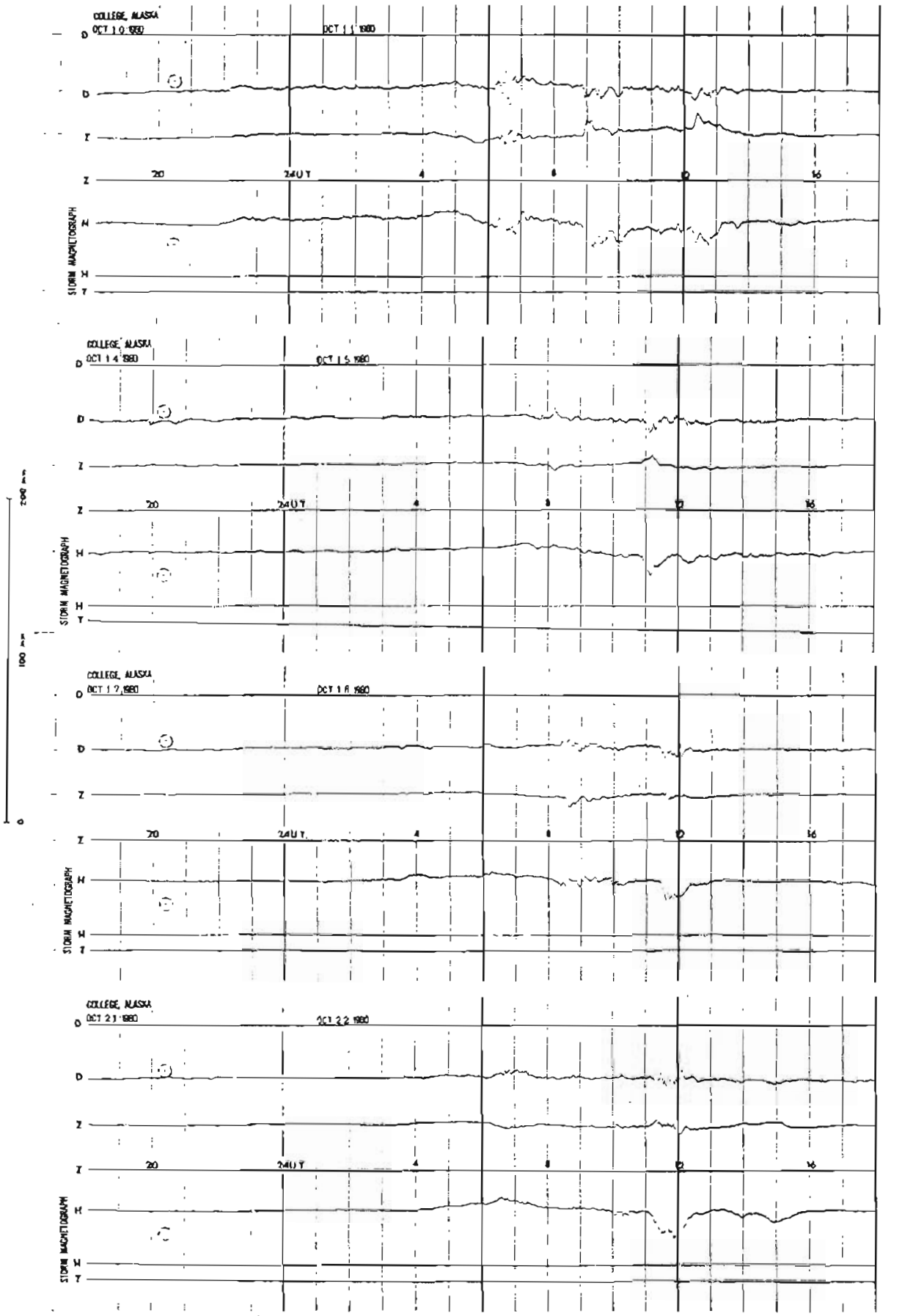
NORMAL MAGNETOGRAMS



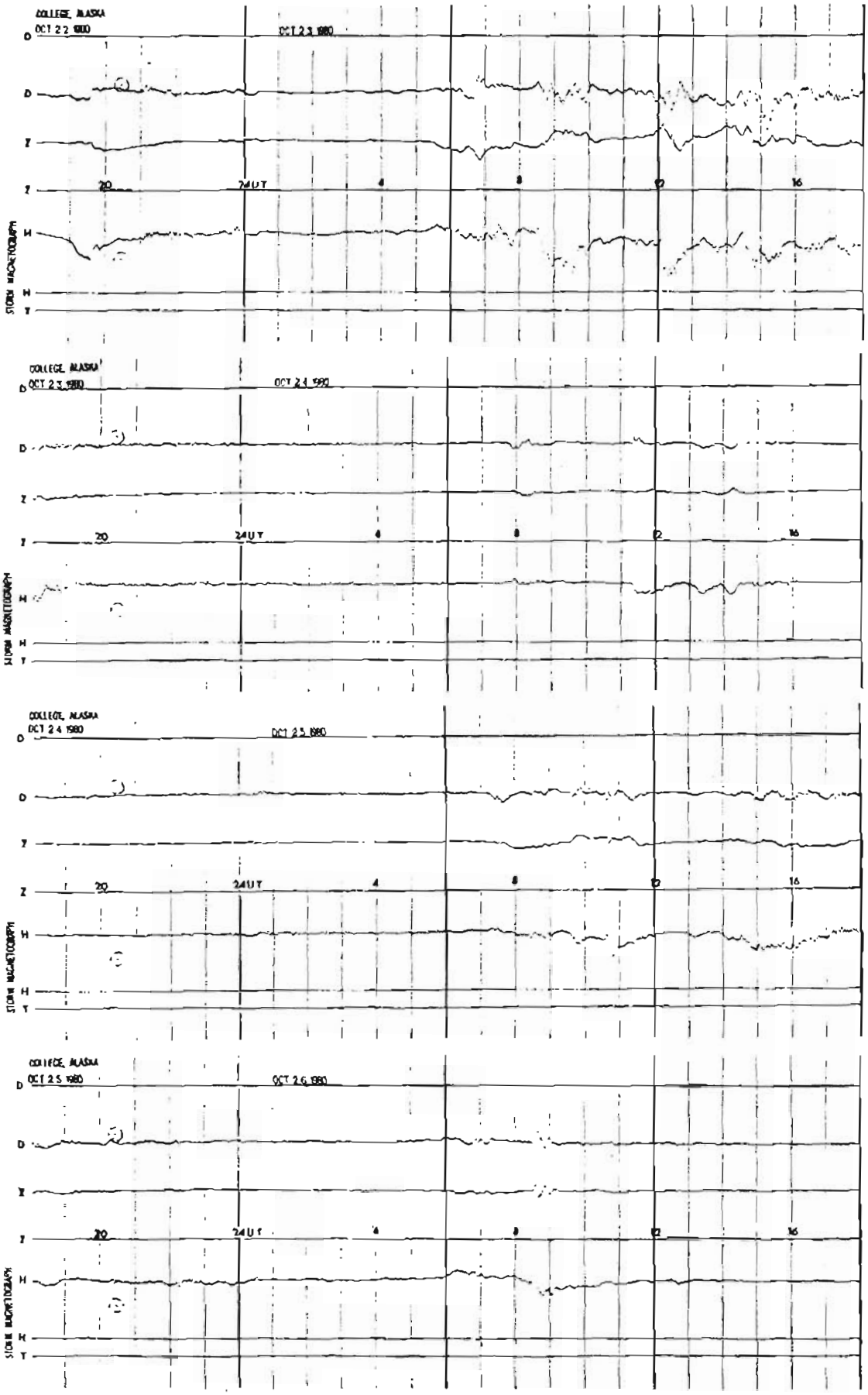
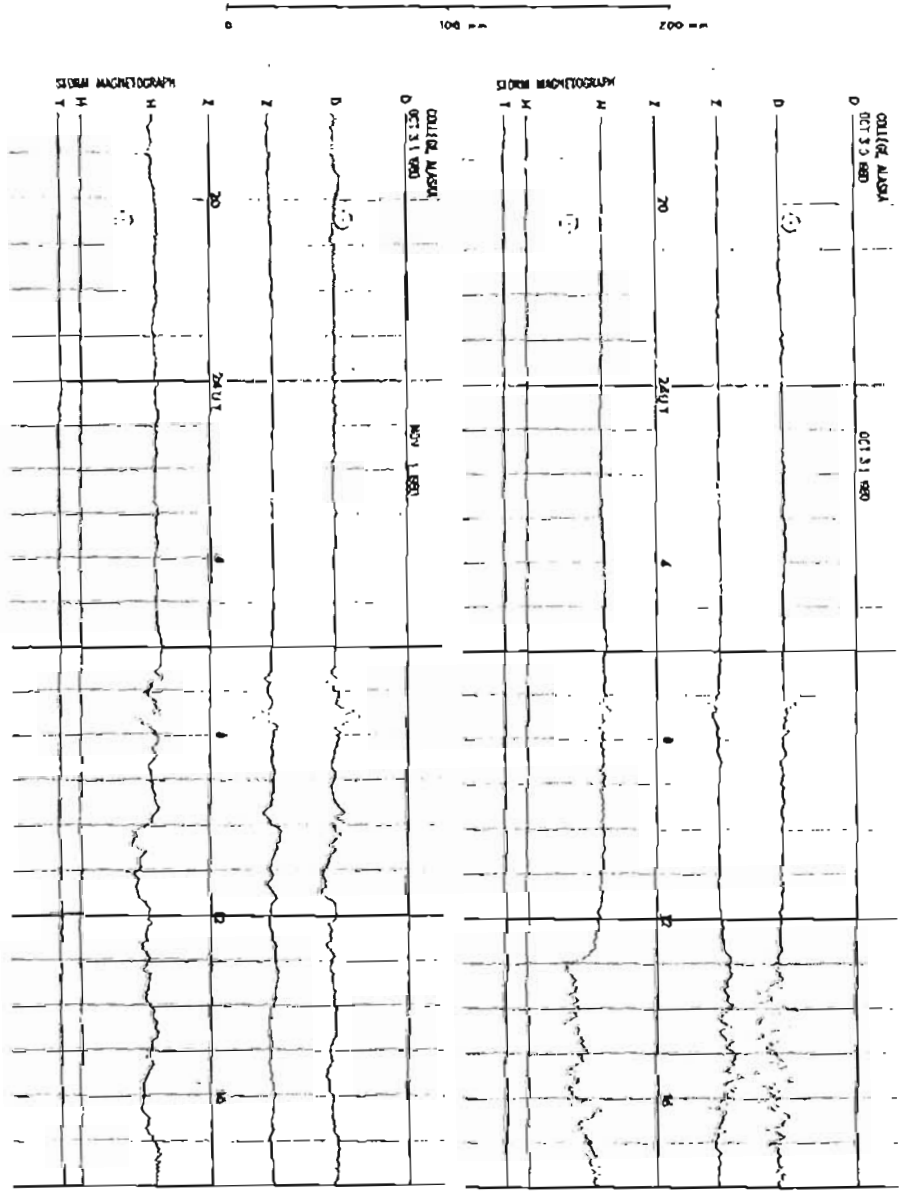
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS