UNITED STATES DEPARTMENT OF THE INTERIOR

(200)
R290
no. 81-300-J

GEOLOGICAL SURVEY

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PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

OCTOBER 1981 OPEN FILE REPORT 81-300J

U.S. GEOLOGICAL SURVEY
RESTON, VA.
MAR 01 1982
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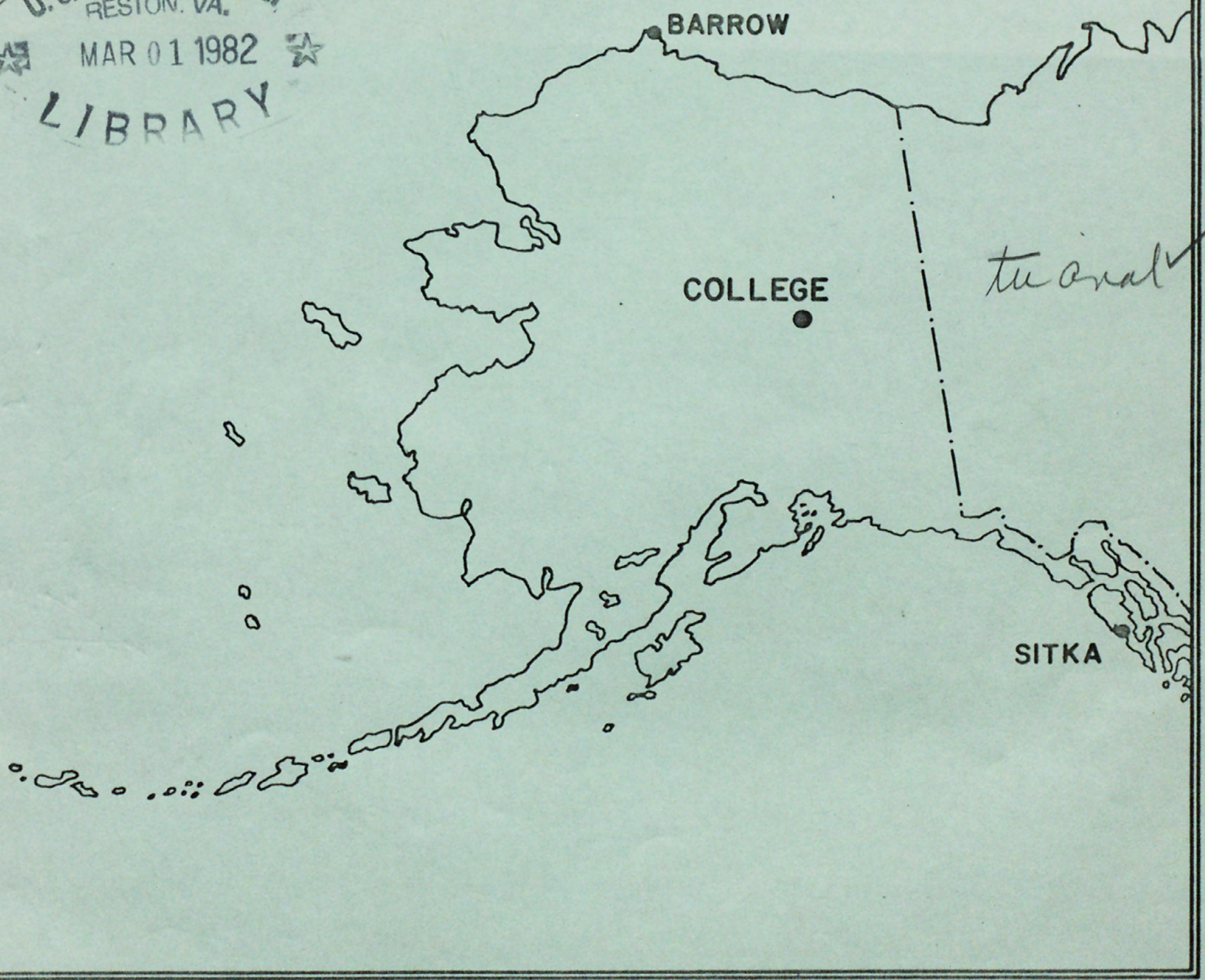

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Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

Open-file report
Geological Survey
(U.S.)

321824

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 AND E.A. SAUTER, 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:

COLLEGE OBSERVATORY
800 YUKON DRIVE
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 notto 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 1981

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	2	1	3	3	3	1	1	16	09
2	2	2	1	3	5	3	4	2	22	16
3	2	3	6	6	7	6	4	3	37	56
4	2	3	4	4	5	4	3	2	27	22
5	1	1	3	4	2	1	0	0	12	07
6	0	0	0	4	5	3	0	0	12	11
7	2	2	3	6	4	5	4	3	29	28
8	3	4	5	5	4	3	4	3	31	28
9	3	5	4	6	4	3	2	2	29	28
10	2	3	4	6	5	6	5	3	34	40
11	3	5	6	6	6	5	4	3	38	49
12	3	4	4	3	2	0	0	1	17	12
13	1	1	3	3	2	2	2	5	19	13
14	7	5	3	4	4	4	4	4	35	42
15	3	4	4	4	7	4	3	2	31	36
16	1	3	3	1	0	0	1	1	10	05
17	1	2	5	4	3	3	3	2	23	17
18	2	1	0	0	0	0	1	1	05	02
19	1	4	6	6	5	4	4	3	33	38
20	3	3	4	6	6	7	7	3	39	64
21	5	4	5	5	4	4	1	2	30	29
22	1	4	4	6	7	8	6	4	40	78
23	3	3	6	4	2	4	2	2	26	23
24	1	0	1	6	6	6	3	3	26	35
25	2	4	6	6	5	5	3	2	33	39
26	1	2	3	3	3	3	2	1	18	10
27	1	1	1	2	3	4	2	2	16	09
28	2	1	5	6	4	5	4	3	30	32
29	2	1	3	4	2	3	1	2	18	11
30	2	1	3	4	6	6	1	1	24	27
31	1	0	0	0	1	1	0	0	03	01

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, CHEIF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

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OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: OCTOBER

YEAR: 1981

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
02	2021	si*	
08	13XX	pc5	
13	2241	si*	
17	07XX	pc5	

IDENTIFIED BY: JBT

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

OCTOBER 1981

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	03	04XX	..	..	..	..	03	5	7	305	1640	770	04	22
		10	03XX	..	..	..	..	10	4,6	6	156	1230	900	12	13
								11	3,4,5	6					
		13	07XX	..	..	..	..	14	1	7	144	1810	880	15	19
								15	5	7					
		19	04XX	..	..	..	..	20	6,7	7	425	1790	1160	21	19
		22	05XX	..	..	..	..	22	6	8	502	1630	1520	23	12

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: OCTOBER 1981

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 10/1/81	2400 U.T., 10/31/81	1.0'/mm	3.7γ/mm	27° 46.9'E
H	0000 U.T., 10/1/81	2400 U.T., 10/31/81	7.8γ/mm		12767γ
Z	0000 U.T., 10/1/81	2400 U.T., 10/27/81	7.7γ/mm		55138γ
	0000 U.T., 10/28/81	2400 U.T., 10/31/81	"		55145γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 10/1/81	2400 U.T., 10/31/81	7.8'/mm	29.7γ/mm	23° 44.0'
H	0000 U.T., 10/1/81	2400 U.T., 10/31/81	44.0γ/mm		11523γ
Z	0000 U.T., 10/1/81	2400 U.T., 10/31/81	48.6γ/mm		54012

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 02.5'E	12975γ	55391γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: OCT 1, 5, 6, 12, 16, 18, 26, 27, 29, 31

FORM 76-106

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.

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

OBSY.	YEAR	MONTH	ELEMENT
CO	81	OCT	D

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	94	77	92	103	104	116	115	123	128	127	178	166	01	191	187	179	158	191	240	266	267	245	175	156	129	3807
			02	65	54	69	115	116	101	136	135	128	133	168	191	02	192	238	186	193	246	251	251	223	283	178	147	151	3950
			03	129	123	132	124	104	65	-99*	-36*	91	109	251*	92*	03	196	512*	251*	432*	258	249	227	245	190	149	133	133	3735
			04	107	104	105	83	62	87	36	107	142	127	149	168	04	233	176	201	158	185	232	204	206	144	153	145	123	3437
			05	122	117	126	134	135	110	132	146	59	97	147	182	05	179	196	194	199	217	223	228	204	189	175	148	129	3788
			06	124	125	127	123	121	121	115	121	126	147	154	151	06	217	175	228	239	234	235	242	209	196	175	164	124	3993
			07	93	54	73	26	71	101	118	106	86	154	111	109	07	315	263	254	237	401*	377*	339	314	148	43	109	112	4014
			08	113	125	69	64	50	83	8	-43*	12*	20	242*	274*	08	182	155	167	150	149	159	186	214	152	101	99	102	2833
			09	107	117	82	93	-27	-75*	205	169	152	113	251*	409*	09	279	176	193	214	190	222	246	219	221	180	178	156	4070
			10	149	131	126	143	78	77	98	122	109	-22	102	44*	10	183	197	313	459	503	518	139*	89	100	79	93	102	3932
			11	84	96	83	153	44	68	-35*	-180*	5*	-162*	139*	203*	11	226*	512*	354*	267*	322*	314*	199	136	114	135	162	123	3412
			12	130	144	117	93	26	28	96	-27*	-114*	-11*	157	174	12	195	191	192	206	215	233	226	215	194	176	161	162	3179
			13	149	152	146	135	140	142	145	122	93	108	136	147	13	182	216	195	203	236	241	248	251	254	211	268	350	4479
			14	90	163	354*	486	276	179	168	121	12	-24	61	82	14	213	151	254	247	219	249	319	390	309	244	212	83	4856
			15	119	121	90	136	135	146	102	64	272	221	73	135	15	216	504*	88	185	311	254	317	256	181	133	143	122	4324
			16	144	142	133	123	97	88	133	142	151	140	156	167	16	161	167	165	176	191	219	222	241	215	189	167	148	3877
			17	132	101	107	104	98	116	142	102	111	143	107	145	17	156	211	205	193	220	234	234	231	211	183	155	127	3768
			18	133	131	125	112	120	125	140	131	125	124	126	145	18	154	158	165	171	192	216	237	219	189	158	143	126	3665
			19	136	117	115	115	106	178	104	12*	123*	77	76	171	19	169	197	282	176	189	201	208	168	104	154	137	120	3435
			20	112	83	107	69	71	73	58	-99*	-146*	76*	122	377*	20	290*	710*	845*	370*	217	242*	298*	591*	165	111	87	115	4944
			21	84	118	114	118	72	111	159	-35*	76*	-51*	203*	278	21	192	210	233	348	141	162	223	225	211	214	178	121	3705
			22	134	135	148	155	154	129	106	105	87	211*	234*	306*	22	393*	940*	679*	432*	179*	329*	377*	26	268	211	49	171	5958
			23	129	108	105	141	148	81	137	5*	20*	-91*	114	154	23	152	169	188	193	249	292	256	236	215	106	141	131	3379
			24	136	147	153	149	148	147	139	126	118	142	188	425*	24	552*	322*	242*	377*	259*	30	153	155	149	144	175	126	4702
			25	162	156	106	97	102	94	46	92*	28*	92	135	259*	25	354*	257	204	143	176	163	181	189	187	168	157	146	3694
			26	143	139	134	139	138	134	134	133	103	143	141	137	26	164	183	222	186	217	231	237	245	226	191	156	129	4005
			27	123	121	115	122	134	122	131	135	134	139	173	171	27	188	175	216	261	223	157	188	223	197	198	143	122	3911
			28	123	101	81	113	106	113	92	271	-67*	78	200	239	28	237	203	253	203	254	243	232	249	203	-15	96	125	3733
			29	114	91	125	126	72	116	92	114	117	153	195	131	29	156	178	174	178	177	209	244	233	224	198	194	115	3726
			30	116	104	106	104	117	121	149	140	141	128	253	217	30	2166	385*	282*	92*	147	193	211	207	216	156	132	111	4094
			31	134	112	109	116	124	135	135	138	136	141	152	164	31	165	167	166	173	191	195	195	210	215	187	169	242	3871

SCALED BY: TKC, EAS

CHECKED BY: EAS, JEP

SIGNS REVIEWED BY: EAS

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: 122278

MONTHLY MEAN: 164

DATES WITH GAPS:

GPO 844-209

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

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	81	OCT	H

C	Q or S	Ten Q	Ut. Da.	01	02	03	04	05	06	07	08	09	10	11	12	Ut. Da.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	267	276	262	261	281	292	309	297	300	304	181	226	01	271	272	238	174	249	283	277	263	247	246	238	236	6250
			02	241	249	268	262	273	309	309	298	308	307	312	289	02	261	39	140	301	256	222	211	240	252	231	259	241	6078
			03	251	250	262	281	297	339	426	488*	556	359	-162*	-10*	03	131	-399*	-434*	-49*	169	181	233	250	227	229	270	297	4442
			04	253	256	261	305	383	410	410	351	305	341	289	220	04	37	-31	210	286	229	52	166	189	201	247	241	246	5857
			05	249	247	254	259	259	282	317	319	406	377	314	225	05	238	202	248	280	272	261	253	252	251	250	248	249	6512
			06	248	250	254	261	272	279	288	289	291	290	289	221	06	-92	-47	154	191	117	220	268	271	261	253	249	240	5317
			07	251	294	326	337	321	313	300	311	326	-4*	281	63	07	-39	4	131	-151*	-275*	-213*	-78	-93	27	233	241	251	3157
			08	209	242	307	303	369	463	483	284	127	160	-72*	-173*	08	162	305	289	261	214	227	251	225	254	212	254	274	5636
			09	291	283	329	416	569	591	391	321	278	271	-326*	-190*	09	53	212	249	196	268	274	272	247	241	244	259	255	5994
			10	241	254	279	309	330	374	381	342	279	349	126	-117*	10	109	166	-185*	-275*	-27	-190*	-4*	131	243	248	258	308	3929
			11	347	350	377	476	654	611	318*	347*	8*	-72*	-83*	-190*	11	18*	-406*	-162*	-128*	-190*	13	-3	151	298	299	322	301	3656
			12	307	325	360	360	416	571	491	518	448	341	309	262	12	211	259	260	254	259	250	241	246	240	241	242	240	7651
			13	247	243	242	258	256	261	266	289	401	377	336	262	13	228	191	249	226	253	238	231	230	219	238	197	109	6047
			14	321	381	-538*	420*	469	477	447	453	476	411	299	258	14	183	211	89	161	266	258	219	151	173	145	216	220	6166
			15	221	249	322	303	338	278	319	358	190	99	201	177	15	-10*	-512*	177*	301	132	147	191	236	244	251	253	249	4714
			16	239	248	259	261	282	317	338	287	268	262	250	261	16	260	255	251	250	249	241	239	230	230	231	223	220	6151
			17	226	247	251	271	288	299	298	351	448	281	370	352.	17	303	259	287	291	278	280	274	261	252	238	231	242	6878
			18	239	231	250	269	280	279	279	281	283	282	276	270	18	270	270	269	268	261	257	258	254	256	249	240	248	6319
			19	240	251	260	271	308	397	519	371	128	160	134	-162*	19	37	227	141	293	310	289	265	216	197	225	266	296	5639
			20	309	354	324	316	341	389	467	413	425*	265	100	-230*	20	-225*	-496*	-564*	-811*	38	-846*	-315*	-338*	240	289	271	263	979
			21	272	299	497	442	291	311	293	2666	272*	-15*	-80	-42	21	199	103	162	-18	208	219	276	270	246	221	209	211	5112
			22	212	219	221	234	249	291	362	368	305	40	-275*	-84	22	-105*	-620*	-778*	-264*	-766*	-677*	-557*	-10*	41	188	254	337	-815
			23	369	311	293	344	358	397	328	24*	137	232	309	262	23	239	247	220	145	72	46	212	221	193	171	210	229	5569
			24	240	241	247	248	250	251	261	267	271	260	87	-484*	24	-467*	-145*	-208*	-383*	-151*	87	115	159	166	250	309	311	2182
			25	281	277	280	289	382	409	312	24*	151	189	162	-44*	25	-241	-41	2	41	198	319	299	302	289	276	264	256	4676
			26	256	258	265	264	260	272	276	278	336	277	325	306	26	271	253	189	206	186	257	278	249	247	247	249	248	6253
			27	244	233	255	267	269	281	287	292	306	328	313	286	27	269	270	221	88	91	193	278	266	250	246	232	244	6009
			28	253	271	289	276	289	290	349	240	112	116	-173*	209	28	259	279	131	110	39	211	288	265	172	181	249	249	4954
			29	266	283	271	277	319	323	377	400	398	269	177	340	29	288	271	270	236	249	273	281	276	263	251	229	237	6824
			30	250	280	281	260	271	289	284	296	321	306	144	232	30	71	-173*	-427*	-49*	331	310	291	280	247	241	240	250	4826
			31	251	269	278	282	281	279	287	282	294	296	290	281	31	292	289	282	291	286	285	281	272	261	251	253	259	6684

SCALED BY	TKC, EAS
CHECKED BY	EAS, JEP
SIGNS REVIEWED BY	EAS
PUNCHED BY	

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated
[ ] Significant portion of hour interpolated.
[ ] No records; 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	159646
MONTHLY MEAN	215
DATES WITH GAPS:	

GPO 844-291

FORM 76-106

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.

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

OBSY.	YEAR	MONTH	ELEMENT
CO	81	OCT	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	334	341	340	339	341	334	331	339	336	331	313	282	01	288	301	302	249	263	309	319	320	306	302	311	322	7553
			02	321	340	338	341	332	340	352	339	348	356	320	309	02	304	291	170	281	303	309	279	272	307	264	283	301	7400
			03	321	324	328	322	327	339	195	217*	300	292	445*	390	03	439	439*	198*	167*	257	316	310	341	311	317	329	348	7572
			04	351	349	338	337	359	362	384	297	342	359	351	358	04	357	217	238	294	319	231	198	267	289	301	327	331	7556
			05	342	343	344	332	324	322	346	337	306	265	320	341	05	321	302	373	316	329	328	322	322	321	328	329	330	7843
			06	329	329	326	321	320	321	328	332	338	339	326	298	06	261	145	169	204	247	248	273	291	307	314	316	319	7001
			07	327	340	361	353	369	382	354	348	286	133	251	371	07	399	342	297	453	255*	167*	459	384	248	237	309	331	7756
			08	352	343	340	351	242	207	234	219	286	367	667*	565*	08	313	314	334	334	324	329	337	332	337	336	346	368	8177
			09	374	373	347	370	333	244	388	352	311	306	402	219	09	260	225	293	326	331	337	347	341	343	331	339	340	7832
			10	347	344	350	394	369	413	411	311	91	229	361	351	10	260	300	241	74	69	205	56	187	298	346	358	388	6753
			11	420	413	401	428	380	176	72*	201	382	606	711*	559*	11	729*	717*	831*	780*	538	276	254	259	300	342	370	371	10516
			12	389	387	379	410	427	436	277	98	199	282	329	372	12	359	349	361	361	366	370	361	355	349	344	350	356	8266
			13	361	360	360	350	350	351	352	352	357	343	370	370	13	371	319	321	339	331	356	351	343	321	320	361	334	8343
			14	258	360	122*	132*	122	209	218	49	171	251	267	327	14	507	425	417	328	351	361	368	346	303	310	301	352	6591
			15	359	358	360	383	382	370	361	349	387	221	234	315	15	471	514*	159	332	339	260	279	305	322	350	356	352	8118
			16	361	360	360	351	350	352	358	372	360	349	339	328	16	334	335	339	341	350	353	360	349	343	341	340	351	8376
			17	350	347	350	346	348	353	360	351	261	208	337	348	17	350	347	335	330	327	336	340	339	323	321	326	330	7963
			18	343	346	344	339	341	341	340	339	341	349	351	342	18	340	331	331	332	340	341	341	324	320	321	324	327	8088
			19	340	334	334	337	351	360	198	161	282	332	430	354	19	239	429	410	309	344	345	331	318	301	330	360	378	7907
			20	369	338	332	327	342	326	267	107	96*	243	338	217*	20	357*	616*	812*	647*	569	711*	501*	591*	261	309	344	3616	9386
			21	375	349	158	282	401	389	260	245	163	137	540*	510	21	391	369	399	492	324	316	339	350	358	361	363	399	8270
			22	404	366	367	370	368	351	370	311	229	310	673*	691*	22	786*	964*	660*	844*	773*	724*	578*	219	351	359	370	379	11817
			23	324	376	389	391	407	425	350	413	429	371	362	378	23	385	385	390	367	359	317	331	344	363	351	351	368	8926
			24	379	381	380	374	371	370	370	375	376	379	341	312*	24	419*	470*	391	286*	319*	258	267	275	284	314	376	371	8438
			25	397	382	370	392	321	324	249	331*	358	374	420	552*	25	534*	431	458	261	241	329	357	360	359	360	358	360	8878
			26	354	359	356	356	355	350	364	354	321	236	288	363	26	368	348	327	328	316	330	345	341	331	336	331	338	8085
			27	347	348	348	349	349	348	360	365	361	362	353	339	27	322	338	338	300	249	229	311	327	325	332	328	326	7954
			28	329	335	335	346	348	342	365	229	62	122	309	251	28	272	301	302	259	200	188	267	328	329	316	309	322	6766
			29	331	348	341	334	349	373	366	400	371	269	212	327	29	350	329	312	319	296	320	331	320	322	321	330	322	7893
			30	330	347	333	334	341	339	341	333	349	323	159	251	30	294	382*	344*	139	256	310	324	320	322	313	310	318	7412
			31	322	328	332	330	325	326	328	331	332	334	329	324	31	320	319	318	310	319	320	322	328	325	323	321	319	7785

SCALED BY	TKC, ERS
CHECKED BY	ERS, JEP
SIGNS REVIEWED BY	ERS
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.

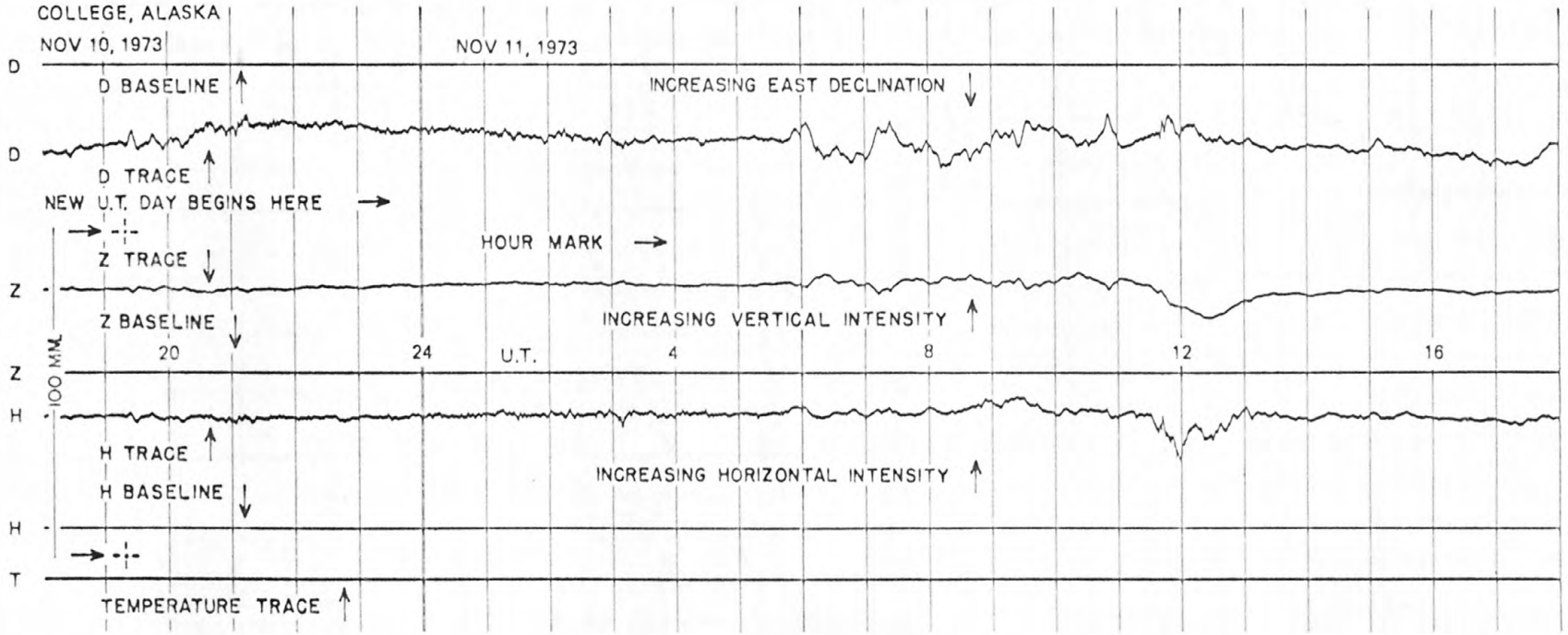
* Derived from Storm Mgph., converted to Normal Mgph.

MONTHLY SUM	251221
MONTHLY MEAN	338
DATES WITH GAPS:	

GPO 844-203

FORMAT FOR NORMAL & STORM MAGNETOGRAMS

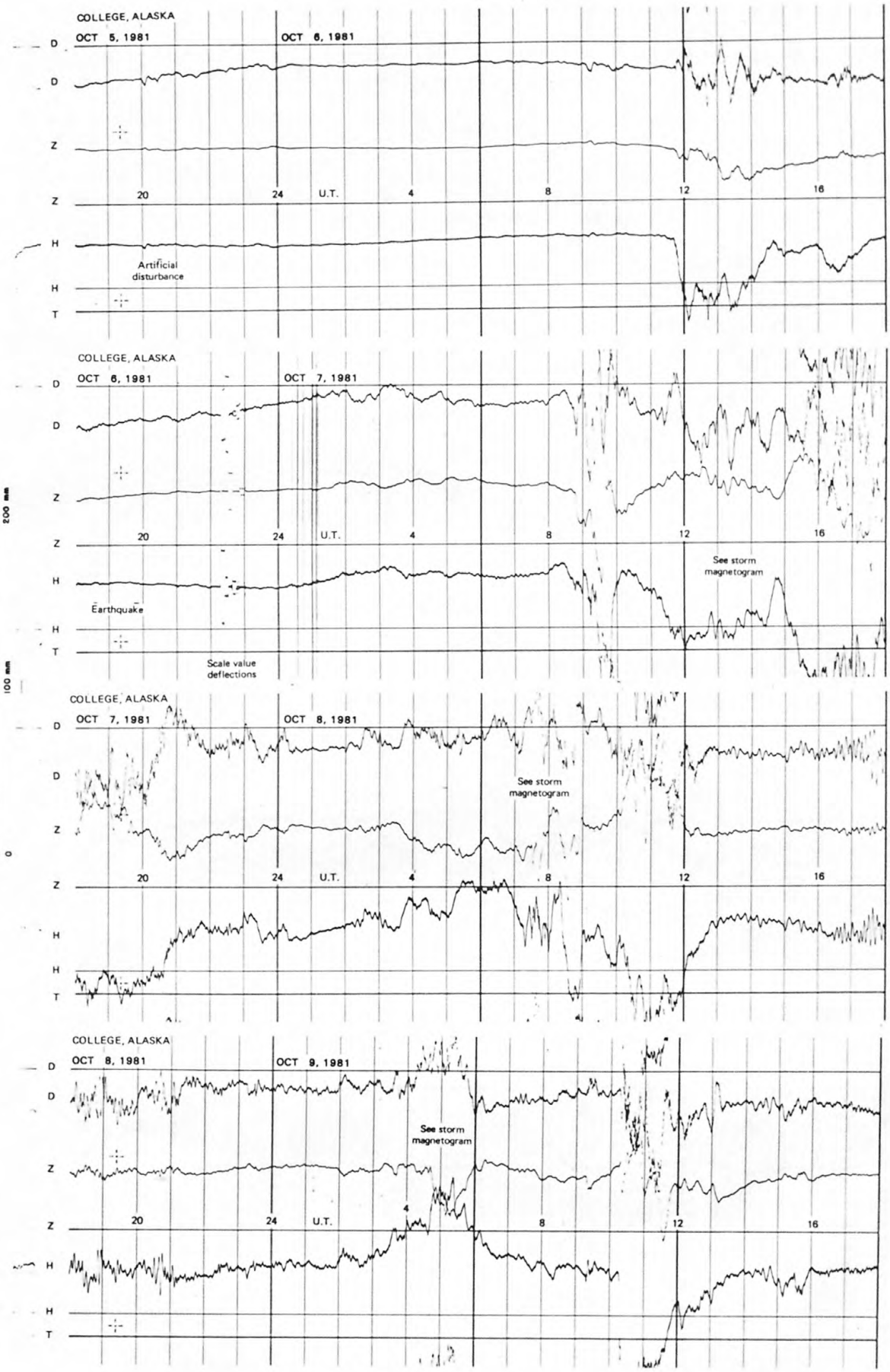
(SAMPLE ONLY)



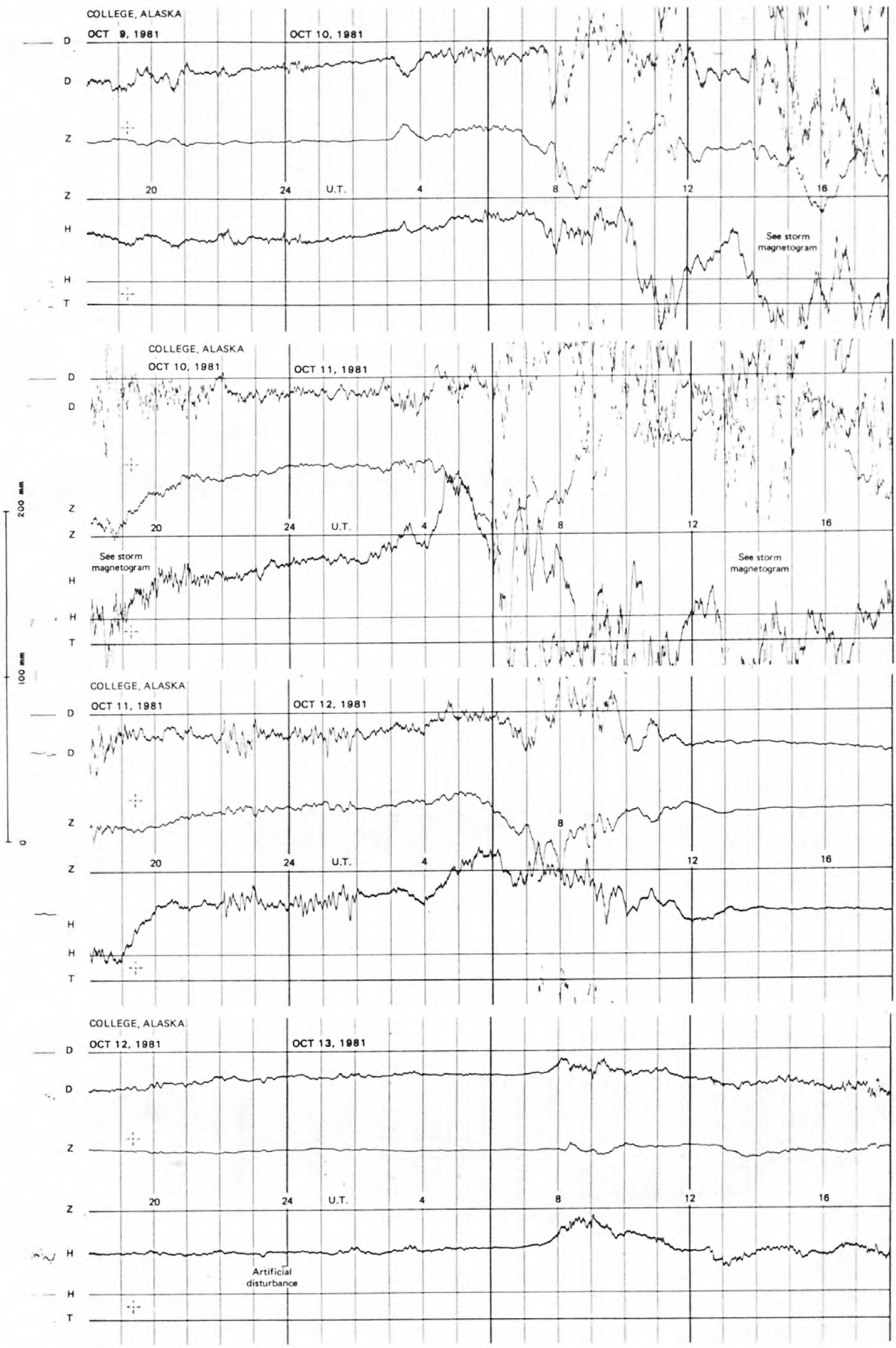
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

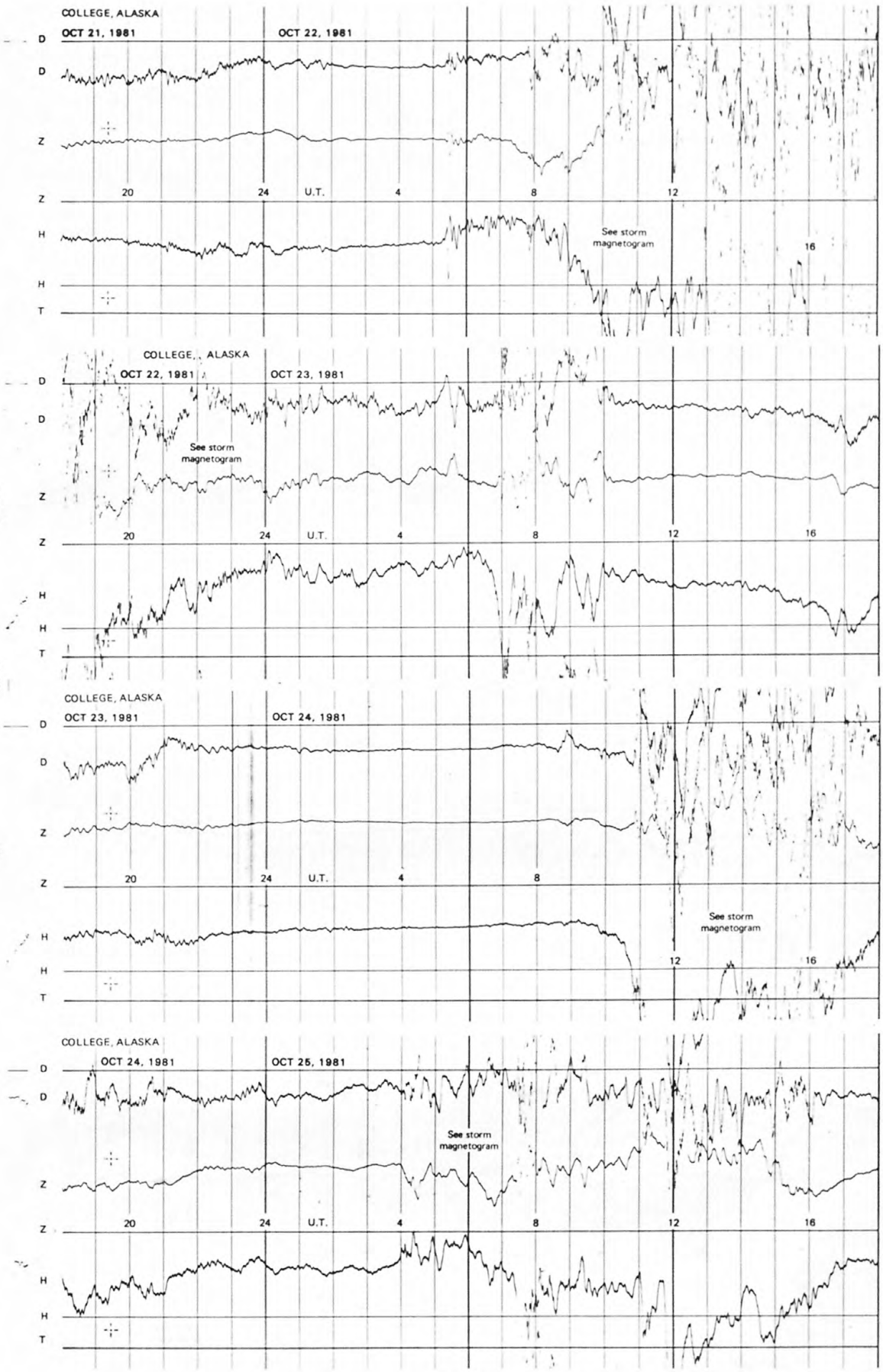
NORMAL MAGNETOGRAMS



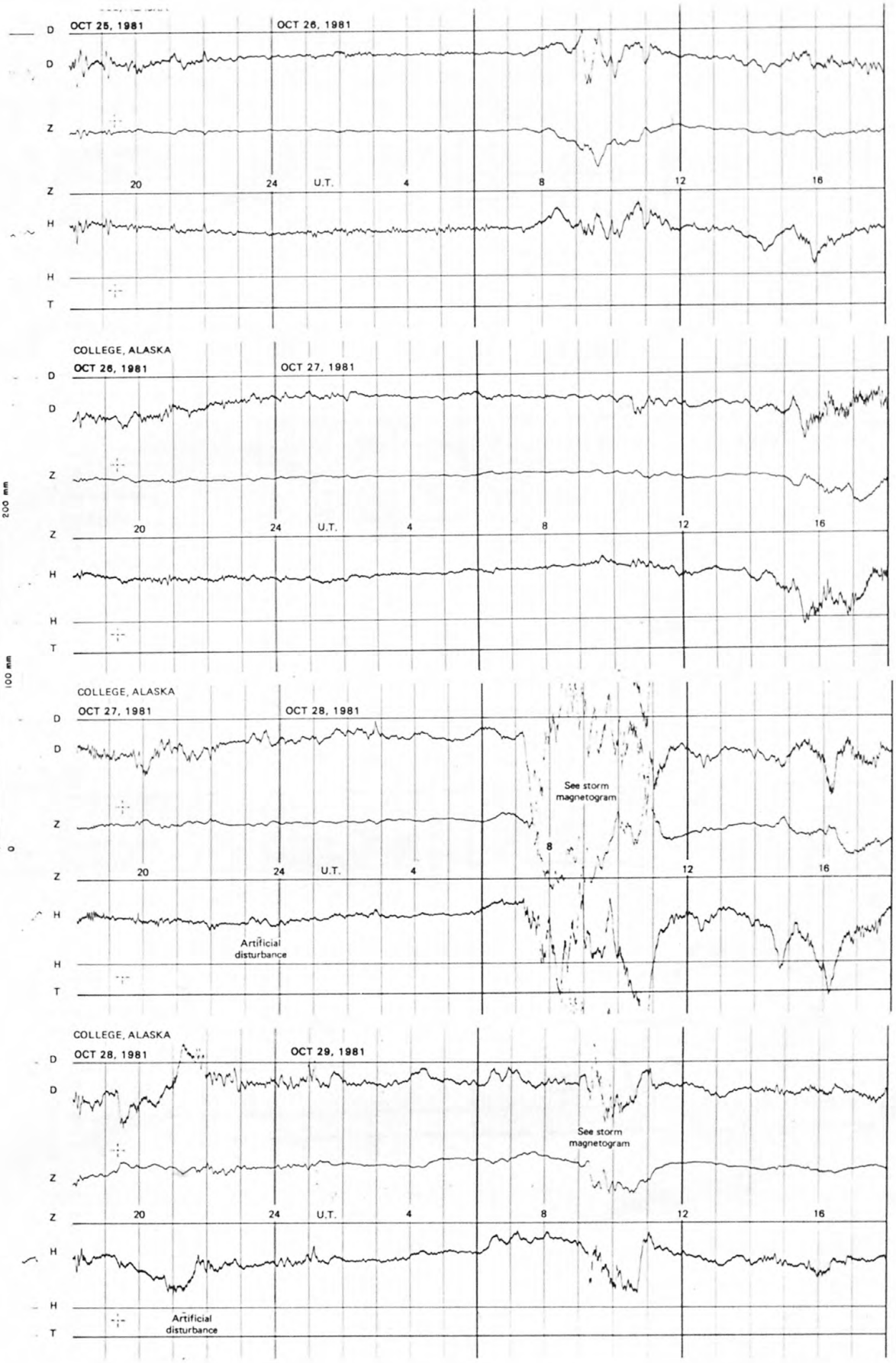
NORMAL MAGNETOGRAMS



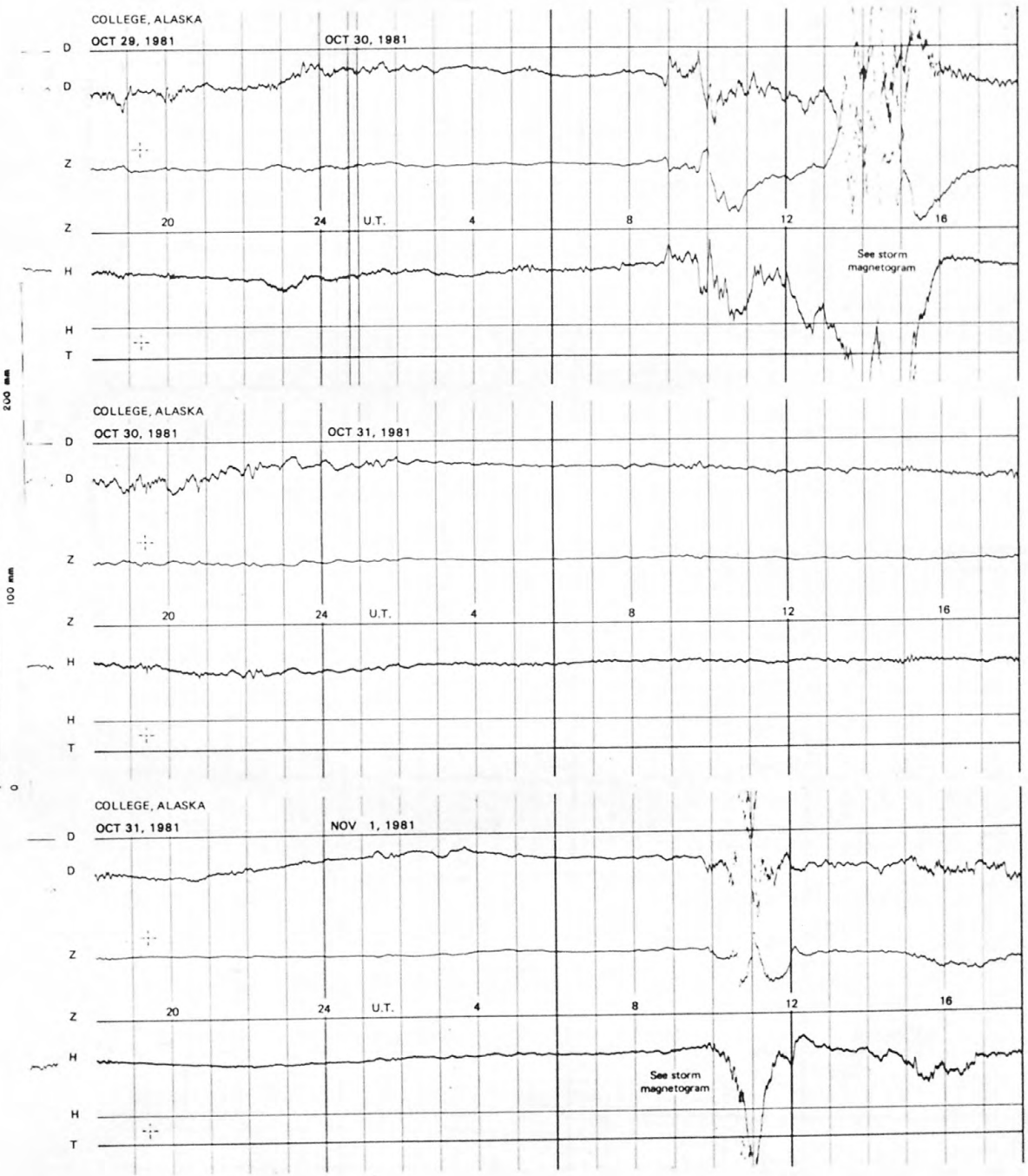
NORMAL MAGNETOGRAMS



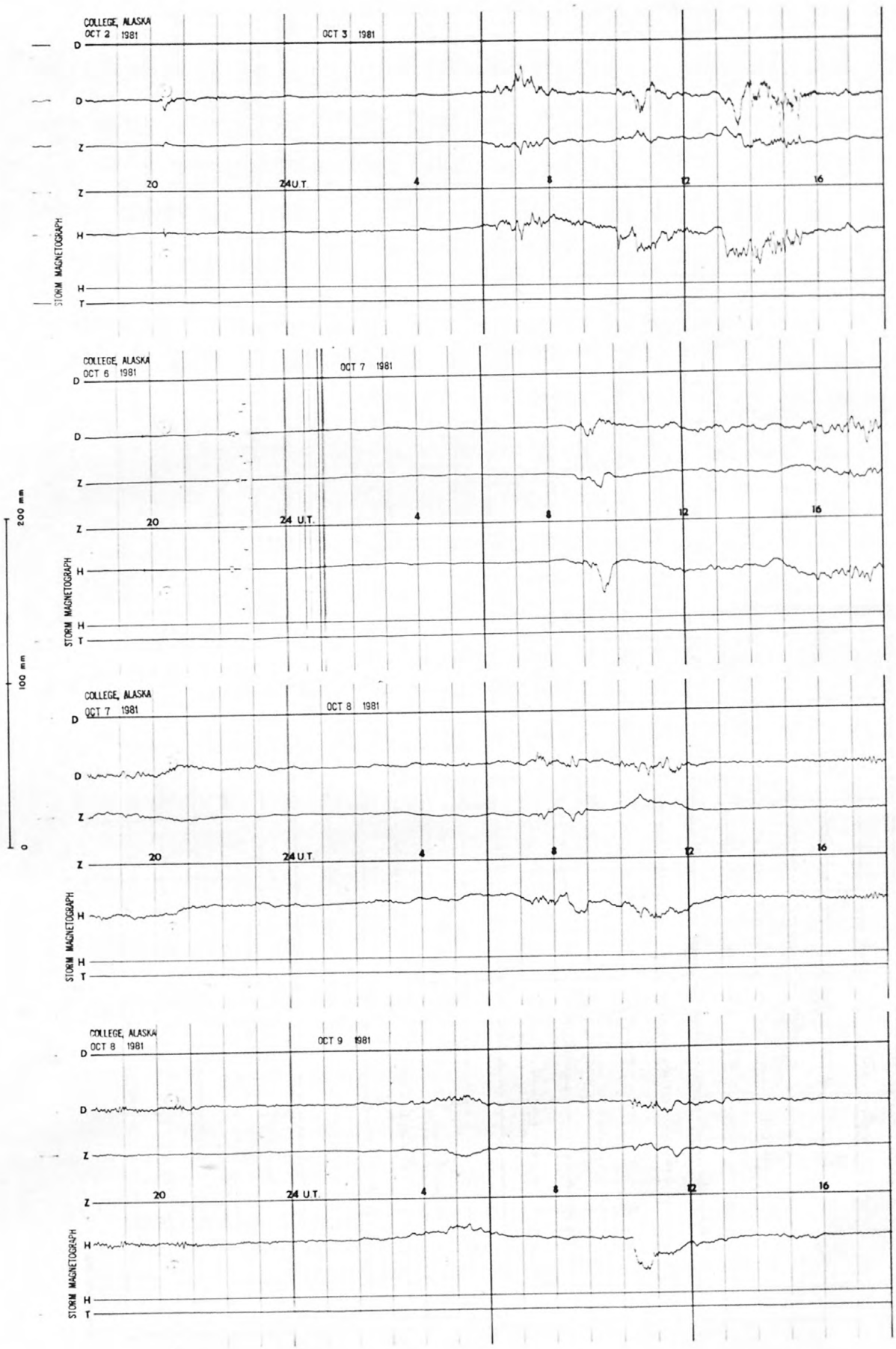
NORMAL MAGNETOGRAMS



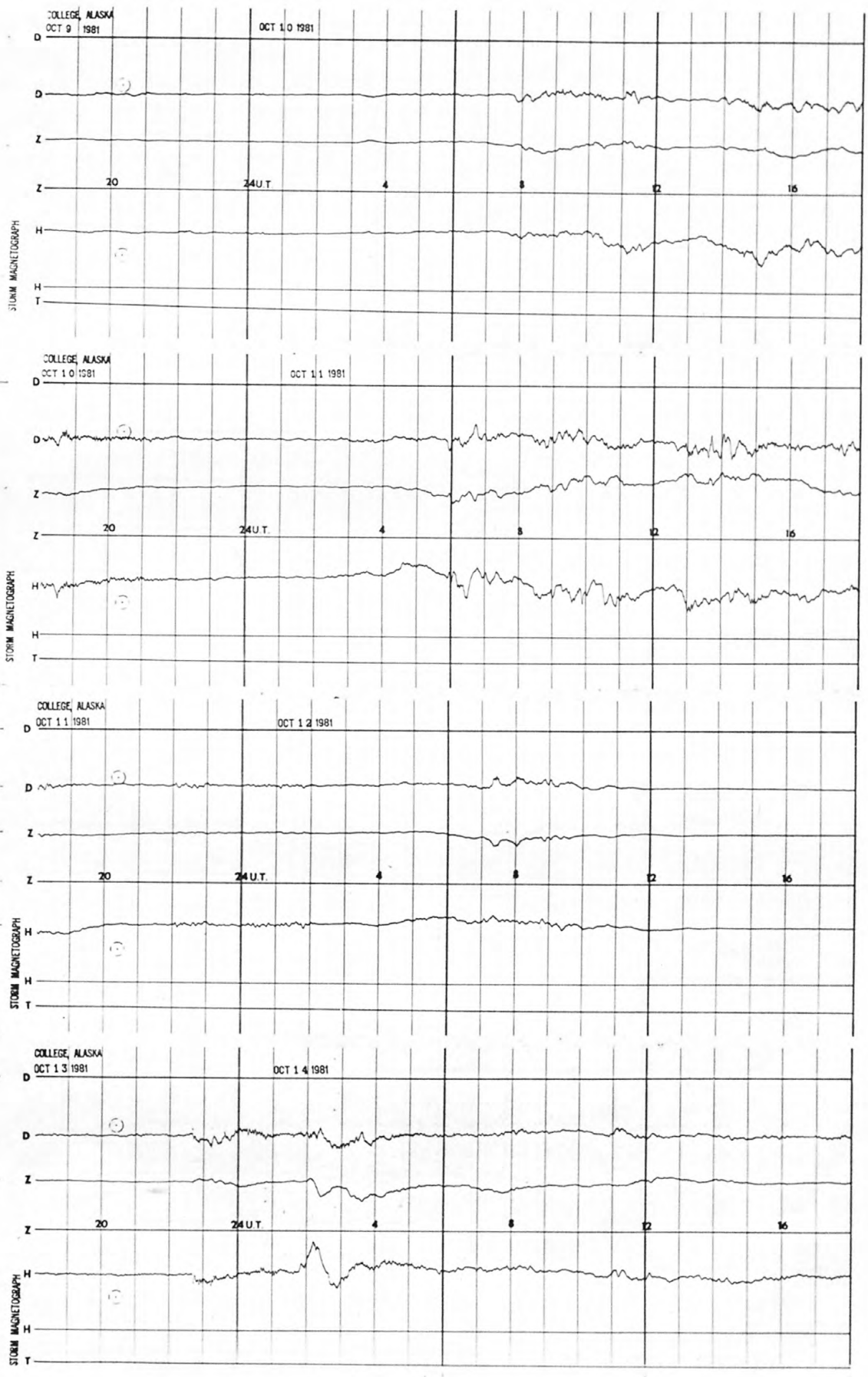
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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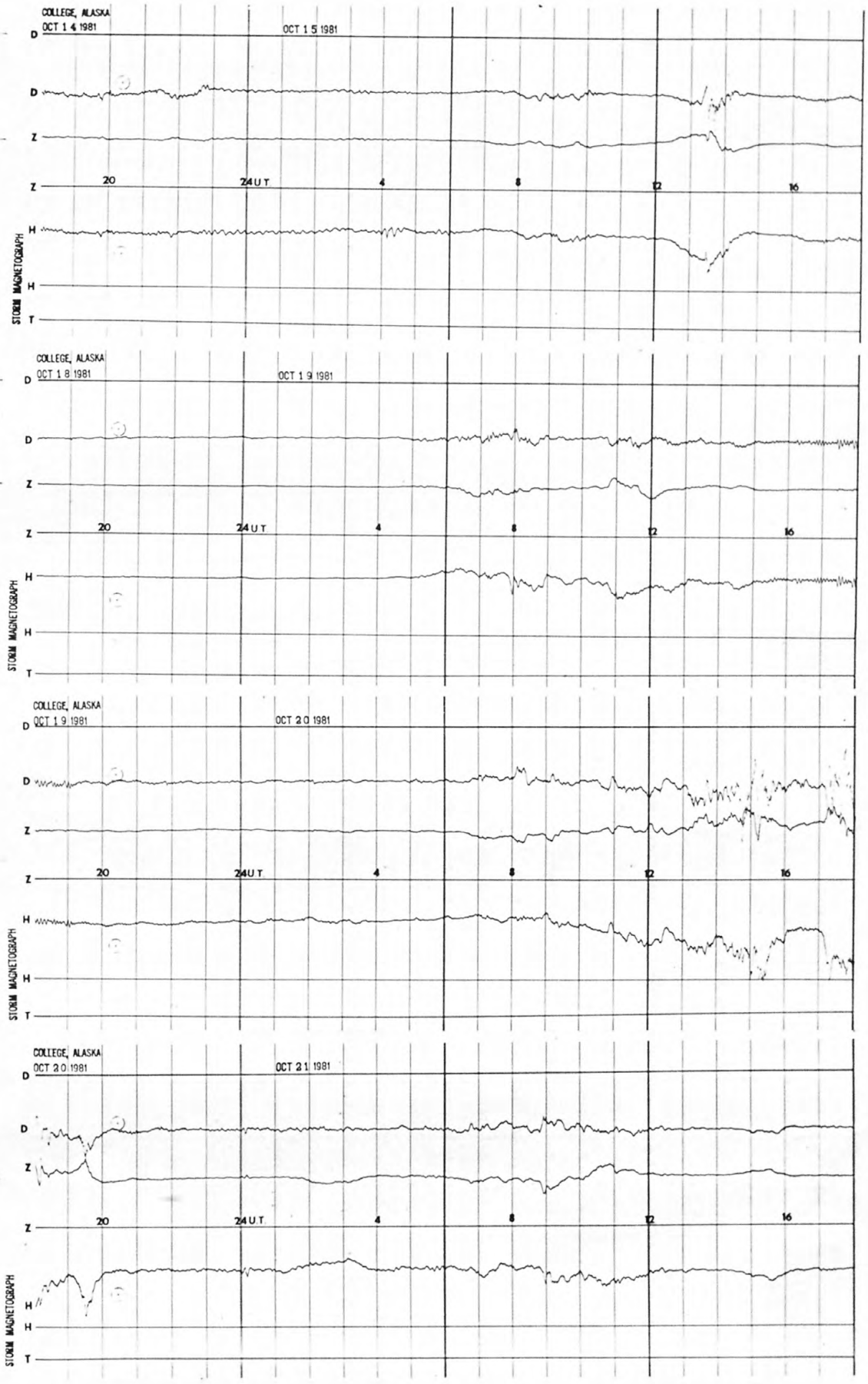

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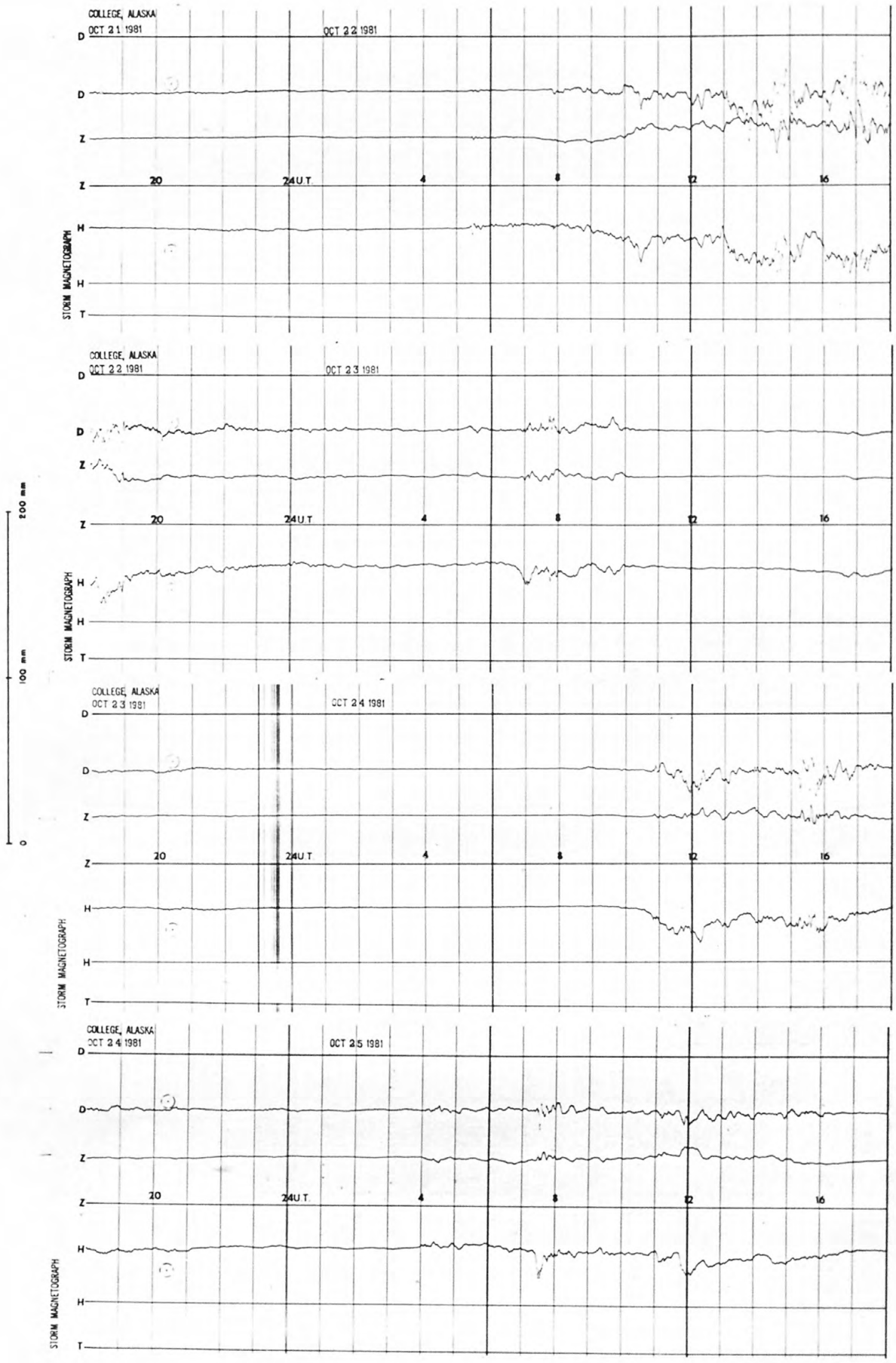
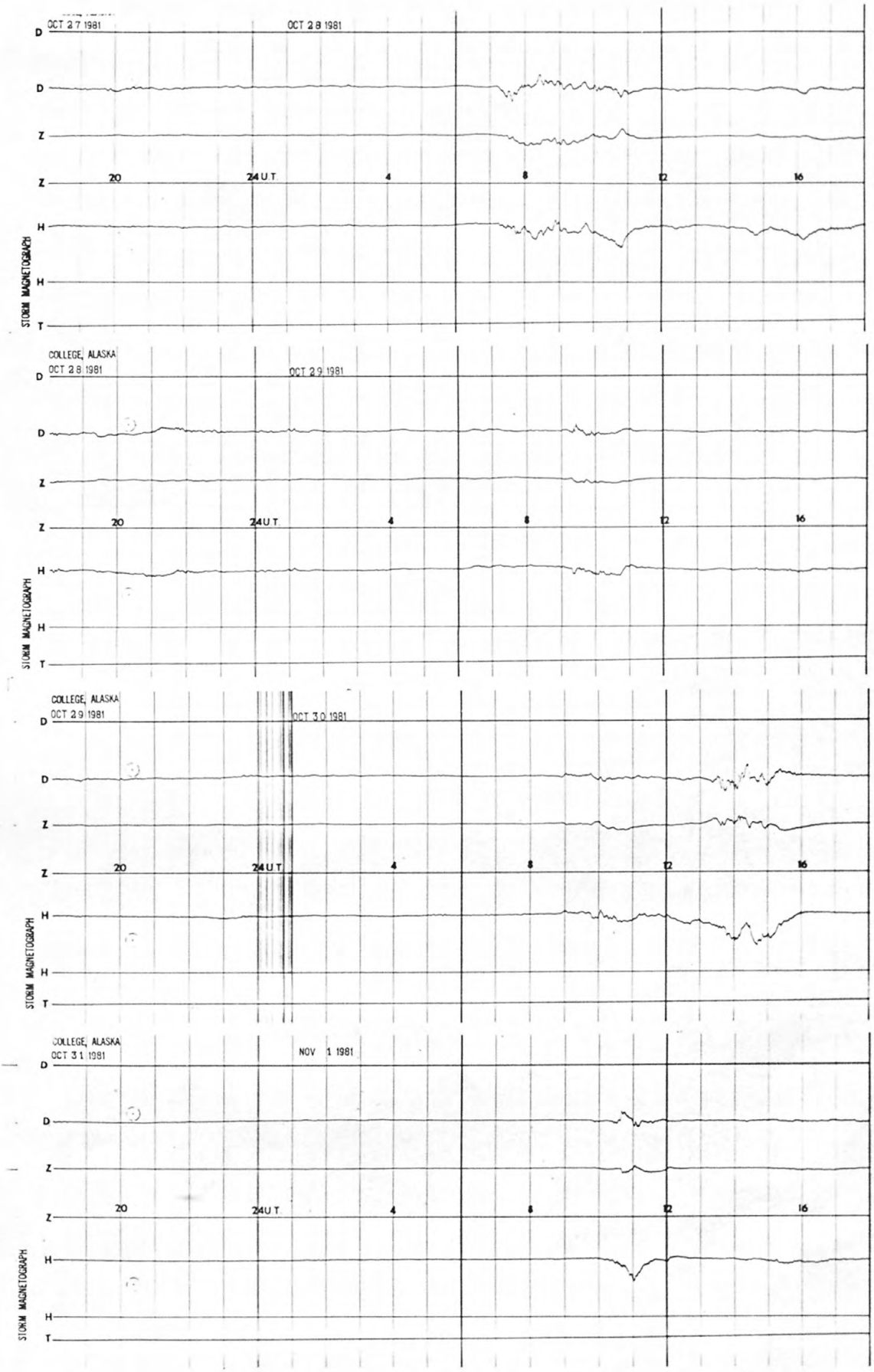


STORM MAGNETOGRAMS



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