

UNITED STATES DEPARTMENT OF THE INTERIOR

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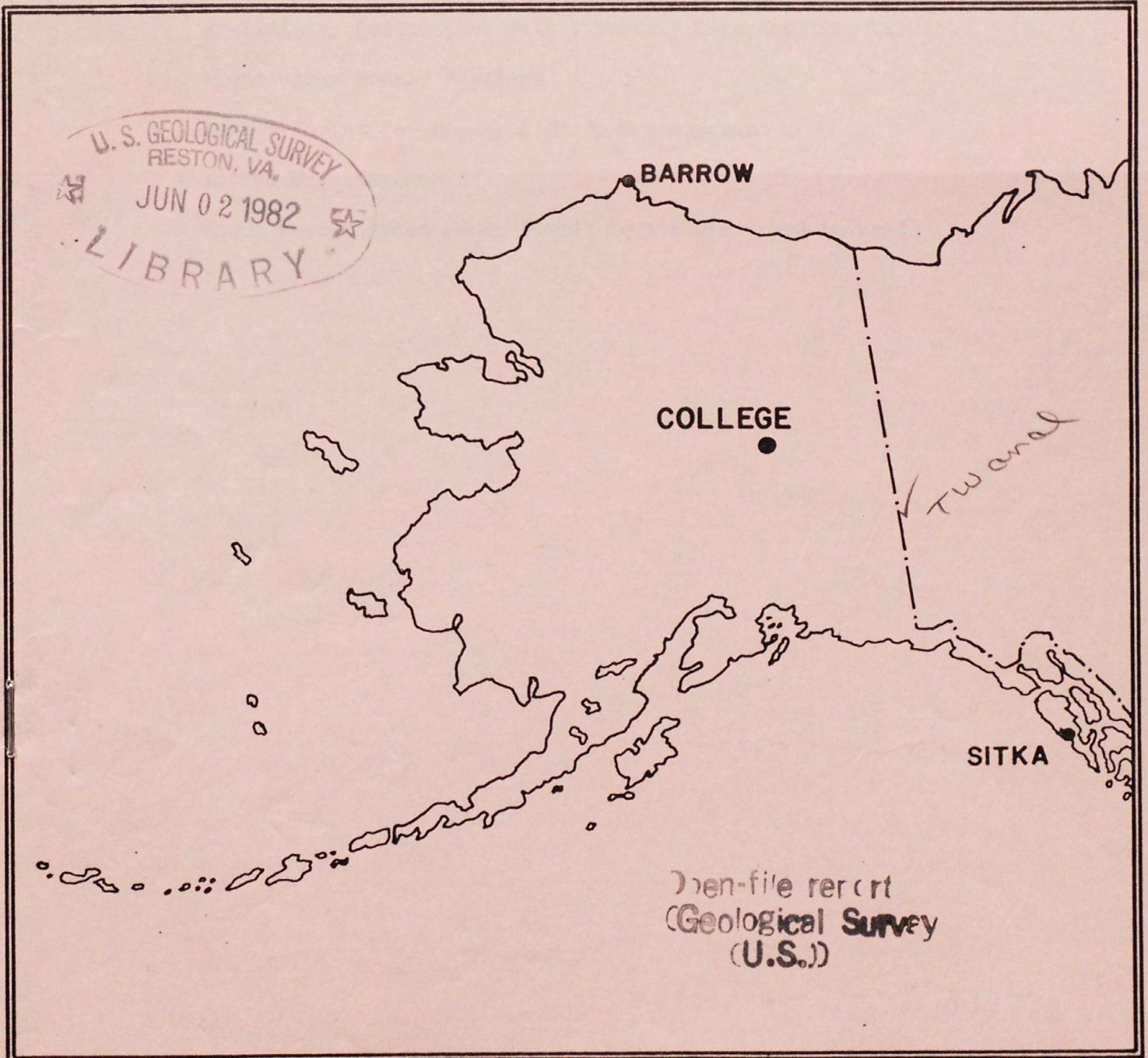
GEOLOGICAL SURVEY

(200)
R290
no. 82-300-C

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

MARCH 1982

OPEN FILE REPORT 82-0300C



WPKC 1974
12/10



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333778

THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSEND, CHIEF OF THE COLLEGE OBSERVATORY, WITH THE ASSISTANCE OF OBSERVATORY STAFF MEMBERS: J.E. PAPP, E.A. SAUTER AND L.Y. TORRENCE 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
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 D63, 325 Broadway
Boulder, Colorado 80303

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..... $64^{\circ}51.6'N$
Geographic longitude..... $147^{\circ}50.2'W$
Geomagnetic latitude..... $+64.6^{\circ}$
Geomagnetic longitude..... $+256.9^{\circ}$
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 and 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.

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

MARCH 1982

DATE	K-INDICES								SUM	AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24			
1	1	2	4	4	5	7	4	6	33	45	SUDDEN COMMENCEMENTS d h m
2	5	6	6	7	7	6	4	4	45	78	
3	3	2	3	6	5	5	2	1	27	28	
4	1	0	2	6	4	4	1	1	19	19	
5	2	4	4	5	2	1	0	0	18	15	
6	0	0	0	1	1	1	0	0	03	01	
7	0	0	0	0	0	0	0	1	01	00	
8	1	0	2	2	2	3	2	3	15	08	
9	2	2	2	5	4	5	3	3	26	22	
10	4	3	4	5	5	3	1	0	23	19	
11	0	5	4	0	4	2	1	1	17	14	
12	1	0	1	1	1	4	2	2	12	07	
13	3	3	3	3	3	2	1	1	19	11	
14	2	1	0	4	3	4	3	1	18	12	
15	1	2	2	2	1	1	0	0	09	04	
16	0	0	2	2	1	0	0	0	05	02	
17	0	0	0	3	4	3	2	2	14	09	
18	2	2	4	5	3	3	2	2	23	17	
19	3	3	2	4	3	0	1	1	17	11	
20	0	1	3	5	5	5	3	2	24	23	
21	1	3	6	4	5	5	3	3	30	31	
22	5	6	5	4	4	5	4	2	35	39	
23	2	3	1	4	5	2	0	0	17	13	
24	0	2	0	2	2	4	4	2	16	10	
25	3	3	3	6	6	3	2	2	28	29	
26	3	2	0	4	3	3	2	2	19	12	
27	2	2	1	5	5	0	1	0	16	15	
28	1	2	2	0	0	0	0	1	06	03	
29	1	3	6	4	1	1	1	2	19	18	
30	2	3	2	5	5	3	2	2	24	19	
31	3	4	4	5	5	6	6	2	35	42	

POSSIBLE SOLAR-FLARE
EFFECTS BASED ON
INSPECTION OF GRAMS
ALONE (WITHOUT
REFERENCE TO DATA
FROM OTHER SOURCES)

BEGIN			END		
d	h	m	d	h	m

K SCALE USED:

LOWER LIMIT FOR K = 9.....

CURRENT SCALE VALUE.....

LOWER LIMIT FOR K = 9.....

D

683.8

3.73

2550

H

321.7

7.79

2510

Z

(mm)

(γ /mm)

(to nearest 10 γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED

JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

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
MARCH 1982

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	01	06XX	..	..	..	..	01	6	7	410	1780	1380	03	19
		02							4, 5	7					
		21	06XX	..	..	..	..	21	3	6	153	1100	840	22	22
		22						2	6						

NORMAL MAGNETOGRAPHE					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 3-1-82	2400 U.T., 3-31-82	1.6/mm	3.78/mm	27° 46.8 E
H	0000 U.T., 3-1-82	2400 U.T., 3-31-82	7.88/mm		127528
Z	0000 U.T., 3-1-82	2400 U.T., 3-31-82	7.78/mm		551518

STORM MAGNETOGRAPHE					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 3-1-82	2400 U.T., 3-31-82	7.9/mm	29.68/mm	23° 42.7 E
H	0000 U.T., 3-1-82	2400 U.T., 3-31-82	44.08/mm		115048
Z	0000 U.T., 3-1-82	2400 U.T., 3-31-82	48.58/mm		540298

RAPID RUN MAGNETOGRAPHE					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		
D					
H					
Z					

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 00.7 E	129718	553868

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAR 6, 7, 8, 12, 13, 15, 16, 17, 24, 28

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80215

OBSY. YEAR MONTH ELEM-
CO 82 MAR D

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

Q	W	Ten	Min	Sec	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
					01	103	103	97	113	100	117	38	138	132	102	130	144	01	253	232	445	573	620	326	201	119	109	198	511	265	5169
					02	202	98	74	-124	-212	-394	-108	-61	-299	336	-204	185	02	98	637	407	-116	66	104	119	146	123	82	59	122	1340
					03	120	108	109	120	158	137	91	108	206	82	209	210	03	185	249	186	235	270	228	232	192	179	170	147	130	4061
					04	147	139	138	135	126	123	114	112	107	129	-13	384	04	183	141	136	143	196	244	224	220	181	166	133	128	3736
					05	82	96	102	92	71	58	118	110	118	143	72	179	05	148	162	152	146	147	178	189	171	142	139	126	109	3050
					06	112	111	110	112	111	114	118	122	125	162	149	129	06	136	136	142	167	208	226	232	229	204	169	146	124	3594
					07	106	94	89	87	97	109	120	121	124	125	130	138	07	146	163	170	169	185	176	207	218	209	190	166	132	3471
					08	84	60	30	28	64	94	103	129	82	100	115	146	08	152	165	182	211	268	356	330	346	319	181	129	35	3709
					09	114	31	10	59	73	79	120	122	94	44	6	110	09	153	216	214	255	340	323	241	184	226	97	45	72	3228
					10	80	69	31	53	67	89	65	2	140	41	109	111	10	126	148	144	178	160	136	177	190	209	165	142	98	2730
					11	66	57	45	42	41	170	13	133	135	129	125	124	11	151	194	113	160	196	251	188	171	163	156	122	123	3068
					12	93	78	71	79	80	99	107	127	147	107	128	136	12	145	150	170	186	260	290	297	284	230	152	94	93	3603
					13	67	57	4	70	57	6	80	20	78	70	98	215	13	175	196	204	196	191	207	202	213	179	157	106	83	2931
					14	62	26	54	74	86	106	125	123	122	118	106	261	14	253	190	178	283	171	304	268	218	136	161	123	71	3619
					15	43	32	30	36	78	84	111	104	115	121	132	144	15	187	175	164	176	190	228	248	241	255	215	158	92	3359
					16	50	37	36	53	88	95	94	75	106	124	132	149	16	176	156	162	178	196	133	235	222	211	179	145	104	3136
					17	90	69	61	78	82	83	94	101	99	78	164	190	17	188	320	288	229	253	270	246	133	145	149	99	41	3550
					18	38	44	54	81	84	103	126	104	106	115	190	196	18	138	144	134	150	172	174	196	200	154	163	111	92	3069
					19	56	44	24	15	101	109	112	135	104	111	140	164	19	150	117	132	133	151	176	192	186	184	130	115	132	2913
					20	113	103	101	97	105	110	115	39	98	110	238	132	20	140	177	100	176	207	146	161	149	130	160	122	82	3111
					21	82	91	88	52	66	100	193	-71	32	72	129	80	21	64	263	469	382	253	170	178	152	69	59	110	165	3248
					22	66	-4	-47	40	28	175	8	-87	68	221	230	143	22	230	283	277	331	226	200	151	190	176	144	126	112	3287
					23	116	116	114	122	114	115	119	129	130	153	232	150	23	128	240	133	132	176	208	213	193	169	148	122	109	3581
					24	108	104	110	104	104	102	110	105	113	122	155	166	24	142	155	141	143	168	200	192	128	124	151	129	126	3202
					25	106	54	95	71	94	114	142	203	141	63	162	210	25	254	214	72	166	177	176	174	198	142	171	164	117	3480
					26	103	81	83	76	99	112	115	130	133	144	154	183	26	153	132	134	129	184	165	213	236	225	186	126	107	3403
					27	98	76	49	85	84	100	116	164	135	123	130	168	27	104	135	130	142	176	199	220	219	199	149	137	106	3244
					28	85	74	82	36	75	85	108	110	156	117	118	126	28	125	120	112	147	173	187	207	198	177	154	126	116	3014
					29	109	90	102	70	12	72	44	39	76	94	126	130	29	130	137	153	159	193	239	254	241	243	232	183	114	3242
					30	71	68	29	10	41	68	100	91	84	87	60	176	30	202	332	233	232	259	220	218	258	212	168	136	134	3489
					31	46	52	28	-13	90	-53	27	-168	140	130	130	94	31	165	319	222	193	250	332	174	107	148	180	158	117	2868

SCALED BY: TAC, LYT, JEP
 CHECKED BY: EAS, JEP
 SIGNS REVIEWED BY: JEP
 PUNCHED BY:

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

() Interpolated
 Significant portion of hour interpolated.
 No record; or no values available because of faulty record.
 * Derived from STORM Mgp., converted to Normal Mgp.

[] 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.

MONTHLY SUM: 102505
 MONTHLY MEAN: 138
 DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSY. YEAR MONTH ELE-
CO 82 MAR Z
MENT

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 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	Q of S	Pen O	Dir	01	02	03	04	05	06	07	08	09	10	11	12	Dir	13	14	15	16	17	18	19	20	21	22	23	24	SUM
				329	331	330	331	329	342	318	370	379	298	310	337	01	405	476	646*	854*	293*	96*	246	241	279	325	402*	251*	8518
				255	-26*	-42	87*	-178*	-83*	201	256	259	440*	781*	699*	02	674*	402*	579*	491*	357	413	307	297	352	338	339	366	7564
				375	376	374	361	372	344	352	354	297	244	347	249	03	382	523	307	187	184	230	286	290	319	325	326	337	7741
				346	340	339	337	332	334	332	339	335	336	427	293	04	171	291	310	307	307	279	292	314	312	316	314	317	7620
				362	391	361	353	384	361	274	375	358	199	181	211	05	245	299	316	325	329	333	331	321	310	314	324	335	7592
				342	342	340	333	325	334	322	321	321	321	304	310	06	316	315	302	290	299	313	322	319	310	308	312	315	7636
				314	318	321	323	322	322	322	322	323	322	320	316	07	316	304	306	315	318	314	319	313	312	310	313	315	7600
				318	326	338	361	376	361	352	351	350	355	345	331	08	323	306	291	262	216	184	192	227	261	268	273	318	7285
				382	350	341	349	342	359	371	355	332	293	208	346	09	338	300	323	391	350*	56	141	219	290	262	281	341	7320
				356	352	335	342	335	338	283	177	165	214	311	341	10	334	321	309	310	272	297	320	329	330	320	320	323	7334
				330	340	341	349	368	310	230	394	360	338	327	319	11	316	274	242	273	274	279	241	240	243	253	288	300	7229
				311	324	330	330	331	336	333	338	330	332	340	330	12	323	319	310	288	225	76	192	235	242	230	252	296	6953
				302	323	346	353	320	367	363	235	300	296	325	275	13	309	285	224	254	271	292	303	305	303	304	305	327	7287
				335	336	354	347	333	333	323	319	324	327	309	281	14	253	269	245	267	240	150	203	237	230	252	277	298	6842
				312	325	336	342	340	330	338	339	360	339	338	327	15	297	293	293	302	300	276	271	280	288	287	291	300	7504
				312	322	327	339	336	335	328	326	349	337	321	309	16	319	303	301	300	303	306	295	291	290	287	290	297	7523
				306	307	310	310	308	307	321	328	318	306	320	290	17	247	273	277	250	293	300	284	270	296	299	298	300	7118
				312	329	353	350	335	342	354	302	277	261	376	364	18	228	254	283	301	297	311	322	322	328	336	335	349	7621
				347	364	341	399	362	330	329	346	326	330	336	248	19	222	284	301	315	326	330	329	326	326	319	327	328	7791
				324	325	325	320	323	335	362	373	385	268	319	256	20	292	294	216	76	151	270	298	289	302	320	346	342	7111
				336	332	332	334	360	377	229	29*	78	285	342	328	21	138	258	306*	326*	111	234	308	284	309	302	333	382	6653
				360	320	346	342	85*	135*	122*	301	286	368	274	391	22	542	393	438	346	224	335	222	250	278	300	326	333	7317
				336	334	332	329	329	324	324	327	327	317	262	267	23	280	356	177	270	223	340	329	319	318	321	323	322	7386
				322	324	320	318	320	317	320	317	321	302	296	265	24	291	292	296	289	285	269	258	272	298	303	290	300	7185
				319	323	350	339	332	332	353	363	331	301	394	276	25	401	342*	107	198	271	309	324	331	320	330	328	324	7598
				317	313	331	329	330	321	321	322	311	290	228	235	26	230	271	298	299	264	285	309	311	309	308	310	304	7146
				317	322	332	341	324	323	330	331	311	323	299	233	27	243	251	265	290	300	310	309	308	303	299	302	301	7267
				301	301	308	309	356	354	338	330	308	298	305	300	28	299	296	295	303	311	310	310	307	305	305	304	304	7457
				308	308	320	309	312	344	127	12	243	325	362	300	29	311	324	321	321	329	329	323	314	309	294	293	289	7027
				291	307	309	324	369	412	357	344	341	288	315	410	30	471	361*	266	252	281	274	303	310	307	306	307	313	7818
				348	338	343	333	358	367	433	298	325	325	320	328	31	202	188	264	222	265	310*	20*	130	274	310	332	335	6968

SCALED BY: TKC, LYT, JEP
 CHECKED BY: ERS, JEP
 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.
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 Scaling uncertain because of magnetic storm.
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 * Derived from STORM Meph., converted to Normal Meph.

MONTHLY SUM: 299011
 MONTHLY MEAN: 308
 DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSY. YEAR MONTH FILE-
CO 82 MAR H.

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 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	Time Q	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM
	01	281	282	287	291	319	334	456	470	390	400	312	294	188	183	-148	-251	-188	242	254	314	282	221	215	568	5996
	02	482	579	262	30	63	233	155	-140	193	-350	-457	-117	-163	-744	-237	-282	-79	121	208	254	168	206	256	334	973
	03	326	319	295	285	274	288	281	270	215	-100	42	127	39	-55	-89	82	184	281	317	309	283	280	281	284	4818
	04	278	282	282	284	289	289	298	322	330	340	24	-248	229	319	298	264	208	233	284	278	263	259	247	259	5911
	05	288	294	284	286	333	422	471	380	329	213	180	188	282	280	290	285	284	277	260	261	266	270	261	260	6944
	06	259	266	270	276	281	288	292	291	289	288	297	292	290	283	254	264	287	281	273	263	264	262	262	262	6634
	07	259	262	271	277	287	294	297	303	304	300	300	302	299	299	301	297	292	304	295	284	272	264	266	262	6891
	08	266	270	297	303	311	316	315	330	347	340	312	296	295	282	266	228	224	228	242	263	255	202	218	303	6709
	09	336	297	277	273	296	333	363	319	337	367	262	321	264	146	199	98	-236	46	231	277	245	162	220	289	5722
	10	284	415	491	430	439	412	486	413	357	234	410	341	291	242	253	181	138	279	290	274	245	240	240	244	7629
	11	268	280	287	308	354	408	441	381	293	290	282	279	218	67	185	247	182	218	210	231	240	250	250	239	6408
	12	259	260	272	272	290	298	312	331	325	320	306	297	290	298	275	198	-41	138	267	279	249	270	268	259	6292
	13	251	255	344	294	337	412	430	474	458	384	310	268	200	148	190	251	285	300	294	279	262	254	259	252	7211
	14	251	284	273	299	283	301	295	297	299	320	282	166	163	194	217	116	-9	138	160	231	270	256	247	250	5583
	15	253	271	296	321	311	330	365	363	329	321	329	285	287	288	281	273	258	256	281	277	268	254	245	250	6992
	16	260	267	291	299	310	317	329	354	357	335	332	321	302	305	290	288	284	284	292	285	272	259	249	250	7132
	17	252	267	280	287	299	311	313	319	320	305	218	257	158	21	192	316	328	338	311	304	307	279	256	254	6492
	18	262	298	291	310	321	312	330	379	345	243	107	66	242	247	277	258	221	273	301	283	246	237	248	262	6359
	19	264	306	294	373	280	277	292	321	324	306	297	132	263	296	282	294	296	292	291	279	265	271	258	250	6803
	20	249	252	258	270	282	294	369	398	362	409	109	254	279	107	-224	46	185	258	232	252	272	276	263	248	5700
	21	255	265	270	307	298	336	273	336	234	130	202	223	-111	-90	-355	-185	87	342	252	178	279	274	302	252	4354
	22	276	394	552	469	636	251	353	442	324	154	43	152	-168	-63	-36	1	180	80	223	299	302	284	278	267	5693
	23	266	267	259	273	269	276	280	269	284	254	109	274	239	-2	189	265	294	296	289	285	277	269	263	258	6002
	24	260	260	259	280	276	288	287	295	301	301	307	268	290	295	307	264	226	107	226	258	292	281	257	242	6427
	25	249	284	268	298	281	297	337	311	343	275	-147	59	-203	-288	107	215	265	296	301	281	252	231	237	234	4783
	26	236	267	268	281	282	285	292	295	293	282	144	141	216	257	282	241	179	260	281	283	258	244	221	247	6035
	27	256	277	285	296	296	298	307	309	311	315	279	31	112	274	286	293	298	299	287	264	256	254	248	249	6380
	28	259	271	270	324	301	303	291	311	298	295	292	291	294	300	281	285	288	280	275	261	255	256	247	245	6773
	29	250	270	266	296	355	436	486	68	300	232	132	301	302	291	281	288	288	295	280	278	265	254	259	226	6699
	30	268	255	288	334	458	351	326	339	366	382	339	45	-158	-238	120	233	254	250	308	282	268	260	242	264	5836
	31	351	372	312	390	432	498	554	584	435	347	257	120	-57	-69	65	296	176	-153	-113	176	220	264	282	266	6005

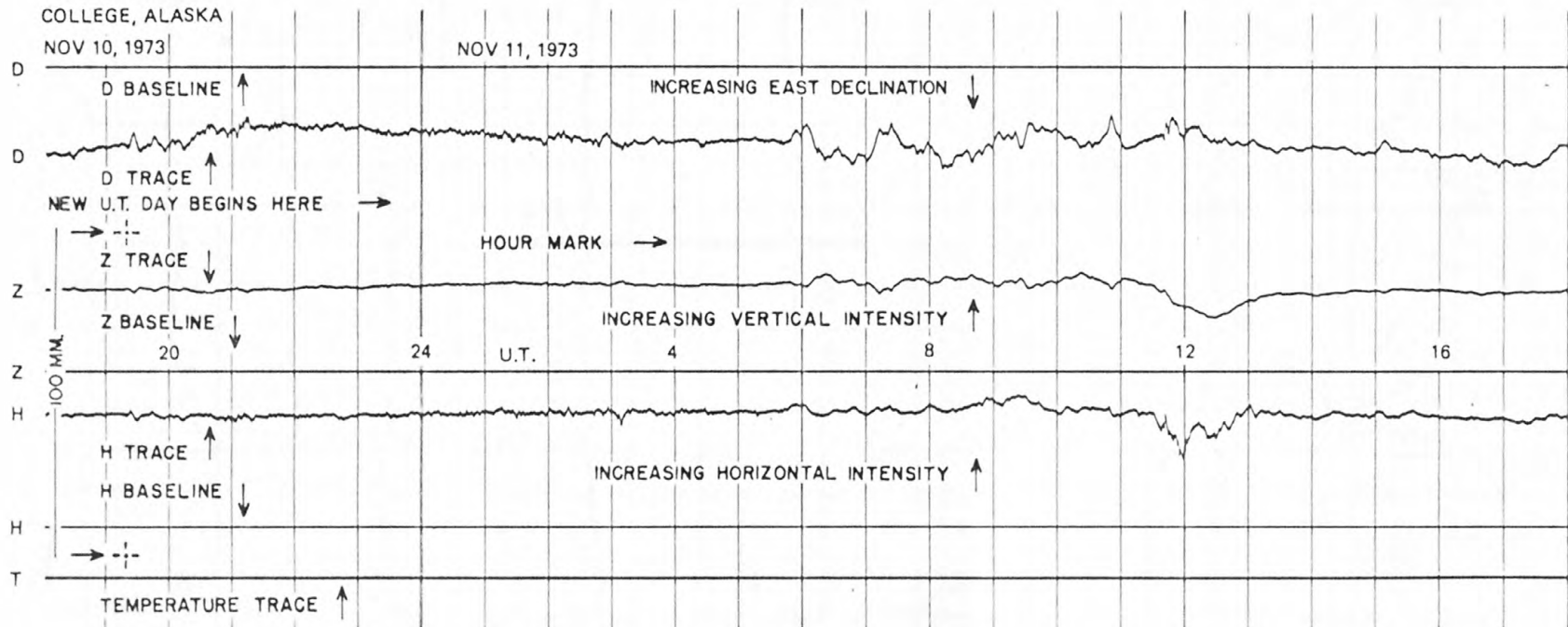
SCALED BY: TKC, LYT, JEP
 CHECKED BY: EMS, JEP
 SIGNS REVIEWED BY: JEP
 PUNCHED BY:

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 Magph., converted to Normal Magph.

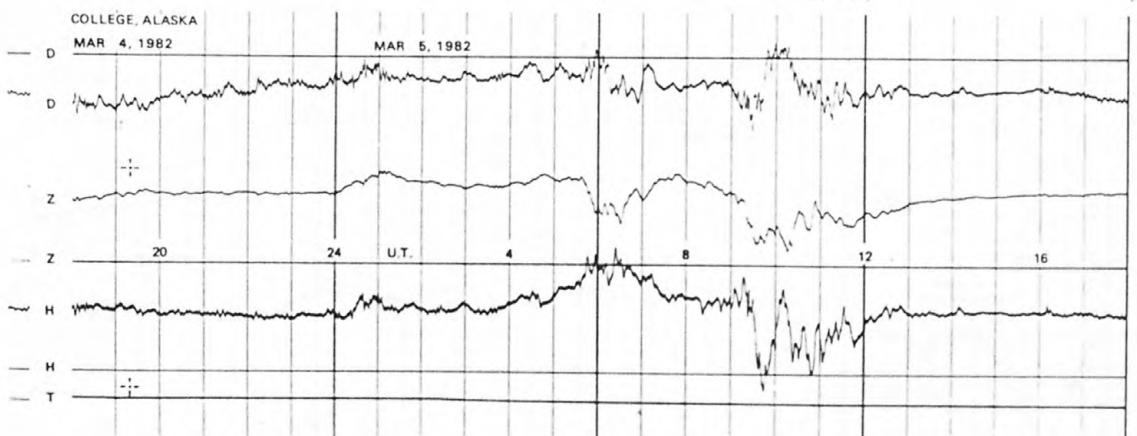
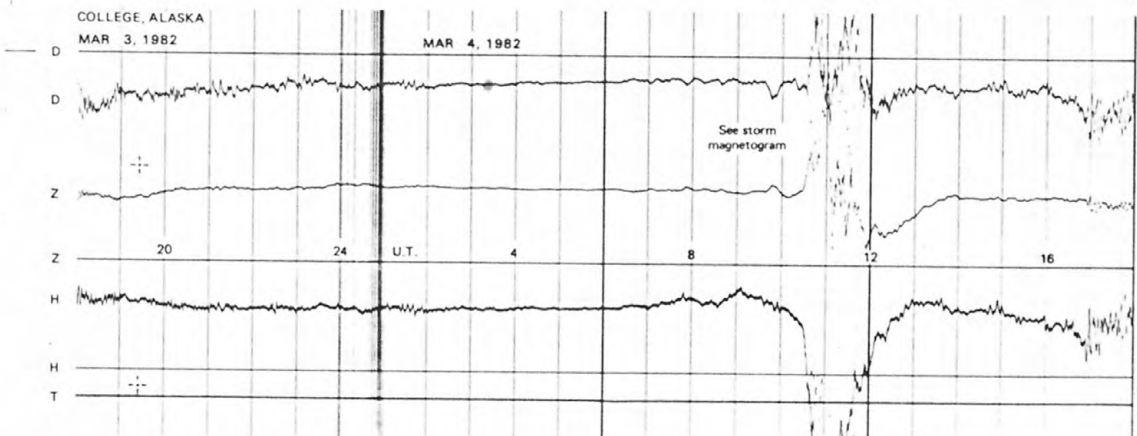
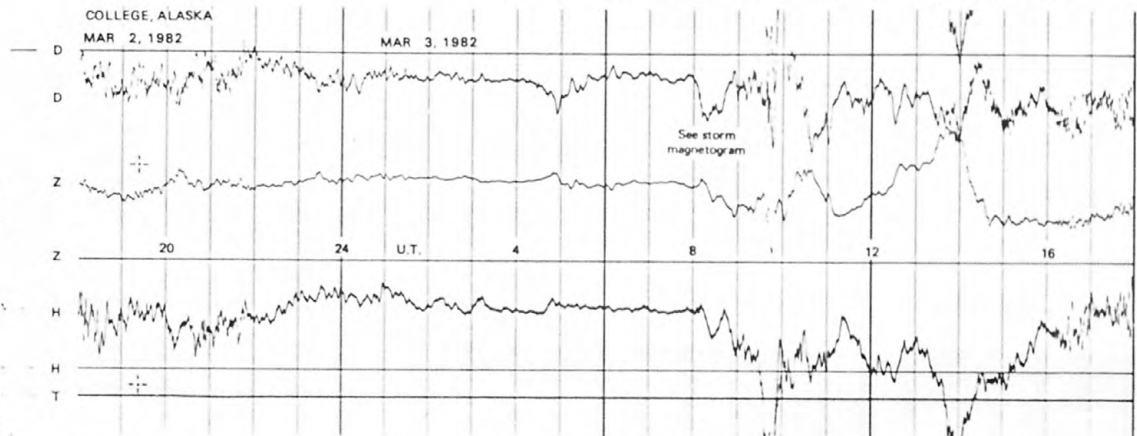
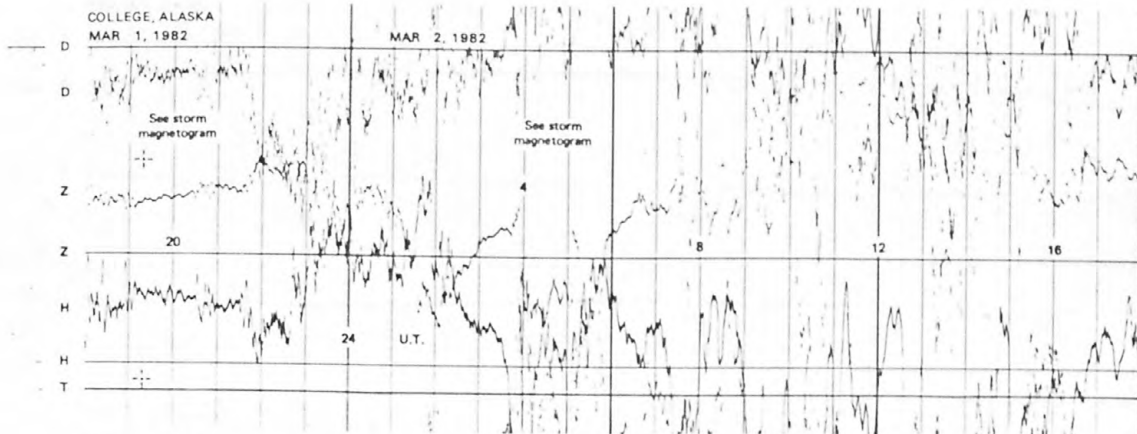
MONTHLY SUM: 188186
 MONTHLY MEAN: 253
 DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)



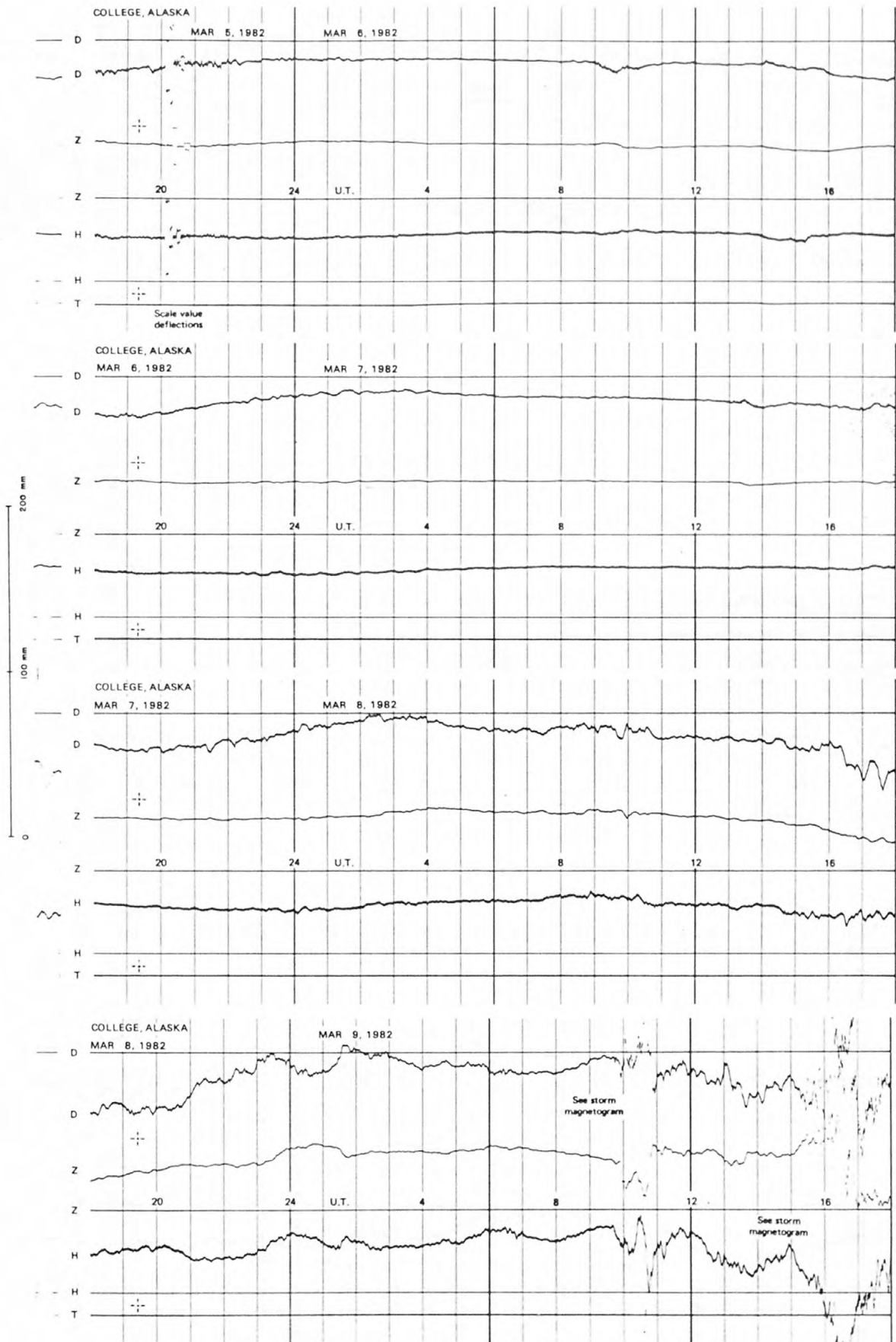
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

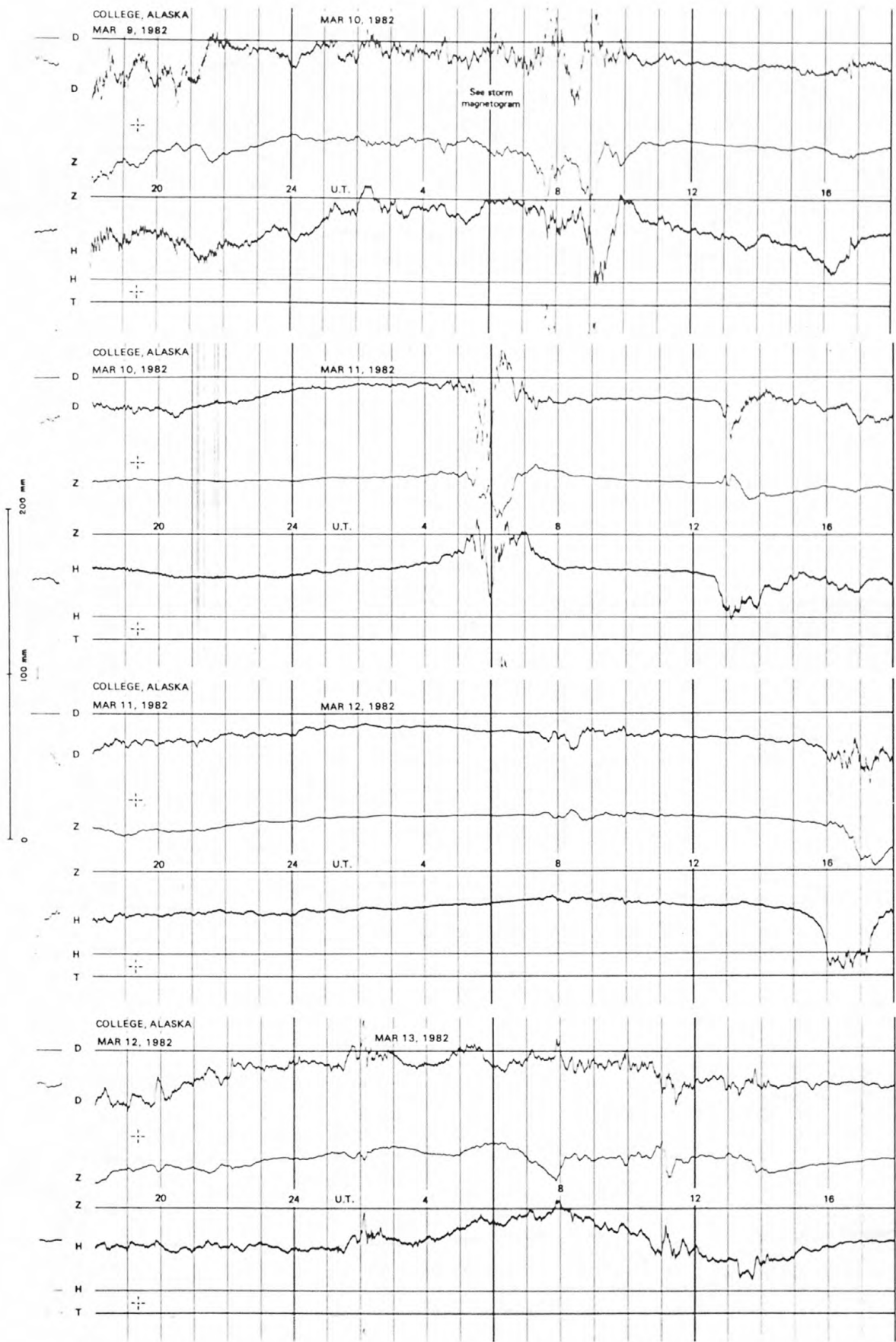


200 mm
100 mm
0

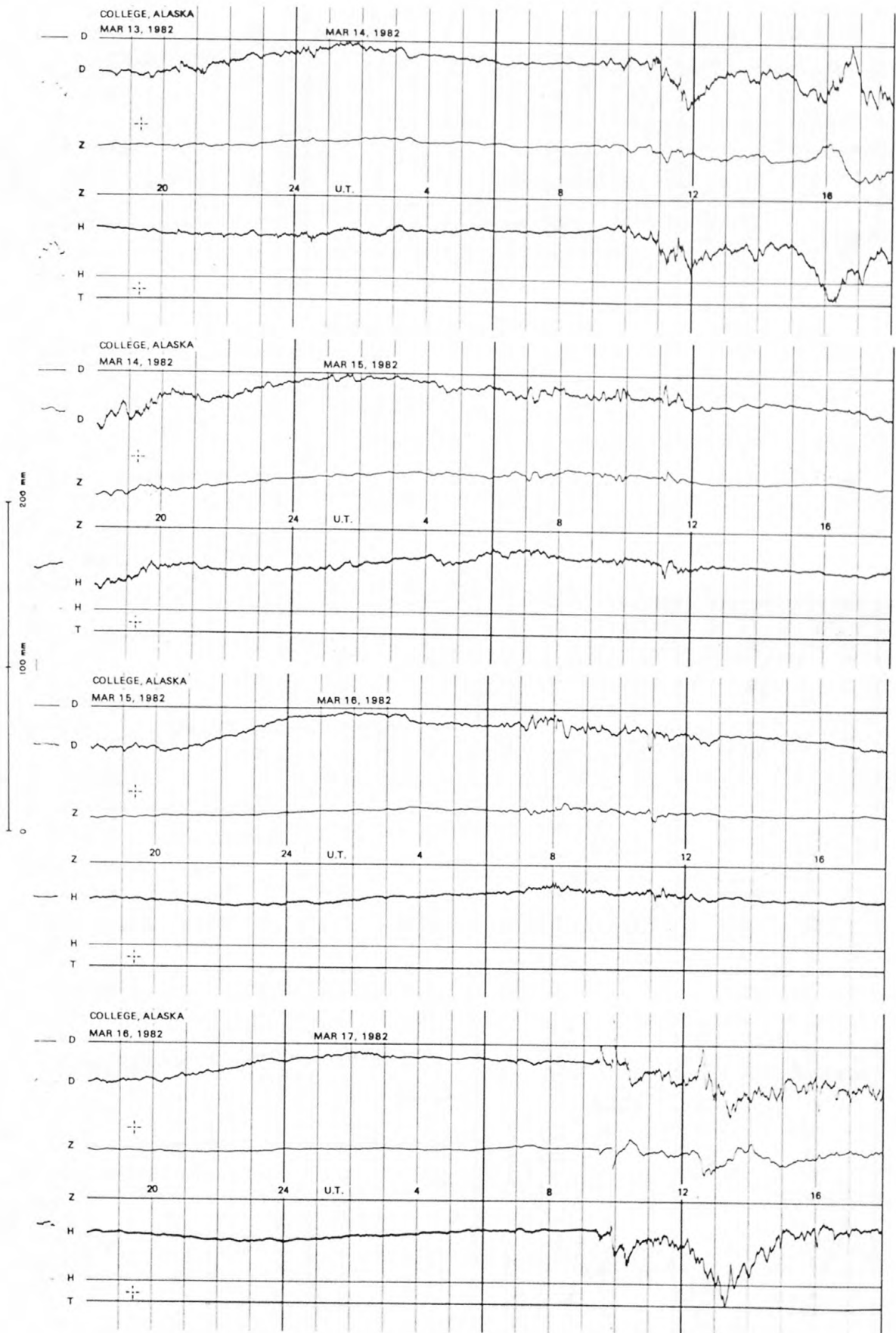
NORMAL MAGNETOGRAMS



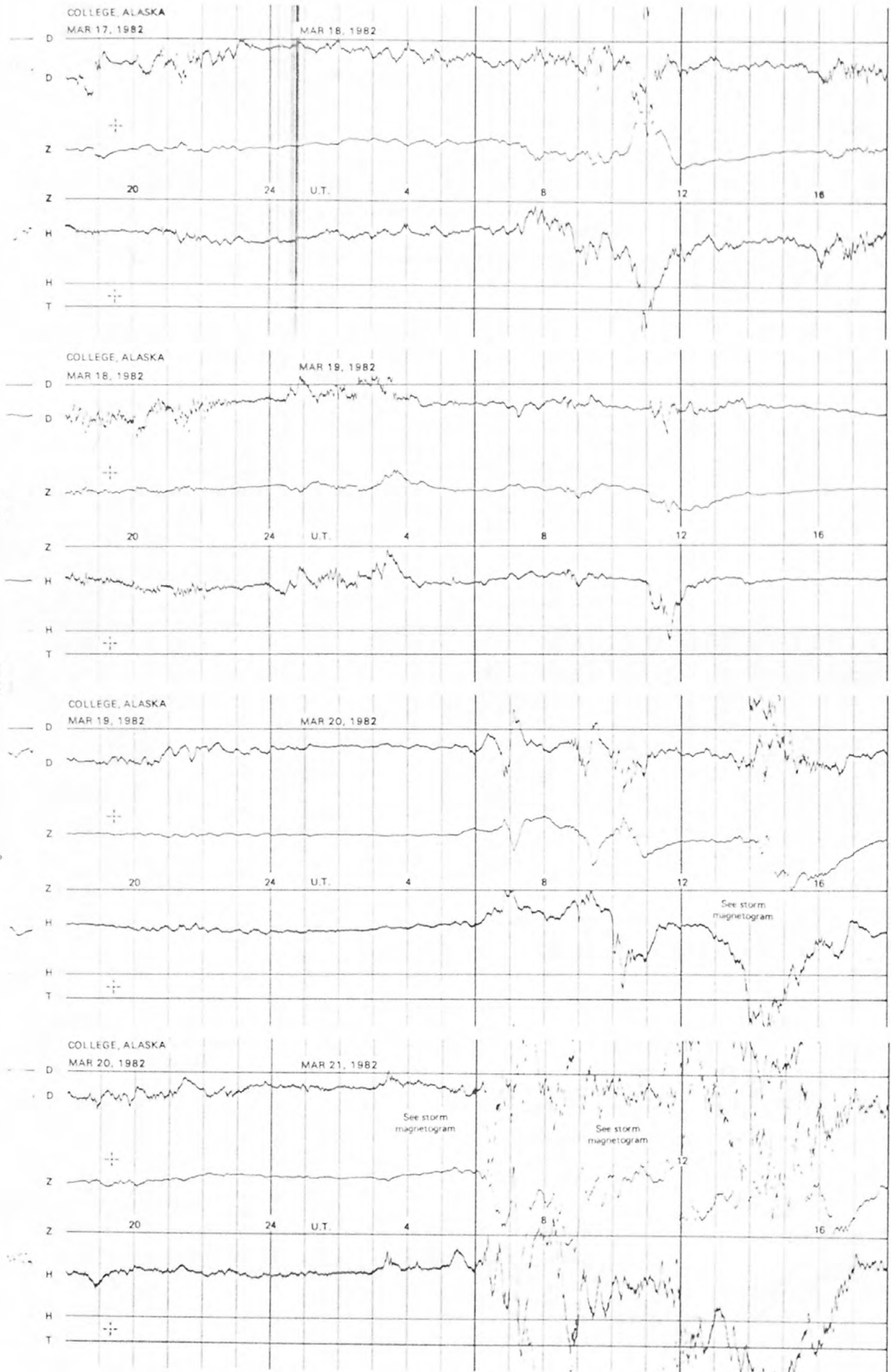
NORMAL MAGNETOGRAMS



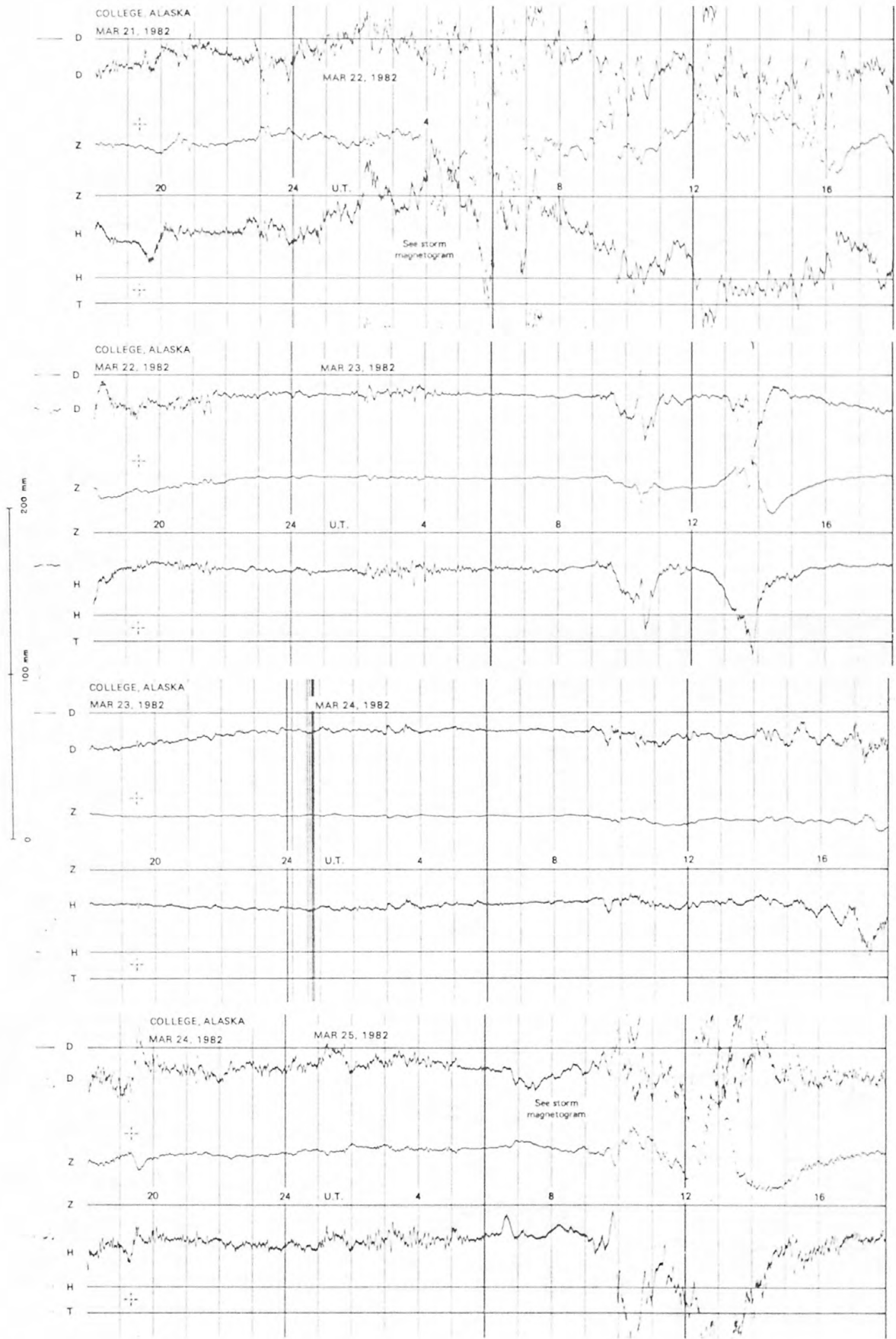
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



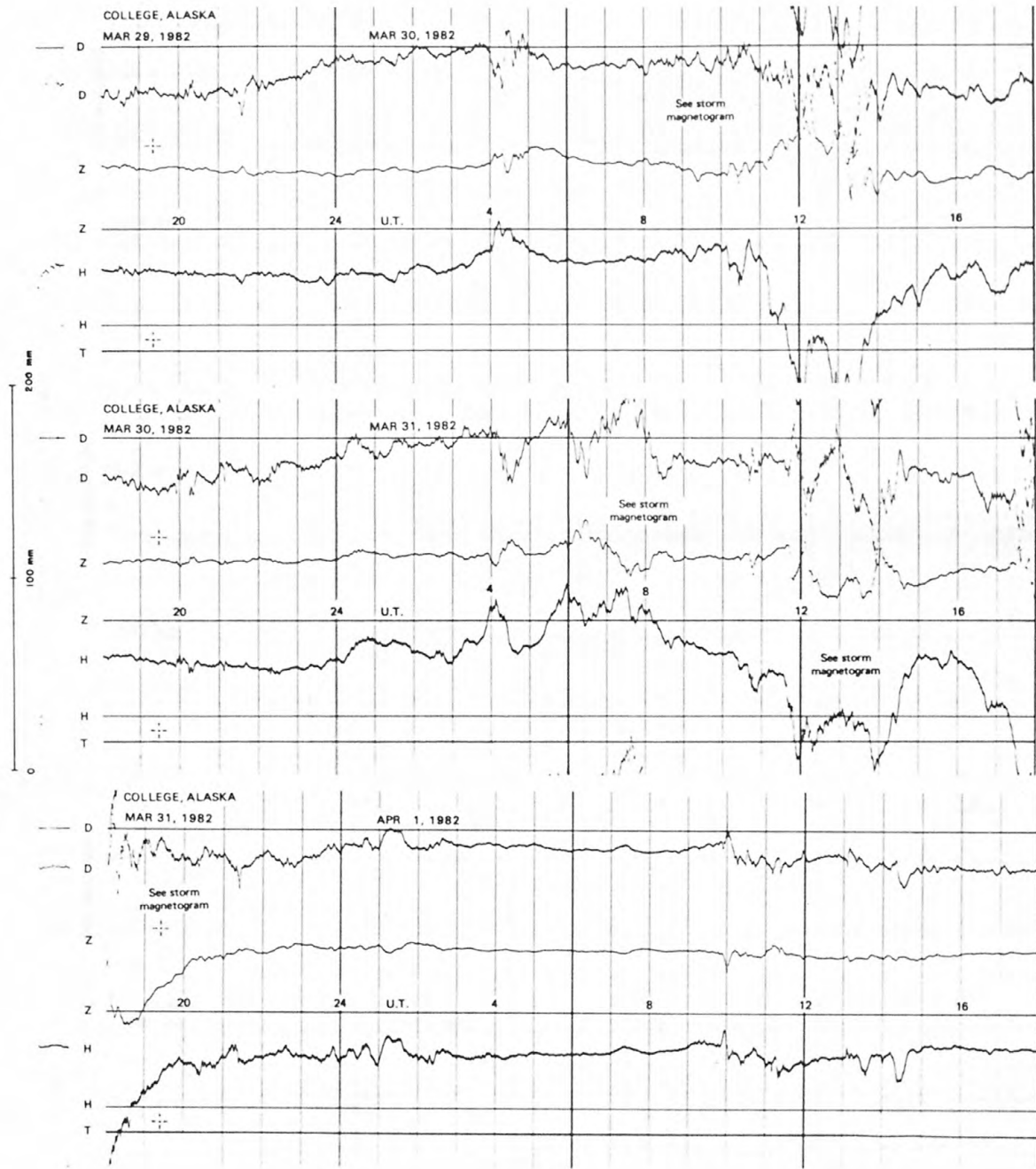
NORMAL MAGNETOGRAMS



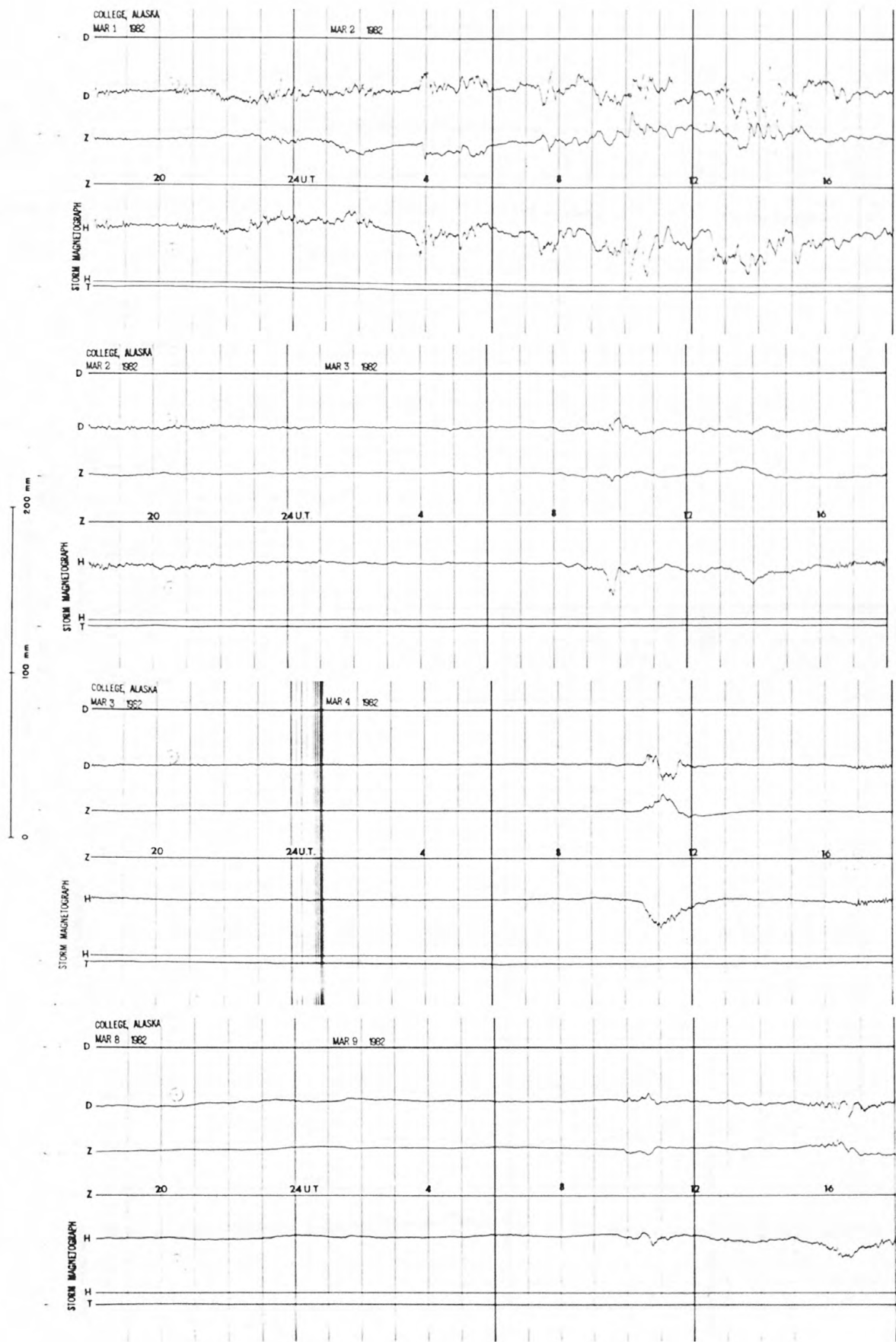
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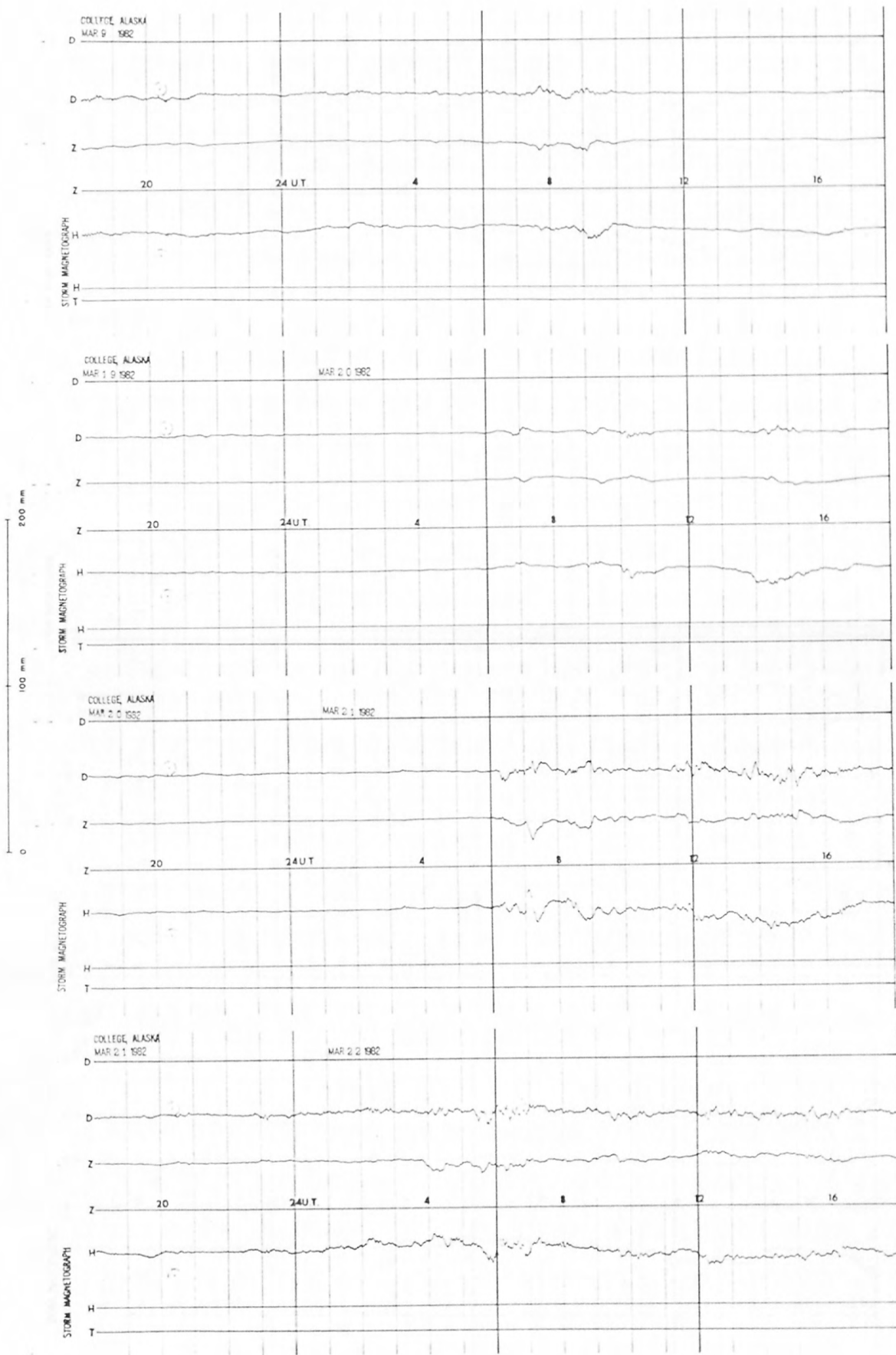
NORMAL MAGNETOGRAMS



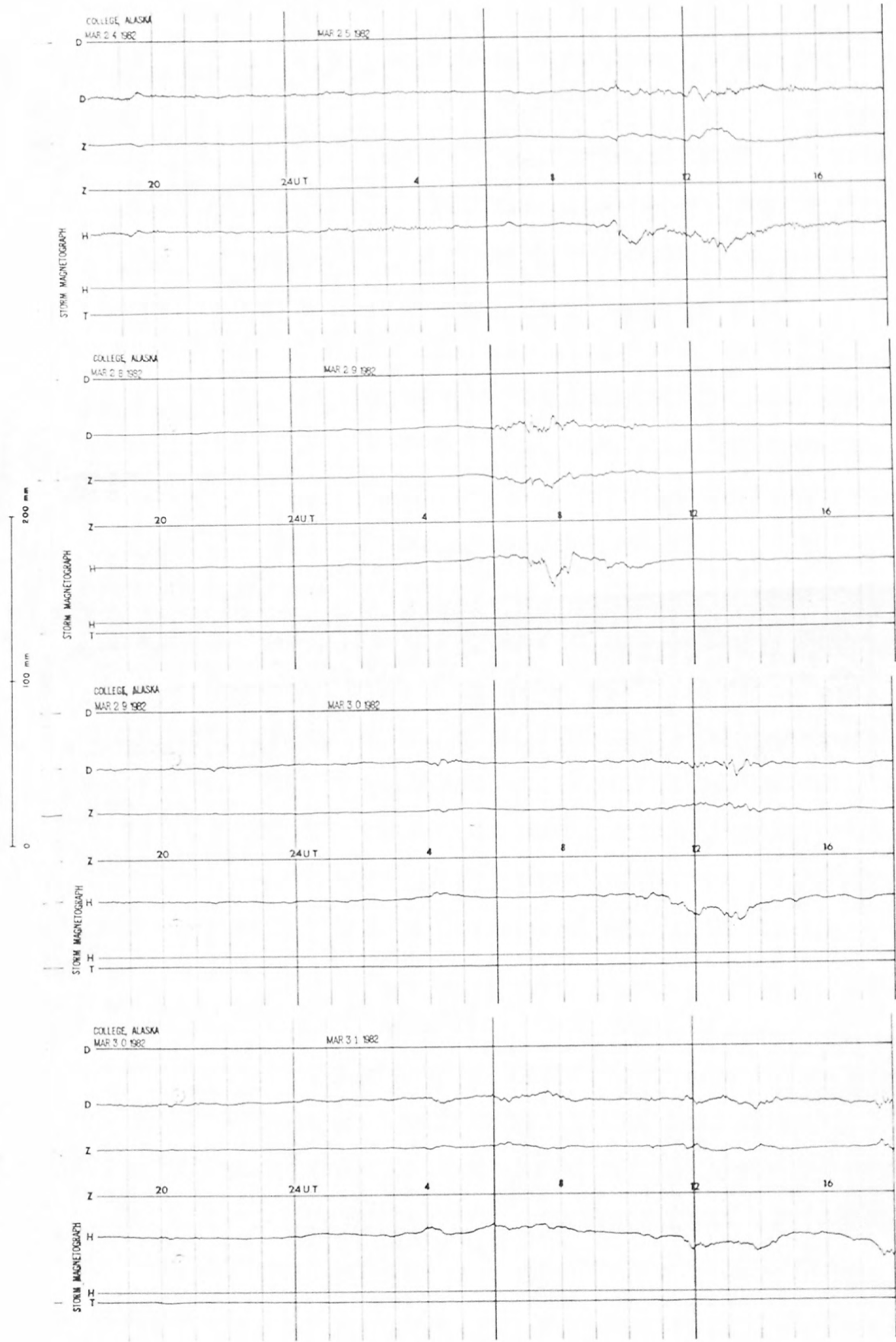
STORM MAGNETOGRAMS



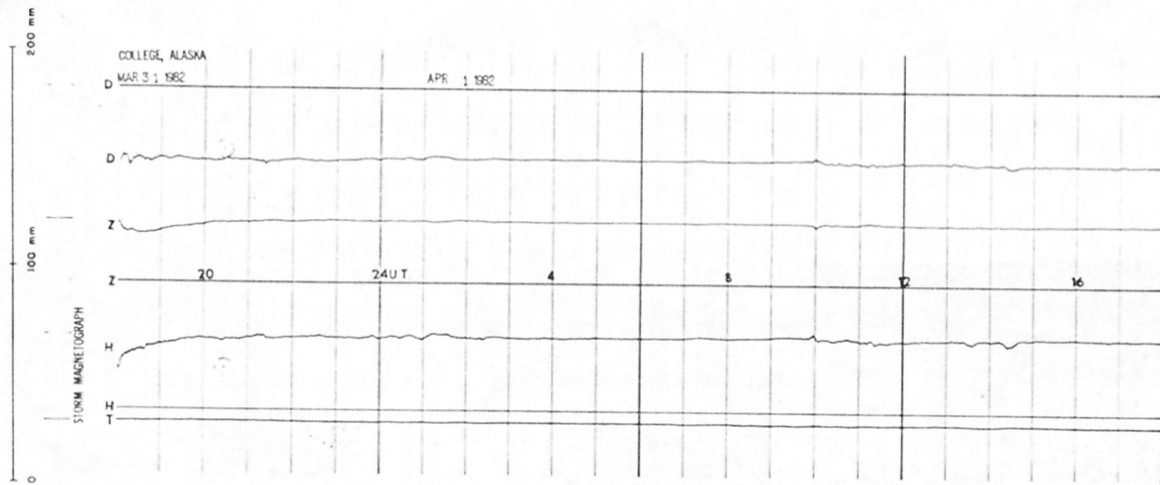
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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