

UNITED STATES DEPARTMENT OF THE INTERIOR

(200)
R290
no. 76-300B

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA

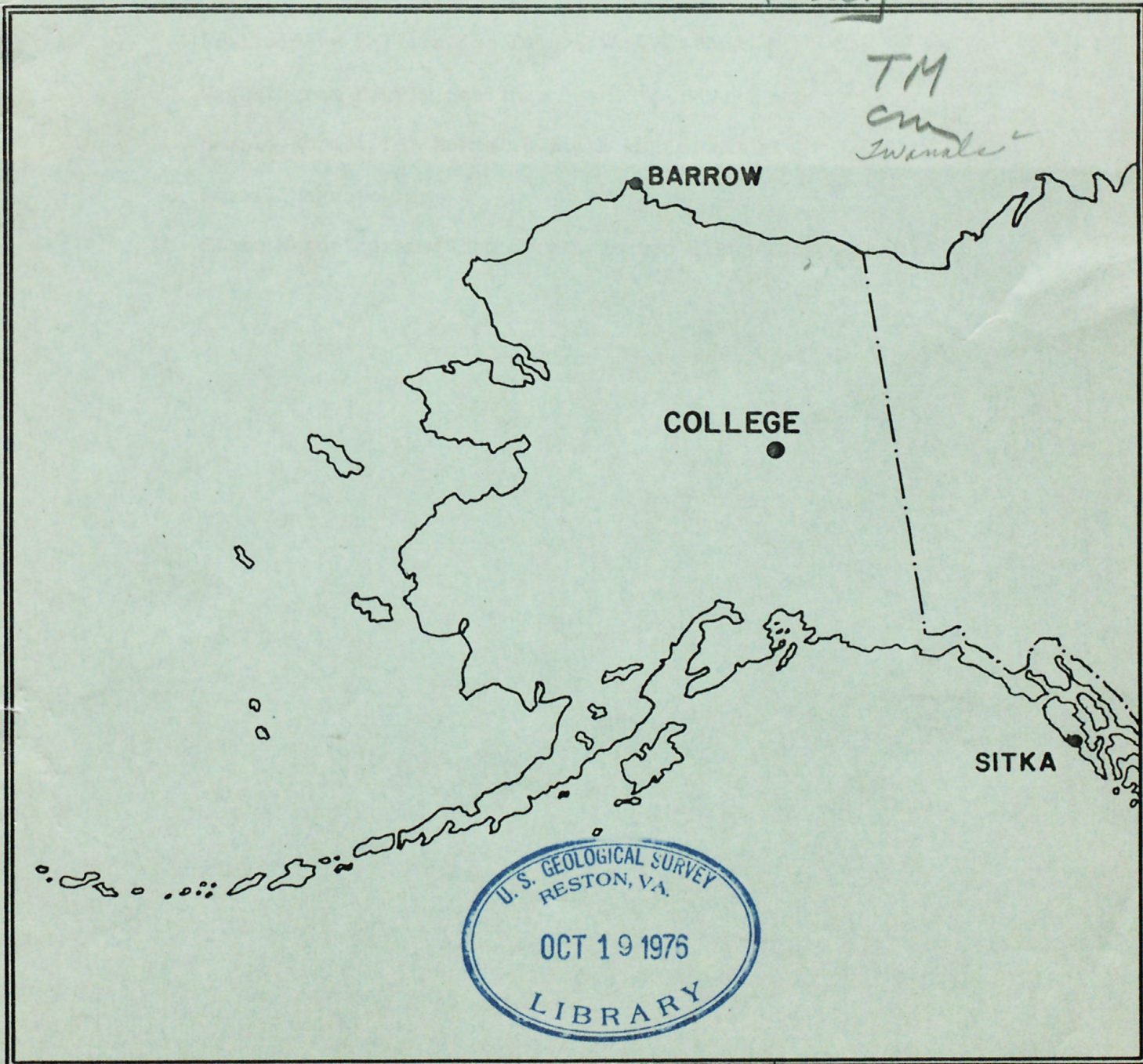
COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

U.S. Geological Survey, [Reports - series]

FEBRUARY 1976

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(200)

R290

no. 76-300B



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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, M. J. MOORMAN, C. E. DEADMON, 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.

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								OBSERVATORY COLLEGE, ALASKA				
MAGNETIC ACTIVITY (Greenwich civil time, counted from midnight to midnight)										MONTH AND YEAR FEBRUARY, 1976				
DATE	K-INDICES								SUM	WHOLE-DAY CHARACTER 0, 1, OR 2 C AK		TIME SCALE ON MAGNETOGRAMS 20 mm/hr		
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24				SUDDEN COMMENCEMENTS d h m		
1	3	2	3	5	6	4	5	3	31	1	32			
2	3	2	3	4	6	5	4	2	29	1	28			
3	3	2	5	6	4	2	2	2	26	1	25			
4	3	2	2	3	4	5	2	2	23	1	17			
5	2	1	1	3	4	4	1	2	18	1	12			
6	3	2	1	2	2	1	1	1	13	0	06			
7	0	1	1	7	6	5	5	3	28	1	42			
8	3	2	4	6	7	7	3	4	36	2	56			
9	3	3	3	6	6	4	3	4	32	1	34			
10	3	3	4	6	6	3	4	3	32	1	34			
11	2	1	3	6	4	3	2	3	24	1	21			
12	2	2	3	3	4	4	2	3	23	1	15			
13	3	3	2	3	6	4	3	3	27	1	24			
14	2	4	2	5	5	5	2	1	26	1	24			
15	1	0	2	3	4	4	2	0	16	1	11			
16	0	1	2	2	2	2	1	1	11	0	05			
17	0	0	2	5	2	3	4	2	18	1	14			
18	2	3	4	6	5	3	2	3	28	1	27			
19	2	2	6	6	6	5	4	3	34	1	43			
20	3	2	4	6	6	4	3	2	30	1	32	POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)		
21	2	2	2	5	4	3	3	2	23	1	17			
22	3	2	3	5	5	3	2	2	25	1	20			
23	1	0	1	3	3	1	0	0	09	0	05			
24	0	0	1	1	1	1	0	0	04	0	02	BEGIN END		
25	0	0	1	2	1	0	1	0	05	0	02	d h m d h m		
26	0	0	3	5	3	2	1	1	15	1	11			
27	2	2	3	5	7	7	5	4	35	2	54			
28	4	2	4	5	4	3	3	2	27	1	22			
29	4	5	4	4	3	3	3	3	29	1	24			
30														
31														
SUM										26				
K SCALE USED:				D	H	Z								
LOWER LIMIT FOR K = 9.....				683.8	321.7		(mm)							
CURRENT SCALE VALUE.....				3.76	7.82		(γ/mm)							
LOWER LIMIT FOR K = 9.....				2570	2520		(to nearest 10γ)							
SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.														
APPROVED <i>for John B. Townshend</i> JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY														
OBSERVER IN CHARGE														

OUTSTANDING MAGNETIC EFFECTS			OBSERVATORY COLLEGE, ALASKA	
			MONTH FEBRUARY	YEAR 1976
DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS	
04	113X	pi2		
04	23XX	pc4		
22	18XX	pc4		
24	083X	pi2	With small bays	
IDENTIFIED BY: MJM/JEP			VERIFIED BY: JBT	

1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pcl, pc2 - - - pc5, pg, pi 1, pi 2, sfe.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

WDC-A FOR SOLAR-TERRRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80303 U.S.A.

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA
FEBRUARY 1976

Obs. 2 letter IASA 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	07	09XX	..	..	..	..	07	4	7	265	1830	1310	10	21
								08	5,6	7						
		19	05XX	19	3,4,5	6	95	1320	510	20	20
									20	4,5	6					
		27	05XX	27	5,6	7	173	1490	1030	Mar.	01 19

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE	BASELINE	
D	0000 UT, 2-1-76	2400 UT, 2-29-76	1.0/mm	3.8 γ /mm	28° 07.2 E
H	0000 UT, 2-1-76	2400 UT, 2-15-76	7.8 γ /mm	12744 γ	
	0000 UT, 2-16-76	2400 UT, 2-29-76	7.8 γ /mm	12741 γ	
Z	0000 UT, 2-1-76	2400 UT, 2-15-76	7.6 γ /mm	55132 γ	
	0000 UT, 2-16-76	2400 UT, 2-29-76	7.6 γ /mm	55137 γ	

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE	BASELINE	
D	0000 UT, 2-1-76	2400 UT, 2-29-76	7.9/mm	29.8 γ /mm	24° 25.1 E
H	0000 UT, 2-1-76	2400 UT, 2-29-76	44.1 γ /mm	11470 γ	
Z	0000 UT, 2-1-76	2400 UT, 2-15-76	48.6 γ /mm	54013 γ	
	0000 UT, 2-16-76	2400 UT, 2-29-76	48.6 γ /mm	54004 γ	

RAPID RUN MAGNETOGRAPH				
COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 UT, 2-1-76	2400 UT, 2-29-76	0.3/mm	1.0 γ /mm
H	0000 UT, 2-1-76	2400 UT, 2-29-76	1.0 γ /mm	
Z	0000 UT, 2-1-76	2400 UT, 2-29-76	2.4 γ /mm	

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 24.5 E	13045 γ	55352 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: FEB. 5, 6, 12, 15, 16, 17, 23, 24, 25, 26

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.

C	Q or S	Ten's	Unit's	01	02	03	04	05	06	07	08	09	10	11	12	Nir. (30)	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
				01	129	157	124	130	131	152	161	162	266	8*	48*	134	01	121	345	74	188	212	237	251	124	133	149	145	172	3753	
				02	161	171	205	168	173	156	158	169	320	156	165	173	02	211	197	155	195	249	191	21	153	156	153	135	137	4128	
				03	140	126	163	152	142	137	187	242*	182	129	116	89	03	168	187	174	182	197	223	232	179	119	135	172	144	3917	
				04	149	159	168	159	177	175	178	219	223	204	199	188	04	200	234	390	224	235	241	224	179	185	152	128	130	4722	
				05	139	142	169	170	170	174	180	172	172	169	168	132	05	189	198	280	230	202	213	188	164	158	123	125	137	4164	
				06	139	143	138	138	159	163	149	183	205	217	169	172	06	203	180	190	172	195	218	187	189	179	163	121	107	4079	
				07	119	143	149	153	145	149	165	175	176	198	448*	862*	07	1139*	337*	234*	544*	465*	664*	362	306	153	128	119	119	7452	
				08	88	120	121	146	146	170	165	116	131	131*	318	306*	08	401*	275	364	378*	226*	187*	154	239	195	170	155	142	4844	
				09	136	146	129	165	154	219	221	158	176	171	179*	68*	09	226	315	255	315	185	221	203	207	186	132	151	147	4465	
				10	155	128	170	150	162	220	169	193	156	177	138	528*	10	211*	242	202	170	200	233	249	17	97	158	154	132	4411	
				11	133	144	165	164	165	178	174	154	251	194	176	91	11	164	153	167	156	201	212	213	198	190	178	85	122	4028	
				12	119	147	148	147	152	162	269	256	213	174	169	148	12	169	162	223	247	177	194	222	202	171	122	-80	35	3948	
				13	96	118	137	157	187	128	178	164	173	303	142	140	13	123	226	293	167	240	239	229	186	168	152	98	116	4160	
				14	119	135	138	145	235	163	170	175	218	232	170	165	14	139	267	377	252	158	195	218	203	163	154	145	142	4478	
				15	150	161	170	173	175	162	174	180	160	170	187	144	15	191	204	188	227	209	219	194	185	165	162	159	153	4262	
				16	153	151	150	142	143	142	146	134	156	165	164	156	16	188	178	193	194	191	236	217	175	189	168	145	138	4014	
				17	131	147	160	161	166	159	175	181	161	105	122	188	17	198	175	198	183	173	170	38	104	143	193	150	115	3696	
				18	72	108	143	159	164	168	170	154	191	-20*	162	154	18	227	236	170	163	172	178	173	168	153	120	122	135	3642	
				19	154	156	143	168	159	198	288	157	122*	104	148	155	19	284	241*	305	203	323	216	129	178	159	128	119	108	4345	
				20	138	120	155	163	178	156	178	407	306	211	201	194*	20	345	254	171	180	186	188	130	151	135	84	55	103	4389	
				21	152	136	156	141	159	169	195	183	170	308	249*	196	21	205	161	198	204	211	217	119	98	120	133	113	143	4136	
				22	130	169	170	169	167	168	169	168	201	281	119	165	22	204	183	195	197	198	170	190	180	163	155	154	162	4227	
				23	163	163	169	170	169	169	179	185	163	188	112	159	23	126	220	210	190	204	203	192	186	173	172	169	169	4203	
				24	170	175	170	173	172	173	170	168	181	179	157	158	24	179	174	178	182	199	182	209	204	183	163	153	153	4205	
				25	161	163	164	160	173	168	164	168	185	183	195	219	25	182	182	180	184	195	196	196	190	176	163	161	158	4266	
				26	151	146	162	163	172	169	179	160	232	190	181	341	26	183	208	205	224	261	255	269	194	196	162	123	121	4647	
				27	121	111	112	161	150	96	134	162	136	181	165	144	27	349	270	540	567*	313*	294	293	207	147	149	134	108	5038	
				28	138	120	140	183	165	163	233	229	138	153	119	175	28	226	193	118	198	259	80	208	169	100	145	104	124	3880	
				29	93	86	143	63	185	35*	213	191	67*	198	171	194	29	195	193	212	245	340	274	286	192	183	129	168	102	4158	
				30													30														
				31													31														

SCALED BY: SPT, CED, MIM
 CHECKED BY: CED, MIM, 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 Mgh., converted to Normal Mgh.

MONTHLY SUM	125657
MONTHLY MEAN	181
DATES WITH GAPS:	

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY. YEAR MONTH ELEMENT
CO 76 FEB H

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	Q	S	Fr	Q	U	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	404	413	383	421	427	424	413	432	433	261	232	242	01	117	-209*	241	410	403	305	229	390	369	379	371	401	7891	
						02	436	423	430	389	413	410	423	483	491	441	406	281	02	14*	28	319	353	199	0	278	404	400	395	397	384	8197	
						03	392	386	431	404	432	434	510	497	608*	571	263*	71*	03	373	294	238	397	400	387	345	353	351	366	390	391	9263	
						04	388	419	371	406	416	402	403	398	405	425	391	387	04	224	201	130	284	425	410	409	379	388	391	376	372	8749	
						05	392	400	401	396	401	392	392	399	396	396	394	379	05	376	346	254	344	418	394	401	392	316	362	371	358	9130	
						06	377	399	408	398	415	409	408	400	398	402	399	380	06	333	341	344	386	395	375	379	398	381	360	354	364	9203	
						07	370	383	386	396	394	391	403	402	404	444	303*	-659*	07	-614*	-342*	-99*	-81	58	58	302	442	481	407	350	405	4984	
						08	401	382	405	424	417	420	485	522	405	258*	151	65*	08	-495*	13	14	-274*	-614*	14*	444	452	372	459	421	350	5521	
						09	407	385	443	441	474	434	454	439	457	462	359*	190*	09	344	-9*	-31*	255	424	403	416	390	345	372	404	368	8626	
						10	372	435	387	438	434	427	421	440	380	412	242	-87*	10	-127*	-20	340	434	401	338	257	246	347	400	381	406	7704	
						11	404	413	413	405	403	408	419	424	504	559	207	312	11	296	311	355	374	398	401	402	382	382	377	331	404	9284	
						12	392	411	409	400	406	425	430	431	418	411	401	399	12	316	415	375	315	292	368	381	386	380	309	312	398	9180	
						13	402	450	405	410	419	412	402	406	429	429	449	465	13	397	297	-105*	291	399	412	363	374	365	339	425	400	9035	
						14	393	416	403	486	493	410	412	404	412	395	373	145	14	122	236	-71	0	325	421	-119	402	401	400	397	400	8336	
						15	396	401	401	401	402	410	419	434	442	414	382	353	15	361	243	150	302	388	400	394	402	392	391	387	388	9053	
						16	383	396	402	402	407	401	412	431	467	466	422	429	16	409	412	392	332	331	380	399	394	398	387	385	382	9625	
						17	387	393	402	402	401	401	401	410	432	280	316	384	17	405	423	409	411	412	356	215	404	402	400	400	379	9225	
						18	381	412	438	445	448	462	482	509	419	39*	244	287	18	154	-85	122	358	401	410	389	400	404	364	380	392	8249	
						19	386	393	390	407	424	431	461	474	409	393	70	313	19	-210*	-487*	-18*	414	222	275	342	405	382	349	358	377	6960	
						20	410	420	418	429	419	425	415	460	423	414	383	-222*	20	-29*	156	235	337	364	310	380	379	390	377	365	395	8053	
						21	400	412	385	403	420	433	429	417	402	390	141	254	21	238	372	387	409	383	305	306	332	379	407	385	397	8796	
						22	413	404	406	404	404	401	407	402	447	409	446	270	22	233	409	375	334	337	372	393	387	398	402	395	385	9233	
						23	383	387	399	397	396	400	386	406	405	413	383	341	23	327	365	392	386	401	401	400	397	400	397	397	396	9355	
						24	395	392	397	400	400	402	399	399	393	395	404	392	24	397	389	392	389	396	395	399	401	402	400	397	393	9518	
						25	336	397	399	400	402	401	402	402	413	411	414	374	25	394	405	406	405	402	390	392	392	393	396	399	402	9587	
						26	408	410	412	413	414	412	409	416	465	444	380	153	26	343	390	400	392	400	409	403	410	392	375	358	378	9386	
						27	373	412	423	423	442	470	504	574	564	441	184	415	27	152	236	-301*	-663*	-13*	298	238	349	409	397	351	437	7055	
						28	424	409	449	428	409	411	474	477	459	458	348	130	28	75	76	166	279	215	247	361	322	343	365	371	364	8050	
						29	383	462	565	643	579*	559*	609*	637*	717*	581*	401	340	29	345	375	355	348	317	398	283	323	338	339	379	393	10629	
						30													30														
						31													31														

SCALED BY SPT, CED, MDM
 CHECKED BY CED, MDM, JEP
 SIGNS REVIEWED BY MDM
 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.
 * Derived from Storm Mghp., converted to Normal Mghp.
 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 247,867
 MONTHLY MEAN 356
 DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY. YEAR MONTH ELEMENT
CO 76 FEB 3

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, (Hour 0) 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.

Corr	Q	Temp	Time	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	323	326	322	341	343	343	323	332	342	28	171	404	01	276	374	154	243	282	252	201	246	254	284	300	320	6784	
			02	319	350	331	318	321	314	319	352	316	269	301	284	02	282	177	181	262	276	125	149	235	257	281	288	301	6608	
			03	305	309	332	318	314	319	347	182	221*	157	311	237	03	245	266	231	251	292	294	285	250	235	245	292	302	6542	
			04	325	343	318	310	311	318	311	343	318	268	305	300	04	233	120	154	167	193	280	282	263	259	297	310	299	6627	
			05	306	310	309	307	309	312	312	314	326	309	268	252	05	271	275	311	270	264	293	295	294	301	290	312	315	7123	
			06	326	326	324	328	341	332	333	343	335	278	297	303	06	284	232	220	261	287	294	291	290	289	288	290	301	7195	
			07	309	317	313	311	319	328	333	321	332	347	152*	89*	07	762*	667*	476*	349*	380*	127*	39	173	260	291	281	285	7383	
			08	301	303	311	303	314	322	336	201	218	374*	314	438*	08	597*	216	384	565*	285*	19	171	299	296	343	317	313	7540	
			09	333	341	344	327	356	335	356	311	344	360	285*	18*	09	247	350	179	67	227	280	281	282	277	311	322	334	6867	
			10	339	321	325	324	320	361	324	248	173	250	185	209*	10	275	96	187	274	284	258	204	172	192	252	272	281	6126	
			11	291	298	301	300	309	312	311	331	332	341	290	269	11	300	308	279	291	291	294	289	281	274	282	268	290	7132	
			12	301	306	316	314	313	324	353	338	271	305	297	234	12	206	256	282	270	212	251	246	263	272	270	224	254	6678	
			13	330	353	351	327	351	329	333	306	328	301	203	311	13	312	307	170	145	236	267	280	251	251	283	291	309	6925	
			14	294	314	311	369	379	333	325	321	307	214	238	179	14	49	184	265	121	169	272	287	284	275	291	292	293	6366	
			15	300	301	302	297	297	299	318	333	338	319	273	205	15	236	238	153	168	262	270	278	292	290	296	298	302	6665	
			16	304	305	304	304	303	312	311	335	354	360	327	312	16	301	293	281	211	179	199	252	271	295	294	295	295	6997	
			17	297	298	296	297	299	301	322	337	331	279	177	263	17	262	291	296	290	281	261	116	126	212	262	273	293	6460	
			18	298	319	333	345	357	349	335	295	241	192*	165	173	18	274	286	157	221	232	261	269	271	274	281	295	309	6592	
			19	311	305	314	311	308	370	330	231	161*	154	268	192	19	363*	222	146	164	198	260	219	263	291	313	318	302	6314	
			20	301	319	323	341	328	320	327	350	238	286	270	304	20	175	190	220	240	245	195	241	238	257	276	271	292	6487	
			21	304	311	313	314	321	324	352	325	302	314	230*	173	21	284	250	257	279	282	222	186	177	213	262	269	285	6549	
			22	305	310	321	312	304	298	300	311	305	250	277	255	22	157	252	274	265	253	273	273	273	280	290	299	307	6744	
			23	305	305	302	300	295	299	311	312	305	260	243	251	23	173	208	250	264	265	281	284	284	285	284	288	293	6647	
			24	295	294	291	291	290	291	290	291	299	299	290	266	24	282	283	271	267	270	278	278	277	276	276	281	286	6812	
			25	291	293	293	292	292	291	297	314	328	297	281	240	25	229	268	284	286	285	284	281	274	267	269	278	284	6798	
			26	286	285	288	287	290	295	311	311	316	266	304	181	26	150	248	245	253	272	277	274	284	284	277	281	300	6565	
			27	292	303	318	328	308	340	383	357	264	279	494	359	27	304	273	796*	541*	-37*	76	182	246	256	312	300	332	7606	
			28	333	311	327	334	320	316	326	213	243	334	331	292	28	139	236	212	214	244	212	218	240	224	270	326	331	6546	
			29	322	370	366	263*	-10*	-75*	-4*	34*	52*	218*	295	285	29	303	288	277	269	266	251	243	208	216	236	296	324	5293	
			30													30														
			31													31														

SCALED BY SPT, CED, MIM
CHECKED BY CED, MIM, JEP
SIGNS REVIEWED BY MIM
PUNCHED BY

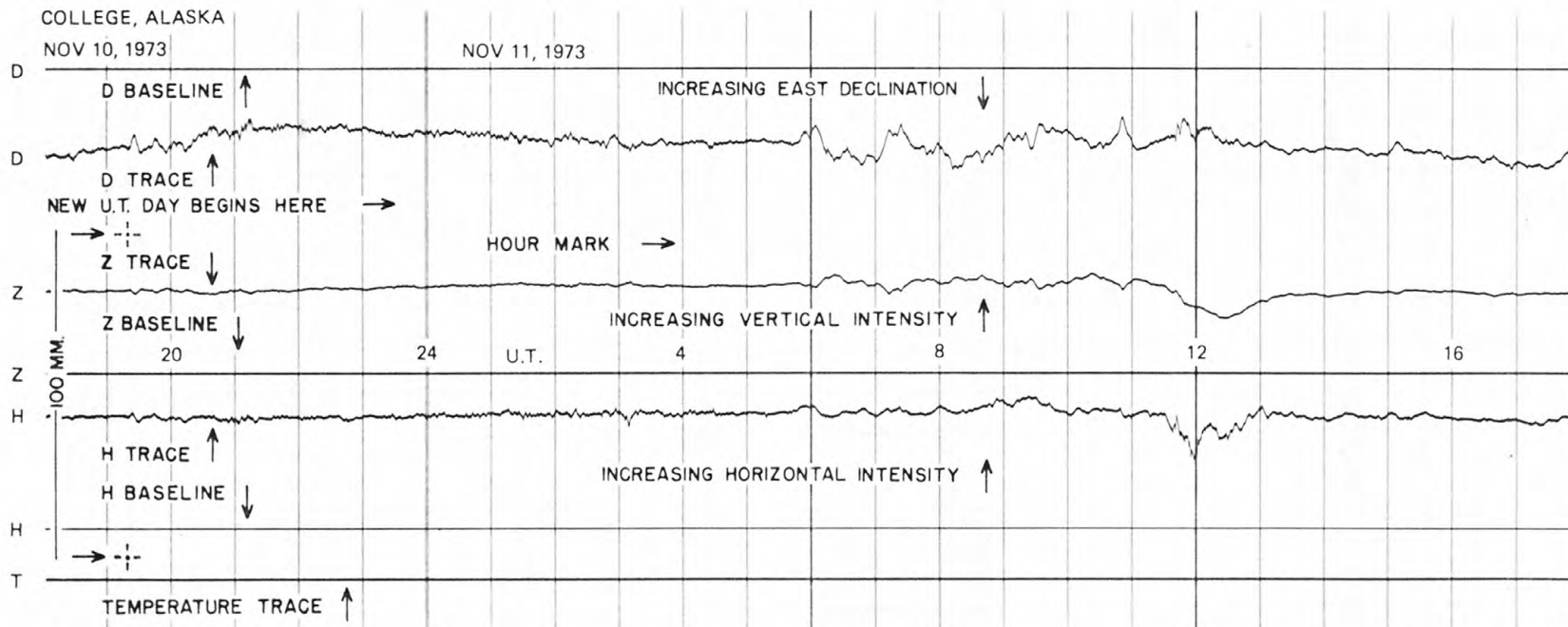
Preliminary base-line and scale values:
Interval Beginning Base-line Value Scale Value

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

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 194911
MONTHLY MEAN 280
DATES WITH GAPS

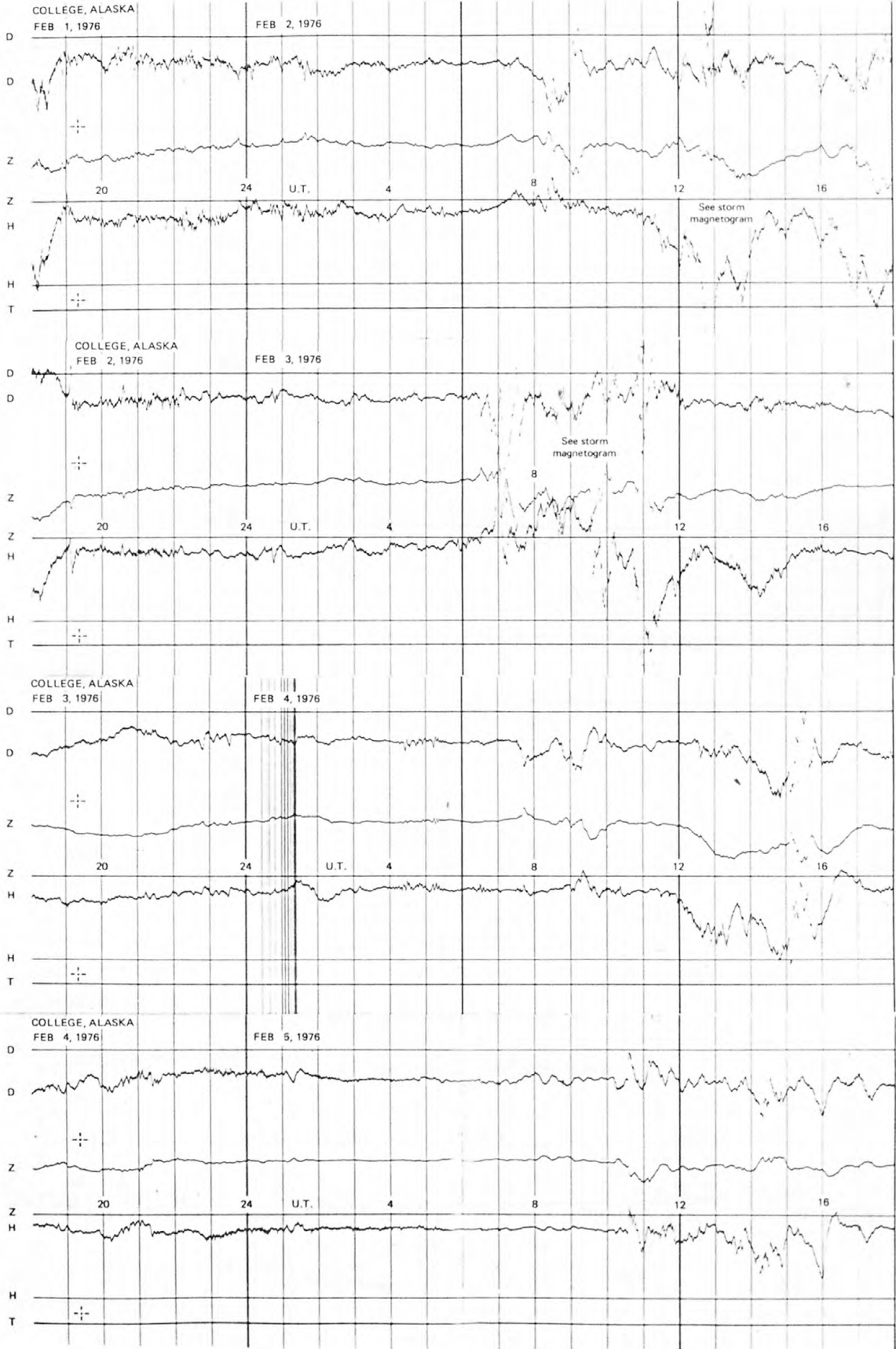
FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)



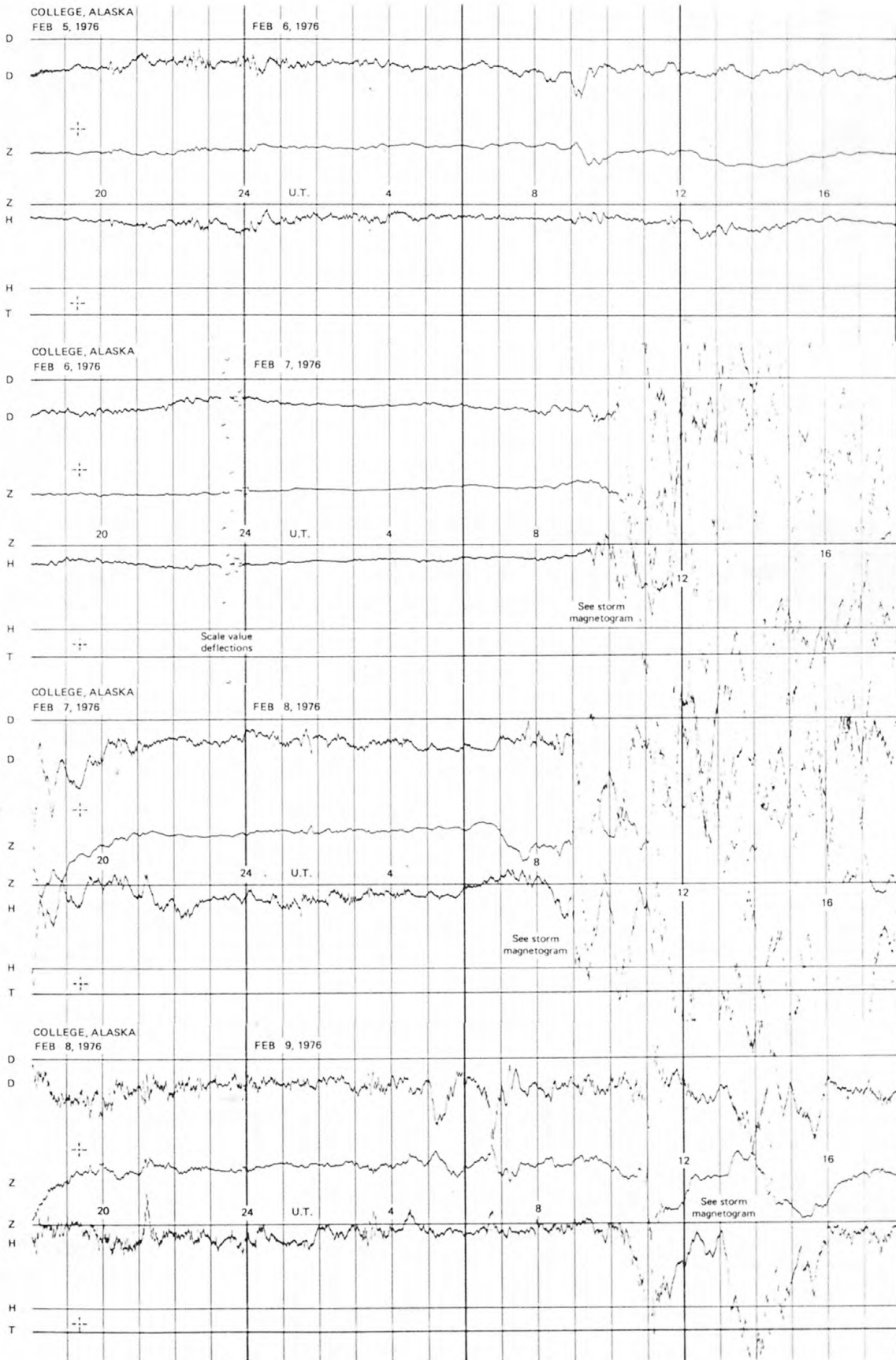
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

200 mm
100 mm
0

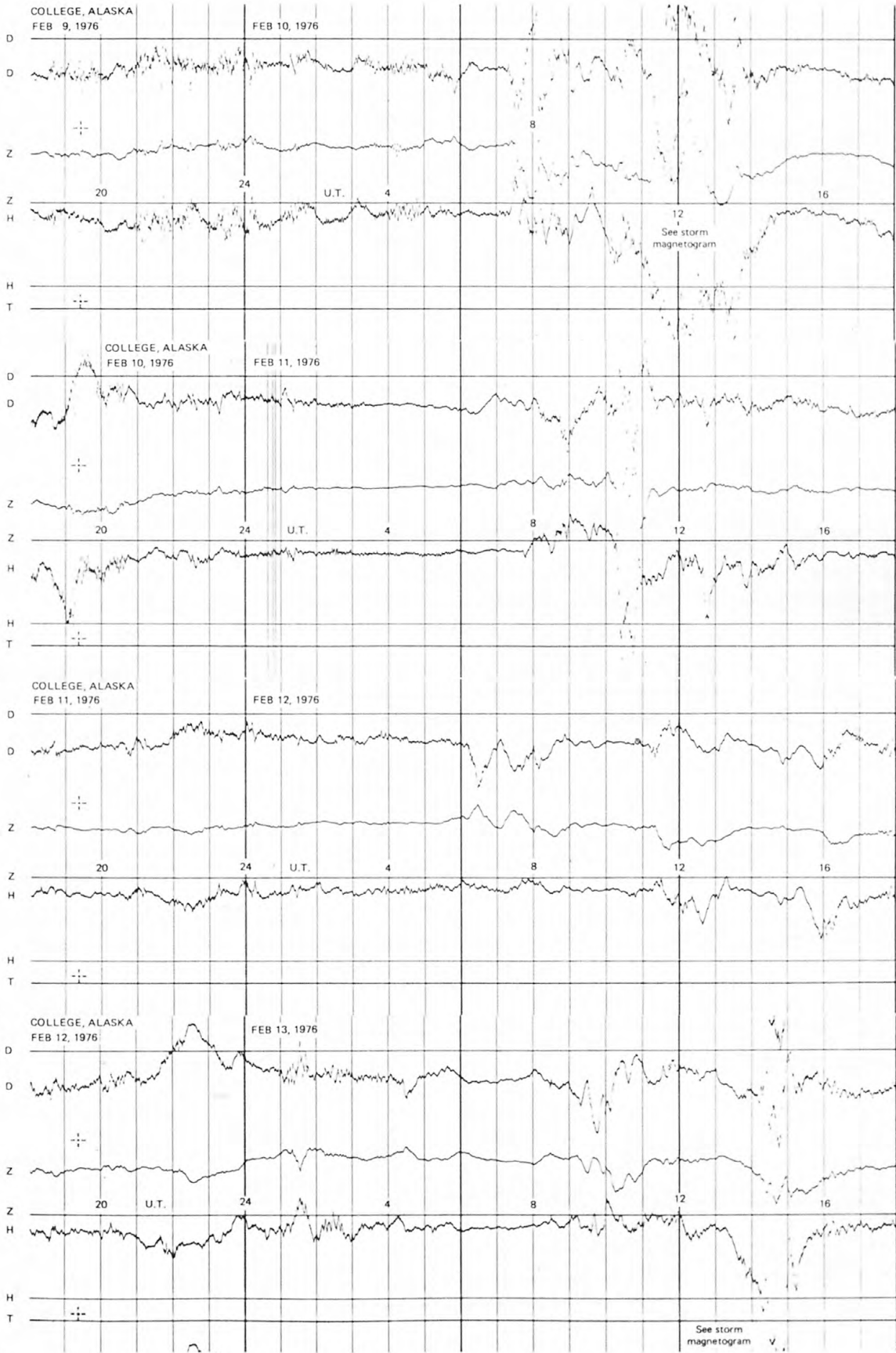


NORMAL MAGNETOGRAMS



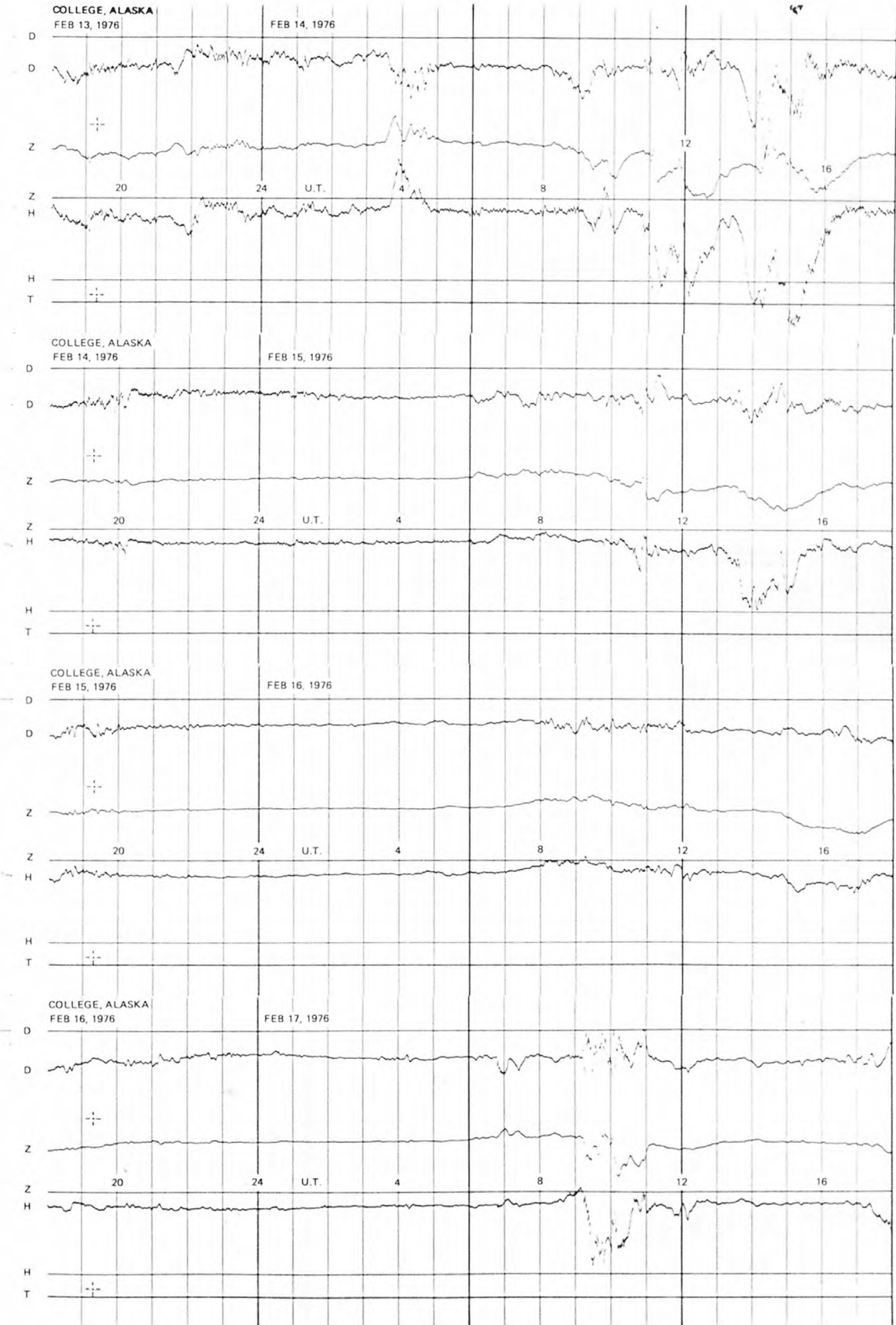
NORMAL MAGNETOGRAMS

200 mm
100 mm
0

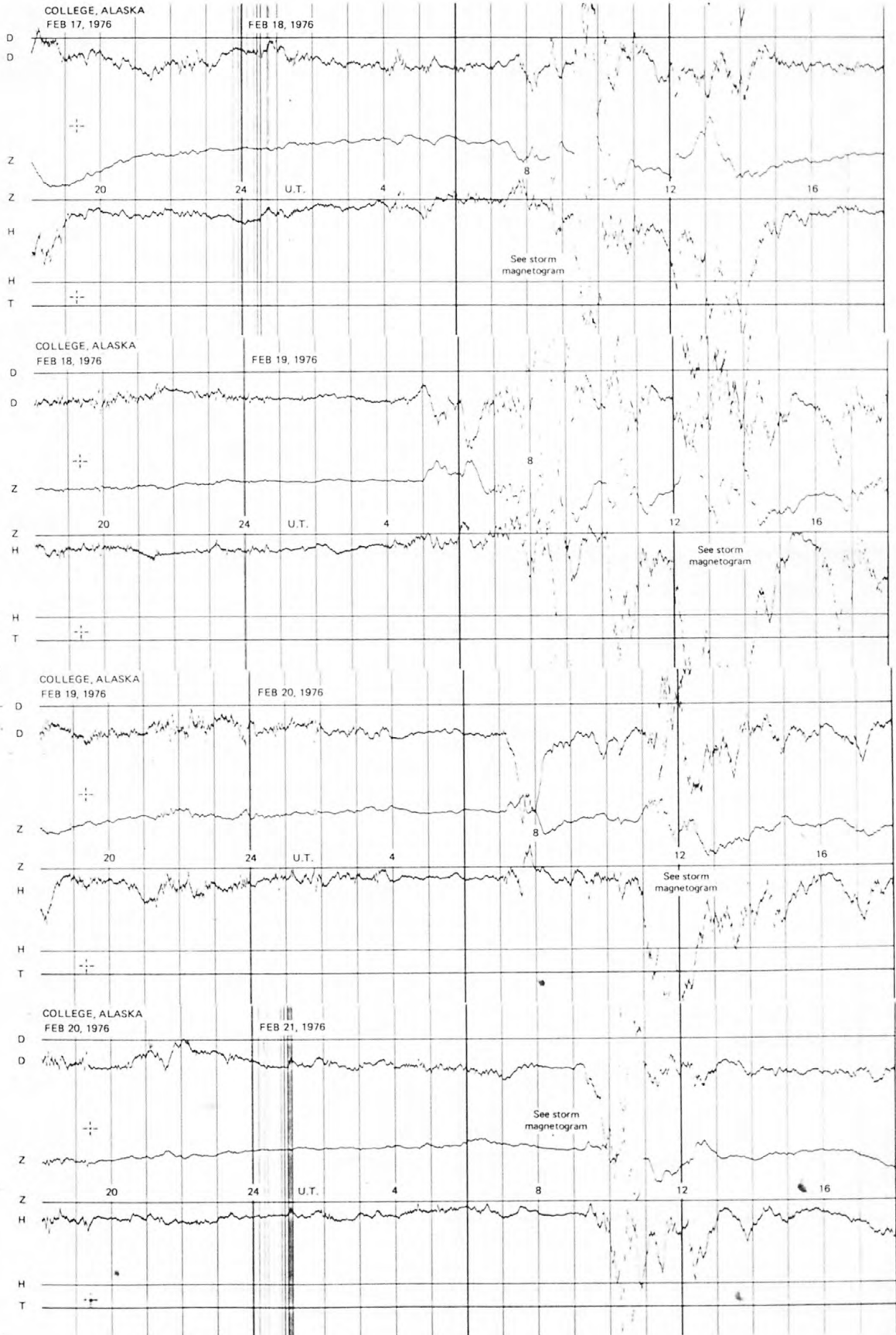


NORMAL MAGNETOGRAMS

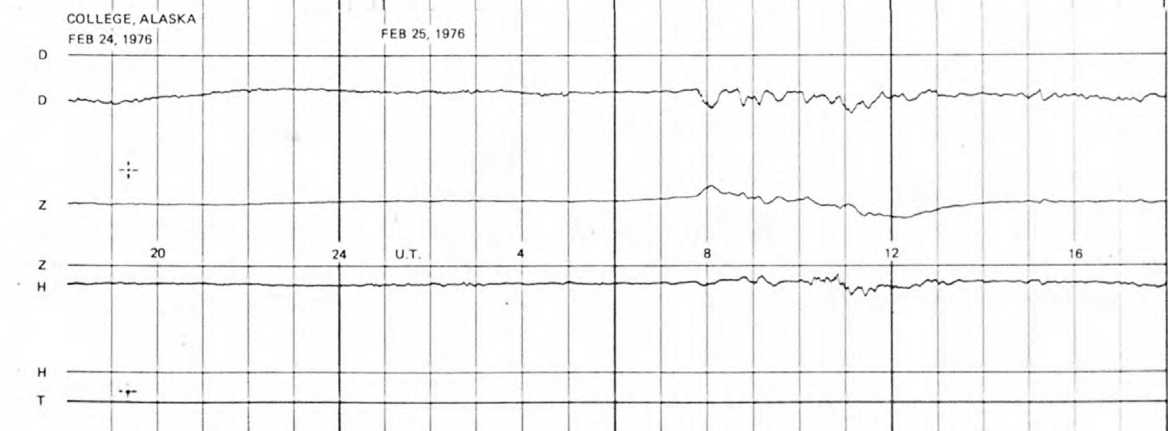
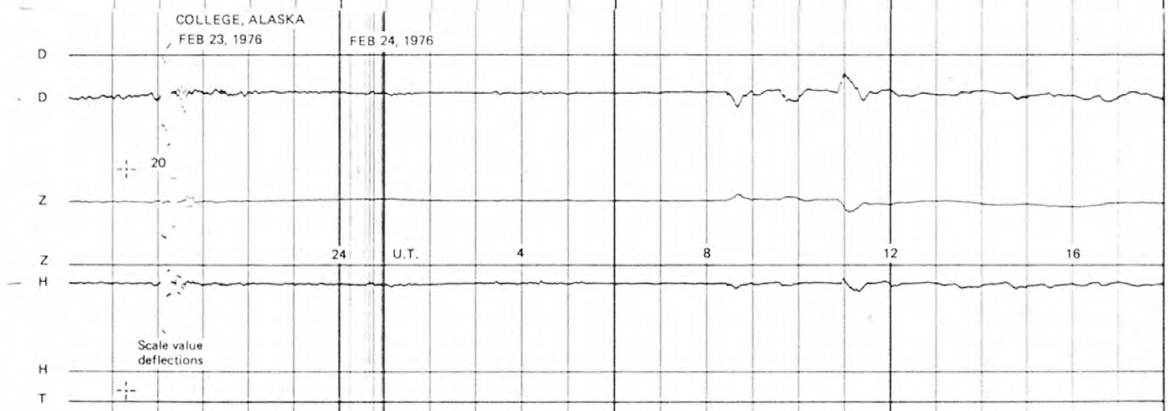
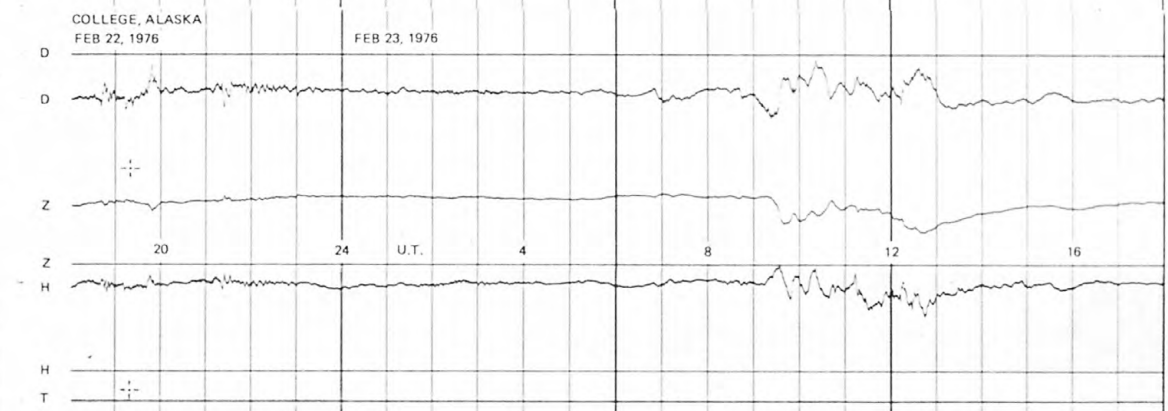
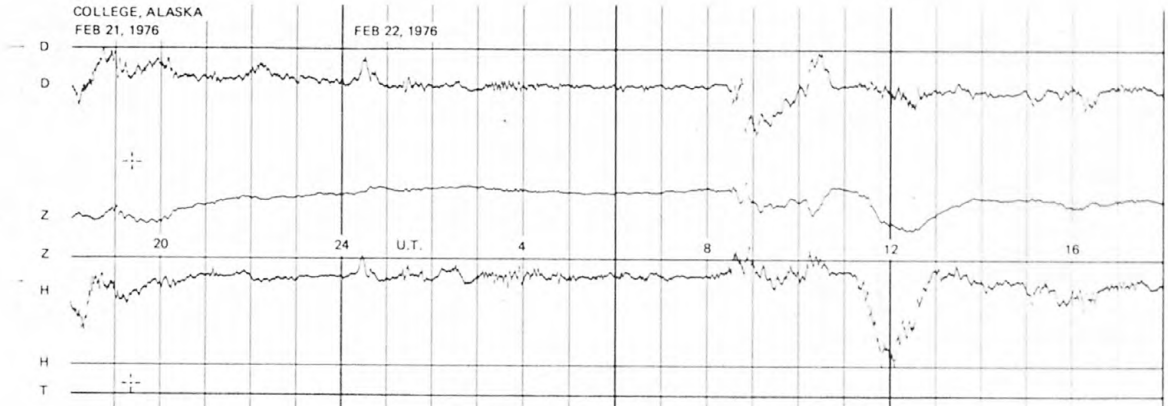
200 mm
100 mm
0



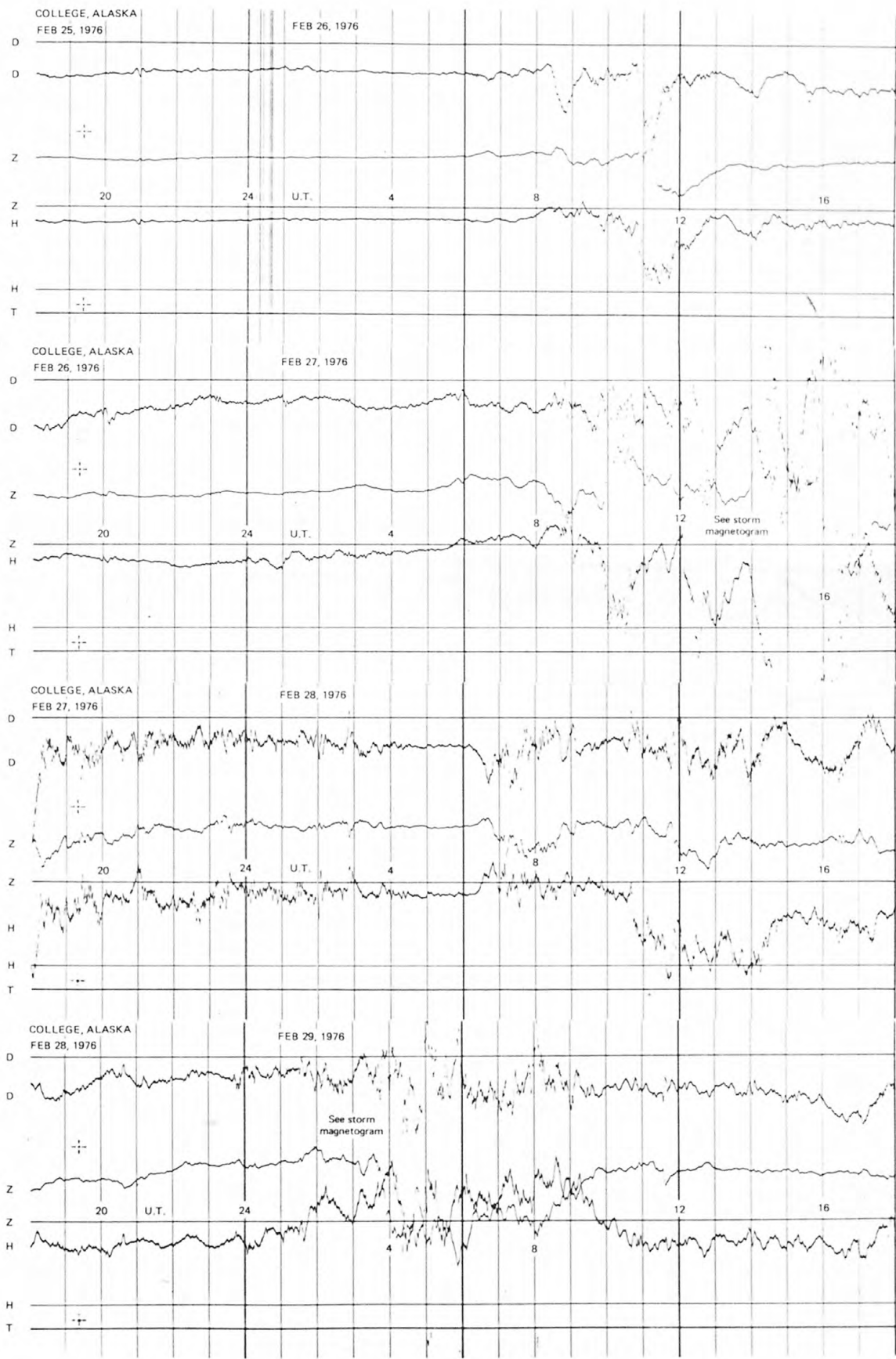
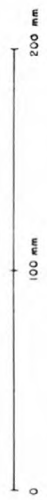
NORMAL MAGNETOGRAMS



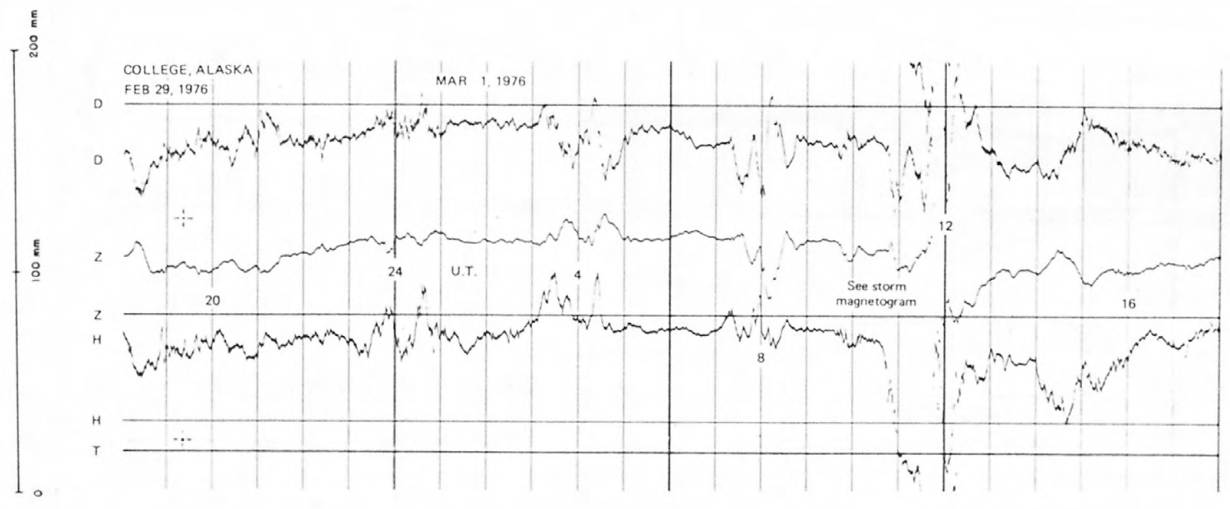
NORMAL MAGNETOGRAMS



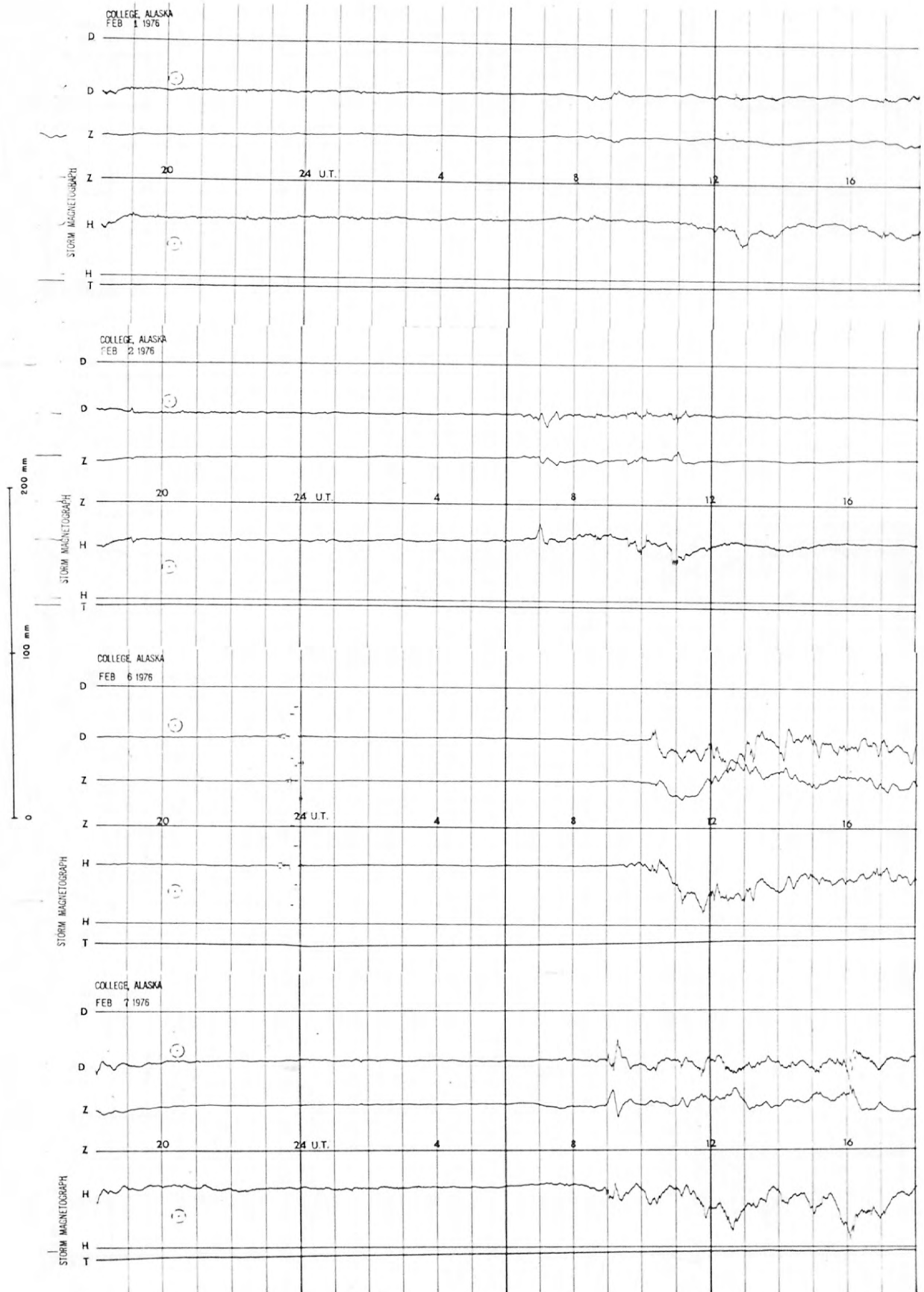
NORMAL MAGNETOGRAMS



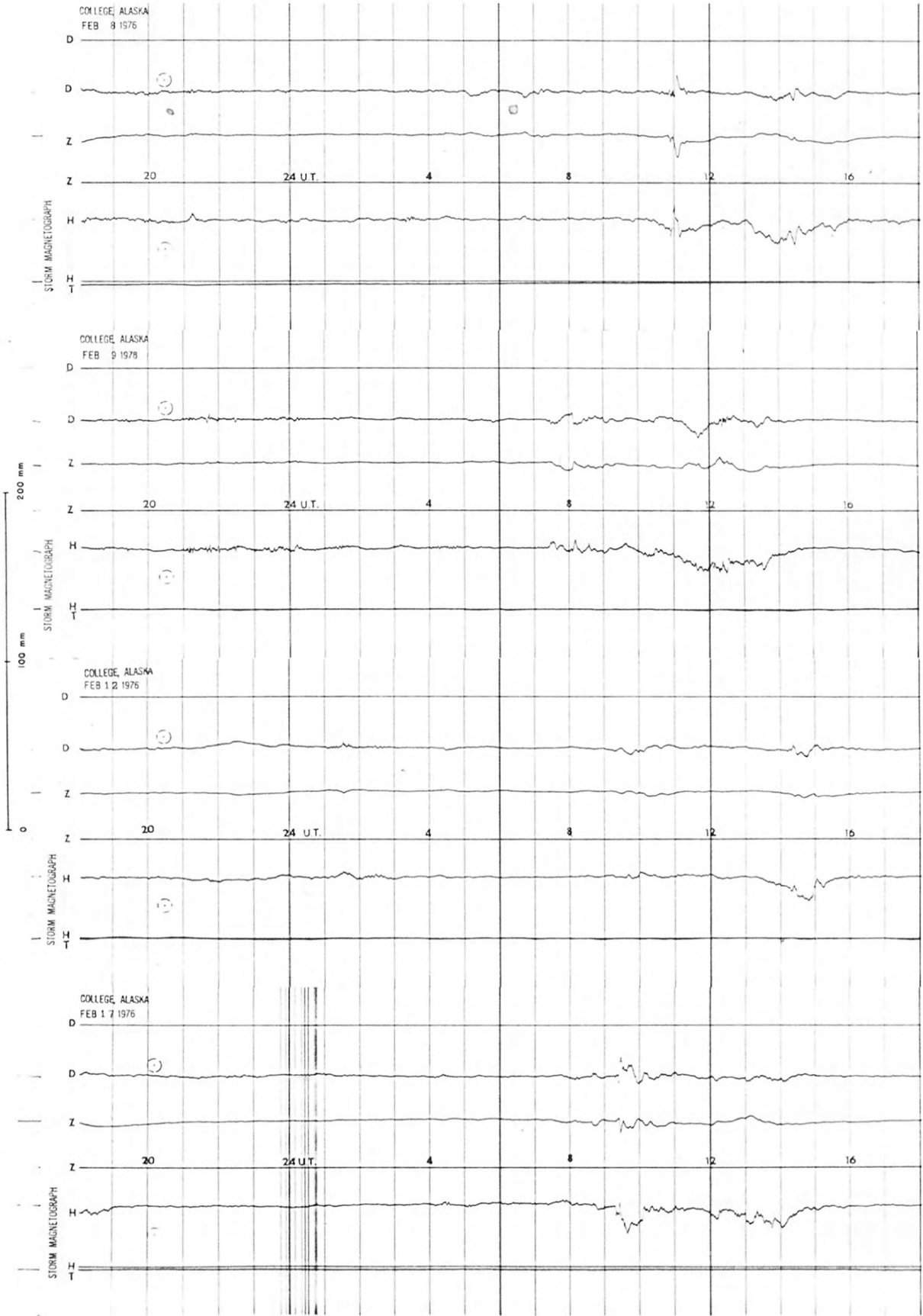
NORMAL MAGNETOGRAMS



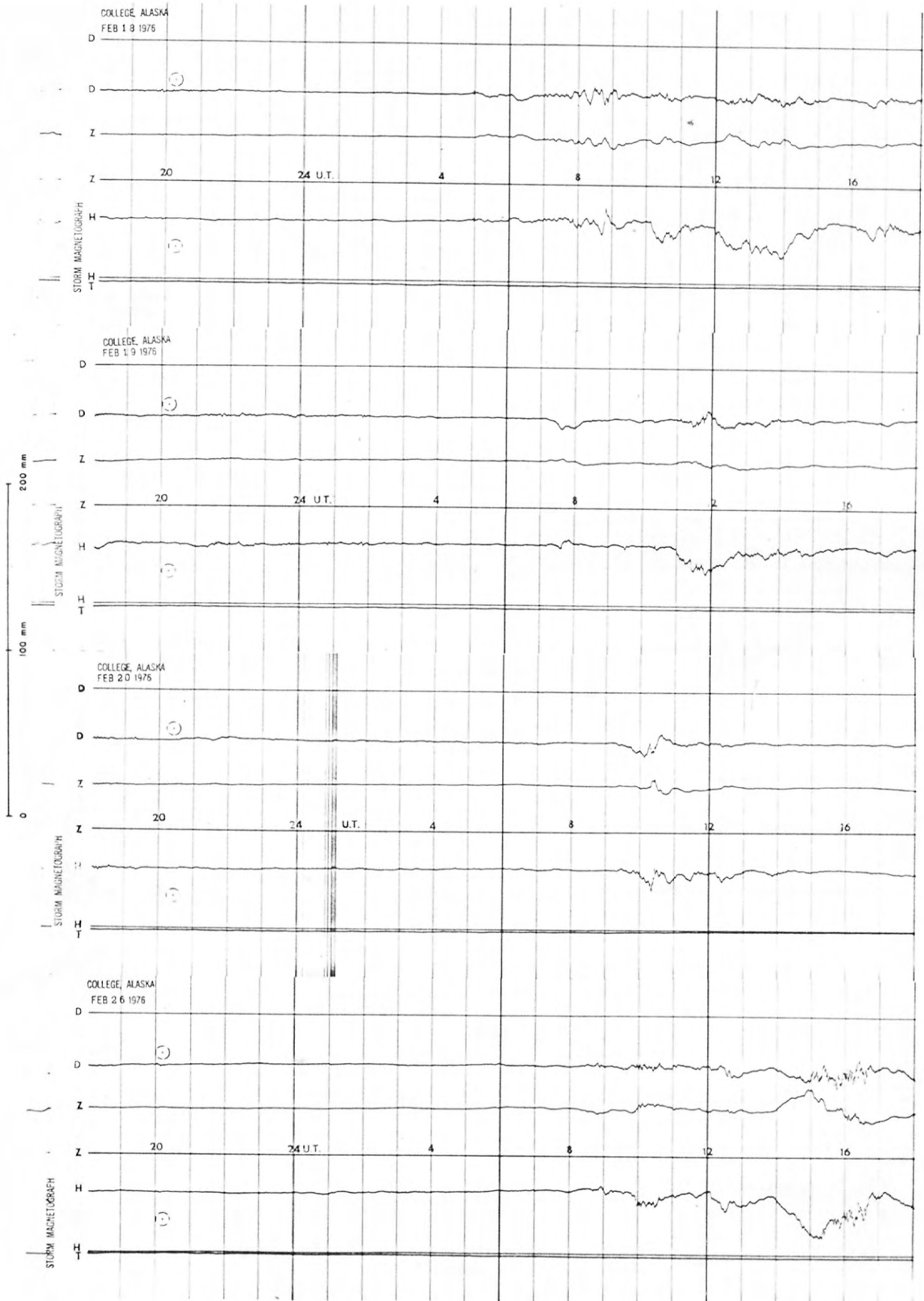
STORM MAGNETOGRAMS



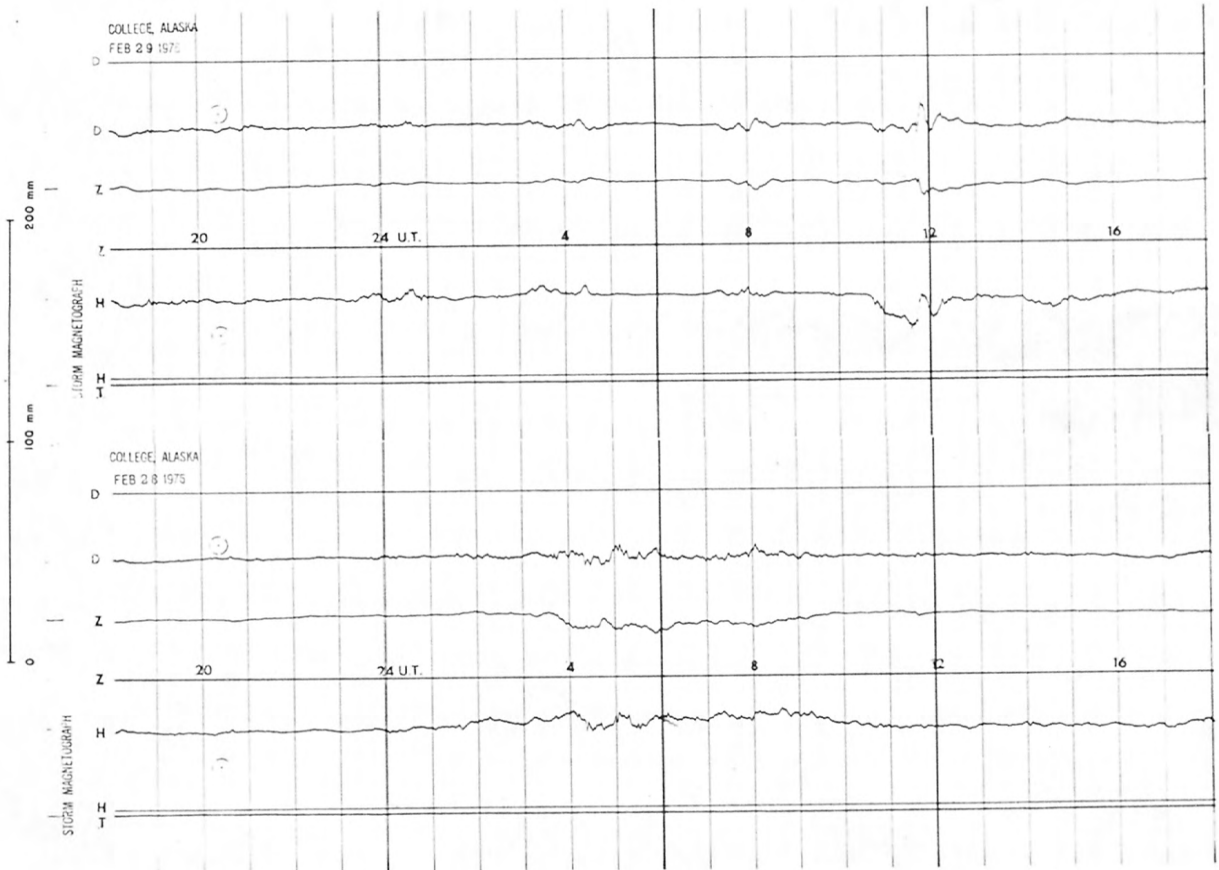
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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