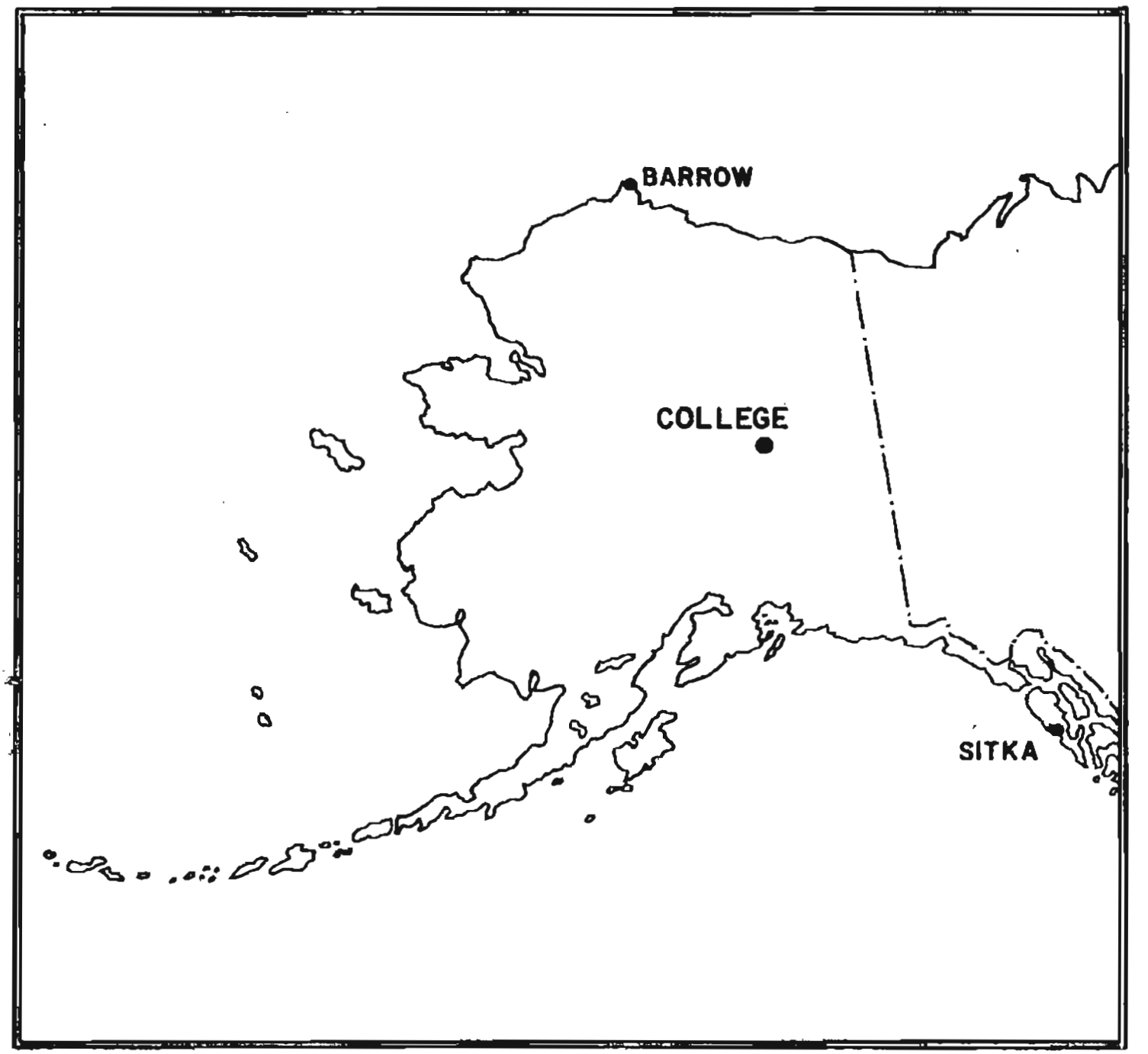
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

FEBRUARY 1983

OPEN FILE REPORT 83-0300B



THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY, WITH THE ASSISTANCE OF THE OBSERVATORY STAFF MEMBERS: J.E. PAPP, E.A. SAUTER, L.Y. TORRENCE, T.K. CUNNINGHAM AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF GLOBAL SEISMOLOGY AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

EXPLANATION OF DATA AND REPORTS

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
900 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°51.6'N
Geographic longitude.....147°50.2'W
Geomagnetic latitude.....+64.6°
Geomagnetic longitude.....+256.9°
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 2-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.

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 1983

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	2	2	3	5	4	2	0	20	15
2	0	0	0	2	0	3	2	1	08	04
3	1	1	1	0	3	0	1	1	08	04
4	1	3	2	4	2	9	9	4	34	111
5	5	5	7	8	7	7	8	6	53	135
6	5	5	6	7	6	7	3	2	41	70
7	3	4	7	8	7	7	4	3	43	93
8	5	5	6	5	4	2	1	1	29	33
9	2	1	2	5	5	5	3	3	26	24
10	3	3	4	6	5	3	1	2	27	26
11	0	1	2	5	7	3	4	4	26	33
12	3	3	4	8	6	5	4	2	35	57
13	3	3	5	7	6	5	4	3	36	49
14	3	3	6	6	4	5	3	3	33	37
15	4	4	5	6	7	5	4	3	38	52
16	3	3	6	6	6	6	4	3	37	49
17	3	3	3	5	5	4	3	2	28	24
18	2	4	5	5	6	3	2	2	29	30
19	1	2	4	4	4	3	2	2	22	15
20	3	4	5	6	5	6	5	5	39	49
21	3	5	5	6	5	7	5	3	39	55
22	4	3	4	5	4	3	3	2	28	23
23	3	3	2	3	2	4	3	2	22	14
24	2	2	3	5	6	4	3	2	27	26
25	1	0	3	4	3	4	1	1	17	12
26	1	0	2	3	1	1	1	0	09	04
27	0	0	3	5	3	1	2	1	15	11
28	0	0	0	3	3	2	2	2	12	06
29										
30										
31										

TIME SCALE ON MAGNETOGRAMS: 20 mm/hr

SUDDEN COMMENCEMENTS

d	h	m

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

BEGIN d	h	m	END d	h	m

K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.73	7.77		(γ/mm)
LOWER LIMIT FOR K = 9	2550	2500		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: FEBRUARY

YEAR: 1983

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
02	17xx	pc5	
04	1614	ssc*	
19	0438	ssc*	
20	01xx	pc1	
26	18xx	pc5	
27	20xx	pg	

IDENTIFIED BY: JEP

VERIFIED BY: EAS

1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pc1, pc2 - - - pc5, pg, pi 1, pi 2, sfe.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

FEBRUARY 1983

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	1614	s.c.*	-92	-566	-189	04	6, 7	9	468	3250	2620	08	15
		11	09XX	..	..	..	..	12	4	8	415	1940	1150	18	18
		19	0438	s.c.*	-2	+81	-6	21	6	7	212	1620	930	22	16

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: FEBRUARY 1983

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 2-1-83	2400 U.T. 2-28-83	1.0'/mm	3.7 γ/mm	27° 46.8 E
H	0000 U.T. 2-1-83	2400 U.T. 2-28-83	7.8 γ/mm		12751 γ
Z	0000 U.T. 2-1-83	2400 U.T. 2-28-83	7.7 γ/mm		55155 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 2-1-83	2400 U.T. 2-28-83	7.9'/mm	29.6 γ/mm	23° 42.9 E
H	0000 U.T. 2-1-83	2400 U.T. 2-28-83	43.9 γ/mm		11505 γ
Z	0000 U.T. 2-1-83	2400 U.T. 2-28-83	48.4 γ/mm		54092 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 54.9 E	12951 γ	55380 γ

* COMPUTED FROM ~~FIVE~~ QUIETEST DAYS DURING MONTH.

DAYS USED: FEB 2, 3, 26, 27, 28, ** (NOTE BELOW)

** DUE TO VERY DISTURBED MAGNETIC CONDITIONS DURING THE MONTH OF FEBRUARY 1983, ONLY 5 DAYS ARE USED TO COMPUTE THE MONTHLY MEAN ABSOLUTE VALUES.

FORM 76-186

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in tenths of gms. 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. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
Denver, CO 80225

OBSY.	YEAR	MONTH	ELEMENT
CO	83	FEB	D

C	Q or S	Tick O	Mo. Day	01	02	03	04	05	06	07	08	09	10	11	12	Mo. Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	35	77	57	65	64	69	123	92	64	80	144	75	01	118	111	144	188	282	168	80	86	83	56	59	60	2380
			02	61	72	72	73	74	74	82	84	78	72	74	103	02	78	87	84	97	106	81	100	107	102	96	80	52	1989
			03	54	67	62	47	65	73	42	85	48	58	62	82	03	90	130	105	105	110	114	132	137	99	82	66	25	1940
			04	21	33	47	47	26	5	46	59	67	48	24	76	04	89	80	109	115	299*	657*	823*	537*	458*	158*	50	85	3959
			05	66	118	125	-58*	61*	-2*	-487*	93*	-185*	418*	-232*	228*	05	-145*	315*	204*	442*	451*	-185*	-201*	148*	-2*	180*	117*	85*	1554
			06	101*	51	79	78	7	264	124*	-18*	14	61	117*	498*	06	315*	537*	648*	498*	124*	107	78	110	108	104	102	71	4178
			07	60	61	66	89	61	12	-248*	-217*	-74*	-106*	-201*	339*	07	124*	665*	379*	681*	617*	34	90	116	92	92	83	70	2885
			08	47	28	25	74	-34*	6	-6	33	-26*	29	-18*	57	08	70	137	76	71	104	110	117	119	128	119	86	56	1407
			09	38	38	42	48	35	46	53	38	75	63*	149	183	09	101	189	357*	235*	302*	202*	172	113	71	23	24	46	2643
			10	52	58	24	22	-18*	13	36	90	143	-13*	55*	95*	10	45	127	156	137	110	102	104	89	88	83	80	83	1763
			11	74	72	66	60	68	83	76	74	67	38	-54*	195*	11	487*	70	170	118	92	107	85	86	32	-77*	-5*	26	2010
			12	51	35	67	60	64	62	69	150	93	40	129*	670*	12	336*	225*	725*	113*	116*	146*	90	11	-12*	12	15	47	3314
			13	38	12	54	39	66	106	56	98	97	36	106	384*	13	312*	201*	232*	153*	102	136	129	125	77	64	59	40	2722
			14	27	82	33	53	94	76	78	343*	407*	3	-19*	135*	14	50	126	105	65	268*	64	142	124	102	36	-6	11	2401
			15	30	7	38	16	52	48	18*	109	217	-45*	-188*	-5*	15	281*	74*	310*	197*	38	68	89	5	2	43	66	65	1535
			16	67	65	36	131	31	45	168	158	10	-220*	-42*	106*	16	265*	-165*	98*	336*	145*	-101*	138	124	74	52	73	64	1658
			17	94	76	59	50	59	89	188	100	98	78	87	34*	17	42*	80	167	57	61	86	106	96	58	59	75	68	1967
			18	54	41	50	22	46	85	168	56	82	90	54	2*	18	66*	93	74	70	75	77	98	92	84	72	74	66	1693
			19	59	56	62	65	65	68	56	162	5	121	49	72	19	92	122	116	94	120	109	112	108	116	90	90	88	2097
			20	-24*	-49*	-30*	-6*	-35*	21	10	98	-132*	32	25	-196*	20	-172*	670*	337*	-227*	315*	234*	147	323	343*	-30*	-22	22	1674
			21	26	-31	-13	-8	-61*	-13*	-77*	44	4	-5*	-61*	129*	21	98*	90	209*	415*	423*	237*	182	2	-82*	24	70	56	1658
			22	34	-18	71	50	41	53	57	88	80	22	-37*	14*	22	69	130	76	96	54	103	162	139	60	45	70	68	1527
			23	72	50	66	-30*	31	65	56	71	108	88	78	93	23	90	77	118	86	132	170	185	119	71	40	51	42	1929
			24	1	32	45	66	49	13	4	24	96	94	46	45	24	-37*	34	270	194	251	145	148	43	20	39	43	59	1725
			25	54	57	40	34	38	40	40	64	54	-28*	132	102	25	96	114	125	167	178	198	164	142	108	80	48	36	2065
			26	18	27	31	48	58	63	68	60	64	124	71	72	26	98	94	94	117	151	148	109	129	141	97	73	60	2015
			27	48	20	24	28	40	43	46	62	51	37	250*	82	27	96	139	102	105	118	120	142	124	122	32	34	70	1935
			28	69	59	60	58	54	64	70	69	66	88	100	106	28	94	73	100	96	87	101	146	108	82	89	30	64	1933
			29													29													
			30													30													
			31													31													

SCALED BY	TKC, LYT
CHECKED BY	JEP, TKC
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 off sheet for part or all of hour; if value is given, curve was estimated for missing part.

Derived from STORM Mgnh., converted to Normal Mgnh.

MONTHLY SUM	60576
MONTHLY MEAN	90
DATES WITH GAPS	

FORM 36-186

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 (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.

OBSY.	YEAR	MONTH	ELEMENT
CO	83	FEB	Z

Day	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	293	302	306	314	314	365	359	325	312	302	262	237	315	296	167	187	197	192	244	254	279	285	298	306	6711
02	312	314	313	313	310	308	306	303	300	299	303	280	293	296	293	290	282	226	218	241	265	284	289	293	6931
03	301	306	306	308	304	311	306	373	322	306	302	308	299	246	292	295	293	293	289	261	281	277	280	276	7107
04	294	303	306	310	318	363	388	384	354	320	236	303	292	324	326	311	246	1128	1531	466	55	59	124	238	8979
05	271	318	166	13	66	93	-454	31	227	542	201	435	743	926	510	530	668	932	819	688	240	368	342	434	9131
06	376	273	342	352	338	242	85	76	233	275	258	322	158	706	366	176	315	166	259	294	318	329	336	328	6923
07	335	346	336	306	276	224	-31	-133	264	314	561	788	661	876	901	706	51	132	331	350	332	342	345	342	8978
08	364	350	357	373	382	406	344	255	215	313	265	341	298	340	327	340	347	338	342	328	328	324	325	329	7926
09	331	344	343	345	354	356	357	374	378	266	158	302	316	418	543	308	130	107	134	190	266	320	326	336	7304
10	338	390	370	384	367	303	292	281	212	212	396	611	372	262	299	267	289	318	331	320	308	316	321	325	7694
11	323	322	319	318	323	327	325	325	332	274	225	355	544	186	275	286	292	284	186	246	291	309	313	326	7306
12	331	337	336	321	318	321	337	235	201	286	393	349	538	740	797	256	199	263	248	276	164	306	316	322	6312
13	332	348	343	339	360	335	335	165	91	299	328	664	487	254	448	329	230	306	295	282	284	331	358	380	6003
14	388	401	360	378	356	343	336	369	100	220	278	436	371	316	310	214	93	244	273	278	299	324	326	325	7342
15	317	328	336	354	395	340	225	298	262	233	240	522	626	469	434	516	268	142	198	246	266	296	314	330	7957
16	326	320	329	412	321	360	363	210	217	431	292	390	338	486	191	482	431	116	250	300	318	283	332	340	7836
17	355	329	332	366	344	352	325	345	332	323	297	268	165	233	314	250	222	240	274	300	306	317	321	324	7234
18	316	318	339	351	370	360	330	144	329	287	222	215	142	144	219	259	243	258	267	264	309	318	313	316	6753
19	314	311	307	304	306	314	321	332	234	268	262	290	420	391	280	255	298	301	304	299	291	284	290	298	7274
20	314	370	374	351	339	320	240	198	160	298	215	355	520	242	526	154	-78	122	236	214	296	203	230	307	6506
21	333	332	341	302	278	-71	268	334	260	272	424	456	575	336	349	526	141	39	125	96	188	268	317	330	6919
22	342	318	343	332	338	351	337	318	181	231	121	265	352	298	244	290	309	325	323	284	264	280	310	336	7094
23	334	356	354	361	404	363	344	335	332	310	330	314	298	277	277	255	212	234	269	267	278	282	304	330	7420
24	330	333	332	358	339	357	410	406	423	364	292	314	144	84	124	85	179	230	220	248	222	250	278	291	6613
25	306	310	317	326	325	343	338	340	340	240	300	270	298	249	258	301	195	149	230	281	297	308	316	318	6955
26	316	326	332	326	317	312	308	316	327	229	291	312	302	289	289	268	288	295	284	272	279	283	293	305	7179
27	320	321	315	318	319	324	334	341	316	252	111	226	278	237	255	288	292	300	302	297	308	292	298	306	6952
28	305	308	308	306	310	314	308	312	315	325	309	258	255	264	278	277	257	258	251	256	280	290	285	312	6941
29																									
30																									
31																									

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

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated

⌐ Significant portion of hour interpolated.

☐ No record; or no values available because of faulty record.

[ ] Scaling uncertain because of magnetic storm.

<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

✱ Derived from STORM Mgph., converted to Normal Mgph.

MONTHLY SUM	208482
MONTHLY MEAN	310
DATES WITH GAPS:	

FORM 75-186

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in counts of mm. and are averages for consecutive 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. DEPARTMENT OF INTERIOR
Geological Survey, Geomagnetic Division
Denver Federal Center
Denver, Colorado 80225

OBSY.	YEAR	MONTH	ELEMENT
CO	83	FEB	H

C	Qual S	Qual 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	246	268	288	286	290	336	303	282	268	290	290	201	01	78	-94	-33	101	76	186	242	265	274	263	260	255	5221
			02	260	259	262	264	270	268	264	260	256	255	258	260	02	272	268	268	257	246	176	232	265	255	260	254	240	6129
			03	247	264	270	274	273	280	301	292	298	275	270	270	03	251	262	280	264	259	252	251	251	250	264	246	251	6395
			04	262	264	272	285	310	366	406	413	336	382	407	273	04	263	296	281	270	-111	-825	-1169	-726	-111	171	214	264	2790
			05	302	312	245	-37	103	-94	58	86	-179	-863	1	-66	05	-825	-586	-162	-184	-456	-695	-858	-259	-378	131	301	278	-3825
			06	471	555	438	271	336	425	362	205	403	277	-4	-835	06	-361	-361	-343	-648	-276	214	324	273	271	260	251	252	2760
			07	272	257	298	363	377	417	318	313	-32	103	-524	-575	07	-106	-802	-394	-575	-72	410	364	302	280	282	278	242	1806
			08	230	326	391	396	435	453	487	354	-101	206	276	139	08	104	153	205	283	263	260	265	263	255	253	232	220	6347
			09	212	251	266	268	265	271	284	307	916	337	215	232	09	48	61	-332	-162	74	178	230	248	230	231	236	229	4495
			10	278	367	364	433	409	427	518	434	383	354	124	-134	10	-61	144	171	219	271	278	268	268	273	261	256	252	6625
			11	249	257	258	257	262	264	285	2911	330	351	253	-3	11	-384	274	201	266	268	229	180	208	192	254	252	251	5248
			12	241	265	253	269	271	293	326	330	318	337	-152	-910	12	-367	-209	-474	142	336	295	242	246	246	256	241	248	3109
			13	266	252	264	282	292	316	381	86	154	208	134	-581	13	-191	71	-84	-95	276	287	254	210	241	228	258	272	3833
			14	344	315	316	340	275	264	272	227	312	275	321	91	14	76	98	42	27	60	285	275	279	259	216	226	239	5452
			15	265	276	289	344	360	364	396	449	222	282	120	-349	15	-191	-339	-89	19	155	39	168	164	258	264	260	242	3970
			16	256	268	291	363	357	342	335	306	125	-180	29	-5	16	-384	-271	-27	-209	-474	68	311	303	260	253	260	262	2866
			17	262	266	296	293	319	336	316	319	277	271	180	-72	17	46	267	46	57	188	230	288	272	254	234	240	250	5435
			18	258	251	242	296	380	408	364	343	329	264	208	35	18	-226	204	241	214	214	256	243	262	266	271	254	243	5828
			19	246	252	264	268	285	283	282	339	311	326	358	182	19	84	28	142	222	288	270	266	275	259	258	252	231	5974
			20	233	293	285	300	342	460	460	369	532	396	292	-169	20	-356	-242	-174	-339	94	136	174	-56	-164	104	285	291	3569
			21	293	302	337	468	556	765	622	503	332	200	-423	-259	21	-112	-110	-55	-616	-457	156	54	52	223	231	197	219	3498
			22	282	354	387	325	290	313	304	333	343	361	156	161	22	48	64	228	229	304	280	254	188	217	268	251	254	6194
			23	259	269	266	379	354	277	262	270	299	301	269	241	23	161	218	208	138	76	226	229	227	261	222	226	225	5903
			24	273	248	281	293	314	304	360	458	386	301	184	-22	24	-219	-164	-66	10	91	120	126	186	226	249	250	237	4426
			25	241	253	270	270	263	270	287	268	332	250	236	230	25	244	196	228	63	40	184	290	276	266	247	232	226	5682
			26	232	252	256	251	262	271	279	278	290	298	316	284	26	267	270	254	246	254	248	258	261	248	240	237	236	6258
			27	240	246	250	255	275	280	278	293	364	314	38	217	27	182	175	278	256	276	276	278	264	257	237	248	240	6453
			28	241	246	250	260	260	264	263	269	279	285	215	191	28	173	278	272	256	244	228	258	263	251	261	246	246	6058
			29													29													
			30													30													
			31													31													

SCALED BY	TKC, LYT
CHECKED BY	JEP, TKC
DIGITIZED BY	JEP
PUNCHED BY	

Preliminary baseline and scale values:

Interval Beginning	Baseline Value	Scale Value

( ) Interpolated

[ ] Significant portion of hour interpolated.

☐ No record; or no values available because of faulty record.

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

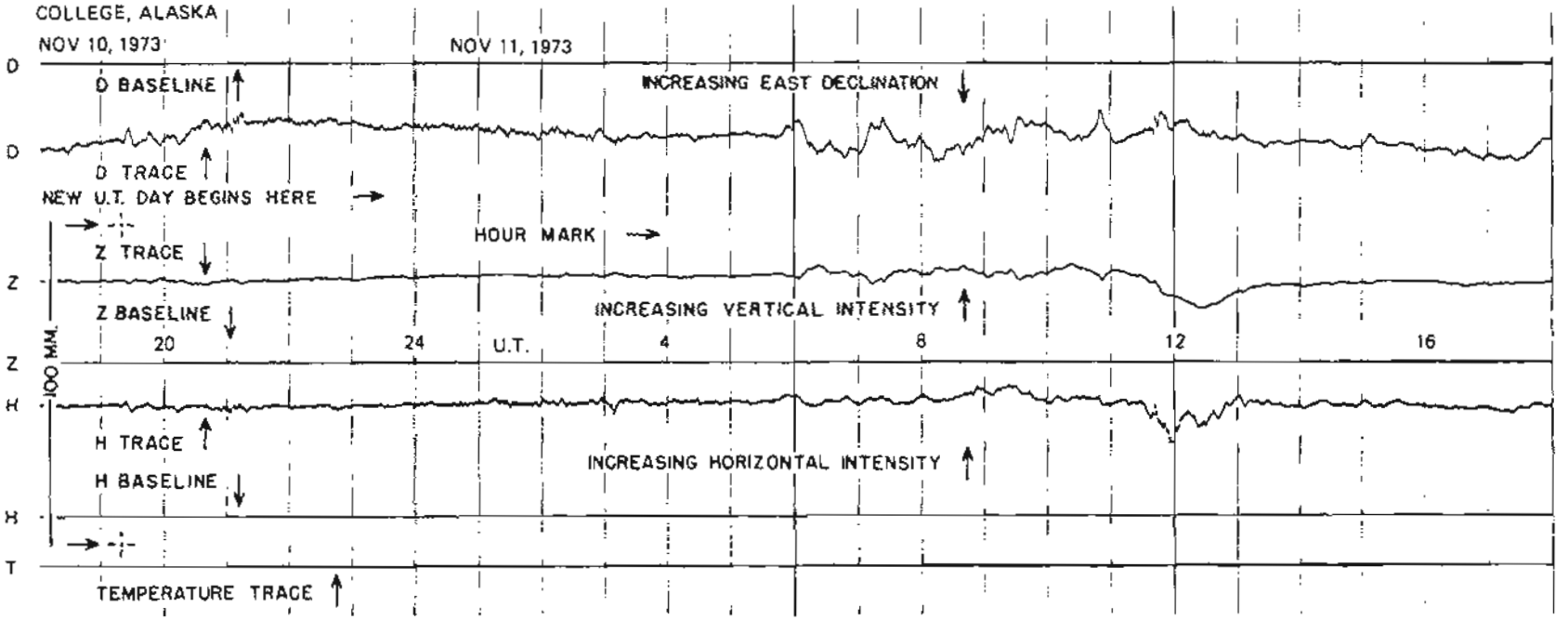
[ ] Scaling uncertain because of magnetic storms.

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

MONTHLY SUM	128139
MONTHLY MEAN	191
DATES WITH GAPS:	

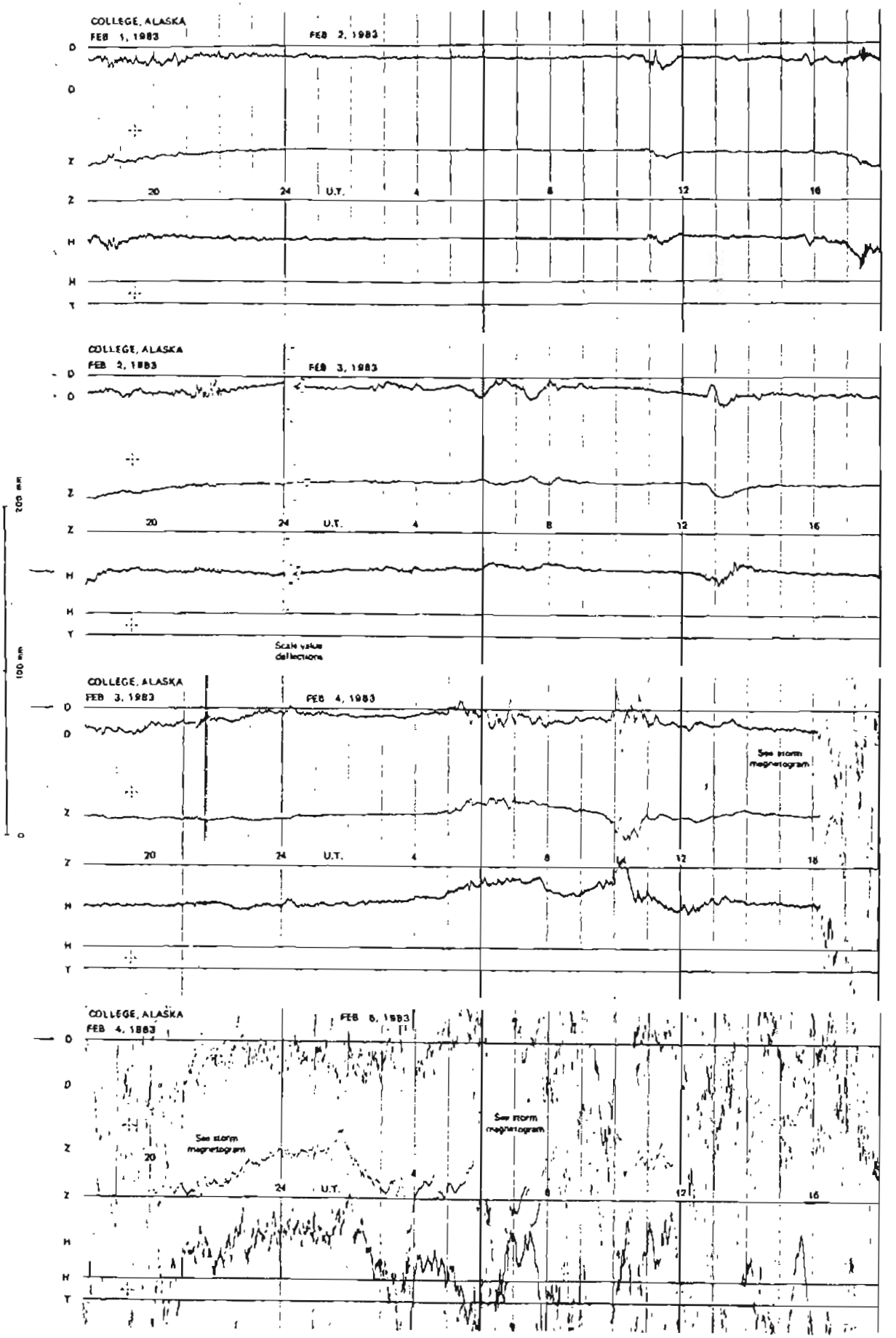
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

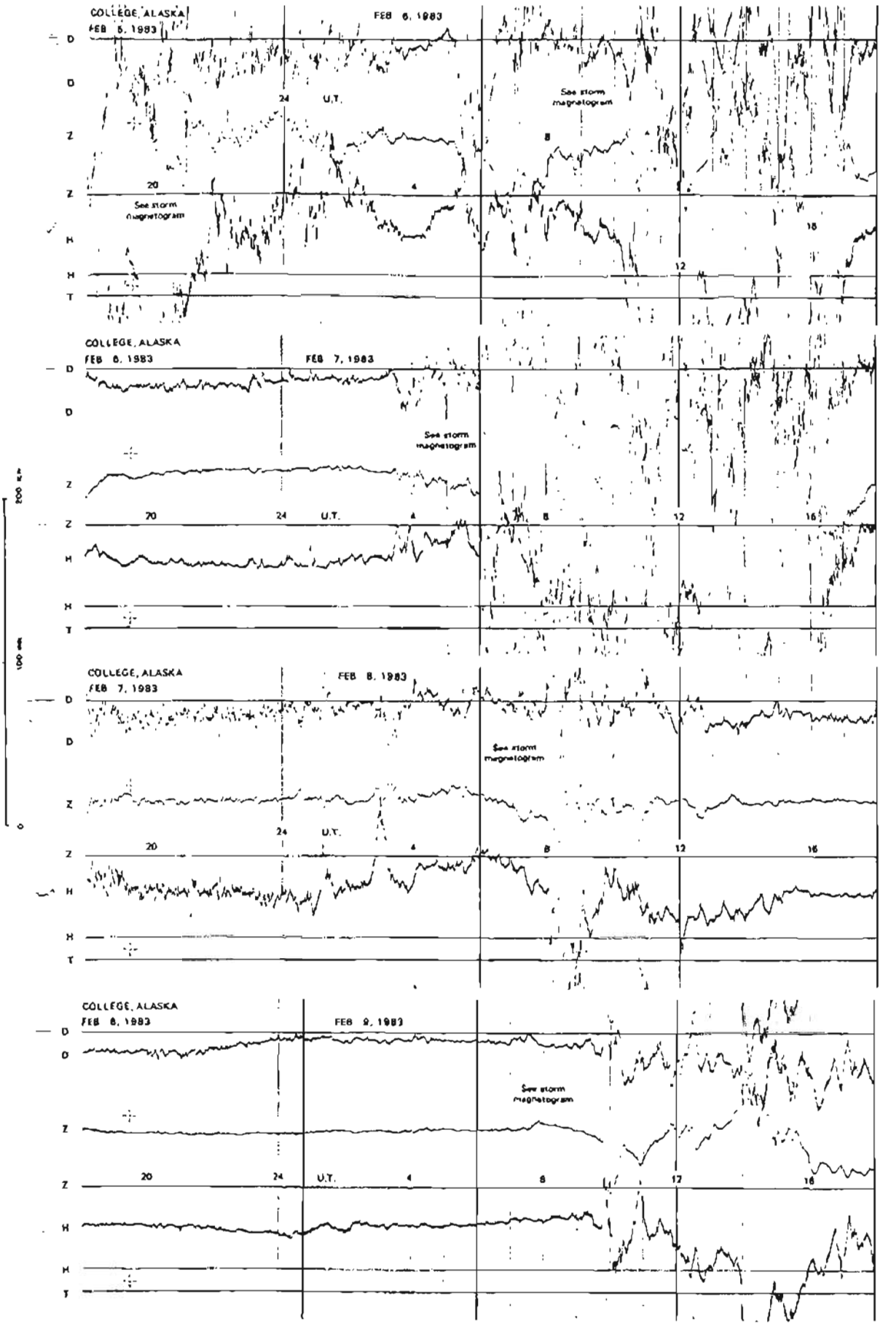


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

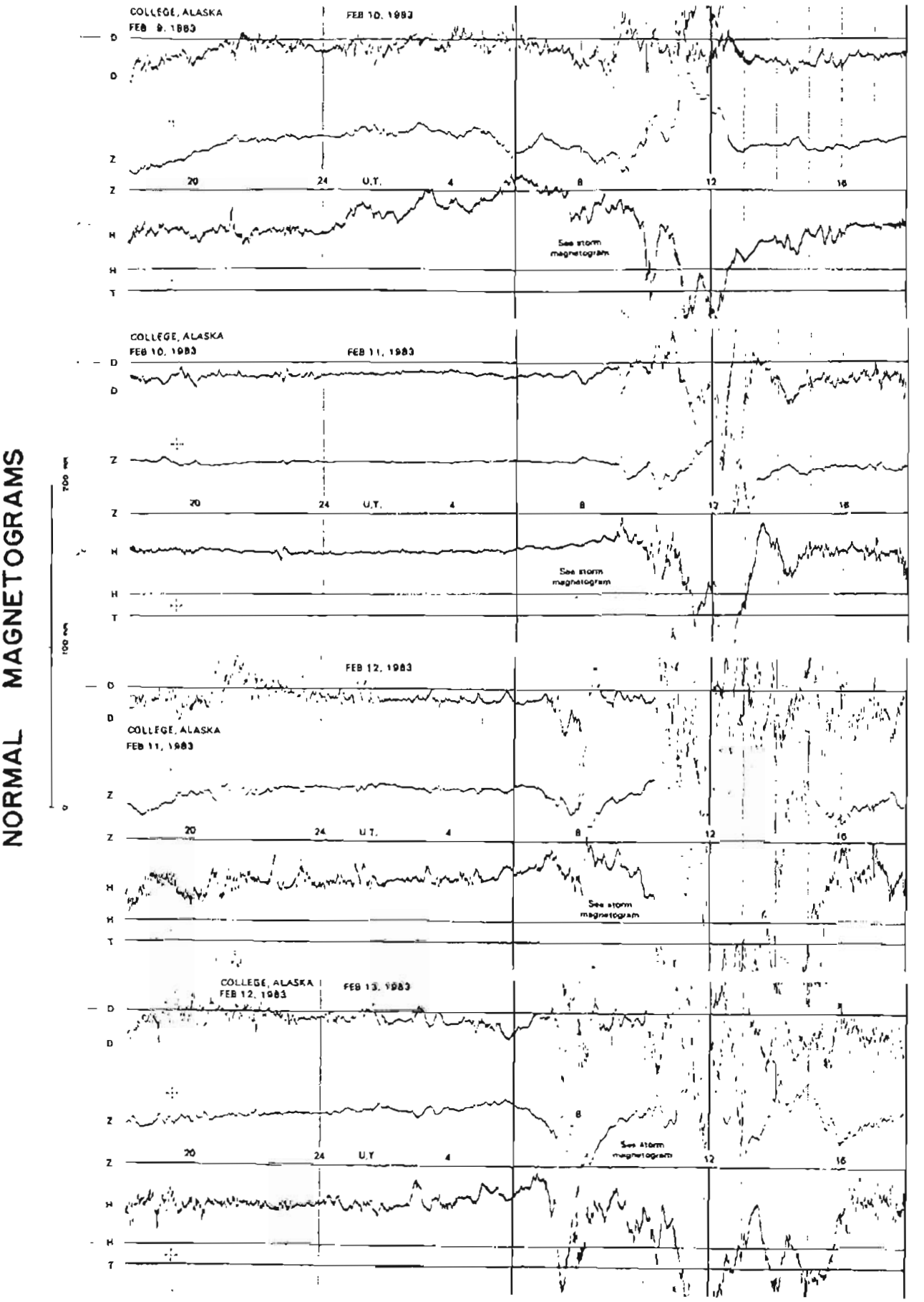
NORMAL MAGNETOGRAMS



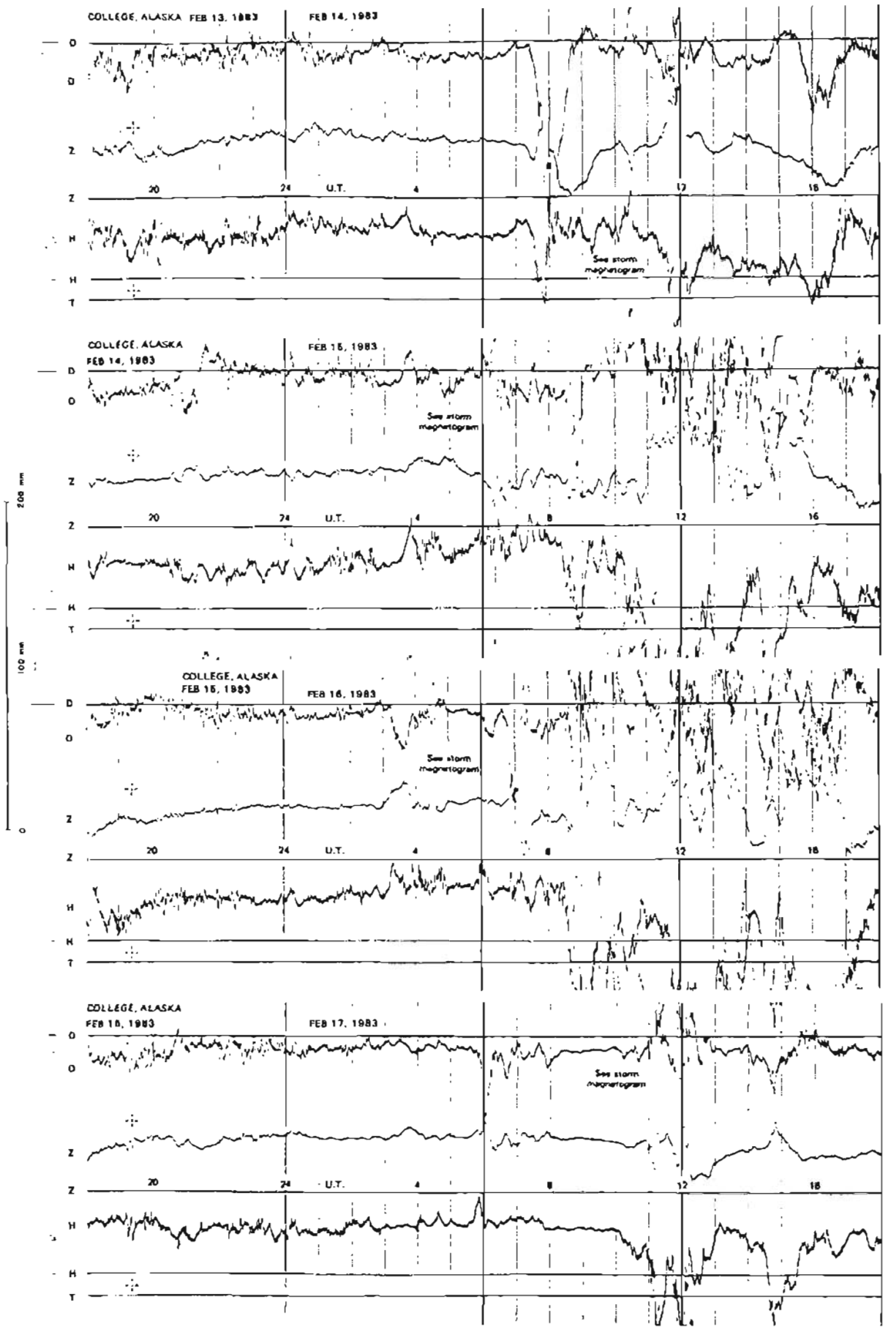
NORMAL MAGNETOGRAMS



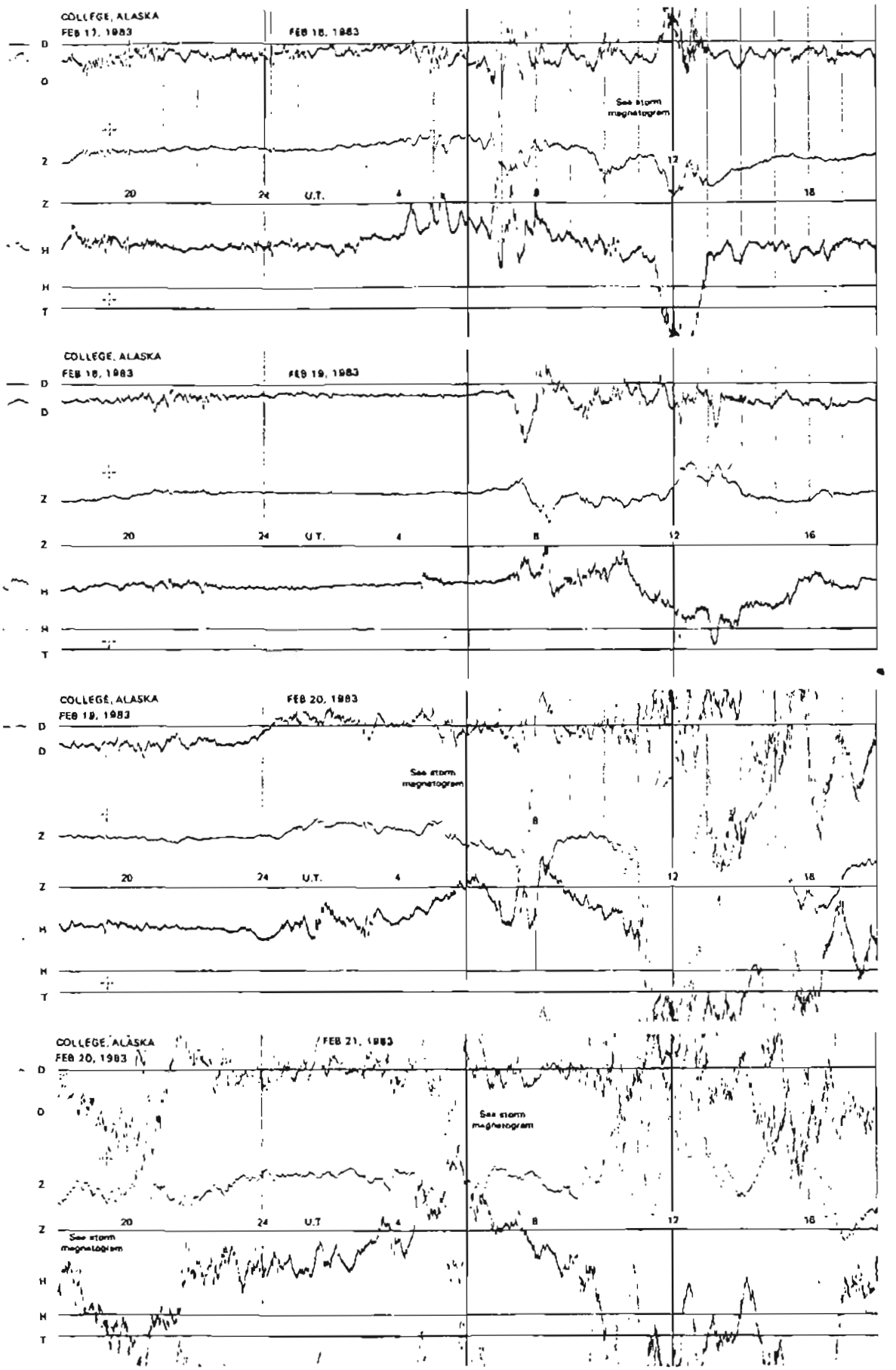
NORMAL MAGNETOGRAMS



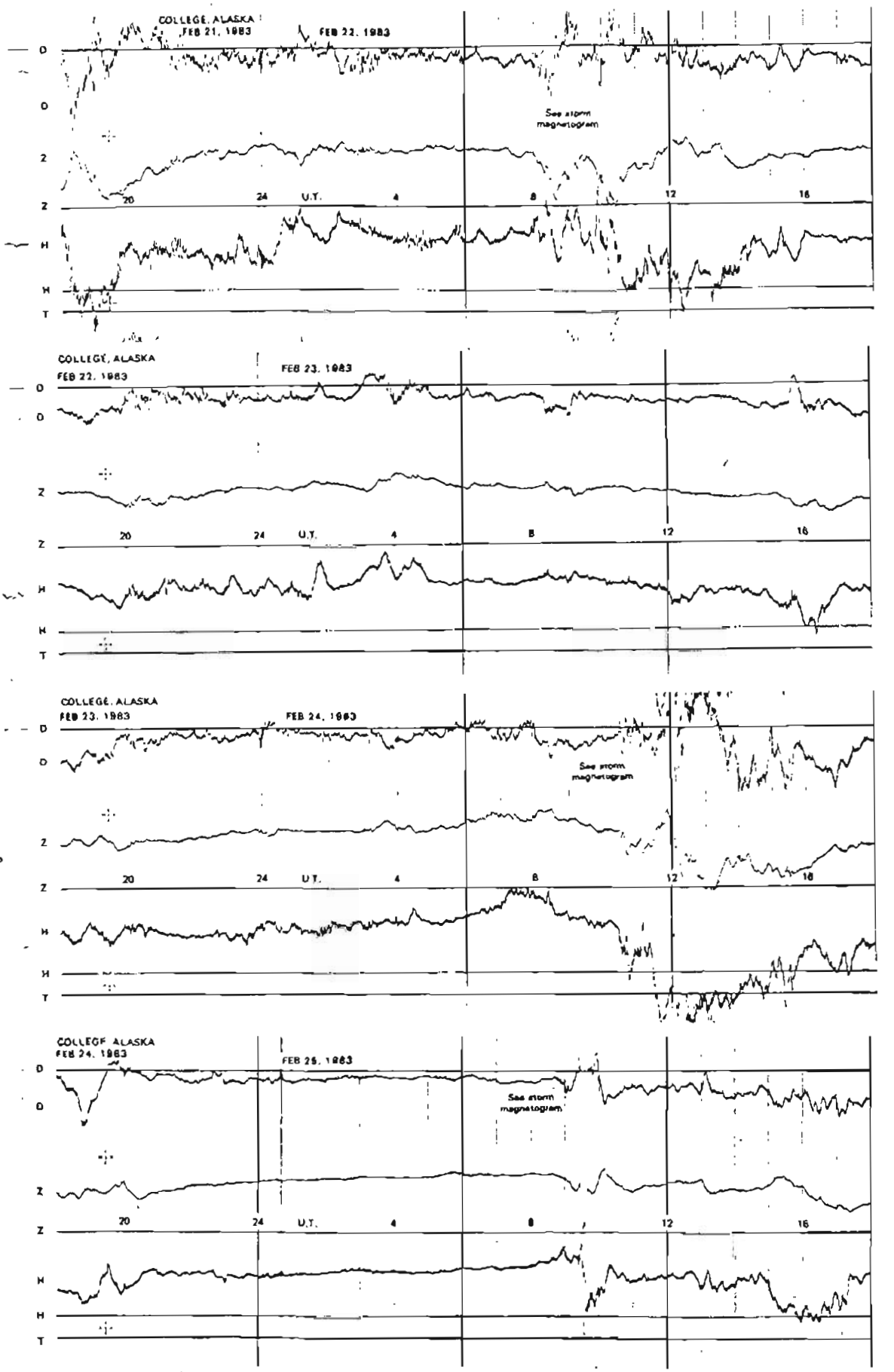
NORMAL MAGNETOGRAMS



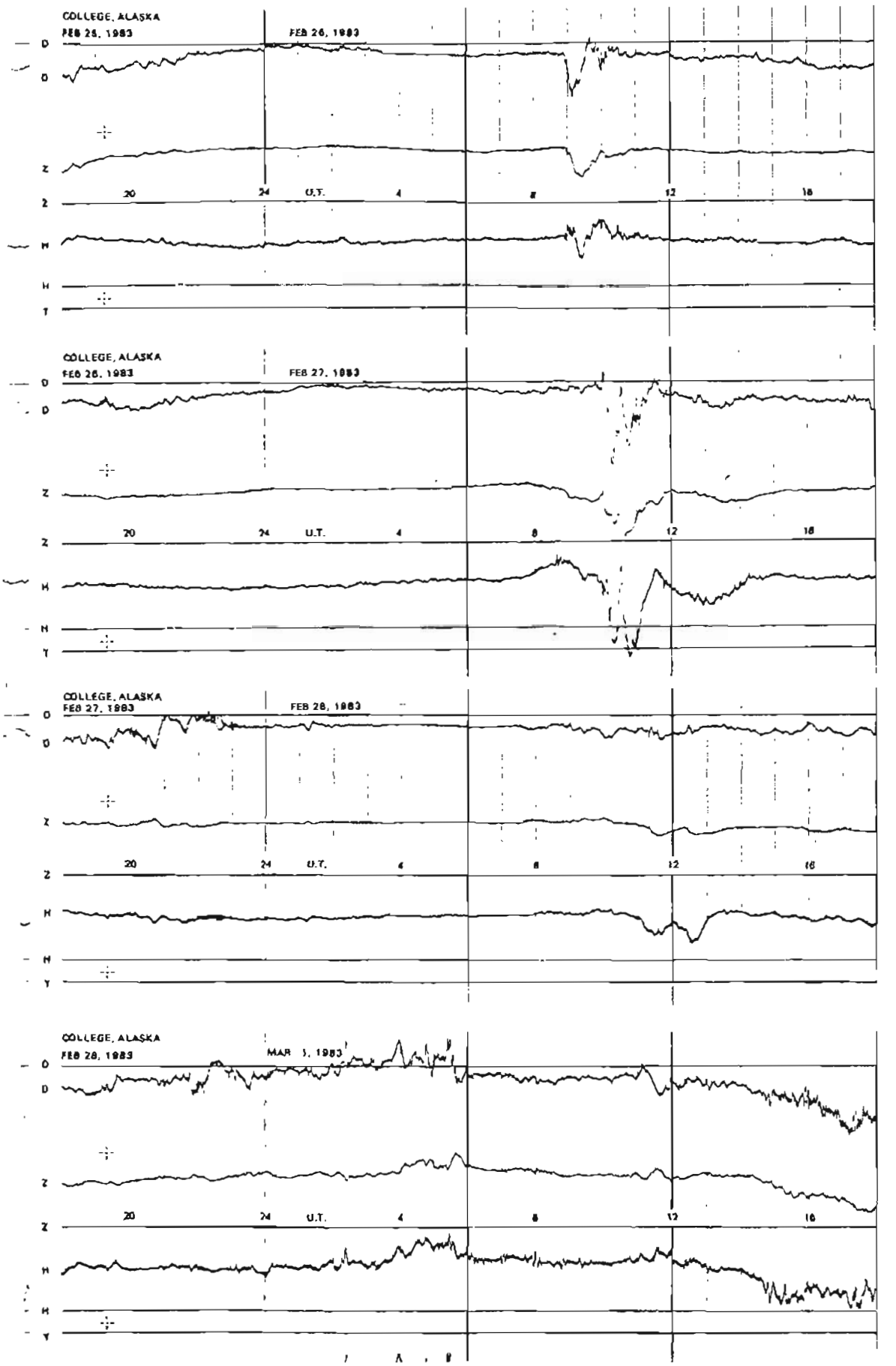
NORMAL MAGNETOGRAMS



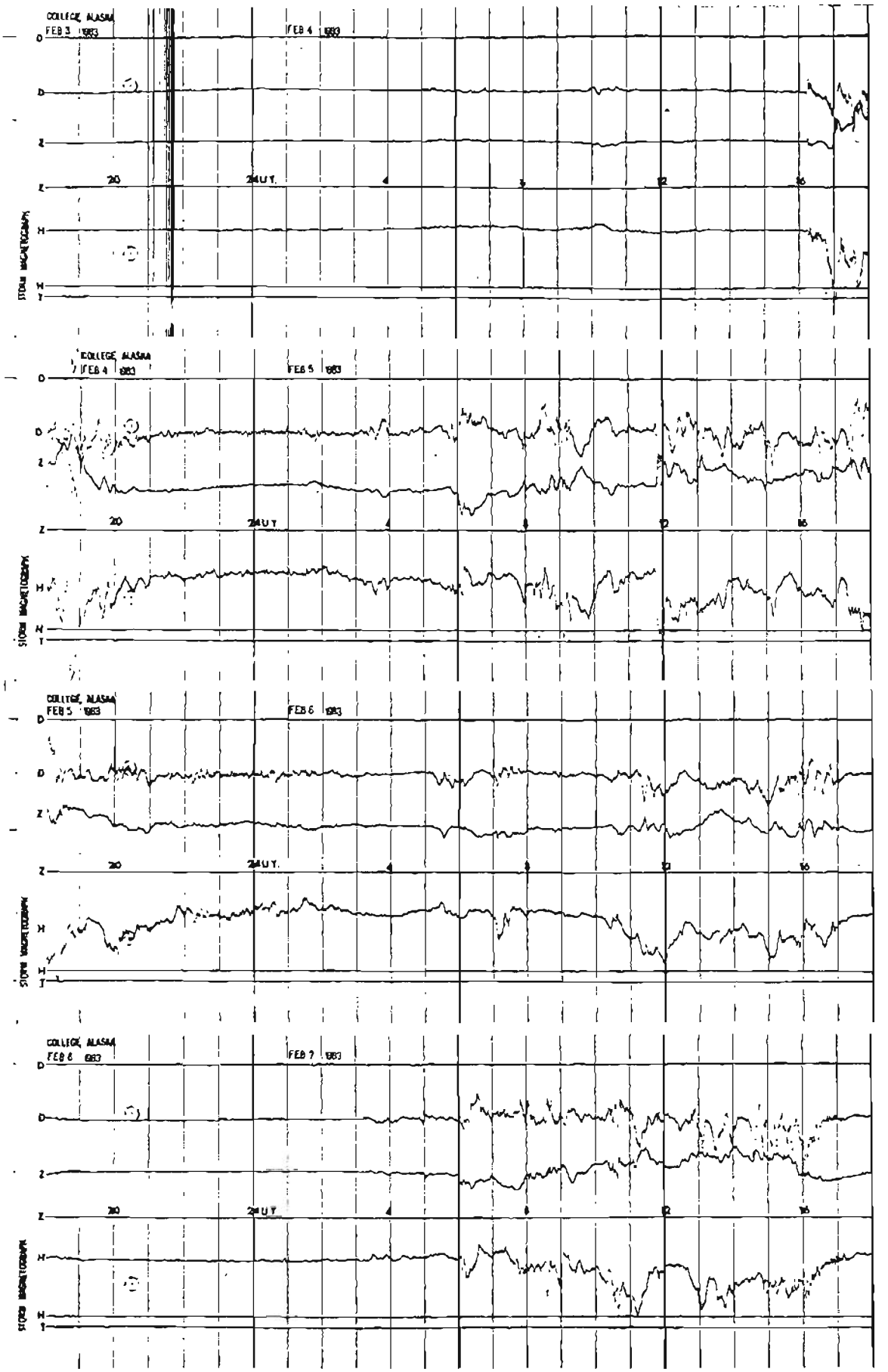
NORMAL MAGNETOGRAMS



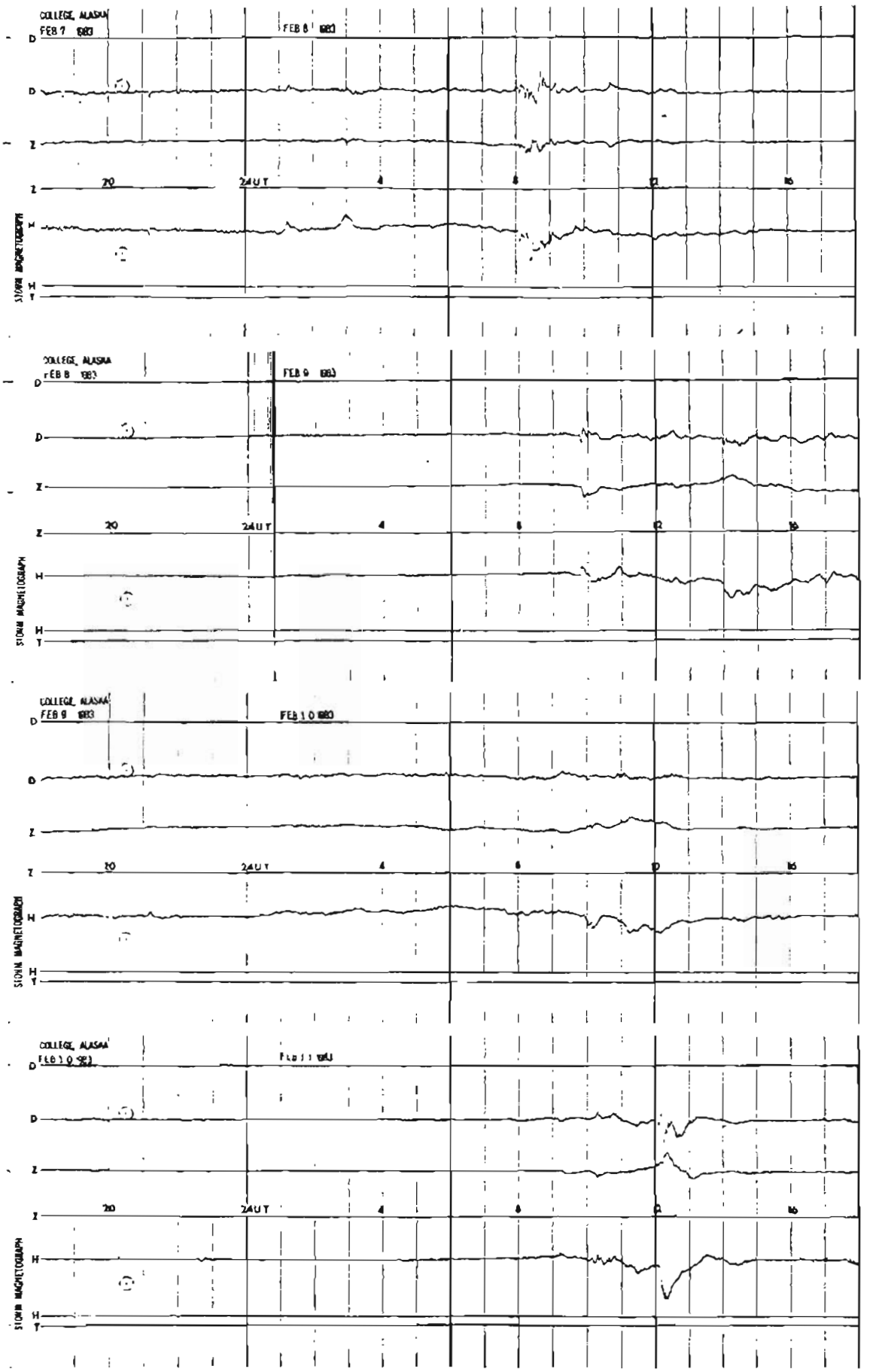
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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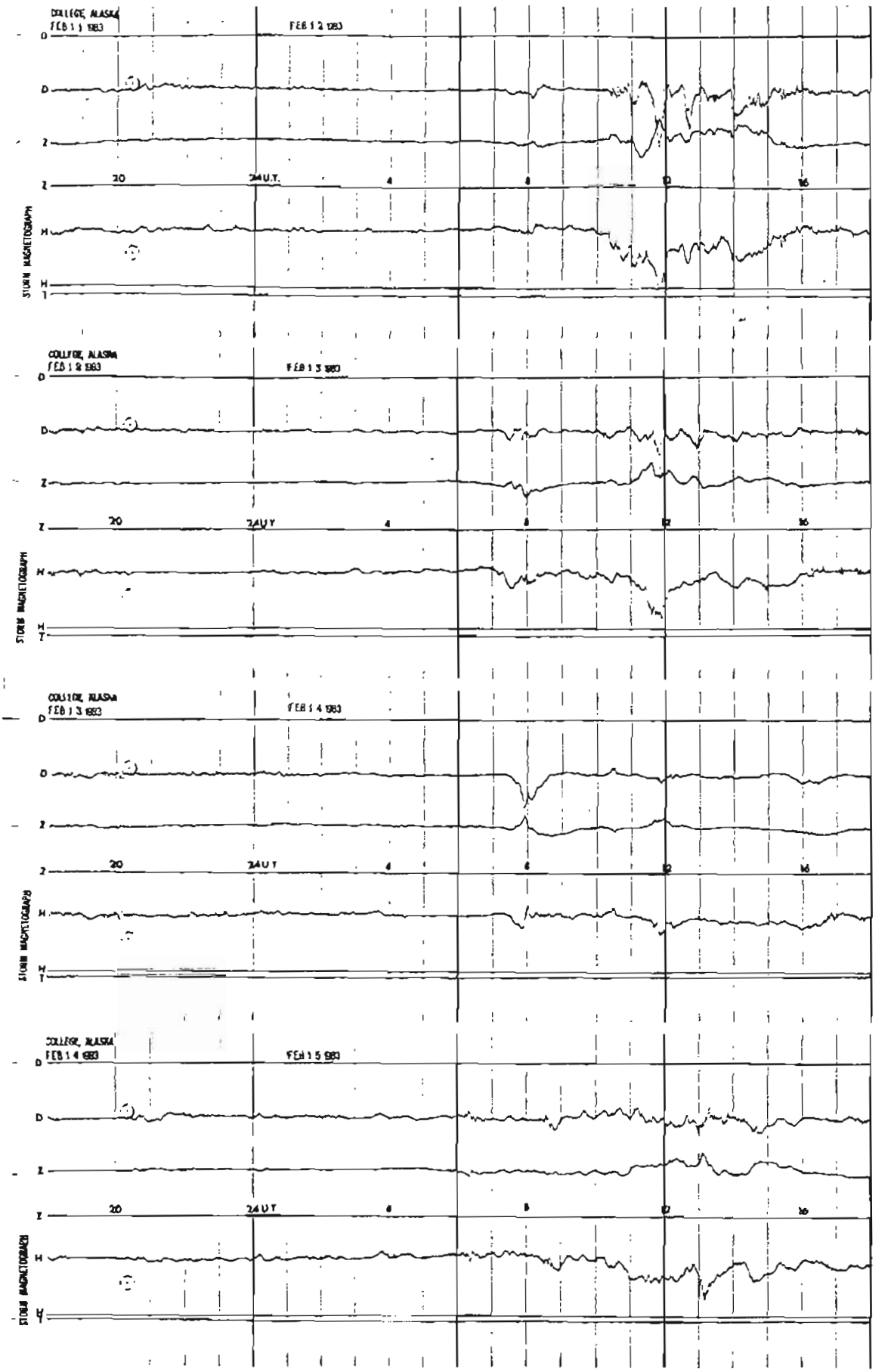

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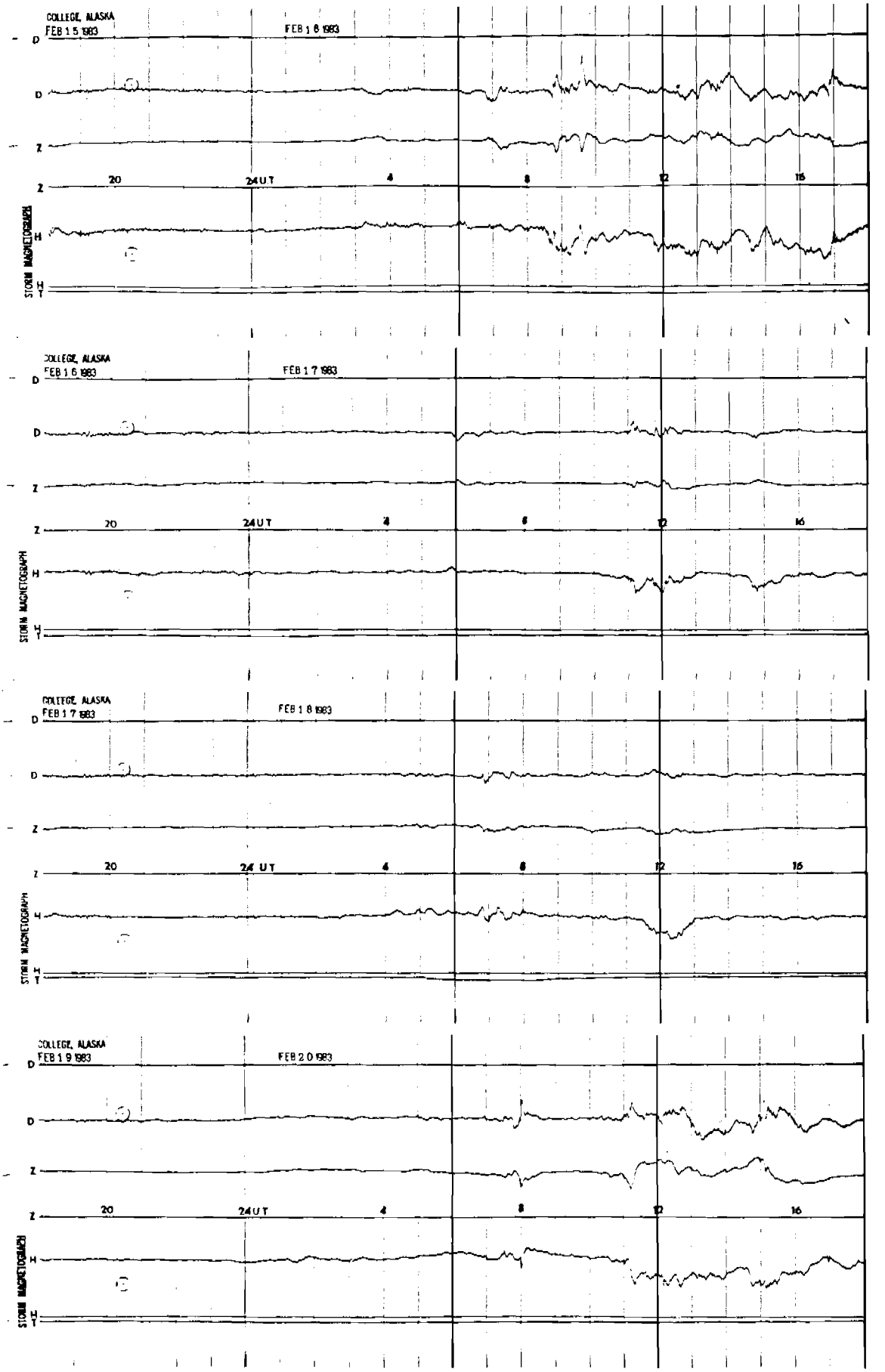

STORM MAGNETOGRAMS