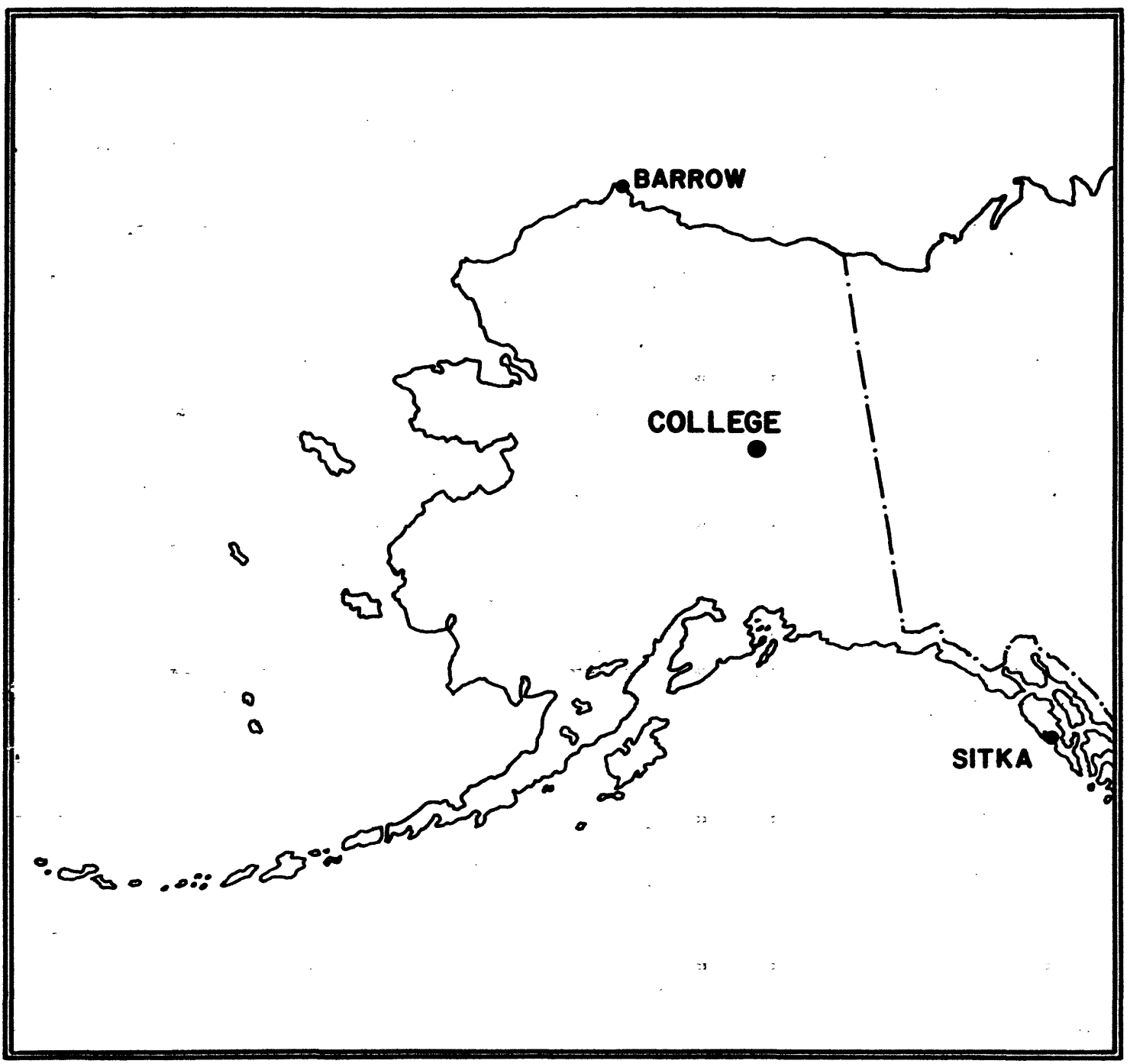
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

FEBRUARY 1985

OPEN FILE REPORT 85-0300B



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, P.A. FRANKLIN 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
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°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 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

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

OBSERVATORY: COLLEGE, ALASKA

MONTH AND YEAR: FEBRUARY 1985

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	2	6	6	5	4	3	2	30	34
2	1	3	2	4	3	2	2	2	19	11
3	1	2	1	2	6	4	1	0	17	16
4	0	0	0	0	0	0	1	0	01	00
5	0	3	4	3	6	5	2	2	25	25
6	3	4	5	6	6	7	6	3	40	61
7	3	2	3	7	7	3	3	2	30	44
8	2	2	2	6	5	5	5	4	31	34
9	2	4	5	6	6	5	3	2	33	39
10	3	3	4	4	6	5	5	2	32	33
11	2	2	2	5	4	5	3	2	25	21
12	2	3	3	4	5	4	1	0	22	18
13	0	0	0	3	5	3	3	2	16	13
14	2	2	3	5	4	5	2	3	26	22
15	2	2	3	1	0	0	1	1	10	05
16	0	0	1	1	5	5	2	2	16	15
17	2	3	3	5	6	5	3	1	28	29
18	0	1	2	2	0	0	1	0	06	03
19	0	1	0	0	2	1	1	2	07	03
20	2	4	5	5	5	1	1	0	23	23
21	0	0	1	1	3	4	3	2	14	09
22	2	1	2	2	4	3	1	1	16	09
23	1	0	3	3	3	2	2	1	15	08
24	3	4	4	5	4	4	1	2	27	23
25	2	3	5	5	4	3	2	0	24	21
26	1	2	2	1	0	0	1	1	08	03
27	1	1	1	3	3	3	1	4	17	11
28	5	7	6	6	7	5	3	2	41	70
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	BEGIN h	BEGIN m	END d	END h	END m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	675.7	322.2		(mm)
CURRENT SCALE VALUE.....	3.72	7.83		(γ/mm)
LOWER LIMIT FOR K = 9	2510	2520		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

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

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: FEBRUARY

YEAR: 1985

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
04	18xx	pc5	
05	0347	ssc*	
14	01xx	pc3, pc4, pc5	
15	16xx	pc3, pc4, pc5	
16	20xx	pc3, pc4	
17	18xx	pc4	

IDENTIFIED BY: JEP

VERIFIED BY: JBT

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 19 85

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	05	0347	s.c.*	+16	+135	+22	06	6	7	234	1620	850	07	22
								07	4, 5	7					
		08	09XX	..	..	..	..	08	4	6	140	1120	710	10	22
								09	4, 5	6					
								10	5	6					
		27	21XX	..	..	..	..	28	2, 5	7	291	1760	1300	28	21

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: FEBRUARY 1985

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T. 2-1-85	2400 U.T. 2-28-85	1.0'/mm	3.7γ/mm	27° 16.8' E
H	0000 U.T. 2-1-85	2400 U.T. 2-8-85	7.8γ/mm		12672γ
	0000 U.T. 2-9-85	2400 U.T. 2-28-85	"		12661γ
Z	0000 U.T. 2-1-85	2400 U.T. 2-14-85	7.6γ/mm		55174γ
	0000 U.T. 2-15-85	2400 U.T. 2-22-85	"		55185γ
	0000 U.T. 2-23-85	2400 U.T. 2-28-85	"		55178γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T. 2-1-85	2400 U.T. 2-28-85	7.9'/mm	29.5γ/mm	23° 44.0' E
H	0000 U.T. 2-1-85	2400 U.T. 2-8-85	43.8γ/mm		10797γ
	0000 U.T. 2-9-85	2400 U.T. 2-28-85	"		10773γ
Z	0000 U.T. 2-1-85	2400 U.T. 2-28-85	48.2γ/mm		54094γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION
	FROM	TO	SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 41.7' E	12906γ	55344γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: FEB 2, 4, 15, 18, 19, 21, 22, 23, 26, 27

FORM C&GS-404a

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSV.	YEAR	MONTH	ELEMENT
CO	85	FEB	D

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (135W M.T.) is hour 09 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Ten Q	Hr. De.	01	02	03	04	05	06	07	08	09	10	11	12	Hr. De.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	233	240	253	281	282	259	257	336	310	86*	302	246	01	231	437	293	337	413	252	277	233	211	223	233	237	6462
			02	240	247	247	246	228	295	227	251	243	318	224	223	02	268	287	263	227	304	279	248	219	213	221	223	226	5967
			03	230	231	247	247	256	259	258	250	243	243	296	236	03	260	306	331	265	305	273	256	227	227	229	226	232	6133
			04	242	247	248	256	260	253	253	253	251	247	250	253	04	251	257	260	263	265	266	263	261	251	242	241	243	6076
			05	243	246	243	253	247	227	472	253	163	258	217	221	05	237	351	471*	200	364	315	246	201	127	100	148	200	6003
			06	143	190	223	268	269	227	323	526*	26*	153	319*	534*	06	876*	549*	307	348	317	629*	161*	200	227	217	197	221	7450
			07	227	252	261	270	259	263	384	377	255	246	207	169*	07	224*	429	302	311	301	293	300	260	249	208	203	206	6456
			08	226	228	283	256	267	262	252	279	295	82*	-125*	293	08	300	191	282	370	340	362	373	222	220	193	90	174	5715
			09	200	213	240	237	209	285	238	304*	290	230	124	129*	09	367*	200*	439	346	373	269	247	248	247	202	205	173	6015
			10	193	217	251	249	239	330	245	279	465	227	220	213	10	271	185*	153*	343	285	317	322	129	183	186	216	211	5929
			11	229	240	236	231	247	263	292	271	246	320	260	197	11	259	357	311	307	253	284	291	263	250	217	221	227	6272
			12	230	231	245	247	240	236	253	256	344	287	170	238	12	303	207	405	243	233	272	273	255	239	227	219	223	6076
			13	230	240	246	252	254	256	253	247	248	251	257	255	13	298	227	253	290	243	277	263	231	188	203	235	221	5913
			14	230	234	237	243	233	247	420	506	287	193	260	300	14	283	281	313	284	333	272	294*	253	273	223	239	237	6675
			15	230	203	229	233	246	267	272	242	251	242	248	244	15	257	257	253	253	253	257	259	254	253	247	237	243	5930
			16	237	237	240	243	253	253	251	247	269	233	253	259	16	281	267	300	332	258	257	245	237	224	210	213	210	6009
			17	237	237	215	213	203	256	263	221	259	182	192	250	17	348	345	302*	564*	413	345	246	227	217	213	221	233	6402
			18	233	236	244	258	252	247	243	247	316	294	204	245	18	245	250	270	262	264	272	273	256	248	230	222	227	6038
			19	233	233	225	230	241	273	246	247	244	244	247	252	19	263	270	306	339	339	339	330	300	278	227	241	147	6294
			20	166	199	186	113	143	153	133	-54*	-6*	104	120	249	20	407*	391*	275	286	263	269	295	253	227	221	213	213	4819
			21	227	237	241	244	246	247	243	243	253	248	247	266	21	270	287	337	501	392	302	280	287	199	93	123	172	6185
			22	187	193	223	230	239	247	246	247	263	223	247	243	22	243	313	280	301	297	307	263	237	243	218	219	223	5932
			23	217	219	230	219	221	223	190	194	220	277	257	294*	23	270	291	253	270	308	323	293	295	246	188	163	193	5844
			24	192	189	153	153	147	163	131	264	267	197	265*	232*	24	283	277	277	303	285	303	290	267	247	197	132	163	5377
			25	170	184	192	187	203	164	147	197	310	140	260	366	25	307	331	291	327	287	239	277	274	268	249	233	226	5829
			26	206	200	184	191	193	223	292	250	243	263	261	261	26	257	260	261	259	272	298	283	230	243	233	236	223	5822
			27	233	237	229	227	231	231	243	240	237	243	267	277	27	349	379	352	287	297	302	300	292	284	270	379	70	6456
			28	80	190	188	127*	240	230*	88*	171	247	238*	199*	16*	28	611*	152*	313	402	268	286	239	273	253	260	255	248	5574
			29													29													
			30													30													
			31													31													

SCALED BY	LYT
CHECKED BY	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 Mgph., converted to Normal Mgph.

MONTHLY SUM	169,653
MONTHLY MEAN	252
DATES WITH GAPS:	

FORM C&GS-404a

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSV.	YEAR	MONTH	ELEMENT
CO	85	FEB	Z

Values are in reathe of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1351 M.T.) is hour 09 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Tes 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	252	255	260	275	265	255	256	270	214	330	157	176	01	190	218	168	173	163	153	207	189	207	233	237	245	5348
			02	253	245	246	247	274	316	323	296	606	217	176	104	02	144	200	190	188	189	208	210	193	204	223	236	243	5731
			03	246	253	251	249	247	247	252	249	256	256	206	223	03	181	123	0	67	175	203	240	223	232	234	239	243	5095
			04	245	246	243	240	240	241	240	240	237	240	240	239	04	235	236	236	236	235	235	234	233	238	239	242	243	5733
			05	239	241	237	238	247	260	303	183	184	204	264	252	05	273	310	289*	-70	56	177	188	200	200	206	231	260	5172
			06	269	302	279	266	273	261	176	188*	-20	157	303*	411*	06	588*	-34*	143	200	215	258*	42*	118	173	216	233	254	5271
			07	274	277	267	256	253	258	291	145	227	224	103	201*	07	36*	-9	86	167	219	232	229	214	213	216	233	245	4862
			08	247	266	282	255	253	247	243	246	253	105*	-154*	59	08	312	249	190	260	183	150	217	163	229	249	246	243	4993
			09	266	293	301	274	292	298	247	-28*	49*	23	27	303	09	353*	412	258	139	108	193	246	248	237	235	254	246	5274
			10	254	257	298	268	298	303	267	273	166	70	218	223	10	173	217	-20	103	201	213	200	133	135	206	223	234	4903
			11	241	245	252	247	260	271	267	246	243	193	173	137	11	40	92	239	207	197	217	211	227	227	236	252	244	5164
			12	243	252	243	241	242	283	277	273	211	142	157	117	12	177	177	183	144	203	215	230	227	223	226	233	236	5155
			13	239	238	237	239	236	234	233	233	232	238	237	144	13	90	117	189	197	184	204	190	163	166	203	223	226	4892
			14	243	243	256	254	244	277	313	273	217	243	167	100	14	50	131	138	186	146	89	126*	193	206	208	245	248	4796
			15	254	256	274	262	248	260	243	246	185	245	238	223	15	230	229	225	226	228	233	232	230	228	229	233	239	5696
			16	235	236	236	235	237	236	233	236	246	247	246	237	16	205	193	128	35	106	181	198	214	219	220	227	228	5014
			17	239	234	246	250	285	323	313	273	189	30	100	188	17	180	147	63*	-159*	-287*	-197*	-42	47	142	193	207	224	3188
			18	226	226	227	230	232	232	229	228	250	167	195	216	18	216	210	207	207	215	216	215	213	216	223	225	226	5247
			19	227	225	220	221	224	243	225	223	219	224	223	221	19	223	217	177	186	193	197	190	187	178	183	199	184	5009
			20	219	244	247	279	350	283*	67*	-105	92*	162*	180*	279	20	250*	168*	164	212	216	216	214	203	194	205	210	221	4770
			21	223	227	225	221	221	233	228	248	243	231	223	204	21	196	200	137	64	40	123	182	173	143	80	140	207	4412
			22	221	226	254	234	233	230	224	243	262	254	239	223	22	218	206	140	93	107	138	178	179	202	203	211	221	4939
			23	220	221	219	220	220	237	256	333	309	263	240	217	23	191	184	168	197	212	202	166	137	129	154	177	207	5079
			24	227	254	259	297	218*	292	232*	162*	167	196	314*	353*	24	183	204	203	116	117	173	185	200	193	204	226	213	5188
			25	237	236	243	248	274	271	333	322	137*	74*	192	181	25	185	184	166	197	195	209	228	233	224	224	226	228	5247
			26	231	239	241	247	264	259	276	253	255	253	236	226	26	219	207	212	220	224	222	203	187	187	202	214	213	5490
			27	226	228	233	231	240	243	252	242	254	250	250	226	27	192	107	91	137	193	193	197	207	206	203	237	248	5086
			28	287	300	188*	-47*	188*	-34*	-187*	80*	129	263*	593*	245	28	688*	-52	90	146	100	241	239	248	237	240	249	246	4671
			29													29													
			30													30													
			31													31													

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

Preliminary base-line and scale values:

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[ ] 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	141,425
MONTHLY MEAN	210
DATES WITH GAPS:	

FORM C&GS-404e

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 (135W M.T.) is hour 09 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	85	FEB	H

C	Q or S	Tes 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	301	298	312	320	326	313	319	328	240	148*	220	47*	01	-100	15	200	287	137	263	290	303	314	313	313	312	5839
			02	314	312	311	309	323	363	373	341	341	326	286	149	02	273	263	238	260	289	300	288	306	310	307	307	302	7191
			03	293	293	307	310	316	309	305	313	309	309	313	309	03	158	-201*	-40	269	310	320	323	303	297	305	301	305	6336
			04	305	305	307	307	310	305	305	302	300	300	300	302	04	302	307	307	307	303	303	300	297	300	300	303	309	7286
			05	309	303	307	316	320	320	490	540	516	450	360	360	05	312	129	-285*	0	243	343	330	300	290	290	300	297	7190
			06	277	240	341	319	390	463	400	65	170	299	80	-280*	06	-369*	-223*	269	330	246	-581*	0*	320	315	311	331	300	4013
			07	329	317	323	320	321	317	360	361	352	349	189	-207*	07	-581*	85	223	244	290	321	296	306	302	292	290	308	5707
			08	323	313	310	323	332	319	318	306	329	185*	-117*	205	08	46	50	274	179	170	140	80	346	258	183	273	309	5454
			09	326	314	320	347	387	443	477	359*	331*	268	67	-33*	09	-55*	-290*	30	150	213	328	373	323	300	306	292	283	5859
			10	300	322	308	340	376	376	321	356	357	325	349	280	10	-17*	-207*	-83*	269	342	173	80	193	288	312	301	317	5978
			11	316	319	323	317	313	319	340	337	336	323	320	175	11	193	100	-18	133	313	303	322	320	312	309	298	294	6617
			12	314	327	315	313	320	359	356	358	413	293	320	156	12	-54*	170	-20	153	337	305	303	310	310	310	304	303	6575
			13	307	313	317	317	316	313	313	313	315	310	307	260	13	80	267	311	283	297	317	301	243	288	316	309	301	7014
			14	303	316	330	332	337	340	371	400	453	367	190	100	14	80	227	303	340	227	63	322*	330	309	303	277	299	6919
			15	326	300	289	333	359	327	310	321	330	320	310	307	15	310	309	309	309	309	307	316	313	311	300	295	298	7518
			16	293	300	310	318	320	313	320	320	323	337	328	323	16	313	273	190	63	303	318	319	319	320	311	300	295	7129
			17	308	316	329	320	312	388	451	504	479	333	171	169	17	71	-14*	-355*	-126*	-9*	165*	287	327	343	330	327	323	5749
			18	322	323	327	329	318	311	316	313	307	337	341	316	18	310	306	312	315	316	312	313	313	308	313	310	310	7598
			19	310	310	321	326	323	307	319	318	318	318	317	321	19	321	317	283	317	308	299	307	302	297	300	278	279	7416
			20	303	326	342	427	487	642*	794*	690	581*	453*	268*	267	20	115	107	337	317	313	310	289	281	301	311	308	307	8876
			21	310	311	313	320	329	327	323	327	325	316	317	310	21	309	300	192	112	221	321	333	313	223	267	309	309	7037
			22	309	306	329	327	336	330	333	333	357	360	369	373	22	325	272	117	200	305	319	329	325	318	312	307	310	7501
			23	308	318	328	330	327	331	358	410	431	379	351	323	23	275	265	243	319	311	290	280	296	315	309	293	313	7703
			24	308	339	382	418	621*	543*	581*	458*	383*	407	178	153	24	290	303	223	118	300	329	320	308	280	268	279	312	8101
			25	319	326	333	347	387	401	418	507	621*	358*	268*	186	25	191	160	300	291	293	292	339	331	312	307	303	305	7895
			26	307	296	297	319	322	337	349	319	320	317	313	303	26	307	309	305	313	305	297	263	287	299	307	299	307	7397
			27	307	313	313	325	329	339	337	330	329	333	337	298	27	196	118	161	325	343	332	331	329	319	310	183	340	7177
			28	347	365	535*	764*	596*	322*	249*	467*	400	191	405*	198*	28	444*	114*	151	4	285	253	340	281	325	301	307	303	5625
			29													29													
			30													30													
			31													31													

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

Preliminary base-line and scale values:

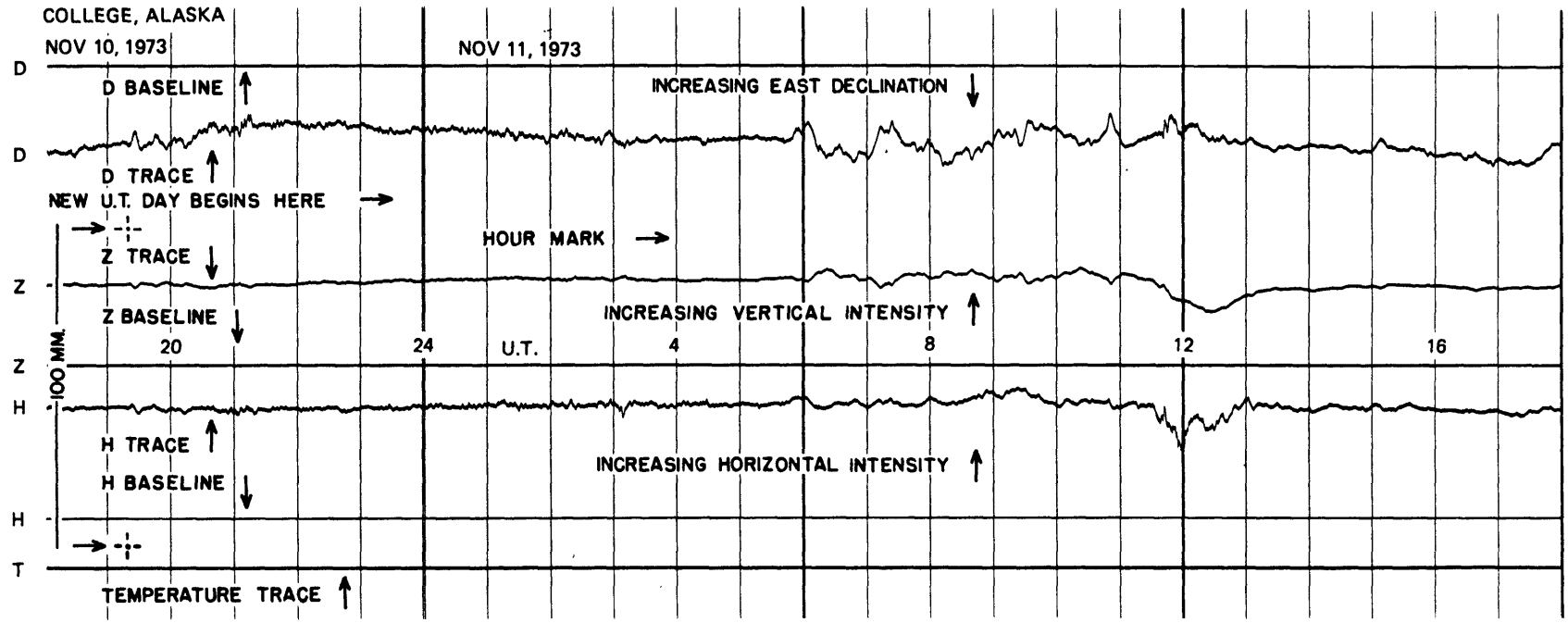
Interval Beginning	Base-line Value	Scale Value

( ) 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 Mgph., converted to Normal Mgph.

MONTHLY SUM	190700
MONTHLY MEAN	284
DATES WITH GAPS:	

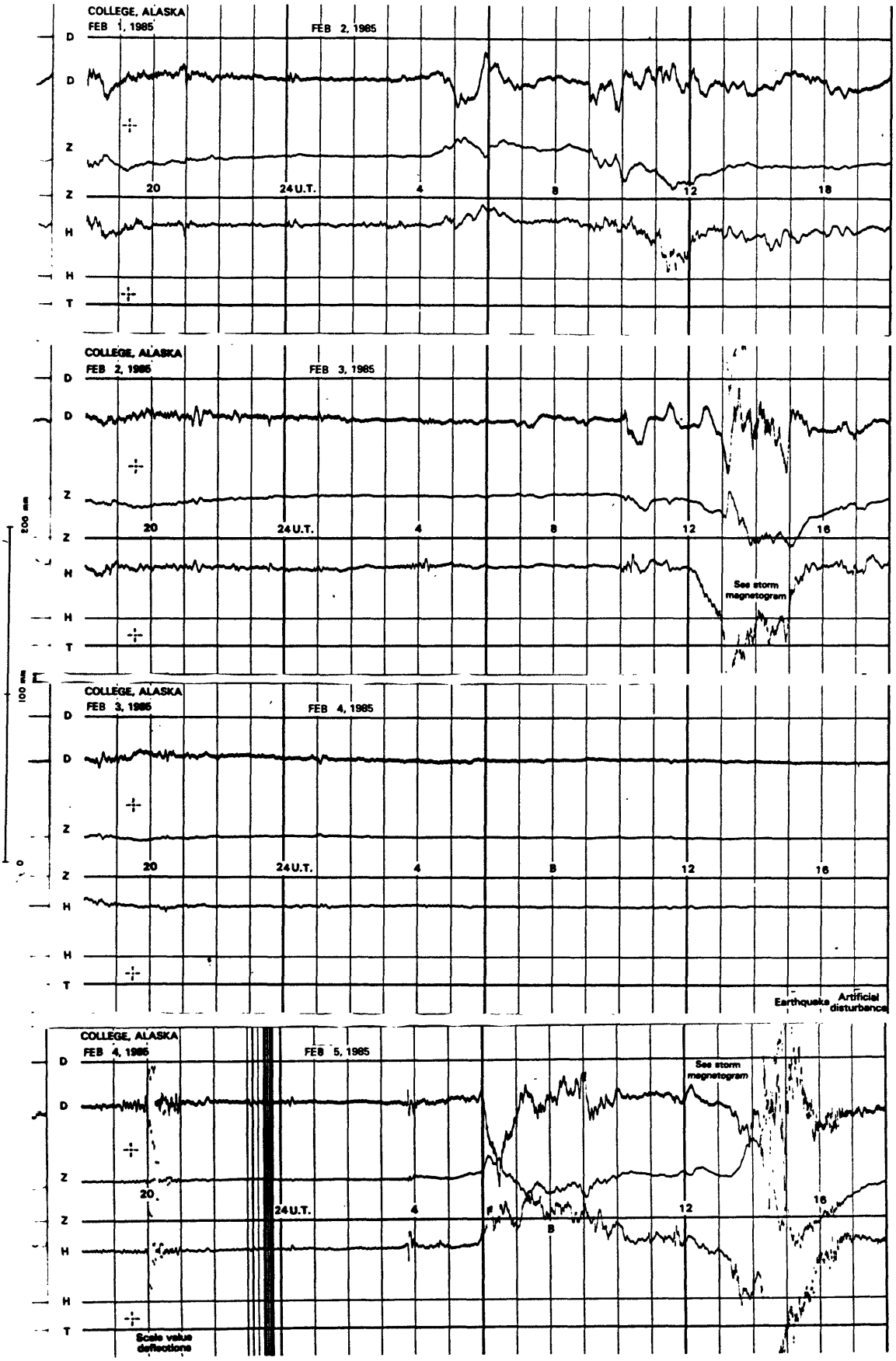
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

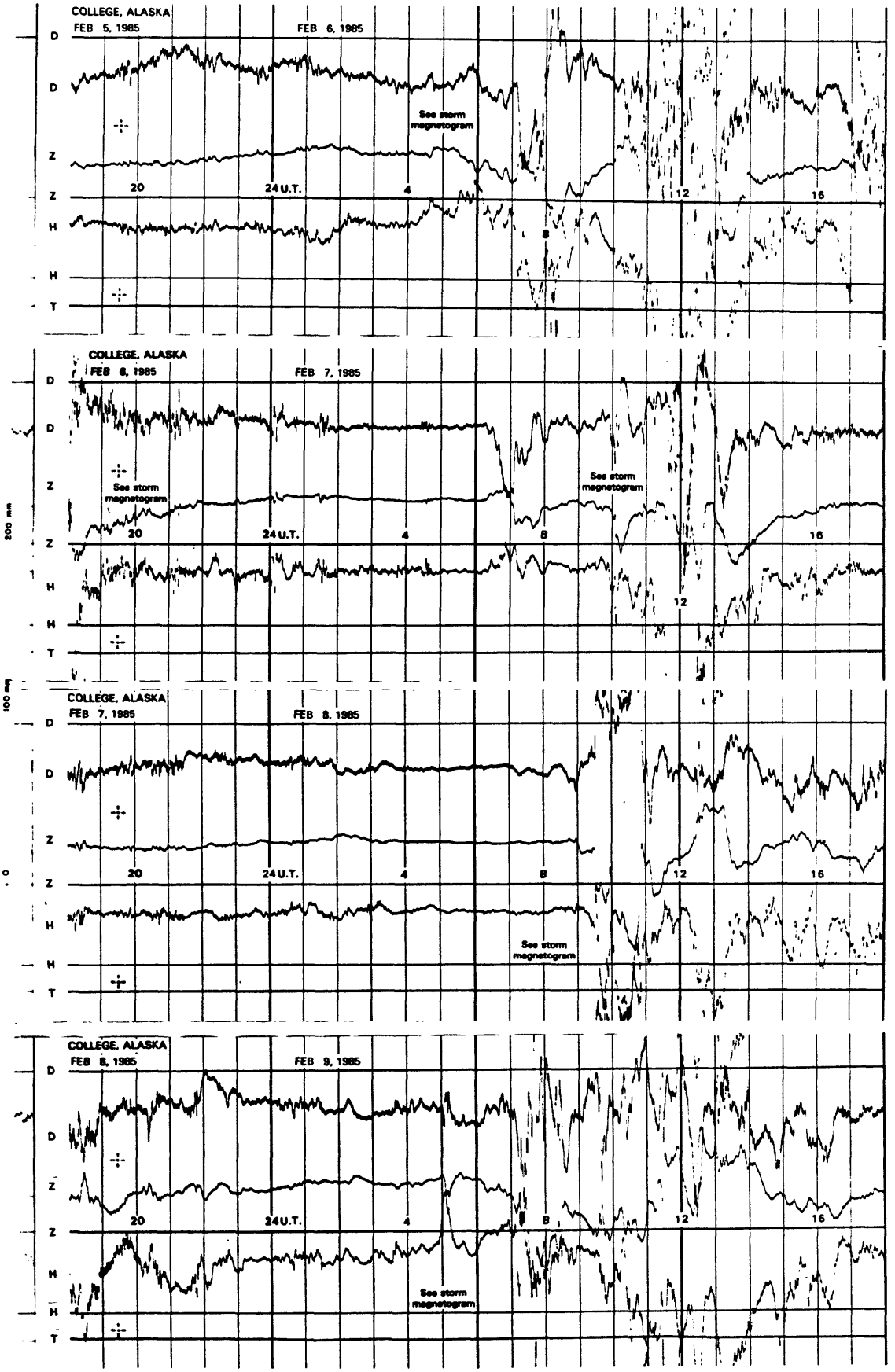


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

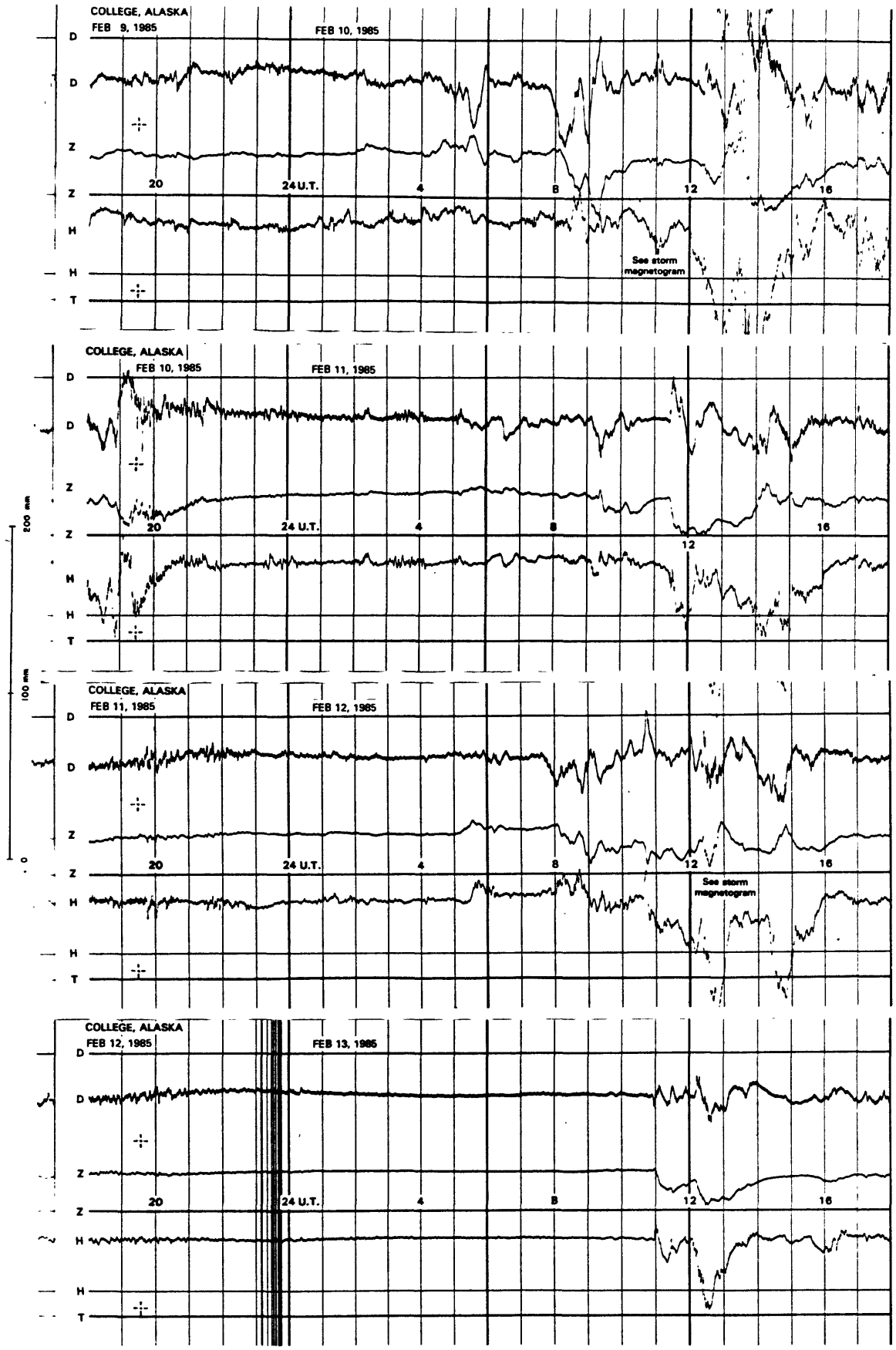
NORMAL MAGNETOGRAMS



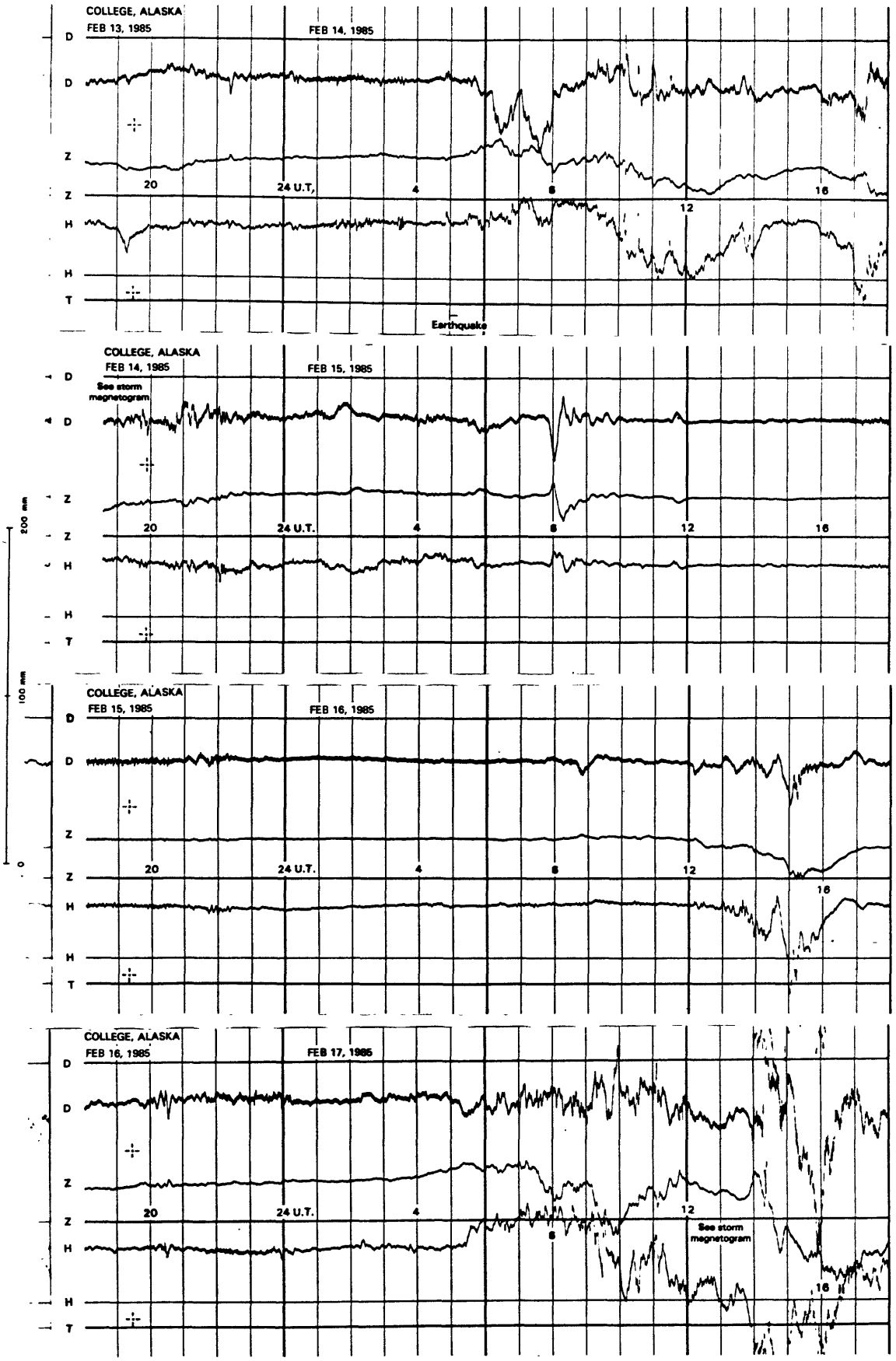
NORMAL MAGNETOGRAMS



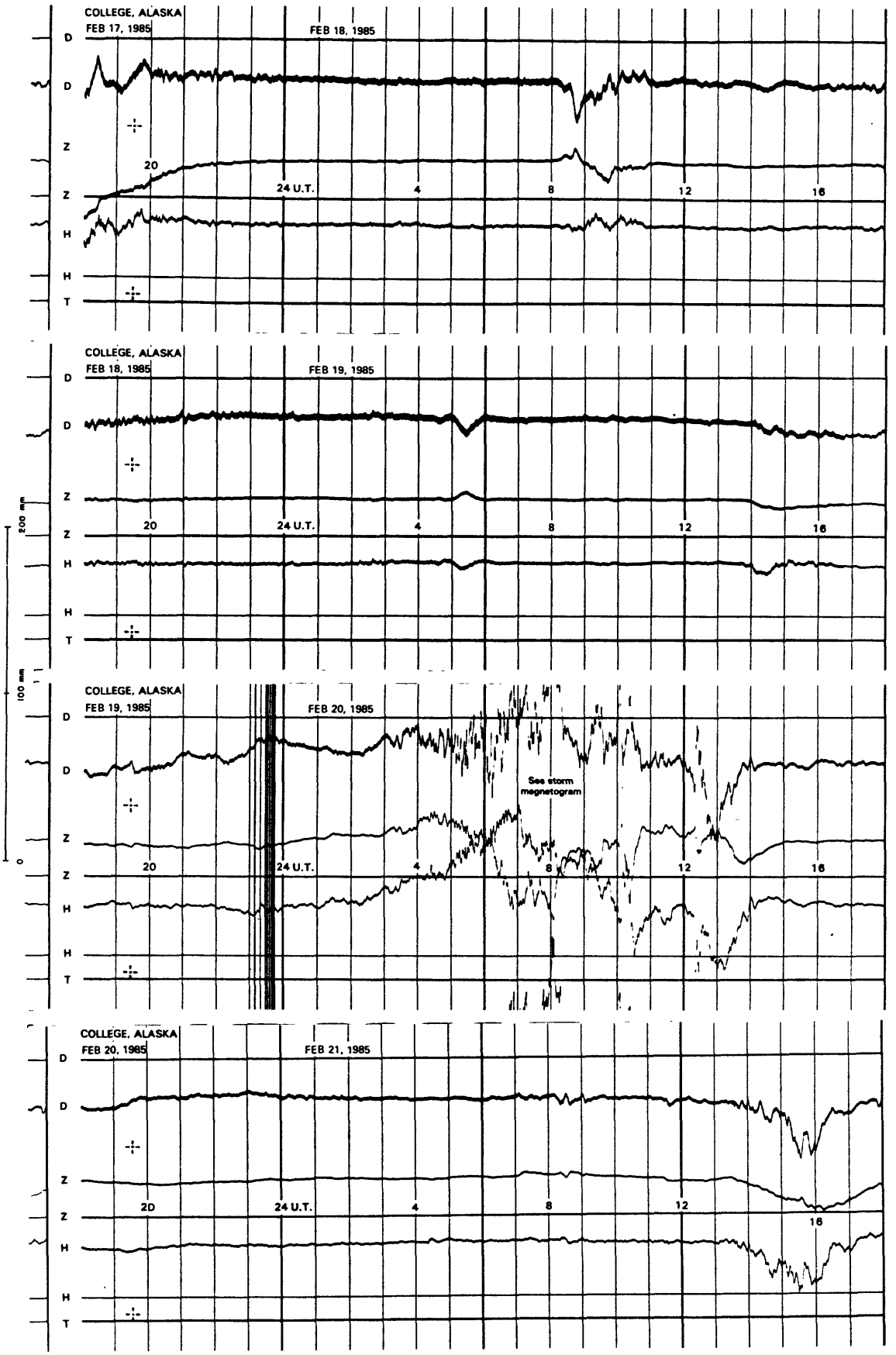
NORMAL MAGNETOGRAMS



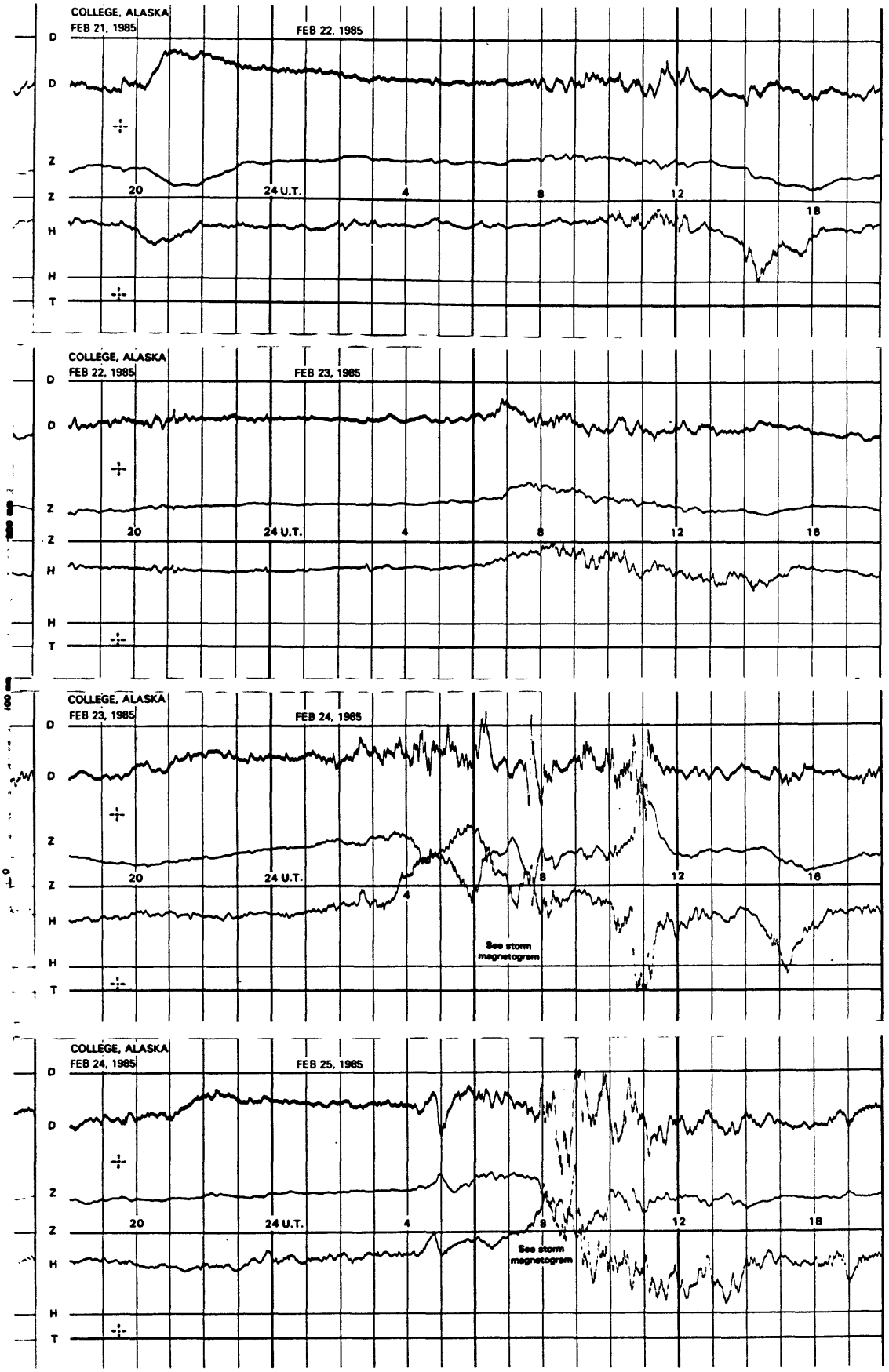
NORMAL MAGNETOGRAMS



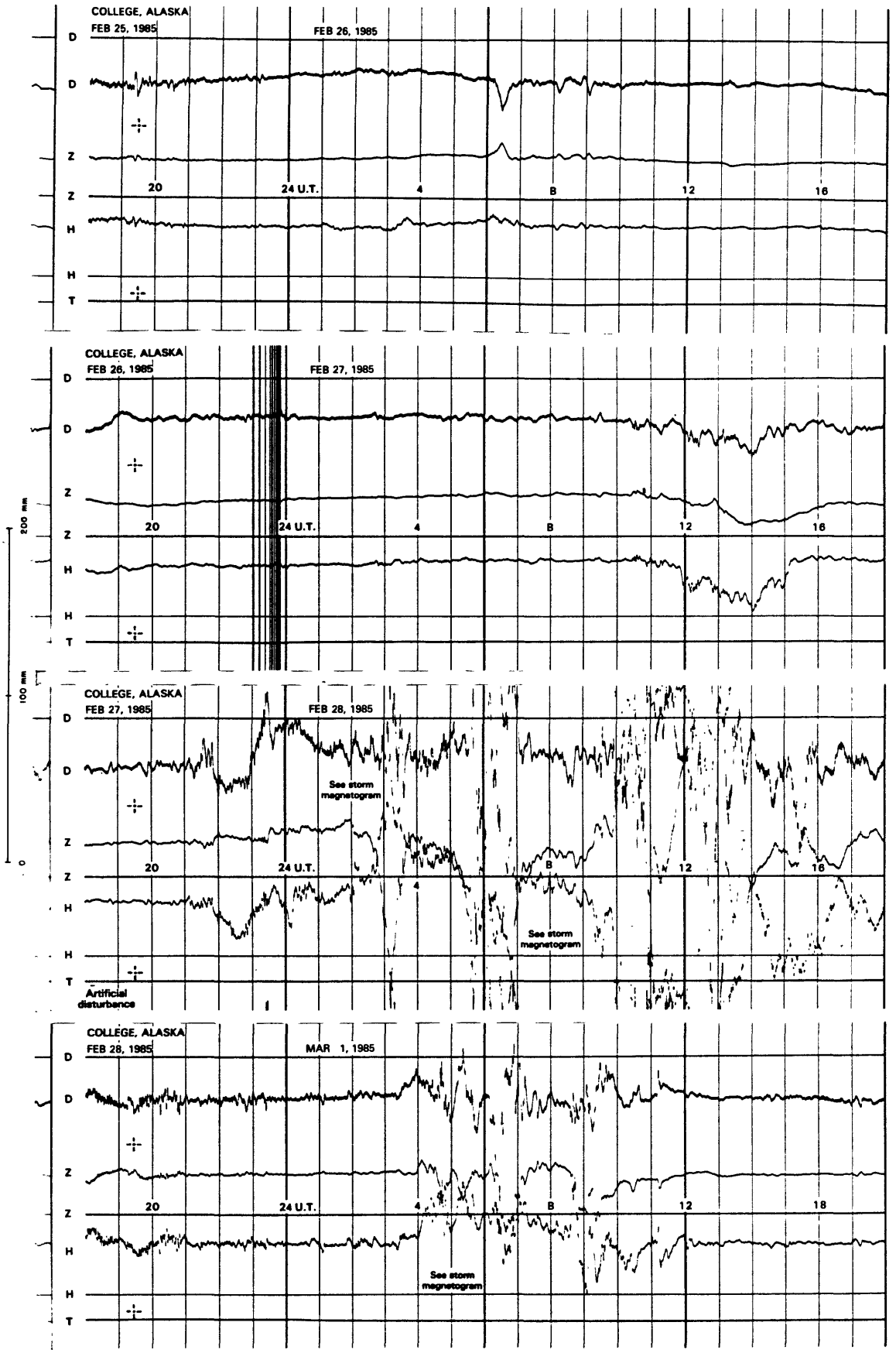
NORMAL MAGNETOGRAMS



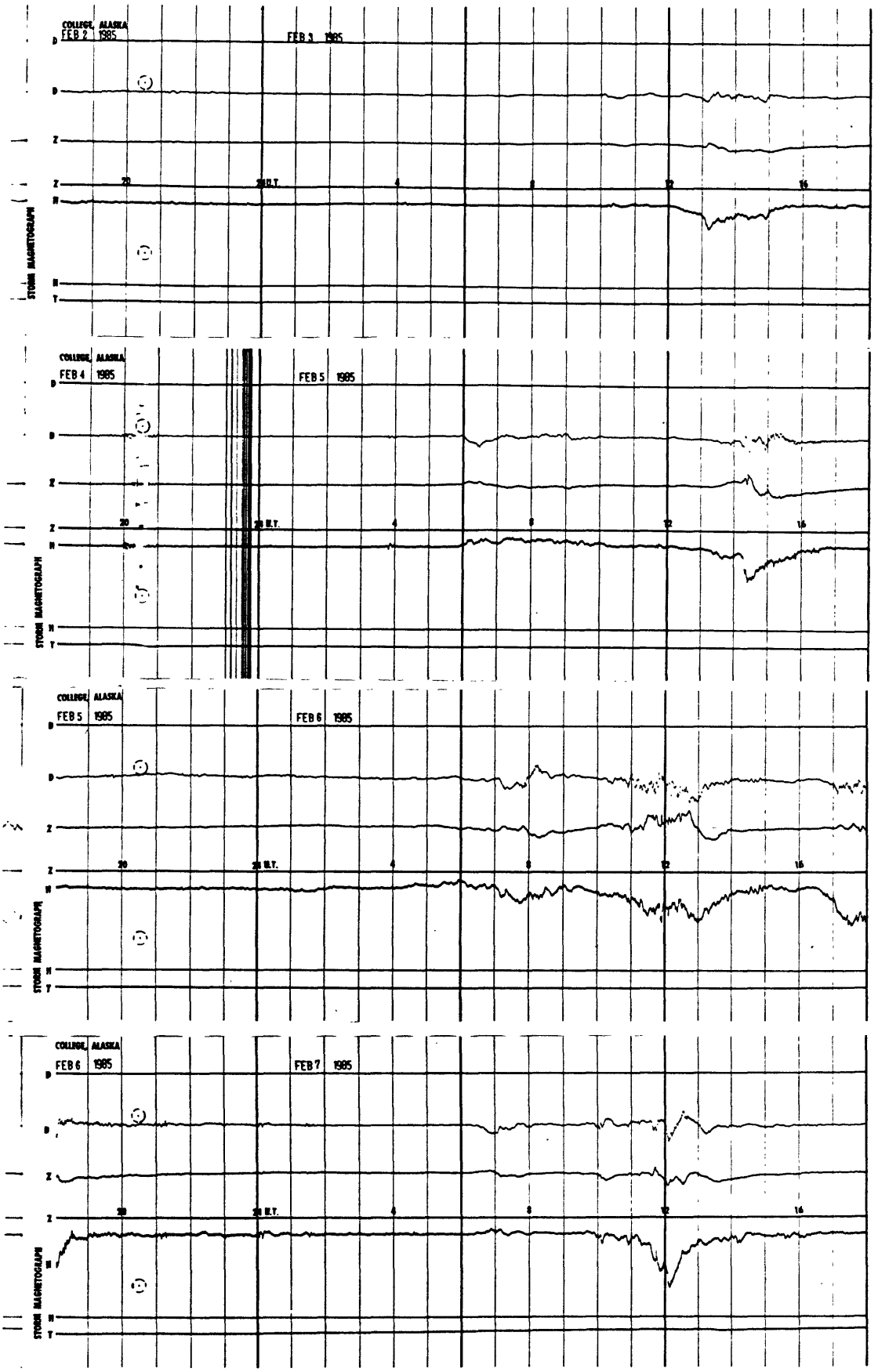
NORMAL MAGNETOGRAMS



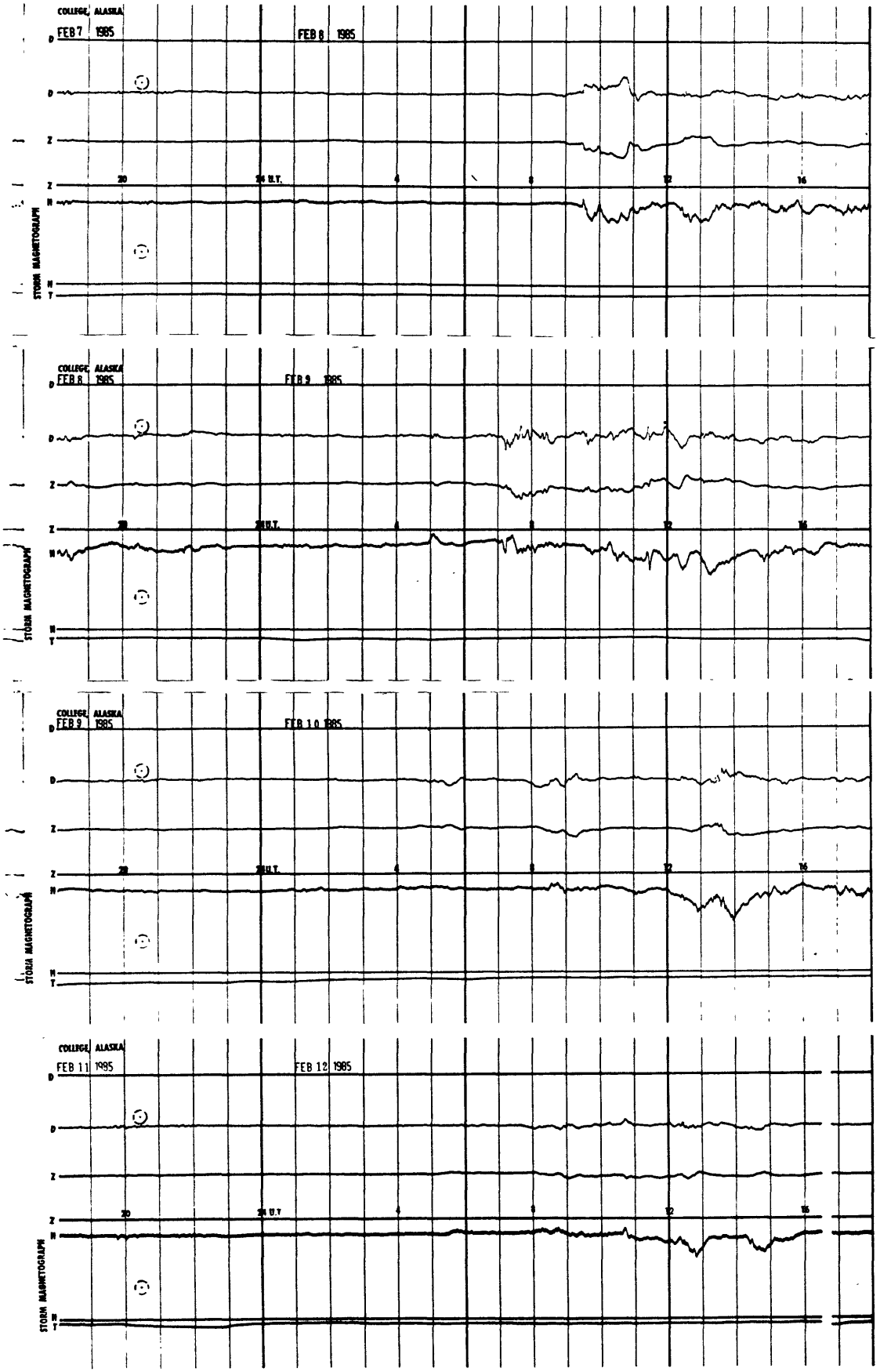
NORMAL MAGNETOGRAMS



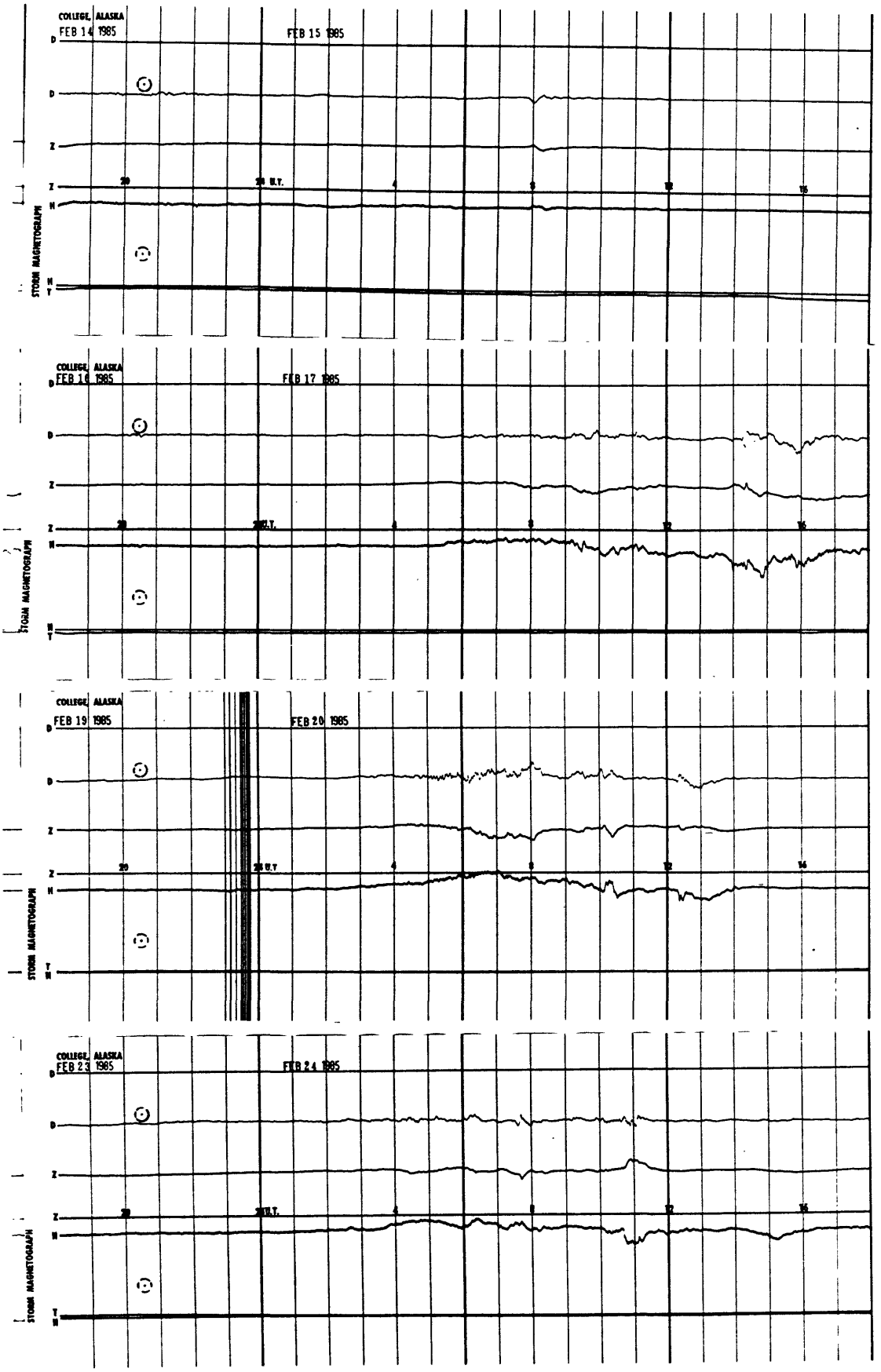
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS