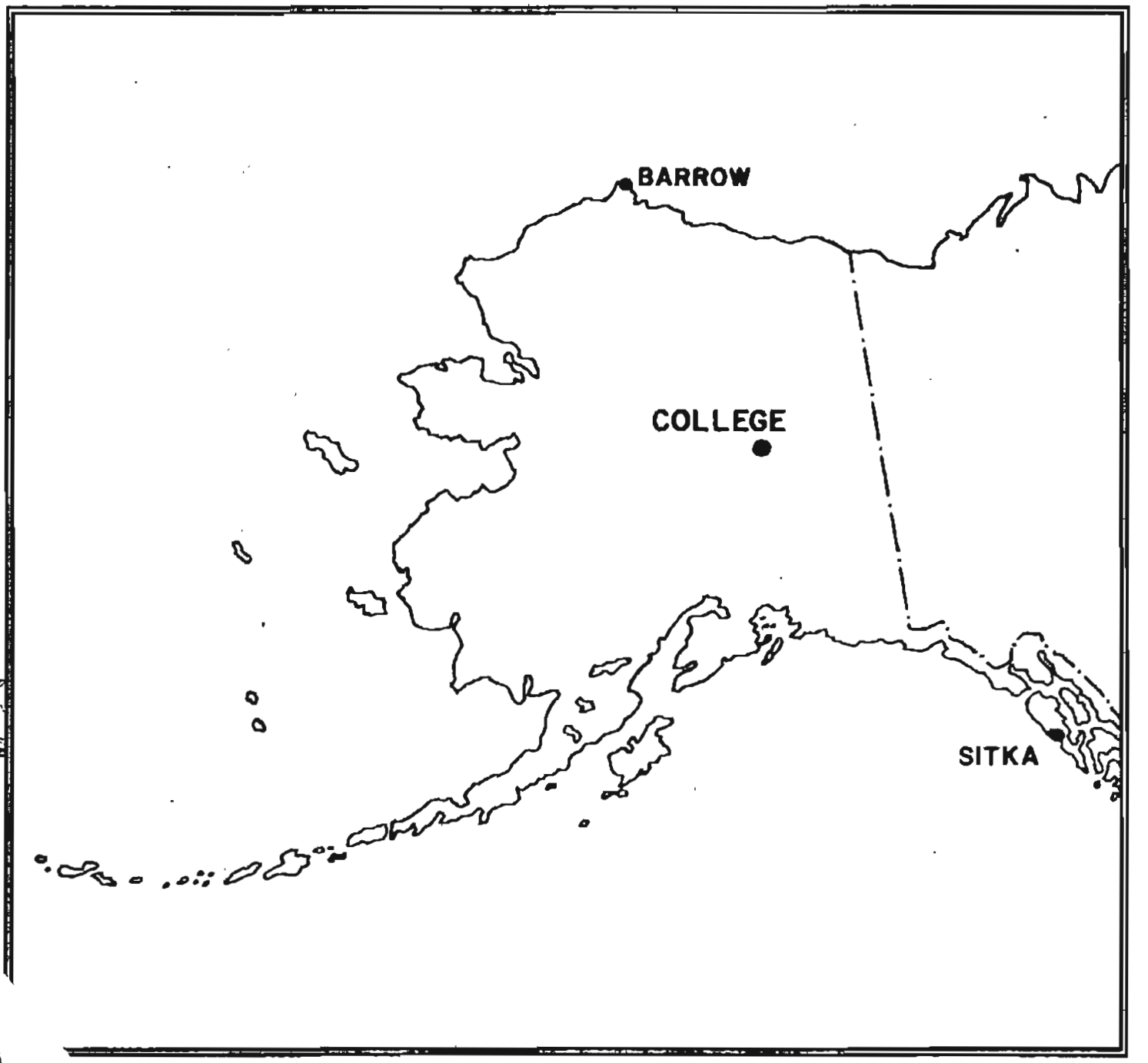
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

FEBRUARY 1982

OPEN FILE REPORT 82-0300B



ORDER OF CONTENTS

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, 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°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 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

OBSERVATORY: COLLEGE, ALASKA

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR: FEBRUARY 1982

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	7	7	6	7	5	38	71
2	4	6	7	7	6	5	3	2	40	67
3	5	5	5	6	6	5	4	5	41	53
4	4	5	6	6	7	6	4	5	43	66
5	4	6	5	5	5	6	3	3	37	45
6	3	4	6	6	5	6	6	5	41	57
7	4	3	3	6	4	4	2	2	28	26
8	2	3	4	6	4	4	4	3	30	28
9	2	3	3	5	5	2	2	1	23	19
10	1	2	1	6	7	6	4	3	30	44
11	3	5	5	5	6	7	5	4	40	57
12	3	2	2	7	5	4	6	4	33	44
13	4	3	6	7	5	7	6	4	42	70
14	4	4	6	6	6	6	5	3	40	55
15	3	3	4	6	5	5	1	0	27	30
16	1	1	0	0	4	3	1	0	10	06
17	0	1	4	5	5	6	5	4	30	35
18	3	4	7	5	6	6	5	4	40	58
19	4	5	6	6	6	6	4	3	40	55
20	3	2	6	6	6	4	3	4	34	41
21	3	2	2	6	6	2	3	3	27	28
22	3	4	5	6	7	6	7	5	43	72
23	5	2	2	5	5	6	4	3	32	35
24	4	6	5	6	6	4	2	3	36	46
25	3	5	7	5	5	4	4	2	35	45
26	4	4	6	6	4	4	5	5	38	46
27	3	3	3	5	3	2	2	2	23	16
28	2	0	0	2	3	3	3	2	15	08
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	7.79		(γ/mm)
LOWER LIMIT FOR K = 9	2550	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-867

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: FEBRUARY

YEAR: 1982

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
			NOTE: Month of February was too disturbed to select any meaningful Outstanding Magnetic Effects. The most outstanding feature about the month of February 1982 was that: 19 days were severely disturbed. 7 days were moderately disturbed. 2 days were quiet.

IDENTIFIED BY: JBT

VERIFIED BY: JEP

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA
FEBRUARY 1982

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

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	10	09XX	..	..	..	..	10	5	7	376	1590	1110	15	19
								11	6	7					
								12	4	7					
								13	4, 6	7					
		17	06XX	..	..	..	..	18	3	7	204	1270	950	21	03
		21	17XX	..	..	..	..	22	5, 7	7	298	1810	1190	27	05
								25	3	7					

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: FEBRUARY 1982

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 2-1-82	2400 U.T. 2-28-82	1.0/mm	3.78/mm	27° 46.8 E
H	0000 U.T. 2-1-82	2400 U.T. 2-11-82	7.8 γ/mm		12751 γ
	0000 U.T. 2-12-82	2400 U.T. 2-28-82	"		12744 γ
Z	0000 U.T. 2-1-82	2400 U.T. 2-11-82	7.7 γ/mm		55149 γ
	0000 U.T. 2-12-82	2400 U.T. 2-28-82	"		55154 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 2-1-82	2400 U.T. 2-28-82	7.9/mm	29.6 γ/mm	23° 42.7 E
H	0000 U.T. 2-1-82	2400 U.T. 2-11-82	44.0 γ/mm		11502 γ
	0000 U.T. 2-12-82	2400 U.T. 2-28-82	"		11491 γ
Z	0000 U.T. 2-1-82	2400 U.T. 2-11-82	48.5 γ/mm		54032 γ
	0000 U.T. 2-12-82	2400 U.T. 2-28-82	"		54018 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 00.3 E	12963 γ	55389 γ

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

DAYS USED: FEB 7, 9, 16, 27, 28, ** (NOTE BELOW)

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

FORM 75-196

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

OBSY. CO | YEAR 82 | MONTH FEB | ELEMENT D

Values are in units of gam, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500 M.T.) is hour 11 of the same universal day.
Skidsinger corrections have been applied. Negative values are inked, with minus signs shown.

DAY	01	02	03	04	05	06	07	08	09	10	11	12	DAY	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	117	126	134	145	134	149	129	112	78	89	80	183	01	-159	104	134	173	284	573	709	1005	121	145	130	77	4772
02	82	96	117	97	114	-315	-165	34	-140	51	73	257	02	304	352	162	170	199	207	236	213	192	194	178	152	2860
03	140	132	141	143	108	274	51	-45	136	98	82	113	03	106	145	10	170	219	239	267	227	227	250	173	245	3651
04	110	42	114	76	46	-45	52	45	88	129	101	185	04	336	629	415	257	236	316	240	232	222	144	188	268	4426
05	101	118	104	90	-5	78	74	90	-54	-116	-85	-77	05	232	208	196	258	606	320	27	116	136	143	52	16	2628
06	91	90	118	108	69	46	80	-37	26	-7	-5	320	06	328	338	240	622	654	328	265	384	195	112	56	75	4496
07	150	112	84	109	92	114	114	56	90	26	113	187	07	209	250	220	209	159	175	205	156	163	163	140	80	3376
08	68	66	82	68	91	34	-8	-192	56	-93	209	155	08	164	376	258	206	242	120	139	204	129	94	125	116	2769
09	110	86	102	104	110	83	91	-21	-5	91	88	69	09	-13	128	147	159	185	198	216	214	181	165	132	175	2798
10	95	108	90	87	114	104	124	121	118	87	84	312	10	249	324	546	388	403	214	366	202	112	118	128	148	4702
11	80	82	96	55	112	74	-4	128	151	140	86	134	11	284	456	893	568	575	305	218	202	166	189	20	19	5029
12	114	115	88	106	52	113	119	113	113	114	57	-108	12	52	66	210	215	186	250	297	75	-12	-84	156	114	2521
13	72	142	134	75	81	87	-12	-123	-164	202	-84	297	13	274	519	615	663	646	393	178	266	258	188	36	80	4823
14	94	64	75	72	57	73	-12	30	-68	99	107	274	14	321	270	270	336	212	440	186	337	168	128	122	32	3687
15	56	72	100	118	101	78	72	166	71	129	245	337	15	321	432	353	146	124	132	156	175	176	172	168	158	4058
16	137	146	111	108	127	132	111	130	129	125	130	139	16	144	195	219	167	148	150	139	145	147	156	146	130	3411
17	122	118	114	118	120	116	103	94	73	52	144	282	17	289	188	381	416	432	146	102	145	59	34	101	117	3866
18	125	100	110	145	114	106	116	67	-108	11	103	31	18	193	344	297	218	165	173	153	146	106	58	96	120	2989
19	42	77	105	113	420	110	91	-28	83	67	83	117	19	210	43	393	400	178	67	145	107	92	74	111	123	3223
20	129	130	140	128	141	178	97	162	-68	11	133	35	20	337	186	152	137	180	105	102	106	106	61	83	103	2874
21	147	138	144	127	126	123	118	126	202	104	99	258	21	455	272	126	167	136	131	208	238	244	58	23	93	4183
22	107	84	66	90	17	141	94	132	114	96	-156	171	22	220	416	527	337	630	377	329	145	33	98	185	31	4284
23	164	172	138	129	135	118	123	124	122	143	162	195	23	323	298	432	1091	282	181	145	-12	5	96	113	58	4737
24	86	63	69	65	35	67	99	102	151	67	83	158	24	242	210	274	52	167	173	167	179	121	124	174	146	3074
25	133	32	39	74	-164	-187	-211	-401	67	19	84	125	25	233	281	369	194	162	195	136	113	149	139	124	138	1843
26	119	112	61	124	128	97	-10	24	72	32	294	342	26	140	193	179	169	161	140	186	218	217	105	111	116	3331
27	109	94	103	110	118	135	132	116	150	78	104	137	27	166	184	149	146	153	166	172	173	184	182	170	141	3372
28	124	117	116	118	115	113	117	115	106	145	143	152	28	144	169	131	124	179	157	194	244	128	159	156	123	3389
29													29													
30													30													
31													31													

SCALED BY: TKC, LYT, EAS, JEP
CHECKED BY: EAS, JEP
DATA RE-KEYED 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 trace.
( ) Setting 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 Magn., converted to Normal Magn.

MONTHLY SUM 103 172
MONTHLY MEAN 151
DATES WITH GAPS:

FORM 75-186

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

Values are (a scale) of min. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500 M.T.) is hour 21 of the same universal day.

OBSY.	YEAR	MONTH	ELEMENT
CO	82	FEB	Z

Variation corrections have been applied. Negative values are in red, with minus sign shown.

Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	339	342	348	369	378	412	394	360	339	255	291	346	01	757	650	365	392	360	365	598	-90	-49	68	256	316	8161
02	349	373	389	383	212	-59	42	181	292	299	326	750	02	629	788	367	299	318	338	336	329	337	339	340	339	8230
03	339	330	339	349	340	212	-40	168	174	420	366	362	03	320	480	529	221	290	329	299	224	278	329	317	280	7255
04	241	314	322	330	283	105	-28	128	295	354	394	542	04	655	629	465	509	219	259	281	194	167	262	343	264	7527
05	141	224	234	212	105	251	386	369	271	269	228	349	05	529	502	325	336	642	150	88	238	274	325	342	315	7105
06	339	330	351	353	374	365	194	4	30	239	312	460	06	314	384	560	560	289	352	405	358	158	254	246	349	7580
07	349	328	288	324	302	347	307	281	391	261	268	283	07	273	221	246	273	299	333	289	298	300	303	328	329	7221
08	350	348	357	353	363	343	381	254	287	229	337	307	08	336	356	261	210	212	153	138	205	223	291	339	340	6973
09	340	337	349	341	333	354	347	287	328	366	348	319	09	157	282	350	354	340	333	327	291	280	307	319	320	7729
10	330	339	330	340	339	340	339	329	330	331	382	604	10	518	592	945	409	611	279	223	206	172	300	333	348	9269
11	321	301	301	289	299	294	44	229	282	245	329	364	11	424	536	600	613	82	76	178	239	287	373	396	402	7504
12	387	319	331	339	339	325	330	324	337	329	289	291	12	250	142	280	337	313	278	248	210	140	227	350	339	7054
13	300	302	247	237	246	152	26	-113	184	480	309	423	13	525	562	720	493	454	310	366	487	430	380	317	357	8194
14	348	343	370	366	323	152	-31	7	153	341	512	720	14	512	430	320	331	318	474	259	392	250	251	298	224	7683
15	230	231	247	238	328	347	287	296	277	249	372	531	15	600	651	549	429	201	297	329	329	325	319	320	328	8310
16	330	338	327	391	347	339	338	329	323	325	322	325	16	311	314	219	229	289	307	309	309	311	313	316	315	7516
17	319	319	318	315	316	319	331	253	215	339	410	562	17	518	374	552	536	576	234	200	311	312	334	335	344	8643
18	351	342	367	372	363	352	337	197	246	240	308	270	18	411	461	133	83	195	271	290	289	315	285	300	378	7156
19	382	375	362	342	368	142	134	224	241	240	214	307	19	493	398	323	323	42	-46	109	240	289	293	332	335	6462
20	337	340	331	333	370	346	330	332	-38	222	280	170	20	70	154	211	271	274	262	264	236	270	297	325	331	6318
21	339	338	324	321	317	314	317	322	321	316	300	12	21	202	302	272	296	314	308	314	301	286	215	216	294	6861
22	322	326	337	376	248	241	243	369	347	316	215	327	22	445	525	789	613	241	51	64	74	239	348	376	390	7822
23	364	295	335	331	340	336	347	338	329	310	278	371	23	336	229	259	113	171	216	271	144	208	291	344	361	6917
24	368	367	348	374	354	184	284	334	342	415	437	316	24	375	437	436	162	209	224	260	272	274	284	319	362	7717
25	389	378	369	305	102	108	-223	-62	215	115	253	413	25	487	322	443	240	257	284	261	284	301	318	329	328	6216
26	318	347	342	340	315	395	167	-35	154	265	349	280	26	300	333	291	289	308	321	322	319	342	319	316	326	7023
27	330	336	348	343	347	338	339	330	293	284	329	230	27	253	279	277	298	299	307	303	312	323	324	324	326	7472
28	326	326	327	321	318	316	320	321	330	324	316	304	28	299	282	275	294	288	251	294	292	251	284	310	319	7288
29													29													
30													30													
31													31													

SCALED BY: TKC, LYT, EAS, JEP

CHECKED BY: EAS, 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.

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

[ ] 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	209206
MONTHLY MEAN	311
DATES WITH GAPS:	

FORM 35-106

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

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

OBSY.	YEAR	MONTH	ELEMENT
CO	82	FEB	H

Q (no) S	Tes Q	Dy \ Hr	01	02	03	04	05	06	07	08	09	10	11	12	Dy \ Hr	13	14	15	16	17	18	19	20	21	22	23	24	SUM
		01	290	298	301	343	370	415	412	417	412	361	-47	-525*	01	-605*	-242*	303	188	296	-185*	-815*	-560*	-102*	144	297	290	2056
		02	324	375	403	505	606*	691*	488*	149*	403*	423	324	-300*	02	-317*	-73*	249	276	316	285	272	270	264	256	254	266	6703
		03	266	281	286	279	332	634*	596*	521*	443*	221*	6*	-39*	03	158*	-187*	-338*	312	319	261	79	181	260	219	277	354	5721
		04	422	464	428	351	487	589*	570	484	271	-163*	-107*	1	04	-600*	-611*	-215*	-187*	140	182	125	21	130	73	207	456	3518
		05	417	389	434	386*	606*	641*	491	459	335*	301*	369	302	05	118	79	180	126	-385*	-130*	248	283*	260	229	182	259	6579
		06	234	268	297	284	329	487	494*	403*	120*	446*	210*	-277*	06	-192*	-98*	-169*	-418*	-508*	-310*	-21	-243*	137	123	172	329	2097
		07	330	359	432	322	376	365*	413	442	428	346*	35*	77	07	92	132	234	249	311	238	237	248	220	217	212	226	6541
		08	285	291	324	321	348	363	498	608	406	318	140*	206*	08	3	-123	105	198	199	132	93	122	5	278	301	263	5704
		09	240	237	294	378	396	349	378	474	456	405*	353*	104*	09	157*	332	321	297	268	263	221	226	267	265	245	250	7176
		10	261	263	264	283	301	317	300	304	293	285	310	-243*	10	-79*	67	-390*	-227*	-340*	-45*	9	21	178	294	286	222	2934
		11	287	371	342	396	438	608	650*	437*	341	300	283	4*	11	-205*	-548*	-454*	-533*	90*	242*	287	278	311	194	228	330	4677
		12	280	282	284	276	268	289	297	306	325*	329*	327*	-23*	12	309*	269*	291*	117*	123*	229*	103*	-369*	-176*	251	246	231	4864
		13	328	405	410	437	440	389	362*	447*	163*	-7*	288*	-363*	13	-160*	-176*	-391*	-646*	-528*	-353*	-516*	-120*	-86*	276	299	308	1206
		14	335	319	418	342	428	440*	553*	435*	203*	198*	77*	-148*	14	-268*	1*	128*	133*	130*	-363*	-160*	-66*	110	196	205	256	3902
		15	273	335	293	295	325	369	354	282	305	248	139	-199*	15	-193*	-358*	-221*	-51*	318	347	320	309	311	303	298	291	4693
		16	298	271	280	286	301	299	292	288	287	287	281	278	16	186	67	144	214	300	298	287	291	297	281	272	270	6355
		17	271	277	282	291	303	306	320	458*	479*	370*	195*	-11*	17	-58*	187*	95*	-103*	-375*	-23*	351	329	272	308	298	291	5113
		18	313	316	301	300	369	397	380	203*	-136*	211*	177*	41*	18	-4*	-80*	-398*	-63*	814*	319*	306	214*	325*	236	274	286	4601
		19	345	314	373	432	490	542	355	229	237	67*	140*	302*	19	67*	-454*	-148*	-136*	-296*	46*	257	271	288	323	299	326	4670
		20	300	310	312	322	311	331	325	337	163*	175*	267*	-193*	20	-341*	-46*	268*	304*	192*	285*	234	231	258	203	279	271	5098
		21	280	278	299	306	298	297	300	317	341	329	214*	-381*	21	-409*	30*	281*	329*	313*	301*	299	282	241	168	263	297	5274
		22	303	301	375	354	514	435	499	366	332	294	-183*	-46*	22	76*	-176*	-575*	-273*	-228*	-511*	-420*	68	234	229	267	273	2504
		23	439	505	322	294	289	302	306	292	298	294	311	129	23	-51*	23*	-143*	-494*	-176*	-8*	-60	55	212	230	252	309	3930
		24	336	450	476	438	548	508*	463*	430	482	44*	-30*	194*	24	42*	-23*	-375*	175*	231	276	301	302	287	274	252	314	6395
		25	320	321	354	552	848*	861	494	516	67*	267*	258*	178*	25	-221*	23*	-152*	150*	311	302	178	283	309	288	270	270	7047
		26	297	342	344	540	575*	478*	535*	265*	240*	279*	-306*	-1*	26	323*	243*	261*	267*	304*	291*	285*	280*	182*	48*	251	320	6613
		27	269	299	319	330	339	320	300	318	359	75*	-86*	187*	27	259*	150*	218*	297*	272*	270*	290*	294*	290*	272	277	250	6168
		28	262	270	285	292	297	300	301	309	316	336	320	291	28	282*	187*	290*	290*	212*	253*	306*	221*	227*	279	270	269	6665
		29													29													
		30													30													
		31													31													

SCALED BY	TKC, LYT, EAS, JEP
CHECKED BY	EAS, JEP
SIGNS REVIEWED 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.

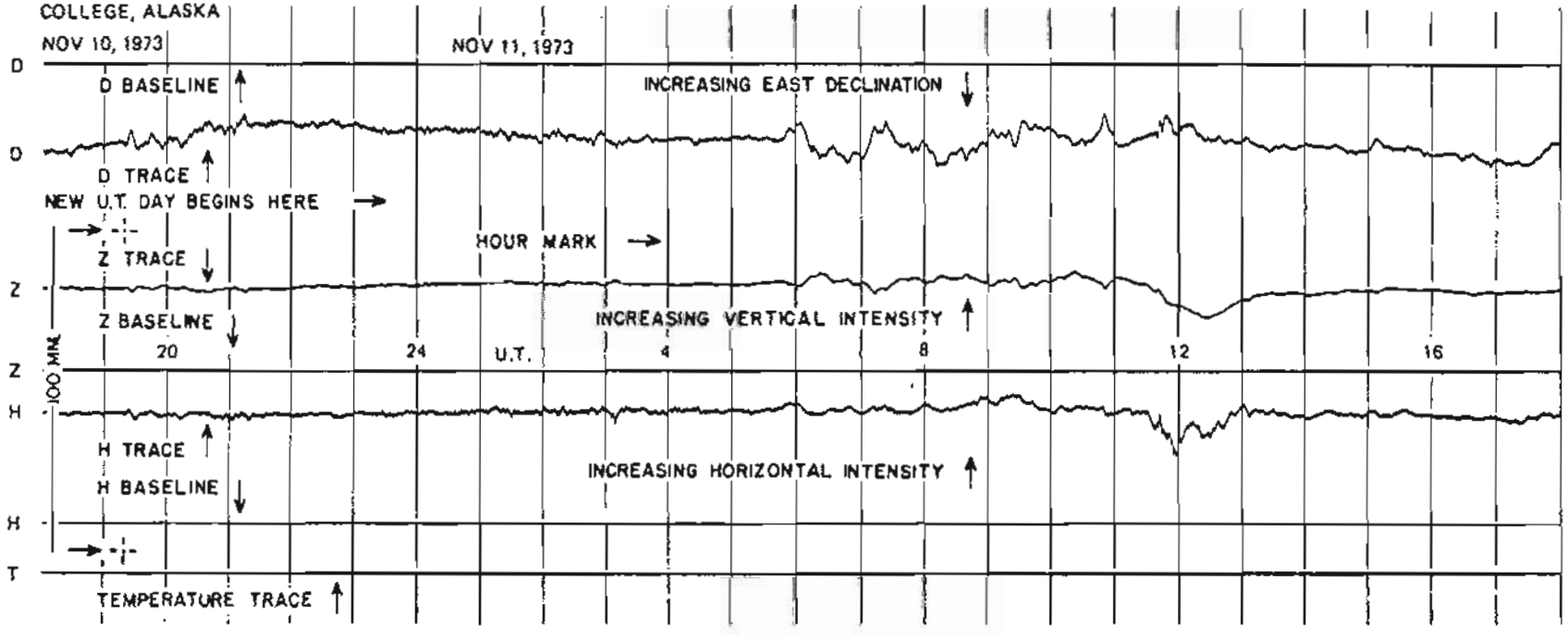
[ ] Scaling uncertain because of magnetic storm.

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

MONTHLY SUM	138804
MONTHLY MEAN	207
DATES WITH GAPS:	

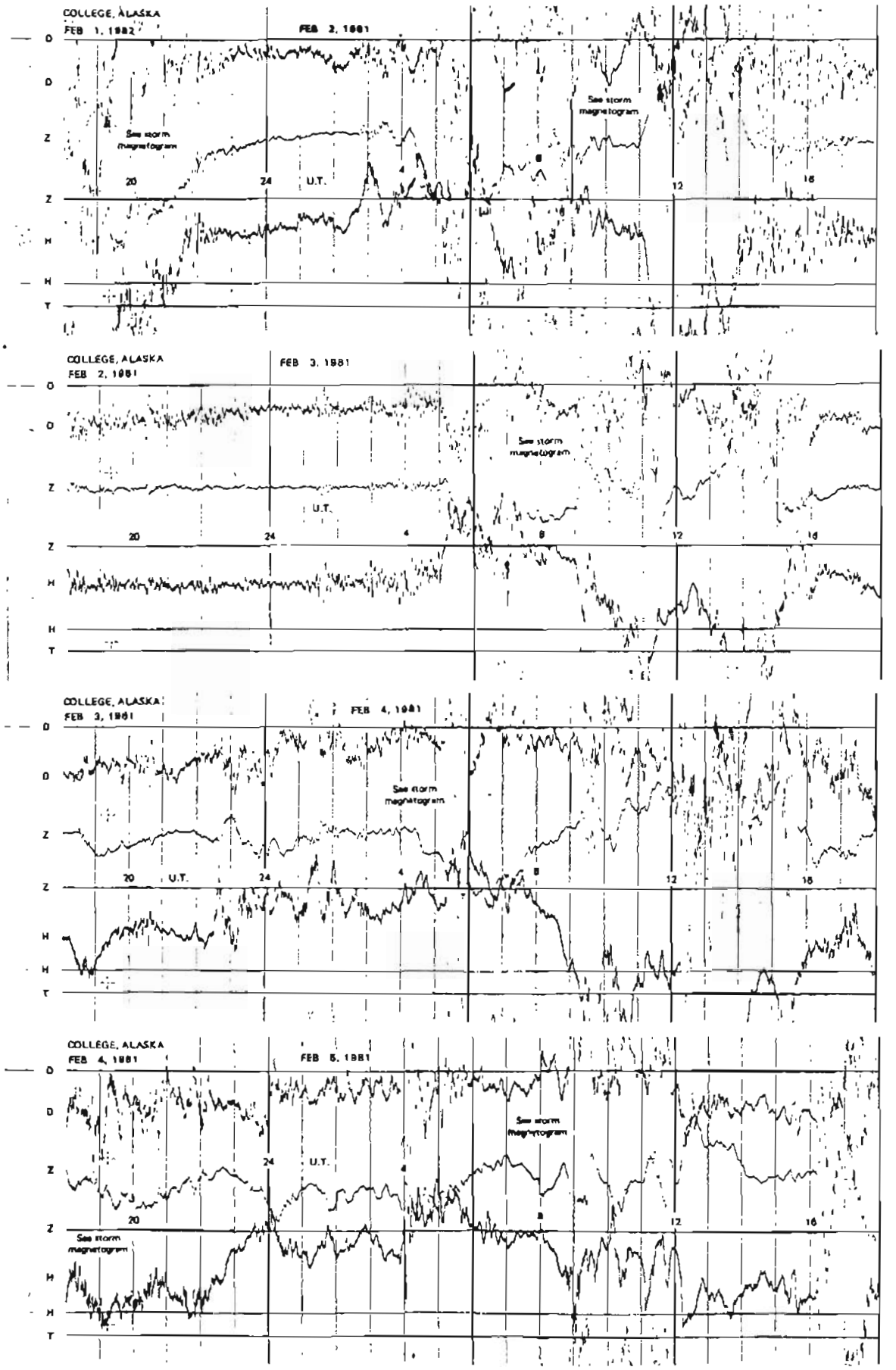
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

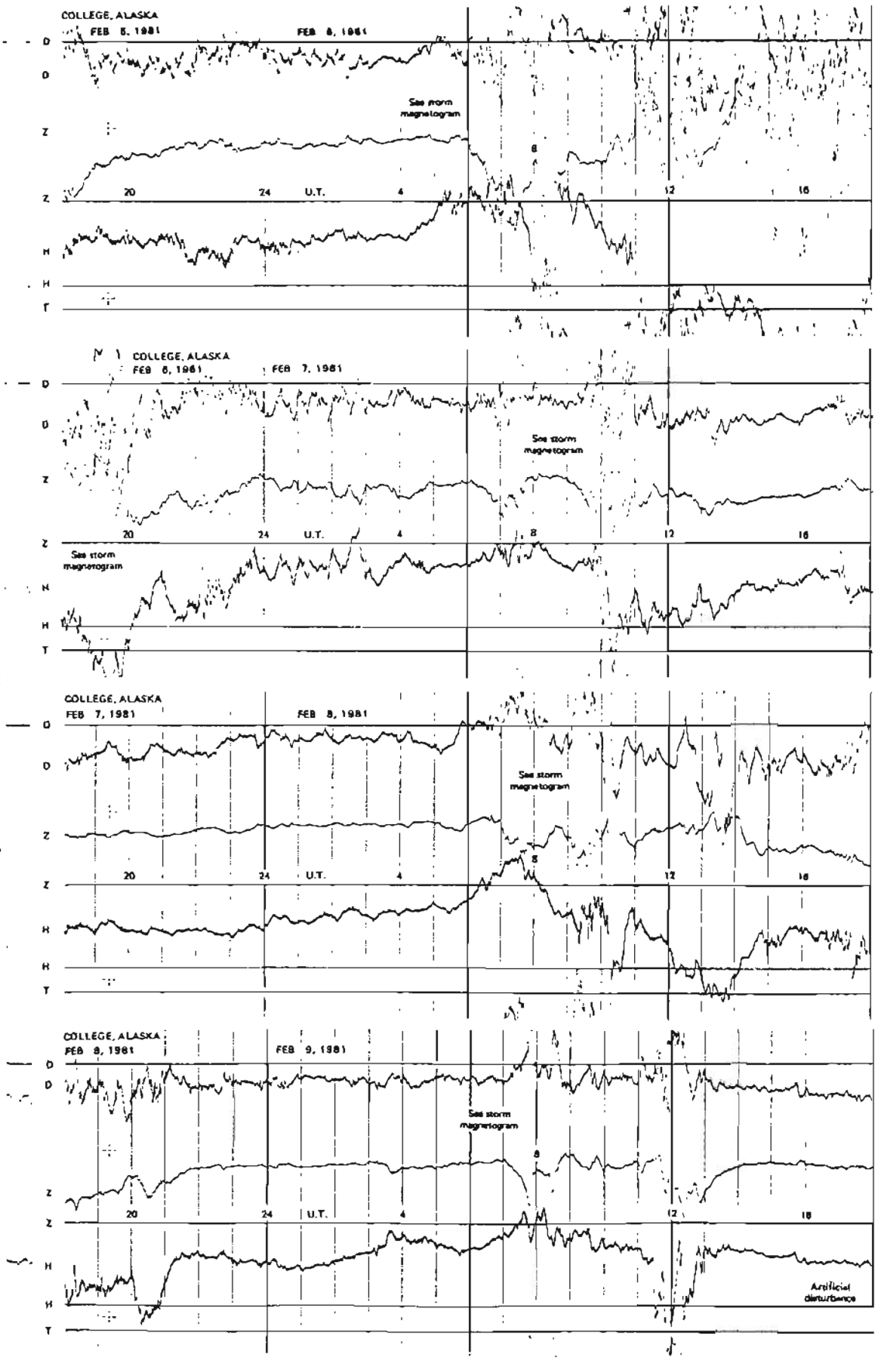


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

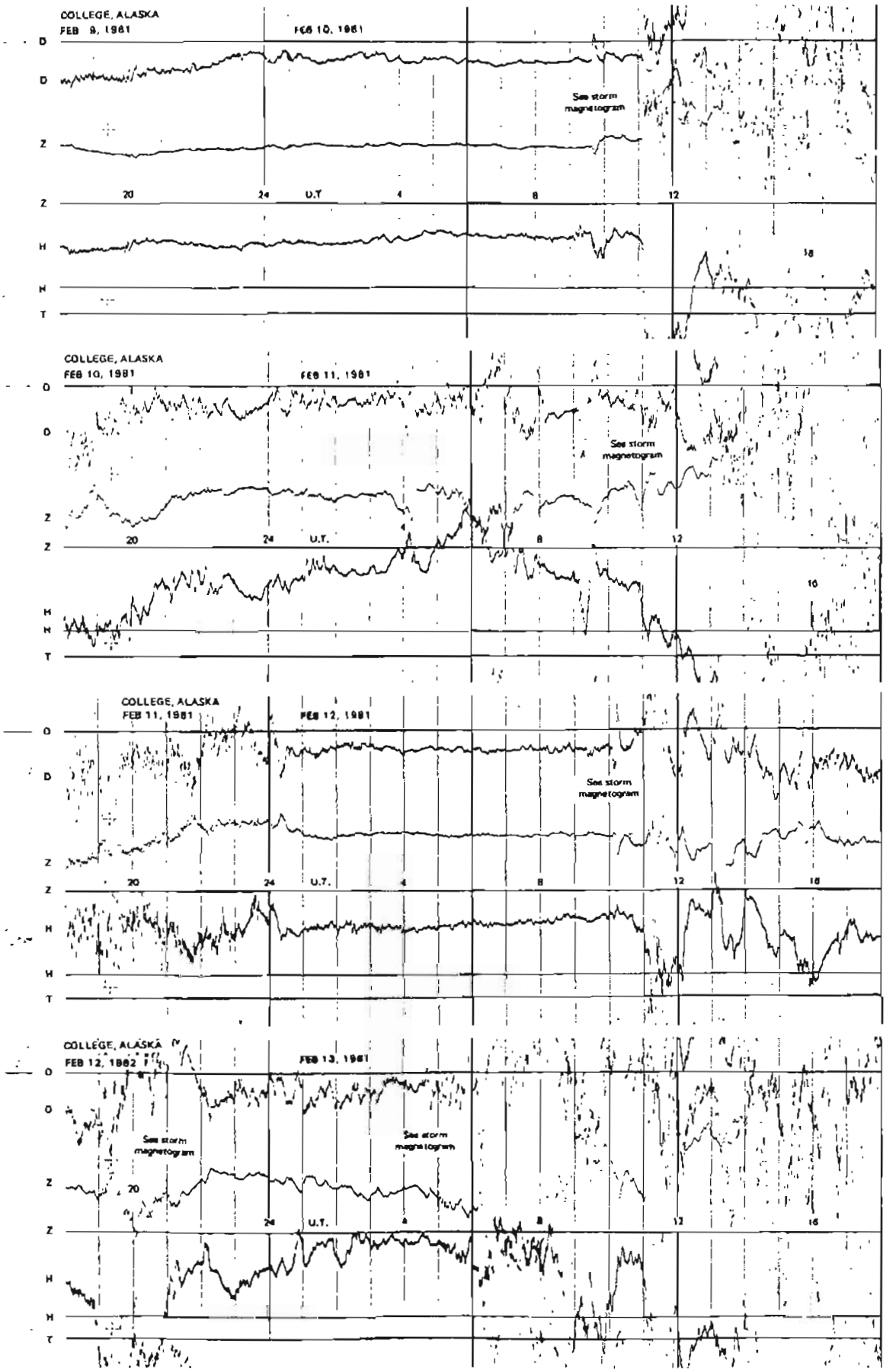
NORMAL MAGNETOGRAMS



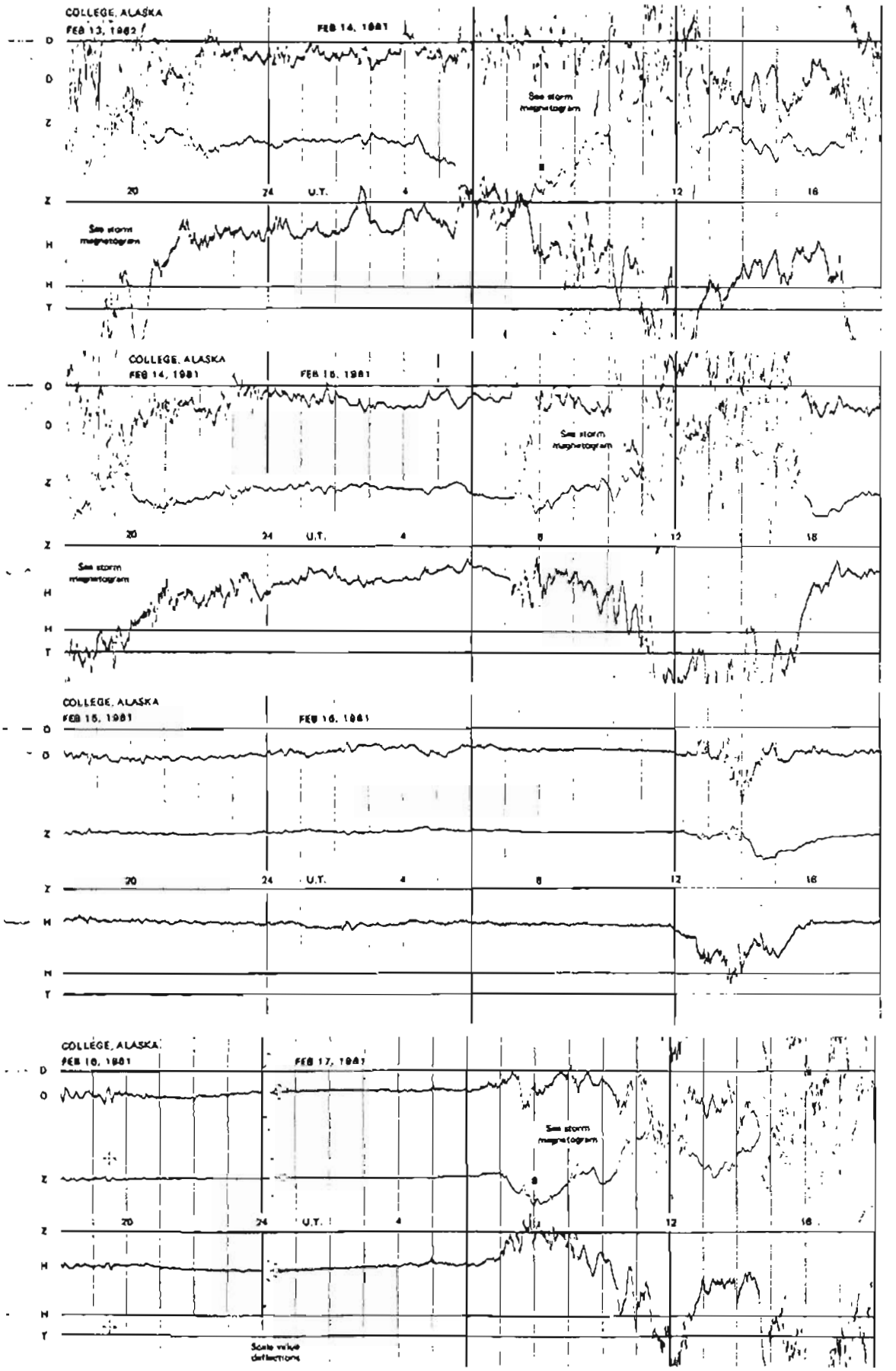
NORMAL MAGNETOGRAMS



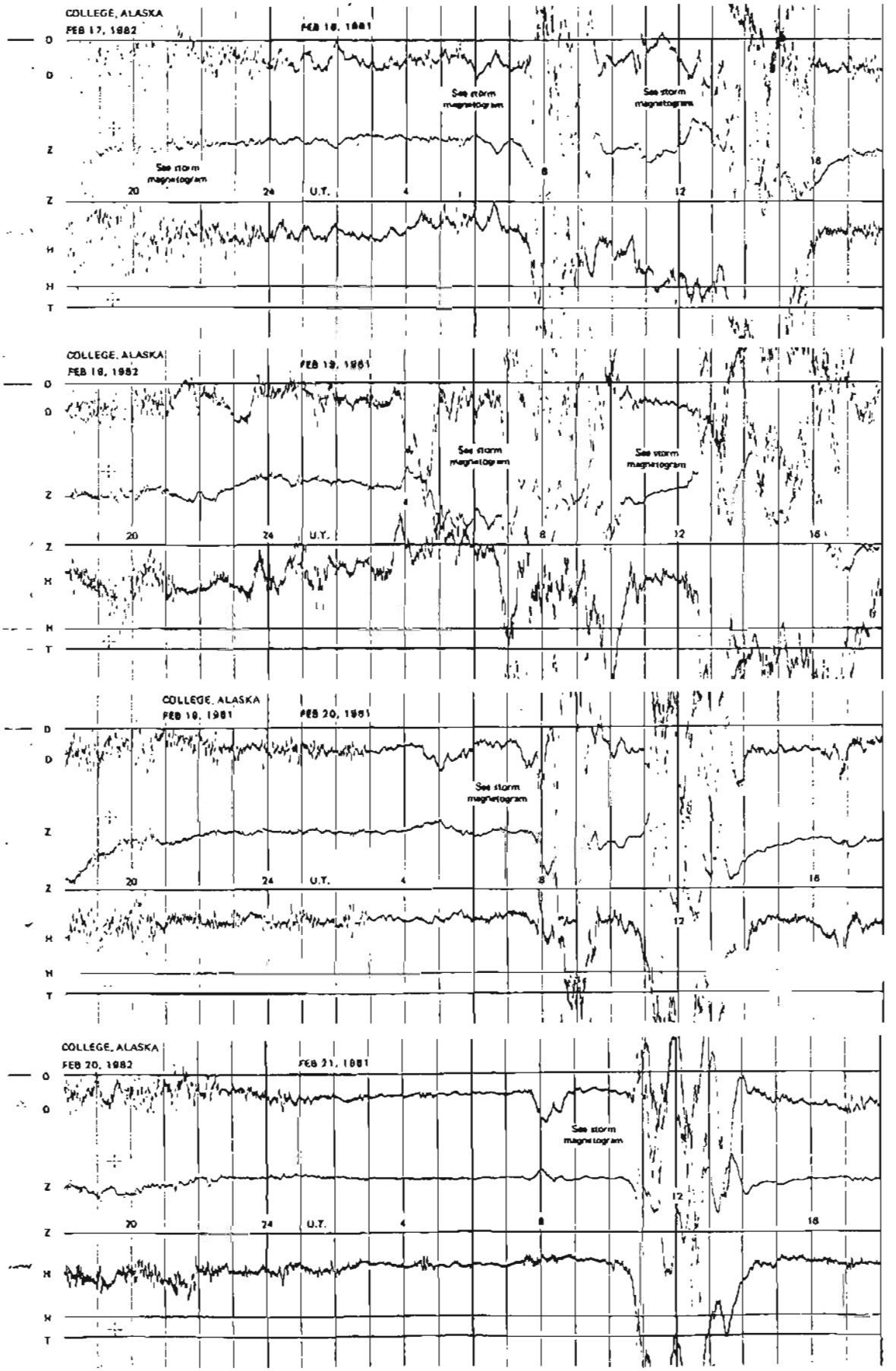
NORMAL MAGNETOGRAMS



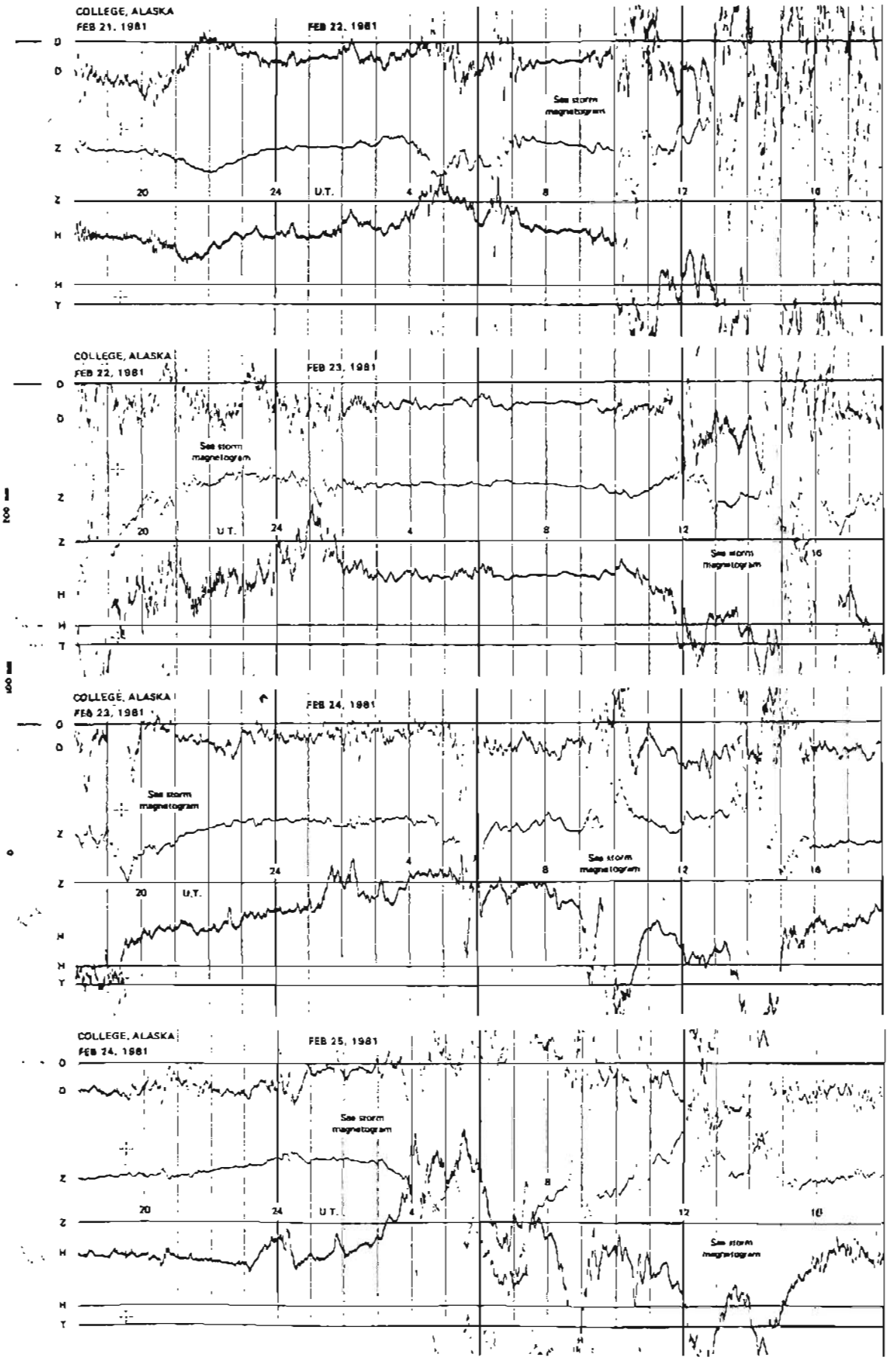
NORMAL MAGNETOGRAMS



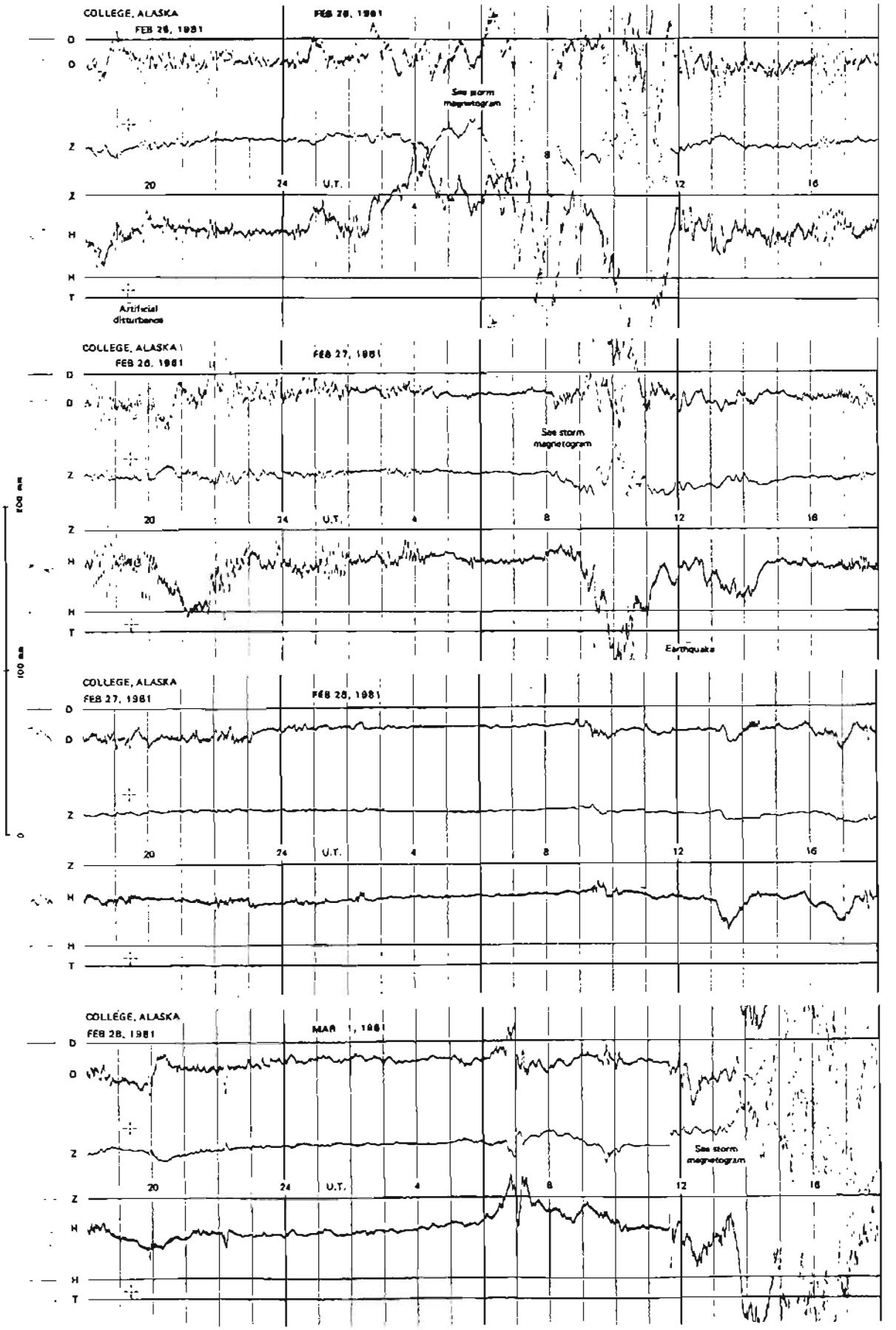
NORMAL MAGNETOGRAMS



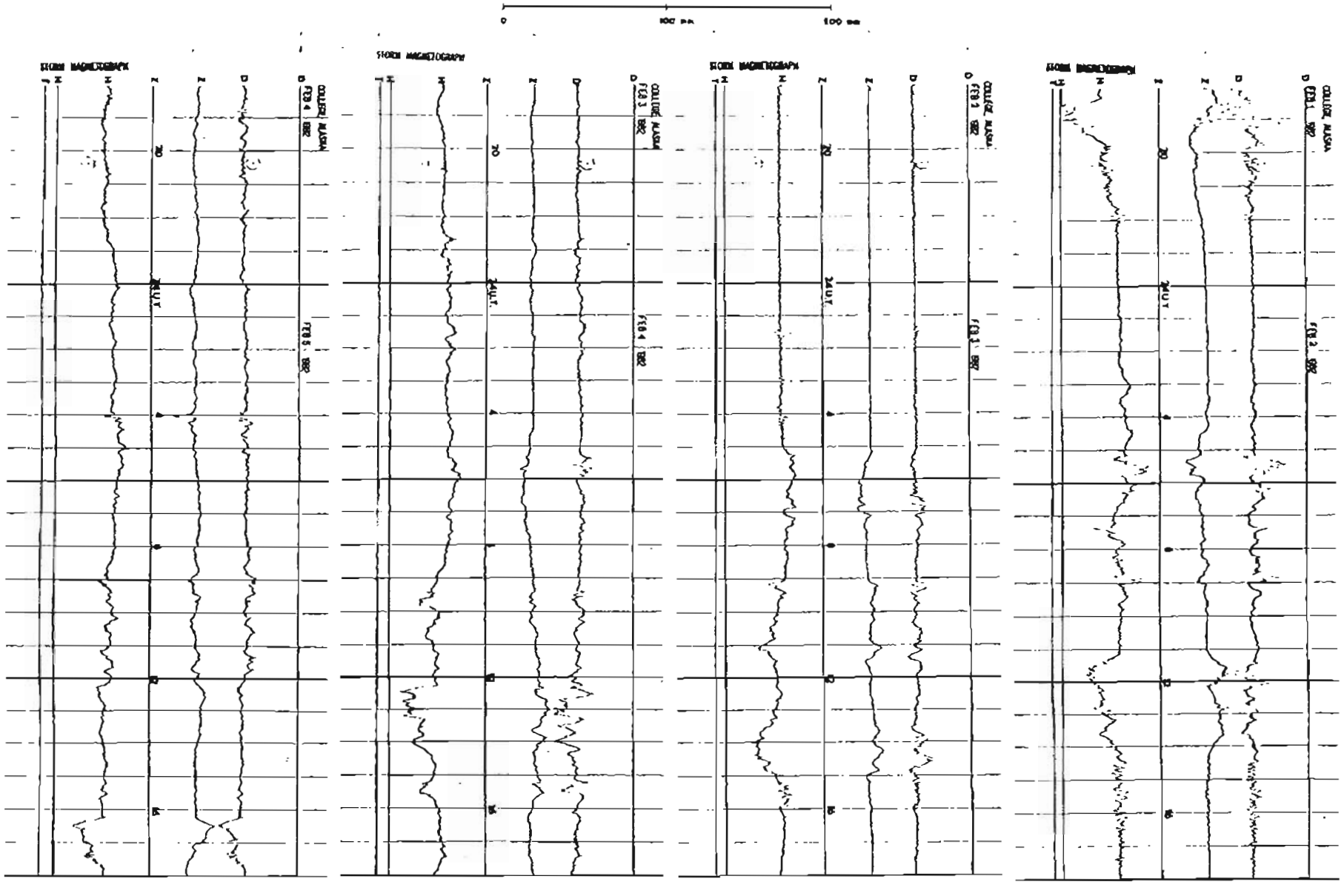
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



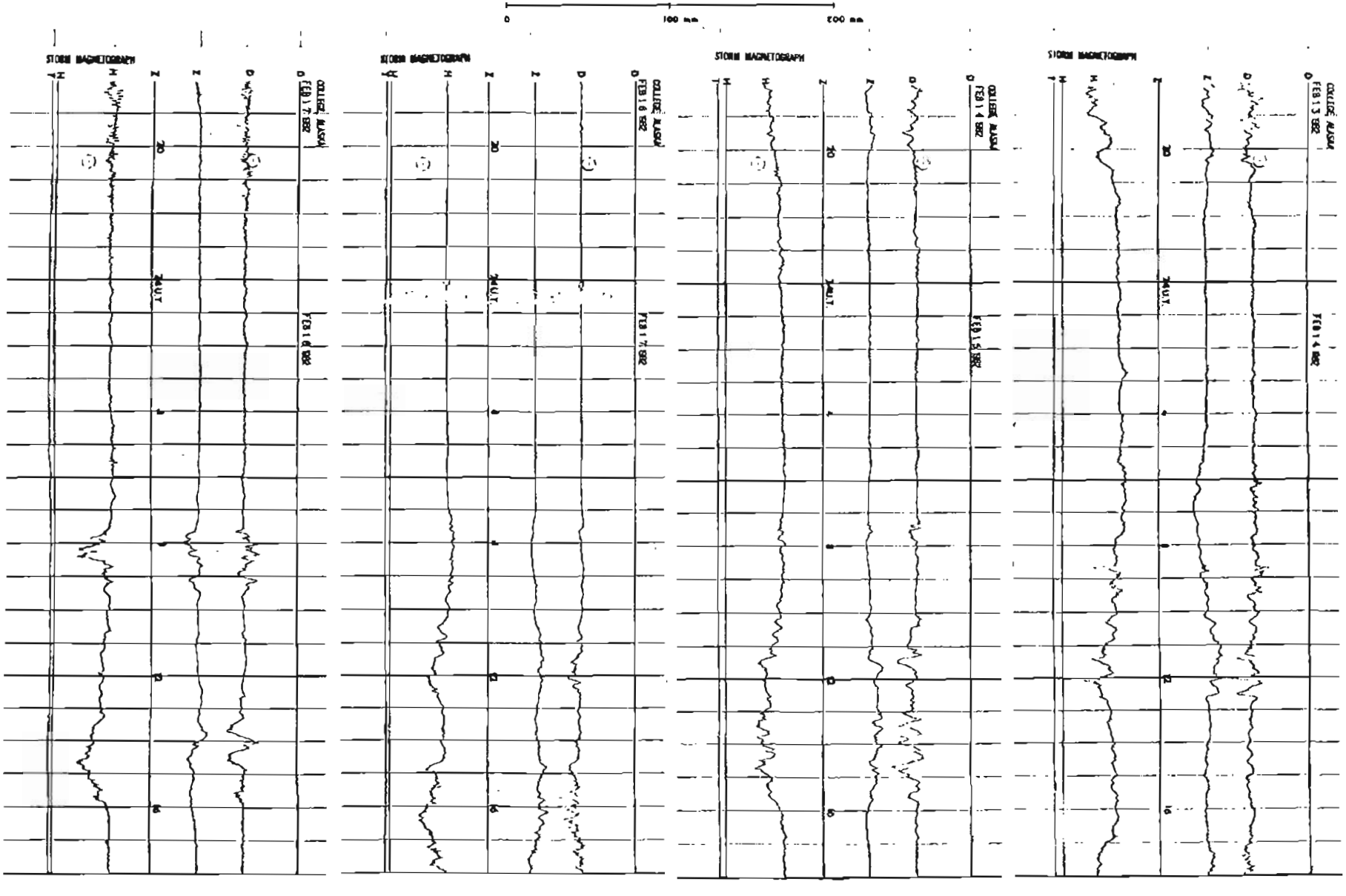
STORM MAGNETOGRAMS



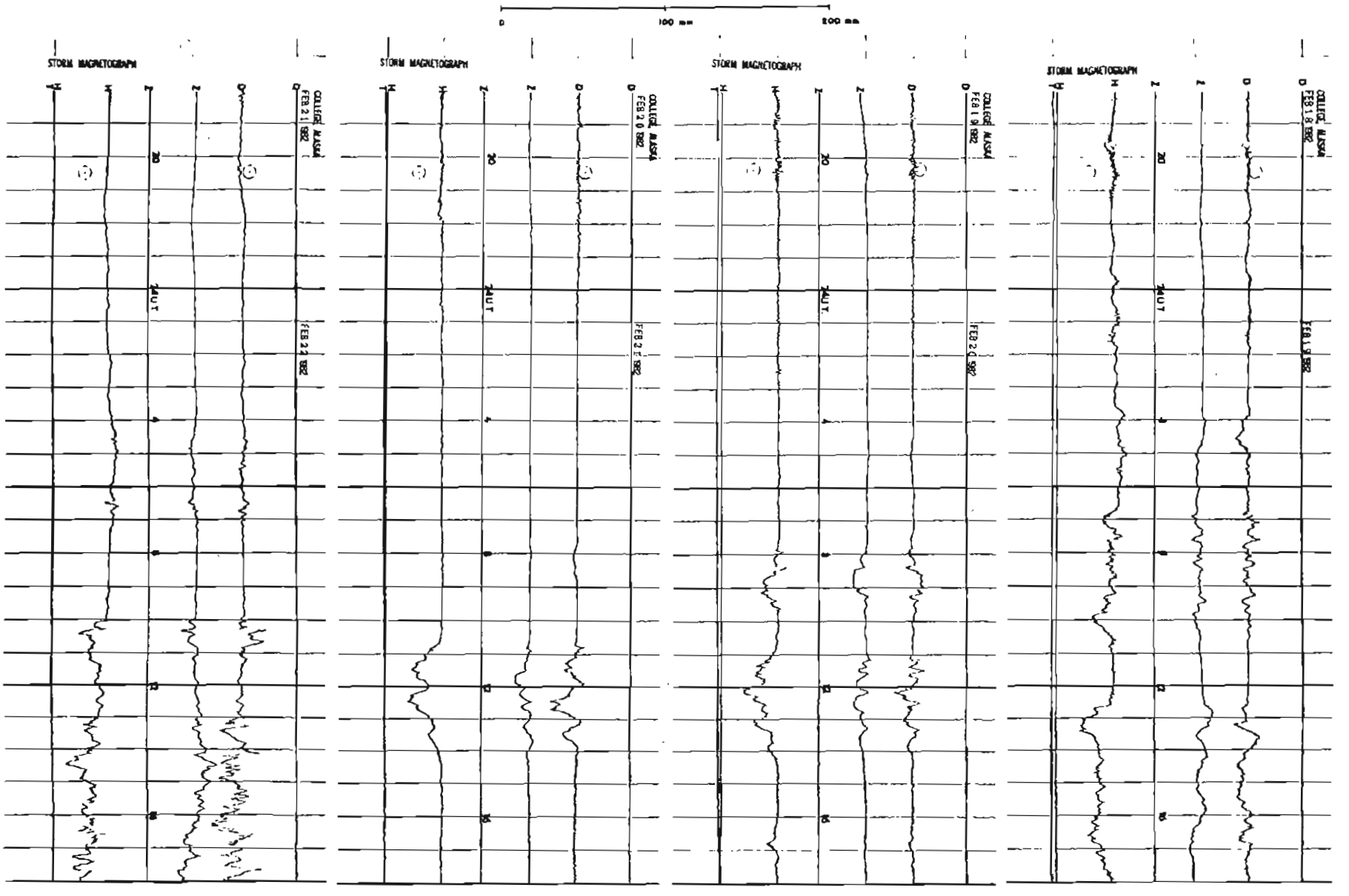
STORM MAGNETOGRAMS

STORM MAGNETOGRAMS

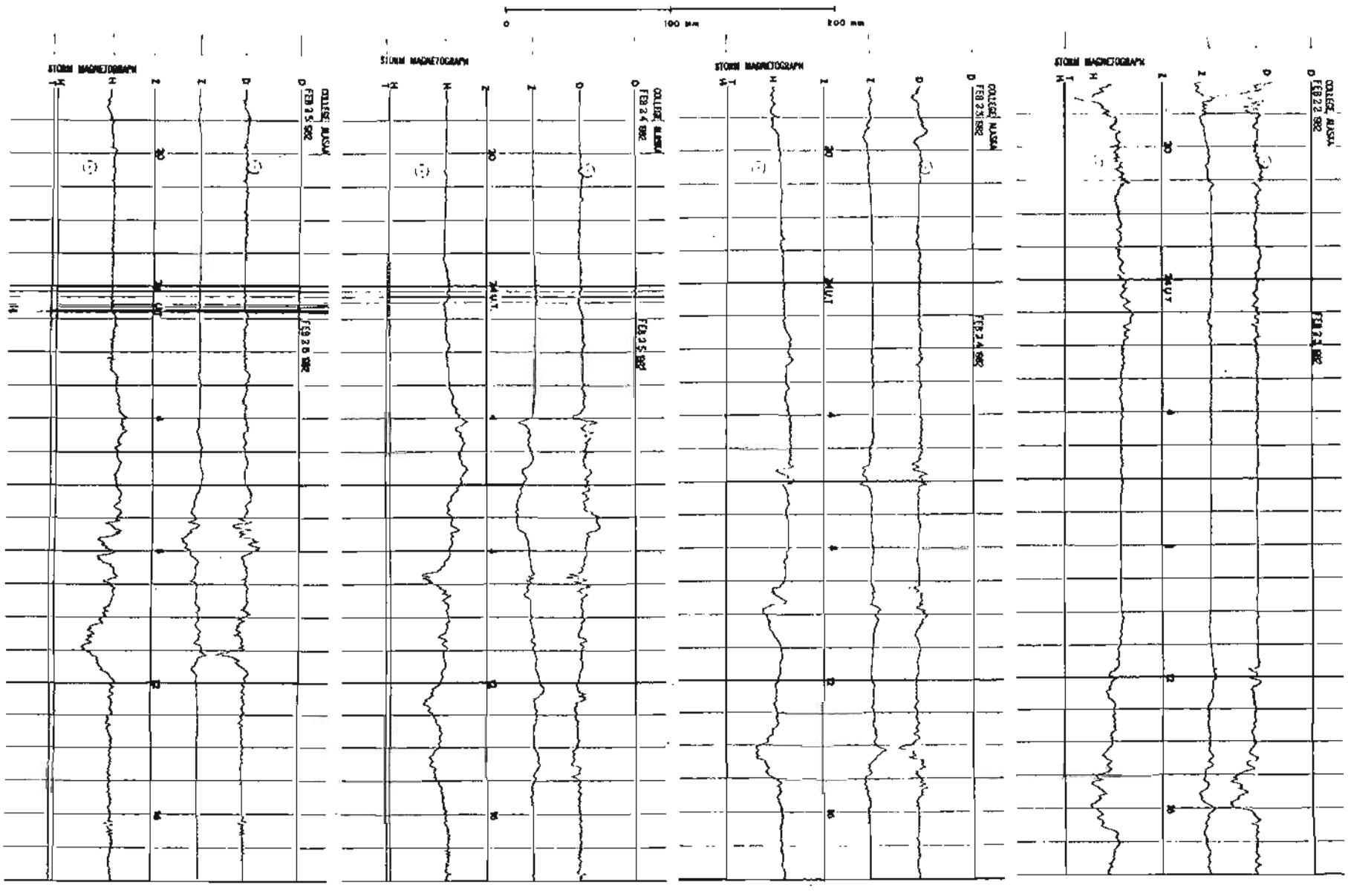
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS