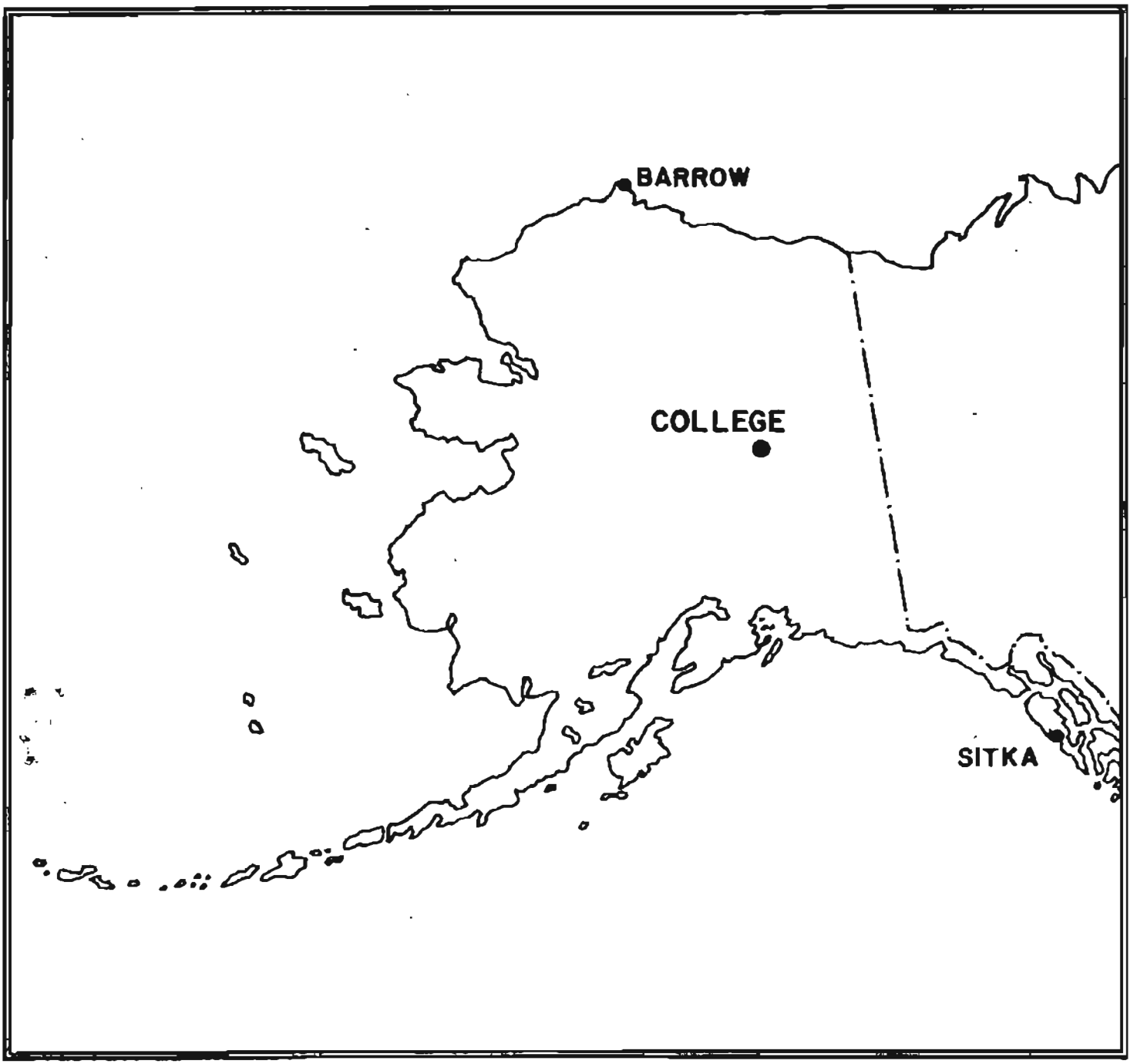
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

MAY 1983

OPEN FILE REPORT 83-0300E



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
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 OBSERVATORY

MONTH AND YEAR: MAY 1983

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	3	3	5	6	5	2	4	3	31	32
2	3	2	2	3	4	5	3	2	24	18
3	1	2	2	2	2	1	2	2	14	06
4	3	4	5	5	6	6	3	3	35	41
5	3	3	2	6	7	6	3	3	33	46
6	3	4	5	5	4	4	2	2	29	26
7	2	2	2	4	5	2	2	2	21	15
8	3	2	2	5	1	2	2	2	19	13
9	2	3	1	1	1	1	2	2	13	06
10	1	1	0	3	4	2	2	1	14	08
11	2	2	6	6	4	7	4	4	35	50
12	5	5	7	6	6	6	4	5	44	69
13	4	5	7	5	5	6	3	3	38	53
14	5	4	4	5	5	4	4	2	33	32
15	3	4	3	6	5	4	2	2	29	28
16	2	3	3	5	4	4	2	2	25	19
17	4	3	3	5	6	6	6	4	37	47
18	2	3	4	3	4	1	2	2	21	14
19	2	3	5	3	1	1	1	0	16	12
20	1	1	0	0	2	0	3	3	10	05
21	2	3	3	4	6	6	4	2	30	32
22	3	5	5	7	5	6	5	4	40	57
23	5	5	7	6	5	6	5	3	42	63
24	5	5	4	5	4	8	8	5	44	91
25	5	3	3	1	0	1	1	0	14	11
26	1	1	1	1	2	3	2	3	14	07
27	4	3	3	3	4	4	2	2	25	18
28	3	3	1	0	0	1	1	1	10	05
29	1	2	0	1	3	1	0	1	09	04
30	0	2	1	1	1	3	2	2	12	06
31	3	3	4	3	2	3	2	1	21	13

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	7.76		(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

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

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OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: MAY

YEAR: 1983

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
17	0020	ssc*	

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

MAY 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	03xx	..	..	..	..	05	5	7	196	1620	670	06	20
		11	07xx	..	..	..	..	11	6	7	286	1630	1090	15	19
								12	3	7					
								13	3	7					
		17	0020	s.c.*	+19	+192	+16	17	5,6,7	6	285	1500	760	18	01
		20	18xx	..	..	..	..	24	6,7	8	396	2610	1230	25	07

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 5-1-83	2400 U.T. 5-31-83	1.0'/mm	3.7 γ/mm	27° 46.8' E
H	0000 U.T. 5-1-83	2400 U.T. 5-31-83	7.8 γ/mm		12761 γ
Z	0000 U.T. 5-1-83	2400 U.T. 5-20-83	7.7 γ/mm		55151 γ
	0000 U.T. 5-21-83	2400 U.T. 5-31-83	"		55144 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 5-1-83	2400 U.T. 5-31-83	7.9'/mm	29.6 γ/mm	24° 21.8' E
H	0000 U.T. 5-1-83	2400 U.T. 5-31-83	43.9 γ/mm		10804 γ
Z	0000 U.T. 5-1-83	2400 U.T. 5-20-83	48.4 γ/mm		54097 γ
	0000 U.T. 5-21-83	2400 U.T. 5-31-83	"		54080 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 52.0' E	12951 γ	55386 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAY 3, 9, 10, 19, 20, 25, 26, 28, 29, 30

FORM 76-10a

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in tenths of gam, 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 sign shown.

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

OBSY. CO | YEAR 83 | MONTH MAY | ELEMENT D

C	Q or L	Tm C	Dy	01	02	03	04	05	06	07	08	09	10	11	12	Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	-23	-45	-43	-96	31	16	-16	-9	-191*	-40*	-9*	301*	01	127	66	103	114	155	168	175	298	-73*	-28	10	-4	987
			02	-13	-25	-31	17	14	9	21	48	32	43	62	51	02	83	95	137	237	413	222	129	68	-17	-8	0	31	1618
			03	24	12	-3	-10	6	14	15	14	17	20	25	67	03	81	109	129	140	148	162	141	110	49	33	36	-11	1328
			04	-20	9	-25	-96	70	-100*	-39	-17	-52	71	155*	11	04	125	-179*	274*	317*	226	166	163	94	89	41	60	32	1435
			05	17	16	6	127	52	60	46	27	53	52	67*	32	05	70	266*	133	313*	52	155	158	156	53	-2	-11	5	1803
			06	12	-3	16	2	-18	238	72	16	18	-92*	37	62	06	80	108	96	162	121	117	138	132	72	77	40	16	1521
			07	-8	-21	2	-2	34	60	124	40	36	52	47	59	07	85	78	82	122	144	156	118	102	63	42	35	47	1499
			08	32	5	16	7	35	52	64	54	38	31	30	96	08	42	56	58	112	176	146	136	119	107	32	6	46	1496
			09	-24	-2	13	29	11	60	56	46	42	33	31	42	09	59	78	99	119	116	131	124	104	72	46	17	-3	1299
			10	-8	7	18	35	57	60	61	53	44	40	48	12	10	22	42	67	86	162	167	194	200	138	78	11	-7	1587
			11	-4	0	26	16	27	23	45	-32*	-20*	-123*	-156*	33	11	10	58	130	385*	480*	543*	252*	107*	30	81	76	29	2019
			12	38	50	-115*	-28*	-68*	-53*	-28*	31	-226*	-76*	18	3	12	-92*	-19	92	297*	424*	194*	66	179	154	-57	-35	141	890
			13	69	7	-22	-38	-46	-115*	-100*	-203*	-139*	-53*	99*	89	13	78	137	249	266*	424*	201	218	152	60	46	31	22	1432
			14	-19	-47	16	-24	-54	64	23	-43	8	-68	-93	0	14	42	77	41	164	312	284	128	60	42	54	3	-4	966
			15	34	15	-35	-66	-36*	0	48	46	16	-16	-22	35*	15	-24	93	65	161	212	206	120	94	-14	42	13	-69	938
			16	-37	-19	-4	2	11	-10	36	52	29	-8	-63*	62	16	64	83	114	115	212	211	170	136	106	-46	16	10	1242
			17	-32	-54	-117*	-33	-51	-11	-12	8	10	-13	-72	42	17	173	455*	820*	423*	606*	495*	352*	300	182	206	-101*	-101*	3475
			18	-65	-38	-10	24	48	38	-11	-26	-46	-16	11	20	18	35	56	109	108	143	165	144	116	80	24	6	-1	914
			19	-9	-9	-1	10	9	30	76	-11	-45*	76	-3	34	19	50	70	123	129	172	170	145	116	82	36	6	8	1266
			20	4	-1	12	20	27	32	41	46	36	28	42	37	20	30	58	83	103	122	144	130	196	247	142	-117*	-126*	1336
			21	-37	-9	-11	-13	-26	2	1	0	-38	-35	-32	6	21	88	192	234	469	357	279	331	130	106	39	-18	-35	1960
			22	-59	-71	-64	-64	-112	-204*	-268*	-109*	-37*	22	2	34*	22	106	196	328*	360*	335*	320*	332	200	122	94	74	110	1647
			23	-7	-45	41	34	21	-35	-6	-212*	-77*	-46*	-111*	-101*	23	-21	-13	93	286*	368*	73	292	198	136	26	39	8	935
			24	-22	-24	-62*	40	14	9	35	-54*	0	-38	37	-34	24	36	-48	169	153	257*	526*	201*	301	195	113	-109*	-101*	1594
			25	-85	-61	-68*	-45	34	62	60	49	65	27	21	22	25	29	46	76	100	121	135	109	74	43	-7	-27	-43	737
			26	-31	-3	22	46	59	59	52	44	41	53	7	1	26	15	16	41	93	192	248	265	225	90	37	-80	-26	1472
			27	-35	-61	-34	-58	-18	-70	22	16	4	10	18	27	27	18	51	93	145	217	189	114	102	95	-8	-48	-38	751
			28	-23	-9	-32	30	59	50	41	28	22	20	35	42	28	53	52	85	122	166	180	144	116	65	22	-6	-37	1225
			29	-28	-46	-23	6	20	43	36	34	30	45	15	29	29	83	105	104	138	170	164	163	117	83	37	9	-24	1310
			30	-17	-11	-6	6	18	31	40	40	29	25	30	29	30	34	51	73	114	153	179	166	75	47	26	21	-31	1120
			31	-40	-65	-81	-12	-14	28	66	28	42	22	52	5	31	23	3	64	72	153	163	176	137	84	13	2	-25	896

SCALED BY	LYT, TKC
CHECKED BY	TKC, JEP
SHORT PD. VIEWED 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 Mgnt., recovered to Normal Mgnt.

{ } Scaling uncertain because of magnetic storm.

< > Record edit shows for part or all of hour; if value is zero, zero was entered for missing part.

MONTHLY SUM	42718
MONTHLY MEAN	57
DATES WITH DATA:	

Form 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. Department of Interior
Geological Survey, Geologic Division
Denver Federal Center
Denver, CO 80225

Values are in tenths of gam. 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	TIME-MERIT
CO	80	MAY	2

C	Q or S	Tent Q	DY	01	02	03	04	05	06	07	08	09	10	11	12	DY	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	341	331	343	345	329	347	339	314	205	299	433	574	01	242	257	299	322	324	314	310	349	188	216	283	298	7672
			02	304	339	355	360	371	356	366	362	326	291	299	306	02	330	411	325	167	43	56	129	231	252	279	306	323	6909
			03	323	315	312	308	306	306	302	302	305	301	298	309	03	306	309	305	304	307	303	298	290	288	293	304	304	7300
			04	286	316	306	309	374	344	323	209	326	416	674	438	04	545	492	415	315	194	266	286	272	293	302	320	324	8347
			05	316	316	314	312	335	309	334	325	336	288	359	166	05	246	523	213	284	175	226	291	313	314	294	301	310	7264
			06	320	328	336	316	336	332	280	303	214	158	260	324	06	260	220	236	208	249	296	297	302	285	299	305	311	6882
			07	310	306	316	317	342	356	401	334	323	318	296	242	07	175	241	303	312	315	312	278	296	290	295	302	305	7295
			08	330	330	316	306	312	328	343	326	312	306	273	267	08	279	297	293	278	275	298	259	256	285	284	304	324	7209
			09	315	324	316	312	316	372	363	316	306	296	305	301	09	302	302	300	303	306	304	302	305	297	290	290	296	7447
			10	302	317	313	322	324	314	310	305	306	297	286	286	10	293	290	271	290	271	282	302	304	280	266	264	273	6924
			11	304	308	312	322	343	319	323	289	7	238	337	352	11	359	459	524	574	706	688	121	235	301	321	312	317	8373
			12	286	329	176	139	220	245	276	202	202	497	386	408	12	301	334	285	417	517	221	198	294	304	277	301	363	7182
			13	358	336	340	340	356	244	139	51	244	561	263	277	13	457	419	452	435	227	244	293	308	291	313	340	342	7654
			14	338	310	316	316	304	345	270	340	311	192	222	351	14	324	332	269	174	172	170	137	230	285	307	306	317	6582
			15	330	304	340	351	330	374	344	323	325	314	301	466	15	282	200	196	247	232	256	239	275	275	310	333	328	7358
			16	326	344	334	330	316	318	339	342	334	325	155	240	16	265	266	256	184	215	196	244	272	260	284	305	336	6679
			17	316	331	313	335	301	315	314	312	309	284	244	193	17	251	411	334	365	310	158	159	211	311	364	349	298	6971
			18	302	330	349	356	356	350	286	267	283	310	326	332	18	304	278	196	277	319	311	296	297	296	294	296	307	7313
			19	312	312	333	339	329	344	368	318	306	274	314	316	19	316	325	334	328	330	316	306	296	294	290	286	293	7604
			20	301	301	308	302	331	325	327	324	308	301	308	298	20	299	260	281	303	320	316	308	316	316	264	250	280	7287
			21	294	292	295	302	307	324	322	314	280	206	227	279	21	362	394	356	263	168	267	306	226	252	265	272	278	6651
			22	293	296	322	336	287	136	-18	206	268	281	422	632	22	264	173	354	460	512	518	152	167	302	332	368	374	7472
			23	312	279	263	340	375	305	209	120	91	210	274	384	23	336	197	292	443	144	-21	168	192	257	270	314	322	6076
			24	343	340	316	308	351	366	322	205	337	290	177	126	24	248	389	230	265	405	427	379	192	229	295	265	295	7614
			25	321	323	369	370	388	348	342	332	331	318	315	310	25	314	314	320	322	320	320	320	316	307	305	311	321	7657
			26	328	336	334	332	330	329	320	319	321	320	293	320	26	314	310	308	310	308	257	270	266	228	266	269	297	7274
			27	308	308	342	338	316	340	372	356	331	304	278	310	27	306	261	243	196	144	63	207	287	308	294	306	312	6900
			28	330	324	334	420	441	373	332	321	313	312	313	312	28	314	316	320	325	323	310	299	294	288	291	292	299	7796
			29	308	304	307	316	324	331	322	312	308	311	301	310	29	327	265	290	314	319	314	314	308	304	301	303	305	7419
			30	312	319	324	328	328	332	334	327	320	311	314	303	30	301	307	310	323	299	263	258	236	250	277	289	294	7259
			31	307	333	336	377	360	396	329	341	392	349	299	274	31	311	324	321	323	286	250	277	268	266	270	289	304	7572

SCALED BY	LYT, TAC
CHECKED BY	TAC, JET
SIGNS REVIEWED BY	JET
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 Magn., converted to Normal Magn.
[ ] Scaling uncertain because of magnetic storm.
< > Record off sheet for part or all of hour; if value is given, curve was extrapolated for missing part.

MONTHLY SUM	226492
MONTHLY MEAN	304
DATES WITH DATA	

Form 76-100

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 22 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	MAY	H

C	Qual S	Qual D	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	240	300	274	365	266	248	317	382	241	288	93	-765	01	-66	278	232	306	281	267	252	81	94	255	213	212	5152
			02	222	267	309	277	274	295	308	299	276	241	210	233	02	205	121	-80	-99	-116	127	211	191	246	281	261	249	4828
			03	242	248	244	252	256	264	268	286	277	267	320	304	03	301	275	263	293	295	287	268	243	246	248	251	245	6485
			04	265	192	250	450	526	611	530	228	276	88	-117	-72	04	-117	-474	-524	-55	122	271	260	270	269	236	280	239	4004
			05	265	255	276	263	279	288	260	286	266	256	-84	180	05	128	-451	61	-423	74	247	278	248	209	212	239	241	3853
			06	250	276	241	260	416	378	403	473	200	1	234	174	06	151	0	189	120	197	234	252	241	259	242	244	226	5663
			07	238	247	259	292	280	294	307	265	259	257	243	131	07	80	263	260	258	260	232	245	234	236	231	232	245	5849
			08	244	215	244	262	284	300	285	250	261	275	175	166	08	272	264	234	209	228	223	195	200	236	250	246	258	5776
			09	218	250	256	238	328	279	274	260	256	258	263	255	09	250	237	254	258	256	252	247	226	217	226	216	238	6014
			10	252	237	232	244	232	245	249	256	259	243	260	250	10	89	207	257	229	241	273	261	245	242	233	244	244	5724
			11	264	225	248	298	268	276	284	370	80	115	260	196	11	141	271	264	-236	-327	-683	177	108	265	244	238	296	3642
			12	481	411	664	726	491	477	471	309	86	-15	272	219	12	214	-56	151	-119	-412	-72	217	190	112	126	231	322	4631
			13	323	286	307	291	352	416	323	-242	351	80	93	82	13	59	17	-152	-231	-117	281	206	176	206	192	248	271	3700
			14	301	471	624	434	466	378	292	344	330	60	166	230	14	171	90	-120	84	6	-114	63	197	215	200	195	212	5317
			15	296	354	391	366	461	391	322	293	278	276	259	214	15	134	26	99	53	183	168	208	212	199	180	214	230	5162
			16	244	242	245	251	261	301	330	330	271	276	64	194	16	236	114	-43	133	137	198	226	229	205	226	212	216	5121
			17	305	256	349	249	275	259	292	287	319	328	316	229	17	132	-235	-710	-450	-670	-653	-291	-124	192	148	209	276	1220
			18	208	212	225	225	245	257	331	214	302	284	303	232	18	152	25	176	257	242	234	231	223	217	213	220	221	5476
			19	214	226	253	220	272	340	292	373	271	206	294	246	19	242	249	246	260	266	261	258	252	256	234	237	215	6183
			20	217	207	218	250	234	256	265	259	264	265	266	263	20	272	213	273	297	290	294	289	249	180	153	174	220	5668
			21	212	198	211	240	281	274	276	300	340	336	281	262	21	114	24	-144	-241	137	286	220	248	226	216	221	221	4743
			22	232	263	282	351	613	476	395	368	173	243	81	-371	22	281	-133	-274	-348	-376	-139	28	154	219	245	252	419	2803
			23	461	507	623	505	564	517	480	246	-438	92	257	-189	23	26	124	144	392	-461	-20	-19	171	249	219	279	311	4197
			24	279	363	478	489	309	250	343	233	354	258	153	135	24	140	-7	142	234	-133	-184	-67	-11	158	281	214	176	2897
			25	207	331	282	244	215	201	195	202	222	238	230	220	25	230	230	235	237	231	222	220	215	208	196	185	190	5366
			26	210	222	242	242	239	235	233	248	245	263	276	270	26	266	263	247	239	204	194	186	175	163	211	175	245	5493
			27	192	272	390	398	369	341	368	296	275	255	215	246	27	213	126	-21	-98	-35	36	231	254	211	183	186	199	5044
			28	209	214	303	376	314	242	239	240	252	245	249	244	28	247	259	250	250	225	221	226	224	219	210	211	216	5887
			29	217	230	249	240	264	252	248	243	252	257	258	286	29	191	234	270	273	268	258	250	235	230	210	211	228	5854
			30	224	291	244	248	272	264	278	268	267	267	260	260	30	256	268	268	264	190	211	207	225	223	204	210	208	5819
			31	267	235	257	244	306	342	417	354	324	314	268	216	31	252	259	226	195	156	221	235	236	226	208	204	222	6184

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

Preliminary base-line and scale values:

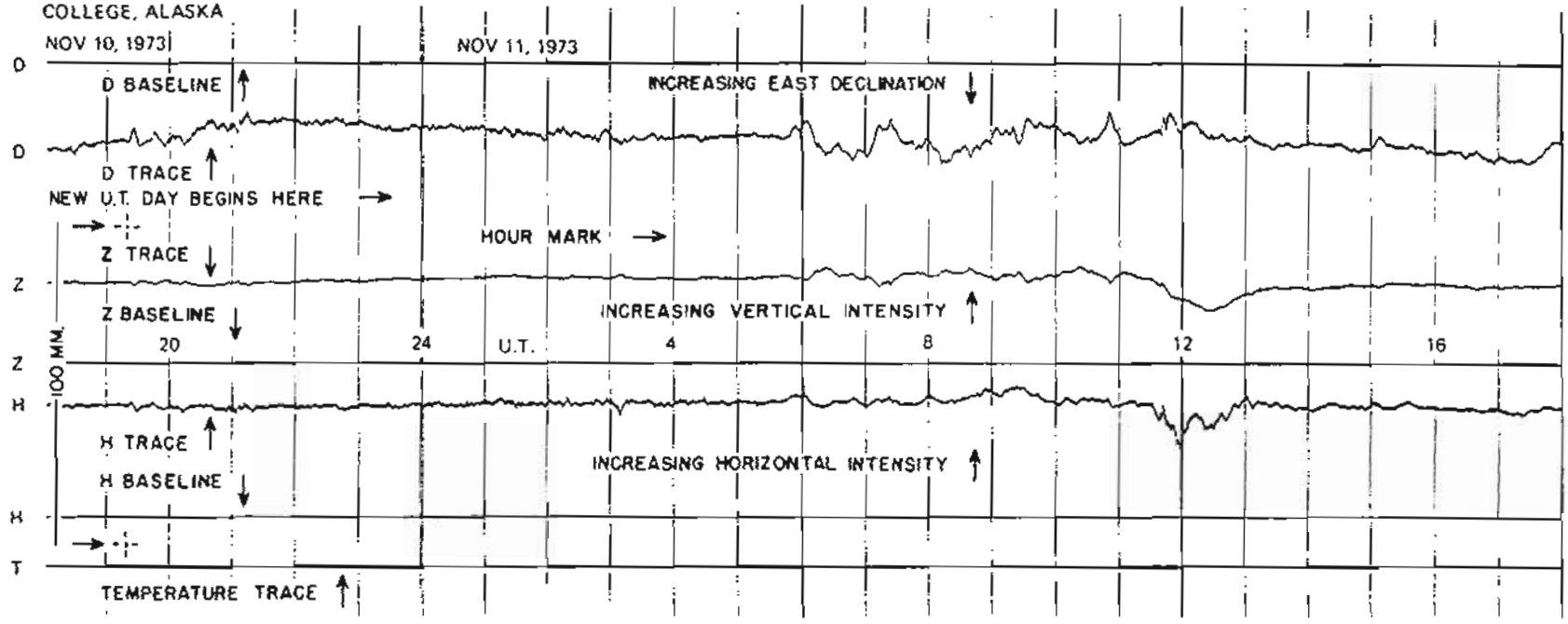
	Interval Beginning	Base-line Value	Scale Value

( ) Interpolated
[Significant portion of hour interpolated.
□ No record; or no values available because of faulty record.
* Derived from STORM Magn., converted to Normal Magn.
[ ] 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	153 975
MONTHLY MEAN	207
DATES WITH GAPS	

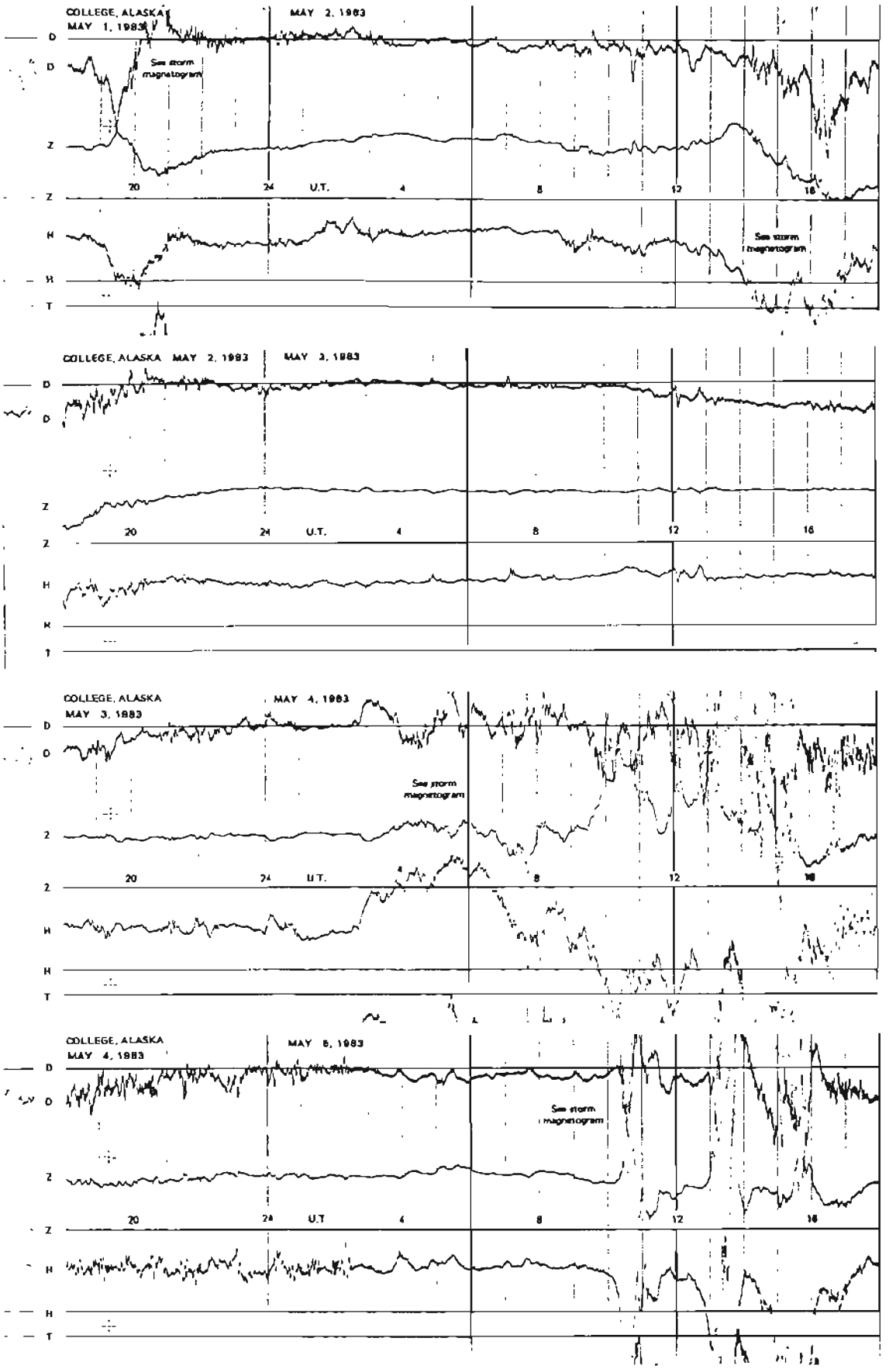
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

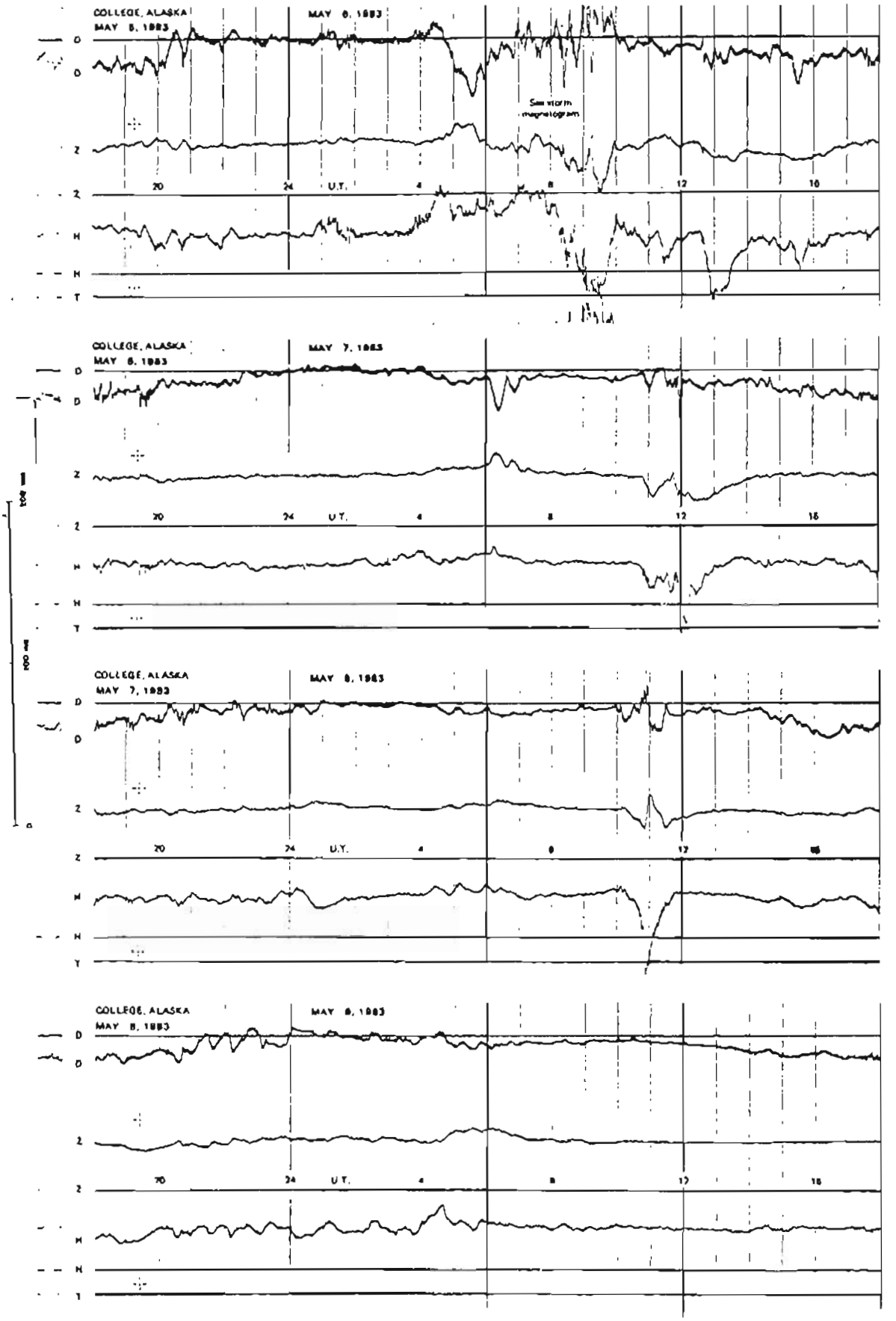


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

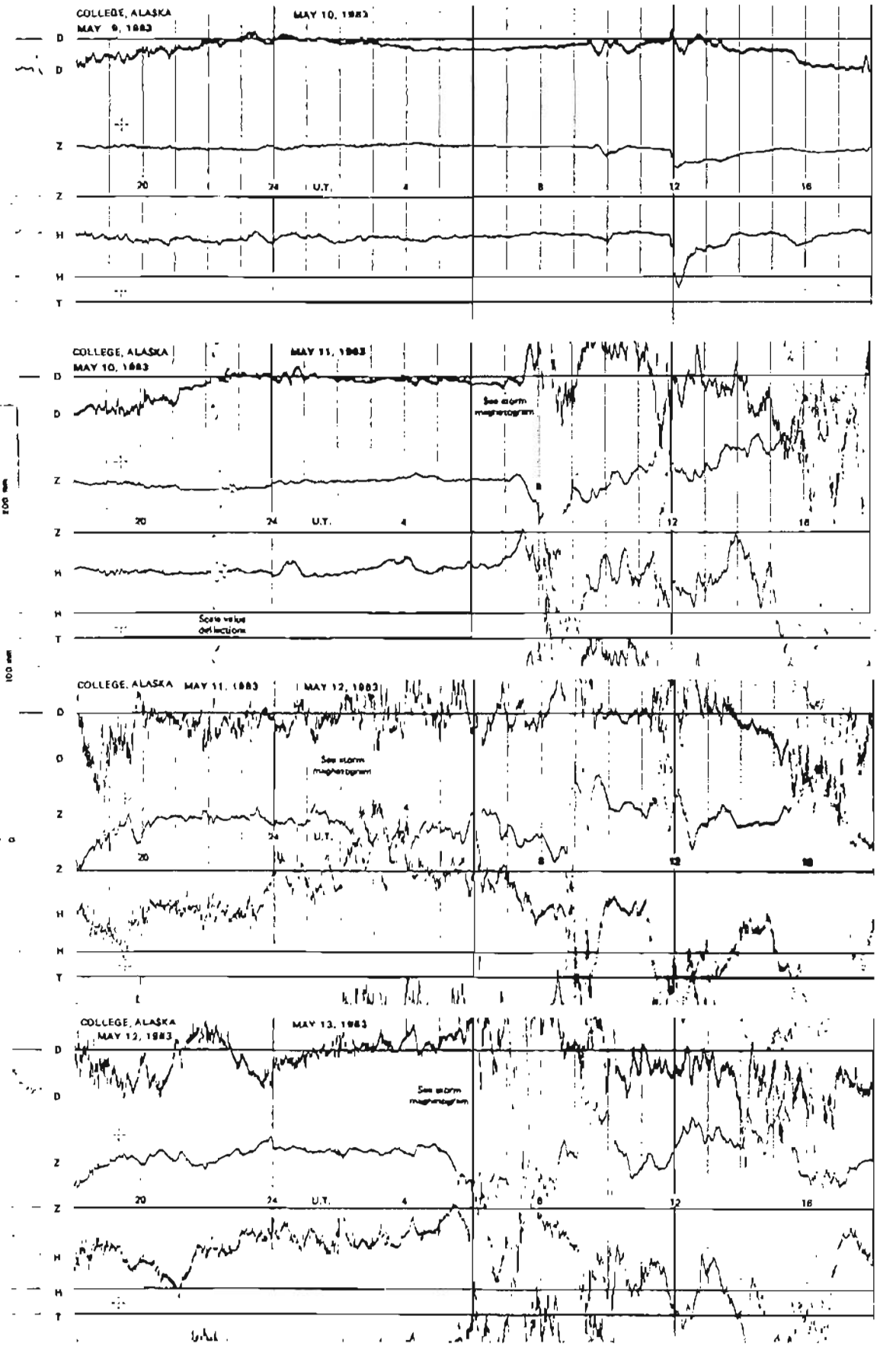
NORMAL MAGNETOGRAMS



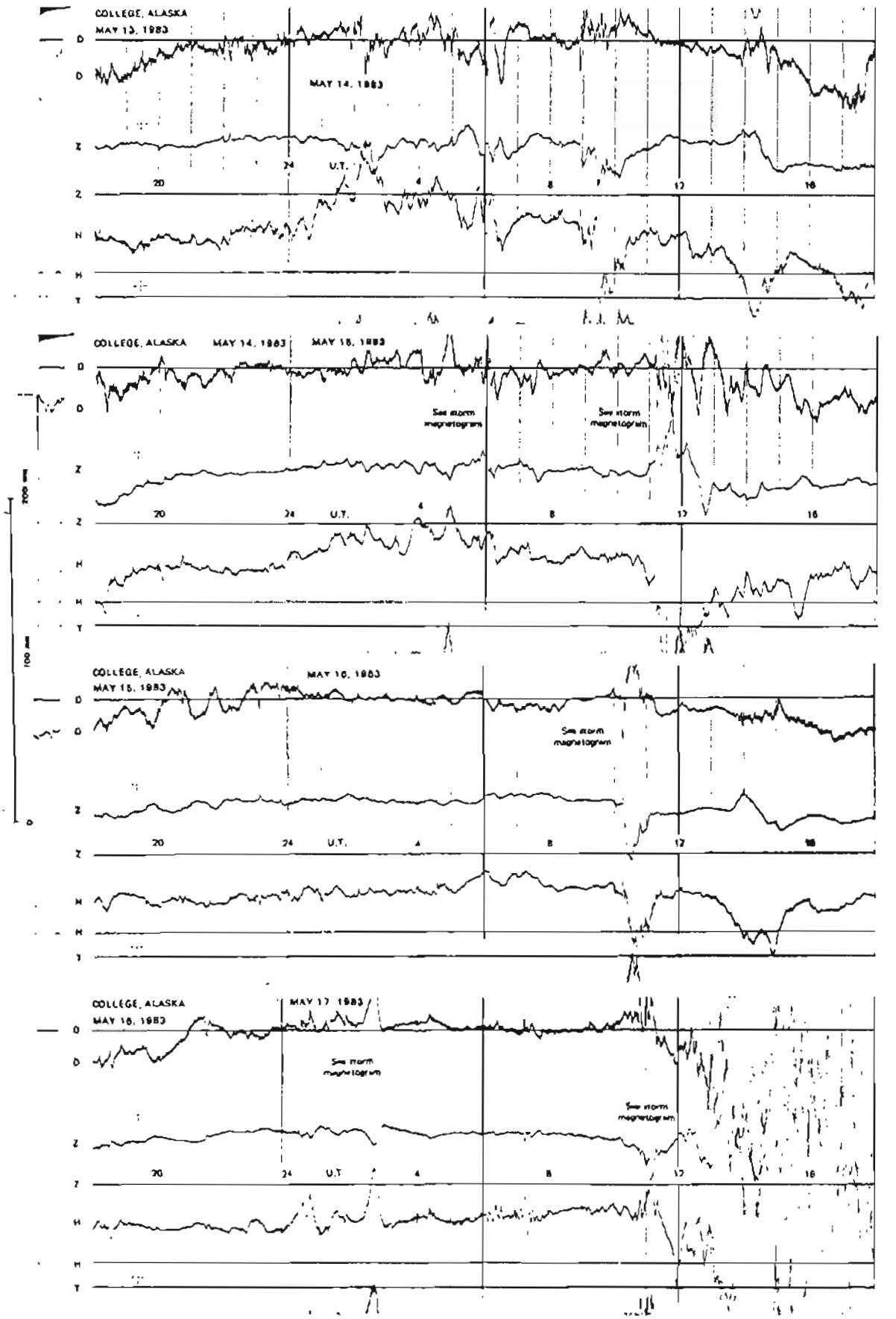
NORMAL MAGNETOGRAMS



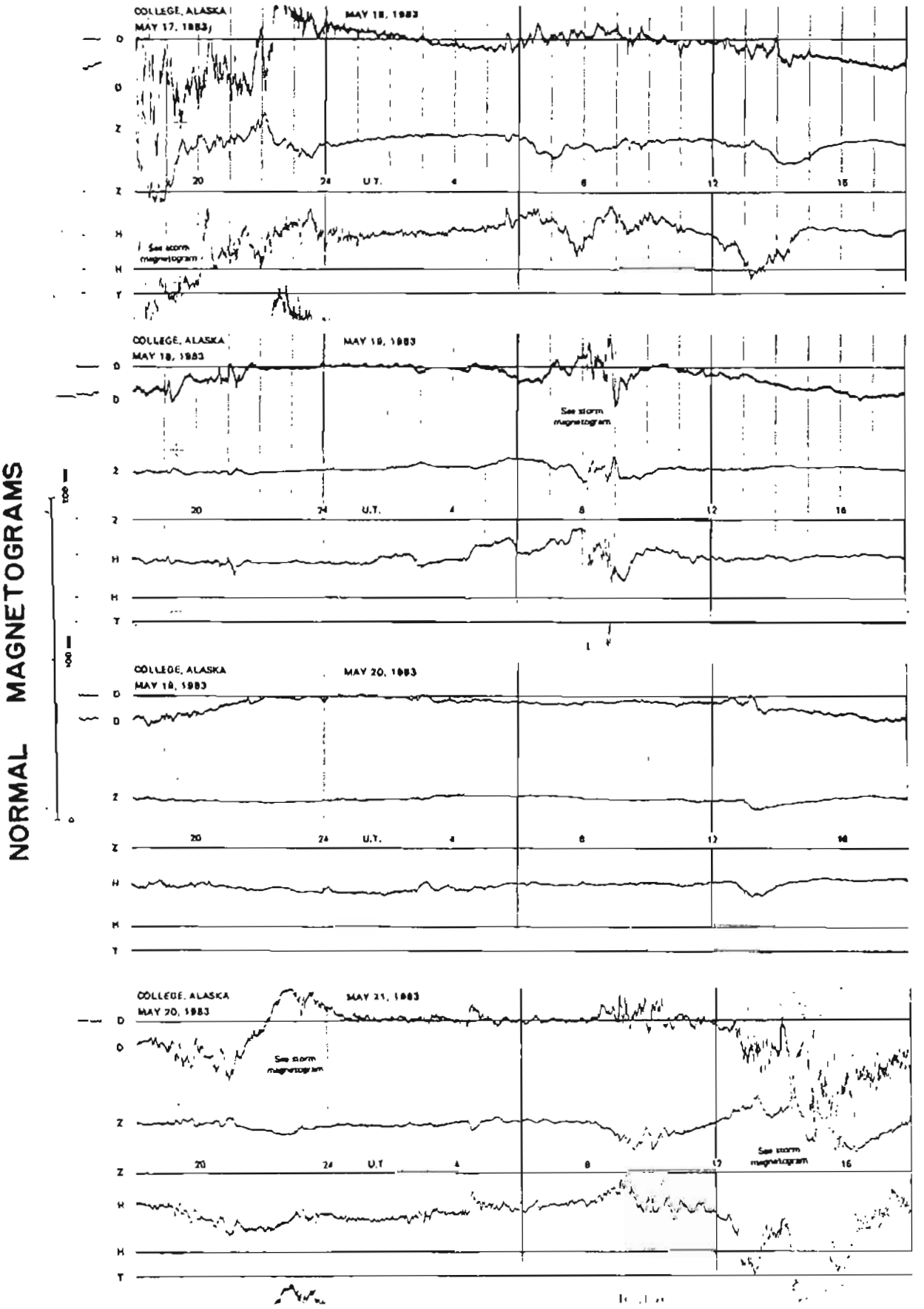
NORMAL MAGNETOGRAMS



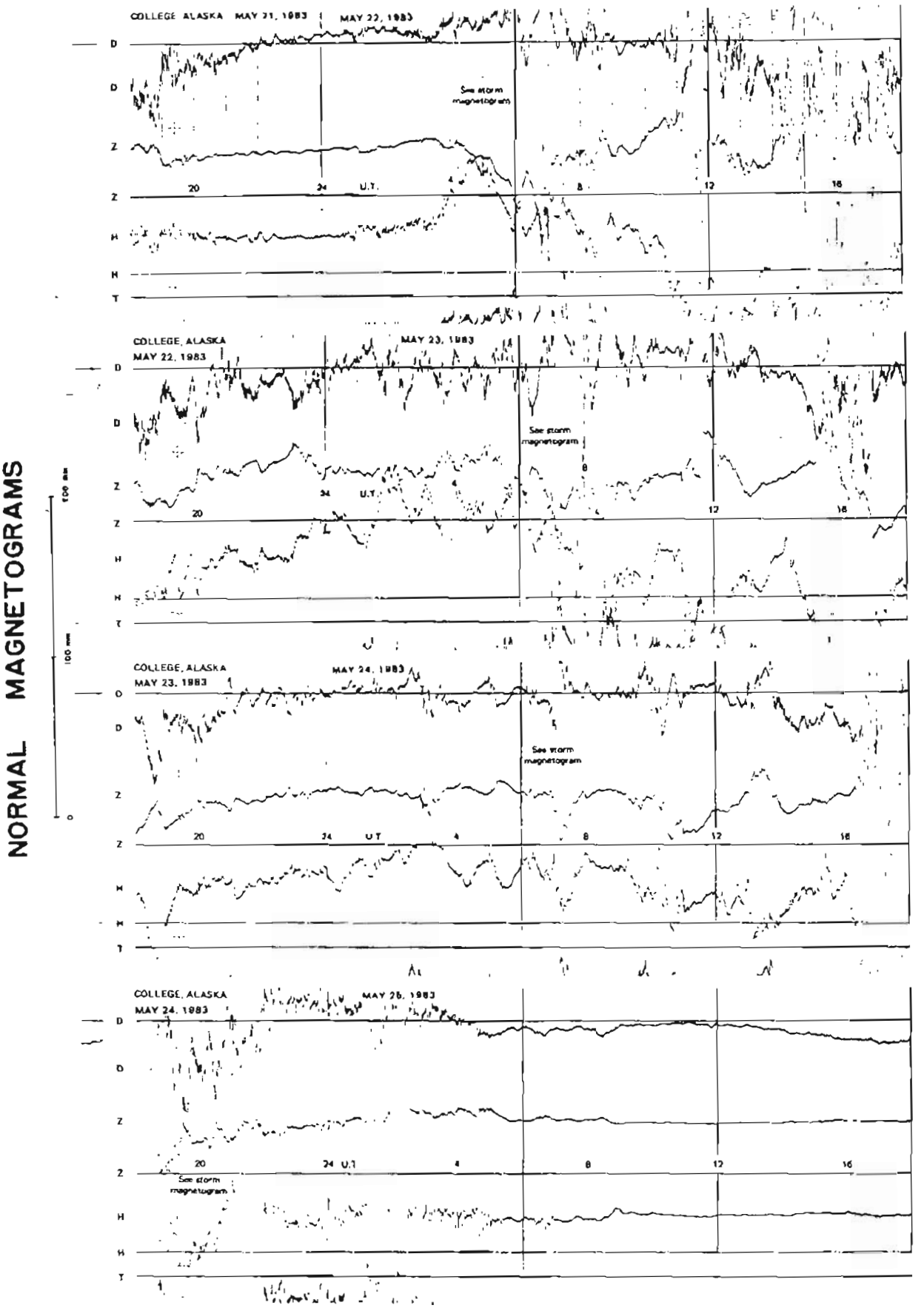
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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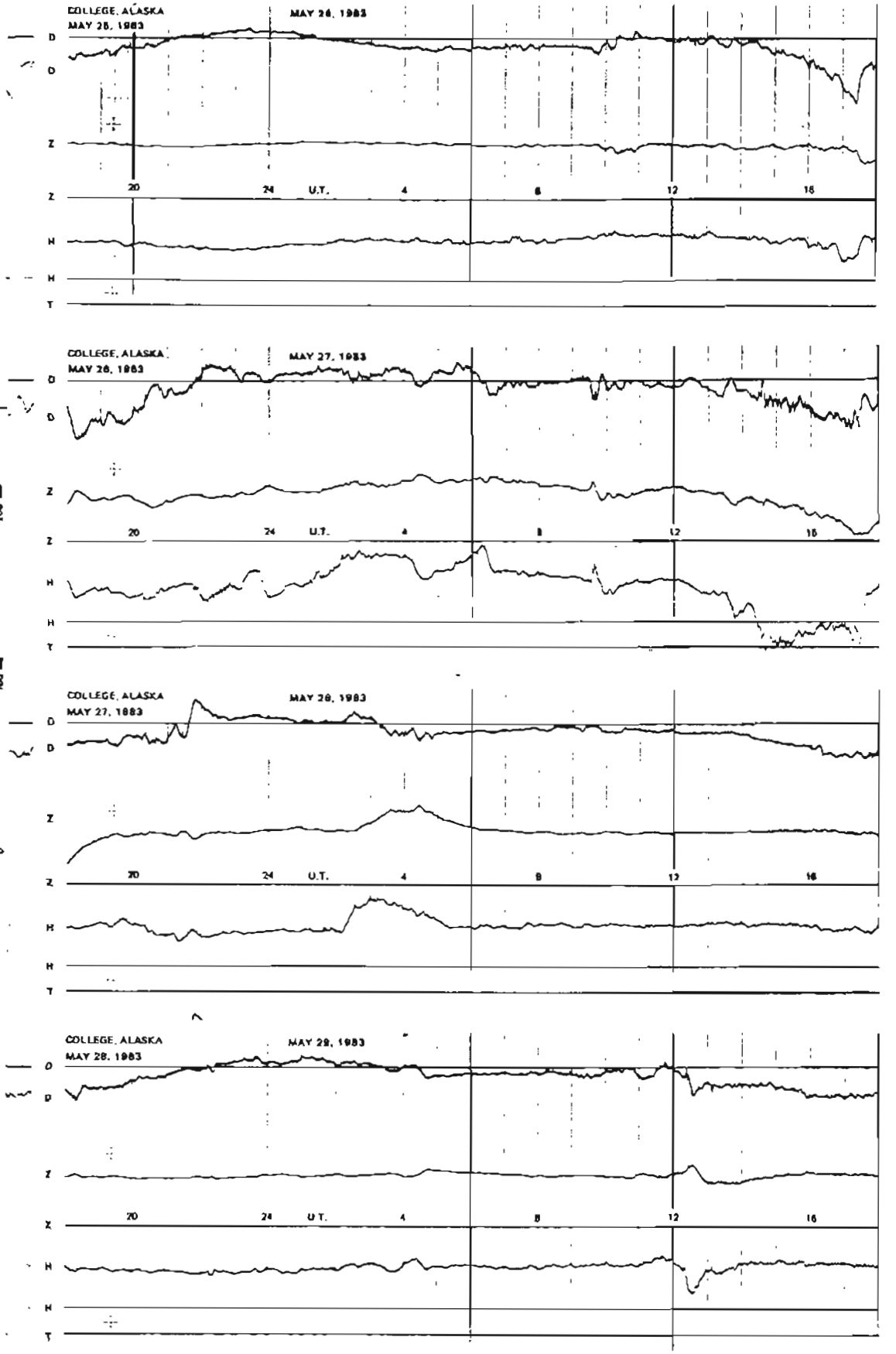

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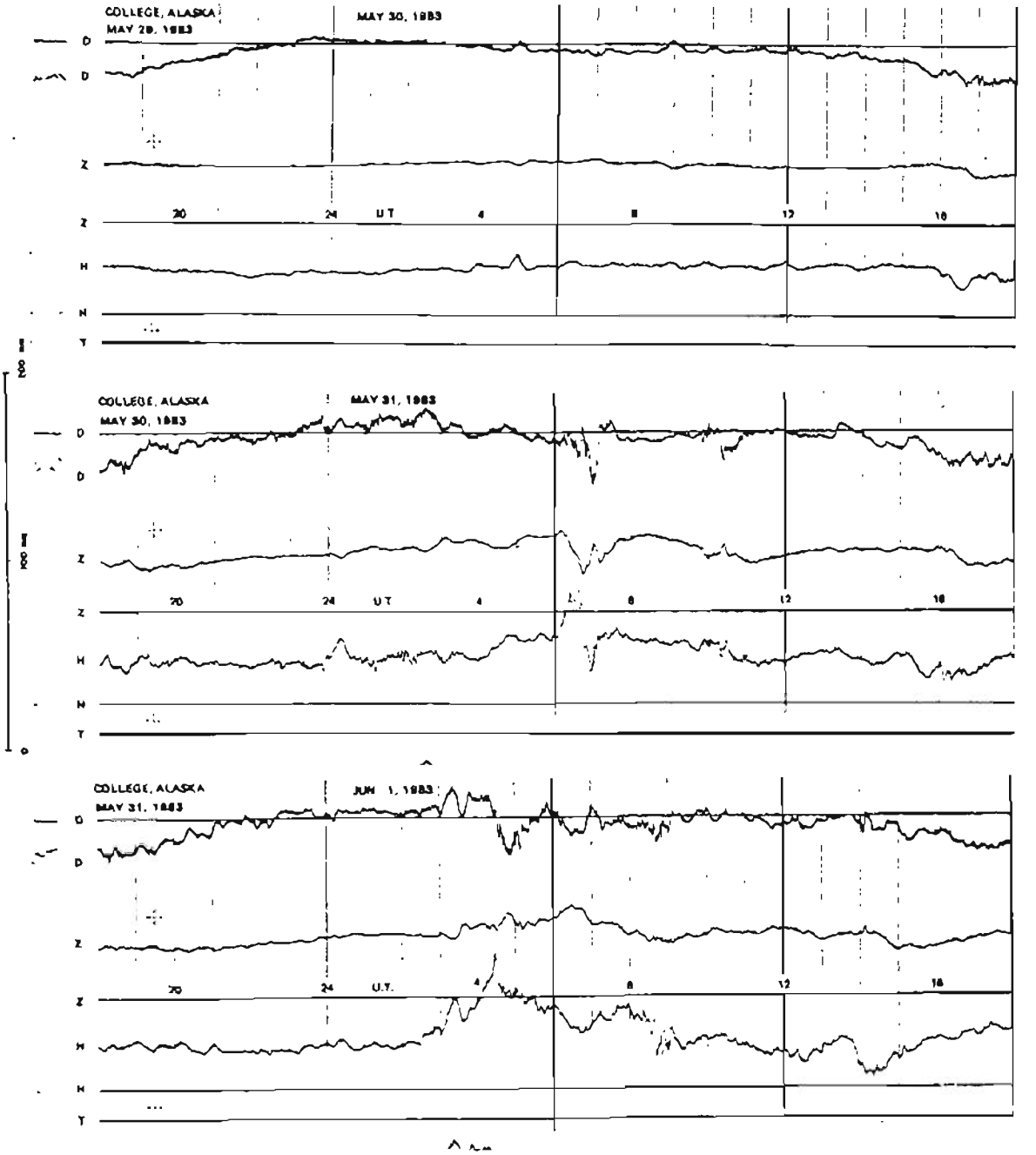
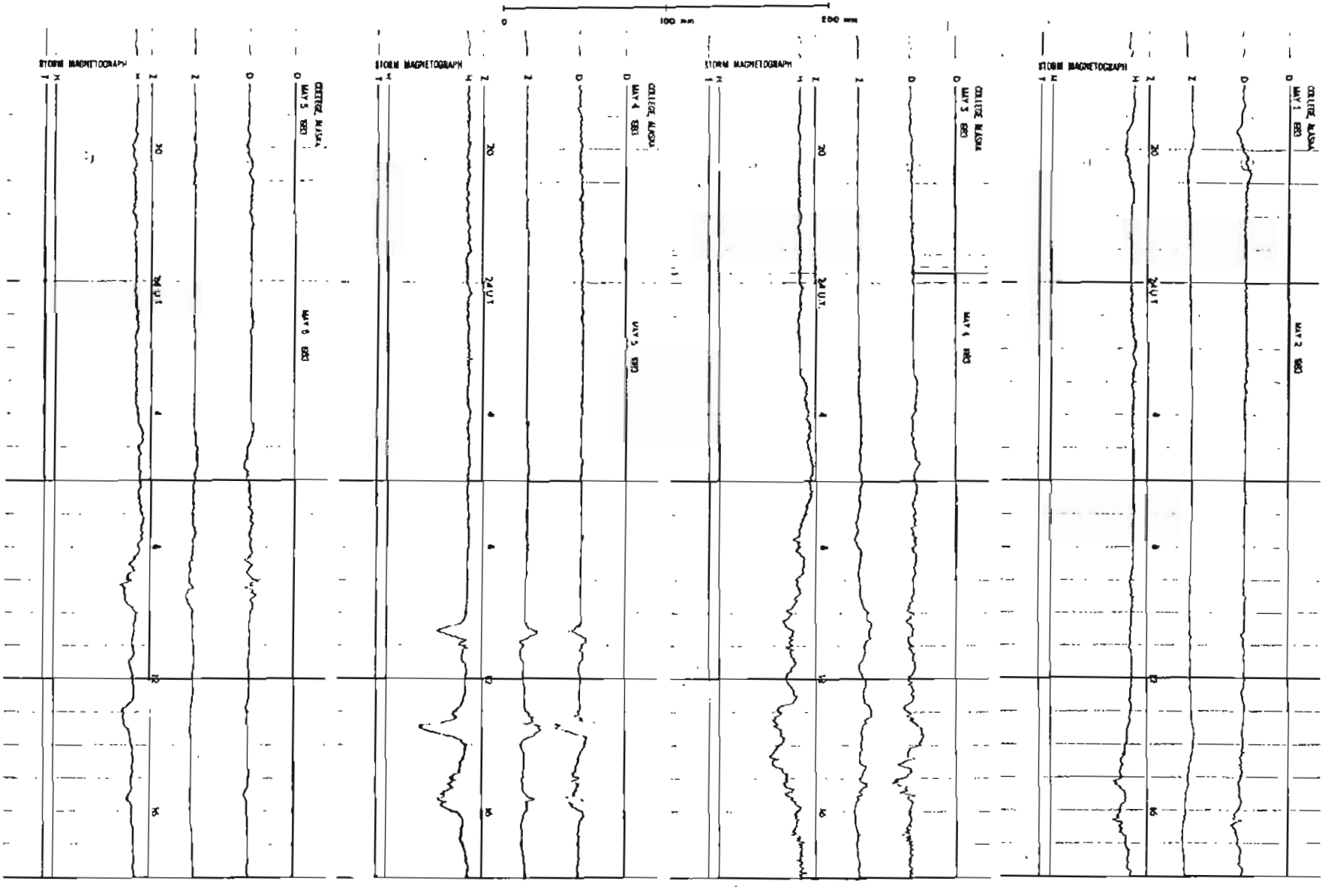
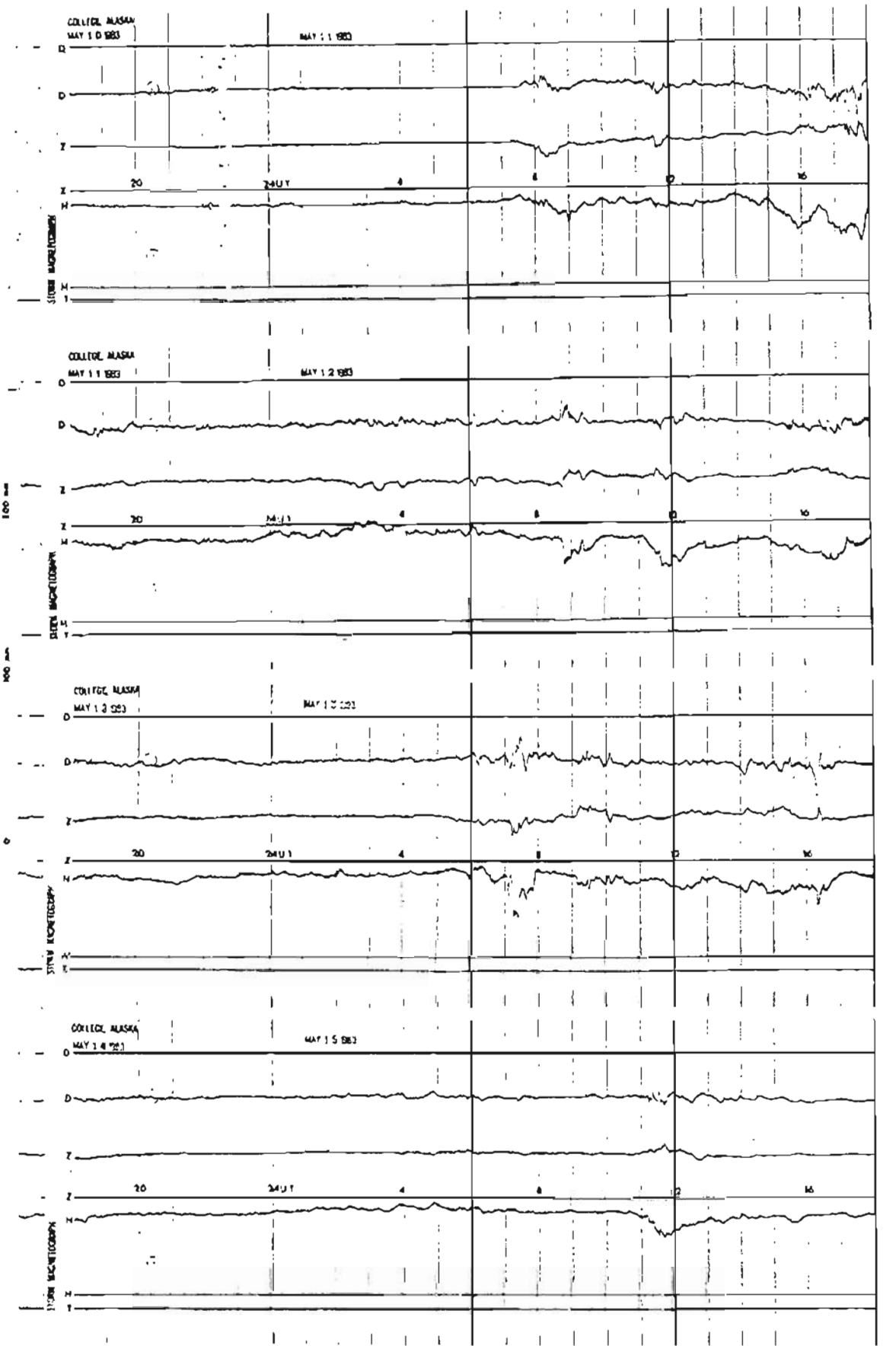


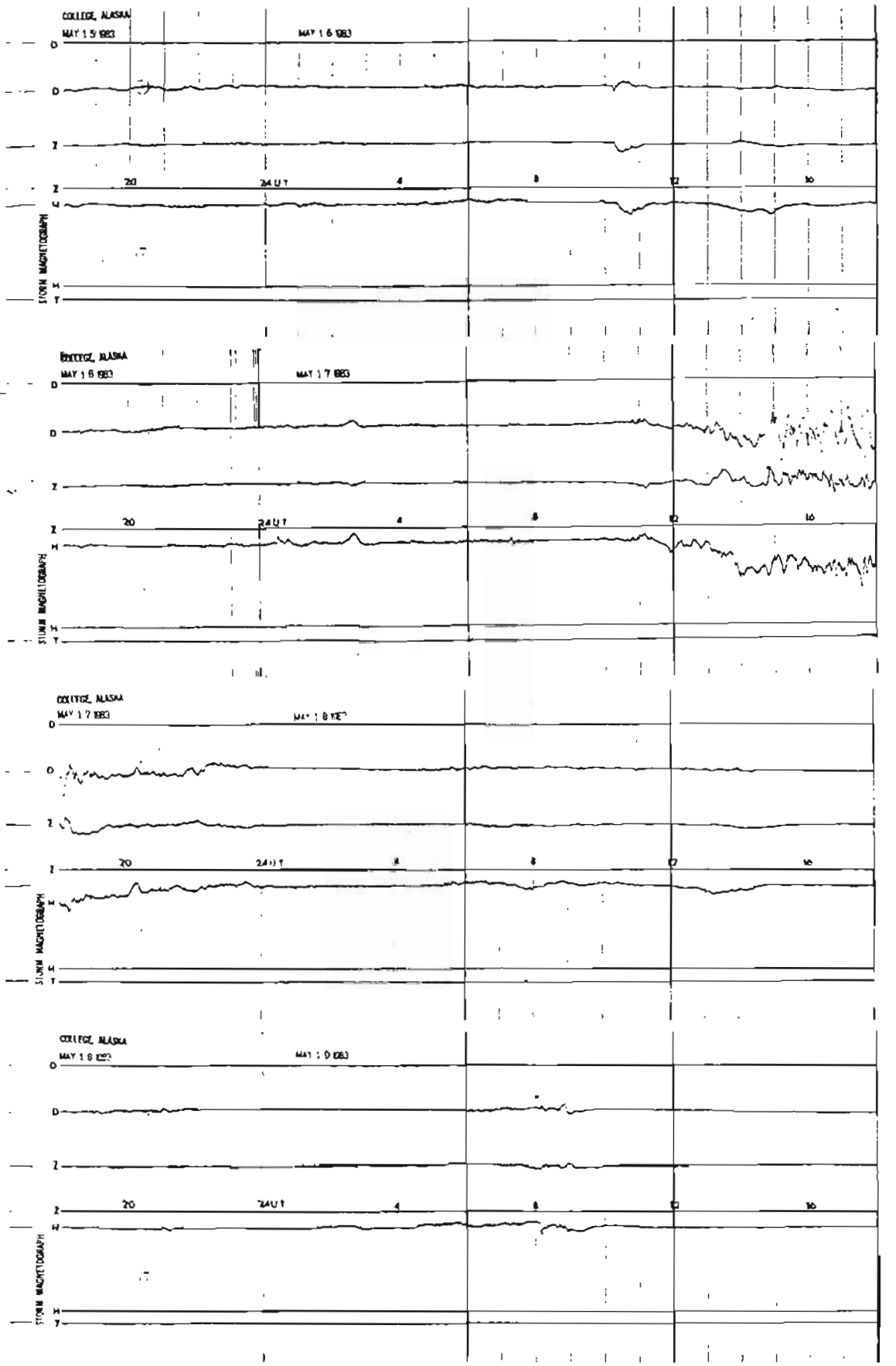
STORM MAGNETOGRAMS



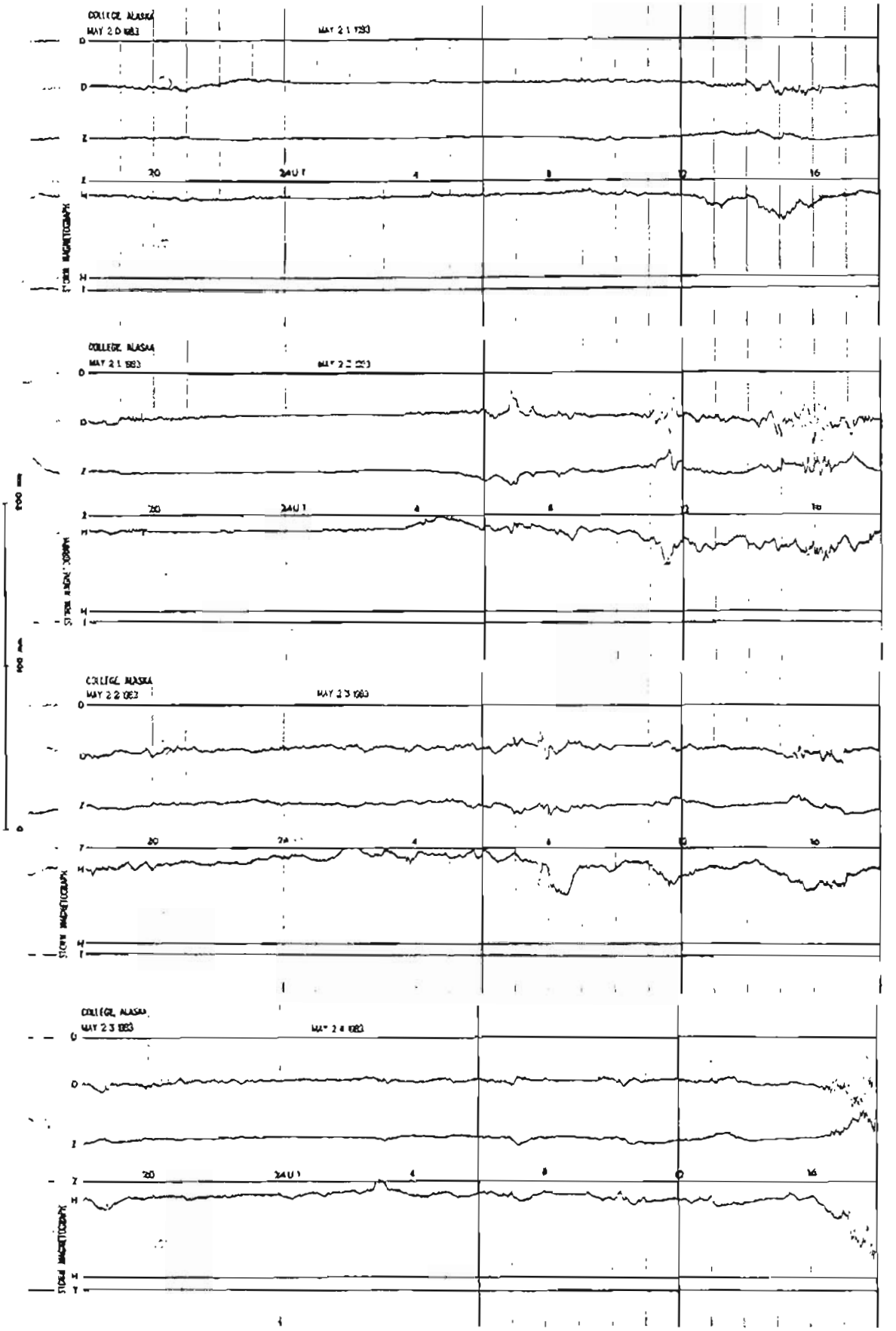
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS