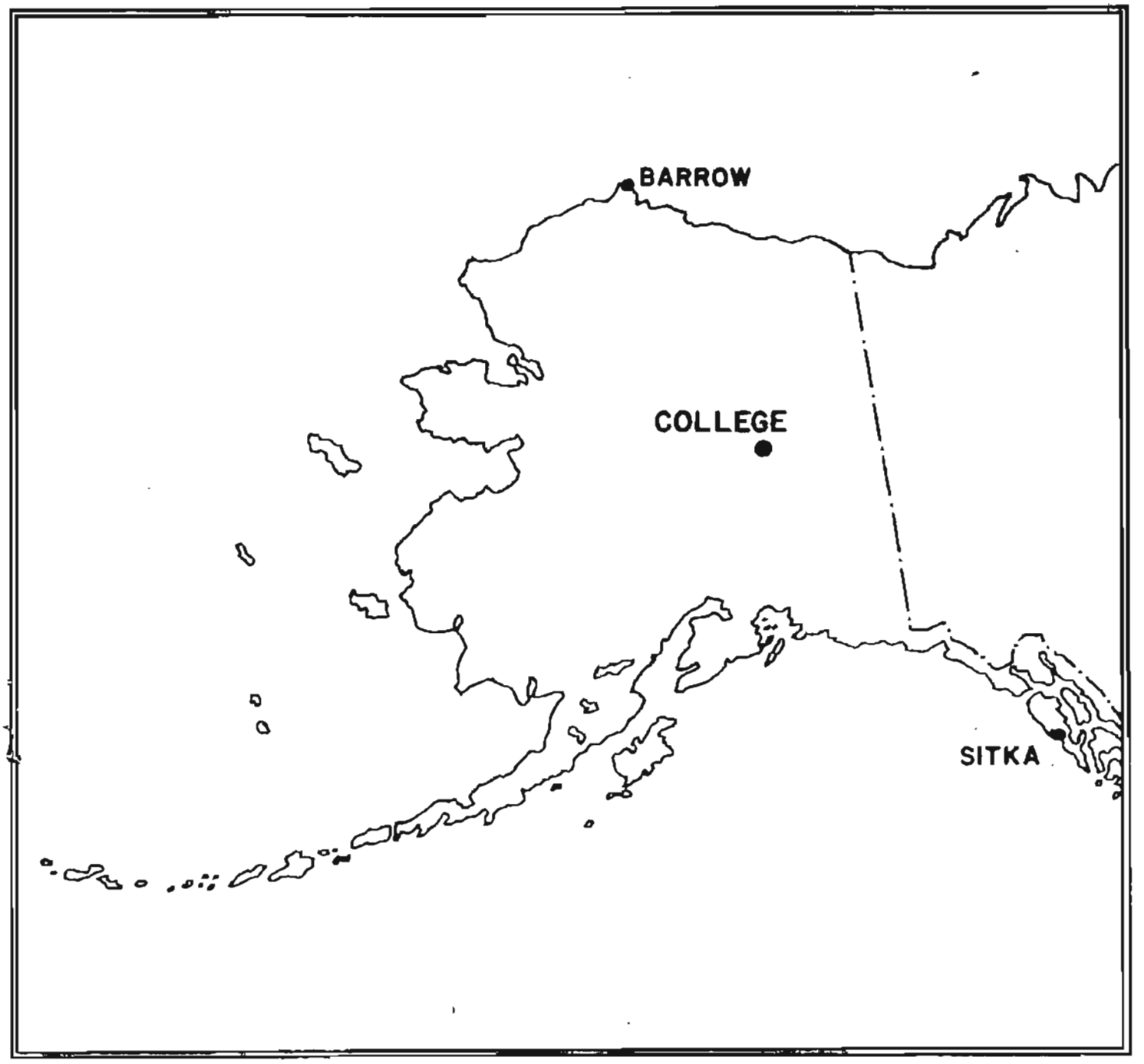
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JUNE 1983

OPEN FILE REPORT 83-0300F



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 3-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 - 10	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.

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: JUNE

YEAR: 1983

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
13	0117	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 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: JUNE 1983

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	4	4	3	3	3	2	1	22	15
2	1	2	3	3	4	2	1	1	17	10
3	2	1	2	3	0	1	1	1	11	05
4	1	1	2	0	0	0	0	1	05	02
5	1	1	2	4	3	5	1	1	18	14
6	2	1	3	1	3	3	2	2	17	09
7	2	3	2	2	1	1	1	1	13	06
8	0	2	2	5	5	3	2	2	21	17
9	2	3	6	5	2	3	3	3	27	25
10	4	5	3	5	6	7	3	2	35	48
11	3	4	3	4	4	1	2	1	22	16
12	3	3	3	3	3	3	2	2	22	13
13	6	5	7	6	5	5	4	3	41	61
14	3	3	2	3	4	3	2	3	23	15
15	4	3	4	5	5	4	5	2	32	31
16	3	1	2	3	5	5	2	1	22	18
17	2	3	3	3	4	5	3	2	25	19
18	4	5	5	5	5	6	4	3	37	43
19	4	4	4	5	5	5	2	3	32	31
20	3	4	4	4	6	4	2	2	29	27
21	3	4	4	3	4	4	3	2	27	20
22	2	2	2	5	6	6	6	2	31	40
23	3	3	6	5	5	6	4	3	35	41
24	3	3	2	3	3	2	1	0	17	10
25	0	0	0	0	1	2	2	2	07	03
26	2	3	2	2	4	4	2	3	22	14
27	2	3	4	1	1	2	2	2	17	10
28	2	1	1	3	4	4	2	2	19	12
29	2	4	4	4	4	3	2	2	25	18
30	1	1	3	2	4	1	2	2	16	09
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.....	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 615

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-657

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

JUNE 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	09	17xx	..	..	..	..	10	6	7	190	1580	550	10	20
		13	0117	s.c.*	-15	+402	..	13	3	7	196	1720	1400	14	07
		17	11xx	..	..	..	..	18	6	6	171	1100	740	20	16
								20	5	6					
		22	09xx	..	..	..	..	22	5,6,7	6	203	1040	590	23	20
								23	3,6	6					

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 6-1-83	2359 U.T. 6-2-83	1.0'/mm	3.7 γ/mm	27° 46.8 E
	0000 U.T. 6-3-83	2400 U.T. 6-30-83	"	"	27° 17.1 E
H	0000 U.T. 6-1-83	2359 U.T. 6-2-83	7.8 γ/mm		12760 γ
	0000 U.T. 6-3-83	2400 U.T. 6-15-83	"		12676 γ
	0000 U.T. 6-16-83	2400 U.T. 6-30-83	"		12684 γ
Z	0000 U.T. 6-1-83	2400 U.T. 6-30-83	7.7 γ/mm		55145 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 6-1-83	2400 U.T. 6-30-83	7.9'/mm	29.6 γ/mm	24° 20.8 E
H	0000 U.T. 6-1-83	2400 U.T. 6-15-83	43.9 γ/mm		10804 γ
	0000 U.T. 6-16-83	2400 U.T. 6-30-83	"		10822 γ
Z	0000 U.T. 6-1-83	2400 U.T. 6-30-83	48.4 γ/mm		54077 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 51.9 E	12947 γ	55375 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUN 2, 3, 4, 6, 7, 24, 25, 27, 28, 30

FORM 16-108

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 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	JUN	D

Day	01	02	03	04	05	06	07	08	09	10	11	12
01	-28	-32	-39	-87	14	26	39	20	60	4	2	34
02	-46	-34	-8	17	44	45	46	29	38	77	13	14
03	268	255	268	306	318	330	331	326	323	379	286	322
04	280	273	286	310	327	344	356	425	341	310	310	323
05	279	279	300	310	335	368	359	353	325	336	391	320
06	256	262	289	308	324	332	347	340	364	316	316	324
07	266	279	303	303	300	349	395	337	315	321	325	346
08	285	291	275	307	322	312	286	375	320	305	285	278
09	198	229	265	300	327	318	313	303	229	213	262	289
10	229	202	211	220	152	241	277	296	223	148	201	306
11	244	249	256	264	175	272	249	250	276	266	274	284
12	246	218	252	212	238	248	295	268	317	332	321	342
13	214	70	-127	-294	-349	-32	-152	-56	-152	23	204	412
14	311	292	300	301	295	314	328	336	332	364	263	297
15	294	300	336	280	246	236	234	253	258	242	365	280
16	264	271	282	312	338	358	362	361	318	271	276	273
17	228	238	264	288	297	333	341	336	318	317	296	276
18	221	204	211	180	151	95	270	165	484	250	178	[illegible]
19	259	274	225	284	304	257	234	240	231	182	197	242
20	275	295	231	306	272	306	314	316	318	270	169	264
21	290	251	258	276	270	253	401	264	309	268	295	[illegible]
22	250	246	277	286	260	299	344	320	280	304	336	357
23	244	262	236	260	269	285	290	245	412	246	306	304
24	246	250	263	273	316	346	342	308	298	268	274	294
25	278	274	286	295	311	333	340	339	341	338	344	344
26	239	234	251	262	232	322	356	342	348	344	287	281
27	244	266	280	295	322	338	330	364	338	360	336	310
28	257	260	268	291	324	339	340	338	341	321	269	303
29	258	245	276	326	327	328	272	338	284	364	328	266
30	248	264	295	306	326	336	336	342	303	308	312	294
31												

Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	42	16	53	98	127	169	211	142	121	32	-17	-34	973
02	41	46	65	134	200	199	174	136	78	26	-16	-30	1288
03	353	386	408	408	439	434	453	430	393	336	284	281	8317
04	333	354	384	418	452	468	469	440	393	356	308	296	8556
05	316	292	319	425	449	469	470	418	379	336	304	311	8443
06	332	332	356	398	467	515	522	451	368	324	286	313	8459
07	329	350	[illegible]	417	473	490	481	434	392	350	309	292	8539
08	278	[illegible]	533	498	542	467	441	426	367	270	288	219	8389
09	342	355	421	454	536	594	601	539	435	331	230	249	8333
10	[illegible]	418	442	760	752	673	380	360	333	298	275	246	7890
11	322	345	[illegible]	404	467	508	506	441	324	315	284	261	7545
12	437	407	454	516	523	517	494	460	392	316	263	231	8299
13	109	349	311	523	508	595	471	602	407	319	330	288	4573
14	296	275	342	414	480	477	450	455	398	310	294	313	8237
15	324	342	298	458	476	514	549	372	411	344	288	280	7980
16	334	294	390	478	533	460	443	423	401	349	308	269	8368
17	300	416	481	608	536	541	580	475	359	342	311	275	8758
18	369	492	642	516	778	500	487	470	547	344	263	253	8383
19	484	492	516	469	613	468	456	382	412	292	256	282	8051
20	316	400	412	403	450	469	464	441	415	368	366	278	8138
21	330	393	438	455	502	512	496	382	360	329	273	264	8160
22	412	484	444	524	579	778	714	450	395	334	266	226	9255
23	319	359	683	659	579	745	474	370	387	321	258	276	8789
24	331	357	362	420	504	500	484	448	407	358	333	298	8280
25	344	376	409	449	484	468	533	442	437	332	308	256	8681
26	272	320	364	474	524	494	472	452	389	326	335	302	8222
27	312	346	385	439	474	491	465	414	373	376	377	287	8522
28	312	339	412	420	420	466	474	451	382	342	290	252	8211
29	273	355	343	406	479	496	452	444	397	352	305	260	8174
30	330	375	402	438	485	515	500	451	414	317	300	265	8464
31													

SCALED BY: LYT
CHECKED BY: TKC, JEP, EDF
BOUNDARY VALUES PROVIDED BY: JEP
PUNCHED BY:

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

NOTE. D ORDINATE WAS ADJUSTED 0000 U.T., 6-3-83. MONTHLY SUM AND MONTHLY MEAN ARE COMPUTED ACCORDINGLY.

( ) 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
6-1-83 → 6-2-83: 2261
6-3-83 → 6-30-83: 47
MONTHLY MEAN
6-1-83 → 6-2-83: 230016
6-3-83 → 6-30-83: 342

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. Department of the Interior, Geological Survey, Geomagnetic Studies Branch, Federal Center, Denver, CO 80225

OBSY.	YEAR	MONTH	ELEMENT
CO	83	JUN	Z

Values are in tenths of mm and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 W.T.) is hour 11 of the same universal day. Shrinkage corrections have been applied. Negative values are in red, 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	327	333	326	347	395	394	449	373	310	307	338	340	01	330	313	303	249	276	314	324	283	290	278	286	301	7786
02	313	314	320	323	324	322	327	328	317	305	291	307	02	282	227	224	301	312	310	308	298	290	287	289	281	7200
03	315	311	322	340	332	326	319	307	310	251	232	287	03	306	309	305	300	284	287	296	296	293	286	288	295	7197
04	314	312	317	316	307	309	318	350	312	312	304	302	04	301	302	305	305	304	302	296	284	277	275	276	284	7290
05	295	291	299	305	309	316	312	314	303	301	219	271	05	295	294	286	224	266	293	283	265	272	273	284	301	6871
06	299	301	322	299	299	299	306	318	316	293	293	266	06	280	276	224	242	237	230	224	249	260	265	272	303	6694
07	317	321	332	309	303	372	377	340	308	325	304	276	07	261	309	310	309	296	286	262	261	271	273	277	278	7299
08	275	294	257	287	289	293	304	353	312	297	238	114	08	202	273	210	225	214	206	231	258	262	261	284	287	6260
09	304	307	301	304	322	326	347	293	155	131	270	312	09	209	291	310	320	302	274	230	209	197	229	245	266	6557
10	304	302	325	329	341	218	321	306	225	222	318	366	10	418	525	544	489	398	298	218	295	296	301	299	289	8217
11	301	331	334	313	294	369	360	380	340	308	236	264	11	270	260	265	246	288	296	286	270	267	283	290	283	7054
12	291	[illegible]	311	338	349	373	374	348	314	305	294	308	12	310	276	275	253	265	294	285	278	272	264	268	259	7272
13	263	212	8	379	-13	31	-134	190	466	520	526	544	13	436	400	457	464	453	447	418	295	246	258	316	338	6947
14	365	376	376	368	360	398	375	345	320	274	254	304	14	304	311	364	299	265	293	295	262	290	276	278	311	7666
15	325	314	344	390	407	360	321	374	343	348	307	235	15	354	357	266	263	274	253	154	202	258	264	276	281	7312
16	296	336	333	345	356	343	330	332	310	302	271	289	16	265	302	[illegible]	244	144	202	297	309	307	300	307	316	7204
17	327	338	344	337	342	377	389	367	328	320	307	290	17	343	266	277	172	198	301	234	203	226	274	290	314	7129
18	314	303	342	348	320	132	324	163	263	236	322	470	18	460	491	327	353	256	207	321	292	302	285	286	307	7446
19	316	325	297	364	340	347	300	291	334	298	320	472	19	435	378	302	166	156	192	286	292	313	292	294	309	7446
20	364	360	323	356	352	367	340	228	174	230	275	309	20	349	365	327	165	258	294	306	295	293	302	298	291	7223
21	313	345	358	355	334	309	271	298	371	342	258	276	21	223	298	257	197	215	263	246	204	259	280	298	320	6962
22	320	315	315	301	308	350	352	322	236	270	127	207	22	289	409	353	118	158	220	189	114	236	267	283	305	6426
23	328	322	318	339	346	332	318	233	125	251	430	403	23	438	395	256	220	107	145	94	185	261	269	309	350	6794
24	364	352	350	378	408	361	344	324	333	328	366	356	24	340	320	305	324	303	305	306	297	291	291	293	298	7937
25	301	307	306	310	307	314	313	314	314	313	311	310	25	308	288	297	308	309	298	309	274	275	244	261	274	7165
26	282	291	299	292	293	384	386	369	343	312	306	307	26	302	330	299	214	202	252	291	295	294	292	306	309	7250
27	298	293	307	306	306	334	358	297	335	319	291	288	27	315	316	314	312	301	284	220	217	242	270	286	287	7096
28	302	306	299	298	303	302	302	304	309	310	295	259	28	265	256	280	218	238	269	263	212	228	262	286	295	6661
29	319	338	339	346	358	366	325	292	292	339	262	270	29	287	322	304	300	271	296	280	290	268	289	295	308	7376
30	316	306	308	311	318	316	305	332	290	299	313	301	30	282	285	268	308	317	294	287	280	272	260	277	283	7148
31													31													

SCALED BY: LYT
CHECKED BY: TKC, JEP, LPK
STORED BY / VIEWED BY: AP
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 Magn., converted to Normal Magn.

MONTHLY SUM	214905
MONTHLY MEAN	298
DATES WITH DAPS:	

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

U.S. Department of the Interior, Geological Survey, Denver Federal Center

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

OBSY.	YEAR	MONTH	ELEMENT
CO	83	JUN	H

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	233	230	274	403	542	452	348	392	310	245	249	195	01	169	225	107	213	263	297	249	264	222	235	240	235	6592
02	226	221	230	236	243	260	257	321	378	300	223	184	02	70	51	221	261	268	260	235	230	235	210	217	240	5577
03	352	336	364	345	356	348	367	365	407	397	348	360	03	365	360	361	330	314	337	336	337	309	309	312	326	8341
04	344	377	341	354	361	371	386	392	379	367	357	355	04	353	361	367	375	371	366	350	338	321	322	332	344	8536
05	350	347	358	356	360	368	394	370	397	368	213	405	05	386	375	303	105	400	367	385	377	348	334	329	337	6378
06	331	367	375	371	376	376	411	450	439	393	383	383	06	388	363	269	343	314	186	348	336	329	313	328	358	8650
07	336	349	327	361	415	464	407	373	363	366	320	342	07	371	369	352	342	323	333	332	333	320	323	312	316	8494
08	331	340	350	355	362	391	432	411	383	375	320	-74	08	-91	-104	64	271	184	313	362	328	311	304	294	305	6537
09	340	346	362	372	392	414	471	468	144	177	412	384	09	373	366	380	408	361	284	285	247	270	285	290	350	8228
10	439	428	584	647	707	805	573	556	519	486	136	95	10	157	-462	-265	-503	-180	85	454	451	366	352	340	368	7227
11	405	460	474	531	626	536	508	474	429	390	346	374	11	316	186	192	349	360	346	335	317	332	320	307	327	9240
12	372	431	481	524	641	572	491	499	544	404	326	345	12	349	430	398	379	404	371	351	333	314	311	303	330	9913
13	345	535	683	426	304	394	575	231	61	247	292	-86	13	106	0	-146	240	41	102	146	158	307	317	327	392	5522
14	306	476	380	408	461	407	354	364	365	266	304	349	14	354	362	252	256	329	362	304	309	194	306	316	356	8394
15	384	608	561	426	504	545	549	476	400	168	14	163	15	106	13	246	225	306	178	19	312	343	334	314	331	7605
16	323	345	354	372	364	370	361	363	367	362	318	270	16	281	301	95	32	210	387	377	362	324	325	316	316	7498
17	320	356	336	374	390	415	502	404	381	367	390	331	17	198	108	-20	59	394	308	277	302	295	313	308	343	7451
18	326	416	476	514	555	537	595	485	219	374	383	243	18	-11	-62	10	143	-100	358	408	386	314	302	363	367	7601
19	366	365	509	494	462	428	559	537	485	333	354	46	19	-245	-46	-36	140	153	390	380	369	331	301	308	366	7349
20	494	494	442	538	464	348	424	357	289	266	255	206	20	300	-24	245	279	391	379	387	352	325	324	328	345	7718
21	396	361	401	454	465	618	422	459	456	402	350	349	21	348	282	203	136	304	297	216	237	295	316	326	364	6457
22	380	391	352	338	359	410	396	360	392	432	205	168	22	91	-36	200	79	-222	-166	-250	179	381	387	359	388	5213
23	440	343	350	324	422	496	552	411	-62	212	108	-38	23	198	-110	-86	-188	-131	-24	190	302	319	336	340	356	5160
24	325	349	405	432	440	367	360	354	422	414	314	290	24	233	278	310	313	324	362	350	340	331	328	315	311	8267
25	317	322	339	340	346	339	340	341	350	354	355	361	25	366	339	364	354	340	347	296	310	281	296	312	319	8028
26	307	344	334	363	436	448	454	428	390	410	390	360	26	319	339	338	162	278	340	365	352	330	325	335	318	8465
27	309	335	343	342	356	414	516	480	360	375	371	360	27	358	342	340	340	312	269	252	285	296	290	288	294	8226
28	306	339	343	347	343	340	355	348	365	356	344	236	28	253	272	134	165	367	368	308	324	334	332	324	332	7535
29	356	348	397	325	476	436	525	464	458	314	165	334	29	255	246	411	299	322	347	338	322	322	309	316	326	8501
30	332	339	356	360	358	337	358	394	444	347	367	336	30	272	220	355	363	348	349	352	326	317	326	300	324	8180
31													31													

SCALED BY: LYT

CHECKED BY: TKC, JJZ, ERS

HOURS REVIEWED BY: JEP

PUNCHED BY:

Preliminary baseline and scale values:

Interval Beginning | Base-line Value | Scale Value

NOTE: H ORDINATE WAS ADJUSTED 0000 U.T., 6-3-83. MONTHLY SUM AND MONTHLY MEAN ARE COMPUTED ACCORDINGLY.

( ) Interpolated

[ ] Significant portion of hour interpolated.

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

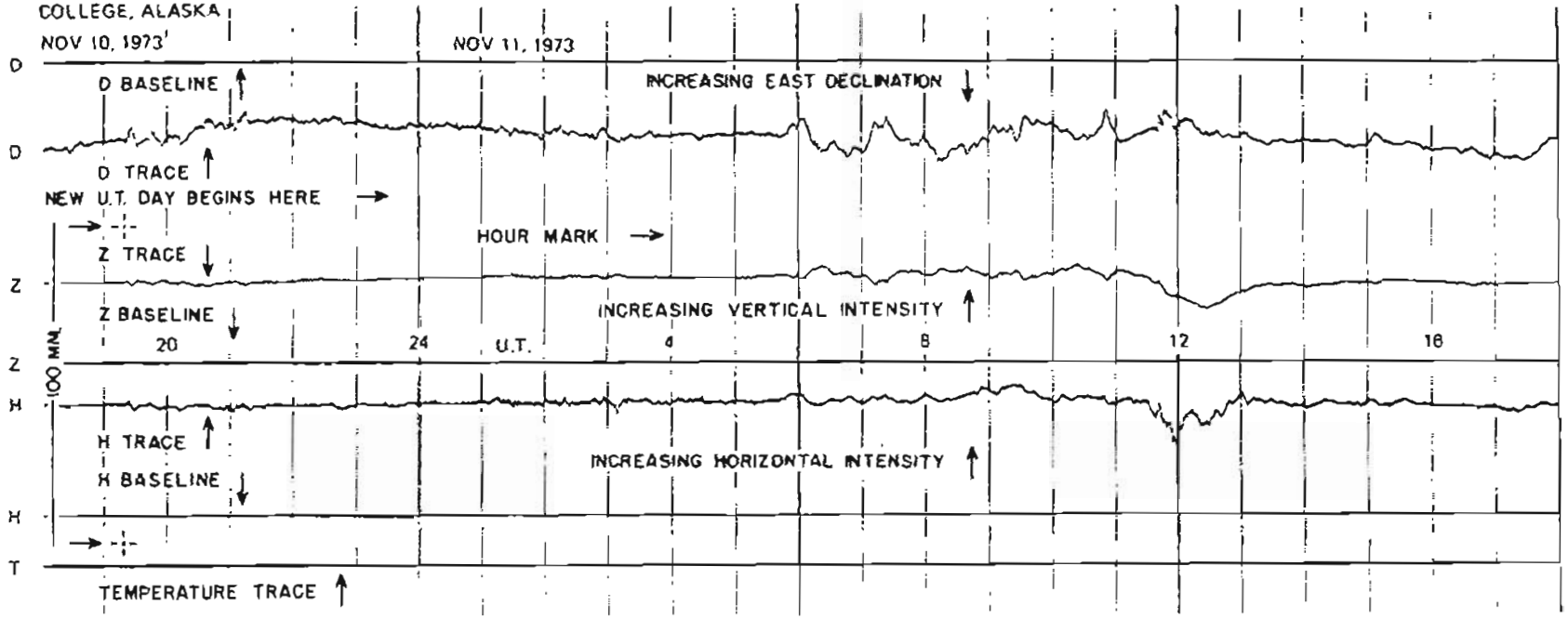
[ ] Scaling uncertain because of magnetic storm.

< > 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.

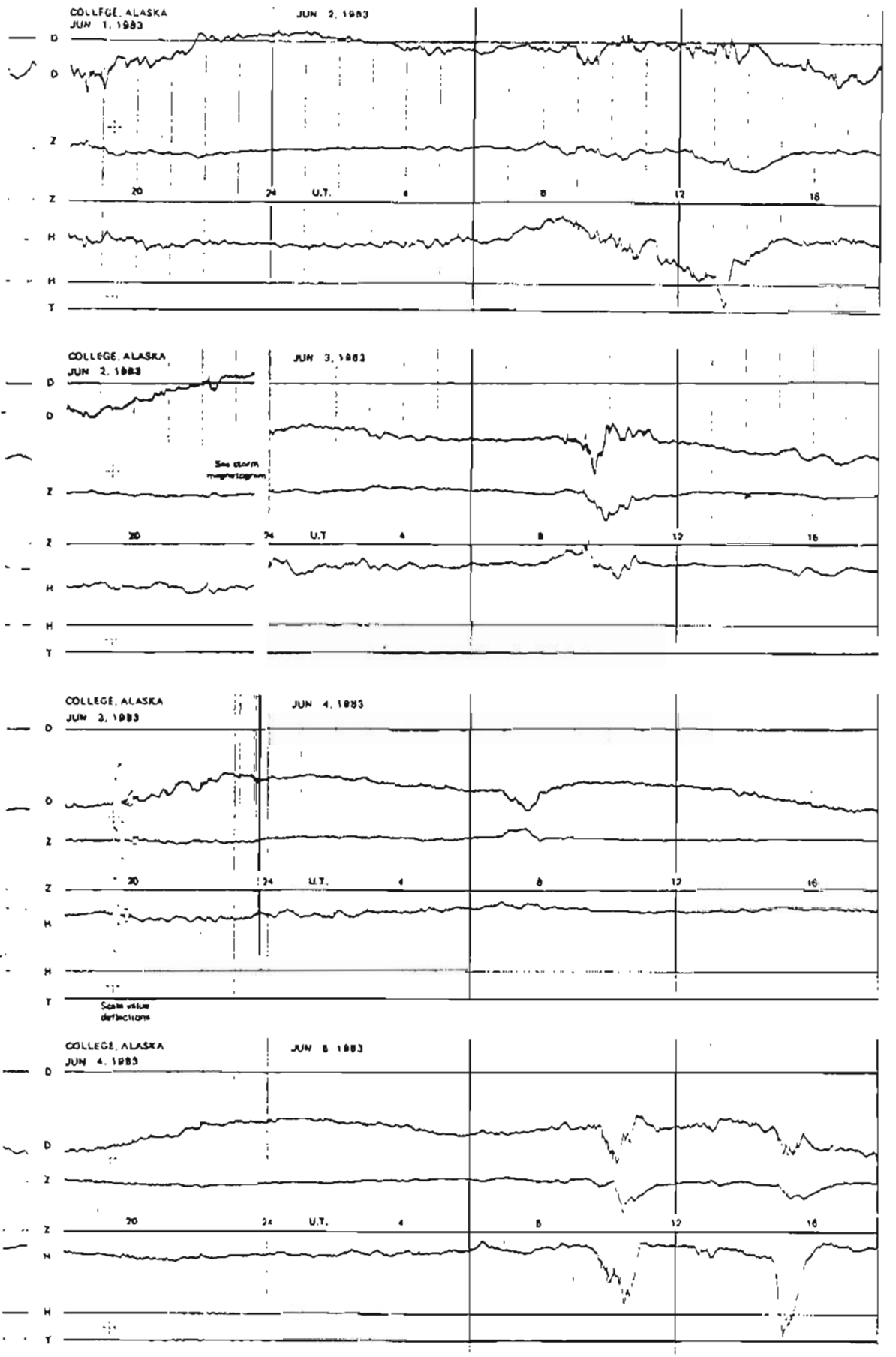
MONTHLY SUM 6-1-83 → 6-2-83	12169
6-3-83 → 6-30-83	218714
MONTHLY MEAN 6-1-83 → 6-2-83	254
6-3-83 → 6-30-83	325

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

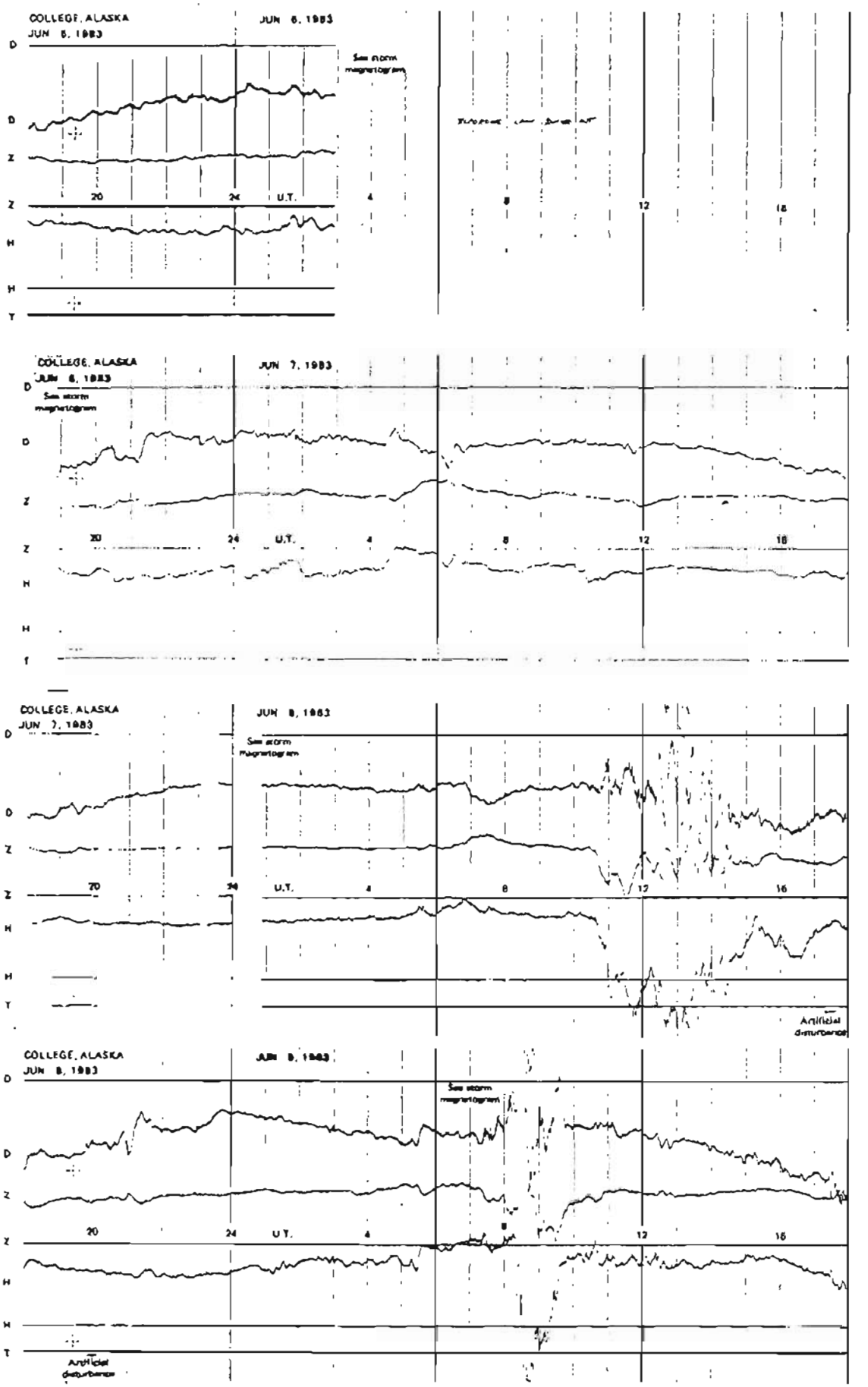


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

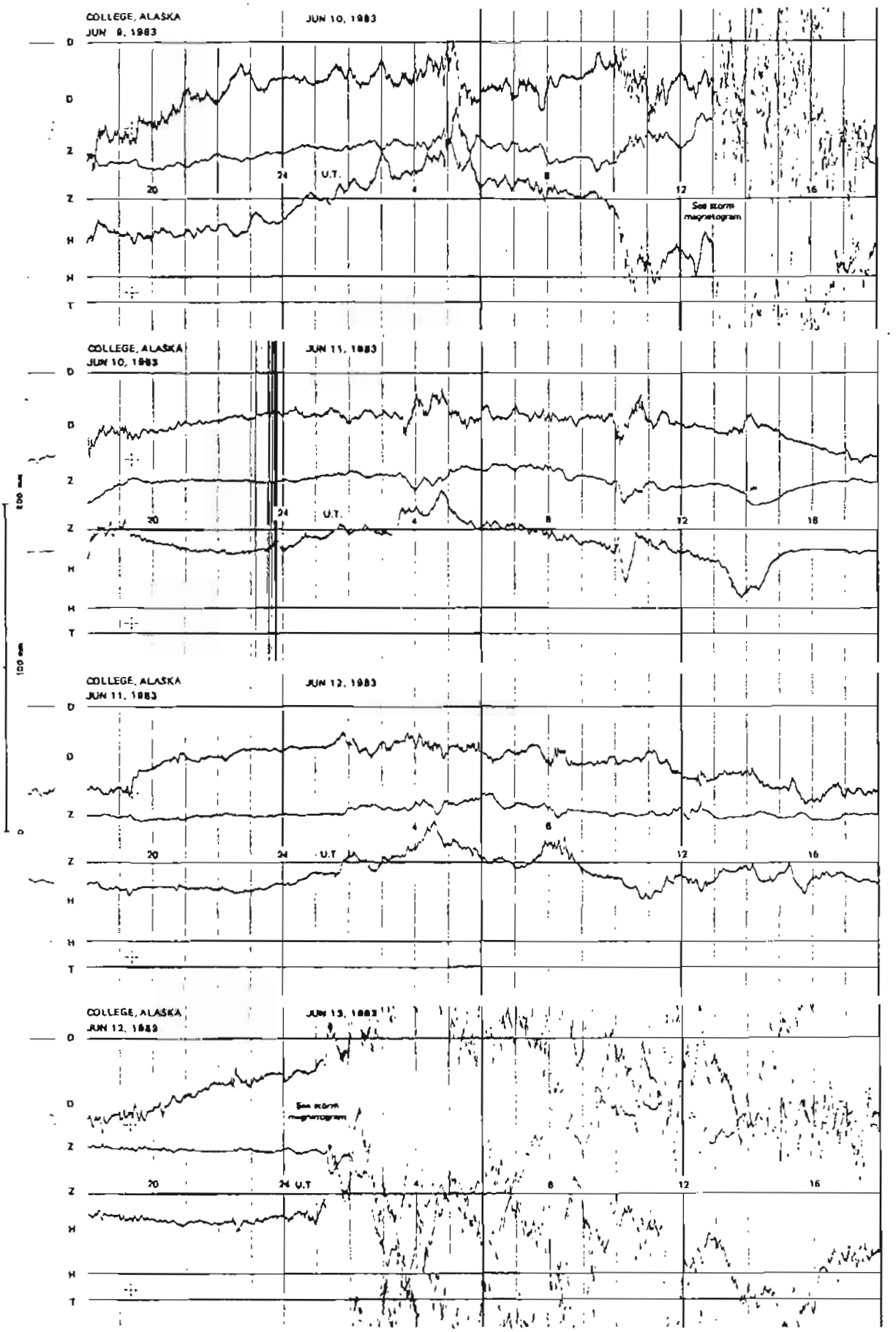
NORMAL MAGNETOGRAMS



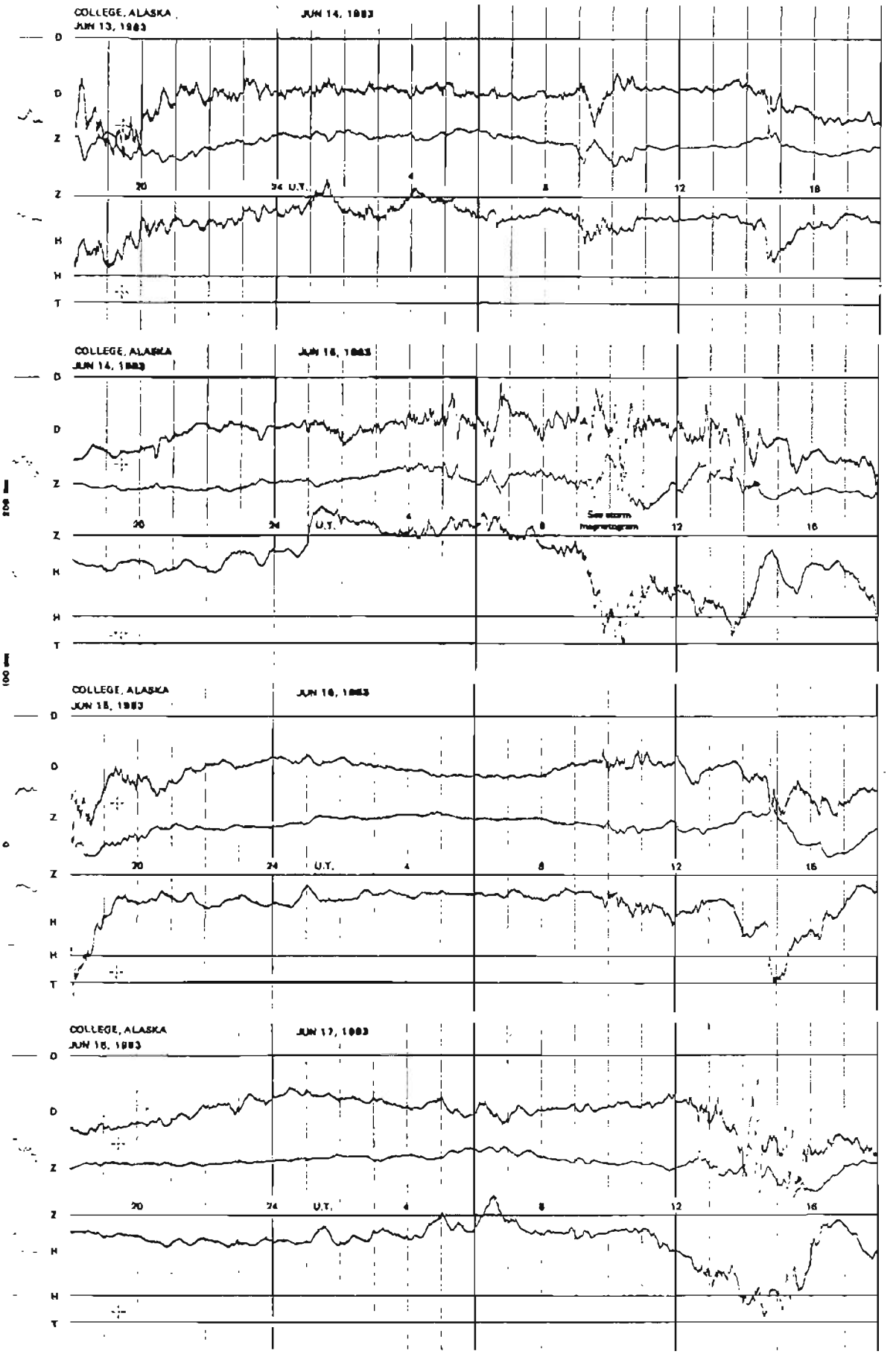
NORMAL MAGNETOGRAMS



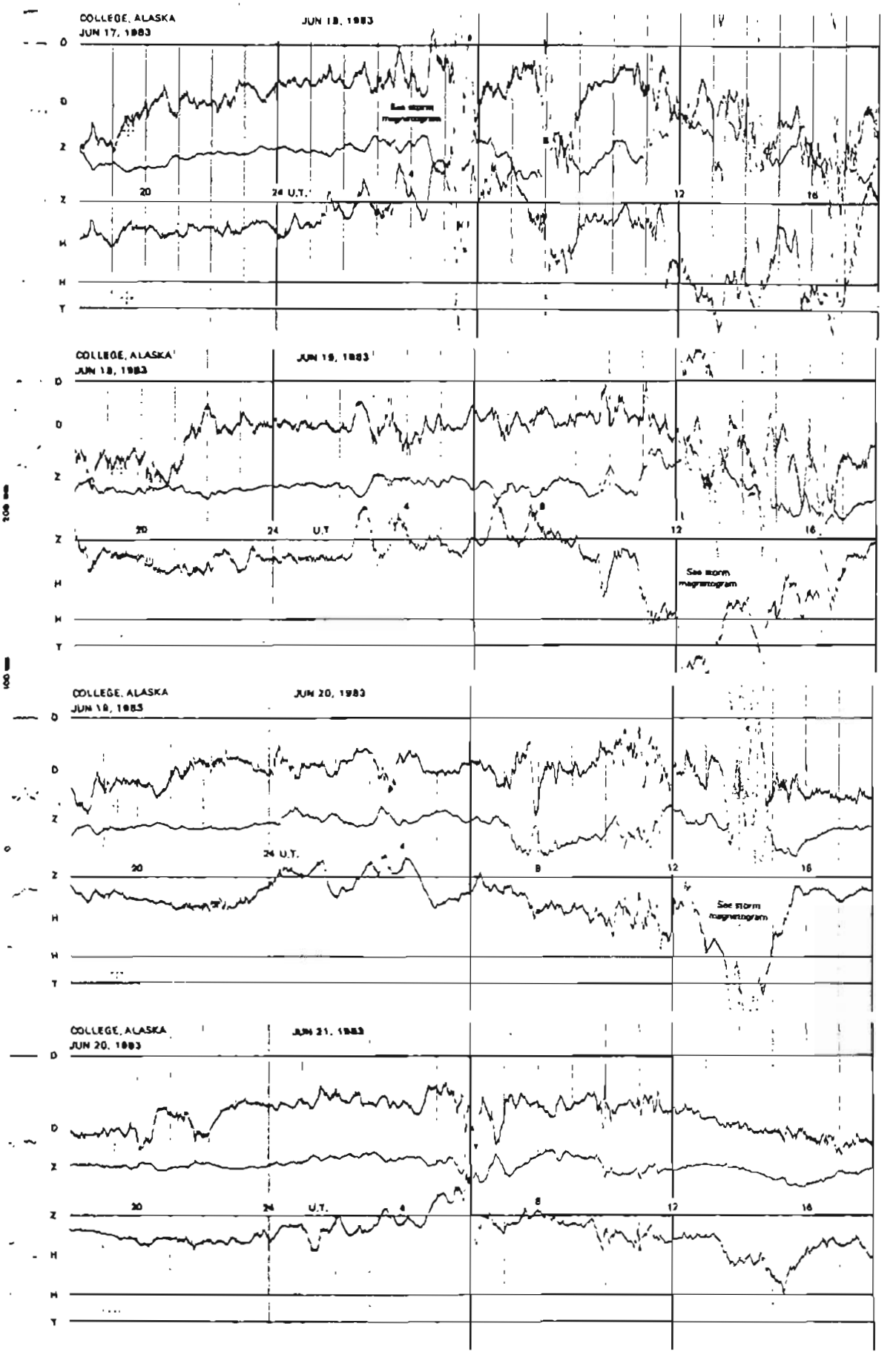
NORMAL MAGNETOGRAMS



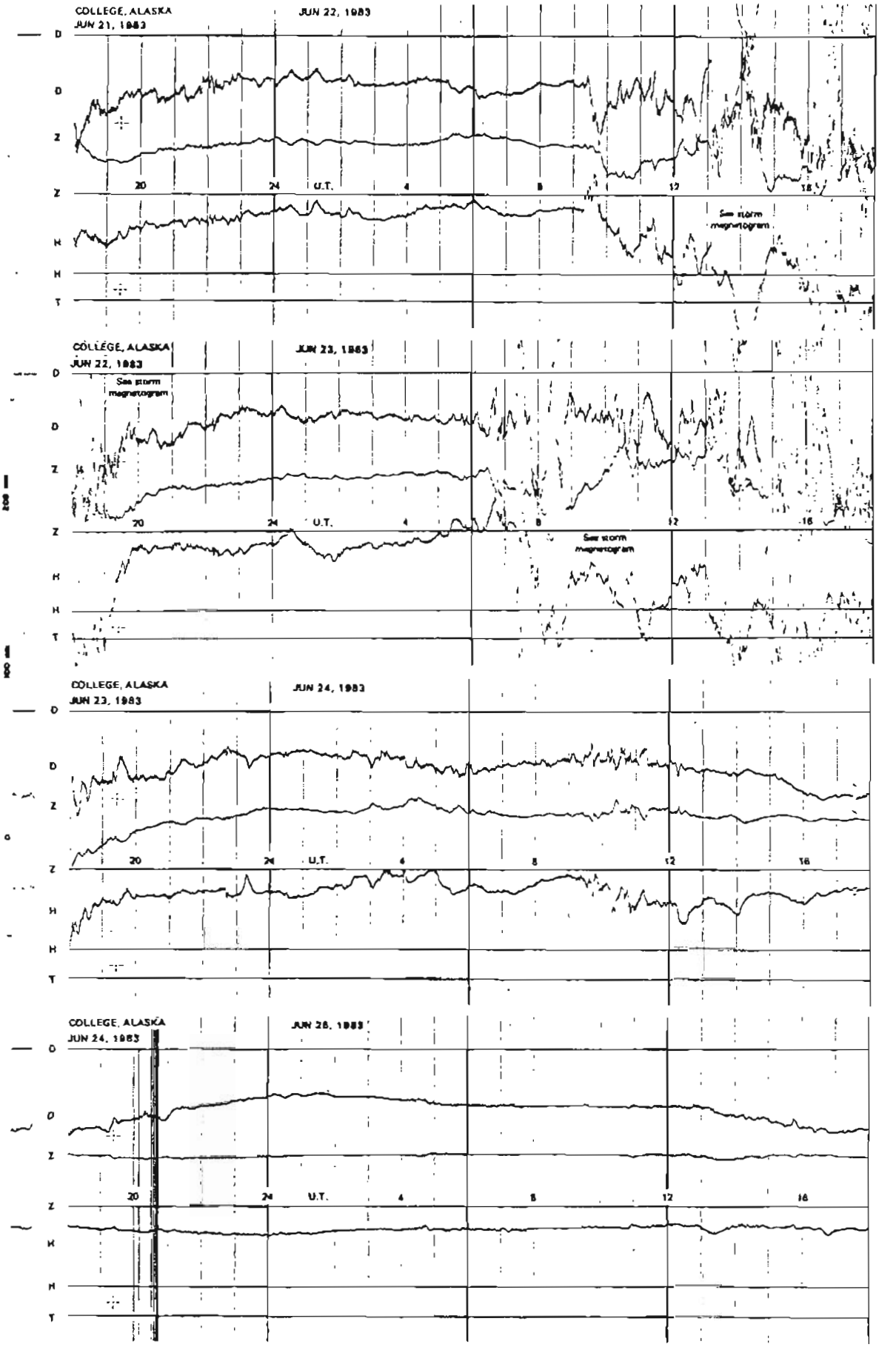
NORMAL MAGNETOGRAMS



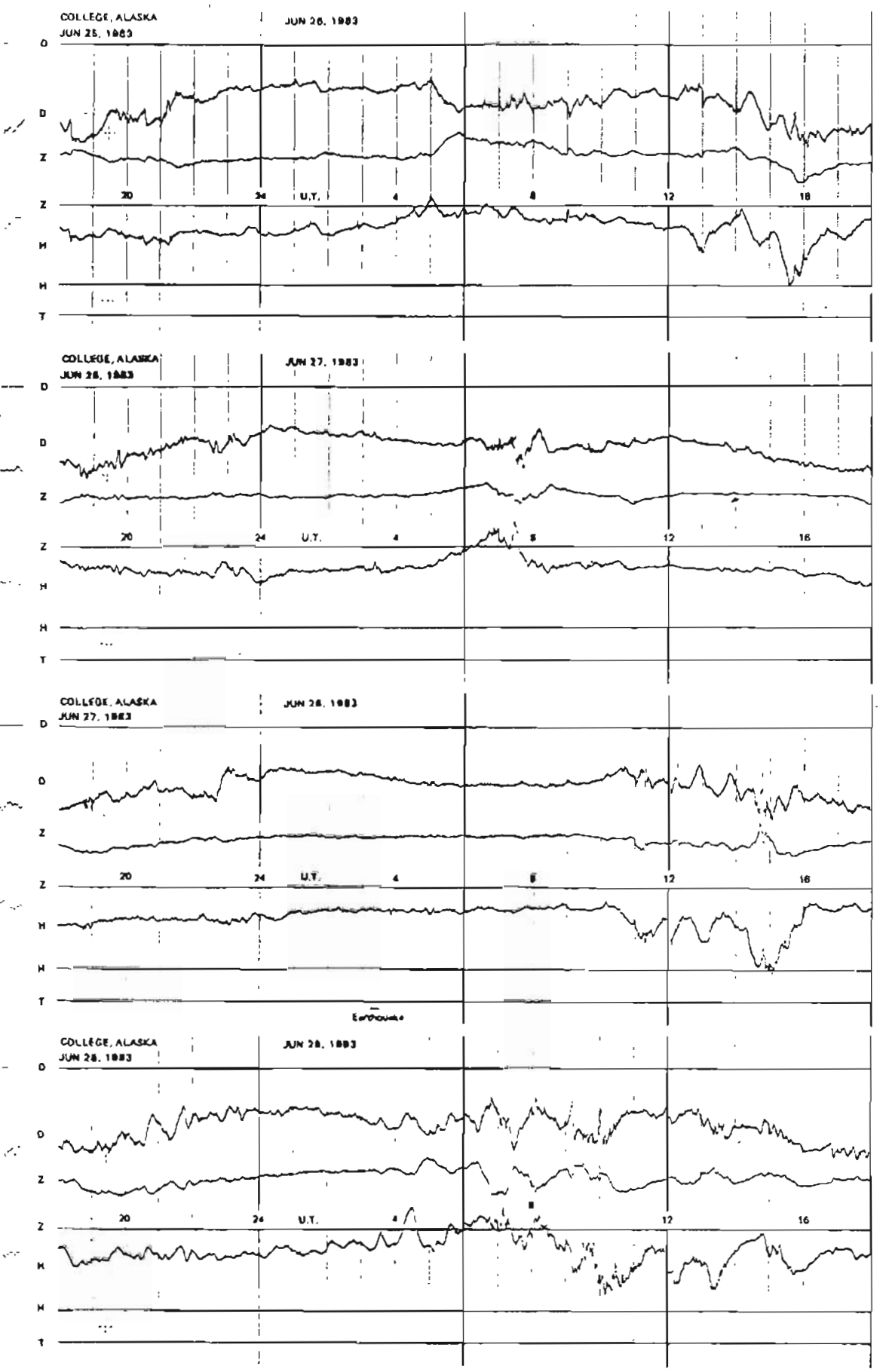
NORMAL MAGNETOGRAMS



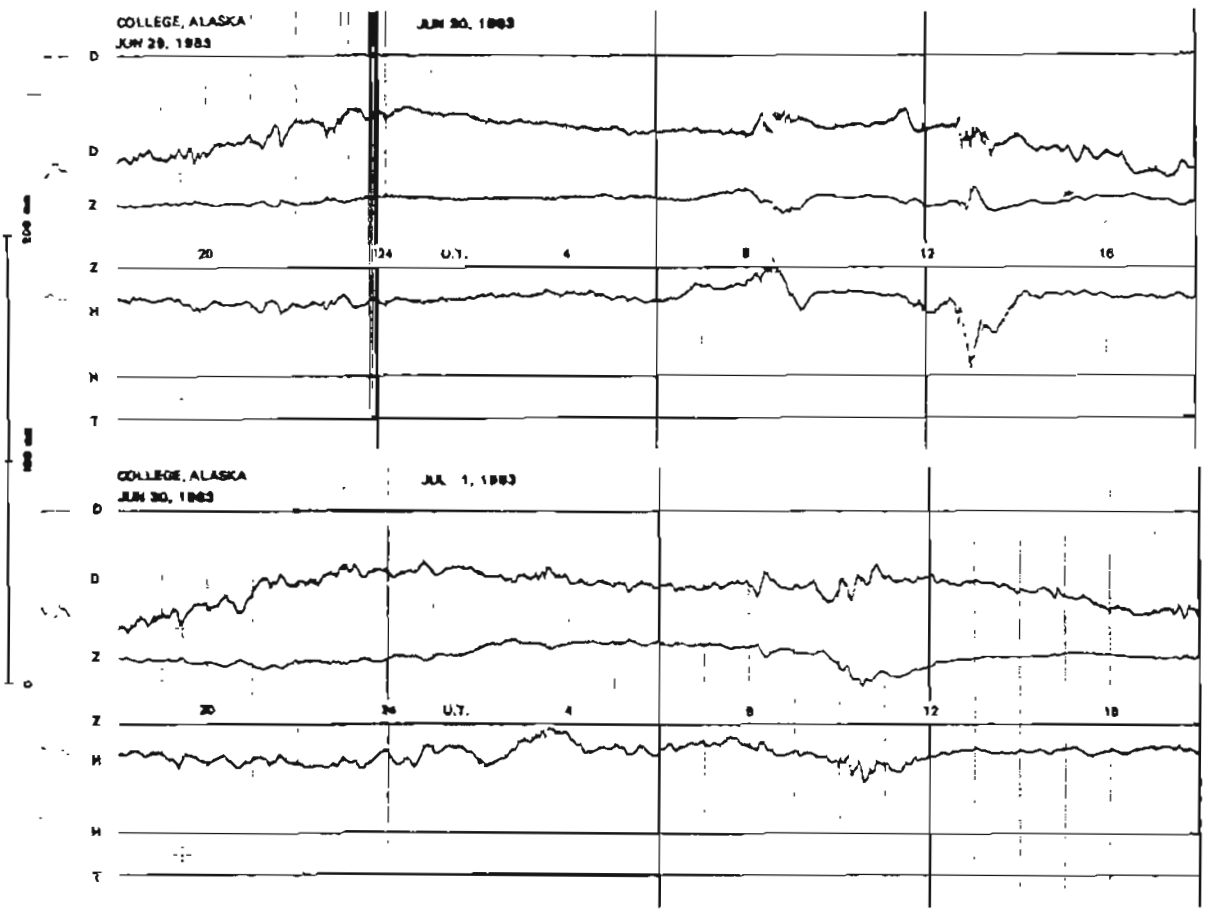
NORMAL MAGNETOGRAMS



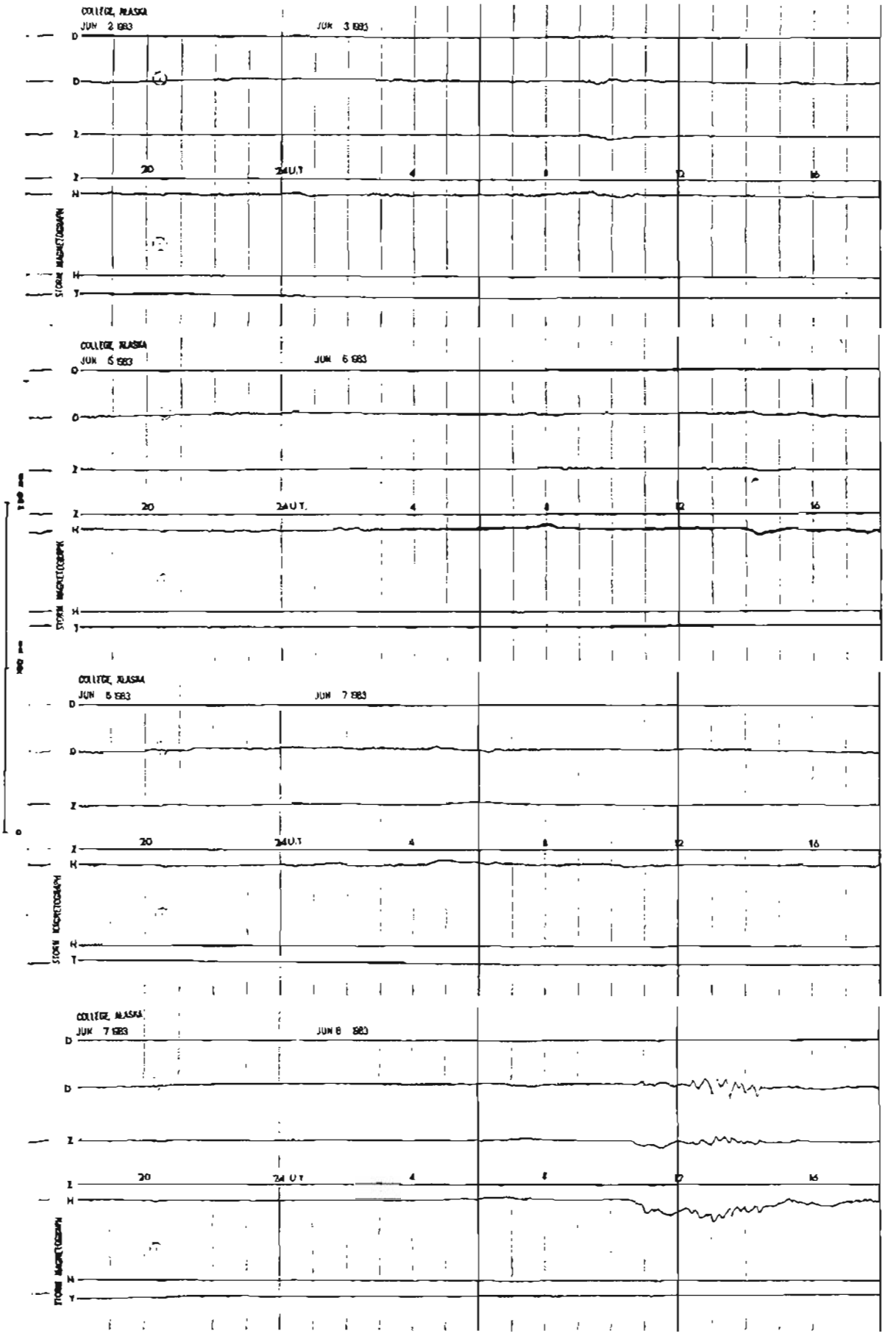
NORMAL MAGNETOGRAMS



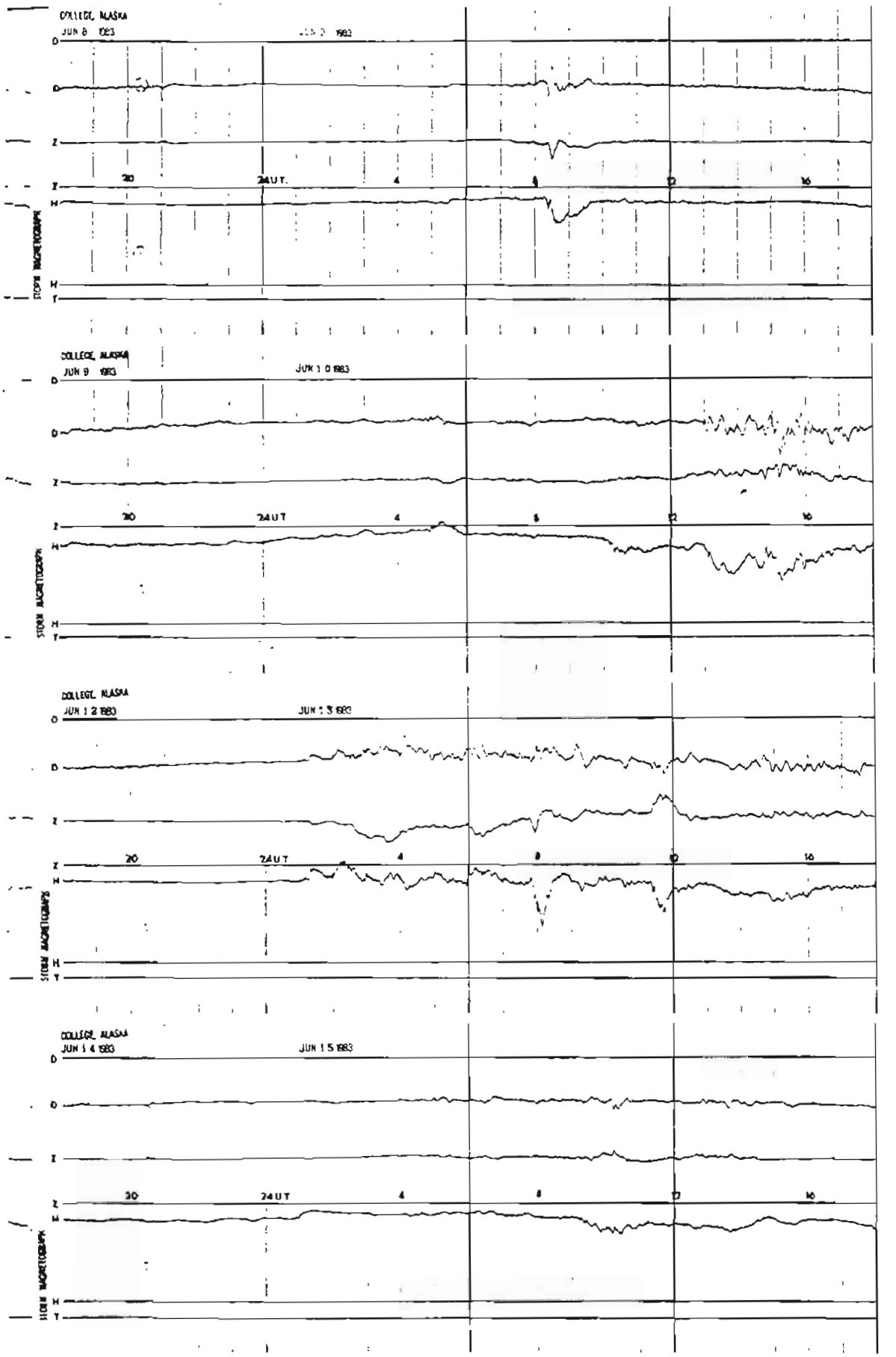
NORMAL MAGNETOGRAMS



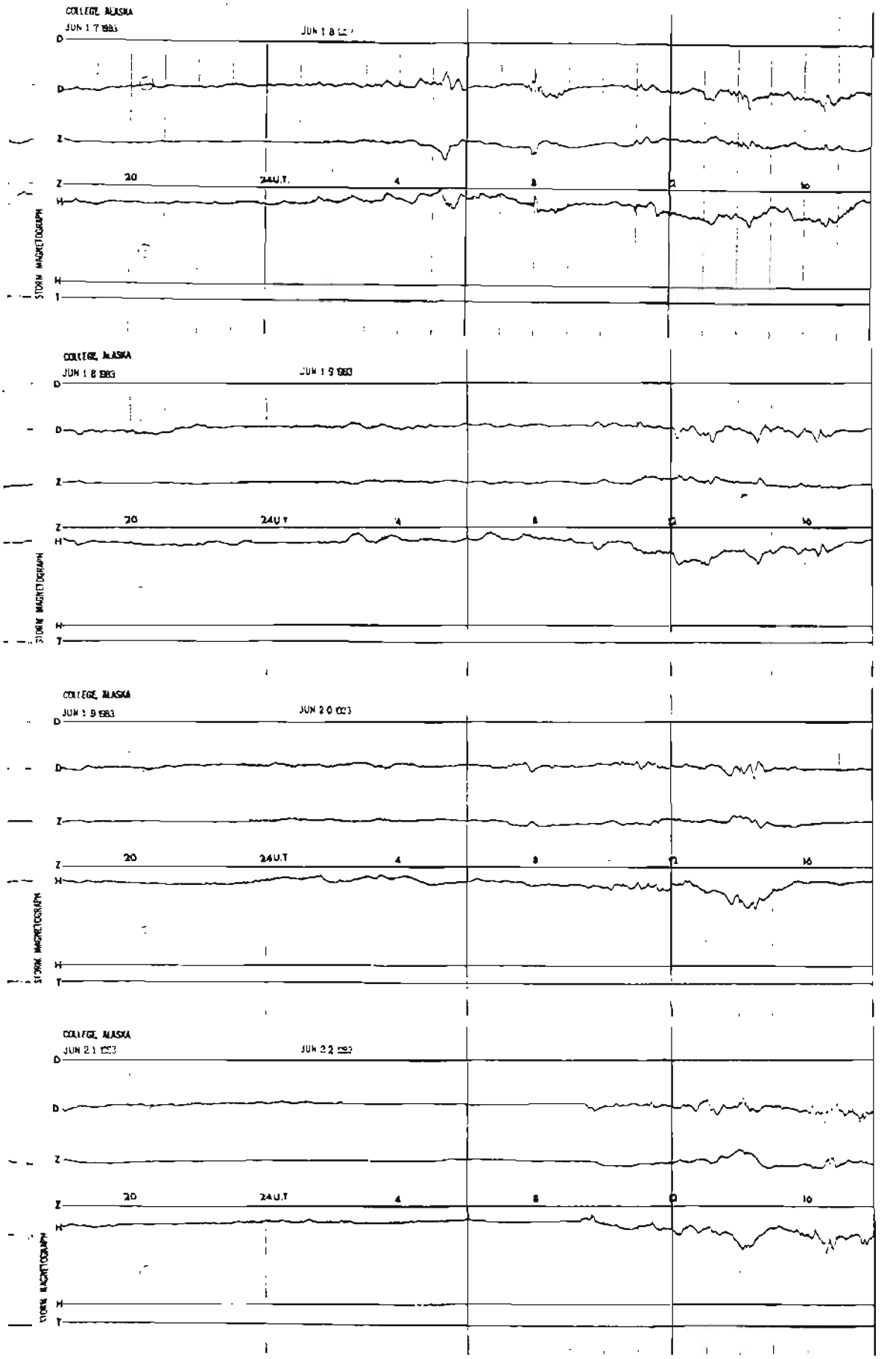
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS