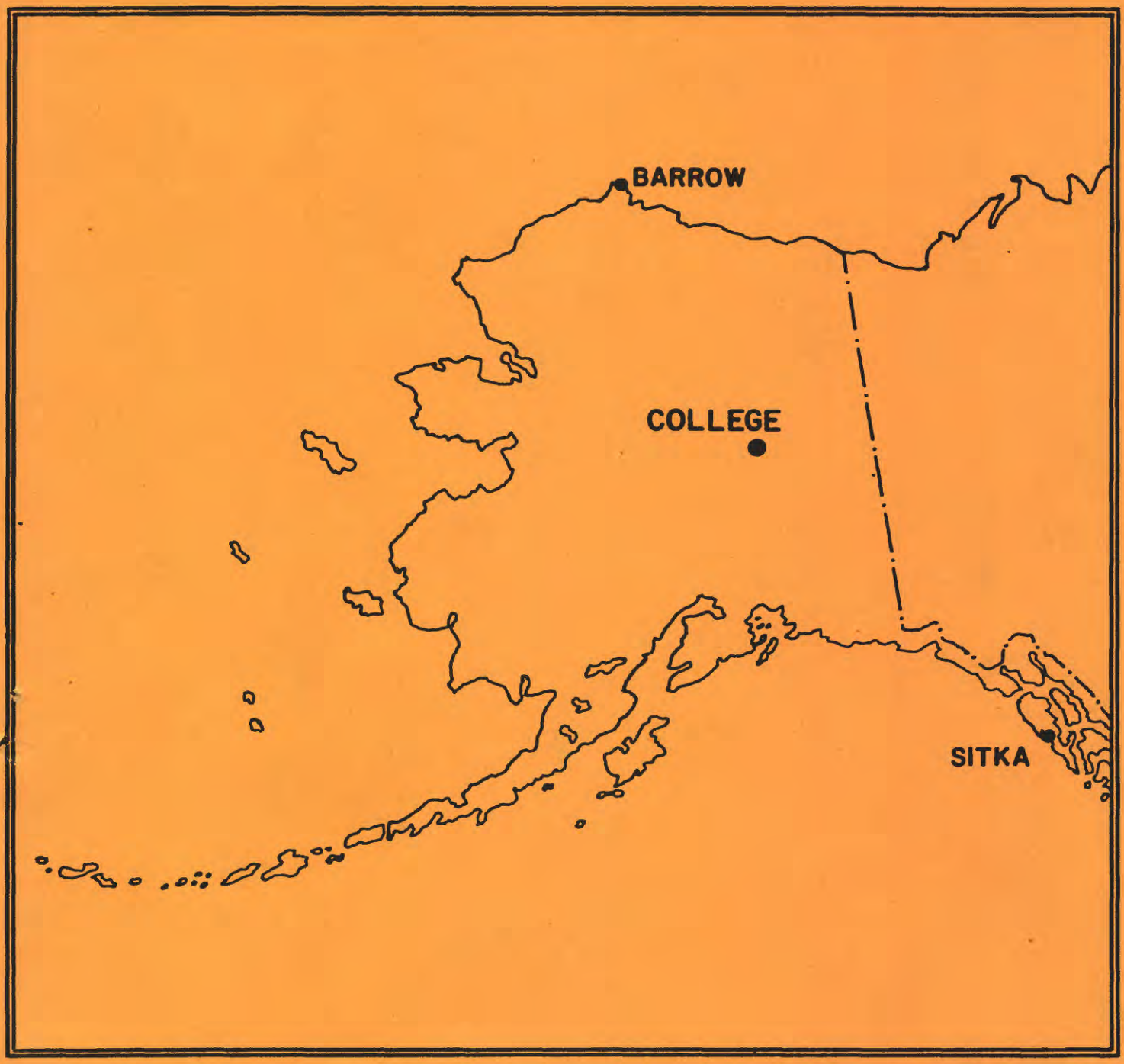
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JUNE 1985

OPEN FILE REPORT 85-0300F



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, 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: JUNE 1985

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	4	5	4	6	3	4	4	2	32	32
2	1	1	1	1	3	2	2	1	12	06
3	1	0	0	1	1	2	1	1	07	03
4	2	0	1	1	2	1	1	1	09	04
5	2	1	3	3	0	1	1	1	12	06
6	2	2	1	1	5	6	3	3	23	22
7	4	5	6	6	6	4	3	2	36	46
8	4	3	6	6	3	3	2	2	29	31
9	2	2	3	0	0	1	3	4	15	09
10	5	5	7	6	4	3	2	2	34	47
11	4	4	2	4	3	3	2	2	24	17
12	3	4	3	3	2	2	2	1	20	12
13	1	2	0	1	2	3	1	1	11	05
14	1	1	2	0	0	0	0	1	05	02
15	2	4	1	1	1	2	1	1	13	07
16	1	1	2	1	0	0	1	0	06	02
17	2	0	2	2	3	4	1	1	15	09
18	1	2	1	1	2	1	0	0	08	03
19	1	1	1	1	1	1	1	1	08	03
20	0	2	1	4	4	4	2	2	19	13
21	2	2	1	2	3	1	1	1	13	06
22	2	3	3	4	0	1	1	1	15	09
23	2	3	2	4	5	1	1	1	19	14
24	1	1	0	1	0	1	1	1	06	02
25	3	2	3	4	1	2	2	3	20	12
26	3	3	3	6	5	4	4	3	31	30
27	3	2	3	3	4	4	3	2	24	16
28	4	4	3	4	4	3	2	2	26	19
29	3	3	4	4	4	2	2	2	24	17
30	2	1	1	4	3	1	3	3	18	11
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: 1972-760-948

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: JUNE

YEAR: 1985

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
03	10xx	pi 2	
09	1714	ssc*	
13	13xx	pi 2	
20	16xx	pg	

IDENTIFIED BY: JEP

VERIFIED BY: EAS

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

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

JUNE 1985

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	06	12xx	..	..	..	..	06	6	6	150	1330	650	08	18
								07	3, 4, 5	6					
								08	3, 4	6					
		09	1714	s.c.*	-6	-17	-5	10	3	7	159	1310	960	11	13

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 6-1-85	2400 U.T., 6-30-85	1.0'/mm	37 γ/mm	27° 16.8' E
H	0000 U.T., 6-1-85	2400 U.T., 6-30-85	7.8 γ/mm		12681 γ
Z	0000 U.T., 6-1-85	2400 U.T., 6-30-85	7.6 γ/mm		55173 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 6-1-85	2400 U.T., 6-30-85	7.9'/mm	29.5 γ/mm	23° 46.4' E
H	0000 U.T., 6-1-85	2400 U.T., 6-30-85	43.8 γ/mm		10719 γ
Z	0000 U.T., 6-1-85	2400 U.T., 6-30-85	48.2 γ/mm		54126 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION
	FROM	TO	SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 38.4' E	12904 γ	55340 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUN 2, 3, 4, 5, 13, 14, 16, 18, 19, 24

FORM C&GS-404a

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 (12OW M.T.) is hour 08 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	85	JUN	D

C	Q or S	Ten 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	111	114	88	20	-3	154	122	158	148	72*	96*	239	01	270	290	358	330	387	389	279	252	237	190	149	151	4601
			02	153	154	166	188	208	204	203	226	200	191	196	186	02	199	299	338	339	343	339	319	299	214	176	134	137	5411
			03	147	163	177	209	226	223	215	208	202	193	207	228	03	229	245	276	291	320	341	338	315	252	201	162	141	5509
			04	123	150	164	189	203	207	195	228	190	197	195	199	04	213	243	279	315	321	320	310	267	230	207	188	166	5299
			05	123	116	112	122	157	169	176	173	222	184	182	202	05	215	233	253	289	330	349	350	302	263	213	182	143	5060
			06	137	140	133	159	141	110	170	178	195	187	181	158	06	207	294	434	602*	372*	283	350	320	301	284	154	105	5595
			07	86	95	176	62	30*	189	152	116	189*	148	180	174	07	187	188	259	293	444	347	330	304	219	204	148	144	4664
			08	126	108	66	76	76	138	169	38*	14*	158*	148	190	08	230	258	268	332	342	340	321	276	245	208	197	161	4485
			09	163	157	159	165	186	188	220	219	193	184	183	197	09	207	231	273	302	313	330	385	362	252	235	34	58	5196
			10	90	176	55*	-33*	22*	-81*	82	38	-33*	-9*	284*	110*	10	227	270	195	308	287	341	351	325	282	203	190	149	3829
			11	134	138	92	147	154	152	217	154	184	172	133	178	11	202	238	258	263	307	291	314	290	219	205	188	182	4812
			12	145	175	154	140	178	188	197	164	163	178	164	212	12	205	223	252	279	300	298	310	285	260	218	174	149	5011
			13	130	139	152	170	199	219	217	207	197	197	197	203	13	211	227	254	292	335	322	345	325	263	206	136	116	5259
			14	124	144	164	186	199	213	193	201	190	188	194	201	14	219	235	256	279	301	307	309	295	277	230	175	131	5211
			15	125	100	84	80	150	204	213	198	202	198	194	206	15	211	236	278	322	352	353	354	317	280	233	179	159	5228
			16	138	124	130	133	158	182	200	202	209	193	204	213	16	218	227	242	261	283	306	307	290	267	237	182	150	5056
			17	133	126	147	177	190	199	200	193	187	188	199	196	17	207	216	285	318	335	346	320	281	258	227	216	162	5306
			18	119	120	127	152	172	180	197	197	197	192	203	190	18	198	220	258	290	301	312	314	294	270	230	185	152	5070
			19	138	129	131	158	179	199	207	200	189	199	208	217	19	221	227	244	277	310	316	316	294	245	200	187	172	5163
			20	149	137	135	134	168	174	183	187	183	169	138	211	20	233	278	340	397	340	320	311	291	255	260	170	150	5313
			21	132	143	161	132	194	201	207	209	200	208	200	212	21	210	237	218	272	312	320	318	300	275	234	200	181	5276
			22	162	160	147	124	136	151	243	193	144	177	276	231	22	208	231	249	259	298	304	298	282	250	215	190	173	5101
			23	169	144	129	113	100	132	192	183	177	190	183	164	23	194	205	253	283	307	322	322	296	252	213	185	172	4880
			24	160	147	166	190	208	209	203	200	193	187	203	206	24	207	213	232	280	310	307	298	272	246	216	195	183	5231
			25	150	152	114	149	159	185	221	178	141	164	208	266	25	227	256	277	304	296	315	382	338	192	164	154	180	5172
			26	126	150	138	120	113	213	245	180	128	63*	122	325*	26	305	225	247	384	307	339	333	201	180	228	153	164	4989
			27	148	174	178	150	172	174	152	174	198	282	178	211	27	219	272	215	270	294	367	296	211	268	171	153	160	5082
			28	135	98	102	40	108	146	196	158	142	159	184	254	28	256	327	252	319	365	345	330	297	256	222	154	131	4976
			29	133	166	162	159	163	228	200	244	128	310	181	175	29	155	190	268	302	334	348	315	284	240	193	168	160	5206
			30	157	160	168	180	193	197	201	204	206	191	174	164	30	183	238	283	321	328	322	329	305	317	244	38	113	5216
			31													31													

SCALED BY	LYT
CHECKED BY	PAF, 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	152,207
MONTHLY MEAN	211
DATES WITH GAPS:	

FORM C&GS-404a

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 (120W M.T.) is hour 08 of the same universal day.
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U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225

OBSY.	YEAR	MONTH	ELEMENT
CO	85	JUN	Z

C	Q or S	Ten O	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	206	216	232	242*	267*	381	310	276	214	216	-50	-52	01	161	243	208	164	182	140	80	137	174	189	198	211	4545
			02	239	240	223	220	226	230	237	249	234	223	220	217	02	159	93	94	122	177	210	200	197	187	189	183	197	4766
			03	212	220	225	232	231	227	226	220	219	220	229	216	03	192	214	211	196	129	130	166	190	193	196	199	211	4904
			04	224	233	227	233	233	237	246	267	240	250	233	229	04	228	216	160	169	187	196	213	211	209	212	218	223	5294
			05	230	237	238	256	283	287	297	274	218	162	228	237	05	233	224	216	218	230	227	219	210	208	197	193	192	5514
			06	202	217	230	277	255	271	281	253	244	234	220	207	06	106	118	123	366*	105*	116	228	218	224	239	261	288	5283
			07	233	226	278	240	168*	295	294	241	162*	-8	172	194	07	60	-52	105	184	187	106	180	181	188	196	202	218	4250
			08	243	264	250	259	260	220*	105*	155	270*	340	359	210	08	230	240	245	236	194	240	235	220	217	214	220	227	5653
			09	220	230	242	247	246	242	280	251	261	234	220	220	09	224	231	237	231	223	223	213	219	197	204	215	257	5567
			10	205	220*	326	225	222	29*	193*	160	207*	162	542*	315	10	186	176	115	79	161	220	229	203	199	197	212	226	5009
			11	239	247	233	303	286	228	252	260	275	251	143	153	11	149	190	212	194	198	212	226	214	198	204	209	211	5287
			12	228	270	266	266	292	286	250	235	245	244	204	184	12	158	169	198	196	187	196	193	198	213	207	208	220	5313
			13	224	225	228	226	236	247	231	224	221	221	224	221	13	220	216	208	187	146	143	203	217	210	207	208	226	5119
			14	241	241	236	229	232	236	227	250	250	243	227	227	14	229	221	233	234	230	223	217	213	212	216	203	200	5480
			15	200	210	221	245	308	287	241	224	230	227	224	216	15	210	202	196	179	193	179	183	192	193	195	196	204	5155
			16	208	217	233	250	277	288	283	276	246	227	228	213	16	212	214	224	230	233	235	229	219	212	210	212	210	5586
			17	213	217	219	235	227	222	217	216	221	240	238	232	17	225	217	200	105	131	146	192	205	204	206	210	216	4954
			18	216	227	227	227	238	234	237	227	233	240	226	215	18	217	203	187	213	216	217	219	220	216	211	213	211	5290
			19	216	224	224	221	221	228	229	227	227	229	220	228	19	219	217	216	206	217	222	223	212	200	187	199	198	5210
			20	202	208	213	213	229	237	256	239	234	233	198	189	20	184	151	199	228	118	143	215	213	217	219	213	225	4976
			21	227	247	247	242	305	273	240	230	236	225	203	213	21	186	123	173	219	229	217	209	205	206	200	208	208	5271
			22	207	227	223	227	255	263	294	256	239	255	208	82	22	212	231	231	229	221	223	221	215	206	191	187	195	5298
			23	208	216	248	269	310	331	292	240	221	215	210	181	23	85	147	213	223	227	227	223	221	213	209	210	207	5346
			24	205	211	222	226	226	228	225	223	230	237	250	232	24	230	229	230	213	206	217	211	206	207	206	211	217	5298
			25	214	239	243	267	257	274	277	252	232	233	90	146	25	183	204	226	226	228	230	227	204	164	181	188	214	5199
			26	215	250	230	230	230	268	228	236	218	-88	177	316*	26	334	201	107	122	154	167	148	89	148	200	204	235	4619
			27	240	257	237	228	233	235	228	260	220	195	187	178	27	180	128	76	162	180	89	93	110	180	190	216	228	4530
			28	244	237	265	258	250	271	240	244	241	203	178	90	28	177	212	159	189	171	169	214	216	203	206	209	223	5069
			29	258	277	248	239	256	266	237	179	233	86	11	176	29	160	14	158	153	168	200	210	207	207	203	213	227	4586
			30	252	247	239	237	235	229	240	247	248	243	226	132	30	157	210	216	208	213	213	209	203	220	218	180	219	5241
			31													31													

SCALED BY	LYT
CHECKED BY	PAF, 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.

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

MONTHLY SUM	153,612
MONTHLY MEAN	213
DATES WITH GAPS:	

Form C&GS-404a

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

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (120W M.T.) is hour 08 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	85	JUN	H

C	Q or S	Tes Q	Hr Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	272	276	412	709*	742*	399	516	464	381	171*	-483*	-71	01	113	138	80	218	268	150	140	260	276	268	260	263	6222
			02	310	294	298	288	284	296	310	322	306	303	305	297	02	245	183	198	276	301	283	262	239	234	250	250	273	6607
			03	274	294	299	287	288	286	289	292	300	309	310	316	03	300	302	290	273	207	251	277	257	258	247	255	267	6728
			04	280	292	313	290	288	292	307	319	313	309	310	305	04	293	278	221	267	283	299	288	272	260	251	252	265	6847
			05	272	290	310	320	330	326	312	313	305	253	300	298	05	294	291	286	290	292	289	273	258	244	247	260	280	6933
			06	286	313	317	345	330	334	296	314	300	313	310	310	06	248	164	50	-301*	-72*	305	314	276	240	230	205	285	5712
			07	280	436	327	440	633*	325	354	334	63*	101*	327	260	07	-184*	74	310	284	46	200	286	233	273	256	256	259	6173
			08	305	332	400	529	518	610*	298*	432*	135*	-133*	117	282	08	281	282	302	231	267	303	297	280	267	260	269	240	7104
			09	267	297	300	300	307	328	323	367	314	276	277	281	09	288	288	288	287	291	290	259	198	129	140	109	295	6499
			10	483	655*	361	328	695*	610*	554*	405	-156*	185*	-245*	-184*	10	147	161	19	203	286	258	260	252	272	253	263	271	6336
			11	292	287	386	437	347	416	333	347	337	336	190	182	11	180	269	238	223	240	310	288	275	271	250	254	266	6954
			12	286	338	330	332	357	410	374	404	357	309	254	262	12	238	210	273	229	252	240	265	260	245	229	243	252	6949
			13	258	275	287	291	290	298	280	290	291	294	293	297	13	300	288	252	230	160	255	266	264	255	242	235	250	6441
			14	293	300	292	287	284	280	303	316	301	300	293	292	14	291	293	300	290	284	280	272	268	262	258	260	267	6866
			15	290	291	318	352	434	290	267	283	293	303	293	295	15	282	270	261	258	272	246	280	265	252	250	251	264	6860
			16	273	302	291	305	309	320	322	330	300	300	298	289	16	290	289	293	291	286	281	270	256	245	246	241	253	6880
			17	256	273	296	289	288	290	296	301	333	351	328	340	17	320	290	234	110	245	287	315	295	296	278	270	249	6830
			18	265	279	282	298	305	297	296	298	310	318	293	307	18	296	281	279	292	295	284	281	268	262	269	262	272	6889
			19	281	280	270	280	285	292	293	303	303	303	303	308	19	303	303	288	296	313	310	298	284	282	280	262	260	6980
			20	269	277	279	309	304	328	312	308	307	311	136	239	20	283	170	96	168	160	291	304	288	268	248	260	257	6172
			21	278	288	268	348	304	316	307	309	307	298	295	300	21	224	182	305	319	318	305	315	293	282	268	262	268	6959
			22	281	293	275	322	306	340	402	380	366	228	266	232	22	318	306	299	292	297	309	308	297	283	277	278	263	7218
			23	276	319	348	384	439	410	312	279	280	280	279	244	23	74	277	316	308	310	296	287	277	268	268	271	273	7075
			24	279	298	277	278	280	281	279	296	303	319	301	310	24	315	325	329	293	328	319	318	314	306	298	292	286	7224
			25	311	270	308	278	310	331	324	347	394	318	156	291	25	293	289	293	294	297	280	248	240	236	253	260	276	6897
			26	274	289	300	296	314	325	324	321	376	-147*	175	9	26	-42	2	269	196	268	232	186	71	206	260	273	334	5111
			27	289	313	340	318	300	304	329	359	349	295	310	250	27	249	108	198	284	247	147	243	288	251	273	264	292	6600
			28	288	418	435	512	506	408	412	418	388	308	222	152	28	71	39	233	175	220	278	284	267	263	244	239	256	7036
			29	344	348	281	308	324	347	388	330	367	246	206	185	29	122	160	270	236	240	249	241	250	218	269	276	293	6498
			30	297	302	267	280	282	283	298	300	310	322	287	96	30	284	297	285	274	280	279	251	233	166	193	190	291	6347
			31													31													

SCALED BY	LYT
CHECKED BY	PAT, JEP
SIGNS RE-VIEWED BY	JEP
PUNCHED BY	

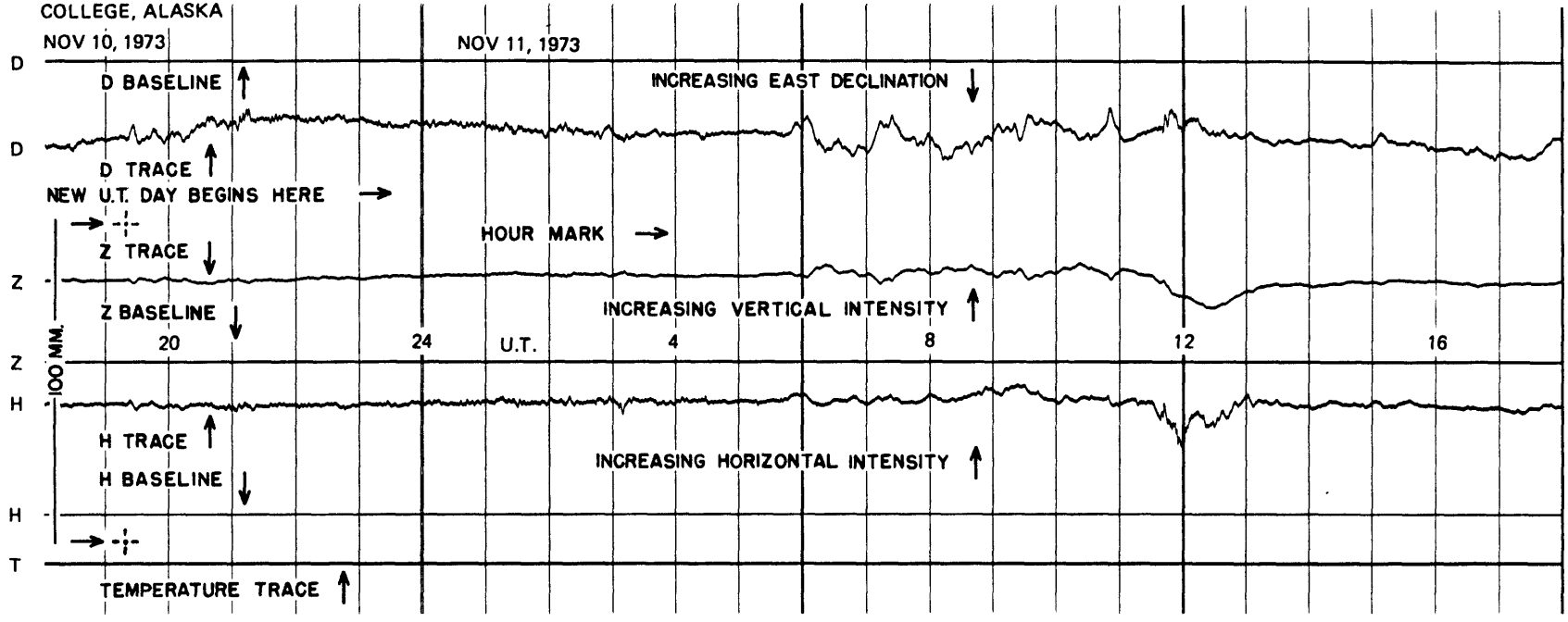
Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

( ) Interpolated
[ ] Significant portion of hour interpolated.
[ ] No record; or no values available because of faulty record.
[ ] 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.

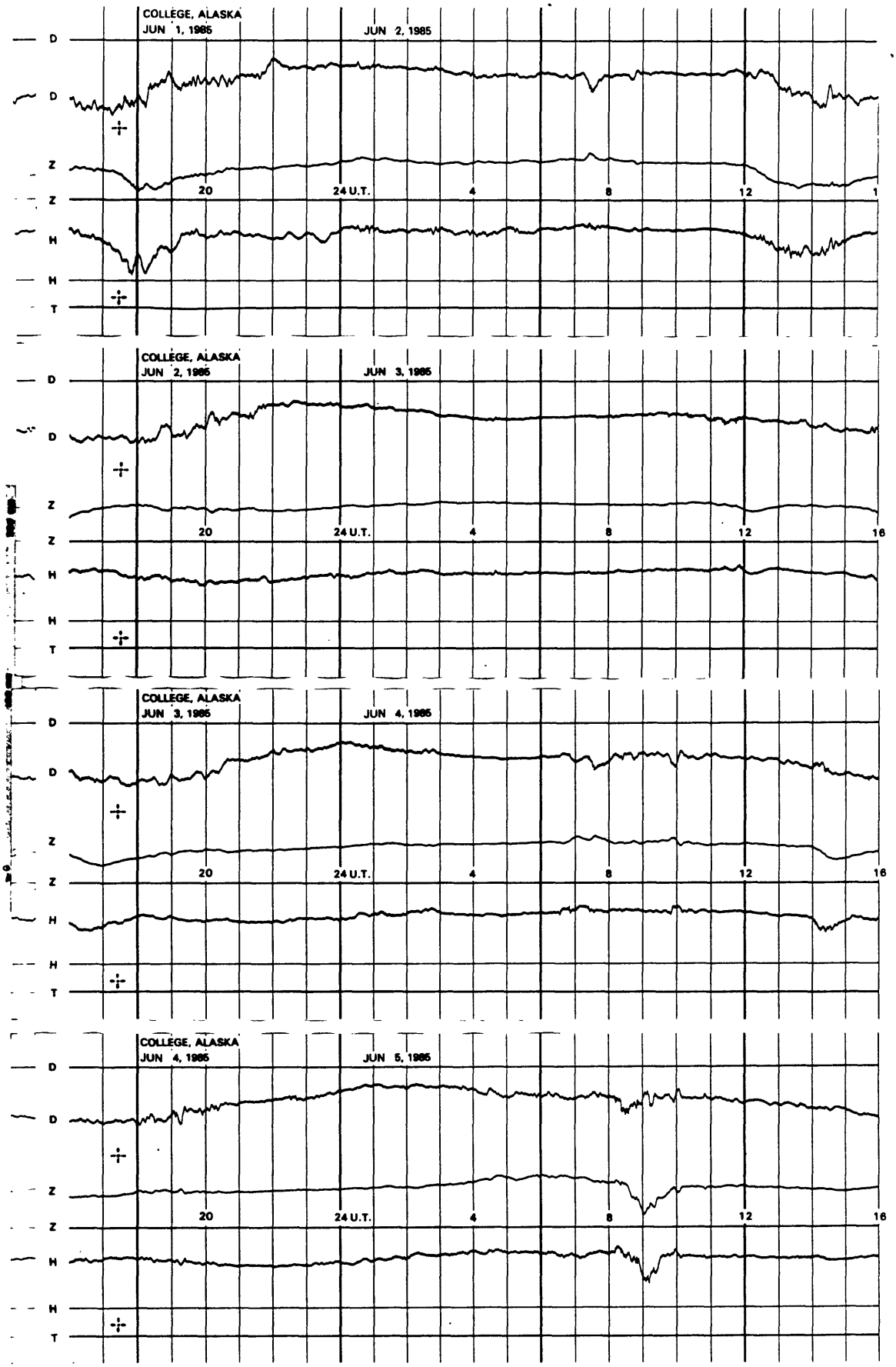
MONTHLY SUM	199,947
MONTHLY MEAN	278
DATES WITH GAPS:	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

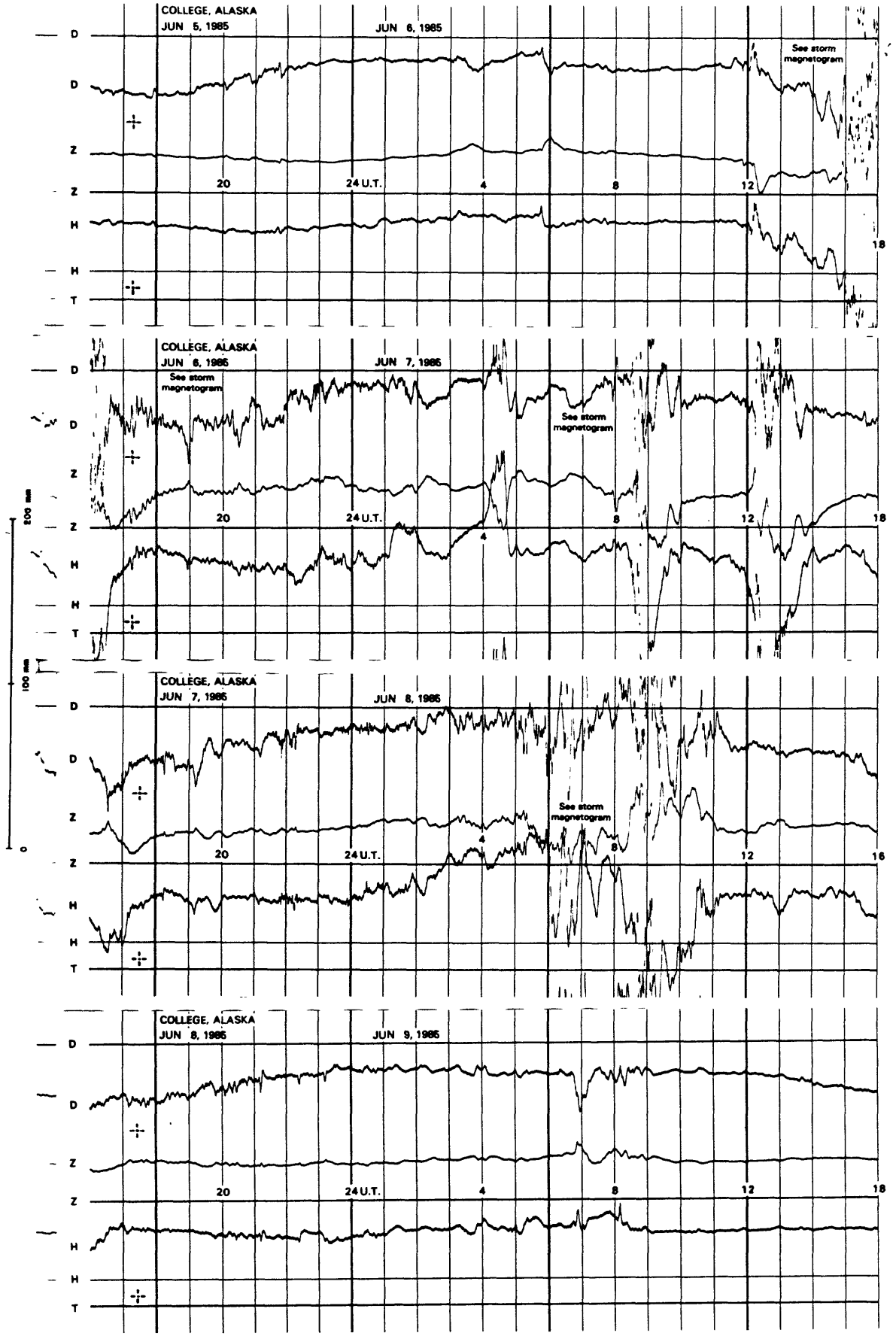


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

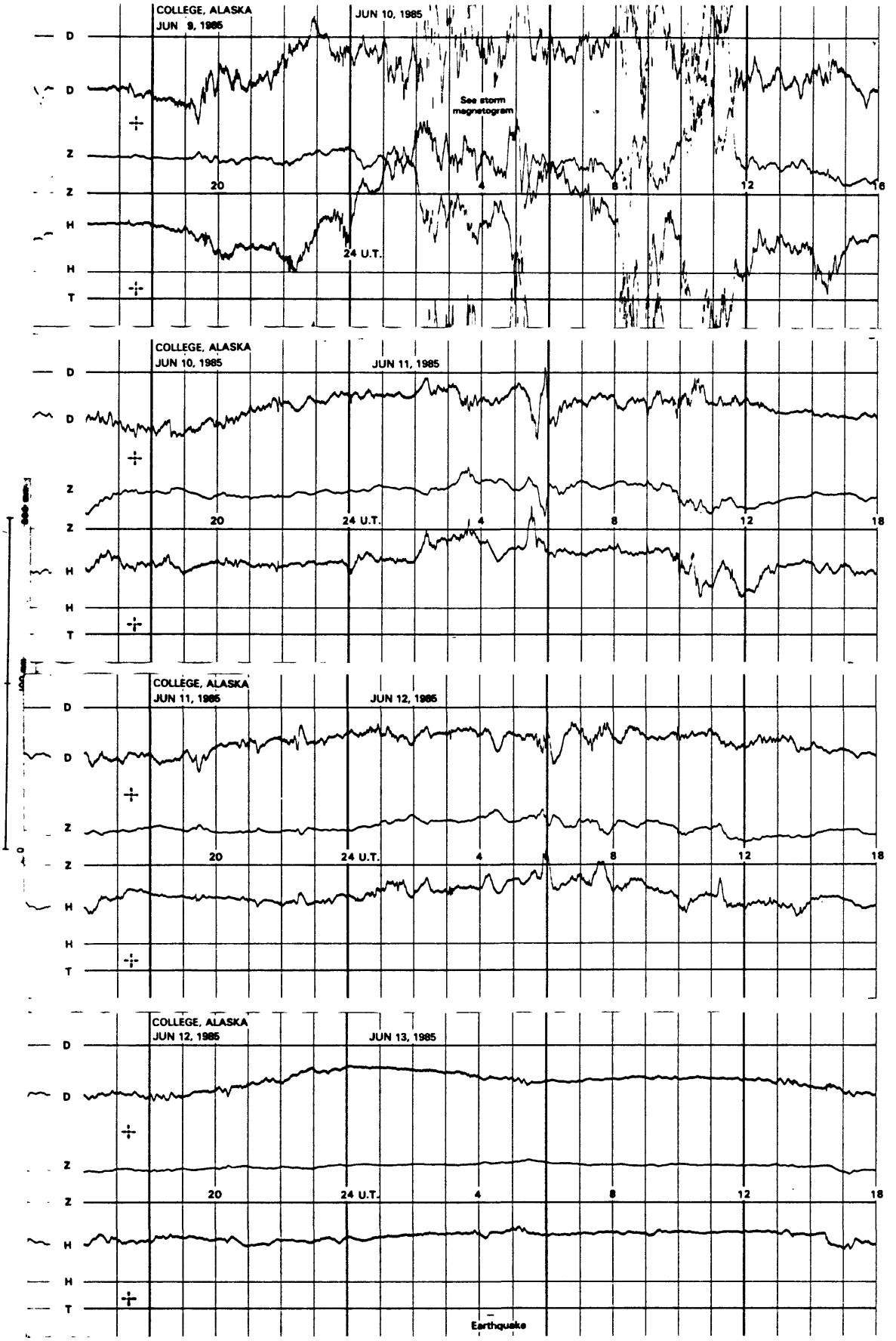
NORMAL MAGNETOGRAMS



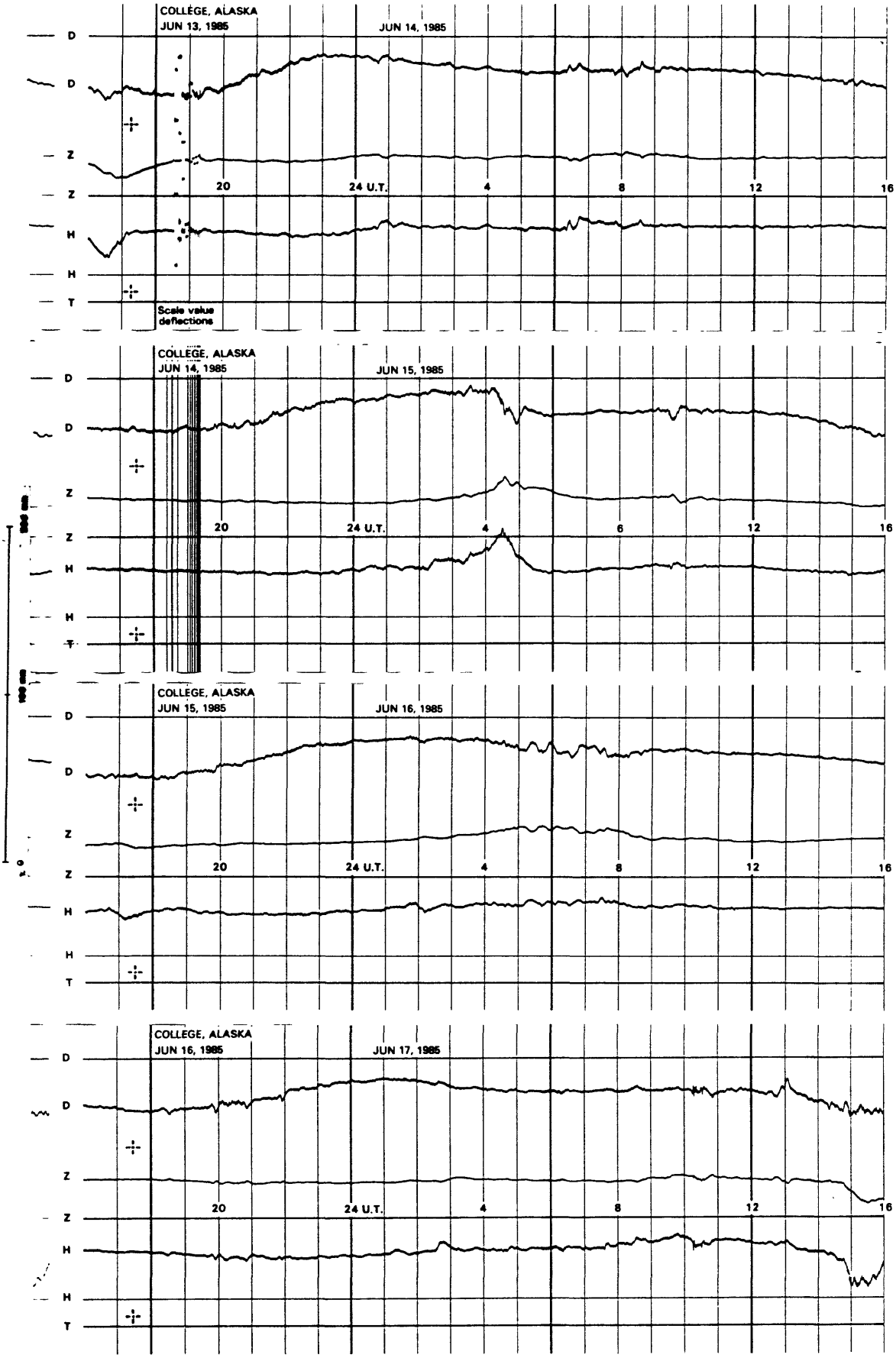
NORMAL MAGNETOGRAMS



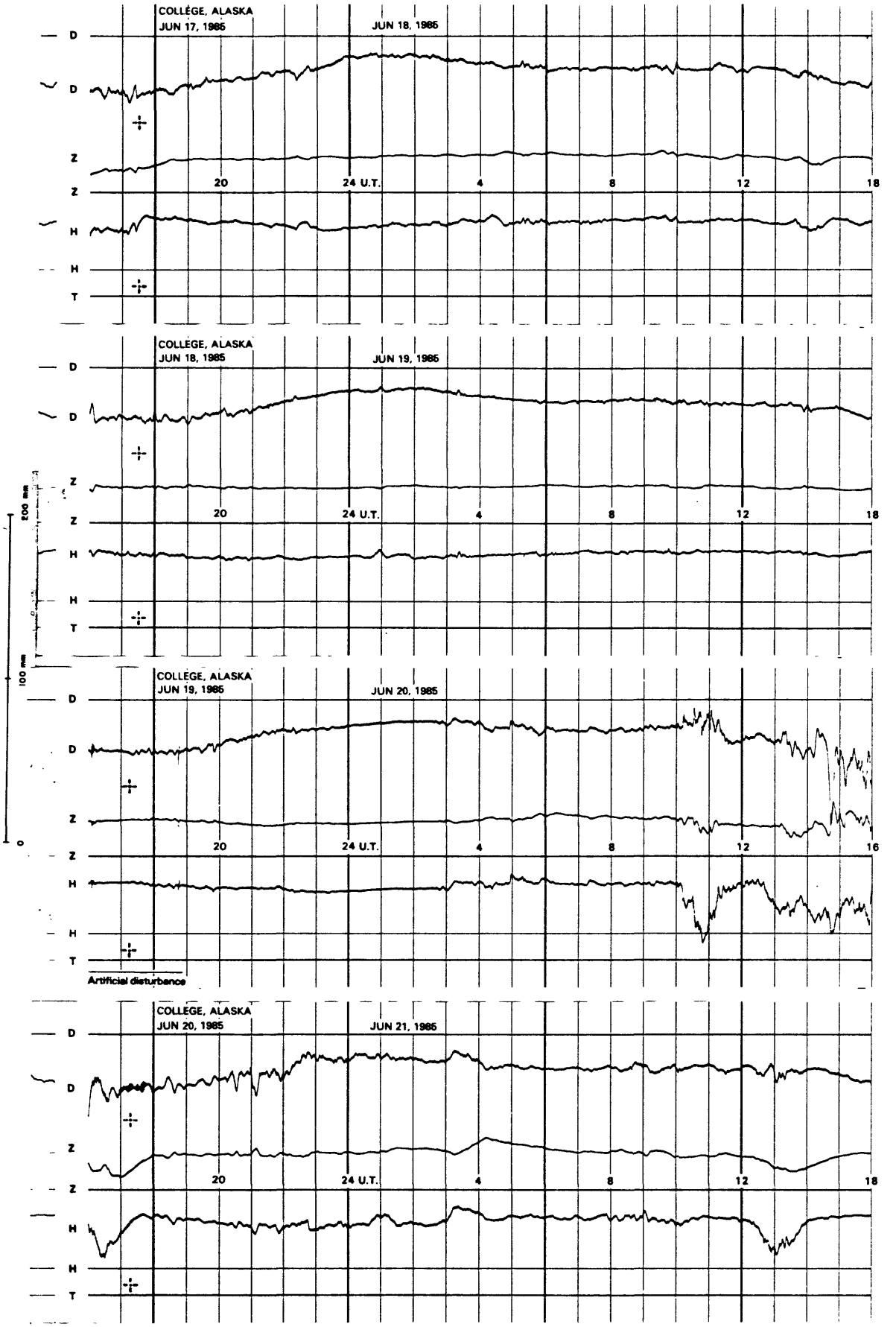
NORMAL MAGNETOGRAMS



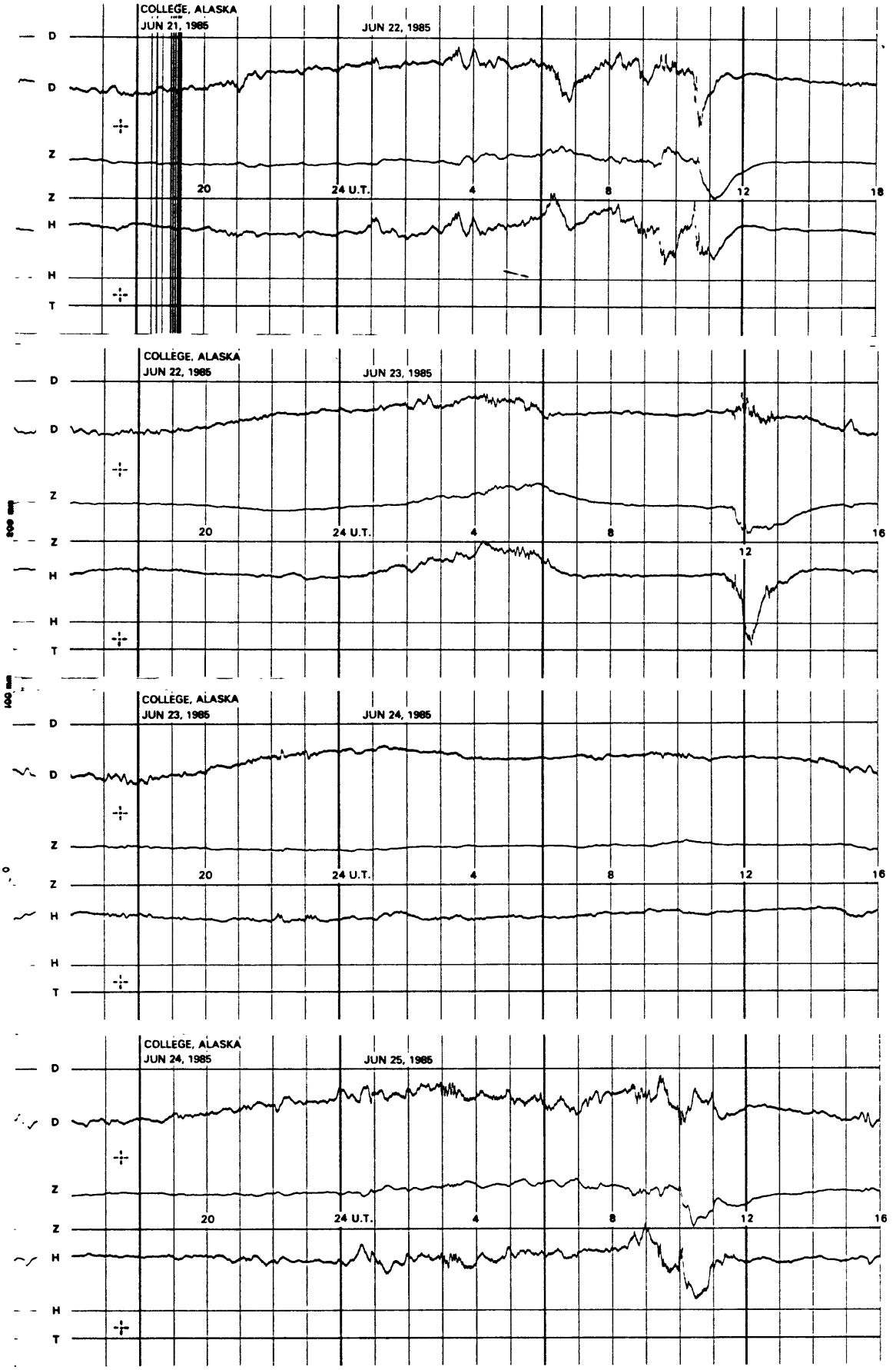
NORMAL MAGNETOGRAMS



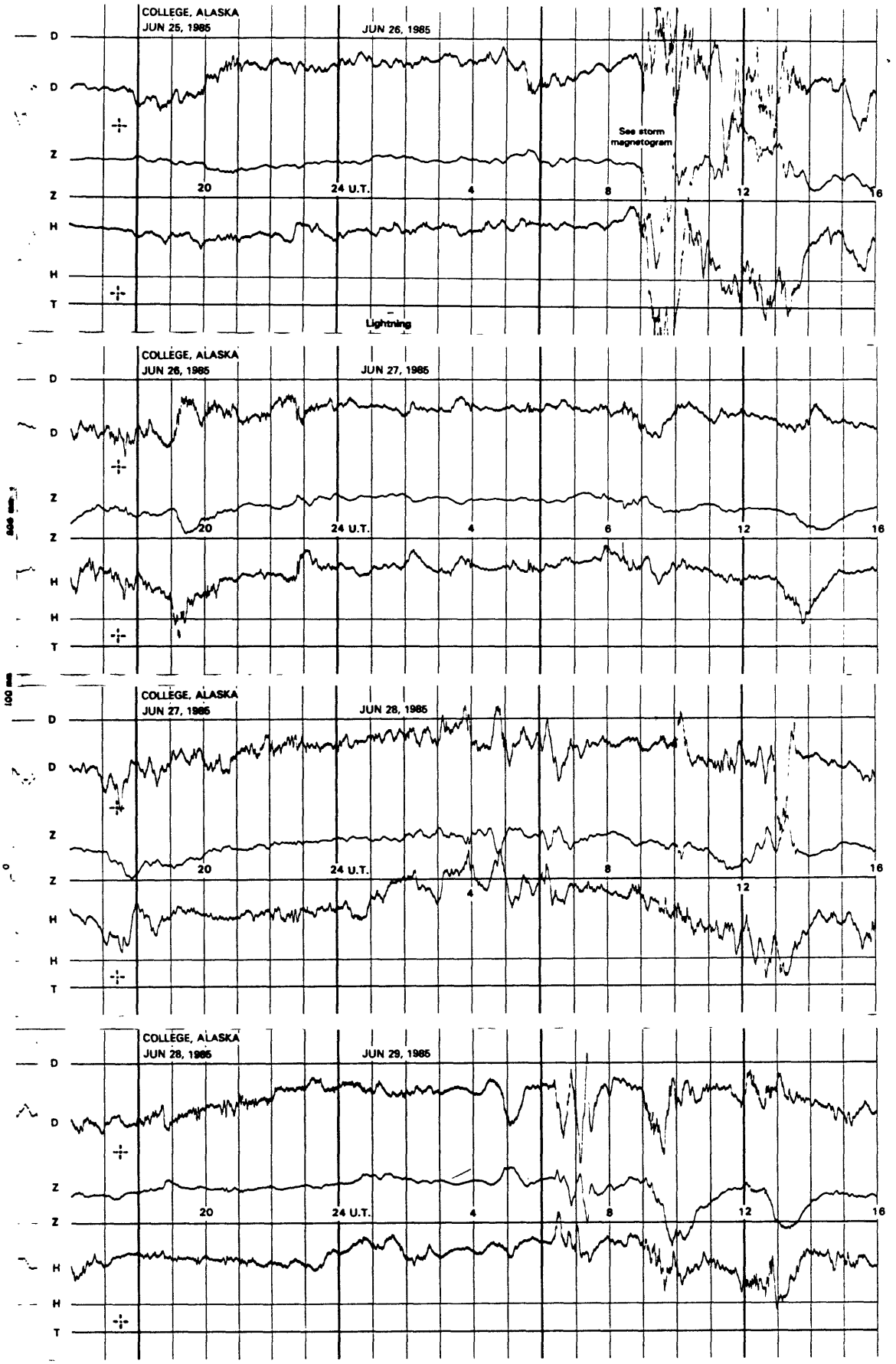
NORMAL MAGNETOGRAMS



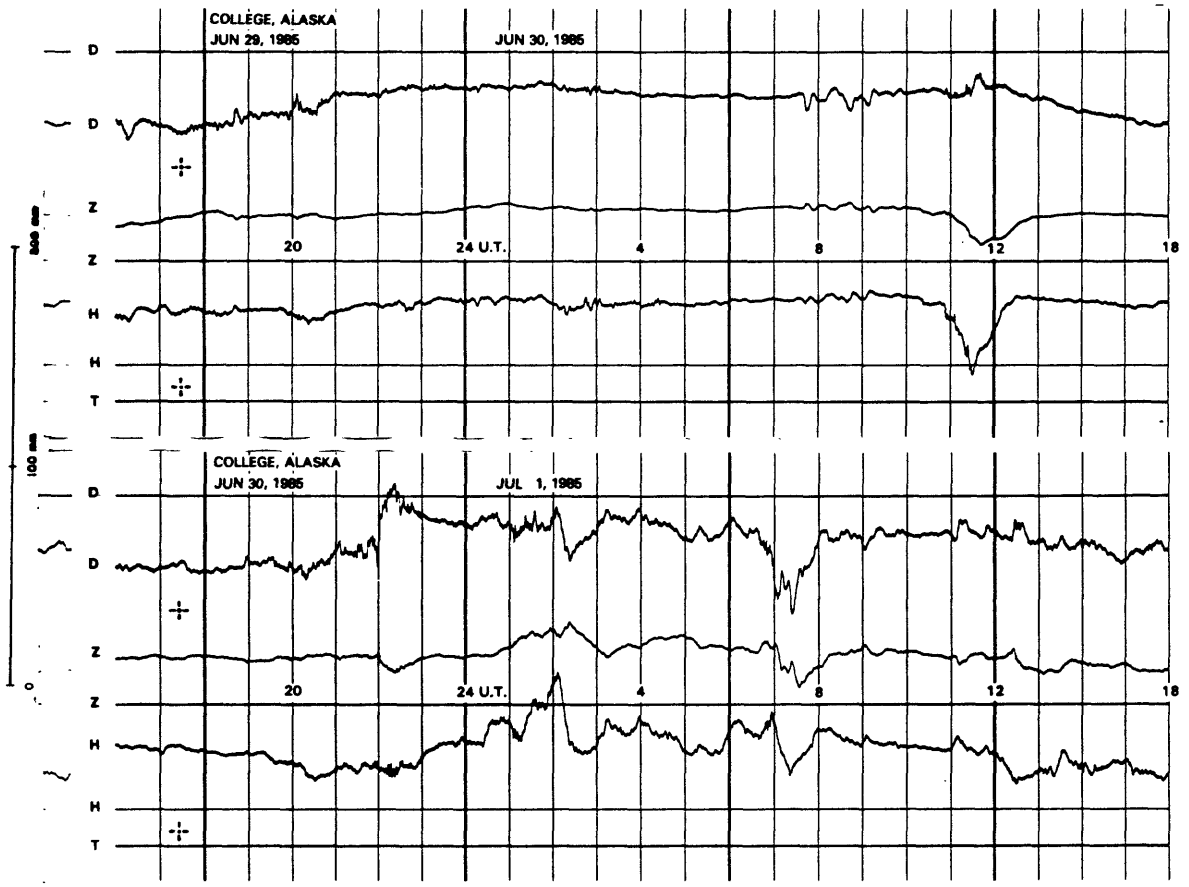
NORMAL MAGNETOGRAMS



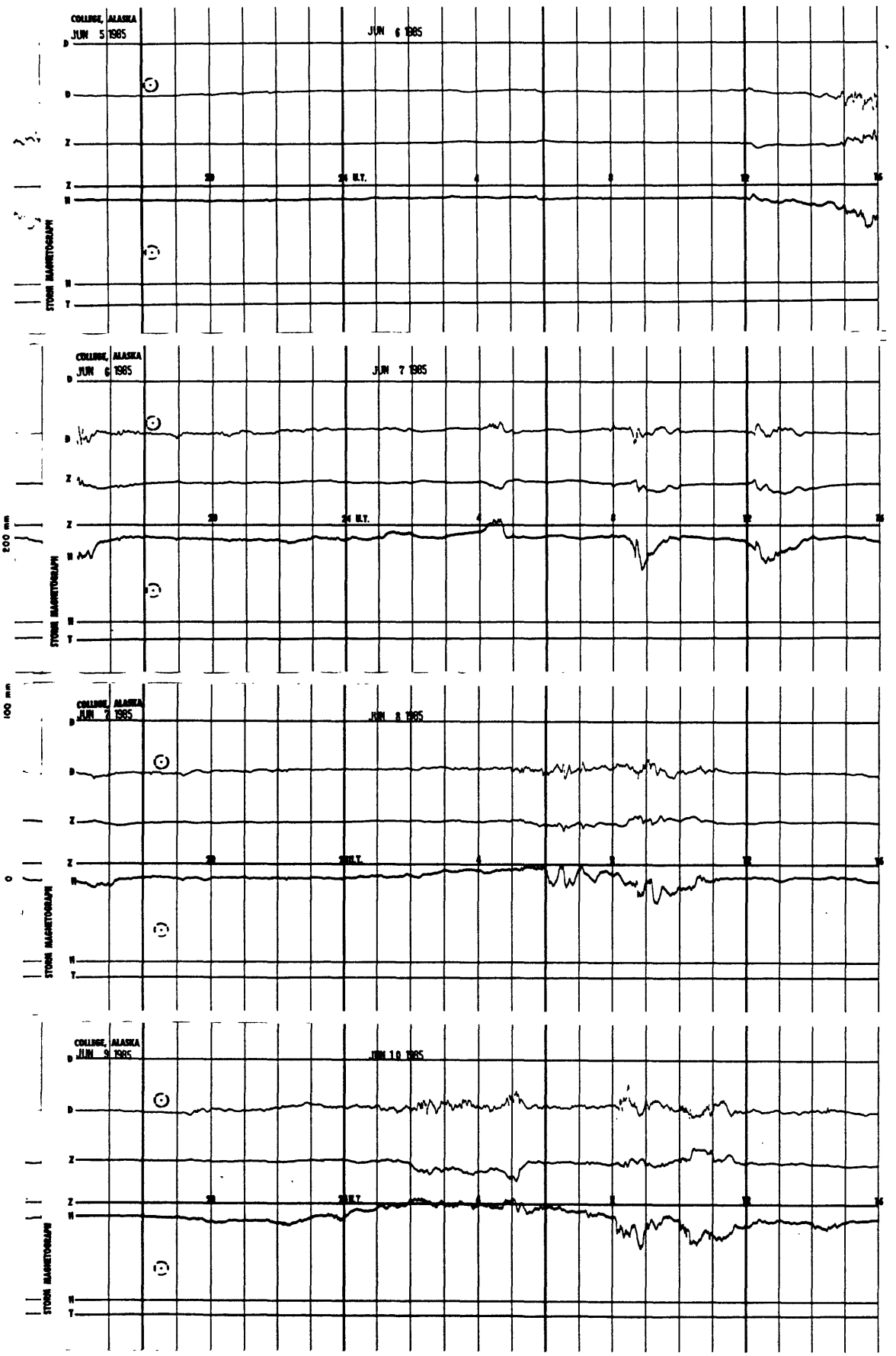
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS