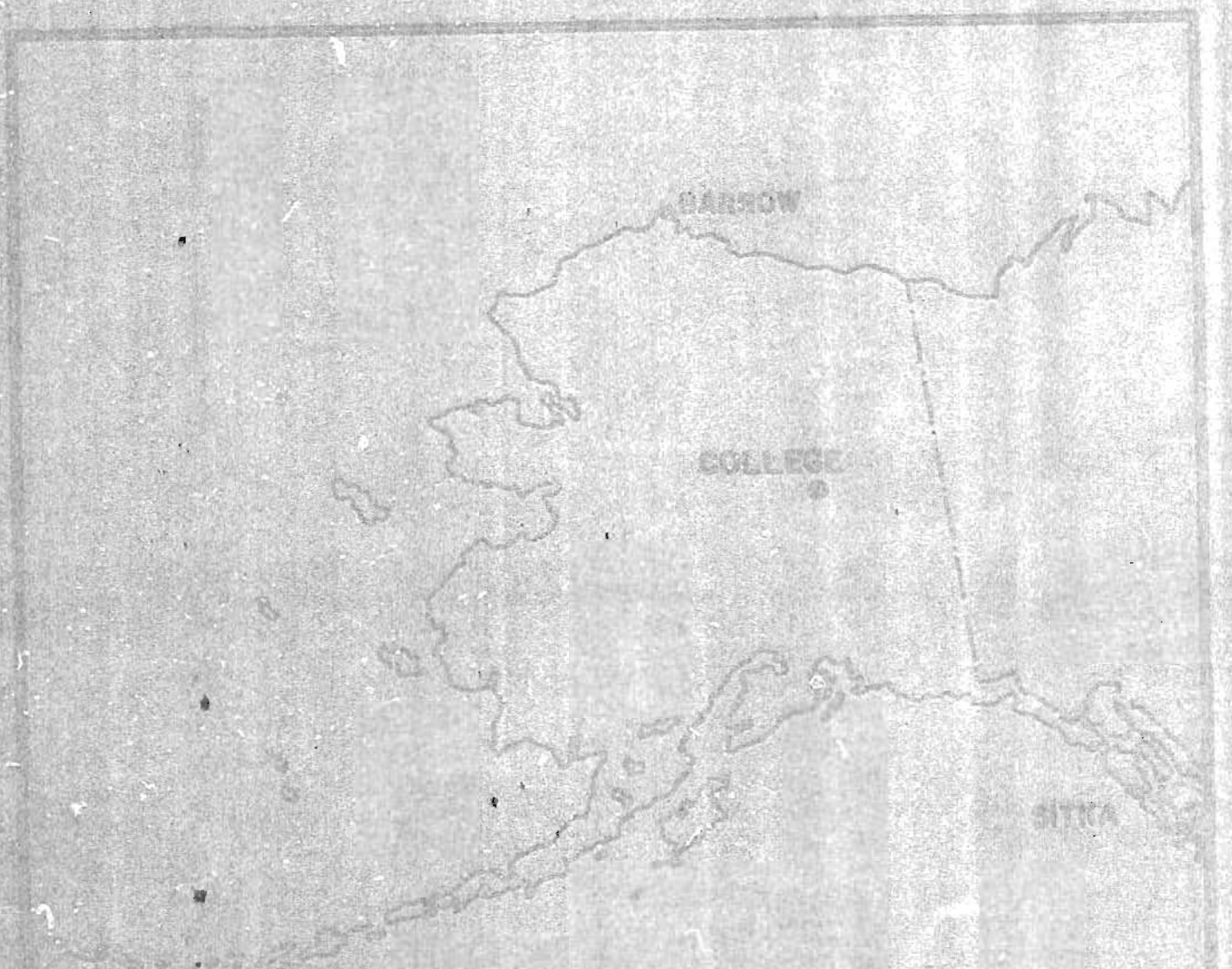
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JUNE 1979

OPEN FILE REPORT 79-300F



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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 S.P. TILTON, 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
Yukon Drive on West Ridge
Fairbanks, Alaska 99701

Requests for copies of the magnetograms except for the current month should be addressed to:

World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

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, in cooperation 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 10 γ 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	7
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, Normal & 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 readings 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 1979

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	1	1	0	0	1	1	1	06	02
2	2	1	1	2	1	0	1	1	09	04
3	1	0	1	1	2	3	1	1	10	05
4	2	2	3	3	3	1	1	1	16	09
5	0	0	0	0	1	0	1	1	03	01
6	2	1	1	2	4	3	5	4	22	17
7	4	6	5	3	4	5	4	3	34	36
8	3	3	3	3	3	2	3	2	22	13
9	3	3	3	3	3	3	3	2	23	14
10	3	3	4	5	4	4	3	2	28	23
11	3	3	2	4	4	3	2	2	23	15
12	2	3	2	1	1	0	2	1	12	06
13	2	0	0	1	3	3	2	2	13	07
14	3	3	2	2	0	2	1	1	14	07
15	1	2	3	3	3	2	2	2	18	10
16	3	4	5	3	5	5	2	3	30	28
17	4	3	2	5	4	6	3	2	29	28
18	2	3	2	1	0	1	1	1	11	05
19	2	3	2	3	3	0	1	1	15	08
20	0	1	2	1	1	2	2	2	11	05
21	2	3	3	4	5	3	3	3	26	20
22	3	2	4	5	6	6	6	3	35	44
23	4	4	5	6	4	3	3	3	32	32
24	3	4	4	3	4	2	2	2	24	17
25	2	3	3	4	3	2	2	1	20	12
26	1	2	2	6	5	5	3	2	26	27
27	4	3	2	3	5	4	2	2	25	19
28	1	1	2	0	0	0	0	1	05	02
29	2	1	0	3	1	2	1	0	10	05
30	1	3	2	3	2	2	1	2	16	08
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.....	3.75	7.80		(γ/mm)
LOWER LIMIT FOR K = 9	2560	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

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

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-781-887

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE. ALASKA

MONTH: JUNE

YEAR: 1979

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
02	09XX	pi2	
06	1926	ssc*	
17	08XX	pi2	
29	11XX	pi2	With bay.

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

JUNE 1979

Obs. (2 letter, XABA 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	1926	s.c.*	-56	-312	-70	07	2	6	95	1290	440	08	11
		22	11XX	..	..	..	..	22	5, 6, 7	6	247	1560	850	24	13
								23	4	6					

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: JUNE 1979

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 6-1-79	2400 U.T. 6-30-79	1.0/mm	3.8'/mm	27° 47.3 E
H	0000 U.T. 6-1-79	2400 U.T. 6-30-79	7.8 γ/mm		12766 γ
Z	0000 U.T. 6-1-79	2400 U.T. 6-30-79	7.3 γ/mm		55167 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 6-1-79	2400 U.T. 6-30-79	7.8/mm	29.7 γ/mm	23° 49.9 E
H	0000 U.T. 6-1-79	2400 U.T. 6-30-79	44.0 γ/mm		11527 γ
Z	0000 U.T. 6-1-79	2400 U.T. 6-30-79	48.6 γ/mm		54023 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 11.2 E	13036 γ	55374 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUN 1, 2, 3, 5, 12, 13, 18, 20, 28, 29

NOAA FORM 76-186

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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 (150W M.T.) is hour 11 of the PREC universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
[illegible]	79	[illegible]	[illegible]

C	Q or S	Tr. O	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	157	154	140	152	190	207	232	220	213	210	215	217	01	239	270	297	311	351	387	403	392	374	251	188	132	5902
			02	141	129	126	122	177	226	227	223	211	208	207	237	02	237	265	307	343	358	348	315	314	277	245	179	117	5539
			03	108	119	137	156	179	207	220	217	222	213	217	234	03	252	272	298	341	365	383	365	329	306	243	197	167	5747
			04	137	135	144	175	191	222	186	177	153	168	196	196	04	188	228	294	331	342	368	362	327	291	220	171	148	5350
			05	137	145	161	190	215	233	243	234	226	229	228	236	05	246	256	286	352	405	424	404	366	323	241	190	156	6126
			06	110	107	117	161	206	214	220	207	212	190	171	200	06	199	300	407	368	405	427	374	333*	264	157	125	155	5659
			07	100	47	65	99	50	20	121	132	139	180	185	211	07	186	193	210	301*	460*	412*	428	350	299	289	230	194	4901
			08	173	179	193	208	221	201	254	219	181	141	141	189	08	221	254	298	338	343	367	371	349	298	206	151	141	5637
			09	120	151	171	170	241	231	201	199	198	203	178	168	09	198	242	293	355	395	349	362	372	234	218	181	162	5592
			10	159	141	151	188	211	259	207	166	101	176	168	178	10	201	194	278	307	323	357	383	318	299	218	196	161	5340
			11	127	163	148	200	203	203	222	223	233	182	181	134	11	200	197	244	351	371	368	356	309	302	246	220	187	5570
			12	151	167	179	178	221	268	227	231	219	204	197	189	12	170	187	219	265	318	357	362	378	298	278	252	189	5704
			13	170	162	171	191	213	238	236	228	224	212	218	211	13	192	164	212	231	341	341	374	377	248	241	223	146	5564
			14	124	136	139	205	219	226	236	225	217	204	161	173	14	192	223	249	322	332	359	386	358	330	281	231	195	5723
			15	142	139	144	178	199	238	204	203	194	170	141	130	15	180	271	346	334	353	372	360	354	304	215	169	197	5537
			16	185	149	152	135	144	125	163	202	154	172	142	170	16	152	210	356	321	423	368	374	383	290	258	191	152	5380
			17	136	107	96	175	215	187	227	192	218	190	204	189	17	261	260	319	651*	619*	463	346	347	337	264	224	186	6413
			18	178	167	181	165	158	203	209	194	204	200	228	242	18	261	271	301	332	352	388	378	358	291	269	243	199	6173
			19	162	147	142	159	140	161	178	160	162	189	188	222	19	251	301	282	312	337	352	335	288	263	180	169	120	5200
			20	104	102	131	166	189	221	221	201	211	209	206	214	20	221	261	309	312	387	381	358	328	252	149	100	119	5352
			21	114	140	181	197	158	141	132	127	198	159	149	231	21	135	303	389	431	462	456	491	348	274	199	95	103	5615
			22	186	159	166	180	189	207	160	215	149	206	191	146	22	272	348	453*	714*	825*	833*	722*	409	247	215	135	130	7457
			23	117	96	30	62	144	53	-94*	78	76	223*	223	174	23	223	246	288	327	357	376	342	352	330	185	125	131	4484
			24	129	116	102	184	112	143	123	223	190	206	187	198	24	224	215	243	293	340	392	384	323	282	275	223	175	5282
			25	133	107	129	140	179	245	230	218	210	164	139	161	25	193	196	275	300	347	373	369	364	280	213	180	146	5315
			26	146	153	154	147	170	191	231	213	212	190	148	196	26	213	244	308	488	529	440	477	440	297	292	238	91	6208
			27	100	89	117	139	190	180	215	241	178	166	190	187	27	160	274	259	290	369	342	370	328	267	235	204	178	5268
			28	156	151	158	181	199	223	232	208	230	217	223	218	28	237	273	310	340	370	383	389	363	294	264	215	190	6024
			29	137	134	148	191	220	222	212	212	195	192	177	189	29	238	241	265	316	385	424	427	368	280	211	201	128	5713
			30	99	86	105	130	166	213	168	180	174	142	127	153	30	197	262	313	352	402	432	390	345	272	234	170	127	5239
			31													31													

SCALED BY	SPT, PEF
CHECKED BY	JEP, EAS, PEF, SPT
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	169014
MONTHLY MEAN	235
DATES WITH Ø	

7

NOAA FORM 76-156

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

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°W 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
10	70	109	H

Day	01	02	03	04	05	06	07	08	09	10	11	12
01	339	328	347	378	356	369	386	386	373	369	363	358
02	332	347	348	381	391	394	358	358	373	380	398	372
03	338	317	322	338	346	350	355	369	371	382	325	364
04	328	323	363	372	403	430	436	465	483	406	396	392
05	322	333	348	349	359	373	384	385	386	374	374	381
06	350	354	367	393	364	365	363	361	386	414	441	407
07	443	397	496	644	1045	626	660	584	482	382	335	344
08	396	413	503	331	330	394	478	381	401	359	279	333
09	349	330	367	411	449	406	398	369	397	291	219	302
10	354	366	416	459	496	459	423	418	489	129	231	358
11	306	343	406	474	431	384	383	419	371	362	349	285
12	333	381	337	373	421	429	389	343	350	362	347	358
13	319	330	360	358	351	358	351	342	360	362	359	362
14	355	382	428	431	370	347	337	362	368	388	392	357
15	339	356	377	367	402	360	435	515	457	405	402	313
16	364	437	459	395	518	586	559	426	275	343	280	324
17	341	270	376	464	389	361	336	369	411	391	324	-70
18	319	349	329	371	394	382	351	376	381	387	387	370
19	333	361	361	348	427	416	450	509	500	432	388	363
20	356	364	358	356	366	376	369	374	376	364	370	361
21	324	332	337	337	426	496	519	541	447	451	417	333
22	411	423	362	365	397	368	476	405	440	389	372	289
23	433	442	575	613	495	641	565	580	325	169	204	342
24	338	405	464	510	628	472	508	536	398	362	323	313
25	308	301	328	384	398	464	433	397	388	375	283	272
26	306	312	322	351	388	399	433	417	362	382	263*	-106*
27	326	380	477	422	376	427	380	368	389	376	346	375
28	307	317	333	342	354	345	348	380	366	361	361	363
29	302	308	347	338	343	362	377	378	391	391	372	269
30	333	320	314	363	378	415	465	429	440	484	442	379
31												

Day	13	14	15	16	17	18	19	20	21	22	23	24	Sum
01	351	347	345	333	311	340	345	342	314	305	305	321	8305
02	367	352	329	318	330	343	350	337	313	310	315	325	8421
03	357	347	297	317	369	354	347	337	317	310	321	322	8222
04	365	322	357	412	412	397	362	376	342	341	333	322	9158
05	382	393	393	382	377	363	340	328	318	317	329	338	8632
06	381	211	134	233	236	292	375	310	414	371	422	443	8429
07	371	191	57	-35	-123	-106*	219	353	366	326	327	361	8745
08	339	329	239	309	319	316	337	353	289	293	291	283	8295
09	307	269	183	199	261	300	331	287	301	319	331	351	7727
10	376	332	161	221	343	319	263	309	329	333	313	302	8199
11	96	187	244	251	329	360	369	356	317	330	289	311	7972
12	347	347	359	370	364	390	369	321	322	299	301	300	8552
13	372	349	260	229	308	339	319	322	321	306	260	305	7902
14	358	357	347	359	357	323	346	351	328	321	317	323	8604
15	238	221	299	386	372	358	333	317	287	276	303	362	8522
16	214	115	-72	-84	155	298	319	291	331	321	351	401	7606
17	124	258	69	-207*	-241*	232	350	386	362	331	313	303	6242
18	353	347	352	347	354	330	339	319	300	314	311	314	8376
19	328	255	293	319	321	332	357	340	309	309	314	333	8698
20	369	363	341	351	334	351	308	300	264	289	300	331	8321
21	78	6	161	285	209	208	187	284	257	240	272	368	7515
22	-45	-6	-236*	-462*	-632*	-507*	344*	293	420	396	368	508	4470
23	235	226	289	218	266	368	373	349	300	260	264	318	8850
24	175	323	360	370	364	341	337	348	338	327	312	305	9153
25	371	352	272	354	358	378	352	307	276	298	299	300	8248
26	326	332	61	31*	206	367	319	307	280	318	318	272	7006
27	299	94	37	166	191	351	366	392	362	319	282	288	7791
28	361	364	363	352	337	339	329	339	337	316	311	319	8244
29	336	353	366	339	302	299	323	308	322	303	307	311	8047
30	329	350	338	344	318	354	347	308	283	275	296	305	8609
31													

MONTHLY SUM: 242661

MONTHLY MEAN: 337

DATES WITH GAPS:

SCALED BY: SPT, PEF

CHECKED BY: JEP, PEF, EAS, SPT

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 Magn., converted to Normal Magn.

NOAA FORM 76-116
(1-72)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

OBSY.	YEAR	MONTH	ELEMENT
[illegible]	79	[illegible]	Z

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (75°W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Int. Q	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	281	290	288	305	313	313	317	309	300	298	301	300	01	295	293	289	261	265	254	267	262	271	254	258	254	6861
			02	283	293	305	313	347	331	294	264	278	288	291	267	02	268	276	267	256	247	248	252	261	265	268	270	287	6739
			03	265	289	263	274	277	285	286	262	284	262	289	290	03	252	274	250	205	255	278	264	256	258	261	274	288	6551
			04	300	297	297	323	344	363	337	344	326	340	314	304	04	285	279	275	299	307	305	285	281	277	273	279	268	7323
			05	289	292	297	296	298	298	297	296	294	294	287	285	05	287	287	296	300	300	234	280	268	255	240	239	247	6816
			06	254	271	275	305	320	325	300	297	300	294	308	306	06	277	306	267	219	243	219	237	294	204	249	278	316	6664
			07	325	341	412	506	305	91	162	223	338	318	351	356	07	350	364	373	359	431*	293	264	282	257	268	300	331	7600
			08	327	350	368	358	320	301	349	310	291	266	227	279	08	288	300	284	277	287	309	302	306	286	266	264	286	7201
			09	279	310	331	328	381	338	319	327	320	248	108	201	09	253	281	269	251	253	236	252	293	263	293	309	311	6754
			10	313	320	317	358	388	380	343	256	338	341	256	299	10	319	319	311	244	266	317	281	231	260	282	309	320	7388
			11	321	326	331	361	357	330	330	330	316	291	300	268	11	290	197	210	209	226	247	283	290	296	289	287	293	6993
			12	309	347	373	344	370	364	330	330	313	309	297	291	12	282	287	305	318	330	326	300	291	270	271	288	292	7550
			13	297	309	311	310	308	308	302	292	288	288	289	290	13	282	272	234	211	222	279	279	243	233	266	288	285	6686
			14	323	342	339	379	340	319	297	296	304	317	306	282	14	293	289	297	302	297	288	267	270	275	261	285	289	7277
			15	292	293	307	326	357	370	338	345	341	311	275	296	15	273	211	223	289	307	292	267	272	274	252	260	287	7058
			16	309	349	357	357	353	327	320	227	252	333	302	325	16	333	352	220	143	73	120	200	228	238	281	320	347	6686
			17	372	336	320	371	339	319	321	289	311	299	288	284	17	153	201	287	246*	159*	-7	189	281	278	271	278	280	6465
			18	276	284	299	299	311	353	318	292	304	301	302	291	18	288	276	280	282	280	279	259	259	239	237	256	260	6825
			19	261	269	304	323	322	349	348	341	317	341	303	289	19	268	234	261	224	237	240	257	259	267	260	273	277	6764
			20	300	339	360	339	314	317	312	299	291	288	281	287	20	276	281	260	251	240	257	273	262	258	248	257	271	6661
			21	280	264	266	281	308	341	265	227	302	282	270	251	21	-13	166	172	199	188	142	164	154	246	263	273	293	5584
			22	340	354	341	329	334	331	306	216	267	314	308	280	22	143	412	558*	605*	658*	599*	166*	6	173	272	269	317	7978
			23	306	330	308	329	367	256	215	137	237	225	203	292	23	278	248	276	238	204	267	285	299	299	266	268	294	6387
			24	310	315	328	342	293	324	338	296	296	343	310	291	24	310	269	286	301	310	310	290	278	276	292	301	310	7319
			25	317	307	300	300	337	352	319	343	336	309	164	160	25	268	285	283	277	307	295	288	261	257	241	260	268	6894
			26	262	288	289	294	311	328	356	341	326	305	240	247	26	200	238	381	201	75	120	251	248	235	291	302	340	6469
			27	329	290	350	370	387	327	320	270	273	277	287	301	27	292	261	227	158	67	181	268	273	266	283	292	299	6668
			28	302	381	306	308	312	308	300	290	311	305	292	291	28	299	298	298	294	281	276	266	241	232	245	248	262	6866
			29	267	266	278	293	298	269	282	288	289	302	288	211	29	248	239	276	282	269	234	237	239	238	249	277	270	6409
			30	294	339	339	327	339	372	345	342	330	316	300	285	30	282	291	279	278	262	252	264	266	255	256	265	277	7155
			31													31													

SCALED BY	SPT, PEF
CHECKED BY	JEP, EAS, PEF, SPT
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 Mag., converted to Normal Mag.

MONTHLY SUM	206811
MONTHLY MEAN	287
DATES WITH GAPS:	

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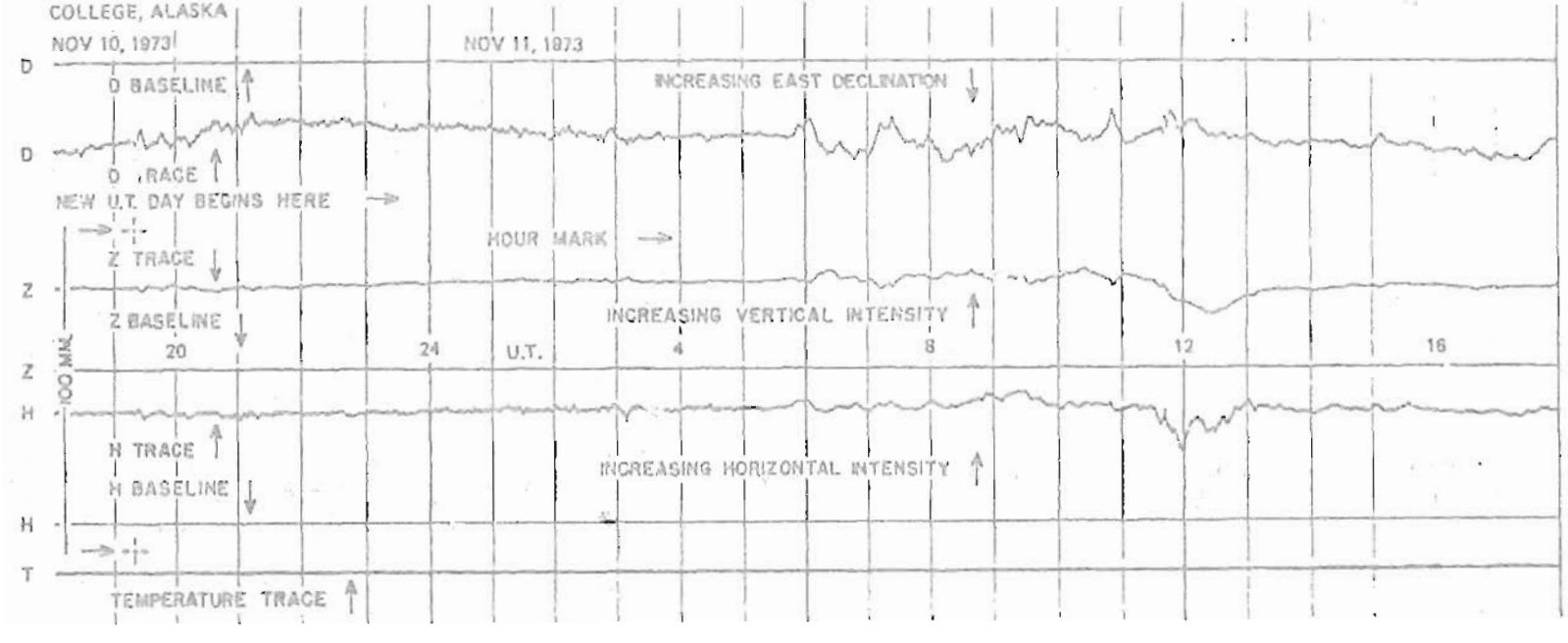
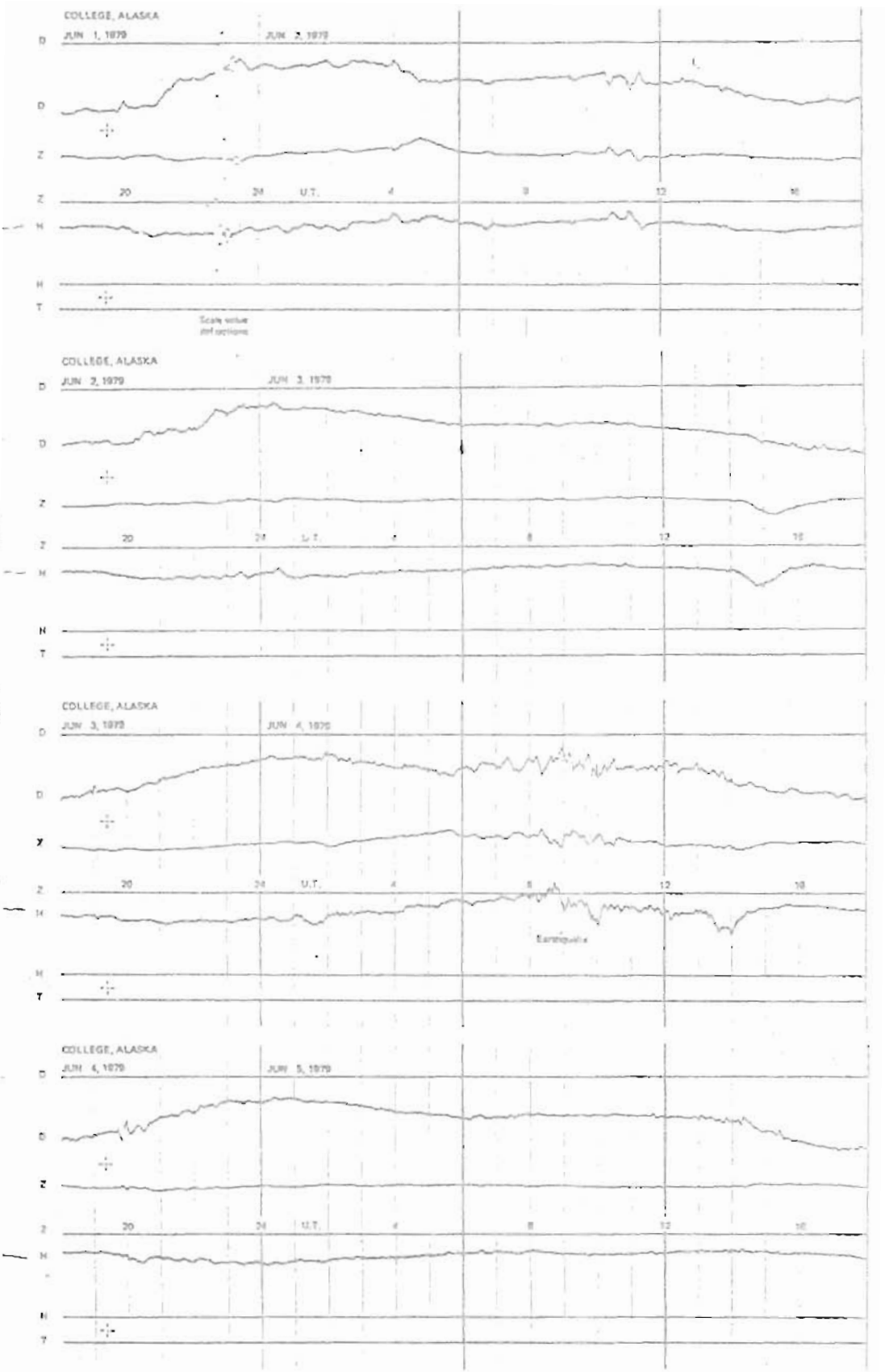
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

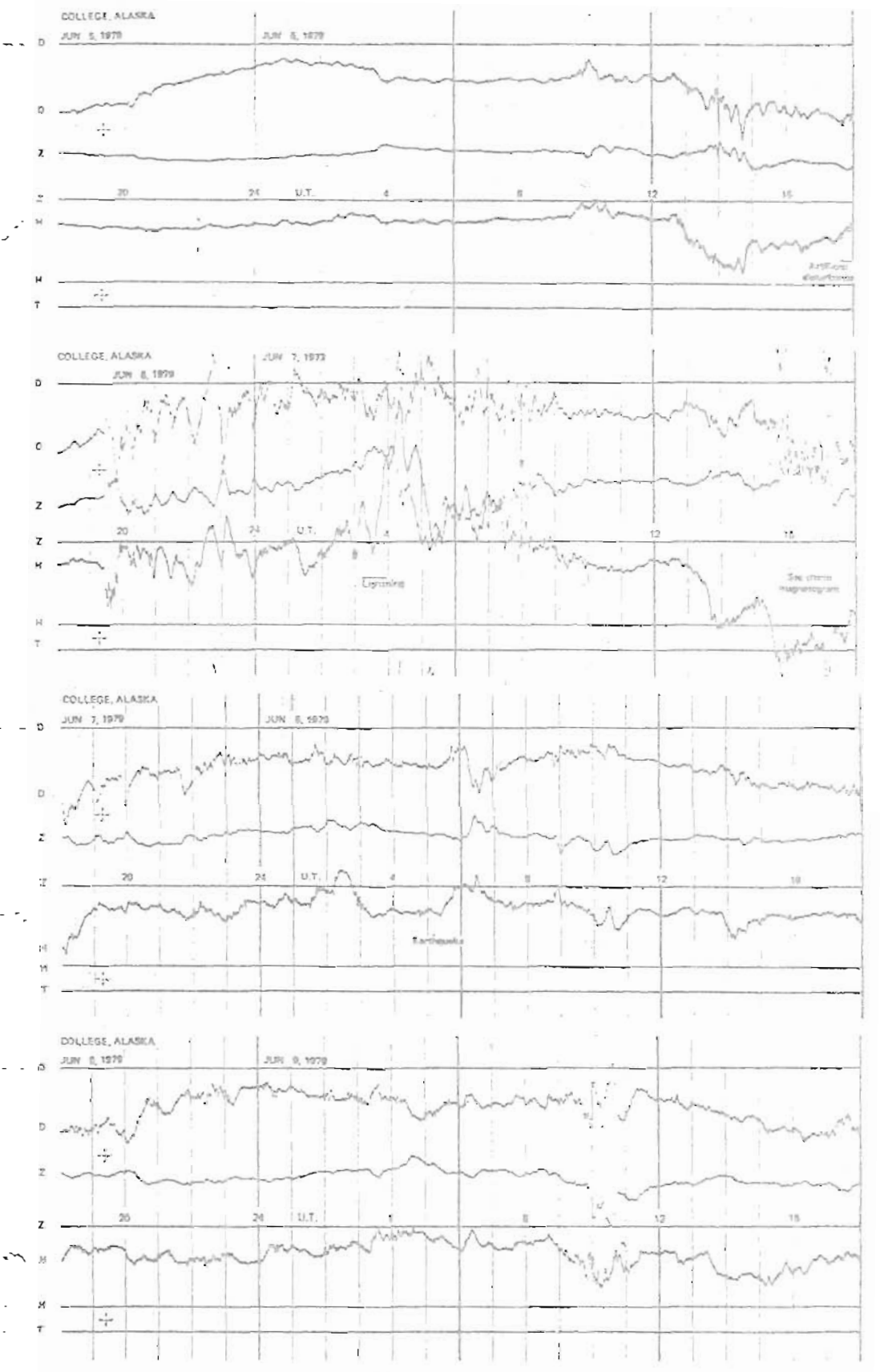


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

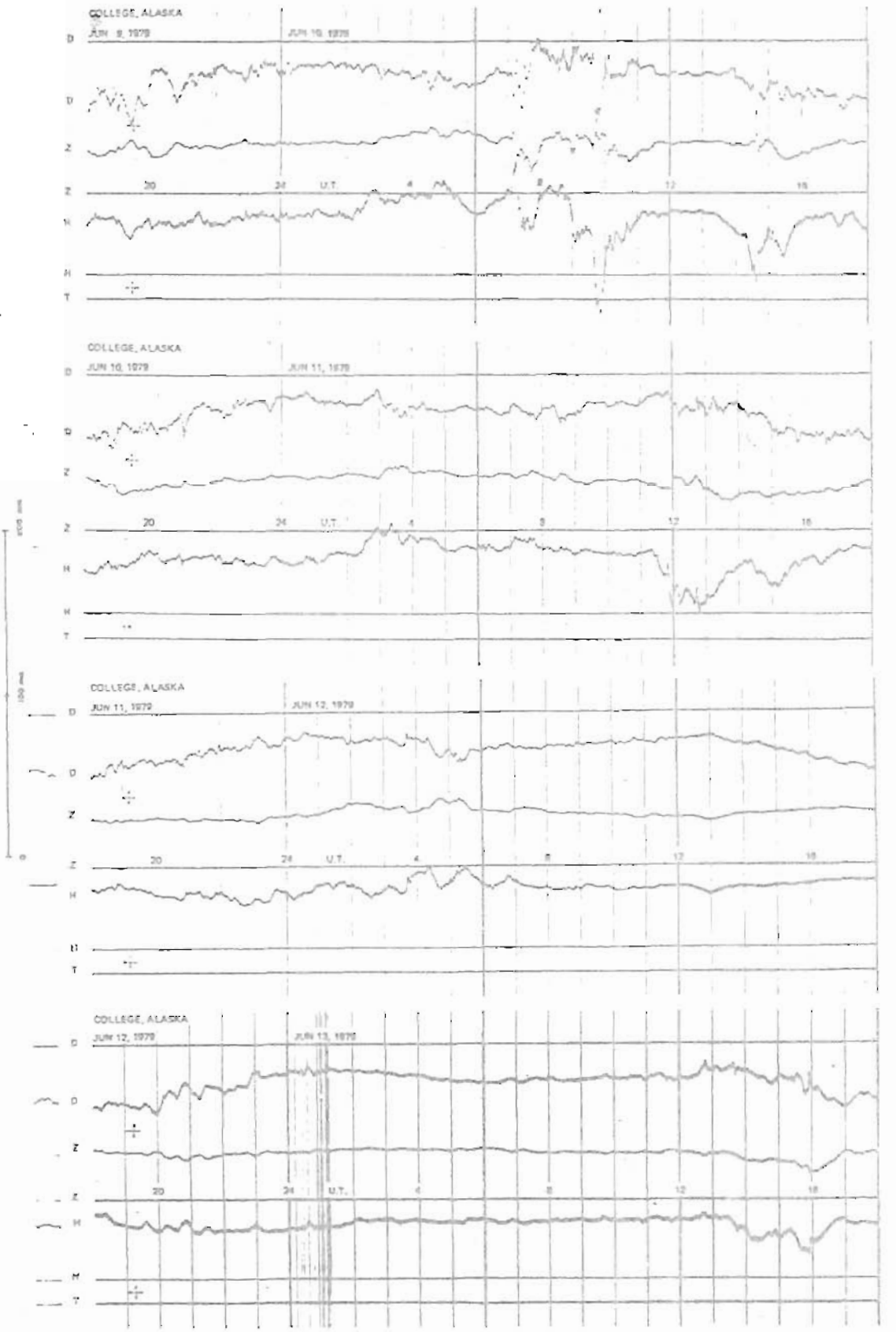
NORMAL MAGNETOGRAMS



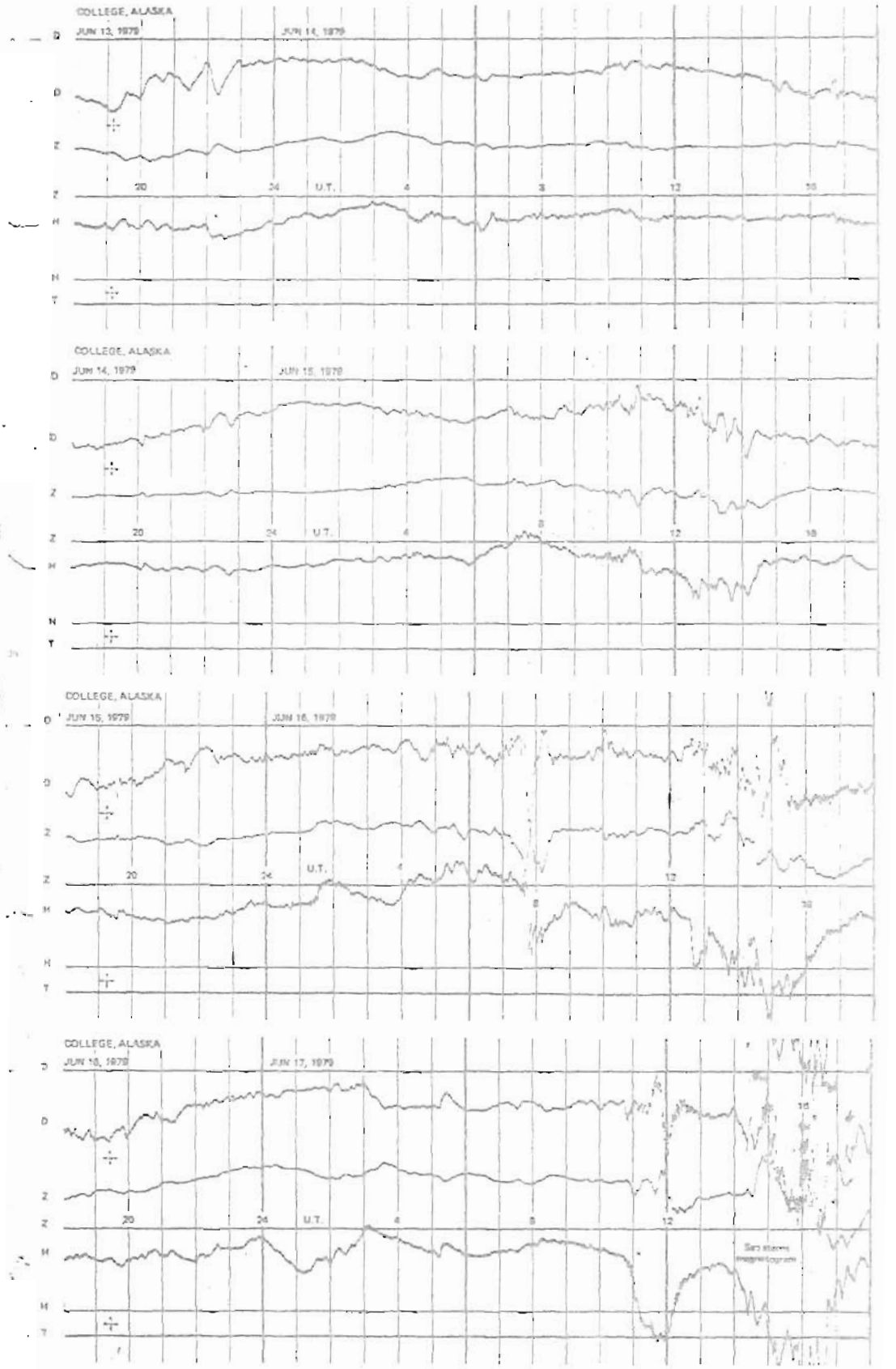
NORMAL MAGNETOGRAMS



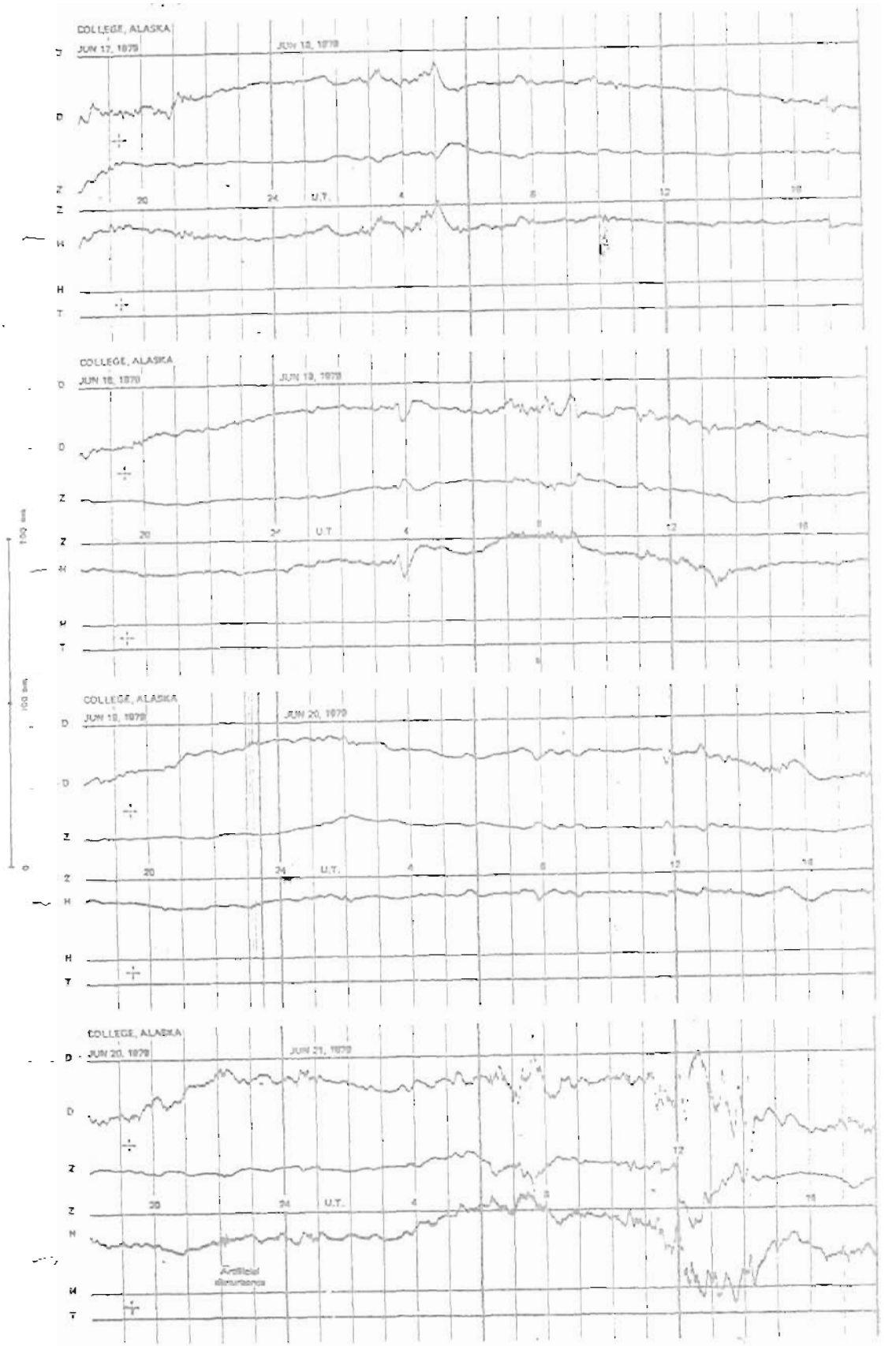
NORMAL MAGNETOGRAMS



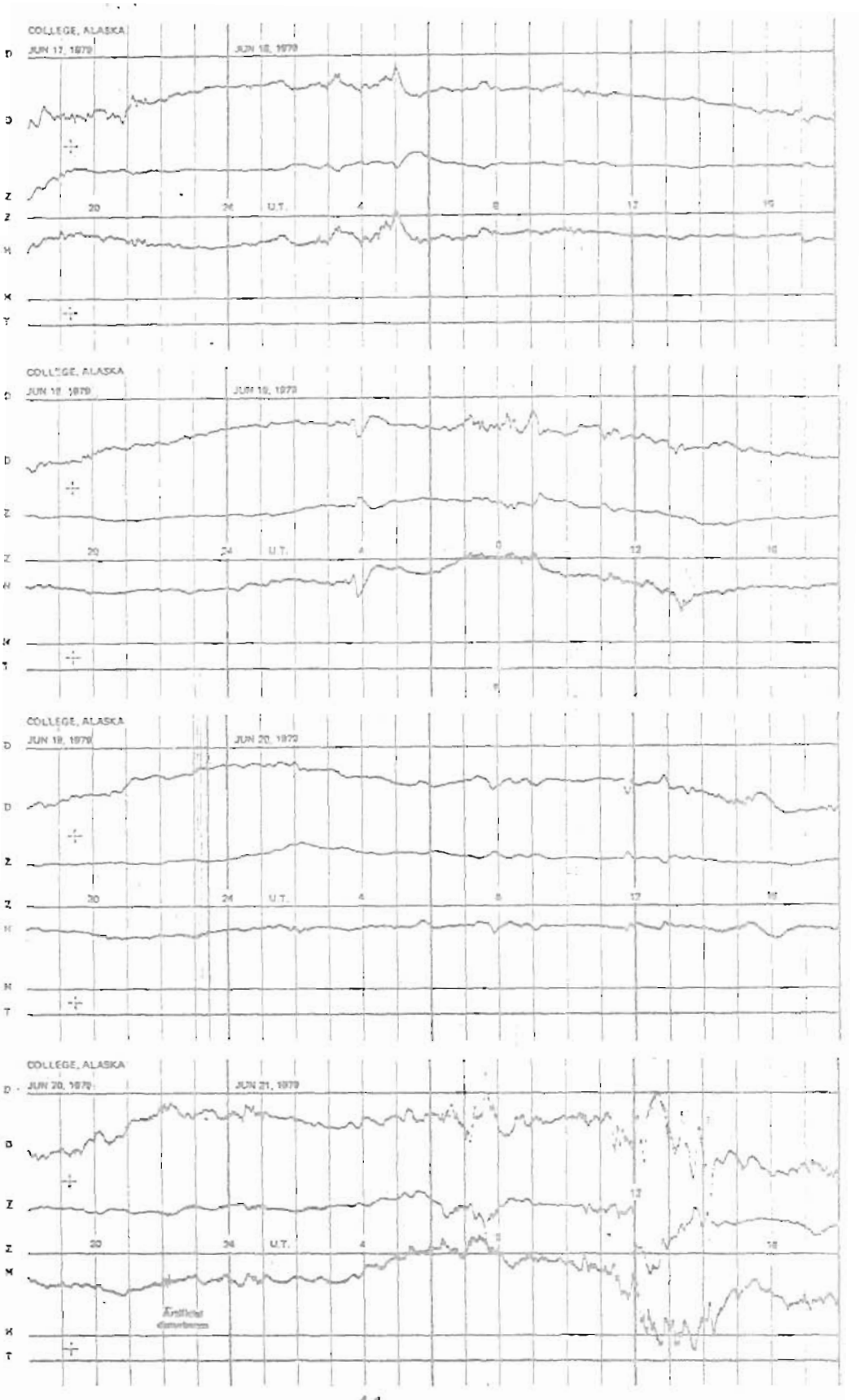
NORMAL MAGNETOGRAMS



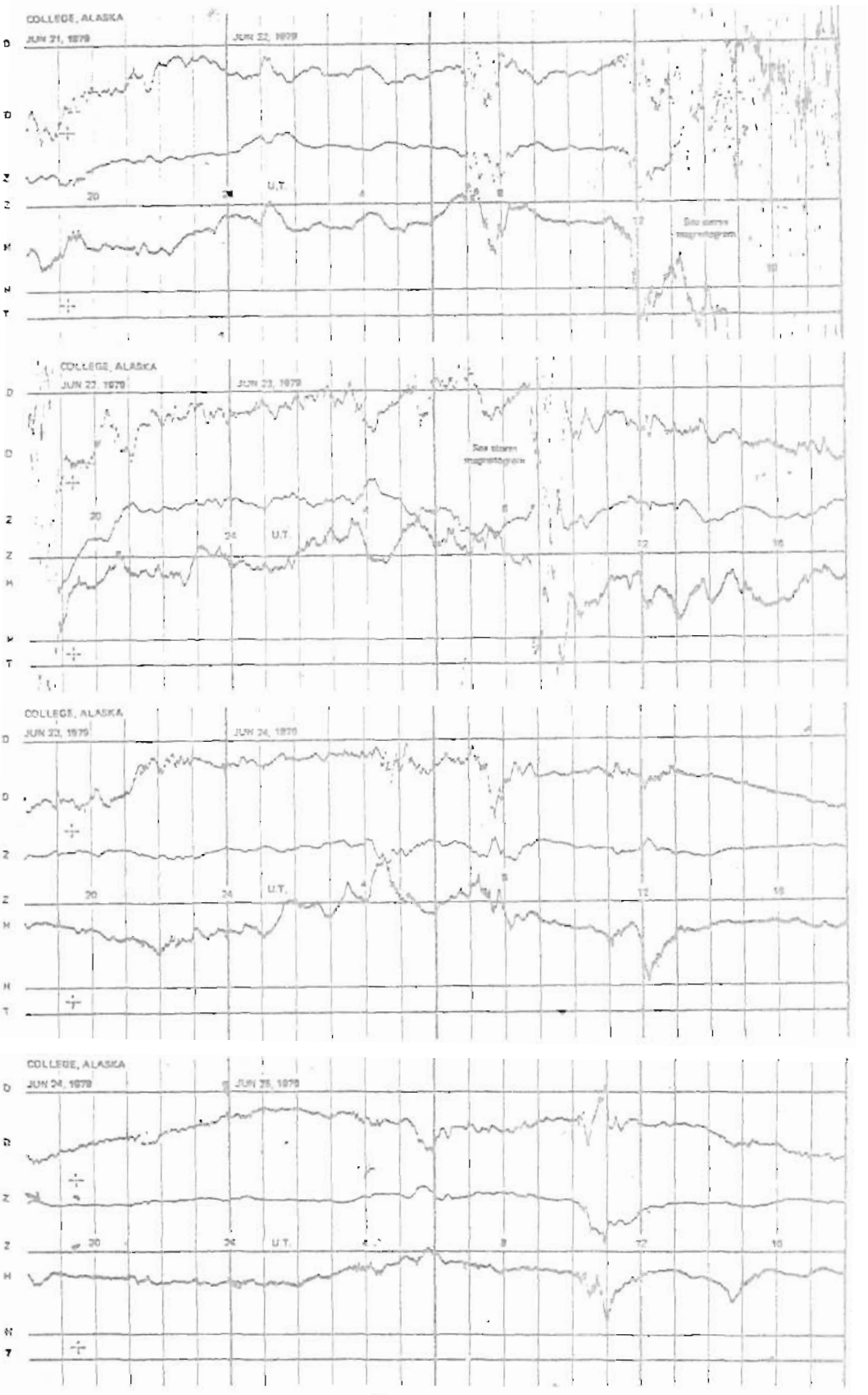
NORMAL MAGNETOGRAMS



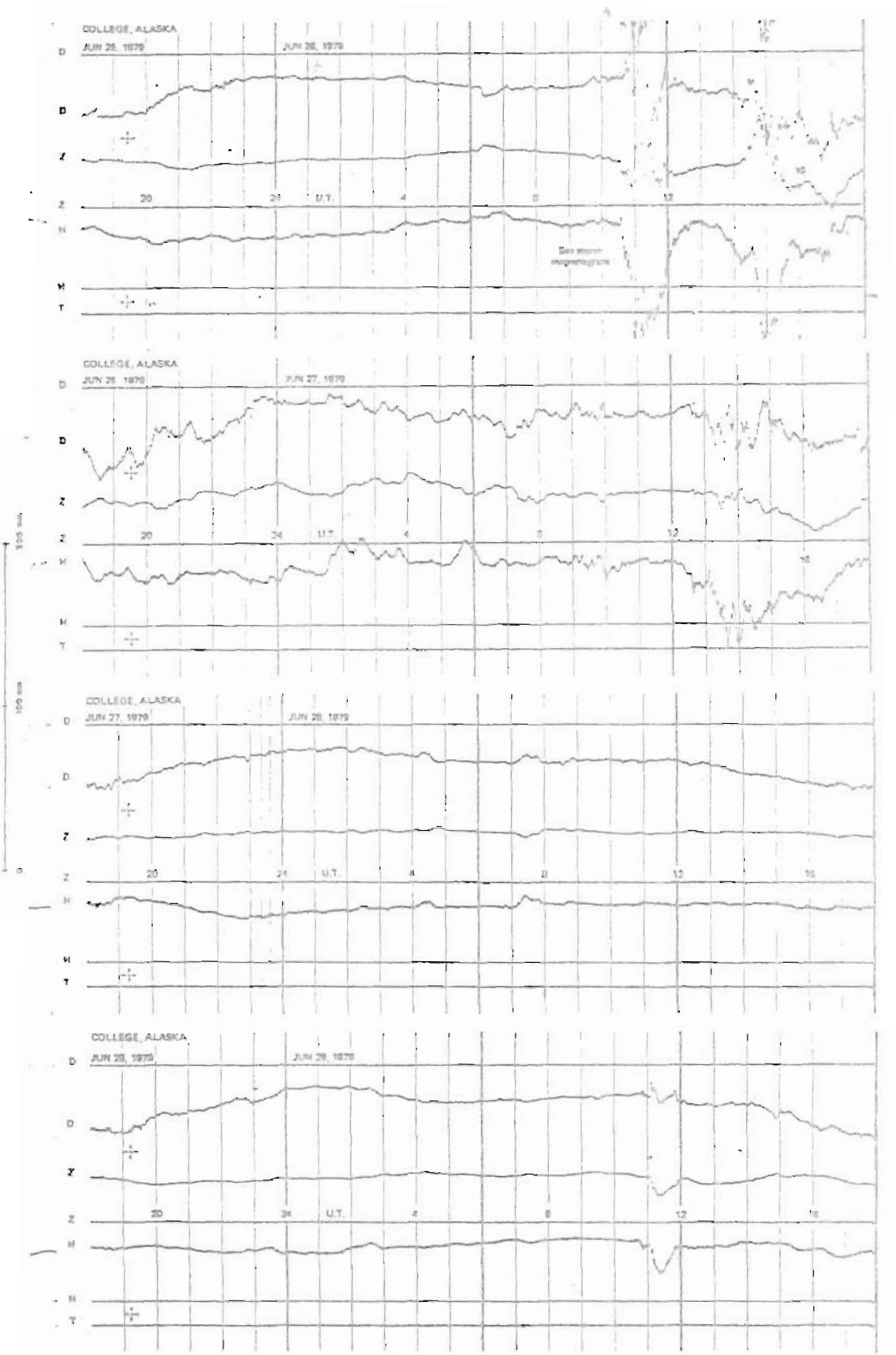
NORMAL MAGNETOGRAMS



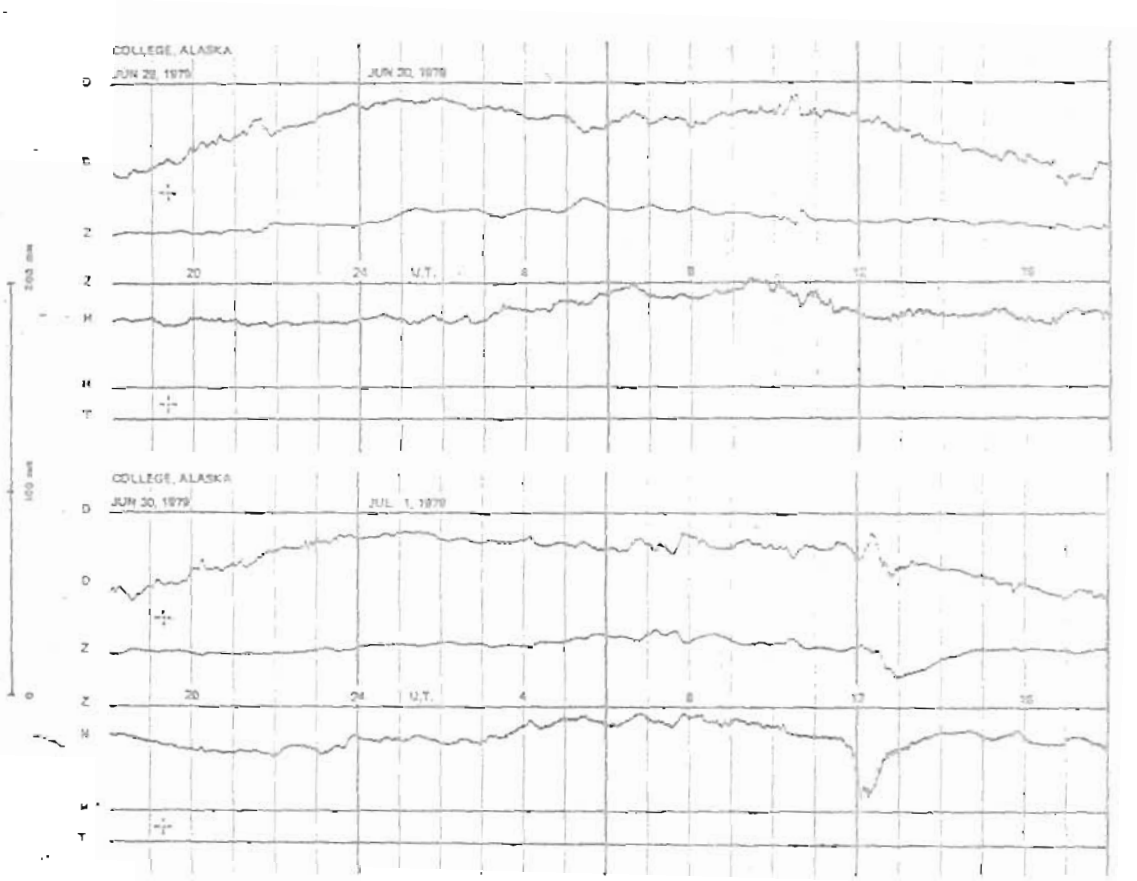
NORMAL MAGNETOGRAMS



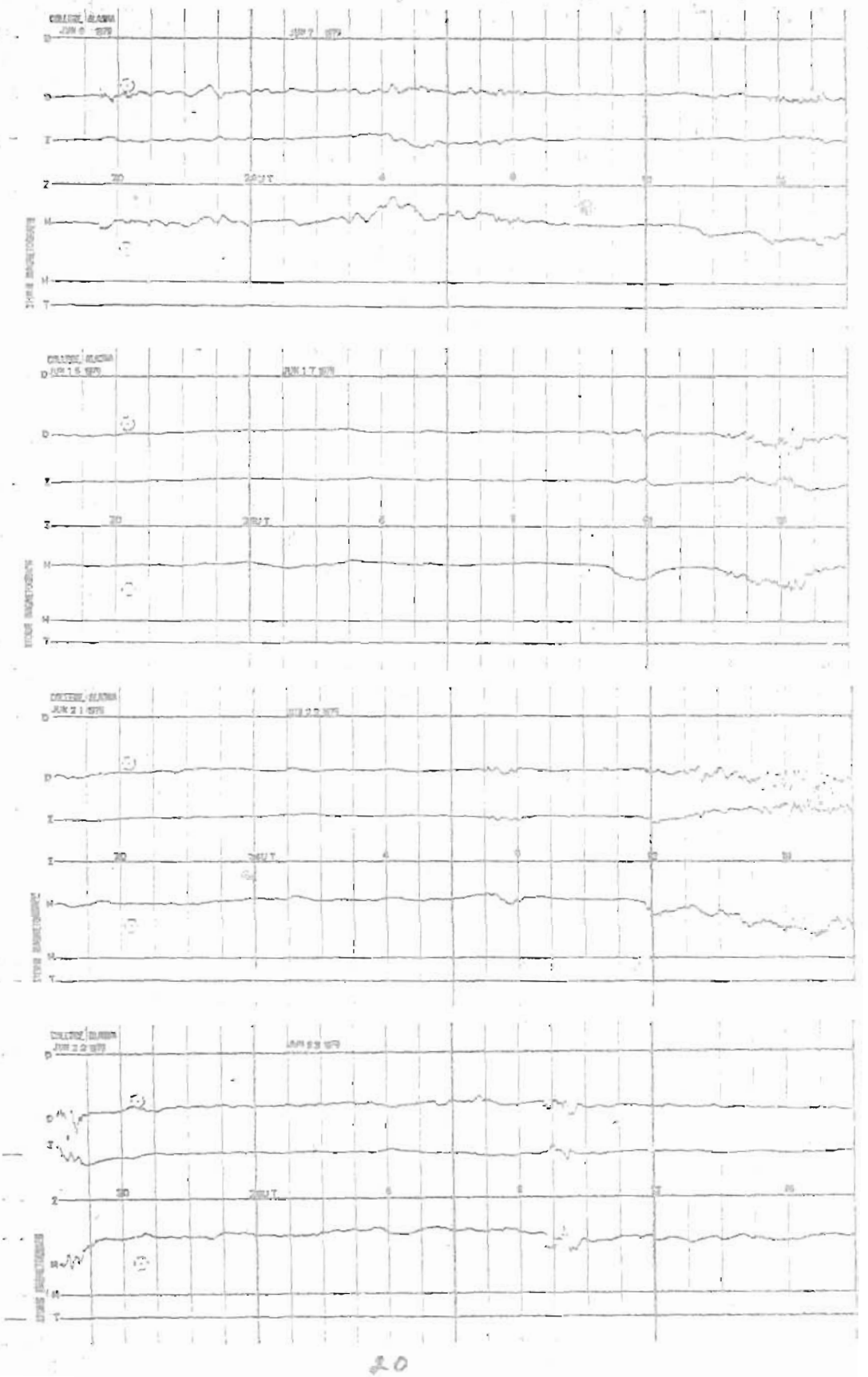
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS