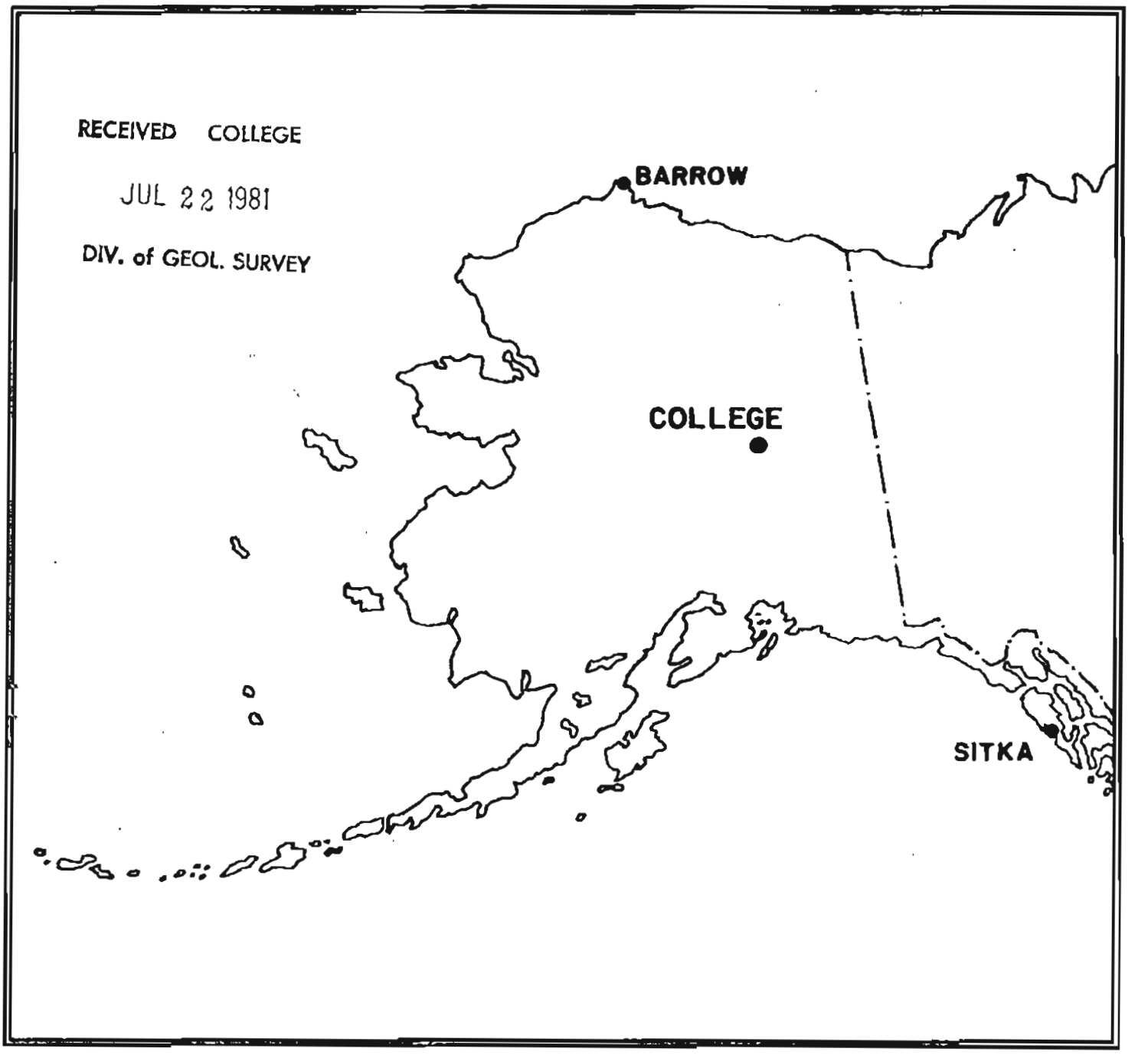
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JUNE 1981 **OPEN FILE REPORT** 81-300F



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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 AND E.A. SAUTER, 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:

COLLEGE OBSERVATORY
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
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, 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 & 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 1981

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	2	2	1	2	3	2	1	14	07
2	2	1	1	2	4	4	1	2	17	11
3	1	3	3	2	4	4	2	2	21	14
4	1	2	2	1	1	1	1	1	10	04
5	1	1	1	1	2	1	1	1	09	04
6	2	1	0	4	4	3	2	2	18	12
7	4	4	6	5	4	4	5	4	36	39
8	4	3	3	2	1	3	2	2	20	12
9	2	2	2	2	0	1	1	0	10	04
10	1	0	1	2	0	1	1	2	08	03
11	2	1	1	1	1	1	1	1	09	04
12	2	1	1	1	0	1	1	1	08	03
13	0	2	2	4	3	1	1	0	13	08
14	0	0	0	1	2	1	0	0	04	02
15	3	3	3	5	4	2	2	1	23	17
16	4	4	3	3	5	4	4	3	30	25
17	3	3	3	4	0	0	1	1	15	10
18	3	2	2	3	3	4	2	2	21	13
19	3	1	2	5	5	4	2	2	24	20
20	2	2	3	3	4	3	1	1	19	12
21	2	3	3	1	1	1	1	0	12	06
22	1	0	0	0	0	1	3	1	06	03
23	1	2	1	1	1	1	0	1	08	03
24	2	1	2	4	4	3	3	1	20	13
25	2	2	2	5	5	5	2	2	25	22
26	2	3	3	6	5	3	1	2	25	24
27	2	3	5	3	2	3	3	1	22	16
28	2	3	4	5	3	2	1	2	22	16
29	2	4	6	7	7	5	3	2	36	58
30	3	2	1	2	2	3	4	3	20	12
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	7.81		(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 615

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-781-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: JUNE

YEAR: 1981

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
05	2030	si*	
21	0309	si*	
30	02XX	pc5	

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

JUNE 1981

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

Obs. 2 letter IAGA code	Geomag. lat.	Commencement			SC - amplitudes			Max. 3 hr - index K			Ranges			UT End	
		day	hr min (UT)	type	D(')	H(γ)	Z(γ)	day	(3 hr - period)	K	D(')	H(γ)	Z(γ)	day	hr
CO	64.6 N	07	01XX	..	..	..	..	07	3	6	191	880	370	08	08
		29	05XX	..	..	..	..	29	4, 5	7	207	1690	1230	29	17

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: JUNE 1981

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 6-1-81	2400 U.T., 6-30-81	1.0'/mm	3.7 γ/mm	27° 46.8' E
H	0000 U.T., 6-1-81	2400 U.T., 6-30-81	7.8 γ/mm		12765 γ
Z	0000 U.T., 6-1-81	2400 U.T., 6-30-81	7.7 γ/mm		55138 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 6-1-81	2400 U.T., 6-30-81	7.8'/mm	29.7 γ/mm	23° 47.3' E
H	0000 U.T., 6-1-81	2400 U.T., 6-30-81	44.0 γ/mm		11524 γ
Z	0000 U.T., 6-1-81	2400 U.T., 6-30-81	48.6 γ/mm		54016 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 02.7' E	13002 γ	55381 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUN 4, 5, 9, 10, 11, 12, 14, 21, 22, 23

FORM 76-106

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 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	81	JUN	D

C	Q or S	Tens Q	Hr. No.	01	02	03	04	05	06	07	08	09	10	11	12
			01	81	89	104	118	166	158	200	147	131	108	100	137
			02	74	104	137	134	166	177	193	171	136	119	166	108
			03	82	89	85	116	131	146	90	42	150	143	118	129
			04	77	98	104	117	131	162	153	129	162	135	132	141
			05	114	100	101	91	104	164	148	145	136	137	139	131
			06	99	73	61	72	101	130	149	150	131	127	149	102
			07	69	62	44	139	117	83	-241*	-99*	34	31	8	67
			08	122	89	98	87	109	108	152	106	123	120	125	139
			09	99	88	87	100	129	151	159	154	157	128	148	143
			10	82	92	109	107	117	150	164	156	151	131	157	139
			11	60	74	89	129	130	151	150	138	154	110	101	107
			12	128	128	109	142	155	151	162	149	144	152	124	112
			13	90	91	98	119	139	138	151	148	140	109	111	123
			14	110	106	97	107	121	150	169	164	149	140	140	131
			15	88	61	95	93	80	60	92	101	98	72	60	81
			16	101	54	37	76	45	74	162	138	101	131	108	82
			17	111	20	-39	1	108	150	91	158	87	51	40	114
			18	37	41	26	101	88	97	166	126	136	92	112	100
			19	119	59	39	101	109	139	136	131	120	148	108	96
			20	58	39	35	89	98	89	119	97	207	95	92	80
			21	67	63	74	53	83	30	94	130	170	131	146	143
			22	83	94	101	112	119	127	138	145	143	144	155	162
			23	70	72	89	99	118	149	159	149	144	130	138	119
			24	52	49	58	99	119	141	138	147	177	137	90	78
			25	47	41	69	75	123	141	146	133	111	121	133	110
			26	85	66	91	112	140	141	128	154	91	87	70*	66
			27	106	105	66	86	116	48	116	146	120	55	81	116
			28	81	100	109	100	107	70	39	-28	64	-105*	110	90
			29	139	126	109	110	111	90	-149*	-486*	-239*	-49*	-73*	133*
			30	154	112	109	118	120	160	151	122	121	131	129	131
			31												

Hr. No.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	115	122	188	190	294	285	264	247	177	141	131	104	3797
02	101	135	153	206	284	302	281	217	175	136	128	87	3890
03	126	184	162	333	356	304	317	296	162	88	131	98	3878
04	140	182	198	230	296	284	259	226	174	156	129	115	3930
05	137	182	223	266	291	314	280	253	197	166	151	118	4088
06	136	189	294	376	345	352	325	230	193	167	111	94	4156
07	32	141	306	289	514	565	461	448*	337*	20*	87	72	3586
08	157	170	211	269	298	340	282	264	224	189	158	91	4031
09	157	151	179	214	278	289	291	255	220	177	121	85	3960
10	126	148	164	222	279	304	250	227	144	110	84	88	3701
11	114	154	160	243	306	330	332	270	184	96	49	100	3731
12	115	128	168	230	260	264	254	219	198	159	161	92	3904
13	179	168	193	260	291	298	231	210	199	172	145	111	3914
14	119	139	170	220	279	330	308	230	200	148	112	89	3928
15	163	179	211	270	300	327	316	260	190	117	99	115	3528
16	78	118	215	277	336	439	294	204	246	224	60	106	3706
17	115	155	188	228	256	271	263	243	194	166	81	55	3107
18	149	171	217	351	289	264	320	316	233	154	119	39	3744
19	185	129	199	276	241	307	346	221	159	140	84	79	3691
20	88	28	128	265	268	264	289	230	218	215	145	106	3342
21	186	200	224	244	261	262	258	257	234	162	146	102	3720
22	164	175	201	236	270	286	275	295	191	142	125	88	3911
23	128	134	171	220	249	260	273	248	210	176	138	90	3733
24	146	188	158	299	289	269	311	267	108	157	130	107	3714
25	99	171	238	282	348	373	339	324	221	101	108	93	3967
26	132	108	160	255	266	246	289	259	219	182	129	167	3643
27	125	159	212	204	228	291	258	210	178	108	76	92	3302
28	97	139	171	201	280	264	249	211	219	169	141	115	2993
29	133*	24	48	176	214	319	290	266	186	131	89	120	1798
30	150	176	195	220	242	271	283	185	266	121	145	130	3942
31													

SCALED BY	TKC, EAS, JEP
CHECKED BY	EAS, JEP
ITEMS 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 Mags., converted to Normal Mags.

MONTHLY SUM	110335
MONTHLY MEAN	153
DATES WITH DATA:	

ESD 76C-17A

FORM 76-106

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 gam and are averages for successive periods of one hour beginning at midnight. Hour 00 of 1st of day (1500 U.T.) is hour 11 of the SDBC universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	81	JUN	H

C	Q or S	Err Q	Hr. Min.	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Min.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	298	297	296	328	294	334	321	382	358	338	319	327	01	309	338	342	320	206	258	298	289	276	299	291	301	7419
			02	294	319	297	328	328	321	341	335	360	329	301	319	02	296	192	142	278	302	312	336	320	296	293	273	295	7207
			03	290	297	298	306	309	327	476	468	421	355	317	293	03	292	268	111	25	148	99	201	230	226	305	315	272	6649
			04	269	271	291	298	310	320	307	332	355	320	312	324	04	310	309	304	305	310	308	301	271	289	262	269	279	7226
			05	298	300	289	301	316	317	330	319	315	319	321	309	05	289	289	294	314	308	319	318	311	279	261	260	280	7256
			06	272	288	314	347	335	335	317	310	316	331	251	264	06	160	61	69	136	143	232	277	285	291	279	280	249	6162
			07	255	299	424	626	586	636	285*	478	406	396	359	333	07	464	402	398	350	249	240	315	117	141	254	267	303	8583
			08	443	414	342	252	288	376	364	390	311	318	310	288	08	288	299	287	286	293	189	211	241	250	247	271	270	7228
			09	315	288	271	287	287	299	289	311	329	281	308	301	09	309	307	298	302	296	305	295	271	257	259	259	268	6992
			10	266	276	282	297	290	291	303	316	317	330	312	337	10	330	330	331	310	305	329	314	300	299	272	270	313	7320
			11	300	320	330	309	311	312	320	333	352	337	321	326	11	318	310	289	297	300	319	310	292	270	254	260	252	7342
			12	291	291	308	300	300	302	307	320	322	335	330	330	12	323	323	320	329	341	330	319	312	288	282	275	269	7447
			13	279	289	298	304	299	341	350	329	320	339	286	221	13	251	331	325	309	302	318	316	290	274	272	271	282	7196
			14	287	293	301	298	297	306	310	320	329	331	339	339	14	278	327	328	311	310	311	300	291	277	273	278	289	7323
			15	301	340	297	299	347	431	448	380	384	324	377	81	15	277	349	349	342	339	309	266	257	250	248	261	291	7547
			16	317	360	497	704	573	466	345	282	310	308	307	291	16	259	209	-1	126	175	-9	196	293	259	234	240	379	7120
			17	426	366	417	464	420	364	420	399	327	265	186	233	17	310	322	318	316	318	307	286	265	247	239	245	269	7729
			18	299	339	405	322	335	400	349	334	321	339	300	272	18	298	281	207	127	300	320	284	269	220	243	278	263	7105
			19	328	402	332	268	289	291	308	327	339	302	292	181	19	-3	190	140	128	185	197	263	204	216	227	239	310	5955
			20	314	286	319	352	346	353	388	403	343	261	322	291	20	253	235	103	230	317	331	298	278	246	232	242	263	7006
			21	278	282	280	348	337	411	441	428	321	310	308	289	21	294	316	307	306	296	323	303	278	250	241	242	257	7446
			22	263	277	279	277	286	296	299	300	304	311	312	315	22	324	331	331	327	325	314	300	269	279	263	259	256	7097
			23	263	280	290	319	350	348	319	319	329	329	318	319	23	324	318	300	319	333	344	328	300	279	249	236	254	7367
			24	260	289	317	299	309	307	318	341	398	371	338	300	24	229	335*	300	293	348	329	282	250	322	293	291	299	7418
			25	289	286	303	342	330	362	319	332	344	349	200	243	25	116	-91	-61	74	99	264	331	304	270	300	278	290	5873
			26	303	292	313	321	388	407	444	388	366	243	-3*	335	26	32	126	268	282	359	316	334	341	322	296	287	316	7076
			27	309	327	312	308	333	450	451	399	155	312	300	295	27	321	301	317	349	269	217	249	286	293	282	257	273	7365
			28	308	333	339	349	417	461	470	474	423	305	258	281	28	267	199	239	247	220	257	266	289	292	297	261	280	7532
			29	344	335	292	324	371	517	710*	433*	472*	-47*	145*	-71*	29	-494*	184	278	-51	265	333	300	260	273	280	292	284	6029
			30	345	354	351	320	311	291	290	291	298	308	324	306	30	299	310	320	310	310	318	239	286	249	260	230	268	7188
			31													31													

SCALED BY	TKC, EAS, JEP
CHECKED BY	EAS, JEP
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary baseline 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 all absent for part or all of hour; if value is given, curve was estimated for missing part.

* Derived from Storm Mgph., corrected to Normal Mgph.

MONTHLY SUM	214203
MONTHLY MEAN	298
DATES WITH DATA	

GPO 881-303

FORM 76-106

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 (15OW M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

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

OBSY.	YEAR	MONTH	ELEMENT
CO	81	JUN	Z

C	Qual S	Ten Q	Hr. Day	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	346	360	354	353	361	339	370	348	368	351	327	328	01	297	330	350	348	300	240	287	301	299	288	301	319	7865
			02	332	351	358	344	353	347	365	360	339	321	298	294	02	295	286	312	293	311	309	315	314	318	319	322	320	7776
			03	322	330	317	319	332	329	365	367	373	354	331	314	03	320	321	301	294	195	198	214	266	275	281	322	316	7356
			04	312	318	316	321	328	348	339	337	349	336	321	323	04	317	321	322	322	327	318	311	309	301	309	319	327	7751
			05	342	348	353	339	338	361	344	334	329	329	334	311	05	308	311	310	320	321	311	307	304	299	305	310	311	7779
			06	325	336	337	350	361	378	368	346	332	329	268	319	06	402	389	272	244	219	212	279	257	266	281	290	311	7471
			07	307	305	325	345	398	272	180*	380	341	288	267	200	07	226	321	341	358	347	328	238	262*	293*	249	300	380	7271
			08	415	463	389	361	370	368	380	329	338	332	329	330	08	340	340	349	348	340	330	248	259	280	292	308	304	8142
			09	328	319	319	317	328	338	339	337	330	289	313	321	09	323	328	329	323	329	326	320	303	301	292	292	302	7646
			10	308	310	312	320	317	322	329	329	321	320	271	289	10	312	320	330	330	312	297	300	297	284	294	300	310	7434
			11	319	324	350	380	371	366	355	340	346	331	323	320	11	318	310	304	308	310	307	309	300	297	287	280	300	7755
			12	309	330	342	362	360	352	347	338	331	331	301	320	12	321	324	339	335	322	318	304	294	298	292	302	301	7773
			13	308	319	320	329	335	336	359	352	335	323	303	278	13	280	293	323	321	321	300	307	304	302	307	309	306	7570
			14	309	310	312	317	318	324	331	332	327	328	327	321	14	247	293	323	330	327	329	302	290	288	285	290	297	7457
			15	310	318	340	320	321	360	390	406	373	356	309	271	15	243	309	320	334	321	320	311	301	291	292	298	317	7731
			16	354	401	432	379	389	448	452	374	344	313	283	279	16	296	325	372	260	238	167	174	229	289	320	300	351	7769
			17	399	411	401	374	430	398	380	340	311	307	309	246	17	304	339	345	339	331	328	322	312	303	304	299	302	8134
			18	309	328	350	381	353	371	370	353	350	339	318	276	18	289	306	279	202	221	284	318	318	301	288	326	335	7565
			19	354	369	352	359	341	345	347	339	335	275	289	268	19	132	189	251	228	241	288	276	246	247	309	309	333	7022
			20	347	348	341	361	338	360	403	373	340	231	310	319	20	308	281	248	253	283	310	323	306	307	308	298	299	7595
			21	300	320	321	309	342	325	368	340	308	313	318	310	21	300	318	320	317	304	297	309	304	298	286	292	290	7509
			22	293	300	310	313	311	312	311	311	310	310	314	317	22	316	318	320	316	313	304	301	301	272	291	293	299	7356
			23	301	309	313	321	335	372	358	333	327	319	319	314	23	319	320	321	328	326	319	317	316	307	301	299	297	7691
			24	300	308	316	321	317	318	315	327	345	271	278	316	24	325	302	318	299	319	325	317	307	256	301	295	311	7407
			25	322	316	329	337	351	376	362	338	330	275	362	363	25	431	332	314	434	471	246	268	268	264	269	308	324	7990
			26	344	339	340	332	364	396	364	329	330	337	267	263	26	399	281	267	289	317	312	291	290	298	301	315	346	7713
			27	366	383	390	372	371	368	368	346	170	251	306	297	27	317	324	326	331	319	266	268	250	269	288	289	316	7551
			28	348	377	393	370	404	409	306	390	412	365	389	342	28	340	348	328	319	294	280	301	296	321	331	330	324	8317
			29	356	387	381	360	373	382	147*	9*	154*	514*	464	691*	29	730*	509	546	563	334	331	338	320	310	319	320	329	9167
			30	348	367	357	342	329	340	330	318	319	320	322	327	30	319	325	340	333	340	333	340	272	300	298	320	336	7875
			31													31													

SCALED BY	TKC, EAS, JEP
CHECKED BY	EAS, JEP
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary base-line and scale values:

	Interval	Base-line Value	Scale Value
Beginning			

( ) 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.

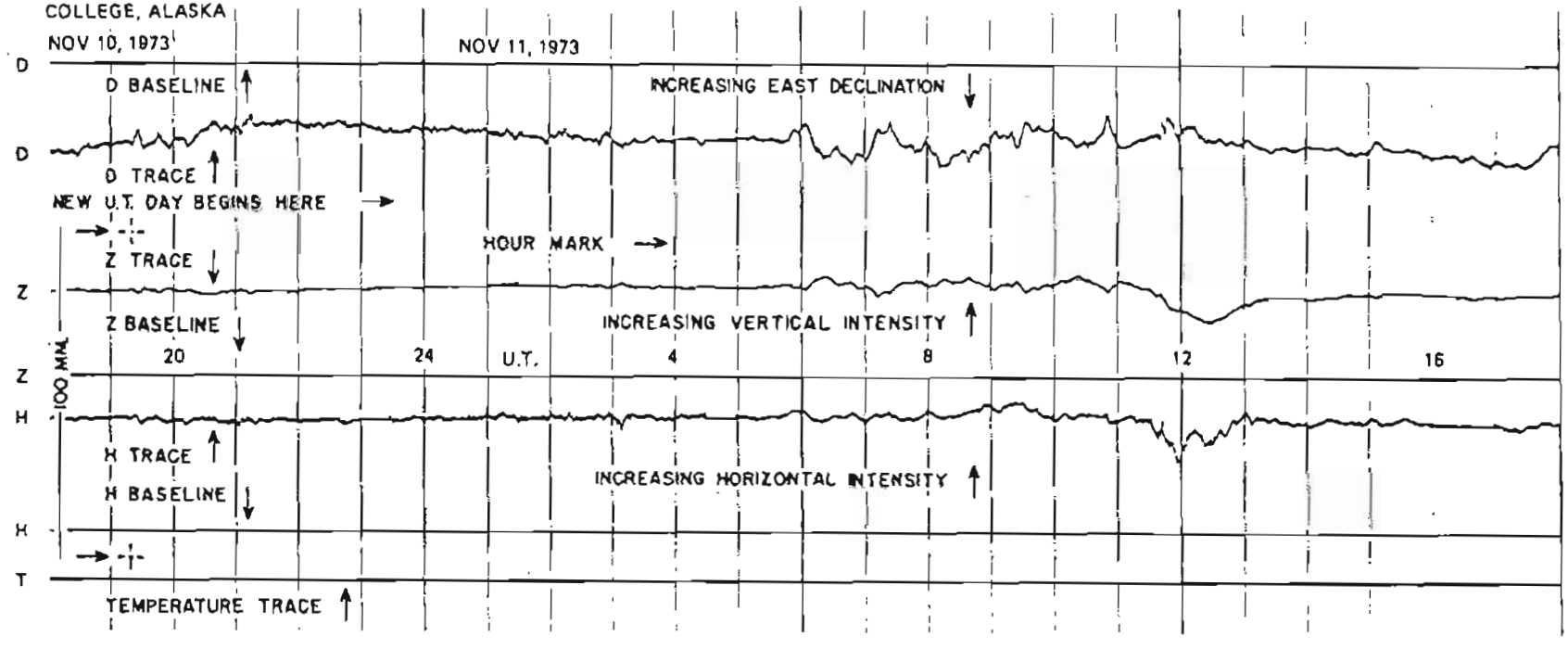
* Derived from Storm Mgph., converted to Normal Mgph.

MONTHLY SUM	231438
MONTHLY MEAN	321
DATES WITH GAPS:	

GPO 844-103

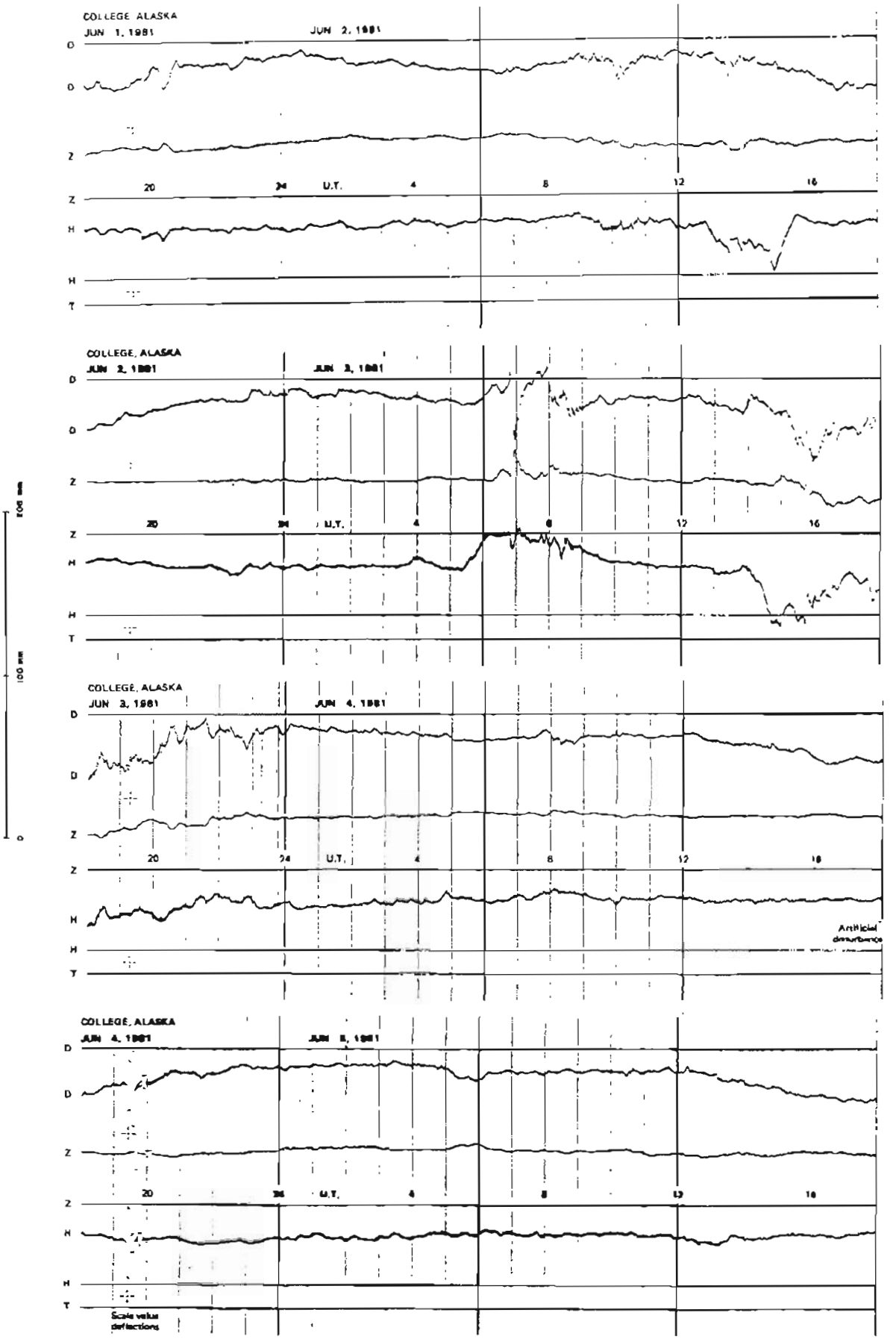
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

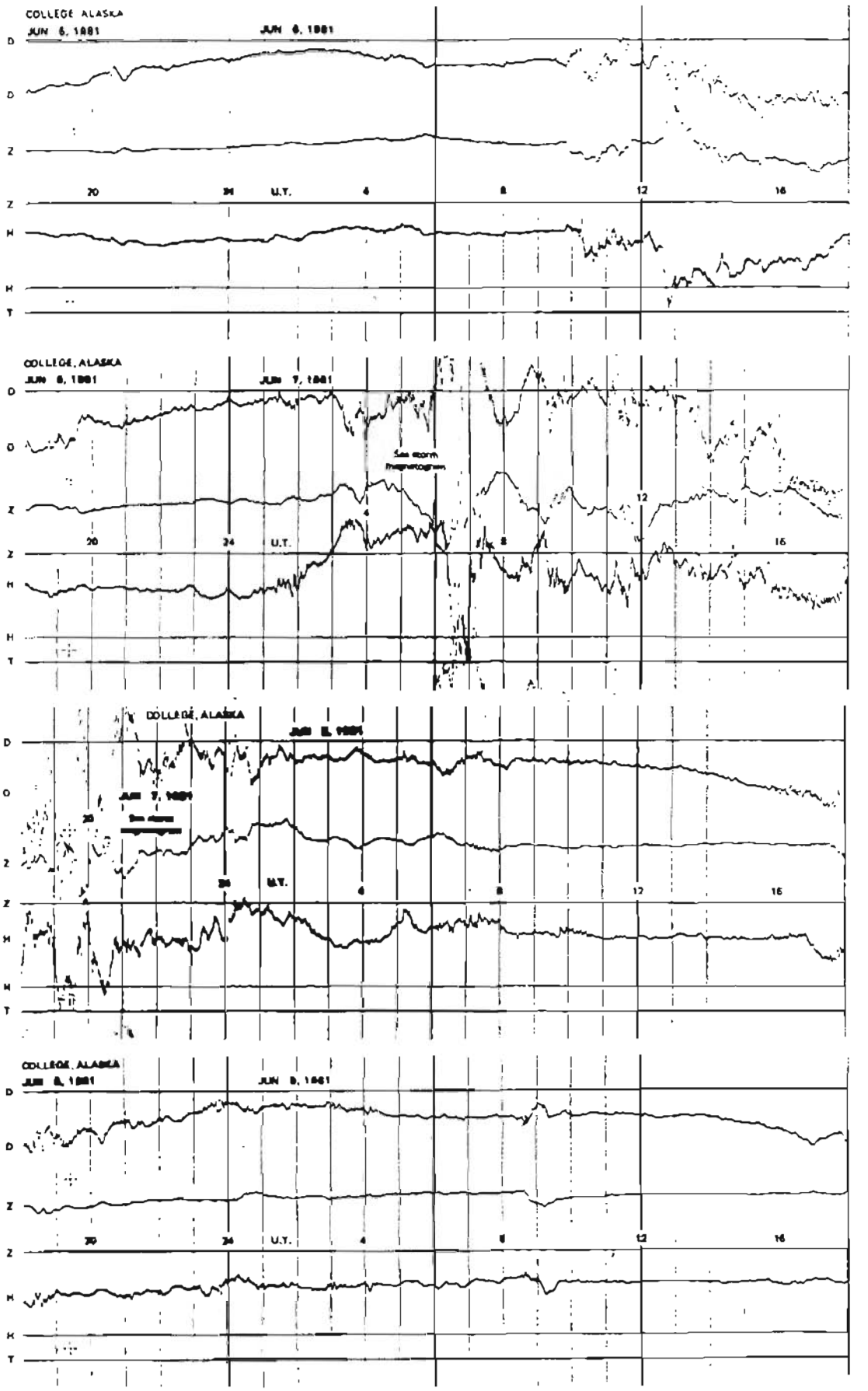


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

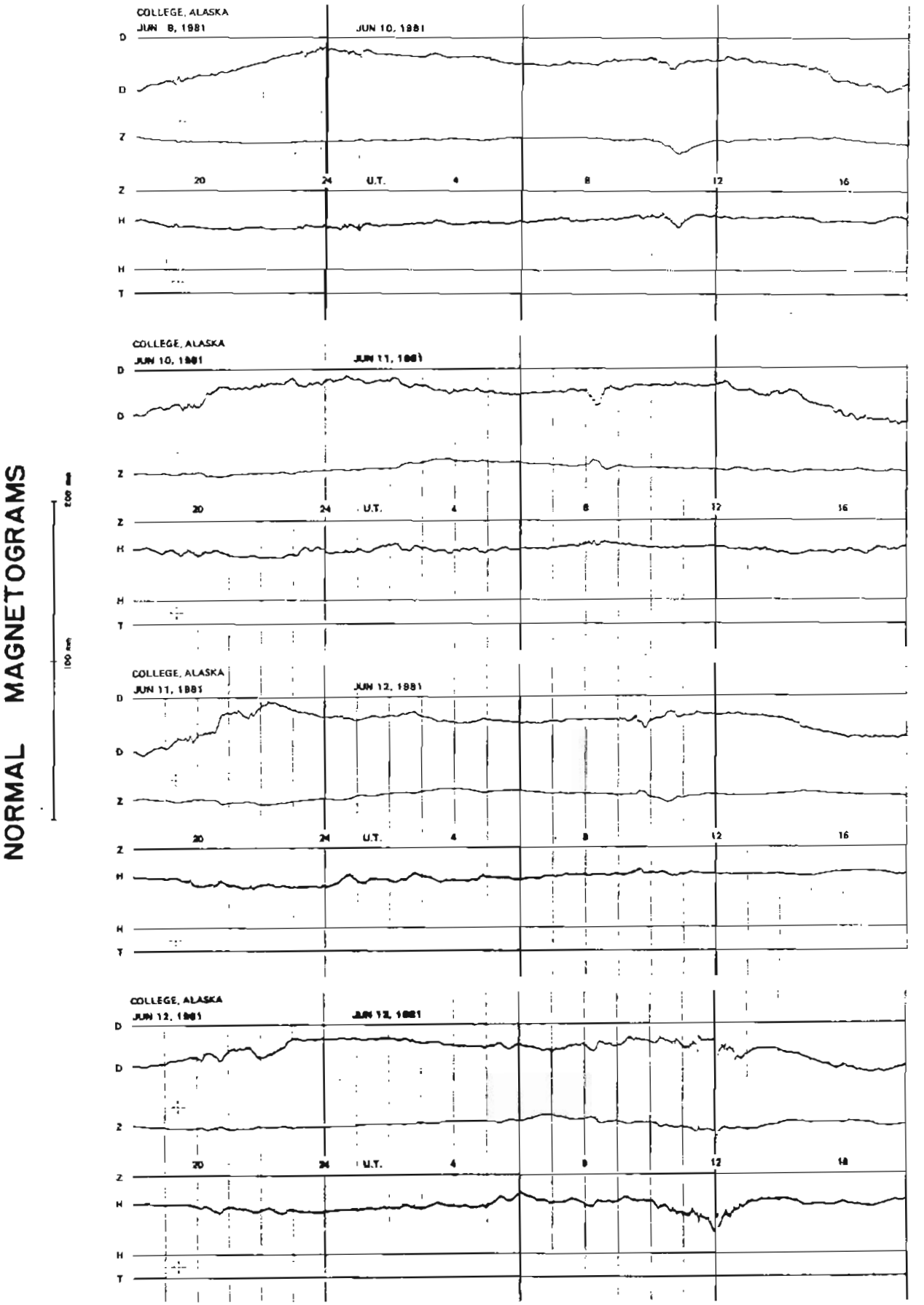
NORMAL MAGNETOGRAMS



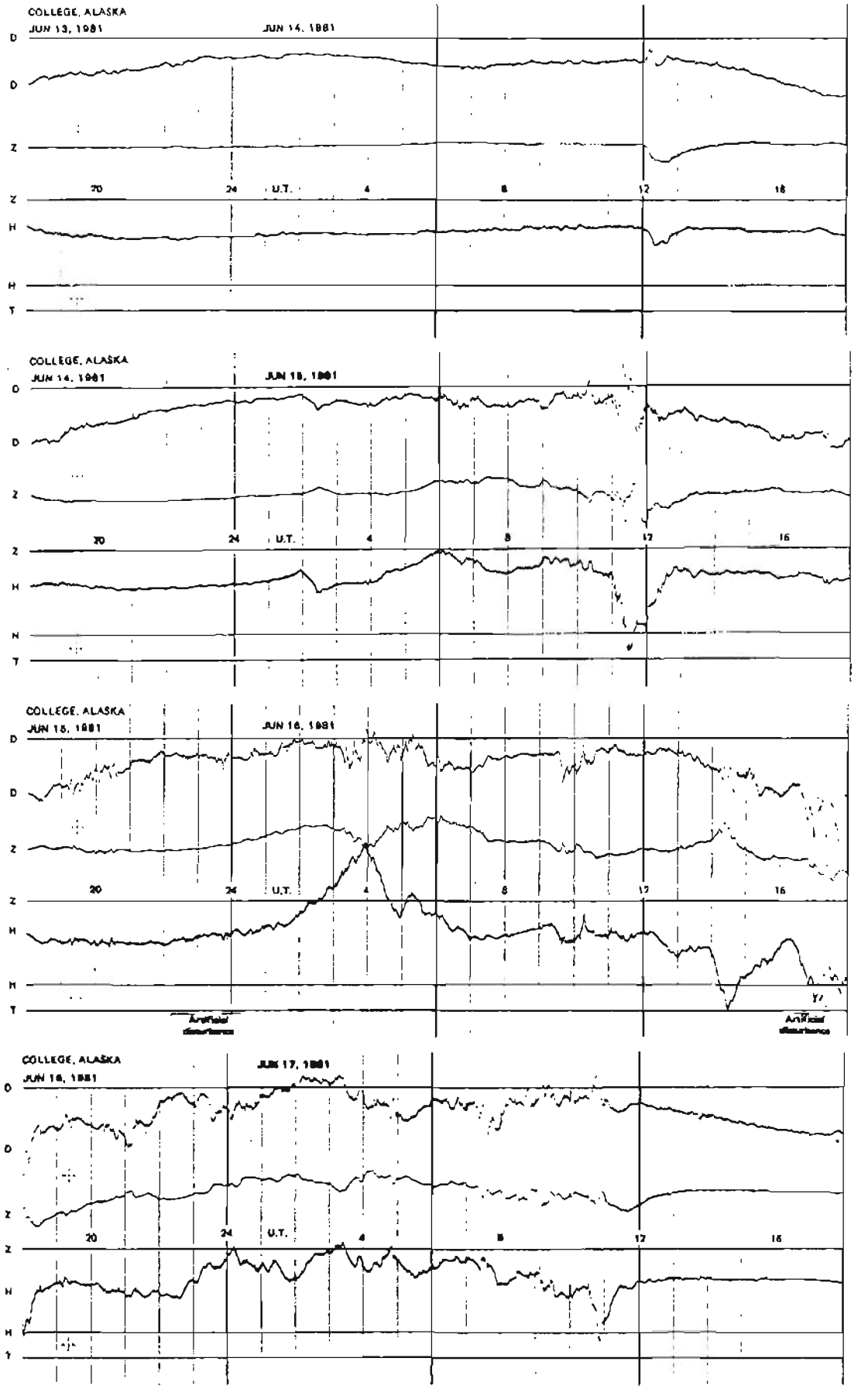
NORMAL MAGNETOGRAMS



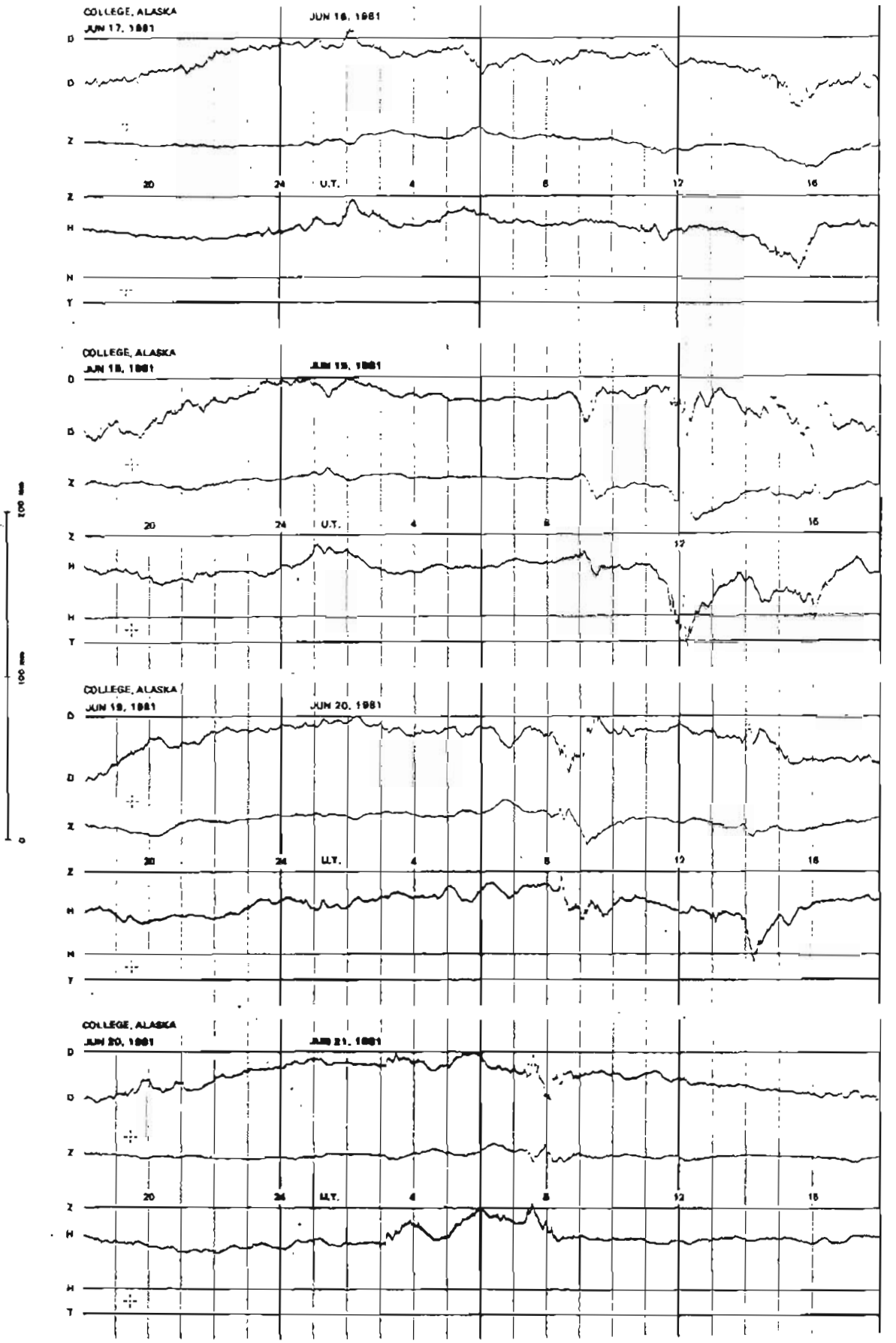
NORMAL MAGNETOGRAMS



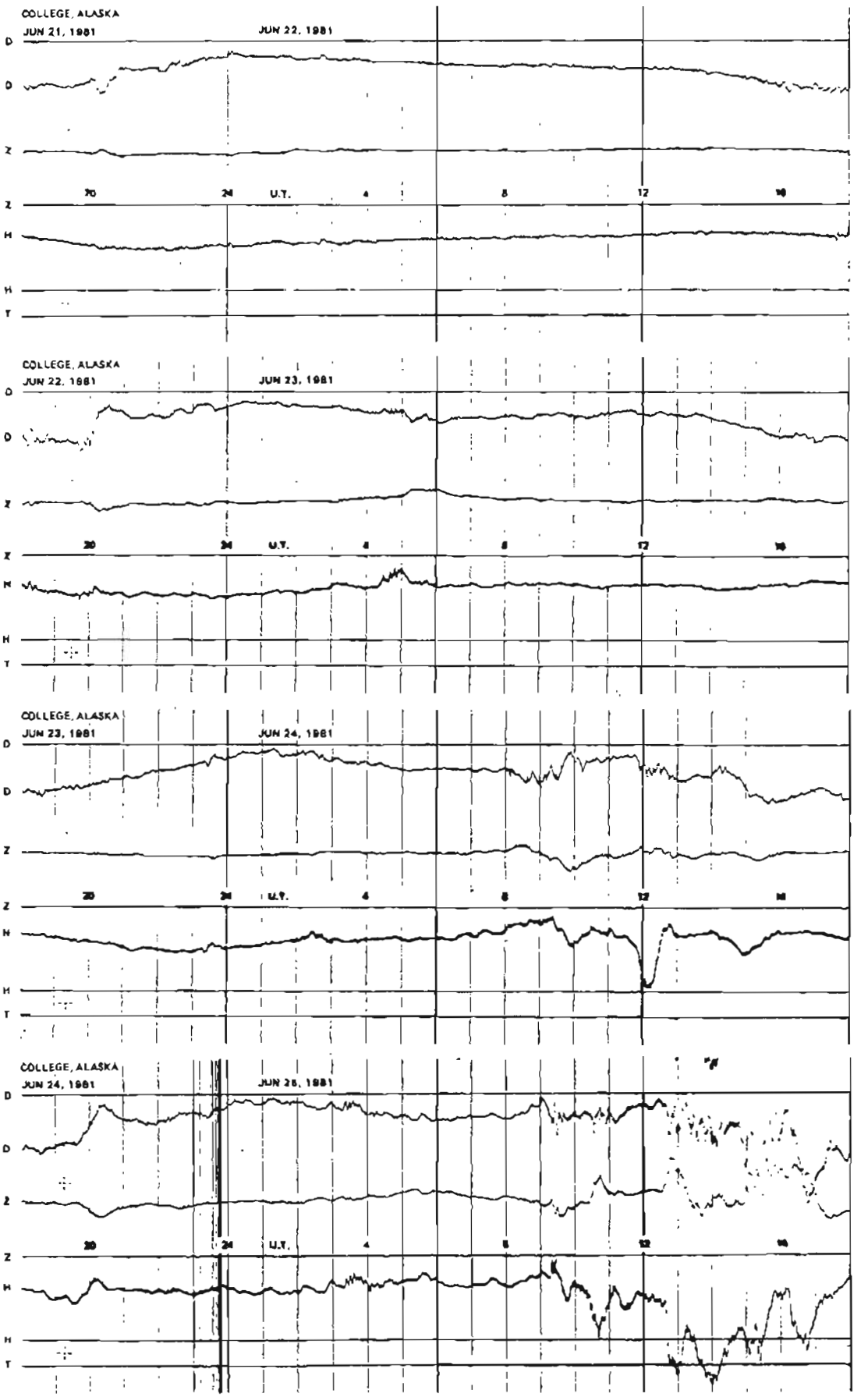
NORMAL MAGNETOGRAMS



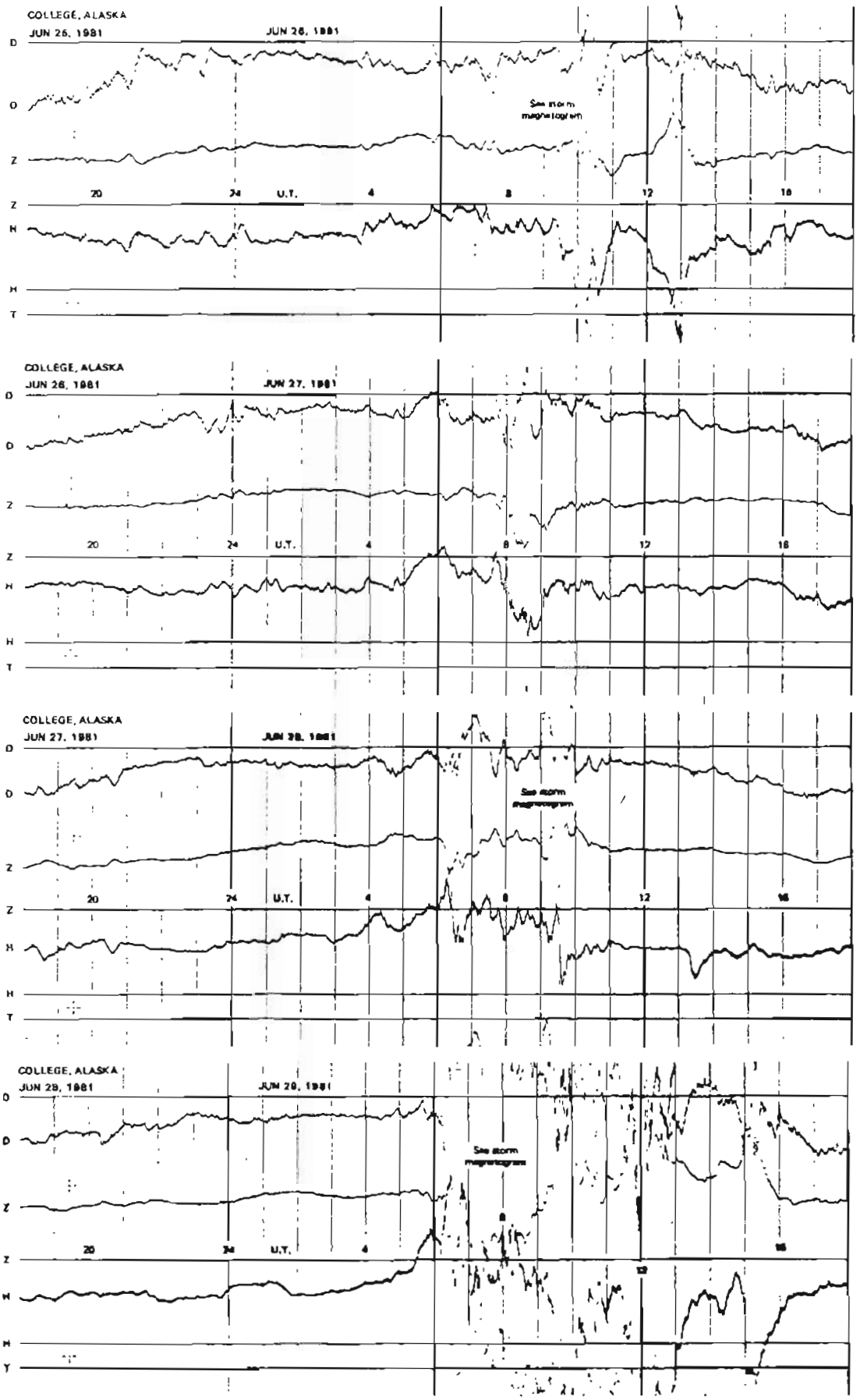
NORMAL MAGNETOGRAMS



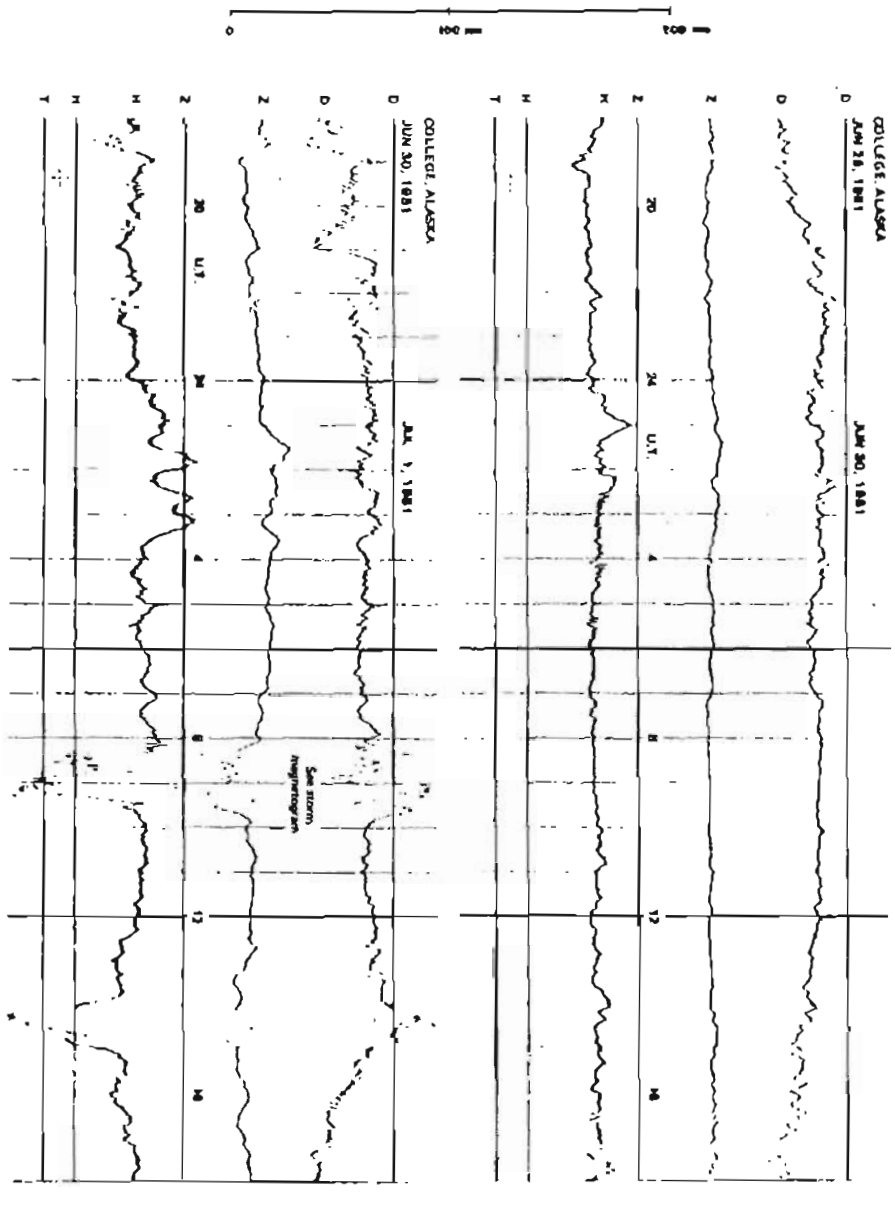
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

STORM MAGNETOGRAMS