

UNITED STATES DEPARTMENT OF THE INTERIOR

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no. 82-0300-F

GEOLOGICAL SURVEY

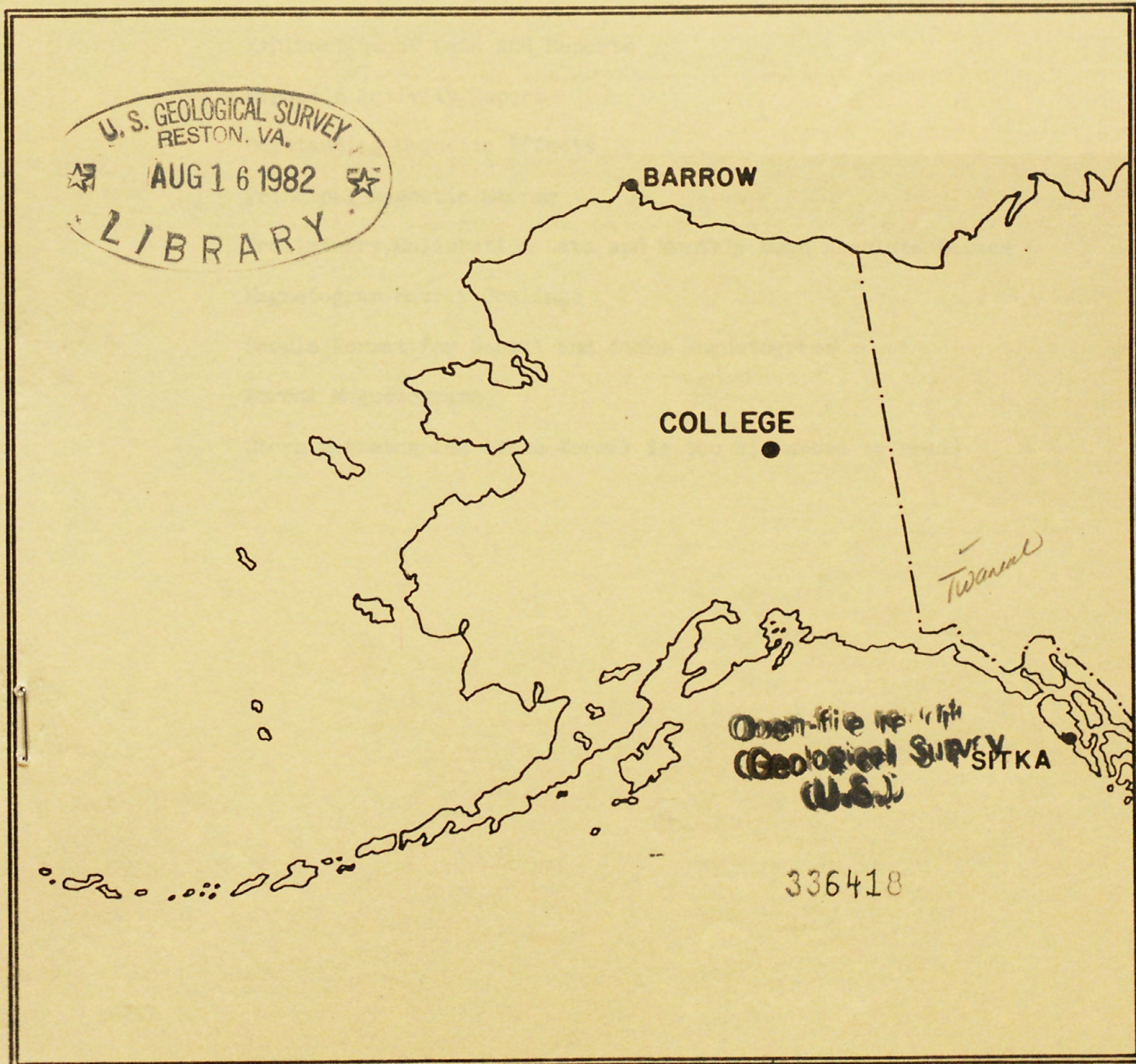
PRELIMINARY GEOMAGNETIC DATA

COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

JUNE 1982

OPEN FILE REPORT 82-0300F



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THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSEND, 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 ELECTROMAGNETISM AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

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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
300 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..... $64^{\circ}51.6'N$
Geographic longitude..... $147^{\circ}50.2'W$
Geomagnetic latitude..... $+64.6^{\circ}$
Geomagnetic longitude..... $+256.5^{\circ}$
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	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 (10 γ)

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 \approx 11	0
11 \approx 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:

$$D = B_D + d \cdot S_D; \quad H = B_H + h \cdot S_H; \quad Z = B_Z + z \cdot S_Z$$

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.

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

JUNE 1982

DATE	K-INDICES									AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM		
1	4	4	4	5	3	3	3	4	30	25	SUDDEN COMMENCEMENTS d h m
2	5	5	5	4	3	2	2	3	29	27	
3	3	3	3	3	3	2	1	2	20	12	
4	3	3	1	1	2	3	1	2	16	09	
5	3	2	2	3	2	2	1	2	17	09	
6	3	4	5	4	3	2	2	2	25	19	
7	2	4	5	6	3	3	2	2	27	26	
8	1	1	1	2	5	4	3	3	20	15	
9	4	4	2	3	3	2	2	2	22	14	
10	5	4	6	6	7	7	2	3	40	67	
11	4	4	6	5	4	4	4	4	35	36	
12	5	4	3	2	7	7	5	4	37	57	
13	5	5	7	6	7	4	6	4	44	74	
14	3	5	6	7	5	4	3	2	35	48	
15	4	4	7	4	5	4	3	3	34	41	
16	3	3	3	4	5	3	2	2	25	19	
17	2	3	3	3	4	1	1	1	18	11	
18	1	3	2	2	1	1	2	2	14	07	
19	2	2	4	4	5	4	3	3	27	22	
20	3	4	5	4	3	4	2	2	27	22	
21	2	3	3	3	3	2	2	2	20	11	
22	3	2	3	4	3	4	3	2	24	16	
23	4	4	5	4	4	3	2	2	28	23	
24	2	2	4	4	4	2	3	4	25	18	
25	5	5	4	3	3	3	0	2	25	22	
26	3	3	2	4	5	4	3	4	28	23	
27	4	4	5	4	5	2	4	4	32	30	
28	4	4	3	5	5	4	3	3	31	28	
29	4	3	2	4	2	4	2	3	24	17	
30	5	6	5	6	5	3	3	4	37	45	
31											

POSSIBLE SOLAR-FLARE
EFFECTS BASED ON
INSPECTION OF GRAMS
ALONE (WITHOUT
REFERENCE TO DATA
FROM OTHER SOURCES)

BEGIN

END

d h m

d h m

K SCALE USED:

LOWER LIMIT FOR K = 9.....

CURRENT SCALE VALUE.....

LOWER LIMIT FOR K = 9.....

D

H

Z

683.8

321.7

3.73

7.79

2550

2510

(mm)

(γ /mm)

(to nearest 10 γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH
JUNE

YEAR
1982

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
04	14XX	pi2	
06	0243	ssc*	
12	1443	ssc*	
14	1743	si	
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-TERRRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 U.S.A.

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA
JUNE 19 82

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	10	01XX	10	5, 6	7	365	1710	1250	16	02	
		12	1443	s.c.*	-24	-1255	-71	12	5, 6						7
								13	3, 5						7
								14	4						7
								15	3						7

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 6-1-82	2400 U.T., 6-30-82	1.0/mm	3.78/mm	27° 46.7 E
H	0000 U.T., 6-1-82	2400 U.T., 6-30-82	7.88/mm		127648
Z	0000 U.T., 6-1-82	2400 U.T., 6-30-82	7.78/mm		551468

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 6-1-82	2400 U.T., 6-30-82	7.9/mm	29.68/mm	23° 41.4 E
H	0000 U.T., 6-1-82	2400 U.T., 6-30-82	44.08/mm		115238
Z	0000 U.T., 6-1-82	2400 U.T., 6-30-82	48.58/mm		540628

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 57.3 E	129858	553898

* COMPUTED FROM ^{FIVE} ~~TEN~~ QUIETEST DAYS DURING MONTH.

DAYS USED: JUN 4, 5, 17, 18, 21 ** (NOTE BELOW)

** DUE TO VERY DISTURBED MAGNETIC CONDITIONS DURING THE MONTH OF JUNE 1982, ONLY FIVE DAYS ARE USED TO COMPUTE THE MONTHLY MEAN ABSOLUTE VALUES.

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225OBSV. YEAR MONTH ELEMENT
CO 82 JUN DValues 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.

C	Q	S	Temp	Hr	01	02	03	04	05	06	07	08	09	10	11	12	Hr	13	14	15	16	17	18	19	20	21	22	23	24	SUM	
				01	118	81	40	52	14	114	48	-25	-32	0	4*	109	01	93	113	163	210	270	292	303	236	156	42	36	118	2555	
				02	97	-3	-9	122	83	72	34	56	120	9	16	45	02	76	68	101	169	241	275	260	191	76	53	32	26	2210	
				03	26	24	15	73	71	52	135	128	55	63	61	-4	03	27	73	120	198	265	251	234	195	200	106	55	11	2434	
				04	-1	21	16	16	78	106	94	99	87	69	67	61	04	68	72	126	176	221	272	272	264	196	157	118	27	2682	
				05	-19	-30	-8	28	64	66	71	88	63	61	59	86	05	63	117	149	174	204	233	228	199	142	80	44	14	2176	
				06	-4	0	12	13	48	23	6	26	85	35	-52	62	06	34	92	136	179	270	339	311	220	165	65	19	38	2122	
				07	27	33	44	37	86	8	37	-244*	-174*	-78*	-38*	61	07	76	66	127	191	305	318	272	203	130	75	28	-7	1583	
				08	-2	12	42	66	92	79	100	92	89	88	86	49	08	63	102	128	220	318	316	268	152	134	62	-11	-6	2539	
				09	17	6	11	70	98	49	60	31	35	33	4	14	09	32	58	88	166	198	254	254	210	152	82	27	6	1955	
				10	16	-1	-26	58	37*	37*	-519*	-162*	-42*	46	54	13*	10	330*	180*	449*	260*	268*	201	317	297	223	151	148	22	2357	
				11	18	38	50	57	46	37*	44*	5*	3	44	78	52	11	-11*	96	111	148	187	308	376	225	122	101	131	165	2431	
				12	187	66	61	40	55	106	65	139	75	73	59	56	12	55	50	97	180*	379*	291*	116*	232	271	103	43	34	2833	
				13	124	43	-48	45	-34*	-26*	-14	-233*	-201*	34	25	-114*	13	-98*	214	136	42	156	443	624*	392	171	288	174	-114*	2029	
				14	-23	28	39	-12	57	-67*	-162*	-88	53*	-16	53*	13*	14	-67*	70	114	175	224	284	273	200	149	124	103	49	1573	
				15	60	41	15	-4	25	66	-26*	-106*	-63	72	50	93	15	101	90	164	247	305	304	247	224	151	58	86	92	2292	
				16	78	57	44	46	57	85	98	95	69	68	119	92	16	80	73	139	195	261	254	233	178	116	93	89	78	2697	
				17	54	53	70	56	86	103	183	93	67	78	58	126	17	106	92	166	210	242	244	242	205	139	81	64	47	2865	
				18	29	12	39	45	54	125	100	103	82	47	80	94	18	119	145	166	115	225	204	233	231	162	139	72	44	2665	
				19	21	40	64	96	109	116	80	11	27	17	-5	70	19	1	74	241	326	443	401	352	269	109	-13	-36	-49	2764	
				20	-15	23	89	78	-24	26	62	-26*	-170*	-22	54	52	20	16	23	132	223	320	303	282	268	128	38	24	59	1943	
				21	8	24	43	76	83	84	113	68	-17	42	41	32	21	62	36	136	181	245	275	272	245	200	126	62	18	2455	
				22	-12	8	36	72	91	120	113	71	25	10	5	4	22	21	114	225	219	396	346	330	197	160	114	88	79	2832	
				23	32	-15	53	128	73	112	-292*	-140*	-11	-140*	-93*	-89	23	-3	157	176	244	299	368	342	226	166	98	55	30	1776	
				24	13	35	21	-4	7	-41	34	47	-69	-101*	-70*	-21*	24	90	166	233	238	248	248	222	256	319	276	-157*	-66	1924	
				25	-26	-44	-118	59	17	39	-10	-110	-56	-101*	-23	-28	25	61	82	200	162	188	246	232	188	142	91	20	27	1238	
				26	34	16	5	44	9	25	24	52	2	-10	5	40	26	99	107	144	390	374	458	283	214	165	76	137	149	2842	
				27	88	53	-54*	-34	-93*	-1	26*	2*	49*	70	31	50	27	-62*	111	72	116	150	187	208	311	170	16	263	-7	1722	
				28	-36	-45*	-85*	-49	-45	-41	-125*	-26	-26	129*	-32	14	28	49	8	149	230	404	370	231	250	129	197	129	77	1856	
				29	50	50	59	63	54	54	82	74	56	8	150	121	29	35	76	123	193	234	283	232	216	200	122	115	25	2675	
				30	-77	-43	-41	6	-4	-418*	-181*	-148*	-24	-7	-109*	121*	30	42	135	113	165	234	343	263	226	160	79	75	91	1001	
				31													31														

SCALED BY
CHECKED BY
SIGNS RE-
VIEWED BY
PUNCHED BYTKC, LYT
EAS, JEP
JEPPreliminary base-line and scale values:
Interval Beginning
Base-line Value
Scale Value

() Interpolated

[] Significant portion of hour interpolated.

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

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

[] 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 67026

MONTHLY MEAN 93

DATES WITH GAPS:

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225OBSV. YEAR MONTH ELE-
CO 82 JUN 2
MENTValues 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 88th universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Time	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
		01	368	359	338	321	326	309	225	189	279	320	355	275	01	269	292	314	303	273	252	251	241	219	241	299	340	6958	
		02	332	319	325	345	379	393	343	211	152	281	277	266	02	249	240	266	294	297	299	286	275	244	238	285	321	6937	
		03	350	360	361	387	372	370	365	324	312	317	267	198	03	211	225	294	307	299	292	291	294	307	298	301	308	7410	
		04	321	367	349	369	377	362	329	316	304	298	300	291	04	292	292	297	245	251	308	308	302	280	284	288	310	7440	
		05	332	321	339	357	359	345	337	353	340	319	282	290	05	298	297	306	310	305	318	326	321	309	299	290	295	7650	
		06	304	311	322	310	327	369	315	234	324	329	310	266	06	228	306	336	352	349	349	326	310	294	274	275	307	7427	
		07	349	382	447	436	384	346	235	89	368	404	503	304	07	312	316	342	393	325	284	297	285	288	291	300	300	7980	
		08	310	307	309	309	314	316	321	312	314	309	311	312	08	389	315	248	274	291	224	231	268	295	290	293	313	7175	
		09	320	319	325	362	370	381	370	327	318	307	291	335	09	361	348	234	277	329	331	306	289	280	280	275	281	7616	
		10	296	304	314	259	63	-108*	-121*	284	188	302	341	428*	10	302*	595*	568*	688*	479*	286	321	285	279	290	321	320	7288	
		11	320	333	378	369	310	191	298	145	302	290	305	393	11	336	287	311	327	351	371	233	211	245	284	317	369	7276	
		12	332	376	373	350	393	348	350	346	311	264	296	12	327	292	241	751*	701*	725*	480	258	211	252	300	398	8936		
		13	479	423	382	309	287	228	332	145*	461*	397	392	491	13	302	378	548	321	307	332	208*	222	303	314	357	354	8266	
		14	303	340	347	354	307	341	250	228	184	339	461*	581*	14	333	316	341	381	321	308	263	238	269	294	302	320	7721	
		15	331	350	362	364	376	353	235	153	284	309	310	343	15	379	404	378	286	262	269	269	296	289	284	319	345	7550	
		16	358	333	334	322	321	366	371	357	347	330	261	252	16	333	397	313	231	261	327	329	306	308	304	319	326	7706	
		17	330	333	336	328	351	390	392	352	332	323	287	193	17	159	244	270	303	312	319	310	300	297	298	300	309	7368	
		18	308	310	316	311	347	398	374	336	279	311	315	314	18	312	320	317	315	319	326	319	308	290	289	269	286	7589	
		19	295	307	316	338	349	361	380	287	303	342	325	299	19	337	476	417	282	275	250	204	111	165	247	323	316	7305	
		20	314	361	417	431	402	363	302	259	336	392	394	333	20	319	381	451	390	321	330	330	294	271	286	302	329	8308	
		21	339	330	351	361	349	362	387	351	297	384	356	339	21	311	275	289	326	361	342	316	319	320	314	312	335	8020	
		22	340	364	401	427	421	411	398	362	338	332	288	316	22	321	372	359	272	268	238	258	264	296	316	339	365	8046	
		23	417	465	455	358	203	66*	3	328	318	274	331	329	23	353	401	302	248	239	236	238	227	260	286	304	330	6971	
		24	354	351	338	347	374	360	391	349	272	236	328	385	24	456	400	314	301	318	310	300	318	331	362	285	298	8078	
		25	321	336	331	346	394	376	331	256	298	336	364	369	25	320	265	334	300	330	338	324	304	298	304	290	308	7773	
		26	325	320	342	382	379	390	386	392	355	310	314	320	26	338	292	187	180	144	91	18	75	193	216	334	368	6651	
		27	330	228	232	306	299	268	148	239	230	266	328	292	27	263	194	284	322	334	344	344	368	315	258	391	370	6953	
		28	354	333	331	348	285	211	383	359	350	286*	141	280	28	327	301	237	270	268	234	214	274	256	306	306	348	7002	
		29	384	392	343	368	357	345	364	348	321	318	286	95	29	234	296	327	324	311	226	219	267	293	294	308	329	7349	
		30	347	348	366	346	186*	-66*	66*	140	234	225	310	470	30	399	431	331	326	306	247	196	247	258	275	311	362	6661	
		31													31														
SCALED BY	TAC, LYT	Preliminary base-line and scale values:															<input type="checkbox"/> Interpolated		<input type="checkbox"/> Scaling uncertain because of magnetic storm.		MONTHLY SUM	225410							
CHECKED BY	EAS, JEP	Interval Beginning	Base-line Value	Scale Value													<input type="checkbox"/> Significant portion of hour interpolated.		<input type="checkbox"/> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.		MONTHLY MEAN	313							
SIGNS REVIEWED BY	JEP													<input type="checkbox"/> No record, or no values available because of faulty record.				DATES WITH GAPS											
PUNCHED BY														* Derived from STORM Mghp., converted to Normal Mghp.															

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

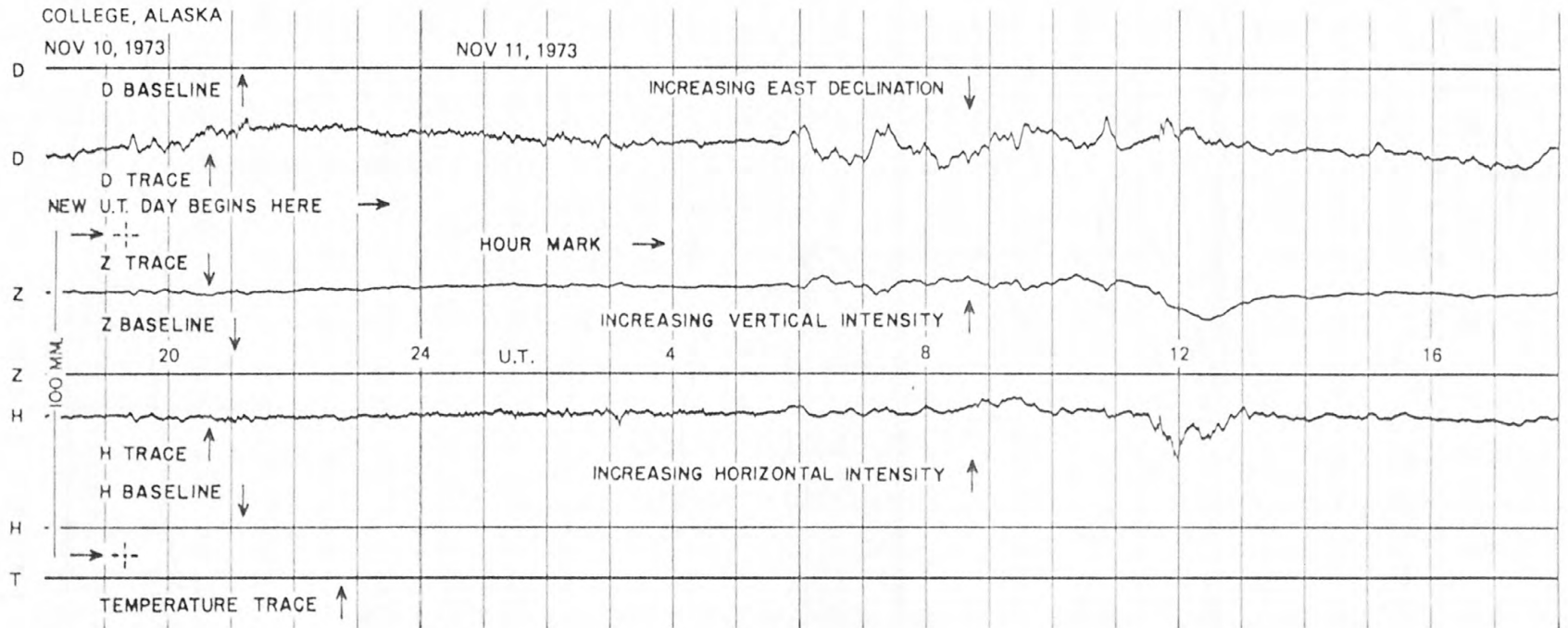
OBSY. YEAR MONTH ELEMENT
CO 82 JUN H

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.

C	Q	S	Tr	Hr	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM
				01	400	444	358	468	474	461	298	196	331	234	-101	171	224	248	226	238	84	178	151	159	144	191	231	356	6164
				02	496	351	566	475	313	310	336	313	197	319	216	98	137	153	220	213	242	241	211	194	221	224	223	274	6543
				03	303	292	385	449	354	317	329	284	268	266	253	199	131	210	281	239	251	272	251	242	220	225	237	264	6522
				04	335	410	381	369	319	276	262	266	261	271	279	278	281	270	237	183	244	279	258	237	226	230	238	280	6670
				05	217	266	310	326	270	292	314	334	329	376	357	335	298	270	274	255	274	292	274	255	240	240	259	276	6933
				06	290	279	295	314	366	486	751	677	496	429	386	294	227	318	326	330	311	297	320	308	275	266	259	289	6589
				07	320	357	368	372	322	459	565	428	408	180*	-103*	268	309	303	208	181	163	272	292	278	267	264	244	245	6970
				08	262	261	271	264	258	270	260	274	279	283	302	317	76	74	230	130	55	209	252	262	219	220	236	251	5515
				09	268	301	348	318	330	389	332	304	345	373	394	351	290	232	253	310	331	327	321	300	262	257	253	267	7456
				10	295	282	546	672	559	511*	369*	46*	375	417	320	75*	-553*	-275*	-457*	-287*	-49*	350	304	281	273	244	242	234	4774
				11	247	343	412	526	651	590	441	69*	336	303	160	-95*	213	260	300	299	267	175	109	179	184	207	278	386	6840
				12	594	404	483	422	294	380	322	378	304	217	194	222	185	241	86*	-502*	44	-140*	-230*	9	151	166	231	259	4714
				13	302	409	462	506	452	475	460	131*	381*	352	184	-355*	-310*	-88	149	141	166	3	-190*	124	203	267	251	254	4729
				14	242	275	278	408	590	574	618	512	253	-11	13*	-429*	237	201	189	122	204	216	140	166	243	279	262	237	5819
				15	293	233	311	447	463	520	419	-112*	329	343	407	276	221	21	-237*	174	96	107	295	261	243	259	226	266	5861
				16	301	281	232	238	307	356	342	325	318	303	261	156	99	-58	147	158	209	313	288	278	259	261	251	245	5870
				17	267	253	258	286	314	407	373	316	297	290	267	161	74	142	255	279	292	304	291	281	262	252	251	240	6412
				18	252	262	269	327	380	364	381	343	326	288	272	276	288	287	204	287	275	252	248	237	251	239	247	236	6901
				19	256	267	298	292	306	350	396	439	297	315	222	278	299	81	-112*	-29	-28	33	-3	6	75	161	196	270	4665
				20	352	434	407	391	456	615	533	291	282	345	226	283	293	200	226	159	189	298	223	199	224	234	256	283	7399
				21	277	258	292	271	304	368	409	452	417	323	298	263	244	201	223	320	343	312	285	271	237	235	266	260	7119
				22	276	282	354	327	312	352	426*	384*	348	274	194	230	206	113	197	154	94	199	244	302	261	245	246	274	6294
				23	319	389	542	641	678	574*	484*	404	407	329	295	196	174	79	54	123	113	194	229	252	238	232	231	283	7460
				24	330	287	267	311	274	330	322	394	450	346	330	180	98	110	204	271	292	272	260	218	178	137	178	304	6343
				25	308	302	541	577	295	206	286	408	149	251	272	247	165	140	168	235	280	260	239	231	228	210	212	220	6430
				26	228	244	313	308	366	430	387	368	430	382	328	271	205	140	-35	-224*	-63	-73	12	61	72	176	247	354	4927
				27	489	746	601	495	588	531	436	280	436	126	230	200	31*	130	288	300	286	270	235	136	89	247	312	385	7867
				28	386	451	503	447	560	574*	435*	410	336	-106*	22	250	167	-27	146	180	-9	87	245	223	257	217	251	236	6241
				29	370	481	392	266	240	258	299	319	288	261	223	217	283	248	286	236	215	97	219	245	211	187	227	189	6257
				30	219	349	427	540	591*	269*	382*	448	310	210	48	-212*	14*	109	242	210	174	83	181	222	206	198	225	300	5745
				31																									

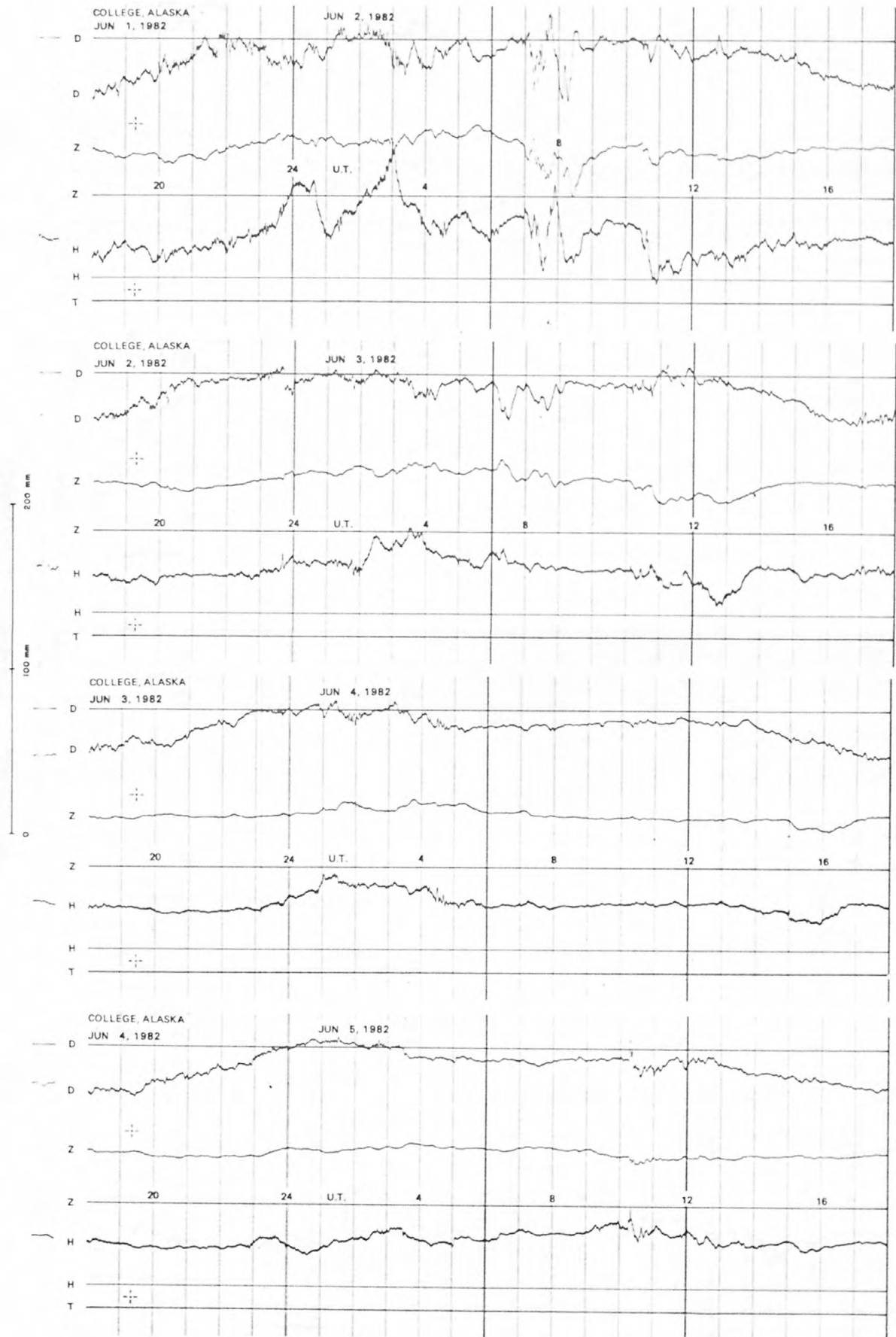
SCALED BY	TKC, LYT	Preliminary base-line and scale values:	() Interpolated	[] Scaling uncertain because of magnetic storm.	MONTHLY SUM	190029
CHECKED BY	EAS, JEP	Interval Beginning	[] Significant portion of hour interpolated.	<> Record all sheets for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY MEAN	264
SIGNS REVIEWED BY	JEP	Base-line Value	[] No record; or no values available because of faulty record.		DATES WITH GAPS:	
PUNCHED BY		Scale Value	* Derived from STORM Mgh., converted to Normal Mgh.			

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

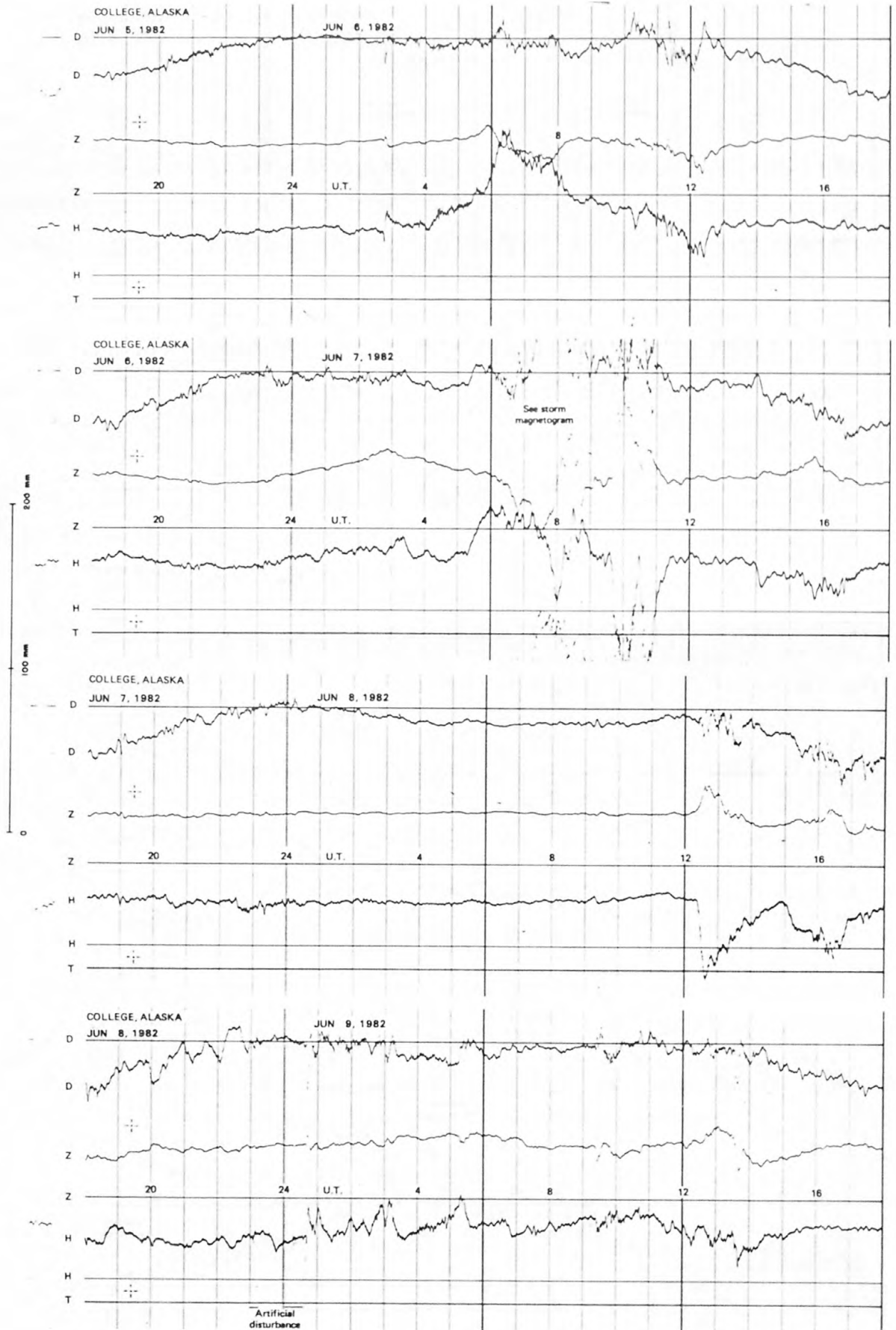


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

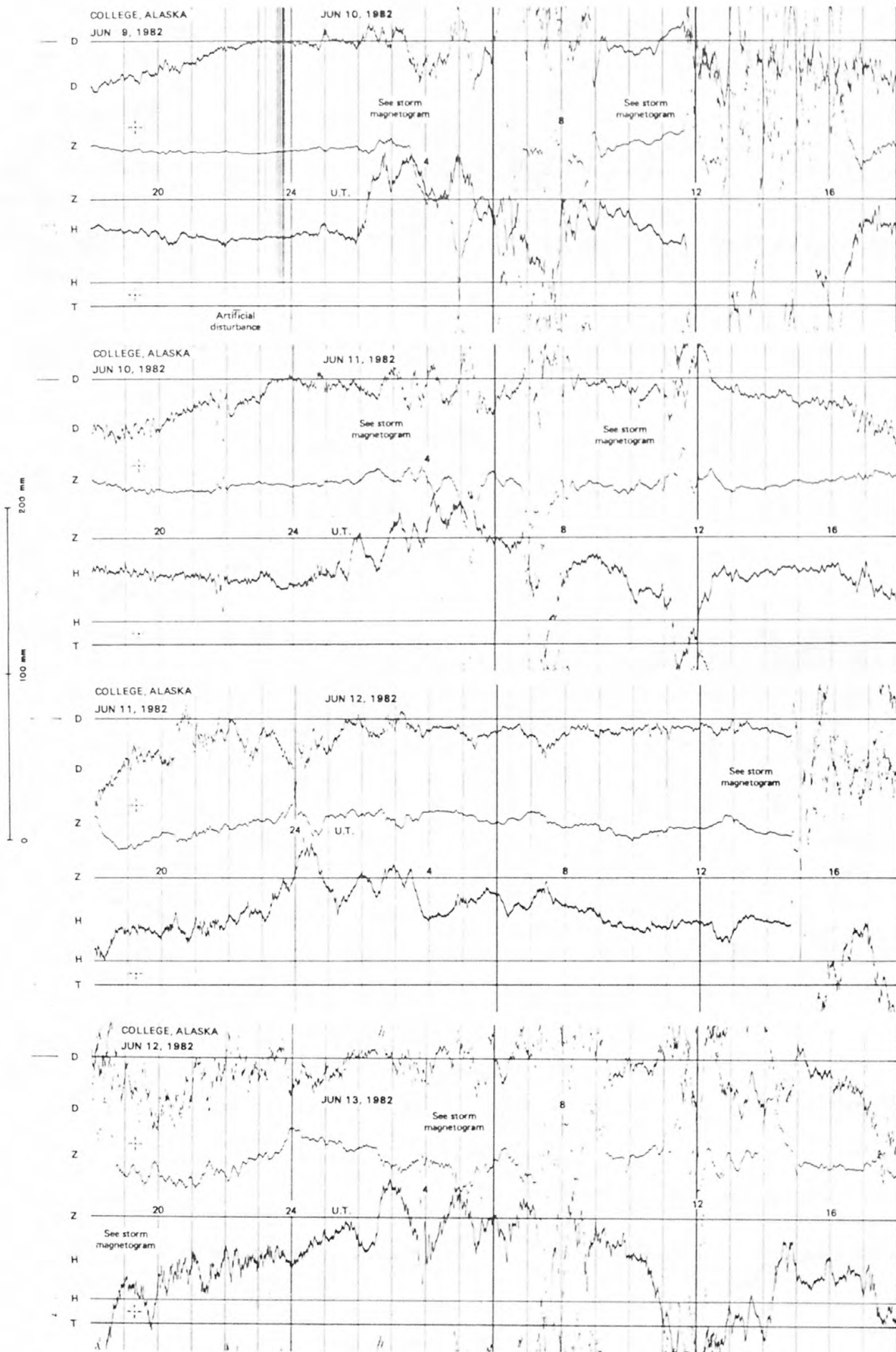
NORMAL MAGNETOGRAMS



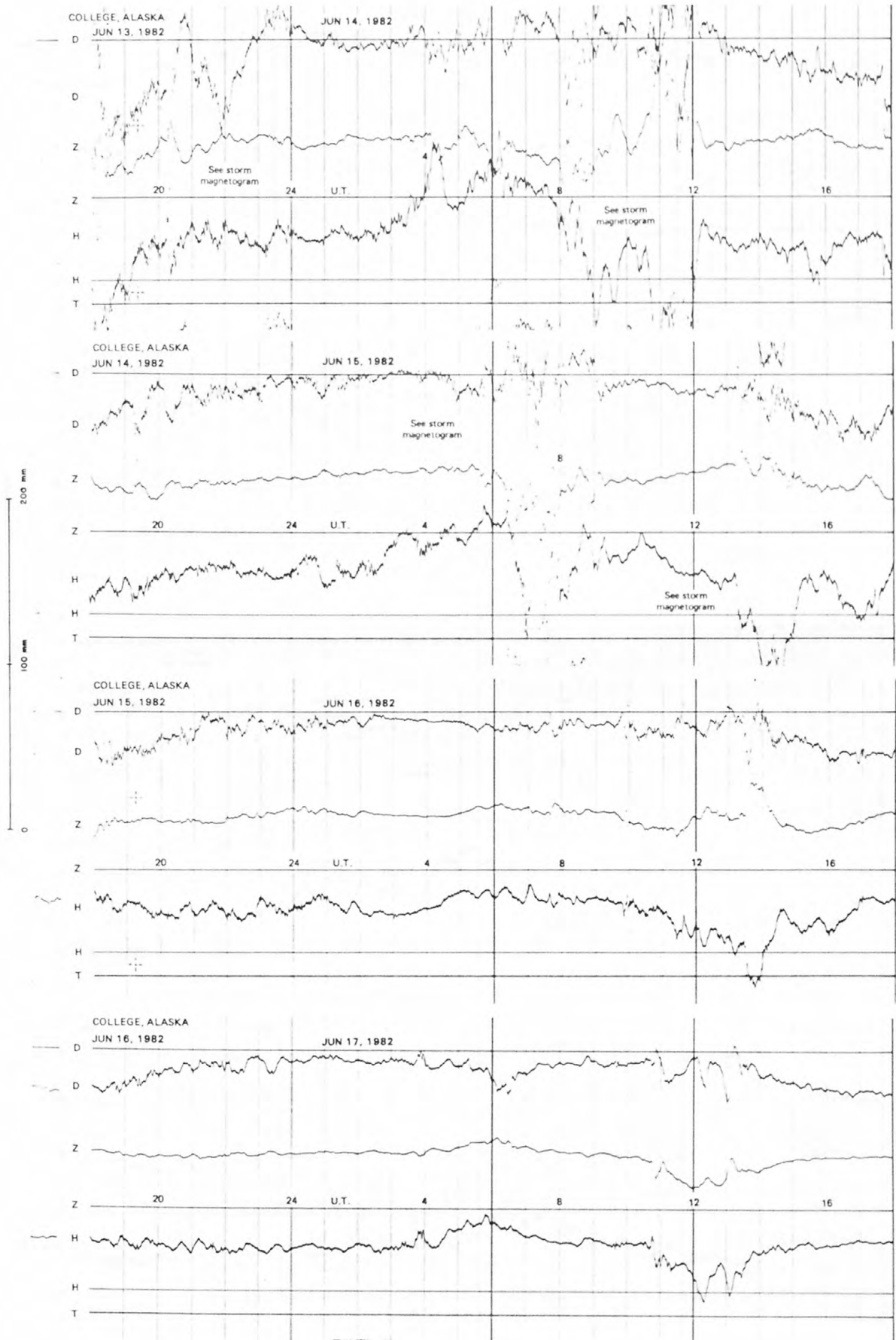
NORMAL MAGNETOGRAMS



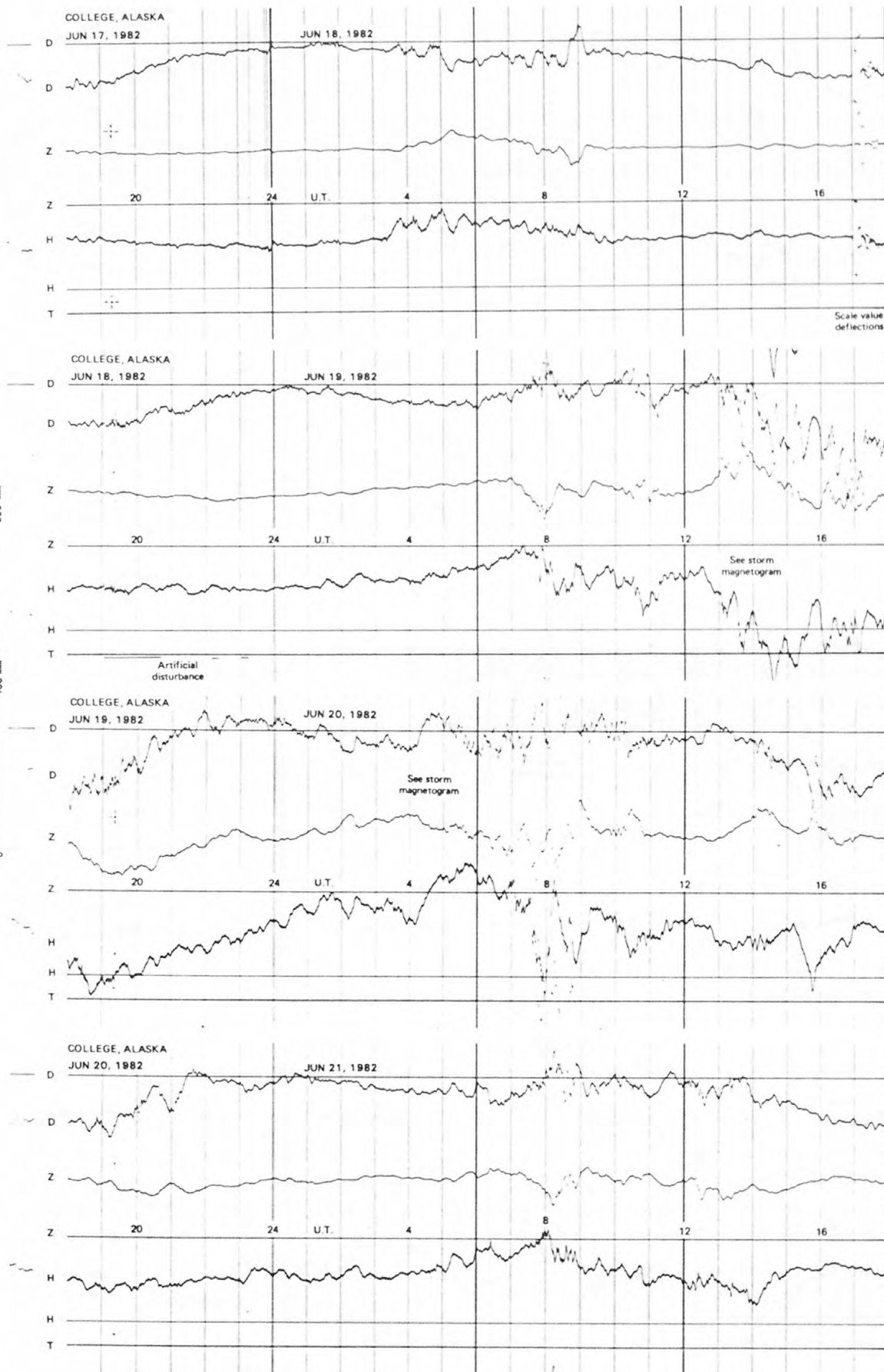
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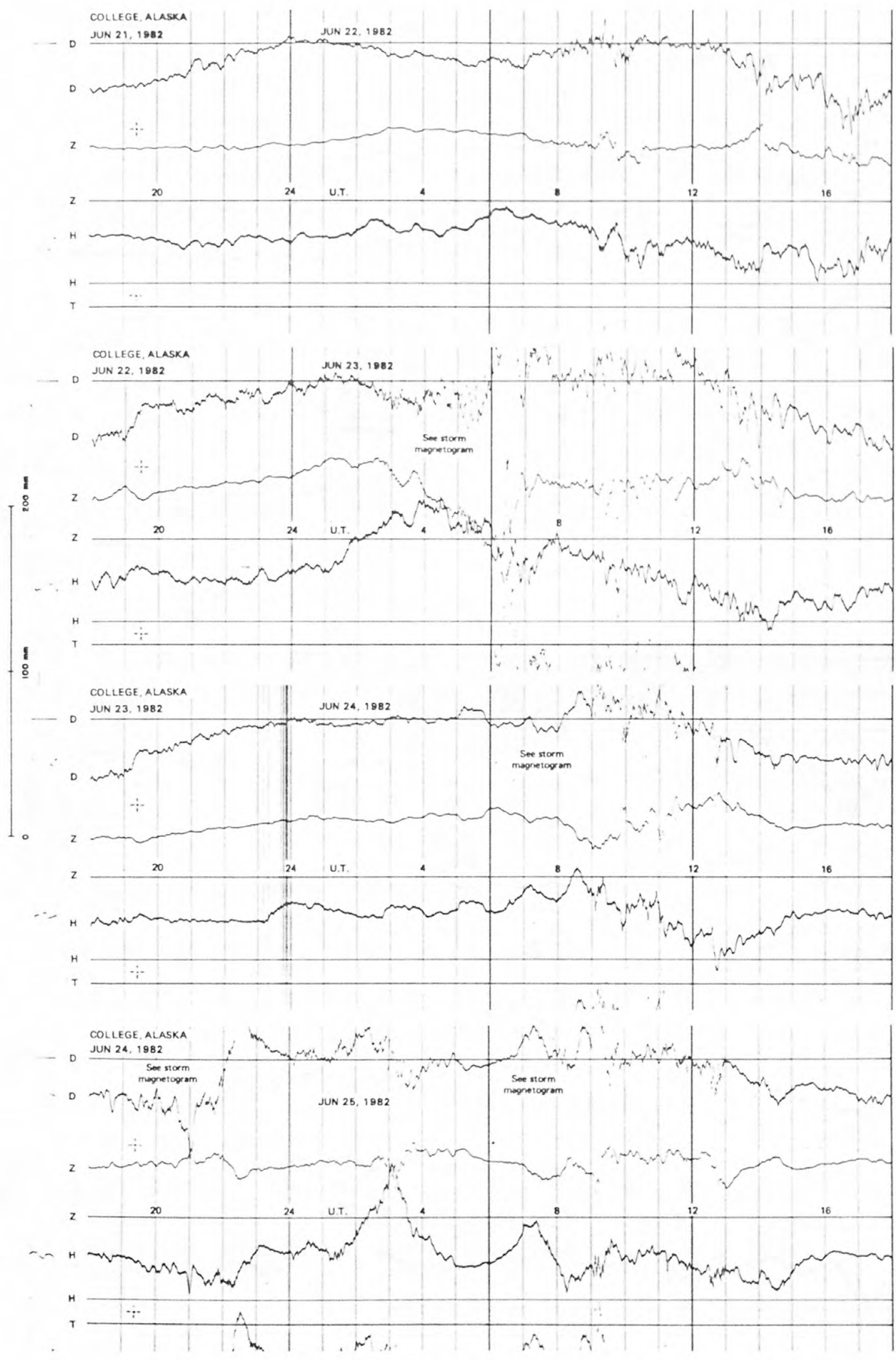
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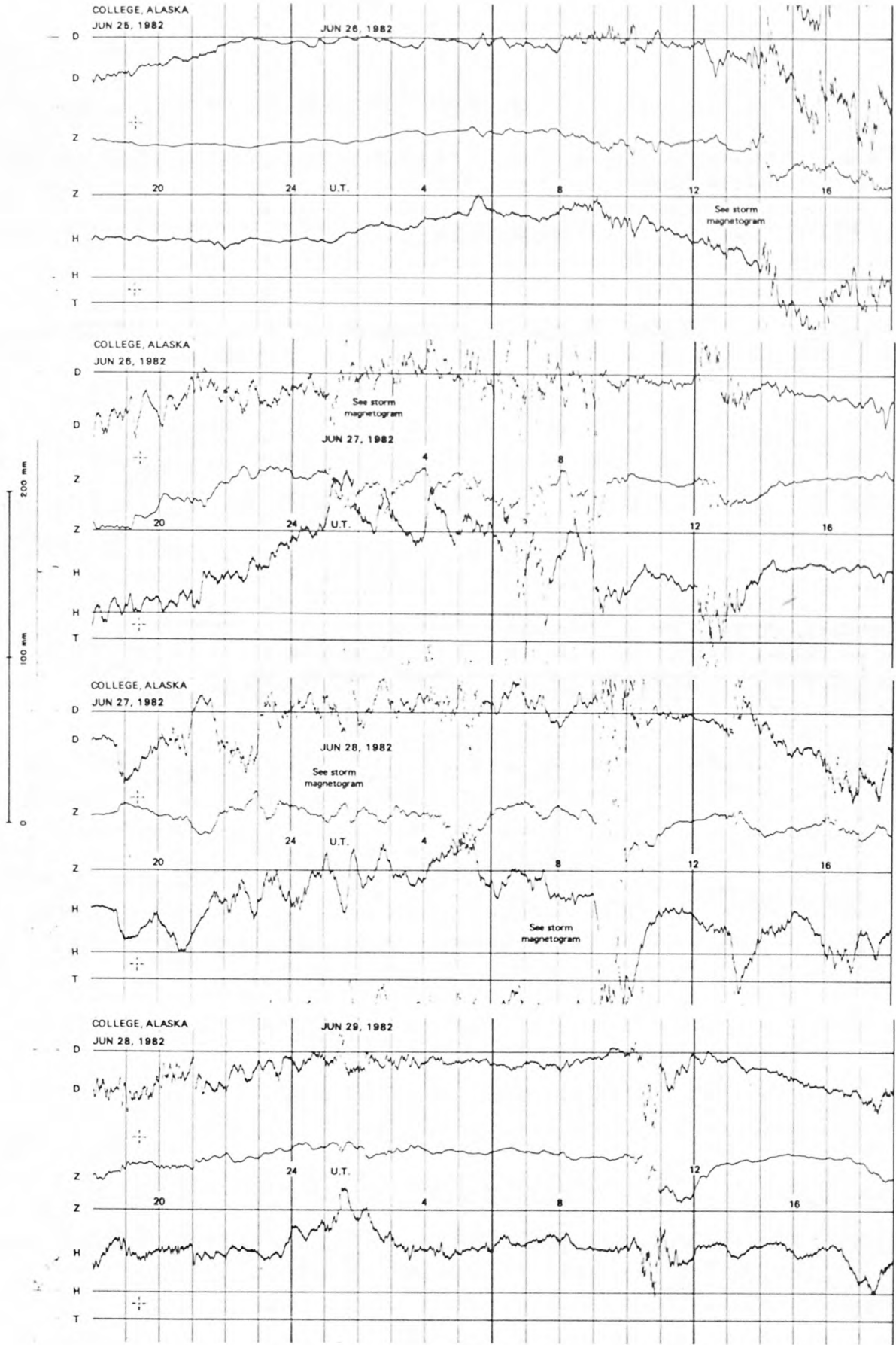
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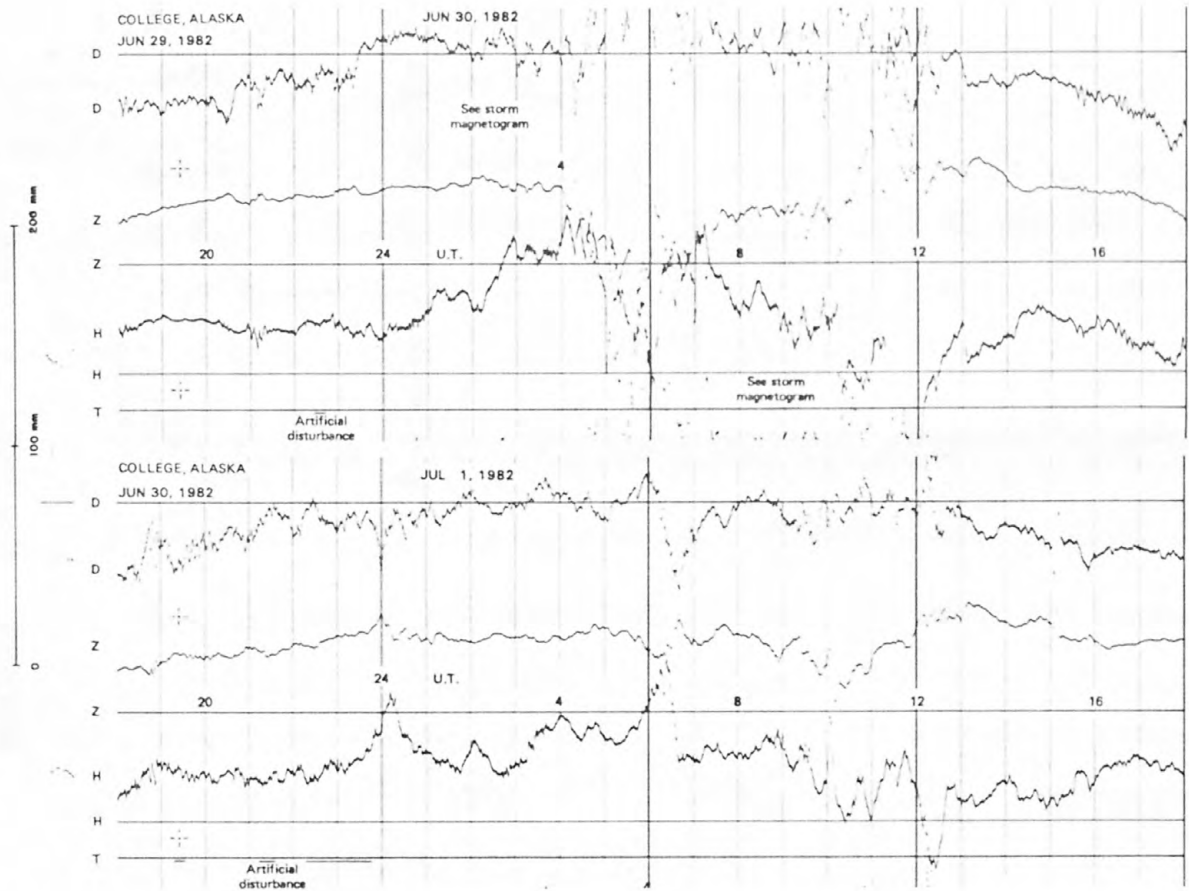
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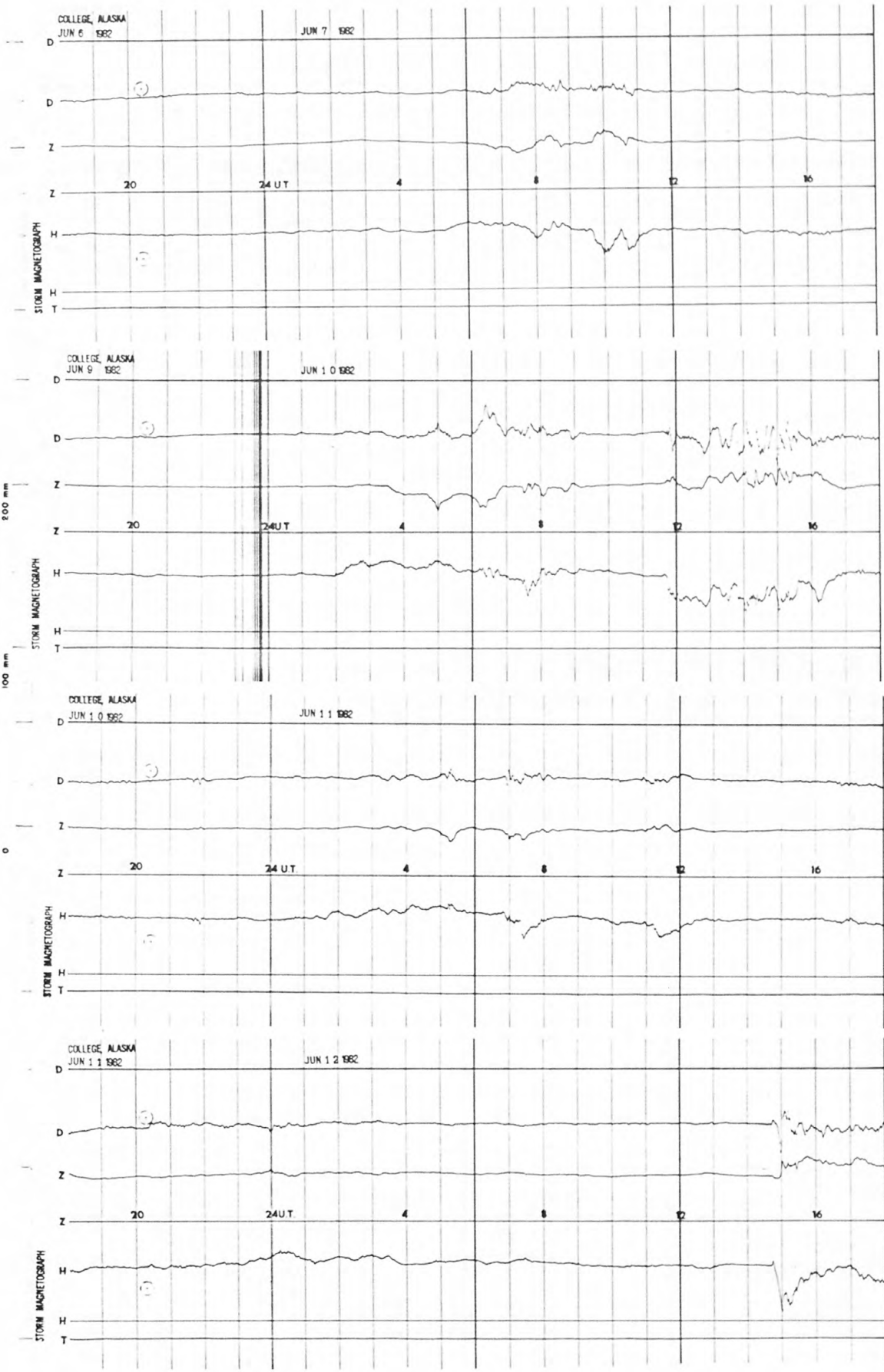
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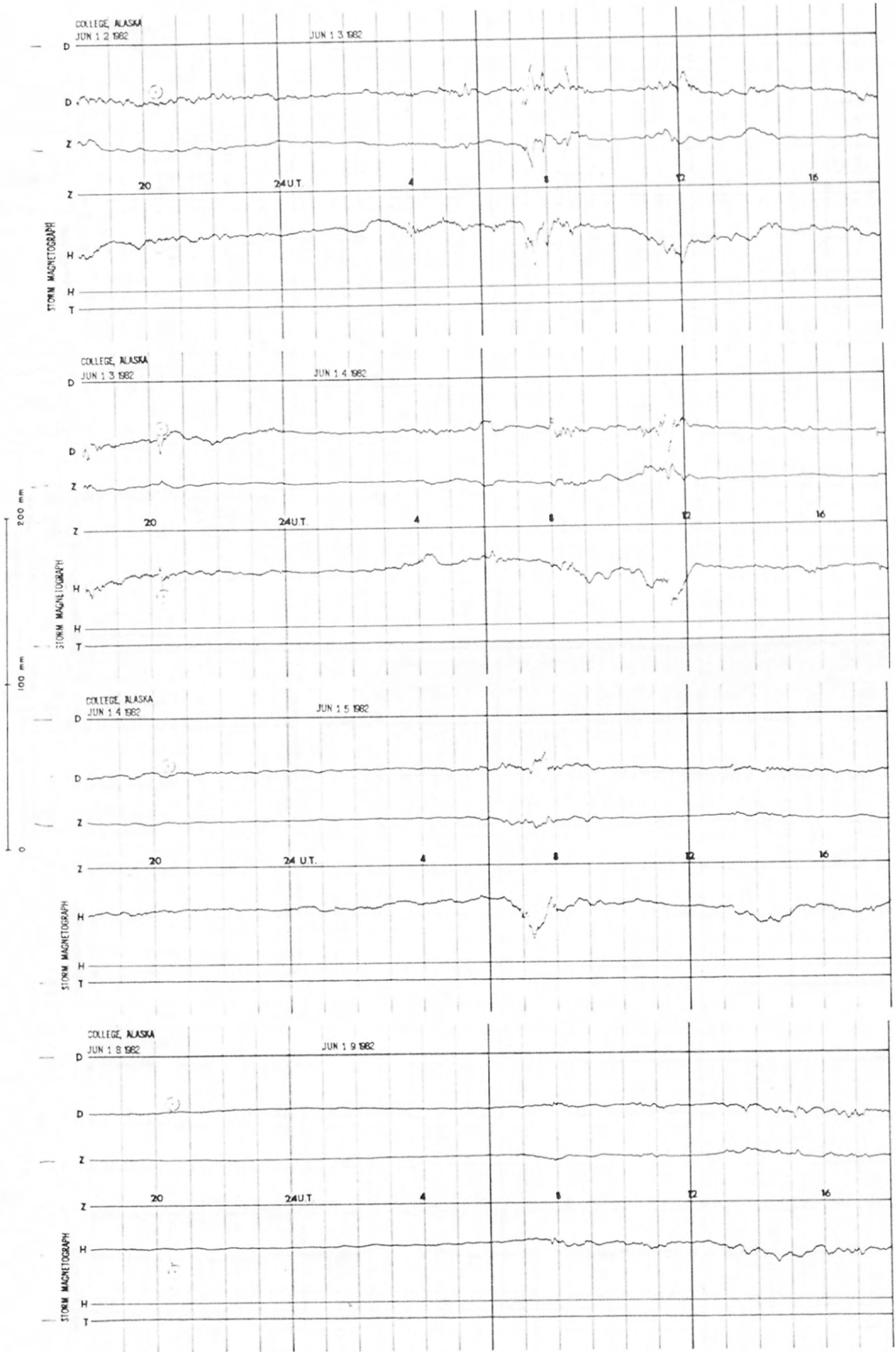
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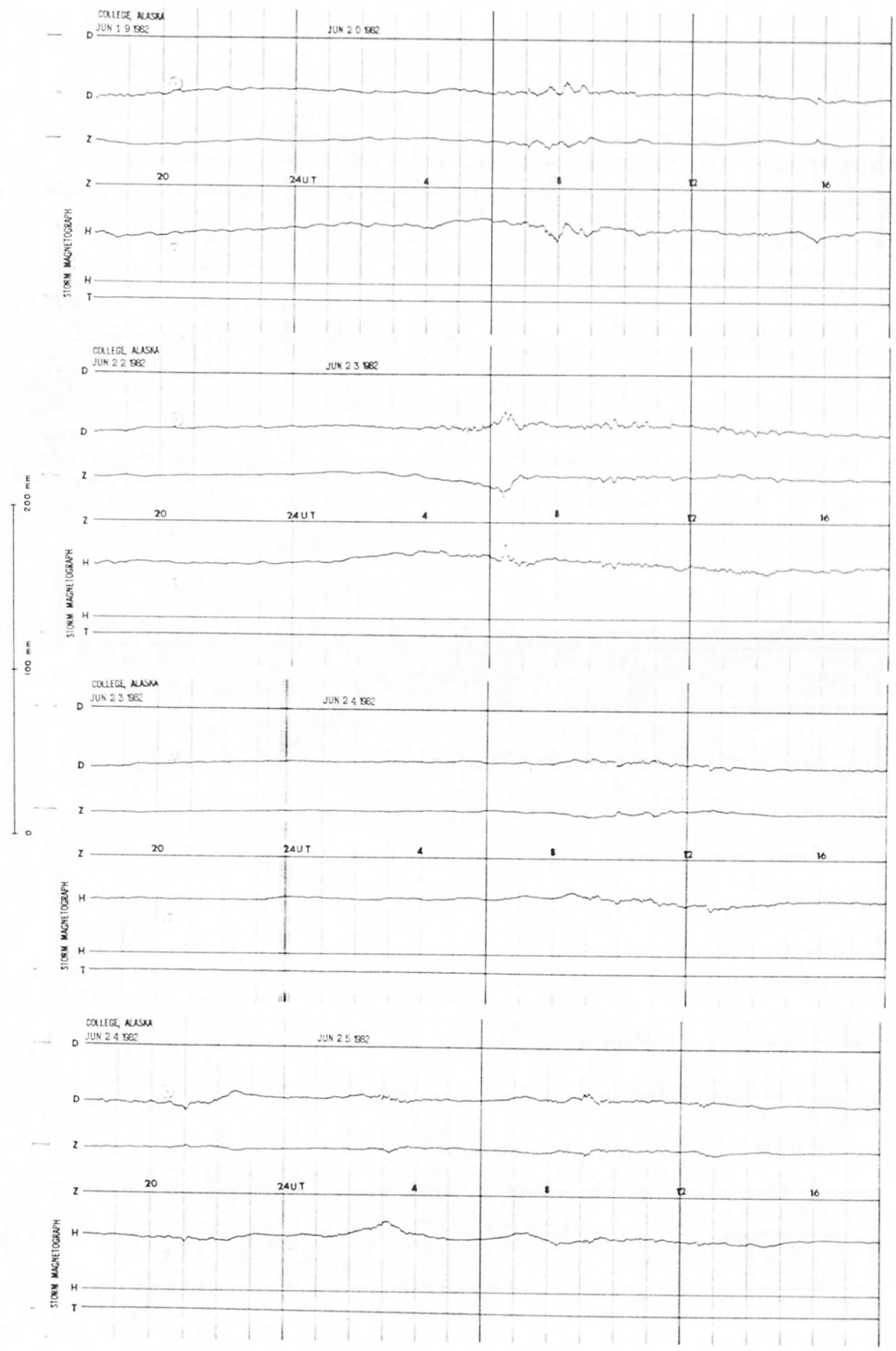
STORM MAGNETOGRAMS



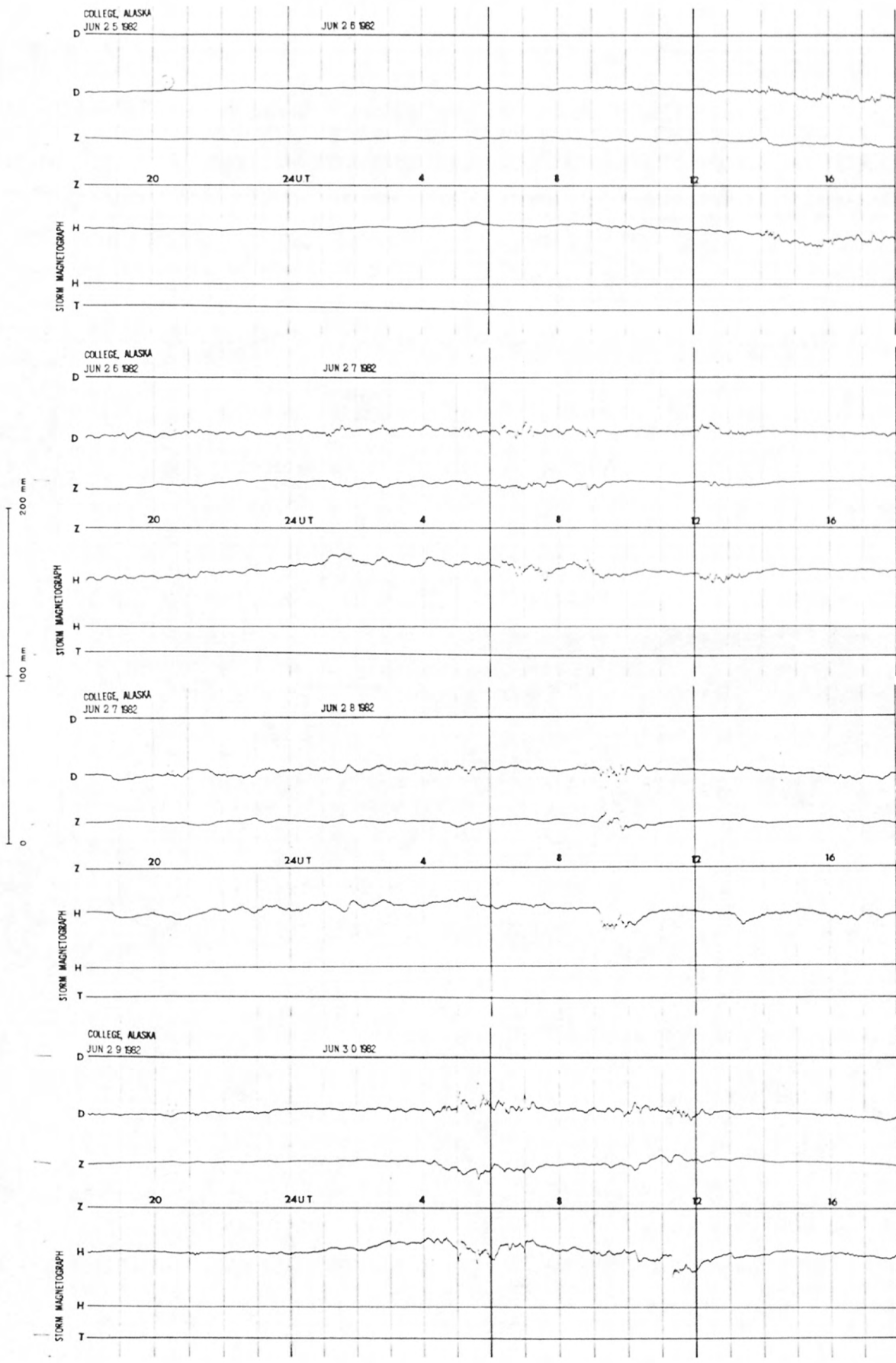
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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