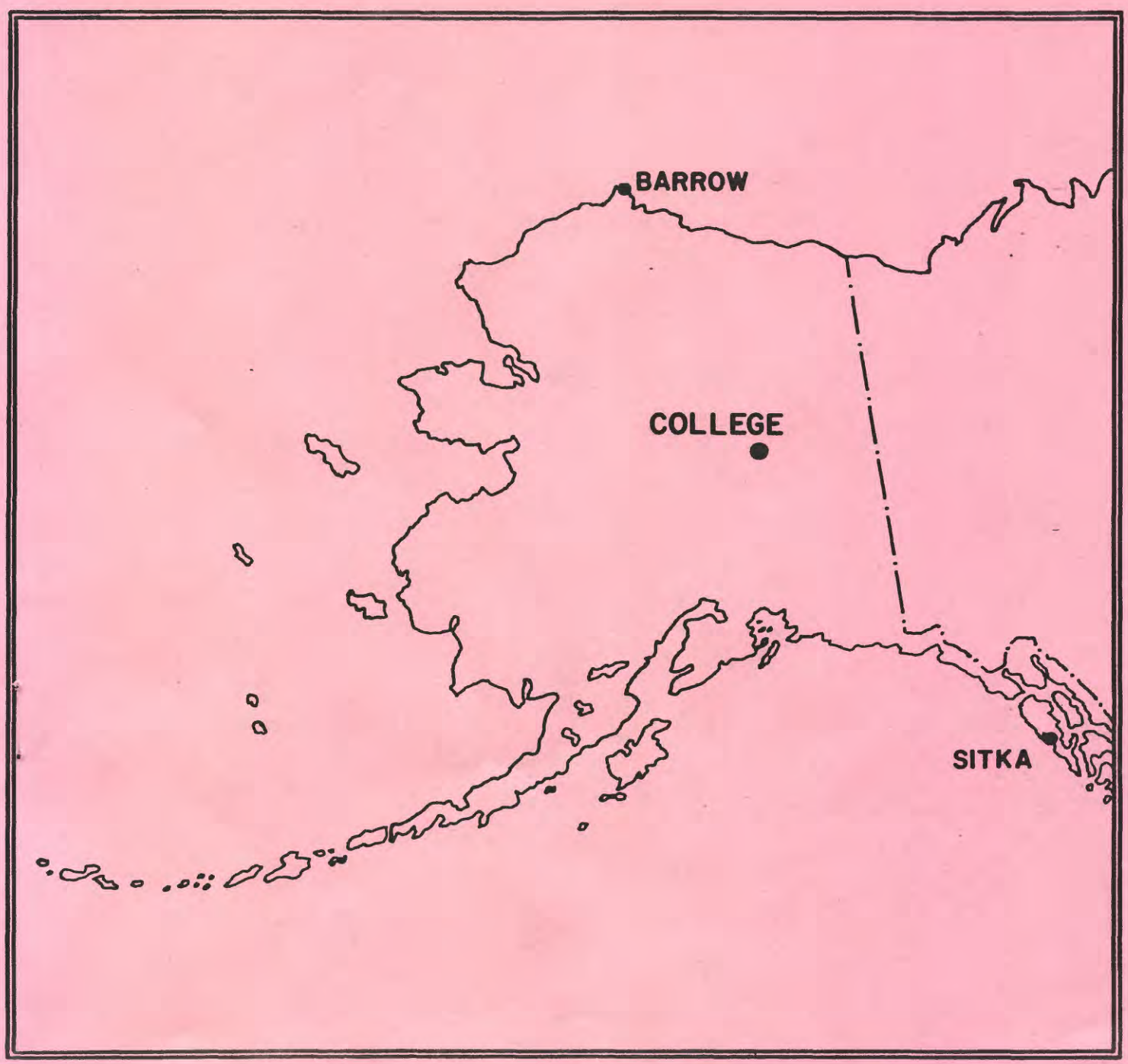
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

AUGUST 1985

OPEN FILE REPORT 85-0300H



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: AUGUST 1985

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	3	3	2	2	6	5	2	3	26	24
2	3	3	3	4	2	4	3	3	25	17
3	2	2	1	2	1	2	1	1	12	05
4	2	3	4	2	2	1	1	1	16	09
5	1	1	1	0	1	0	1	1	06	02
6	1	1	1	0	0	0	1	1	05	02
7	1	1	1	0	0	0	0	1	04	02
8	2	2	1	2	3	1	1	2	14	07
9	1	1	0	0	0	0	1	1	04	02
10	2	2	4	4	2	1	1	1	17	11
11	2	2	0	2	1	0	0	0	07	03
12	1	0	2	5	4	4	4	4	24	21
13	6	5	7	7	6	3	3	4	41	68
14	3	3	6	6	4	3	1	2	28	30
15	2	3	5	5	5	2	2	2	26	23
16	2	2	2	3	3	4	1	1	18	11
17	1	2	3	4	4	5	1	1	21	17
18	1	2	3	3	3	2	2	3	19	11
19	3	4	3	2	2	1	1	2	18	11
20	3	4	4	1	4	4	2	2	24	18
21	3	2	3	3	1	1	2	1	16	09
22	3	3	5	6	4	6	3	2	32	36
23	4	4	1	6	4	2	2	2	25	23
24	3	2	2	1	2	1	1	1	13	06
25	2	5	6	5	3	3	2	2	28	28
26	2	3	3	2	2	3	2	2	19	10
27	4	4	3	6	2	3	3	1	26	24
28	2	2	5	5	2	5	3	3	27	24
29	3	4	5	5	6	3	4	2	32	33
30	2	3	0	0	1	2	2	2	12	06
31	2	4	6	7	4	6	4	2	35	49

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.....	675.7	322.2		(mm)
CURRENT SCALE VALUE.....	3.72	7.80		(γ/mm)
LOWER LIMIT FOR K = 9	2510	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED Jack B. Townshend, Chief, College Observatory
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

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

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: AUGUST

YEAR: 1985

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
03	17xx	pc 5	
05	14xx	pi 2	
07	07xx	pi 2	
12	0937	ssc*	
24	22xx	pc 3	

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

AUGUST 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	12	0937	s.c.*	+20	+112	+18	13	3, 4	7	179	1820	1030	14	18
		21	22XX	..	..	..	..	22	4, 6	6	140	1080	520	24	07
								23	4	6					
		28	08XX	..	..	..	..	29	5	6	65	830	490	30	06
		31	05XX	..	..	..	..	31	4	7	231	1580	800	SEP 01	01

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-85	2400 U.T., 8-31-85	1.0'/mm	3.7γ/mm	27° 16.8' E
H	0000 U.T., 8-1-85	2400 U.T., 8-10-85	7.8γ/mm		12694γ
	0000 U.T., 8-11-85	2400 U.T., 8-31-85	"		12690γ
Z	0000 U.T., 8-1-85	2400 U.T., 8-10-85	7.6γ/mm		55166γ
	0000 U.T., 8-11-85	2400 U.T., 8-31-85	"		55172γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-85	2400 U.T., 8-31-85	7.9'/mm	29.5γ/mm	23° 44.7' E
H	0000 U.T., 8-1-85 —	2400 U.T., 8-31-85	43.9γ/mm		10732γ
Z	0000 U.T., 8-1-85	2400 U.T., 8-31-85	48.4γ/mm		54112γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION
	FROM	TO	SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 37.4' E	12898γ	55342γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: AUG 3, 4, 5, 6, 7, 8, 9, 11, 24, 30

FORM C&GS-494e

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 (12CW 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	AUG	D

C	Q or S	Tes 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	58	64	74	142	126	177	248	169	172	160	174	160	01	178	207	274	291	304	348	312	274	221	177	154	136	4600
			02	122	134	149	156	136	227	209	188	218	198	140	145	02	179	208	235	263	229	276	292	324	251	159	97	130	4665
			03	150	152	170	146	165	189	189	198	190	227	214	188	03	198	216	244	269	305	346	307	299	261	210	170	134	5137
			04	117	132	102	93	154	159	148	270	186	181	182	192	04	227	258	240	282	287	304	303	284	254	232	168	167	4922
			05	152	142	143	167	166	186	188	203	190	185	191	193	05	206	224	234	262	277	299	298	283	236	190	169	152	4936
			06	136	138	152	169	179	193	196	197	192	197	190	197	06	213	233	262	283	320	330	303	275	230	200	183	177	5145
			07	153	147	158	154	169	189	194	181	203	192	196	194	07	207	241	267	287	303	312	329	313	273	209	182	149	5202
			08	97	104	158	157	182	186	187	183	175	187	201	224	08	200	226	243	285	293	297	274	269	206	194	129	128	4785
			09	136	132	140	163	193	198	197	195	193	196	201	207	09	212	230	253	273	288	296	304	280	234	187	180	168	5056
			10	173	163	182	188	193	143	183	205	186	196	300	246	10	239	216	254	279	282	271	264	236	207	181	183	176	5146
			11	160	148	163	143	182	183	185	187	194	196	207	230	11	218	218	234	264	289	289	276	251	226	202	172	177	4994
			12	183	187	187	193	193	193	173	166	167	216	139	200	12	239	218	280	361	422	377	344	316	286*	73	55	79	5247
			13	86	115	167*	154	24*	434	99	255*	524*	-6	80*	151*	13	103*	276	335	309	333	334	301	254	178	192	165	156	5019
			14	162	158	151	224	197	198	355	260	172	-47*	109	166	14	186	213	268	271	315	302	276	247	216	192	173	163	4927
			15	130	170	180	170	270	311	173	314	254	157	95	202	15	194	168	158	276	313	311	303	265	227	170	153	112	5076
			16	131	144	153	174	198	204	203	186	286	256	188	192	16	205	215	243	293	338	336	320	279	198	158	161	127	5188
			17	135	141	132	174	176	162	171	177	278	101	163	212	17	155	206	246	346	359	342	318	291	270	229	206	192	5182
			18	170	153	138	124	108	122	156	154	162	278	186	194	18	220	271	265	300	324	350	317	314	300	324	149	129	5208
			19	120	124	109	82	163	172	293	177	216	209	213	207	19	226	216	244	266	287	313	321	293	262	217	169	164	5063
			20	122	79	123	104	75	172	162	236	160	173	180	173	20	199	200	258	258	341	326	302	242	196	153	149	147	4529
			21	140	160	134	158	148	174	208	172	204	284	176	188	21	211	233	259	266	289	274	254	250	229	227	192	186	5016
			22	147	114	129	102	123	156	193	187	453*	309*	182	210*	22	206	227	241	302	420*	234	290	298	208	168	180	168	5247
			23	150	127	104	160	196	197	199	213	183	303	160	142*	23	134	204	190	261	317	313	292	286	211	178	174	184	4863
			24	160	151	133	164	180	161	232	173	183	186	199	224	24	216	212	230	246	258	266	257	232	217	196	184	173	4828
			25	175	156	137	154	86	193	94*	237*	23*	135	174	102*	25	184	239	326	361	342	300	282	268	243	177	164	155	4707
			26	160	164	170	137	135	226	188	212	292	198	191	203	26	205	223	235	278	282	312	288	252	241	211	152	137	5092
			27	110	74	60	196	174	180	179	173	156	400	161	196	27	200	204	252	272	311	311	275	268	233	205	178	155	4923
			28	143	134	169	163	174	187	177	153	166	130	170	74	28	169	240	262	287	316	332	317	237	218	192	172	143	4725
			29	129	150	140	153	129	262	166	188	216	179	178	120	29	130*	130	267	332	337	340	269	220	188	186	178	172	4759
			30	163	140	203	153	236	235	185	193	192	193	200	203	30	206	221	240	272	285	303	338	259	143	96	115	140	4914
			31	129	114	128	101	78	182	332	15	-100*	138*	424*	258*	31	233*	416*	210	464*	607*	695*	258	154	115	128	158	139	5376

SCALED BY	LYT, PAF
CHECKED BY	PAF, JEP, LYT
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	154,477
MONTHLY MEAN	208
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.
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	85	AUG	Z

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	266	255	272	290	263	280	275	256	239	230	234	217	01	228	237	140	16	138	215	201	200	204	222	229	240	5347
			02	242	259	253	253	250	327	261	300	265	218	230	213	02	240	246	211	173	64	126	134	190	209	211	217	248	5340
			03	253	256	246	239	249	238	240	243	237	247	230	230	03	231	232	230	236	226	231	214	203	193	192	199	204	5199
			04	223	246	237	246	282	265	290	305	246	231	237	243	04	230	207	167	186	213	220	223	221	221	222	213	219	5593
			05	213	226	231	232	230	247	242	243	237	229	236	233	05	227	226	203	223	229	221	232	233	229	225	227	224	5498
			06	227	236	238	234	228	232	233	227	228	233	234	236	06	234	232	233	226	227	217	207	207	203	205	216	223	5416
			07	223	240	253	233	226	226	228	237	247	232	227	223	07	226	225	216	220	217	213	209	215	212	202	207	213	5370
			08	217	233	237	230	252	260	252	244	247	243	235	218	08	169	168	214	222	223	223	217	221	203	209	202	207	5346
			09	220	233	247	253	240	229	223	220	223	226	224	217	09	213	219	220	220	219	217	216	206	192	197	210	217	5301
			10	220	225	237	240	252	289	279	232	293	224	130	170	10	188	207	220	216	205	203	197	206	215	218	223	227	5316
			11	243	275	263	261	266	239	231	228	234	227	222	191	11	179	207	225	230	232	226	220	213	216	214	209	213	5464
			12	217	223	227	232	226	232	243	270	283	226	161	205	12	193	197	213	86	103	152	170	182	207*	182	208	247	4885
			13	299	281	194*	266	220*	62*	172	138*	-148*	93	263*	6	13	142	91	122	183	208	219	164	146	177	237	233	217	3985
			14	221	233	256	303	270	294	139	192	182	150	192	226	14	210	227	226	196	212	217	220	222	218	219	227	237	5289
			15	237	247	247	256	298	288	298	262	44	122	81	142	15	206	72	112	177	228	218	217	217	223	210	223	230	4855
			16	246	255	257	265	261	253	235	227	255	145	152	178	16	218	223	182	96	143	183	186	196	194	203	232	237	5022
			17	245	249	248	289	268	269	270	255	182	136	217	288	17	230	160	195	300	97	140	190	211	219	223	282	242	5355
			18	233	229	227	227	227	268	264	264	258	234	219	221	16	225	162	189	216	214	195	201	194	193	212	199	223	5294
			19	226	242	245	287	300	277	316	292	284	237	224	207	19	179	193	219	226	223	226	219	212	204	197	197	207	5639
			20	213	236	293	240	243	316	278	273	246	236	225	230	20	222	216	190	120	97	170	200	203	197	206	217	233	5300
			21	229	223	242	237	228	275	256	240	238	97	193	218	21	233	230	222	217	216	209	193	211	212	221	217	223	5280
			22	240	270	287	264	247	291	247	236	73*	-98	170	213	22	240	136	146	91	131*	27	151	177	207	186	212	228	4372
			23	247	248	263	280	286	276	260	248	233	137	130	15	23	90	167	146	192	196	203	211	203	191	196	218	247	4883
			24	270	242	235	249	238	237	266	219	231	231	223	223	24	219	190	219	217	220	220	220	207	203	207	214	219	5419
			25	227	227	233	247	241	283*	143*	55*	174	246	250	228	25	199	227	199	186	212	186	221	222	216	207	213	210	5052
			26	231	257	242	238	292	306	293	263	242	184	223	223	26	223	219	209	186	207	220	197	189	193	198	203	226	5464
			27	260	252	284	302	241	236	231	229	216	84	30	107	27	183	185	186	207	187	181	197	198	203	213	215	218	4845
			28	225	229	237	223	236	236	251	236	194	124	214	7	28	128	217	224	118	93	162	173	168	187	212	227	231	4552
			29	236	273	242	275	276	351	297	290	84	138	196	245	29	239	66	188	212	167	163	140	133	179	196	222	226	5034
			30	223	238	270	228	278	235	229	226	223	223	218	217	30	219	223	226	225	223	226	224	187	147	145	167	190	5210
			31	209	246	235	246	276	266	192*	-102*	158	557*	443*	360*	31	468*	455*	268	291*	347*	-26*	-96	34	112	178	225	234	5516

SCALED BY	LYT, PAF
CHECKED BY	PAF, JEP, LYT
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	160,741
MONTHLY MEAN	216
DATES WITH GAPS	

b

FORM CGS-404e

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSY.	YEAR	MONTH	ELEMENT
CO	85	AUG	H

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.

C	Q or S	Ten 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	304	287	327	302	327	363	300	269	258	269	289	279	01	304	224	-176*	102	284	267	227	214	200	202	232	252	5906
			02	295	295	258	280	343	404	315	338	332	345	261	220	02	280	272	230	154	54	184	188	213	213	207	210	284	6175
			03	248	290	258	304	285	270	265	257	269	280	279	280	03	272	267	268	260	253	237	209	213	221	232	233	243	6193
			04	273	256	281	318	358	332	401	298	275	279	294	283	04	258	234	218	254	280	273	261	240	240	233	232	243	6614
			05	256	260	269	270	295	270	270	272	276	282	279	276	05	269	260	262	279	261	256	248	223	221	221	231	240	6246
			06	256	263	263	267	278	268	267	270	279	280	277	271	06	268	267	268	268	268	261	250	234	223	230	229	246	6251
			07	254	261	247	270	273	277	289	292	280	280	279	283	07	277	270	269	278	279	263	250	236	221	219	223	249	6319
			08	237	249	260	294	278	297	278	292	287	283	290	285	08	222	275	273	272	273	257	246	230	242	231	236	260	6347
			09	259	270	273	268	250	259	268	273	273	277	273	271	09	270	262	270	269	262	250	237	247	256	260	260	261	6318
			10	263	276	269	275	299	312	416	320	379	290	49	134	10	272	280	264	265	270	280	274	271	259	260	262	279	6518
			11	272	255	253	296	248	252	261	269	269	277	290	259	11	270	279	273	277	278	271	261	255	249	244	249	253	6360
			12	265	272	279	271	275	283	288	317	330	307	146	134	12	236	244	172	101	254	303	261	242	186	220	268	333	5987
			13	356	399	794*	500	495*	467*	465	271*	-56*	124*	-568*	33*	13	-197*	32	207	308	302	231	211	200	212	252	264	268	5570
			14	277	310	332	367	342	346	276	307	235	-163*	265	252	14	196	250	112	238	256	267	251	253	235	231	235	253	5923
			15	232	256	283	327	307	297	352	376	202	188	116	198	15	96	-260	90	290	280	270	241	243	223	237	231	240	5315
			16	260	260	272	293	279	273	263	277	276	268	280	262	16	277	261	179	105	239	253	238	217	229	241	235	247	5984
			17	273	280	293	305	303	270	272	336	319	220	290	198	17	-5	182	181	-54	138	271	285	276	265	260	250	268	5676
			18	254	267	282	291	293	301	279	319	397	326	326	292	18	262	185	279	268	245	240	246	259	253	205	232	238	6539
			19	239	277	304	422	348	465	317	333	285	265	259	246	19	209	260	258	260	260	248	238	240	241	235	247	265	6721
			20	261	305	297	293	316	420	368	314	300	287	277	277	20	272	234	112	98	190	263	235	239	226	233	254	259	6330
			21	248	269	300	254	272	294	290	273	292	186	290	279	21	277	263	256	271	259	238	241	248	240	239	249	255	6283
			22	261	312	306	276	279	314	269	278	73*	-118*	365	232*	22	67	200	158	-17	-129*	24	254	182	254	253	256	258	4607
			23	240	298	329	383	290	290	273	281	279	160	24	-276*	23	204	203	174	269	261	279	260	239	219	228	254	269	5430
			24	279	279	299	260	280	293	277	275	279	284	273	275	24	262	229	259	259	255	250	240	231	233	243	245	263	6322
			25	254	279	273	270	341	546*	518*	-151*	285	342	268	71	25	190	256	135	200	216	249	279	247	226	241	247	272	6054
			26	293	263	284	310	390	299	291	293	272	282	279	275	26	267	271	223	248	268	240	224	231	223	219	228	248	6416
			27	252	340	416	314	257	250	256	264	325	56*	91*	290	27	259	242	253	241	210	216	234	237	232	231	252	259	5972
			28	278	274	278	291	279	278	288	293	245	228	296	58	28	278	293	247	45	226	253	213	202	234	238	243	261	5814
			29	300	336	317	331	347	397	370	320	91	231	268	-52	29	-158*	156	280	226	182	241	164	219	240	237	260	253	5556
			30	271	302	311	303	307	279	267	262	263	266	268*	273	30	270	273	268	272	276	258	210	203	213	235	246	253	6349
			31	299	285	312	302	318	467	433*	242*	74	-326*	-629*	39	31	43	-62	64	-10	-354*	-264*	191	214	249	256	268	287	2698

SCALED BY	LYT, PAF
CHECKED BY	PAF, JEP, LYT
SIGNS REVIEWED BY	JEP
PUNCHED BY	

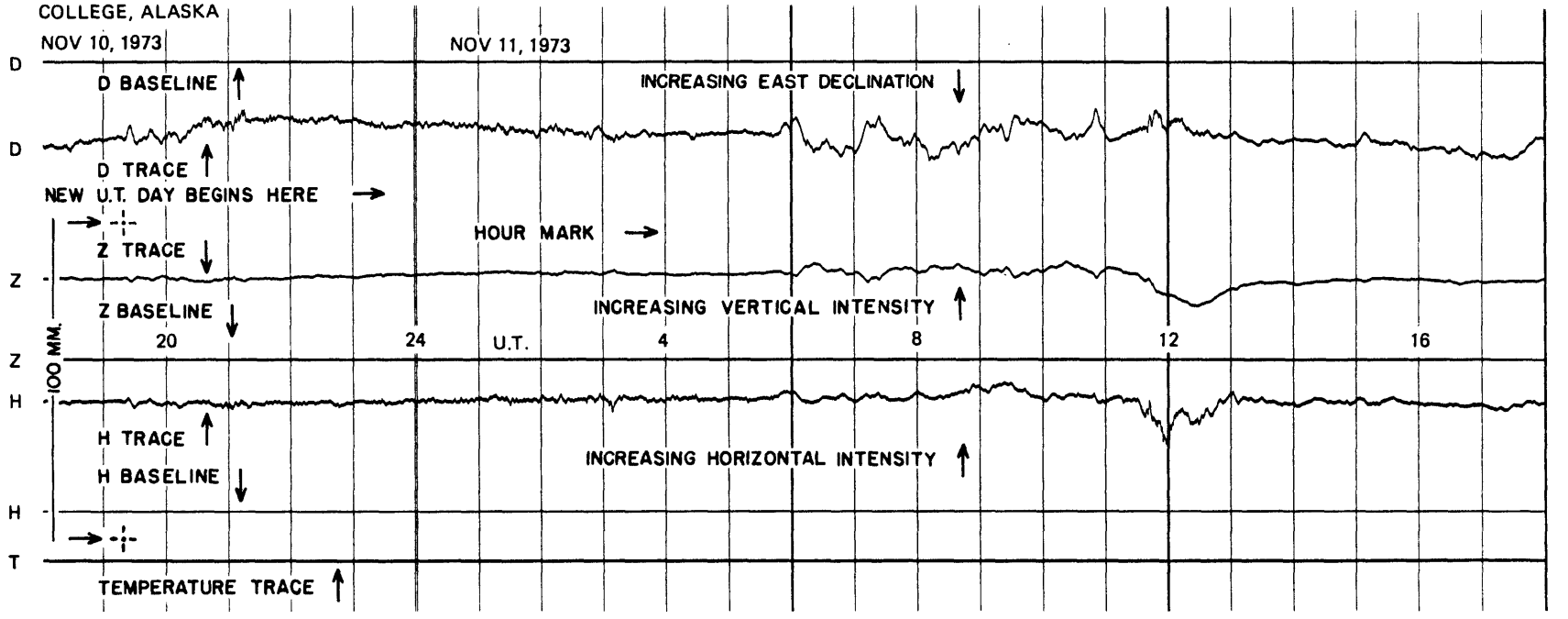
Preliminary base-line and scale values:

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.

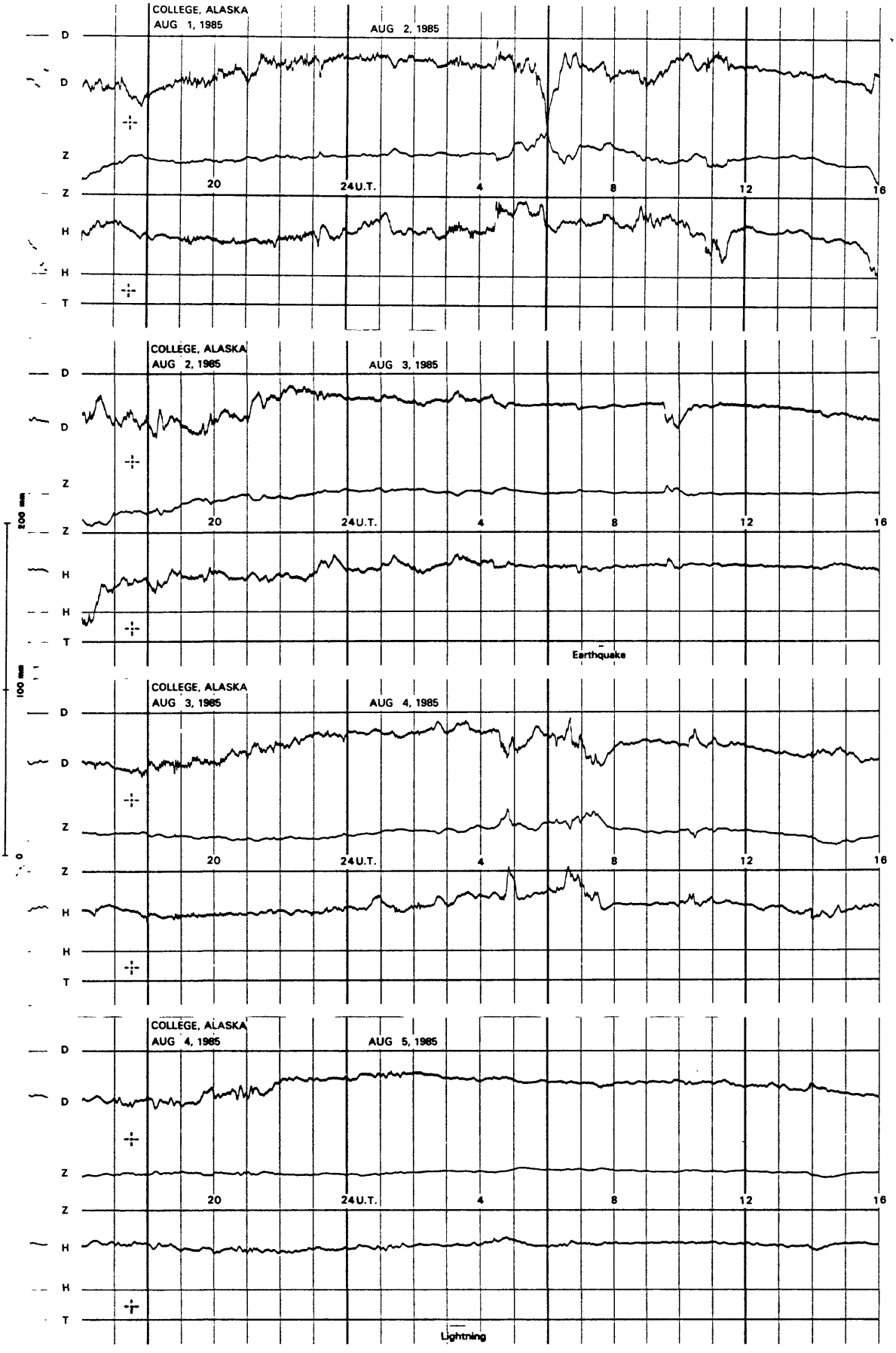
MONTHLY SUM	184793
MONTHLY MEAN	248
DATES WITH GAPS:	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

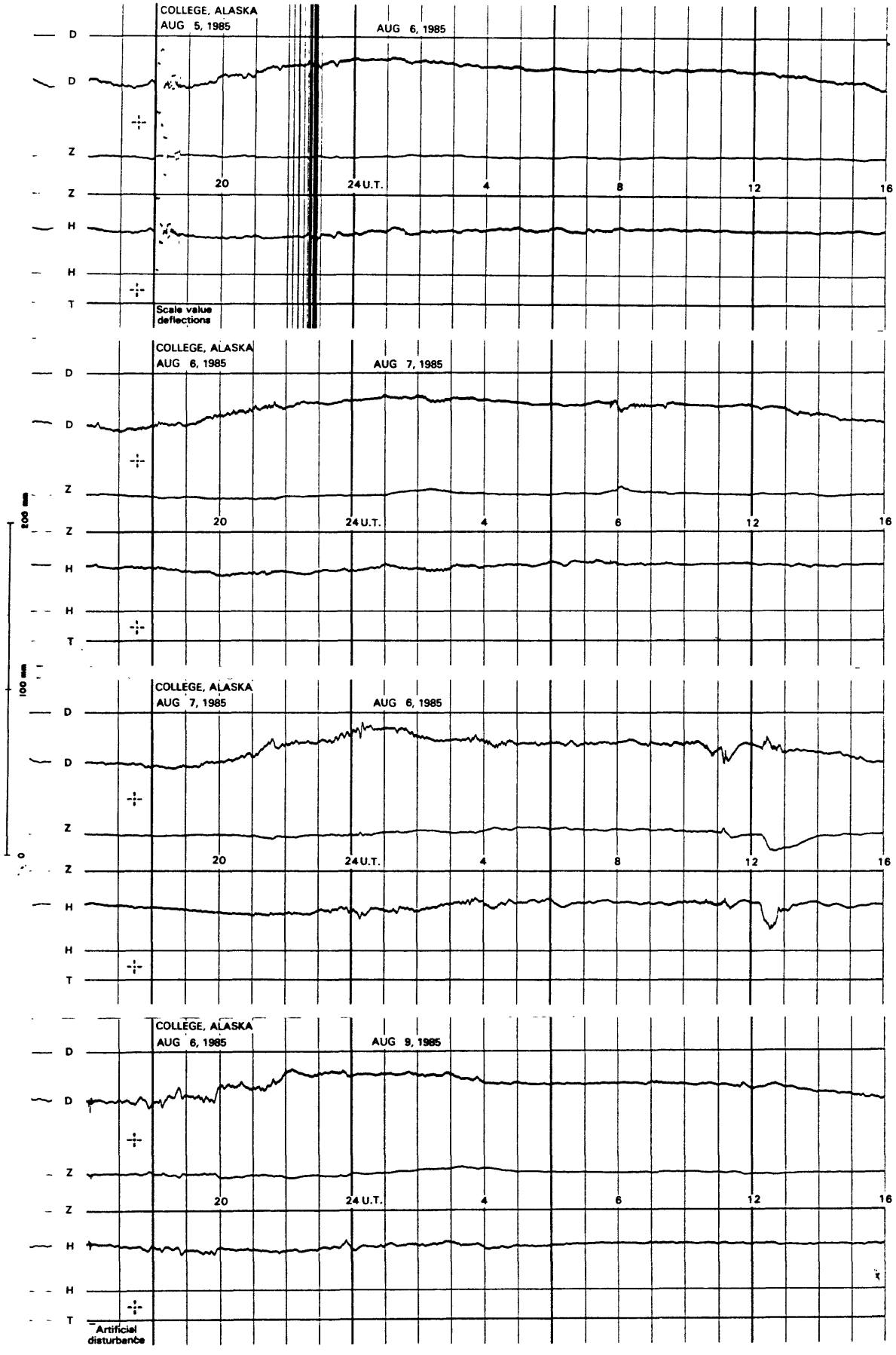


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

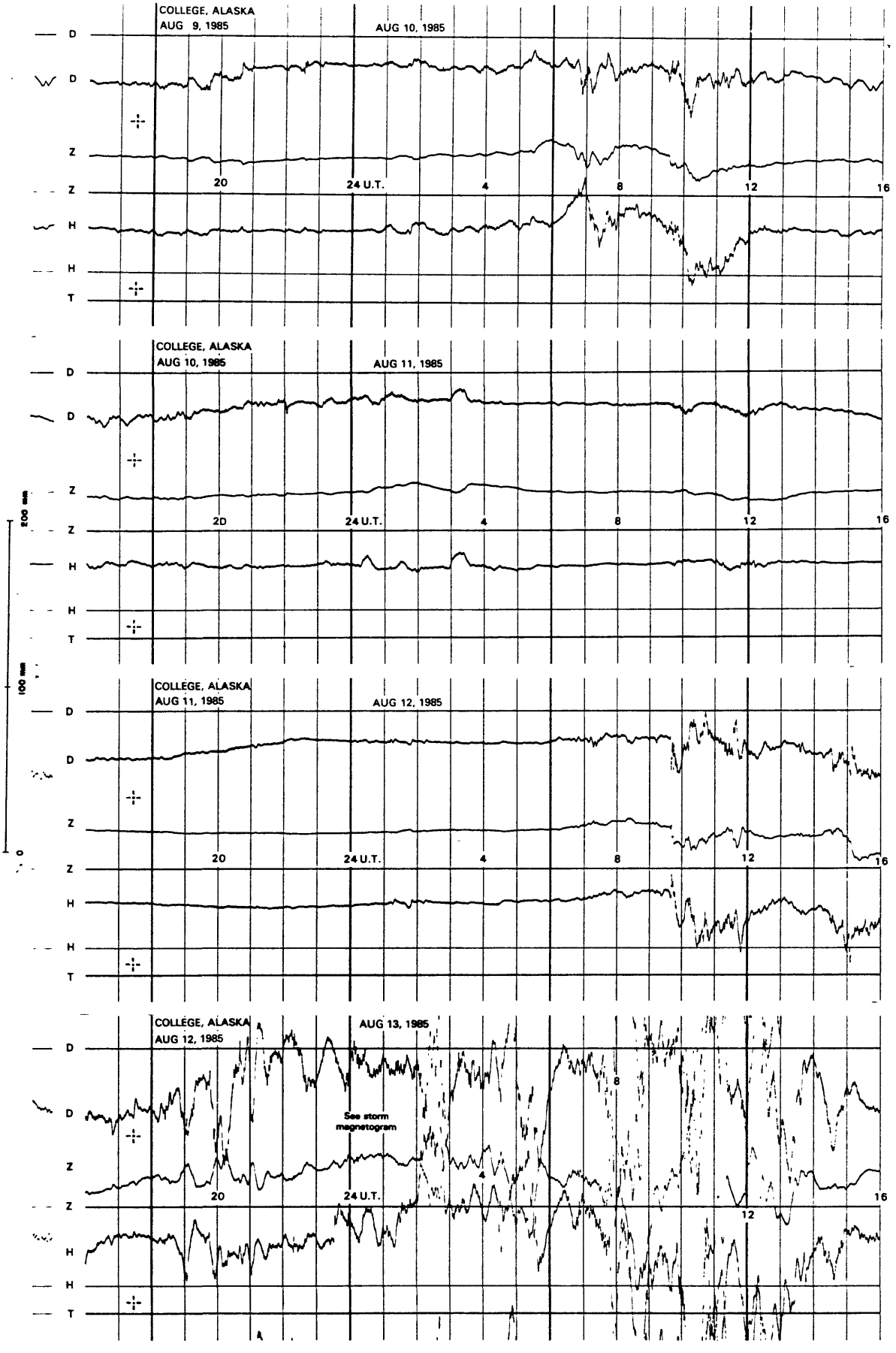
NORMAL MAGNETOGRAMS



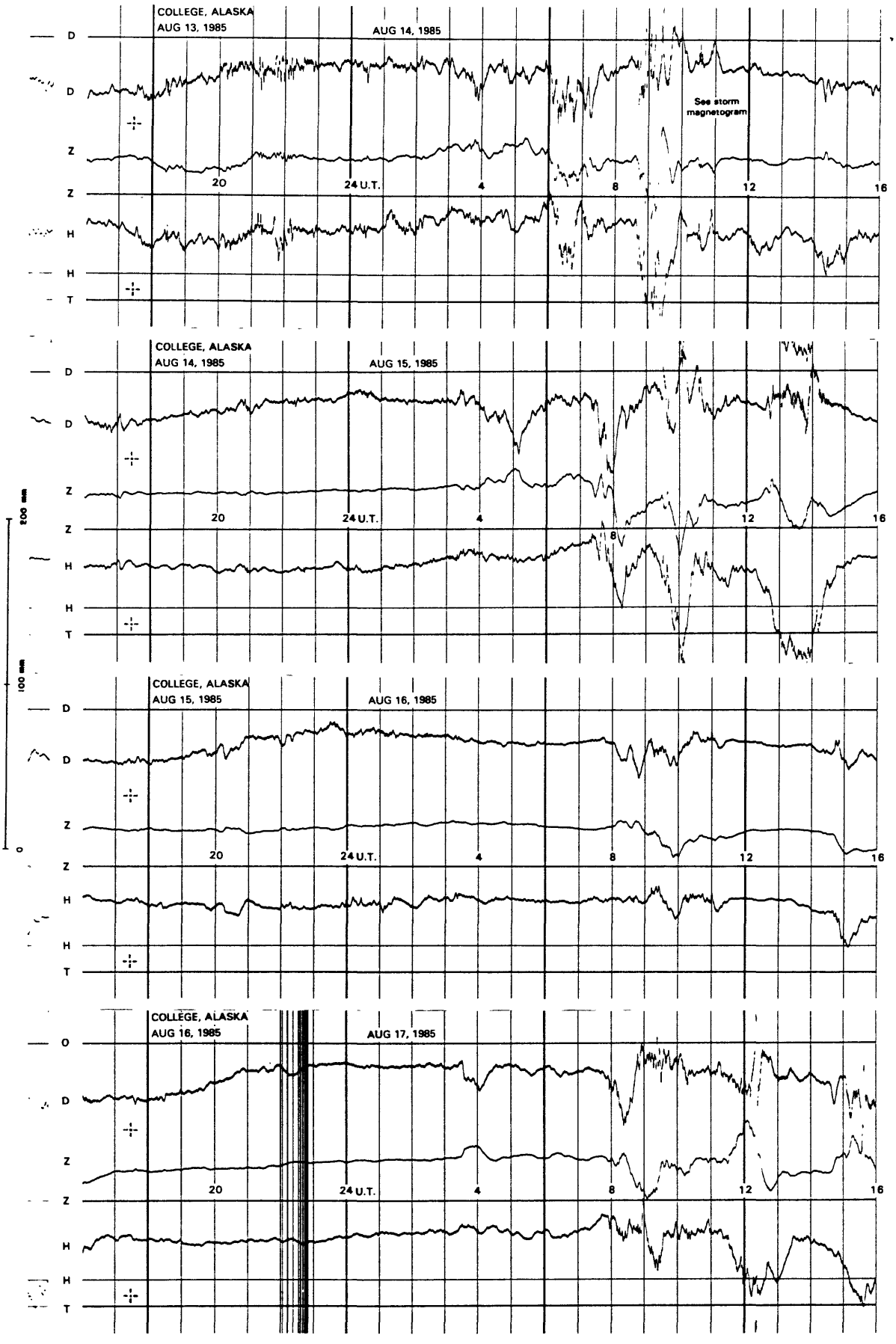
NORMAL MAGNETOGRAMS



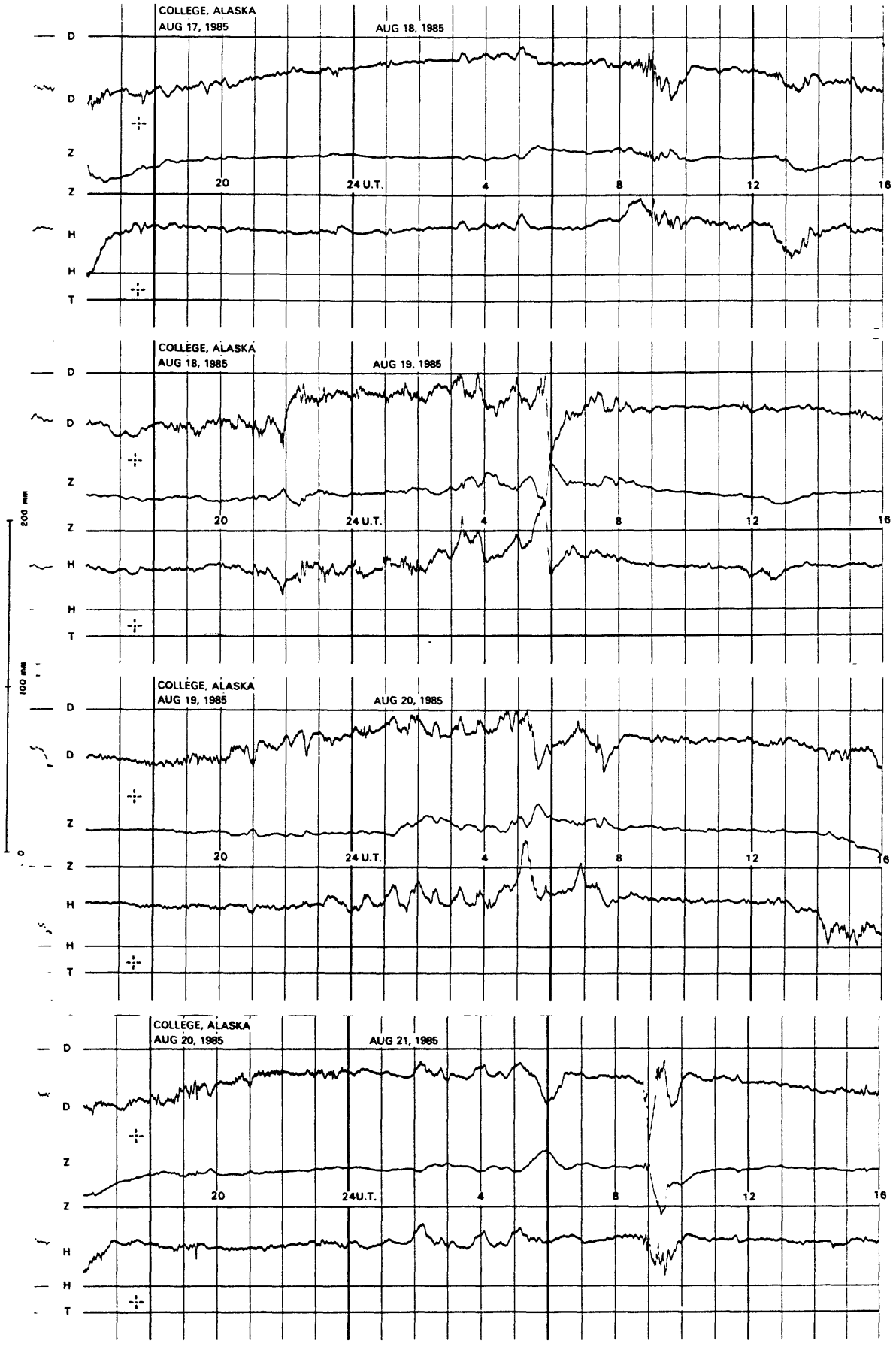
NORMAL MAGNETOGRAMS



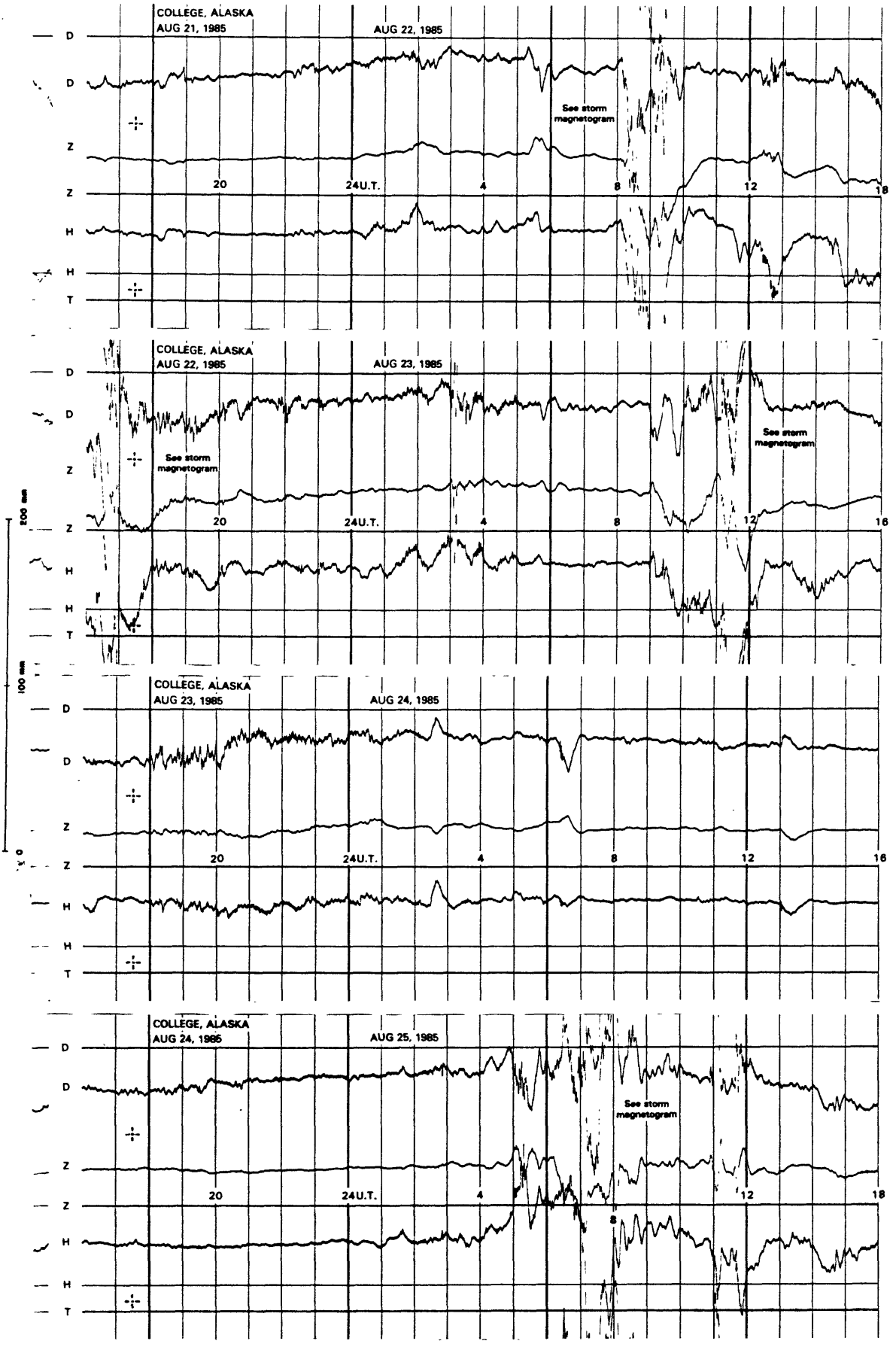
NORMAL MAGNETOGRAMS



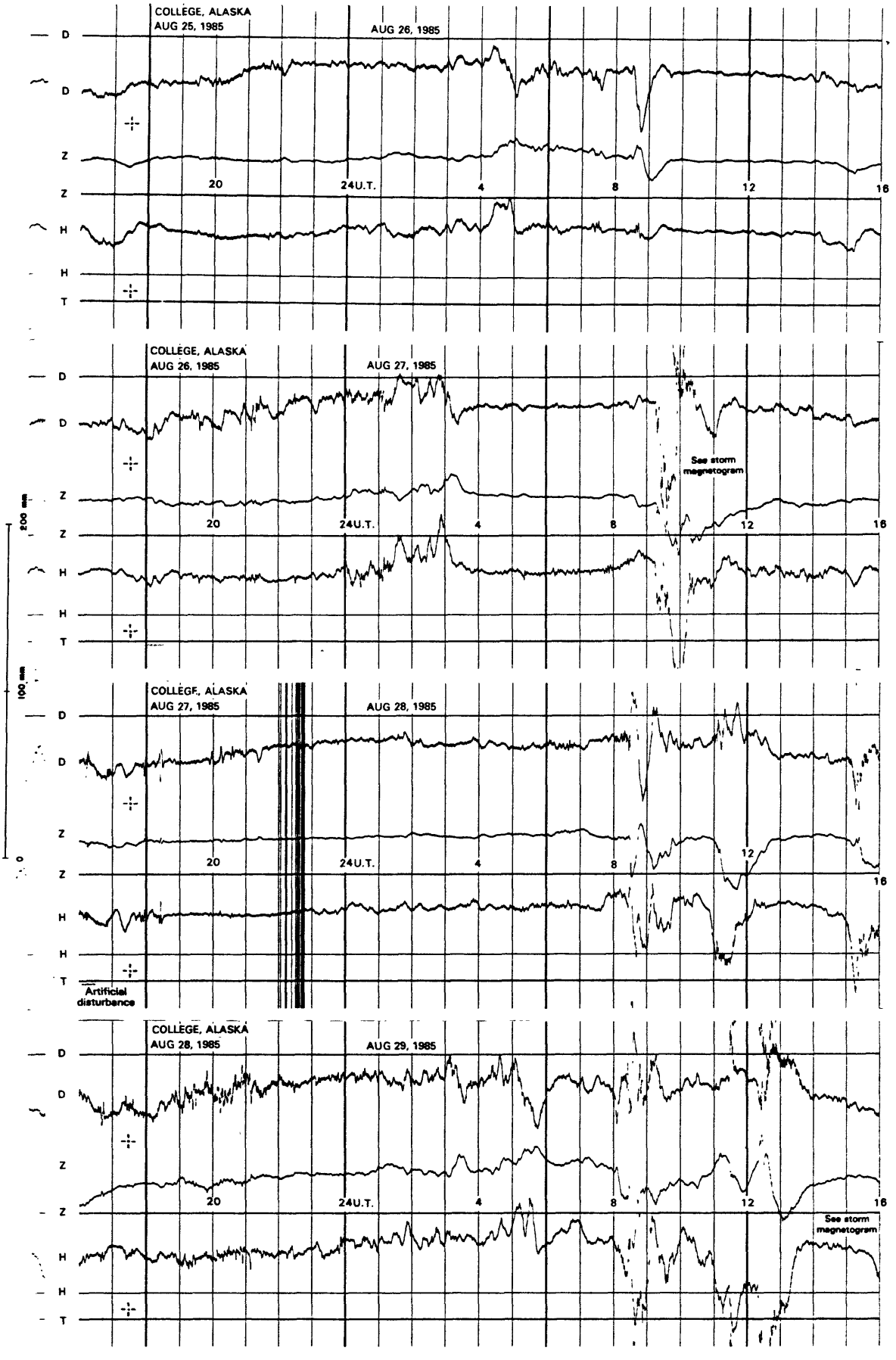
NORMAL MAGNETOGRAMS



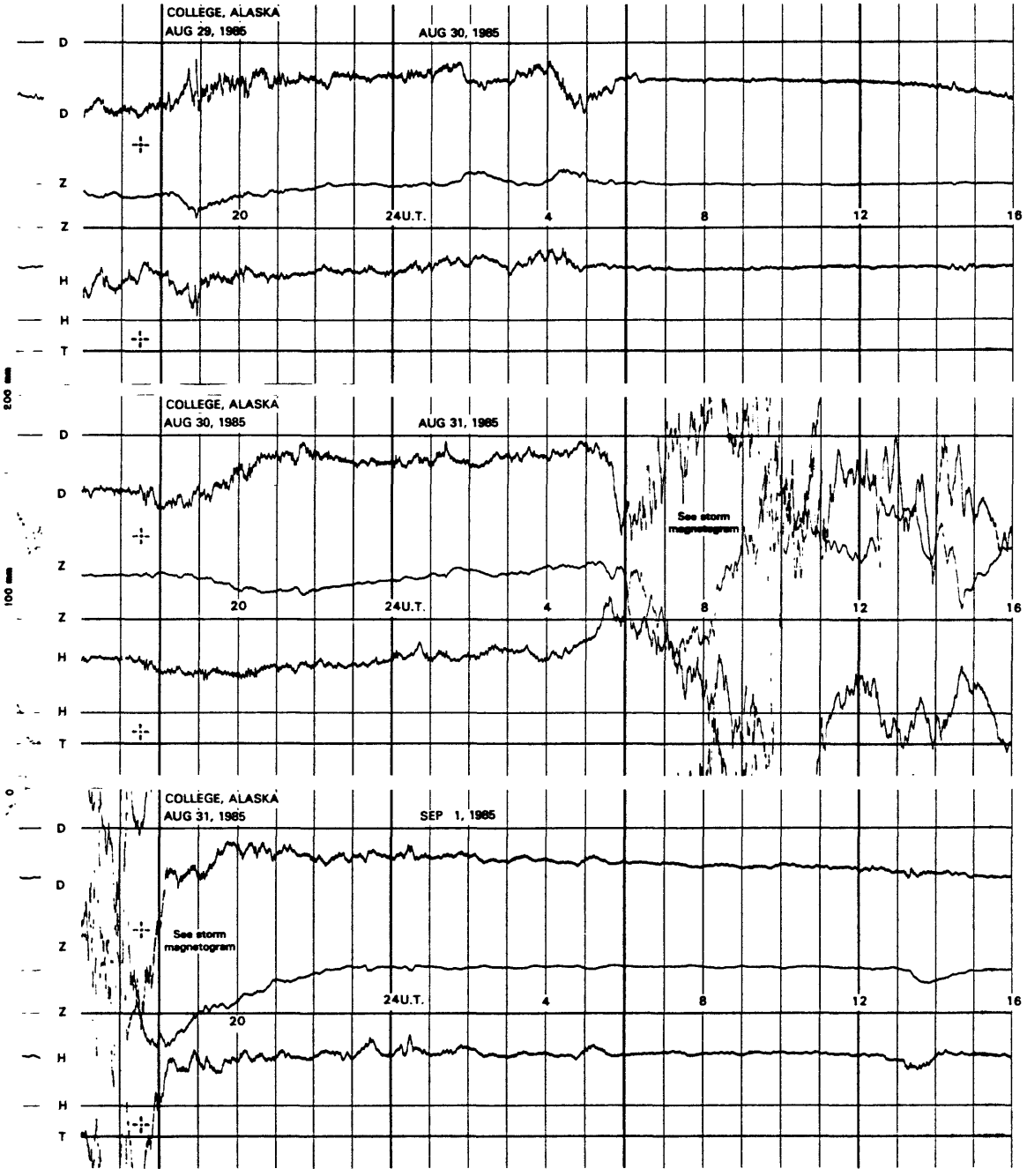
NORMAL MAGNETOGRAMS



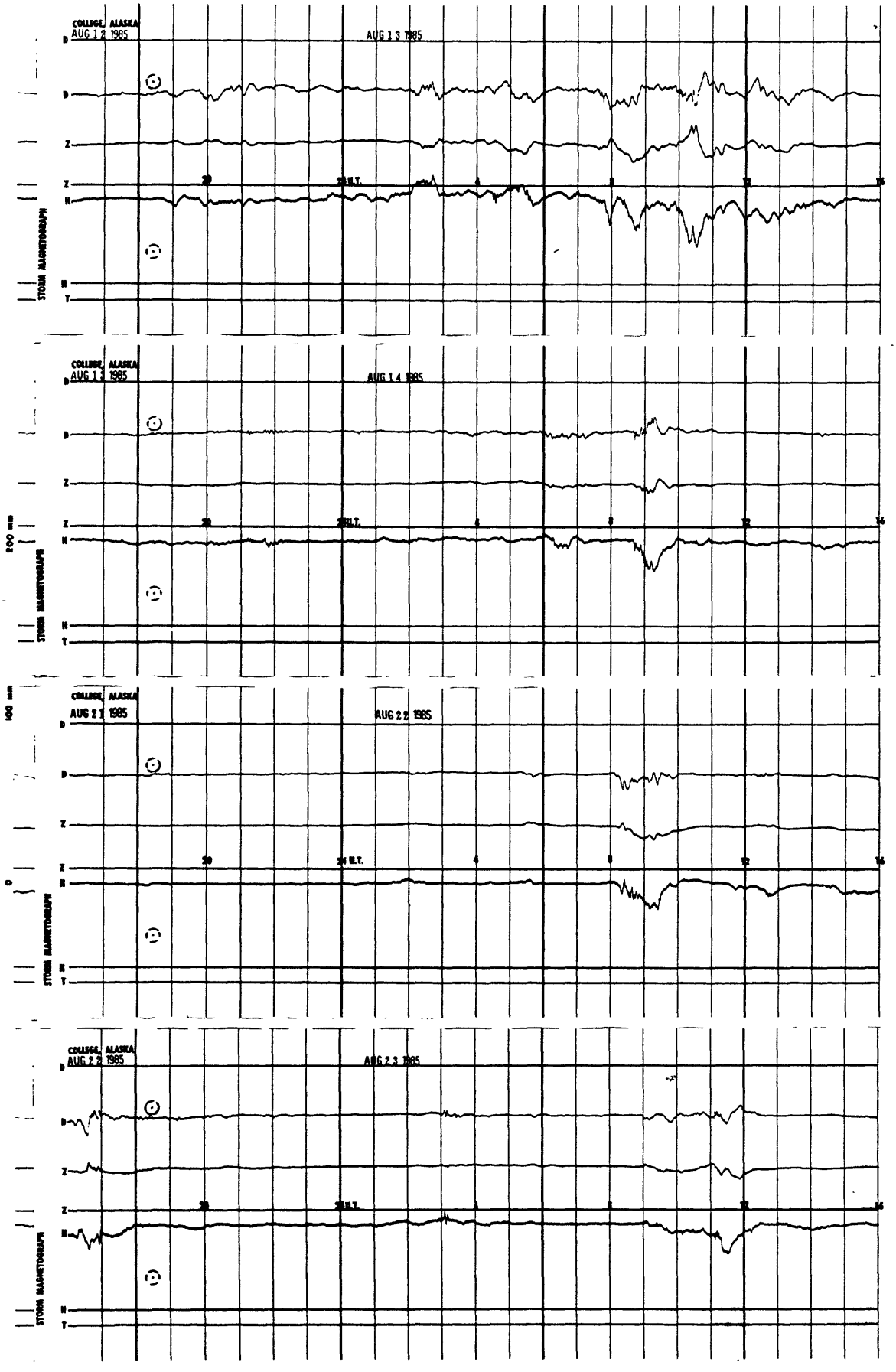
NORMAL MAGNETOGRAMS



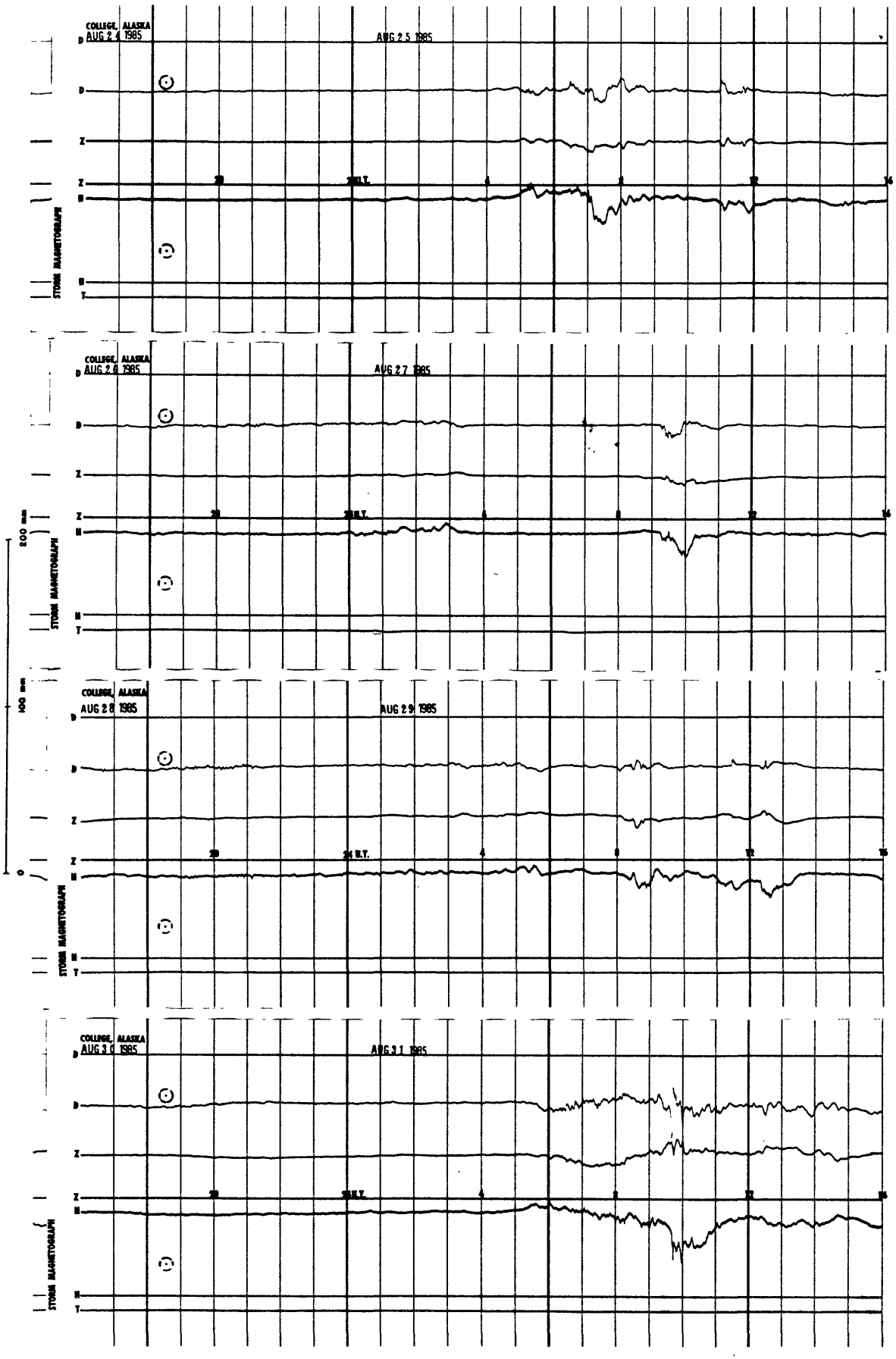
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS