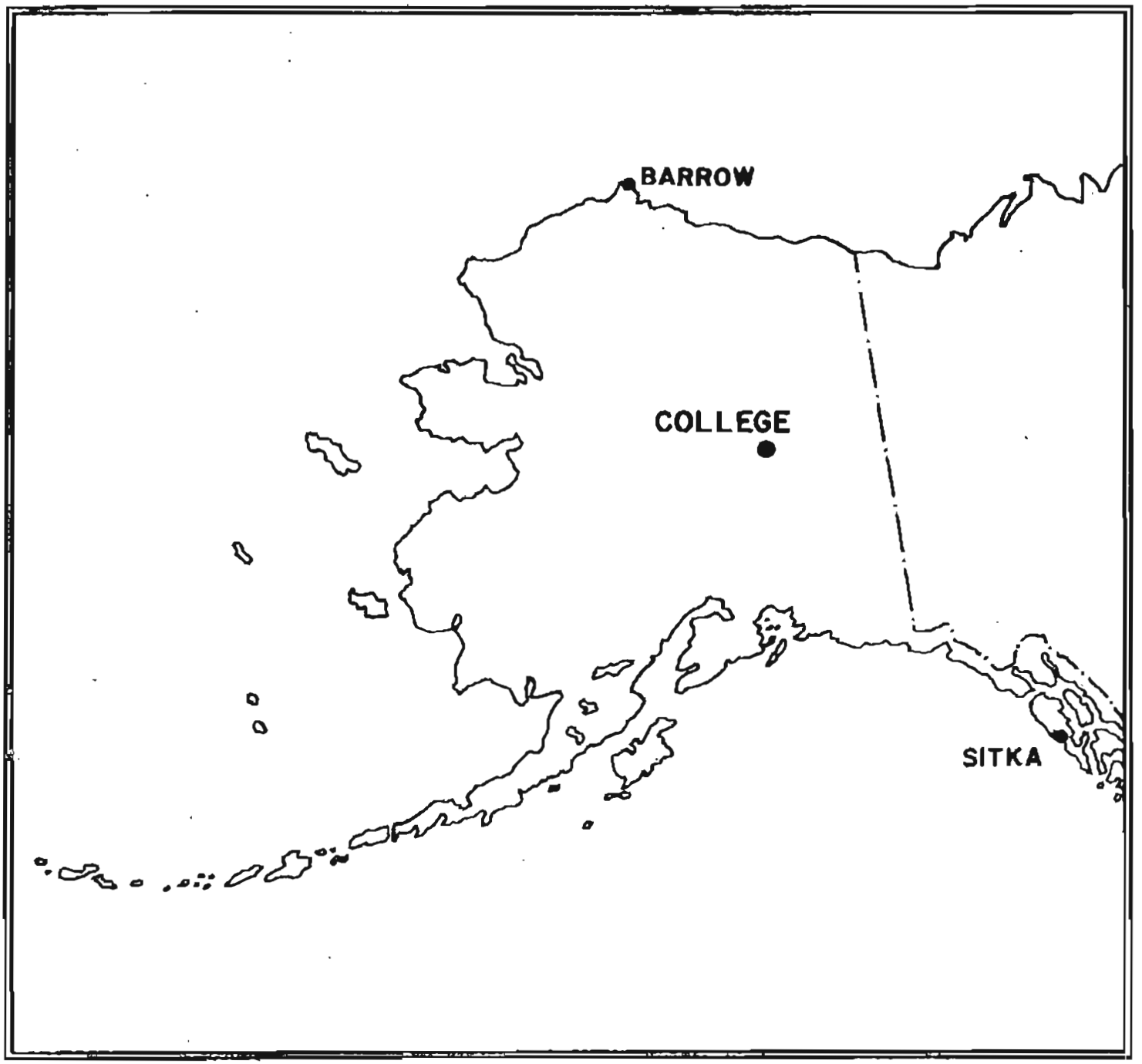
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

AUGUST 1982

OPEN FILE REPORT 82-0300H



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, 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.

ORDER OF CONTENTS

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 1982

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	2	2	2	5	5	3	4	2	25	21
2	3	3	3	6	5	5	5	4	34	37
3	4	4	6	6	5	5	5	3	38	47
4	3	2	4	6	6	4	2	3	30	32
5	3	3	5	5	3	5	3	2	29	26
6	3	3	2	6	5	3	5	3	30	30
7	4	7	7	7	7	7	4	2	45	95
8	1	2	2	2	3	1	2	1	14	07
9	2	2	5	5	3	5	4	3	29	27
10	4	4	6	6	4	6	3	3	36	44
11	4	2	3	6	5	7	5	2	34	47
12	4	4	5	5	6	4	4	2	34	36
13	2	3	3	5	5	2	2	2	24	19
14	2	2	2	5	2	4	2	1	20	14
15	2	1	0	2	1	1	1	1	09	04
16	1	2	0	1	2	3	1	3	13	07
17	3	4	3	2	2	1	3	3	21	13
18	3	4	3	2	3	3	2	2	22	14
19	3	3	3	3	2	2	3	2	21	12
20	3	3	1	2	5	3	2	2	21	15
21	3	4	2	3	3	4	2	2	23	15
22	3	3	3	4	5	5	3	4	30	26
23	3	2	2	3	4	5	3	3	25	19
24	3	4	4	4	5	6	2	1	29	29
25	3	5	5	6	4	3	3	2	31	32
26	3	4	5	3	6	4	4	3	32	32
27	3	2	3	4	4	2	1	2	21	14
28	2	1	1	5	3	3	3	3	21	15
29	3	4	8	6	6	4	4	3	38	64
30	2	5	5	5	5	5	5	3	35	39
31	4	3	5	5	5	4	3	3	32	30

TIME SCALE ON MAGNETOGRAMS: 20 mm/hr

SUDDEN COMMENCEMENTS

d	h	m

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

BEGIN d	BEGIN h	BEGIN m	END d	END h	END m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.73	7.79		(γ/mm)
LOWER LIMIT FOR K = 9	2550	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: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: AUGUST

YEAR: 1982

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
08	03XX	pc5	
15	11XX	pi2	
27	17XX	pc4	
28	1002	ssc*	

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

AUGUST 1982

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	02	09XX	..	..	..	..	02	4	6	176	1100	730	04	23
								03	3, 4	6					
								04	4, 5	6					
		06	09XX	..	..	..	..	07	2, 3, 4, 5, 6	7	468	1960	1310	07	21
		09	06XX	..	..	..	..	11	6	7	234	1420	930	12	20
		28	1002	s.c.*	-5	+65	+31	29	3	8	369	2070	1250	Sep 01	21

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: AUGUST 1982

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 8-1-82	2400 U.T., 8-31-82	1.0/mm	3.7 γ/mm	27° 47.0 E
H	0000 U.T., 8-1-82	2400 U.T., 8-31-82	7.8 γ/mm		12774 γ
Z	0000 U.T., 8-1-82	2400 U.T., 8-31-82	7.7 γ/mm		55143 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 8-1-82	2400 U.T., 8-31-82	7.9/mm	29.6 γ/mm	23° 40.5 E
H	0000 U.T., 8-1-82	2400 U.T., 8-31-82	44.0 γ/mm		11536 γ
Z	0000 U.T., 8-1-82	2400 U.T., 8-31-82	48.5 γ/mm		54061 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 57.8 E	12962 γ	55392 γ

* COMPUTED FROM ~~TEN~~ FIVE QUIETEST DAYS DURING MONTH.

DAYS USED: AUG 8, 15, 16, 17, 19, ** (NOTE BELOW)

** DUE TO VERY DISTURBED MAGNETIC CONDITIONS DURING THE MONTH OF AUGUST 1982, ONLY 5 DAYS ARE USED TO COMPUTE THE MONTHLY MEAN ABSOLUTE VALUES.

FORM 76-186

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	82	AUG	D

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

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	35	49	66	57	91	126	82	72	78	-39	-64	1	01	127	86	160	209	211	267	223	147	120	73	82	76	2338
02	9	35	65	33	57	104	84	41	18	40	-134	44	02	59	104	144	359	525	327	470	154	136	98	36	-44	2764
03	-17	4	23	-37	57	72	83	-17	-15	-149	9	-56	03	192	32	177	239	126	235	407	143	150	127	93	15	1893
04	40	43	30	73	56	86	110	81	77	100	52	81	04	-38	90	187	194	220	271	218	196	119	101	33	26	2450
05	27	8	-15	8	21	88	76	62	181	61	42	72	05	102	146	109	222	374	314	297	181	156	78	17	28	2655
06	12	-11	1	18	27	64	135	71	72	39	213	121	06	37	31	152	169	259	294	325	208	189	128	59	5	2618
07	88	46	16	40	-23	-435	-729	-229	-1	-118	295	-229	07	279	-15	73	715	192	149	231	217	196	115	53	37	963
08	21	24	15	45	69	111	144	137	114	107	116	98	08	94	84	104	161	233	263	291	240	205	149	85	34	2944
09	12	0	38	93	65	116	91	-53	-63	1	25	55	09	107	93	126	188	346	393	285	281	262	72	121	-11	2601
10	35	-10	76	-30	-71	21	-17	-118	81	-79	-7	32	10	63	95	108	271	231	236	199	226	96	163	176	59	1838
11	45	-8	19	52	45	59	104	124	33	176	134	23	11	98	75	211	422	342	215	256	184	160	76	75	26	2946
12	33	42	13	66	77	5	-72	-103	53	104	88	15	12	31	112	-7	161	167	221	208	148	111	75	35	49	1632
13	40	26	36	32	69	58	105	134	-17	35	82	51	13	-16	80	99	130	152	225	225	199	109	84	64	112	2116
14	82	84	97	105	126	101	106	65	74	76	88	70	14	73	64	89	174	241	257	214	203	125	78	61	51	2724
15	42	65	84	110	166	99	95	90	92	94	102	105	15	111	117	153	199	225	214	211	163	112	94	17	26	2726
16	52	59	43	41	20	69	82	73	74	70	79	98	16	110	127	144	168	213	243	241	230	235	126	-4	-32	2561
17	23	32	57	52	-72	-2	45	24	41	95	106	114	17	134	148	214	213	214	246	271	288	76	67	58	-3	2431
18	-29	-24	15	1	-55	47	66	61	64	66	73	114	18	104	171	170	267	266	265	168	194	101	64	41	25	2264
19	4	-10	24	7	41	-1	77	62	48	55	62	101	19	130	135	164	215	235	280	288	226	122	118	24	27	2534
20	9	1	20	58	59	54	62	73	83	69	88	75	20	117	321	164	266	228	265	281	276	198	73	86	13	2699
21	-11	-20	-18	-23	7	80	79	74	83	75	106	95	21	124	148	152	209	162	222	248	219	129	48	19	10	2237
22	9	11	32	79	66	69	75	79	42	68	89	110	22	43	120	163	238	124	237	246	276	199	-8	-1	-6	2382
23	18	4	34	43	32	49	57	-16	43	58	77	86	23	134	143	165	180	264	189	219	252	164	150	87	37	2469
24	19	36	49	61	18	68	295	49	78	36	94	93	24	111	150	156	147	76	228	232	240	174	110	27	14	2561
25	10	14	15	16	48	-64	251	66	76	60	28	111	25	103	132	192	158	234	293	255	210	132	100	64	24	2528
26	6	-16	37	-12	14	-23	167	59	139	193	68	74	26	-163	12	313	214	232	242	226	192	96	109	90	62	2331
27	5	24	9	12	18	56	40	42	126	72	79	85	27	116	157	186	172	160	208	194	164	92	66	36	31	2170
28	16	18	33	59	71	75	72	64	68	66	96	37	28	108	144	181	224	257	271	227	149	146	111	-68	-111	2314
29	-31	6	12	19	120	84	-86	67	279	-261	-38	33	29	160	145	236	153	201	342	189	112	90	36	11	33	1909
30	36	51	59	-26	109	-86	9	-22	-15	200	136	262	30	191	142	223	247	203	301	269	84	105	91	67	85	2721
31	64	56	16	98	81	82	66	174	84	43	56	126	31	164	276	130	277	284	236	194	109	87	53	-45	11	2722

SCALED BY: TKC, 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 off sheet for part or all of hour; if value is given, curve was estimated for missing part.
* Derived from STORM Magh., converted to Normal Magh.

MONTHLY SUM: 74141
MONTHLY MEAN: 100
DATES WITH GAPS:

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 gm and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (255 M.T.) is hour 11 of the SAME universal day. Ordinate corrections have been applied. Negative values are in red with minus signs shown.

Obsy	Year	Month	Element
CC	82	AUG	2

Day	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	364	369	375	367	379	355	371	363	358	326	307	413	467	382	284	320	323	282	167	221	265	269	313	338	6018
02	371	406	410	400	415	439	427	381	330	379	697	511	393	615	612	520	393	363	344	136	254	331	388	354	9878
03	363	370	421	384	355	356	324	289	378	181	339	460	464	377	348	559	304	330	213	241	307	323	341	345	8372
04	342	357	352	359	363	354	349	344	223	292	290	381	290	254	378	318	309	312	259	272	281	296	329	350	7774
05	367	378	372	389	396	411	362	306	221	291	263	395	366	385	354	366	431	227	272	261	297	311	330	334	8165
06	356	351	360	363	356	300	387	379	370	339	217	319	326	373	452	261	294	331	334	254	275	302	322	339	8091
07	454	476	423	364	52	91	-352	5	265	514	577	226	710	604	577	475	99	219	353	368	342	321	314	330	6157
08	333	340	341	361	362	373	353	372	366	365	352	331	311	307	354	363	364	351	340	322	317	320	314	319	8261
09	327	330	342	323	342	365	362	57	262	508	327	346	352	377	473	408	312	201	221	292	280	321	296	367	7999
10	369	375	438	409	370	357	162	310	165	479	465	411	307	302	314	526	362	268	291	325	278	326	366	361	8163
11	372	349	369	370	362	376	416	313	336	216	104	358	290	462	495	311	716	552	520	264	274	300	328	346	8927
12	345	344	351	355	362	325	270	311	357	365	564	472	315	501	583	313	370	279	193	210	303	322	356	344	8602
13	395	354	405	407	423	424	406	332	314	363	375	350	341	305	263	222	334	312	322	332	317	331	339	375	8459
14	387	361	360	369	364	343	361	339	349	347	304	252	321	333	340	342	296	292	321	300	279	298	324	352	7975
15	363	354	360	358	347	334	331	326	329	331	351	307	302	310	319	327	330	326	328	311	305	310	311	323	7905
16	322	324	327	330	332	343	357	334	330	326	334	332	329	326	321	255	244	247	306	321	319	299	277	296	7589
17	345	348	319	323	320	299	279	266	297	328	333	326	329	332	297	304	326	330	325	307	256	274	293	309	7467
18	361	393	334	307	319	309	390	371	332	325	323	331	324	268	212	221	222	243	239	281	271	281	301	320	7436
19	326	341	345	329	332	363	361	338	319	300	325	330	309	305	311	263	305	310	294	266	277	299	290	316	7588
20	321	347	352	351	326	319	336	342	337	331	318	320	404	164	191	265	322	312	276	291	269	277	307	315	7417
21	315	326	379	381	408	370	325	327	334	329	279	301	261	279	263	241	233	302	309	299	260	274	288	312	7415
22	323	363	290	339	316	305	311	310	309	296	217	218	347	342	303	319	216	319	269	304	277	234	281	309	7236
23	357	350	347	336	325	340	327	277	262	317	320	321	302	330	281	279	250	168	191	270	189	311	338	343	7171
24	334	365	350	332	339	376	336	232	293	298	334	313	293	375	424	251	105	219	269	301	309	319	311	316	7386
25	319	344	349	355	349	301	271	363	359	298	329	292	234	256	319	270	299	237	247	269	289	314	330	341	7354
26	330	333	366	360	370	352	316	330	335	247	305	340	379	181	228	240	272	301	296	302	290	308	316	322	7421
27	338	350	329	340	351	360	340	331	326	290	336	305	283	288	277	260	305	301	293	292	292	310	317	326	7560
28	332	330	333	333	327	323	320	318	330	326	273	309	288	311	319	297	251	212	223	250	285	318	321	347	7276
29	342	379	392	368	364	426	202	199	221	292	519	607	777	324	414	465	411	256	134	238	292	312	333	351	8678
30	373	364	373	362	396	374	61	8	216	594	461	302	301	303	449	358	263	235	130	219	314	345	368	366	7527
31	372	373	366	395	386	365	290	283	292	320	347	372	343	366	316	321	292	238	281	291	315	336	339	364	7895

Monthly sum: 245184
Monthly mean: 330
Dates with gaps:

Scaled by: TKC, JEP
Checked by: EAS, JEP
Signs ref. 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 Mpph., converted to Normal Mpph.

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. Department of the Interior, Geological Survey, Denver Federal Center, Denver, CO

Observatory	Year	Month	Element
CO	82	AUG	H

Day	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	269	271	260	272	274	224	262	266	289	18	206	65	-50	-15	220	242	218	138	158	204	246	225	227	260	4910
02	253	231	260	352	417	445	366	312	313	106	-353	66	254	99	-36	-266	-154	49	-206	-64	136	294	259	235	3560
03	254	346	562	399	400	422	371	386	77	-64	16	109	-19	-69	-68	-9	207	85	-147	212	238	222	231	215	5207
04	290	237	276	307	306	305	307	328	242	307	175	-296	37	126	-9	26	204	193	215	213	216	231	225	251	5738
05	256	253	277	314	397	363	442	400	343	117	224	91	111	87	104	107	-178	1	238	221	240	212	200	224	4974
06	266	249	272	261	292	359	256	290	312	204	-31	-3	242	168	47	151	217	277	216	255	205	201	224	235	5236
07	302	360	442	733	563	100	87	207	136	-31	-761	174	-494	15	-246	-801	-13	325	309	295	226	217	220	220	2593
08	234	221	225	226	230	243	235	239	272	259	243	251	219	241	293	295	296	263	272	243	242	219	220	217	5916
09	206	216	219	224	230	262	415	337	296	73	296	291	214	220	173	-39	-218	2	69	127	96	144	216	211	4300
10	255	360	370	331	400	571	440	364	40	179	91	62	197	175	172	-223	-211	166	229	172	252	225	220	246	5242
11	168	249	340	262	241	300	321	279	260	-94	-149	42	222	-31	-111	-546	-567	-342	68	174	298	255	234	229	3132
12	214	221	362	225	252	474	471	334	327	162	-116	-10	62	-116	-246	-206	-108	-98	-51	161	199	215	214	239	3191
13	270	264	269	379	334	325	306	265	269	263	166	51	57	153	118	217	216	201	238	214	211	215	226	253	5503
14	214	206	215	246	242	256	247	246	283	248	77	180	257	250	211	123	101	221	220	175	207	210	211	231	5067
15	249	243	241	231	217	221	223	230	242	255	251	228	227	221	223	221	240	229	202	201	196	201	216	211	5448
16	215	215	239	226	264	253	243	248	252	257	261	254	248	237	226	172	119	209	236	219	189	161	181	235	5379
17	242	193	209	228	519	467	471	503	407	259	242	241	235	199	192	260	252	233	201	168	173	174	223	201	6432
18	271	247	193	239	377	433	220	262	241	250	265	224	222	99	103	82	183	129	189	197	190	191	210	225	5338
19	234	238	213	261	249	330	261	275	326	325	312	269	220	241	221	217	267	229	196	175	206	191	192	208	5856
20	229	227	263	250	249	266	272	253	258	310	291	282	73	-93	215	288	269	207	220	196	192	162	206	197	5303
21	221	278	324	329	392	256	231	272	246	259	204	259	165	197	175	10	242	258	199	169	171	175	210	233	5505
22	291	322	262	211	240	245	243	238	283	270	215	140	127	-116	-128	-144	244	260	216	192	123	176	235	271	4457
23	258	257	251	258	270	271	269	309	314	279	230	241	218	169	95	220	-51	55	192	228	212	211	190	224	5210
24	264	253	246	244	324	363	352	484	403	306	165	195	106	75	-94	-371	75	221	242	204	219	217	209	211	4931
25	239	254	244	314	291	442	387	320	317	290	-239	45	97	236	39	228	197	146	208	230	212	192	165	208	5107
26	254	302	241	326	266	372	460	405	370	254	300	224	-562	-239	-114	100	226	265	279	229	239	224	238	230	4909
27	248	210	250	260	256	250	270	287	281	277	282	104	200	40	70	206	250	228	229	201	202	200	212	209	5231
28	230	247	252	250	244	251	259	261	262	264	269	11	274	256	250	207	169	182	235	224	206	165	166	170	5306
29	273	267	296	462	529	526	516	279	-780	-209	-17	59	-203	59	-100	3	46	-104	98	224	207	190	223	251	3001
30	241	292	270	481	598	649	268	189	303	-345	-180	-72	-152	47	-76	-169	100	49	-17	220	268	234	235	247	3679
31	249	290	361	309	284	264	359	339	353	361	242	36	-90	-232	83	48	95	193	238	198	177	186	196	234	4795

MONTHLY SUM	147500
MONTHLY MEAN	198
DAYS WITH GAPS	

SCALED BY: TKC, JEP
CHECKED BY: EAS, JEP
SIGNS RE-VIEWED BY: JEP
PUNCHED BY:

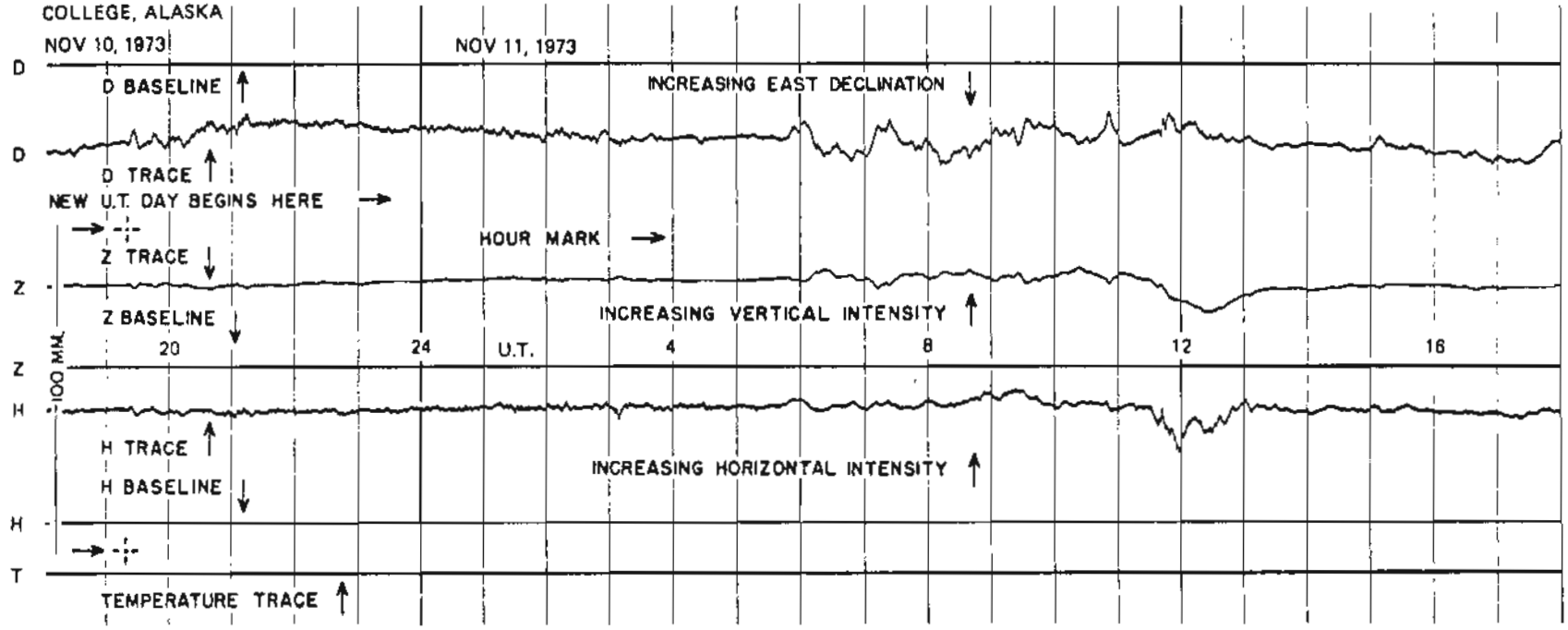
Preliminary baseline and scale values:

Interval Beginning	Baseline 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.

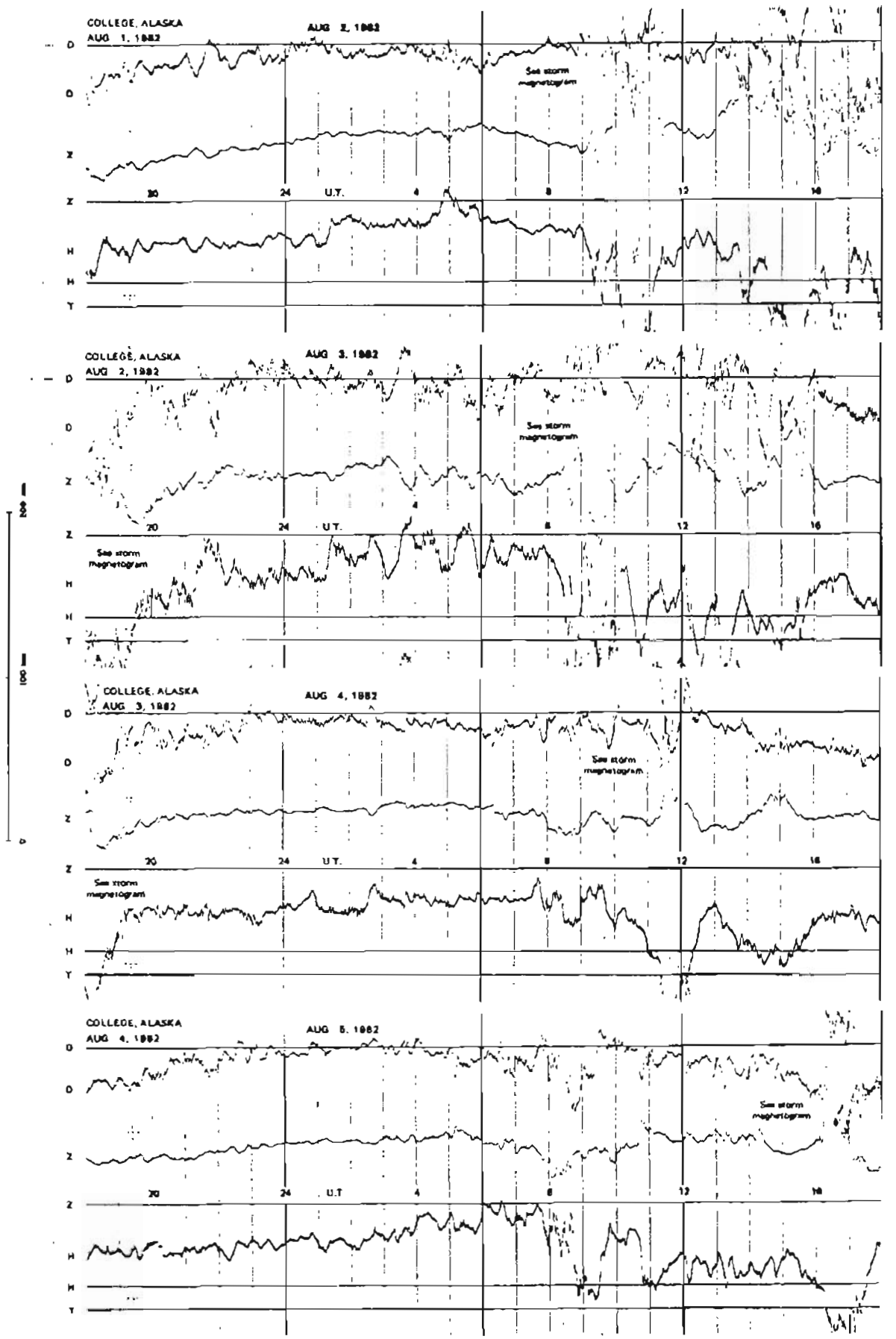
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

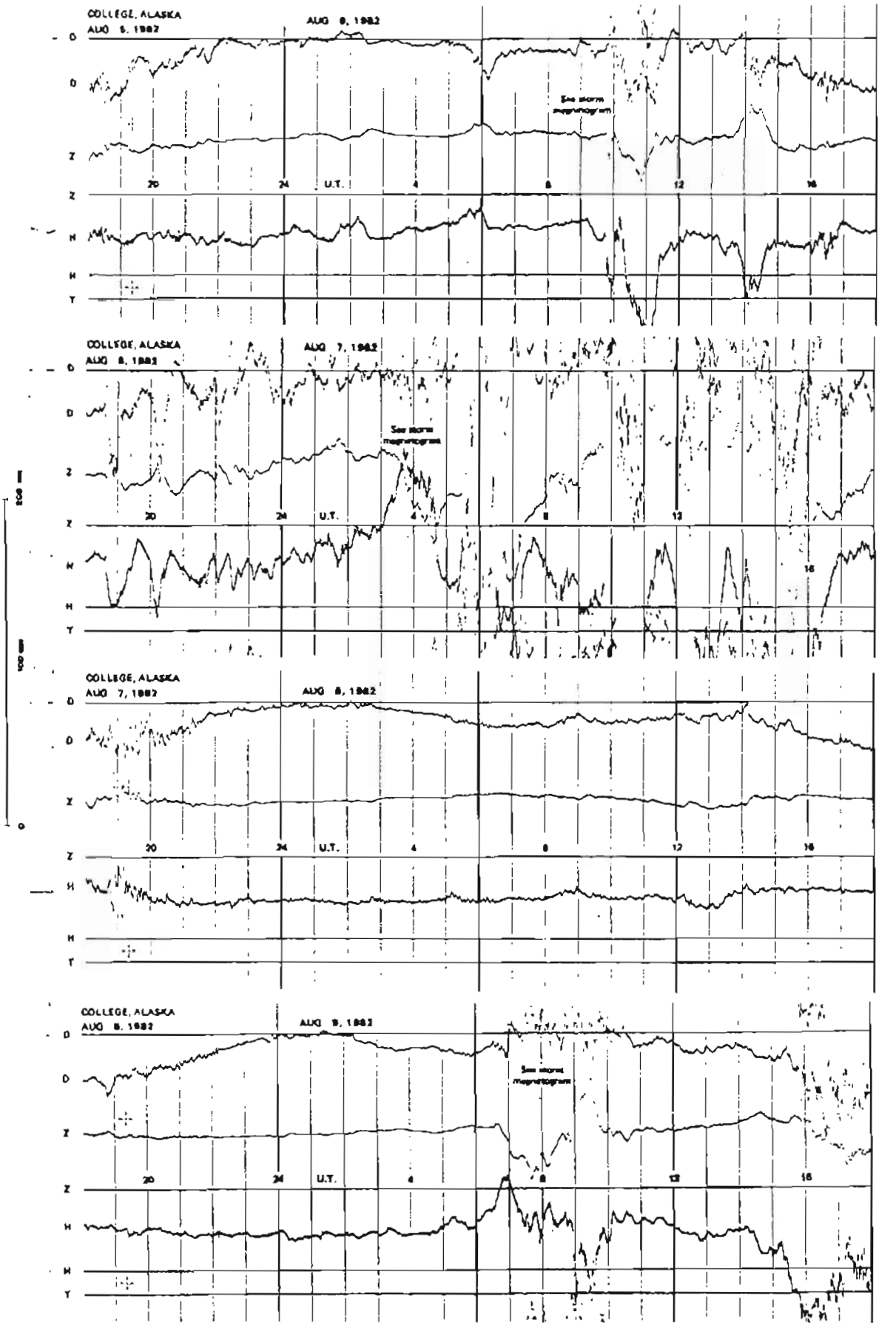


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

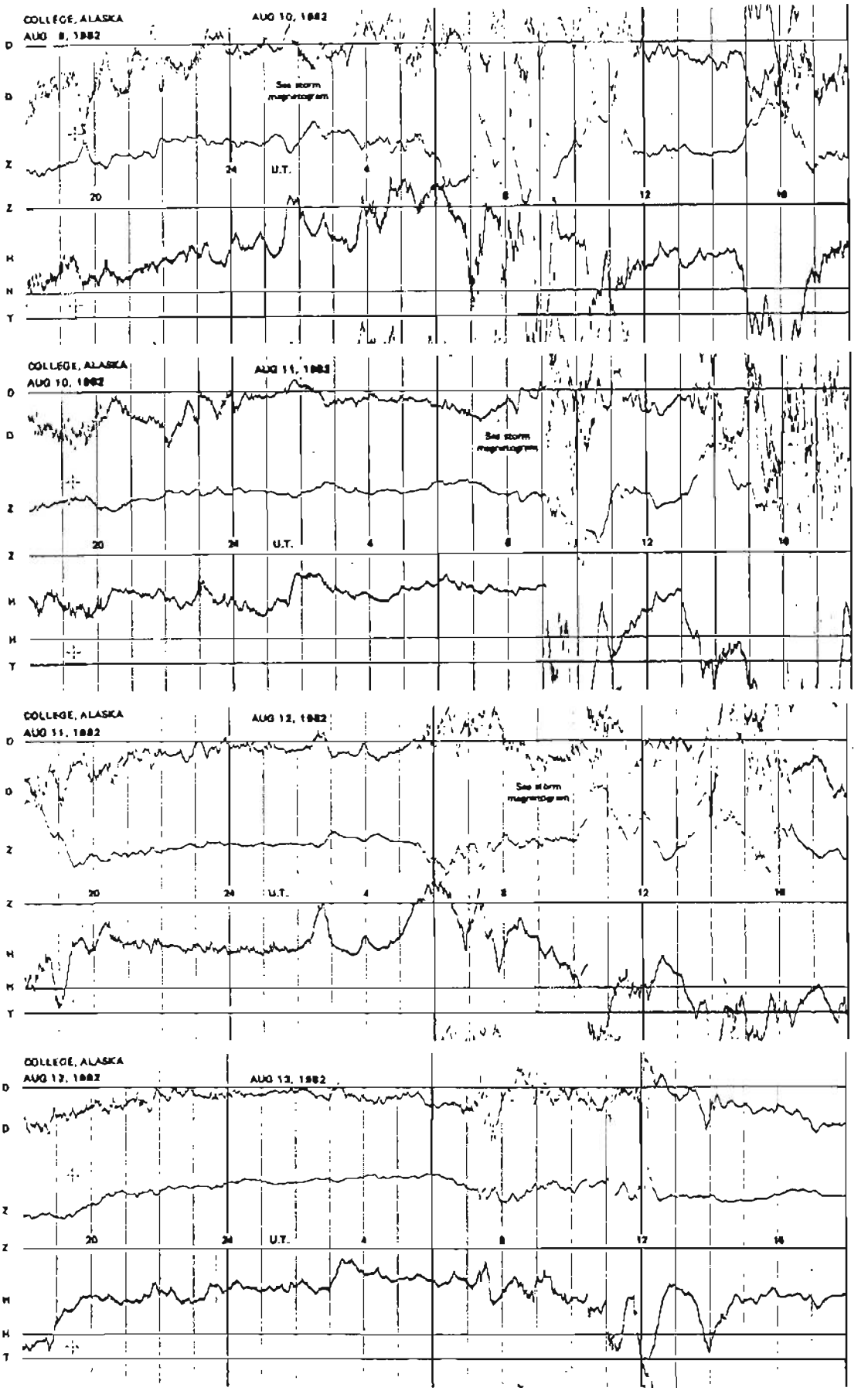
NORMAL MAGNETOGRAMS



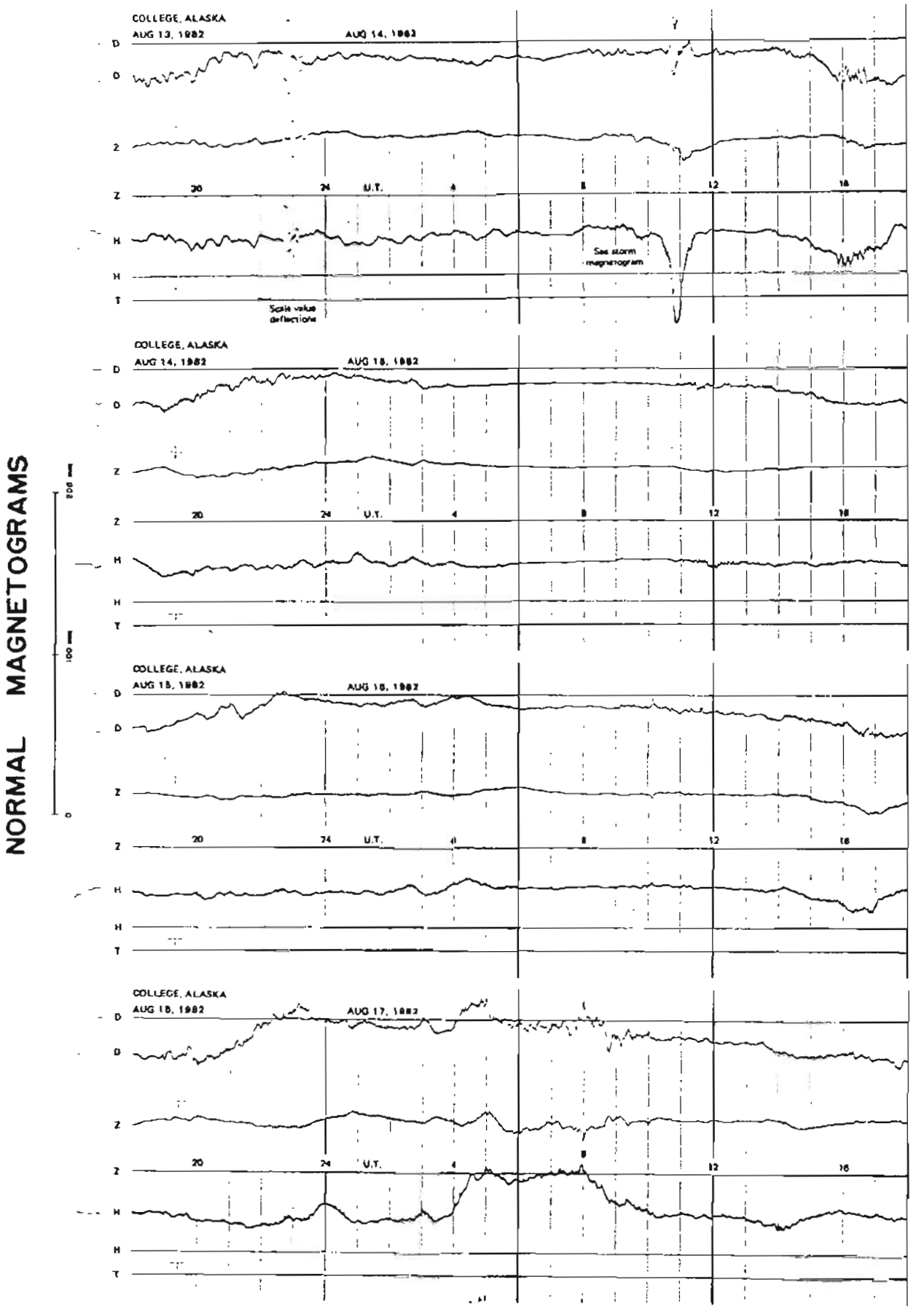
NORMAL MAGNETOGRAMS



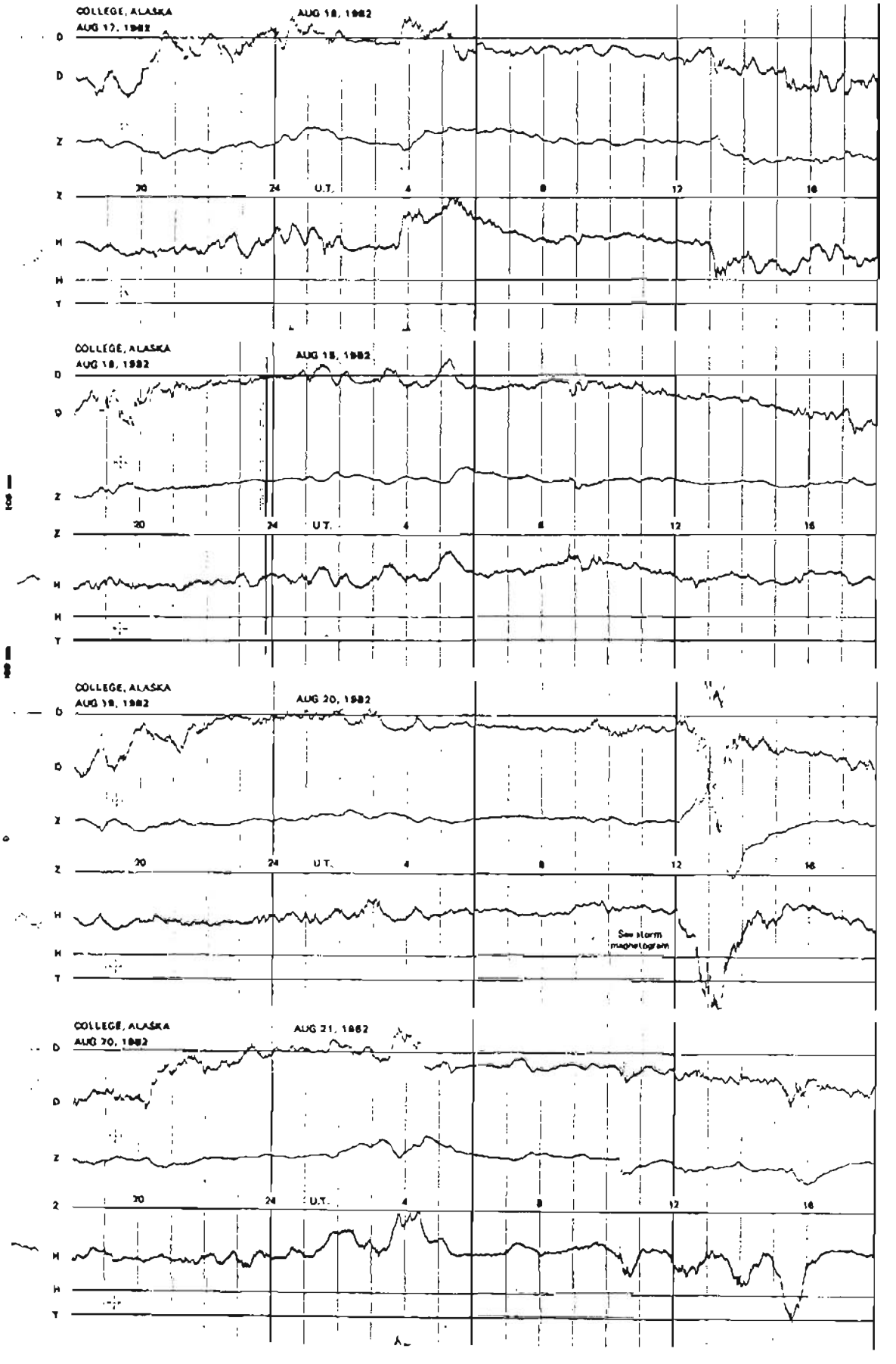
NORMAL MAGNETOGRAMS



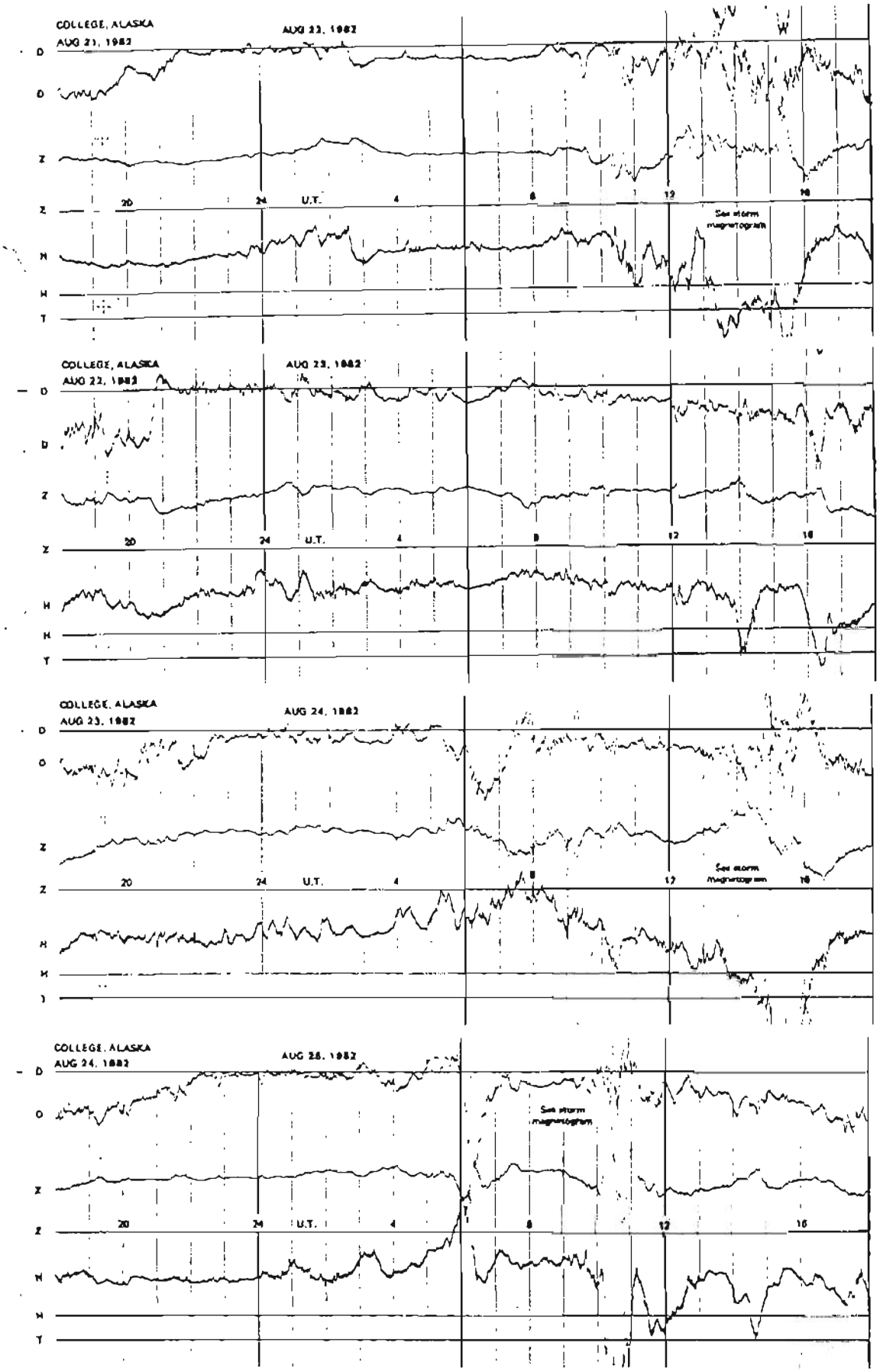
NORMAL MAGNETOGRAMS



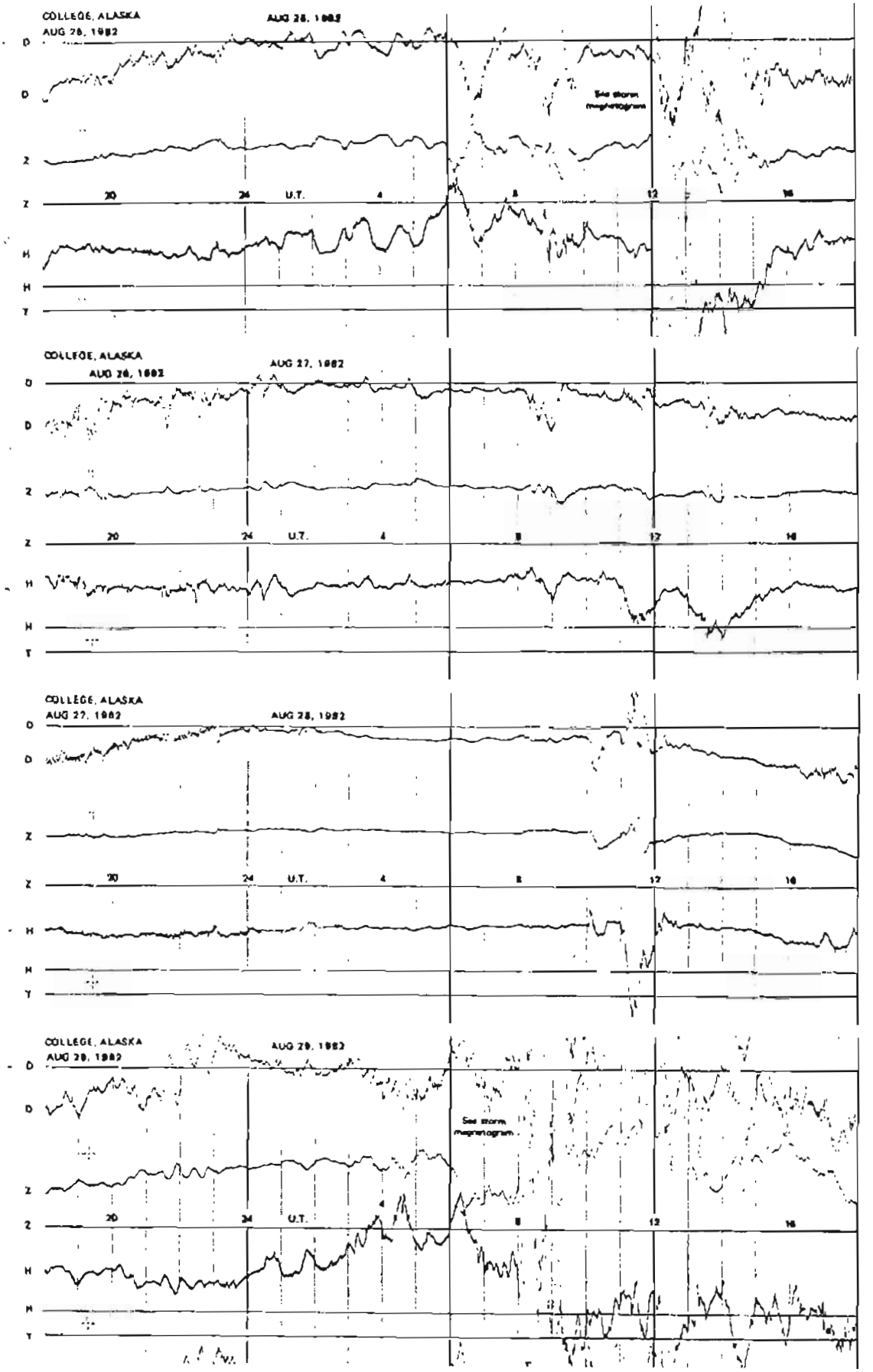
NORMAL MAGNETOGRAMS



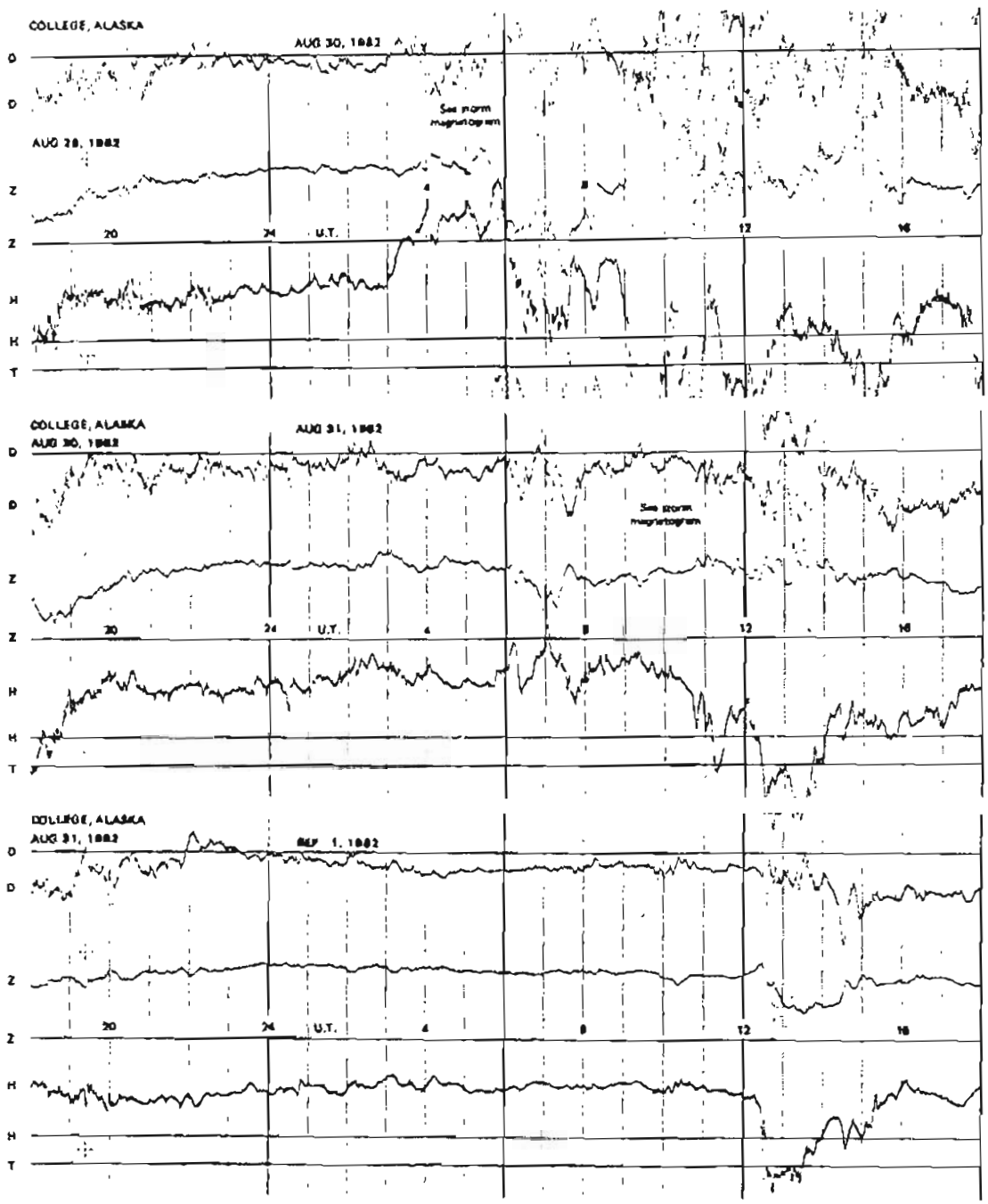
NORMAL MAGNETOGRAMS



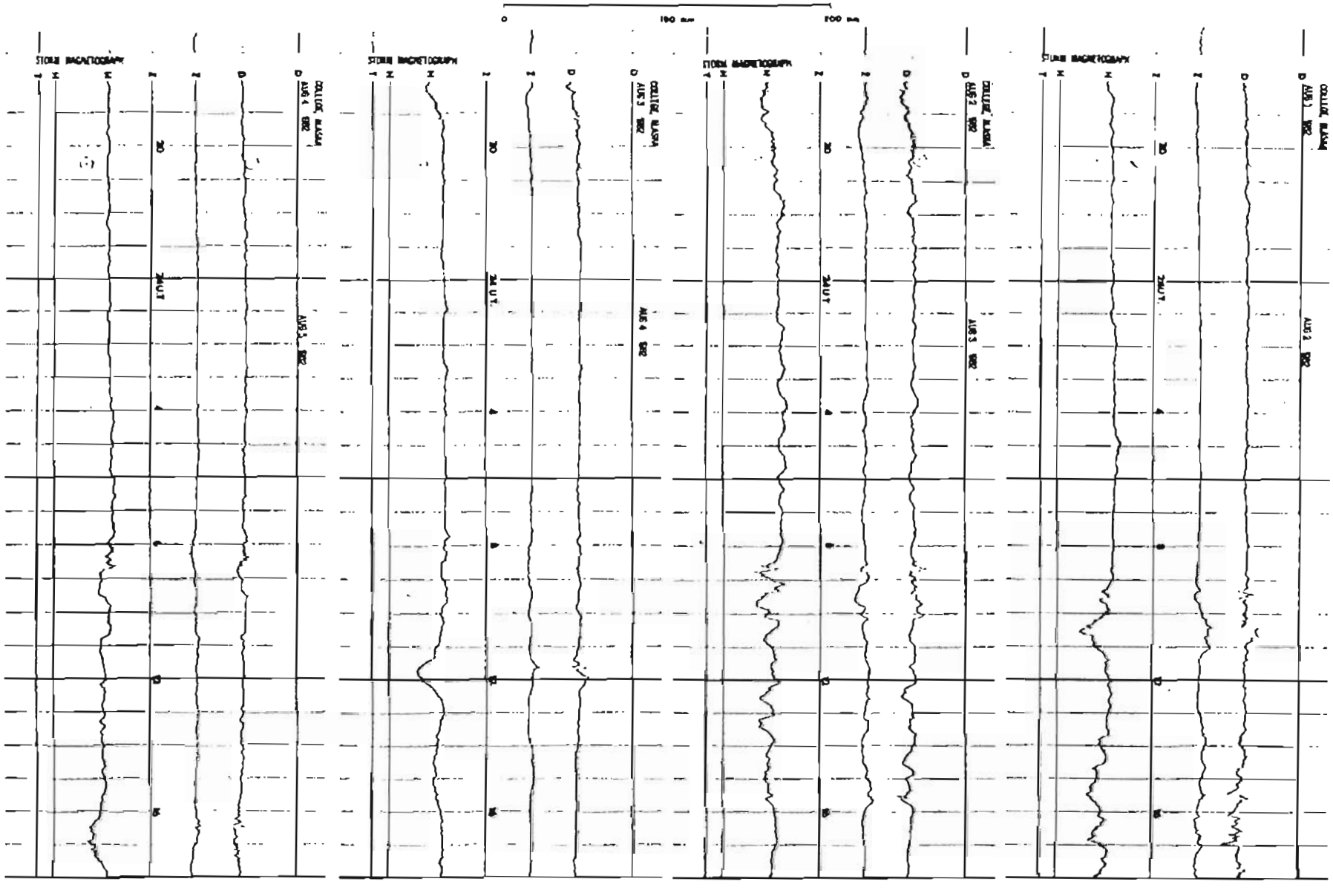
NORMAL MAGNETOGRAMS



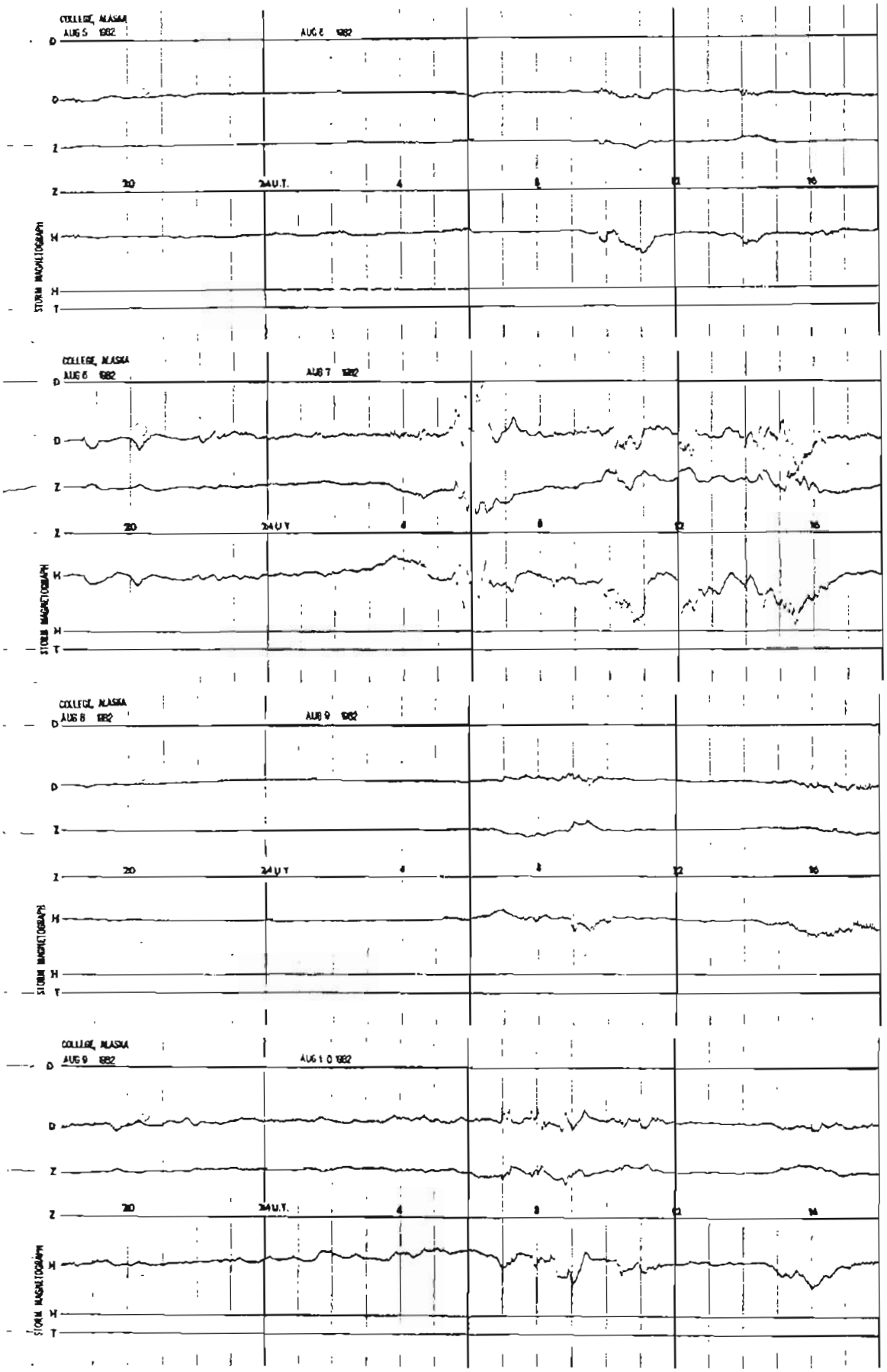
NORMAL MAGNETOGRAMS



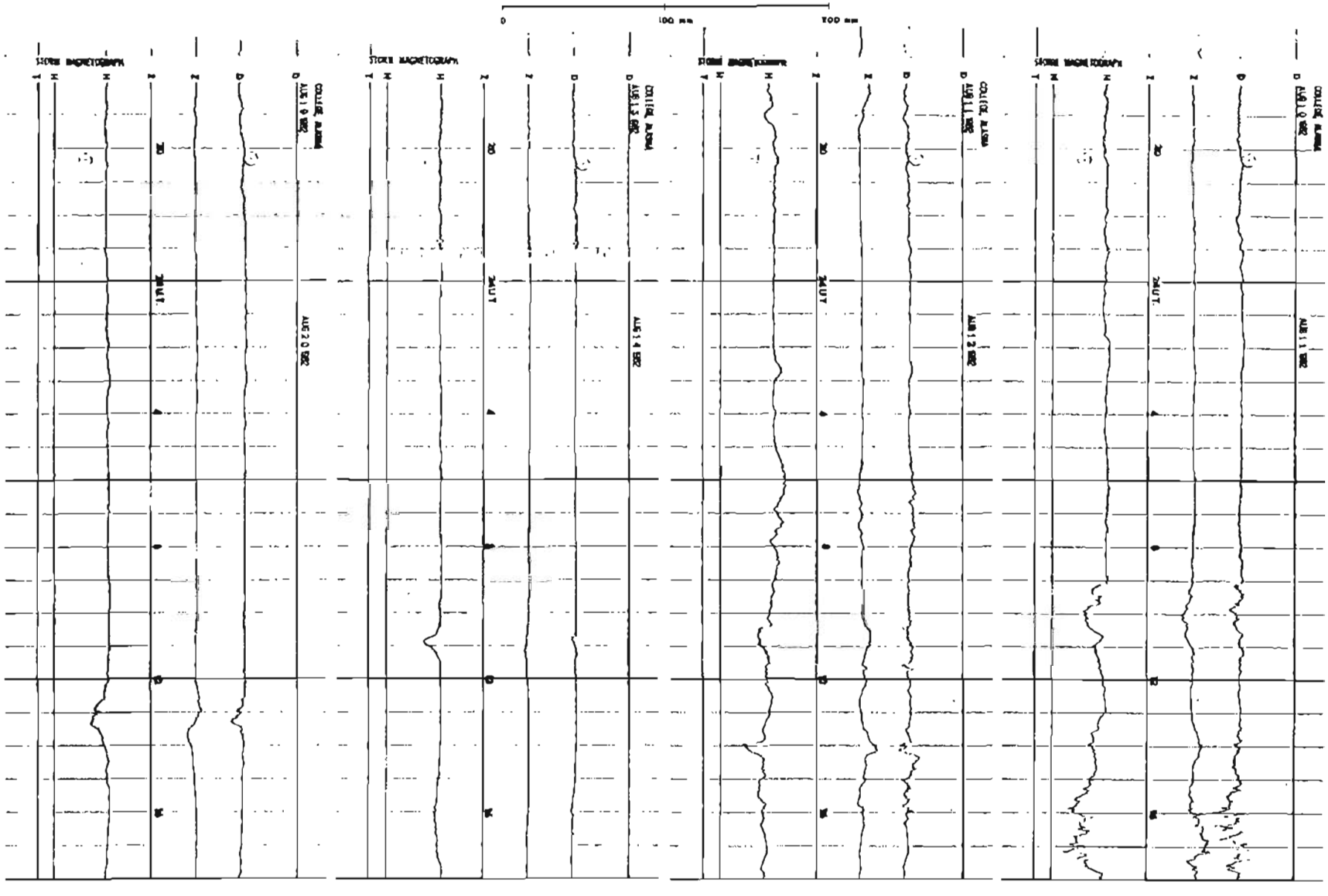
STORM MAGNETOGRAMS



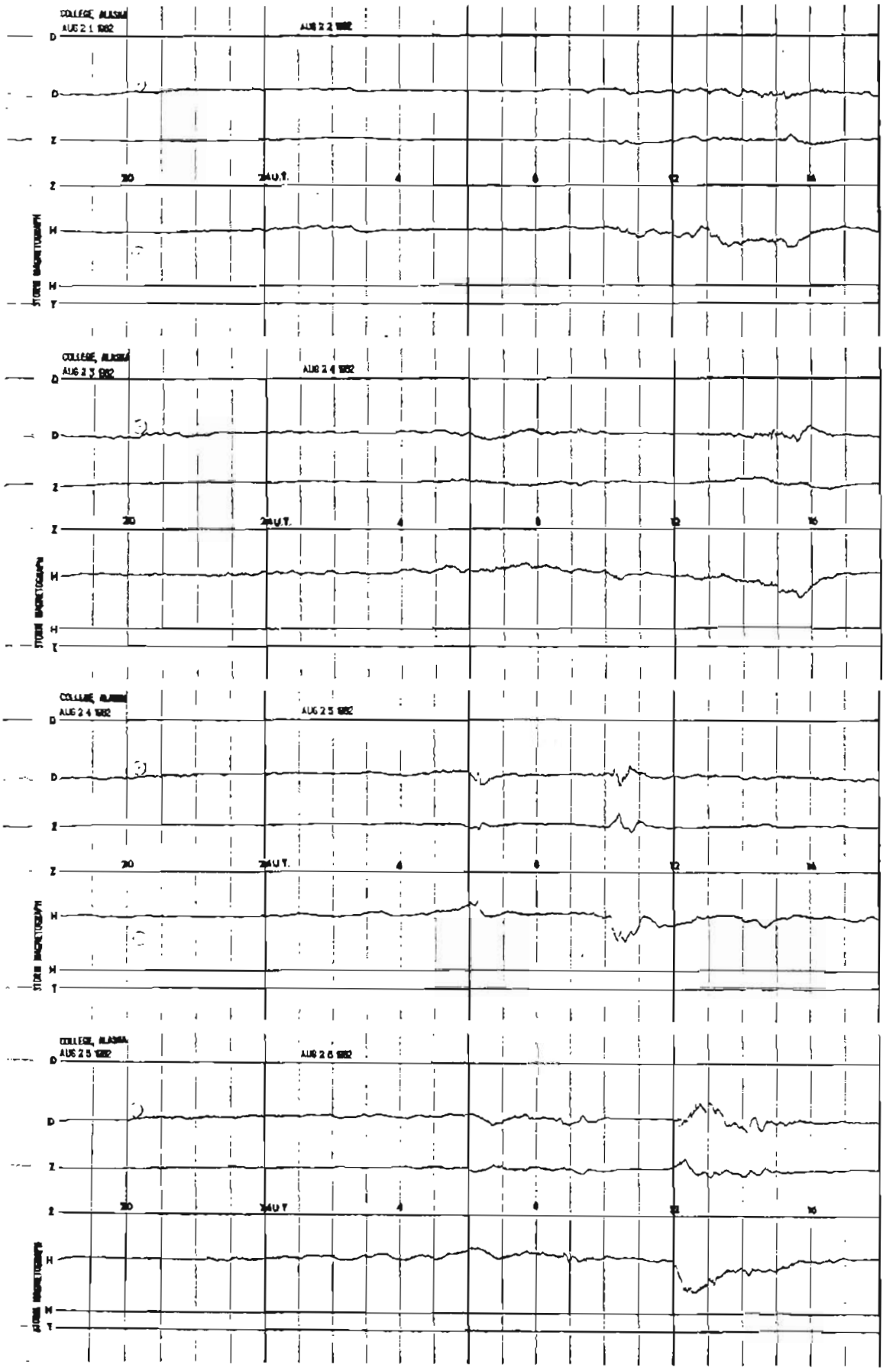
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS