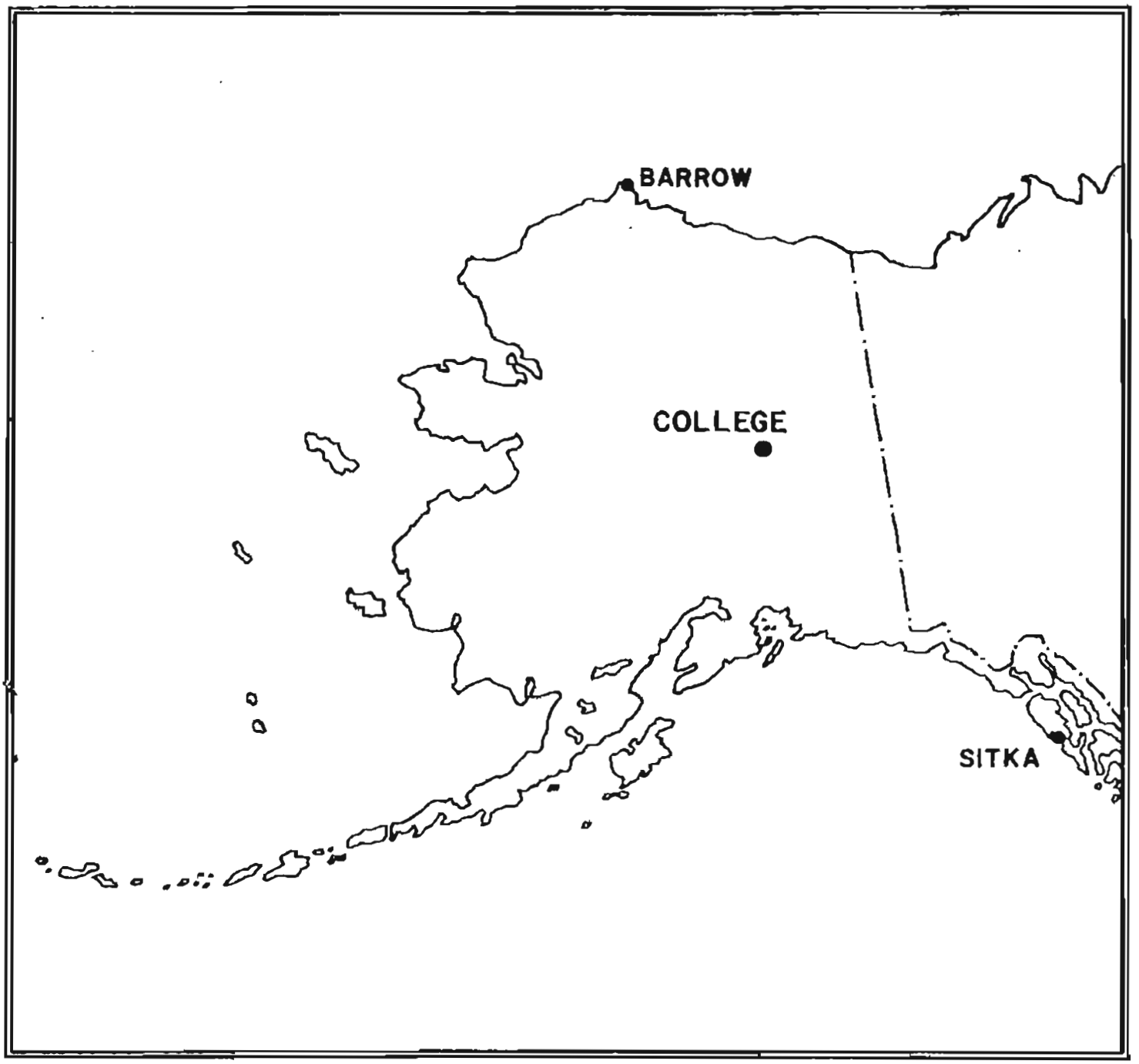
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

AUGUST 1983

OPEN FILE REPORT 83-0300H



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 GLOBAL SEISMOLOGY AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

Explanation of Data and Reports

Magnetic Activity Report

Outstanding Magnetic Effects

Principal Magnetic Storms

Preliminary Calibration Data and Monthly Mean Absolute Values

Magnetogram Hourly Scalings

Sample Format for Normal and Storm Magnetograms

Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

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 OBSERVATORY

MONTH AND YEAR: AUGUST 1983

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	3	2	1	2	0	1	1	11	05
2	4	5	5	3	6	4	4	3	34	36
3	2	4	2	4	4	4	3	2	25	18
4	2	2	2	1	1	1	1	1	11	05
5	0	0	0	0	0	0	1	1	02	01
6	1	2	0	0	2	1	1	0	07	03
7	1	0	2	1	2	1	3	4	14	08
8	6	5	5	5	3	2	1	3	30	33
9	4	3	2	1	2	2	2	2	18	10
10	1	3	3	3	2	1	0	2	15	08
11	2	2	0	4	4	2	2	2	18	11
12	3	4	5	5	5	5	4	3	34	35
13	3	4	5	6	6	3	3	3	33	37
14	3	2	2	2	4	2	2	2	19	11
15	3	3	1	5	4	4	1	1	22	18
16	1	0	0	0	2	2	1	1	07	03
17	2	2	2	3	0	1	1	1	12	06
18	1	0	0	0	1	0	0	0	02	01
19	0	0	0	1	5	5	1	1	13	13
20	1	3	2	3	4	2	2	2	19	11
21	4	4	5	7	5	5	4	3	37	48
22	3	2	3	5	3	3	4	2	25	19
23	3	6	6	5	4	4	4	3	35	40
24	3	4	4	7	5	4	3	3	33	39
25	4	4	6	6	5	4	4	2	35	40
26	3	5	5	6	4	6	2	2	33	39
27	2	1	0	0	3	2	2	1	11	05
28	2	2	3	4	2	1	1	2	17	10
29	1	2	3	5	4	3	2	3	23	17
30	4	4	5	5	4	3	2	2	29	26
31	5	3	5	5	4	6	3	3	34	37

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	7.76		(γ/mm)
LOWER LIMIT FOR K = 9	2550	2500		(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: 1972-760-948

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: AUGUST

YEAR: 1983

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
16	11XX	pi2	
18	13XX	pi2	

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 1983

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	02XX	..	..	..	..	13	4, 5	6	200	1230	610	13	14
		21	01XX	..	..	..	..	21	4	7	175	1350	640	22	01
		23	00XX	..	..	..	..	24	4	7	160	1360	1010	26	22

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: AUGUST 1983

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 8-1-83	2400 U.T., 8-31-83	1.0/mm	3.7γ/mm	27° 17.0 E
H	0000 U.T., 8-1-83	2400 U.T., 8-31-83	7.8γ/mm		12686γ
Z	0000 U.T., 8-1-83	1801 U.T., 8-3-83	7.7γ/mm		55141γ
	1802 U.T., 8-3-83	2400 U.T., 8-31-83	7.5γ/mm		55169γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 8-1-83	2400 U.T., 8-31-83	7.9/mm	29.6γ/mm	24° 20.7 E
H	0000 U.T., 8-1-83	2400 U.T., 8-31-83	43.9γ/mm		10822γ
Z	0000 U.T., 8-1-83	2400 U.T., 8-31-83	48.4γ/mm		54063γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 51.1 E	12944γ	55373γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: AUG 1, 4, 5, 6, 7, 10, 16, 17, 18, 27

FORM 78-106

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

OBSY.	YEAR	MONTH	ELEMENT
CO	83	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 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 M S	Ten Q	Day \ Hr.	01	02	03	04	05	06	07	08	09	10	11	12	Day \ Hr.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	267	287	293	298	306	320	312	364	308	299	308	338	01	318	352	387	412	465	497	491	457	418	376	356	300	8529
			02	234	167	169	239	261	162	-26*	234	230	278	246	269	02	471	593*	515	498	562	532	549	479	296	368	326	286	7972
			03	241	229	252	282	243	315	315	317	309	318	321	286	03	332	379	472	509	520	480	581	401	388	331	381	260	8462
			04	260	266	268	299	320	300	292	303	311	324	307	316	04	322	311	360	409	438	423	392	380	370	303	285	283	7842
			05	277	287	296	312	313	324	332	340	341	344	345	349	05	356	363	380	399	414	421	413	406	382	335	302	300	8331
			06	282	306	331	337	315	317	323	329	343	350	349	341	06	341	344	374	436	481	525	514	528	424	316	275	252	8733
			07	246	246	272	298	311	314	332	329	312	333	341	341	07	300	336	347	428	431	464	442	422	474	654	246	146	8365
			08	307*	483	241	243*	100	283	196*	62*	177	315*	98	225	08	289	302	336	406	490	467	445	404	351	308	317	298	7083
			09	307	296	276	335	294	324	335	336	329	319	317	326	09	318	316	368	407	446	465	466	450	408	372	324	296	8430
			10	270	278	292	294	310	386	329	316	310	341	356	351	10	284	302	341	410	437	450	421	388	349	313	290	285	8103
			11	270	274	287	318	330	310	320	314	320	325	308	334	11	359	347	367	409	446	470	483	416	329	259	257	280	8132
			12	276	260	248	240	251	278	218	358	247	157*	216	101*	12	224	386	385	617	895*	696*	571	452	351	352	331	268	8378
			13	250	219	202	101	185	107	367	183	255	278	291*	537*	13	561	336	389	403	418	467	479	420	362	402	327	294	7823
			14	248	246	261	276	268	271	325	303	326	314	326	324	14	328	362	350	399	448	422	471	449	410	356	294	292	8069
			15	272	257	274	265	274	296	340	350	324	301	326	287	15	272	364	367	434	523	506	462	445	411	364	301	275	8290
			16	271	272	279	301	312	322	334	339	337	342	338	349	16	361	354	396	473	473	501	471	424	386	333	318	290	8576
			17	242	255	216	239	195	245	301	316	315	310	344	314	17	336	355	379	424	438	452	410	409	352	320	272	262	7701
			18	270	267	268	293	311	317	325	328	324	316	316	330	18	339	384	400	427	437	440	448	417	379	332	298	274	8242
			19	265	292	295	308	320	329	330	322	328	334	338	322	19	318	370	585*	640*	617*	617*	448	426	365	361	265	272	9087
			20	296	314	321	282	337	318	310	278	289	301	300	363	20	451	347	423	535	553	586	557	484	325	307	261	238	8778
			21	244	180	190	152	153	197	280	164	117*	498*	193	434*	21	617*	593*	529*	632*	760*	617*	498	322	265	232	278	171	8316
			22	205	259	300	310	333	346	318	292	280	305	375	342	22	355	391	396	445	455	490	482	444	309	303	256	260	8251
			23	268	258	224	196	323	383	357	320	140*	250	228*	382	23	397	363*	434*	500	563	562	488	452	370	340	264	280	8342
			24	278	291	274	264	269	356	321	328	132	288	387*	204*	24	363	466	381	424	462	437	458	397	325	232	218	236	7791
			25	245	306	294	270	341	349	291	379*	459*	232	570*	188*	25	270	395*	368	376	482	545	515	344	354	307	316	250	8446
			26	260	265	348	260	252	538	360	316	301	243*	537*	362	26	343	368	428	482*	411	430	475	422	383	300	268	263	8615
			27	266	268	306	330	336	343	349	346	339	338	337	333	27	314	386	386	428	407	426	404	373	324	270	268	282	8159
			28	274	269	306	316	342	334	348	312	235	313	283	313	28	312	308	327	389	450	464	436	368	336	297	290	280	7902
			29	296	300	277	276	258	273	308	301	300	370	288	330	29	389	385	522	508	488	608	509	410	371	387	320	185	8659
			30	187	162	227	177	302	192	429	291	264	261	298	336	30	319	340	390	418	438	446	426	408	353	340	321	260	7587
			31	278	259	230	335	243	221	339*	321	318	328	299	302	31	370	402	389	396	673*	334	348	398	391	236	234	266	7910

SCALED BY	LYT, TKC
CHECKED BY	TKC, JEP, EAS
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	254,904
MONTHLY MEAN	349
DATES WITH GAPS:	

FORM 76-104

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 min. 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.

OBSY.	YEAR	MONTH	ELEMENT
CO	83	AUG	Z

C	Q or S	Con O	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	299	309	322	337	347	330	343	350	330	332	314	285	01	284	305	289	287	291	290	293	289	286	290	292	286	7380
			02	292	300	339	392	350	311	85	334	303	293	262	354	02	237	497*	449	392	286	221	302	175	132	229	272	300	7107
			03	332	344	311	302	330	362	331	320	311	300	307	314	03	285	230	196	251	230	259	244	231	247	246	281	278	6842
			04	283	297	312	322	302	294	279	302	281	269	263	250	04	236	218	241	255	256	259	260	269	268	250	249	245	6480
			05	267	274	276	281	275	276	275	274	275	274	270	270	05	271	270	270	272	276	276	262	253	245	243	250	266	6441
			06	270	277	280	270	262	265	262	262	266	265	262	261	06	262	263	254	245	249	233	225	230	206	209	228	245	6051
			07	256	256	267	280	272	270	275	270	264	268	263	262	07	242	257	260	256	263	266	262	246	237	193	172	224	6081
			08	307*	77	-114	-359*	-259	-53	29	125	506	500*	452	320	08	270	282	310	315	324	300	286	273	268	278	286	290	5013
			09	304	296	335	349	281	288	283	282	277	278	274	278	09	266	268	263	278	292	274	277	280	275	278	276	286	6840
			10	284	290	287	296	331	361	366	323	296	289	254	198	10	227	262	273	260	278	276	275	272	266	274	272	281	6811
			11	299	304	310	304	302	294	286	270	273	275	272	247	11	231	110	234	293	290	281	265	246	223	228	249	269	6355
			12	289	295	310	341	295	302	301	228	315	317	328	416	12	458	644	569	496	425	284*	131	201	196	223	257	273	7894
			13	345	358	268	287	341	330	348	143	239	201	349*	304*	13	328	194	262	266	290	382	272	254	246	278	279	275	6879
			14	268	292	306	288	281	313	318	308	309	292	280	260	14	264	265	210	234	244	252	255	236	243	262	266	268	6514
			15	277	292	330	309	286	308	306	290	270	266	278	251	15	201	244	265	196	173	169	244	254	253	261	273	283	6279
			16	284	284	286	280	273	270	269	271	269	269	268	268	16	265	252	228	188	155	180	220	235	248	258	270	272	6062
			17	298	324	312	329	323	372	335	302	268	272	245	267	17	279	279	275	271	275	276	281	278	264	265	265	265	6940
			18	271	272	269	274	268	269	269	269	270	276	275	275	18	271	259	267	272	270	274	273	264	263	258	265	272	6465
			19	277	276	276	276	268	271	269	266	265	264	262	262	19	264	312	319*	319*	205	193	226	262	269	289	292	291	6473
			20	289	298	306	319	352	307	308	311	288	294	236	220	20	228	198	210	233	260	197	187	200	210	245	270	293	6261
			21	314	313	312	325	364	292	185	120	50	332*	308	345*	21	61*	216	298	364*	268*	209*	148	186	237	277	313	300	6139
			22	300	308	308	283	304	319	314	292	243	285	285	198	22	250	228	235	274	268	205	212	228	162	210	257	276	6244
			23	288	305	302	205	-378	-118	204	168	244	274	358	220	23	389	513*	319*	248	203	178	205	230	266	280	270	296	5469
			24	326	347	326	342	345	370	287	174	139*	282	423*	68*	24	235	286	294	309	224	255	264	248	256	259	289	318	6686
			25	346	379	327	306	437	334	312	211*	80	262	417*	365*	25	392	502	284	239	260	248	232	286	272	264	280	292	7347
			26	302	334	343	328	315	282	336	341	279	207	92	58	26	192	364	364	476*	160	217	277	258	270	256	274	278	6622
			27	288	294	268	283	278	274	274	272	270	270	270	271	27	261	212	172	218	234	236	254	265	266	264	274	283	6271
			28	291	292	302	312	304	290	300	312	281	286	272	268	28	251	258	242	270	281	271	263	256	269	275	284	288	6718
			29	298	311	323	328	346	328	298	300	303	196	84	182	29	266	272	449	248	224	189	170	174	234	256	219	224	6222
			30	274	326	327	299	370	246	204	307	287	214	269	298	30	226	248	243	180	208	230	243	270	260	258	249	270	6326
			31	304	299	286	330	325	354	185*	256	284	220	189	176	31	188	194	212	228	211*	-12	158	233	262	264	274	287	5707

SCALED BY	LYT, TKC
CHECKED BY	TKC, JEP, EAS
SIGNS REVIEWED BY	JEP
PUBLISHED BY	

Preliminary baseline and scale values.

Interval Beginning	Baseline Value	Scale Value

( ) Interpolated
[ ] Significant portion of hour interpolated.
[ ] Scaling uncertain because of magnetic storm.
□ No record; or no values available because of faulty record.
< > Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.
* Derived from STORM Magn., converted to Normal Magn.

MONTHLY SUM	200,919
MONTHLY MEAN	270
DATES WITH GAPS:	

FORM 74-104

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geomagnetic 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 (130 M.T.) is hour 11 of the 0000 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSV.	YEAR	MONTH	ELEMENT
CO	83	AUG	H

C	Q or S	For Q	Dy	01	02	03	04	05	06	07	08	09	10	11	12	Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	305	320	339	338	378	347	380	368	366	360	338	337	01	332	338	329	338	340	342	337	318	302	297	300	306	8055
			02	344	367	512	623	385	550	305	341	463	373	342	302	02	-173*	-241*	99	168	252	314	241	96	204	313	322	364	6866
			03	328	329	350	316	409	349	362	346	364	363	340	232	03	240	157	241	193	247	314	258	323	317	294	308	307	7287
			04	370	356	367	362	364	330	350	370	360	349	337	328	04	324	298	323	305	320	326	314	289	264	265	288	298	7879
			05	296	310	330	331	341	334	325	327	336	341	335	336	05	340	342	346	356	352	336	309	290	285	292	310	316	7816
			06	330	330	331	332	350	341	336	337	339	348	356	362	06	363	356	329	327	322	319	325	306	290	285	306	308	7938
			07	314	344	362	358	358	346	346	346	354	361	362	375	07	345	379	362	370	372	349	337	326	305	309	324	491	8515
			08	812*	704*	390	423	431	392	282	214	0	148	18	296	08	367	377	378	346	343	330	318	305	295	283	278	338	8068
			09	411	532	515	276	281	270	284	291	299	305	314	321	09	323	328	297	353	336	320	318	268	260	264	278	287	7731
			10	311	329	333	408	433	426	393	347	338	341	292	282	10	349	334	334	336	361	363	343	321	317	302	297	305	8195
			11	315	340	340	329	347	341	327	334	336	334	359	255	11	65	242	383	378	365	334	297	263	275	300	295	319	7473
			12	305	332	397	459	644	649	694	377	338	374	171	111	12	304	135	132	10	-165	-44	247	318	330	332	377	335	7162
			13	404	344	336	469	625	647	523	467	372	398	176	128	13	-179*	346	364	371	354	282	264	264	289	298	363	316	7985
			14	352	382	330	338	350	392	364	375	414	382	348	321	14	332	160	273	339	308	325	284	305	277	274	277	296	7798
			15	314	384	354	341	349	379	370	337	334	335	252	48	15	246	344	297	142	83	209	321	318	294	282	284	291	6908
			16	306	315	329	307	327	332	333	336	339	336	338	344	16	343	326	272	238	236	286	298	302	289	288	302	326	7470
			17	384	392	401	365	400	372	337	349	367	377	383	379	17	358	350	336	333	337	322	300	278	280	292	295	313	8300
			18	348	326	334	334	339	338	338	341	347	348	343	341	18	336	340	348	348	347	328	308	291	274	269	285	292	7613
			19	306	326	337	334	335	332	336	340	345	348	353	382	19	386	188	-100	-99	-8	227	372	353	324	313	321	328	6679
			20	333	342	360	434	426	363	356	382	386	349	346	283	20	153	285	240	309	303	274	298	271	244	279	336	367	7719
			21	395	487	591	578	728	777*	579	449	310	-111*	137	236*	21	201*	-39	-12	-50	-116*	60	92	268	333	319	334	308	5980
			22	374	342	332	352	361	347	399	480	418	337	249	168	22	255	288	337	353	285	242	288	237	162	329	318	320	7593
			23	343	404	447	607	573	623	540	59*	-54*	203	155*	130	23	128	147	135	269	223	195	249	270	352	325	290	309	6923
			24	373	450	404	472	533	426	576	435	460*	350*	-274*	-314*	24	17	-95	194	139	179	344	332	300	258	211	284	314	6368
			25	382	497	376	398	479	340	399	460*	-45	234*	-423*	201*	25	142	26	102	371	263	260	267	387	328	300	295	303	5940
			26	342	446	464	377	503	545	403	394	206	-236*	-314*	-156*	26	171	164	97	-184*	111	376	322	278	327	324	323	337	5624
			27	341	323	336	340	342	339	332	330	327	328	326	340	27	287	251	249	292	302	322	328	299	288	303	308	334	7569
			28	328	339	318	358	361	343	354	386	353	282	328	238	28	321	324	305	334	343	322	310	302	289	297	313	314	7762
			29	337	342	357	380	360	331	341	358	429	368	277	291	29	294	328	206	221	310	199	278	279	284	277	264	326	7427
			30	438	432	372	516	420	597	375	532	473	395	372	169	30	242	304	179	212	303	300	328	314	302	292	301	297	8465
			31	375	426	567	404	378	466	455*	376	382	144	208	254	31	254	156	266	291	-303*	207	293	302	246	257	323	343	7090

SCALED BY	LYT, TKC
CHECKED BY	TKC, JED, ERS
SIGNS REVIEWED BY	JED
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.

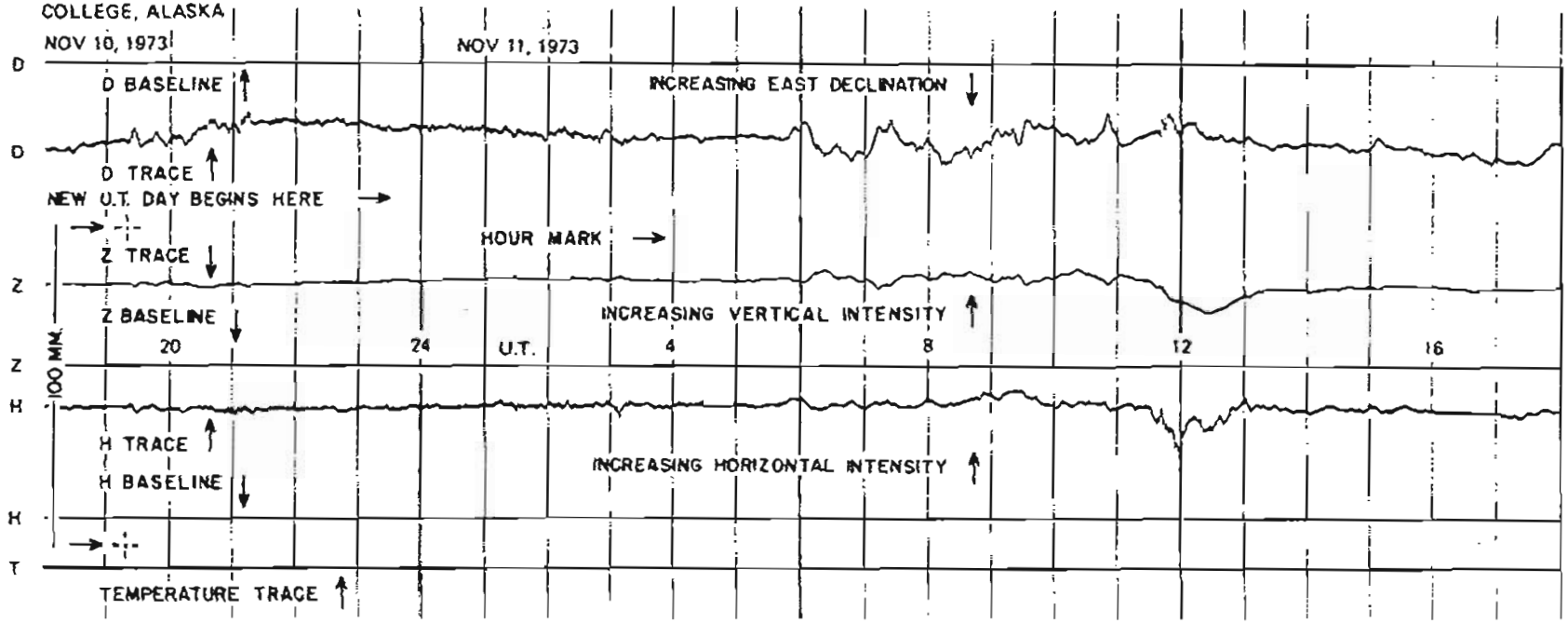
* Derived from STORM Mgph., converted to Normal Mgph.

[ ] 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.

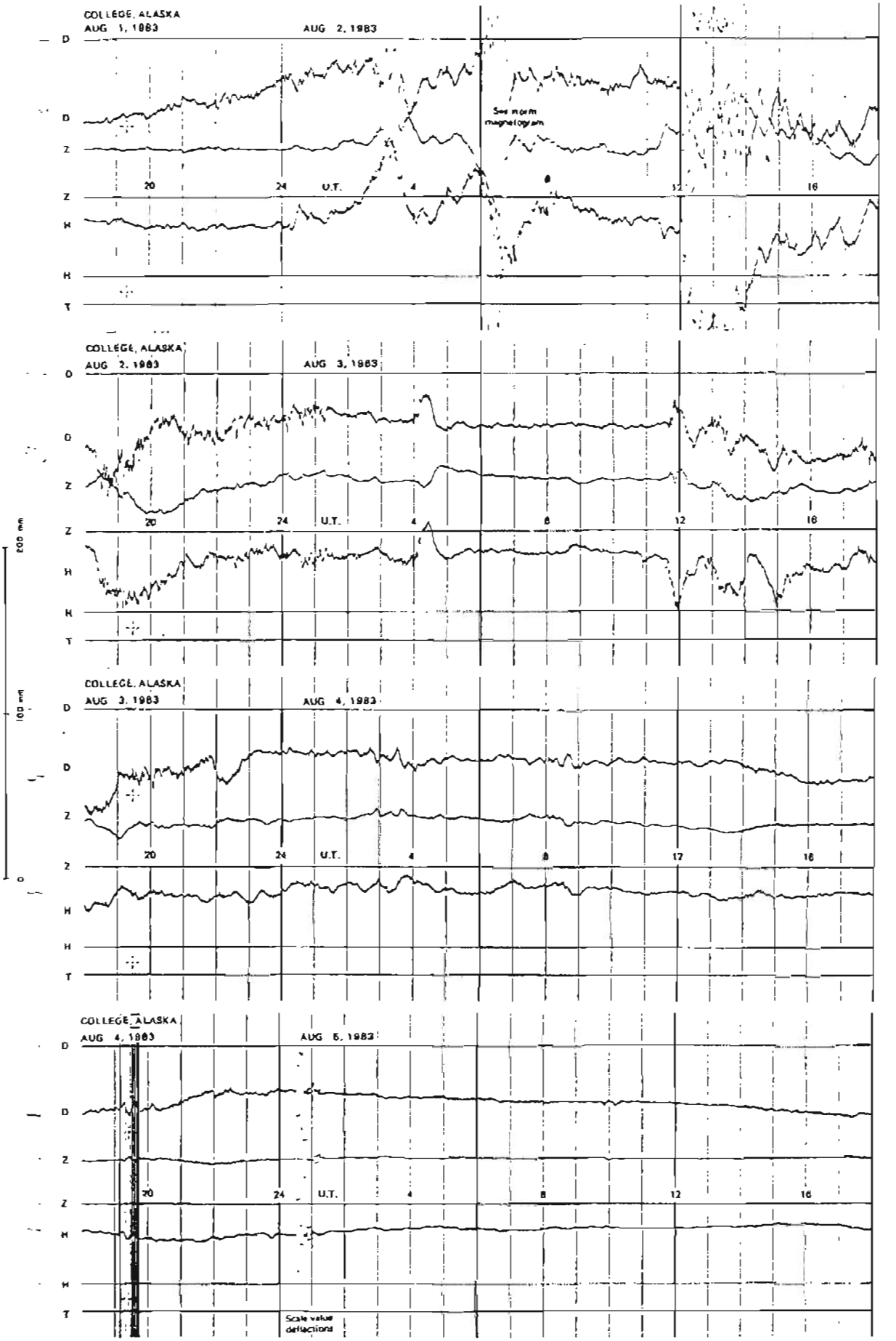
MONTHLY SUM	239397
MONTHLY MEAN	310
DATES WITH GAPS:	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

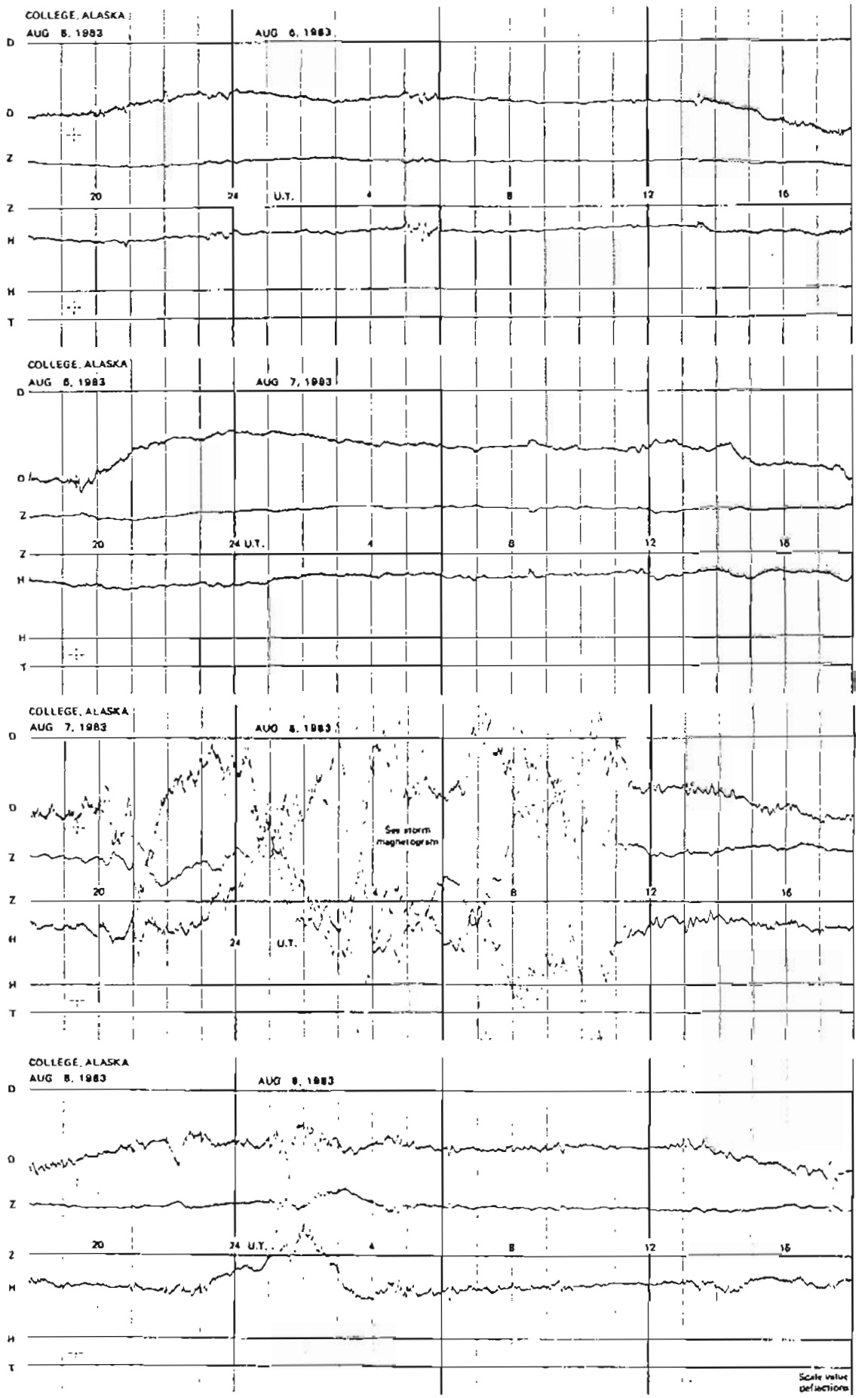


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

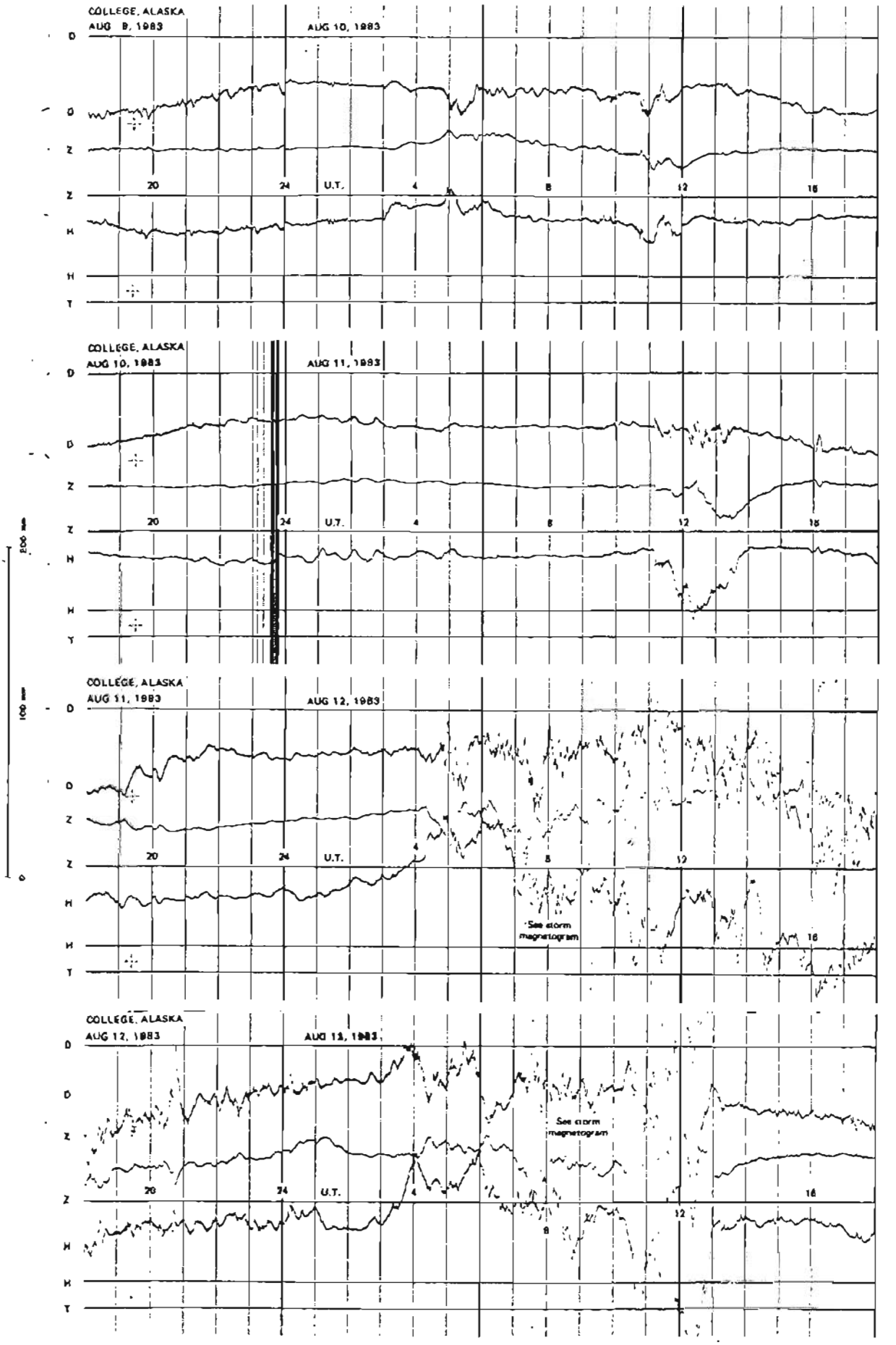
NORMAL MAGNETOGRAMS



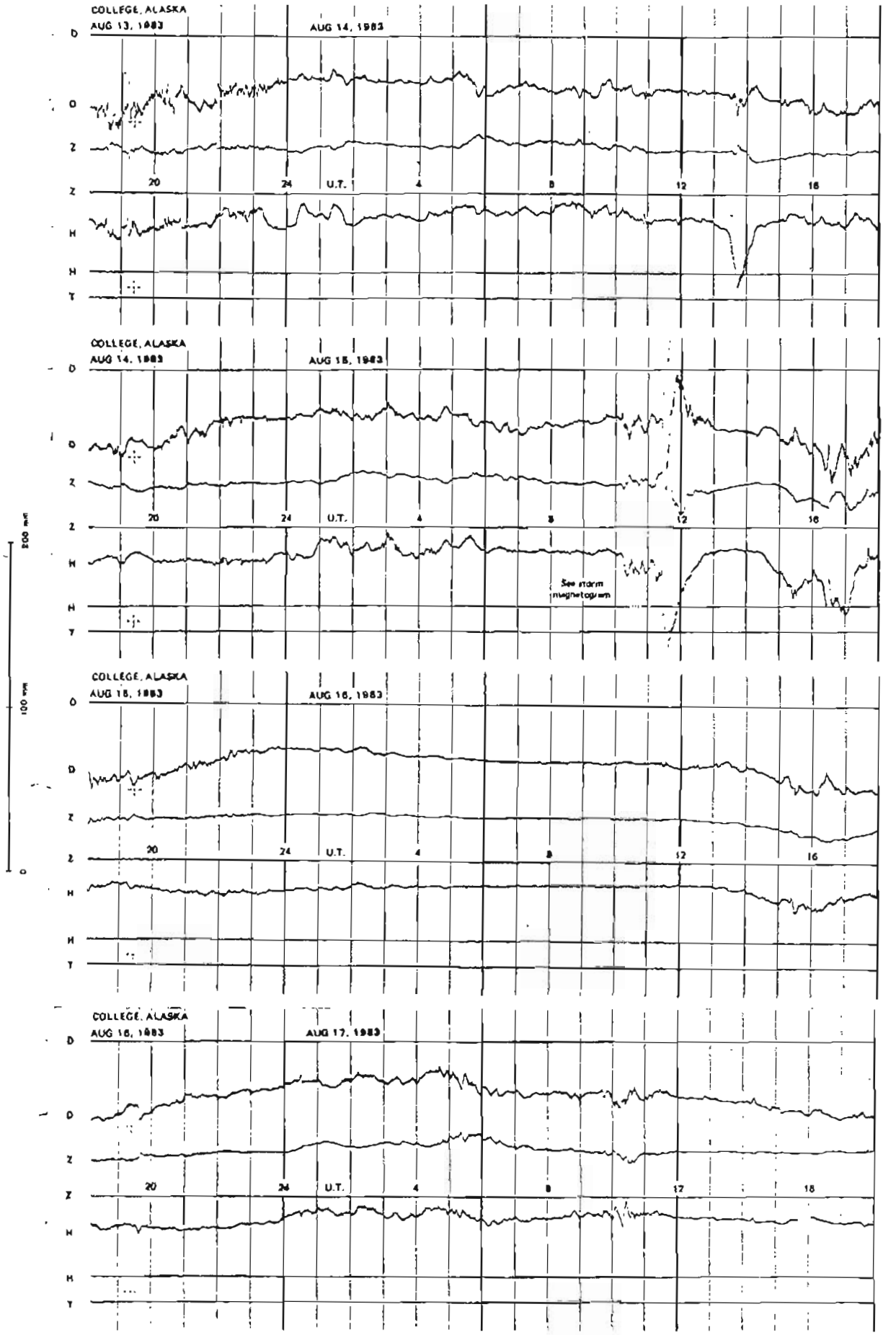
NORMAL MAGNETOGRAMS



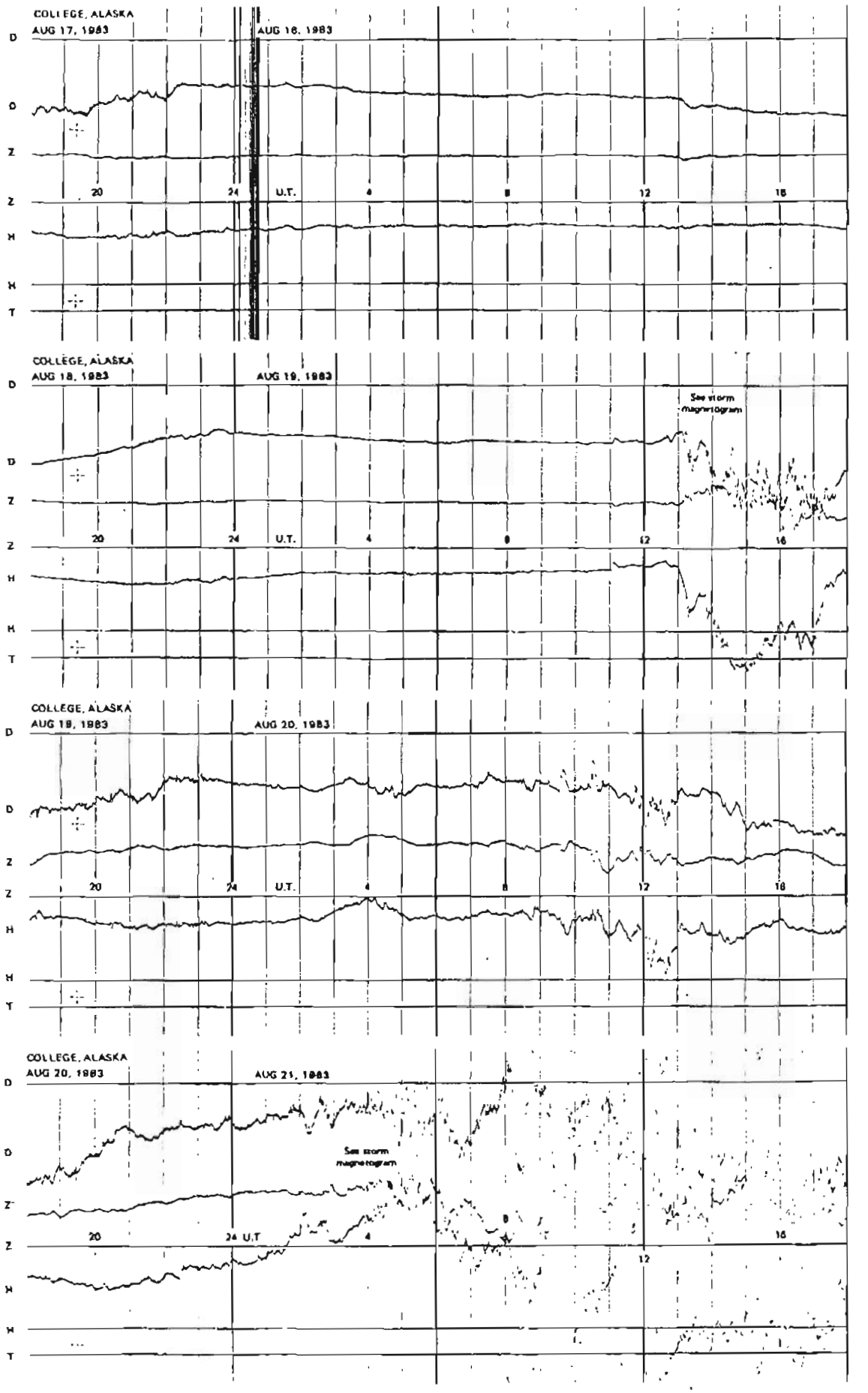
NORMAL MAGNETOGRAMS



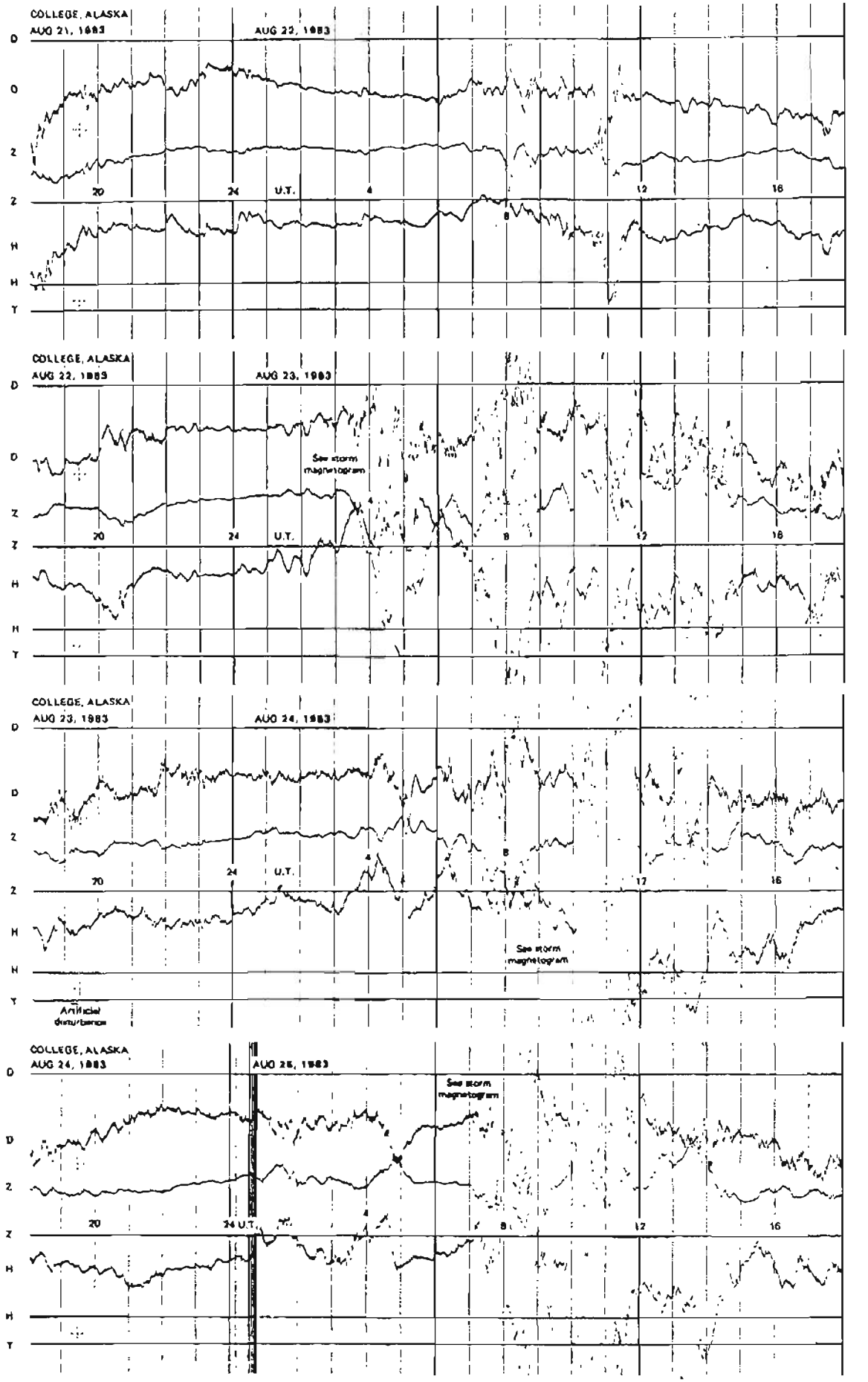
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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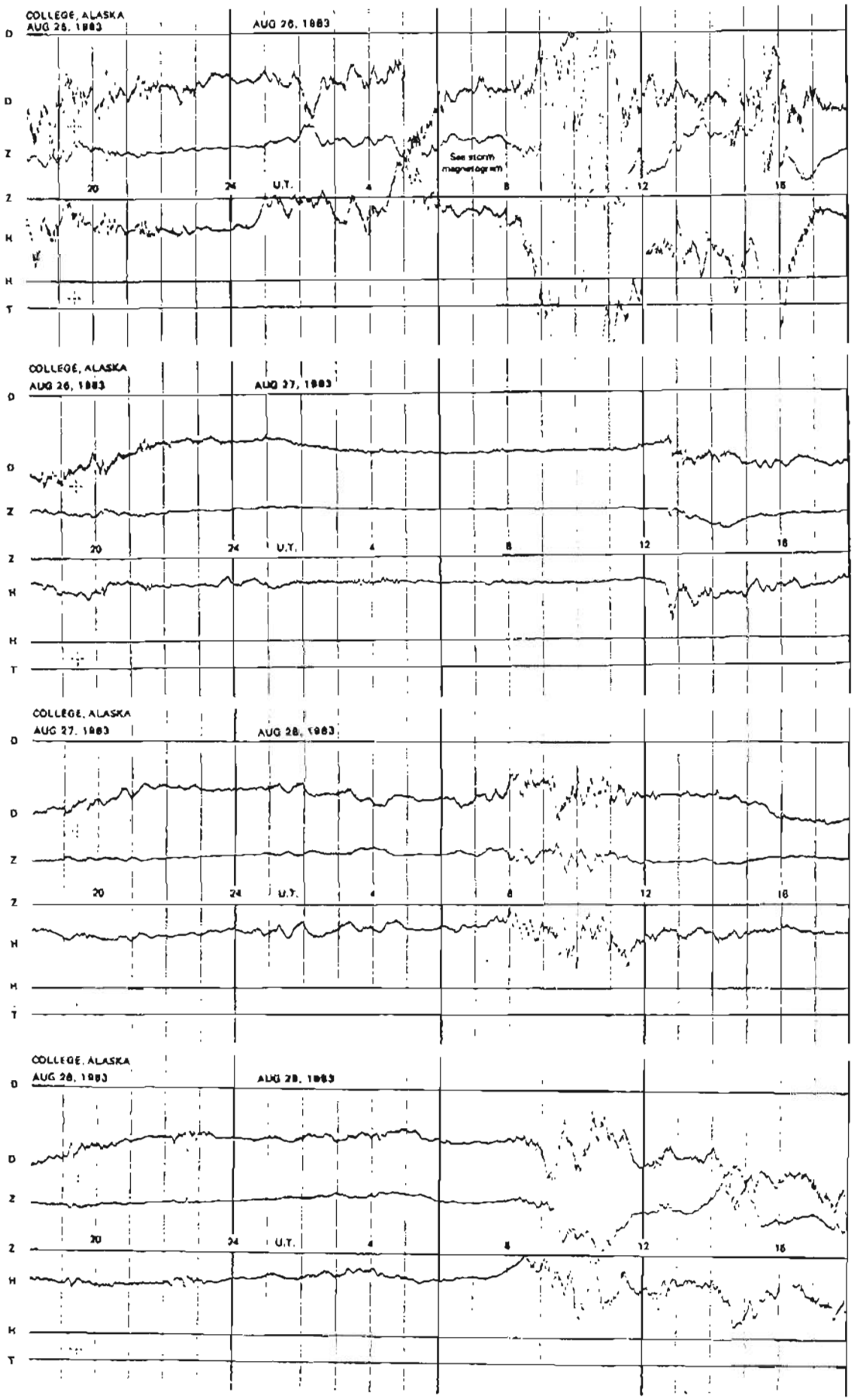
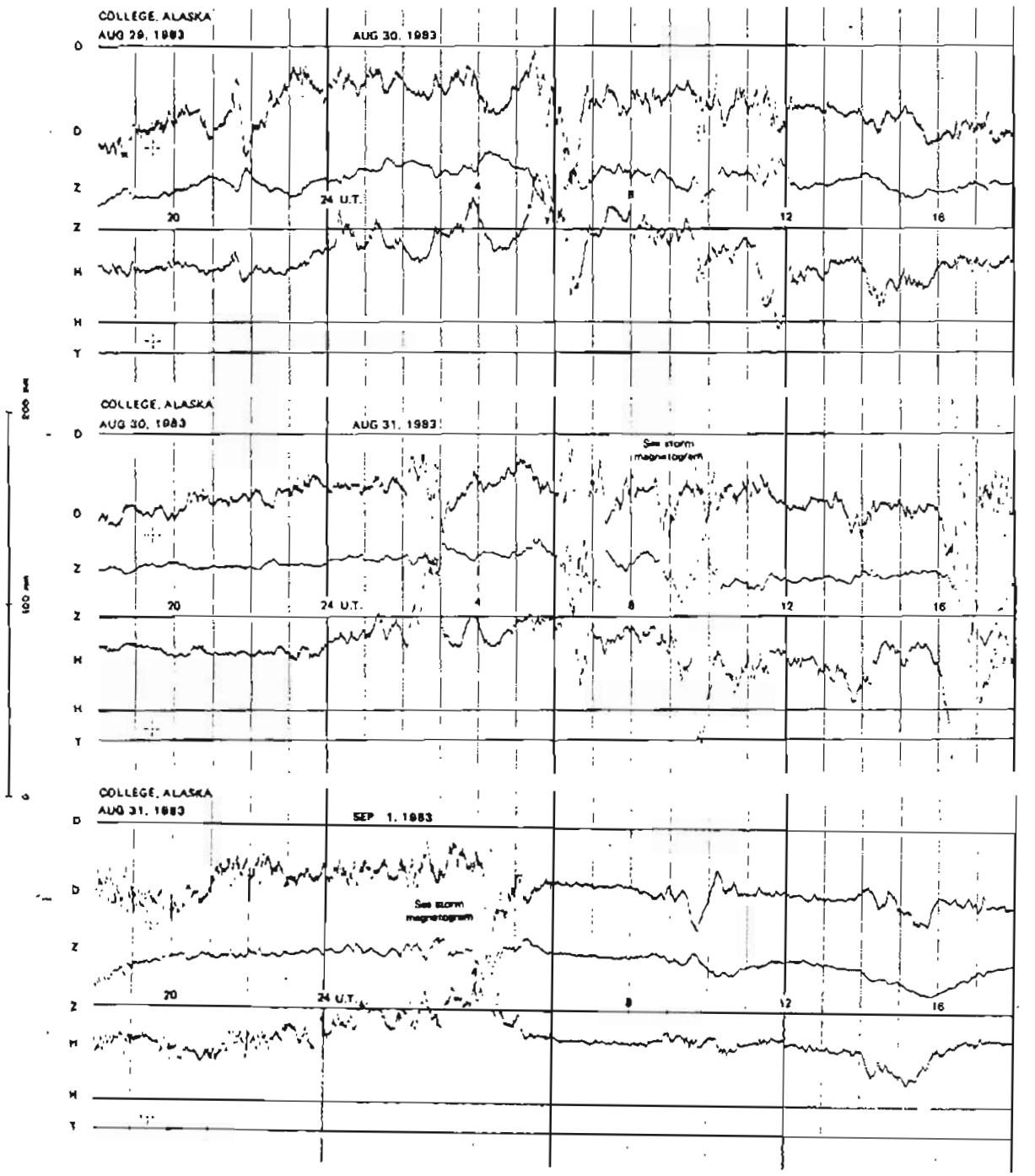
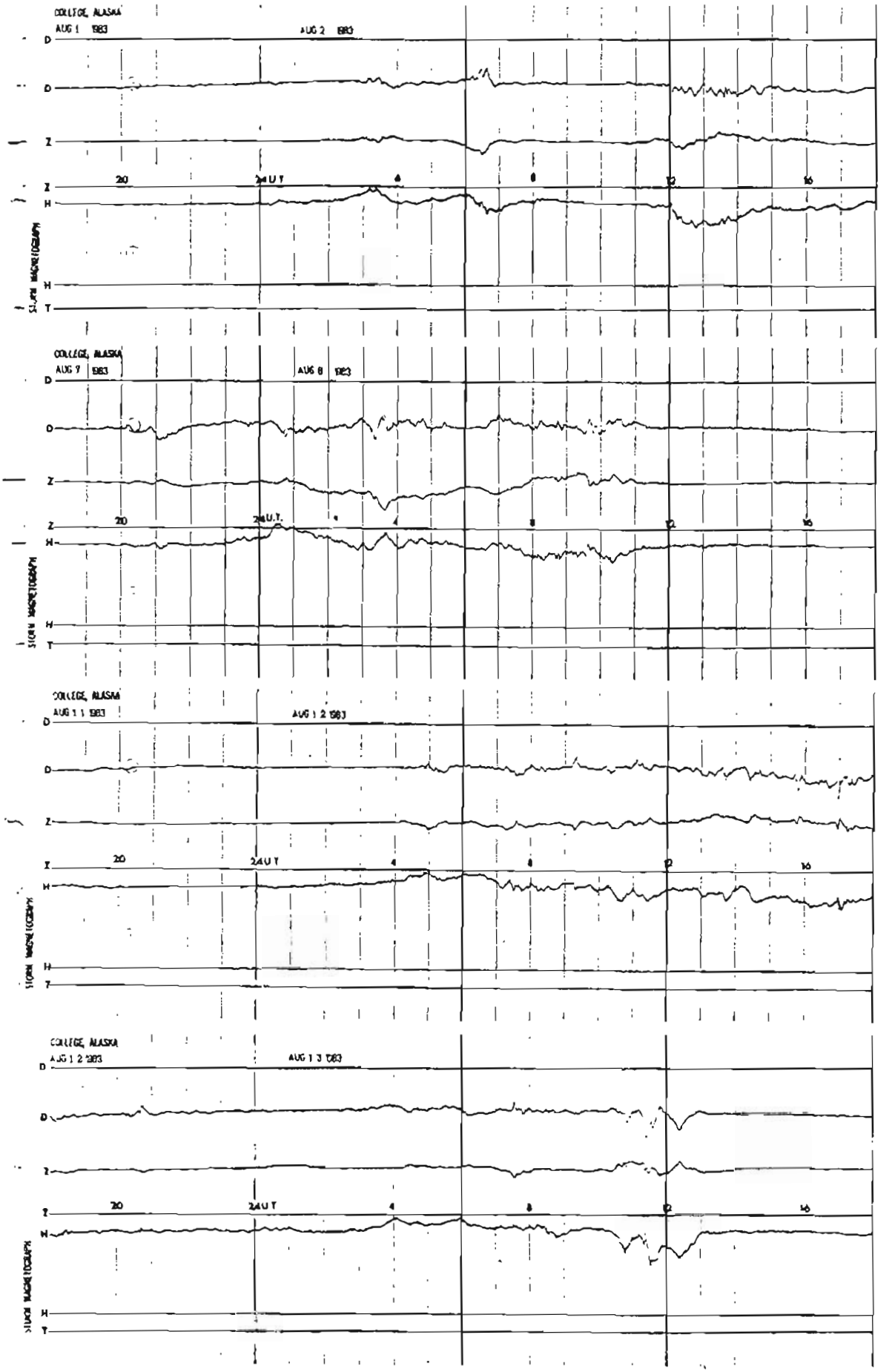


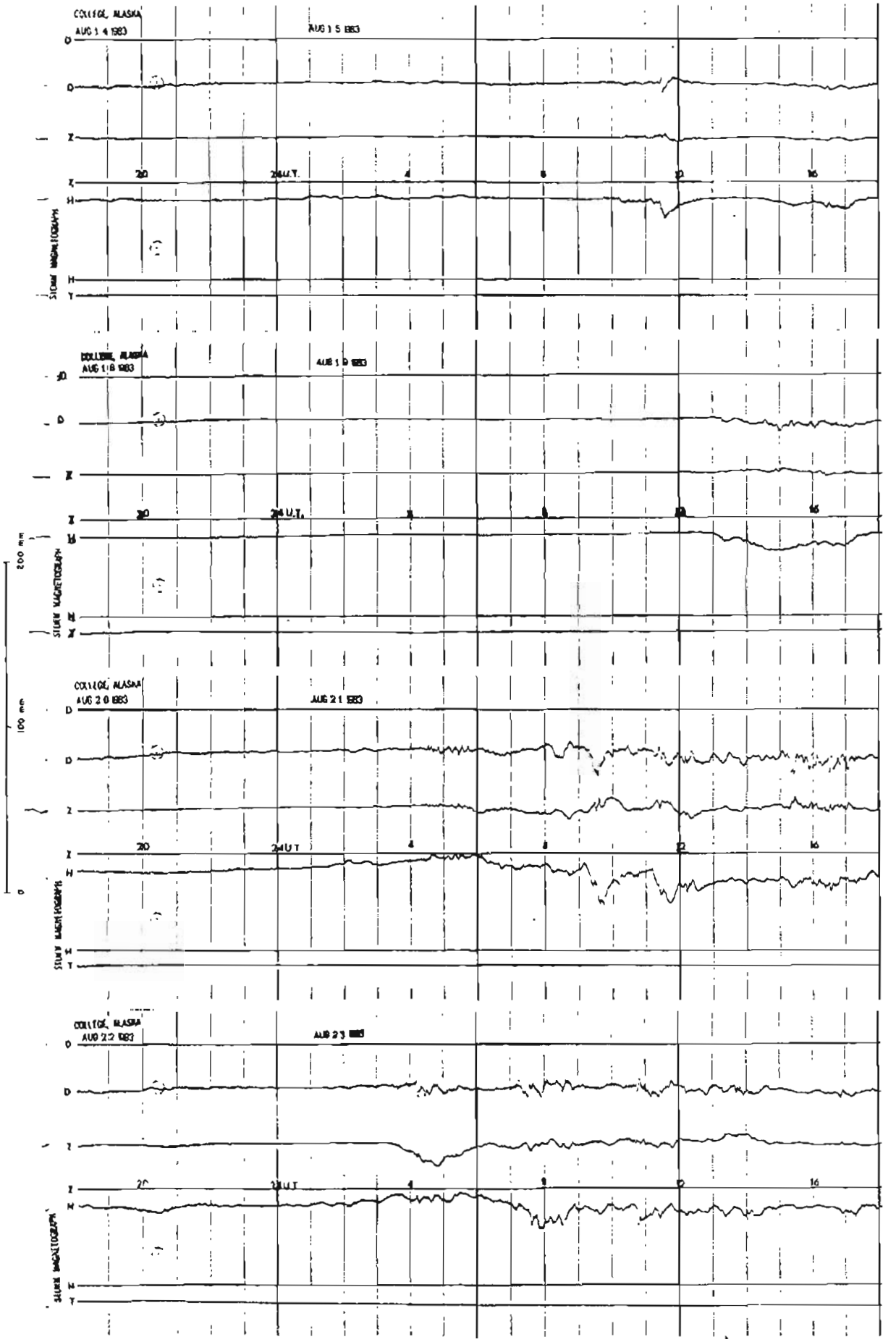
NORMAL MAGNETOGRAMS



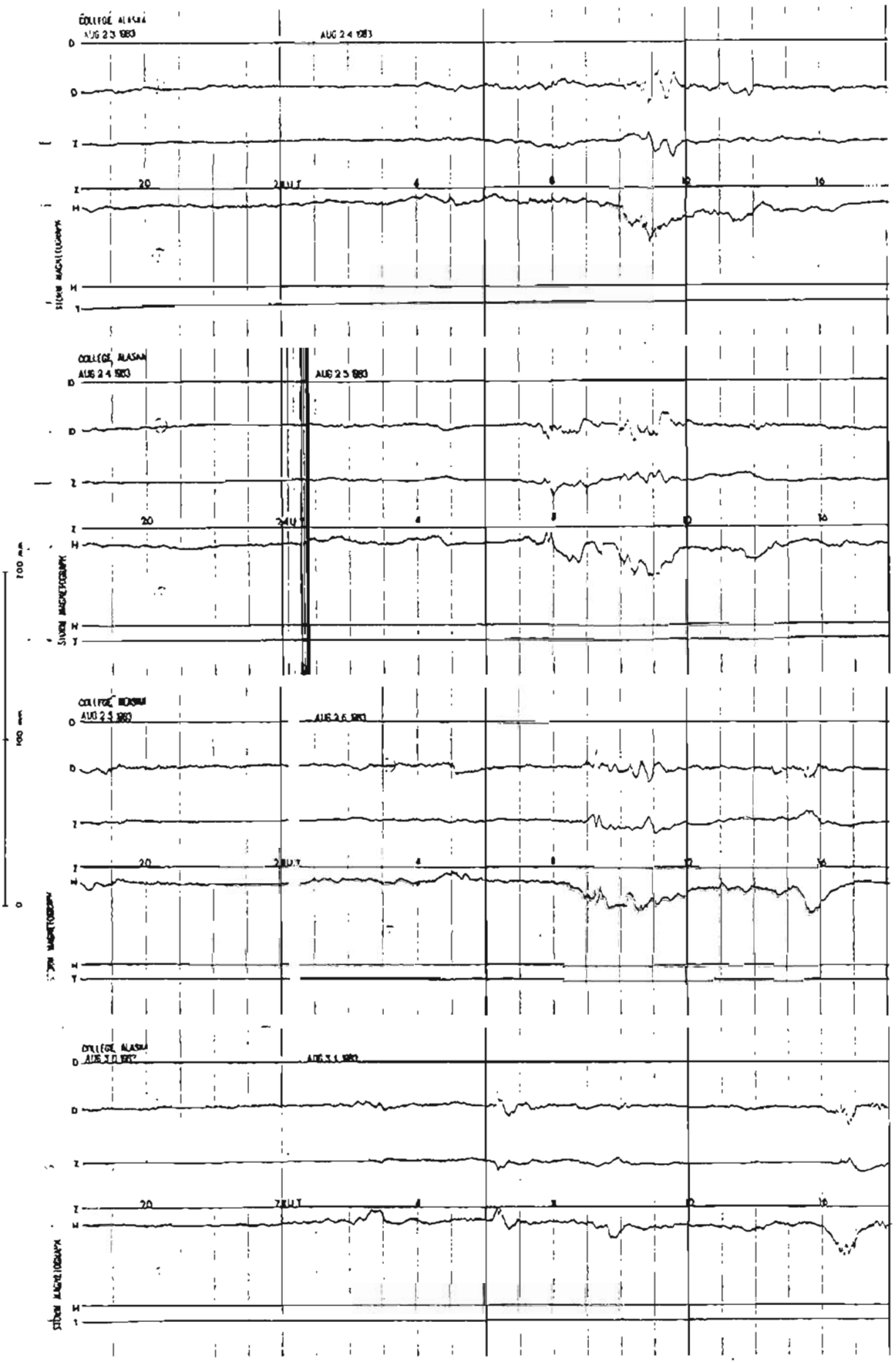
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS