

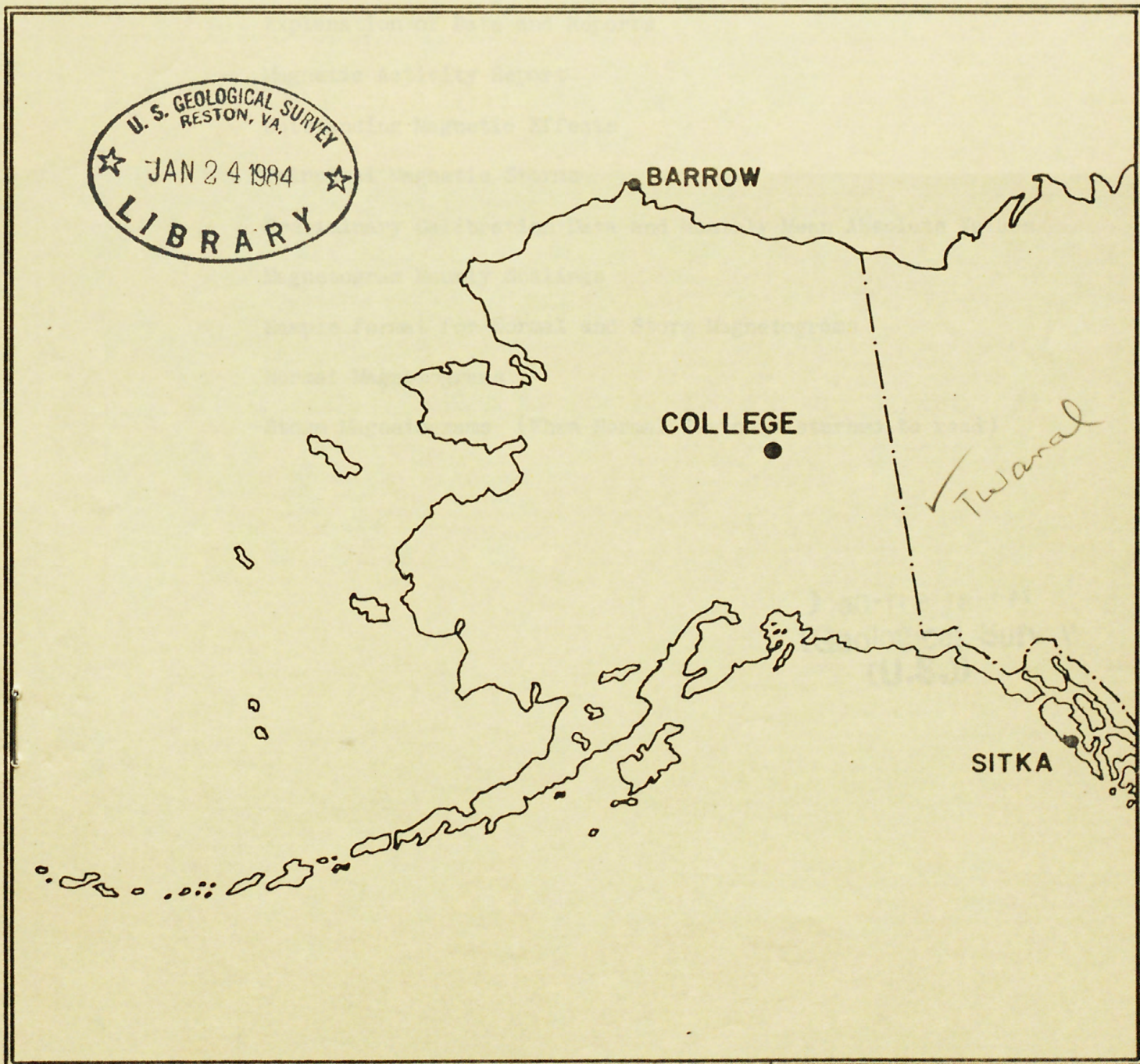
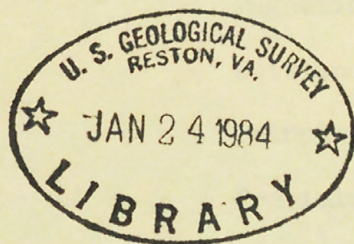
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

SEPTEMBER 1983

OPEN FILE REPORT 83-0300I





✓ cat.

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.

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)

Open-file report
(Geological Survey
(U.S.))

344942

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..... $64^{\circ}51.6'N$
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 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
$0 \approx 11$	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)

DATE	K-INDICES								SUM	AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24			
1	3	5	2	3	3	3	2	2	23	16	SUDDEN COMMENCEMENTS d h m
2	2	1	1	2	1	2	1	2	12	05	
3	2	3	2	1	1	1	1	1	12	06	
4	0	0	0	0	0	0	0	0	01	00	
5	0	1	0	0	0	0	0	1	02	01	
6	1	1	1	2	1	1	1	0	08	03	
7	1	1	1	6	5	5	4	1	24	27	
8	1	1	5	5	3	3	3	2	23	19	
9	3	2	2	3	3	3	2	2	20	11	
10	3	2	2	3	3	5	2	2	22	15	
11	3	2	2	3	4	3	2	1	20	12	
12	2	3	6	6	5	2	1	1	26	30	
13	2	1	3	4	5	2	1	1	19	14	
14	2	1	2	0	1	3	1	1	11	05	
15	3	2	4	4	2	5	6	3	29	28	
16	3	4	5	6	5	6	4	3	36	43	
17	3	5	7	6	4	4	3	3	35	46	
18	2	2	3	2	3	3	2	3	20	11	
19	4	5	4	6	6	6	5	5	41	55	
20	3	4	5	6	6	4	2	2	32	36	
21	2	2	5	3	5	5	1	1	24	22	
22	1	2	4	6	3	1	1	1	19	18	
23	1	1	0	3	3	2	0	1	11	06	
24	2	0	0	3	5	5	2	1	18	16	
25	3	2	4	4	5	5	4	3	30	27	
26	4	4	6	6	5	2	3	2	32	36	
27	3	2	4	6	5	3	2	2	27	26	
28	3	2	1	1	5	5	2	1	20	17	
29	3	3	1	5	0	1	1	1	15	11	
30	0	0	0	0	1	1	1	1	04	02	
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.....

D
683.8

H
321.7

Z

(mm)

CURRENT SCALE VALUE.....

3.73

7.76

(γ /mm)

LOWER LIMIT FOR K = 9.....

2550

2500

(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 SEPTEMBER	YEAR 1983

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
			NO OUTSTANDING EFFECTS SELECTED FOR SEPTEMBER.

IDENTIFIED BY: EAS	VERIFIED BY: JBT
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1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pc1, pc2 - - - pc5, pg, pi 1, pi 2, sfe.

NOAA FORM 50-700
(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

SEPTEMBER 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	15	16XX	...	...	...	...	17	3	7	183	1210	930	17	11
		19	01XX	...	...	...	...	19 20	4,5,6 4,5	6 6	125	1490	800	20	19

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION			
	FROM	TO	SCALE VALUE		BASILINE	
D	0000 U.T., 9-1-83	2400 U.T., 9-30-83	1.0/mm	3.7 ⁸ /mm	27° 17.1E	
H	0000 U.T., 9-1-83	2400 U.T., 9-23-83	7.8 ⁸ /mm		12686 ⁸	
	0000 U.T., 9-24-83	2400 U.T., 9-30-83	"		12674 ⁸	
Z	0000 U.T., 9-1-83	2400 U.T., 9-23-83	7.5 ⁸ /mm		55169 ⁸	
	0000 U.T., 9-24-83	2400 U.T., 9-30-83	"		55177 ⁸	

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION			
	FROM	TO	SCALE VALUE		BASILINE	
D	0000 U.T., 9-1-83	2400 U.T., 9-30-83	7.9/mm	29.6 ⁸ /mm	24° 21.2E	
H	0000 U.T., 9-1-83	2400 U.T., 9-23-83	43.9 ⁸ /mm		10824 ⁸	
	0000 U.T., 9-24-83	2400 U.T., 9-30-83	"		10808	
Z	0000 U.T., 9-1-83	2400 U.T., 9-23-83	48.4 ⁸ /mm		54051	
	0000 U.T., 9-24-83	2400 U.T., 9-30-83	"		54036	

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION			
	FROM	TO	SCALE VALUE			
D						
H						
Z						

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 50.9	12937 ⁸	55368 ⁸

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: SEP 2, 3, 4, 5, 6, 9, 14, 23, 29, 30

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSV. YEAR MONTH ELEM-
CO 83 SEP D

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (120M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	U	S	Q	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	256	234	228	174	284*	312	292	304	336	401	300	331	01	350	353	344	438	367	392	394	358	328	267	268	271	7582
				02	286	290	278	304	306	314	320	326	327	330	334	353	02	354	364	383	398	408	391	388	348	323	312	280	262	7979
				03	289	293	319	299	317	446	348	324	303	310	332	338	03	359	364	389	418	413	412	402	352	322	310	300	290	8249
				04	296	308	318	325	326	326	321	323	322	332	336	350	04	362	371	391	418	434	439	432	403	336	308	294	304	8375
				05	296	330	336	330	331	327	326	331	334	334	336	341	05	352	360	375	402	418	424	405	352	349	296	292	279	8286
				06	300	310	311	306	320	278	313	319	320	325	348	340	06	335	361	358	384	448	451	445	394	322	302	296	282	8168
				07	293	300	329	282	286	296	309	321	311	323	359	442	07	590*	459	637	748*	670*	598*	332	246	242	274	284	296	9227
				08	298	304	304	294	305	308	303	331	-13*	194	384*	352*	08	306	400	456	502	532	484	488	456	398	334	292	281	8293
				09	278	276	242	316	294	288	278	301	301	327	336	360	09	356	374	400	391	450	478	472	394	397	334	291	275	8209
				10	271	267	286	294	326	320	356	330	342	420	325	324	10	332	351	380	360	355	440	445	381	376	315	312	304	8212
				11	306	267	276	296	307	319	336	326	332	344	344	381	11	440	362	401	416	448	430	441	430	374	344	328	302	8550
				12	294	310	298	296	330	302	356	249	217*	318	402	511*	12	479	437	422	400	450	462	438	416	400	348	338	301	8774
				13	287	285	317	317	321	322	338	379	360	350	374	420	13	416	355	390	387	446	454	430	412	350	365	324	293	8722
				14	288	290	284	294	282	296	299	302	365	312	325	339	14	352	360	363	386	419	408	409	418	390	391	319	320	8214
				15	306	268	289	271	280	286	297	333	342	239	300	344	15	340	348	371	404	449	623*	440*	384	133	229	248	259	7783
				16	255	280	274	272	271	295	294	287	204	269	355	401*	16	445	453	352	399	509*	496*	425	317	289	304	282	269	8087
				17	289	282	219	288	290	329*	407	279	361*	256	311	330	17	355	360	493	458	444	450	391	371	331	284	300	338	8136
				18	331	328	319	328	366	320	336	362	408	306	338	334	18	331	340	385	425	459	412	378	351	271	206	240	300	8174
				19	320	279	307	339	311	330	320	312	539	432	313*	409*	19	393*	448*	504*	568*	615*	426	368	313	366	236	320	397	9165
				20	369	290	253	310	451	381	344	287	311	210*	206	389	20	361*	391	461	424	422	412	370	357	331	333	293	299	8235
				21	310	309	322	284	273	308	310	315	242	309	329	334	21	365	391	495	357	378	405	391	322	307	317	318	329	8220
				22	303	301	300	289	280	334	370	286	298	331	309*	341*	22	353	374	379	430	409	429	407	405	361	349	304	310	8252
				23	310	311	304	312	319	322	329	331	320	327	310	385	23	355	356	398	442	350	330	388	367	330	306	289	289	8080
				24	288	270	307	330	330	321	325	327	324	334	331	350	24	377	470	516	732	613	465*	426	402	356	332	321	308	9155
				25	274	268	179	244	240	290	255	304	284	277	317	334	25	366	382	574*	587*	453*	389*	402	380	358	328	309	333	8132
				26	266	268	290	256	272	196	495	381*	214*	126*	325*	344	26	367	432	384	376	398	421	388	370	362	355	321	303	7910
				27	270	337	308	299	306	297	306	344	334	325	317	387	27	311	469	394	388	409	378	362	388	348	339	296	290	8202
				28	270	255	275	288	290	328	329	318	328	330	338	338	28	392	435	415	469	393	389	410	410	382	351	332	313	8378
				29	269	259	248	328	304	299	331	328	330	327	316	330	29	352	349	352	358	369	372	385	373	359	351	323	312	7924
				30	317	313	320	318	321	319	325	328	333	339	343	348	30	344	350	352	363	376	398	400	382	351	346	337	323	8246
				31												31														

SCALED BY: LYT JEP
EAS JBT
CHECKED BY: JEP EAS JBT
SIGNS REVIEWED BY:
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.
* Derived from STORM Mgh., converted to Normal Mgh.

[] 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: 248719
MONTHLY MEAN: 345
DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSY. YEAR MONTH ELE-
MENT
CO 83 SEP Z

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	Obs	Trn	Site	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	306	292	314	307	214	330	291	279	285	265	206	251	01	262	239	179	116	154	230	256	254	268	251	262	270	6081	
				02	273	276	294	310	284	277	271	270	272	276	281	269	02	254	266	267	262	226	205	201	206	232	250	258	262	6242	
				03	277	280	287	279	300	334	270	294	280	277	278	266	03	268	265	251	260	254	239	240	246	252	254	259	265	6475	
				04	266	267	266	265	264	264	265	266	265	266	268	266	04	264	261	264	264	258	248	248	255	243	248	258	266	6265	
				05	272	280	270	264	259	257	257	260	260	260	263	260	05	262	260	263	262	263	257	249	247	245	248	257	259	6234	
				06	264	268	271	296	300	318	346	324	291	288	260	260	06	250	232	236	224	230	238	242	244	234	245	258	264	6383	
				07	270	272	275	271	303	301	300	296	292	285	308	365	07	308	219	365	263	152	185	133	155	214	254	286	293	6365	
				08	295	320	306	304	300	282	278	251	172	300	572	533	08	327	315	297	262	245	165	198	238	214	239	236	247	6896	
				09	269	271	296	316	272	270	293	304	307	286	278	261	09	366	364	240	230	222	233	204	213	238	251	261	287	6532	
				10	274	274	306	290	287	284	317	297	280	238	266	265	10	236	247	247	173	176	246	256	241	258	263	273	292	6286	
				11	295	282	303	285	280	294	289	284	291	285	275	235	11	226	177	250	233	214	196	216	238	242	260	271	278	6099	
				12	278	286	294	331	322	308	320	157	97	262	277	417	12	249	386	204	250	288	281	276	270	266	262	265	276	6613	
				13	286	312	322	294	275	272	288	258	242	191	210	222	13	179	187	212	226	263	268	270	265	261	270	280	290	6143	
				14	288	286	274	273	279	274	286	288	296	276	278	271	14	266	262	266	250	148	135	209	250	258	257	249	252	6171	
				15	255	249	273	271	272	280	289	265	237	215	281	272	15	260	265	278	271	255	311	188	32	69	176	257	298	5819	
				16	296	320	311	321	318	222	168	220	248	374	358	653	16	418	467	266	257	447	79	28	136	205	249	281	310	6952	
				17	337	363	348	345	312	137	53	104	253	184	280	278	17	270	223	194	201	238	217	221	248	270	269	270	291	5906	
				18	300	304	304	310	320	340	320	280	178	272	283	263	18	159	132	220	239	240	245	250	250	243	224	260	280	6216	
				19	302	310	264	234	106	408	356	285	180	192	447	621	19	549	563	485	381	253	126	205	220	238	344	320	323	7712	
				20	340	330	341	330	311	318	282	173	150	149	206	326	20	85	48	286	250	211	250	251	250	269	283	286	285	6010	
				21	295	303	329	321	325	341	305	213	153	262	242	249	21	213	213	282	204	180	220	220	240	263	281	286	306	6246	
				22	318	331	320	290	319	339	331	315	320	288	336	123	22	217	260	281	280	269	266	270	275	269	269	261	270	6817	
				23	272	280	281	285	281	280	278	280	281	280	248	226	23	270	268	212	170	170	191	209	219	239	250	259	262	5991	
				24	273	272	292	281	270	263	262	262	266	269	260	251	24	217	160	180	75	33	135	211	229	228	230	239	241	5399	
				25	245	251	270	331	325	290	273	161	155	266	277	269	25	259	319	312	401	151	-45	167	220	241	249	269	300	5956	
				26	291	302	310	261	330	180	200	-17	-5	-63	66	186	26	306	339	226	245	250	245	233	229	233	248	259	259	5113	
				27	282	320	290	277	268	276	299	292	153	241	233	159	27	72	87	108	197	229	230	240	239	239	252	250	262	5495	
				28	288	313	320	290	271	268	263	269	276	279	274	261	28	241	172	80	17	40	160	230	247	244	242	255	260	5560	
				29	268	277	302	340	271	283	290	283	283	280	240	237	29	253	249	250	258	259	259	261	249	246	248	252	258	6396	
				30	270	272	270	267	266	263	270	271	270	267	264	263	30	261	261	262	261	264	266	258	254	248	251	252	258	6309	
				31												31															

SCALED BY: LYT JEP
EAS JBT
CHECKED BY: JEP EAS JBT
SIGNS REVIEWED BY:
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.
* Derived from STORM Mgh., converted to Normal Mgh.

MONTHLY SUM: 186,682
MONTHLY MEAN: 259
DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

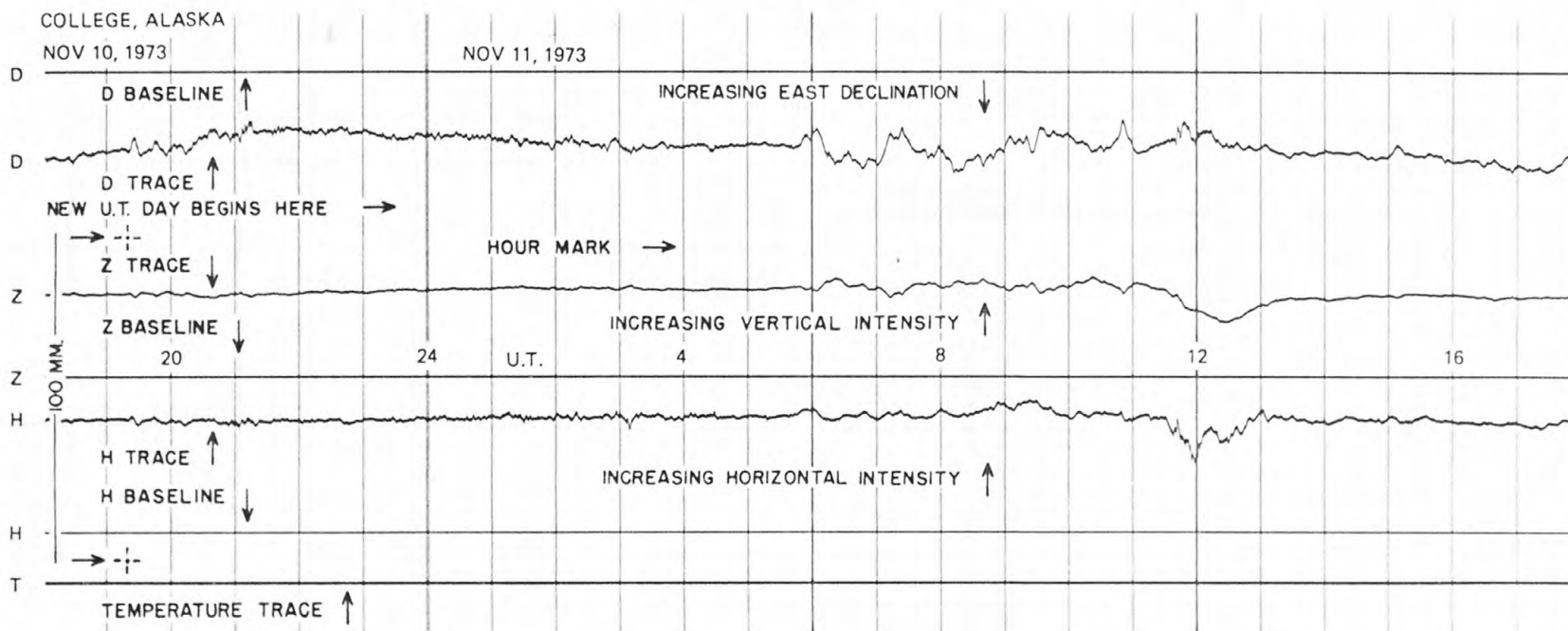
OBSV. YEAR MONTH ELE-
MENT
CO 83 SEP H

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	U	T	H	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	399	450	463	516	538	368	326	320	327	332	306	331	01	305	287	228	187	310	339	313	301	291	288	314	332	8171	
					02	320	339	354	336	328	332	331	331	332	341	355	350	02	345	339	324	310	284	278	291	305	305	297	304	328	7759	
					03	334	358	303	350	346	364	359	375	346	352	349	336	03	334	317	326	320	298	295	299	303	306	316	324	323	7933	
					04	322	330	337	336	334	337	339	338	340	342	342	345	04	348	345	340	336	328	315	305	286	290	304	316	334	7889	
					05	334	329	336	336	328	333	334	337	340	346	349	352	05	353	356	354	345	331	312	306	298	303	304	321	337	7974	
					06	343	345	350	351	356	373	369	356	350	336	324	350	06	342	336	324	292	326	325	318	289	295	299	306	308	7963	
					07	318	337	330	367	363	364	392	380	384	371	242	126*	07	-71*	106	157	-173*	-14	0	156	278	300	319	327	330	5375	
					08	331	348	349	332	336	340	369	367	251*	329	-38	172	08	390	319	311	302	247	269	331	319	288	318	321	330	7231	
					09	332	343	374	341	342	341	370	371	375	362	361	288	09	343	332	265	262	268	281	256	262	281	280	300	299	7629	
					10	302	353	349	351	342	360	389	350	342	341	358	314	10	301	319	282	55	269	350	288	270	279	310	311	332	7517	
					11	317	342	362	339	345	348	351	340	338	340	339	240	11	192	310	301	288	210	260	309	302	279	291	297	291	7331	
					12	317	330	362	392	363	389	397	298	70*	334	44	-138	12	64	-18	115	360	350	331	316	303	290	291	293	318	6171	
					13	341	346	340	341	340	346	355	352	345	298	279	168	13	-5	209	200	290	340	331	319	306	294	289	281	300	7005	
					14	318	321	340	338	338	339	346	355	361	349	341	339	14	341	346	347	260	167	281	310	308	301	299	311	311	7667	
					15	313	346	321	336	340	342	395	473	399	442	354	331	15	340	343	359	342	271	-100	-423*	-174*	119	339	381	329	6518	
					16	345	321	350	379	509	532	416	179	264	178	197	-231*	16	-1	11	200	249	-349*	-281*	176	178	237	319	335	339	4852	
					17	411	435	481	470	499	465*	539*	302*	-304*	275	403	352	17	246	180	145	254	187	210	301	345	323	331	340	359	7549	
					18	311	328	355	333	377	379	374	386	322	376	332	320	18	284	288	195	236	299	318	315	302	249	250	304	319	7552	
					19	369	389	594	669	845	507	400	378	216	197	93*	64*	19	-37*	-366*	119	80	-146*	278	244	52	65	273	392	489	6164	
					20	412	433	447	454	399	381	406	477	190	-134*	53*	-146*	20	-468*	12	74	191	242	326	308	324	315	311	301	310	5618	
					21	329	330	331	390	391	369	351	358	234	284	289	255*	21	242	201	-12	78	298	297	327	331	328	318	320	312	6951	
					22	293	318	320	342	370	360	351	380	352	294	39*	4*	22	300	351	338	302	319	316	313	316	304	300	301	302	7185	
					23	311	319	331	330	321	321	333	331	335	327	291	320	23	348	310	261	240	280	308	299	298	299	305	311	327	7462	
					24	329	328	310	315	326	329	329	329	331	330	340	322	24	-131*	-148*	65	-108*	180	367	338	313	313	321	329	339	6102	
					25	369	340	381	401	371	361	409	485	463	429	342	314	25	310	273	-6	-97*	-68	44	314	327	320	327	322	330	7061	
					26	372	379	442	405	389	478	407	175*	107*	-79*	36	155*	26	252	151	331	359	332	310	298	315	308	321	321	342	6912	
					27	383	451	341	347	348	362	399	397	311	351	324	50*	27	18	132	267	311	317	312	340	311	325	309	302	321	7329	
					28	367	411	357	331	342	334	338	350	340	340	342	343	28	285	113	61	101	277	349	343	333	332	329	329	319	7366	
					29	321	334	368	387	352	350	349	352	347	348	96	339	29	341	348	349	339	340	336	325	327	321	320	323	330	7962	
					30	323	328	332	340	343	347	343	342	340	340	343	341	30	340	340	338	345	330	326	322	320	327	329	325	318	8022	
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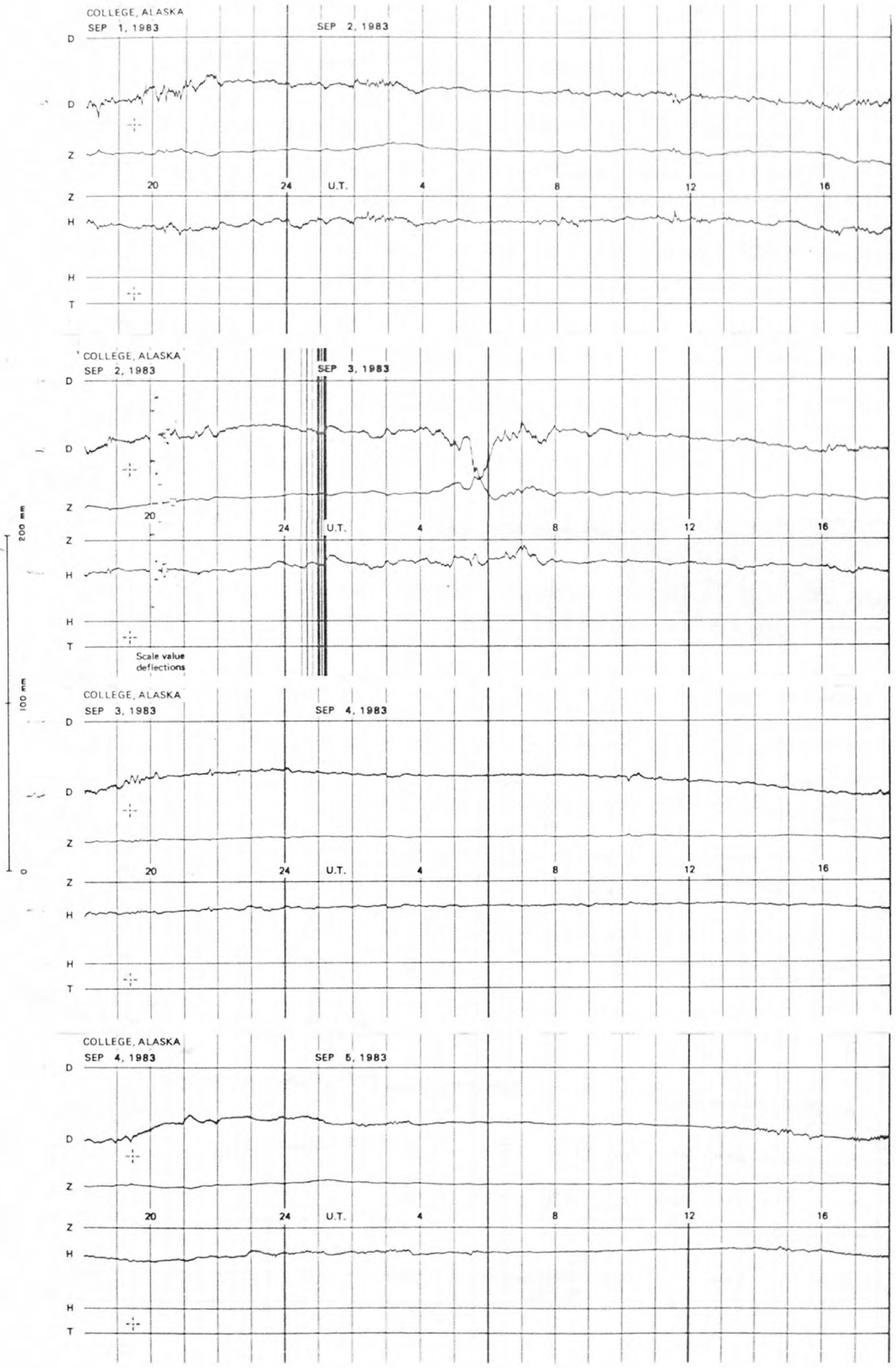
SCALED BY	LVT JEP EAS JBT	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value () Interpolated <input type="checkbox"/> Significant portion of hour interpolated. <input type="checkbox"/> No record; or no values available because of faulty record. * Derived from <u>STORM</u> Mgh., converted to Normal Mgh.	<input type="checkbox"/> 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	214220
CHECKED BY	EAS JEP			MONTHLY MEAN	298
SIGNS REVIEWED BY				DATES WITH GAPS	
PUNCHED BY					

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

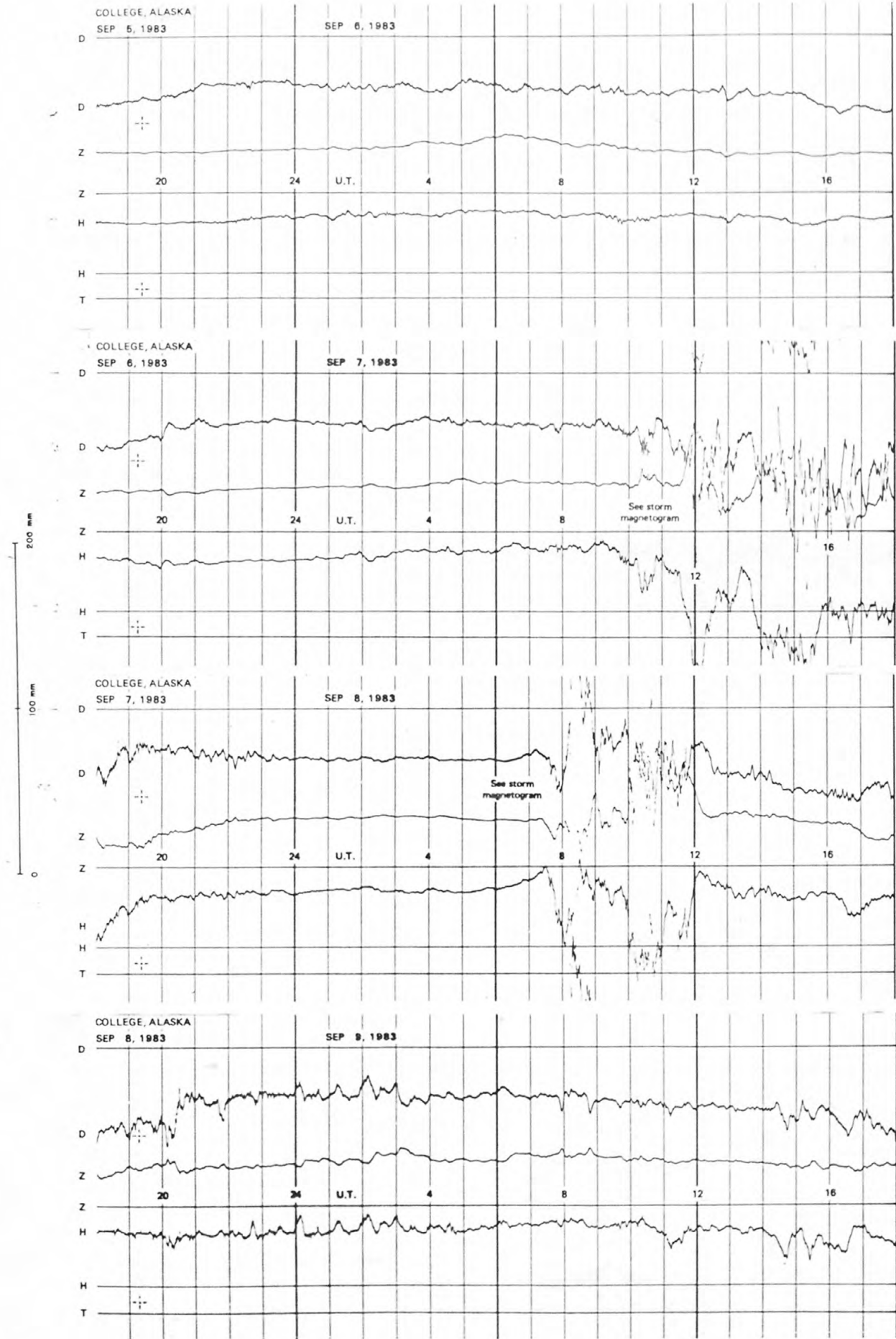


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS



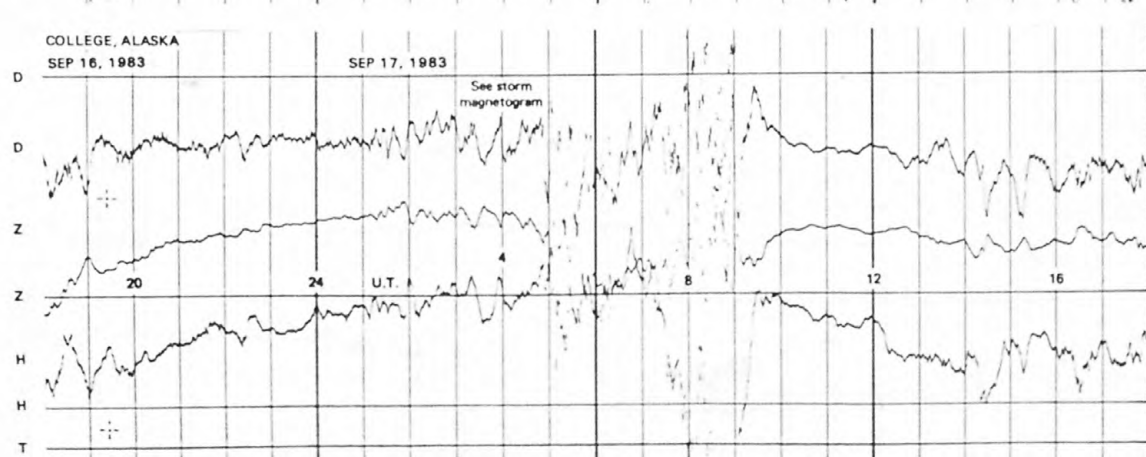
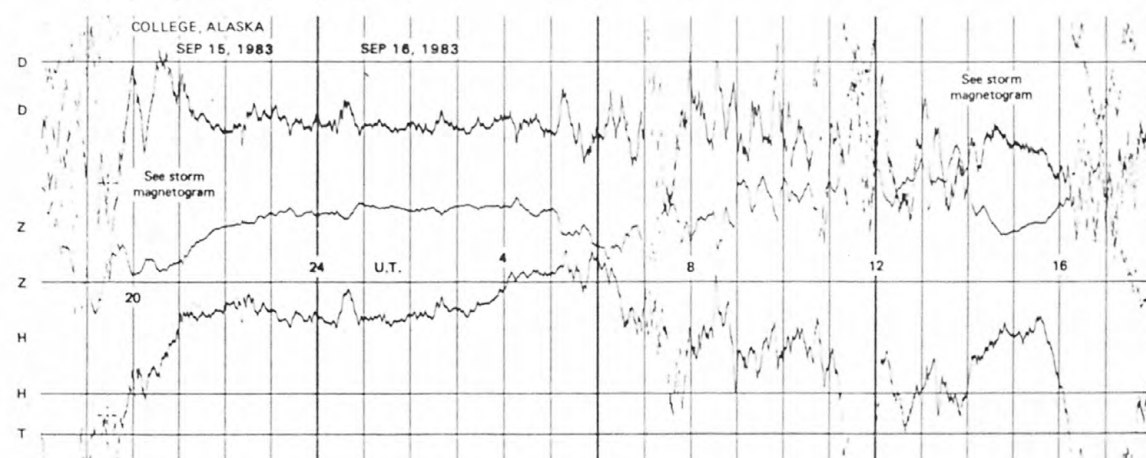
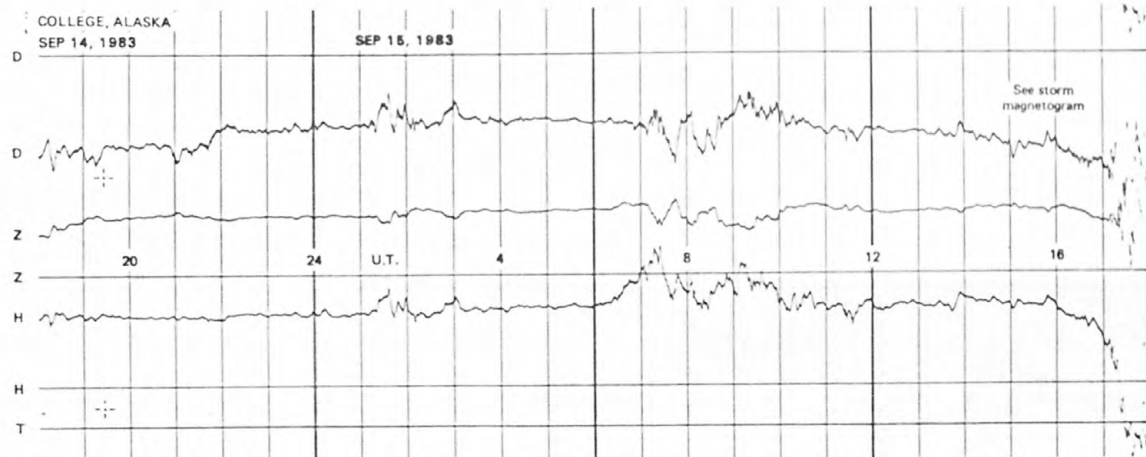
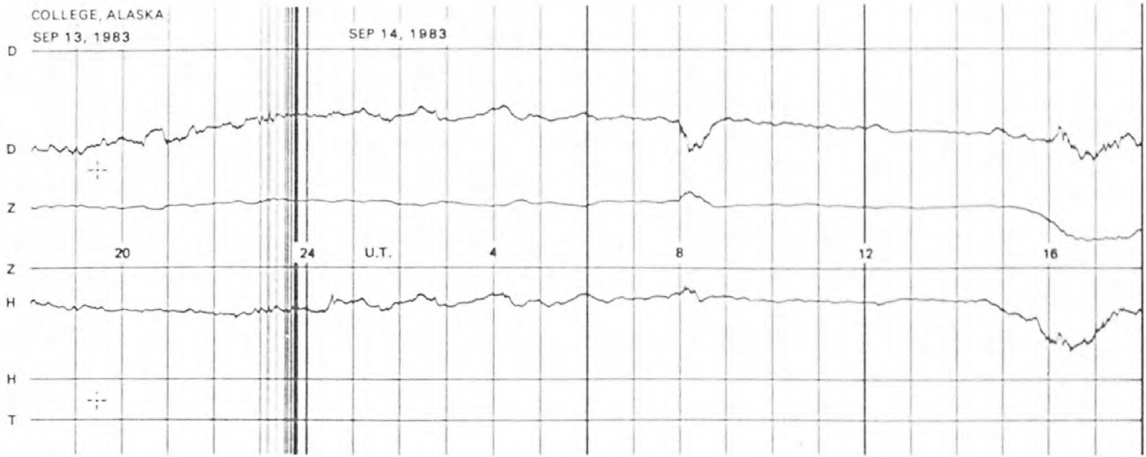
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



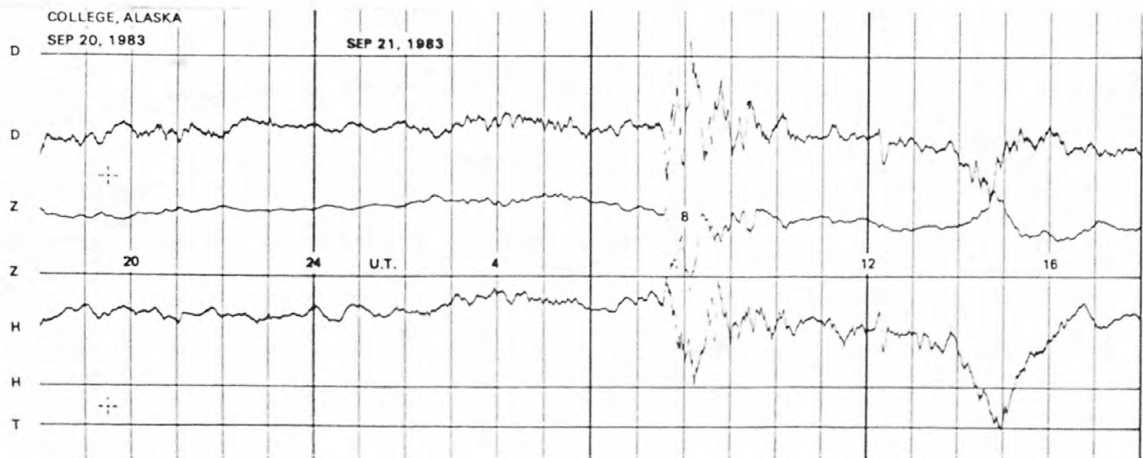
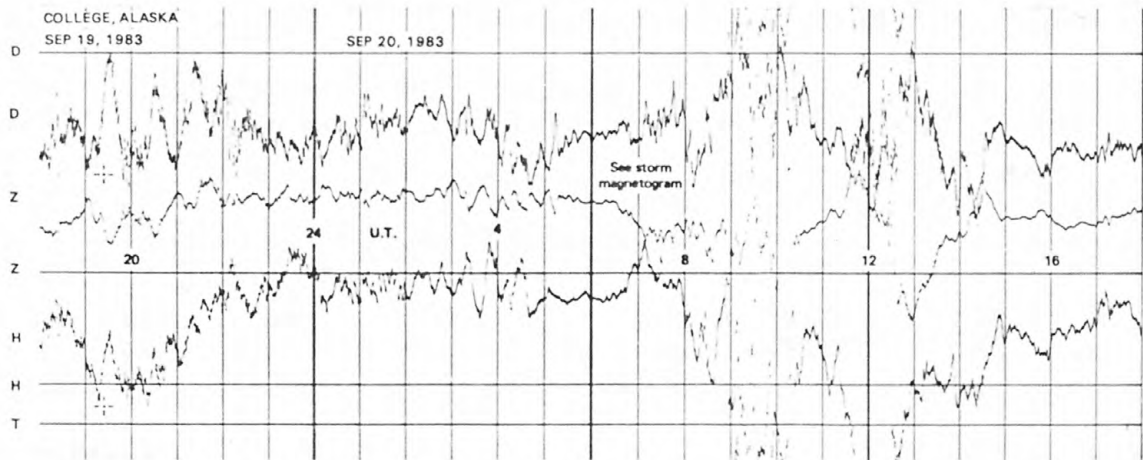
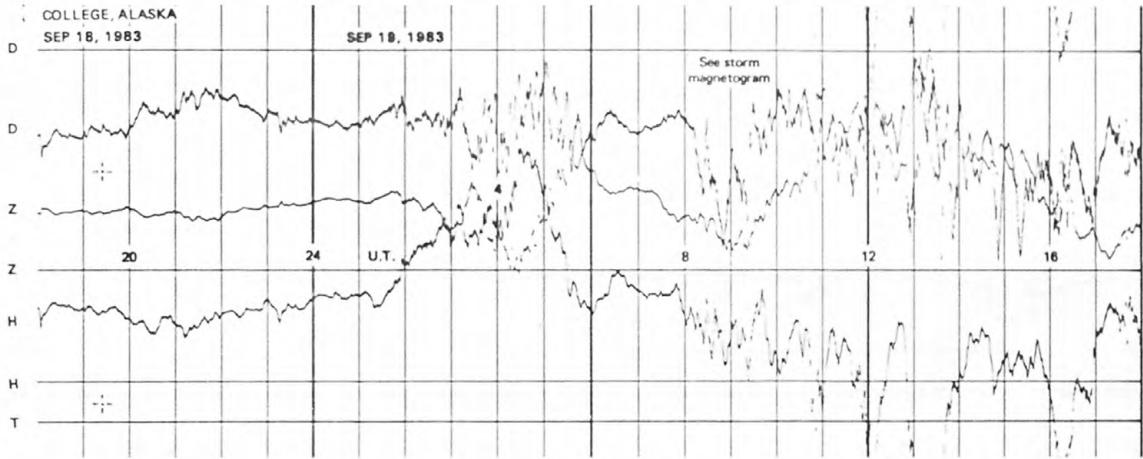
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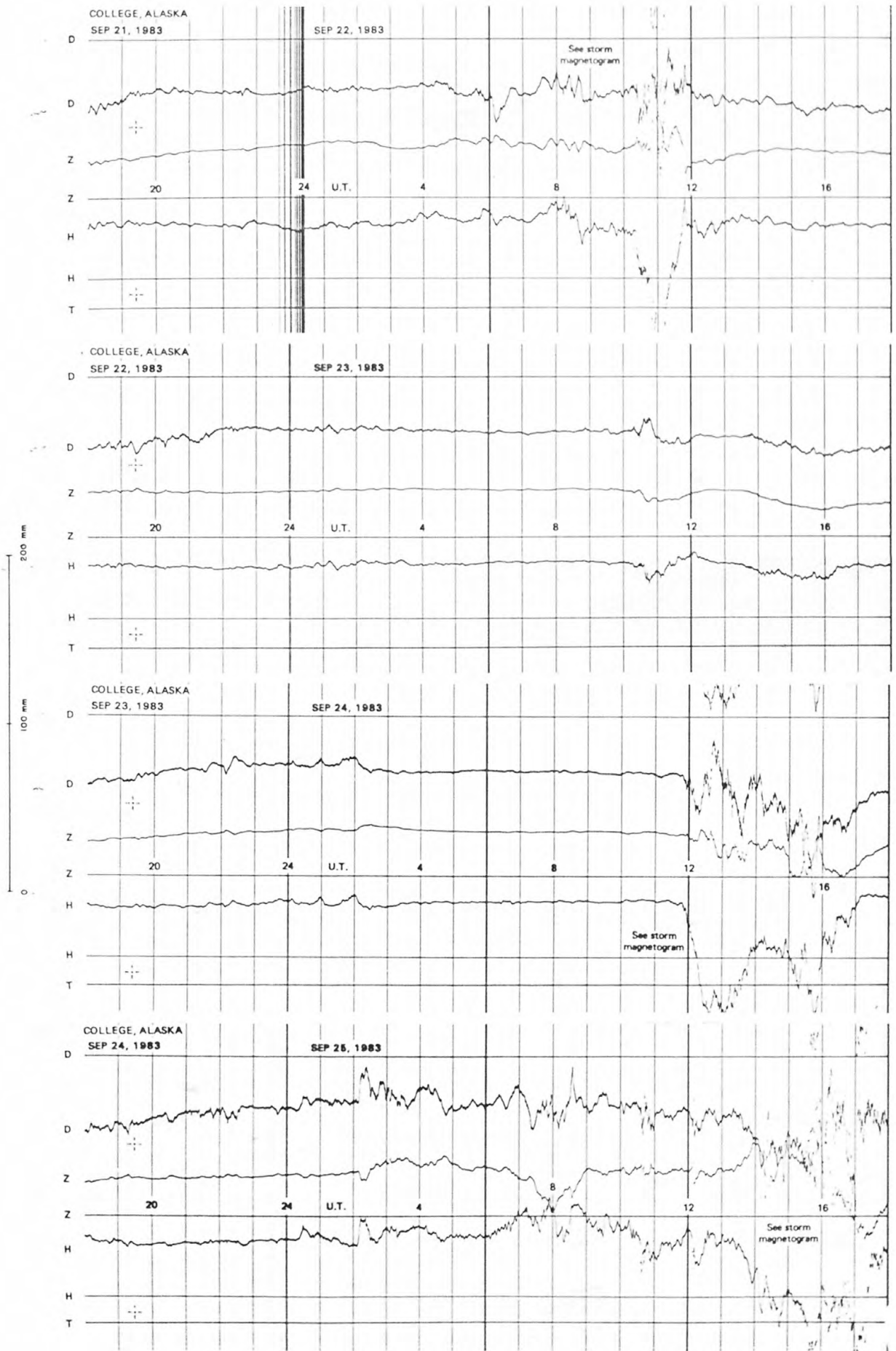
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NORMAL MAGNETOGRAMS

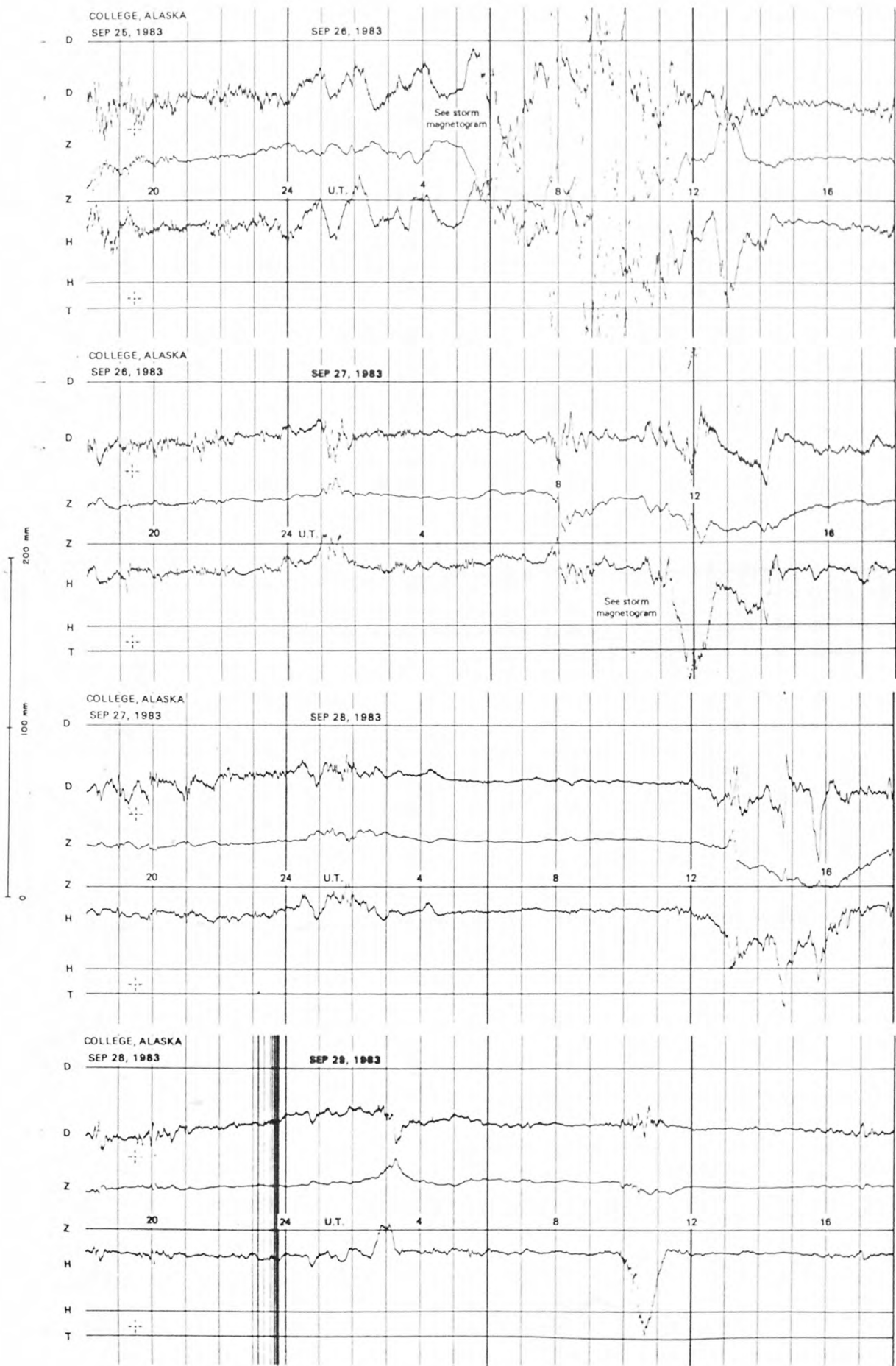
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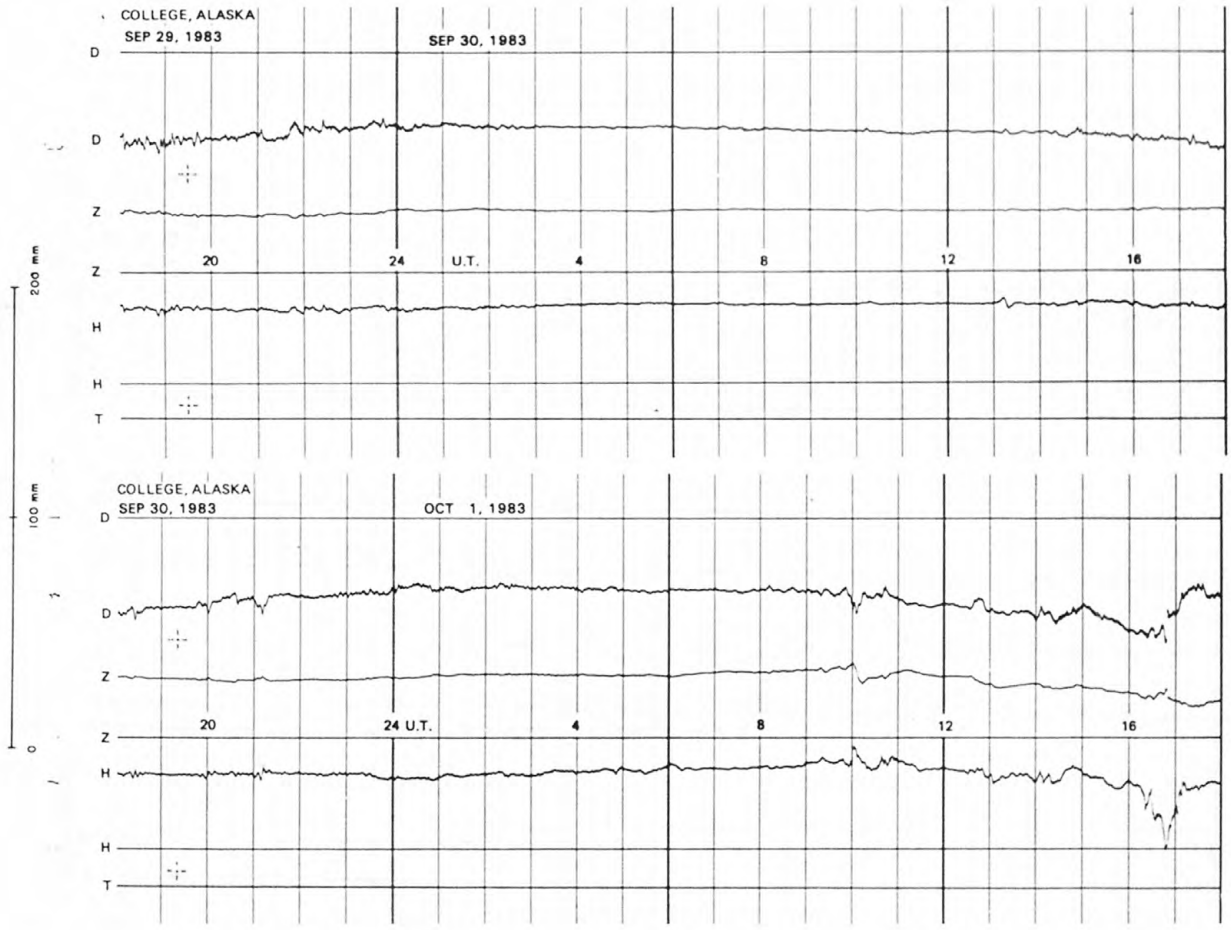
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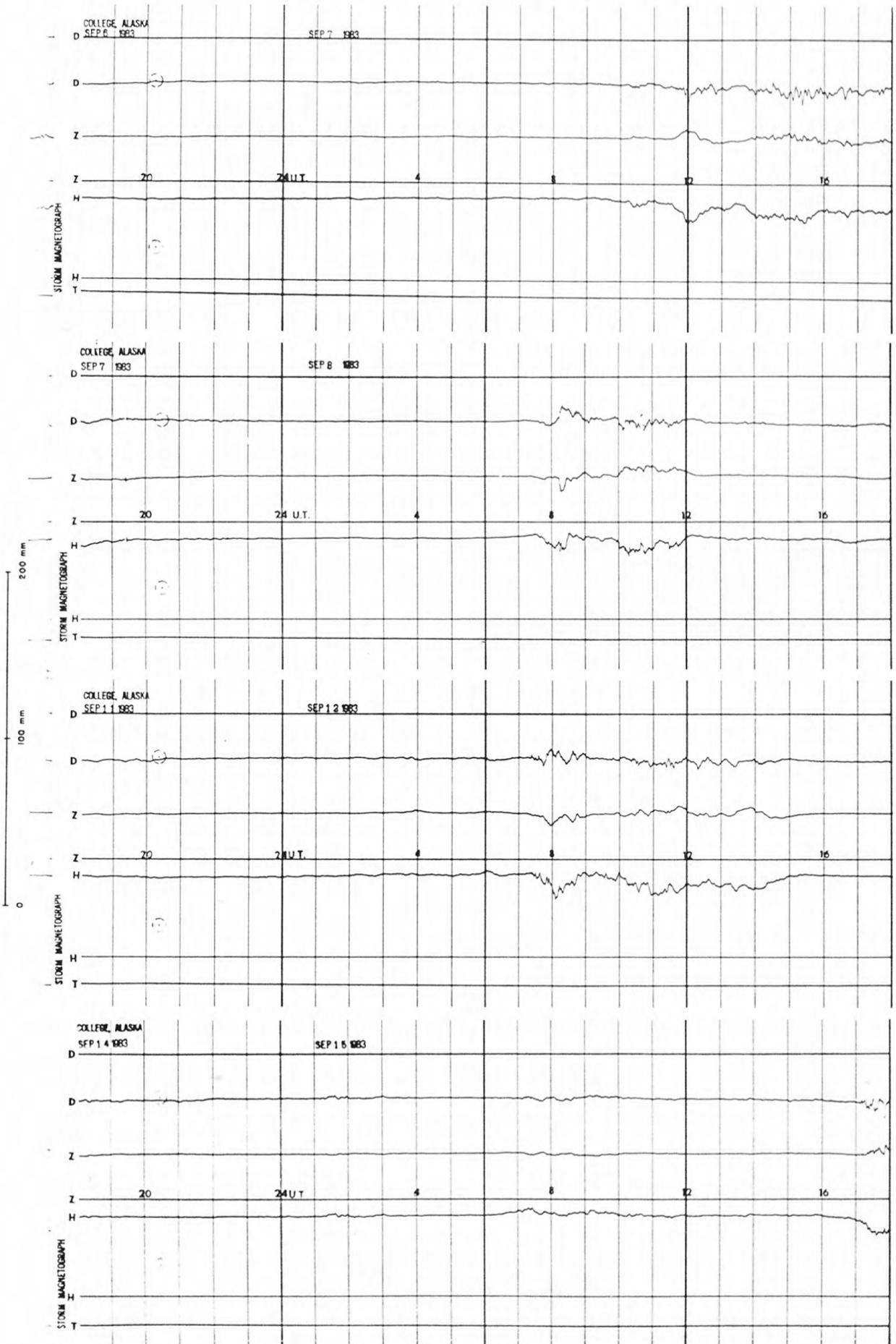
NORMAL MAGNETOGRAMS



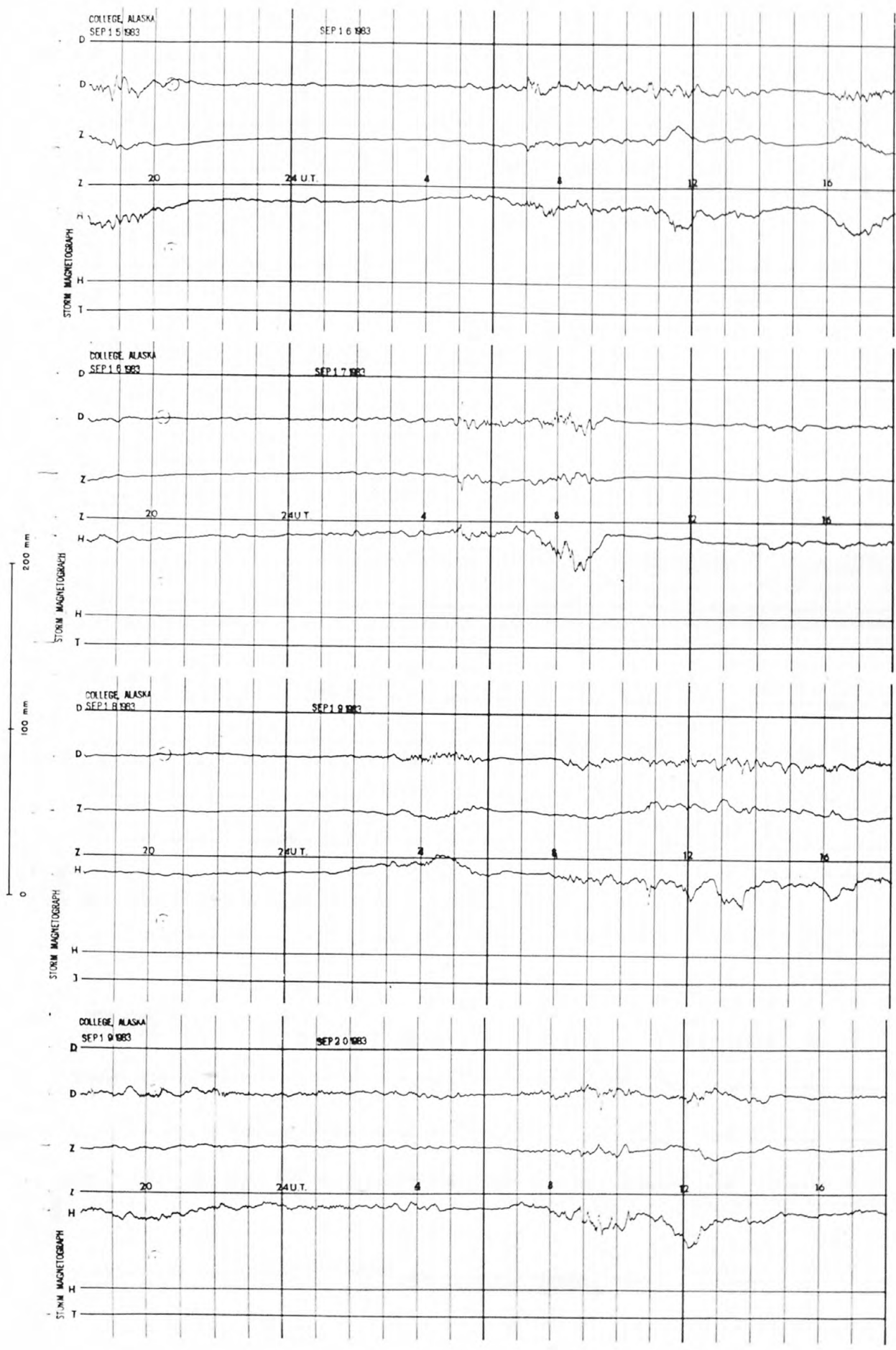
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

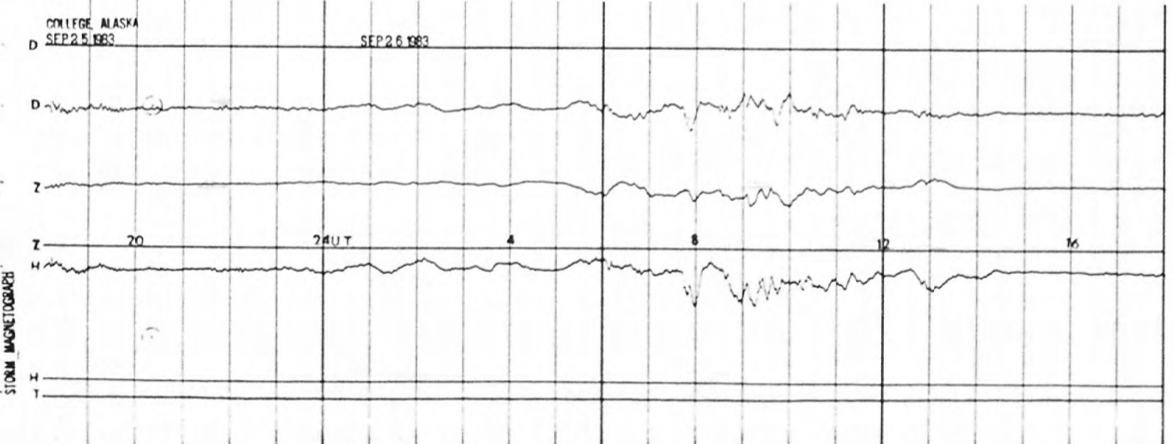
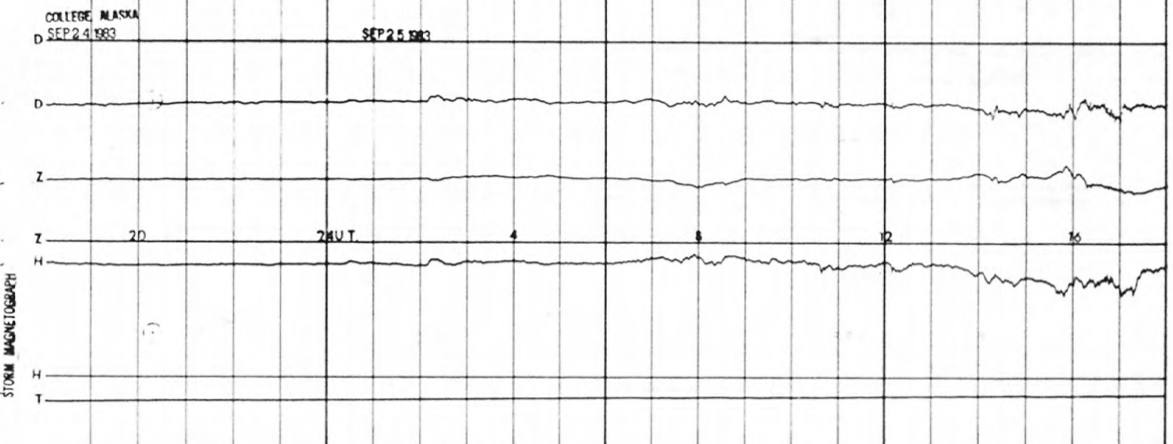
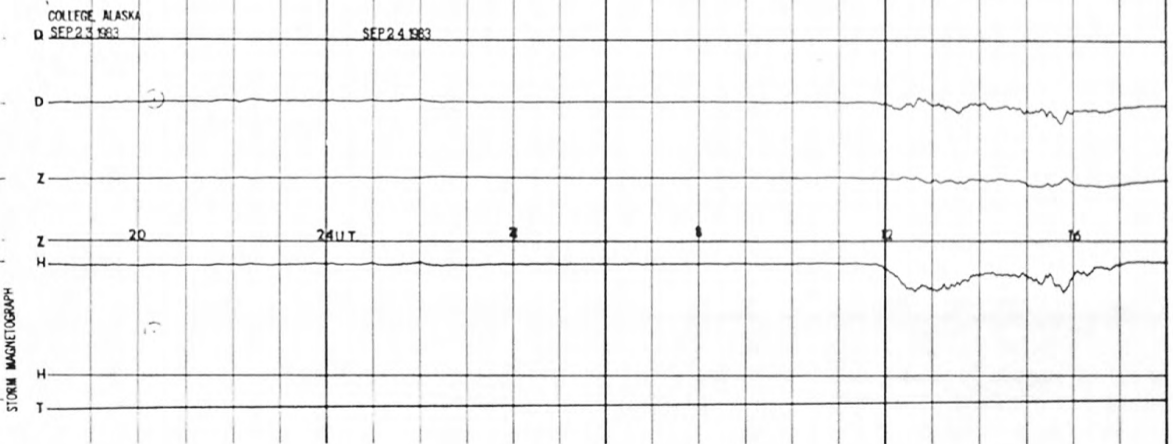
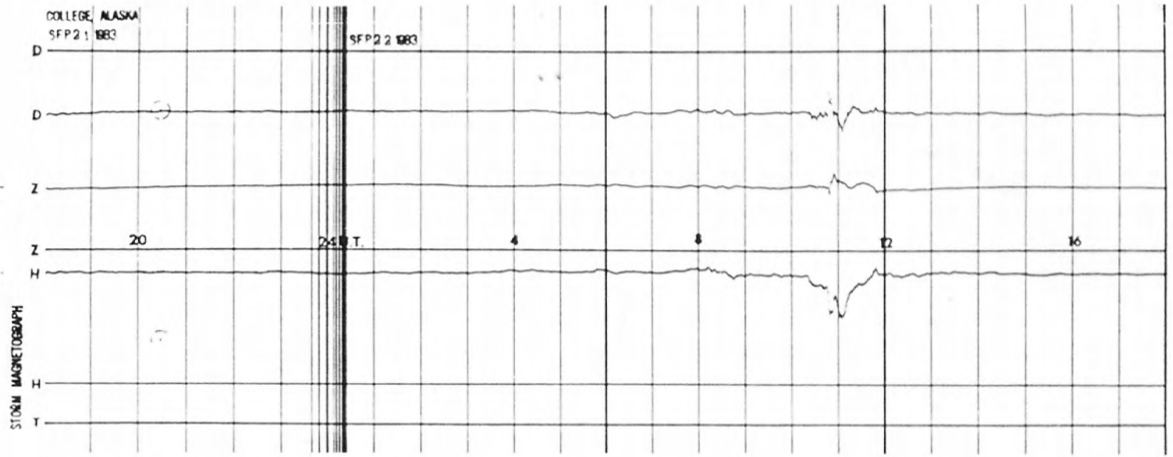


STORM MAGNETOGRAMS

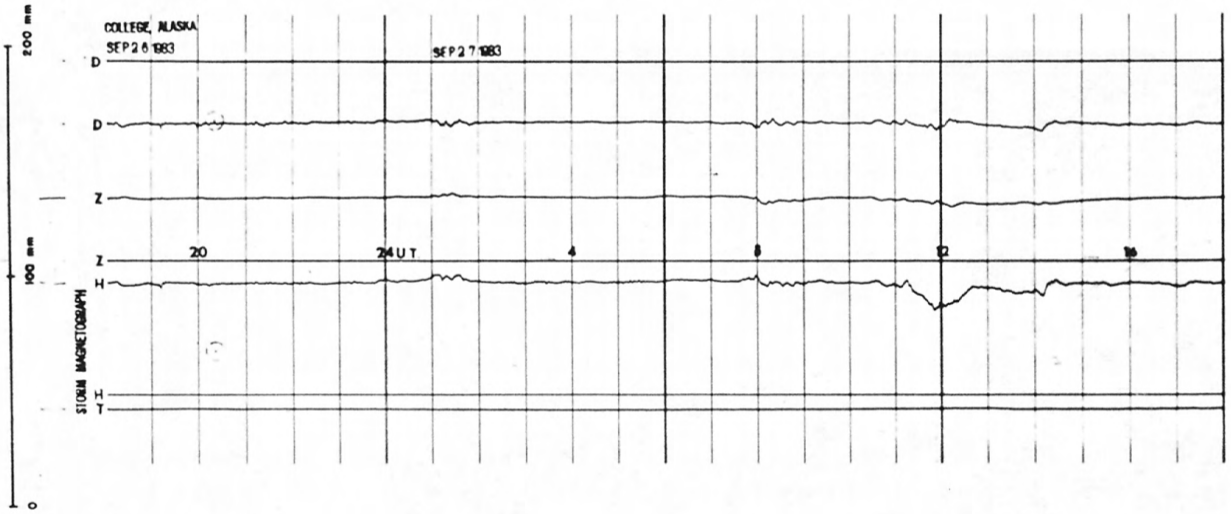


STORM MAGNETOGRAMS

200 mm
100 mm
0



STORM MAGNETOGRAMS



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