

UNITED STATES DEPARTMENT OF THE INTERIOR

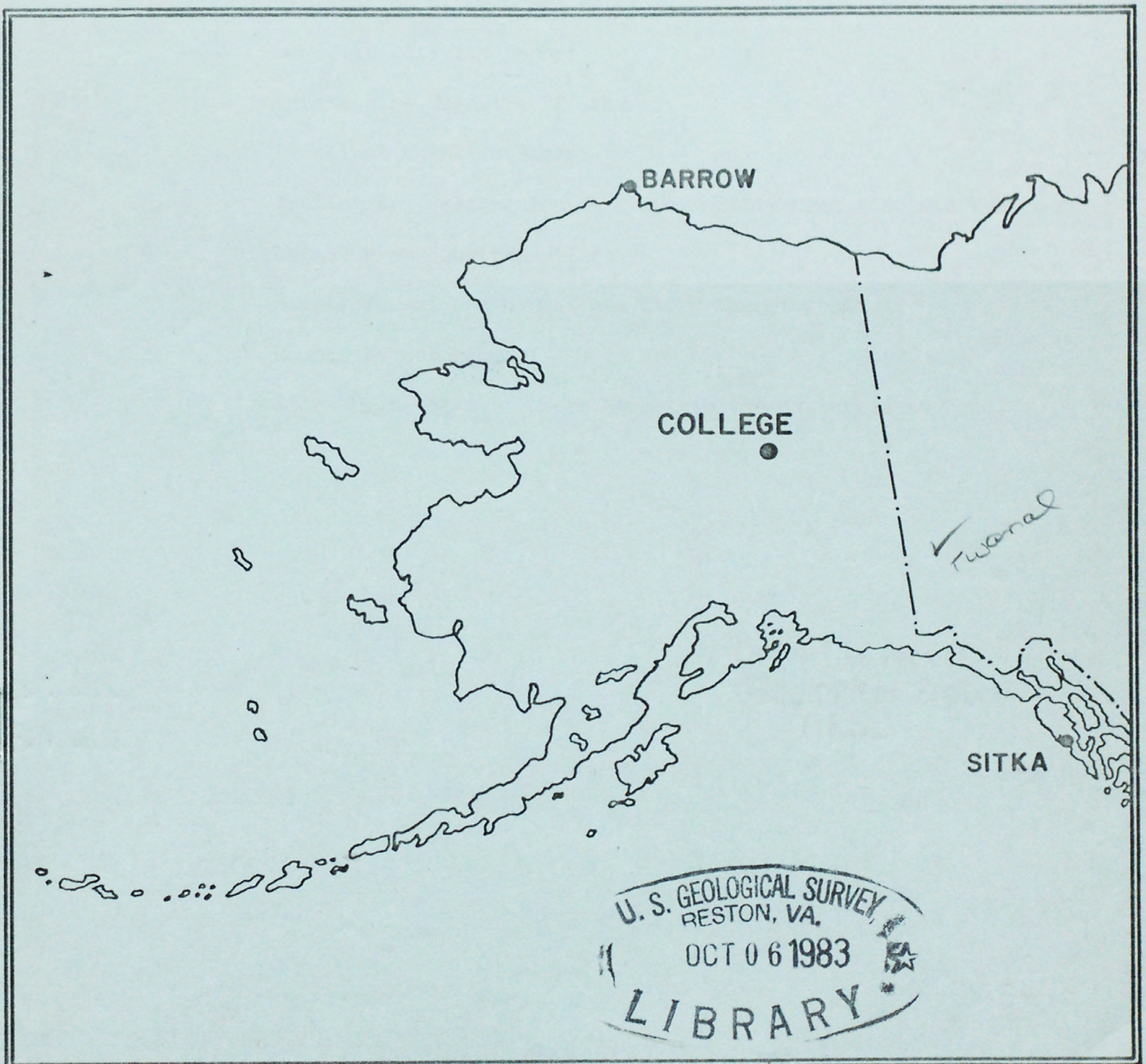
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R290
no. 83-300G

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JULY 1983

OPEN FILE REPORT 83-0300G





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)

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

346446

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 β -component fluxgate magnetometer and F-component proton magnetometer.

Magnetic Activity

The K-Index: The K-Index is a logarithmic measurement of the range of the most disturbed component (D or H) of the geomagnetic field for eight intervals beginning 0000-0300, 0300-0600...2100-2400 UT. It is a measure of the difference between the highest and lowest deviation from a smooth curve to be expected for a component on a magnetically quiet day, within a three hour interval.

The Equivalent Daily Amplitude, AK: The K-Index is converted into an equivalent range, ak, which is near the center of the limiting gamma ranges for a given K. The average of the eight values is called equivalent daily amplitude AK. The unit 10 γ has been chosen so as not to give the illusion of an accuracy not justified.

The schedule for converting gamma range to K, and K to ak is as follows:

Gamma Range	K - Index	ak
0 < 25	0	0
25 < 50	1	3
50 < 100	2	7
100 < 200	3	15
200 < 350	4	27
350 < 600	5	48
600 < 1000	6	80
1000 < 1650	7	140
1650 < 2500	8	240
2500+	9	400 (10 γ)

The Magnetic Daily Character Figure, C: To each Universal day a character is assigned on the basis C=0, if it is quiet; C=1, if it is moderately disturbed; C=2, if it is greatly disturbed. The method used to assign characters at the College Observatory is based on AK as follows:

AK Range	C
0 \approx 11	0
11 \approx 50	1
50+	2

Routine assignment of C was discontinued at College on January 1, 1976.

Selected Phenomena & Outstanding Magnetic Effects

Prior to January 1, 1976, the Normal and Rapid Run records were reviewed at the observatory for selected magnetic phenomena and the events identified were forwarded to the IUGG Commission on Magnetic Variations and Disturbances. This was discontinued on January 1, 1976, but a report on Outstanding Magnetic Effects is prepared monthly for this report.

Principal Magnetic Storms

Gradual and sudden commencement magnetic disturbances with at least one K-Index of 5 or greater, which are believed to be part of a world-wide disturbance, are classified as principal magnetic storms. The time of the storm beginning and ending; direction and amplitude of sudden commencements; period of maximum activity; and storm range are reported. Monthly reports of these data are forwarded to the World Data Center A in Boulder, Colorado.

Magnetogram Hourly Scalings

Magnetogram hourly scalings are averages for successive periods of one hour for the D, H and Z elements. The Value in the column headed "01" is the average for the hour beginning 0000 and ending 0100. Note that the values on the scaling sheets are in tenths of mm with the decimal point omitted. The user of these scalings should keep in mind that the tabular values are hourly means and if he is interested in the detailed morphology of the magnetic field, he should refer directly to the magnetograms.

Magnetograms

The normal magnetograms in this report are reproduced at about one-third the size of the originals. Preliminary base-line values and scale values adopted for use with the original magnetograms are included. For days when the magnetic field is too disturbed for the Normal magnetogram to be readable, Storm magnetograms are reproduced.

Absolutes, Base-lines and Scale Values

To determine the absolute value of the magnetic field from the hourly means or from point scalings the following equations should be used:

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

where D, H and Z are absolute values;
 B_D , B_H and B_Z are base-line values;
 S_D , S_H and S_Z are scale values;
and d, h and z are scalings in millimeters.

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR
JULY 1983

DATE	K-INDICES									AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM		
1	2	2	2	3	1	1	2	1	14	07	SUDDEN COMMENCEMENTS d h m
2	2	2	2	2	4	2	2	2	18	10	
3	3	1	4	3	2	1	2	2	18	11	
4	2	2	2	1	1	3	2	2	15	07	
5	2	1	3	3	0	1	1	0	11	06	
6	1	2	4	5	5	3	2	2	24	20	
7	2	3	3	5	5	4	2	2	26	22	
8	3	2	3	4	4	2	2	2	22	14	
9	3	4	3	6	2	2	2	2	24	21	
10	2	2	2	1	0	1	1	1	10	04	
11	0	1	1	3	2	1	1	0	09	04	
12	1	1	1	4	4	5	3	3	22	18	
13	4	4	5	6	6	2	1	2	30	35	
14	2	3	3	3	4	2	2	1	20	12	
15	2	2	2	2	1	1	1	2	13	06	
16	2	4	3	3	5	3	3	3	26	20	
17	5	4	5	6	4	3	3	3	33	34	
18	4	4	4	4	3	4	2	2	27	21	
19	3	3	4	4	4	4	2	1	25	19	
20	3	3	4	2	1	1	2	2	18	11	
21	2	2	3	4	3	3	1	1	19	12	
22	2	2	2	4	2	1	2	3	18	10	
23	3	4	3	4	2	3	3	4	26	19	
24	5	4	6	6	7	5	4	2	39	57	
25	4	3	5	4	3	4	2	1	26	21	
26	3	2	2	4	4	3	2	2	22	14	
27	2	2	2	4	2	1	2	2	17	09	
28	2	3	3	4	3	4	3	2	24	16	
29	3	4	3	5	5	3	2	2	27	23	
30	4	4	3	7	5	2	3	2	30	36	
31	3	2	1	2	5	2	2	1	18	12	

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

BEGIN			END		
d	h	m	d	h	m

K SCALE USED:

LOWER LIMIT FOR K = 9.....

CURRENT SCALE VALUE.....

LOWER LIMIT FOR K = 9.....

D

683.8

H

321.7

Z

(mm)

(γ /mm)

(to nearest 10 γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH
JULY

YEAR
1983

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
02	10xx	pi 2	
10	06xx	pi 2	
22	09xx	pi 2	With Bay
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-TERRRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80502 U.S.A.

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA
JULY 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	11XX	..	..	..	..	13	4, 5	6	105	1080	480	13	16
		16	00XX	..	..	..	..	17	4	6	127	1150	470	18	17
		22	20XX	..	..	..	..	24	5	7	131	1520	720	25	23
		28	05XX	..	..	..	..	30	4	7	163	1530	520	30	15

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 7-1-83	2400 U.T., 7-31-83	1.0/mm	3.78/mm	27° 16.9 E
H	0000 U.T., 7-1-83	2400 U.T., 7-31-83	7.88/mm		126878
Z	0000 U.T., 7-1-83	2400 U.T., 7-10-83	7.78/mm		551468
	0000 U.T., 7-11-83	2400 U.T., 7-24-83	"		551508
	0000 U.T., 7-25-83	2400 U.T., 7-31-83	"		551418

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 7-1-83	2400 U.T., 7-31-83	7.9/mm	29.68/mm	24° 20.8 E
H	0000 U.T., 7-1-83	2400 U.T., 7-31-83	43.98/mm		108238
Z	0000 U.T., 7-1-83	2400 U.T., 7-31-83	48.48/mm		540748

RAPID RUN MAGNETOGRAPH				
COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
27° 51.2 E	129558	553718

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUL 1, 2, 3, 4, 5, 10, 11, 15, 22, 27

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF INTERIOR
Geological Survey, Seismologic Division
Denver Federal Center
DENVER, CO 80225OBSY. YEAR MONTH ELE-
MENT

CO 83 JUL 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 N.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	Int	Time	HR	01	02	03	04	05	06	07	08	09	10	11	12	HR	13	14	15	16	17	18	19	20	21	22	23	24	SUM	
				01	268	262	293	288	321	331	340	327	330	358	304	306	01	316	331	356	401	448	444	441	417	390	348	316	262	8198	
				02	248	269	301	323	327	322	298	321	307	301	310	330	02	358	383	360	431	501	514	452	458	400	318	329	276	8467	
				03	256	257	278	296	316	328	319	308	312	288	311	296	03	338	378	358	419	486	494	509	511	368	348	300	262	8368	
				04	248	256	270	291	288	346	328	313	308	340	316	308	04	307	346	348	408	472	453	468	428	326	314	298	276	8056	
				05	274	268	271	298	310	328	326	318	319	291	343	346	05	342	333	378	425	479	514	468	445	386	353	309	294	8418	
				06	283	262	238	251	270	243	266	282	308	296	178	242	06	490	376	424	479	516	540	482	440	360	284	216	251	7977	
				07	252	270	262	286	329	328	341	314	287	329	240	303	07	436*	421	461	546	556	535	491	414	427	310	274	256	8688	
				08	244	228	258	254	295	286	282	476	351	268	299	274	08	334	316	356	424	481	552	528	451	396	340	297	237	8227	
				09	227	221	203	293	288	311	296	322	279	298	301*	263	09	298	320	371	435	481	504	490	457	368	352	264	258	7900	
				10	228	242	248	284	316	319	326	378	337	340	310	307	10	314	344	391	425	438	460	456	453	381	317	276	266	8156	
				11	256	256	280	299	314	317	320	320	324	327	366	374	11	380	358	380	408	470	501	486	456	405	360	313	298	8568	
				12	264	263	266	299	319	338	352	344	346	332	346	346	12	259	458	416	516*	472	442	521	484	341	353	265	178	8520	
				13	243	218	305	250	259	200	255	157	315	539*	394	461*	13	239	316	375	382	447	445	430	408	355	335	288	286	7902	
				14	275	295	293	299	322	303	347	352	339	289	280	291	14	292	313	391	439	488	485	441	426	356	316	314	319	8265	
				15	299	285	285	280	309	330	305	318	302	301	335	314	15	297	331	345	403	441	457	457	429	391	351	332	301	8198	
				16	256	223	200	177	228	266	301	311	255	233	222	245	16	300	358	427	489	494	545	496	445	498	254	236	249	7708	
				17	245	198	250	184	194	256	349	254	286*	357*	328	262*	17	402	422	428	441	575	431	409	415	494	303	251	262	7996	
				18	266	215	216	228	176	234	251	296	310	274	477	364	18	325	403	393	443	412	446	484	415	437	390	292	237	7984	
				19	233	252	265	249	263	278	307	291	296	290	271	293	19	326	360	315	422	514	524	472	454	389	289	221	240	7814	
				20	235	230	233	294	306	299	328	368	353	295	290	300	20	318	340	376	426	464	470	448	409	371	342	281	261	8037	
				21	266	244	258	210	259	270	291	286	314	336	272	385	21	316	347	386	422	452	482	486	427	415	329	308	287	8048	
				22	275	264	266	254	242	246	299	314	328	288	308	342	22	355	350	400	458	507	500	468	490	448	424	268	139	8233	
				23	211	225	227	262	292	302	313	354	296	111*	266	346	23	341	405	446	518	576	600	593	467	349	353	345	356	8554	
				24	354	310	348	228	136	284	103*	262*	190*	357*	226	258	24	245*	214*	323	409	571	498	493	385	351	324	302	324	7495	
				25	279	251	228	289	342	342	324	316	172	397	290	340	25	375	311	390	508	466	488	474	457	401	351	293	257	8341	
				26	255	232	274	310	284	344	369	341	303	313	312	311	26	346	311	382	398	458	468	462	455	428	374	316	286	8332	
				27	239	243	270	274	311	334	336	373	317	282	481	337	27	330	328	352	414	458	478	464	458	384	393	364	257	8477	
				28	246	241	261	278	288	300	342	312	318	299	294	346	28	365	309	286	409	464	452	508	471	398	349	318	267	8121	
				29	235	244	202	202	326	292	350	332	306	355	307	363	29	446	294	337	356	429	504	468	430	406	350	264	299	8097	
				30	264	248	287	257	219	328	356	314	271	257	348*	270*	30	260	372	327	392	432	460	460	450	442	307	282	276	7879	
				31	255	251	260	292	308	376	331	321	322	358	290	304	31	248	372	360	382	426	468	474	438	400	365	292	269	8182	
SCALED BY	LYT, TAC		Preliminary base-line and scale values:												<input type="checkbox"/> Interpolated				<input type="checkbox"/> Scaling uncertain because of magnetic storm.				MONTHLY SUM	253206							
CHECKED BY	JEP, TAC		Interval Beginning				Base-line Value				Scale Value				<input type="checkbox"/> Significant portion of hour interpolated.				<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.				MONTHLY MEAN	340							
SIGNS RE- VIEWED BY	JEP		<input type="checkbox"/> No record; or no values available because of faulty record.																												
PUNCHED BY			* Derived from STORM Mgp., converted to Normal Mgp.																												
				DATES WITH GAPS:																											

FORM 78-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225OBSY. YEAR MONTH ELEMENT
CO 83 JUL 2Values 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	U of S	Tr O	Stn No	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	298	312	360	354	364	362	360	348	328	309	218	232	01	284	300	306	316	302	298	290	288	284	285	286	281	7365		
				02	285	285	299	326	316	311	307	351	321	319	305	276	02	225	218	276	271	253	262	280	291	292	274	285	291	6919		
				03	307	311	324	320	307	295	298	302	307	259	306	284	03	291	302	312	313	292	277	272	276	248	270	270	272	7015		
				04	273	286	304	314	330	366	339	322	312	313	291	287	04	282	286	300	274	232	230	270	270	229	232	254	266	6862		
				05	287	306	302	318	299	297	291	294	303	211	286	303	05	282	296	302	294	290	270	266	266	265	264	266	274	6832		
				06	281	290	298	315	315	313	345	329	274	225	166	238	06	294	134	231	235	203	218	248	265	275	276	276	300	6344		
				07	302	318	319	338	344	320	313	299	302	231	176	318	07	495*	223	220	198	168	184	248	274	298	272	289	310	6759		
				08	307	309	324	344	340	322	325	325	218	286	300	342	08	318	264	262	307	310	297	256	222	227	238	248	260	6951		
				09	282	283	310	401	372	335	318	338	296	277	107*	167	09	243	284	281	294	286	246	264	268	254	267	286	311	6790		
				10	304	320	329	350	323	314	330	314	290	292	290	289	10	286	295	297	292	286	289	289	289	289	289	281	273	269	278	7169
				11	286	286	291	291	291	293	303	304	309	308	296	218	11	204	232	274	294	300	287	289	288	280	277	282	286	6769		
				12	291	295	296	297	298	296	296	298	294	295	298	258	12	202	184	202	264*	227	268	270	200	165	226	229	226	6175		
				13	273	341	386	346	339	244	196	175	317	339*	261	465*	13	339	240	258	290	297	295	288	290	289	294	292	305	7159		
				14	306	309	335	366	363	338	343	314	313	303	278	316	14	353	279	214	250	272	269	270	276	273	266	280	293	7179		
				15	305	306	331	330	342	346	338	363	334	302	268	268	15	273	274	267	279	264	227	232	269	278	276	273	270	7015		
				16	276	284	320	351	348	381	407	341	290	285	253	271	16	385	362	354	292	286	302	266	249	272	231	255	276	7337		
				17	312	288	325	315	318	335	369	286	242*	38	209	246	17	37	153	239	153	141	169	215	249	292	256	231	261	5674		
				18	280	278	319	293	324	282	324	281	295	258	178	150	18	241	267	264	251	199	271	287	263	281	287	271	274	6418		
				19	292	315	316	317	320	335	340	331	248	222	253	242	19	196	150	199	245	197	188	218	227	243	246	259	294	6193		
				20	301	304	319	347	328	322	319	310	235	284	304	292	20	287	303	304	296	286	285	295	280	270	274	272	279	7096		
				21	297	301	305	292	341	349	377	374	332	278	242	274	21	247	291	259	184	208	231	235	225	239	236	260	274	6651		
				22	286	311	344	328	341	365	388	352	327	291	246	221	22	204	216	254	266	262	268	278	290	265	280	257	243	6883		
				23	251	267	271	292	296	297	324	332	268	194	418	421	23	329	286	258	233	186	207	198	184	214	257	275	337	6595		
				24	319	152	-34	106	30	34	34*	229*	326	310*	336	378	24	645*	467*	304	332	436*	297	279	228	265	279	292	326	6370		
				25	348	360	330	344	335	378	377	294	203	227	243	258	25	253	202	248	252	268	293	275	269	278	287	301	305	6928		
				26	316	321	346	367	339	366	356	344	330	327	325	293	26	326	241	158	178	209	240	292	294	289	291	295	301	7144		
				27	297	309	324	321	333	335	325	346	323	297	252	231	27	280	299	310	312	314	294	306	298	281	291	296	297	7271		
				28	305	314	318	327	324	364	372	365	354	325	322	338	28	260	288	331	325	309	307	297	309	298	288	293	306	7639		
				29	303	326	337	364	402	386	406	314	283	346	352	507	29	478	420	297	324	328	314	279	276	282	291	288	296	8199		
				30	329	400	404	410	418	425	376	374	344	300	388*	470*	30	459	443	232	311	344	332	308	303	312	296	331	350	8659		
				31	370	353	354	357	367	368	346	340	338	303	307	312	31	287	240	245	299	319	318	310	291	290	296	296	299	7605		
SCALED BY	LYT, TKC			Preliminary base-line and scale values:													<input type="checkbox"/> Interpolated		<input type="checkbox"/> Scaling uncertain because of magnetic storm.		MONTHLY SUM	215965										
CHECKED BY	TKC, JEP			Interval Beginning	Base-line Value	Scale Value														<input type="checkbox"/> Significant portion of hour interpolated.		<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.		MONTHLY MEAN	290							
SIGNS REVIEWED BY	JEP																<input type="checkbox"/> No record; or no values available because of faulty record.				DATES WITH GAPS											
PUNCHED BY																	* Derived from STORM Mgp., converted to Normal Mgp.															

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF INTERIOR
Geological Survey, Seismic Division
Denver Federal Center
DENVER, CO 80235OBSV. YEAR MONTH FLT-
MENT
CO 83 JUL HValues 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 8876 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	U S	Sec Q	UT M	01	02	03	04	05	06	07	08	09	10	11	12	U T M	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	336	368	342	436	378	366	387	401	364	340	294	308	01	356	362	365	366	369	374	362	352	332	314	314	320	8506
			02	335	338	376	365	327	342	396	414	373	381	362	344	02	178	308	362	320	327	351	383	350	336	321	313	330	8232
			03	336	299	343	346	338	355	369	412	450	362	362	355	03	348	362	376	368	360	357	359	335	352	330	333	318	8525
			04	322	330	341	357	393	372	376	388	394	382	364	350	04	341	340	345	286	305	362	346	305	295	304	308	310	8216
			05	340	307	346	333	360	354	356	386	454	309	390	368	05	355	364	355	334	338	356	360	346	321	310	312	313	8367
			06	335	343	360	344	364	400	427	434	448	328	170	149	06	-4	316	307	258	167	316	344	315	300	280	281	297	7279
			07	319	326	350	406	346	358	338	366	416	302	105	270	07	72	126	175	152	166	322	336	315	276	279	315	348	6786
			08	341	388	360	394	364	397	439	432	377	411	303	358	08	279	185	344	366	342	285	244	286	298	287	309	314	8103
			09	322	331	476	569	414	363	375	391	440	354	213*	260	09	329	346	312	345	290	304	317	280	276	280	310	329	7800
			10	340	357	401	403	364	340	370	362	372	359	362	349	10	334	343	350	358	361	333	321	294	287	283	290	311	8241
			11	324	336	350	346	344	359	350	347	364	372	396	349	11	360	374	389	371	346	352	346	328	330	315	319	315	8388
			12	327	335	338	338	342	343	359	350	360	368	365	279	12	-31	159	130	91	342	377	278	224	285	283	298	310	6850
			13	382	426	478	500	622	637	505	208	221	-13	110	236*	13	-43*	331	313	346	352	375	380	339	331	320	316	332	7532
			14	339	378	393	356	355	414	398	443	370	381	274	272	14	145	228	219	332	363	367	366	338	318	323	311	326	8009
			15	324	358	336	366	364	383	410	411	381	359	333	343	15	334	329	326	320	288	291	340	352	355	342	317	328	8290
			16	350	392	346	527	632	578	396	318	367	385	447	396	16	165	289	286	318	364	330	314	316	293	284	276	364	8733
			17	341	627	574	686	581	568	456	418	303	-37*	115	173	17	164	221	67	186	156	202	344	342	283	262	310	333	7675
			18	321	371	520	528	530	644	588	544	381	318	286	263	18	186	234	216	143	212	342	322	318	317	294	305	323	8506
			19	338	419	410	371	372	418	395	386	348	250	290	276	19	99	182	326	256	213	174	314	308	292	265	264	282	7248
			20	298	380	358	352	352	452	408	451	332	385	363	342	20	340	350	363	348	330	334	317	314	303	294	285	312	8363
			21	339	365	354	422	446	440	448	450	399	339	396	200	21	360	347	291	211	287	304	318	322	298	294	289	299	8218
			22	322	357	386	388	416	432	413	423	412	302	182	265	22	260	309	333	329	338	354	347	299	276	264	205	292	7904
			23	332	338	351	354	342	378	454	528	494	199	258	311	23	310	301	268	279	267	264	236	222	208	293	379	482	7848
			24	664	816	795	727	674	554	341*	360	261	-88*	313	338	24	338*	-37*	367	238	-90	144	332	361	365	310	322	326	8055
			25	361	388	393	516	438	438	398	372	220	256	285	210	25	231	259	128	165	345	356	325	317	302	292	287	292	7574
			26	315	377	392	328	386	374	374	390	359	357	358	226	26	169	26	-23	282	284	354	395	359	320	303	286	284	7275
			27	293	344	311	352	350	350	382	384	393	350	212	335	27	305	342	339	346	355	357	348	334	331	302	304	256	7975
			28	294	320	323	345	364	420	458	499	515	406	235	236	28	260	384	323	303	320	379	382	351	330	321	289	283	8340
			29	293	341	397	544	483	395	468	463	420	365	192	-31	29	0	164	385	420	346	307	354	361	337	313	290	288	7895
			30	334	429	544	466	491	533	402	376	422	314	-314*	-151*	30	202	26	303	384	377	367	321	321	254	294	321	322	7338
			31	306	302	356	340	379	377	365	368	373	337	342	340	31	115	182	254	336	366	369	321	322	297	289	296	294	7626

SCALED
BY
CHECKED
BY
SIGNS RE-
VIEWED BY
PUNCHED
BY

LYT, TAC

TAC, JEP

JEP

Preliminary base-line and scale values:

Interval Base-line Scale
Beginning Value 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.

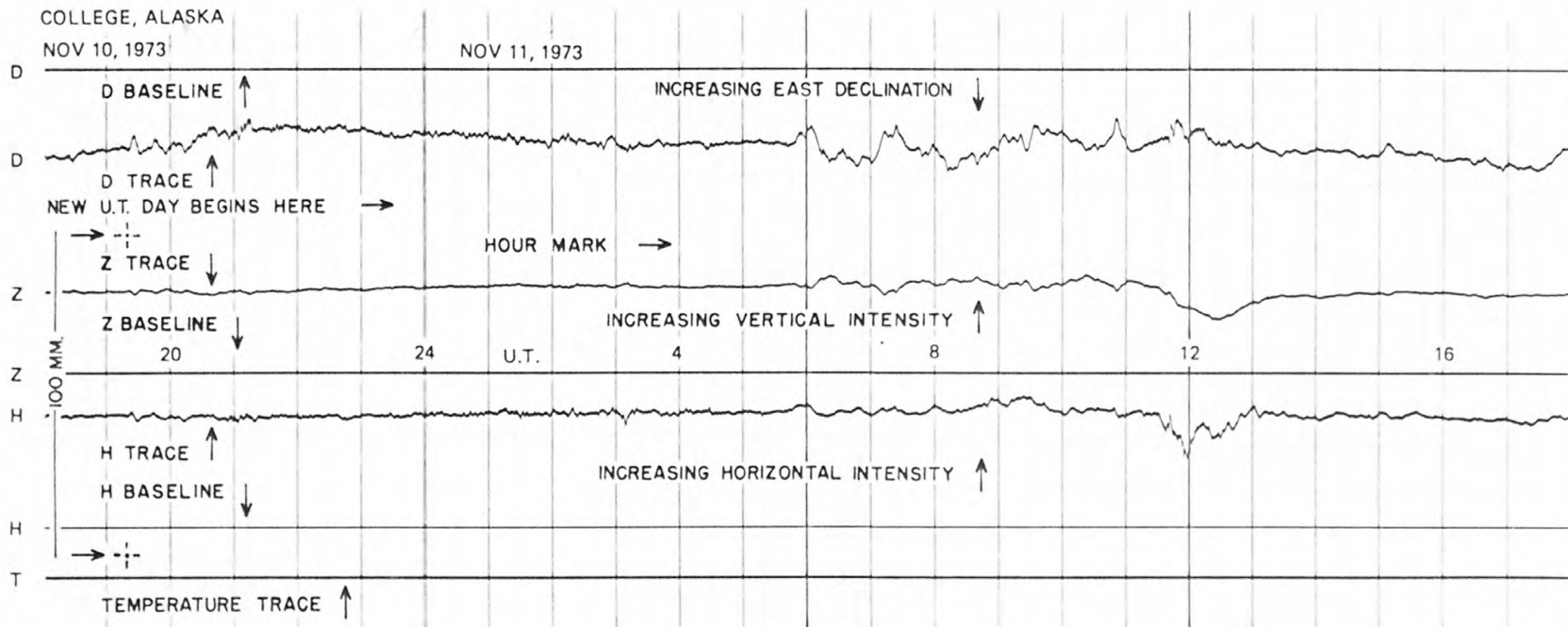
* Derived from STORM Mph., converted to Normal Mph.

MONTHLY SUM 245697

MONTHLY MEAN 330

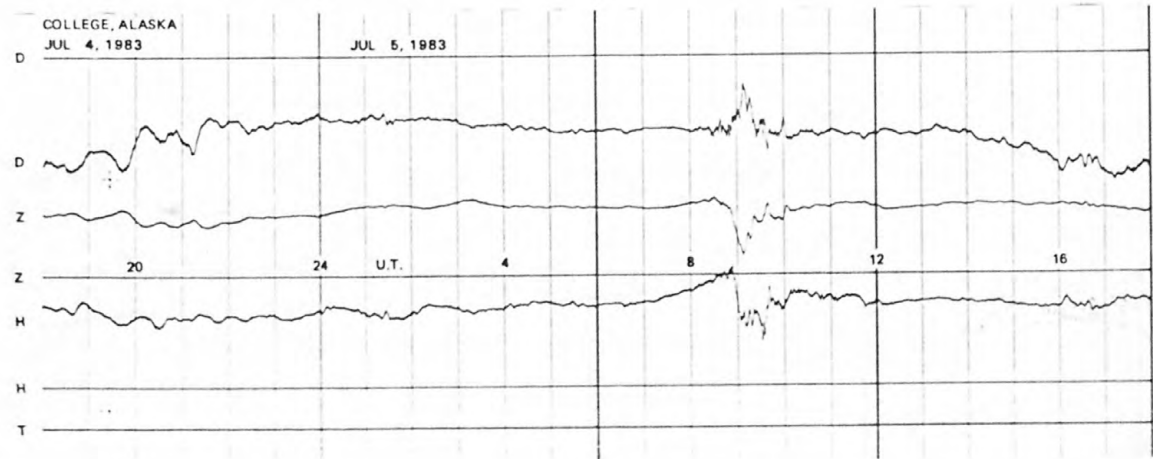
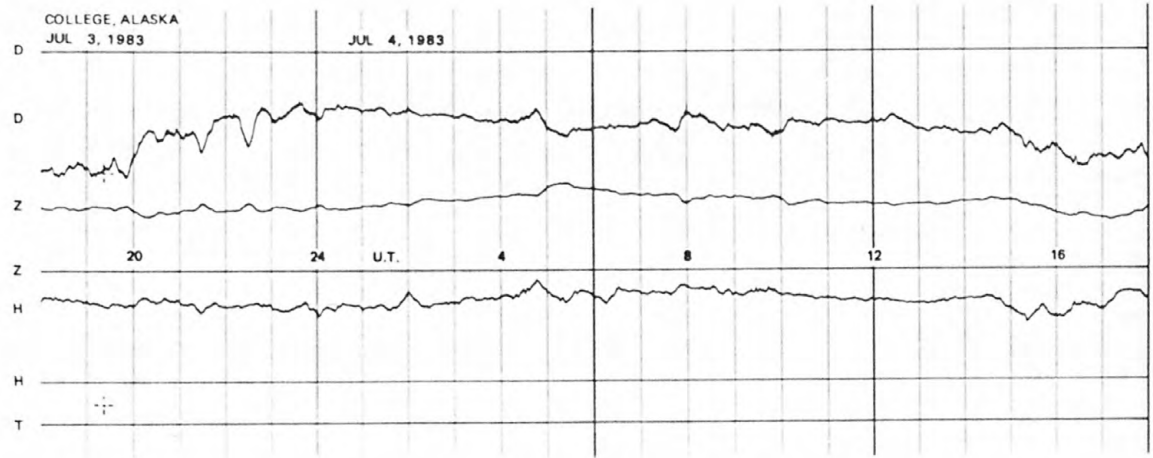
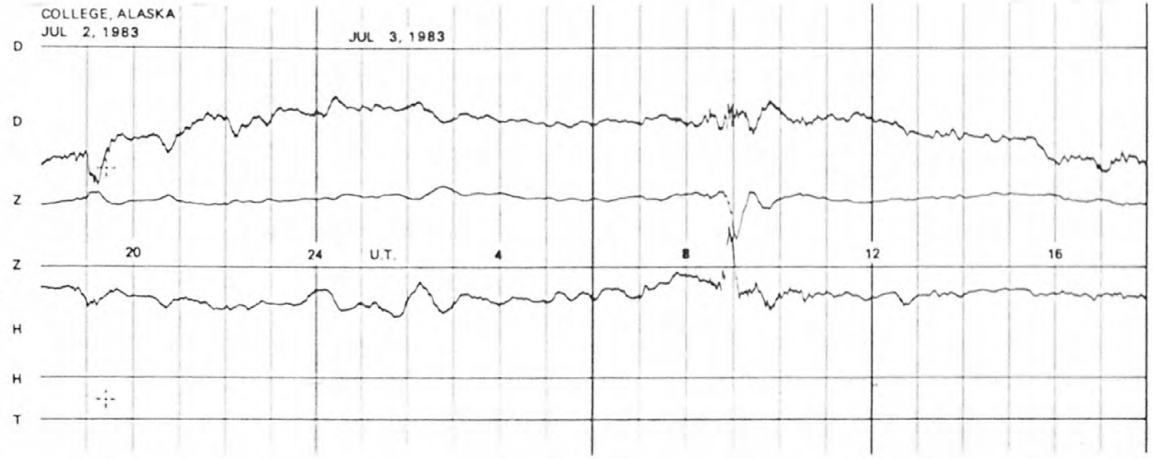
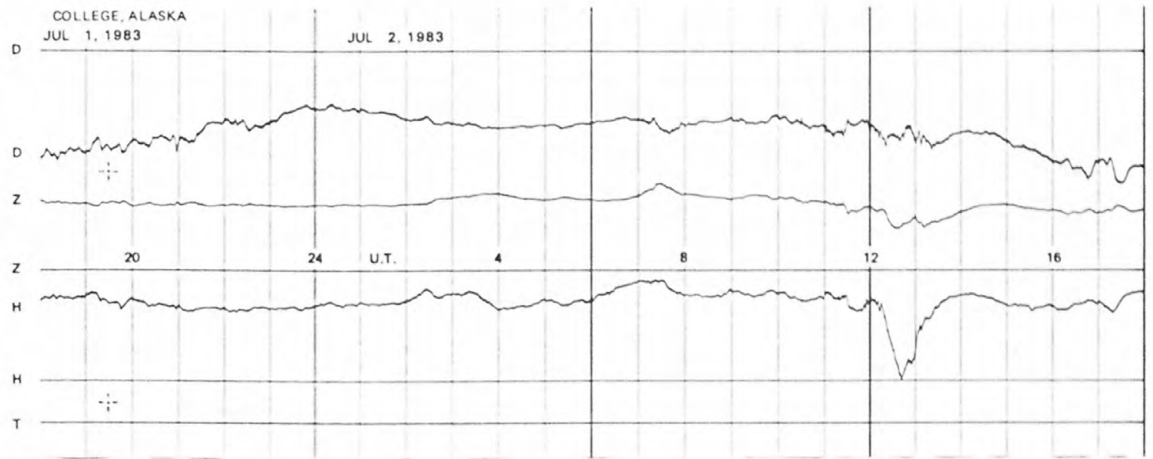
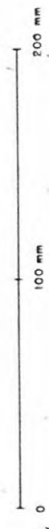
DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

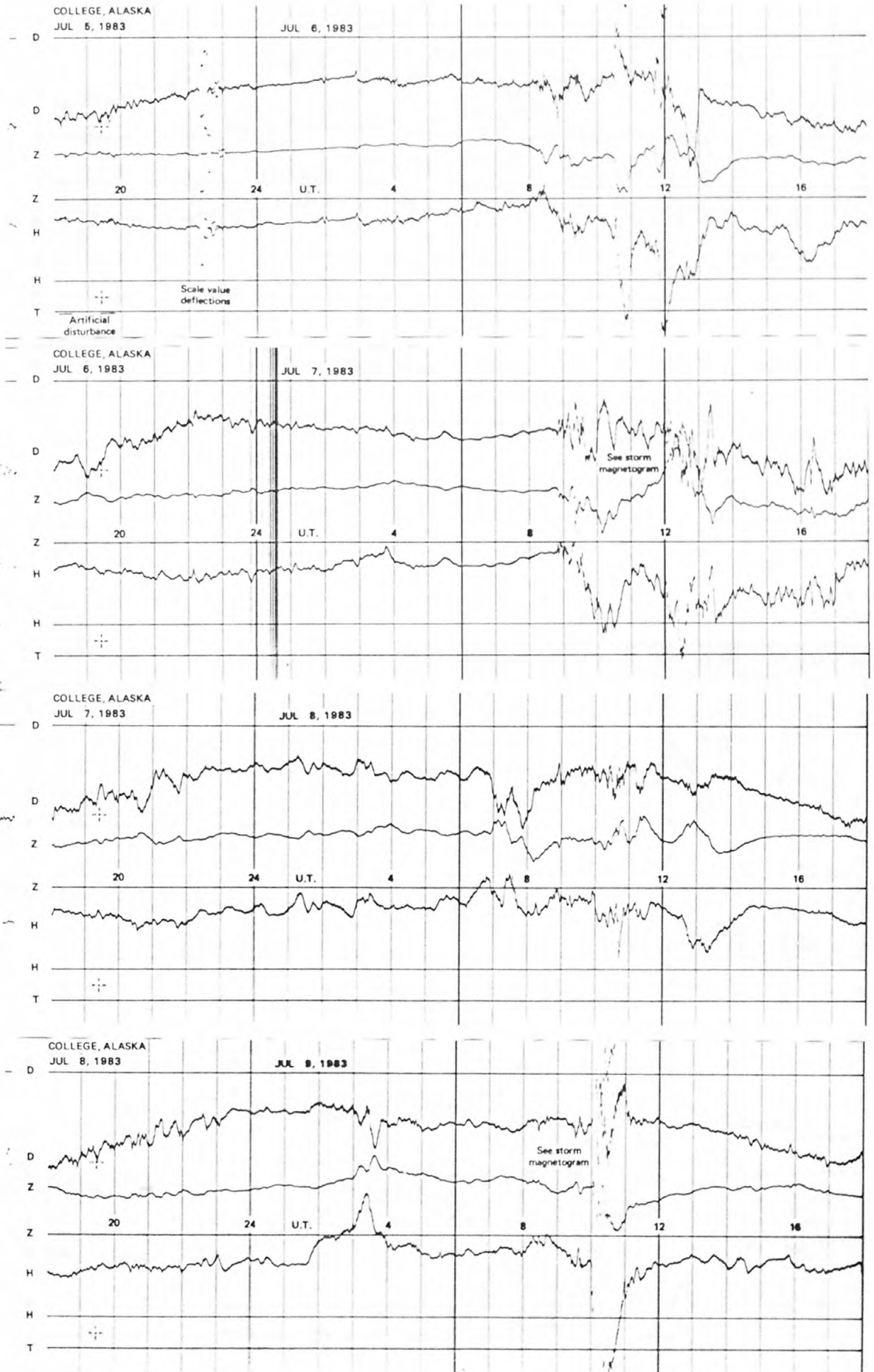


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

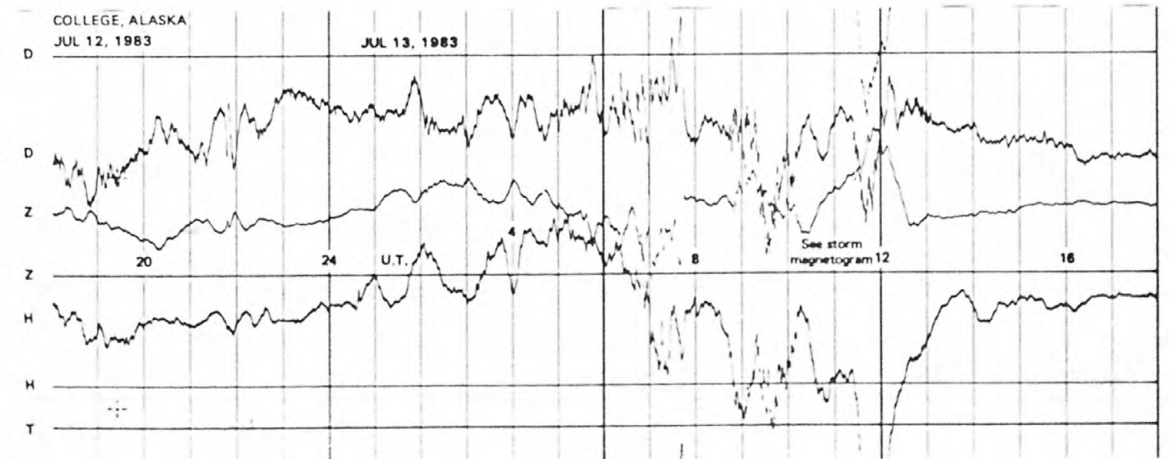
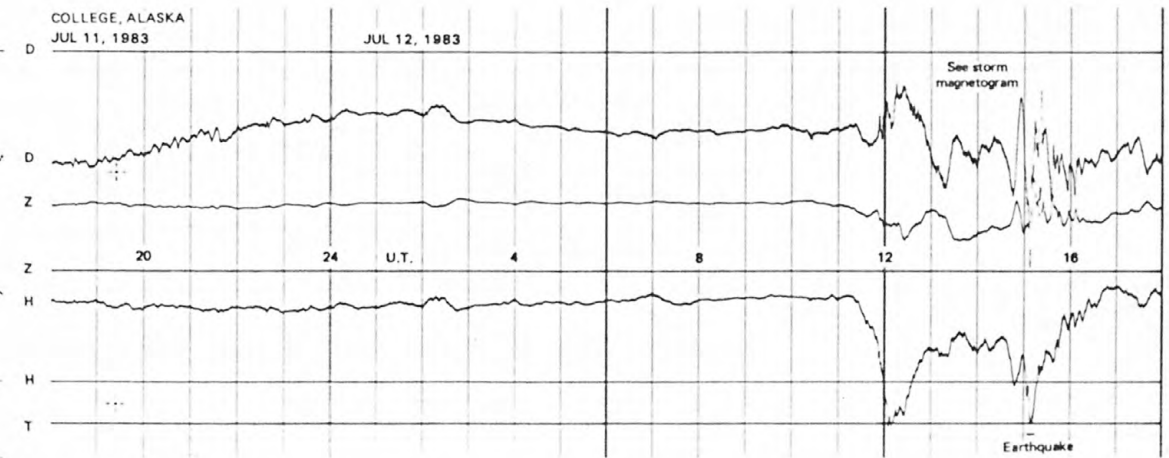
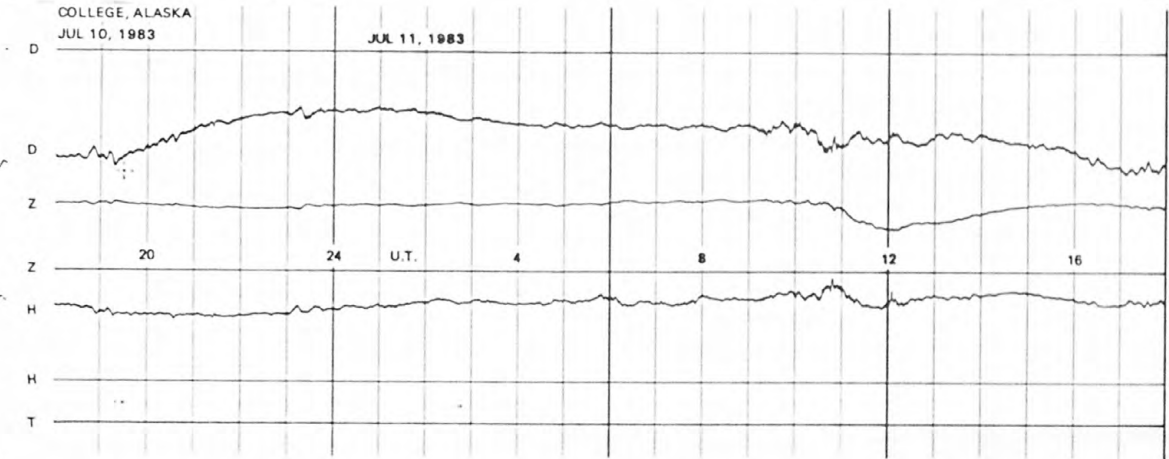
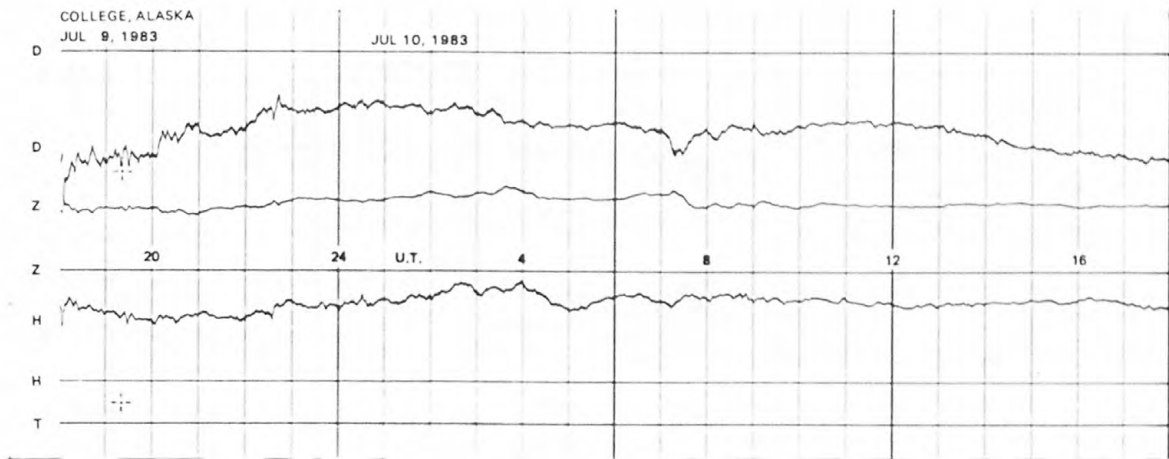


NORMAL MAGNETOGRAMS

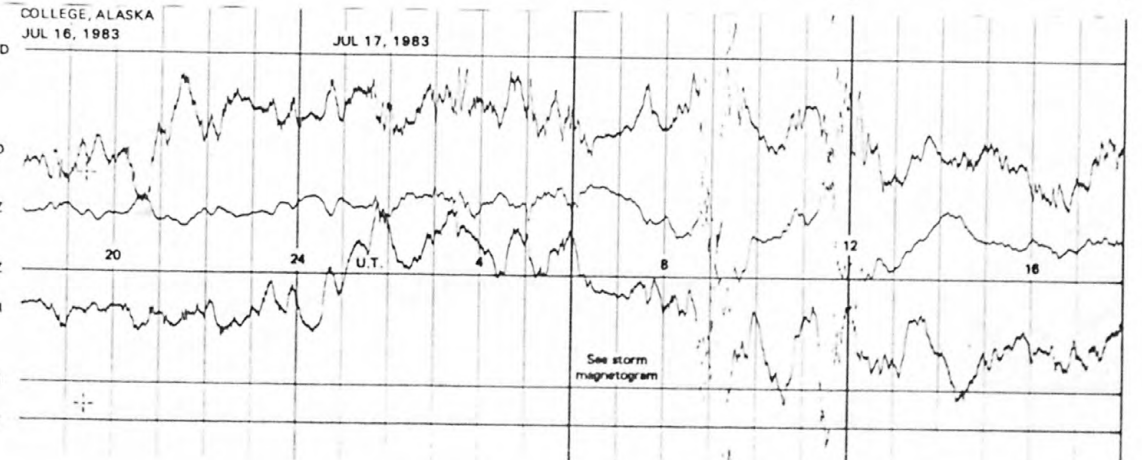
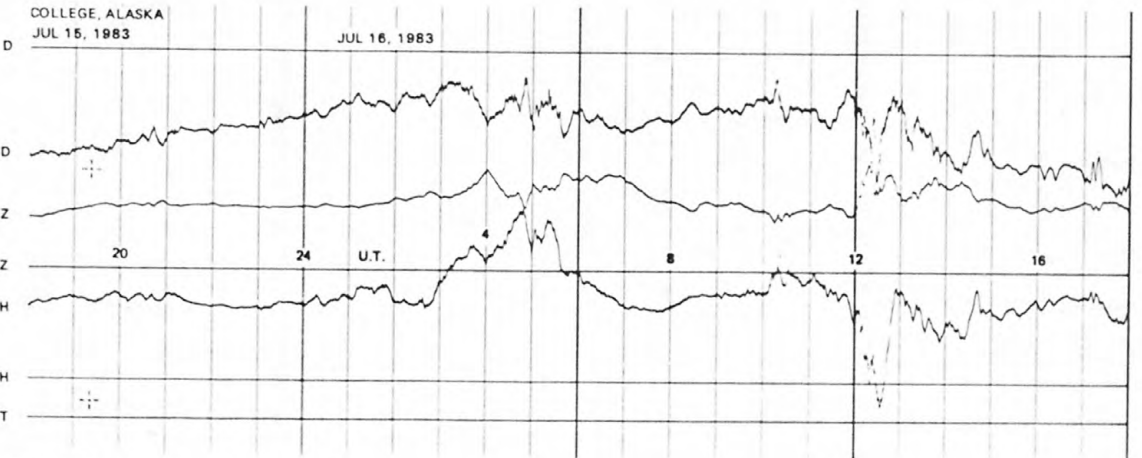
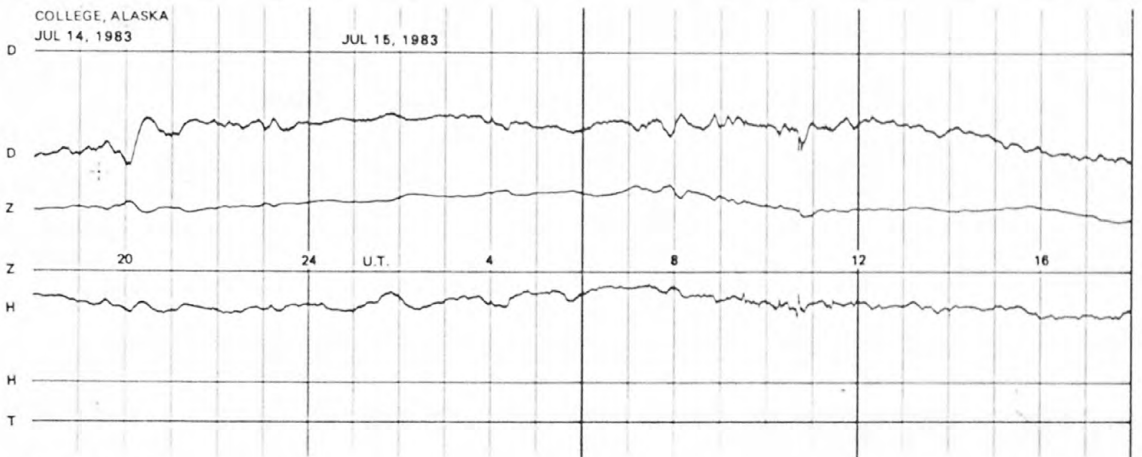
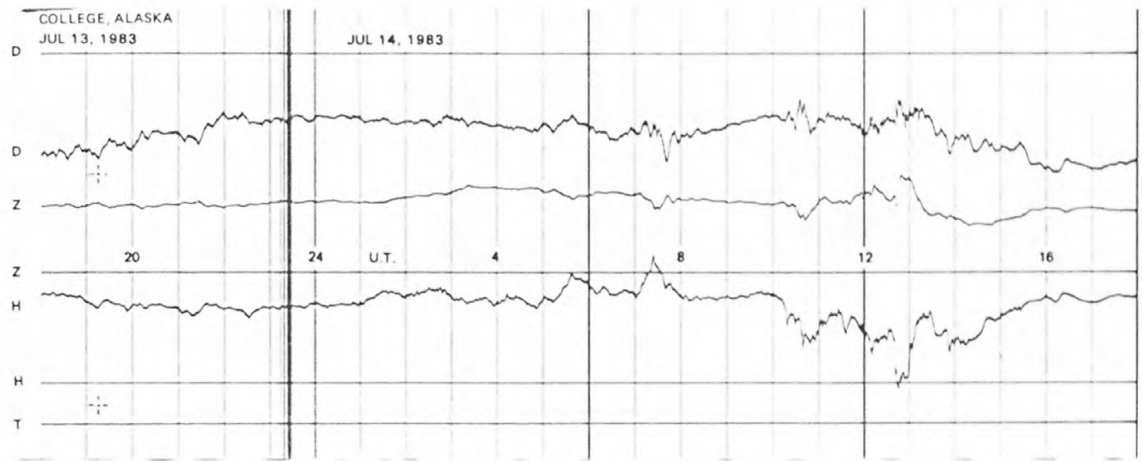


NORMAL MAGNETOGRAMS

200 mm
100 mm
0

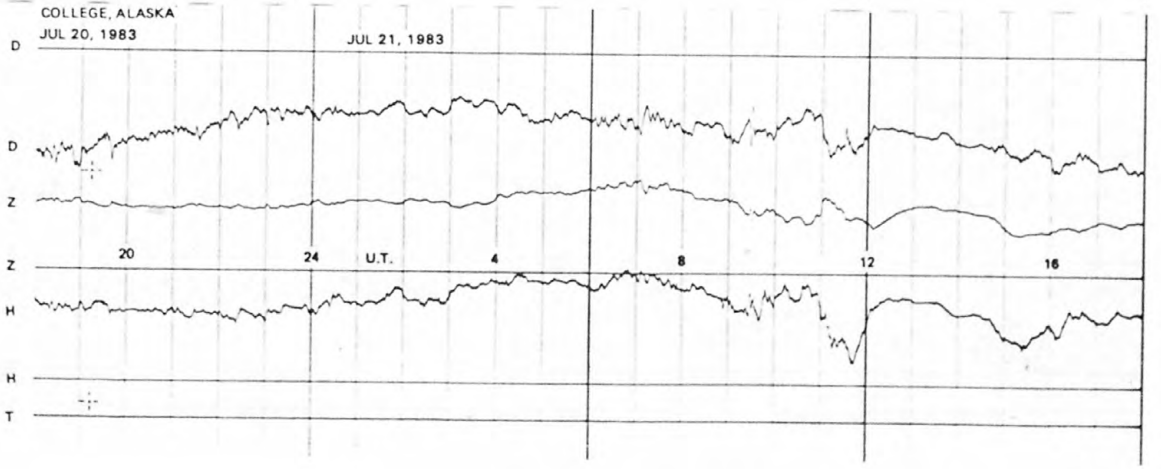
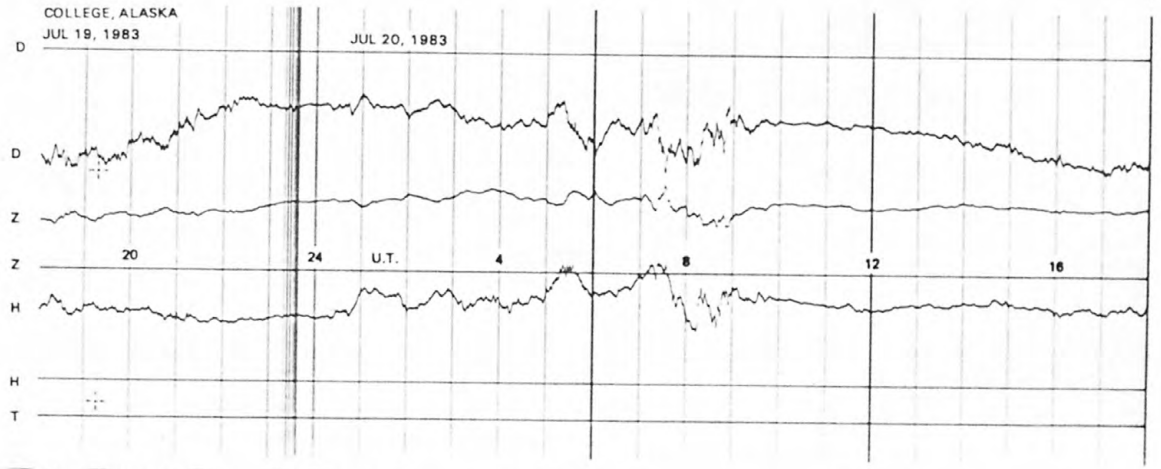
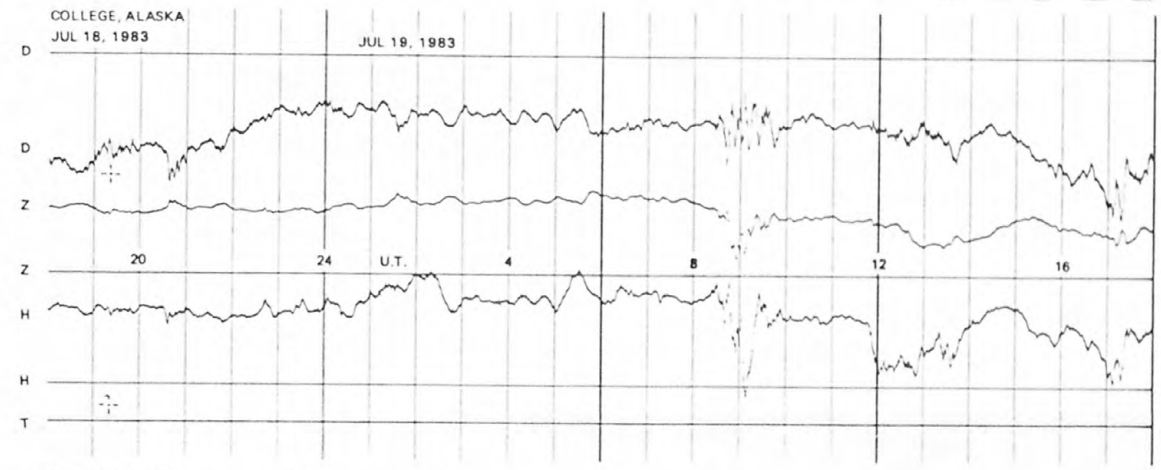
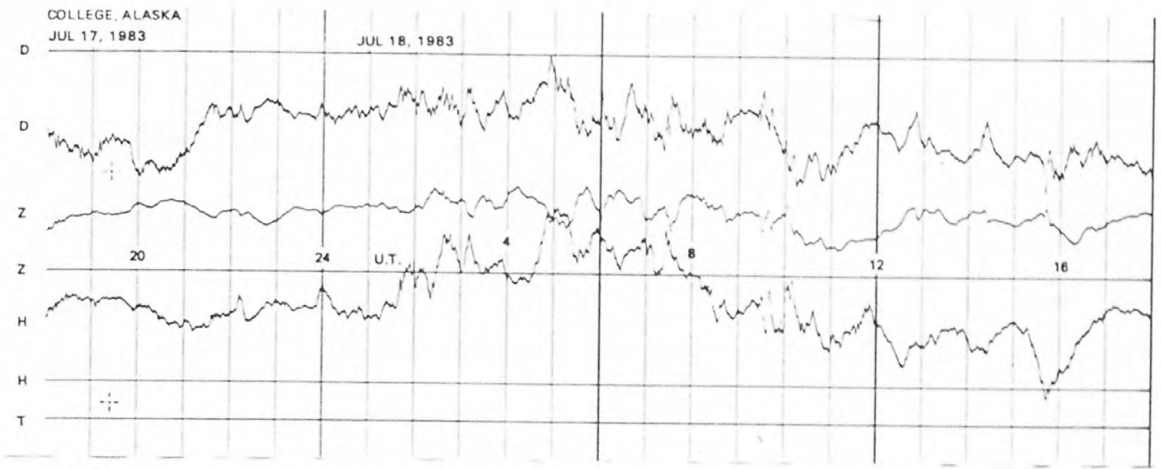


NORMAL MAGNETOGRAMS

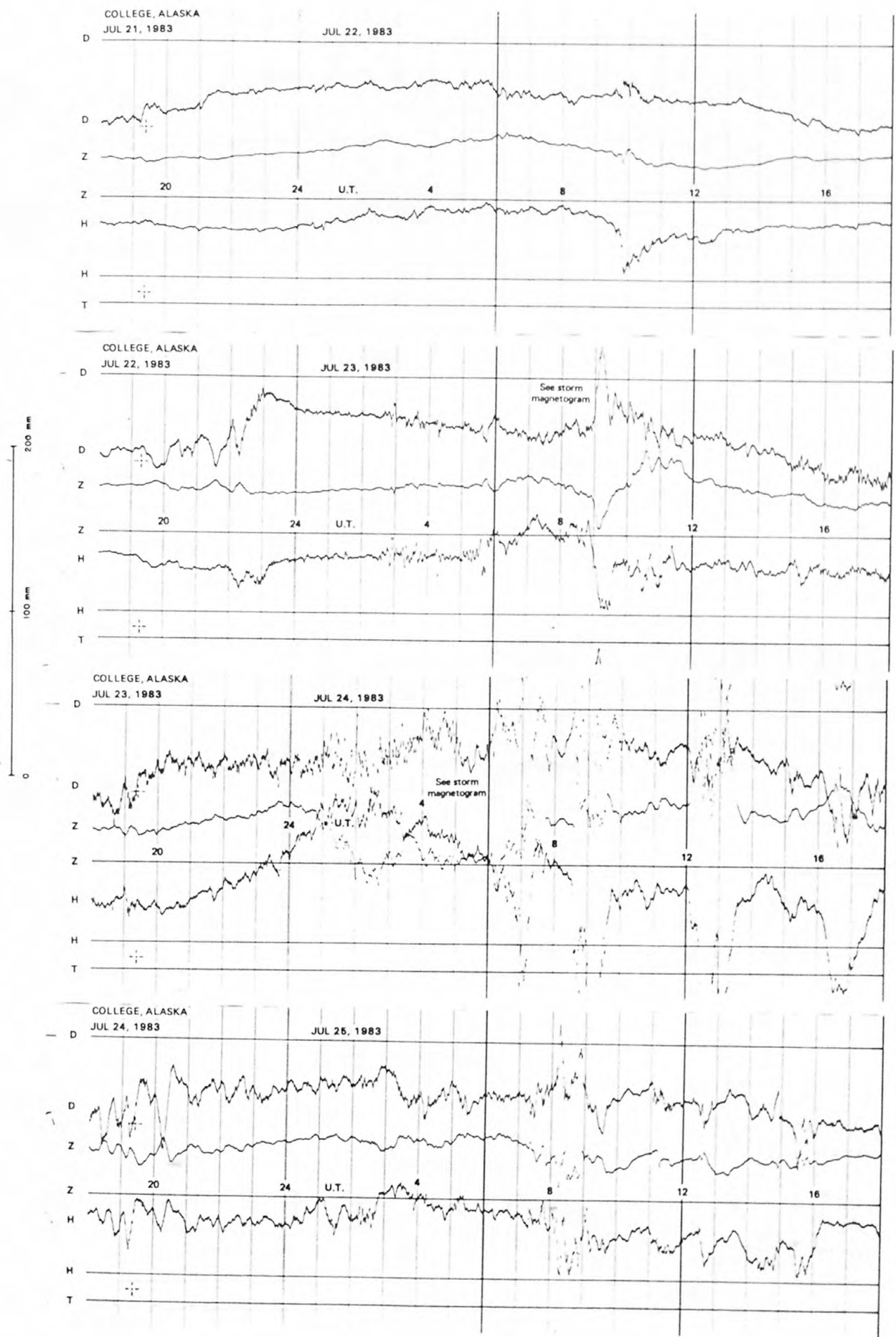


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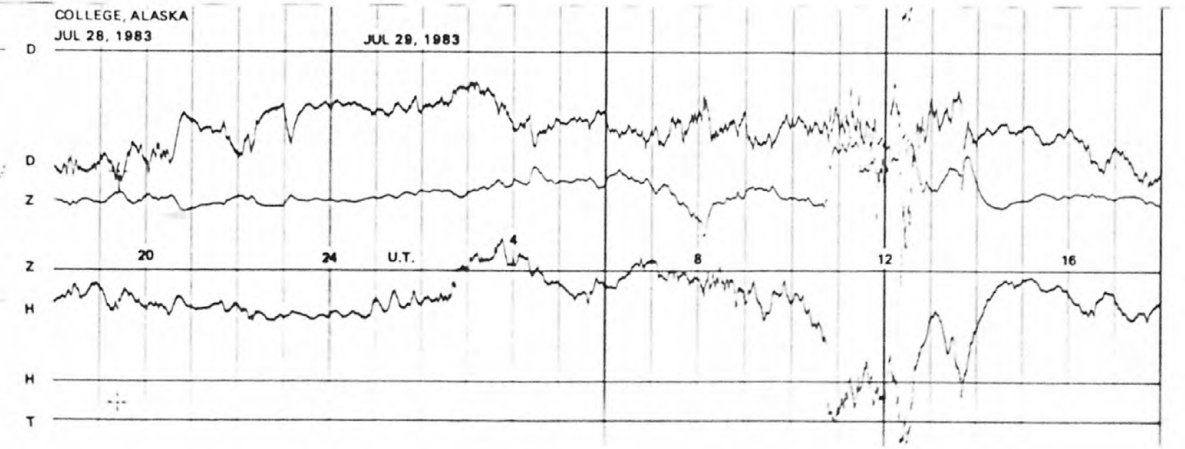
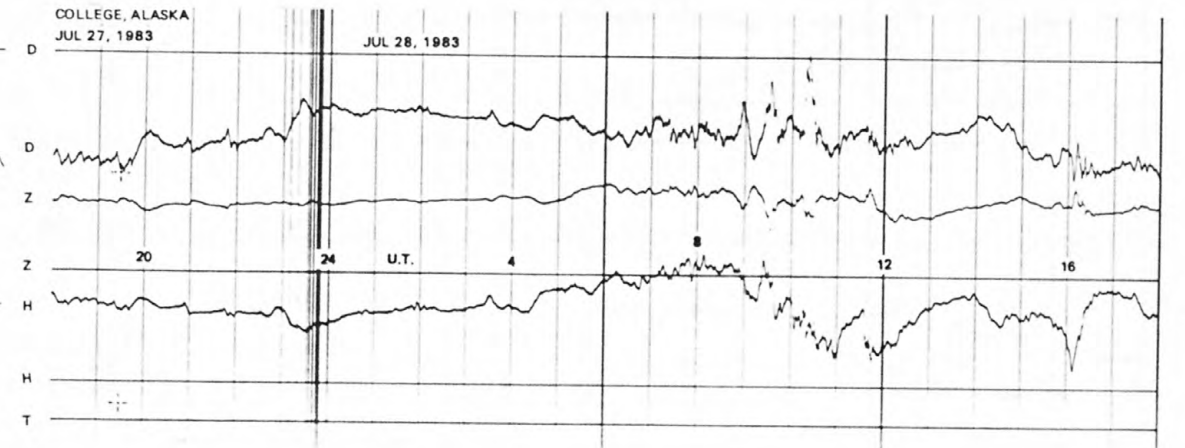
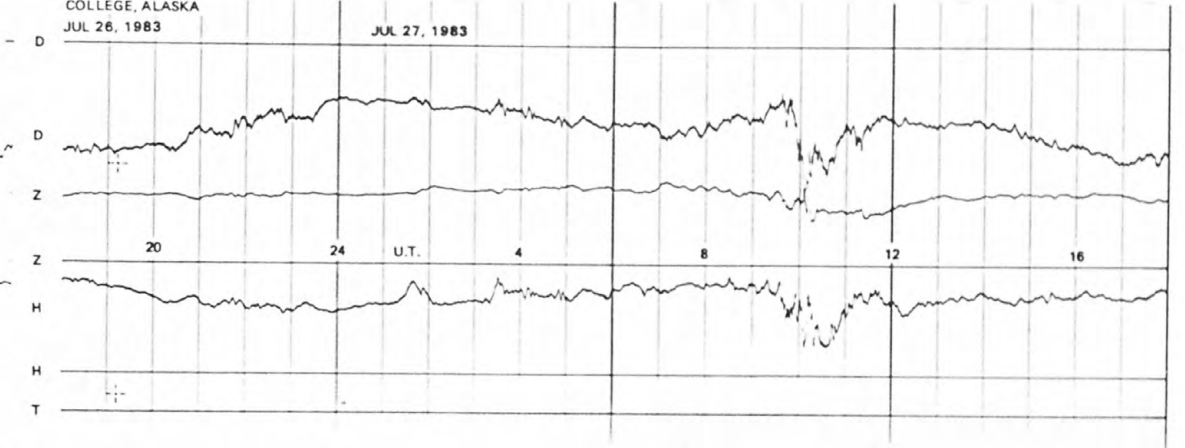
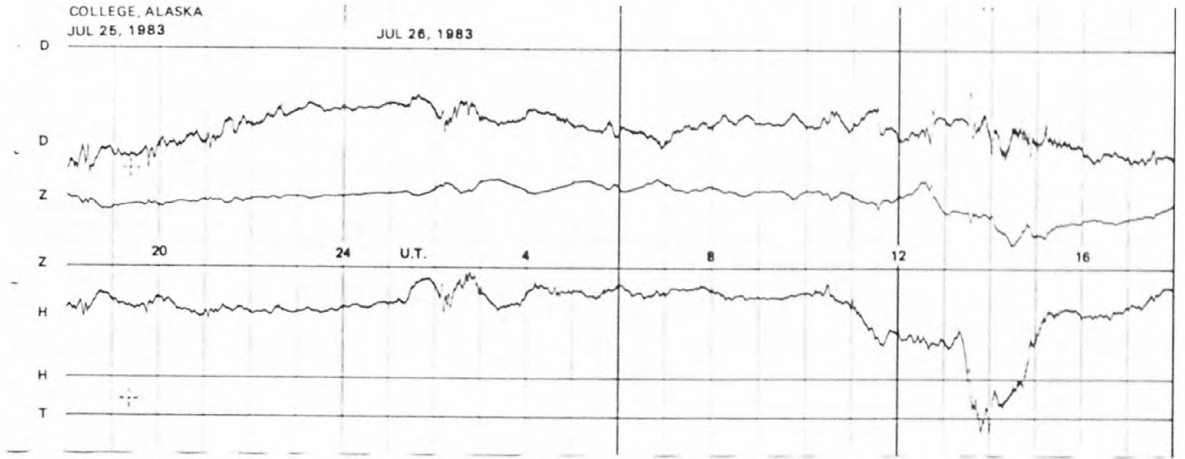
200 mm
100 mm
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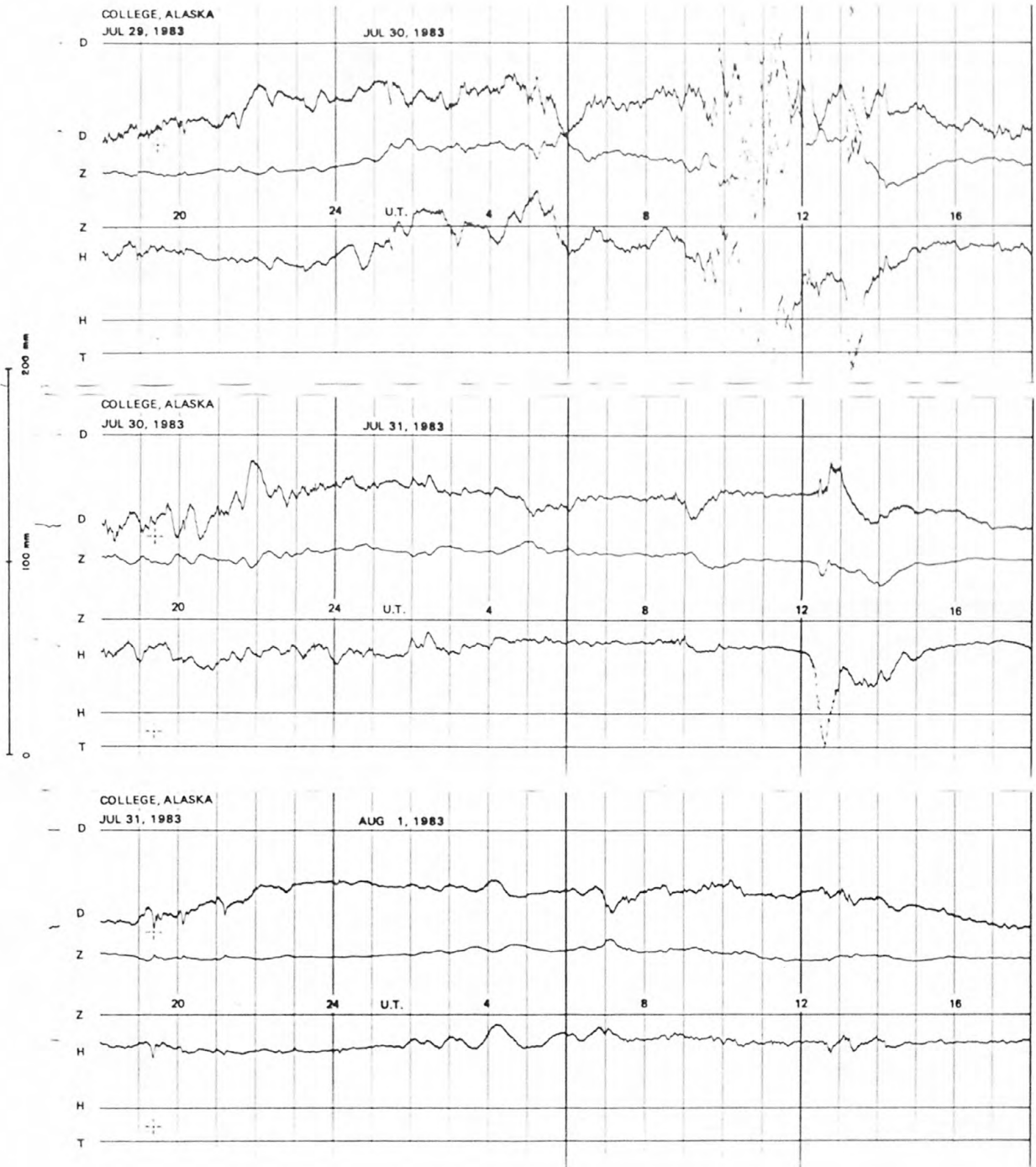
NORMAL MAGNETOGRAMS



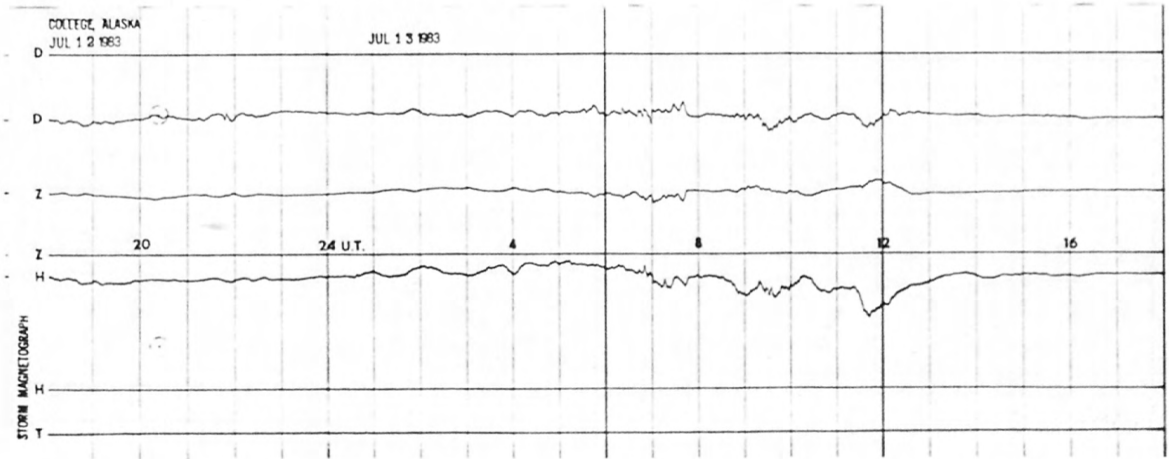
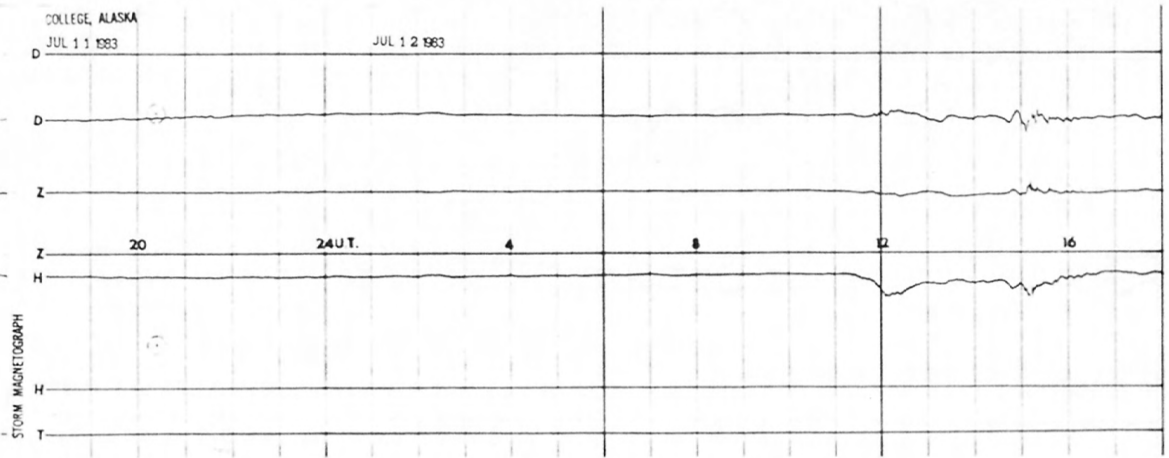
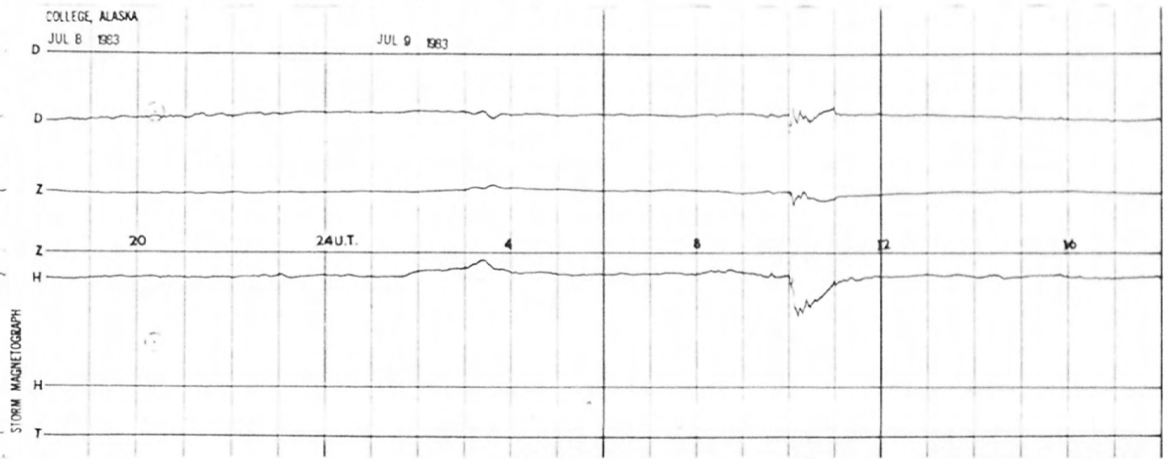
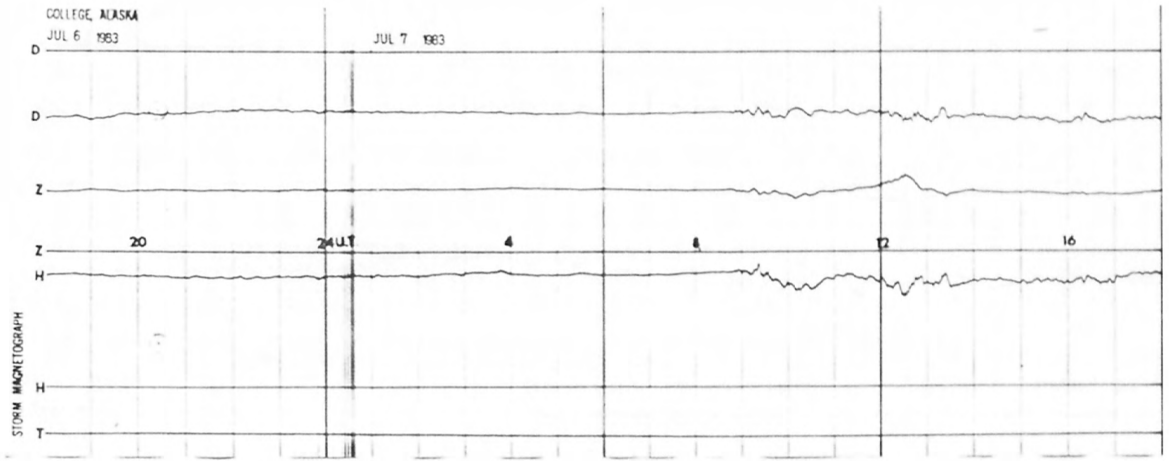
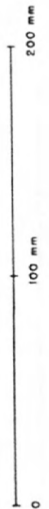
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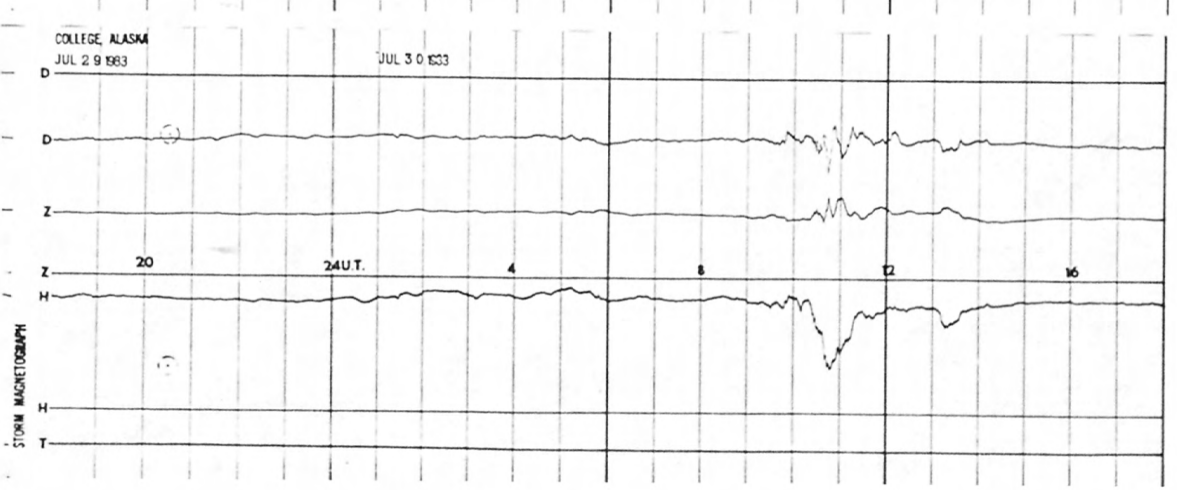
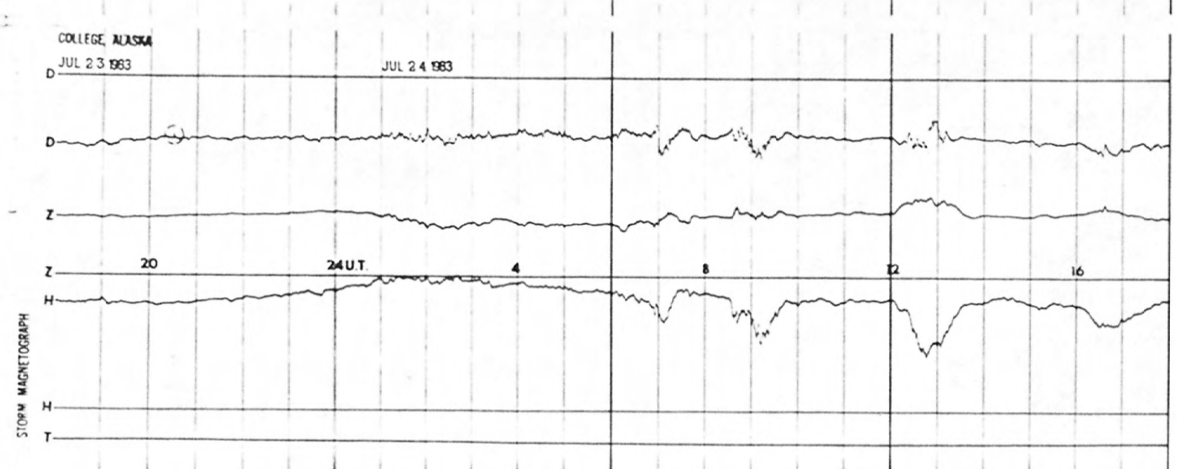
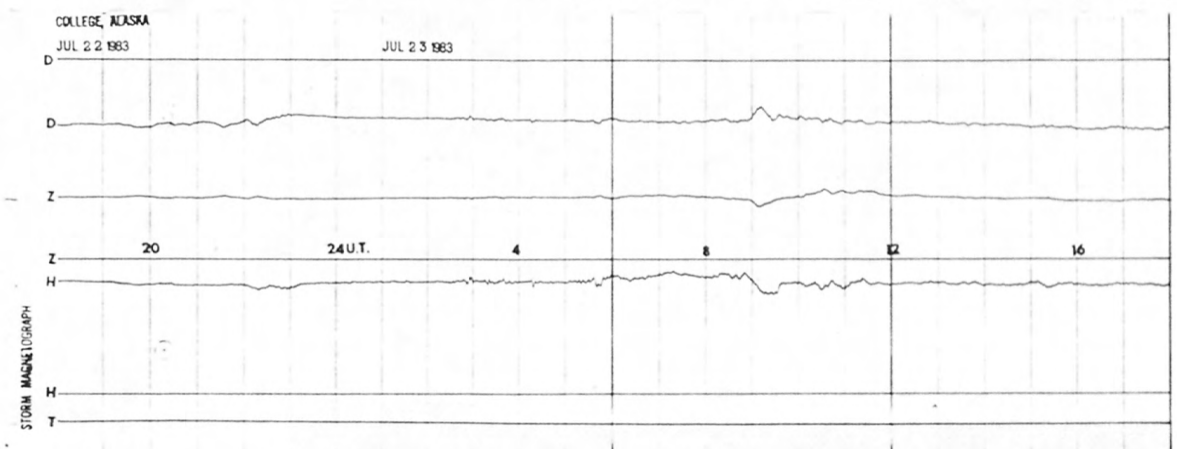
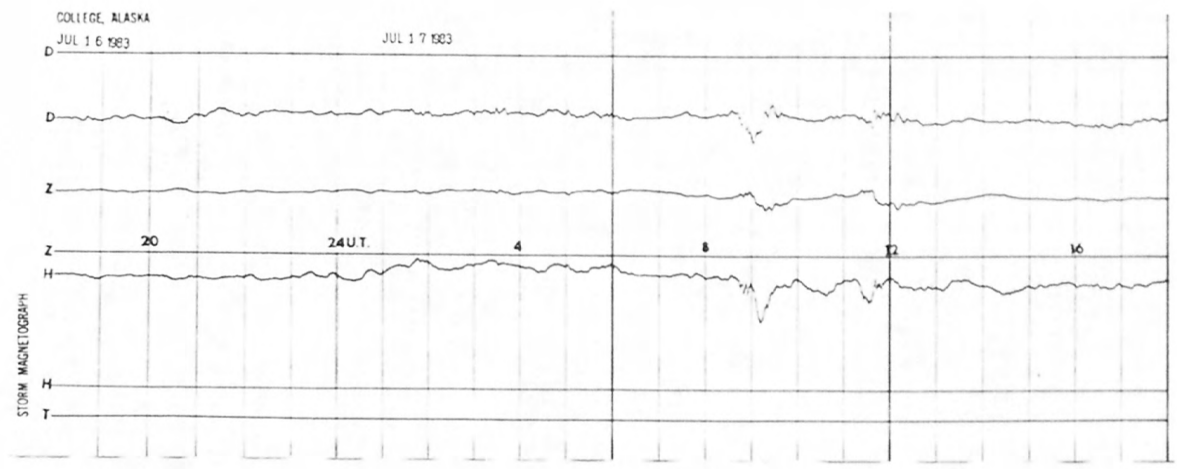
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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