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UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA

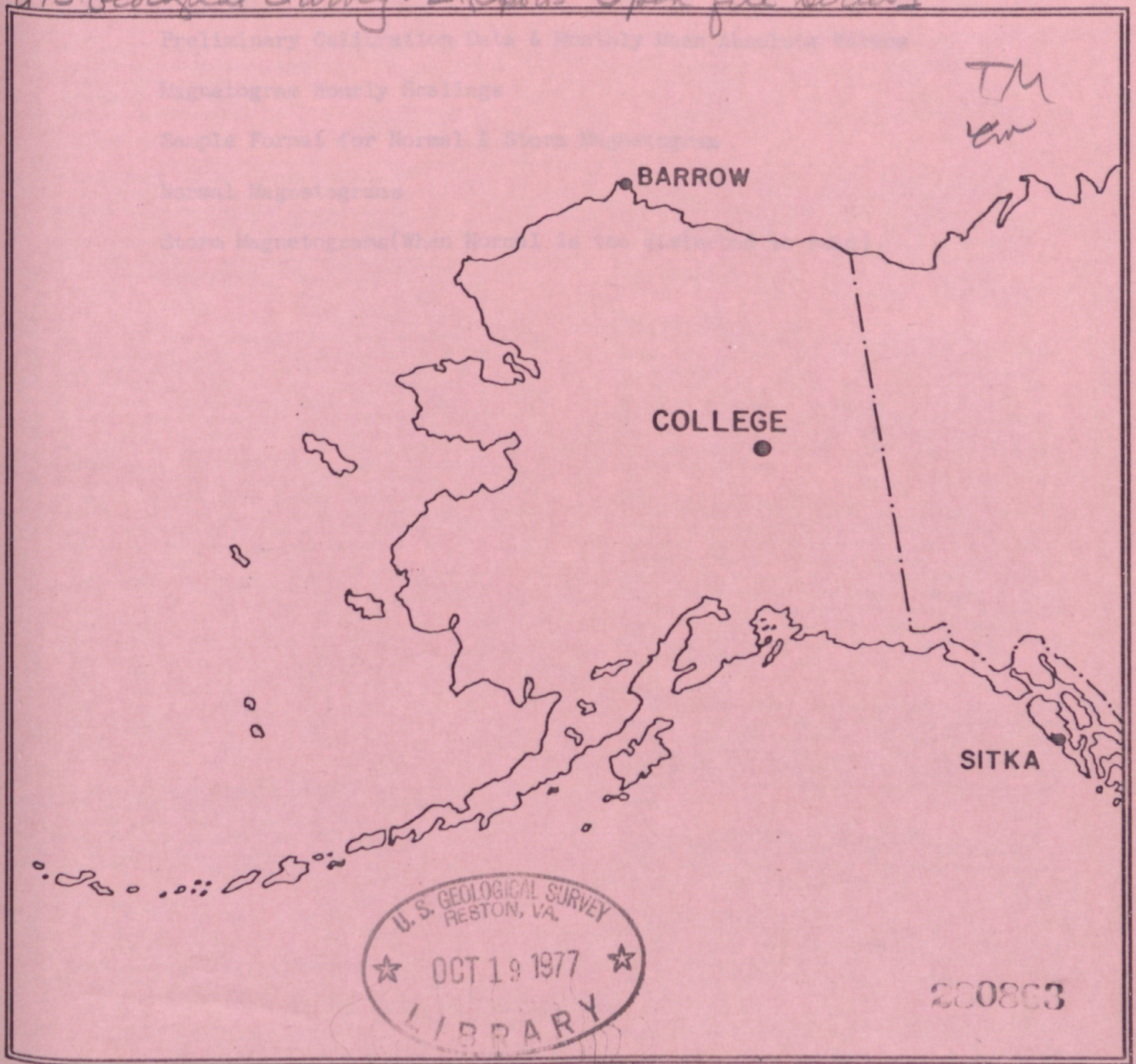
COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

AUGUST 1977

OPEN FILE REPORT 77-300H

U.S. Geological Survey. [Reports-Open file series]



U. S. GEOLOGICAL SURVEY
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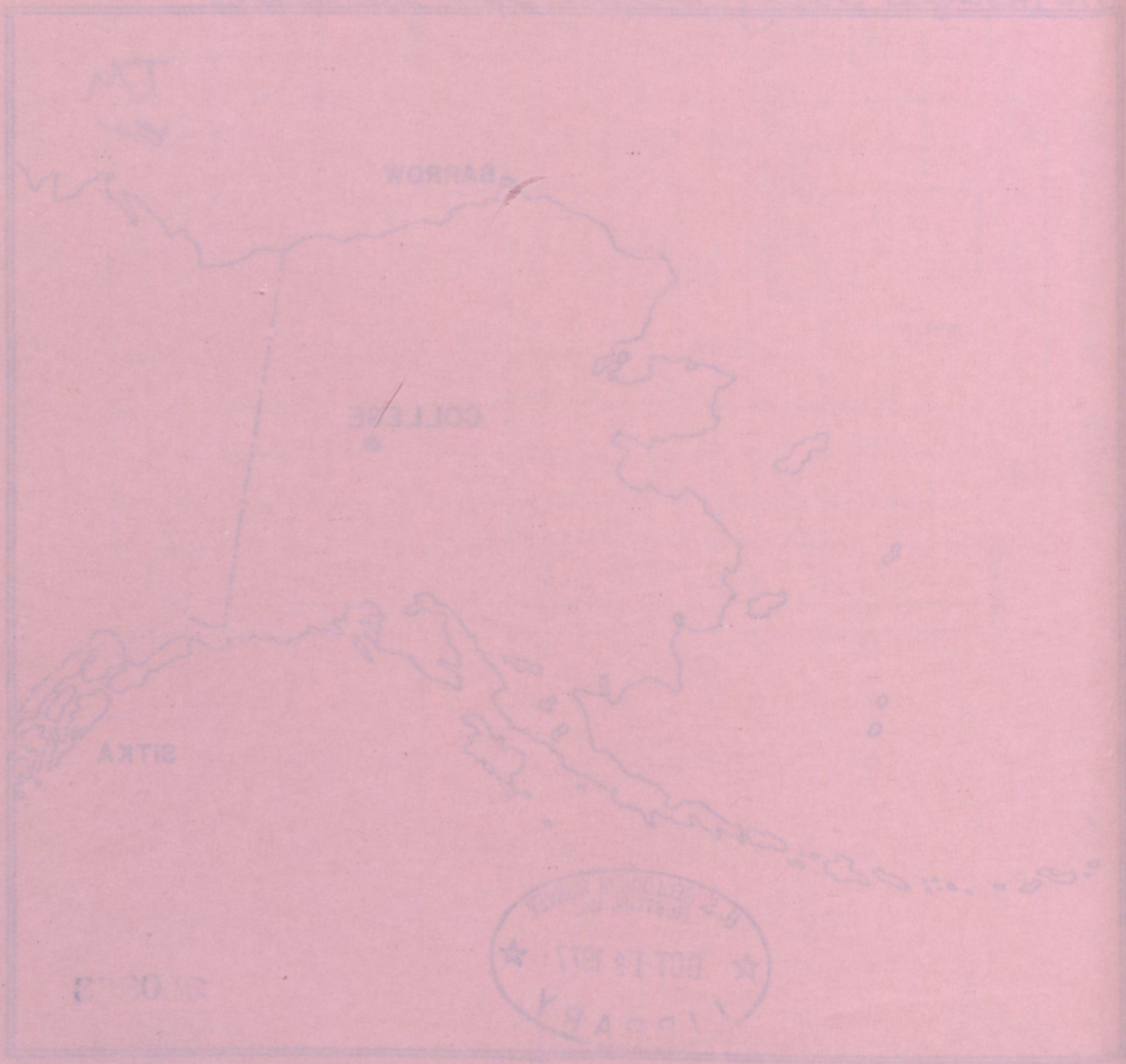
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UNITED STATES DEPARTMENT OF THE INTERIOR

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COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

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THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY WITH THE ASSISTANCE OF OBSERVATORY STAFF MEMBERS J. E. PAPP, M. J. MOORMAN, AND S. P. TILTON, 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.

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

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
Yukon Drive on West Ridge
Fairbanks, Alaska 99701

Requests for copies of the magnetograms except for the current month should be addressed to:

World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

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 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 & 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.

COLLEGE. ALASKA

MONTH AND YEAR

AUGUST 1977

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

DATE	K-INDICES									REMARKS	TIME SCALE ON MAGNETOGRAMS				
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM		AK	20 mm/hr			
1	1	2	2	2	4	2	1	0	14	08	SUDDEN COMMENCEMENTS d h m				
2	1	2	1	3	2	1	2	0	12	06					
3	1	0	1	1	0	1	2	2	08	03					
4	2	2	3	4	2	2	2	2	19	11					
5	3	3	6	7	6	6	4	3	38	57					
6	4	5	5	5	4	3	3	3	32	30					
7	3	3	6	6	4	4	3	3	32	34					
8	3	3	3	3	2	3	2	2	21	12					
9	3	3	4	6	5	5	3	2	31	32					
10	3	4	3	4	4	3	2	1	24	17					
11	3	4	6	5	4	2	3	2	29	28	POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)				
12	1	3	2	5	3	4	2	2	22	16					
13	2	2	4	6	5	3	2	2	26	25					
14	1	1	4	6	7	2	2	1	24	34					
15	1	4	4	5	4	1	2	1	22	18					
16	1	2	0	5	6	4	2	2	22	22					
17	2	3	5	7	6	6	3	3	35	50					
18	3	2	3	5	5	3	2	2	25	20					
19	3	4	4	6	5	3	3	3	31	30					
20	2	2	3	3	3	2	1	0	16	09					
21	1	1	3	4	2	0	0	0	11	07	BEGIN	END			
22	0	0	1	2	0	1	1	1	06	02					
23	1	0	1	2	1	3	2	2	12	06	d h m	d h m			
24	3	2	1	6	5	5	0	0	22	25					
25	0	1	3	6	6	6	3	1	26	35	d h m	d h m			
26	3	2	3	6	7	4	2	0	27	36					
27	2	3	4	6	3	4	2	1	25	23	d h m	d h m			
28	2	2	2	4	3	2	1	0	16	09					
29	1	1	2	5	6	1	0	0	16	18	d h m	d h m			
30	1	1	2	2	2	1	0	0	09	04					
31	1	2	0	1	0	0	0	0	04	02	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 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS			OBSERVATORY COLLEGE, ALASKA	
			MONTH AUGUST	YEAR 1977
DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS	
02	15XX	pg		
20	04XX	pc5		
20	10XX	pi2		
21	19XX	pc4		
31	16XX	pc5		
IDENTIFIED BY: MJM VERIFIED BY: JEP				

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

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
AUGUST 1977

Obs. 2 letter IAGA code	Geomag. lat.	Commencement			SC - amplitudes			Max. 3 hr - index K			Ranges			UT End day hr
		day	hr min (UT)	type	D(')	H(γ)	Z(γ)	day	(3 hr - period)	K	D(')	H(γ)	Z(γ)	
CO	64°6 N	05	00XX	..	..	..	..	05	4	7	142	1320	750	08 11
		11	01XX	..	..	..	..	11	3	6	98	1100	360	11 23
		14	07XX	..	.. (polar storm)	..	..	14	5	7	158	1430	470	14 15
		17	04XX	..	..	..	..	17	4	7	162	1450	910	19 14
		25	07XX	..	..	..	..	25	4, 5, 6	6	136	910	580	25 22

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-77	2400 U.T., 8-31-77	1.0/mm	3.88/mm	27° 46.5 E
H	0000 U.T., 8-1-77	2400 U.T., 8-31-77	7.88/mm		127798
Z	0000 U.T., 8-1-77	2400 U.T., 8-31-77	7.78/mm		551188

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-77	2400 U.T., 8-31-77	7.9/mm	29.88/mm	24° 20.4 E
H	0000 U.T., 8-1-77	2400 U.T., 8-31-77	44.18/mm		115458
Z	0000 U.T., 8-1-77	2400 U.T., 8-31-77	46.98/mm		540078

RAPID RUN MAGNETOGRAPH				
COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 U.T., 8-1-77	2400 U.T., 8-31-77	0.3/mm	1.0 8/mm
H	0000 U.T., 8-1-77	2400 U.T., 8-31-77	1.0 8/mm	
Z	0000 U.T., 8-1-77	2400 U.T., 8-31-77	2.4 8/mm	

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 18.0 E	130458	553608

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: AUG 1, 2, 3, 20, 21, 22, 23, 28, 30, 31

MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)															U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY SEAGRAMETER DIVISION										STBY.	YEAR	MONTH	ELE- MENT
Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150W M.T.) is hour 11 of the 0800 universal day. Strike-slip corrections have been applied. Negative values are in red, with minus signs shown.															CO	77	AUG	D										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM				
01	238	259	275	287	291	290	340	325	313	340	312	312	01	312	369	341	315	397	439	448	408	359	302	286	267	7825		
02	261	257	247	271	293	281	297	301	301	300	347	320	02	317	332	360	406	424	440	423	400	351	313	297	280	7819		
03	259	260	263	270	277	283	283	277	277	281	289	307	03	337	351	379	400	378	410	407	392	371	322	252	244	7575		
04	215	200	227	224	253	260	269	269	263	314	290	309	04	320	339	377	428	426	479	481	408	338	272	263	248	7472		
05	247	188	157	147	193	236	112	140*	44*	108*	434*	386*	05	326	344	497*	322	403	441	467	406	356	280	278	274	6788		
06	274	268	234	207	273	307	333	278	385	250	382	266	06	307	328	327	391	428	437	466	432	367	299	262	300	7801		
07	279	268	277	296	323	322	364	303	420	353	196	266	07	277	262	372	401	383	416	413	407	355	338	303	270	7864		
08	244	261	283	267	256	329	376	273	267	253	261	297	08	312	331	349	365	367	431	413	382	367	338	297	270	7589		
09	291	308	262	243	207	281	421	247	281	257	231	172	09	301	333	396	499	456	460	424	370	311	273	260	215	7499		
10	226	251	246	203	216	283	244	291	337	238	287	238	10	311	333	462	464	550	517	436	377	334	301	273	267	7745		
11	238	211	193	265	227	263	310	215	275*	318	287	277	11	307	414	283	383	416	423	452	411	382	322	231	227	7330		
12	216	257	282	222	333	303	310	367	317	403	312	303	12	282	281	311	320	363	397	403	357	320	270	253	237	7425		
13	256	267	283	333	301	370	319	253	271	296	301	300	13	251	417	311	373	431	422	411	363	283	280	234	235	7561		
14	250	291	307	322	324	321	314	294	249	253	226	227	14	538*	276*	326	397	459	460	404	304	280	278	270	226	7596		
15	242	247	281	271	386	388	278	384	186	292	290	267	15	272	307	346	393	417	400	394	351	318	278	271	272	7531		
16	272	282	300	286	310	307	311	303	291	282	319	341	16	475*	562*	157	381	401	398	394	376	357	297	298	296	7996		
17	262	247	243	272	251	282	288	343	319	220*	586*	125*	17	318	322	467*	387*	503	514	412	366	327	327	268	241	7890		
18	236	271	256	281	287	331	338	377	279	284	243	283	18	319	317	352	366	417	422	406	353	327	290	267	251	7559		
19	258	230	313	252	317	313	293	309	261	300*	225	252	19	233	233	272	350	414	421	382	313	297	288	301	324	7151		
20	269	241	258	269	286	290	368	392	341	307	293	342	20	307	291	316	353	390	410	392	376	342	313	289	253	7688		
21	258	273	287	297	298	307	343	381	308	282	302	297	21	282	290	333	357	379	388	391	377	373	350	293	268	7713		
22	261	261	277	291	297	297	319	303	301	321	287	296	22	301	321	343	367	400	406	378	374	317	291	280	277	7566		
23	269	279	278	281	280	277	282	272	283	282	280	296	23	316	331	356	362	392	366	320	270	230	185	197	214	6898		
24	233	220	250	248	295	289	292	306	287	281	348	543	24	489	398	578*	440	548	415	357	331	312	282	270	271	8283		
25	256	290	291	293	292	321	327	283	221	174	229	498*	25	463	350	414	633*	626	509	387	305	261	256	265	273	8247		
26	258	276	259	300	310	326	265	347	351	210	189*	331*	26	411*	347	373	509	488	430	410	386	328	289	266	264	7923		
27	260	273	264	258	322	283	410	333	256	249	45*	271	27	293	386	408	458	466	450	389	327	297	257	247	248	7450		
28	262	279	280	277	297	391	301	276	276	287	317	339	28	340	317	321	388	388	400	378	339	310	283	249	258	7553		
29	261	270	287	294	293	344	351	330	292	351	275	331	29	343	304	343	343	404	422	387	349	321	305	280	269	7769		
30	260	269	286	294	290	300	364	299	300	273	292	296	30	323	350	412	415	453	420	427	410	370	296	252	257	7908		
31	253	259	255	261	279	278	292	293	290	289	281	298	31	313	329	353	386	411	444	440	417	380	323	290	271	7685		

SCALED BY	SPT, MJM	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 Mph., converted to Normal Mph.	☐ Scaling uncertain because of magnetic storm. <> Record all sheets for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY SUM	236699
CHECKED BY	MJM, JEP				MONTHLY MEAN	218
SIGNS RE- VIEWED BY	JEP				DATES WITH GAPS	
PUNCHED BY						

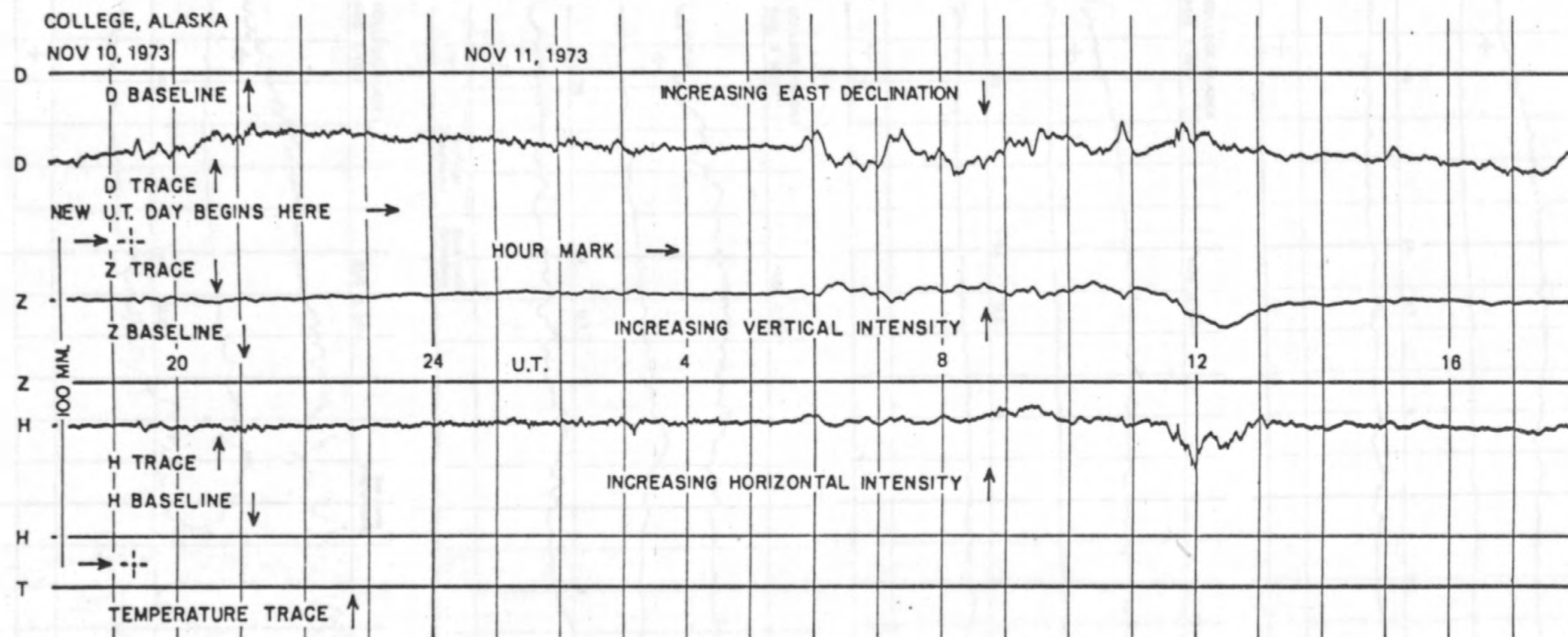
FORM C&GS-404a (Rev. 7)		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																				U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY SECURITY DIVISION				DBST.	YEAR	MONTH	ELE- MENT
		Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150W M.T.) is hour 11 of the 5950 universal day.																				00	77	AUG	H				
C	U	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SLW			
	01	319	330	350	350	355	387	381	370	367	345	337	275	01	236	155	94	345	368	353	348	337	331	329	325	325	7712		
	02	347	344	348	341	343	361	350	344	356	397	402	331	02	330	373	353	353	371	363	354	345	337	332	337	339	8451		
	03	346	345	357	370	373	375	373	373	390	371	377	359	03	357	353	360	360	339	311	310	329	338	326	319	333	8444		
	04	356	354	350	386	417	389	366	376	436	456	376	361	04	340	350	325	355	365	330	319	296	289	291	319	317	8529		
	05	371	369	396	520	529	486	603	90	269	184	-232*	343	05	321	247	-312*	91	426	359	274	267	320	349	340	350	6960		
	06	345	411	330	576	489	497	416	466	370	298	243	289	06	273	329	289	203	236	254	319	326	280	271	303	356	8229		
	07	357	341	356	380	406	426	486	479	176*	53	56*	230	07	165	270	271	219	336	330	337	326	326	313	321	319	7279		
	08	401	437	373	361	389	415	396	430	399	316	272	347	08	364	341	315	281	292	337	360	344	316	314	316	323	8439		
	09	394	392	346	367	427	429	421	432	430	433	243	-20	09	287	290	220	157	148	139	234	300	323	329	316	337	7374		
	10	339	400	389	466	584	436	477	374	376	236	316	356	10	201	71	240	236	330	320	344	327	334	333	333	346	8224		
	11	359	412	497	633	472	566	524	464	-91*	256	347	313	11	191	153	184	390	391	378	362	331	309	320	301	318	8360		
	12	333	336	339	436	460	413	363	370	351	69	66	119	12	326	263	326	243	317	379	364	340	330	326	340	338	7547		
	13	363	360	376	377	404	419	424	477	446	393	319	69	13	-4	47	271	379	343	323	326	300	317	296	300	329	7654		
	14	341	350	348	350	346	350	360	399	465	382	298	81	14	-538	32*	303	367	334	337	301	294	324	329	340	327	6680		
	15	363	366	360	426	510	396	424	506	445	356	79	276	15	210	236	360	360	362	336	323	326	336	319	315	337	8334		
	16	340	349	340	374	340	347	361	355	356	360	371	255	16	165*	-358*	-8*	240	353	387	380	351	340	326	332	350	6676		
	17	326	346	367	359	437	373	480	449	150	140*	-494*	-137*	17	211	294	-188*	-92*	160	185	326	374	327	314	368	370	5445		
	18	389	416	406	360	396	384	360	377	376	366	339	234	18	123	122	122	297	370	330	309	317	309	311	334	338	7655		
	19	374	467	480	454	631	458	370	394	333	-69*	104	216	19	-24	116	320	313	326	306	222	293	309	310	344	339	7356		
	20	360	344	337	364	357	376	379	357	367	346	341	279	20	289	298	269	321	321	356	345	321	309	308	316	315	7975		
	21	333	343	345	351	360	367	380	447	399	374	243	293	21	308	318	359	343	351	350	349	330	316	316	316	325	8216		
	22	331	343	350	350	347	354	360	360	375	359	360	350	22	343	339	326	321	344	347	327	309	311	306	321	333	8165		
	23	333	343	353	356	357	361	364	383	390	370	356	350	23	356	360	249	344	300	190	232	280	285	300	335	344	7997		
	24	343	375	345	380	376	396	363	352	369	364	296	-160	24	-36*	104	-250*	-19	96	302	371	362	346	350	357	361	6143		
	25	345	367	370	360	359	350	380	405	402	372	304	-233*	25	-121*	407	232	-154*	-58*	248	325	285	307	339	342	360	6313		
	26	333	354	412	371	407	379	410	386	394	349	178	155*	26	365*	240	212	190	246	402	376	334	323	331	339	340	7090		
	27	350	354	379	390	389	450	457	486	460	-54*	-156*	334	27	159	207	184	270	340	336	324	321	324	348	340	331	7323		
	28	350	356	357	369	376	377	380	358	357	387	350	241	28	241	356	343	343	333	320	331	329	316	324	326	333	6173		
	29	336	353	350	347	360	348	367	384	391	326	283	160	29	-4*	317	356	369	354	355	350	348	334	325	324	336	7769		
	30	347	354	343	350	359	367	370	366	371	349	333	311	30	314	321	313	351	341	356	352	337	317	302	320	339	6153		
	31	341	352	363	355	350	362	360	360	363	372	379	369	31	370	362	360	353	352	341	330	310	298	308	320	337	6367		

SCALED BY	SPT, MTM	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value	☐ Interpolated	☐ Scaling uncertain because of magnetic storm.	MONTHLY SUM	237342
CHECKED BY	MTM, JEP		☐ Significant portion of hour interpolated.	<> Record all sheets for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY MEAN	319
SIGNS REVIEWED BY	JEP		☐ No record; or no values available because of faulty record.		DATES WITH GAPS	
PUNCHED BY			* Derived from Storm Mph., converted to Normal Mph.			

FORM CAGS-604a (Rev. 1-67)		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																		ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY GEOMAGNETIC DIVISION		1957	YEAR	MONTH	SLEW WEST		
		Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150W M.T.) is hour 11 of the 8856 universal day. Geographic corrections have been applied. Negative values are in red, with minus signs shown.																		00	77	AUG	2				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SLW			
01	347	350	352	353	346	360	396	366	350	323	304	282	01	256	240	185	230	316	330	314	310	309	311	314	317	7561	
02	330	339	338	336	338	334	347	346	336	330	299	277	02	311	317	316	305	312	326	320	311	310	305	306	314	7703	
03	317	326	328	329	336	340	336	346	364	350	347	339	03	327	323	325	323	318	290	250	247	257	271	281	307	7577	
04	327	340	349	385	434	351	341	329	334	320	334	337	04	321	311	316	313	315	305	283	264	254	255	270	286	7694	
05	309	313	347	376	393	416	234	116	97	387	595*	197	05	276	384	589*	167	206	329	333	293	313	311	317	330	7628	
06	367	360	353	324	366	309	321	286	243	218	124	253	06	276	307	317	301	299	277	293	310	303	306	318	347	7178	
07	344	334	340	346	363	368	357	267	224	254	421	328	07	362	274	290	283	296	308	303	302	291	302	309	326	7592	
08	354	386	366	343	336	380	364	346	330	276	266	263	08	309	319	309	256	212	260	275	300	310	311	317	327	7515	
09	375	377	342	327	343	389	393	347	373	326	363	353	09	234	279	290	246	201	214	237	260	273	287	301	307	7437	
10	330	346	346	353	344	394	392	373	317	177	193	293	10	313	166	160	233	253	243	250	287	297	305	307	320	6992	
11	344	370	387	326	367	386	383	301	322	194	276	319	11	279	313	209	291	326	333	324	316	306	308	313	326	7619	
12	333	340	346	334	454	410	390	383	316	147	162	291	12	242	231	266	237	236	313	331	316	307	313	325	336	7359	
13	343	357	367	387	361	426	400	361	350	353	331	241	13	67	214	261	325	313	297	277	274	268	296	316	316	7506	
14	327	326	320	320	323	326	331	326	260	309	318	407	14	427*	164	177	268	320	318	280	283	386	299	320	327	7462	
15	334	346	359	351	382	376	383	320	204	278	316	271	15	296	277	324	343	339	330	320	300	299	300	309	321	7678	
16	332	336	339	331	346	339	336	333	334	339	337	247	16	452*	630*	127	150	221	308	326	319	318	320	326	336	7782	
17	339	336	345	367	360	406	380	246	253	458*	789*	445*	17	372	406	643*	276	136	149	258	290	319	356	362	366	8657	
18	353	384	376	366	366	376	359	333	334	321	261	304	18	261	216	312	247	287	316	294	300	307	306	311	318	7608	
19	326	329	427	407	387	386	397	359	294	215	53	176	19	222	127	232	287	282	295	241	236	286	307	336	376	6983	
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21	317	333	332	329	327	337	366	334	312	283	313	283	21	290	288	327	338	330	324	322	327	329	323	319	320	7703	
22	326	320	333	343	243	339	357	337	352	327	320	326	22	326	320	319	308	307	318	324	326	309	316	316	327	7655	
23	335	338	333	344	347	356	363	366	365	357	340	328	23	326	330	334	324	313	240	199	240	257	247	288	323	7599	
24	347	353	382	373	399	399	381	353	340	345	314	207	24	282	310	478*	264	61	113	249	299	317	318	323	326	7533	
25	326	324	320	319	317	326	329	338	268	256	341	465*	25	323	259	361	496*	193	118	210	242	270	290	318	337	7346	
26	341	349	347	372	371	390	383	390	291	321	308	445*	26	445*	194	238	238	200	263	317	316	317	327	320	331	7824	
27	333	339	341	379	411	381	343	248	336	152	108	306	27	287	258	254	246	278	256	237	266	294	306	318	326	7003	
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30	320	326	329	320	318	328	347	333	327	310	281	260	30	266	267	268	273	267	279	297	301	309	302	308	320	7256	
31	322	327	330	331	322	323	330	323	318	320	320	323	31	318	312	313	310	300	292	298	298	293	288	290	293	7494	
SCALED BY	SPT, MCM		Preliminary base-line and scale values:																		☐ 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.		MONTHLY SUM	233119	
CHECKED BY	MCM, JEP		Interval Beginning	Base-line Value	Scale Value																					MONTHLY MEAN	303
SHOWN REVIEWED BY	JEP																						DATES WITH GAPS				
PUNCHED BY																											

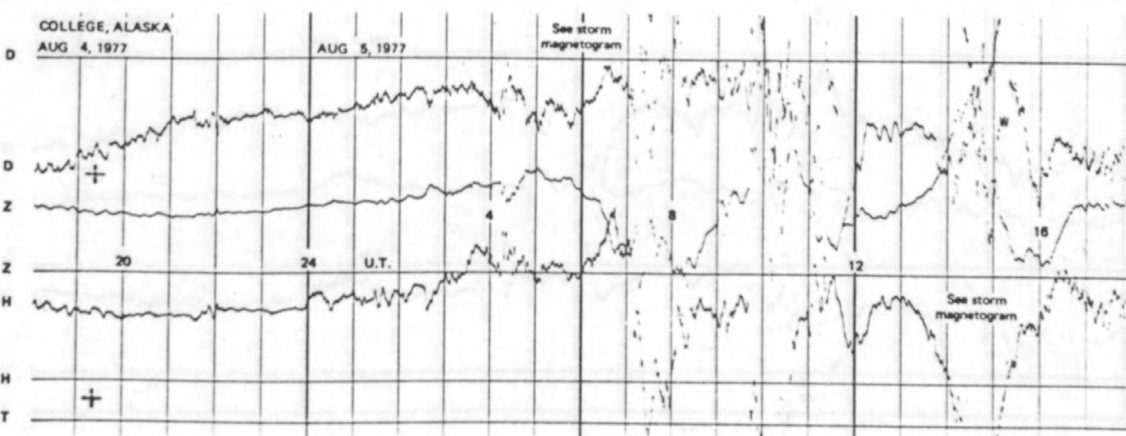
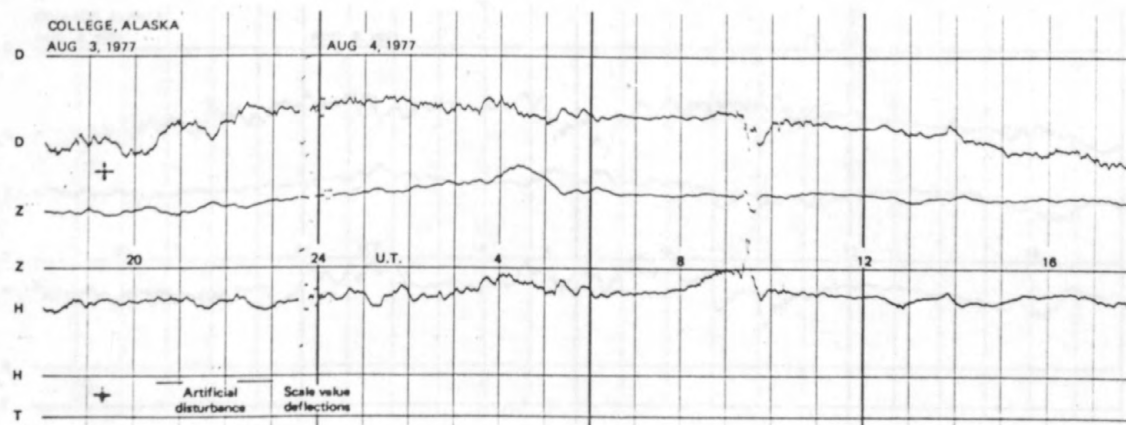
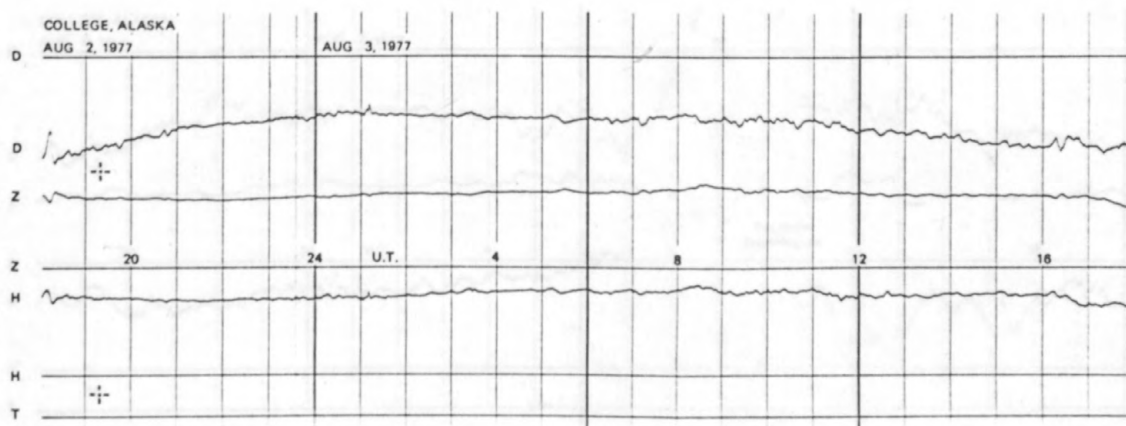
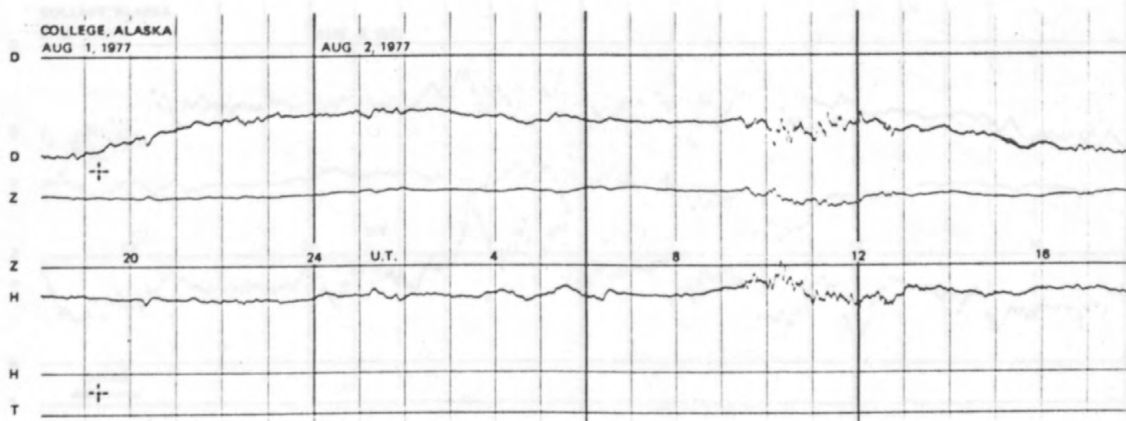
* Derived from Storm Mph., converted to Normal Mph.

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)



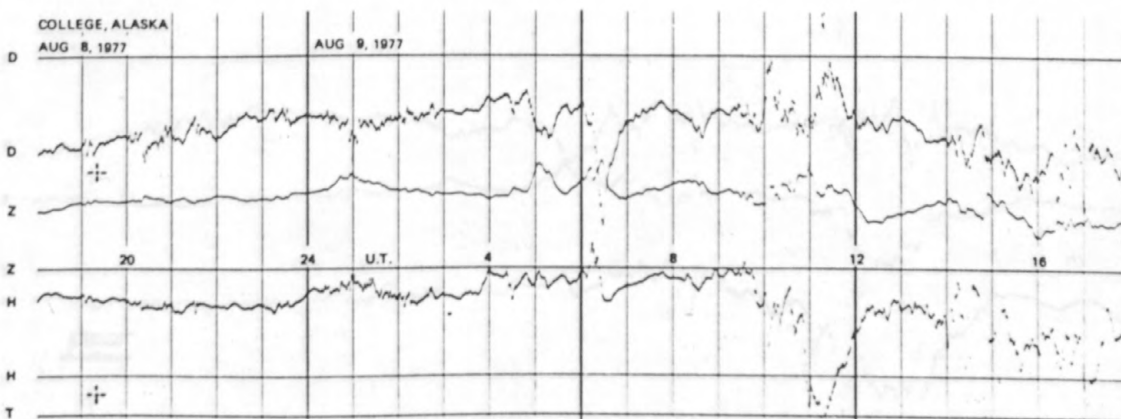
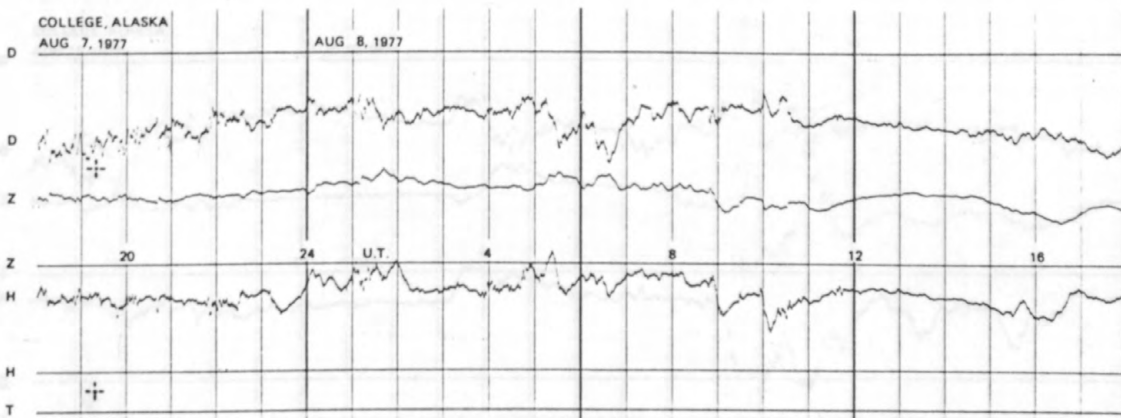
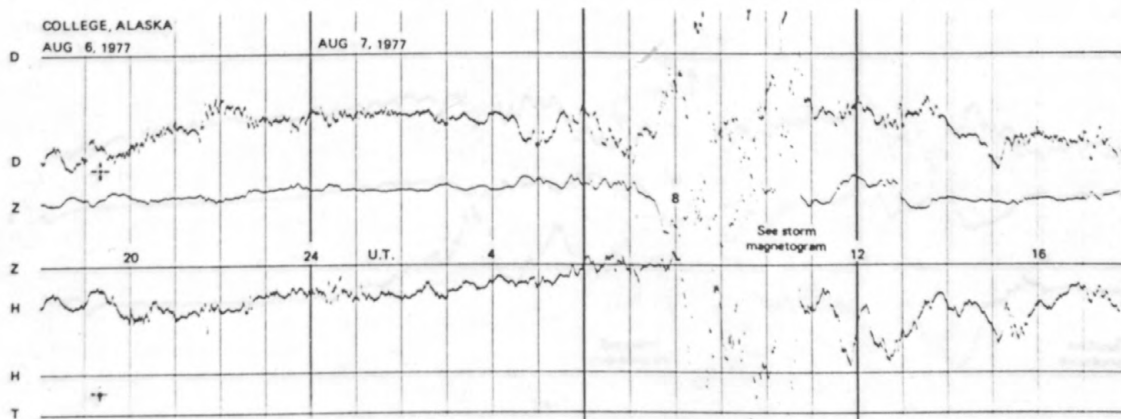
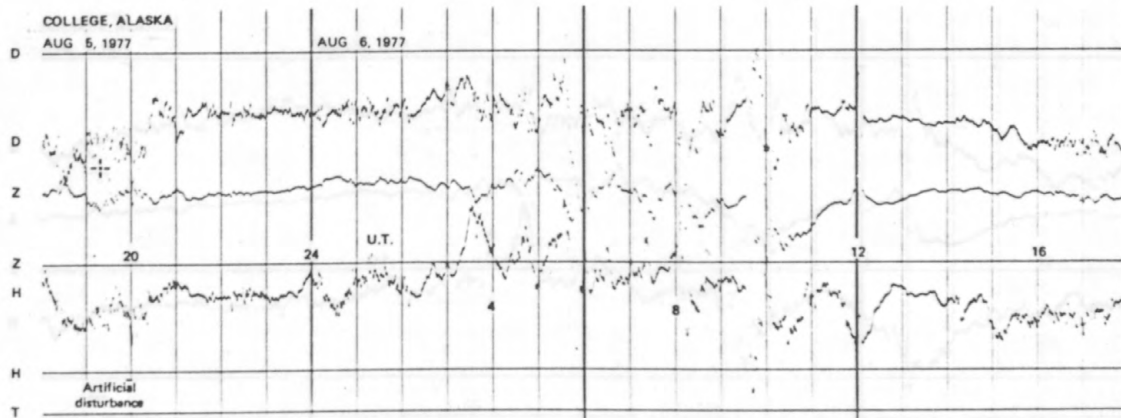
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

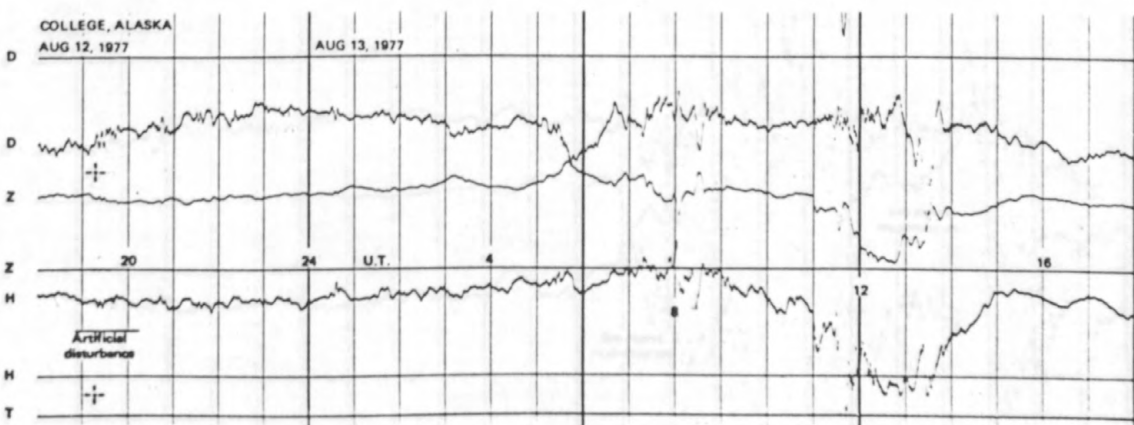
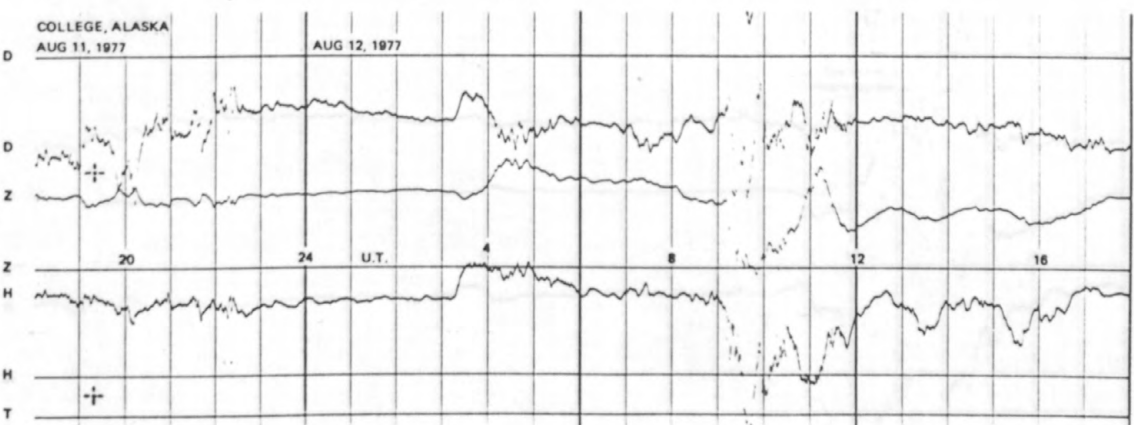
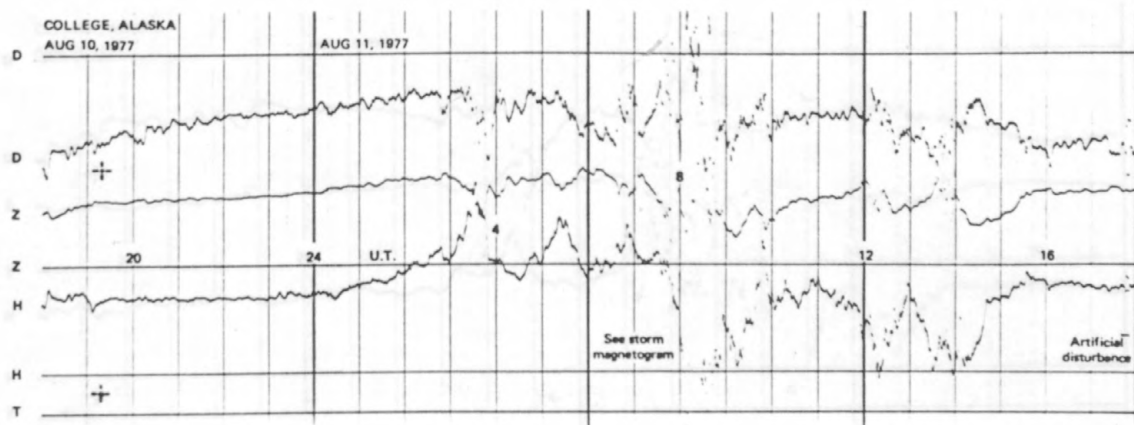
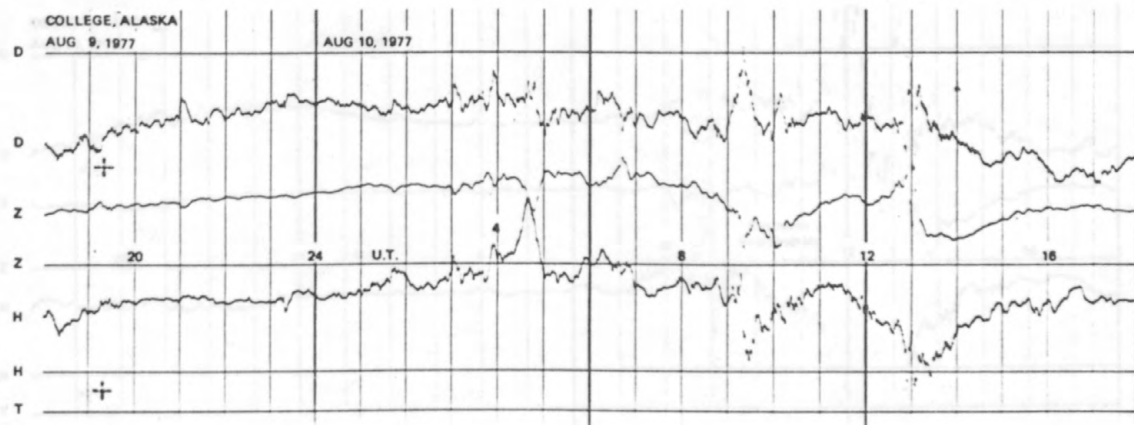


NORMAL MAGNETOGRAMS

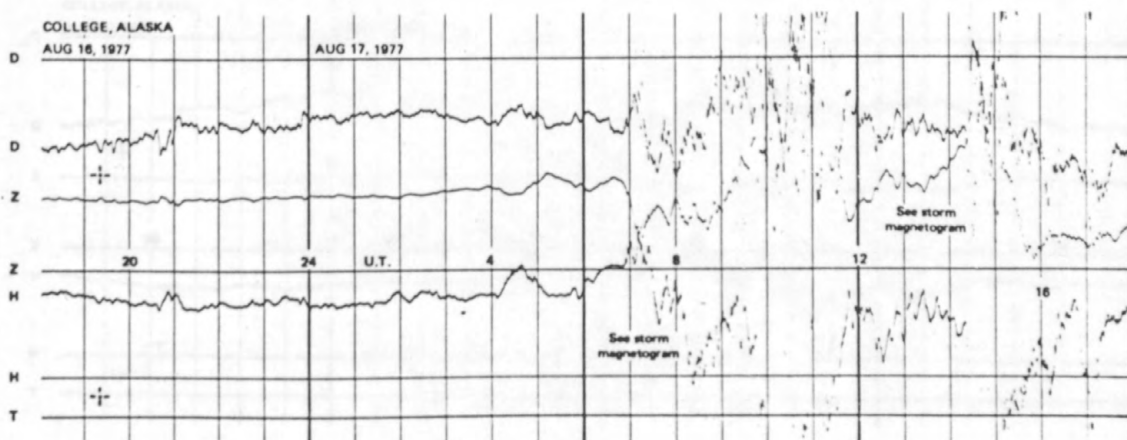
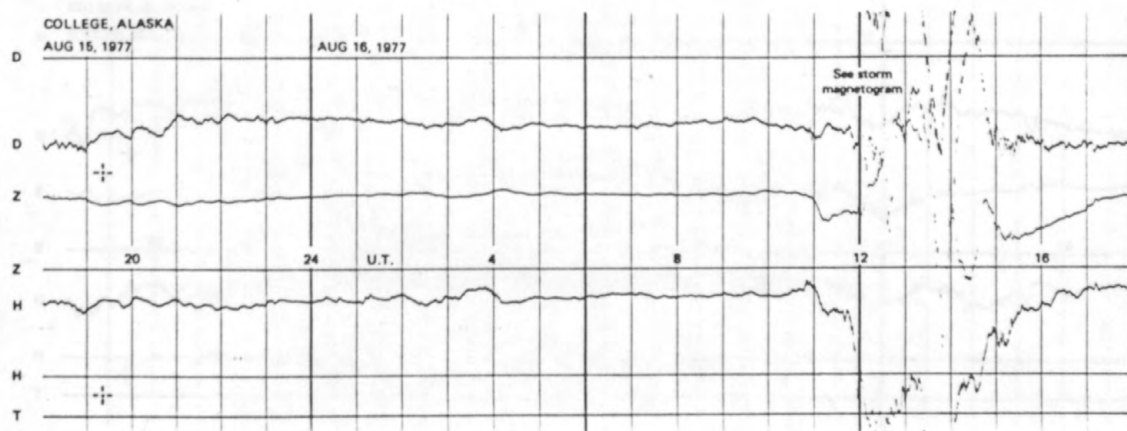
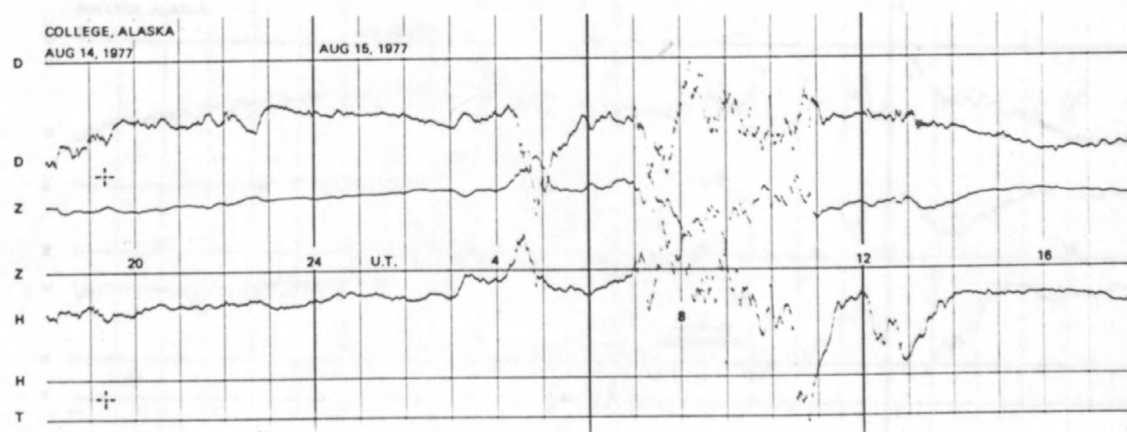
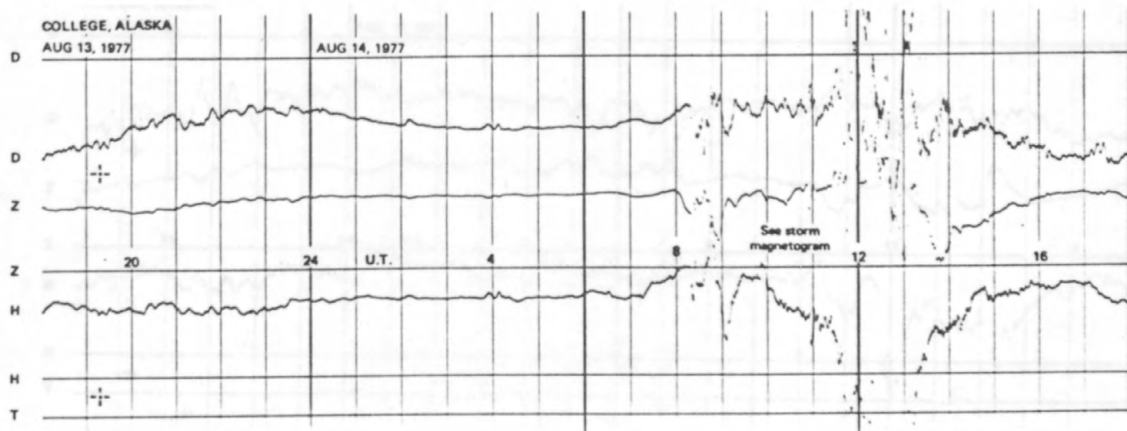
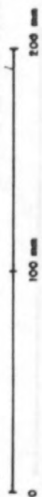
200 mV
100 mV
0



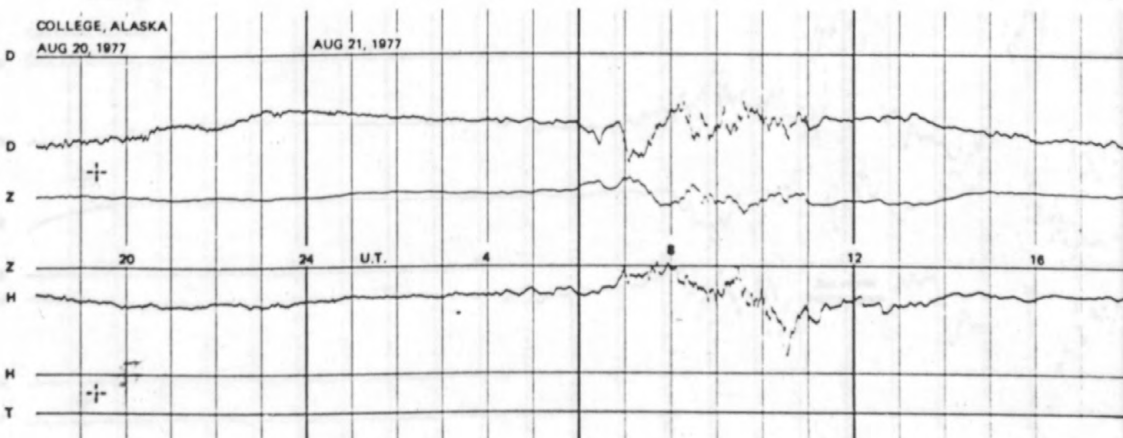
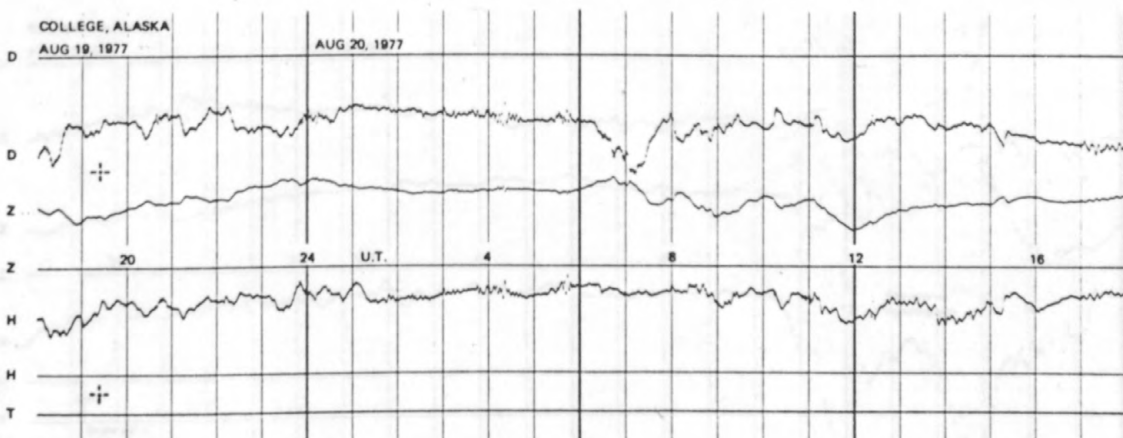
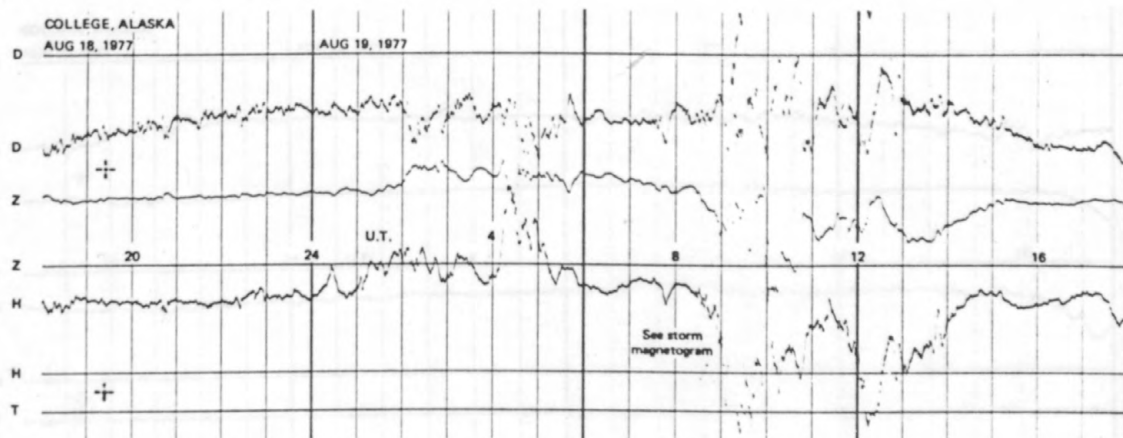
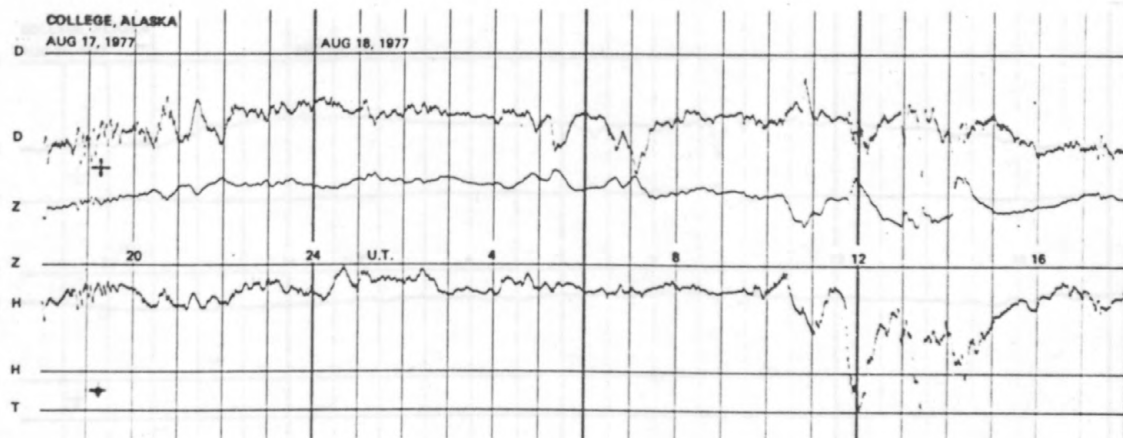
NORMAL MAGNETOGRAMS



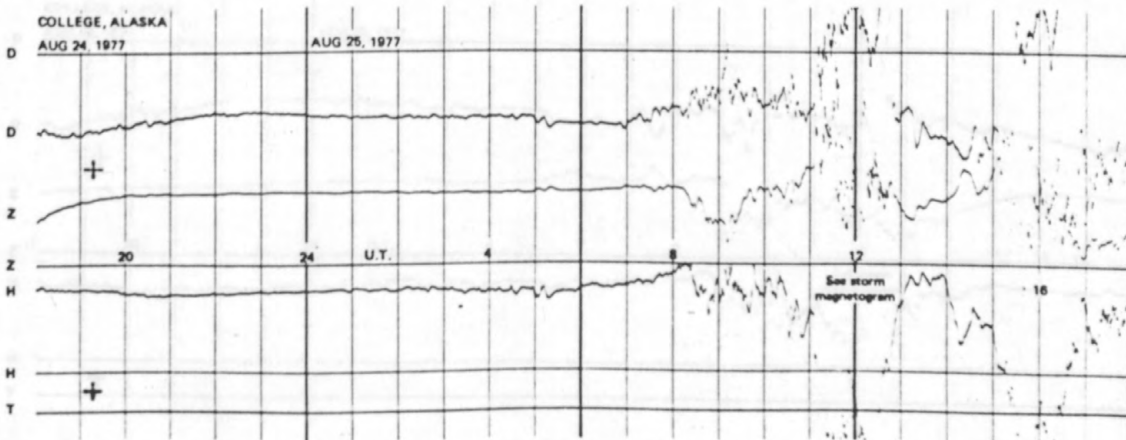
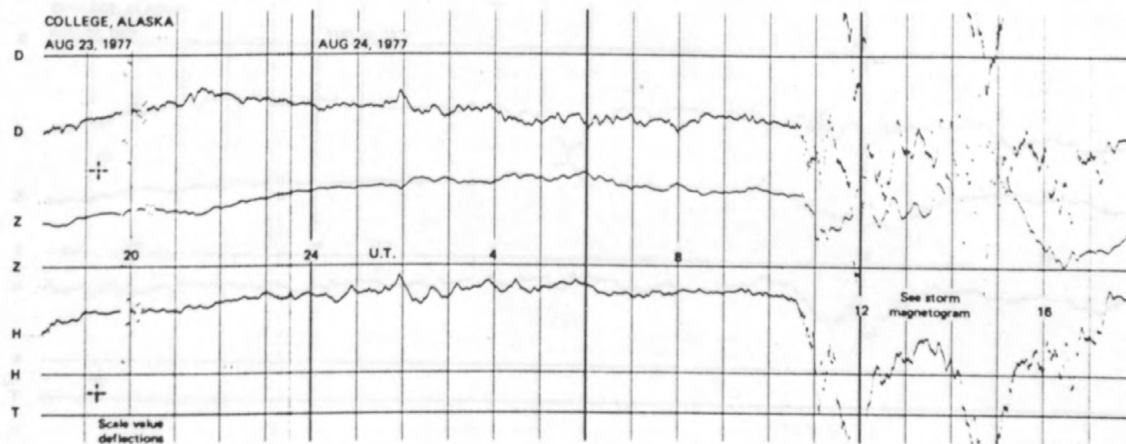
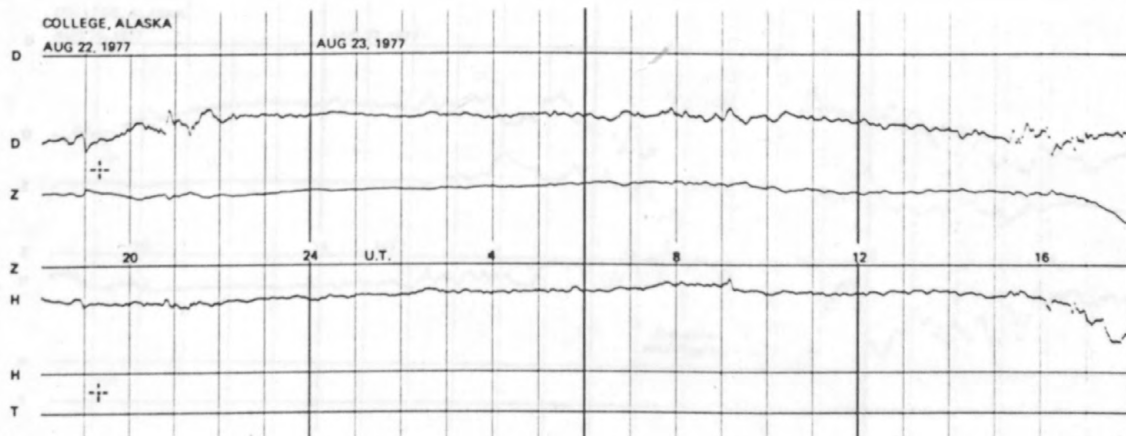
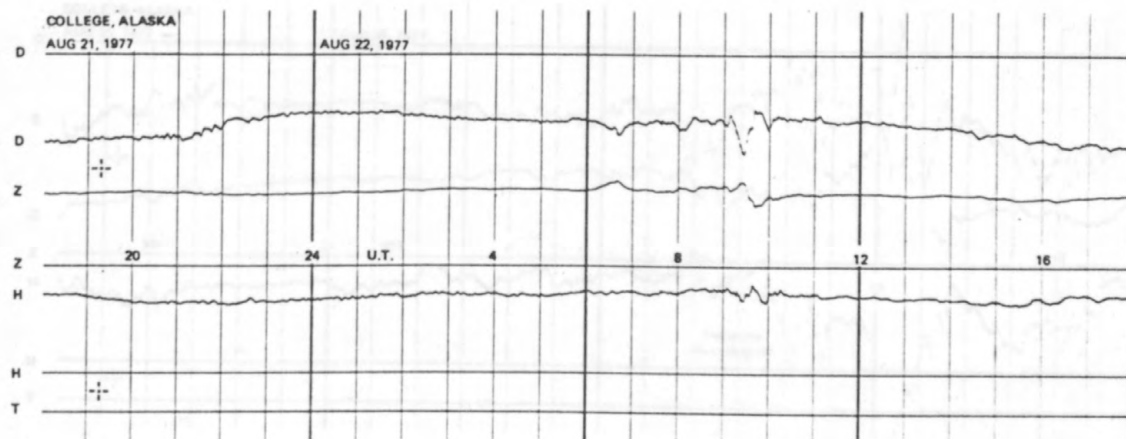
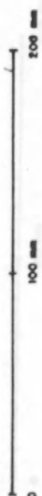
NORMAL MAGNETOGRAMS



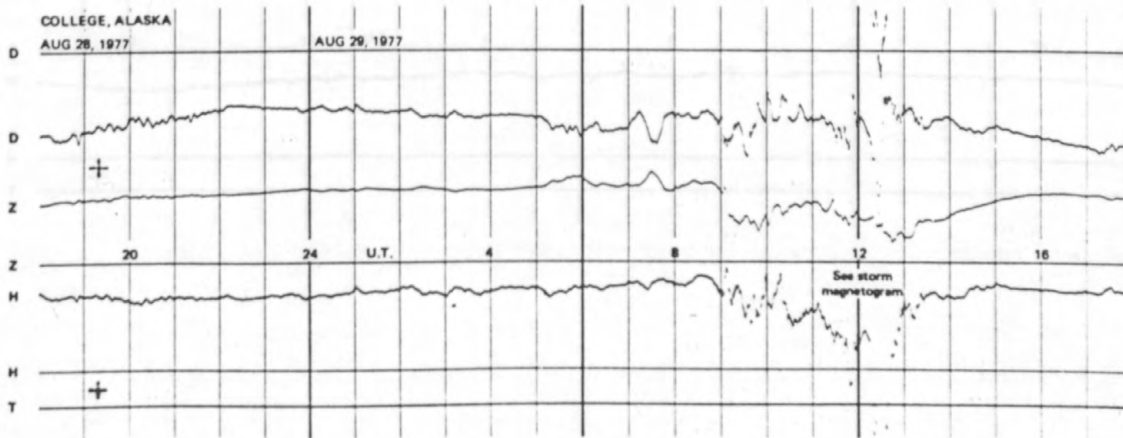
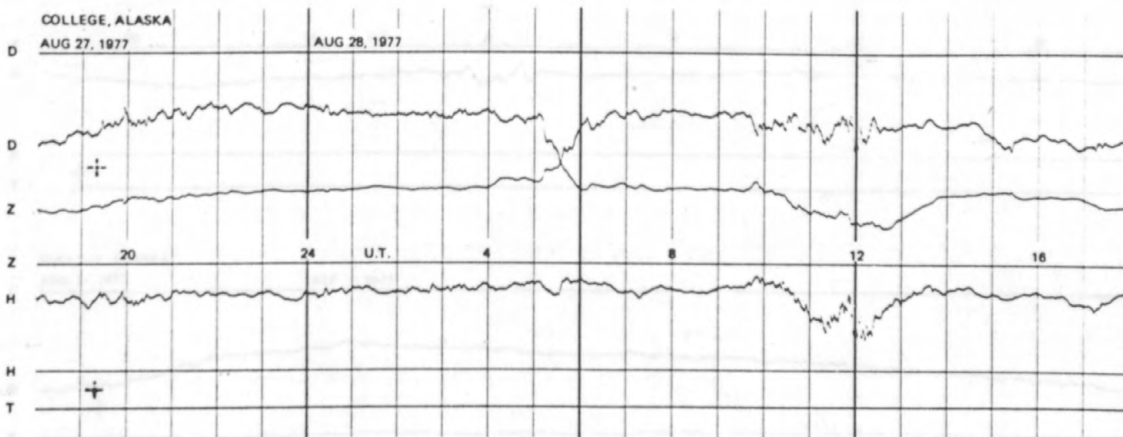
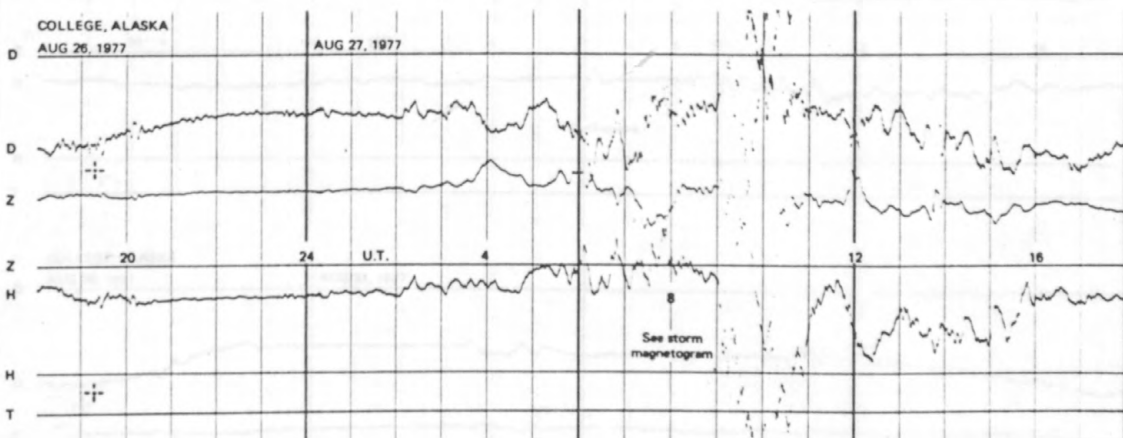
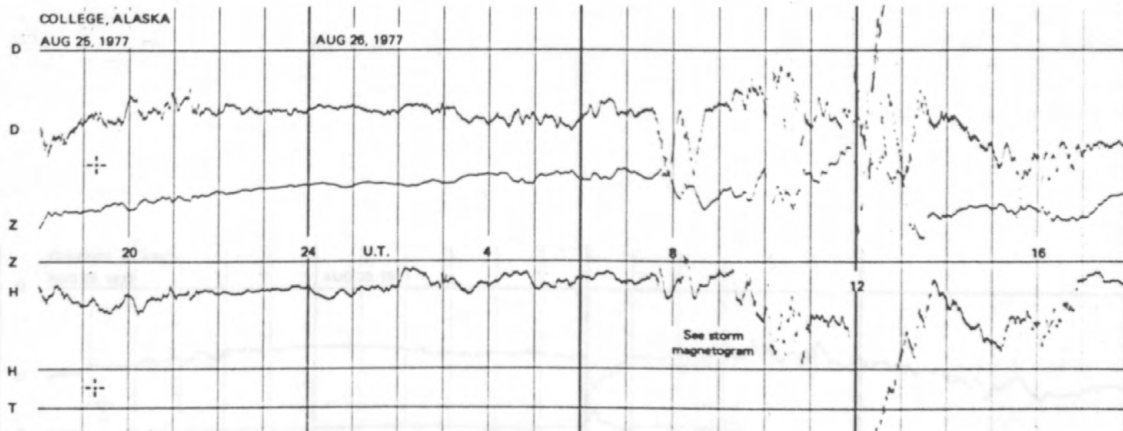
NORMAL MAGNETOGRAMS



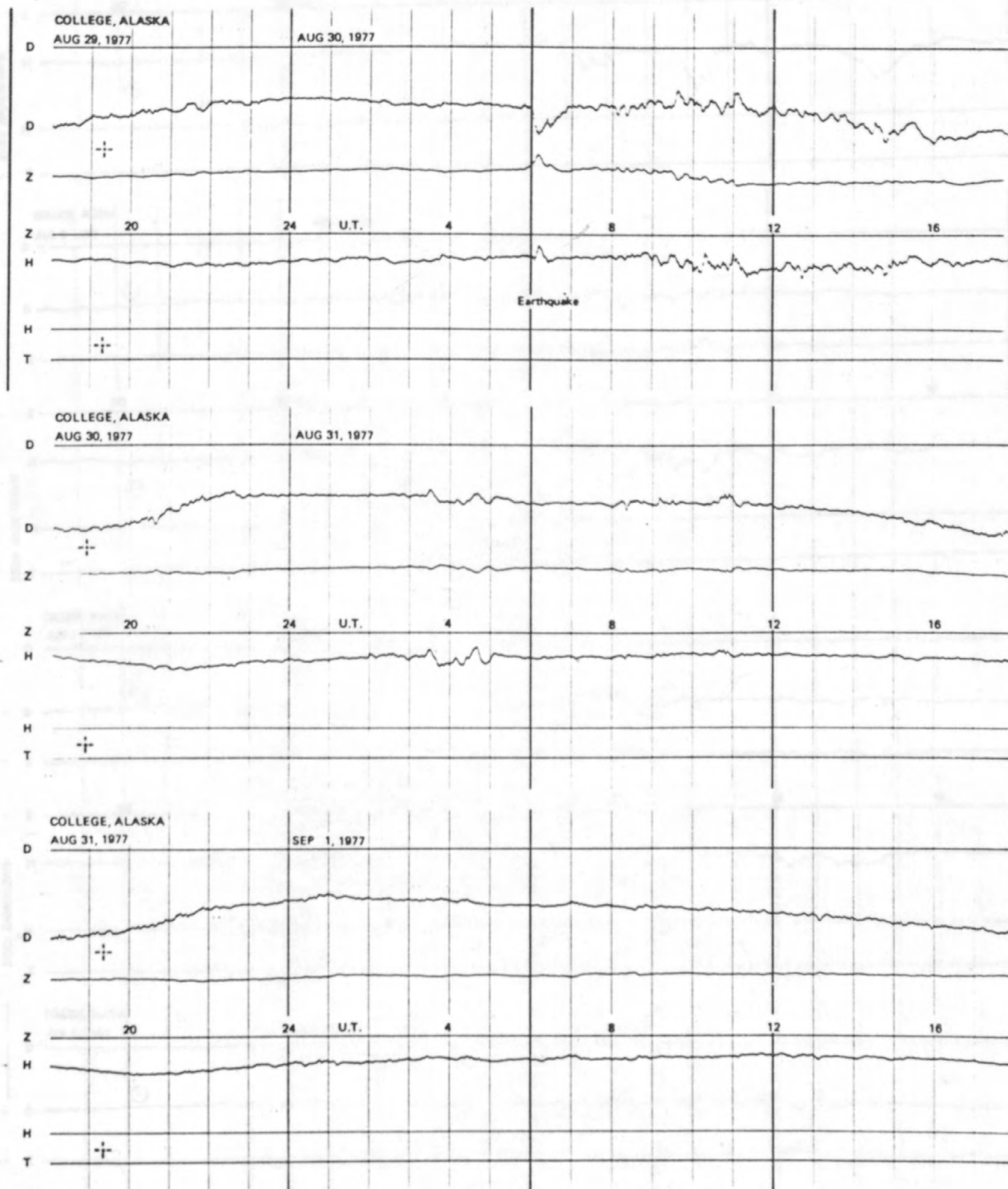
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

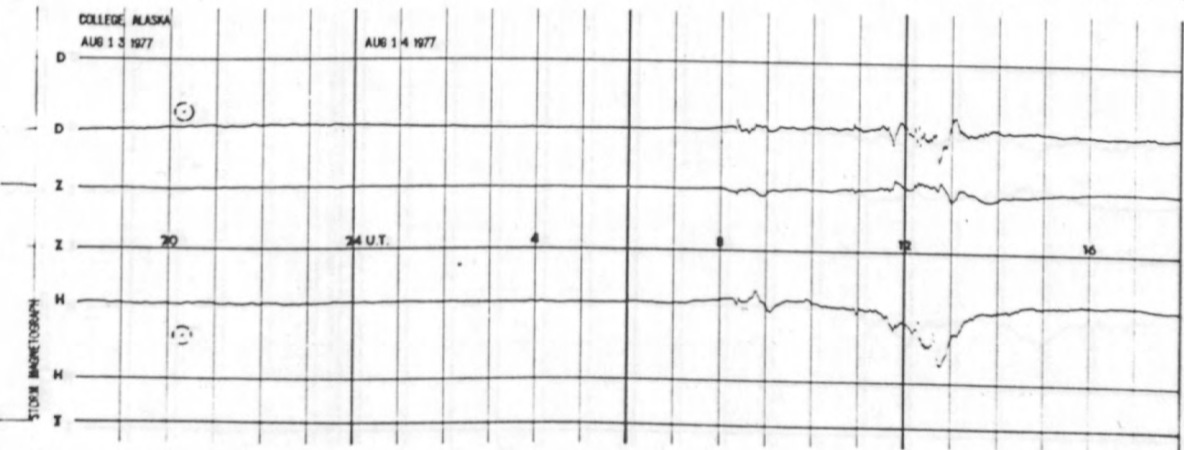
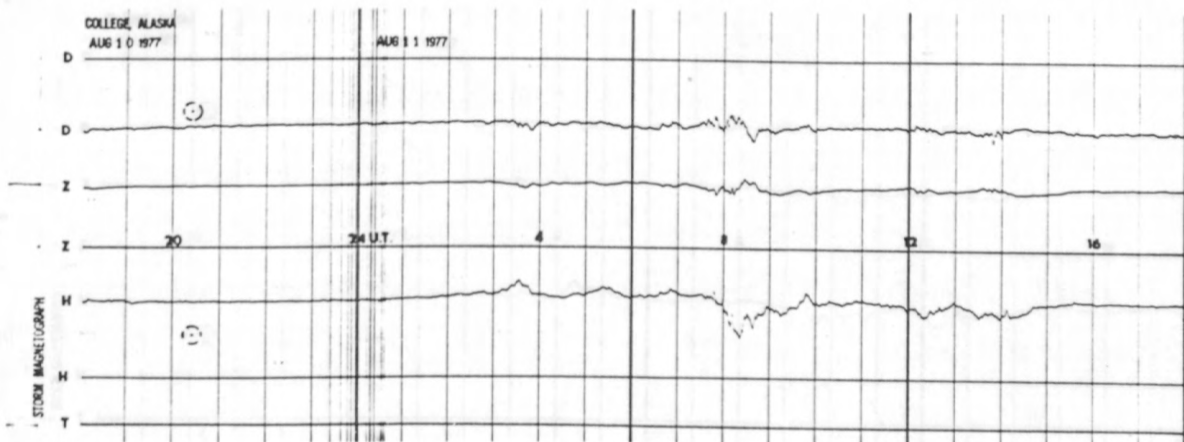
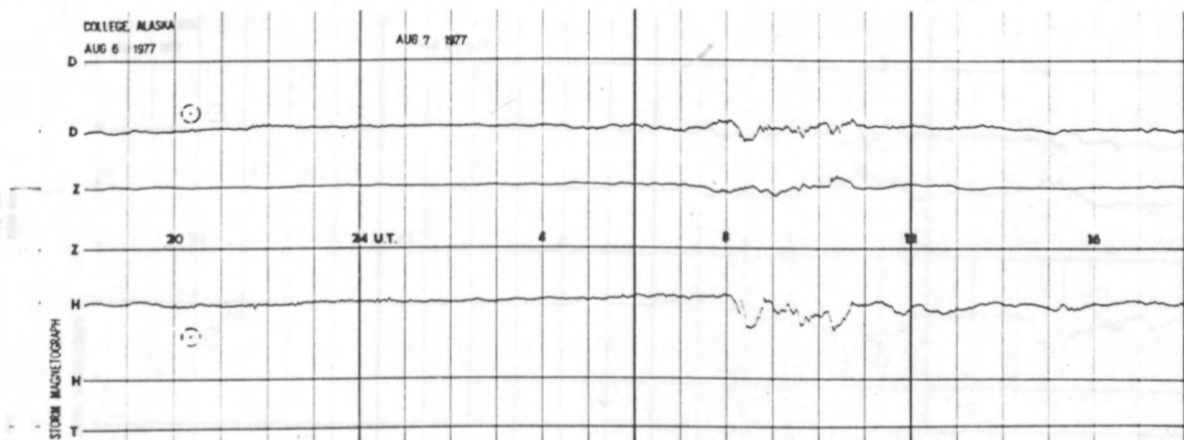
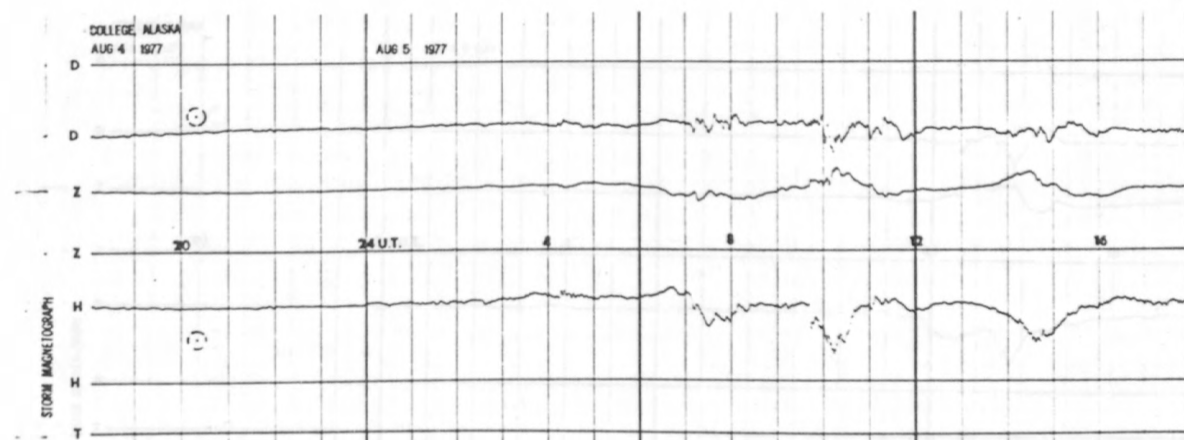


NORMAL MAGNETOGRAMS



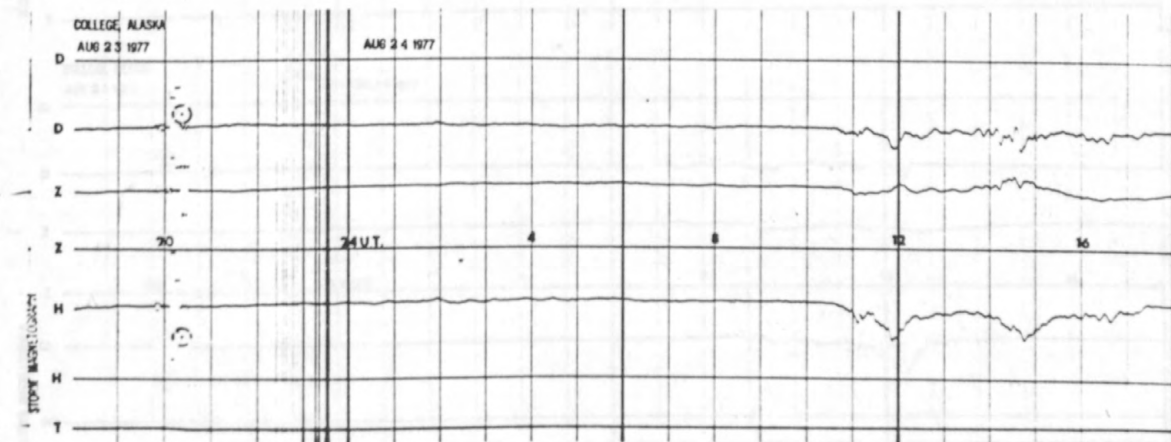
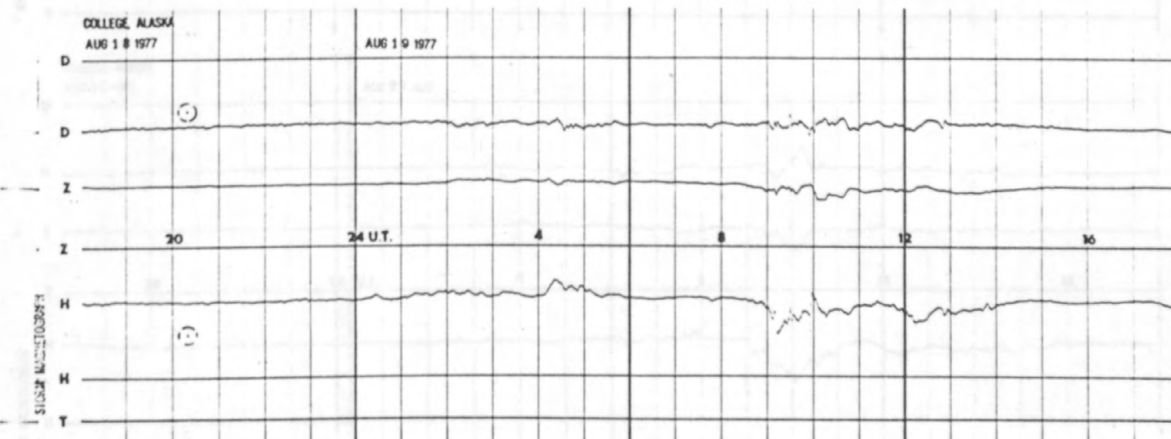
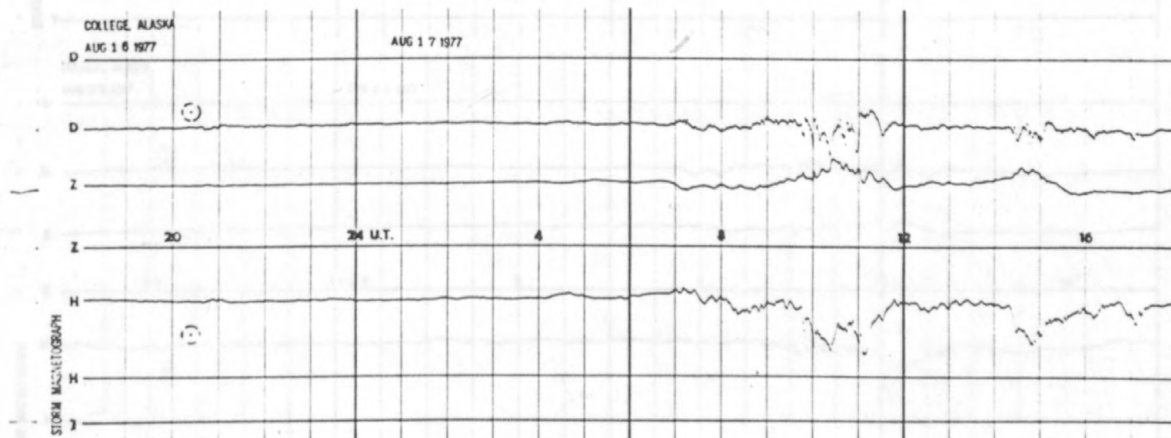
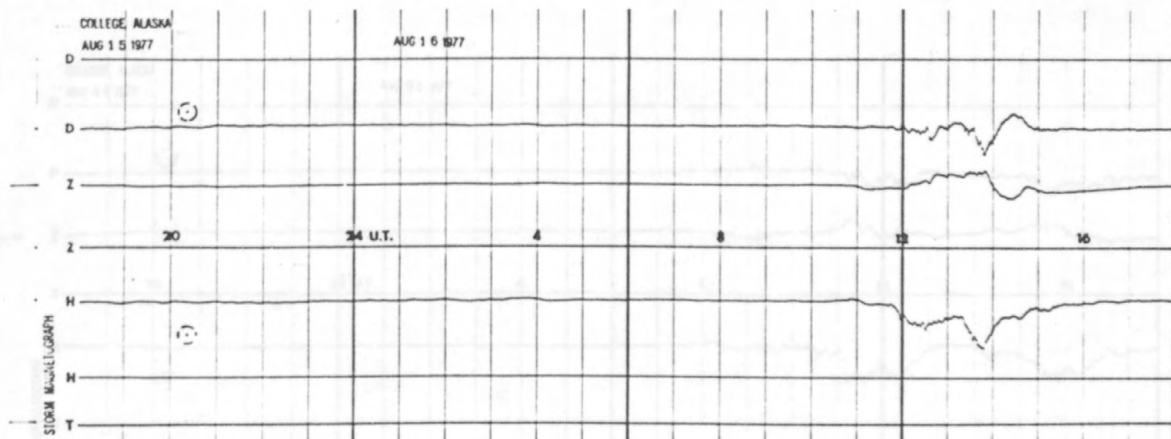
STORM MAGNETOGRAMS

200 mm
100 mm
0



STORM MAGNETOGRAMS

200 mm
100 mm
0



STORM MAGNETOGRAMS

200 mm
100 mm
0

