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GEOLOGICAL SURVEY, [Reports - Open file series]

PRELIMINARY GEOMAGNETIC DATA

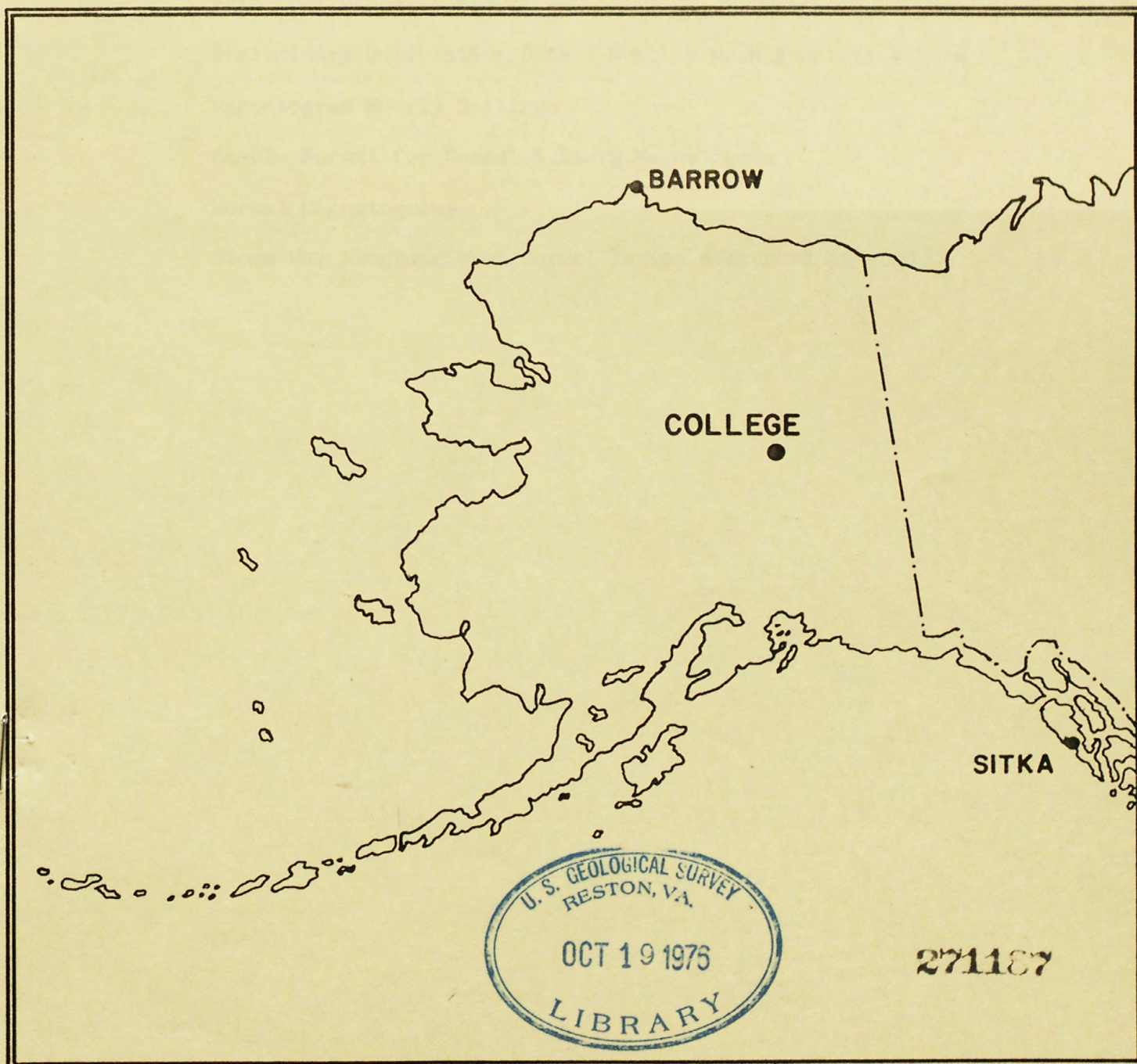
COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

TM
cm
Swanwick

JUNE 1976

OPEN FILE REPORT 76-300F





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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, C. E. DEADMON, 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.

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

GEOMAGNETIC DATA

Normal, Storm, and Rapid Run magnetograms and appropriate calibration data are processed daily at the observatory and are available for analysis or copying. Also available are mean hourly scalings, K-Indices, selected magnetic phenomena reports, and on a real-time basis are recordings from a 3-component fluxgate magnetometer and F-component proton magnetometer.

Magnetic Activity

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

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

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

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

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

AK Range	C
0-11	0
11-50	1
50+	2

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

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

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.

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

COLLEGE, ALASKA

MONTH AND YEAR

JUNE, 1976

DATE	K-INDICES								AK	TIME SCALE ON MAGNETOGRAMS
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24		
								SUM		20 mm/hr
1	1	1	4	3	2	3	1	1	16	10
2	1	2	3	4	1	2	1	1	15	09
3	2	2	1	2	1	1	3	2	14	07
4	4	4	4	4	6	2	2	2	28	26
5	3	4	4	6	6	4	3	2	32	35
6	2	2	2	4	4	3	1	2	20	13
7	3	3	3	3	4	2	1	2	21	13
8	3	2	4	5	2	2	1	1	20	15
9	1	1	3	3	0	0	1	1	10	05
10	1	2	0	1	3	1	1	2	11	05
11	5	5	6	6	5	4	3	1	35	44
12	1	3	2	5	5	2	1	1	20	17
13	1	2	3	2	3	0	0	1	12	06
14	3	1	1	0	0	0	0	0	05	03
15	0	0	0	0	0	1	1	2	04	02
16	2	2	1	2	1	0	1	1	10	04
17	2	3	2	5	5	5	2	2	26	23
18	3	4	5	5	5	3	2	2	29	27
19	1	1	2	3	1	1	1	0	10	05
20	1	1	3	4	2	2	1	1	15	09
21	1	0	1	0	1	0	1	0	04	02
22	0	0	1	1	1	0	0	0	03	01
23	2	1	1	1	1	0	0	0	06	02
24	1	1	2	0	1	3	3	3	14	08
25	5	3	5	3	5	2	2	2	27	24
26	2	1	1	1	2	1	1	1	10	04
27	2	2	3	2	2	2	1	2	16	08
28	2	2	2	2	1	1	1	1	12	05
29	1	1	2	2	0	1	1	0	08	03
30	2	3	5	7	3	3	3	3	29	34
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.....

CURRENT SCALE VALUE.....

LOWER LIMIT FOR K = 9.....

D

683.8

3.76

2570

H

321.7

7.82

2520

Z

(mm)

(γ/mm)

(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

/s/ John B. Townshend

APPROVED John B. Townshend, Chief, College Observatory

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS			OBSERVATORY COLLEGE, ALASKA	
			MONTH	YEAR
			JUNE	1976
DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS	
06	03XX	pc5		
09	1947	si	Might be related to storm on 6/11.	
10	0240	si	Might be related to storm on 6/11.	
14	0234	si		
15	08XX	pi2		
24	1632	ssc*		
29	16XX	pcl	Remarkable event	
IDENTIFIED BY: MJM, JEP, JBT			VERIFIED BY: JBT	

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

PRINCIPAL MAGNETIC STORMS

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA

JUNE

1976

WDC-A FOR SOLAR-TERRRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80502 U.S.A.

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	11	00XX	..	..	..	..	11	3, 4	6	165	1320	850	11 19
		24	1632	sc*	-11	-58	-19	25	1,3,5	5	78	780	210	25 20

JUNE

1976

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 6-1-76	2400 UT, 6-30-76	1.6/mm	3.88/mm	28° 07.0 E
H	0000 UT, 6-1-76	2400 UT, 6-30-76	7.88/mm		127658
Z	0000 UT, 6-1-76	2400 UT, 6-30-76	7.68/mm		551198

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 6-1-76	2400 UT, 6-30-76	7.9/mm	29.88/mm	24° 21.7 E
H	0000 UT, 6-1-76	2400 UT, 6-30-76	44.18/mm		115088
Z	0000 UT, 6-1-76	2400 UT, 6-30-76	48.68/mm		540148

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 UT, 6-1-76	2400 UT, 6-30-76	0.3/mm	
			1.08/mm	
H	0000 UT, 6-1-76	2400 UT, 6-30-76	1.08/mm	
Z	0000 UT, 6-1-76	2400 UT, 6-30-76	2.48/mm	

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 22.5 E	130578	553588

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUNE 9, 14, 15, 16, 21, 22, 23, 26, 28, 29

FORM CAGS-134a (6-65)		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																				U.S. DEPARTMENT OF COMMERCE COAST AND GEODETIC SURVEY GEOMAGNETISM DIVISION		CBSY.	YEAR	MONTH	ELE- MENT			
Values are in terms of γ and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500M.T.) is hour 11 of the 8800 universal day. Surge corrections have been applied. Negative values are in red, with minus signs shown.																						CO		76	JUNE	D				
C.	1/2	1/4	1/8	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	80	88	98	111	112	118	163	128	130	168	150	140	01	158	191	173	242	264	244	279	260	223	159	129	73	3881
				02	66	78	80	79	98	113	159	134	140	150	159	134	02	144	159	182	202	232	228	238	219	179	117	95	69	3454
				03	63	58	70	60	73	145	128	138	136	128	143	200	03	171	172	192	242	303	320	309	279	173	11	47	67	3628
				04	62	61	18	92	91	99	127	257	130	198	158	162	04	220	87	155	200	237	242	223	209	200	168	139	130	3665
				05	77	47	45	56	58	156	61	215	176	52	77	-76*	05	-147*	255	296	257	232	220	172	188	182	169	169	69	3000
				06	68	90	94	98	118	132	148	199	159	137	145	68	06	143	169	199	226	238	242	212	198	182	158	148	103	3674
				07	108	89	88	91	119	178	141	289	132	128	114	133	07	148	200	194	253	259	229	229	305	178	193	124	91	3913
				08	90	72	101	108	139	188	162	132	126	98	118	114	08	139	178	193	212	238	248	235	213	178	137	118	95	3632
				09	98	120	139	152	163	148	148	162	149	139	132	129	09	143	153	182	209	235	244	247	229	193	154	138	128	3934
				10	112	97	89	105	138	149	148	139	129	133	137	135	10	144	131	222	260	292	281	263	255	207	164	122	132	3984
				11	118	111	44	187	72	-12*	-12*	-314*	43*	27*	99*	187*	11	146*	266*	305*	465*	412	330	282	258	198	144	87	77	3520
				12	78	72	78	97	117	130	180	144	149	121	134	179	12	159	161	191	204	265	242	225	205	181	147	118	108	3685
				13	98	89	95	114	141	143	149	153	232	119	129	168	13	162	219	193	228	240	252	249	230	211	164	116	110	4004
				14	99	94	91	92	118	148	150	139	146	133	143	149	14	163	177	191	218	238	249	259	248	212	153	116	98	3824
				15	98	101	98	113	134	142	138	158	133	142	149	145	15	150	164	188	221	250	264	270	263	263	180	81	71	3896
				16	62	61	38	88	91	111	128	125	112	149	133	127	16	145	172	207	211	232	253	243	223	218	168	118	99	3514
				17	62	58	72	68	82	109	93	133	148	118	480*	236	17	163	169	226	268	220	249	221	202	194	164	90	77	3902
				18	87	58	66	58	-29	134	52*	215	129	67	194*	128	18	168	111	253	187	242	258	238	230	167	143	117	94	3367
				19	120	128	124	125	129	124	169	133	128	130	174	153	19	138	152	183	218	228	252	233	195	148	114	78	72	3645
				20	81	103	112	122	131	133	128	133	137	81	63	122	20	128	158	195	259	295	272	255	214	172	128	112	100	3634
				21	88	95	113	138	148	154	157	148	137	138	135	149	21	190	152	163	194	218	241	218	228	194	171	144	108	3821
				22	109	105	123	135	150	153	143	143	148	138	161	149	22	150	159	185	221	246	254	238	209	182	158	118	95	3472
				23	93	78	98	112	129	122	120	128	127	124	133	154	23	174	190	229	256	251	239	218	215	210	165	138	106	3811
				24	103	89	88	102	119	143	133	133	129	128	130	129	24	158	191	223	220	264	339	308	212	222	159	169	105	3996
				25	4	-14	33	37	42	43	197*	138	128	128	130	118	25	146	214	221	198	253	261	263	237	166	82	37	38	3100
				26	56	81	110	134	148	153	158	148	144	133	141	148	26	142	151	191	209	242	258	269	235	192	158	83	79	3763
				27	94	90	78	92	93	108	104	92	199	123	122	121	27	158	172	204	233	234	251	241	231	192	134	118	92	3576
				28	67	67	52	69	82	104	172	148	142	124	131	133	28	128	148	182	213	246	252	270	222	171	119	100	91	3433
				29	68	72	67	91	101	127	143	130	168	180	117	107	29	133	160	188	229	263	262	279	249	192	170	125	102	3723
				30	74	57	56	72	73	42	118	60	146	28	1*	207*	30	135	128	161	179	252	265	231	206	185	106	95	74	2951
				31												31														
SCALED BY	SPT, CED			Preliminary base-line and scale values:												<input type="checkbox"/> Interpolated <input type="checkbox"/> Significant portion of hour interpolated. <input type="checkbox"/> No record; or no values available because of faulty record. <input type="checkbox"/> Derived from Storm Mph., converted to Normal Mph.												MONTHLY SUM		109805
CHECKED BY	CED, JEP, MJM			Interval Beginning												Scale Value												MONTHLY MEAN		152
SIGHT REVIEWED BY	CED																											DATES WITH GAPS		
PUNCHED BY																														

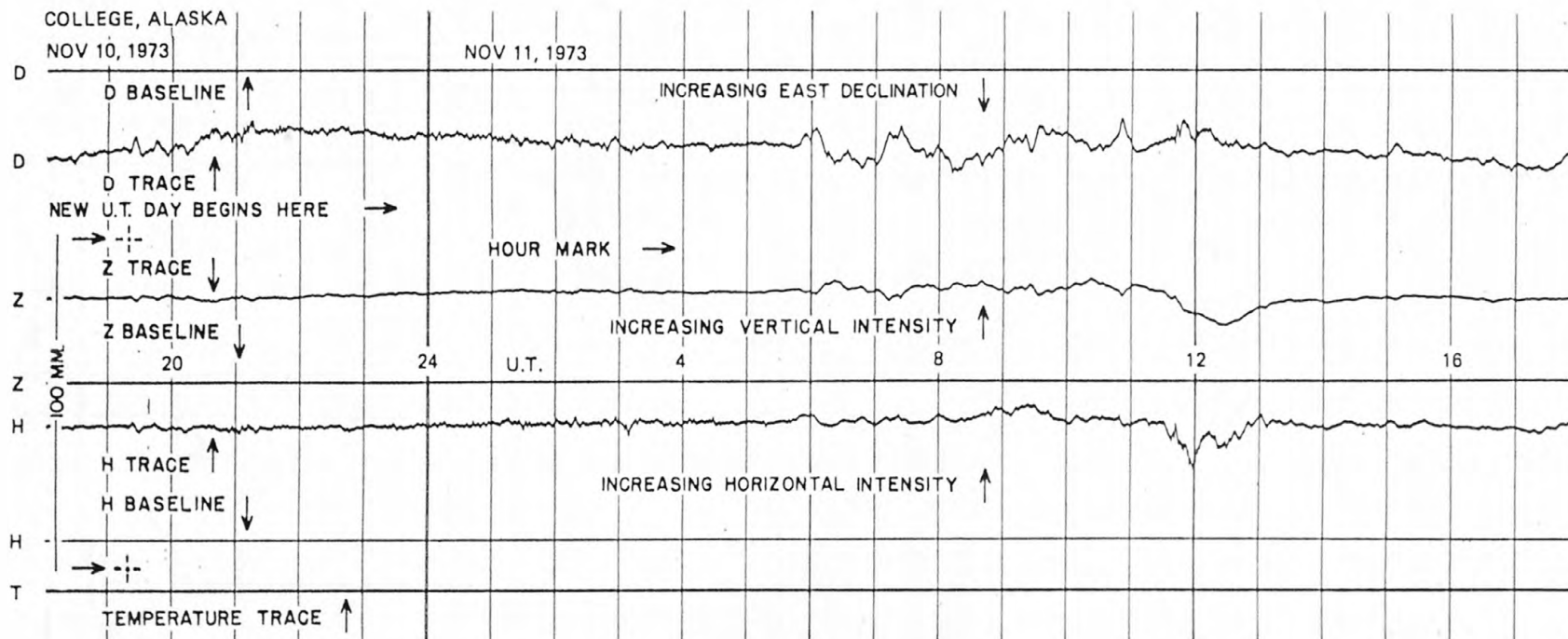
FORM C&GS-404a (10-5-71)		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																				U.S. DEPARTMENT OF COMMERCE SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY BEDFORD TIME DIVISION				JULY	YEAR	MONTH	DAY
Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day 050W M.T. is hour 11 of the 0500W universal day. Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.																						00	76	JUNE	H				
STATION	TIME	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	353	367	378	394	411	393	391	415	381	313	308	379	01	351	359	314	270	305	378	379	368	354	343	355	8702			
	02	365	378	386	412	405	430	476	403	415	276	350	394	02	395	395	393	391	359	331	339	335	323	322	341	359	8773		
	03	365	373	391	426	432	422	411	404	396	393	385	371	03	409	403	403	413	391	381	386	359	380	321	352	358	9325		
	04	368	398	573	612	452	441	476	498	399	330	144	173	04	417*	60*	371	396	398	403	382	370	368	347	371	378	8660		
	05	378	373	429	436	638	501	566	471	384	486	348	-135*	05	-215*	267	208	168	300	311	405	371	357	356	355	333	7403		
	06	353	387	373	399	392	416	414	400	404	369	328	125	06	248	340	283	331	344	392	398	395	382	358	347	359	8535		
	07	356	392	412	423	391	453	505	420	436	411	357	320	07	198	285	298	359	389	396	385	376	374	358	342	355	8771		
	08	370	408	389	392	408	405	484	445	324	271	405	393	08	341	342	346	379	370	374	376	365	351	354	342	366	5962		
	09	372	371	370	384	390	395	411	441	390	330	372	389	09	386	381	374	375	375	369	369	366	357	357	345	365	9064		
	10	368	376	379	389	365	384	382	388	385	390	389	386	10	355	238	326	362	341	372	375	363	346	336	361	403	5779		
	11	423	569	727*	801*	733*	755*	563*	450*	450*	360*	-144*	9*	11	9*	55*	28	68	192	302	312	396	591	351	362	379	6541		
	12	383	378	382	384	405	445	471	442	433	411	352	24	12	284	429	419	397	358	342	381	363	359	356	360	361	6921		
	13	349	361	375	406	370	373	394	430	387	383	375	369	13	335	310	388	393	390	381	370	365	344	356	348	360	8932		
	14	379	370	386	400	381	384	379	382	381	382	380	374	14	383	381	383	378	371	370	362	341	330	328	338	352	8895		
	15	370	367	368	371	370	368	372	379	386	386	391	392	15	400	403	403	402	391	373	379	360	340	326	338	365	9000		
	16	381	402	425	360	389	371	376	374	402	412	385	388	16	378	365	375	367	360	365	356	351	349	340	341	357	8769		
	17	351	358	385	420	385	383	403	426	435	363	-23	247	17	300	328	163	212	407	396	399	369	370	364	339	341	5141		
	18	368	391	426	442	661	573	568	328	401	237	24	332	18	61	-1	284	395	376	362	382	358	341	325	322	340	8316		
	19	358	362	379	383	384	392	396	416	393	392	303	359	19	374	376	379	385	348	342	359	360	345	340	349	362	8856		
	20	357	369	388	379	372	382	377	414	356	313	280	388	20	379	331	342	315	349	368	362	353	348	348	346	350	6566		
	21	351	356	362	371	370	373	379	386	394	391	396	391	21	376	400	392	385	389	400	386	395	369	361	358	360	9091		
	22	365	366	372	373	371	372	372	389	396	396	391	382	22	391	393	381	386	360	373	366	363	360	349	351	353	8991		
	23	365	372	355	371	382	376	389	388	389	401	406	403	23	379	364	372	393	391	379	375	365	348	343	355	363	9024		
	24	365	382	392	379	401	387	397	391	386	385	391	387	24	389	383	393	391	365	321	282	334	343	341	350	347	8682		
	25	369	547	552	576	534	624	530	450	434	378	373	281	25	184	297	241	351	346	380	356	330	287	316	319	331	9386		
	26	359	371	382	386	381	371	370	378	375	382	383	395	26	377	352	376	392	372	364	335	318	325	342	329	348	8763		
	27	365	379	404	389	422	415	401	432	450	412	395	362	27	375	375	355	358	348	356	362	341	322	335	333	356	9042		
	28	379	373	404	386	395	423	420	391	392	366	369	371	28	355	382	387	384	379	374	361	344	334	333	341	359	9002		
	29	382	379	389	379	381	382	370	391	402	400	389	388	29	378	371	371	364	379	381	378	353	346	346	335	333	8773		
	30	352	346	382	400	423	461	437	549	480	361	-31*	60*	30	389	469	486	461	346	308	350	320	325	331	351	357	8713		
	31													31															

SCALED BY	SPT, CED	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value	<input type="checkbox"/> Interpolated <input type="checkbox"/> Significant portion of hour interpolated. <input type="checkbox"/> No record; or no values available because of faulty record. * Derived from Storm Alghs., converted to Normal Alghs.	<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	264382
CHECKED BY	CED, JEP, MJM				MONTHLY MEAN	367
SIGNS RE-INTERP BY	CED				DATES WITH GAPS	
PUNCHED BY						

FORM CAG-404a (1-67)		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																				U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY GEOMAGNETISM DIVISION		OSBY.	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 same universal day. Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.																						CO	76	JUNE	2		
C	Q	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	317	324	323	327	329	342	358	323	283	209	274	300	01	299	285	273	230	183	229	208	281	282	292	305	302	6956
	02	323	332	319	318	336	368	382	358	331	168	224	283	02	309	319	321	317	309	279	256	285	285	275	276	289	7262
	03	309	323	324	325	355	385	359	358	342	323	327	308	03	310	318	316	320	304	280	274	301	311	235	274	295	7576
	04	306	320	321	430	405	398	368	311	318	248	96	274	04	368	126	252	274	308	317	312	311	310	304	310	329	7348
	05	325	332	375	382	356	397	345	370	282	313	325	255	05	203	225	318	252	182	237	266	302	311	314	323	327	7369
	06	324	346	336	330	336	365	363	337	322	288	295	76	06	158	238	254	273	300	305	299	301	300	314	316	310	7086
	07	324	328	358	366	338	384	364	330	338	343	299	284	07	323	222	221	283	293	223	333	314	306	314	323	327	7538
	08	340	335	343	348	368	360	343	344	281	188	277	316	08	288	292	299	310	318	317	311	303	295	276	304	310	7486
	09	315	327	328	330	353	340	338	359	328	255	271	313	09	320	321	323	325	328	324	318	313	302	301	301	310	7665
	10	313	319	321	324	328	326	325	324	322	315	314	308	10	285	155	182	239	264	271	295	307	300	274	283	299	7018
	11	316	434	376	210	326	312	39	141	237	281	586	567	11	503	561	637	350	131	245	233	294	322	318	314	319	8072
	12	321	325	337	352	354	395	44	395	388	354	342	243	12	150	294	321	332	323	305	296	315	317	310	310	309	7804
	13	315	321	322	343	353	336	340	345	305	318	320	290	13	281	243	285	316	326	351	317	319	320	309	311	313	7578
	14	315	314	310	326	351	352	338	325	327	325	323	317	14	319	321	324	325	320	313	314	309	305	307	308	308	7702
	15	305	306	302	309	314	314	317	318	320	324	322	317	15	314	317	321	324	324	315	308	304	309	298	287	274	7483
	16	307	311	312	342	339	347	343	324	325	326	290	315	16	314	308	306	308	304	308	309	303	303	295	292	298	7529
	17	301	297	302	305	350	338	322	354	345	328	256	124	17	243	245	343	229	272	303	281	285	286	259	288	296	6932
	18	321	351	401	404	355	450	310	258	330	362	116	238	18	409	156	146	266	325	332	319	313	301	302	315	298	7378
	19	305	306	318	328	332	328	359	326	318	299	247	268	19	292	302	313	318	319	299	278	291	292	298	302	311	7349
	20	321	325	328	331	329	325	331	332	224	289	291	305	20	310	284	281	266	252	284	292	296	295	295	300	299	7183
	21	303	309	314	318	320	323	327	321	313	318	313	312	21	276	295	319	325	326	324	318	314	307	307	309	306	7519
	22	307	308	306	304	309	313	312	314	325	324	331	309	22	309	315	309	318	314	311	301	294	295	296	292	295	7401
	23	290	303	312	314	321	321	313	317	310	305	313	315	23	291	290	293	306	307	303	299	294	295	288	285	289	7274
	24	294	295	305	311	325	343	323	336	328	310	305	302	24	318	318	319	316	310	289	217	202	240	257	278	288	7126
	25	312	374	395	389	395	370	338	357	372	342	314	302	25	253	244	175	247	294	299	298	292	264	298	298	279	7541
	26	311	324	336	328	323	322	321	314	315	312	305	302	26	302	268	290	312	314	311	305	291	285	296	288	281	7356
	27	300	311	322	332	353	365	345	331	373	325	311	285	27	278	274	289	288	282	282	290	298	297	287	301	297	7412
	28	309	329	315	325	338	362	341	335	347	315	294	278	28	279	304	321	322	320	318	312	301	288	274	270	288	7485
	29	301	316	316	327	341	328	322	313	342	320	302	303	29	301	297	303	304	298	298	301	291	282	284	285	292	7367
	30	300	303	300	310	315	355	391	313	183	258	665	468	30	258	293	341	353	345	299	258	291	280	275	289	296	7739
	31													31													

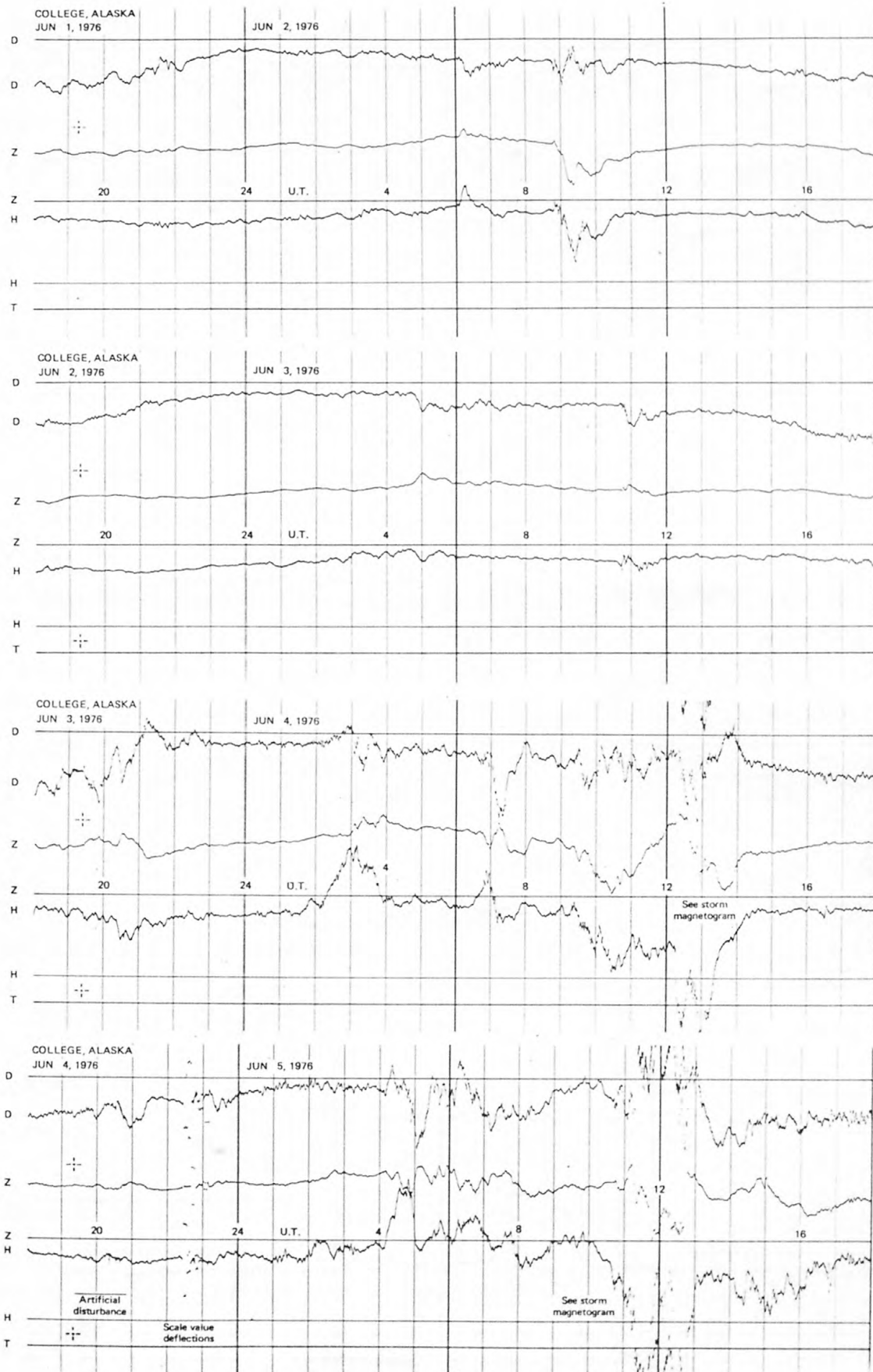
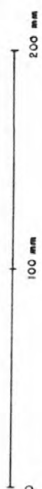
SCALED BY	SPT, CED	Preliminary base-line and scale values:	() Interpolated	[] Scaling uncertain because of magnetic storm.	MONTHLY SUM	222588
CHECKED BY	CED, JEP, MJM	Interval Beginning	[] Significant portion of hour interpolated.	<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY MEAN	309
SIGNS RE-VIEWED BY	CED	Base-line Value	[] No record; or no values available because of faulty record.		DATES WITH GAPS	
PUNCHED BY		Scale Value	* Derived from Storm Aeph., converted to Normal Aeph.			

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)



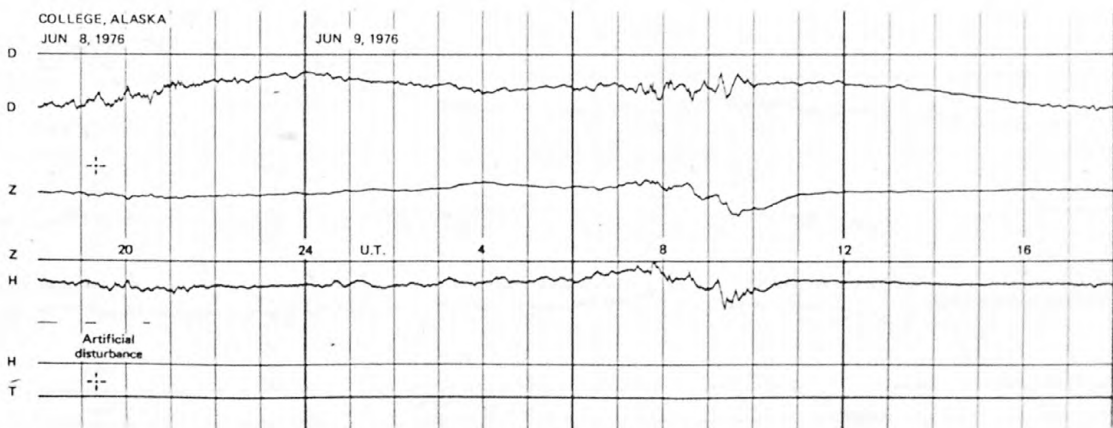
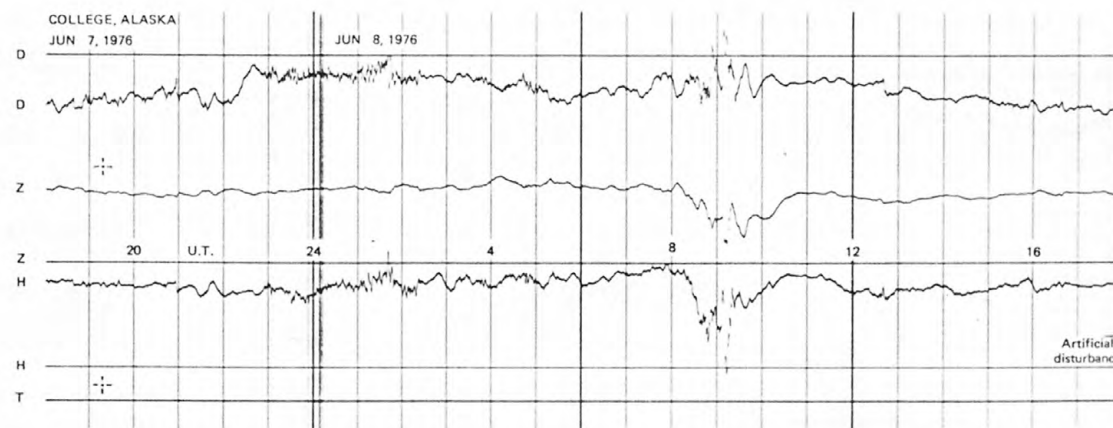
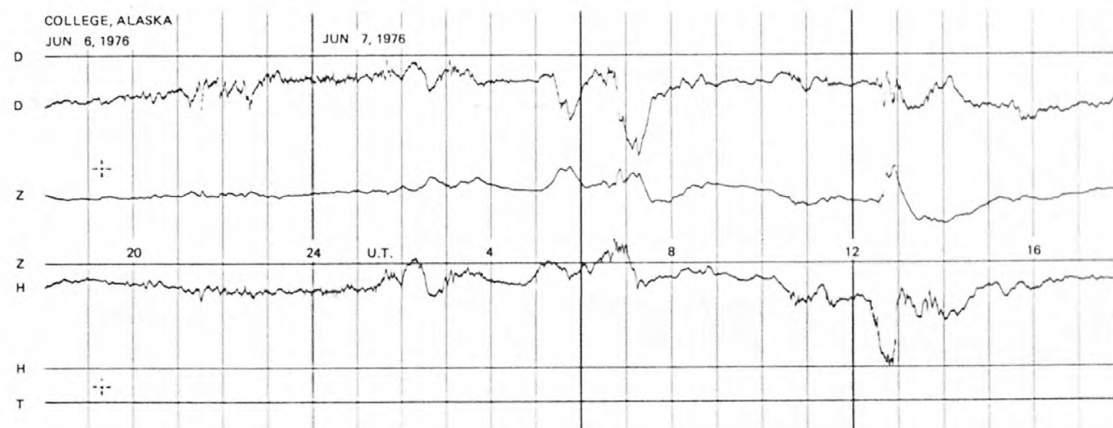
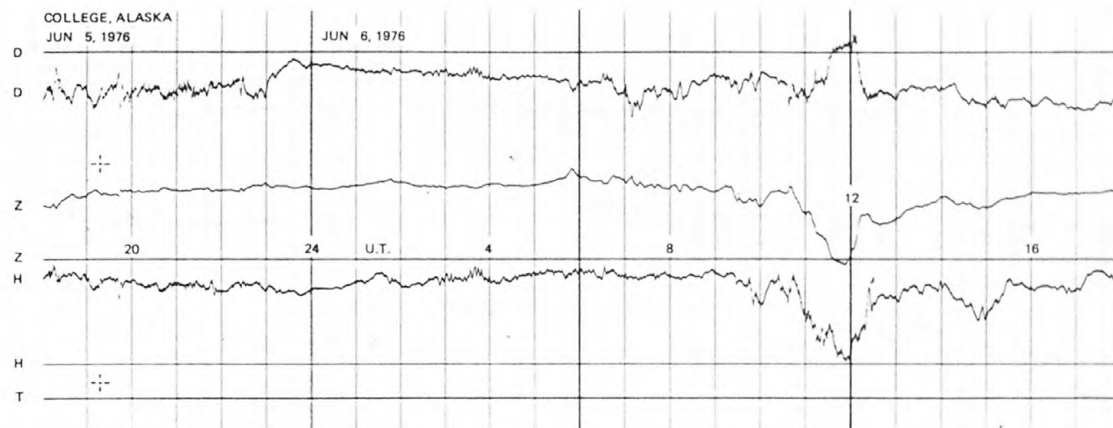
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS



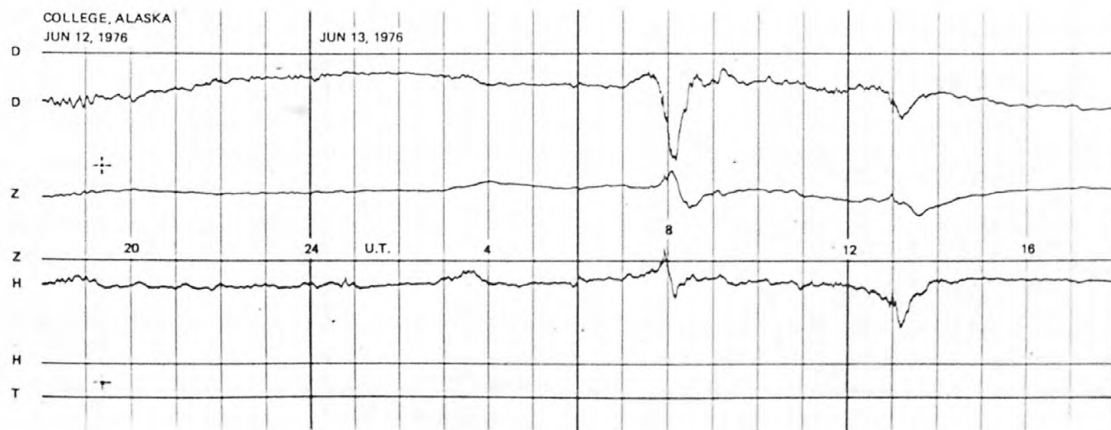
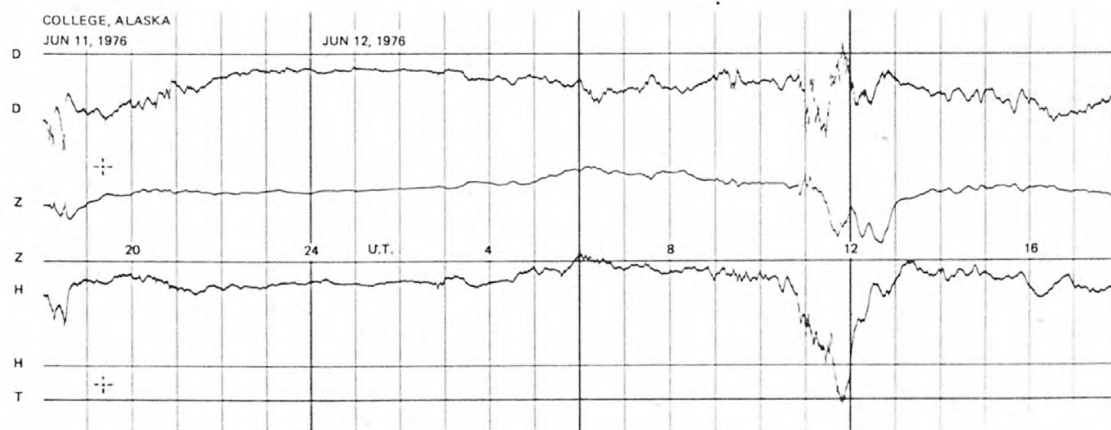
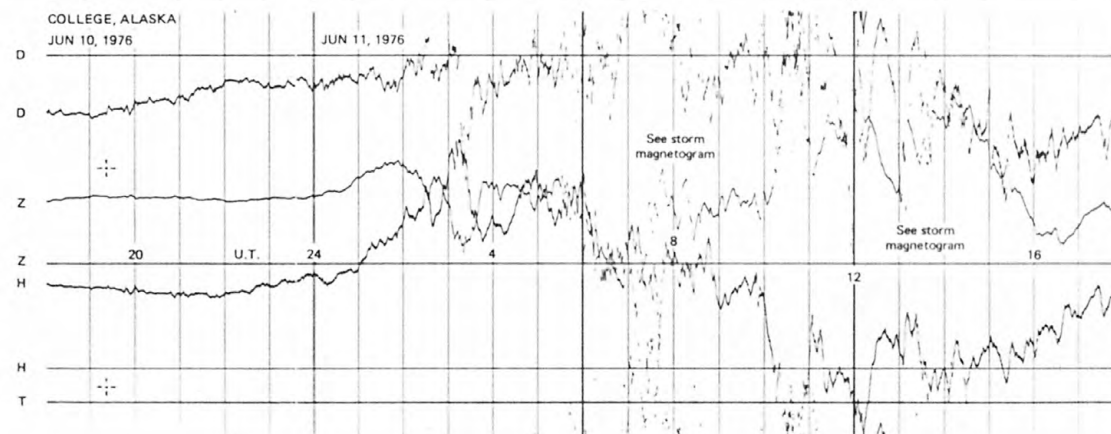
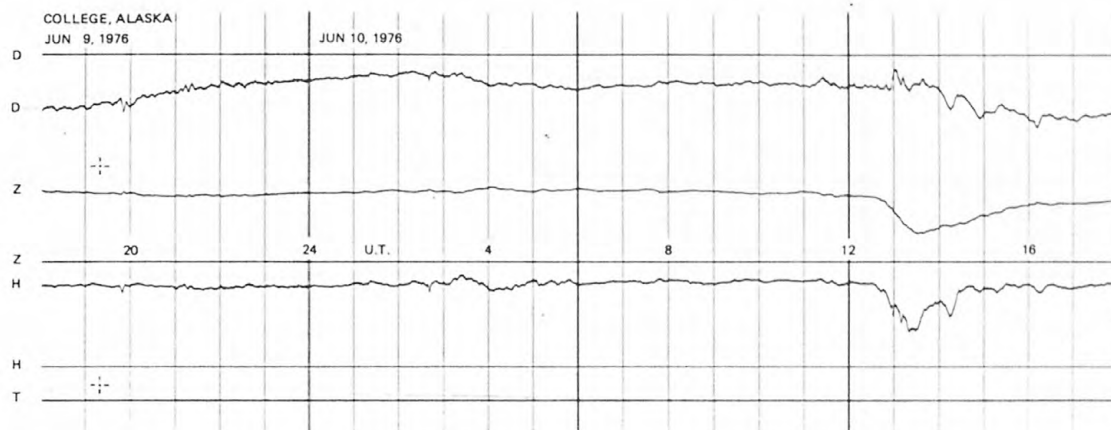
NORMAL MAGNETOGRAMS

200 mm
100 mm
0



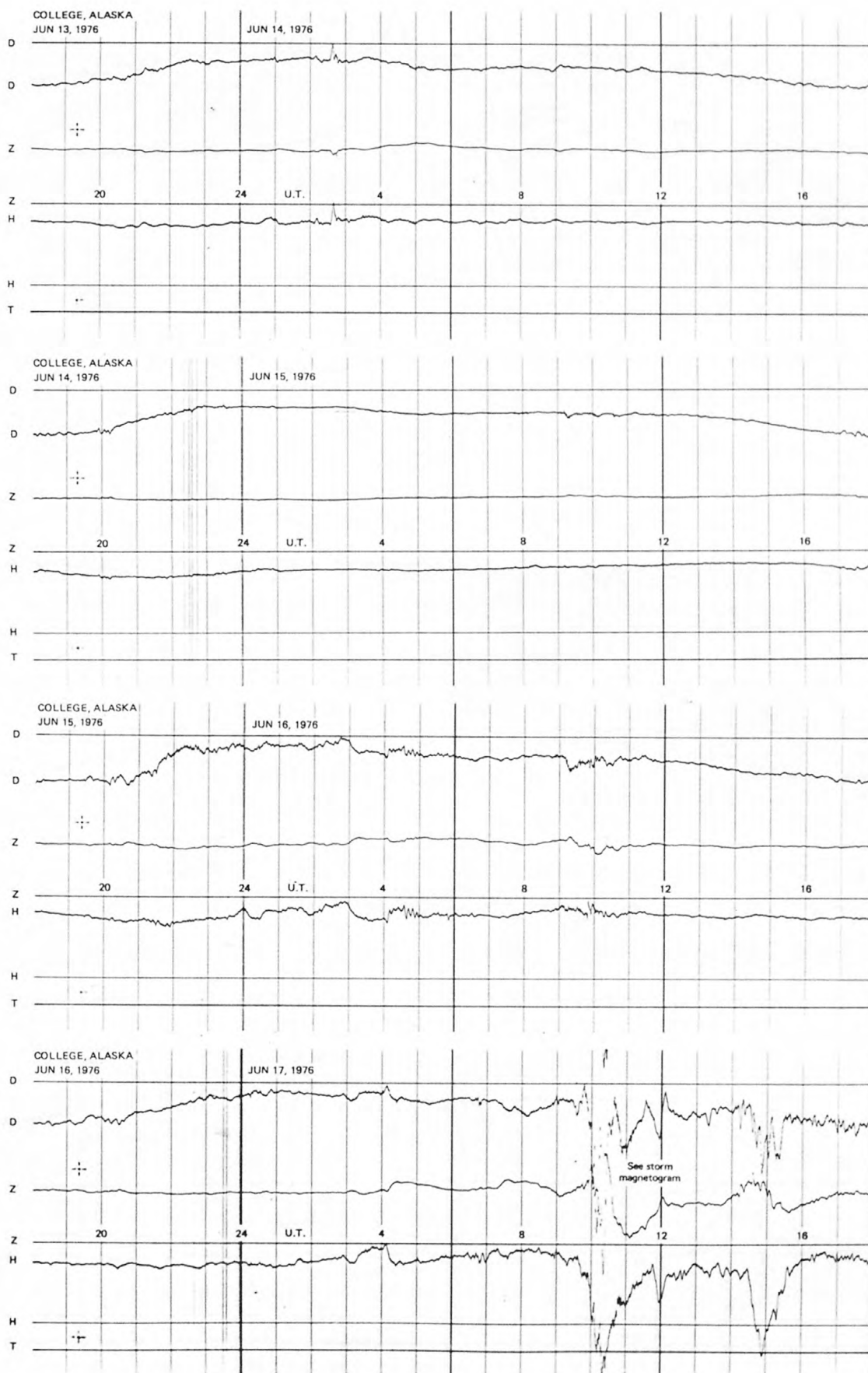
NORMAL MAGNETOGRAMS

200 nm
100 nm
0



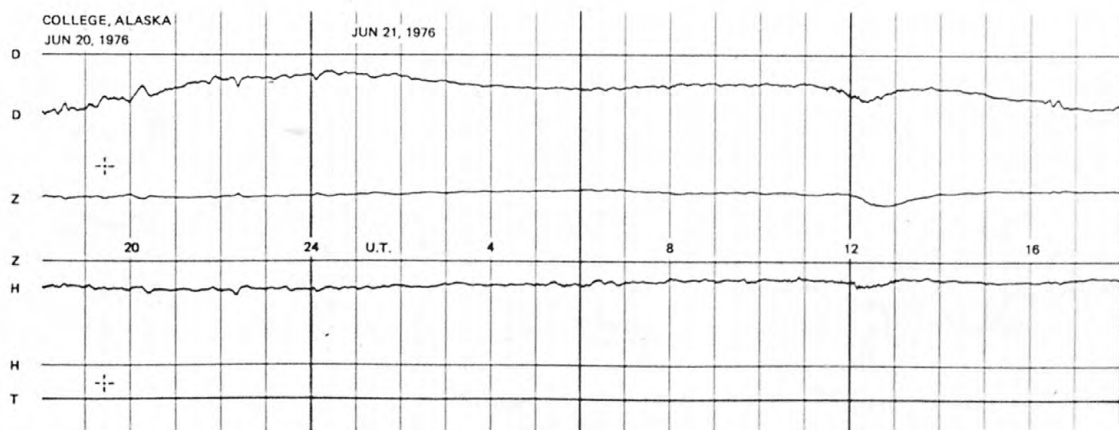
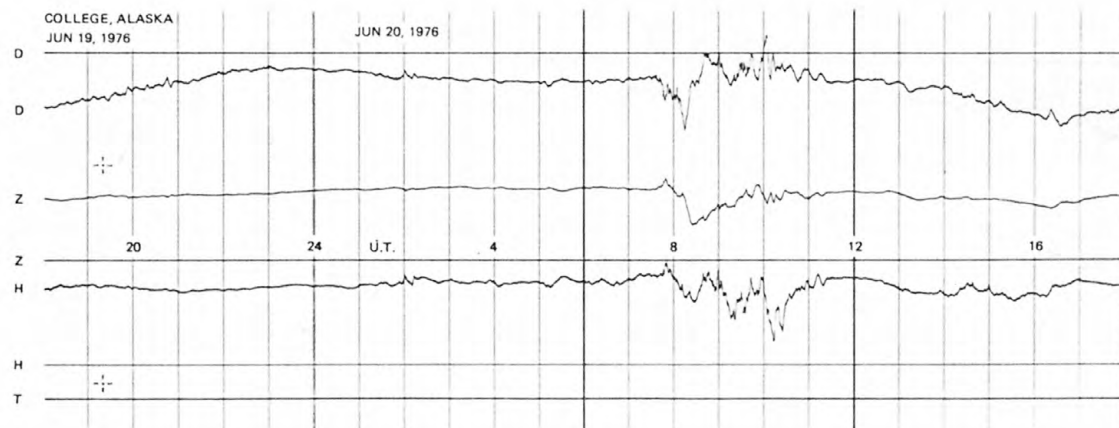
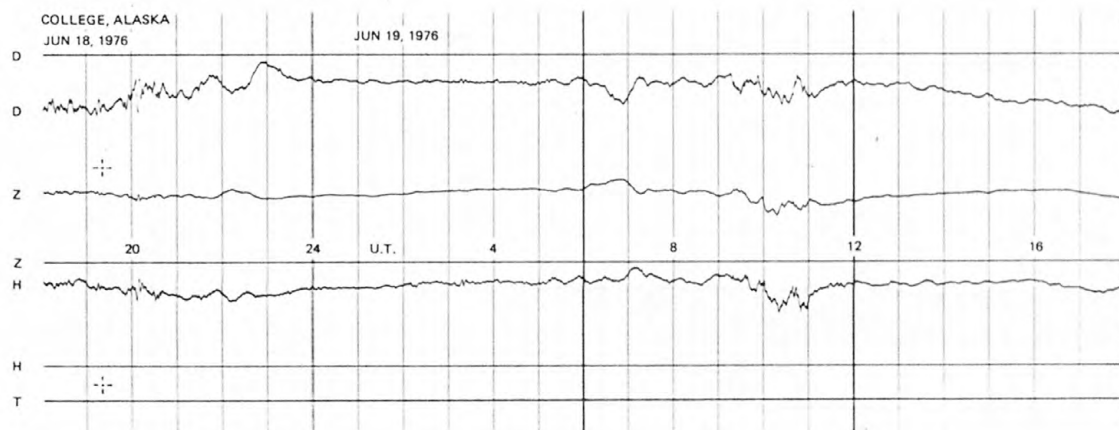
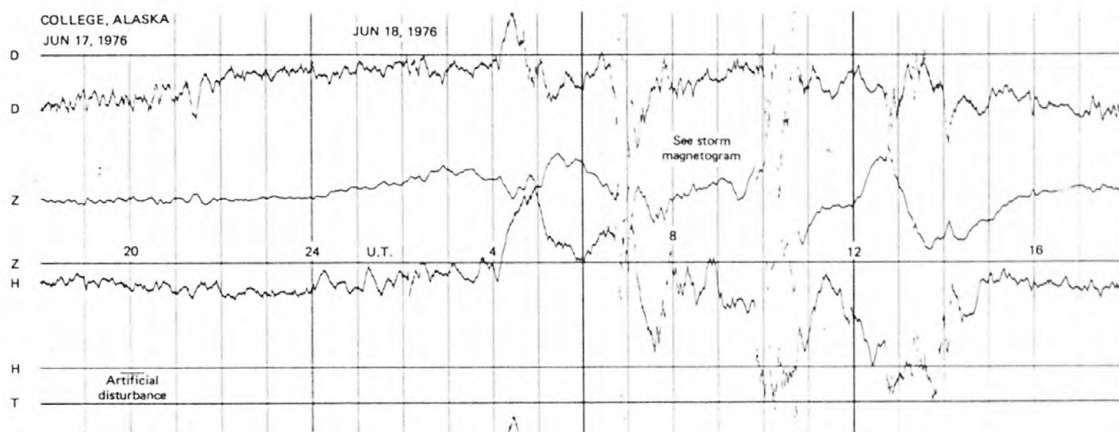
NORMAL MAGNETOGRAMS

200 mm
100 mm
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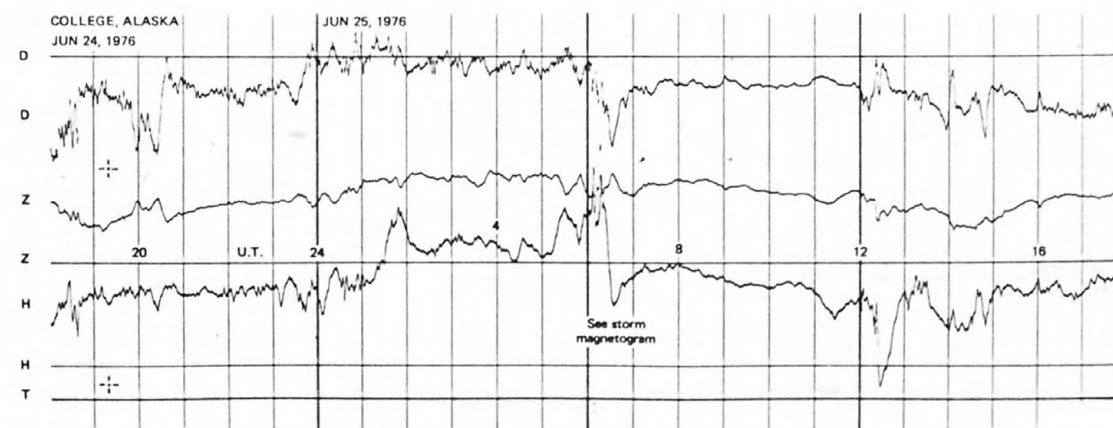
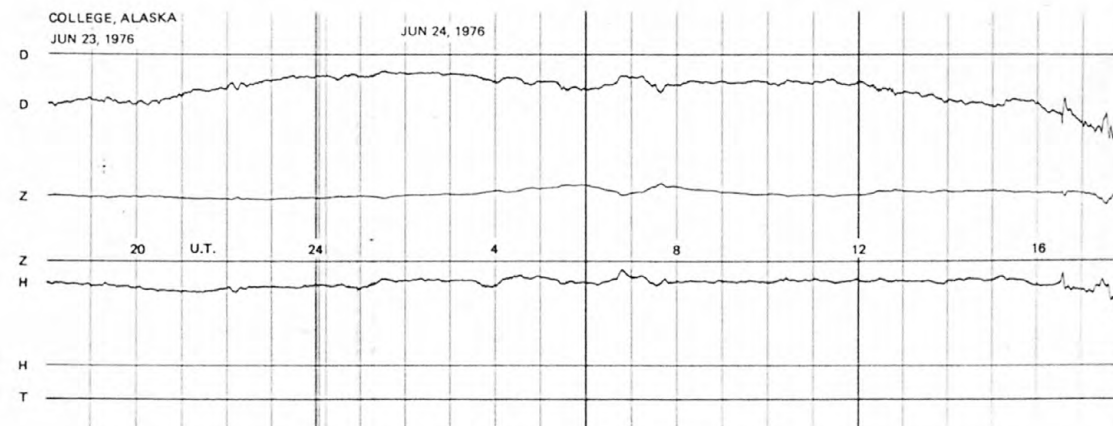
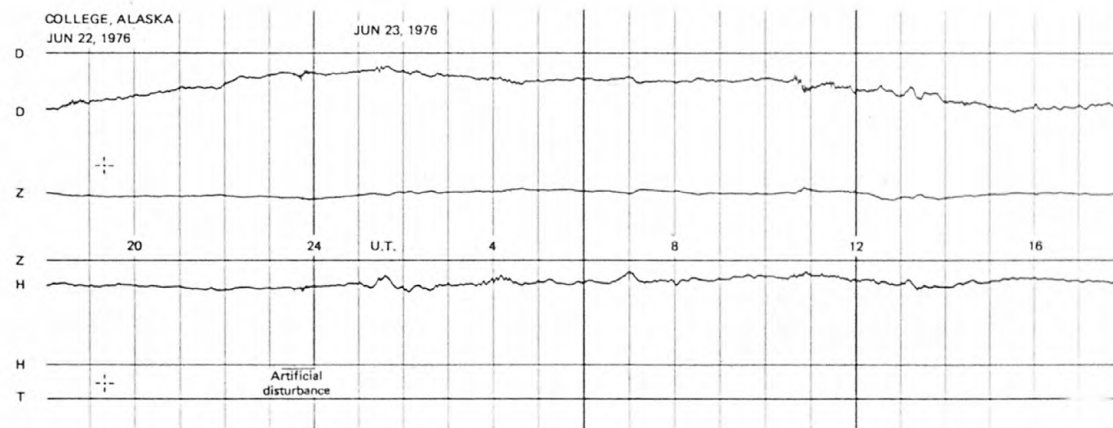
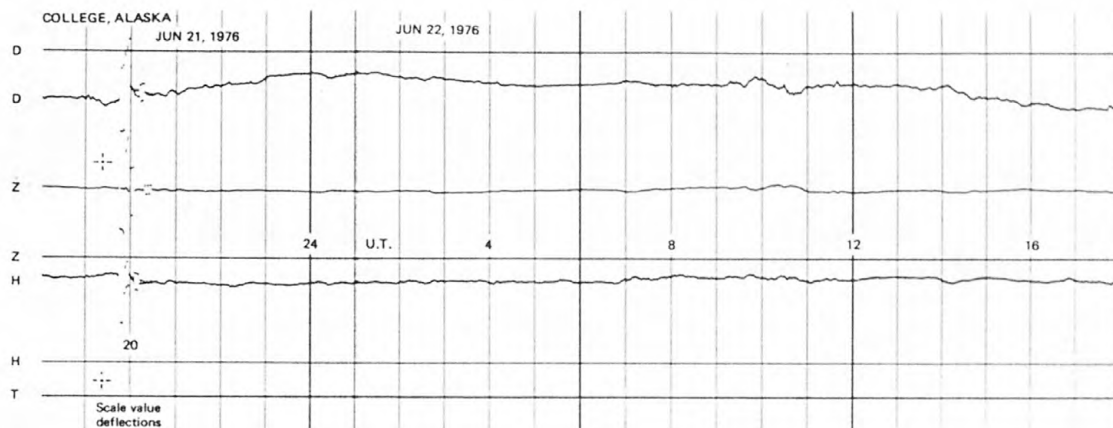
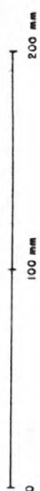


NORMAL MAGNETOGRAMS

200 mm
100 mm
0

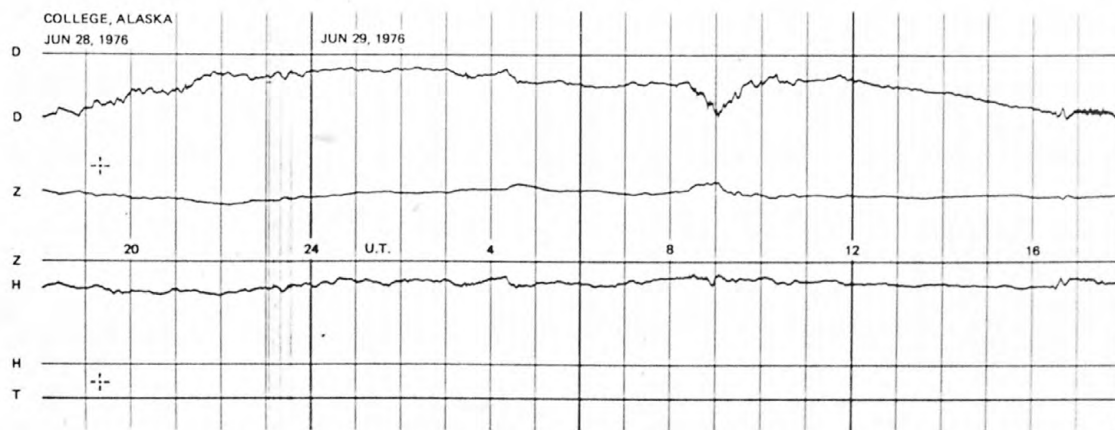
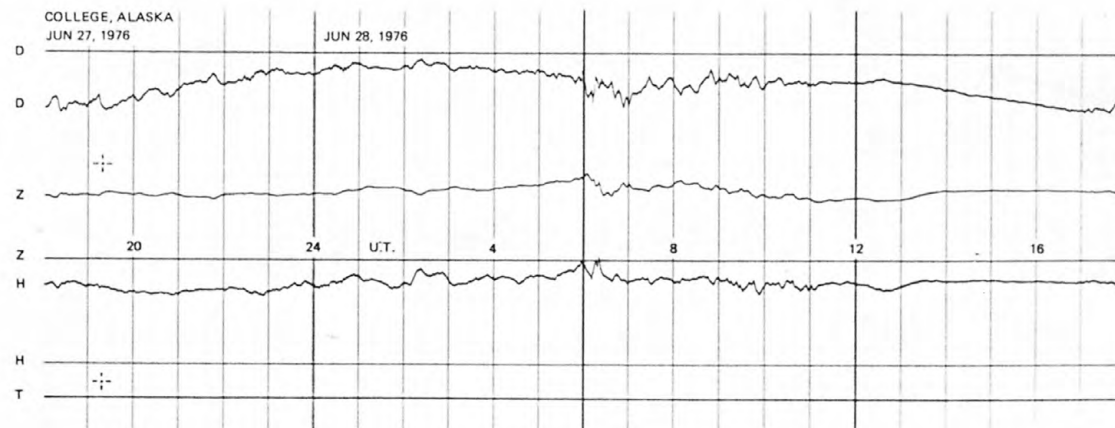
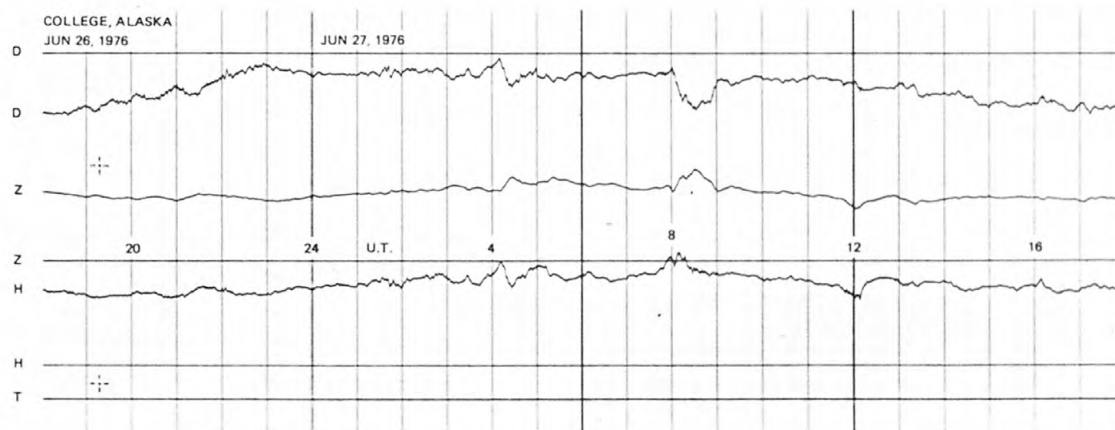
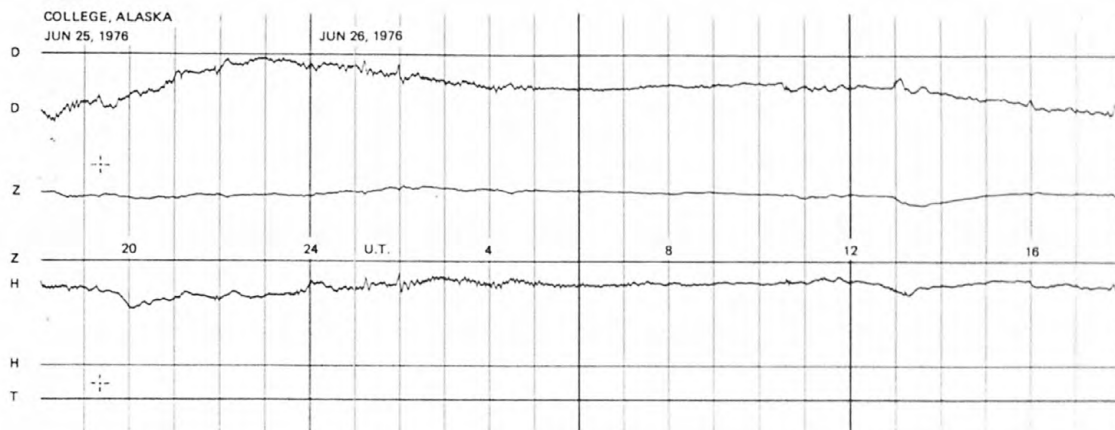


NORMAL MAGNETOGRAMS

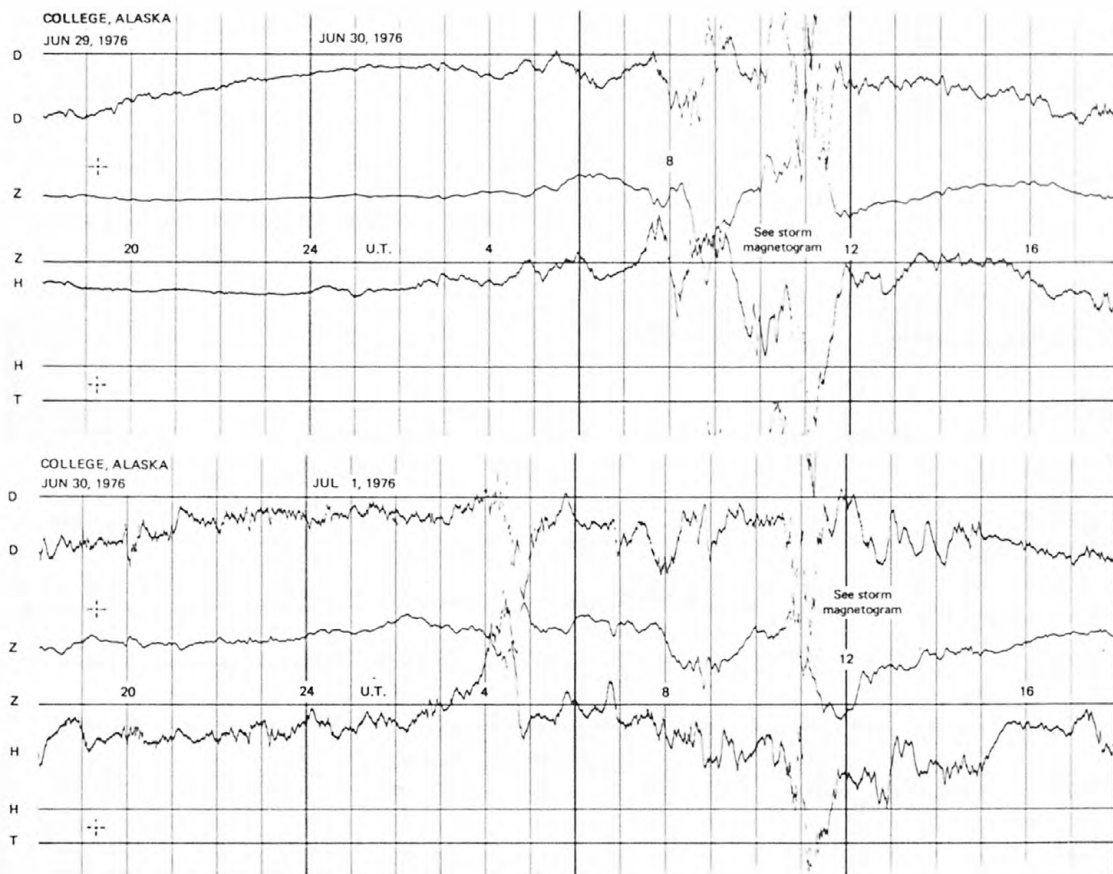


NORMAL MAGNETOGRAMS

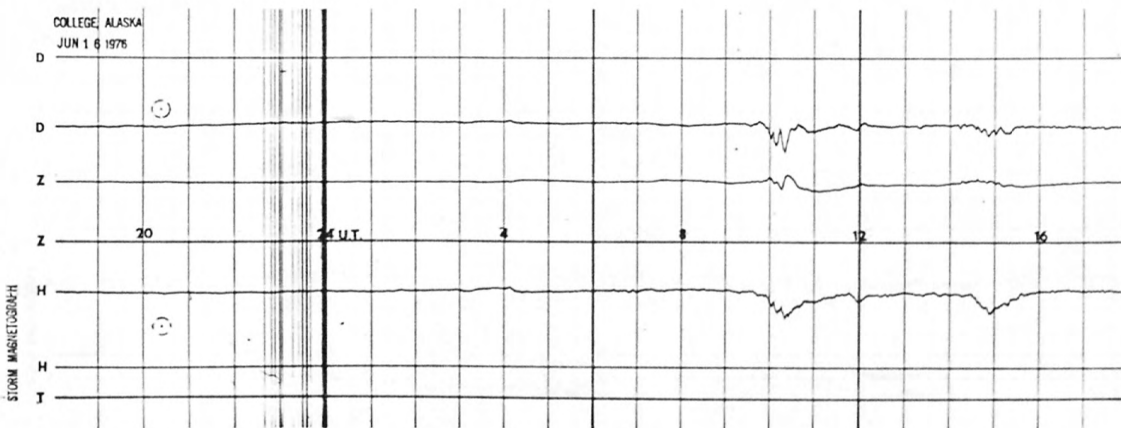
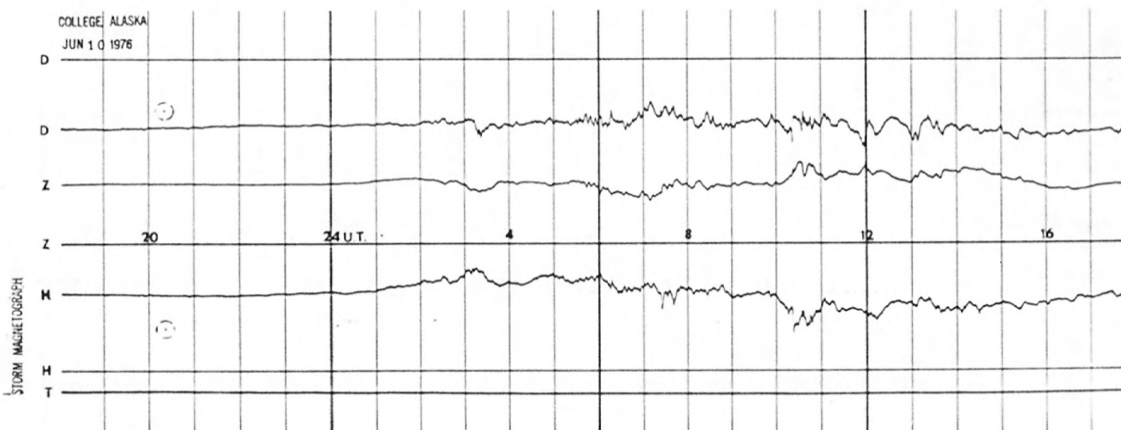
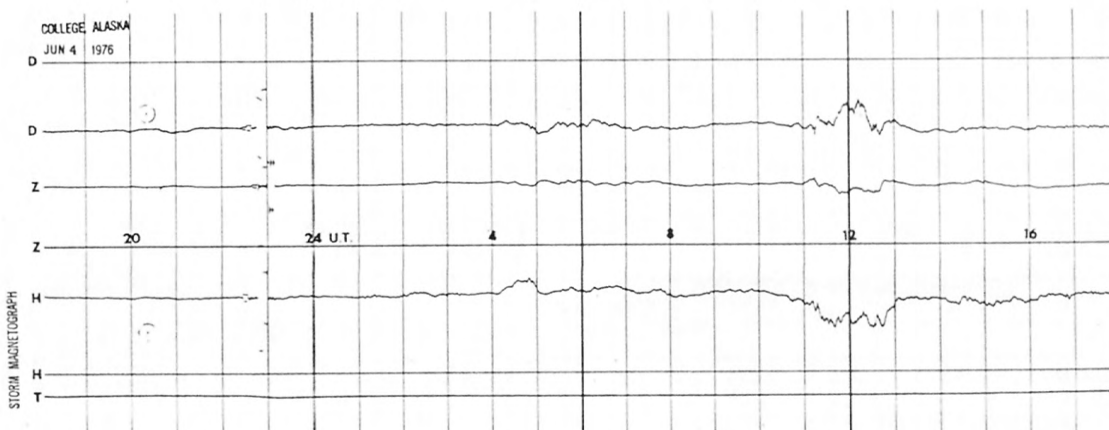
200 mm
100 mm
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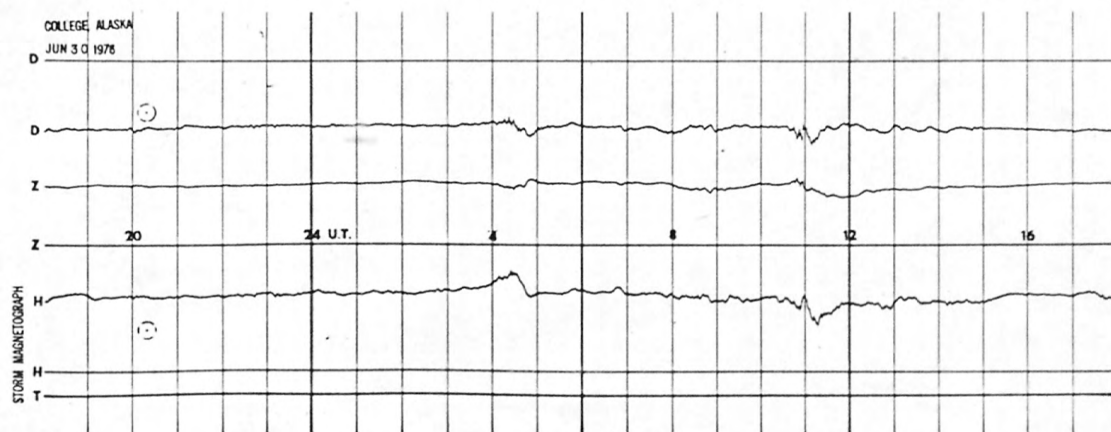
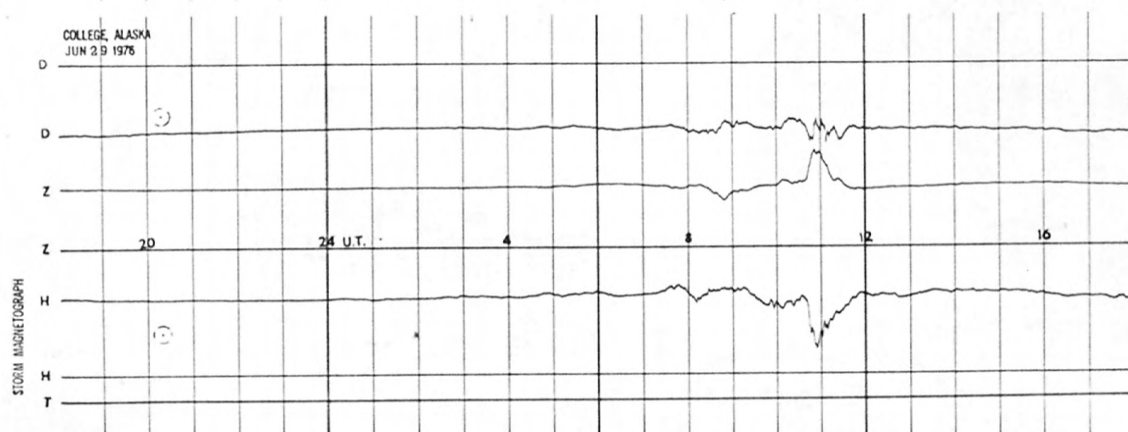
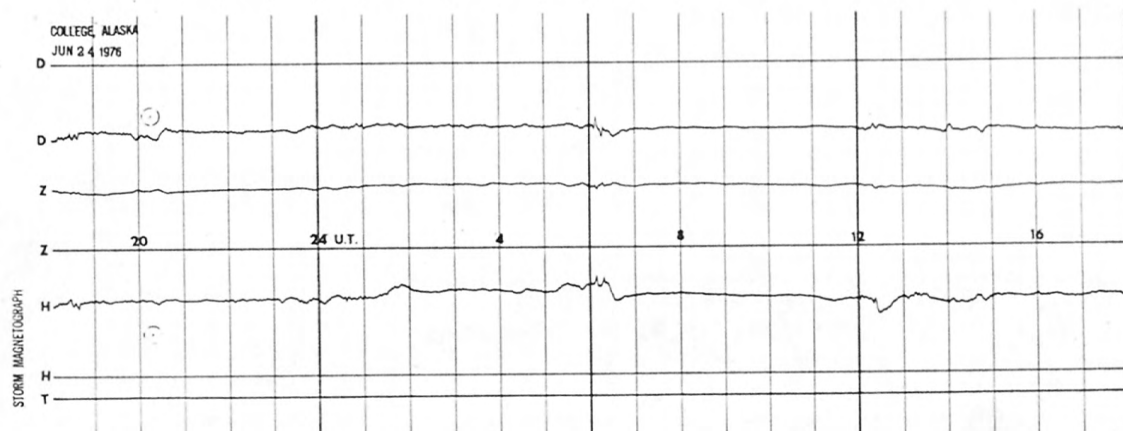
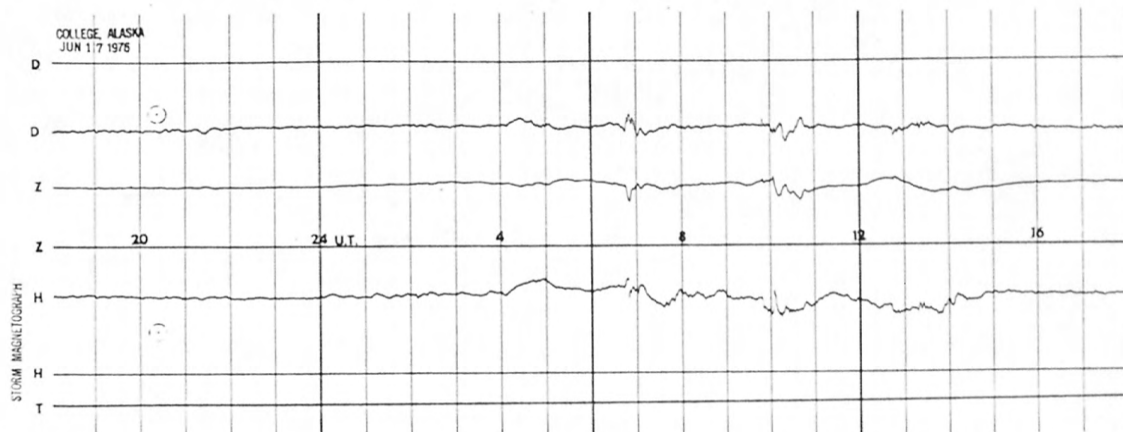
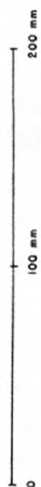
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



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