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no. 77-300E

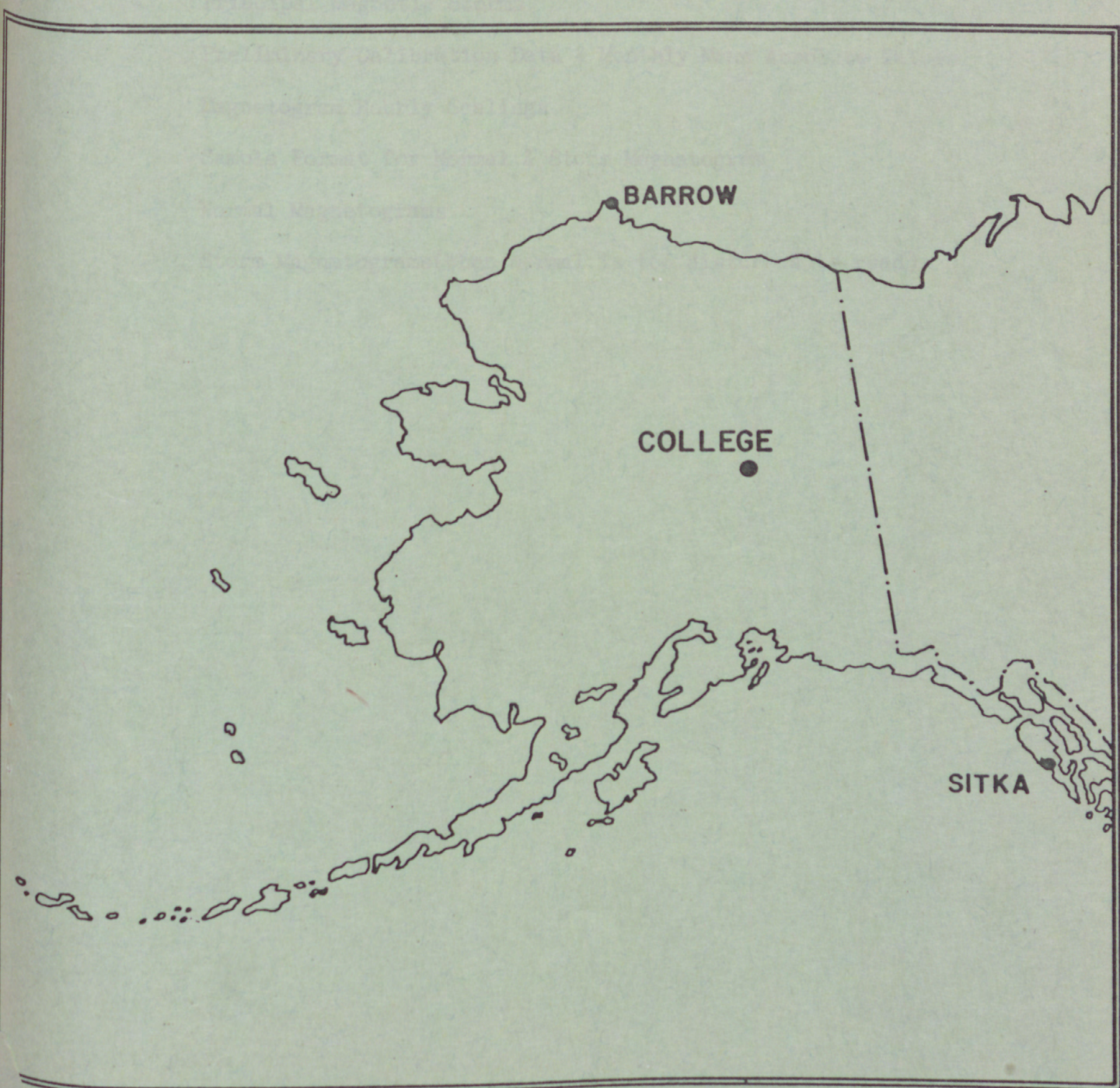
UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

no. 774
in
open entry ✓

MAY 1977

OPEN FILE REPORT 77-300E



UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

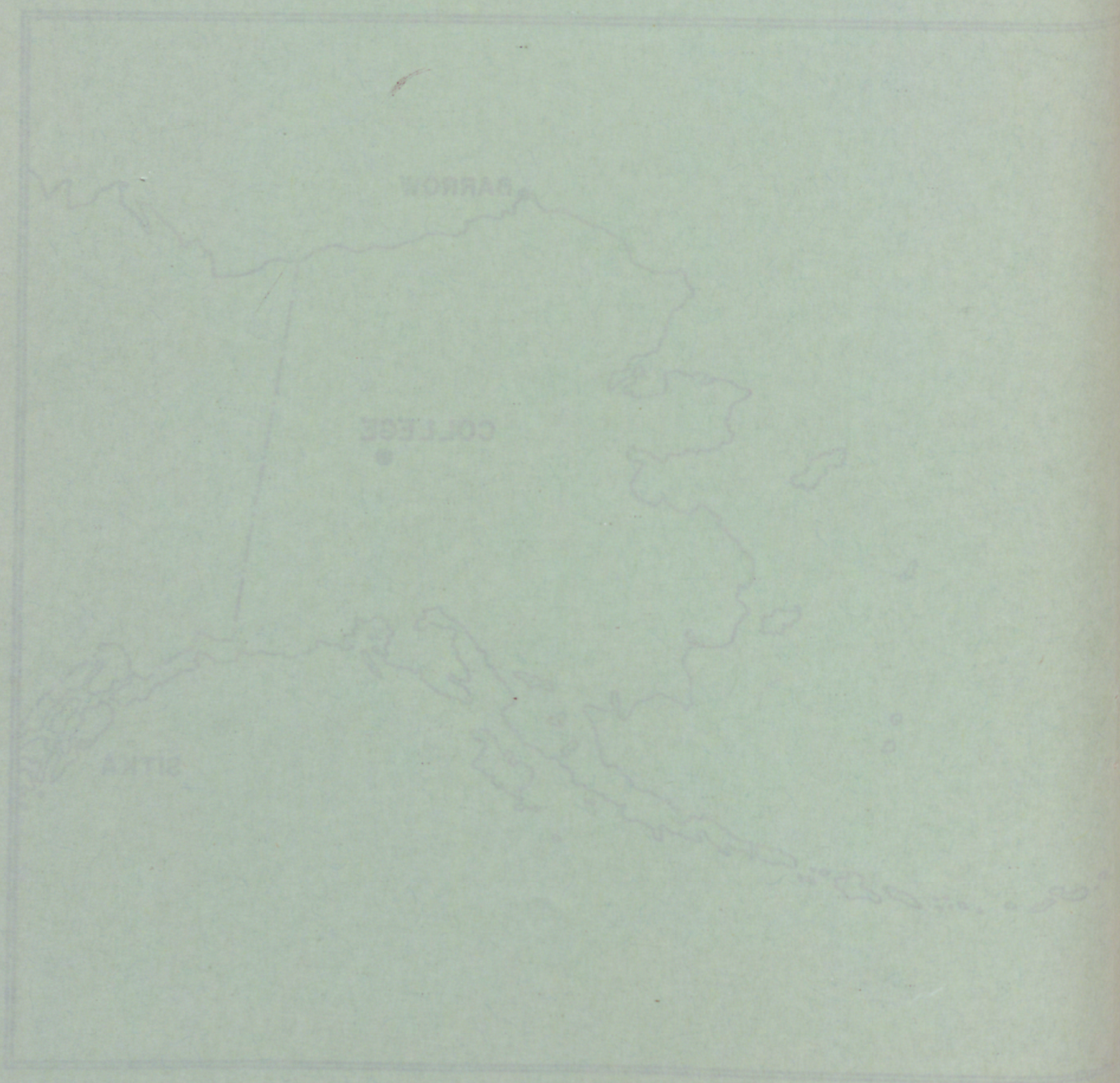
PRELIMINARY GEOMAGNETIC DATA

COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

OPEN FILE REPORT 77-300E

MAY 1977



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Normal Magnetograms

Storm Magnetograms(When Normal is too disturbed to read)

THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSEND, 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 10γ has been chosen so as not to give the illusion of an accuracy not justified.

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

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

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

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

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

Selected Phenomena & Outstanding Magnetic Effects

Prior to January 1, 1976, the Normal & 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

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

MAY 1977

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	2	2	1	2	2	2	3	3	17	09	SUDDEN COMMENCEMENTS d h m	
2	5	5	5	7	7	7	5	5	46	83		
3	3	4	6	6	3	0	0	0	22	27		
4	1	2	2	1	1	4	3	2	16	09		
5	2	3	4	3	2	2	1	2	19	11		
6	3	2	1	5	4	5	2	1	23	20		
7	1	1	2	2	1	0	0	1	08	03		
8	0	1	0	2	2	0	0	0	05	02		
9	1	2	1	3	2	3	0	1	13	07		
10	0	1	6	3	3	3	1	1	18	17		
11	1	2	5	5	6	5	4	2	30	34	POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)	
12	3	6	6	4	3	2	1	0	25	28		
13	1	2	1	3	0	0	2	1	10	05		
14	2	3	3	3	2	2	2	2	19	10		
15	4	2	2	6	5	4	2	3	28	27		
16	4	4	4	4	4	3	4	2	29	23		
17	4	4	6	5	4	4	3	2	32	32		
18	2	3	4	5	4	2	0	1	21	17		
19	2	1	1	0	2	2	0	0	08	03		
20	2	2	1	4	4	2	3	1	19	12		
21	2	0	1	2	0	1	0	1	07	03	BEGIN	END
22	2	3	3	2	2	0	2	0	14	07		
23	2	2	0	2	2	3	1	1	13	06	d h m	d h m
24	2	2	2	2	1	2	2	2	15	07		
25	2	1	2	1	0	3	0	0	09	04	d h m	d h m
26	0	0	0	0	0	0	1	1	02	01		
27	1	1	1	1	0	0	0	1	05	02	d h m	d h m
28	1	2	2	5	4	0	2	1	17	13		
29	1	0	0	0	0	1	0	0	02	01	d h m	d h m
30	0	1	1	4	3	1	1	1	12	07		
31	2	3	3	1	4	2	1	1	17	10	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.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH
MAY

YEAR
1977

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
04	0416	si	
04	07XX	pg	
08	03XX	pc5	
08	11XX	pi2	With small bay
18	19XX	pc3, pc4	
19	10XX	pi2	
19	12XX	pi2	
21	00XX	pc3, pc4	
22	1856	si	
28	0425	si	
<div> <div>IDENTIFIED BY:</div> <div>JEP</div> </div> <div> <div>VERIFIED BY:</div> <div>JBT</div> </div>			

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

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH
MAY

YEAR
1977

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
04	0416	si	
04	07XX	pg	
08	03XX	pc5	
08	11XX	pi2	With small bay
18	19XX	pc3, pc4	
19	10XX	pi2	
19	12XX	pi2	
21	00XX	pc3, pc4	
22	1856	si	
28	0425	si	
IDENTIFIED BY: JEP			VERIFIED BY: JBT

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

PRINCIPAL MAGNETIC STORMS

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA

MAY

19 77

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 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	01	20XX	..	..	..	..	02	4,5,6	7	347	1670	1210	03	13
		11	06XX	..	..	..	..	11 12	5 2,3	6 6	226	1340	1040	12	14

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASILINE
D	0000 U.T., 5-1-77	2400 U.T., 5-31-77	1.0/mm	3.88/mm	28° 07.0 E
H	0000 U.T., 5-1-77	2400 U.T., 5-8-77	7.88/mm		127548
	0000 U.T., 5-9-77	2400 U.T., 5-31-77	7.88/mm		127608
Z	0000 U.T., 5-1-77	2400 U.T., 5-31-77	7.78/mm		551318

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASILINE
D	0000 U.T., 5-1-77	2400 U.T., 5-31-77	7.9/mm	29.88/mm	24° 23.6 E
H	0000 U.T., 5-1-77	2400 U.T., 5-31-77	44.18/mm		115048
Z	0000 U.T., 5-1-77	2400 U.T., 5-31-77	48.98/mm		539998

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 U.T., 5-1-77	2400 U.T., 5-31-77	0.3/mm	1.08/mm
H	0000 U.T., 5-1-77	2400 U.T., 5-31-77	1.08/mm	
Z	0000 U.T., 5-1-77	2400 U.T., 5-31-77	2.48/mm	

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 19.0 E	130538	553668

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAY 7, 8, 13, 19, 21, 23, 25, 26, 27, 29

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

E	OBSY.	YEAR	MONTH	ELE-
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CO	77	MAY	D
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Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, 11 hour 01 of local day (1500W.T.) is hour 11 of the SAME universal day. Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

Smallage corrections have been applied. Negative values are in red. With minus signs shown.																														
C	Q	at	Yes	Q	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM	
				01	18	26	41	87	97	110	116	103	103	113	116	150	02	136	161	163	173	171	211	201	199	75	-34	28	16	2580
				02	-33	-7	44	3	77	214	92	41	*-85	*-109	105	163	02	75	613	*343	*161	*264	*312	*216	*110	236	19	-66	13	2807
				03	43	79	66	56	49	-14	31	69	153	*74	185	129	03	107	111	129	150	177	197	198	172	136	96	76	79	2548
				04	74	84	96	106	118	126	121	111	91	111	114	127	04	130	156	191	224	286	297	295	185	59	35	70	56	3263
				05	41	59	70	96	111	70	167	101	50	143	122	121	05	131	161	196	193	181	191	178	136	66	65	53	27	2729
				06	47	60	23	103	103	99	82	69	77	60	164	164	06	126	160	227	268	275	220	190	159	112	64	16	24	2892
				07	30	27	46	61	91	109	173	131	100	93	103	93	07	103	122	147	170	192	211	214	197	176	107	37	27	2760
				08	42	56	70	82	111	109	107	109	110	97	100	133	08	150	140	166	201	215	207	199	179	141	99	76	60	2959
				09	51	42	50	54	77	111	99	96	103	142	166	100	09	138	137	177	223	241	198	156	156	122	114	84	91	2928
				10	99	94	93	86	95	101	93	101	-5	117	132	113	10	162	149	157	204	224	216	186	141	149	117	76	58	2958
				11	67	59	57	47	52	56	53	26	178	67	117	103	11	121	199	400	*496	*456	*416	293	52	18	-6	-4	17	3340
				12	43	49	50	19	-44	*-76	*-409	*-124	27	34	-20	11	12	130	142	190	207	224	206	164	150	117	94	86	84	1354
				13	83	89	90	112	120	122	114	109	123	124	120	102	13	110	137	171	201	200	196	192	160	87	47	21	17	2847
				14	37	57	61	31	57	74	97	56	31	28	114	120	14	124	151	181	202	203	231	211	187	130	98	53	16	2550
				15	53	39	53	66	82	89	81	93	82	-18	*156	151	15	354	386	210	331	250	238	227	153	101	87	82	67	3419
				16	75	52	-23	-19	40	79	73	101	123	111	142	122	16	137	95	216	217	209	243	112	118	142	143	89	51	2648
				17	11	-3	23	13	72	47	54	103	127	*93	89	133	17	82	142	155	239	161	156	173	110	117	121	77	69	2364
				18	38	45	32	21	51	182	82	75	98	97	97	8	18	106	117	169	191	199	202	177	148	117	100	79	67	2498
				19	59	57	82	102	111	118	119	111	109	107	117	110	19	136	139	157	189	217	224	203	176	120	93	78	64	2998
				20	54	53	27	38	23	59	96	69	98	77	93	101	20	153	131	172	182	251	239	258	190	66	31	6	11	2478
				21	12	35	53	81	102	117	110	111	106	105	122	109	21	103	113	144	171	212	222	207	181	141	111	91	68	2821
				22	61	42	56	67	37	113	156	106	116	137	127	126	22	80	88	118	173	203	220	196	173	151	130	103	82	2861
				23	71	61	67	91	91	116	106	102	92	90	97	101	23	109	137	131	194	221	214	200	181	152	130	90	59	2903
				24	48	48	53	71	121	112	92	101	124	103	93	58	24	106	114	162	183	201	213	200	132	112	71	48	37	2603
				25	42	51	67	100	109	117	100	111	138	92	106	103	25	91	84	109	152	198	202	203	186	143	102	82	76	2769
				26	80	81	88	92	98	107	114	112	111	111	110	116	26	122	131	147	161	194	200	182	159	127	113	104	79	2939
				27	77	93	104	103	110	117	110	92	97	119	103	111	27	124	151	168	197	202	199	187	160	123	95	80	77	2999
				28	70	78	81	77	61	70	80	86	81	62	105	117	28	150	146	188	190	200	209	203	150	103	104	89	90	2790
				29	93	89	77	71	86	99	101	109	110	112	118	120	29	130	149	168	189	208	206	210	192	149	109	73	71	3039
				30	63	60	68	79	90	98	109	99	91	69	78	154	30	130	141	168	209	238	238	224	192	150	109	70	57	2984
				31	66	56	55	39	-5	27	59	82	168	49	71	66	31	70	145	142	181	212	230	210	171	130	104	96	20	2444

SCALED BY	SPT, MJM, JEP
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CHECKED BY	MTM JEP
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SIGNS RE- VIEWED BY	MM
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PUNCHED
BY

Preliminary base-line and scale values:

Interval
BeginningBase-line
ValueScale
Value

() interpolated

☐ Significant portion of
how 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 off sheets for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM	86078
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MONTHLY MEAN	116
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DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY. YEAR MONTH ELEMENT
CO 77 MAY H

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (1500W.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q	m	Sec	Q	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
					01	379	351	394	437	420	379	390	401	400	406	393	369	01	333	350	369	307	350	380	369	330	287	299	341	324	8758
					02	477	659	471	540	592	480	556	559	364	373	133	-25*	02	180	-496*	-226*	-683*	-406*	-571*	-259*	7	104	169	349	418	3534
					03	454	460	487	510	552	591	480	315	18*	215	97*	-5*	03	383	401	419	416	417	410	402	390	388	379	369	372	8920
					04	376	380	386	380	387	380	389	396	416	411	410	402	04	433	434	420	417	401	366	284	296	366	351	339	347	9167
					05	379	400	427	379	381	436	487	406	329	396	409	391	05	350	329	359	359	356	356	329	319	340	340	366	364	8987
					06	408	369	454	424	360	366	393	420	400	413	125	194	06	210	103	83	76	254	379	377	359	341	330	344	361	7543
					07	380	384	419	407	399	386	394	400	387	392	393	386	07	379	384	385	370	363	363	350	331	311	310	350	371	8994
					08	376	379	381	380	380	392	390	387	390	396	399	366	08	356	371	376	384	390	382	370	356	344	344	347	361	8997
					09	361	376	377	383	397	380	391	400	409	410	363	349	09	374	376	396	343	224	316	371	374	372	370	362	364	8838
					10	364	370	370	382	386	391	410	463	252	309	304	339	10	277	333	323	267	317	390	380	386	370	369	351	371	8474
					11	391	386	371	380	399	431	500	544	164	216	416	439	11	316	186	-54*	-183*	-69	5	152	214	329	364	386	388	6671
					12	384	384	416	466	649	911	824	504	472	451	389	343	12	298	305	340	374	364	358	966	367	359	361	361	363	10409
					13	358	373	378	394	390	595	370	376	392	369	332	396	13	384	381	380	579	379	366	344	309	300	353	352	356	8806
					14	359	367	389	417	389	400	391	430	517	508	433	397	14	379	333	307	349	376	366	369	356	350	338	329	341	9190
					15	426	449	497	406	349	351	370	387	403	167*	-64*	-101	15	-77	-150*	86	201	374	396	356	339	344	359	361	391	6620
					16	392	402	514	570	632	549	597	413	400	321	297	283	16	149	204	300	360	397	256	181	361	353	339	357	371	8998
					17	409	516	599	561	644	577	588	324	191	420	303	-31	17	287	398	343	206	257	284	291	358	384	369	361	378	9017
					18	381	379	416	437	444	464	464	396	431	416	362	-11	18	302	384	361	389	401	376	386	379	359	341	344	366	8967
					19	370	393	356	376	390	381	381	383	387	386	385	389	19	358	384	386	381	356	363	346	344	343	343	350	359	8890
					20	363	364	417	420	451	430	408	411	416	400	391	312	20	195	315	340	383	340	339	365	343	320	327	323	343	8716
					21	360	369	381	369	371	373	390	386	389	391	353	400	21	396	391	387	386	389	390	383	383	371	356	350	351	9065
					22	359	374	380	386	469	416	494	409	399	381	366	366	22	369	400	400	403	406	400	393	383	363	354	353	356	9379
					23	376	350	389	387	409	381	391	398	397	391	412	369	23	396	386	370	292	380	390	384	381	376	360	361	360	9086
					24	363	389	401	410	420	391	400	401	406	394	396	403	24	382	385	394	400	393	343	363	350	346	339	341	350	9160
					25	356	377	380	397	380	366	394	398	376	390	384	390	25	406	402	406	334	380	387	384	379	369	367	366	360	9128
					26	361	362	370	377	376	380	380	385	389	389	389	386	26	383	386	389	383	391	397	384	373	373	367	367	350	9087
					27	360	361	369	371	367	385	389	399	394	400	396	399	27	393	387	390	389	388	380	371	368	359	359	358	359	9091
					28	369	364	364	369	388	381	388	399	427	489	453	178	28	343	389	410	416	416	398	370	374	369	372	380	389	9195
					29	389	388	388	382	383	379	380	382	389	392	397	397	29	399	402	406	406	398	384	377	365	360	369	369	368	9249
					30	375	379	380	388	396	408	409	416	407	411	381	236	30	286	379	409	415	414	398	379	364	359	358	368	381	9096
					31	377	399	399	382	459	481	523	460	433	416	396	406	31	385	188	386	398	403	415	412	409	380	363	353	347	9570

SCALED BY: SPT, MJM, JEP
 CHECKED BY: MJM, JEP
 SIGNS REVIEWED BY: MJM
 PUNCHED BY:

Preliminary base-line and scale values:
 Interval Beginning Base-line Value Scale Value

() Interpolated
 [] Significant portion of hour interpolated.
 [] No record; or no values available because of faulty record.
 * Derived from STORM Mgh., converted to Normal Mgh.

[] Scaling uncertain because of magnetic storm.
 <> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM 269602
 MONTHLY MEAN 362
 DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISIONOBSY. CO 77 MAY 2
YEAR MONTH ELEMENTValues are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500 M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

Average Collections over 24 months applied. Negative values are in red. With minus sign shown.																														
C	Q or S	Tr	Q	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
			01	310	321	330	344	330	333	327	314	329	316	313	276	01	250	244	290	276	279	291	283	296	257	234	288	316	7147	
			02	334	316	361	396	383	289	326	237	182	335	464	336*	02	212	757*	195*	400*	578*	514*	179	204	327	302	277	324	8228	
			03	381	379	346	378	310	316	336	367	476	247	440	439	03	266	278	302	329	340	338	328	320	315	310	312	313	8166	
			04	311	316	316	315	314	316	314	314	321	323	309	291	04	301	318	317	316	310	293	298	234	217	246	279	287	7176	
			05	300	316	325	329	316	316	368	322	229	250	288	309	05	293	269	279	282	278	287	266	264	264	286	316	322	7074	
			06	329	324	332	366	340	316	310	327	326	312	338	143	06	200	291	248	261	174	271	294	306	309	306	301	320	7044	
			07	334	341	342	340	330	331	351	304	317	311	316	302	07	296	313	315	312	300	294	296	296	297	291	288	297	7514	
			08	309	318	323	323	328	321	313	316	311	314	324	299	08	255	254	277	290	294	294	296	295	288	284	289	297	7212	
			09	310	317	320	323	341	351	332	320	327	298	250	260	09	286	294	309	294	227	206	250	289	288	296	298	300	7086	
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			11	347	350	333	317	312	329	347	253	281	316	329	328	11	338	457	406*	375*	560*	331*	120	141	197	256	297	304	7624	
			12	509	321	317	344	266	128*	-49	116	247	276	212	347	12	386	329	314	316	318	309	305	313	305	309	319	317	6418	
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			17	318	346	370	367	362	366	406	192	151	299	261	89	17	117	272	270	275	236	213	239	273	287	306	307	324	6646	
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			22	304	303	306	307	296	359	370	361	342	311	256	270	22	229	297	316	329	327	307	300	300	299	299	303	309	7400	
			23	307	313	309	324	316	326	317	310	307	305	307	256	23	297	306	304	250	249	293	301	291	287	297	304	316	7232	
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			25	306	322	326	332	327	320	308	336	330	303	302	280	25	274	300	309	310	290	307	309	300	297	299	299	304	7390	
			26	309	308	308	307	306	306	310	307	307	307	307	308	26	308	309	312	310	304	297	296	288	276	286	295	296	7267	
			27	295	300	300	304	307	311	317	314	311	310	317	313	27	306	300	301	307	312	309	303	296	298	299	299	296	7325	
			28	288	292	298	299	297	303	309	307	312	326	328	254	28	233	261	279	308	321	319	319	297	289	296	289	289	7113	
			29	296	299	299	299	302	306	306	307	306	306	302	300	29	300	306	307	306	305	300	299	298	292	286	287	294	7208	
			30	299	298	299	299	300	308	319	332	332	309	299	227	30	163	248	299	309	315	309	300	292	289	289	288	289	7011	
			31	298	300	320	330	343	416	431	378	299	303	315	310	31	302	250	241	290	308	301	299	301	309	305	311	310	7570	

SCALED BY SPT, MJM, JEP

CHECKED BY MJM, JEP

SIGNS REVIEWED BY MJM

PUNCHED BY

Preliminary base-line and scale values:

Interval
BeginningBase-line
ValueScale
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

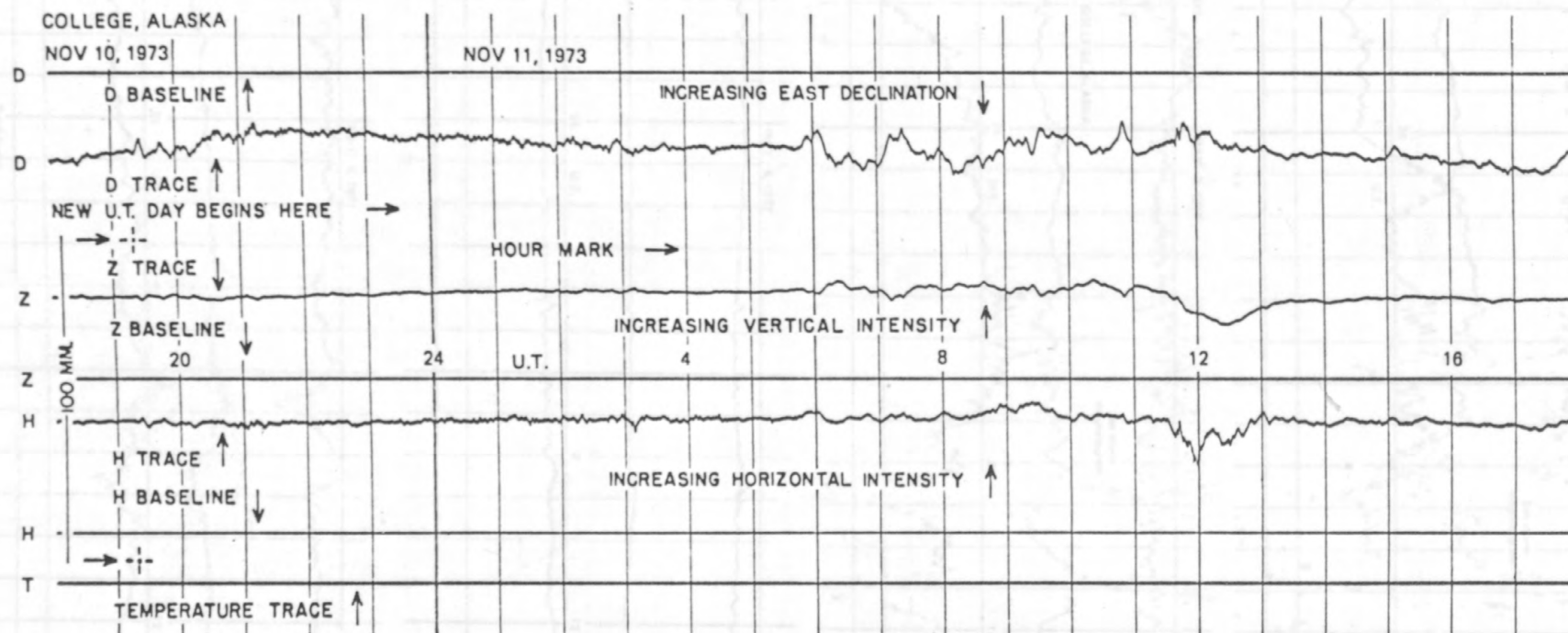
MONTHLY MEAN

DATES WITH GAPS:

225670

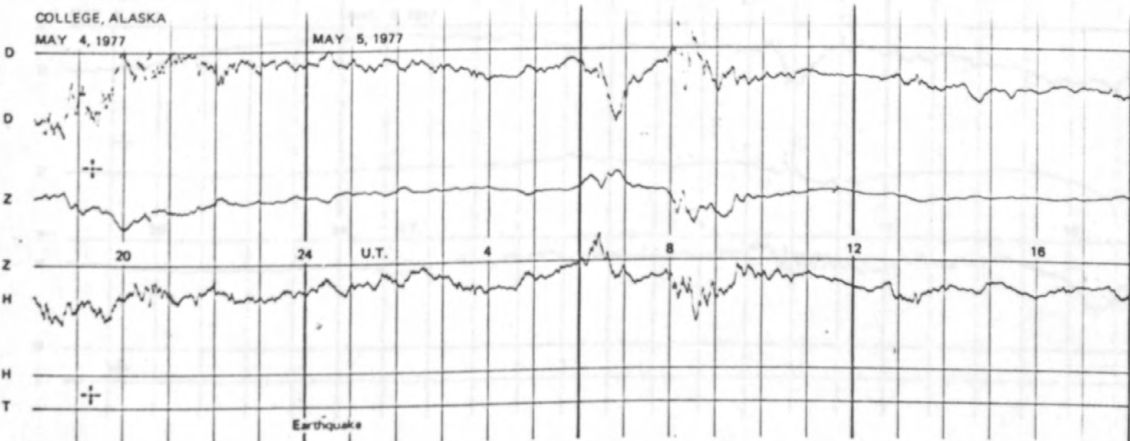
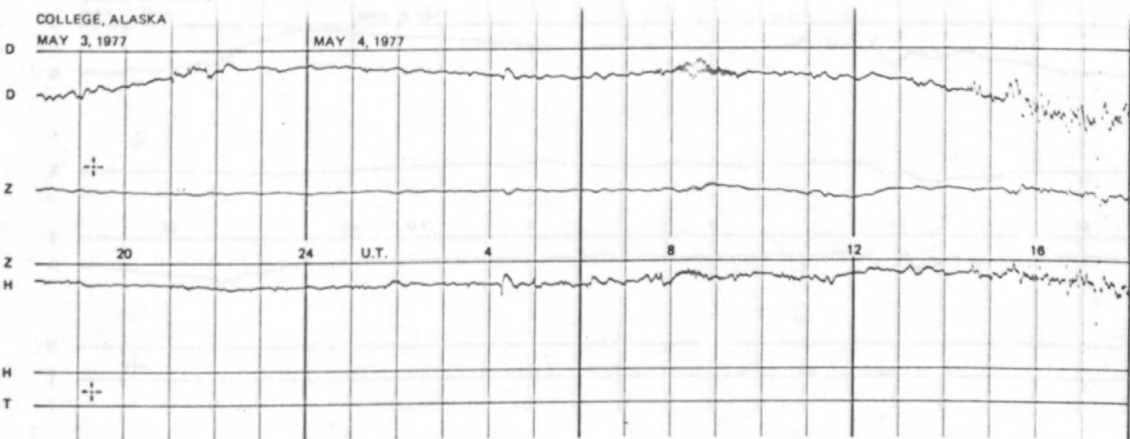
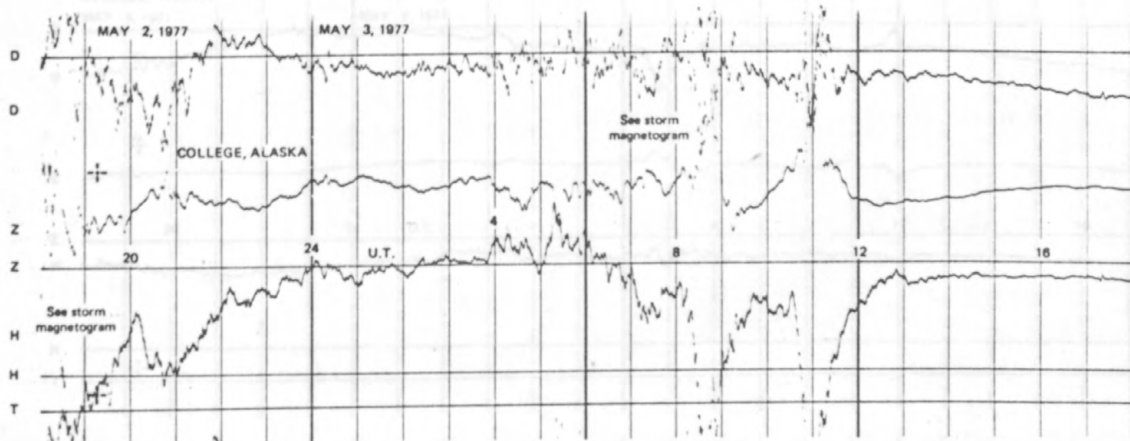
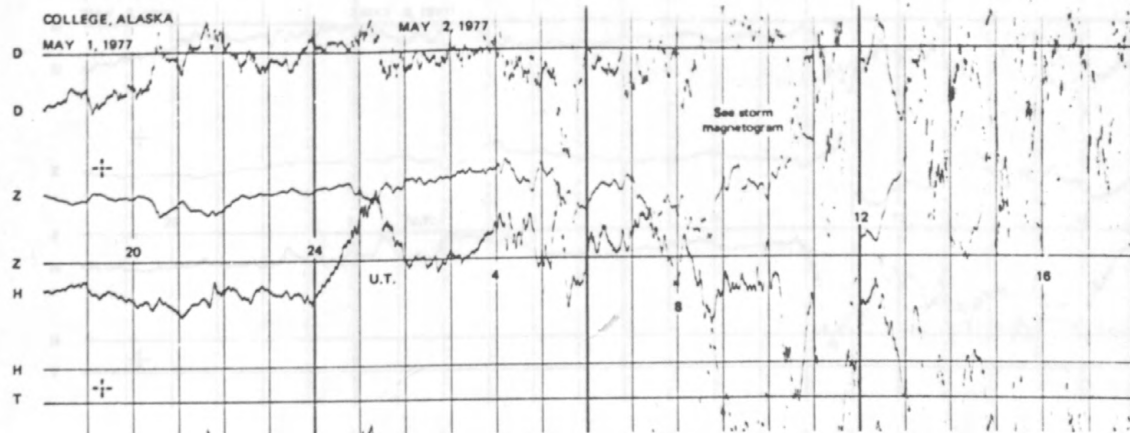
303

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

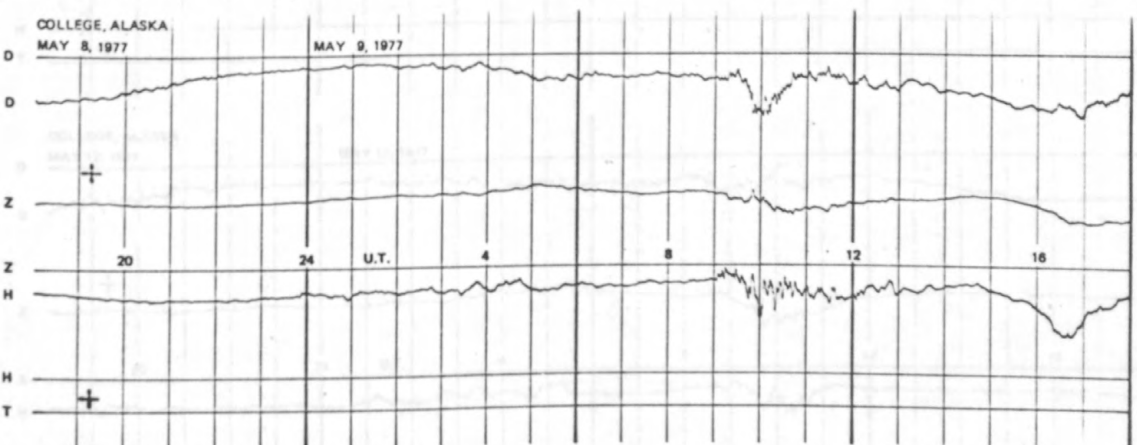
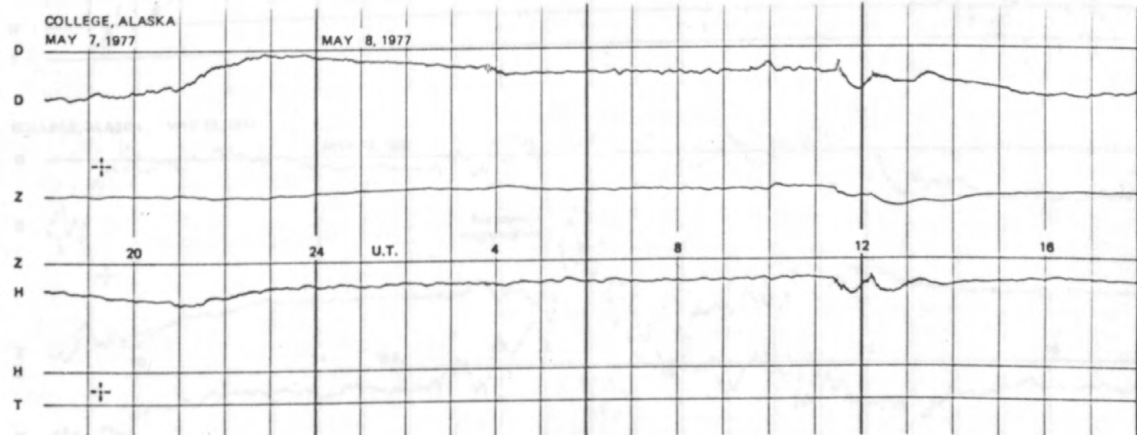
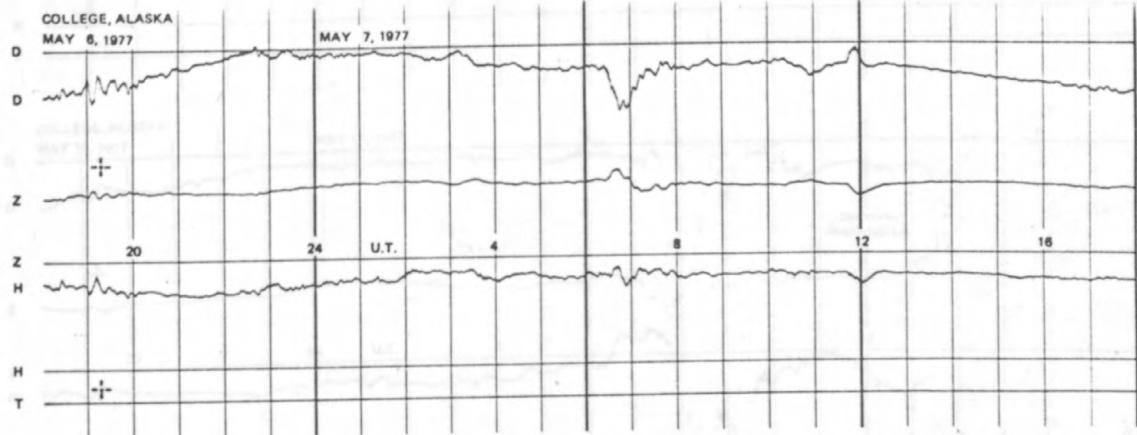
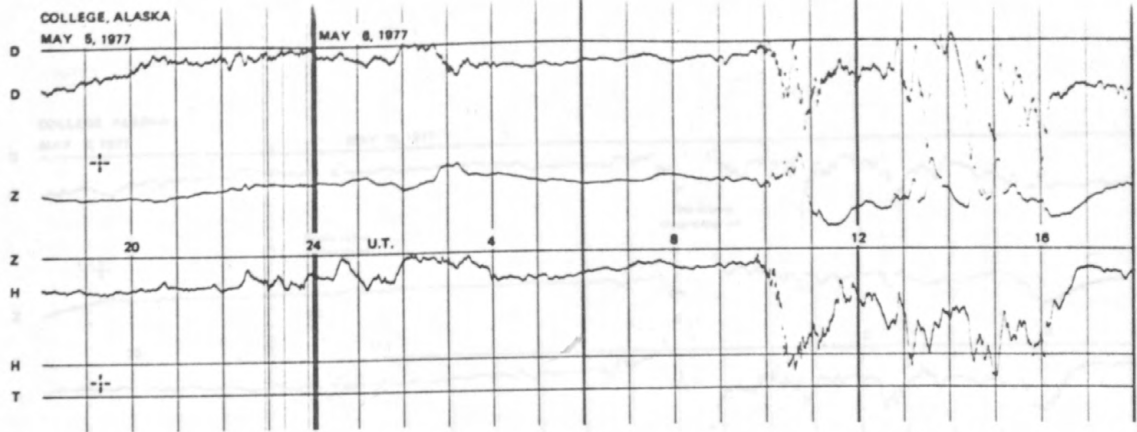


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

NORMAL MAGNETOGRAMS

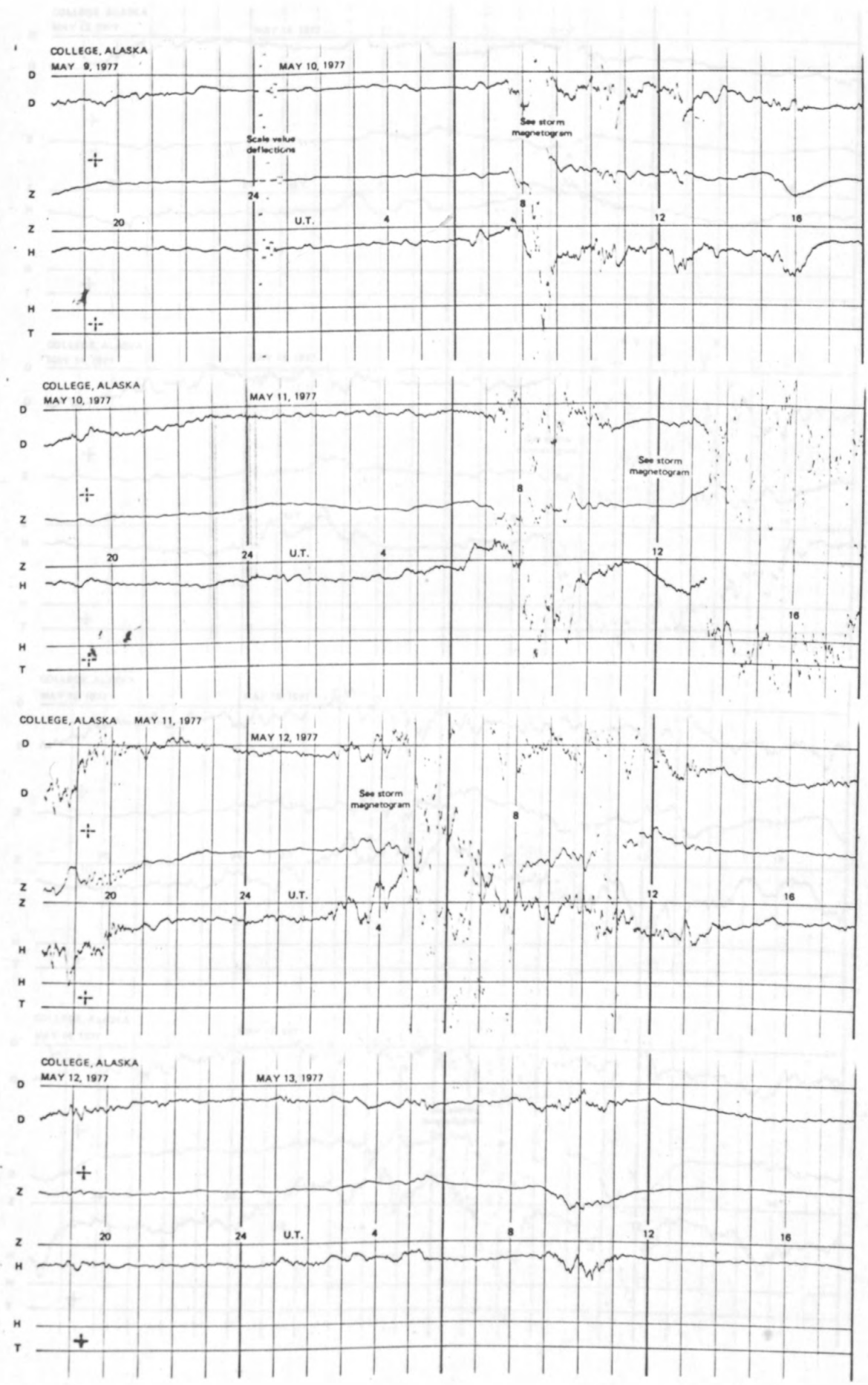


NORMAL MAGNETOGRAMS

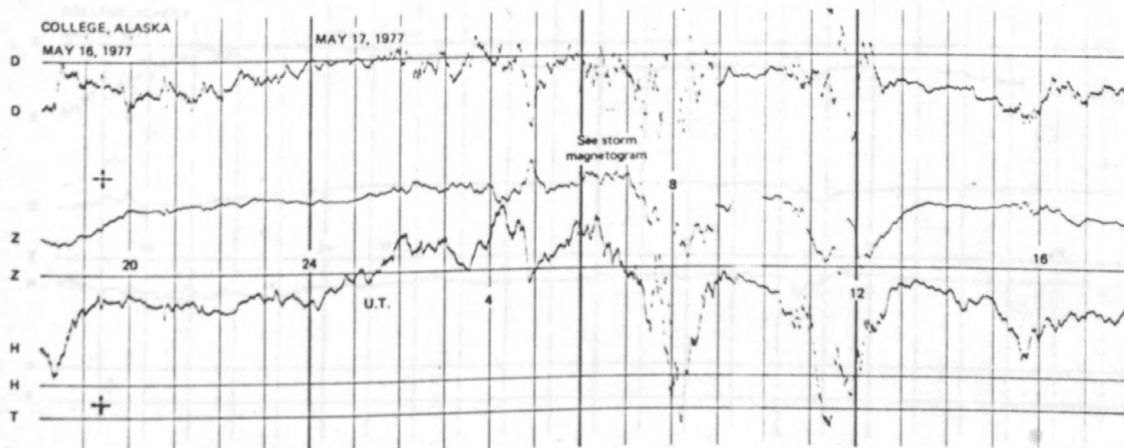
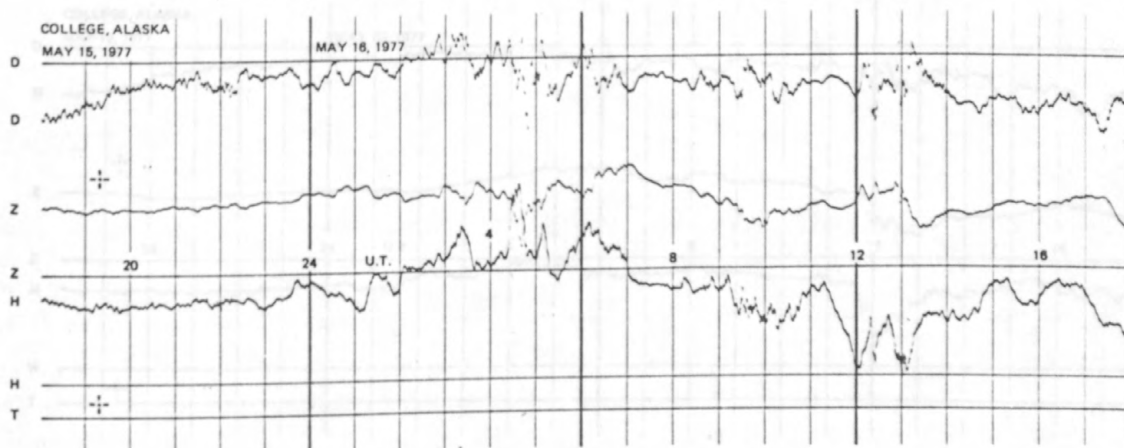
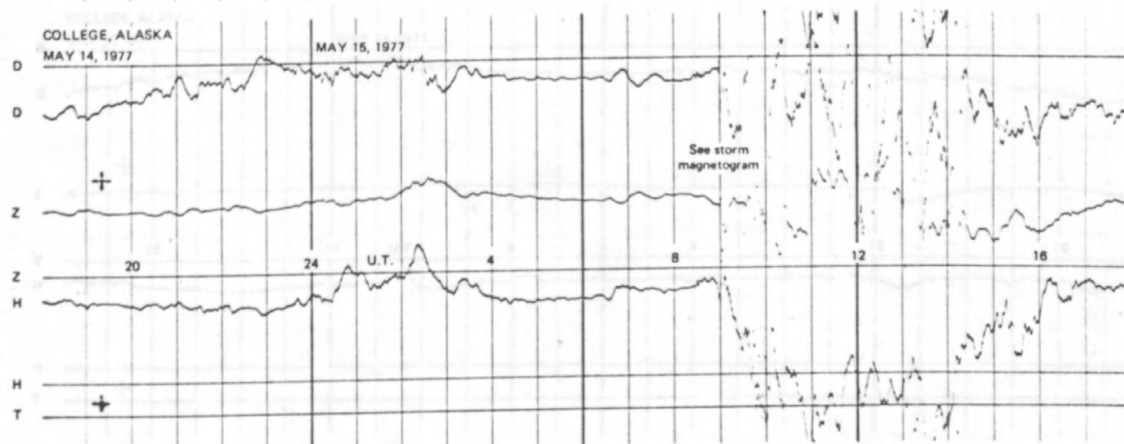
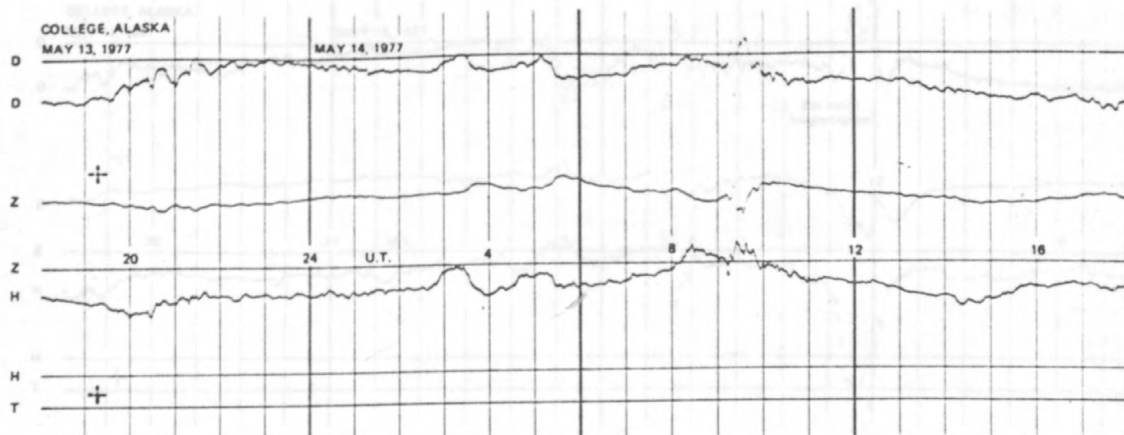


NORMAL MAGNETOGRAMS

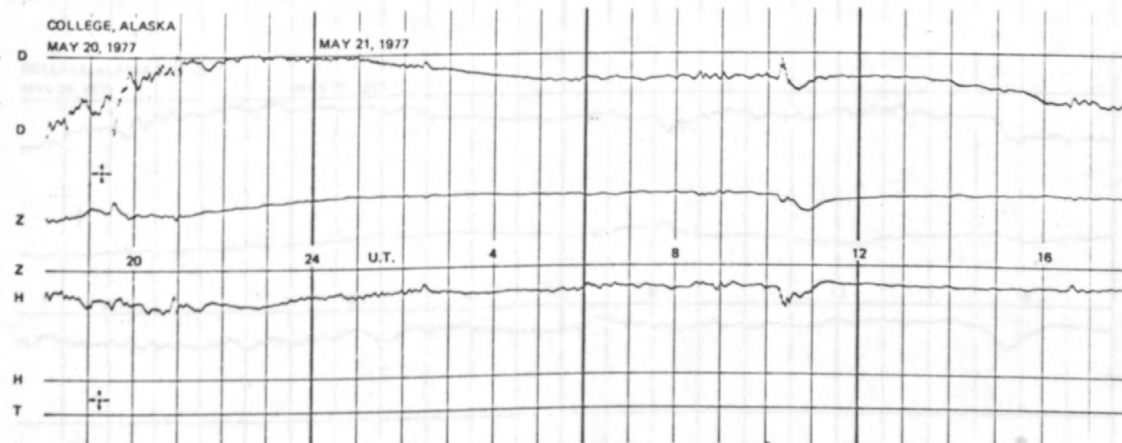
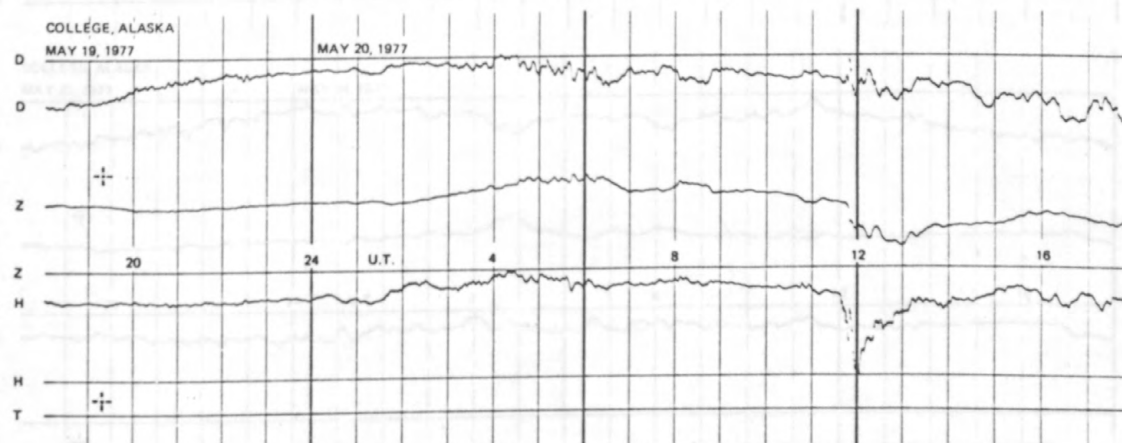
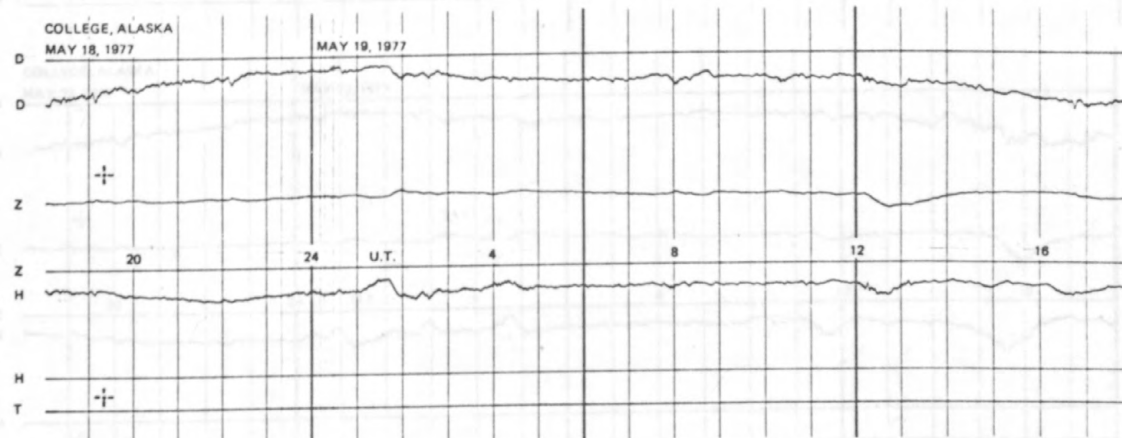
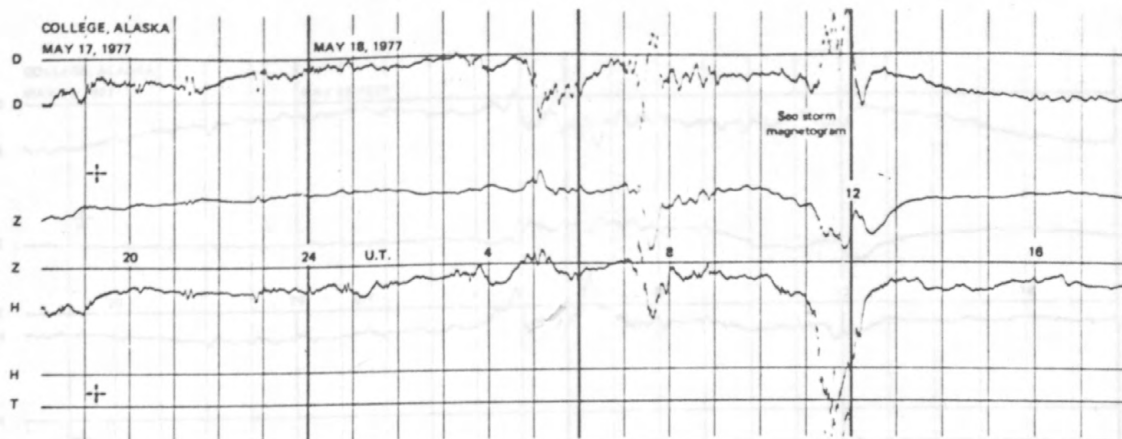
200 mm
100 mm
0



NORMAL MAGNETOGRAMS

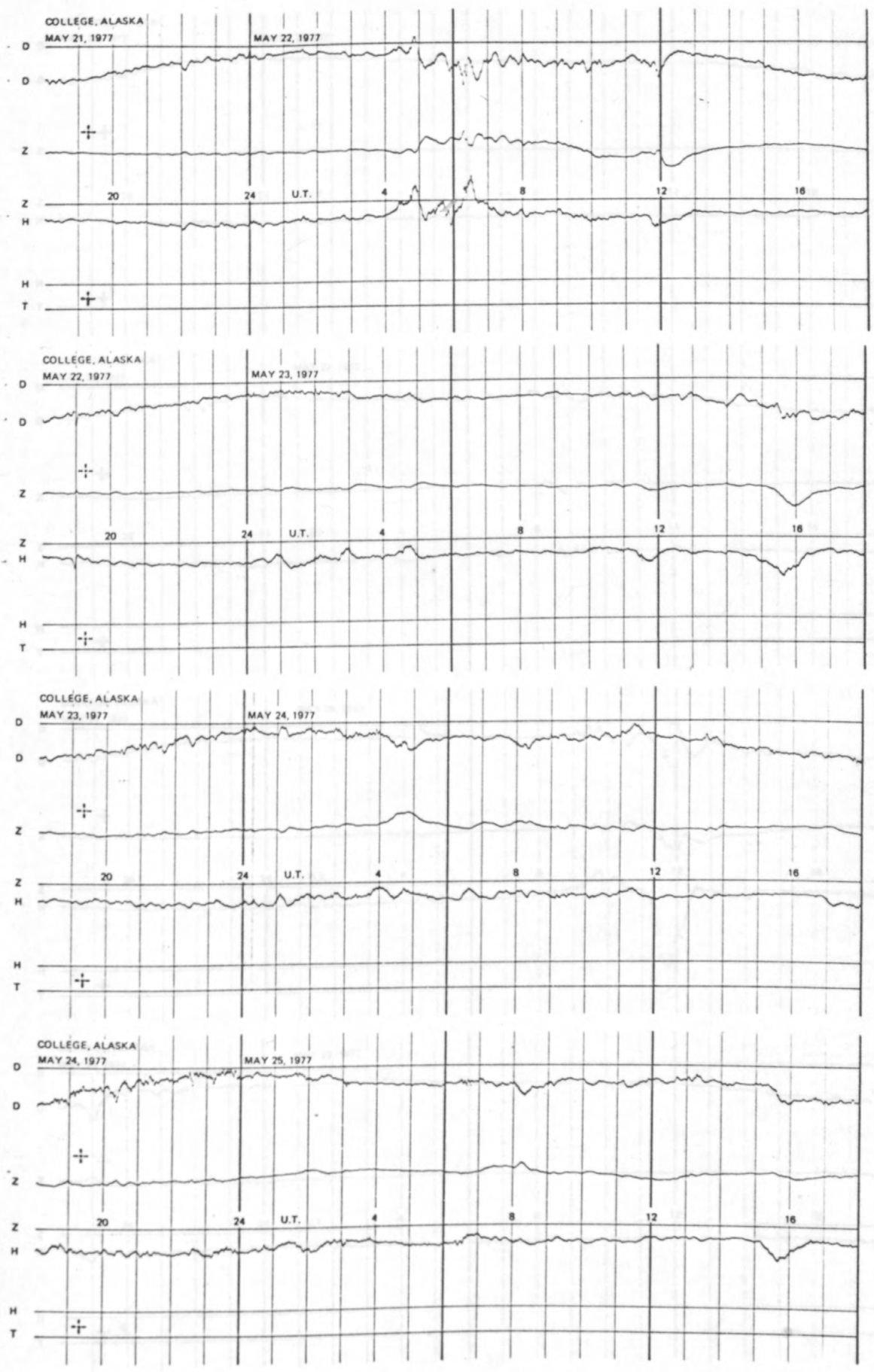


NORMAL MAGNETOGRAMS

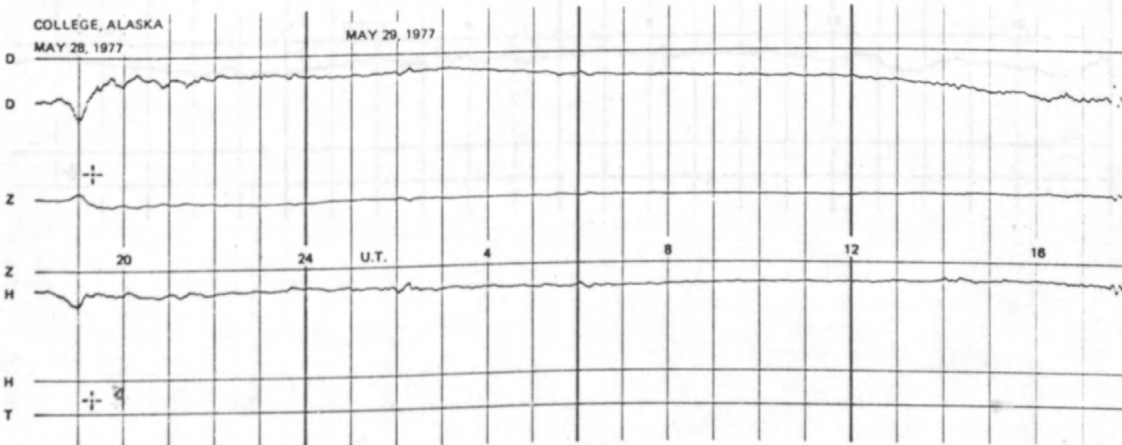
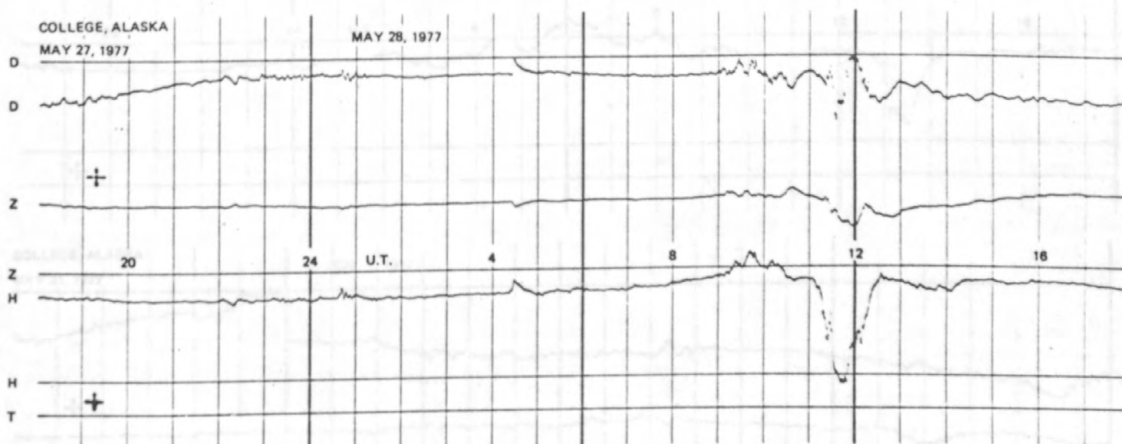
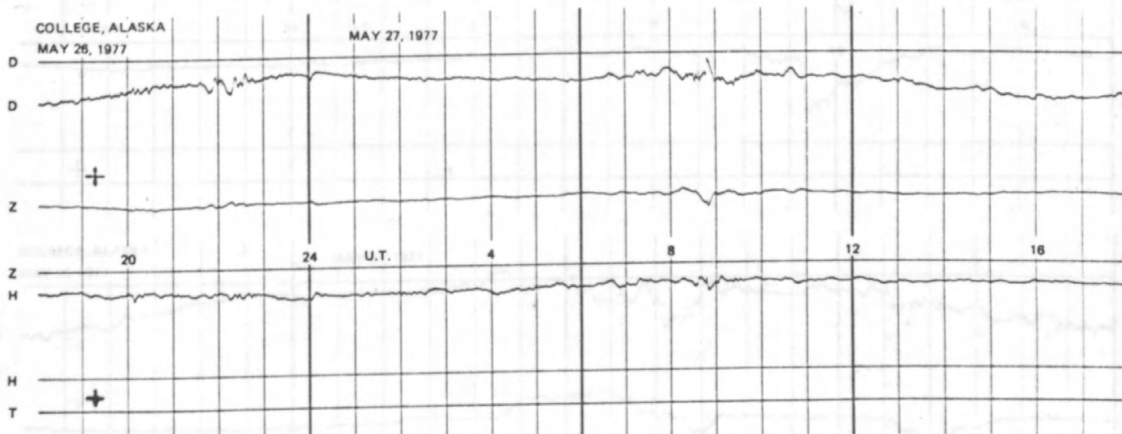
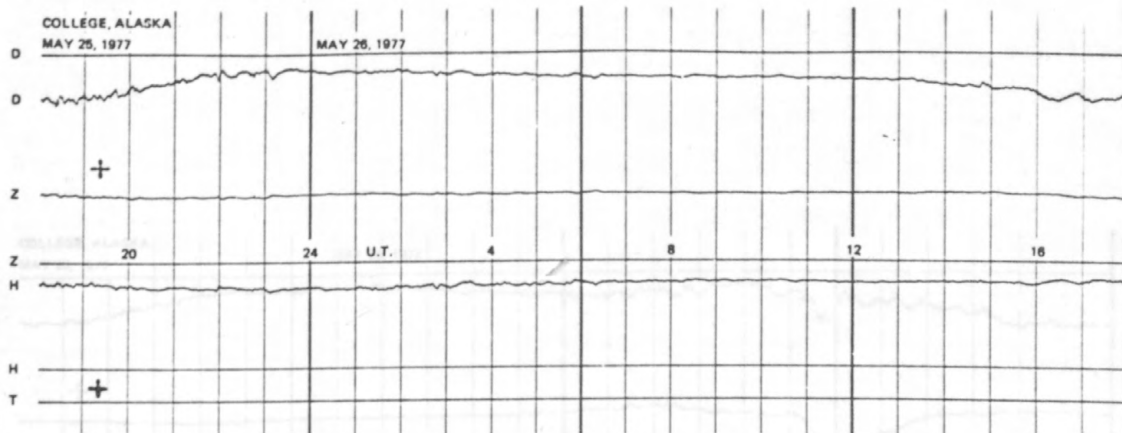


NORMAL MAGNETOGRAMS

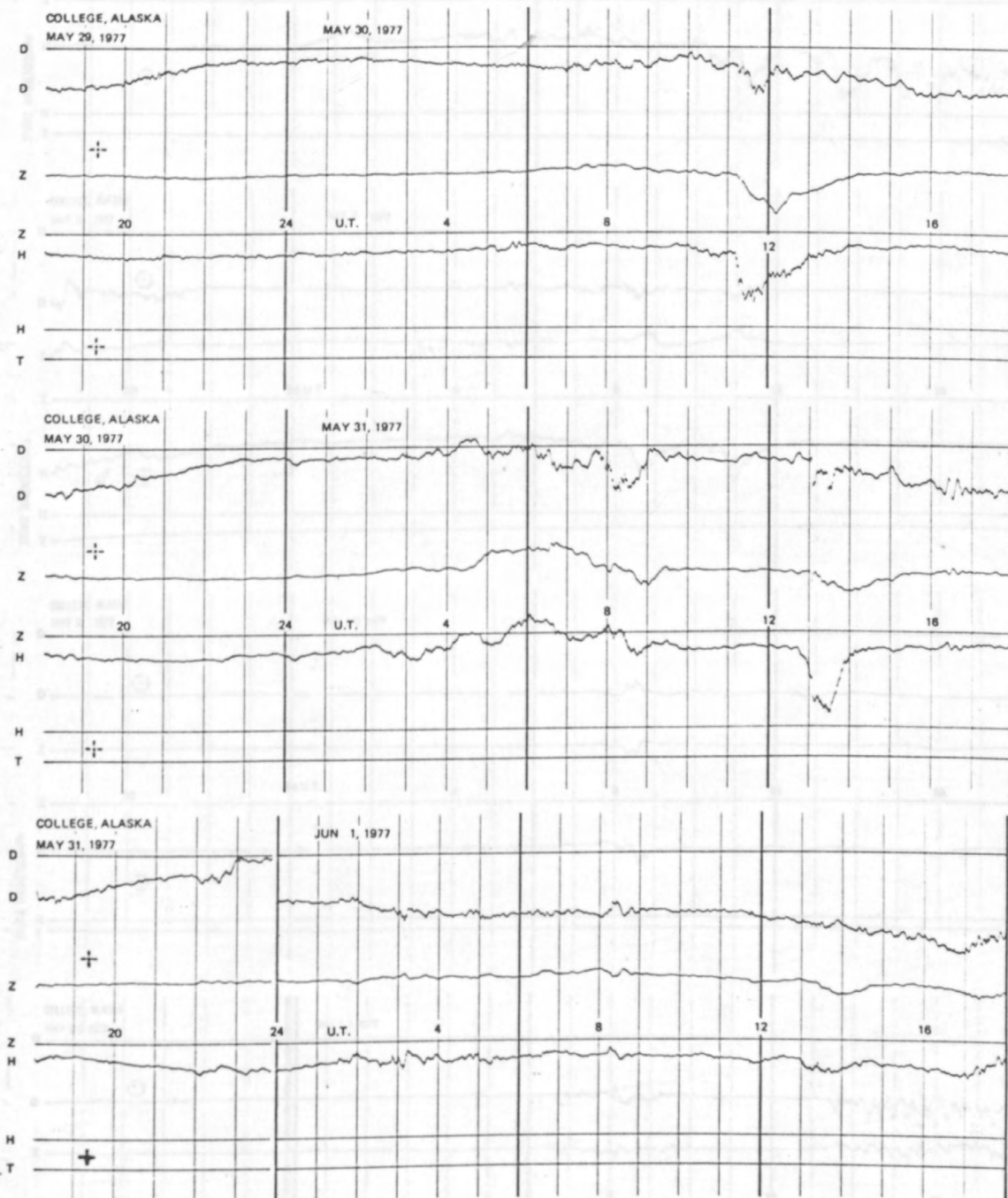
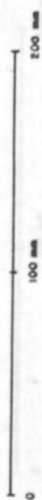
200 mV
100 mV
0



NORMAL MAGNETOGRAMS

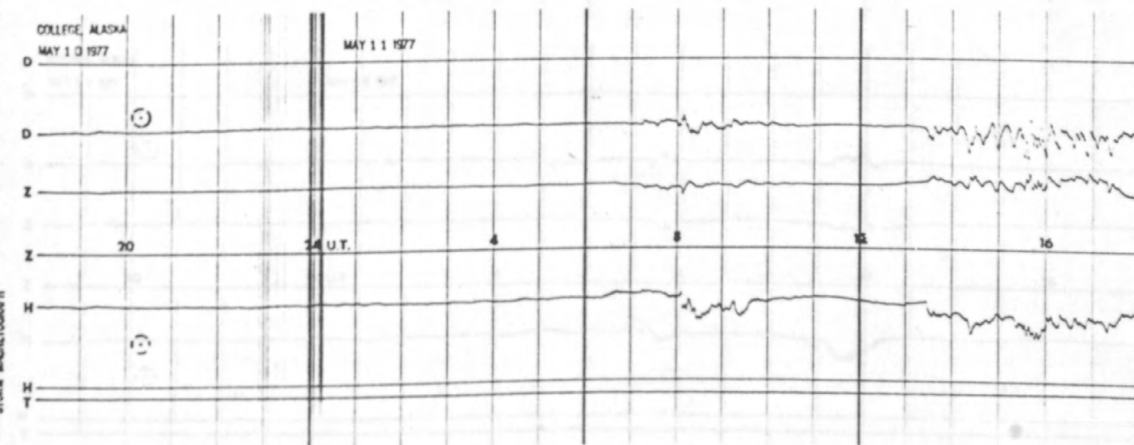
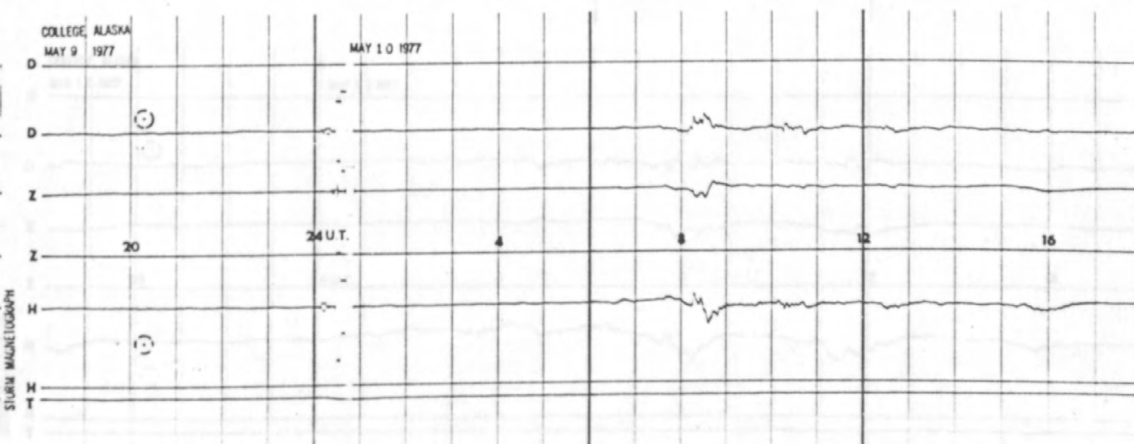
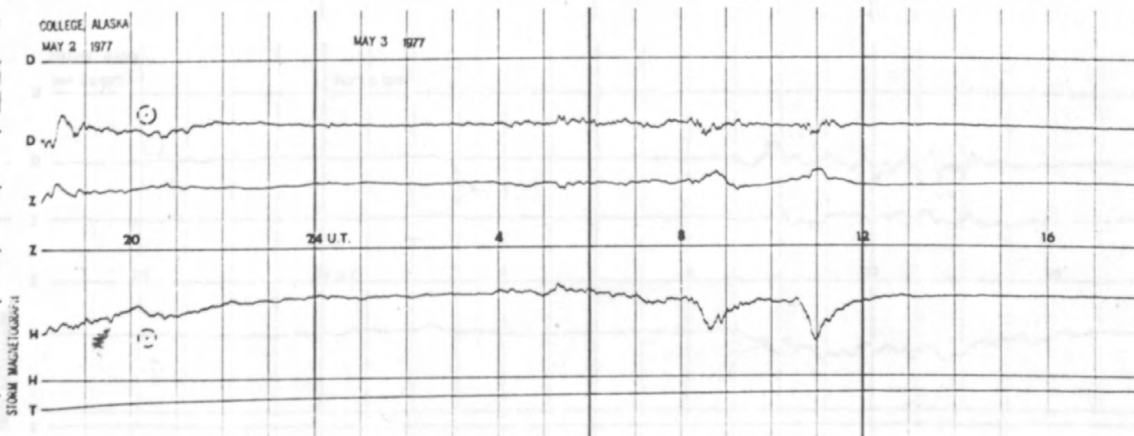
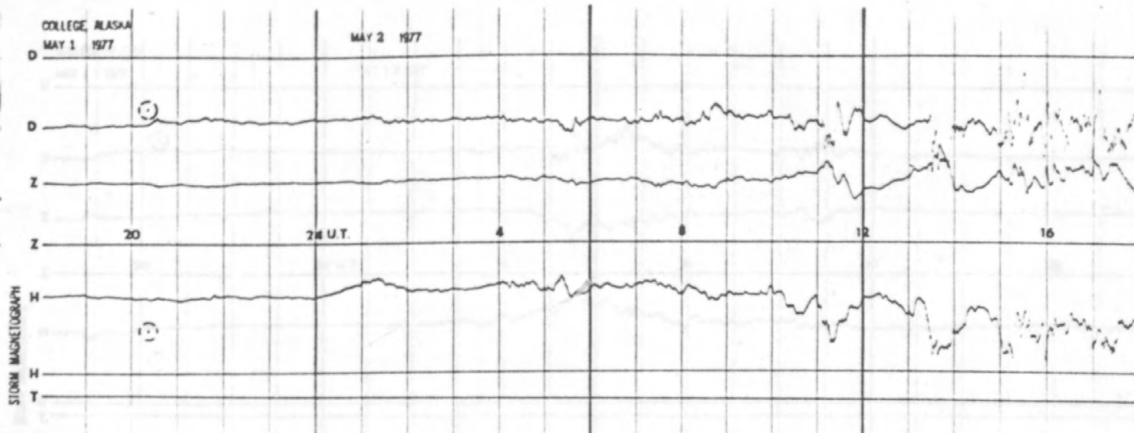


NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

200 mm
100 mm
0



STORM MAGNETOGRAMS

200 mm
100 mm
0

