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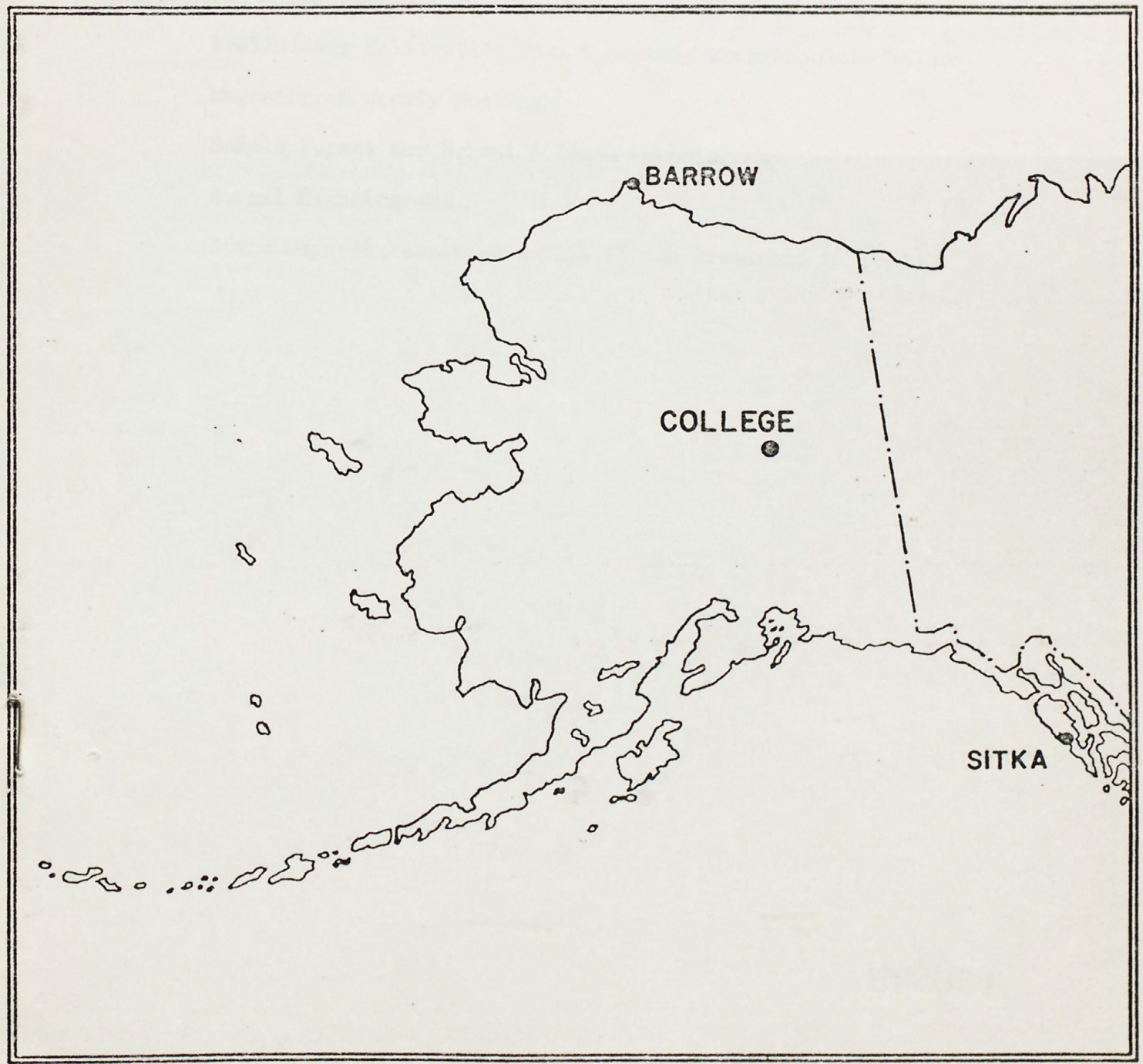
## GEOLOGICAL SURVEY. [Reports - Open file series]

### PRELIMINARY GEOMAGNETIC DATA COLLEGE OBSERVATORY FAIRBANKS, ALASKA

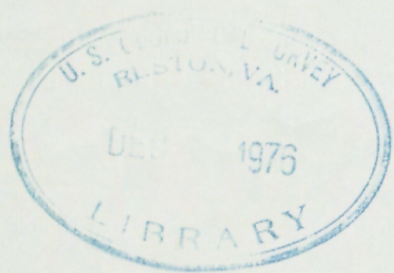
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AUGUST 1976

OPEN FILE REPORT 76-300H









ORDER OF CONTENTS

Explanation of Data & Reports

Magnetic Activity Report

Outstanding Magnetic Effects

Principal Magnetic Storms

Preliminary Calibration Data & Monthly Mean Absolute Values

Magnetogram Hourly Scalings

Sample Format for Normal & Storm Magnetogram

Normal Magnetograms

Storm Magnetograms(When Normal is too disturbed to read)

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

OBSERVATORY LOCATION

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

The College Observatory, operated by the U. S. Geological Survey, is located at the University of Alaska, Fairbanks, Alaska. It is near the Auroral Zone and the northern limit of the world's greatest earthquake belt, the circum-Pacific Seismic belt. Although the observatory's basic operation is in geomagnetism and seismology, it cooperates with other scientists and organizations in areas where the facility and personnel can be of service.

The observatory is one of three operated by the USGS in Alaska. The others are located at Barrow and Sitka.

The position of the observatory site is:

Geographic latitude.....64°51.6'N  
Geographic longitude.....147°50.2'W  
Geomagnetic latitude.....+64.6°  
Geomagnetic longitude.....+256.5°  
Elevation.....200 meters

GEOMAGNETIC DATA

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

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

AUGUST 1976

DATE	K-INDICES								SUM	AK	TIME SCALE ON MAGNETOGRAMS  20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24			
1	2	2	4	3	2	2	2	2	19	11	SUDDEN COMMENCEMENTS d h m
2	2	2	3	3	2	0	0	1	13	07	
3	1	3	3	1	3	5	1	1	18	13	
4	1	1	1	3	4	1	0	1	12	07	
5	2	1	1	2	3	3	1	1	14	07	
6	1	1	3	1	1	1	1	1	10	05	
7	1	1	4	4	5	0	1	1	17	14	
8	1	2	0	0	0	1	1	0	05	02	
9	1	2	6	6	6	1	1	1	24	32	
10	3	5	0	5	4	3	0	1	21	20	
11	2	2	3	3	2	2	1	1	16	08	
12	0	1	0	2	1	1	1	1	07	03	
13	1	1	0	3	0	0	0	1	06	03	
14	2	1	0	3	5	0	0	0	11	09	
15	0	0	0	1	0	1	1	1	04	02	
16	1	0	0	4	6	2	1	1	15	15	
17	2	2	0	0	1	1	1	1	08	03	
18	1	2	0	1	1	0	1	0	06	02	
19	1	1	2	1	3	1	1	1	11	05	
20	1	2	1	1	1	1	1	0	08	03	
21	1	1	3	6	3	2	1	1	18	16	
22	2	1	0	4	2	1	0	0	10	06	
23	1	1	5	6	6	7	3	3	32	48	
24	3	4	5	6	4	5	3	2	32	33	
25	3	3	5	5	6	5	4	2	33	36	
26	4	3	5	6	5	3	2	2	30	31	
27	3	1	1	7	3	5	2	2	24	30	
28	2	1	3	5	5	3	2	1	22	18	
29	2	1	3	2	3	2	1	1	15	08	
30	1	2	1	3	2	1	1	1	12	06	
31	0	0	2	3	4	3	2	1	15	09	

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.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

# OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY  
COLLEGE, ALASKA

MONTH  
AUGUST

YEAR  
1976

DATE	TIME U.T.	NATURE OF PHENOMENON <sup>1</sup>	REMARKS
06	00XX	pc4	
06	21XX	pc4	
12	10XX	pi2	with small bay
13	11XX	pi2	with small bay
18	10XX	pi2	
19	12XX	pi2	with bay
20	13XX	pi2	
21	12XX	pg	
29	13XX	pi2	
30	07XX	pi2	
31	16XX	pg	

IDENTIFIED BY: MJM, JEP

VERIFIED BY: JEP

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

PRINCIPAL MAGNETIC STORMS

WDC-A FOR SOLAR-TERRRESTRIAL PHYSICS  
ENVIRONMENTAL DATA SERVICE, NOAA  
BOULDER, COLORADO 80302 U.S.A.

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA  
AUGUST 1976

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	09	06XX	..	..	..	..	09	3,4,5	6	144	1070	530	09	15
		23	06XX	..	..	..	..	23	6	7	219	1460	970	26	18

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-76	2400 U.T., 8-31-76	1.0/mm	3.88/mm	28° 07.2 E
H	0000 U.T., 8-1-76	2400 U.T., 8-6-76	7.8 x/mm		12778 x
	0000 U.T., 8-7-76	2400 U.T., 8-22-76	7.8 x/mm		12776 x
	0000 U.T., 8-23-76	2400 U.T., 8-31-76	7.8 x/mm		12773 x
Z	0000 U.T., 8-1-76	2400 U.T., 8-6-76	7.6 x/mm		55118 x
	0000 U.T., 8-7-76	2400 U.T., 8-22-76	7.6 x/mm		55121 x
	0000 U.T., 8-23-76	2400 U.T., 8-31-76	7.6 x/mm		55124 x

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 8-1-76	2400 U.T., 8-31-76	7.9/mm	27.88/mm	24° 20.9 E
H	0000 U.T., 8-1-76	2400 U.T., 8-6-76	44.1 x/mm		11536 x
	0000 U.T., 8-7-76	2400 U.T., 8-31-76	44.1 x/mm		11522 x
Z	0000 U.T., 8-1-76	2400 U.T., 8-31-76	48.6 x/mm		54011 x

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 U.T., 8-1-76	2400 U.T., 8-31-76	0.3/mm	1.0 x/mm
H	0000 U.T., 8-1-76	2400 U.T., 8-31-76	1.0 x/mm	
Z	0000 U.T., 8-1-76	2400 U.T., 8-31-76	2.4 x/mm	

MONTHLY MEAN ABSOLUTE VALUES\*

D	H	Z
28° 22.1 E	13053 x	55355 x

\* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: AUGUST 6, 8, 12, 13, 15, 17, 18, 19, 20, 30



FORM C&G-004 10-67		MAGNETOGRAM HOURLY SCALINGS (UNIVERSAL TIME)																				U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY GEOMAGNETISM DIVISION				OBSEY.	YEAR	MONTH	ELE- MENT
Values are in gauss 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.																													
C	Q	T	0	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	
				91	97	104	104	117	107	117	121	161	143	145	138	148	193	197	218	230	211	221	198	152	131	146	99	3589	
				108	79	82	108	118	134	132	202	107	148	128	139	133	149	183	230	262	268	257	211	154	122	110	101	3665	
				94	108	122	128	129	120	240	132	138	123	111	117	133	156	189	248	260	204	222	218	179	142	119	92	3724	
				90	98	122	114	113	117	119	118	135	122	121	154	165	180	182	218	255	278	256	234	208	183	151	104	3837	
				93	84	101	128	138	144	138	127	125	123	131	130	145	205	194	201	240	261	216	196	163	137	124	102	3646	
				94	95	94	100	139	133	190	179	134	132	117	130	137	147	162	194	217	229	231	194	164	109	98	100	3519	
				104	108	102	112	134	133	129	124	168	195	163	139	235	246	158	215	254	259	233	221	173	97	90	47	3841	
				73	89	113	119	115	154	137	133	129	133	139	149	159	168	180	179	208	218	222	169	148	128	109	82	3453	
				68	72	104	118	118	132	142	138	323*	21*	67	173*	212*	276*	208	222	237	254	204	180	165	160	112	62	3748	
				42	47	85	81	179	142	136	140	131	126	133	175	199	162	211	258	286	285	253	230	190	142	92	80	3805	
				81	100	110	133	184	137	188	140	128	139	92	141	123	126	114	165	228	245	221	207	166	139	117	110	3534	
				113	120	132	138	141	147	150	151	139	138	155	171	167	181	202	241	253	257	264	208	154	123	109	75	3929	
				80	96	117	127	132	124	123	130	141	136	128	165	151	167	186	200	220	228	217	199	169	105	90	80	3511	
				89	100	107	123	130	127	137	141	148	134	173	218	284	273	146	184	220	237	231	222	192	150	116	108	3490	
				102	126	148	165	181	179	164	141	120	114	104	110	111	121	151	191	239	241	246	227	185	150	106	107	3729	
				98	105	108	119	138	134	139	140	144	133	143	182	136	217	74	219	281	273	228	224	202	185	108	94	3884	
				81	57	92	102	124	133	143	147	144	139	148	158	147	162	178	209	233	241	223	198	179	142	131	105	3616	
				101	97	94	112	128	133	132	128	137	140	148	144	168	183	163	212	228	234	223	226	192	202	154	127	3806	
				100	99	94	100	118	130	130	172	133	129	128	157	141	174	213	219	238	237	222	187	158	122	93	82	3576	
				87	112	112	117	113	111	122	152	133	139	142	159	158	160	182	198	213	231	229	201	168	129	80	70	3518	
				90	108	115	122	120	125	137	189	89	110	187	207	147	148	157	180	234	252	199	152	147	160	95	62	3532	
				66	70	109	114	133	148	142	133	128	152	168	97	140	177	200	228	239	252	218	184	162	143	113	110	3626	
				119	117	125	148	133	118	91	47	70	165*	141	148	202	224	648*	665*	601*	324	200	173	147	83	85	55	4829	
				64	62	62	76	249	138	163	179	195	144	395	323*	108	204	198	305	194	184	226	248	127	126	108	93	4171	
				86	90	111	178	103	139	285	152	62*	54*	170	128	110	109	189	416	315*	160	164	207	163	149	119	97	3756	
				88	79	134	128	117	112	362	185	132	234	269	339*	104	164	194	168	221	272	213	195	193	150	139	157	4349	
				115	95	102	112	130	143	147	151	154	132*	252*	174	168	160	169	228	258	208	210	208	183	148	86	85	3818	
				93	93	85	123	112	130	142	158	249	144	89	160	187	125	240	274	270	184	205	164	142	129	113	97	3708	
				99	104	108	118	152	141	139	144	268	142	139	137	139	128	133	169	212	229	222	204	195	158	133	119	3732	
				114	113	104	108	145	142	142	157	152	171	158	168	143	144	164	203	233	245	249	203	171	162	109	84	3778	
				100	100	108	121	139	144	154	151	173	139	142	167	222	163	148	267	254	275	249	220	182	147	123	88	3976	
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. * Derived from Storm Mgh., converted to Normal Mgh.				<input type="checkbox"/> Scaling uncertain because of magnetic storm. <> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.				MONTHLY SUM	117195				
CHECKED BY	MJM, CED, JEP			Interval Beginning	Base-line Value	Scale Value																					MONTHLY MEAN	158	
SIGNS RE- VIEWED BY	MJM			DATES WITH GAPS:																									
PUNCHED BY																													

MAGNETOGRAM HOURLY SCALINGS  
(UNIVERSAL TIME)

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

OBSY. YEAR MONTH ELEMENT  
CO 76 AUG H

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, 1 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.

C	Q	T	U	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	348	356	361	377	391	401	360	450	364	358	375	358	01	278	279	303	341	358	328	301	324	330	337	352	337	8367	
				02	368	364	381	372	365	422	393	391	377	376	382	265	02	325	361	360	361	361	360	348	334	314	308	321	338	8547	
				03	340	354	357	357	370	431	392	389	378	385	370	367	03	344	350	277	41	295	324	348	333	322	318	323	338	8097	
				04	352	379	379	388	385	375	378	392	372	392	312	317	04	180	275	371	383	371	364	357	345	341	339	338	344	8427	
				05	342	371	358	360	362	363	366	375	371	373	367	352	05	328	288	379	348	248	327	350	346	342	334	333	342	8325	
				06	358	363	383	382	363	372	406	377	379	355	343	358	06	344	331	334	362	356	349	342	336	338	337	339	341	8548	
				07	343	349	354	356	347	353	363	376	419	377	383	308	07	102	108	411	399	381	366	349	336	325	323	326	338	8072	
				08	354	352	360	375	379	355	365	365	366	363	365	366	08	366	369	371	373	372	364	338	339	335	337	338	338	8605	
				09	346	342	359	369	391	380	532	407	68*	192*	174	-67	09	-215*	-73*	311	399	381	376	363	345	346	332	342	332	6732	
				10	350	412	430	575	586	386	349	343	342	348	339	109	10	135	243	245	273	303	370	354	342	321	311	301	324	8091	
				11	351	391	382	383	398	377	409	388	367	349	293	351	11	359	362	296	348	359	363	354	343	333	331	338	343	8568	
				12	354	361	361	341	356	357	261	362	366	360	334	341	12	334	332	328	376	373	349	327	300	328	326	326	327	8294	
				13	343	261	363	371	371	378	357	358	263	366	358	322	13	370	358	350	348	351	341	338	324	312	311	338	351	8403	
				14	364	358	362	355	373	370	364	359	361	370	364	302	14	82	164	390	399	389	377	354	338	325	329	334	351	8134	
				15	363	359	361	361	359	361	366	367	366	359	363	359	15	358	369	363	359	371	368	349	338	323	329	338	340	8549	
				16	346	355	375	369	358	362	364	362	362	373	349	231	16	280	-185*	114*	372	358	382	375	358	342	331	326	347	7606	
				17	347	345	342	369	366	371	365	363	365	364	362	361	17	342	356	355	351	351	353	356	357	345	341	335	339	331	8485
				18	352	349	348	352	363	365	366	374	372	371	372	376	18	352	371	358	371	366	357	345	341	335	329	326	328	8539	
				19	342	345	363	366	365	363	381	380	378	383	385	369	19	282	360	369	379	381	368	347	337	336	330	334	341	8584	
				20	350	351	352	367	379	364	378	391	388	381	380	374	20	370	365	384	378	367	356	346	332	318	326	336	346	8679	
				21	360	359	370	367	373	370	384	389	459	457	105	42	21	367	377	343	295	360	353	331	336	346	341	336	329	8149	
				22	356	375	409	363	362	359	366	363	365	368	331	221	22	384	371	362	365	361	342	342	331	331	334	342	353	8456	
				23	360	373	369	359	378	377	400	453	279	396*	233	259	23	265	172	-526*	-491*	-48	185	456	426	356	332	377	362	6102	
				24	367	413	453	438	536	402	423	431	189	271	-90*	-163*	24	235	67	70	69	312	355	329	315	295	326	337	352	6732	
				25	377	371	464	419	370	403	431	413	201	131	335	386	25	278	114	-9*	-53	84	26	345	358	363	349	342	339	6837	
				26	361	396	472	388	374	458	478	469	328	244	-208*	-349*	26	185	381	264	265	261	292	332	339	338	339	371	385	7163	
				27	426	320	344	345	353	359	365	361	372	172*	-344*	71	27	357	337	313	111	201	309	322	322	321	304	305	352	6698	
				28	386	368	375	377	384	359	369	387	415	362	40	154	28	81*	118	289	255	243	286	285	316	355	356	346	347	7253	
				29	351	355	363	366	369	375	373	380	366	373	361	353	29	355	332	285	339	372	355	349	352	335	331	331	335	8456	
				30	346	359	371	352	359	371	361	358	360	359	308	319	30	364	371	358	363	364	358	340	328	326	323	315	325	8358	
				31	344	353	363	369	365	359	362	368	382	364	280	257	31	122	74	274	316	342	310	360	348	343	343	348	347	7693	

SCALED BY: SPT, CED  
CHECKED BY: MUTM, CED, JEP  
SIGNS REVIEWED BY: MUTM  
PUNCHED BY:

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

[ ] Interpolated  
[ ] Significant portion of hour interpolated.  
[ ] No records, 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 Mgph., converted to Normal Mgph.

MONTHLY SUM: 247569  
MONTHLY MEAN: 333  
DATES WITH GAPS:

**MAGNETOGRAM HOURLY SCALINGS**  
(UNIVERSAL TIME)

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.

C	YR	MO	DAY	HR	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	313	311	313	312	332	334	351	388	277	244	303	304	247	293	253	277	298	297	271	280	290	303	338	324	7143
				02	321	324	363	369	341	381	358	357	268	336	314	171	222	272	305	320	322	319	321	314	309	308	311	319	7545
				03	325	323	330	336	337	359	349	348	347	339	328	321	288	289	284	257	217	257	289	293	299	296	304	323	7438
				04	332	344	354	342	357	357	355	354	346	333	269	266	265	187	255	314	325	318	313	308	308	305	310	310	7527
				05	309	314	325	323	318	318	319	319	321	318	317	257	258	223	282	299	255	215	266	291	299	300	302	308	7056
				06	315	325	335	365	370	355	375	312	333	311	294	296	289	274	281	311	318	313	311	304	299	294	304	313	7599
				07	314	315	318	326	333	322	320	326	346	228	305	261	176	54	209	318	328	318	313	308	300	302	308	307	6955
				08	321	324	329	324	334	363	323	313	309	310	312	310	309	310	311	312	310	309	303	279	276	279	291	301	7462
				09	308	311	308	309	312	322	323	80	202	224	550	539	465	275	202	291	322	318	313	311	303	303	320	322	7533
				10	326	343	387	388	420	402	347	326	315	312	305	181	161	176	230	246	244	271	293	300	304	311	313	317	7218
				11	328	356	351	353	351	340	345	315	345	309	263	283	295	308	257	291	317	321	318	323	318	314	315	315	7631
				12	318	319	321	324	320	313	313	314	313	320	283	283	290	293	276	291	311	305	296	274	253	270	284	285	7169
				13	291	300	308	313	316	320	321	317	312	307	308	287	305	301	306	291	288	296	304	308	304	289	291	299	7282
				14	300	306	313	311	312	319	322	319	311	307	320	296	303	133	230	314	324	321	311	308	310	313	321	316	7240
				15	316	316	320	319	324	318	311	309	306	311	331	332	317	308	306	314	312	313	318	310	299	299	302	308	7519
				16	313	315	315	328	328	313	311	315	313	305	308	256	259	403	231	257	268	271	272	293	299	303	295	301	7146
				17	311	319	316	308	313	308	309	308	306	304	305	306	280	296	309	299	299	293	295	288	295	295	297	303	7262
				18	311	315	311	315	314	311	308	306	307	306	308	305	264	287	285	293	306	303	299	296	288	289	284	291	7202
				19	290	300	302	306	318	319	309	341	313	313	315	294	233	255	281	289	298	303	304	298	287	293	294	301	7156
				20	307	321	320	324	323	330	335	355	331	325	306	298	280	277	297	304	302	300	300	299	295	283	291	295	7403
				21	303	313	306	311	308	310	328	354	299	262	275	172	207	295	298	251	258	282	268	273	276	298	294	296	6837
				22	313	343	373	326	318	316	311	308	310	299	217	178	261	301	308	306	308	300	295	295	298	299	301	302	7186
				23	301	309	324	333	321	330	373	342	276	106*	246	404	494	516	608*	493*	120	34	168	279	301	299	313	343	7633
				24	346	345	376	338	435	356	366	316	80	261	537*	-34*	200	443	303	254	278	310	289	290	268	277	295	313	7242
				25	319	332	359	366	346	360	299	315	132	103	245	288	292	212	278	119	115	161	217	319	306	301	301	313	6398
				26	321	338	398	355	333	369	321	286	232	258	438	375	345	274	290	282	283	266	274	294	310	311	335	358	7646
				27	346	336	311	312	313	321	319	329	332	320	224*	262	221	269	251	207	162	213	256	291	281	301	294	325	6796
				28	350	336	335	345	328	325	323	339	293	277	168	166	223	117	144	197	234	242	249	275	298	288	295	308	6455
				29	312	322	321	330	339	323	322	328	255	258	313	304	285	291	267	272	298	293	303	304	306	302	305	310	7269
				30	318	329	333	336	351	328	321	323	318	316	269	227	262	301	312	315	318	314	310	301	295	303	308	315	7423
				31	314	309	341	313	318	319	321	318	340	315	308	238	277	227	165	220	264	250	235	283	293	295	301	311	6845

SCALED BY: SPT, CED  
 CHECKED BY: PLM, CED, JEP  
 SIGNS REVIEWED BY: PLM  
 PUNCHED BY:

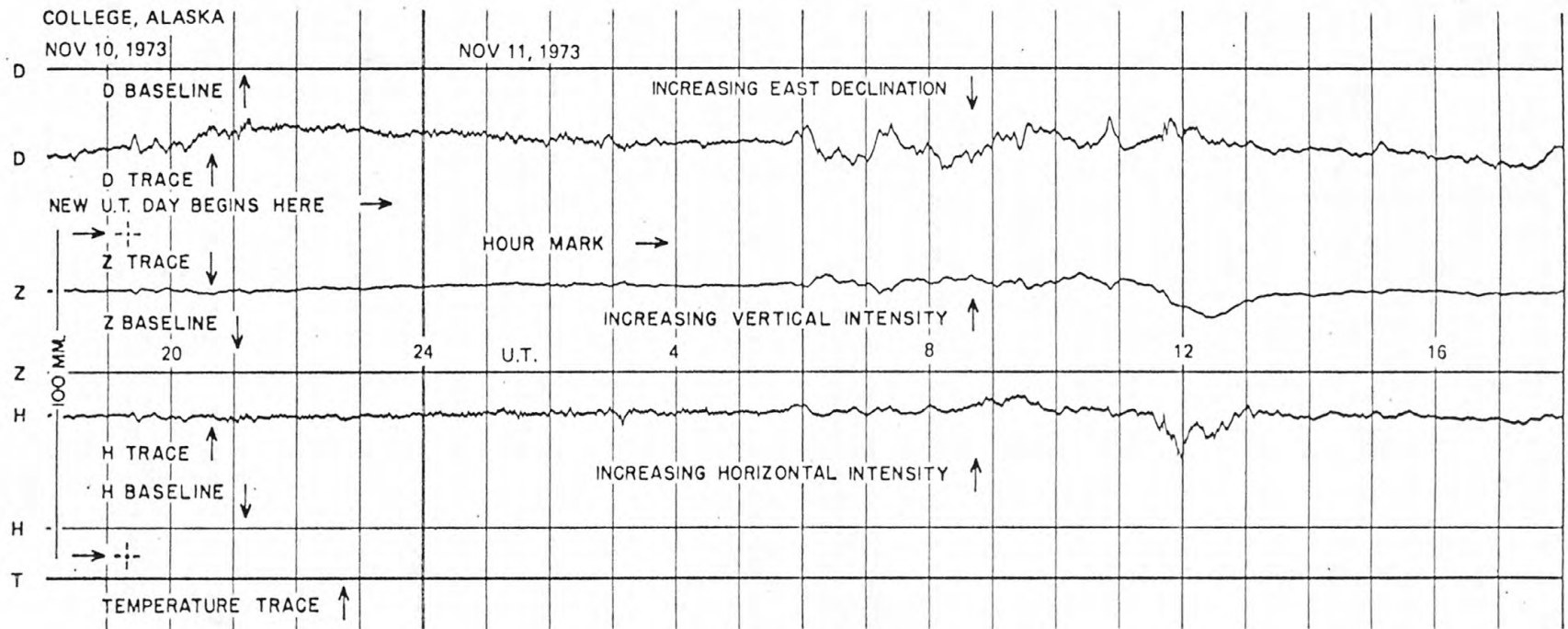
Preliminary base-line and scale values:  
 Interval: \_\_\_\_\_ Base-line Value: \_\_\_\_\_ Scale Value: \_\_\_\_\_  
 Beginning: \_\_\_\_\_

- 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 Mgh., converted to Normal Mgh.

MONTHLY SUM: 224216  
 MONTHLY MEAN: 301  
 DATES WITH GAPS:



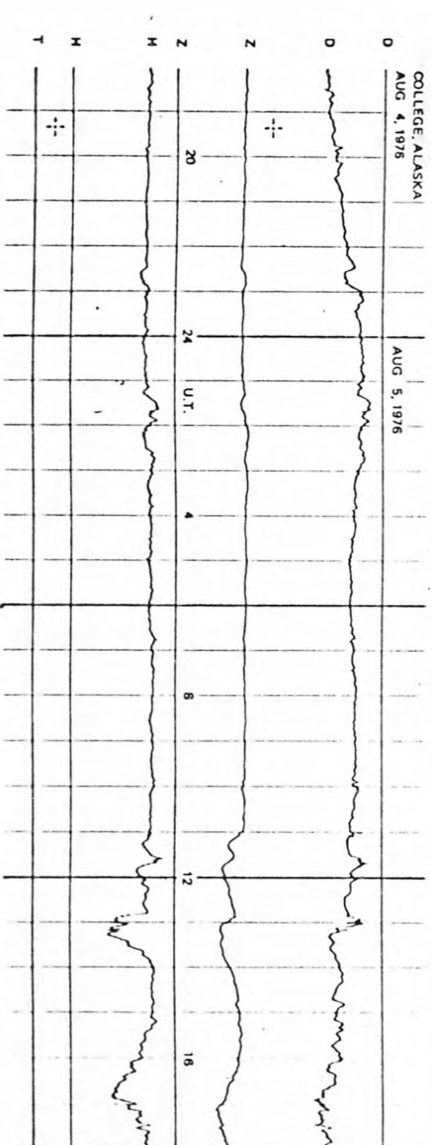
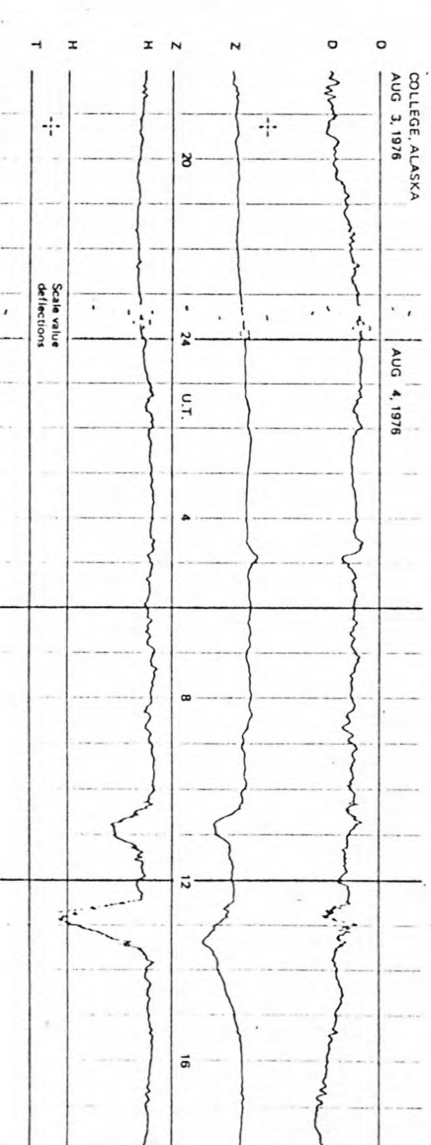
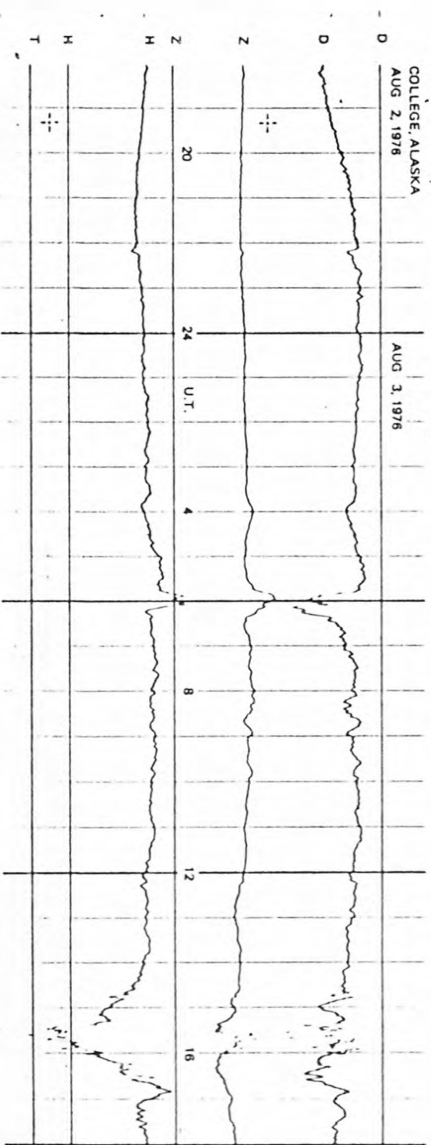
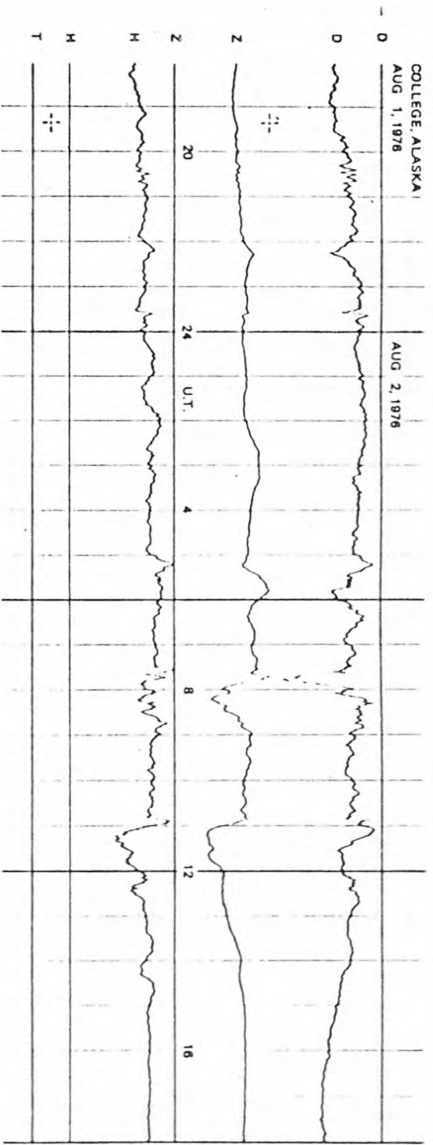
# FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)



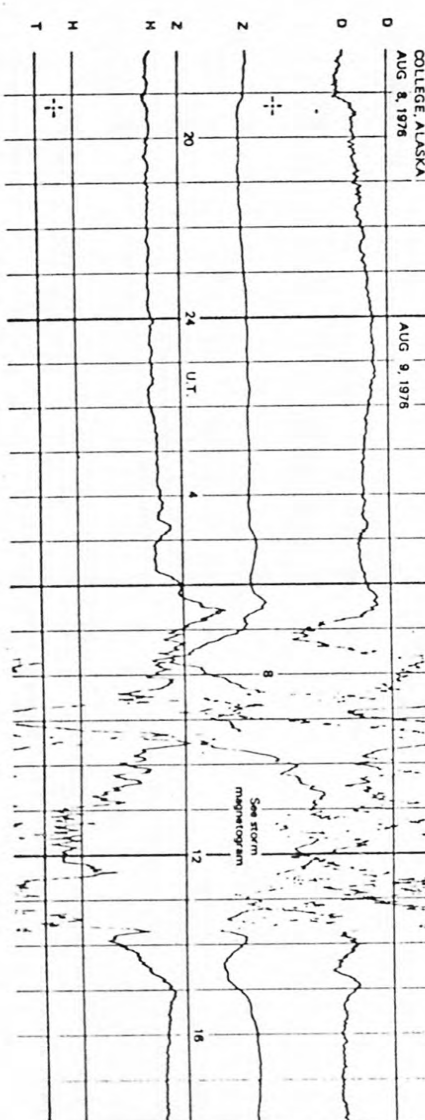
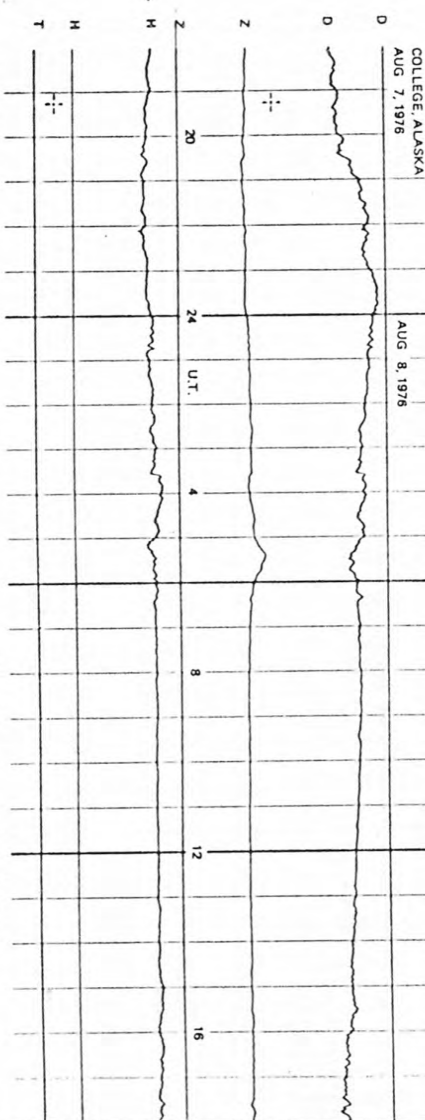
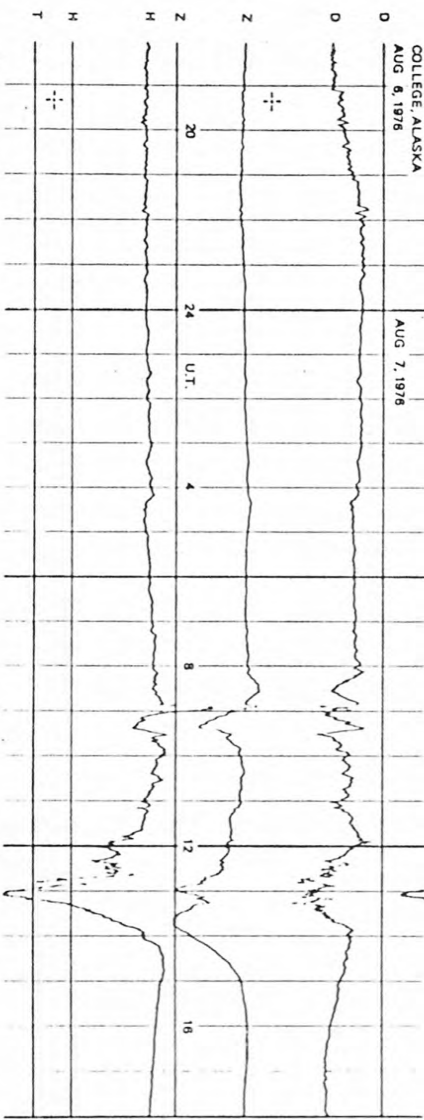
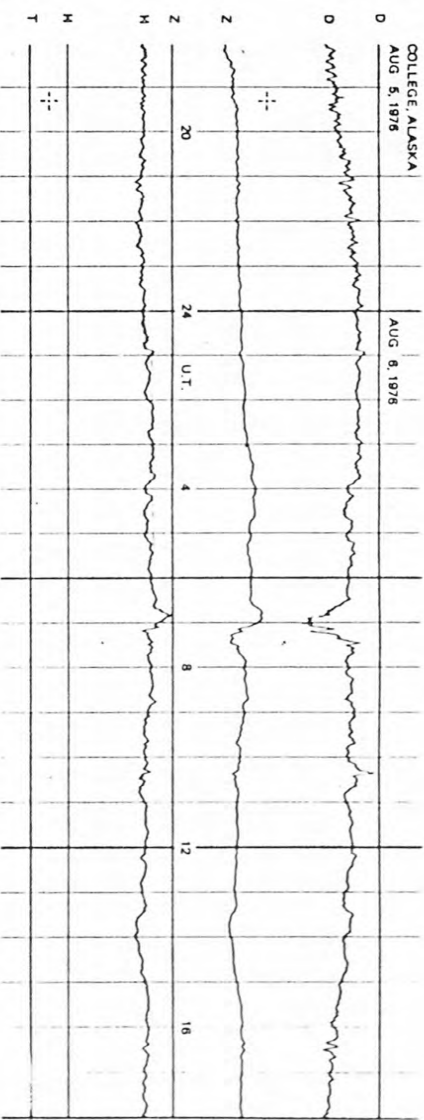
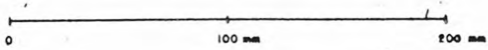
SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

# NORMAL MAGNETOGRAMS

0 100 mm 200 mm

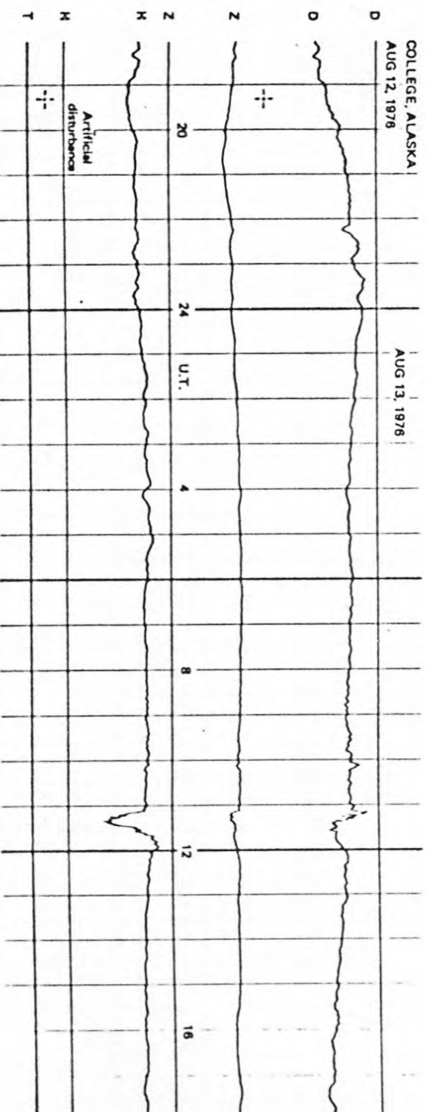
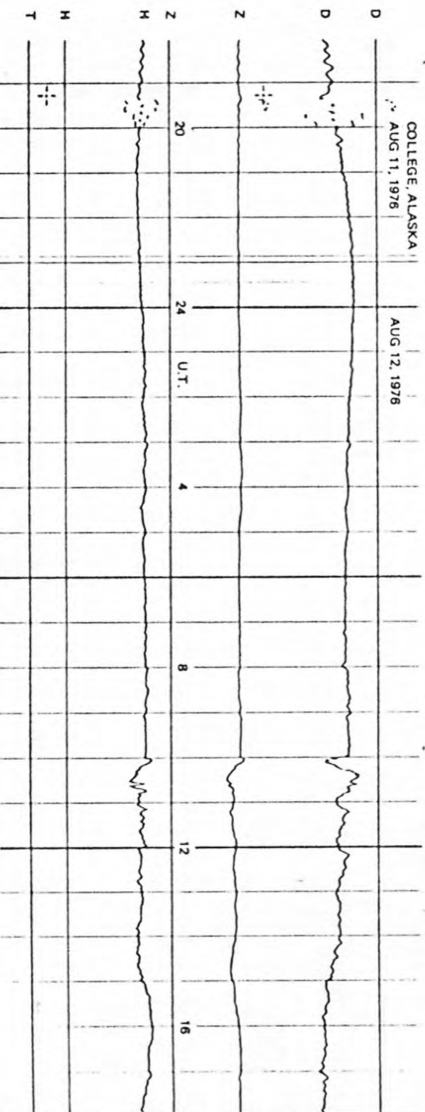
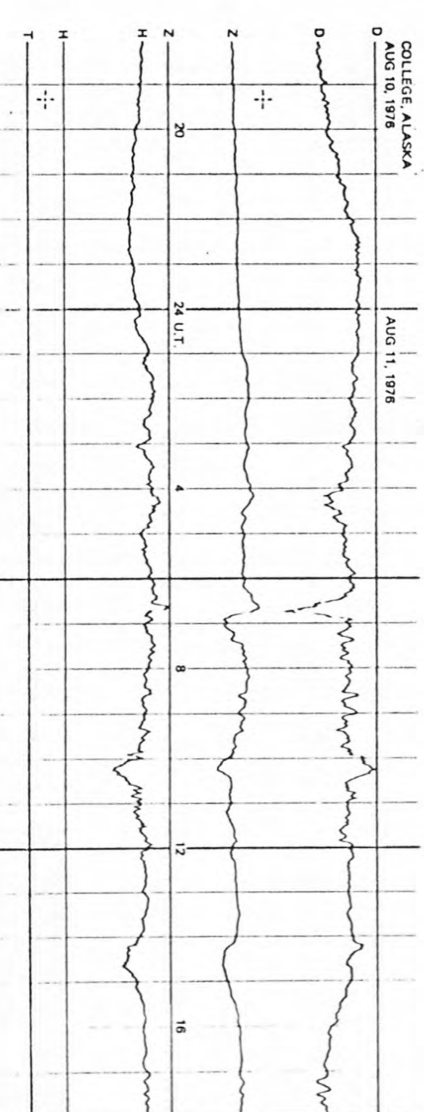
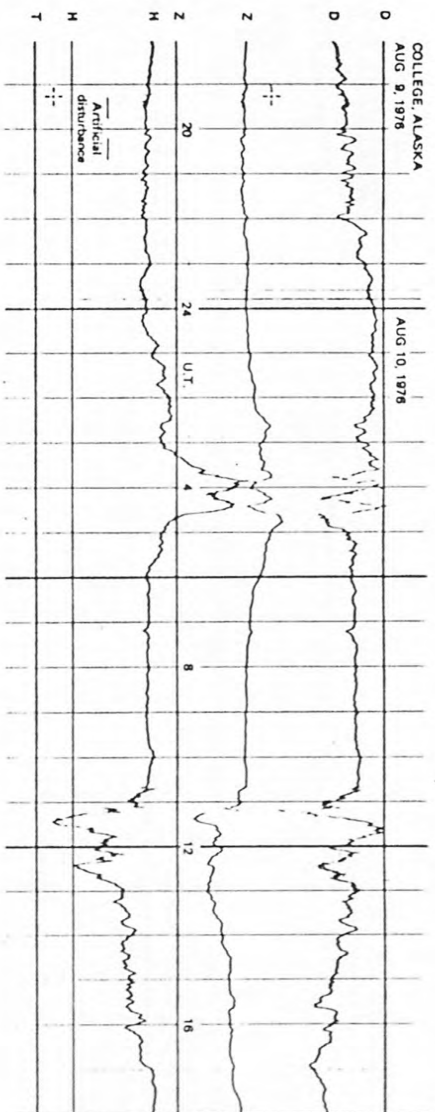
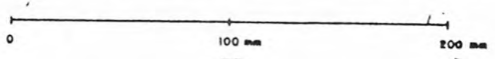


# NORMAL MAGNETOGRAMS

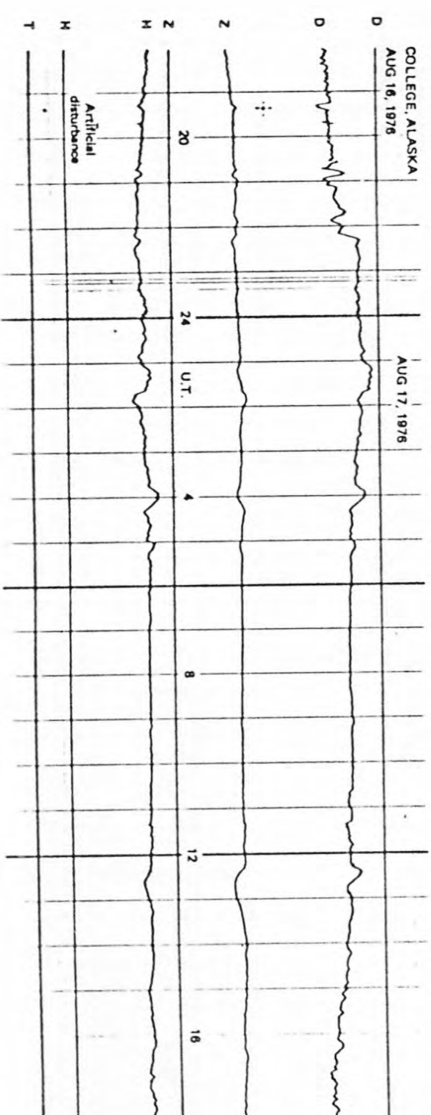
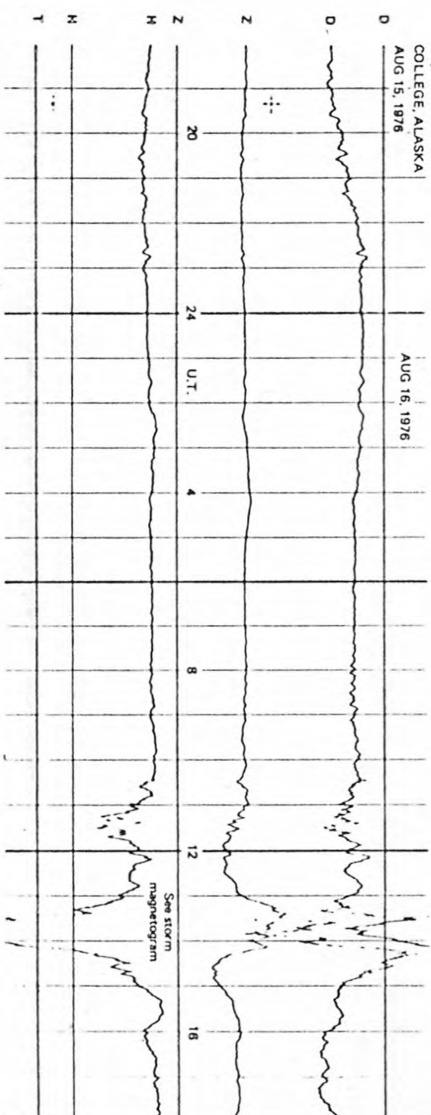
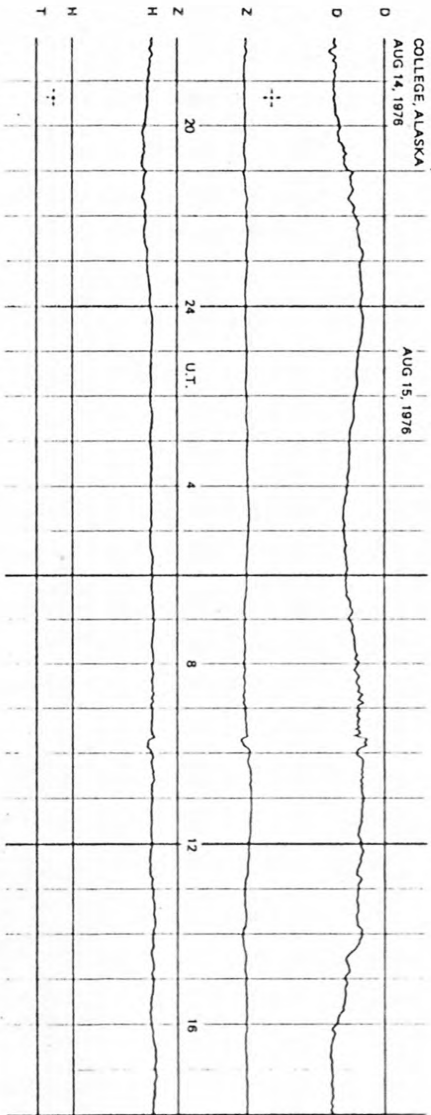
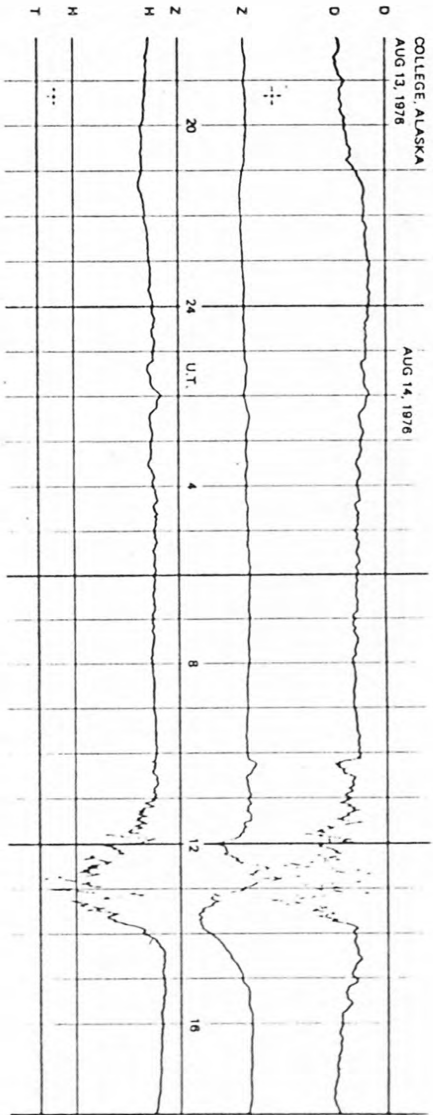
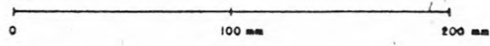




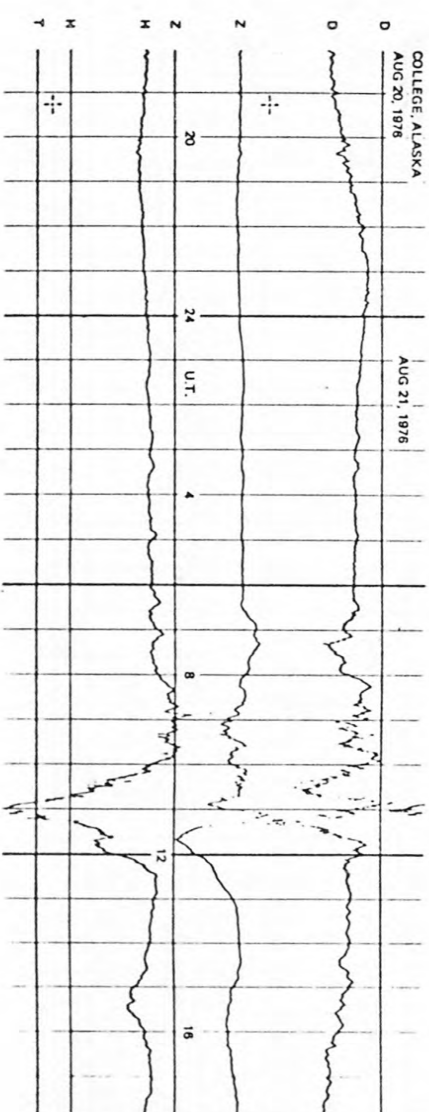
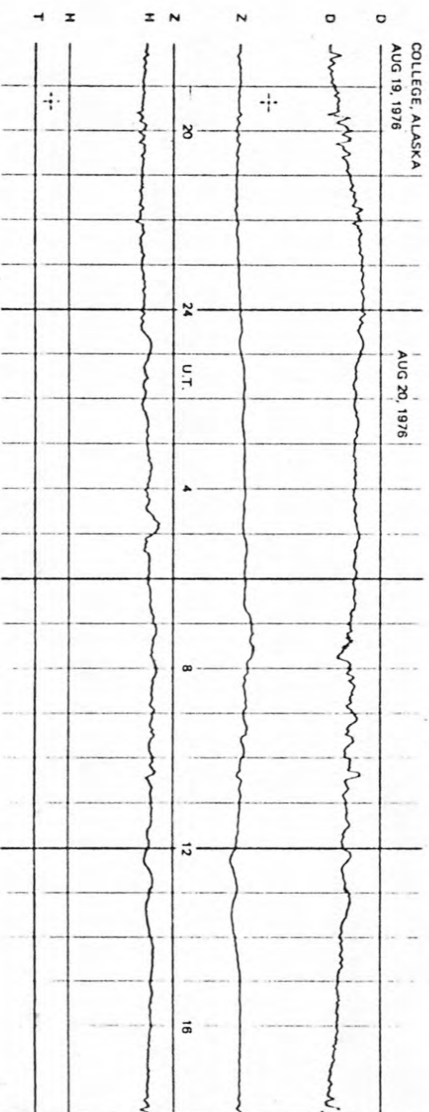
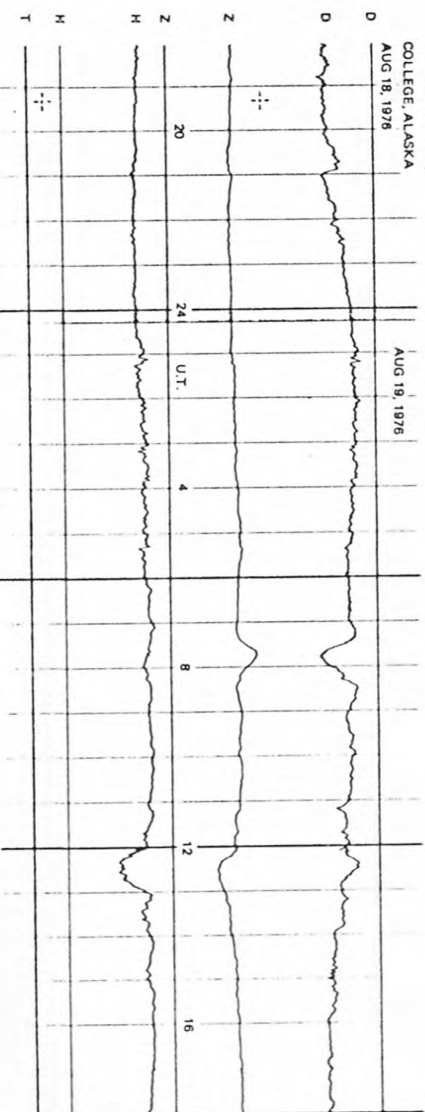
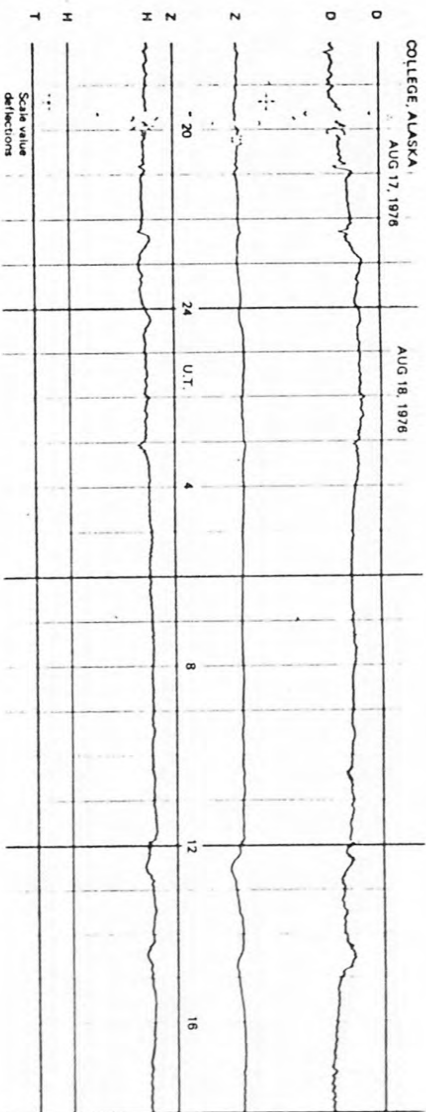
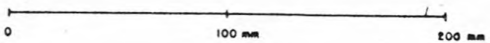
# NORMAL MAGNETOGRAMS



# NORMAL MAGNETOGRAMS

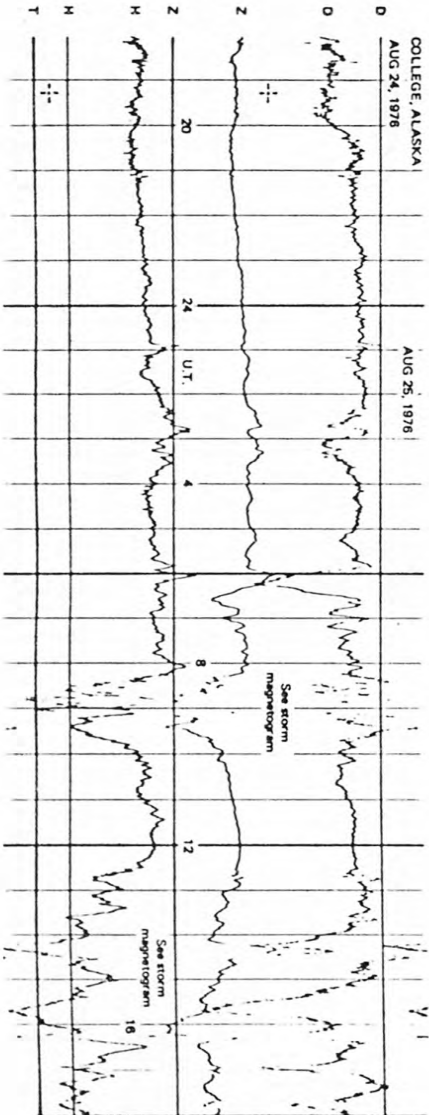
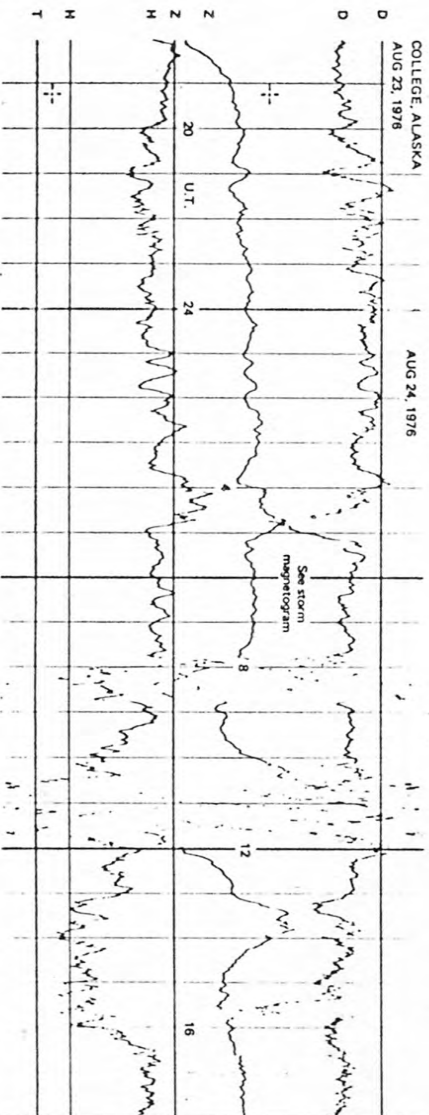
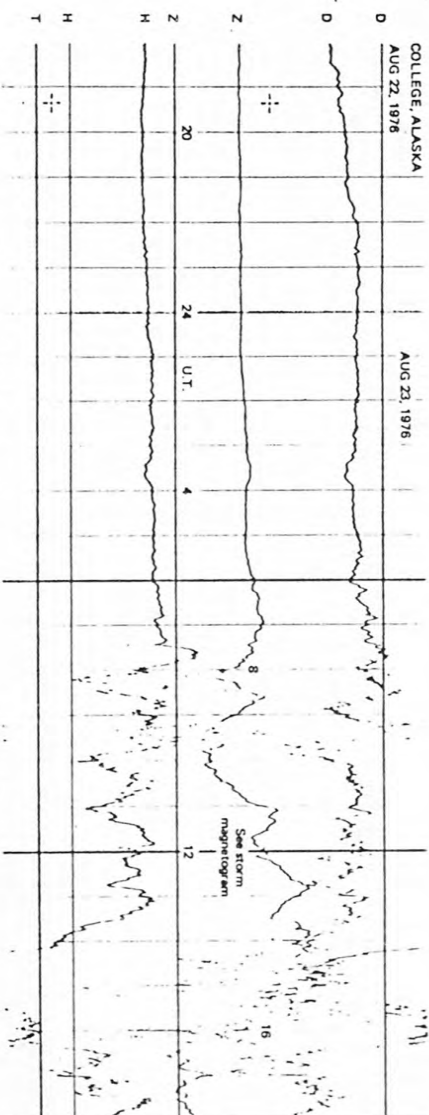
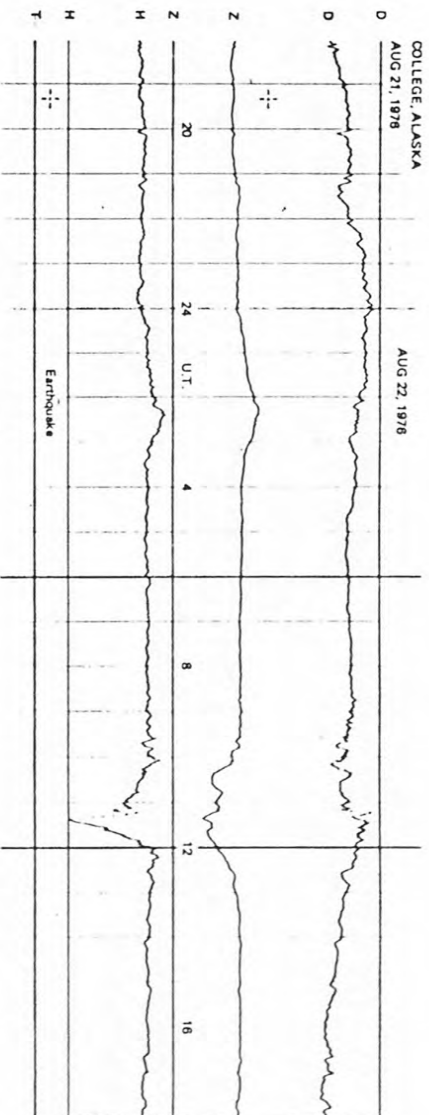
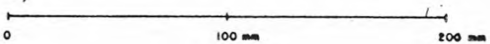


# NORMAL MAGNETOGRAMS

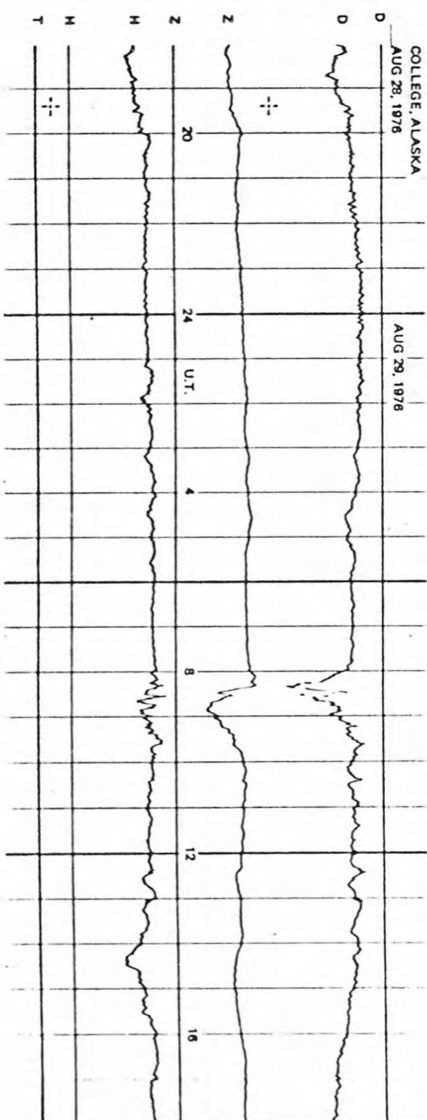
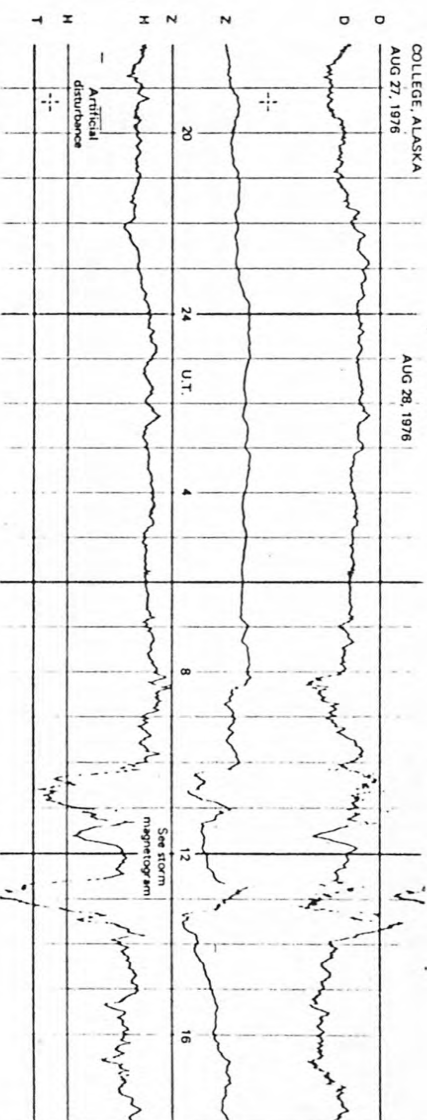
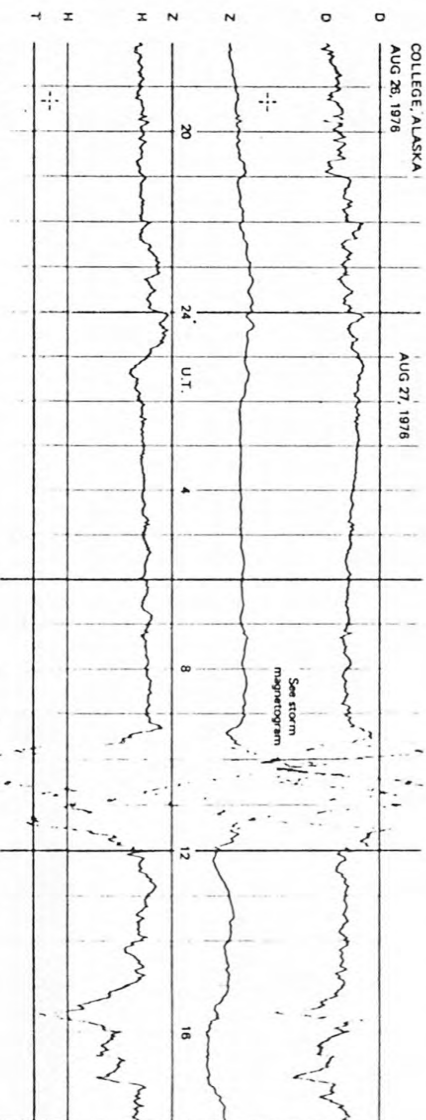
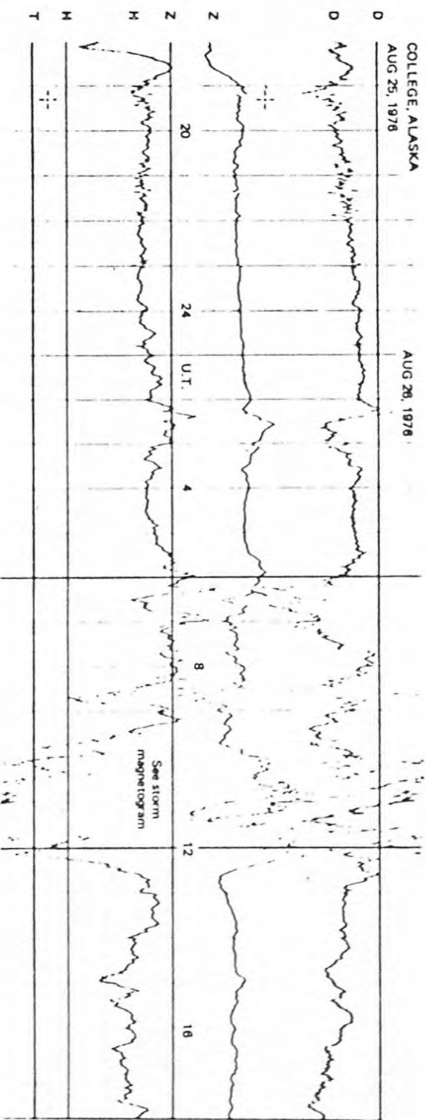
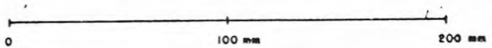




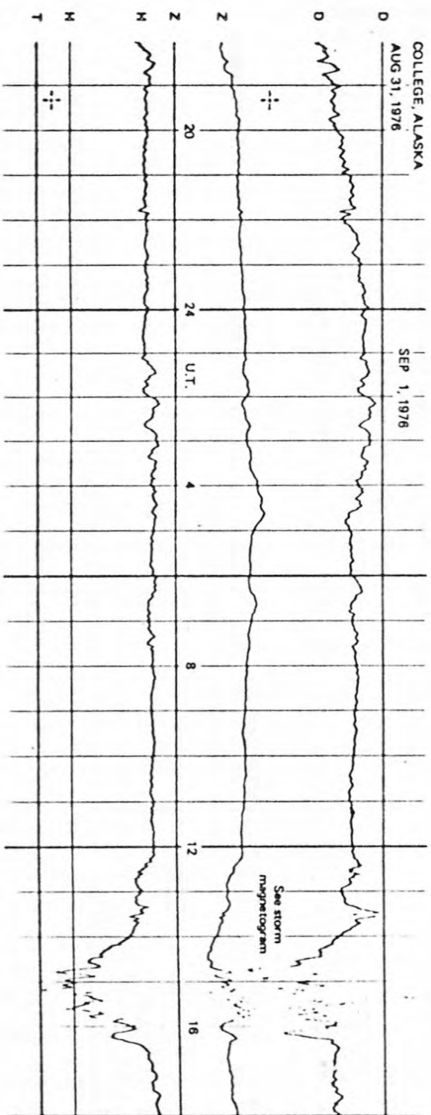
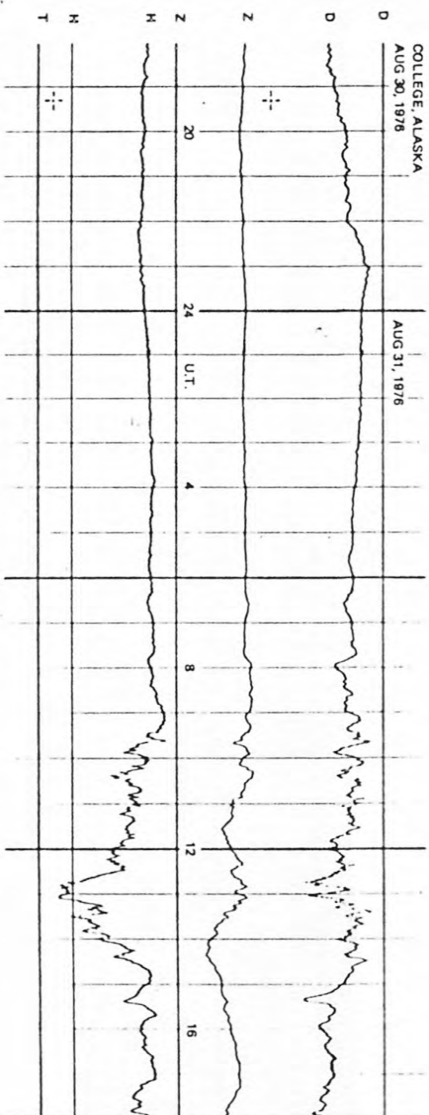
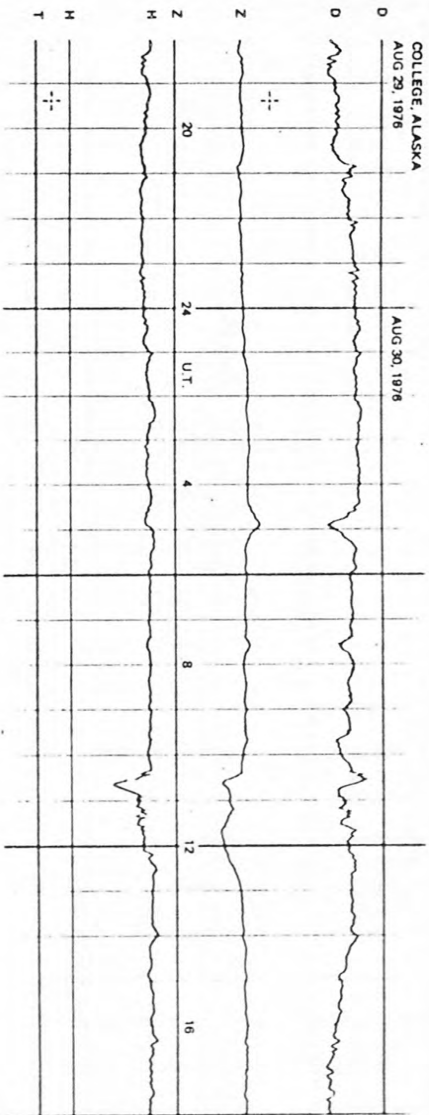
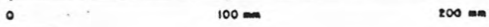
# NORMAL MAGNETOGRAMS



# NORMAL MAGNETOGRAMS

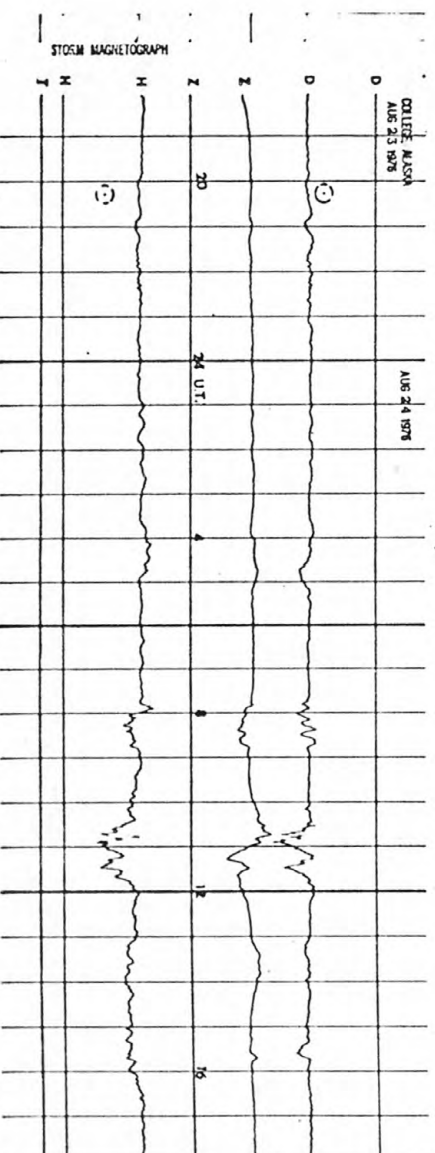
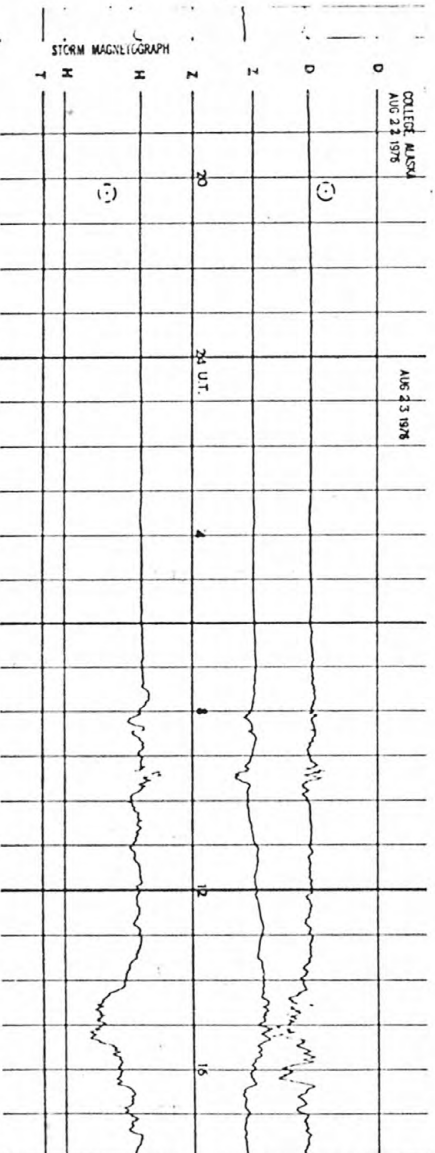
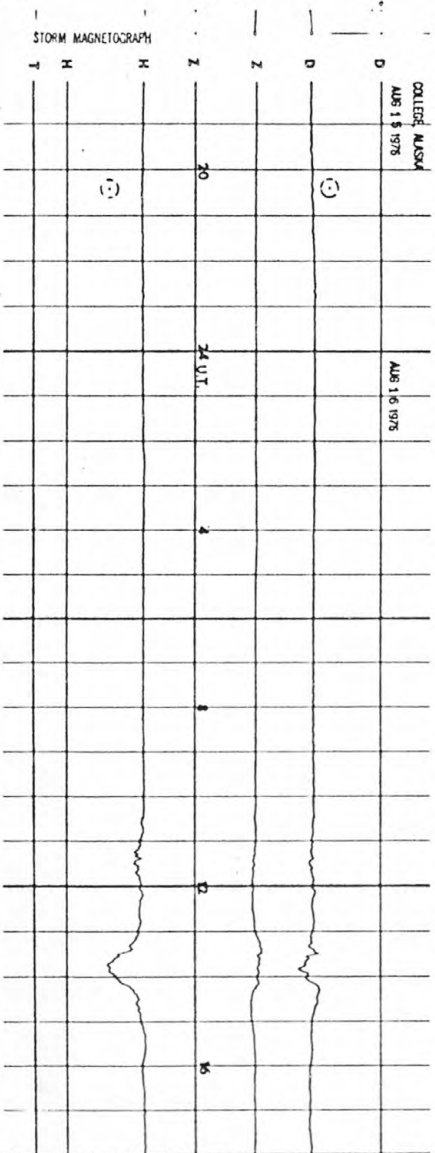
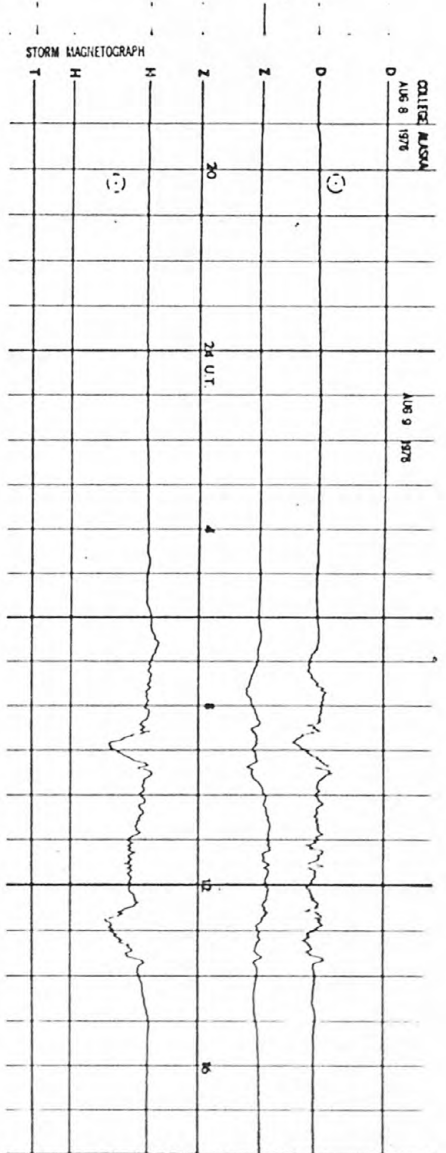


# NORMAL MAGNETOGRAMS

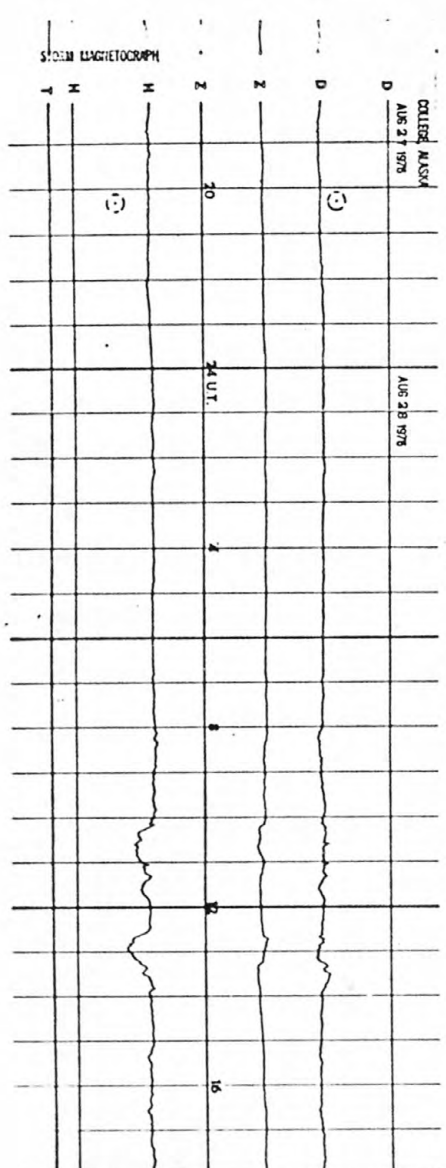
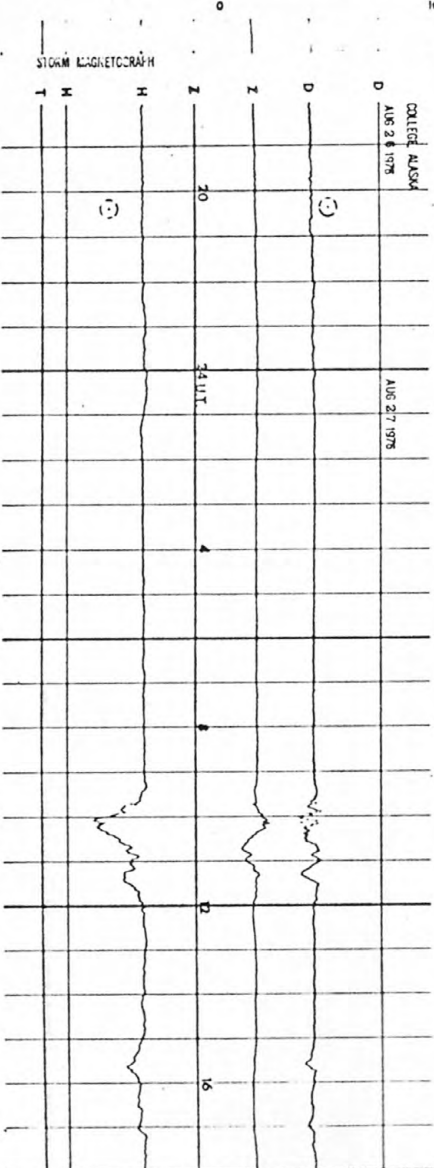
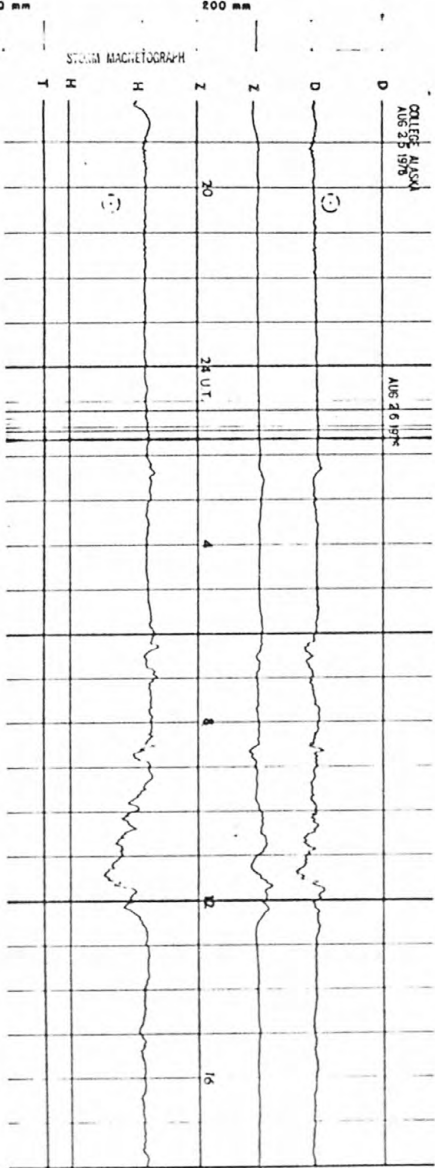
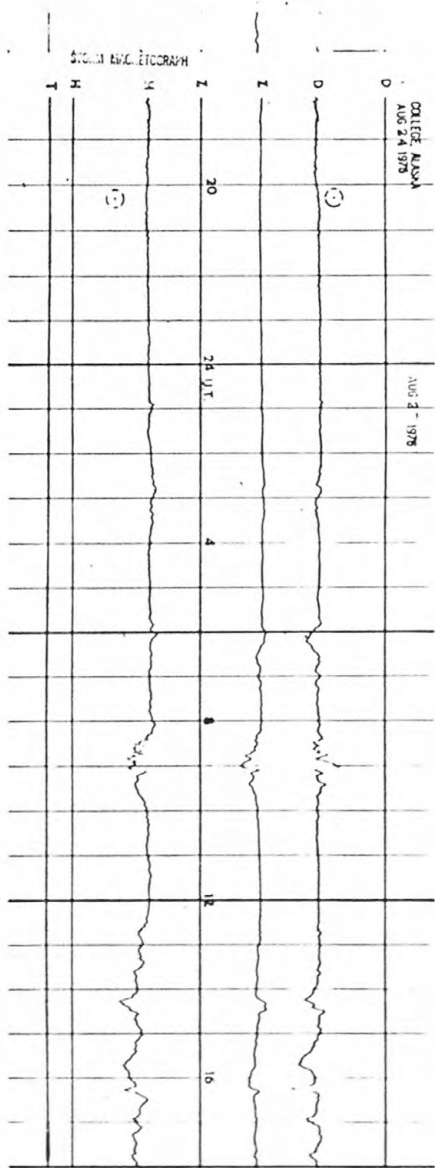




# STORM MAGNETOGRAMS



# STORM MAGNETOGRAMS



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3 1818 00076178 1



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