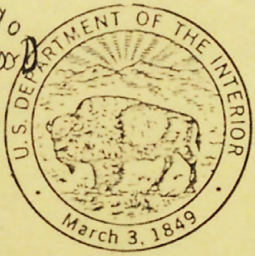
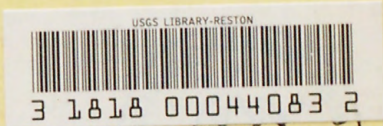
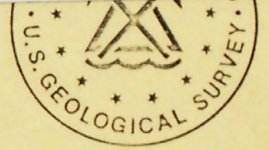


UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY



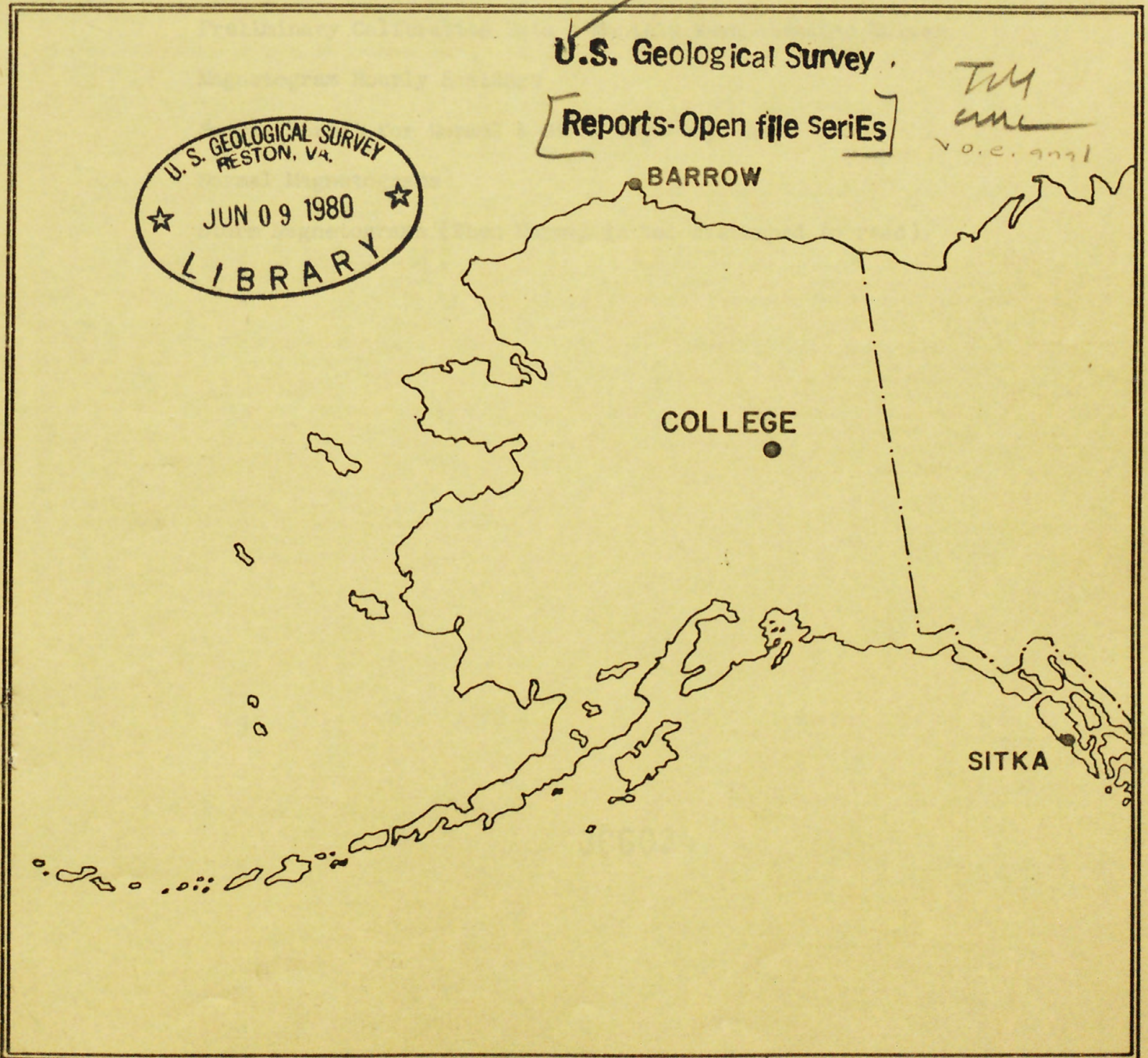
PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA



APRIL 1980

OPEN FILE REPORT

80-300D



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 Magnetograms

Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

306034

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, E.A. SAUTER, 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°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

APRIL 1980

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	0	0	0	4	3	1	0	10	07	SUDDEN COMMENCEMENTS d h m
2	0	0	0	0	0	0	0	1	01	00	
3	1	1	0	1	2	2	1	0	08	03	
4	0	1	2	4	3	3	2	1	16	10	
5	1	1	0	0	1	3	1	0	07	03	
6	0	2	1	2	6	6	5	4	26	32	
7	2	2	2	2	5	2	2	3	20	13	
8	3	2	2	4	6	3	1	2	23	20	
9	2	4	6	5	6	4	2	2	31	35	
10	3	5	6	6	3	1	1	2	27	31	
11	2	3	3	6	3	5	5	4	31	32	
12	4	4	4	5	5	4	3	4	33	31	
13	4	3	5	4	2	3	3	0	24	19	
14	1	1	2	1	2	3	2	3	15	08	
15	4	4	4	2	2	4	4	3	27	21	
16	2	4	4	4	3	4	1	1	23	17	
17	3	4	2	1	1	2	1	1	15	09	
18	2	1	1	2	0	0	0	0	06	03	
19	1	1	2	2	2	1	0	0	09	04	
20	2	1	0	0	3	1	1	1	09	04	
21	1	1	1	2	0	0	1	0	06	02	
22	2	2	0	0	3	2	1	1	11	05	
23	2	2	0	0	1	1	1	1	08	03	
24	2	2	1	2	2	2	1	1	13	06	
25	2	3	2	5	4	1	0	0	17	13	
26	2	2	1	0	3	2	2	1	13	06	
27	0	1	0	1	1	1	0	1	05	02	
28	1	2	0	2	2	1	0	1	09	04	
29	2	2	1	0	1	1	1	1	09	04	
30	2	2	0	1	4	2	2	1	14	08	
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

3.75

2560

H

321.7

7.81

2510

Z

(mm)

(γ /mm)

(to nearest 10 γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH
APRIL

YEAR
1980

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
02	2111	si*	pc5's on H component
06	1059	ssc*	
21	01XX	pc5	
21	16XX	pc4	
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.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA
APRIL 1980

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	06	1059	s.c.*	-9	-97	-39	06	5, 6	6	172	1160	750	07	03
		09	05XX	..	..	..	..	09 10	3, 5 3, 4	6 6	281	1430	1150	10	13
		11	06XX	..	..	..	..	11	4	6	137	960	470	13	11

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 4-1-80	2400 U.T., 4-30-80	1.0/mm	3.78/mm	27° 47.2 E
H	0000 U.T., 4-1-80	2400 U.T., 4-30-80	7.88/mm		127558
Z	0000 U.T., 4-1-80	2400 U.T., 4-30-80	7.38/mm		551708

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 4-1-80	2400 U.T., 4-30-80	7.8/mm	29.78/mm	23° 49.5 E
H	0000 U.T., 4-1-80	2400 U.T., 4-30-80	44.08/mm		115078
Z	0000 U.T., 4-1-80	2400 U.T., 4-30-80	48.58/mm		540338

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

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 08.7 E	130118	553778

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: APR 2, 3, 5, 18, 19, 20, 21, 23, 27, 28

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

OBSY. YEAR MONTH ELEMENT
CO RO APR D

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	Q of S	Ten Q	U _r Day	01	02	03	04	05	06	07	08	09	10	11	12	U _r Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM	
				01	132	142	168	187	203	210	210	209	207	207	211	221	01	218	211	261	275	259	301	294	268	256	231	221	210	5312
				02	182	168	180	189	199	198	201	203	208	208	210	207	02	214	199	188	205	242	271	293	297	279	269	232	207	5249
				03	177	168	169	183	192	189	192	197	196	202	217	220	03	206	227	221	237	269	281	276	284	287	258	229	209	5286
				04	187	170	167	170	178	198	199	190	238	228	210	326	04	229	210	188	238	251	279	269	228	210	228	231	208	5230
				05	298	183	187	181	177	173	183	191	199	207	217	207	05	216	225	242	221	281	291	301	285	248	230	219	207	5369
				06	197	177	160	156	170	177	180	189	188	189	205	197	06	263	369	348	537*	562*	261*	228	240	236*	201	198	201	5829
				07	167	180	176	171	160	220	190	211	212	181	212	217	07	206	213	261	250	270	270	269	187	188	272	221	151	5055
				08	148	123	81	197	181	173	178	193	177	167	217	198	08	434*	277	241	258	292	288	299	318	282	274	233	212	5441
				09	173*	118	96	81	104	67	171	111	149*	213*	442*	119	09	364*	194	211	197	271	271	282	253	222	207	203	195	4714
				10	170	140	96	84	83	-9*	149*	-160*	-104*	164	347*	194	10	211	236	254	302	312	331	325	289	273	230	204	219	4340
				11	186	168	182	208	223	242	216	190	173	99	213*	185	11	248	279	329	351	354	435*	388*	348*	309	144	207	196	5873
				12	159	200	194	100	125	147	119	182	218	56*	151*	241	12	340*	164	257	311	360	288	223	270	265	258	376	359	5363
				13	157	116	138	139	137	138	19	148	114	153	246	217	13	215	238	258	270	306	303	257	220	202	200	181	153	4525
				14	149	136	128	137	164	159	184	184	200	170	183	183	14	210	235	271	281	270	260	250	212	189	240	244	188	4827
				15	159	111	91	148	109	141	116	182*	151	159	189	189	15	220	239	248	281	351	339	308	281	224	253	209	144	4842
				16	158	141	139	99	132	119	147	136	191	181	182	181	16	198	201	289	349	389	348	307	250	248	256	182	191	5014
				17	154	108	68*	91	132	151	186	169	179	179	190	201	17	203	221	242	278	321	311	313	336	292	240	213	269	5047
				18	159	147	130	158	170	179	181	181	183	261	211	211	18	234	231	260	289	309	298	307	307	288	252	211	190	5347
				19	161	149	151	151	169	179	179	201	221	221	218	229	19	219	221	259	303	319	318	341	333	309	251	204	179	5485
				20	149	139	131	173	178	181	190	180	181	187	178	189	20	221	231	262	280	289	308	309	278	242	221	188	171	5056
				21	121	109	111	141	161	171	198	201	189	200	199	222	21	221	228	258	289	300	290	293	283	252	221	189	151	4998
				22	149	112	120	136	161	171	181	186	191	197	200	189	22	199	217	229	281	347	351	329	299	266	239	199	154	5103
				23	121	108	138	140	171	178	177	189	198	202	211	209	23	191	218	248	277	300	309	278	284	274	237	230	200	5088
				24	151	123	193	90	80	160	168	176	175	174	182	200	24	211	226	275	318	378	303	278	257	242	233	210	189	4992
				25	168	121	101	121	71	139	158	175	195	172	168	406	25	277	224	240	266	268	266	250	233	228	232	211	174	4864
				26	160	147	135	143	168	194	194	182	190	192	209	205	26	201	178	235	255	276	283	284	274	248	251	176	173	4953
				27	165	158	152	158	187	190	198	187	198	195	223	223	27	216	205	191	269	278	271	269	261	241	276	200	173	5084
				28	131	123	133	138	191	190	190	198	195	191	209	189	28	218	231	269	298	299	313	289	254	246	229	220	203	5147
				29	169	151	131	151	172	179	199	203	189	191	181	171	29	181	198	224	301	327	316	289	271	231	212	187	152	4976
				30	142	150	132	167	191	179	183	182	189	189	207	206	30	199	300	263	310	327	337	318	277	201	196	152	168	5165
				31												31														

SCALED BY: SPT, PEF
 CHECKED BY: JEP, SPT, EAS
 SIGNS REVIEWED BY: JEP
 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.
 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: 153574
 MONTHLY MEAN: 213
 DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

OBSY. YEAR MONTH ELF-
CO RO AFR H

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 0000 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Ten Q	1/32	01	02	03	04	05	06	07	08	09	10	11	12	1/32	13	14	15	16	17	18	19	20	21	22	23	24	SUM
				01	320	308	316	319	319	325	323	325	326	330	329	01	321	223	91	128	62	93	271	318	313	311	297	289	6586
				02	307	320	311	321	326	337	331	331	339	339	340	02	334	344	341	340	353	349	336	320	312	299	297	292	7856
				03	306	300	310	332	359	330	344	349	350	358	352	03	327	312	350	360	348	317	322	321	320	299	295	290	7890
				04	299	309	319	330	339	349	348	362	392	349	332	04	350	338	283	188	279	339	339	309	314	320	304	306	7592
				05	305	320	318	318	321	335	341	339	340	342	339	05	331	341	333	320	216	206	313	322	318	311	300	292	7564
				06	290	298	317	340	335	339	356	340	342	343	343	06	232	-47	-91*	-329*	-386*	-30*	277	311	357	325	321	324	5270
				07	298	302	320	319	361	348	352	368	368	344	306	07	341	171	89	319	340	339	270	240	276	288	313	368	7379
				08	328	330	408	301	310	335	337	331	361	394	360	08	-85	340	348	339	288	299	333	331	329	313	303	307	7583
				09	309*	330	361	400	390	522	691	696	422	211	-114*	09	-46*	42	291	229	172	381	371	366	353	349	322	316	7400
				10	307	355	440	527	584	700*	460	397	298*	333	-69*	10	308	313	347	342	348	347	341	338	328	318	318	375	8565
				11	352	315	292	286	301	335	412	497	392	180	-95*	11	251	270	240	119	236	24	-208*	-281*	-44	307	480	424	5362
				12	365	467	402	419	427	561	555	483	379	127	96	12	-27*	201	275	245	125	76	289	337	313	305	339	430	7382
				13	580	506	468	382	417	412	459	298	260	313	193	13	332	282	313	295	314	247	157	243	297	293	303	303	8005
				14	286	298	318	337	354	358	357	368	367	354	346	14	327	308	281	184	248	299	293	290	302	292	289	367	7560
				15	373	449	481	514	489	506	517	449	393	373	369	15	333	335	319	176	33	116	179	239	311	300	229	293	8125
				16	323	331	329	379	426	437	477	529	391	344	333	16	231	267	190	127	270	270	306	316	299	283	281	296	7598
				17	311	347	407*	461	529	476	391	406	371	356	341	17	329	320	313	299	330	301	320	306	303	285	294	279	8412
				18	274	296	343	320	331	339	339	350	356	356	334	18	321	331	330	331	331	339	324	313	299	280	279	289	7751
				19	287	296	303	330	336	340	351	367	383	356	359	19	339	303	319	336	349	339	323	310	289	279	270	276	7798
				20	299	319	352	322	321	329	331	341	347	349	349	20	239	333	321	342	343	320	307	300	301	299	297	290	7700
				21	293	301	311	321	331	349	360	361	353	359	339	21	341	349	346	334	347	349	339	334	319	303	291	297	7956
				22	319	343	341	331	325	339	349	350	352	360	360	22	344	292	239	250	300	329	339	330	316	302	289	299	7759
				23	282	291	321	367	336	349	353	357	360	362	363	23	367	359	369	366	328	331	331	317	308	302	298	283	8069
				24	279	295	340	408	408	364	381	369	367	368	358	24	316	304	279	262	270	314	340	337	318	302	295	298	7908
				25	295	296	361	343	412	428	423	404	377	367	249	25	235	352	356	354	352	342	342	332	324	309	297	291	7863
				26	296	306	341	383	382	377	338	340	337	340	347	26	353	339	175	317	353	341	352	348	332	312	300	298	7959
				27	299	298	308	333	329	346	344	351	358	367	352	27	358	360	350	318	338	358	370	363	349	321	305	289	8112
				28	269	291	326	361	340	336	340	343	353	359	356	28	316	329	350	353	341	356	343	331	329	317	311	297	7994
				29	303	297	326	324	339	353	371	351	360	353	361	29	353	335	351	357	359	351	351	341	329	299	296	319	8143
				30	320	329	371	364	311	330	339	343	349	360	361	30	273	183	276	333	367	351	329	307	309	304	319	294	7791
				31												31													

SCALED BY: SPT, PEF
 CHECKED BY: JEP, SPT, EAS
 SIGNS RE-VIEWED BY: JEP
 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.
 - 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 SLOTT Mgh., converted to Normal Mgh.

MONTHLY SUM: 226932
 MONTHLY MEAN: 318
 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 50102 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

CO 80 APR 2

C	Q or S	Ten	Min	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	310	316	303	303	303	299	299	291	292	291	289	01	283	257	200	156	139	150	198	236	271	289	301	303	6389
				02	307	325	330	323	319	310	296	290	288	288	287	277	02	267	256	260	273	289	300	307	298	288	289	286	286	7039
				03	292	299	293	298	309	314	296	289	289	299	299	277	03	256	227	238	280	289	289	266	272	277	285	292	296	6821
				04	290	289	286	280	281	285	284	286	282	277	285	234	04	235	260	230	187	177	237	283	285	279	290	308	318	6448
				05	315	316	317	310	298	289	288	289	287	291	290	283	05	277	280	285	276	240	132	199	252	267	277	286	280	6624
				06	280	281	289	300	310	297	297	299	294	290	290	267	06	254	326	257	280*	-172*	-146*	147	250	290	296	296	299	5871
				07	317	322	299	302	306	330	296	296	293	291	262	282	07	277	228	124	193	259	285	281	248	255	278	306	323	6653
				08	315	327	303	336	300	290	296	298	290	287	219	260	08	474*	230	270	286	293	261	280	288	280	276	282	291	7032
				09	294*	310	333	332	349	321	296	327	339	461	493	410	09	654*	390	256	298	319	288	303	292	295	306	302	303	8271
				10	300	300	310	319	271	174*	198	200	232	382	628*	409	10	366	297	297	322	320	314	311	286	288	282	284	295	7385
				11	307	309	309	311	298	299	285	223	312	233	166	216	11	232	262	280	234	157	282*	468*	349*	197	259	309	308	6605
				12	314	327	340	334	314	237	313	361	332	177	284	242	12	295*	172	213	241	239	230	209	282	309	313	332	278	6688
				13	150	260	286	318	343	333	166	311	267	284	305	280	13	309	298	268	298	290	290	235	220	250	277	276	289	6623
				14	293	298	310	327	326	335	339	347	327	311	309	293	14	294	289	279	241	209	213	229	241	249	273	299	341	6972
				15	376	340	333	318	351	310	272	297	329	326	320	319	15	310	301	300	280	146	79	129	246	290	313	320	300	6905
				16	330	318	313	321	361	258	308	311	339	323	311	279	16	238	247	209	186	211	244	266	281	293	309	303	324	6883
				17	329	320	324*	338	319	331	359	337	327	323	313	307	17	299	397	299	289	280	281	279	289	284	281	290	300	7495
				18	299	298	301	318	306	300	299	299	309	291	249	280	18	260	273	290	295	289	287	289	287	281	287	286	289	6962
				19	297	297	290	289	295	295	294	310	310	291	287	279	19	269	264	268	280	281	288	296	282	270	253	265	289	6839
				20	299	313	335	340	308	301	298	289	291	290	290	287	20	234	268	284	271	277	281	276	271	276	281	292	309	6961
				21	311	323	321	330	319	321	317	300	291	281	259	251	21	263	279	287	278	269	271	271	270	270	271	279	282	6914
				22	294	297	299	290	294	287	291	289	289	284	279	277	22	269	254	227	211	209	214	234	247	256	269	277	277	6414
				23	288	298	310	300	307	297	293	297	290	290	283	273	23	269	280	264	290	279	261	263	267	262	259	265	275	6780
				24	282	293	312	336	358	379	347	327	320	317	305	291	24	270	259	257	238	222	237	249	272	282	278	276	287	6994
				25	302	302	317	341	322	373	352	331	316	292	292	263	25	214	253	287	289	292	297	297	289	288	292	298	299	7198
				26	294	298	303	332	348	362	333	309	297	290	288	287	26	286	278	226	236	284	299	291	294	288	289	291	290	7093
				27	294	291	291	297	308	297	298	288	288	287	282	265	27	268	283	288	290	254	265	274	271	269	285	286	292	6811
				28	299	289	290	297	320	300	290	290	287	286	269	246	28	203	231	267	289	287	273	278	274	274	269	284	290	6662
				29	298	289	284	289	293	290	319	311	300	300	284	286	29	273	237	280	281	289	279	279	281	281	283	290	287	6883
				30	294	297	300	330	330	301	291	287	289	281	281	277	30	215	179	189	246	271	297	286	279	271	290	297	307	6685
				31												31														

SCALED BY SPT, PEF

Preliminary base-line and scale values:

CHECKED BY JEP, SPT, EAS

Interval Beginning Base-line Value Scale Value

SIGNS RE-VIEWED BY JEP

PUNCHED BY

() Interpolated

[] Scaling uncertain because of magnetic storm.

[] Significant portion of hour interpolated.

[] Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

[] No record; or no values available because of faulty record.

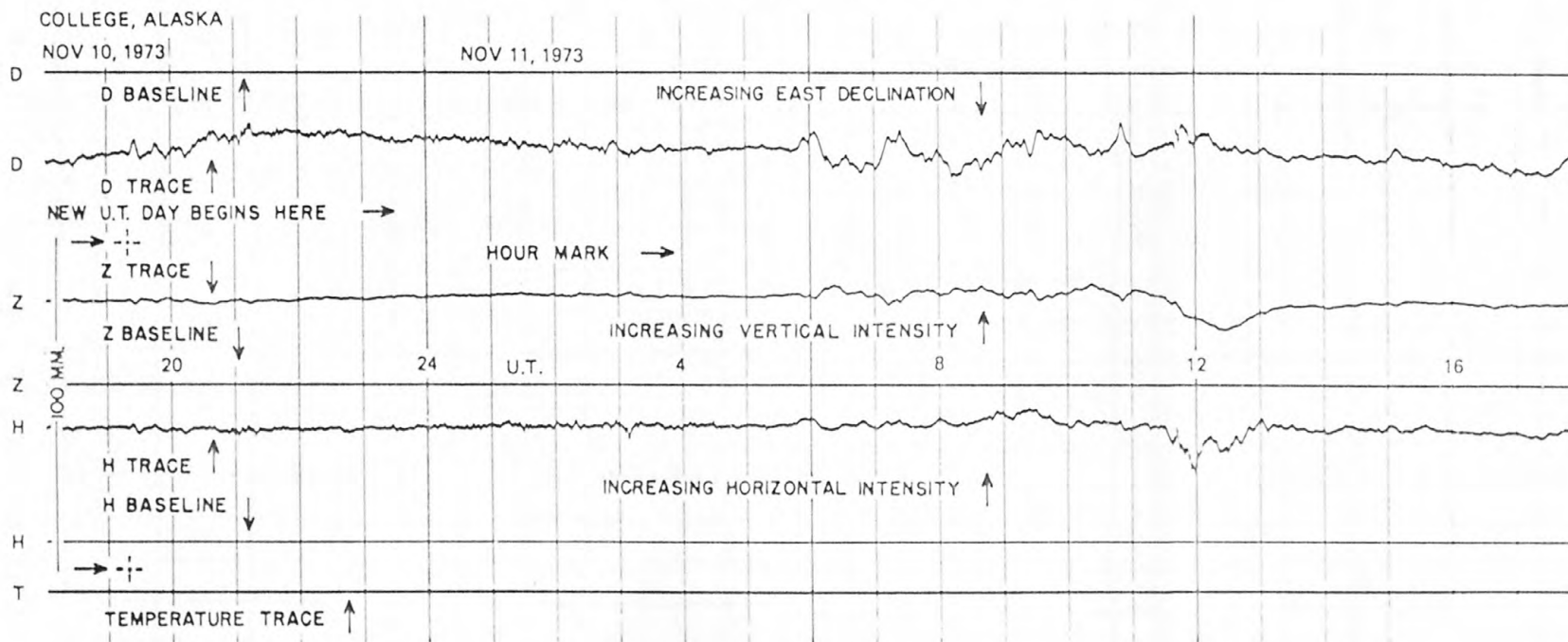
* Derived from Storm Mmph., converted to Normal Mmph.

MONTHLY SUM 205920

MONTHLY MEAN 286

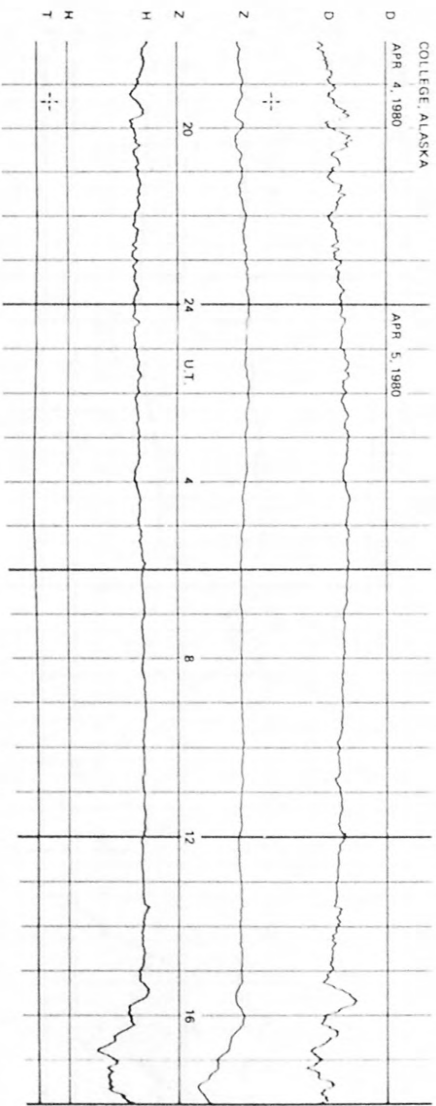
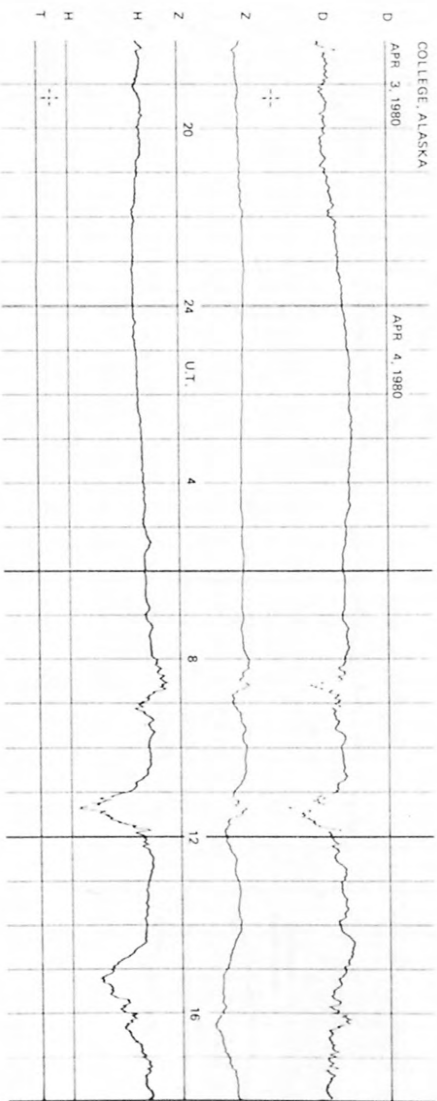
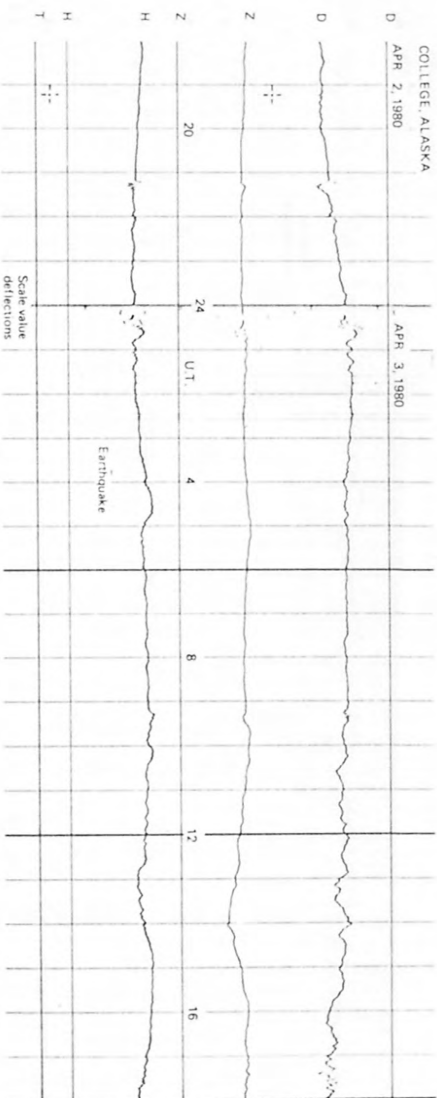
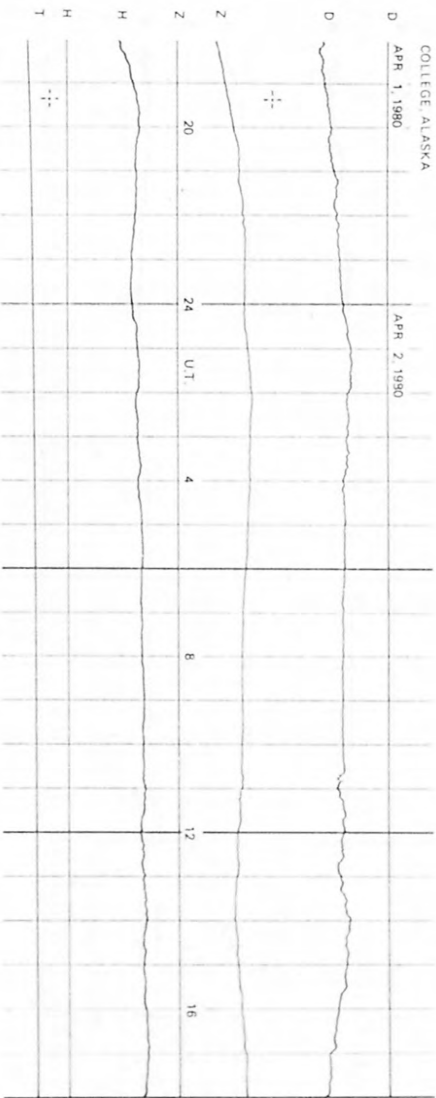
DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

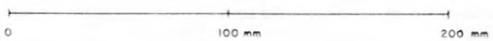
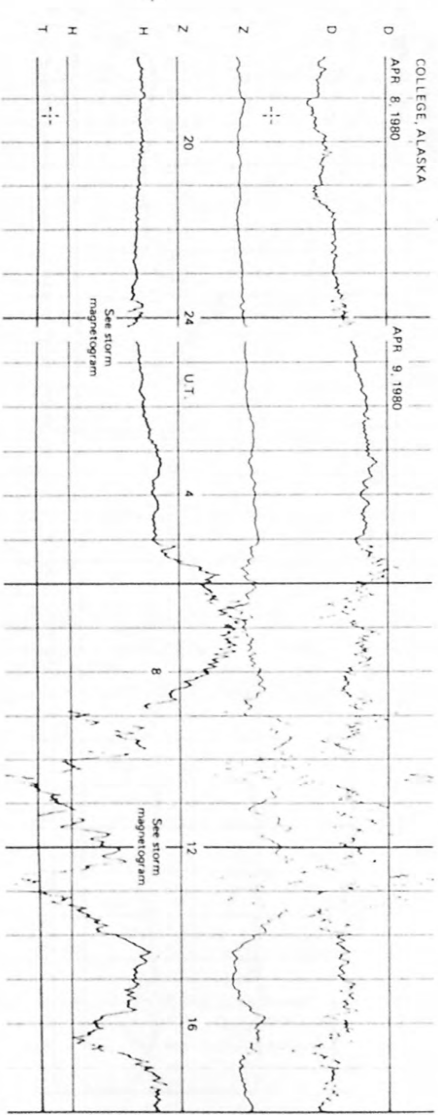
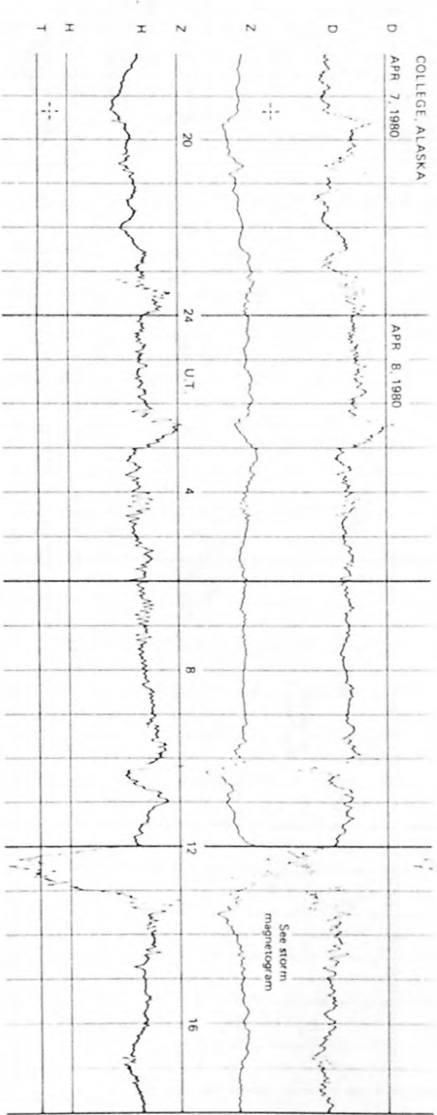
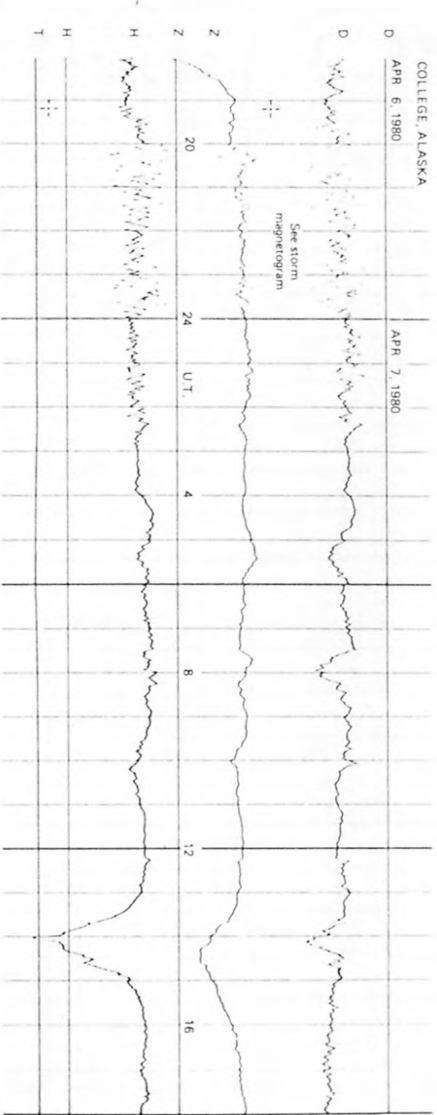
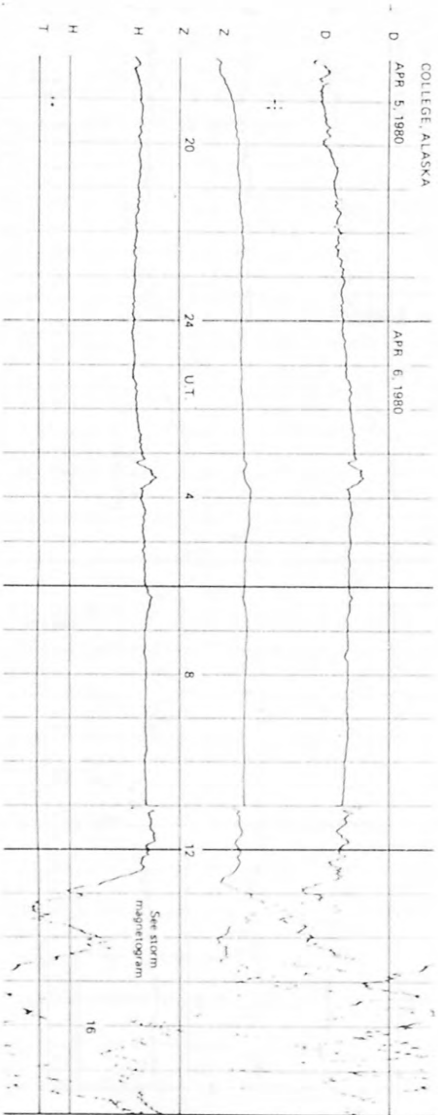


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

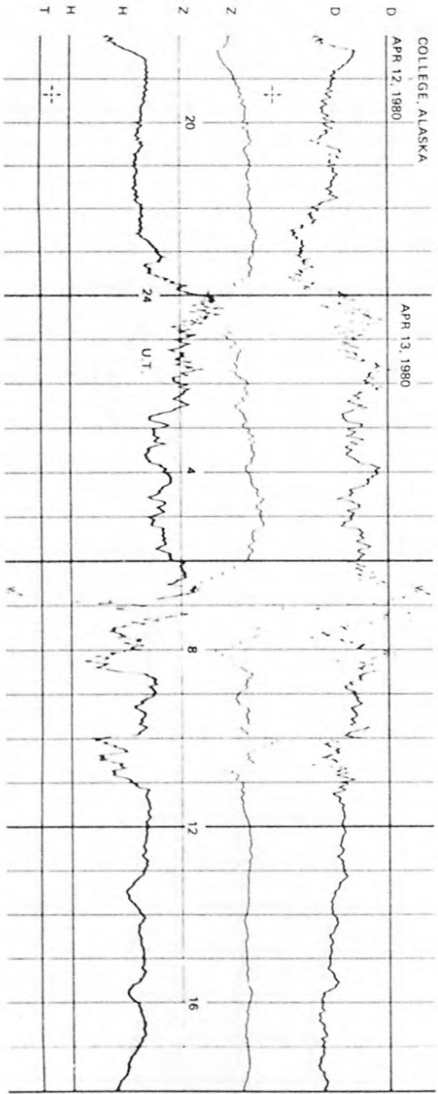
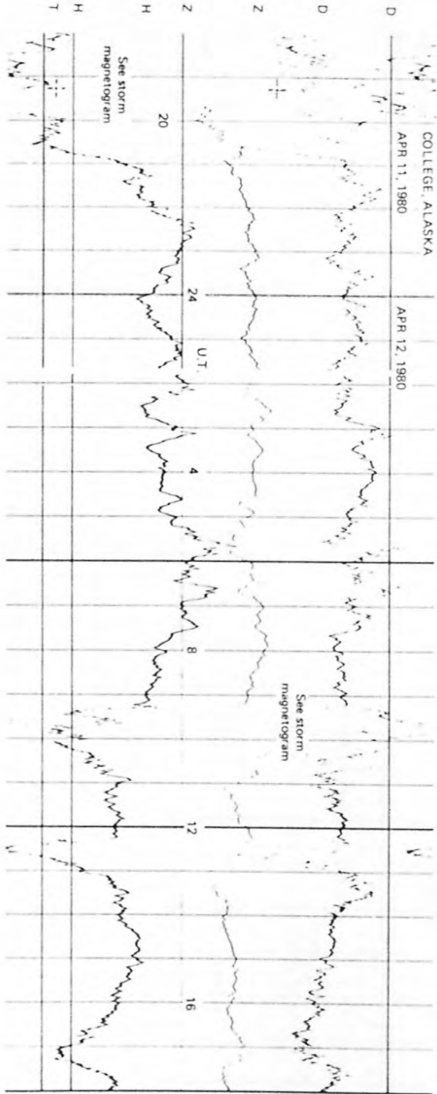
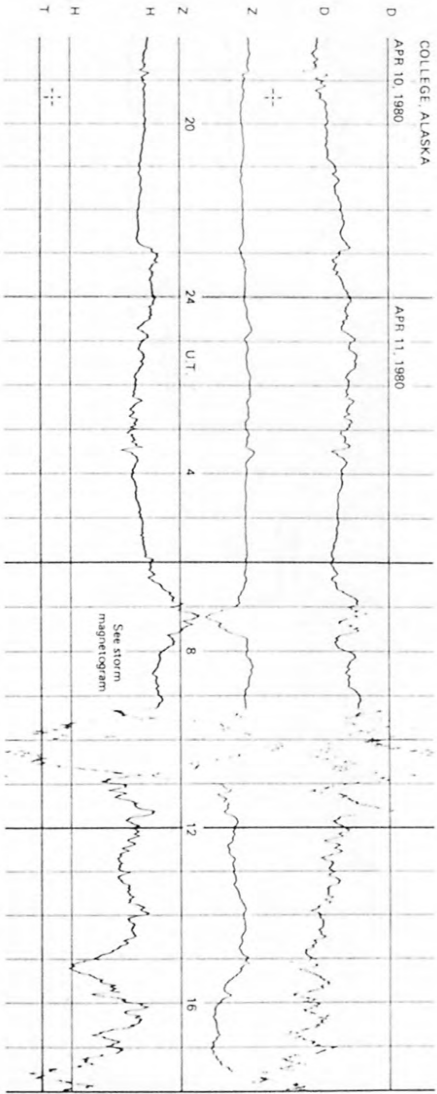
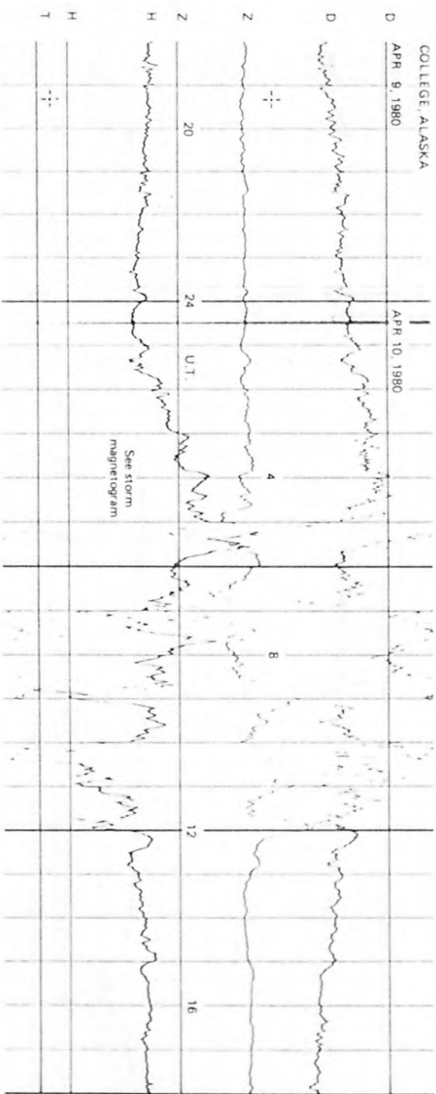
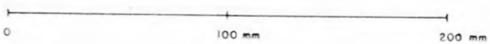
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

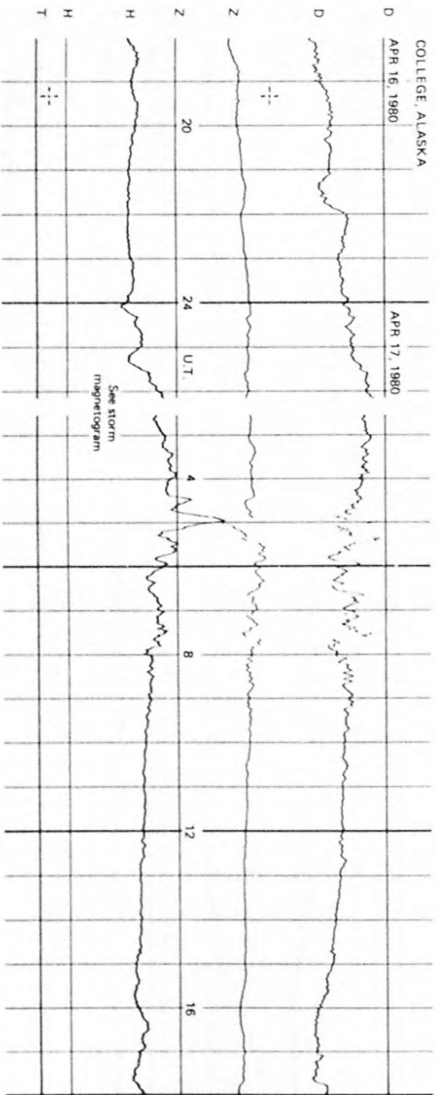
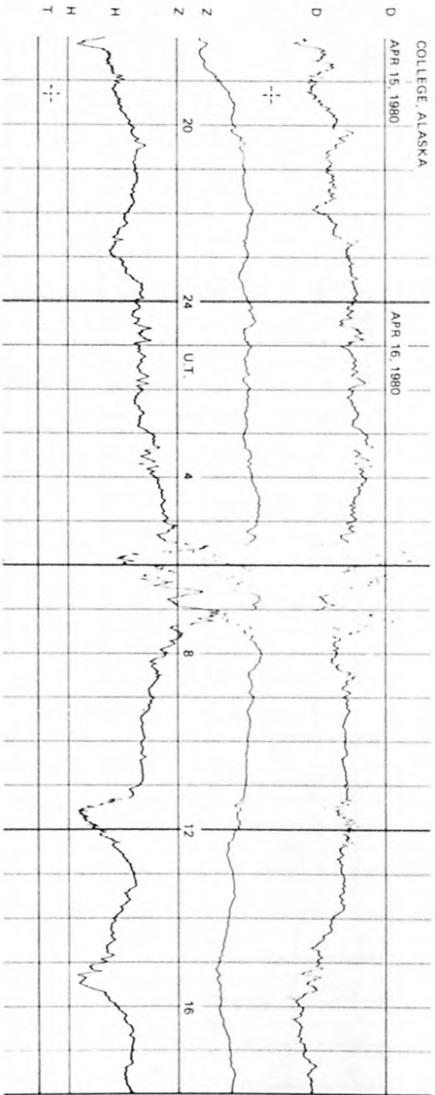
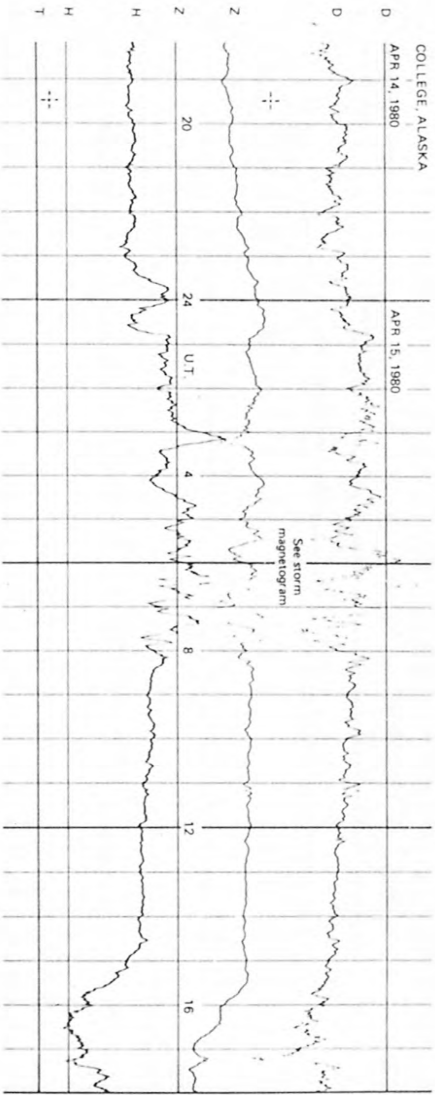
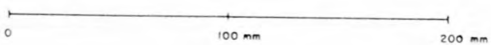


NORMAL MAGNETOGRAMS



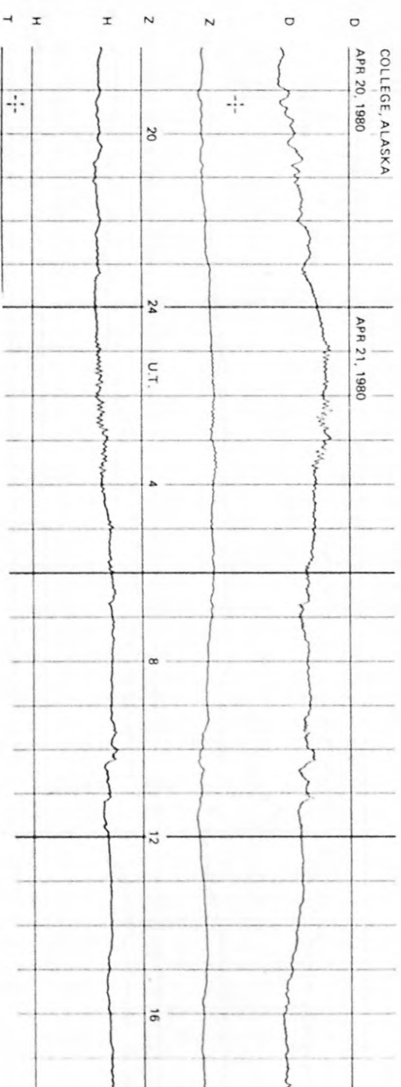
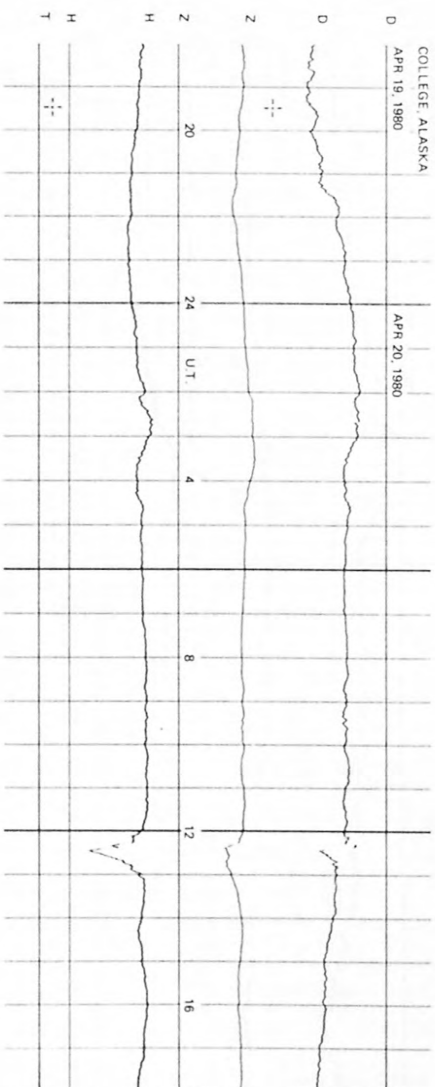
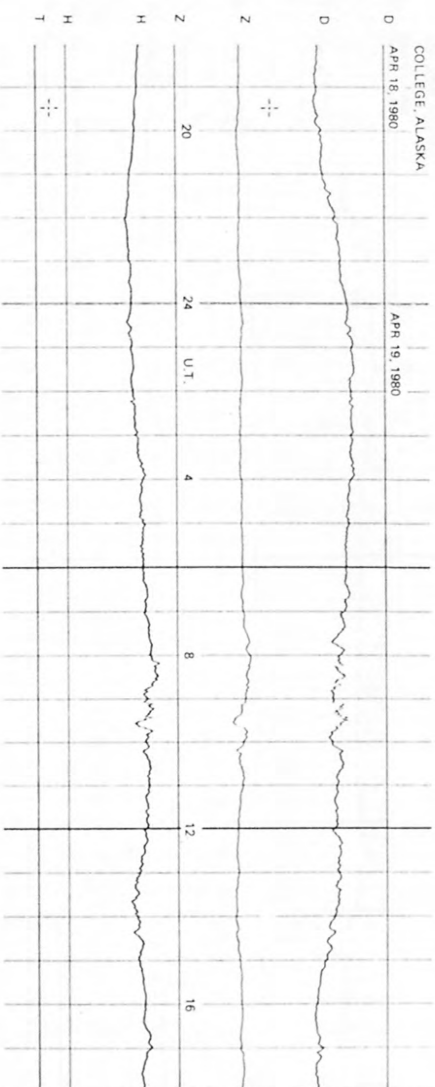
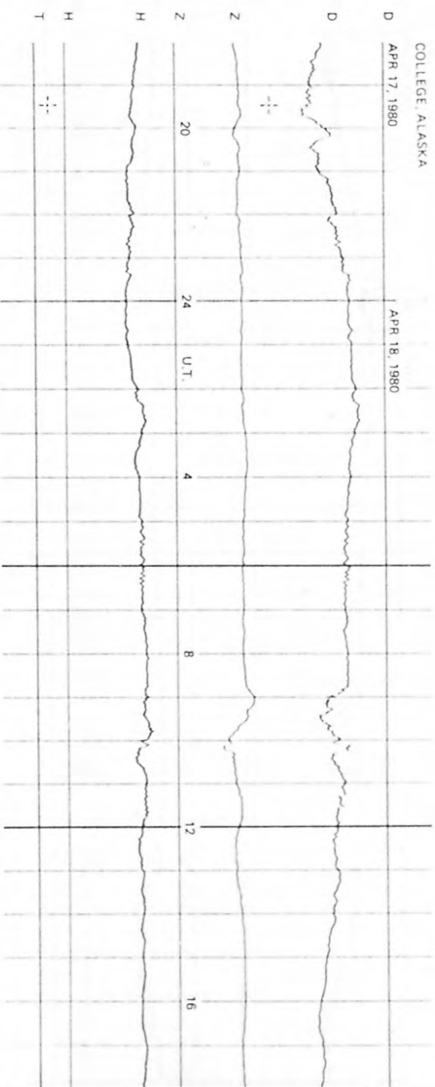
APR 13, 1980

NORMAL MAGNETOGRAMS

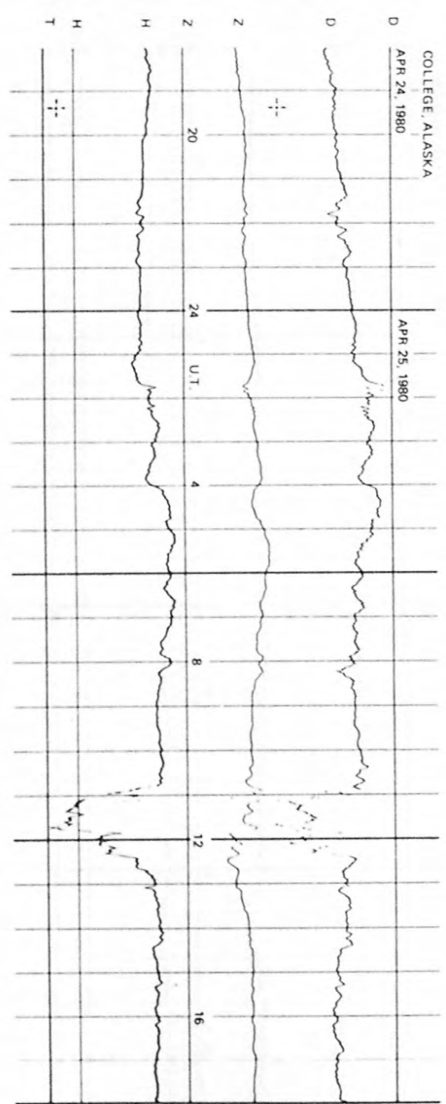
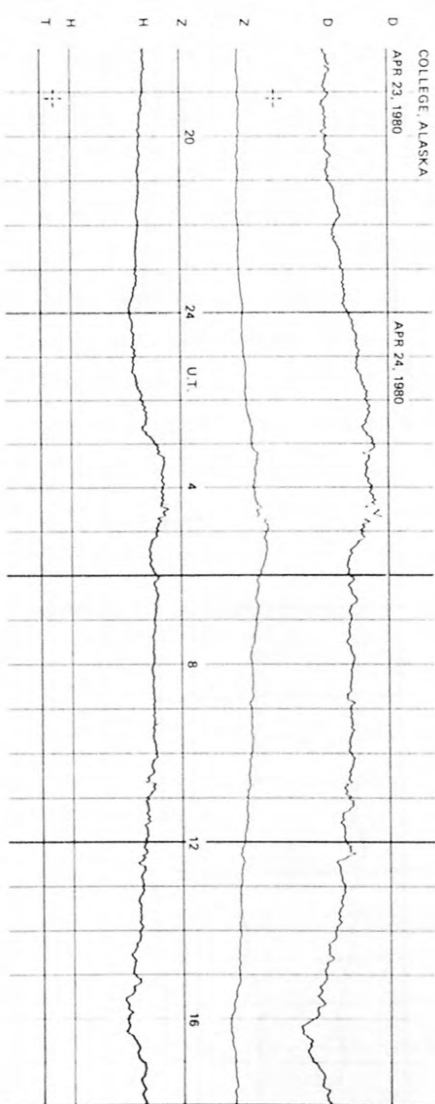
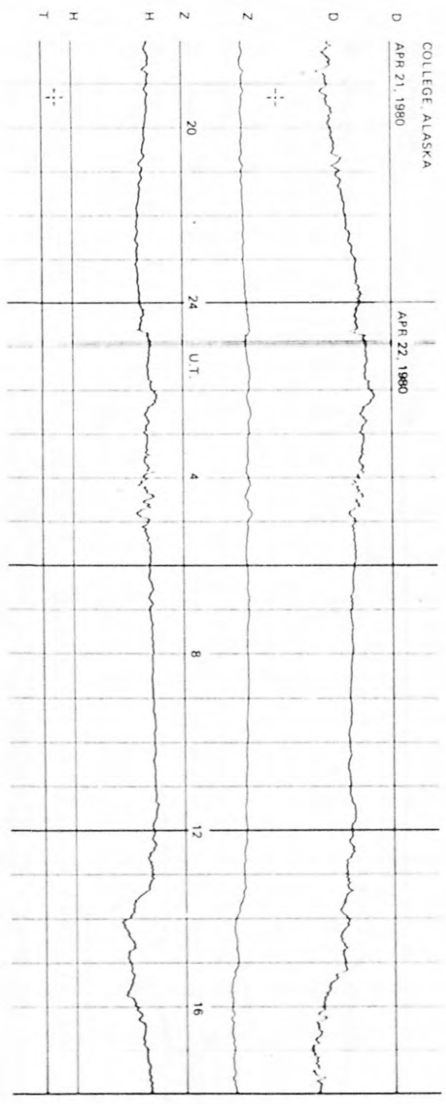
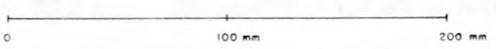


NORMAL MAGNETOGRAMS

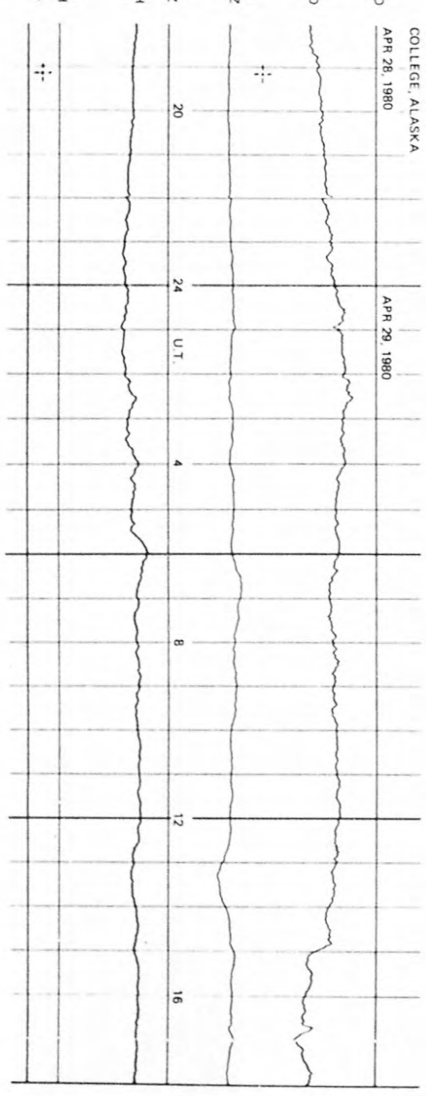
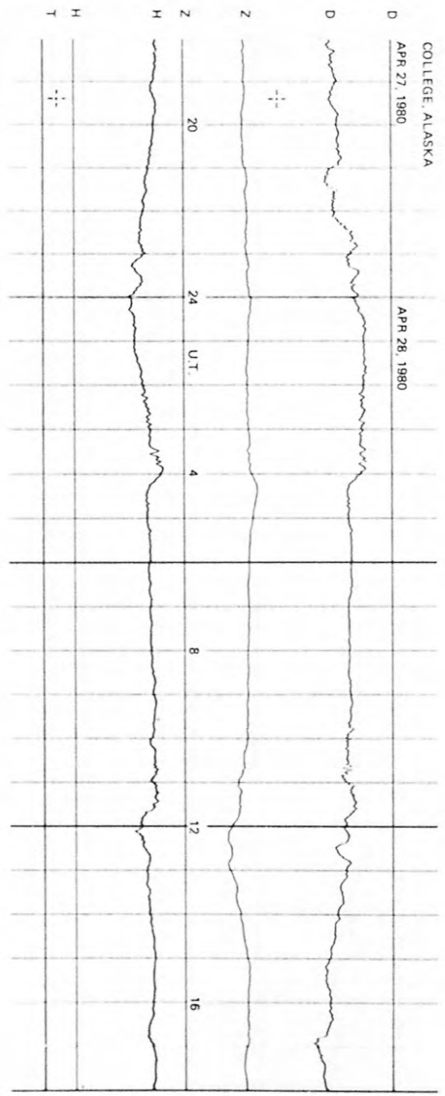
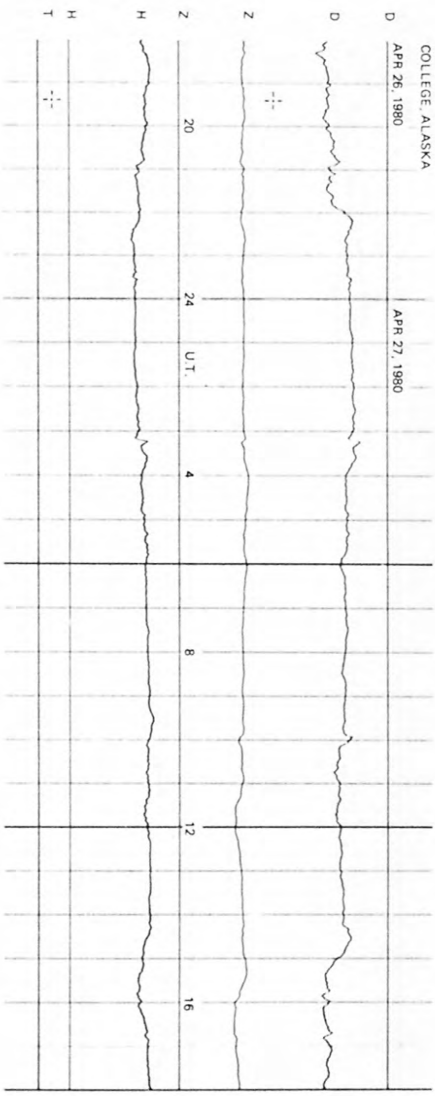
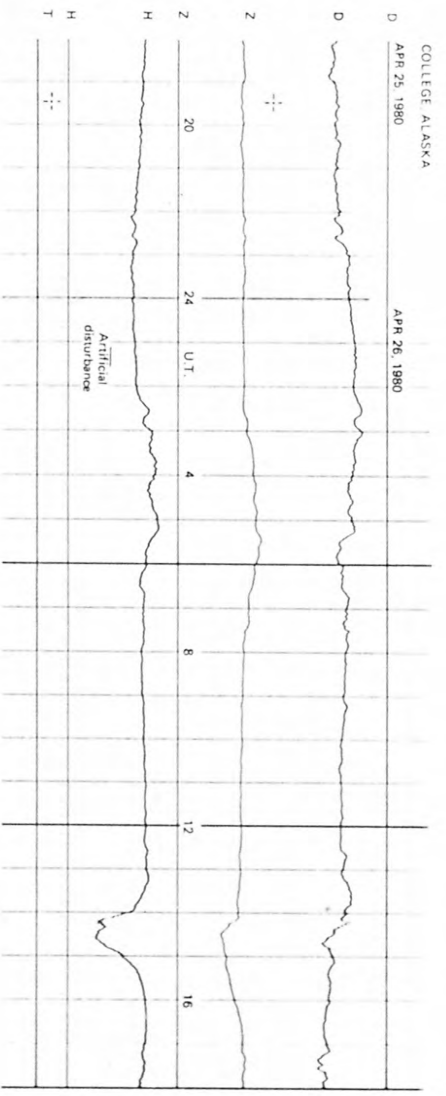
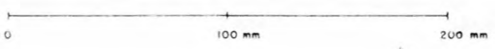
200 μ
100 μ
0



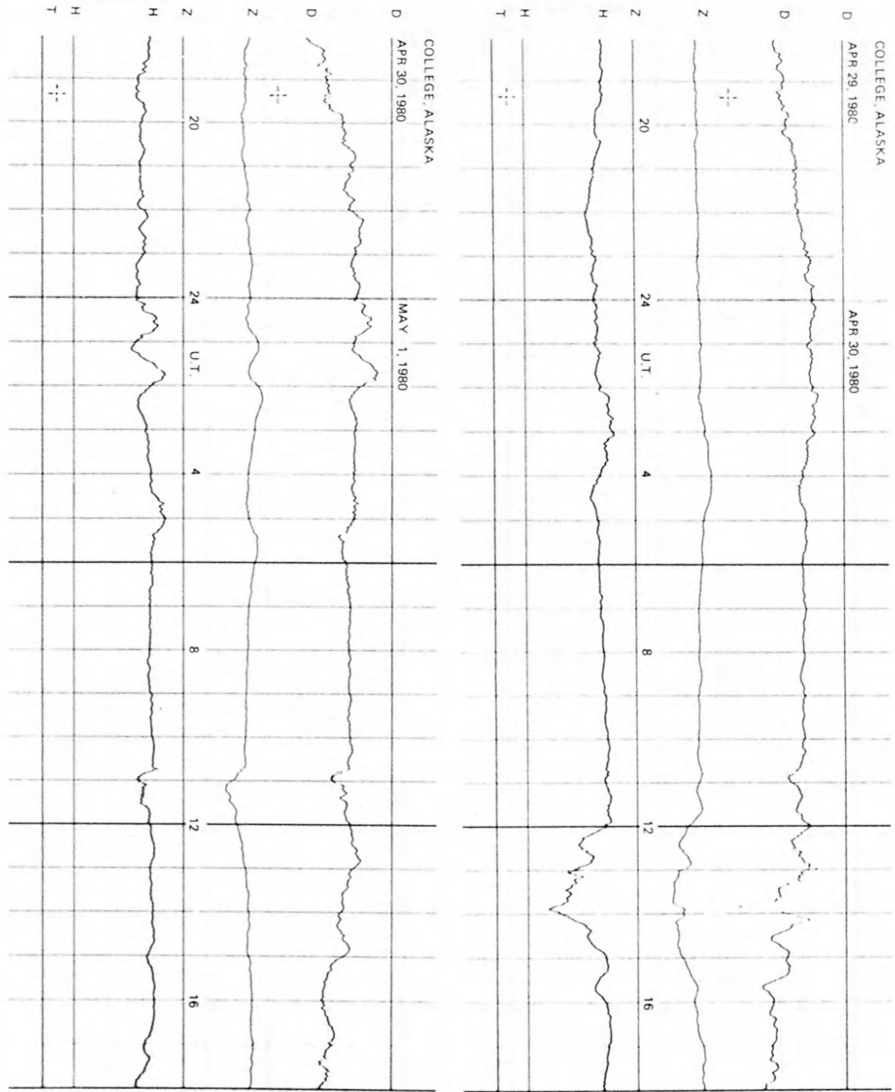
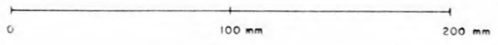
NORMAL MAGNETOGRAMS



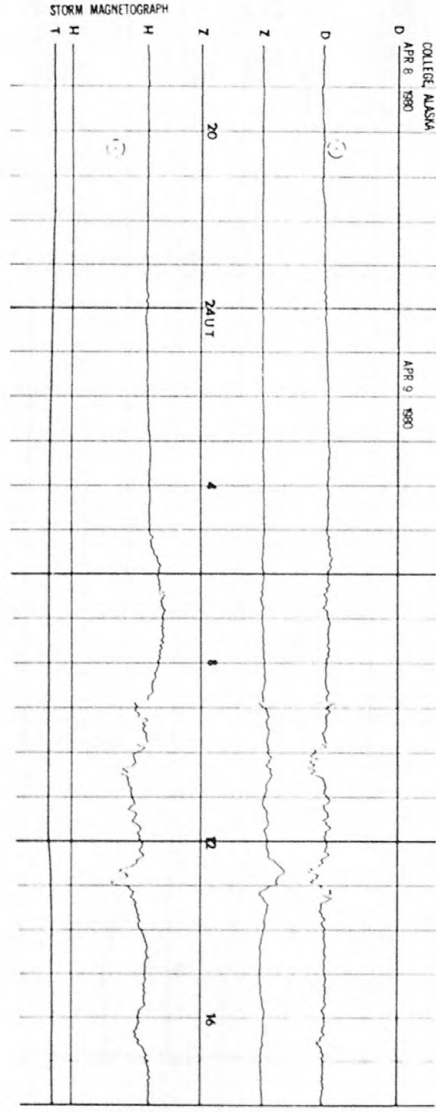
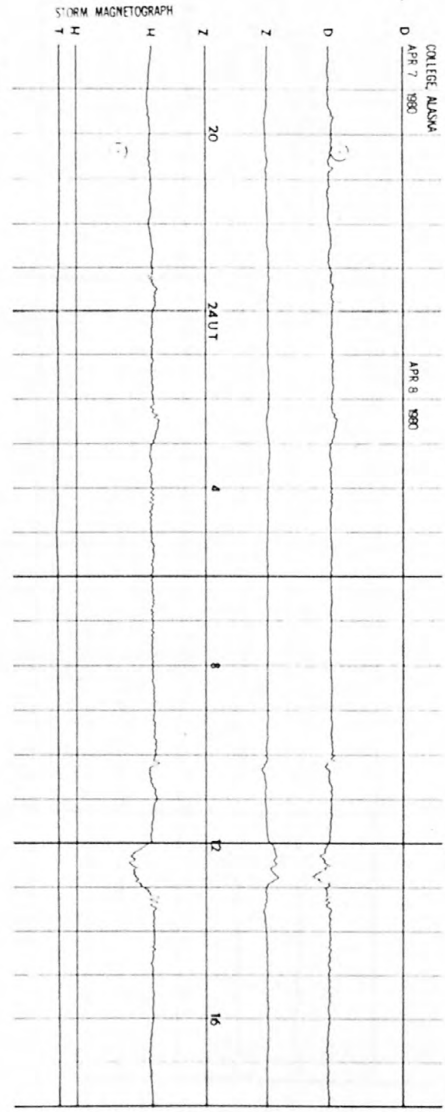
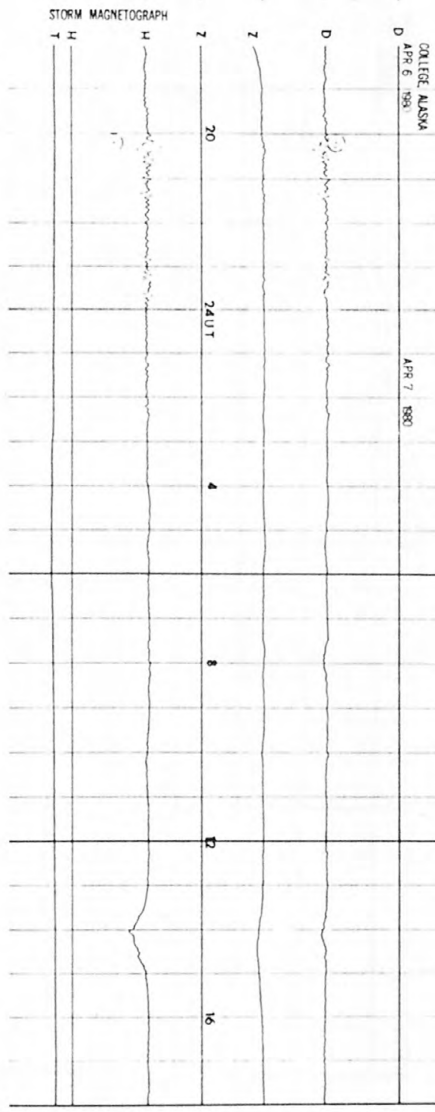
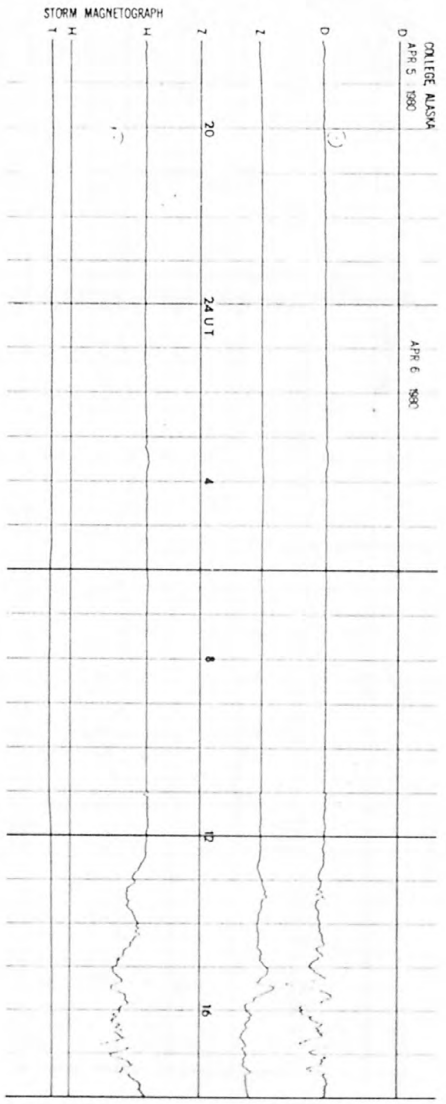
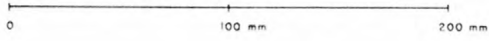
NORMAL MAGNETOGRAMS



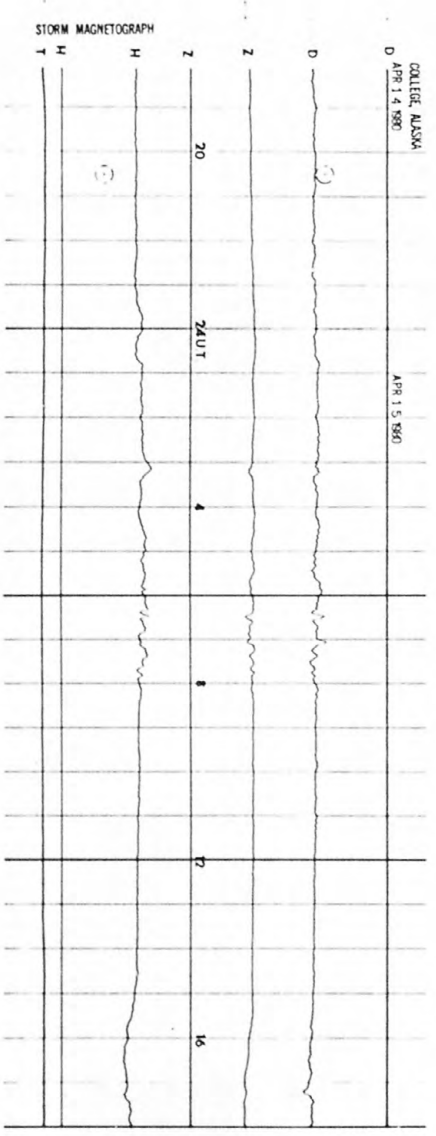
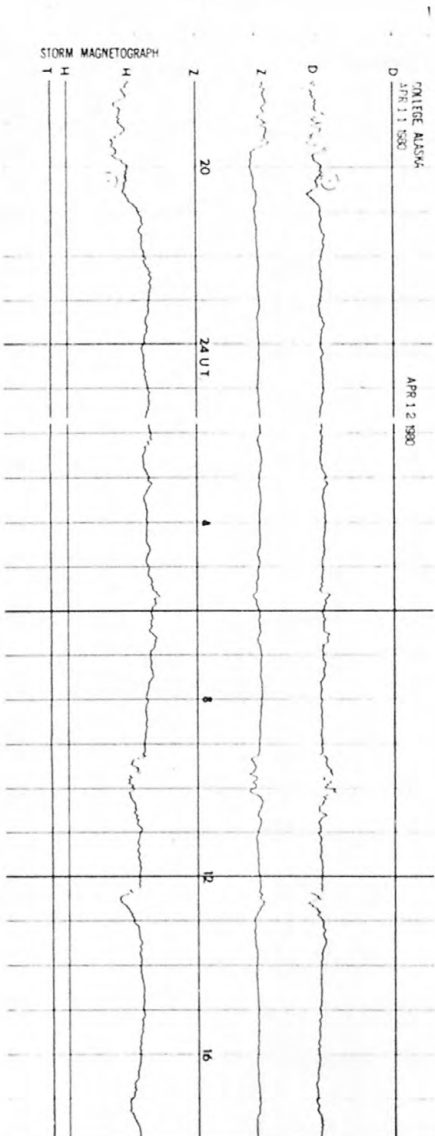
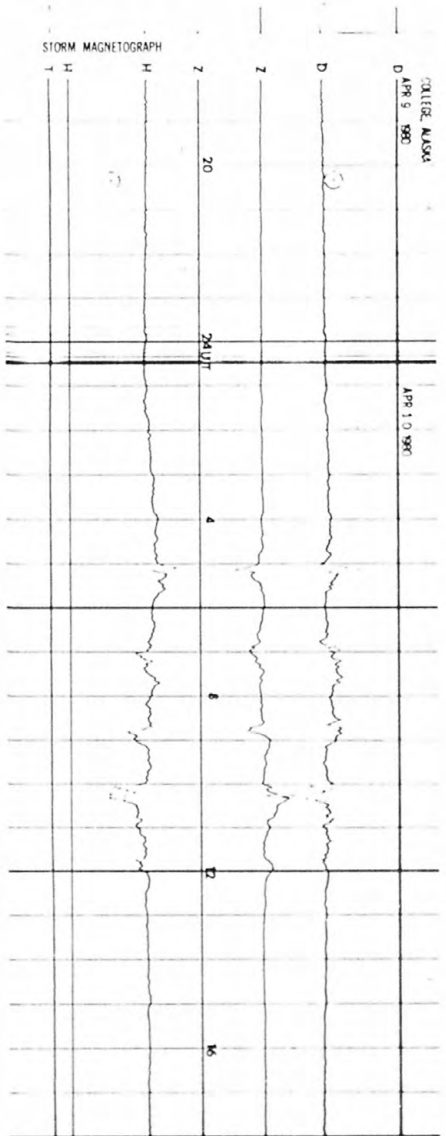
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

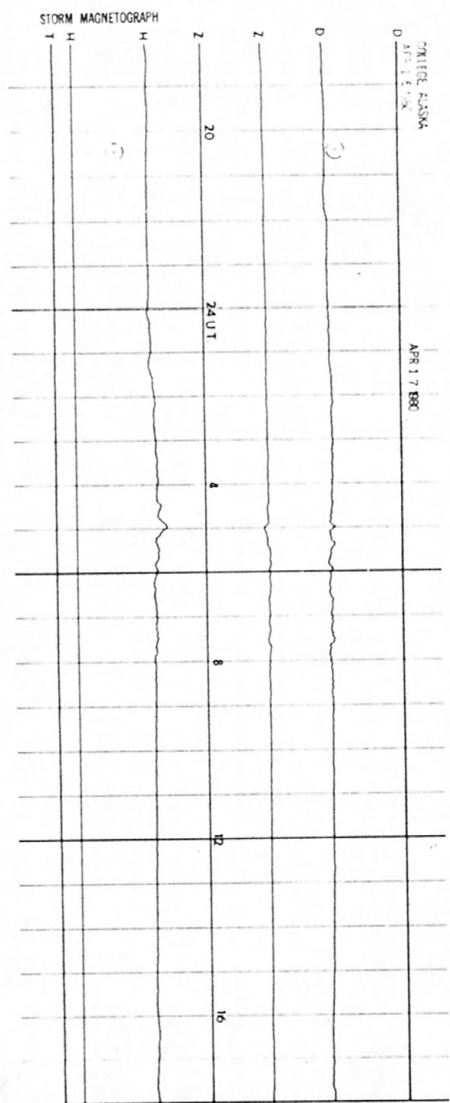


STORM MAGNETOGRAMS



STORM MAGNETOGRAMS

0 100 mm 200 mm



STORM MAGNETOGRAMS



2 E9044000 9797 E



USGS LIBRARY RESTON

