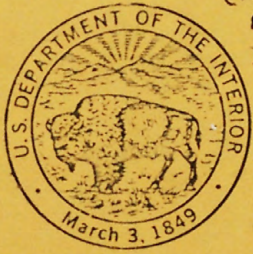


UNITED STATES DEPARTMENT OF THE INTERIOR



(200)
R290
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U.S.

GEOLOGICAL SURVEY.



PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

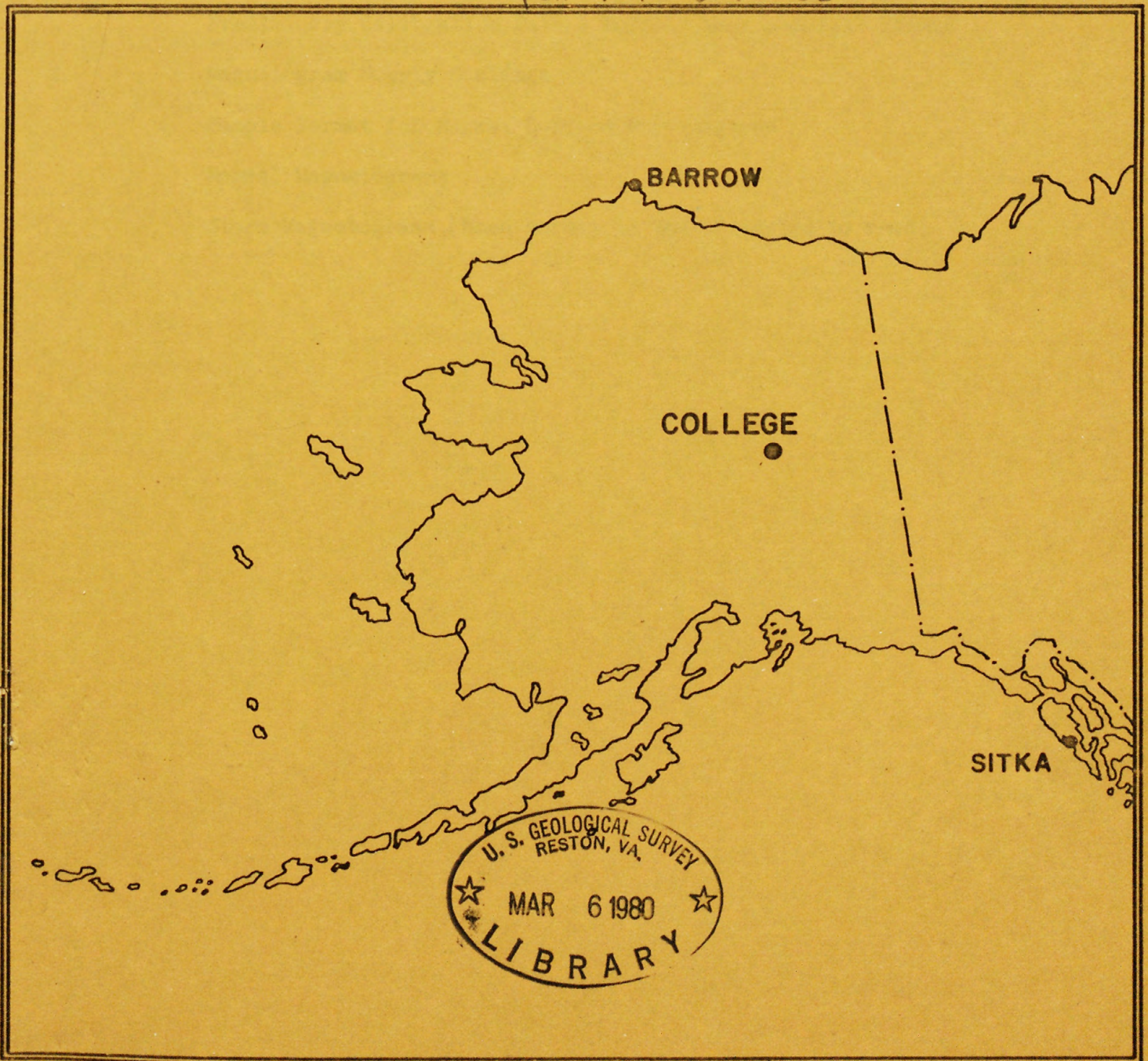
TM
VCM
V.O.E. subseries

JANUARY 1980

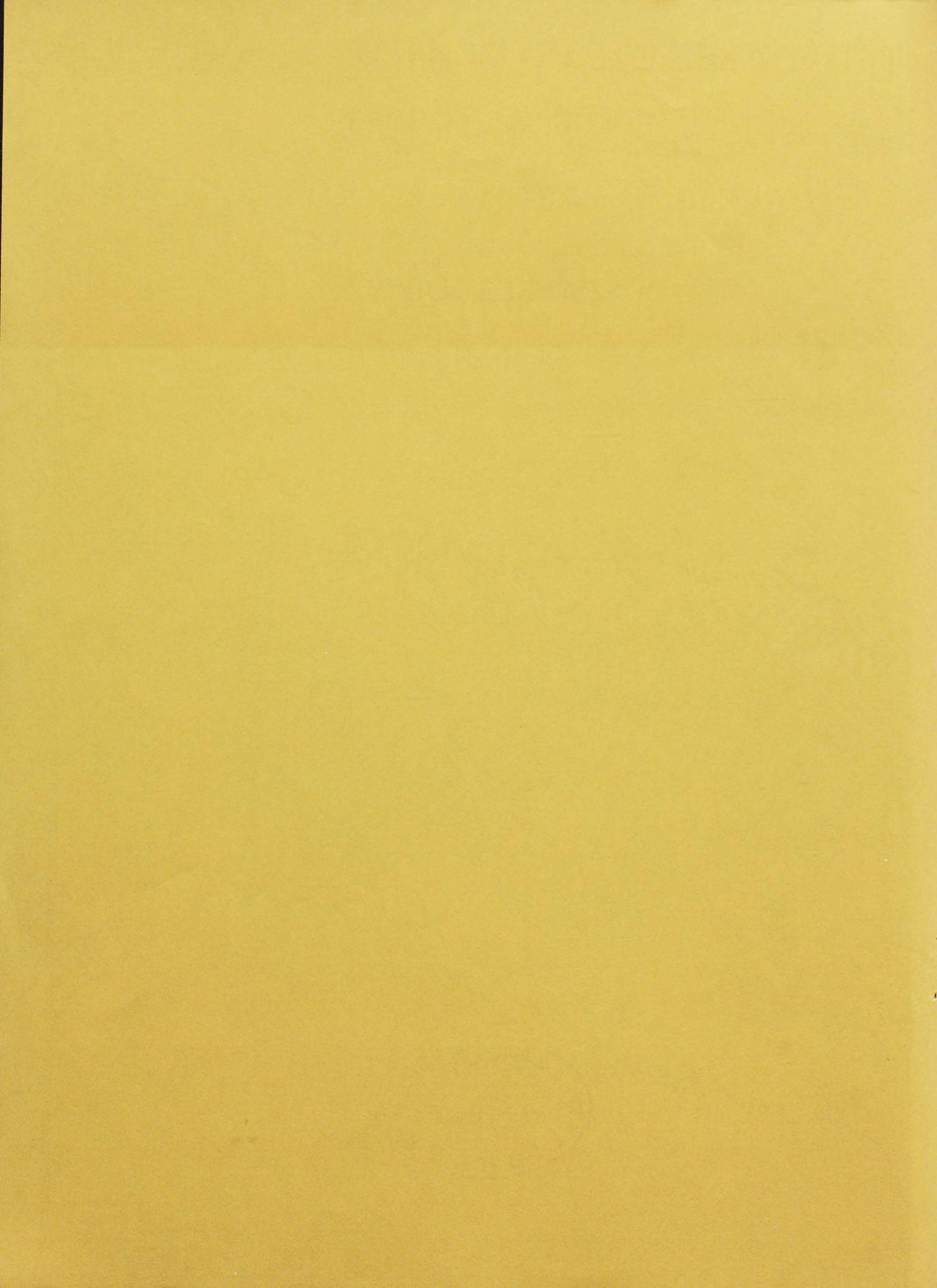
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Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. 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

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

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.

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 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.

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.

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)

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.

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.

Absolutes, Base-lines, and Scale Values

To determine the absolute value of the magnetic field from the hourly means or from point scalings the following equations should be used:

$$D = B_D + d \cdot S_D; H = B_H + h \cdot S_H; Z = B_Z + z \cdot S_Z$$

where D, H, and Z are absolute values;
B_D, B_H and B_Z are base-line values;
S_D, S_H and S_Z are scale values;
and d, h, and z are scalings in millimeters.

MAGNETIC ACTIVITY
(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

JANUARY 1980

DATE	K-INDICES									AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM		
1	1	1	3	6	5	5	5	4	30	34	SUDDEN COMMENCEMENTS d h m
2	3	2	1	5	5	3	1	1	21	18	
3	2	2	1	5	5	3	3	3	24	20	
4	3	2	3	4	4	4	4	2	26	19	
5	2	2	1	5	5	4	2	3	24	20	
6	2	2	1	2	3	3	1	1	15	08	
7	0	0	0	0	2	1	1	2	06	03	
8	1	1	1	4	0	0	0	0	07	05	
9	0	0	0	1	1	0	0	0	02	01	
10	0	0	0	0	1	1	0	0	02	01	
11	0	1	1	5	5	5	3	3	23	23	
12	0	0	0	1	0	0	0	0	01	00	
13	0	2	3	6	5	5	5	3	29	33	
14	2	1	2	3	2	3	2	1	16	08	
15	0	0	0	2	4	2	2	1	11	06	
16	3	2	2	3	3	0	0	0	13	07	
17	0	0	2	5	6	5	1	0	19	23	
18	1	0	2	1	2	0	0	0	06	03	
19	0	0	0	1	0	0	1	1	03	01	
20	1	1	0	1	2	0	0	0	05	02	
21	0	0	0	2	4	1	0	0	07	05	
22	0	0	1	2	3	0	1	1	08	04	
23	0	0	2	3	2	0	0	0	07	04	
24	0	0	0	3	0	1	1	0	05	03	
25	0	0	0	0	3	2	2	1	08	04	
26	0	0	0	1	3	0	1	1	06	03	
27	1	2	2	4	6	6	5	4	30	35	
28	2	4	3	3	6	6	5	3	32	36	
29	4	3	2	4	6	5	4	2	30	30	
30	2	2	3	5	3	4	0	1	20	15	
31	0	0	0	0	0	0	1	1	02	01	

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

H

Z

683.8

321.7

3.75

7.81

2560

2510

(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
JANUARY

YEAR
1980

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
03	15XX	pe5	
04	18XX	pe5	
05	16XX	pe5	
07	1815	si	
13	0510	ssc*	
15	18XX	pe3	
22	13XX	pi2	With bay.
25	13XX	pi2	
26	13XX	pi2	With bay.
IDENTIFIED BY: JEP		VERIFIED BY: JBT	

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

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA
JANUARY 19 80

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	07XX	..	..	..	..	01	4	6	152	920	570	02	05
		13	0510	s.c.*	-5	+68	-13	13	4	6	141	970	550	13	23
		27	08XX	..	..	..	..	27	5, 6	6	240	1230	750	29	22
								28	5, 6	6					
								29	5	6					

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 1-1-80	2400 U.T., 1-31-80	1.0/mm	3.78/mm	27° 47.3 E
H	0000 U.T., 1-1-80	2400 U.T., 1-20-80	7.88/mm		127438
	0000 U.T., 1-21-80	2400 U.T., 1-31-80	7.88/mm		127498
Z	0000 U.T., 1-1-80	2400 U.T., 1-12-80	7.38/mm		551788
	0000 U.T., 1-13-80	2400 U.T., 1-31-80	7.38/mm		551738

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 1-1-80	2400 U.T., 1-31-80	7.8/mm	29.78/mm	23° 51.8 E
H	0000 U.T., 1-1-80	2400 U.T., 1-20-80	44.08/mm		114848
	0000 U.T., 1-21-80	2400 U.T., 1-31-80	44.08/mm		115058
Z	0000 U.T., 1-1-80	2400 U.T., 1-31-80	48.58/mm		540388

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

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 10.0 E	130178	553778

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JAN 7, 9, 10, 12, 18, 19, 20, 24, 26, 31

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 6996 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

CO RO JAN D

C	Q	Te	HT	01	02	03	04	05	06	07	08	09	10	11	12	HT	13	14	15	16	17	18	19	20	21	22	23	24	SUM	
				01	178	197	197	208	209	199	184	171	139	122	95*	339	01	381	442	769*	603*	381*	539*	452*	381	316	269	168	181	7120
				02	179	158	182	210	201	201	211	231	211	203	191	238	02	356	383	262	248	272	239	252	267	248	242	241	218	5644
				03	213	181	186	182	142	161	228	234	232	228	216	122	03	233	297	251	239	243	321	308	310	263	212	144	179	5325
				04	167	211	191	188	136	180	176	217	219	224	222	281	04	208	241	351	311	231	230	252	250	221	218	218	228	5371
				05	201	200	203	211	200	190	208	227	221	231	149	229	05	340	344	378	233	240	232	263	281	258	256	241	221	5757
				06	211	220	189	177	190	208	219	228	268	213	203	228	06	248	238	242	250	211	268	280	279	271	270	251	237	5599
				07	219	210	199	199	199	201	211	228	215	221	228	232	07	229	232	220	211	221	251	270	290	289	288	280	251	5594
				08	201	219	201	201	200	196	230	199	218	269	291	220	08	220	231	228	238	241	249	258	271	277	271	267	241	5637
				09	219	218	212	217	211	209	208	210	221	211	249	217	09	241	218	221	202	221	229	258	281	300	299	289	268	5629
				10	251	238	223	221	215	209	201	199	181	199	203	200	10	199	208	270	259	243	247	247	279	287	281	277	269	5606
				11	258	261	252	252	239	229	199	210	187	240	297	309	11	261	241	278	261	362	391	299	289	241	241	209	219	6225
				12	221	217	210	209	214	218	218	212	218	218	229	236	12	239	222	221	230	238	240	251	267	267	268	250	231	5544
				13	221	218	216	211	211	213	218	182	194	171	236	257*	13	606*	407*	471*	384*	336*	289*	273*	186*	209	201	209	203	6322
				14	193	200	199	208	202	219	221	230	260	233	209	208	14	233	231	230	253	259	257	270	282	261	247	233	211	5549
				15	203	208	211	219	221	219	219	210	199	229	241	218	15	198	248	218	228	240	252	218	287	259	253	242	213	5453
				16	211	211	169	171	210	209	231	212	227	239	248	238	16	229	243	210	219	236	242	249	251	249	249	241	230	5424
				17	211	209	209	221	221	223	218	275	221	222	236	225	17	234	298	334	232	268	232	238	251	239	237	228	219	5701
				18	200	204	207	208	209	209	212	215	241	229	223	237	18	216	241	238	221	239	242	262	272	262	246	219	203	5455
				19	197	198	208	203	212	218	222	218	212	226	214	221	19	228	232	236	238	232	238	234	241	225	229	231	210	5323
				20	163	189	174	188	192	198	219	222	218	222	222	238	20	248	239	223	227	238	249	260	256	240	239	232	213	5309
				21	200	179	201	205	212	222	223	225	219	245	253	245	21	232	231	214	234	211	246	250	259	259	250	240	218	5473
				22	208	209	211	211	211	217	210	210	211	200	247	233	22	230	224	222	237	251	261	278	258	213	201	218	201	5372
				23	190	191	200	193	191	188	238	191	201	186	271	220	23	218	228	248	224	230	231	243	255	261	240	220	211	5269
				24	201	209	211	210	209	207	209	219	210	201	199	231	24	229	223	247	239	298	291	211	251	260	250	236	223	5474
				25	213	208	208	209	209	214	214	218	220	222	218	219	25	222	249	266	278	270	299	265	248	266	266	240	219	5660
				26	193	185	174	173	198	197	210	223	214	218	236	243	26	241	306	218	205	230	237	249	250	239	275	262	233	5409
				27	203	187	188	130	211	228	222	210	270	220	256	315	27	266	333	362*	647*	520*	322*	273	351	158	132	179	148	6331
				28	156	151	121	97	70	97	240	231	220	204	211	231	28	425*	473*	321	607*	695*	481*	623*	199	242	193	223	187	6698
				29	201	117	151	178	181	202	217	227	229	220	208	130	29	232	272	251*	598	288	356	361	294	292	254	218	185	5862
				30	145	170	184	198	208	212	208	198	179	124	238	252	30	204	233	250	253	233	270	280	280	269	267	245	208	5308
				31	198	203	190	188	198	201	212	209	207	228	213	222	31	233	232	227	228	236	248	275	302	307	301	287	230	5575

SCALED BY	SPT, PEF	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value	<input type="checkbox"/> Interpolated <input type="checkbox"/> Significant portion of hour interpolated. <input type="checkbox"/> No record; or no values available because of faulty record. * Derived from Storm Mghp., converted to Normal Mghp.	<input type="checkbox"/> Scaling uncertain because of magnetic storm. <input type="checkbox"/> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY SUM	176018
CHECKED BY	JEP, EAS, SPT, PEF				MONTHLY MEAN	237
SIGNS REVIEWED BY	JEP				DATES WITH GAPS:	
PUNCHED BY						

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 8000 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	U or S	Len	HR	01	02	03	04	05	06	07	08	09	10	11	12	HR	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	351	351	350	363	361	361	389	418	449	361	-9*	-94	01	-91	-11	-218*	-136	-202*	-331*	-162*	46	-121	189	331	347	3292
			02	319	388	423	357	379	374	368	359	369	383	371	246	02	-58	231	351	379	333	329	353	349	339	330	329	329	7930
			03	333	360	361	341	406	410	380	361	357	367	376	-4*	03	56	336	331	371	359	321	345	279	329	296	281	321	7673
			04	367	362	389	386	429	406	449	381	363	349	310	177	04	292	344	198	84	172	271	351	313	339	340	323	340	7735
			05	353	360	367	371	372	379	387	383	381	359	181	267	05	48	-42	13*	206	279	331	361	361	351	341	331	330	7070
			06	341	359	374	339	369	382	376	369	370	356	319	341	06	342	349	288	271	340	363	351	350	350	337	330	329	8295
			07	331	341	350	357	360	362	360	362	361	359	359	351	07	334	309	331	350	361	361	361	351	336	331	324	299	8301
			08	327	341	342	356	355	349	359	376	359	341	249	247	08	361	359	356	356	359	359	356	349	342	331	324	321	8174
			09	331	341	342	340	340	346	347	341	331	341	339	340	09	346	350	343	359	359	359	353	350	347	339	329	320	8233
			10	329	334	339	340	348	351	354	353	351	350	348	342	10	349	329	341	341	369	371	359	359	349	330	320	321	8277
			11	331	344	351	359	360	374	360	353	361	323	90	-56	11	133	347	260	14	213	293	376	369	319	249	301	330	6754
			12	333	339	340	347	350	353	351	354	351	351	350	351	12	356	351	359	359	359	360	359	351	349	339	339	331	8382
			13	336	346	349	350	350	366	361	379	371	324	189	-127*	13	383*	-3	-10	-202*	-289*	-167*	-71	-2	254	333	373	324	3451
			14	364	373	386	361	361	353	347	348	360	279	321	293	14	327	331	318	314	258	329	359	351	349	348	331	331	8092
			15	341	350	347	349	344	350	350	345	349	350	351	331	15	134	259	371	369	360	344	288	341	340	341	345	344	7993
			16	344	329	380	389	355	360	406	413	381	323	299	239	16	269	327	351	351	350	351	351	349	339	336	332	331	8255
			17	340	341	351	353	350	351	349	367	363	281	199	229	17	349	256	-114*	230	372	377	371	362	350	344	347	348	7466
			18	349	351	359	359	351	353	356	357	359	339	341	340	18	328	330	361	360	359	360	359	357	347	338	334	328	8375
			19	334	346	357	357	357	358	358	358	358	361	363	350	19	355	355	354	357	358	350	345	349	348	332	334	333	8427
			20	340	340	328	359	357	371	368	363	358	357	350	342	20	322	353	358	358	357	357	348	338	339	338	338	332	8371
			21	323	331	343	349	350	351	351	342	343	333	322	302	21	309	222	206	343	367	368	360	349	339	331	331	339	7904
			22	334	341	347	347	350	351	361	361	370	381	360	361	22	350	256	351	361	363	357	342	321	324	326	329	330	8274
			23	333	333	339	347	350	354	389	370	390	393	361	341	23	329	353	348	360	361	361	361	356	341	339	333	330	8472
			24	337	340	341	349	351	356	359	357	361	361	351	364	24	364	351	349	342	351	353	338	342	348	343	338	327	8373
			25	330	340	347	351	353	358	362	360	361	359	358	362	25	345	338	266	359	365	359	338	353	350	343	335	328	8320
			26	342	352	362	362	357	358	359	359	360	354	342	349	26	327	307	362	367	368	373	375	368	362	356	338	316	8475
			27	333	333	337	349	347	352	349	348	369	277	189	100	27	342	196	-280*	-230*	-190*	-77*	-5	99	154	201	293	353	4539
			28	352	357	376	472	610	623	389	348	344	368	367	266	28	-32*	-9	253	-162*	-162*	155*	23	321	387	379	353	332	6710
			29	294	398	549	450	413	372	351	357	336	347	344	252	29	344	269	-127*	-71*	7	215	293	218	209	287	326	285	6718
			30	330	352	371	358	356	362	358	365	433	415	269	106	30	383	344	313	208	329	356	353	342	334	331	328	319	8015
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SCALED BY: SPT, PEF
 CHECKED BY: JEP, EAS, SPT, PEF
 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.

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

[] Scaling uncertain because of magnetic storm.

<> Record all sheets for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM 234531

MONTHLY MEAN 315

DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBSY. YEAR MONTH ELEMENT
CO RO JAN Z

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. (hour 01 of local day (LSTW M.T.) is hour 11 of the 0300 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q ^{no}	S	Len	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	299	300	288	300	301	309	310	303	281	270	348	311	01	416	394	442*	415*	229*	122*	408*	429	343	288	244	279	7649
					02	296	288	319	310	299	300	318	328	326	310	293	200	02	249	231	221	270	276	279	281	290	287	290	291	286	6840
					03	287	289	298	300	321	341	321	310	301	299	233	143	03	223	207	260	262	278	251	247	222	249	256	257	274	6429
					04	281	299	300	287	287	329	340	330	301	300	247	191	04	181	251	211	219	198	108	200	210	239	264	270	287	6130
					05	298	296	300	294	291	294	309	300	310	299	264	221	05	197	277	158	178	192	210	231	263	270	296	300	309	6357
					06	304	300	300	307	311	309	304	301	301	266	259	273	06	291	281	260	239	266	289	278	288	289	294	299	296	6905
					07	296	290	287	288	288	289	290	290	289	289	289	288	07	269	236	241	258	284	290	288	290	287	286	293	290	6785
					08	299	311	297	306	311	319	318	320	313	281	206	181	08	261	289	289	289	289	290	290	297	296	298	297	291	6938
					09	289	287	288	289	287	290	288	287	271	258	259	251	09	240	257	249	259	279	283	293	299	300	301	298	293	6695
					10	290	282	281	281	280	279	278	276	274	280	278	266	10	268	260	237	227	251	270	278	279	282	289	293	290	6569
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					12	290	290	289	287	289	289	288	281	280	280	273	267	12	271	276	279	260	280	280	281	287	284	286	286	281	6774
					13	281	280	279	278	279	277	277	280	231	249	292	304*	13	416*	456*	437*	484*	477*	243*	296	121	159	258	290	308	7252
					14	303	296	279	290	300	308	308	310	300	257	278	260	14	273	278	274	259	250	247	276	274	279	282	289	290	6760
					15	296	298	297	297	297	297	291	294	290	297	259	277	15	221	167	221	278	280	268	213	239	260	279	283	281	6480
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					17	291	289	288	291	290	288	289	310	303	257	128	151	17	223	251	169	90	213	233	279	278	271	282	289	290	6043
					18	287	288	284	284	287	290	297	299	269	278	279	269	18	258	219	250	267	276	278	285	287	292	293	288	289	6693
					19	298	299	296	292	295	295	295	295	300	306	292	298	19	293	285	275	271	272	268	268	258	259	269	277	278	6834
					20	284	289	292	300	299	307	305	292	289	283	283	274	20	230	244	265	278	282	283	278	279	272	273	279	279	6739
					21	281	283	289	292	293	294	292	298	293	285	259	235	21	218	201	165	221	267	280	280	289	290	290	289	281	6471
					22	289	287	284	282	283	289	281	289	303	301	297	280	22	281	237	231	261	271	274	280	270	247	257	271	274	6619
					23	281	284	281	289	299	303	347	329	330	288	241	273	23	251	274	265	273	277	277	276	279	277	279	277	275	6825
					24	277	280	279	279	279	278	279	280	279	291	226	263	24	287	281	272	258	254	249	223	225	262	273	278	280	6432
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					27	279	288	269	318	337	305	290	292	294	228	226	271	27	225	276	328*	-139*	-12*	-38*	-51	109	179	230	274	289	5087
					28	292	206	322	358	362	391	398	333	321	315	284	332	28	375*	408*	214	288*	141*	141*	296	120	223	259	290	289	6958
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					30	279	291	308	317	308	307	303	295	290	252	287	199	30	268	289	281	252	248	288	288	286	288	296	288	287	6797
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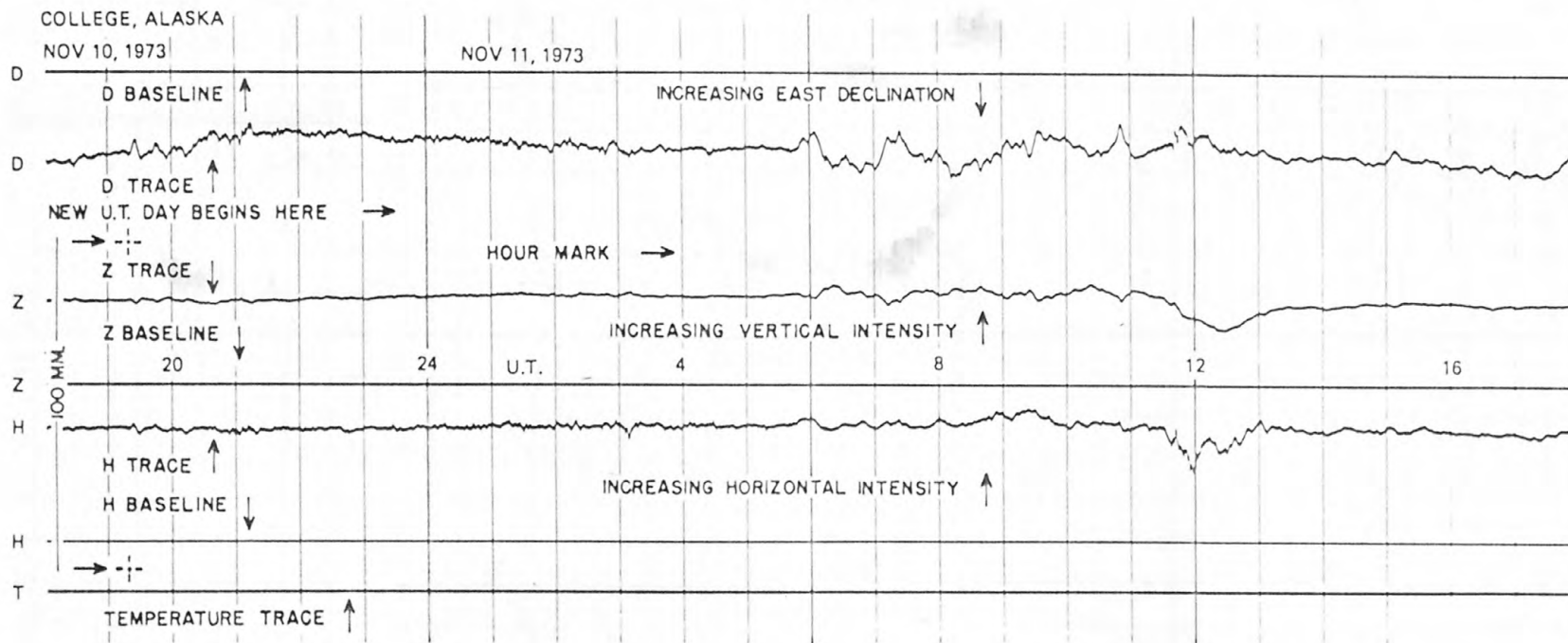
SCALED BY: SPT, PEF
 CHECKED BY: JEP, EAS, SPT, PEF
 SIGNS REVIEWED BY: JEP
 PUNCHED BY:

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 Mph., converted to Normal Mph.

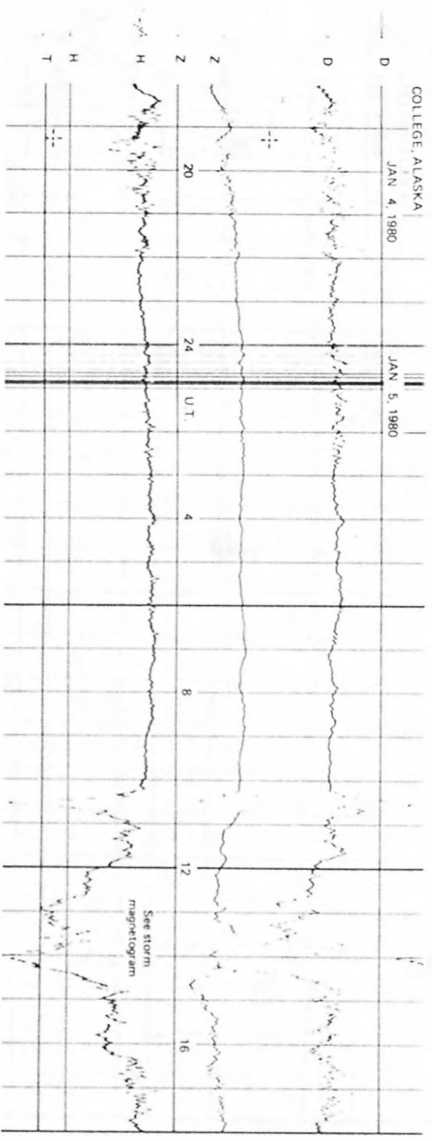
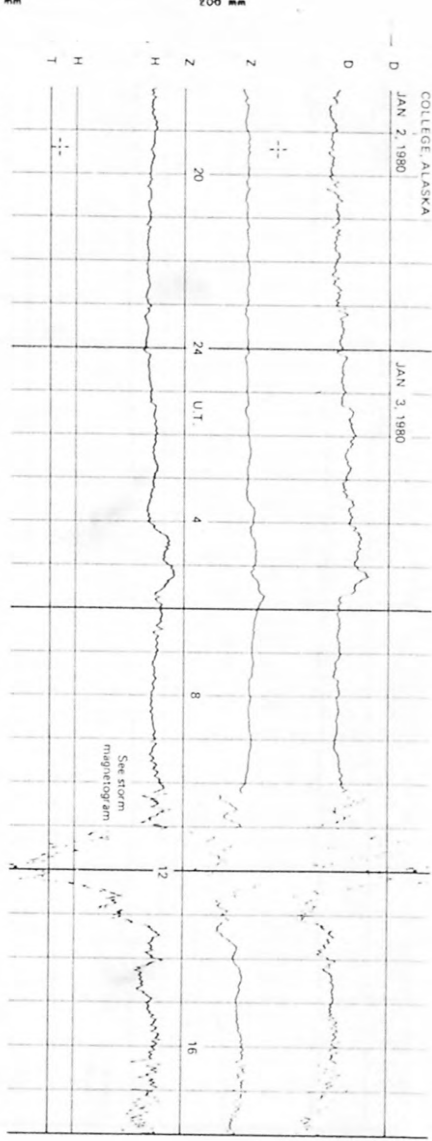
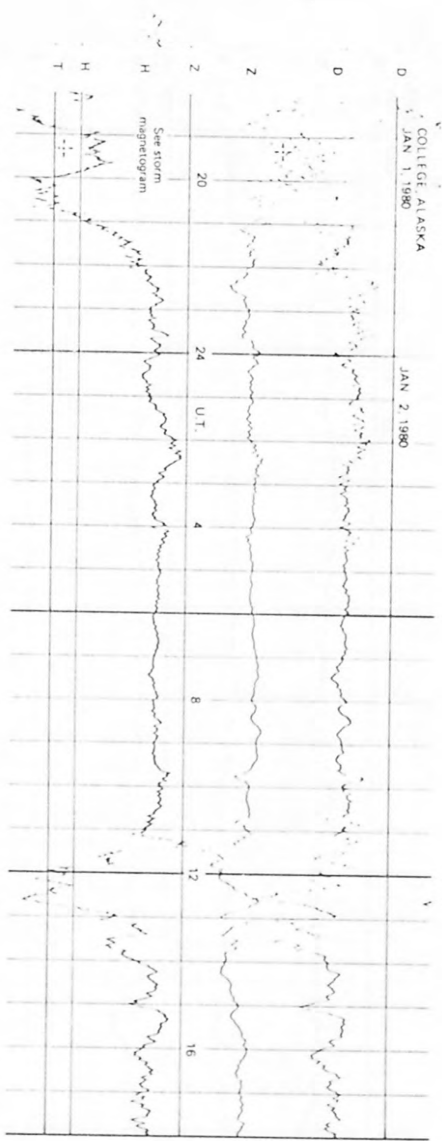
MONTHLY SUM: 204523
 MONTHLY MEAN: 275
 DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

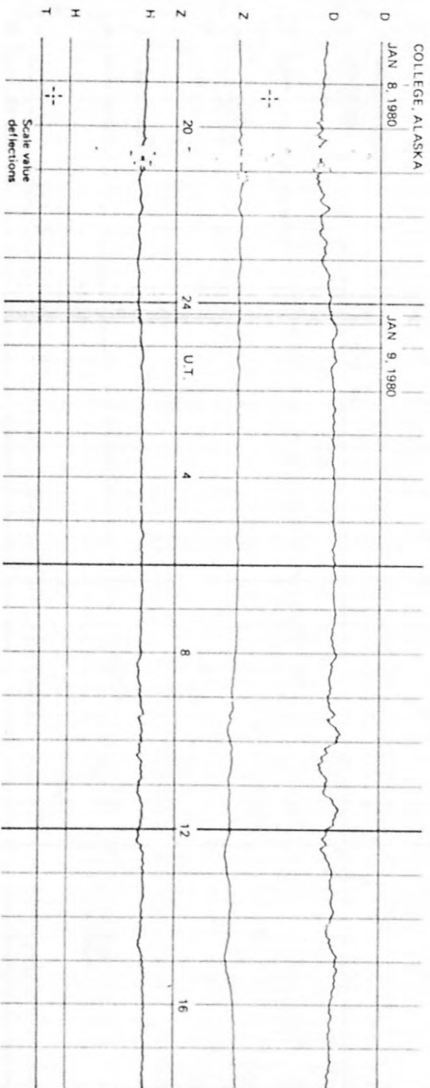
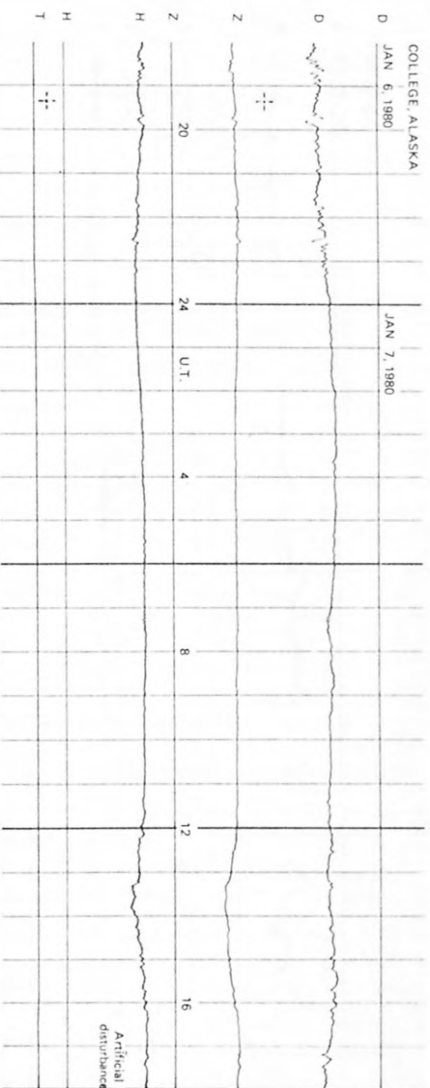
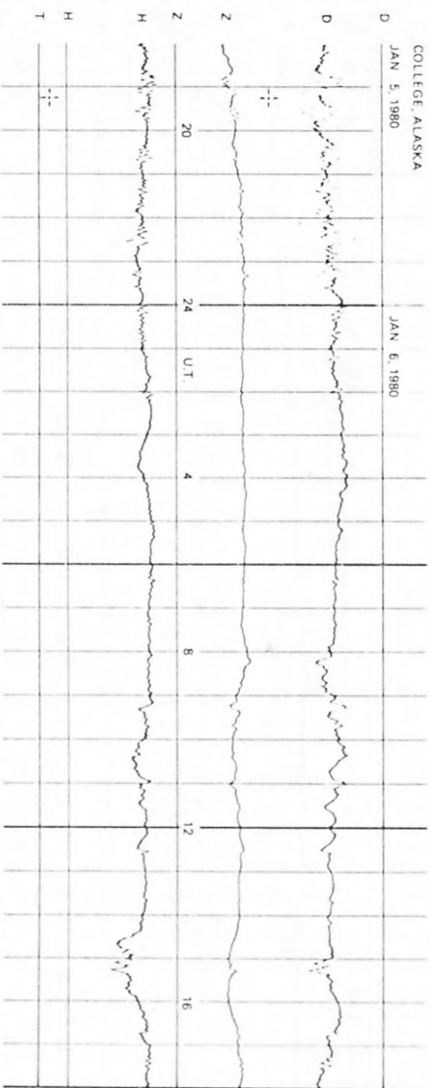


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

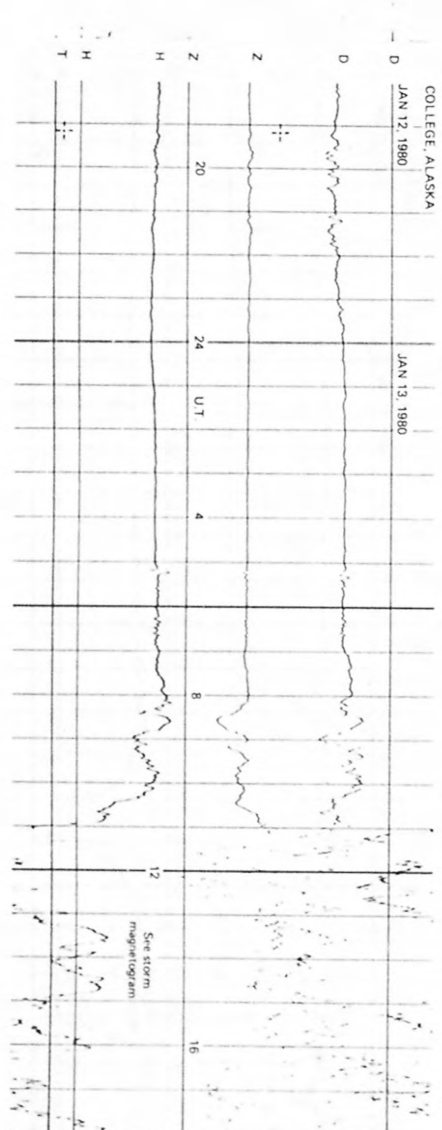
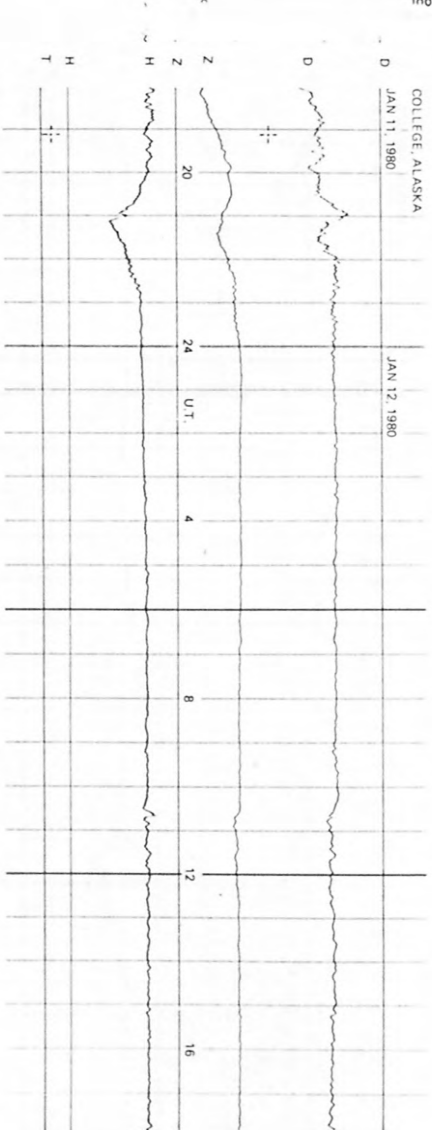
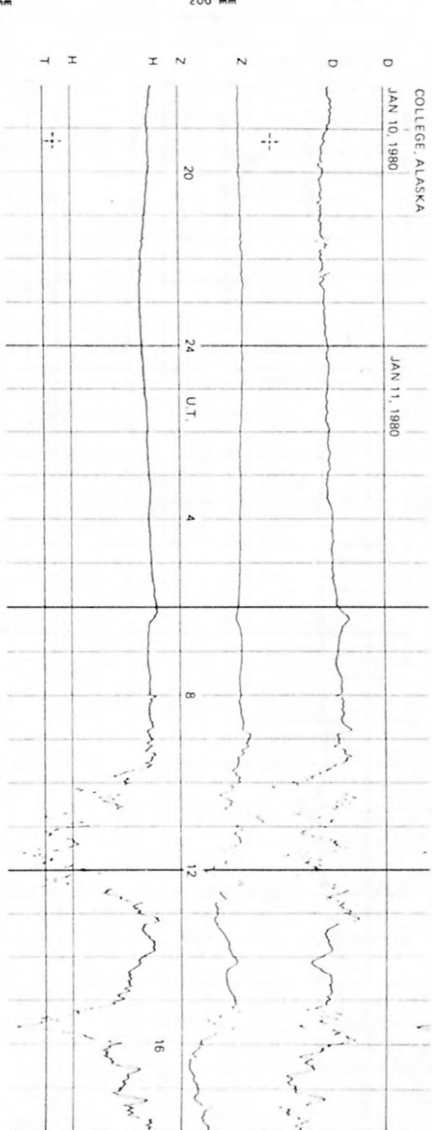
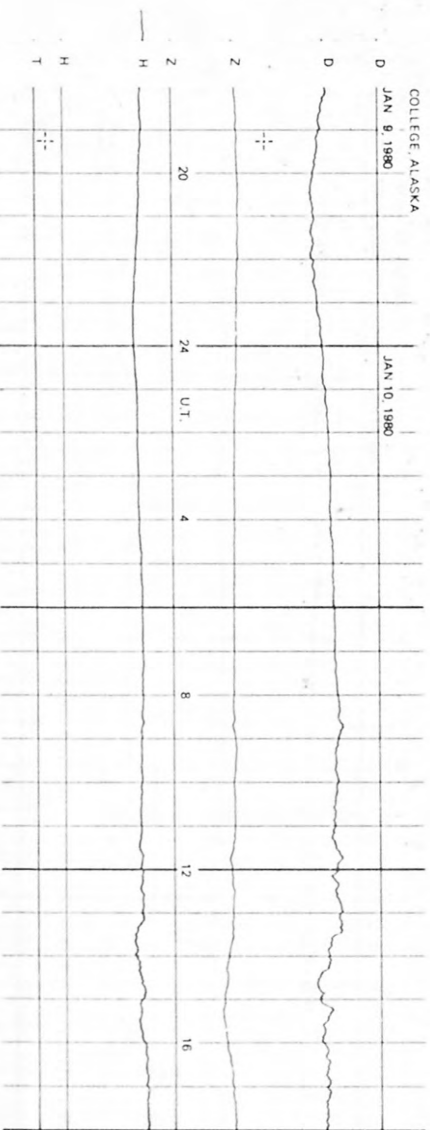
NORMAL MAGNETOGRAMS



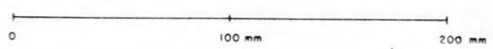
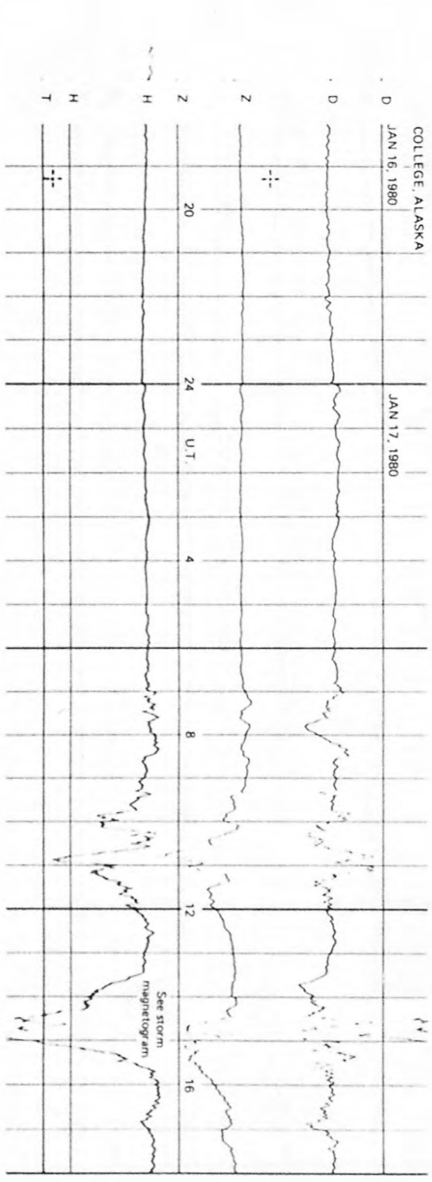
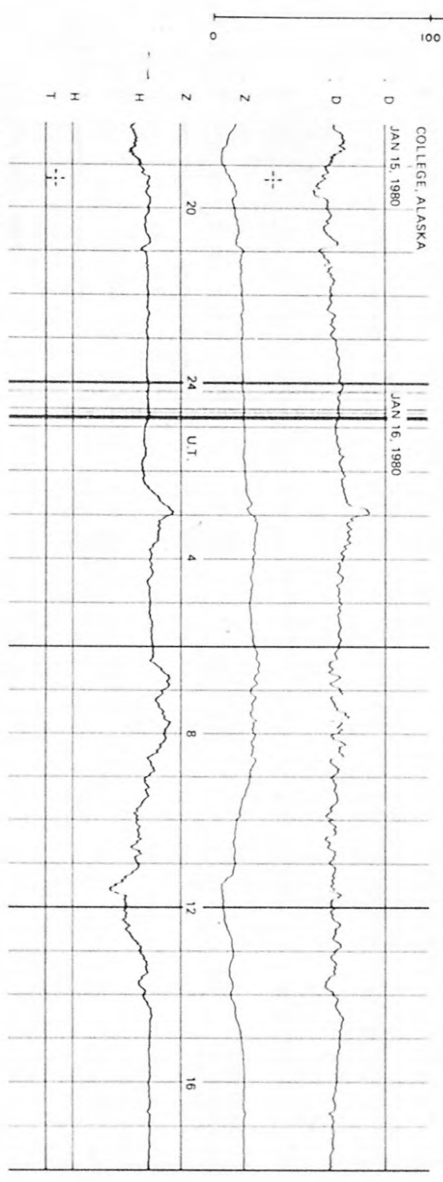
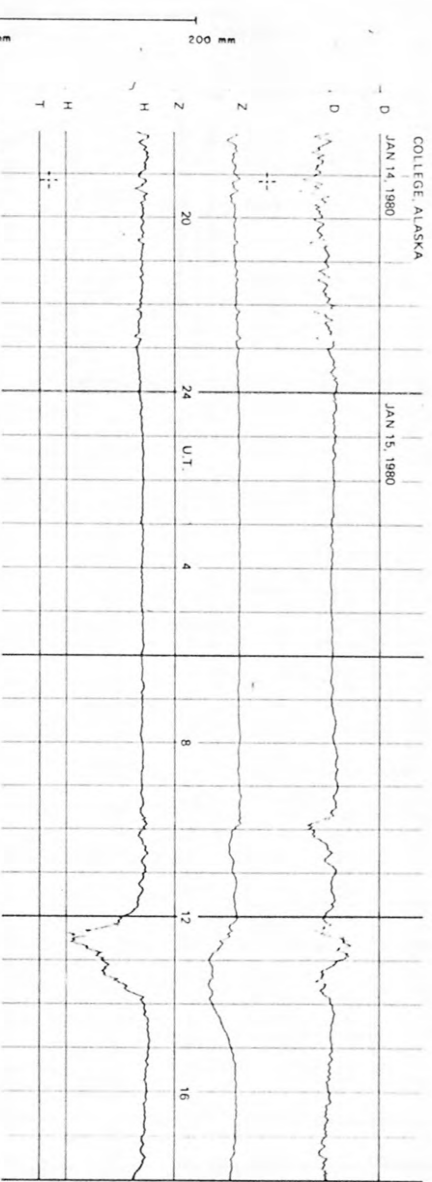
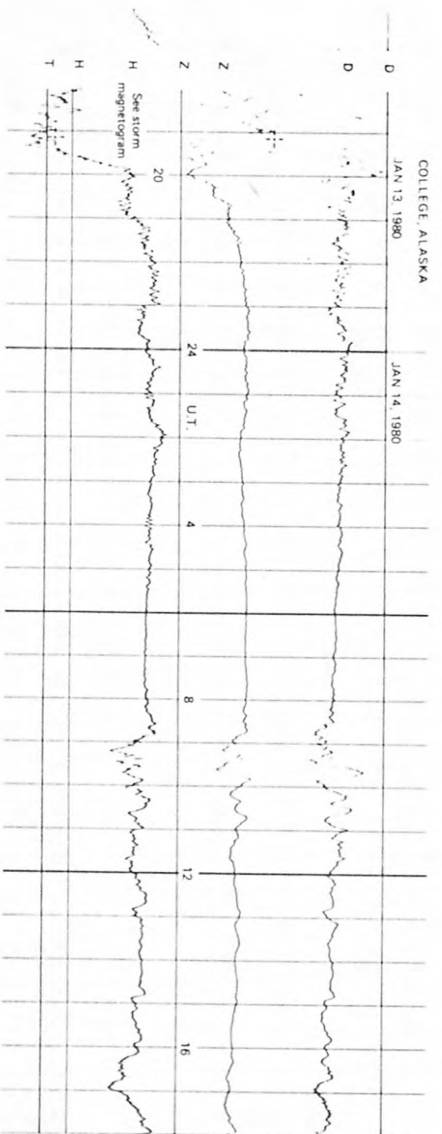
NORMAL MAGNETOGRAMS



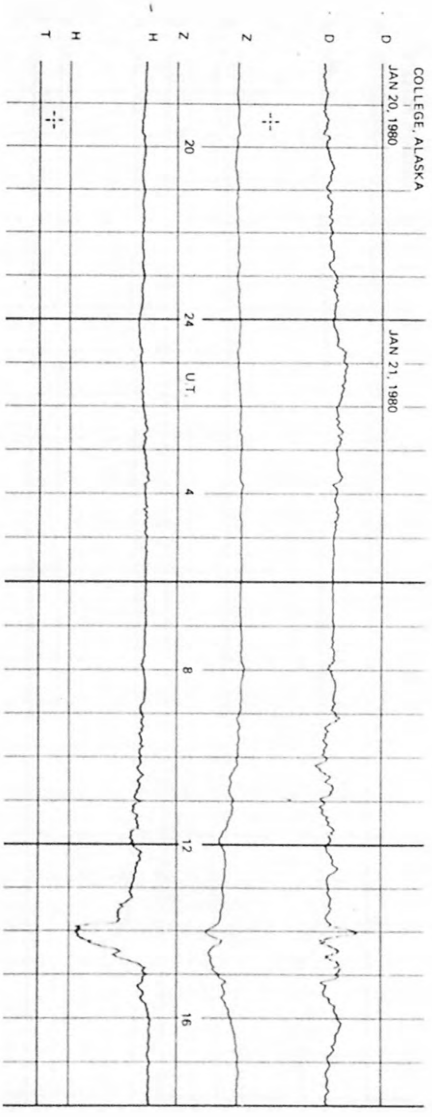
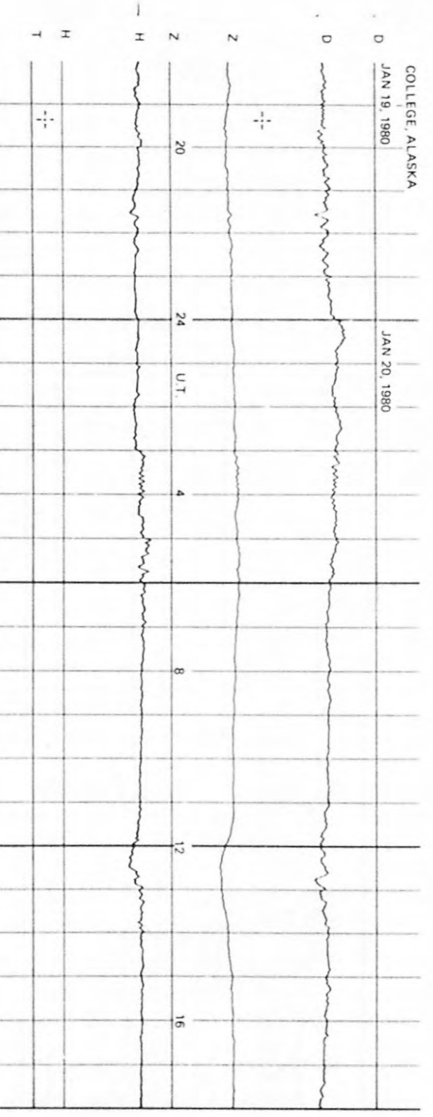
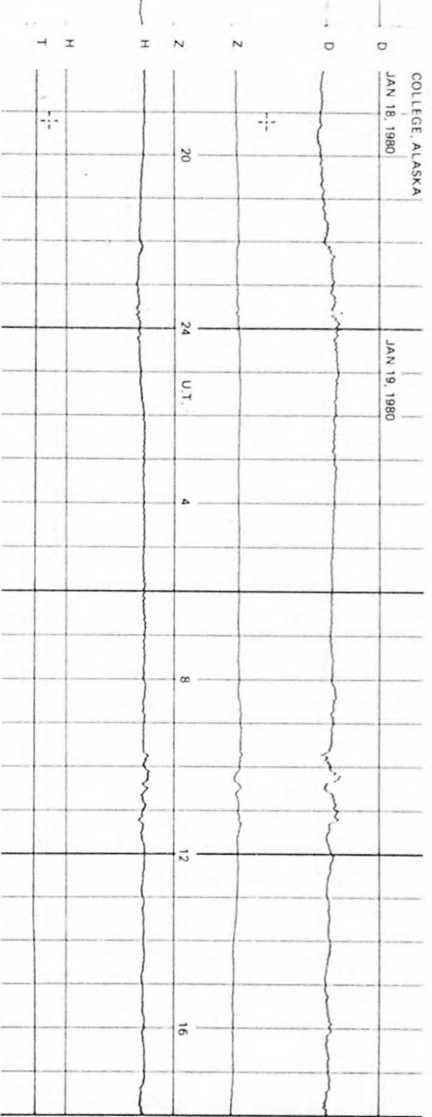
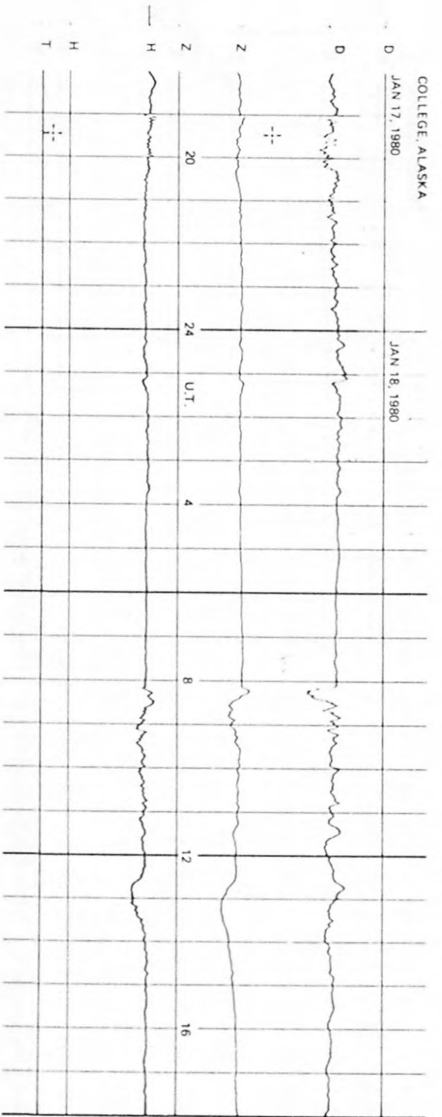
NORMAL MAGNETOGRAMS



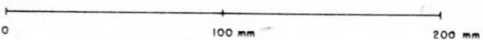
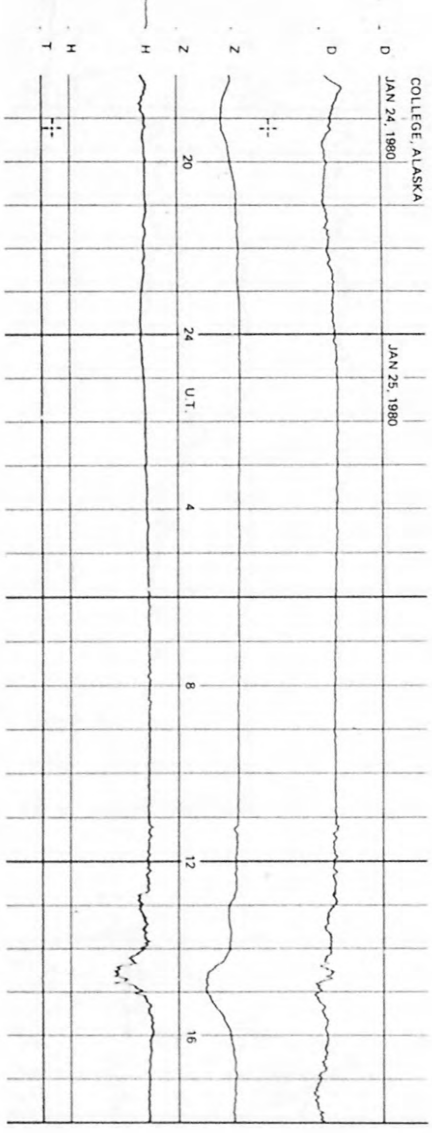
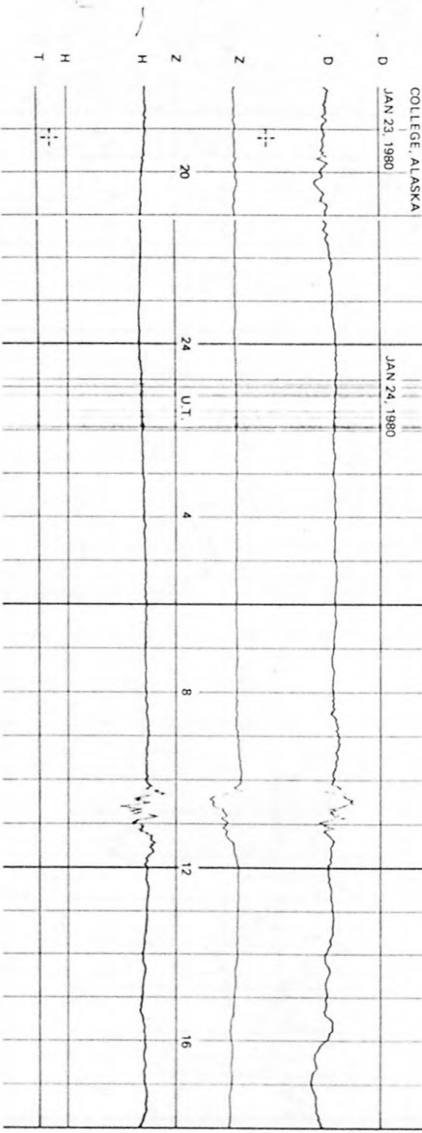
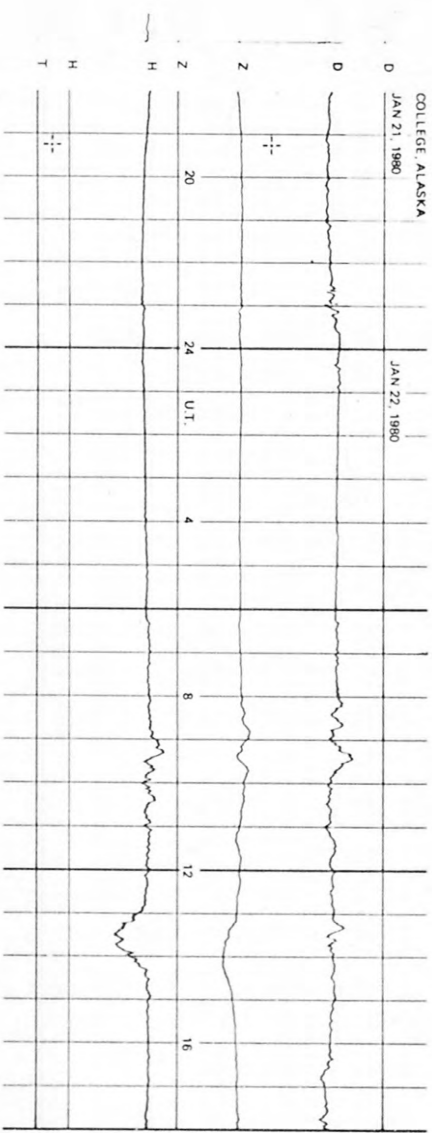
NORMAL MAGNETOGRAMS



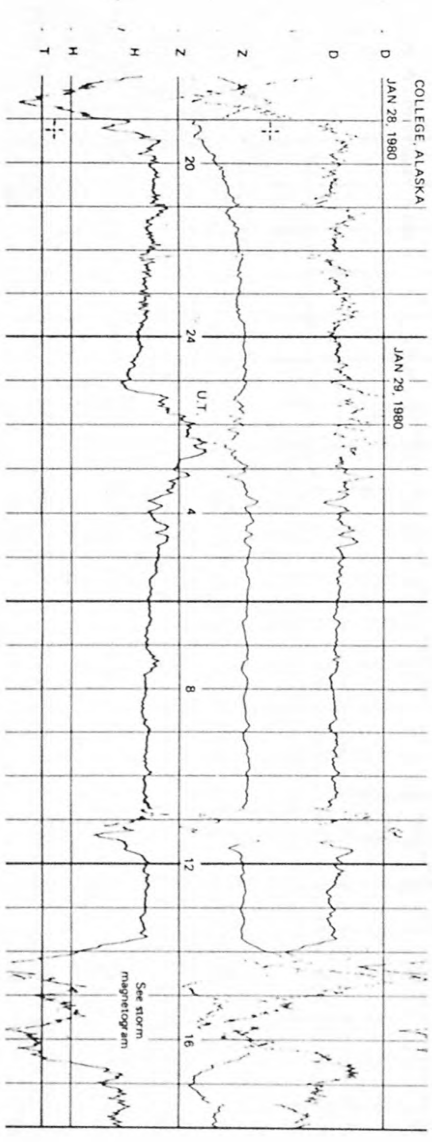
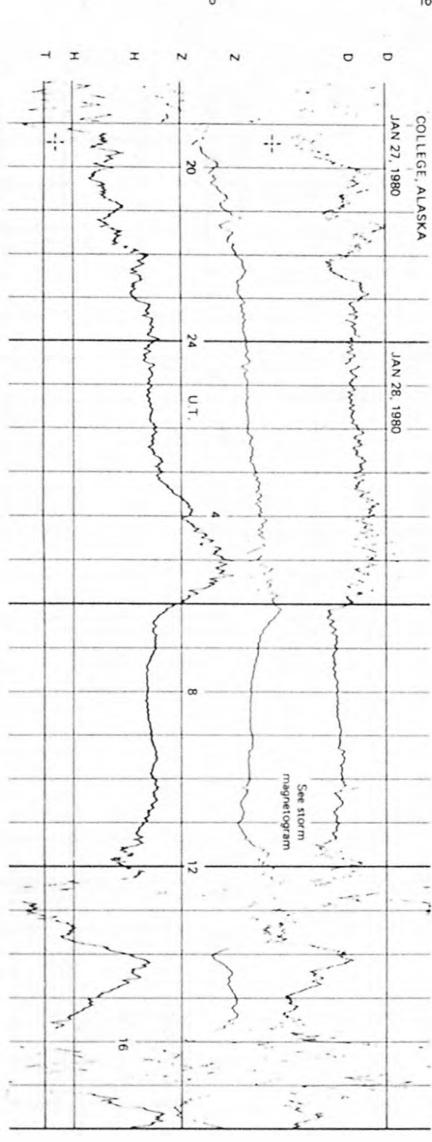
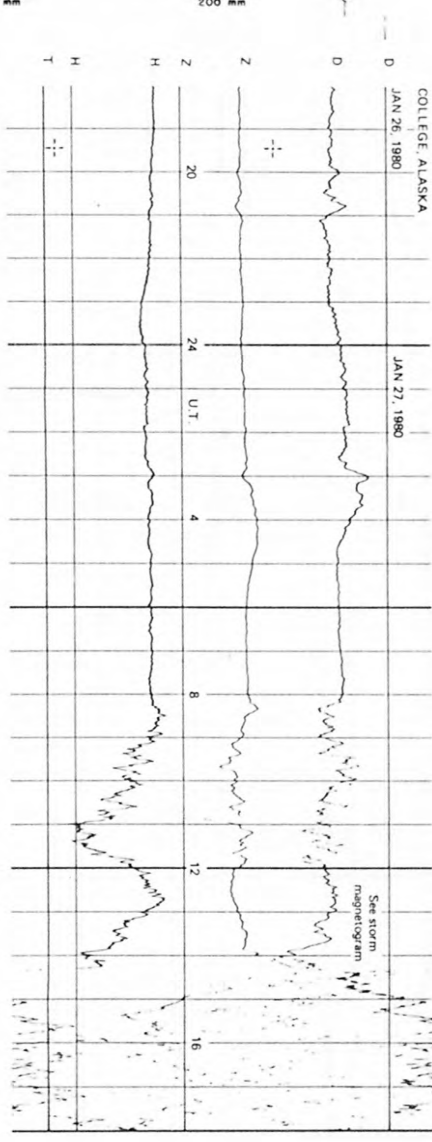
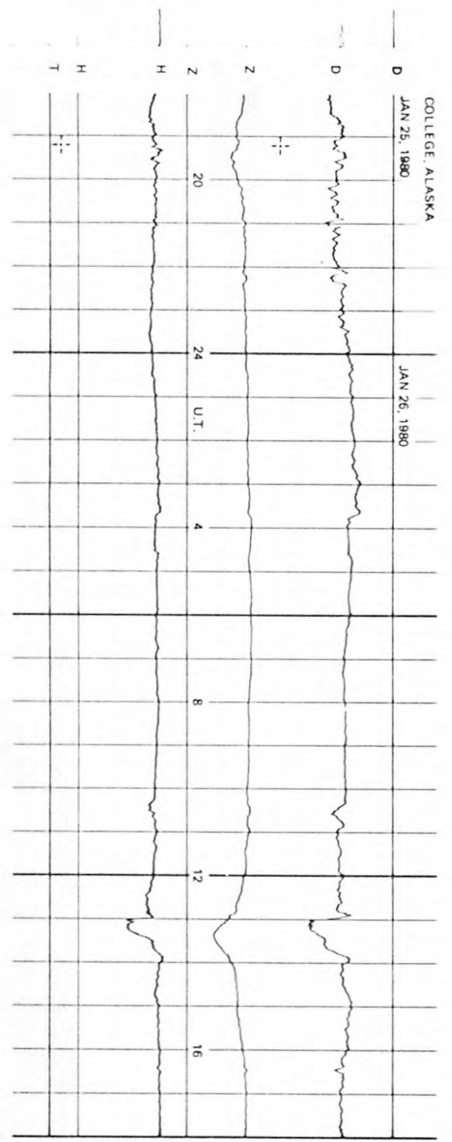
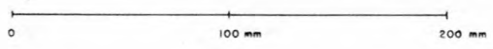
NORMAL MAGNETOGRAMS



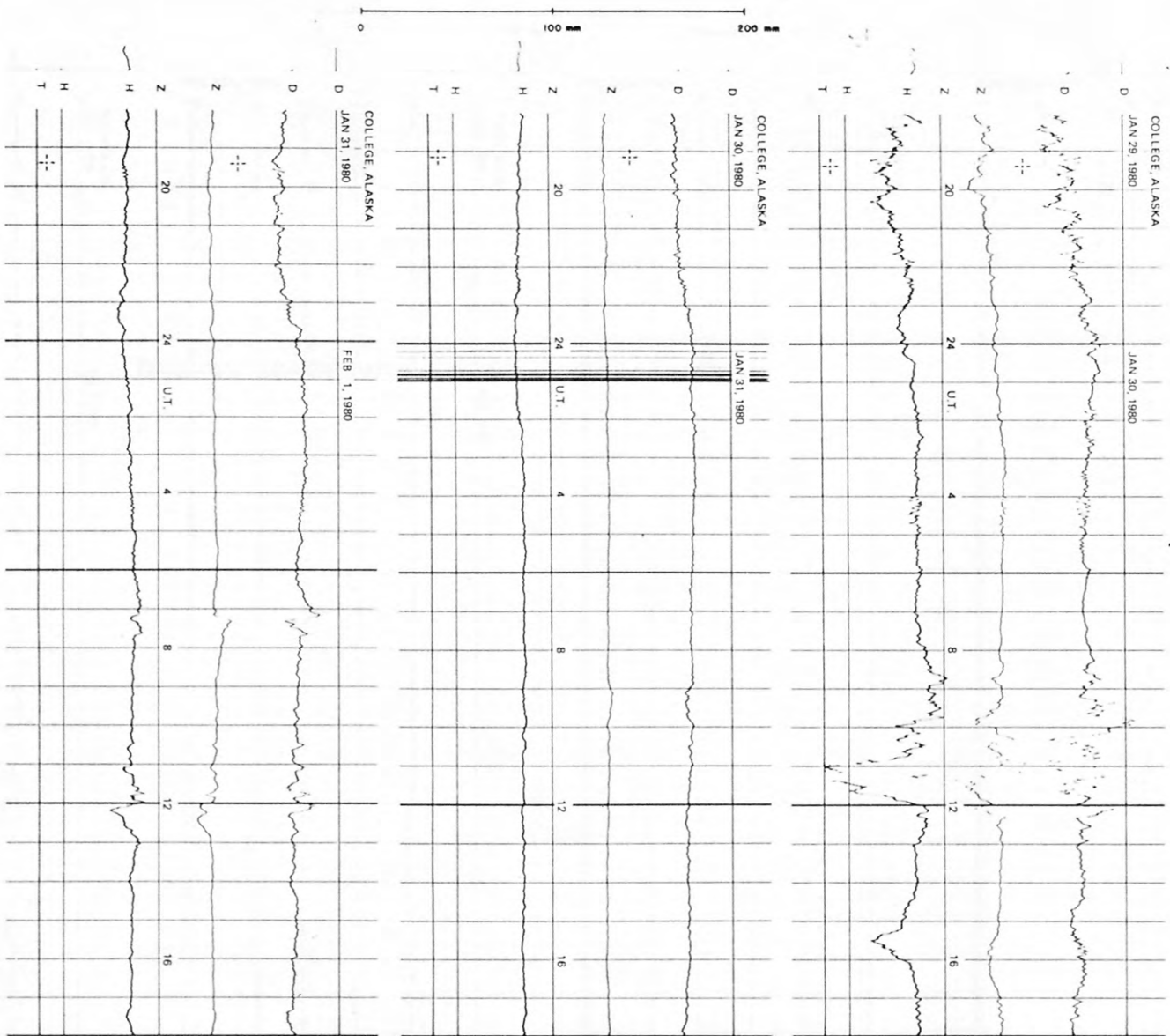
NORMAL MAGNETOGRAMS



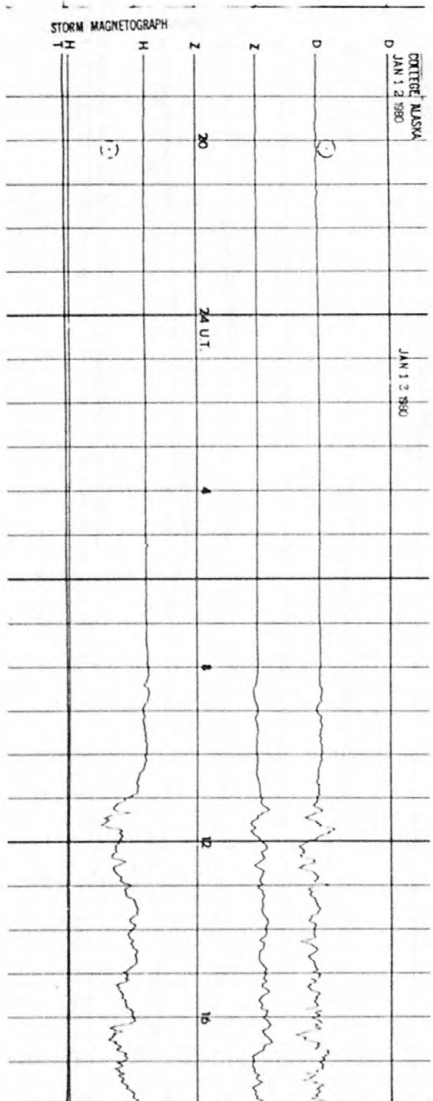
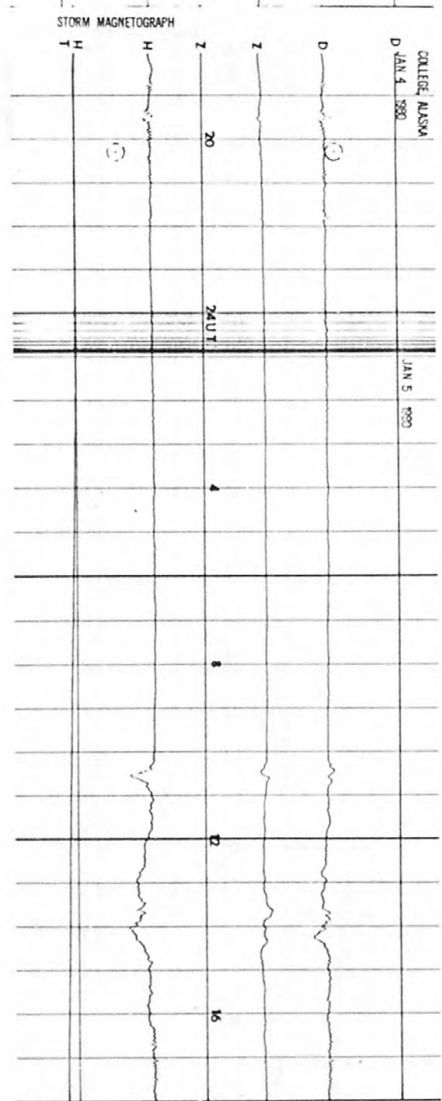
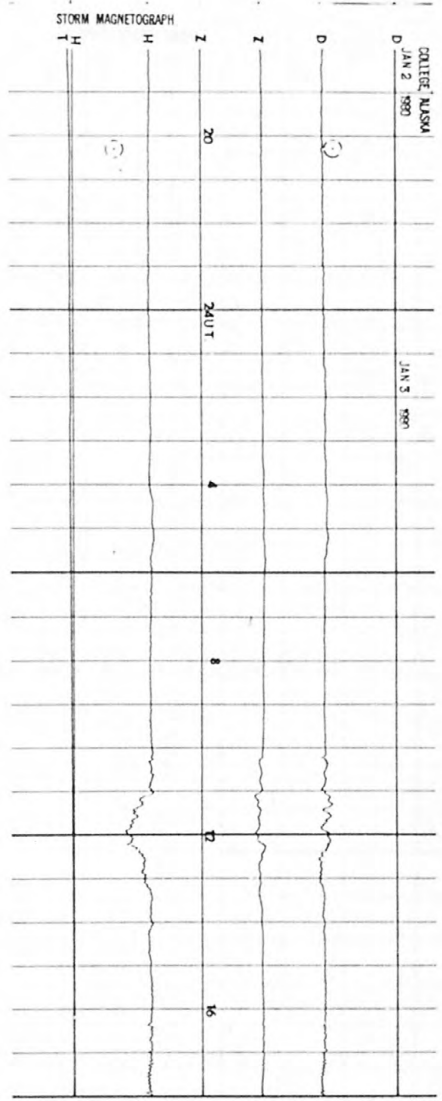
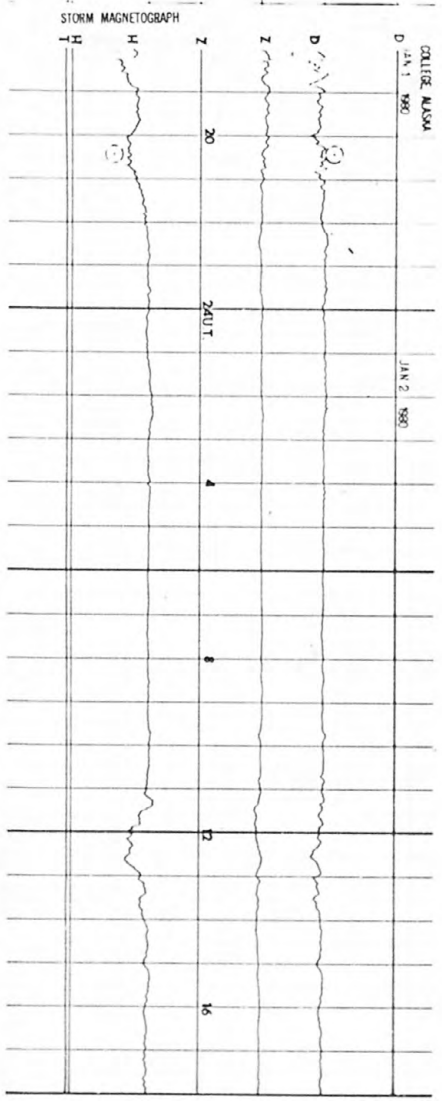
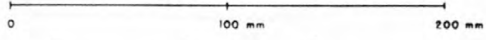
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

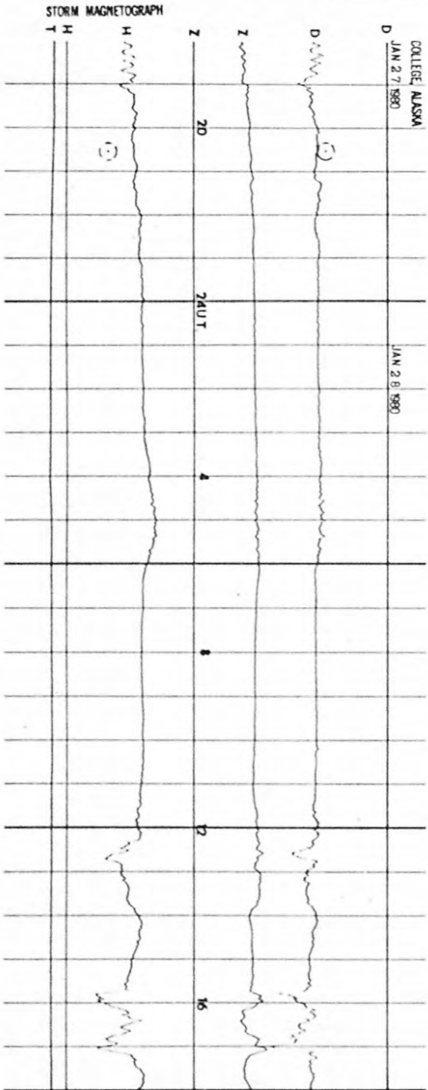
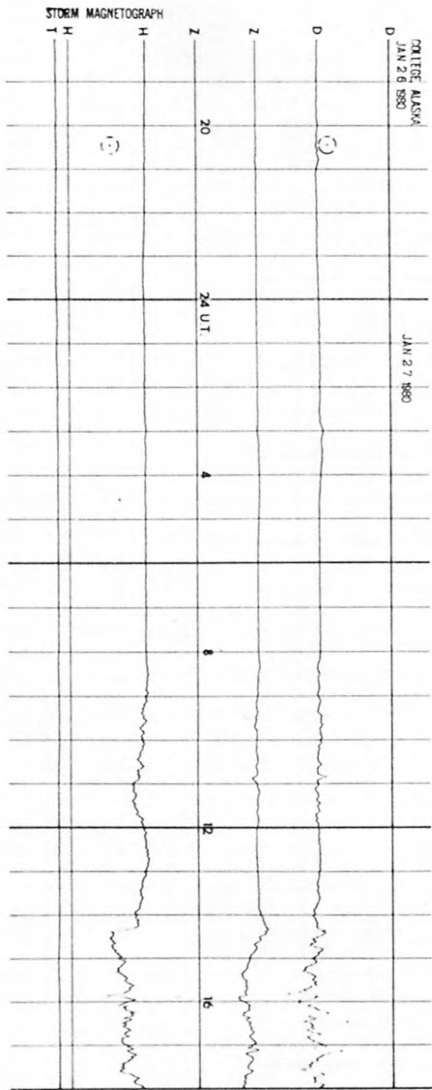
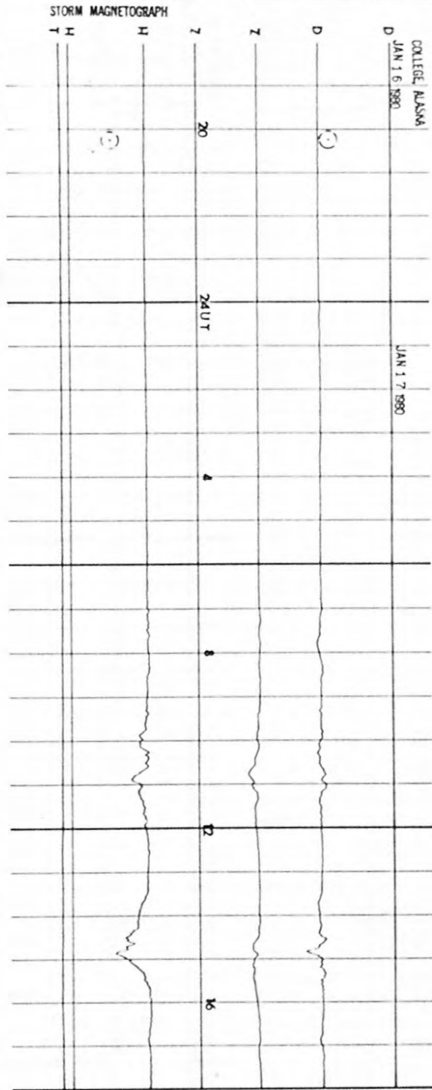
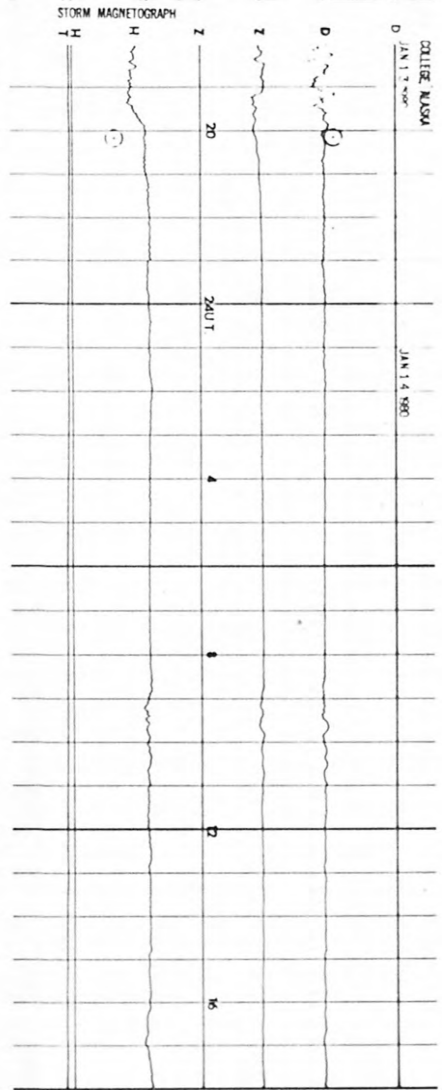


STORM MAGNETOGRAMS



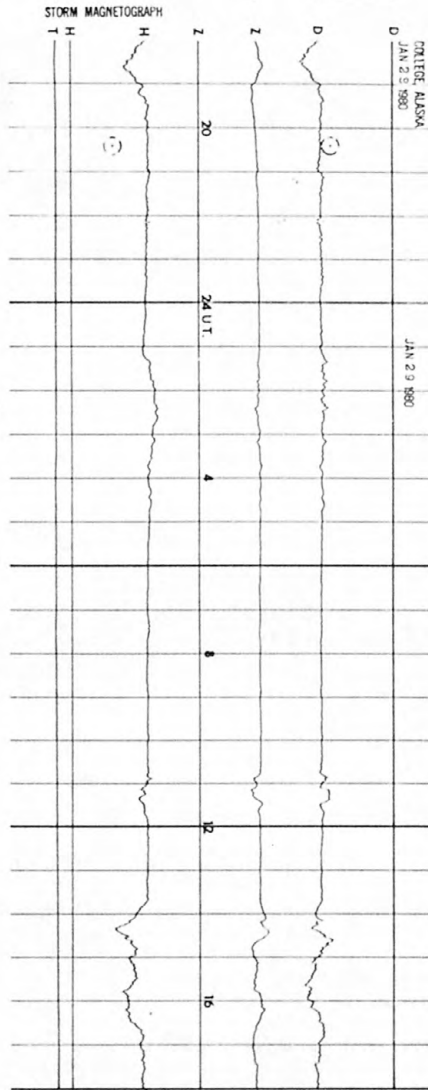
STORM MAGNETOGRAMS

0 100 mm 200 mm



STORM MAGNETOGRAMS

0 100 mm 200 mm



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3 1818 00044079 0



STORM MAGNETICAM MROTS

