USGS OF

UNITED STATES DEPARTMENT OF THE INTERIOR

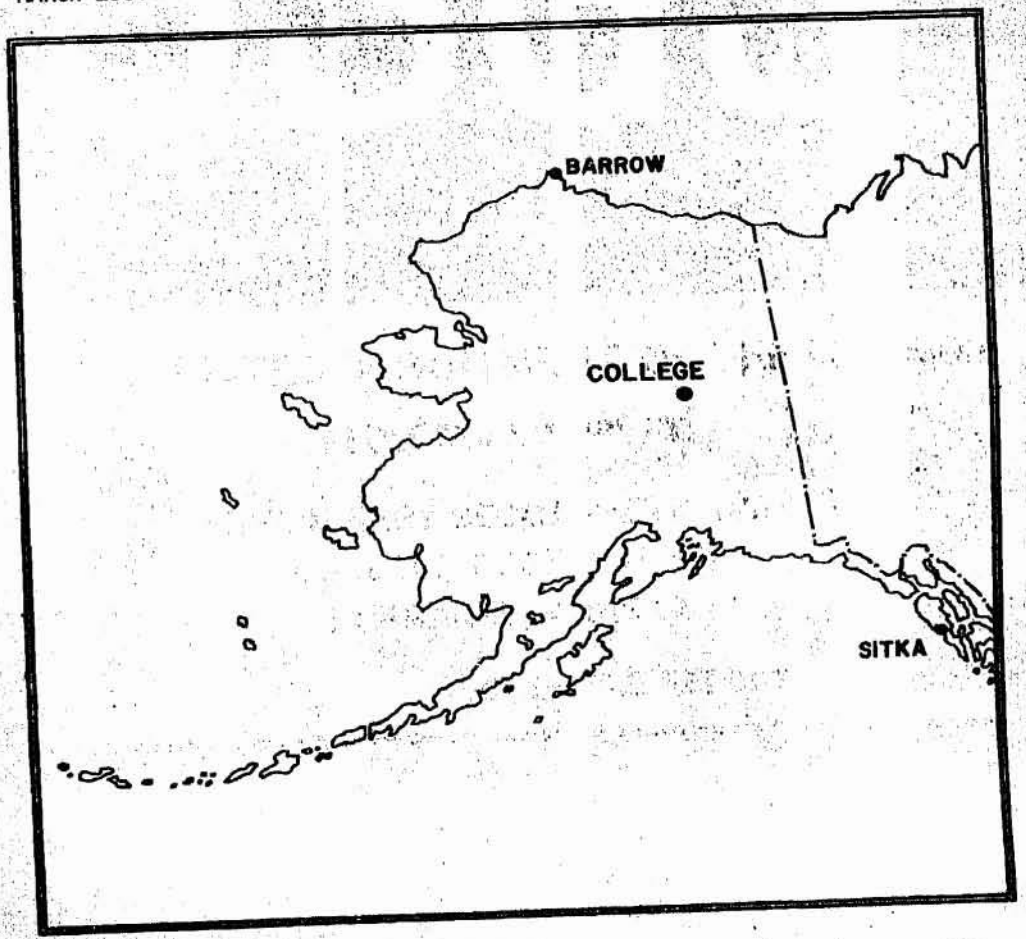
GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

MARCH 1980

OPEN FILE REPORT

80-300C



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THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY WITH THE ASSISTANCE OF OBSERVATORY STAFF MEMBERS J.E. PAPP, 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	$64^{\circ}51.6'$N
Geographic longitude	$147^{\circ}50.2'$W
Geomagnetic latitude	$+64.6^{\circ}$
Geomagnetic longitude	$+256.5^{\circ}$
Elevation	200 meters

GEOMAGNETIC DATA

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

Magnetic Activity

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

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

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

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

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

AK Range	C
0 to 11	0
11 to 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 commencement; 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 readible, 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.

NOAA FORM 76-133 (9-72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

OBSERVATORY: COLLEGE, ALASKA

MONTH AND YEAR: MARCH 1980

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	0	0	1	0	0	0	0	0	01	00
2	0	0	0	0	0	0	0	0	00	00
3	0	0	0	0	0	2	0	0	02	01
4	0	0	0	4	1	0	1	1	07	05
5	1	1	2	6	2	0	0	1	13	13
6	1	1	0	3	2	1	1	2	11	05
7	0	1	1	1	1	1	1	1	07	03
8	1	2	3	3	1	0	1	1	12	06
9	2	1	4	2	2	2	1	0	14	08
10	0	0	0	3	2	0	0	0	05	03
11	0	0	0	2	3	0	0	0	05	03
12	0	0	0	0	0	0	0	0	00	00
13	0	0	1	1	1	0	1	1	05	02
14	1	1	0	1	1	2	0	0	06	02
15	0	0	0	0	0	0	0	0	00	00
16	0	0	0	4	1	0	0	1	06	04
17	1	1	0	2	1	0	1	0	06	02
18	0	0	0	0	0	0	0	0	00	00
19	0	0	3	4	4	1	1	0	13	09
20	0	0	0	1	1	0	1	0	03	01
21	2	4	5	4	3	4	3	3	28	23
22	1	3	4	6	5	4	1	0	24	25
23	2	1	1	5	2	1	0	0	12	09
24	0	0	0	2	4	3	0	0	09	06
25	0	0	0	0	0	0	1	3	04	02
26	4	4	5	4	6	2	2	3	30	30
27	3	1	3	3	1	1	0	0	12	07
28	2	2	1	2	3	0	0	1	11	05
29	2	3	2	1	1	2	2	2	15	07
30	2	4	5	2	3	0	0	2	18	14
31	3	4	4	6	5	3	2	2	29	28

TIME SCALE ON MAGNETOGRAMS: 20 mm/hr

SUDDEN COMMENCEMENTS

d	h	m

POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)

BEGIN d	BEGIN h	BEGIN m	END d	END h	END m

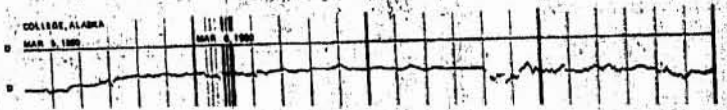
K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.75	7.81		(γ/mm)
LOWER LIMIT FOR K = 9	2560	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-139 SUPERSEDES C&GS FORM 828

* U.S. GOVERNMENT PRINTING OFFICE: 1973-761-667



OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: MARCH | YEAR: 1980

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
12	10XX	pi2	
19	0618	si*	
28	10XX	pi2	
30	2353	ssc*	
31	1749	si*	

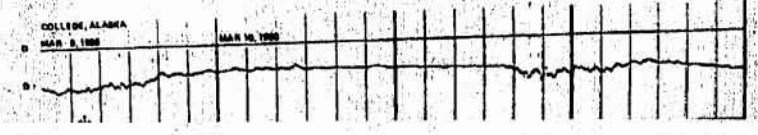
IDENTIFIED BY: JEP

VERIFIED BY: JBT

1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pc1, pc2 - - - pc5, pg, pi 1, pi 2, sfe. 4

NOAA FOR
(11/73)
Data fro

Obs. 2-letter IAGA code	G
CO	



ET AL

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

MARCH 1960

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	21	04XX	..	..	..	..	22	4	6	108	870	530	22	20
		25	23XX	..	..	..	..	26	5	6	156	880	520	26	16
		30	2353	s.c.*	+18	+41	+20	31	4	6	79	850	370	31	22

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COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: MARCH 1980

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 3-1-80	2400 U.T. 3-31-80	1.6/mm	3.7γ/mm	27° 47.2 E
H	0000 U.T. 3-1-80	2400 U.T. 3-31-80	7.8γ/mm		12752γ
Z	0000 U.T. 3-1-80	2400 U.T. 3-31-80	7.3γ/mm		55169γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 3-1-80	2400 U.T. 3-31-80	7.8/mm	29.7γ/mm	23° 56.7 E
H	0000 U.T. 3-1-80	2400 U.T. 3-31-80	44.0γ/mm		11509γ
Z	0000 U.T. 3-1-80	2400 U.T. 3-31-80	48.6γ/mm		54030γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 09.1 E	13018γ	55372γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAR 1, 2, 3, 12, 13, 14, 15, 17, 18, 20

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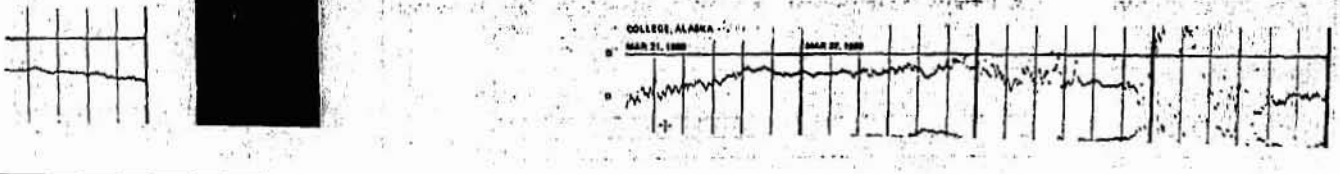

NOAA FORM 76-186

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

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.

OBSY.	YEAR	MONTH	ELEMENT
CO	80	MAR	D

Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	192	192	170	157	172	190	200	202	220	222	217	223	01	222	220	227	226	240	260	282	290	282	258	232	201	5299
02	182	170	166	172	189	187	192	202	203	211	216	218	02	222	224	227	233	253	278	271	278	278	271	239	219	5301
03	191	179	173	168	178	183	192	198	199	206	213	219	03	228	228	221	221	221	241	278	282	253	232	214	226	5144
04	223	210	197	186	187	192	197	197	184	177	230	277	04	261	249	237	248	258	267	272	273	268	230	152	168	5334
05	177	180	184	147	150	186	188	196	184	149	226*	315	05	290	256	231	242	262	283	292	281	252	218	206	208	5291
06	217	212	204	200	188	194	198	202	209	213	265	238	06	239	242	237	238	274	277	292	296	298	254	225	205	5617
07	195	186	175	188	190	199	202	213	218	209	208	236	07	240	223	231	247	248	278	295	284	256	214	190	178	5303
08	175	173	177	164	165	174	240	199	203	227	242	257	08	212	211	228	229	244	273	289	310	284	270	237	212	5395
09	189	175	179	182	189	189	188	234	218	216	213	216	09	218	221	225	226	250	241	292	292	269	250	202	192	5266
10	182	182	179	189	191	191	200	209	211	218	271	272	10	258	250	212	228	248	270	291	298	284	259	221	205	5519
11	178	181	178	181	191	200	202	208	211	268	306	232	11	229	219	218	242	257	277	280	278	268	251	213	200	5468
12	188	182	187	184	192	199	203	204	207	211	211	219	12	231	227	230	240	258	279	279	271	277	252	232	219	5382
13	209	195	190	185	190	191	193	195	190	199	169	199	13	220	265	236	240	250	271	312	309	267	241	208	171	5295
14	172	192	178	171	180	188	200	207	208	220	238	238	14	232	242	217	208	208	262	280	278	262	239	221	218	5253
15	209	200	191	191	191	195	200	200	201	209	217	230	15	235	232	238	247	260	279	279	287	270	262	257	231	5511
16	204	181	169	171	178	185	194	199	200	219	269	331	16	239	239	243	250	262	282	290	298	261	279	219	209	5565
17	192	172	162	171	181	190	199	200	200	209	248	267	17	218	225	214	231	258	272	280	279	257	247	228	199	5299
18	172	169	159	162	178	188	192	199	201	215	217	218	18	217	220	221	241	258	280	299	311	299	271	208	183	5278
19	172	171	180	179	189	191	179	142	262	186	209	298	19	348	221	218	267	280	300	315	320	310	267	233	198	5575
20	186	177	173	180	192	198	204	209	223	215	214	234	20	221	203	200	202	232	269	307	292	290	262	223	183	5299
21	178	149	132	84	97	50	69	133	73	130	131	221	21	298	278	375	432	430	353	304	258	220	169	109	139	4812
22	141	138	133	105	120	65	115	171	141	185	208	265*	22	495*	502*	288	395	303	279	297	285	268	239	227	193	5558
23	187	168	169	170	182	192	197	200	203	238	272	268	23	208	207	215	248	270	293	303	299	297	283	263	232	5564
24	207	193	189	195	191	191	186	188	199	219	240	253	24	219	207	187	259	272	296	300	291	281	249	204	181	5397
25	179	177	171	179	181	187	195	199	200	203	210	208	25	219	219	229	251	291	331	347	351	331	331	241	123	5553
26	137	79	69	161	167	153	-100*	-192*	-15	11	158	198	26	518*	446*	239	271	269	267	274	192	206	202	186	176	4132
27	171	170	168	177	182	188	191	192	107	177	243	217	27	203	206	216	258	273	301	313	312	284	249	238	192	5528
28	176	148	135	177	167	142	182	208	179	198	212	217	28	228	222	221	258	288	298	300	288	284	242	239	192	5201
29	168	165	169	170	178	152	154	181	188	189	201	219	29	221	220	211	228	266	282	289	319	268	232	189	128	4982
30	149	112	101	89	49	65	-36*	161	168	170	217	211	30	238	258	217	242	269	280	288	267	238	223	208	201	4385
31	178	154	79	169	145	172	112	151	137	177	208	288	31	327	192	182	237	233	284	318	308	288	272	200	141	4952

SCALED BY	SPT, PEF, JEP
CHECKED BY	JEP, EMS, SPT
STORMS 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 Magn., converted to Normal Magn.

MONTHLY SUM: 163458
MONTHLY MEAN: 220
DATES WITH GAPS:

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U.S. G.P.O. 1975-[illegible]

NOAA FORM 76-184

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

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.

OBSY.	YEAR	MONTH	ELEMENT
CO	80	MAR	H

Day	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	306	317	329	349	338	349	359	369	364	369	358	351	350	350	343	350	347	342	338	328	317	302	295	298	8112
02	306	318	332	338	348	352	351	348	340	348	353	352	353	353	352	349	341	343	339	339	334	324	319	311	8151
03	316	321	339	343	349	350	350	350	355	360	360	358	361	359	350	347	321	309	337	334	334	332	326	322	8183
04	318	320	328	337	345	347	350	350	354	256	302	312	360	356	358	355	351	344	347	338	333	326	312	317	8016
05	328	329	317	349	358	351	353	358	392	420	100*	242	316	341	361	361	355	348	340	328	321	320	327	333	7942
06	332	328	336	341	352	350	348	353	357	367	316	353	328	354	348	352	338	363	342	333	322	313	310	315	8141
07	322	328	332	338	350	357	358	348	348	347	351	347	350	353	353	355	353	353	334	323	311	293	288	308	8100
08	312	322	323	331	334	354	413	387	378	357	342	297	348	348	350	357	352	352	347	327	314	294	291	294	8124
09	301	312	323	331	342	357	358	380	384	360	347	344	341	281	316	358	324	338	341	324	306	291	266	287	7922
10	299	309	327	331	341	349	344	350	349	349	269	292	317	304	348	351	351	350	343	331	316	301	294	297	7812
11	302	310	329	339	342	346	349	350	349	348	339	342	309	293	344	355	351	350	346	333	321	309	291	289	7936
12	300	315	323	338	339	341	349	349	349	350	347	343	349	349	350	349	351	350	346	335	326	317	311	310	8081
13	311	322	334	341	346	350	348	349	350	358	360	345	340	350	360	355	355	352	337	321	311	319	306	291	8111
14	287	310	331	339	339	349	350	351	350	351	348	340	341	322	337	308	329	340	338	332	329	320	317	313	7972
15	311	316	320	330	340	347	350	353	356	358	355	351	351	358	356	352	351	350	347	346	342	332	321	311	8204
16	309	319	335	341	353	355	359	360	361	359	191	332	389	362	360	358	351	352	349	340	332	323	319	307	8116
17	311	329	333	336	343	351	350	356	361	360	359	354	371	367	362	355	360	359	356	343	330	319	311	309	8291
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19	312	323	331	341	349	353	376	419	517	481	378	300	213	316	384	389	379	380	342	340	332	318	312	312	8519
20	317	327	338	344	347	352	352	352	348	356	354	352	363	363	368	372	367	376	367	349	342	324	312	318	8360
21	322	338	343	367	396	533	519	302	432	360	246	240	135	406	38	-7	41	149	235	270	310	273	328	337	2607
22	351	360	356	390	417	539	501	478	435	384	367	125*	-204*	-196*	98	109	271	395	368	347	333	317	300	295	7186
23	288	301	322	311	332	392	342	339	338	338	241	166	320	335	336	329	342	341	341	329	319	311	299	293	7539
24	300	304	321	319	331	347	347	347	343	359	327	319	351	339	239	253	352	352	341	331	320	309	293	295	7739
25	299	309	311	320	330	339	346	349	349	350	353	359	357	358	361	362	357	360	344	330	316	289	276	300	8024
26	336	369	476	607	661	569	576*	471	457	344	247	210	-214*	-67	319	321	329	309	283	277	288	302	318	309	8177
27	365	299	283	307	328	337	337	339	276	290	243	272	307	322	326	306	307	322	313	302	288	288	288	283	7328
28	290	322	338	302	319	357	345	356	358	352	338	327	253	280	333	342	337	332	322	320	309	303	297	281	7713
29	306	283	288	309	364	373	406	370	356	359	361	349	339	339	331	284	330	331	329	297	294	289	285	291	7863
30	327	358	403	471	647	729	677	520	397	379	340	333	256	232	322	339	339	329	331	314	307	291	286	285	9212
31	309	316	414	359	381	503	503	490	335	297	262	-56*	149	344	328	320	340	357	342	340	320	316	291	311	7871

MONTHLY SUM: 24764C

MONTHLY MEAN: 333

DATES WITH GAPS:

SCALED BY	SPT, PEF, JEP
CHECKED BY	JEP, CAG, SPT
DONE RE-VIEWED BY	JEP
PUNCHED BY	

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

( ) 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 Mgph., converted to Normal Mgph.

U.S. G.P.O. 1973-799-371/232 REG.

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NOAA FORM 76-166

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

OBST.	YEAR	MONTH	ELEMENT
CO	80	MAR	Z

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 or S	Trn Q	Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	Sum
			01	300	297	289	290	299	296	289	293	308	296	291	289	01	286	284	284	288	291	296	294	297	297	298	300	302	7054
			02	298	295	292	293	298	293	297	298	294	295	283	286	02	283	280	282	283	287	287	281	282	283	289	289	287	6935
			03	281	281	280	283	288	290	290	290	294	304	304	297	03	289	274	266	258	249	200	230	257	257	267	278	289	6596
			04	292	290	283	279	278	279	280	283	296	282	229	245	04	243	253	276	286	287	283	281	287	288	283	282	292	6657
			05	302	305	307	232	325	327	312	309	321	277	311	256	05	227	224	265	296	300	298	298	288	287	292	295	298	7012
			06	305	298	288	283	286	293	297	296	298	295	255	250	06	242	227	253	271	264	275	283	278	284	282	287	293	6683
			07	298	299	306	301	297	290	289	288	286	288	289	267	07	268	270	282	282	283	288	295	289	281	275	277	287	6889
			08	296	296	301	301	304	315	316	336	343	312	263	218	08	245	277	283	291	296	295	294	300	297	302	301	307	7089
			09	306	304	302	297	291	298	305	340	273	282	293	288	09	280	211	183	258	262	273	287	286	287	282	283	285	6756
			10	289	291	290	290	288	289	289	289	290	289	217	189	10	202	169	210	274	290	291	292	289	286	289	291	291	6474
			11	293	293	289	287	287	287	286	286	282	284	238	247	11	247	219	258	280	289	289	282	281	286	290	290	291	6661
			12	291	291	288	284	287	268	284	285	283	263	280	272	12	269	279	282	285	288	264	281	270	272	276	280	290	6772
			13	291	288	280	280	280	280	287	283	283	290	290	300	13	290	270	274	282	283	283	284	276	262	268	279	281	6759
			14	279	279	280	292	289	296	299	288	281	284	280	267	14	254	237	246	242	250	264	261	267	270	276	282	286	6549
			15	281	278	277	277	278	277	280	278	281	282	281	272	15	267	267	271	277	279	279	276	275	272	272	273	270	6620
			16	271	270	273	276	279	281	280	280	282	286	265	150	16	271	288	278	280	278	276	278	282	277	278	276	279	6511
			17	277	278	277	280	281	286	290	289	284	284	262	238	17	274	277	270	264	270	272	272	271	268	272	278	280	6614
			18	279	280	279	280	286	289	289	284	282	282	266	273	18	270	270	270	276	278	280	278	272	268	269	264	270	6634
			19	271	270	271	271	272	272	269	271	264	304	300	301	19	236	131	229	271	276	283	287	287	284	268	266	276	6427
			20	276	274	273	272	279	279	274	276	277	268	261	233	20	289	246	258	268	276	281	283	272	266	273	282	288	6462
			21	292	288	291	300	352	359	272	148	228	215	355	387	21	365	335	286	227	74	102	144	133	187	276	278	323	6206
			22	336	335	338	338	377	329	193	230	269	308	328	368	22	446*	446*	399	367	287	291	317	309	384	303	318	325	7849
			23	316	303	318	323	318	304	297	292	296	299	259	219	23	222	262	280	292	290	293	297	299	299	298	297	290	6963
			24	286	289	296	299	291	297	308	301	307	304	294	261	24	279	275	227	191	270	289	293	291	296	299	291	284	6818
			25	289	290	287	288	287	285	284	284	286	282	283	281	25	281	261	274	291	284	281	280	279	271	277	269	258	6722
			26	301	302	297	252	128	111	106*	257	300	267	302	314	26	486*	293	297	269	284	292	305	282	288	303	307	322	6605
			27	297	319	323	319	318	308	307	290	225	257	268	266	27	273	287	298	305	291	297	308	303	298	299	306	307	7069
			28	299	302	310	331	308	318	347	331	311	311	291	278	28	257	245	263	281	294	294	299	291	297	294	297	290	7134
			29	291	306	303	299	307	318	339	341	318	301	303	301	29	297	284	281	279	268	290	294	298	289	299	309	310	7225
			30	340	337	347	353	331	188	190	246	281	303	310	307	30	299	249	258	301	313	314	308	300	299	304	301	308	6981
			31	300	301	309	362	371	343	330	319	229	261	341	423	31	247	256	279	287	311	318	310	297	294	300	307	299	7394

SCALED BY	SPT, PEF, JEP
CHECKED BY	JEP, ERS, SPT
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 Mag., converted to Normal Mag.

MONTHLY SUM	211122
MONTHLY MEAN	284
DATES WITH GAPS:	

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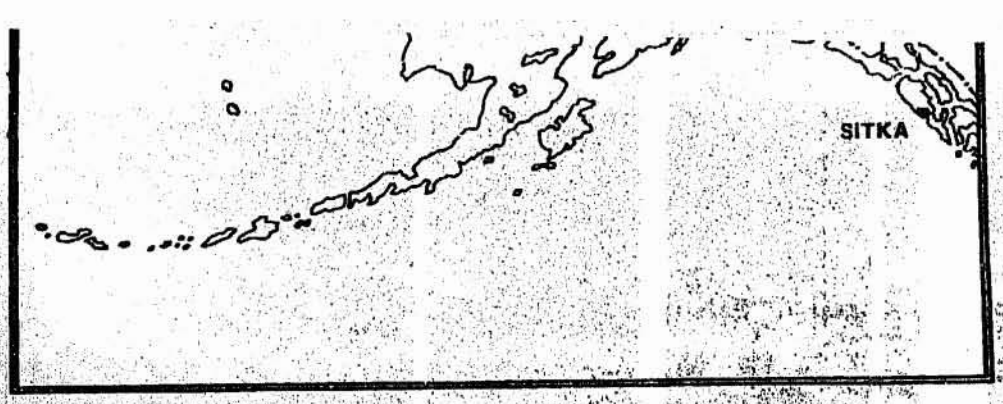
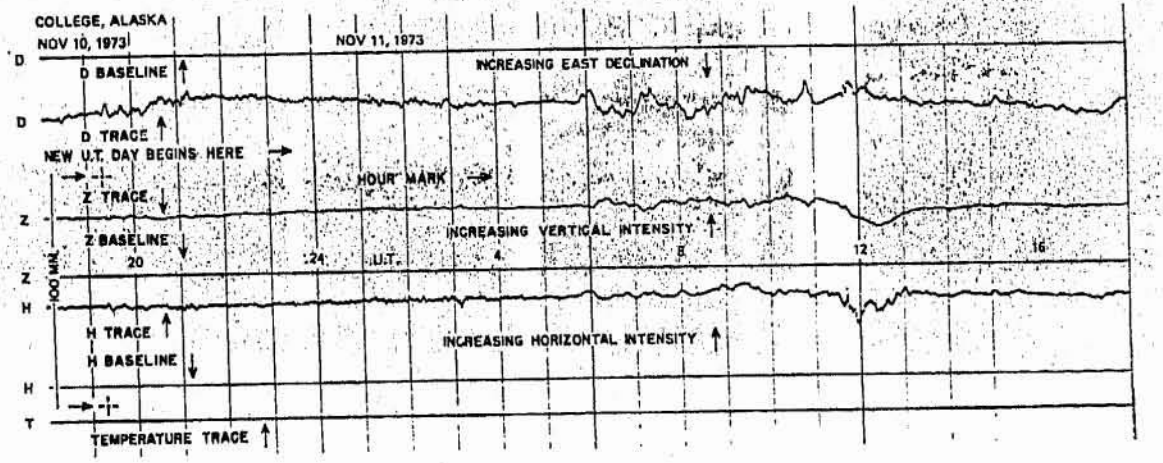
U.S. G.P.O. 1973-769-374/839 REG. 6



FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)



SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

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 to 11	0
11 to 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 fie.d from the hourly means or from point scalings the following equations should be used:

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

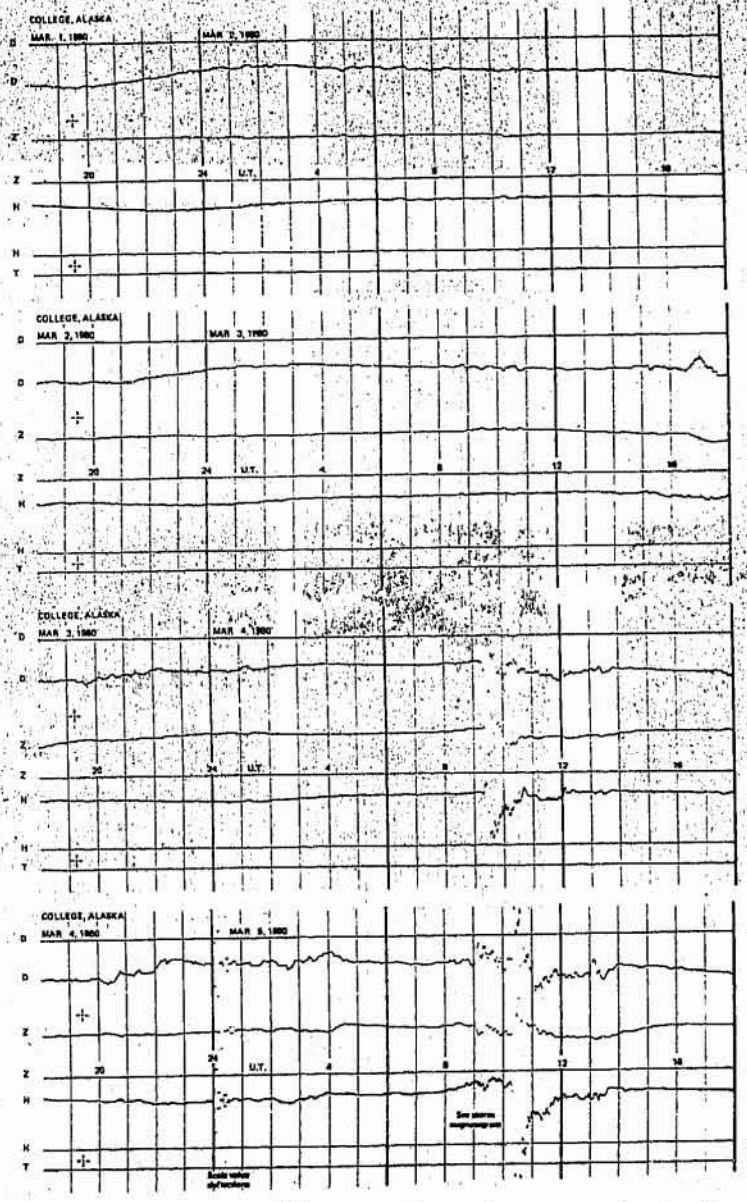
where D, H, and Z are absolute values;
B_D, B_H and B_Z are base-line values;
S_D, S_H and S_Z are scale values;
and d, h, and z are scalings in millimeters.

2

K SCALE U
LOWER LI
CURRENT
LOWER LI
SCALINGS

NOAA FORM 7

NORMAL MAGNETOGRAMS



11

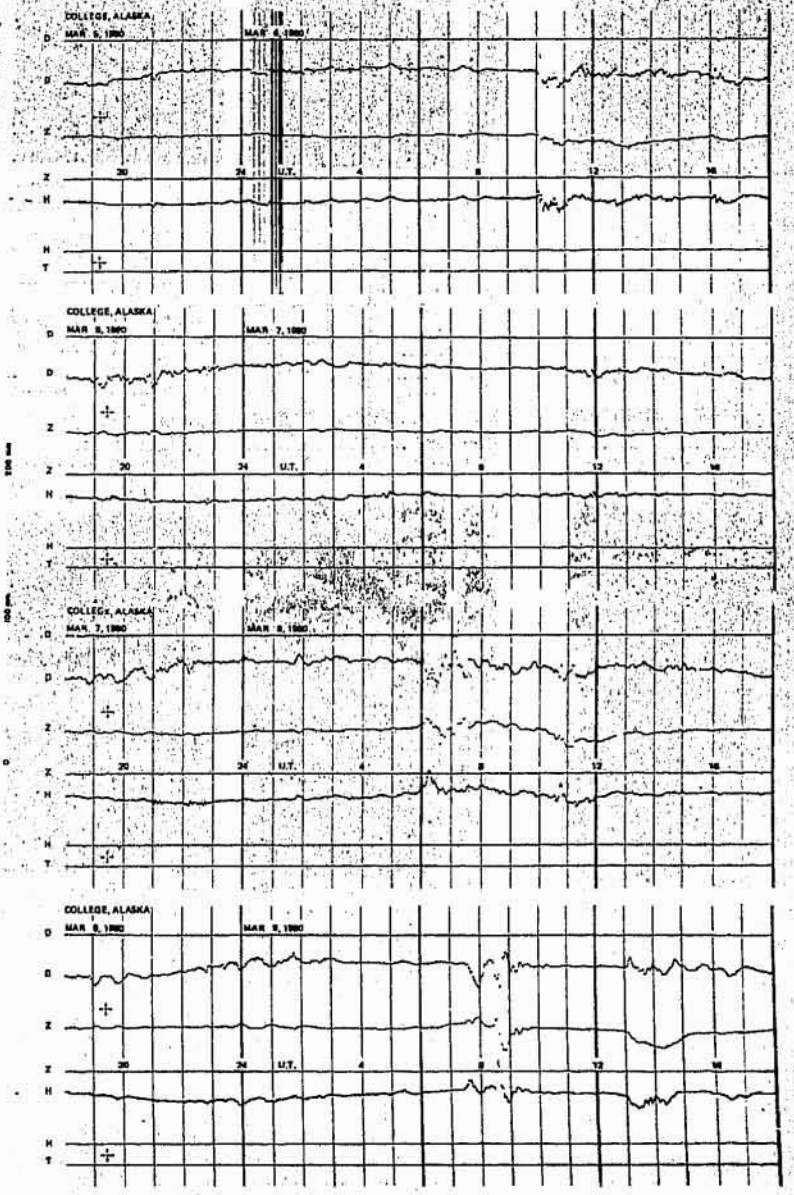
K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.75	7.81		(γ/mm)
LOWER LIMIT FOR K = 9	2560	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

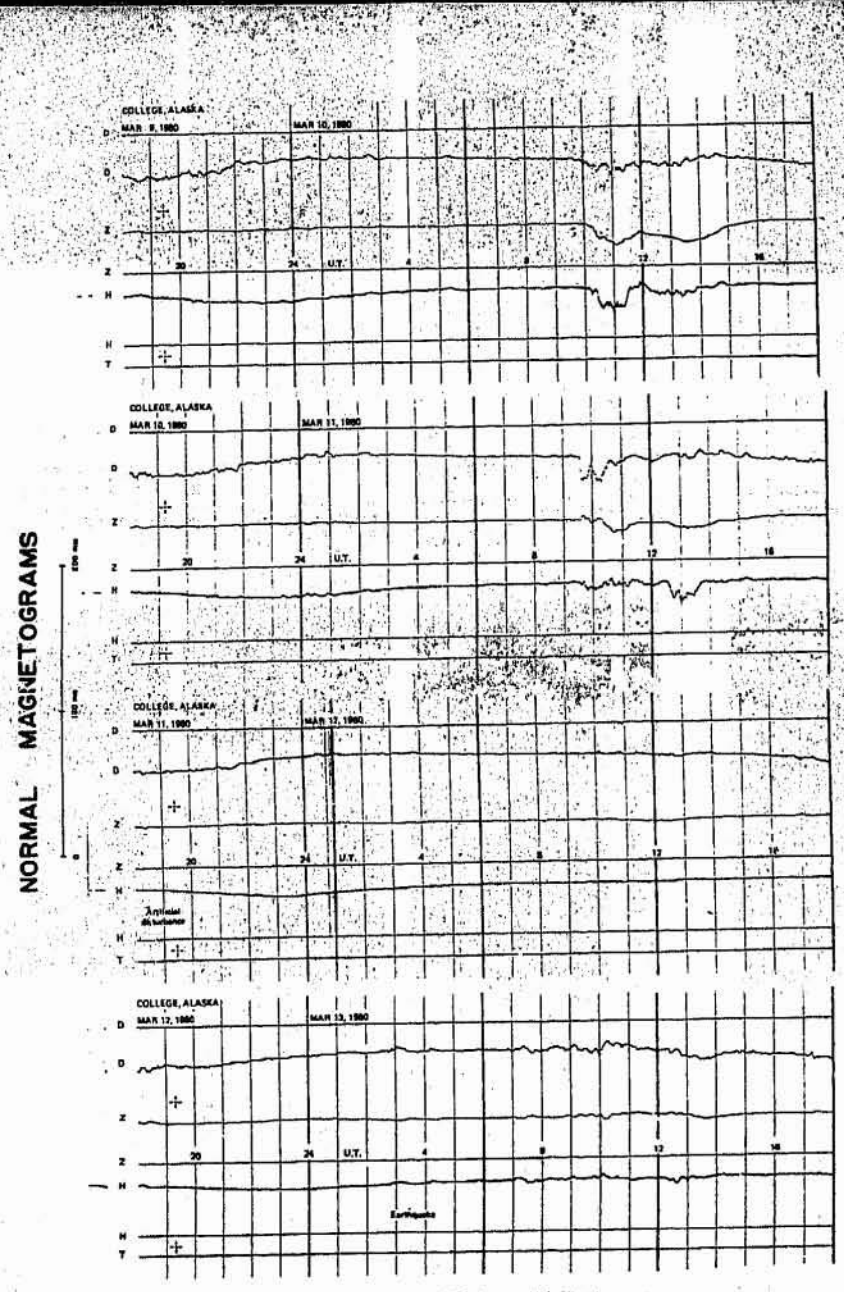
NOAA FORM 76-199 SUPERSEDES C&GS FORM 615 3 ☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-887

NORMAL MAGNETOGRAMS



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. 4



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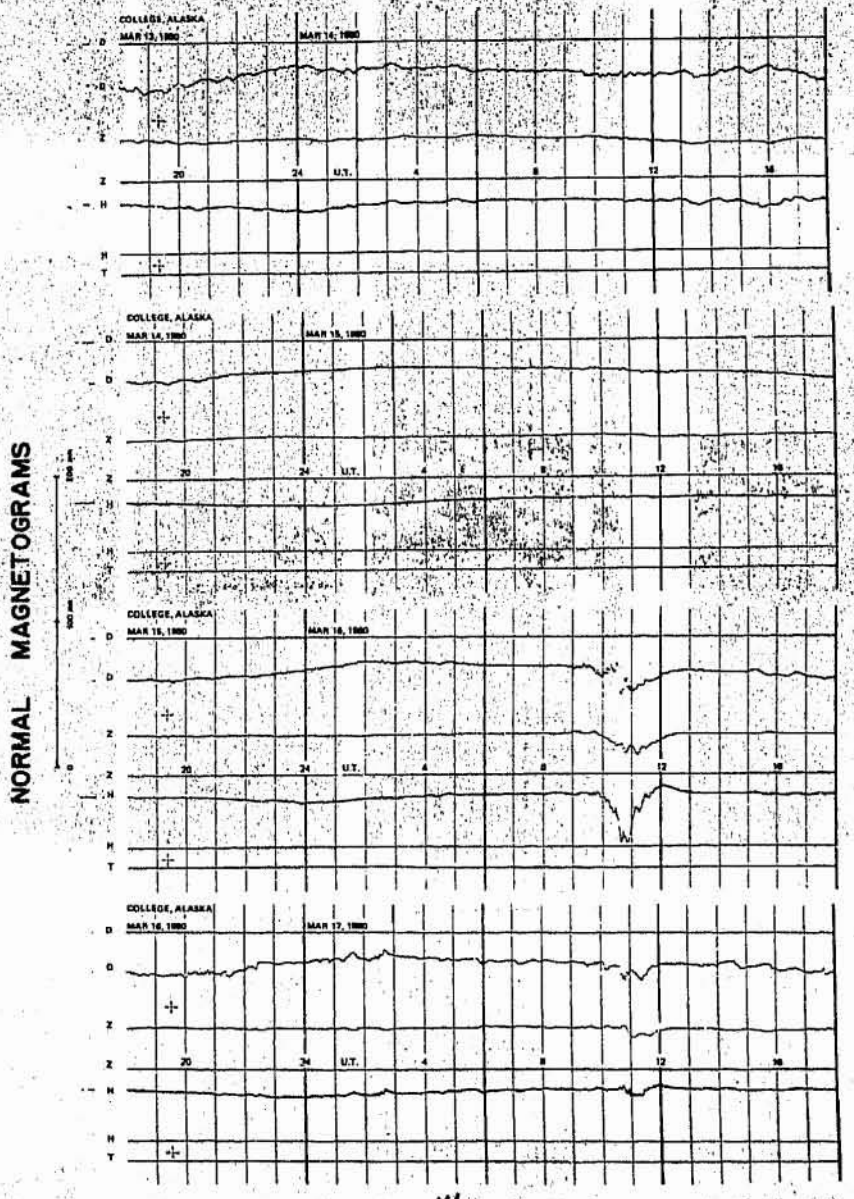
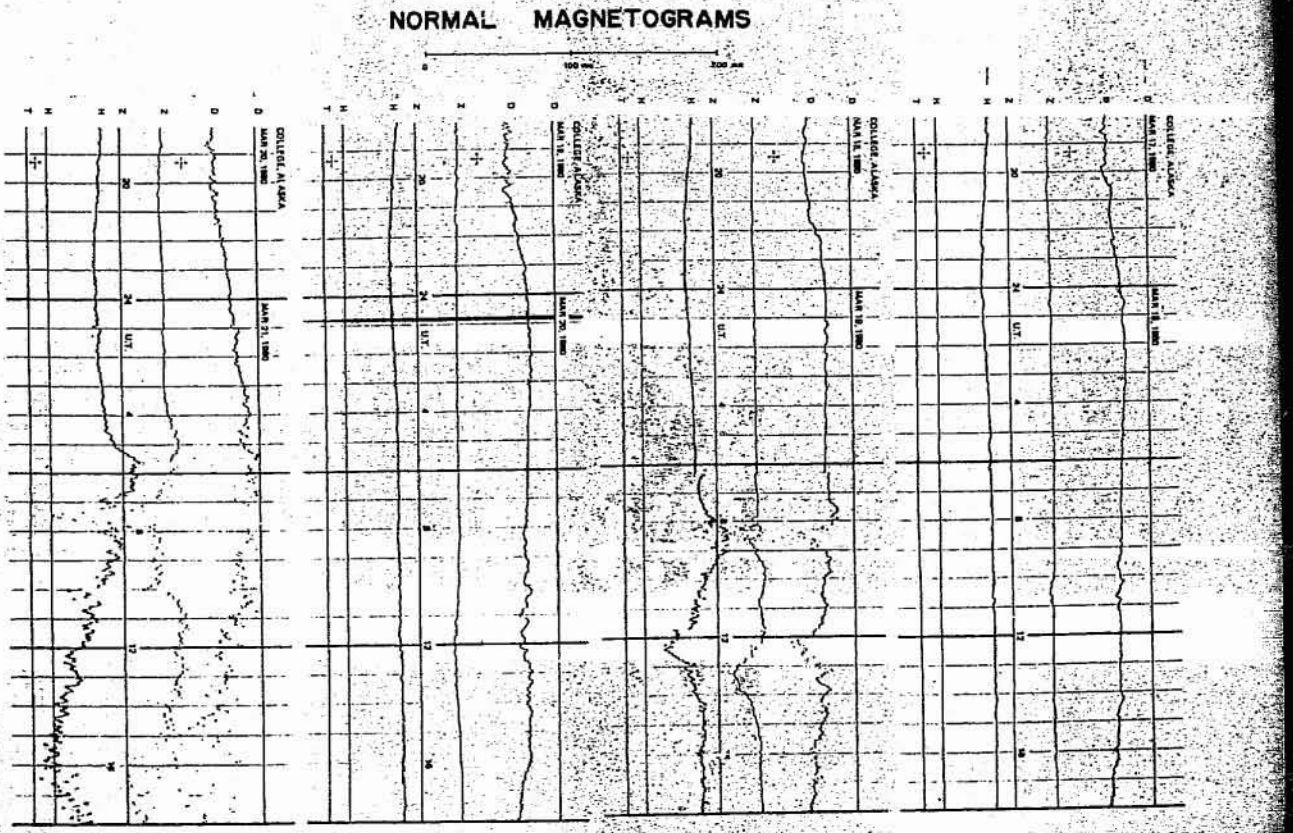

NORMAL MAGNETOGRAMS
COLLEGE, ALASKA
MAR 13, 1980
MAR 14, 1980
COLLEGE, ALASKA
MAR 14, 1980
MAR 15, 1980
COLLEGE, ALASKA
MAR 15, 1980
MAR 16, 1980
COLLEGE, ALASKA
MAR 16, 1980
MAR 17, 1980
U.T.


NORMAL MAGNETOGRAMS
COLLEGE, ALASKA
MAR 19, 1980
H
D
Z
T
U.T.

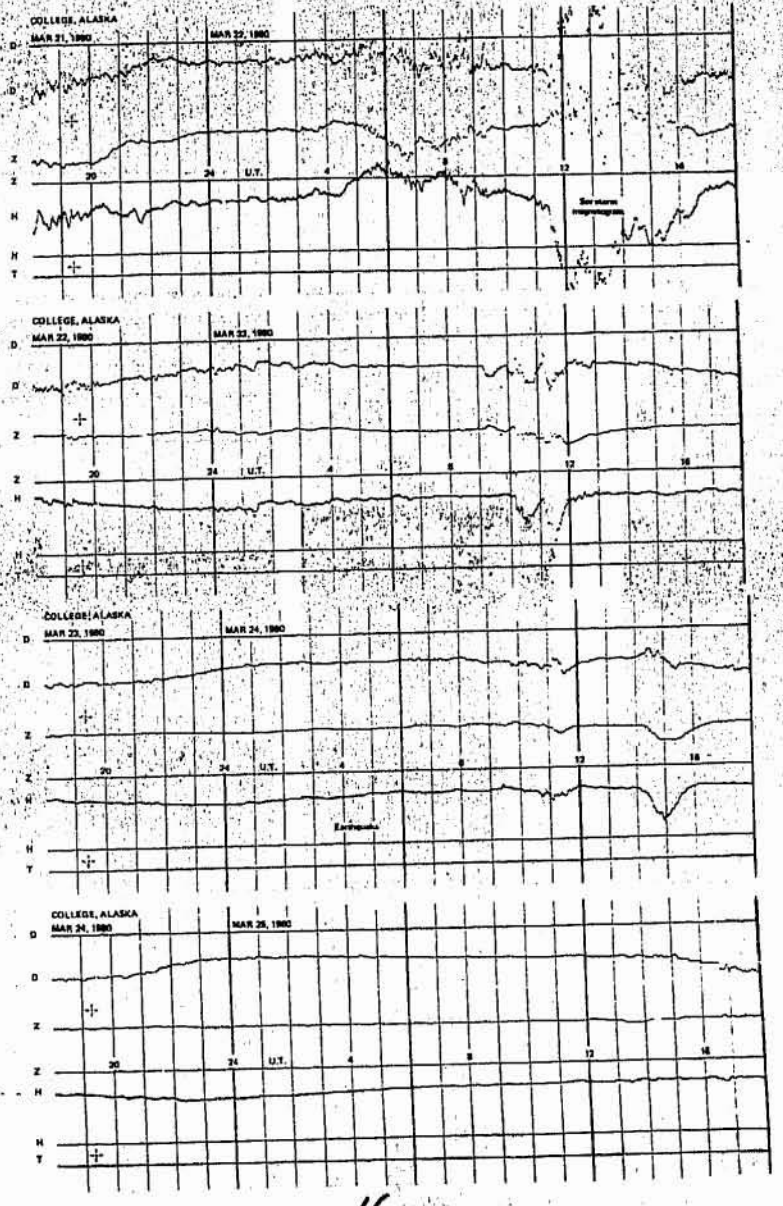
D	H	Z
28° 09.1 E	13018 γ	55372 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: MAR 1, 2, 3, 12, 13, 14, 15, 17, 18, 20

6

NORMAL MAGNETOGRAMS



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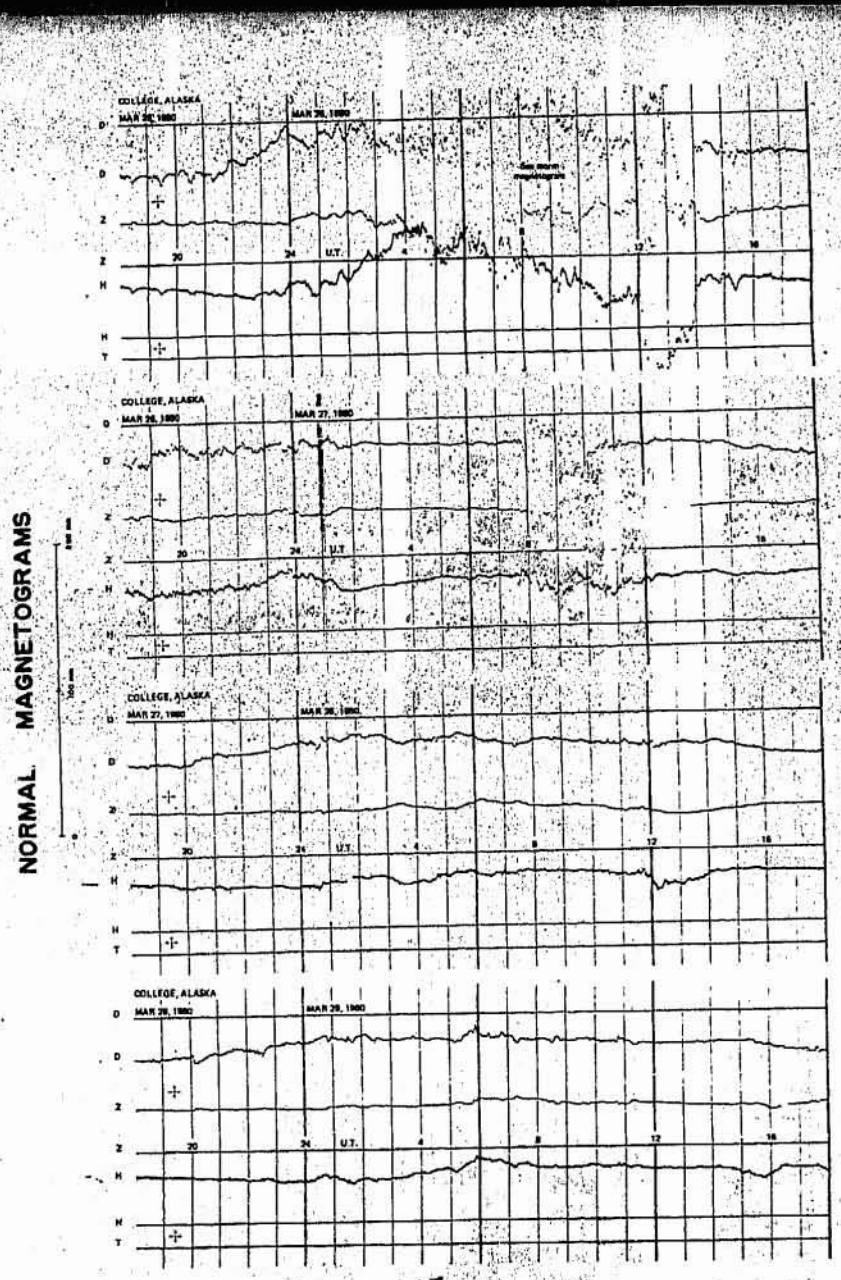
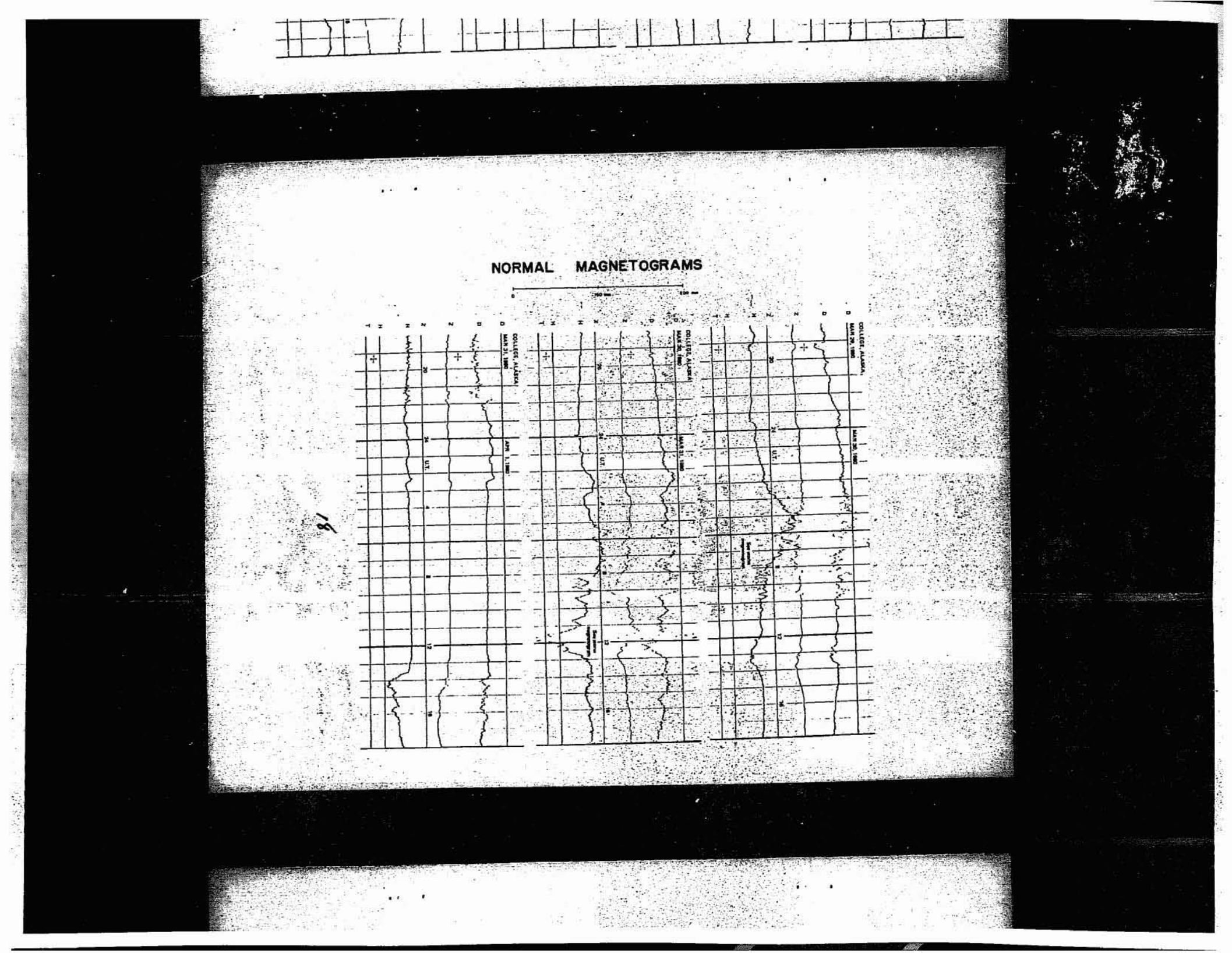
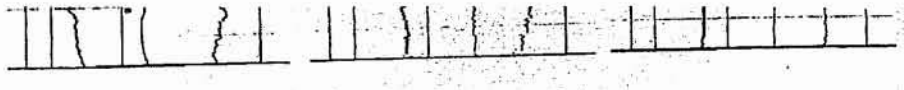
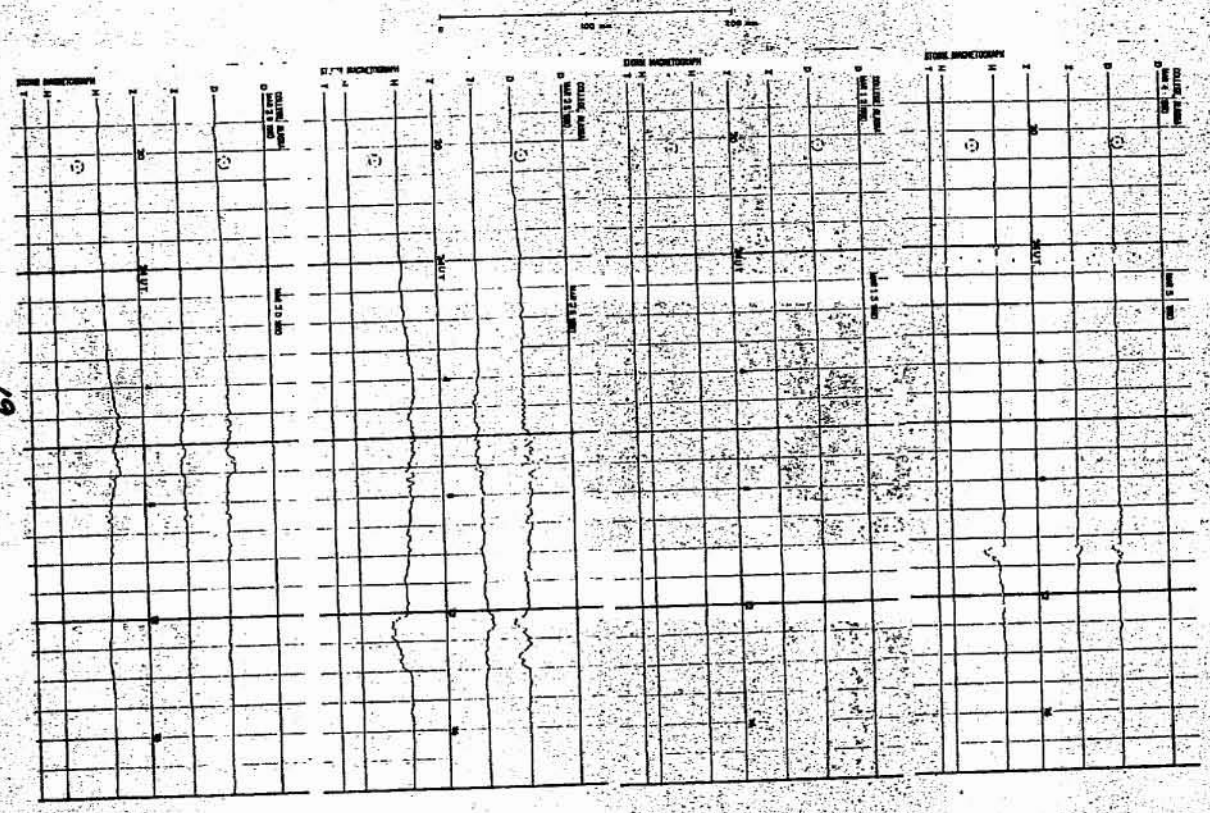

NORMAL MAGNETOGRAMS
COLLEGE, ALASKA
MAR 26, 1960
MAR 27, 1960
U.T.
D
Z
H


NORMAL MAGNETOGRAMS
COLLEGE, ALASKA
MAR 29, 1960
MAR 30, 1960
MAR 31, 1960
APR 1, 1960
D
H
Z
T
U.T.



STORM MAGNETOGRAMS



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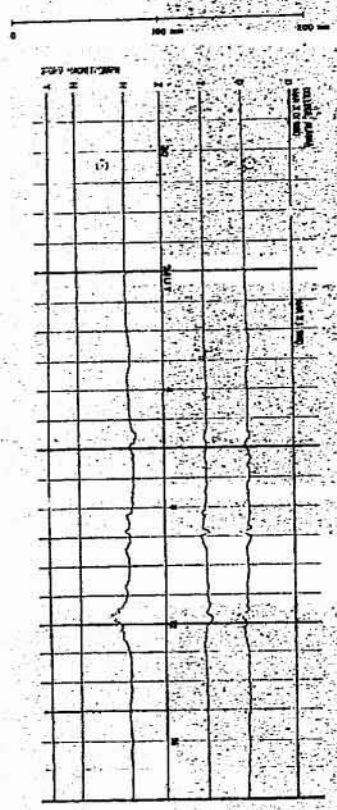
STORM MAGNETOGRAMS



20