

UNITED STATES DEPARTMENT OF THE INTERIOR

77-300-L

GEOLOGICAL SURVEY

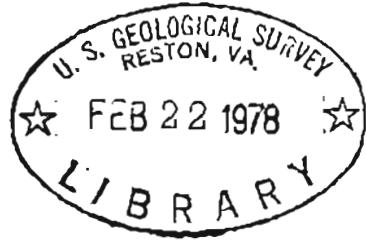
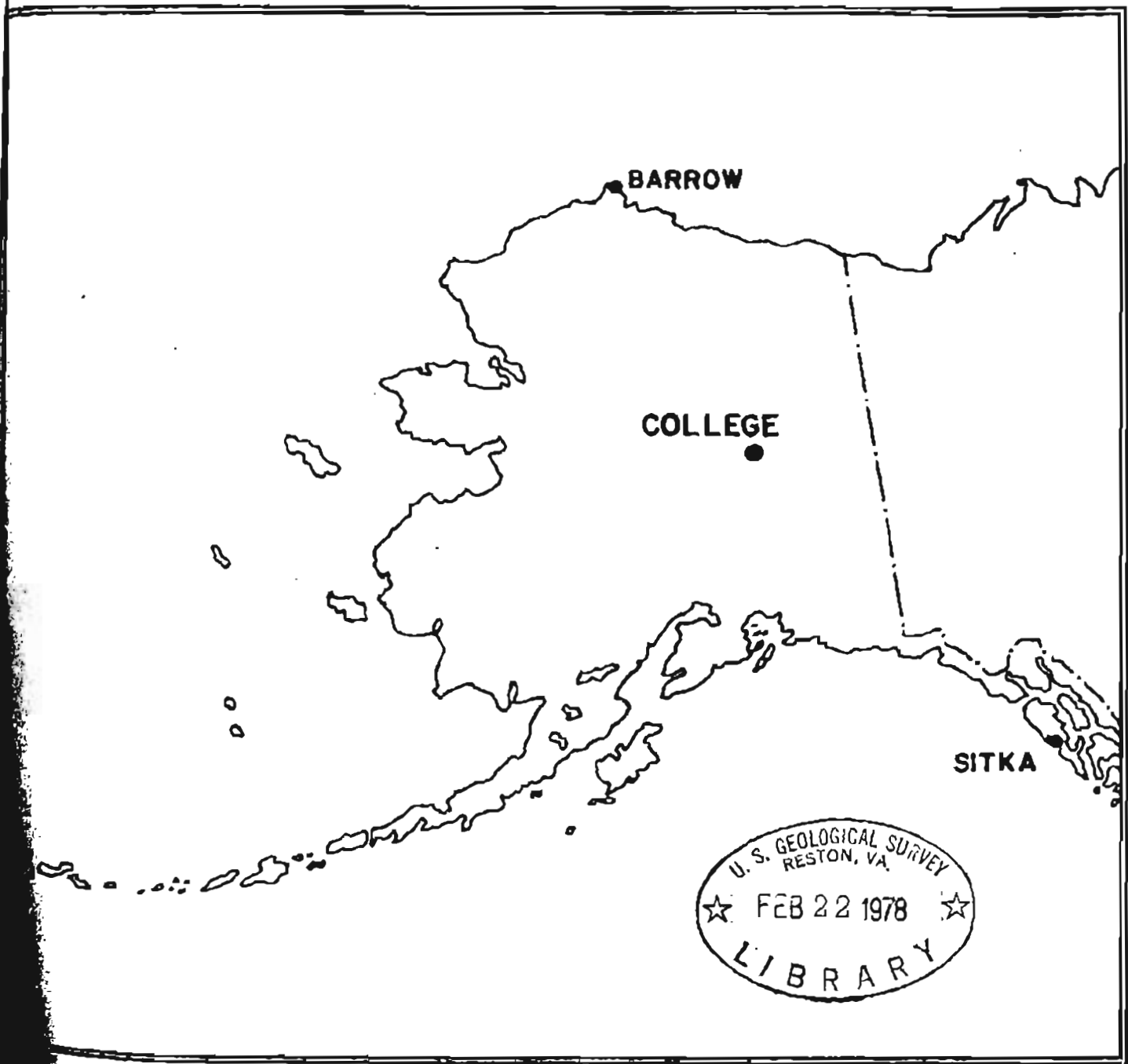
Reports
file

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

DECEMBER 1977

OPEN FILE REPORT 77-300L

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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, M. J. MOORMAN, AND S. P. TILTON, AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF ELECTROMAGNETISM AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

INTRODUCTION

The preliminary geomagnetic data included here is made available to scientific personnel and organizations, as part of a cooperative effort and on a data exchange basis because of the early need by some users. To avoid delay, all of the data is copied from original forms processed at the observatory; therefore it should be regarded as preliminary. Inquiries about this report or about the College Observatory should be addressed to: Chief, College Observatory
U.S. Geological Survey
Yukon Drive on West Ridge
Fairbanks, Alaska 99701

Requests for copies of the magnetograms except for the current month should be addressed to:
World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

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
0-50	0
11-50	1
50+	2

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

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.....+236.5°
Elevation.....200 meters

GEOMAGNETIC DATA

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:

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

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

DECEMBER 1977

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	0	0	1	1	1	1	2	07	03	SUDDEN COMMENCEMENTS d h m
2	4	5	4	6	6	8	7	3	43	82	
3	3	2	1	5	3	2	2	1	19	13	
4	0	1	1	2	3	3	3	3	16	09	
5	3	6	6	5	2	1	1	1	25	30	
6	1	0	1	2	0	0	0	0	04	02	
7	0	0	0	0	0	1	1	0	02	01	
8	0	0	0	1	0	0	0	0	01	00	
9	0	0	2	0	0	0	0	0	02	01	
10	0	0	1	1	1	0	0	1	04	02	
11	1	4	6	6	7	5	2	3	34	50	
12	3	4	4	3	5	2	3	3	27	21	
13	2	2	2	5	4	3	2	2	22	16	
14	1	2	2	3	3	2	1	0	14	07	
15	0	0	2	3	4	0	0	0	09	09	
16	0	0	2	2	3	3	1	2	13	07	
17	3	5	1	2	1	0	1	1	14	10	
18	1	0	0	0	0	0	0	0	01	00	
19	0	0	1	1	0	0	0	0	02	01	
20	0	0	0	3	2	0	0	0	05	03	
21	0	0	0	0	1	2	0	1	04	02	
22	1	0	0	0	1	0	0	0	02	01	
23	0	0	0	3	3	0	0	0	06	04	
24	1	0	0	4	2	1	1	0	09	05	
25	0	0	1	1	1	1	1	1	06	02	
26	1	1	1	2	2	1	2	3	13	06	
27	1	2	0	2	2	1	0	0	08	03	
28	0	1	0	3	0	0	3	3	10	06	
29	1	4	0	1	3	0	0	0	09	06	
30	1	0	0	2	1	0	1	1	06	02	
31	0	1	0	3	3	1	1	1	10	05	

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

SUM

K SCALE USED: LOWER LIMIT FOR K _s CURRENT SCALE VALUE..... LOWER LIMIT FOR K _s	D	H	Z	
	683.8	321.7		(mm)
	3.76	7.82		(γ/mm)
	2570	2520		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY

COLLEGE, ALASKA

MONTH

YEAR

DECEMBER

1977

DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
03	15XX	pc4	
06	1022	bps	
23	10XX	pi2	
28	20XX	pc5	
29	04XX	b	Positive bay on H component.
30	10XX	pi2	

IDENTIFIED BY:

JEP

VERIFIED BY:

JEP

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

FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS
COLLEGE OBSERVATORY, COLLEGE, ALASKA
DECEMBER 1977

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

Data from Individual Observatories:

Obs. Z letter 1999 0000	Geomag. lat.	Commencement		SC - amplitudes			Max. 3 hr - index K			Ranges			UT End day hr
		day	hr min (UT)	type	D(')	H(Y)	Z(Y)	day	(3 hr - period)	K	D(')	H(Y)		Z(Y)
C0	64.6 N	01	22XX	..	..	..	02	6	8	373	2150	1090	03 02
		11	03XX	..	..	..	11	5	7	296	1810	1180	12 15

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 12-1-77	2400 U.T., 12-31-77	1.0/mm	3.88/mm	27° 46.9 E
H	0000 U.T., 12-1-77	2400 U.T., 12-18-77	7.88/mm		127428
	0000 U.T., 12-19-77	2400 U.T., 12-31-77	"		127508
Z	0000 U.T., 12-1-77	2400 U.T., 12-18-77	7.78/mm		551428
	0000 U.T., 12-19-77	2400 U.T., 12-31-77	"		551368

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 12-1-77	2400 U.T., 12-31-77	7.9/mm	29.88/mm	24° 22.4 E
H	0000 U.T., 12-1-77	2400 U.T., 12-18-77	44.18/mm		114768
	0000 U.T., 12-19-77	2400 U.T., 12-31-77	"		114938
Z	0000 U.T., 12-1-77	2400 U.T., 12-18-77	48.98/mm		540068
	0000 U.T., 12-19-77	2400 U.T., 12-31-77	"		540398

RAPID RUN MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		
D	0000 U.T., 12-1-77	2400 U.T., 12-31-77	0.3/mm		1.08/mm
H	0000 U.T., 12-1-77	2400 U.T., 12-31-77	1.08/mm		
Z	0000 U.T., 12-1-77	2400 U.T., 12-31-77	2.48/mm		

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
28° 17.0 E	130498	553718

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: DEC 6, 7, 8, 9, 10, 18, 19, 21, 22, 25

V.L. DEPARTMENT OF COMMERCE
 ENVIRONMENTAL SCIENCE SERVICES CORPORATION
 CONTAMINANT FILM DIVISION

Values are in units of μm , and are averages for successive periods of one hour beginning at midnight. Interpolated values are indicated by asterisks. Negative values are in italics. Values are in units of μm , and are averages for successive periods of one hour beginning at midnight. Interpolated values are indicated by asterisks. Negative values are in italics.

STATION	UNIVERSAL TIME																								YEAR	MONTH	DAY
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23				
1	284	294	300	303	308	312	314	308	309	304	309	319	329	322	306	341	345	254	260	190	149	173					
2	233	230	253	250	151	257	214	263	257	299	37	240	109	491	724	212	434	109	109	109	254	234	5579				
3	259	278	282	279	300	312	309	301	310	248	321	315	291	311	320	321	328	327	299	283	271	279	7180				
4	294	302	301	299	289	309	290	300	305	327	310	311	320	361	427	340	281	219	273	221	196	241	7320				
5	250	256	279	250	260	349	307	316	402	342	284	313	327	310	302	329	319	310	297	289	285	288	7336				
6	281	280	283	300	301	301	307	307	302	309	293	310	312	312	312	312	314	316	321	315	308	297	7215				
7	293	299	304	301	303	309	309	309	301	298	300	303	318	317	313	319	326	321	298	287	281	261	7299				
8	281	287	301	304	307	310	310	304	303	318	317	299	299	311	319	321	319	310	300	300	296	290	7344				
9	290	296	301	300	291	289	307	291	312	300	297	300	301	302	309	310	320	320	310	306	300	300	7294				
10	300	300	299	300	300	297	293	293	309	300	307	320	340	313	310	320	329	328	325	291	258	267	7363				
11	270	287	262	273	115	135	374	231	72	334	445	349	674	460	431	538	287	327	288	219	182	229	8374				
12	251	230	211	234	304	355	315	334	323	300	293	311	454	324	308	315	311	265	258	276	261	153	7035				
13	253	271	300	308	303	312	306	291	315	302	292	241	319	590	268	261	287	279	246	265	251	271	7040				
14	283	290	297	307	303	351	372	309	308	340	317	305	299	292	330	319	322	318	300	290	260	269	7452				
15	294	299	300	310	307	303	300	301	304	401	311	309	272	256	310	320	321	314	310	301	297	298	7479				
16	297	299	301	300	295	290	300	300	374	365	301	298	300	310	311	331	340	331	270	246	250	279	7342				
17	281	259	236	230	257	247	311	324	320	316	308	296	321	318	314	313	317	324	319	301	294	288	290	7105			
18	291	294	300	304	307	304	309	309	303	300	301	303	302	307	307	309	310	310	313	311	309	304	299	7316			
19	298	300	301	303	307	308	308	299	309	320	309	301	299	300	300	302	304	319	320	319	308	302	292	7341			
20	295	299	300	301	306	309	305	302	299	300	310	393	357	256	310	320	321	329	302	290	290	281	282	7571			
21	287	300	302	310	311	310	310	308	313	319	326	303	300	310	301	334	340	327	317	304	271	249	268	7311			
22	270	300	300	297	289	296	301	301	300	300	300	306	308	320	291	311	323	312	294	293	289	276	276	7179			
23	287	299	298	304	310	313	309	310	307	309	311	342	370	306	317	320	324	324	313	303	296	290	280	7471			
24	287	297	311	311	311	310	307	298	300	291	276	348	356	330	329	331	327	328	321	304	299	290	286	7442			
25	290	287	290	294	294	300	310	311	284	311	307	308	319	312	330	327	341	353	352	290	270	276	279	7289			
26	277	273	263	271	288	281	321	317	310	307	287	282	308	347	329	320	316	319	317	269	272	298	289	7166			
27	285	280	287	300	290	297	311	312	310	311	302	301	312	314	318	299	311	312	333	321	320	305	293	7341			
28	292	290	289	287	286	289	304	300	323	321	314	260	311	305	312	317	338	369	347	330	316	244	267	7212			
29	254	273	276	274	319	313	317	313	310	303	304	321	370	356	349	331	321	321	321	316	317	304	279	7472			
30	270	281	291	290	301	311	307	307	307	308	311	292	321	318	301	315	317	319	322	327	306	287	289	7289			
31	299	297	298	300	301	307	306	311	284	317	331	310	316	330	310	310	339	344	325	307	280	244	256	7378			

Interpolated
 Significant portion of hour interpolated.
 No record; or no value available because of faulty record.
 Scaling error in because of magnetic storm.
 Record all short for part or all of hour; if value is short, error was estimated for missing part.

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

SPT, JDP
 JDP, JDP
 JDP

MONTHLY SUM
 MONTHLY MEAN
 DATES WITH GAPS:

FD-302 (Rev. 1-25-60)

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL BUSINESS SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETIC DIVISION

OBSY. YEAR MONTH ELEMENT
CO 77 DEC H

Values are in units of gam, and are averages for successive periods of one hour beginning at midnight. Hour 01 of each day (1500 H.T.) is hour 11 of the 2400 universal days. Minor corrections have been applied. Negative values are in red, with minus signs shown.

Hour	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	390	390	394	395	390	389	384	387	389	384	384	384	379	383	380	373	350	359	350	346	340	300	371	350	8903
02	363	376	462	573	523	471	523	428	440	88	365	112	101	380	86	184	83	995	677	309	172	380	381	354	3100
03	362	410	416	403	379	374	368	349	370	343	341	340	219	299	254	380	382	380	372	372	366	365	377	371	8678
04	379	381	386	389	381	384	394	391	389	407	393	383	363	329	299	336	281	331	292	332	331	330	379	414	8676
05	391	421	431	420	487	499	715	542	149	81	289	348	353	341	346	380	380	383	380	377	372	371	370	376	9242
06	376	369	391	410	400	395	390	384	380	381	375	383	380	381	380	380	381	384	389	385	380	381	379	380	9236
07	376	380	384	386	390	390	384	384	387	389	390	389	389	384	387	386	385	385	384	363	384	381	377	374	9234
08	381	390	396	396	393	393	390	390	392	399	392	396	400	393	390	390	392	393	390	391	390	385	385	389	9398
09	390	391	396	397	391	388	432	440	408	393	364	389	387	389	390	390	388	384	384	381	382	384	386	386	9430
10	387	391	397	398	397	390	397	384	394	396	393	388	384	389	400	400	399	393	393	392	392	390	390	394	9428
11	400	397	380	429	512	643	413	392	339	76	199	131	877	391	253	151	87	353	394	380	369	314	194	407	5387
12	432	510	610	507	628	505	620	444	385	363	351	316	-1	48	316	411	400	384	371	360	349	362	370	363	9414
13	378	394	401	415	410	400	403	412	400	296	-66	278	362	215	127	201	290	310	356	359	350	376	381	381	7829
14	391	392	391	402	400	391	406	400	387	383	310	279	303	333	372	351	380	393	390	389	383	386	390	385	8987
15	363	381	390	391	400	397	399	389	380	381	326	323	243	302	392	369	391	394	390	386	380	380	380	383	8980
16	387	390	391	390	387	389	381	386	382	389	384	390	391	391	351	244	327	350	391	389	399	390	356	350	8977
17	366	411	510	513	650	577	411	390	384	381	381	349	379	384	385	384	384	389	390	390	396	390	400	396	10010
18	396	397	395	395	396	391	390	391	390	390	390	386	386	388	391	391	390	390	390	390	385	381	384	384	9365
19	390	392	393	391	391	390	390	389	383	387	392	391	390	390	390	391	395	403	401	399	394	390	391	390	9403
20	391	383	394	398	398	395	391	391	393	386	308	375	376	380	383	380	381	400	392	391	394	392	399	393	9232
21	394	400	399	397	396	390	387	386	390	388	389	396	390	389	349	340	389	400	399	401	397	380	370	380	9316
22	392	398	391	381	380	380	382	382	380	380	379	376	356	340	340	381	383	381	380	379	381	390	390	383	9125
23	382	393	400	396	392	389	386	386	387	381	379	390	351	402	389	390	384	386	380	379	380	380	374	376	9172
24	375	380	386	383	381	382	382	381	381	390	307	326	390	390	390	385	381	386	384	380	379	380	380	386	9065
25	389	390	393	390	389	386	386	386	396	394	390	389	386	390	383	380	380	383	382	367	371	389	380	380	9249
26	383	383	403	403	427	409	390	386	406	443	406	400	384	389	385	387	381	382	373	377	380	380	370	359	9380
27	376	386	393	406	396	393	392	383	381	380	376	346	384	376	350	370	389	384	380	376	370	367	369	370	9087
28	370	378	381	389	391	389	379	381	376	383	351	310	387	390	381	389	391	397	393	340	340	373	370	370	8993
29	369	370	386	407	498	381	371	370	349	341	363	357	264	359	390	390	387	382	380	379	374	371	366	363	9007
30	370	383	390	387	387	381	381	381	380	377	380	380	376	378	379	379	380	381	376	376	373	374	369	366	9084
31	375	381	387	384	390	384	382	380	379	382	383	380	341	292	367	397	389	389	385	375	361	359	373	376	9011

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

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

- Interpolated
 - Significant portion of hour interpolated.
 - No record; or no values available because of lousy 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 SLOTR Magph., converted to Normal Magph.

MONTHLY SUM: 273398
MONTHLY MEAN: 367
DATE(S) WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICE ADMINISTRATION
COAST AND GEODETIC SURVEY
RESEARCH FLIGHT DIVISION

OBSY. YEAR MONTH ELEMENT
CO 77 DEC 2

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour Di of local day (1907 M.T.) is hour 11 of the same universal day.
Should any corrections have been applied. Negative values are in red, with minus signs shown.

C	U	S	100	10	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	311	313	309	307	307	307	306	306	305	305	304	305	01	292	299	297	297	280	270	264	224	236	249	259	309	6969
				02	339	326	383	59	188	221	-1	132	238	348*	248	430	02	459	482*	155	164	455	228*	647*	577*	85*	151	266	292	5923
				03	320	340	349	350	341	329	327	322	329	303	212	310	03	287	292	267	280	310	310	311	312	309	310	317	326	7467
				04	330	329	321	317	317	334	332	330	324	318	507	321	04	319	317	237	252	180	123	106	116	216	250	304	311	6611
				05	336	340	330	323	320	102	142	236	259*	97	131	230	05	286	289	284	301	308	307	309	307	310	310	311	310	6578
				06	313	314	321	331	322	317	313	317	316	317	304	319	06	315	311	310	308	307	306	306	306	307	309	310	310	7609
				07	312	314	311	311	313	316	316	309	307	307	306	306	07	307	306	306	303	300	299	301	296	288	290	299	302	7325
				08	307	310	309	307	305	305	306	306	313	316	300	276	08	301	309	308	307	310	300	296	293	291	296	296	297	7264
				09	300	300	300	300	303	314	317	323	351	321	305	304	09	302	302	304	303	302	303	303	300	299	297	300	301	7354
				10	302	300	300	301	301	304	310	327	317	311	309	296	10	289	267	279	295	301	301	298	290	289	284	276	290	7137
				11	307	309	310	348	370	168	49	56	186	322	451	654*	11	647*	482*	354	313	284	170	280	297	280	294	289	346	7448
				12	344	340	364	354	253*	228*	354	354	340	325	320	340	12	334	332	230	289	299	304	300	280	265	280	298	310	7437
				13	325	345	349	330	329	326	339	320	330	265	289	128	13	255	256	216	140	182	214	240	259	275	287	290	306	6595
				14	311	313	316	320	321	351	321	303	307	309	286	184	14	188	262	270	270	271	283	283	290	296	300	300	306	6961
				15	307	306	310	307	310	309	304	310	326	262	240	236	15	200	170	263	287	295	299	299	297	299	300	303	303	6842
				16	305	302	306	306	306	309	310	311	321	284	281	294	16	300	299	280	159	138	120	146	167	198	246	284	297	6269
				17	307	329	337	310	266	436	371	337	320	311	313	308	17	310	309	304	300	300	299	294	293	290	294	296	300	7534
				18	305	306	307	306	304	304	304	302	302	300	303	305	18	302	300	294	300	300	300	300	300	300	302	305	303	7254
				19	302	302	304	304	301	300	300	300	309	311	300	300	19	300	300	300	300	300	300	299	299	300	300	299	300	7230
				20	300	300	300	299	298	298	299	299	297	301	247	190	20	224	233	243	260	271	279	279	277	279	286	291	296	6646
				21	300	301	299	299	300	302	304	309	307	300	299	290	21	288	283	279	222	241	271	286	286	287	284	290	300	6927
				22	313	318	306	310	321	334	314	307	305	301	300	301	22	286	281	256	274	299	298	299	297	296	296	290	299	7201
				23	304	310	309	309	309	309	306	306	305	306	310	267	23	216	287	300	300	304	300	300	297	296	296	299	300	7145
				24	307	313	315	311	314	311	307	306	306	307	251	211	24	259	286	299	300	297	296	297	300	300	303	303	303	7102
				25	306	305	305	306	306	311	316	330	330	329	317	313	25	287	300	300	293	284	280	280	270	259	260	280	297	7164
				26	301	307	311	322	337	336	327	320	324	332	330	336	26	316	290	295	299	300	300	294	290	299	310	307	310	7493
				27	317	324	312	313	319	321	320	320	313	308	309	280	27	289	287	250	260	277	287	296	301	306	305	305	305	7224
				28	305	306	305	304	305	310	319	316	321	309	291	210	28	279	295	294	290	297	291	266	276	320	321	309	317	7156
				29	317	331	333	351	401	340	320	310	304	300	299	310	29	273	258	280	296	300	300	298	300	301	300	300	300	7422
				30	303	306	314	311	310	310	307	310	316	313	310	289	30	300	297	300	304	304	302	304	303	299	300	301	307	7320
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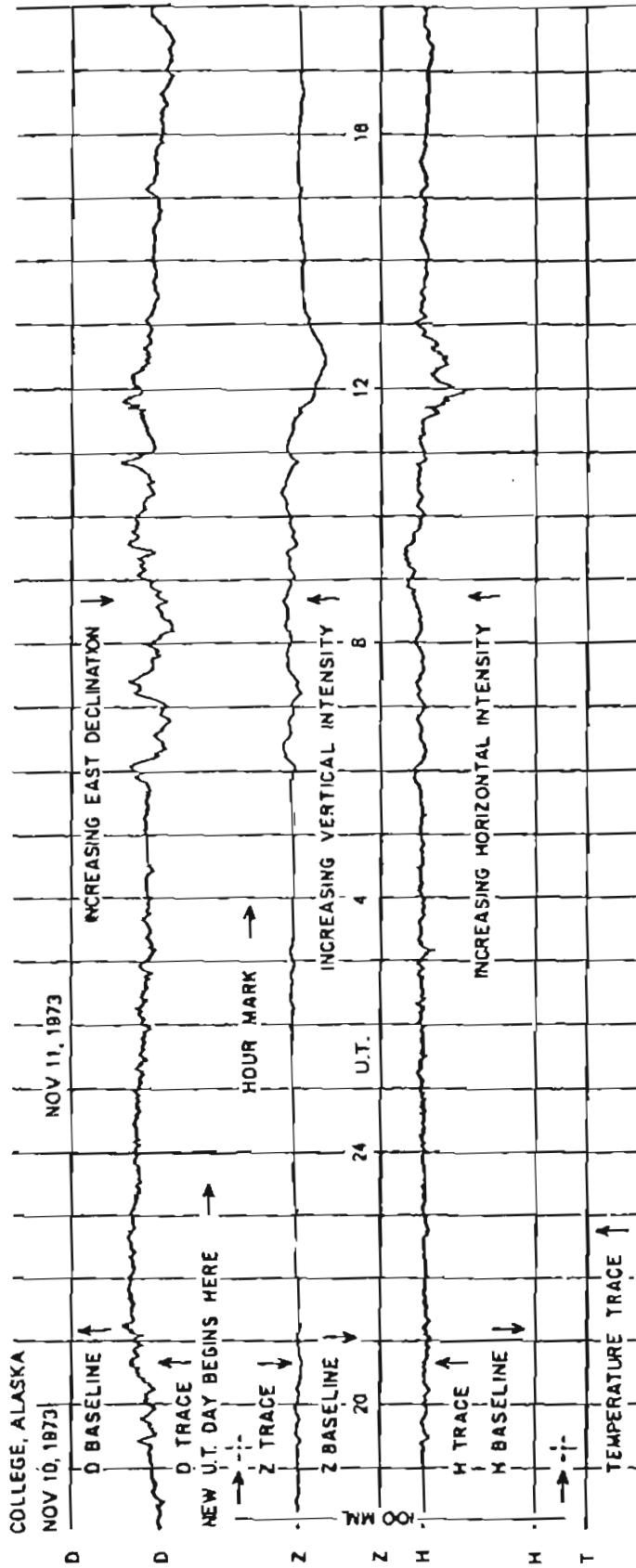
SCALED BY: SPT, JEP
 CHECKED BY: JEP, SPT
 SIGNI REVIEWED BY: JEP
 PUNCHED BY:

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

() Interpolated
 () Significant portion of how interpolated.
 () No records; or no records 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 Map, converted to Normal Map.

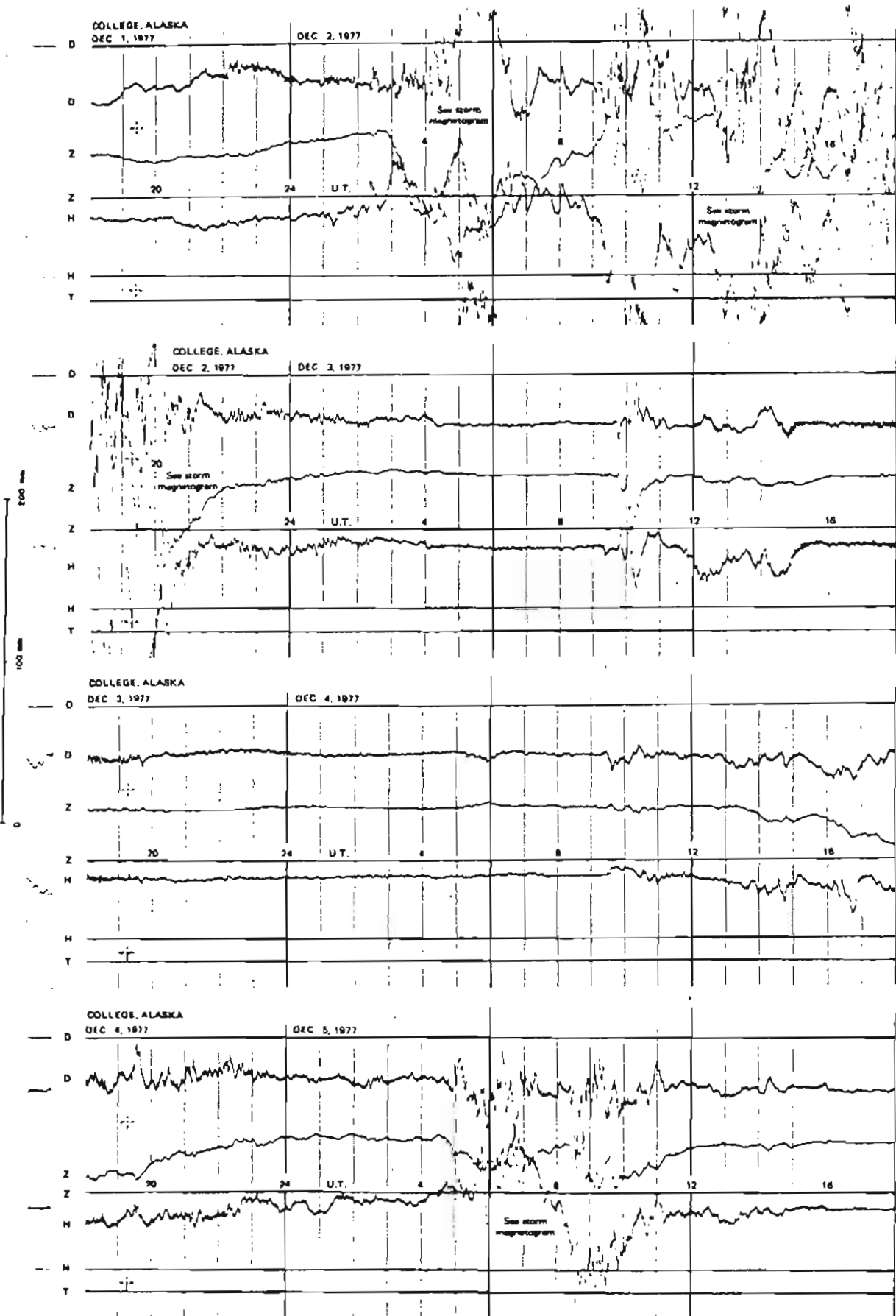
MONTHLY SUM: 219683
 MONTHLY MEAN: 295
 DATE: 814 0486

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

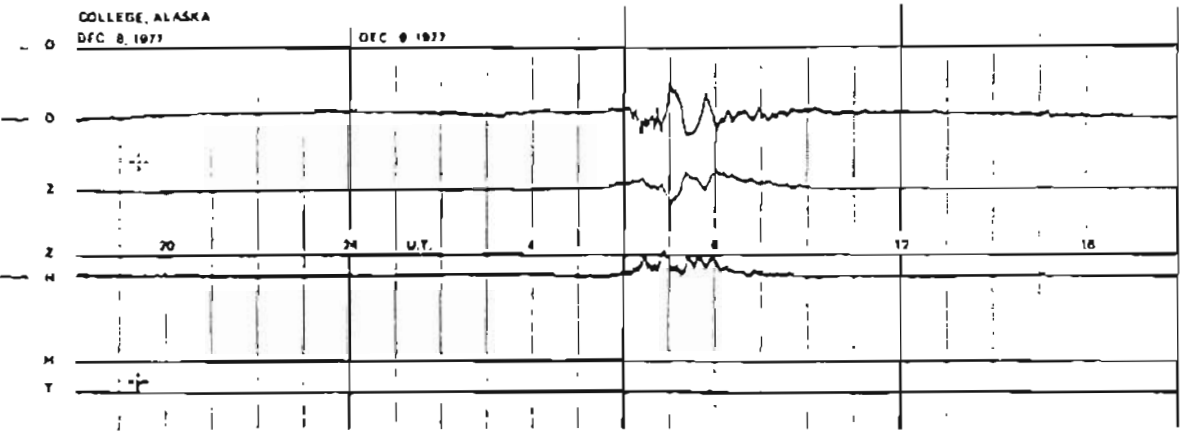
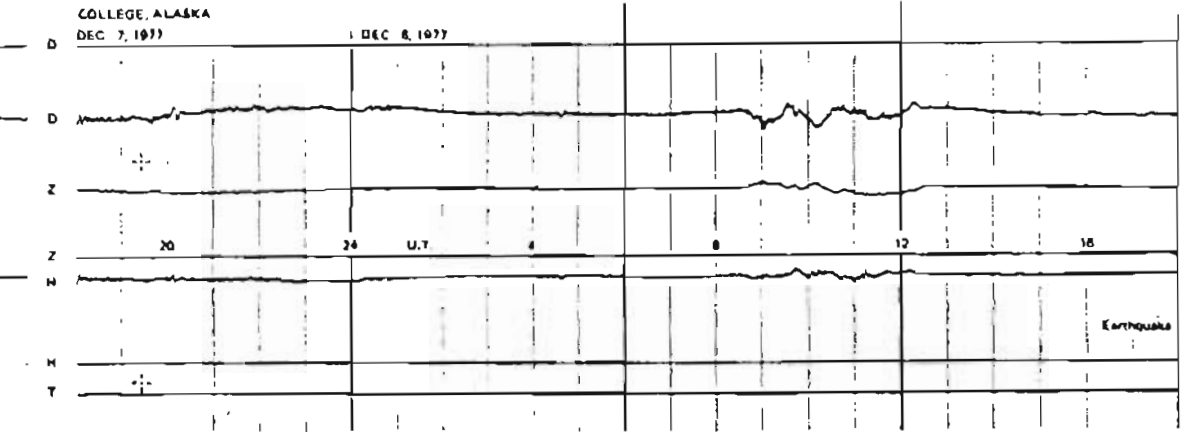
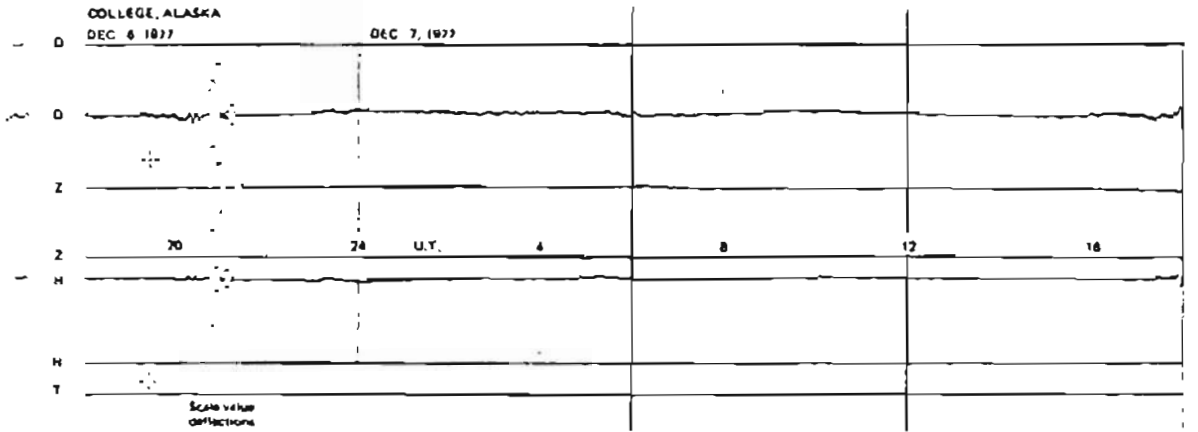
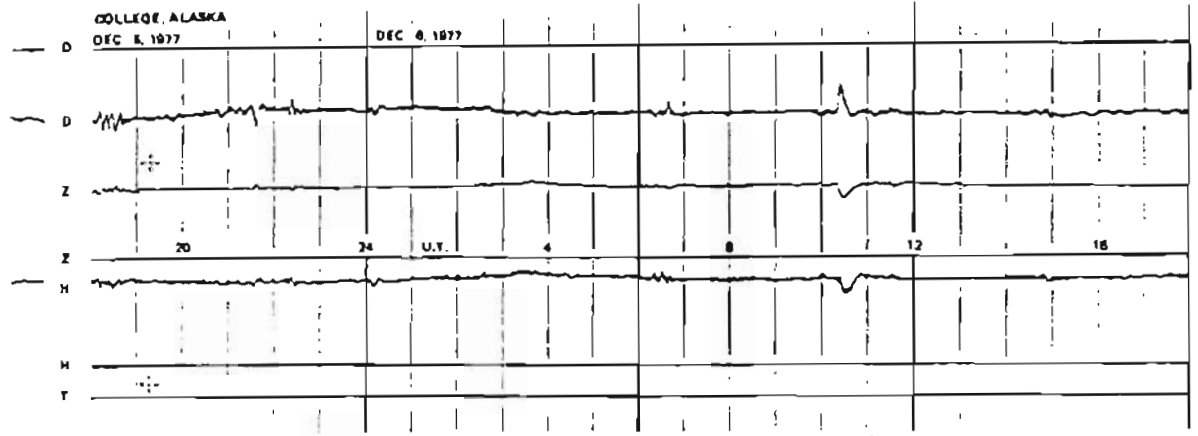


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

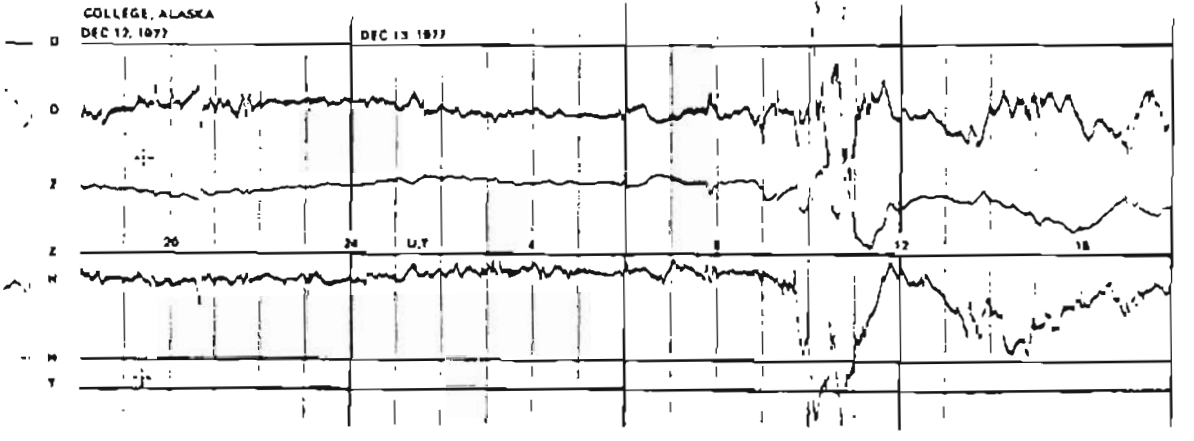
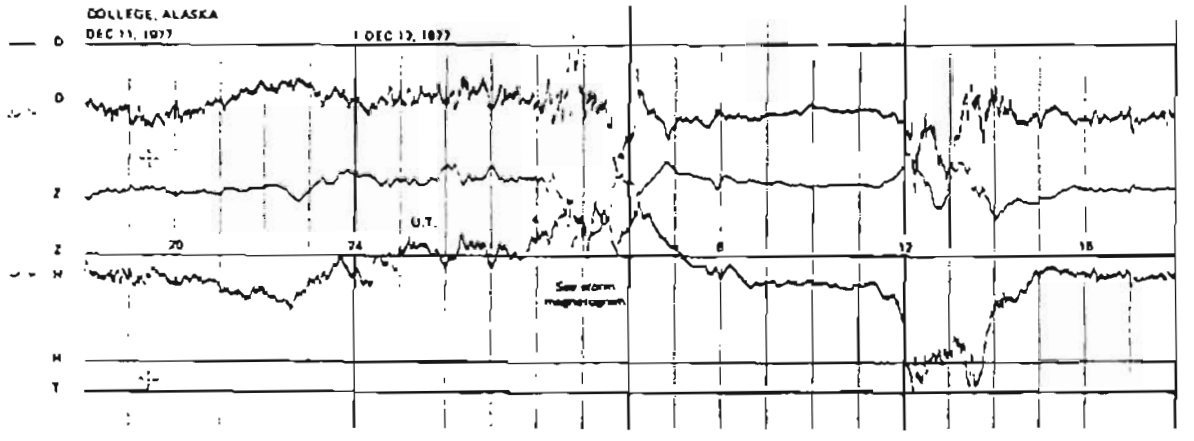
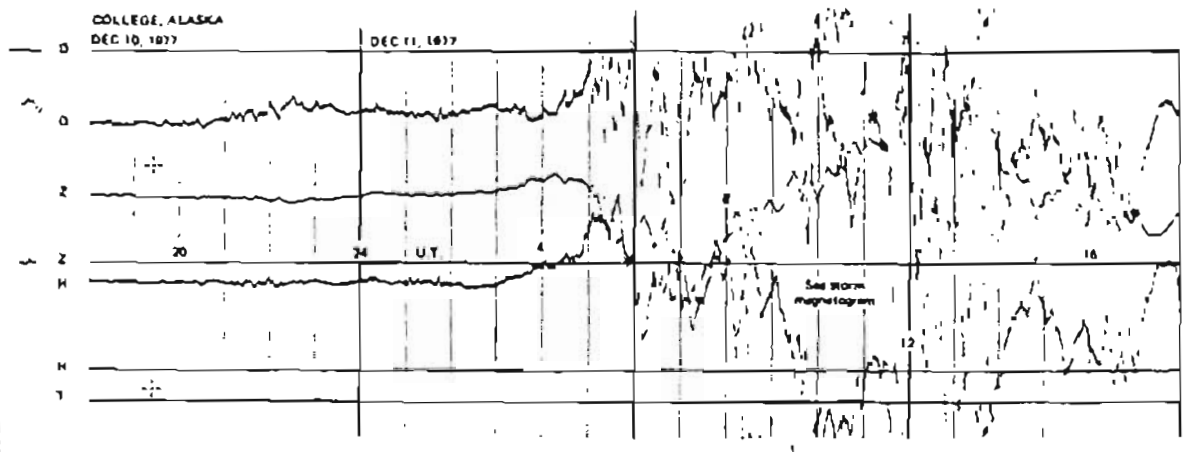
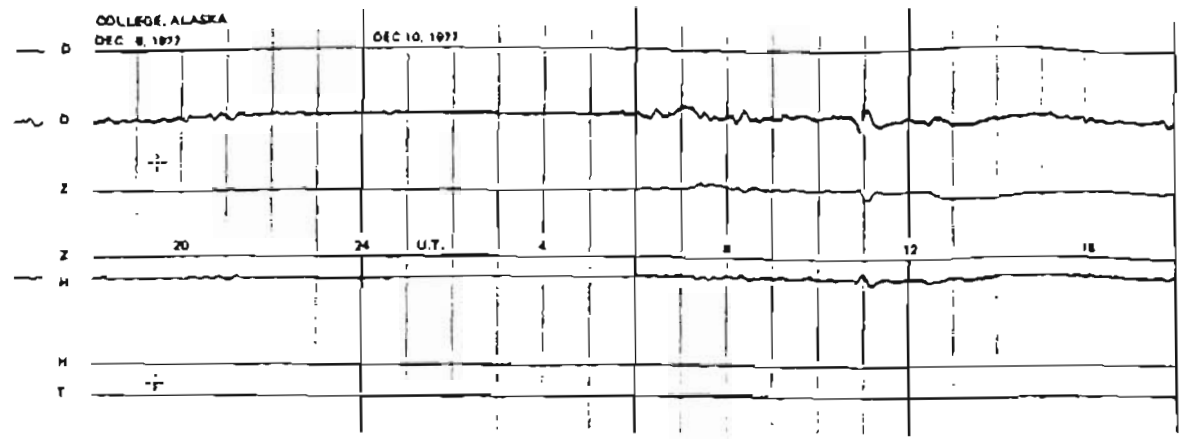
NORMAL MAGNETOGRAMS



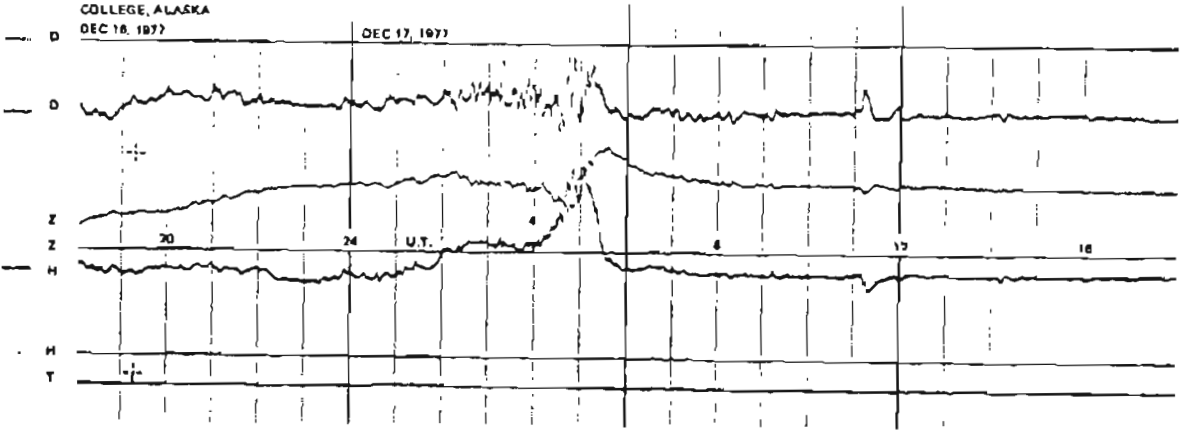
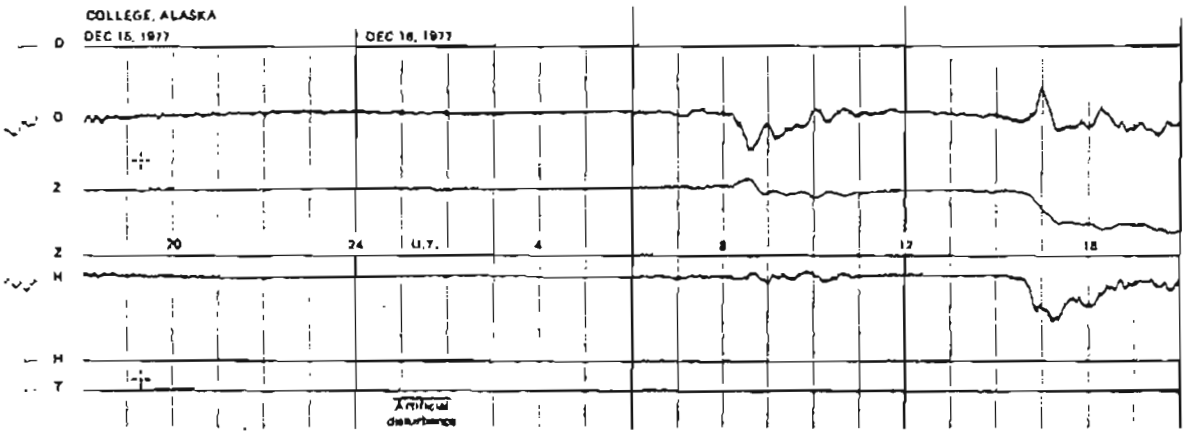
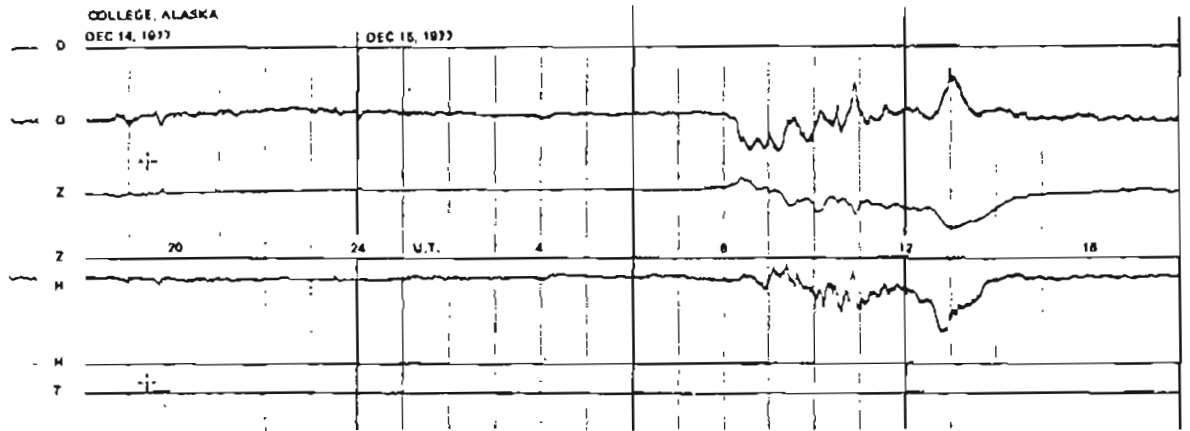
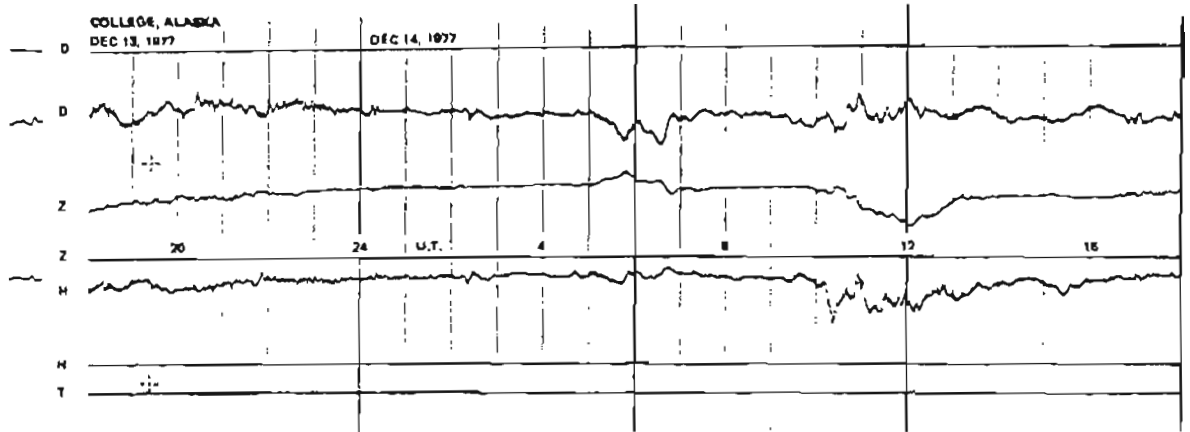
NORMAL MAGNETOGRAMS



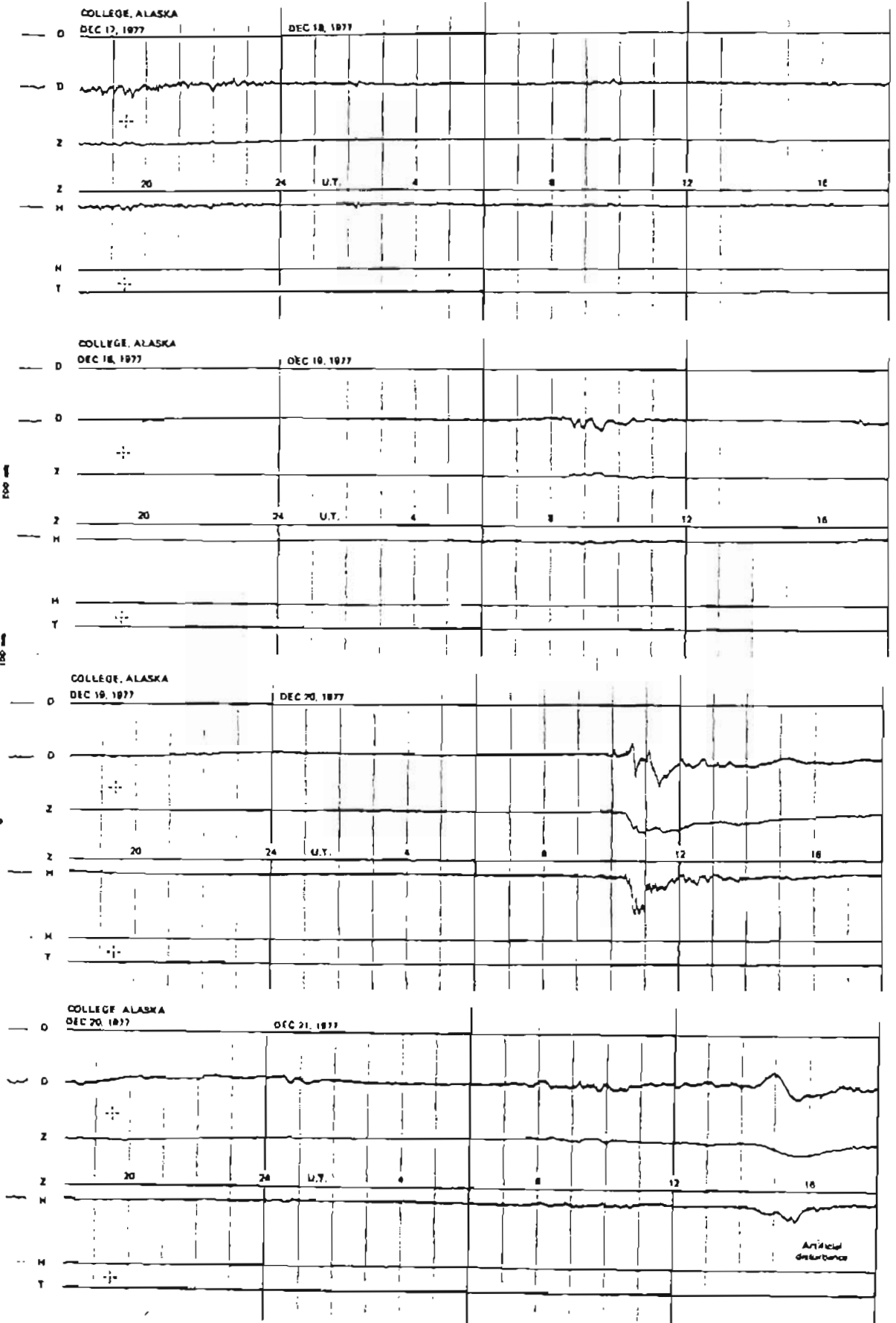
NORMAL MAGNETOGRAMS



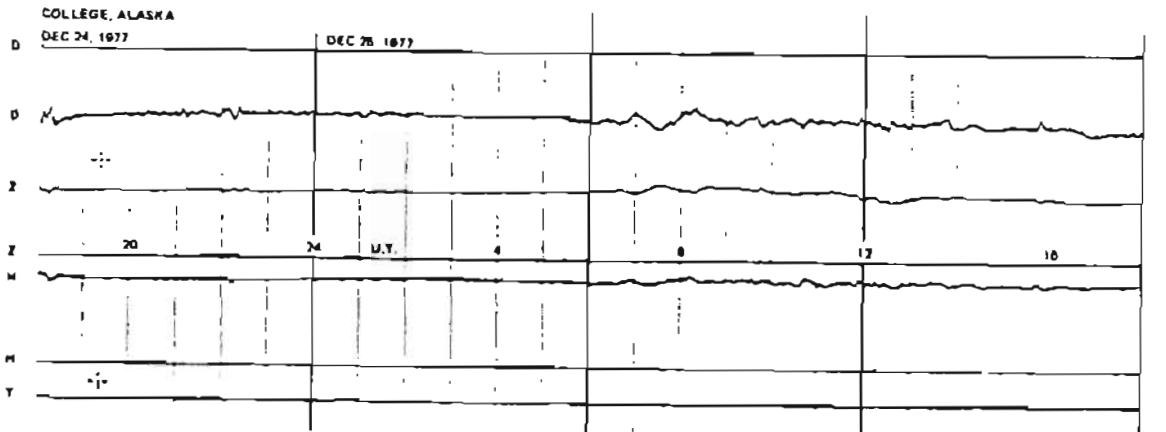
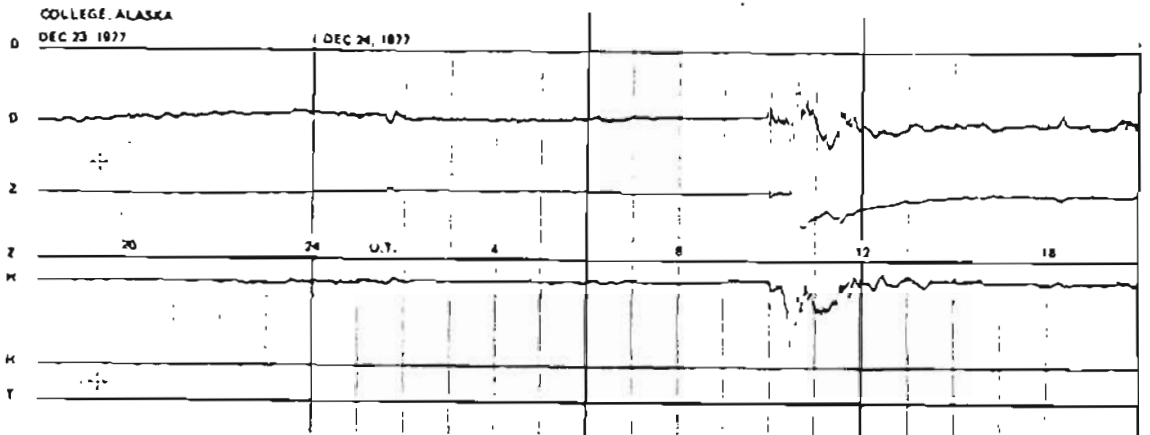
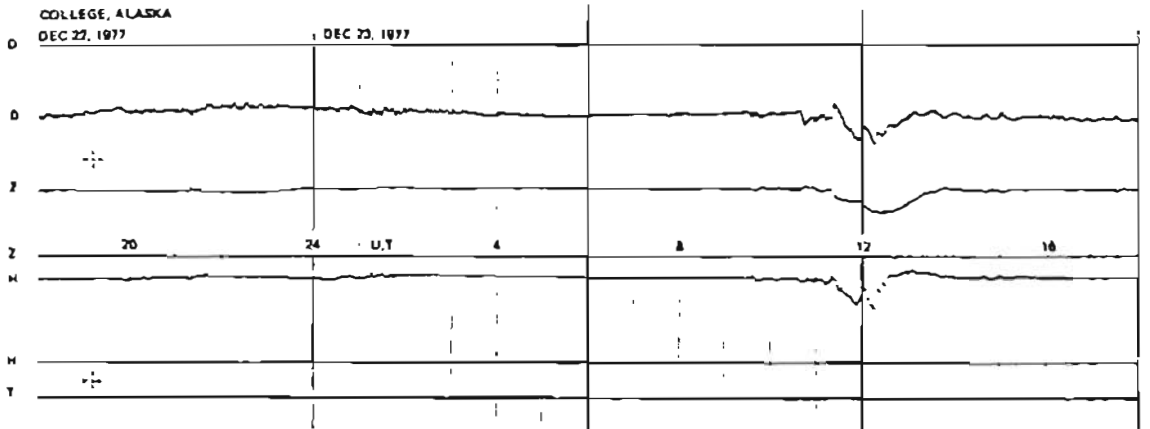
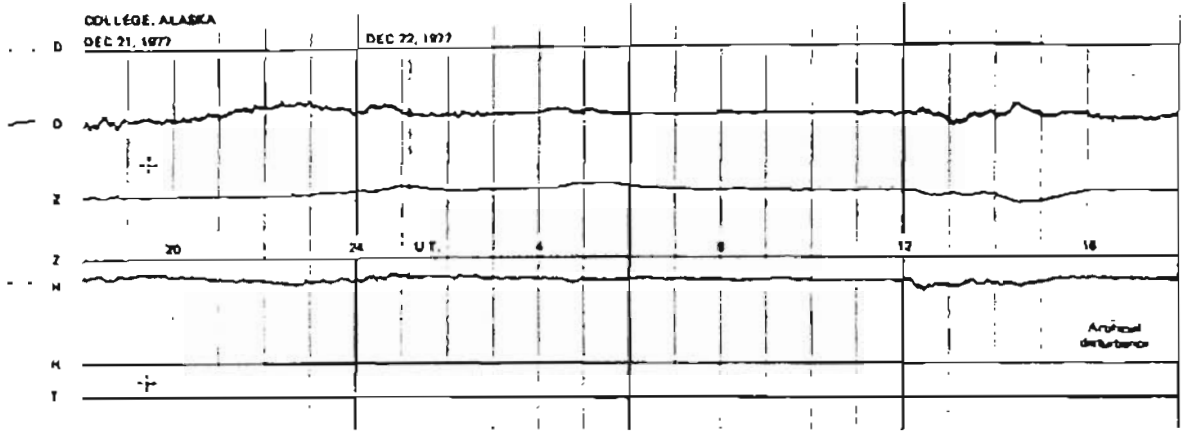
NORMAL MAGNETOGRAMS



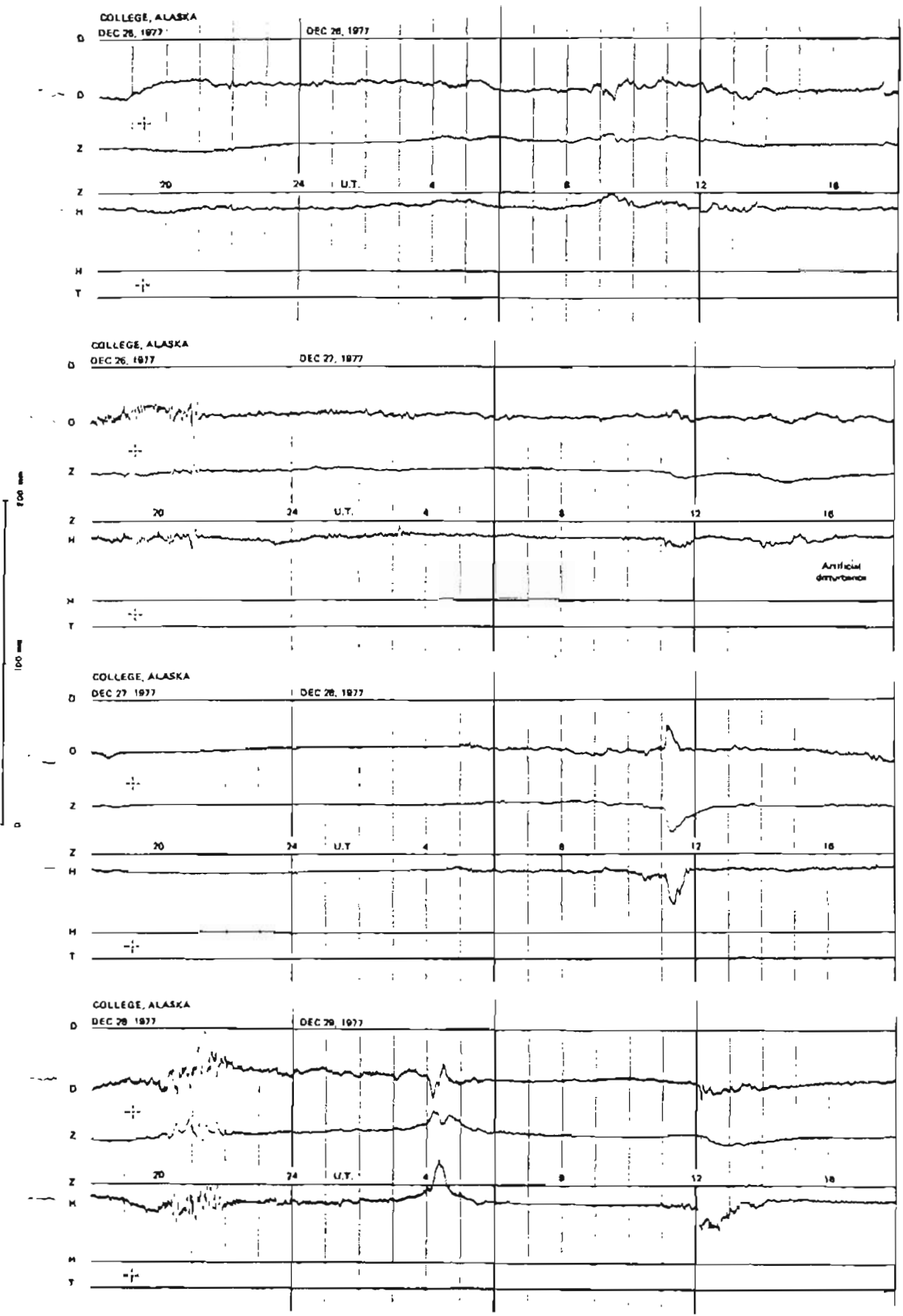
NORMAL MAGNETOGRAMS



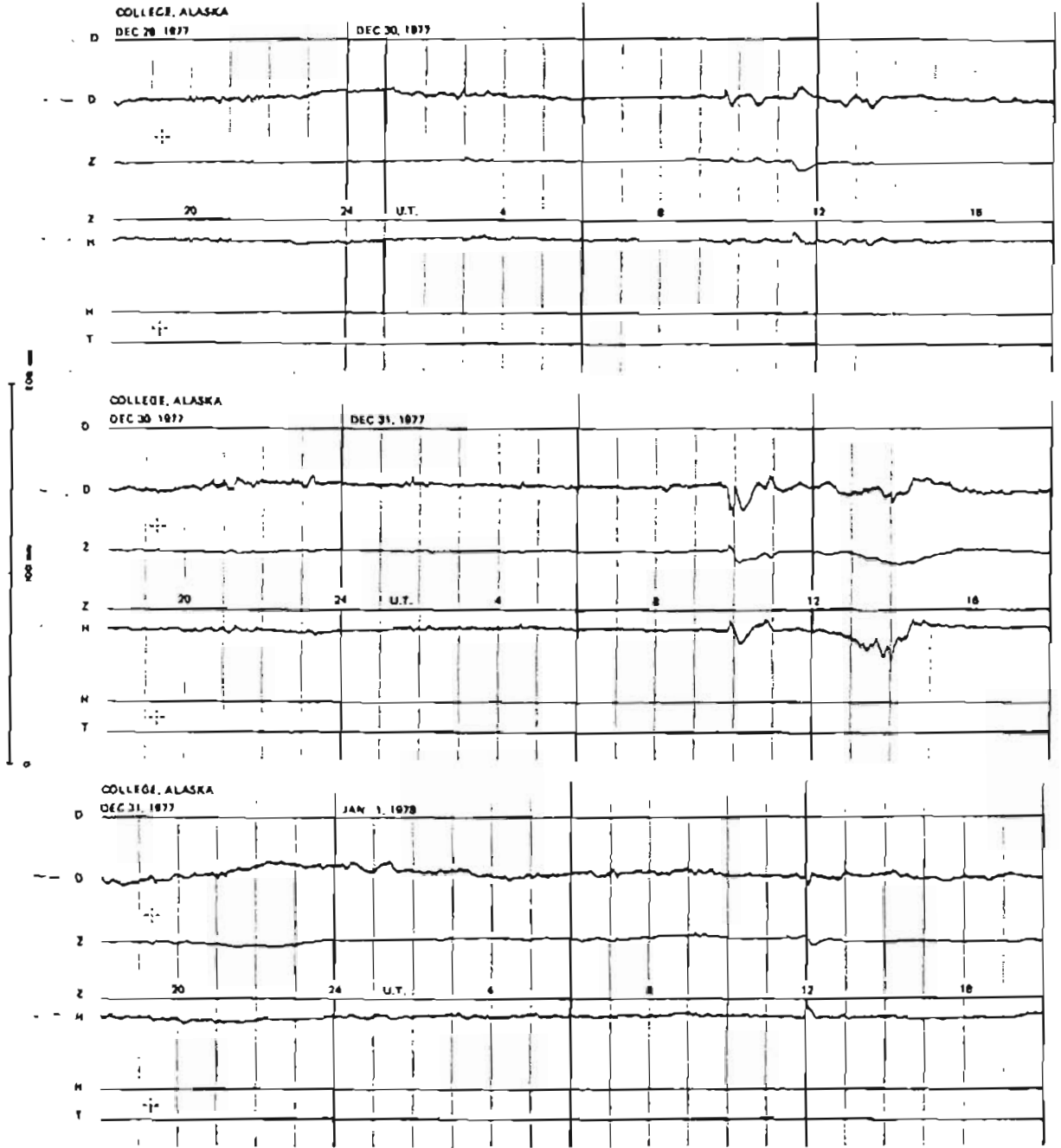
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

