

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

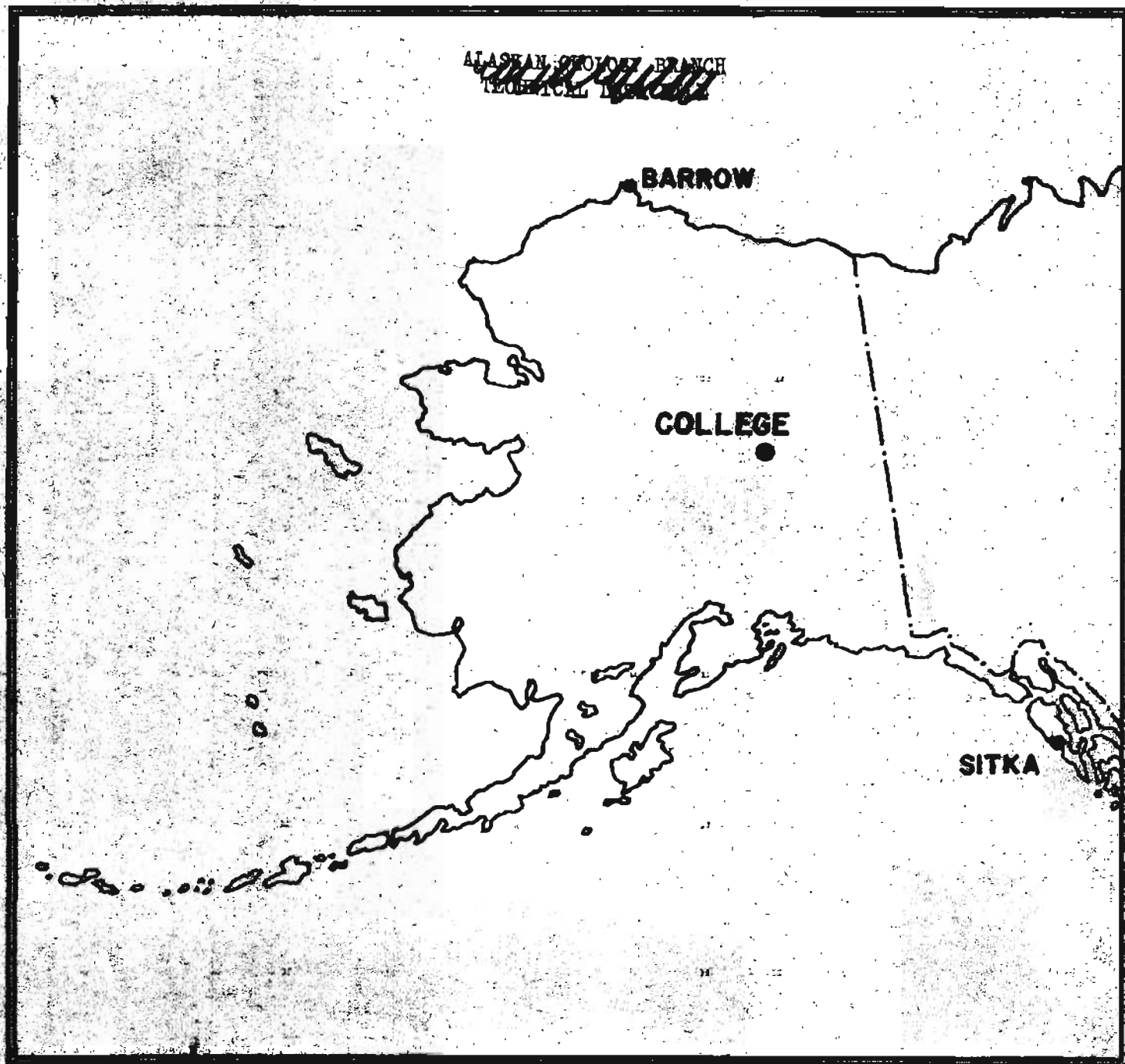
PRELIMINARY GEOMAGNETIC DATA

COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

FEBRUARY 1985

OPEN FILE REPORT 85-0300B



THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSEND, CHIEF OF THE COLLEGE OBSERVATORY; WITH THE ASSISTANCE OF THE OBSERVATORY STAFF MEMBERS: J.E. PAPP, E.A. SAUTER, L.Y. TORRENCE, P.A. FRANKLIN AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF GLOBAL SEISMOLOGY AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

Explanation of Data and Reports

Magnetic Activity Report

Outstanding Magnetic Effects

Principal Magnetic Storms

Preliminary Calibration Data and Monthly Mean Absolute Values

Magnetogram Hourly Scalings

Sample Format for Normal and Storm Magnetograms

Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

EXPLANATION OF DATA AND REPORTS

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
800 Yukon Drive
Fairbanks, Alaska 99701

Requests for copies of the magnetograms except for the current month should be addressed to:

World Data Center A
NOAA D63, 325 Broadway
Boulder, Colorado 80303

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 10 γ 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 (10 γ)

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 and 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:

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

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
FEBRUARY 1985

DATE	K-INDICES								SUM	AK	TIME SCALE ON MAGNETOGRAMS 20 mm/hr
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24			
1	2	2	6	6	5	4	3	2	30	34	SUDDEN COMMENCEMENTS d h m
2	1	3	2	4	3	2	2	2	19	11	
3	1	2	1	2	6	4	1	0	17	16	
4	0	0	0	0	0	0	1	0	01	00	
5	0	3	4	3	6	5	2	2	25	25	
6	3	4	5	6	6	7	6	3	40	61	
7	3	2	3	7	7	3	3	2	30	44	
8	2	2	2	6	5	5	5	4	31	34	
9	2	4	5	6	6	5	3	2	33	39	
10	3	3	4	4	6	5	5	2	32	33	
11	2	2	2	5	4	5	3	2	25	21	
12	2	3	3	4	5	4	1	0	22	18	
13	0	0	0	3	5	3	3	2	16	13	
14	2	2	3	5	4	5	2	3	26	22	
15	2	2	3	1	0	0	1	1	10	05	
16	0	0	1	1	5	5	2	2	16	15	
17	2	3	3	5	6	5	3	1	28	29	
18	0	1	2	2	0	0	1	0	06	03	
19	0	1	0	0	2	1	1	2	07	03	
20	2	4	5	5	5	1	1	0	23	23	
21	0	0	1	1	3	4	3	2	14	09	
22	2	1	2	2	4	3	1	1	16	09	
23	1	0	3	3	3	2	2	1	15	08	
24	3	4	4	5	4	4	1	2	27	23	
25	2	3	5	5	4	3	2	0	24	21	
26	1	2	2	1	0	0	1	1	08	03	
27	1	1	1	3	3	3	1	4	17	11	
28	5	7	6	6	7	5	3	2	41	70	
29											POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)
30											
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.....

D

675.7

H

322.2

Z

(mm)

CURRENT SCALE VALUE.....

3.72

7.83

(γ/mm)

LOWER LIMIT FOR K = 9.....

2510

2520

(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS			OBSERVATORY COLLEGE, ALASKA	
			MONTH FEBRUARY	YEAR 1985
DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS	
04	18xx	pc5		
05	0347	ssc*		
14	01xx	pc3, pc4, pc5		
15	16xx	pc3, pc4, pc5		
16	20xx	pc3, pc4		
17	18xx	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.

PRINCIPAL MAGNETIC STORMS
COLLEGE OBSERVATORY, COLLEGE, ALASKA
FEBRUARY 19 85

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80501 U.S.A.

Data from Individual Observatories:

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(Y)	Z(Y)	day	(3 hr - period)	K	D(')	H(Y)	Z(Y)	day	hr			
C0	64°6 N	05	0347	s.c.*	+16	+135	+22	06	6	7	234	1620	850	07	22			
								07	4, 5	7								
		08	09XX	..	..	..	..	08	4	6	140	1120	710	10	22
								09	4, 5	6								
								10	5	6								
		27	21XX	..	..	..	..	28	2, 5	7	291	1760	1300	28	21

NORMAL MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 2-1-85	2400 U.T., 2-28-85	1.0/mm	3.7 x/mm	27° 16.8 E
H	0000 U.T., 2-1-85	2400 U.T., 2-8-85	7.8 x/mm		12672 x
	0000 U.T., 2-9-85	2400 U.T., 2-28-85	"		12661 x
Z	0000 U.T., 2-1-85	2400 U.T., 2-14-85	7.6 x/mm		55174 x
	0000 U.T., 2-15-85	2400 U.T., 2-22-85	"		55185 x
	0000 U.T., 2-23-85	2400 U.T., 2-28-85	"		55178 x

STORM MAGNETOGRAPH					
COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 2-1-85	2400 U.T., 2-28-85	7.9/mm	29.5 x/mm	23° 44.0 E
H	0000 U.T., 2-1-85	2400 U.T., 2-8-85	43.8 x/mm		10797 x
	0000 U.T., 2-9-85	2400 U.T., 2-28-85	"		10773 x
Z	0000 U.T., 2-1-85	2400 U.T., 2-28-85	43.2 x/mm		54094 x

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

MONTHLY MEAN ABSOLUTE VALUES*		
D	H	Z
27° 41.7 E	12906 x	55344 x

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: FEB 2, 4, 15, 18, 19, 21, 22, 23, 26, 27

FORM 5554-64b

MAGNETOGRAM HOURLY SCALINGS

Values are in tenths of amp. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day 033W (M.T.) is hour 09 of the 2300G universal day.

Scale factor is 1.000. Values are in millivolts. Magnetic field is 0.33W M.T. in hour 09 of the 2300G universal day.

C S O	UNIVERSAL TIME												YEAR				MONTHLY SUM	FEB	D					
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16				17	18	19	20	21	22	23	24
01	233	240	247	253	259	265	271	277	282	287	292	297	302	307	312	317	322	327	332	337	342	347	352	357
02	240	247	254	260	266	272	278	284	289	295	301	307	313	319	325	331	337	343	349	355	361	367	373	379
03	247	254	261	268	274	281	288	295	302	309	316	323	330	337	344	351	358	365	372	379	386	393	400	407
04	254	261	268	275	282	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415
05	261	268	275	282	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422
06	268	275	282	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429
07	275	282	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436
08	282	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443
09	289	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450
10	296	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457
11	303	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464
12	310	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471
13	317	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478
14	324	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485
15	331	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492
16	338	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500
17	345	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509
18	352	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518
19	359	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527
20	366	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536
21	373	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545
22	380	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554
23	387	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563
24	394	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572
25	401	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581
26	408	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590
27	415	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590	599
28	422	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590	599	608
29	429	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590	599	608	617
30	436	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590	599	608	617	626
31	443	450	457	464	471	478	485	492	500	509	518	527	536	545	554	563	572	581	590	599	608	617	626	635

- () Interpolated
- () Significant portion of hour interpolated
- () No record; or no values available because of faulty record.
- † Derived from STORM
- ‡ Storm, converted to Normal Night.

Scale factor is 1.000.

Values are in millivolts.

SCALED BY: LYT

CHECKED BY: JEP

SHOWN REVIEWED BY: JEP

PUNCHED BY:

MONTHLY SUM	162,653
MONTHLY MEAN	252
DAILY MEAN	

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Brewer Federal Center
BOSTON, MASS., U.S.A.

OBSY. YEAR MONTH ELE-
MENT
CO 85 FEB 2

Values are in tenths of mgs. and are averaged for successive periods of one hour beginning at midnight. Hour 01 of local day (1227) is hour 09 of the 1902 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM		
	01	252	255	260	275	265	255	256	270	214	330	157	176	01	190	218	168	173	163	153	207	189	207	233	237	245	5348	
	02	253	245	246	247	274	316	323	296	606	217	176	104	02	144	200	190	188	189	208	210	193	204	223	236	243	5731	
	03	246	253	251	249	247	247	252	249	256	256	206	223	03	181	123	0	67	175	203	240	223	232	234	239	243	5095	
	04	245	246	249	240	240	241	240	240	237	240	240	239	04	235	236	236	236	235	235	234	233	238	239	242	243	5733	
	05	239	241	237	238	247	260	303	183	184	204	264	252	05	273	310	289	-70	56	177	188	200	200	206	231	260	5172	
	06	269	302	279	266	273	261	176	188	-20	157	303	411	06	588	-34	143	200	215	258	42	118	173	216	233	254	5271	
	07	274	277	267	256	253	258	291	145	227	224	103	201	07	36	-9	66	167	219	232	229	214	213	216	233	245	4862	
	08	247	266	282	255	253	247	243	246	253	105	-154	59	08	312	249	190	260	183	150	217	163	229	249	246	243	4993	
	09	266	293	301	274	292	298	247	-28	49	23	27	303	09	353	412	258	139	108	193	246	248	237	235	254	246	5274	
	10	254	257	298	268	298	303	257	273	146	70	218	223	10	173	217	-20	103	201	213	200	133	135	206	223	234	4903	
	11	241	245	252	247	260	271	267	246	243	193	173	137	11	40	92	239	207	197	217	211	227	227	236	252	244	5164	
	12	243	252	243	241	242	283	277	273	211	142	157	117	12	177	177	183	144	203	215	230	227	223	226	233	236	5155	
	13	239	238	237	239	236	234	233	233	232	238	237	144	13	90	117	189	197	184	204	190	163	166	203	223	226	4892	
	14	243	243	256	254	244	277	313	273	217	243	167	100	14	50	131	138	186	146	89	126	193	206	208	245	248	4796	
	15	254	256	274	262	248	260	243	246	185	245	238	223	15	230	229	225	226	228	233	232	230	228	229	233	239	5696	
	16	235	236	236	235	237	236	233	236	246	247	246	237	16	205	193	128	35	106	181	198	214	219	220	227	228	5014	
	17	239	234	246	250	285	323	313	273	189	30	100	188	17	180	147	63	-159	-287	-197	-42	47	142	193	207	224	3188	
	18	226	226	227	230	232	232	229	228	250	167	195	216	18	216	210	207	207	215	216	215	213	216	223	225	226	5247	
	19	227	225	220	221	224	243	225	223	219	224	223	221	19	223	217	177	186	193	197	190	187	178	183	199	184	5009	
	20	219	244	247	279	350	283	67	-105	92	162	180	279	20	250	168	164	212	216	216	214	209	194	205	210	221	4770	
	21	223	227	225	221	221	233	228	248	243	231	203	204	21	196	200	137	64	40	123	182	173	143	80	140	207	4412	
	22	221	226	254	234	233	230	224	243	262	254	239	223	22	218	206	140	93	107	138	178	179	202	203	211	221	4939	
	23	220	221	219	220	220	237	256	333	309	263	240	217	23	191	184	168	197	212	202	166	137	129	154	177	207	5079	
	24	227	254	259	297	218	292	232	162	167	196	314	303	24	183	204	203	116	117	173	185	200	193	204	226	219	5188	
	25	237	236	243	248	274	271	333	322	137	74	192	181	25	185	184	166	197	195	209	228	233	224	224	226	228	5247	
	26	231	239	241	247	264	259	276	253	255	253	236	226	26	219	207	212	220	224	222	203	187	187	202	214	213	5490	
	27	226	228	233	231	240	243	252	242	254	250	250	226	27	192	107	91	137	193	193	197	207	206	203	237	248	5086	
	28	287	300	188	-47	188	-34	-187	80	123	263	593	245	28	688	-52	90	146	100	241	239	248	237	240	243	246	4671	
	29													29														
	30													30														
	31													31														

SCALED BY LYT
CHECKED BY JEP
INKS 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 STORM Mgh., converted to Normal Mgh.

MONTHLY SUM 141,425
MONTHLY MEAN 210
DATES WITH GAPS:

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF THE INTERIOR
Geological Survey, Columbia Station
Mount Airy, North Carolina
28551

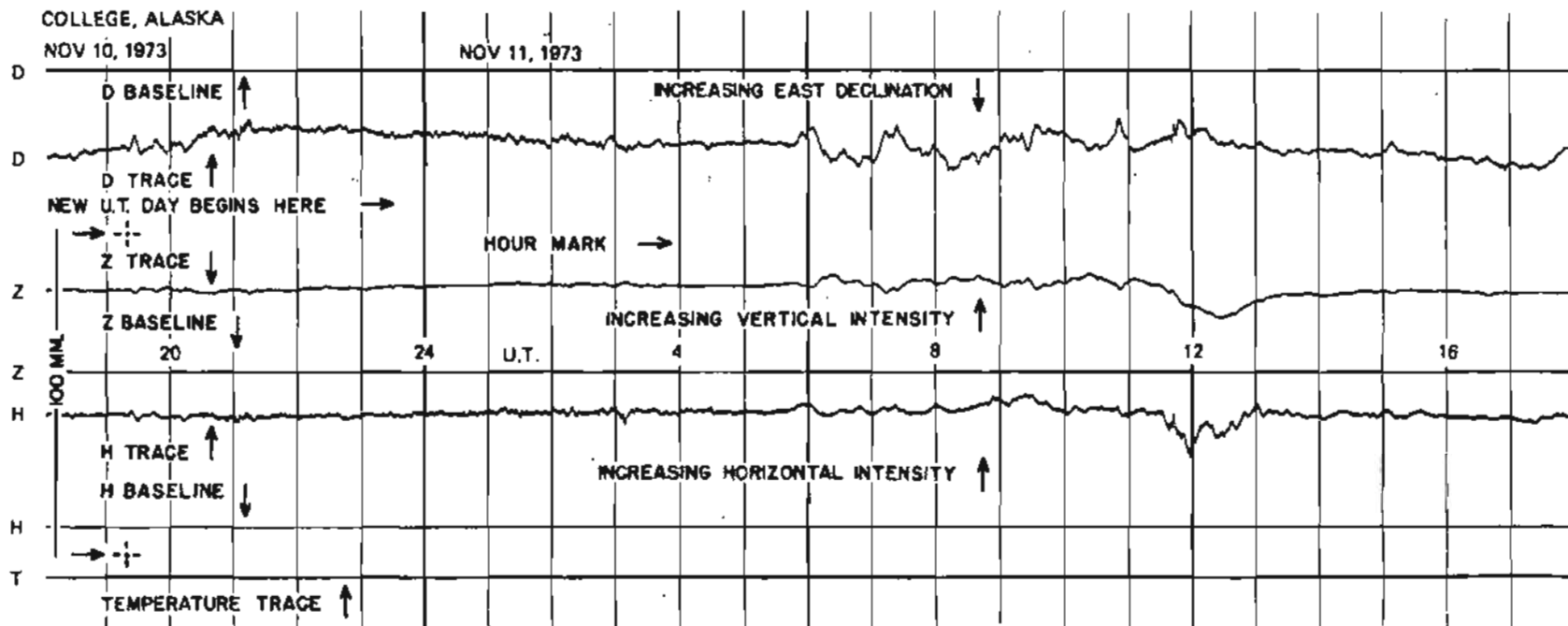
OBSV. YEAR MONTH ELE-
MENT
CO 85 FEB H

Values are in tenths of gam, and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (135M.T.) is hour 09 of the 8500 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q	Time	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	301	298	312	320	326	313	319	328	240	148	220	47	01	-100	15	200	287	137	283	290	303	314	313	313	5829
		02	314	312	311	309	323	343	373	341	341	326	286	149	02	273	263	238	240	289	300	288	306	310	307	307	7191
		03	293	293	307	310	316	309	305	313	309	309	312	309	03	158	-201	-40	269	310	320	323	303	297	305	301	6336
		04	305	305	307	307	310	305	305	302	300	300	300	302	04	302	307	307	307	303	303	300	297	300	300	303	7286
		05	309	303	307	316	320	320	490	640	516	450	360	360	05	312	129	-285	0	243	343	330	300	290	290	300	7190
		06	277	240	341	319	390	463	400	65	170	299	80	-280	06	-369	-223	269	330	246	-581	0	320	315	311	331	4013
		07	329	317	323	320	321	317	360	361	352	349	189	-207	07	-581	85	223	244	290	321	296	306	302	292	290	5707
		08	323	313	310	323	332	319	318	306	329	185	-117	205	08	46	50	274	179	170	140	80	346	258	183	273	5454
		09	326	314	320	347	387	443	477	359	331	268	67	-33	09	-55	-290	30	150	213	328	373	323	300	306	292	5859
		10	300	322	308	340	376	376	321	356	357	325	349	280	10	-17	-207	-83	269	342	173	80	193	288	312	301	5978
		11	316	319	323	317	313	319	340	337	336	323	320	175	11	193	100	-18	133	313	303	322	320	312	309	298	6417
		12	314	327	315	313	320	359	356	358	413	293	320	156	12	-54	170	-20	153	337	305	303	310	310	310	304	6575
		13	307	313	317	317	316	313	313	313	315	310	307	260	13	80	267	311	283	297	317	301	243	288	316	309	7014
		14	303	316	330	332	337	340	371	400	453	367	190	100	14	80	227	303	340	227	63	322	330	309	303	277	6919
		15	326	300	289	333	359	327	310	321	330	320	310	307	15	310	309	309	309	309	307	316	313	311	300	295	7518
		16	293	300	310	318	320	313	320	320	323	337	328	323	16	313	273	190	63	303	318	313	319	320	311	300	7129
		17	308	316	329	320	312	388	457	504	479	333	171	169	17	71	-14	-355	-126	-9	165	287	327	343	330	327	5749
		18	322	323	327	329	318	311	316	313	307	337	341	316	18	310	306	312	315	316	312	313	313	308	313	310	7598
		19	310	310	321	326	323	307	319	318	318	318	317	321	19	321	317	283	317	308	299	307	302	297	300	278	7416
		20	303	326	342	427	487	642	794	690	581	453	268	267	20	115	107	337	317	313	310	289	281	301	311	308	8876
		21	310	311	313	320	329	327	323	327	325	316	317	310	21	309	300	192	112	221	321	333	319	223	267	309	7037
		22	309	306	329	327	336	350	333	383	357	360	369	373	22	325	272	117	200	305	319	329	325	318	312	307	7501
		23	308	318	328	330	327	331	358	410	431	379	351	323	23	275	265	243	319	311	290	280	296	315	309	293	7703
		24	308	333	382	418	621	543	581	458	383	407	178	153	24	290	303	123	118	300	329	320	308	280	268	279	8101
		25	319	326	333	347	387	401	418	507	621	358	268	186	25	191	160	300	291	293	292	339	331	312	307	303	7895
		26	307	296	297	319	322	337	349	319	320	317	313	303	26	307	309	305	313	305	297	263	287	299	307	299	7397
		27	307	313	313	325	329	339	337	330	329	333	337	298	27	196	118	161	325	343	332	331	329	319	310	183	7177
		28	347	365	535	764	596	322	249	467	400	191	405	-198	28	-444	-114	151	4	285	253	340	281	325	301	307	5625
		29													29												
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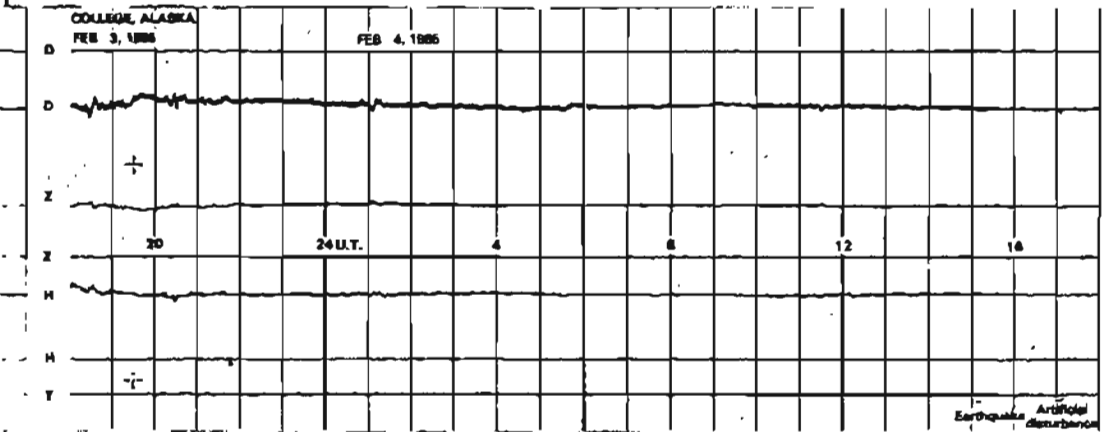
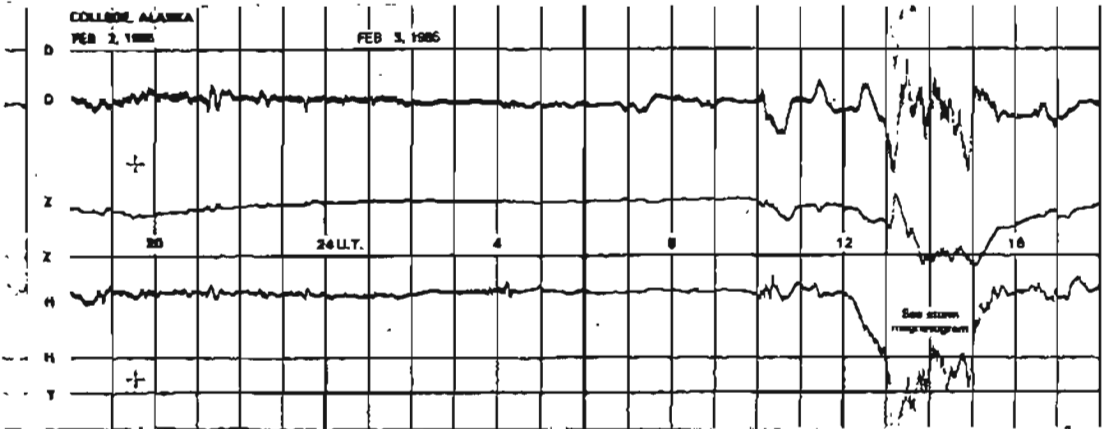
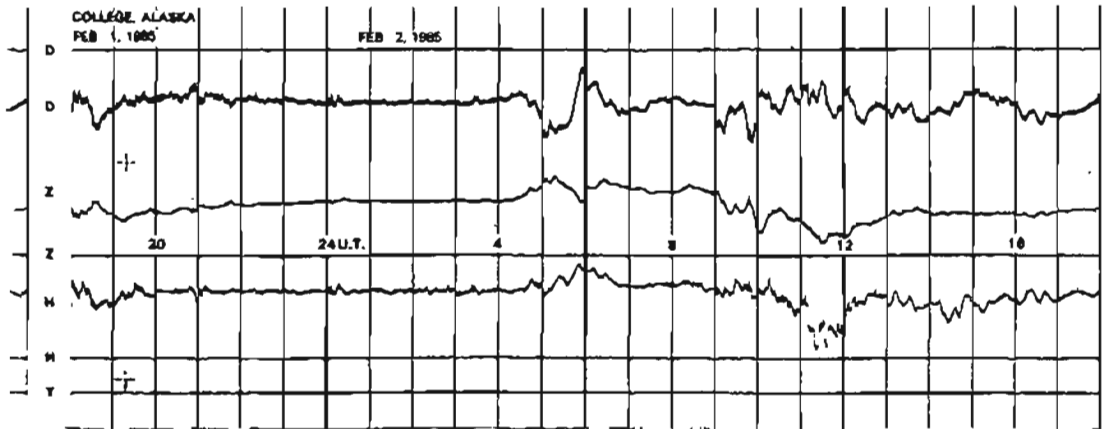
SCALED BY LYT	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value	() Interpolated	() Scaling uncertain because of magnetic storm.	MONTHLY SUM	190700
CHECKED BY JEP		() Significant portion of hour interpolated.	<> Record off sheet for part or all of hour; if value is given, error was estimated for missing part.	MONTHLY MEAN	284
INCOME REVIEWED BY JEP		() No records or no values available because of faulty record.		DATES WITH GAPS:	
PUNCHED BY		* Derived from <u>STORM</u> Magh., converted to Normal Magh.			

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

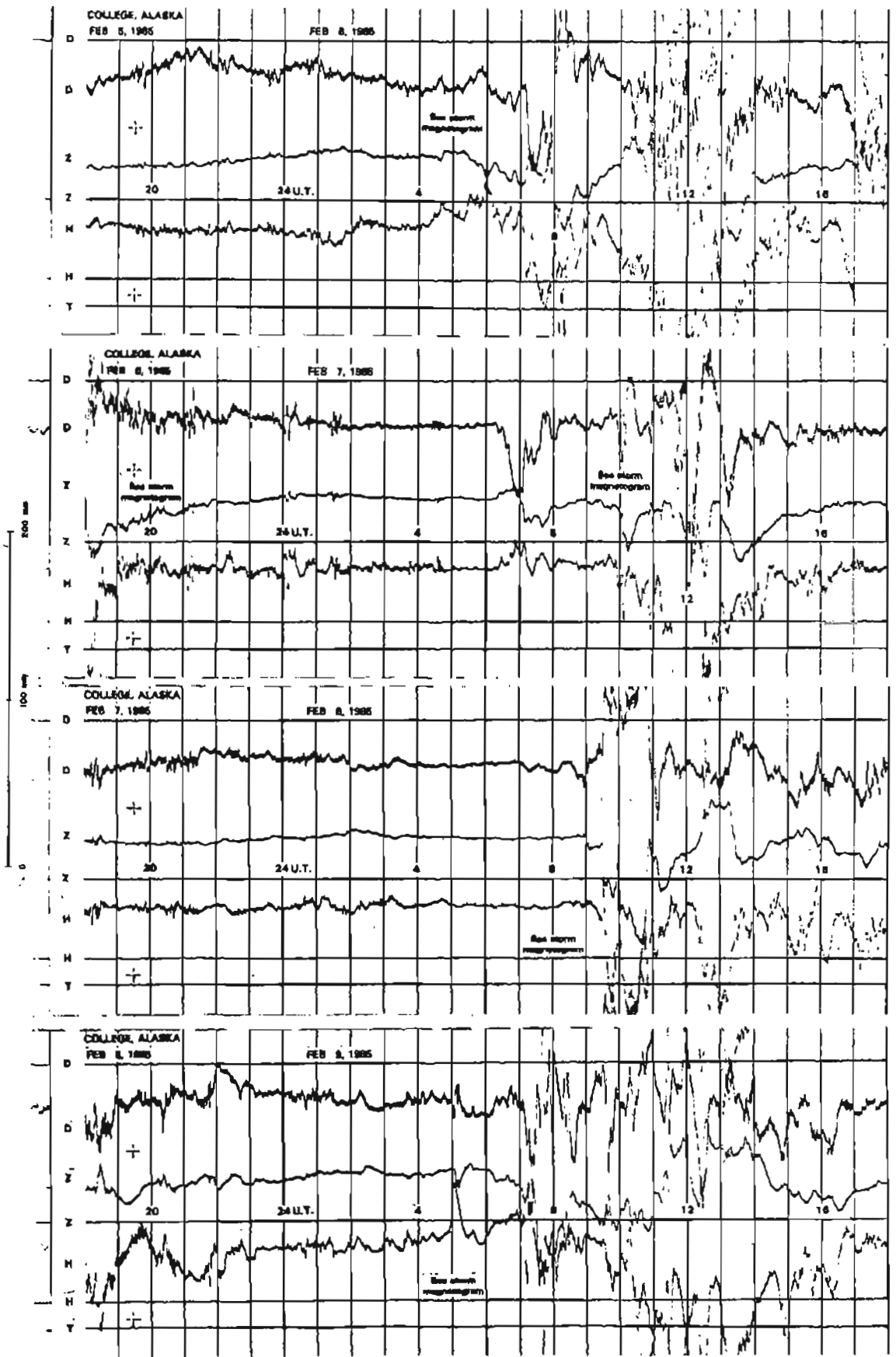


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

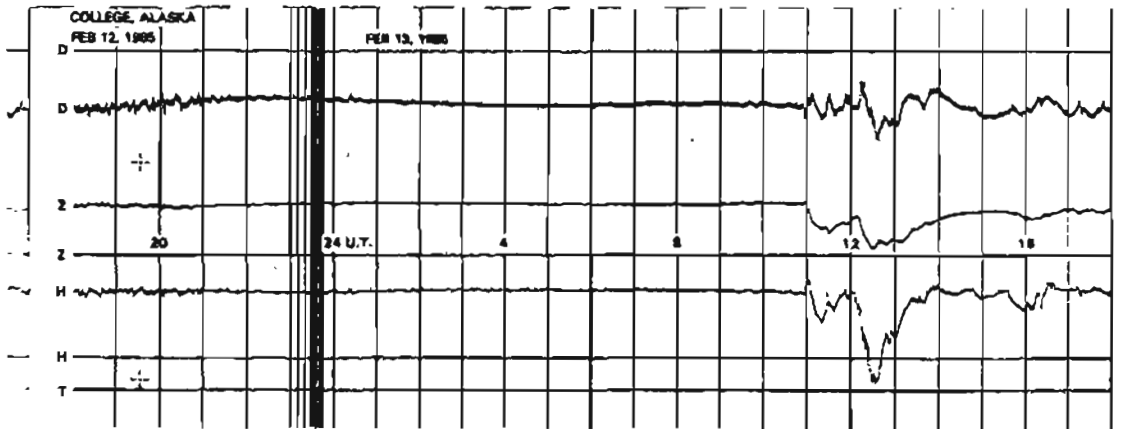
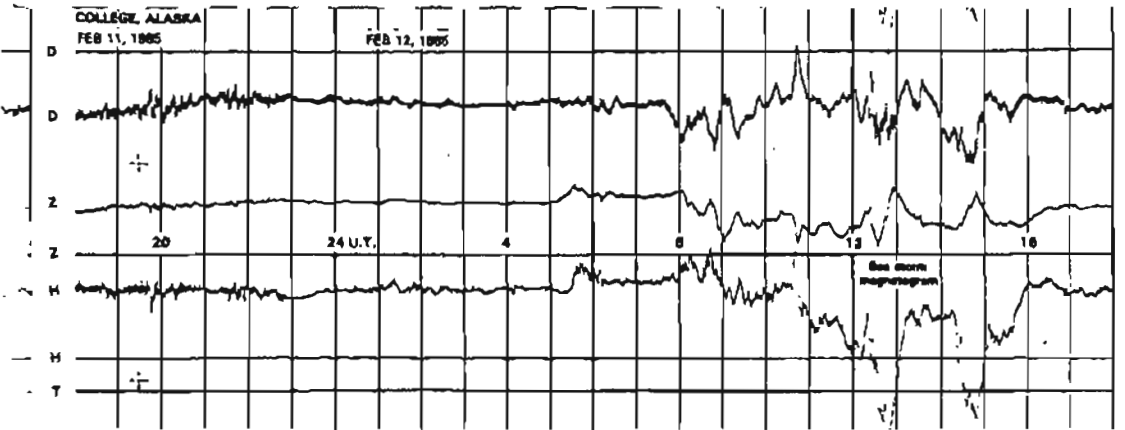
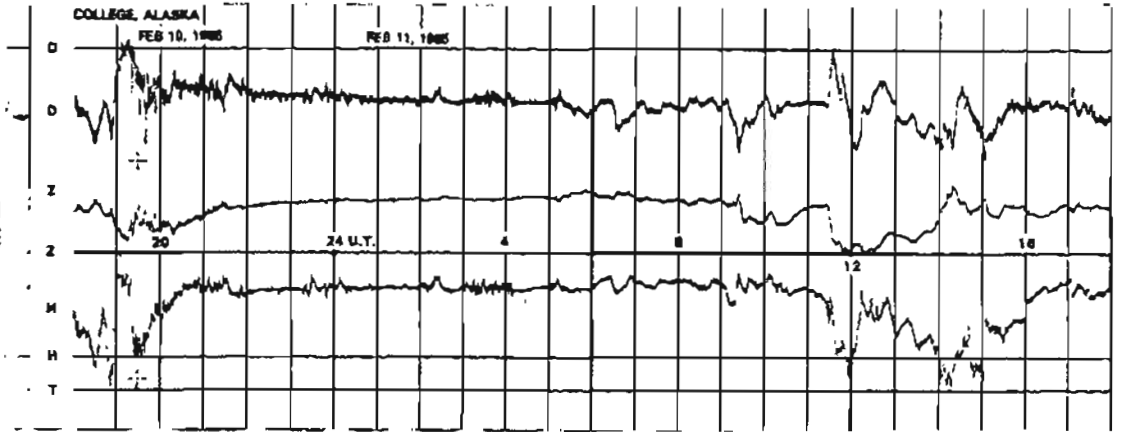
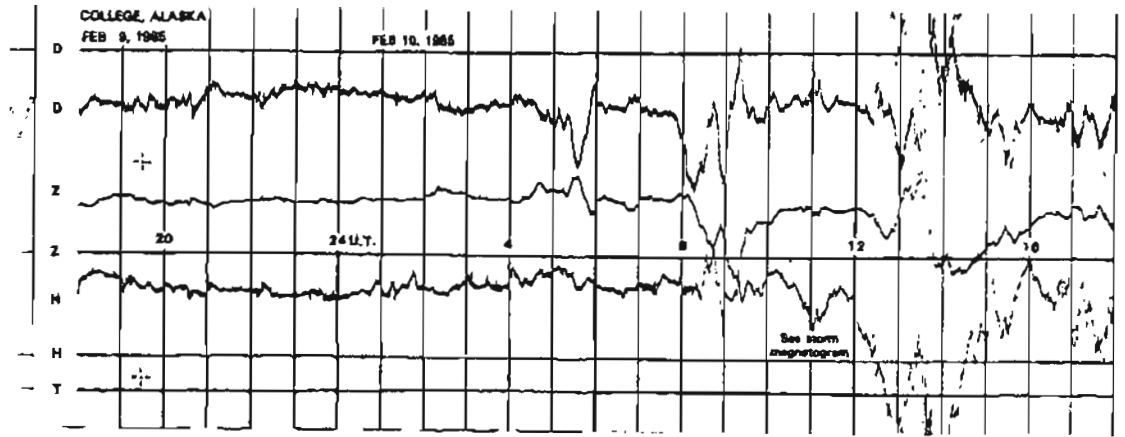
NORMAL MAGNETOGRAMS



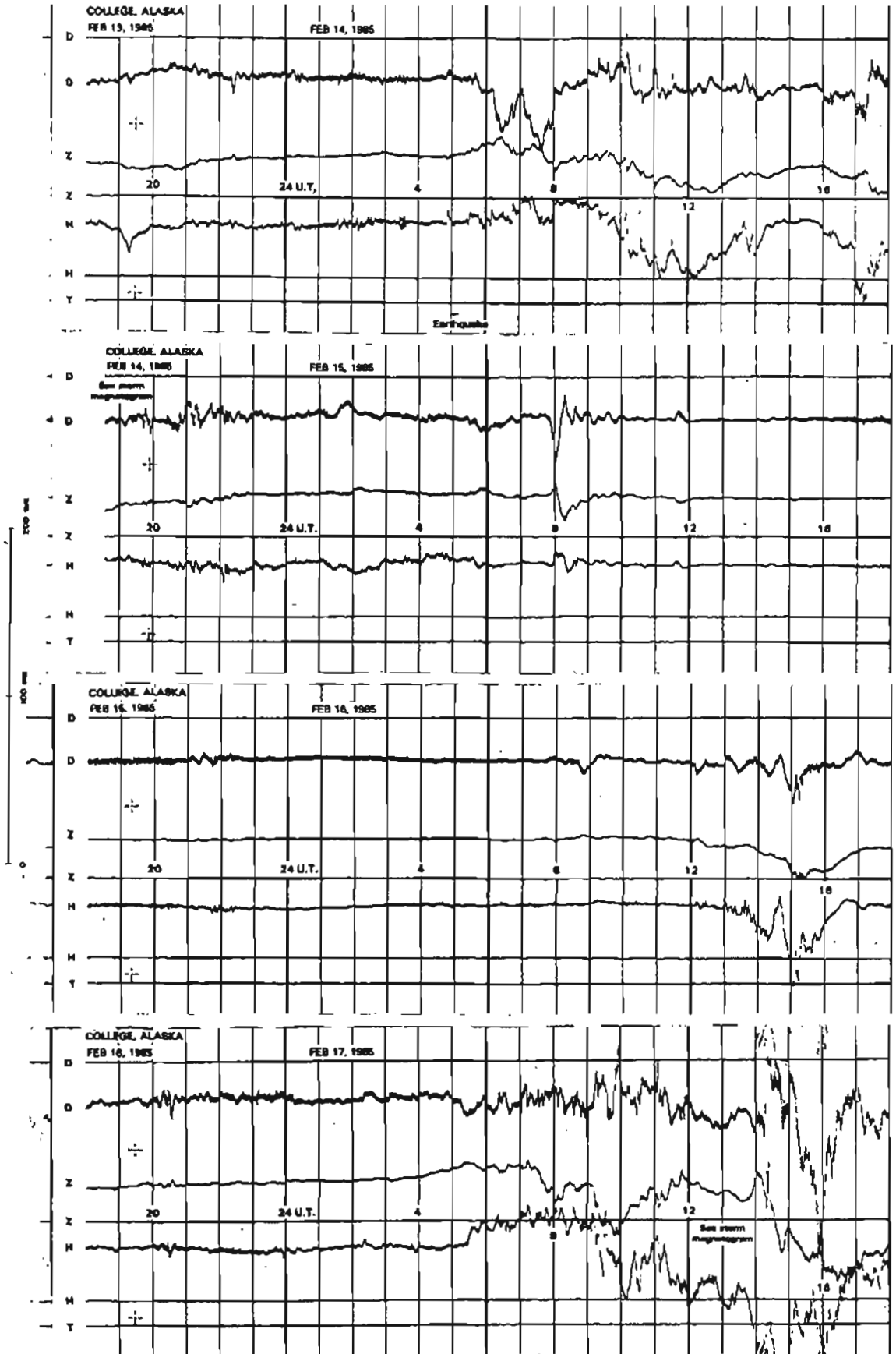
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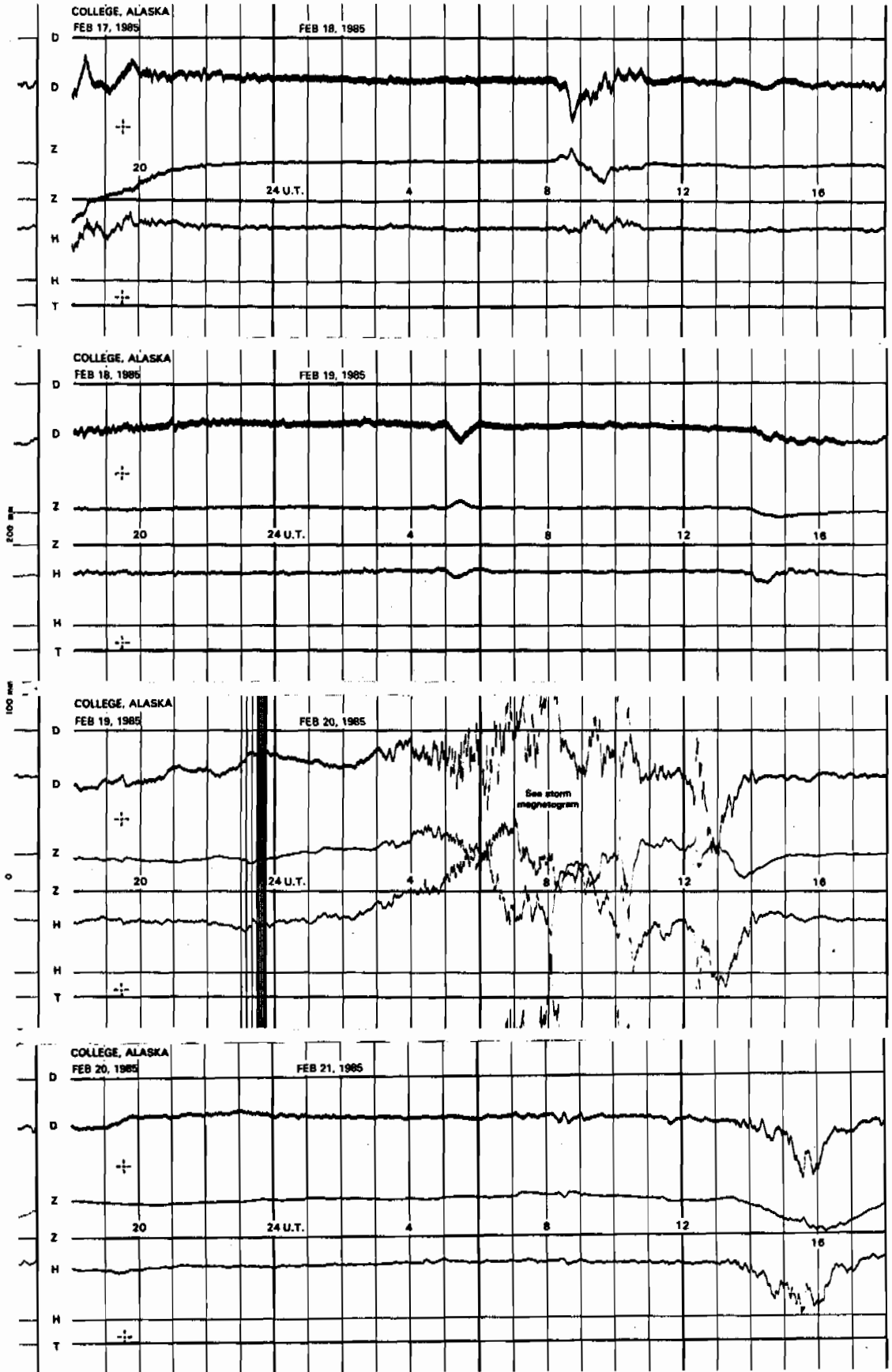
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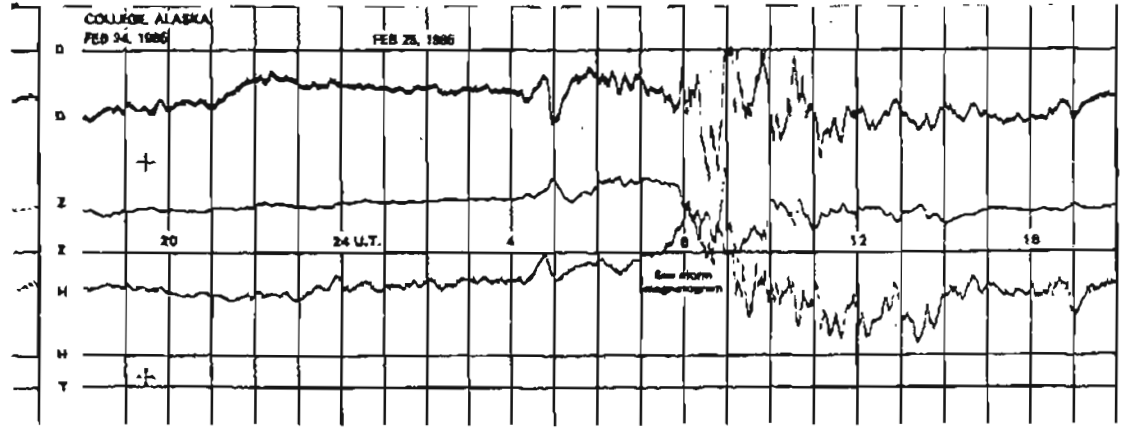
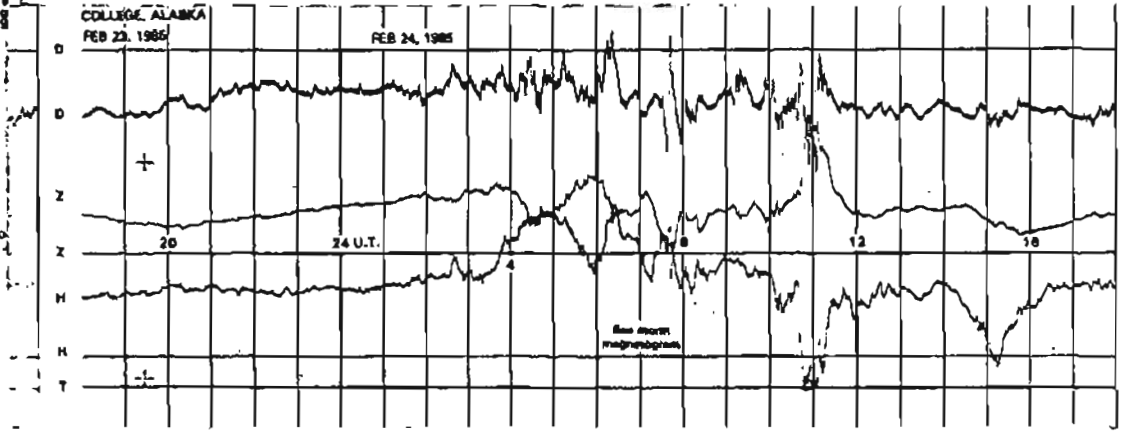
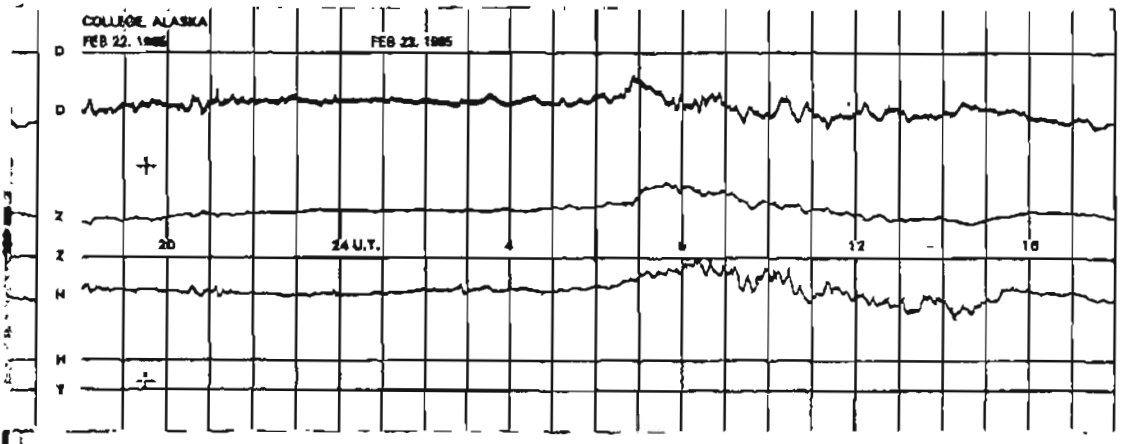
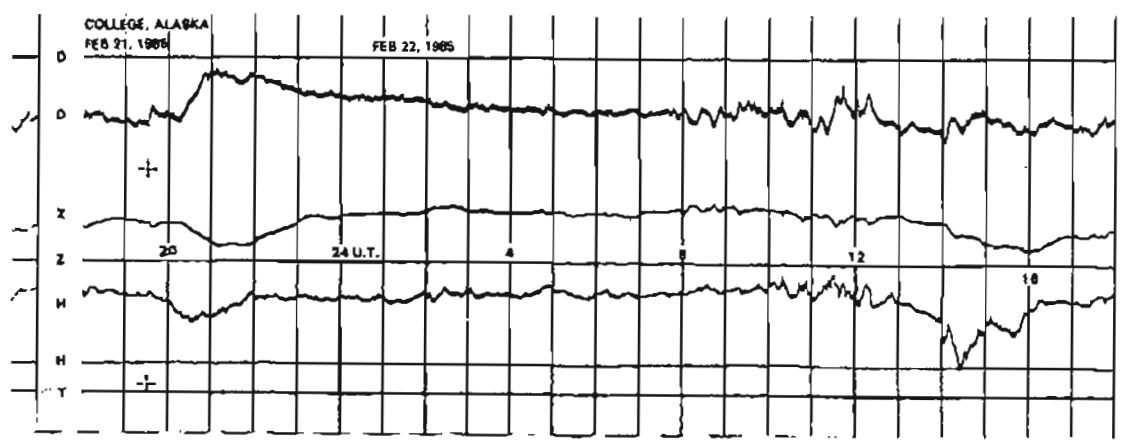
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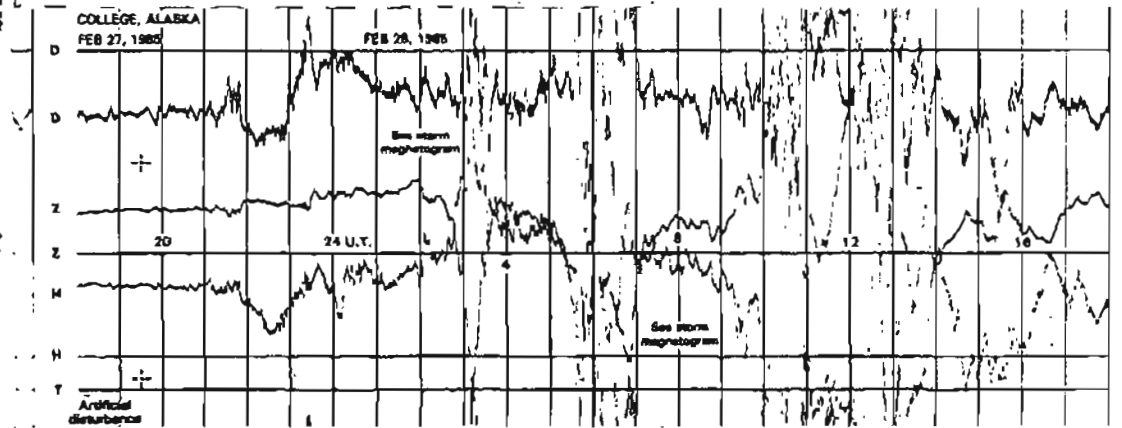
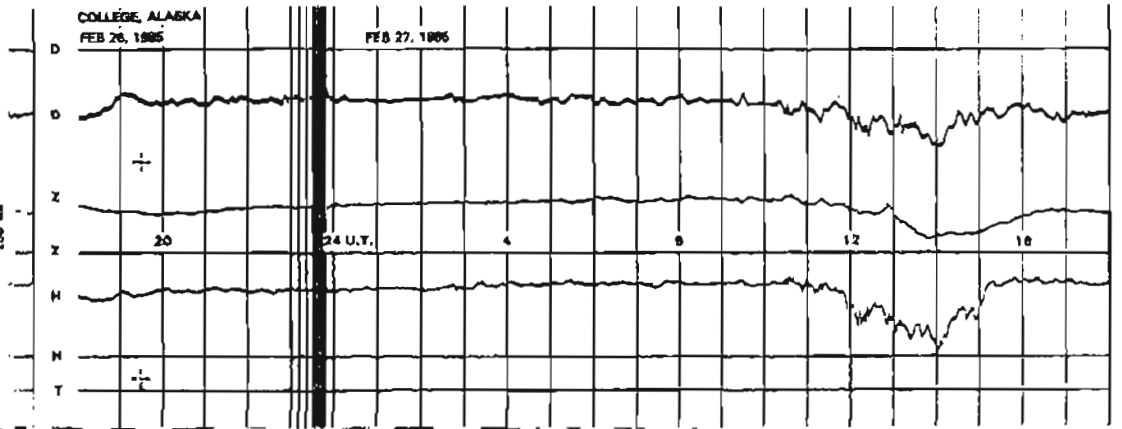
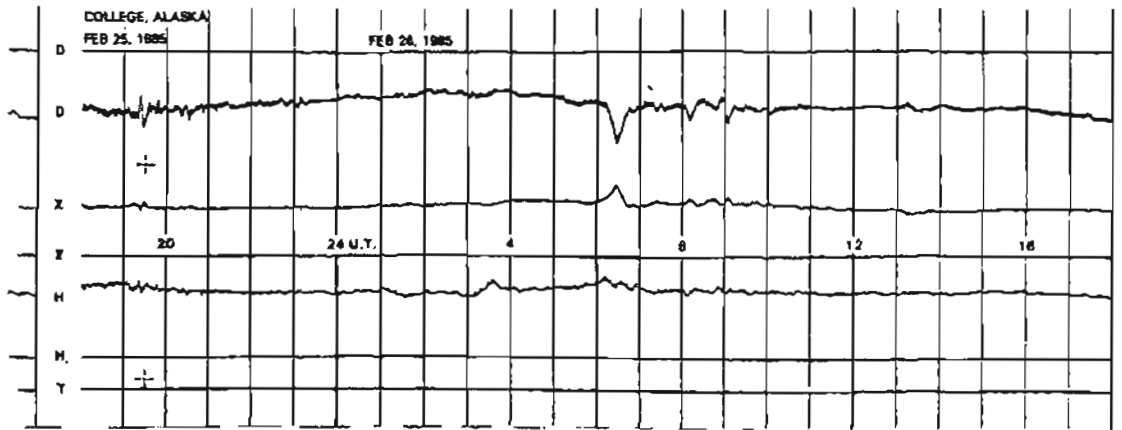
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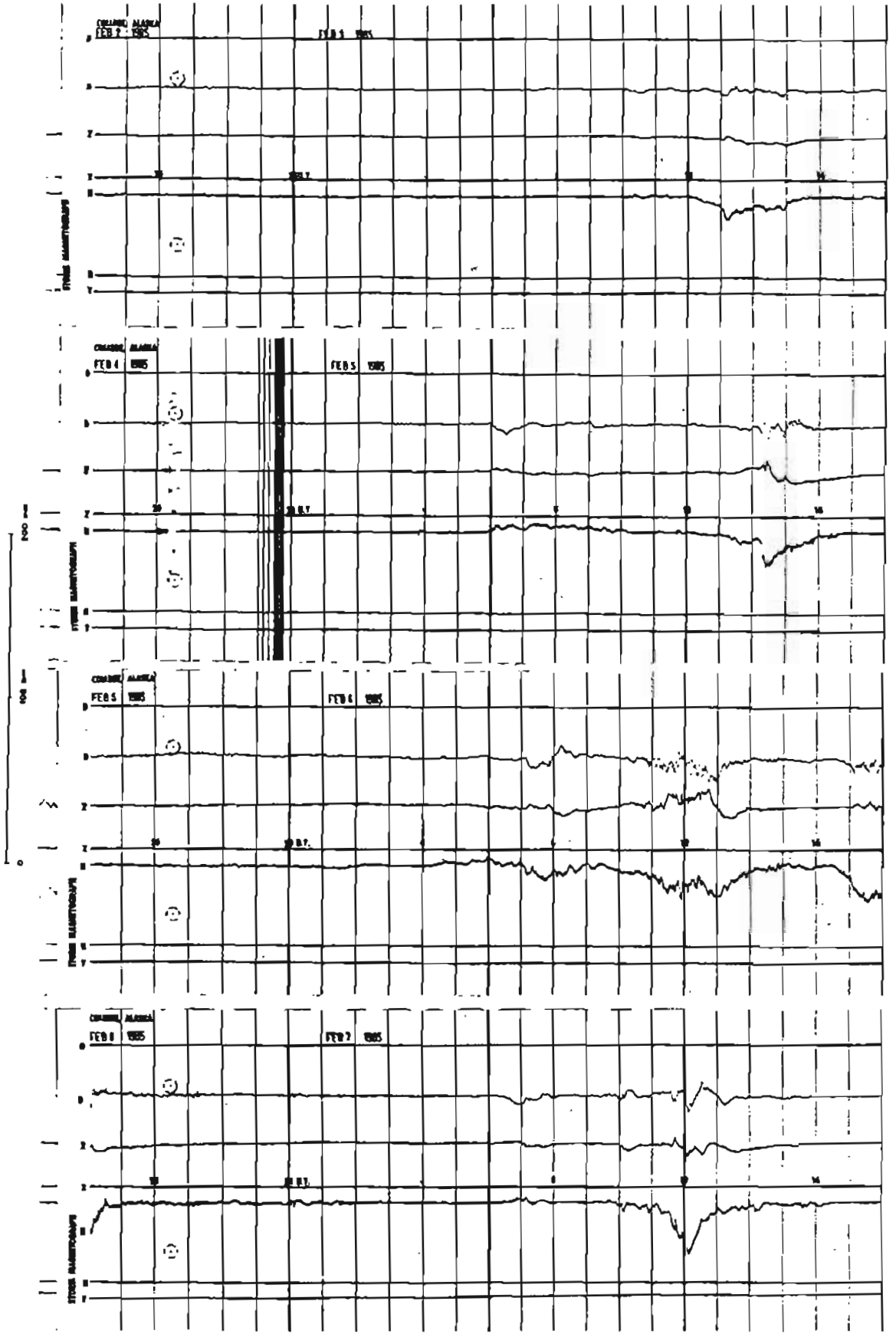
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NORMAL MAGNETOGRAMS



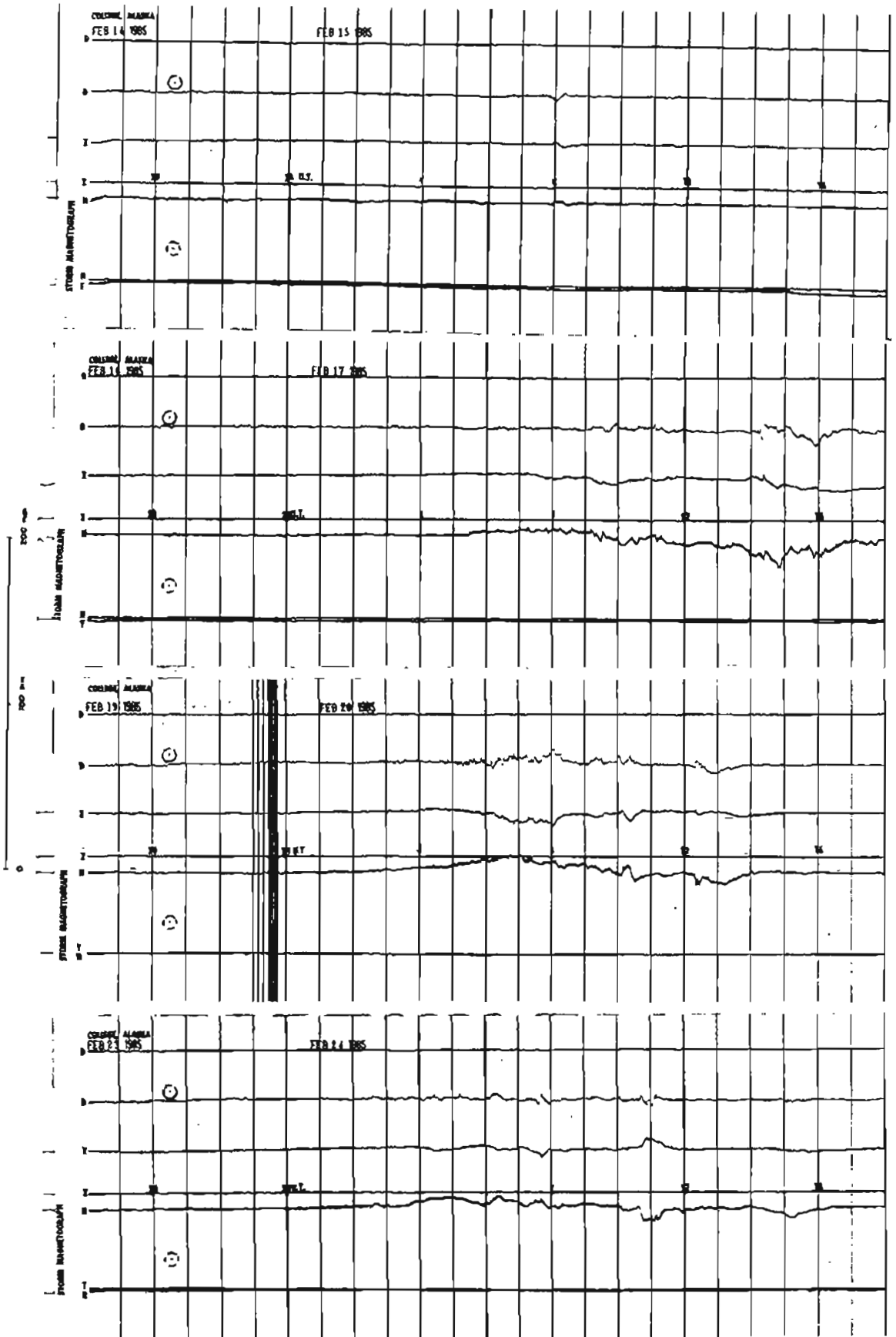
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS

