

UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

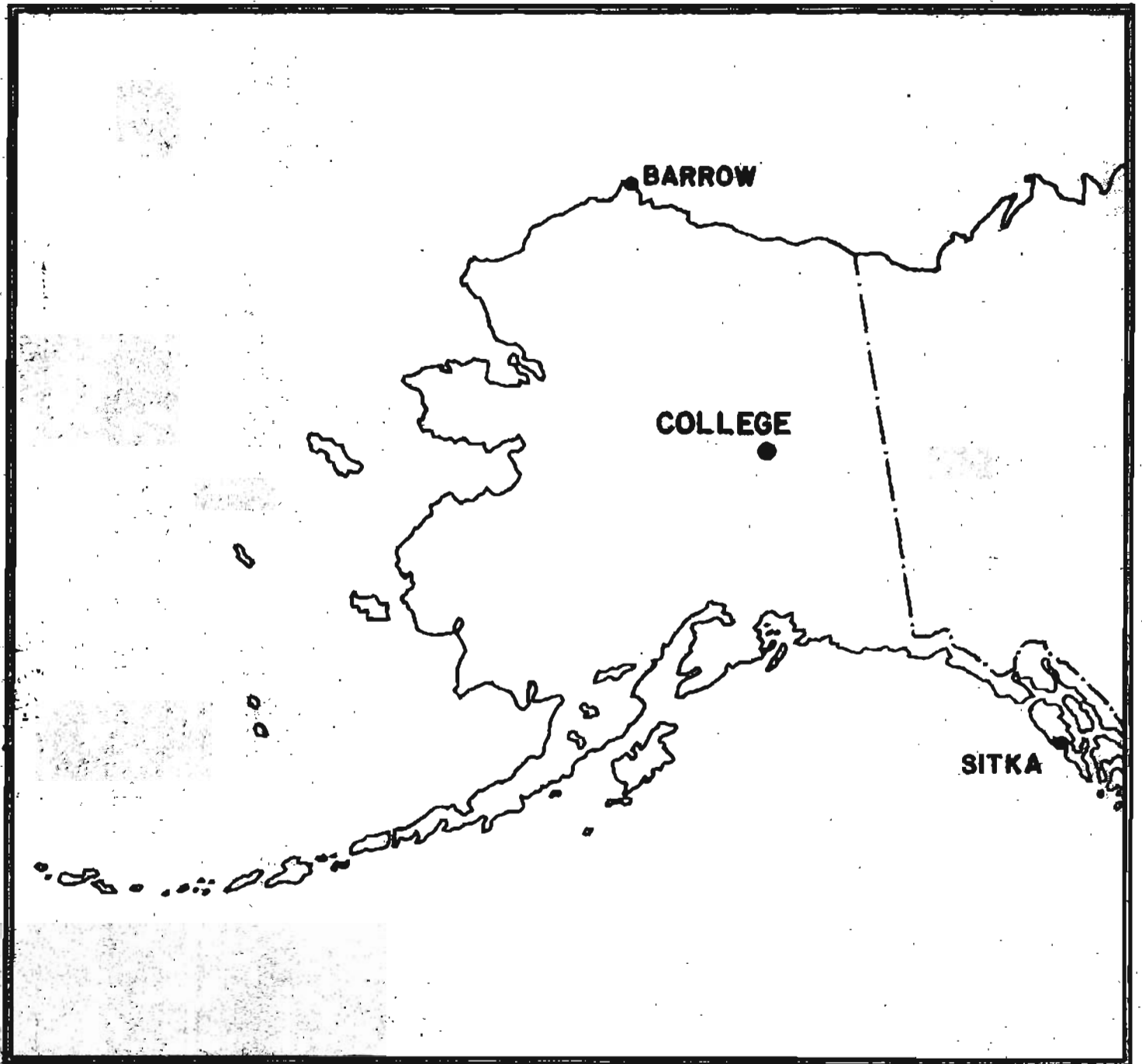
PRELIMINARY GEOMAGNETIC DATA

COLLEGE OBSERVATORY

FAIRBANKS, ALASKA

JULY 1985

OPEN FILE REPORT 85-0300G



THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, 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 10γ has been chosen so as not to give the illusion of an accuracy not justified.

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

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

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

AK Range	C
0-11	0
11-30	1
30+	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.

COLLEGE, ALASKA

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

JULY 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	4	3	4	2	3	3	1	2	22	15	SUDDEN COMMENCEMENTS d h m
2	2	1	1	0	0	0	0	1	05	02	
3	2	2	2	1	3	1	1	2	14	07	
4	3	2	3	3	7	5	3	3	29	34	
5	4	4	3	5	5	3	3	3	30	26	
6	3	3	3	6	4	4	2	3	28	25	
7	4	5	6	5	5	5	2	2	34	39	
8	2	3	3	3	4	4	4	3	26	19	
9	3	4	4	0	2	2	1	0	16	11	
10	2	1	1	1	1	1	2	2	11	05	
11	2	2	2	3	3	2	2	1	17	09	
12	5	5	5	7	5	6	6	2	41	62	
13	2	2	2	6	5	5	5	3	30	33	
14	3	4	7	4	4	3	2	2	29	33	
15	2	5	3	5	2	1	1	1	20	17	
16	1	1	2	1	1	2	2	2	12	05	
17	2	3	2	6	6	6	2	2	29	35	
18	3	3	3	4	6	3	3	3	28	25	
19	2	2	2	4	4	3	1	0	18	12	
20	1	2	4	3	4	5	2	2	23	18	
21	2	2	3	3	1	0	1	1	13	07	
22	1	1	3	3	3	0	1	1	13	07	
23	1	4	4	4	3	1	1	2	20	14	
24	2	2	3	6	5	3	2	2	25	23	
25	3	3	4	4	0	2	3	1	20	14	
26	1	4	3	4	2	2	2	3	21	14	
27	3	4	5	5	5	2	1	1	26	25	
28	2	3	1	5	2	2	2	2	19	13	
29	2	1	0	0	1	1	2	1	08	03	
30	2	4	3	3	6	3	1	1	23	21	
31	1	3	6	7	6	7	3	3	36	61	

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

675.7

3.72

2510

H

322.2

7.80

2510

Z

(mm)

(γ/mm)

(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN E. PAPP, ASSISTANT CHIEF

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY
COLLEGE, ALASKA

MONTH JULY	YEAR 1985
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DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS
03	12xx	pi 2	With bay
11	15xx	pg	
IDENTIFIED BY:		JEP	VERIFIED BY: EAS

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

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

Data from Individual Observatories:

JULY 1985

Obs. 2 letter LADA code	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)
CO	64.96 N	04	12xx	..	..	..	04	5	7	237	1350	970	07 24
		11	18xx	..	..	..	12	4	7	190	1620	900	12 22
		13	08xx	..	..	..	14	3	7	136	1330	410	14 22
		31	03xx	..	..	..	31	4, 6	7	254	1280	1130	AUG. 01 07

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASILINE
D	0000 U.T., 7-1-85	2400 U.T., 7-31-85	1.0/mm	378/mm	27° 16.6 E
R	0000 U.T., 7-1-85	2400 U.T., 7-15-85	7.88/mm		126838
	0000 U.T., 7-16-85	2400 U.T., 7-31-85	"		126948
Z	0000 U.T., 7-1-85	2400 U.T., 7-31-85	7.68/mm		551668

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASILINE
D	0000 U.T., 7-1-85	2400 U.T., 7-24-85	7.9/mm	29.58/mm	23° 44.5 E
	0000 U.T., 7-25-85	2400 U.T., 7-31-85	"	"	23° 42.9 E
R	0000 U.T., 7-1-85	2400 U.T., 7-15-85	43.98/mm		107168
	0000 U.T., 7-16-85	2400 U.T., 7-31-85	"		107348
Z	0000 U.T., 7-1-85	2400 U.T., 7-31-85	48.48/mm		541138

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		
D					
H					
Z					

MONTHLY MEAN ABSOLUTE VALUES*

D	R	Z
27° 38.0 E	129008	553408

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JUL 2, 3, 9, 10, 11, 16, 19, 21, 22, 29

Form C601-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
Denver, CO 80219

OBSY. YEAR MONTH ELEMENT
CO 85 JUL D

Values are in units of nan. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (2001 M.T.) is hour 00 of the 880th universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q	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	116	139	135	96	132	173	180	368	183	175	173	158	01	176	224	251	245	287	360	356	316	256	177	161	152	5033
		02	152	149	157	172	193	209	220	213	211	207	203	210	02	216	232	249	273	287	317	307	292	267	242	214	177	5369
		03	154	129	130	179	199	217	207	207	205	203	197	183	03	208	239	255	292	315	329	332	307	278	256	194	215	5430
		04	124	102	114	112	86	95	84	80	115	187	202	187	04	127	306	230	343	473	425	330	350	280	167	106	127	5322
		05	124	98	81	86	84	63	143	153	154	284	214	157	05	176	160	96	257	330	286	331	317	216	185	162	182	4339
		06	157	120	131	159	156	142	291	308	161	216	353	181	06	205	247	286	244	259	285	293	278	281	245	199	270	5467
		07	233	180	168	130	96	138	179	82	256	186	174	213	07	188	219	324	258	277	283	303	304	312	247	223	183	5142
		08	172	172	159	137	154	147	239	167	170	174	261	184	08	188	228	255	214	273	350	327	251	224	171	135	120	4872
		09	129	140	131	79	196	110	168	222	174	177	183	180	09	183	206	238	285	287	317	316	312	265	188	192	181	4859
		10	160	146	158	183	178	194	198	196	194	196	176	184	10	186	218	248	272	312	331	322	326	259	229	181	154	5201
		11	127	103	106	168	173	191	169	198	225	146	138	208	11	210	261	290	302	349	363	358	290	228	190	182	134	5109
		12	94	92	26	5	-16	28	98	11	11	67	344	170	12	233	170	369	488	344	344	416	591	85	188	198	180	4536
		13	162	159	160	158	172	168	176	177	167	192	132	336	13	310	377	241	482	535	385	407	180	187	144	162	134	5653
		14	101	115	116	190	287	160	86	90	11	182	210	153	14	194	173	268	290	334	337	309	275	243	221	197	193	4730
		15	177	184	180	181	144	257	200	184	172	123	171	196	15	197	257	291	301	320	302	279	263	242	204	181	153	5159
		16	163	172	180	190	210	210	195	190	185	176	192	197	16	198	210	248	288	337	326	294	260	239	224	183	179	5246
		17	153	149	157	134	188	179	171	183	166	185	180	249	17	266	165	464	488	344	350	312	266	217	192	181	169	5813
		18	149	137	133	112	178	164	160	182	166	154	193	188	18	114	159	244	306	318	323	288	259	233	156	130	139	4585
		19	167	157	143	163	167	180	196	238	194	159	286	250	19	273	269	282	237	307	290	281	278	256	219	189	166	5347
		20	163	156	156	150	172	154	166	185	188	185	266	218	20	214	222	310	418	390	323	301	287	252	231	200	183	5490
		21	156	138	114	126	148	154	192	188	228	260	214	182	21	207	213	250	266	281	283	288	283	269	248	203	187	5078
		22	178	170	155	153	157	175	180	171	236	199	193	234	22	205	207	260	296	296	280	277	274	280	241	215	163	5195
		23	139	143	140	98	62	201	124	113	170	151	152	306	23	255	271	288	267	284	302	289	288	250	232	212	168	4905
		24	160	141	127	136	155	149	213	248	199	175	190	283	24	322	374	352	328	277	276	277	282	208	234	173	124	5403
		25	109	102	72	99	152	134	140	167	158	163	116	194	25	198	229	254	284	298	275	278	239	200	164	157	129	4316
		26	130	137	143	143	94	241	169	182	191	221	292	222	26	207	229	239	278	277	290	309	311	304	238	166	116	5129
		27	147	138	90	143	133	143	118	188	134	195	387	245	27	277	198	181	252	270	283	302	270	240	214	183	170	4901
		28	150	120	110	137	172	156	180	188	159	168	90	156	28	188	190	218	237	272	298	328	303	172	150	147	145	4434
		29	141	150	161	175	183	189	188	196	190	187	187	200	29	187	204	235	277	310	316	327	285	246	166	128	133	4961
		30	139	165	164	164	101	138	162	183	172	167	148	307	30	195	217	387	264	312	340	324	278	234	183	146	126	5016
		31	107	126	154	154	174	151	236	170	29	268	21	83	31	387	300	483	594	339	324	446	342	184	185	172	94	5523

SCALED BY	LYT, PAF	Preliminary base-line and scale values: Interval Beginning Base-line Value Scale Value <input type="checkbox"/> Interpolated <input checked="" type="checkbox"/> Significant portion of base interpolated. <input type="checkbox"/> No record, or no values available because of faulty record. * Derived from STORM Magh., converted to Human Magh.	<input type="checkbox"/> Scaling uncertain because of magnetic storm. <input checked="" type="checkbox"/> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.	MONTHLY SUM	157,563
CHECKED BY	JEP, PAF, LYT			MONTHLY MEAN	212
PHONE REVIEWED BY	JEP			DATES WITH GAPS:	
PUNCHED BY					

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

Values are in volts of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (ZOW M.T.) is hour 06 of the 2289 universal day.

Shading connections have been applied. Negative values are in red, with minus signs above.

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	YEAR	MONTH	DATE	E.L.S. REPORT
01	227	311	326	248	300	271	252	168	225	239	225	225	219	01	198	168	179	156	192	227	210	198	193	193	212	226	5347	85	JUL	2
02	236	244	241	240	249	248	247	237	230	227	227	227	232	02	228	227	223	233	223	233	223	217	203	203	217	223	5544	85	JUL	2
03	219	227	240	249	244	243	225	230	228	227	226	217	227	03	120	163	202	217	227	228	223	213	202	206	204	214	5205	85	JUL	2
04	240	258	277	271	239	253	220	255	256	277	246	233	233	04	338	-93	78	76	199	224	115	174	229	204	235	222	5026	85	JUL	2
05	232	250	264	274	284	285	265	265	267	194	17	172	172	05	227	248	96	155	169	227	227	197	207	217	228	228	5184	85	JUL	2
06	267	256	268	293	291	275	282	220	227	193	65	47	47	06	68	74	162	143	204	201	200	197	198	241	245	286	4903	85	JUL	2
07	339	275	268	292	294	306	277	152	142	253	208	230	230	07	197	221	209	154	163	227	252	243	232	217	232	237	5514	85	JUL	2
08	240	247	239	233	233	267	272	300	281	246	228	176	176	08	203	190	104	193	227	197	126	143	172	192	224	241	5137	85	JUL	2
09	226	246	263	259	214	272	266	200	257	247	240	234	234	09	228	234	203	228	192	192	214	210	213	210	227	238	5520	85	JUL	2
10	239	229	250	264	249	243	240	242	246	229	228	208	208	10	207	221	220	220	233	230	227	223	213	204	209	209	5473	85	JUL	2
11	212	223	257	287	256	266	253	267	266	223	218	231	231	11	185	194	162	158	206	217	215	196	197	202	219	230	5380	85	JUL	2
12	238	258	268	268	185	160	185	39	64	311	350	388	388	12	490	593	433	573	509	477	459	388	-4	165	206	219	7026	85	JUL	2
13	228	236	242	237	239	236	241	252	243	190	216	200	200	13	241	224	376	339	242	78	64	107	193	210	245	271	5342	85	JUL	2
14	229	282	314	300	249	224	160	242	276	304	401	205	205	14	154	230	278	259	263	221	236	233	227	225	229	238	6049	85	JUL	2
15	243	253	258	276	280	286	298	272	245	217	57	176	176	15	213	231	196	242	242	237	233	232	231	227	236	240	5626	85	JUL	2
16	243	248	257	266	260	253	261	273	263	256	239	230	230	16	243	247	236	233	207	210	223	223	226	223	220	227	5767	85	JUL	2
17	253	249	258	259	344	309	303	299	266	279	147	26	26	17	185	236	141	153	87	193	100	207	217	223	247	249	5527	85	JUL	2
18	277	307	275	289	276	279	294	281	239	219	227	274	274	18	252	170	160	207	233	203	221	227	232	230	242	227	5838	85	JUL	2
19	240	257	277	270	264	267	284	264	251	243	212	-48	-48	19	68	266	135	157	211	230	233	228	231	232	237	233	6232	85	JUL	2
20	233	245	247	263	290	291	279	251	279	262	248	220	220	20	191	214	216	214	28	109	188	220	223	223	231	237	5274	85	JUL	2
21	249	246	253	290	303	297	313	293	244	193	228	227	227	21	230	243	248	247	247	238	233	220	213	229	221	224	5917	85	JUL	2
22	224	226	227	233	239	247	249	233	263	228	243	175	175	22	121	187	230	230	223	223	223	225	223	214	194	197	5272	85	JUL	2
23	213	217	213	204	244	284	256	191	224	224	217	224	224	23	200	159	209	191	171	180	182	210	216	206	204	210	5049	85	JUL	2
24	224	221	217	224	227	246	296	247	267	161	256	284	284	24	117	149	88	104	207	223	229	227	207	219	200	213	5773	85	JUL	2
25	252	267	267	277	315	280	261	257	279	222	100	173	173	25	210	227	236	230	217	196	163	171	180	192	202	210	5353	85	JUL	2
26	228	236	238	236	239	306	292	263	236	192	126	134	134	26	195	180	190	197	168	199	220	221	219	233	237	241	5236	85	JUL	2
27	287	276	241	256	299	309	237	90	256	228	115	97	97	27	234	241	142	225	231	239	235	228	229	228	230	240	5433	85	JUL	2
28	257	256	258	290	301	298	268	260	247	239	225	154	154	28	175	245	222	225	230	245	233	220	196	201	232	227	5264	85	JUL	2
29	233	241	249	242	233	236	243	253	242	233	229	233	233	29	208	200	197	207	207	213	231	218	220	207	216	230	5421	85	JUL	2
30	238	238	236	220	270	317	346	238	237	236	222	193	193	30	150	185	9	153	239	243	237	230	229	227	226	227	5336	85	JUL	2
31	228	232	221	223	220	226	226	226	226	174	54	172	219	31	384	409	820	612	320	95	139	123	140	214	300	286	6213	85	JUL	2

(1) Interpolated
 (2) Significant portion of hour incorporated.
 (3) No record; or no value available because of faulty record.
 (4) Scaling outside hours of magnetic storm.
 (5) Record left blank (is not at all of hour) if value is given, curve was estimated for missing part.
 (6) Derived from STORM Magnet., converted to Normal Magnet.

Scale Value
 Base-line Value
 Preliminary base-line and scale values:
 (Vertical) Beginning

SCALED BY: LYT, PAF
 CALCULATED BY: JEP, PAF, LYT
 HOUR BEGUN BY: JEP
 FINISHED BY: JEP

MONTHLY SUM: 169961
 MONTHLY MEAN: 228
 DAYS WITH CURVE: 228

MAGNETOGRAM HOURLY SCALINGS

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225OBSY. YEAR MONTH ELEMENT
CO 85 JUL HValues are in gauss of amp. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (200W M.T.) is hour 08 of the 365th universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q	h	h	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	352	428	360	361	340	272	370	262	330	300	279	272	01	172	198	195	166	240	242	245	255	244	230	241	248	6604
			02	264	259	287	288	279	280	274	271	273	279	289	285	02	290	295	296	293	282	269	251	249	237	232	246	248	6516
			03	268	287	300	287	298	283	283	280	283	289	297	294	03	191	277	287	296	303	287	268	252	253	250	262	320	6625
			04	269	363	358	294	303	306	318	353	400	371	321	272	04	383	299	234	78	-26	0	222	206	202	237	240	329	4968
			05	316	314	356	388	282	494	435	458	380	230	94	191	05	202	-166	66	239	254	332	268	247	246	220	249	268	6457
			06	327	322	414	394	333	330	394	319	364	277	-118	36	06	60	151	130	236	303	214	260	274	263	272	280	341	6149
			07	440	418	524	354	417	417	375	185	262	340	201	62	07	274	249	-45	0	293	320	300	260	249	242	257	252	16646
			08	259	293	269	319	342	376	368	296	290	295	305	273	08	217	196	27	211	276	191	80	218	241	226	263	279	6109
			09	270	284	358	488	481	464	377	274	288	270	273	271	09	272	258	204	228	216	256	270	256	241	235	246	250	7030
			10	250	290	300	288	279	283	287	300	297	290	288	263	10	247	267	276	299	290	308	286	265	249	232	249	269	6652
			11	274	292	257	340	307	285	340	338	312	323	336	314	11	256	276	177	276	307	303	282	260	270	270	264	254	6258
			12	292	328	451	826	617	706	550	374	421	49	-537	-106	12	-44	-283	-373	-521	-391	-446	-142	-413	268	322	292	272	2512
			13	288	292	292	284	280	298	313	305	344	274	190	-114	13	19	80	-95	-185	-132	-7	-109	264	236	230	211	307	3865
			14	285	344	363	480	583	617	499	36	88	44	-86	68	14	181	254	208	266	245	237	267	268	256	254	247	243	6175
			15	260	272	303	340	434	416	270	299	341	253	137	238	15	226	238	258	306	298	281	267	263	253	298	245	252	6484
			16	266	261	270	252	269	283	302	282	278	280	267	279	16	295	292	283	256	270	287	281	268	243	255	250	266	6535
			17	297	245	300	330	429	320	280	280	295	296	-171	-345	17	-76	142	-340	-92	236	308	305	283	272	276	266	278	4414
			18	297	342	319	356	313	318	351	327	326	282	292	157	18	-286	74	234	265	268	240	296	253	219	197	250	268	5958
			19	288	300	283	260	294	258	317	298	293	293	144	64	19	113	-18	26	234	286	290	273	270	260	263	250	253	5592
			20	261	269	277	310	301	330	364	280	268	275	245	232	20	280	258	126	-149	-36	279	300	275	251	239	240	239	5714
			21	252	260	303	298	309	333	320	330	334	211	275	269	21	274	283	278	270	260	261	256	250	262	255	251	247	6441
			22	249	249	259	267	273	284	292	313	353	309	300	186	22	189	279	284	291	288	291	280	270	253	251	254	263	6527
			23	265	270	274	352	455	460	367	457	392	379	274	313	23	209	195	255	213	225	220	233	237	242	247	253	252	7139
			24	273	270	272	255	279	314	392	382	361	307	305	37	24	-87	-5	122	268	300	283	259	232	230	233	248	262	5792
			25	309	310	346	380	347	326	435	366	356	300	180	252	25	280	283	280	272	250	244	196	234	240	236	239	243	6904
			26	254	255	269	243	368	490	322	285	287	240	156	228	26	203	183	236	231	245	266	264	248	194	180	208	263	6168
			27	328	296	330	421	313	416	458	386	292	299	126	9	27	120	-103	268	292	299	273	240	243	232	238	248	260	6284
			28	276	301	310	347	312	280	282	291	295	268	25	172	28	259	258	243	257	278	262	233	193	180	220	223	242	6007
			29	269	263	267	265	260	279	279	279	265	272	269	272	29	268	259	246	256	247	260	235	219	203	210	217	233	6092
			30	262	262	287	299	366	447	317	255	260	279	296	246	30	190	-209	-192	320	320	283	267	247	232	239	240	256	5769
			31	267	253	267	303	276	312	393	376	208	-226	-12	257	31	-159	-94	-496	-699	-378	304	234	220	207	287	260	293	2253

SCALED BY: LYT, PAF
 CHECKED BY: JET, PAF, LYT
 SIGNS RE-VERIFIED BY: JET
 PUNCHES BY:

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

() Interpolated

[] Significant portion of hour interpolated.

[] No records or no values available because of leaky record.

* Derived from STORM Mag., converted to Normal Mag.

[] Scaling uncertain because of magnetic storm.

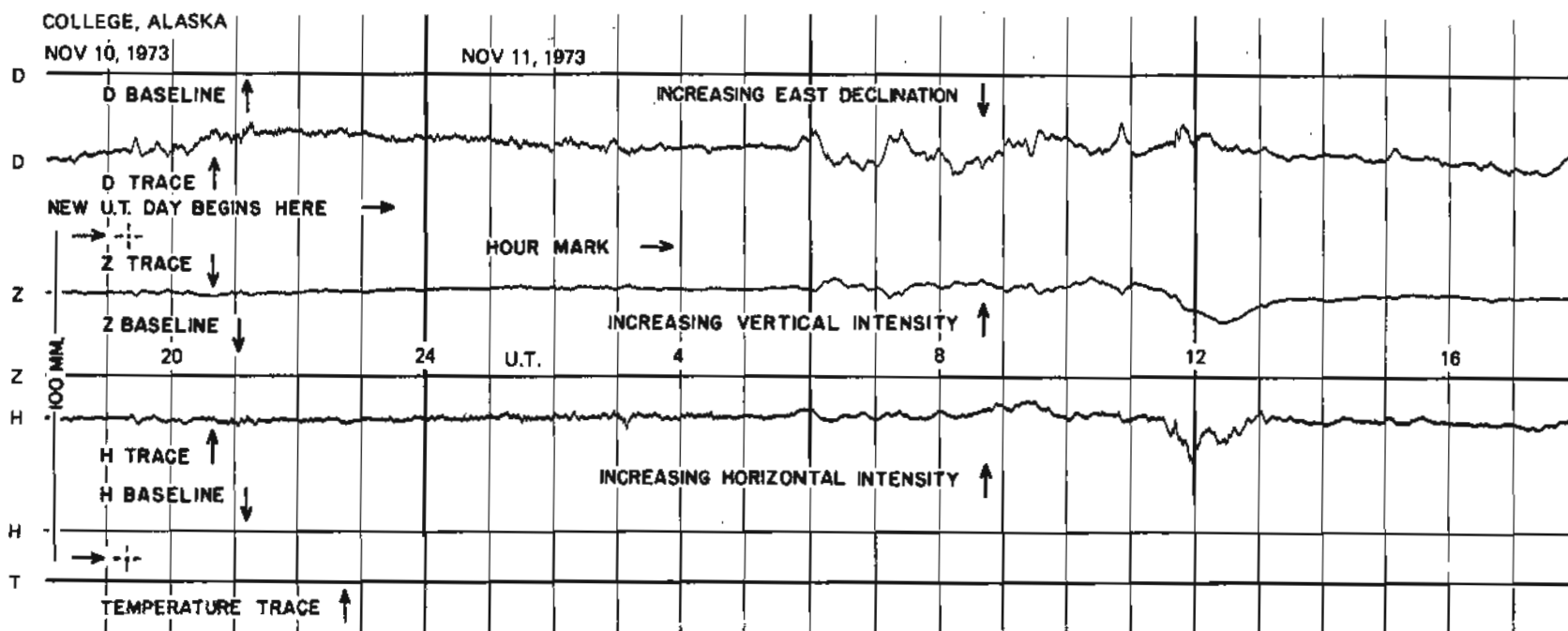
< > Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

MONTHLY SUM: 183609

MONTHLY MEAN: 247

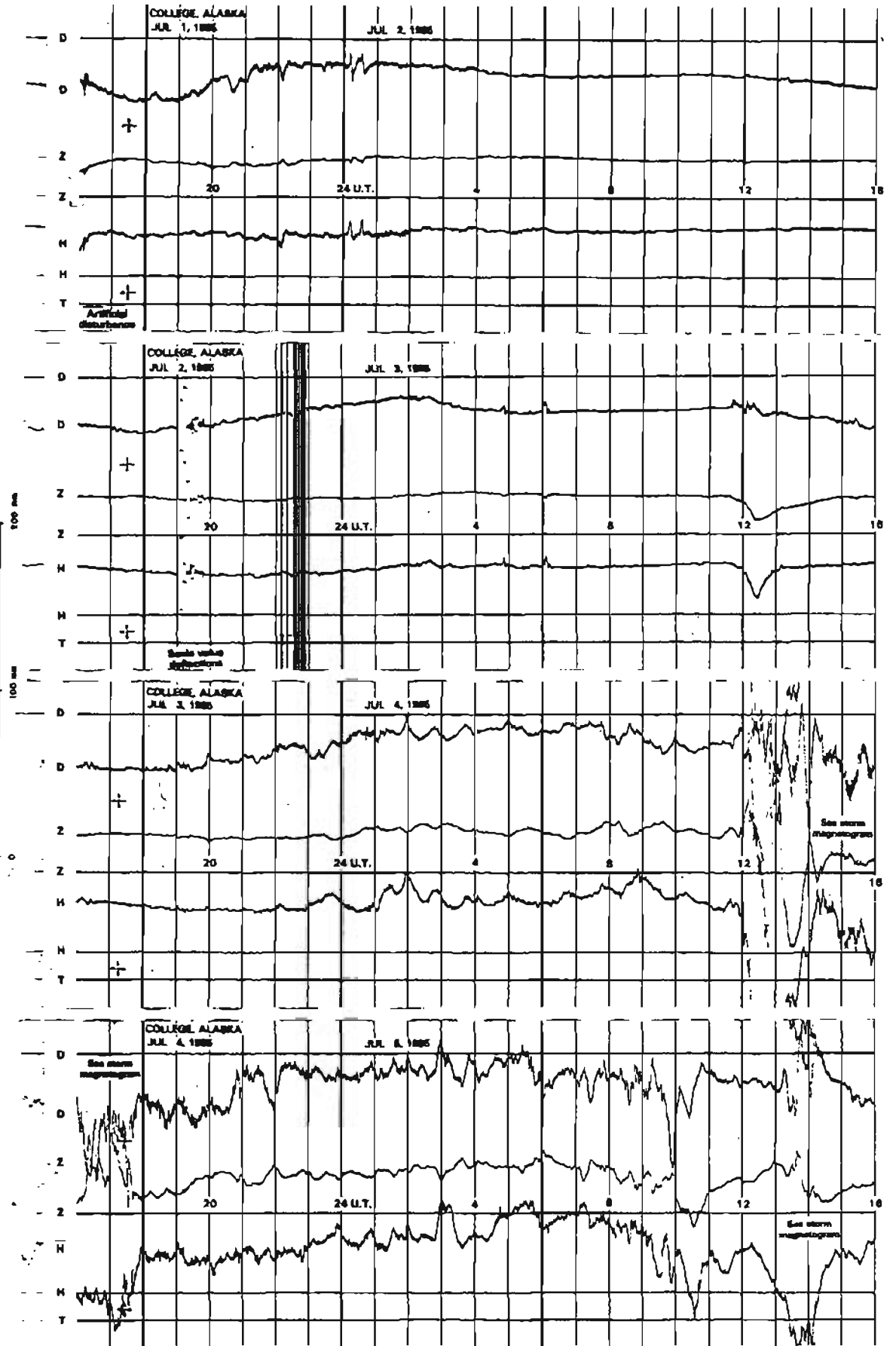
DATES WITH GAPS:

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

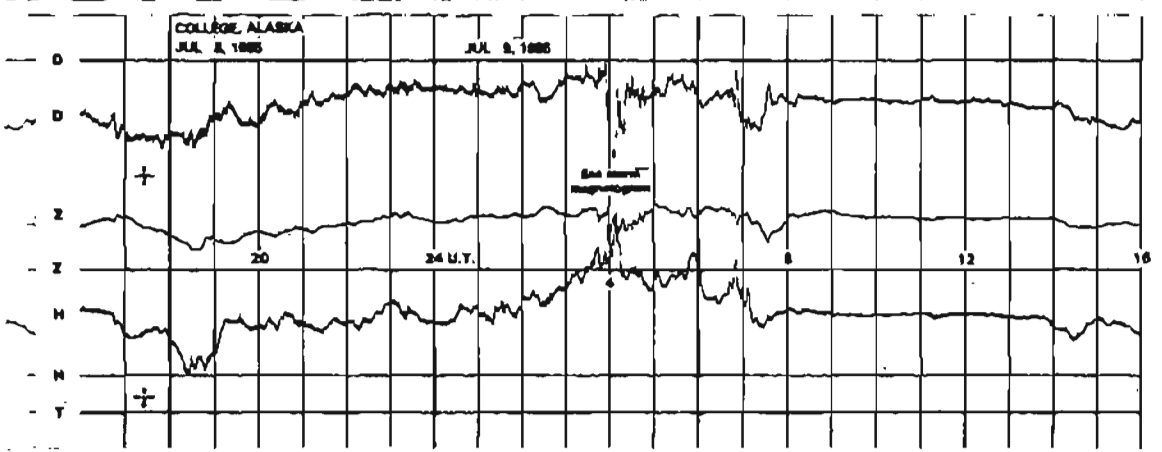
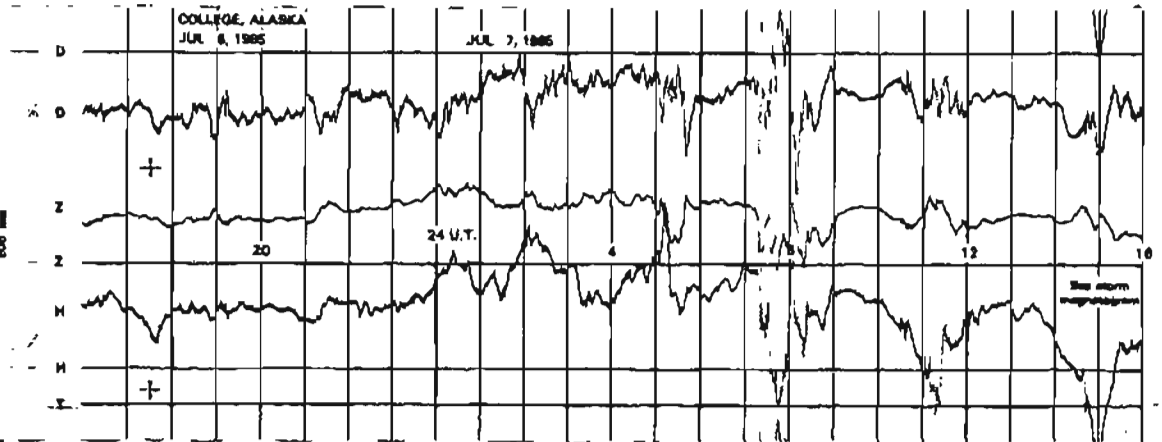
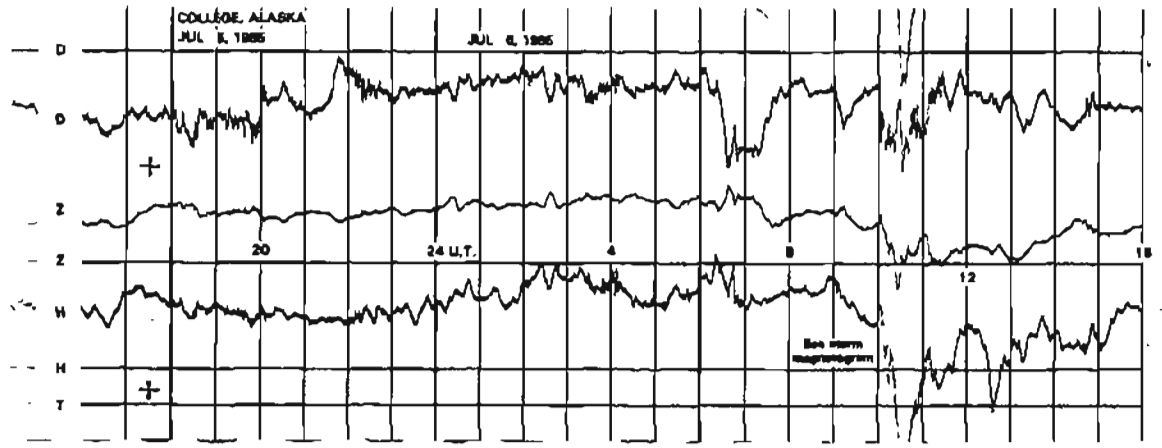


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

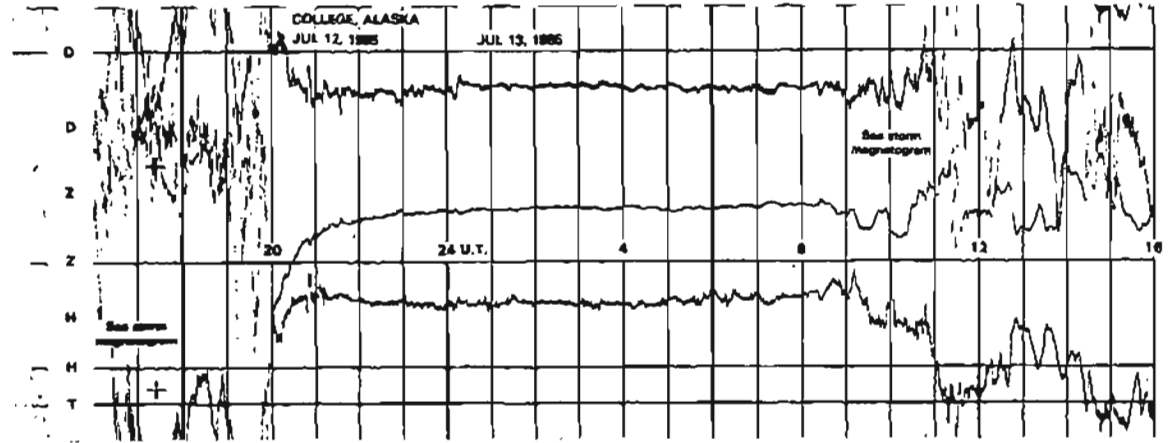
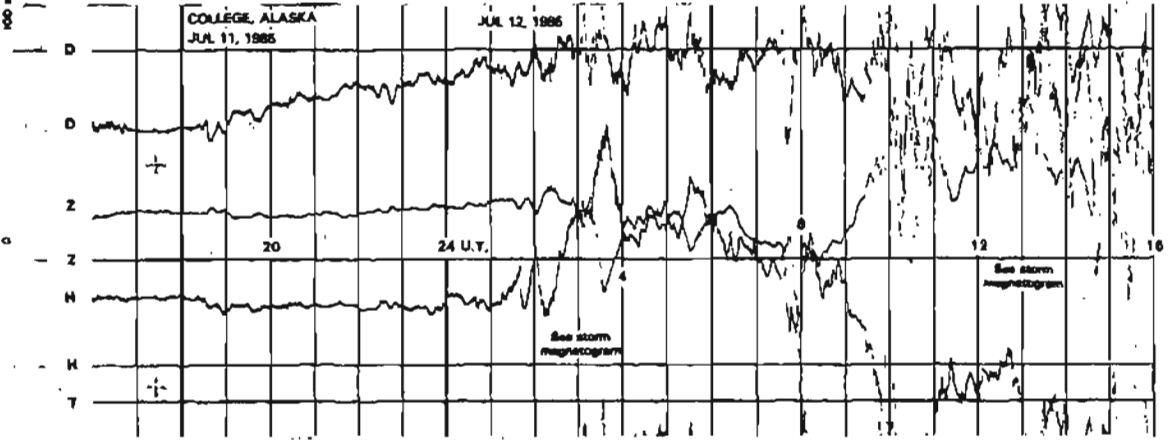
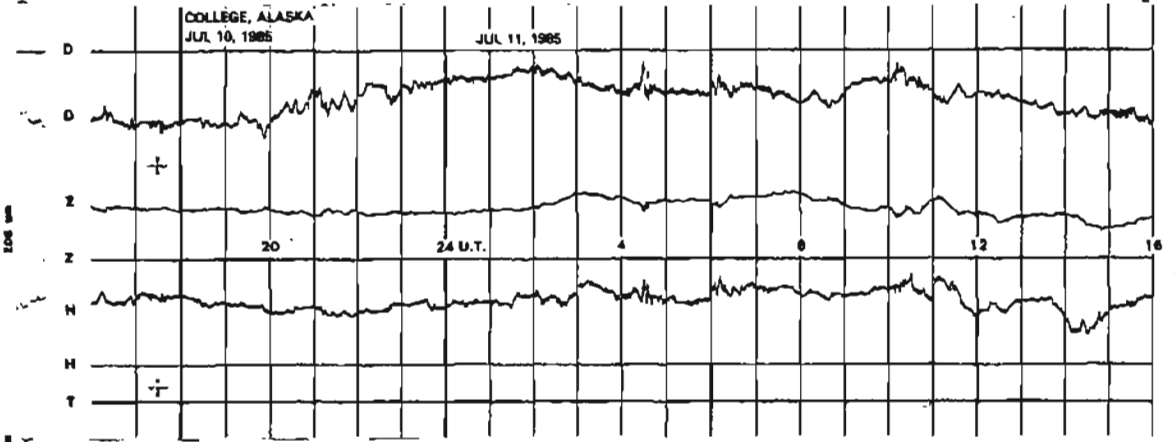
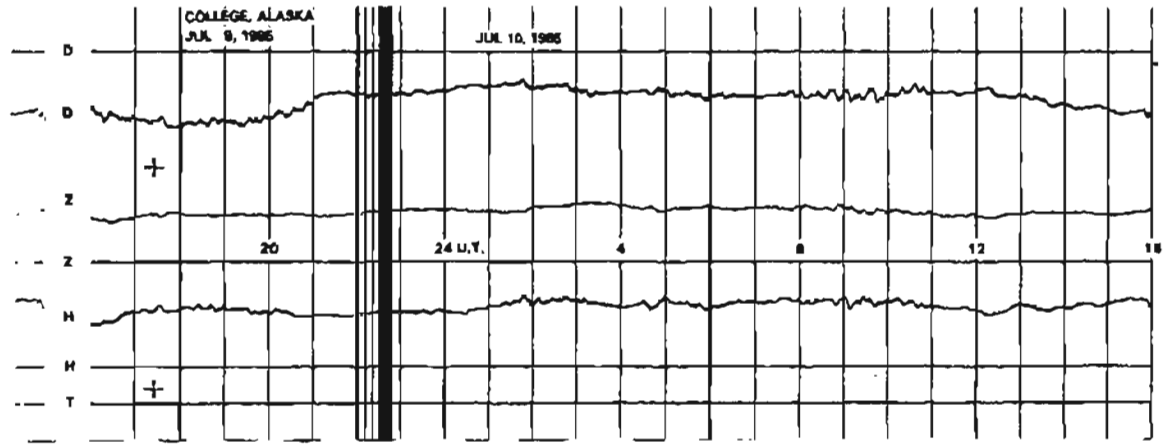
NORMAL MAGNETOGRAMS



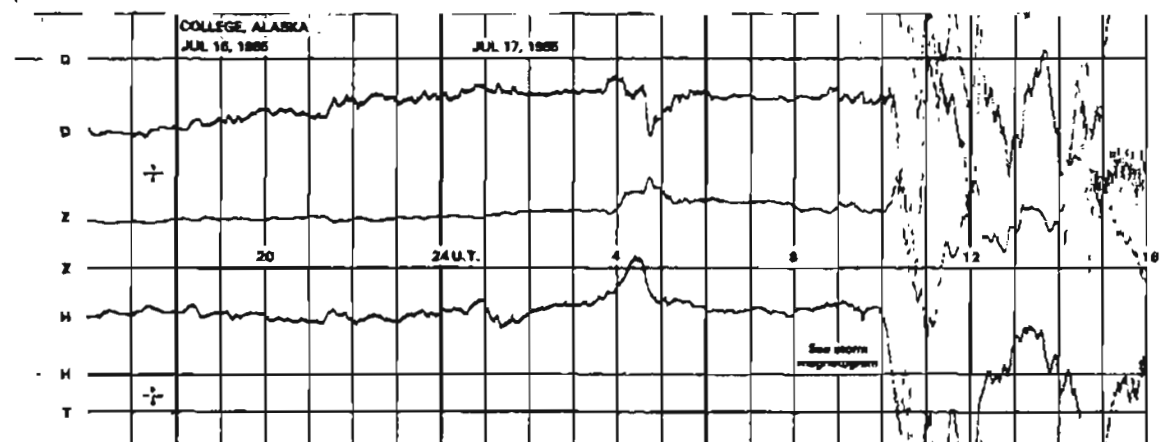
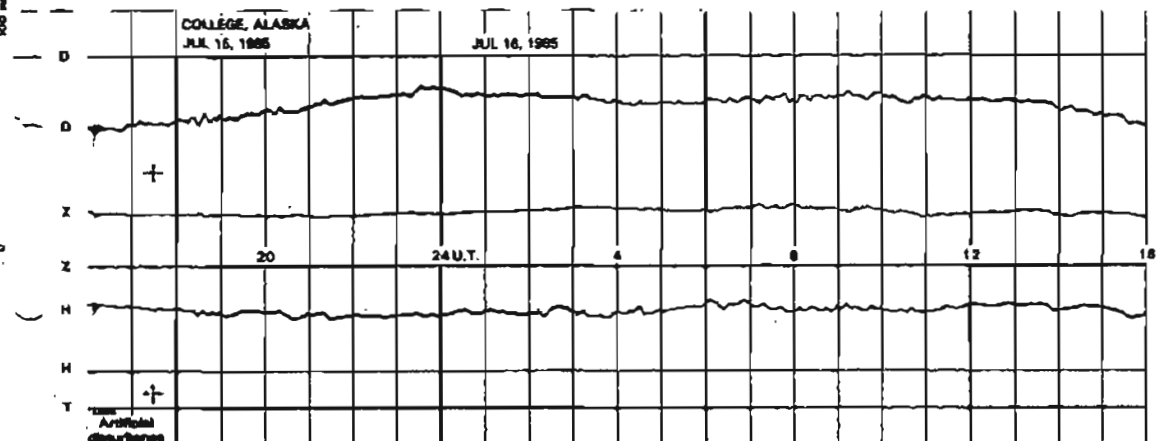
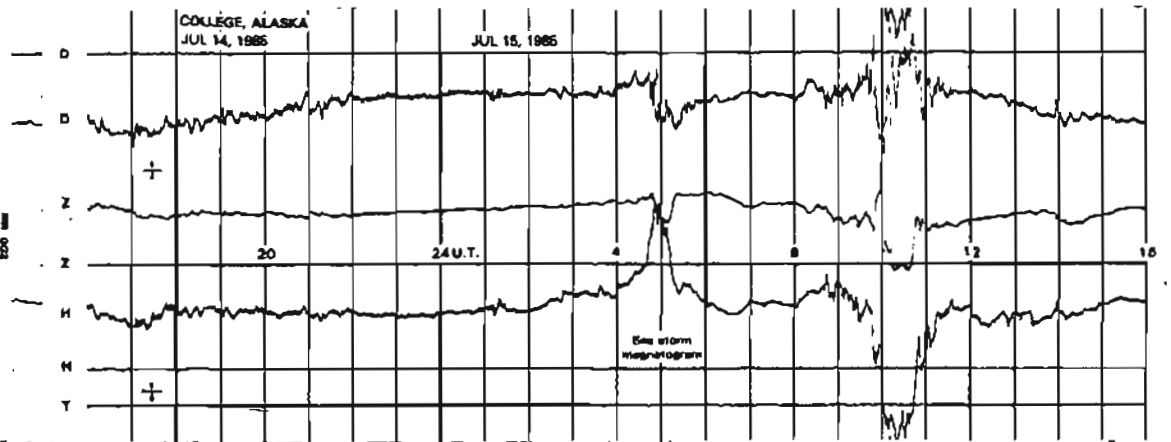
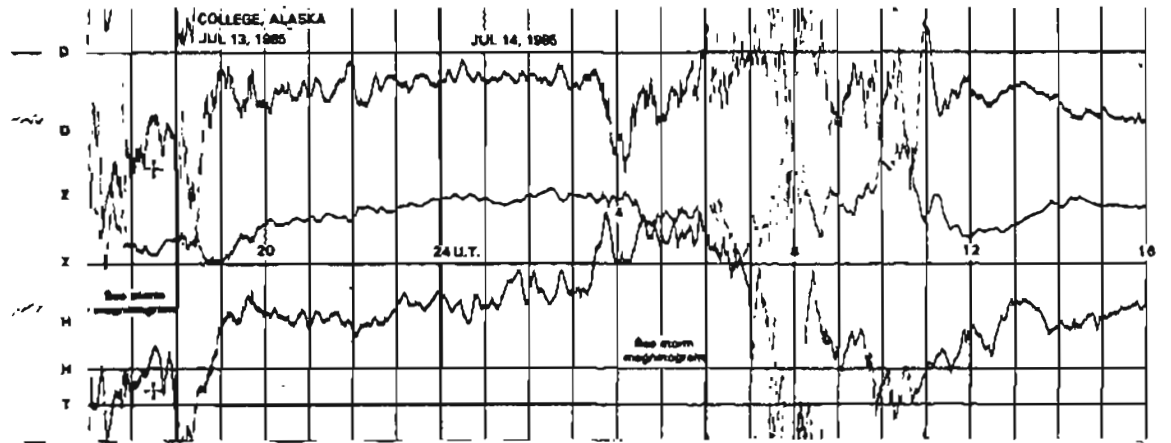
NORMAL MAGNETOGRAMS



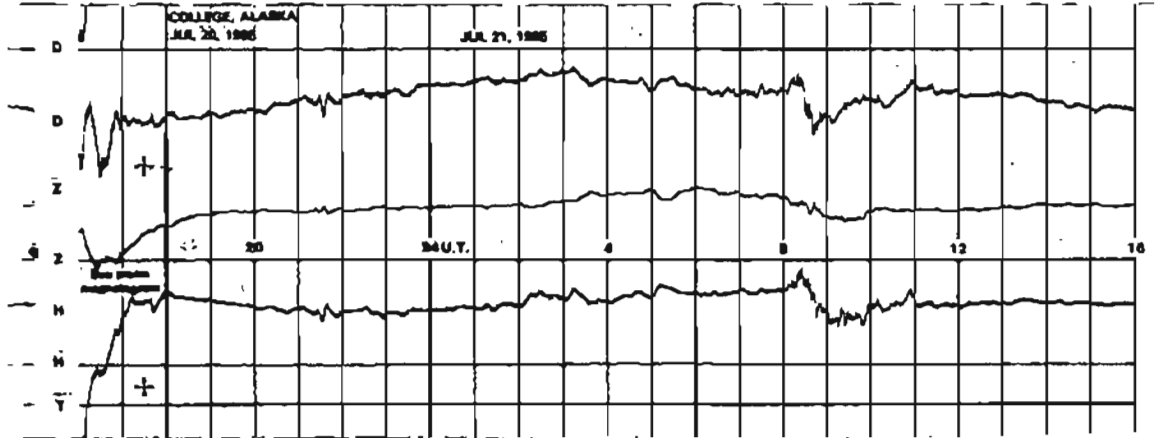
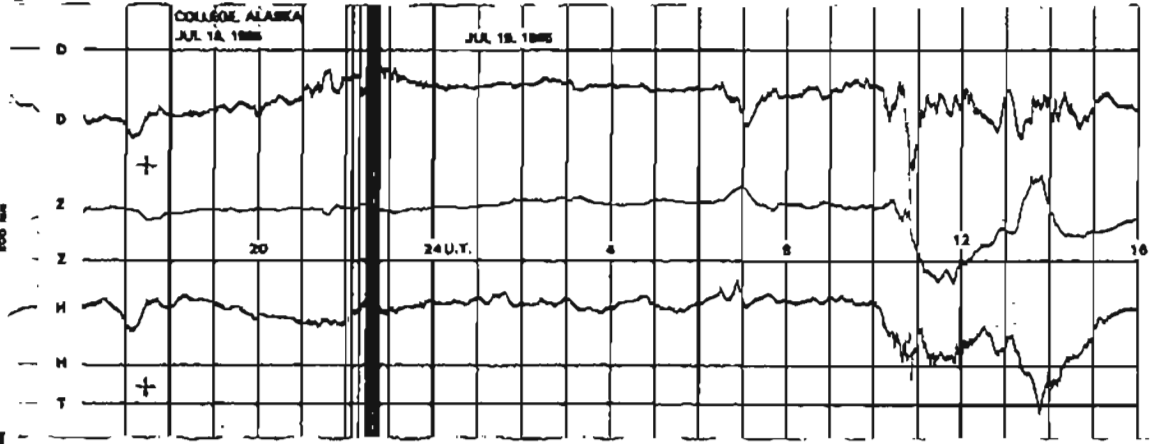
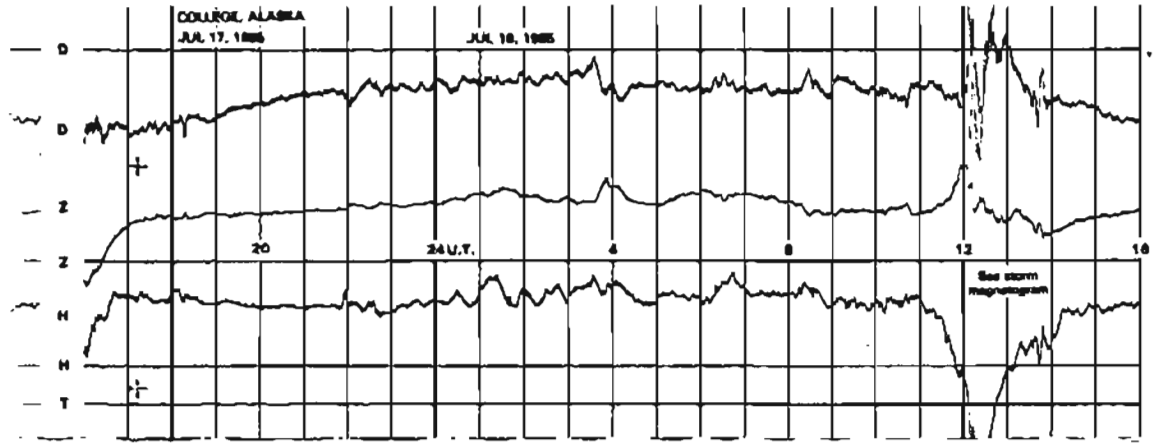
NORMAL MAGNETOGRAMS



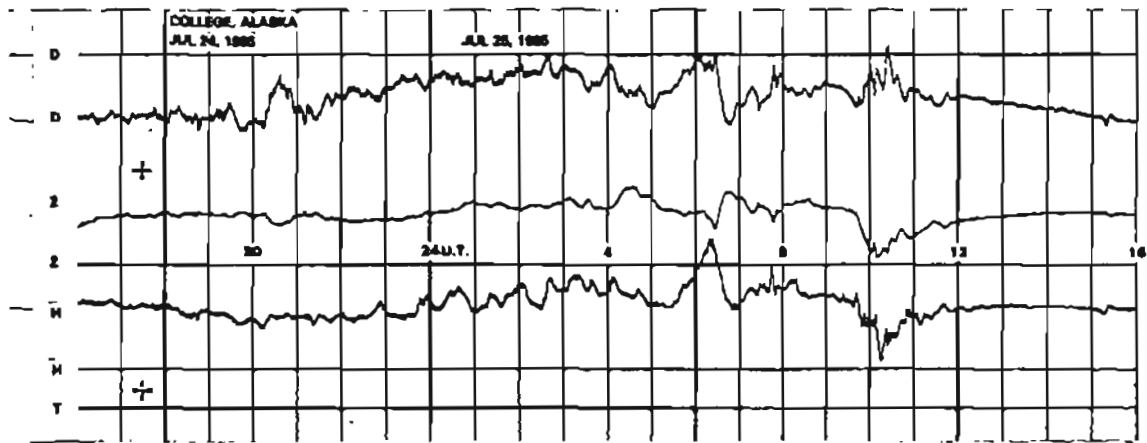
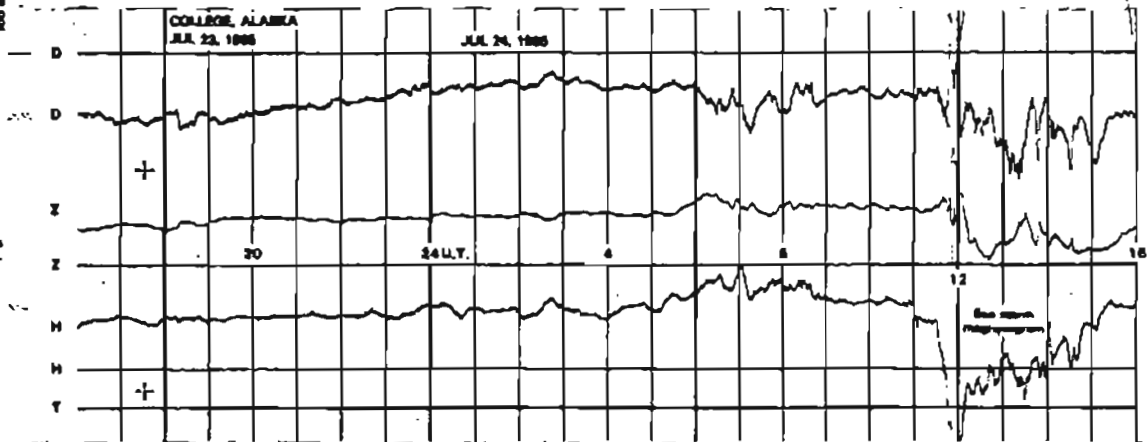
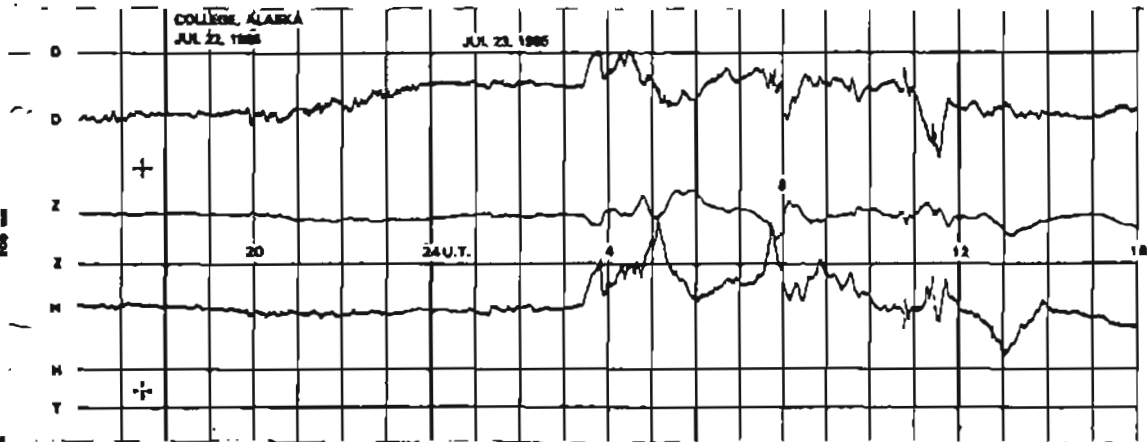
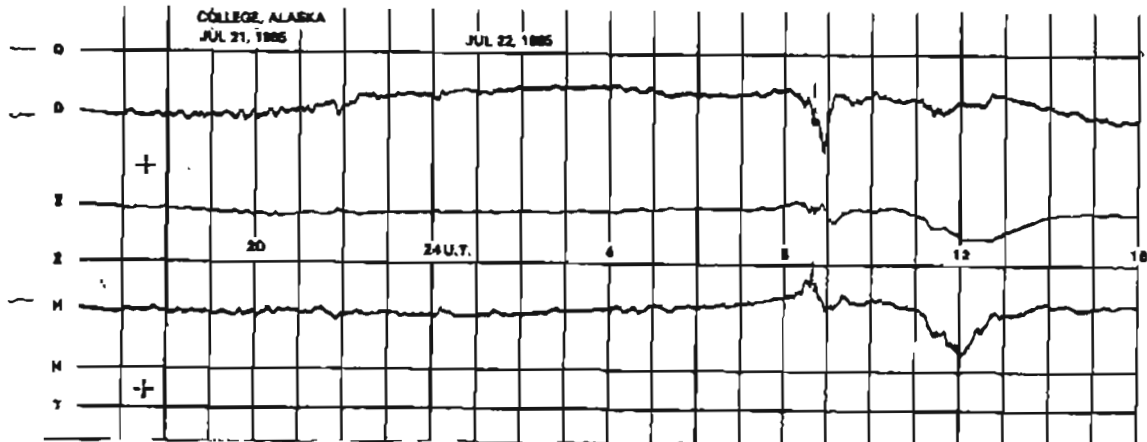
NORMAL MAGNETOGRAMS



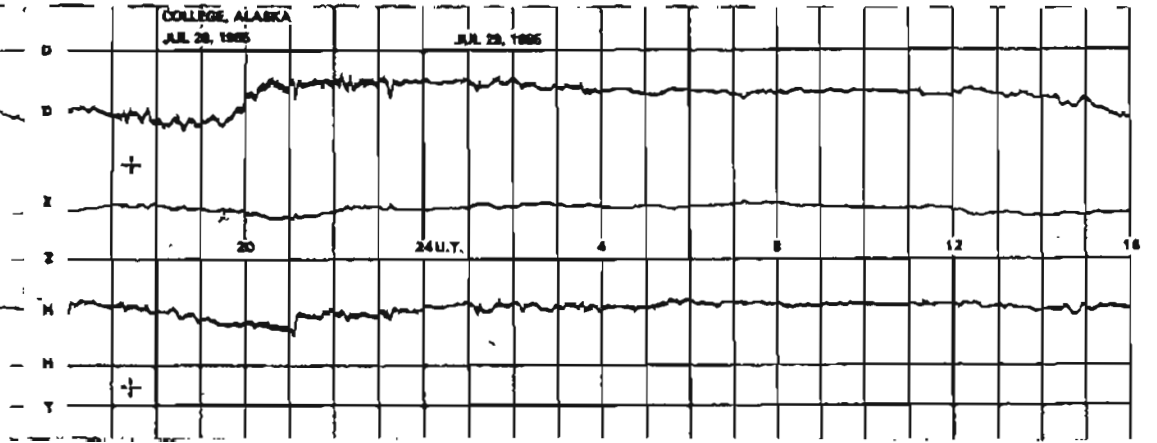
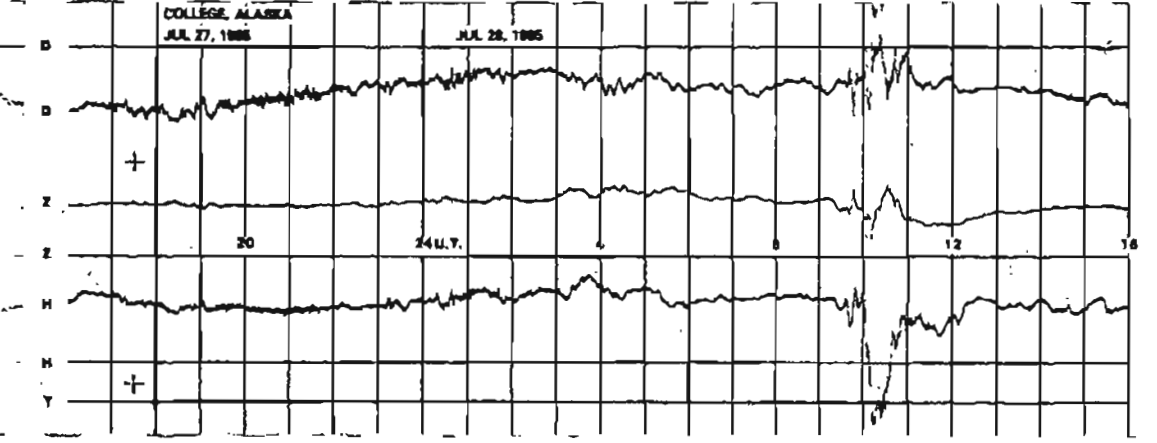
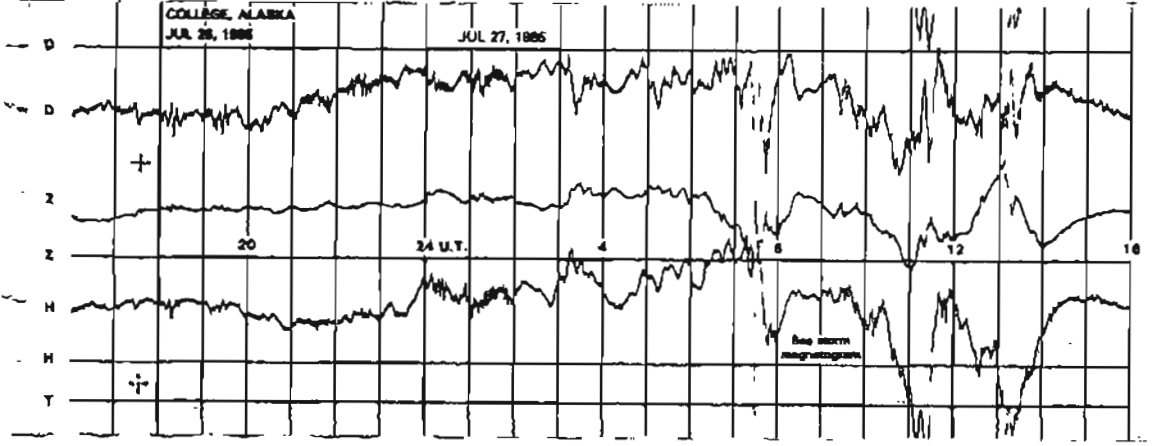
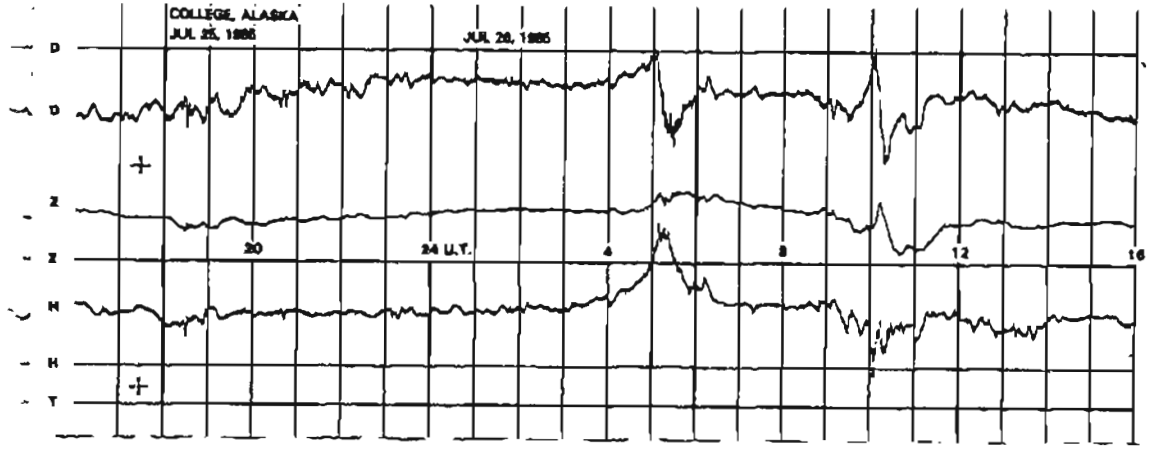
NORMAL MAGNETOGRAMS



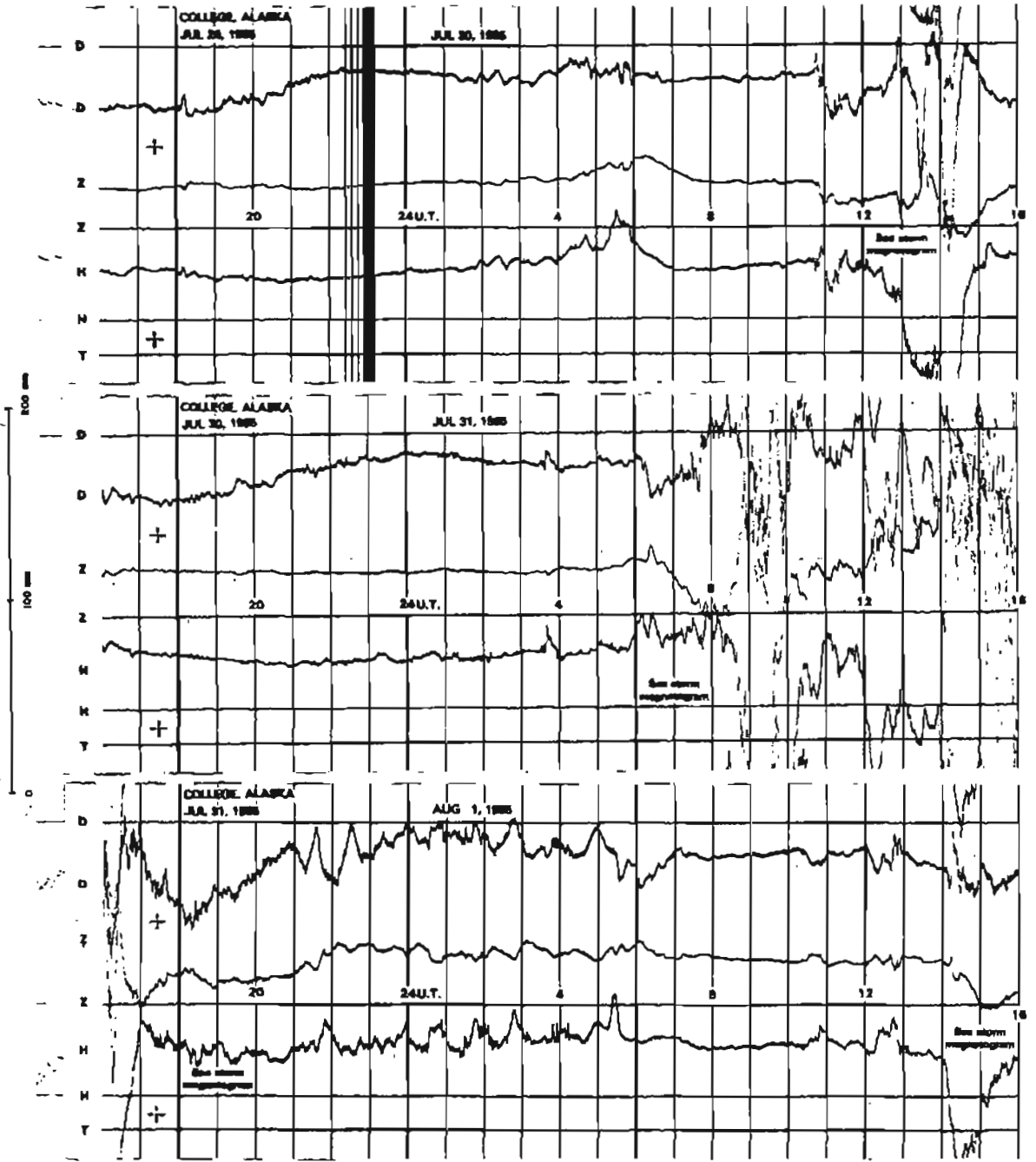
NORMAL MAGNETOGRAMS



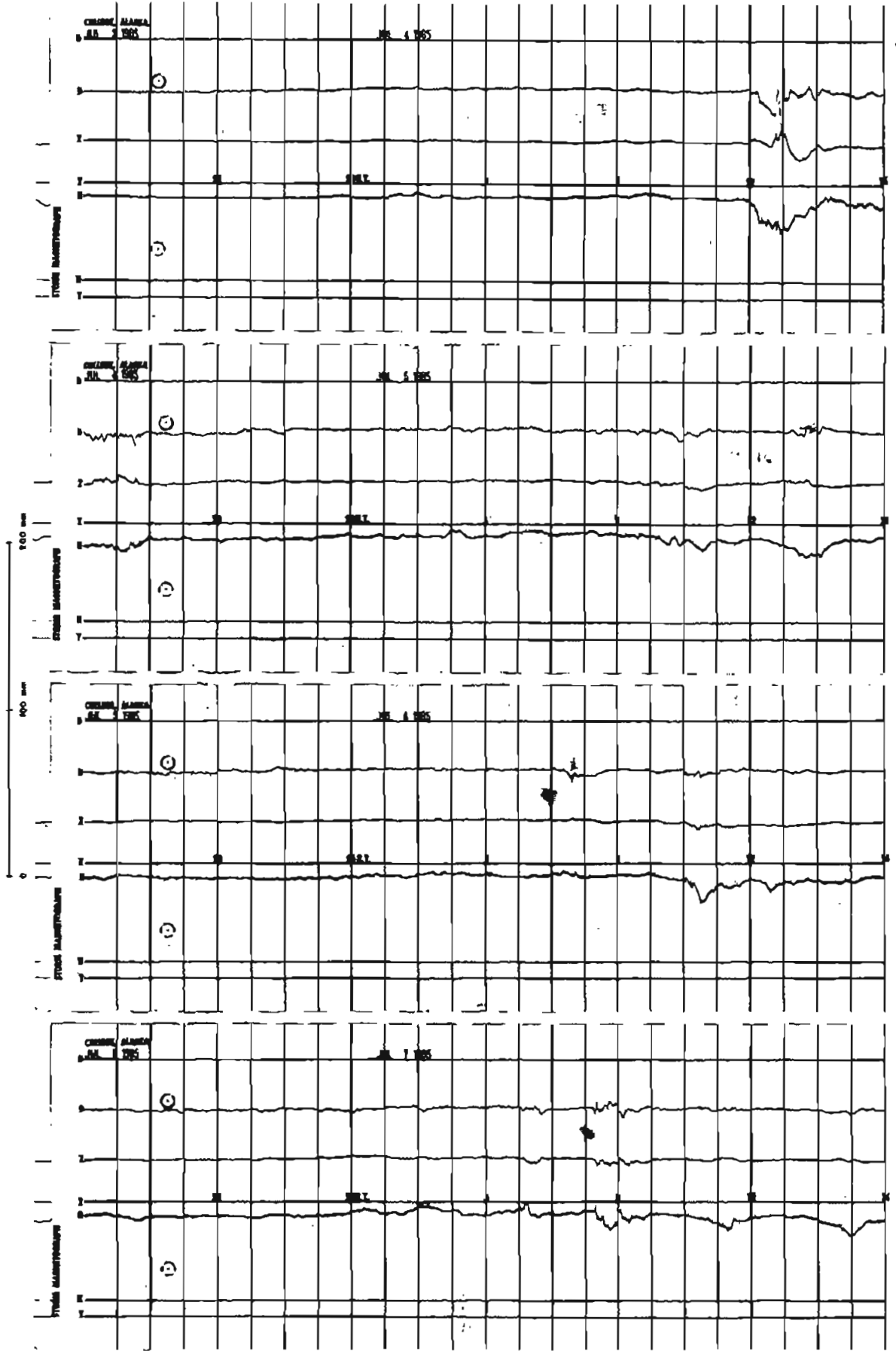
NORMAL MAGNETOGRAMS



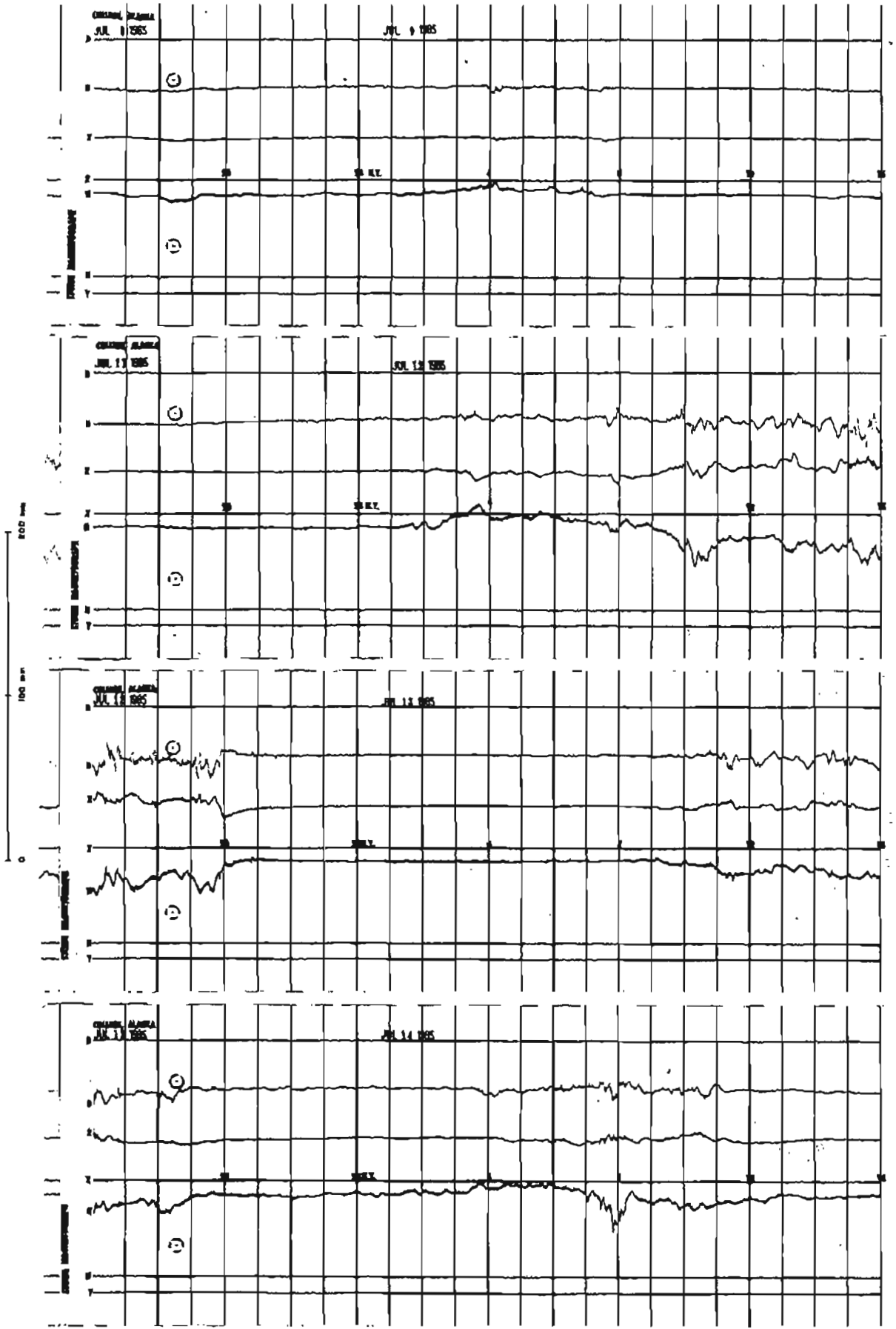
NORMAL MAGNETOGRAMS



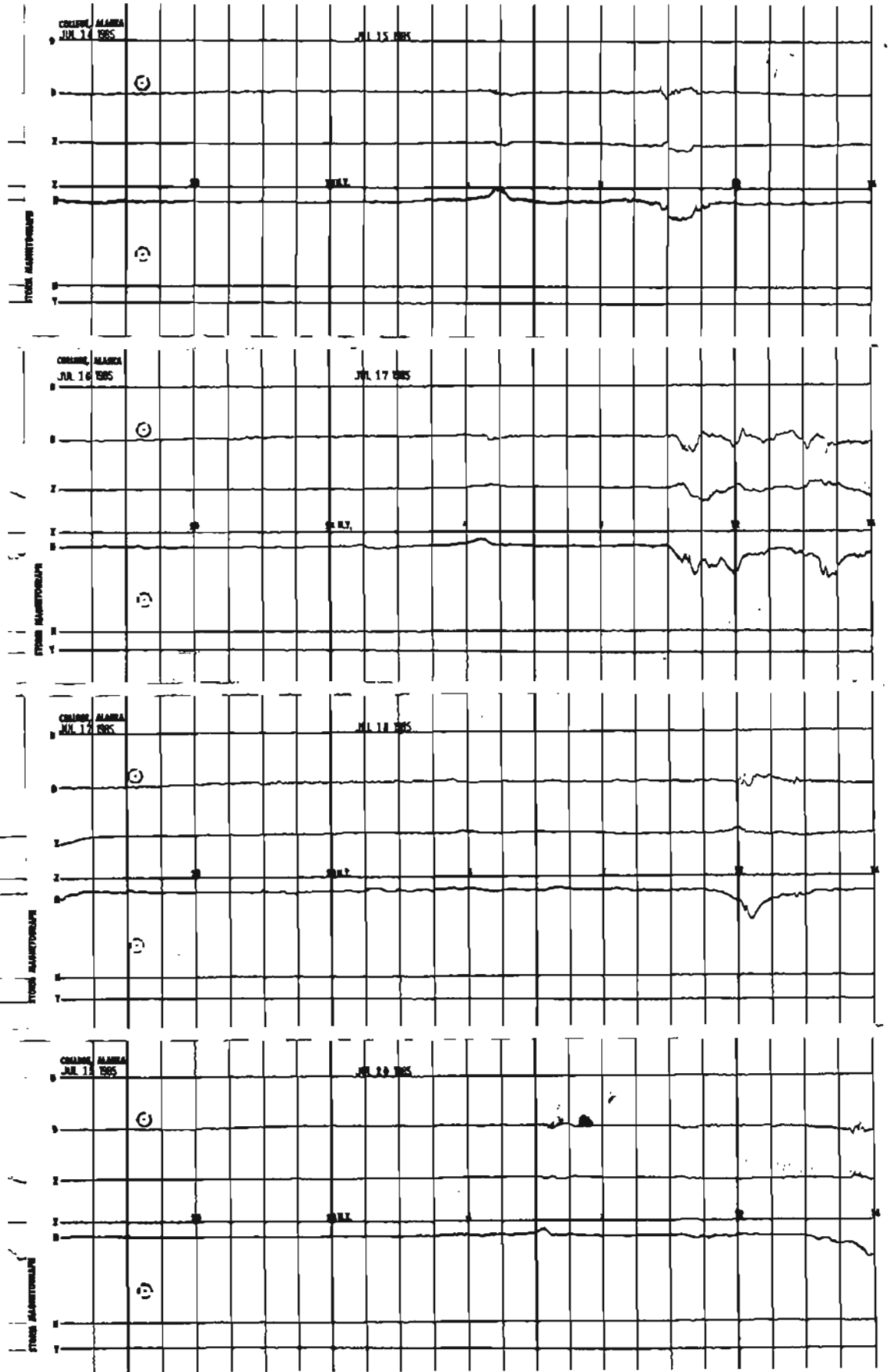
STORM MAGNETOGRAMS



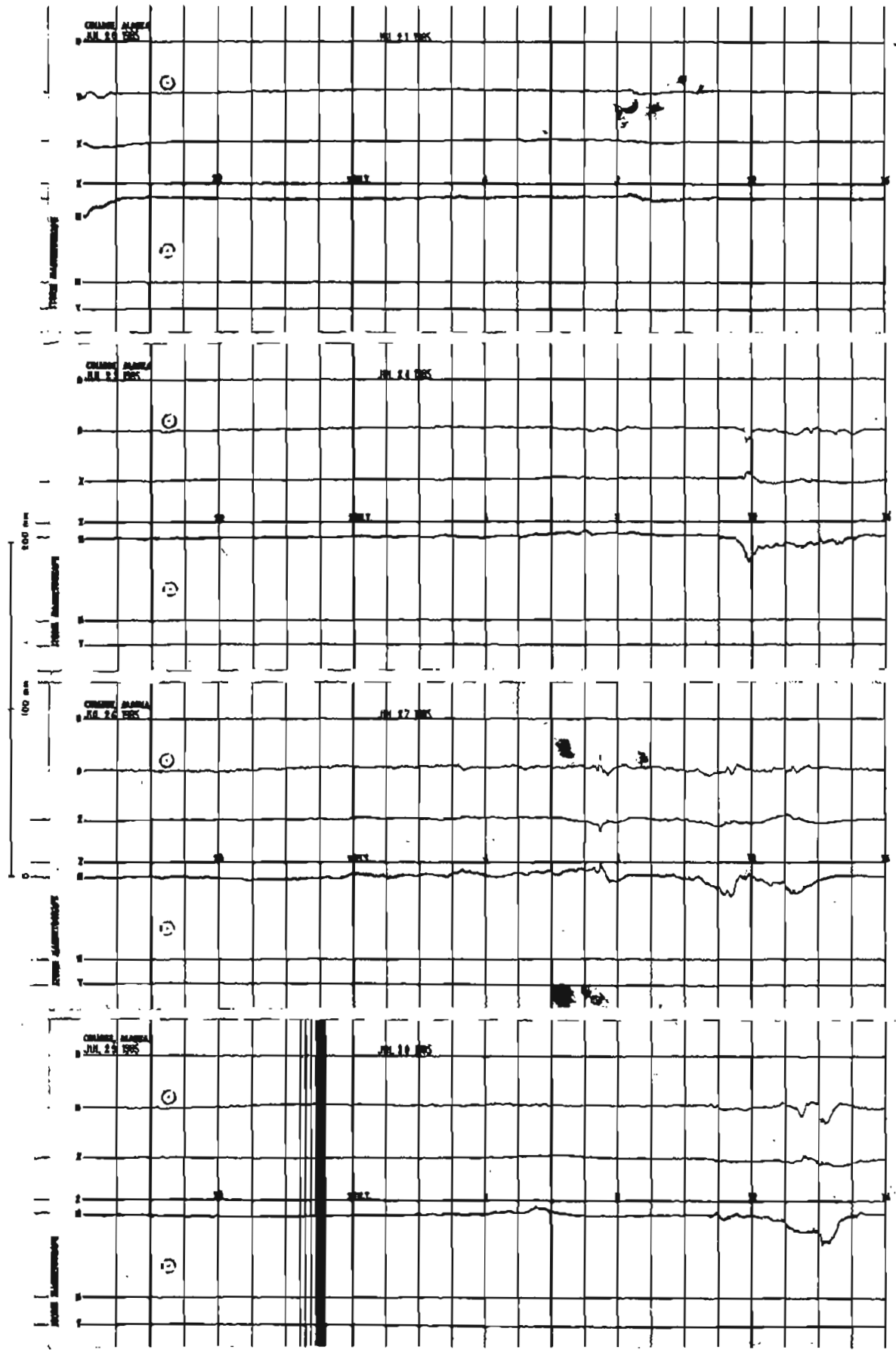
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS

