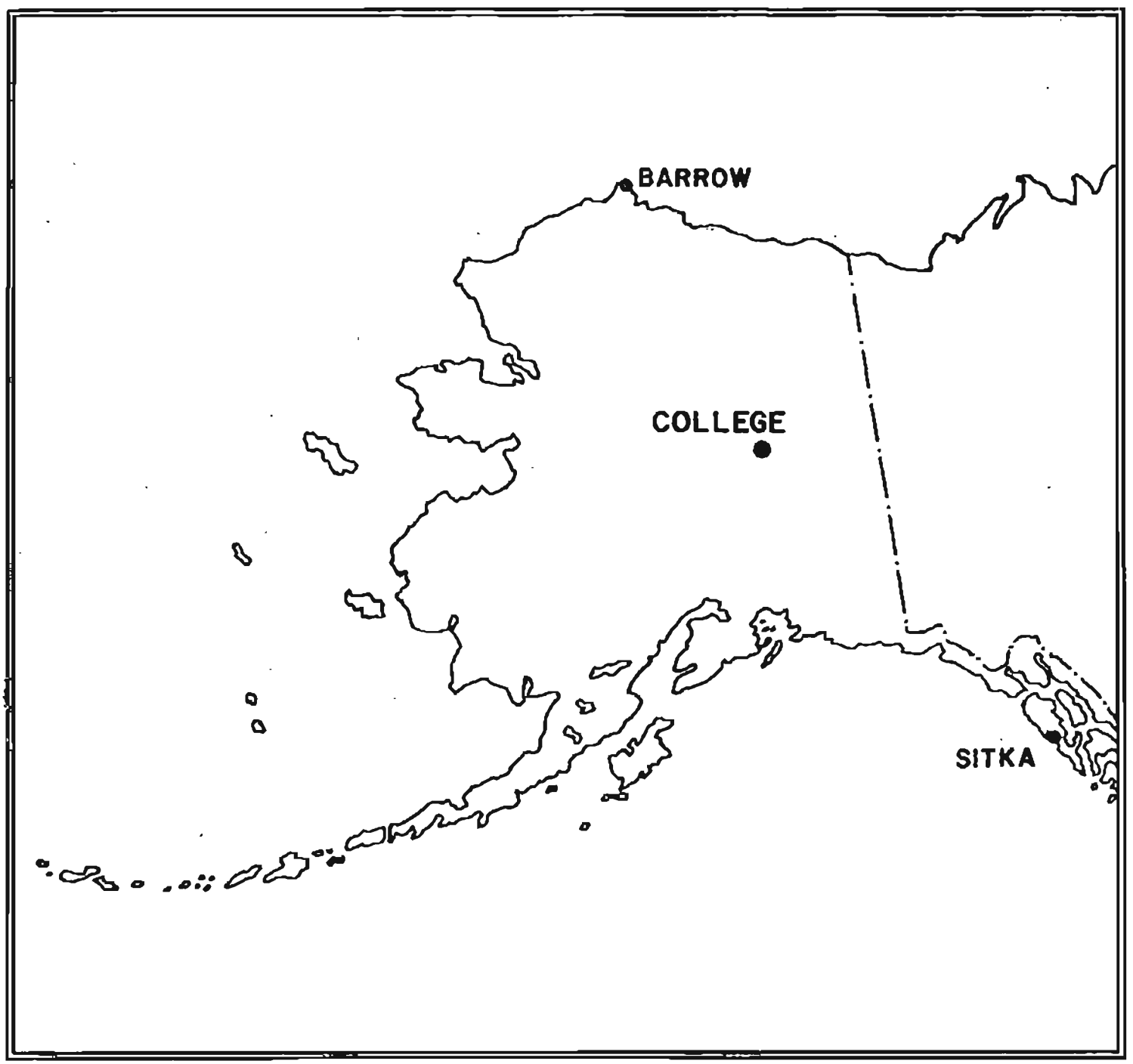
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

DECEMBER 1984

OPEN FILE REPORT 84-0300L



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.

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°51.6'N
Geographic longitude.....147°50.2'W
Geomagnetic latitude.....+64.6°
Geomagnetic longitude.....+256.5°
Elevation.....200 meters

GEOMAGNETIC DATA

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

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≈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:

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

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

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR: DECEMBER 1984

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	3	4	3	5	4	1	2	2	24	19
2	3	4	5	4	4	5	4	2	31	28
3	3	3	4	5	5	6	4	3	33	34
4	3	2	5	6	4	6	3	4	33	37
5	3	3	5	6	4	4	3	3	31	30
6	3	4	3	5	6	5	3	3	32	33
7	3	3	2	4	5	5	3	2	27	23
8	2	2	1	4	2	1	0	0	12	07
9	1	0	0	2	0	1	1	1	06	02
10	1	1	1	3	5	2	2	1	16	11
11	0	1	0	4	6	5	3	5	24	28
12	4	3	2	5	4	2	1	1	22	17
13	3	4	4	6	6	4	3	3	33	36
14	0	1	1	4	5	5	1	2	19	17
15	2	1	4	5	6	3	3	4	28	28
16	3	4	5	6	5	5	5	5	38	45
17	4	3	6	6	6	6	5	3	39	53
18	3	3	4	5	5	4	2	2	28	24
19	1	1	3	4	5	1	1	1	17	13
20	0	1	0	1	2	3	1	0	08	04
21	0	1	2	4	5	2	2	2	18	13
22	2	1	1	3	2	3	2	2	16	08
23	2	2	2	6	4	3	1	1	21	19
24	0	0	1	2	1	1	0	0	05	02
25	1	2	4	2	0	0	0	0	09	06
26	1	4	5	7	5	5	4	4	35	46
27	2	0	0	2	6	4	3	4	21	20
28	4	2	5	5	5	6	3	4	34	38
29	3	3	2	6	4	4	4	3	29	27
30	3	3	4	6	6	3	4	3	32	34
31	3	2	2	6	6	5	4	3	31	35

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	h	m	END d	h	m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	675.7	322.2		(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. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

NOAA FORM 76-139 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: DECEMBER

YEAR: 1984

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
13	0100	ssc*	
19	17xx	pc3,pc4,pc5	Mixed
20	14xx	pi 2	
22	2119	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.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA
DECEMBER 1984

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80303 U.S.A.

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	13	0100	s.c.*	+7	+106	+14	13	4, 5	6	86	950	420	13	22
		15	18XX	..	..	..	..	16	4	6	239	1290	760	19	00
								17	3, 4, 5, 6	6					
		26	02XX	..	..	..	..	26	4	7	190	1400	610	27	02

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: DECEMBER 1984

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 12-1-84	2400 U.T. 12-31-84	1.6'/mm	3.7 γ/mm	27° 16.8' E
H	0000 U.T. 12-1-84	2400 U.T. 12-31-84	7.8 γ/mm		12667 γ
Z	0000 U.T. 12-1-84	2400 U.T. 12-11-84	7.6 γ/mm		55181 γ
	0000 U.T. 12-12-84	2400 U.T. 12-31-84	"		55186 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 12-1-84	2400 U.T. 12-31-84	7.9'/mm	29.6 γ/mm	23° 44.0' E
H	0000 U.T. 12-1-84	2400 U.T. 12-31-84	43.9 γ/mm		10779 γ
Z	0000 U.T. 12-1-84	2400 U.T. 12-31-84	48.3 γ/mm		54078 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 42.6' E	12909 γ	55354 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: DEC 8, 9, 10, 12, 19, 20, 21, 22, 24, 25

Form C&GS-0866

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
Denver, CO 80225

OBSV.	YEAR	MONTH	ELEMENT
CO	84	DEC	D

Values are in tenths of gam, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (335W M.T.) is hour 09 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Tes Q	Yr \ Mo	01	02	03	04	05	06	07	08	09	10	11	12	D/Hr	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	223	251	275	269	226	491	326	215	248	268	179	162	01	227	242	261	260	272	277	280	279	268	249	256	231	6235
			02	239	210	235	204	221	235	329	292	310	262	220	208	02	278	252	320	381	319	281	266	200	165	219	210	219	6072
			03	221	232	250	268	291	357	254	243	446	152	138	128	03	287	323	395	482	236	351	284	229	213	189	198	211	6327
			04	219	210	232	260	261	235	235	607*	230	238	107*	35*	04	281	277	340	528*	213	298	278	247	219	216	165	152	6078
			05	180	204	233	260	259	262	267	268	155*	115*	263	201	05	296	319	253	292	374	377	319	249	234	212	182	203	5977
			06	241	258	261	266	263	340	329	317	250	322	183	230	06	272	361	393*	275	345	291	309	279	221	193	178	196	6573
			07	201	219	226	265	232	254	261	261	265	363	349	202	07	304	311	256	247	291	380	293	233	219	234	221	214	6301
			08	213	235	246	263	248	310	263	271	278	268	230	187	08	238	257	269	277	283	278	283	273	251	233	229	233	6116
			09	216	227	229	251	270	275	268	277	273	262	243	259	09	261	263	270	287	307	329	341	303	253	243	227	219	6353
			10	220	229	267	270	277	343	270	267	273	262	212	237	10	203	283	310	276	297	303	273	267	230	219	213	223	6224
			11	240	252	263	251	258	263	260	263	255	257	282	251	11	353	204	524	387	383	304	273	221	237	101	33	150	6265
			12	149	273	199	252	293	275	273	294	258	267*	328	291	12	200	248	297	269	281	291	283	272	253	231	223	221	6216
			13	237	249	247	280	235	248	237	280	340	455	181	240*	13	153*	327	280	349	283	303	286	248	201	177	184	210	6230
			14	231	252	267	273	277	281	287	261	263	240	153	255	14	305	437	300	284	205	303	324	291	249	177	177	187	6278
			15	263	307	290	287	303	293	285	280	407*	243	283	180	15	286	312*	318	218	237	300	293	267	255	0	146	161	6209
			16	193	247	240	233	300	343	373	346	343	343*	277	163	16	383*	260	395	299	283	273	243	163	96	223	213	228	6460
			17	234	273	283	254	263	360	277	300	257*	-54*	294	282	17	177*	438*	327*	574*	538	245*	283	213	200	210	227	207	6662
			18	231	240	263	270	265	300	288	258	214	251	293	273	18	243	200	260	251	299	246	209	246	257	236	240	235	6068
			19	244	250	260	266	273	269	268	300	298	248	265	219	19	364	220	291	301	281	310	293	267	260	260	250	240	6487
			20	251	262	260	250	258	273	270	258	267	265	251	242	20	263	258	283	247	261	294	294	269	250	229	228	239	6222
			21	246	256	256	259	257	268	262	251	287	232	259	316	21	359	367	321	319	356	341	312	287	199	220	206	178	6614
			22	217	245	272	280	271	269	264	251	256	310	280	238	22	246	275	309	319	330	286	263	288	246	150	150	165	6180
			23	207	245	241	257	250	285	271	250	249	243	94*	253*	23	299	242	295	341	337	289	289	257	221	152	187	223	5977
			24	242	255	260	263	272	270	263	261	267	255	247	245	24	252	266	283	308	295	288	276	273	260	257	250	247	6355
			25	253	236	232	217	215	207	233	173	273	240	257	266	25	267	269	268	273	277	277	276	270	259	247	250	239	5974
			26	235	240	227	252	207	179	221	263	203	253	141	411*	26	205*	395*	292	293	377	491*	250	271	200	97	107	175	5985
			27	203	242	241	243	260	256	257	253	258	250	253	281	27	308*	633*	323*	390	282	317	303	310	232	178	213	172	6658
			28	121	200	201	217	243	262	243	602*	207	168	213	232	28	191	313	311	475*	369	265	307	283	238	168	146	157	6132
			29	188	193	244	249	341	250	277	277	249	237	173*	157*	29	280	167	237	392	337	360	347	230	193	144	207	210	5939
			30	213	232	230	278	237	217	339*	317	230	109*	67	291	30	290	313	253	274	306	377	273	260	257	208	195	80	5846
			31	183	229	240	269	216	229	253	251	260	227	149*	419*	31	400	475*	378*	547	301	390	291	204	213	203	200	223	6750

SCALED BY	JEP, LYT
CHECKED BY	ERS, JEP
SIGNS REVISED 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 all absent 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 Magn., converted to Normal Magn.

MONTHLY SUM	193,763
MONTHLY MEAN	260
DATES WITH GAPS	

Form CAGL-806

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. Department of Interior
Geological Survey, Geologic Division
Denver Federal Center
Denver, CO 80225

Values are in units of nT, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (105W M.T.) is hour 07 of the same universal day.
Onlinage corrections have been applied. Negative values are in red, with minus signs above.

OBSV.	YEAR	MONTH	ELEMENT
CO	84	DEC	Z

C	Q=5	Typ Q	Hr. Dy.	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Dy.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	241	247	255	249	255	326	193	245	266	242	149	162	01	175	195	224	233	231	235	235	229	228	224	230	244	5513
			02	281	283	342	313	310	199*	179*	258	150	199	176	236	02	264	170	193	219	206	170	174	165	188	190	237	260	5362
			03	270	299	270	275	290	269	256	239	41	134	170	170	03	210	227	217	97	129	134	130	124	140	243	241	240	4815
			04	256	261	269	266	256	260	277	134*	70*	261	185*	34	04	62	208	279	275*	195	170	140	210	210	209	230	244	4956
			05	293	298	300	294	257	263	260	253	95*	158	185	187	05	267	198	162	210	201	149	147	178	183	211	202	241	5182
			06	261	274	258	246	248	280	257	290	260	115*	-38*	181	06	211	234	179*	129	143	220	211	219	210	232	231	260	5111
			07	270	280	300	281	291	300	281	243	241	233	-48	70	07	201	234	160	117	219	202	173	158	170	213	224	234	5047
			08	237	252	257	259	284	292	260	257	253	221	200	148	08	233	246	247	242	243	244	240	227	226	229	236	243	5776
			09	245	248	253	252	249	247	244	243	235	234	221	238	09	237	238	236	233	217	190	178	186	193	213	217	228	5475
			10	233	237	237	241	247	305	256	253	252	247	162	191	10	166	97	197	214	223	216	206	207	203	214	225	233	5262
			11	239	238	236	240	253	264	242	227	219	227	196	186	11	199	223	73	49	134	173	110	125	203	181	263	292	4752
			12	310	307	287	333	276	254	262	241	233	315	112	187	12	214	198	223	214	227	235	222	217	223	226	231	240	5787
			13	249	256	273	303	333	297	270	246	166	-73*	23	215	13	183	117	183	213	190	225	214	197	193	207	201	223	4934
			14	247	251	252	247	244	246	239	232	228	144	77	77	14	8	-25	60	63	87	160	193	197	201	197	220	233	4078
			15	263	269	273	268	253	236	235	216	158*	-7	63	-13	15	16	-110	-47	96	153	208	213	207	234	203	210	253	3850
			16	296	312	270	307	333	338	260	229	253	132*	130	163	16	132*	167	197	200	212	246	170	147	184	204	288	286	5456
			17	290	283	273	262	299	304	312	267	221	119*	204	226	17	203	-125*	-150	23*	174	126	187	212	213	226	252	256	4657
			18	254	273	272	279	277	284	280	212	194	154	166	267	18	233	33	153	197	199	187	189	203	230	233	233	243	5245
			19	250	247	247	250	253	244	241	258	216	177	173	135	19	75	70	178	209	215	224	217	229	237	233	232	236	5046
			20	236	243	246	245	247	243	239	233	238	241	233	226	20	225	226	207	150	169	193	206	204	211	220	233	237	5351
			21	236	237	237	236	240	243	237	245	263	234	218	86	21	73	77	131	239	217	198	187	179	180	208	207	236	4844
			22	252	242	243	243	241	241	241	245	258	240	193	185	22	248	247	241	212	187	183	190	186	177	176	170	197	5238
			23	228	239	260	264	282	311	315	243	249	247	175	248*	23	133	109	129	197	201	210	216	212	216	213	241	247	5385
			24	241	249	248	246	247	240	234	233	239	215	198	218	24	215	218	219	218	223	219	220	220	213	217	217	219	5420
			25	230	231	229	237	250	269	317	276	304	278	249	240	25	228	226	223	223	221	220	219	217	213	217	220	221	5758
			26	217	219	227	247	288	293	332	287	119	56*	148	381*	26	259	395*	203	217	224	196*	153	194	127	136	134	210	5262
			27	239	247	248	247	243	240	233	230	230	229	237	252	27	167	164*	189*	184	209	237	234	216	191	177	224	274	5341
			28	319	316	269	288	300	274	258	56*	11*	183*	212	124	28	243	223	216	305*	184	107	137	160	182	261	263	243	5134
			29	264	263	253	274	312	257	260	273	241	269	-21*	24*	29	187	183	235	203	211	225	183	160	168	180	222	257	5083
			30	254	250	263	287	268	250	203*	200	137	146*	52	107	30	147	193	246	244	225	293	179	188	193	210	216	233	4984
			31	289	287	284	267	263	323	287	293	264	192	213	241*	31	97	298*	-13	-93	97	177	156	163	203	246	260	266	5060

SCALED BY	JEP, LYT
CHECKED BY	EAS, JEP
SIGNS REVIEWED BY	JEP
PUNCHED BY	

Preliminary baseline and scale values:

Interval Beginning	Baseline 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	159,164
MONTHLY MEAN	214
DATES WITH GAPS:	

Form C&GS-684a

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

U.S. DEPARTMENT OF INTERIOR
Geological Survey, Geologic Division
Denver Federal Center
DENVER, CO 80225

OBSY.	YEAR	MONTH	ELEMENT
CO	84	DEC	H

C	Q or S	Tes Q	Hr Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr Dy	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	309	311	337	321	360	331	371	327	331	307	-28	-66	01	121	252	319	320	311	311	311	310	317	314	298	281	6676
			02	282	309	394	516	452	572*	542*	446	329	379	366	200	02	236	133	179	174	155	180	224	214	280	317	307	289	7495
			03	323	382	347	384	355	347	339	311	168	268	279	305	03	319	204	-135	-61*	275	201	252	189	237	370	310	321	6290
			04	332	333	322	341	337	352	390	342*	438*	397*	23	125	04	204	354	177	-156*	199	144	330	300	282	294	232	246	6338
			05	357	354	361	391	346	339	331	329	298*	147*	275	302	05	190	90	192	290	250	202	280	298	289	286	290	304	6801
			06	323	368	350	344	334	376	381	361	311	342*	259*	394	06	318	133	-83*	207	297	340	311	299	302	312	271	302	7152
			07	334	304	397	400	381	350	333	308	312	355	329	274	07	295	195	0	200	321	275	252	268	300	313	311	314	7121
			08	310	317	323	330	340	350	327	318	311	310	288	240	08	331	311	307	305	310	303	302	303	306	308	306	307	7463
			09	293	310	323	324	329	328	323	320	315	317	317	307	09	315	312	313	300	289	293	319	320	303	307	303	313	7493
			10	330	331	334	323	320	327	338	319	321	323	270	303	10	35	247	323	319	310	309	311	310	311	321	328	323	7286
			11	325	327	330	333	314	310	320	320	317	300	247	305	11	113	-368	-177	250	311	277	257	313	260	210	340	336	5870
			12	566	359	376	434	323	330	317	322	300	90	170	190	12	187	237	261	280	320	317	311	309	310	311	309	314	7233
			13	327	358	357	390	449	347	377	410	380	324*	303	167*	13	-101*	90	348	200	306	369	331	309	290	313	303	316	7263
			14	317	312	313	323	330	313	311	313	312	180	92	187	14	70	59	34	19	207	314	347	330	317	280	299	307	5886
			15	321	350	363	363	359	336	330	305	157	138	125	17*	15	70	-146*	278	300	284	346	340	338	257	200	337	311	6079
			16	321	332	339	382	377	417	400	502	302	336*	80	-79*	16	-197*	90	60	220	320	309	197	337	226	283	327	378	6259
			17	360	334	340	340	407	373	397	359	134	28*	258	190	17	-51*	-595*	-331*	-23*	-185*	170	257	370	310	293	333	329	4397
			18	339	340	349	343	353	390	375	385	321	297	229	160	18	-145	145	302	250	210	200	315	337	338	320	317	310	6775
			19	312	313	329	339	323	320	318	305	311	317	263	190	19	-27	265	299	307	310	317	310	322	323	320	313	313	7012
			20	312	320	325	316	311	312	312	311	311	312	313	317	20	310	308	263	207	294	300	321	307	307	312	309	310	7320
			21	318	317	320	317	313	322	323	327	367	341	290	134	21	117	0	293	349	307	346	322	290	306	290	288	300	6897
			22	317	350	330	323	321	317	313	329	337	373	374	353	22	343	327	301	289	290	291	315	314	299	290	310	313	7719
			23	313	330	338	330	330	373	376	337	337	361	157*	-5*	23	129	229	279	295	280	292	336	305	271	258	293	300	6844
			24	309	313	316	313	317	320	319	318	311	313	315	310	24	302	309	307	314	321	313	315	314	319	318	317	323	7546
			25	325	327	337	327	336	360	380	502	422	341	315	310	25	309	307	309	309	310	308	310	315	317	317	317	320	8030
			26	321	327	321	303	383	569	483	382	292	236*	300	-252*	26	157*	18	178	310	209	9	335	283	191	253	309	315	6232
			27	303	330	330	326	320	321	327	322	313	311	313	271	27	-240*	-319*	-22*	219	400	319	320	279	245	297	298	349	5952
			28	457	321	330	353	319	342	367	382*	483*	471*	470	370	28	3	120	92	-10*	-190*	245	312	313	269	350	279	293	6761
			29	307	315	347	373	369	351	350	362	341	361	146*	236*	29	208*	327	312	191	276	256	259	254	296	267	305	313	7142
			30	343	347	330	370	363	375	400	348	353	84*	-20	130	30	0*	249	290	327	324	260	298	300	303	304	291	253	6622
			31	298	370	364	363	371	359	340	340	317	178	-179*	-291*	31	-89*	-404*	-246*	50	350	249	300	270	300	300	337	331	4578

SCALED BY	JEP, LYT
CHECKED BY	EAS, JEP
SIGNS REVIEWED BY	JEP
PUNCHED BY	

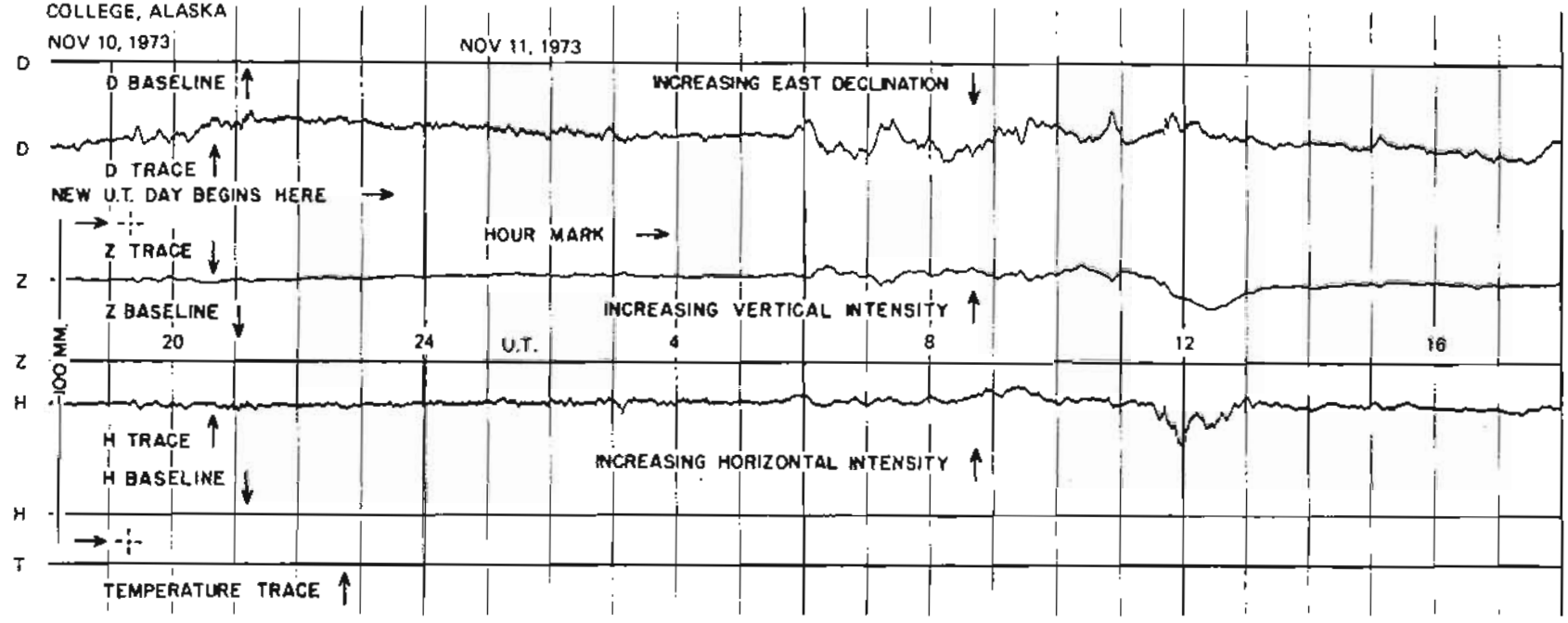
Preliminary base-line and scale values:

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 Mgnb., converted to Normal Mgnb.

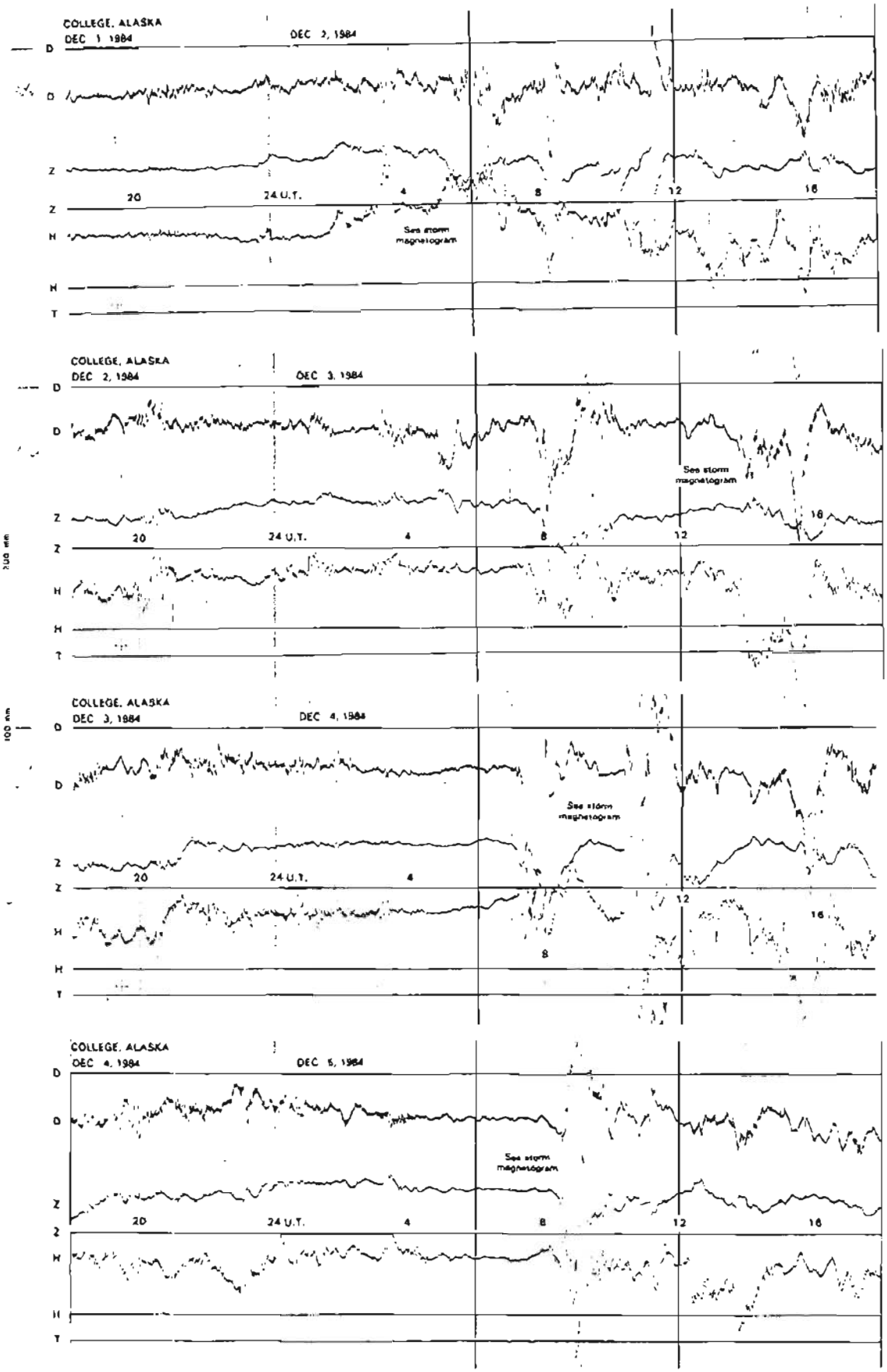
MONTHLY SUM	208,532
MONTHLY MEAN	280
DATES WITH GAPS	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

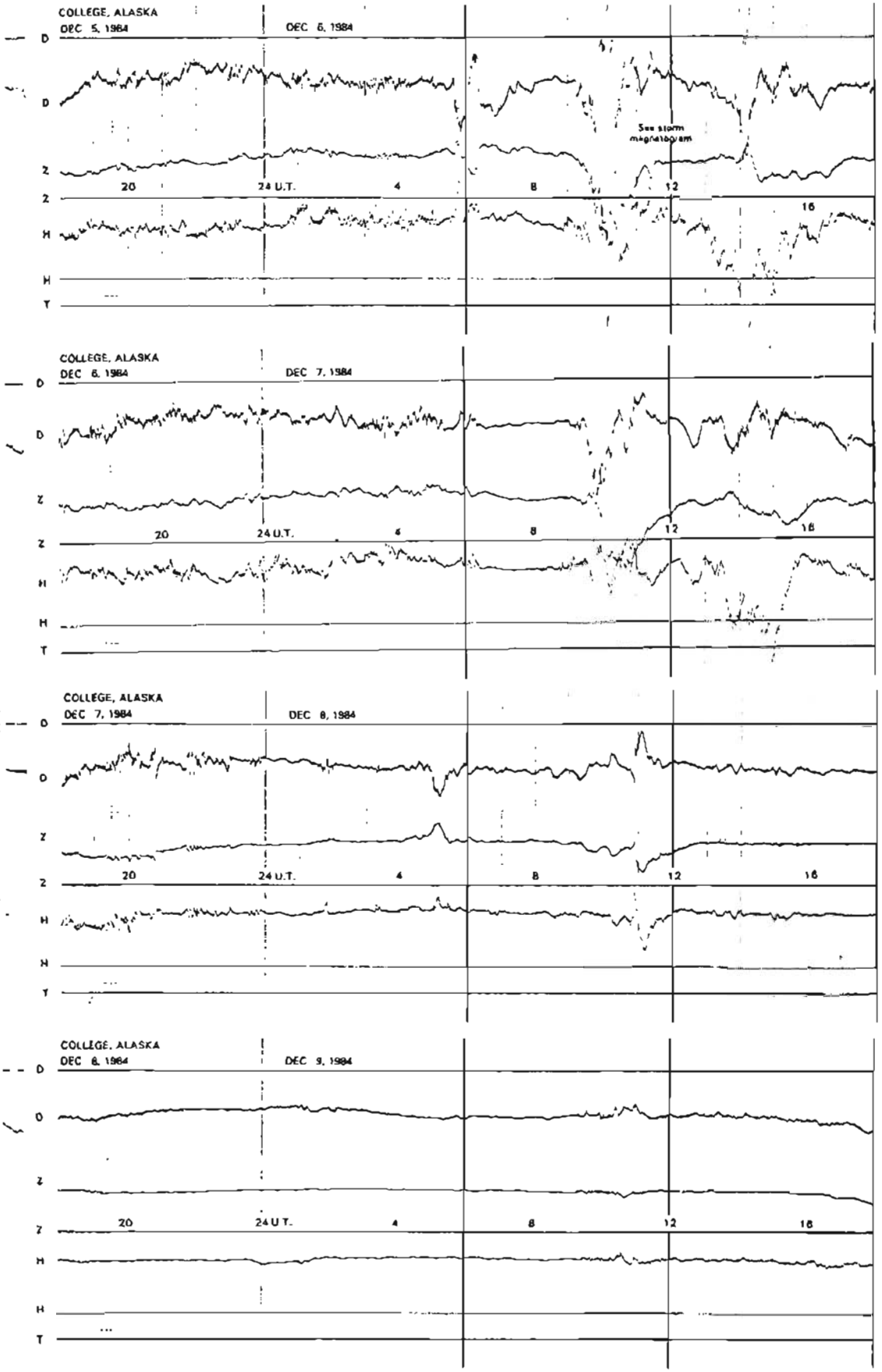


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

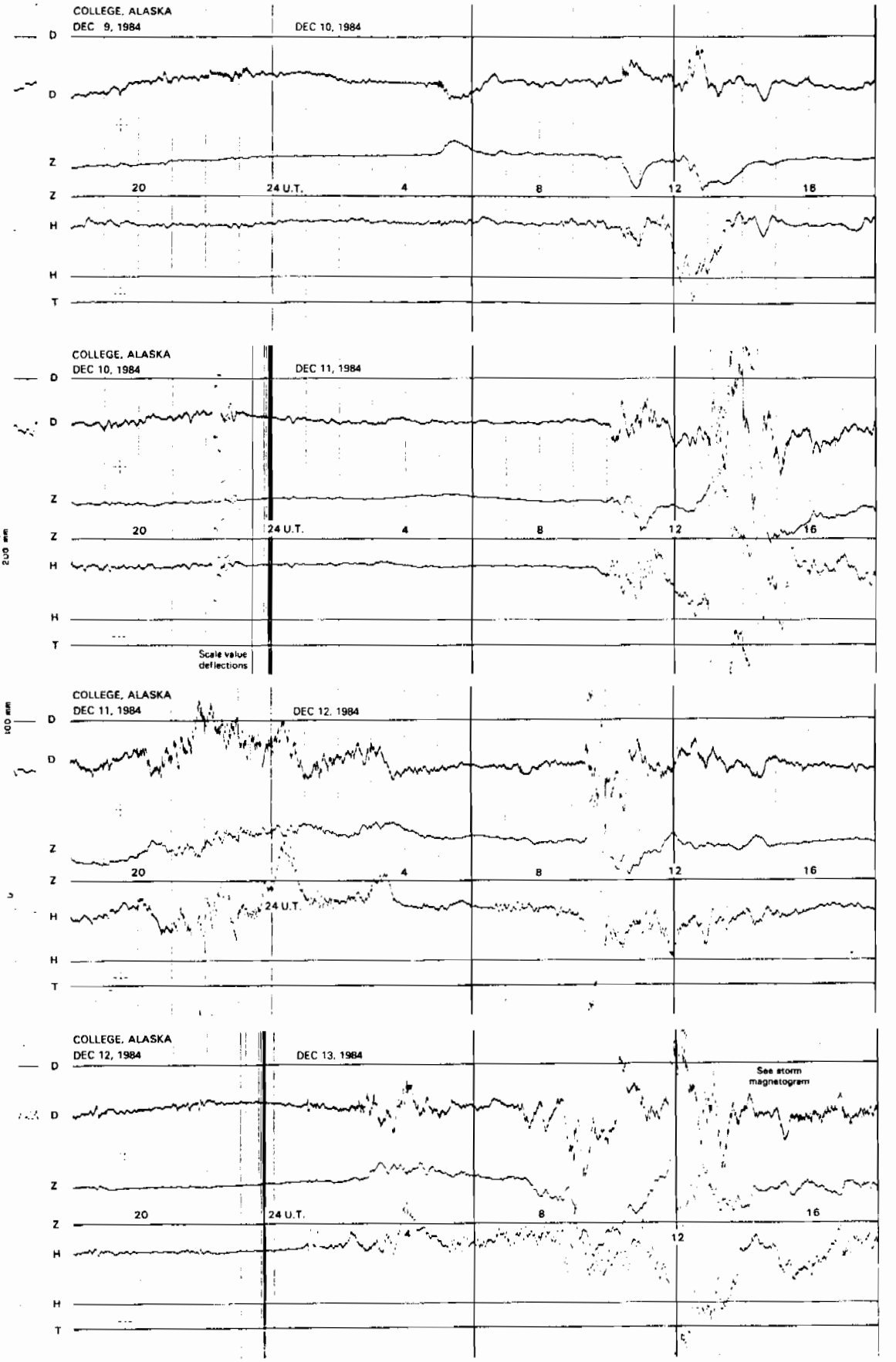
NORMAL MAGNETOGRAMS



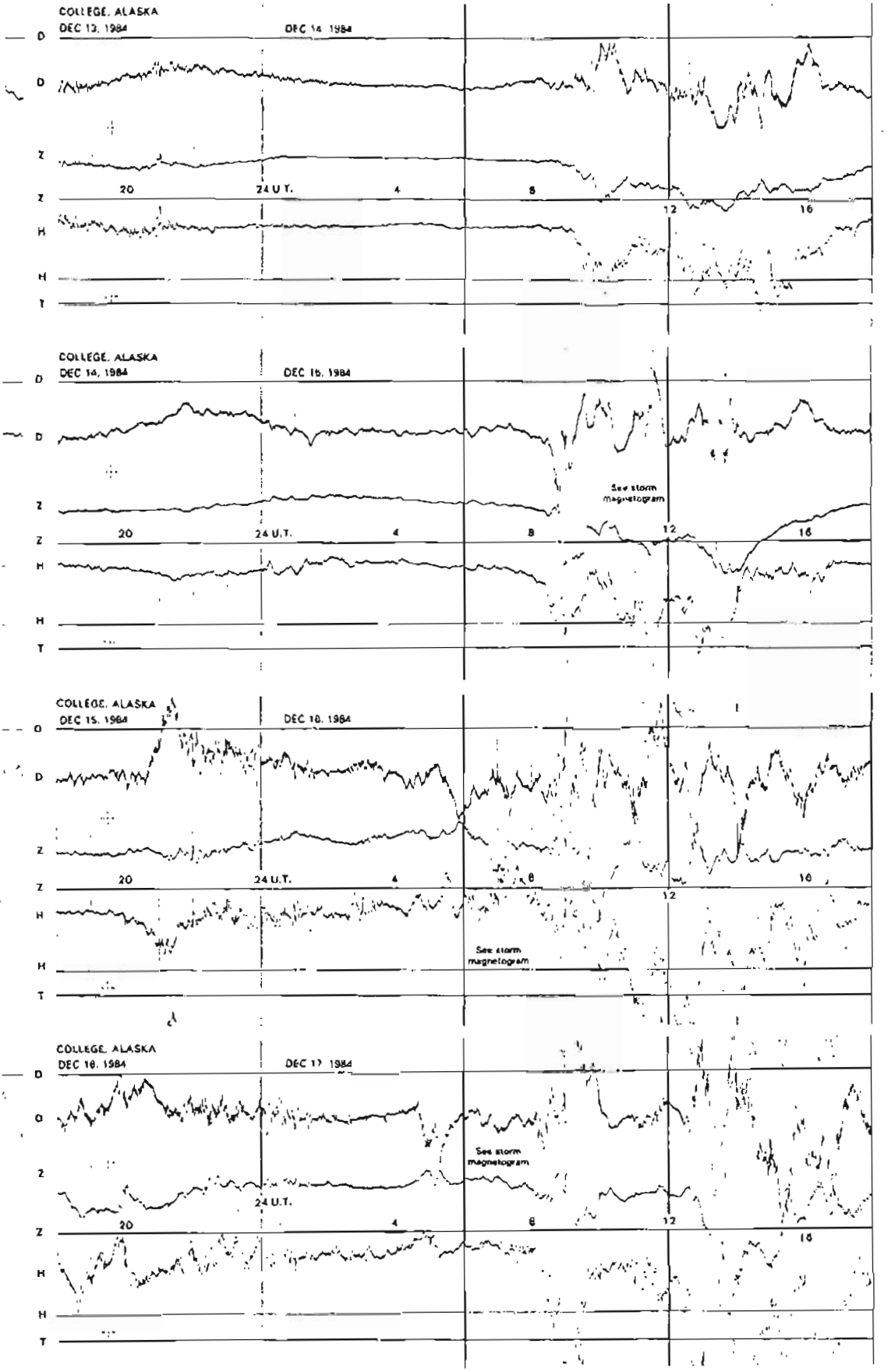
NORMAL MAGNETOGRAMS



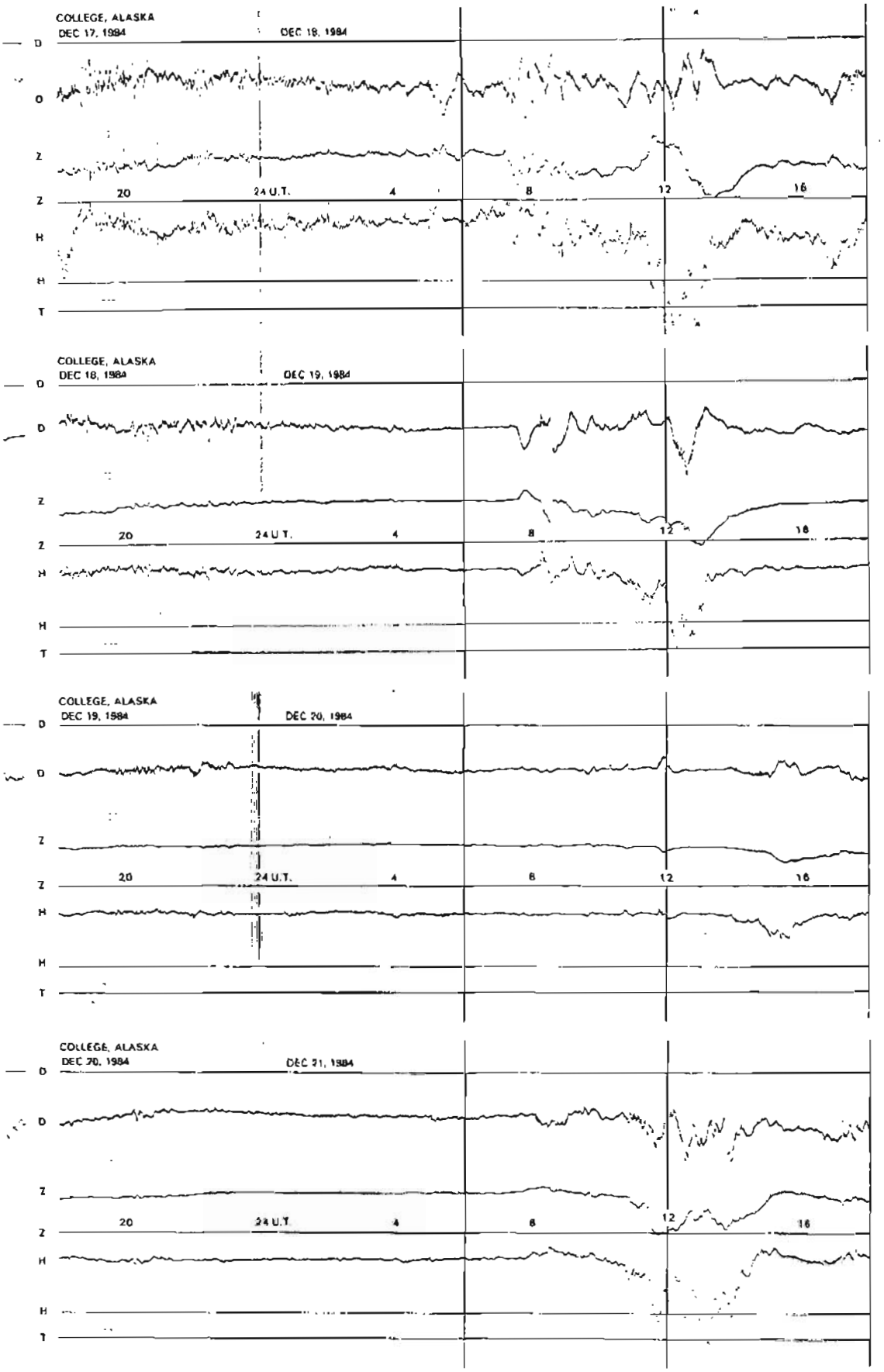
NORMAL MAGNETOGRAMS



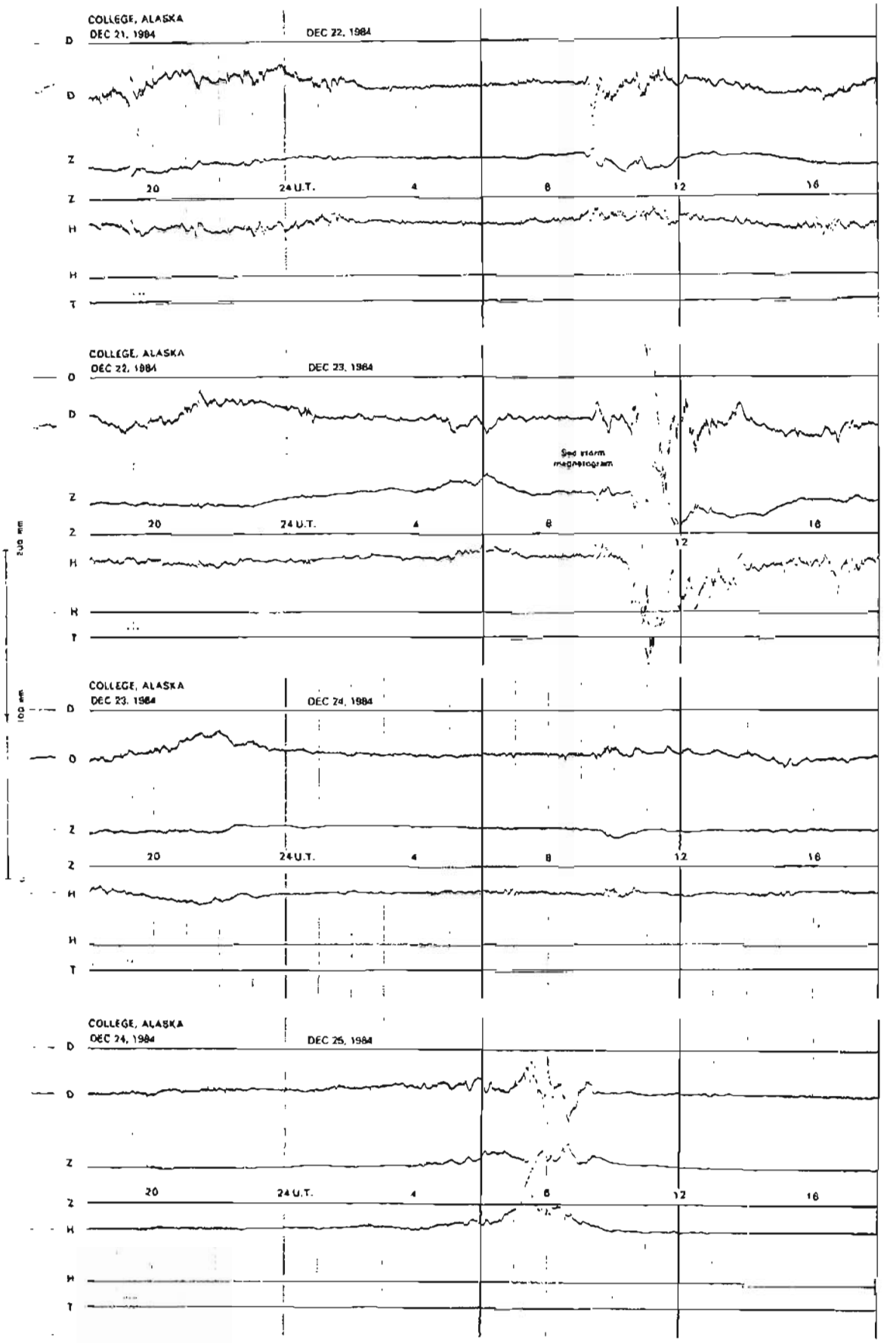
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



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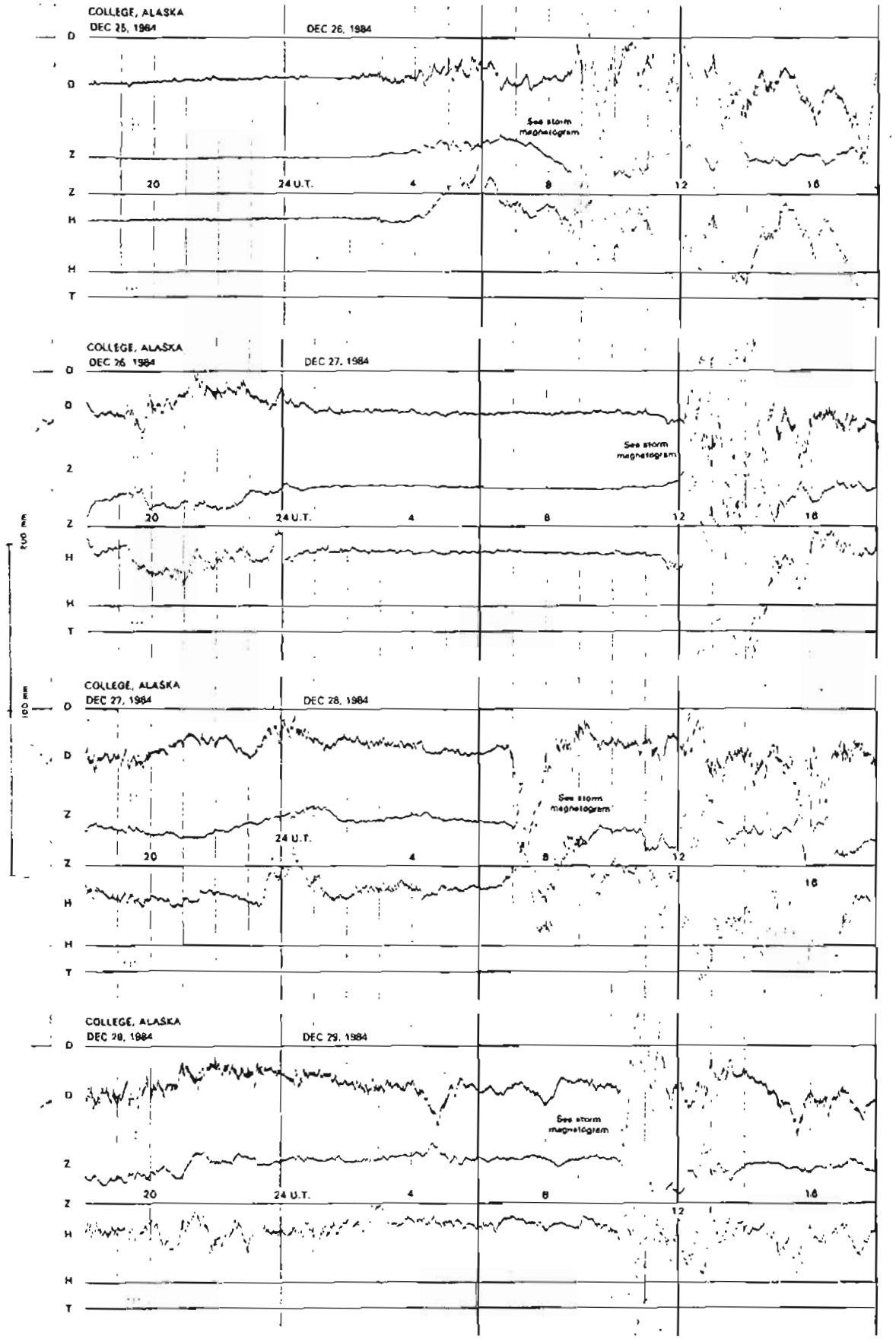
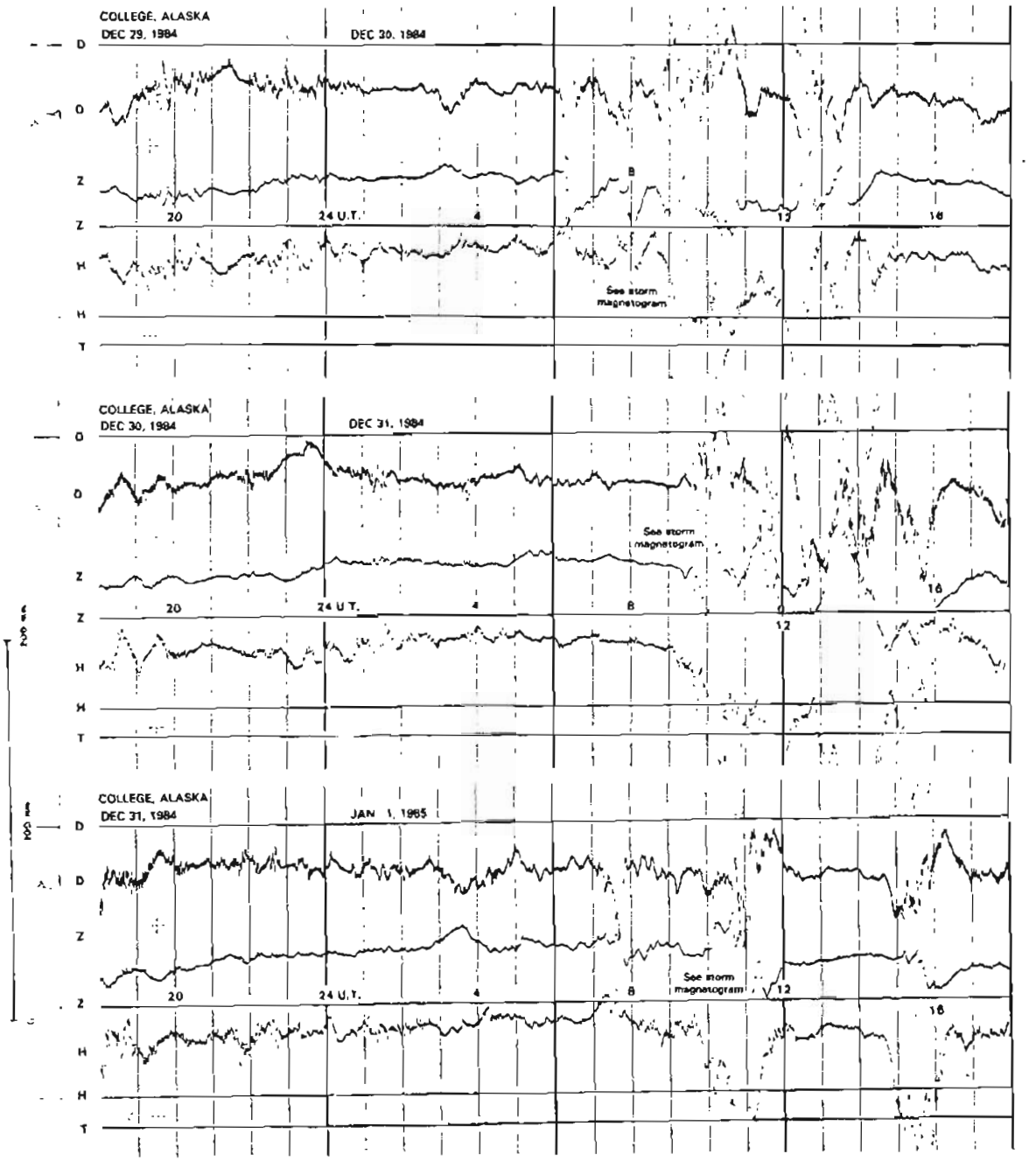
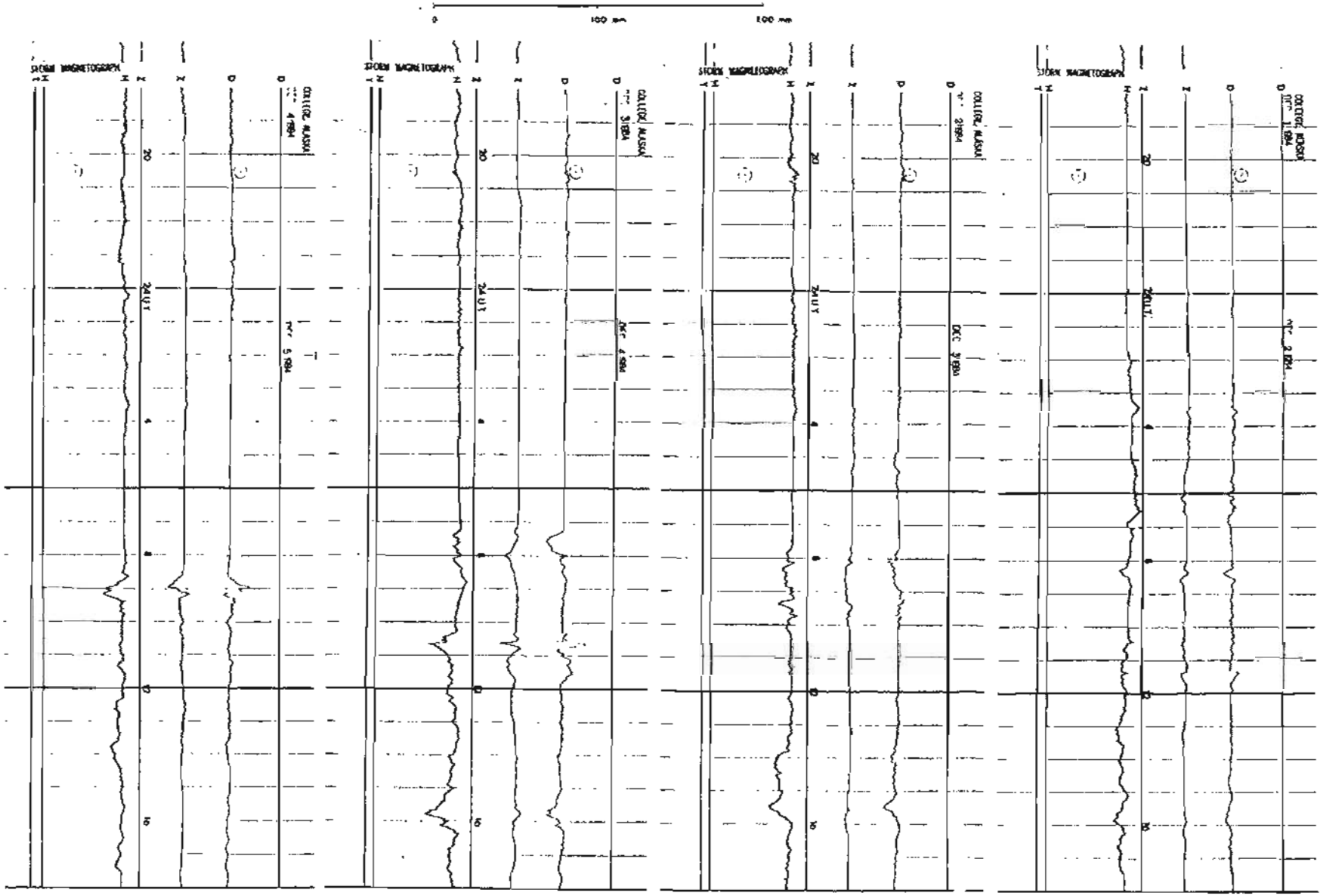


NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



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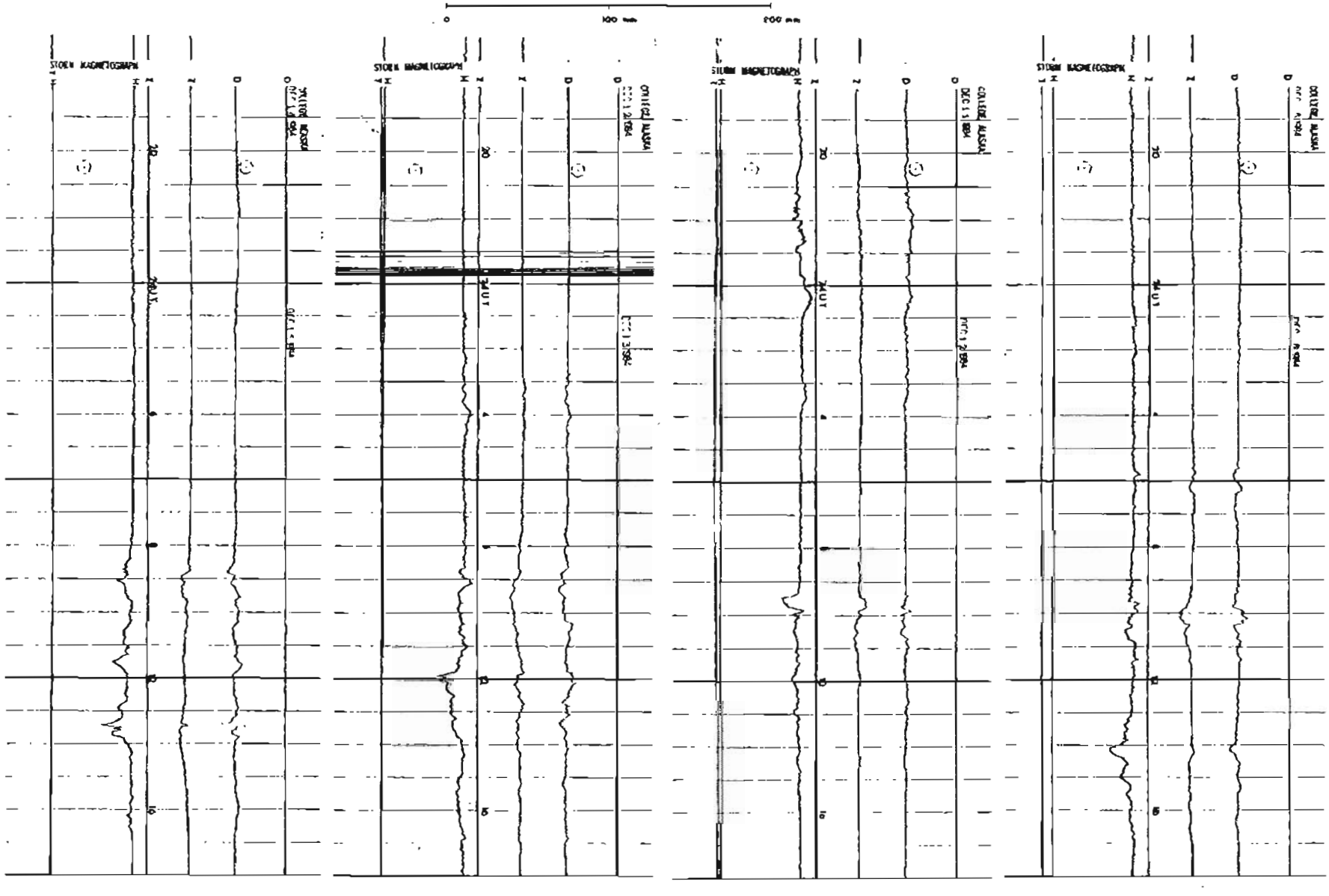
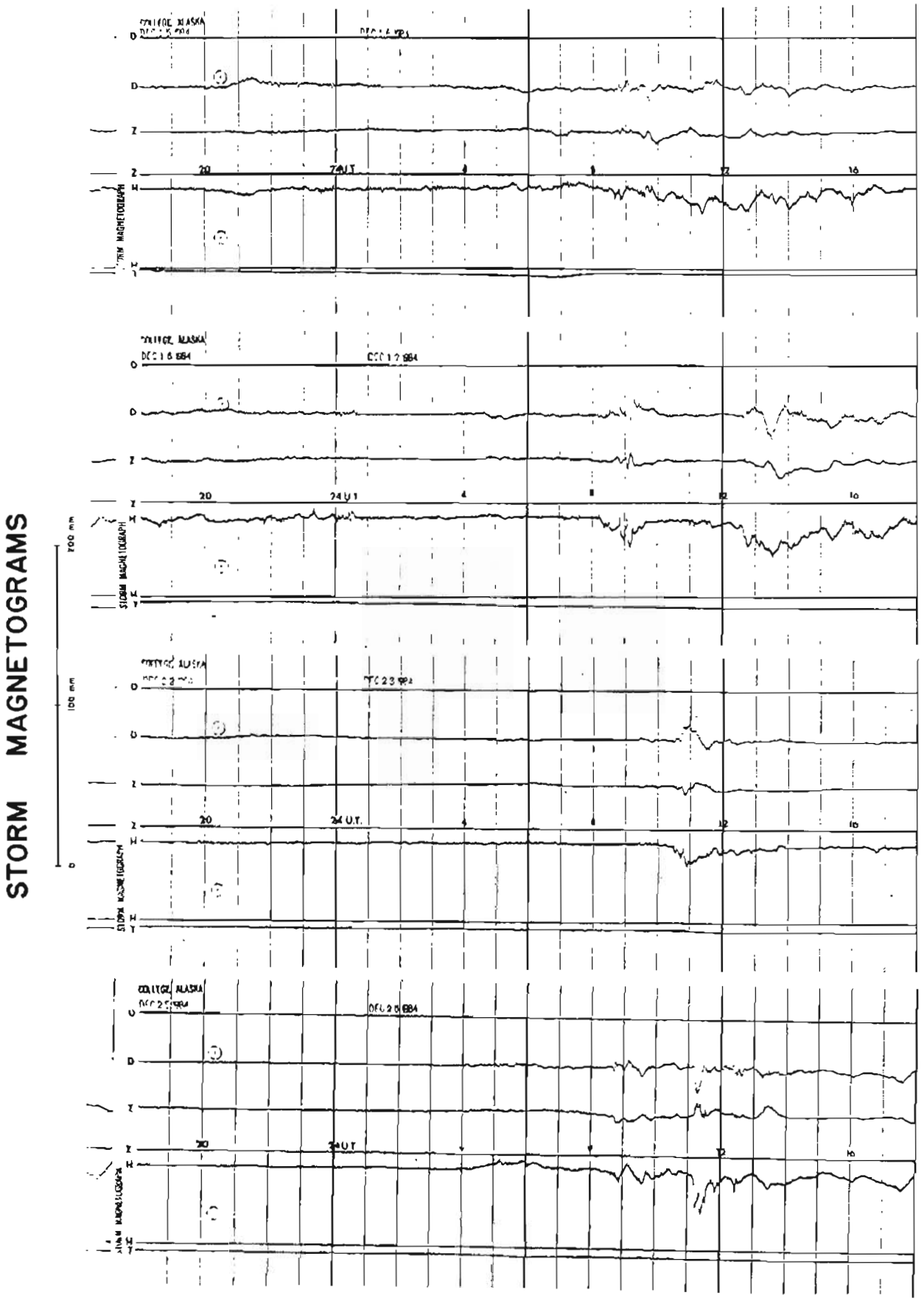
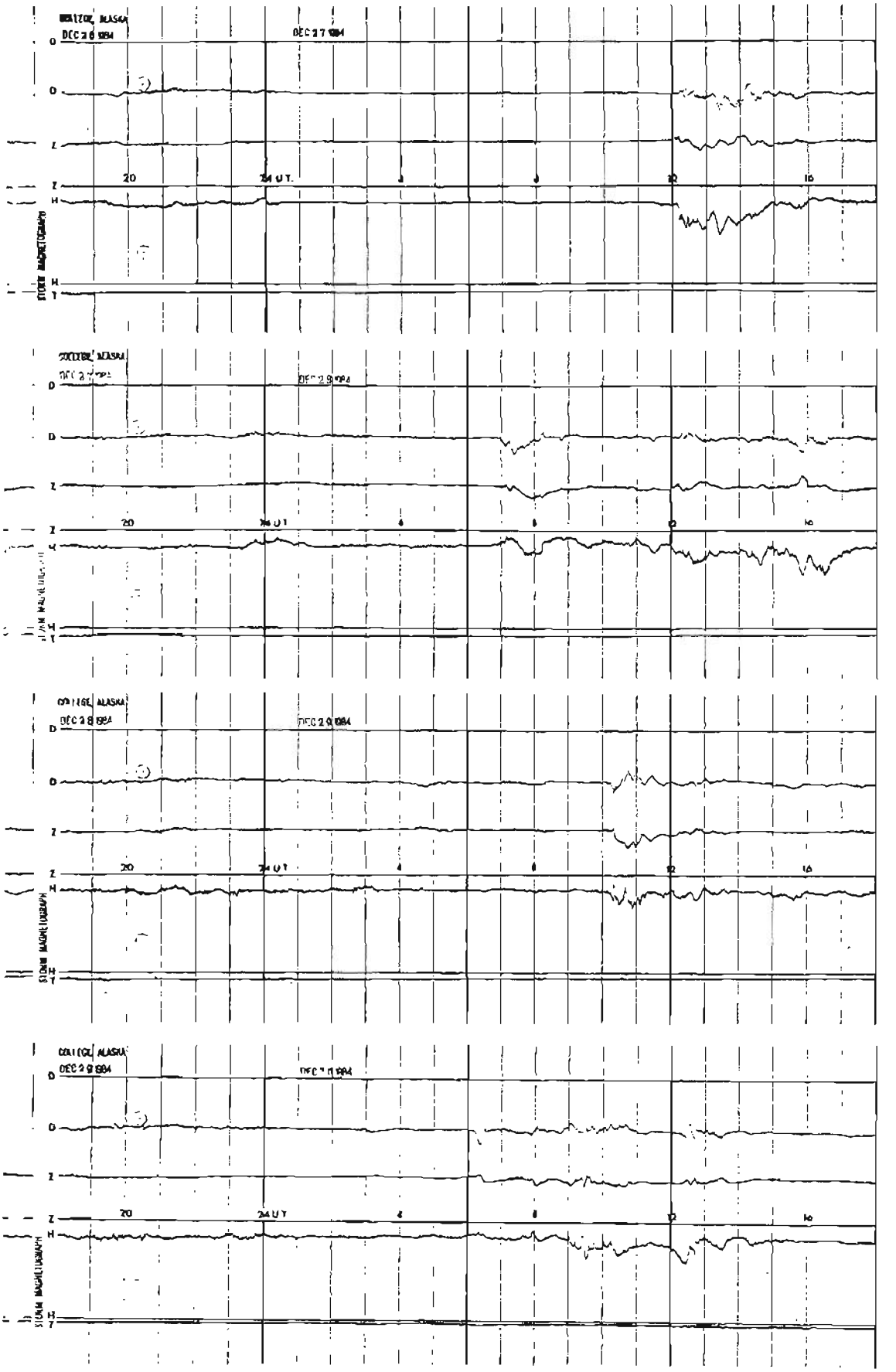


STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS