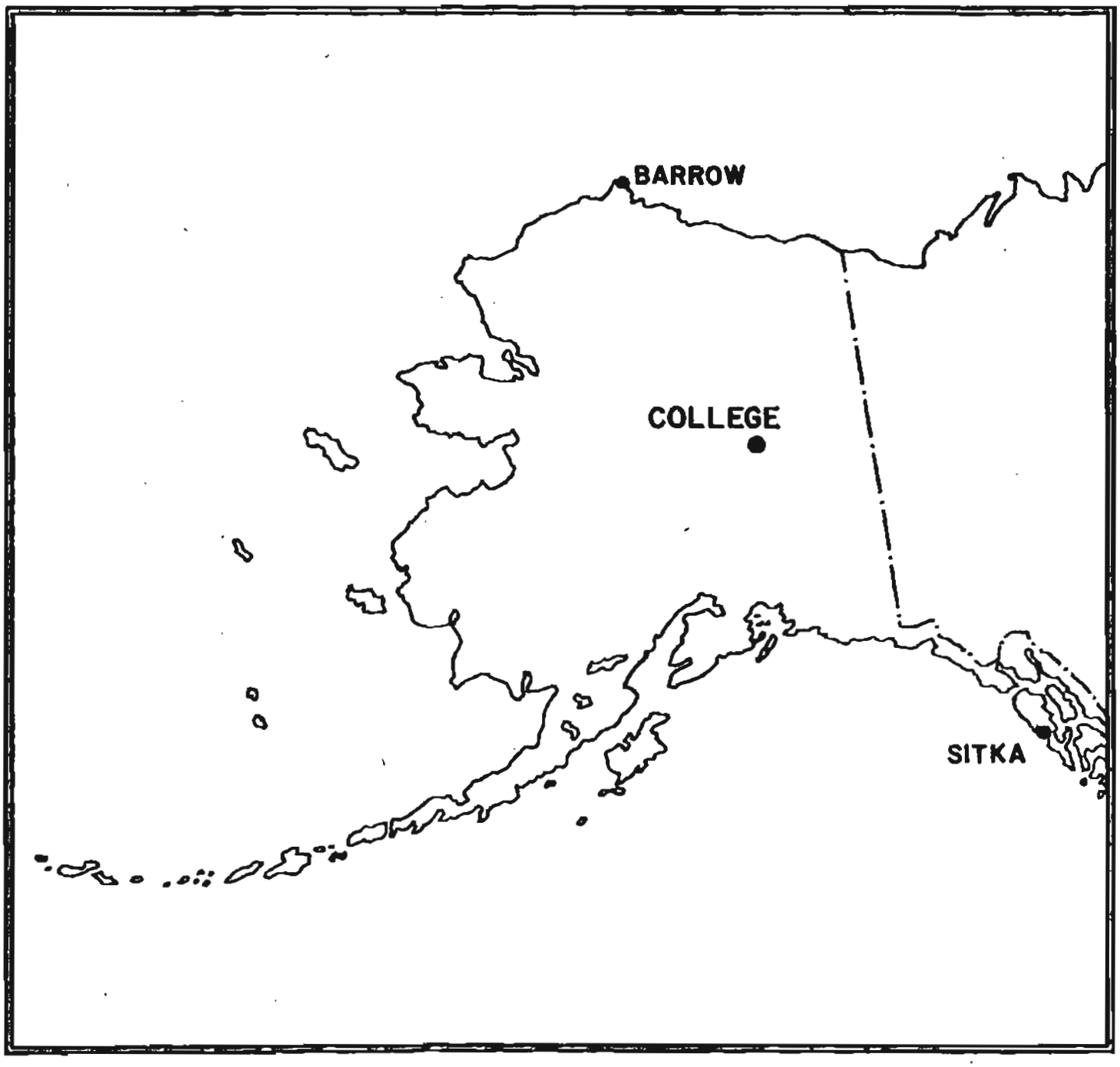
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

DECEMBER 1981 OPEN FILE REPORT 81-300L



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THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY WITH THE ASSISTANCE OF OBSERVATORY STAFF MEMBERS J.E. PAPP AND E.A. SAUTER, 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:

COLLEGE OBSERVATORY
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
Environmental Data Service
Boulder, Colorado 80302

OBSERVATORY LOCATION

The College Observatory, operated by the U. S. Geological Survey, is located at the University of Alaska, Fairbanks, Alaska. It is near the Auroral Zone and the northern limit of the world's greatest earthquake belt, the circum-Pacific Seismic belt. Although the observatory's basic operation is in geomagnetism and seismology, it cooperates with other scientists and organizations in areas where the facility and personnel can be of service.

The observatory is one of three operated by the USGS in Alaska. The others are located at Barrow and Sitka.

The position of the observatory site is:

Geographic latitude.....64°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 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 (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
C≤ 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 & 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

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

OBSERVATORY: COLLEGE, ALASKA

MONTH AND YEAR: DECEMBER 1981

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	WHOLE-DAY CHARACTER 0, 1, OR 2 AK
1	0	0	0	2	4	4	2	0	12	09
2	0	0	0	5	2	0	1	1	09	08
3	0	0	0	4	4	2	2	2	14	09
4	2	3	1	3	4	2	2	1	18	11
5	1	1	4	4	3	3	1	1	18	12
6	0	1	3	1	1	2	0	0	08	04
7	0	0	0	1	2	0	0	1	04	02
8	0	3	4	3	2	4	3	2	21	14
9	0	3	3	4	4	4	2	1	21	15
10	2	4	3	2	1	1	0	0	13	08
11	0	1	0	0	1	2	1	0	05	02
12	4	1	3	5	6	5	4	3	31	33
13	2	5	5	4	4	4	1	0	25	23
14	1	0	1	3	0	0	1	0	06	03
15	0	0	0	2	0	0	2	2	06	03
16	0	0	1	3	1	0	1	0	06	03
17	0	0	0	1	1	1	1	1	05	02
18	3	2	5	5	5	4	2	0	26	25
19	1	1	1	5	4	3	2	0	17	13
20	0	1	1	2	2	2	1	1	10	04
21	0	0	2	2	4	3	1	0	12	07
22	0	0	1	2	3	2	1	0	09	04
23	0	2	1	0	1	1	1	1	07	03
24	2	2	3	2	1	3	2	1	16	08
25	1	1	0	4	4	5	0	1	16	14
26	1	1	1	4	1	0	0	0	08	05
27	0	0	1	1	3	0	0	1	06	03
28	2	1	3	2	5	4	2	1	20	15
29	0	4	7	7	6	5	4	2	35	59
30	1	6	6	6	7	6	4	2	38	62
31	2	2	6	6	5	5	2	1	29	35
								SUM		

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

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED: JACK B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-887

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: DECEMBER

YEAR: 1981

DATE	TIME U.T.	NATURE OF PHENOMENON[1]	REMARKS
12	0146	ssc*	
17	10XX	pi 2	
29	0456	ssc*	

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.

NOAA FORM 86-500
(11/73)

PRINCIPAL MAGNETIC STORMS

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

DECEMBER 19 81

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 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	12	0146	s.c.*	+19	+211	+42	12	5	6	194	1270	520	13	19
		29	0456	s.c.*	+7	+102	+21	29	3, 4	7	283	1850	890	31	23
								30	5	7					

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: DECEMBER 1981

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 12-1-81	2400 U.T., 12-31-81	1.0'/mm	3.7 γ/mm	27° 46.7' E
H	0000 U.T., 12-1-81	2400 U.T., 12-31-81	7.8 γ/mm		12751 γ
Z	0000 U.T., 12-1-81	2400 U.T., 12-31-81	7.7 γ/mm		55151 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 12-1-81	2400 U.T., 12-31-81	7.8'/mm	29.7 γ/mm	23° 46.9' E
H	0000 U.T., 12-1-81	2400 U.T., 12-31-81	44.0 γ/mm		11505 γ
Z	0000 U.T., 12-1-81	2400 U.T., 12-31-81	48.6 γ/mm		54006 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 01.2' E	12980 γ	55383 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: DEC 6, 7, 11, 14, 15, 16, 17, 20, 23, 27

FORM 78-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

Values are in tenths of mm, and are averages for successive periods of one hour beginning at midnight. Start 01 of local day 2 SUN U.T.) is hour 11 of the SAME universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	81	DEC	D

Day	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	131	129	120	130	136	130	135	139	139	127	132	194	179	201	200	252	303	172	173	150	165	153	145	126	3861
02	113	116	131	136	134	140	135	137	136	134	171	444	139	140	154	145	167	176	174	175	194	155	142	131	3839
03	136	135	132	136	139	143	145	138	138	126	142	157	190	217	185	154	203	177	186	167	70	115	131	140	3602
04	146	131	85	67	92	134	150	144	146	245	323	215	187	178	155	188	179	197	157	97	133	146	147	126	3770
05	105	95	86	122	116	133	134	137	131	135	123	139	156	160	173	223	221	196	191	176	177	156	126	117	3527
06	130	117	111	113	124	130	137	123	125	134	145	154	159	154	166	185	173	195	192	188	177	164	145	136	3577
07	143	137	135	137	135	136	138	120	116	127	133	138	145	147	166	157	165	173	196	172	167	176	162	158	3579
08	135	128	120	110	90	64	109	129	123	128	149	188	150	152	137	316	284	213	233	139	54	96	114	118	3169
09	128	131	135	125	119	124	118	105	112	156	201	169	206	347	372	296	246	236	191	161	106	166	148	140	4233
10	134	142	148	137	160	108	125	148	120	142	150	130	144	148	152	155	153	168	182	188	177	180	169	149	3609
11	137	126	120	124	126	133	134	130	128	130	190	138	144	156	163	166	214	222	216	155	176	164	160	136	3628
12	124	106	116	138	138	117	99	76	92	120	137	225	736*	1253*	419*	491*	396*	200*	187	226	45	1	134	116	5692
13	102	102	85	72	30	-44	-8	55	134	80	100	141	213	194	236	173	227	197*	190	184	168	158	146	131	3066
14	127	121	126	112	113	117	117	136	139	151	64	141	149	172	196	200	191	181	173	174	163	164	146	134	3501
15	137	122	120	126	134	137	137	134	138	135	136	147	140	153	152	151	158	157	162	194	170	64	128	142	3374
16	139	135	126	129	130	135	133	124	142	69	112	133	156	178	167	165	169	165	173	169	165	159	158	145	3476
17	134	136	130	134	135	142	144	143	142	140	143	149	154	152	145	146	181	155	176	184	172	145	87	54	3490
18	15	106	138	121	82	121	108	111	270	135	228	165	189	220	231	262	261	196	152	145	144	154	137	134	3855
19	128	138	137	139	137	122	128	143	51	156	157	192	190	261	135	193	158	160	144	158	154	156	154	146	3737
20	125	127	131	117	116	123	136	138	145	215	127	130	145	159	165	142	171	173	168	140	126	113	135	131	3428
21	127	127	135	132	131	131	129	163	144	130	130	140	198	185	237	232	181	143	155	174	148	107	136	141	3456
22	134	135	135	128	127	128	133	129	136	156	162	172	168	216	167	153	126	157	168	178	159*	156*	156*	138*	3617
23	130*	118*	117*	96*	37*	56*	124*	136*	137*	142*	139*	149*	159*	167*	163*	161*	162*	169*	169*	184*	193*	162*	154*	145*	3371
24	130*	114*	75*	51*	51*	90*	83*	104*	145*	138*	106*	122*	170*	170*	145*	162*	193*	178*	158*	159*	156*	155*	136*	115*	3108
25	90	106	118	124	121	135	143	143	144	142	154	209	200	196	306	293	260	178	160	153	151	147	143	110	3226
26	116	117	101	121	123	126	131	138	128	150	263	231	172	165	158	170	176	171	161	156	152	150	144	136	3656
27	140	132	136	132	129	136	146	110	139	148	148	181	148	170	162	174	178	184	162	147	152	122	100	110	3596
28	88	101	115	134	128	146	202	158	147	122	101	125	145	203	525*	254*	212	191	198	128	130	141	141	137	3972
29	134	129	128	126	140	66	89	233*	11*	-82*	257*	3*	178*	392*	208*	242*	237*	306*	228*	194*	192*	161*	156*	143*	3871
30	143	138	124	108	97	68	-131*	-187*	-44*	19*	273*	149*	199*	812*	392*	264*	258*	272*	194*	168*	178*	168*	142*	123*	3927
31	118	119	110	107	132	142	145	70	96	100	104	126	178	254	219	172	144	162	182	196	179	149	147	148	3519

SCALED BY: LYT, TKC
CHECKED BY: JEP, EAS
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 value available because of faulty record.
[ ] Scaling uncertain because of magnetic storm.
< > Record all absent for part or all of hour; if value is given, curve was estimated for missing part.
* Derived from STORM Mgnh., corrected to Normal Mgnh.

MONTHLY SUM: 114498
MONTHLY MEAN: 154
DATES WITH GAPS:

FORM 15-100

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

Values are in tenths of mm, and are averages for successive periods of one hour beginning at midnight. Hour 00 of local day 0500 M.T.) is hour 12 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	81	DEC	X

Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	311	310	309	310	310	309	310	311	311	315	319	300	01	299	295	273	171	180	222	246	269	290	297	300	306	6873
02	311	319	318	313	311	310	309	308	308	305	342	286	02	229	311	313	311	310	309	303	306	311	304	308	307	7362
03	311	310	307	307	306	306	302	309	314	310	306	297	03	254	241	291	258	281	272	261	275	263	279	297	310	6877
04	311	316	319	324	322	320	331	322	327	312	179	191	04	168	233	290	310	300	262	273	204	249	282	307	317	6602
05	331	336	342	348	346	341	339	330	277	296	309	324	05	312	299	282	231	221	180	171	236	271	296	301	311	6964
06	321	325	326	327	352	329	310	289	321	326	320	291	06	279	262	261	271	247	256	285	297	300	309	310	313	7207
07	316	317	319	320	317	316	320	310	309	302	305	299	07	294	244	254	291	296	277	273	282	299	307	305	310	7170
08	307	309	319	333	356	318	346	365	331	315	279	230	08	260	271	289	252	57	162	240	233	232	283	299	315	6718
09	325	323	322	333	350	342	343	335	307	304	330	313	09	420	342	291	352	207	226	261	261	270	312	311	318	7498
10	319	323	327	339	340	331	342	335	334	348	321	319	10	319	309	299	293	291	301	312	312	312	316	317	313	7691
11	313	313	317	333	330	325	310	315	312	311	310	310	11	308	304	295	254	245	256	266	277	292	293	301	313	7211
12	318	316	346	327	317	316	336	363	329	307	327	358	12	572*	421*	503*	560*	445*	269	263	266	240	256	319	318	8112
13	323	331	330	355	[illegible]	331	260	317	191	309	323	331	13	493	331	375	247	286	275*	309	309	315	324	323	325	7591
14	324	321	318	312	315	339	337	339	339	309	260	297	14	307	313	291	287	290	300	306	304	300	309	312	311	7488
15	315	316	315	316	314	311	316	315	311	301	316	315	15	314	311	310	301	308	308	309	316	304	262	252	306	7411
16	311	311	308	305	309	310	306	308	304	276	291	318	16	332	321	310	310	306	307	304	303	301	302	309	308	7415
17	311	309	302	301	300	304	302	305	304	307	302	268	17	274	289	293	298	288	273	274	272	285	297	304	316	7100
18	350	331	313	314	321	257	329	320	241	199	304	271	18	299	322	223	267	185	173	194	237	271	295	304	317	6746
19	325	320	320	330	332	358	359	359	324	310	298	71	19	60	190	209	210	257	279	295	290	305	309	311	315	6773
20	319	318	319	320	320	323	321	317	326	314	300	309	20	307	301	279	248	260	270	261	275	275	285	301	320	7214
21	320	316	318	316	320	316	320	309	318	321	316	290	21	270	259	176	191	236	260	257	276	282	279	294	309	6861
22	310	308	304	300	300	302	302	305	326	318	294	263	22	210	190	226	250	228	251	280	291	289	294	299	299	6749
23	300	299	301	304	304	293	306	306	313	309	308	300	23	269	265	272	276	294	299	296	294*	288*	294*	294*	299*	7322
24	293*	299*	299*	294*	350*	350*	350*	388*	350*	226*	312*	296*	24	299*	281*	275*	281*	243*	224*	240	268	290	294	304	308	7320
25	309	310	315	316	314	309	295	300	300	304	299	252	25	176	208	221	228	214	209	275	290	287	300	310	306	6668
26	311	311	309	313	316	311	307	305	305	306	300	187	26	271	261	269	303	300	296	290	288	267	268	297	304	7053
27	307	305	304	301	304	319	327	322	321	304	296	263	27	208	238	270	272	274	284	283	290	267	268	264	280	6864
28	289	304	325	336	338	338	341	297	324	312	323	320	28	312	291	266	164	212	231	207	246	277	285	299	305	6937
29	312	311	315	318	334	338	248	224*	306	258	332*	421*	29	578*	401*	262	245	270	297	306	317	302	298	307	311	7621
30	310	313	317	321	356	300	299	306*	195	304	343	353	30	372	483*	186*	307	152	246	254	264	297	296	299	308	7161
31	312	302	312	313	315	322	314	308	120	173	266	330	31	468	568	430	277	292	310	300	307	305	316	321	330	7426

CALCD BY: LYT, TKC
CHECKED BY: DEF, ENS
SIGNS REVIEWED BY: JLP
PUNCHED BY:

Preliminary monthly and scale values:

Vertical Beginning	Baseline Value	Scale Value

( ) Interpolated
[ ] Signal rent 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 Mgph., converted to Normal Mgph.

MONTHLY SUM	222587
MONTHLY MEAN	299
DATES WITH GAPS	

FORM 9-365

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

Values are in tenths of mm and are averages for successive periods of one hour beginning at midnight. (Hour 01 of local day 150°W M.T.) is hour 11 of the preceding universal day. Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	81	DEC	H

Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	280	289	293	298	301	303	304	309	309	308	307	302	01	312	290	210	136	247	315	330	308	292	289	286	271	6659
02	279	289	290	292	300	301	301	299	296	292	171	-92*	02	353	312	299	291	290	300	299	287	296	295	271	276	6587
03	278	289	292	290	299	300	300	301	309	310	300	161	03	156	101	207	301	296	280	261	271	240	269	278	265	6353
04	266	270	309	344	391	312	293	289	294	301	252	238	04	151	298	307	284	287	271	219	232	261	261	259	260	6649
05	281	293	301	297	300	312	316	314	295	249	321	296	05	283	280	216	114	191	230	259	288	278	269	248	275	6507
06	297	291	296	292	291	311	321	314	306	291	280	261	06	253	267	272	251	226	274	268	284	281	281	279	279	6776
07	274	280	269	283	289	291	297	299	296	293	290	291	07	269	244	291	299	288	281	298	297	291	288	268	280	6911
08	301	309	301	312	350	420	413	320	298	270	211	328	08	278	278	312	94	99	287	286	208	259	260	270	282	6607
09	290	279	288	291	330	442	360	359	291	122	84	193	09	111	-6	39	2	159	271	309	291	279	280	281	278	5653
10	272	276	290	301	321	334	341	296	331	354	321	290	10	298	280	284	270	274	269	294	289	285	290	276	277	7123
11	286	294	305	307	309	304	300	299	300	302	303	298	11	299	297	286	240	235	272	261	268	289	263	278	280	6945
12	289	311	342	322	321	320	329	391	378	375	314	89	12	-421*	-449*	-82*	-132	26	167	267	198	127	151	216	297	4166
13	311	332	321	369	472	685	599	517	291	284	363	234	13	87	71	4	62	267	307*	292	291	290	281	278	280	7258
14	269	297	286	292	304	308	330	328	312	311	257	299	14	281	280	274	292	299	294	292	291	264	279	270	276	[illegible]
15	269	290	302	301	306	310	293	298	298	312	303	303	15	295	296	298	294	299	299	292	265	252	240	263	292	7032
16	294	300	302	302	306	302	302	296	289	310	259	233	16	302	296	296	294	292	296	299	297	290	286	271	276	7161
17	283	291	299	300	303	307	304	302	302	303	300	293	17	289	307	310	306	288	262	298	307	292	251	240	250	7002
18	220	292	291	291	340	354	392	369	186	175	23	169	18	182	-51	212	61	-10	217	274	303	308	296	292	285	5504
19	276	283	282	304	304	317	301	309	283	291	231	-26	19	115	153	241	226	300	287	302	307	300	296	280	277	6249
20	302	291	291	288	290	312	303	306	305	318	305	293	20	292	286	256	274	282	302	306	304	292	281	282	290	7040
21	288	292	294	303	296	297	307	345	318	322	297	290	21	262	235	110	211	224	274	284	304	291	293	284	283	6110
22	293	293	296	302	301	300	297	298	307	303	291	257	22	197	250	272	271	238	296	308	311	314	302	292	286	6865
23	290	295	300	300	348	355	324	309	299	296	300	294	23	286	283	277	300	306	316	309	307*	307*	307*	295*	279*	7290
24	279	302*	317*	350*	308*	402*	400*	375*	318*	323*	313*	290*	24	262*	262*	267*	250*	192*	211*	281	301	308	302	287	283	7355
25	356	302	318	311	317	320	315	302	300	302	293	134	25	128	240	184	142	112	268	312	314	297	281	292	288	6372
26	322	256	298	313	324	321	311	306	304	318	177	294	26	290	292	310	302	299	299	292	266	290	294	290	280	7002
27	288	294	292	302	306	305	303	320	306	301	292	295	27	209	291	298	302	306	308	303	312	303	284	280	289	7069
28	274	294	293	320	323	304	330	347	343	360	330	308	28	285	169	-162*	182	248	245	259	300	304	291	290	288	6577
29	302	301	300	307	314	316	326	-21*	-65*	261	-201*	-202*	29	-49*	-105*	161	225	281	199	311	319	293	298	294	292	3646
30	290	312	305	317	444	384	257*	432	337	255*	-49*	176	30	171	-470*	-139*	13*	98	265	177	297	286	254	279	262	5047
31	282	284	296	320	372	324	324	366	239*	-45*	274	182	31	140	-84	58	100	321	297	307	308	292	276	266	273	5739

SCALED BY: LYT, TKE

CHECKED BY: JTP, DH

TRANSFERRED BY: JTP

PUNCHED BY:

Preliminary baseline 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.

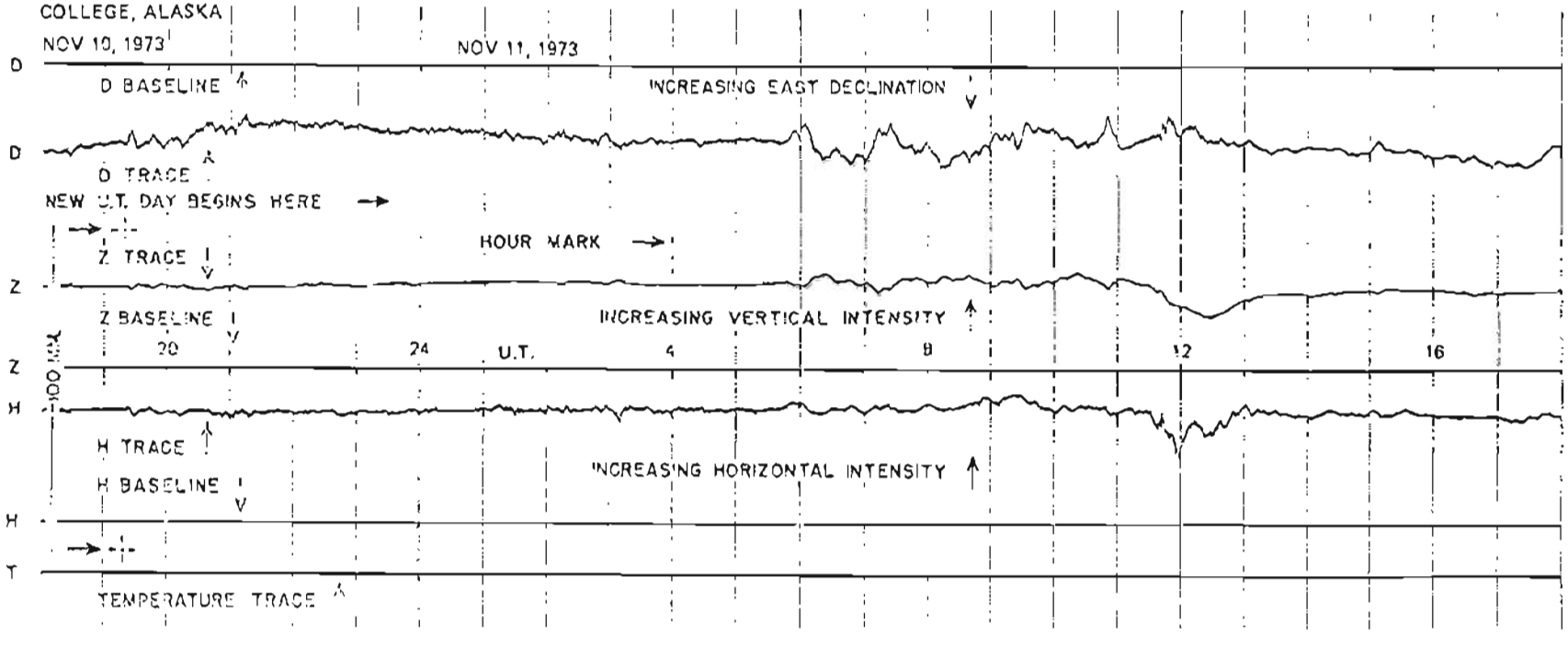
< > Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.

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

MONTHLY SUM	201424
MONTHLY MEAN	271
DATES WITH GAPS	

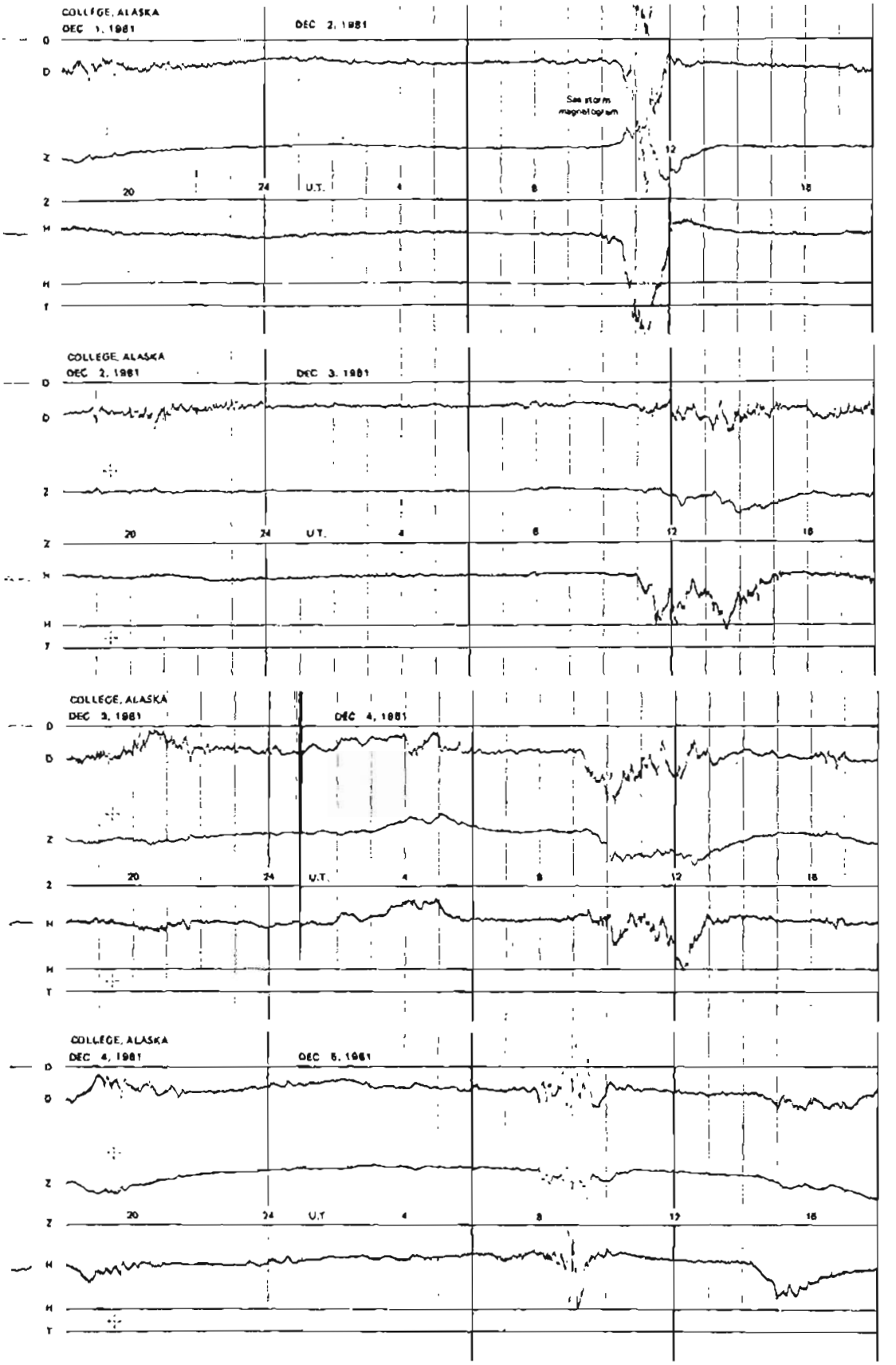
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

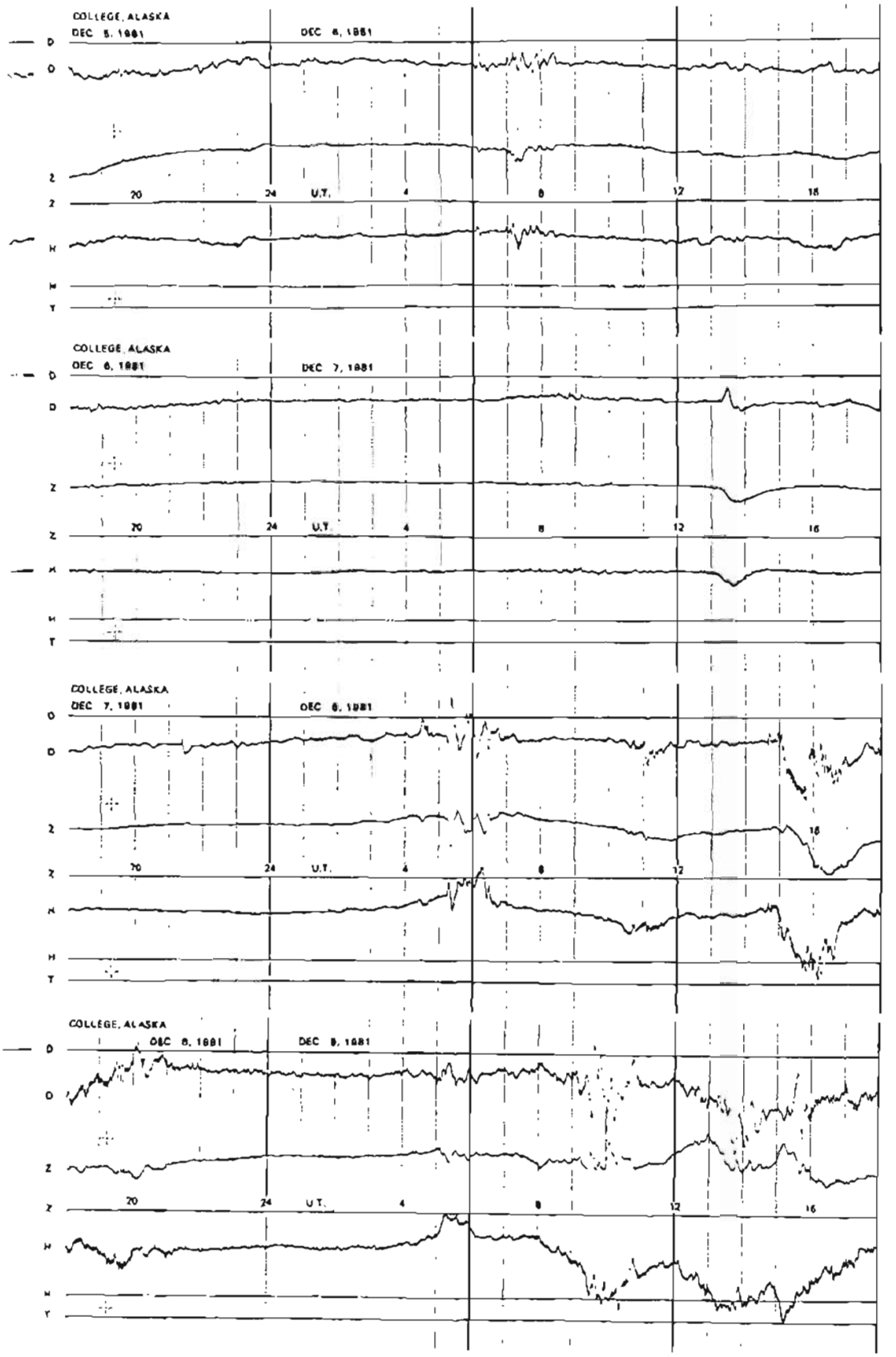


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

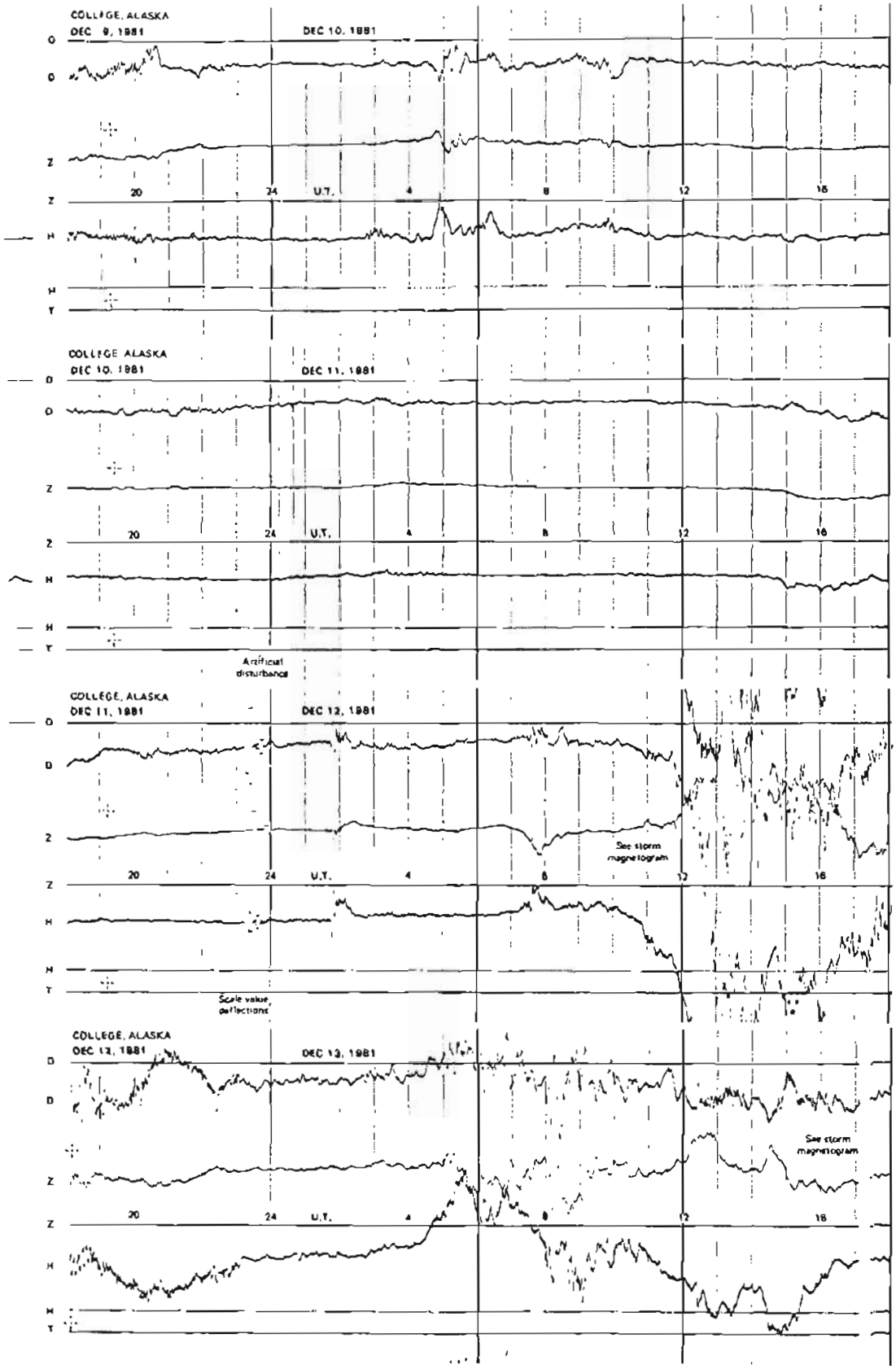
NORMAL MAGNETOGRAMS



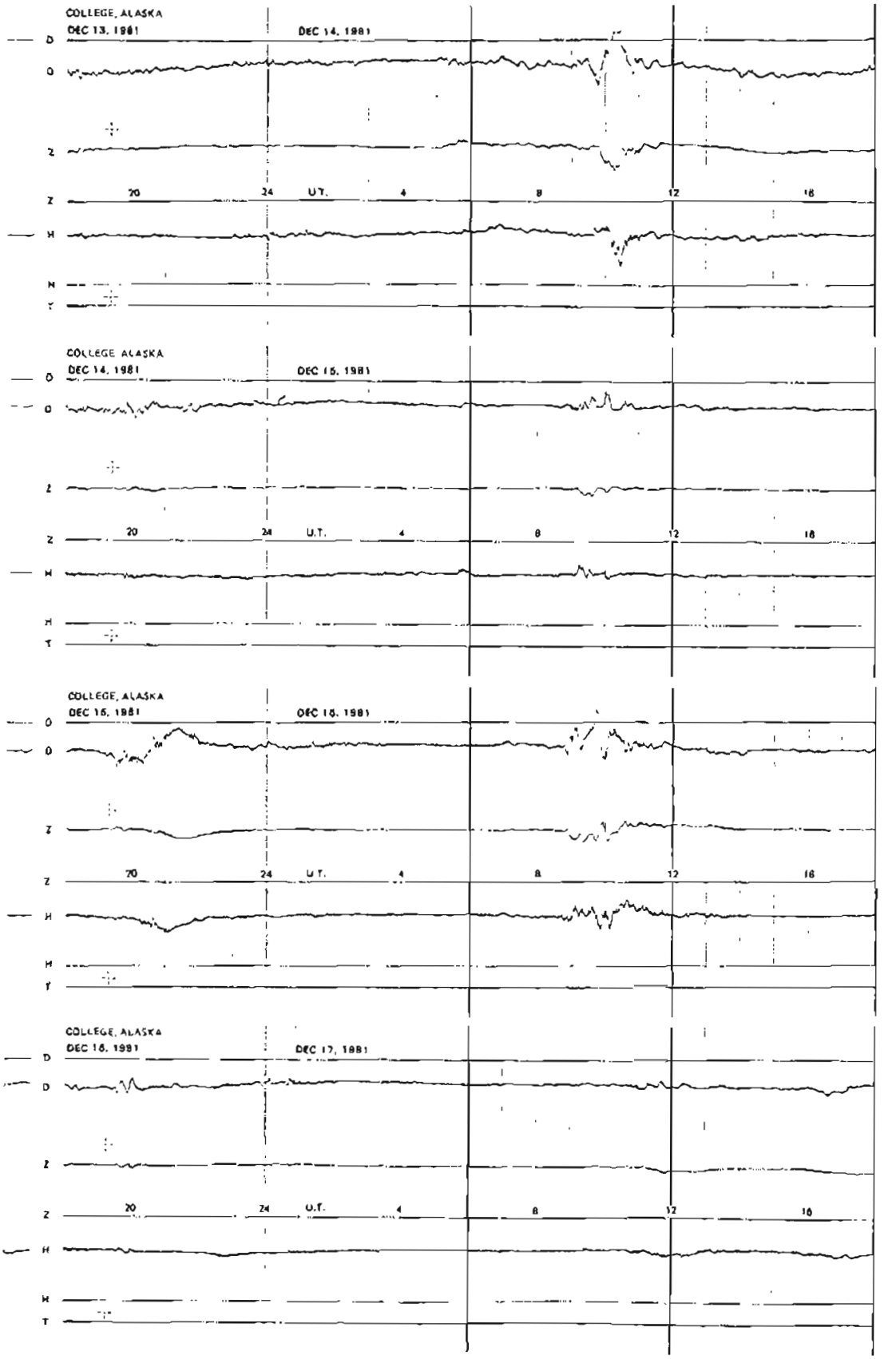
NORMAL MAGNETOGRAMS



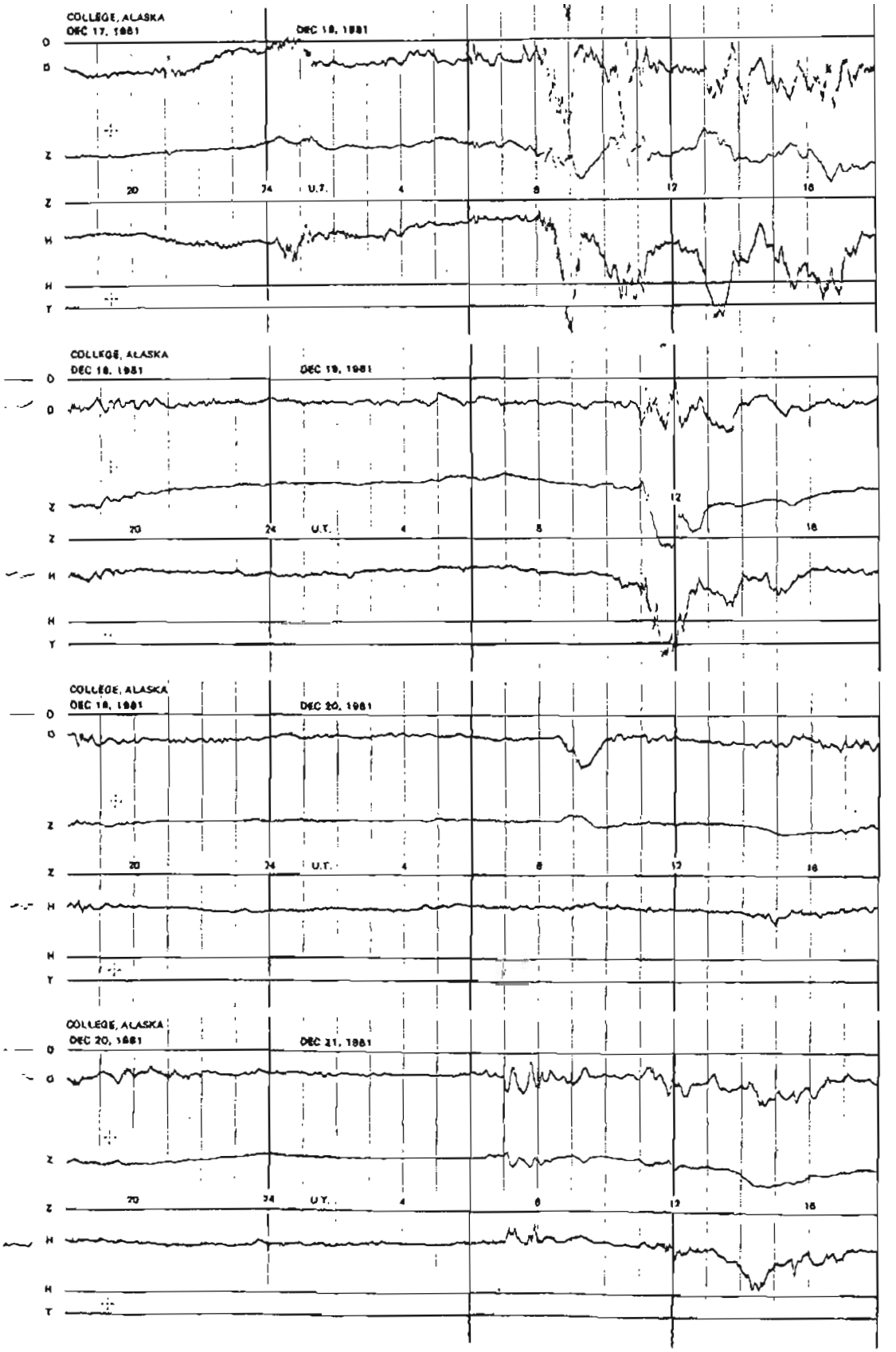
NORMAL MAGNETOGRAMS



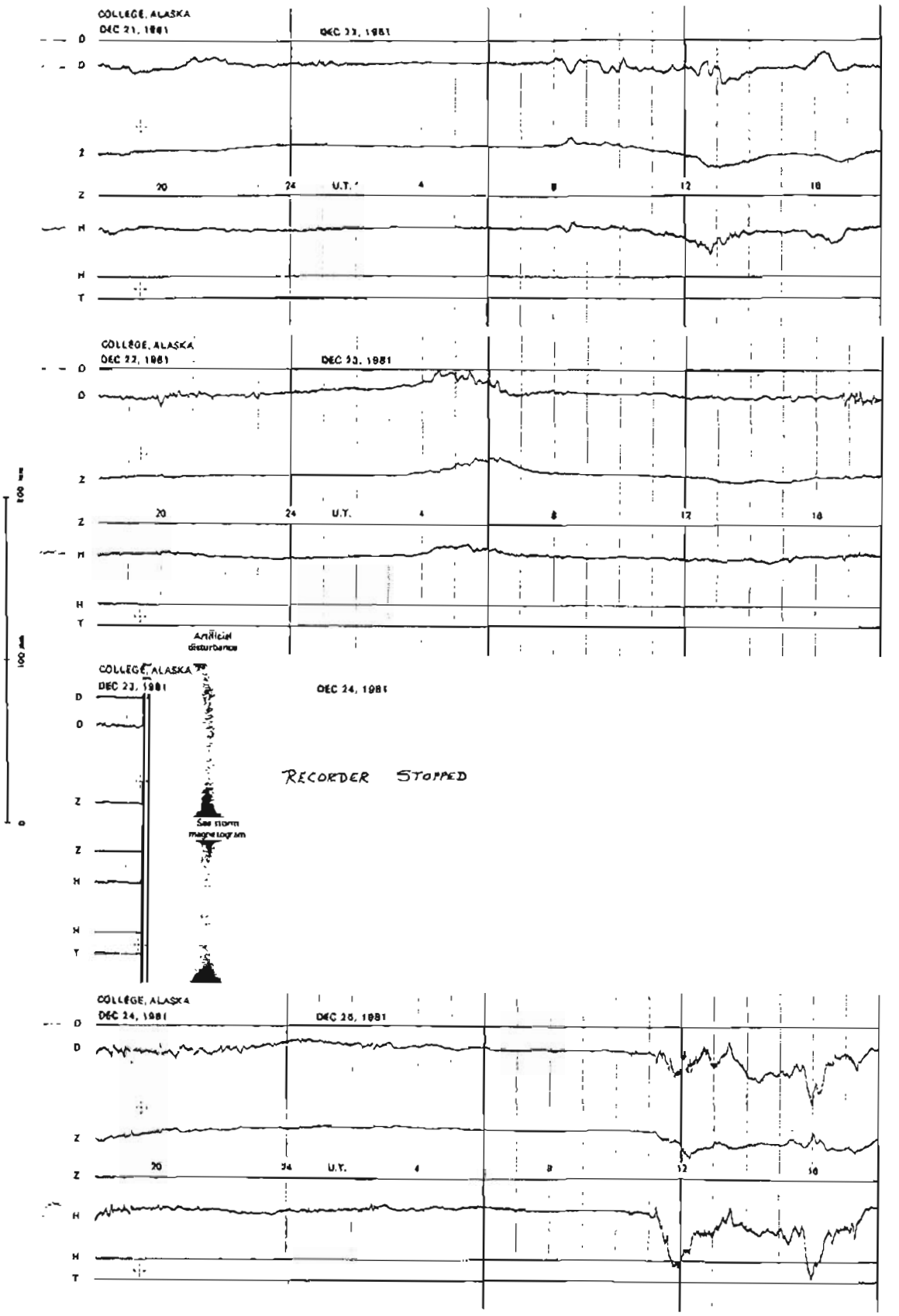
NORMAL MAGNETOGRAMS



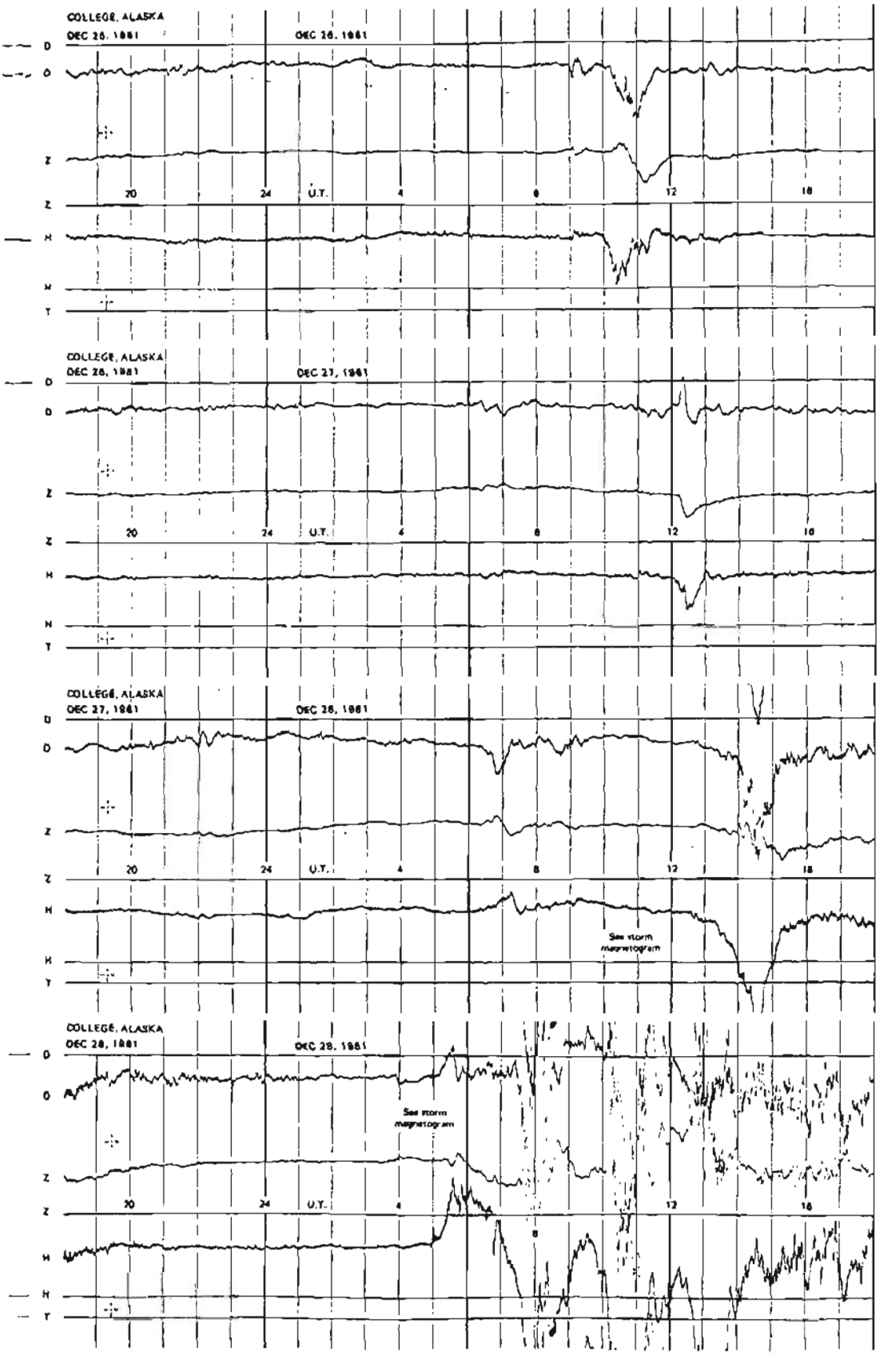
NORMAL MAGNETOGRAMS



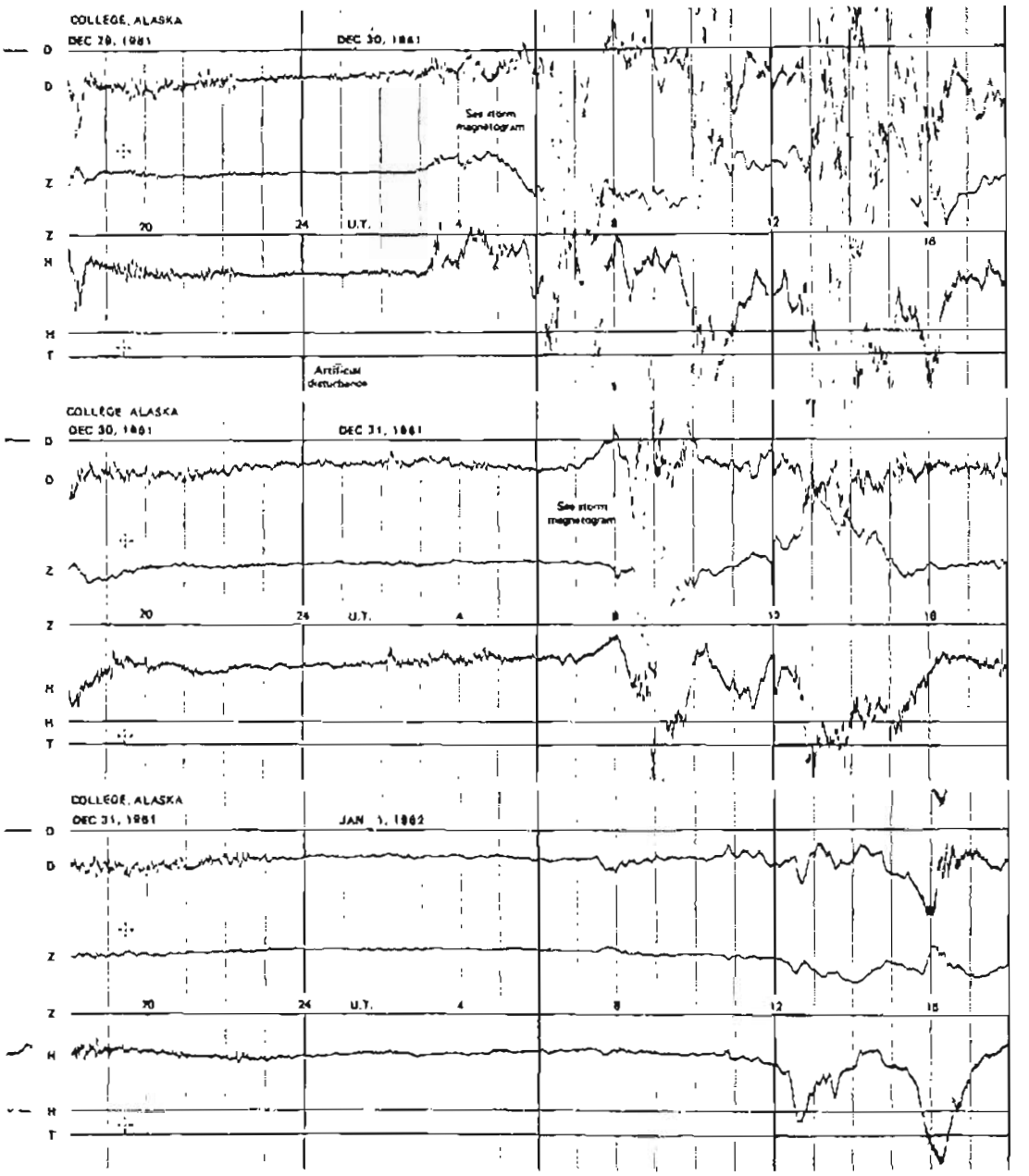
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS

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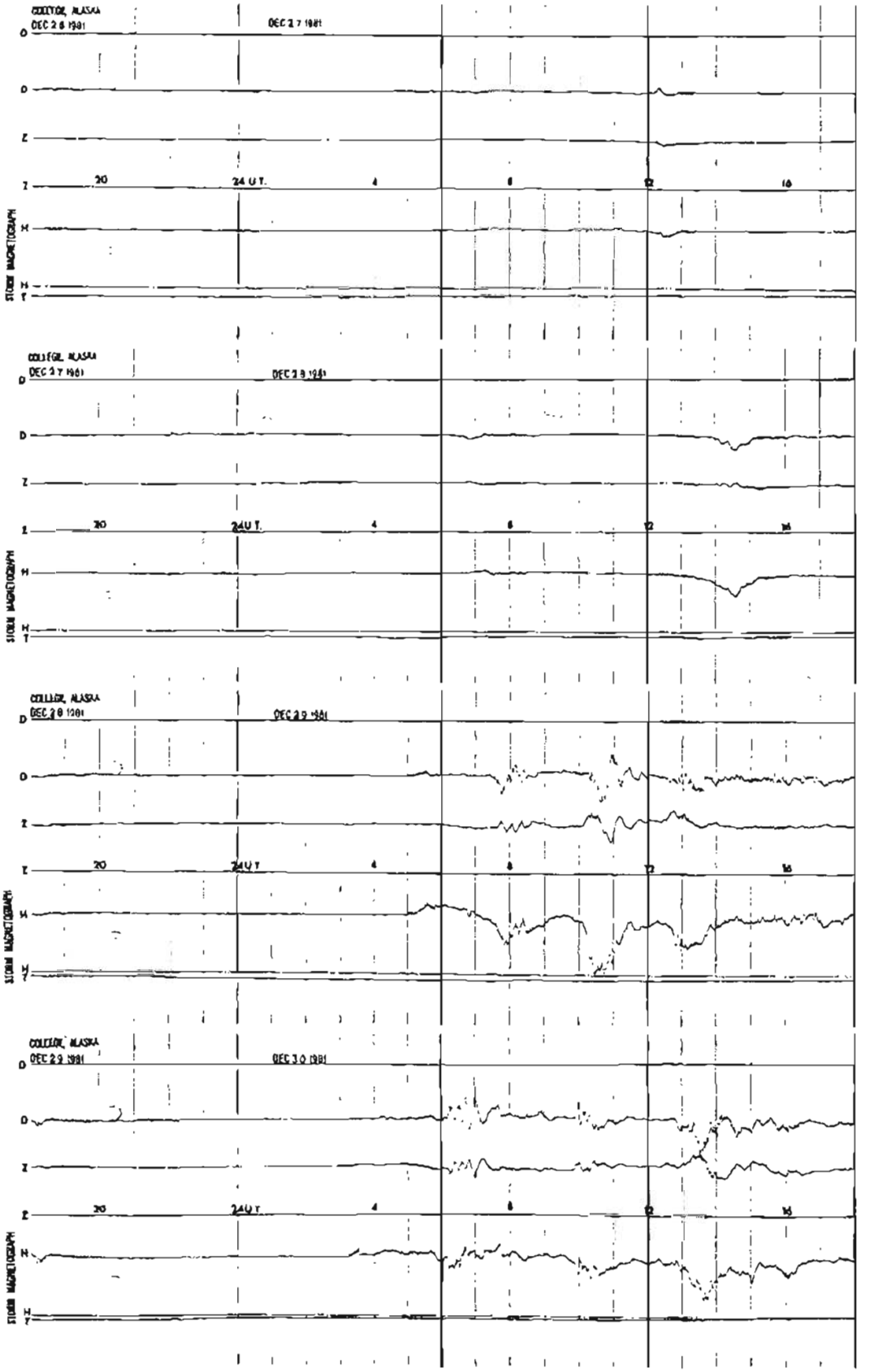

STORM MAGNETOGRAMS