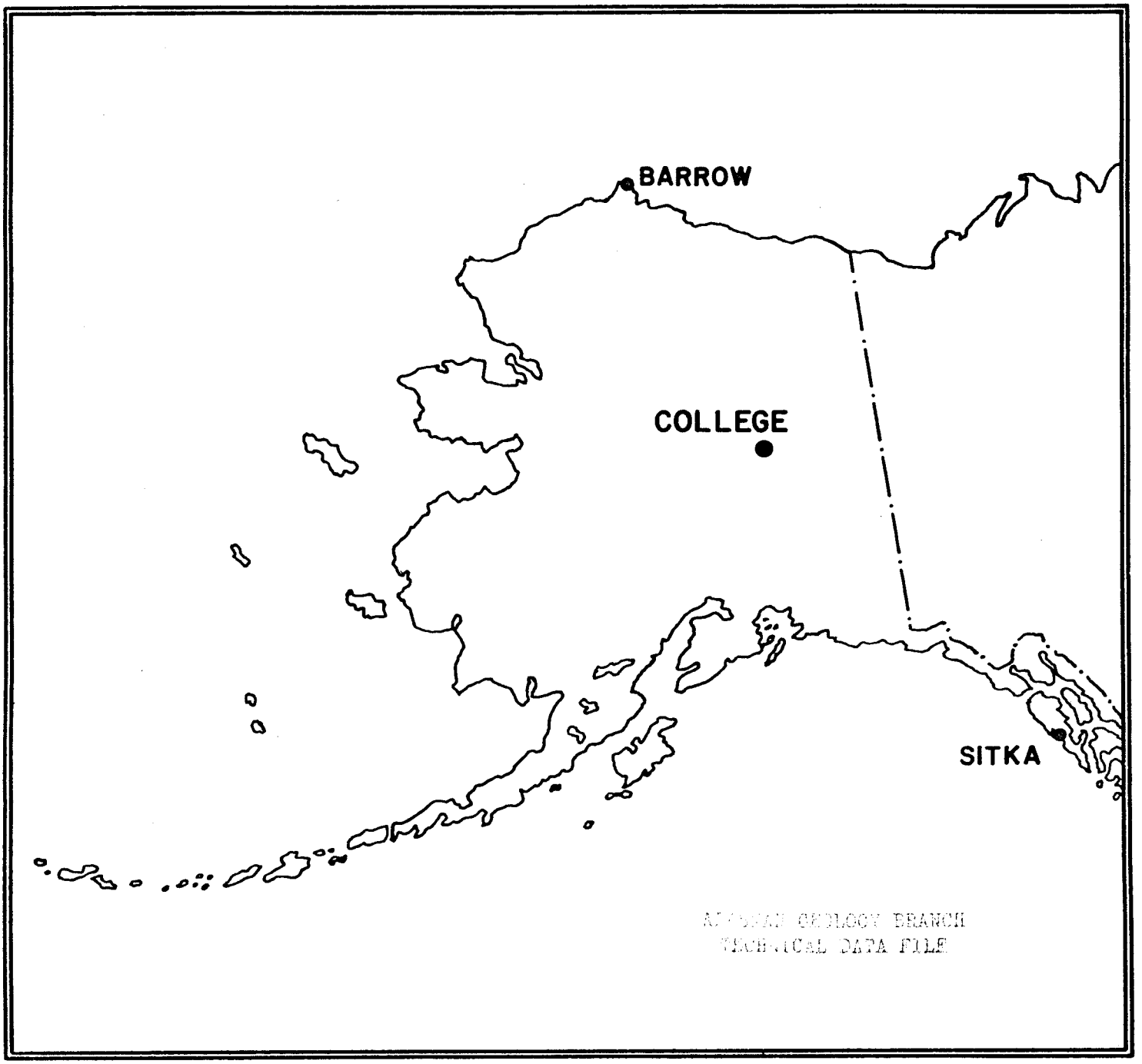
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

DECEMBER 1976 OPEN FILE REPORT 76-300L



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

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

INTRODUCTION

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

Chief, College Observatory
U.S. Geological Survey
Yukon Drive on West Ridge
Fairbanks, Alaska 99701

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

World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

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 & 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 1976

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	0	1	2	3	2	1	1	11	05
2	0	0	1	0	1	0	1	0	03	01
3	0	0	2	1	0	0	0	0	03	01
4	0	0	4	4	6	6	1	1	22	28
5	1	1	0	2	4	1	1	0	10	06
6	0	0	0	0	0	1	0	1	02	01
7	1	1	0	2	3	3	1	1	12	06
8	3	2	5	6	6	2	1	1	26	30
9	0	0	6	6	5	5	3	2	27	35
10	2	1	3	5	5	5	2	3	26	24
11	3	3	4	4	2	3	2	1	22	15
12	1	2	2	4	6	5	3	2	25	24
13	0	2	2	4	4	1	1	0	14	09
14	0	0	1	3	2	0	0	0	06	03
15	0	0	0	3	1	0	0	0	04	02
16	0	0	1	3	5	3	2	1	15	11
17	1	1	0	0	4	4	3	3	16	11
18	3	6	5	3	1	1	2	3	24	23
19	2	2	1	1	2	1	0	1	10	04
20	1	0	0	0	3	2	1	0	07	04
21	0	1	2	1	0	3	1	0	08	04
22	0	2	4	6	6	3	1	1	23	27
23	0	1	1	3	1	0	0	0	06	03
24	0	0	4	5	4	1	1	0	15	14
25	0	0	0	4	6	2	2	1	15	16
26	1	2	1	2	2	1	1	0	10	04
27	1	0	0	2	2	1	2	1	09	04
28	0	1	2	3	1	0	1	1	09	04
29	6	4	7	6	6	6	2	2	39	63
30	1	1	2	6	6	5	4	4	29	34
31	3	3	1	2	2	1	3	2	17	09

TIME SCALE ON MAGNETOGRAMS: 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.....	3.76	7.82		(γ/mm)
LOWER LIMIT FOR K = 9	2570	2520		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1972-760-948

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: DECEMBER

YEAR: 1976

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
05	20XX	pc3 & pc4	
14	18XX	pc4	with pc3's
20	17XX	pc3	with pc1,pc2,pc4 & pc5's
21	03XX	pc5	with pc3's
28	2038	ssc*	

IDENTIFIED BY: MJM & 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

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80302 U.S.A.

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

DECEMBER 1976

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	28	2038	sc*	-5	..	..	29	3	7	265	1750	950	29	19

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: DECEMBER 1976

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000UT, 12-1-76	2400UT, 12-31-76	1'.0/mm	3.8γ/mm	28°07'.0E
H	0000UT, 12-1-76	2400UT, 12-6-76	7.8γ/mm		12759γ
	0000UT, 12-7-76	2400UT, 12-31-76	7.8γ/mm		12748γ
Z	0000UT, 12-1-76	2400UT, 12-6-76	7.6γ/mm		55130γ
	0000UT, 12-7-76	2400UT, 12-31-76	7.6γ/mm		55140γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000UT, 12-1-76	2400UT, 12-31-76	7'.9/mm	29.8γ/mm	24° 23'.4 E
H	0000UT, 12-1-76	2400UT, 12-31-76	44.1γ/mm		11492γ
Z	0000UT, 12-1-76	2400UT, 12-31-76	48.9γ/mm		54012γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D	0000UT, 12-1-76	2400UT, 12-31-76	0'.3/mm	1.0γ/mm
H	0000UT, 12-1-76	2400UT, 12-31-76	1.0γ/mm	
Z	0000UT, 12-1-76	2400UT, 12-31-76	2.4γ/mm	

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 21'.2 E	13052γ	55362γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: DEC. 2, 3, 6, 14, 15, 19, 20, 21, 23, 27

FORM C&GS-404a
10-67I

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

Values are in tenths of min. and are averages for successive periods of one hour beginning at midnight. Hour 0 of local day (150W M.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	76	DEC.	D

C	Qct S	Ten Q	Dy	01	02	03	04	05	06	07	08	09	10	11	12	Hr.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	116	134	141	146	149	148	152	189	133	143	151	146	01	162	197	207	196	178	149	142	143	127	74	83	88	3494
			02	124	143	148	143	144	145	145	142	139	148	138	141	02	159	150	165	158	160	167	158	150	188	128	122	124	3529
			03	134	143	150	151	150	148	139	142	122	118	123	142	03	159	161	167	163	164	168	163	152	138	129	129	132	3487
			04	132	137	133	132	143	138	139	122	61	177	168	147	04	219	246	348	291	289	218	175	132	123	109	100	110	3997
			05	104	140	129	148	142	144	138	133	142	132	134	139	05	172	158	152	155	150	148	143	137	125	125	123	124	3335
			06	133	140	140	141	138	138	137	142	141	138	140	150	06	152	154	151	162	170	182	179	158	142	118	113	118	3477
			07	117	118	128	129	133	138	135	141	142	143	141	159	07	158	280	302	241	174	154	159	150	143	138	85	99	3717
			08	84	72	79	132	138	95	78	80*	24	32*	127*	358*	08	135*	126	139	168	176	168	162	158	149	139	131	128	3078
			09	132	140	146	150	142	133	234	152	-56*	310*	311	241	09	588*	343	326	321	51	195	192	129	118	94	73	93	4584
			10	122	142	148	134	134	158	160	153	128	67	157	171	10	258	342	269	420	409	104	156	157	154	122	104	60	4229
			11	76	98	122	139	204	233	154	144	238	162	177	143	11	144	167	159	161	134	190	157	160	149	138	118	108	3675
			12	125	119	124	142	151	136	139	242	242	182	133	164	12	163	291	221*	174*	144	214	104	134	122	138	137	110	3873
			13	123	132	148	142	146	194	174	168	140	135	162	143	13	110	243	162	179	163	157	159	163	142	135	119	130	3671
			14	137	138	133	143	144	130	140	142	168	179	159	134	14	124	154	152	157	163	158	151	150	150	142	124	128	3506
			15	129	132	132	140	142	142	148	143	145	163	232	149	15	126	142	148	158	158	158	154	152	143	138	132	128	3536
			16	129	133	142	148	148	140	138	133	152	154	189	172	16	140	129	184	201	157	192	203	151	135	127	105	100	3602
			17	105	116	111	118	141	144	147	141	141	134	131	139	17	141	157	170	189	226	230	139	164	154	104	24	25	3291
			18	52	69	98	63	32*	24*	214	172	154	143	138	149	18	150	152	154	158	167	159	145	138	97	72	61	27	2778
			19	74	112	117	113	142	145	149	129	140	129	129	138	19	158	132	131	148	178	174	145	134	138	133	122	109	3219
			20	115	132	139	138	139	142	148	142	138	134	142	145	20	153	158	153	184	198	151	162	149	133	128	120	118	3461
			21	120	137	142	147	149	153	144	145	191	112	123	133	21	144	143	154	148	154	143	158	153	133	125	118	112	3401
			22	123	128	138	132	128	124	144	168	128	126	217	356*	22	602*	157	167	229	161	178	188	139	130	113	109	110	4195
			23	123	124	132	140	154	138	138	142	148	128	128	109	23	139	143	152	147	150	154	156	153	144	132	124	103	3301
			24	114	126	143	144	145	140	135	134	103	10	128	126	24	182	148	201	214	167	171	152	150	129	122	122	128	3334
			25	135	140	140	142	136	138	142	138	131	172	208	153	25	316*	368	239	188	218	192	142	118	73	76	96	109	3310
			26	121	138	140	147	142	228	152	128	133	128	138	172	26	171	154	182	182	221	189	164	143	130	118	116	107	3650
			27	131	143	142	149	149	151	145	143	139	138	130	144	27	158	167	173	208	193	157	182	85	10	77	89	91	3294
			28	104	117	138	145	147	160	153	146	150	121	131	169	28	170	169	174	162	167	163	149	140	135	123	124	111	3468
			29	113	114	68	103	172	120	222	322*	242*	76*	195*	734*	29	386*	878*	576*	179*	103	130	151	133	129	134	132	131	5543
			30	135	137	139	142	143	143	142	144	147	163*	-43*	-11*	30	292	149	211*	234	286	187	184	162	93	-15	25	-53	3116
			31	81	132	111	118	120	103	114	134	147	145	142	149	31	168	162	172	160	161	158	173	113	138	135	122	124	3282

SCALED BY	SPT, CED, JEP
CHECKED BY	CED, MJM, JEP
SIGNS REVIEWED BY	MJM
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 Mgph., converted to Normal Mgph.

MONTHLY SUM	112033
MONTHLY MEAN	151
DATES WITH GAPS:	

USCOMM-DC 60950-P67

FORM C&GS-404e (6-67)

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY.	YEAR	MONTH	ELEMENT
CO	76	DEC.	H

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (15[illegible] M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Ten Q	Sol. Day	01	02	03	04	05	06	07	08	09	10	11	12	Sol. Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	387	385	383	382	379	378	373	372	381	389	378	361	01	230	267	335	339	369	373	383	384	389	369	382	381	8743
			02	382	381	384	380	379	377	376	380	382	379	378	377	02	368	366	379	384	375	374	374	380	381	383	383	382	9084
			03	383	386	389	385	384	385	380	383	396	384	387	385	03	386	389	389	392	392	390	392	396	394	395	390	391	9323
			04	393	396	396	398	393	392	404	405	477	492	401	434	04	291	334	-42*	-115*	361	436	404	390	386	386	382	396	8590
			05	393	409	396	392	393	397	389	389	393	395	402	396	05	322	269	392	399	389	387	384	389	389	358	390	390	9250
			06	392	393	394	391	393	397	397	396	396	394	392	393	06	390	387	394	391	362	384	393	392	393	390	393	393	9410
			07	399	402	396	402	408	406	403	401	401	395	393	397	07	308	281	338	372	403	406	403	393	392	387	379	380	9227
			08	394	394	419	389	399	408	477	513*	490	314	104	-121*	08	93	423	480	393	386	383	379	379	382	384	390	392	8641
			09	387	386	388	389	387	392	440	470	-47*	-240*	2	75	09	-154*	-154*	58	-93	230	399	315	361	415	372	373	398	5569
			10	396	394	401	391	381	413	411	399	355	219	339	278	10	45	80	261	110	-38	395	413	396	369	378	349	348	7503
			11	361	399	406	409	473	435	420	419	396	266	351	365	11	373	387	375	345	318	368	402	393	389	389	394	392	9225
			12	392	389	399	414	402	401	407	412	424	393	379	335	12	147	-66	-238*	-13*	191	249	385	407	402	390	396	398	7395
			13	388	391	393	399	391	402	433	419	409	383	356	273	13	178	204	341	393	391	390	389	394	393	388	388	387	8873
			14	386	384	387	391	376	389	386	383	384	336	359	341	14	319	344	389	397	394	392	387	383	364	360	381	369	9041
			15	390	394	395	396	393	390	389	383	380	364	309	351	15	391	396	393	390	391	392	392	383	383	380	383	389	9197
			16	392	394	393	392	384	382	383	384	382	383	374	354	16	87	281	413	379	384	374	396	395	392	392	393	400	8883
			17	399	403	413	403	399	401	401	396	392	394	392	393	17	395	382	323	318	373	375	309	357	375	335	371	349	9062
			18	365	445	426	561	712*	621*	689	478	403	358	352	342	18	389	383	381	382	380	373	365	353	344	363	322	386	10163
			19	406	402	404	423	415	405	403	394	395	405	395	389	19	379	341	394	396	362	389	391	388	388	392	390	379	9445
			20	379	395	408	403	401	389	389	390	388	391	391	391	20	336	388	402	398	381	395	401	391	386	364	389	393	9359
			21	399	402	404	404	405	400	393	392	403	416	399	392	21	394	395	388	361	366	410	408	398	395	391	395	399	9503
			22	400	402	403	400	403	435	456	442	430	372	184	55*	22	-256*	152	423	375	335	369	387	392	395	397	403	405	8159
			23	394	393	394	387	389	403	404	426	420	355	369	332	23	385	390	387	384	387	387	385	389	390	391	391	380	9312
			24	385	396	399	402	403	391	391	446	427	351	274	334	24	217	326	363	361	383	374	375	389	391	398	399	399	8974
			25	395	394	394	386	393	395	396	393	392	416	339	308	25	-121*	-53*	313	427	403	405	391	382	371	386	398	399	8302
			26	399	393	398	399	396	388	399	392	382	385	382	388	26	382	361	382	378	386	399	395	386	389	390	390	388	9354
			27	388	389	391	396	396	393	391	394	391	394	403	377	27	396	389	389	383	385	388	382	356	365	391	395	396	9298
			28	387	387	385	395	394	394	407	400	395	405	390	372	28	375	391	397	401	402	403	401	401	409	417	409	404	9519
			29	403	361	790*	767*	727*	637*	659*	455*	-76*	185*	-47*	-285*	29	-432*	-465*	-301*	-172*	323	421	404	396	398	396	401	392	6337
			30	388	384	388	387	388	387	390	388	423	72*	321*	351	30	4	139	-59*	176	331	433	358	303	275	271	228	331	7057
			31	382	396	435	401	433	416	414	414	405	392	381	356	31	348	382	371	386	383	384	359	345	403	393	376	345	9340

SCALED BY	SPT, CED, JEP
CHECKED BY	CED, MJM, JEP
SIGNS REVIEWED BY	MJM
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 Mgph., converted to Normal Mgph.

MONTHLY SUM	271111
MONTHLY MEAN	364
DATES WITH GAPS:	

USCOMM-DC 50886-P67

FORM C&GS-404a (9-67)

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day (15CMT) 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	76	DEC.	Z

C	Q or S	Test Q	Hr. Day	01	02	03	04	05	06	07	08	09	10	11	12	Hr. Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	303	302	304	301	302	301	303	308	295	298	299	278	01	132	138	199	213	249	260	273	288	285	279	283	294	6487
			02	308	309	309	305	303	304	302	305	304	308	305	307	02	299	285	294	298	299	295	299	294	293	295	297	299	7216
			03	301	304	304	303	302	300	299	301	289	293	302	301	03	297	289	286	285	283	285	283	280	279	278	283	285	7012
			04	286	289	288	291	293	295	298	305	297	322	264	272	04	208	234	402	161	112	258	264	273	274	278	282	298	6544
			05	311	321	318	305	304	299	299	304	304	299	281	296	05	285	214	256	279	285	283	283	285	285	286	287	293	6962
			06	296	295	292	291	291	291	293	292	289	291	292	291	06	292	288	285	284	281	269	268	271	275	274	278	283	6852
			07	288	288	292	299	299	296	295	297	294	293	292	283	07	226	161	166	207	253	275	278	276	278	278	277	287	6478
			08	283	293	325	318	296	301	269	111*	195*	202	361*	553*	08	533*	283	298	315	308	301	299	298	294	290	291	294	7311
			09	299	298	298	296	295	308	314	191	192	128	171	275	09	265*	157	97	238	70	141	198	204	243	249	277	264	5508
			10	299	300	310	315	332	351	312	317	282	175	180	185	10	167	97	152	220	249	198	271	277	286	289	315	335	6214
			11	332	315	330	321	386	338	341	319	115	68	179	234	11	265	281	289	271	210	227	265	273	278	283	285	294	6499
			12	309	326	342	325	318	308	308	321	269	303	281	301	12	281	150	7	16	8	83	221	241	265	284	288	291	5866
			13	298	299	303	308	325	333	311	335	320	298	286	244	13	192	217	234	269	286	291	294	296	290	291	293	297	6910
			14	299	303	300	301	308	305	309	315	319	268	255	235	14	234	240	268	288	294	291	295	298	298	298	294	297	6912
			15	299	300	301	301	301	302	301	305	311	281	213	190	15	255	290	296	296	291	290	290	292	291	289	290	291	6866
			16	292	293	298	298	298	298	303	324	317	308	299	264	16	238	144	261	278	278	265	241	269	282	282	273	283	6686
			17	292	302	302	302	303	302	299	292	292	293	292	290	17	291	290	272	194	242	261	194	116	160	197	224	261	6263
			18	267	315	318	366	337	-52*	261	380	311	310	302	272	18	289	299	299	294	292	290	287	270	245	256	254	268	6730
			19	318	323	314	322	319	318	312	303	310	308	311	306	19	283	247	274	303	298	282	286	286	290	289	287	289	7178
			20	295	364	308	298	301	298	293	298	278	294	297	298	20	267	217	282	292	282	288	295	285	286	290	293	296	7015
			21	299	299	295	295	292	293	293	304	310	295	303	299	21	292	289	285	274	249	262	272	274	274	281	284	287	6900
			22	288	288	287	288	304	354	358	309	328	228	227	380*	22	425*	273	214	256	220	227	212	248	266	278	282	292	6632
			23	296	298	304	307	313	318	337	346	329	306	273	226	23	268	268	291	288	288	289	290	291	288	288	288	288	7098
			24	292	294	297	298	303	308	321	326	268	226	201	251	24	297	214	261	263	277	282	278	276	283	291	298	299	6704
			25	298	297	295	298	299	296	291	292	291	301	207	234	25	365*	121	174	240	269	258	257	258	263	267	282	291	6454
			26	298	297	297	298	307	342	305	293	291	291	292	290	26	271	224	247	248	251	257	266	274	276	278	286	287	6766
			27	296	299	296	295	292	291	289	284	288	294	281	262	27	268	278	299	279	271	271	232	221	205	228	263	280	6562
			28	293	301	302	311	311	314	317	296	290	187	245	260	28	264	273	283	282	281	274	276	278	278	271	277	274	6738
			29	277	317	245	321	302	255	129*	85*	78*	226*	578*	507*	29	507*	405*	182*	271*	131	257	290	287	289	294	298	298	6809
			30	295	295	297	297	297	295	295	303	288	320	298	303	30	484	393	224	153	169	218	260	233	200	208	218	211	6554
			31	288	281	284	333	325	311	313	328	318	309	312	304	31	255	282	284	294	293	289	279	247	264	279	289	289	7050

SCALED BY	SPT, CED, JEP
CHECKED BY	CED, MJM, JEP
SIGNS REVIEWED BY	MJM
PUNCHED BY	

Preliminary base-line and scale values:

Interval Beginning	Base-line Value	Scale Value

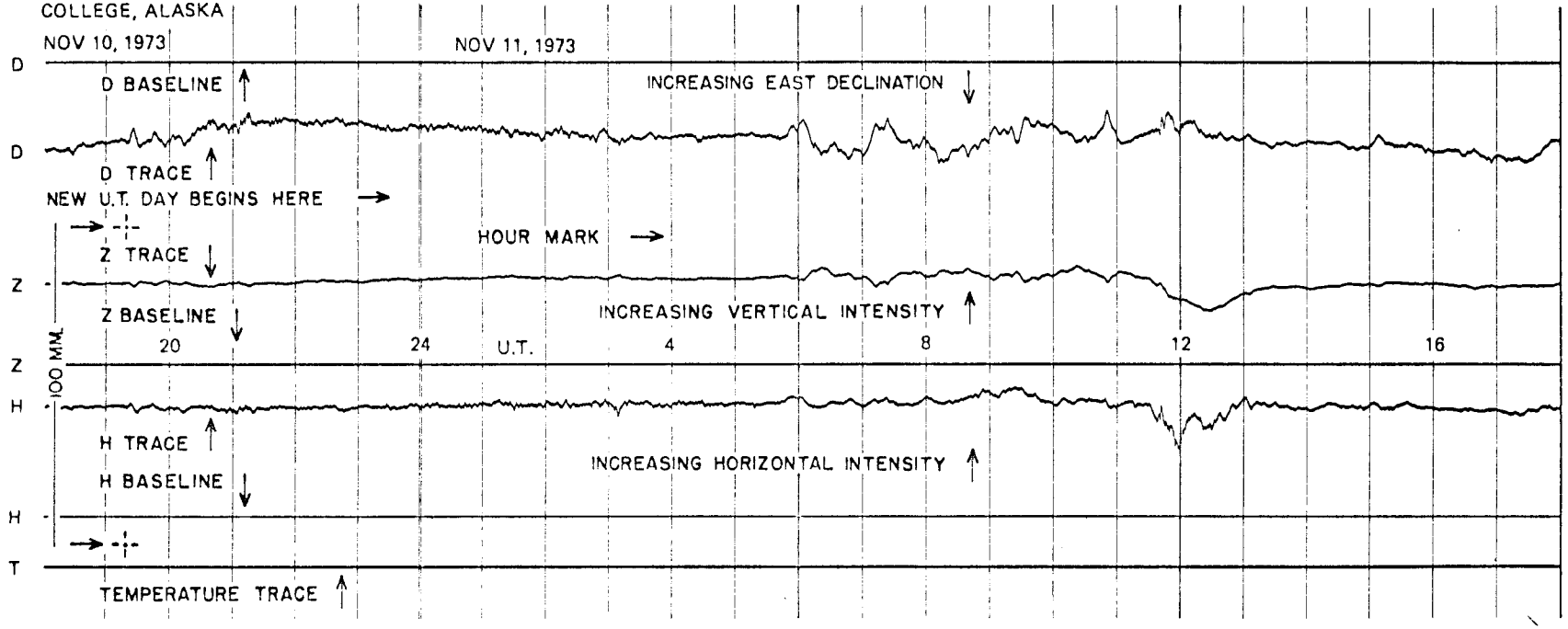
( ) Interpolated
[ ] Scaling uncertain because of magnetic storm.
⌐ Significant portion of hour interpolated.
<> Record off sheet for part or all of hour; if value is given, curve was estimated for missing part.
□ No record; or no values available because of faulty record.
* Derived from Storm Mgph., converted to Normal Mgph.

MONTHLY SUM	207976
MONTHLY MEAN	280
DATES WITH GAPS:	

USCOMM-DC 56956-P67

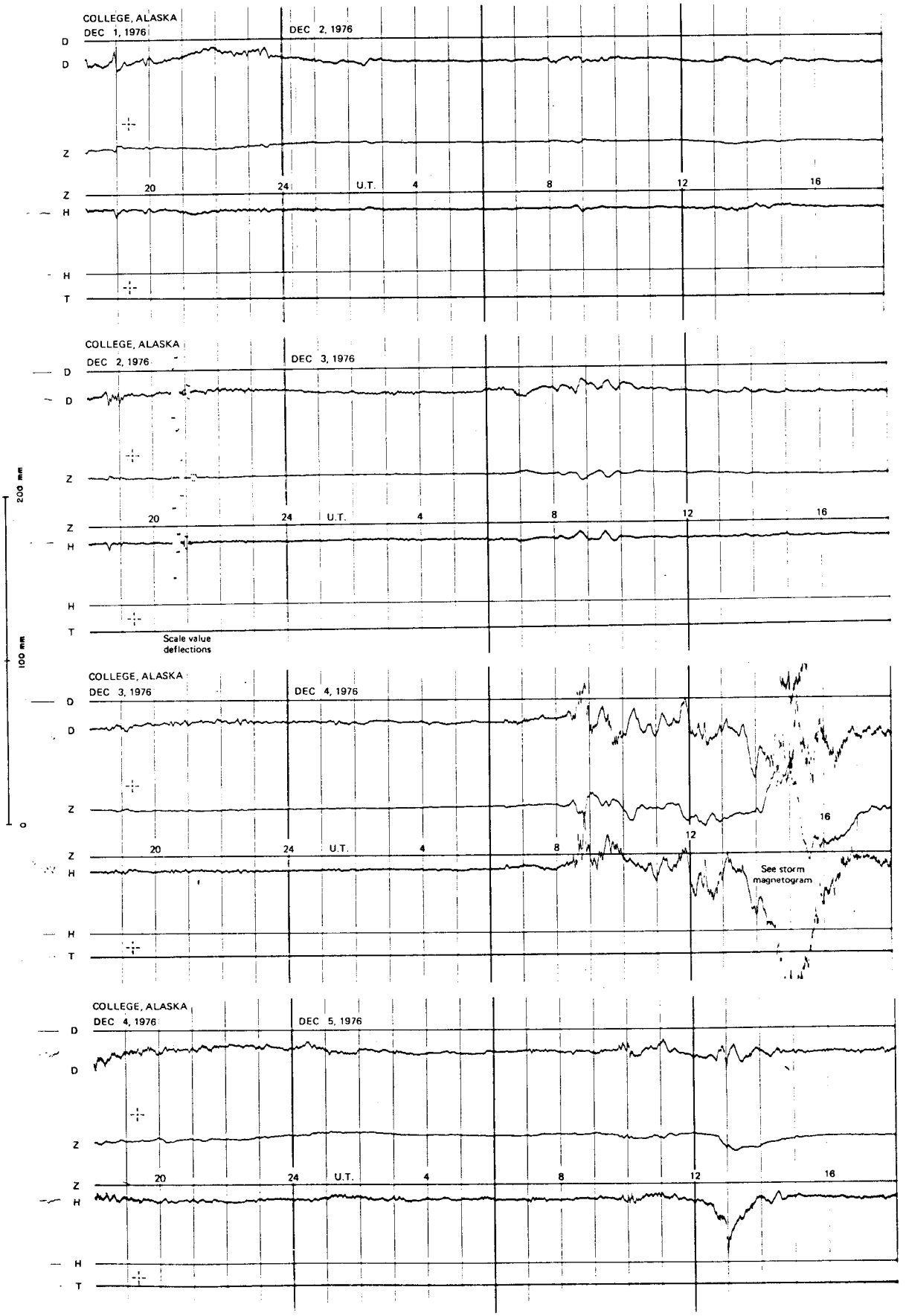
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

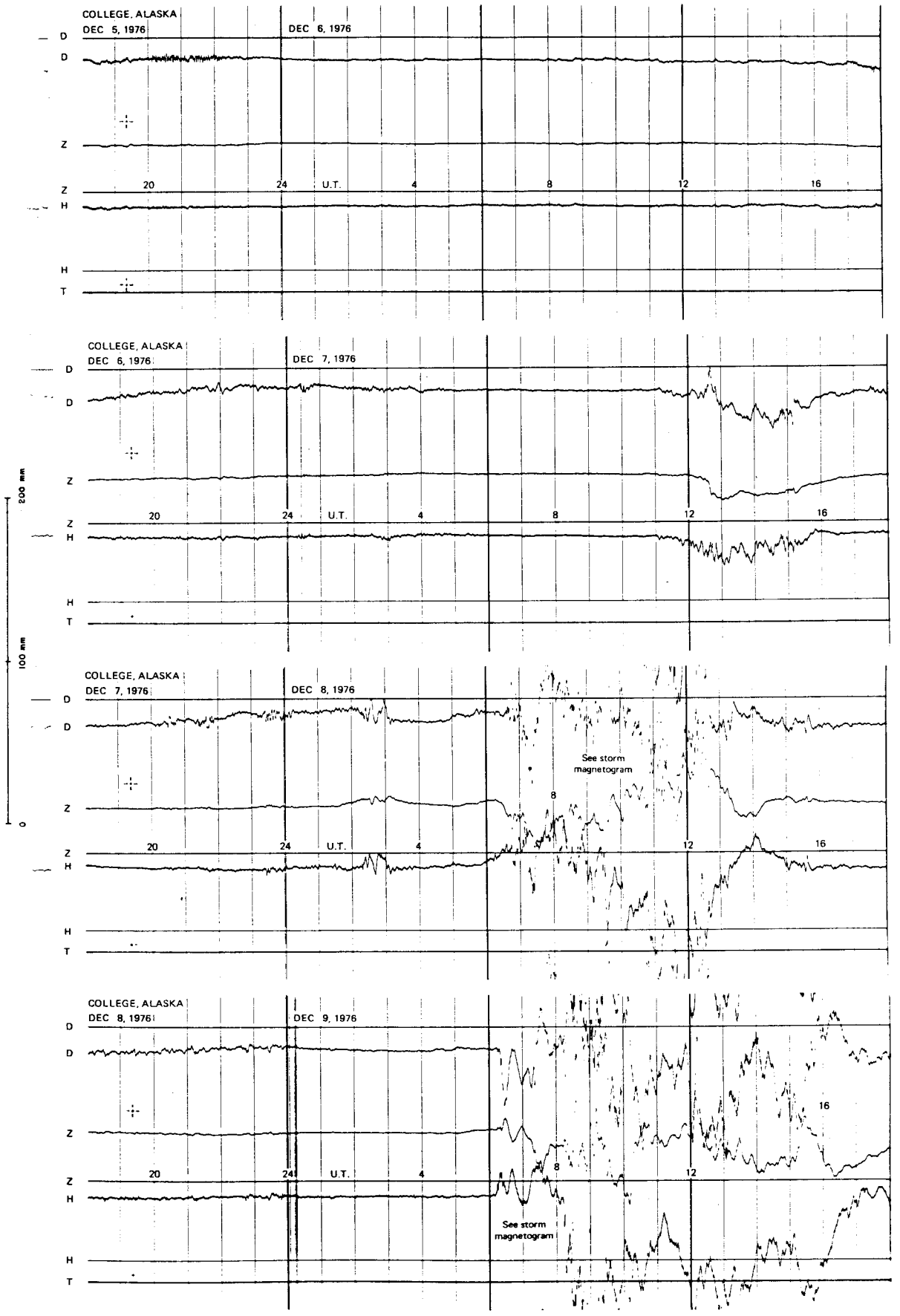


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

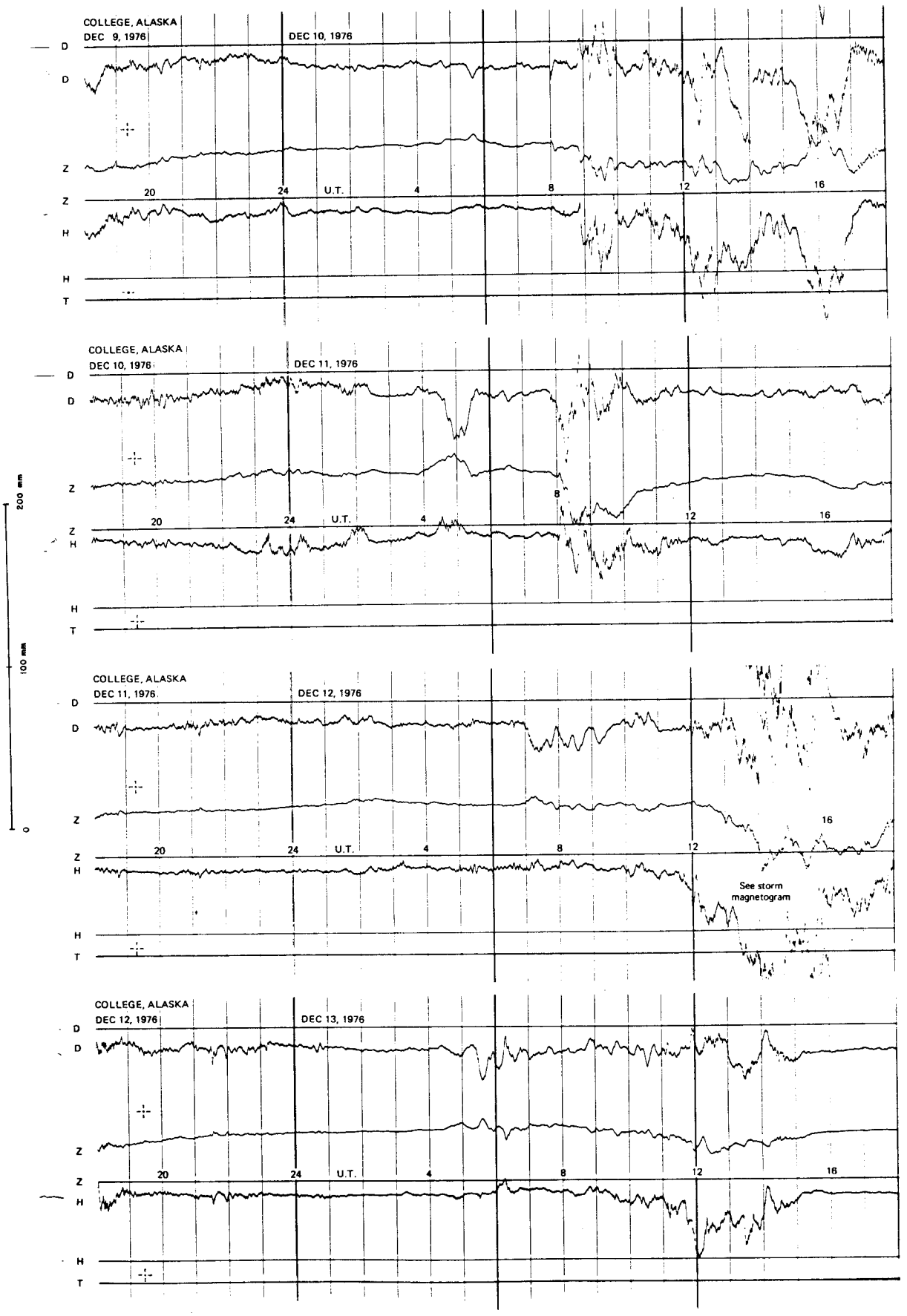
NORMAL MAGNETOGRAMS



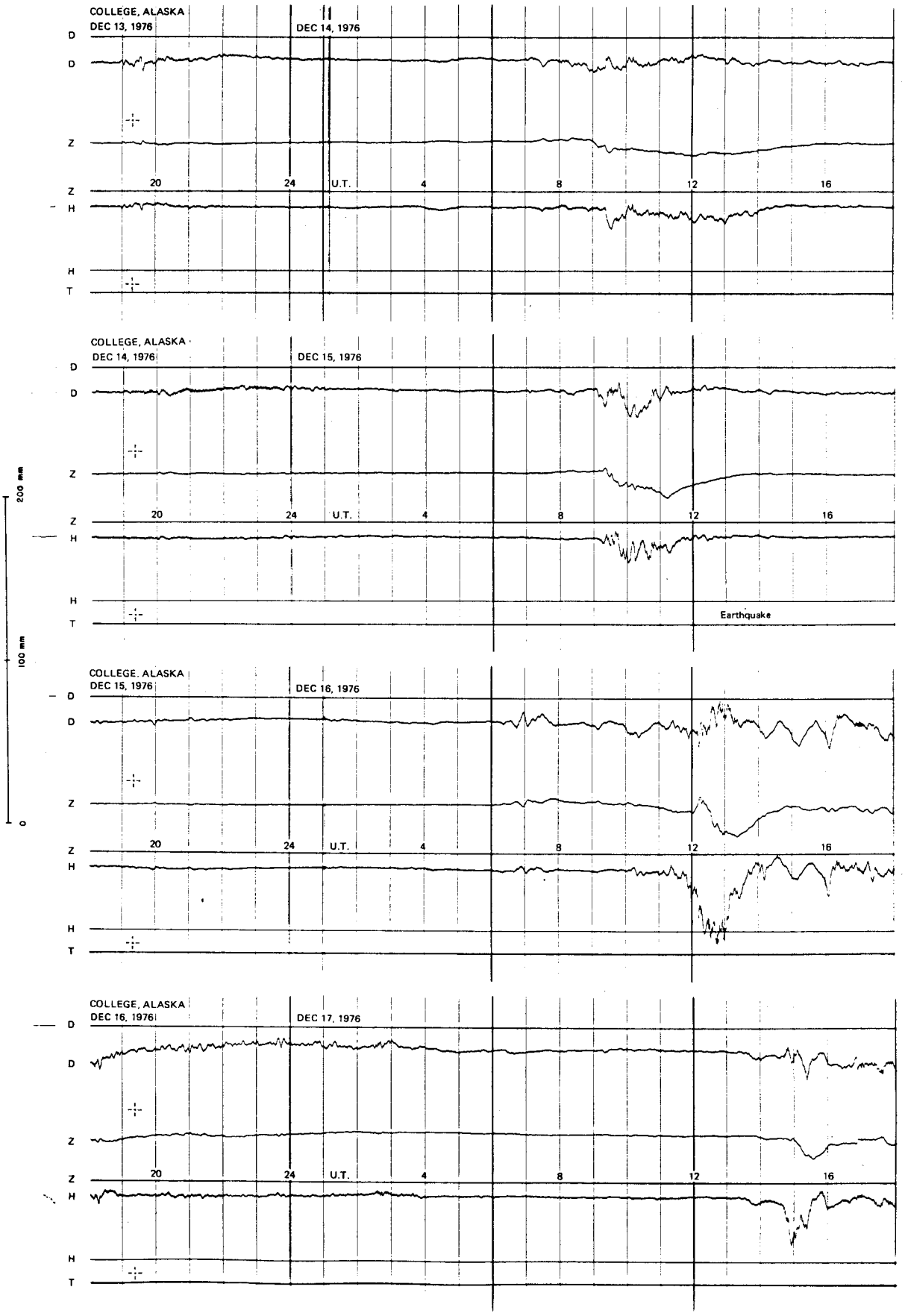
NORMAL MAGNETOGRAMS



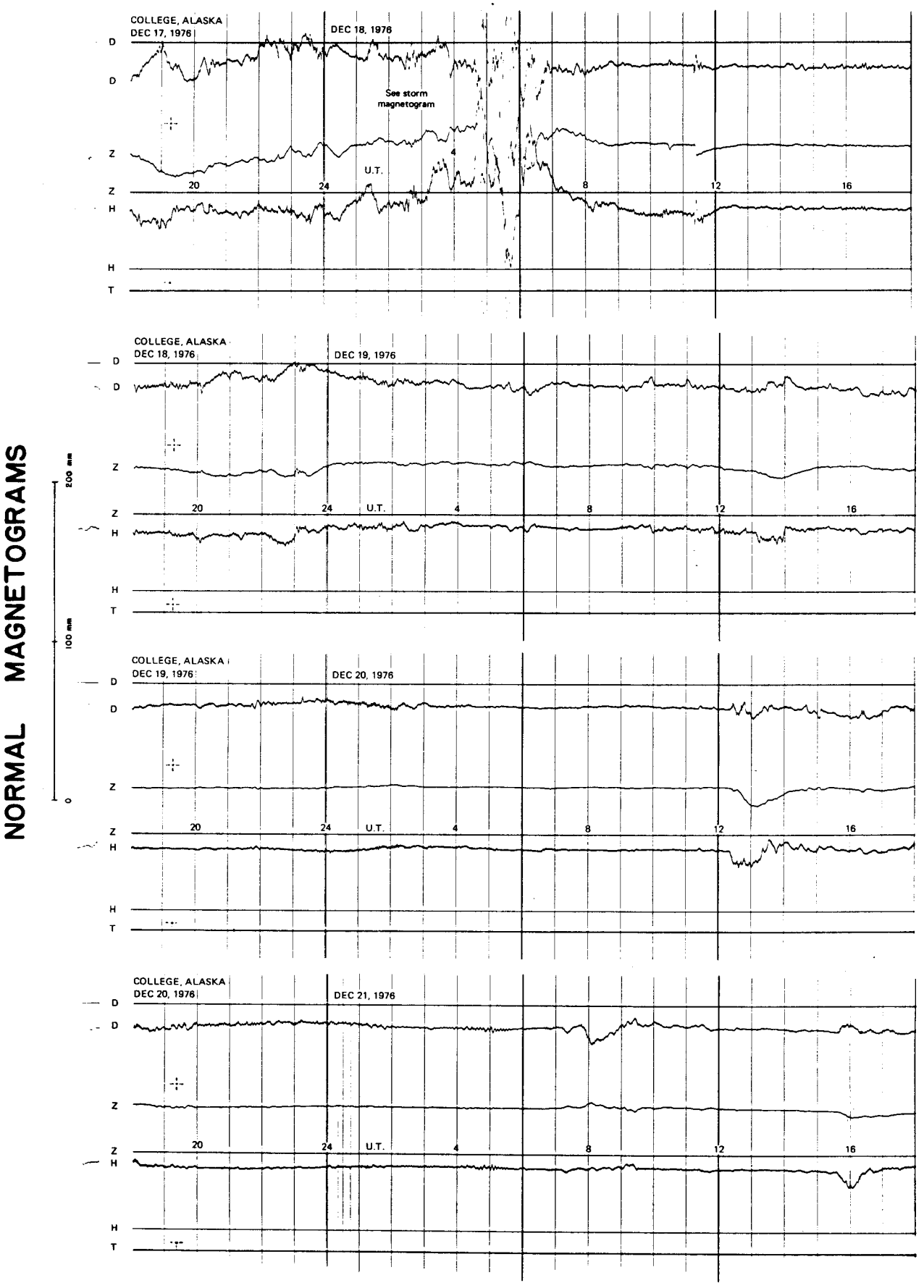
NORMAL MAGNETOGRAMS



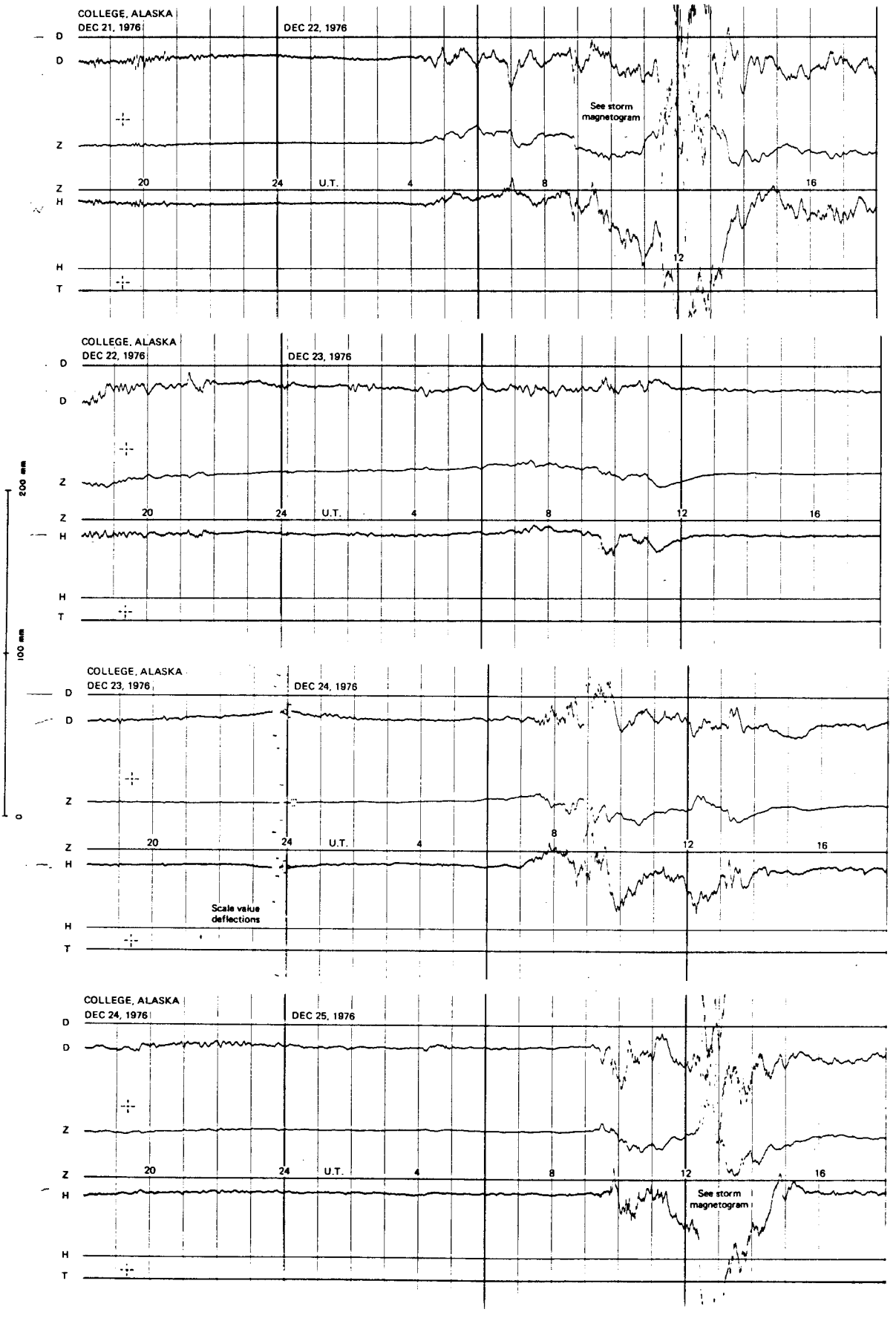
NORMAL MAGNETOGRAMS



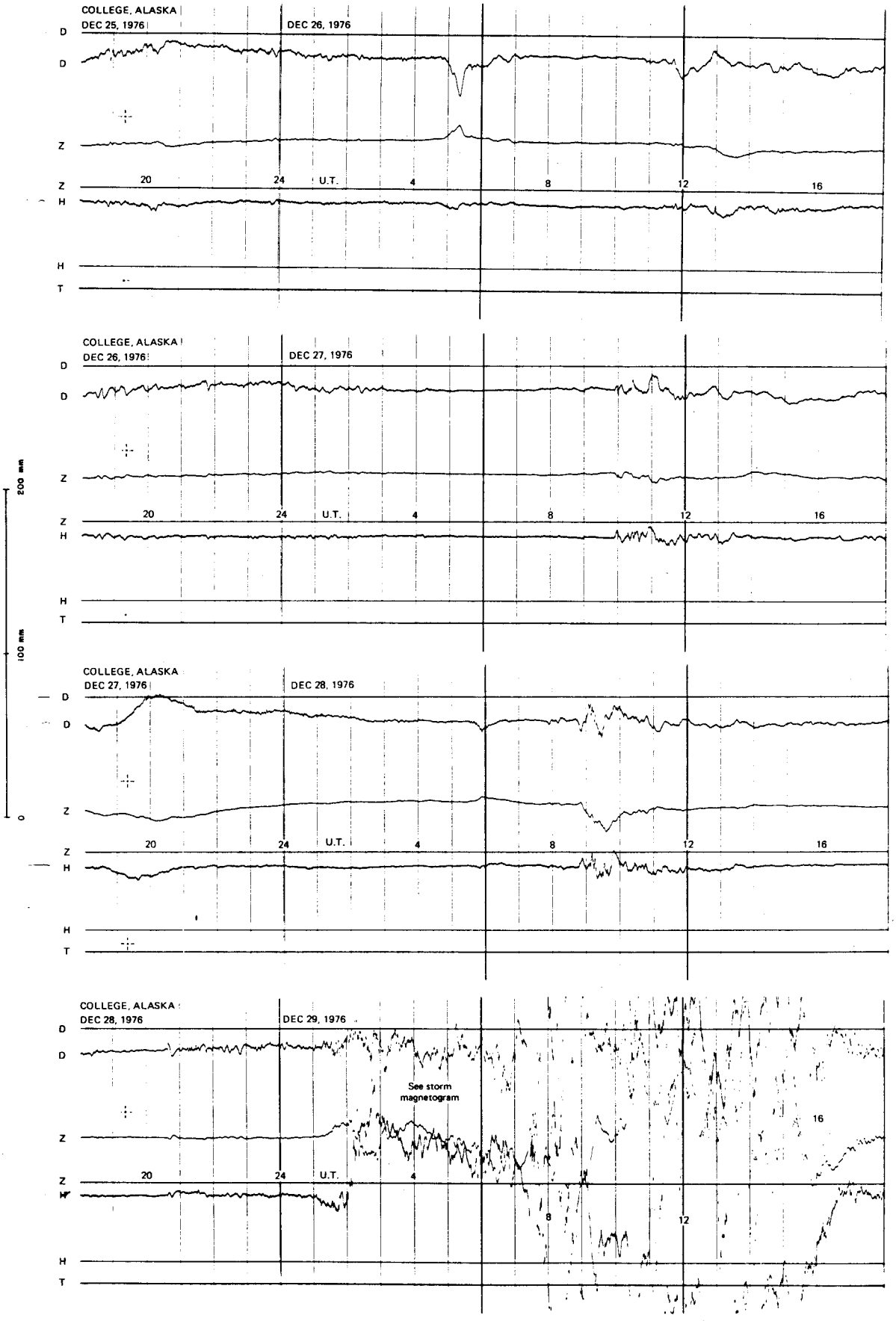
NORMAL MAGNETOGRAMS



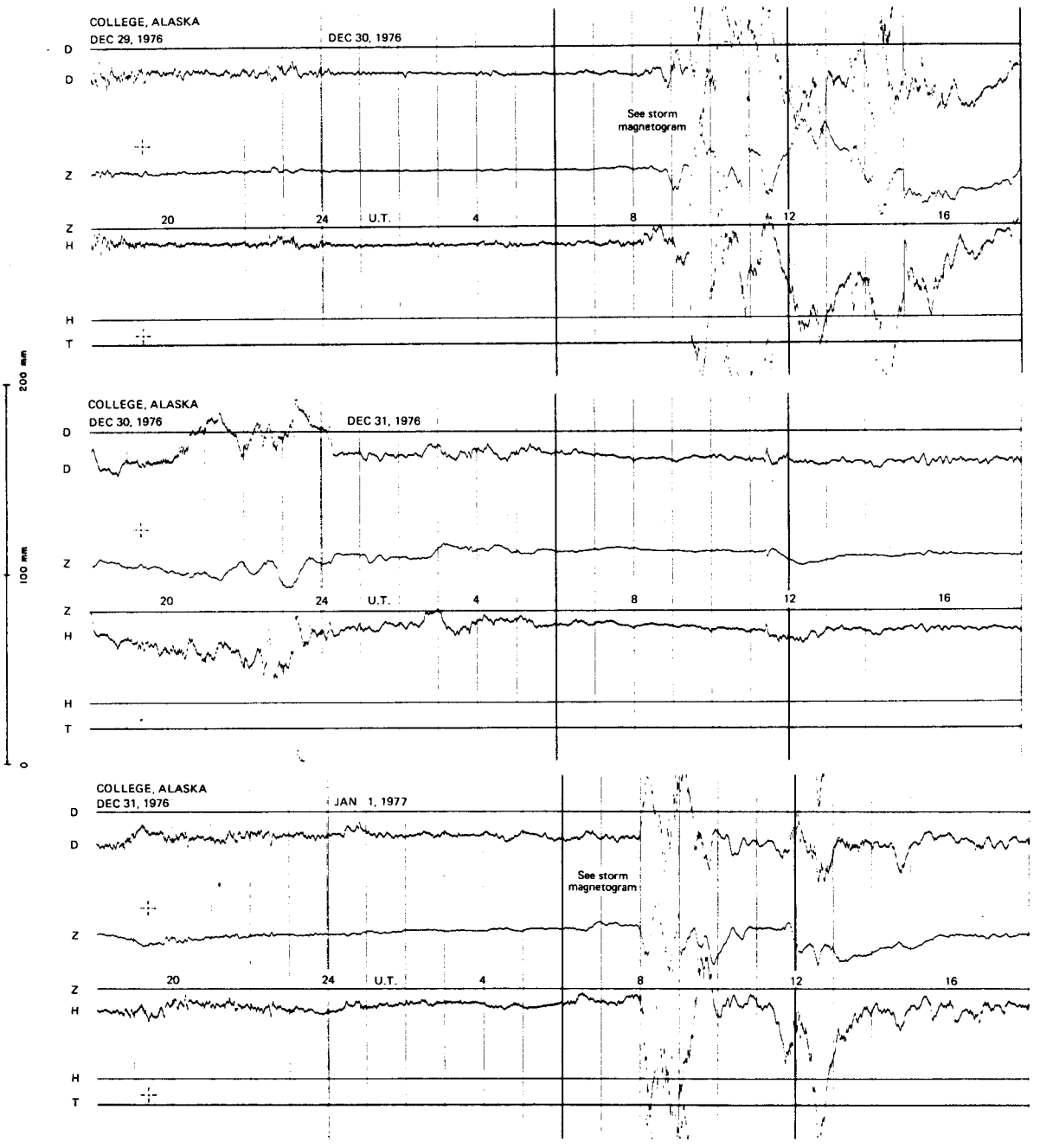
NORMAL MAGNETOGRAMS



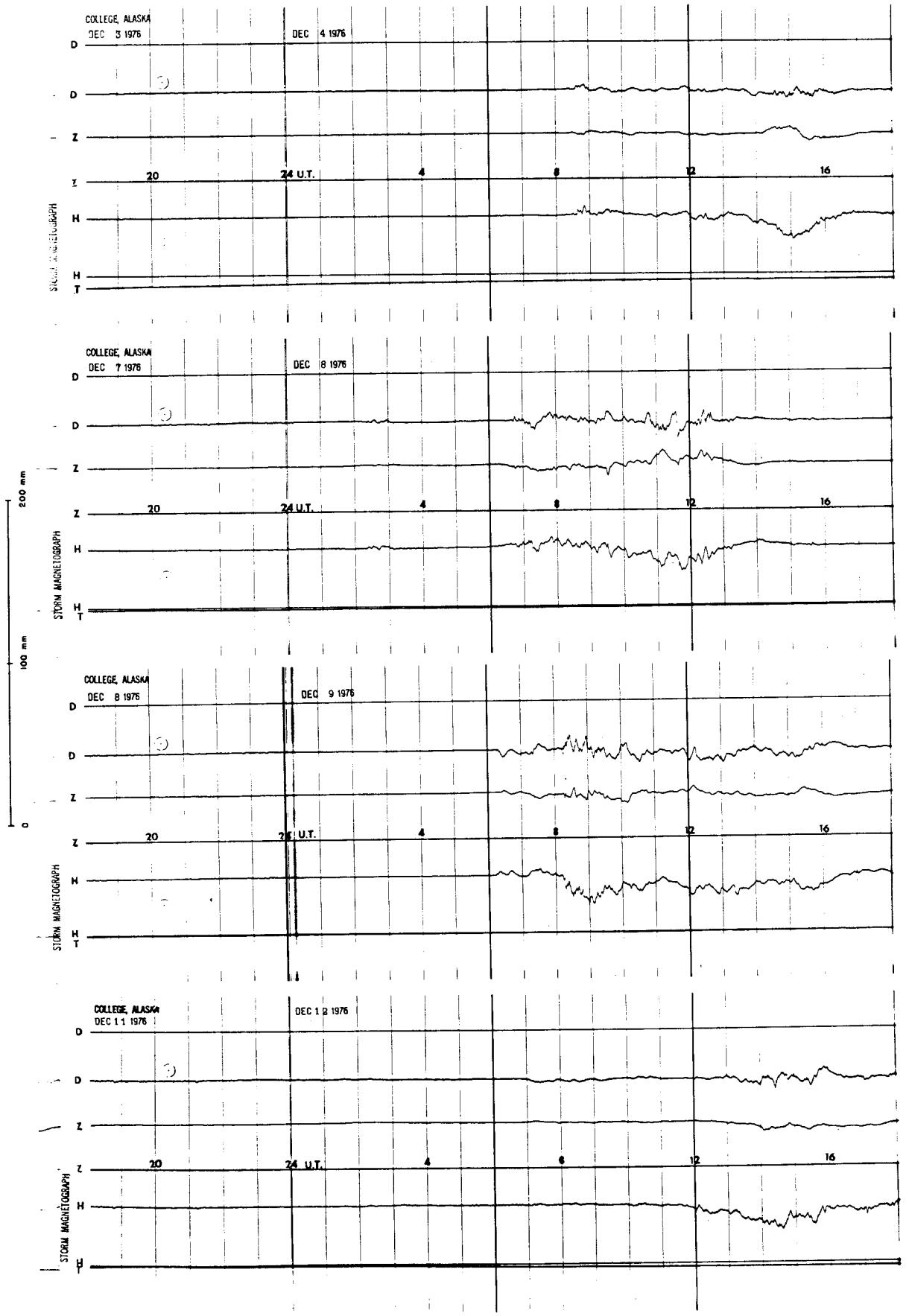
NORMAL MAGNETOGRAMS



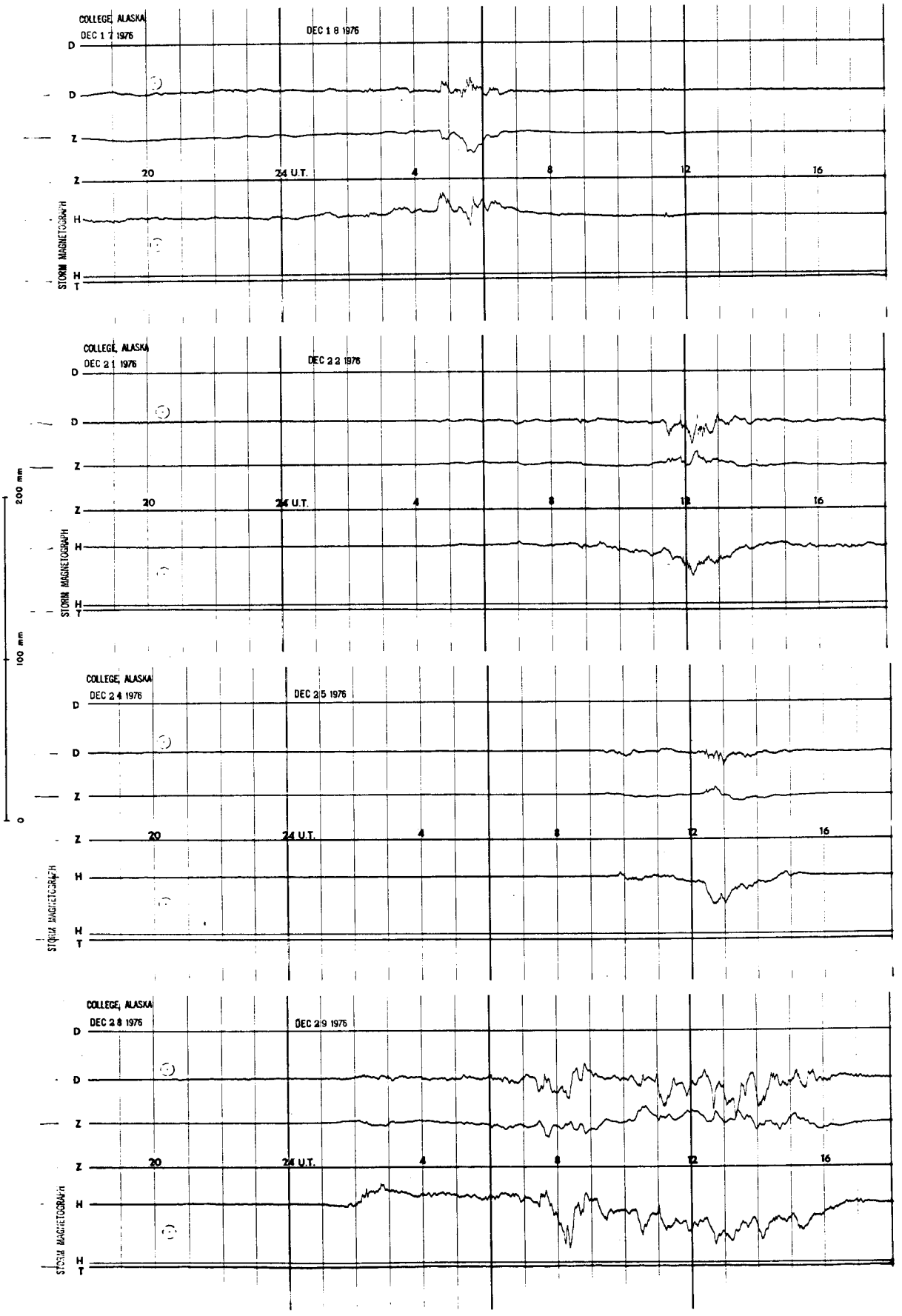
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS