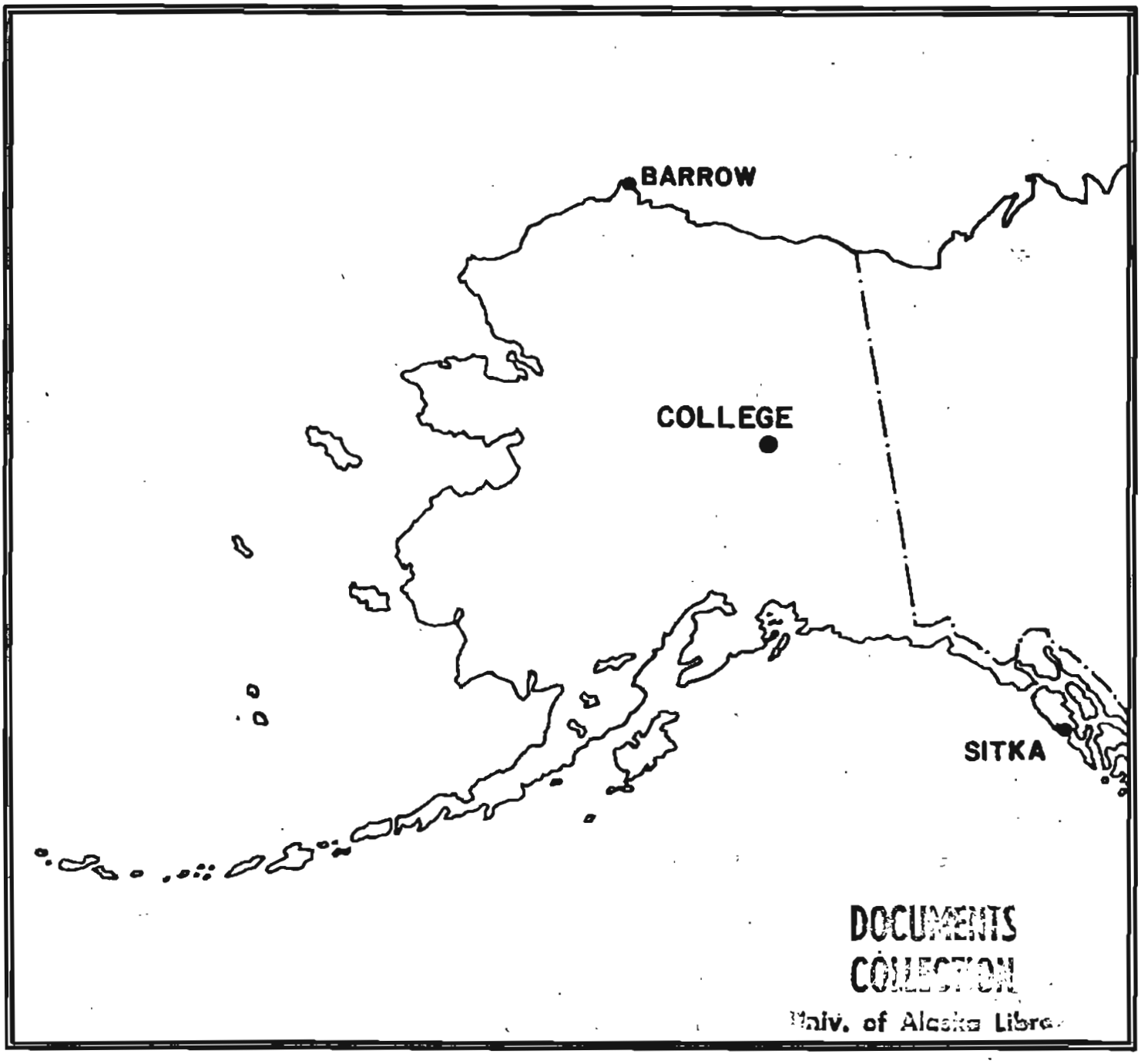
D STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JANUARY 1976

OPEN FILE REPORT 76-300A



NOTICE TO "PRELIMINARY GEOMAGNETIC DATA REPORT" USERS

Beginning January 1, 1976, the "Pulsations from Normal and Quick-Run Magnetograms", and "Rapid Variations from Normal and Quick-Run Magnetograms" previously included in the report will be discontinued.

In place of these will be a report on "Outstanding Magnetic Effects". This report will not provide detailed information, but will serve to identify events that stand out on our records for those that are interested in further study of them.

John B. Townshend
Chief, College Observatory

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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: JANUARY 1976

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 C	AK
1	0	0	1	3	2	0	0	0	06	0	03
2	0	0	1	1	2	1	1	0	06	0	02
3	0	1	2	5	6	3	3	3	23	1	23
4	2	2	3	2	4	2	2	1	18	1	10
5	0	2	2	4	2	2	2	0	14	0	08
6	1	1	1	1	2	3	3	3	15	0	08
7	3	2	1	4	3	2	1	0	16	1	10
8	0	0	0	3	2	2	0	1	08	0	04
9	0	0	1	1	1	0	0	0	03	0	01
10	0	0	2	5	6	7	6	6	32	2	54
11	4	4	3	3	3	5	5	3	30	1	26
12	3	3	3	5	4	4	2	2	26	1	20
13	3	2	1	1	4	2	2	1	16	1	09
14	1	2	2	6	5	4	3	2	25	1	24
15	1	0	0	1	1	3	1	2	09	0	04
16	1	1	1	3	2	3	2	3	16	0	09
17	2	3	3	3	2	2	4	3	22	1	14
18	2	2	3	5	4	1	1	2	20	1	15
19	1	2	1	5	4	3	2	2	20	1	15
20	2	1	1	2	5	4	3	1	19	1	14
21	2	2	3	5	5	6	2	2	27	1	27
22	2	3	2	3	6	6	4	3	29	1	31
23	3	3	3	6	6	6	2	2	31	1	37
24	2	2	7	6	5	5	3	3	33	2	45
25	2	1	3	4	5	3	1	1	20	1	15
26	0	1	0	1	2	3	0	0	07	0	04
27	0	2	3	3	4	1	0	0	13	0	08
28	0	0	2	3	3	1	1	0	10	0	05
29	0	0	4	5	5	0	0	0	14	1	15
30	0	0	2	2	4	5	2	2	17	1	13
31	2	4	3	5	7	5	4	4	34	1	42
								SUM		22	

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	BEGIN h	BEGIN m	END d	END h	END m

K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(nm)
CURRENT SCALE VALUE.....	3.76	7.82		(γ/mm)
LOWER LIMIT FOR K = 5	2570	2520		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED /s/ John B. Townshend
JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY
OBSERVER IN CHARGE

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

☆ U.S. GOVERNMENT PRINTING OFFICE: 1972-760-848

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: JANUARY | YEAR: 1976

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
3	16XX	pc3/pc4	
4	11XX	pi2	
11	17XX	pc5	
13	13XX	pc3/pc4	
20	18XX	pc4	
27	05XX	pc5	
31	04XX	b	

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

JANUARY 1976

Obs. (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	10	06XX	..	..	..	..	10	6	7	395	2220	1260	11	10
		22	09XX	..	..	..	..	22	5,6	6	144	1150	660	23	20
								23	4,5,6	6					
		24	06XX	..	..	..	..	24	3	7	181	1350	480	24	20
		31	04XX	..	..	..	..	31	5	7	338	1700	790	FEB 2	22

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 1-1-76	2400 UT, 1-31-76	1.0/mm	3.8γ/mm	28° 07.2 E
H	0000 UT, 1-1-76	2400 UT, 1-31-76	7.8 γ/mm		12744 γ
Z	0000 UT, 1-1-76	2400 UT, 1-31-76	7.6 γ/mm		55132 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 UT, 1-1-76	2400 UT, 1-31-76	7.9/mm	29.8γ/mm	24° 24.9 E
H	0000 UT, 1-1-76	2400 UT, 1-31-76	44.1 γ/mm		11479 γ
Z	0000 UT, 1-1-76	2400 UT, 1-31-76	48.6 γ/mm		54012 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D	0000 UT, 1-1-76	2400 UT, 1-31-76	0.3/mm	1.0 γ/mm
H	0000 UT, 1-1-76	2400 UT, 1-31-76	1.0 γ/mm	
Z	0000 UT, 1-1-76	2400 UT, 1-31-76	2.4 γ/mm	

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 25.2 E	13049 γ	55352 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JAN 1, 2, 5, 6, 8, 9, 15, 26, 27, 28

Form CAGS-656a

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

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 (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	JAN	D

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	163	162	173	185	189	195	195	196	185	182	194	195	01	172	200	188	184	189	190	192	182	183	180	173	172	4419
02	173	176	182	183	182	180	179	180	204	178	177	171	02	192	186	150	188	221	210	220	205	199	179	160	159	4434
03	152	159	169	185	184	190	180	162	224	196	178	246	03	338*	361	169	233	204	221	249	215	135	122	149	142	4763
04	151	159	180	186	189	197	290	238	187	174	182	200	04	206	165	169	228	183	269	200	188	182	179	158	139	4589
05	135	158	150	155	162	169	166	219	212	206	100	213	05	193	198	183	200	211	208	225	232	182	130	132	193	4270
06	148	136	150	153	169	170	173	190	191	189	189	183	06	201	186	198	220	271	203	253	205	132	114	140	60	4234
07	41	119	140	153	152	161	163	170	180	179	180	128	07	196	200	182	223	202	224	231	216	195	172	142	145	4094
08	162	166	167	170	165	179	171	180	189	189	172	180	08	192	209	146	182	221	240	248	229	213	190	175	141	4476
09	142	158	162	159	162	171	150	182	199	191	198	212	09	202	209	185	190	185	192	192	209	210	198	173	168	4597
10	163	171	176	179	182	179	185	181	189	172	274	306	10	336	323*	585*	1165*	77*	-82*	140*	355*	345	354	213	206	6374
11	230	115	115	129	89	113	152	205	189	168	178	181	11	181	190	254	270	383	351	269	236	91	82	123	118	4387
12	123	164	165	162	161	133	166	162	177	199	172	219	12	195	201	206	242	153	266	273	214	207	171	143	158	4412
13	160	164	163	149	163	164	176	190	192	194	193	193	13	200	172	199	169	169	183	213	207	186	172	172	155	4298
14	160	155	156	170	180	183	150	198	220	102	196	236	14	216	168	189	229	152	189	205	219	210	185	168	160	4396
15	153	173	176	169	172	178	180	179	180	182	184	204	15	184	188	202	189	125	219	240	179	119	142	122	152	4171
16	142	145	136	133	165	179	183	192	192	173	182	162	16	203	208	221	219	188	241	230	193	150	123	130	116	4206
17	146	135	162	164	175	93	134	168	201	260	179	178	17	178	193	183	149	189	222	234	196	13	62	22	103	3739
18	139	165	163	123	136	160	104	168	198	134	171	179	18	196	172	180	192	198	199	185	203	193	172	153	160	4043
19	168	168	160	166	163	189	164	182	181	185	190	176	19	203	213	190	206	193	235	239	221	184	168	141	147	4432
20	146	157	147	166	183	184	189	183	171	173	174	210	20	164	181	213	207	220	211	178	183	192	170	144	133	4279
21	144	135	146	162	176	175	207	243	204	168	183*	266	21	140	187	308	445*	349*	280	203	165	167	153	132	151	4889
22	141	160	150	155	125	175	191	190	188	165	177	210	22	421*	358*	731*	297	322	199*	229	144	79	-24	60	109	4952
23	139	125	191	170	168	211	186	191	224	200	160*	109	23	207*	32*	191*	48*	241	101	182	171	161	157	163	162	3890
24	179	178	180	182	207	183	256	194	255*	119*	150	205	24	225	207	126	228	162	195	164	149	125	119	110	125	4217
25	131	162	157	172	180	190	184	140	180	181	157	203	25	160	262	18	162	238	180	182	163	163	165	161	163	4054
26	174	179	180	175	162	169	175	180	179	212	215	189	26	182	167	166	169	163	189	194	181	163	170	169	165	4267
27	175	173	172	169	171	165	173	165	231	210	182	190	27	212	231	215	189	185	159	189	203	188	178	165	160	4450
28	159	164	168	169	168	172	174	178	240	182	202	215	28	217	223	219	217	200	185	216	190	165	165	160	168	4515
29	152	168	170	174	180	170	162	217	199	165	204	191	29	205	210	197	199	185	188	190	183	182	169	163	162	4385
30	172	172	173	178	180	180	170	170	214	184	181	190	30	213	213	290	208	302	251	231	191	125	132	120	101	4541
31	111	135	137	142	81	148	151	182	162	140	186	195	31	230*	326*	580*	515	248	202	253	215	136	148	99	119	4841

SCALED BY	SPT, CED, MTM, JEP
CHECKED BY	CED, MTM, 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 Mgph., converted to Normal Mgph.

MONTHLY SUM	137414
MONTHLY MEAN	185
DATES WITH GAPS:	

Form C&GS-486a

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY.	YEAR	MONTH	ELEMENT
CO	76	JAN	H

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

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	392	394	394	395	398	395	391	390	391	388	375	358	379	390	401	395	391	395	396	394	390	392	390	390	9362
02	392	394	395	394	389	391	391	386	382	387	385	387	394	376	351	373	388	401	400	393	383	391	393	395	9310
03	399	400	400	406	405	400	404	418	445	493	425	207	-164*	39	434	383	421	428	415	363	362	400	402	399	8762
04	398	392	395	399	406	433	479	459	436	393	373	345	286	224	393	370	381	370	405	402	399	396	378	382	9290
05	398	403	411	409	404	409	442	462	482	441	286	323	385	382	391	399	403	410	393	375	381	382	381	376	9528
06	391	412	408	404	424	418	413	410	406	413	403	396	381	386	385	393	311	379	412	388	376	371	383	333	9396
07	358	434	416	421	412	425	423	404	392	385	382	338	300	380	395	367	364	380	409	396	386	385	377	383	9312
08	393	396	395	398	393	393	402	405	405	420	408	395	387	372	330	372	401	396	408	403	395	382	392	393	9429
09	391	395	402	405	404	402	411	412	413	409	404	397	389	392	399	401	402	402	401	399	393	391	383	383	9580
10	392	396	401	400	403	403	411	422	458	442	256	212	136	85	-136*	-905*	-763*	-826*	-288*	5*	130	-55	275	416	2668
11	412	453	503	496	564	557	552	483	448	452	388	370	376	373	301	119	10	301	330	205	335	362	313	385	9083
12	464	447	413	398	412	431	429	449	464	593	297	181	275	307	342	283	304	205	384	419	400	389	392	371	8999
13	398	401	409	409	387	422	400	394	393	393	385	383	355	213	354	394	400	408	401	399	390	382	386	391	9247
14	386	375	388	396	323	426	423	426	410	586	432	231	6	407	389	269	279	323	414	407	399	405	400	400	9019
15	403	396	397	394	393	396	395	390	390	392	394	397	396	395	882	338	279	395	400	387	379	402	392	391	9273
16	405	409	408	408	400	400	403	404	407	400	396	379	353	398	372	329	292	398	404	389	366	370	403	381	9273
17	400	400	411	406	434	482	550	523	480	447	402	403	372	370	383	405	387	375	302	151	256	279	352	402	9390
18	411	414	404	432	448	460	542	557	574	515	457	390	325	402	401	393	394	387	389	388	379	389	390	392	10233
19	391	390	392	395	405	416	408	399	394	386	398	198	344	407	396	320	361	434	401	400	399	396	392	389	9211
20	397	402	403	403	401	416	411	401	399	392	386	384	265	340	397	407	394	302	384	402	399	391	377	380	9223
21	392	401	393	392	401	450	445	457	396	303	253	204	195	402	293	-97*	-149*	335	451	417	416	409	384	393	7916
22	402	390	404	378	417	429	438	404	403	395	370	342	-142*	-262*	-273*	16	138	95*	351	398	342	322	368	394	6519
23	419	410	402	453	467	402	415	453	449	379	78*	112	95*	-210*	-374*	-86*	166	362	395	391	401	403	393	397	6752
24	392	411	409	401	384	392	427	466	-69*	226*	385	317	199	103	237	217	422	374	384	388	373	337	360	396	7931
25	401	388	370	397	401	399	401	421	401	384	316	338	374	219	-2	374	378	375	401	396	401	394	391	394	8712
26	395	397	395	400	397	390	394	395	396	401	410	392	391	366	329	320	395	400	400	394	392	393	390	388	9320
27	392	396	400	400	408	409	399	387	406	397	372	336	215	249	343	401	386	384	393	392	391	394	390	386	9026
28	385	390	397	392	391	391	392	389	411	421	378	331	331	369	384	368	394	401	404	401	395	401	398	391	9305
29	393	391	393	392	386	382	395	434	409	366	244	143	82	394	413	402	400	399	398	397	399	396	390	386	8784
30	390	393	392	393	393	393	391	385	392	392	393	368	299	257	254	118	309	411	410	398	381	372	381	404	8669
31	408	406	404	399	481	636	448	400	432	522	264	323	26*	-678*	-379*	161	502	491	413	398	380	322	403	387	7551

MONTHLY SUM	270073
MONTHLY MEAN	363
DATES WITH GAPS:	

SCALED BY: SPT, CED, MTM, JEP

CHECKED BY: CED, MTM, 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 records 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.

Form CAGS-...

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
GEOMAGNETISM DIVISION

OBSY.	YEAR	MONTH	ELEMENT
CO	76	JAN	Z

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. (Hour 01 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.

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	293	294	298	300	306	308	304	302	303	300	279	193	01	216	249	285	291	290	287	291	286	288	287	289	293	6832
02	294	293	293	294	295	294	294	300	307	295	285	266	02	285	280	235	235	248	263	278	282	283	283	284	290	6755
03	293	295	293	295	296	298	306	320	342	289	334	305	03	301	129	220	281	290	301	288	261	252	275	297	293	6854
04	298	309	305	306	312	355	361	353	320	321	291	269	04	275	203	235	252	260	266	272	279	279	287	281	283	6966
05	295	297	298	304	308	346	384	420	410	339	152	249	05	252	273	287	285	309	311	294	279	262	249	268	275	7144
06	285	297	307	316	342	328	327	331	332	330	320	310	06	282	280	285	287	234	207	253	271	251	252	288	281	6996
07	296	302	321	323	322	358	348	311	305	301	291	217	07	202	251	287	288	274	278	287	281	280	283	282	287	6975
08	298	296	299	303	304	307	306	310	307	262	293	301	08	301	288	216	221	268	277	266	265	274	274	280	285	6802
09	297	294	292	300	301	311	322	328	340	328	314	311	09	299	297	289	288	287	289	288	291	289	282	282	283	7202
10	284	290	296	300	301	303	305	314	332	293	252	208	10	236	392	337*	186*	-491*	115*	414*	490*	497	474	233	213	6634
11	273	251	331	348	322	332	342	313	306	263	316	322	11	314	301	290	264	184	147	198	202	158	232	272	309	6590
12	302	324	314	316	314	331	348	323	249	296	364	314	12	268	254	250	234	237	248	232	245	281	292	293	302	6931
13	311	319	328	321	343	333	327	315	317	320	302	301	13	283	234	211	247	289	305	310	302	289	274	295	299	7217
14	305	304	305	304	306	305	342	356	325	278	321	257	14	170	200	285	245	212	232	293	308	299	296	296	307	6851
15	309	308	302	301	303	307	307	306	311	313	308	294	15	291	292	287	258	198	222	241	252	233	249	266	288	6746
16	303	311	320	323	322	314	323	325	315	308	301	275	16	263	268	275	247	200	212	230	248	271	263	301	307	6825
17	295	311	310	332	333	358	296	373	390	338	292	321	17	292	288	282	293	300	290	264	160	117	106	180	249	6770
18	297	312	300	325	334	351	335	360	310	202	277	354	18	291	303	311	306	301	299	295	297	296	295	303	305	7359
19	313	306	302	309	312	331	314	308	301	301	291	271	19	215	261	292	247	230	294	285	276	281	284	288	300	6911
20	304	303	310	314	329	327	323	310	304	308	291	288	20	205	177	260	285	286	242	209	268	282	281	287	295	6784
21	301	306	311	328	322	344	366	344	309	-50	196	180	21	217	245	266	383*	49	93	240	264	289	300	292	298	6193
22	308	312	321	339	333	331	344	311	312	301	292	274	22	465*	174*	129*	240	86	41*	126	191	221	274	262	299	6286
23	322	342	380	351	352	336	322	335	322	290	263	180	23	226	63	-48	-119	50	170	233	256	290	293	292	305	5806
24	315	305	320	318	323	332	347	297	388*	161*	245	254	24	299	231	178	142	239	251	271	270	268	288	282	290	6584
25	309	314	310	313	325	323	324	257	300	285	165	194	25	229	230	111	217	255	254	271	281	285	289	290	299	6430
26	301	303	304	299	301	310	305	303	299	314	301	270	26	289	281	221	195	252	279	283	282	283	290	293	297	6855
27	301	301	301	301	301	300	311	304	315	296	264	239	27	238	183	203	261	276	280	292	293	292	293	293	299	6737
28	304	304	305	302	302	301	305	313	328	311	291	241	28	222	235	264	259	262	281	274	263	268	274	284	292	6785
29	295	298	294	297	305	314	322	317	335	304	262	201	29	157	188	274	282	286	289	293	291	289	287	290	293	6758
30	299	299	296	298	299	299	301	319	329	314	307	272	30	235	192	184	83	57	181	231	242	242	262	275	313	6129
31	323	314	323	323	344	391	393	332	315	140	223	276	31	454*	416*	98*	216	171	294	313	253	244	281	313	325	7075

SCALED BY	SPT, CED, MJM, JEP
CHECKED BY	CED, MJM, 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.

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

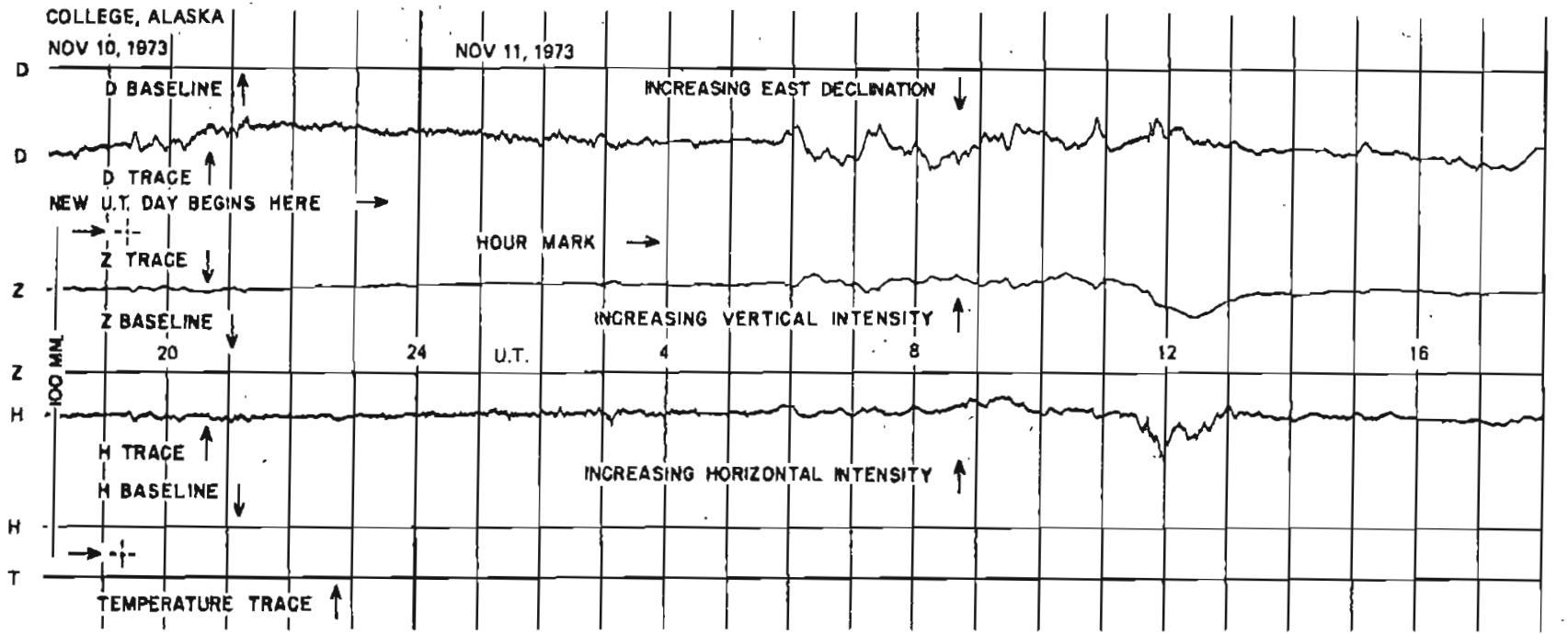
[ ] Scaling uncertain because of magnetic storm.

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

MONTHLY SUM	209722
MONTHLY MEAN	262
DATES WITH GAPS:	

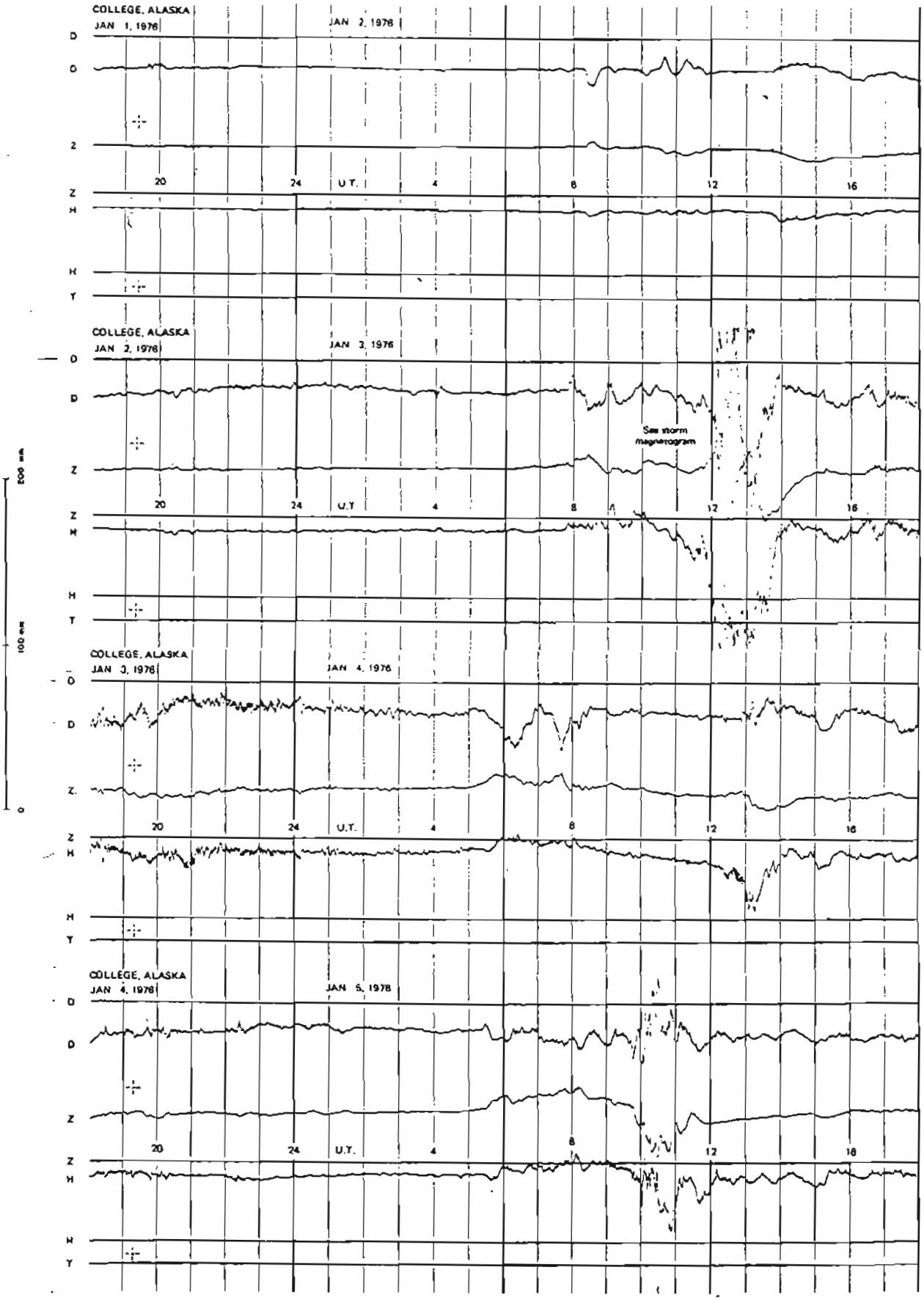
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

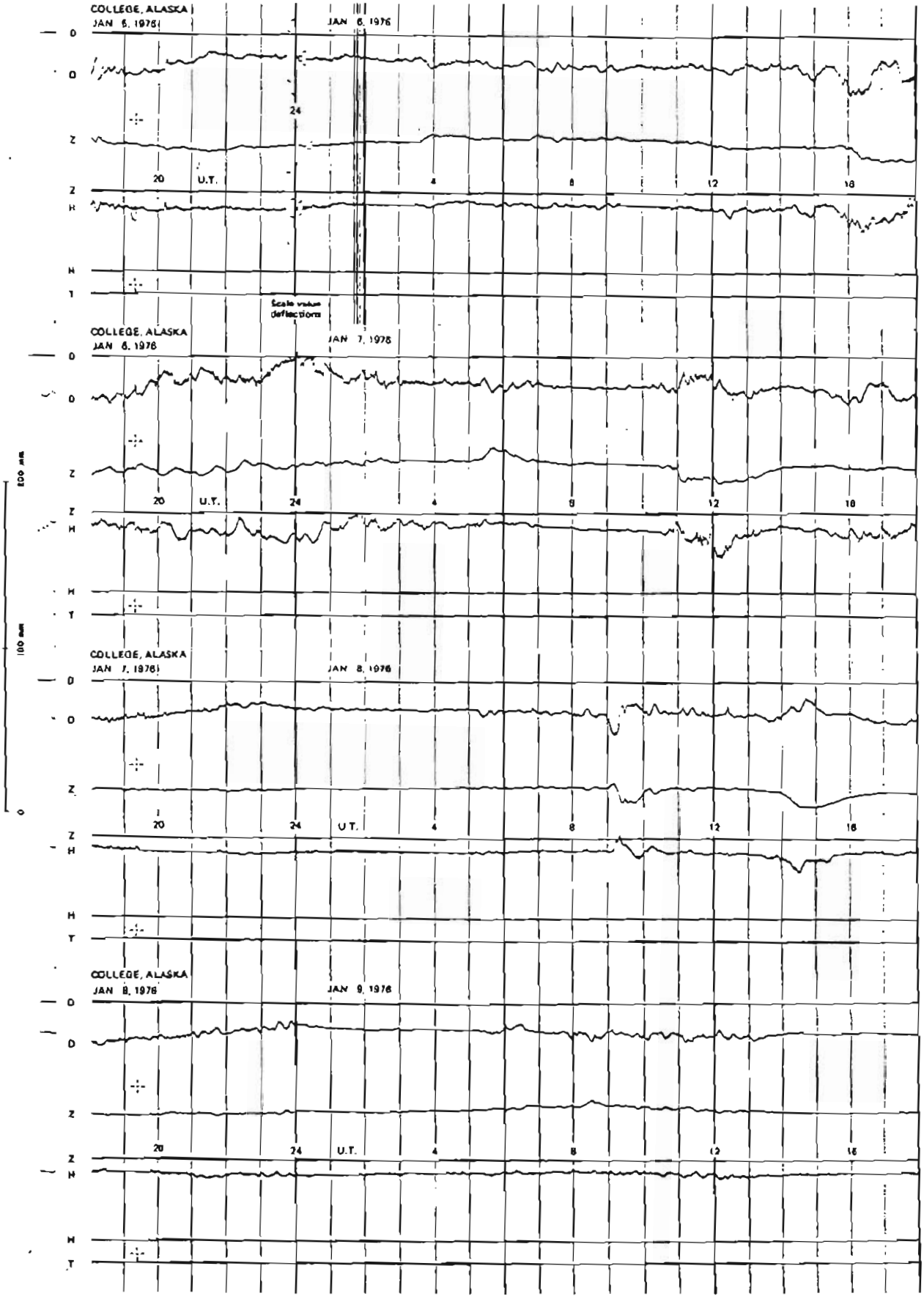


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

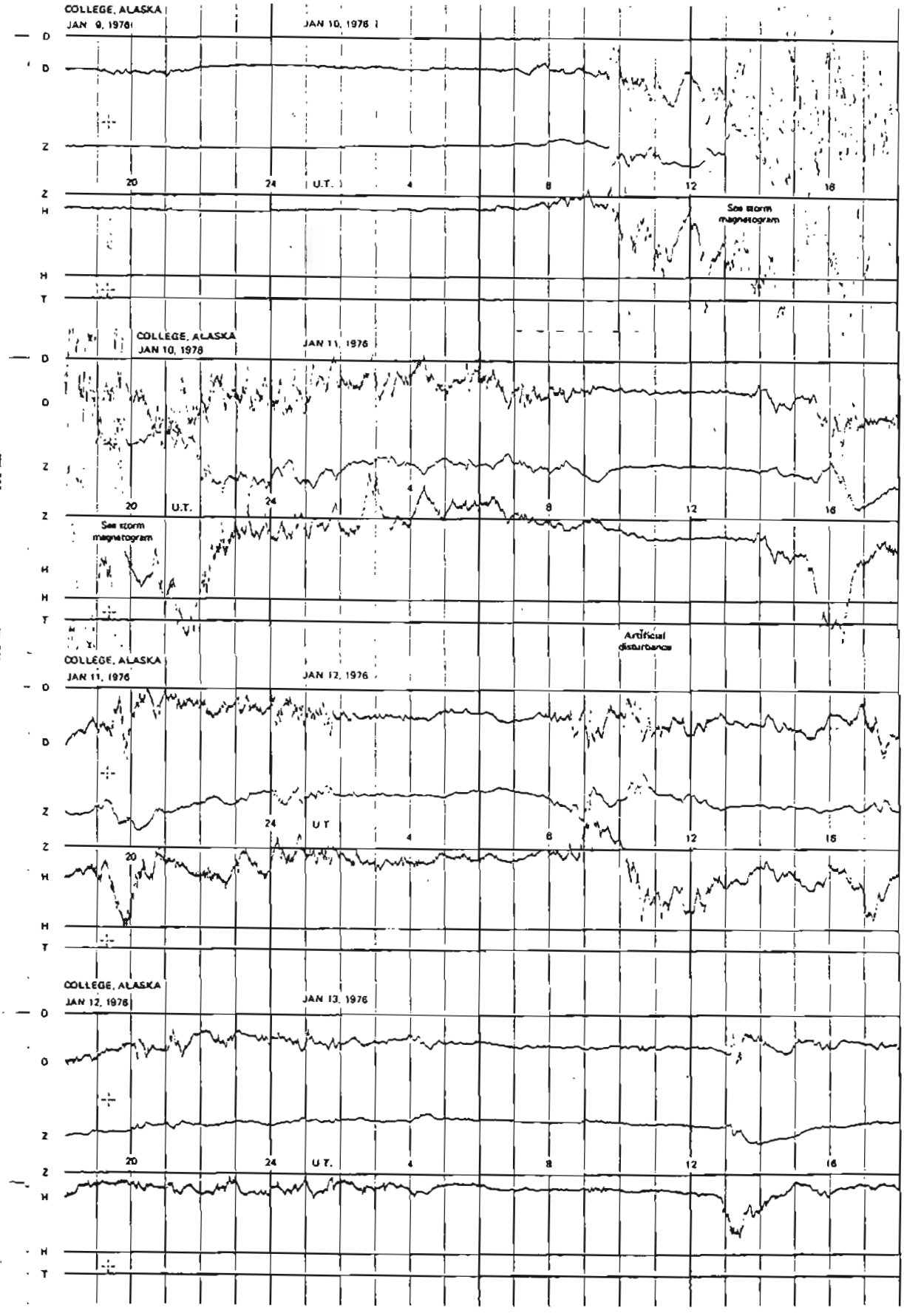
NORMAL MAGNETOGRAMS



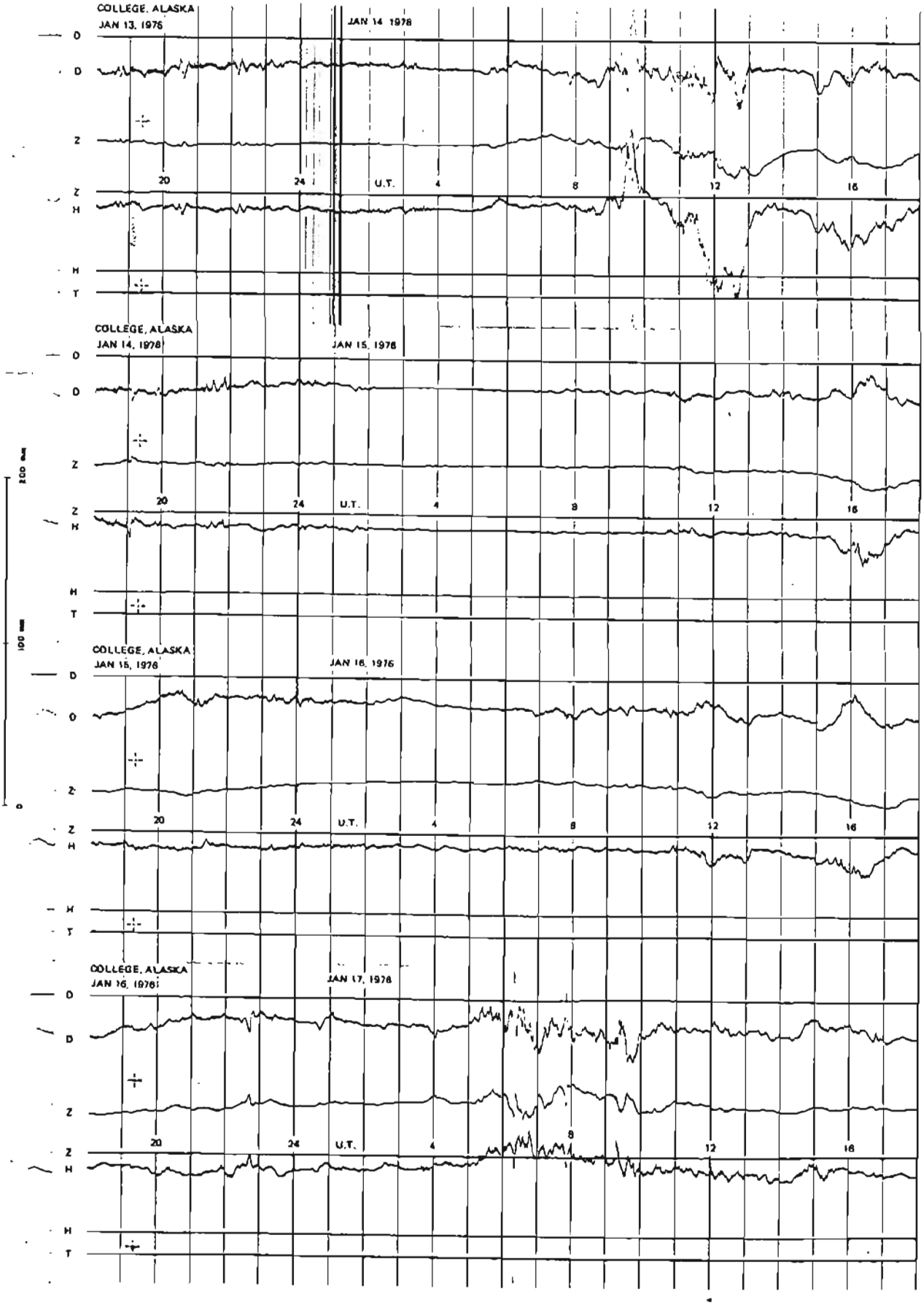
NORMAL MAGNETOGRAMS



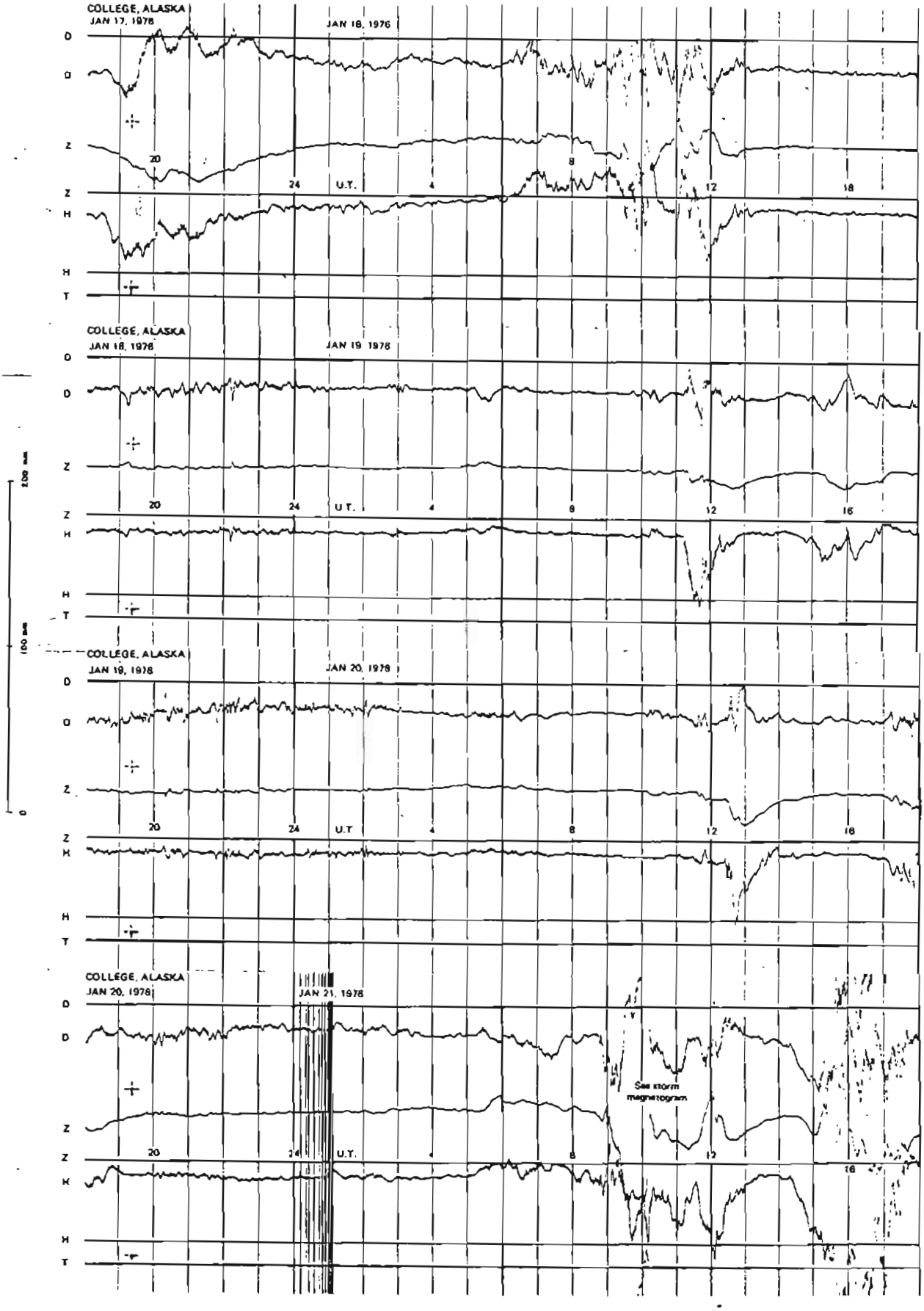
NORMAL MAGNETOGRAMS



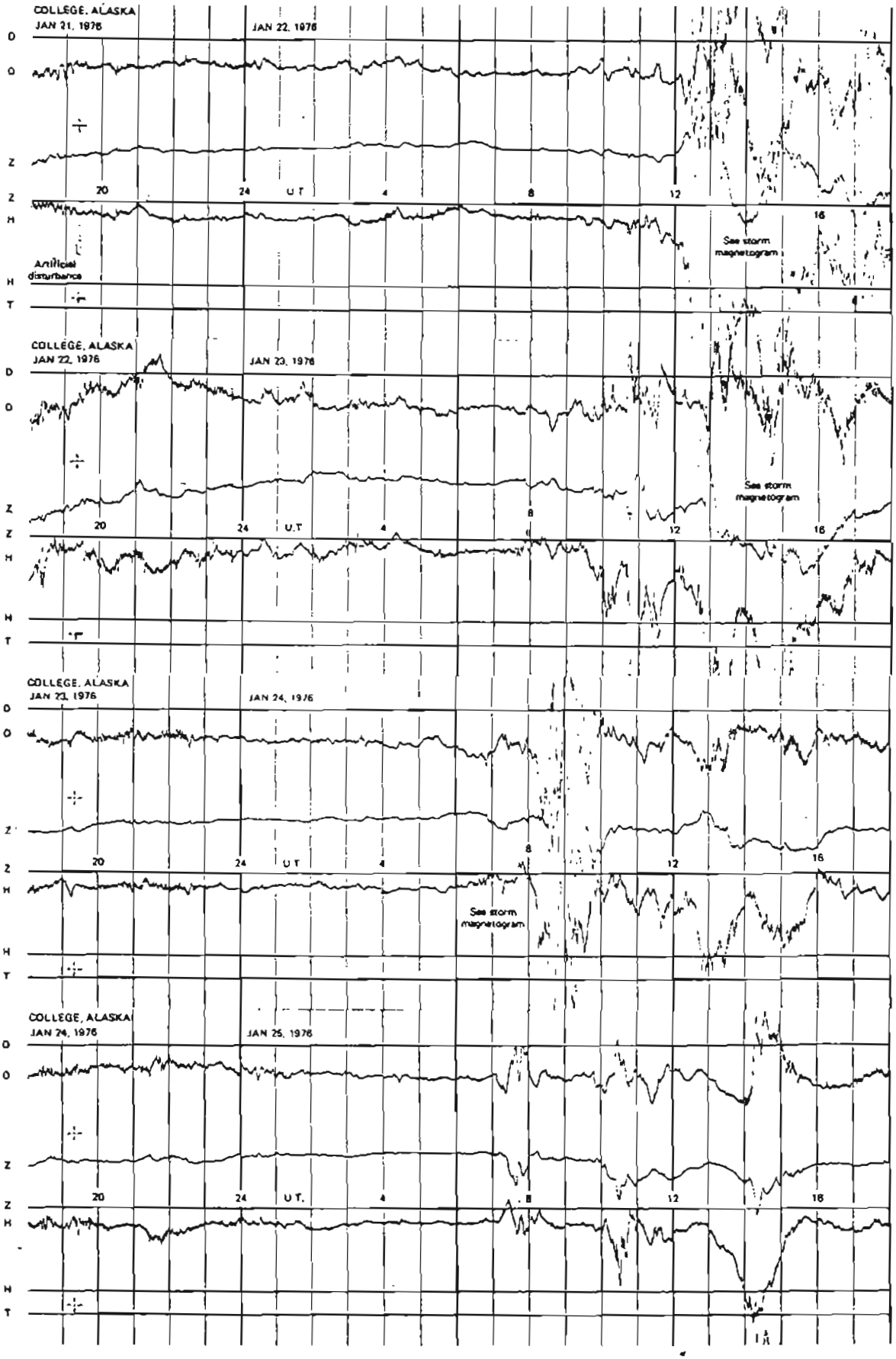
NORMAL MAGNETOGRAMS



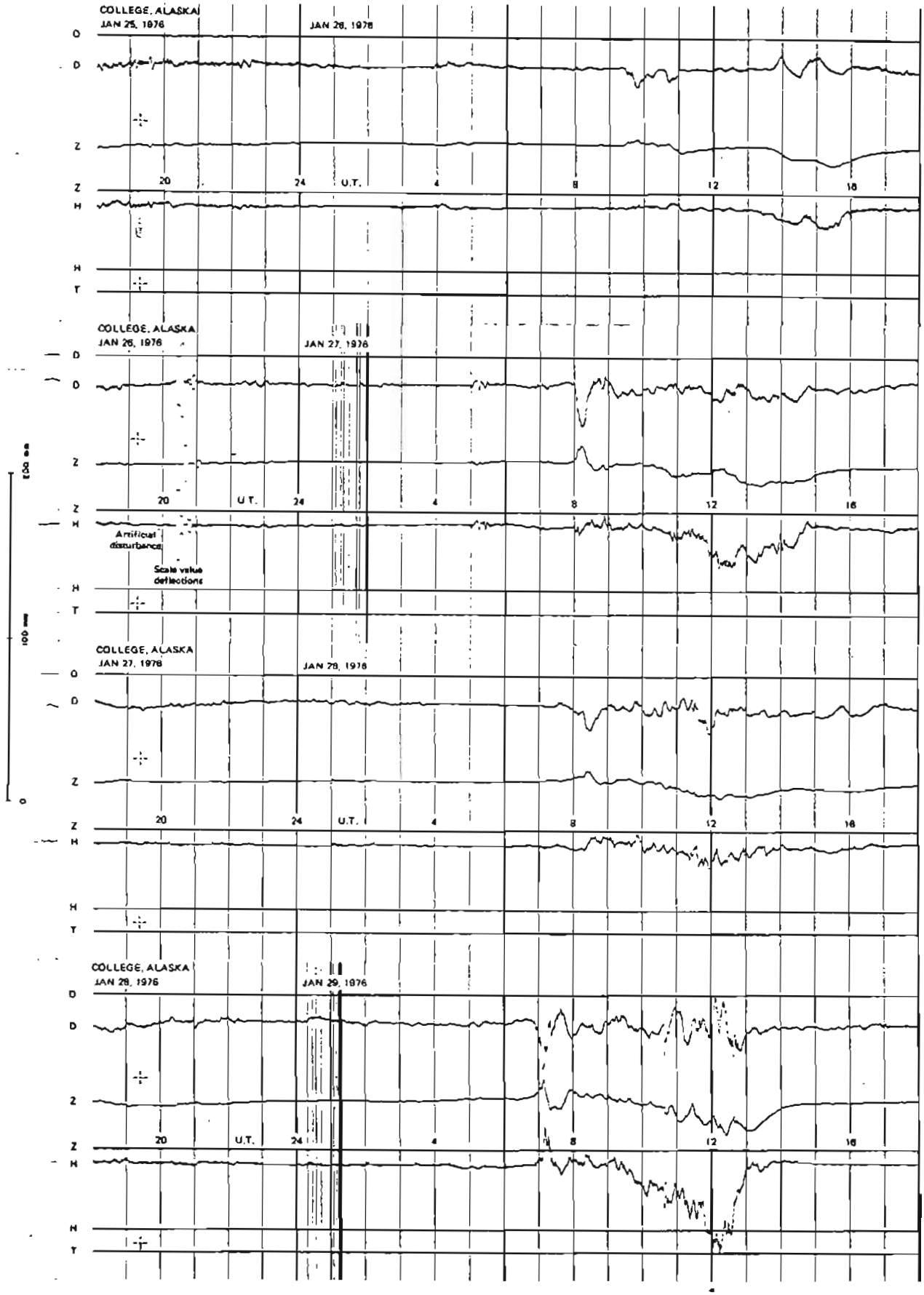
NORMAL MAGNETOGRAMS



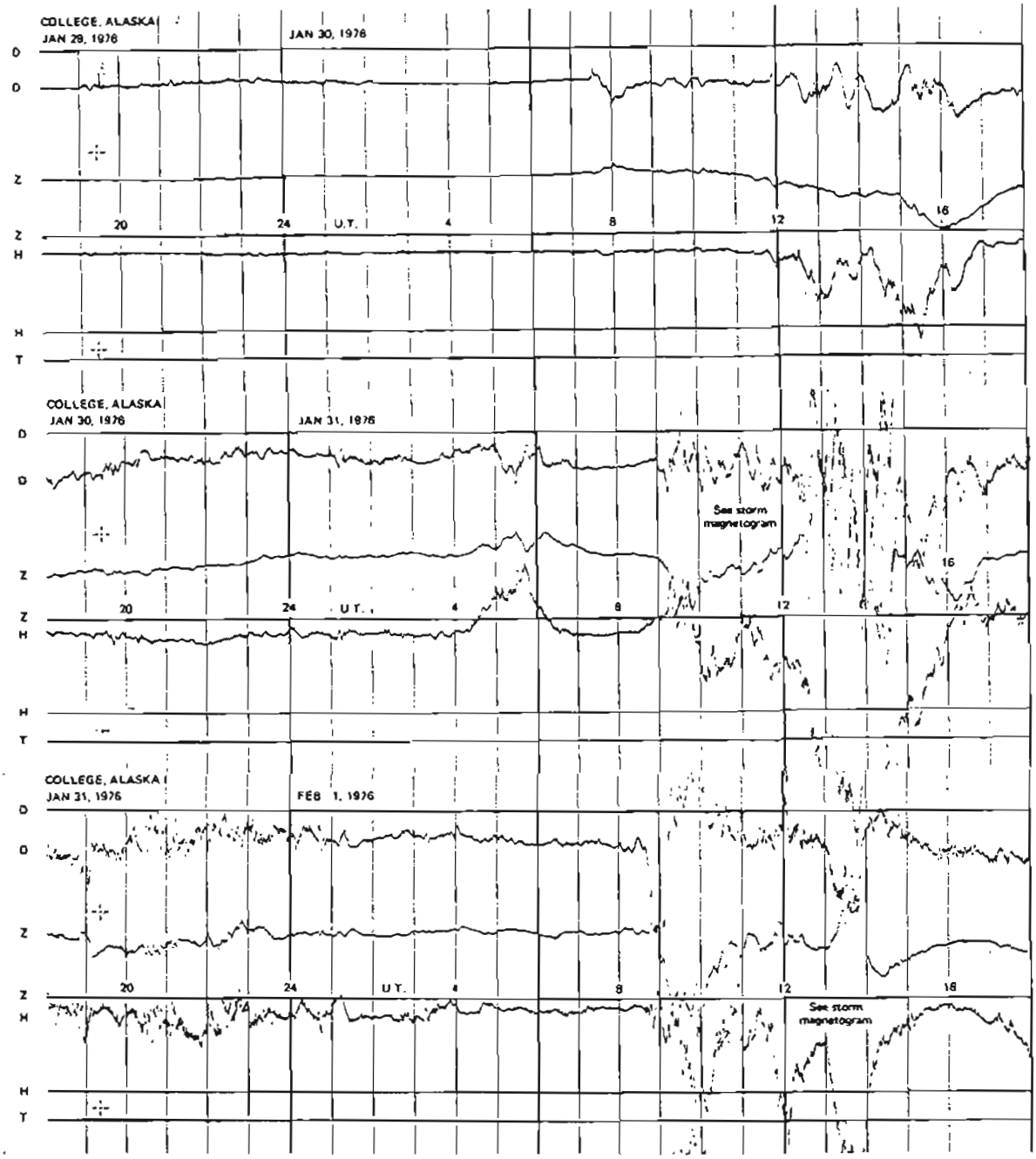
NORMAL MAGNETOGRAMS



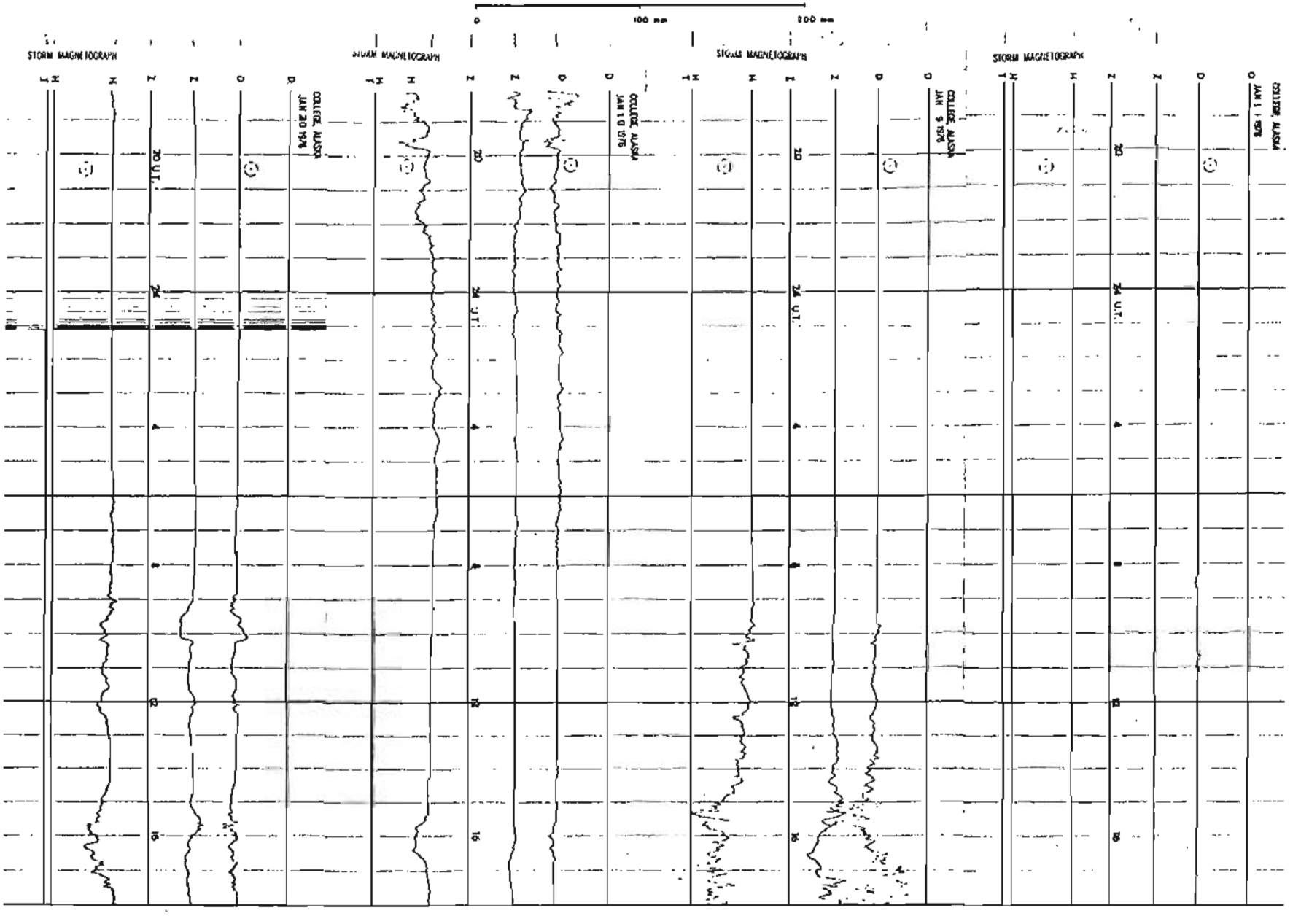
NORMAL MAGNETOGRAMS



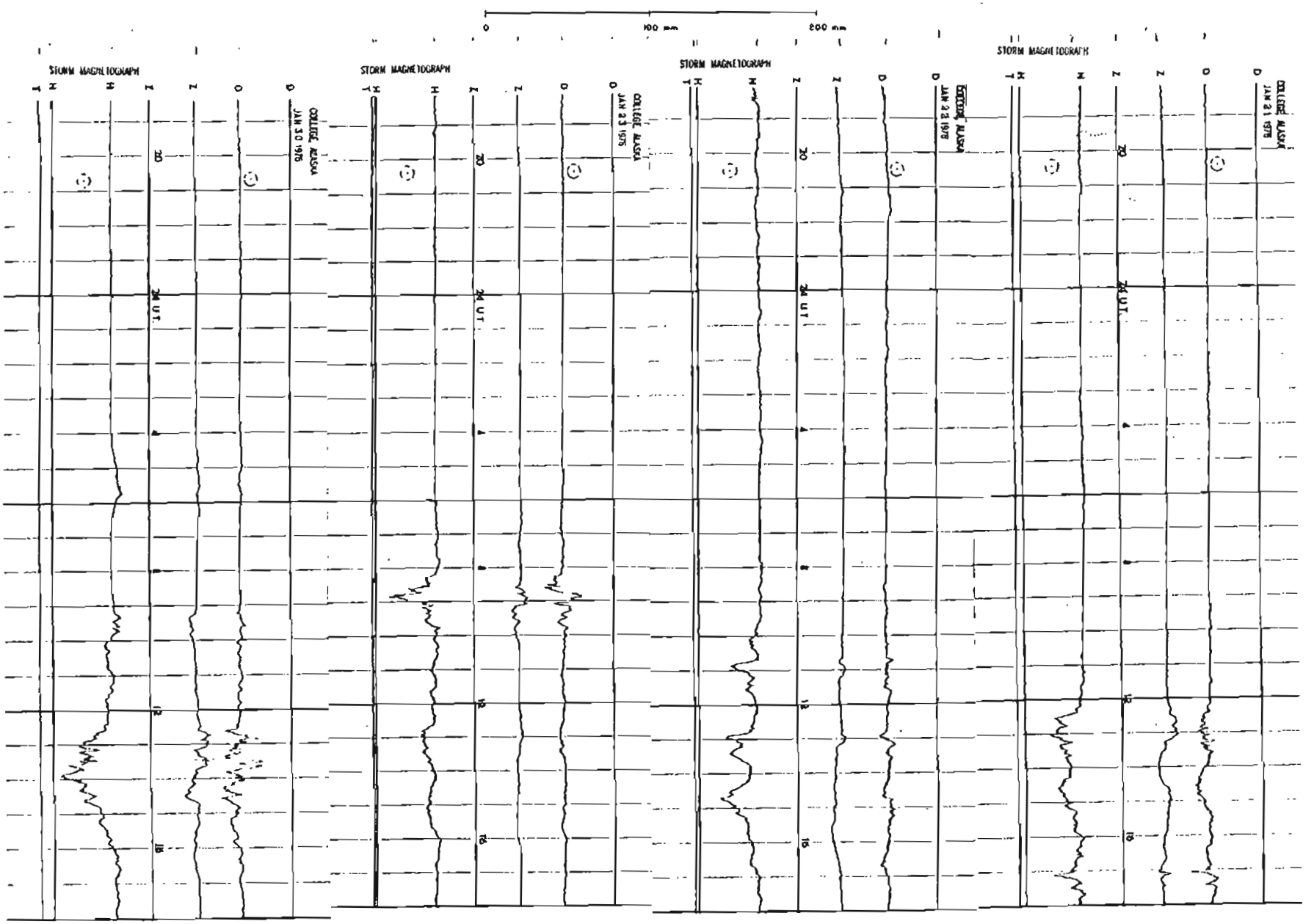
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS