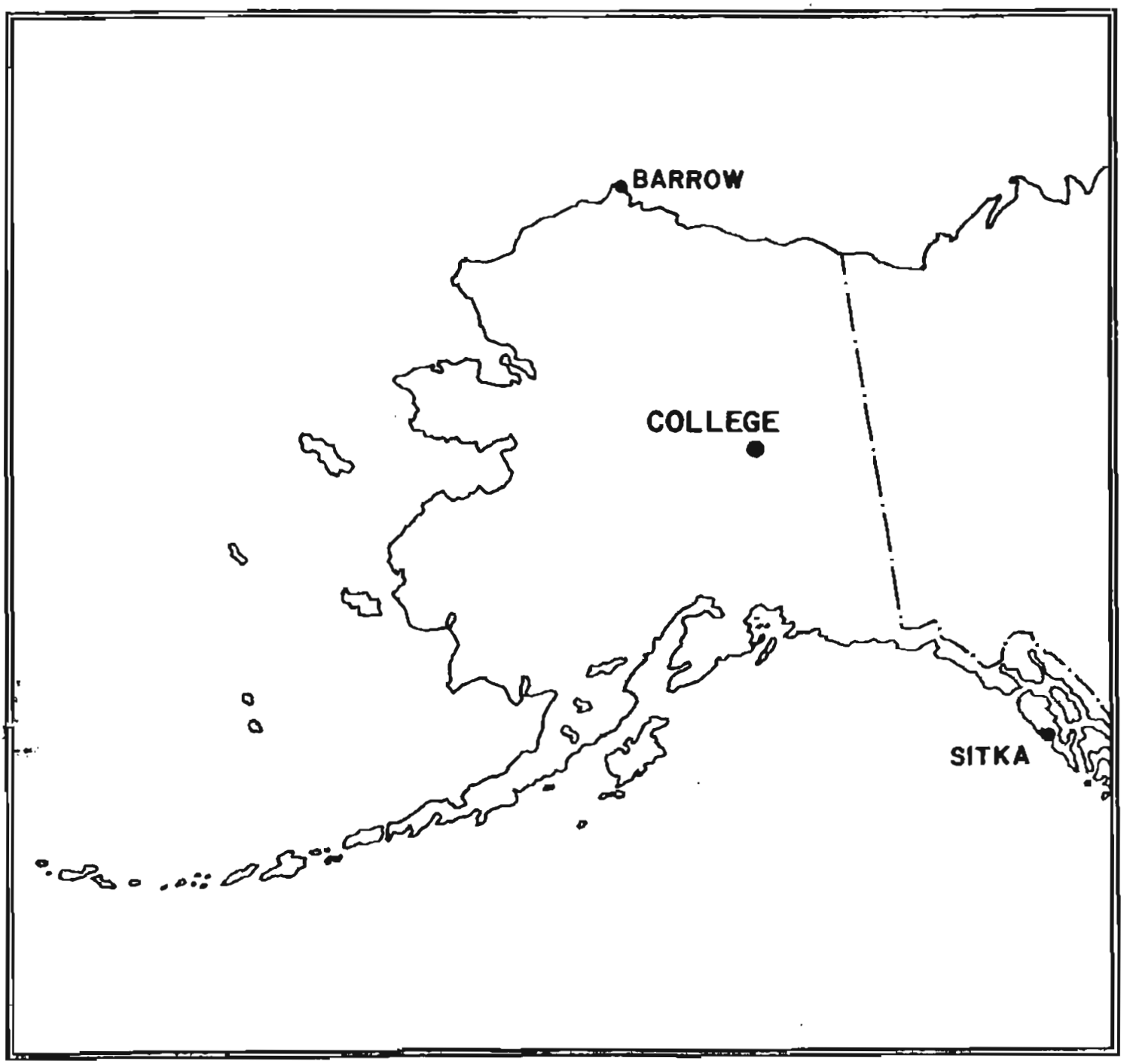
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JANUARY 1984

OPEN FILE REPORT 84-0300A



THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSHEND, CHIEF OF THE COLLEGE OBSERVATORY, WITH THE ASSISTANCE OF THE OBSERVATORY STAFF MEMBERS: J.E. PAPP, E.A. SAUTER, L.Y. TORRENCE, P.A. FRANKLIN AND IN COOPERATION WITH THE GEOPHYSICAL INSTITUTE OF THE UNIVERSITY OF ALASKA. THE COLLEGE OBSERVATORY IS A PART OF THE BRANCH OF GLOBAL SEISMOLOGY AND GEOMAGNETISM OF THE U.S. GEOLOGICAL SURVEY.

Explanation of Data and Reports

Magnetic Activity Report

Outstanding Magnetic Effects

Principal Magnetic Storms

Preliminary Calibration Data and Monthly Mean Absolute Values

Magnetogram Hourly Scalings

Sample Format for Normal and Storm Magnetograms

Normal Magnetograms

Storm Magnetograms (When Normal is too disturbed to read)

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

EXPLANATION OF DATA AND REPORTS

INTRODUCTION

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

Chief, College Observatory
U.S. Geological Survey
600 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
JANUARY 1984

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	4	3	6	4	6	5	5	3	36	43
2	3	4	4	6	6	4	1	1	29	33
3	2	2	5	4	7	6	3	2	31	41
4	3	4	6	6	4	4	4	3	34	37
5	4	4	5	4	6	3	3	2	31	31
6	3	2	3	6	5	5	1	1	26	27
7	1	0	1	3	1	2	0	0	08	04
8	0	0	2	1	0	1	0	0	04	02
9	0	0	0	3	1	0	0	0	04	02
10	1	1	0	1	3	3	5	3	17	13
11	2	2	2	3	2	2	3	2	18	09
12	2	2	2	2	1	3	0	0	12	06
13	0	1	0	1	6	6	2	2	18	23
14	1	0	0	1	4	1	1	1	09	05
15	1	0	3	0	3	3	0	0	10	06
16	0	1	1	0	3	4	2	0	11	07
17	2	2	2	2	2	0	0	0	10	04
18	0	0	0	3	2	0	2	2	09	05
19	4	4	4	6	4	4	1	2	29	28
20	3	1	1	5	1	1	0	0	12	09
21	1	1	4	5	1	0	1	1	14	11
22	2	2	2	3	4	3	1	1	18	11
23	1	1	0	0	2	3	1	1	09	04
24	1	1	1	0	0	0	0	0	03	01
25	0	0	3	4	3	3	3	1	17	11
26	3	4	5	4	5	5	3	2	31	29
27	1	1	1	2	4	3	1	1	14	08
28	2	3	3	6	6	6	3	3	32	38
29	3	3	4	6	5	2	2	2	27	26
30	3	4	3	6	5	6	4	4	35	40
31	3	2	2	6	6	6	4	3	32	39

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			END		
d	h	m	d	h	m

K SCALE USED:	D	H	Z	
LOWER LIMIT FOR K = 9.....	675.7	322.2		(mm)
CURRENT SCALE VALUE.....	3.72	7.76		(γ/mm)
LOWER LIMIT FOR K = 9	2510	2500		(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

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OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: JANUARY

YEAR: 1984

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
13	20xx	pc5	
15	07xx	bp	
22	2340	si*	

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

JANUARY 19 84

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	03	07xx	..	..	..	..	03	5	7	174	1520	800	06	18
		28	09xx	..	..	..	..	28	4,5,6	6	148	1390	620	FEB 01	21
								29	4	6					
								30	4,6	6					
								31	4,5,6	6					
								FEB 01	4	6					

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 1-1-84	2400 U.T., 1-31-84	1.0'/mm	3.7 γ/mm	27° 16.8' E
H	0000 U.T., 1-1-84	2400 U.T., 1-10-84	7.8 γ/mm		12658 γ
	0000 U.T., 1-11-84	2400 U.T., 1-18-84	"		12666 γ
	0000 U.T., 1-19-84	2400 U.T., 1-31-84	"		12657 γ
Z	0000 U.T., 1-1-84	2400 U.T., 1-10-84	7.6 γ/mm		55184 γ
	0000 U.T., 1-11-84	2400 U.T., 1-18-84	"		55178 γ
	0000 U.T., 1-19-84	2400 U.T., 1-31-84	"		55185 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 1-1-84	2400 U.T., 1-31-84	7.9'/mm	29.6 γ/mm	24° 23.7' E
H	0000 U.T., 1-1-84	2400 U.T., 1-10-84	43.9 γ/mm		10774 γ
	0000 U.T., 1-11-84	2400 U.T., 1-18-84	"		10788 γ
	0000 U.T., 1-19-84	2400 U.T., 1-31-84	"		10766 γ
Z	0000 U.T., 1-1-84	2400 U.T., 1-10-84	48.0 γ/mm		54076 γ
	0000 U.T., 1-11-84	2400 U.T., 1-18-84	"		54082 γ
	0000 U.T., 1-19-84	2400 U.T., 1-31-84	"		54074 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 48.8' E	12935 γ	55365 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JAN 7, 8, 9, 12, 14, 15, 17, 18, 23, 24

Form 9-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in counts of nano. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 M.T.) is hour 11 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
00	84	JAN	D

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	257	282	254	266	217	281	338	410*	188*	255	262	242	01	441*	537*	497*	371	356	254	336	209	165	257	280	274	7229
			02	286	294	334	385	341	326	380*	412*	340	329	304	119	02	240	642*	443*	355	332	349	340	326	320	326	323	308	8154
			03	307	320	317	347	343	322	330	411	380*	320	320	281	03	378	426	531*	587*	576	447	338	335	288	290	284	268	8746
			04	288	302	258	280	324	300	315	126*	40*	142*	255	287	04	245	340	360	365	402	343	302	232	62	148	260	249	6145
			05	265	292	286	417	312	330	369	547*	371	306	291	314	05	420*	873*	410	299	325	346	362	334	313	294	303	305	8684
			06	294	312	298	316	338	328	324	342	322	245*	166*	282	06	341	366	457	299	346	345	346	346	324	319	313	298	7667
			07	292	313	322	317	314	325	339	334	349	412	328	345	07	329	322	346	316	324	339	341	342	338	339	320	309	7949
			08	311	311	321	321	327	330	332	327	316	347	325	335	08	335	334	338	338	341	348	353	359	349	342	335	321	7997
			09	320	323	323	322	309	320	317	317	323	334	335	344	09	320	343	340	339	332	333	344	348	356	338	319	305	7904
			10	303	310	297	292	278	317	328	329	331	333	330	335	10	386	435	432	384	362	401	375	369	369	343	272	275	8176
			11	261	308	290	274	277	287	314	317	285	321	286	300	11	360	329	326	340	347	359	353	349	272	263	295	287	7400
			12	258	285	303	294	278	285	304	306	354	290	288	314	12	319	347	336	346	343	340	359	352	336	326	315	288	7566
			13	300	315	302	303	308	303	314	321	320	316	317	332	13	374	407	546	853*	409	353	372	340	324	304	313	298	8664
			14	279	290	291	297	293	307	328	332	333	329	324	325	14	330	323	334	335	326	331	344	355	315	282	290	273	7566
			15	301	298	290	312	318	320	295	376	293	312	318	322	15	330	332	334	360	334	350	370	351	333	321	316	284	7770
			16	280	298	299	293	257	260	309	338	338	333	320	320	16	329	346	349	415	408	376	415	367	332	313	299	288	7882
			17	266	278	255	252	293	302	313	288	342	287	318	323	17	349	353	346	359	366	365	360	339	320	307	300	300	7581
			18	302	303	305	315	325	322	327	327	322	334	308	356	18	328	317	330	309	343	358	370	344	344	308	302	317	7816
			19	224	195	230	222	239	290	322	361	321	290	413	410*	19	422	432	413	328	324	346	359	357	330	294	275	253	7650
			20	269	307	314	313	336	328	331	327	323	452	304	312	20	328	323	321	315	347	343	340	337	335	337	327	308	7877
			21	300	299	301	293	300	339	286	336	329	695	465	303	21	290	313	317	317	327	335	353	357	349	313	292	299	8108
			22	298	275	275	277	311	327	317	370	312	377	397	300	22	353	335	353	337	353	357	340	353	308	298	290	287	7800
			23	277	298	297	309	313	319	327	326	324	317	320	328	23	323	337	353	353	338	340	362	345	318	279	273	275	7651
			24	283	271	270	315	323	321	323	326	321	323	323	323	24	326	325	325	323	327	333	340	348	341	336	329	315	7690
			25	305	307	299	304	300	298	249	242	252	293	324	317	25	342	410	390	339	360	374	335	386	343	320	284	254	7627
			26	233	252	270	274	200	278	186*	300	302	270	267	307	26	340	430	469	545	503	346	350	349	344	312	274	278	7709
			27	290	293	285	280	297	299	309	315	304	317	327	323	27	345	348	387	383	407	323	393	378	337	323	262	237	7762
			28	253	237	263	283	248	219	288	303	319	344	313*	440*	28	350	363	535*	549*	424*	359	313	321	281	235	262	301	7797
			29	277	302	299	285	257	293	319	384	408	308	496*	447*	29	450	374	362	323	313	338	347	359	330	344	310	265	8190
			30	278	196	295	289	327	381	307	318	372	343*	289*	372*	30	369*	377*	456*	543*	472*	385*	260	297	286	224	271	265	7942
			31	300	313	310	306	318	366	315	318	442	411	316	297*	31	575*	528*	702*	599*	766*	447*	173	249	300	286	296	320	9253

SCALED BY	LYT
CHECKED BY	JEP
ENTRY REVIEWED BY	JEP
PUNCHED BY	

Preliminary base-line and scale values:

(secs) 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 all short for part or all of hour; if value is given, correction estimated for missing part.
* Derived from STORM Magn., converted to Normal Magn.

MONTHLY SUM	243952
MONTHLY MEAN	328
DATES WITH GAPS:	

FORM 78-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

Values are in counts of gam, and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150 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	ADJUSTMENT
CO	84	JAN	2

C	Qual 5	Type Q	Mo. Day	01	02	03	04	05	06	07	08	09	10	11	12	Mo. Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	320	302	342	334	367	323	302	294	-5*	163	286	334	01	545*	487*	212*	169	218	120	40	56	62	154	245	271	5941
			02	284	297	274	324	296	272	283*	135*	300	293	226	53	02	170	245*	258*	84	226	236	251	250	251	254	257	258	5837
			03	266	268	268	281	285	286	295	285	73*	169	210	152	03	204	253	340*	-91*	-289*	-149*	44	148	210	238	252	253	4257
			04	265	274	294	321	298	300	181*	-150*	-219*	41*	141	73*	04	306	297	284	249	208	218	196	184	158	210	242	296	4667
			05	310	306	314	353	292	286	305	226*	156*	251	231	196	05	449*	-79*	1	194	230	247	240	213	242	256	269	283	5771
			06	301	290	280	284	294	275	266	227	264	94	103	192	06	246	212	187	173	192	237	245	247	243	248	250	253	5603
			07	257	263	257	257	266	264	270	273	277	190	161	182	07	212	225	226	214	230	247	249	248	246	246	247	251	5758
			08	256	257	253	249	250	250	251	260	247	257	253	245	08	239	227	223	231	235	247	244	246	244	245	247	247	5903
			09	247	247	246	246	249	253	253	254	256	254	228	177	09	191	223	230	232	240	239	242	242	243	240	238	241	5711
			10	247	244	245	273	279	269	283	243	239	239	238	238	10	205	189	126	135	210	215	80	18	172	199	209	199	4964
			11	272	269	260	263	269	269	270	259	262	286	274	244	11	223	240	244	246	250	242	207	177	190	156	213	225	5809
			12	232	254	262	270	264	274	274	270	292	280	280	276	12	267	255	242	239	223	197	236	236	234	239	238	243	6077
			13	253	261	263	263	263	263	268	263	259	263	253	254	13	250	188	151	73*	-65*	174	188	222	236	229	245	243	5260
			14	250	259	259	264	266	278	271	257	254	253	247	250	14	165	203	250	243	238	236	236	233	232	236	235	256	5871
			15	256	263	267	260	260	261	275	286	311	279	256	252	15	250	244	174	209	214	238	245	234	237	243	245	244	6003
			16	249	260	259	260	262	302	299	276	260	249	244	243	16	243	232	188	84	153	150	165	199	213	225	234	243	5492
			17	246	266	279	289	276	263	269	303	327	297	283	273	17	257	226	242	240	240	231	233	237	231	230	236	243	6217
			18	246	247	247	247	248	247	247	247	247	263	226	236	18	263	258	258	248	245	236	216	169	154	174	207	227	5603
			19	225	274	286	293	354	325	339	359	244	227	161	229*	19	297	300	236	167	206	229	240	237	233	238	238	256	6193
			20	247	262	267	263	289	261	249	243	243	210	44	127	20	207	230	230	227	225	234	236	235	237	240	240	243	5489
			21	245	248	247	253	274	314	297	290	287	240	93	145	21	224	244	235	239	239	243	235	217	233	223	222	247	5684
			22	247	254	279	283	269	253	265	274	267	197	74	165	22	225	188	137	147	191	197	194	213	207	227	230	243	5226
			23	243	243	249	247	248	258	257	245	238	240	239	237	23	234	229	210	161	108	153	186	193	206	210	220	224	5278
			24	237	243	273	273	259	249	267	244	239	237	235	234	24	232	230	233	229	231	233	236	234	233	229	229	227	5766
			25	229	230	227	227	228	233	238	269	250	293	271	200	25	193	223	193	177	173	107	90	157	167	188	203	227	5013
			26	247	264	268	269	284	253	143*	207*	232	174	218	210	26	254	249	88	29	9	-14	84	207	233	247	237	252	4644
			27	255	254	263	263	268	260	253	249	249	257	240	223	27	219	180	129	78	114	180	187	195	203	210	213	220	5162
			28	230	249	247	263	276	308	300	273	269	256	258*	118*	28	189	199	207*	404*	41*	70	156	225	215	213	227	252	5446
			29	269	307	283	256	282	317	297	240	185	227	207*	200*	29	187	175	205	218	228	242	246	245	233	242	242	240	5773
			30	262	304	343	301	329	325	327	306	295	213*	238*	210	30	340*	423*	283*	200*	245*	66	102	138	175	233	228	248	6134
			31	276	276	276	279	289	295	269	280	270	230	237	68*	31	-54*	-89*	-123*	48*	93*	-23*	61*	151	217	240	248	273	4087

SCALED BY	LYT
CHECKED BY	JEP
MONTH 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 Magn., converted to Natural Magn.

MONTHLY SUM	170638
MONTHLY MEAN	229
DATES WITH GAPS:	

FORM 9-158

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

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

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

OBSY.	YEAR	MONTH	ELEMENT
CO	84	JAN	H

C	Q of S	Tens 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	404	426	468	576	568	665	582	293	362*	306	111	216	01	-78	-209*	106	345	321	180	76	166	232	349	384	377	7246
			02	353	334	374	489	435	360	446*	548*	447	369	306	75	02	176	-91*	-193*	320	385	363	362	360	354	361	362	354	7649
			03	349	334	353	371	368	369	379	400	169*	303*	215	194	03	273	218	-448*	-307*	79*	186*	345	341	378	362	366	362	5959
			04	368	362	389	446	413	488	519*	282*	497*	548*	390	271*	04	355	364	318	276	298	347	325	270	213	307	349	379	8774
			05	357	419	446	470	381	382	411	424*	372*	347	325	256	05	-329*	-63	278	357	365	359	334	336	356	352	329	326	7590
			06	370	356	378	372	366	379	392	389	396	-69*	121	354	06	349	275	108	142	341	389	368	357	341	327	351	348	7506
			07	358	360	364	357	345	351	370	360	358	351	298	327	07	334	350	329	331	358	362	353	348	350	344	339	333	8330
			08	346	350	355	359	360	356	359	350	351	349	349	351	08	349	339	344	357	356	367	361	360	355	353	350	349	8475
			09	349	352	353	359	359	355	357	359	359	353	329	257	09	353	361	362	363	362	367	369	368	366	359	353	349	8473
			10	353	360	370	365	369	369	369	369	368	367	360	357	10	319	267	230	332	371	341	38	277	373	351	284	327	7886
			11	386	353	358	374	375	398	382	373	396	404	382	354	11	326	351	343	336	349	322	318	347	296	329	357	345	8554
			12	346	357	371	366	385	396	390	393	416	384	361	355	12	344	327	342	337	318	318	341	357	351	347	339	343	8604
			13	351	353	358	353	351	369	370	367	371	367	363	355	13	302	256	-43*	-308*	307	383	373	359	357	347	329	319	7309
			14	348	358	358	359	351	355	363	360	350	349	343	332	14	214	360	351	333	347	333	343	329	349	339	342	339	8205
			15	345	357	357	349	347	359	371	445	422	349	343	344	15	340	334	287	331	321	364	349	352	350	346	338	341	8442
			16	347	356	360	364	375	368	357	365	356	350	348	347	16	347	330	245	176	282	245	327	360	359	356	348	347	8015
			17	348	353	350	425	397	374	360	391	400	424	363	361	17	330	340	354	341	340	340	340	343	340	359	351	350	8674
			18	352	359	360	359	360	360	359	358	355	379	404	424	18	382	368	353	352	350	344	303	313	362	358	337	326	8577
			19	318	410	444	441	498	590	480	416	440	293	250	-104*	19	32	60	91	256	354	373	353	350	357	340	330	332	7704
			20	354	347	353	358	343	361	359	350	340	303	90	288	20	371	352	350	338	343	359	351	353	352	343	345	340	8043
			21	345	343	350	355	360	348	377	507	420	136	134	368	21	380	367	355	356	352	360	329	339	341	340	341	341	8244
			22	329	367	350	391	374	359	373	385	381	306	302	374	22	323	238	216	289	369	350	376	370	361	365	354	353	8255
			23	342	350	364	363	363	360	365	369	359	357	352	353	23	360	343	338	263	294	356	379	370	350	359	353	347	8409
			24	352	369	387	384	370	370	361	370	363	361	359	358	24	361	367	368	369	368	369	369	368	362	360	357	353	8775
			25	360	370	376	380	380	384	397	430	567	482	380	215	25	270	260	330	337	322	243	343	389	363	339	348	343	8608
			26	333	369	438	411	500	568	607*	590*	529	423	435	405	26	339	142	97	82	47	158	377	398	371	370	345	369	8703
			27	350	353	361	356	352	362	372	367	370	363	347	334	27	302	276	132	222	278	334	346	357	354	351	347	352	7998
			28	347	368	373	391	428	479	505	439	410	327	-140*	163	28	359	349	177*	-304*	-4*	383	402	380	358	348	351	381	7270
			29	363	362	380	370	422	397	387	485	384	260	-55*	235*	29	32	222	350	371	356	367	372	363	355	359	329	330	7896
			30	352	462	399	358	504	428	389	438	410	165*	-162*	-41*	30	-84*	32	1*	1*	-236*	49	300	302	300	357	376	362	5462
			31	369	362	359	359	374	375	381	378	400	378	322	18*	31	-226*	-389*	-179*	89	-157*	-281*	347*	331	384	371	363	342	5070

SCALED BY	LYT
CHECKED BY	JEP
ERRORS 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.

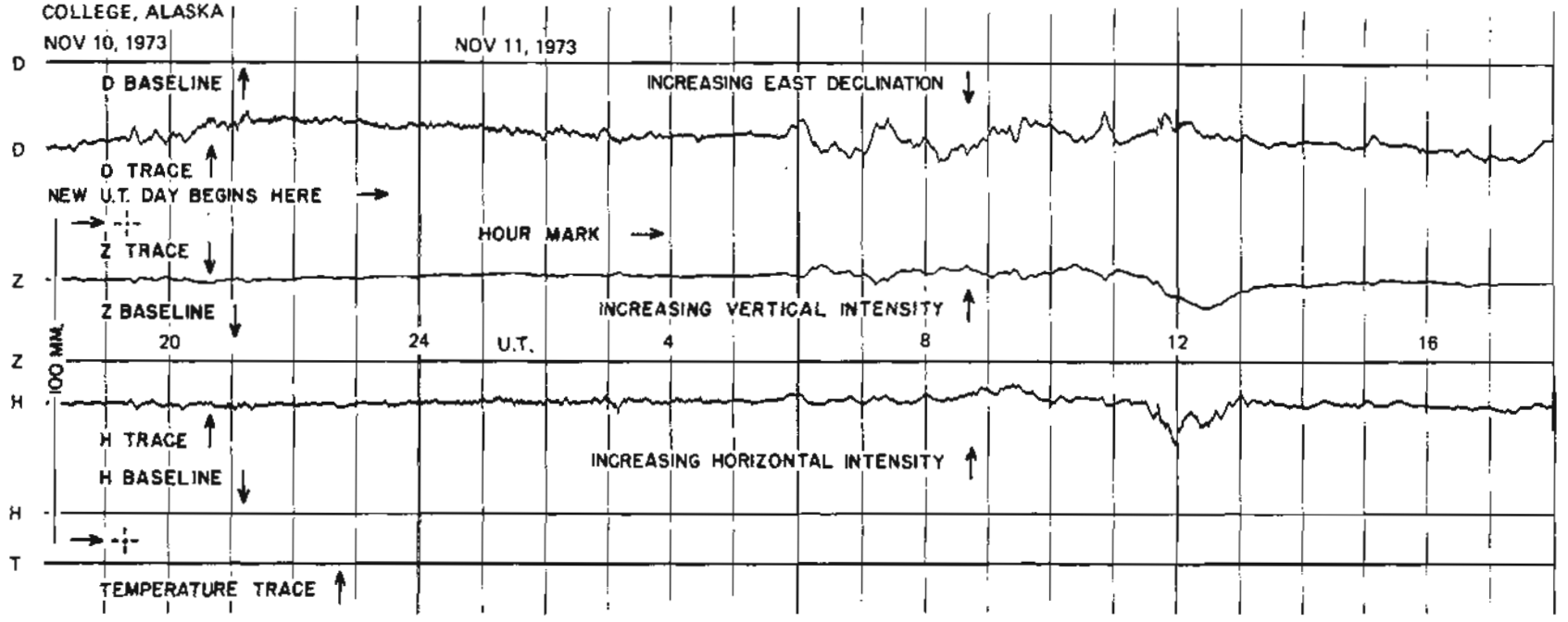
[ ] Scaling uncertain because of magnetic storm.

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

* Derived from STOFO Magn., converted to Normal Magn.

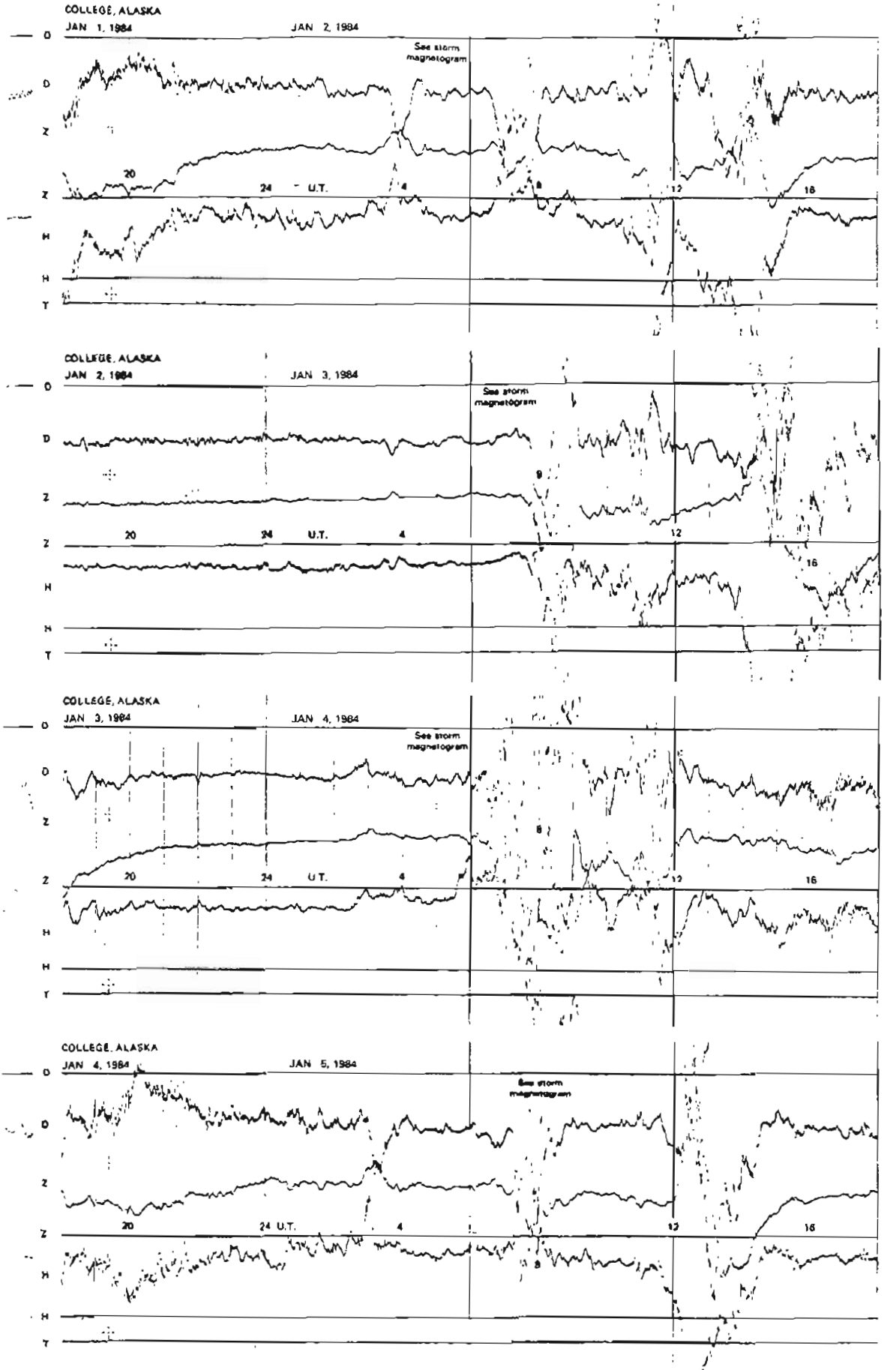
MONTHLY SUM	244645
MONTHLY MEAN	329
DATES WITH GAPS:	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS
(SAMPLE ONLY)

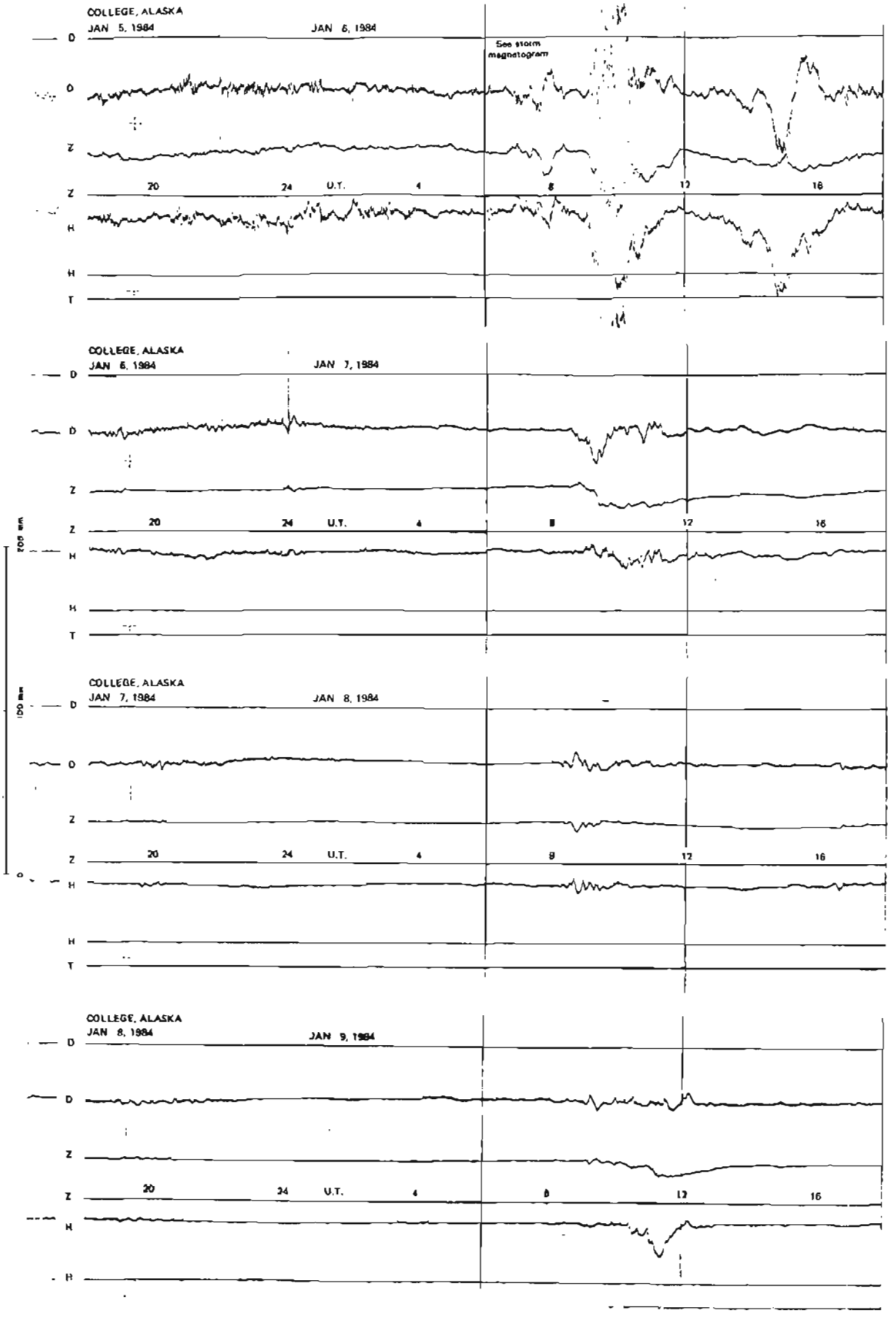


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

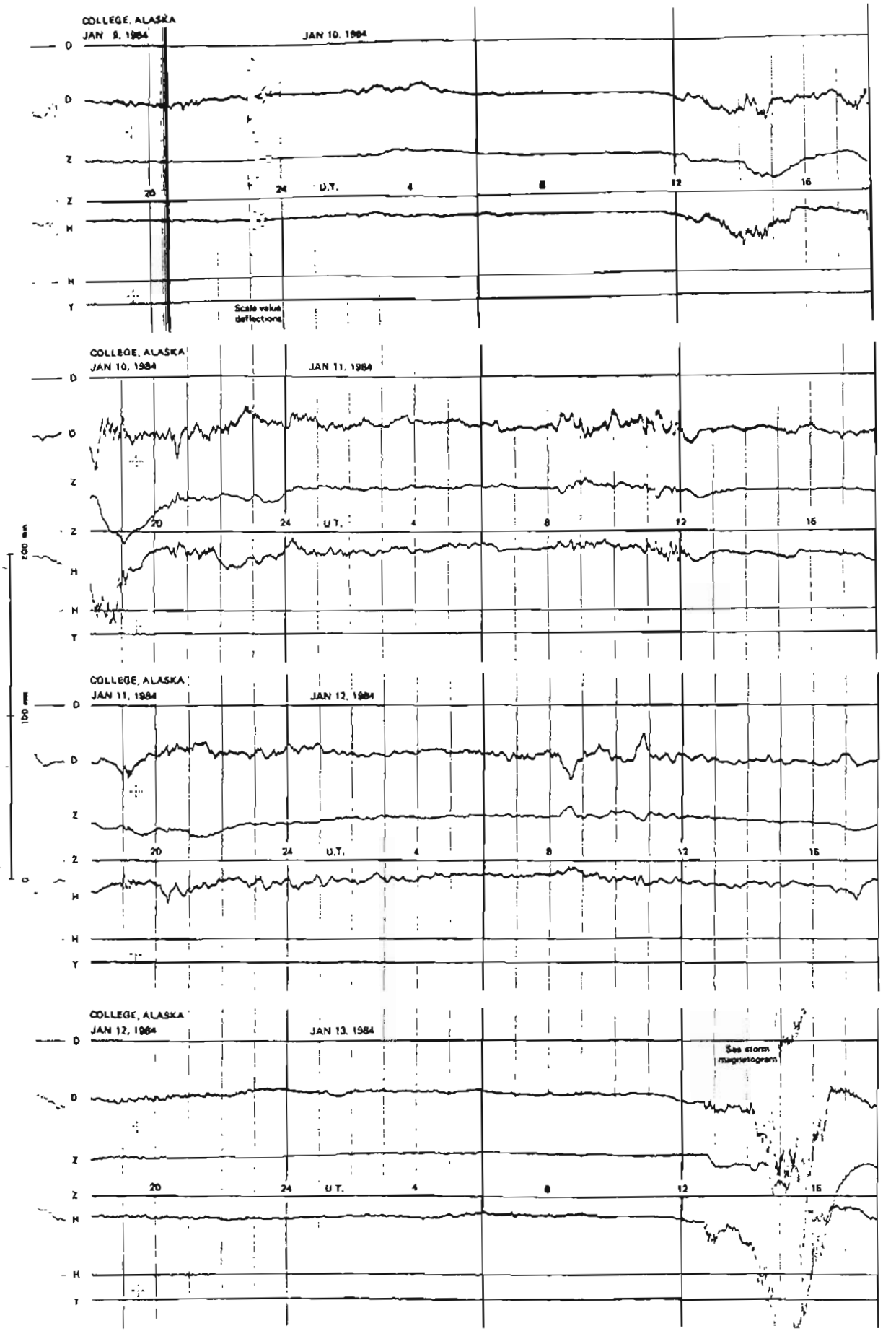
NORMAL MAGNETOGRAMS



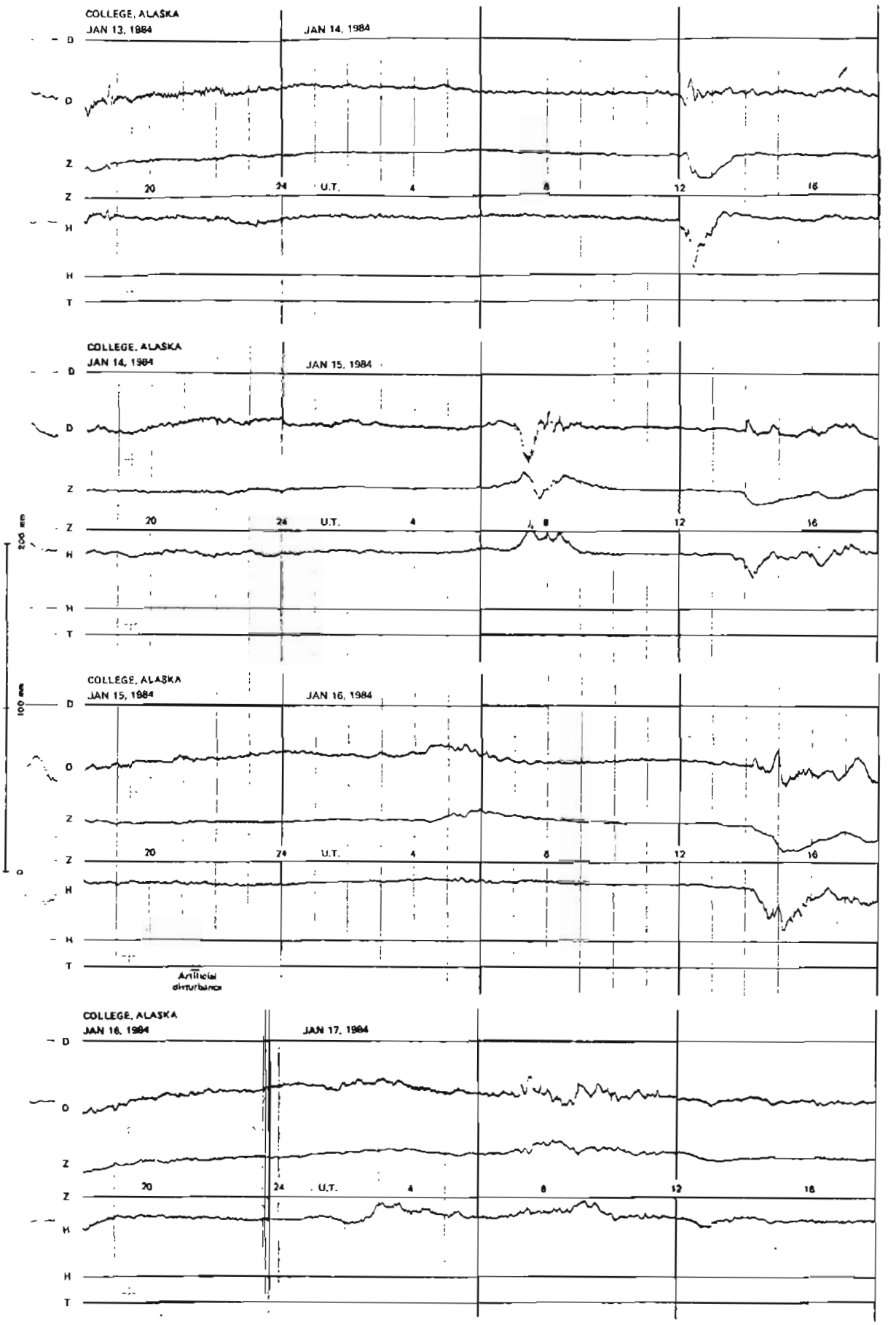
NORMAL MAGNETOGRAMS



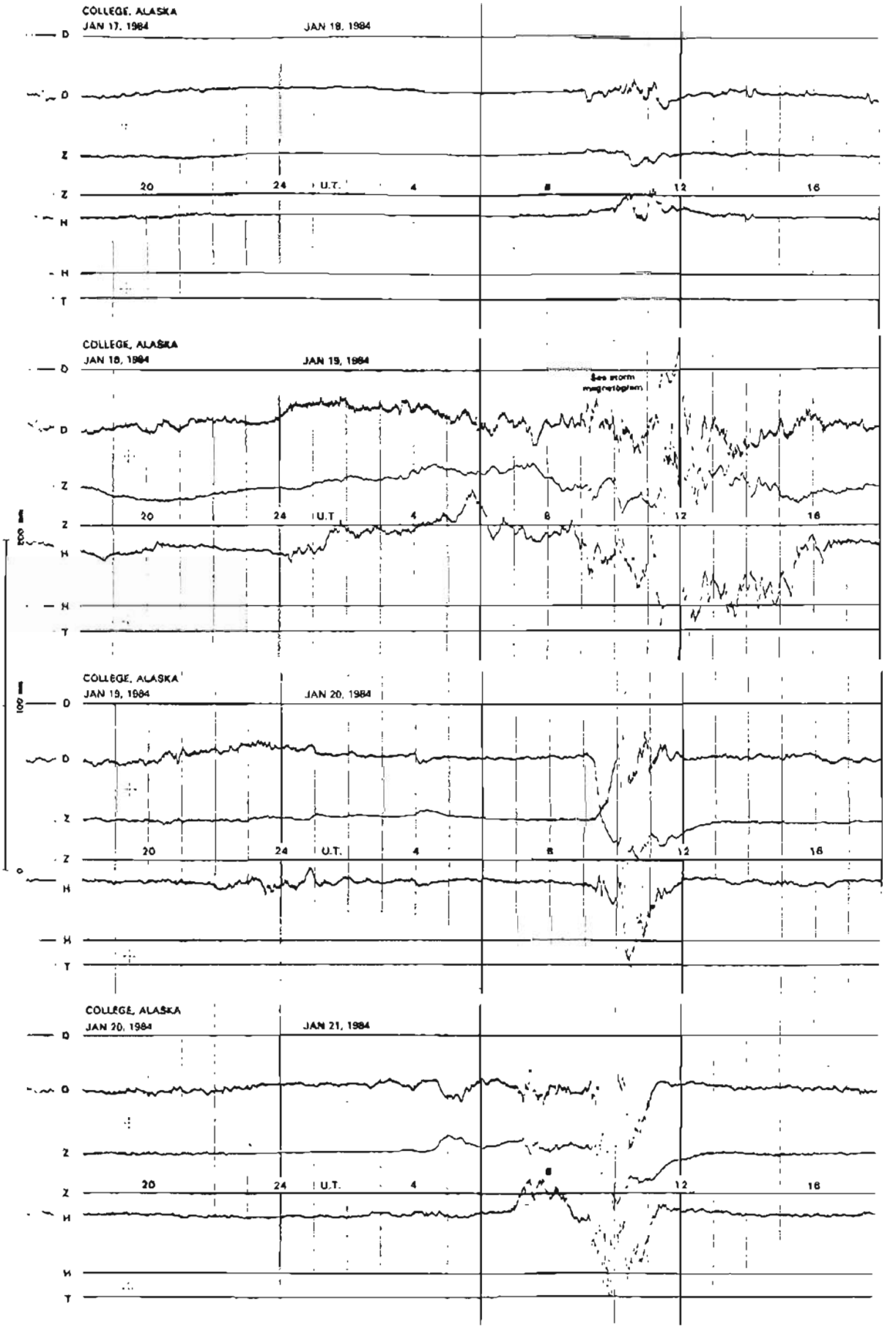
NORMAL MAGNETOGRAMS



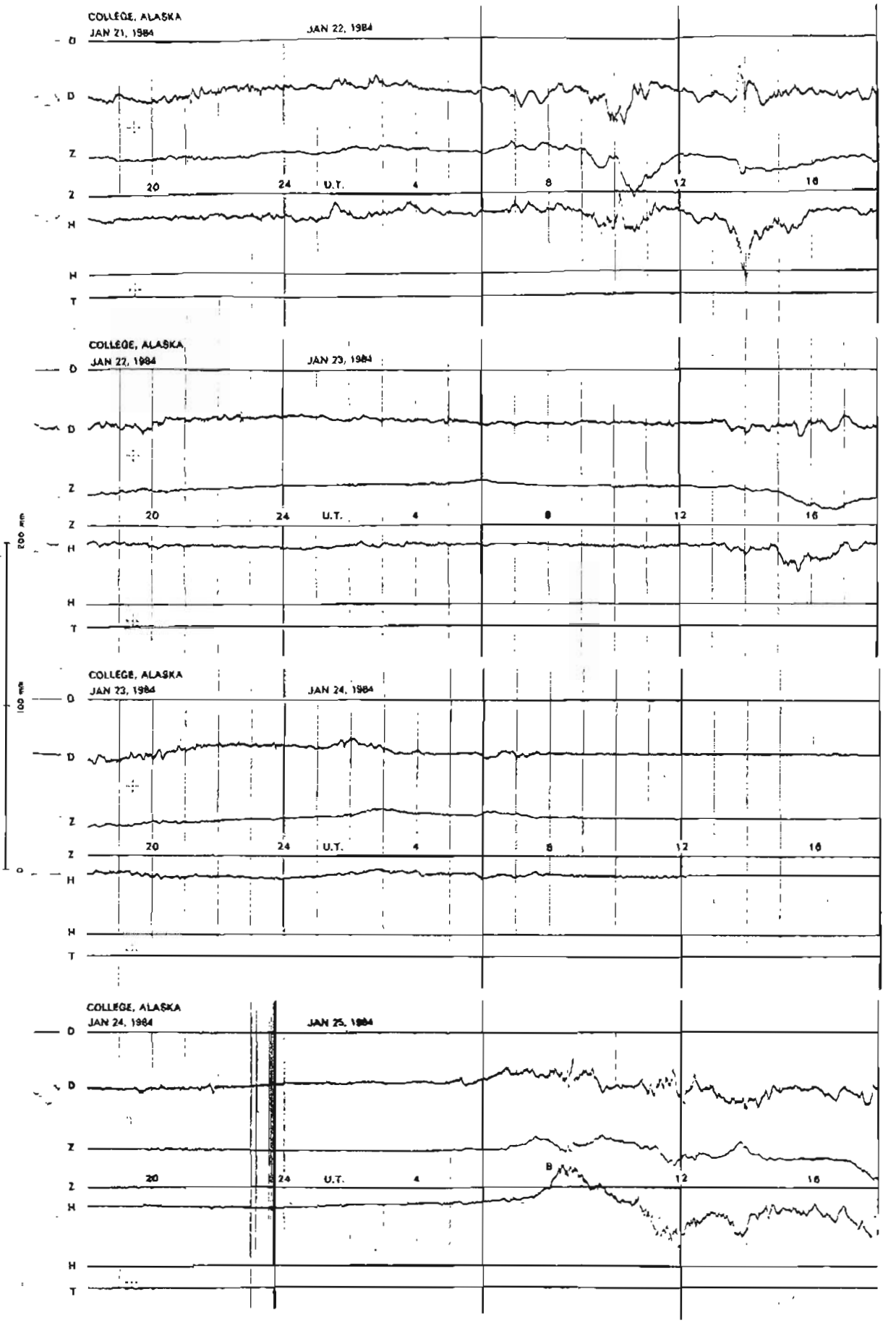
NORMAL MAGNETOGRAMS



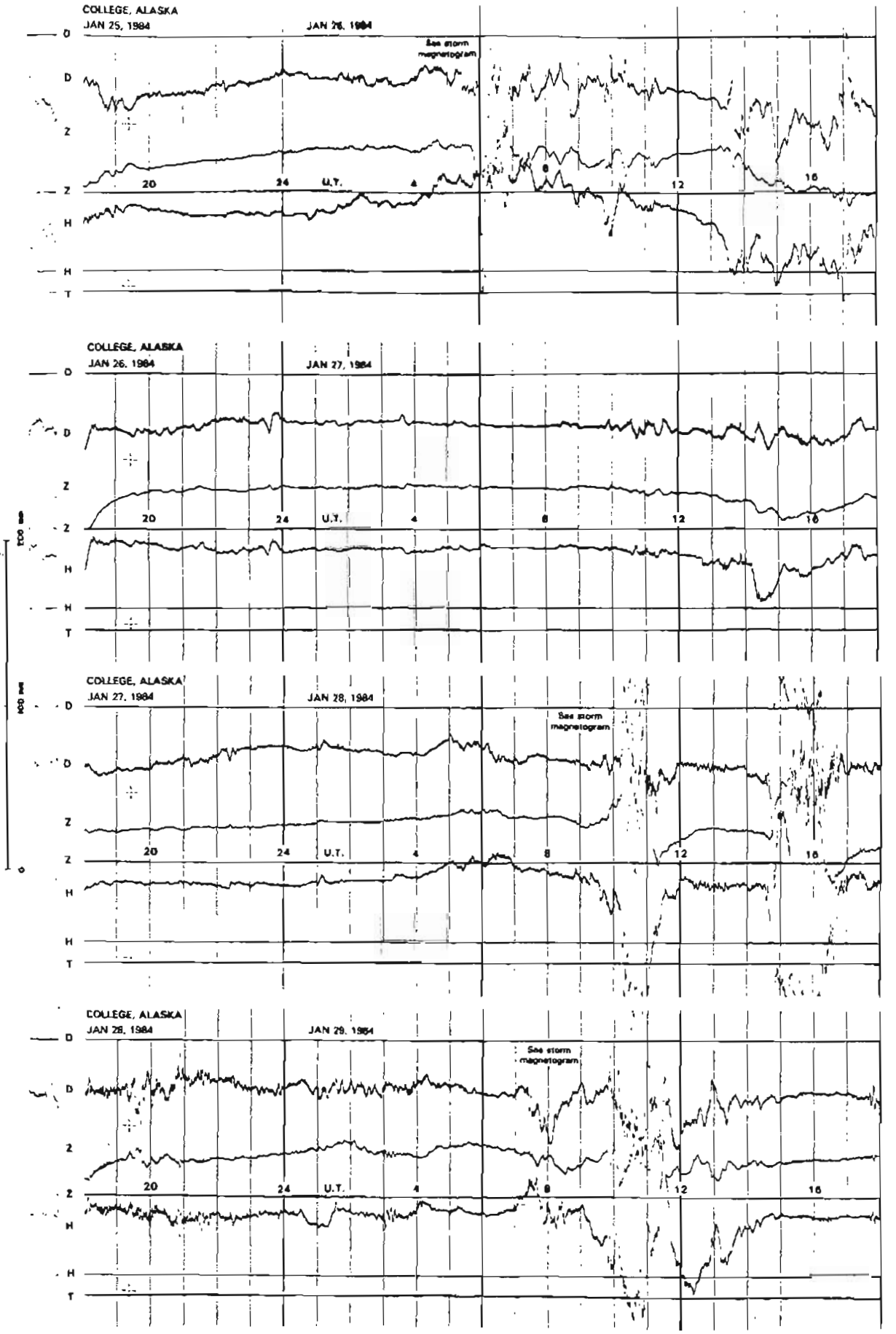
NORMAL MAGNETOGRAMS



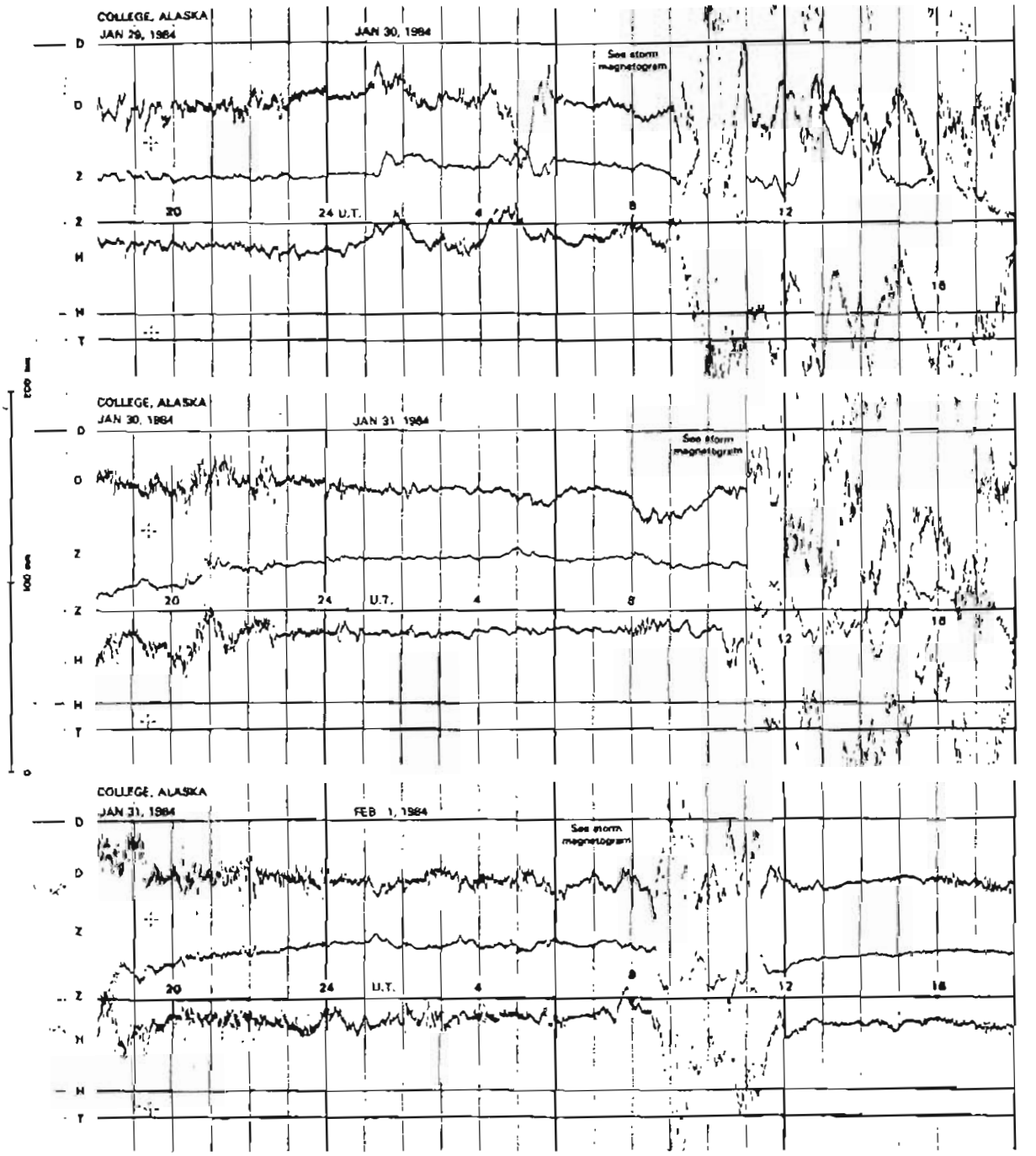
NORMAL MAGNETOGRAMS



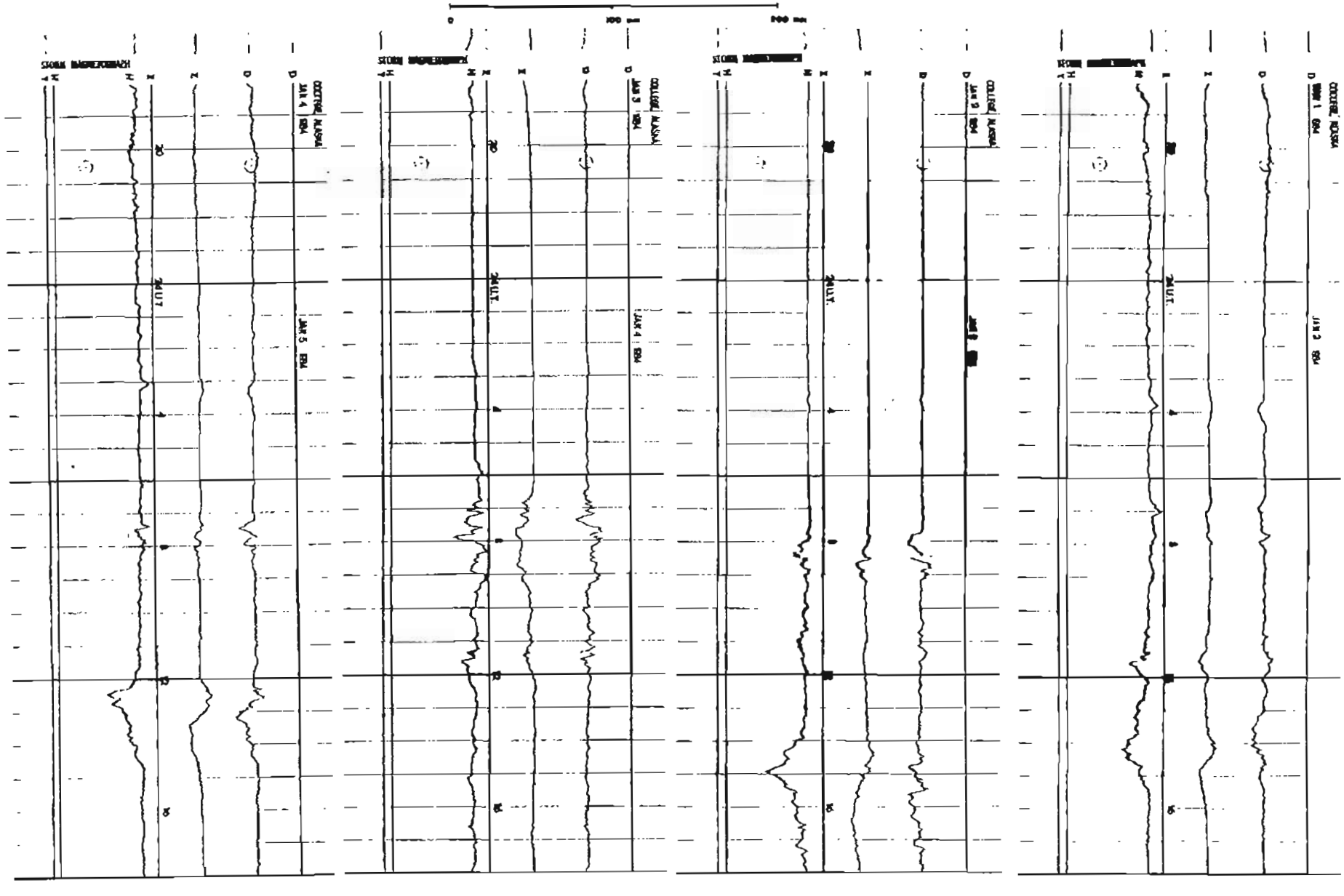
NORMAL MAGNETOGRAMS



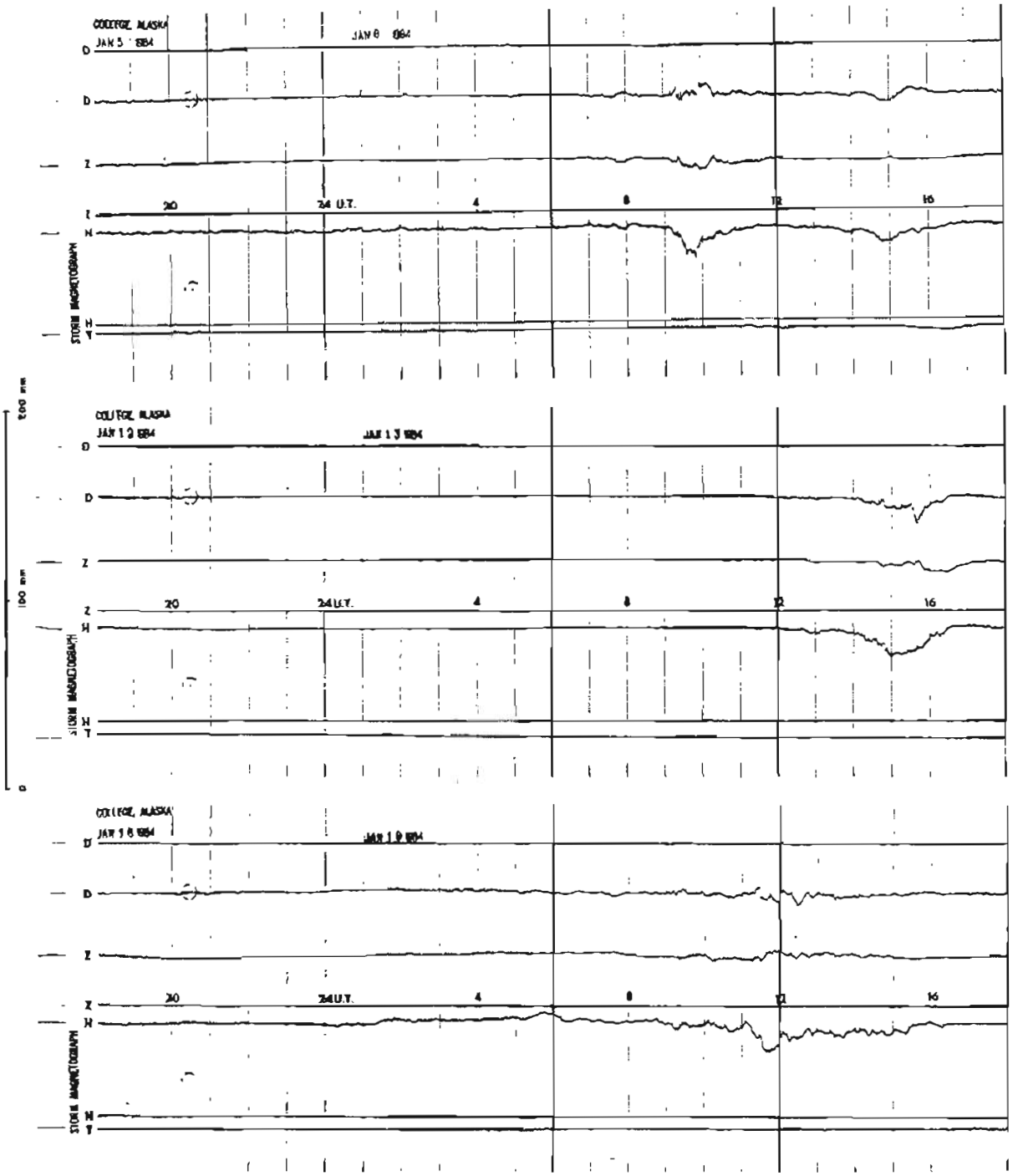
NORMAL MAGNETOGRAMS



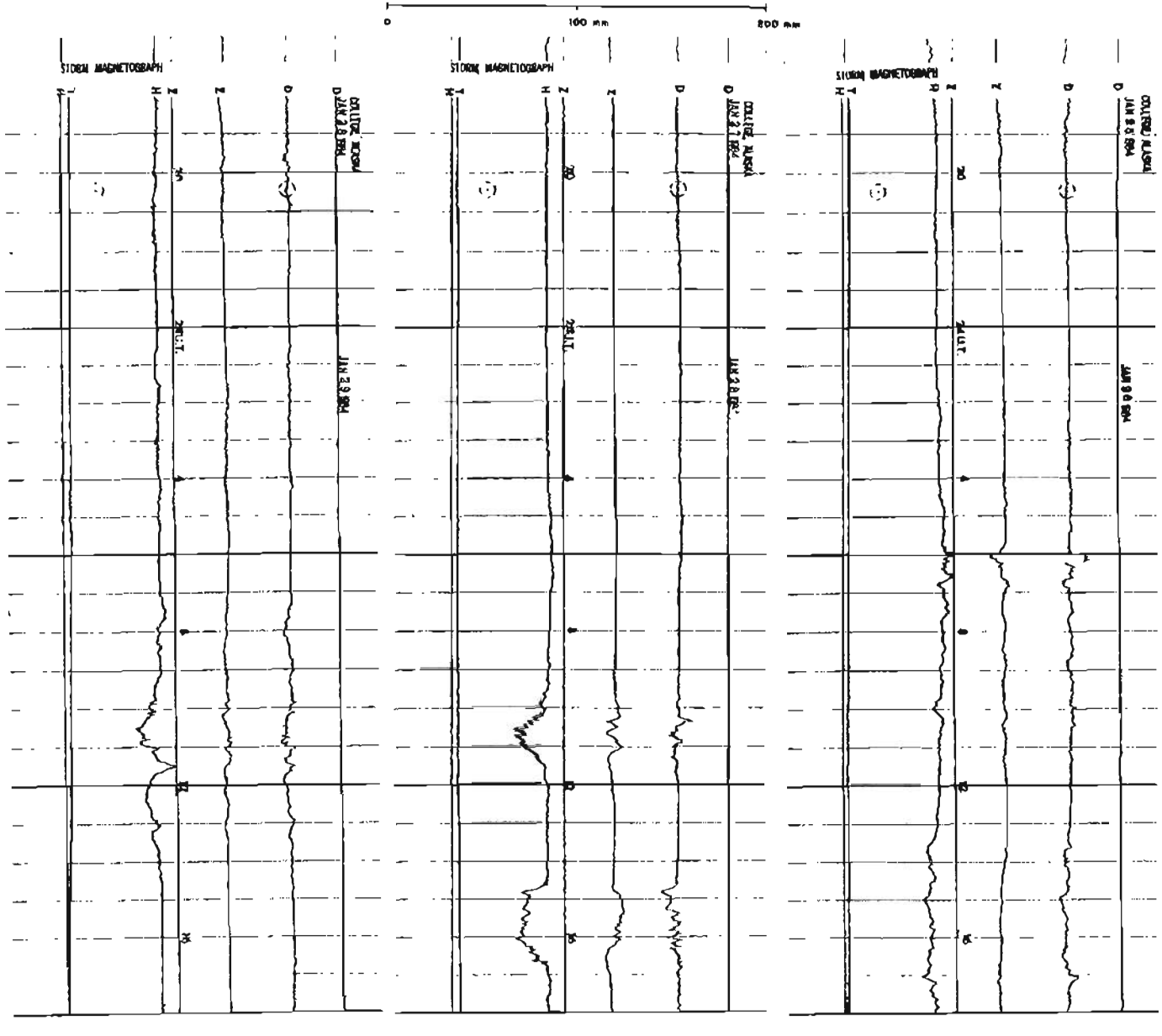
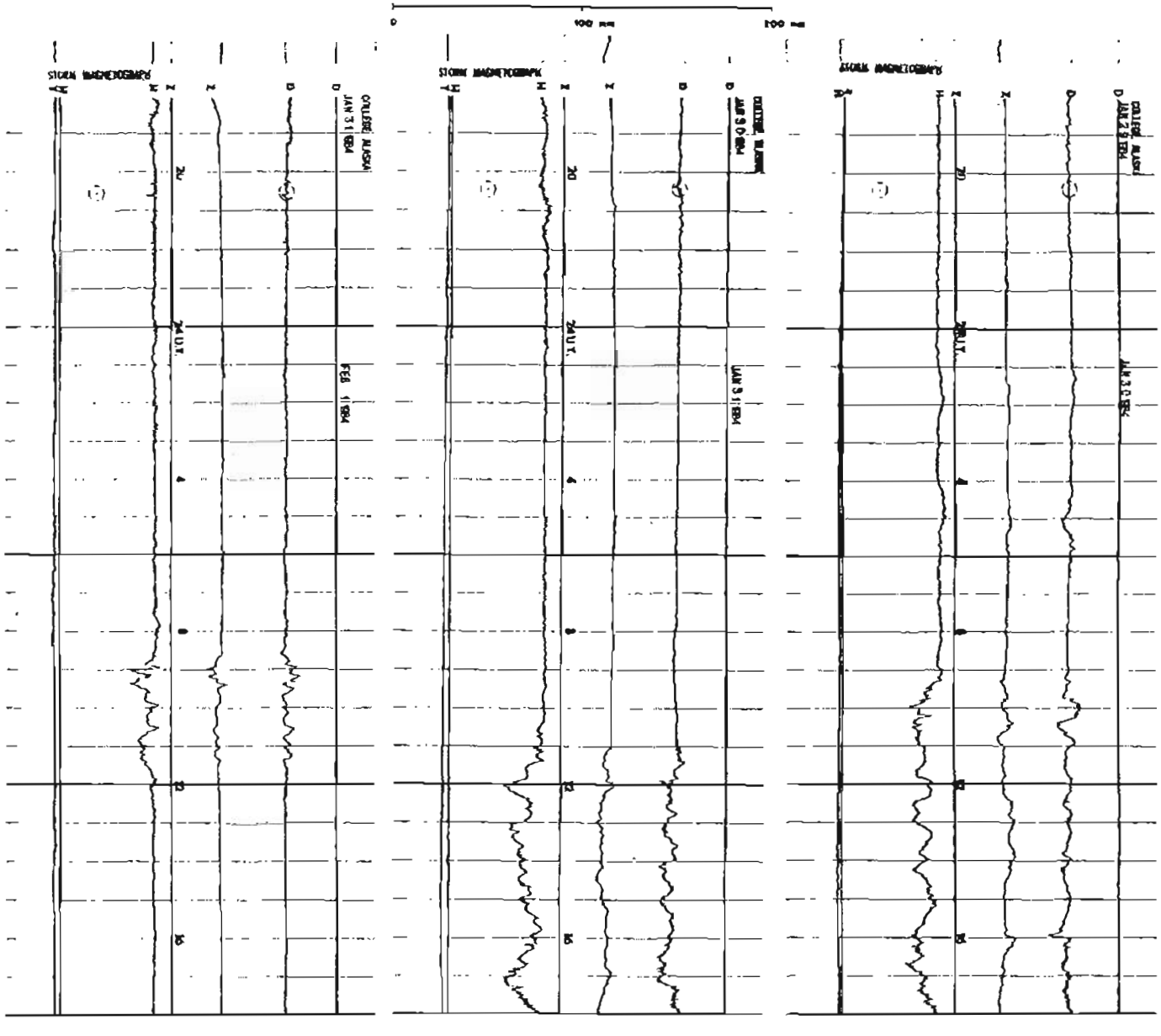
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS