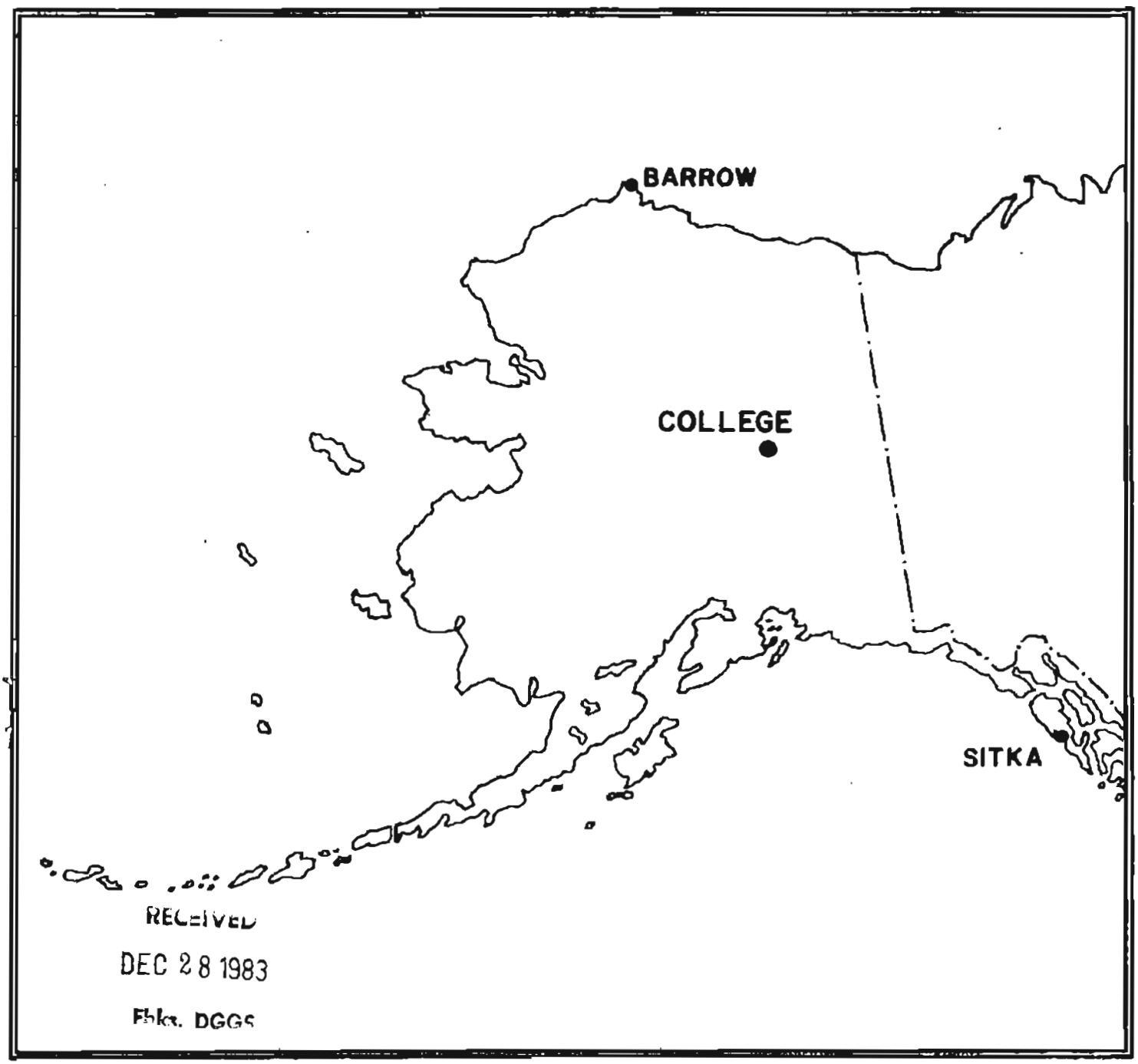
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

NOVEMBER 1983

OPEN FILE REPORT 83-0300K



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

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

EXPLANATION OF DATA AND REPORTS

INTRODUCTION

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

Chief, College Observatory
U.S. Geological Survey
800 Yukon Drive
Fairbanks, Alaska 99701

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

World Data Center A
NOAA D63, 325 Broadway
Boulder, Colorado 80303

OBSERVATORY LOCATION

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

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

The position of the observatory site is:

Geographic latitude.....64°51.6'N
Geographic longitude.....147°50.2'W
Geomagnetic latitude.....+64.6°
Geomagnetic longitude.....+256.5°
Elevation.....200 meters

GEOMAGNETIC DATA

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

Magnetic Activity

The K-Index: The K-Index is a logarithmic measurement of the range of the most disturbed component (D or H) of the geomagnetic field for eight intervals beginning 0000-0300, 0300-0600...2100-2400 UT. It is a measure of the difference between the highest and lowest deviation from a smooth curve to be expected for a component on a magnetically quiet day, within a three hour interval.

The Equivalent Daily Amplitude, AK: The K-Index is converted into an equivalent range, ak, which is near the center of the limiting gamma ranges for a given K. The average of the eight values is called equivalent daily amplitude AK. The unit 10γ has been chosen so as not to give the illusion of an accuracy not justified.

The schedule for converting gamma range to K, and K to ak is as follows:

Gamma Range	K - Index	ak
0 < 25	0	0
25 < 50	1	3
50 < 100	2	7
100 < 200	3	15
200 < 350	4	27
350 < 600	5	48
600 < 1000	6	80
1000 < 1650	7	140
1650 < 2500	8	240
2500+	9	400 (10γ)

The Magnetic Daily Character Figure, C: To each Universal day a character is assigned on the basis C=0, if it is quiet; C=1, if it is moderately disturbed; C=2, if it is greatly disturbed. The method used to assign characters at the College Observatory is based on AK as follows:

AK Range	C
0 ≈ 11	0
11 ≈ 50	1
50+	2

Routine assignment of C was discontinued at College on January 1, 1976.

Selected Phenomena & Outstanding Magnetic Effects

Prior to January 1, 1976, the Normal and Rapid Run records were reviewed at the observatory for selected magnetic phenomena and the events identified were forwarded to the IUGG Commission on Magnetic Variations and Disturbances. This was discontinued on January 1, 1976, but a report on Outstanding Magnetic Effects is prepared monthly for this report.

Principal Magnetic Storms

Gradual and sudden commencement magnetic disturbances with at least one K-Index of 5 or greater, which are believed to be part of a world-wide disturbance, are classified as principal magnetic storms. The time of the storm beginning and ending; direction and amplitude of sudden commencements; period of maximum activity; and storm range are reported. Monthly reports of these data are forwarded to the World Data Center A in Boulder, Colorado.

Magnetogram Hourly Scalings

Magnetogram hourly scalings are averages for successive periods of one hour for the D, H and Z elements. The Value in the column headed "01" is the average for the hour beginning 0000 and ending 0100. Note that the values on the scaling sheets are in tenths of mm with the decimal point omitted. The user of these scalings should keep in mind that the tabular values are hourly means and if he is interested in the detailed morphology of the magnetic field, he should refer directly to the magnetograms.

Magnetograms

The normal magnetograms in this report are reproduced at about one-third the size of the originals. Preliminary base-line values and scale values adopted for use with the original magnetograms are included. For days when the magnetic field is too disturbed for the Normal magnetogram to be readable, Storm magnetograms are reproduced.

Absolutes, Base-lines and Scale Values

To determine the absolute value of the magnetic field from the hourly means or from point scalings the following equations should be used:

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

where D, H and Z are absolute values;
B_D, B_H and B_Z are base-line values;
S_D, S_H and S_Z are scale values;
and d, h and z are scalings in millimeters.

NOAA FORM 76-133 (9-72)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

OBSERVATORY: COLLEGE, ALASKA

MONTH AND YEAR: NOVEMBER 1983

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	1	2	6	6	1	3	3	23	26
2	3	4	7	6	6	4	3	3	36	50
3	3	2	1	4	4	6	3	3	26	24
4	2	2	0	3	4	2	0	1	14	08
5	0	0	1	1	0	1	0	0	03	01
6	1	0	0	0	1	0	0	0	02	01
7	0	0	0	1	5	4	3	3	16	14
8	4	3	4	7	6	4	4	2	34	44
9	2	4	5	7	6	6	6	4	40	61
10	4	4	5	5	6	5	6	3	38	47
11	3	2	2	7	5	3	6	5	33	45
12	3	5	6	7	6	5	4	3	39	57
13	2	3	6	5	6	6	4	3	35	44
14	1	3	5	6	7	7	5	3	37	61
15	2	3	2	5	5	5	5	4	31	31
16	4	3	4	4	6	6	5	4	36	41
17	5	5	4	7	5	6	5	4	41	58
18	5	5	3	6	5	6	5	3	38	48
19	3	2	2	4	5	4	3	3	26	20
20	3	2	6	6	6	5	5	3	36	47
21	3	1	1	1	2	2	1	0	11	05
22	2	1	3	2	0	0	0	0	08	04
23	0	0	0	0	0	0	0	0	00	00
24	0	1	4	3	4	4	3	1	20	15
25	1	3	4	5	5	2	2	3	25	21
26	3	3	6	4	5	4	3	2	30	29
27	0	1	3	5	5	4	1	0	19	18
28	0	0	0	2	5	5	5	3	20	21
29	3	3	2	6	6	4	3	3	30	32
30	4	3	3	5	5	4	4	3	31	28
31										

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.....	675.7	322.2		(mm)
CURRENT SCALE VALUE.....	3.73	7.76		(γ/mm)
LOWER LIMIT FOR K = 9	2520	2500		(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 818

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OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY	
COLLEGE OBSERVATORY	
MONTH	YEAR
NOVEMBER	1983

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
06	10xx	pi 2	
07	1140	ssc*	
11	1012	ssc*	
22	02xx	pc5	
28	0913	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

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

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

NOVEMBER 1983

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	07	1140	s.c.*	-4	+21	-9	08	4	7	210	1650	960	11	02
								09	4	7					
								11	4	7					
		11	1012	s.c.*	-20	-93	-69	11	4	7	286	1600	1180	14	01
								12	4	7					
		15	10xx	..	..	..	..	17	4	7	296	1550	870	19	01
		28	0913	s.c.*	+10	-40	+31	29	4,5	6	194	920	710	DEC 01	07

COLLEGE OBSERVATORY, COLLEGE, ALASKA -- PRELIMINARY CALIBRATION DATA FOR: NOVEMBER 1983

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 11-1-83	2400 U.T., 11-30-83	1.0'/mm	3.7γ/mm	27° 17.1 E
H	0000 U.T., 11-1-83	2400 U.T., 11-30-83	7.8γ/mm		12666γ
Z	0000 U.T., 11-1-83	2400 U.T., 11-30-83	7.5γ/mm		55178γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T., 11-1-83	2400 U.T., 11-30-83	7.9'/mm	29.6γ/mm	24° 22.9 E
H	0000 U.T., 11-1-83	2400 U.T., 11-30-83	43.9γ/mm		10797γ
Z	0000 U.T., 11-1-83	2400 U.T., 11-30-83	48.0γ/mm		54045γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
27° 50.2 E	12938γ	55374γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: NOV 5, 6, 21, 22, 23, **, **, **, **, **

** ONLY 5 QUIET DAYS USED DUE TO DISTURBED CONDITIONS.

FORM 74-106

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

OBSY.	YEAR	MONTH	ELEMENT
CO	83	NOV	D

Values are in tenths of mm. 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.

C	Q or S	T or Q	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	321	284	294	305	306	317	318	324	338	438*	506	391*	01	708*	392	364	369	362	388	406	382	391	279	161	206	8550
			02	259	244	240	276	295	302	226	214	221*	348*	206	404*	02	364*	357*	468	404	382	406	382	375	352	316	304	308	7653
			03	311	316	323	334	328	326	317	326	327	346	320	342	03	384	422	436	402	713*	332*	281	292	305	278	308	306	8375
			04	306	310	318	309	326	311	326	336	331	344	324	384	04	346	372	375	360	369	378	378	381	367	328	322	300	8201
			05	324	323	309	325	314	323	319	326	324	329	329	338	05	342	356	340	352	366	367	377	372	356	340	331	320	8102
			06	318	318	323	326	331	338	336	332	332	335	336	344	06	340	342	348	354	362	375	372	370	351	334	326	322	8165
			07	317	313	311	328	317	302	314	314	320	327	328	331	07	393	429	601	516	504	484	489	375	252	216	246	237	8564
			08	282	253	253	278	232	320	297	373	304	258	647*	552*	08	528*	615*	448*	580	410	365	395	280	318	248	210	239	8685
			09	274	269	254	267	310	370	336	382	200	393*	115*	302	09	488*	210*	798*	607*	330	341	333	210*	132	171	266	254	7602
			10	251	312	294	313	392	345	308	298	307	332	208	374	10	545	344	496*	372	440	623*	266*	148	119	224	283	311	7905
			11	267	310	338	333	342	336	339	338	329	331	340	409*	11	385*	387	395	412	395	360	380	427	341	98	274	282	8148
			12	265	248	246	336	329	139*	134	345*	251*	274*	84*	306*	12	417*	536*	663*	504*	508	442	407	292	247	242	202	247	7664
			13	285	301	311	302	281	291	60*	218*	204	481*	409*	520*	13	457*	726*	933*	671*	406	380	339	294	332	221	238	288	8948
			14	319	325	326	316	318	392	362	337	84*	271	338	422	14	814*	1179*	1060*	782*	631*	354*	289	341	335	298	321	317	10531
			15	313	314	300	318	328	316	297	290	275	302	322	276	15	576*	560*	751*	568*	368	371	360	394	176	204	264	264	8507
			16	263	304	301	308	350	304	370	411	268	339	342	339	16	327	386	425*	478	671*	417	347	339	343	323	210	203	8368
			17	258	290	342	316	400	323	240	311	298	354*	-195*	266	17	440	370	440	663*	348	288	343	342	319	290	278	300	7624
			18	288	302	316	344	246	478	316	334	330	320	84*	183	18	398	350	482	392	498	348	269	320	319	298	290	276	7781
			19	288	278	303	298	286	351	429	350	300	335	352	376	19	366	350	427	391	336	396	370	340	300	227	230	260	7939
			20	286	290	360	290	306	290	362	302	306*	202*	232	417*	20	210*	320	460	420	360	277	325	300	271	263	289	303	7431
			21	299	295	318	319	330	329	328	333	329	326	328	328	21	357	342	377	363	378	377	318	318	308	300	298	299	7897
			22	299	312	308	322	328	321	310	339	319	333	319	327	22	340	344	348	348	356	364	354	353	328	317	315	318	7922
			23	308	318	319	328	328	330	329	339	326	328	334	330	23	339	338	338	339	346	349	354	349	348	332	328	319	7996
			24	313	317	317	319	336	320	298	317	278	349	344	329	24	348	381	459	389	368	369	328	228	287	305	319	309	7927
			25	304	298	289	284	302	314	329	287	346	243	382	345	25	321	373	391	353	340	345	349	307	309	276	269	254	7610
			26	243	248	248	301	330	326	449	423	369	342	308	338	26	347	283	311	371	376	384	278	328	280	303	289	299	7774
			27	312	320	324	323	331	329	349	318	378	370	318	400	27	348	322	424	482	348	373	370	347	328	319	310	309	8352
			28	310	323	330	334	335	339	336	329	322	354	335	338	28	341	399	552	533	533	475	310	324	290	308	300	309	8659
			29	271	249	283	277	250	263	291	320	331	318	230*	302*	29	580*	334	376	409	329	349	354	342	325	287	270	247	7587
			30	280	280	314	330	299	321	299	344	419	302	307	270*	30	376	280	374	344	368	374	363	288	309	282	286	285	7694
			31													31													

SCALED BY	LYT, JEP
CHECKED BY	JEP, EAS
SHEET 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	244161
MONTHLY MEAN	339
DATES WITH GAPS:	

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)

Values are in cents 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 8836 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

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

OBSY.	YEAR	MONTH	ELEMENT
CO	83	NOV	2

C	Qual S	Tra 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	266	275	289	317	284	288	296	310	287	244*	65	493*	01	199*	156	214	238	256	257	228	226	230	181	193	222	6014
			02	279	278	285	312	304	290	238	224	444*	328*	253	373*	02	309*	284*	202	244	260	249	255	248	239	242	254	274	6668
			03	288	286	287	278	274	274	276	279	277	279	258	211	03	147	158	231	196	117*	175*	67	110	164	227	239	255	5353
			04	267	273	273	273	276	277	282	274	274	276	247	194	04	190	204	237	247	249	261	260	257	249	246	254	259	6099
			05	266	264	266	266	269	272	276	273	276	299	284	273	05	260	253	240	253	256	259	264	260	258	260	266	263	6376
			06	265	263	263	259	257	257	257	256	256	258	251	247	06	239	252	250	253	254	257	253	253	249	247	250	253	6099
			07	253	253	250	254	252	254	270	276	267	260	254	251	07	246	195	174	238	138	82	152	150	101	151	240	266	5227
			08	294	310	268	269	323	388	331	285	206	68	595*	647*	08	249*	473*	384*	163	175	227	183	196	241	261	268	286	7089
			09	295	296	330	338	271	316	315	264	264	231*	370	295	09	300*	19*	57*	199*	166	133	198	243*	207	279	291	314	5991
			10	302	304	286	314	321	298	137	198	166	198	103	-74	10	212	316	211*	-8	58	83*	179*	102	120	191	249	274	4540
			11	297	301	295	283	272	266	268	275	276	268	248	-116*	11	-32*	185	241	255	251	252	262	239	234	179	242	286	5527
			12	302	306	343	468*	147*	71*	71*	231*	198	423*	337	608*	12	295*	327*	492*	32*	-54	22	43	79	182	270	278	305	5576
			13	300	306	306	326	328	276	25*	96*	250	327*	455*	519*	13	441*	537*	479*	263*	129	180	191	208	253	254	284	279	7006
			14	279	282	283	298	316	352	307	269	-7*	110	267	348	14	391*	51*	25*	-71*	103*	135*	0	125	189	224	252	260	4788
			15	267	270	272	280	277	275	296	290	307	296	284	348	15	288*	352*	288*	236*	237	244	251	190	207	241	306	290	6592
			16	304	306	284	299	300	304	326	262	230	249	246	273	16	271	290	345*	136	108*	82	140	225	251	262	260	290	6063
			17	311	333	311	316	288	316	254	343	242	83*	32*	104	17	214	231	270	403*	167	154	154	234	251	284	284	300	5849
			18	309	315	329	317	313	340	340	291	280	228	58	104	18	136	260	368	238	175	167	122	169	226	248	260	270	5863
			19	279	304	293	288	320	334	312	291	300	291	260	220	19	200	239	231	166	256	237	230	261	262	273	287	270	6404
			20	289	302	318	294	299	292	321	292	233	167*	162	320*	20	171	206	121	224	210	281	207	220	260	250	283	289	5961
			21	298	291	294	282	274	269	269	269	268	264	252	234	21	244	207	210	243	232	240	225	219	231	243	252	263	6073
			22	268	270	272	278	274	287	318	339	304	297	269	269	22	263	258	259	258	258	254	251	249	252	254	259	259	6519
			23	259	259	259	259	259	260	264	268	269	268	264	262	23	258	257	256	255	255	257	255	250	250	252	253	251	6199
			24	252	251	252	255	263	262	271	299	204	265	289	259	24	253	212	143	121	140	210	209	142	184	223	243	250	5458
			25	259	269	267	280	287	320	309	265	259	235	311	321	25	195	92	90	184	239	239	230	199	224	243	268	288	5873
			26	314	318	326	323	312	285	220	143	269	273	252	209	26	140	162	170	201	197	150	210	250	249	248	250	256	5727
			27	265	264	269	265	268	270	294	276	264	216	192	147	27	233	130	117	110	180	233	240	240	248	250	250	257	5478
			28	260	260	258	255	253	251	251	256	261	272	260	250	28	240	278	454	149	111	192	144	54	135	254	260	256	5614
			29	269	281	290	306	304	296	320	310	297	266	157*	137*	29	43*	212	250	236	254	254	240	248	238	263	250	267	5973
			30	319	318	301	294	274	291	293	252	270	271	310	257	30	202	-41	66	210	229	240	150	128	210	240	251	260	5595
			31													31													

SCALED BY	LYT, JEP
CHECKED BY	JEP, EAS
SIGNS RE-VIEWED 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 (or part or all of hour; if value in given, curve was estimated for missing part.
* Derived from STORM Magn., converted to Normal Magn.

MONTHLY SUM	177594
MONTHLY MEAN	247
DATES WITH GAPS:	

FORM 76-506

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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 12 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

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

OBSY.	YEAR	MONTH	ELEMENT
CO	83	NOV	H

C	Q or S	Tent Q	Hr. Day	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	340	357	393	343	364	356	366	377	390	230	96	-103*	01	-273*	281	354	364	364	326	311	338	284	257	281	355	6701
			02	337	400	398	548	444	383	429	429	-9*	-3*	199	-223*	02	-76*	134	235	396	364	305	342	345	332	324	352	351	6776
			03	353	357	386	374	356	354	360	354	374	390	400	299	03	250	323	308	282	-156*	-144*	311	274	321	332	364	349	7171
			04	353	353	354	361	362	358	353	358	357	354	308	263	04	265	280	269	302	357	356	348	349	339	337	340	345	8015
			05	340	346	356	356	355	357	357	357	362	377	362	356	05	352	344	346	356	347	346	342	340	334	333	337	343	8401
			06	343	347	353	353	354	355	351	352	350	350	352	351	06	358	364	364	360	357	351	351	344	339	331	346	343	8419
			07	349	353	360	360	363	363	364	369	365	360	359	359	07	295	198	-52	183	192	212	214	234	289	284	276	338	6987
			08	414	475	444	393	491	452	498	528	426	223	-509*	-419*	08	-152*	-102*	-119*	186	352	269	215	332	316	300	307	339	5465
			09	372	386	360	426	498	438	442	442	253	-317*	-45*	275*	09	-481*	-396*	-345*	-15	114	369	311	-152*	312	335	336	316	4234
			10	383	523	390	404	413	442	228	295	387	242	45*	-126*	10	-192*	-76*	-334*	180	212	-119*	170*	110	276	333	352	369	4907
			11	392	359	362	364	355	352	356	354	371	372	264*	-424*	11	277*	358*	356*	383*	365*	362*	342*	225*	17*	240*	348*	372*	7122
			12	376	386	472	554*	487*	385*	385*	69*	-57*	198*	276*	-237*	12	-566*	282*	-220*	-38*	171*	266*	160*	226*	282*	346*	305*	340*	4284
			13	356	369	368	385	437	448	407*	52*	255*	-95*	-124*	-237*	13	12	-287*	-457*	-62*	254*	386*	315*	334*	291*	268*	352*	348*	4425
			14	353	352	350	374	371	437	382	425	113*	323*	391*	171*	14	-407*	-764*	-689*	-441*	-8*	-17*	136*	394*	381*	350*	349*	352*	3698
			15	365	340	350	349	377	377	391	425	430	381	357	83	15	-135*	-142*	-265*	192*	371*	395*	337*	200*	335*	366*	338*	285*	6472
			16	397	423	432	435	400	396	446	563	514	447	348	286	16	304	215	-68*	-50*	-187*	66*	393*	372*	366*	313*	255*	284*	7280
			17	424	600	516	416	520	422	545	442	479	-294*	-175*	266*	17	260	295	204*	-300*	79*	240*	343*	356*	298*	336*	309*	301*	6912
			18	352	389	510	440	596	495	380	334	340	321	171	118	18	240	346	56*	86*	34*	52*	153*	370*	345*	340*	350*	361*	7173
			19	363	327	391	413	404	401	371	387	376	350	344	224	19	240	276	126*	284*	380*	330*	322*	348*	320*	330*	322*	342*	7971
			20	360	369	409	397	379	399	440	397	340*	130*	340*	24*	20	-379*	150*	205*	220*	234*	380*	249*	384*	332*	329*	332*	379*	6649
			21	388	380	398	390	372	368	369	349	348	346	340	340	21	323	306	323	349	329	320*	289*	330*	339*	340*	348*	339*	8298
			22	336	349	370	345	376	375	411	421	372	375	350	349	22	341	341	348	349	348	343	341	339	339	338	330	339	8545
			23	342	349	357	358	358	350	349	347	350	349	349	348	23	348	348	349	349	349	348	347	342	345	341	339	346	8357
			24	349	356	359	351	350	359	360	380	398	426	375	359	24	330	200	170	168	349	371	335	260	348	349	340	350	7986
			25	358	339	348	368	379	422	412	552	473	315	102	138	25	-69	-27	228	362	270	359	345	348	338	300	338	330	7338
			26	410	438	449	409	359	468	462	359	451	348	310	230	26	84	67	269	285	320	216	375	330	326	310	330	335	7940
			27	348	350	358	355	351	360	360	374	395	291	14	197	27	112	-45*	232	261	411	388	370	360	349	340	349	349	7229
			28	363	353	357	358	351	367	353	352	359	367	366	361	28	371	285	-82	43	253	230	167	145	307	360	352	360	7078
			29	370	380	390	458	391	400	391	392	409	370	-34*	68*	29	192*	387	318	291	369	356	342	340	346	320	288	339	7873
			30	380	402	411	382	390	365	392	464	462	472	432	260	30	7	-36	246	371	334	275	115	214	371	356	349	353	7757
			31													31													

SCALED BY	LYT, JEP
CHECKED BY	JEP, EAS
ITEMS REVIEWED BY	JEP
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.

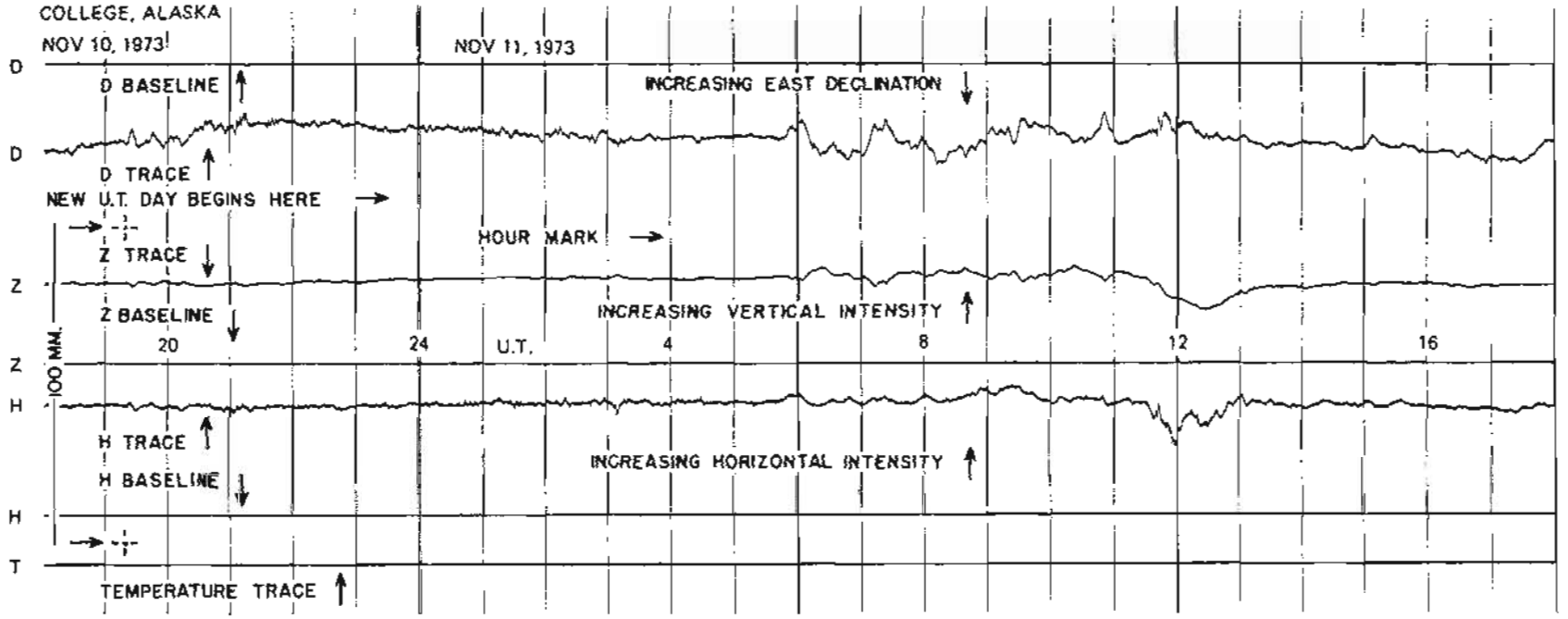
< > Record off above for part or all of hour; if value is given, curve was estimated for missing part.

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

MONTHLY SUM	207663
MONTHLY MEAN	288
DATES WITH GAPS:	

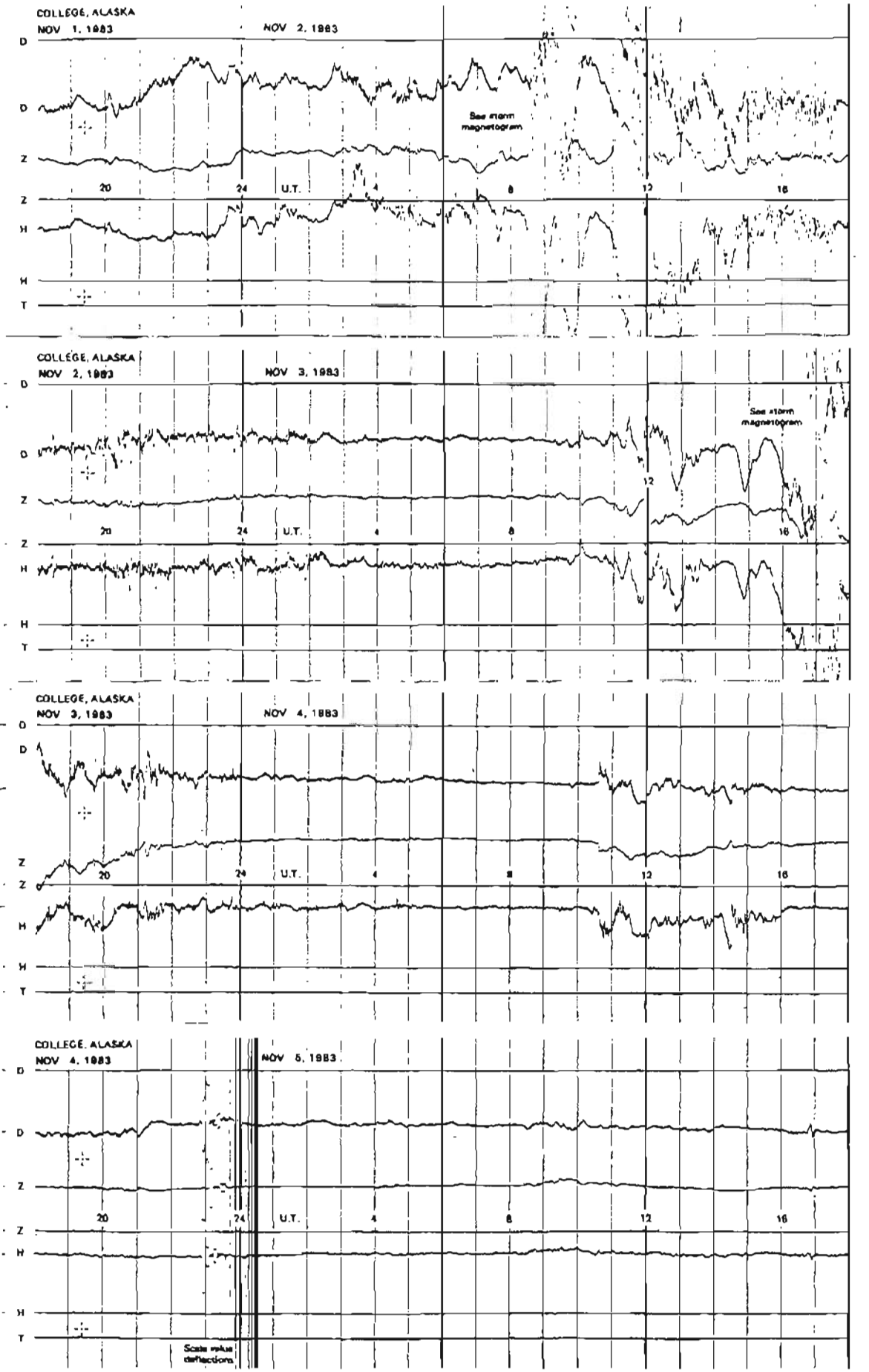
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

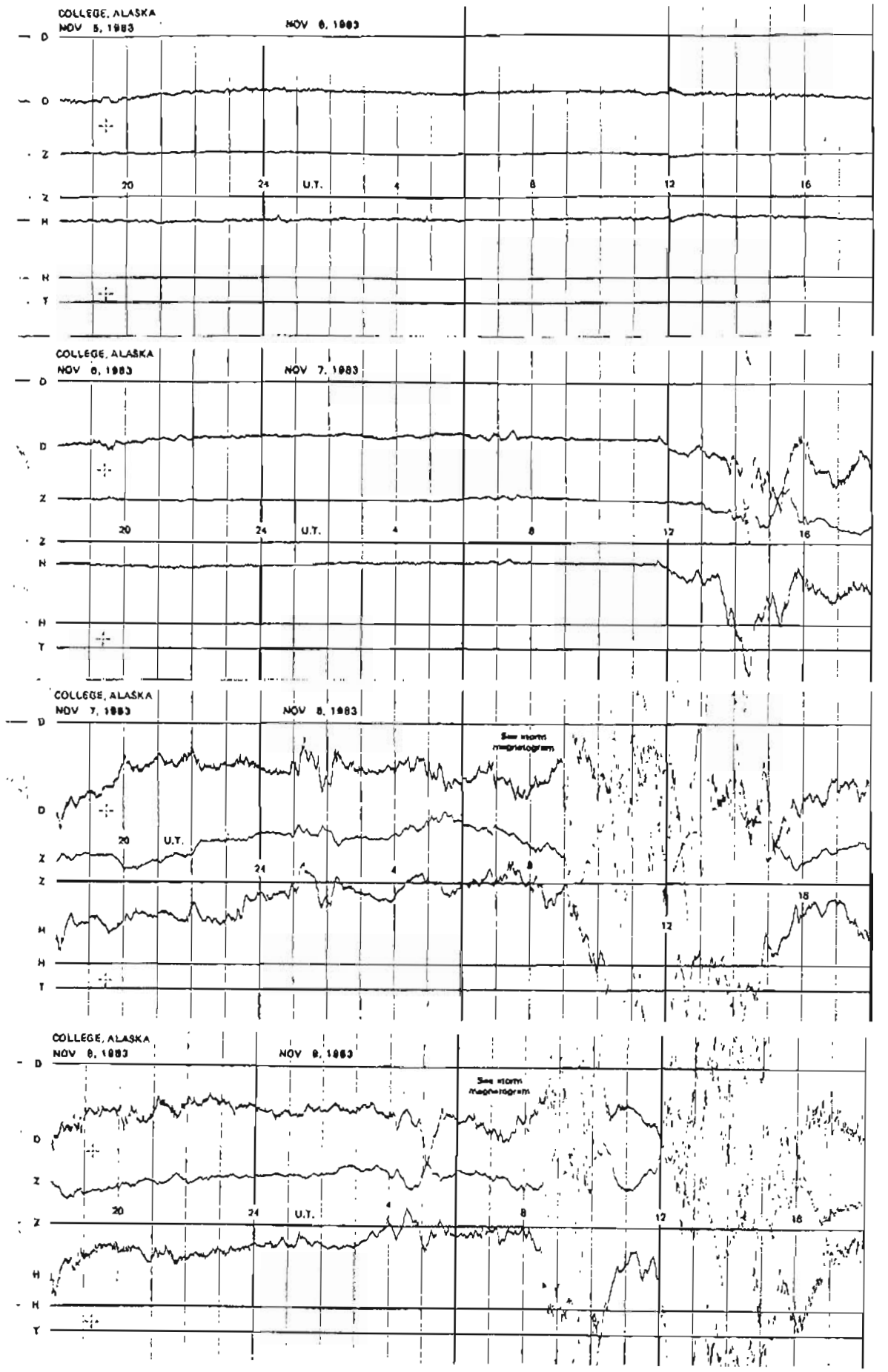


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

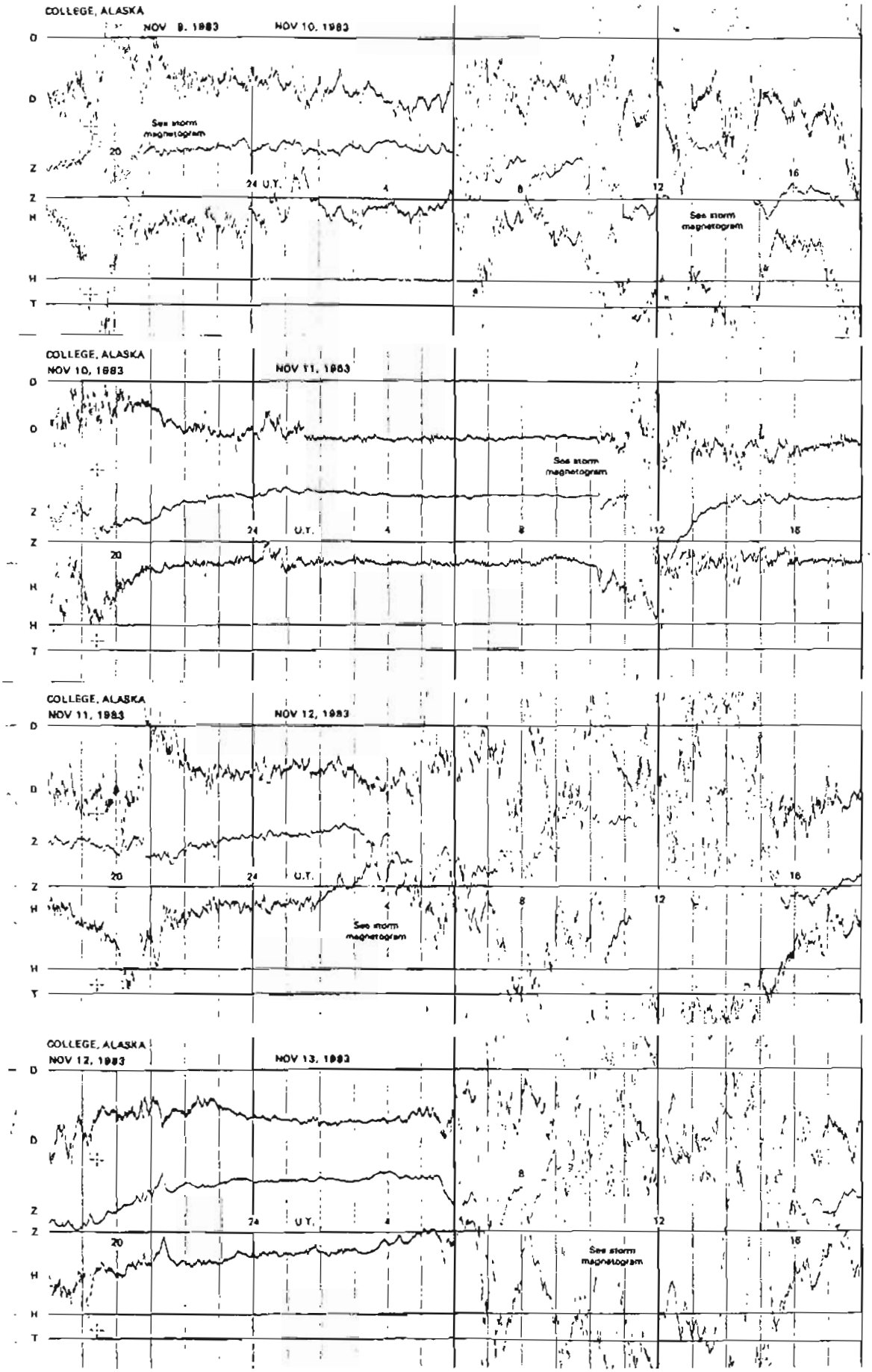
NORMAL MAGNETOGRAMS



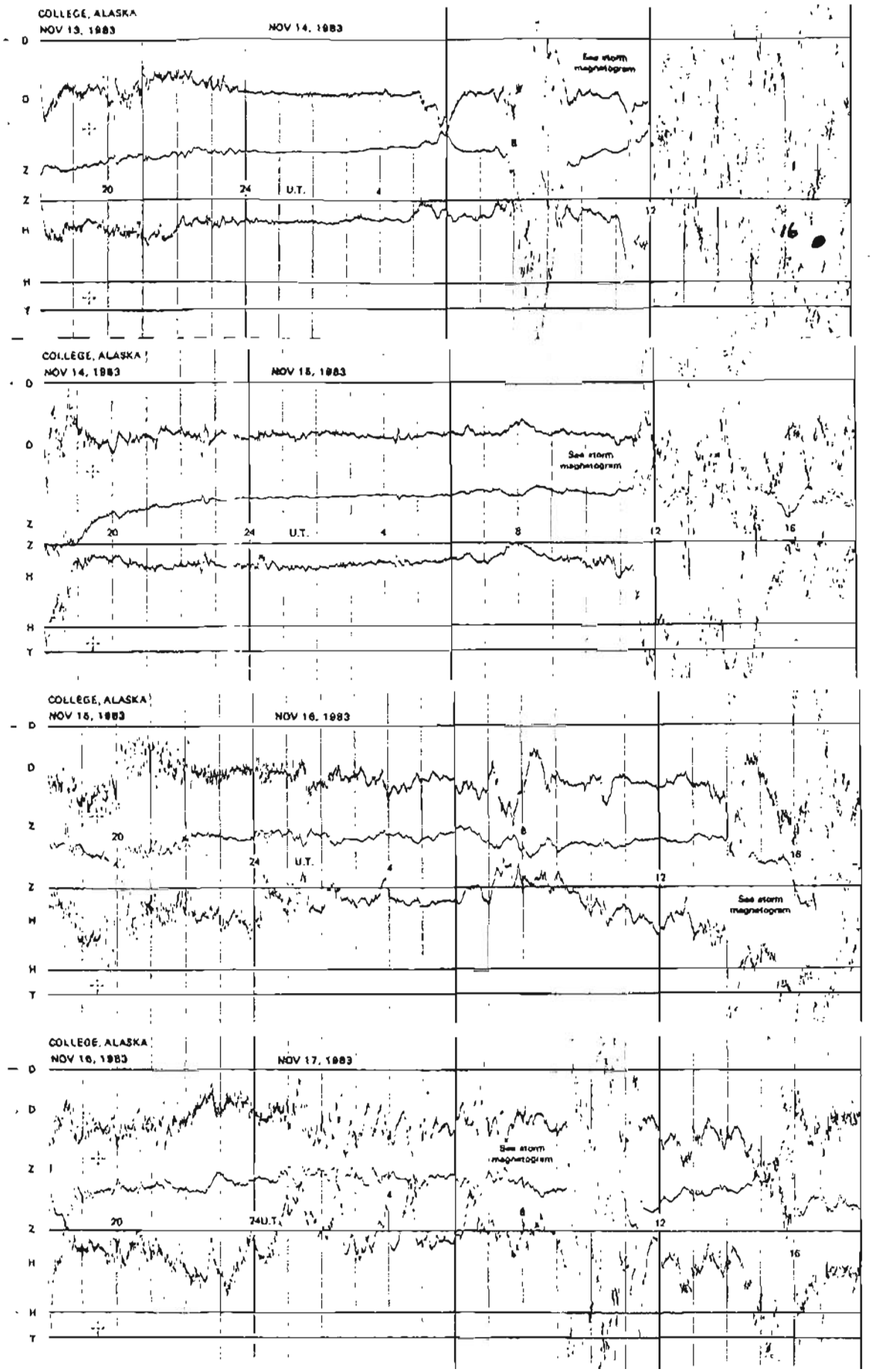
NORMAL MAGNETOGRAMS



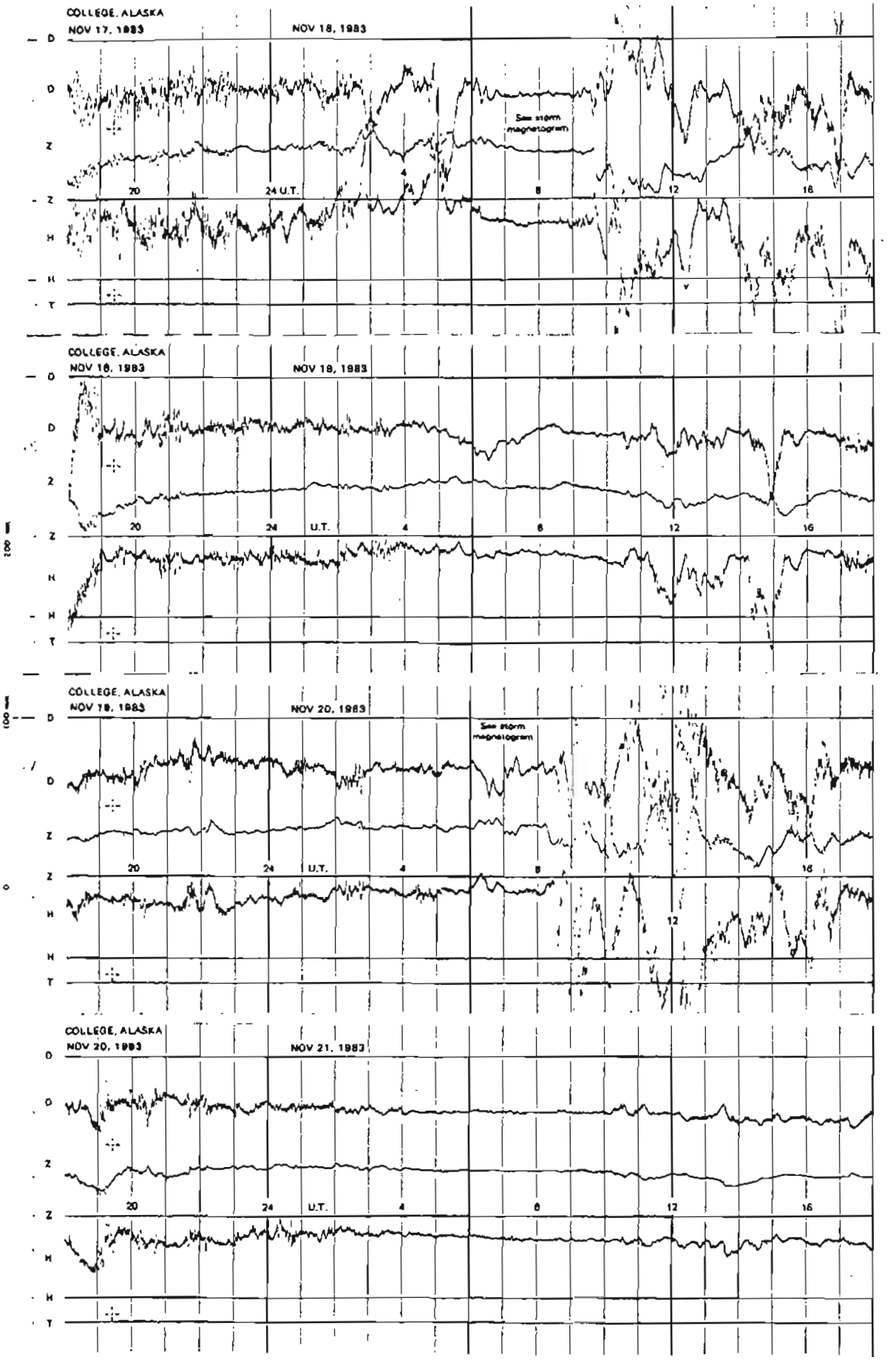
NORMAL MAGNETOGRAMS



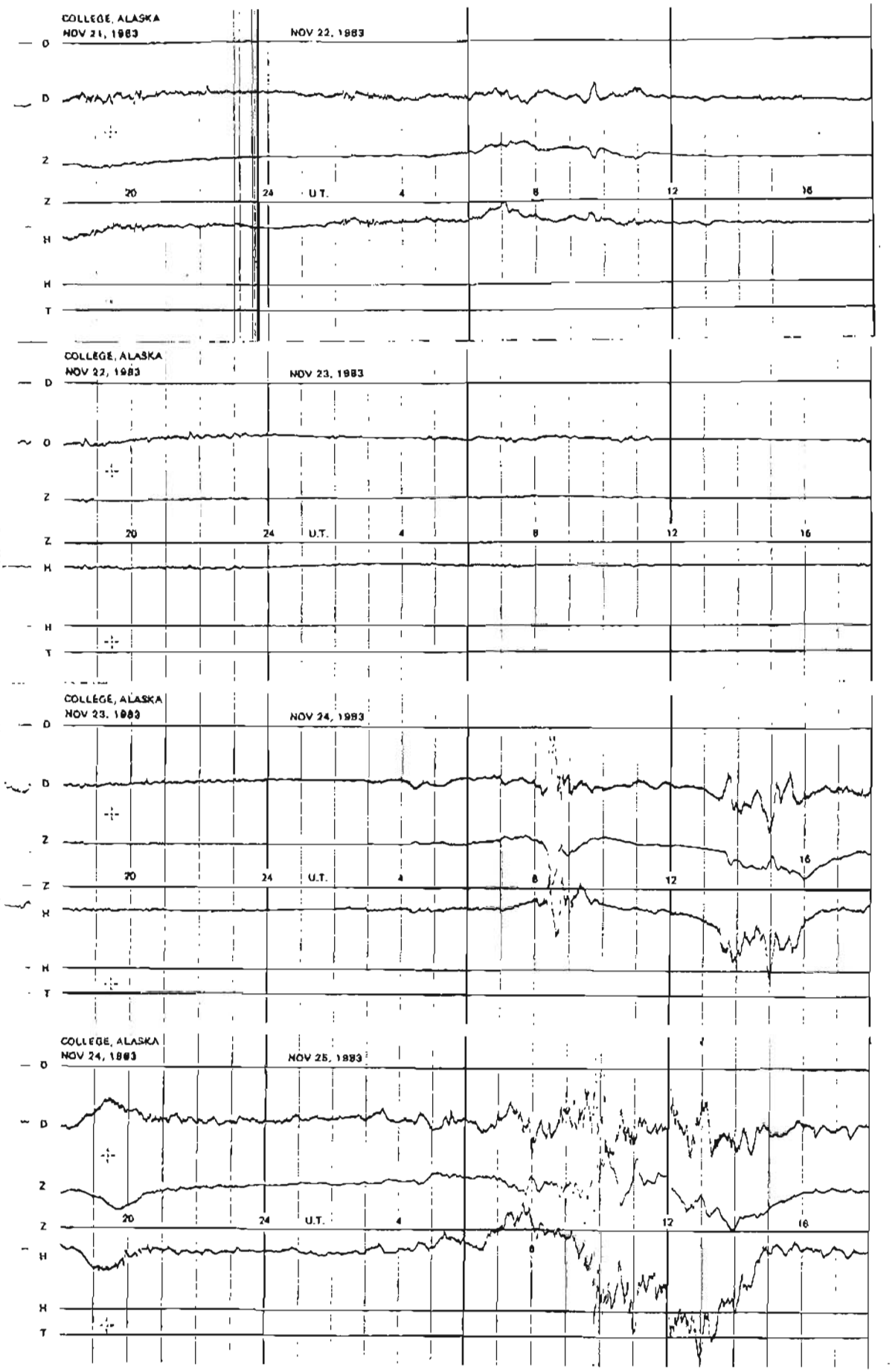
NORMAL MAGNETOGRAMS



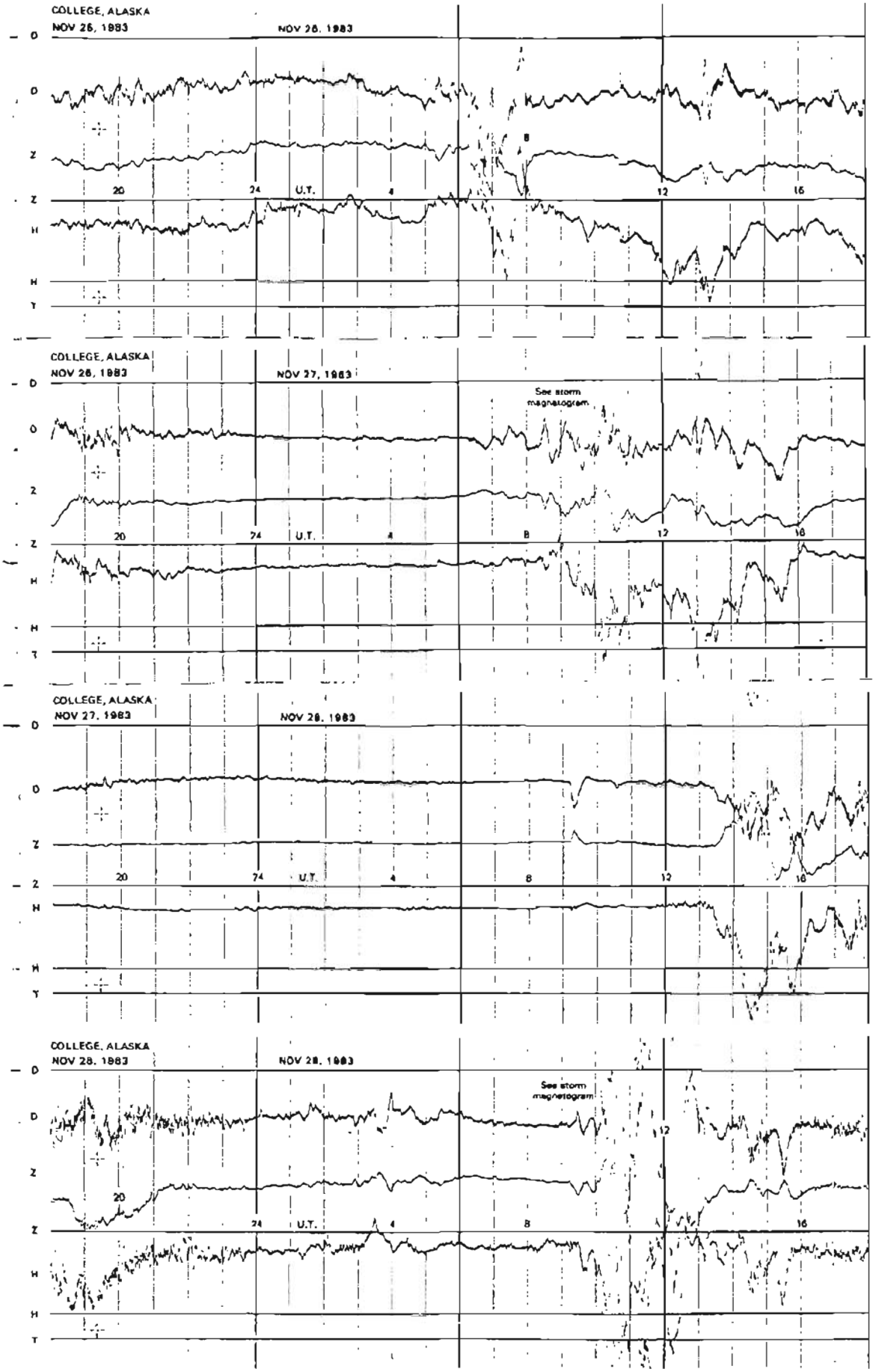
NORMAL MAGNETOGRAMS



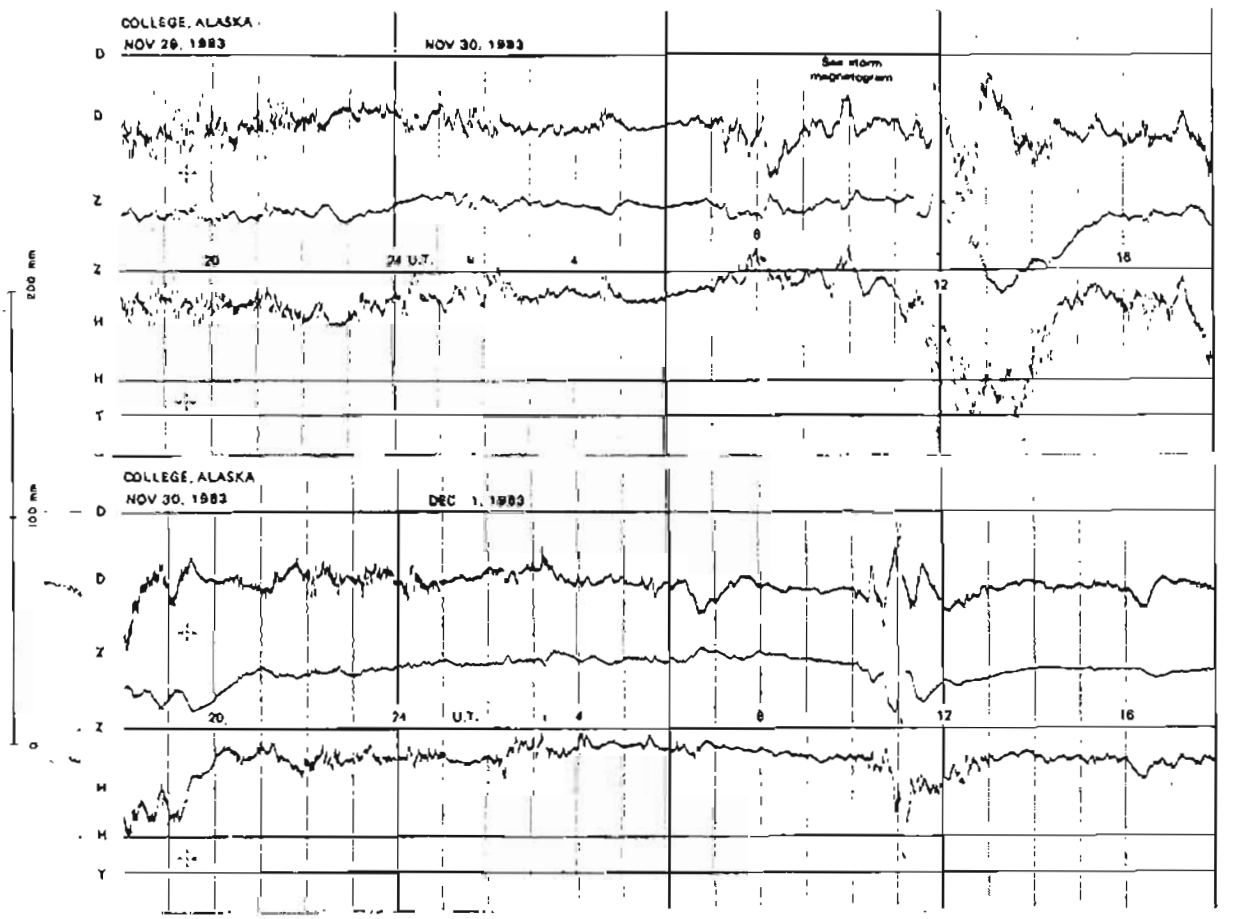
NORMAL MAGNETOGRAMS



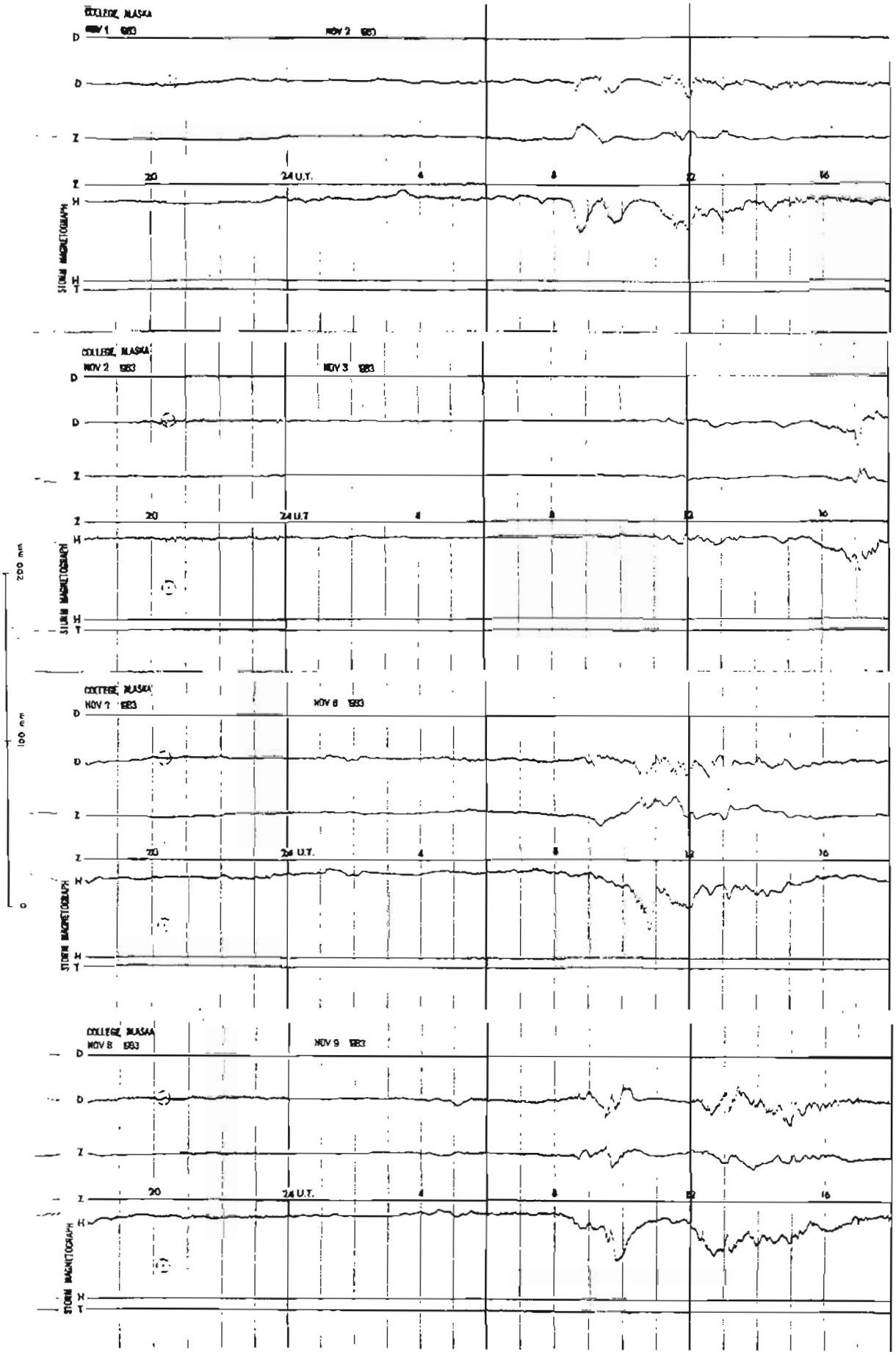
NORMAL MAGNETOGRAMS



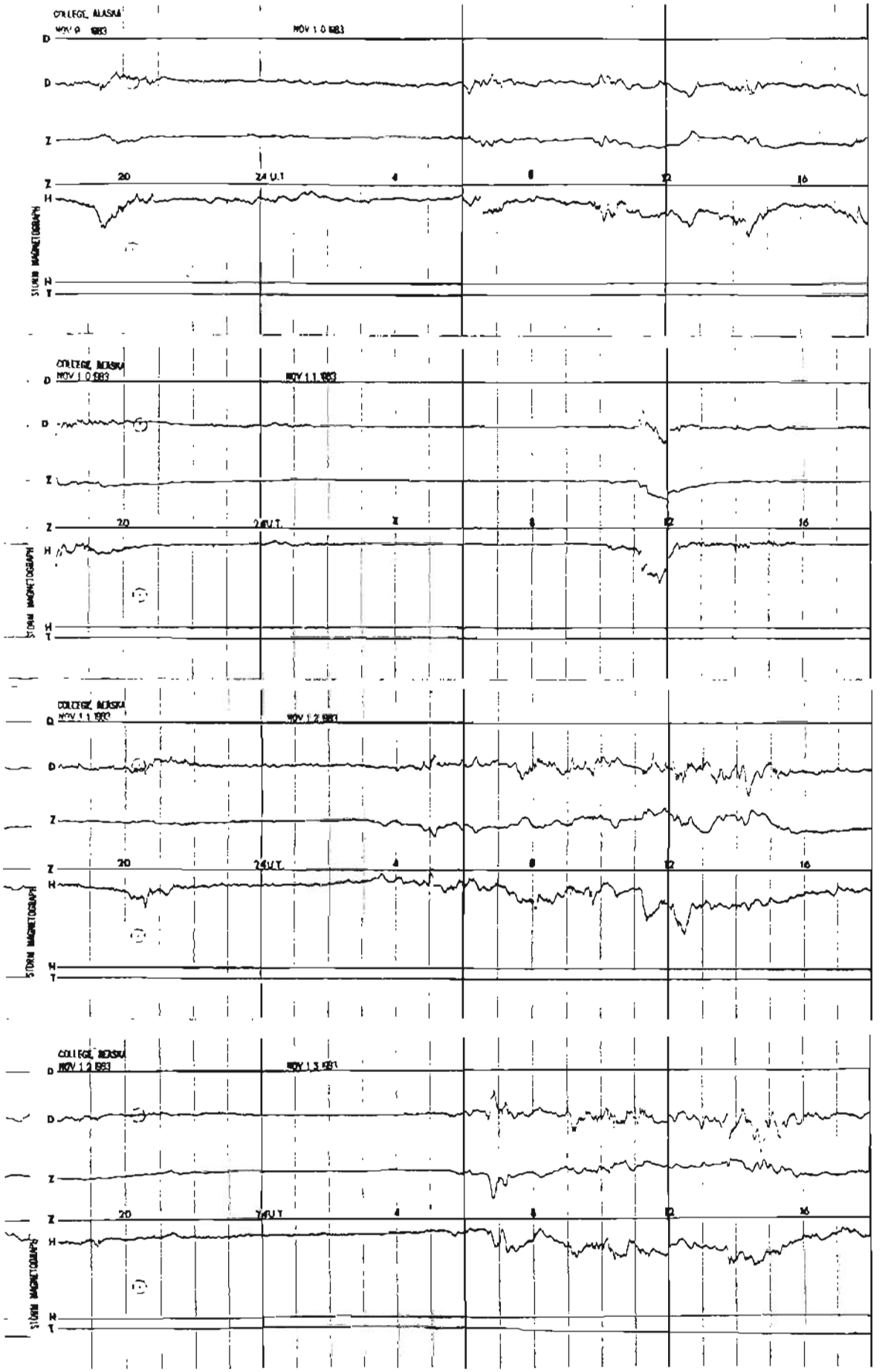
NORMAL MAGNETOGRAMS



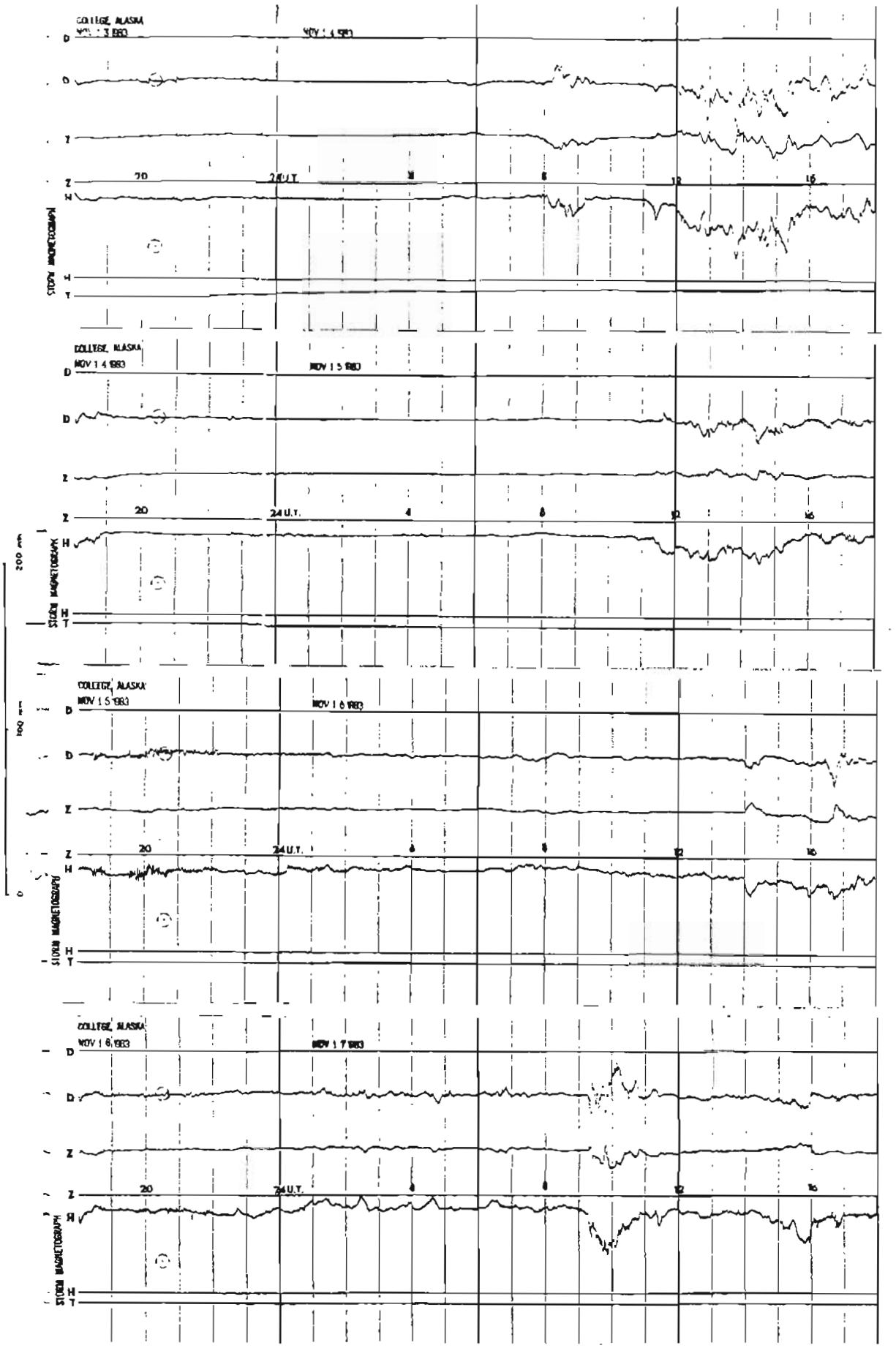
STORM MAGNETOGRAMS



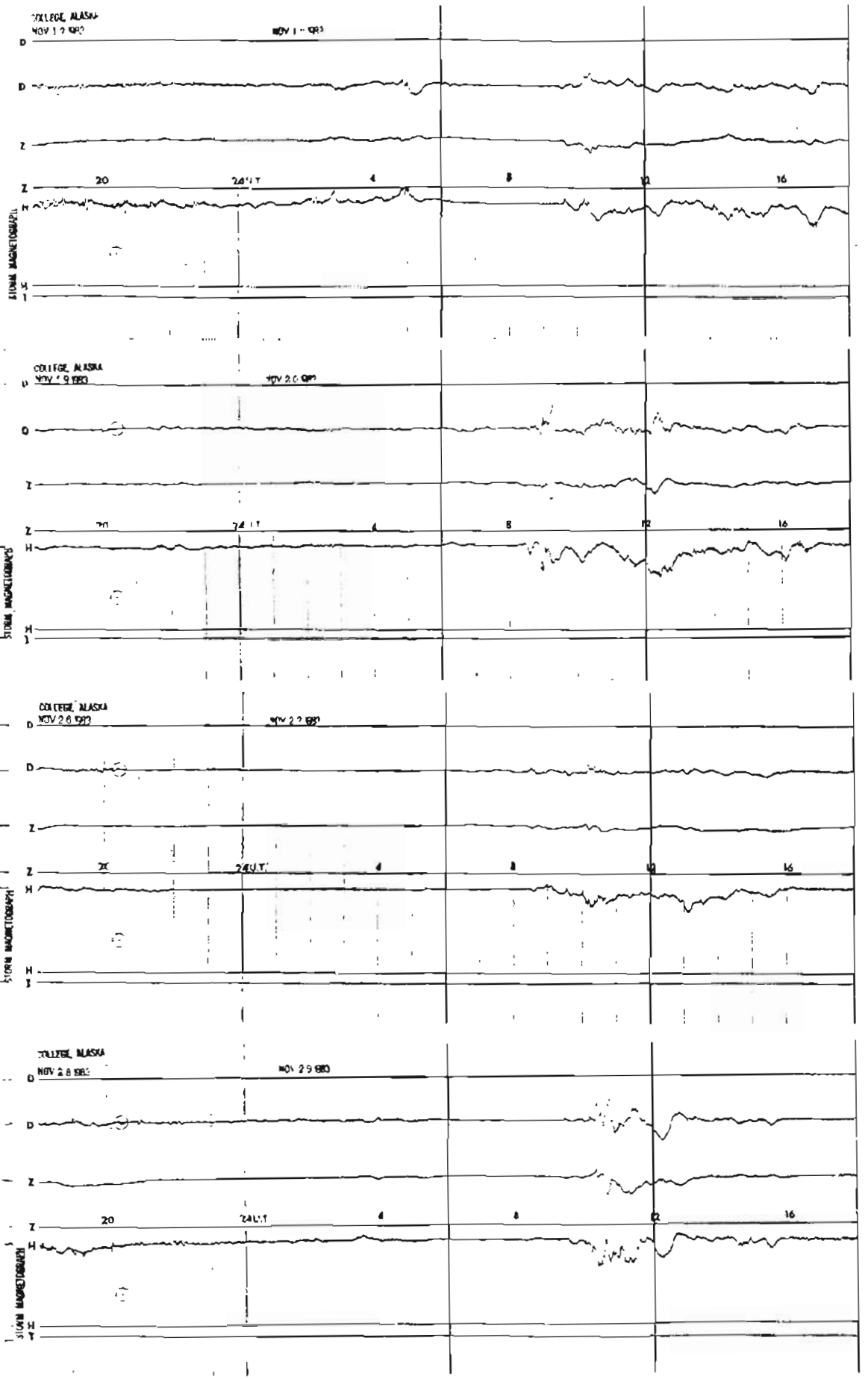
STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS