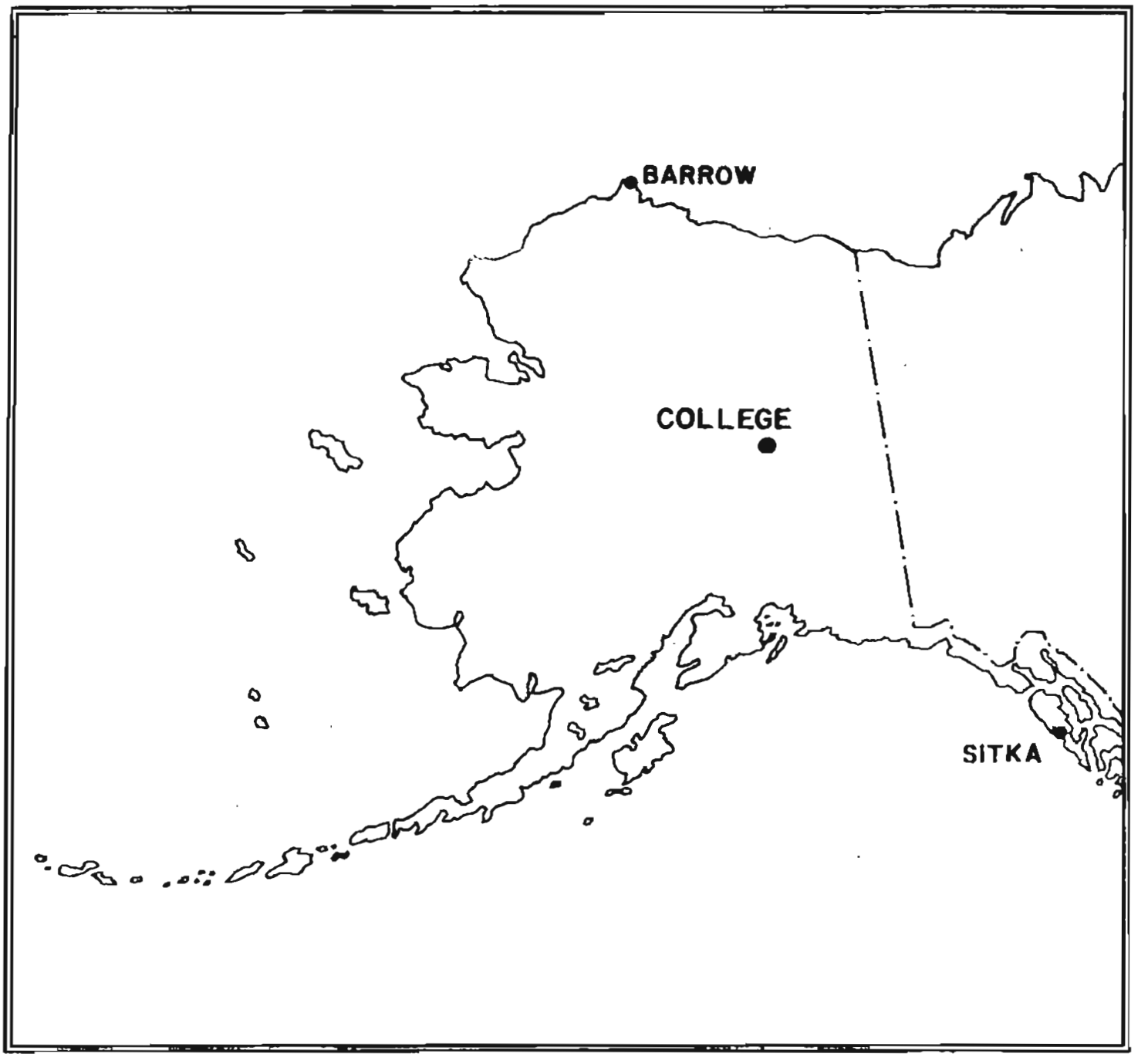
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

SEPTEMBER 1981 **OPEN FILE REPORT** 81-300I



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

COLLEGE OBSERVATORY PRELIMINARY GEOMAGNETIC DATA

INTRODUCTION

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

COLLEGE OBSERVATORY
800 YUKON DRIVE
FAIRBANKS, ALASKA 99701

Requests for copies of the magnetograms except for the current month should be addressed to:
World Data Center A-NOAA
Environmental Data Service
Boulder, Colorado 80302

OBSERVATORY LOCATION

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

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

The position of the observatory site is:
Geographic latitude.....64°51.6'N
Geographic longitude.....147°50.2'W
Geomagnetic latitude.....+64.6°
Geomagnetic longitude.....+256.5°
Elevation.....200 meters

GEOMAGNETIC DATA

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

Magnetic Activity

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

The Equivalent Daily Amplitude, AK. The K-Index is converted into an equivalent range, ak, which is near the center of the limiting gamma ranges for a given K. The average of the eight values is called equivalent daily amplitude AK. The unit 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: SEPTEMBER 1981

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	1	1	0	0	2	1	2	1	08	03
2	2	5	5	6	5	5	3	2	33	38
3	2	2	2	4	3	2	1	1	17	10
4	1	0	1	4	5	1	2	3	17	13
5	3	3	3	4	3	3	2	2	23	15
6	2	2	3	3	2	1	1	1	15	08
7	1	2	1	2	1	2	2	1	12	05
8	2	4	3	1	0	1	1	2	14	08
9	2	2	4	3	2	1	2	2	18	10
10	2	1	0	1	2	3	2	1	12	06
11	3	3	5	5	6	3	1	2	28	29
12	2	2	3	4	4	4	3	2	24	17
13	2	3	3	4	4	4	2	1	23	16
14	0	1	3	3	4	3	2	2	18	11
15	2	2	4	3	2	1	3	1	18	11
16	1	3	3	4	1	2	0	0	14	09
17	1	1	1	3	2	1	1	0	10	05
18	0	0	1	1	3	3	4	4	16	11
19	4	2	5	5	4	3	3	4	30	27
20	2	1	0	0	2	2	2	2	11	05
21	1	0	0	0	0	1	2	2	06	03
22	2	3	5	3	1	0	1	2	17	12
23	2	0	0	0	1	1	0	0	04	02
24	1	1	1	5	4	3	2	1	18	14
25	2	3	2	4	6	5	2	1	25	24
26	2	2	5	6	5	6	6	4	36	47
27	3	3	6	6	3	2	3	1	27	29
28	2	2	2	2	1	1	1	0	11	05
29	0	1	1	3	4	5	3	2	19	15
30	2	3	3	4	5	3	2	2	24	18
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.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.75	7.81		(γ/mm)
LOWER LIMIT FOR K = 9	2560	2510		(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

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

NOAA FORM 76-133 SUPERSEDES C&GS FORM 815

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

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: SEPTEMBER

YEAR: 1981

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
07	12XX	pi2	
08	08XX	pi2	
08	2247	si	
11	0003	ssc*	
18	1911	ssc*	
20	14XX	pc5	

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 80-500
(11/73)

PRINCIPAL MAGNETIC STORMS

Data from Individual Observatories: COLLEGE OBSERVATORY, COLLEGE, ALASKA

SEPTEMBER 1981

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	02	01XX	..	..	..	..	02	4	6	141	1140	640	02	20
		18	1911	s.c.*	+35	..	+69	19	3, 4	5	96	660	410	20	01
		26	07XX	..	..	..	..	26	4, 6, 7	6	166	1010	640	27	20
								27	3, 4	6					

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 9-1-81	2400 U.T. 9-30-81	1.0/mm	3.7 γ/mm	27° 46.8 E
H	0000 U.T. 9-1-81	2400 U.T. 9-25-81	7.8 γ/mm		12776 γ
	0000 U.T. 9-26-81	2400 U.T. 9-30-81	"		12773 γ
Z	0000 U.T. 9-1-81	2400 U.T. 9-16-81	7.7 γ/mm		55130 γ
	0000 U.T. 9-17-81	2400 U.T. 9-30-81	"		55140 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 9-1-81	2400 U.T. 9-30-81	7.8/mm	29.7 γ/mm	23° 45.8 E
H	0000 U.T. 9-1-81	2400 U.T. 9-25-81	44.0 γ/mm		11537 γ
	0000 U.T. 9-26-81	2400 U.T. 9-30-81	"		11522 γ
Z	0000 U.T. 9-1-81	2400 U.T. 9-30-81	48.6 γ/mm		54018 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE	
D				
H				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 02'8 E	12976 γ	55393 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: SEP 1, 6, 7, 8, 10, 17, 20, 21, 23, 28

FORM 76-106

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

Values are in tenths of gm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (1500 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	81	SEPT	D

C	U or S	T or Q	Hr. No.	01	02	03	04	05	06	07	08	09	10	11	12	Hr. No.	13	14	15	16	17	18	19	20	21	22	23	24	SUM
			01	110	104	109	120	130	144	148	150	150	149	161	151	01	134	140	177	230	270	305	314	300	235	156	128	112	4127
			02	104	98	81	66	70	41	-32*	15*	66	60	205*	166*	02	181*	300*	427*	308*	459*	498*	291	232	193	153	144	109	3935
			03	83	96	92	125	136	127	115	106	88	137	143	105	03	149	178	181	223	231	262	283	268	231	204	167	136	3866
			04	106	87	112	110	106	117	124	145	105	97	114	117	04	264	155	166	241	281	303	288	257	271	220	122	152	4062
			05	58	46	24	33	-10	99	88	76	8	102	108	95	05	164	152	202	264	275	260	266	241	188	222	124	99	3184
			06	96	81	67	94	104	96	164	132	125	116	146	148	06	160	166	192	202	224	236	246	227	185	165	150	82	3604
			07	86	94	93	92	97	106	123	134	136	142	140	163	07	196	183	194	196	218	243	231	186	120	62	107	118	3460
			08	104	85	47	61	70	55	178	142	144	148	156	158	08	166	179	202	225	258	273	264	234	219	174	166	113	3821
			09	56	25	63	74	88	93	104	59	199	103	122	174	09	191	205	229	249	276	258	240	166	155	135	106	128	3498
			10	114	129	121	128	122	126	131	142	140	153	155	160	10	186	162	151	229	363	356	273	216	205	167	123	104	4156
			11	101	61	36	13	61	78	-87*	-190*	-75	87*	108	149	11	172	444*	203	296	364	262	210	166	133	85	96	105	2878
			12	94	87	62	132	136	131	169	94	34	112	115	175	12	212	262	186	289	372	315	222	141	94	82	116	104	3758
			13	109	105	142	125	159	101	59	113	106	61	128	166	13	209	167	270	284	330	307	202	191	171	137	100	88	3830
			14	120	130	130	129	131	134	140	133	210	110	143	189	14	246	341*	235	313	259	245	254	207	228	61	109	122	4319
			15	133	130	124	133	132	125	119	86	17	81	120	188	15	165	176	170	198	244	253	222	204	171	109	116	96	3514
			16	119	121	125	111	91	49	115	72	124	146	102	163	16	192	167	175	204	201	236	256	222	150	126	126	123	3516
			17	124	132	125	132	121	133	130	122	108	104	151	198	17	183	152	131	173	202	231	249	224	196	180	155	139	3795
			18	128	133	126	119	129	130	128	143	125	116	124	154	18	153	145	152	185	226	261	263	300	334	194	-11	18	3775
			19	63	49	-64*	-2	32	67	-87*	-293*	-39*	49	177	104	19	116	303	226	218	234	257	246	237	196	158	142	127	2516
			20	103	119	141	123	129	118	117	136	143	156	154	166	20	167	174	171	201	222	259	267	322	238	174	149	114	4063
			21	118	107	122	122	127	129	125	128	137	135	153	161	21	167	174	185	196	226	264	269	264	273	234	146	57	4019
			22	91	59	56	49	88	111	66*	49*	74	109	127	158	22	178	181	183	188	206	226	234	263	251	190	141	118	3396
			23	87	56	83	106	123	125	129	136	138	147	154	156	23	165	179	189	213	234	239	236	221	202	175	147	138	3778
			24	119	123	121	119	132	134	128	125	136	153	168	332	24	394	254	189	144	200	199	230	228	185	166	137	101	4217
			25	87	91	88	112	77	101	122	111	136	93	165	213	25	295*	311*	162	266	478*	253	243	218	176	151	133	124	4206
			26	124	122	118	99	82	124	117	69	89*	391*	38	239*	26	264*	494*	327*	430*	422*	422*	286	67	143	75	59	96	4697
			27	103	97	74	40	9	168	89*	89*	-101*	91	272*	89*	27	192	287	260	351	379	303	218	166	170	155	154	109	3764
			28	125	118	146	131	136	134	131	133	115	129	145	184	28	183	198	222	124	230	242	237	222	206	177	156	137	3961
			29	140	137	140	123	137	113	117	124	116	125	112	159	29	178	199	212	326	298	347	324	251	185	144	128	123	4258
			30	124	84	63	84	45	34	103	102	118	134	145	115	30	183	223	202	206	242	276	213	211	196	195	177	116	3591
			31													31													

SCALED BY	TKC, EAS, DMB
CHECKED BY	JEP, EMS
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 Magn., corrected to Normal Magn.

MONTHLY SUM	113564
MONTHLY MEAN	158
DATES WITH GAPS:	

FORM 36-186

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

Values are in tenths of mm and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (150°W 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	81	SEPT	H

Day	01	02	03	04	05	06	07	08	09	10	11	12	Day	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	237	243	247	256	260	269	270	275	279	279	273	279	01	279	220	270	290	285	271	252	229	209	211	216	230	6129
02	237	259	282	349	469	674*	580	334	350	37	104*	-100*	02	-21*	-359*	-241*	-128*	-145*	14	309	284	261	242	239	248	4278
03	280	286	281	256	249	263	281	299	331	307	281	218	03	247	280	220	202	269	281	259	237	230	222	227	245	6251
04	253	262	241	260	267	277	277	280	296	276	274	238	04	-60*	-1	215	255	256	262	276	270	236	208	205	271	5594
05	432	389	468	360	458	403	334	364	374	293	225	170	05	130	222	214	156	174	230	253	237	240	231	225	244	6846
06	286	270	299	287	283	306	338	289	291	311	269	270	06	200	249	261	274	261	250	239	231	221	225	239	230	6379
07	242	241	253	262	280	290	279	277	280	279	284	261	07	261	277	266	263	238	189	151	182	166	207	222	241	5911
08	240	251	307	332	378	530	338	272	283	290	270	269	08	262	271	271	279	273	258	250	239	221	231	251	272	6838
09	258	296	283	267	269	283	286	361	302	331	311	284	09	292	289	284	299	280	261	220	222	221	229	240	248	6616
10	256	251	268	260	267	271	272	269	272	289	288	290	10	267	281	294	241	149	150	198	231	221	226	232	254	5999
11	251	309	310	370	451	505	541	409*	320	196	219	57	11	95	-376*	36	110	169	260	244	229	221	217	202	251	5606
12	259	291	298	299	317	282	307	299	295	298	229	150	12	61	-63	78	47	-17	111	189	214	262	281	277	271	5035
13	264	282	256	272	329	398	422	349	345	246	173	154	13	-41	-52	-93	67	104	279	291	277	261	261	267	255	5366
14	259	259	254	260	271	288	281	308	307	335	308	242	14	62	-29	61	172	270	279	276	259	241	261	259	272	5782
15	256	245	267	259	266	290	318	320	259	290	239	238	15	278	272	241	217	209	169	191	262	259	240	249	256	6110
16	250	269	281	290	348	418	410	400	341	181	259	248	16	241	251	260	219	269	258	235	230	229	230	240	231	6588
17	229	251	265	261	261	272	281	290	301	309	246	221	17	212	221	219	279	281	268	257	255	256	239	232	230	6156
18	239	240	249	261	268	277	280	281	296	295	279	276	18	278	271	118	202	284	281	269	231	113	119	238	212	5857
19	258	257	371	346	367	331	413	289	382	289	58	187	19	301	299	266	269	269	271	259	251	233	231	246	233	6726
20	271	279	231	252	250	259	279	276	264	259	258	252	20	251	260	248	268	261	239	259	229	210	209	239	231	6034
21	231	252	248	255	262	270	276	271	267	271	271	279	21	278	279	271	271	252	254	228	241	212	199	167	201	6026
22	236	275	296	351	431	444	367	131	351	382	289	277	22	265	264	269	271	262	261	259	250	241	244	269	268	6973
23	290	295	256	240	251	268	271	272	275	279	278	276	23	271	270	270	265	279	281	269	260	251	246	240	241	6394
24	241	244	260	271	277	260	262	269	260	271	239	-54	24	-41	-35	121	199	173	279	306	279	272	260	261	257	5208
25	264	288	281	273	329	357	300	299	311	169	251	149	25	-47*	-142*	275	104	-194*	283	280	271	253	249	256	265	5124
26	271	263	275	297	309	276	289	298	105*	-194*	131	-86*	26	-104*	-177*	-121*	-105*	-177*	-222*	-182*	173	170	119	210	303	2130
27	333	379	361	402	524	467	336	-273*	322	319	-295*	83*	27	160	83	82	124	111	107	178	187	240	250	249	251	5040
28	249	312	281	263	260	268	252	261	292	329	307	261	28	271	270	268	260	241	269	260	259	242	241	230	230	6376
29	231	248	260	279	291	309	310	302	309	336	381	280	29	289	292	179	-39	231	237	248	221	235	230	217	233	6109
30	251	286	282	281	320	395	394	320	329	331	249	237	30	301	269	26	231	280	257	232	211	226	221	232	224	6365
31													31													

MONTHLY SUM	175666
MONTHLY MEAN	244
DATES WITH GAPS	

SCALED BY	TKC, EAS, DMB
CHECKED BY	JEP, EAS
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 SHIFT Mgph., converted to Normal Mgph.

FORM 76-104

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

MAGNETOGRAM HOURLY SCALINGS

(UNIVERSAL TIME)

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

OBSY.	YEAR	MONTH	ELEMENT
CO	81	SEPT	Z

C	Q or S	Fra 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	351	351	350	350	346	344	344	344	348	347	343	338	01	323	269	320	347	360	353	346	340	331	328	336	341	8170
			02	356	370	379	384	409	308*	267	247	359	481	492*	512*	02	549*	518*	418*	587*	587*	296*	242	300	328	340	349	348	9476
			03	350	348	349	360	351	340	339	342	347	359	350	329	03	314	338	336	304	306	339	351	339	330	331	334	339	8125
			04	344	351	356	336	332	340	344	352	346	343	361	336	04	470	158	209	262	303	309	314	322	341	336	345	360	7910
			05	391	384	367	414	405	390	366	350	327	328	389	329	05	278	296	320	310	328	320	345	348	351	369	360	360	8455
			06	371	355	368	390	371	359	400	354	351	354	346	340	06	319	321	331	343	344	341	342	337	329	331	340	331	8368
			07	350	347	340	339	349	362	351	343	341	340	332	331	07	311	329	331	330	322	291	271	241	260	279	319	329	7738
			08	330	333	347	386	413	410	443	377	360	357	349	341	08	333	333	340	342	343	344	330	331	331	328	319	320	8410
			09	318	317	361	387	371	359	360	343	282	298	351	354	09	329	333	341	340	336	340	331	311	316	320	326	337	8061
			10	339	360	359	342	330	330	331	339	338	337	337	326	10	311	309	320	337	291	264	242	280	311	312	311	320	7676
			11	338	342	367	369	368	231	87	48*	208	214	339	473	11	478	540*	309	261	228	230	290	305	328	339	340	331	7411
			12	331	347	354	386	370	360	362	321	302	353	361	397	12	492	511	322	276	209	234	251	235	299	324	350	350	8163
			13	347	354	388	369	392	395	418	416	359	198	264	381	13	509	369	370	333	299	241	302	338	343	339	347	346	8625
			14	338	335	334	335	336	339	350	358	337	343	358	339	14	415	447*	387	311	314	319	323	321	339	326	349	349	8302
			15	347	340	341	342	340	351	339	221	242	344	346	348	15	329	339	346	325	331	333	307	301	319	321	327	338	7817
			16	339	339	361	373	392	430	411	339	348	281	309	348	16	320	319	331	335	323	341	332	330	317	311	329	344	8202
			17	349	348	347	350	351	356	341	338	350	363	351	316	17	283	298	301	320	343	351	359	343	340	336	327	329	8092
			18	333	342	337	329	330	328	330	336	330	339	342	333	18	312	309	279	242	304	327	330	366	410	362	364	337	7911
			19	329	328	339	367	371	361	228	169	270	319	469	422	19	359	337	330	331	340	351	349	359	353	344	341	349	8135
			20	350	377	379	352	342	336	346	349	340	341	330	330	20	326	329	324	331	340	339	327	340	319	317	318	326	8108
			21	346	340	339	335	330	329	328	330	332	327	330	329	21	330	327	329	330	332	333	329	310	316	317	320	321	7889
			22	349	347	359	391	362	314	218	295	297	318	341	349	22	332	329	331	334	340	338	337	329	321	308	303	334	7876
			23	360	359	366	350	333	327	326	326	324	327	321	319	23	319	320	321	322	319	322	321	320	321	321	320	324	7888
			24	329	330	323	321	323	320	320	326	332	320	301	293	24	211	239	251	247	220	253	288	313	319	320	331	341	7171
			25	339	340	351	369	343	382	378	343	334	364	307	296	25	461*	277*	234	241	316*	212	299	317	318	320	326	320	7767
			26	328	323	327	319	380	358	332	291	354*	493*	426	645*	26	595*	715*	493*	460*	335*	379*	237	169	344	315	349	402	7419
			27	373	352	383	434	481	276	179	259*	331	311	556*	309	27	298	293	271	272	222	210	231	272	306	338	350	351	7658
			28	362	359	360	341	339	331	340	337	343	351	340	333	28	321	311	318	329	338	329	333	331	331	330	331	332	8070
			29	337	334	339	347	365	371	360	369	364	350	329	338	29	327	342	311	311	243	278	289	272	261	290	313	317	7757
			30	323	324	332	340	324	369	375	356	350	337	294	267	30	300	349	320	279	311	330	303	309	301	308	325	310	7766
			31													31													

SCALED BY: TKC, EAS, DMB

CHECKED BY: JEP, EAS

SIGNS REVIEWED BY: JEP

PUNCHED BY:

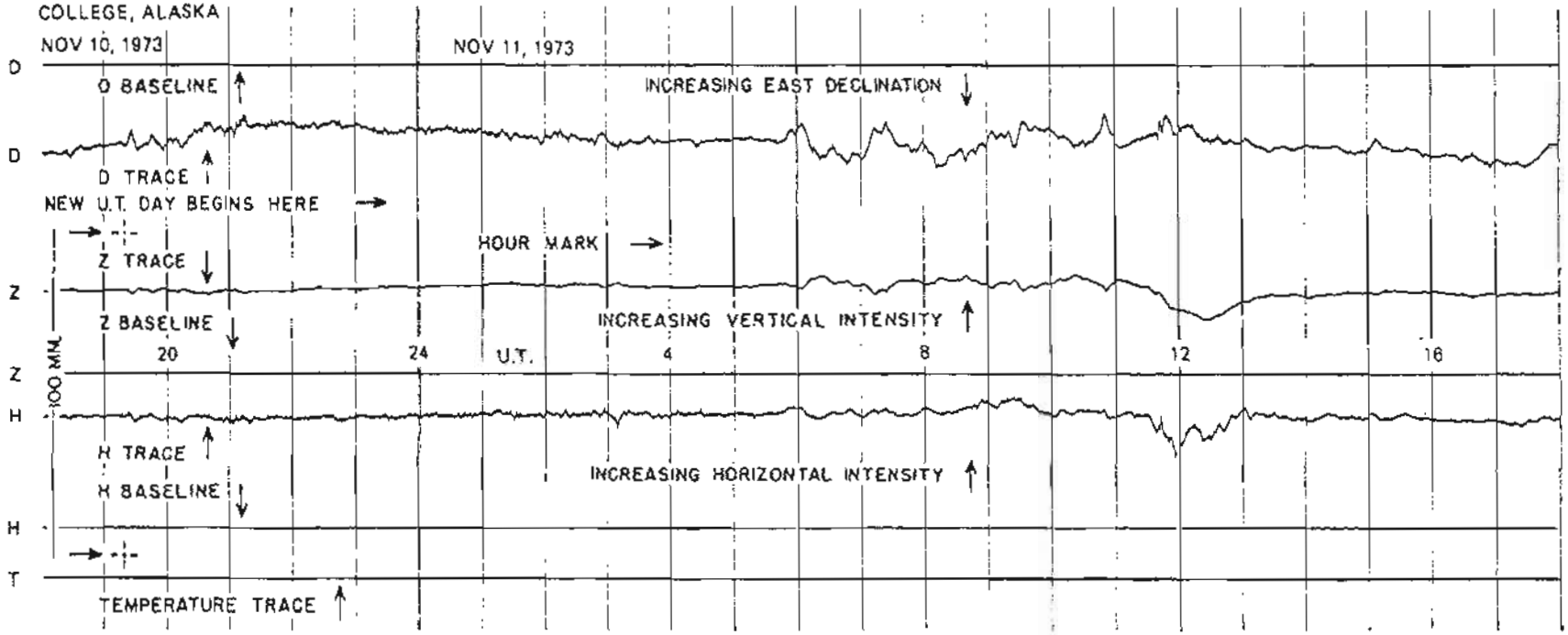
Preliminary base-line and scale values:
Interval Beginning | Base-line Value | Scale Value

( ) 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 ____ Magn., converted to Normal Magn.

MONTHLY SUM: 242526
MONTHLY MEAN: 337
DATES WITH GAPS:

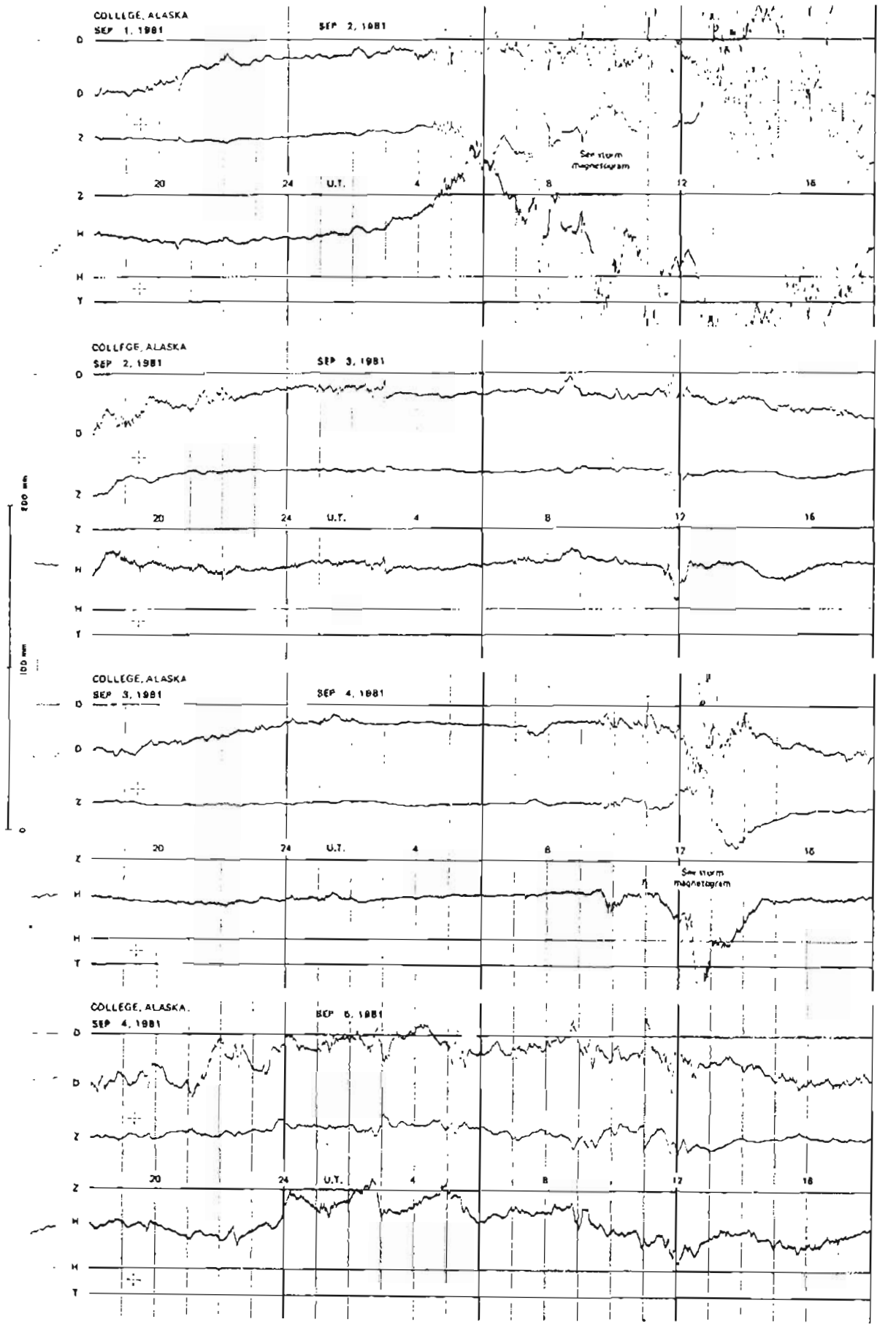
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

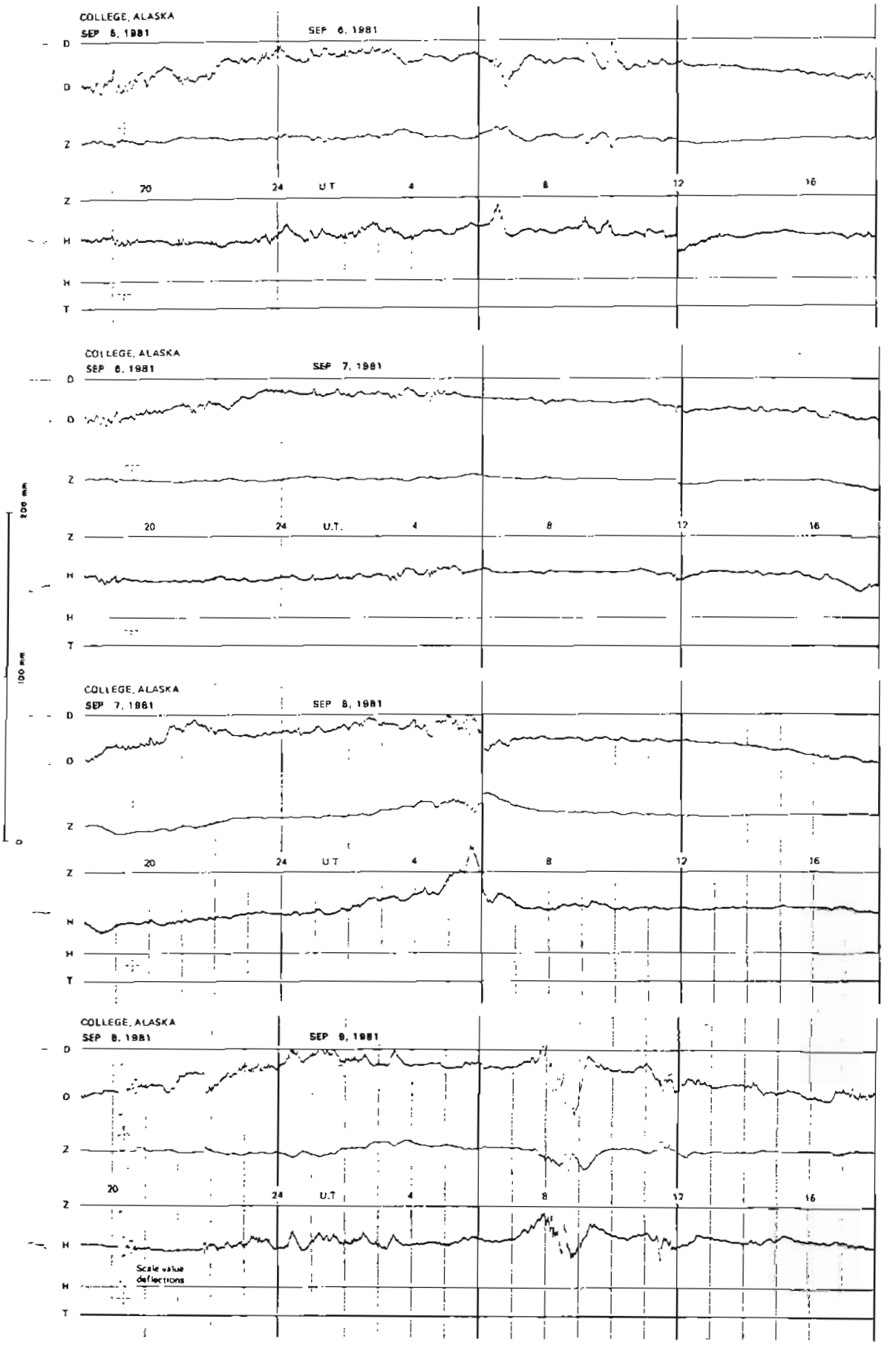


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

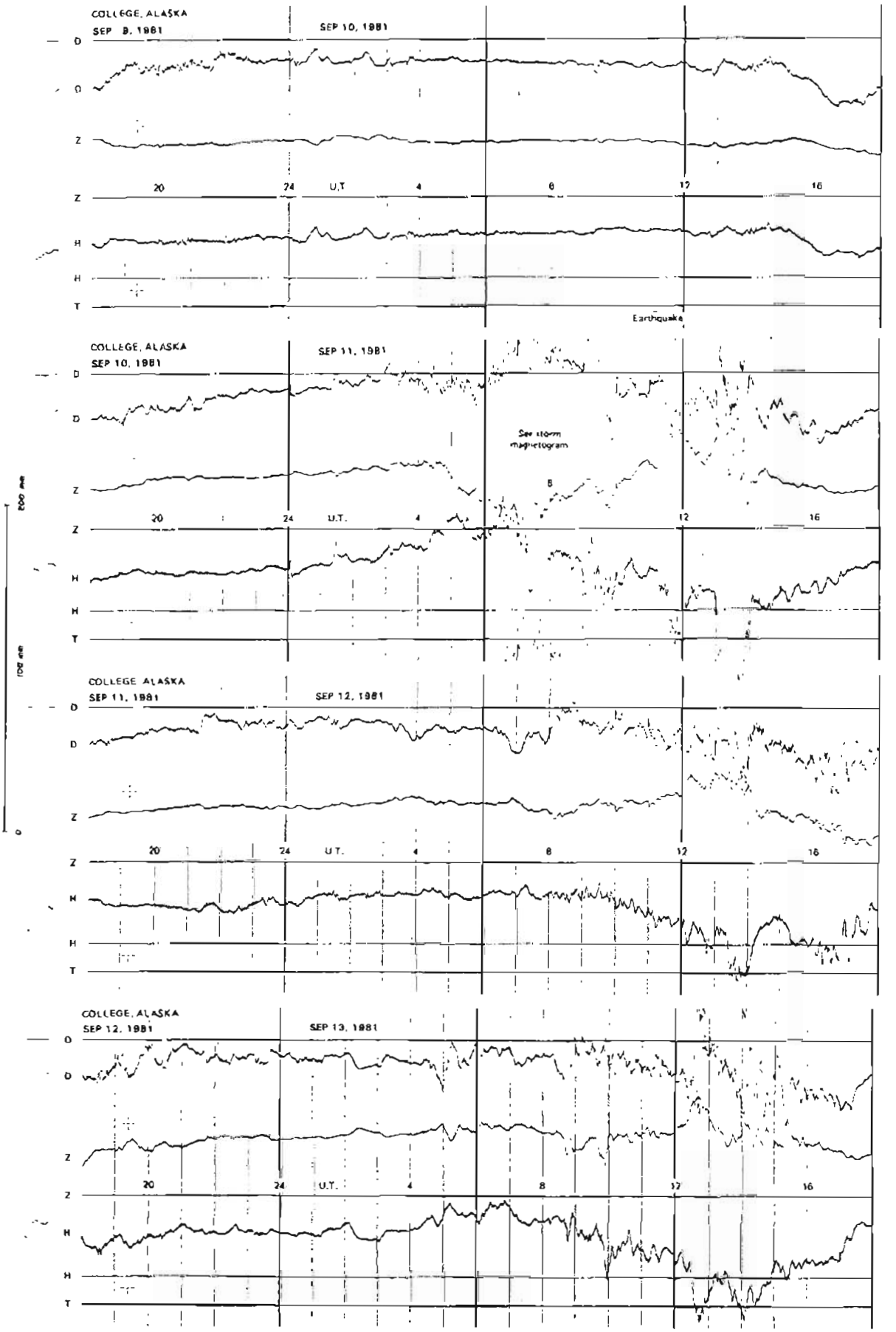
NORMAL MAGNETOGRAMS



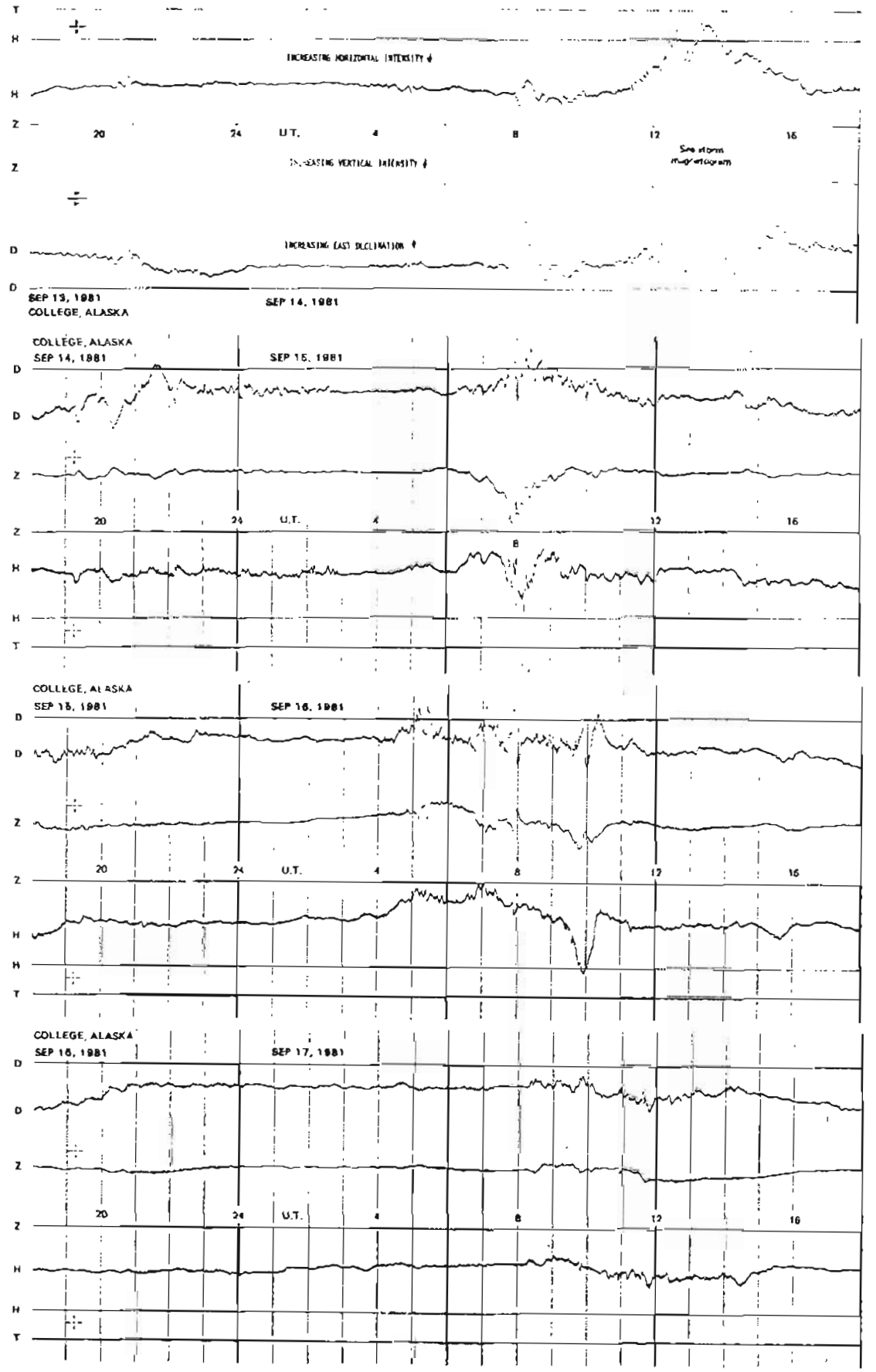
NORMAL MAGNETOGRAMS



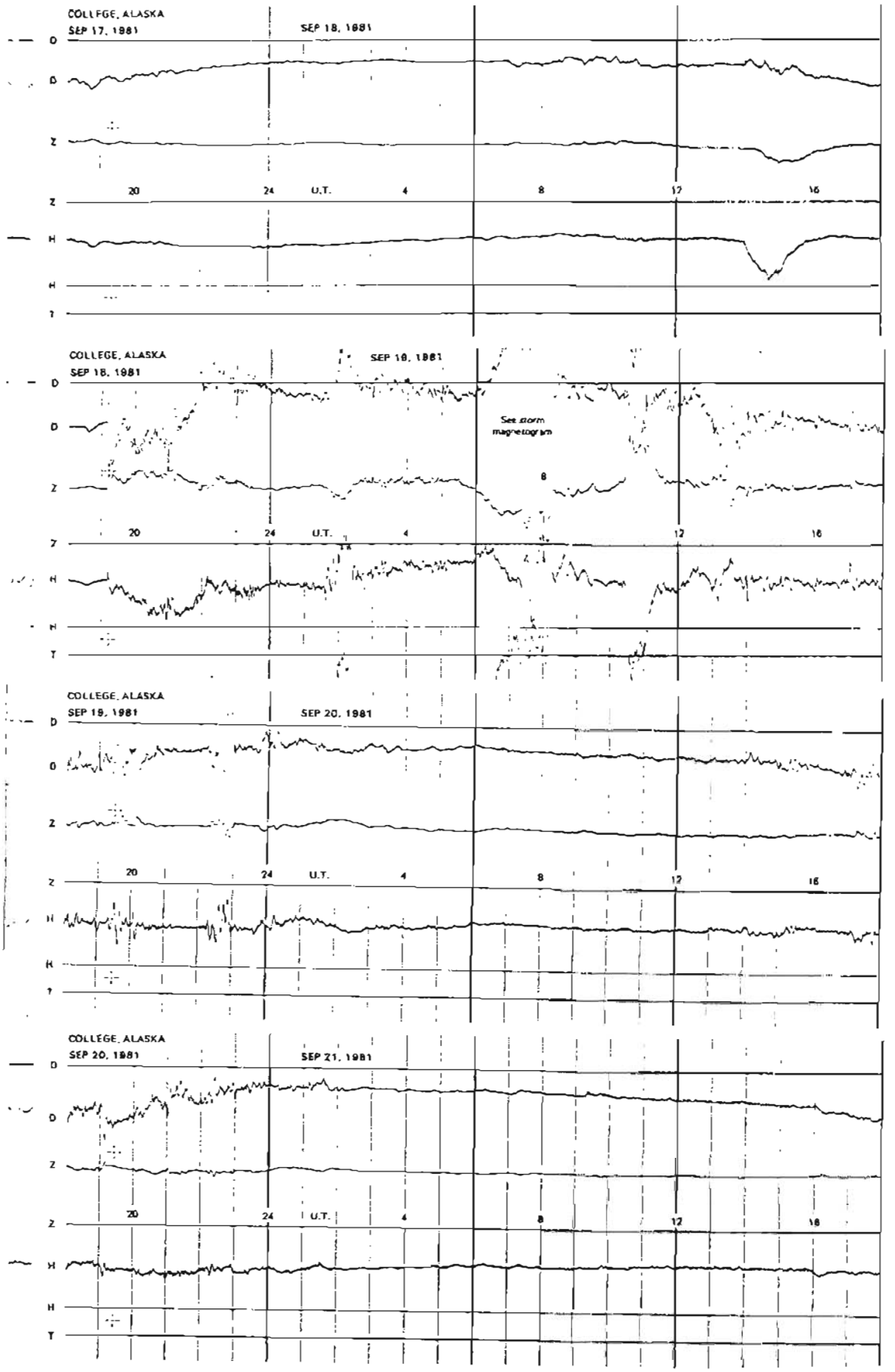
NORMAL MAGNETOGRAMS



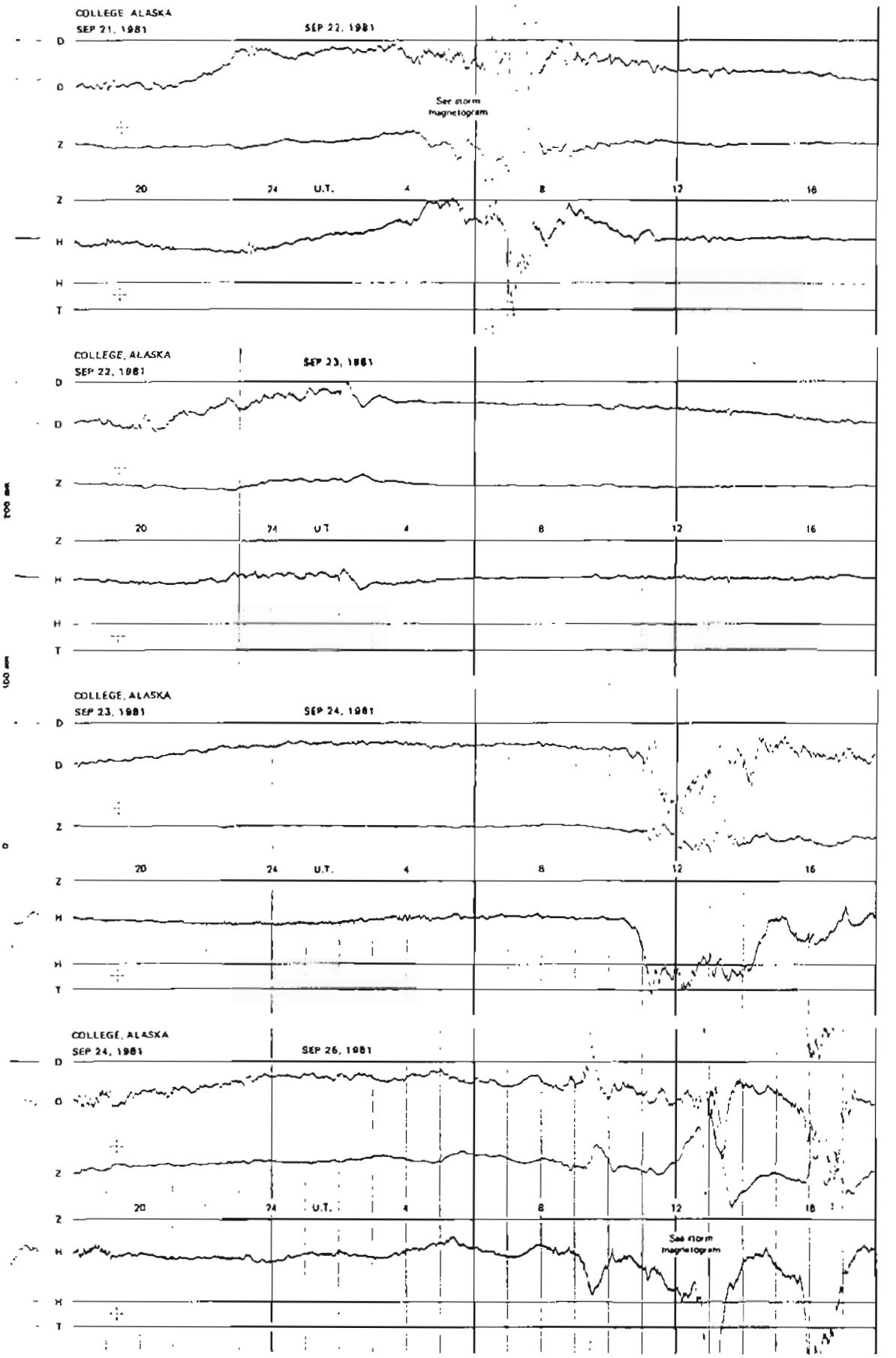
NORMAL MAGNETOGRAMS



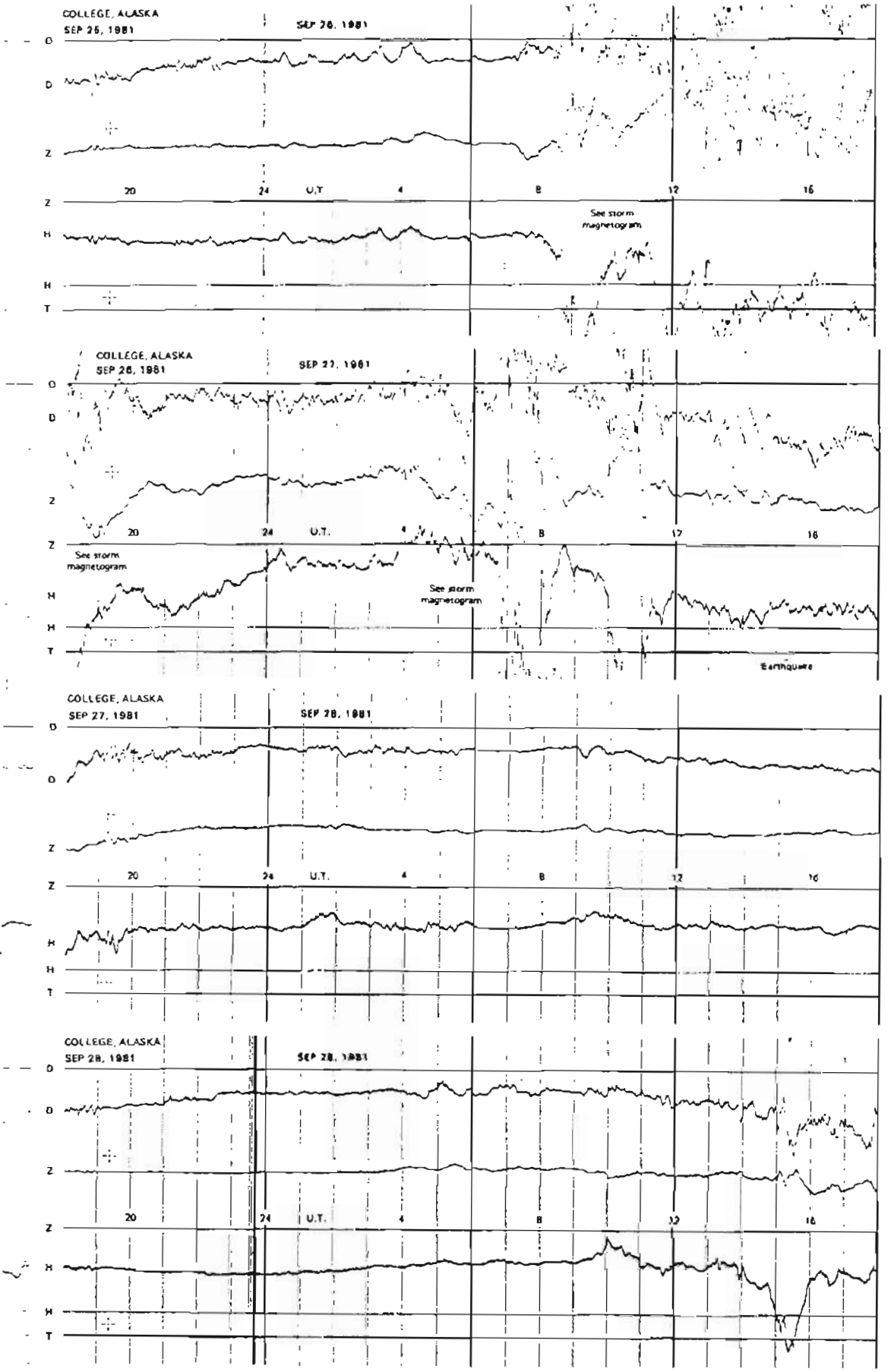
NORMAL MAGNETOGRAMS



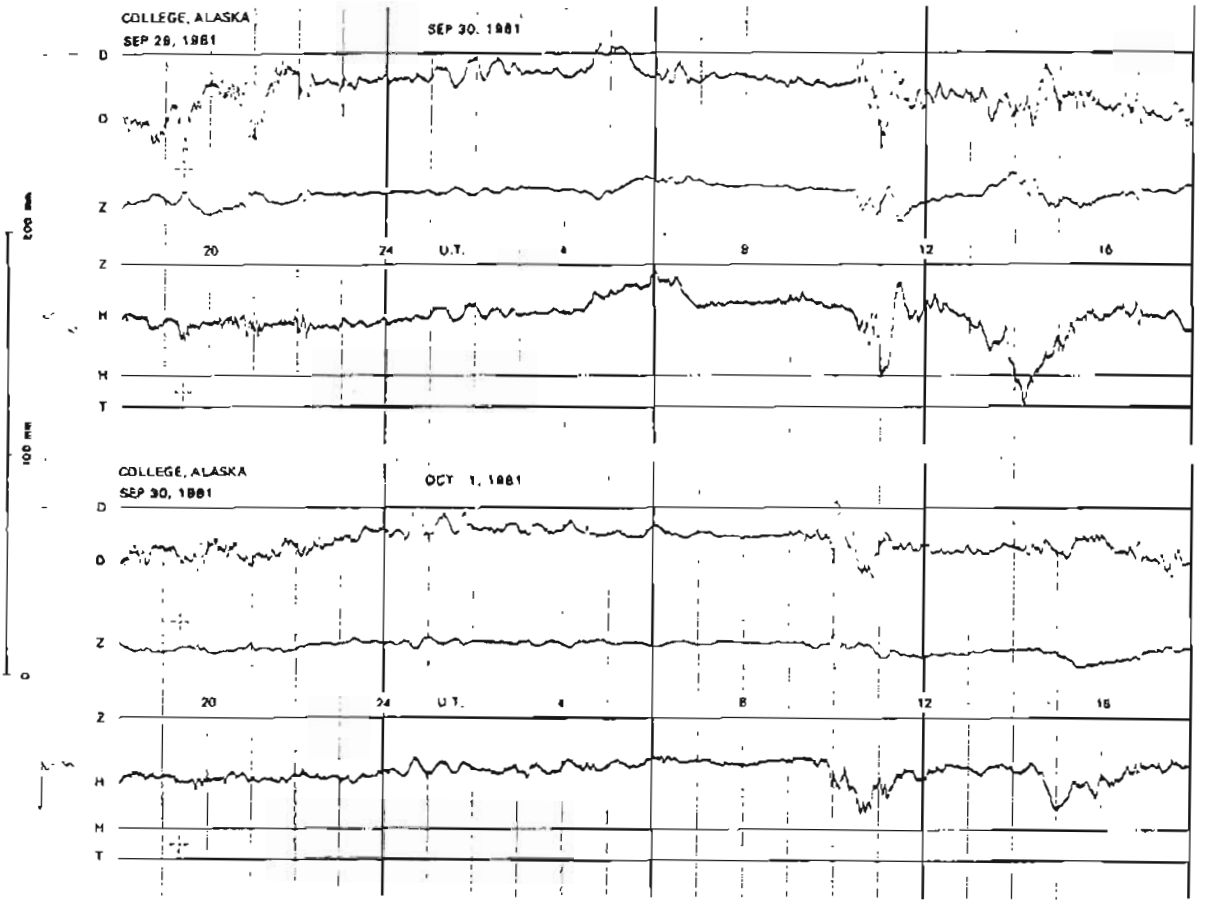
NORMAL MAGNETOGRAMS



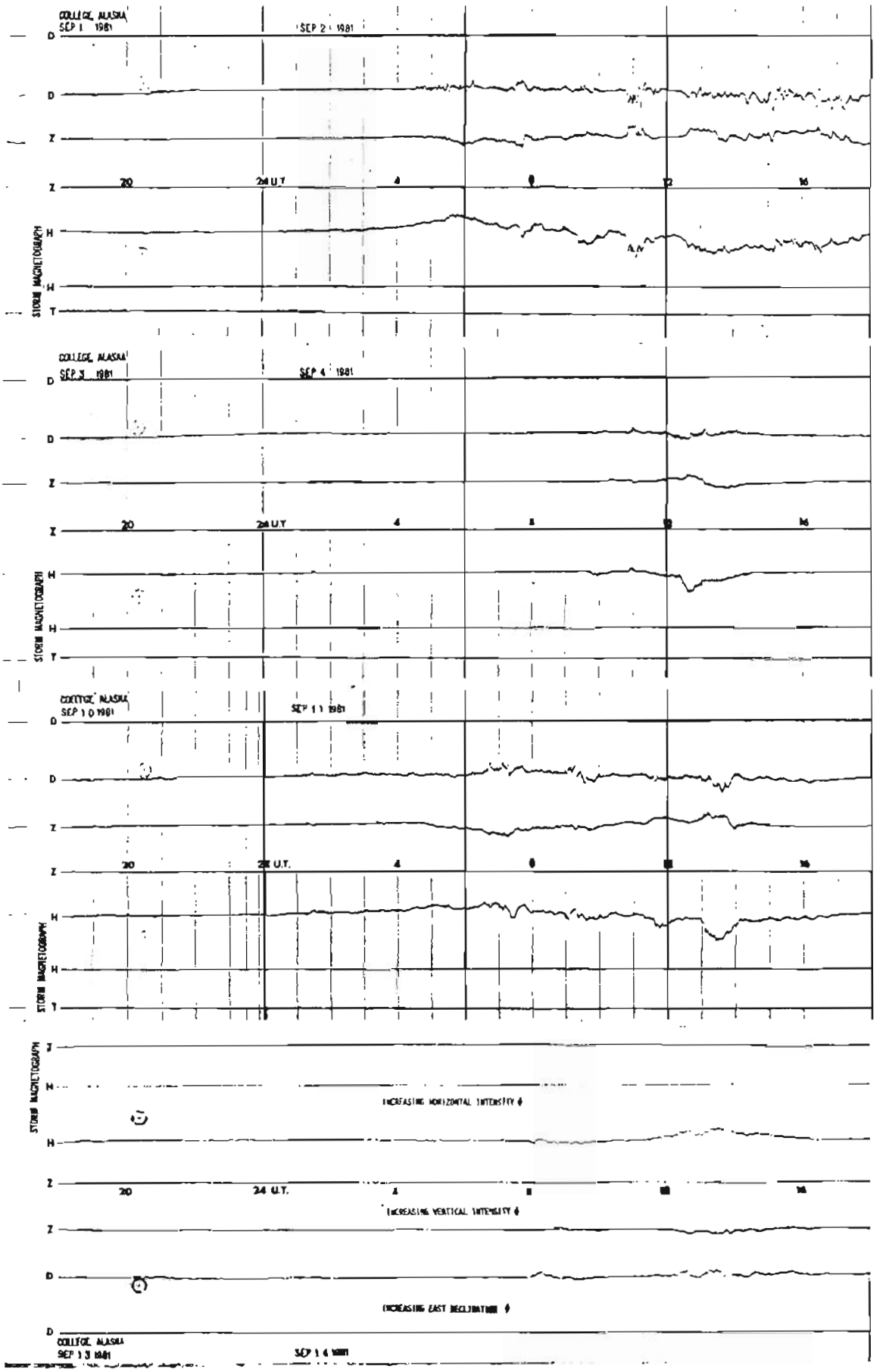
NORMAL MAGNETOGRAMS



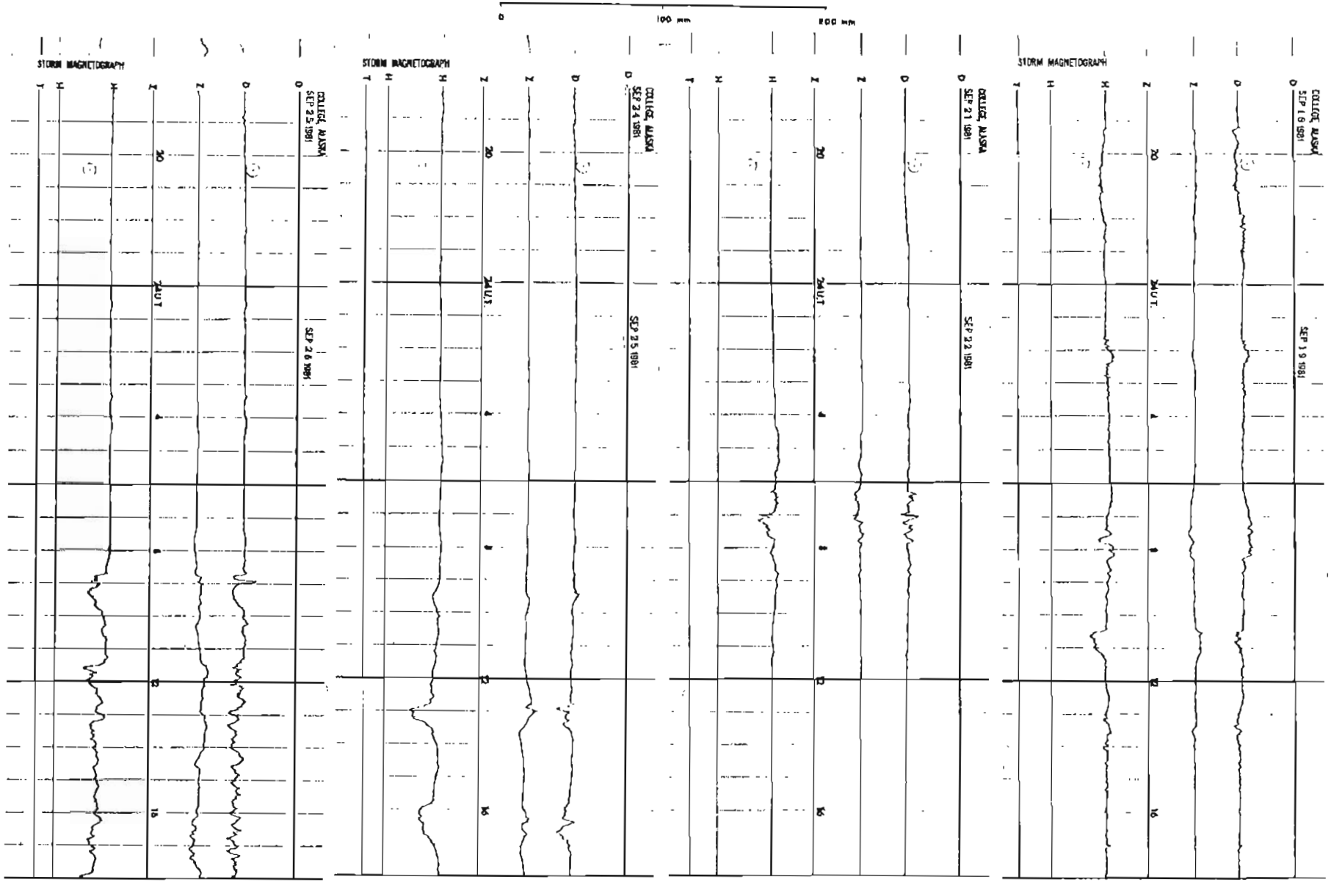
NORMAL MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS