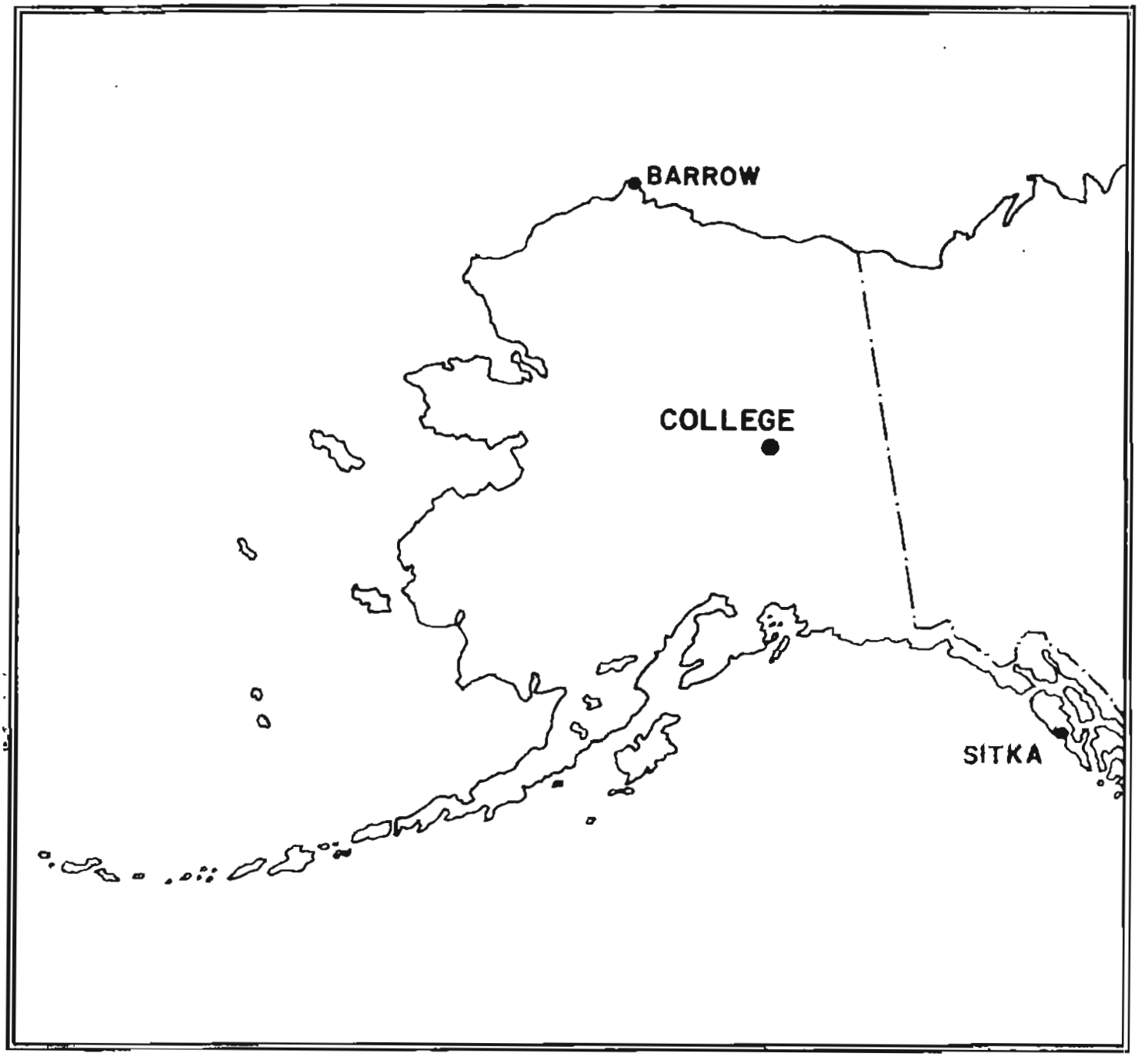
UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

AUGUST 1981 **OPEN FILE REPORT** 81-300H



ORDER OF CONTENTS

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: AUGUST, 1981

DATE	K-INDICES 00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM	AK
1	3	3	5	5	3	3	3	3	28	23
2	2	1	2	4	3	4	3	2	21	14
3	3	5	6	5	3	5	2	2	31	34
4	3	4	4	3	2	1	2	1	20	13
5	1	5	5	4	4	3	3	3	28	25
6	4	4	7	5	4	5	0	0	29	40
7	2	2	2	5	4	5	5	2	27	25
8	3	1	0	1	0	0	0	2	07	04
9	3	1	0	0	1	2	2	2	11	05
10	3	5	3	4	3	3	1	1	23	18
11	2	2	1	2	4	5	3	3	22	16
12	3	3	2	2	1	2	2	3	18	10
13	3	2	2	3	1	1	1	2	15	08
14	2	1	1	5	3	1	1	2	16	11
15	1	1	1	0	1	1	3	3	11	06
16	3	3	1	1	1	1	0	1	11	06
17	4	2	6	6	3	4	3	2	30	32
18	3	3	4	5	6	6	3	2	32	36
19	3	3	2	3	5	4	2	1	23	17
20	3	2	2	0	1	2	2	2	14	07
21	3	3	6	3	4	4	3	2	28	25
22	3	2	3	4	1	3	3	2	21	13
23	5	4	6	6	6	6	4	4	41	56
24	5	5	3	3	5	5	3	4	33	33
25	3	3	3	5	4	4	2	2	26	20
26	1	2	2	1	2	3	2	2	15	07
27	2	2	2	4	5	5	4	3	27	23
28	3	4	4	5	4	5	2	2	29	26
29	2	3	6	4	5	5	4	2	31	32
30	3	2	3	6	5	3	2	2	26	24
31	4	4	3	1	2	2	0	0	16	11

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	h	m	END d	h	m

K SCALE USED:

	D	H	Z	
LOWER LIMIT FOR K = 9.....	683.8	321.7		(mm)
CURRENT SCALE VALUE.....	3.75	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

☆ U.S. GOVERNMENT PRINTING OFFICE: 1973-761-857

OUTSTANDING MAGNETIC EFFECTS

OBSERVATORY: COLLEGE, ALASKA

MONTH: AUGUST

YEAR: 1981

DATE	TIME U.T.	NATURE OF PHENOMENON [1]	REMARKS
10	0433	ssc*	With pc5 activity.
15	20XX	pc5	
17	0045	ssc*	With pc5 activity.

IDENTIFIED BY: JBT

VERIFIED BY: JEP

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

AUGUST 19 81

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	17	0045	s.c.*	-25	+235	-17	17 18	3, 4 5, 6	6 6	161	1060	730	18	20
		23	00XX	..	..	..	..	23	3, 4, 5, 6	6	133	1400	760	25	19

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

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 8-1-81	2400 U.T. 8-31-81	1.0'/mm	3.7 γ/mm	27° 46.8 E
H	0000 U.T. 8-1-81	2400 U.T. 8-24-81	7.8 γ/mm		12772 γ
	0000 U.T. 8-25-81	2400 U.T. 8-31-81	"		12778 γ
Z	0000 U.T. 8-1-81	2400 U.T. 8-24-81	7.7 γ/mm		55134 γ
	0000 U.T. 8-25-81	2400 U.T. 8-31-81	"		55130 γ

STORM MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE		CALIBRATION BASELINE
D	0000 U.T. 8-1-81	2400 U.T. 8-31-81	7.8'/mm	29.7 γ/mm	23° 46.6 E
H	0000 U.T. 8-1-81	2400 U.T. 8-24-81	44.0 γ/mm		11537 γ
	0000 U.T. 8-25-81	2400 U.T. 8-31-81	"		11546 γ
Z	0000 U.T. 8-1-31	2400 U.T. 8-31-81	48.6 γ/mm		54017 γ

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD FROM	PERIOD TO	CALIBRATION SCALE VALUE
D			
H			
Z			

MONTHLY MEAN ABSOLUTE VALUES*

D	H	Z
28° 02.5 E	12984 γ	55390 γ

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: AUG 8, 9, 12, 13, 14, 15, 16, 20, 26, 31

FORM 75-104

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	81	AUG	D

Values are in tenths of mm. and are averages for successive periods of one hour beginning at midnight, Hour 01 of local day 0 50W M.T.) is hour 11 of the same universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

C	Q or S	Ten Q	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	36	21	94	90	153	84	-142*	79	189	79	83	99	01	94	115	173	207	259	315	323	249	139	152	58	77	3026
			02	57	70	74	96	125	144	156	161	155	126	138	81	02	89	90	132	191	288	220	269	252	204	201	67	96	3482
			03	32	39	54	75	82	-36*	-108*	233*	55	117	82	175	03	146	97	131	179	162	234	268	276	209	153	147	103	2905
			04	44	50	74	66	162	155	135	162	176	102	91	133	04	138	148	188	223	258	304	293	292	228	146	104	74	3746
			05	77	82	85	89	110	96	192	176	136	83*	122*	122*	05	186*	138*	178*	225*	281*	344*	281	239	207	164	104	74	3791
			06	64	75*	98*	75*	59*	145*	-28*	27*	162*	75*	138*	138*	06	178*	170*	241*	233*	392*	304*	312*	255	203	163	128	102	3709
			07	91	84	95	110	112	130	121	133	141	118	81	199	07	253	99	181	271	415*	320*	479	278	170	157	126	96	4260
			08	58	61	99	115	118	116	125	126	132	130	136	143	08	164	175	208	217	228	229	237	239	217	183	142	110	3708
			09	60	63	61	88	101	122	114	141	156	153	156	160	09	167	170	199	236	271	304	290	275	210	163	133	78	3901
			10	58	87	82	120	92	78	86	65	97	130	142	153	10	135	181	229	293	310	311	296	259	231	175	129	106	3845
			11	88	84	114	117	119	123	131	136	139	134	168	131	11	135	198	157	327	363	313	317	344	134	90	23	49	3934
			12	62	73	50	46	113	92	114	144	154	135	114	126	12	157	160	211	265	301	302	314	294	256	190	114	110	3897
			13	74	71	45	52	114	123	109	107	102	85	134	128	13	158	184	219	239	271	314	303	229	197	170	83	77	3588
			14	62	65	61	95	124	136	164	154	147	145	84	155	14	146	131	187	272	291	270	253	228	188	120	103	48	3629
			15	79	90	89	91	139	130	129	131	130	137	109	117	15	129	140	176	228	292	329	318	323	306	164	58	32	3866
			16	-8	53	99	136	139	137	159	147	126	125	114	127	16	143	164	203	264	313	332	286	239	177	132	106	68	3781
			17	65	54	43	107	125	91	73	46	-191*	-226*	43*	99	17	94	146	276	256	383	470	406	299	228	143	108	39	3237
			18	-3	9	69	101	95	128	117	177	76	87	162	131*	18	329*	249*	329*	194*	224	233	311	306	219	79	68	54	3744
			19	55	79	72	91	111	138	165	152	120	148	134	157	19	163	120	204	185	228	299	296	296	248	188	132	121	3902
			20	87	66	53	102	121	138	152	215	176	141	142	135	20	133	143	177	211	244	266	265	264	218	187	184	121	3941
			21	108	105	68	117	84	123	117	4*	151	148	149	144	21	177	226	170	174	342	288	301	276	60	82	107	118	3639
			22	86	54	77	88	33	75	107	104	105	118	139	114	22	115	164	183	249	265	253	236	171	177	147	152	123	3335
			23	129	127	60	71	108	70	95	-46	43*	99*	-93*	187	23	121	146*	99*	393*	527*	458	322	268	336	390	245	-115*	4100
			24	32	49	36	76	63	185	156	77	71	118	139	147	24	143	163	208	353*	432*	468	381	261	151	88	110	152	4059
			25	130	117	100	121	120	127	102	121	23	74	59	109	25	140	170	209	311	483	348	284	205	134	35	38	31	3591
			26	50	83	102	126	134	122	122	119	126	135	141	152	26	147	183	194	248	349	338	288	239	200	145	101	89	3933
			27	70	92	112	121	109	139	162	128	102	148	138	135	27	137	228	180	248	379	367	306	271	71	26	68	80	3817
			28	89	117	118	120	163	44	135	205	119	50	96	111	28	187	196	198	284	416	201	243	209	151	161	152	131	3896
			29	90	87	97	81	71	139	10	-138*	-4*	92	22	168	29	152	150	107	448*	275	294	250	186	132	97	107	89	3002
			30	80	80	15	49	42	89	143	114	117	100	159	234*	30	95	274	203	200	252	309	279	244	235	181	162	97	3753
			31	66	98	18	24	159	133	110	140	122	149	151	168	31	189	161	171	182	242	288	294	256	231	195	151	129	3827

SCALED BY	TKC, JEP, EAS, DMB
CHECKED BY	JEP, EAS
HOURS 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 absent 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	114844
MONTHLY MEAN	154
DATES WITH GAPS	

GPO 814-105

FORM 76-106

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

OBSY.	YEAR	MONTH	ELEMENT
CO	81	AUG	Z

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 T.) is hour 11 of the GMT 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	366	382	454	427	424	404	210	250	315	315	339	325	349	371	369	366	339	322	319	283	293	357	348	356	8203
02	380	399	402	386	366	355	353	361	368	346	333	278	261	286	339	463	381	342	326	290	303	338	332	381	8369
03	390	366	370	379	322	344	129*	312*	289	344	428	367	306	245	303	360	313	333	359	340	334	327	341	362	7963
04	358	361	379	393	430	389	360	363	249	312	351	350	332	338	359	361	353	354	340	331	320	303	312	324	8322
05	332	337	336	341	353	369	246	347	349	319*	332*	350*	350*	306*	326*	326*	332*	299*	269	262	276	293	322	352	7724
06	403	344*	376*	414*	401*	268*	154*	249*	432*	350*	388*	344*	344*	319*	401*	326*	299*	255*	306*	310	316	324	338	350	8011
07	359	364	375	380	384	413	383	404	387	367	328	403	464	327	257	275	363*	363*	216	168	241	332	349	350	8252
08	351	369	371	346	348	348	351	347	347	348	346	341	340	335	333	338	338	340	340	338	325	319	326	351	8236
09	344	381	405	382	340	331	334	330	330	326	326	327	332	334	341	342	341	335	323	316	302	303	306	309	8040
10	315	343	357	307	354	327	344	339	361	330	362	347	313	302	310	309	305	324	316	302	309	309	309	310	7854
11	316	330	357	331	320	321	325	329	327	329	330	319	313	261	226	136	152	267	292	304	241	310	304	329	7071
12	345	379	401	373	363	349	361	351	339	325	310	310	322	328	327	304	309	315	322	317	306	302	292	334	7984
13	360	335	344	343	369	371	356	371	359	307	330	334	334	341	333	306	300	308	313	310	319	326	311	314	7994
14	330	361	369	361	348	342	343	337	334	299	208	147	186	267	291	316	317	322	329	330	329	325	338	337	7466
15	334	333	349	360	383	369	359	341	337	319	317	321	325	320	307	318	304	305	308	311	300	294	313	331	7858
16	338	333	334	363	337	349	342	335	329	325	324	332	324	341	321	323	324	326	321	320	321	320	329	334	7945
17	336	339	357	374	369	338	341	211	162	323	513*	361	412	409	351	341	387	325	271	290	287	300	329	361	8067
18	384	409	403	391	352	346	347	311	200	427	559	577*	501*	371	526*	559	581	472	341	321	309	311	317	338	9653
19	356	378	388	392	391	368	380	363	369	367	332	315	362	463	407	301	351	360	348	340	327	330	328	330	8653
20	341	354	381	410	389	377	367	366	331	341	340	331	323	319	338	346	349	340	307	259	293	298	317	313	8130
21	319	327	333	351	330	371	300	179	357	359	348	337	351	421	377	379	364	254	199	213	211	278	342	343	7643
22	341	350	405	401	397	430	373	328	375	369	359	321	328	349	363	358	354	342	307	261	319	331	347	371	8479
23	392	416	424	412	342	367	371	331	453	678*	494	573	350	659*	900*	818*	539*	280	307	311	346	388	450	331	10932
24	354	377	368	267*	273*	416	371	343	331	339	362	361	351	349	331	424*	381*	131	229	251	290	339	331	344	7919
25	352	376	355	354	359	350	347	348	263	397	461	390	350	390	270	242	268	238	261	269	302	311	330	339	7930
26	348	350	349	350	347	340	352	367	357	351	352	341	340	344	329	321	271	213	281	303	317	320	338	360	7941
27	368	388	380	366	359	368	359	340	367	354	303	320	488	584	532	527	532	215	210	322	320	353	386	393	9136
28	395	418	423	441	456	461	459	362	246	342	425	428	336	332	343	448	457	267	287	328	339	359	379	372	9105
29	372	389	419	397	406	438	367	304	318	293	458	448	528	486	569	327*	244	354	255	255	311	354	373	379	9011
30	399	423	402	409	451	434	367	365	378	359	378	310*	349	490	308	259	316	317	319	340	346	351	359	340	8969
31	339	369	377	398	348	379	359	371	349	352	357	359	372	330	341	336	358	361	359	348	349	348	344	347	8550

SCALED BY	TKC, JEP, EAS, DMB
CHECKED BY	JEP, ENS
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	257573
MONTHLY MEAN	346
DATES WITH GAPS	

FORM 74-108

U.S. DEPARTMENT OF THE 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 (150W M.T.) is hour 13 of the same universal day. Shrinkage corrections have been applied. Negative values are in red, with minus signs shown.

OBSY.	YEAR	MONTH	ELEMENT
CO	61	AUG	H

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	280	354	403	501	414	416	659	458	362	162	25	276	236	193	270	342	243	252	166	162	255	261	221	280	7191
02	285	313	265	257	262	261	275	299	329	317	287	71	208	257	127	215	170	304	246	248	251	223	214	265	5949
03	303	258	262	321	399	654	574*	112	131	170	198	65	71	181	104	-6	193	272	276	260	279	268	258	250	5853
04	258	310	296	412	379	269	317	384	193	222	269	254	260	262	291	313	306	289	249	248	223	227	224	238	6693
05	241	243	261	295	336	547	623	447	339	223*	60*	202*	117*	241*	270*	270*	246*	117*	129	201	220	209	231	277	6345
06	388	630*	529*	416*	585*	637*	540*	427*	-87*	190*	178*	110*	21*	139*	4*	-53*	32*	190*	315*	317	296	262	249	263	6578
07	265	280	297	283	311	361	324	340	315	328	391	-31	-110	-56	49	37	-104*	-41*	-42	173	262	273	255	240	4378
08	245	287	289	275	282	290	262	291	296	309	296	280	279	268	269	282	280	275	266	251	248	242	250	238	6570
09	234	331	284	241	259	269	270	271	273	279	277	286	289	298	302	303	297	279	248	237	234	238	246	253	6498
10	266	231	296	280	338	348	329	361	432	462	315	261	185	241	269	213	279	286	265	270	273	252	250	211	6993
11	280	261	274	276	272	280	281	263	290	301	307	276	270	176	-5	-23	204	260	265	196	211	243	239	231	5652
12	327	295	329	372	251	303	305	280	281	289	271	263	268	266	255	257	260	273	239	232	245	232	269	263	6655
13	260	276	311	309	351	342	306	333	353	307	300	281	281	292	279	257	248	257	251	249	231	200	221	253	[illegible]
14	305	303	308	284	274	290	300	307	307	253	-96	210	177	110	209	265	279	278	250	222	220	234	241	259	5769
15	271	275	290	318	319	324	289	288	299	256	290	289	290	268	259	256	249	269	249	197	153	118	169	193	6210
16	208	233	288	305	269	321	299	290	281	277	306	302	295	282	270	280	280	269	239	225	210	209	210	228	6354
17	289	307	363	284	311	313	373	446	131	250	-54*	131	231	232	277	353	319	221	229	209	205	220	207	255	6102
18	301	375	446	276	273	255	341	420	328	121	6	-26*	-415*	-223*	-240*	-172*	163	323	285	292	217	216	226	257	4045
19	276	307	303	283	319	320	307	318	354	298	256	206	98	-100	-115	250	314	333	296	252	248	237	257	229	5846
20	250	279	332	311	317	298	309	301	286	289	284	290	279	270	286	297	278	257	177	240	237	241	226	211	6545
21	243	231	306	270	319	346	424	149	369	321	289	247	16	-151	109	179	44	121	91	107	152	210	242	251	4905
22	239	296	406	395	369	419	408	384	359	319	165	231	277	288	289	291	302	265	169	233	267	262	238	278	7149
23	331	432	558	595	635	625	595	373	87*	-190*	184	-38	234	-205*	-36*	-116*	-184*	194	322	320	238	194	106	184	5228
24	290	337	627	783*	748*	421	299	328	370	330	302	247	239	193	28	-252*	-217*	56	190	183	138	168	264	376	6454
25	345	312	263	241	260	258	328	357	311	250	246	239	260	111	-41	26	-96	68	217	229	199	219	221	233	5056
26	230	256	267	266	271	290	298	329	312	288	290	291	290	279	251	225	94	190	239	252	229	218	226	248	6129
27	259	298	301	276	305	278	308	321	314	274	257	209	85	-153*	121	205	-30	-58	116	178	208	257	264	258	4851
28	321	324	352	480	353	459	455	353	324	257	191	60	205	89	11	-65	-169*	123	241	260	261	258	280	288	5711
29	278	289	265	287	396	400	495	537	308	110	195	243	16	-50	-130*	-316*	-40	31	113	290	289	260	250	270	4789
30	348	383	419	451	469	467	387	336	321	280	228	-203*	133	-80*	33	214	299	298	321	282	256	251	222	247	6362
31	321	342	380	500	483	308	321	280	310	281	278	268	215	200	231	279	290	292	281	262	237	222	219	228	7028

MONTHLY SUM: 186686
MONTHLY MEAN: 251
DATES WITH GAPS:

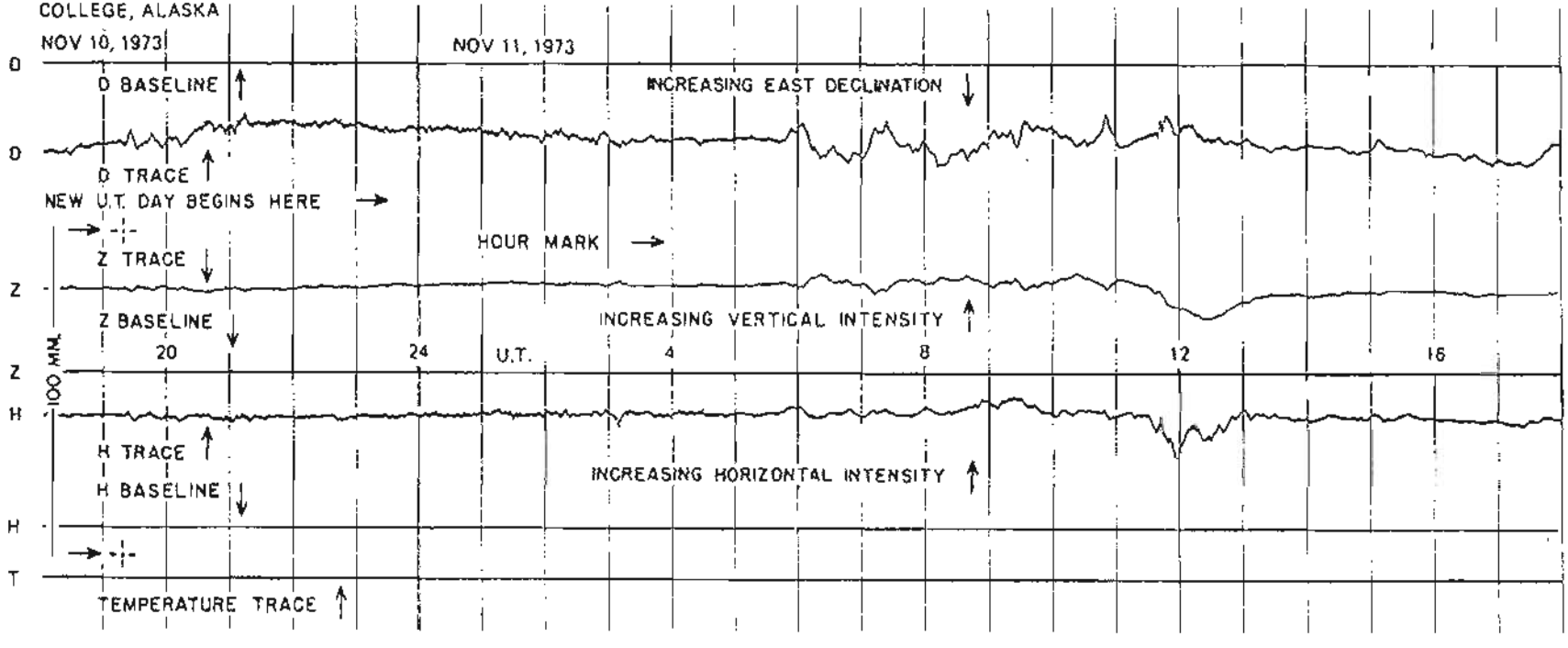
SCALED BY: TKC, JEP, EAS, DMB
CHECKED BY: JEP, EAS
SIGNS REVIEWED BY: JEP
PUNCHED BY:

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 Sitka Mag., converted to Normal Magn.

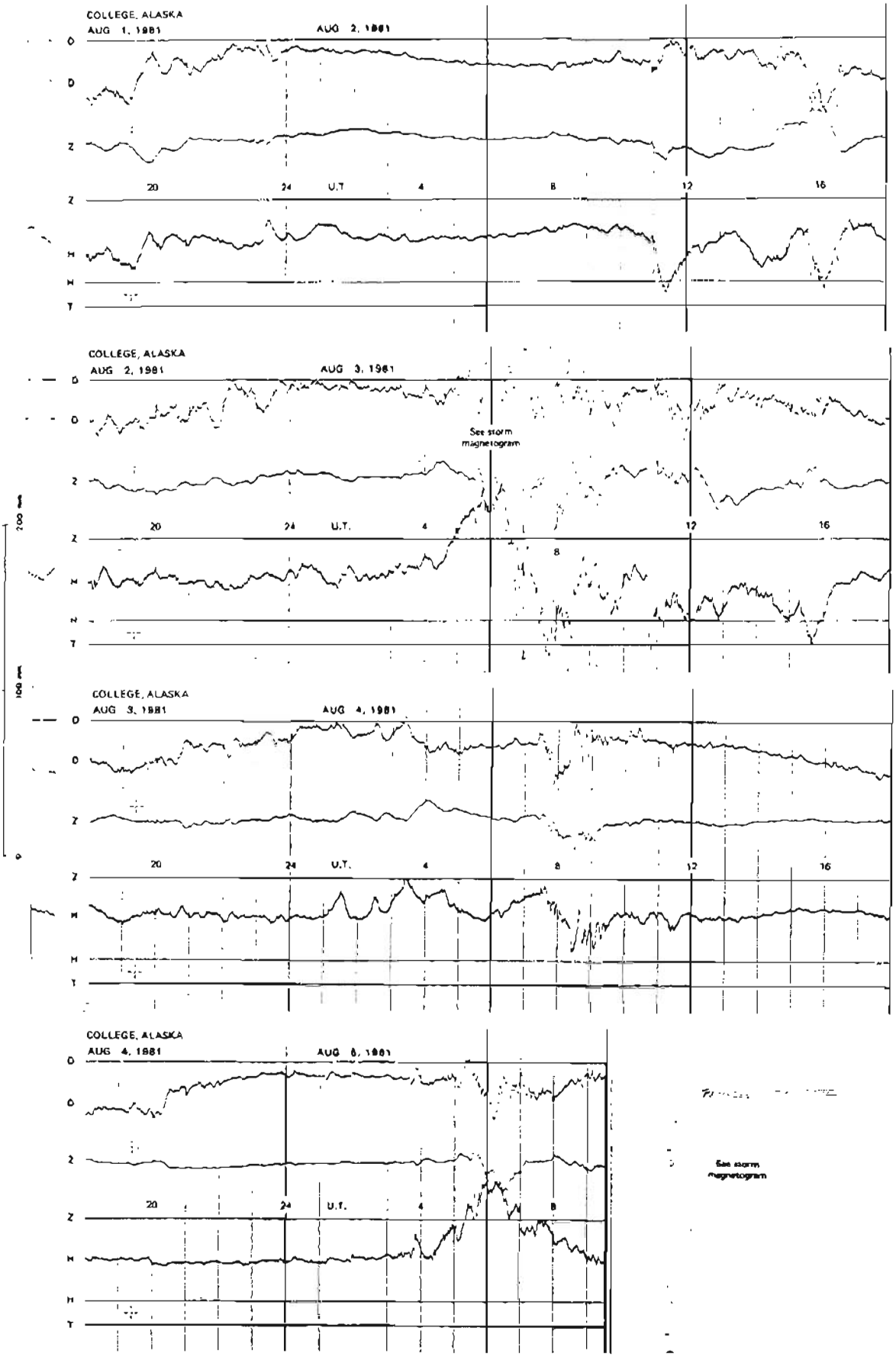
FORMAT FOR NORMAL & STORM MAGNETOGRAMS

(SAMPLE ONLY)

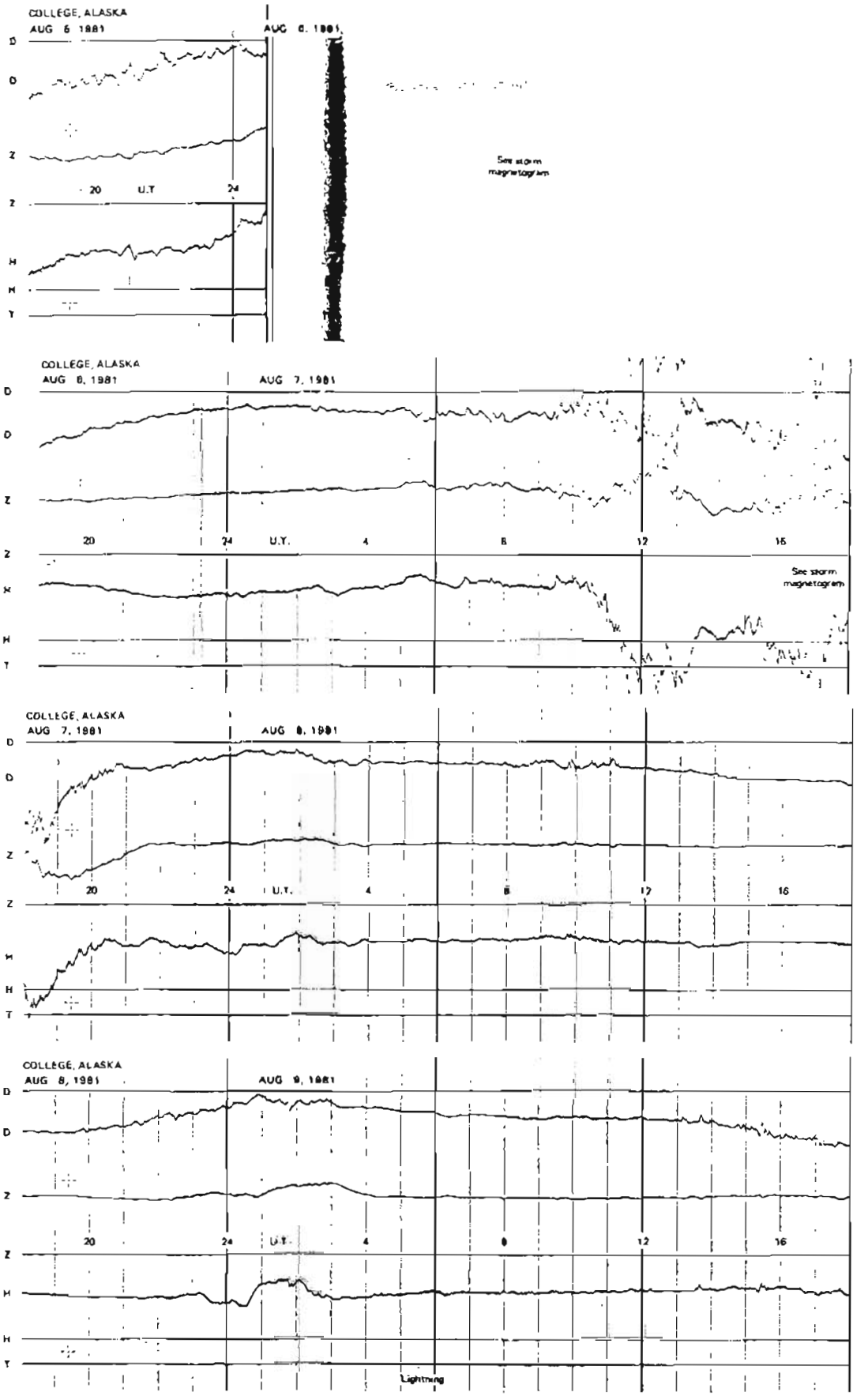


SEE PRELIMINARY CALIBRATION DATA FOR SCALE VALUES & BASELINE VALUES

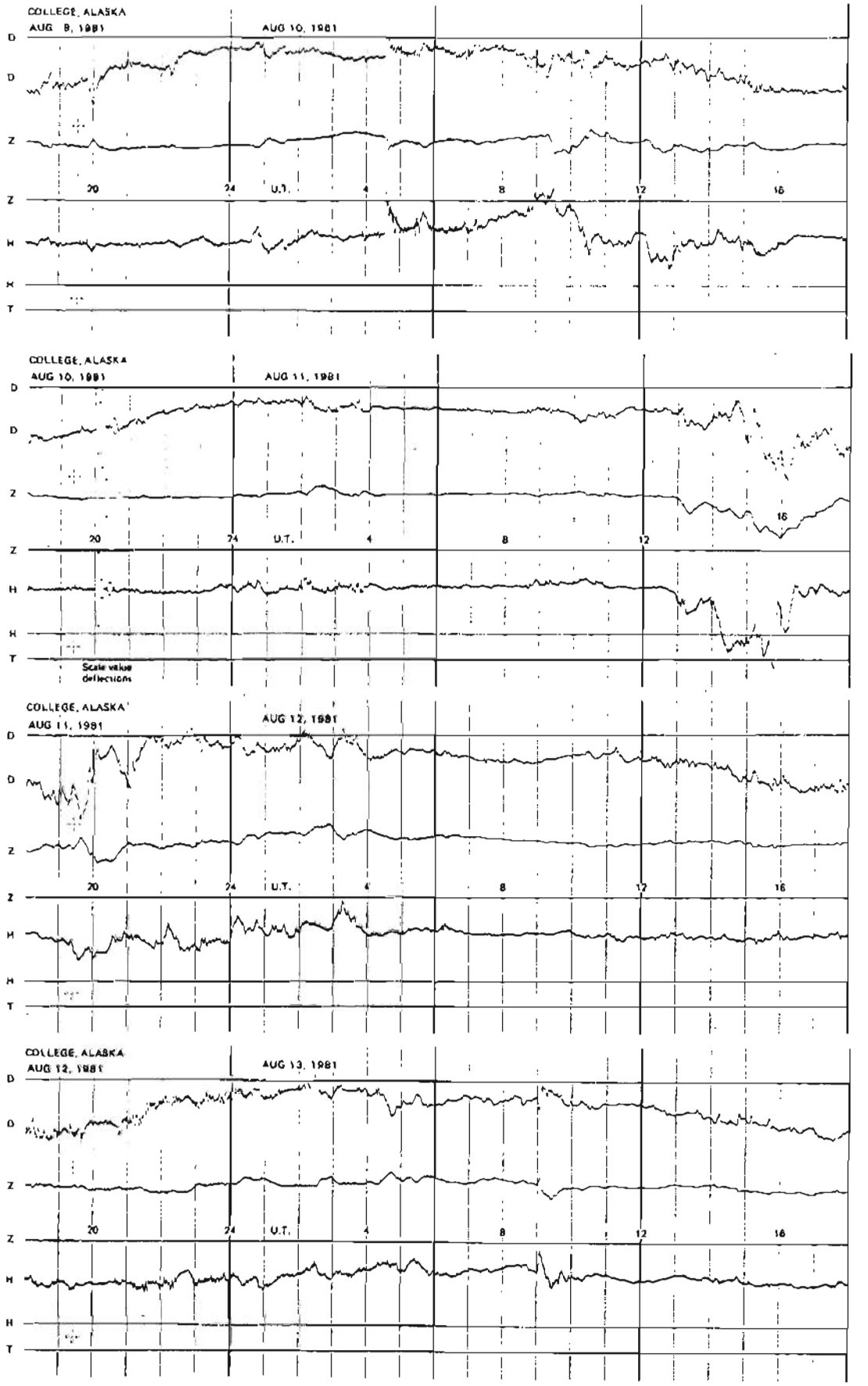
NORMAL MAGNETOGRAMS



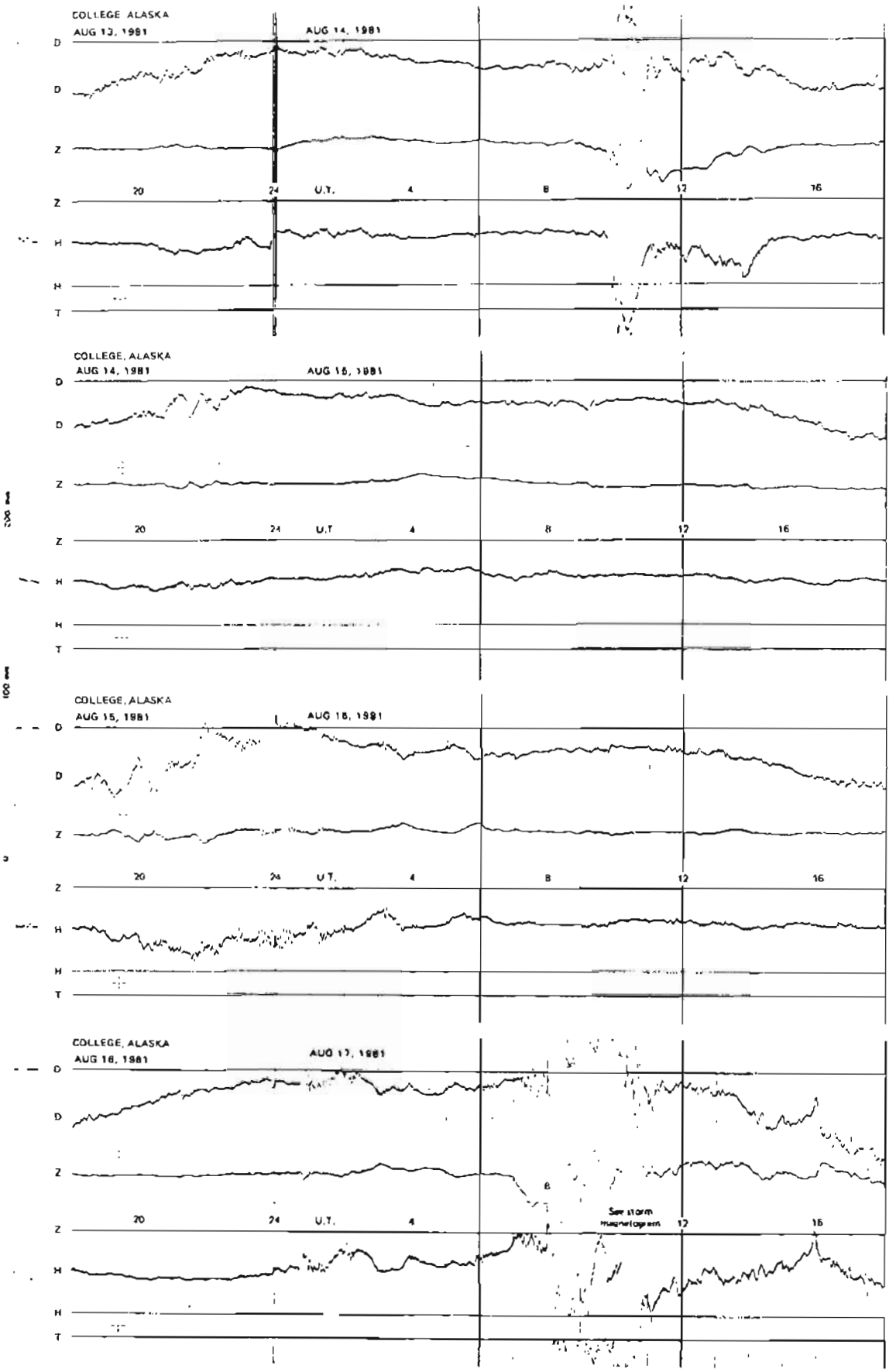
NORMAL MAGNETOGRAMS



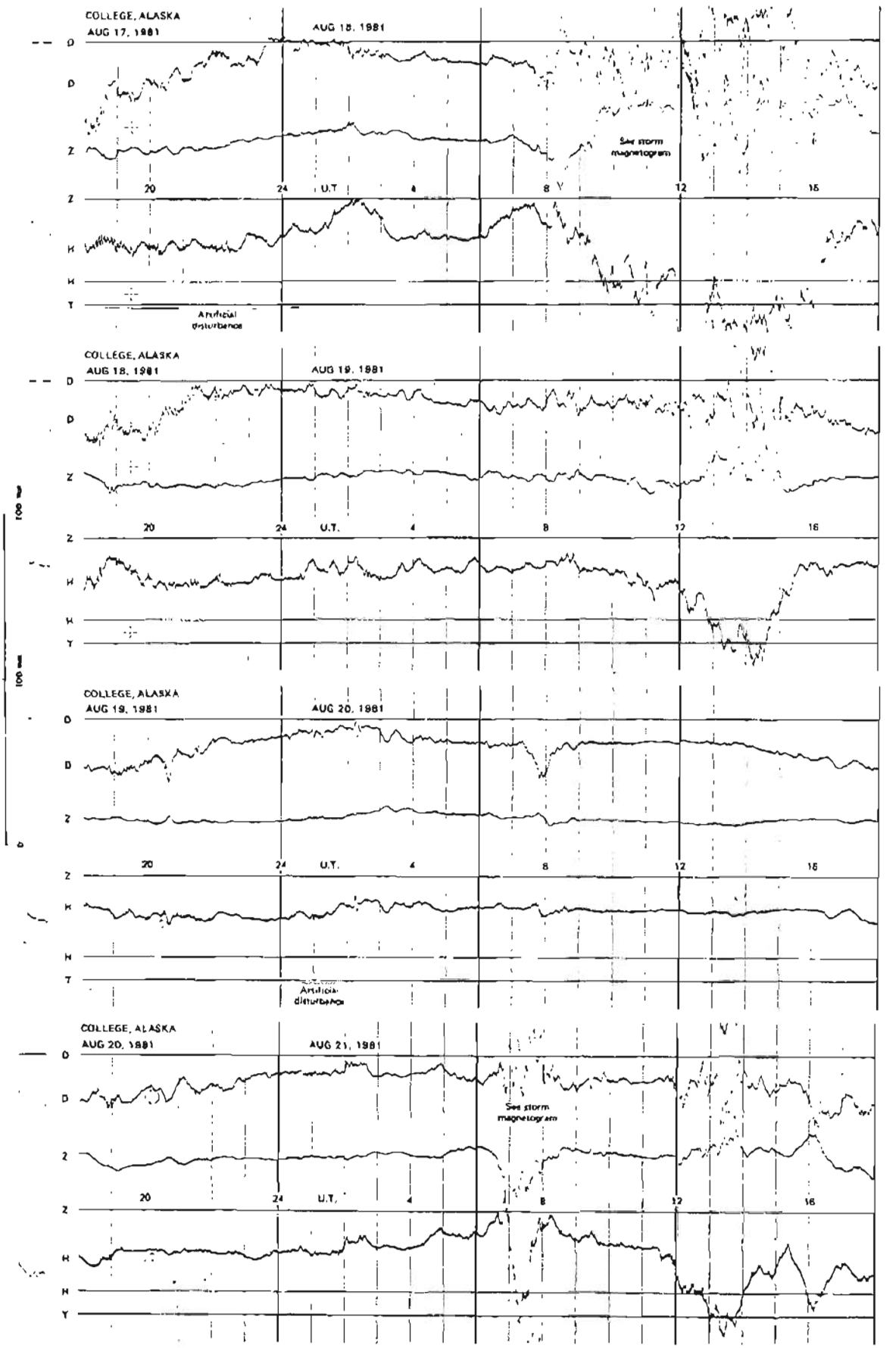
NORMAL MAGNETOGRAMS



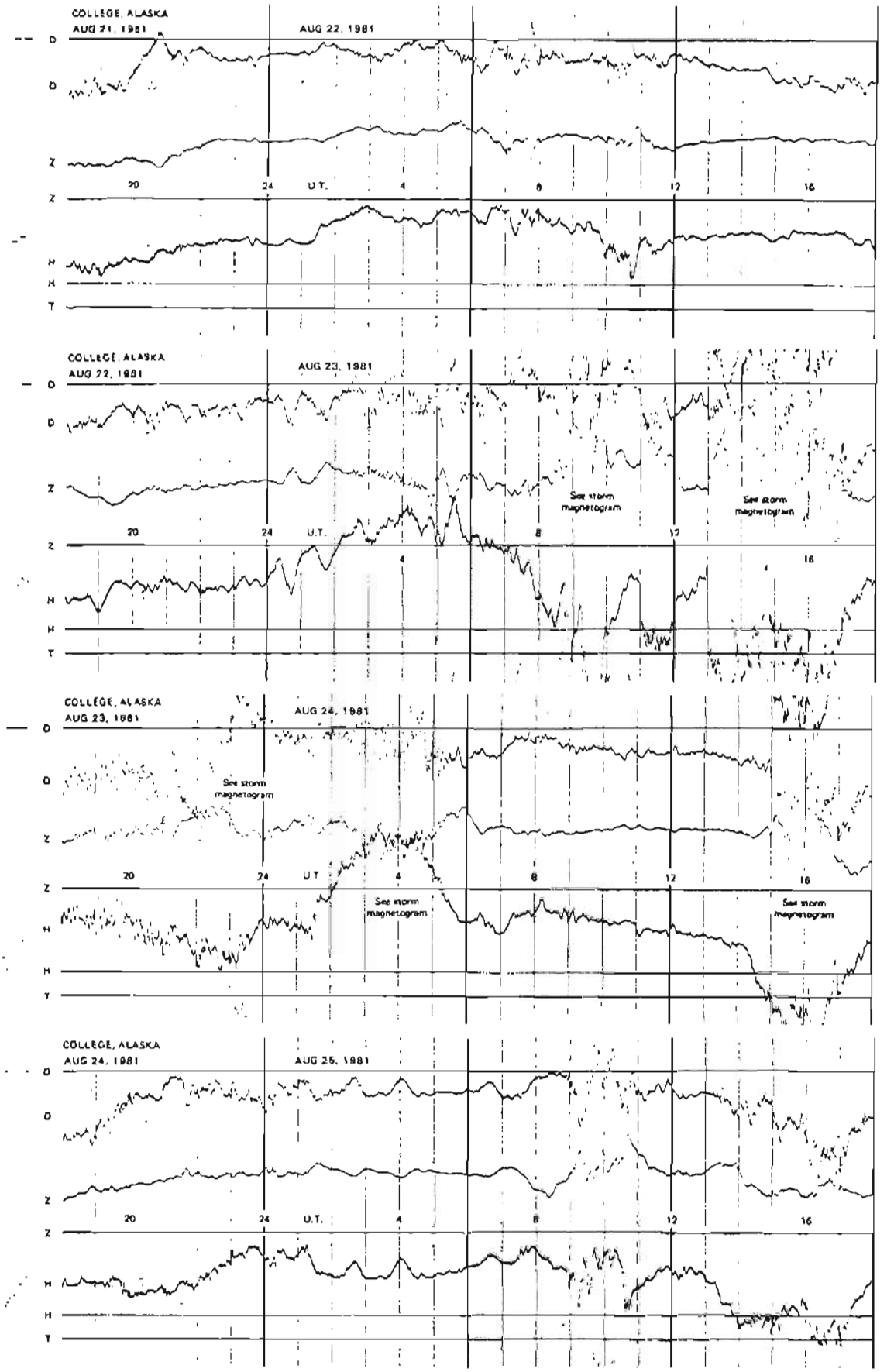
NORMAL MAGNETOGRAMS



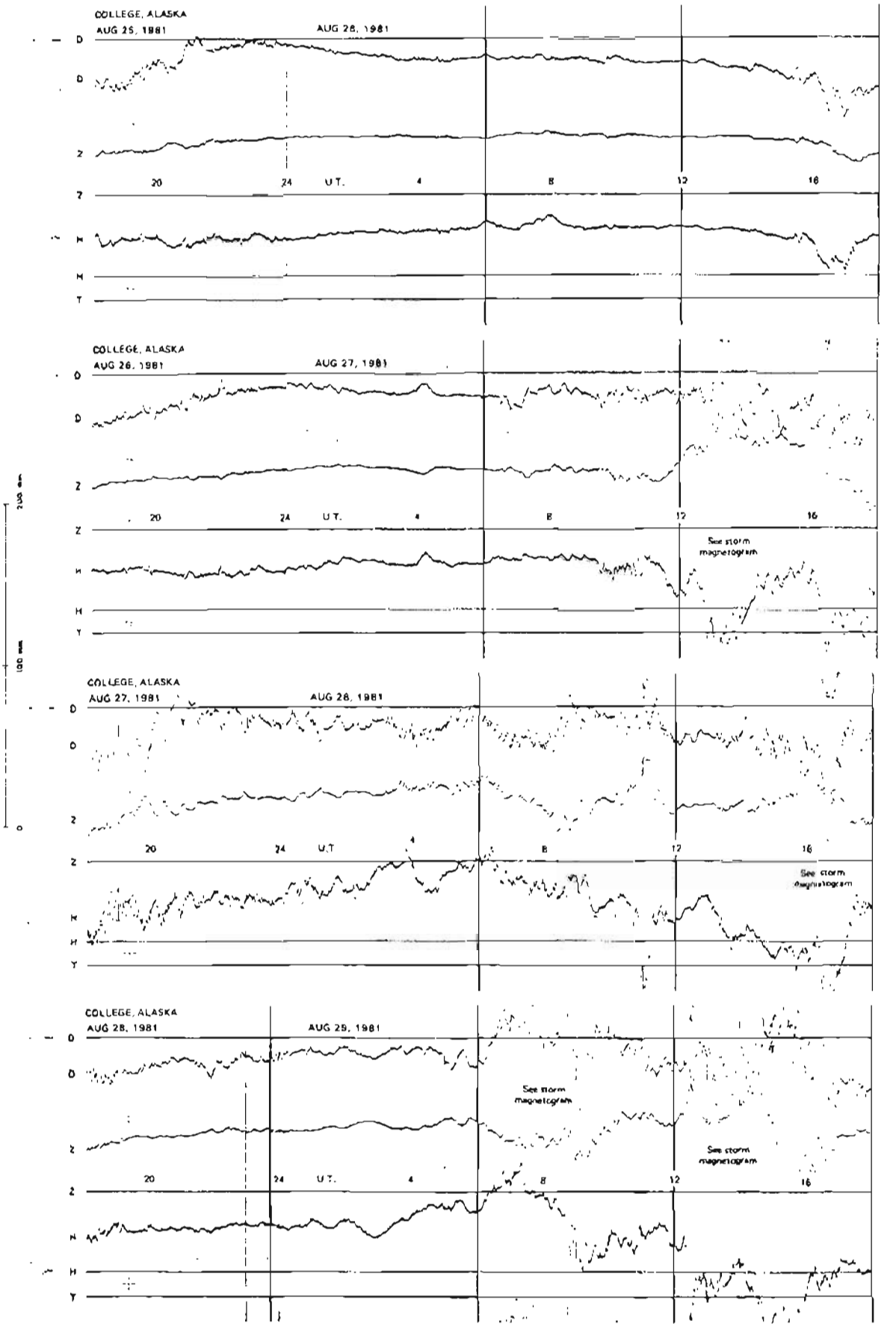
NORMAL MAGNETOGRAMS



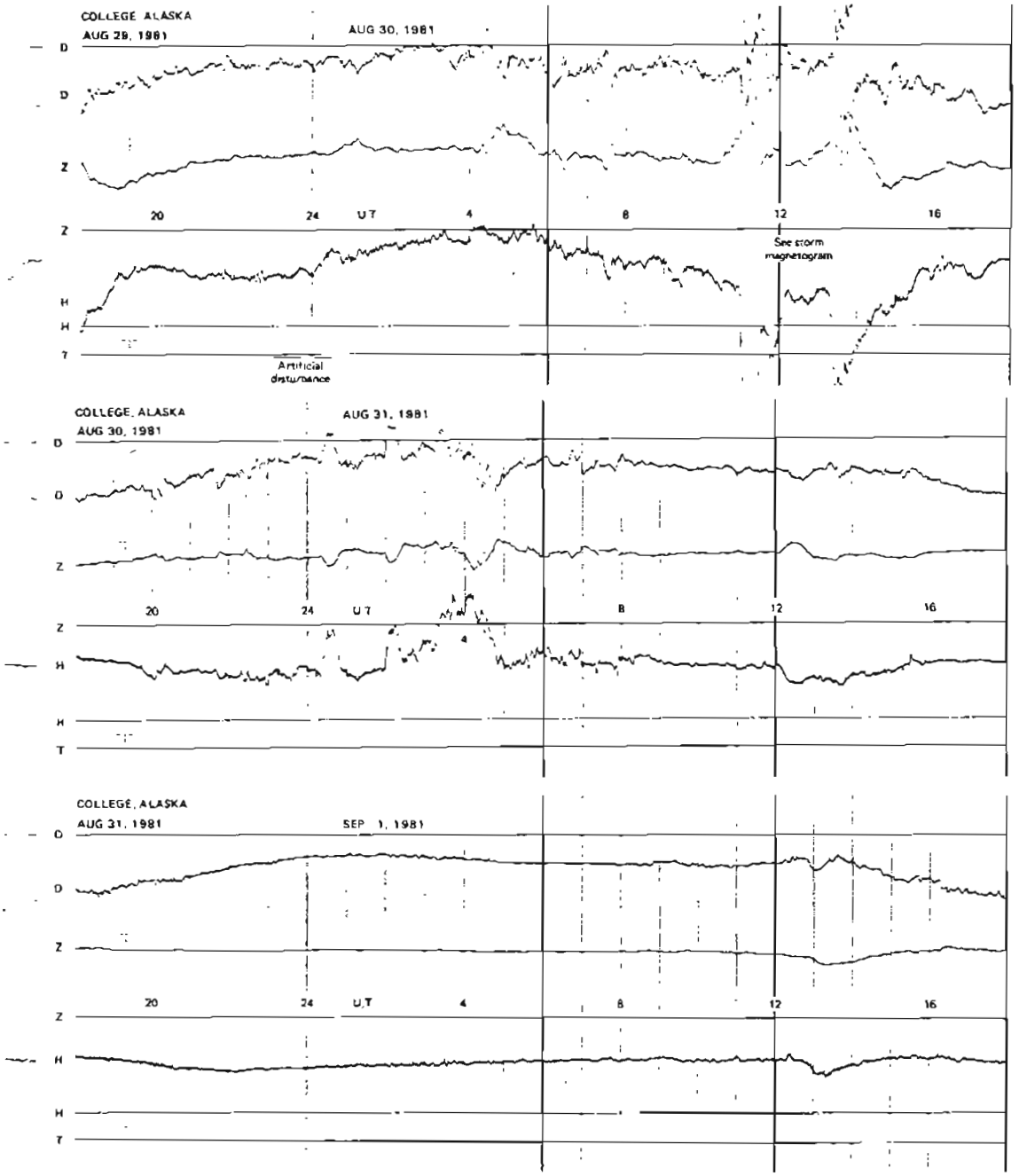
NORMAL MAGNETOGRAMS



NORMAL MAGNETOGRAMS

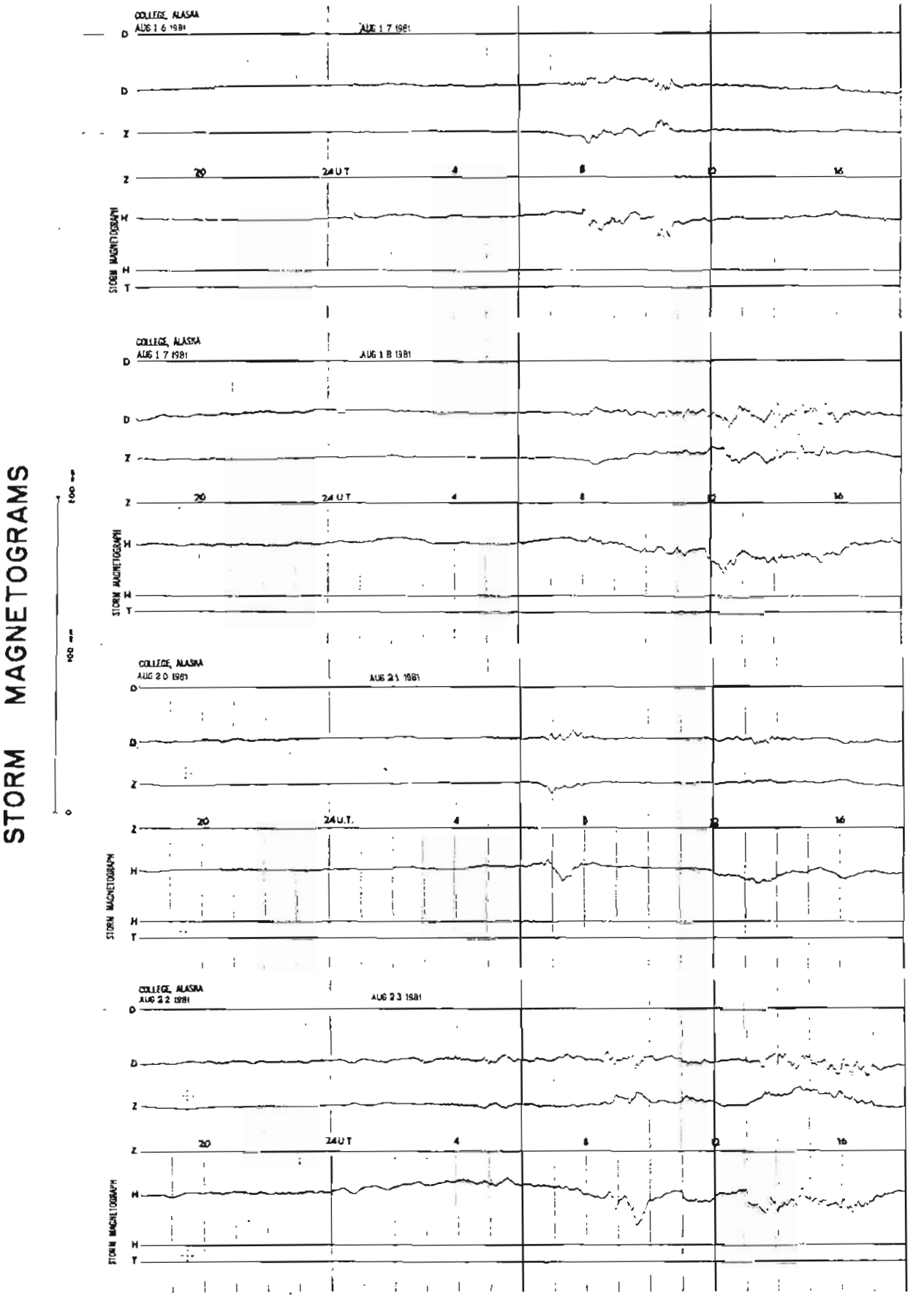


NORMAL MAGNETOGRAMS

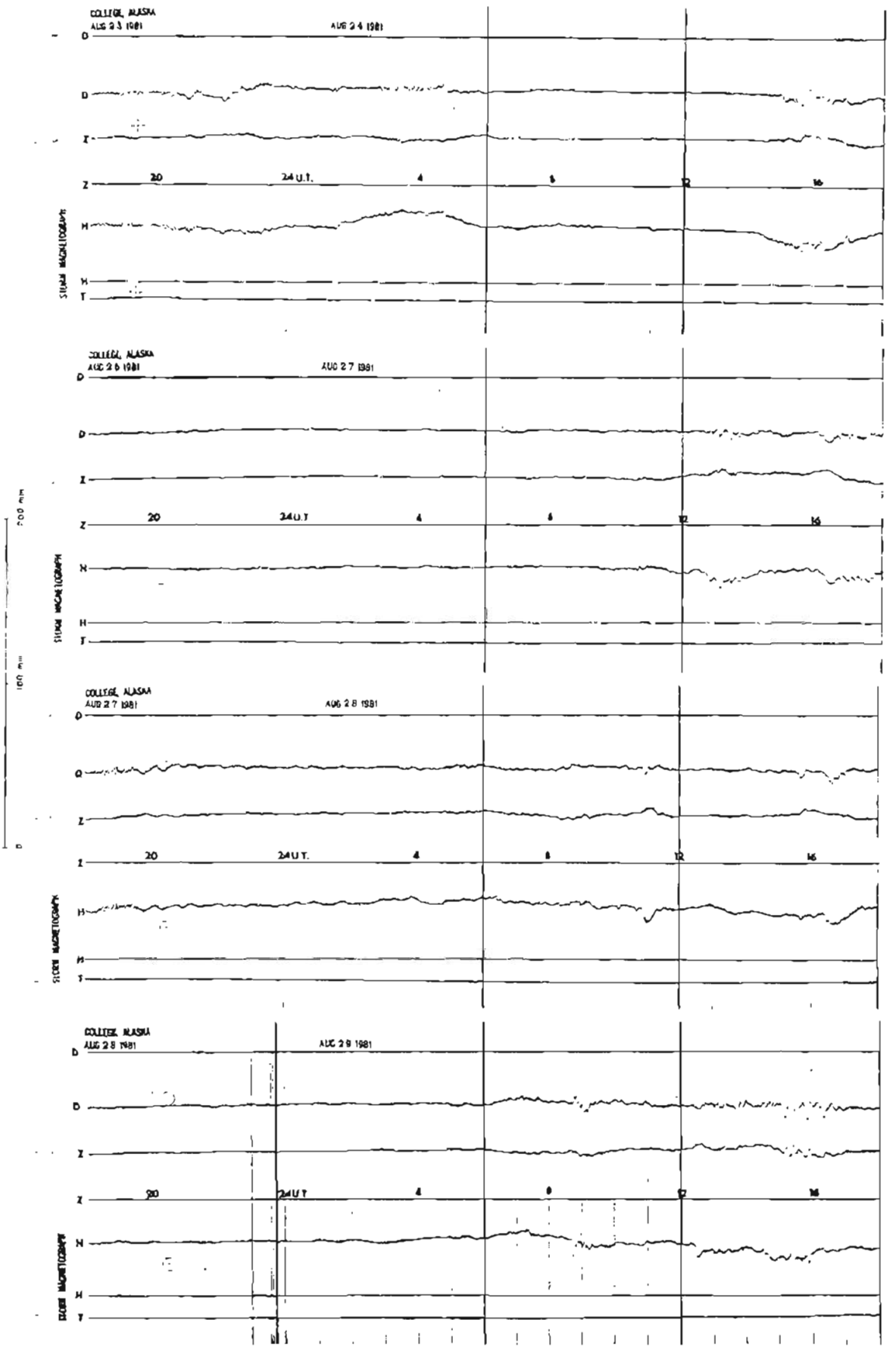


STORM MAGNETOGRAMS

STORM MAGNETOGRAMS



STORM MAGNETOGRAMS



STORM MAGNETOGRAMS