UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PRELIMINARY GEOMAGNETIC DATA
COLLEGE OBSERVATORY
FAIRBANKS, ALASKA

JANUARY 1983

OPEN FILE REPORT 83-0300A

THIS REPORT WAS PREPARED UNDER THE DIRECTION OF JOHN B. TOWNSEND, CHIEF OF THE COLLEGE OBSERVATORY, WITH THE ASSISTANCE OF THE OBSERVATORY STAFF MEMBERS: J.E. PAPP, E.A. SAUTER, L.Y. TORRENCE, T.K. CUNNINGHAM 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
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
NGAA 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..... $64^{\circ}51.6'N$
Geographic longitude..... $147^{\circ}50.2'W$
Geomagnetic latitude..... $+64.6^{\circ}$
Geomagnetic longitude..... $+236.9^{\circ}$
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 10 γ 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 (10 γ)

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.

MAGNETIC ACTIVITY

(Greenwich civil time, counted from midnight to midnight)

MONTH AND YEAR

JANUARY 1983

DATE	K-INDICES									AK	TIME SCALE ON MAGNETOGRAMS		
	00-03	03-06	06-09	09-12	12-15	15-18	18-21	21-24	SUM		20 mm/hr		
1	1	3	3	2	2	2	2	2	17	09	SUDDEN COMMENCEMENTS		
2	1	1	1	3	5	1	1	1	14	10	d	h	m
3	0	0	3	5	6	4	2	1	21	23			
4	1	0	3	5	6	3	1	1	20	21			
5	0	0	2	3	5	2	2	0	14	11			
6	0	0	1	1	2	0	0	0	04	02			
7	0	0	1	2	4	0	0	0	07	05			
8	0	0	0	1	5	1	2	1	10	08			
9	2	1	3	5	3	7	5	3	29	36			
10	4	7	5	7	4	3	3	1	34	52			
11	0	2	2	1	2	2	2	3	14	07			
12	3	3	4	5	5	3	2	1	26	22			
13	1	1	2	0	1	4	2	2	13	07			
14	1	1	3	3	5	2	2	1	18	13			
15	2	2	4	4	4	7	4	2	29	34			
16	2	4	4	6	5	6	5	2	34	41			
17	2	2	4	6	7	5	4	3	33	44			
18	4	3	4	7	6	5	4	4	37	49	POSSIBLE SOLAR-FLARE EFFECTS BASED ON INSPECTION OF GRAMS ALONE (WITHOUT REFERENCE TO DATA FROM OTHER SOURCES)		
19	2	3	3	5	6	5	2	1	27	28			
20	2	2	3	5	3	2	3	2	22	15			
21	2	2	1	2	4	3	2	1	17	10			
22	1	1	4	5	6	1	1	1	20	21			
23	0	1	2	3	2	0	2	3	13	07			
24	3	3	3	4	5	5	4	4	31	28	BEGIN	END	
25	3	3	3	5	4	5	5	2	30	28	d	h	m
26	1	2	3	5	5	4	3	1	24	21			
27	1	2	2	3	3	2	4	1	18	11			
28	1	0	2	1	4	5	2	3	18	14			
29	3	1	1	5	4	7	4	3	28	35			
30	2	2	3	7	5	4	2	2	27	32			
31	3	3	1	3	5	4	4	2	25	20			

K SCALE USED:

LOWER LIMIT FOR K = 9.....

CURRENT SCALE VALUE.....

LOWER LIMIT FOR K = 9.....

D

683.8

3.73

2550

H

321.7

7.78

2500

Z

(mm)

(γ/mm)

(to nearest 10γ)

SCALINGS AND COMPUTATIONS HAVE BEEN CHECKED.

APPROVED JOHN B. TOWNSHEND, CHIEF, COLLEGE OBSERVATORY

OBSERVER IN CHARGE

OUTSTANDING MAGNETIC EFFECTS			OBSERVATORY COLLEGE, ALASKA	
			MONTH JANUAURY	YEAR 1983
DATE	TIME U.T.	NATURE OF PHENOMENON ¹	REMARKS	
07	15xx	pg	Continues for approximately 38 hours	
09	1544	ssc*		
10	17xx	pc5		
29	0917	ssc*		
IDENTIFIED BY: JEP			VERIFIED BY: EAS	

1. NATURE OF PHENOMENON: ssc, ssc*, si, si*, b, bp, bs, bps, pcl, pc2 - - - pc5, pg, pi 1, pi 2, sfe.

PRINCIPAL MAGNETIC STORMS

WDC-A FOR SOLAR-TERRESTRIAL PHYSICS
ENVIRONMENTAL DATA SERVICE, NOAA
BOULDER, COLORADO 80502 U.S.A.

Data from Individual Observatories:

COLLEGE OBSERVATORY, COLLEGE, ALASKA

JANUARY

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(Y)	Z(Y)	day	(3 hr - period)	K	D(')	H(Y)	Z(Y)	day	hr
CO	64°6 N	09	1544	s.c.*	-20	-455	-130	09 10	6 2, 4	7 7	406	1510	1400	10	20
		15	06XX	..	..	..	..	15 17 18	6 5 4	7 7 7	336	1540	950	19	19
		29	0017	s.c.*	..	+37	..	29 30	6 4	7 7	212	1230	760	30	19

NORMAL MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 1-1-83	2400 U.T., 1-31-83	1.0/mm	378/mm	27° 47.0 E
B	0000 U.T., 1-1-83	2400 U.T., 1-9-83	7.88/mm		127498
	0000 U.T., 1-10-83	2400 U.T., 1-16-83	"		127418
	0000 U.T., 1-17-83	2400 U.T., 1-31-83	"		127488
Z	0000 U.T., 1-1-83	2400 U.T., 1-9-83	7.78/mm		551608
	0000 U.T., 1-10-83	2400 U.T., 1-16-83	"		551688
	0000 U.T., 1-17-83	2400 U.T., 1-31-83	"		551608

STORM MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION		
	FROM	TO	SCALE VALUE		BASELINE
D	0000 U.T., 1-1-83	2400 U.T., 1-31-83	7.9/mm	29.68/mm	23° 43.7 E
B	0000 U.T., 1-1-83	2400 U.T., 1-9-83	43.98/mm		114978
	0000 U.T., 1-10-83	2400 U.T., 1-16-83	"		114858
	0000 U.T., 1-17-83	2400 U.T., 1-31-83	"		114988
Z	0000 U.T., 1-1-83	2400 U.T., 1-9-83	48.48/mm		540748
	0000 U.T., 1-10-83	2400 U.T., 1-16-83	"		541068
	0000 U.T., 1-17-83	2400 U.T., 1-31-83	"		541168

RAPID RUN MAGNETOGRAPH

COMPONENT	PERIOD		CALIBRATION	
	FROM	TO	SCALE VALUE	
D				
B				
Z				

MONTHLY MEAN ABSOLUTE VALUES*

D	B	Z
27° 55.9 E	129478	553858

* COMPUTED FROM TEN QUIETEST DAYS DURING MONTH.

DAYS USED: JAN 1, 2, 5, 6, 7, 8, 11, 13, 21, 23

MAGNETOGRAM HOURLY SCALINGS
(UNIVERSAL TIME)U.S. DEPARTMENT OF THE INTERIOR
Geological Survey, Columbia Station
Columbia, Missouri 65206OBSERVATORY
YEAR
MONTH
DAYValues are in tenths of mm. and are averages for successive periods of one hour beginning at midnight. Hour 01 of local day (130 M.T.) is hour 11 of the 5928 universal day.
Shrinkage corrections have been applied. Negative values are in red, with minus sign shown.

CO 83 JAN 2

C	O	S	O	N	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	40	59	67	57	44	36	26	73	73	82	56	54	01	73	94	103	117	108	81	81	88	69	49	61	58	1649
					02	76	73	72	75	79	82	75	68	79	78	72	71	02	146	218	186	156	146	126	104	74	77	38	62	74	2307
					03	70	68	72	78	85	82	78	81	89	125	34	10	03	267	137	-37	175	189	129	131	81	69	78	67	64	2212
					04	71	78	74	88	88	85	90	92	136	-101	92	70	04	336	213	158	230	193	177	146	112	75	52	60	70	2685
					05	80	84	82	80	81	85	82	86	99	89	86	123	05	192	225	114	91	122	85	113	105	90	85	77	71	2427
					06	71	79	83	81	82	90	91	82	120	87	74	81	06	110	146	124	125	133	151	149	162	124	102	91	79	2517
					07	69	63	76	79	79	81	90	90	89	68	104	112	07	140	142	130	98	94	117	113	119	111	109	97	73	2343
					08	60	58	66	50	63	61	58	86	83	77	67	80	08	229	196	136	86	92	136	98	30	97	102	70	51	2134
					09	37	22	42	64	68	34	42	66	85	72	32	112	09	78	107	111	127	882	485	254	138	190	153	74	58	3333
					10	72	167	107	-103	-71	-309	-285	-174	1	-118	64	-57	10	55	234	54	124	67	74	79	94	88	78	71	72	404
					11	73	77	71	56	75	77	72	78	76	82	82	85	11	91	97	98	98	98	104	102	110	108	98	103	95	2106
					12	76	93	93	59	60	50	140	69	84	112	84	85	12	108	178	108	124	100	106	93	112	116	63	77	71	2285
					13	77	78	84	78	41	66	82	112	87	92	84	98	13	88	125	138	65	76	90	71	78	113	97	70	60	2050
					14	72	75	62	68	66	68	72	90	71	90	92	134	14	172	196	129	214	150	123	89	116	124	120	45	35	2473
					15	42	38	58	65	41	54	101	107	98	103	122	174	15	161	121	188	451	188	121	194	31	23	43	86	59	2669
					16	49	68	65	68	60	155	69	46	171	82	243	45	16	168	158	172	220	133	223	85	33	87	87	75	72	2654
					17	55	48	91	87	82	74	107	104	106	153	323	204	17	-34	667	148	222	72	102	136	26	-42	55	67	37	3112
					18	-19	71	85	62	70	44	99	168	137	69	-335	331	18	77	276	355	251	119	72	95	92	110	-42	38	83	2308
					19	78	86	72	48	56	76	153	61	94	228	103	115	19	126	243	331	163	133	53	93	110	95	93	75	64	2749
					20	64	49	49	80	96	93	148	100	157	80	42	79	20	92	70	67	85	91	94	106	93	47	-12	53	66	1869
					21	69	61	61	60	44	79	90	83	99	100	106	117	21	116	143	86	37	26	82	113	108	97	93	84	70	2024
					22	60	60	68	66	70	60	114	92	92	22	87	112	22	117	112	96	71	84	92	96	115	96	112	101	75	2070
					23	66	69	62	67	78	72	62	80	135	126	83	92	23	103	89	80	80	78	96	113	134	117	162	18	-56	2006
					24	-3	5	2	3	-8	36	-38	72	59	66	103	94	24	54	96	162	189	338	179	123	164	85	52	72	-55	1850
					25	4	20	44	38	19	26	50	62	114	89	288	34	25	276	244	166	99	96	180	220	84	98	89	69	50	2459
					26	72	69	34	39	39	82	90	82	74	95	160	60	26	106	137	169	202	170	256	153	114	101	92	84	58	2538
					27	56	57	53	40	40	40	22	37	63	66	19	78	27	84	110	106	106	121	146	191	164	91	106	101	82	1979
					28	77	79	61	70	72	75	73	55	77	61	70	72	28	85	105	225	339	269	171	205	146	113	87	84	-72	2599
					29	-19	8	35	37	40	60	75	66	63	68	63	42	29	68	151	240	362	577	528	152	85	96	49	47	55	2948
					30	60	54	37	45	51	36	42	103	225	23	100	44	30	123	172	84	85	88	126	82	106	71	54	52	40	1903
					31	23	67	49	52	113	89	57	105	85	74	80	69	31	128	157	147	223	162	172	135	9	1	12	-55	-24	1930

SCALED BY
CHECKED BY
SIGNS REVIEWED BY
PUNCHED BYLYT, TAC
TAC, JEP
JEPPreliminary base-line and scale values:
Interval
BeginningBase-line
ValueScale
Value

- () Interpolated
☐ Significant portion of hour interpolated.
☐ No record; or so 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 Mph., converted to Normal Mph.

MONTHLY SUM
MONTHLY MEAN
DATES WITH GAPS70,612
95

7 Data Page

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 M.T.) is box 11 at the bottom. Corrections have been applied. Negative values are in red, with minus signs shown.

C	Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	SUM
01	367	314	307	309	334	368	401	396	337	326	306	328	01	324	335	310	298	297	289	282	188	198	300	306	315	7661
02	321	314	307	305	310	309	306	310	320	319	315	303	02	254	203	156	267	277	289	288	264	272	282	300	309	6900
03	310	310	307	304	303	304	306	329	272	269	248	322	03	546	572	232	182	281	306	296	298	304	314	312	316	7543
04	316	312	310	308	306	312	320	332	271	55	237	259	04	237	16	117	181	175	223	244	269	275	276	300	315	5943
05	321	314	313	307	306	306	307	311	322	271	296	260	05	212	312	173	219	276	275	280	284	293	300	302	303	6663
06	304	304	302	299	298	298	299	299	321	305	271	274	06	246	210	222	260	271	268	265	270	272	281	286	291	6716
07	297	296	295	296	298	299	300	299	301	310	314	301	07	290	254	223	266	301	302	296	297	295	299	297	296	7022
08	294	296	300	303	306	312	320	314	300	300	297	302	08	234	142	199	272	286	285	264	190	231	256	279	294	6578
09	299	314	322	313	303	314	352	361	363	324	201	218	09	300	303	286	238	404	38	303	305	296	296	304	309	4525
10	268	203	12	105	69	396	346	28	199	156	299	176	10	260	405	342	336	336	312	296	299	296	292	295	287	7202
11	310	310	305	299	308	302	301	302	301	303	300	300	11	300	304	297	298	298	298	296	299	296	292	295	287	7202
12	294	296	296	299	317	338	344	326	29	172	244	245	12	275	282	250	266	266	259	289	288	298	276	284	290	6568
13	296	300	300	310	312	333	320	317	298	294	279	245	13	221	282	245	172	172	182	179	210	266	263	265	292	6317
14	298	210	307	301	306	305	334	310	339	336	314	262	14	269	261	192	158	211	258	233	246	270	279	265	291	6704
15	305	315	333	325	324	302	369	305	254	296	267	263	15	260	221	285	301	236	230	138	196	180	256	309	316	5857
16	310	310	310	325	319	350	326	320	305	260	253	198	16	462	493	409	403	312	70	141	240	271	304	306	317	7580
17	322	325	340	326	326	323	343	321	266	193	245	596	17	505	312	275	260	258	256	241	220	226	270	315	331	7517
18	353	367	315	338	357	349	329	312	280	321	230	212	18	212	477	401	260	261	268	329	296	322	324	320	329	7576
19	328	336	327	326	329	302	325	326	333	301	260	274	19	292	421	52	97	140	237	272	304	306	306	304	310	6668
20	311	316	328	339	333	337	319	335	321	172	240	282	20	280	268	272	271	270	287	303	282	295	291	306	320	7078
21	325	330	323	325	332	370	353	343	334	321	285	261	21	240	237	233	226	250	281	297	296	290	294	304	305	7155
22	313	316	318	309	305	318	376	339	316	289	221	177	22	167	176	236	264	295	290	296	294	290	312	313	311	6710
23	309	308	304	305	322	316	321	331	331	282	298	268	23	258	268	269	265	290	297	297	296	290	313	290	288	7136
24	328	329	339	331	369	364	407	396	310	334	311	316	24	276	298	272	198	254	199	239	275	281	303	317	322	7358
25	374	336	309	302	320	361	356	358	358	326	224	76	25	162	373	454	253	103	228	170	213	264	263	290	300	6793
26	310	320	332	329	334	348	344	344	327	330	127	199	26	247	301	222	230	225	280	229	206	257	280	292	292	6705
27	304	297	300	304	314	317	337	354	380	359	335	341	27	317	282	256	285	294	290	237	177	225	256	280	289	7130
28	298	297	296	296	297	297	298	307	325	322	303	299	28	295	282	213	167	192	214	273	260	238	263	251	278	6541
29	315	322	316	309	305	323	340	322	325	284	257	311	29	260	297	297	526	441	28	241	272	287	292	303	6834	
30	314	302	298	314	310	323	326	286	290	264	341	479	30	139	179	266	275	272	241	231	309	282	290	299	310	7000
31	317	337	331	336	380	363	368	367	346	299	293	292	31	254	313	137	148	184	221	143	97	180	223	226	254	6409

SCALING BY	LYT. TMC	MONTHLY SUM	211,079
CHECKED BY	TMC, JEP	MONTHLY MEAN	284
SIGNS RE-VIEWED BY	JEP	DATE WITH DATA	
PURCHASED BY			

☐ Scaling uncertain because
☐ of magnetic storm.
☒ > 2000 off sheet for part
in all of hour; if value is
not available, estimated
for missing part.
* Derived from STORE Magph. converted to Normal Magph.

FORM NO. 18		MAGNETOGRAM HOURLY SCALINGS												DATE		TIME		STATION		YEAR		MONTH		DAY		SUM	
C		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		262	267	268	265	261	264	267	264	264	265	262	261	267	267	267	267	267	267	267	267	267	267	267	267	267	267
02		256	258	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254
03		255	255	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254
04		256	257	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254	254
05		262	261	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
06		261	265	269	274	273	271	270	271	271	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
07		262	261	276	262	267	267	264	265	265	266	264	262	267	267	267	267	267	267	267	267	267	267	267	267	267	267
08		265	275	282	281	284	284	285	285	285	284	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286	286
09		249	252	256	261	261	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
10		242	230	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225	225
11		249	252	256	261	261	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
12		243	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244	244
13		262	261	276	262	267	267	264	265	265	266	264	262	267	267	267	267	267	267	267	267	267	267	267	267	267	267
14		257	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
15		231	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
16		262	270	272	264	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
17		265	262	265	261	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
18		252	252	276	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272	272
19		260	270	270	271	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273	273
20		263	245	255	264	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262	262
21		265	267	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265	265
22		251	262	271	277	279	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284	284
23		258	260	267	270	269	291	289	282	286	282	268	266	266	266	266	266	266	266	266	266	266	266	266	266	266	266
24		232	250	234	227	250	405	411	361	346	345	231	251	251	251	251	251	251	251	251	251	251	251	251	251	251	251
25		291	320	270	298	313	338	331	343	316	345	265	217	9	9	9	9	9	9	9	9	9	9	9	9	9	9
26		258	276	266	295	300	315	319	272	270	313	169	204	204	204	204	204	204	204	204	204	204	204	204	204	204	204
27		259	265	265	266	285	311	329	359	349	345	354	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
28		259	260	264	270	269	269	275	295	311	273	262	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
29		270	265	268	279	287	290	298	316	348	344	298	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155
30		270	270	275	276	284	300	321	371	299	352	41	505	505	505	505	505	505	505	505	505	505	505	505	505	505	505
31		286	280	281	308	342	299	300	293	295	271	269	218	218	218	218	218	218	218	218	218	218	218	218	218	218	218
TOTAL		LYT, TXC		Preliminary base-line and scale values:												Interval		Base-line		Scale		Value		Sum		MONTHLY SUM	
CHECKED BY		TXC, JEP		1) Interpolated												2) Significant portion of		3) No records or no values		4) Derived from		5) Monthly Mean		6) Monthly Mean		7) Monthly Mean	
REMARKS		JEP		1) Interpolated												2) Significant portion of		3) No records or no values		4) Derived from		5) Monthly Mean		6) Monthly Mean		7) Monthly Mean	
PUNCHED BY				1) Interpolated												2) Significant portion of		3) No records or no values		4) Derived from		5) Monthly Mean		6) Monthly Mean		7) Monthly Mean	

FORMAT FOR NORMAL & STORM MAGNETOGRAMS (SAMPLE ONLY)

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

NORMAL MAGNETOGRAMS

STORM MAGNETOGRAMS

STORM MAGNETOGRAMS

STORM MAGNETOGRAMS

100 mm
0

STORM MAGNETOGRAMS