

Statistics on the Geomagnetic Phenomena Observed at Kakioka

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Introduction

This report presents statistics on characteristic values of geomagnetic rapid variations (magnetic storm, si, bay as well as sfe) observed at Kakioka in the interval of July, 1957-December, 1985 in addition to those on the K indices for 1932~1985. Data for this report have been derived from the geomagnetic data base in a machine-readable form based on the observation reports published by the Kakioka Magnetic Observatory; "Report of the Geomagnetic and Geoelectric Observations (Rapid Variations)" for the geomagnetic rapid variations, as well as "Report of the Kakioka Magnetic Observatory, Geomagnetism" and "Memoirs of the Kakioka Magnetic Observatory" for the K indices.

The purpose of this report is to support studies and investigations on geomagnetism by other scientists, rather than to present original findings on geomagnetic rapid variations.

Quality of each geomagnetic phenomenon with three degrees of A (very distinct), B (fair, ordinary, but unmistakable) and C (doubtful) is determined rather subjectively according to characteristic quantities and qualities such as its amplitude and a shape of a magnetic trace in a magnetogram. Events for the statistics have quality of A or B except for the magnetic storm, for which even the events with quality of C have been dealt with. Particularly, as for all kinds of rapid variations occurred before 1958, we employed all events including C-class one for the statistics. Time of occurrence refers to the universal time throughout this report.

Contents

(I) Magnetic storms observed at Kakioka during 1957~1985

1-1 The storm range

Table 1 presents the frequency distribution of the storm ranges (numbers of events with the percentages in the parentheses; this manner is common for all tables) as well as thirty storms with the largest ranges for H, D and Z components. Incidental information of the storm such as SSC quality, SSC amplitudes, ranges of other components and maximum K index is also presented in this table. (Similarly, all tables

in this report have respective incidental information.) Some of storms, which were followed by another storms, have no ranges measured. Besides, the following storms occurred before 1956 had H ranges larger than 600 nTs; 1940 Mar. 24 13h48m (661 nT), 1941 Jul. 04 20.8h (>700 nT) and 1941 Sep. 18 04h 11m (604nT) after Yokouchi (1953b).

1-2 The ssc amplitude

Table 2 presents the frequency distribution of the ssc amplitudes and thirty storms with the largest amplitudes for the three components.

1-3 The time rate of geomagnetic change of ssc

Table 3 presents the frequency distribution of the time rates of geomagnetic field changes associated with the ssc's (the amplitude divided by the duration) and thirty storms with the largest time rates for the three components. If duration of an ssc was null because of too short rise time to be recognized on a magnetic trace in a normal magnetogram, the storm is excluded from the statistics.

1-4 The maximum K indices of storms

Table 4 presents the frequency distribution of the maximum K indices of the storm and storms with the maximum K indices larger than 8 inclusive. The maximum K indices have not been given for some of storms, which were followed by another storms.

(II) Si's observed at Kakioka during 1957~1985

We have used si's with the quality higher than B inclusive in 1959~1985 and all si's in 1957~1958.

2-1 The si amplitude

Table 5 presents the frequency distribution of the amplitudes and thirty si's with the largest amplitudes for the three components.

2-2 The time rate of geomagnetic change of si

Table 6 presents the frequency distribution of the time rates of geomagnetic field changes associated with the si's and thirty si's with the largest time rates for the three components. If duration of an si was null, the si is excluded from the statistics.

(III) Bays observed at Kakioka during 1957~1985

We have used bays with the quality of A or B in 1959~1985 and all bays in 1957~1958.

3-1 The bay amplitude

Table 7 presents the frequency distribution of the amplitudes and thirty bays with the largest amplitudes for the three components. In Tables 7 and 8, the time in the column accompanied with the amplitude of each component is the one at which the magnetic variation has maximum derivation from the assumed normal trace.

(IV) Sfe's observed at Kakioka during 1957~1985

We have used sfe's with the quality higher than B inclusive in 1959~1985 and all sfe's in 1957~1958.

4-1 The sfe amplitude

Table 8 presents the frequency distribution of the amplitudes and thirty sfe's with

the largest amplitudes for the three components. Besides, the following sfe's occurred before 1956 had the amplitudes of D component larger than 50nTs: 1938 Jan. 16 00h45m (51nT) and 1942 Mar. 07 04h14m (62nT) after Yokouchi (1953a).

(V) K indices of Kakioka during 1932~1985 excluding 1934, 1935 and 1939

5-1 The daily sum of the K indices

Table 9 presents the frequency distribution of the daily sums of the K indices. The day with one or more missing K indices is excluded from the statistics. In addition, the thirty days with the maximum daily sums and the days with the sum less than unity inclusive are tabulated here. All K indices of the respective days are written in the right column.

5-2 The monthly mean of the daily sum of the K indices

Table 10 presents the frequency distribution of the monthly means of the daily sum of the K indices. This table also contains lists for the thirty months of the maximum monthly means and the thirty months with the minimum monthly means.

References

- Yokouchi, Y. (1953a): Solar-flare effect type variation in geomagnetic field at Kakioka, 1924~1951. Mem. Kakioka Mag. Obs., 6, 191~203 (in Japanese).
 Yokouchi, Y. (1953b): Principal magnetic disturbances at Kakioka, 1924~1951. Mem. Kakioka Mag. Obs., 6, 204~248 (in Japanese).

柿岡で観測された地磁気現象の統計

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概 要

1957年7月から1985年12月までに柿岡で観測された地磁気急変現象(磁気嵐, Si, bay, sfe)と, 1932年から1985年までのK指数について統計を行なった。資料は, 年報等から作られた地磁気データベースの値を使用した。この報告は, 他の研究者の調査研究の便宜をはかるために作成されたものである。

Table 1-a STORM RANGE, 1957-1985 TOTAL: 789 EVENTS

NT	NT	H	D	Z
0 - 50	10 (1.4)	69 (9.7)	218 (30.6)	
50 - 100	265 (37.2)	387 (54.3)	428 (60.0)	
100 - 150	265 (37.2)	213 (29.9)	54 (7.6)	
150 - 200	101 (14.2)	32 (4.5)	9 (1.3)	
200 - 250	30 (4.2)	9 (1.3)	2 (0.3)	
250 - 300	18 (2.5)	1 (0.1)	1 (0.1)	
300 - 350	15 (2.1)	1 (0.1)	0 (0)	
350 - 400	2 (0.3)	0 (0)	1 (0.1)	
400 - 450	1 (0.1)	0 (0)	0 (0)	
450 - 500	2 (0.3)	1 (0.1)	0 (0)	
500 - 550	2 (0.3)	0 (0)	0 (0)	
550 - 600	0 (0)	0 (0)	0 (0)	
600 - 650	2 (0.3)	0 (0)	0 (0)	
NOT MEASURED	76	76	76	

Table 1-b STORM RANGE : H, 1957-1985 TOTAL: 713 EVENTS

NT	YEAR	OCCURRENCE				TYPE	Q	SSC			RANGE			K	
		BEGIN	-		END			H	D	Z	D	Z			
		D	H	H	D	H		NT	H	NT	H	NT	NT		
1	630	1982	JUL 13	1617			SSC# A	114	4	-1	1	70	5	297 381	9
2	617	1958	FEB 11	0126	13 06		SSC# A	48	1	40	1	19	1	469 237	8
3	533	1959	JUL 15	0802	17 02		SSC A	46	3	7	1	40	3	174 159	7
4	509	1967	MAY 25	1235	29 20		SSC# A	91	2	-8	0	55	3	138 192	8
5	486	1957	SEP 13	0045	14 16		SSC# A	25	2	-5	1	12	2	224 163	8
6	472	1958	JUL 08	0748	10 11		SSC# A	116	2	-3	1	70	3	196 137	8
7	417	1960	NOV 12	1348	14 23		SSC A	41	3	13	3	27	3	239 252	8
8	380	1960	APR 30	1213	01 20		SSC# A	124	2	-2	0	47	2	150 174	8
9	359	1972	AUG 05	1400	07 18		SSC B	54	3	16	3	35	3	332 230	9
10	341	1982	SEP 21	0339	23 21		SSC# A	-2	1	-3	1	-1	1	175 129	7
12	341	1978	AUG 27	0246	31 20		SSC A	27	4	10	3	14	4	146 127	7
13	335	1983	FEB 04	1615	06 20		SSC A	92	1	23	2	50	2	168 125	8
14	334	1961	JUL 13	1113	15 17		SSC A	53	4	21	3	31	4	99 132	7
15	330	1959	JUL 17	1636	19 19		SSC A	100	5	25	4	76	5	236 183	7
16	324	1981	APR 11	1339	14 19		SSC A	49	4	14	4	31	5	203 157	7
17	323	1970	HAR 08	1418	10 06		SSC A	95	2	31	2	55	3	161 150	8
18	319	1976	SEP 05	2248	08 02		SSC# A	-1	1	-1	3	-1	1	184 152	7
19	319	1976	HAR 25	13.3	27 24	...		25	1	13	2	8	1	147 107	7
20	318	1960	HAR 31	0955	02 23		SSC C	8	2	4	2	3	2	205 165	8
21	315	1958	SEP 03	0842	06 13		SSC A	69	2	0	0	40	3	102 135	7
22	311	1957	SEP 29	0016	02 10		SSC# A	26	3	8	3	12	3	190 116	7
23	302	1972	OCT 31	1654	03 12		SSC 9	12	2	-3	1	5	2	121 114	7
24	302	1969	HAR 25	0644	26 24		SSC# B	36	3	9	2	23	3	88 140	7
25	298	1981	JUL 25	1323	27 18		SSC# A	-2	0	4	1	-1	1	135 115	6
26	296	1980	DEC 19	0456	21 11		SSC# A	30	3			17	3		
27	289	1982	HAR 01	1138	03 06		SSC# A	-1	1	0	1	60	4	141 145	7
28	289	1968	NOV 01	0916	04 24		SSC B	96	3	31	2				
29	289	1957	SEP 04	1300			SSC A	40	6	-3	0	19	6	92 98	8
30	284	1966	SEP 03	1027	04 24		SSC C	44	3	-2	1	26	3	145 130	6
								19	2	19	2				
								13	4	5	4	9	3	163 143	8
								40	3	12	0	22	2	204 115	8
								19	5	3	5	13	4	165 103	7

Statistics on the Geomagnetic Phenomena

Table 1-c STORM RANGE : D, 1957-1985 TOTAL: 713 EVENTS

NT	YEAR	OCCURRENCE				TYPE	SSC						RANGE		K	
		BEGIN	-		END		NT	M	D	Z	H	Z	NT	NT		
		D	H	M	D	H	NT	M	NT	M	NT	M	NT	NT		
1	469	1958	FEB	11	0126	13 06	SSC ^a	A	48	1	40	1	19	1	617 237	8
									-72	1	-24	1	-31	1		
2	332	1972	AUG	05	1400	07 18	SSC	B	54	3	16	3	35	3	359 230	9
3	297	1982	JUL	13	1617	C	SSC ^a	A	114	4	-1	1	70	5	630 381	9
											31	2				
4	239	1960	NOV	12	1348	14 23	SSC	A	41	3	13	3	27	3	417 252	8
5	236	1959	JUL	17	1636	19 19	SSC	A	100	5	25	4	76	5	330 183	7
6	224	1957	SEP	13	0045	14 16	SSC ^b	A	25	2	-5	1	12	2	486 163	8
											38	2				
7	219	1970	AUG	16	2204	19 04	SSC	A	38	2	13	2	20	2	256 128	7
8	214	1960	OCT	06	0238	10 06	SSC	C	11	2	4	2	7	2	221 133	7
9	213	1974	JUL	06	0321	06 24	SSC ^b	B	44	3	-3	0	26	3	248 105	7
											15	2				
10	205	1960	MAR	31	0955	02 23	SSC	C	8	2	4	2	3	2	319 165	8
11	204	1957	SEP	04	1300	C	SSC	A	40	3	12	0	22	2	289 115	8
12	203	1981	APR	11	1339	14 19	SSC	A	49	4	14	4	31	5	324 157	7
13	196	1958	JUL	08	0748	10 11	SSC ^a	A	116	2	-3	1	70	3	472 137	8
											28	3				
14	191	1958	AUG	17	0622	18 19	SSC	A	47	2	11	2	24	2	198 59	5
15	190	1963	SEP	21	1414	23 23	SSC ^a	A	33	5	0	0	20	5	275 131	7
											7	4				
	190	1958	SEP	03	0842	06 13	SSC	A	26	3	8	3	12	3	315 116	7
17	189	1983	AUG	07	0827	08 19	SSC ^a	B	-1	0	3	3	0	0	161 63	5
											11	4				
18	184	1982	SEP	05	2248	08 02	SSC ^a	A	-1	1	-1	3	-1	1	322 152	7
											25	1	13	2		
19	183	1957	SEP	23	0235	25 18	SSC	C	58	4	15	2	21	4	246 106	7
20	179	1979	APR	24	2357	26 03	SSC ^a	A	26	6	-7	1	9	3	234 120	7
											40	5				
	179	1957	SEP	02	0315	04 10	SSC	A	24	3	10	2	12	3	200 121	6
22	178	1982	JUL	16	1519	17 15	SSC ^a	B	57	4	-1	1	33	4	101 91	6
											23	3				
23	175	1982	SEP	21	0339	23 21	SSC ^a	A	-2	1	-3	1	-1	1	341 129	7
											39	2	25	2		
24	174	1981	MAY	10	2207	11 24	SSC	B	-7	2	66	3	-7	1	93 100	6
	174	1959	JUL	15	0802	17 02	SSC	A	46	3	7	1	40	3	533 159	7
26	173	1984	NOV	14	23-5	17 22	...								233 82	6
27	168	1983	FEB	04	1615	06 20	SSC	A	92	1	23	2	50	2	335 125	8
28	165	1966	SEP	03	1027	04 24	SSC	C	19	5	3	5	13	4	284 103	7
29	164	1961	OCT	28	0810	29 21	SSC ^a	A	31	4	-3	0	23	4	244 114	7
											16	4				
	164	1959	MAR	26	0842	29 21	SSC ^a	A	29	2	-1	0	17	2	274 94	7
											5	3				

Table 1-d STORM RANGE : Z, 1957-1985 TOTAL: 713 EVENTS

NT	YEAR	OCCURRENCE						SSC						RANGE				K
		BEGIN		END		TYPE	O	H		D		Z		H		D		
		D	M	D	H			NT	M	NT	M	NT	M	NT	NT	NT		
1	381	1982	JUL	13	1617	C	SSC#	A	114	4	-1	1	70	5	630	297	9	
2	252	1960	NOV	12	1348	14	23	SSC	A	41	3	13	3	27	3	417	239	8
3	237	1958	FEB	11	0126	13	06	SSC#	A	48	1	40	1	19	1	617	469	8
4	230	1972	AUG	05	1400	07	18	SSC	B	-72	1	-24	1	-31	1			
5	192	1967	MAY	25	1235	29	20	SSC#	A	54	3	16	3	35	3	359	332	9
6	183	1959	JUL	17	1636	19	19	SSC	A	91	2	-8	0	55	3	509	138	8
7	174	1960	APR	30	1213	01	20	SSC#	A	47	3							
8	165	1960	MAR	31	0955	02	23	SSC	C	100	5	25	4	76	5	330	236	7
9	163	1957	SEP	13	0045	14	16	SSC#	A	124	2	-2	0	47	2	380	150	8
10	159	1959	JUL	15	0802	17	02	SSC	A	62	2							
11	157	1981	APR	11	1339	14	19	SSC	A	8	2	4	2	3	2	319	205	8
12	152	1982	SEP	05	2248	08	02	SSC#	A	25	2	-5	1	12	2	486	224	8
13	150	1970	MAR	08	1418	10	06	SSC	A	38	2							
14	146	1981	OCT	13	2240	16	12	SSC#	A	46	3	7	1	40	3	533	174	7
15	145	1981	JUL	25	1323	27	18	SSC#	A	49	4	14	4	31	5	324	203	7
16	143	1968	NOV	01	0916	04	24	SSC	B	-1	1	-1	3	-1	1	322	194	7
17	140	1972	OCT	31	1654	03	12	SSC	B	25	1	13	2	8	1			
18	137	1959	JUL	11	1625	12	19	SSC	A	95	2	31	2	55	3	323	161	8
19	137	1958	JUL	08	0748	10	11	SSC#	A	-1	1	4	1	-1	1	195	152	7
20	135	1972	JUN	17	1311	20	03	SSC#	A	45	2	-15	1	28	2			
21	135	1961	SEP	30	2109	01	20	SSC#	A	-1	1	0	1	60	4	298	141	7
22	133	1960	OCT	06	0238	10	06	SSC	C	96	3	31	2					
23	132	1961	JUL	13	1113	15	17	SSC	A	13	4	5	4	9	3	289	163	8
24	131	1963	SEP	21	1414	23	23	SSC#	A	36	3	9	2	23	3	302	88	7
25	130	1982	MAR	01	1138	03	06	SSC#	A	112	2	25	2	65	2	188	142	6
26	129	1982	SEP	21	0339	23	21	SSC#	A	116	2	-3	1	70	3	472	196	8
27	129	1969	MAY	14	1929	16	24	SSC	A	28	3							
28	128	1970	AUG	16	2204	19	04	SSC	A	48	4	-2	1	31	4	273	149	7
29	127	1978	AUG	27	0246	31	20	SSC	A	69	2	0	0	40	3	318	102	7
30	126	1976	APR	01	0254	02	02	SSC#	B	25	2							
										11	2	4	2	7	2	221	214	7
										53	4	21	3	31	4	334	99	7
										33	5	0	0	20	5	275	190	7
										7	4							
										44	3	-2	1	26	3	289	145	6
										19	2							
										-2	1	-3	1	-1	1	341	175	7
										39	2	25	2	16	2			
										31	2	12	2	18	3	170	120	6
										38	2	13	2	20	2	256	219	7
										27	4	10	3	14	4	341	146	7
										-1	0	6	1	-1	1	243	132	7
										12	1			5	1			

Table 2-a SSC AMPLITUDE, 1957-1985 TOTAL: 789 EVENTS

NT	NT	H	O	Z
0	- 5	237 (30.0)	409 (51.8)	293 (37.1)
5	- 10	94 (11.9)	179 (22.7)	201 (25.5)
10	- 15	127 (16.1)	91 (11.5)	129 (16.3)
15	- 20	92 (11.7)	50 (6.3)	67 (8.5)
20	- 25	68 (8.6)	16 (2.0)	47 (6.0)
25	- 30	47 (6.0)	19 (2.4)	20 (2.5)
30	- 35	34 (4.3)	15 (1.9)	11 (1.4)
35	- 40	28 (3.5)	2 (0.3)	6 (0.8)
40	- 45	17 (2.2)	4 (0.5)	4 (0.5)
45	- 50	14 (1.8)	2 (0.3)	3 (0.4)
50	- 55	7 (0.9)	0 (0)	1 (0.1)
55	- 60	8 (1.0)	0 (0)	2 (0.3)
60	- 65	0 (0)	1 (0.1)	1 (0.1)
65	- 70	2 (0.3)	1 (0.1)	1 (0.1)
70	- 75	2 (0.3)	0 (0)	2 (0.3)
75	- 80	2 (0.3)	0 (0)	1 (0.1)
80	- 85	1 (0.1)	0 (0)	0 (0)
85	- 90	0 (0)	0 (0)	0 (0)
90	- 95	2 (0.3)	0 (0)	0 (0)
95	- 100	2 (0.3)	0 (0)	0 (0)
100	- 105	1 (0.1)	0 (0)	0 (0)
105	- 110	0 (0)	0 (0)	0 (0)
110	- 115	2 (0.3)	0 (0)	0 (0)
115	- 120	1 (0.1)	0 (0)	0 (0)
120	- 125	1 (0.1)	0 (0)	0 (0)

Statistics on the Geomagnetic Phenomena

Table 2-b SSC AMPLITUDE : H, 1957-1985 TOTAL: 789 EVENTS

	NT	H	OCCURRENCE						TYPE	D	SSC			RANGE			K	
			YEAR	BEGIN		END		D			M	NT	H	Z	H			Z
				D	H	D	H								D	NT		
1	124	2	1960	APR 30	1213	01 20	SSC ^a	A	-2	0	47	2	380	150	174	8		
2	116	2	1958	JUL 08	0748	10 11	SSC ^a	A	62	2	70	3	472	196	137	8		
3	114	4	1982	JUL 13	1617	C	SSC ^a	A	-3	1	70	5	630	297	381	9		
4	112	2	1959	JUL 11	1625	12 19	SSC	A	28	3	65	2	188	142	137	6		
5	100	5	1959	JUL 17	1636	19 19	SSC	A	-1	2	76	5	330	236	183	7		
5	-1	1	1981	JUL 25	1323	27 18	SSC ^a	A	0	1	60	4	298	141	145	7		
7	96	3							31	2								
7	95	2	1970	MAR 08	1418	10 06	SSC	A	31	2	55	3	323	161	150	8		
8	92	1	1983	FEB 04	1615	06 20	SSC	A	23	2	50	2	335	168	125	8		
9	91	2	1967	MAY 25	1235	29 20	SSC ^a	A	-8	0	55	3	509	138	192	8		
10	80	5	1978	JUN 02	0913	04 04	SSC	A	47	3	49	5	158	106	91	7		
11	76	6	1982	SEP 09	0105	10 05	SSC ^a	B	-2	1	37	6	102	98	69	6		
13	76	3	1972	AUG 04	2054	C	SSC	A	47	6	45	3						
13	48	1	1958	FEB 11	0126	13 06	SSC ^a	A	10	1	19	1	617	469	237	8		
14	-72	1							40	1	-31	1						
14	70	4	1972	MAY 15	1849	18 15	SSC	A	-24	1	44	4	157	116	92	6		
15	69	2	1961	SEP 30	2109	01 20	SSC ^a	A	18	3	40	3	318	102	135	7		
16	65	4	1979	JUN 06	1927	07 24	SSC	B	0	0	25	2						
17	59	3	1959	AUG 20	0413	20 18	SSC	A	15	1	39	5	125	139	87	6		
17	59	3	1958	JUL 21	1636	22 18	SSC	A	15	2	34	3	107	89	61	6		
19	58	3	1983	JUN 13	0118	14 18	SSC ^a	A	11	3	35	3	108	102	77	5		
21	58	4	1957	SEP 23	0235	25 18	SSC	C	-7	1	29	3	209	162	109	6		
21	57	4	1982	JUL 16	1519	17 15	SSC ^a	B	41	1	21	4	246	183	106	7		
21	57	3	1974	SEP 15	1343	16 19	SSC ^a	B	-1	1	33	4	101	178	91	6		
23	56	4	1972	SEP 13	1240	18 17	SSC	B	23	3	35	4	194	111	77	6		
23	56	3	1957	SEP 21	1005	C	SSC	A	-1	1	35	4	216	135	77	7		
25	54	3	1972	AUG 05	1400	07 18	SSC	B	20	4	42	3	194	118	87	7		
25	54	4	1958	MAR 25	1540	27 11	SSC	A	-31	3	35	3	359	332	230	9		
27	53	2	1982	DEC 19	0254	C	SSC	B	16	3	34	4	85	122	118	6		
27	53	4	1961	JUL 13	1113	15 17	SSC	A	10	2	27	2	153	57	56	6		
27	53	4	1957	OCT 21	2241	23 14	SSC	B	29	3	31	4	334	99	132	7		
30	-2	1	1981	APR 26	0813	27 24	SSC ^a	B	21	3	28	1	69	127	39	6		
30	52	4							32	1	-1	1	131	74	82	6		
									15	4	30	3						

Table 2-c

SSC AMPLITUDE : 0; 1957-1985 TOTAL: 789 EVENTS

	NT	M	OCCURRENCE						SSC			RANGE			K				
			YEAR	BEGIN			END			TYPE	H		Z			H		D	Z
				D	H	M	D	H	NT		M	NT	M	NT		NT	NT		
1	66	3	1981	MAY	10	2207	11	24	SSC	B	-7	2	-7	1	93	174	100	6	
2	-2	0	1960	APR	30	1213	01	20	SSC	A	124	2	47	2	380	150	174	8	
3	-2	1	1982	SEP	09	0105	10	05	SSC	B	76	6	37	6	102	98	69	6	
	47	6																	
	-8	0	1967	MAY	25	1235	29	20	SSC	A	91	2	55	3	509	138	192	8	
	47	3																	
5	-5	1	1982	OCT	26	0029	26	20	SSC	C	48	6	21	6	64	99	35	5	
	42	4																	
6	-7	1	1983	JUN	13	0118	14	18	SSC	A	58	3	29	3	209	162	109	6	
	41	1																	
7	-7	1	1979	APR	24	2357	26	03	SSC	A	26	6	9	3	234	179	120	7	
	40	5																	
	40	1	1958	FEB	11	0126	13	06	SSC	A	48	1	19	1	617	469	237	8	
	-24	1									-72	1	-31	1					
9	-5	1	1957	SEP	13	0045	14	16	SSC	A	25	2	12	2	486	224	163	8	
	38	2																	
10	-3	1	1967	FEB	15	2348	17	19	SSC	B	7	1	3	1	256	98	95	7	
	36	5																	
11	-7	0	1977	JUL	29	0027	30	14	SSC	A	33	2	18	3	164	116	74	6	
	34	3																	
12	-2	1	1970	JUL	08	2317	10	24	SSC	B	5	1	2	1	137	147	73	6	
	33	5																	
	-11	1	1970	JUL	03	2250	04	13	SSC	B	20	1	8	1	98	90	69	6	
	33	3																	
	33	3	1960	MAY	28	2019	30	17	SSC	A	24	3	11	3	93	130	80	5	
15	-5	0	1979	APR	01	2150	02	24	SSC	C	13	1	6	1	79	99	83	6	
	32	2																	
	-10	0	1959	SEP	03	2158	05	12	SSC	B	18	2	11	2	166	146	111	6	
	32	5																	
	32	1	1957	OCT	21	2241	23	14	SSC	B	53	1	28	1	69	127	39	6	
18	-1	1	1982	JUL	13	1617	C		SSC	A	114	4	70	5	630	297	381	9	
	31	2																	
	0	1	1981	JUL	25	1323	27	18	SSC	A	-1	1	60	4	298	141	145	7	
	31	2									96	3							
	31	2	1970	MAR	08	1418	10	06	SSC	A	95	2	55	3	323	161	150	8	
	-1	0	1960	AUG	29	0022	30	21	SSC	A	32	5	16	5	206	161	65	6	
	31	5																	
	-31	3	1957	SEP	22	1344	C		SSC	A	41	3	21	3	158	103	66	6	
	-31	3	1957	SEP	21	1005	C		SSC	A	56	3	42	3	194	118	87	7	
24	-2	1	1978	JUL	03	2305	C		SSC	B	12	1	7	1					
	30	4																	
	-3	1	1968	JUN	10	2154	14	03	SSC	B	9	1	4	1	114	140	103	6	
	30	4																	
26	29	3	1982	DEC	19	0254	C		SSC	B	53	2	27	2	153	57	56	6	
	-3	0	1979	APR	05	0156	05	20	SSC	B	28	2	14	2	141	80	96	6	
	29	2																	
	-3	1	1958	AUG	22	0227	22	14	SSC	A	45	5	23	5	74	90	51	5	
	29	3																	
29	-7	1	1980	MAR	30	2354	31	24	SSC	C	19	6	7	6	69	126	47	4	
	28	5																	
	28	5	1978	JUL	13	2327	15	10	SSC	B	8	3	3	2	130	106	69	5	

Statistics on the Geomagnetic Phenomena

Table 2-d SSC AMPLITUDE : Z, 1957-1985 TOTAL: 789 EVENTS

	NT	M	OCCURRENCE						TYPE	SSC				RANGE			K	
			YEAR	BEGIN		END		Q		H	D		H	D	Z			
				D	H	M	H				NT	M				NT		NT
1	76	5	1959	JUL	17	1636	19	19	SSC	A	100	5	25	4	330	236	183	7
2	70	5	1982	JUL	13	1617	C		SSC ^B	A	114	4	-1	1	630	297	381	9
	70	3	1958	JUL	08	0748	10	11	SSC ^B	A	116	2	-3	1	472	196	137	8
4	65	2	1959	JUL	11	1625	12	19	SSC	A	112	2	25	2	188	142	137	6
5	60	4	1981	JUL	25	1323	27	18	SSC ^B	A	-1	1	0	1	298	141	145	7
6	55	3	1970	MAR	08	1418	10	06	SSC	A	95	2	31	2	323	161	150	8
	55	3	1967	MAY	25	1235	29	20	SSC ^B	A	91	2	-8	0	509	138	192	8
8	50	2	1983	FEB	04	1615	06	20	SSC	A	92	1	23	2	335	168	125	8
9	49	5	1978	JUN	02	0913	04	04	SSC	A	80	5	15	4	158	106	91	7
10	47	2	1960	APR	30	1213	01	20	SSC ^B	A	124	2	-2	0	380	150	174	8
11	45	3	1972	AUG	04	2054	C		SSC	A	76	3	10	1				
12	44	4	1972	MAY	15	1849	18	15	SSC	A	70	4	18	3	157	116	92	6
13	42	3	1957	SEP	21	1005	C		SSC	A	56	3	-31	3	194	118	87	7
14	40	3	1961	SEP	30	2109	01	20	SSC ^B	A	69	2	0	0	318	102	135	7
	40	3	1959	JUL	15	0802	17	02	SSC	A	46	3	7	1	533	174	159	7
16	39	5	1979	JUN	06	1927	07	24	SSC	B	65	4	15	1	125	139	87	6
17	37	6	1982	SEP	09	0105	10	05	SSC ^B	B	76	6	-2	1	102	98	69	6
18	35	4	1974	SEP	15	1343	16	19	SSC ^B	B	57	3	-1	1	194	111	77	6
	35	4	1972	SEP	13	1240	18	17	SSC	B	56	4	20	4	216	135	77	7
	35	3	1972	AUG	05	1400	07	18	SSC	B	54	3	16	3	359	332	230	9
	35	3	1958	JUL	21	1636	22	18	SSC	A	59	3	11	3	108	102	77	5
22	34	3	1959	AUG	20	0413	20	18	SSC	A	59	3	15	2	107	89	61	6
	34	4	1958	MAR	25	1540	27	11	SSC	A	54	4	10	2	85	122	118	6
24	33	4	1982	JUL	16	1519	17	15	SSC ^B	B	57	4	-1	1	101	178	91	6
	32	8	1958	JUN	15	0508	15	20	SSC ^B	B	48	8	3	3	79	116	56	5
26	31	5	1981	APR	11	1339	14	19	SSC	A	49	4	14	4	324	203	157	7
	31	4	1972	JUN	17	1311	20	03	SSC ^B	A	48	4	-2	1	273	149	135	7
	31	4	1961	JUL	13	1113	15	17	SSC	A	53	4	21	3	334	99	132	7
	31	3	1958	MAY	31	1652	01	23	SSC	A	45	3	10	3	188	127	93	6
	19	1	1958	FEB	11	0126	13	06	SSC ^B	A	48	1	40	1	617	469	237	8
	-31	1									-72	1	-24	1				

Table 3-a SSC AMPLITUDE/DURATION, 1957-1985 TOTAL: 789 EVENTS

NT/M	NT/M	H	D	Z
0 - 3		153 (26.9)	327 (58.0)	292 (51.4)
3 - 6		165 (29.0)	141 (25.0)	157 (27.6)
6 - 9		87 (15.3)	53 (9.4)	78 (13.7)
9 - 12		60 (10.5)	19 (3.4)	19 (3.3)
12 - 15		46 (8.1)	7 (1.2)	9 (1.6)
15 - 18		18 (3.2)	8 (1.4)	4 (0.7)
18 - 21		17 (3.0)	3 (0.5)	2 (0.4)
21 - 24		6 (1.1)	2 (0.4)	3 (0.5)
24 - 27		3 (0.5)	0 (0)	1 (0.2)
27 - 30		2 (0.4)	0 (0)	1 (0.2)
30 - 33		2 (0.4)	2 (0.4)	2 (0.4)
33 - 36		1 (0.2)	0 (0)	0 (0)
36 - 39		0 (0)	0 (0)	0 (0)
39 - 42		0 (0)	2 (0.4)	0 (0)
42 - 45		0 (0)	0 (0)	0 (0)
45 - 48		3 (0.5)	0 (0)	0 (0)
48 - 51		0 (0)	0 (0)	0 (0)
51 - 54		1 (0.2)	0 (0)	0 (0)
54 - 57		1 (0.2)	0 (0)	0 (0)
57 - 60		1 (0.2)	0 (0)	0 (0)
60 - 63		1 (0.2)	0 (0)	0 (0)
63 - 66		0 (0)	0 (0)	0 (0)
66 - 69		0 (0)	0 (0)	0 (0)
69 - 72		0 (0)	0 (0)	0 (0)
72 - 75		1 (0.2)	0 (0)	0 (0)
75 - 78		0 (0)	0 (0)	0 (0)
78 - 81		0 (0)	0 (0)	0 (0)
81 - 84		0 (0)	0 (0)	0 (0)
84 - 87		0 (0)	0 (0)	0 (0)
87 - 90		0 (0)	0 (0)	0 (0)
90 - 93		1 (0.2)	0 (0)	0 (0)
DUR. = 0		220	225	221

Table 3-b SSC AMPLITUDE/DURATION : H, 1957-1985 TOTAL: 569 EVENTS

NT/MIN	OCCURRENCE						TYPE Q	SSC						RANGE						K	
	YEAR	BEGIN			END			H		D		Z		H		D		Z			
		D	H	M	D	H		M	NT	M	NT	M	NT	M	NT	M	NT	M	NT		M
1	92.0	1983	FEB	04	1615	06	20	SSC	A	92	1	23	2	50	2	335	168	125	8		
2	72.0	1958	FEB	11	0126	13	06	SSC	A	48	1	40	1	19	1	617	469	237	8		
3	62.0	1960	APR	30	1213	01	20	SSC	A	124	2	-2	0	47	2	380	150	174	8		
4	58.0	1958	JUL	08	0748	10	11	SSC	A	116	2	62	2	-3	1	70	3	472	196	137	8
5	56.0	1959	JUL	11	1625	12	19	SSC	A	112	2	25	2	65	2	188	142	137	6		
6	53.0	1957	OCT	21	2241	23	14	SSC	B	53	1	32	1	28	1	69	127	39	6		
7	47.5	1970	MAR	08	1418	10	06	SSC	A	95	2	31	2	55	3	323	161	150	8		
8	46.0	1981	MAR	05	0535	06	21	SSC	A	-1	1	-1	1	22	1	266	90	80	7		
9	45.5	1967	MAY	25	1235	29	20	SSC	A	46	1	18	2	91	2	509	138	192	8		
10	34.5	1961	SEP	30	2109	01	20	SSC	A	69	2	0	0	40	3	318	102	135	7		
11	32.0	1981	JUL	25	1323	27	18	SSC	A	-1	1	0	1	60	4	298	141	145	7		
12	31.0	1981	OCT	02	2022	04	24	SSC	C	96	3	31	2	-1	1	102	97	39	5		
13	29.0	1959	JUN	11	0909	11	20	SSC	B	-1	1	19	1	11	1	62	43	61	5		
14	28.5	1982	JUL	13	1617			SSC	A	114	4	-1	1	70	5	630	297	381	9		
15	26.5	1982	DEC	19	0254			SSC	B	53	2	29	3	27	2	153	57	56	6		
16	25.3	1972	AUG	04	2054			SSC	A	76	3	10	1	45	3						
17	25.0	1982	SEP	05	2248	08	02	SSC	A	-1	1	-1	3	-1	1	322	184	152	7		
18	23.5	1958	AUG	17	0622	18	19	SSC	A	25	1	13	2	8	1						
19	23.0	1973	JUL	31	0545	31	18	SSC	C	47	2	11	2	24	2	198	191	59	5		
	23.0	1960	MAY	11	0434	11	17	SSC	B	-3	0	5	2	-1	0	47	55	33	5		
21	22.5	1981	OCT	13	2240	16	12	SSC	A	23	1	10	1	11	1	122	39	44	6		
22	22.0	1983	JAN	09	1545	10	24	SSC	A	-1	1	4	1	-1	1	195	152	146	7		
22	22.0	1978	SEP	29	0301	30	15	SSC	A	45	2	-15	1	28	2						
24	20.5	1957	AUG	29	1920	30	21	SSC	A	44	2	10	2	26	2	247	126	95	7		
25	20.0	1981	JUL	25	0515			SSC	B	22	1	-2	0	10	1	262	107	101	7		
	20.0	1970	JUL	03	2250	04	13	SSC	B	23	1										
	20.0	1959	JUL	17	1636	19	19	SSC	A	20	1	-11	1	8	1	98	90	69	6		
	20.0	1958	OCT	24	0730	25	14	SSC	B	33	3										
29	19.7	1959	AUG	20	0413	20	18	SSC	A	100	5	25	4	76	5	330	236	183	7		
	19.7	1958	JUL	21	1636	22	18	SSC	A	20	1	4	1	9	1	270	108	86	6		
	19.7	1959	AUG	20	0413	20	18	SSC	A	59	3	15	2	34	3	107	89	61	6		
	19.7	1958	JUL	21	1636	22	18	SSC	A	59	3	11	3	35	3	108	102	77	5		

Statistics on the Geomagnetic Phenomena

Table 3-c SSC AMPLITUDE/DURATION : D, 1957-1985 TOTAL: 564 EVENTS

NT/MIN	YEAR	OCCURRENCE				TYPE	Q	SSC			RANGE			K					
		BEGIN	-		END			H	M	D	Z	H	D		Z				
		D	H	M	D	H		NT	H	NT	H	NT	H	NT	NT	NT			
1	41.0	1983	JUN	13	0118	14	18	SSC#	A	50	3	-7	1	29	3	209	162	109	6
2	40.0	1958	FEB	11	0126	13	06	SSC#	A	48	1	40	1	19	1	617	469	237	8
3	32.0	1957	OCT	21	2241	23	14	SSC	B	53	1	32	1	28	1	69	127	39	6
4	31.0	1960	APR	30	1213	01	20	SSC#	A	124	2	-2	0	47	2	380	150	174	8
5	23.0	1978	SEP	29	0301	30	15	SSC#	A	22	1	-2	0	10	1	262	107	101	7
6	22.0	1981	MAY	10	2207	11	24	SSC	B	-7	2	66	3	-7	1	93	174	100	6
7	19.0	1981	OCT	02	2022	04	24	SSC#	C	-1	1	19	1	11	1	102	97	39	5
	19.0	1957	SEP	13	0045	14	16	SSC#	A	25	2	-5	1	12	2	486	224	163	8
9	18.0	1972	JUN	17	1311	20	03	SSC#	A	48	4	-2	1	31	4	273	149	135	7
10	17.0	1960	MAY	08	0421	09	18	SSC#	B	10	1	-5	0	15	1	149	79	82	7
11	16.0	1979	APR	01	2150	02	24	SSC#	C	13	1	-5	0	6	1	79	99	83	6
12	15.7	1967	MAY	25	1235	29	20	SSC#	A	91	2	-8	0	55	3	509	138	192	8
13	15.5	1982	JUL	13	1617			SSC#	A	114	4	-1	1	70	5	630	297	381	9
	15.5	1981	JUL	25	1323	27	18	SSC#	A	-1	1	0	1	60	4	298	141	145	7
	15.5	1970	MAR	08	1418	10	06	SSC	A	95	2	31	2	55	3	323	161	150	8
16	15.0	1981	OCT	13	2240	16	12	SSC#	A	-1	1	4	1	-1	1	195	152	146	7
	15.0	1979	JUN	06	1927	07	24	SSC	B	65	4	15	1	39	5	125	139	87	6
19	14.5	1979	APR	05	0156	05	20	SSC#	B	28	2	-3	0	14	2	141	80	96	6
19	14.0	1972	MAR	06	2108	07	19	SSC	A	37	3	14	1	22	3	112	125	87	6
20	13.5	1991	AUG	17	0046	18	03	SSC#	B	23	4	-7	1	11	4	114	63	32	5
21	13.0	1957	NOV	06	1821	07	19	SSC	A	37	3	13	1	21	3	179	60	62	6
22	12.5	1982	SEP	21	0339	23	21	SSC#	A	-2	1	-3	1	-1	1	341	175	129	7
	12.5	1961	SEP	30	2109	01	20	SSC#	A	69	2	0	0	40	3	318	102	135	7
	12.5	1959	JUL	11	1625	12	19	SSC	A	112	2	25	2	65	2	188	142	137	6
25	11.5	1983	FEB	04	1615	06	20	SSC	A	92	1	23	2	50	2	335	168	125	8
	11.5	1972	AUG	09	0037	11	24	SSC#	B	-1	0	-4	1	-1	0	241	98	86	7
27	11.3	1977	JUL	29	0027	30	14	SSC#	A	33	2	-7	0	18	3	164	116	74	6
29	11.0	1970	JUL	03	2250	04	13	SSC#	B	20	1	-11	1	8	1	98	90	69	6
	11.0	1960	MAY	28	2019	30	17	SSC	A	24	3	33	3	11	3	93	130	80	5
	11.0	1960	APR	30	0132			SSC	B	17	1	11	1	6	1				

Table 5-a SI AMPLITUDE, 1957-1985 TOTAL: 479 EVENTS

NT	NT	H	D	Z
0 - 5		8 (1.7)	144 (30.1)	40 (8.4)
5 - 10		39 (8.1)	166 (34.7)	129 (26.9)
10 - 15		83 (17.3)	71 (14.8)	121 (25.3)
15 - 20		93 (19.4)	41 (8.6)	79 (16.5)
20 - 25		67 (14.0)	20 (4.2)	53 (11.1)
25 - 30		59 (12.3)	12 (2.5)	28 (5.8)
30 - 35		39 (8.1)	6 (1.3)	11 (2.3)
35 - 40		23 (4.8)	7 (1.5)	8 (1.7)
40 - 45		24 (5.0)	1 (0.2)	3 (0.6)
45 - 50		15 (3.1)	4 (0.8)	2 (0.4)
50 - 55		9 (1.9)	1 (0.2)	3 (0.6)
55 - 60		6 (1.3)	1 (0.2)	0 (0)
60 - 65		3 (0.6)	0 (0)	1 (0.2)
65 - 70		2 (0.4)	1 (0.2)	0 (0)
70 - 75		1 (0.2)	1 (0.2)	0 (0)
75 - 80		1 (0.2)	1 (0.2)	0 (0)
80 - 85		3 (0.6)	0 (0)	0 (0)
85 - 90		2 (0.4)	0 (0)	0 (0)
90 - 95		1 (0.2)	0 (0)	0 (0)
95 - 100		0 (0)	0 (0)	0 (0)
100 - 105		0 (0)	1 (0.2)	0 (0)
105 - 110		0 (0)	0 (0)	0 (0)
110 - 115		0 (0)	1 (0.2)	0 (0)
115 - 120		0 (0)	0 (0)	0 (0)
120 - 125		0 (0)	0 (0)	1 (0.2)
125 - 130		0 (0)	0 (0)	0 (0)
215 - 220		0 (0)	0 (0)	0 (0)
220 - 225		1 (0.2)	0 (0)	0 (0)

Table 5-b SI AMPLITUDE : H, 1957-1985 TOTAL: 479 EVENTS

NT	M	OCCURRENCE			TYPE	Q	D			Z
		YEAR	D	H M			NT	M	NT	
1	220	2	1960	NOV 13 1023	SI	A	102	2	124	2
2	-90	8	1957	SEP 23 0442	SI	B	23	8	-52	8
3	88	3	1979	APR 5 1225	SI	B	22	4	52	4
4	86	2	1968	FEB 20 1117	SI	B	39	3	48	2
5	83	2	1970	MAR 8 1936	SI	B	16	1	45	2
6	82	6	1970	JUL 9 0540	SI	A	-23	5	51	5
7	81	7	1970	AUG 17 0536	SI	A	-49	7	61	8
8	-75	5	1970	JUL 9 0405	SI	A	9	2	-42	4
9	74	11	1958	FEB 11 1237	SI	B	-110	10	12	3
10	68	4	1966	MAY 26 1414	SI	B	17	4	43	5
	68	5	1958	JUL 8 1335	SI	C	26	5	39	5
12	-63	9	1957	SEP 22 1517	SI	B	-30	9	-22	9
13	-62	6	1957	SEP 4 1537	SI	B	10	6	-40	6
14	61	3	1982	DEC 10 1119	SI	A	20	3	37	4
15	-59	3	1978	JUN 2 1603	SI	B	-25	7	-37	3
	-59	4	1960	MAR 31 1943	SI	B	12	2	-36	4
	59	4	1959	JUL 18 1552	SI	B	19	3	36	4
18	57	3	1983	JUN 13 0323	SI	A	4	1	35	3
							-8	1		
							20	2		
19	56	4	1960	MAR 31 1833	SI	B	35	4	32	4
20	55	4	1981	APR 11 1649	SI	B	25	2	32	4
21	54	7	1972	MAR 7 0341	SI	B	22	8	28	7
22	52	3	1967	SEP 20 1741	SI	B	8	3	31	3
	-52	8	1957	NOV 6 2321	SI	B	-32	8	-30	8
24	51	3	1971	DEC 18 1057	SI	B	21	4	30	3
25	50	2	1981	NOV 25 1206	SI	B	7	3	30	3
	-50	8	1980	DEC 19 1311	SI	B	-26	8	-26	7
	-50	8	1980	DEC 19 1253	SI	B	-27	8	-27	8
	50	5	1969	SEP 28 1104	SI	B	18	5	28	6
	-50	3	1957	SEP 4 1736	SI	C	-7	1	-27	4
30	49	5	1971	DEC 18 1205	SI	B	21	5	32	5

Table 5-c SI AMPLITUDE : 0, 1957-1985 TOTAL: 479 EVENTS

	NT	M	OCCURRENCE			TYPE	Q	H			Z	
			YEAR	D	H			M	NT	M		NT
1	-110	10	1958	FEB	11	1237	SI	B	74	11	12	3
2	102	2	1960	NOV	13	1023	SI	A	220	2	124	2
3	-77	10	1958	JUL	8	2156	SI	B	35	5	37	7
4	71	6	1979	MAY	29	2057	SI	A	42	4	21	4
5	-66	2	1960	AUG	17	1544	SI	B	-27	6	-20	6
6	-55	6	1958	SEP	4	2253	SI	B	21	3	20	3
7	-50	5	1981	APR	13	2056	SI	B	-14	2	-11	4
8	-49	7	1970	AUG	17	0536	SI	A	81	7	61	8
9	49	3	1960	MAY	16	2035	SI	B	30	4	18	3
	49	8	1958	SEP	4	2216	SI	B	-5	2	-3	2
11	-46	6	1961	JUL	20	2228	SI	B	-10	2	-2	2
12	42	4	1958	SEP	3	2050	SI	C	13	2	6	2
13	39	3	1968	FEB	20	1117	SI	B	86	2	48	2
	39	5	1960	JUL	14	2131	SI	B	36	3	25	3
	-39	5	1958	SEP	3	2129	SI	C	-15	4	-14	4
16	38	5	1960	MAY	29	0106	SI	B	37	4	23	4
17	37	5	1958	FEB	11	1046	SI	B	-36	5	39	5
18	-35	3	1982	NOV	23	2307	SI	B	-28	3	-13	3
	35	4	1960	MAR	31	1833	SI	B	56	4	32	4
20	34	5	1981	SEP	8	2146	SI	B	16	3	6	3
	3	1	1971	AUG	17	2303	SI	B	-10	2	-6	2
	-34	4										
22	-32	8	1957	NOV	6	2321	SI	B	-52	8	-30	8
23	-6	0	1979	JAN	9	0340	SI	A	32	8	17	9
	31	2										
	31	3	1960	MAR	31	2142	SI	B	42	3	22	3
25	-30	9	1957	SEP	22	1517	SI	B	-63	9	-22	9
26	-27	8	1980	DEC	19	1253	SI	B	-50	8	-27	8
	-2	1	1980	MAY	31	2137	SI	B	4	1	2	1
	27	6										
	27	4	1959	AUG	20	2038	SI	B	-43	4	21	4
29	-26	5	1983	AUG	12	2040	SI	B	-20	3	-11	4
	-26	8	1980	DEC	19	1311	SI	B	-50	8	-26	7

Table 5-d SI AMPLITUDE : Z, 1957-1985 TOTAL: 479 EVENTS

	NT	M	OCCURRENCE			TYPE	Q	H			D	
			YEAR	D	H			M	NT	M		NT
1	124	2	1960	NOV	13	1023	SI	A	220	2	102	2
2	61	8	1970	AUG	17	0536	SI	A	81	7	-49	7
3	52	4	1979	APR	5	1225	SI	B	88	3	22	4
4	-52	8	1957	SEP	23	0442	SI	B	-90	8	23	8
5	51	5	1970	JUL	9	0540	SI	A	82	6	-23	5
6	48	2	1968	FEB	20	1117	SI	B	86	2	39	3
7	45	2	1970	MAR	8	1936	SI	B	83	2	16	1
8	43	5	1966	MAY	26	1414	SI	B	68	4	17	4
9	-42	4	1970	JUL	9	0405	SI	A	-75	5	9	2
10	-40	6	1957	SEP	4	1537	SI	B	-62	6	10	6
11	39	5	1959	JUL	8	1335	SI	C	68	5	26	5
	39	5	1958	FEB	11	1046	SI	B	-36	5	37	5
13	37	4	1982	DEC	10	1119	SI	A	61	3	20	3
	-37	3	1978	JUN	2	1603	SI	B	-59	3	-25	7
	37	7	1958	JUL	8	2156	SI	B	35	5	-77	10
16	-36	4	1960	MAR	31	1943	SI	B	-59	4	12	2
	36	4	1959	JUL	18	1552	SI	B	59	4	19	3
18	35	3	1983	JUN	13	0323	SI	A	57	3	4	1
										-8	1	
										20	2	
19	-33	7	1961	JUN	21	0817	SI	B	-49	7	5	7
20	32	4	1981	APR	11	1649	SI	B	55	4	25	2
	32	5	1971	DEC	18	1205	SI	B	49	5	21	5
	-32	6	1967	MAY	28	1620	SI	B	-45	5	-4	3
	32	4	1960	MAR	31	1833	SI	B	56	4	35	4
24	31	3	1967	SEP	20	1741	SI	B	52	3	8	3
25	30	3	1981	NOV	25	1206	SI	B	50	2	7	3
	-30	11	1975	JUN	1	1825	SI	B	-45	11	6	4
	30	3	1971	DEC	18	1057	SI	B	51	3	21	4
	30	3	1969	MAY	15	1142	SI	B	49	3	9	2
	-30	8	1957	NOV	6	2321	SI	B	-52	8	-32	8
30	-29	4	1977	MAY	4	1716	SI	B	-48	4	-13	3

Statistics on the Geomagnetic Phenomena

Table 6-a SI AMPLITUDE/CURATION, 1957-1985 TOTAL: 479 EVENTS

NT/M	NT/M	H	D	Z
0 - 3		116 (24.4)	285 (62.1)	257 (53.9)
3 - 6		182 (38.2)	121 (26.4)	150 (31.4)
6 - 9		86 (18.1)	34 (7.4)	48 (10.1)
9 - 12		43 (9.0)	11 (2.4)	17 (3.6)
12 - 15		22 (4.6)	3 (0.7)	2 (0.4)
15 - 18		15 (3.2)	3 (0.7)	0 (0)
18 - 21		7 (1.5)	0 (0)	0 (0)
21 - 24		0 (0)	0 (0)	1 (0.2)
24 - 27		1 (0.2)	0 (0)	1 (0.2)
27 - 30		1 (0.2)	0 (0)	0 (0)
30 - 33		0 (0)	0 (0)	0 (0)
33 - 36		0 (0)	1 (0.2)	0 (0)
36 - 39		0 (0)	0 (0)	0 (0)
39 - 42		1 (0.2)	0 (0)	0 (0)
42 - 45		1 (0.2)	0 (0)	0 (0)
45 - 48		0 (0)	0 (0)	0 (0)
48 - 51		0 (0)	0 (0)	0 (0)
51 - 54		0 (0)	1 (0.2)	0 (0)
54 - 57		0 (0)	0 (0)	0 (0)
57 - 60		0 (0)	0 (0)	0 (0)
60 - 63		0 (0)	0 (0)	1 (0.2)
63 - 66		0 (0)	0 (0)	0 (0)
105 - 108		0 (0)	0 (0)	0 (0)
109 - 111		1 (0.2)	0 (0)	0 (0)
DUR. = 0		3	20	2

Table 6-b

SI AMPLITUDE/DURATION : H, 1957-1985 TOTAL: 476 EVENTS

NT/MIN	OCCURRENCE			TYPE Q	H		D		Z	
	YEAR	D	H M		NT	M	NT	M	NT	M
1	110.0	1960 NOV	13 1023	SI A	220	2	102	2	124	2
2	43.0	1968 FEB	20 1117	SI B	86	2	39	3	48	2
3	41.5	1970 MAR	8 1936	SI B	83	2	16	1	45	2
4	29.3	1979 APR	5 1225	SI B	88	3	22	4	52	4
5	25.0	1981 NOV	25 1206	SI B	50	2	7	3	30	3
6	20.5	1958 AUG	27 0542	SI C	-41	2	-4	2	-22	2
7	20.3	1982 DEC	10 1119	SI A	61	3	20	3	37	4
8	19.7	1978 JUN	2 1603	SI B	-59	3	-25	7	-37	3
9	19.0	1983 JUN	13 0323	SI A	57	3	4	1	35	3
							-8	1		
							20	2		
	19.0	1980 DEC	21 0558	SI B	38	2	11	2	21	2
	19.0	1957 SEP	29 2015	SI C	38	2	21	2	18	2
12	18.0	1958 JUL	8 1410	SI C	-36	2	-6	2	-20	2
13	17.3	1967 SEP	20 1741	SI B	52	3	8	3	31	3
14	17.2	1971 DEC	18 1057	SI B	51	3	21	4	30	3
	17.0	1966 MAY	26 1414	SI B	68	4	17	4	43	5
	17.0	1958 DEC	17 2153	SI C	-17	1	0	0	-9	1
17	16.7	1957 SEP	4 1736	SI C	-50	3	-7	1	-27	4
18	16.5	1981 AUG	10 0434	SI A	-2	1	13	1	19	3
							33	2		
	16.5	1960 NOV	12 1845	SI B	35	2	12	2	22	2
	16.5	1958 FEB	12 0609	SI C	-33	2	5	2	-12	2
21	16.3	1969 MAY	15 1142	SI B	49	3	9	2	30	3
22	15.7	1972 MAR	7 0405	SI B	47	3	13	3	25	3
	15.7	1970 MAR	31 1525	SI B	-47	3	-12	3	-26	3
	15.7	1958 JUL	21 1926	SI B	47	3	12	2	28	3
25	15.3	1957 SEP	3 0618	SI A	46	3	3	1	26	3
26	15.0	1970 JUL	9 0405	SI A	-75	5	9	2	-42	4
	15.0	1957 SEP	3 2158	SI C	15	1	-5	1	5	1
28	14.8	1960 MAR	31 1943	SI B	-59	4	12	2	-36	4
	14.8	1959 JUL	18 1552	SI B	59	4	19	3	36	4
30	14.7	1978 MAY	9 0710	SI B	-44	3	-5	3	-26	3

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Table 6-c

		SI AMPLITUDE/DURATION : 0, 1957-1985					TOTAL: 459 EVENTS				
NT/MIN	OCCURRENCE	TYPE	H		D		Z				
			NT	M	NT	M	NT	M			
1	51.0 1960 NOV 13 1023	SI A	220	2	102	2	124	2			
2	33.0 1960 AUG 17 1544	SI B	-27	6	-66	2	-20	6			
3	16.3 1960 MAY 16 2035	SI B	30	4	49	3	18	3			
4	16.0 1970 MAR 8 1936	SI B	83	2	16	1	45	2			
5	15.5 1979 JAN 9 0340	SI# A	32	8	-6	0	17	9			
					31	2					
6	13.0 1981 AUG 10 0434	SI# A	-2	1	13	1	19	3			
					33	2					
	13.0 1968 FEB 20 1117	SI B	86	2	39	3	48	2			
8	12.5 1981 APR 11 1649	SI B	55	4	25	2	32	4			
9	11.8 1979 MAY 29 2057	SI A	42	4	71	6	21	4			
10	11.7 1982 NOV 23 2307	SI B	-28	3	-35	3	-13	3			
11	11.0 1958 FEB 11 1237	SI B	74	11	-110	10	12	3			
12	10.5 1979 FEB 18 0305	SI# A	33	6	-2	0	18	7			
					21	2					
	10.5 1958 SEP 3 2050	SI C	13	2	42	4	6	2			
	10.5 1957 SEP 29 2015	SI C	38	2	21	2	18	2			
15	10.3 1960 MAR 31 2142	SI B	42	3	31	3	22	3			
16	10.0 1983 JUN 13 0323	SI# A	57	3	4	1	35	3			
					-8	1					
					20	2					
	10.0 1981 APR 13 2056	SI B	-14	2	-50	5	-11	4			
18	9.2 1958 SEP 4 2253	SI B	21	3	-55	6	20	3			
19	9.0 1978 DEC 18 0035	SI B	-14	1	-18	2	-8	1			
20	8.8 1960 MAR 31 1833	SI B	56	4	35	4	32	4			
21	8.5 1980 NOV 26 0421	SI# B	-3	1	3	0	-1	1			
			25	2	-4	0	13	2			
					17	2					
	8.5 1971 AUG 17 2303	SI# B	-10	2	3	4	-6	2			
					-34	4					
23	8.3 1981 NOV 25 0229	SI# A	42	4	-4	1	22	4			
					25	3					
24	8.0 1979 AUG 1 1146	SI# B	16	2	-5	1	9	2			
					16	2					
	8.0 1970 MAR 7 2003	SI B	24	3	8	1	15	3			
	8.0 1958 FEB 12 0200	SI C	18	2	8	1	7	2			
27	7.8 1960 JUL 14 2131	SI B	36	3	39	5	25	3			
	7.8 1958 SEP 3 2129	SI C	-15	4	-39	5	-14	4			
29	7.7 1958 JUL 8 2156	SI B	35	5	-77	10	37	7			
	7.7 1961 JUL 20 2228	SI B	-10	2	-46	6	-2	2			

Table 6-d

		SI AMPLITUDE/DURATION : Z, 1957-1985					TOTAL: 477 EVENTS				
NT/MIN	OCCURRENCE	TYPE	H		D		Z				
			NT	M	NT	M	NT	M			
1	62.0 1960 NOV 13 1023	SI A	220	2	102	2	124	2			
2	24.0 1968 FEB 20 1117	SI B	86	2	39	3	48	2			
3	22.5 1970 MAR 8 1936	SI B	83	2	16	1	45	2			
4	13.0 1979 APR 5 1225	SI B	88	3	22	4	52	4			
5	12.3 1978 JUN 2 1603	SI B	-59	3	-25	7	-37	3			
6	11.7 1983 JUN 13 0323	SI# A	57	3	4	1	35	3			
					-8	1					
					20	2					
7	11.0 1960 NOV 12 1845	SI B	33	2	12	2	22	2			
	11.0 1958 AUG 27 0542	SI C	-41	2	-4	2	-22	2			
9	10.5 1980 DEC 21 0558	SI B	38	2	11	2	21	2			
	10.5 1970 JUL 9 0405	SI A	-75	5	9	2	-42	4			
11	10.3 1967 SEP 20 1741	SI B	52	3	8	3	31	3			
12	10.2 1970 JUL 9 0540	SI A	82	6	-23	5	51	5			
13	10.0 1981 NOV 25 1206	SI B	50	2	7	3	30	3			
	10.0 1971 DEC 18 1057	SI B	51	3	21	4	30	3			
	10.0 1969 MAY 15 1142	SI B	49	3	9	2	30	3			
	10.0 1958 JUL 8 1410	SI C	-36	2	-6	2	-20	2			
17	9.3 1958 JUL 21 1926	SI B	47	3	12	2	28	3			
	9.3 1982 DEC 10 1119	SI A	61	3	20	3	37	4			
19	9.0 1960 MAR 31 1943	SI B	-59	4	12	2	-36	4			
	9.0 1959 JUL 18 1552	SI B	59	4	19	3	36	4			
	9.0 1958 DEC 17 2153	SI C	-17	1	0	0	-9	1			
	9.0 1957 SEP 29 2015	SI C	38	2	21	2	18	2			
23	8.7 1978 MAY 9 0710	SI B	-44	3	-5	3	-26	3			
	8.7 1970 MAR 31 1525	SI B	-47	3	-12	3	-26	3			
	8.7 1959 JUL 18 1540	SI B	42	3	19	3	26	3			
	8.7 1957 SEP 3 0618	SI A	46	3	3	1	26	3			
27	8.6 1966 MAY 26 1414	SI B	68	4	17	4	43	5			
28	8.3 1972 MAR 7 0405	SI B	47	3	13	3	25	3			
	8.3 1960 JUL 14 2131	SI B	36	3	39	5	25	3			
30	8.0 1981 APR 11 1649	SI B	55	4	25	2	32	4			

Statistics on the Geomagnetic Phenomena

Table 7-a BAY AMPLITUDE, 1957-1985 TOTAL: 960 EVENTS

NT	NT	H	D	Z
0 - 5		83 (8.6)	77 (8.0)	111 (11.6)
5 - 10		47 (4.9)	188 (19.6)	129 (13.4)
10 - 15		86 (9.0)	214 (22.3)	238 (24.8)
15 - 20		126 (13.1)	149 (15.5)	235 (24.5)
20 - 25		151 (15.7)	115 (12.0)	131 (13.6)
25 - 30		167 (17.4)	76 (7.9)	58 (6.0)
30 - 35		100 (10.4)	53 (5.5)	37 (3.9)
35 - 40		80 (8.3)	35 (3.6)	13 (1.4)
40 - 45		49 (5.1)	16 (1.7)	6 (0.6)
45 - 50		33 (3.4)	16 (1.7)	1 (0.1)
50 - 55		12 (1.2)	7 (0.7)	1 (0.1)
55 - 60		9 (0.9)	7 (0.7)	0 (0)
60 - 65		5 (0.5)	4 (0.4)	0 (0)
65 - 70		5 (0.5)	1 (0.1)	0 (0)
70 - 75		3 (0.3)	1 (0.1)	0 (0)
75 - 80		4 (0.4)	0 (0)	0 (0)
80 - 85		0 (0)	0 (0)	0 (0)
85 - 90		0 (0)	1 (0.1)	0 (0)

Table 7-b BAY AMPLITUDE : H, 1957-1985 TOTAL: 960 EVENTS

NT	H M	YEAR	BEGIN		TYPE	Q	D		Z		
			D	H M			H M	NT			
1	77	1450	1961	SEP 24	1420	BPS	B	1454	27	1450	39
	77	1802	1958	FEB 12	1725	BP	B	1825	-18	1758	32
3	76	1152	1981	MAY 16	1112	BP	A	1138	58	1153	43
4	75	1504	1983	OCT 04	1436	BP	A	1504	37	1503	42
5	72	1412	1957	JUL 02	1330	BP	B	1356	40	1410	38
6	71	1749	1975	NOV 22	1643	BP	A	1743	46	1749	38
	71	1107	1974	AUG 29	1020	BP	B	1108	59	1108	34
8	68	1345	1982	DEC 09	1252	BP	A	1333	34	1345	32
	68	1218	1960	OCT 02	1135	BPS	A	1200	37	1209	42
10	67	1258	1959	OCT 04	1205	BP	B	1239	19	1256	44
11	65	1755	1963	SEP 21	1731	BPS	B	1751	36	1752	36
	65	1459	1959	MAR 01	1432	BPS	B	1531	-22	1459	37
13	61	1120	1963	SEP 17	1039	BP	B	1109	47	1121	33
14	60	1936	1983	NOV 09	1903	BP	A	1921	-26	1931	41
	60	1416	1978	DEC 25	1346	BP	A	1453	23	1408	35
	60	1248	1972	APR 29	1205	BP	A	1232	44	1248	35
	60	1239	1960	APR 28	1200	BP	B	1230	61	1233	33
18	59	1258	1957	SEP 24	1237	BPS	B	1249	46	1257	30
19	58	1335	1982	APR 10	1308	BP	A	1328	26	1334	40
20	57	1405	1975	JAN 14	1320	BP	B	1358	18	1405	33
	57	1446	1965	APR 18	1422	BPS	A	1436	35	1444	30
	57	1051	1961	NOV 07	1018	BP	B	1044	33	1052	32
23	56	1109	1963	JAN 13	1036	BP	B	1058	44	1110	29
24	55	1434	1983	NOV 12	1414	BP	B	1523	11	1435	35
	55	1426	1980	FEB 06	1408	BP	B	1426	18	1426	32
	55	1212	1960	JAN 21	1124	BP	A	1159	58	1206	30
27	52	1303	1974	NOV 11	1221	BP	B	1253	47	1303	24
	52	1557	1971	JAN 28	1522	BP	B	1603	-22	1546	31
	52	1711	1957	NOV 26	1654	BPS	B	1710	-32	1710	34
30	51	1246	1975	MAY 16	1202	BP	B	1238	29	1246	30

Table 7-c BAY AMPLITUDE : D, 1957-1985 TOTAL: 960 EVENTS

NT	H M	YEAR	BEGIN		TYPE	Q	H		Z		
			D	H M			H M	NT			
1	85	1358	1961	JAN 18	1302	BPS	B	1319	32	1319	23
2	71	1153	1983	JUN 13	1120	BP	A	1201	29	1201	11
3	66	0916	1959	DEC 14	0845	BP	B	0931	41	0931	24
4	63	1152	1959	OCT 31	1120	BP	A	1159	39	1159	19
5	61	0931	1962	AUG 01	0853	BP	B	0921	-12	0921	-8
	61	1230	1960	APR 28	1200	BP	B	1239	60	1233	33
7	60	1003	1983	NOV 17	0910	B	A	1014	50	1015	26
8	59	1108	1974	AUG 29	1020	BP	B	1107	71	1108	34
9	58	1138	1981	MAY 16	1112	BP	A	1152	76	1153	43
	58	1159	1960	JAN 21	1124	BP	A	1212	55	1206	30
11	57	0941	1982	SEP 07	0854	BP	B	0923	-29	0923	-16
	57	1105	1961	SEP 24	1030	BP	B	1102	21	1102	7
13	55	1740	1964	FEB 07	1604	BP	B	1704	26	1704	17
	55	0813	1957	SEP 25	0655	BP	C	0750	-16	0749	-10
15	-54	1708	1962	DEC 17	1640	BP	B	1734	30	1730	25
	54	0908	1958	MAR 05	0851	BP	C	0911	24	0911	13
17	53	1051	1961	DEC 02	1015	BP	B	1102	38	1102	18
18	51	0925	1977	SEP 21	0902	BP	B	0934	29	0932	13
	51	1230	1960	SEP 07	1206	BP	B	1300	29	1245	16
	-51	1837	1958	DEC 04	1820	BP	C	1850	34	1846	29
21	50	1103	1960	DEC 28	1011	BPS	B	1118	32	1118	18
22	49	1201	1981	FEB 05	1128	BP	B	1214	30	1215	16
	49	1307	1975	NOV 30	1210	BP	B	1333	28	1333	16
	49	1043	1962	SEP 03	1014	BP	A	1053	42	1053	22
	49	1146	1958	JUN 29	1120	BP	C	1242	22	1242	13
26	-48	1523	1974	SEP 20	1445	BP	B	1510	28	1517	22
	48	1120	1962	OCT 16	1050	BP	A	1132	49	1132	26
28	47	1253	1974	NOV 11	1221	BP	B	1303	52	1303	24
	47	1008	1974	AUG 24	0908	BP	B	1039	26	1040	11
	47	1114	1974	APR 05	0947	BP	B	1051	-23	1051	-11

Table 7-d BAY AMPLITUDE : Z, 1957-1985 TOTAL: 960 EVENTS

NT	H	M	YEAR	BEGIN			TYPE	Q	H			D	NT	M			NT
				D	H	M			H	M	NT			H	M	NT	
1	50	1939	1982	SEP	26	1900	BP	B	1935	33	1924	-39					
2	49	1523	1958	SEP	25	1510	BPS	B	1522	26	1535	20					
3	44	1256	1959	OCT	04	1205	BP	B	1258	67	1239	19					
4	43	1153	1981	MAY	16	1112	BP	A	1152	76	1138	58					
5	42	1503	1983	OCT	04	1436	BP	A	1504	75	1504	37					
	42	1209	1960	OCT	02	1135	BPS	A	1218	68	1200	37					
7	41	1931	1983	NOV	09	1903	BP	A	1936	60	1921	-26					
8	40	1334	1982	APR	10	1308	BP	A	1335	58	1328	26					
9	39	1450	1961	SEP	24	1420	BPS	B	1450	77	1454	27					
10	38	1749	1975	NOV	22	1643	BP	A	1749	71	1743	46					
	38	1707	1958	DEC	04	1641	BP	C	1706	23	1700	-15					
	38	1410	1957	JUL	02	1330	BP	B	1412	72	1356	40					
13	37	1459	1959	MAR	01	1432	BPS	B	1459	65	1531	-22					
	37	1639	1957	SEP	21	1608	BP	C	1639	46	1643	-26					
15	36	1752	1963	SEP	21	1731	BPS	B	1755	65	1751	36					
	36	1624	1960	OCT	29	1552	BP	B	1624	50	1658	-10					
17	35	1435	1983	NOV	12	1414	BP	B	1434	55	1523	11					
	35	1438	1982	SEP	24	1349	BP	B	1443	35	1512	8					
	35	1408	1978	DEC	25	1346	BP	A	1416	60	1453	23					
	35	1248	1972	APR	29	1205	BP	A	1248	60	1232	44					
	35	2036	1960	AUG	16	2009	BP	B	2036	49	2017	-25					
22	34	1108	1974	AUG	29	1020	BP	B	1107	71	1108	59					
	34	1710	1957	NOV	26	1654	BPS	B	1711	52	1710	-32					
24	33	1800	1982	FEB	13	1729	BP	B	1800	42	1759	-36					
	33	1405	1975	JAN	14	1320	BP	B	1405	57	1358	18					
	33	1121	1963	SEP	17	1039	BP	B	1120	61	1109	47					
	33	1233	1960	APR	28	1200	BP	B	1239	60	1230	61					
	33	1224	1957	OCT	11	1122	BP	C	1225	44	1150	20					
29	32	1345	1982	DEC	09	1252	BP	A	1345	68	1333	34					
	32	1730	1982	FEB	05	1612	BP	B	1729	50	1719	13					

Table 8-a SFE AMPLITUDE, 1957-1985 TOTAL: 168 EVENTS

NT	NT	H	D	Z
0	- 3	33 (19.6)	21 (12.5)	65 (38.7)
3	- 6	63 (37.5)	46 (27.4)	54 (32.1)
6	- 9	36 (21.4)	32 (19.0)	27 (16.1)
9	- 12	15 (8.9)	24 (14.3)	11 (6.5)
12	- 15	6 (3.6)	16 (9.5)	1 (0.6)
15	- 18	3 (1.8)	7 (4.2)	1 (0.6)
18	- 21	1 (0.6)	7 (4.2)	1 (0.6)
21	- 24	2 (1.2)	4 (2.4)	4 (2.4)
24	- 27	3 (1.8)	2 (1.2)	2 (1.2)
27	- 30	1 (0.6)	3 (1.8)	0 (0)
30	- 33	3 (1.8)	0 (0)	0 (0)
33	- 36	1 (0.6)	1 (0.6)	1 (0.6)
36	- 39	0 (0)	1 (0.6)	0 (0)
39	- 42	0 (0)	0 (0)	0 (0)
42	- 45	0 (0)	3 (1.8)	0 (0)
45	- 48	0 (0)	1 (0.6)	0 (0)
48	- 51	0 (0)	0 (0)	0 (0)
51	- 54	0 (0)	0 (0)	1 (0.6)
54	- 57	0 (0)	0 (0)	0 (0)
57	- 60	0 (0)	0 (0)	0 (0)
60	- 63	0 (0)	0 (0)	0 (0)
63	- 66	0 (0)	0 (0)	0 (0)
66	- 69	1 (0.6)	0 (0)	0 (0)

Statistics on the Geomagnetic Phenomena

Table 8-b SFE AMPLITUDE : H, 1957-1985 TOTAL: 168 EVENTS

NT	H M	YEAR	BEGIN			DUR	Q	D			Z		
			D	H	M			H	M	NT	H	M	NT
1	-67	0224	1960	NOV	15	0220	105	A	0223	-8	0224	-52	
2	-33	0201	1982	DEC	15	0158	41	A	0203	10	0203	-24	
3	-32	0001	1984	APR	24	2357	40	A	0006	42	0014	-33	
4	-31	0055	1970	NOV	16	0048	45	A	0054	7	0057	-21	
	31	0308	1958	JUL	29	0300	85	A	0312	-27	0328	-22	
6	27	0320	1982	MAR	7	0302	82	A	0326	5	0320	24	
7	26	2236	1984	MAY	20	2233	45	A	2236	43	2237	10	
8	25	0624	1978	JUL	10	0609	96	A	0622	-44	0624	16	
	25	0351	1959	JUL	14	0331	90	C	0349	-28	0350	22	
10	-23	0037	1971	JAN	24	2307	175	B	2350	27	0034	-22	
11	22	0235	1959	JUL	10	0205	55	C	0239	-23	0235	12	
12	19	0448	1958	AUG	16	0434	100	A	0451	-46	0444	7	
13	-16	2324	1981	SEP	3	2256	58	B	2320	12	2318	-8	
14	15	0540	1982	JUN	12	0515	132	B	0544	-22	0540	7	
	15	0356	1980	NOV	6	0340	95	B	0357	-18	0357	6	
16	14	2142	1959	JUL	16	2118	75	B	2138	18	2125	6	
17	-13	0006	1963	SEP	20	2357	60	B	2359	-1	0006	-9	
18	12	0450	1981	JUL	16	0441	73	B	0552	-2	0551	7	
	12	0435	1978	JUL	11	0426	40	A	0435	-10	0435	5	
	-12	2330	1959	APR	5	2321	30	B	2328	22	2330	-11	
	12	0514	1958	JUN	6	0440	55	C	0502	-16	0513	11	
22	-11	0352	1966	MAR	29	0326	32	B	0332	-14	0332	-9	
	-11	0426	1959	FEB	1	0420	30	B	0427	-14	0427	-8	
24	10	0509	1970	JUN	14	0506	20	A	0509	-12	0510	4	
	-10	0902	1962	JUL	9	0900	15	A	0902	-20	0902	-5	
	10	0532	1960	AUG	14	0515	35	B	0530	-13	0532	5	
	10	0548	1960	MAY	13	0517	75	B	0542	-34	0549	19	
	10	0257	1959	NOV	30	0248	30	C	0253	5	0253	-5	
	10	0633	1959	JUN	16	0623	35	A	0632	-11	0633	6	
30	9	0411	1984	APR	24	0318	90	B	0411	-14	0417	8	

Table 8-c SFE AMPLITUDE : D, 1957-1985 TOTAL: 168 EVENTS

NT	H M	YEAR	BEGIN			DUR	Q	H			Z		
			D	H	M			H	M	NT	H	M	NT
1	-46	0451	1958	AUG	16	0434	100	A	0448	19	0444	7	
2	-44	0622	1978	JUL	10	0609	96	A	0624	25	0624	16	
3	43	2236	1984	MAY	20	2233	45	A	2236	26	2237	10	
4	42	0006	1984	APR	24	2357	40	A	0001	-32	0014	-33	
5	-36	0614	1983	FEB	3	0558	66	A	0615	8	0617	11	
6	-34	0542	1960	MAY	13	0517	75	B	0548	10	0549	19	
7	-28	0349	1959	JUL	14	0331	90	C	0351	25	0350	22	
8	27	2350	1971	JAN	24	2307	175	B	0037	-23	0034	-22	
	-27	0312	1958	JUL	29	0300	85	A	0308	31	0328	-22	
10	-24	0409	1957	SEP	19	0401	40	A	0407	-8	0407	-2	
	-24	0409	1957	SEP	19	0401	40	A	0407	-8	0407	-2	
12	23	0044	1967	MAR	22	0026	41	B	0049	-4	0047	-8	
	-23	0239	1959	JUL	10	0205	55	C	0235	22	0235	12	
14	-22	0544	1982	JUN	12	0515	132	B	0540	15	0540	7	
	22	2328	1959	APR	5	2321	30	B	2330	-12	2330	-11	
16	-20	0902	1962	JUL	9	0900	15	A	0902	-10	0902	-5	
17	19	0008	1985	JAN	21	2358	53	B	0007	7	0015	-9	
	-19	0434	1969	FEB	26	0421	35	A	0422	3	0428	3	
19	-18	0536	1981	JUL	19	0512	78	B	0557	3	0600	2	
	-18	0357	1980	NOV	6	0340	95	B	0356	15	0357	6	
	18	2138	1959	JUL	16	2118	75	B	2142	14	2125	6	
	-18	0420	1958	MAY	5	0412	25	A	0420	3	0420	5	
23	-17	0505	1981	APR	4	0502	19	A	0506	9	0506	7	
24	-16	0545	1982	MAR	30	0533	51	B	0600	-4	0602	7	
	-16	0529	1959	MAY	17	0524	20	B	0526	3	0526	1	
	-16	0502	1958	JUN	6	0440	55	C	0514	12	0513	11	
27	-15	0739	1982	JUL	9	0732	37	B	0739	-3	0744	-2	
	-15	0152	1977	OCT	12	0151	39	B	0153	-8	0155	-7	
	-15	0418	1965	OCT	2	0413	15	B	0418	-4			
30	-14	0411	1984	APR	24	0318	90	B	0411	9	0417	8	

Table 8-d SFE AMPLITUDE : Z, 1957-1985 TOTAL: 168 EVENTS

NT	H M	YEAR	BEGIN			DUR	Q	H			D		
			D	H	M			M	H	M		NT	
1	-52	0224	1960	NOV	15	0220	105	A	0224	-67	0223	-8	
2	-33	0014	1984	APR	24	2357	40	A	0001	-32	0006	42	
3	-24	0203	1982	DEC	15	0158	41	A	0201	-33	0203	10	
		24	0320	1982	MAR	7	0302	82	A	0320	27	0326	5
5	-22	0034	1971	JAN	24	2307	175	B	0037	-23	2350	27	
		22	0350	1959	JUL	14	0331	90	C	0351	25	0349	-28
		-22	0328	1958	JUL	29	0300	85	A	0308	31	0312	-27
8	-21	0057	1970	NOV	16	0048	45	A	0055	-31	0054	7	
9	19	0549	1960	MAY	13	0517	75	B	0548	10	0542	-34	
10	16	0624	1978	JUL	10	0609	96	A	0624	25	0622	-44	
11	12	0235	1959	JUL	10	0205	55	C	0235	22	0239	-23	
12	11	0617	1983	FEB	3	0558	66	A	0615	8	0614	-36	
		-11	2330	1959	APR	5	2321	30	B	2330	-12	2328	22
		11	0513	1958	JUN	6	0440	55	C	0514	12	0502	-16
15	10	2237	1984	MAY	20	2233	45	A	2236	26	2236	43	
		10	0617	1980	OCT	14	0605	39	B	0615	6	0613	-14
		-10	0016	1978	SEP	13	0007	30	B	0014	-7	0013	2
		-10	0249	1966	MAR	24	0228	50	B	0231	-4	0244	-8
19	-9	0015	1985	JAN	21	2358	53	B	0007	7	0008	19	
		-9	0332	1966	MAR	29	0326	32	B	0332	-11	0332	-14
		-9	0006	1963	SEP	20	2357	60	B	0006	-13	2359	-1
		-9	0100	1958	NOV	14	0037	50	C	0100	-9	0053	5
23	8	0417	1984	APR	24	0318	90	B	0411	9	0411	-14	
		-8	2318	1981	SEP	3	2256	58	B	2324	-16	2320	12
		8	0438	1977	OCT	6	0429	31	B	0438	8	0438	-11
		8	0529	1971	APR	20	0516	40	B	0528	8	0527	-8
		-8	0047	1967	MAR	22	0026	41	B	0049	-4	0044	23
		-8	0427	1959	FEB	1	0420	30	B	0426	-11	0427	-14
29	-7	2306	1983	MAY	9	2304	38	B	2307	-9	2312	12	
		7	0540	1982	JUN	12	0515	132	B	0540	15	0544	-22

Table 9-a DAILY SUM OF K, 1932-1985 (EXCLUDING 1934-1935, 1939)

0 - 2	91	(0.5)
2 - 4	304	(1.6)
4 - 6	657	(3.5)
6 - 8	1003	(5.4)
8 - 10	1490	(8.0)
10 - 12	1754	(9.5)
12 - 14	1853	(10.0)
14 - 16	2025	(10.9)
16 - 18	1937	(10.4)
18 - 20	1781	(9.6)
20 - 22	1459	(7.9)
22 - 24	1272	(6.9)
24 - 26	968	(5.2)
26 - 28	643	(3.5)
28 - 30	455	(2.5)
30 - 32	317	(1.7)
32 - 34	217	(1.2)
34 - 36	129	(0.7)
36 - 38	77	(0.4)
38 - 40	52	(0.3)
40 - 42	24	(0.1)
42 - 44	19	(0.1)
44 - 46	8	(0.0)
46 - 48	7	(0.0)
48 - 50	5	(0.0)
50 - 52	2	(0.0)
52 - 54	2	(0.0)
54 - 56	1	(0.0)
56 - 58	1	(0.0)
MISSING	76	

Table 9-b MAXIMUM DAILY SUM OF K, 1932-1985 (EXCLUDING 1934-1935, 1939)

	YEAR	D	
1	56	1958 FEB 11	9987 7655
2	54	1960 NOV 13	7788 7665
3	53	1960 APR 1	7777 7675
4	52	1941 SEP 18	3787 7677
5	51	1946 MAR 28	3378 9876
6	50	1972 AUG 5	7776 7754
7	49	1946 SEP 22	2768 9755
	49	1940 MAR 25	7779 6355
9	48	1982 SEP 6	6676 7556
	48	1960 APR 30	5565 8865
	48	1950 AUG 20	8888 6433
12	47	1960 OCT 6	5567 5577
	47	1959 JUL 15	3467 7776
	47	1958 JUL 8	2377 6877
	47	1957 SEP 13	5688 7643
	47	1949 OCT 15	5466 6776
	47	1949 JAN 25	8564 5676
18	46	1938 JAN 22	6589 6642
19	45	1950 AUG 19	3357 8757
	45	1948 AUG 8	5776 6545
	45	1940 MAR 30	7676 7534
22	44	1957 MAR 2	5676 6455
	44	1949 MAY 12	2366 8856
	44	1947 MAR 3	5457 7565
	44	1946 MAR 25	6466 5656
	44	1938 APR 16	1797 7643
27	43	1981 JUL 26	4555 7656
	43	1981 APR 13	7666 5355
	43	1959 AUG 16	4476 6556
	43	1957 HAR 10	4467 6565

Statistics on the Geomagnetic Phenomena

Table 9-c DAILY SUM OF K = 0, 1932-1985
(EXCLUDING 1934-1935, 1939)

1933 FEB 17	0000	0000
1937 JAN 16	0000	0000
1938 OCT 14	0000	0000
1942 DEC 30	0000	0000
1944 APR 13	0000	0000
1945 JUL 27	0000	0000
1945 DEC 4	0000	0000
1947 JAN 11	0000	0000
1947 JAN 12	0000	0000
1955 DEC 14	0000	0000
1961 JAN 11	0000	0000
1961 OCT 16	0000	0000
1962 NOV 18	0000	0000
1963 MAR 16	0000	0000
1963 DEC 10	0000	0000
1964 MAY 8	0000	0000
1964 OCT 23	0000	0000
1964 NOV 7	0000	0000
1965 OCT 6	0000	0000
1969 NOV 15	0000	0000
1970 FEB 7	0000	0000
1971 OCT 19	0000	0000
1971 DEC 6	0000	0000
1978 JAN 14	0000	0000

Table 9-d DAILY SUM OF K = 1, 1932-1985
(EXCLUDING 1934-1935, 1939)

1932 FEB 17	0010	0000	1965 NOV 10	0000	1000
1933 MAR 9	0000	1000	1966 JAN 16	0000	0100
1937 MAY 8	0000	0001	1966 OCT 22	0000	0001
1937 OCT 20	0000	1000	1967 FEB 10	0100	0000
1937 NOV 15	0000	0100	1967 APR 12	0100	0000
1938 FEB 19	1000	0000	1967 APR 13	0000	0001
1938 OCT 5	0010	0000	1967 SEP 10	0000	1000
1940 FEB 18	0100	0000	1967 OCT 21	0000	0100
1940 MAR 15	0001	0000	1967 NOV 17	0100	0000
1942 DEC 31	0001	0000	1969 JAN 6	0100	0000
1944 JUL 25	1000	0000	1969 SEP 1	1000	0000
1944 NOV 13	0001	0000	1969 NOV 14	0100	0000
1944 DEC 7	0000	1000	1970 MAR 21	0000	0100
1945 JAN 25	0000	0010	1970 MAY 10	0001	0000
1945 OCT 11	0000	0001	1970 NOV 30	0000	0100
1945 NOV 2	0000	0100	1970 DEC 1	0001	0000
1948 SEP 28	0000	0001	1971 JAN 7	0000	1000
1954 OCT 12	0100	0000	1971 JAN 26	0100	0000
1954 DEC 15	0001	0000	1971 SEP 2	1000	0000
1955 NOV 6	0000	1000	1971 NOV 14	0100	0000
1955 DEC 23	0000	0010	1972 JAN 6	0000	1000
1956 OCT 14	0000	0001	1972 OCT 5	1000	0000
1956 OCT 15	0000	0100	1975 MAY 11	0100	0000
1958 OCT 12	0000	0100	1977 OCT 9	0000	1000
1960 APR 20	0000	1000	1978 SEP 19	0000	0010
1962 JAN 24	0000	0100	1979 MAR 14	0000	0010
1963 FEB 8	0001	0000	1979 APR 20	0000	0001
1963 MAY 16	1000	0000	1980 APR 2	0000	0001
1963 NOV 5	0000	1000	1980 JUN 28	0100	0000
1964 FEB 19	1000	0000	1980 OCT 28	0000	0001
1964 MAR 2	0000	0001	1981 NOV 30	0000	0001
1964 NOV 14	0000	0100	1983 NOV 23	1000	0000
1965 MAY 2	1000	0000	1984 SEP 18	0100	0000
1965 NOV 3	1000	0000			

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Table 10-a MONTHLY MEAN OF K, 1932-1985
(EXCLUDING 1934-1935, 1939)

9 - 10	6 (1.0)
10 - 11	15 (2.5)
11 - 12	22 (3.6)
12 - 13	36 (5.9)
13 - 14	79 (12.9)
14 - 15	78 (12.7)
15 - 16	81 (13.2)
16 - 17	63 (10.3)
17 - 18	57 (9.3)
18 - 19	54 (8.8)
19 - 20	44 (7.2)
20 - 21	40 (6.5)
21 - 22	17 (2.8)
22 - 23	11 (1.8)
23 - 24	5 (0.8)
24 - 25	2 (0.3)
25 - 26	2 (0.3)

Table 10-b MAXIMUM MONTHLY MEAN OF K, 1932-1985
(EXCLUDING 1934-1935, 1939)

1	25.9	1982	FEB
2	25.3	1947	SEP
3	24.6	1957	SEP
4	24.3	1982	SEP
5	23.9	1960	APR
6	23.8	1947	AUG
7	23.5	1951	APR
8	23.4	1943	AUG
9	23.0	1947	MAR
10	22.9	1960	OCT
11	22.7	1951	SEP
12	22.5	1982	JUL
	22.5	1958	MAR
14	22.3	1959	SEP
	22.3	1958	FEB
	22.3	1950	OCT
17	22.2	1943	SEP
18	22.1	1983	FEB
	22.1	1946	SEP
20	22.0	1983	APR
21	21.9	1960	NOV
22	21.8	1957	MAR
23	21.6	1952	MAR
	21.6	1948	OCT
25	21.5	1984	NOV
	21.5	1946	MAR
27	21.4	1983	MAR
	21.4	1960	DEC
29	21.3	1984	APR
	21.3	1959	JUL

Table 10-c MINIMUM MONTHLY MEAN OF K, 1932-1985
(EXCLUDING 1934-1935, 1939)

1	9.2	1937	JAN
2	9.7	1965	APR
	9.7	1964	DEC
4	9.8	1962	JAN
5	9.9	1955	DEC
	9.9	1944	NOV
7	10.1	1969	DEC
8	10.2	1936	DEC
	10.2	1936	AUG
10	10.5	1965	MAY
	10.5	1965	JAN
12	10.6	1963	MAR
13	10.7	1966	APR
14	10.8	1970	FEB
	10.8	1954	DEC
16	10.9	1980	MAR
	10.9	1969	JUL
	10.9	1965	DEC
	10.9	1965	NOV
	10.9	1964	NOV
	10.9	1936	SEP
22	11.0	1970	JAN
	11.0	1967	MAR
	11.0	1932	JUN
25	11.2	1971	DEC
26	11.4	1976	NOV
	11.4	1967	APR
	11.4	1938	NOV
29	11.5	1945	NOV
30	11.7	1980	SEP