

Records of All-Sky Camera Utilization

at Syowa Station, Antarctica

in 1970

Compiled by

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Two all-sky cameras were used in aurora observations in 1970 at Syowa Station, Antarctica. This report describes the availability of data to upper atmosphere physicists.

The original records are deposited at the Polar Research Center, National Science Museum.

Enquiries about the details of the data should be addressed to:

Polar Research Center

National Science Museum

Kaga 1-9-10, Itabashi-ku

Tokyo, Japan

1. Location

CSAGI No.	Station	Geographic		Geomagnetic		Remarks
		Lat. S	Long. E	Lat.	Long.	
A984	Syowa	69°00'	39°36'	-69.6°	77.1°	Height about 15m. (above sea level)

2. Observers

Mr. Masaru AYUKAWA (Polar Research Center, National Science Museum).

Mr. Heihachiro CHIBA (Earthquake Research Institute, University of Tokyo).

3. Instrumentation

Two cameras were used, that is, a 16mm Bolex movie camera (model H-16RX with $f/1.4$, 25mm focal length) and a 35mm Automax cine-pulse camera (model G-4SD with $f/3.5$, 40mm in the focal length of the main lens, with a fish-eye lens).

The 16mm camera was operated during clear nights between March 2 and September 29, 1970. Fifteen-second exposure was made at intervals of 30 seconds, with black and white film (Fuji 16mm HS, sensitivity: ASA 320). The film in a reel was 100 feet long.

The 35mm camera was operated during clear nights between March 2 and October 18, 1970. Two exposures were made every minute, i. e., 0-30 sec. and 40-55 sec. The film used was Kodak 35mm 4-X, sensitivity ASA 800, which was 400 feet long and rolled in a reel.

4. Obtained Records

Availability of data of 16mm camera and 35mm camera is shown in Figs. 1 and 2 (days of observation) and in Tables 1 and 2 (hours of observation), respectively. Marks in Figs. 1 and 2 are as follows:

Dark area	:	All-sky camera was operated.
Cross	:	Not operated due to instrument malfunction.

Blank : Not operated due to blizzard or overcast.

The second column of Tables 1 and 2 is the hours of operation (Universal Time) of the camera. The third column shows K-indices, among which the figures with underlines represent the intensity of geomagnetic activity when the camera was operated. The "X" marks in the third column denote lack of data due to malfunction of 3-axis fluxgate magnetometer.

The classification of K-indices at Syowa Station is as follows:

K-Index	:	0	(	0^r	~	$\langle 25^r \rangle$)
		1	(	25^r	~	$\langle 50^r \rangle$)
		2	(	50^r	~	$\langle 100^r \rangle$)
		3	(	100^r	~	$\langle 200^r \rangle$)
		4	(	200^r	~	$\langle 350^r \rangle$)
		5	(	350^r	~	$\langle 600^r \rangle$)
		6	(	600^r	~	$\langle 1000^r \rangle$)
		7	(	1000^r	~	$\langle 1660^r \rangle$)
		8	(	1660^r	~	$\langle 2500^r \rangle$)
		9	(	more than		2500^r)

MONTH \ DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
MARCH																																
APRIL																																
MAY																																
JUNE																																
JULY																																
AUGUST																																
SEPTEMBER																																
OCTOBER																																

Fig. 1. Days of observation by 16mm all-sky camera.

MONTH \ DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
MARCH																																
APRIL																																
MAY																																
JUNE																																
JULY																																
AUGUST																																
SEPTEMBER																																
OCTOBER																																

Fig. 2. Days of observation by 35mm all-sky camera.

Table 1. Hours of operation of the 16mm all-sky camera at Syowa Station in 1970.

Day	Hours (Universal Time)	K - Index	Remarks
Mar. 2	18 ^h 09 ^m 00 ^s	6, 5, 4, 3, 2, 2, <u>2</u> , <u>4</u> ,	
3	-00 ^h 30 ^m 00 ^s	<u>4</u> , 2, 2, 3, 2, 3, <u>4</u> , <u>6</u> ,	
4	-00 32 00	<u>5</u> , 4, 1, 2, 3, 3, <u>4</u> , <u>5</u> ,	
5	-00 30 30	<u>4</u> , 2, 2, 2, 2, 3, 5, 5,	
6	19 14 30	6, 3, 2, 2, 2, 4, <u>5</u> , <u>5</u> ,	
7	-00 39 45	<u>5</u> , 6, 3, 3, 3, 4, 6, 5,	
9	19 46 15	5, 6, 3, 3, 2, 5, <u>3</u> , <u>6</u> ,	
10	-00 37 00	<u>5</u> , 1, 2, 2, 2, 2, <u>2</u> , <u>2</u> ,	
11	-00 54 00	<u>1</u> , 1, 2, 2, 2, <u>1</u> , <u>1</u> , <u>2</u> ,	
12	-01 26 45	<u>3</u> , 3, 2, 2, 2, <u>2</u> , <u>1</u> , <u>1</u> ,	
13	-01 01 15	<u>1</u> , 2, 2, 2, 2, 2, 2, 2,	
16	22 ^h 18 ^m 15 ^s - 23 31 15	1, 1, 1, 2, 2, 1, 1, <u>1</u> ,	Cloud
17	18 16 15	1, 0, 1, 2, 2, 2, <u>2</u> , <u>3</u> ,	
18	-01 33 45	<u>3</u> , 1, 1, 2, 2, <u>2</u> , <u>2</u> , <u>4</u> ,	
19	-01 10 15	<u>2</u> , 2, 1, 2, 2, <u>2</u> , <u>1</u> , <u>3</u> ,	
20	-01 38 15 ; 18 00 15 - 22 40 30	<u>3</u> , 1, 1, 2, 2, 2, <u>2</u> , <u>3</u> ,	Overcast - Snow
25	16 58 15 - 22 15 30	1, 1, 1, 2, 2, <u>1</u> , <u>1</u> , <u>1</u> ,	Overcast
26	18 58 15	3, 3, 1, 2, 2, 2, <u>2</u> , <u>2</u> ,	
27	-02 09 15	<u>1</u> , 0, 1, 3, 2, <u>2</u> , <u>3</u> , <u>5</u> ,	
28	-02 09 30	<u>4</u> , 5, 3, 3, 2, <u>4</u> , <u>3</u> , <u>5</u> ,	
29	-02 13 00 ; 16 41 45 - 20 48 00	<u>5</u> , 5, 2, 2, 2, <u>2</u> , <u>4</u> , <u>6</u> ,	Overcast

Day	Hours (Universal Time)	K-Index	Remarks
Mar. 30	20 ^h 18 ^m 45 ^s	6, 3, 3, 2, 3, 2, <u>3</u> , <u>4</u> ,	
31	-00 ^h 22 ^m 45 ^s	<u>3</u> , 5, 5, 4, 3, 4, 3, 6,	
Apr. 2	16 38 45	0, 0, 1, 1, 1, <u>1</u> , <u>1</u> , <u>0</u> ,	Cloud
3	-02 30 00	<u>3</u> , 5, 4, 2, 1, <u>2</u> , <u>0</u> , <u>1</u> ,	
4	-02 33 00	<u>4</u> , 2, 2, 1, 1, <u>0</u> , <u>0</u> , <u>1</u> ,	
5	-02 31 30 ; 16 ^h 56 ^m 45 ^s	<u>1</u> , 0, 2, 2, 1, <u>1</u> , <u>1</u> , 2,	Overcast
6	17 13 15	4, 4, 4, 4, 3, <u>2</u> , <u>1</u> , <u>5</u> ,	
7	-02 27 15	<u>4</u> , 2, 3, 1, 1, 1, 0, 0,	
13	17 28 15	1, 1, 1, 1, 0, <u>0</u> , <u>0</u> , <u>0</u> ,	
14	-02 11 45	<u>1</u> , 1, 1, 1, 0, 0, <u>0</u> , <u>2</u> ,	Cloud
15	-01 58 15	<u>1</u> , 1, 1, 0, 0, 2, <u>3</u> , <u>3</u> ,	Overcast
16	-02 50 15	<u>4</u> , 5, 4, 2, 1, 1, 5, 5,	Cloud
19	15 52 00	5, 6, 5, 3, 3, <u>2</u> , <u>2</u> , <u>2</u> ,	
20	-03 09 15	<u>2</u> , <u>4</u> , 2, 2, 2, <u>4</u> , <u>3</u> , <u>4</u> ,	
21	-03 29 45	<u>4</u> , <u>5</u> , 5, 4, 4, 6, 8, 6,	
27	15 48 15	6, 4, 2, 1, 1, <u>2</u> , <u>2</u> , <u>3</u> ,	
28	-03 56 30	<u>5</u> , <u>4</u> , 2, 1, 1, 0, 1, 1,	
29	15 02 45 - 16 36 00	3, 3, 1, 1, 1, <u>2</u> , 3, 3,	Overcast -Snow
30	15 40 30	6, 6, 3, 3, 1, <u>3</u> , <u>2</u> , <u>3</u> ,	
May 1	-04 17 45	<u>3</u> , <u>3</u> , 3, 1, <u>2</u> , <u>2</u> , <u>3</u> , <u>3</u> ,	
2	-03 20 45 ; 14 25 15 - 15 30 45	<u>2</u> , <u>3</u> , 2, 1, <u>0</u> , <u>1</u> , 2, 4,	Overcast
3	16 13 45	2, 0, 1, 0, 1, <u>1</u> , <u>2</u> , <u>6</u> ,	
4	-03 53 45	<u>4</u> , <u>1</u> , 1, 2, 1, 1, 0, 3,	

Day	Hours (Universal Time)	K-Index	Remarks
May 9	13 ^h 44 ^m 45 ^s	2, 2, 0, 0, <u>0</u> , <u>0</u> , <u>0</u> , <u>1</u> ,	
10	-05 ^h 02 ^m 30 ^s	<u>1</u> , <u>1</u> , 1, 0, 0, 0, 0, 0,	
15	13 18 45	5, 1, 2, 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>3</u> ,	
16	-04 57 45	<u>3</u> , <u>2</u> , 1, 0, <u>0</u> , <u>0</u> , <u>1</u> , <u>4</u> ,	
17	- ?	4, 5, 4, 1, <u>1</u> , <u>0</u> , <u>0</u> , <u>4</u> ,	End unidentified
18	-05 02 30	<u>4</u> , <u>4</u> , 1, 0, <u>1</u> , <u>0</u> , <u>1</u> , <u>1</u> ,	
19	-04 56 15	<u>2</u> , <u>3</u> , 2, 2, 1, 1, 3, 3,	
21	13 07 45	4, 2, 1, 1, <u>1</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
22	-06 11 15	<u>5</u> , <u>4</u> , <u>2</u> , 1, 0, 2, 2, 2,	
26	15 ^h 41 ^m 30 ^s - 18 53 45	0, 0, 0, 0, 0, <u>0</u> , <u>0</u> , <u>3</u> ,	Blizzard
27	19 04 45	2, 2, 3, 2, 1, 3, <u>5</u> , <u>5</u> ,	Overcast
28	-02 45 30	<u>6</u> , 2, 1, 3, 5, 3, 4, 4,	
June 4	12 27 45 - 23 37 30	5, 4, 3, 2, <u>2</u> , <u>2</u> , <u>0</u> , <u>4</u> ,	Overcast
5	12 21 45	3, 4, 3, 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
6	-05 45 15	<u>0</u> , <u>2</u> , 2, 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
7	-00 11 30	<u>0</u> , 1, 0, 0, 0, 1, 2, 6,	Snow
10	12 41 00	3, 3, 2, 0, <u>1</u> , <u>2</u> , <u>2</u> , <u>1</u> ,	
11	-00 44 15	<u>4</u> , 2, 0, 0, 0, 0, 0, 1,	Overcast -Snow
12	-00 32 00 - 05 03 30 ; 13 05 00	<u>3</u> , <u>3</u> , 0, 0, <u>0</u> , <u>0</u> , <u>3</u> , <u>3</u> ,	Snow-Overcast -Fine
13	-06 03 00	<u>3</u> , <u>1</u> , <u>3</u> , 3, <u>3</u> , <u>1</u> , <u>2</u> , <u>3</u> ,	
14	-05 33 15	<u>4</u> , <u>4</u> , 1, 0, 0, 0, 2, 2,	
15	12 38 15	5, 4, 3, 2, <u>2</u> , <u>1</u> , <u>3</u> , <u>4</u> ,	Overcast

Day	Hours (Universal Time)	K-Index	Remarks
June 16	-05 ^h 29 ^m 15 ^s ; 13 ^h 51 ^m 00 ^s - 21 ^h 03 ^m 00 ^s	<u>4</u> , <u>4</u> , 3, 0, <u>1</u> , <u>0</u> , <u>0</u> , <u>4</u> ,	Overcast -Snow
17	14 16 15 - 23 37 00	3, 0, 1, 1, <u>1</u> , <u>0</u> , <u>4</u> , <u>5</u> ,	Blizzard
19	13 09 15	5, 4, 2, 0, <u>0</u> , <u>0</u> , <u>3</u> , <u>4</u> ,	
20	-06 54 45	<u>4</u> , <u>6</u> , <u>5</u> , 2, 2, <u>4</u> , <u>5</u> , <u>4</u> ,	Cloud
21	-07 24 15	<u>5</u> , <u>5</u> , <u>5</u> , 2, 2, 2, 2, 1,	
29	15 59 00	1, 1, 1, 0, 0, <u>2</u> , <u>3</u> , <u>3</u> ,	Cloud
30	-06 11 00	<u>0</u> , <u>0</u> , <u>3</u> , 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
July 1	-05 25 45	<u>3</u> , <u>4</u> , X, X, 2, 1, X, X,	Overcast - Snow
2	21 21 45	0, 2, 4, 2, 1, 0, 0, <u>0</u> ,	Snow-Overcast -Fine
3	-07 27 45	<u>4</u> , <u>5</u> , <u>5</u> , 3, <u>2</u> , <u>0</u> , <u>1</u> , <u>6</u> ,	
4	-05 47 30	<u>6</u> , <u>5</u> , 5, 3, <u>1</u> , <u>1</u> , <u>0</u> , <u>2</u> ,	
5	-07 40 30	<u>2</u> , <u>5</u> , <u>3</u> , 1, 1, <u>3</u> , <u>0</u> , <u>3</u> ,	
6	-06 36 15	<u>6</u> , <u>4</u> , <u>4</u> , 4, <u>2</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Overcast
7	-06 46 30	<u>1</u> , <u>1</u> , <u>1</u> , 1, <u>0</u> , <u>1</u> , <u>1</u> , <u>5</u> ,	Cloud
8	-05 29 45	<u>3</u> , <u>4</u> , 3, 1, <u>0</u> , <u>1</u> , <u>3</u> , <u>5</u> ,	
9	-06 14 00	<u>5</u> , <u>6</u> , <u>4</u> , 3, <u>3</u> , <u>3</u> , <u>5</u> , <u>6</u> ,	
10	-05 48 15	<u>7</u> , <u>3</u> , 1, 1, <u>1</u> , <u>2</u> , <u>5</u> , <u>4</u> ,	
11	-05 17 15	<u>5</u> , <u>2</u> , 2, 2, <u>1</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	Overcast
12	-06 05 15	<u>5</u> , <u>5</u> , <u>2</u> , 2, <u>1</u> , <u>1</u> , <u>2</u> , <u>4</u> ,	
13	-04 23 00	<u>4</u> , <u>4</u> , 2, 0, 0, 2, 1, 4,	Overcast -Snow
14	12 35 45	4, 3, 2, 2, <u>1</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
15	-01 33 30	<u>4</u> , 3, 0, 2, 1, 0, <u>1</u> , <u>2</u> ,	Overcast -Snow

Day	Hours (Universal Time)	K-Index	Remarks
July 16	-07 ^h 20 ^m 15 ^s 12 ^h 45 ^m 15 ^s	<u>4</u> , <u>2</u> , <u>0</u> , 0, <u>1</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Snow -Fine
17	-06 10 30 12 39 00	<u>3</u> , <u>0</u> , <u>0</u> , 1, <u>0</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
18	-05 27 00	<u>3</u> , <u>3</u> , 1, 0, 0, 0, 1, 2,	
21	12 54 00	5, 4, 2, 1, <u>3</u> , <u>2</u> , <u>5</u> , <u>5</u> ,	
22	-07 58 30 13 43 30	<u>4</u> , <u>3</u> , <u>2</u> , 2, <u>0</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	
23	-05 19 15	<u>5</u> , <u>2</u> , 2, 1, 1, 0, 2, 0,	Overcast
25	12 35 30	6, 6, 6, 5, <u>3</u> , <u>2</u> , <u>2</u> , <u>6</u> ,	
26	-01 31 45 14 03 45	<u>6</u> , 5, 4, 3, <u>2</u> , <u>1</u> , <u>0</u> , <u>6</u> ,	Overcast -Blizzard
27	-05 55 15 13 35 00	<u>2</u> , <u>4</u> , 2, 2, <u>2</u> , <u>3</u> , <u>4</u> , <u>5</u> ,	
28	-00 07 45 13 03 30	<u>3</u> , 0, 0, 1, <u>1</u> , <u>0</u> , <u>0</u> , <u>1</u> ,	Snow
29	-05 41 45 ; 13 ^h 58 ^m 45 ^s - 21 51 30	<u>3</u> , <u>6</u> , 5, 5, <u>3</u> , <u>3</u> , <u>4</u> , <u>0</u> ,	Overcast
Aug. 1	14 03 45	4, 2, 0, 0, <u>0</u> , <u>0</u> , <u>0</u> , <u>2</u> ,	
2	-08 07 30 13 39 00	<u>4</u> , <u>3</u> , <u>1</u> , 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	Cloud
3	-05 26 45 ; 13 30 45 - 14 12 15	<u>0</u> , <u>1</u> , 0, 0, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	Overcast -Snow
5	13 47 30 - 22 14 30	3, 2, 0, 0, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	Overcast -Blizzard
6	13 25 15	0, 0, 0, 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>5</u> ,	
7	-07 13 15 13 26 15	<u>4</u> , <u>0</u> , <u>1</u> , 0, <u>0</u> , <u>0</u> , <u>1</u> , <u>6</u> ,	Cloud
8	-04 09 45 14 14 15	<u>5</u> , <u>5</u> , 4, 4, <u>2</u> , <u>1</u> , <u>3</u> , <u>6</u> ,	Overcast -Snow
9	-06 15 00	<u>6</u> , <u>4</u> , <u>2</u> , 3, 2, 2, 2, 1,	Cloud
10	13 46 30	3, 3, 1, 2, <u>1</u> , <u>1</u> , <u>1</u> , <u>3</u> ,	
11	-03 38 30	<u>3</u> , <u>3</u> , 1, 2, 1, 1, 1, 6,	Overcast -Snow
12	13 55 30	5, 5, 4, 2, <u>2</u> , <u>0</u> , <u>1</u> , <u>5</u> ,	

Day	Hours (Universal Time)		K-Index	Remarks
Aug. 13	-04 ^h 33 ^m 30 ^s	14 ^h 54 ^m 00 ^s	<u>2</u> , <u>2</u> , 2, 1, <u>1</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	Overcast -Snow
14	-04 36 00	13 44 30	<u>2</u> , <u>4</u> , 0, 0, <u>0</u> , <u>1</u> , <u>0</u> , <u>3</u> ,	Overcast
15	-04 32 30		<u>4</u> , <u>4</u> , 1, 0, 0, 0, 0, 5,	Overcast -Snow
17		14 26 45	5, 7, 7, 3, <u>4</u> , <u>5</u> , <u>5</u> , <u>6</u> ,	
18	-04 34 45	15 01 45	<u>6</u> , <u>6</u> , 4, 3, 3, <u>6</u> , <u>5</u> , <u>5</u> ,	
19	-04 10 30		<u>5</u> , <u>3</u> , 2, 2, 1, 3, 2, 0,	Overcast -Blizzard
20		13 ^h 58 ^m 15 ^s - 23 54 00	0, 0, 1, 0, <u>1</u> , <u>0</u> , <u>1</u> , <u>2</u> ,	Overcast -Snow
22		15 17 15	0, 0, 1, 0, 1, <u>2</u> , <u>2</u> , <u>4</u> ,	
23	-04 42 30	14 08 30	<u>3</u> , <u>4</u> , 1, 1, <u>1</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Cloud
24	-04 28 30		<u>1</u> , <u>3</u> , 0, 0, 0, 0, 2, 1,	
26		14 24 45	5, 4, 5, 4, <u>3</u> , <u>3</u> , <u>3</u> , <u>4</u> ,	Overcast -Snow
27	-04 04 30	14 22 30	<u>4</u> , <u>4</u> , 3, 1, <u>1</u> , <u>3</u> , <u>3</u> , <u>5</u> ,	Overcast
28	-03 23 00	14 45 30	<u>1</u> , <u>3</u> , 3, 0, <u>0</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	
29	-03 24 15	14 18 30	<u>3</u> , <u>5</u> , 4, 2, <u>2</u> , <u>2</u> , <u>0</u> , <u>0</u> ,	
30	-03 58 00 ; 14 28 45 -	23 29 45	<u>4</u> , <u>3</u> , 2, 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	Overcast -Snow
31		14 38 45	0, 3, 3, 1, <u>1</u> , <u>3</u> , <u>5</u> , <u>3</u> ,	
Sept. 1	-03 05 15		<u>2</u> , <u>1</u> , 4, 4, 1, 3, 4, 3,	
3		14 48 30	1, 5, 2, 2, <u>1</u> , <u>2</u> , <u>1</u> , <u>4</u> ,	
4	-03 47 00	14 38 30	<u>3</u> , <u>3</u> , 1, 1, <u>1</u> , <u>1</u> , <u>2</u> , <u>4</u> ,	
5	-03 16 30		<u>4</u> , <u>3</u> , 1, 1, 0, 1, 2, 5,	Cloud
12		15 20 30	1, 2, 2, 1, 0, <u>0</u> , <u>0</u> , <u>1</u> ,	
13	-05 06 30	15 59 30	<u>2</u> , <u>5</u> , 5, 3, 2, <u>2</u> , <u>5</u> , <u>5</u> ,	

Day	Hours (Universal Time)	K- Index	Remarks
Sept. 14	-04 ^h 38 ^m 45 ^s	<u>5</u> , <u>4</u> , 2, 1, 3, 2, 4, 4,	

Table 2. Hours of operation of the 35mm all-sky camera at Syowa Station in 1970.

Day	Hours (Universal Time)	K-Index	Remarks
Mar. 2	18 ^h 00 ^m 00 ^s	6, 5, 4, 3, 2, 2, <u>2</u> , <u>4</u> ,	
3	-00 ^h 25 ^m 00 ^s	<u>4</u> , 2, 2, 3, 2, 3, <u>4</u> , <u>6</u> ,	
4	-00 34 00	<u>5</u> , 4, 1, 2, 3, 3, <u>4</u> , <u>5</u> ,	
5	-00 38 00	<u>4</u> , 2, 2, 2, 2, 3, 5, 5,	
6	19 08 00	6, 3, 2, 2, 2, 4, <u>5</u> , <u>5</u> ,	
7	-00 41 00	<u>5</u> , 6, 3, 3, 3, 4, 6, 5,	
9	19 42 00	5, 6, 3, 3, 2, 5, <u>3</u> , <u>6</u> ,	
10	-00 32 20	<u>5</u> , 1, 2, 2, 2, 2, <u>2</u> , <u>2</u> ,	
11	-00 55 20	<u>1</u> , 1, 2, 2, 2, 1, <u>1</u> , <u>2</u> ,	
12	-01 23 00	<u>3</u> , 3, 2, 2, 2, <u>2</u> , <u>1</u> , <u>1</u> ,	
13	-01 01 40	<u>1</u> , 2, 2, 2, 2, 2, 2, 2,	
16	22 ^h 15 ^m 00 ^s - 23 31 40	1, 1, 1, 2, 2, 1, 1, <u>1</u> ,	Cloud
17	18 12 00	1, 0, 1, 2, 2, 2, <u>2</u> , <u>3</u> ,	
18	-01 36 40	<u>3</u> , 1, 1, 2, 2, <u>2</u> , <u>2</u> , <u>4</u> ,	
19	-01 10 55	<u>2</u> , 2, 1, 2, 2, <u>2</u> , <u>1</u> , <u>3</u> ,	
20	-01 37 40 ; 17 40 00 - 22 41 40	<u>3</u> , 1, 1, 2, 2, <u>2</u> , <u>2</u> , <u>3</u> ,	Overcast -Snow
25	17 00 00 - 22 15 55	1, 1, 1, 2, 2, <u>1</u> , <u>1</u> , <u>1</u> ,	Overcast
26	18 59 00	3, 3, 1, 2, 2, 2, <u>2</u> , <u>2</u> ,	
27	-02 10 50	<u>1</u> , 0, 1, 3, 2, <u>2</u> , <u>3</u> , <u>5</u> ,	
28	-02 08 00	<u>4</u> , 5, 3, 3, 2, <u>4</u> , <u>3</u> , <u>5</u> ,	
29	- ? ; 16 43 00 - 20 47 40	<u>5</u> , 5, 2, 2, 2, <u>2</u> , <u>4</u> , <u>6</u> ,	End unidentified Overcast

Day	Hours (Universal Time)	K-Index	Remarks
Mar. 30	20 ^h 20 ^m 00 ^s	6, 3, 3, 2, 3, 2, <u>3</u> , <u>4</u> ,	
31	-00 ^h 23 ^m 55 ^s	<u>3</u> , 5, 5, 4, 3, 4, 3, 6,	
Apr. 2	16 40 00	0, 0, 1, 1, 1, <u>1</u> , <u>1</u> , <u>0</u> ,	Cloud
3	-02 30 40	<u>3</u> , 5, 4, 2, 1, <u>2</u> , <u>0</u> , <u>1</u> ,	
4	-02 33 40	<u>4</u> , 2, 2, 1, 1, 0, 0, 1,	
13	17 29 00	1, 1, 1, 1, 0, <u>0</u> , <u>0</u> , <u>0</u> ,	
14	-02 12 40	<u>1</u> , 1, 1, 1, 0, 0, <u>0</u> , <u>2</u> ,	Cloud
15	-01 56 40	<u>1</u> , 1, 1, 0, 0, 2, <u>3</u> , <u>3</u> ,	Overcast
16	-02 50 40	<u>4</u> , 5, 4, 2, 1, 1, 5, 5,	Cloud
19	15 55 00	5, 6, 5, 3, 3, <u>2</u> , <u>2</u> , <u>2</u> ,	
20	-03 08 40	<u>2</u> , <u>4</u> , 2, 2, 2, <u>4</u> , <u>3</u> , <u>4</u> ,	
21	-03 26 40	<u>4</u> , <u>5</u> , 5, 4, 4, 6, 8, 6,	
May 10	13 44 00	1, 1, 1, 0, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
11	-04 29 55	<u>0</u> , <u>0</u> , 0, 0, 0, 0, 0, 4,	
14	15 07 00	4, 3, 3, 1, 1, <u>3</u> , <u>3</u> , <u>5</u> ,	
15	-05 07 55	<u>5</u> , <u>1</u> , 2, 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>3</u> ,	
16	-04 55 40	<u>3</u> , <u>2</u> , 1, 0, <u>0</u> , <u>0</u> , <u>1</u> , <u>4</u> ,	
17	- ?	<u>4</u> , <u>5</u> , 4, 1, <u>1</u> , <u>0</u> , <u>0</u> , <u>4</u> ,	End unidentified
18	-05 00 40	<u>4</u> , <u>4</u> , 1, 0, <u>1</u> , <u>0</u> , <u>1</u> , <u>1</u> ,	
19	-04 54 40	<u>2</u> , <u>3</u> , 2, 2, 1, 1, 3, 3,	
21	13 08 00	4, 2, 1, 1, <u>1</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
22	-05 33 55	<u>5</u> , <u>4</u> , 2, 1, 0, 2, 2, 2,	
26	15 ^h 42 ^m 00 ^s - 18 54 55	0, 0, 0, 0, 0, <u>0</u> , <u>0</u> , 3,	Blizzard
27	19 06 00	2, 2, 3, 2, 1, <u>3</u> , <u>5</u> , <u>5</u> ,	Overcast

Day		Hours (Universal Time)		K-Index	Remarks
May	28	-02 ^h 43 ^m 40 ^s	13 ^h 20 ^m 00 ^s	<u>6</u> , 2, 1, 3, <u>5</u> , <u>3</u> , <u>4</u> , <u>4</u> ,	Cloud
	29	-04 04 40	13 03 00	<u>5</u> , <u>4</u> , 4, 1, <u>1</u> , <u>0</u> , <u>2</u> , <u>2</u> ,	
	30	-07 00 40		<u>4</u> , <u>3</u> , <u>3</u> , 4, 2, 3, 2, 0,	
June	1		16 40 00	4, 6, 2, 3, 3, <u>3</u> , <u>3</u> , <u>4</u> ,	Cloud
	2	-06 06 40	12 35 00	<u>4</u> , <u>4</u> , <u>1</u> , 0, <u>0</u> , <u>2</u> , <u>3</u> , <u>4</u> ,	Cloud
	3	-02 20 55		<u>4</u> , 4, 3, 3, 2, 2, 3, 3,	Cloud
	4		12 ^h 28 ^m 00 ^s - 23 31 40	5, 4, 3, 2, <u>2</u> , <u>2</u> , <u>0</u> , <u>4</u> ,	Overcast
	5		12 22 00	3, 4, 3, 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
	6	-05 45 40	12 25 00	<u>0</u> , <u>2</u> , 2, 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	
	7	-00 10 40		<u>0</u> , 1, 0, 0, 0, 1, 2, 6,	Snow
	10		12 42 00	3, 3, 2, 0, <u>1</u> , <u>2</u> , <u>2</u> , <u>1</u> ,	
	11	-00 45 40		<u>4</u> , 2, 0, 0, 0, 0, 0, 1,	Overcast -Snow
	12	-00 33 00 - 05 03 40 ; 13 06 00		<u>3</u> , <u>3</u> , 0, 0, <u>0</u> , <u>0</u> , <u>3</u> , <u>3</u> ,	Snow-Overcast -Fine
	13	-06 04 55	12 41 00	<u>3</u> , <u>1</u> , <u>3</u> , 3, <u>3</u> , <u>1</u> , <u>2</u> , <u>3</u> ,	
	14	-05 33 40		<u>4</u> , <u>4</u> , 1, 0, 0, 0, 2, 2,	
	15		12 40 00	5, 4, 3, 2, <u>2</u> , <u>1</u> , <u>3</u> , <u>4</u> ,	Overcast
	16	-05 30 40 ; 13 53 00 - 21 03 40		<u>4</u> , <u>4</u> , 3, 0, <u>1</u> , <u>0</u> , <u>0</u> , <u>4</u> ,	Overcast -Snow
	17		14 17 00 - 23 37 40	3, 0, 1, 1, <u>1</u> , <u>0</u> , <u>4</u> , <u>5</u> ,	Blizzard
	19		13 10 00	5, 4, 2, 0, <u>0</u> , <u>0</u> , <u>3</u> , <u>4</u> ,	
	20	-06 55 40	15 02 00	<u>4</u> , <u>6</u> , <u>5</u> , 2, 2, <u>4</u> , <u>5</u> , <u>4</u> ,	Cloud
	21	-07 22 40		<u>5</u> , <u>5</u> , <u>5</u> , 2, 2, 2, 2, 1,	
	29		15 59 00	1, 1, 1, 0, 0, <u>2</u> , <u>3</u> , <u>3</u> ,	Cloud
	30	-06 10 40	14 22 00	<u>0</u> , <u>0</u> , <u>3</u> , 2, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	

Day		Hours (Universal Time)		K-Index	Remarks
July	1	-05 ^h 25 ^m 40 ^s		<u>3</u> , <u>4</u> , X, X, 2, 1, X, X,	Overcast -Snow
	2		21 ^h 23 ^m 00 ^s	0, 2, 4, 2, 1, 0, 0, <u>0</u> ,	Snow-Overcast -Fine
	3	-07 28 55	12 59 00	<u>4</u> , <u>5</u> , <u>5</u> , 3, <u>2</u> , <u>0</u> , <u>1</u> , <u>6</u> ,	
	4	-05 48 40	14 05 00	<u>6</u> , <u>5</u> , 5, 3, <u>1</u> , <u>1</u> , <u>0</u> , <u>2</u> ,	
	5	-07 40 40	17 06 00	<u>2</u> , <u>5</u> , <u>3</u> , 1, 1, <u>3</u> , <u>0</u> , <u>3</u> ,	
	6	-06 36 00	12 52 00	<u>6</u> , <u>4</u> , <u>4</u> , 4, <u>2</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Overcast
	7	-06 46 40	14 15 00	<u>1</u> , <u>1</u> , <u>1</u> , 1, <u>0</u> , <u>1</u> , <u>1</u> , <u>5</u> ,	Cloud
	8	-05 29 40	12 48 00	<u>3</u> , <u>4</u> , 3, 1, <u>0</u> , <u>1</u> , <u>3</u> , <u>5</u> ,	
	9	-06 14 40	13 13 00	<u>5</u> , <u>6</u> , <u>4</u> , 3, <u>3</u> , <u>3</u> , <u>5</u> , <u>6</u> ,	
	10	-05 48 40	12 42 00	<u>7</u> , <u>3</u> , 1, 1, <u>1</u> , <u>2</u> , <u>5</u> , <u>4</u> ,	
	11	-05 20 40	12 38 00	<u>5</u> , <u>2</u> , 2, 2, <u>1</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	Overcast
	12	-06 06 40	12 45 00	<u>5</u> , <u>5</u> , <u>2</u> , 2, <u>1</u> , <u>1</u> , <u>2</u> , <u>4</u> ,	
	13	-04 21 40		<u>4</u> , <u>4</u> , 2, 0, 0, 2, 1, 4,	Overcast -Snow
	14		12 36 00	4, 3, 2, 2, <u>1</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
	15	-01 32 55	18 16 00	<u>4</u> , 3, 0, 2, 1, 0, <u>1</u> , <u>2</u> ,	Overcast -Snow
	16	-07 19 40	12 46 00	<u>4</u> , <u>2</u> , <u>0</u> , 0, <u>1</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Snow -Fine
	17	-06 10 55	12 40 00	<u>3</u> , <u>0</u> , <u>0</u> , 1, <u>0</u> , <u>1</u> , <u>2</u> , <u>5</u> ,	
	18	-05 26 40		<u>3</u> , <u>3</u> , 1, 0, 0, 0, 1, 2,	
	21		12 55 00	5, 4, 2, 1, <u>3</u> , <u>2</u> , <u>5</u> , <u>5</u> ,	
	22	-07 57 40	13 44 00	<u>4</u> , <u>3</u> , <u>2</u> , 2, <u>0</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	
	23	-05 19 40		<u>5</u> , <u>2</u> , 2, 1, 1, 0, 2, 0,	Overcast
	25		12 35 00	6, 6, 6, 5, <u>3</u> , <u>2</u> , <u>2</u> , <u>6</u> ,	

Day	Hours (Universal Time)	K-Index	Remarks
Aug. 20	13 ^h 59 ^m 00 ^s - 23 ^h 54 ^m 40 ^s	0, 0, 1, 0, <u>1</u> , <u>0</u> , <u>1</u> , <u>2</u> ,	Overcast -Snow
22	15 18 00	0, 0, 1, 0, 1, <u>2</u> , <u>2</u> , <u>4</u> ,	
23	-04 ^h 42 ^m 40 ^s	<u>3</u> , <u>4</u> , 1, 1, <u>1</u> , <u>1</u> , <u>0</u> , <u>0</u> ,	Cloud
24	-04 29 40	<u>1</u> , <u>3</u> , 0, 0, <u>0</u> , <u>0</u> , <u>2</u> , <u>1</u> ,	
25	-01 44 40	<u>1</u> , 2, 2, 3, 2, 2, <u>2</u> , <u>3</u> ,	Overcast -Snow
26	-05 47 00	<u>5</u> , <u>4</u> , 5, 4, <u>3</u> , <u>3</u> , <u>3</u> , <u>4</u> ,	Overcast -Snow
27	-04 04 40	<u>4</u> , <u>4</u> , 3, 1, <u>1</u> , <u>3</u> , <u>5</u> , <u>5</u> ,	Overcast
28	-03 23 40	<u>1</u> , <u>3</u> , 3, 0, <u>0</u> , <u>2</u> , <u>4</u> , <u>5</u> ,	
29	-03 23 55	<u>3</u> , <u>5</u> , 4, 2, <u>2</u> , <u>2</u> , <u>0</u> , <u>0</u> ,	
30	-03 58 30 ; 14 29 00 - 23 30 30	<u>4</u> , <u>3</u> , 2, 1, <u>0</u> , <u>0</u> , <u>0</u> , <u>0</u> ,	Overcast -Snow
31	14 39 00	0, 3, 3, 1, <u>1</u> , <u>3</u> , <u>5</u> , <u>3</u> ,	
Sept. 1	-03 05 30	<u>2</u> , <u>1</u> , 4, 4, <u>1</u> , <u>3</u> , <u>4</u> , <u>3</u> ,	
2	-04 19 40	<u>4</u> , <u>3</u> , 2, 3, <u>1</u> , <u>2</u> , <u>2</u> , <u>4</u> ,	
3	-03 34 55	<u>1</u> , <u>5</u> , 2, 2, <u>1</u> , <u>2</u> , <u>1</u> , <u>4</u> ,	
4	-03 44 55	<u>3</u> , <u>3</u> , 1, 1, <u>1</u> , <u>1</u> , <u>2</u> , <u>4</u> ,	
5	-03 16 30	<u>4</u> , <u>3</u> , 1, 1, 0, <u>1</u> , <u>2</u> , <u>5</u> ,	Cloud
6	-05 02 55	<u>0</u> , <u>1</u> , 1, 0, 0, <u>0</u> , <u>2</u> , <u>4</u> ,	
7	-03 30 30	<u>2</u> , <u>0</u> , 1, 0, 1, <u>0</u> , <u>3</u> , <u>4</u> ,	
8	-03 32 55	<u>1</u> , <u>1</u> , 3, 1, 0, <u>1</u> , <u>4</u> , <u>2</u> ,	
9	-04 20 55	<u>2</u> , <u>1</u> , 1, 1, 0, <u>0</u> , <u>3</u> , <u>4</u> ,	
10	-00 42 55	<u>5</u> , 5, 2, 0, 0, 0, 0, 0,	Overcast
12	15 21 00	1, 2, 2, 1, 0, <u>0</u> , <u>0</u> , <u>1</u> ,	

Day	Hours (Universal Time)	K-Index	Remarks
Sept. 13	-05 ^h 05 ^m 30 ^s 16 00 00	<u>2</u> , <u>5</u> , 5, 3, 2, <u>2</u> , <u>5</u> , <u>5</u> ,	
14	-04 37 55 15 31 00	<u>5</u> , <u>4</u> , 2, 1, 3, <u>2</u> , <u>4</u> , <u>4</u> ,	
15	-04 37 55 15 42 00	<u>6</u> , <u>5</u> , 3, 1, 1, <u>0</u> , <u>2</u> , <u>3</u> ,	
16	-04 29 55 15 51 00	<u>3</u> , <u>2</u> , 2, 0, 0, <u>0</u> , <u>1</u> , <u>1</u> ,	
17	-03 57 55 17 18 00	<u>3</u> , <u>4</u> , 3, 1, 0, <u>1</u> , <u>1</u> , <u>3</u> ,	
18	-01 57 55 15 40 00	<u>3</u> , 4, 2, 2, 0, <u>1</u> , <u>2</u> , <u>3</u> ,	
19	-03 13 55 15 48 00	<u>2</u> , <u>5</u> , 3, 2, 2, <u>3</u> , <u>5</u> , <u>5</u> ,	Overcast
20	-02 42 55 15 45 00	<u>3</u> , 4, 3, 2, 1, <u>3</u> , <u>3</u> , <u>5</u> ,	
21	-02 31 55 15 53 00	<u>5</u> , 4, 4, 3, 2, <u>3</u> , <u>3</u> , <u>3</u> ,	Overcast -Blizzard
22	-02 46 55 16 01 00	<u>4</u> , 4, 2, 2, 0, <u>3</u> , <u>2</u> , <u>5</u> ,	Overcast -Snow
23	-01 57 00 16 10 00	<u>3</u> , 2, 2, 2, 1, <u>1</u> , <u>1</u> , <u>2</u> ,	
24	-01 54 55 15 53 00	<u>3</u> , 3, 2, 2, 0, <u>1</u> , <u>3</u> , <u>2</u> ,	Cloud
25	-02 20 55 16 07 00	<u>1</u> , 4, 3, 1, 0, <u>1</u> , <u>2</u> , <u>1</u> ,	
26	-01 47 00 16 30 00	<u>1</u> , 3, 2, 1, 1, <u>0</u> , <u>1</u> , <u>5</u> ,	
27	-01 38 55 17 02 00	<u>5</u> , 5, 5, 1, 1, <u>4</u> , <u>4</u> , <u>5</u> ,	
28	-01 31 55 17 40 00	<u>3</u> , 1, 1, 1, 0, <u>0</u> , <u>0</u> , <u>1</u> ,	
29	-04 04 55 16 54 00	<u>1</u> , <u>1</u> , 2, 1, 0, <u>0</u> , <u>0</u> , <u>2</u> ,	
30	-03 31 55 17 44 00	<u>2</u> , <u>3</u> , 2, 1, 0, <u>0</u> , <u>0</u> , <u>3</u> ,	
Oct. 1	-02 32 55 17 00 00	<u>5</u> , 1, 2, 1, 1, <u>0</u> , <u>4</u> , <u>4</u> ,	Overcast -Fine
2	-01 43 55	<u>5</u> , 2, 2, 2, 0, 1, 2, 3,	Cloud
4	18 13 00	5, 6, 3, 3, 2, 2, <u>3</u> , <u>4</u> ,	
5	-01 07 55 17 52 00	<u>4</u> , 3, 3, 1, 0, <u>0</u> , <u>3</u> , <u>2</u> ,	Overcast -Blizzard

Day	Hours (Universal Time)	K-Index	Remarks
Oct. 6	-00 ^h 35 ^m 55 ^s ; 17 ^h 48 ^m 00 ^s - 23 ^h 58 ^m 00 ^s	<u>3</u> , 1, 1, 1, 0, <u>0</u> , <u>1</u> , <u>6</u> ,	
7	17 48 00 - 23 33 55	0, 1, 1, 0, 0, <u>0</u> , <u>0</u> , <u>3</u> ,	Overcast
8	18 33 00	1, 2, 2, 1, 0, 0, <u>0</u> , <u>2</u> ,	
9	-02 12 55 19 36 00	<u>2</u> , 1, 2, 1, 0, 0, <u>0</u> , <u>0</u> ,	Overcast
10	-00 21 55	<u>1</u> , 2, 2, 1, 0, 2, 4, 4,	Overcast
11	18 25 00 - 22 17 55	4, 5, 5, 3, 2, 3, <u>5</u> , <u>4</u> ,	Overcast
12	19 46 00 - 23 21 55	5, 6, 3, 1, 1, 0, <u>0</u> , <u>0</u> ,	
13	19 46 00	1, 3, 3, 1, 1, 1, <u>2</u> , <u>2</u> ,	
14	-00 17 55 19 52 00	<u>4</u> , 4, 2, 1, 1, 0, <u>1</u> , <u>4</u> ,	
15	-00 10 55	<u>4</u> , 2, 2, 1, 0, 0, 1, 1,	
16	20 17 00 - 22 59 55	1, 1, 1, 3, 3, 3, <u>5</u> , <u>4</u> ,	Cloud
17	17 51 00	3, 2, 3, 2, 3, <u>4</u> , <u>7</u> , <u>5</u> ,	
18	-00 37 55 ; 21 26 00 - 23 40 55	<u>6</u> , 5, 3, 2, 3, 3, 3, <u>5</u> ,	Overcast