

Records of All-Sky Camera Photographs at Syowa Station,

Antarctica in 1976

National Institute of Polar Research

This report gives information on all-sky photograph data obtained at Syowa Station in 1976. Copies of the data are available to users on request. The request should be addressed to:

Division of Data Collection and Processing

National Institute of Polar Research

9-10, Kaga 1-chome, Itabashi-ku

Tokyo 173, Japan.

1. Location of observatory

CSAGI Code	Station Name	Geographic		Geomagnetic		Height
		Lat.	Long.	Lat.	Long.	
A984	Syowa	69°00'S	39°35'E	-69.6°	77.1°	15 m above sea level

2. Observer

Mr. Toshio HANEDA: Earthquake Research Institute

University of Tokyo

3. Instrumentation

A 35 mm cine-pulse camera with a fish-eye lens of f/1.4 was used. The observation was carried out during clear nights between March 1 and October 10, 1976. In general, six photographs were taken every minute. The exposure time of each photograph was 7 seconds. During very low auroral activities, photographing rate was reduced to two or four frames per minute. The film used was Kodak 35 mm 4-X with the ASA number of 800.

4. Observation

The date and hour of the observations is given in Fig. 1 and Table 1. Symbols in Fig. 1 are as follows.

Dark area: All-sky camera was operated.

Crossed area: Not operated due to instrument trouble.

Blank area: Not operated due to bad weather conditions.

The time in Table 1 is given by UT, while the clock which is put in all-sky photographs gives LT (LT = UT + 3 hours). The underlines for the three-hourly K-indices in Table 1 represent the period in which the all-sky camera was operated.

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

K-index:	0	0 -	25 nT
	1	25 -	50 nT
	2	50 -	100 nT
	3	100 -	200 nT
	4	200 -	350 nT
	5	350 -	600 nT
	6	600 -	1000 nT
	7	1000 -	1660 nT
	8	1660 -	2500 nT
	9	more than	2500 nT

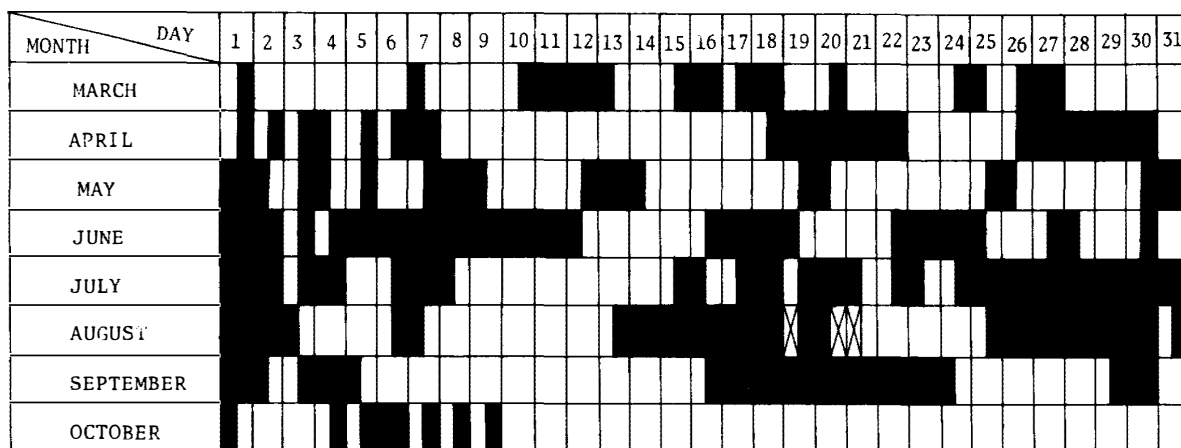


Fig. 1. Days of observation by 35 mm all-sky camera in 1976.

Table 1. Hours of operation of the 35mm all-sky camera at Syowa Station in 1976.

Date	Hours (Universal Time)			K-Index
Mar. 1		19 ^h 01 ^m 00 ^s	-23 ^h 52 ^m 57 ^s	5521 1124
7		19 31 00	-23 56 57	6432 1324
10			19 22 00	4633 2336
11	-00 ^h 01 ^m 57 ^s		19 26 00	6623 2335
12	-00 01 57		19 20 00	6433 2125
13	-00 01 57			6221 1133
15			19 30 00	3422 2413
16	-00 00 57	19 01 00	-22 23 57	3322 2343
17			18 08 00	5432 2225
18	-00 01 57	19 12 00	-23 59 57	4222 1133
20		19 40 00	-23 00 57	2222 1211
24			21 58 00	3221 1112
25	-00 00 57			1111 1111
26			21 01 00	3765 4456
27	-01 35 57	20 22 00	-23 04 57	7542 2366
Apr. 1		19 17 00	-22 00 57	7775 4554
2		17 56 00	-21 54 57	5420 1225
3			17 40 00	5563 3567
4	-00 56 57			6453 3436
5		17 56 00	-23 27 57	6642 3254
6			17 16 00	6653 2446
7	-02 02 17	16 31 00	-23 29 57	6542 4245
18			16 31 00	1000 0100
19	-01 34 57		17 00 00	1101 0211
20	-01 22 57		17 30 00	0111 2220
21	-03 00 27		17 20 00	1012 2001
22	-01 59 27	16 01 00	-22 11 27	2442 2235

Date		Hours (Universal Time)		K-Index
Apr.	26		^h 22 ^m 05 ^s 00	3111 000 <u>3</u>
	27	^h -03 ^m 00 ^s 57	21 40 00	<u>4</u> 420 002 <u>5</u>
	28	-02 58 57	16 02 00	<u>3</u> 321 01 <u>1</u> <u>5</u>
	29	-02 31 57	16 51 00	<u>3</u> 301 <u>3</u> <u>4</u> <u>3</u> <u>6</u>
	30	-02 25 57	15 21 00	<u>3</u> 422 01 <u>2</u> <u>2</u>
May	1	-03 00 57	16 01 00	<u>5</u> 120 01 <u>2</u> <u>4</u>
	2	-02 57 57		<u>6</u> 213 4267
	3		16 05 00	7756 <u>3</u> <u>2</u> <u>4</u> <u>3</u>
	4	-02 56 57		<u>3</u> 432 3355
	5		^h 18 ^m 00 ^s 00 -20 35 57	6522 20 <u>2</u> <u>4</u>
	7		18 00 00	6321 00 <u>1</u> <u>5</u>
	8	-01 24 57	16 31 00	<u>3</u> 421 1 <u>0</u> <u>0</u> <u>2</u>
	9	-00 12 57		<u>4</u> 320 0022
	12		20 37 00	4222 11 <u>0</u> <u>4</u>
	13	-01 02 25	19 19 00	<u>1</u> 000 00 <u>1</u> <u>2</u>
	14	-00 01 45		<u>2</u> 000 0000
	19		16 13 00	0000 00 <u>4</u> <u>4</u>
	20	-01 04 57		<u>4</u> 543 1354
	25		19 25 00	3231 11 <u>1</u> <u>1</u>
	26	-00 03 57		<u>4</u> 210 0012
	30		19 48 00	6523 21 <u>4</u> <u>4</u>
31	-30 22 57	16 11 00	<u>4</u> 422 11 <u>2</u> <u>4</u>	
June	1	-03 57 57	16 11 00	<u>2</u> 112 20 <u>5</u> <u>4</u>
	2	-03 57 57	20 29 00 -22 41 57	<u>4</u> 322 01 <u>2</u> <u>3</u>
	3		16 21 00 -22 06 57	4310 01 <u>2</u> <u>4</u>
	4		14 45 00	3532 <u>2</u> <u>2</u> <u>1</u> <u>3</u>
	5	-05 04 57	14 00 00	<u>4</u> 532 <u>3</u> <u>3</u> <u>2</u> <u>4</u>

Date		Hours (Universal Time)		K-Index
June	6	-04 ^h 58 ^m 57 ^s	15 ^h 18 ^m 00 ^s	<u>3</u> <u>1</u> <u>2</u> 1 <u>2</u> <u>1</u> <u>1</u> <u>3</u>
	7	-04 57 57	20 54 00	<u>5</u> <u>3</u> <u>3</u> 2 <u>2</u> <u>2</u> <u>0</u> <u>5</u>
	8	-04 57 57	21 03 00	<u>3</u> <u>3</u> <u>2</u> 3 <u>1</u> <u>1</u> <u>1</u> <u>2</u>
	9	-04 58 57	21 46 00	<u>2</u> <u>2</u> <u>1</u> 0 <u>0</u> <u>0</u> <u>0</u> <u>1</u>
	10	-03 58 57	21 52 00	<u>0</u> <u>1</u> <u>0</u> 0 <u>0</u> <u>0</u> <u>1</u> <u>4</u>
	11	-05 01 37	19 32 00	<u>6</u> <u>6</u> <u>5</u> 3 <u>3</u> <u>3</u> <u>3</u> <u>3</u>
	12	-03 57 37		<u>2</u> <u>2</u> <u>1</u> 2 <u>2</u> <u>1</u> <u>0</u> 0
	16		21 20 00	<u>3</u> <u>3</u> <u>1</u> 0 <u>0</u> <u>0</u> <u>0</u> <u>2</u>
	17	-02 14 27	22 11 00	<u>2</u> <u>3</u> <u>1</u> 2 <u>2</u> <u>2</u> <u>2</u> <u>3</u>
	18	-04 56 37	19 37 00	<u>5</u> <u>5</u> <u>4</u> 3 <u>2</u> <u>2</u> <u>3</u> <u>3</u>
	19	-04 57 57		<u>1</u> <u>1</u> <u>0</u> 2 <u>0</u> <u>0</u> <u>0</u> 0
	22		14 41 00	<u>0</u> <u>0</u> <u>0</u> 0 <u>0</u> <u>0</u> <u>0</u> <u>0</u>
	23	-04 55 27	14 43 00	<u>2</u> <u>1</u> <u>0</u> 0 <u>0</u> <u>0</u> <u>0</u> <u>1</u>
	24	-05 00 57	15 05 00	<u>1</u> <u>2</u> <u>1</u> 0 <u>0</u> <u>2</u> <u>3</u> <u>5</u>
	25	-04 59 57		<u>4</u> <u>5</u> <u>4</u> 1 <u>1</u> <u>1</u> <u>4</u> 4
	27		18 51 00	<u>4</u> <u>4</u> <u>1</u> 0 <u>0</u> <u>0</u> <u>0</u> <u>3</u>
	28	-05 00 57		<u>4</u> <u>2</u> <u>1</u> 0 <u>0</u> <u>0</u> <u>2</u> <u>2</u>
	30		14 46 00	<u>1</u> <u>2</u> <u>4</u> 4 <u>3</u> <u>2</u> <u>3</u> <u>3</u>
July	1	-05 01 57	14 40 00	<u>5</u> <u>5</u> <u>2</u> 3 <u>2</u> <u>2</u> <u>1</u> <u>3</u>
	2	-05 01 57	14 ^h 51 ^m 00 ^s -23 15 27	<u>4</u> <u>2</u> <u>3</u> 1 <u>2</u> <u>1</u> <u>0</u> <u>3</u>
	3		14 48 00	<u>1</u> <u>4</u> <u>2</u> 2 <u>2</u> <u>1</u> <u>1</u> <u>4</u>
	4	-04 59 57	14 45 00 -23 14 27	<u>3</u> <u>3</u> <u>3</u> 2 <u>2</u> <u>2</u> <u>4</u> <u>1</u>
	6		20 56 00	<u>4</u> <u>0</u> <u>1</u> 1 <u>0</u> <u>0</u> <u>0</u> <u>1</u>
	7	-05 06 37	21 44 00	<u>3</u> <u>1</u> <u>1</u> 1 <u>1</u> <u>1</u> <u>0</u> <u>4</u>
	8	-04 58 37		<u>1</u> <u>4</u> <u>2</u> 1 <u>2</u> <u>1</u> <u>3</u> <u>4</u>
	15		23 44 00	<u>3</u> <u>1</u> <u>1</u> 0 <u>0</u> <u>1</u> <u>5</u> <u>6</u>
	16	-00 22 57		<u>3</u> <u>5</u> <u>4</u> 2 <u>2</u> <u>3</u> <u>3</u> <u>4</u>

Date		Hours (Universal Time)			K-Index	
July	17			16 ^h 40 ^m 00 ^s	2201	<u>1102</u>
	18	-04 ^h 04 ^m 47 ^s	14 ^h 45 ^m 00 ^s	-23 19 37	<u>1210</u>	<u>0013</u>
	19			14 47 00	4110	<u>0000</u>
	20	-03 01 17		14 51 00	<u>2110</u>	<u>0002</u>
	21	-02 33 37			<u>3000</u>	0000
	22			21 22 00	0010	<u>0001</u>
	23	-03 57 57			<u>3301</u>	0000
	24			14 57 00	0000	<u>0021</u>
	25	-04 20 57		18 21 00	<u>5211</u>	<u>1102</u>
	26	-04 33 57		19 44 00	<u>3000</u>	<u>0013</u>
	27	-02 22 57		14 58 00	<u>1101</u>	<u>1034</u>
	28	-04 01 57		17 50 00	<u>6232</u>	<u>2243</u>
	29	-04 00 57		14 35 00	<u>4433</u>	<u>3223</u>
	30	-03 59 57		18 46 00	<u>4532</u>	<u>3114</u>
	31	-04 01 57		19 42 00	<u>4132</u>	<u>1101</u>
Aug.	1	-03 01 57		18 57 00	<u>2311</u>	<u>0044</u>
	2	-03 01 37		20 37 00	<u>4222</u>	<u>1103</u>
	3	-02 59 37			<u>2231</u>	0224
	6			19 45 00	3421	<u>1001</u>
	7	-02 58 57			<u>1110</u>	1003
	13			21 05 00	0000	<u>0001</u>
	14	-02 10 57		16 29 00	<u>0000</u>	<u>2000</u>
	15	-01 46 00		21 06 00	<u>0000</u>	<u>0001</u>
	16	-01 47 57		21 07 00	<u>0311</u>	<u>1103</u>
	17	-02 56 57		18 00 00	<u>5100</u>	<u>0000</u>
	18	-02 51 57	21 26 00	-23 47 57	<u>1200</u>	<u>0002</u>
	19			21 11 00	1110	<u>0102</u>

Date		Hours (Universal Time)		K-Index
		^h ^m ^s	^h ^m ^s	
Aug.	20	-20 29 57		<u>3</u> 200 0001
	25		17 33 00	4532 <u>2333</u>
	26	-02 45 57	18 09 00	<u>5</u> 442 21 <u>35</u>
	27	-02 58 57	18 09 00	<u>5</u> 012 12 <u>34</u>
	28	-03 00 57	17 08 00	<u>3</u> 111 12 <u>30</u>
	29	-03 00 57	17 24 00	<u>2</u> 300 0 <u>201</u>
	30	-02 58 57	19 ^h 12 ^m 00 ^s -22 37 57	<u>4</u> 400 00 <u>13</u>
	31		19 57 00	0000 02 <u>13</u>
Sep.	1	-02 30 57	19 34 00	<u>3</u> 311 01 <u>33</u>
	2	-01 59 57		<u>4</u> 462 2133
	3		19 17 00	3421 11 <u>33</u>
	4	-02 31 57	21 15 00	<u>4</u> 421 11 <u>13</u>
	5	-02 00 57		<u>5</u> 412 1103
	16		21 38 00	4100 00 <u>20</u>
	17	-00 58 57	18 07 00	<u>4</u> 320 00 <u>54</u>
	18	-01 00 57	20 45 00	<u>4</u> 654 20 <u>00</u>
	19	-00 58 57	18 15 00	<u>1</u> 112 2 <u>344</u>
	20	-00 57 57	18 25 00	<u>6</u> 643 4 <u>355</u>
	21	-00 56 57	18 37 00	<u>3</u> 522 2 <u>335</u>
	22	-00 00 57	18 11 00	<u>3</u> 322 2 <u>223</u>
	23	-00 44 57	21 40 00	<u>3</u> 122 2 <u>232</u>
	24	-00 56 57		<u>4</u> 111 0002
	29		20 00 00	0211 01 <u>24</u>
	30	-00 24 57	19 14 00	<u>3</u> 410 01 <u>35</u>
Oct.	1	-00 02 57		<u>2</u> 123 1004
	4		19 56 00 -23 49 57	2111 10 <u>13</u>
	5		20 01 00	5422 01 <u>21</u>

Date		Hours (Universal Time)			K-Index	
Oct.	6	-00 ^h 00 ^m 57 ^s	20 ^h 37 ^m 00 ^s	-23 ^h 57 ^m 57 ^s	<u>2321</u>	<u>1123</u>
	7		19 30 00	-23 29 57	2000	01 <u>31</u>
	8		20 46 00	-22 24 57	0011	11 <u>23</u>
	9		20 05 00	-23 15 57	4311	11 <u>22</u>