

GLACIOLOGICAL DATA COLLECTED BY THE JAPANESE ANTARCTIC  
RESEARCH EXPEDITION IN 1980

Shun'ichi KOBAYASHI,  
(Institute of Low Temperature Science, Hokkaido Univ., Sapporo 060)

Tetsuo OHATA,  
(Water Research Institute, Nagoya Univ., Nagoya 464)

Nobuyoshi ISHIKAWA,  
(Institute of Low Temperature Science, Hokkaido Univ., Sapporo 060)

Kouji MATSUBARA  
(Aerological Laboratory, Japan Meteorological Agency, Tsukuba 305)

and

Sadao KAWAGUCHI  
(National Institute of Polar Research, Itabashi-ku, Tokyo 173)

1. Introduction

The glaciological and meteorological research of the 21st Japanese Antarctic Research Expedition (JARE-21) was carried out near Syowa Station and Mizuho Station, and along the traverse route between the two stations and from Syowa Station to the Yamato Mountains by the station personnel and traverse parties from January 1980 to January 1981. Figure 1 shows the map of the observation region and the traverse routes.

The present report contains the following data.

- (1) Net accumulation of snow at Mizuho Station.
- (2) Net accumulation of snow along the routes S, H, Z, G and Y.
- (3) Surface synoptic observations during oversnow traverses.
- (4) Meteorological data obtained at unmanned stations S16 and F0.
- (5) Thickness of sea ice near Syowa Station.
- (6) Blowing snow observation at Mizuho Station.

The main traverse trips made in 1980 are the following:

- (i) Syowa Station - Mizuho Station - Y100

- (a) January 7-20, 1980
- (b) August 11 - September 7, 1980
- (c) September 30 - October 14, 1980
- (d) October 16 - November 17, 1980
- (e) January 4-23, 1981

(ii) Syowa Station - H180 - Yamato Mountains

November 24 - December 23, 1980

Of the above traverses, (a), (b), (c) and (e) were the supply trips to Mizuho Station, (d) was the traverse under the Artificial Earthquake Project. The last one was the traverse for the construction of the air field base and for the flight observation of the Yamato Mountains and the Sør Rondane Mountains.

The positions and elevations of the observation stations which are referred to in the report are noted in JARE Data Reports, No. 17 (Glaciology) (ed. Ishida, 1972), No. 27 (Glaciology) (ed. Shimizu, 1975), No. 28 (Glaciology) (ed. Naruse, 1975) and No. 36 (Glaciology) (ed. Watanabe, 1977). The L route made in 1980 during the traverse to the Yamato Mountains is a new route. The position and elevation of the points are listed in Table 1. The position of the points was calculated from the direction and distance data between the selected points from H180 to A035. The error would be  $\pm 2'$  for latitude and  $\pm 6'$  for longitude. The elevation was calculated from the measurement by a Paulin altimeter. Only air pressure calibration was considered. It was made from the atmospheric pressure measurement made at Mizuho Station. The error would be  $\pm 20$  m.

2. Net accumulation of snow at Mizuho Station

Observers; Shun'ichi Kobayashi, Nobuyoshi Ishikawa,  
Tetsuo Ohata

Three kinds of stake farms were used to estimate the net accumulation of snow; a 9-stake farm, a 36-stake farm and a 201-stake farm. Measurement of the 9-stake farm was made once a month on the first or the last day of the month. Other farms were measured only twice, in February 1980 and in January 1981. The positions of the farms are shown in Fig. 2. The data are shown in Tables 2, 3 and 4. The 201-stake farm is composed of two stake lines, one near to the direction of the prevailing wind and the other perpendicular to it. A snow drift had developed along the former stake line due to the existence of the stakes, which means that the natural condition is not observable there, and so the data along that line were excluded from the table.

3. Net accumulation of snow along the routes S, H, Z, G and Y

Observers; Nobuyoshi Ishikawa, Tetsuo Ohata,  
Kazuhide Sato (JARE-22)

Snow stakes which are situated at intervals of 1-2 km along the routes S, H, Z, G and Y were measured whenever the traverse party took the routes. The net accumulation data are shown in Table 5.

4. Surface synoptic observations during oversnow traverses

Observers; Takeo Ueno, Nobuyoshi Ishikawa,  
Takahiro Sakamoto, Tetsuo Ohata,  
Jiro Inoue (JARE-22), Motoyasu Sato (JARE-22)

Air temperature, wind speed, wind direction, amount and

genus of clouds, weather and visibility were observed during the traverses. The instruments used were a stem thermometer or Assmann psychrometer, a 3-cup anemometer and a hand compass. Other elements were observed by eye measurement. The height of the observations of air temperature and wind speed was 1.5-2 m above snow surface. The notation for the tables and the collected data are shown in Table 6.

5. Meteorological data at S16 and F0

Observers; Kouji Matsubara, Takeo Ueno,  
Takahiro Sakamoto, Kazumasa Matsuhara

Two temporal meteorological points were built near S16 (elevation 430 m) and F0 (elevation 30 m) along the flow line of the prevailing katabatic wind near the edge of the ice sheet. The position of both sites is shown in Fig. 3.

Air temperature and wind speed were measured and were telemetered to Syowa Station. This observation system was developed by Mr. Fujisawa of JARE-18. Figure 4 shows the observation system. Air temperature was measured by a thermistor thermometer and wind speed by 3-cup anemometer. The resistance change of the thermistor and the contact signal (1 contact every 100 m) of the anemometer were transformed into a FM wave on the radio wave of 1680 MHz in carrier frequency by the use of a Rawin sonde (RSII 69A). The system was powered by a storage battery which was renewed every 1.5-2 months. The radio wave was received at Syowa Station by an aerological observation system (D55B-2), and recorded on a pen recorder. Recording was mostly made twice a day after the aerological observation on 03 LT and 15 LT. The height of the sensors was as follows:

Site	Sensor	Height (m)
S16	Thermometer	5.7
	Anemometer	5.8
F0	Thermometer	2.2
	Anemometer	2.5

The thermometers were calibrated by an Assmann ventilated psychrometer. The data are shown in Table 7.

6. Measurement of sea ice thickness around Ongul Island in 1980  
 Observers; Shun'ichi Kobayashi, Nobuyoshi Ishikawa,  
 Kazuyuki Shiraishi, Yasuhiko Naito

Sea ice around Ongul Islands flowed away due to the heavy blizzard which hit on March 17-18, 1980. The measurements of the thickness of young ice around Syowa Station were made from April to December 1980, and the results are tabulated in Table 8. Site No. in the table corresponds to the number in Fig. 5.

7. Measurements of blowing snow under strong wind condition  
 at Mizuho Station

Observers; Shun'ichi Kobayashi, Nobuyoshi Ishikawa,  
 Tetsuo Ohata

Measurements of the mass flux of blowing snow under strong wind conditions were carried out with collectors shown in Fig. 6. Five collectors (2 cm in diameter of inlet) were mounted on an 8 m pole at 30, 70, 130, 205 and 328 cm in height, and three collectors (5 cm in diameter of inlet) on a 30 m high observation tower at 6.5, 14 and 28 m in height. The collection efficiency of these collectors was about 0.297. The results are given in Table 9. The average wind speed and air temperature during the sampling period are also shown. Height of the sensors was 7.2 m and 1.7 m respectively.

Table 1. Position and elevation of stations along route L.

Station No.	Latitude	Longitude	Elevation (m)
H180	<u>69°35'S</u>	<u>42°00'E</u>	1543 ( <u>1540</u> )
L 8			1583
14			1619
18	70°04'S	42°00'E	1675
19			1687
23			1731
29			1756
34			1810
37	70°37'S	42°00'E	1824
38			1844
42			1914
46			1916
50			2025
54	71°08'S	42°00'E	2093
55			2094
66			2120
71			2116
74	71°28'S	40°30'E	2145
75			2155
88			2146
94			2208
103			2195
108	71°41'S	38°51'E	2249
115			2319
A031	<u>71°52'S</u>	<u>37°03'E</u>	2373 ( <u>2410</u> )

The data with underline was taken from JARE Data Reports, No. 28 (ed. Naruse, 1975).

Table 2. Net accumulation with 9-stake farm (mm in depth).

No.		Month									Mean
		1	2	3	4	5	6	7	8	9	
Jan.	1980	83	101	13	36	24	19	27	8	21	37
Feb.		-25	16	22	-20	33	23	-12	15	45	11
Mar.		88	-2	2	35	0	5	0	25	-4	15
Apr.		-83	12	38	5	10	20	5	-20	9	-4
May		2	5	7	-14	-3	7	3	-7	9	1
June		-4	-2	-7	6	6	-9	-5	-3	-6	-3
July		5	4	8	8	4	9	10	18	4	8
Aug.		2	-2	2	0	0	-2	-8	2	18	1
Sept.		-1	-1	-5	-4	-2	0	5	-11	-20	-4
Oct.		1	1	0	0	2	0	0	-4	-3	0
Nov.		-10	-20	-12	-54	-12	-10	-13	-10	-9	-17
Dec.		-15	-22	-13	-1	-15	-15	-12	-16	-16	-14

Table 3. Net accumulation with 36-stake farm (cm in depth).

Period Stake No.	Jan. 7 -Feb. 7, 1980	Feb. 7 -Jan. 19, 1981	Jan. 7, 1980 -Jan. 19, 1981
I - 1	5	2	7
2	-1	-5	-6
3	35	1	36
4	16	0	16
5	9	-6	3
6	-1	-1	-2
II- 1	13	-1	12
2	0	-6	-6
3	11	10	21
4	0	13	13
5	7	-12	-5
6	13	0	13
III- 1	1	-2	-1
2	10	-1	9
3	-1	29	28
4	26	3	29
5	1	19	20
6	0	-4	-4
IV- 1	2	8	10
2	56	-6	50
3	17	-5	12
4	8	-2	6
5	26	3	29
6	-1	-3	-4
V - 1	10	-4	6
2	24	-5	19
3	20	18	38
4	32	-5	27
5	1	-5	-4
6	1	-4	-3
VI- 1	3	-2	1
2	-2	-3	-5
3	0	-6	-6
4	0	-4	-4
5	-1	6	5
6	0	-3	-3



Table 4. Net accumulation with 201-stake farm (cm in depth).

Stake No.	Net Acc.	Stake No.	Net Acc.	Stake No.	Net Acc.
102	-4	136	-4	170	11
103	-4	137	-3	171	8
104	-4	138	4	172	8
105	-4	139	2	173	2
106	-2	140	3	174	2
107	-2	141	12	175	3
108	-5	142	14	176	-1
109	-4	143	6	177	-1
110	-2	144	5	178	-2
111	-4	145	4	179	2
112	-5	146	7	180	7
113	-4	147	1	181	11
114	-3	148	9	182	15
115	-3	149	13	183	20
116	-4	150	13	184	32
117	-3	151	12	185	29
118	-3	152	10	186	12
119	-6	153	13	187	25
120	-3	154	-4	188	17
121	2	155	16	189	21
122	2	156	1	190	25
123	2	157	9	191	20
124	6	158	13	192	16
125	9	159	15	193	8
126	12	160	-3	194	5
127	16	161	6	195	42
128	24	162	-3	196	2
129	23	163	-3	197	-8
130	16	164	-5	198	-7
131	13	165	-4	199	14
132	5	166	8	200	8
133	0	167	9	201	12
134	8	168	17		
135	1	169	17		

Table 5. Net accumulation along routes S, H, Z, G and Y (cm in depth).

Period Station No.	Oct. 1979 - Jan. 1980 (71-78 days)	Jan. - Sept. 1980 (237-245 days)	Sept. - Oct. 1980 (33-41 days)	Oct. - Nov. 1980 (31-38 days)	Nov. 1980 - Jan. 1981 (51-70 days)	Jan. 1980 - Jan. 1981 (368-384 days)
S 17	-1	38	10	-11	-11	26
18	-27	48	-2	6	-8	44
19	-16	23	0	-1	-7	15
20	-5	99	3	9	-8	103
21	4	-7	0	1	-8	-14
22	-11	24	49	-6	-8	59
23	-15	76	-13	-1	-	-
24	11	61	9	-1	-5	64
25	-2	37	-4	1	-2	32
26	15	45	-2	1	7	51
27	5	49	-2	-3	0	44
28	-	36	0	2	-6	32
29	-3	65	-5	1	-6	55
30	-	← 70 (282 days) →		1	-4	67
H 3	-3	← 84 (282 days) →		-31	-2	51
9	-4	56	-1	1	0	56
15	8	67	0	0	-4	63
21	1	41	15	-10	-6	40
27	-9	43	8	9	-8	52
35	-	52	1	0	-3	50
42	0	12	0	0	-5	7
48	-3	35	0	0	0	35
54	8	51	0	0	-8	43
60	11	54	0	6	-6	54
64	10	50	1	1	-10	42
68	-10	24	-	7	-13	-
72	6	67	12	-3	-11	65
76	-3	18	6	-1	4	27
80	19	35	0	0	-2	33
84	5	-	-	0	1	-
88	0	23	1	12	-7	29
92	-1	25	1	3	-10	19
96	2	44	0	1	-7	38
100	-1	21	1	0	-4	18
104	-6	30	← -2 (72 days) →		-7	21
108	5	24	1	5	-6	24
112	1	30	0	2	0	32
116	25	44	0	-1	-5	38
120	1	24	0	8	-6	26

Period Station No.	Oct. 1979 - Jan. 1980 (71-78 days)	Jan. - Sept. 1980 (237-245 days)	Sept. - Oct. 1980 (33-41 days)	Oct. - Nov. 1980 (31-38 days)	Nov. 1980 - Jan. 1981 (51-70 days)	Jan. 1980 - Jan. 1981 (368-384 days)
H 124	-3	23	0	0	-1	22
128	4	22	2	← 1 (89 days) →		25
132	-6	26	0	-2	-8	16
136	-6	24	1	5	5	35
140	-1	27	8	-1	-8	26
144	-3	26	5	2	-10	23
148	-5	30	1	-2	-5	24
152	-5	29	1	-1	-7	22
156	-7	31	0	1	-8	24
160	-6	18	0	8	-8	18
164	-	33	4	-1	-2	34
168	-	39	1	1	-2	39
172	-	28	1	0	4	33
176	-3	27	-1	-1	-4	26
180	-1	9	14	1	-9	15
184	-7	30	-1	0	-1	28
188	0	← 22 (278 days) →		5	-10	17
192	-5	34	7	0	-9	32
196	-5	36	0	7	-2	41
200	-6	28	-7	5	-10	16
204	0	28	0	-2	-2	24
208	-8	29	1	-2	-6	22
212	5	26	6	10	5	47
216	-3	35	0	-1	-2	32
220	0	36	-6	-2	-3	25
224	-6	30	-	-1	8	-
228	4	53	0	-1	-8	44
232	7	4	13	-1	-8	8
236	-4	34	5	-13	11	37
240	-2	28	1	0	-2	27
244	9	6	3	-1	2	10
248	-7	30	-3	2	-3	26
252	-9	34	12	-10	-3	33
256	0	35	← -5 (72 days) →		1	31
260	2	27	1	-1	-4	23
264	-4	29	12	-2	1	40
268	2	57	-3	-4	-1	49
272	-5	32	← -3 (72 days) →		2	31
276	-9	37	2	7	0	46

Period Station No.	Oct. 1979 - Jan. 1980 (71-78 days)	Jan. - Sept. 1980 (237-245 days)	Sept. - Oct. 1980 (33-41 days)	Oct. - Nov. 1980 (31-38 days)	Nov. 1980 - Jan. 1981 (51-70 days)	Jan. 1980 - Jan. 1981 (368-384 days)
H 280	-4	47	1	-1	-4	43
284	-10	21	2	-1	-8	14
288	-1	37	-4	-1	-9	23
293	-10	41	1	-3	-13	26
297	2	45	1	0	-9	37
301	-19	26	2	0	-4	24
S 122	← 9 (316 days) →		← 1 (131 days) →			-
Z 2	-1	19	-2	0	-3	14
4	-1	-3	-3	2	0	-4
6	-2	4	2	-2	2	6
8	-2	20	1	-2	3	22
10	-3	21	-1	0	-1	19
12	0	3	10	-4	0	9
14	-4	46	2	-2	-7	39
16	-4	18	-1	-1	-4	12
18	1	24	1	0	-4	21
20	4	20	10	0	-4	26
22	7	-	-	-1	11	-
24	-3	17	1	0	11	29
26	-4	9	3	-2	2	12
28	-4	3	0	0	-2	1
30	-4	20	3	-4	-5	14
32	-2	7	-1	-1	5	10
34	-4	-1	4	-3	1	1
36	-8	25	12	0	-3	34
38	-12	5	0	2	-3	4
40	-3	12	3	-9	-7	-1
42	-2	5	4	2	2	13
46	-4	7	0	0	0	7
50	-8	38	2	0	-6	34
54	-2	64	-48	0	-4	12
58	4	38	1	0	9	48
62	0	4	1	-2	-8	-5
66	4	46	-42	4	-6	2
70	9	12	6	2	-7	13
72	0	-2	1	1	3	3
74	-1	-11	11	-1	-2	-3
76	-2	25	0	0	-4	21

Period Station No.	Oct. 1979 - Jan. 1980 (71-78 days)	Jan. - Sept. 1980 (237-245 days)	Sept. - Oct. 1980 (33-41 days)	Oct. - Nov. 1980 (31-38 days)	Nov. 1980 - Jan. 1981 (51-70 days)	Jan. 1980 - Jan. 1981 (368-384 days)
Z 78	-1	-3	1	0	1	-1
80	-2	15	-5	1	5	16
82	-7	26	3	0	0	29
84	1	42	1	0	-7	36
86	-2	← 32	(275 days)	→ 5	-9	28
88	-5	← 3	(275 days)	→ 0	-5	-2
90	8	15	6	-1	-4	16
92	-4	← 11	(275 days)	→ 0	-4	7
94	-3	-3	1	0	-4	-6
96	-3	-1	4	-2	-4	-3
98	-3	← 11	(275 days)	→ 3	-6	8
100	0	← 6	(275 days)	→ 0	-5	1
102	14	14	1	0	-3	12

Period Station No.	Jan. - Oct. 1980 (277 days)
G 2	42
4	47
6	41
8	17
10	35
12	18
14	29
16	35
18	19
20	24
22	28
24	26
26	35
28	-

Period Station No.	Oct. 1979 - Jan. 1980 (90-91 days)	Jan. - Aug. 1980 (224-225 days)	Aug. - Oct. 1980 (39-41 days)	Oct. 1980 Jan. 1981 (108-109 days)
Y 1802	-4	← -1	→	-3
1804	-1	← -2	→	0
1806	-4	← -1	→	-2
1808	-11	← 44	→	-15
1810	-3	← 44	→	-6
1812	3	← 13	→	-11
1814	-7	← 57	→	3
1816	31	← 6	→	-2
1818	-2	← 60	→	-4
1820	-10	← 49	→	7
1822	27	← 52	→	-7
1824	2	← 4	→	-4
1826	0	21	-2	9
1828	27	-13	21	-9
1830	1	35	8	-9
1832	-3	← 29	→ (265 days)	12
1834	-3	3	-67	-1
1836	-5	32	17	-5
1838	21	49	-6	-5
1840	15	31	0	1
1842	-17	← 35	→ (265 days)	-4
1844	-3	← 18	→ (265 days)	0
28	-3	2	0	-3
30	-2	-2	0	-1
32	-2	7	1	-5
34	10	36	1	-6
36	-4	17	-1	7
38	25	11	2	-3
40	8	23	-6	4
42	5	14	1	15
44	1	6	0	-4
46	1	4	8	1
48	-1	8	16	-3
50	1	23	0	4
52	-1	24	4	-4
54	-3	13	17	-8
56	2	-3	1	-3

Period Station No.	Oct. 1979 - Jan. 1980 (90-91 days)	Jan. - Aug. 1980 (224-225 days)	Aug. - Oct. 1980 (39-41 days)	Oct. 1980 Jan. 1981 (108-109 days)
Y 58	-2	9	2	2
60	-1	-2	-1	6
62	-4	9	3	-5
64	-3	← 43 (265 days) →		-1
66	10	52	-5	-6
68	10	← 46 (265 days) →		-9
70	2	21	2	-7
72	-4	← 51 (265 days) →		-4
74	-3	20	0	4
76	-1	18	2	10
78	-5	1	0	-
80	-1	-2	5	-2
82	-2	26	-4	-4
84	7	27	3	-1
86	10	54	-6	-3
88	42	-3	0	-5
90	10	21	2	-1
92	7	-6	3	-2
94	-5	4	27	-12
96	1	2	1	-3
98	6	← 13 (265 days) →		-4
100	-1	21	0	-1

Table 6. Surface meteorological data along routes S, H, Z, Y and L.

Notations for the table

LT	: Local standard time (at 45°E, GMT+3h)
St. No.	: Station number
v	: Wind speed
d	: Wind direction
T	: Air temperature
N	: Amount of cloud
C <sub>L</sub>	: Genus of low cloud
C <sub>M</sub>	: Genus of middle cloud
C <sub>H</sub>	: Genus of high cloud
Nc	: Amount and genus of an individual cloud
w	: Present weather
	○ Clear
	⊙ Fine
	⊕ Cloudy (upper clouds are predominant)
	⊗ Cloudy
	↕ Drifting snow
	⇑ Blowing snow
	≡ Fog
	✕ Snow
	*⇑ Snowstorm
V	: Visibility



Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)	
1980											
Aug. 11	15	S21-5	0.0		-24.8	10 <sup>-</sup>	0 2 x	10 As	✕	15	
	18	H 7	5.2	E	-35.5	1	0 3 0	1 Ac	○	20	
	21	H 7	8.0	E	-35.6	0	0 0 0		↓	20	
	12	06	H 7	7.1	E	-35.8	0	0 0 0	↓	5	
		09	H 7	8.0	E	-35.4	0	0 0 0	↓	0.8	
		12	H 84	8.1	E	-36.5	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↓	0.8
		15	H 129	9.5	E	-37.7	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↓	0.6
		18	H 162	10.2	E	-39.4	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↓	0.4
		21	H 162	7.5	ESE	-40.0	0	0 0 0	↓	0.8	
	13	06	H 162	10.0	ESE	-40.0	0	0 0 0	↓	2	
		09	H 162	10.4	E	-39.4	0	0 0 0	↓	2	
		12	H 180	5.8	E	-37.8	0	0 0 0	↓	5	
		15	H 217	11.0	E	-38.2	0	0 0 0	↓	0.05	
		18	H 235	12.1	E	-40.9	0	0 0 0	↓	0.3	
		21	H 235	7.2	E	-42.8	0	0 0 0	↓	1	
	14	06	H 235	7.5	E	-46.2	0	0 0 0	○	10	
		09	H 235	5.8	E	-46.8	0	0 0 0	○	20	
		12	H 280	5.0	E	-44.1	0	0 0 0	○	25	
		15	Z 1	3.3	E	-41.7	0	0 0 0	○	30	
		18	Z 25	5.0	E	-47.5	0	0 0 0	○	20	
		21	Z 30	6.1	E	-51.6	0	0 0 0	○	10	
	15	06	Z 30	12.0	E	-52.1	0	0 0 0	↓	0.4	
		09	Z 30	11.0	E	-50.6	0	0 0 0	↓	0.4	
		12	Z 30	11.5	E	-47.1	3	5 7 0	2 Sc, 2 Ac	↓	0.4

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Aug. 15	15	Z 38	13.8	E	-45.5	8	5 0 0	8 Sc	⊕	0.2
	18	Z 56	15.5	E	-46.9	x	x x x		⊕	0.1
	21	Z 64	15.3	E	-47.6	x	x x x		⊕	0.1
16	06	Z 64	12.5	E	-49.4	0	0 0 0	4 Ci	⊕	0.2
	09	Z 64	11.0	E	-50.0	0	0 0 0		⊕	0.3
	12	Z 85	11.5	E	-50.8	0	0 0 0		⊕	0.2
	15	Z 85	13.0	E	-50.1	4	0 0 2		⊕	0.2
	18	Z 88	13.0	E	-48.9	0	0 0 0		⊕	0.1
	20	13	Y1828	9.5	E	-48.9	0			2 Cs
15		Y 32	11.5	ESE	-48.9	2		⊕	0.05	
19		Y 50	9.5	E	-48.6	x		⊕	0.1	
21	10	Y 50	11.5	E	-43.7	7		7 Cs, 10 As 10 As	⊕	0.1
	15	Y 72	16.0	E	-39.2	10			⊕	0.03
	21	Y 72	16.0	E	-34.1	10			⊕	0.03
22	09	Y 72	14.0	E	-31.7	10		10 As 10 Cs	⊕	0.05
	15	Y 84	12.0	E	-30.5	10			⊕	0.08
	21	Y 100	7.0	E	-37.4	0			○	10
23	09	Y 100	6.0	E	-42.7	10		10 As 0 <sup>+</sup> Cs	⊙	10
	15	Y 100	7.0	E	-46.5	0 <sup>+</sup>			○	5
	21	Y 100	6.5	E	-49.0	0			○	5
24	09	Y 100	6.0	E	-50.7	0		○	○	3
	15	Y 100	5.5	ESE	-50.2	0			○	2

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Aug. 25	09	Y 100	4.5	E	-53.1	0			○	3
	12	Y 100	6.5	E	-50.9	0			○	3
	15	Y 100	5.8	E	-50.9	0			○	3
	21	Y 100	5.0	E	-54.1	0			○	3
26	09	Y 100	6.5	E	-55.4	0			○	5
	15	Y 100	5.5	E	-53.1	1		1 Cs	○	5
	21	Y 100	5.0	E	-54.8	0			○	5
27	09	Y 100	7.0	E	-52.5	10		10 Cs	⊕	5
	12	Y 100	8.0	E	-51.5	10		10 Cs	↕	2
	15	Y 100	8.5	E	-44.8	10		10 As	↕	0.5
	21	Y 88	9.0	E	-40.2	10		10 As	↕	0.5
28	09	Y 59	13.0	E	-36.3	10		x	*↕	0.08
	15	Y 37	12.5	E	-32.5	10		x	*↕	0.05
31	15	Z 97	13.0	ESE	-40.5	0	0 0 0		↕	0.1
	18	Z 89	12.0	ESE	-41.1	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↕	0.1
	21	Z 89	14.0	ESE	-41.6	0	0 0 0		↕	0.1
Sept. 1	06	Z 89	20.0	ESE	-44.3	x	x x x		*↕	0.02
	09	Z 89	17.5	ESE	-44.2	x	x x x		*↕	0.02
	12	Z 89	20.5	ESE	-43.0	x	x x x		*↕	0.02
	15	Z 89	20.8	ESE	-42.2	x	x x x		*↕	0.01
	18	Z 89	20.5	ESE	-42.8	x	x x x		*↕	0.02
	21	Z 89	15.0	ESE	-44.2	x	x x x		*↕	0.02

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Sept. 2	06	Z 89	12.7	E	-44.2	0	0 0 0		↕	0.05
	09	Z 89	12.8	E	-43.6	0	0 0 0		↕	0.05
	12	Z 75	10.2	E	-41.9	0	0 0 0		↕	0.3
	15	Z 54	10.8	ESE	-41.3	0	0 0 0		○	1
	18	Z 30	9.2	ESE	-42.4	1	0 0 2	1 Ci	○	2
	21	Z 6	10.2	E	-37.9	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↕	2
3	06	Z 1	7.8	E	-36.2	0 <sup>+</sup>	0 0 2	0 <sup>+</sup> Ci	↕	15
	09	Z 1	7.2	E	-33.9	1	0 0 2	1 Ci	↕	20
	12	H 280	6.6	E	-27.6	10 <sup>-</sup>	0 1 x	10 <sup>-</sup> As	○	10
	15	H 236	11.0	E	-23.2	10	5 2 x	2 Sc, 10 As	↕	1.2
	18	H 200	10.7	NE	-22.0	10	x x x		*↕	0.4
	21	H 180	15.0	NE	-21.0	x	x x x		*↕	0.04
4	06	H 180	22.6	ENE	-19.2	x	x x x		*↕	0.02
	09	H 180	23.2	ENE	-18.8	x	x x x		*↕	0.01
	12	H 180	24.0	ENE	-19.2	x	0 2 x	10 As	*↕	0.01
	15	H 180	20.0	ENE	-19.8	10	0 2 x	10 As	*↕	0.03
	18	H 180	13.0	ENE	-20.2	10	0 2 x	10 As	*↕	0.2
	21	H 180	10.0	ENE	-19.6	10	0 2 x	10 As	*↕	0.4
5	06	H 180	5.5	E	-22.3	10	0 1 x	10 As	○	10
	09	H 180	4.8	E	-26.2	9	0 7 2	1 Ac, 9 Ci	⊕	15
	12	H 140	6.6	E	-23.3	8	5 8 2	0 <sup>+</sup> Sc, 1 Ac, 7 Ci	↕	20
	15	H 100	7.0	E	-25.2	1	5 0 1	0 <sup>+</sup> Sc, 1 Ci	↕	20
	18	H 65	8.0	E	-27.0	0 <sup>+</sup>	5 0 0	0 <sup>+</sup> Sc	↕	20
	21	S 30	8.6	E	-25.9	0 <sup>+</sup>	5 0 0	0 <sup>+</sup> Sc	↕	20

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Sept. 6	06	S 30	9.0	E	-27.8	0	0 0 0	0 <sup>+</sup> Sc	↕	20
	09	S 30	9.4	E	-26.0	0	0 0 0		↕	25
	12	S 20	8.0	E	-20.0	0	0 0 0		↕	30
	15	S 16	8.8	E	-18.7	0 <sup>+</sup>	5 0 0		↕	30
	18	S 16	9.0	ENE	-22.4	0	0 0 0		↕	30
	21	S 16	8.2	ENE	-23.4	0	0 0 0		↕	30
7	06	S 16	10.0	E	-25.0	0	0 0 0	0 <sup>+</sup> Ci	↕	30
	09	S 16	7.6	E	-25.1	0 <sup>+</sup>	0 0 1		↕	30

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Sept. 30	15	H 57	6.5	ENE	-29.5	4		4 Ac, 1 Ci	⊙	20
	21	H 180	6.0	E	-45.7	1		1 Ac	○	20
Oct. 1	05	H 180	5.0	E	-47.0	0 <sup>+</sup>		0 <sup>+</sup> Ac	○	30
	09	H 220	6.0	NE	-42.1	0 <sup>+</sup>		0 <sup>+</sup> Ac	○	30
	15	Z 14	8.0	E	-39.7	0			+	2
3	24	Y 100	11.5	E	-42.4	1		1 As	+	0.15
4	10	Y 100	13.0	E	-38.0	10		10 As	+	0.06
	15	Y 100	11.5	ENE	-35.4	10		10 Cs	+	0.05
	21	Y 100	12.0	ENE	-37.6	0			+	0.08
5	09	Y 100	11.0	ENE	-34.7	8		8 Ci	+	0.2
6	07	Y 60	9.0	E	-40.3	2		2 Ci	+	5
9	09	Z 86	8.0	E	-37.3	9		9 Cs	+	0.7
	15	Z 12	6.0	E	-28.8	4		4 Cs	⊙	10
	21	H 220	7.0	E	-33.5	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
10	09	H 216	3.0	E	-30.7	0			○	20
	21	H 180	13.0	ENE	-27.0	10			+	
11	09	H 180	22.0	ENE	-20.5	x			+	0.01
	15	H 180	19.5	ENE	-18.3	x			+	0.02

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Oct. 12	09	H 180	13.5	ENE	-25.0	x			⊕	0.03
	15	H 180	12.0	ENE	-23.5	x			⊕	0.05
13	09	H 180	6.0	E	-28.0	0 <sup>+</sup>		0 <sup>+</sup> Ac	○	10
	15	H 150	6.0	NE	-22.0	10		10 Ac	⊙	10
	21	S 16	9.5	NE	-19.7	10			✱	2
14	09	S 16	12.0	NE	-20.5	10		2 Ci, 6 Cs, 3 Ac	⊕	0.5

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Nov. 24	15	S 28	11.5	ENE	-9.7	1		0 <sup>+</sup> Cc, 0 <sup>+</sup> Ci	↕	10
	21	H 130	9.0	E	-16.0	0 <sup>+</sup>		0 <sup>+</sup> As	↕	10
25	09	H 136	9.5	E	-13.2	5		3 Cs, 0 <sup>+</sup> Cc, 2 As, 0 <sup>+</sup> Cs	↕	3
	12	H 180	9.5	E	-11.0	1		1 As	⊙	10
	15	L 8	9.0	E	-10.2	6		5 Cs, 1 Cc	⊙	10
	18	L 14	5.5	E	-11.0	7		5 Cs, 2 Ci	⊙	10
	21	L 18	11.5	E	-13.1	9		4 As, 5 Cs	↕	10
26	09	L 19	8.0	E	-13.4	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
	12	L 23	9.0	E	-12.0	1		1 As	○	10
	15	L 29	8.5	E	-11.0	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
	18	L 34	6.5	E	-12.5	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
	21	L 37	9.5	ESE	-15.2	0 <sup>+</sup>		0 <sup>+</sup> Ac	○	10
27	09	L 38	12.0	E	-15.5	0 <sup>+</sup>		0 <sup>+</sup> Cs, 0 <sup>+</sup> As	↕	3
	12	L 42	10.5	E	-13.5	3		2 Ci, 1 Cs	↕	10
	15	L 46	8.5	E	-12.4	7		1 Ci, 1 As, 1 Cu, 5 Cs	⊙	10
	18	L 50	9.0	E	-15.0	7		2 Cu, 5 Ac, 0 <sup>+</sup> As	⊙	10
	21	L 54	10.0	E	-18.9	7		4 Cs, 3 Ci	⊙	10
28	09	L 55	10.0	E	-18.2	0			○	10
	12	L 61	9.5	ESE	-17.0	0			○	10
	15	L 66	6.0	ESE	-16.8	0			○	10
	18	L 71	3.0	ESE	-18.0	0			○	10
	21	L 74	3.0	SSE	-23.0	0			○	10
29	09	L 75	9.5	ESE	-22.5	0			↕	1.5
	12	L 88	12.0	E	-20.2	0			↕	2
	15	L 94	12.5	E	-19.4	0			↕	4



Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Nov. 29	18	L 103	10.5	E	-19.1	0			+	7
	21	L 108	10.5	ESE	-21.5	0			+	10
30	09	L 109	14.0	E	-20.9	10 <sup>-</sup>		10 <sup>-</sup> As	+	1
	12	L 115	13.0	E	-20.4	3		1 Cs, 1 Ci, 1 As	⊖	20
	15	L 118	12.5	E	-19.8	4		3 Cs, 1 As	⊖	20
	18	T 376	10.5	E	-20.6	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
	21	A 31	9.5	E	-21.4	0 <sup>+</sup>		0 <sup>+</sup> As	○	20
Dec. 1	09	A 27	13.0	E	-20.8	0 <sup>+</sup>		0 <sup>+</sup> Cs, 1 As	○	20
	12	A 08	13.5	E	-17.5	2		2 Cs, 0 <sup>+</sup> As	⊖	20
	15	BC	12.5	E	-14.5	5		5 Cu	⊖	10
	18	BC	12.0	E	-15.2	5		4 Cs, 1 Cb	⊖	10
	21	BC	12.0	E	-16.4	7		5 As, 2 Cu	⊖	10
2	09	BC	14.0	E	-17.4	9		5 Cs, 3 Ci, 1 Ac	+	0.5
	12	BC	12.0	E	-14.0	3		2 Cs, 1 As	⊖	10
	15	BC	12.0	E	-12.9	0 <sup>+</sup>		0 <sup>+</sup> As	○	10
	18	BC	15.0	E	-14.0	2		1 Cs, 1 As	⊖	20
	21	BC	12.5	E	-18.3	2		2 Cs	○	20
3	09	BC	12.0	E	-18.2	0			○	20
	12	BC	7.5	E	-15.0	0			○	20
	15	BC	6.0	E	-14.4	0			○	20
	18	BC	8.0	E	-15.2	0			○	20
	21	BC	6.0	E	-18.2	0			○	20
4	09	BC	10.0	E	-17.7	0			○	20
	12	BC	8.0	E	-16.3	0			○	20

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Dec. 4	15	BC	2.5	ENE	-15.1	0 <sup>+</sup>		0 <sup>+</sup> Cu	○	20
	18	BC	1.0	ENE	-16.9	3		3 Cu	⊖	20
	21	BC	4.5	E	-17.8	0 <sup>+</sup>		0 <sup>+</sup> Cu	○	20
5	09	BC	11.5	E	-18.2	0			○	20
	12	BC	13.0	ENE	-16.9	0			○	20
	15	BC	10.0	E	-16.9	0			○	20
	18	BC	10.0	E	-16.5	0			○	20
	21	BC	11.0	E	-18.5	0			○	20
6	09	BC	15.0	E	-20.3	0 <sup>+</sup>		0 <sup>+</sup> Ci	↑	10
	12	BC	15.5	E	-18.4	4		4 Ci, 1 Cs	↑	1
	15	BC	13.0	E	-18.0	10 <sup>-</sup>		9 Cs, 1 As	↑	3
	18	BC	11.0	E	-18.5	10 <sup>-</sup>		8 Cs, 2 As	⊖	10
	21	BC	11.0	E	-18.3	10		5 As, 5 Cs	*↑	0.5
7	09	BC	13.0	E	-18.8	10		5 Ac, 3 As	*↑	0.3
	12	BC	12.5	E	-16.3	10			*↑	0.3
	15	BC	13.0	E	-16.0	10			*↑	0.3
	18	BC	9.0	E	-16.7	10		10 As	↑	1
	21	BC	8.5	E	-17.1	10		10 As	↑	1
8	09	BC	8.5	E	-18.3	2		2 Cs	↑	2
	12	BC	10.0	E	-16.8	0			○	5
	15	BC	8.0	E	-16.5	0			○	20
	18	BC	7.0	E	-17.0	0 <sup>+</sup>		0 <sup>+</sup> As	○	20
	21	BC	4.5	E	-18.3	1		1 Ac	○	20

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Dec. 9	09	BC	12.5	E	-20.7	0			↕	2
	12	BC	10.0	E	-20.5	0			↕	5
	15	BC	4.0	ENE	-18.0	7		7 Cu	⊖	10
	18	BC	3.5	ENE	-18.0	9		9 Cu	⊙	10
	21	BC	1.0	E	-18.3	10		10 St	⊙	10
	24	BC	1.0	E	-18.2	10		10 St	*	10
10	09	BC	5.0	E	-18.0	10		10 St	⊙	10
	10	BC	5.5	E	-16.7	10		10 St	*	5
	12	BC	6.5	ENE	-17.0	10		10 St	*	2
	13	BC	8.0	E	-17.2	10		10 St	*	2
	15	BC	6.0	E	-16.3	10		10 St	*	2
	17	BC	6.0	E	-17.0	10		10 St	*	2
	18	BC	6.0	E	-17.2	10		10 St	*	2
	21	BC	5.0	E	-18.7	10		2 St, 8 Ac	*	5
	24	BC	6.5	E	-22.2	3		3 Cs, 0 <sup>+</sup> As	⊖	10
11	09	BC	12.0	E	-21.2	0			↕	1
	12	BC	14.0	E	-19.1	1		1 Ac	↕	0.5
	15	BC	6.0	E	-18.3	6		6 Cu	↕	0.2
	18	BC	6.5	E	-18.3	7		3 Cu, 4 Sc	↕	1
	21	BC	12.0	E	-20.0	0 <sup>+</sup>		0 <sup>+</sup> Cu	○	10
	24	BC	14.0	E	-22.3	0 <sup>+</sup>		0 <sup>+</sup> Ci	↕	20
12	09	BC	14.0	E	-20.7	1		1 Ac	↕	0.7
	12	BC	18.0	E	-19.6	1		1 As	↕	0.7
	15	BC	17.5	E	-18.0	1		1 As	↕	5
	18	BC	17.0	E	-17.1	0			○○	10
	21	BC	17.0	E	-19.0	0			○○	20
	24	BC	17.5	E	-22.5	0 <sup>+</sup>		0 <sup>+</sup> Ac	○	20

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Dec. 13	09	BC	20.0	E	-20.8	0 <sup>+</sup>		0 <sup>+</sup> Ac	↕	0.5
	12	BC	19.0	E	-20.0	1		1 Ac	↕	2
	15	BC	17.5	E	-18.2	2		2 Ac	⊖	10
	18	BC	16.0	E	-18.2	2		2 Ac	⊖	10
	21	BC	12.5	E	-19.0	6		4 Cs, 2 As	⊖	10
	24	BC	13.0	E	-21.3	9		8 Ci, 1 Cs	⊖	10
14	09	BC	15.0	E	-16.5	7		1 Ac, 5 As, 2 Ci	↕	10
	12	BC	14.0	E	-15.8	7		1 Ac, 1 As, 5 Cu	↕	0.5
	15	BC	13.5	E	-14.7	3		3 Cu	↕	0.3
	18	BC	12.0	ENE	-14.7	8		6 Cs, 2 Cu	↕	2
	21	BC	10.0	E	-17.0	5		2 Ci, 3 Cs	⊖	10
	24	BC	11.0	E	-17.9	7		7 Ac	⊖	10
15	09	BC	19.0	E	-16.0	3		2 Cc, 1 Ac	↕	3
	12	BC	20.0	E	-17.0	0 <sup>+</sup>		0 <sup>+</sup> Ac	↕	0.5
	15	BC	21.0	E	-14.9	0 <sup>+</sup>		0 <sup>+</sup> Ac	↕	0.3
	18	BC	18.5	E	-14.3	5		5 Cu, 0 <sup>+</sup> Ac	*↕	0.05
	21	BC	16.0	E	-16.5	3		3 Cs	↕	2
	24	BC	15.0	E	-18.8	7		5 Cs, 2 As	↕	2
16	09	BC	16.5	E	-16.1	10		10 Cs	↕	0.4
	12	BC	18.5	E	-14.2	8		4 Cc, 1 Cs, 3 As	↕	2
	15	BC	16.0	E	-13.0	8		6 As, 2 Cs, 0 <sup>+</sup> Cu	⊖	5
	18	BC	13.5	E	-14.2	9		7 Cs, 1 Cu, 1 Ac	↕	0.3
17	12	BC	15.5	ENE	-14.0	10		x	*↕	0.3
	15	BC	15.0	ENE	-13.3	10		x	*↕	0.05
	18	BC	12.0	E	-14.2	6		3 Ac, 3 Cu, 1 Cu	↕	0.3
	21	BC	11.0	E	-15.0	5		2 Ci, 2 As, 1 Cu	↕	1

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Dec. 18	03	A 27	9.0	E	-19.0	10		10 Ac	⊙	5
	12	A 27	13.0	ESE	-15.6	7		7 Cs	↕	2
	15	A 35	12.0	ESE	-14.5	7		2 Cs, 6 Ac	↕↕	5
	18	L 115	9.0	E	-15.0	3		3 Cu, 0 <sup>+</sup> As	⊙	10
	21	L 108	7.0	ESE	-17.0	3		1 Ac, 2 Sc	⊙	10
	24	L 98	9.0	ESE	-20.0	3		2 Ac, 1 Cs	⊙	10
19	12	L 98	10.0	E	-14.1	8		8 Cu	⊙	0.7
	15	L 83	8.0	ENE	-13.2	9		9 Cu	✱	1
	18	L 71	8.0	ENE	-13.8	10		7 Cs, 3 Cu	✱	2
	21	L 64	5.0	E	-17.2	5		4 Ac, 1 Cs	⊙	10
20	12	L 54	11.5	E	-12.4	7		3 Cs, 4 As	↕	10
	15	L 49	11.0	E	-10.2	10		10 St	✱	2
	18	L 46	8.5	ENE	-10.2	10		10 St	⊙	5
	21	L 40	9.5	ENE	-11.4	10		10 St	⊙	5
21	09	L 37	9.5	ENE	-10.8	1		1 As	○	10
	12	L 34	9.0	ENE	-8.8	1		1 As, 0 <sup>+</sup> Cu	○	10
	15	L 23	8.0	NE	-9.3	2		2 Cu	⊙	10
	18	L 16	7.0	NE	-9.4	1		1 Cu	○	10
	21	L 2	9.0	ENE	-12.2	0 <sup>+</sup>		0 <sup>+</sup> As	↕	10
22	09	H 180	11.0	ENE	-12.4	7		7 Cs	↕	1
	12	H 148	10.0	ENE	-9.1	7		C Cs, 1 Ac	↕↕	1
	15	H 72	9.5	ENE	-7.2	2		2 Cs	↕	3

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
1981 Jan. 7	12	S 16	3.0	NE	-1.6	1		1 Ac	○	50
	18	H 24	4.0	ENE	-5.5	4		4 Ac, 4 Ci	⊕	50
	21	H 36	2.0	E	-11.7	8		2 Ci, 6 Ac, 0.5 Cu	⊕	
8	09	H 36	7.0	ENE	-9.5	10		X	⊕	0.7
	12	H 76	9.0	ENE	-7.8	10		X	✱	0.7
	15	H 114	7.0	NE	-8.7	10		10 <sup>-</sup> Cu	✱	0.5
	18	H 167	10.0	NE	-7.5	10 <sup>-</sup>		4 Cu, 10 <sup>-</sup> Ac	⊙	0.7
	21	H 180	7.0	NE	-11.7	10		10 Ac	✱	0.8
9	09	H 180	13.0	E	-10.2	10		X	⊕	0.2
	12	H 180	13.0	E	-9.4	10		X	*⊕	0.01
	15	H 180	12.0	E	-7.8	10 <sup>-</sup>		10 <sup>-</sup> Ac	⊕	0.05
	18	H 180	8.0	E	-8.8	10		10 Cu	✱	0.5
	21	H 180	4.5	ENE	-8.7	10		10 Sc	✱	1
10	09	H 180	5.0	NE	-8.8	10		10 Ac	⊙	5
	12	H 180	6.0	ENE	-6.9	10 <sup>-</sup>		10 <sup>-</sup> Ac	⊙	50
	15	H 180	4.0	NE	-6.3	10 <sup>-</sup>		2 Cu, 10 <sup>-</sup> Sc	⊙	50
	18	H 201	5.0	NE	-8.0	10 <sup>-</sup>		10 <sup>-</sup> Sc	⊙	50
	21	H 246	5.0	NE	-10.4	10		9 Ac, Ci	⊙	50
11	09	H 260	6.0	E	-12.0	10		10 St	⊙	5
	12	H 278	5.0	E	-10.7	9		9 Sc	⊙	50
	15	S 122	6.0	ENE	-12.5	4		4 Ac	⊕	50
	18	Z 22	5.0	E	-14.1	1		1 Sc, 0 <sup>+</sup> Ci	○	50
	21	Z 32	3.0	E	-20.3	2		1 Sc, 1 Ci	⊕	50

Date	LT	St.No.	v (m/s)	d	T (°C)	N	C <sub>L</sub> C <sub>M</sub> C <sub>H</sub>	Nc	w	V (km)
Jan. 12	09	Z 32	6.0	E	-20.9	0 <sup>+</sup>		0 <sup>+</sup> Sc	○	30
	12	Z 64	8.0	E	-17.2	0 <sup>+</sup>		0 <sup>+</sup> Sc	○○	30
	15	Z 90	7.0	E	-16.1	0			○○	50
20	12	H1819	8.0	E	-16.0	0			○	0.2
	15	Y 35	7.5	E	-16.0	0			○○	20
	18	Y 72	5.0	ESE	-19.5	0			○○	20
21	09	Y 100	3.0	ESE	-25.0	0			○	20
	12	Y 100	4.0		-20.3	0			○○	30
	15	Y 96	4.0	E	-19.4	0			○○	20
	18	Y 50	2.0	E	-19.7	0			○○	30
	21	Y1820	1.0	ESE	-24.2	0			○	30
22	12	Z 72	7.0	ENE	-18.8	3		1 Sc, 2 Ci	⊖	30
	15	Z 30	4.0	NE	-16.6	10		10 Sc	*	1
	18	H 283	9.0	ENE	-15.0	7		7 Sc	⊖	30
23	09	H 180	9.0	E	-14.2	9		9 Ac	⊕	0.5
	12	H 134	7.0	E	-10.8	9		9 Ac	⊙	20
	15	H 27	4.0	ENE	-7.9	9		9 Ac	⊙	30
	18	S 16	2.0	ENE	-4.8	10 <sup>-</sup>		10 Ac	⊙	50
24	06	S 16	3.0	E	-7.4	10		10 Sc	⊙	30

Table 7. Meteorological data at unmanned stations S16 and F0.

DATE	TIME (LT)	SYOWA ST.		F0		S16		
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	
1980								
JULY	8	1350	-10.7	9.8			-19.7	16.3
	11	1734	-22.7	1.0			-25.0	6.0
	12	0200	-25.0	0.0			-23.9	4.4
	14	1635	-5.9	25.0			-10.8	24.5
	16	1610	-15.9	1.7			-21.2	9.8
	17	1605	-15.7	13.6			-21.4	17.5
	18	1600	-17.1	0.2			-24.0	8.7
	19	1620	-17.6	0.1			-21.9	11.0
	21	1615	-11.0	6.3			-15.7	9.2
	22	1610	-17.8	0.2			-23.4	8.3
	23	1605	-8.1	13.4			-12.2	21.5
	24	1610	-9.2	17.0				18.0
	25	0122	-8.6	1.3				19.5
		1555	-6.6	19.8				17.4
	26	1540	-9.3	9.1			-14.1	10.0
	28	0828	-8.1	9.3			-13.0	13.5
		1550	-8.6	11.2			-14.7	12.6
	29	1550	-13.9	1.7			-18.1	12.5
	30	1605	-15.8	2.6			-24.9	9.7
	31	1600	-19.4	1.0			-22.4	13.3
AUG.	1	1600	-9.5	23.3			-14.3	24.1
	2	1605	-13.2	8.2			-19.8	11.4
	4	1410	-17.5	0.5			-18.8	6.4
	5	1400	-11.1	24.0			-15.6	21.0
	6	1400	-12.0	22.4			-16.7	20.0
	7	1545	-10.2	31.4			-13.3	31.0
	12	1610	-24.8	0.7				7.3
	13	1600	-29.8	1.4				5.4
	15	1700	-23.2	8.8			-21.6	12.9
	16	1600	-24.6	2.0				13.1
	18	1650	-10.6	16.2				16.1
	21	1600	-17.8	2.3	-20.1		-22.8	6.7
	22	1645	-19.0	6.8	-22.1		-25.0	6.1
	23	1650	-14.9	8.1	-18.6		-22.0	9.5
	25	1610	-21.5	0.3	-22.8	5.0	-27.3	9.5
	26	0400	-21.8	0.1	-23.8	11.4	-27.8	9.5
		1610	-20.3	0.0	-22.0	6.6	-26.2	8.7
	27	0405	-20.4	1.0	-21.0	0.1	-22.5	9.3
		1615	-15.0	4.2	-16.4	0.1	-19.8	0.0
	28	0435	-10.7	13.1	-12.5	18.2	-15.1	14.8
		1555	-8.8	6.0	-10.4	11.4	-13.2	8.2



DATE	TIME (LT)	SYOWA ST.		F0		S16		
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	
1980								
AUG.	29	0405	-8.0	4.4	-9.5	9.0	-12.2	5.4
		1605	-6.8	1.0	-8.0	7.8	-11.8	7.6
	30	0400	-8.5	9.2	-11.4	13.2	-13.1	10.6
		1615	-15.6	5.1	-15.3	2.2	-18.9	13.6
	31	0405	-13.5	7.8	-14.7	14.1	-19.4	14.3
SEPT.	1	1625	-18.0	4.8	-20.2	12.5	-22.9	9.3
	2	1715	-21.7	0.0	-22.5	3.5	-23.4	7.3
	3	1710	-17.5	15.0	-18.0	17.6	-18.4	18.9
	4	0424	-10.0	21.8		30.9	-13.6	25.0
		1650	-9.8	21.0		23.9		21.3
	5	1620	-10.0	2.3	-13.3	1.4	-14.6	9.6
	6	1630	-18.4	0.4	-20.0	1.7	-19.8	8.4
	8	1620	-11.2	0.4	-11.4	15.7	-15.8	14.4
	9	1655	-9.4	15.7	-11.6	20.6	-15.3	15.5
	10	1710	-9.9	11.1	-12.2	16.8	-15.4	12.6
	11	1720	-13.0	9.8	-15.4	13.2	-19.4	10.1
	12	1600	-14.0	7.6	-16.1	9.4	-20.3	9.3
	13	1615	-15.7	0.0	-17.9	0.3	-22.7	0.8
	15	1730	-17.5	1.9	-18.1	1.6	-21.6	9.5
	16	1655	-13.3	4.1	-14.8	6.3		11.1
	18	1617	-10.7	6.3	-14.7	1.8	-12.6	12.0
	19	1607	-6.8	4.5	-8.8	13.5	-12.1	12.0
	20	1653	-12.7	0.3	-14.4	0.0	-14.8	7.7
	22	1755	-17.0	1.0	-20.0	1.0	-19.0	6.0
	23	1667	-16.8	0.0	-19.4	2.0	-19.6	7.2
	24	1605	-14.6	2.0	-15.6	1.7	-20.5	11.3
	25	1610	-15.0	6.4	-17.4	5.8	-20.6	8.7
	26	1556	-15.5	3.0	-16.9	1.8	-19.3	8.5
	27	1626	-17.0	4.9	-15.1	2.6	-18.0	0.7
	29	1552	-15.2	6.2	-16.8	4.7	-20.1	5.5
	30	1614	-17.7	0.0	-19.7	1.4	-22.1	0.5
OCT.	1	1641	-20.3	0.0	-23.0	1.3	-24.7	2.1
	2	1711	-23.6	6.5	-26.2	5.5	-24.5	9.3
	3	1620	-11.4	0.0	-15.7	10.7	-13.9	0.0
	4	1631	-10.2	15.8	-12.4	23.6	-13.6	20.2
	6	1626	-8.1	0.0	-7.3	1.3	-14.1	2.3
	7	1550	-11.9	0.7	-14.1	2.1	-15.0	10.0
	8	1608	-12.9	3.8	-14.1	4.0	-16.8	9.3
	9	1611	-11.0	2.2	-14.0	2.0	-15.0	3.2
	10	1555	-12.0	10.0	-13.5	8.6	-15.1	12.3
	11	1631	-11.4	30.8	-12.5	26.7	-14.9	24.4

DATE	TIME (LT)	SYOWA ST.		F0		S16	
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)
1980							
OCT. 13	1559	-15.6	7.3	-16.7	6.1	-13.1	2.8
14	1550	-15.2	0.9	-17.5	3.2	-18.0	5.0
15	1556	-19.1	1.4	-21.2	0.0	-23.5	2.1
16	1729	-19.6	1.8	-21.8	3.1	-23.1	3.0
17	1606	-17.0	0.0	-18.1	0.0	-20.0	6.7
18	1608	-7.6	9.2	-8.0	12.3	-12.3	14.7
20	1606	-8.3	2.3	-11.3	2.4	-11.8	2.9
21	1555	-12.6	9.0	-13.5	5.6	-13.3	10.5
22	1630	-8.1	20.3	-9.8	22.3	-11.7	19.2
23	1633	-8.5	3.3	-7.0	3.1	-11.9	0.0
24	1621	-10.0	0.8	-10.9	2.0	-12.9	1.5
25	1610	-10.0	5.8	-11.0	5.4	-13.4	8.2
26	1620	-9.2	3.4	-11.5	3.6	-13.3	3.4
27	1615	-7.9	4.7	-9.3	3.3	-10.0	11.1
28	1610	-3.2	11.6	-5.0	15.0	-9.0	5.6
29	1705	-3.1	3.2			-9.5	8.9
	2109	-7.0	12.1	-9.0	17.2	-13.2	11.7
30	0449	-8.2	9.0	-11.9	17.2	-15.7	12.9
	0650	-6.9	4.4	-11.3	15.7	-14.9	10.7
	0925	-5.3	0.8	-8.3	8.3	-11.6	6.1
	1110	-4.9	0.6	-6.2	2.0	-8.8	5.8
	1705	-4.7	0.0	-6.4	0.0	-9.7	6.7
31	0425	-9.5	18.7	-11.8	22.8	-15.3	15.6
NOV. 1	1555	-5.0	19.3	-6.2	22.5	-9.1	18.3
2	1635	-4.3	3.4	-4.7	2.2	-8.9	1.6
3	1715	-3.7	1.3	-4.3	2.5	-8.7	2.9
4	1610	-4.3	5.0	-4.0	3.9	-7.8	6.7
5	1655	-1.5	0.8	-0.7	2.5	-6.6	1.7
6	1720	-1.7	0.0	-2.2	0.0	-6.5	4.4
7	1630	-3.2	0.4	-1.3	1.7	-6.6	2.2
8	1600	-5.7	5.0	-4.0	5.6	-9.5	5.8
9	1652	-5.0	0.0	-4.2	1.8	-9.3	2.4
10	1610	-3.6	0.0	-1.1	0.0	-6.7	1.7
11	1615	-4.5	1.3	-1.9	2.1	-8.4	5.0
12	1600	-3.7	2.7	-3.4	3.8	-7.7	3.8
13	1625	-2.9	3.0	-3.1	4.0	-6.7	2.0
14	1615	-2.8	4.6	-3.3	5.0	-6.9	2.8
15	1615	-5.0	0.5	-4.9	1.7	-7.8	5.0
16	1606	-4.2	0.4	-4.5	1.1	-7.9	2.1
17	1605	-1.6	0.4	-4.3	1.7	-6.3	1.3
18	1655	-6.3	7.7	-7.3	8.3	-10.8	8.9

DATE	TIME (LT)	SYOWA ST.		F0		S16	
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)
1980							
NOV. 19	1605	-5.2	2.0	-6.1	1.7	-7.9	9.7
20	0415	-6.0	11.7	-5.3	18.3	-8.1	18.3
	1557	-1.4	12.7	-2.1	13.3	-5.2	18.3
21	1604	1.9	0.0	-0.9	3.9	-2.4	5.0
22	1630	-0.4	0.0	-2.5	0.0	-5.4	2.2
23	1649	2.0	2.0	-1.5	2.4	-3.2	3.4
24	1639	0.6	4.0	-0.3	6.7	-4.1	5.7
25	0011	-3.0	14.7	-4.7	21.0	-9.2	14.8
	1605	5.0	2.1	0.9	0.0	0.1	6.7
26	0010	-0.8	8.7	-2.6	16.1	-6.4	14.7
	0405	-0.7	13.4	-2.7	19.2	-6.4	14.2
	1625	3.1	2.1	0.7	0.0	-1.8	5.0
	1810	3.0	2.0	-0.7	3.0	-2.3	5.7
27	0201	-1.4	12.3	-3.2	19.4	-7.7	15.4
	1645	2.7	3.3	0.5	2.9	-0.6	1.7
28	0008	-0.9	14.9	-2.9	17.9	-6.8	15.3
	0149	-1.4	15.7	-3.6	19.5	-7.9	14.4
	0348	-2.8	16.7	-4.2	20.1	-7.9	14.6
	0543	-1.1	17.0	-3.6	21.6	-7.2	14.7
	0818	0.5	11.0	-2.3	16.5	-5.4	13.6
	1021	1.6	9.4	0.3	12.5	-3.0	11.6
	1144	2.7	5.0	1.5	8.5	-1.7	8.7
	1354	4.4	0.3	1.8	0.0	-0.9	7.9
	1551	3.8	1.7	1.2	3.9	-0.7	1.8
	1650	3.1	2.1	1.5	2.2	0.1	0.0
	1854	2.1	2.8	0.9	4.6	-1.7	1.1
	2023	2.1	2.0	0.1	5.5	-6.1	5.7
	2050	1.8	2.2	-0.7	6.8	-4.0	5.1
	2125	0.3	2.2	-2.1	7.9	-5.7	5.8
	2142	0.4	2.1	-2.5	9.8	-6.1	7.1
	2156	0.4	2.8	-3.0	10.2	-8.3	8.1
	2211	-0.2	3.3	-3.2	10.6	-9.2	9.0
	2226	-0.6	3.5	-3.4	10.1	-9.4	9.0
	2241	-1.5	2.0	-3.4	10.2	-10.0	8.7
	2255	-1.4	0.0	-3.8	10.6	-10.0	8.3
	2311	-2.0	1.0	-3.8	10.2	-10.8	8.6
	2325	-3.0	0.3	-4.5	11.1	-10.5	9.8
	2341	-3.0	1.0	-4.7	11.4	-11.1	9.8
	2357	-3.0	0.3	-4.9	11.2	-11.8	9.6
29	0013	-3.2	0.0	-5.2	10.8	-12.0	9.1
	0027	-3.6	0.1	-5.5	11.2	-12.3	9.2

DATE	TIME (LT)	SYOWA ST.		F0		S16	
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)
1980							
NOV. 29	1612	-0.9	9.4	-1.1	10.8	-4.7	10.0
30	0415	-5.5	5.9	-5.6	15.0	-10.2	14.2
	1610	-1.0	4.3	-2.5	4.6	-3.4	0.1
DEC. 1	0440	-4.1	9.6	-4.0	15.0	-9.7	12.5
	1525	1.6	2.2	-0.5	3.3	-2.7	4.4
2	0432	-2.1	11.1	-3.4	16.7	-7.7	14.2
	1635	2.9	1.3	1.3		-1.7	1.3
3	0415	-1.4	0.4	-3.1	1.0	-7.3	7.8
	1557	0.3	0.7	0.1	1.7	-3.8	2.2
4	1413	-2.8	3.5	-4.5	6.1	-10.2	5.6
	1605	-2.1	4.4	-2.3	5.0	-5.9	4.6
5	1555	-1.4	4.3	-1.3	4.4	-5.4	5.0
6	1555	-0.8	10.6	-1.1	9.4	-5.0	15.0
7	1600	-1.7	13.0	-1.3	8.5	-4.7	12.2
8	1620	-0.6	0.9	-1.1	0.7	-4.2	1.0
10	1550	0.0	1.3	-1.1	0.0	-3.6	3.4
11	1555	0.1	0.0	-2.5	1.7	-4.4	2.2
12	1700	-1.3	1.4	-4.9	3.3	-6.7	3.0
13	1605	-2.4	0.6	-4.4	2.5	-4.7	1.0
14	1610	-1.9	1.4	-4.4	3.3	-5.6	5.0
15	1610	1.7	0.0	-1.1	2.3	-2.8	6.1
16	1605	0.7	5.7	-1.7	6.7	-3.4	6.0
17	1615	3.0	1.2		0.0	-1.2	0.0
18	1610	3.0	2.2	0.3	0.2	-2.3	0.3
19	1600	0.6	12.0	0.3	11.6	-3.3	12.5
20	1610	2.9	1.1	1.6	0.4	-1.8	9.8
	1833	1.8	11.5	1.2	13.4	-2.8	16.2
21	1821	1.6	0.2	0.5	2.4	-1.9	2.8
22	1600	2.9	1.2	2.9	0.0	-1.3	0.4
23	1605	2.4	9.3	2.4	9.7	-0.3	6.9
24	1605	1.7	7.3	1.6	3.1	-2.0	13.2
25	1615	3.6	1.7	2.0	0.0	-0.6	0.2
26	1610	5.8	0.7	4.0	0.0	-0.2	2.4
27	1615	4.7	3.5	2.0	0.0	0.4	0.1
29	1610	2.8	0.0	0.9	0.0	-1.2	2.8
30	1751	3.7	0.6	0.5	0.0	0.1	1.9
31	1625	-1.2	1.0	-1.1	0.3	-1.6	0.4
1981							
JAN. 1	0400	-2.4	4.0	-4.2	5.7	-10.5	8.3
	1705	-0.5	1.7	-4.0	0.1	-2.1	0.2

DATE	TIME (LT)	SYOWA ST.		F0		S16	
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)
1981							
JAN. 2	0415	-7.3	0.0	-7.3	0.0	-9.0	9.6
	1605	-1.6	0.0	-2.3	0.2	-4.9	0.0
3	0350	-5.2	0.1	-5.8	6.1	-11.4	7.0
	1610	1.1	1.8	-2.5	3.5	-4.0	3.9
4	0405	-5.2	0.2	-9.0	0.0	-10.5	6.2
	1600	0.6	2.1	-2.9	3.0	-4.6	3.7
5	0405	-3.9	1.7	-8.7	0.0	-7.3	4.6
	1645	0.6	1.0	-1.3	0.0	-2.7	0.0
6	0400	-5.4	1.8	-6.8	0.0	-11.3	10.0
	1630	0.5	2.0	-0.7	0.0	-0.3	0.0
7	0605	-8.6	0.7	-8.3	0.0	-12.2	8.7
	1705	-1.7	2.0	-2.5	4.5	-5.2	3.9
8	0610	-2.7	5.2	-3.6	8.6	-7.8	8.5
	1605	-0.8	8.3	-0.7	6.4	-4.0	9.6
9	0405	-1.0	11.8	-1.5	15.9	-5.1	15.4
	1705	0.0	8.0	-0.5	8.1	-3.3	9.4
10	0405	-0.9	1.0	-2.3	0.0	-4.2	4.9
	1610	3.0	2.3	0.5	2.8	-0.3	1.9
11	0410	0.9	0.9	1.2	1.3	-1.5	3.6
12	0405	-0.2	0.0	-1.5	0.0	-5.2	2.5
	1640	2.6	0.8	-0.7	3.3	-3.0	4.8
13	0405	-3.9	5.0	-5.6	10.5	-10.2	11.2
	1605	2.3	5.3	-0.7	5.0	-3.0	2.8
14	0415	-3.0	0.0	-2.7	0.2	-8.4	12.2
	1600	4.8	2.1	1.2	0.0	1.1	4.2
15	0405	-1.4	0.1	-2.7	13.9	-7.2	11.1
	1605	5.0	3.3	0.5	2.2	0.8	1.8
16	0355	-3.7	0.0	-3.4	2.3	-7.9	7.8
17	0405	-1.7	2.9	-2.8	5.1	-7.3	3.4
	1545	-0.4	2.6	-1.3	2.9	-1.7	4.5
18	0400	-3.2	0.0	-5.2	6.2	-10.8	9.9
19	0355	-5.3	1.0	-6.5	6.4	-11.0	10.4
	1605	1.0	3.4	-0.9	3.0	-2.3	0.0
20	0400	-3.0	7.9	-5.3	14.9	-10.2	12.8
	1550	0.4	3.3	0.5	4.1	-2.5	1.1
21	0415	-4.5	6.2	-6.1	9.4	-11.1	9.2
	1625	1.8	0.0	-0.7	2.6	-3.4	2.9
22	0405	-2.3	1.0	-2.5	1.6	-6.4	3.5
	1640	1.5	1.8	-0.1	1.8	-3.6	4.0
23	0400	-1.4	8.0	-3.2	11.8	-6.7	11.3
	1600	0.7	2.0	-0.2	3.7	-4.8	5.0

DATE	TIME (LT)	SYOWA ST.		F0		S16	
		AT (°C)	WS (m/s)	AT (°C)	WS (m/s)	AT (°C)	WS (m/s)
1981							
JAN. 24	0405	-1.8	0.0	-3.5	2.3	-7.3	4.8
	1630	1.3	2.4	-1.5	3.1	-2.8	1.4
25	0405	-5.3	2.1	-8.0	8.6	-13.7	9.2
26	0415	-5.8	0.6	-8.7	7.9	-13.4	8.5
	1615	-1.5	0.0	-2.1	0.0	-5.6	2.1
27	0420	-6.2	7.5	-9.0	11.5	-14.0	10.3
	1625	-1.1	0.0	-1.4	0.0	-4.3	5.9
28	0415	-4.3	3.0	-6.3	11.6	-10.5	10.0
	1600	1.0	0.5	-0.1	0.0	-2.9	3.8
29	0400	-1.0	7.8	-3.2	7.0	-6.4	10.2
	1555	0.4	11.1	-0.1	10.9	-3.8	14.3
30	0425	-2.9	9.0	-4.7	11.6	-9.3	10.1
	1555	0.4	1.3	-0.3	2.5	-3.8	4.8
31	0400	-4.0	5.8	-6.8	10.4	-12.0	9.4
	1605	1.5	3.6	-1.5	4.8	-2.9	1.5

Table 8. Ice thickness data around Syowa Station.

Date	Thickness of ice in cm (Site No.)
Apr. 4	22(48)
Apr. 12-14	30(48), 30(49)
Apr. 27-29	27(28), 38(48)
May 6	27(32), 27(33), 60(34), 50(35)
June 5- 7	55(28), 52(37), 52(38), 50(39)
June 11	91(36)
June 17-19	61(40), 58(41), 61(42), 62(43)
June 26	50(11), 66(12), 60(13), 65(14), 63(15), 73(16), 55(17), 60(18), 58(19)
	70(20), 71(21), 65(22), 67(23), 53(24), 65(25), 75(26), 65(27)
June 28-30	45( 1), 35( 2), 34( 3), 34( 4), 45( 5), 60( 6), 66( 7), 62( 8), 54(10)
July 2- 3	59(51), 62(52), 56(53), 57(54)
July 16-17	94(28)
July 31	90( 5), 78( 6), 90( 7), 78( 8), 104( 9), 79(10), 84(11)
Sept.16	110(28), 110(29), 110(30), 110(31)
Oct. 7- 9	94( 5), 112( 6), 112( 7), 96( 8), 143( 9), 100(10), 112(11)
Oct. 17	103( 2), 105( 3), 98( 4)
Nov. 10	118(28), 120(29)
Nov. 17	120( 6), 112( 7), 100( 8), 114(11)
Nov. 26	123(28)
Dec. 5	73(28)

Table 9. Blowing snow data at Mizuho Station.

No.	Period	Exposure time(min)	Mass flux( $\text{g}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )* of various heights (cm)								U** (m/s)	T*** (°C)
			30	70	130	205	328	650	1400	2800		
1	Feb. 6- 7	1980	61.8	31.2	18.0	12.2	8.5				14.8	-19.1
2	Feb.16-18	1275	14.8	3.4	1.3	0.9	0.5				11.7	-21.2
3	Feb.18-27	13215	2.0	0.3	0.13	0.1	0.1	0.06	0.07	0.05	9.8	-27.5
4	Feb.27-Mar. 1	4440	215.0	90.0	48.3	31.0	18.6	0.85	0.57	0.31	13.9	-28.0
5	Mar. 1- 7	8295	11.1	2.7	0.9	0.4	0.1				11.3	-29.9
6	Mar. 7-10	5055	22.1	6.1	3.0	1.7	0.9	0.13	0.05	0.01	12.0	-32.6
7	Mar.12-15	4320	47.5	17.8	9.5	5.8	3.3	0.62	0.31	0.13	12.3	-32.0
8	Mar.19-25	9000	67.0	28.1	14.4	8.9	5.6	1.78	0.54	0.33	13.8	-34.5
9	Mar.27-Apr.11	22170	30.0	15.0	8.6	5.8	4.2				12.9	-30.0
10	Apr.11-14	4425	12.8	5.3	2.4	2.5	1.0	0.49	0.26	0.09	10.5	-33.9
11	Apr.14-17	4245	135.0	57.3	32.0	20.2	15.2	1.65	0.79	0.31	13.0	-26.2
12	Apr.17-21	5670	4.9	2.7	1.6	1.4	1.1	0.25	0.15	0.08	9.8	-34.3
13	Apr.21-27	8670	27.6	15.5	9.8	6.5	4.5	1.23	0.69	0.33	12.7	-44.3
14	May 23-29	8730	8.7	3.1	2.2	1.6	1.3				9.0	-39.5
15	Aug.25-Sep. 2	12300	50.0	28.0	18.7	13.6	10.1	8.15	3.92	1.10	12.8	-39.3
16	Sep. 3	7170	42.1	18.9	11.0	10.7	9.5				11.9	-32.8
17	Sep. 8-15	10230	36.7	12.9	6.8	4.9	3.8	0.71	0.41	0.30	13.5	-36.9
18	Sep.15-24	13590	27.8	9.7	7.1	3.8	2.6				12.6	-35.3
19	Sep.30-Oct. 5	8040	34.9	15.8	10.2	8.9	7.3				12.1	-41.7
20	Oct. 5-11	9240	23.2	11.1	6.6	5.4	4.6	1.22	0.69	0.38	11.1	-37.2
21	Oct.12-19	8310	17.9	7.7	5.0	4.1	3.6	0.93	0.69	0.57	10.1	-38.2
22	Oct.21-24	3420	46.3	18.0	11.2	8.9	7.3				12.5	-34.5
23	Oct.25-Nov. 4	14580	54.0	27.0	16.1	11.0	8.6	0.37	0.25	0.20	14.4	-30.9

\* The values of mass flux corrected by the value of collection efficiency 0.297.

\*\* U: Mean wind speed at 7.2 m in height during the exposure period.

\*\*\* T: Mean air temperature at 1.7 m in height during the exposure period.



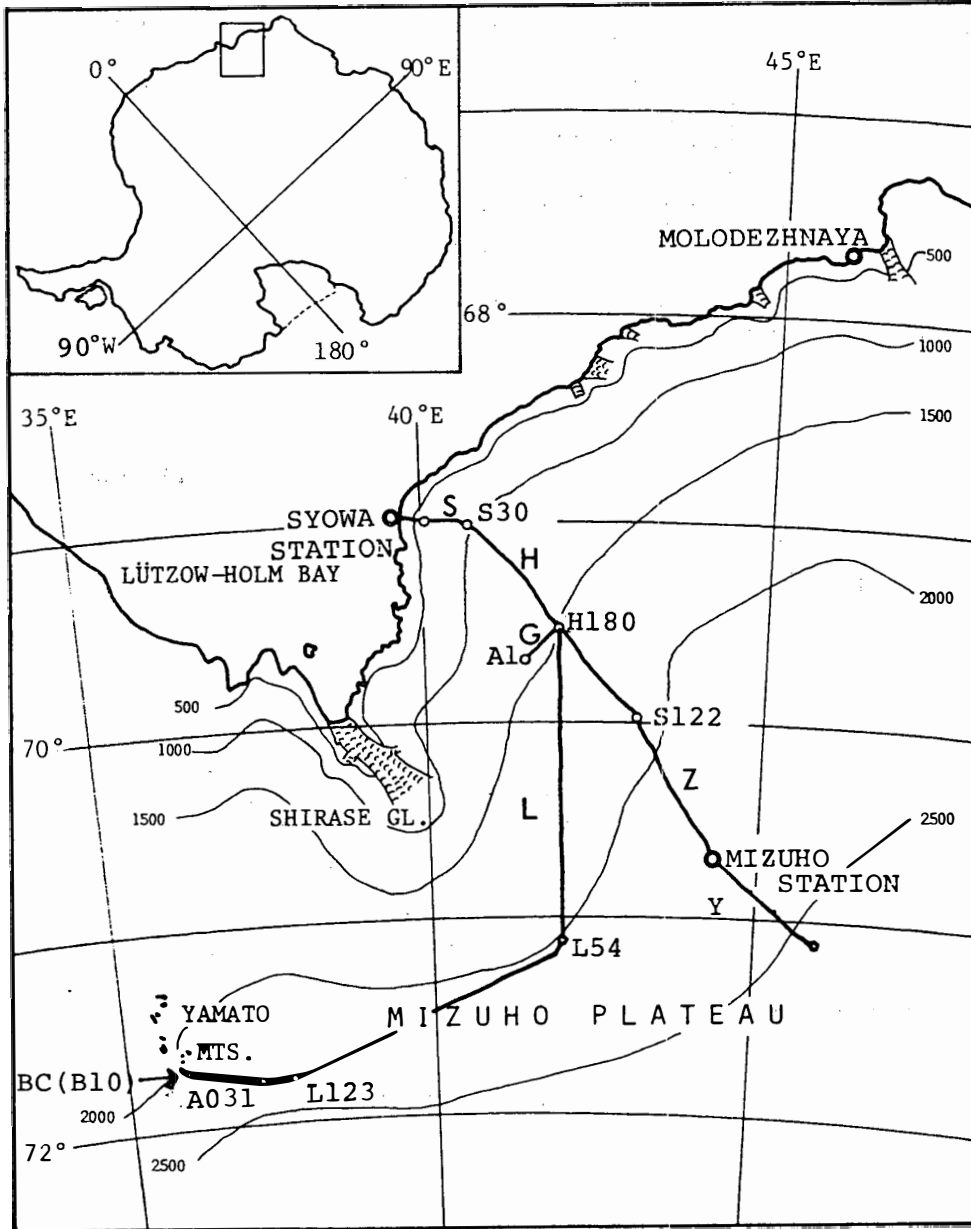


Fig. 1. Location of stations and traverse routes covered in this report.

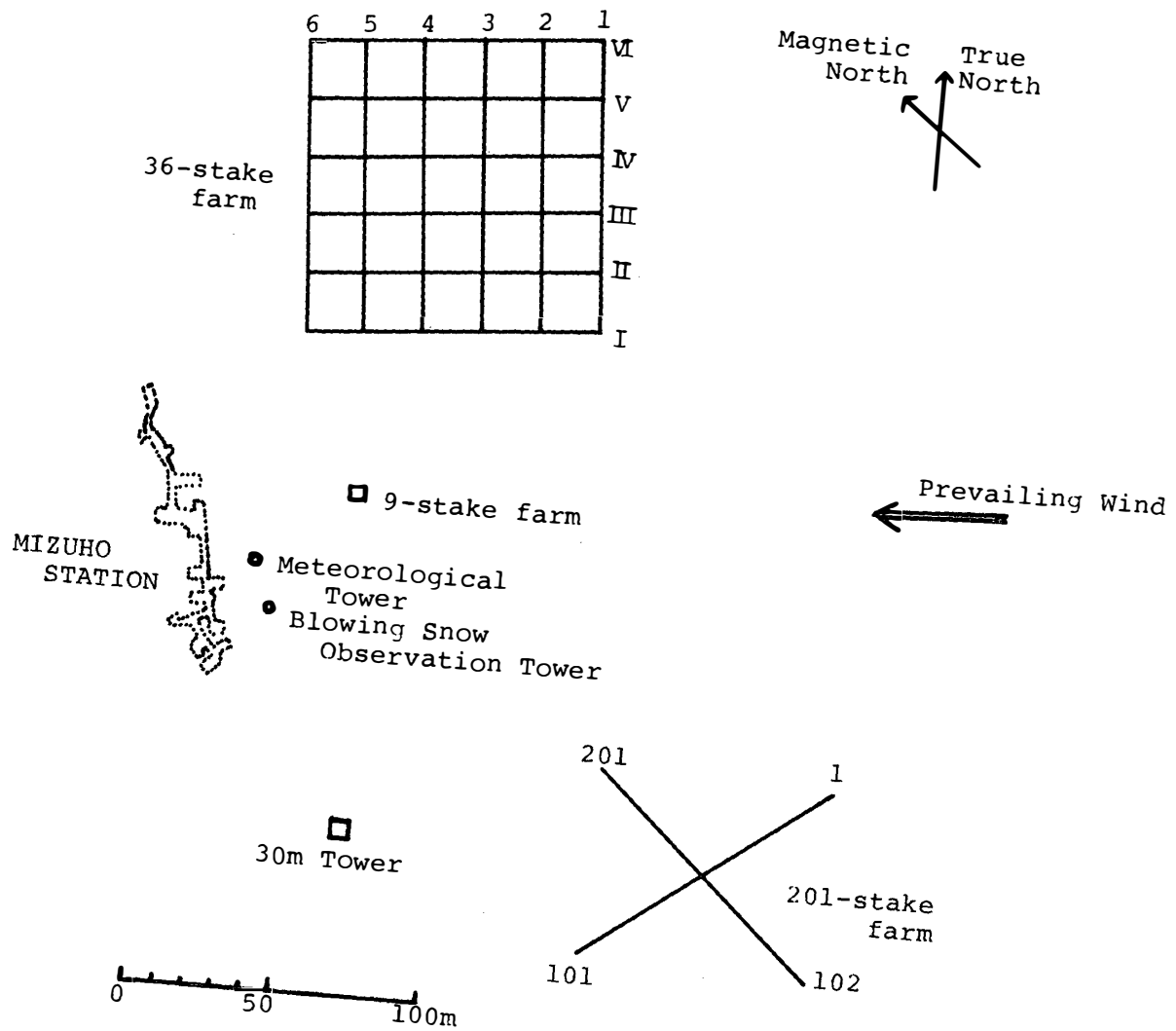


Fig. 2. Position of stake farms and towers at Mizuho Station.

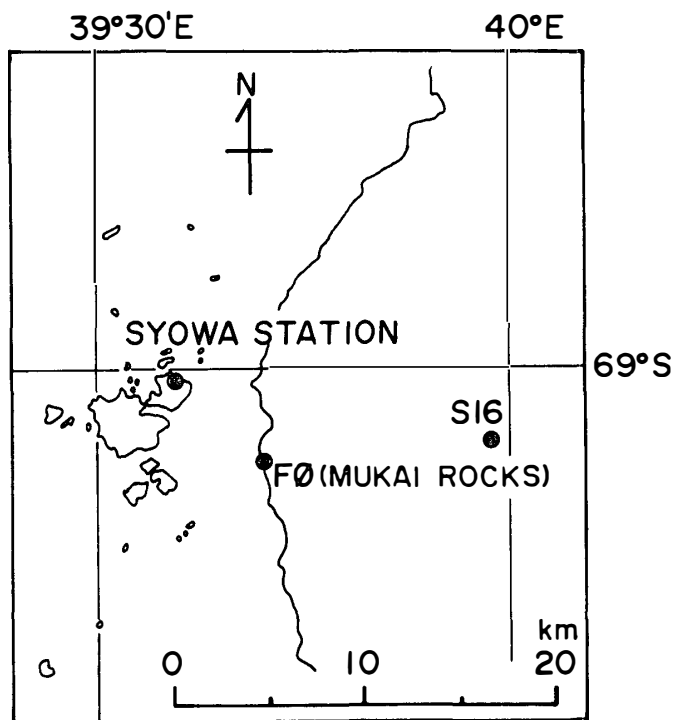


Fig. 3. Position of unmanned stations S16 and F0.

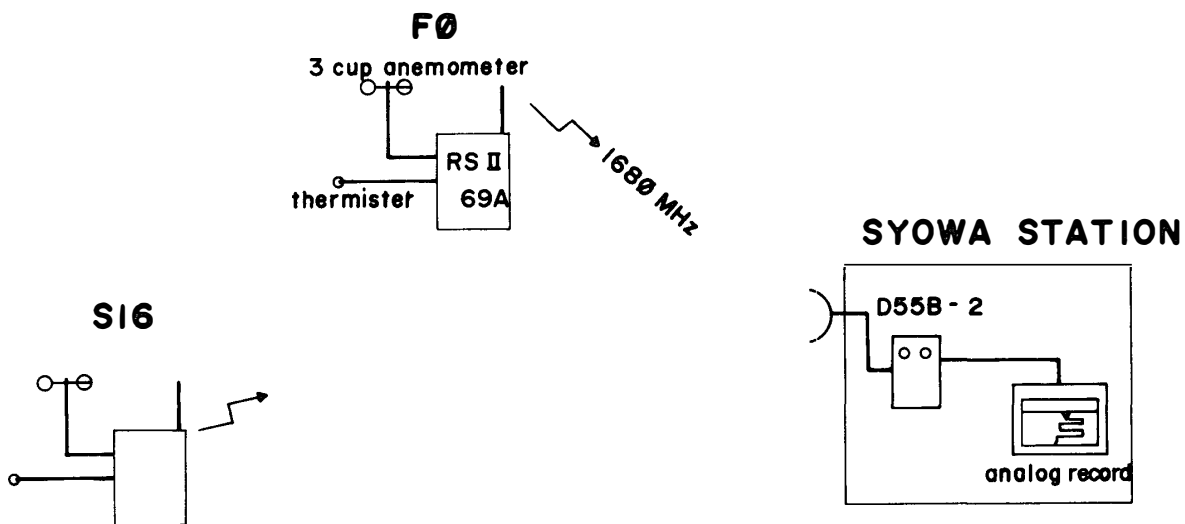


Fig. 4. Diagram showing the system of the unmanned observation.

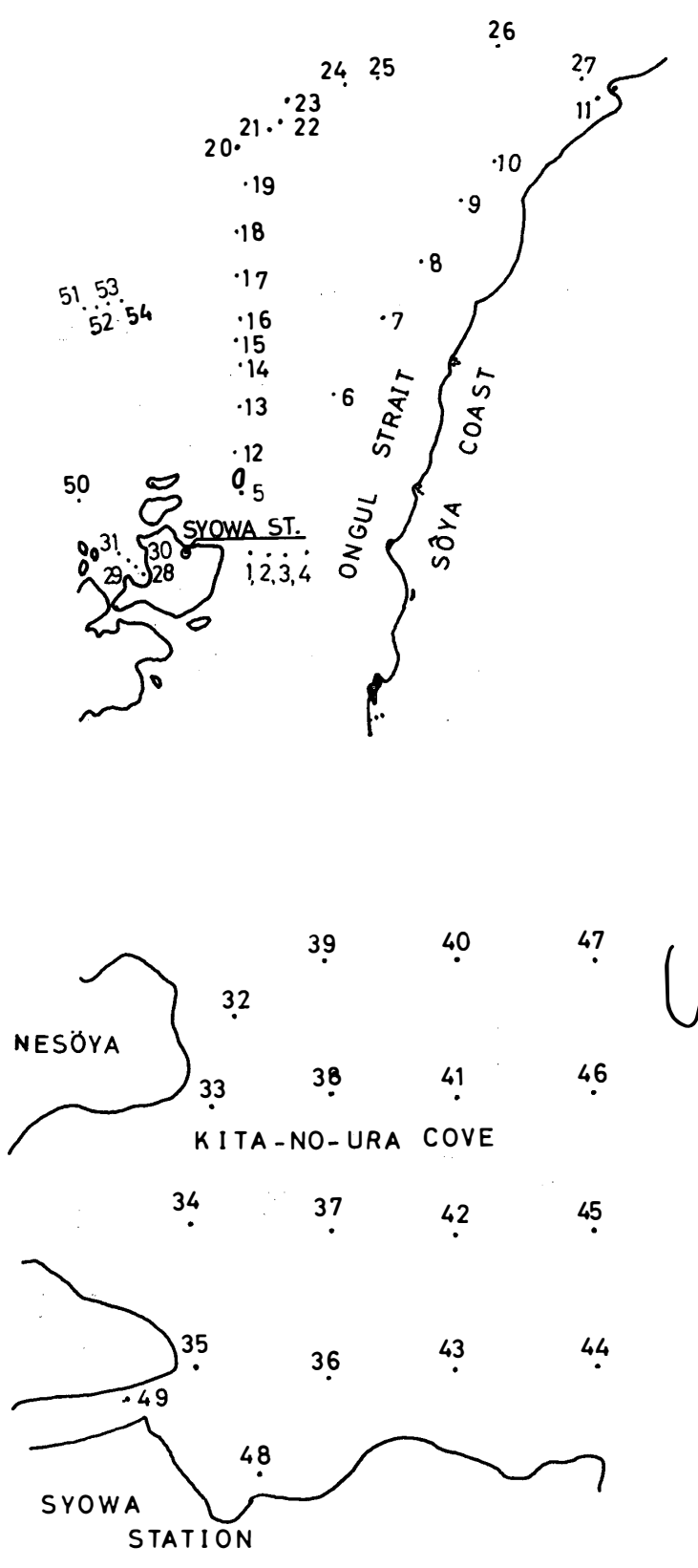


Fig. 5. Site of the measurement of sea ice thickness.

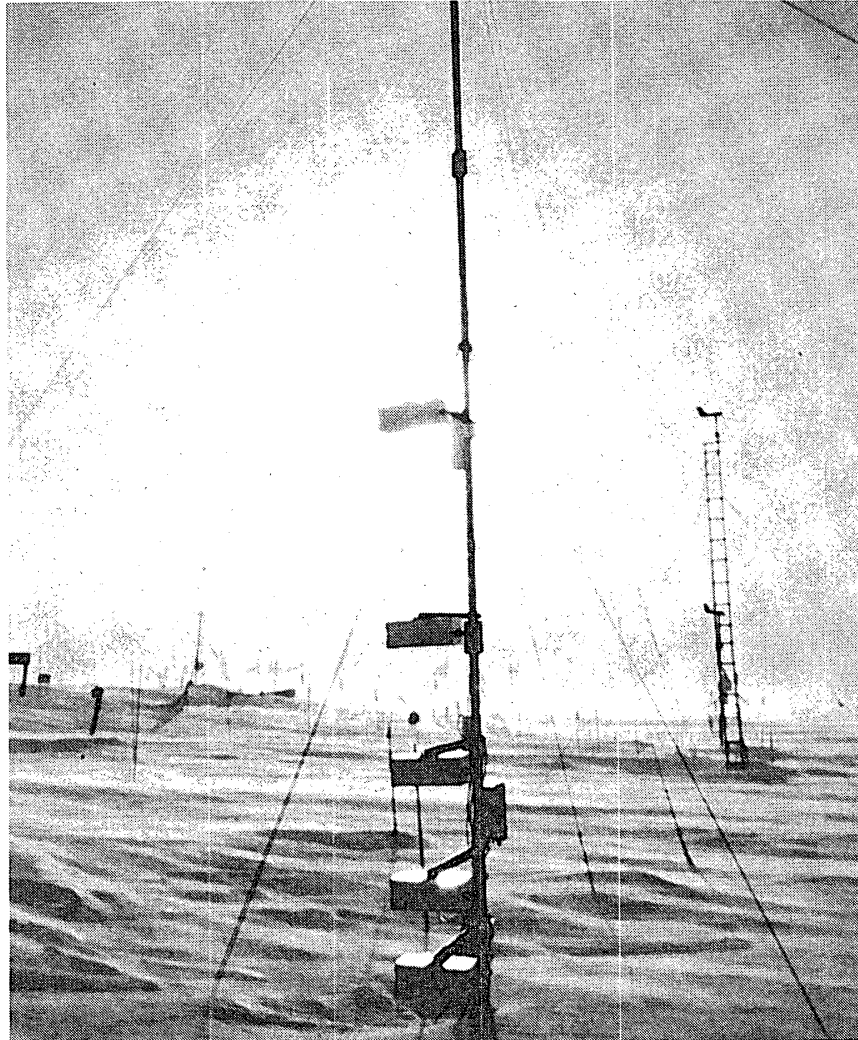


Fig. 6. Photograph of the tower for the measurement of blowing snow at Mizuho Station.