Glaciological Data Collected by the 33rd Japanese Antarctic Research Expedition in 1992

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CONTENT

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1. Outline of Field Observations in 1992

A five-year glaciological program, the deep ice coring project at Dome-F, was started from 1992. In 1991, the 32nd Japanese Antarctic Research Expedition (JARE-32) extended the new route from Mizuho Station directly toward Dome-F, about 630 km from Syowa Station.

In 1992, three oversnow traverses were carried out by JARE-33 as shown in Table 1-1. On the last traverse, the route was extended to Dome-F where JARE-26 had first arrived and the point flag, DF 80, had been set up. Radio-echo sounding was carried out in the summit area to obtain bedrock topography data for selection of the deep ice coring site. Stations were established along the traverse route to continue glaciological observations during the program, as listed in Table 1-2. The main glaciological field work in 1992 was carried out in the summit area during the oversnow traverses. The participants and their assignments in the traverse operations are listed in Table 1-3. The observation items, done along the traverse route and at the glaciological observation stations, are listed in Tables 1-4 and 1-5 respectively.

We would like to express sincere thanks to all members of JARE-33, led by Prof. Mitsuo Fukuchi, who extended generous support in the field work. Our first traverse was supported by JARE-32, led by Associate Prof. Yoshiyuki Fujii. We also thank Prof. Okitsugu Watanabe, the supervisor of the project.

Table 1-1. Three oversnow traverses carried out by JARE-33.

Traverse No.	Period from	Period to	Traverse route from	Traverse route to	Distance km	Participants	Oversnow vehicle
1	03 Jan.	16 Jan.	S 16	MD 364	628	7	SM 50 (4), PL 30
1	19 Jan.	31 Jan.	MD 364	S 16	628	7	SM 50 (4), PL 30
2	26 July	06 Aug.	S 16	MD 72	334	7	SM 100 (2)
2	06 Aug.	13 Aug.	MD 72	S 16	334	7	SM 100 (2)
3	24 Sept.	28 Oct.	S 16	DF 80	1005	7	SM 100 (2), SM 50 (2)
3	30 Oct.	05 Nov.	DF 80	DF 80	253	7	SM 100 (2), SM 50
3	15 Nov.	20 Dec.	DF 80	S 16	1037	7	SM 100 (2), SM 50 (2)

SM 50 and 100 are types of the oversnow vehicles, and PL 30 that of the bulldozer. The number of each vehicle is shown in parentheses.

Table 1-2. Basic glaciological observation sites along the traverse routes.

Station	Establishment	Latitude (S)	Longitude (E)	Distance from S16 (km)
S 16	previously	69° 02'	40° 03'	0
H 15	Jan. 1992	69° 05'	40° 47'	31
H 260	Jan. 1992	69° 53'	42° 43'	146
Mizuho	previously	70° 42'	44° 17'	256
MD 120	Jan. 1992	77° 22'	39° 37'	383
MD 240	Jan. 1992	77° 44'	39° 08'	503
MD 364	Jan. 1992	74° 00'	42° 60'	628
MD 500	Dec. 1992	75° 14'	42° 01'	764
MD 620	Dec. 1992	76° 18'	40° 50'	885
DF 80	Nov. 1992	77° 22'	39° 37'	1005
DS 40	Nov. 1992	77° 44'	39° 08'	1045
DS 140	Nov. 1992	77° 22'	38° 38'	1057

Table 1-3. Participants and their assignments in the traverse operation.

Name	Assignments	Traverse No.
Kokichi KAMIYAMA	Leader; Navigation; Glaciology	1, 2, 3
Teruo FURUKAWA	Sub leader; Navigation; Glaciology	1, 3
Hideo MAENO	Navigation; Glaciology	3
Seiichi KANEKO	Sub leader; Mechanic	2
Hidenobu MORIKAWA	Mechanic	1
Atsushi MORII	Mechanic	2, 3
Takeshi GOTOH	Field assistant	1
Yohichi MOTOYOSHI	Navigation; Radio operator	2
Hiroyuki MASUDA	Medical doctor	1, 2
Hajime YAMAUCHI	Navigation; Medical doctor	3
Hiroshi IGARASHI	Meteorology	1
Yoshitomo KOJYO	Meteorology	2
Takayuki KISHI	Meteorology	3
Jyunjirou KAGA	Radio operator	1
Tatsuya KAGEYAMA	Radio operator	3

Table 1-4. Items of observation frequently carried out along the routes.

Item	Intervals	Route				Main observer
		S16-Mizuho	MD	DF	DS	
Position	2 km	*	*	*	*	FURUKAWA
Altitude	2 km	*	*	*	*	FURUKAWA
Snow stake	2 km	*	*	*	*	FURUKAWA
Surface feature	10 km	*	*	*	*	FURUKAWA
Ice thickness	continuous	*	*	*	*	MAENO
Gravity	twice/day	*	*	*	*	KAMIYAMA
Surface slope	twice/day		*	*	*	FURUKAWA
Snow sampling	10 km	*	*	*	*	KAMIYAMA
Surface roughness	2 km	*	*	*	*	FURUKAWA
Meteorology	09, 15, 21 (LT)	*	*	*	*	KISHI

Table 1-5. Observations carried out only at the basic observation sites.

Item	S16	H		M/S	MD					DF80	DS		Main observer
		15	260		120	240	360	500	620		40	140	
GPS positioning (2)	*	*	*	*	*	*	*						FURUKAWA
Strain grid										*			FURUKAWA
Ice thickness	*	*	*	*	*	*	*	*	*	*	*	*	MAENO
Gravity	*	*	*	*	*	*	*	*	*	*	*	*	KAMIYAMA
Surface slope					*	*	*	*	*	*	*	*	FURUKAWA
10 meter coring				*	*	*	*	*	*	*	*	*	FURUKAWA
10 meter snow temperature				*			*			*			FURUKAWA
Rum hardness					*	*	*	*	*	*			FURUKAWA
Pit observation and sampling					*	*	*	*	*	*	*	*	KAMIYAMA
Automatic air temperature										*			FURUKAWA

2. Position, Elevation, Ice Thickness and Gravity

2.1. Position along routes

Observers: Teruo FURUKAWA and Hideo MAENO

Two routes were newly established in 1992 by JARE-33 (see Fig. 1). Route MD was extended from MD 364 to DF 80. The route from MD 0 (IM 0) to MD 364 was established by JARE-32, and DF 80 by JARE-26. Route DS was established from DF 80 for the survey in the summit area. Route DS was connected to part Route DF (from DF 63 to DF 104) (see Fig 2).

On Routes MD and DS, snow stakes were installed every 2 km. All stakes were numbered to coincide with the distance from starting point. These numbered stakes were used for snow accumulation measurements.

Positions (latitude and longitude) were determined every 2 km along new routes and Route S-H-Z with a GPS (Global Positioning System). The GPS data were calculated on the WGS-72 earth ellipsoid with broadcast phemerides. The positions of the stations were thus obtained on the routes as shown in Table 2-1 for Route S-H-Z, Table 2-2 for Route MD (0-738) and Tables 2-3, -4, -5 for Routes DS and DF. In positioning with GPS, the error is a few tens of meters, which is good enough for navigation.

2.2. Elevation along routes

Observers: Teruo FURUKAWA and Hajime YAMAUCHI

Measurements with barometric altimeters (American Paulin Altimeter MM1) were made every 2 km along routes. Measurements by the differential GPS method also gave elevations at glaciological observation stations (see Fig. 1). The GPS measurements were conducted simultaneously at observation stations and at a reference site located at Syowa Station. As these GPS data are much more precise than those by barometric altimeter, they are considered to be the basic elevation data. The GPS data were obtained on the WGS-84 earth ellipsoid, and converted to WGS-72. This method was used, however, only sporadically along the routes. The elevations of each station between glaciological observation stations were calculated by interpolation of the barometric data. For DF 80, the elevation was measured with JMR by JARE-26. Along Route DF, the mean values of elevations measured by JARE-26 and JARE-33 are used. The final results on elevation are tabulated in Tables 2-1, -2, -3, -4, and -5 together with positions. The errors in determining elevations by the above method above are about ± 5 m.

2.3. Ice thickness

Observer: Hideo MAENO

Ice thickness was measured with a radio echo sounding system newly improved by CRL and NIPR. The system consists of a transmitter, a receiver, a digital oscilloscope and a personal computer set inside an oversnow vehicle, SM 102, with four aerials on the roof. Specifications of the apparatus are shown in Table 2-6; the details are described by MAENO *et al.* (1994). The radio echo sounding was started from MD 684 and finished at the glaciological observation station nearest to the coast, S 16, passing over the dome area (Fig. 2). The A-scope data were recorded continuously in the digital base every 1 min when the snow vehicle was moving. The Z-scope was also monitored continuously. Every 2 km beside the snow stakes, data were collected by stopping the oversnow vehicle for at least 2 min. Ice thickness was estimated *in situ* from the A-scope reading.

Data compiled in this report, shown in Tables 2-1, 2-2, 2-3, 2-4, 2-5, were obtained from A-scope readings measured at 2 km intervals beside the snow stake, after reconsidering the digital records in the home laboratory. The accuracy of the estimated ice thickness depends upon the refractivity of the ice layers and shape of the bedrock. In the ideal state with horizontally infinite flat bedrock topography and no variation in the refractivity of ice layers, the ice thickness accuracy is ± 6 m, depending upon the transition period in the transmitter pulse (0.15 μs).

2.4. Gravity along the routes

Observers: Kokichi KAMIYAMA and Masaki KANAO

The gravity anomaly was measured with a LaCoste-Romberg gravimeter (G-515). This instrument was used at Syowa Station by Mr. Kanao just before the departure of the last traverse in order to measure the earth tide. The instrument was set in an oversnow vehicle carefully to protect it from vibrations during the traverse; electricity was supplied from the vehicle's battery. After the traverse, the last gravity measurement was carried out at Syowa Station to close the measurement loop. Along the traverse route, measurements were attempted twice a day. Along the route to Dome-F, the measurements were often interrupted by instrument vibration induced by strong wind. It was confirmed that the temperature control of the instrument had been down, at least twice when the oversnow vehicle was kept unmoved and the electric supply into the instrument was stopped, which possibly caused inaccurate gravity values. The details of the measurements are shown in Table 2-7. After the traverse, the free air anomaly was calculated from position and elevation data, and the Bouguer gravity anomaly was calculated from ice thickness data. The results are shown in Table 2-8. The free air anomaly values and bedrock elevation along the traverse routes have been reported by KAMIYAMA *et al.* (1994).

References

KAMIYAMA, K., KANAO M., MAENO, H. and FURUKAWA, T. (1994): 1992-nen ni jisshi shita Higashi Nankyoku Do-mu F shûhenbu no jûryoku sokutei (Gravity survey on the Mizuho Plateau, East Antarctica, along the traverse routes between Dome-F and Syowa Station). Nankyoku Shiryô (Antarct. Rec.), **38**, 39-51.

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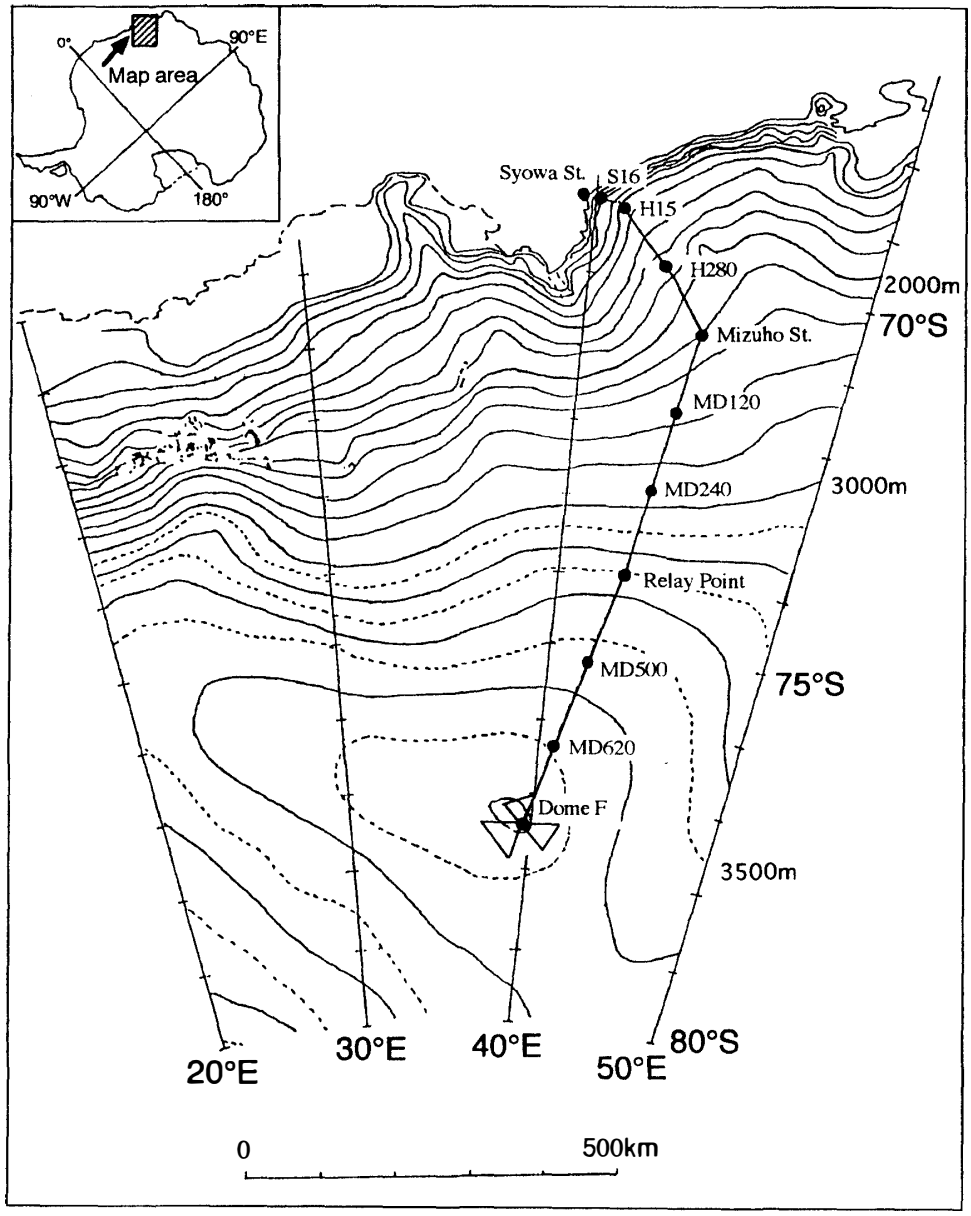

Fig. 1. Map showing the traverse routes traced by JARE-33.

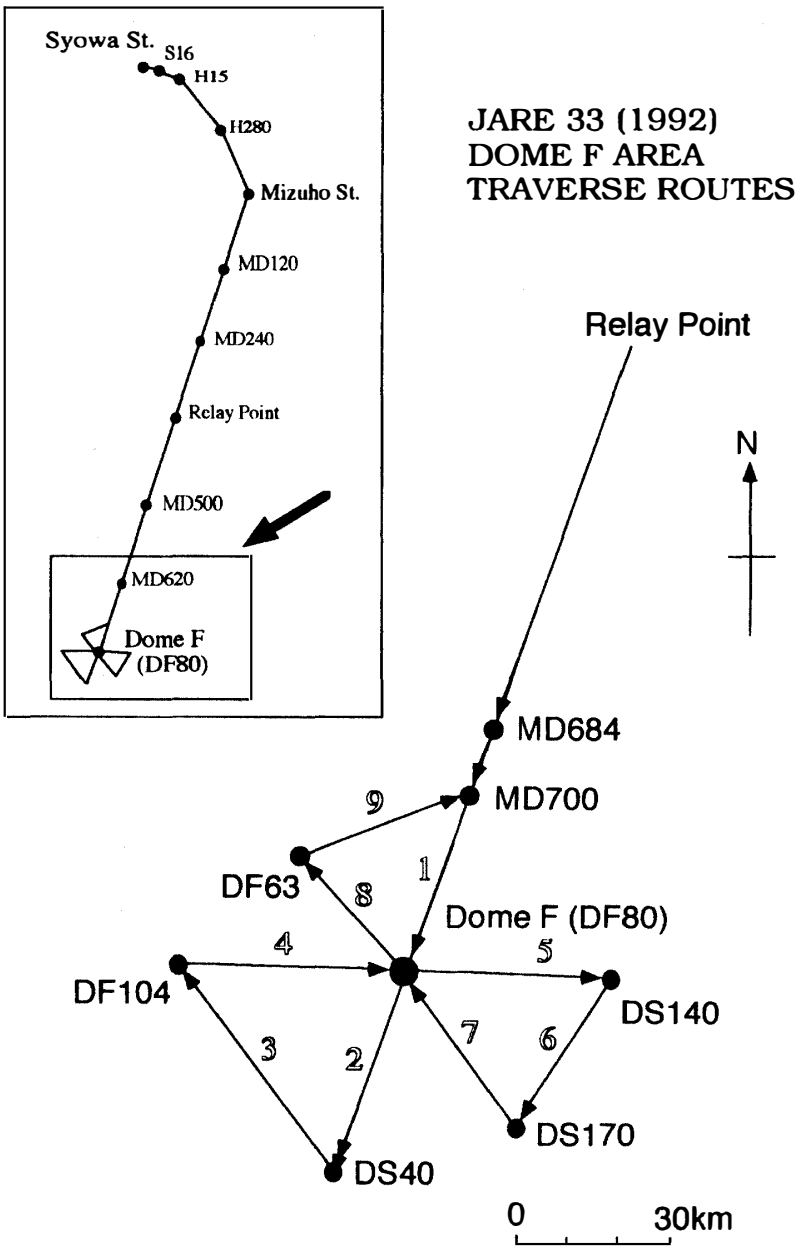

Fig. 2. Map showing the traverse routes around Dome-F area.

Table 2-1. Position, elevation and ice thickness along Route S-H-Z.

* Differential GPS station ** JMR station by JARE26

Station			Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
S	16	*	69°	1'	47"	40°	3'	9"	591	350
S	17		69	1	32	40	4	58	608	385
S	18		69	1	23	40	7	15	633	370
S	19		69	0	55	40	9	23	642	860
S	20		69	1	7	40	12	19	682	885
S	21		69	1	22	40	15	31	727	485
S	22		69	1	30	40	18	26	777	750
S	23		69	1	35	40	21	37	815	625
S	24		69	1	43	40	24	19	855	685
S	25		69	1	54	40	27	20	896	630
S	26		69	2	6	40	30	11	923	730
S	27		69	2	19	40	33	1	948	810
S	28		69	2	38	40	35	48	971	885
S	29		69	2	44	40	38	37	988	785
S	30		69	2	58	40	41	29	1015	800
H	3		69	3	32	40	43	1	1031	880
H	9		69	4	13	40	44	53	1049	1130
H	15	*	69	4	46	40	46	54	1050	1030
H	21		69	5	32	40	48	26	1076	880
H	27		69	6	11	40	50	14	1095	960
H	35		69	7	6	40	52	34	1116	990
H	42		69	7	52	40	54	38	1136	840
H	48		69	8	33	40	56	21	1156	980
H	54		69	9	16	40	58	11	1166	1090
H	60		69	9	57	40	59	52	1173	1030
H	64		69	10	40	41	1	38	1188	1000
H	68		69	11	29	41	3	34	1204	960
H	72		69	12	17	41	5	26	1214	990
H	76		69	13	4	41	7	16	1241	920
H	80		69	13	53	41	8	59	1251	1040
H	84		69	14	35	41	10	59	1277	1130
H	88		69	15	14	41	13	11	1282	1170
H	92		69	15	56	41	15	26	1297	1140
H	96		69	16	53	41	17	23	1296	1130
H	100		69	17	46	41	19	21	1317	1060
H	104		69	18	36	41	21	34	1347	1200
H	108		69	19	23	41	23	51	1350	1360
H	112		69	20	11	41	26	7	1352	1200
H	116		69	21	4	41	28	11	1372	1330

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
H	120	69 °	21 '	54 "	41 °	30 '	31 "	1378	1290
H	124	69	22	41	41	32	33	1396	1260
H	128	69	23	38	41	34	2	1406	1340
H	132	69	24	32	41	35	49	1412	1350
H	136	69	25	32	41	37	31	1418	1280
H	140	69	26	32	41	39	7	1427	1260
H	144	69	27	28	41	40	59	1442	1240
H	148	69	28	23	41	42	47	1465	1350
H	152	69	29	16	41	44	57	1472	1480
H	156	69	30	4	41	46	59	1494	1310
H	160	69	30	57	41	49	10	1515	1530
H	164	69	31	46	41	51	4	1513	1540
H	168	69	32	36	41	52	22	1519	1500
H	172	69	33	33	41	55	22	1535	1450
H	176	69	34	26	41	57	27	1555	1530
H	180	69	35	13	41	59	52	1562	1980
H	184	69	36	4	42	1	48	1571	
H	188	69	36	58	42	3	54	1579	
H	192	69	37	47	42	6	2	1582	
H	196	69	38	40	42	8	5	1586	
H	200	69	39	37	42	10	2	1601	1780
H	204	69	40	28	42	12	9	1615	1760
H	208	69	41	22	42	14	11	1626	1790
H	212	69	42	17	42	16	17	1636	
H	216	69	42	59	42	18	38	1642	
H	220	69	43	49	42	20	55	1655	1870
H	224	69	44	40	42	22	59	1671	1840
H	228	69	45	38	42	24	57	1683	1870
H	232	69	46	33	42	26	51	1693	1770
H	236	69	47	32	42	29	1	1704	1780
H	240	69	48	21	42	31	1	1713	1550
H	244	69	49	14	42	32	39	1724	1500
H	248	69	50	7	42	34	46	1748	1560
H	252	69	50	59	42	36	56	1766	1780
H	256	69	51	50	42	39	32	1769	1820
H	260 *	69	52	37	42	41	29	1776	1760
H	264	69	53	17	42	43	46	1789	1760
H	268	69	54	11	42	46	13	1797	1770
H	272	69	55	4	42	48	20	1811	1400

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
H 276	69° 55' 52"	42° 50' 37"	1824	1620
H 280	69 56 40	42 52 52	1828	1520
H 284	69 57 36	42 55 0	1850	1570
H 288	69 58 40	42 56 11	1864	1710
H 293	69 59 36	42 59 0	1880	1710
H 297	70 0 13	43 1 50	1896	1570
H 301	70 0 43	43 4 50	1914	1440
S 122	70 1 16	43 7 51	1921	1460
Z 2	70 2 10	43 9 34	1935	1400
Z 4	70 3 2	43 11 22	1950	1390
Z 6	70 3 52	43 13 11	1972	1450
Z 8	70 4 44	43 14 50	1980	1570
Z 10	70 5 36	43 16 36	1982	1540
Z 12	70 6 31	43 18 14	1993	1530
Z 14	70 7 24	43 19 53	1986	1620
Z 16	70 8 17	43 21 31	1993	1380
Z 18	70 9 12	43 23 8	2002	1450
Z 20	70 10 7	43 24 31	2013	1990
Z 22	70 11 3	43 25 51	2002	1730
Z 24	70 12 2	43 27 13	2016	1560
Z 26	70 11 55	43 28 57	2032	1620
Z 28	70 13 49	43 30 21	2042	1530
Z 30	70 14 43	43 31 56	2054	1690
Z 32	70 15 37	43 33 28	2060	1530
Z 34	70 16 33	43 34 53	2069	1550
Z 36	70 17 25	43 36 23	2074	1600
Z 38	70 18 19	43 37 56	2088	1560
Z 40	70 19 13	43 39 31	2102	1770
Z 42	70 20 4	43 41 5	2101	1750
Z 46	70 21 13	43 43 7	2114	1730
Z 50	70 22 7	43 44 35	2109	1660
Z 54	70 23 0	43 46 5	2111	1620
Z 58	70 23 50	43 47 37	2122	1720
Z 62	70 24 44	43 49 9	2133	1770
Z 66	70 25 38	43 50 42	2148	1870
Z 70	70 26 34	43 52 21	2157	2030
Z 72	70 27 27	43 53 55	2161	2040
Z 74	70 28 20	43 55 32	2177	
Z 76	70 29 11	43 57 10	2178	

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
Z 78	70° 30' 4"	43° 59' 0"	2173	
Z 80	70 30 55	44 0 36	2187	
Z 82	70 31 47	44 2 22	2190	
Z 84	70 32 42	44 4 0	2187	2180
Z 86	70 33 38	44 5 27	2185	2030
Z 88	70 34 35	44 6 43	2188	1890
Z 90	70 35 30	44 7 40	2197	1880
Z 92	70 36 25	44 9 1	2201	1870
Z 94	70 37 21	44 10 22	2206	1900
Z 96	70 38 18	44 11 46	2209	1950
Z 98	70 39 6	44 12 40	2221	1970
Z 100	70 40 11	44 14 6	2214	2040
Z 102	70 41 8	44 15 20	2221	2000
Mizuho St. *	70 42 0	44 17 21	2250	2060

Table 2-2. Position, elevation and ice thickness along Route MD.

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
Mizuho St. *	70 °	42 '	0 "	44 °	17 '	21 "	2250	2060
IM 0	70	42	39	44	17	0	2244	2050
IM 1	70	43	10	44	16	37	2252	2200
IM 2	70	44	13	44	15	48	2265	1920
MD 0 (IM 3)	70	45	15	44	14	49	2263	1900
MD 2	70	46	20	44	14	27	2254	1980
MD 4	70	47	25	44	14	7	2260	1760
MD 6	70	48	39	44	13	33	2283	1870
MD 8	70	49	37	44	13	26	2286	1920
MD 10	70	50	39	44	13	8	2286	1860
MD 12	70	51	47	44	12	49	2295	2080
MD 14	70	52	47	44	12	20	2306	2130
MD 16	70	53	51	44	12	1	2301	2120
MD 18	70	54	58	44	11	38	2303	2060
MD 20	70	56	2	44	11	22	2305	2080
MD 22	70	57	5	44	11	4	2314	2060
MD 24	70	58	10	44	10	35	2320	2080
MD 26	70	59	12	44	10	25	2333	2130
MD 28	71	0	18	44	10	7	2340	2120
MD 30	71	1	23	44	9	44	2345	2060
MD 32	71	2	28	44	9	21	2351	2220
MD 34	71	3	32	44	9	0	2351	2200
MD 36	71	4	35	44	8	37	2349	2030
MD 38	71	5	41	44	8	16	2347	2100
MD 40	71	6	45	44	7	55	2360	2110
MD 42	71	7	49	44	7	30	2375	2140
MD 44	71	8	55	44	7	12	2381	2230
MD 46	71	9	59	44	6	53	2382	2250
MD 48	71	11	4	44	6	30	2384	2240
MD 50	71	12	7	44	6	9	2389	2270
MD 52	71	13	10	44	5	47	2394	2230
MD 54	71	14	16	44	5	28	2396	2200
MD 56	71	15	20	44	5	4	2405	2160
MD 58	71	16	25	44	4	47	2409	2260
MD 60	71	17	29	44	4	23	2410	2200
MD 62	71	18	34	44	4	2	2413	2190
MD 64	71	19	39	44	3	40	2419	2200
MD 66	71	20	41	44	3	20	2429	2250
MD 68	71	21	48	44	3	0	2434	2300

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
MD	70	71 °	22 '	51 "	44 °	2 '	38 "	2437	2370
MD	72	71	23	56	44	2	16	2437	2360
MD	74	71	25	1	44	1	56	2439	2360
MD	76	71	26	5	44	1	34	2435	2340
MD	78	71	27	9	44	1	10	2441	2250
MD	80	71	28	14	44	0	48	2452	2230
MD	82	71	29	19	44	0	24	2462	2200
MD	84	71	30	22	44	0	0	2469	2190
MD	86	71	31	28	43	59	39	2481	2180
MD	88	71	32	31	43	59	17	2481	2260
MD	90	71	33	35	43	58	53	2470	2180
MD	92	71	34	40	43	58	30	2493	2120
MD	94	71	35	44	43	58	9	2513	2240
MD	96	71	36	49	43	57	46	2524	2340
MD	98	71	37	53	43	57	25	2525	2420
MD	100	71	38	58	43	57	3	2523	2460
MD	102	71	40	2	43	56	40	2521	2260
MD	104	71	41	14	43	56	28	2531	2230
MD	106	71	42	11	43	55	56	2546	2240
MD	108	71	43	14	43	55	35	2565	2250
MD	110	71	44	20	43	55	14	2574	2350
MD	112	71	45	24	43	54	47	2573	2470
MD	114	71	46	29	43	54	29	2577	2360
MD	116	71	47	33	43	54	6	2583	2450
MD	118	71	48	37	43	53	43	2592	2440
MD	120	* 71	49	41	43	53	0	2600	2500
MD	122	71	50	47	43	52	59	2604	2500
MD	124	71	51	50	43	52	38	2607	2550
MD	126	71	52	55	43	52	14	2612	2550
MD	128	71	53	59	43	51	51	2616	2470
MD	130	71	55	4	43	51	26	2622	2300
MD	132	71	56	8	43	51	5	2634	2340
MD	134	71	57	13	43	50	45	2648	2340
MD	136	71	58	17	43	50	22	2658	2430
MD	138	71	59	22	43	49	59	2664	2550
MD	140	72	0	26	43	49	35	2669	2620
MD	142	72	1	31	43	49	12	2674	2600
MD	144	72	2	34	43	48	53	2683	2610
MD	146	72	3	38	43	48	25	2691	2590

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
MD 148	72° 4' 43"	43° 48' 2"	2697	2590
MD 150	72 5 49	43 47 38	2703	2560
MD 152	72 6 52	43 47 17	2714	2580
MD 154	72 7 58	43 46 55	2717	2670
MD 156	72 9 1	43 46 33	2724	
MD 158	72 10 4	43 46 5	2730	
MD 160	72 11 10	43 45 37	2741	
MD 162	72 12 14	43 45 14	2743	2660
MD 164	72 13 19	43 44 50	2748	
MD 166	72 14 22	43 44 25	2755	2460
MD 168	72 15 27	43 44 1	2763	2520
MD 170	72 16 32	43 43 40	2770	2630
MD 172	72 17 37	43 43 12	2772	2400
MD 174	72 18 40	43 42 46	2777	2210
MD 176	72 19 44	43 42 20	2780	2030
MD 178	72 20 49	43 41 58	2809	1940
MD 180	72 21 53	43 41 33	2833	2130
MD 182	72 22 58	43 41 9	2838	2450
MD 184	72 24 2	43 40 43	2838	2530
MD 186	72 25 7	43 40 20	2845	2500
MD 188	72 26 11	43 39 58	2849	
MD 190	72 27 15	43 39 35	2851	2400
MD 192	72 28 20	43 39 13	2849	2120
MD 194	72 29 25	43 38 52	2855	2120
MD 196	72 30 30	43 38 29	2864	2040
MD 198	72 31 33	43 38 7	2874	1980
MD 200	72 32 38	43 37 43	2893	2240
MD 202	72 33 41	43 37 14	2904	2310
MD 204	72 34 46	43 36 46	2905	
MD 206	72 35 51	43 36 16	2903	2520
MD 208	72 36 55	43 35 49	2903	2530
MD 210	72 37 58	43 35 23	2913	2170
MD 212	72 39 3	43 34 52	2922	
MD 214	72 40 8	43 34 25	2931	
MD 216	72 41 11	43 33 59	2923	2060
MD 218	72 42 16	43 33 35	2943	2270
MD 220	72 43 20	43 33 1	2948	2330
MD 222	72 44 25	43 32 33	2960	2390
MD 224	72 45 29	43 32 7	2961	

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
MD	226		72°	46'	34"	43°	31'	41"	2967	
MD	228		72	47	38	43	31	14	2959	2520
MD	230		72	48	43	43	30	48	2962	1960
MD	232		72	49	46	43	30	19	2966	1850
MD	234		72	50	50	43	29	50	2977	1810
MD	236		72	51	56	43	29	28	2989	1960
MD	238		72	52	59	43	28	58	2995	2160
MD	240	*	72	53	59	43	28	20	3001	1890
MD	242		72	55	8	43	28	2	3011	2100
MD	244		72	56	12	43	27	35	3032	1850
MD	246		72	57	16	43	27	8	3051	2270
MD	248		72	58	20	43	26	39	3059	2400
MD	250		72	59	24	43	26	13	3057	2380
MD	252		73	0	29	43	25	43	3070	2470
MD	254		73	1	33	43	25	16	3078	2720
MD	256		73	2	39	43	24	49	3081	2750
MD	258		73	3	43	43	24	15	3078	2660
MD	260		73	4	46	43	23	48	3081	2620
MD	262		73	5	49	43	23	19	3092	2570
MD	264		73	6	54	43	22	47	3097	2670
MD	266		73	7	59	43	22	22	3102	2600
MD	268		73	9	2	43	21	51	3103	2740
MD	270		73	10	6	43	21	24	3099	2550
MD	272		73	11	11	43	20	53	3101	2430
MD	274		73	12	16	43	20	25	3109	2270
MD	276		73	13	19	43	19	54	3116	2470
MD	278		73	14	25	43	19	38	3119	2400
MD	280		73	15	28	43	18	58	3125	2380
MD	282		73	16	33	43	18	25	3132	2460
MD	284		73	17	37	43	17	57	3138	2370
MD	286		73	18	42	43	17	32	3143	2390
MD	288		73	19	46	43	17	0	3146	2370
MD	290		73	20	51	43	16	33	3159	2170
MD	292		73	21	55	43	16	2	3167	2100
MD	294		73	22	58	43	15	36	3180	2210
MD	296		73	24	3	43	15	7	3193	2270
MD	298		73	25	7	43	14	37	3202	2600
MD	300		73	26	11	43	14	5	3203	2760
MD	302		73	27	15	43	13	38	3208	2730

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
MD	304	73 °	28 '	20 "	43 °	13 '	8 "	3214	2820
MD	306	73	29	24	43	12	41	3220	2850
MD	308	73	30	28	43	12	11	3221	2900
MD	310	73	31	32	43	11	41	3222	2970
MD	312	73	32	37	43	11	13	3224	2830
MD	314	73	33	41	43	10	43	3223	2680
MD	316	73	34	44	43	10	13	3228	2550
MD	318	73	35	50	43	9	45	3235	2600
MD	320	73	36	55	43	9	13	3240	2720
MD	322	73	37	58	43	8	47	3243	2840
MD	324	73	39	2	43	8	17	3242	2690
MD	326	73	40	7	43	7	49	3245	2570
MD	328	73	41	10	43	7	14	3257	2300
MD	330	73	42	14	43	6	48	3259	2370
MD	332	73	43	19	43	6	19	3272	2440
MD	334	73	44	23	43	5	56	3280	2470
MD	336	73	45	28	43	5	32	3294	2380
MD	338	73	46	32	43	5	5	3303	2670
MD	340	73	47	39	43	4	39	3303	2670
MD	342	73	48	41	43	4	12	3305	2730
MD	344	73	49	46	43	3	46	3312	2900
MD	346	73	50	52	43	3	24	3305	2930
MD	348	73	51	55	43	2	58	3298	2780
MD	350	73	52	59	43	2	35	3302	2730
MD	352	73	54	4	43	2	11	3308	2800
MD	354	73	55	8	43	1	47	3316	2510
MD	356	73	56	13	43	1	20	3322	2670
MD	358	73	57	17	43	0	56	3325	2640
MD	360	73	58	20	43	0	31	3330	2600
MD	362	73	59	25	43	0	7	3344	2640
MD	364	◎ * 74	0	29	42	59	48	3353	2780
MD	366	74	1	35	42	59	15	3361	2900
MD	368	74	2	40	42	59	8	3368	3100
MD	370	74	3	46	42	58	35	3367	2870
MD	372	74	4	50	42	57	49	3374	2890
MD	374	74	5	55	42	57	2	3384	2700
MD	376	74	7	0	42	56	22	3399	2720
MD	378	74	8	5	42	55	41	3401	2670

◎: Relay Point

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
MD 380	74° 9' 7"	42° 54' 35"	3411	2590
MD 382	74 10 11	42 53 43	3425	2340
MD 384	74 11 17	42 53 3	3434	2510
MD 386	74 12 18	42 52 35	3441	2570
MD 388	74 13 23	42 51 38	3444	2550
MD 390	74 14 29	42 50 58	3455	2530
MD 392	74 15 34	42 50 2	3465	2730
MD 394	74 16 37	42 48 54	3470	2700
MD 396	74 17 37	42 47 53	3473	2760
MD 398	74 18 46	42 46 56	3476	2800
MD 400	74 19 52	42 45 29	3480	2850
MD 402	74 20 59	42 44 52	3488	2850
MD 404	74 22 2	42 43 44	3482	3020
MD 406	74 23 7	42 42 58	3481	2800
MD 408	74 24 11	42 42 17	3485	2640
MD 410	74 25 16	42 41 23	3498	2730
MD 412	74 26 21	42 40 26	3501	2720
MD 414	74 27 25	42 39 36	3498	2960
MD 416	74 28 31	42 38 52	3502	2730
MD 418	74 29 38	42 38 11	3513	2870
MD 420	74 30 44	42 37 17	3513	3070
MD 422	74 31 45	42 36 10	3512	2940
MD 424	74 32 52	42 35 34	3518	3040
MD 426	74 34 1	42 34 50	3517	3130
MD 428	74 35 6	42 34 1	3514	2980
MD 430	74 36 11	42 33 4	3518	3140
MD 432	74 37 11	42 32 11	3517	2880
MD 434	74 38 20	42 31 26	3522	2830
MD 436	74 39 28	42 30 35	3533	2830
MD 438	74 40 36	42 29 56	3542	2960
MD 440	74 41 40	42 29 2	3547	2850
MD 442	74 42 48	42 28 6	3551	2960
MD 444	74 43 53	42 27 20	3551	3000
MD 446	74 44 55	42 26 17	3557	3000
MD 448	74 45 59	42 25 18	3560	3030
MD 450	74 47 5	42 24 29	3564	3000
MD 452	74 48 14	42 23 44	3572	3130
MD 454	74 49 15	42 22 40	3576	3110
MD 456	74 50 20	42 21 43	3573	3160

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
MD 458	74° 51' 25"	42° 20' 50"	3571	3230
MD 460	74 52 31	42 19 54	3567	3170
MD 462	74 53 37	42 19 4	3568	2940
MD 464	74 54 38	42 18 58	3576	3080
MD 466	74 55 44	42 16 49	3575	2980
MD 468	74 56 48	42 15 52	3575	2930
MD 470	74 57 53	42 14 51	3580	2890
MD 472	74 58 58	42 14 3	3586	3020
MD 474	75 0 2	42 13 1	3590	3170
MD 476	75 1 8	42 12 13	3597	2800
MD 478	75 2 10	42 11 13	3605	3120
MD 480	75 3 14	42 10 1	3604	3260
MD 482	75 4 21	42 9 4	3600	3200
MD 484	75 5 20	42 7 47	3601	3170
MD 486	75 6 26	42 6 42	3598	3020
MD 488	75 7 31	42 5 50	3599	3120
MD 490	75 8 34	42 4 41	3607	3080
MD 492	75 9 40	42 3 40	3611	3220
MD 494	75 10 44	42 2 59	3612	3230
MD 496	75 11 49	42 2 25	3615	3300
MD 498	75 12 51	42 1 44	3615	3140
MD 500	75 13 54	42 0 43	3618	3300
MD 502	75 15 0	41 59 44	3623	3270
MD 504	75 16 5	41 58 46	3626	3250
MD 506	75 17 9	41 57 43	3628	3420
MD 508	75 18 13	41 56 40	3629	3400
MD 510	75 19 17	41 55 46	3632	3370
MD 512	75 20 23	41 54 37	3632	3250
MD 514	75 21 27	41 54 0	3633	3370
MD 516	75 22 32	41 52 26	3634	3140
MD 518	75 23 31	41 51 1	3634	3190
MD 520	75 24 32	41 49 37	3638	2920
MD 522	75 25 39	41 48 21	3643	3220
MD 524	75 26 37	41 47 14	3644	3100
MD 526	75 27 44	41 46 0	3643	3080
MD 528	75 28 48	41 44 59	3644	3040
MD 530	75 29 52	41 43 53	3645	2970
MD 532	75 30 57	41 43 11	3646	2720
MD 534	75 32 1	41 41 49	3648	2940

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
MD 536	75° 33' 4"	41° 40' 48"	3648	2820
MD 538	75 34 8	41 39 33	3649	2780
MD 540	75 35 9	41 38 21	3654	2790
MD 542	75 36 12	41 37 21	3652	2820
MD 544	75 37 17	41 35 59	3653	2640
MD 546	75 38 24	41 34 52	3657	2640
MD 548	75 39 28	41 33 39	3660	2610
MD 550	75 40 33	41 32 13	3663	2440
MD 552	75 41 37	41 31 9	3666	2370
MD 554	75 42 40	41 29 50	3667	2570
MD 556	75 43 43	41 28 45	3668	2330
MD 558	75 44 48	41 27 35	3669	2210
MD 560	75 45 50	41 26 25	3675	2450
MD 562	75 46 56	41 25 16	3678	2480
MD 564	75 47 56	41 23 50	3678	2170
MD 566	75 49 6	41 22 49	3681	2200
MD 568	75 50 7	41 21 37	3682	2140
MD 570	75 51 12	41 20 20	3686	2150
MD 572	75 52 17	41 19 20	3693	2270
MD 574	75 53 22	41 18 11	3694	2560
MD 576	75 54 25	41 16 56	3694	2250
MD 578	75 55 30	41 15 51	3696	2580
MD 580	75 56 34	41 14 38	3695	2890
MD 582	75 57 33	41 13 35	3694	2790
MD 584	75 58 38	41 12 4	3688	2560
MD 586	75 59 44	41 10 50	3693	2260
MD 588	76 0 47	41 9 19	3701	2240
MD 590	76 1 48	41 8 0	3710	2650
MD 592	76 2 53	41 6 32	3711	2540
MD 594	76 4 0	41 5 34	3712	2700
MD 596	76 5 5	41 4 8	3716	2870
MD 598	76 6 9	41 2 56	3717	3210
MD 600	76 7 11	41 1 40	3713	3420
MD 602	76 8 16	41 0 18	3715	3320
MD 604	76 9 21	40 59 14	3718	3400
MD 606	76 10 25	40 57 52	3716	3450
MD 608	76 11 28	40 56 59	3712	3430
MD 610	76 12 35	40 55 54	3710	3370
MD 612	76 13 39	40 54 46	3709	3240

* Differential GPS station ** JMR station by JARE26

Station	Latitude (S)	Longitude (E)	Elevation (m)	Ice thickness (m)
MD 614	76° 14' 43"	40° 53' 29"	3710	3130
MD 616	76 15 50	40 52 32	3715	3140
MD 618	76 16 56	40 51 22	3718	3150
MD 620	76 18 0	40 49 56	3722	3130
MD 622	76 19 4	40 48 44	3726	3170
MD 624	76 20 8	40 47 37	3727	3190
MD 626	76 21 12	40 46 12	3727	3260
MD 628	76 22 17	40 44 47	3731	3320
MD 630	76 23 21	40 43 49	3733	3210
MD 632	76 24 29	40 42 49	3737	3220
MD 634	76 25 33	40 41 26	3743	3370
MD 636	76 26 39	40 40 7	3741	3330
MD 638	76 27 43	40 38 46	3743	3450
MD 640	76 28 49	40 37 50	3744	3520
MD 642	76 29 54	40 36 42	3743	3500
MD 644	76 31 0	40 35 32	3742	3380
MD 646	76 32 2	40 34 28	3746	3370
MD 648	76 33 5	40 33 8	3745	3460
MD 650	76 34 10	40 31 58	3746	3330
MD 652	76 35 15	40 30 47	3748	3200
MD 654	76 36 16	40 29 31	3757	3200
MD 656	76 37 22	40 28 28	3755	3350
MD 658	76 38 29	40 27 19	3754	3350
MD 660	76 39 34	40 26 11	3753	3270
MD 662	76 40 41	40 24 55	3752	3260
MD 664	76 41 44	40 23 45	3751	3250
MD 666	76 42 49	40 22 40	3754	3160
MD 668	76 43 51	40 21 14	3754	3120
MD 670	76 44 57	40 20 2	3757	2930
MD 672	76 46 2	40 18 39	3763	3030
MD 674	76 47 8	40 17 33	3766	3050
MD 676	76 48 13	40 16 9	3770	2990
MD 678	76 49 16	40 14 52	3771	3140
MD 680	76 50 20	40 13 29	3774	3090
MD 682	76 51 25	40 11 56	3776	3040
MD 684	76 52 31	40 10 49	3778	3100
MD 686	76 53 34	40 9 25	3780	3200
MD 688	76 54 40	40 8 34	3779	3170
MD 690	76 55 44	40 7 20	3781	3100

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
MD	692	76 °	56 '	49 "	40 °	6 '	10 "	3783	3310
MD	694	76	57	53	40	4	50	3782	3210
MD	696	76	58	58	40	3	36	3783	3170
MD	698	77	0	3	40	2	20	3787	3130
MD	700	77	1	10	40	0	54	3789	3050
MD	702	77	2	13	39	59	35	3790	2840
MD	704	77	3	18	39	58	10	3791	2590
MD	706	77	4	23	39	56	50	3796	2520
MD	708	77	5	30	39	55	40	3801	2900
MD	710	77	6	35	39	54	43	3801	3200
MD	712	77	7	39	39	53	55	3799	2710
MD	714	77	8	42	39	52	42	3802	2860
MD	716	77	9	47	39	51	41	3803	3130
MD	718	77	10	53	39	50	9	3803	3100
MD	720	77	11	58	39	49	2	3802	3120
MD	722	77	13	4	39	47	40	3806	3120
MD	724	77	14	9	39	46	22	3807	3090
MD	726	77	15	16	39	45	32	3807	3190
MD	728	77	16	21	39	44	16	3808	3190
MD	730	77	17	26	39	42	46	3807	3070
MD	732	77	18	34	39	41	51	3810	2980
MD	734	77	19	37	39	40	29	3809	3140
MD	736	77	20	43	39	39	26	3807	2930
MD	738	77	21	48	39	37	52	3808	2920
DF	80	◎ ** 77	22	24	39	36	50	3807	2800

◎: Dome-F

Table 2-3. Position, elevation and ice thickness along Route DS and Route DF.

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
DF	80	** 77 °	22 '	24 "	39 °	36 '	50 "	3807	2800
DS	2	77	23	28	39	35	29	3808	3060
DS	4	77	24	31	39	34	19	3803	3170
DS	6	77	25	38	39	32	58	3803	3170
DS	8	77	26	44	39	31	32	3802	2790
DS	10	77	27	47	39	30	5	3800	2920
DS	12	77	28	53	39	28	43	3799	2840
DS	14	77	29	57	39	27	25	3797	3220
DS	16	77	31	4	39	25	59	3799	3180
DS	18	77	32	10	39	24	49	3797	3130
DS	20	77	33	16	39	23	26	3794	3090
DS	22	77	34	22	39	22	1	3793	2920
DS	24	77	35	24	39	20	8	3790	2760
DS	26	77	36	31	39	18	38	3789	2810
DS	28	77	37	37	39	17	11	3787	2710
DS	30	77	38	41	39	16	2	3784	2450
DS	32	77	39	46	39	14	24	3781	2530
DS	34	77	40	50	39	12	40	3779	2600
DS	36	77	41	55	39	11	2	3777	2380
DS	38	77	43	0	39	9	19	3775	2200
DS	40	77	44	5	39	7	47	3770	2260
DS	42	77	43	16	39	3	53	3770	2550
DS	44	77	42	28	39	0	14	3772	2510
DS	46	77	41	34	38	56	31	3771	2230
DS	48	77	40	44	38	52	57	3774	2150
DS	50	77	39	51	38	49	30	3778	2290
DS	52	77	39	2	38	45	59	3776	2250
DS	54	77	38	13	38	42	36	3777	2230
DS	56	77	37	25	38	38	58	3778	2450
DS	58	77	36	36	38	35	25	3781	2830
DS	60	77	35	41	38	32	7	3781	2740
DS	62	77	34	50	38	28	52	3777	2870
DS	64	77	34	0	38	25	30	3777	3050
DS	66	77	33	7	38	22	16	3777	2660
DS	68	77	32	14	38	18	58	3779	2470
DS	70	77	31	20	38	15	49	3779	2600
DS	72	77	30	32	38	12	26	3780	2260
DS	74	77	29	44	38	9	3	3778	2470
DS	76	77	28	53	38	5	41	3779	2630

* Differential GPS station ** JMR station by JARE26

Station			Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
DS	78		77 °	28 '	2 "	38 °	2 '	19 "	3780	3000
DS	80		77	27	44	37	58	58	3783	3130
DS	82		77	26	22	37	55	35	3784	3200
DS	84		77	25	34	37	52	1	3784	3280
DS	86		77	24	43	37	48	41	3785	3360
DS	88		77	23	53	37	45	25	3786	3370
DS	90		77	23	5	37	41	35	3786	3330
DS	92		77	22	17	37	38	3	3788	3200
DF	104	**	77	22	12	37	37	47	3788	3160
DF	103		77	22	13	37	42	48	3788	3370
DF	102		77	22	14	37	47	48	3788	3380
DF	101		77	22	19	37	52	43	3789	3370
DF	100		77	22	22	37	57	37	3791	3310
DF	99		77	22	23	38	2	39	3794	3370
DF	98		77	22	23	38	7	43	3794	3400
DF	97		77	22	31	38	12	36	3797	3370
DF	96		77	22	33	38	17	39	3797	3410
DF	95		77	22	35	38	22	28	3798	3320
DF	94		77	22	34	38	27	14	3799	3300
DF	93		77	22	34	38	32	19	3796	3230
DF	92		77	22	41	38	37	26	3797	2770
DF	91		77	22	48	38	42	20	3800	2840
DF	90		77	22	42	38	47	20	3803	2900
DF	89		77	22	46	38	52	25	3802	3180
DF	88		77	22	48	38	57	8	3803	3400
DF	87		77	22	44	39	2	10	3805	3330
DF	86		77	22	44	39	7	8	3804	3430
DF	85		77	22	43	39	12	1	3803	3010
DF	84		77	22	47	39	16	50	3804	3120
DF	83		77	22	46	39	21	42	3804	3160
DF	82		77	22	41	39	26	47	3806	3050
DF	81		77	22	37	39	31	49	3806	3080
DF	80	**	77	22	24	39	36	50	3807	2800

Table 2-4. Position, elevation and ice thickness along Route DS and Route DF.

* Differential GPS station ** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
DF	80	** 77 °	22 '	24 "	39 °	36 '	50 "	3807	2800
DS	102	77	22	22	39	42	1	3809	2940
DS	104	77	22	21	39	47	5	3807	2820
DS	106	77	22	23	39	52	14	3806	2620
DS	108	77	22	19	39	57	10	3804	2680
DS	110	77	22	17	40	2	16	3802	2570
DS	112	77	22	17	40	7	23	3802	2800
DS	114	77	22	15	40	12	23	3800	2520
DS	116	77	22	17	40	17	27	3796	2270
DS	118	77	22	16	40	22	35	3793	2400
DS	120	77	22	13	40	27	38	3789	2470
DS	122	77	22	8	40	32	42	3787	2700
DS	124	77	22	10	40	37	48	3783	2650
DS	126	77	22	7	40	42	49	3781	2980
DS	128	77	22	2	40	47	55	3781	3030
DS	130	77	22	0	40	52	56	3780	3100
DS	132	77	21	59	40	58	5	3778	2940
DS	134	77	22	0	41	3	8	3775	2820
DS	136	77	21	57	41	8	16	3770	2960
DS	138	77	21	55	41	13	26	3770	2970
DS	140	77	21	51	41	18	19	3771	2970
DS	142	77	23	2	41	16	58	3774	3060
DS	144	77	24	5	41	15	12	3774	3040
DS	146	77	25	7	41	13	22	3777	2730
DS	148	77	26	10	41	11	41	3777	2700
DS	150	77	27	9	41	9	26	3780	2630
DS	152	77	28	11	41	7	29	3780	2510
DS	154	77	29	14	41	5	34	3780	2260
DS	156	77	30	16	41	3	37	3781	2080
DS	158	77	31	14	41	1	28	3783	2130
DS	160	77	32	16	40	59	31	3781	2190
DS	162	77	33	17	40	57	54	3778	2490
DS	164	77	34	21	40	56	7	3778	2510
DS	166	77	35	19	40	53	43	3777	2590
DS	168	77	36	20	40	51	50	3778	2600
DS	170	77	37	22	40	49	6	3777	2270
DS	172	77	36	37	40	44	50	3780	2400
DS	174	77	35	56	40	40	46	3780	2620
DS	176	77	35	11	40	36	53	3779	2640

* Differential GPS station　** JMR station by JARE26

Station		Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
DS	178		77°	34'	26"	40°	33'	2"	3781	2640
DS	180		77	33	40	40	29	16	3781	2530
DS	182		77	32	56	40	25	28	3785	2200
DS	184		77	32	10	40	21	38	3789	2490
DS	186		77	31	23	40	18	8	3787	2650
DS	188		77	30	37	40	14	38	3789	2280
DS	190		77	29	48	40	11	2	3792	2440
DS	192		77	28	59	40	7	19	3796	2520
DS	194		77	28	11	40	3	52	3798	2940
DS	196		77	27	26	40	0	28	3798	2630
DS	198		77	26	37	39	56	40	3803	2500
DS	200		77	25	52	39	52	43	3803	2900
DS	202		77	25	4	39	49	7	3805	2880
DS	204		77	24	20	39	45	30	3806	2630
DS	206		77	23	25	39	41	59	3808	2950
DS	208		77	22	42	39	38	16	3806	2980
DF	80	**	77	22	24	39	36	50	3807	2800

Table 2-5. Position, elevation and ice thickness along Route DS and Route DF.

* Differential GPS station ** JMR station by JARE26

Station			Latitude (S)			Longitude (E)			Elevation (m)	Ice thickness (m)
DF	80	**	77 °	22 '	24 "	39 °	36 '	50 "	3807	2800
DF	79		77	20	40	39	31	1	3808	2770
DF	78		77	20	35	39	30	49	3806	3000
DF	77		77	19	46	39	27	57	3804	3110
DF	76		77	18	55	39	24	51	3805	2940
DF	75		77	18	8	39	21	37	3806	3260
DF	74		77	17	14	39	18	51	3803	3250
DF	73		77	16	22	39	15	50	3803	3100
DF	72	**	77	15	29	39	13	4	3802	2870
DF	71		77	15	3	39	8	24	3803	2790
DF	70		77	14	40	39	4	14	3802	3110
DF	69		77	14	7	38	59	49	3803	3010
DF	68		77	13	25	38	56	2	3804	2970
DF	67		77	12	41	38	52	17	3804	2480
DF	66		77	11	59	38	48	41	3803	2640
DF	65		77	11	13	38	45	6	3803	2400
DF	64		77	10	28	38	42	12	3804	2390
DF	63	**	77	9	42	38	38	9	3801	2720
DS	302		77	9	16	38	42	50	3804	2440
DS	304		77	8	54	38	47	17	3804	2430
DS	306		77	8	29	38	52	13	3803	2720
DS	308		77	8	3	38	56	37	3802	2780
DS	310		77	7	37	39	1	11	3802	2570
DS	312		77	7	14	39	5	56	3804	2760
DS	314		77	6	49	39	10	22	3802	2530
DS	316		77	6	19	39	15	7	3804	2880
DS	318		77	5	53	39	19	17	3806	2800
DS	320		77	5	28	39	23	50	3804	2750
DS	322		77	4	51	39	28	4	3802	2580
DS	324		77	4	29	39	32	31	3797	2250
DS	326		77	3	59	39	36	51	3794	2510
DS	328		77	3	29	39	41	2	3797	2690
DS	330		77	2	59	39	45	33	3795	2410
DS	332		77	2	34	39	50	8	3791	2540
DS	334		77	1	59	39	54	19	3789	2520
DS	336		77	1	25	39	58	40	3788	2750
MD	700		77	1	10	40	0	54	3789	3050

Table 2-6. Major characteristics of 179 MHz radio echo sounder system set on oversnow vehicle.

Transmitter	Frequency	179 MHz
	Peak power	1 kW
	Pulse width	60/250/1000 ns
	Resolution in air	9/37.5/150 m
	Resolution in ice	5.1/21.4/85.5 m
	Repetition period	1 ms
Receiver	Sensitivity	-110 dBm
	Band width	14/4/1 MHz
	Noise figure	< 1 dB
Antenna	Type	8 element Yagi 4 stack
	Gain	14 dB
	Beam width	20 degrees
Recording	Digital	Stocked continously in RAM disk in 2048 byte per every 1 min, and later saved spontaneously in 3.5 inch floppy disk

Table 2-7. Details of gravity measurements.

Observers	Kokichi KAMIYAMA
Gravity meter	LaCoste-Romberg G-515
Number of measurements	84 times
Number of stations	78 points
Date	Sep. 21, '92 - Dec. 29, '92
Drift of gravity meter	-0.076 m gal/day (= - 3.17 m gal/hour)
Tear corrections	-7.107 m gal (Nov. 2-3, '92) -21.357 m gal (Nov. 8-16, '92)

Table 2-8. Free air and Bouguer gravity anomaly, and position, elevation and ice thickness.

Station name	Latitude (degree)	Longitude (degree)	Gravity value (mgal)	Free air (mgal)	Bouguer (mgal)	Ice thick. (m)
IAGBN(A)	-69.008	39.592	982524.244	-17.91	-20.31	0.00
S16(1)	-69.028	40.052	982388.459	12.39	-24.74	350.00
H24	-69.102	40.830	982241.179	13.22	-36.48	920.00
H231(1)	-69.772	42.442	982097.232	15.90	-35.26	1820.00
H297	-70.003	43.030	982084.466	52.95	-39.75	1570.00
Z33(1)	-70.268	43.572	982035.068	40.16	-73.64	1540.00
MD60	-71.288	44.077	981963.301	17.38	-86.12	2200.00
MD220	-72.730	43.543	981896.448	39.57	-114.51	2330.00
MD292	-73.372	43.263	981863.197	41.37	-154.29	2100.00
MD394	-74.270	42.812	981821.391	49.68	-135.50	2700.00
MD432	-74.623	42.532	981815.154	41.35	-135.73	2880.00
MD510(1)	-75.325	41.922	981792.895	22.65	-130.96	3370.00
MD586	-75.997	41.175	981834.642	54.54	-188.45	2260.00
MD664	-76.697	40.393	981803.683	12.61	-163.56	3250.00
MD726	-77.257	39.753	981816.089	20.25	-166.74	3190.00
MD738(1)	-77.363	39.628	981819.403	19.72	-187.41	2920.00
DS22	-77.573	39.367	981822.437	10.04	-195.42	2920.00
DS40	-77.735	39.127	981875.326	49.70	-202.14	2260.00
DF104	-77.370	37.630	981821.951	15.84	-171.26	3160.00
DS126	-77.368	40.713	981835.685	27.48	-172.18	2980.00
DS140	-77.365	41.310	981828.084	16.92	-182.36	2970.00
DS158	-77.520	41.023	981868.032	54.60	-208.34	2130.00
DS170	-77.562	40.482	981853.685	36.80	-215.08	2270.00
MD738(2)	-77.363	39.627	981819.327	19.65	-193.42	2840.00
D04	-77.355	39.577	981818.236	17.95	-201.46	2750.00
DF80	-77.373	39.607	981800.365	-0.02	-215.94	2800.00
DF72	-77.258	39.217	981803.384	5.94	-214.62	2730.00
DF63	-77.162	38.637	981815.247	21.29	-196.19	2770.00
DS306	-77.142	38.870	981816.441	23.89	-197.52	2720.00
DS320	-77.092	39.397	981817.184	26.91	-192.39	2750.00
DS330	-77.050	39.760	981815.355	23.95	-219.56	2410.00
MD694	-76.965	40.080	981788.416	-3.92	-186.52	3210.00
MD673	-76.773	40.302	981801.422	11.40	-175.92	3120.00
MD660	-76.658	40.437	981784.265	-4.63	-179.54	3270.00
MD644	-76.517	40.592	981772.160	-14.32	-179.83	3380.00
MD632	-76.408	40.713	981777.428	-6.42	-183.13	3220.00
MD620	-76.300	40.832	981782.266	-1.70	-183.41	3130.00
MD604	-76.157	40.987	981773.546	-5.63	-166.86	3400.00
MD595	-76.073	41.073	981796.272	19.53	-188.03	2770.00
MD584	-75.977	41.202	981821.611	40.83	-179.36	2560.00
MD568	-75.833	41.358	981831.563	55.08	-195.59	2140.00
MD551	-75.680	41.528	981821.917	46.67	-187.94	2330.00
MD534	-75.533	41.697	981804.743	30.52	-156.89	2940.00
MD524	-75.443	41.788	981792.591	21.10	-153.99	3100.00
MD510(2)	-75.322	41.930	981792.894	22.79	-130.82	3370.00
MD500	-75.232	42.012	981785.856	15.77	-141.58	3300.00
MD488	-75.125	42.095	981790.655	19.50	-149.07	3120.00
MD470	-74.963	42.252	981795.818	26.13	-157.38	2890.00
MD434	-74.638	42.525	981808.212	35.25	-146.10	2830.00
MD418	-74.493	42.635	981798.662	29.69	-147.69	2870.00
MD396	-74.293	42.797	981810.076	37.87	-143.07	2760.00

Station name	Lati-tude (degree)	Longi-tude (degree)	Gravity value (mgal)	Free air (mgal)	Bouguer (mgal)	Ice thick. (m)
MD384	-74.187	42.887	981823.836	44.67	-150.46	2510.00
MD364(R/P)	-74.008	42.997	981816.197	20.57	-146.20	2770.00
MD348	-73.847	43.057	981813.982	9.21	-150.67	2780.00
MD314	-73.560	43.178	981826.604	12.72	-146.18	2680.00
MD300	-73.435	43.235	981828.248	14.38	-136.34	2760.00
MD293	-73.372	43.260	981856.002	36.18	-161.69	2080.00
MD268	-73.150	43.363	981848.818	18.35	-123.40	2730.00
MD240	-72.902	43.475	981894.525	44.89	-147.65	1890.00
MD228	-72.793	43.520	981886.313	29.58	-111.64	2520.00
MD207	-72.602	43.593	981892.554	28.42	-106.53	2520.00
MD184	-72.400	43.678	981905.212	31.54	-95.40	2530.00
MD165	-72.227	43.738	981910.493	19.25	-101.71	2480.00
MD142	-72.023	43.823	981913.903	9.54	-93.84	2600.00
MD120	-71.828	43.890	981923.768	6.71	-95.70	2500.00
MD110	-71.737	43.920	981930.251	10.43	-99.56	2360.00
MD92	-71.568	43.972	981951.727	16.06	-102.67	2120.00
MD70	-71.378	44.047	981953.517	10.97	-83.69	2360.00
MD40	-71.110	44.133	981974.562	23.10	-81.49	2110.00
MD32	-71.040	44.155	981970.466	20.12	-75.29	2220.00
MD12	-70.857	44.207	981984.904	27.57	-71.97	2080.00
IM3	-70.753	44.247	981984.756	23.37	-85.93	1900.00
MIZUHO	-70.698	44.332	981981.057	18.78	-77.21	2060.00
Z94	-70.622	44.170	981988.741	17.24	-85.69	1900.00
Z40	-70.320	43.658	982017.640	31.32	-69.61	1770.00
Z33(2)	-70.268	43.572	982031.103	36.19	-77.60	1540.00
S122	-70.022	43.130	982077.805	52.93	-50.73	1460.00
H260	-69.877	42.695	982089.503	28.69	-36.60	1760.00
H231(2)	-69.772	42.442	982093.963	12.63	-38.53	1820.00
H160	-69.515	41.815	982122.499	2.230	-50.80	1530.00
H94	-69.277	41.272	982184.060	10.65	-43.14	1190.00
H15	-69.080	40.777	982246.865	9.28	-33.25	970.00
S16(2)	-69.028	40.052	982387.290	11.22	-25.91	350.00
IAGBN(NO1)	-69.008	39.592	982524.220	-17.83	-20.24	0.00

3. Net Accumulation of Snow by Stake Method

Observers: JARE-26 Yutaka AGETA and others
JARE-32 Yoshiyuki FUJII and others
JARE-33 Teruo FURUKAWA, Kokichi KAMIYAMA,
Hideo MAENO and others
JARE-34 Hideaki MOTOYAMA and Hiroyuki ENOMOTO

Net accumulation of snow was measured by the stake method along oversnow traverse routes.

3.1. Route S-H-Z

Stake height along the route was measured several times by JARE-33 in 1992 and by JARE-34 in January 1993. The height differences which give the net accumulation of snow along the route are tabulated in Table 3-1. The last column of the table gives approximately the annual net accumulation.

3.2. Route MD

Route MD was extended from IM 3 to MD 364 (Relay Point) by JARE-32 in 1991. JARE-33 traced this route several times in 1992 and JARE-34 made one round trip in January 1993. All data along Route MD are shown in Table 3-2. The last column of the table gives approximately the annual net accumulation of snow.

3.3. Route DF

JARE-26 set Route DF for the survey to determine the highest point in November 1985. Route DS was set by JARE-33 connecting with a part of Route DF (from DF 63 to DF 104). The stake height was re-measured by JARE-33 in November 1992. The net accumulation rates during 1985-1992 are shown in Table 3-3.

3.4. 36-stake farm, 50-stake row and 101-stake row along routes

A 36-stake farm (100 m x 100 m in area) had been set up along Route S-H-Z as shown in Fig. 3-1. Measurements were made in it by JARE-33 and -34 on the way to Dome-F along Route S-H-Z. The results are shown in Tables 3-4, -5, -6, -7, -8. As some of the stakes of farm at S16 were blown down by wind, net accumulation of snow could not be calculated. These stakes were set again by JARE-34 in December 1992.

A 201-stake farm with 1 m spacing was installed at Mizuho Station in 1973. It basically consisted of the two rows of stakes, one perpendicular and the other parallel to the direction of the prevailing wind. They crossed each other, forming an X shape as shown in Fig. 3-2. JARE-32 resumed the measurements on the row of 101 stakes which

was aligned perpendicular to the prevailing wind direction in 1992. The stake heights were re-measured by JARE-33 in January and December 1992 and by JARE-34 in January 1993. The results of the measurements are given in Table 3-9, in which the stake numbers are the same as in the previous reports (NAKAWO *et al.*, 1984; FUJII *et al.*, 1986; AGETA *et al.*, 1987; NISHIO *et al.*, 1988).

A 50-stake row was installed at MD 180 and MD 364 in January 1992 by JARE-33, and stake heights were measured by JARE-33 and -34. This stake row is perpendicular to the prevailing wind direction, and the distance between stakes is 2 m (see. Fig. 3-3). Results are shown in Tables 3-10, -11. Annual net accumulation is shown in the last column of this table.

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FUJII, Y., KAWADA, K., YOSHIDA, M. and MATSUMOTO, S. (1986) : Net accumulation of snow at Mizuho Station. JARE Data Rep., **116** (Glaciology 13), 62-68.

AGETA, Y., KIKUCHI, T., KAMIYAMA, K. and OKUHIRA, F. (1987) : Net accumulation of snow at Mizuho Station. JARE Data Rep., **125** (Glaciology 14), 62-68.

NISHIO, F., OHMAE, H. and OSADA, K. (1988) : Net accumulation of snow at Mizuho Station. JARE Data Rep., **137** (Glaciology 16), 30-34.

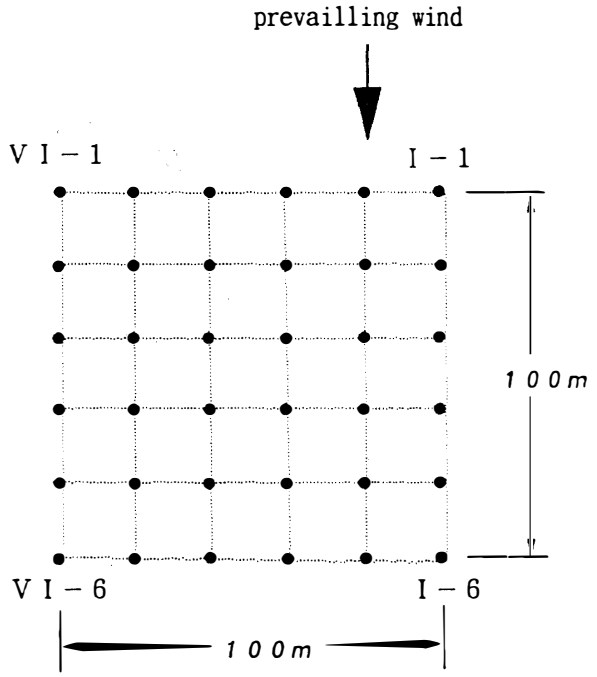

Fig. 3-1. 36-stake farm at S 16, H 68, H 180, S 122 and Z 40.

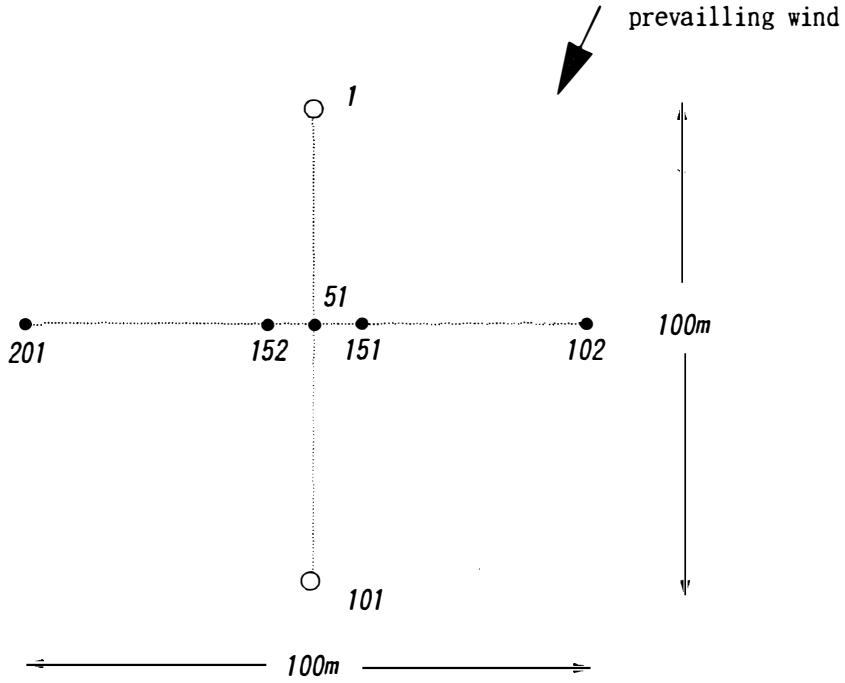

Fig. 3-2. 101-stake row at Mizuho Station.

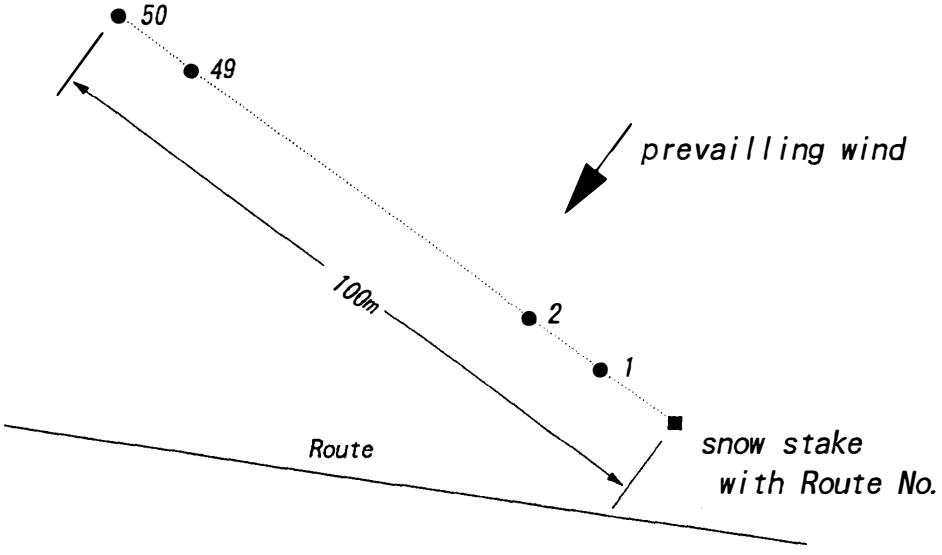

Fig. 3-3. 50-stake row at MD 180 and MD 364.

Table 3-1. Net accumulation along Route S-H-Z.

(cm in depth)

Station No.	Oct. 10-18 1991 (105-109days)	Jan. 27-31 1992	July 26- -Aug. 15 (177-201)	Sep. 22 -Oct. 3 (49-58)	Jan. 26-31 1993 (115-131)	Jan. 1992 -Jan. 1993 (364-366)
S 16	-8		-	-	-11	4
S 17	19		27	0	6	33
S 18	-6		40	6	-2	44
S 19	-14		10	25	5	40
S 20	-10		79	4	11	94
S 21	0		17	5	3	25
S 22	5		21	34	4	59
S 23	-		52	18	-14	56
S 24	5		56	14	-2	68
S 25	-9		22	10	10	42
S 26	-4		50	-3	15	62
S 27	-6		59	15	-6	68
S 28	-6		24	21	-4	41
S 29	7		27	22	-5	44
S 30	10		40	20	5	65
H 3	4		48	10	14	72
H 9	9		32	9	10	51
H 15	-5		50	-	19	-
H 21	8		34	2	-4	32
H 27	2		64	-1	0	63
H 35	16		41	2	10	53
H 42	1		17	7	6	30
H 48	9		27	13	8	48
H 54	8		45	2	-6	41
H 60	6		47	9	-2	54
H 64	13		14	19	2	35
H 68	6		-2	1	-6	-7
H 72	18		82	-7	-3	72
H 76	-7		24	2	6	32
H 80	-21		49	1	-7	43
H 84	-9		15	14	-7	22
H 88	-		14	35	-4	45
H 92	-3		38	1	-9	30
H 96	29		42	4	-4	42
H 100	4		21	24	-18	27
H 104	-5		21	10	-3	28
H 108	11		19	12	-4	27
H 112	-10		41	-12	11	40
H 116	-1		38	1	-3	36
H 120	13		18	13	-8	23

(cm in depth)

Station No.	Oct. 10-18 1991 (105-109days)	Jan. 27-31 1992	July 26- -Aug. 15 (177-201)	Sep. 22 -Oct. 3 (49-58)	Jan. 26-31 1993 (115-131)	Jan. 1992 -Jan. 1993 (364-366)
H 124	1		13	8	7	28
H 128	12		11	2	4	17
H 132	-		63	0	-7	56
H 136	9		15	0	15	30
H 140	-4		37	32	-14	55
H 144	-7		46	4	3	53
H 148	3		23	14	-3	34
H 152	-8		25	1	-2	24
H 156	9		2	1	-7	-4
H 160	13		8	8	-2	14
H 164	1		39	0	0	39
H 168	18		21	9	-4	26
H 172	5		0	-1	12	11
H 176	13		20	1	2	23
H 180	-4		4	6	-5	5
H 184	8		25	1	-3	23
H 188	5		26	4	10	40
H 192	3		41	7	0	48
H 196	5		41	20	3	64
H 200	13		10	1	-5	6
H 204	10		21	-3	-5	13
H 208	22		10	10	-4	16
H 212	3		23	2	5	30
H 216	2		41	0	-5	36
H 220	12		23	5	2	30
H 224	8		22	2	3	27
H 228	16		10	2	0	12
H 232	15		21	3	-4	20
H 236	-3		44	11	-9	46
H 240	15		30	9	1	40
H 244	2		18	-14	15	19
H 248	5		23	6	9	38
H 252	16		16	11	-5	22
H 256	-5		51	3	-1	53
H 260	14		11	4	-4	11
H 264	-1		30	15	-11	34
H 268	20		31	7	6	44
H 272	3		33	21	-9	45
H 276	4		29	3	-6	26
H 280	-8		48	8	3	59

(cm in depth)

Station No.	Oct. 10-18 1991 (105-109days)	Jan. 27-31 1992	July 26- -Aug. 15 (177-201)	Sep. 22 -Oct. 3 (49-58)	Jan. 26-31 1993 (115-131)	Jan. 1992 -Jan. 1993 (364-366)
H 284	10		38	1	-4	35
H 288	-8		14	12	-4	22
H 293	3		45	0	-4	41
H 297	-6		15	2	-4	13
H 301	9		16	1	2	19
S 122	-5		22	1	-4	19
Z 2	5		18	19	-9	28
Z 4	-7		8	1	1	10
Z 6	-3		12	-2	-3	7
Z 8	3		8	2	-11	-1
Z 10	3		10	15	-10	15
Z 12	4		14	18	-5	27
Z 14	6		31	14	-7	38
Z 16	-3		26	10	13	49
Z 18	4		-1	0	-6	-7
Z 20	3		31	0	-6	25
Z 22	-5		62	-25	-6	31
Z 24	12		-	-	-4	-5
Z 26	-3		12	0	-5	7
Z 28	10		-2	1	-4	-5
Z 30	-1		9	0	-3	6
Z 32	4		25	1	-2	24
Z 34	5		61	-2	-13	46
Z 36	-8		7	-9	12	10
Z 38	16		8	-4	-2	2
Z 40	8		12	0	-3	9
Z 42	14		38	-1	-10	27
Z 46	1		35	6	-9	32
Z 50	18		46	-1	-7	38
Z 54	-3		28	1	4	33
Z 58	14		-5	0	-3	-8
Z 62	12		3	2	-6	-1
Z 66	-6		21	3	-1	23
Z 70	-2		51	-3	-13	35
Z 72	5		21	-3	-3	15
Z 74	-7		23	1	-2	22
Z 76	1		6	8	-3	11
Z 78	17		17	-1	-6	10
Z 80	-4		2	1	-3	0
Z 82	12		9	2	8	19

(cm in depth)

Station No.	Oct. 10-18 1991 (105-109days)	Jan. 27-31 1992	July 26- -Aug. 15 (177-201)	Sep. 22 -Oct. 3 (49-58)	Jan. 26-31 1993 (115-131)	Jan. 1992 -Jan. 1993 (364-366)
Z 84	6		41	4	-5	40
Z 86	5		4	29	15	48
Z 88	24		32	1	-4	29
Z 90	4		15	-3	-6	6
Z 92	-3		10	-1	-11	-2
Z 94	8		25	0	-2	23
Z 96	-4		18	6	-3	21
Z 98	24		-1	-3	10	6
Z 100	-5		53	-7	0	47
Z 102	18		-1	-2	-3	-6

Table 3-2. Net accumulation along Route MD.

(cm in depth)

Station No.	Oct.21 -Nov.3 1991 (76-95days)	Jan.18 -24 1992	Aug.3 -10 1992 (192-199)	Jan.18 -24 1992	Oct.5 -16 1992 (255-271)	Jan.19 -25 1993 (95-112)	Jan.1992 -Jan.1993 (366-368)
IM 0	-		-	-		-	-
IM 1	-4		5	5		-1	4
IM 2	-4		18	19		-4	15
MD 0 (IM3)	-2		0	1		0	1
MD 2	-14		12	2		-3	-1
MD 4	-5		51	51		-3	48
MD 6	21		57	56		-5	51
MD 8	12		24	14		-8	6
MD 10	-6		62	56		-2	54
MD 12	6		-3	-		-	-8
MD 14	1		1	-		-	-5
MD 16	9		33	-		-	28
MD 18	-11		49	-		-	54
MD 20	-		76	101		-9	92
MD 22	14		-	11		1	12
MD 24	11		85	57		-2	55
MD 26	-2		29	23		-7	16
MD 28	-4		-	1		-4	-3
MD 30	20		28	31		-4	27
MD 32	-2		17	36		-7	29
MD 34	-6		28	28		-4	24
MD 36	7		30	68		-13	55
MD 38	24		47	21		-1	20
MD 40	2		27	14		0	14
MD 42	15		18	-2		-5	-7
MD 44	-2		23	35		2	37
MD 46	9		25	27		0	27
MD 48	-5		29	34		12	46
MD 50	-2		9	-2		8	6
MD 52	-5		24	31		-5	26
MD 54	1		55	16		14	30
MD 56	1		2	1		-5	-4
MD 58	22		40	39		-3	36
MD 60	-1		11	35		-7	28
MD 62	4		47	47		-4	43
MD 64	4		-3	-6		-3	-9
MD 66	-3		34	41		12	53
MD 68	7		69	50		-1	49
MD 70	5		37	36		8	44
MD 72	-4		12	12		6	18
MD 74	-4		-	23		10	33

(cm in depth)

Station No.	Oct.21 -Nov.3 1991 (76-95days)	Jan.18 -24 1992	Aug.3 -10 1992 (192-199)	Jan.18 -24 1992	Oct.5 -16 1992 (255-271)	Jan.19 -25 1993 (95-112)	Jan.1992 -Jan.1993 (366-368)
MD 76	-3		-	31	6		37
MD 78	-4		-	33	-2		31
MD 80	7		-	35	9		44
MD 82	-4		-	1	-4		-3
MD 84	4		-	34	-8		26
MD 86	-3		-	54	7		61
MD 88	5		-	44	10		54
MD 90	0		-	108	-4		104
MD 92	19		-	-2	-4		-6
MD 94	3		-	1	-2		-1
MD 96	1		-	25	3		28
MD 98	-1		-	51	-15		36
MD 100	18		-	34	29		63
MD 102	2		-	35	9		44
MD 104	35		-	7	1		8
MD 106	1		-	19	-3		16
MD 108	10		-	-5	-1		-6
MD 110	4		-	12	40		52
MD 112	7		-	43	-7		36
MD 114	5		-	14	-3		11
MD 116	26		-	22	-3		19
MD 118	-3		-	40	-3		37
MD 120	5		-	20	7		27
MD 122	10		-	43	-7		36
MD 124	1		-	68	-8		60
MD 126	2		-	78	-31		47
MD 128	12		-	55	38		93
MD 130	13		-	51	-8		43
MD 132	8		-	7	-11		-4
MD 134	4		-	8	-2		6
MD 136	-3		-	16	22		38
MD 138	13		-	31	17		48
MD 140	20		-	0	18		18
MD 142	3		-	20	-14		6
MD 144	2		-	55	-13		42
MD 146	13		-	26	9		35
MD 148	11		-	22	0		22
MD 150	12		-	19	-3		16
MD 152	15		-	47	4		51
MD 154	-2		-	6	-3		3
MD 156	-4		-	10	9		19

(cm in depth)

Station No.	Oct.21 -Nov.3 1991 (76-95days)	Jan.18 -24 1992	Aug.3 -10 1992 (192-199)	Jan.18 -24 1992	Oct.5 -16 1992 (255-271)	Jan.19 -25 1993 (95-112)	Jan.1992 -Jan.1993 (366-368)
MD 158	-2		-	105	-19		86
MD 160	20		-	-2	-2		-4
MD 162	-3		-	42	-4		38
MD 164	16		-	25	12		37
MD 166	12		-	-4	4		0
MD 168	-3		-	5	19		24
MD 170	34		-	20	-2		18
MD 172	22		-	-11	8		-3
MD 174	9		-	49	1		50
MD 176	20		-	39	-3		36
MD 178	9		-	-1	-5		-6
MD 180	-2		-	1	-3		-2
MD 182	-4		-	0	1		1
MD 184	12		-	-1	-3		-4
MD 186	5		-	4	8		12
MD 188	18		-	63	-31		32
MD 190	0		-	40	-10		30
MD 192	5		-	37	3		40
MD 194	16		-	-3	47		44
MD 196	-3		-	-1	8		7
MD 198	-2		-	3	-1		2
MD 200	16		-	0	-1		-1
MD 202	12		-	0	-4		-4
MD 204	1		-	5	6		11
MD 206	6		-	14	9		23
MD 208	8		-	-1	17		16
MD 210	5		-	4	-2		2
MD 212	-3		-	-1	-2		-3
MD 214	-3		-	24	-4		20
MD 216	-2		-	59	-2		57
MD 218	-2		-	-1	-2		-3
MD 220	5		-	14	-15		-1
MD 222	-3		-	4	-1		3
MD 224	3		-	24	11		35
MD 226	-7		-	22	-1		21
MD 228	-4		-	50	23		73
MD 230	-3		-	60	4		64
MD 232	8		-	4	6		10
MD 234	-2		-	6	5		11
MD 236	3		-	-2	17		15
MD 238	1		-	44	3		47

(cm in depth)

Station No.	Oct.21 -Nov.3 1991 (76-95days)	Jan.18 -24 1992	Aug.3 -10 1992 (192-199)	Jan.18 -24 1992	Oct.5 -16 1992 (255-271)	Jan.19 -25 1993 (95-112)	Jan.1992 -Jan.1993 (366-368)
MD 240	-3		-	0	10		10
MD 242	16		-	19	-4		15
MD 244	-2		-	1	-2		-1
MD 246	-1		-	-2	10		8
MD 248	8		-	-1	10		9
MD 250	7		-	26	-10		16
MD 252	-2		-	8	3		11
MD 254	7		-	2	36		38
MD 256	1		-	18	12		30
MD 258	7		-	24	5		29
MD 260	12		-	38	3		41
MD 262	-1		-	10	10		20
MD 264	3		-	25	-2		23
MD 266	14		-	44	-15		29
MD 268	5		-	50	-1		49
MD 270	1		-	17	31		48
MD 272	11		-	26	-		-
MD 274	1		-	55	-16		39
MD 276	2		-	26	3		29
MD 278	6		-	38	-1		37
MD 280	4		-	55	-3		52
MD 282	24		-	-1	13		12
MD 284	7		-	28	-5		23
MD 286	8		-	24	20		44
MD 288	0		-	1	-3		-2
MD 290	0		-	24	11		35
MD 292	-3		-	4	-1		3
MD 294	3		-	-4	6		2
MD 296	-2		-	0	0		0
MD 298	6		-	-1	-1		-2
MD 300	4		-	11	12		23
MD 302	4		-	12	-1		11
MD 304	10		-	28	5		33
MD 306	-2		-	19	-1		18
MD 308	0		-	31	14		45
MD 310	7		-	53	-2		51
MD 312	-		-	12	10		22
MD 314	12		-	7	10		17
MD 316	6		-	0	44		44
MD 318	1		-	-	-		30
MD 320	0		-	17	6		23

(cm in depth)

Station No.	Oct.21 -Nov.3 1991 (76-95days)	Jan.18 -24 1992	Aug.3 -10 1992 (192-199)	Jan.18 -24 1992	Oct.5 -16 1992 (255-271)	Jan.19 -25 1993 (95-112)	Jan.1992 -Jan.1993 (366-368)
MD 322	5		-	-	-		27
MD 324	-2		-	21	-5		16
MD 326	-1		-	32	-14		18
MD 328	1		-	-3	0		-3
MD 330	-2		-	-1	8		7
MD 332	6		-	-3	-1		-4
MD 334	-1		-	-1	4		3
MD 336	1		-	-1	3		2
MD 338	-5		-	5	-1		4
MD 340	2		-	35	7		42
MD 342	22		-	22	-10		12
MD 344	8		-	-1	4		3
MD 346	-2		-	14	-9		5
MD 348	5		-	44	7		51
MD 350	2		-	5	4		9
MD 352	15		-	12	-4		8
MD 354	1		-	31	1		32
MD 356	11		-	24	-11		13
MD 358	-2		-	26	3		29
MD 360	-2		-	14	1		15
MD 362	2		-	0	5		5
MD 364	-1		-	-1	-1		-2

Table 3-3. Net accumulation along Route DF.

Station No.	23-30 Nov. 1985 (2527-2549days)	28 Oct. -17 Nov. 1992 (2527-2549days)
DF 63	57	
DF 64	63	
DF 65	95	
DF 66	55	
DF 67	54	
DF 68	52	
DF 69	54	
DF 70	43	
DF 71	66	
DF 72	52	
DF 73	51	
DF 74	63	
DF 75	66	
DF 76	54	
DF 77	44	
DF 78	55	
DF 79	-	
DF 80	60	
DF 81	61	
DF 82	44	
DF 83	51	

(cm in depth)

Station No.	23-30 Nov. 1985 (2527-2549days)	28 Oct. -17 Nov. 1992 (2527-2549days)
DF 84	57	
DF 85	58	
DF 86	65	
DF 87	54	
DF 88	64	
DF 89	68	
DF 90	45	
DF 91	66	
DF 92	54	
DF 93	56	
DF 94	70	
DF 95	47	
DF 96	48	
DF 97	48	
DF 98	43	
DF 99	73	
DF 100	58	
DF 101	55	
DF 102	61	
DF 103	62	
DF 104	56	

(cm in depth)

Table 3-4. Net accumulation in the 36-stake farm at S 16 in 1992-1993.

(cm in depth)

Stake No.	3 Feb.1992 -15 Aug. (195days)	15 Aug. -30 Dec. (129)	30 Dec. -31 Jan.1993 (40)	3 Feb.1992 -31 Jan.1993 (364)
I−1	24	-5	1	20
−2	25	-5	-2	18
−3	22	2	-3	21
−4	13	3	-6	10
−5	24	-2	-4	18
−6	9	10	-5	14
II−1	22	5	-8	19
−2	7	5	-4	8
−3	-4	-2	-3	-9
−4	9	-5	-6	-2
−5	9	-5	2	6
−6	21	-6	-11	4
III−1	-	-	-6	-
−2	8	5	-6	7
−3	15	-3	-7	5
−4	37	-7	1	31
−5	32	-9	-5	18
−6	47	-10	-7	30
IV−1	-	-	-6	-6
−2	29	-7	-4	18
−3	-	-	-12	-
−4	-	-	-5	-
−5	-	-	-3	-
−6	-	-	-6	-
V−1	-	-	-4	-
−2	27	-3	-1	23
−3	36	-5	-7	24
−4	41	-13	-3	25
−5	31	-10	-7	14
−6	37	-10	-6	21
VI−1	41	-4	-6	31
−2	27	-8	-14	5
−3	37	-6	-3	28
−4	29	-7	0	22
−5	17	-2	4	19
−6	-	-	-2	-

Table 3-5. Net accumulation in the 36-stake farm at H 68 in 1992-1993.

(cm in depth)

Stake No.	31 Jan.1992 -13 Aug. (195days)	13 Aug. -20 Dec. (129)	20 Dec. -29 Jan.1993 (40)	31 Jan.1992 -29 Jan.1993 (364)
I−1	17	9	-9	17
−2	6	7	-4	9
−3	3	16	-4	15
−4	14	4	-11	7
−5	15	-3	-1	11
−6	7	1	-6	2
II−1	24	-8	-5	11
−2	10	-1	-6	3
−3	10	-5	-7	-2
−4	6	1	-6	1
−5	26	-6	-10	10
−6	2	18	-4	16
III−1	5	18	-6	17
−2	1	14	-4	11
−3	5	19	-4	20
−4	13	-1	-5	7
−5	0	-2	0	-2
−6	6	18	-9	15
IV−1	14	1	5	20
−2	21	-1	-8	12
−3	20	5	-4	21
−4	-4	11	-10	-3
−5	1	15	-8	8
−6	-2	13	-9	2
V−1	38	-10	-9	19
−2	4	7	-3	8
−3	4	0	-7	-3
−4	19	-2	-6	11
−5	8	5	-7	6
−6	2	0	-4	-2
VI−1	10	0	-7	3
−2	-10	5	-2	-7
−3	22	-4	-6	12
−4	11	22	-7	26
−5	9	15	-8	16
−6	18	-2	-11	5

Table 3-6. Net accumulation in the 36-stake farm at H 180 in 1992-1993.

(cm in depth)

Stake No.	29 Jan.1992 -28 Jul. (181days)	28 Jul. -19 Dec. (144)	19 Dec. -28 Jan.1993 (40)	29 Jan.1992 -28 Jan.1993 (365)
I−1	14	14	-2	26
−2	26	17	-5	38
−3	21	7	0	28
−4	26	13	-6	33
−5	30	16	-4	42
−6	19	14	0	33
II−1	36	2	-6	32
−2	-	-	-3	-
−3	37	-2	-4	31
−4	16	12	-4	24
−5	13	8	-6	15
−6	22	2	-5	19
III−1	20	17	-5	32
−2	24	10	-6	28
−3	24	8	-4	28
−4	28	-1	-4	23
−5	9	7	-5	11
−6	15	11	-7	19
IV−1	36	29	-5	60
−2	41	13	-8	46
−3	42	-6	-4	32
−4	31	-1	-3	27
−5	21	1	-9	13
−6	18	18	-4	32
V−1	27	0	-3	24
−2	20	3	-3	20
−3	23	5	-7	21
−4	27	5	-4	28
−5	34	7	-2	39
−6	29	-1	-4	24
VI−1	22	0	-4	18
−2	27	-4	-1	22
−3	20	-1	-4	15
−4	13	3	-3	13
−5	9	-1	-4	4
−6	15	11	-3	23

Table 3-7. Net accumulation in the 36-stake farm at S 122 in 1992-1993.

(cm in depth)

Stake No.	31 Jan.1992 -13 Aug. (184days)	13 Aug. -20 Dec. (139)	20 Dec. -29 Jan.1993 (42)	31 Jan.1992 -29 Jan.1993 (365)
I−1	-3	4	-3	-2
−2	24	-27	-3	-6
−3	18	-20	-3	-5
−4	-17	10	-3	-10
−5	-10	9	-4	-5
−6	0	5	-1	4
II−1	12	-2	-7	3
−2	12	-10	-3	-1
−3	70	-63	1	8
−4	78	-72	-2	4
−5	72	-52	-9	11
−6	26	-16	-5	5
III−1	5	24	-11	18
−2	82	-54	-3	25
−3	95	-73	0	22
−4	28	-3	-7	18
−5	26	15	-10	31
−6	132	-97	-5	30
IV−1	23	18	4	45
−2	5	42	-17	30
−3	-74	103	-4	25
−4	-24	34	-5	5
−5	2	16	-5	13
−6	-95	113	0	18
V−1	-1	8	-3	4
−2	0	17	-3	14
−3	-52	74	2	24
−4	-42	74	-5	27
−5	-54	51	-3	-6
−6	-18	19	-4	-3
VI−1	24	18	4	46
−2	-1	28	-12	15
−3	-19	32	-5	8
−4	13	-13	-1	-1
−5	5	-11	-2	-8
−6	9	-2	-3	4

Table 3-8. Net accumulation in the 36-stake farm at Z 40 in 1992-1993.

(cm in depth)

Stake No.	31 Jan.1992 -13 Aug. (185days)	13 Aug. -20 Dec. (137)	20 Dec. -29 Jan.1993 (42)	31 Jan.1992 -29 Jan.1993 (364)
I−1	15	4	-2	17
−2	42	-17	-2	23
−3	21	21	-5	37
−4	13	10	-2	21
−5	31	-2	-5	24
−6	45	-24	-3	18
II−1	20	10	0	30
−2	40	-7	4	37
−3	19	-20	1	0
−4	18	-17	-4	-3
−5	9	-9	-3	-3
−6	72	-18	-12	42
III−1	13	-9	3	7
−2	4	-2	7	9
−3	27	-21	-1	5
−4	18	-22	0	-4
−5	4	60	-8	56
−6	30	-18	16	28
IV−1	-7	13	6	12
−2	1	1	-1	1
−3	-18	20	0	2
−4	-2	19	-7	10
−5	66	-67	-2	-3
−6	-14	24	-4	6
V−1	-3	5	-3	-1
−2	-11	18	-11	-4
−3	-4	17	-8	5
−4	-15	15	-3	-3
−5	-13	11	-6	-8
−6	-27	24	-3	-6
VI−1	26	-3	-3	20
−2	7	15	-8	14
−3	30	-24	-5	1
−4	13	-10	-4	-1
−5	-1	6	-6	-1
−6	-41	45	1	5

Table 3-9. Net accumulation along the 101-stake row at Mizuho Station in 1992-1993.

(cm in depth)

Stake No.	20 Oct.1991 -8 Jan.1992 (80days)	8 Jan. -2 Aug. (207)	2 Aug. -12 Dec. (132)	12 Dec. -25 Jan.1993 (44)	8 Jan.1992 -25 Jan.1993 (383)
102	-3	21	-6	-8	7
103	-4	20	3	-9	14
104	-6	17	-2	0	15
105	-3	22	-3	-3	16
106	-3	12	10	-3	19
107	1	6	0	-2	4
108	-2	5	0	-2	3
109	-2	2	0	-3	-1
110	-3	-2	0	-3	-5
111	0	-2	-3	-4	-9
112	13	-8	-11	-2	-21
113	-4	-2	-1	-2	-5
114	8	-8	1	-6	-13
115	-3	0	-8	-2	-10
116	-4	-3	-1	-2	-6
117	-2	-1	-1	-3	-5
118	2	-3	-5	-3	-11
119	1	-7	1	-4	-10
120	-5	-2	0	-4	-6
121	5	-2	-2	-2	-6
122	9	-10	0	-4	-14
123	11	-7	-3	-5	-15
124	-	-6	-2	-3	-11
125	-	-4	-3	-5	-12
126	3	-8	1	-4	-11
127	-5	-3	1	-4	-6
128	-3	-2	-2	-3	-7
129	-2	-5	1	-5	-9
130	4	-7	-1	-5	-13
131	2	-5	0	-4	-9
132	0	-3	5	-13	-11
133	3	8	10	-7	11
134	4	8	-3	3	8
135	-1	0	-1	-3	-4
136	-4	-1	-2	-3	-6
137	-3	1	-3	-3	-5
138	-4	-3	0	-3	-6
139	-4	3	-6	-2	-5
140	-3	-2	-3	-3	-8
141	-1	-13	12	-4	-5
142	-4	0	0	-3	-3
143	-2	-2	1	-3	-4
144	1	1	-5	-2	-6
145	-2	0	6	-6	0
146	8	-3	13	-11	-1
147	0	-2	16	-13	1
148	-5	-4	12	-6	2
149	0	-12	19	-3	4
150	-4	11	-3	-1	7
151	5	1	-3	1	-1
51	2	-3	1	-1	-3

(cm in depth)

Stake No.	20 Oct.1991 -8 Jan.1992 (80days)	8 Jan. -2 Aug. (207)	2 Aug. -12 Dec. (132)	12 Dec. -25 Jan.1993 (44)	8 Jan.1992 -25 Jan.1993 (383)
152	-5	6	-1	2	7
153	8	1	-4	0	-3
154	10	-6	0	1	-5
155	10	-5	-3	-1	-9
156	5	-3	-1	-5	-9
157	8	-8	-3	1	-10
158	4	-7	0	-3	-10
159	4	-8	1	-2	-9
160	13	-8	-10	7	-11
161	16	-6	-5	-3	-14
162	11	-3	-5	-2	-10
163	9	3	-1	-3	-1
164	10	-5	7	-3	-1
165	10	-6	10	-3	1
166	3	-6	14	-2	6
167	4	-6	8	-3	-1
168	-1	-2	7	-3	2
169	-3	1	2	-1	2
170	-1	1	3	-5	-1
171	7	-3	11	-	-
172	14	-10	1	-3	-12
173	15	-8	3	-4	-9
174	17	-5	-1	-3	-9
175	13	-4	1	-3	-6
176	18	-5	7	-7	-5
177	20	-4	6	-5	-3
178	22	-1	0	-1	-2
179	17	1	-1	0	0
180	20	6	-2	-2	2
181	30	-6	0	4	-2
182	33	-12	-3	5	-10
183	22	-5	-4	3	-6
184	12	10	-5	1	6
185	9	13	-3	-2	8
186	14	8	-5	-3	0
187	12	8	-6	1	3
188	11	3	6	3	12
189	4	5	12	-2	15
190	-2	25	-3	-11	11
191	1	21	1	-2	20
192	-2	20	-3	-5	12
193	-2	26	-4	-8	14
194	3	24	-2	-5	17
195	7	21	-1	-8	12
196	10	4	-2	-3	-1
197	12	-1	-4	1	-4
198	12	-1	-5	0	-6
199	9	-11	9	-2	-4
200	6	4	1	-5	0
201	7	21	0	-4	17

Table 3-10. Net accumulation along the 50-stake row at MD 180 in 1992-1993.

(cm in depth)

Stake No.	22 Jan.1992 -6 Dec. (319days)	6 Dec. -22 Jan.1993 (47)	22 Jan.1992 -22 Jan.1993 (366)
0(MD180)	-1	-2	-3
1	13	0	13
2	3	0	3
3	-1	-1	-2
4	-2	-1	-3
5	-1	-1	-2
6	-1	-1	-2
7	-1	-2	-3
8	0	-1	-1
9	-2	-1	-3
10	-10	-1	-11
11	-3	0	-3
12	0	-1	-1
13	-2	-2	-4
14	-1	-1	-2
15	-1	-2	-3
16	0	-1	-1
17	1	-2	-1
18	4	-5	-1
19	-4	-3	-7
20	1	-8	-7
21	-2	-1	-3
22	1	-3	-2
23	-2	-1	-3
24	4	4	8
25	-4	-12	-16
26	3	-4	-1
27	-2	-1	-3
28	8	-8	0
29	8	-8	0
30	-6	0	-6
31	-2	-2	-4
32	-1	-2	-3
33	-1	-2	-3
34	-2	-1	-3
35	-2	0	-2
36	2	-4	-2
37	3	-5	-2
38	-1	-2	-3
39	-2	-2	-4
40	-1	-3	-4
41	-1	-1	-2
42	-3	-2	-5
43	-1	-2	-3
44	-3	-2	-5
45	-1	-4	-5
46	0	-3	-3
47	-2	0	-2
48	-3	1	-2
49	-3	0	-3
50	1	-2	-1

Table 3-11. Net accumulation along the 50-stake row at MD 364 in 1992-1993.

(cm in depth)

Stake No.	18 Jan.1992 -1 Dec. (318days)	1 Dec. -19 Jan.1993 (49)	18 Jan.1992 -19 Jan.1993 (367)
0(MD364)	0	-2	-2
1	2	1	3
2	3	-2	1
3	1	-2	-1
4	1	2	3
5	3	3	6
6	1	6	7
7	3	-2	1
8	4	-3	1
9	9	-4	5
10	-7	-3	-10
11	0	-2	-2
12	1	-2	-1
13	6	4	10
14	7	-1	6
15	10	-2	8
16	7	2	9
17	4	-3	1
18	7	-1	6
19	8	-1	7
20	2	-3	-1
21	3	-1	2
22	2	-3	-1
23	2	-2	0
24	1	-1	0
25	5	-3	2
26	0	0	0
27	2	-2	0
28	1	-4	-3
29	3	-3	0
30	2	-2	0
31	3	-4	-1
32	1	-1	0
33	0	-1	-1
34	-1	0	-1
35	2	-2	0
36	2	-2	0
37	1	-1	0
38	1	-1	0
39	3	-2	1
40	5	-5	0
41	4	-4	0
42	0	-1	-1
43	2	-2	0
44	1	-2	-1
45	2	-2	0
46	1	0	1
47	2	-2	0
48	3	0	3
49	-1	-1	-2
50	2	-2	0

4. Surface Meteorological Data during Oversnow Traverses

The meteorological observations were carried out at least at 0900 and 1500 LT by members of the meteorological section of JARE-33. The meteorological instrument, combining of air temperature, pressure and wind speed sensors, was used continuously during the traverses with a data logging system. The instrument was set up over the snow surface during the meteorological observations.

4.1. Surface meteorological data during the first traverse

Observer: Hiroshi IGARASHI

The meteorological instrument was carried in an oversnow vehicle during the traverse in order to protect it from vibrations. As the temperature inside the oversnow vehicle was much higher than the outside air temperature, it took more than 20 minutes for the temperature sensor to show air temperature. The data are listed in Table 4-1.

4.2. Surface meteorological data during the second traverse

Observer: Yoshitomo KOJYO

The meteorological instrument was carried in a box set on the wall of the oversnow vehicle, in order to keep the sensor temperature at the outside air temperature. The data logger did not work at -20°C, though it was kept inside the oversnow vehicle. The values recorded in the data logger were destroyed during the HF radio transmission. The data listed in Table 4-2 are all valid data obtained before the above problem occurred.

4.3. Surface meteorological data during the last traverse

Observer: Takayuki KISHI

The data logger was kept warm inside the oversnow vehicle. During HF radio communication, data logging was stopped to avoid the external noise. The data are listed in Table 4-3.

Table 4-1. Meteorological data observed on traverse 1.

Date	LT	Point	Pa	Ta	W	WD	WS	V	N	CL
91/12/31	15:00	S16	925	3.0	⊕	SW	1.0	30	7	1 Ac 6 Ci
	18:00	S16	926	3.5	⊕	-	0.0	30	2	2 Ac
	20:45	S16	926	-0.5	⊕	ESE	2.0	30	2	2 Ac
92/01/01	09:00	S16	933	-0.6	⊕	ESE	4.8	30	2	2 Ci
	12:00	S16	935	3.3	⊕	-	0.0	30	2	2 Ci
	15:00	S16	934	2.7	⊕	S	1.5	30	2	2 Ci
	18:00	S16	933	3.0	○	S	1.0	30	1	1 Ci
	20:45	S16	932	1.3	⊕	SSE	1.0	30	4	0+Ac 4 Ci
92/01/02	09:00	S16	928	-1.0	○	E	7.1	30	1	1 Ci
	12:00	S16	928	0.8	○	E	7.8	30	1	1 Ci
	15:00	S16	923.3	-0.7	⊕	ENE	8.9	30	5	5 Ci
	18:15	S16	927	-0.5	⊕	ENE	6.0	30	7	2 Ac 5 Ci
	20:45	S16	923.0	-4.2	⊕	E	8.4	30	2	1 Ac 1 Ci
92/01/03	09:00	S16	927.2	-0.6	⊕	ENE	8.5	30	8	0+Ac 8 Ci
	12:00	S22	907.1	-1.1	⊕	E	8.3	30	7	7 Ci
	15:00	S27-4	887.2	-2.5	○	NE	4.9	30	1	1 Ac 0+Ci
	18:00	H15	877.8	-2.9	○	ESE	0.7	30	1	1 Ac 0+Ci
	21:00	H15	879.8	-6.9	⊕	E	5.1	30	4	4 Ac
92/01/04	09:00	H15	881.3	-5.0	◎	E	3.0	20	10-	10-Ac
	12:00	H62	866.8	-3.8	◎	E	4.4	20	10-	10-Ac
	15:00	H90	853.3	-4.7	◎	NE	2.3	20	9	9 Ac
	18:00	H127	841.0	-4.6	⊕	-	0.0	30	8	8 Ac
	21:00	H165	828.2	-14.0	⊕	ESE	2.1	30	4	4 Ac
92/01/05	09:00	H165	823.9	-11.2	○	E	5.6	20	0+	0+Ac
	12:00	H200	814.5	-6.8	○	NE	5.5	30	0+	0+Ac
	15:00	H238	802.7	-8.0	○	ENE	3.5	30	0+	0+Ac
	18:00	H260	795.1	-11.5	○	E	1.1	30	0	-
	21:00	H260	795.5	-14.2	○	E	2.5	30	0	-
92/01/06	09:00	H260	796.0	-12.9	○	E	5.1	30	0+	0+Ac
	12:00	H292	782.9	-10.0	⊕	NE	6.8	30	2	2 Ac
	15:00	Z13	772.4	-11.9	⊕	ENE	5.6	30	6	6 Ac
	18:00	Z28	766.1	-12.4	⊕	E	4.7	30	8	8 Ac
	21:00	Z54	761.2	-19.2	○	E	4.1	30	1	1 Ac
92/01/07	09:00	Z54	768	-11.4	◎	E	5.0	10	10	10-Sc x Ac
	12:00	Z78	762	-8.0	◎	E	5.8	10	10	10-Sc x Ac
	15:00	Z101	752.1	-11.8	◎	E	4.8	10	10	10-Sc x Ac
	18:00	M/S	749.3	-13.2	✳	E	4.4	5	10	10-Sc x Ac
	21:00	M/S	749.3	-15.0	◎	ESE	3.6	10	10	10-Sc x Ac
92/01/08	09:00	M/S	750	-15.7	○	E	4.8	30	0+	0+Ac
	12:00	M/S	744.3	-16.3	○	ESE	6.5	30	0+	0+Ci
	15:00	M/S	746.8	-13.6	○	ESE	4.9	30	0	-
	18:00	M/S	746	-14.0	○	ESE	3.1	30	0	-
	21:00	M/S	746	-18.6	○	E	2.9	30	0	-
92/01/09	09:00	M/S	746	-18.7	○	E	7.8	30	0	-
	12:00	MD8	735.4	-15.4	○	ENE	6.4	30	1	1 Ac
	15:00	MD28	730.5	-17.4	○	E	5.8	30	1	1 Ac
	18:00	MD44	732	-14.3	⊕	E	6.7	30	8	8 Ac
	21:00	MD62	722.6	-20.3	⊕	E	4.1	30	8	8 Ac
92/01/10	09:00	MD62	732	-16.7	⊕	E	5.8	30	2	2 Ac
	12:00	MD62	732	-14.6	⊕	E	5.0	30	5	5 Ac
	15:00	MD64	724.8	-15.8	◎	ENE	4.4	20	10-	10-Ac
	18:00	MD82	725	-15.0	◎	ENE	3.0	20	10-	10-Ac
	21:00	MD92	717.4	-21.2	⊕	ESE	3.9	20	5	5 Ac

Date	LT	Point	Pa	Ta	W	WD	WS	V	N	CL
92/01/11	09:00	MD92	723	-18.2	○	E	4.9	30	1	1 Ac 0+Ci
	12:00	MD98	712.3	-16.7	⊕	E	6.0	30	7	6 Ac x Ci
	15:00	MD114	707.6	-19.2	⊕	E	5.8	20	8	7 Ac x Ci
	18:00	MD120	705.8	-18.6	◎	E	3.7	10	10-	10-Ac
	21:00	MD120	706.1	-25.2	⊕	E	2.0	20	8	8 Ac
92/01/12	09:00	MD120	706.1	-17.5	⊕	E	3.7	30	3	2 Ac 1 Ci
	12:00	MD134	702.1	-17.4	⊕	E	4.0	30	7	0+Ac 7 Ci
	15:00	MD146	698.6	-21.6	⊕	E	4.5	30	6	0+Ac 6 Ci
	18:00	MD162	694.4	-20.7	⊕	E	3.0	30	6	0+Ac 6 Ci
	21:00	MD166	694.1	-24.8	⊕	E	3.1	30	9	0+Ac 9 Ci
92/01/13	09:00	MD166	695.8	-20.1	✕	ENE	1.0	10	10	10 St
	12:00	MD178	691.4	-19.2	⊕	E	4.8	30	2	2 Ac 0+Ci
	15:00	MD190	687.9	-23.3	◎	ENE	2.3	20	9	9 Sc
	18:00	MD206	683.3	-20.9	⊕	-	0.0	30	2	2 Sc 0+Ac
	21:00	MD216	680.7	-27.1	⊕	ENE	1.0	30	8	8 Ac
92/01/14	09:00	MD216	682.3	-25.7	○	ESE	3.8	30	0+	0+Ac
	12:00	MD232	677.8	-22.7	○	E	4.1	30	0	-
	15:00	MD244	671.8	-25.5	○	ESE	3.5	30	0+	0+Ac
	18:00	MD260	667.7	-23.7	⊕	E	3.0	30	5	5 Ac
	21:00	MD270	665.9	-29.2	⊕	E	3.2	30	8	8 Ac
92/01/15	09:00	MD270	667.6	-27.0	○	ESE	2.9	30	0+	0+Ac
	12:00	MD284	664.1	-24.7	○	ESE	4.0	30	0+	0+Ac
	15:00	MD296	659.8	-27.4	○	ESE	3.2	30	0	-
	18:00	MD312	657.8	-25.6	○	ESE	1.0	30	0	-
	21:00	MD316	657.8	-32.0	○	SE	1.9	30	0	-
92/01/16	09:00	MD316	659.8	-28.2	○	SE	5.0	30	0	-
	12:00	MD330	657.0	-25.2	○	SE	4.8	30	0	-
	15:00	MD346	652.6	-24.1	○	SE	4.6	30	0	-
	18:00	MD362	649.1	-25.2	○	SE	4.5	30	0	-
	21:00	MD364	648.2	-32.8	○	SSE	3.4	30	0	-
92/01/17	09:00	MD364	646.9	-30.7	○	SE	5.8	30	0	-
	12:00	MD364	646.4	-25.3	○	SE	7.2	30	0	-
	15:00	MD364	646.1	-24.6	○	SE	6.7	30	0	-
	18:00	MD364	645.8	-26.3	○	SE	5.6	30	0	-
	21:00	MD364	645.4	-30.8	○	SE	3.7	30	0	-
92/01/18	09:00	MD364	644.3	-26.5	○	ESE	4.4	30	0	-
	12:00	MD364	644.2	-22.2	○	E	3.9	30	1	1 Ac
	15:00	MD364	644.7	-15.4	✕	ENE	0.5	2	10	7 St10 Sc
	18:00	MD364	644.7	-23.4	✕	ENE	0.4	5	10-	7 St10-Sc
	21:00	MD364	645.0	-27.4	✕	ENE	1.0	5	10-	5 St10-Sc
92/01/19	09:00	MD364	647.9	-28.4	⊕	ESE	1.5	30	6	6 Ac
	12:00	MD350	653.2	-20.7	◎	ESE	1.0	20	9	9 Ac
	15:00	MD340	662	-20.7	⊕	ESE	2.0	30	2	2 Ac
	18:00	MD322	667	-20.2	⊕	-	0.0	20	2	2 Ac
	21:00	MD306	663.3	-26.9	◎	ESE	2.4	20	9	9 Ac
92/01/20	09:00	MD306	666.2	-22.2	⊕	E	3.8	30	6	0+Ac 6 Ci
	12:00	MD290	671.6	-21.2	⊕	ESE	7.0	20	0+	0+Ci
	15:00	MD274	676.1	-21.3	⊕	ESE	6.6	20	0+	0+Ci
	18:00	MD254	678.5	-20.0	⊕	ESE	6.8	20	1	1 Ci
	22:00	MD240	685.0	-27.6	⊕	ESE	7.6	20	7	7 Ci
92/01/21	09:00	MD240	682.6	-22.0	⊕	ESE	11.5	2	4	4 Ci
	12:00	MD234	683.7	-18.8	⊕	ESE	9.8	1	5	5 Ci
	15:00	MD216	688.5	-19.5	⊕	ESE	10.3	5	5	5 Ci
	18:00	MD200	690.3	-19.1	⊕	ESE	8.8	5	4	4 Ci
	21:00	MD190	695.1	-23.2	⊕	SE	8.8	10	2	2 Ci

Date	LT	Point	Pa	Ta	W	WD	WS	V	N	CL
92/01/22	09:00	MD190	697.9	-17.2	⊕	ESE	4.5	20	4	4 Ac
	12:00	MD180	699.8	-16.2	○	SE	8.0	20	0+	0+Ac
	15:00	MD164	707.4	-17.4	○	ESE	7.8	20	0+	0+Ci
	18:00	MD148	711.0	-15.4	○	ESE	5.8	30	0+	0+Ac 0+Ci
	21:00	MD130	718.1	-21.5	○	ESE	5.4	30	0+	0+Ac
92/01/23	09:00	MD130	717.7	-19.5	○	ESE	7.0	30	0	-
	12:00	MD114	720.6	-13.8	○	ESE	8.5	20	0+	0+Ci
	15:00	MD100	724.8	-15.6	○	ESE	6.5	30	0+	0+Ci
	18:00	MD82	728.7	-13.1	○	ESE	6.2	30	0	-
	21:30	MD60	734.1	-19.7	○	ESE	4.8	30	0	-
92/01/24	09:00	MD60	732.4	-18.3	⊕	ESE	10.9	5	4	4 Ac 0+Ci
	12:00	MD44	734.0	-14.2	⊕	E	11.1	1	6	6 Ac
	15:00	MD26	739.6	-16.2	⊕	ESE	9.8	5	2	2 Ac
	18:00	MD8	742.6	-16.9	⊕	ESE	9.3	5	0+	0+Ac
	21:00	M/S	747.5	-19.7	⊕	ESE	8.9	20	0	-
92/01/25	09:00	M/S	748.5	-18.2	○	E	8.0	20	1	1 Ac
	12:00	M/S	748.2	-13.5	⊕	E	9.5	30	4	4 Ac
	15:00	M/S	747.6	-12.1	⊕	E	8.2	30	2	1 Ac 1 Ci
	18:00	M/S	746.5	-14.6	⊕	E	7.4	30	5	2 Ac 3 Ci
92/01/26	12:00	M/S	742.7	-12.9	⊕	E	10.5	30	9	9 Ci
	15:00	M/S	742.0	-12.1	⊕	E	10.0	30	7	7 Ci
	18:00	M/S	741.7	-13.8	⊕	E	9.8	30	9	1 Ac 9 Ci
92/01/27	09:00	M/S	740.7	-18.4	⊕	E	9.9	30	7	7 Ci
	12:00	M/S	740.7	-13.0	⊕	E	7.8	30	3	3 Ci
	15:00	Z92	743.2	-10.9	⊕	E	9.5	30	6	6 Ci
	18:00	Z66	747.6	-13.8	⊕	E	6.2	30	2	2 Ci
	21:00	Z46	750.9	-13.3	○	E	4.1	30	0+	0+Ci
92/01/28	09:00	Z46	751.0	-18.0	⊕	E	5.0	30	6	6 Ci
	12:00	Z20	760.4	-12.2	○	ENE	4.8	30	0+	0+Ci
	15:00	S122	770.5	-12.7	○	ENE	2.1	30	1	1 Ac
	18:00	H260	786.2	-16.5	⊕	-	0.0	30	2	2 Ac
	21:00	H244	792.9	-19.5	○	E	2.0	30	1	1 Ac
92/01/29	09:00	H244	795.3	-13.8	◎	ENE	5.0	2	10	8 St x Ac
	12:00	H200	807.5	-9.7	◎	ENE	5.0	5	10	7 St x Ac
	15:00	H164	817.9	-10.2	✕	ENE	1.1	2	10	10 St
	18:00	H128	828.7	-7.8	◎	ENE	4.0	5	10	10 St
	21:00	H104	836.2	-10.2	◎	E	4.4	10	10-	10-St
92/01/30	09:00	H104	837.2	-11.2	◎	E	7.5	10	10-	10-St
	12:00	H104	837.9	-10.1	◎	ENE	7.2	10	10-	10-St
	15:00	H104	838.6	-8.0	◎	ENE	5.8	10	10-	10-St
	18:00	H104	838.3	-9.7	◎	ENE	4.4	10	10-	10-St
	21:00	H104	838.5	-11.9	◎	ENE	5.9	10	9	6 St x Ac
92/01/31	09:00	H104	837.2	-9.2	◎	E	5.2	10	10-	10-St
	12:00	H68	852.1	-6.8	◎	E	5.8	10	10-	7 St x Ac
	15:00	S28	876.7	-3.5	⊕	ENE	3.7	30	3	3 Ac 0+Ci
	18:30	S16	917.5	-3.4	⊕	E	1.0	30	3	1 Ac 2 Ci
	21:00	S16	917.5	-6.3	⊕	E	6.2	30	4	1 Ac 3 Ci
92/02/01	09:00	S16	917.7	-4.5	◎	E	5.0	20	10-	10-Ac
	12:00	S16	918.4	-1.6	◎	E	5.5	20	10-	10-Ac
	15:00	S16	915.4	-3.1	⊕	E	5.1	30	6	6 Ac x Ci
	18:00	S16	919.9	-5.5	⊕	E	4.9	30	3	3 Ac
	21:00	S16	920.5	-10.9	⊕	ESE	5.5	30	2	2 Ac

Table 4-2. Meteorological data observed on traverse 2.

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/07/26	03:00	S 16								
92/07/26	09:00	S 16	909.7	-15.8	ENE	12.5	0.1	×		×
92/07/26	15:10	S 18	909.5	-17.8	ENE	8.7	5	10-		10-Ci; 3 Ac
92/07/26	21:00	S 24	880.8	-20.3						
92/07/27	03:00	S 24		-20.1						
92/07/27	09:00	S 24	880.9	-15.6	ENE	10.2	0.2	×		×
92/07/27	15:00	H 42	849.3	-19.5	E	7.8	2.0	10		2 Ac;10 As
92/07/27	21:00	H 88	830.7	-23.1						
92/07/28	03:00	H 88		-27.8						
92/07/28	09:00	H 88	827.3	-27.1	E	8.9	2.0	10-		10-Ci
92/07/28	15:00	H152	805.4	-30.5	E	8.8	2.0	10-		10-Ci
92/07/28	21:00	H180	793.2	-29.9						
92/07/29	03:00	H180		-31.1						
92/07/29	09:00	H180	792.4	-32.1	E	5.7	5	10-		10-Ci
92/07/29	15:10	H248	773.0	-34.8	E	6.6	7	10-		10-Ci
92/07/29	21:00	H288	758.7	-36.8		9.3				
92/07/30	03:00	H288								
92/07/30	09:10	H288	760.0	-38.5	ENE	8.0	0.5	7		0+Ac; 7 Ci
92/07/30	15:20	Z 17	747.0	-40.1	E	12.0	1.0	2		2 Ci
92/07/30	21:00	Z 27	738.5	-41.4						
92/07/31	03:00	Z 27								
92/07/31	09:00	Z 27	738.0	-45.4	E	13.0	0.1	0		-
92/07/31	15:10	Z 41'	729.0	-47.3	E	12.0	0.2	1		1 Ci
92/07/31	21:00	Z 58								
92/08/01	03:05	Z 58		-51.8		9.4				
92/08/01	09:00	Z 58	727.7	-49.8	E	6.3	10	10-		10-Ac
92/08/01	15:10	Z 76	730.4	-49.6	E	4.8	10	4		0+Ac; 4 Ci
92/08/01	21:00	Z 91	728.9	-40.8						
92/08/02	03:00	Z 91		-35.2		6.8				
92/08/02	09:00	Z 91	739.1	-31.3	ENE	8.4	0.1	×		×
92/08/02	15:00	MIZUHO	733.5	-30.5	ENE	7.0	2.0	10		10 As
92/08/02	21:00	MIZUHO	735.6	-30.7		8.5				
92/08/03	03:00	MIZUHO		-29.5		8.8				
92/08/03	09:00	MIZUHO	735.9	-31.1	E	8.8	2.0	10		10 As
92/08/03	15:10	MD 0	734.5	-33.1	E	8.6	0.5	10		10 Ac;As
92/08/03	21:00	MD 12	731.7	-34.2		8.6				
92/08/04	03:00	MD 12		-33.3		-7.4				
92/08/04	08:50	MD 12	735.0	-29.9	ENE	7.5	0.3	10		10 Ac;As
92/08/04	15:10	MD 25	733.2	-30.2	ENE	9.5	0.1	×		×
92/08/04	21:00	MD 38		-28.8		8.7				

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/08/05	03:00	MD 38		-28.8		7.5				
92/08/05	09:00	MD 38	732.3	-30.4	E	6.9	10	10-	⊥	10-Ci
92/08/05	15:10	MD 58	725.1	-32.9	E	6.8	2.0	10	⊥	10 As
92/08/05	21:00	MD 72		-30.8		10.0				
92/08/06	03:00	MD 72		-29.5		6.8				
92/08/06	09:00	MD 72	717.7	-27.1	ENE	6.3	0.5	10	⊥	10 As
92/08/06	15:10	MD 72	719.2	-26.3	ENE	5.4	2.0	10	✕	10 Ns
92/08/06	21:00	MD 50		-30.3		7.8				
92/08/07	02:30	MD 50				12.5				
92/08/07	09:00	MD 50	720.3	-33.4	E	14.0	0.03	×	⊥	×
92/08/07	15:10	MD 30	722.3	-35.4	ESE	15.2	0.03	×	⊥	×
92/08/07	21:00	MD 20	720.6	-40.6		13.0				
92/08/08	03:00	MD 20								
92/08/08	09:00	MD 20	718.6	-39.7	E	14.0	0.05	×	⊥	×
92/08/08	15:15	MIZUHO	728.6	-36.0	E	11.0	0.3	10-	⊥	4 Ac;10-Ci
92/08/08	21:00	MIZUHO	730.0	-32.9		9.0				
92/08/09	03:00	MIZUHO		-31.4		5.3				
92/08/09	09:00	MIZUHO	740.0	-32.1	E	5.9	10	10-	◐	2 Ac;10-Ci
92/08/09	15:00	Z 88	746.5	-30.9	E	3.8	10	10	◎	3 Ac;10 As
92/08/09	21:00	Z 66	750.7	-31.3		4.6				
92/08/10	03:00	Z 66		-35.8		2.9				
92/08/10	09:00	Z 66	747.2	-37.0	E	6.5	5	7	⊥	2 Ac; 6 Ci
92/08/10	14:50	Z 24	753.6	-32.2	ENE	8.5	3.0	10-	⊥	3 Ac;10-Ci
92/08/10	21:00	H293	764.7	-27.7						
92/08/11	03:00	H293		-29.5		9.1				
92/08/11	09:00	H293	763.5	-31.9	E	9.3	2.0	10-	⊥	4 Ac;10-Ci
92/08/11	15:10	H224	784.6	-32.6	E	6.5	10	1	⊥	1 Ci
92/08/11	21:00	H148	802.0	-34.0		8.1				
92/08/12	03:00	H148		-30.9		9.9				
92/08/12	09:00	H148	796.6	-26.8	E	12.1	0.05	×	⊥	×
92/08/12	15:10	H 82	818.5	-20.9	E	15.4	0.02	×	⊥	×
92/08/12	21:00	H 68	826.8	-21.3		14.9				
92/08/13	03:00	H 68								
92/08/13	09:00	H 68	834.9	-27.1	E	3.3	10	10-	◎	2 Ac;10-Ci
92/08/13	15:10	S 19	902.0	-23.1	E	2.4	10	10-	◎	4 Ac;10-Ci
92/08/13	21:00	S 16	907.6	-23.6		6.2				
92/08/14	03:00	S 16		-20.9		8.6				
92/08/14	09:00	S 16							⊥	
92/08/14	15:00	S 16								
92/08/14	21:00	S 16								

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/08/15	03:00	S 16								
92/08/15	09:00	S 16		-25.8		10.0			⇂	
92/08/15	15:00	S 16								
92/08/15	21:00	S 16								

Item	Instrument	Accuracy
Air pressure	Aneroid gauge	±0.1hPa
Air temperature	Platinum resistance	±0.1℃
Wind direction	Magnetic compass	±5°
Wind speed	3-cup anemometer	±0.1m/s
Visibility	Visual observation	— — —
Cloud amount	Visual observation	— — —
Weather	Visual observation	— — —
Individual cloud	Visual observation	— — —

LT : Local standard time at SYOWA station (UTC+3hours)
Pa : Air pressure (hPa)
Ta : Air temperature (℃)
WD : Wind direction (degree North)
WS : Wind speed (m/s)
V : Visibility (km)
N : Cloud amount (in tenth)
W : Weather
- ○ Clear
- ◑ Fine
- ◐ Cloudy (upper cloud are predominant)
- ◎ Cloudy
- ⇂ Drifting snow
- ⇂ Blowing snow
- ✕ Snow
- ⇂ Snowstorm
- ☲ Ice needles

CL : Individual cloud amount and kind

Table 4-3. Meteorological data observed on traverse 3.

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/09/23	03:00	S 16								
92/09/23	09:00	S 16								
92/09/23	15:00	S 16	903.3	-18.9		6.2				
92/09/23	21:00	S 16	902.2	-25.0	ENE	7.2	10	03	⊕	Ac; Ci
92/09/24	03:00	S 16		-24.3		0.0				
92/09/24	09:00	S 16	901.6	-26.5	NE	6.3	0.3	10	⊕	10 ⊕
92/09/24	15:00	S 25	868.2	-28.6	NE	5.6	0.4	10	⊕	Ac; Ci
92/09/24	21:00	H 24	845.9	-36.3	ENE	8.0	1.0	01	⊕	Ac
92/09/25	03:00	H 24		-31.7		0.0				
92/09/25	08:20	H 24	843.9	-28.0	E	12.9	0.2	10	⊕	10 ⊕
92/09/25	15:00	H 74	826.4	-20.9	E	12.2	0.2	10	⊕	10 ⊕
92/09/25	21:00	H100								
92/09/26	03:00	H100								
92/09/26	09:00	H100		-19.9	E	16.0	0.1	10	⊕	10 ⊕
92/09/26	15:00	H128	804.8	-21.1	E	13.3	0.2	10	⊕	10 ⊕
92/09/26	21:00	H160	796.1	-25.8	E	12.7	0.5	04	⊕	Ac; Ci
92/09/27	03:00	H160		-27.0		0.0				
92/09/27	09:00	H160	798.2	-25.0	E	15.5	0.3	10	⊕	Ac; Ci
92/09/27	15:00	H204	787.8	-25.1	E	11.4	0.5	03	⊕	Ac; Ci
92/09/27	20:40	H230	779.8	-28.6	E	13.8	0.5	03	⊕	Ac; Ci
92/09/28	03:00	H230		-27.6		14.1				
92/09/28	09:00	H230	782.7	-25.3	E	10.5	0.3	10	⊕	As
92/09/28	15:00	H264	775.4	-24.7	E	12.1	0.3	10	⊕	Ac; As
92/09/28	21:00	H297	765.3	-30.9	E	11.5	1.0	05	⊕	Ac; As
92/09/29	03:00	H297		-34.8		13.3				
92/09/29	09:00	H297	764.3	-33.3	E	11.9	10	07	⊕	01 Ac;07 Ci
92/09/29	15:10	Z 14	763.0	-32.3	E	11.0	10	01	⊕	01 Ac
92/09/29	22:00	Z 14	754.9	-40.6	E	11.5	5	03	⊕	03 Ac
92/09/30	03:00	Z 14		-41.8		10.9				
92/09/30	09:00	Z 14	754.3	-37.1	E	10.8	5	03	⊕	01 Ac;03 Ci
92/09/30	15:00	Z 14	755.6	-35.1	E	10.1	10	05	⊕	02 Ac;05 Ci
92/09/30	19:00	Z 14	755.4	-39.5	E	9.0	10		⊕	
92/10/01	03:00	Z 14		-43.7		10.7				
92/10/01	09:00	Z 14	751.9	-41.8	E	11.8	5	0+	⊕	0+Ac
92/10/01	15:00	Z 23	747.4	-36.5	E	9.1	10	0+	⊕	0+Ac
92/10/01	21:00	Z 33	740.5	-42.9	E	9.1	20	0	⊕	
92/10/02	03:00	Z 33		-46.4		10.9				
92/10/02	09:00	Z 33	738.3	-43.2	E	10.3	10	0+	⊕	0+Ac
92/10/02	15:00	Z 58	734.5	-39.1	E	8.4	10	0	⊕	
92/10/02	21:00	Z 80	729.3	-42.8	E	12.2	5	0+	⊕	0+Ac

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/10/03	03:00	Z 80		-43.9		11.8				
92/10/03	09:00	Z 80	730.1	-40.7	E	12.4	0.3	03		01 Ac;03 Ci
92/10/03	15:00	Z 96	726.9	-34.7	E	12.4	0.2	10-		03 Ac;10-Ci
92/10/03	21:00	MIZUHO	723.6	-37.5	E	14.2	0.2	07		03 Ac;07 Ci
92/10/04	03:00	MIZUHO		-36.0		11.6				
92/10/04	09:00	MIZUHO		-31.2	E	11.8	0.2	10		10 As
92/10/04	15:00	MIZUHO		-28.8	E	13.0	0.5	10		07 Ac;10 As
92/10/04	21:00	MIZUHO	727.1	-32.6	E	12.4	0.3	10		07 Ac;10 As
92/10/05	03:00	MIZUHO		-34.3		16.0				
92/10/05	09:00	MIZUHO	726.3	-33.3	E	11.8	0.3	03		03 Ac
92/10/05	15:00	MD 10	722.8	-29.5	E	9.8	0.5	10		05 Ac;10 As
92/10/05	21:00	MD 24	719.4	-33.7	E	11.4	0.5	10		05 Ac;10 As
92/10/06	03:00	MD 24		-36.1		11.0				
92/10/06	09:00	MD 24	718.8	-35.0	E	10.6	0.5	10		10 Ac
92/10/06	15:00	MD 42	713.0	-32.7	E	9.6	0.8	02		02 Ac; 0+Ci
92/10/06	21:00	MD 60	709.2	-38.1	E	9.9	0.8	10		03 Ac;10 As
92/10/07	03:00	MD 60		-40.0		10.8				
92/10/07	09:00	MD 60	705.6	-38.6	E	9.7	1.0	10		04 Ac;10 As
92/10/07	15:00	MD 72	700.5	-36.8	E	9.5	1.0	08		01 Ac;08 Ci
92/10/07	21:00	MD 80	697.5	-43.8	E	11.8	1.0	07		01 Ac;08 Ci
92/10/08	03:00	MD 80		-48.9		13.2				
92/10/08	09:00	MD 80	691.5	-47.8	E	11.7	0.2	02		0+Ac;02 Ci
92/10/08	15:00	MD 84	688.9	-42.7	ESE	8.0	1.0	08		01 Ac;08 Ci
92/10/08	21:30	MD 98	685.1	-49.9	E	6.9	10	07		02 Ac;07 Ci
92/10/09	03:00	MD 98		-50.4		7.1				
92/10/09	09:00	MD 98	690.1	-46.4	E	8.3	1.0	06		01 Ac;06 Ci
92/10/09	15:00	MD110	688.7	-42.3	ESE	7.9	5	0+		0+Ci
92/10/09	21:00	MD122	687.6	-48.1	ESE	9.0	5	0+		0+Ci
92/10/10	03:00	MD122		-48.5		10.9				
92/10/10	09:00	MD122	692.4	-44.4	ESE	10.0	1.0	0+		0+Ci
92/10/10	15:00	MD144	687.2	-41.2	ESE	7.5	3.0	0+		0+Ci
92/10/10	21:00	MD158	683.5							
92/10/11	03:00	MD158		-51.0		11.0				
92/10/11	09:00	MD158	681.2	-47.3	ESE	11.6	0.2	03		01 Ac;03 Ci
92/10/11	15:00	MD170	676.9	-43.4	ESE	10.1	0.3	0+		0+Ci
92/10/11	21:00	MD180	671.0	-47.7	ESE	11.4	0.3	01		01 Ci
92/10/12	03:00	MD180								
92/10/12	09:00	MD180	673.8	-42.9	ESE	11.3	0.3	02		02 Ci
92/10/12	15:00	MD204	669.1	-39.1	ESE	8.5	1.0	02		02 Ci
92/10/12	21:00	MD220	666.7	-41.8	ESE	7.7	0.5	10-		07 As;10-Ci

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/10/13	03:00	MD220		-46.3		5.7				
92/10/13	09:00	MD220	670.2	-40.9	ESE	6.3	10	03	⚓	0+Ac;03 Ci
92/10/13	15:00	MD242	664.1	-39.3	ESE	7.1	10	0+	⚓	0+Ac; 0+Ci
92/10/13	21:00	MD260	657.9	-49.2	ESE	4.0	10	04	◐	02 Ac;04 Ci
92/10/14	03:00	MD260		-53.0		7.5				
92/10/14	09:00	MD260	654.9	-49.4	ESE	7.5	1.0	01	☂	01 Ci
92/10/14	15:00	MD274	650.6	-47.0	SE	8.6	1.0	03	☂	03 Ci
92/10/14	21:00	MD292	645.6	-50.9	ESE	8.4	1.0	03	☂	03 Ci
92/10/15	03:00	MD292		-49.8		11.7				
92/10/15	09:00	MD292	650.6	-41.8	ESE	12.5	0.2	10	☂	10 As
92/10/15	15:00	MD312	647.8	-37.6	ESE	10.0	0.1	10	☂	10 ☂
92/10/15	21:00	MD322	647.4	-38.4	ESE	13.0	0.1	10	☂	10 ☂
92/10/16	03:00	MD322		-39.6						
92/10/16	09:00	MD322	651.5	-37.1	ESE	10.3	0.3	10	☂	10 As
92/10/16	15:00	MD348	648.0	-34.4	SE	7.8	0.5	10	☂	10 As
92/10/16	21:00	MD364	645.8	-44.6	SSE	8.0	2.0	04	☂	01 Ac;04 Ci
92/10/17	03:00	MD364		-48.7		5.2				
92/10/17	09:00	MD364	648.6	-40.1	SSE	3.8	10	10-	◎	0+Ac;07 As;10-Ci
92/10/17	15:00	MD364	648.0	-31.3	S	2.2	10	08	◐	0+Ac;08 Ci
92/10/17	21:00	MD364	646.0	-38.7	S	2.9	10	10	◎	01 Ac;10 As
92/10/18	03:00	MD364		-36.4		3.1				
92/10/18	09:00	MD364	638.8	-30.9	SE	2.3	2.0	10	✕	10 As
92/10/18	15:00	MD380	633.4	-29.4	SE	2.7	3.0	10	✕	10 As
92/10/18	21:00	MD394	628.2	-39.5	SE	3.1	5	10-	✕	02 Ac;06 As;10-Ci
92/10/19	03:00	MD394		-42.5		4.4				
92/10/19	09:00	MD394	627.6	-38.6	SE	5.1	5	10-	☰	02 Ac;10-Ci
92/10/19	15:00	MD414	624.5	-35.4	SE	4.3	5	09	☰	02 Ac;09 Ci
92/10/19	21:00	MD432	622.5	-45.8	SSE	3.7	10	01	○	0+Ac;01 Ci
92/10/20	03:00	MD432		-50.9		5.1				
92/10/20	09:00	MD432	621.6	-42.5	ESE	4.6	10	0+	○	0+Ci
92/10/20	15:00	MD454	617.0	-41.0	E	2.7	10	01	○	01 Ac
92/10/20	21:00	MD472	615.5	-50.8	E	2.8	10	01	○	0+Ac;01 Ci
92/10/21	03:00	MD472		-55.4		1.3				
92/10/21	09:00	MD472	617.0	-41.8	ESE	0.6	10	05	◐	01 Ac;05 Ci
92/10/21	15:00	MD494	614.4	-41.3	SW	0.4	20	0+	○	0+As
92/10/21	21:20	MD510	613.1	-48.2	-	0.0	20	01	○	01 As
92/10/22	03:00	MD510		-63.2		0.0				
92/10/22	09:00	MD510	612.4	-49.8	-	0.0	20	0+	○	0+Ac
92/10/22	15:00	MD528	610.3	-44.8	S	1.7	20	0+	○	0+Ac
92/10/22	21:00	MD548	608.7	-56.1	SW	3.3	20	0+	○	0+Ac

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/10/23	03:00	MD548		-59.6		3.7				
92/10/23	09:00	MD548	612.2	-48.6	SW	2.9	20	0+	○	0+Ac
92/10/23	15:00	MD568	610.5	-45.2	SSW	1.4	20	0+	○	0+Ac; 0+Ci
92/10/23	21:00	MD586	609.3	-56.0	-	0.0	20	0+	○	0+Ac; 0+Ci
92/10/24	03:00	MD586		-57.6		3.1				
92/10/24	09:00	MD586	608.9	-49.0	S	4.3	10	09	◍	04 As;09 Ci
92/10/24	15:00	MD604	606.9	-48.0	S	1.6	20	0+	○	0+Ac
92/10/24	21:00	MD626	605.3	-52.4	-	0.0	10	01	○	01 Ci
92/10/25	03:00	MD626		-60.4		2.7				
92/10/25	09:00	MD626	605.9	-46.9	S	3.7	10	01	○	01 Ci
92/10/25	15:00	MD644	604.8	-43.0	-	0.0	20	0+	○	0+Ac
92/10/25	21:00	MD664	603.3	-54.7	-	0.0	20	0+	○	0+Ac
92/10/26	03:00	MD664		-62.8		0.0				
92/10/26	09:00	MD664	602.9	-40.5	SSE	0.4	10	02	◑	02 Ci
92/10/26	15:00	MD684	600.0	-38.5	-	0.0	10	10-	◍	10-Ci
92/10/26	21:00	MD684	599.2	-51.6	-	0.0	10	10-	◍	10-Ci
92/10/27	03:00	MD684		-54.5		0.0				
92/10/27	09:00	MD684	597.1	-44.2	-	0.0	10	03	◑	03 Ci
92/10/27	15:00	MD708	594.0	-42.0	S	2.7	10	04	◑	0+As;04 Ci
92/10/27	21:00	MD726	592.5	-51.8	-	0.0	10	06	◑	0+As;06 Ci
92/10/28	03:00	MD726		-57.8		0.0				
92/10/28	09:00	MD726	592.1	-43.9	-	0.1	10	05	☲	01 As;05 Ci
92/10/28	15:00	MD738	592.3	-39.3	NNE	1.4	10	05	◑	01 As;05 Ci
92/10/28	21:00	MD738	593.5	-55.0	-	0.0	10	04	◑	01 As;04 Ci
92/10/29	03:00	MD738		-57.4		0.0				
92/10/29	09:00	MD738		-44.3	NNW	2.0	10	10-	☲	0+As;10-Ci
92/10/29	15:00	MD738	596.3	-41.0	NNW	2.9	10	10-	☲	02 As;10-Ci
92/10/29	21:00	DS 22	597.0	-54.4	NW	3.1	10	03	◑	0+As;03 Ci
92/10/30	03:00	DS 22		-58.9		2.7				
92/10/30	09:00	DS 22	598.2	-47.9	NW	2.3	10	0+	○	0+Ci
92/10/30	15:00	DS 40	600.0	-40.4	W	1.3	20	01	○	01 Ci
92/10/30	21:00	DS 40	600.9	-55.9	-	0.0	20	0+	○	0+Ci
92/10/31	03:00	DS 40		-62.3		0.0				
92/10/31	09:00	DS 40	603.8	-42.6	-	0.0	20	0+	○	0+Ci
92/10/31	15:00	DS 40	604.5	-43.1	ENE	2.8	20	0+	○	0+Ci
92/10/31	21:00	DS 70	603.7	-48.1	ENE	6.2	1.0	10-	⇸	03 As;10-Ci
92/11/01	03:00	DS 70		-42.0		10.4				
92/11/01	09:00	DS 70	602.6	-37.4	ENE	12.9	0.1	10	⇸	10 As
92/11/01	15:00	DS 70	604.0	-35.3	NE	9.1	0.2	10	⇸	10 As
92/11/01	21:00	DS 70	603.9	-39.9	NE	7.7	0.5	10-	⇸	03 As;10-Ci

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/11/02	03:00	DS 70		-47.0		6.7				
92/11/02	09:00	DS 70	603.8	-39.7	NE	7.4	5	05	⊕	02 As;05 Ci
92/11/02	15:00	DF 99	603.5	-35.4	ENE	6.2	10	07	⊕	01 As;07 Ci
92/11/02	21:00	MD738	603.0	-46.9	SSE	1.5	10	09	◐	0+Ac;09 Ci
92/11/03	03:00	MD738		-49.7		5.5				
92/11/03	09:00	MD738	603.4	-41.6	E	5.2	0.5	01	⊕	01 As
92/11/03	15:00	DS126	604.7	-37.7	ENE	4.8	20	07	⊕	0+Ac;07 Ci
92/11/03	21:00	DS140	604.6	-47.1	ESE	1.1	20	01	○	0+Ac;01 Ci
92/11/04	03:00	DS140		-50.3		0.6				
92/11/04	09:00	DS140	602.0	-41.3	SSE	2.6	10	10-	✕	08 As;10-Ci
92/11/04	15:00	DS158	599.8	-38.5	ESE	2.7	5	10-	✕	04 As;10-Ci
92/11/04	21:00	DS180	599.0	-49.6	E	1.0	20	0+	○	0+Ci
92/11/05	03:00	DS180		-54.3		0.0				
92/11/05	09:00	DS180	598.8	-45.6	E	3.5	20	0+	○	0+Ac; 0+Ci
92/11/05	15:00	MD738	596.3	-38.2	E	4.2	20	0+	○	0+Ac; 0+Ci
92/11/05	21:00	MD738	595.8	-47.7	E	4.0	20	0+	○	0+Ac
92/11/06	03:00	MD738		-52.1		3.5				
92/11/06	09:00	MD738	595.3	-43.5	E	5.1	5	0+	⊕	0+Ci
92/11/06	15:00	D 04	594.6	-40.9	E	6.2	2.0	0+	⊕	0+Ac
92/11/06	21:00	D 04	594.2	-50.5	E	3.5	10	0+	○	0+Ac; 0+Ci
92/11/07	03:00	D 04		-56.1		3.4				
92/11/07	09:00	D 04	595.5	-46.6	ENE	2.8	20	03	○	0+Ac;03 Ci
92/11/07	15:00	D 04	595.2	-41.0	E	2.1	20	0+	○	0+Ac; 0+Ci
92/11/07	21:00	D 04	594.1	-52.1	E	0.5	20	01	○	0+Ac;01 Ci
92/11/08	03:00	D 04		-54.3		2.0				
92/11/08	09:00	D 04	592.0	-48.6	ESE	2.0	10	09	◐	01 Ac;09 Ci
92/11/08	15:00	D 04	589.9	-43.4	E	2.9	20	0+	○	0+Ac
92/11/08	21:00	D 04	588.7	-51.5	E	3.2	20	0+	○	0+Ac
92/11/09	03:00	D 04		-56.2		2.7				
92/11/09	09:00	D 04	587.1	-43.6	ENE	2.9	10	06	◐	0+Ac;06 Ci
92/11/09	15:00	D 04	585.6	-41.8	E	2.1	10	03	◐	0+Ac;03 Ci
92/11/09	21:00	D 04		-52.1	E	1.0	10	03	◐	0+Ac;03 Ci
92/11/10	03:00	D 04		-54.2		0.8				
92/11/10	09:00	D 04	585.7	-45.2	NE	1.4	10	01	○	01 Ac
92/11/10	15:10	D 04	586.0	-38.7	NE	0.9	5	04	✕	02 As;04 Ci
92/11/10	21:00	D 04	586.7	-51.6	ENE	0.7	10	04	◐	02 As;04 Ci
92/11/11	03:00	D 04		-55.9		0.0				
92/11/11	09:00	D 04	586.9	-46.8	E	0.9	10	0+	○	0+Ac
92/11/11	15:00	D 04	586.3	-41.0	SE	1.0	10	01	○	0+Ac;01 Ci
92/11/11	21:00	D 04	585.7	-50.2	SE	0.3	20	0+	○	0+Ac

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/11/12	03:00	D 04		-54.7		0.0				
92/11/12	09:00	D 04	584.5	-46.1	S	2.1	10	01	○	01 Ac
92/11/12	15:00	D 04	583.3	-41.3	S	3.1	10	03	◑	01 Ac;03 Ci
92/11/12	21:10	D 04	582.8	-47.0	SSE	1.3	10	10-	✳	03 Ac;07 As;10-Ci
92/11/13	03:00	D 04		-54.1		1.9				
92/11/13	09:00	D 04	584.3	-45.2	ESE	2.1	10	08	✳	03 Ac;02 As;08 Ci
92/11/13	15:20	D 04	584.5	-40.8	E	3.6	10	08	☰	01 Ac;03 As;08 Ci
92/11/13	21:10	D 04	585.6	-48.8	E	1.5	10	09	☰	01 Ac;03 As;09 Ci
92/11/14	03:00	D 04		-54.0		1.2				
92/11/14	09:00	D 04	588.1	-43.1	E	1.4	10	02	☰	02 As; 0+Ci
92/11/14	15:00	D 04	589.1	-39.1	S	1.1	10	01	○	0+Ac;01 As
92/11/14	21:00	D 04	590.4	-44.9	SSW	1.0	20	0+	○	0+Ac
92/11/15	03:00	D 04		-53.0		0.0				
92/11/15	09:00	D 04	593.0	-44.1	SSW	3.3	10	0+	○	0+Ac
92/11/15	15:00	D 04	593.9	-41.1	SSW	4.0	10	02	◑	02 As
92/11/15	21:00	D 04	595.4	-46.9	SSW	3.9	20	0+	○	0+Ac
92/11/16	03:00	D 04		-51.5		1.7				
92/11/16	09:00	D 04	599.5	-43.7	S	3.7	10	07	◑	0+Ac;03 As;07 Ci
92/11/16	15:00	D 04	599.3	-36.4	SSW	2.2	10	09	◍	02 As;09 Ci
92/11/16	21:00	D 04	598.5	-44.5	WNW	1.9	20	04	◑	0+Ac;04 Ci
92/11/17	03:00	D 04		-43.1		1.4				
92/11/17	09:00	D 04	596.6	-37.0	W	1.4	8	07	✳	04 As;07 Ci
92/11/17	15:00	DS306	596.2	-30.3	NNW	0.5	20	03	◑	0+Ac;03 Ci
92/11/17	21:00	DS320	596.3	-35.7	N	0.3	10	02	◑	0+As;02 Ci
92/11/18	03:00	DS320		-47.3		1.0				
92/11/18	09:00	DS320	596.7	-34.3	NE	2.7	10	06	☰	02 Ac;01 As;06 Ci
92/11/18	15:00	MD694	597.9	-34.7	ENE	4.2	10	10-	◍	03 As;10-Ci
92/11/18	21:00	MD673	599.5	-40.9	ENE	3.5	10	10-	✳	04 As;10-Ci
92/11/19	03:00	MD673		-46.3		1.0				
92/11/19	09:00	MD673	601.3	-36.6	E	2.9	10	10-	◍	04 As;10-Ci
92/11/19	15:00	MD644	603.1	-32.9	E	5.6	3.0	10	⊕	10 As
92/11/19	21:00	MD620	604.2	-38.9	ENE	4.8	5	10	⊕	03 Ac;10 As
92/11/20	03:00	MD620		-40.9		3.2				
92/11/20	09:00	MD620	603.2	-35.9	E	5.4	5	10	✳	10 As
92/11/20	15:00	MD620	599.4	-30.1	ENE	8.6	0.3	10	⊕	10 As
92/11/20	21:00	MD620	598.0	-33.7	ENE	5.2	1.0	10	⊕	10 As
92/11/21	03:00	MD620		-39.3		3.0				
92/11/21	09:00	MD620	599.2	-36.4	NE	2.2	10	10-	◍	04 Ac+10-Ci
92/11/21	15:00	MD620	599.8	-33.2	-	0.1	10	05	☰	01 Ac;05 Ci
92/11/21	21:00	MD596	601.1	-40.1	SSW	1.5	20	0+	○	0+Ac

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/11/22	03:00	MD596		-49.0		1.6				
92/11/22	09:00	MD596	602.9	-42.1	SSE	2.9	20	0+	○	0+Ac
92/11/22	15:10	MD568	607.6	-35.7	S	2.9	10	08	◑	0+Ac;08 Ci
92/11/22	21:00	MD552	610.3	-42.0	ESE	3.4	20	09	◑	01 Ac;09 Ci
92/11/23	03:00	MD552		-45.9		3.6				
92/11/23	09:00	MD552	609.7	-38.4	ESE	5.3	8	04	↑	02 As;04 Ci
92/11/23	15:00	MD524	609.7	-32.4	ESE	7.0	1.0	10-	↑	04 As;10-Ci
92/11/23	21:00	MD500	608.2	-38.0	SE	6.6	5	10-	↑	03 Ac;04 As;10-Ci
92/11/24	03:00	MD500		-43.8		6.0				
92/11/24	09:00	MD500	606.8	-37.4	ESE	6.5	5	05	↑	01 Ac;03 As;05 Ci
92/11/24	15:00	MD500	607.9	-30.9	ESE	7.0	8	03	↑	0+Ac;03 Ci
92/11/24	21:00	MD500	610.2	-37.0	ESE	4.7	8	10-	↑	0+Ac;03 As;10-Ci
92/11/25	03:00	MD500		-38.6		3.0				
92/11/25	09:00	MD500	615.1	-31.4	ESE	6.7	1.0	10	↑	10 As
92/11/25	15:00	MD488	617.4	-28.3	E	7.7	0.5	10	↑	10 As
92/11/25	21:00	MD464	621.0	-34.2	ESE	6.7	5	04	↑	03 As;04 Ci
92/11/26	03:00	MD464		-39.3		7.0				
92/11/26	09:00	MD464	621.8	-34.7	ESE	8.4	0.8	10-	↑	03 As;10-Ci
92/11/26	15:00	MD434	624.4	-29.0	ESE	8.2	0.3	10-	↑	07 As;10-Ci
92/11/26	21:00	MD411	627.2	-33.5	ESE	8.5	1.0	10-	↑	02 Ac;10-As
92/11/27	03:00	MD411		-39.7		6.9				
92/11/27	09:00	MD411	629.7	-34.3	ESE	9.6	0.5	04	↑	04 As
92/11/27	15:00	MD384	635.6	-29.1	ESE	7.6	0.5	10-	↑	03 As;10-Ci
92/11/27	21:00	MD364	639.0	-35.1	ESE	5.6	20	0+	○	0+Ac
92/11/28	03:00	MD364		-40.3		5.7				
92/11/28	09:00	MD364	640.2	-34.9	ESE	8.0	2.0	0+	↑	0+Ac
92/11/28	15:00	MD364	640.6	-29.1	ESE	7.9	2.0	01	↑	01 Ac
92/11/28	21:00	MD364	641.1	-31.5	E	6.9	1.0	10	↑	10 As
92/11/29	03:00	MD364		-30.1		7.3				
92/11/29	09:00	MD364	644.5	-25.2	E	9.1	0.2	10	↑	10 As
92/11/29	15:00	MD364	644.8	-23.1	E	8.8	0.5	10	↑	10 As
92/11/29	21:00	MD364	645.1	-26.4	E	5.6	1.0	10	↑	10 As
92/11/30	03:00	MD364		-31.6		6.1				
92/11/30	09:00	MD364	643.8	-27.3	ESE	8.6	1.0	10	↑	10 As
92/11/30	15:00	MD364	642.4	-24.2	E	9.2	0.5	10-	↑	07 As;10-Ci
92/11/30	21:00	MD364	641.6	-28.4	ESE	8.7	1.0	10	↑	03 Ac;10 As
92/12/01	03:00	MD364		-31.9		8.3				
92/12/01	09:00	MD364	641.6	-27.4	ESE	9.6	1.0	10-	↑	03 Ac;01 As;10-Ci
92/12/01	15:00	MD358	643.5	-24.4	ESE	8.8	1.0	10	↑	03 Ac;10-Ci
92/12/01	21:00	MD339	646.0	-29.8	ESE	8.4	10	03	↑	01 Ac;03 Ci

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/12/02	03:00	MD339		-34.1		9.1				
92/12/02	09:00	MD339	646.3	-28.7	ESE	10.1	0.5	10-	⊕	04 Ac;01 As;10-Ci
92/12/02	15:00	MD314	652.9	-24.6	ESE	9.4	0.5	10-	⊕	04 As;10 Ci
92/12/02	21:00	MD293	658.3	-28.3	ESE	6.8	10	10-	⊕	10-Ac
92/12/03	03:00	MD293		-33.0		8.0				
92/12/03	09:00	MD293	659.5	-29.1	ESE	9.7	3.0	0+	⊕	0+Ac
92/12/03	15:00	MD268	665.1	-24.2	ESE	7.4	8	0+	⊕	0+Ac
92/12/03	21:20	MD240	674.1	-29.0	ESE	5.9	20	0+	○	0+Ac
92/12/04	03:00	MD240		33.1		7.8				
92/12/04	09:00	MD240	672.6	-26.1	ESE	9.5	10	0	⊕	
92/12/04	15:00	MD240	671.1	-21.4	ESE	8.7	10	0+	⊕	0+Ac
92/12/04	21:00	MD240	670.1	-26.8	ESE	7.3	20	0	⊕	
92/12/05	03:00	MD240		-31.6		7.2				
92/12/05	09:00	MD240	669.8	-26.6	ESE	7.5	20	0+	○	0+Ac
92/12/05	15:00	MD228	672.2	-21.5	ESE	5.4	20	0+	○	0+Ac
92/12/05	21:00	MD207	677.4	-27.8	SE	4.4	20	0+	○	0+Ac
92/12/06	03:00	MD207		-32.9		4.9				
92/12/06	09:00	MD207	676.2	-27.5	ESE	7.6	20	0+	○	0+Ac
92/12/06	15:00	MD184	681.3	-22.0	ESE	5.7	20	0+	○	0+Ac
92/12/06	21:00	MD165	689.3	-27.3	ESE	4.1	20	0+	○	0+Ac
92/12/07	03:00	MD165		-32.0		6.0				
92/12/07	09:00	MD165	690.7	-26.3	ESE	6.2	20	0+	○	0+Ac
92/12/07	15:00	MD142	697.7	-22.1	E	4.7	20	01	○	0+Ac;01 Ci
92/12/07	21:00	MD120	703.5	-27.9	ESE	2.5	20	01	○	0+Ac;01 Ci
92/12/08	03:00	MD120		-33.4		3.7				
92/12/08	09:00	MD120	703.1	-26.9	ESE	4.1	20	01	○	01 Ac; 0+As
92/12/08	15:00	MD120	702.3	-20.8	E	1.5	20	0+	○	0+As; 0+Ci
92/12/08	21:20	MD120	701.1	24.4	-	0.1	20	0+	○	0+Ac; 0+As
92/12/09	03:00	MD120		-33.6		2.8				
92/12/09	09:00	MD120	700.6	-27.8	ESE	4.4	20	0+	○	0+Ac; 0+As
92/12/09	15:00	MD110	703.3	-21.9	E	1.9	20	02	◐	0+Cu; 0+As;02 Ci
92/12/09	21:00	MD 91	712.6	-27.7	ESE	2.5	20	0+	○	0+Cu; 0+Ac
92/12/10	03:00	MD 91		-33.0		5.9				
92/12/10	09:00	MD 91	714.1	-26.6	ESE	6.1	20	0+	○	0+Ac
92/12/10	15:00	MD 70	717.3	21.6	E	4.8	20	0+	○	0+Cu; 0+Ac
92/12/10	21:00	MD 54	721.7	-21.7	E	3.5	2.0	10-	✕	09 Sc;10-As
92/12/11	03:00	MD 54		-25.4		6.2				
92/12/11	09:00	MD 54	721.7	-21.4	ESE	7.7	0.3	10-	⊕	10-Sc
92/12/11	15:00	MD 32	725.6	-17.2	E	5.7	8	10-	✕	10-Sc
92/12/11	21:00	MD 12	731.4	24.0	E	4.1	20	01	○	0+Sc; 0+Ac;01 Ci

Date	LT	Station	Pa	Ta	WD	WS	V	N	W	CL
92/12/12	03:00	MD 12		-27.5		5.3				
92/12/12	09:00	MD 12	733.2	-18.6	E	5.1	10	10-	◎	03 Sc;10-Ac
92/12/12	15:00	MIZUHO	737.6	-15.1	E	4.5	10	06	◑	01 Sc;01 Ac;04 Ci
92/12/12	21:00	MIZUHO	736.9	-23.5	E	4.1	10	03	◑	0+Ac;03 Ci
92/12/13	03:00	MIZUHO		-27.9		7.5				
92/12/13	09:00	MIZUHO	737.9	-21.0	E	7.4	10	03	⊕	0+Ac;03 Ci
92/12/13	15:00	MIZUHO	737.8	-16.8	NNE	1.9	10	01	○	0+Ac;01 Ci
92/12/13	21:00	MIZUHO	738.1	-24.6		0.9	10	03	◑	02 Ac;01 Ci
92/12/14	03:00	MIZUHO		-29.9		3.5				
92/12/14	09:00	MIZUHO	740.0	-20.1	E	3.3	10	09	◑	01 As;09 Ci
92/12/14	15:00	Z 94	742.9	-15.4	N	4.5	2.0	10	✕	10 As
92/12/14	21:00	Z 67	749.3	-19.2	W	3.1	5	10	✕	0+Sc;10 As
92/12/15	03:00	Z 67		-19.7		3.0				
92/12/15	09:00	Z 67	754.3	-20.8	SSE	0.7	1.0	10	✕	10 As
92/12/15	15:00	Z 33	762.0	-17.3	ESE	0.8	10	03	◑	0+Ac;03 Ci
92/12/15	21:00	Z 33		-22.8	E	3.8	10	08	◑	01 Ac;08 Ci
92/12/16	03:00	Z 33		-25.8		7.1				
92/12/16	09:00	Z 33	760.5	-16.1	E	8.9	1.0	10-	⊕	04 As;10-Ci
92/12/16	15:00	S122	772.8	-12.1	ENE	10.0	1.5	09	⊕	0+Sc;05 Ac;04 Ci; 0+Cc
92/12/16	21:00	H260	786.6	-12.3	E	11.9	1.0	10	⊕	01 Sc;10 As
92/12/17	03:00	H260		-13.7		12.5				
92/12/17	09:00	H260	784.9	-12.5	E	14.8	0.1	10	⊕	10 ⊕
92/12/17	15:00	H260	786.1	-9.7	E	14.4	0.2	10	⊕	01 Ac;10 As
92/12/17	21:00	H260	788.3	-11.9	ENE	10.7	1.0	10-	⊕	10-As
92/12/18	03:00	H260		-14.3		6.9				
92/12/18	09:00	H260	790.9	-13.0	E	10.0	1.0	10-	⊕	10-As
92/12/18	15:00	H231	799.0	-11.1	ENE	8.9	8	04	⊕	04 Ac
92/12/18	21:00	H231	798.6	-15.0	E	7.5	10	01	⊕	01 Ac
92/12/19	03:00	H231		-20.1		10.4				
92/12/19	09:00	H231	796.4	-15.8	ENE	8.9	9	01	⊕	01 Ac
92/12/19	15:00	H160	812.2	-10.7	E	8.0	10	0+	⊕	0+Cu; 0+Ac
92/12/19	21:00	H 94	834.2	-15.5	ENE	3.2	20	0	○	
92/12/20	03:00	H 94		-18.2		9.9				
92/12/20	09:00	H 94	833.0	-13.0	E	9.6	20	0+	⊕	0+Ac
92/12/20	15:00	H 15	858.7	-7.7	ENE	7.7	20	0+	⊕	0+Sc; 0+Ac
92/12/20	21:10	S 16	910.7	-8.7	E	7.2	30	0+	○	0+Ac; 0+Ci