

I. Position of Stations, Surface Elevation and Thickness of the Ice Sheet, and Snow Temperature at 10m Depth in the Mizuho Plateau-West Enderby Land Area, East Antarctica, 1969-1971

Hiromu SHIMIZU*, Renji NARUSE*, Kunio OMOTO**
and Aiichiro YOSHIMURA***

1. Position of Stations

Observers: Kunio Omoto and Aiichiro Yoshimura

Astronomic surveys for determining a geodetic position were conducted at 17 stations on the routes of the inland traverses of JARE 10 and 11, as shown in Table I-1 and Fig. A attached to the end of this volume. For Route S, namely the Syowa-South Pole traverse route, the geodetic positions determined by JARE 9 (Fujiwara et al., 1971), were used as they stood, except at S16, S170 and S240.

Table I-1. Astronomic stations on the traverse routes of JARE 10 and 11 (1969 - 1971).

JARE 9	JARE 10	JARE 11
S 31	S 170 ● B 48	S 16 Y 370
S 70	S 240 C 37	Z 75 Y 475
S 122	A 075 C 80	Mizuho Camp W 00
S 151	A 001	Y 100 W 55
		Y 200 W 320
4 stations	7 stations	10 stations
Total	21 stations	

● The position of B48 was surveyed from an astronomic station at a nunatak of Massif D, Yamato Mountains.

* The Institute of Low Temperature Science, Hokkaido University, Sapporo.

** Department of Geography, Faculty of Science, Tohoku University, Sendai.

***Geographical Survey Institute, Ministry of Construction, Azabu Iikura-cho, Minato-ku, Tokyo.

New station S16 was selected by JARE 10 at a position slightly deviated from the position of the old S16 determined previously by JARE 9, and was used as the reference point for the barometric altimetry of the inland traverses of JARE 10 and 11. The position of the new S16 (altitude 553 m) was calculated through a traverse survey from triangulation point No.5 (41.20 m above mean sea level) at East Ongul Island ($69^{\circ}00'25.1''\text{S}$, $39^{\circ}36'50.7''\text{E}$) by JARE 11.

The geodetic positions of A002 - A164 (S240) were calculated by a triangulation chain from astronomic station A001 ($71^{\circ}47'28.1''\text{S}$, $36^{\circ}12'12.2''\text{E}$), a south end nunatak of the Yamato Mountains, and those of W01 - W55 through the traverse survey line from astronomic station W00 ($68^{\circ}36'41.0''\text{S}$, $52^{\circ}06'02.0''\text{E}$), a south peak of the Sandercock Nunataks (see Report VI). The positions of all other stations were interpolated between two neighbouring astronomic stations using navigation records.

Corrections have not been made for disagreements of the values of geodetic positions of stations S16, S170 and S240 surveyed by JARE 10 and 11 with those of their intermediate stations given by JARE 9.

Standard deviations of the geodetic positions of the astronomic stations on the traverse routes were 1.8" in latitude and 25.2" in longitude, by JARE 10's observations; 2.6" in latitude and 11.9" in longitude by JARE 11's observations.

2. Surface Elevation

Observers: Kunio Omoto and Hiromu Shimizu

Although there were problems in barometric methods to carry out precise altimetry in a vast field in the presence of the polar cap anticyclone, the surface elevation of the ice sheet was measured by means of barometric altimetry merely because of its simplicity. The single altimeter method was employed throughout the oversnow traverse for altimetry with four barometric altimeters (American Paulin Altimeter MM-1 and/or MT-5).

Readings of elevation differences between two neighboring stations by four altimeters were averaged, and the results were corrected for air temperature. As Route S was travelled 8 times from S16 to S122, and 7 times from S122 to S169 by JARE 10 and 11, all the results of Route S were averaged again. The elevation of the station was calculated by accumulating the elevation differences successively onto the elevation of S16 (553 m). The final results of the surface altimetry along Route S by

JARE 10 and 11 showed a good agreement in a general tendency with those by JARE 9, with a disagreement of 58 m in maximum. From A164 (S240) to A001, and from W00 to W55, the elevation difference between neighboring stations was precisely measured by triangulation and traverse survey, respectively (see Report VI).

Error of closure of an elevation was,

+21m: at S170 for a circuit track: S170→S240→A003→B48→S170

-66m: at S122 for a circuit track: S122→Mizuho Camp→S169→S122,

-8m: at Mizuho Camp for a circuit track: Mizuho Camp→Y200→W00→Mizuho Camp,

where the positive sign indicates the final elevation of the junction station appeared higher than the initial elevation. The error of closure was uniformly distributed over the circuit track, except Route A (A164 - A003) and a part of Route W (W00 - W55), where precise measurements were carried out. It is to be noted that A001 and A002 are outside of the circuit track.

3. Thickness of the Ice Sheet by Radio Echo Sounding

Observers: Kunio Omoto and Hiromu Shimizu

The thickness of the ice sheet was measured by radio echo sounding along the traverse route of JARE 10 and 11 (Fig. A, Table I-2).

The instrument used for the measurement was SPRI (Scott Polar Research Institute) MK II Radio Echo Sounder. Basically, the instrument was a standard radar ranging system with a 35 MHz transmitter and a receiver, equipped with a cathod-ray oscilloscope, Iwasaki's TR Synchroscope SS-3101, for reading echo time. The transmitter produced 500 Watt (peak) pulses with a repetition frequency of 15.625 kHz.

An antenna for transmitting and another for receiving were properly selected by JARE 10 out of a folded-dipole of 0.7λ long, a 4-wire half-wave dipole and 3-element Yagi, depending upon the conditions of the ice sheet. A 3-element Yagi was used by JARE 11 as a common antenna for transmitting and receiving with a TX/RX switch.

An electromagnetic wave velocity of $171 \text{ m}/\mu\text{s}$ in the ice sheet which was determined by Clough and Bentley (1970) was used to calculate the thickness of the ice sheet from echo time.

4. Snow Temperature at 10 m Depth

Observers: Renji Naruse and Hiromu Shimizu

Snow temperature at 10 m depth was measured to estimate the annual mean air temperature there, with a thermistor-thermometer placed in a hole bored with a SIPRE hand auger, during the oversnow traverses of JARE 10 and 11: JARE 10 made measurements at 7 stations, and JARE 11 at 17 stations. The thermistor-thermometer was calibrated both before and after the traverses with a standard alcoholic thermometer at Syowa Station.

5. Results of the Measurements

Table I-2 gives the geodetic position and elevation of the stations on the oversnow traverse routes of JARE 10 and 11, thickness of the ice sheet and the elevation of the bed rock surface, together with the data of echo time of radio echo sounding, and the snow temperature at 10 m depth.

5.1. Position of stations

Symbols in the table indicate the following:

- : Geodetic positions by astronomic survey by JARE 9.
- : Geodetic positions by astronomic survey by JARE 10 and 11,
- (●): Geodetic positions of S240 (A164) and A075 calculated by the triangulation chain from A001 were given in Table I-2: These values were in good agreement with those obtained by astronomic surveys at each station.
- ◎ : Geodetic position of B48 was surveyed from an astronomic station at a nunatak, Massif D of the Yamato Mountains.

5.2. Surface elevation

Elevation A: Results by JARE 10 and 11,

Elevation B: Results by JARE 9 for Route S, and those by superposing JARE 10 and 11's data onto JARE 9's for other subdivisional routes.

5.3. Ice thickness and bed rock elevation

The thickness of the ice sheet was calculated by the longest echo

time, if multi-echoes were obtained.

Subtracting the ice thickness from the elevation (A) the elevation of the bed rock surface was calculated where the negative sign indicates that the bed rock surface was below the mean sea level.

5.4. Snow temperature at 10 m depth

- * : Snow temperature at 5m depth was measured at S160 on November 10, 1969.
- ** : Snow temperature at 20 m depth was measured at Mizuho Camp on July 22, 1970.

References

- Clough, J.W. and C.R. Bentley (1970): Measurements of electromagnetic wave velocity in the East Antarctic ice sheet. I.S.A.G.E. Publ., 86, Sec. 5 , 115-128.
- Fujiwara, K., S. Kakinuma and Y. Yoshida (1971): Surveys and some considerations on the Antarctic ice sheet. Report of the Japanese Traverse Syowa-South Pole, 1968-1969. JARE Sci. Rep., Special Issue, 2, 30-48.

Table I-2. Geodetic position of the station, surface elevation and thickness of the ice sheet, and snow temperature at 10 m depth in the Mizuho Plateau - West Enderby Land area, East Antarctica, 1969 - 1971.

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
S 16	● 69° 01' 57" S	● 40° 02' 50" E	553	523	2.75	470	83		
17	69° 01.9'	40 04'	583	560	2.93	501	82		
18	69 01.7	40 07	609	584	4.40	752	-143	3.23	
19	69 01.5	40 10	634	608	6.60	1129	-495		
20	69 01.5	40 12	653	630	7.30	1248	-595	4.75, 4.95 5.70	
21	69 01.6	40 15	699	677	3.42	585	114		
22	69 01.7	40 18	743	720	4.78	817	-74		
23	69 01.8	40 21	771	742	4.59	785	-14		
24	69 01.9	40 24	811	784	4.18	715	96		
25	69 02.2	40 27	844	816	4.23	723	121		
26	69 02.3	40 29	870	838	5.00	855	15	4.60	
27	69 02.5	40 32	893	866	6.00	1026	-133	5.30	
28	69 02.7	40 35	916	892	5.67	970	-54		
29	69 02.8	40 38	935	911	5.70	975	-40	5.25	
30	69 03.1	40 40	961	937	5.43	929	32		
31	○ 69 03.3	○ 40 43	981	961	5.65	966	15		
32	69 03.6	40 46	994	969	6.63	1134	-140		
33	69 03.9	40 48	1014	990	6.55	1120	-106	5.83, 6.25	
34	69 04.2	40 51	1030	1006	6.07	1038	-8		
35	69 04.4	40 54	1046	1018	6.48	1108	-62		
36	69 04.8	40 56	1064	1042	6.25	1069	-5		
37	69 04.8	40 59	1074	1057	6.80	1163	-89	5.98	
38	69 04.9	41 02	1088	1073	6.43	1100	-12		
39	69 04.8	41 05	1099	1083	7.00	1197	-98		
40	69 04.7	41 07	1112	1098	6.43	1100	12		-20.9
41	69 04.6	41 10	1124	1113	6.38	1091	33		
42	69 04.6	41 13	1138	1128	6.63	1134	4		
43	69 04.5	41 15	1148	1141	6.55	1120	28		
44	69 04.3	41 18	1164	1150	7.18	1228	-64		
45	69 04.4	41 21	1179	1169	6.95	1189	-10		
46	69 04.5	41 24	1188	1178	6.93	1185	3		
47	69 04.3	41 26	1184	1174	7.22	1235	-51		
48	69 04.2	41 29	1200	1193	7.25	1240	-40		
49	69 04.2	41 32	1208	1198	7.05	1206	2	6.45	
50	69 04.2	41 35	1215	1203	7.05	1206	9		
51	69 04.1	41 37	1217	1205	7.55	1291	-74	6.85, 7.25	
52	69 04.1	41 40	1227	1214	7.07	1209	18		
53	69 04.0	41 43	1233	1221	6.98	1194	39		

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
54	69° 04. 1' S	41° 46' E	1259	1249	7.25	1240	19	6.68	
55	69 04. 2	41 48	1271	1261	7.30	1248	23	6.90	
56	69 03. 7	41 51	1274	1268	7.38	1262	12	6.50, 6.73	
57	69 03. 8	41 54	1276	1269	7.10	1214	62	6.80	
58	69 04. 2	41 57	1287	1279	7.30	1248	39	6.40, 5.77	
59	69 04. 4	41 59	1307	1297	7.70	1317	10	6.60, 6.10	
60	69 04. 6	42 02	1332	1321	7.79	1332	0		
61	69 05. 0	42 04	1335	1324	8.70	1488	153	8.20	
62	69 05. 2	42 07	1341	1327	8.66	1481	140		
63	69 05. 3	42 09	1348	1338	8.40	1436	88		
64	69 05. 5	42 12	1356	1343	8.60	1471	115	7.30	
65	69 05. 8	42 15	1362	1352	8.75	1496	134	8.32	
66	69 05. 9	42 18	1366	1360	7.85	1342	24	7.18	
67	69 06. 0	42 21	1363	1359	7.20	1231	132	6.95	
68	69 06. 2	42 23	1380	1377	7.52	1286	94		
69	69 06. 4	42 26	1381	1380	8.05	1377	4	7.75	
70	69 06. 9	42 29	1388	1393	8.35	1428	40		
71	69 07. 9	42 29	1403		8.13	1390	13		
72	69 09. 0	42 30	1409	1418	8.28	1416	7	7.87	
73	69 10. 0	42 30	1419		8.25	1411	8		
74	69 11. 0	42 31	1422	1445	8.25	1411	11		
75	69 12. 1	42 32	1435		8.35	1428	7		
76	69 13. 1	42 32	1444	1472	8.05	1377	67		
77	69 14. 2	42 33	1451		8.65	1479	28		
78	69 15. 2	42 34	1459	1487	8.45	1445	14		
79	69 16. 2	42 34	1468		8.40	1436	32		
80	69 17. 3	42 35	1473	1510	8.90	1522	49		
81	69 18. 4	42 36	1476		7.90	1351	125		
82	69 19. 4	42 36	1489	1529	8.50	1454	35	8.20	
83	69 20. 5	42 37	1499		8.15	1394	105		
84	69 21. 5	42 38	1518	1560	7.80	1334	184		
85	69 22. 5	42 38	1522						
86	69 23. 5	42 39	1526	1558					
87	69 24. 6	42 40	1534						
88	69 25. 6	42 41	1543	1578					
89	69 26. 7	42 41	1551						
90	69 27. 7	42 42	1560	1604	8.40	1436	124		
91	69 28. 8	42 43	1569						
92	69 29. 8	42 43	1568	1606					
93	69 30. 9	42 44	1570						

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. (0°C)
			A	B					
S 94	69° 31.9' S	42 45' E	1579	1623	8.54	1460	119		
95	69 32.8	42 46	1588		8.40	1436	152		
96	69 33.9	42 47	1594	1639	8.10	1385	209		
97	69 34.9	42 48	1605		8.08	1382	223		
98	69 36.0	42 48	1614	1659	7.58	1296	318		
99	69 37.0	42 49	1618						
100	69 38.1	42 50	1630	1675	8.00	1368	262		
101	69 39.1	42 50	1631						
102	69 40.1	42 51	1636	1683					
103	69 41.1	42 52	1643						
104	69 42.2	42 52	1651	1697					
105	69 43.2	42 53	1656						
106	69 44.3	42 54	1660	1715	7.63	1305	355		
107	69 45.4	42 55	1673		7.75	1325	348		
108	69 46.4	42 55	1684	1730	8.70	1488	196		
109	69 47.5	42 56	1690						
110	69 48.5	42 56	1696	1745	7.16	1224	472		
111	69 49.5	42 57	1724		6.45	1103	621		
112	69 50.6	42 58	1736	1779	7.51	1284	452		
113	69 51.7	42 59	1747		7.80	1334	413		
114	69 52.7	43 00	1754	1800	7.63	1305	449		
115	69 53.8	43 01	1758		6.40	1094	664		
116	69 54.8	43 02	1763	1812	6.73	1151	612		
117	69 55.9	43 03	1774		7.05	1206	568	6.93	
118	69 56.9	43 03	1816	1846	7.40	1265	551		
119	69 58.0	43 04	1833		8.70	1488	345	8.10	
120	69 59.0	43 04	1845	1875	9.25	1582	263	8.80	
121	70 00.1	43 05	1850		8.95	1531	319		
122	70 01.1	43 06.5	1853	1881	9.04	1546	307		-30.5
123	70 02.1	43 06	1859		8.05	1377	482		
124	70 03.2	43 06	1865	1893	7.10	1214	651		
125	70 04.2	43 07	1876		7.30	1248	628		
126	70 05.2	43 07	1883	1913	8.30	1419	464		
127	70 06.3	43 06	1886		7.58	1296	590		
128	70 07.3	43 06	1887	1915	8.30	1419	468		
129	70 08.4	43 06	1900						
130	70 09.5	43 06	1900	1923					
131	70 10.4	43 06	1907		9.05	1548	359		
132	70 11.5	43 06	1924	1942	9.10	1556	368		
133	70 12.5	43 06	1923						

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
S 134	70° 13.5' S	43 06' E	1917	1932					
135	70 14.6	43 06	1909						
136	70 15.6	43 06	1914	1933					
137	70 16.7	43 06	1923						
138	70 17.7	43 06	1924	1949					
139	70 18.7	43 06	1925						
140	70 19.8	43 06	1934	1961					
141	70 20.9	43 06	1944						
142	70 21.9	43 06	1945	1976	11.00	1881	64		
143	70 22.9	43 06	1946						
144	70 24.0	43 06	1946	1982					
145	70 25.0	43 06	1944						
146	70 26.1	43 06	1950	1984					
147	70 27.1	43 06	1954						
148	70 28.1	43 06	1952	1987					
149	70 29.2	43 06	1953						
150	70 30.0	43 04	1971	2001	7.70	1317	654		
151	○70 31.0	○43 05	1975	2001					
152	70 31.9	43 06	1978	2001					
153	70 32.9	43 05	1979						
154	70 34.0	43 05	1986	2005					
155	70 35.0	43 05	1992						
156	70 36.1	43 06	1997	2005					
157	70 37.1	43 06	2002		10.85	1855	147		
158	70 38.2	43 06	2005	2023	11.00	1881	124		
159	70 39.2	43 06	2006						
160	70 40.2	43 06	2008	2032	8.30	1419	589		-32.3*
161	70 41.2	43 06	2012						
162	70 42.3	43 06	2020	2045					
163	70 43.3	43 07	2025						
164	70 44.3	43 07	2034	2060					
165	70 45.3	43 07	2035		12.55	2146	-111		
166	70 46.4	43 07	2027	2052	12.50	2138	-111		
167	70 47.4	43 07	2027		12.50	2138	-111		
168	70 48.4	43 07	2026	2054					
169	70 49.4	43 07	2035		13.50	2309	-274		
170	●70° 50' 38"	●43° 11' 32"	2034	2062	11.50	1967	67		-31.2
171	70° 51.1'	43° 05'	2026						
172	70 51.6	43 02	2040	2069	11.13	1903	137		
173	70 52.2	43 00	2034		11.13	1903	131		

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
S 174	70°52.8' S	42°57' E	2018	2044					
175	70 53.8	42 56	2036						
176	70 54.8	42 56	2063	2081					
177	70 55.8	42 56	2064						
178	70 56.8	42 56	2061	2075					
179	70 57.9	42 56	2062						
180	70 58.9	42 57	2075	2087					
181	70 59.9	42 57	2085						
182	71 00.9	42 57	2100	2113					
183	71 01.9	42 57	2133						
184	71 03.0	42 57	2139	2152					
185	71 04.0	42 57	2114		11.13	1903	211		
186	71 05.0	42 58	2150	2172					
187	71 06.0	42 58	2158						
188	71 07.0	42 58	2159	2183					
189	71 08.1	42 58	2173	2201					
190	71 09.1	42 58	2180	2210	11.63	1989	191		
191	71 10.1	42 58	2183		11.75	2009	174		
192	71 11.2	42 58	2195	2236					
193	71 12.2	42 59	2207						
194	71 13.2	42 59	2211	2253					
195	71 14.2	42 59	2208						
196	71 15.3	42 59	2217	2275					
197	71 16.3	43 00	2240						
198	71 17.3	43 00	2251	2295					
199	71 18.3	43 00	2257						
200	71 19.4	43 00	2261	2312					-35.0
201	71 20.4	43 00	2260						
202	71 21.4	43 00	2261	2311					
203	71 22.4	43 01	2274						
204	71 23.5	43 01	2294	2332					
205	71 24.5	43 01	2303						
206	71 25.5	43 01	2310	2342					
207	71 26.5	43 02	2312						
208	71 27.5	43 02	2315	2348					
209	71 28.5	43 02	2317						
210	71 29.6	43 03	2332	2359					
211	71 30.6	43 03	2342						
212	71 31.6	43 03	2346	2373					
213	71 32.6	43 03	2356						

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
S 214	71° 33.7 S	43° 03' E	2369	2394					
215	71 34.7	43 04	2374						
216	71 35.7	43 04	2377	2407					
217	71 36.7	43 04	2388						
218	71 37.7	43 04	2401	2420					
219	71 38.7	43 04	2403						
220	71 39.7	43 04	2410	2427					
221	71 40.8	43 05	2422						
222	71 41.8	43 05	2433	2444					
223	71 42.8	43 05	2443						
224	71 43.8	43 05	2453	2460					
225	71 44.8	43 05	2462						
226	71 45.8	43 06	2468	2478					
227	71 46.8	43 06	2473						
228	71 47.8	43 06	2485	2490					
229	71 48.9	43 06	2494						
230	71 49.9	43 06	2506	2517					
231	71 50.9	43 07	2511						
232	71 51.9	43 07	2515	2523					
233	71 53.0	43 07	2522						
234	71 54.0	43 08	2528	2535					
235	71 55.0	43 08	2534						
236	71 56.0	43 08	2550	2548					
237	71 57.0	43 08	2567						
238	71 58.1	43 08	2574	2569					
239	71 59.1	43 08	2580						
240	(●)72°00' 08"	(●)43°09' 51"	2591	2590					—37.8
A 162	72° 00.2'	43° 07'	2585	2584					
160	72 00.2	43 04	2565	2564					
158	71 59.8	42 58	2540	2539	11.25	1924	616		
156	72 00.1	42 53	2544	2543					
153	71 59.1	42 48	2533	2532	7.55	1291	1242		
151	71 58.5	42 44	2535	2534					
149	71 58.5	42 40	2542	2541					
147	71 58.1	42 37	2536	2535					
145	71 58.0	42 34	2527	2526					
143	71 57.8	42 24	2491	2490					
141	71 58.5	42 18	2500	2499					
139	71 59.3	42 16	2503	2502					
137	71 59.7	42 13	2509	2508					

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
A 135	71° 59.8' S	42° 11' E	2509	2508					
133	71 59.5	42 06	2514	2513					
131	72 00.0	42 00	2520	2519					
129	71 59.9	41 53	2521	2520					
127	72 00.0	41 47	2535	2534					
125	71 59.9	41 43	2533	2532					
123	72 00.5	41 39	2529	2528					
121	72 00.1	41 36	2530	2529					
119	72 00.1	41 31	2504	2503					
117	72 00.0	41 27	2511	2510					
115	72 00.0	41 24	2507	2506					
113	71 59.5	41 18	2498	2497					
111	71 59.4	41 15	2499	2498					
109	71 58.7	41 10	2485	2484					
107	71 58.7	41 04	2481	2480					
105	71 58.3	40 58	2479	2478					
103	71 58.4	40 52	2473	2472					
101	71 58.2	40 44	2469	2468					
099	71 57.9	40 38	2463	2462					
097	71 57.0	40 31	2453	2452					
095	71 57.0	40 26	2453	2452					
093	71 56.4	40 15	2417	2416					
091	71 56.8	40 10	2426	2425					
089	71 56.7	40 03	2427	2426					
087	71 56.7	39 57	2436	2435					
085	71 57.0	39 52	2444	2443					
083	71 56.0	39 46	2430	2429					
081	71 55.6	39 36	2420	2419					
079	71 55.6	39 31	2424	2423					
077	71 55.5	39 28	2418	2417					
075	●71° 55' 21"	●39° 23' 45"	2412	2411					-35.3
073	71° 55.2'	39 18'	2414	2413					
071	71 55.4	39 15	2417	2416					
069	71 54.5	39 10	2406	2405					
067	71 54.8	39 02	2404	2403					
065	71 54.3	38 57	2384	2383					
063	71 54.0	38 51	2387	2386					
061	71 54.0	38 43	2397	2396					
059	71 53.7	38 35	2392	2391					
057	71 54.0	38 29	2399	2398					

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
A 055	71 $^{\circ}$ 54.5' S	38 $^{\circ}$ 19' E	2405	2404					
053	71 54.7	38 14	2409	2408					
051	71 54.5	38 08	2414	2413	9.75	1667	747		
049	71 54.2	37 59	2412	2411	9.63	1647	765		
047	71 54.0	37 52	2409	2408	9.84	1683	726		
045	71 53.4	37 46	2398	2397					
043	71 53.6	37 36	2404	2403					
041	71 53.6	37 29	2411	2410	9.25	1582	829		
039	71 53.6	37 20	2419	2418					
037	71 53.6	37 14	2426	2425					
035	71 53.2	37 12	2421	2420	8.00	1368	1053		
033	71 52.4	37 10	2409	2408	7.28	1245	1164	6.75	
031	71 51.6	37 03	2410	2409	9.57	1637	773		
029	71 51.1	36 57	2395	2394					
027	71 50.5	36 51	2376	2375	8.05	1377	999		
025	71 50.5	36 48	2377	2376	8.20	1402	975		
023	71 50.3	36 44	2382	2381	8.05	1377	1005		
022	71 50.1	36 39	2375	2374	8.18	1399	976		
020	71 50.9	36 36	2388	2387	8.65	1479	909		
018	71 50.8	36 31	2377	2376	6.40	1094	1283	5.88	
016	71 50.8	36 27	2370	2369	5.40	923	1447		
014	71 50.6	36 22	2351	2350	3.45	590	1761	3.28	
010	71 50.0	36 20	2338	2337	2.28	390	1948		
008	71 48.8	36 16	2286	2285	3.25	556	1730		
006	71 49.8	36 17	2318	2317					
004	71 48.6	36 13	2269	2268	3.48	595	1674	2.50	
003	71 48.0	36 11	2251	2250	2.55	436	1815		
002	71 47.2	36 11	2279	2278					
001	71 $^{\circ}$ 47' 28.1"	36 $^{\circ}$ 12' 12.2"	2254	2253					
B 1	71 $^{\circ}$ 48'	36.2 $^{\circ}$	2242	2241	2.35	402	1840	2.10	
2	71 48	36.2	2224	2223	2.63	450	1774		
3	71 47	36.1	2217	2216	6.10	1043	1174	5.70	
4	71 46	36.1	2202	2201	5.20	889	1313		
5	71 46	36.1	2182	2181	5.20	889	1293	4.70	
6	71 45	36.0	2170	2169	4.20	718	1452		
7	71 45	36.0	2156	2155	3.65	624	1532		
8	71 45	36.0	2144	2143	3.63	621	1523	3.10	
9	71 45	35.9	2143	2142	1.90	325	1818		
10	71 44	35.9	2157	2156					
11	71 44	35.8	2122	2121					

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
B 12	71° 44' S	35.8° E	1991	1990					
13	71 43	35.7	1933	1933	2.95	505	1428		
14	71 42	35.7	1918	1918	4.60	787	1131	3.85, 4.10	
15	71 41	35.6	1888	1888	4.25	727	1161	4.00	
16	71 40	35.6	1877	1878	7.13	1219	658	6.75	
17	71 39	35.5	1857	1858	5.90	1009	833	5.75	
18	71 38	35.5	1847	1848	6.12	1047	800	5.80, 5.60	
19	71 37	35.5	1819	1820	10.80	1847	- 28	5.70, 8.90 10.00	
20	71 36	35.5	1800	1802	5.20	889	911	4.90	
21	71 35	35.5	1793	1795	3.83	655	1138	3.50	
22	71 34	35.5	1765	1767	6.00	1026	739	5.60	
23	71 33	35.5	1750	1752	5.36	917	833	5.04, 5.20	
24	71 32	35.5	1740	1742	4.48	766	974		
25	71 31	35.5	1724	1726	2.65	453	1271	2.50	
26	71 30	35.4	1713	1715	3.43	587	1126		
27	71 30	35.4	1705	1707	5.00	855	850	4.40	
28	71 29	35.4	1704	1706	5.80	992	712		
29	71 28	35.3	1705	1707					
30	71 28	35.3	1718	1722	7.35	1257	461	6.08, 6.51 6.88	
31	71 27	35.4	1700	1704					
32	71 26	35.3	1694	1698	6.06	1036	658		
33	71 25	35.3	1680	1684	7.05	1206	474	5.60, 6.32	
34	71 24	35.4	1663	1667	5.70	975	688		
35	71 24	35.4	1649	1653	5.60	958	691	4.13, 5.01	
36	71 23	35.4	1635	1639	5.64	964	671		
37	71 22	35.4	1632	1636	8.10	1385	247	5.00	
38	71 21	35.4	1643	1647					
39	71 20	35.4	1638	1642					
40	71 19	35.3	1641	1645					
41	71 20	35.4	1630	1635	5.00	855	775		
42	71 21	35.4	1647	1652	5.30	906	741	3.60	
43	71 20	35.5	1671	1676	7.30	1248	423		
44	71 20	35.5	1671	1670	7.80	1334	337	5.05	
45	71 20	35.6	1685	1690	8.60	1471	214	4.50	
46	71 21	35.6	1705	1710	11.12	1902	-197	7.88, 9.40 10.20	
47	71 22	35.7	1743	1748	11.33	1937	-194	9.33, 9.38	
48	71° 23.1'	35° 41.1'	1800	1806	6.50	1112	688	5.50	
C 1	71 23.6	35 44.6	1813	1820	4.10	701	1112	3.10	
2	71 21.9	35 48.1	1832	1839	3.68	629	1203		
3	71 21.4	35 50.9	1848	1855	6.40	1094	754	5.95	

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
C 4	71° 20.8' S	35° 53.7' E	1828	1835	4.83	826	1002	4.50	
5	71 20.4	35 56.5	1808	1815	4.70	804	1004	3.55 , 4.33	
6	71 19.7	35 59.3	1796	1803	6.51	1113	683		
7	71 19.3	36 02.1	1794	1801					
8	71 18.7	36 04.9	1790	1797					
9	71 18.2	36 07.8	1779	1786					
10	71 17.6	36 10.5	1768	1775	6.85	1171	597		
11	71 17.2	36 13.2	1764	1771	8.15	1394	370	7.40	
12	71 16.5	36 16.0	1757	1764	7.50	1283	474	7.15	
13	71 16.1	36 18.8	1754	1761	7.35	1257	497	5.60 , 5.84	
14	71 15.5	36 21.6	1758	1766	6.75	1154	604		
15	71 15.0	36 24.4	1763	1772	8.35	1428	335	7.43	
16	71 14.4	36 27.2	1759	1768	7.50	1283	476		
17	71 13.9	36 30.0	1759	1768	7.25	1240	519		
18	71 13.3	36 32.6	1768	1777	8.00	1368	400		
19	71 12.6	36 34.2	1762	1771	8.10	1385	377		
20	71 11.9	36 36.6	1764	1773	10.00	1710	54		
21	71 11.5	36 39.4	1766	1775	5.44	930	836	4.56	
22	71 11.0	36 41.5	1756	1765	7.80	1334	422		
23	71 10.6	36 44.3	1759	1768	6.85	1171	588		
24	71 10.1	36 46.9	1771	1780					
25	71 09.7	36 49.5	1782	1791	5.00	855	927		
26	71 09.2	36 52.2	1779	1789	6.00	1026	753	5.60	
27	71 08.8	36 55.6	1786	1796	5.00	855	931	4.50	
28	71 08.2	36 58.4	1787	1798	4.55	778	1009	4.20	
29	71 08.2	37 01.6	1787	1798	4.70	804	983	4.40	
30	71 08.1	37 04.7	1792	1803	4.80	821	971	4.40	
31	71 08.1	37 07.9	1798	1809	5.60	958	840	4.65	
32	71 08.6	37 11.1	1798	1809	5.00	855	943	4.40	
33	71 08.1	37 14.3	1799	1810					
34	71 08.0	37 17.5	1797	1808	9.00	1539	258		
35	71 08.0	37 20.7	1801	1812					
36	71 08.0	37 23.9	1803	1814					
37	71° 07' 53"	37° 27.5'	1805	1816	8.67	1483	322	8.33	-28.7
38	71° 07.9'	37 30.3	1806	1817	8.50	1454	352		
39	71 07.8	37 33.5	1808	1820	8.50	1454	354	7.80	
40	71 07.8	37 36.6	1813	1825	7.28	1245	568		
41	71 07.7	37 39.8	1815	1827	8.80	1505	310	8.30	
42	71 07.7	37 43.0	1811	1824	8.80	1505	306	8.20	
43	71 07.6	37 46.2	1808	1821	8.13	1390	418	7.60	

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
C 44	71°07.6' S	37°49.4' E	1807	1820	6.50	1112	695	6.16	
45	71 07.5	37 52.5	1799	1812	6.00	1026	773		
46	71 07.5	37 55.7	1793	1806	7.05	1206	587	6.75 , 6.50	
47	71 07.3	37 58.9	1799	1812	8.00	1368	431		
48	71 07.3	38 02.1	1793	1806	9.67	1654	139		
49	71 07.2	38 05.3	1792	1805	5.05	864	928		
50	71 07.2	38 08.4	1796	1809	8.15	1394	402		
51	71 07.1	38 11.6	1786	1800	9.85	1684	102		
52	71 07.1	38 14.8	1768	1782	8.55	1462	306		
53	71 07.0	38 18.0	1757	1771					
54	71 07.0	38 21.2	1763	1777	9.60	1642	121		
55	71 06.9	38 24.3	1757	1772					
56	71 06.9	38 27.5	1745	1760					
57	71 06.8	38 30.7	1730	1745					
58	71 06.8	38 33.9	1725	1740					
59	71 06.7	38 37.2	1721	1736					
60	71 06.7	38 40.3	1729	1744					
61	71 06.6	38 43.5	1744	1759					
62	71 06.6	38 46.7	1749	1764					
63	71 06.5	38 49.8	1748	1763					
64	71 06.5	38 53.0	1741	1757					
65	71 06.4	38 56.2	1737	1753					
66	71 06.4	38 59.4	1741	1757	9.70	1659	82		
67	71 06.3	39 02.6	1740	1756	8.70	1488	252		
68	71 06.3	39 05.7	1719	1735	8.65	1479	240	8.00	
69	71 06.2	39 08.9	1743	1760	8.47	1448	295		
70	71 06.2	39 12.1	1747	1764	9.00	1539	208	8.33	
71	71 06.1	39 15.3	1713	1730	8.40	1436	277	8.10	
72	71 06.1	39 18.5	1733	1750	8.82	1508	225	8.30	
73	71 06.0	39 21.6	1734	1751	8.67	1483	251	7.74 , 8.00	
74	71 06.0	39 24.3	1733	1750	7.38	1262	471		
75	71 05.9	39 28.0	1749	1766	8.70	1488	261	8.00	
76	71 05.9	39 31.2	1753	1771	9.20	1573	180	8.20	
77	71 05.8	39 34.4	1751	1769	8.55	1462	289		
78	71 05.8	39 37.5	1757	1775	8.47	1448	309	8.10	
79	71 05.8	39 40.7	1772	1790	8.09	1383	389		
80	●71°05'40"	●39°43'53"	1767	1785	9.80	1676	91	8.03 , 8.45 9.53	-29.4
81	71°05.7'	39°47.4'	1767	1785	9.33	1595	172		
82	71 05.7	39 50.8	1775	1793	11.25	1924	-149		
83	71 05.8	39 54.1	1780	1799	11.25	1924	-144		

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
C 84	71°05.8' S	39°57.5' E	1793	1812	9.74	1666	127		
85	71 05.8	40 01.0	1794	1813	9.90	1693	101		
86	71 05.8	40 03.5	1799	1818					
87	71 05.8	40 06.8	1817	1836	10.24	1751	66		
88	71 05.8	40 10.2	1817	1836					
89	71 05.8	40 13.6	1806	1826					
90	71 05.8	40 17.1	1802	1822					
91	71 05.8	40 20.5	1805	1825					
92	71 05.8	40 23.9	1801	1821					
93	71 05.9	40 27.3	1787	1807	9.67	1654	133		
94	71 05.9	40 31.8	1794	1814	10.50	1796	— 2	10.30	
95	71 05.9	40 35.3	1796	1816					
96	71 05.9	40 38.7	1790	1811	9.84	1683	107		
97	71 05.9	40 42.0	1809	1830	9.00	1539	270		
98	71 06.0	40 45.5	1824	1845	9.67	1654	170		
99	71 06.0	40 48.9	1838	1877					
100	71 06.0	40 52.4	1823	1844	11.50	1967	—144		
101	71 06.0	40 55.7	1827	1849	11.13	1903	— 76		
102	71 06.0	40 59.1	1827	1849	12.25	2095	—268		
103	71 06.1	41 02.5	1838	1860					
104	71 06.1	41 06.0	1837	1859	11.63	1989	—152		
105	71 06.1	41 09.5	1836	1858	11.13	1903	— 67		
106	71 06.1	41 12.8	1853	1875	11.50	1967	—114		
107	71 06.2	41 16.2	1856	1878					
108	71 06.3	41 19.6	1860	1882	10.25	1753	107		
109	71 06.3	41 23.1	1875	1897	10.70	1830	45		
110	71 06.3	41 26.6	1889	1912	10.67	1825	64		
111	71 06.3	41 29.9	1890	1913	11.13	1903	— 13		
112	71 06.3	41 33.3	1889	1912	11.75	2009	—120		
113	71 06.4	41 36.7	1917	1940					
114	71 06.4	41 40.2	1934	1958					
115	71 06.4	41 43.6	1930	1954					
116	71 06.5	41 47.0	1919	1943					
117	71 06.5	41 50.4	1904	1928	10.50	1796	108		
118	71 06.6	41 53.8	1937	1961	10.63	1818	119		
119	71 06.6	41 57.3	1969	1993	11.00	1881	88		
120	71 06.6	42 00.7	1984	2008					
121	71 05.6	42 03.1	1991	2015	12.13	2074	— 83		
122	71 05.3	42 05.4	1991	2015	12.63	2160	—169		
123	71 04.8	42 07.7	1993	2018					

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
C 124	71°04.2' S	42°10.1' E	1982	2007					
125	71 03.6	42 12.3	1968	1993					
126	71 02.9	42 14.6	1958	1984					
127	71 02.3	42 17.0	1963	1989					
128	71 01.7	42 19.3	1965	1991					
129	71 01.1	42 21.5	1966	1992					
130	71 00.5	42 23.8	1978	2004	13.63	2331	-353		
131	70 59.8	42 26.2	1985	2011	13.75	2351	-366		
132	70 59.2	42 28.4	1994	2020	12.50	2138	-144		
133	70 58.7	42 30.8	2004	2030					
134	70 58.1	42 33.1	2003	2029					
135	70 57.4	42 35.4	1998	2024					
136	70 56.8	42 37.7	1993	2019					
137	70 56.2	42 40.0	1988	2015					
138	70 55.6	42 42.4	1994	2021					
139	70 55.0	42 44.6	2000	2028					
140	70 54.4	42 46.9	2002	2030					
141	70 53.8	42 49.3	2006	2034					
142	70 53.1	42 51.5	2012	2040					
143	70 52.6	42 53.8	2016	2044					
144	70 52.0	42 56.2	2025	2053					
145	70 51.3	42 58.5	2031	2059					
146	70 50.7	43 00.8	2029	2057					
147	70 50.1	43 03.1	2040	2068					
148	70 49.8	43 05.6	2054	2082					
149	70 49.8	43 08.3	2044	2072					
S 170	70°50' 38 "	43°11' 32 "	2034	2062	11.50	1967	67		
S 122	70°01.1'	43°06.5'	1853	1881					
Z 1	70 01.6	43 07.3	1860	1888					
2	70 02.0	43 08.1	1866	1894					
3	70 02.5	43 08.9	1876	1904					
4	70 03.0	43 09.7	1886	1914					
5	70 03.4	43 10.4	1894	1922					
6	70 03.9	43 11.2	1903	1931					
7	70 04.4	43 12.0	1905	1933					
8	70 04.8	43 12.8	1909	1937					
9	70 05.3	43 13.6	1909	1937					
10	70 05.8	43 14.4	1911	1939					
11	70 06.2	43 15.2	1916	1944					
12	70 06.7	43 16.0	1921	1949					

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Z 13	70°07.2 ' S	43°16.8 ' E	1919	1947					
14	70 07.6	43 17.6	1919	1947					
15	70 08.2	43 18.3	1921	1948					
16	70 08.6	43 19.0	1927	1954					
17	70 09.1	43 19.8	1934	1961					
18	70 09.6	43 20.6	1942	1969					
19	70 10.1	43 21.4	1945	1972					
20	70 10.5	43 22.1	1949	1976					
21	70 11.0	43 22.9	1950	1977					
22	70 11.5	43 23.7	1952	1979					
23	70 12.0	43 24.4	1958	1985					
24	70 12.5	43 25.2	1965	1992					
25	70 13.0	43 25.9	1971	1998					
26	70 13.5	43 26.6	1979	2006					
27	70 13.9	43 27.4	1984	2011					
28	70 14.4	43 28.1	1990	2017					
29	70 14.9	43 29.0	1993	2020					
30	70 15.3	43 29.8	1997	2024					
31	70 15.8	43 30.6	2001	2028					
32	70 16.3	43 31.3	2005	2032					
33	70 16.8	43 32.0	2007	2034					
34	70 17.2	43 32.8	2010	2037					
35	70 17.7	43 33.5	2012	2039					
36	70 18.2	43 34.3	2016	2043					
37	70 18.6	43 35.0	2014	2041					
38	70 19.1	43 35.8	2018	2045					
39	70 19.6	43 36.5	2021	2048					
40	70 20.0	43 37.3	2020	2047					
41	70 20.5	43 38.1	2018	2045					
42	70 21.0	43 38.9	2017	2044					
43	70 21.4	43 39.6	2017	2044					
44	70 21.7	43 40.1	2019	2046					
45	70 21.9	43 40.5	2022	2049					
46	70 22.2	43 40.8	2023	2050					
47	70 22.4	43 41.2	2025	2052					
48	70 22.6	43 41.6	2023	2050					
49	70 22.9	43 42.0	2022	2049					
50	70 23.1	43 42.4	2021	2048					
51	70 23.4	43 42.8	2020	2047					
52	70 23.6	43 43.2	2020	2047					

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Z 53	70°23.8' S	43°43.6' E	2022	2049					
54	70 24.1	43 44.0	2025	2052					
55	70 24.3	43 44.4	2026	2053					
56	70 24.5	43 44.8	2027	2054					
57	70 24.8	43 45.2	2029	2056					
58	70 25.0	43 45.6	2032	2059					
59	70 25.2	43 46.0	2035	2062					
60	70 25.4	43 46.4	2037	2064					
61	70 25.7	43 46.7	2039	2066					
62	70 25.9	43 47.1	2042	2068					
63	70 26.2	43 47.5	2044	2070					
64	70 26.4	43 47.9	2047	2073					
65	70 26.6	43 48.2	2050	2076					
66	70 26.9	43 48.6	2054	2080					
67	70 27.1	43 49.0	2056	2082					
68	70 27.3	43 49.4	2057	2083					
69	70 27.6	43 49.8	2058	2084					
70	70 27.8	43 50.2	2059	2085					
71	70 28.3	43 51.0	2061	2087					
72	70 28.7	43 51.8	2064	2090					
73	70 29.2	43 52.6	2068	2094					
74	70 29.7	43 53.4	2078	2104					
75	●70 30.1	●43 54.2	2074	2100					
76	70 30.5	43 55.1	2074	2100					
77	70 30.9	43 56.0	2074	2100					
78	70 31.3	43 56.8	2078	2104					
79	70 31.8	43 57.6	2083	2109					
80	70 32.2	43 58.4	2091	2117					
81	70 32.6	43 59.2	2094	2120					
82	70 33.0	44 00.0	2096	2122					
83	70 33.4	44 00.9	2095	2121					
84	70 33.8	44 01.8	2094	2120					
85	70 34.2	44 02.6	2094	2120					
86	70 34.6	44 03.5	2096	2122					
87	70 35.0	44 04.2	2099	2125					
88	70 35.4	44 05.0	2103	2129					
89	70 35.9	44 05.7	2107	2133					
90	70 36.3	44 06.4	2111	2136					
91	70 36.7	44 07.0	2115	2140					
92	70 37.2	44 07.9	2119	2144					

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Z 93	70°37.6' S	44°08.7' E	2122	2147	12.13	2074	64		-38.0
94	70 38.0	44 09.5	2125	2150					
95	70 38.4	44 10.3	2127	2152					
96	70 38.8	44 11.1	2131	2156					
97	70 39.2	44 11.8	2134	2159					
98	70 39.6	44 12.6	2138	2163					
99	70 40.1	44 13.4	2137	2162					
100	70 40.5	44 14.1	2138	2163					
101	70 40.9	44 14.8	2143	2168					
102	70 41.3	44 15.4	2149	2174					
103	70 41.8	44 16.2	2156	2181	12.25	2095	74		-35.5**
104	70 42.1	44 16.9	2165	2190					
Mizuho	●70 42.1	●44 17.5	2169	2194					
Y 5	70 43.8	44 24.3	2202	2227	12.38	2117	85		-38.0
10	70 45.6	44 30.2	2227	2252					
15	70 47.4	44 37.2	2249	2274					
20	70 49.2	44 43.9	2272	2297					
25	70 51.0	44 50.7	2286	2311					
30	70 52.7	44 57.2	2314	2339					
35	70 54.2	45 04.6	2342	2367					
40	70 56.0	45 11.1	2359	2384					
45	70 57.7	45 17.9	2372	2397					
50	70 59.3	45 25.0	2395	2420					
55	71 01.0	45 31.4	2416	2441					
60	71 02.6	45 38.0	2438	2463					
65	71 04.5	45 45.3	2444	2469					
70	71 06.0	45 51.4	2463	2488					
75	71 07.7	45 58.1	2478	2503					
80	71 09.4	46 05.0	2490	2515					
85	71 11.1	46 11.8	2511	2536					
90	71 12.6	46 18.6	2523	2548					
95	71 14.3	46 25.4	2535	2560					
100	●71°15'56"	●46°32'10"	2545	2570					
105	71°17.5'	46°39.9'	2562	2587					
110	71 19.1	46 46.4	2579	2604					
115	71 20.4	46 53.8	2589	2614					
120	71 21.8	47 01.1	2603	2628					
125	71 23.4	47 08.2	2609	2634					
130	71 25.1	47 14.9	2622	2647					
135	71 26.8	47 21.8	2644	2669					-39.8

Station					Radio Echo Sounding				
No.	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Y 140	71° 28.4' S	47° 29.1' E	2655	2680					
145	71 30.0	47 35.8	2675	2700					
150	71 31.5	47 43.1	2693	2718					
155	71 33.1	47 50.1	2702	2727					
160	71 34.7	47 57.2	2707	2732					
165	71 36.2	48 04.2	2719	2744					
170	71 37.4	48 12.0	2720	2745					-41.2
175	71 39.0	48 19.2	2769	2794					
180	71 40.5	48 26.4	2777	2802					
185	71 41.9	48 33.8	2778	2803					
190	71 43.4	48 41.1	2809	2834					
195	71 44.9	48 48.3	2815	2840					
200	● 71° 46' 13"	● 48° 55' 58"	2819	2844					-42.9
205	71° 43.6'	48° 58.9'	2813	2838					
210	71 41.1	49 01.8	2807	2832					
215	71 38.6	49 04.1	2794	2819					
220	71 36.0	49 06.7	2792	2817					
225	71 33.3	49 09.4	2785	2810					
230	71 30.7	49 11.3	2774	2799					
235	71 28.2	49 13.9	2764	2789					-42.6
240	71 25.5	49 17.2	2759	2784					
245	71 22.9	49 19.9	2746	2771					
250	71 20.4	49 23.1	2733	2758					
255	71 17.8	49 25.6	2720	2745					
260	71 15.1	49 28.2	2699	2724					
265	71 12.5	49 31.4	2679	2704					
270	71 10.0	49 34.3	2676	2701					-41.6
275	71 07.8	49 39.3	2672	2697					
280	71 05.2	49 42.1	2666	2691					
285	71 02.6	49 44.8	2648	2673	11.75	2009	639	10.25	
290	71 00.0	49 47.6	2635	2660					
295	70 57.5	49 50.4	2643	2668	11.25	1924	719		
300	70 54.9	49 52.9	2629	2654					
305	70 52.4	49 56.5	2616	2641	12.00	2052	564	10.25	
310	70 49.8	49 59.4	2620	2645	10.00	1710	910		
315	70 47.3	50 02.2	2601	2626	10.60	1813	788		
320	70 44.6	50 05.0	2604	2629	12.25	2095	509		
325	70 42.0	50 07.7	2591	2616	8.75	1496	1095		
330	70 39.5	50 10.6	2585	2610					
335	70 36.9	50 13.4	2577	2602	14.50	2480	97	8.50, 9.50 14.00	-39.4

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Y 340	70° 34.2' S	50° 16.2' E	2568	2593					
345	70 31.6	50 19.0	2555	2580					
350	70 29.1	50 21.6	2541	2566					
355	70 26.6	50 24.6	2532	2557					
360	70 24.0	50 27.8	2527	2552					
365	70 21.4	50 30.0	2514	2539					
370	● 70° 18' 46 "	● 50° 32' 45 "	2503	2528	13.25	2266	237		-38.4
375	70° 16.0'	50° 34.4'	2491	2516					
380	70 13.4	50 36.3	2475	2500					
385	70 10.8	50 38.6	2460	2485					
390	70 08.2	50 40.7	2433	2458					
395	70 05.6	50 43.0	2416	2441					
400	70 02.9	50 44.1	2399	2424					
405	70 00.3	50 46.3	2388	2413	12.75	2180	208		
410	69 57.7	50 48.4	2366	2391					
415	69 55.1	50 50.4	2356	2381					
420	69 52.4	50 52.5	2344	2369					
425	69 49.8	50 54.7	2335	2360					
430	69 47.1	50 56.8	2322	2347					
435	69 44.5	50 58.8	2317	2342					
440	69 41.9	51 00.9	2306	2331	12.50	2138	168		-35.1
445	69 39.3	51 03.1	2293	2318					
450	69 36.7	51 05.1	2271	2296					
455	69 34.1	51 07.2	2236	2261					
460	69 31.4	51 09.4	2219	2244					
465	69 28.8	51 11.4	2208	2233					
470	69 26.1	51 13.5	2204	2229					
475	● 69° 23' 32"	● 51° 15' 30"	2181	2206	11.88	2032	149		
480	69° 20.9'	51° 17.6'	2191	2216					
485	69 18.3	51 19.7	2168	2193					
490	69 15.9	51 21.6	2118	2143					
495	69 13.3	51 23.7	2119	2144					
500	69 10.6	51 25.9	2126	2151					
505	69 08.0	51 28.0	2126	2151					
510	69 05.3	51 30.1	2108	2133	5.80	992	1116		-28.3
515	69 02.7	51 32.5	2091	2116					
520	69 00.3	51 34.6	2092	2117					
525	68 59.2	51 41.4	2107	2132					
530	68 58.2	51 48.4	2118	2143					
535	68 55.5	51 49.1	2106	2131	6.10	1043	1063		

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
Y 540	68°52.9'S	51°50.6"E	2097	2122					
545	68 50.3	51 52.7	2099	2124					
550	68 47.6	51 54.2	2095	2120					
555	68 45.0	51 57.0	2086	2111					
560	68 42.4	51 59.8	2074	2099					
565	68 40.5	52 01.9	2061	2086					
570	68 37.9	52 04.8	2057	2082					
573	68 37.0	52 05.7	2052	2077					
Sandercock Camp			2056	2081					
W 00	68°36'41"	52°06'02"	2101	2126					
01	68°38.4'	52°02'	2061	2086					
02	68 39.7	51 56	2068	2093					
03	68 41.6	51 48	2061	2086					
04	68 42.1	51 47	2067	2092					
05	68 42.9	51 43	2064	2089					
06	68 43.7	51 41	2063	2088					
07	68 45.1	51 36	2051	2076	9.90	1693	358		-32.5
08	68 45.6	51 34	2045	2070					
09	68 47.2	51 28	2032	2057					
10	68 47.7	51 25	2019	2044					
11	68 48.6	51 23	2011	2036					
12	68 50.0	51 18	1982	2007					
13	68 51.2	51 13	1962	1987	9.00	1539	423		
14	68 52.1	51 11	1959	1984					
15	68 53.4	51 05	1949	1974					
16	68 54.8	51 00	1932	1957					
17	68 55.7	50 59	1939	1964					
18	68 56.8	50 57	1936	1961					
19	68 58.7	50 51	1943	1968	8.30	1419	524		-31.0
20	68 59.6	50 43	1907	1932	6.70	1146	761		
21	69 00.2	50 42	1906	1931	7.70	1317	589		
22	69 01.5	50 39	1909	1934	7.80	1334	575		
23	69 02.9	50 33	1890	1915	8.70	1488	402		
24	69 03.6	50 31	1885	1910	9.30	1590	295	8.75	
25	69 05.4	50 25	1883	1908					
26	69 06.0	50 22	1881	1906	11.00	1881	0	6.75	
27	69 07.1	50 19	1877	1902	11.50	1967	-90		
28	69 07.9	50 18	1871	1896					
29	69 09.4	50 14	1856	1881	12.25	2095	-239		
30	69 11.1	50 09	1847	1872	9.00	1539	308		

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. ($^{\circ}$ C)
			A	B					
W 31	69° 12.7' S	50° 05' E	1858	1883	11.00	1881	— 23	9.70	—31.7
32	69 14.3	49 59	1859	1884	11.75	2009	—150	10.50	
33	69 16.5	49 53	1851	1876	11.80	2018	—167		
34	69 18.1	49 46	1864	1889					
35	69 19.0	49 43	1872	1898	12.50	2138	—266		
36	69 19.7	49 41	1872	1897	13.00	2223	—351		
37	69 20.9	49 37	1868	1893	11.75	2009	—141		
38	69 21.4	49 36	1864	1889					
39	69 22.8	49 30	1835	1860					
40	69 23.3	49 28	1840	1865	13.13	2245	—405		
41	69 25.5	49 21	1833	1858	10.25	1753	80		
42	69 28.3	49 17	1887	1912	10.25	1753	134		
43	69 28.9	49 13	1885	1910	12.25	2095	—210		
44	69 30.8	49 08	1880	1905	12.63	2160	—280		
45	69 31.4	49 59	1879	1904	9.75	1667	212	5.25, 7.13	
46	69 32.5	49 56	1897	1922	8.30	1419	478	8.63, 7.00, 7.30	
47	69 34.5	49 47	1959	1984	15.25	2608	—649	7.50, 8.13	
48	69 34.9	49 46	1967	1992	16.00	2736	—769		
49	69 36.3	49 40	1967	1992	14.00	2394	—427		
50	69 37.9	49 32	1999	2024	13.38	2288	—289		
51	69 38.8	48 25	2019	2044	10.20	1744	275	9.75	
52	69 39.7	48 19	2060	2085	11.00	1881	179		
53	69 40.0	48 15	2081	2106					
54	69 40.0	48 14	2083	2108	13.13	2245	—162		
55 (W200)	●69° 41' 23"	●48° 10' 15"	2107	2132	13.13	2245	—138		—34.3
W 205	69° 44.0'	48° 03.8'	2128	2153	8.40	1436	692		—36.5
210	69 46.0	47 57.9	2192	2217	10.40	1778	414		
215	69 48.1	47 51.9	2211	2236					
220	69 50.0	47 46.2	2248	2273	10.00	1710	538		
225	69 51.7	47 40.0	2255	2280	7.50	1283	972		
230	69 53.7	47 34.4	2254	2279	12.25	2095	159		
235	69 55.7	47 28.1	2277	2302					
240	69 57.7	47 22.1	2285	2310	13.25	2266	19	10.00, 11.13	
245	69 59.7	47 16.2	2298	2323	13.50	2309	— 11	12.75	
250	70 01.6	47 10.1	2312	2337					
255	70 03.6	47 04.1	2316	2341					
260	70 05.5	46 58.1	2338	2363					
265	70 07.4	46 52.0	2342	2367					
270	70 09.4	46 46.0	2339	2364					
275	70 11.3	46 39.8	2340	2365					

Station					Radio Echo Sounding				
No .	Latitude	Longitude	Elevation		One-way echo time (μ s)	Ice thickness (m)	Bed rock elevation (m)	Multiple echo time (μ s)	10m snow temp. (0°C)
			A	B					
W 280	70° 13.3' S	46° 34.4' E	2344	2369					
285	70 15.1	46 28.5	2342	2367					
290	70 17.0	46 22.7	2337	2362					
295	70 18.9	46 16.8	2330	2355					
300	70 20.6	46 10.6	2322	2347					
305	70 22.4	46 04.8	2313	2338					
310	70 24.3	45 59.1	2301	2326					
315	70 26.1	45 53.3	2288	2313					
320	●70° 28' 02"	●45 47' 15"	2291	2316					
325	70 29.4'	45 39.5'	2291	2316					
330	70 30.7	45 31.9	2287	2312					
335	70 32.0	45 24.2	2288	2313					
340	70 33.4	45 16.5	2278	2303					
345	70 34.8	45 08.9	2265	2290					
350	70 36.0	45 01.2	2252	2277					
355	70 37.2	44 53.5	2246	2271					
360	70 38.5	44 45.9	2223	2248					
365	70 39.8	44 38.2	2221	2246					
370	70 41.0	44 30.6	2209	2234	13.00	2223	— 14		
375	70 42.2	44 23.0	2199	2224	13.25	2266	— 67		
Mizuho	●70 42.1	●44 17.5	2169	2194	12.25	2095	74		—35.5**
X 1	70 42.1	44 14.2	2143	2168					
2	70 42.2	44 10.9	2138	2163					
3	70 42.5	44 07.1							
4	70 42.8	44 03.6	2116	2140	6.70	1146	970		
5	70 43.1	44 00.0							
6	70 43.4	43 56.3	2111	2135	8.50	1454	657		
7	70 43.7	43 52.6							
8	70 44.0	43 49.0	2097	2121	11.75	2009	88		
9	70 44.4	43 45.4							
10	70 44.7	43 41.7	2094	2118	7.90	1351	743		
11	70 45.2	43 38.2							
12	70 45.7	43 34.7	2087	2111	8.10	1385	702		
13	70 46.0	43 31.0							
14	70 46.4	43 27.4	2069	2092	7.20	1231	838		
15	70 46.8	43 23.8							
16	70 47.1	43 20.1	2064	2087	6.60	1129	935		
17	70 47.4	43 16.4							
18	70 47.8	43 12.8	2055	2078	12.50	2138	— 83		
19	70 48.6	43 10.1							
(S169)	70 49.4	43 07.4	2035	2058	13.50	2309	—274		