

I. POSITIONS AND ELEVATIONS OF STATIONS ALONG THE HIGHLAND
TRAVERSE AND ITEMS OF OBSERVATION CONDUCTED THERE,
1974 - 1975

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1. Position of Stations

Observer: Kazuhide SATOW

Astronomical surveys for determining geodetic positions were conducted at nine stations covered by the Highland Traverses of JARE-15 as follows:

Route Y': Y' 100, Y' 150, Y' 210,

Route I : I 328, I 365, I 458, I 600,

Route J : J 225, J 364.

The positions of other stations were interporated from those of two neighbouring astro-fixed stations and record of running of vehicles. Route I is the southward traverse route from Y 200 (Shimizu et al., 1972) to I 600 ($77^{\circ}00'18''S$, $48^{\circ}02'44''E$) with the junction point shared by Route J at I 365. Station I 485 ($75^{\circ}59'53''S$, $48^{\circ}05'48''E$) is the cross-point between Route I and the route of the 1966 - 1967 Soviet traverse. Several fuel drums were found there.

2. Surface Elevation

Observer: Masayuki INOUE

Elevations of stations along Routes I and J were measured by means of barometric altimetry with two Thomen 3B4 and two Paulin MM-1 altimeters. Readings of elevation difference between two neighbouring stations by four altimeters were averaged by the single altimeter method with temperature correction but without pressure correction. Starting from 2,880 m of Y 200 given by Shimizu (Chapter V) and integrating the differences along the Route Y 200 (=I 0) - I 365 (=J 0) - Y 20 (=J 482), we obtained 2,348 m for Y 20 against 2,333 m given by Shimizu (*ibid.*). The 15 m error was distributed to the elevation of each station on the route proportionally to its distance from Y 200. Corrected elevation of I 365 was used as the reference for the elevations of stations further south. Elevations of stations on Route Y' were not measured by JARE-15. Values given

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in Table 2 were estimated from the elevations of Y stations given by Shimizu (ibid.).

3. Observations during the Oversnow Traverses

Subjects, method, interval and observer of glaciological observations during the survey traverses are summarized in Table 1. The stations of Y' 100, Y' 210 (=Y 200), I 235, I 365, I 485, I 600, J 225, J 364, W 46, W 280 and Mizuho Camp were occupied for a full day or longer for detailed glaciological studies.

Positions and elevations of stations and items of observations conducted there are summarized in Table 2.

Reference

Shimizu, H., Naruse, R., Omoto, K., and Yoshimura, A. (1972): Position of stations, 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. JARE Data Rep., 17 (Glaciol.), 12 - 37.

Table 1. Summary of conducted observations.

Items	Method and interval	Observer
(1) Surface conditions of ice sheet		
Hardness (Hd)	Every 5 km	Satow
Density (D)	20 points in Routes Y', I and J	Satow
Surface relief (Sf)	Every 10 km	Watanabe
(2) Surface topography of ice sheet		
Altimetry (Elev)	Single method, using 4 altimeters every 5 km	Inoue
Surface slopes (Mx)	Vertical angle measurements in every 45° of azimuth	Watanabe Inoue
(3) Stratigraphy and collection of snow samples		
Ram sonde profiling (Rm)	Every 20 km (Route Y') and every 40 km (Routes I and J)	Watanabe Satow
Collection of drifting snow and snow cover sample (●x)	Every 10 km (Route Y') and every 40 km (Routes I, J and W)	Satow
Collection of firn sample for geochemical micro-analysis (C)	At S 70, I 235, I 600 and W 260	Watanabe
Temperature of snow 10 m deep (Temp)	At 33 stations on Routes H, S, Z, W, Y', I and J	Satow
Pit-stratigraphy (Pit)	2-m deep pit studies at 11 stations	Watanabe Satow
	1-m deep pit studied at 7 stations	Watanabe
Sampling of 10 m core (Core)	By mean of a hand core auger at 15 stations	Watanabe Satow Inoue

Table 2. Positions, elevations and items of observation along the Highland Traverse, 1974.
 Remarks: Open circle and closed one in the latitude column indicate astrofixed positions by JARE-11 and -15 respectively. Open circles in the observational column indicate that the observation concerned was conducted.

Station number	Latitude (S)	Longitude (E)	Elevation (m)	Hd	D	Rm	Sf	Mx	Ox	Core	Pit	Temp
(Y' ROUTE)												
Mizuho	70°42.1	44°17.5	2230									
Y' 5	43.9	23.5	2263	○			○					
10	45.8	29.0	2288	○			○		○			
15	47.6	34.8	2306	○			○					
20	49.6	40.2	2328	○	○	○	○		○			
25	51.6	45.7	2341	○			○					
30	53.6	51.5	2364	○	○		○		○			
35	55.2	58.5	2392	○			○					
40	56.6	45 04.8	2413	○		○	○		○			
45	58.2	11.3	2428	○			○					
50	59.7	17.8	2447	○			○		○			
55	71 01.3	24.3	2464	○			○					
60	03.0	30.4	2486	○	○	○			○			
65	04.6	36.8	2501	○			○					○
70	06.3	43.0	2513	○			○		○			
75	08.0	49.2	2527	○			○					
80	09.7	54.5	2539	○		○	○		○			
85	11.5	49 00.5	2551	○			○					
90	13.3	06.6	2572	○	○		○		○			
95	15.0	12.8	2584	○			○					
100	● 71°16'55"	46°18'36"	2596	○		○			○	○	○	○
105	18.3	25.4	2606	○			○					
110	19.6	32.1	2623	○			○		○			
115	21.2	38.7	2633	○			○					
120	22.4	45.8	2646	○		○	○		○			
125	23.9	52.5	2658	○			○					
130	25.3	59.3	2668	○	○		○		○			
135	26.7	47 06.1	2678	○			○					
140	28.2	12.7	2696	○		○	○		○			
145	29.6	19.4	2709	○			○					
150	● 71°31'08"	47°26'00"	2724	○			○		○			

Station number	Latitude (S)	Longitude (E)	Elevation (m)	Hd	D	Rm	Sf	Mx	Ox	Core Pit Temp
Y'155	71 32.6	47 33.0	2743	o			o			
160	34.0	40.1	2758	o		o	o		o	
165	35.5	47.2	2765	o			o			
170	37.0	54.0	2770	o	o		o		o	
175	38.5	48 01.0	2780	o			o			
180	39.5	08.9	2791	o			o		o	
185	40.6	16.7	2830	o			o			
190	41.7	24.9	2838	o		o	o		o	
195	42.5	32.6	2839	o			o			
200	43.5	40.6	2870	o			o		o	
205	44.4	48.7	2876	o			o			
210	●71°45'27"	48°56'36"	2880	o					o	o o o
Y 200	○71°46'13"	48°56'36"	2880	(JARE-11)						

(I ROUTE)

I 10	71 51.4	48 53.5	2890	o			o			
20	56.7	51.4	2907	o		o		o	o	
30	72 01.9	50.0	2917	o			o			
35	04.5	49.8	(2925)					o		
40	07.1	49.1	2934	o			o		o	
50	12.4	47.9	2943	o			o			
60	17.6	46.6	2968	o		o	o	o	o	
70	22.8	44.1	2977	o			o			
75	25.4	42.9	(2988)					o		o
80	28.0	42.2	3000	o			o		o	
90	33.1	40.4	3009	o			o			
100	38.3	40.1	3026	o		o	o	o	o	
110	43.4	37.0	3040	o			o			
115	46.0	36.7	(3048)					o		o o
120	48.7	37.1	3058	o	o		o		o	
130	53.9	37.3	3086	o			o			
140	72 59.0	48 38.6	3105	o		o	o	o	o	
150	73 04.3	48 36.1	3121	o			o			
155	06.9	35.7	(3127)					o		
160	09.5	35.1	3134	o		o	o		o	
170	14.8	34.3	3162	o			o			

Station number	Latitude (S)	Longitude (E)	Elevation (m)	Hd	D	Rm	Sf	Mx	O*	Core Pit Temp
I 180	19.9	33.2	3166	o			o		o	
190	25.2	31.8	3166	o			o			
195	27.8	30.6	(3170)							
200	30.4	29.8	3176	o			o		o	
210	35.6	28.9	3184	o			o			
220	40.9	28.3	3174	o		o	o	o	o	
230	46.0	26.1	3197	o			o			
235	48.5	23.9	(3199)					o	o(c)	o o o
240	51.0	21.8	3203	o			o		o	
250	56.3	19.6	3211	o			o			
260	74 01.5	48 18.1	3219	o	o	o	o	o	o	
270	06.6	13.1	3222	o			o			
275	09.2	11.9	(3230)					o		
280	11.7	10.5	3240	o			o		o	
290	16.9	08.3	3246	o			o			
300	22.0	06.7	3266	o		o	o		o	
310	27.1	05.8	3271	o			o			
315	29.6	05.2	(3277)							o
320	32.2	03.9	3284	o	o		o		o	
328	●74°36'17"	48°01'48"	(3284)			o		o		
330	37.3	01.5	3284	o			o			
340	42.5	59.3	3290	o			o		o	
350	47.8	56.2	3299	o			o			
355	50.4	55.5	(3303)					o		o o
360	52.9	55.7	3308	o			o		o	
365	●74°55'22"	47°56'06"	(3310)			o				o o
370	74 58.1	47 56.8	3312	o			o			
380	75 03.3	57.3	3322	o	o	o	o	o	o	
390	08.6	57.6	3328				o	o		
400	13.9	58.1	3329	o	o	o	o		o	
410	19.1	48 00.2	3333	o			o			
420	24.2	47 54.3	3355	o		o	o	o	o	o (I 425)
430	29.5	56.2	3362	o			o			
435	32.1	57.3	(3365)							o
440	34.6	58.0	3369	o		o	o	o	o	
450	39.9	48 00.7	3362	o			o			

Station number	Latitude (S)	Longitude (E)	Elevation (m)	Hd	D	Rm	Sf	Mx	Ox	Core Pit Temp
I 460	45.2	03.4	3369	o		o	o	o	o	
470	50.4	03.9	3365				o			
480	56.6	04.5	3380	o			o		o	
485	●75°59'35"	48°05'48"	(3388)	o	o	o		o		o o o
500	76 07.5	05.0	3385	o			o		o	
515	15.4	05.4	(3394)	o		o	o	o	o	
530	23.3	06.0	3403	o	o		o		o	
540	28.6	06.0	3404					o		o o
555	36.5	06.2	(3404)	o			o		o	
570	44.5	06.5	3406	o		o	o	o	o	
585	52.4	05.6	(3405)	o			o		o	
600	●77°00'18"	48°02'44"	3408	o	o	o		o	o o(c)	o o
(J ROUTE)		(J 0 = I 365)								
J 10	74 50.4	47 50.5	3307	o			o			
20	45.1	48.0	3305	o		o	o	o	o	
30	40.0	43.7	3304	o			o			
40	34.9	38.4	3302	o		o	o		o	
45	32.3	37.0	(3302)					o		o o
50	29.7	35.4	3299	o			o			
60	24.7	29.8	3290	o	o	o	o		o	
70	19.5	25.7	3279	o			o	o		
80	74 14.4	47 21.7	(3269)	o		o	o		o	
90	09.7	13.3	(3260)	o			o			
95	07.6	08.2	3253					o		o o
100	05.0	07.2	3245	o		o	o		o	
110	00.5	46 58.4	3229	o			o			
120	73 55.7	50.8	3213	o		o	o	o	o	
130	50.7	46.0	(3200)	o			o			
140	45.6	40.4	3186	o	o	o	o	o	o	
145	43.0	39.5	3179							o o
150	40.4	37.7	3176	o			o			
160	35.1	36.8	3155	o		o	o		o	
170	29.8	34.6	3151	o			o			
180	24.8	29.4	3140	o	o	o		o	o	
190	19.5	27.6	3126	o			o			

Station number	Latitude (S)	Longitude (E)	Elevation (m)	Hd	D	Rm	Sf	Mx	Ox	Core Pit Temp
J 200	14.3	25.5	3107	o		o	o		o	
210	09.0	24.0	3085	o			o	o		
220	03.6	22.2	3041	o	o	o	o		o	
225	●73°01'01"	46°21'30"	3039			o				o o o
230	72 58.5	17.9	3034	o			o	o		
240	53.4	11.0	2987	o			o		o	
250	48.3	03.5	2962	o		o	o	o		
260	43.2	45 56.4	2904	o	o		o		o	
270	38.1	49.2	2886	o		o	o			o
275	35.5	46.0	2867					o		o
280	33.0	42.5	2856	o			o		o	
290	27.9	35.5	2849	o		o	o	o		
300	22.8	28.3	2798				o			
310	17.6	21.8	2797	o		o	o	o	o	
318	13.4	17.7	2799							o o
320	12.4	16.4	2783	o	o		o	o	o	
330	07.3	09.0	2741	o		o	o	o		
340	72 02.2	45 01.8	2697	o			o		o	
350	71 57.1	44 54.9	2667	o		o	o	o		
360	52.0	48.0	2637	o			o		o	
364	●71°49'57"	44°45'00"	2613	o					o	o o o
365	49.5	44.7	(2611)							
370	46.9	44.6	2603	o		o	o	o		
380	41.6	44.5	2565	o			o		o	
390	36.5	44.0	2551	o		o	o	o		
400	31.2	43.9	2523	o			o		o	
408	27.0	43.5	2504	o		o		o		o o
420	21.8	43.4	2484	o			o		o	
430	16.7	42.7	2455	o		o	o	o		
440	11.5	41.4	2431	o			o		o	
450	06.3	40.6	2386	o		o	o	o		
460	01.0	40.8	2375	o				o	o	o
470	70 55.9	40.6	(2362)	o			o			
480	50.7	40.2	2348	o			o	o	o	
482	49.6	40.2	2333	o					o	

J 482 = Y 20