

編集部

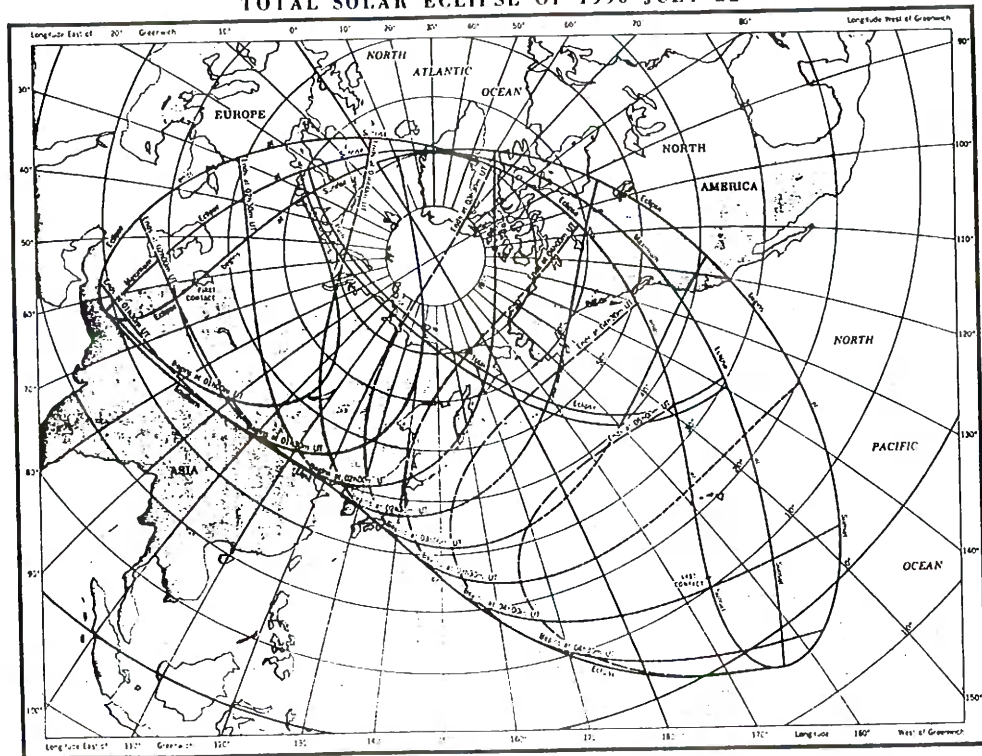
前号で、次回1990年7月22日の日食の気象条件を紹介しましたので、今回は、天文学的条件の詳細をお知らせします。

詳細地図の①②を見ていただくとわかるように、最初の観測候補地となるフィンランドでは、日の出直後の皆既のため、本影のスピードが大変速くなっています。また、この地域では高度が低く、雲や霧にじゃまされる可能性があります。そのため、皆既中心線の経度・緯度の表の最後に、1万フィート、4万フィート上空での中心線がつけ加えられています。雲をさけて飛行機で観測を計画される方は、参考にして下さい。

最後に、気象関係の図表をのせますので(Fig1~Fig4、Table-1)前号とあわせてごらん下さい。

日 食 図

TOTAL SOLAR ECLIPSE OF 1990 JULY 22



皆既帯中心線、南北限界線の

経度 (Latitude) と緯度 (Longitude)

U.T.	Northern Limit		Central Line		Southern Limit	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
Limits	° ' +60 15.9	° ' + 22 29.5	° ' +59 46.6	° ' + 23 42.0	° ' +59 17.3	° ' + 24 51.9
h m						
1 54	.. ..	.. ..	+63 10.6	+ 31 04.5	+64 50.0	+ 37 46.6
1 56	+65 38.6	+ 34 11.8	+66 42.9	+ 39 52.5	+67 22.6	+ 44 58.1
1 58	+68 21.9	+ 41 18.9	+68 52.9	+ 46 18.3	+69 10.8	+ 50 60.0
2 00	+70 18.1	+ 47 19.5	+70 31.7	+ 52 05.3	+70 35.7	+ 56 36.0
2 05	+73 38.4	+ 61 20.0	+73 25.3	+ 65 51.6	+73 06.3	+ 70 03.7
2 10	+75 42.4	+ 75 37.6	+75 11.1	+ 79 45.4	+74 35.9	+ 83 27.8
2 15	+76 50.4	+ 90 28.6	+76 05.5	+ 93 49.1	+75 18.8	+ 96 43.3
2 20	+77 10.7	+105 09.9	+76 17.2	+107 24.6	+75 23.2	+109 18.7
2 25	+76 51.7	+118 41.9	+75 54.0	+119 47.8	+74 56.7	+120 42.5
2 30	+76 02.6	+130 24.7	+75 04.3	+130 32.9	+74 06.7	+130 38.2
2 35	+74 52.1	+140 10.2	+73 55.5	+139 36.6	+72 59.5	+139 05.6
2 40	+73 27.1	+148 11.0	+72 33.4	+147 10.0	+71 40.0	+146 14.1
2 45	+71 52.5	+154 46.7	+71 02.2	+153 28.6	+70 11.9	+152 16.7
2 50	+70 11.5	+160 16.0	+69 24.6	+158 47.9	+68 37.6	+157 26.0
2 55	+68 26.0	+164 54.4	+67 42.6	+163 20.8	+66 58.9	+161 53.1
3 00	+66 37.3	+168 54.1	+65 57.2	+167 17.8	+65 16.7	+165 46.9
3 05	+64 46.1	+172 24.4	+64 09.2	+170 47.1	+63 31.7	+169 14.7
3 10	+62 52.8	+175 32.4	+62 18.9	+173 55.2	+61 44.4	+172 22.3
3 15	+60 57.5	+178 23.8	+60 26.5	+176 47.3	+59 54.8	+175 14.5
3 20	+59 00.2	-178 56.8	+58 32.0	+179 27.6	+58 03.0	+177 55.3
3 25	+57 00.6	-176 25.5	+56 35.1	-178 00.2	+56 08.8	-179 31.9
3 30	+54 58.3	-173 58.9	+54 35.5	-175 32.8	+54 11.8	-177 03.9
3 35	+52 52.7	-171 33.6	+52 32.7	-173 06.9	+52 11.7	-174 37.7
3 40	+50 43.0	-169 06.0	+50 25.9	-170 39.2	+50 07.7	-172 10.0
3 45	+48 27.9	-166 32.0	+48 13.9	-168 05.7	+47 58.7	-169 37.1
3 50	+46 05.5	-163 45.8	+45 55.1	-165 21.2	+45 43.2	-166 54.2
3 55	+43 32.7	-160 38.9	+43 26.5	-162 17.9	+43 18.7	-163 54.1
4 00	+40 43.2	-156 55.3	+40 43.0	-158 41.9	+40 40.6	-160 24.6
4 02	+39 28.0	-155 08.6	+39 31.2	-157 00.5	+39 31.6	-158 47.7
4 04	+38 06.1	-153 05.7	+38 13.7	-155 05.7	+38 18.0	-156 59.3
4 06	+36 33.7	-150 37.2	+36 48.1	-152 50.8	+36 57.7	-154 54.6
4 08	+34 41.9	-147 19.9	+35 09.0	-150 01.7	+35 27.1	-152 24.1
4 10	+31 36.9	-140 55.5	+32 58.8	-145 53.4	+33 37.4	-149 04.2
4 12	.. ..	.. ..	.. ..	.. ..	+30 35.5	-142 35.1
Limits	+30 32.8	-138 18.8	+29 56.5	-138 52.5	+29 20.5	-139 25.4

For duration, path width, and altitude and azimuth of the Sun, please see page 18; Local Circumstances for Points on the Central Line.

日食の要素

ELEMENTS OF THE ECLIPSE

U.T. of geocentric conjunction in right ascension July 22^d 02^h 36^m 44^s.998

Julian Date = 2448094.6088541481

R.A. of Sun and Moon	h m s 8 04 47.193	Hourly motions	9.969 and 146.792
ΔT	56.972		
° ' "			
Declination of Sun	+20 21 00.70	Hourly motion	- 0 29.53
Declination of Moon	+21 08 12.41	Hourly motion	-10 32.24
Equatorial hor. par. of Sun	8.66	True semidiameter of Sun	15 44.5
Equatorial hor. par. of Moon	59 24.74	True semidiameter of Moon	16 11.4
Lunar figure offset, long.	+ 0.51		
Lunar figure offset, lat.	- 0.28		

CIRCUMSTANCES OF THE ECLIPSE

	U.T.			Longitude	Latitude
	d	h	m	° ' "	° ' "
Eclipse begins	July	22	0 40.0	+ 60 59.7	+43 28.2
Central eclipse begins		22	1 53.4	+ 23 42.0	+59 46.6
Central eclipse at local apparent noon		22	2 36.7	+142 24.8	+73 28.0
Central eclipse ends		22	4 11.2	-138 52.5	+29 56.5
Eclipse ends		22	5 24.5	-165 15.6	+11 22.8

Longitudes are measured positive East.

BESSELIAN ELEMENTS, POLYNOMIAL FORM

The equations below represent simple least-squares fits to the tabular Besselian Elements.

Let $t =$ U.T. in hours defined from 0^h U.T. on 22 July 1990. These equations are valid over the range 0^h.633 $\leq t \leq$ 5^h.575. Do not use t outside the given range, and do not omit any terms in the series.

$$\begin{aligned}
 x &= -1.40663058 + 0.53846172 t + 0.00000678 t^2 - 0.00000823 t^3 \\
 y &= 1.23706906 - 0.16822912 t - 0.00019130 t^2 + 0.00000278 t^3 \\
 \sin d &= 0.34805862 - 0.00012723 t - 0.00000006 t^2 \\
 \cos d &= 0.93747277 + 0.00004726 t \\
 \mu &= 178.39642295 + 15.00090287 t + 0.00000235 t^2 - 0.00000006 t^3 \\
 \text{Radius penumbra} &= 0.53838186 + 0.00017752 t - 0.00001197 t^2 \\
 \text{Radius umbra} &= -0.00796391 + 0.00017687 t - 0.00001200 t^2 + 0.00000001 t^3
 \end{aligned}$$

ベッセル要素

BESSELIAN ELEMENTS

U.T.	Intersection of Axis of Shadow with Fundamental Plane		Direction of Axis of Shadow			Radius of Shadow on Fundamental Plane	
	x	y	sin d	cos d	μ	Penumbra	Umbra
h m					$^{\circ}$		
0 00	-1.406630	+1.237069	+0.348059	0.937473	178.39642	0.538382	-0.007964
10	1.316887	1.209026	.348037	.937481	180.89657	.538411	.007935
20	1.227143	1.180972	.348016	.937489	183.39672	.538440	.007906
30	1.137399	1.152907	.347995	.937496	185.89687	.538468	.007878
40	1.047656	1.124832	.347974	.937504	188.39703	.538495	.007851
50	0.957913	1.096747	.347953	.937512	190.89718	.538521	.007825
1 00	-0.868170	+1.068651	+0.347931	0.937520	193.39733	0.538547	-0.007799
10	0.778429	1.040546	.347910	.937528	195.89748	.538573	.007774
20	0.688689	1.012430	.347889	.937536	198.39763	.538597	.007749
30	0.598951	0.984304	.347868	.937544	200.89778	.538621	.007726
40	0.509214	0.956169	.347846	.937552	203.39793	.538644	.007702
50	0.419479	0.928023	.347825	.937559	205.89809	.538667	.007680
2 00	-0.329746	+0.899868	+0.347804	0.937567	208.39824	0.538689	-0.007658
10	0.240015	0.871703	.347783	.937575	210.89839	.538710	.007637
20	0.150288	0.843528	.347761	.937583	213.39854	.538731	.007616
30	-0.060562	0.815344	.347740	.937591	215.89869	.538751	.007597
40	+0.029160	0.787150	.347719	.937599	218.39885	.538770	.007577
50	0.118878	0.758947	.347698	.937607	220.89900	.538789	.007559
3 00	+0.208593	+0.730735	+0.347676	0.937615	223.39915	0.538807	-0.007541
10	0.298305	0.702514	.347655	.937622	225.89930	.538824	.007524
20	0.388012	0.674283	.347634	.937630	228.39946	.538841	.007507
30	0.477716	0.646043	.347613	.937638	230.89961	.538857	.007491
40	0.567415	0.617794	.347591	.937646	233.39976	.538872	.007476
50	0.657109	0.589536	.347570	.937654	235.89992	.538887	.007462
4 00	+0.746798	+0.561270	+0.347549	0.937662	238.40007	0.538901	-0.007448
10	0.836482	0.532994	.347527	.937670	240.90022	.538914	.007434
20	0.926161	0.504710	.347506	.937678	243.40037	.538927	.007422
30	1.015835	0.476418	.347485	.937686	245.90053	.538939	.007410
40	1.105502	0.448116	.347463	.937694	248.40068	.538950	.007399
50	1.195164	0.419807	.347442	.937701	250.90084	.538961	.007388
5 00	+1.284819	+0.391489	+0.347421	0.937709	253.40099	0.538971	-0.007378
10	1.374468	0.363162	.347400	.937717	255.90114	.538980	.007369
20	1.464110	0.334827	.347378	.937725	258.40130	.538989	.007360
30	1.553745	0.306485	.347357	.937733	260.90145	.538997	.007352
40	1.643373	0.278134	.347336	.937741	263.40160	.539004	.007345
5 50	+1.732994	+0.249775	+0.347314	0.937749	265.90176	0.539011	-0.007338

$\tan f_1$ 0.004602
 $\tan f_2$ 0.004579
 μ' 0.261815 radians per hour
 d' -0.000136 radians per hour

主な都市の局地予報 ①

Position		Name of Location	Duration of Totality	Maximum Eclipse				Sun's	
Latitude	Longitude			Path Width	U.T.	Obscur.	Mag.	Alt.	Az.
		Finland	m s	km	h m s	%		° °	
+60 24.0	+25 40.0	Borga	1 24.8	171	1 53 06.3	100.0	1.011	2 48	
+61 00.0	+24 25.0	Hameneilina	0 49.9	174	1 54 16.1	100.0	1.003	2 47	
+60 33.0	+27 15.0	Hamina	0 48.8	171	1 52 34.4	100.0	1.002	2 49	
+61 13.0	+26 05.0	Heinola	1 25.5	174	1 53 46.1	100.0	1.010	2 48	
+60 09.7	+24 57.3	Helsinki (Univ. of Helsinki Obs.)	1 26.2	171	1 53 10.8	100.0	1.012	1 47	
+60 37.0	+24 50.0	Hyvinkaa	1 24.2	173	1 53 41.7	100.0	1.010	1 47	
+62 40.0	+30 55.0	Iloantasi	1 25.8	176	1 53 27.9	100.0	1.009	5 53	
+61 14.0	+28 50.0	Imatra	0 44.3	172	1 52 39.1	100.0	1.002	3 51	
+60 29.0	+25 06.0	Jarvenpaa	1 28.0	172	1 53 26.4	100.0	1.014	1 48	
+63 41.0	+22 40.0	Jakobstad			1 57 46.8	94.5	0.950	3 46	
+62 36.0	+29 45.0	Joensuu	1 32.8	176	1 53 48.8	100.0	1.015	4 52	
+60 32.0	+24 10.0	Karkkila	1 15.2	173	1 53 54.6	100.0	1.007	1 47	
+60 25.0	+25 10.0	Kerava	1 28.0	172	1 53 20.6	100.0	1.014	1 48	
+60 13.2	+24 23.8	Kirkkonummi (Metsahovi Obs.)	1 26.8	172	1 53 29.5	100.0	1.013	1 47	
+60 26.0	+26 55.0	Kotka	0 53.1	171	1 52 35.7	100.0	1.003	2 49	
+60 54.0	+26 45.0	Kouvola	1 25.6	172	1 53 09.2	100.0	1.010	2 49	
+62 54.0	+27 40.0	Kuopio			1 54 56.1	99.9	0.998	4 50	
+61 00.0	+25 40.0	Lahti	1 25.5	174	1 53 43.3	100.0	1.011	2 48	
+61 04.0	+28 15.0	Lappeenranta	0 56.4	172	1 52 42.4	100.0	1.003	3 50	
+63 20.0	+30 00.0	Lieska	1 17.0	178	1 54 33.5	100.0	1.007	5 52	
+60 27.0	+26 15.0	Lovisa	1 17.2	171	1 52 54.0	100.0	1.007	2 48	
+61 44.0	+27 15.0	Mikkeli	1 27.3	175	1 53 49.8	100.0	1.011	3 49	
+63 31.0	+29 10.0	Nurmes			1 55 04.0	99.9	0.999	5 52	
+65 00.0	+25 26.0	Oulu			1 58 06.6	94.6	0.952	5 49	
+62 43.0	+29 05.0	Outokumpu	1 25.3	177	1 54 11.6	100.0	1.009	4 51	
+62 18.0	+27 10.0	Pieksämäki	0 53.9	177	1 54 28.5	100.0	1.003	3 50	
+60 25.0	+22 26.8	Piikkiö (Turku-Tuorla Obs.)			1 54 35.2	99.5	0.994	1 45	
+60 45.0	+24 45.0	Riihimäki	1 18.7	173	1 53 52.0	100.0	1.008	1 47	
+60 23.0	+23 10.0	Salo	0 48.9	173	1 54 13.1	100.0	1.003	1 46	
+61 54.0	+28 55.0	Savonlinna	1 27.8	174	1 53 20.9	100.0	1.011	4 51	
+61 32.0	+23 45.0	Tampere			1 55 06.3	99.3	0.991	2 47	
+60 27.0	+22 15.0	Turku			1 54 42.7	99.5	0.993	1 45	
+62 20.0	+27 50.0	Varkaus	1 15.8	177	1 54 14.8	100.0	1.007	3 50	
		U.S.S.R.							
+43 11.3	+76 57.4	Alma-Ata (Mountain Obs.)			1 24 31.6	15.8	0.264	18 79	
+55 08.0	+95 51.0	Ambarchik			1 50 34.8	39.0	0.496	35 105	
+64 43.0	+177 30.0	Anadyr			3 07 56.5	95.8	0.959	37 233	
+64 32.0	+40 40.0	Arkhangel'sk			1 52 54.1	96.7	0.968	9 61	
+37 57.4	+58 21.2	Ashkhabad (Ashkhabad Ap. Lab.)			1 18 21.1	18.2	0.291	3 66	
+64 34.0	+34 45.0	Belomorsk	1 36.5	179	1 54 29.6	100.0	1.013	7 56	
+71 34.0	+52 28.0	Belush'ya Guba	0 55.3	191	2 01 35.9	100.0	1.002	17 75	
+76 08.0	+94 45.0	Birula	2 14.7	195	2 15 20.6	100.0	1.018	28 122	
+55 12.0	+61 25.0	Chelyabinsk			1 37 29.5	60.0	0.675	13 73	
+68 45.0	+161 15.0	Cherskiy	2 33.0	204	2 52 20.0	100.0	1.017	40 208	
+73 32.0	+80 39.0	Dikson			2 07 43.1	97.5	0.973	25 104	
+38 33.7	+68 46.9	Dushanbe (Inst. of Astrophys.)			1 17 57.5	11.1	0.208	10 72	
+56 15.5	+43 59.0	Gor'kiy (Latitude Obs.)			1 41 38.5	77.7	0.818	5 61	
+64 08.0	+34 21.0	Idel	1 29.2	178	1 54 04.6	100.0	1.009	7 56	
+52 16.7	+104 20.7	Irkutsk (Irkutsk Ast. Obs.)			1 56 08.9	28.3	0.395	41 112	
+67 09.0	+32 31.0	Kandalaksha			1 58 22.4	96.1	0.963	8 56	
+55 47.4	+49 07.3	Kazan (Kazan Univ. Obs.)			1 39 45.2	72.0	0.773	8 64	
+64 58.0	+34 39.0	Kem'	1 34.8	181	1 55 01.3	100.0	1.012	7 56	
+62 05.0	+175 18.0	Khatyrka	2 20.5	209	3 11 14.0	100.0	1.012	40 234	
+39 08.0	+66 52.9	Kitab (Inter. Latitude Obs.)			1 18 29.1	13.8	0.241	9 71	
+64 03.0	+34 14.0	Kochkoma	1 27.7	178	1 54 00.5	100.0	1.009	7 56	
+68 50.0	+158 35.0	Kolymikaya	2 13.7	202	2 50 31.5	100.0	1.010	40 204	
+70 45.0	+54 30.0	Krasino	1 46.3	188	2 00 15.8	100.0	1.011	17 77	
+56 05.0	+92 46.0	Krasnoyarsk			1 49 18.0	43.0	0.531	33 102	
+53 10.0	+50 10.0	Kuybyshev			1 36 19.9	64.6	0.713	6 64	
+66 15.0	+36 51.0	Kuzomen	1 20.2	183	1 56 04.5	100.0	1.006	9 59	
+63 21.0	+31 12.0	Lendery	1 33.8	178	1 54 09.4	100.0	1.014	5 53	
+59 56.5	+30 17.7	Leningrad (Leningrad Univ. Obs.)			1 50 39.8	97.0	0.970	3 51	
+64 17.0	+34 27.0	Letnerechenskiy	1 32.9	179	1 54 13.8	100.0	1.011	7 56	
+59 38.0	+150 50.0	Magadan			2 54 51.7	74.3	0.789	50 199	
+72 20.0	+52 46.0	Malyje Karmakuly			2 02 47.4	97.8	0.976	17 76	
+64 40.0	+170 24.0	Markovo	2 32.2	207	3 03 56.3	100.0	1.016	40 224	
+62 35.0	+177 26.0	Maynopol'gyn			3 11 35.4	98.4	0.981	38 236	
+65 50.0	+44 20.0	Mezen'			1 53 55.5	97.4	0.973	11 65	
+55 42.0	+37 32.7	Moscow (Stenberg State Ast. Inst.)			1 43 10.8	82.2	0.854	2 56	
+68 59.0	+33 08.0	Murmansk			2 00 34.6	94.5	0.950	10 57	
+63 56.0	+34 20.0	Nadvoitsy	1 19.7	178	1 53 50.1	100.0	1.007	7 56	
+68 34.0	+160 58.0	Nizhnekolymsk	2 35.3	203	2 52 22.8	100.0	1.019	40 208	
+74 01.0	+111 30.0	Nordvik			2 19 54.6	97.1	0.971	33 140	

Assumed to be sea level. Names and spelling are not authoritative, nor do they imply any official recognition of status.

No correction for elevation or limb included. Correction for refraction included.

①の続き

Position		First Contact			Second Contact			Third Contact			Fourth Contact		
Latitude	Longitude	U.T.	P	V	U.T.	P	V	U.T.	P	V	U.T.	P	V
°	'	h	m	s	h	m	s	h	m	s	h	m	s
+60 24.0	+ 25 40.0	..	..	..	1 52 23.9	118	142	1 53 48.7	266	289	2 45 16.4	102	129
+61 00.0	+ 24 25.0	..	..	..	1 53 51.1	47	69	1 54 41.1	338	0	2 46 22.0	103	129
+60 33.0	+ 27 15.0	..	..	..	1 52 10.0	159	183	1 52 58.9	225	249	2 45 00.1	101	129
+61 13.0	+ 26 05.0	..	..	..	1 53 03.3	85	108	1 54 28.8	299	322	2 46 09.0	103	129
+60 09.7	+ 24 57.3	..	..	..	1 52 27.7	113	136	1 53 53.9	272	295	2 45 12.0	102	129
+60 37.0	+ 24 50.0	..	..	..	1 52 59.6	85	108	1 54 23.8	299	322	2 45 46.9	102	129
+62 40.0	+ 30 55.0	1 02 04.0	283	302	1 52 45.0	126	149	1 54 10.8	259	282	2 46 50.2	102	128
+61 14.0	+ 28 50.0	..	..	..	1 52 16.9	163	187	1 53 01.3	222	245	2 45 26.7	102	129
+60 29.0	+ 25 06.0	..	..	..	1 52 42.4	99	122	1 54 10.5	285	308	2 45 32.5	102	129
+63 41.0	+ 22 40.0	..	..	..	..	..	..	..	..	..	2 50 04.8	106	130
+62 36.0	+ 29 45.0	..	..	..	1 53 02.4	102	124	1 54 35.3	283	306	2 46 59.7	103	129
+60 32.0	+ 24 10.0	..	..	..	1 53 17.0	71	94	1 54 32.2	313	336	2 45 53.1	103	129
+60 25.0	+ 25 10.0	..	..	..	1 52 36.6	105	127	1 54 04.6	280	303	2 45 26.5	102	129
+60 13.2	+ 24 23.8	..	..	..	1 52 46.1	95	118	1 54 12.9	289	312	2 45 26.5	102	129
+60 26.0	+ 26 55.0	..	..	..	1 52 09.1	156	179	1 53 02.3	229	252	2 44 57.1	102	129
+60 54.0	+ 26 45.0	..	..	..	1 52 26.4	119	142	1 53 52.0	265	289	2 45 34.5	102	129
+62 54.0	+ 27 40.0	..	..	..	..	..	..	..	..	..	2 47 51.3	104	129
+61 00.0	+ 25 40.0	..	..	..	1 53 00.5	86	109	1 54 26.1	298	321	2 46 00.1	102	129
+61 04.0	+ 28 15.0	..	..	..	1 52 14.2	154	177	1 53 10.6	231	254	2 45 22.9	102	129
+63 20.0	+ 30 00.0	1 03 07.6	282	300	1 53 55.0	68	90	1 55 12.1	317	340	2 47 54.3	103	129
+60 27.0	+ 26 15.0	..	..	..	1 52 15.4	132	155	1 53 32.6	253	276	2 45 09.8	102	129
+61 44.0	+ 27 15.0	..	..	..	1 53 06.1	87	110	1 54 33.5	298	320	2 46 28.8	103	129
+63 31.0	+ 29 10.0	1 03 41.9	282	300	..	..	..	..	..	..	2 48 19.1	104	129
+65 00.0	+ 25 26.0	1 06 53.6	280	296	..	..	..	..	..	..	2 51 02.0	106	129
+62 43.0	+ 29 05.0	..	..	..	1 53 29.0	80	102	1 54 54.3	305	328	2 47 17.7	103	129
+62 18.0	+ 27 10.0	..	..	..	1 54 01.6	49	71	1 54 55.4	336	358	2 47 12.8	103	129
+60 25.0	+ 22 26.8	..	..	..	..	..	..	..	..	..	2 46 17.6	103	129
+60 45.0	+ 24 45.0	..	..	..	1 53 12.7	75	98	1 54 31.4	309	332	2 45 58.0	103	129
+60 23.0	+ 23 10.0	..	..	..	1 53 48.7	46	69	1 54 37.6	338	0	2 46 01.3	103	129
+61 54.0	+ 28 55.0	..	..	..	1 52 37.0	119	142	1 54 04.9	266	289	2 46 16.7	102	129
+61 32.0	+ 23 45.0	..	..	..	..	..	..	..	..	..	2 47 12.0	104	129
+60 27.0	+ 22 15.0	..	..	..	..	..	..	..	..	..	2 46 23.8	103	129
+62 20.0	+ 27 50.0	..	..	..	1 53 36.9	68	91	1 54 52.8	316	339	2 47 05.6	103	129
+43 11.3	+ 76 57.4	0 44 16.3	329	17	..	..	..	..	..	..	2 07 21.6	54	105
+55 08.0	+ 95 51.0	0 53 49.0	315	353	..	..	..	..	..	..	2 50 55.6	75	108
+64 43.0	+177 30.0	2 01 52.5	290	275	..	..	..	..	..	..	4 11 10.4	116	91
+64 32.0	+ 40 40.0	0 59 52.9	285	305	..	..	..	..	..	..	2 48 06.4	101	127
+37 57.4	+ 58 21.2	..	..	..	..	..	..	..	..	..	1 57 35.1	54	107
+64 34.0	+ 34 45.0	1 02 13.0	283	302	1 53 41.3	111	134	1 55 17.9	274	297	2 48 46.5	103	128
+71 34.0	+ 52 28.0	1 05 50.0	283	301	2 01 08.2	44	63	2 02 03.6	345	4	2 59 17.9	105	125
+76 08.0	+ 94 45.0	1 14 30.5	286	301	2 14 13.2	106	119	2 16 28.0	287	300	9 17 32.5	107	117
+55 12.0	+ 61 25.0	0 45 12.1	301	334	..	..	..	..	..	..	2 33 00.3	83	120
+68 45.0	+161 15.0	1 45 26.6	291	289	2 51 03.4	102	92	2 53 36.5	302	291	3 57 32.2	112	96
+73 32.0	+ 80 39.0	1 08 08.5	287	305	..	..	..	..	..	..	3 09 10.7	104	120
+38 33.7	+ 68 46.9	0 43 37.8	332	23	..	..	..	..	..	..	1 54 10.0	48	102
+56 15.5	+ 43 59.0	..	..	..	..	..	..	..	..	..	2 35 21.8	91	125
+64 08.0	+ 34 21.0	1 01 56.5	283	302	1 53 19.9	126	148	1 54 49.2	260	283	2 48 13.6	102	128
+52 16.7	+104 20.7	1 00 30.0	323	3	..	..	..	..	..	..	2 55 04.0	70	101
+67 09.0	+ 32 31.0	1 05 52.3	281	297	..	..	..	..	..	..	2 52 41.0	106	128
+55 47.4	+ 49 07.3	0 48 20.7	295	324	..	..	..	..	..	..	2 33 58.7	88	124
+64 58.0	+ 34 39.0	1 02 40.5	283	301	1 54 13.9	88	111	1 55 48.7	297	319	2 49 21.1	103	128
+62 05.0	+175 18.0	2 03 47.5	293	277	3 10 03.6	90	66	3 12 24.2	318	294	4 15 27.1	114	86
+39 08.0	+ 66 52.9	0 42 20.9	329	18	..	..	..	..	..	..	1 56 41.0	51	104
+64 03.0	+ 34 14.0	1 01 54.4	283	302	1 53 16.7	128	150	1 54 44.5	258	281	2 48 07.7	102	128
+68 50.0	+158 35.0	1 43 26.1	292	291	2 49 24.5	143	134	2 51 38.3	261	251	3 56 04.2	112	96
+70 45.0	+ 54 30.0	1 04 19.1	284	303	1 59 22.7	126	146	2 01 09.0	263	283	2 58 15.3	104	125
+56 05.0	+ 92 46.0	0 52 21.0	313	349	..	..	..	..	..	..	2 49 51.8	77	109
+53 10.0	+ 50 10.0	..	..	..	..	..	..	..	..	..	2 29 34.1	84	122
+66 15.0	+ 36 51.0	1 03 11.7	283	301	1 55 24.4	66	88	1 56 44.6	320	342	2 50 56.1	104	128
+63 21.0	+ 31 12.0	1 02 34.6	283	301	1 53 22.5	96	119	1 54 56.3	289	312	2 47 41.4	103	129
+59 56.5	+ 30 17.7	..	..	..	..	..	..	..	..	..	2 43 25.0	100	128
+64 17.0	+ 34 27.0	1 02 03.1	283	302	1 53 27.4	120	142	1 55 00.4	266	289	2 48 25.3	103	128
+59 38.0	+150 50.0	1 43 50.9	306	310	..	..	..	..	..	..	4 03 44.9	101	80
+72 20.0	+ 52 46.0	1 06 54.7	283	300	..	..	..	..	..	..	3 00 32.2	106	125
+64 40.0	+170 24.0	1 56 27.3	293	282	3 02 40.1	102	83	3 05 12.3	305	286	4 08 44.9	113	90
+62 35.0	+177 26.0	2 04 47.6	292	275	..	..	..	..	..	..	4 15 12.8	115	87
+65 50.0	+ 44 20.0	1 00 09.3	285	306	..	..	..	..	..	..	2 49 54.5	101	127
+55 42.0	+ 37 32.7	..	..	..	..	..	..	..	..	..	2 35 52.9	93	126
+68 59.0	+ 33 08.0	1 07 40.3	280	296	..	..	..	..	..	..	2 55 12.4	107	128
+63 56.0	+ 34 20.0	1 01 44.7	283	302	1 53 10.3	137	160	1 54 30.0	248	271	2 47 57.0	102	128
+68 34.0	+160 58.0	1 45 22.3	292	289	2 51 05.1	115	105	2 53 40.5	289	278	3 57 41.5	112	96
+74 01.0	+111 30.0	1 16 43.3	290	304	..	..	..	..	..	..	3 24 14.7	106	112

Dot leaders indicate the phenomenon occurs below the horizon. Blanks indicate the phenomenon does not occur for the location. Times of second and third contacts include refraction correction.

主な都市の局地予報 ②

Position		Name of Location	Duration of Totality	Maximum Eclipse				Sun's	
Latitude	Longitude			Path Width	U.T.	Obscur.	Mag.	Alt.	Az.
		U.S.S.R. (cont.)	m s	km	h m s	%		° °	
+55 04.0	+ 83 05.0	Novosibirsk	1 35.0	178	1 42 06.7	44.4	0.543	26 92	
+63 53.0	+ 33 05.0	Ondozero	2 07.7	206	1 54 09.9	100.0	1.013	6 55	
+68 07.0	+164 13.0	Ostrovnoye	0 48.5	176	1 53 00.3	100.0	1.009	39 213	
+63 12.0	+ 33 20.0	Padany			1 53 15.8	100.0	1.002	6 55	
+53 03.0	+158 43.0	Petropavlovsk-Kamchatskiy			3 12 58.9	66.8	0.729	52 221	
+61 46.0	+ 34 19.0	Petrozavodsk			1 51 14.2	96.7	0.968	5 55	
+67 02.0	+ 41 03.0	Ponoy	1 43.1	183	1 56 11.7	100.0	1.015	11 63	
+63 25.0	+ 34 02.0	Popov Porog	0 35.3	176	1 53 18.0	100.0	1.001	6 55	
+59 46.4	+ 30 19.6	Pulkovo (Main Ast. Obs.)			1 50 28.1	96.8	0.969	3 51	
+63 50.0	+ 30 49.0	Reboly	1 08.5	180	1 54 51.2	100.0	1.005	5 53	
+64 01.0	+ 32 46.0	Rugozero	1 35.4	179	1 54 25.6	100.0	1.014	6 55	
+39 40.6	+ 67 01.5	Samarkand (Ouloug-Beg Obs.)			1 19 02.2	14.9	0.254	9 71	
+63 42.0	+ 34 19.0	Segezha	1 00.9	177	1 53 33.3	100.0	1.003	7 56	
+67 47.0	+ 44 13.0	Shoyna	1 37.4	184	1 56 41.6	100.0	1.010	12 66	
+64 27.0	+ 34 30.0	Sosnovets	1 36.1	179	1 54 25.3	100.0	1.013	7 56	
+63 11.0	+ 32 18.0	Sukkozero	1 23.5	176	1 53 35.2	100.0	1.008	6 54	
+64 12.0	+ 35 29.0	Sumskiy Posad	1 04.4	178	1 53 49.4	100.0	1.004	7 57	
+56 52.0	+ 60 35.0	Sverdlovsk			1 39 45.3	65.1	0.717	14 74	
+61 07.0	+ 28 50.0	Svetogorsk	0 16.4	172	1 52 31.5	100.0	1.000	3 51	
+71 20.0	+150 20.0	Tabor	2 17.7	200	2 42 48.0	100.0	1.011	39 191	
+59 22.0	+ 24 48.0	Tallinn	0 42.9	168	1 52 27.5	100.0	1.002	1 47	
+58 22.8	+ 26 43.3	Taru (Wilhelm Struve Ap. Obs.)			1 20 52.2	16.9	0.277	12 73	
+41 19.5	+ 69 17.6	Tashkent (Tashkent Obs.)			1 44 55.7	47.6	0.571	28 95	
+56 28.1	+ 84 56.8	Tomsk (Tomsk Univ. Obs.)			1 54 09.2	100.0	1.012	6 55	
+63 59.0	+ 33 30.0	Vacha	1 34.2	178	2 44 14.7	11.0	0.206	66 160	
+43 09.0	+131 53.0	Vladivostok			1 55 22.8	89.9	0.913	19 83	
+67 27.0	+ 64 00.0	Vorkuta			1 52 55.0	100.0	1.003	4 52	
+62 08.0	+ 30 45.0	Vyatsilya	0 52.4	174	1 52 11.4	97.5	0.975	3 50	
+60 45.0	+ 28 41.0	Vyborg			2 30 07.2	65.8	0.721	47 160	
+62 10.0	+129 50.0	Yakutsk							
		United States							
+51 52.0	-176 40.0	Adak, Alaska			3 34 39.1	97.6	0.974	37 255	
+61 10.0	-150 00.0	Anchorage, Alaska			3 24 00.6	70.9	0.763	23 271	
+52 14.0	-174 15.0	Atka, Alaska	1 31.0	211	3 35 06.0	100.0	1.004	35 257	
+52 55.0	+173 11.0	Attu, Alaska			3 26 22.9	86.1	0.882	44 242	
+71 16.0	-156 50.0	Barrow, Alaska			3 04 35.4	71.1	0.765	26 255	
+60 49.0	-161 49.0	Bethel, Alaska			3 23 00.2	81.2	0.844	29 260	
+65 06.2	-147 27.1	Chatanika (Incoherent Scatter Pac.)			3 16 55.5	67.2	0.734	23 270	
+51 25.0	+179 15.0	Constantine Harbor, Alaska			3 33 16.4	91.5	0.925	40 251	
+53 55.0	-166 36.0	Dutch Harbor, Alaska			3 34 44.2	93.6	0.942	31 263	
+64 50.0	-147 50.0	Fairbanks, Alaska			3 17 24.2	67.5	0.736	23 270	
+55 10.0	-162 47.0	Fort Randall, Alaska			3 33 23.0	87.7	0.896	29 265	
+21 19.0	-157 50.0	Honolulu, Hawaii			4 28 49.3	62.2	0.694	9 288	
+61 29.0	-166 10.0	Hooper Bay, Alaska			3 20 36.4	84.7	0.872	31 255	
+58 18.0	-134 25.0	Juneau, Alaska			3 28 03.1	61.4	0.687	14 286	
+57 49.0	-152 30.0	Kodiak, Alaska			3 29 59.0	75.2	0.798	23 272	
+62 58.0	-155 40.0	McGrath, Alaska			3 20 07.5	74.3	0.790	26 264	
+28 12.0	-177 24.0	Midway Islands			4 18 15.2	50.3	0.594	30 278	
+37 20.6	-121 38.2	Mt. Hamilton, Cal. (Lick Obs.)			...	...	...	...
+64 30.0	-165 30.0	Nome, Alaska			3 15 10.7	81.4	0.846	30 253	
+45 32.0	-122 40.0	Portland, Oregon			3 43 18.6	65.1	0.718	1 299	
+37 45.0	-122 27.0	San Francisco, California			...	...	...	...
+47 35.0	-122 20.0	Seattle, Washington			3 40 24.2	62.7	0.698	2 299	
+47 40.0	-117 25.0	Spokane, Washington			...	...	...	...
		Canada							
+51 05.0	-114 05.0	Calgary, Alberta			3 31 43.5	56.0	0.643	1 304	
+64 04.0	-139 24.0	Dawson, Yukon			3 18 42.8	62.4	0.695	19 278	
+53 23.4	-113 45.5	Devon (Devon Ast. Obs.)			3 28 32.2	54.3	0.629	2 303	
+53 34.0	-113 25.0	Edmonton, Alberta			3 28 08.4	54.1	0.627	2 303	
+49 19.2	-119 37.2	Penticton (Dominion Radio Ap. Obs.)			3 36 46.8	59.7	0.674	2 300	
+54 18.0	-130 17.0	Prince Rupert, British Columbia			3 33 34.0	61.3	0.686	10 291	
+49 15.2	-123 13.9	Vancouver (Univ. of B.C. Obs.)			3 38 30.8	61.5	0.688	3 298	
+48 31.2	-123 25.0	Victoria (Dominion Ap. Obs.)			3 39 36.8	62.3	0.695	3 298	
+60 41.0	-135 08.0	Whitehorse, Yukon			3 24 09.3	60.9	0.683	16 284	
+62 30.0	-114 29.0	Yellowknife, Northwest Territories			3 16 06.9	51.3	0.603	8 299	
		Other							
+76 35.0	- 68 30.0	Dundas, Greenland			2 42 43.7	53.4	0.621	9 332	
+35 56.3	+138 28.8	Nobeyama Solar Radio Obs., Japan			3 09 37.0	2.4	0.073	74 195	
+36 06.8	+137 33.3	Norikura Solar Obs., Japan			3 07 08.0	2.0	0.066	74 189	
+59 56.0	+ 10 45.0	Oslo, Norway			...	...	...	...
+43 05.0	+141 21.0	Sapporo, Japan			3 03 48.5	19.3	0.302	67 194	
+59 20.0	+ 18 05.0	Stockholm, Sweden			...	...	...	...
+35 40.0	+139 45.0	Tokyo, Japan			3 13 01.8	2.9	0.083	74 202	
+47 54.0	+106 52.0	Ulaanbaatar, Mongolia			1 55 57.6	15.5	0.260	44 111	

Assumed to be sea level.

Names and spelling are not authoritative, nor do they imply any official recognition of status.

No correction for elevation or limb included. Correction for refraction included.

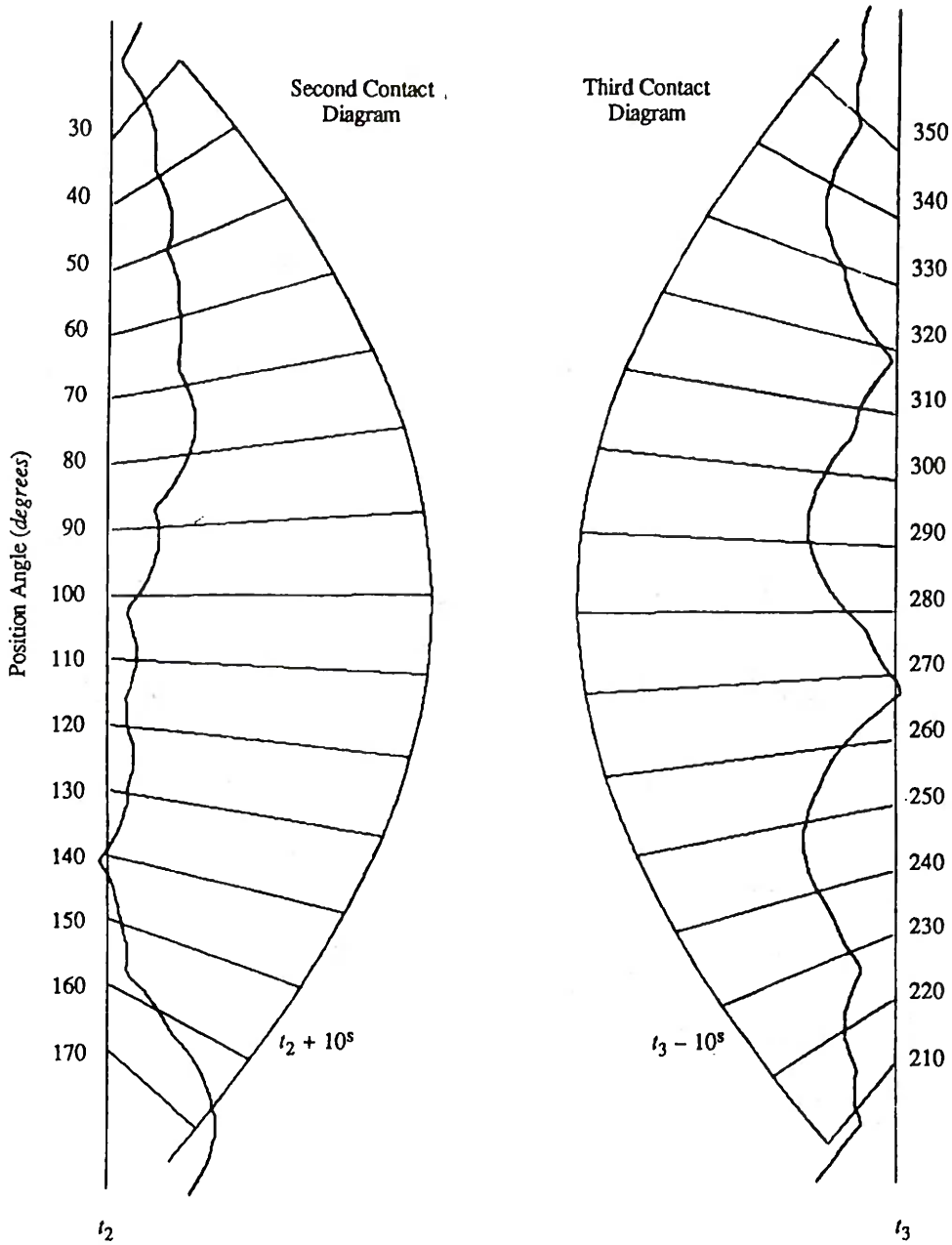
②の続き

Position		First Contact			Second Contact			Third Contact			Fourth Contact		
Latitude	Longitude	U.T.	P	V	U.T.	P	V	U.T.	P	V	U.T.	P	V
° ' "	° ' "	h m s	° ' "	° ' "	h m s	° ' "	° ' "	h m s	° ' "	° ' "	h m s	° ' "	° ' "
+55 04.0	+ 83 05.0	0 47 31.8	311	348	1 53 22.4	111	133	1 54 57.5	275	297	2 40 21.2	76	113
+63 53.0	+ 33 05.0	1 02 14.4	283	302	2 53 56.3	78	66	2 56 04.1	327	314	2 48 04.7	103	128
+68 07.0	+164 13.0	1 48 07.7	291	286	1 52 51.6	162	185	1 53 40.1	223	246	3 59 58.3	113	95
+63 12.0	+ 33 20.0	1 01 27.3	283	303	1 52 51.6	162	185	1 53 40.1	223	246	2 47 05.9	102	128
+53 03.0	+158 43.0	2 01 10.2	312	304							4 20 52.5	100	65
+61 46.0	+ 34 19.0	0 59 37.9	285	305							2 44 57.5	100	128
+67 02.0	+ 41 03.0	1 02 37.4	283	302	1 55 20.2	109	130	1 57 03.3	278	300	2 51 48.8	103	127
+63 25.0	+ 34 02.0	1 01 21.5	283	303	1 53 00.3	171	194	1 53 35.7	214	237	2 47 16.8	102	128
+59 46.4	+ 30 19.6	...	...	...							2 43 11.5	100	128
+63 50.0	+ 30 49.0	1 03 13.1	282	300	1 54 16.9	59	81	1 55 25.5	326	348	2 48 24.6	103	129
+64 01.0	+ 32 46.0	1 02 30.8	283	301	1 53 37.9	97	119	1 55 13.4	289	311	2 48 18.8	103	128
+39 40.6	+ 67 01.5	0 42 01.5	328	17							1 58 12.3	52	105
+63 42.0	+ 34 19.0	1 01 31.0	283	303	1 53 02.9	154	177	1 54 03.8	232	255	2 47 37.7	102	128
+67 47.0	+ 44 13.0	1 02 34.2	284	303	1 55 53.0	127	148	1 57 30.4	260	282	2 52 53.8	103	127
+64 27.0	+ 34 30.0	1 02 12.1	283	302	1 53 37.3	112	134	1 55 13.4	274	296	2 48 38.8	103	128
+63 11.0	+ 32 18.0	1 01 54.4	283	302	1 52 53.4	131	154	1 54 17.0	254	277	2 47 15.6	102	128
+64 12.0	+ 35 29.0	1 01 31.9	283	303	1 53 17.2	151	174	1 54 21.6	234	257	2 48 09.6	102	128
+56 52.0	+ 60 35.0	0 46 43.6	299	331							2 35 56.6	85	121
+61 07.0	+ 28 50.0	...	...	...	1 52 23.3	182	205	1 52 39.7	203	226	2 45 17.7	101	129
+71 20.0	+150 20.0	1 36 33.4	291	294	2 41 39.1	138	134	2 43 56.8	264	260	3 48 12.2	111	101
+59 22.0	+ 24 48.0	...	...	...	1 52 06.0	162	186	1 52 48.9	222	245	2 44 18.1	101	129
+58 22.8	+ 26 43.3	...	...	...							2 42 30.1	100	128
+41 19.5	+ 69 17.6	0 41 51.3	327	14							2 02 16.9	54	106
+56 28.1	+ 84 56.8	0 49 02.6	309	345							2 44 27.1	79	113
+63 59.0	+ 33 30.0	1 02 09.4	283	302	1 53 22.1	115	137	1 54 56.4	271	294	2 48 08.9	103	128
+43 09.0	+131 53.0	1 52 34.9	346	20							3 35 39.5	63	55
+67 27.0	+ 64 00.0	0 58 33.4	290	312							2 54 44.0	99	123
+62 08.0	+ 30 45.0	...	...	...	1 52 28.8	158	181	1 53 21.2	227	250	2 46 09.9	102	128
+60 45.0	+ 28 41.0	...	...	...							2 44 52.1	101	129
+62 10.0	+129 50.0	1 21 51.1	307	326							3 38 57.1	95	92
+51 52.0	-176 40.0	2 27 23.9	299	264							4 37 09.4	113	71
+61 10.0	-150 00.0	2 26 26.7	278	248							4 18 48.9	126	96
+52 14.0	-174 15.0	2 28 38.9	297	262	3 34 20.4	167	127	3 35 51.4	244	204	4 36 55.2	114	73
+52 55.0	+173 11.0	2 16 26.5	304	279							4 31 38.4	108	69
+71 16.0	-156 50.0	2 06 07.5	277	259							4 01 08.5	125	105
+60 49.0	-161 49.0	2 21 40.6	284	255							4 21 08.2	123	91
+65 06.2	-147 27.1	2 20 15.3	276	250							4 11 14.9	128	101
+51 25.0	+179 15.0	2 24 46.2	302	269							4 36 53.2	110	69
+53 55.0	-166 36.0	2 31 02.0	291	255							4 34 17.7	118	79
+64 50.0	-147 50.0	2 20 37.1	276	250							4 11 48.4	127	101
+55 10.0	-162 47.0	2 31 07.6	288	253							4 31 47.8	120	83
+21 19.0	-157 50.0	3 34 39.2	315	241							...	...	...
+61 29.0	-166 10.0	2 18 01.7	285	259							4 19 57.4	121	91
+58 18.0	-134 25.0	2 35 13.1	273	239							4 18 33.2	130	99
+57 49.0	-152 30.0	2 31 27.6	281	247							4 25 21.9	125	91
+62 58.0	-155 40.0	2 20 56.9	280	253							4 16 31.3	125	96
+28 12.0	-177 24.0	3 17 45.9	324	254							5 13 13.4	93	27
+37 20.6	-121 38.2	3 04 07.3	280	229							...	...	...
+64 30.0	-165 30.0	2 13 21.6	283	260							4 14 10.0	122	95
+45 32.0	-122 40.0	2 54 08.5	274	230							...	...	...
+37 45.0	-122 27.0	3 03 56.2	280	229							...	...	...
+47 35.0	-122 20.0	2 51 17.2	273	231							...	...	...
+47 40.0	-117 25.0	2 49 54.6	272	230							...	...	...
+51 05.0	-114 05.0	2 44 24.0	269	231							...	...	...
+64 04.0	-139 24.0	2 24 14.5	273	245							4 11 00.2	129	103
+53 23.4	-113 45.5	2 41 10.1	268	232							...	...	...
+53 34.0	-113 25.0	2 40 49.8	268	232							...	...	...
+49 19.2	-119 37.2	2 48 17.0	271	231							...	...	...
+54 18.0	-130 17.0	2 42 05.9	273	235							4 22 42.5	130	97
+49 15.2	-123 13.9	2 49 07.9	273	231							...	...	...
+48 31.2	-123 25.0	2 50 12.1	273	231							...	...	...
+60 41.0	-135 08.0	2 31 00.0	273	241							4 15 04.2	130	101
+62 30.0	-114 29.0	2 27 38.4	266	238							4 03 05.7	133	111
+76 35.0	- 68 30.0	1 54 18.0	264	255							3 30 48.8	129	125
+35 56.3	+138 28.8	2 36 13.0	6	18							3 42 16.6	51	18
+36 06.8	+137 33.3	2 35 18.9	7	22							3 38 20.2	49	21
+59 56.0	+ 10 45.0	...	...	...							2 50 13.4	107	130
+43 05.0	+141 21.0	2 03 34.2	340	358							4 01 57.1	73	41
+59 20.0	+ 18 05.0	...	...	...							2 46 38.4	104	130
+35 40.0	+139 45.0	2 37 40.9	5	12							3 47 27.1	52	15
+47 54.0	+106 52.0	1 06 54.2	334	19							2 47 44.6	60	96

Dot leaders indicate the phenomenon occurs below the horizon. Blanks indicate the phenomenon does not occur for the location. Times of second and third contacts include refraction correction.

月縁による接触時刻補正図 (ヨエンスー)

Joensuu, Finland

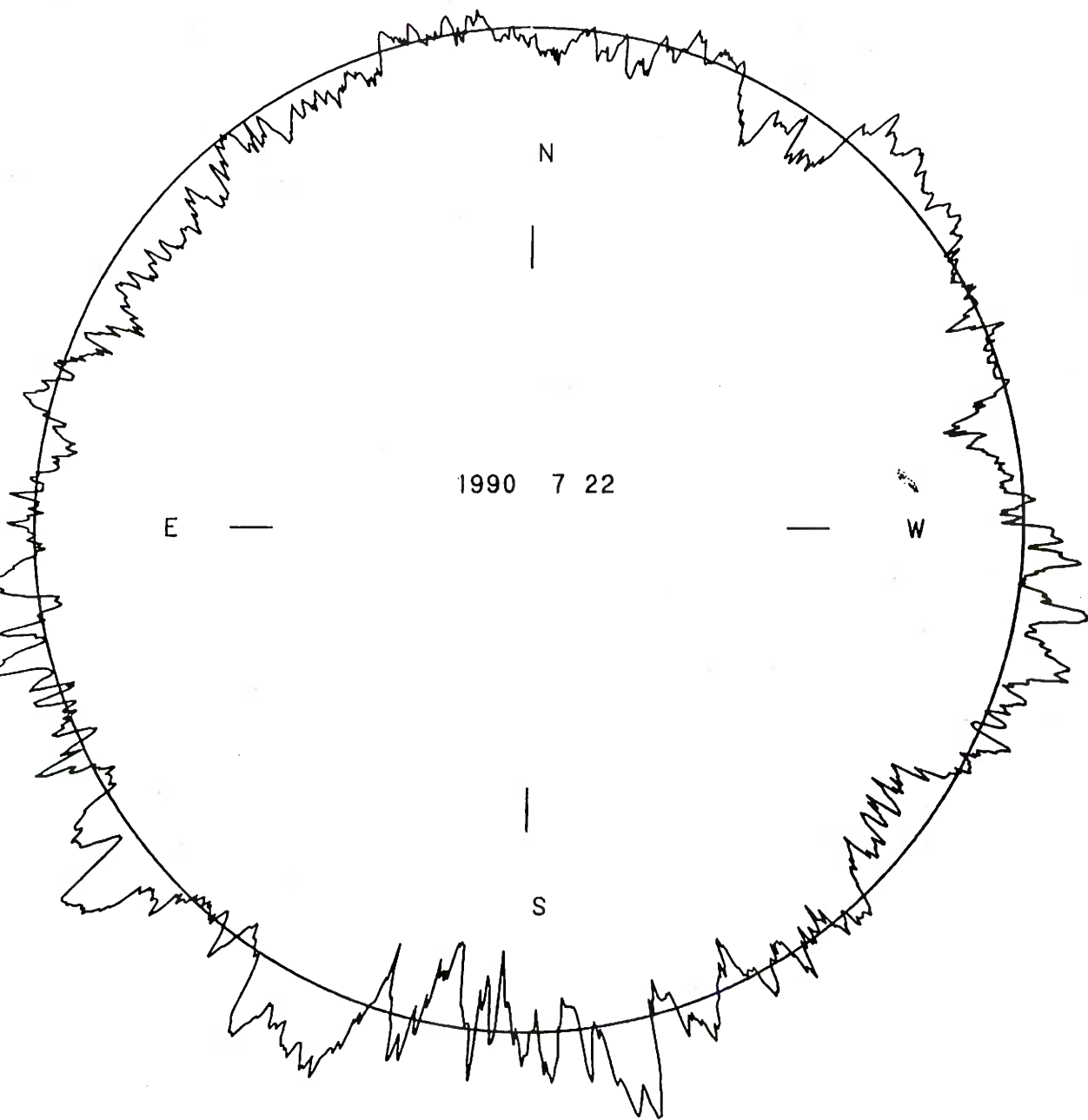


David Herald
 P. O. Box 254
 Woden, A. C. T. 2606
 AUSTRALIA

月 緣 図

Radial scale at limb: 4 arcsec/inch

true limb: irregular curve
mean limb: smooth curve



皆既帯の中心線・南北限界線（経度 0.5° 毎）①

Longitude	Latitude of			Universal Time at:			On Central Line		
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt. Az.
° ′	° ′	° ′	° ′	h m s	h m s	h m s	m s	km	° °
+ 24 30	+61 15.2	.. ..	.. ..	1 54 29.5	.. ..	.. ..	.. ..	...	.. ..
+ 25 00	+61 29.3	+60 23.9	.. ..	1 54 32.8	1 53 24.6	.. ..	1 28.0	172	1 47
+ 25 30	+61 43.5	+60 38.1	.. ..	1 54 36.0	1 53 25.8	.. ..	1 28.5	172	1 48
+ 26 00	+61 57.6	+60 52.3	.. ..	1 54 39.3	1 53 27.0	.. ..	1 29.0	173	2 48
+ 26 30	+62 11.7	+61 06.4	.. ..	1 54 42.5	1 53 28.8	.. ..	1 29.5	173	2 49
+ 27 00	+62 25.8	+61 20.2	+60 16.6	1 54 45.8	1 53 31.6	1 52 24.0	1 30.0	174	2 49
+ 27 30	+62 40.0	+61 33.7	+60 30.3	1 54 49.1	1 53 35.1	1 52 25.8	1 30.6	174	3 50
+ 28 00	+62 54.1	+61 47.3	+60 43.9	1 54 52.3	1 53 38.6	1 52 27.6	1 31.1	174	3 50
+ 28 30	+63 08.2	+62 00.8	+60 57.5	1 54 55.6	1 53 42.1	1 52 29.3	1 31.6	175	3 51
+ 29 00	+63 22.4	+62 14.4	+61 10.6	1 54 58.8	1 53 45.6	1 52 32.9	1 32.1	175	4 51
+ 29 30	+63 36.3	+62 27.9	+61 23.7	1 55 02.8	1 53 49.1	1 52 36.5	1 32.6	176	4 51
+ 30 00	+63 49.9	+62 41.5	+61 36.7	1 55 07.6	1 53 52.6	1 52 40.1	1 33.1	176	4 52
+ 30 30	+64 03.3	+62 55.0	+61 49.8	1 55 12.7	1 53 56.1	1 52 43.7	1 33.6	177	5 52
+ 31 00	+64 16.6	+63 08.6	+62 02.8	1 55 18.3	1 53 59.6	1 52 47.3	1 34.1	177	5 53
+ 31 30	+64 29.7	+63 21.8	+62 15.9	1 55 24.3	1 54 04.0	1 52 50.9	1 34.6	177	5 53
+ 32 00	+64 42.7	+63 34.8	+62 28.9	1 55 30.7	1 54 09.0	1 52 54.5	1 35.1	178	6 54
+ 32 30	+64 55.6	+63 47.7	+62 42.0	1 55 36.9	1 54 14.3	1 52 58.1	1 35.6	178	6 54
+ 33 00	+65 08.4	+64 00.4	+62 54.9	1 55 43.4	1 54 20.0	1 53 02.1	1 36.1	178	6 55
+ 33 30	+65 21.1	+64 12.9	+63 07.5	1 55 50.2	1 54 26.1	1 53 07.0	1 36.6	179	6 55
+ 34 00	+65 33.7	+64 25.4	+63 19.9	1 55 57.3	1 54 32.4	1 53 12.2	1 37.1	179	7 56
+ 34 30	+65 46.1	+64 37.8	+63 32.3	1 56 04.5	1 54 38.7	1 53 17.7	1 37.5	180	7 56
+ 35 00	+65 58.4	+64 50.0	+63 44.4	1 56 11.9	1 54 45.3	1 53 23.6	1 38.0	180	7 57
+ 35 30	+66 10.5	+65 02.2	+63 56.4	1 56 19.5	1 54 52.1	1 53 29.9	1 38.5	180	8 57
+ 36 00	+66 22.5	+65 14.2	+64 08.4	1 56 27.3	1 54 59.2	1 53 36.1	1 39.0	180	8 58
+ 36 30	+66 34.4	+65 26.0	+64 20.3	1 56 35.3	1 55 06.4	1 53 42.5	1 39.5	181	8 58
+ 37 00	+66 46.2	+65 37.8	+64 32.0	1 56 43.4	1 55 13.8	1 53 49.2	1 39.9	181	9 59
+ 37 30	+66 57.8	+65 49.4	+64 43.6	1 56 51.7	1 55 21.5	1 53 56.2	1 40.4	181	9 59
+ 38 00	+67 09.3	+66 00.9	+64 55.1	1 57 00.2	1 55 29.3	1 54 03.3	1 40.9	182	9 60
+ 38 30	+67 20.6	+66 12.3	+65 06.5	1 57 08.9	1 55 37.3	1 54 10.6	1 41.3	182	9 60
+ 39 00	+67 31.8	+66 23.6	+65 17.8	1 57 17.6	1 55 45.4	1 54 18.1	1 41.8	182	10 61
+ 39 30	+67 42.9	+66 34.7	+65 28.9	1 57 26.6	1 55 53.7	1 54 25.8	1 42.3	183	10 61
+ 40 00	+67 53.8	+66 45.7	+65 39.9	1 57 35.6	1 56 02.2	1 54 33.6	1 42.7	183	10 62
+ 40 30	+68 04.6	+66 56.5	+65 50.8	1 57 44.8	1 56 10.8	1 54 41.6	1 43.2	183	10 62
+ 41 00	+68 15.3	+67 07.2	+66 01.6	1 57 54.2	1 56 19.6	1 54 49.8	1 43.6	183	11 63
+ 41 30	+68 25.8	+67 17.8	+66 12.2	1 58 03.6	1 56 28.5	1 54 58.2	1 44.0	184	11 63
+ 42 00	+68 36.1	+67 28.3	+66 22.7	1 58 13.1	1 56 37.6	1 55 06.7	1 44.5	184	11 64
+ 42 30	+68 46.4	+67 38.6	+66 33.1	1 58 22.8	1 56 46.7	1 55 15.4	1 44.9	184	12 64
+ 43 00	+68 56.5	+67 48.8	+66 43.4	1 58 32.5	1 56 56.0	1 55 24.2	1 45.4	184	12 65
+ 43 30	+69 06.4	+67 58.9	+66 53.6	1 58 42.4	1 57 05.4	1 55 33.1	1 45.8	185	12 65
+ 44 00	+69 16.3	+68 08.8	+67 03.6	1 58 52.3	1 57 14.9	1 55 42.2	1 46.2	185	12 66
+ 44 30	+69 25.9	+68 18.6	+67 13.5	1 59 02.3	1 57 24.6	1 55 51.4	1 46.6	185	13 66
+ 45 00	+69 35.5	+68 28.3	+67 23.2	1 59 12.4	1 57 34.3	1 56 00.7	1 47.1	185	13 67
+ 45 30	+69 44.9	+68 37.8	+67 32.9	1 59 22.5	1 57 44.1	1 56 10.1	1 47.5	185	13 67
+ 46 00	+69 54.2	+68 47.3	+67 42.4	1 59 32.7	1 57 54.0	1 56 19.6	1 47.9	186	13 68
+ 46 30	+70 03.3	+68 56.5	+67 51.8	1 59 43.0	1 58 04.0	1 56 29.3	1 48.3	186	14 68
+ 47 00	+70 12.3	+69 05.7	+68 01.1	1 59 53.4	1 58 14.1	1 56 39.0	1 48.7	186	14 69
+ 47 30	+70 21.2	+69 14.7	+68 10.2	2 00 03.7	1 58 24.2	1 56 48.9	1 49.1	186	14 69
+ 48 00	+70 30.0	+69 23.6	+68 19.2	2 00 14.2	1 58 34.4	1 56 58.8	1 49.5	186	14 70
+ 48 30	+70 38.6	+69 32.4	+68 28.1	2 00 24.7	1 58 44.7	1 57 08.8	1 49.9	187	14 70
+ 49 00	+70 47.0	+69 41.0	+68 36.9	2 00 35.2	1 58 55.0	1 57 18.9	1 50.3	187	15 71

皆既帯の中心線・南北限界線（経度 0.5°毎）②

Longitude	Latitude of:			Universal Time at:			On Central Line			
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt.	Sun's Az.
° ′	° ′	° ′	° ′	h m s	h m s	h m s	m s	km	°	°
+ 49 30	+70 55.4	+69 49.6	+68 45.5	2 00 45.8	1 59 05.4	1 57 29.1	1 50.7	187	15	71
+ 50 00	+71 03.6	+69 57.9	+68 54.1	2 00 56.4	1 59 15.9	1 57 39.4	1 51.1	187	15	72
+ 50 30	+71 11.7	+70 06.2	+69 02.5	2 01 07.0	1 59 26.4	1 57 49.7	1 51.4	187	15	72
+ 51 00	+71 19.7	+70 14.4	+69 10.8	2 01 17.7	1 59 37.0	1 58 00.1	1 51.8	187	16	73
+ 51 30	+71 27.5	+70 22.4	+69 19.0	2 01 28.4	1 59 47.6	1 58 10.6	1 52.2	188	16	74
+ 52 00	+71 35.3	+70 30.3	+69 27.0	2 01 39.1	1 59 58.2	1 58 21.1	1 52.6	188	16	74
+ 52 30	+71 42.9	+70 38.1	+69 34.9	2 01 49.8	2 00 08.9	1 58 31.7	1 52.9	188	16	75
+ 53 00	+71 50.4	+70 45.7	+69 42.8	2 02 00.5	2 00 19.6	1 58 42.3	1 53.3	188	16	75
+ 53 30	+71 57.7	+70 53.3	+69 50.5	2 02 11.3	2 00 30.3	1 58 53.0	1 53.6	188	17	76
+ 54 00	+72 05.0	+71 00.7	+69 58.0	2 02 22.1	2 00 41.1	1 59 03.7	1 54.0	188	17	76
+ 54 30	+72 12.1	+71 08.0	+70 05.5	2 02 32.8	2 00 51.9	1 59 14.4	1 54.4	188	17	77
+ 55 00	+72 19.1	+71 15.2	+70 12.9	2 02 43.6	2 01 02.7	1 59 25.2	1 54.7	189	17	77
+ 55 30	+72 26.0	+71 22.3	+70 20.1	2 02 54.4	2 01 13.6	1 59 36.1	1 55.0	189	17	78
+ 56 00	+72 32.8	+71 29.3	+70 27.3	2 03 05.2	2 01 24.4	1 59 47.0	1 55.4	189	18	78
+ 56 30	+72 39.4	+71 36.1	+70 34.3	2 03 16.0	2 01 35.3	1 59 57.9	1 55.7	189	18	79
+ 57 00	+72 46.0	+71 42.9	+70 41.2	2 03 26.8	2 01 46.2	2 00 08.8	1 56.1	189	18	79
+ 57 30	+72 52.4	+71 49.5	+70 48.0	2 03 37.6	2 01 57.1	2 00 19.8	1 56.4	189	18	80
+ 58 00	+72 58.8	+71 56.0	+70 54.7	2 03 48.4	2 02 08.1	2 00 30.8	1 56.7	189	18	81
+ 68 00	+74 44.7	+73 45.6	+72 47.6	2 07 21.8	2 05 46.8	2 04 13.8	2 02.7	191	22	92
+ 68 30	+74 49.0	+73 50.1	+72 52.2	2 07 32.3	2 05 57.6	2 04 25.1	2 03.0	192	22	92
+ 69 00	+74 53.3	+73 54.6	+72 56.8	2 07 42.8	2 06 08.5	2 04 36.3	2 03.3	192	22	93
+ 69 30	+74 57.5	+73 58.9	+73 01.3	2 07 53.2	2 06 19.4	2 04 47.5	2 03.5	192	22	93
+ 70 00	+75 01.6	+74 03.2	+73 05.7	2 08 03.7	2 06 30.2	2 04 58.7	2 03.8	192	22	94
+ 70 30	+75 05.6	+74 07.3	+73 10.1	2 08 14.1	2 06 41.1	2 05 09.9	2 04.1	192	22	94
+ 71 00	+75 09.5	+74 11.4	+73 14.3	2 08 24.5	2 06 51.9	2 05 21.1	2 04.3	192	23	95
+ 71 30	+75 13.4	+74 15.5	+73 18.5	2 08 34.9	2 07 02.7	2 05 32.3	2 04.6	192	23	95
+ 72 00	+75 17.2	+74 19.4	+73 22.6	2 08 45.3	2 07 13.5	2 05 43.5	2 04.8	192	23	96
+ 72 30	+75 20.9	+74 23.3	+73 26.6	2 08 55.7	2 07 24.3	2 05 54.7	2 05.1	192	23	97
+ 73 00	+75 24.5	+74 27.1	+73 30.5	2 09 06.0	2 07 35.1	2 06 05.9	2 05.3	192	23	97
+ 73 30	+75 28.1	+74 30.8	+73 34.3	2 09 16.3	2 07 45.9	2 06 17.1	2 05.6	192	23	98
+ 74 00	+75 31.6	+74 34.4	+73 38.1	2 09 26.6	2 07 56.7	2 06 28.3	2 05.8	192	23	98
+ 74 30	+75 35.0	+74 38.0	+73 41.8	2 09 36.9	2 08 07.5	2 06 39.5	2 06.1	193	24	99
+ 75 00	+75 38.3	+74 41.5	+73 45.4	2 09 47.2	2 08 18.2	2 06 50.7	2 06.3	193	24	99
+ 75 30	+75 41.6	+74 44.9	+73 49.0	2 09 57.5	2 08 29.0	2 07 01.9	2 06.6	193	24	100
+ 76 00	+75 44.8	+74 48.2	+73 52.4	2 10 07.7	2 08 39.7	2 07 13.1	2 06.8	193	24	101
+ 76 30	+75 47.9	+74 51.5	+73 55.8	2 10 18.0	2 08 50.4	2 07 24.3	2 07.1	193	24	101
+ 77 00	+75 51.0	+74 54.7	+73 59.2	2 10 28.2	2 09 01.1	2 07 35.5	2 07.3	193	24	102
+ 77 30	+75 54.0	+74 57.8	+74 02.4	2 10 38.4	2 09 11.8	2 07 46.7	2 07.5	193	24	102
+ 78 00	+75 56.9	+75 00.9	+74 05.6	2 10 48.6	2 09 22.6	2 07 57.9	2 07.8	193	24	103
+ 78 30	+75 59.8	+75 03.9	+74 08.7	2 10 58.8	2 09 33.2	2 08 09.1	2 08.0	193	25	103
+ 79 00	+76 02.6	+75 06.8	+74 11.8	2 11 08.9	2 09 43.9	2 08 20.2	2 08.2	193	25	104
+ 79 30	+76 05.3	+75 09.7	+74 14.7	2 11 19.1	2 09 54.6	2 08 31.4	2 08.5	193	25	104
+ 80 00	+76 08.0	+75 12.5	+74 17.6	2 11 29.2	2 10 05.3	2 08 42.6	2 08.7	193	25	105
+ 80 30	+76 10.6	+75 15.2	+74 20.5	2 11 39.3	2 10 16.0	2 08 53.8	2 08.9	193	25	106
+ 81 00	+76 13.2	+75 17.8	+74 23.2	2 11 49.5	2 10 26.6	2 09 05.0	2 09.1	193	25	106
+ 81 30	+76 15.7	+75 20.4	+74 25.9	2 11 59.6	2 10 37.3	2 09 16.2	2 09.4	193	25	107
+ 82 00	+76 18.1	+75 23.0	+74 28.6	2 12 09.7	2 10 47.9	2 09 27.3	2 09.6	193	25	107
+ 82 30	+76 20.4	+75 25.4	+74 31.1	2 12 19.8	2 10 58.6	2 09 38.5	2 09.8	194	26	108
+ 83 00	+76 22.8	+75 27.9	+74 33.7	2 12 29.9	2 11 09.2	2 09 49.7	2 10.0	194	26	108
+ 83 30	+76 25.0	+75 30.2	+74 36.1	2 12 39.9	2 11 19.9	2 10 00.9	2 10.2	194	26	109

皆既帯の中心線・南北限界線（経度 0.5° 毎）③

Longitude	Latitude of:			Universal Time at:			On Central Line			
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt.	Sun's Az.
° /	° /	° /	° /	h m s	h m s	h m s	m s	km	°	°
+ 84 00	+76 27.2	+75 32.5	+74 38.5	2 12 50.0	2 11 30.5	2 10 12.1	2 10.4	194	26	110
+ 84 30	+76 29.3	+75 34.7	+74 40.8	2 13 00.1	2 11 41.2	2 10 23.3	2 10.7	194	26	110
+ 85 00	+76 31.4	+75 36.9	+74 43.0	2 13 10.1	2 11 51.8	2 10 34.5	2 10.9	194	26	111
+ 85 30	+76 33.4	+75 39.0	+74 45.2	2 13 20.2	2 12 02.5	2 10 45.7	2 11.1	194	26	111
+ 86 00	+76 35.3	+75 41.0	+74 47.4	2 13 30.2	2 12 13.1	2 10 56.9	2 11.3	194	26	112
+ 86 30	+76 37.2	+75 43.0	+74 49.4	2 13 40.3	2 12 23.7	2 11 08.2	2 11.5	194	26	112
+ 87 00	+76 39.1	+75 44.9	+74 51.4	2 13 50.3	2 12 34.4	2 11 19.4	2 11.7	194	27	113
+ 87 30	+76 40.9	+75 46.8	+74 53.4	2 14 00.3	2 12 45.0	2 11 30.6	2 11.9	194	27	114
+ 88 00	+76 42.6	+75 48.6	+74 55.2	2 14 10.4	2 12 55.7	2 11 41.9	2 12.1	194	27	114
+ 88 30	+76 44.3	+75 50.4	+74 57.1	2 14 20.4	2 13 06.3	2 11 53.1	2 12.3	194	27	115
+ 89 00	+76 45.9	+75 52.1	+74 58.8	2 14 30.5	2 13 17.0	2 12 04.4	2 12.5	194	27	115
+ 89 30	+76 47.5	+75 53.7	+75 00.5	2 14 40.5	2 13 27.7	2 12 15.7	2 12.7	194	27	116
+ 90 00	+76 49.0	+75 55.3	+75 02.2	2 14 50.5	2 13 38.3	2 12 26.9	2 12.9	194	27	116
+ 90 30	+76 50.4	+75 56.8	+75 03.8	2 15 00.6	2 13 49.0	2 12 38.2	2 13.1	194	27	117
+ 91 00	+76 51.8	+75 58.3	+75 05.3	2 15 10.6	2 13 59.7	2 12 49.5	2 13.3	195	27	117
+ 91 30	+76 53.2	+75 59.7	+75 06.8	2 15 20.7	2 14 10.4	2 13 00.9	2 13.5	195	28	118
+ 92 00	+76 54.5	+76 01.1	+75 08.2	2 15 30.7	2 14 21.1	2 13 12.2	2 13.7	195	28	119
+ 92 30	+76 55.8	+76 02.4	+75 09.5	2 15 40.8	2 14 31.8	2 13 23.6	2 13.9	195	28	119
+ 93 00	+76 57.0	+76 03.6	+75 10.8	2 15 50.8	2 14 42.5	2 13 34.9	2 14.1	195	28	120
+ 93 30	+76 58.1	+76 04.8	+75 12.1	2 16 00.9	2 14 53.2	2 13 46.3	2 14.3	195	28	120
+ 94 00	+76 59.2	+76 06.0	+75 13.3	2 16 11.0	2 15 04.0	2 13 57.7	2 14.5	195	28	121
+ 94 30	+77 00.2	+76 07.0	+75 14.4	2 16 21.1	2 15 14.8	2 14 09.1	2 14.7	195	28	122
+ 95 00	+77 01.2	+76 08.1	+75 15.5	2 16 31.2	2 15 25.5	2 14 20.5	2 14.9	195	28	122
+ 95 30	+77 02.2	+76 09.1	+75 16.5	2 16 41.3	2 15 36.3	2 14 32.0	2 15.0	195	28	123
+ 96 00	+77 03.1	+76 10.0	+75 17.5	2 16 51.4	2 15 47.1	2 14 43.5	2 15.2	195	28	123
+ 96 30	+77 03.9	+76 10.9	+75 18.4	2 17 01.5	2 15 57.9	2 14 55.0	2 15.4	195	29	124
+ 97 00	+77 04.7	+76 11.7	+75 19.2	2 17 11.7	2 16 08.8	2 15 06.5	2 15.6	195	29	124
+ 97 30	+77 05.5	+76 12.5	+75 20.0	2 17 21.8	2 16 19.6	2 15 18.0	2 15.8	195	29	125
+ 98 00	+77 06.2	+76 13.2	+75 20.8	2 17 32.0	2 16 30.5	2 15 29.6	2 16.0	195	29	126
+ 98 30	+77 06.8	+76 13.9	+75 21.5	2 17 42.2	2 16 41.4	2 15 41.2	2 16.2	195	29	126
+ 99 00	+77 07.4	+76 14.5	+75 22.1	2 17 52.4	2 16 52.3	2 15 52.8	2 16.3	195	29	127
+ 99 30	+77 07.9	+76 15.1	+75 22.7	2 18 02.6	2 17 03.2	2 16 04.4	2 16.5	195	29	127
+100 00	+77 08.4	+76 15.6	+75 23.2	2 18 12.9	2 17 14.2	2 16 16.1	2 16.7	195	29	128
+100 30	+77 08.9	+76 16.0	+75 23.7	2 18 23.2	2 17 25.2	2 16 27.8	2 16.9	195	29	128
+101 00	+77 09.3	+76 16.4	+75 24.1	2 18 33.4	2 17 36.2	2 16 39.5	2 17.1	196	29	129
+101 30	+77 09.6	+76 16.8	+75 24.5	2 18 43.8	2 17 47.2	2 16 51.3	2 17.2	196	30	130
+102 00	+77 10.0	+76 17.1	+75 24.8	2 18 54.1	2 17 58.3	2 17 03.1	2 17.4	196	30	130
+102 30	+77 10.2	+76 17.4	+75 25.0	2 19 04.4	2 18 09.4	2 17 14.9	2 17.6	196	30	131
+103 00	+77 10.4	+76 17.6	+75 25.3	2 19 14.8	2 18 20.5	2 17 26.8	2 17.8	196	30	131
+103 30	+77 10.6	+76 17.7	+75 25.4	2 19 25.2	2 18 31.7	2 17 38.7	2 18.0	196	30	132
+104 00	+77 10.7	+76 17.8	+75 25.5	2 19 35.7	2 18 42.9	2 17 50.6	2 18.1	196	30	132
+104 30	+77 10.7	+76 17.9	+75 25.5	2 19 46.1	2 18 54.1	2 18 02.6	2 18.3	196	30	133
+105 00	+77 10.8	+76 17.9	+75 25.5	2 19 56.6	2 19 05.3	2 18 14.6	2 18.5	196	30	134
+105 30	+77 10.7	+76 17.8	+75 25.5	2 20 07.1	2 19 16.6	2 18 26.7	2 18.7	196	30	134
+106 00	+77 10.6	+76 17.7	+75 25.3	2 20 17.7	2 19 28.0	2 18 38.8	2 18.8	196	30	135
+106 30	+77 10.5	+76 17.6	+75 25.2	2 20 28.3	2 19 39.3	2 18 50.9	2 19.0	196	31	135
+107 00	+77 10.3	+76 17.4	+75 24.9	2 20 38.9	2 19 50.7	2 19 03.1	2 19.2	196	31	136
+107 30	+77 10.1	+76 17.1	+75 24.6	2 20 49.5	2 20 02.2	2 19 15.3	2 19.4	196	31	137
+108 00	+77 09.8	+76 16.8	+75 24.3	2 21 00.2	2 20 13.6	2 19 27.6	2 19.5	196	31	137
+108 30	+77 09.5	+76 16.4	+75 23.9	2 21 11.0	2 20 25.2	2 19 40.0	2 19.7	196	31	138

皆既帯の中心線・南北限界線（経度 0.5° 毎）④

Longitude	Latitude of:			Universal Time at:			On Central Line		
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt. Az.
° /	° /	° /	° /	h m s	h m s	h m s	m s	km	° °
+109 00	+77 09.1	+76 16.0	+75 23.5	2 21 21.7	2 20 36.7	2 19 52.3	2 19.9	196	31 138
+109 30	+77 08.7	+76 15.6	+75 23.0	2 21 32.5	2 20 48.4	2 20 04.8	2 20.0	196	31 139
+110 00	+77 08.2	+76 15.1	+75 22.4	2 21 43.4	2 21 00.0	2 20 17.2	2 20.2	196	31 140
+110 30	+77 07.7	+76 14.5	+75 21.8	2 21 54.3	2 21 11.7	2 20 29.8	2 20.4	196	31 140
+111 00	+77 07.1	+76 13.9	+75 21.1	2 22 05.2	2 21 23.5	2 20 42.4	2 20.5	196	31 141
+111 30	+77 06.5	+76 13.2	+75 20.4	2 22 16.2	2 21 35.3	2 20 55.0	2 20.7	196	31 141
+112 00	+77 05.8	+76 12.5	+75 19.6	2 22 27.2	2 21 47.2	2 21 07.7	2 20.9	197	32 142
+112 30	+77 05.1	+76 11.7	+75 18.8	2 22 38.3	2 21 59.1	2 21 20.5	2 21.1	197	32 142
+113 00	+77 04.3	+76 10.8	+75 17.9	2 22 49.4	2 22 11.1	2 21 33.3	2 21.2	197	32 143
+113 30	+77 03.4	+76 09.9	+75 16.9	2 23 00.6	2 22 23.1	2 21 46.2	2 21.4	197	32 144
+114 00	+77 02.6	+76 09.0	+75 15.9	2 23 11.8	2 22 35.2	2 21 59.1	2 21.6	197	32 144
+114 30	+77 01.6	+76 08.0	+75 14.9	2 23 23.1	2 22 47.3	2 22 12.2	2 21.7	197	32 145
+115 00	+77 00.7	+76 07.0	+75 13.7	2 23 34.4	2 22 59.5	2 22 25.3	2 21.9	197	32 145
+115 30	+76 59.6	+76 05.8	+75 12.6	2 23 45.8	2 23 11.8	2 22 38.4	2 22.1	197	32 146
+116 00	+76 58.5	+76 04.7	+75 11.3	2 23 57.2	2 23 24.1	2 22 51.6	2 22.2	197	32 147
+116 30	+76 57.4	+76 03.5	+75 10.0	2 24 08.7	2 23 36.5	2 23 05.0	2 22.4	197	32 147
+117 00	+76 56.2	+76 02.2	+75 08.7	2 24 20.3	2 23 49.0	2 23 18.3	2 22.6	197	32 148
+117 30	+76 54.9	+76 00.9	+75 07.2	2 24 31.9	2 24 01.6	2 23 31.8	2 22.7	197	33 148
+118 00	+76 53.6	+75 59.5	+75 05.8	2 24 43.6	2 24 14.2	2 23 45.3	2 22.9	197	33 149
+134 00	+75 40.3	+74 41.4	+73 43.0	2 31 43.8	2 31 48.1	2 31 53.5	2 28.1	199	35 169
+134 30	+75 36.8	+74 37.7	+73 39.1	2 31 58.8	2 32 04.4	2 32 11.0	2 28.2	199	36 170
+135 00	+75 33.3	+74 34.0	+73 35.2	2 32 14.0	2 32 20.8	2 32 28.6	2 28.4	199	36 170
+135 30	+75 29.7	+74 30.2	+73 31.2	2 32 29.3	2 32 37.3	2 32 46.4	2 28.5	199	36 171
+136 00	+75 26.1	+74 26.3	+73 27.1	2 32 44.7	2 32 54.0	2 33 04.4	2 28.7	199	36 171
+136 30	+75 22.3	+74 22.3	+73 22.8	2 33 00.3	2 33 10.9	2 33 22.6	2 28.9	199	36 172
+137 00	+75 18.5	+74 18.2	+73 18.5	2 33 16.1	2 33 28.0	2 33 41.0	2 29.0	199	36 173
+137 30	+75 14.6	+74 14.1	+73 14.1	2 33 32.0	2 33 45.2	2 33 59.6	2 29.2	199	36 173
+138 00	+75 10.6	+74 09.8	+73 09.6	2 33 48.1	2 34 02.7	2 34 18.4	2 29.3	199	36 174
+138 30	+75 06.5	+74 05.5	+73 05.0	2 34 04.4	2 34 20.3	2 34 37.3	2 29.5	199	36 175
+139 00	+75 02.3	+74 01.0	+73 00.3	2 34 20.9	2 34 38.1	2 34 56.5	2 29.6	199	36 175
+139 30	+74 58.0	+73 56.5	+72 55.5	2 34 37.5	2 34 56.1	2 35 15.9	2 29.8	199	36 176
+140 00	+74 53.6	+73 51.9	+72 50.6	2 34 54.3	2 35 14.3	2 35 35.5	2 30.0	200	36 177
+140 30	+74 49.1	+73 47.1	+72 45.6	2 35 11.3	2 35 32.7	2 35 55.3	2 30.1	200	37 177
+141 00	+74 44.6	+73 42.3	+72 40.5	2 35 28.5	2 35 51.3	2 36 15.3	2 30.3	200	37 178
+141 30	+74 39.9	+73 37.3	+72 35.3	2 35 45.9	2 36 10.1	2 36 35.6	2 30.4	200	37 179
+142 00	+74 35.1	+73 32.3	+72 30.0	2 36 03.5	2 36 29.2	2 36 56.1	2 30.6	200	37 179
+142 30	+74 30.3	+73 27.1	+72 24.5	2 36 21.3	2 36 48.4	2 37 16.9	2 30.7	200	37 180
+143 00	+74 25.3	+73 21.8	+72 18.9	2 36 39.4	2 37 07.9	2 37 37.9	2 30.9	200	37 181
+143 30	+74 20.2	+73 16.5	+72 13.3	2 36 57.6	2 37 27.7	2 37 59.1	2 31.0	200	37 181
+144 00	+74 15.0	+73 11.0	+72 07.5	2 37 16.1	2 37 47.6	2 38 20.6	2 31.2	200	37 182
+144 30	+74 09.8	+73 05.3	+72 01.5	2 37 34.8	2 38 07.9	2 38 42.4	2 31.3	200	37 183
+145 00	+74 04.3	+72 59.6	+71 55.5	2 37 53.7	2 38 28.3	2 39 04.4	2 31.5	200	37 184
+145 30	+73 58.8	+72 53.8	+71 49.3	2 38 12.9	2 38 49.1	2 39 26.8	2 31.6	200	37 184
+146 00	+73 53.2	+72 47.8	+71 43.0	2 38 32.3	2 39 10.1	2 39 49.4	2 31.8	200	37 185
+146 30	+73 47.4	+72 41.7	+71 36.6	2 38 51.9	2 39 31.3	2 40 12.3	2 31.9	200	38 186
+147 00	+73 41.5	+72 35.5	+71 30.0	2 39 11.8	2 39 52.9	2 40 35.4	2 32.1	201	38 186
+147 30	+73 35.5	+72 29.1	+71 23.3	2 39 32.0	2 40 14.7	2 40 58.9	2 32.2	201	38 187
+148 00	+73 29.4	+72 22.6	+71 16.5	2 39 52.5	2 40 36.8	2 41 22.7	2 32.4	201	38 188
+148 30	+73 23.2	+72 16.0	+71 09.5	2 40 13.2	2 40 59.2	2 41 46.8	2 32.5	201	38 189
+149 00	+73 16.8	+72 09.3	+71 02.4	2 40 34.2	2 41 21.9	2 42 11.3	2 32.7	201	38 189

皆既帯の中心線・南北限界線(経度0.5°毎)⑤

Longitude	Latitude of:			Universal Time at:			On Central Line		
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt. Az.
° / '	° / '	° / '	° / '	h m s	h m s	h m s	m s	km	° °
+149 30	+73 10.3	+72 02.4	+70 55.1	2 40 55.5	2 41 45.0	2 42 36.1	2 32.8	201	38 190
+150 00	+73 03.6	+71 55.3	+70 47.7	2 41 17.1	2 42 08.3	2 43 01.2	2 32.9	201	38 191
+150 30	+72 56.8	+71 48.1	+70 40.1	2 41 39.0	2 42 32.0	2 43 26.6	2 33.1	201	38 191
+151 00	+72 49.9	+71 40.8	+70 32.4	2 42 01.3	2 42 56.0	2 43 52.4	2 33.2	201	38 192
+151 30	+72 42.8	+71 33.3	+70 24.5	2 42 23.8	2 43 20.3	2 44 18.6	2 33.4	201	38 193
+152 00	+72 35.6	+71 25.7	+70 16.5	2 42 46.7	2 43 45.0	2 44 45.2	2 33.5	201	38 194
+152 30	+72 28.2	+71 17.9	+70 08.2	2 43 09.9	2 44 10.1	2 45 12.1	2 33.6	201	39 194
+153 00	+72 20.6	+71 09.9	+69 59.9	2 43 33.4	2 44 35.5	2 45 39.4	2 33.8	202	39 195
+153 30	+72 12.9	+71 01.8	+69 51.3	2 43 57.3	2 45 01.3	2 46 07.1	2 33.9	202	39 196
+154 00	+72 05.1	+70 53.5	+69 42.6	2 44 21.6	2 45 27.5	2 46 35.2	2 34.0	202	39 197
+154 30	+71 57.1	+70 45.0	+69 33.7	2 44 46.2	2 45 54.1	2 47 03.8	2 34.1	202	39 197
+155 00	+71 48.9	+70 36.4	+69 24.6	2 45 11.2	2 46 21.0	2 47 32.7	2 34.3	202	39 198
+155 30	+71 40.5	+70 27.6	+69 15.3	2 45 36.6	2 46 48.4	2 48 02.1	2 34.4	202	39 199
+156 00	+71 32.0	+70 18.6	+69 05.9	2 46 02.4	2 47 16.2	2 48 32.0	2 34.5	202	39 200
+156 30	+71 23.3	+70 09.4	+68 56.2	2 46 28.6	2 47 44.5	2 49 02.3	2 34.6	202	39 201
+157 00	+71 14.4	+69 60.0	+68 46.3	2 46 55.2	2 48 13.1	2 49 33.0	2 34.7	202	39 201
+157 30	+71 05.3	+69 50.4	+68 36.3	2 47 22.3	2 48 42.3	2 50 04.3	2 34.8	203	39 202
+158 00	+70 56.0	+69 40.6	+68 26.0	2 47 49.7	2 49 11.9	2 50 36.0	2 34.9	203	39 203
+158 30	+70 46.6	+69 30.7	+68 15.6	2 48 17.7	2 49 41.9	2 51 08.2	2 35.0	203	39 204
+159 00	+70 36.9	+69 20.5	+68 04.9	2 48 46.1	2 50 12.5	2 51 40.9	2 35.1	203	40 205
+159 30	+70 27.0	+69 10.1	+67 54.0	2 49 14.9	2 50 43.5	2 52 14.2	2 35.2	203	40 205
+160 00	+70 16.9	+68 59.5	+67 42.9	2 49 44.3	2 51 15.1	2 52 47.9	2 35.3	203	40 206
+160 30	+70 06.6	+68 48.6	+67 31.5	2 50 14.1	2 51 47.2	2 53 22.2	2 35.4	203	40 207
+161 00	+69 56.1	+68 37.6	+67 19.9	2 50 44.4	2 52 19.7	2 53 57.1	2 35.5	203	40 208
+161 30	+69 45.4	+68 26.3	+67 08.1	2 51 15.3	2 52 52.9	2 54 32.5	2 35.6	204	40 209
+162 00	+69 34.4	+68 14.8	+66 56.1	2 51 46.6	2 53 26.6	2 55 08.5	2 35.6	204	40 209
+162 30	+69 23.3	+68 03.0	+66 43.8	2 52 18.6	2 54 00.8	2 55 45.0	2 35.7	204	40 210
+163 00	+69 11.8	+67 51.0	+66 31.2	2 52 51.0	2 54 35.6	2 56 22.2	2 35.8	204	40 211
+163 30	+69 00.2	+67 38.8	+66 18.4	2 53 24.0	2 55 11.0	2 56 59.9	2 35.8	204	40 212
+164 00	+68 48.2	+67 26.3	+66 05.4	2 53 57.6	2 55 47.0	2 57 38.3	2 35.9	204	40 213
+164 30	+68 36.1	+67 13.6	+65 52.0	2 54 31.8	2 56 23.6	2 58 17.3	2 35.9	204	40 214
+165 00	+68 23.7	+67 00.5	+65 38.4	2 55 06.6	2 57 00.8	2 58 56.9	2 36.0	205	40 215
+165 30	+68 11.0	+66 47.2	+65 24.6	2 55 42.0	2 57 38.7	2 59 37.2	2 36.0	205	40 216
+166 00	+67 58.0	+66 33.7	+65 10.4	2 56 18.0	2 58 17.2	3 00 18.1	2 36.0	205	40 216
+166 30	+67 44.8	+66 19.9	+64 56.0	2 56 54.7	2 58 56.3	3 00 59.7	2 36.0	205	40 217
+167 00	+67 31.3	+66 05.7	+64 41.3	2 57 32.0	2 59 36.1	3 01 41.9	2 36.0	205	40 218
+167 30	+67 17.5	+65 51.3	+64 26.3	2 58 10.0	3 00 16.6	3 02 24.8	2 36.0	205	40 219
+168 00	+67 03.4	+65 36.6	+64 11.1	2 58 48.6	3 00 57.8	3 03 08.5	2 36.0	206	40 220
+168 30	+66 49.1	+65 21.6	+63 55.5	2 59 28.0	3 01 39.6	3 03 52.8	2 36.0	206	40 221
+169 00	+66 34.4	+65 06.4	+63 39.6	3 00 08.0	3 02 22.2	3 04 37.8	2 36.0	206	40 222
+169 30	+66 19.4	+64 50.8	+63 23.4	3 00 48.7	3 03 05.5	3 05 23.5	2 35.9	206	40 223
+170 00	+66 04.1	+64 34.8	+63 06.9	3 01 30.2	3 03 49.5	3 06 10.0	2 35.9	206	40 224
+170 30	+65 48.5	+64 18.6	+62 50.1	3 02 12.4	3 04 34.2	3 06 57.1	2 35.8	206	40 225
+171 00	+65 32.6	+64 02.1	+62 33.0	3 02 55.3	3 05 19.7	3 07 45.0	2 35.7	207	40 226
+171 30	+65 16.4	+63 45.2	+62 15.5	3 03 39.0	3 06 05.9	3 08 33.6	2 35.6	207	40 227
+172 00	+64 59.8	+63 28.0	+61 57.8	3 04 23.4	3 06 52.8	3 09 22.9	2 35.5	207	40 228
+172 30	+64 42.9	+63 10.5	+61 39.7	3 05 08.6	3 07 40.5	3 10 13.0	2 35.4	207	40 229
+173 00	+64 25.7	+62 52.7	+61 21.3	3 05 54.6	3 08 28.9	3 11 03.7	2 35.3	207	40 230
+173 30	+64 08.1	+62 34.5	+61 02.6	3 06 41.3	3 09 18.1	3 11 55.2	2 35.1	208	40 231
+174 00	+63 50.2	+62 16.0	+60 43.5	3 07 28.8	3 10 08.1	3 12 47.4	2 35.0	208	40 232

皆既帯の中心線・南北限界線（経度 0.5° 毎）⑥

Longitude	Latitude of:			Universal Time at:			On Central Line		
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt. Az.
° /	° /	° /	° /	h m s	h m s	h m s	m s	km	° °
+174 30	+63 31.9	+61 57.1	+60 24.1	3 08 17.1	3 10 58.7	3 13 40.3	2 34.8	208	40 233
+175 00	+63 13.3	+61 37.9	+60 04.4	3 09 06.2	3 11 50.2	3 14 33.9	2 34.6	208	40 234
+175 30	+62 54.4	+61 18.4	+59 44.4	3 09 56.0	3 12 42.3	3 15 28.1	2 34.4	209	40 235
+176 00	+62 35.1	+60 58.6	+59 24.1	3 10 46.7	3 13 35.2	3 16 23.1	2 34.1	209	40 236
+176 30	+62 15.4	+60 38.4	+59 03.4	3 11 38.1	3 14 28.8	3 17 18.6	2 33.9	209	40 237
+177 00	+61 55.4	+60 17.8	+58 42.5	3 12 30.3	3 15 23.1	3 18 14.8	2 33.6	209	39 238
-176 00	+56 39.7	+54 58.0	+53 19.8	3 25 51.8	3 29 04.2	3 32 11.1	2 27.6	213	37 252
-175 30	+56 14.9	+54 33.2	+52 55.1	3 26 52.9	3 30 05.8	3 33 12.7	2 27.0	213	36 253
-175 00	+55 49.9	+54 08.3	+52 30.3	3 27 54.3	3 31 07.4	3 34 14.3	2 26.4	213	36 254
-174 30	+55 24.6	+53 43.1	+52 05.3	3 28 56.0	3 32 09.2	3 35 15.8	2 25.7	213	36 255
-174 00	+54 59.2	+53 17.8	+51 40.2	3 29 57.8	3 33 10.9	3 36 17.2	2 25.0	213	35 256
-173 30	+54 33.6	+52 52.4	+51 15.1	3 30 59.8	3 34 12.6	3 37 18.4	2 24.3	213	35 257
-173 00	+54 07.8	+52 26.8	+50 49.8	3 32 01.8	3 35 14.3	3 38 19.3	2 23.6	214	35 258
-172 30	+53 41.8	+52 01.2	+50 24.5	3 33 03.8	3 36 15.7	3 39 19.9	2 22.9	214	34 259
-172 00	+53 15.7	+51 35.4	+49 59.2	3 34 05.7	3 37 16.9	3 40 20.1	2 22.1	214	34 260
-171 30	+52 49.5	+51 09.6	+49 33.9	3 35 07.5	3 38 17.8	3 41 19.9	2 21.3	214	33 261
-171 00	+52 23.3	+50 43.8	+49 08.5	3 36 09.1	3 39 18.4	3 42 19.2	2 20.5	214	33 262
-170 30	+51 56.9	+50 17.9	+48 43.2	3 37 10.4	3 40 18.5	3 43 18.0	2 19.7	214	33 263
-170 00	+51 30.5	+49 52.1	+48 17.9	3 38 11.4	3 41 18.2	3 44 16.2	2 18.9	214	32 264

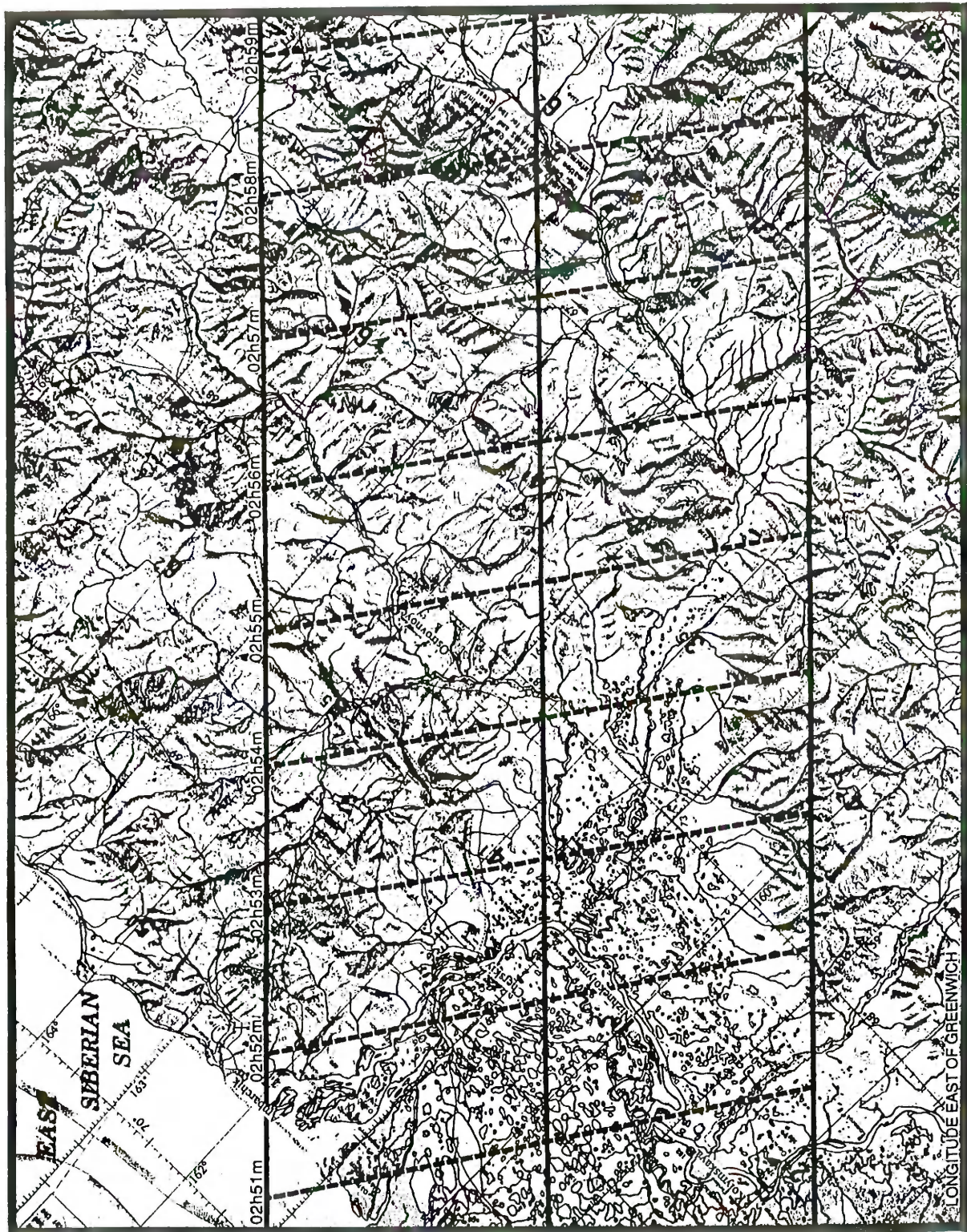
1 万フィート、4 万フィート 上空の皆既中心線の経度・緯度①

U.T.	10000 Ft.		40000 Ft.		U.T.	10000 Ft.		40000 Ft.	
	Latitude	Longitude	Latitude	Longitude		Latitude	Longitude	Latitude	Longitude
h m	° /	° /	° /	° /	h m	° /	° /	° /	° /
Limits	+59 45.2	+ 23 45.9	+59 41.0	+ 23 57.3	2 18	+76 15.3	+102 14.0	+76 09.7	+102 41.2
1 54	+63 21.6	+ 31 37.1	+63 50.7	+ 33 07.2	2 19	+76 16.0	+104 54.6	+76 10.2	+105 20.0
1 55	+65 21.7	+ 36 27.0	+65 38.9	+ 37 34.7	2 20	+76 15.2	+107 32.5	+76 09.2	+107 56.1
1 56	+66 47.2	+ 40 12.7	+66 59.5	+ 41 12.1	2 21	+76 13.0	+110 07.5	+76 06.9	+110 29.3
1 57	+67 56.5	+ 43 31.6	+68 05.8	+ 44 26.5	2 22	+76 09.5	+112 39.2	+76 03.2	+112 59.2
1 58	+68 55.5	+ 46 35.9	+69 02.8	+ 47 27.9	2 23	+76 04.8	+115 07.5	+75 58.3	+115 25.6
1 59	+69 47.2	+ 49 31.4	+69 52.9	+ 50 21.6	2 24	+75 58.8	+117 32.0	+75 52.3	+117 48.4
2 00	+70 33.2	+ 52 21.7	+70 37.6	+ 53 10.4	2 25	+75 51.8	+119 52.7	+75 45.2	+120 07.4
2 01	+71 14.6	+ 55 08.7	+71 17.9	+ 55 56.2	2 26	+75 43.7	+122 09.4	+75 37.0	+122 22.5
2 02	+71 52.1	+ 57 53.8	+71 54.5	+ 58 40.4	2 27	+75 34.6	+124 22.1	+75 27.9	+124 33.6
2 03	+72 26.2	+ 60 38.0	+72 27.7	+ 61 23.8	2 28	+75 24.6	+126 30.6	+75 17.9	+126 40.6
2 04	+72 57.2	+ 63 22.1	+72 57.9	+ 64 07.0	2 29	+75 13.7	+128 35.0	+75 07.0	+128 43.6
2 05	+73 25.4	+ 66 06.4	+73 25.4	+ 66 50.6	2 30	+75 02.0	+130 35.3	+74 55.3	+130 42.5
2 06	+73 51.0	+ 68 51.3	+73 50.4	+ 69 34.7	2 31	+74 49.6	+132 31.5	+74 42.8	+132 37.4
2 07	+74 14.1	+ 71 37.0	+74 12.9	+ 72 19.5	2 32	+74 36.4	+134 23.7	+74 29.7	+134 28.4
2 08	+74 35.0	+ 74 23.4	+74 33.2	+ 75 05.0	2 33	+74 22.6	+136 12.0	+74 16.0	+136 15.6
2 09	+74 53.6	+ 77 10.7	+74 51.4	+ 77 51.2	2 34	+74 08.2	+137 56.4	+74 01.6	+137 59.0
2 10	+75 10.2	+ 79 58.6	+75 07.5	+ 80 38.1	2 35	+73 53.3	+139 37.2	+73 46.7	+139 38.7
2 11	+75 24.7	+ 82 47.1	+75 21.5	+ 83 25.3	2 36	+73 37.8	+141 14.3	+73 31.2	+141 14.9
2 12	+75 37.3	+ 85 35.7	+75 33.7	+ 86 12.6	2 37	+73 21.8	+142 47.9	+73 15.3	+142 47.7
2 13	+75 48.0	+ 88 24.3	+75 44.0	+ 88 59.8	2 38	+73 05.4	+144 18.2	+72 59.0	+144 17.2
2 14	+75 56.9	+ 91 12.6	+75 52.5	+ 91 46.6	2 39	+72 48.5	+145 45.2	+72 42.2	+145 43.5
2 15	+76 04.0	+ 94 00.0	+75 59.3	+ 94 32.4	2 40	+72 31.3	+147 09.2	+72 25.0	+147 06.8
2 16	+76 09.4	+ 96 46.4	+76 04.3	+ 97 17.1	2 41	+72 13.7	+148 30.1	+72 07.5	+148 27.1
2 17	+76 13.1	+ 99 31.1	+76 07.8	+100 00.1	2 42	+71 55.8	+149 48.3	+71 49.7	+149 44.7

1万フィート、4万フィート 上空の皆既中心線の経度・緯度 ②

U.T.		10000 Ft.		40000 Ft.		U.T.		10000 Ft.		40000 Ft.	
	Latitude	Longitude	Latitude	Longitude		Latitude	Longitude	Latitude	Longitude		Longitude
h m	° ' "	° ' "	° ' "	° ' "	h m	° ' "	° ' "	° ' "	° ' "	h m	° ' "
2 43	+71 37.5	+151 03.7	+71 31.5	+150 59.6	3 28	+55 23.0	-176 35.0	+55 20.9	-176 45.8	3 28	+55 23.0
2 44	+71 19.0	+152 16.5	+71 13.1	+152 11.9	3 29	+54 59.0	-176 05.7	+54 57.0	-176 16.6	3 29	+54 59.0
2 45	+71 00.2	+153 26.9	+70 54.4	+153 21.8	3 30	+54 34.9	-175 36.4	+54 33.0	-175 47.4	3 30	+54 34.9
2 46	+70 41.2	+154 34.9	+70 35.4	+154 29.4	3 31	+54 10.6	-175 07.3	+54 08.8	-175 18.3	3 31	+54 10.6
2 47	+70 21.9	+155 40.7	+70 16.2	+155 34.8	3 32	+53 46.2	-174 38.1	+53 44.5	-174 49.2	3 32	+53 46.2
2 48	+70 02.4	+156 44.3	+69 56.8	+156 38.1	3 33	+53 21.7	-174 09.0	+53 20.1	-174 20.2	3 33	+53 21.7
2 49	+69 42.7	+157 45.9	+69 37.2	+157 39.4	3 34	+52 57.0	-173 39.9	+52 55.5	-173 51.1	3 34	+52 57.0
2 50	+69 22.8	+158 45.6	+69 17.4	+158 38.7	3 35	+52 32.2	-173 10.7	+52 30.8	-173 22.0	3 35	+52 32.2
2 51	+69 02.8	+159 43.4	+68 57.4	+159 36.3	3 36	+52 07.2	-172 41.5	+52 05.9	-172 52.9	3 36	+52 07.2
2 52	+68 42.5	+160 39.5	+68 37.3	+160 32.1	3 37	+51 42.1	-172 12.1	+51 40.8	-172 23.6	3 37	+51 42.1
2 53	+68 22.1	+161 33.9	+68 17.0	+161 26.3	3 38	+51 16.8	-171 42.6	+51 15.6	-171 54.2	3 38	+51 16.8
2 54	+68 01.6	+162 26.8	+67 56.6	+162 18.9	3 39	+50 51.3	-171 13.0	+50 50.2	-171 24.7	3 39	+50 51.3
2 55	+67 40.9	+163 18.1	+67 36.0	+163 10.1	3 40	+50 25.6	-170 43.2	+50 24.6	-170 55.0	3 40	+50 25.6
2 56	+67 20.1	+164 08.0	+67 15.3	+163 59.8	3 41	+49 59.7	-170 13.1	+49 58.8	-170 25.0	3 41	+49 59.7
2 57	+66 59.2	+164 56.6	+66 54.4	+164 48.2	3 42	+49 33.5	-169 42.8	+49 32.8	-169 54.8	3 42	+49 33.5
2 58	+66 38.2	+165 43.9	+66 33.5	+165 35.3	3 43	+49 07.2	-169 12.2	+49 06.5	-169 24.3	3 43	+49 07.2
2 59	+66 17.0	+166 29.9	+66 12.4	+166 21.2	3 44	+48 40.6	-168 41.2	+48 40.0	-168 53.5	3 44	+48 40.6
3 00	+65 55.7	+167 14.9	+65 51.2	+167 06.0	3 45	+48 13.8	-168 09.9	+48 13.3	-168 22.3	3 45	+48 13.8
3 01	+65 34.3	+167 58.7	+65 29.9	+167 49.7	3 46	+47 46.7	-167 38.1	+47 46.3	-167 50.7	3 46	+47 46.7
3 02	+65 12.9	+168 41.4	+65 08.5	+168 32.4	3 47	+47 19.3	-167 05.9	+47 19.0	-167 18.6	3 47	+47 19.3
3 03	+64 51.3	+169 23.2	+64 47.1	+169 14.0	3 48	+46 51.6	-166 33.1	+46 51.5	-166 46.0	3 48	+46 51.6
3 04	+64 29.6	+170 04.0	+64 25.5	+169 54.8	3 49	+46 23.5	-165 59.7	+46 23.6	-166 12.8	3 49	+46 23.5
3 05	+64 07.9	+170 44.0	+64 03.8	+170 34.6	3 50	+45 55.1	-165 25.7	+45 55.3	-165 38.9	3 50	+45 55.1
3 06	+63 46.0	+171 23.1	+63 42.0	+171 13.6	3 51	+45 26.4	-164 50.9	+45 26.7	-165 04.4	3 51	+45 26.4
3 07	+63 24.1	+172 01.4	+63 20.2	+171 51.8	3 52	+44 57.2	-164 15.3	+44 57.7	-164 29.1	3 52	+44 57.2
3 08	+63 02.0	+172 39.0	+62 58.2	+172 29.3	3 53	+44 27.6	-163 38.8	+44 28.2	-163 52.8	3 53	+44 27.6
3 09	+62 39.9	+173 15.8	+62 36.2	+173 06.1	3 54	+43 57.5	-163 01.4	+43 58.3	-163 15.6	3 54	+43 57.5
3 10	+62 17.7	+173 52.0	+62 14.1	+173 42.2	3 55	+43 26.9	-162 22.8	+43 27.8	-162 37.4	3 55	+43 26.9
3 11	+61 55.4	+174 27.5	+61 51.9	+174 17.6	3 56	+42 55.7	-161 42.9	+42 56.8	-161 57.8	3 56	+42 55.7
3 12	+61 33.1	+175 02.4	+61 29.6	+174 52.5	3 57	+42 23.8	-161 01.7	+42 25.2	-161 17.0	3 57	+42 23.8
3 13	+61 10.6	+175 36.8	+61 07.3	+175 26.8	3 58	+41 51.3	-160 18.8	+41 52.9	-160 34.6	3 58	+41 51.3
3 14	+60 48.1	+176 10.6	+60 44.8	+176 00.5	3 59	+41 17.9	-159 34.2	+41 19.8	-159 50.4	3 59	+41 17.9
3 15	+60 25.5	+176 43.9	+60 22.3	+176 33.8	4 00	+40 43.7	-158 47.5	+40 45.8	-159 04.3	4 00	+40 43.7
3 16	+60 02.8	+177 16.8	+59 59.7	+177 06.6	4 01	+40 08.5	-157 58.4	+40 10.9	-158 15.8	4 01	+40 08.5
3 17	+59 40.0	+177 49.2	+59 37.0	+177 39.0	4 02	+39 32.1	-157 06.6	+39 34.8	-157 24.7	4 02	+39 32.1
3 18	+59 17.1	+178 21.2	+59 14.2	+178 10.9	4 03	+38 54.3	-156 11.5	+38 57.5	-156 30.4	4 03	+38 54.3
3 19	+58 54.1	+178 52.9	+58 51.3	+178 42.5	4 04	+38 15.0	-155 12.4	+38 18.6	-155 32.4	4 04	+38 15.0
3 20	+58 31.1	+179 24.1	+58 28.3	+179 13.7	4 05	+37 33.6	-154 08.5	+37 37.8	-154 29.8	4 05	+37 33.6
3 21	+58 07.9	+179 55.1	+58 05.2	+179 44.7	4 06	+36 49.8	-152 58.5	+36 54.6	-153 21.4	4 06	+36 49.8
3 22	+57 44.7	-179 34.2	+57 42.1	-179 44.7	4 07	+36 02.8	-151 40.5	+36 08.5	-152 05.5	4 07	+36 02.8
3 23	+57 21.3	-179 03.8	+57 18.8	-179 14.4	4 08	+35 11.4	-150 11.3	+35 18.4	-150 39.4	4 08	+35 11.4
3 24	+56 57.9	-178 33.7	+56 55.4	-178 44.3	4 09	+34 13.3	-148 25.1	+34 22.2	-148 58.0	4 09	+34 13.3
3 25	+56 34.3	-178 03.8	+56 32.0	-178 14.4	4 10	+33 03.3	-146 08.3	+33 15.9	-146 50.6	4 10	+33 03.3
3 26	+56 10.7	-177 34.0	+56 08.4	-177 44.7	4 11	+31 19.2	-142 22.7	+31 45.5	-143 40.5	4 11	+31 19.2
3 27	+55 46.9	-177 04.4	+55 44.7	-177 15.2	Limits	+29 54.7	-138 54.6	+29 49.4	-139 00.8	Limits	+29 54.7

皆既帯詳細地図③ (東シベリア)



7月の平均海面気圧 (mb) と前線の位置

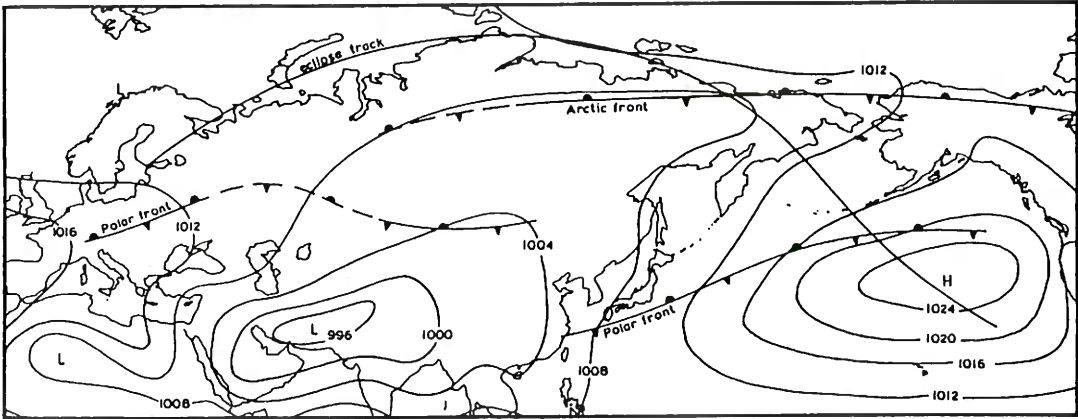


Figure 1: Mean sea level pressure (in millibars) and mean frontal positions for July.

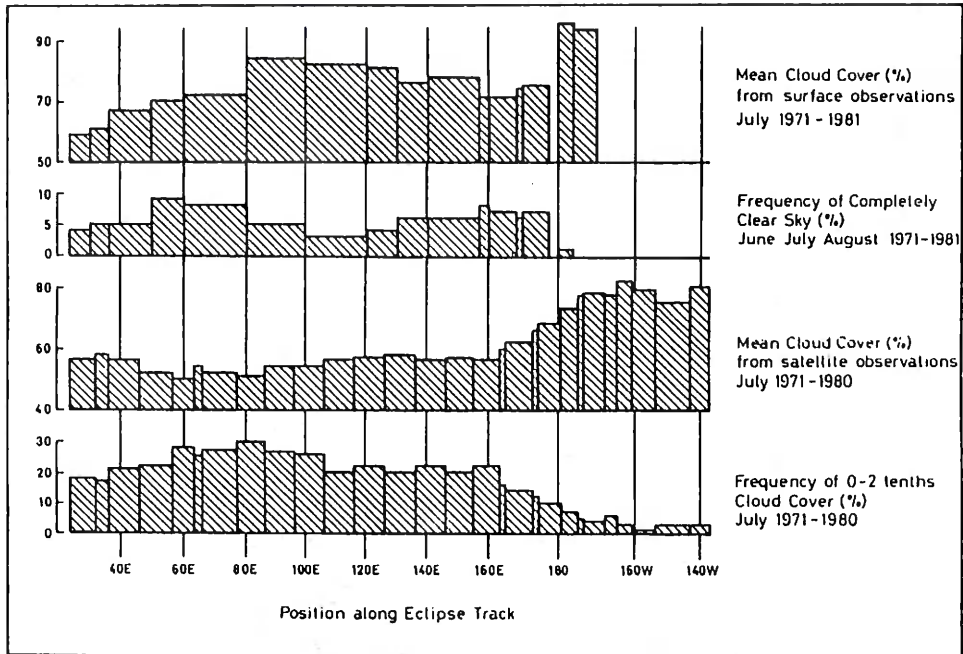


Figure 2: Cloud climatology along the eclipse track. Statistics for the top two graphs are compiled from surface observations; the lower two are from satellite images. Data are extracted for latitude-longitude squares of varying sizes (generally 5 x 10 degrees). The width of each bar is a reflection of the eclipse track across each square.

皆既帯の各経度ごとの天候

7月に雲量 $\frac{3}{10}$ 以下、視度 5 マイル以上の日になる%
(OHUT)

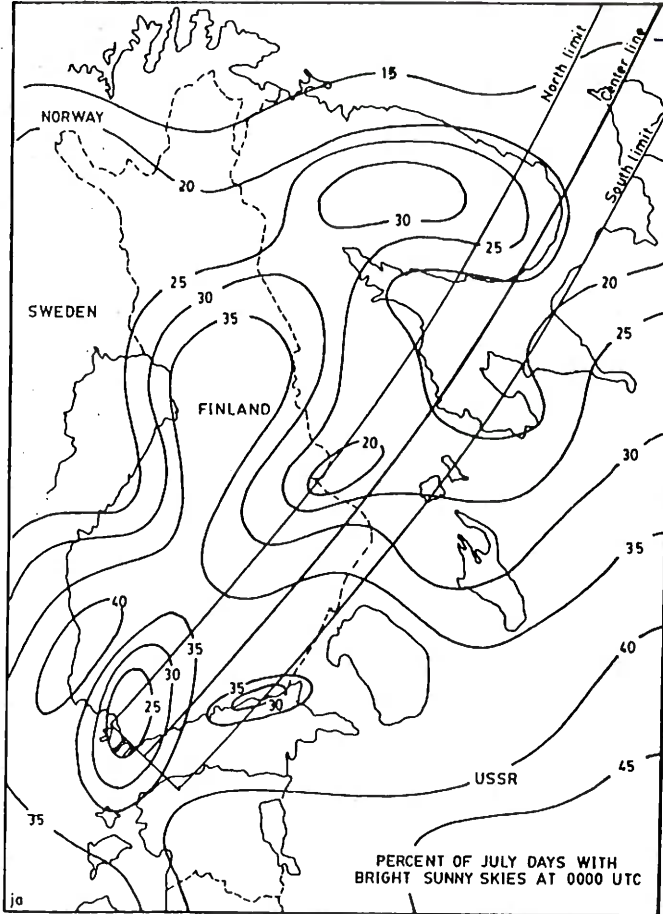


Figure 3: Percent of July days with less than $\frac{3}{10}$ ths cloud cover and more than 5 miles visibility at 0000 UTC. Eclipse track is approximate.

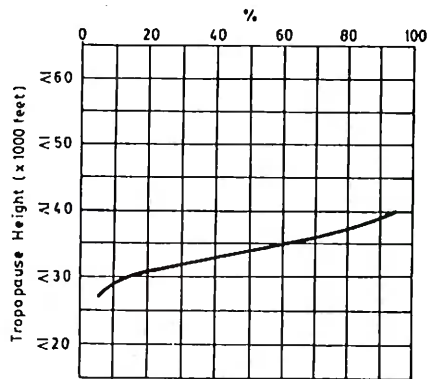


Figure 4: Percent frequency of tropopause heights less than a given value, for 60 degrees north latitude.

北緯 60° において、圏界面がたて軸に与えられた高さ以下になる確率

皆既帯に含まれる各都市の気象の特徴

Table 1: Climatic characteristics of selected sites along the eclipse track.

Location:	Helsinki	Reboly	Arkhangel'sk	Malyje Karmakoly	Markovo	Khatyrka	Adak
Approx. hour of eclipse	04	04	05	06	14	15	15
<u>Temperature:</u>							
Mean Maximum	67F / 19C	66F / 19C	69F / 21C	49F / 9C	66F / 19C	55F / 13C	53F / 12C
Mean Minimum	55F / 13C	52F / 11C	53F / 12C	39F / 4C	47F / 8C	43F / 6C	44F / 7C
% days with 2.5+ mm rain	19	34	32	35	33	26	18
% days with thick fog	3	0	1	6	2	18	11
% days with less than 3/10 cloud and good visibility	35	35	26	14	11	22	1
% days with winds under 17 mph	2	1	3	24	1	11	20
Mean cloud cover (%)	59	61	61	70	72	75	93
<u>Cumulus cloud</u>							
Frequency (%)	20	17	19	3	7	8	3
Amount when present (%)	27	31	32	42	35	35	56
Time of Maximum	13	13	14	14	14	14	10
<u>Low Cloud</u>							
Frequency (%)	35	26	27	54	47	52	92
Amount when present (%)	66	72	73	89	71	73	87
Time of maximum	05	06	05	03	03	03	01
<u>Middle Cloud</u>							
Frequency (%)	50	37	42	32	37	38	30
Amount when present (%)	55	67	68	68	66	63	68
<u>High Cloud</u>							
Frequency (%)	57	49	47	39	52	49	52
Amount when present (%)	34	48	48	49	52	51	46
<u>Clear skies</u>							
Frequency (%)	4	5	6	9	7	7	0
Most frequent type of cloud	Cirrus	Cirrus	Cirrus	Stratus	Cirrus	Stratus	Stratus
Cloud type contributing most to cloud cover	Altostratus	Altostratus	Altostratus	Stratus	Stratus	Stratus	Stratus