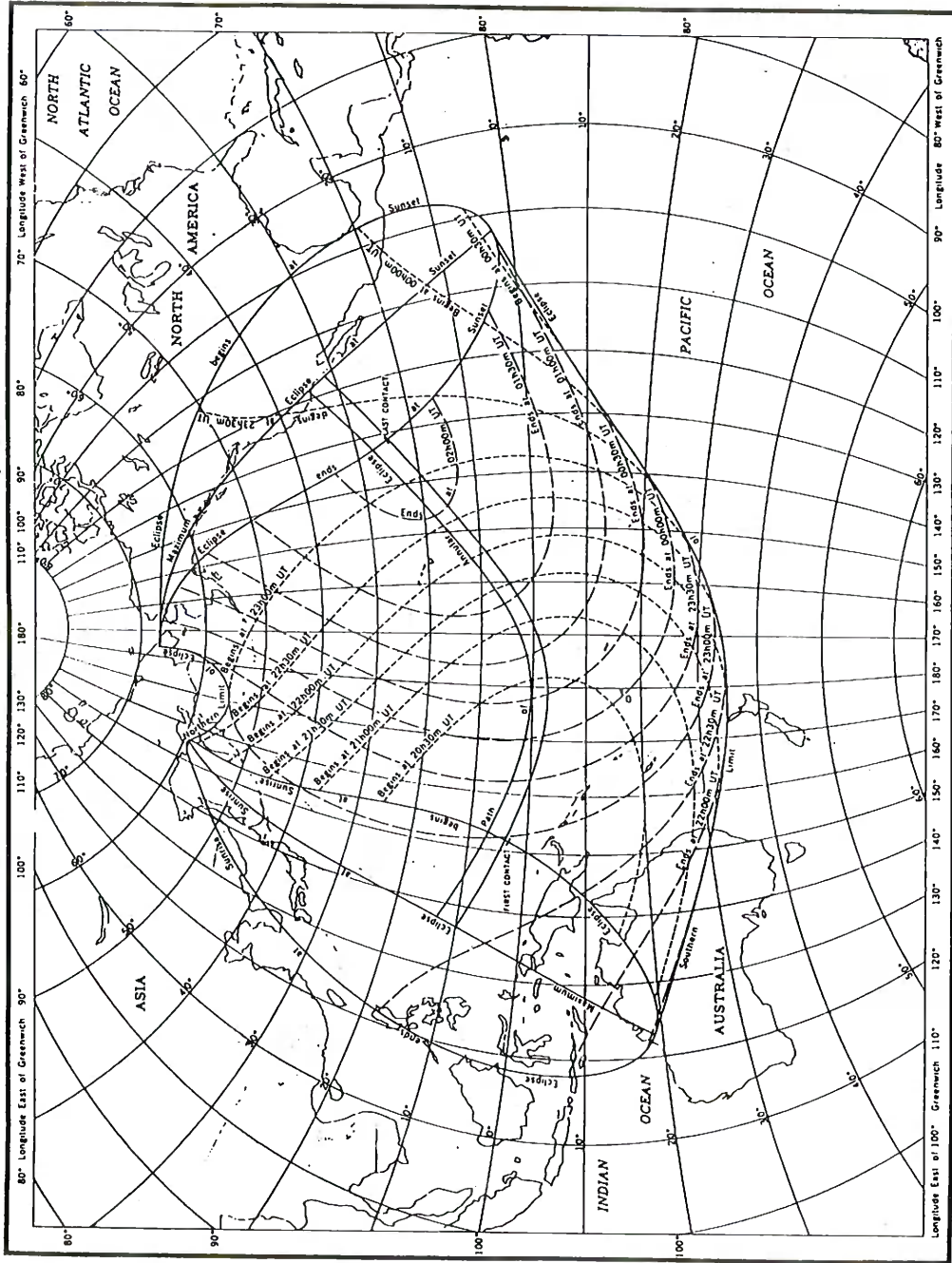


92年1月5日(4日)の金環日食詳細予報

米海軍天文台回報より

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992



ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

SURFACE PATH OF THE ANNULAR PHASE

U.T.	Northern Limit		Central Line		Southern Limit	
	Latitude	Longitude	Latitude	Longitude	Latitude	Longitude
Limits	+13 10.4	+137 37.2	+11 32.6	+137 07.5	+ 9 56.1	+136 37.0
^h ^m 21 16	.. ..	... ..	.. ..	... ..	+ 7 36.4	+142 13.5
21 18	+10 18.4	+144 20.0	+ 7 48.3	+146 02.7	+ 5 37.2	+147 05.6
21 20	+ 8 31.5	+148 35.7	+ 6 23.2	+149 31.6	+ 4 23.9	+150 10.1
21 25	+ 6 04.5	+154 43.2	+ 4 11.4	+155 10.4	+ 2 22.7	+155 30.0
21 30	+ 4 32.8	+158 50.4	+ 2 45.4	+159 08.9	+ 1 01.2	+159 22.5
21 35	+ 3 26.3	+162 05.2	+ 1 42.2	+162 20.1	+ 0 00.8	+162 31.3
21 40	+ 2 35.7	+164 49.1	+ 0 53.7	+165 02.5	- 0 45.9	+165 12.9
21 45	+ 1 56.2	+167 12.2	+ 0 15.9	+167 25.1	- 1 22.3	+167 35.6
21 50	+ 1 25.3	+169 20.1	- 0 13.7	+169 33.2	- 1 50.7	+169 44.3
21 55	+ 1 01.5	+171 16.4	- 0 36.4	+171 30.1	- 2 12.5	+171 42.1
22 00	+ 0 43.5	+173 03.5	- 0 53.5	+173 18.0	- 2 28.7	+173 31.2
22 05	+ 0 30.6	+174 43.1	- 1 05.5	+174 58.7	- 2 39.9	+175 13.2
22 10	+ 0 22.2	+176 16.6	- 1 13.1	+176 33.4	- 2 46.7	+176 49.3
22 15	+ 0 17.8	+177 44.9	- 1 16.6	+178 03.0	- 2 49.5	+178 20.3
22 20	+ 0 17.2	+179 08.9	- 1 16.5	+179 28.3	- 2 48.6	+179 47.2
22 25	+ 0 20.0	-179 30.8	- 1 13.0	-179 10.0	- 2 44.3	-178 49.7
22 30	+ 0 26.0	-178 13.6	- 1 06.2	-177 51.4	- 2 36.8	-177 29.6
22 35	+ 0 35.0	-176 59.1	- 0 56.4	-176 35.6	- 2 26.2	-176 12.2
22 40	+ 0 46.9	-175 46.9	- 0 43.7	-175 21.9	- 2 12.7	-174 57.1
22 45	+ 1 01.7	-174 36.5	- 0 28.2	-174 10.2	- 1 56.4	-173 43.9
22 50	+ 1 19.1	-173 27.8	- 0 09.9	-173 00.1	- 1 37.4	-172 32.4
22 55	+ 1 39.3	-172 20.2	+ 0 11.0	-171 51.3	- 1 15.7	-171 22.2
23 00	+ 2 02.0	-171 13.6	+ 0 34.5	-170 43.5	- 0 51.3	-170 13.1
23 05	+ 2 27.4	-170 07.7	+ 1 00.6	-169 36.4	- 0 24.4	-169 04.8
23 10	+ 2 55.3	-169 02.2	+ 1 29.4	-168 29.7	+ 0 05.1	-167 56.9
23 15	+ 3 26.0	-167 56.8	+ 2 00.7	-167 23.3	+ 0 37.2	-166 49.4
23 20	+ 3 59.3	-166 51.2	+ 2 34.7	-166 16.7	+ 1 11.8	-165 41.7
23 25	+ 4 35.3	-165 45.2	+ 3 11.4	-165 09.7	+ 1 49.1	-164 33.8
23 30	+ 5 14.2	-164 38.3	+ 3 50.8	-164 02.0	+ 2 29.2	-163 25.2
23 35	+ 5 56.0	-163 30.3	+ 4 33.1	-162 53.2	+ 3 12.0	-162 15.6
23 40	+ 6 40.9	-162 20.8	+ 5 18.4	-161 43.0	+ 3 57.7	-161 04.6
23 45	+ 7 29.0	-161 09.2	+ 6 06.8	-160 30.9	+ 4 46.4	-159 51.8
23 50	+ 8 20.6	-159 55.2	+ 6 58.6	-159 16.3	+ 5 38.4	-158 36.7
23 55	+ 9 15.9	-158 38.1	+ 7 53.9	-157 58.8	+ 6 33.8	-157 18.8
0 00	+10 15.2	-157 17.1	+ 8 53.2	-156 37.6	+ 7 33.0	-155 57.2
0 05	+11 19.1	-155 51.4	+ 9 56.7	-155 11.8	+ 8 36.3	-154 31.2
0 10	+12 28.0	-154 19.8	+11 05.1	-153 40.4	+ 9 44.2	-152 59.7
0 15	+13 42.7	-152 40.9	+12 18.9	-152 01.8	+10 57.4	-151 21.4
0 20	+15 04.1	-150 52.6	+13 39.2	-150 14.2	+12 16.6	-149 34.3
0 25	+16 33.7	-148 52.1	+15 07.1	-148 15.0	+13 43.1	-147 36.0
0 30	+18 13.5	-146 35.1	+16 44.6	-146 00.1	+15 18.6	-145 22.7
0 35	+20 07.0	-143 54.9	+18 34.7	-143 23.3	+17 05.9	-142 48.6
0 40	+22 20.1	-140 38.7	+20 42.6	-140 13.4	+19 09.5	-139 43.5
0 45	+25 06.2	-136 18.5	+23 19.5	-136 06.4	+21 38.9	-135 46.6
0 46	+25 46.0	-135 13.2	+23 56.3	-135 05.7	+22 13.6	-134 49.2
0 48	+27 16.6	-132 39.5	+25 18.8	-132 45.8	+23 30.2	-132 38.9
0 50	+29 12.9	-129 11.5	+26 59.7	-129 46.4	+25 01.2	-129 57.2
0 51	+30 32.0	-126 41.9	+28 02.5	-127 49.4	+25 55.4	-128 16.7
0 52	+32 41.5	-122 21.2	+29 22.8	-125 13.6	+26 59.9	-126 13.0
0 53	.. ..	... ..	+31 45.1	-120 17.1	+28 24.8	-123 22.7
Limits	+34 27.6	-118 30.9	+32 53.2	-117 45.0	+31 19.6	-117 00.1

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

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

ELEMENTS OF THE ECLIPSE

U.T. of geocentric conjunction in right ascension, January 4^d 23^h 14^m 42^s.825

Julian Date = 2448626.4685512127

	h	m	s		s	s
R.A. of Sun and Moon	19	00	11.850	Hourly motions	10.995	and 126.011
ΔT			58.577			
° ' "						
Declination of Sun	-22	43	10.39	Hourly motion	+ 0	15.80
Declination of Moon	-22	20	39.75	Hourly motion	+ 5	46.57
Equatorial hor. par. of Sun			8.94	True semidiameter of Sun	16	15.9
Equatorial hor. par. of Moon		54	02.75	True semidiameter of Moon	14	43.6
Lunar figure offset, long.	+		0.54			
Lunar figure offset, lat.	-		0.28			

CIRCUMSTANCES OF THE ECLIPSE

	U.T.			Longitude	Latitude	
	d	h	m	°	'	
Eclipse begins	January	4	20	03.6	+ 151 38.3	+ 3 08.6
Central eclipse begins		4	21	16.0	+ 137 07.5	+ 11 32.6
Central eclipse at local apparent noon		4	23	14.7	- 167 27.1	+ 1 58.8
Central eclipse ends		5	0	53.1	- 117 45.0	+ 32 53.2
Eclipse ends		5	2	05.6	- 131 16.2	+ 24 42.5

Longitudes are measured positive east of Greenwich

BESSELIAN ELEMENTS, POLYNOMIAL FORM

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

Let $t = (\text{U.T.} - 19^{\text{h}})$ in units of hours; if t is negative, add 24^h.

These equations are valid over the range $0^{\text{h}}.967 \leq t \leq 7^{\text{h}}.258$. Do not use t outside the given range, and do not omit any terms in the series.

$$\begin{aligned}
 x &= -2.09507528 + 0.49346258 t + 0.00003512 t^2 - 0.00000548 t^3 \\
 y &= -0.01426910 + 0.10114617 t + 0.00014715 t^2 - 0.00000126 t^3 \\
 \sin d &= -0.38651834 + 0.00006572 t + 0.00000010 t^2 \\
 \cos d &= 0.92228173 + 0.00002755 t + 0.00000004 t^2 \\
 \mu &= 103.78743352 + 14.99657269 t + 0.00000152 t^2 - 0.00000001 t^3 \\
 \text{Radius penumbra} &= 0.57476043 + 0.00011111 t - 0.00000991 t^2 \\
 \text{Radius umbra} &= 0.02823329 + 0.00011048 t - 0.00000984 t^2
 \end{aligned}$$

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

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					^o		
19 40	-1.766086	+0.053227	-0.386474	0.922300	113.78515	0.574830	+0.028303
19 50	-1.683835	+0.070121	-0.386464	0.922305	116.28458	0.574846	+0.028318
20 00	-1.601583	+0.087023	-0.386453	0.922309	118.78401	0.574862	+0.028334
20 10	-1.519330	+0.103933	-0.386442	0.922314	121.28344	0.574877	+0.028349
20 20	-1.437076	+0.120851	-0.386431	0.922319	123.78287	0.574891	+0.028363
20 30	-1.354821	+0.137777	-0.386420	0.922323	126.28230	0.574905	+0.028377
20 40	-1.272565	+0.154711	-0.386409	0.922328	128.78173	0.574918	+0.028390
20 50	-1.190310	+0.171652	-0.386398	0.922332	131.28116	0.574931	+0.028403
21 00	-1.108053	+0.188602	-0.386387	0.922337	133.78058	0.574943	+0.028415
21 10	-1.025797	+0.205559	-0.386375	0.922342	136.28001	0.574955	+0.028426
21 20	-0.943541	+0.222524	-0.386364	0.922346	138.77944	0.574966	+0.028437
21 30	-0.861285	+0.239496	-0.386353	0.922351	141.27887	0.574976	+0.028448
21 40	-0.779029	+0.256476	-0.386342	0.922355	143.77830	0.574986	+0.028458
21 50	-0.696774	+0.273464	-0.386331	0.922360	146.27773	0.574996	+0.028467
22 00	-0.614519	+0.290460	-0.386320	0.922365	148.77716	0.575005	+0.028476
22 10	-0.532266	+0.307463	-0.386309	0.922369	151.27660	0.575013	+0.028484
22 20	-0.450013	+0.324473	-0.386298	0.922374	153.77603	0.575021	+0.028492
22 30	-0.367761	+0.341491	-0.386287	0.922379	156.27546	0.575028	+0.028499
22 40	-0.285511	+0.358516	-0.386276	0.922383	158.77489	0.575035	+0.028506
22 50	-0.203261	+0.375549	-0.386265	0.922388	161.27432	0.575041	+0.028512
23 00	-0.121014	+0.392589	-0.386254	0.922393	163.77375	0.575046	+0.028518
23 10	-0.038768	+0.409637	-0.386243	0.922397	166.27318	0.575051	+0.028523
23 20	+0.043476	+0.426691	-0.386232	0.922402	168.77261	0.575056	+0.028527
23 30	+0.125718	+0.443753	-0.386221	0.922406	171.27204	0.575060	+0.028531
23 40	+0.207958	+0.460823	-0.386209	0.922411	173.77147	0.575063	+0.028534
23 50	+0.290195	+0.477899	-0.386198	0.922416	176.27090	0.575066	+0.028537
0 00	+0.372430	+0.494983	-0.386187	0.922420	178.77033	0.575068	+0.028539
0 10	+0.454663	+0.512073	-0.386176	0.922425	181.26976	0.575070	+0.028541
0 20	+0.536893	+0.529171	-0.386165	0.922430	183.76920	0.575071	+0.028542
0 30	+0.619119	+0.546276	-0.386154	0.922434	186.26863	0.575072	+0.028543
0 40	+0.701343	+0.563388	-0.386143	0.922439	188.76806	0.575072	+0.028543
0 50	+0.783563	+0.580507	-0.386132	0.922444	191.26749	0.575071	+0.028542
1 00	+0.865780	+0.597633	-0.386120	0.922448	193.76692	0.575070	+0.028541
1 10	+0.947994	+0.614765	-0.386109	0.922453	196.26635	0.575069	+0.028540
1 20	+1.030204	+0.631905	-0.386098	0.922458	198.76578	0.575067	+0.028538
1 30	+1.112410	+0.649051	-0.386087	0.922462	201.26522	0.575064	+0.028535
1 40	+1.194612	+0.666205	-0.386076	0.922467	203.76465	0.575061	+0.028532
1 50	+1.276810	+0.683365	-0.386065	0.922472	206.26408	0.575057	+0.028528
2 00	+1.359003	+0.700531	-0.386053	0.922476	208.76351	0.575052	+0.028524
2 10	+1.441192	+0.717705	-0.386042	0.922481	211.26294	0.575048	+0.028519
2 20	+1.523377	+0.734885	-0.386031	0.922486	213.76238	0.575042	+0.028514
2 30	+1.605557	+0.752072	-0.386020	0.922491	216.26181	0.575036	+0.028508

$\tan f_1$ 0.004756
 $\tan f_2$ 0.004733
 μ' 0.261740 radians per hour
 d' +0.000072 radians per hour

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR POINTS ON THE CENTRAL LINE

Maximum Eclipse						Central Line		First Contact			
U.T.	Duration	Path Width	Obscur.	Mag.	Sun's		Longitude	Latitude	U.T.	P	V
h m	m s	km	%		Alt.	Az.	° ′	° ′	h m s	°	°
21 18	7 43.0	362	82.5	0.954	10	115	+146 02.7	+ 7 48.2	.. ..	..	..
21 20	7 56.8	358	82.7	0.955	14	115	+149 31.5	+ 6 23.2	.. ..	..	..
21 25	8 22.9	353	83.0	0.955	21	116	+155 10.3	+ 4 11.3	20 04 03.7	269	354
21 30	8 44.4	349	83.2	0.956	27	117	+159 08.8	+ 2 45.3	20 05 01.9	269	353
21 35	9 03.6	347	83.4	0.957	31	118	+162 20.0	+ 1 42.2	20 06 25.1	269	352
21 40	9 21.3	346	83.5	0.957	35	119	+165 02.4	+ 0 53.7	20 08 03.5	268	351
21 45	9 37.8	345	83.6	0.957	38	120	+167 25.1	+ 0 15.8	20 09 52.7	268	350
21 50	9 53.2	344	83.8	0.958	42	121	+169 33.1	- 0 13.6	20 11 50.2	267	349
21 55	10 07.6	344	83.9	0.958	44	122	+171 30.0	- 0 36.4	20 13 54.5	266	347
22 00	10 21.1	344	83.9	0.958	47	123	+173 18.0	- 0 53.4	20 16 04.9	266	346
22 05	10 33.6	344	84.0	0.958	50	125	+174 58.7	- 1 05.5	20 18 20.8	265	345
22 10	10 45.0	344	84.1	0.958	52	127	+176 33.4	- 1 13.0	20 20 42.0	265	343
22 15	10 55.4	344	84.1	0.959	54	129	+178 03.0	- 1 16.6	20 23 08.5	264	341
22 20	11 04.7	344	84.2	0.959	56	132	+179 28.3	- 1 16.5	20 25 40.5	263	339
22 25	11 12.8	344	84.2	0.959	58	134	-179 09.9	- 1 12.9	20 28 18.1	262	338
22 30	11 19.8	344	84.3	0.959	60	137	-177 51.4	- 1 06.2	20 31 01.7	262	336
22 35	11 25.5	343	84.3	0.959	61	141	-176 35.5	- 0 56.4	20 33 51.7	261	333
22 40	11 30.0	343	84.3	0.959	63	145	-175 21.9	- 0 43.7	20 36 48.6	260	331
22 45	11 33.3	342	84.4	0.959	64	149	-174 10.2	- 0 28.1	20 39 53.0	259	329
22 50	11 35.3	341	84.4	0.959	65	154	-173 00.1	- 0 09.9	20 43 05.6	258	326
22 55	11 36.1	340	84.4	0.959	65	159	-171 51.3	+ 0 10.9	20 46 27.1	257	323
23 00	11 35.7	338	84.4	0.959	66	164	-170 43.4	+ 0 34.4	20 49 58.3	256	320
23 05	11 34.2	337	84.4	0.959	66	170	-169 36.3	+ 1 00.6	20 53 40.1	255	317
23 10	11 31.5	336	84.4	0.959	66	175	-168 29.7	+ 1 29.3	20 57 33.3	254	314
23 15	11 27.8	334	84.4	0.959	65	180	-167 23.2	+ 2 00.7	21 01 39.0	253	310
23 20	11 23.1	333	84.4	0.959	65	185	-166 16.7	+ 2 34.6	21 05 58.1	252	306
23 25	11 17.4	332	84.3	0.959	64	190	-165 09.7	+ 3 11.3	21 10 31.8	251	302
23 30	11 10.8	330	84.3	0.959	63	195	-164 02.0	+ 3 50.8	21 15 21.0	250	298
23 35	11 03.4	329	84.3	0.959	61	199	-162 53.2	+ 4 33.1	21 20 26.8	249	293
23 40	10 55.3	328	84.2	0.959	60	202	-161 43.0	+ 5 18.3	21 25 50.1	248	288
23 45	10 46.5	328	84.2	0.959	58	206	-160 30.8	+ 6 06.8	21 31 32.0	247	282
23 50	10 37.0	327	84.2	0.959	56	209	-159 16.3	+ 6 58.5	21 37 33.2	247	276
23 55	10 26.9	327	84.1	0.959	54	212	-157 58.8	+ 7 53.9	21 43 54.5	246	270
0 00	10 16.3	327	84.0	0.958	52	214	-156 37.6	+ 8 53.1	21 50 36.4	245	264
0 05	10 05.1	328	84.0	0.958	49	216	-155 11.8	+ 9 56.7	21 57 39.4	244	257
0 10	9 53.4	329	83.9	0.958	47	219	-153 40.3	+11 05.0	22 05 03.9	243	250
0 15	9 41.2	330	83.8	0.958	44	221	-152 01.8	+12 18.9	22 12 50.1	243	243
0 20	9 28.5	331	83.7	0.957	41	222	-150 14.2	+13 39.1	22 20 58.5	242	236
0 25	9 15.1	333	83.6	0.957	38	224	-148 14.9	+15 07.1	22 29 29.6	242	230
0 30	9 01.1	336	83.4	0.957	34	226	-146 00.0	+16 44.6	22 38 25.0	242	224
0 35	8 46.1	339	83.3	0.956	30	228	-143 23.2	+18 34.7	22 47 47.4	242	218
0 40	8 29.9	343	83.1	0.956	26	230	-140 13.3	+20 42.6	22 57 43.2	242	213
0 45	8 11.5	349	82.9	0.955	20	233	-136 06.4	+23 19.4	23 08 27.6	243	208
0 46	8 07.4	350	82.8	0.955	19	233	-135 05.7	+23 56.3	23 10 45.4	243	207
0 48	7 58.5	353	82.7	0.955	16	234	-132 45.8	+25 18.8	23 15 34.7	243	206
0 50	7 48.2	357	82.5	0.954	13	236	-129 46.4	+26 59.6	23 20 52.8	244	204
0 51	7 42.0	360	82.4	0.954	10	237	-127 49.4	+28 02.5	23 23 51.4	244	203
0 52	7 34.4	364	82.3	0.954	8	239	-125 13.6	+29 22.7	23 27 17.6	244	202
0 53	7 21.6	370	82.1	0.953	2	241	-120 17.1	+31 45.1	23 32 23.1	245	201

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR POINTS ON THE CENTRAL LINE

U.T. at Maximum	Second Contact				Third Contact			Fourth Contact		
	U.T.	P	V		U.T.	P	V	U.T.	P	V
h m	h m s	°	°		h m s	°	°	h m s	°	°
21 18	21 14 09.1	269	347		21 21 52.1	89	166	22 47 48.8	88	154
21 20	21 16 02.2	269	346		21 23 59.1	89	165	22 54 14.5	88	152
21 25	21 20 49.3	268	345		21 29 12.3	88	163	23 07 25.9	86	146
21 30	21 25 38.6	268	343		21 34 23.1	88	161	23 18 51.9	84	140
21 35	21 30 29.1	267	341		21 39 32.8	87	159	23 29 16.1	83	133
21 40	21 35 20.3	266	339		21 44 41.7	86	157	23 38 52.0	81	126
21 45	21 40 12.2	265	336		21 49 50.0	85	154	23 47 45.9	80	118
21 50	21 45 04.5	264	334		21 54 57.7	84	152	23 56 01.3	78	109
21 55	21 49 57.3	263	331		22 00 05.0	83	149	0 03 41.3	77	99
22 00	21 54 50.5	262	328		22 05 11.7	82	145	0 10 48.6	75	89
22 05	21 59 44.3	261	325		22 10 17.9	81	142	0 17 25.9	74	79
22 10	22 04 38.5	260	321		22 15 23.6	80	138	0 23 35.9	73	69
22 15	22 09 33.2	259	318		22 20 28.7	79	134	0 29 21.4	72	60
22 20	22 14 28.5	258	314		22 25 33.2	77	130	0 34 44.8	70	52
22 25	22 19 24.3	257	310		22 30 37.2	76	125	0 39 48.6	69	45
22 30	22 24 20.7	256	305		22 35 40.5	75	120	0 44 34.8	68	38
22 35	22 29 17.7	255	300		22 40 43.3	74	115	0 49 05.7	67	33
22 40	22 34 15.3	254	295		22 45 45.4	73	109	0 53 22.9	66	28
22 45	22 39 13.5	252	289		22 50 46.9	72	103	0 57 28.0	66	23
22 50	22 44 12.4	251	283		22 55 47.7	71	96	1 01 22.5	65	20
22 55	22 49 11.8	250	276		23 00 48.0	70	89	1 05 07.6	64	16
23 00	22 54 11.8	249	270		23 05 47.6	69	82	1 08 44.4	64	14
23 05	22 59 12.5	248	263		23 10 46.7	68	75	1 12 13.9	63	11
23 10	23 04 13.7	247	256		23 15 45.2	67	69	1 15 36.9	63	9
23 15	23 09 15.4	246	249		23 20 43.3	66	62	1 18 54.1	62	7
23 20	23 14 17.7	246	243		23 25 40.8	65	56	1 22 06.1	62	6
23 25	23 19 20.4	245	237		23 30 37.8	64	50	1 25 13.5	61	4
23 30	23 24 23.6	244	231		23 35 34.5	64	45	1 28 16.6	61	3
23 35	23 29 27.3	243	226		23 40 30.7	63	40	1 31 15.9	61	2
23 40	23 34 31.3	243	221		23 45 26.6	62	36	1 34 11.5	61	1
23 45	23 39 35.7	242	217		23 50 22.2	62	32	1 37 03.7	61	0
23 50	23 44 40.4	242	213		23 55 17.4	62	28	1 39 52.6	61	360
23 55	23 49 45.4	241	209		0 00 12.4	61	25	1 42 38.2	61	359
0 00	23 54 50.8	241	206		0 05 07.1	61	22	1 45 20.5	61	359
0 05	23 59 56.4	241	203		0 10 01.5	61	20	1 47 59.2	61	358
0 10	0 05 02.2	241	201		0 14 55.7	61	18	1 50 34.2	61	358
0 15	0 10 08.4	241	198		0 19 49.6	61	16	1 53 04.9	61	358
0 20	0 15 14.8	241	197		0 24 43.3	61	14	1 55 30.6	61	358
0 25	0 20 21.5	241	195		0 29 36.7	61	13	1 57 50.2	62	359
0 30	0 25 28.6	241	194		0 34 29.7	61	12	2 00 02.0	62	359
0 35	0 30 36.2	242	193		0 39 22.3	62	11	2 02 03.2	63	360
0 40	0 35 44.4	242	192		0 44 14.3	62	10	2 03 48.8	63	1
0 45	0 40 53.7	243	191		0 49 05.2	63	10	2 05 07.9	64	2
0 46	0 41 55.7	243	191		0 50 03.1	63	10	2 05 18.5	65	2
0 48	0 44 00.2	244	191		0 51 58.8	64	10	2 05 31.2	65	3
0 50	0 46 05.4	244	192		0 53 53.6	65	11	.. ..	...	...
0 51	0 47 08.5	245	192		0 54 50.6	65	11	.. ..	...	...
0 52	0 48 12.4	245	192		0 55 46.8	66	11	.. ..	...	...
0 53	0 49 18.8	246	193		0 56 40.5	67	12	.. ..	...	...

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR GEOGRAPHIC LOCATIONS

Position		Name of Location	Duration of Annularity	Maximum Eclipse				Sun's			
Latitude	Longitude			Path Width	U.T.	Obscur.	Mag.	Alt.	Az.		
°	'		m	s	km	h	m	s	%	°	'
<i>United States</i>											
+35 05.0	-106 38.0	Albuquerque, NM				..	..	..	...	...	...
+33 50.0	-117 56.0	Anaheim, CA	1 55.2		376	..	..	..	...	...	...
+61 10.0	-150 00.0	Anchorage, AK				0 02 20.8			5.7	0.135	3 207
+33 21.0	-118 20.0	Avalon, Santa Catalina Is., CA	4 54.0		374	0 52 47.5			82.5	0.924	0 242
+34 15.2	-116 54.9	Big Bear Lake, CA (Solar Obs.)				..	..	..	...	...	...
+39 45.0	-105 00.0	Denver, CO				..	..	..	...	...	...
+33 04.0	-117 17.0	Encinitas, CA	1 19.2		374	..	..	..	...	...	...
+64 50.0	-147 50.0	Fairbanks, AK				..	..	..	...	...	...
+35 11.0	-111 44.4	Flagstaff, AZ (USNO Sta.)				..	..	..	...	...	...
+36 41.0	-119 47.0	Fresno, CA				0 50 39.7			75.9	0.837	0 241
+20 42.4	-156 15.4	Haleakala, HI (Solar Obs.)				0 12 34.4			60.9	0.704	40 211
+19 42.0	-155 04.0	Hilo, Hawaii, HI				0 14 36.4			65.6	0.745	40 214
+21 19.0	-157 50.0	Honolulu, Oahu, HI				0 09 03.1			56.7	0.668	41 209
+58 18.0	-134 25.0	Juneau, AK				..	..	..	...	...	...
+31 57.8	-111 36.0	Kitt Peak, AZ (National Obs.)				..	..	..	...	...	...
+36 10.0	-115 10.0	Las Vegas, NV				..	..	..	...	...	...
+33 47.0	-118 15.0	Long Beach, CA	3 14.5		375	0 52 36.2			82.6	0.917	0 242
+34 07.1	-118 17.9	Los Angeles, CA (Griffith Obs.)	2 06.7		376	..	..	..	...	...	...
+34 02.0	-118 42.0	Malibu, CA	3 45.4		376	0 52 23.2			82.5	0.909	0 242
+33 53.0	-118 24.0	Manhattan Beach, CA	3 24.7		376	0 52 31.4			82.6	0.914	0 242
+19 49.6	-155 28.3	Mauna Kea, HI (Mauna Kea Obs.)				0 13 51.6			64.5	0.735	40 213
+37 20.6	-121 38.2	Mount Hamilton, CA (Lick Obs.)				0 49 45.5			71.9	0.802	1 240
+30 40.3	-104 01.3	Mount Locke, TX (McDonald Obs.)				..	..	..	...	...	...
+34 13.0	-118 03.6	Mount Wilson, CA (Hale Obs.)	0 53.1		376	..	..	..	...	...	...
+33 38.0	-117 55.0	Newport Beach, CA	2 28.7		375	..	..	..	...	...	...
+33 12.0	-117 23.0	Oceanside, CA	1 27.5		375	..	..	..	...	...	...
+34 11.0	-119 11.0	Oxnard, CA				0 52 12.1			82.1	0.902	1 242
+33 21.4	-116 51.8	Palomar Mtn., CA (Palomar Obs.)				..	..	..	...	...	...
+34 10.0	-118 09.0	Pasadena, CA	1 26.1		376	..	..	..	...	...	...
+33 30.0	-112 03.0	Phoenix, AZ				..	..	..	...	...	...
+45 32.0	-122 40.0	Portland, OR				..	..	..	...	...	...
+33 51.0	-118 24.0	Redondo Beach, CA	3 32.2		375	0 52 32.4			82.6	0.915	0 242
+38 33.0	-121 30.0	Sacramento, CA				0 48 57.6			68.8	0.775	1 240
+40 45.0	-111 55.0	Salt Lake City, UT				..	..	..	...	...	...
+31 28.0	-100 28.0	San Angelo, TX				..	..	..	...	...	...
+34 07.0	-117 18.0	San Bernadino, CA				..	..	..	...	...	...
+32 50.0	-118 30.0	San Clemente Is., CA	6 53.2		373	0 52 59.3			82.5	0.929	1 242
+32 45.0	-117 10.0	San Diego, CA	1 23.5		374	..	..	..	...	...	...
+34 17.0	-118 27.0	San Fernando, CA	1 44.6		376	0 52 18.9			82.4	0.906	0 242
+37 45.0	-122 27.0	San Francisco, CA				0 49 12.5			69.8	0.784	2 239
+33 14.0	-119 30.0	San Nicolas Is., CA	9 39.3		374	0 52 34.8			82.6	0.918	1 242
+33 44.0	-117 54.0	Santa Ana, CA	2 06.8		375	..	..	..	...	...	...
+34 25.0	-119 41.0	Santa Barbara, CA				0 51 57.8			81.3	0.892	1 241
+33 29.0	-119 02.0	Santa Barbara Is., CA	7 06.1		374	0 52 34.5			82.6	0.917	1 242
+34 00.0	-118 25.0	Santa Monica, CA	3 00.5		376	0 52 27.8			82.6	0.912	0 242
+47 35.0	-122 20.0	Seattle, WA				..	..	..	...	...	...
+34 16.0	-118 45.0	Simi Valley, CA	2 29.8		376	0 52 15.5			82.2	0.904	0 242
+47 40.0	-117 25.0	Spokane, WA				..	..	..	...	...	...
+32 47.2	-105 49.2	Sunspot, NM (Sac. Peak Solar Obs.)				..	..	..	...	...	...
+34 11.0	-118 52.0	Thousand Oaks, CA	3 20.1		376	0 52 16.5			82.3	0.904	0 242
+32 14.0	-110 56.9	Tucson, AZ (Steward Obs.)				..	..	..	...	...	...
+34 15.0	-119 18.0	Ventura, CA				0 52 08.5			81.9	0.899	1 242
+20 54.0	-156 30.0	Wailuku, Maui, HI				0 12 02.9			60.0	0.697	40 212

Assumed to be sea level, except observatories.

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No correction for elevation, limb or refraction included.

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR GEOGRAPHIC LOCATIONS

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	°	'	°	'	°	
+35 05.0	-106 38.0	23	40	32.4	251	202													
+33 50.0	-117 56.0	23	33	52.4	244	200	0 49	34.7	214	161	..	..	..	..	..	..	..	..	..
+61 10.0	-150 00.0	23	17	20.5	193	184								0 45	47.9	131	112		
+33 21.0	-118 20.0	23	33	41.9	245	201	0 49	24.8	225	171									
+34 15.2	-116 54.9	23	34	35.3	245	200	..	..	..	..					
+39 45.0	-105 00.0	23	38	06.4	245	200	..	..	..	..					
+33 04.0	-117 17.0	23	34	41.5	246	201	0 49	29.8	248	194									
+64 50.0	-147 50.0	23	18	12.4	192	183													
+35 11.0	-111 44.4	23	37	46.5	247	201	..	..	..	..					
+36 41.0	-119 47.0	23	31	30.2	239	199													
+20 42.4	-156 15.4	22	13	53.4	230	235								1 49	53.6	77	25		
+19 42.0	-155 04.0	22	15	29.8	232	235								1 51	44.4	75	21		
+21 19.0	-157 50.0	22	10	20.5	228	237								1 47	06.6	80	29		
+58 18.0	-134 25.0	23	21	20.4	205	188													
+31 57.8	-111 36.0	23	39	38.0	252	202													
+36 10.0	-115 10.0	23	35	03.4	243	200													
+33 47.0	-118 15.0	23	33	37.4	244	200	0 49	39.0	211	158									
+34 07.1	-118 17.9	23	33	28.8	244	200	0 50	07.4	196	144									
+34 02.0	-118 42.0	23	33	09.7	244	200	0 50	18.1	192	139									
+33 53.0	-118 24.0	23	33	27.8	244	200	0 49	49.6	205	152									
+19 49.6	-155 28.3	22	14	33.4	231	235								1 51	14.8	75	22		
+37 20.6	-121 38.2	23	29	53.8	237	198													
+30 40.3	-104 01.3	23	45	03.1	259	205													
+34 13.0	-118 03.6	23	33	40.4	244	200	0 50	08.7	197	144									
+33 38.0	-117 55.0	23	33	57.4	245	200	0 49	27.4	221	168									
+33 12.0	-117 23.0	23	34	33.5	246	201	0 49	25.6	242	189									
+34 11.0	-119 11.0	23	32	42.2	243	200													
+33 21.4	-116 51.8	23	34	57.9	246	201	..	..	..	..					
+34 10.0	-118 09.0	23	33	34.7	244	200	0 50	05.0	197	145									
+33 30.0	-112 03.0	23	38	25.9	249	201	..	..	..	..					
+45 32.0	-122 40.0	23	27	37.4	226	194													
+33 51.0	-118 24.0	23	33	28.5	244	200	0 49	47.2	206	153									
+38 33.0	-121 30.0	23	29	43.9	236	198													
+40 45.0	-111 55.0	23	34	47.9	240	198													
+31 28.0	-100 28.0	23	45	54.5	261	205													
+34 07.0	-117 18.0	23	34	17.4	245	200	..	..	..	..					
+32 50.0	-118 30.0	23	33	43.5	245	201	0 49	22.6	238	185									
+32 45.0	-117 10.0	23	34	54.6	246	201	0 49	44.4	259	205									
+34 17.0	-118 27.0	23	33	17.5	243	200	0 50	40.7	184	131									
+37 45.0	-122 27.0	23	29	07.8	236	198													
+33 14.0	-119 30.0	23	32	42.3	244	201	0 49	37.1	210	158									
+33 44.0	-117 54.0	23	33	56.1	245	200	0 49	30.2	218	165									
+34 25.0	-119 41.0	23	32	12.3	242	200													
+33 29.0	-119 02.0	23	33	02.7	244	200	0 49	40.8	209	156									
+34 00.0	-118 25.0	23	33	24.7	244	200	0 50	00.1	199	147									
+47 35.0	-122 20.0	23	27	22.8	224	194													
+34 16.0	-118 45.0	23	33	02.7	243	200	0 51	10.0	174	122									
+47 40.0	-117 25.0	23	29	30.8	227	194													
+32 47.2	-105 49.2	23	42	34.4	255	203													
+34 11.0	-118 52.0	23	32	58.4	243	200	0 51	00.5	177	125									
+32 14.0	-110 56.9	23	39	53.7	252	202													
+34 15.0	-119 18.0	23	32	35.0	243	200													
+20 54.0	-156 30.0	22	13	30.0	229	235								1 49	24.2	78	26		

Dot leaders indicate the phenomenon occurs below the horizon. Blanks indicate the phenomenon does not occur for the location.

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR GEOGRAPHIC LOCATIONS

Position		Name of Location	Duration of Annularity	Maximum Eclipse					
Latitude	Longitude			Path Width	U.T.	Obscur.	Mag.	Sun's	
° ' "	° ' "		m s	km	h m s	%		Alt.	Az.
		<i>Other</i>							
-27 30.0	+153 00.0	Brisbane, Australia			21 33 44.4	2.7	0.081	32	101
+51 05.0	-114 05.0	Calgary, Canada			.. .. .	.. .	.. .	..	..
+28 40.0	-106 06.0	Chihuahua, Mexico			.. .. .	.. .	.. .	..	..
-12 23.0	+130 44.0	Darwin, Australia			21 15 40.7	14.3	0.253	3	113
+20 40.0	-103 20.0	Guadalajara, Mexico			.. .. .	.. .	.. .	..	..
+13 30.0	+144 45.0	Guam Island			21 19 52.6	74.2	0.822	7	115
+24 10.0	-110 17.0	La Paz, Baja Cal., Mexico			.. .. .	.. .	.. .	..	..
+14 37.0	+120 58.0	Manila, Philippines			.. .. .	.. .	.. .	..	..
+19 25.0	- 99 10.0	Mexico City, Mexico			.. .. .	.. .	.. .	..	..
+28 12.0	-177 24.0	Midway Island			23 05 58.4	20.1	0.320	38	166
+25 40.0	-100 20.0	Monterrey, Mexico			.. .. .	.. .	.. .	..	..
+49 07.0	-119 30.0	Mt. Kobau, Canada (Dominion Obs.)			.. .. .	.. .	.. .	..	..
+34 40.0	+135 30.0	Osaka, Japan			.. .. .	.. .	.. .	..	..
-14 16.0	-170 43.0	Pago Pago, American Samoa			22 42 25.1	45.3	0.567	76	130
+ 5 53.0	-162 03.0	Palmyra Is.	9 48.3	330	23 39 47.0	84.2	0.941	59	201
-17 32.0	-149 34.0	Papeete, Tahiti			23 34 42.7	11.7	0.220	68	253
- 9 30.0	+147 07.0	Port Moresby, Papua New Guinea			21 18 45.5	38.7	0.507	18	111
+19 03.0	- 98 10.0	Puebla, Mexico			.. .. .	.. .	.. .	..	..
+35 05.0	+129 02.0	Pusan, S. Korea			.. .. .	.. .	.. .	..	..
- 1 10.0	+174 45.0	Tabiteuea Is., Gilbert Is.	10 30.3	343	22 04 15.1	84.0	0.956	49	125
+32 29.0	-117 10.0	Tijuana, Mexico	1 46.9	373	.. .. .	.. .	.. .	..	..
+35 40.0	+139 45.0	Tokyo, Japan			.. .. .	.. .	.. .	..	..
+49 13.0	-123 06.0	Vancouver, Canada			.. .. .	.. .	.. .	..	..
+ 9 27.0	+138 04.0	Yap Is., Caroline Is.	2 35.1	368	21 15 20.8	82.1	0.909	2	113

Assumed to be sea level, except observatories.

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No correction for elevation, limb or refraction included.

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

LOCAL CIRCUMSTANCES FOR GEOGRAPHIC LOCATIONS

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	°	'
-27 30.0	+153 00.0	21 00 26.1	334	84							22 09 09.6	20	128
+51 05.0	-114 05.0	23 29 11.8	225	193							.. .. .	..	..
+28 40.0	-106 06.0	23 45 26.1	261	205							.. .. .	..	..
-12 23.0	+130 44.0	.. .. .	..	..							22 04 53.7	42	140
+20 40.0	-103 20.0	23 54 45.2	276	211							.. .. .	..	..
+13 30.0	+144 45.0	.. .. .	..	..							22 47 39.3	96	157
+24 10.0	-110 17.0	23 45 45.3	265	207							.. .. .	..	..
+14 37.0	+120 58.0	.. .. .	..	..							22 27 18.2	84	158
+19 25.0	- 99 10.0	23 59 09.3	282	214							.. .. .	..	..
+28 12.0	-177 24.0	21 32 01.6	215	251							0 41 55.6	110	97
+25 40.0	-100 20.0	23 51 20.4	270	209							.. .. .	..	..
+49 07.0	-119 30.0	23 28 15.2	224	193							.. .. .	..	..
+34 40.0	+135 30.0	.. .. .	..	..							22 44 25.7	121	169
-14 16.0	-170 43.0	20 52 51.2	281	5							0 35 32.6	42	337
+ 5 53.0	-162 03.0	21 25 26.7	247	287	23 34 52.1	216	195	23 44 40.4	89	64	1 34 17.4	62	3
-17 32.0	-149 34.0	22 19 51.6	294	257							0 42 21.9	11	282
- 9 30.0	+147 07.0	20 12 52.4	298	37							22 36 56.3	60	145
+19 03.0	- 98 10.0	0 00 16.2	284	215							.. .. .	..	..
+35 05.0	+129 02.0	.. .. .	..	..							22 42 14.9	117	169
- 1 10.0	+174 45.0	20 18 00.5	265	345	21 59 01.0	265	329	22 09 31.4	77	139	0 16 25.7	74	81
+32 29.0	-117 10.0	23 35 00.8	247	201	0 50 00.2	267	213				.. .. .	..	..
+35 40.0	+139 45.0	.. .. .	..	..							22 47 05.2	124	170
+49 13.0	-123 06.0	23 26 40.6	222	193							.. .. .	..	..
+ 9 27.0	+138 04.0	.. .. .	..	..	21 14 02.9	339	58	21 16 38.0	20	99	22 36 27.4	86	157

Dot leaders indicate the phenomenon occurs below the horizon. Blanks indicate the phenomenon does not occur for the location.

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

SURFACE PATH OF THE ANNULAR PHASE OVER LAND

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	° °
+140 00	+12 09.1	. . .	+ 8 31.7	21 17 03.2	.. ..	21 15 31.4	. . .	...	. . .
+140 30	+11 56.3	. . .	+ 8 19.2	21 17 08.3	.. ..	21 15 37.8	. . .	...	. . .
+141 00	+11 43.5	. . .	+ 8 06.8	21 17 13.4	.. ..	21 15 44.3	. . .	...	. . .
+141 30	+11 30.7	. . .	+ 7 54.4	21 17 18.5	.. ..	21 15 50.7	. . .	...	. . .
+142 00	+11 17.9	+ 9 29.3	+ 7 42.0	21 17 23.6	21 16 35.9	21 15 57.2	7 28.8	366	5 114
+142 30	+11 05.1	+ 9 16.7	+ 7 29.6	21 17 28.7	21 16 44.0	21 16 04.6	7 30.5	366	6 114
+143 00	+10 52.3	+ 9 04.2	+ 7 17.2	21 17 35.4	21 16 52.1	21 16 13.6	7 32.2	365	6 114
+143 30	+10 39.6	+ 8 51.6	+ 7 04.9	21 17 43.6	21 17 00.2	21 16 23.6	7 33.8	365	7 114
+144 00	+10 26.9	+ 8 39.1	+ 6 52.6	21 17 53.1	21 17 10.1	21 16 34.5	7 35.6	364	8 114
+144 30	+10 14.2	+ 8 26.6	+ 6 40.3	21 18 03.5	21 17 20.9	21 16 46.0	7 37.3	364	8 115
+145 00	+10 01.5	+ 8 14.2	+ 6 28.1	21 18 14.4	21 17 32.8	21 16 58.5	7 39.1	363	9 115
+145 30	+ 9 48.9	+ 8 01.8	+ 6 15.9	21 18 26.3	21 17 45.3	21 17 11.8	7 41.0	363	9 115
+146 00	+ 9 36.3	+ 7 49.4	+ 6 03.7	21 18 39.1	21 17 58.8	21 17 26.0	7 42.8	362	10 115
+146 30	+ 9 23.7	+ 7 37.0	+ 5 51.6	21 18 52.7	21 18 13.2	21 17 41.0	7 44.7	361	11 115
+147 00	+ 9 11.2	+ 7 24.7	+ 5 39.5	21 19 07.3	21 18 28.5	21 17 57.0	7 46.6	361	11 115
+147 30	+ 8 58.7	+ 7 12.5	+ 5 27.4	21 19 22.8	21 18 44.6	21 18 13.9	7 48.6	360	12 115
+148 00	+ 8 46.3	+ 7 00.2	+ 5 15.4	21 19 39.2	21 19 01.8	21 18 31.7	7 50.6	360	12 115
+148 30	+ 8 33.9	+ 6 48.1	+ 5 03.5	21 19 56.6	21 19 19.9	21 18 50.5	7 52.6	359	13 115
+149 00	+ 8 21.5	+ 6 35.9	+ 4 51.6	21 20 15.0	21 19 39.0	21 19 10.2	7 54.6	359	14 115
+149 30	+ 8 09.2	+ 6 23.8	+ 4 39.7	21 20 34.4	21 19 59.0	21 19 30.9	7 56.7	358	14 115
+150 00	+ 7 57.0	+ 6 11.8	+ 4 27.9	21 20 54.8	21 20 20.1	21 19 52.5	7 58.8	358	15 115
+150 30	+ 7 44.8	+ 5 59.9	+ 4 16.2	21 21 16.2	21 20 42.1	21 20 15.2	8 01.0	357	15 116
+151 00	+ 7 32.6	+ 5 47.9	+ 4 04.5	21 21 38.6	21 21 05.2	21 20 38.9	8 03.2	357	16 116
+151 30	+ 7 20.6	+ 5 36.1	+ 3 52.9	21 22 02.2	21 21 29.3	21 21 03.6	8 05.4	356	17 116
+152 00	+ 7 08.6	+ 5 24.3	+ 3 41.3	21 22 26.7	21 21 54.5	21 21 29.4	8 07.7	356	17 116
+152 30	+ 6 56.6	+ 5 12.6	+ 3 29.9	21 22 52.4	21 22 20.8	21 21 56.2	8 10.0	355	18 116
+153 00	+ 6 44.8	+ 5 01.0	+ 3 18.5	21 23 19.2	21 22 48.2	21 22 24.1	8 12.3	355	19 116
+153 30	+ 6 33.0	+ 4 49.4	+ 3 07.1	21 23 47.1	21 23 16.6	21 22 53.1	8 14.7	354	19 116
+154 00	+ 6 21.3	+ 4 37.9	+ 2 55.9	21 24 16.2	21 23 46.2	21 23 23.1	8 17.1	354	20 116
+154 30	+ 6 09.6	+ 4 26.6	+ 2 44.7	21 24 46.4	21 24 16.9	21 23 54.3	8 19.6	353	20 116
+155 00	+ 5 58.1	+ 4 15.2	+ 2 33.7	21 25 17.8	21 24 48.8	21 24 26.6	8 22.1	353	21 116
+155 30	+ 5 46.6	+ 4 04.0	+ 2 22.7	21 25 50.4	21 25 21.9	21 25 00.1	8 24.6	352	22 116
+156 00	+ 5 35.3	+ 3 52.9	+ 2 11.8	21 26 24.2	21 25 56.1	21 25 34.8	8 27.2	352	22 117
+156 30	+ 5 24.0	+ 3 41.9	+ 2 01.0	21 26 59.2	21 26 31.6	21 26 10.6	8 29.8	351	23 117
+157 00	+ 5 12.9	+ 3 31.0	+ 1 50.4	21 27 35.5	21 27 08.2	21 26 47.6	8 32.5	351	24 117
+157 30	+ 5 01.8	+ 3 20.2	+ 1 39.8	21 28 13.1	21 27 46.1	21 27 25.8	8 35.2	351	24 117
+158 00	+ 4 50.9	+ 3 09.5	+ 1 29.3	21 28 51.9	21 28 25.3	21 28 05.2	8 38.0	350	25 117
+158 30	+ 4 40.1	+ 2 58.9	+ 1 19.0	21 29 32.1	21 29 05.7	21 28 45.9	8 40.8	350	26 117
+159 00	+ 4 29.4	+ 2 48.4	+ 1 08.8	21 30 13.5	21 29 47.5	21 29 27.8	8 43.6	349	26 117
+159 30	+ 4 18.8	+ 2 38.1	+ 0 58.7	21 30 56.4	21 30 30.5	21 30 11.0	8 46.5	349	27 117
+160 00	+ 4 08.4	+ 2 27.9	+ 0 48.8	21 31 40.5	21 31 14.9	21 30 55.5	8 49.4	349	28 117
+160 30	+ 3 58.1	+ 2 17.9	+ 0 38.9	21 32 26.1	21 32 00.6	21 31 41.3	8 52.4	348	28 117
+161 00	+ 3 47.9	+ 2 07.9	+ 0 29.3	21 33 13.1	21 32 47.7	21 32 28.4	8 55.4	348	29 118
+161 30	+ 3 37.9	+ 1 58.2	+ 0 19.8	21 34 01.5	21 33 36.1	21 33 16.9	8 58.5	348	30 118
+162 00	+ 3 28.0	+ 1 48.6	+ 0 10.4	21 34 51.3	21 34 25.9	21 34 06.7	9 01.6	347	31 118
+162 30	+ 3 18.3	+ 1 39.1	+ 0 01.2	21 35 42.6	21 35 17.2	21 34 57.8	9 04.7	347	31 118
+163 00	+ 3 08.8	+ 1 29.8	- 0 07.9	21 36 35.4	21 36 09.9	21 35 50.3	9 07.9	347	32 118
+163 30	+ 2 59.5	+ 1 20.7	- 0 16.8	21 37 29.6	21 37 04.0	21 36 44.3	9 11.1	346	33 118
+164 00	+ 2 50.3	+ 1 11.8	- 0 25.5	21 38 25.4	21 37 59.6	21 37 39.6	9 14.4	346	33 118
+164 30	+ 2 41.3	+ 1 03.0	- 0 34.0	21 39 22.7	21 38 56.6	21 38 36.4	9 17.7	346	34 119
+165 00	+ 2 32.5	+ 0 54.4	- 0 42.3	21 40 21.6	21 39 55.2	21 39 34.6	9 21.1	346	35 119
+165 30	+ 2 23.9	+ 0 46.1	- 0 50.5	21 41 22.1	21 40 55.3	21 40 34.2	9 24.4	345	36 119
+166 00	+ 2 15.5	+ 0 37.9	- 0 58.4	21 42 24.1	21 41 56.9	21 41 35.3	9 27.9	345	36 119
+166 30	+ 2 07.3	+ 0 29.9	- 1 06.1	21 43 27.8	21 43 00.0	21 42 37.9	9 31.3	345	37 119

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

SURFACE PATH OF THE ANNULAR PHASE OVER LAND

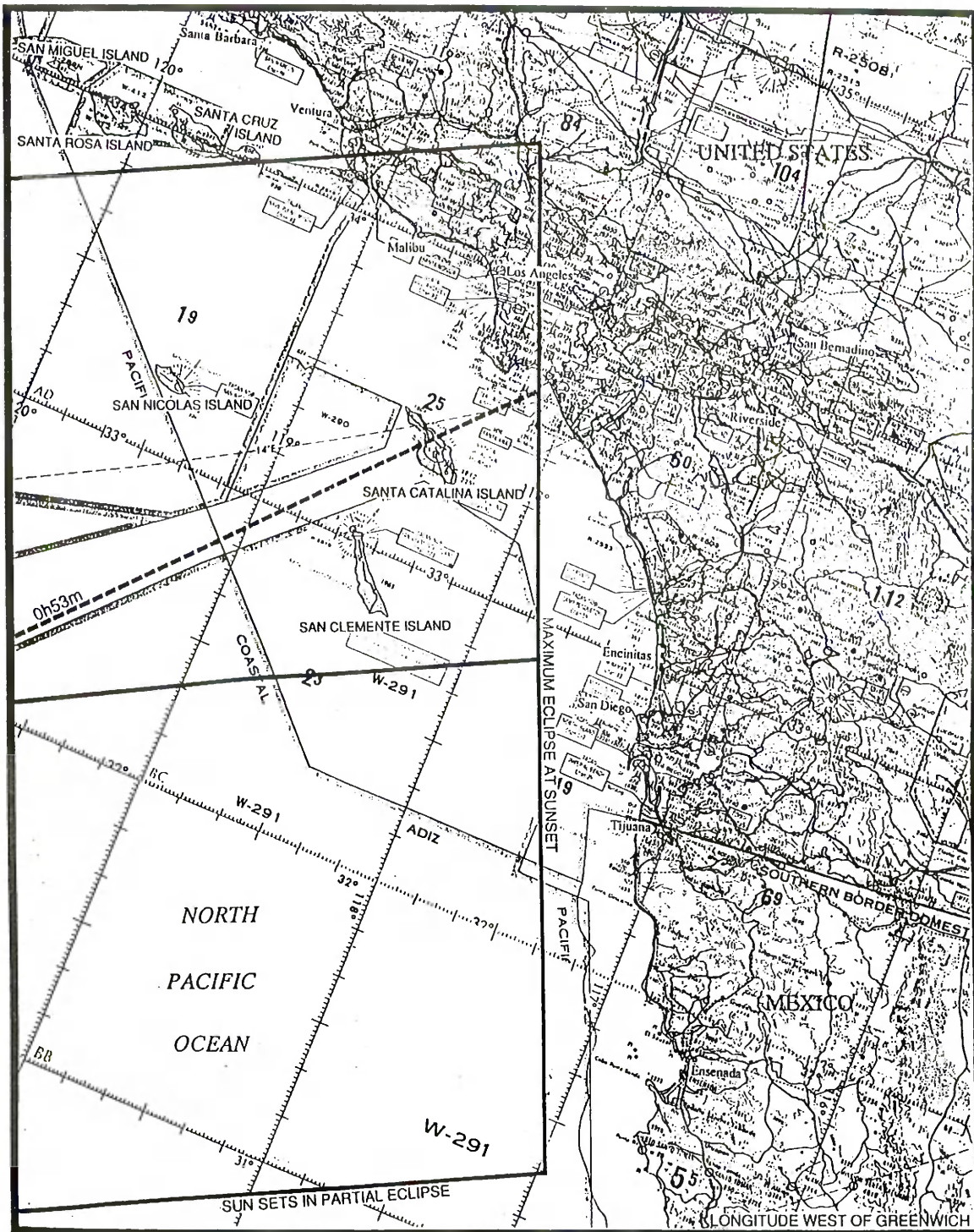
Longitude	Latitude of:			Universal Time at:			On Central Line		
	Northern Limit	Central Line	Southern Limit	Northern Limit	Central Line	Southern Limit	Maximum Duration	Path Width	Sun's Alt. Az.
° /	° /	° /	° /	h m s	h m s	h m s	m s	km	° °
+167 00	+ 1 59.3	+ 0 22.2	- 1 13.7	21 44 33.1	21 44 04.7	21 43 42.0	9 34.9	345	38 120
+167 30	+ 1 51.6	+ 0 14.7	- 1 20.9	21 45 40.0	21 45 11.0	21 44 47.6	9 38.4	345	38 120
+168 00	+ 1 44.1	+ 0 07.4	- 1 28.0	21 46 48.6	21 46 18.9	21 45 54.7	9 42.0	344	39 120
+168 30	+ 1 36.9	+ 0 00.3	- 1 34.8	21 47 58.9	21 47 28.4	21 47 03.3	9 45.6	344	40 120
+169 00	+ 1 29.9	- 0 06.5	- 1 41.4	21 49 10.9	21 48 39.5	21 48 13.5	9 49.2	344	41 121
+169 30	+ 1 23.1	- 0 13.0	- 1 47.8	21 50 24.6	21 49 52.3	21 49 25.3	9 52.9	344	41 121
+170 00	+ 1 16.6	- 0 19.3	- 1 53.9	21 51 40.1	21 51 06.7	21 50 38.6	9 56.5	344	42 121
+170 30	+ 1 10.5	- 0 25.3	- 1 59.7	21 52 57.3	21 52 22.7	21 51 53.5	10 00.2	344	43 121
+171 00	+ 1 04.6	- 0 31.0	- 2 05.2	21 54 16.2	21 53 40.5	21 53 10.0	10 03.9	344	44 122
+171 30	+ 0 58.9	- 0 36.4	- 2 10.5	21 55 37.0	21 54 59.9	21 54 28.1	10 07.7	344	44 122
+172 00	+ 0 53.6	- 0 41.6	- 2 15.4	21 56 59.5	21 56 21.0	21 55 47.8	10 11.4	344	45 122
+172 30	+ 0 48.7	- 0 46.4	- 2 20.1	21 58 23.8	21 57 43.9	21 57 09.1	10 15.2	344	46 123
+173 00	+ 0 44.0	- 0 50.9	- 2 24.5	21 59 50.0	21 59 08.4	21 58 32.0	10 18.9	344	47 123
+173 30	+ 0 39.7	- 0 55.1	- 2 28.5	22 01 18.0	22 00 34.7	21 59 56.6	10 22.6	344	47 124
+174 00	+ 0 35.7	- 0 59.0	- 2 32.2	22 02 47.8	22 02 02.7	22 01 22.8	10 26.4	344	48 124
+174 30	+ 0 32.1	- 1 02.5	- 2 35.6	22 04 19.4	22 03 32.5	22 02 50.7	10 30.1	344	49 125
+175 00	+ 0 28.8	- 1 05.6	- 2 38.7	22 05 52.9	22 05 04.0	22 04 20.2	10 33.8	344	50 125
+175 30	+ 0 25.9	- 1 08.4	- 2 41.3	22 07 28.3	22 06 37.3	22 05 51.3	10 37.5	344	50 126
+176 00	+ 0 23.4	- 1 10.8	- 2 43.7	22 09 05.5	22 08 12.3	22 07 24.1	10 41.1	344	51 126
+176 30	+ 0 21.3	- 1 12.9	- 2 45.6	22 10 44.6	22 09 49.0	22 08 58.6	10 44.7	344	52 127
+177 00	+ 0 19.6	- 1 14.5	- 2 47.2	22 12 25.5	22 11 27.5	22 10 34.7	10 48.2	344	53 128
+177 30	+ 0 18.3	- 1 15.8	- 2 48.4	22 14 08.2	22 13 07.8	22 12 12.4	10 51.7	344	53 128
+178 00	+ 0 17.5	- 1 16.6	- 2 49.2	22 15 52.8	22 14 49.7	22 13 51.8	10 55.1	344	54 129
+178 30	+ 0 17.1	- 1 17.0	- 2 49.6	22 17 39.3	22 16 33.5	22 15 32.8	10 58.5	344	55 130
+179 00	+ 0 17.1	- 1 17.0	- 2 49.6	22 19 27.5	22 18 18.9	22 17 15.5	11 01.8	344	56 131
+179 30	+ 0 17.6	- 1 16.5	- 2 49.1	22 21 17.6	22 20 06.1	22 18 59.7	11 04.9	344	56 132
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-179 30	+ 0 20.0	- 1 14.2	- 2 46.9	22 25 03.1	22 23 45.4	22 22 33.1	11 11.0	344	58 134
-179 00	+ 0 22.0	- 1 12.3	- 2 45.1	22 26 58.4	22 25 37.6	22 24 22.1	11 13.8	344	58 135
-178 30	+ 0 24.4	- 1 10.0	- 2 42.8	22 28 55.5	22 27 31.4	22 26 12.7	11 16.6	344	59 136
-178 00	+ 0 27.4	- 1 07.1	- 2 40.1	22 30 54.2	22 29 26.8	22 28 04.9	11 19.1	344	60 137
-177 30	+ 0 30.9	- 1 03.8	- 2 36.9	22 32 54.6	22 31 23.8	22 29 58.5	11 21.6	344	60 138
-177 00	+ 0 34.9	- 0 59.9	- 2 33.2	22 34 56.5	22 33 22.4	22 31 53.6	11 23.9	343	61 140
-176 30	+ 0 39.4	- 0 55.6	- 2 29.0	22 37 00.0	22 35 22.4	22 33 50.2	11 26.0	343	62 141
-176 00	+ 0 44.5	- 0 50.7	- 2 24.3	22 39 05.0	22 37 23.9	22 35 48.2	11 27.9	343	62 143
-175 30	+ 0 50.2	- 0 45.3	- 2 19.1	22 41 11.5	22 39 26.8	22 37 47.6	11 29.7	343	63 144
-175 00	+ 0 56.4	- 0 39.3	- 2 13.3	22 43 19.3	22 41 31.1	22 39 48.3	11 31.2	342	63 146
-174 30	+ 1 03.2	- 0 32.8	- 2 07.1	22 45 28.4	22 43 36.7	22 41 50.4	11 32.6	342	64 148
-174 00	+ 1 10.6	- 0 25.7	- 2 00.3	22 47 38.7	22 45 43.5	22 43 53.6	11 33.7	342	64 150
-173 30	+ 1 18.5	- 0 18.1	- 1 53.0	22 49 50.2	22 47 51.5	22 45 58.1	11 34.7	341	64 152
-173 00	+ 1 27.0	- 0 09.9	- 1 45.1	22 52 02.8	22 50 00.6	22 48 03.7	11 35.4	341	65 154
-172 30	+ 1 36.2	- 0 01.2	- 1 36.7	22 54 16.4	22 52 10.8	22 50 10.4	11 35.9	340	65 156
-172 00	+ 1 45.9	+ 0 08.2	- 1 27.7	22 56 30.8	22 54 21.9	22 52 18.0	11 36.2	340	65 158
-171 30	+ 1 56.1	+ 0 18.0	- 1 18.2	22 58 46.0	22 56 33.9	22 54 26.7	11 36.2	339	66 161
-171 00	+ 2 07.0	+ 0 28.5	- 1 08.2	23 01 02.0	22 58 46.7	22 56 36.2	11 36.0	339	66 163
-170 30	+ 2 18.5	+ 0 39.5	- 0 57.6	23 03 18.4	23 01 00.2	22 58 46.4	11 35.6	338	66 165
-170 00	+ 2 30.5	+ 0 51.1	- 0 46.4	23 05 35.4	23 03 14.2	23 00 57.4	11 34.9	338	66 168
-169 30	+ 2 43.1	+ 1 03.3	- 0 34.7	23 07 52.7	23 05 28.8	23 03 09.0	11 34.0	337	66 170
-169 00	+ 2 56.3	+ 1 16.0	- 0 22.4	23 10 10.2	23 07 43.7	23 05 21.1	11 32.9	336	66 173
-168 30	+ 3 10.1	+ 1 29.2	- 0 09.6	23 12 27.8	23 09 58.9	23 07 33.7	11 31.6	336	66 175
-168 00	+ 3 24.4	+ 1 43.1	+ 0 03.7	23 14 45.4	23 12 14.3	23 09 46.5	11 30.0	335	66 177
-167 30	+ 3 39.3	+ 1 57.4	+ 0 17.5	23 17 02.8	23 14 29.7	23 11 59.6	11 28.3	334	65 180
-167 00	+ 3 54.7	+ 2 12.3	+ 0 31.9	23 19 20.0	23 16 45.1	23 14 12.8	11 26.3	334	65 182
-166 30	+ 4 10.6	+ 2 27.7	+ 0 46.8	23 21 36.7	23 19 00.3	23 16 26.0	11 24.1	333	65 184

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992

SURFACE PATH OF THE ANNULAR PHASE OVER LAND

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	° °
-166 00	+ 4 27.0	+ 2 43.6	+ 1 02.2	23 23 53.0	23 21 15.1	23 18 39.1	11 21.8	333	64 187
-165 30	+ 4 43.9	+ 3 00.0	+ 1 18.1	23 26 08.5	23 23 29.5	23 20 52.0	11 19.2	332	64 189
-165 00	+ 5 01.3	+ 3 16.9	+ 1 34.5	23 28 23.2	23 25 43.4	23 23 04.6	11 16.5	331	64 191
-164 30	+ 5 19.2	+ 3 34.2	+ 1 51.3	23 30 37.0	23 27 56.6	23 25 16.7	11 13.7	331	63 193
-164 00	+ 5 37.5	+ 3 52.0	+ 2 08.6	23 32 49.8	23 30 08.9	23 27 28.2	11 10.7	330	62 195
-163 30	+ 5 56.2	+ 4 10.2	+ 2 26.3	23 35 01.4	23 32 20.4	23 29 39.1	11 07.5	330	62 197
-163 00	+ 6 15.3	+ 4 28.8	+ 2 44.4	23 37 11.7	23 34 30.8	23 31 49.2	11 04.2	329	61 198
-162 30	+ 6 34.8	+ 4 47.9	+ 3 02.9	23 39 20.6	23 36 40.1	23 33 58.3	11 00.9	329	61 200
-162 00	+ 6 54.6	+ 5 07.2	+ 3 21.8	23 41 28.1	23 38 48.1	23 36 06.5	10 57.4	329	60 202
-161 30	+ 7 14.8	+ 5 27.0	+ 3 41.1	23 43 33.9	23 40 54.8	23 38 13.5	10 53.8	328	59 203
-161 00	+ 7 35.3	+ 5 47.0	+ 4 00.7	23 45 38.1	23 43 00.0	23 40 19.3	10 50.1	328	59 204
-160 30	+ 7 56.1	+ 6 07.4	+ 4 20.6	23 47 40.4	23 45 03.7	23 42 23.7	10 46.4	328	58 206
-160 00	+ 8 17.2	+ 6 28.1	+ 4 40.9	23 49 41.0	23 47 05.7	23 44 26.8	10 42.6	328	57 207
-159 30	+ 8 38.5	+ 6 49.0	+ 5 01.4	23 51 39.6	23 49 05.9	23 46 28.3	10 38.8	327	56 208
-159 00	+ 9 00.0	+ 7 10.1	+ 5 22.1	23 53 36.1	23 51 04.4	23 48 28.2	10 34.9	327	56 209
-158 30	+ 9 21.7	+ 7 31.5	+ 5 43.1	23 55 30.7	23 53 01.0	23 50 26.5	10 31.0	327	55 211
-158 00	+ 9 43.6	+ 7 53.1	+ 6 04.4	23 57 23.1	23 54 55.7	23 52 22.9	10 27.1	327	54 212
-157 30	+10 05.7	+ 8 14.8	+ 6 25.8	23 59 13.4	23 56 48.3	23 54 17.6	10 23.2	327	53 213
-157 00	+10 27.9	+ 8 36.7	+ 6 47.4	0 01 01.4	23 58 38.9	23 56 10.4	10 19.2	327	52 213
-156 30	+10 50.2	+ 8 58.8	+ 7 09.1	0 02 47.3	0 00 27.4	23 58 01.2	10 15.3	327	51 214
-156 00	+11 12.7	+ 9 20.9	+ 7 31.0	0 04 30.8	0 02 13.8	23 59 50.0	10 11.4	327	51 215
-155 30	+11 35.2	+ 9 43.2	+ 7 53.0	0 06 12.1	0 03 58.0	0 01 36.8	10 07.5	328	50 216
-155 00	+11 57.7	+10 05.5	+ 8 15.1	0 07 51.1	0 05 40.1	0 03 21.6	10 03.6	328	49 217
-125 00	+31 23.9	+29 29.6	+27 36.9	0 51 29.9	0 52 04.6	0 52 28.9	7 33.8	364	7 239
-124 30	+31 38.6	+29 44.6	+27 51.8	0 51 35.6	0 52 13.7	0 52 39.5	7 32.4	364	7 239
-124 00	+31 53.2	+29 59.4	+28 06.6	0 51 41.3	0 52 21.7	0 52 49.2	7 31.0	365	6 239
-123 30	+32 07.9	+30 14.0	+28 21.3	0 51 47.0	0 52 28.7	0 52 58.1	7 29.7	366	6 240
-123 00	+32 22.6	+30 28.3	+28 35.6	0 51 52.7	0 52 33.9	0 53 05.3	7 28.5	366	5 240
-122 30	+32 37.3	+30 42.4	+28 49.8	0 51 58.4	0 52 38.7	0 53 12.2	7 27.2	367	5 240
-122 00	.. ..	+30 56.6	+29 04.1	.. ..	0 52 43.5	0 53 19.1	7 26.0	368	4 240
-121 30	.. ..	+31 10.7	+29 18.3	.. ..	0 52 48.4	0 53 26.0	7 24.7	368	4 241
-121 00	.. ..	+31 24.9	.. ..	.. ..	0 52 53.2	.. ..	7 23.5	369	3 241
-120 30	.. ..	+31 39.0	.. ..	.. ..	0 52 58.0	.. ..	7 22.2	370	3 241

ANNULAR SOLAR ECLIPSE OF 4-5 JANUARY 1992



CENTRAL SOLAR ECLIPSES OF 1992

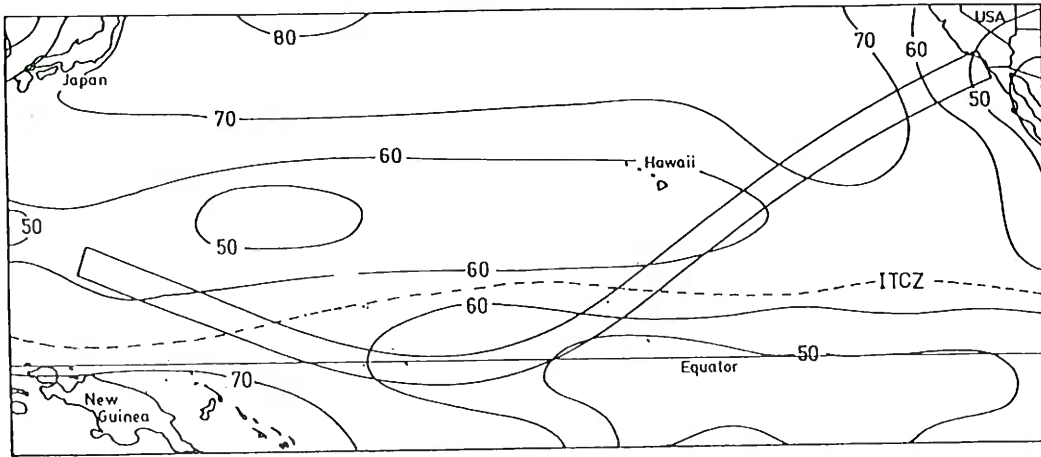


Figure 1: Mean January cloud cover in percent from 1971 - 1980 as determined from satellite images. The Intertropical Convergence Zone (ITCZ) is marked with a dashed line.

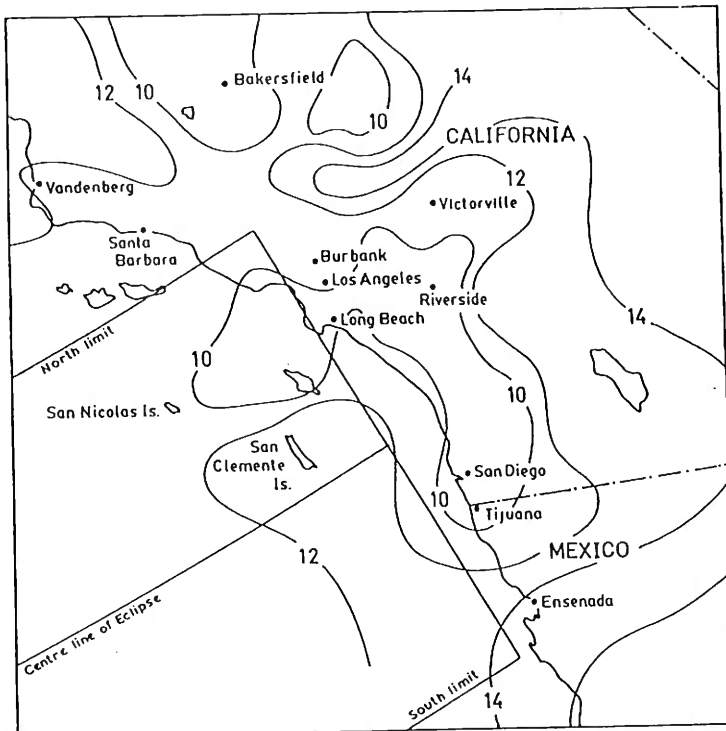


Figure 2: Mean number of days in January with scattered cloud (less than 3 tenths) and good visibility (3 miles or more) at eclipse time. The eclipse track is approximate.

CENTRAL SOLAR ECLIPSES OF 1992

Table 1: January climatological statistics along the eclipse track.

Location	Mean High Temperature (C)	% Frequency of low cloud and fog	Mean Rainfall (mm)	Days with Rain	Days with Scattered Cloud and Good Visibility	Days with Thunderstorms
Guam						
Agana Naval Air Station	29	7	108	8.5	0.2	0.1
Anderson Air Force Base	27	15	105	8.8	1.2	0.2
Caroline Islands						
Ulithi	29	19	60	13.3	-	0.0
Koror Island	30	6	321	15.6	0.2	1.4
Moen Flight Strip	29	6	243	11.0	0.1	1.3
Marshall Islands						
Kwajalein	29	2	81	7.0	2.7	0.0
Phoenix Islands						
Palmyra	29	7	337	14.5	0.0	-
Line Islands						
Christmas Island	29	1	26	2.4	5.7	0.0
Canton Airport	31	1	66	6.6	3.1	0.3
Hawaii						
Hilo, Hawaii	26	1	263	15.2	-	0.0
Kahului, Maui	27	3	103	5.2	8.3	0.7
Honolulu, Oahu	26	1	106	4.2	9.3	0.6
California						
San Nicholas Island	14	16	46	4.6	10.3	0.0
San Clemente Island	16	12	7	1.0	13.2	0.0
Los Angeles	18	15	64	5.5	10.7	0.4
Burbank	17	11	102	5.5	10.7	0.3
Long Beach	18	16	62	5.4	9.6	0.2
Point Mugu	17	13	79	5.1	10.8	0.4
San Diego County Airport	18	10	58	4.6	11.4	0.2
Imperial Beach	17	13	40	3.1	9.8	0.0
Oceanside	17	14	59	5.2	11.1	0.5