

Five Millennium Catalog of Solar Eclipses: -1999 to +3000 (2nd Edition)
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Cat Num	Canon Plate	Calendar Date		ID of Greatest Eclipse		AT s	Luna Num	Saros Num	Ecl.			Ecl.		Sun		Path Width km	Central Line Dur.	
				Type	GLE				Gamma	Magn.	Lat.	Long.	Alt.	Azm				
9541	478	2015	Mar	20	09:46:47	69	188	120	T	-t	0.9454	1.0445	64.4N	6.6W	18	135	463	02m47s
9542	478	2015	Sep	13	06:55:19	69	194	125	P	-t	-1.1004	0.7875	72.1S	2.3W	0	77		
9543	478	2016	Mar	09	01:58:19	70	200	130	T	-n	0.2609	1.0450	10.1N	148.8E	75	162	155	04m09s
9544	478	2016	Sep	01	09:08:02	70	206	135	A	-n	-0.3330	0.9736	10.7S	37.8E	70	16	100	03m06s
9545	478	2017	Feb	26	14:54:33	70	212	140	A	n-	-0.4578	0.9922	34.7S	31.2W	63	340	31	00m44s
9546	478	2017	Aug	21	18:26:40	70	218	145	T	p-	0.4367	1.0306	37.0N	87.7W	64	198	115	02m40s
9547	478	2018	Feb	15	20:52:33	71	224	150	P	t-	-1.2116	0.5991	71.0S	0.6E	0	228		
9548	478	2018	Jul	13	03:02:16	71	229	117	P	-t	-1.3542	0.3365	67.9S	127.4E	0	8		
9549	478	2018	Aug	11	09:47:28	71	230	155	P	t-	1.1476	0.7368	70.4N	174.5E	0	321		
9550	478	2019	Jan	06	01:42:38	71	235	122	P	-t	1.1417	0.7145	67.4N	153.6E	0	178		
9551	478	2019	Jul	02	19:24:07	71	241	127	T	-p	-0.6466	1.0459	17.4S	109.0W	50	359	201	04m33s
9552	478	2019	Dec	26	05:18:53	72	247	132	A	-n	0.4135	0.9701	1.0N	102.3E	66	184	118	03m40s
9553	478	2020	Jun	21	06:41:15	72	253	137	Am	nn	0.1209	0.9940	30.5N	79.7E	83	174	21	00m38s
9554	478	2020	Dec	14	16:14:39	72	259	142	T	n-	-0.2939	1.0254	40.3S	67.9W	73	10	90	02m10s
9555	478	2021	Jun	10	10:43:07	72	265	147	A	t-	0.9152	0.9435	80.8N	66.8W	23	90	527	03m51s
9556	478	2021	Dec	04	07:34:38	73	271	152	T	p-	-0.9526	1.0367	76.8S	46.2W	17	115	419	01m54s
9557	478	2022	Apr	30	20:42:36	73	276	119	P	-t	-1.1901	0.6396	62.1S	71.5W	0	304		
9558	478	2022	Oct	25	11:01:20	73	282	124	P	-t	1.0701	0.8619	61.6N	77.4E	0	244		
9559	478	2023	Apr	20	04:17:56	73	288	129	H	-n	-0.3952	1.0132	9.6S	125.8E	67	334	49	01m16s
9560	478	2023	Oct	14	18:00:41	74	294	134	A	-p	0.3753	0.9520	11.4N	83.1W	68	208	187	05m17s
9561	479	2024	Apr	08	18:18:29	74	300	139	T	n-	0.3431	1.0566	25.3N	104.1W	70	149	198	04m28s
9562	479	2024	Oct	02	18:46:13	74	306	144	A	p-	-0.3509	0.9326	22.0S	114.5W	69	31	266	07m25s
9563	479	2025	Mar	29	10:48:36	75	312	149	P	t-	1.0405	0.9376	61.1N	77.1W	0	83		
9564	479	2025	Sep	21	19:43:04	75	318	154	P	t-	-1.0651	0.8550	60.9S	153.5E	0	89		
9565	479	2026	Feb	17	12:13:06	75	323	121	A	-t	-0.9743	0.9630	64.7S	86.8E	12	268	616	02m20s
9566	479	2026	Aug	12	17:47:06	75	329	126	T	-p	0.8977	1.0386	65.2N	25.2W	26	248	294	02m18s
9567	479	2027	Feb	06	16:00:48	76	335	131	A	-n	-0.2952	0.9281	31.3S	48.5W	73	334	282	07m51s
9568	479	2027	Aug	02	10:07:50	76	341	136	T	nn	0.1421	1.0790	25.5N	33.2E	82	202	258	06m23s
9569	479	2028	Jan	26	15:08:59	76	347	141	A	p-	0.3901	0.9208	3.0N	51.5W	67	161	323	10m27s
9570	479	2028	Jul	22	02:56:40	77	353	146	T	p-	-0.6056	1.0560	15.6S	126.7E	53	17	230	05m10s
9571	479	2029	Jan	14	17:13:48	77	359	151	P	t-	1.0553	0.8714	63.7N	114.2W	0	145		
9572	479	2029	Jun	12	04:06:13	77	364	118	P	-t	1.2943	0.4576	66.8N	66.2W	0	355		
9573	479	2029	Jul	11	15:37:19	77	365	156	P	t-	-1.4191	0.2303	64.3S	85.6W	0	30		
9574	479	2029	Dec	05	15:03:58	77	370	123	P	-t	-1.0609	0.8911	67.5S	135.7E	0	177		
9575	479	2030	Jun	01	06:29:13	78	376	128	A	-p	0.5626	0.9443	56.5N	80.1E	55	176	250	05m21s
9576	479	2030	Nov	25	06:51:37	78	382	133	T	-n	-0.3867	1.0468	43.6S	71.2E	67	7	169	03m44s
9577	479	2031	May	21	07:16:04	78	388	138	A	nn	-0.1970	0.9589	8.9N	71.7E	79	354	152	05m26s
9578	479	2031	Nov	14	21:07:31	79	394	143	H	n-	0.3078	1.0106	0.6S	137.6W	72	189	38	01m08s
9579	479	2032	May	09	13:26:42	79	400	148	A	t-	-0.9375	0.9957	51.3S	7.1W	20	345	44	00m22s
9580	479	2032	Nov	03	05:34:13	79	406	153	P	t-	1.0643	0.8554	70.4N	132.6E	0	218		
9581	480	2033	Mar	30	18:02:36	80	411	120	T	-t	0.9778	1.0462	71.3N	155.8W	11	111	781	02m37s
9582	480	2033	Sep	23	13:54:31	80	417	125	P	-t	-1.1583	0.6890	72.2S	121.2W	0	91		
9583	480	2034	Mar	20	10:18:45	80	423	130	T	-n	0.2894	1.0458	16.1N	22.2E	73	162	159	04m09s
9584	480	2034	Sep	12	16:19:28	81	429	135	A	-p	-0.3936	0.9736	18.2S	72.6W	67	18	102	02m58s
9585	480	2035	Mar	09	23:05:54	81	435	140	A	n-	-0.4368	0.9919	29.0S	154.9W	64	340	31	00m48s
9586	480	2035	Sep	02	01:56:46	81	441	145	T	p-	0.3727	1.0320	29.1N	158.0E	68	199	116	02m54s
9587	480	2036	Feb	27	04:46:49	82	447	150	P	t-	-1.1942	0.6286	71.6S	131.4W	0	242		
9588	480	2036	Jul	23	10:32:06	82	452	117	P	-t	-1.4250	0.1991	68.9S	3.6E	0	19		
9589	480	2036	Aug	21	17:25:45	82	453	155	P	t-	1.0825	0.8622	71.1N	47.0E	0	309		
9590	480	2037	Jan	16	09:48:55	82	458	122	P	-t	1.1477	0.7049	68.5N	20.8E	0	166		
9591	480	2037	Jul	13	02:40:36	83	464	127	T	-p	-0.7246	1.0413	24.8S	139.1E	43	3	201	03m58s
9592	480	2038	Jan	05	13:47:11	83	470	132	A	-n	0.4169	0.9728	2.1N	25.4W	65	179	107	03m18s
9593	480	2038	Jul	02	13:32:55	84	476	137	A	nn	0.0398	0.9911	25.4N	21.9W	88	179	31	01m00s
9594	480	2038	Dec	26	01:00:10	84	482	142	T	n-	-0.2881	1.0268	40.3S	164.0E	73	5	95	02m18s
9595	480	2039	Jun	21	17:12:54	84	488	147	A	p-	0.8312	0.9454	78.9N	102.1W	33	153	365	04m05s
9596	480	2039	Dec	15	16:23:46	85	494	152	T	p-	-0.9458	1.0356	80.9S	172.8E	18	123	380	01m51s
9597	480	2040	May	11	03:43:02	85	499	119	P	-t	-1.2529	0.5306	62.8S	174.4E	0	313		
9598	480	2040	Nov	04	19:09:02	85	505	124	P	-t	1.0993	0.8074	62.2N	53.4W	0	234		
9599	480	2041	Apr	30	11:52:21	86	511	129	T	-p	-0.4492	1.0189	9.6S	12.2E	63	337	72	01m51s
9600	480	2041	Oct	25	01:36:22	86	517	134	A	-p	0.4133	0.9467	9.9N	162.9E	66	206	213	06m07s