

Солнечные затмения с 1900 по 2100 годы (UT)

Солнечные затмения с 1900 по 2100 годы (UT)

Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.
09283	1901 May 18	05:33:48	-1	-1220	136	T	n-	-0.3626	1.0680	2S	98E	69	238	06m29s
09284	1901 Nov 11	07:28:21	-0	-1214	141	A	p-	0.4758	0.9216	11N	69E	62	336	11m01s
09285	1902 Apr 08	14:05:06	0	-1209	108	Pe	-t	1.5024	0.0643	72N	142W	0		
09286	1902 May 07	22:34:16	0	-1208	146	P	t-	-1.0831	0.8593	70S	125W	0		
09287	1902 Oct 31	08:00:18	1	-1202	151	P	t-	1.1556	0.6960	71N	101E	0		
09288	1903 Mar 29	01:35:23	2	-1197	118	A	-p	0.8413	0.9767	56N	130E	32	153	01m53s
09289	1903 Sep 21	04:39:52	2	-1191	123	T	-p	-0.8967	1.0316	58S	77E	26	241	02m12s
09290	1904 Mar 17	05:40:44	3	-1185	128	A	nn	0.1299	0.9367	6N	95E	82	237	08m07s
09291	1904 Sep 09	20:44:21	3	-1179	133	T	-n	-0.1625	1.0709	4S	135W	81	234	06m20s
09292	1905 Mar 06	05:12:26	4	-1173	138	A	p-	-0.5768	0.9269	40S	117E	55	334	07m58s
09293	1905 Aug 30	13:07:26	5	-1167	143	T	p-	0.5708	1.0477	42N	4W	55	192	03m46s
09294	1906 Feb 23	07:43:20	5	-1161	148	P	t-	-1.2479	0.5386	71S	170W	0		
09295	1906 Jul 21	13:14:19	6	-1156	115	P	-t	-1.3637	0.3355	69S	33W	0		
09296	1906 Aug 20	01:12:50	6	-1155	153	P	t-	1.3731	0.3147	71N	66W	0		
09297	1907 Jan 14	06:05:43	6	-1150	120	T	-p	0.8628	1.0281	38N	86E	30	189	02m25s
09298	1907 Jul 10	15:24:32	7	-1144	125	A	-p	-0.6313	0.9456	17S	51W	51	258	07m23s
09299	1908 Jan 03	21:45:22	8	-1138	130	T	-n	0.1934	1.0437	12S	145W	79	149	04m14s
09300	1908 Jun 28	16:29:51	8	-1132	135	A	nn	0.1389	0.9655	31N	67W	82	126	04m00s
09301	1908 Dec 23	11:44:28	9	-1126	140	H	n-	-0.4985	1.0024	53S	1W	60	10	00m12s
09302	1909 Jun 17	23:18:38	10	-1120	145	H	t-	0.8957	1.0065	83N	124E	26	51	00m24s
09303	1909 Dec 12	19:44:48	10	-1114	150	P	t-	-1.2456	0.5424	65S	86E	0		
09304	1910 May 09	05:42:13	11	-1109	117	T	-t	-0.9437	1.0600	48S	125E	19	594	04m15s
09305	1910 Nov 02	02:08:32	12	-1103	122	P	-t	1.0603	0.8515	62N	155W	0		
09306	1911 Apr 28	22:27:22	12	-1097	127	T	-n	-0.2294	1.0562	2N	152W	77	190	04m57s
09307	1911 Oct 22	04:13:02	13	-1091	132	A	-n	0.3224	0.9650	6M	121E	71	133	03m47s
09308	1912 Apr 17	11:34:22	14	-1085	137	H	p-	0.5280	1.0003	38N	11W	58	1	00m02s
09309	1912 Oct 10	13:36:14	14	-1079	142	T	p-	-0.4149	1.0229	28S	40W	65	85	01m55s
09310	1913 Apr 06	17:33:07	15	-1073	147	P	t-	1.3147	0.4244	61N	176E	0		
09311	1913 Aug 31	20:52:12	15	-1068	114	P	-t	1.4512	0.1513	61N	27W	0		
09312	1913 Sep 30	04:45:49	15	-1067	152	P	t-	-1.1005	0.8252	61S	12E	0		
09313	1914 Feb 25	00:13:01	16	-1062	119	A	-p	-0.9416	0.9248	62S	113W	19	839	05m35s
09314	1914 Aug 21	12:34:27	17	-1056	124	T	-p	0.7655	1.0328	54N	27E	40	170	02m14s
09315	1915 Feb 14	04:33:20	17	-1050	129	A	nn	-0.2024	0.9789	24S	121E	78	77	02m04s
09316	1915 Aug 10	22:52:25	18	-1044	134	A	nn	0.0124	0.9853	16N	161W	89	52	01m33s
09317	1916 Feb 03	16:00:21	18	-1038	139	T	p-	0.4987	1.0280	11N	68W	60	108	02m36s
09318	1916 Jul 30	02:06:10	19	-1032	144	A	p-	-0.7709	0.9447	29S	132E	39	313	06m24s
09319	1916 Dec 24	20:46:22	19	-1027	111	P	t-	-1.5321	0.0114	66S	32E	0		
09320	1917 Jan 23	07:28:31	19	-1026	149	P	t-	1.1508	0.7254	63N	26E	0		
09321	1917 Jun 19	13:16:21	20	-1021	116	P	-t	1.2857	0.4729	66N	150E	0		
09322	1917 Jul 19	02:42:42	20	-1020	154	Pb	t-	-1.5101	0.0863	64S	102E	0		
09323	1917 Dec 14	09:27:20	20	-1015	121	A	-t	-0.9157	0.9791	88S	125E	23	189	01m17s
09324	1918 Jun 08	22:07:43	20	-1009	126	T	-p	0.4658	1.0292	51N	152W	62	112	02m23s
09325	1918 Dec 03	15:22:02	21	-1003	131	A	-n	-0.2387	0.9383	36S	54W	76	236	07m06s
09326	1919 May 29	13:08:55	21	-997	136	T	n-	-0.2955	1.0719	4N	17W	73	244	06m51s
09327	1919 Nov 22	15:14:12	21	-991	141	A	p-	0.4549	0.9198	7N	49W	63	341	11m37s
09328	1920 May 18	06:14:55	21	-985	146	P	t-	-1.0239	0.9734	69S	108E	0		
09329	1920 Nov 10	15:52:15	22	-979	151	P	t-	1.1287	0.7420	70N	30W	0		
09330	1921 Apr 08	09:15:01	22	-974	118	A	-t	0.8869	0.9753	64N	6E	27	192	01m50s
09331	1921 Oct 01	12:35:58	22	-968	123	T	-p	-0.9383	1.0293	66S	56W	20	291	01m52s
09332	1922 Mar 28	13:05:26	23	-962	128	A	nn	0.1711	0.9381	12N	18W	80	233	07m50s
09333	1922 Sep 21	04:40:31	23	-956	133	T	-n	-0.2130	1.0678	11S	105E	78	226	05m59s
09334	1923 Mar 17	12:44:58	23	-950	138	A	p-	-0.5438	0.9310	33S	2E	57	305	07m51s
09335	1923 Sep 10	20:47:29	23	-944	143	T	p-	0.5149	1.0430	35N	122W	59	167	03m37s
09336	1924 Mar 05	15:44:20	24	-938	148	P	t-	-1.2232	0.5819	72S	56E	0		
09337	1924 Jul 31	19:58:20	24	-933	115	P	-t	-1.4459	0.1920	70S	146W	0		
09338	1924 Aug 30	08:23:00	24	-932	153	P	t-	1.3123	0.4245	71N	173E	0		
09339	1925 Jan 24	14:54:03	24	-927	120	T	-p	0.8661	1.0304	40N	50W	30	206	02m32s
09340	1925 Jul 20	21:48:42	24	-921	125	A	-p	-0.7193	0.9436	25S	150W	44	300	07m15s
09341	1926 Jan 14	06:36:58	24	-915	130	T	-n	0.1973	1.0430	10S	82E	79	147	04m11s
09342	1926 Jul 09	23:06:02	24	-909	135	A	nn	0.0538	0.9680	26N	165W	87	115	03m51s
09343	1927 Jan 03	20:22:53	24	-903	140	A	n-	-0.4956	0.9995	53S	125W	60	2	00m03s
09344	1927 Jun 29	06:23:27	24	-897	145	T	t-	0.8163	1.0128	78N	74E	35	7	00m50s
09345	1927 Dec 24	03:59:41	24	-891	150	P	t-	-1.2416	0.5490	66S	48W	0		

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09346	1928 May 19	13:24:20	24	-886	117	T	-t	-1.0048	1.0140	63S	22E	0		
09347	1928 Jun 17	20:27:28	24	-885	155	Pb	t-	1.5107	0.0375	66N	71E	0		
09348	1928 Nov 12	09:48:24	24	-880	122	P	-t	1.0861	0.8078	63N	81E	0		
09349	1929 May 09	06:10:34	24	-874	127	T	-n	-0.2887	1.0562	2N	93E	73	193	05m07s
09350	1929 Nov 01	12:05:10	24	-868	132	A	-n	0.3514	0.9649	4N	3E	69	134	03m54s
09351	1930 Apr 28	19:03:34	24	-862	137	H	p-	0.4730	1.0003	39N	121W	62	1	00m01s
09352	1930 Oct 21	21:43:53	24	-856	142	T	p-	-0.3804	1.0230	31S	161W	67	84	01m55s
09353	1931 Apr 18	00:45:35	24	-850	147	P	t-	1.2643	0.5107	61S	59E	0		
09354	1931 Sep 12	04:41:25	24	-845	114	Pe	-t	1.5060	0.0471	61N	153W	0		
09355	1931 Oct 11	12:55:40	24	-844	152	P	t-	-1.0607	0.9005	61S	119W	0		
09356	1932 Mar 07	07:55:50	24	-839	119	A	-p	-0.9673	0.9277	61S	134E	14	1083	05m19s
09357	1932 Aug 31	20:03:41	24	-833	124	T	-p	0.8307	1.0257	54N	79W	34	155	01m45s
09358	1933 Feb 24	12:46:39	24	-827	129	A	nn	-0.2191	0.9841	21S	2W	77	58	01m32s
09359	1933 Aug 21	05:49:11	24	-821	134	A	nn	0.0869	0.9801	17N	96E	85	71	02m04s
09360	1934 Feb 14	00:38:41	24	-815	139	T	p-	0.4868	1.0321	13N	162E	61	123	02m53s
09361	1934 Aug 10	08:37:48	24	-809	144	A	p-	-0.6890	0.9436	25S	35E	46	280	06m33s
09362	1935 Jan 05	05:35:46	24	-804	111	Pe	-t	-1.5381	0.0013	65S	110W	0		
09363	1935 Feb 03	16:16:20	24	-803	149	P	t-	1.1438	0.7390	62N	115W	0		
09364	1935 Jun 30	19:59:46	24	-798	116	P	-t	1.3623	0.3375	65N	39E	0		
09365	1935 Jul 30	09:16:28	24	-797	154	P	t-	-1.4259	0.2315	63S	6W	0		
09366	1935 Dec 25	17:59:52	24	-792	121	A	-t	-0.9228	0.9752	84S	9E	22	234	01m30s
09367	1936 Jun 19	05:20:31	24	-786	126	T	-p	0.5389	1.0329	56N	105E	57	132	02m31s
09368	1936 Dec 13	23:28:12	24	-780	131	A	-n	-0.2493	0.9349	38S	173W	75	251	07m25s
09369	1937 Jun 08	20:41:02	24	-774	136	T	n-	-0.2253	1.0751	10N	131W	77	250	07m04s
09370	1937 Dec 02	23:05:45	24	-768	141	A	p-	0.4389	0.9184	4N	168W	64	344	12m00s
09371	1938 May 29	13												

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Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.
09409	1954 Dec 25	07:36:42	31	-557	131	A	-n	-0.2576	0.9323	38S	68E	75	262	07m39s
09410	1955 Jun 20	04:10:42	31	-551	136	T	n-	-0.1528	1.0776	15N	117E	81	254	07m08s
09411	1955 Dec 14	07:02:25	31	-545	141	A	p-	0.4266	0.9176	2N	72E	65	346	12m09s
09412	1956 Jun 08	21:20:39	32	-539	146	T	p-	-0.8934	1.0581	41S	141W	26	429	04m45s
09413	1956 Dec 02	08:00:35	32	-533	151	P	t-	1.0923	0.8047	68N	65E	0		
09414	1957 Apr 30	00:05:28	32	-528	118	A+	-t	0.9992	0.9799	71N	40E	0		
09415	1957 Oct 23	04:54:02	32	-522	123	T-	-t	-1.0022	1.0013	71S	23W	0		
09416	1958 Apr 19	03:27:17	32	-516	128	A	np	0.2750	0.9408	26N	124E	74	228	07m07s
09417	1958 Oct 12	20:55:28	33	-510	133	T	n-	-0.2951	1.0608	24S	142W	73	209	05m11s
09418	1959 Apr 08	03:24:08	33	-504	138	A	p-	-0.4546	0.9401	19S	138E	63	247	07m26s
09419	1959 Oct 02	12:27:00	33	-498	143	T	n-	0.4207	1.0325	20N	1W	65	120	03m02s
09420	1960 Mar 27	07:25:07	33	-492	148	P	t-	-1.1537	0.7058	72S	152E	0		
09421	1960 Sep 20	22:59:56	33	-486	153	P	t-	1.2057	0.6139	72N	74W	0		
09422	1961 Feb 15	08:19:48	34	-481	120	T	p-	0.8830	1.0360	47N	40E	28	258	02m45s
09423	1961 Aug 11	10:46:47	34	-475	125	A	-p	-0.8859	0.9375	46S	4E	27	499	06m35s
09424	1962 Feb 05	00:12:38	34	-469	130	T	-n	0.2107	1.0430	4S	178E	78	147	04m08s
09425	1962 Jul 31	12:25:33	34	-463	135	Am	nn	-0.1130	0.9716	12N	6W	84	103	03m33s
09426	1963 Jan 25	13:37:12	35	-457	140	A	n-	-0.4898	0.9951	48S	15W	60	20	00m25s
09427	1963 Jul 20	20:36:13	35	-451	145	T	p-	0.6571	1.0224	62N	120W	49	101	01m40s
09428	1964 Jan 14	20:30:08	35	-445	150	P	t-	-1.2354	0.5591	68S	43E	0		
09429	1964 Jun 10	04:34:07	35	-440	117	P	t-	-1.1393	0.7545	65S	136E	0		
09430	1964 Jul 09	11:17:53	35	-439	155	P	t-	1.3623	0.3221	68N	173W	0		
09431	1964 Dec 04	01:31:54	36	-434	122	P	-t	1.1193	0.7518	64N	173W	0		
09432	1965 May 30	21:17:31	36	-428	127	T	-p	-0.4225	1.0544	2S	134W	65	198	05m15s
09433	1965 Nov 23	04:14:51	36	-422	132	A	-n	0.3906	0.9656	2N	120E	67	134	04m02s
09434	1966 May 20	09:39:02	37	-416	137	A	n-	0.3467	0.9991	39N	26E	70	3	00m05s
09435	1966 Nov 12	14:23:28	37	-410	142	T	n-	-0.3300	1.0234	36S	48W	71	84	01m57s
09436	1967 May 09	14:42:48	38	-404	147	P	t-	1.1422	0.7201	63N	168W	0		
09437	1967 Nov 02	05:38:56	38	-398	152	T-	t-	-1.0007	1.0126	62S	28W	0		
09438	1968 Mar 28	23:00:30	38	-393	119	P	-t	-1.0370	0.8990	61S	80W	0		
09439	1968 Sep 22	11:18:46	39	-387	124	T	-t	0.9451	1.0099	56N	64E	19	104	00m40s
09440	1969 Mar 18	04:54:57	39	-381	129	A	-n	-0.2704	0.9954	15S	116E	74	16	00m26s
09441	1969 Sep 11	19:58:59	40	-375	134	A	nn	0.2201	0.9690	16N	114W	77	114	03m11s
09442	1970 Mar 07	17:38:30	40	-369	139	T	p-	0.4473	1.0414	18N	95W	63	153	03m28s
09443	1970 Aug 31	21:55:30	41	-363	144	A	p-	-0.5364	0.9400	20S	164W	57	258	06m47s
09444	1971 Feb 25	09:38:07	41	-357	149	P	t-	1.1188	0.7872	61N	34W	0		
09445	1971 Jul 22	09:31:55	42	-352	116	Pe	t-	1.5130	0.0689	64N	177E	0		
09446	1971 Aug 20	22:39:31	42	-351	154	P	t-	-1.2659	0.5080	62S	135E	0		
09447	1972 Jan 16	11:03:22	42	-346	121	A	-t	-0.9365	0.9692	75S	108E	20	321	01m53s
09448	1972 Jul 10	19:46:38	43	-340	126	T	-p	0.6872	1.0379	64N	94W	46	175	02m36s
09449	1973 Jan 04	15:46:21	43	-334	131	A	-n	-0.2644	0.9303	38S	51W	74	271	07m49s
09450	1973 Jun 30	11:38:41	44	-328	136	T	nn	-0.0785	1.0792	19N	6E	86	256	07m04s
09451	1973 Dec 24	15:02:44	44	-322	141	A	p-	0.4171	0.9174	1N	48W	65	345	12m02s
09452	1974 Jun 20	04:48:04	45	-316	146	T	p-	-0.8239	1.0592	32S	104E	34	344	05m09s
09453	1974 Dec 13	16:13:13	45	-310	151	P	t-	1.0797	0.8266	67N	69W	0		
09454	1975 May 11	07:17:33	46	-305	118	P	-t	1.0647	0.8636	70N	80W	0		
09455	1975 Nov 03	13:15:54	46	-299	123	P	-t	-1.0248	0.9588	70S	162W	0		
09456	1976 Apr 29	10:24:18	47	-293	128	A	p-	0.3378	0.9421	34N	18E	70	227	06m41s
09457	1976 Oct 23	05:13:45	47	-287	133	T	n-	-0.3270	1.0572	30S	92E	71	199	04m46s
09458	1977 Apr 18	10:31:30	48	-281	138	A	p-	-0.3990	0.9449	12S	28E	66	220	07m04s
09459	1977 Oct 12	20:27:27	48	-275	143	T	n-	0.3836	1.0269	14N	124W	67	99	02m37s
09460	1978 Apr 07	15:03:47	49	-269	148	P	t-	-1.1081	0.7883	72S	23E	0		
09461	1978 Oct 02	06:28:43	49	-263	153	P	t-	1.1616	0.6905	72N	160E	0		
09462	1979 Feb 26	16:55:06	50	-258	120	T	-p	0.8981	1.0391	52N	94W	26	298	02m49s
09463	1979 Aug 22	17:22:38	50	-252	125	A	-t	-0.9632	0.9329	60S	109W	15	953	06m03s
09464	1980 Feb 16	08:54:01	51	-246	130	T	n-	0.2224	1.0434	0S	47E	77	149	04m08s
09465	1980 Aug 10	19:12:21	51	-240	135	A	nn	-0.1915	0.9727	5N	109W	79	100	03m23s
09466	1981 Feb 04	22:09:24	51	-234	140	A	p-	-0.4838	0.9937	44S	141E	61	25	00m33s
09467	1981 Jul 31	03:46:37	52	-228	145	T	p-	0.5792	1.0258	53N	134E	54	108	02m02s
09468	1982 Jan 25	04:42:53	52	-222	150	P	t-	-1.2311	0.5663	69S	92W	0		
09469	1982 Jun 21	12:04:33	53	-217	117	P	-t	-1.2102	0.6168	66S	13E	0		
09470	1982 Jul 20	18:44:44	53	-216	155	P	t-	1.2886	0.4643	69N	64E	0		
09471	1982 Dec 15	09:32:09	53	-211	122	P	-t	1.1293	0.7350	65N	57E	0		

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09472	1983 Jun 11	04:43:33	53	-205	127	T	-p	-0.4947	1.0524	6S	114E	60	199	05m11s
09473	1983 Dec 04	12:31:15	54	-199	132	A	-n	0.4015	0.9666	1N	5W	66	131	04m01s
09474	1984 May 30	16:45:41	54	-193	137	A	nn	0.2755	0.9980	37N	77W	74	7	00m11s
09475	1984 Nov 22	22:54:17	54	-187	142	T	n-	-0.3132	1.0237	38S	174W	72	85	02m00s
09476	1985 May 19	21:29:38	55	-181	147	P	t-	1.0720	0.8406	63N	81E	0		
09477	1985 Nov 12	14:11:27	55	-175	152	T	t-	-0.9795	1.0388	69S	143W	11	690	01m59s
09478	1986 Apr 09	06:21:22	55	-170	119	P	-t	-1.0822	0.8236	61S	161E	0		
09479	1986 Oct 03	19:06:15	55	-164	124	H	-t	0.9931	1.0000	60N	37W	5	1	00m00s
09480	1987 Mar 29	12:49:47	55	-158	129	H	-n	-0.3053	1.0013	12S	2W	72	5	00m08s
09481	1987 Sep 23	03:12:22	56	-152	134	A	-n	0.2787	0.9634	14N	138E	74	137	03m49s
09482	1988 Mar 18	01:58:56	56	-146	139	T	n-	0.4188	1.0464	21N	140E	65	169	03m46s
09483	1988 Sep 11	04:44:29	56	-140	144	A	p-	-0.4681	0.9377	20S	94E	62	258	06m57s
09484	1989 Mar 07	18:08:41	56	-134	149	P	t-	1.0981	0.8268	61N	170W	0		
09485	1989 Aug 31	05:31:47	57	-128	154	P	t-	-1.1928	0.6344	61S	24E	0		
09486	1990 Jan 26	19:31:24	57	-123	121	A	-t	-0.9457	0.9670	71S	22W	18	373	02m03s
09487	1990 Jul 22	03:03:07	57	-117	126	T	-p	0.7597	1.0391	65N	169E	40	201	02m33s
09488	1991 Jan 15	23:53:51	58	-111	131	A	-n	-0.2727	0.9290	36S	170W	74	277	07m53s
09489	1991 Jul 11	19:07:01	58	-105	136	Tm	nn	-0.0041	1.0800	22N	105W	90	258	06m53s
09490	1992 Jan 04	23:05:37	58	-99	141	A	p-	0.4091	0.9179	1N	170W	66	340	11m41s
09491	1992 Jun 30	12:11:22	59	-93	146	T	p-	-0.7512	1.0592	25S	9W	41	294	05m21s
09492	1992 Dec 24	00:31:41	59	-87	151	P	t-	1.0711	0.8422	66N	156E	0		
09493	1993 May 21	14:20:15	59	-82	118	P	-t	1.1372	0.7352	69N	162E	0		
09494	1993 Nov 13	21:45:51	60	-76	123	P	-t	-1.0411	0.9280	70S	58E	0		
09495	1994 May 10	17:12:26	60	-70	128	A	-p	0.4077	0.9431	42N	84W	66	230	06m13s
09496	1994 Nov 03	13:40:06	61	-64	133	T	-n	-0.3522	1.0535	35S	34W	69	189	04m23s
09497	1995 Apr 29	17:33:21	61	-58	138	A	p-	-0.3382	0.9497	5S				

Солнечные затмения с 1900 по 2100 годы (UT)

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Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.	Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.
09534	2011 Nov 25	06:21:24	68	147	123	P	-t	-1.0536	0.9047	69S	82W	0						85	499	119	P	-t	-1.2529	0.5306	63S	174E	0		
09535	2012 May 20	23:53:54	68	153	128	A	-p	0.4828	0.9439	49N	176E	61	237	05m46s	09597	2040 May 11	03:43:02	85	505	124	P	-t	1.0993	0.8074	62N	53W	0		
09536	2012 Nov 13	22:12:55	68	159	133	T	-n	-0.3719	1.0500	40S	161W	68	179	04m02s	09598	2040 Nov 04	19:09:02	85	505	124	P	-t	1.0993	0.8074	62N	53W	0		
09537	2013 May 10	00:26:20	68	165	138	A	pn	-0.2694	0.9544	2N	175E	74	173	06m03s	09599	2041 Apr 30	11:52:21	86	511	129	T	-p	-0.4492	1.0189	10S	12E	63		
09538	2013 Nov 03	12:47:36	68	171	143	H3	n-	0.3272	1.0159	3N	12W	71	58	01m40s	09600	2041 Oct 25	01:36:22	86	517	134	A	-p	0.4133	0.9467	10N	163E	66		
09539	2014 Apr 29	06:04:33	69	177	148	A-	t-	-1.0000	0.9868	71S	131E	0			09601	2042 Apr 20	02:17:30	86	523	139	T	n-	0.2956	1.0614	27N	137E	73		
09540	2014 Oct 23	21:45:39	69	183	153	P	t-	1.0908	0.8114	71N	97W	0			09602	2042 Oct 14	02:00:42	87	529	144	A	n-	-0.3030	0.9300	24S	138E	72		
09541	2015 Mar 20	09:46:47	69	188	120	T	-t	0.9454	1.0445	64N	7W	18	463	02m47s															
09542	2015 Sep 13	06:55:19	69	194	125	P	-t	-1.1004	0.7875	72S	2W	0			09603	2043 Apr 09	18:57:49	87	535	149	T+	t-	1.0031	1.0095	61N	152E	0		
															09604	2043 Oct 03	03:01:49	88	541	154	A-	t-	-1.0102	0.9497	61S	35E	0		
09543	2016 Mar 09	01:58:19	70	200	130	T	-n	0.2609	1.0450	10N	149E	75	155	04m09s	09605	2044 Feb 28	20:24:39	88	546	121	As	-t	-0.9954	0.9600	62S	26W	4		
09544	2016 Sep 01	09:08:02	70	206	135	A	-n	-0.3330	0.9736	11S	38E	70	100	03m06s	09606	2044 Aug 23	01:17:02	88	552	126	T	-t	0.9613	1.0364	64N	120W	15		
09545	2017 Feb 26	14:54:33	70	212	140	A	n-	-0.4578	0.9922	35S	31W	63	31	00m44s	09607	2045 Feb 16	23:56:07	89	558	131	A	-n	-0.3125	0.9285	28S	166W	72		
09546	2017 Aug 21	18:26:40	70	218	145	T	p-	0.4367	1.0306	37N	88W	64	115	02m40s	09608	2045 Aug 12	17:42:39	89	564	136	T	-n	0.2116	1.0774	26N	79W	78		
09547	2018 Feb 15	20:52:33	71	224	150	P	t-	-1.2116	0.5991	71S	1E	0			09609	2046 Feb 05	23:06:26	90	570	141	A	p-	0.3765	0.9232	5N	171W	68		
09548	2018 Jul 13	03:02:16	71	229	117	P	-t	-1.3542	0.3365	68S	127E	0			09610	2046 Aug 02	10:21:13	90	576	146	T	p-	-0.5350	1.0531	13S	15E	58		
09549	2018 Aug 11	09:47:28	71	230	155	P	t-	1.1476	0.7368	70N	174E	0			09611	2047 Jan 26	01:33:18	90	582	151	P	t-	1.0450	0.8907	63N	112E	0		
09550	2019 Jan 06	01:42:38	71	235	122	P	-t	1.1417	0.7145	67N	154E	0			09612	2047 Jun 23	10:52:31	91	587	118	P	-t	1.3766	0.3129	66N	178W	0		
09551	2019 Jul 02	19:24:07	71	241	127	T	-p	-0.6466	1.0459	17S	109W	50	201	04m33s															
09552	2019 Dec 26	05:18:53	72	247	132	A	-n	0.4135	0.9701	1N	102E	66	118	03m40s	09613	2047 Jul 22	22:36:17	91	588	156	P	t-	-1.3477	0.3604	63S	160E	0		
															09614	2047 Dec 16	23:50:12	91	593	123	P	-t	-1.0661	0.8816	66S	7W	0		
09553	2020 Jun 21	06:41:15	72	253	137	Am	nn	0.1209	0.9940	31N	80E	83	21	00m38s	09615	2048 Jun 11	12:58:53	92	599	128	A	-p	0.6468	0.9441	64N	12W	49		
09554	2020 Dec 14	16:14:39	72	259	142	T	n-	-0.2939	1.0254	40S	68W	73	90	02m10s	09616	2048 Dec 05	15:35:27	92	605	133	T	-n	-0.3973	1.0440	46S	56W	66		
09555	2021 Jun 10	10:43:07	72	265	147	A	t-	0.9152	0.9435	81N	67W	23	527	03m51s	09617	2049 May 31	13:59:59	92	611	138	A	nn	-0.1187	0.9631	15N	30W	83		
09556	2021 Dec 04	07:34:38	73	271	152	T	p-	-0.9526	1.0367	77S	46W	17	419	01m54s	09618	2049 Nov 25	05:33:48	93	617	143	H	n-	0.2943	1.0057	4S	95E	73		
09557	2022 Apr 30	20:42:36	73	276	119	P	-t	-1.1901	0.6396	62S	71W	0			09619	2050 May 20	20:42:50	94	623	148	H	t-	-0.8688	1.0038	40S	124W	29		
09558	2022 Oct 25	11:01:20	73	282	124	P	-t	1.0701	0.8619	62N	77E	0			09620	2050 Nov 14	13:30:53	95	629	153	P	t-	1.0447	0.8874	70N	1E	0		
09559	2023 Apr 20	04:17:56	73	288	129	H	-n	-0.3952	1.0132	10S	126E	67	49	01m16s	09621	2051 Apr 11	02:10:39	95	634	120	P	-t	1.0169	0.9849	72N	32E	0		
09560	2023 Oct 14	18:00:41	74	294	134	A	-p	0.3753	0.9520	11N	83W	68	187	05m17s	09622	2051 Oct 04	21:02:14	96	640	125	P	-t	-1.2094	0.6024	72S	118E	0		
09561	2024 Apr 08	18:18:29	74	300	139	T	n-	0.3431	1.0566	22S	104W	70	198	04m28s															
09562	2024 Oct 02	18:46:13	74	306	144	A	p-	-0.3509	0.9326	25N	114W	69	266	07m25s	09623	2052 Mar 30	18:31:53	97	646	130	T	-n	0.3238	1.0466	22N	103W	71		
															09624	2052 Sep 22	23:39:10	98	652	135	A	-p	-0.4480	0.9734	26S	175E	63		
09563	2025 Mar 29	10:48:36	75	312	149	P	t-	1.0405	0.9376	61N	77W	0			09625	2053 Mar 20	07:08:19	99	658	140	A	n-	-0.4089	0.9919	23S	83E	66		
09564	2025 Sep 21	19:43:04	75	318	154	P	t-	-1.0651	0.8550	61S	154E	0			09626	2053 Sep 12	09:34:09	100	664	145	T	n-	0.3140	1.0328	21N	42E	72		
09565	2026 Feb 17	12:13:06	75	323	121	A	-t	-0.9743	0.9630	65S	87E	12	616	02m20s	09627	2054 Mar 09	12:33:40	101	670	150	P	t-	-1.1711	0.6678	72S	98E	0		
09566	2026 Aug 12	17:47:06	75	329	126	T	-p	0.8977	1.0386	65S	25W	26	294	02m18s	09628	2054 Aug 03	18:04:02	102	675	117	Pe	-t	-1.4941	0.0655	70S	121W	0		
09567	2027 Feb 06	16:00:48	76	335	131	A	-n	-0.2952	0.9281	31S	48W	73	282	07m51s	09629	2054 Sep 02	01:09:34	102	676	155	P	t-	1.0215	0.9793	72N	82W	0		
09568	2027 Aug 02	10:07:50	76	341	136	T	nn	0.1421	1.0790	26N	33E	82	258	06m23s	09630	2055 Jan 27	17:54:05	103	681	122	P	-t	1.1550	0.6932	70N	112W	0		
09569	2028 Jan 26	15:08:59	76	347	141	A	p-	0.3901	0.9208	3N	52W	67	323	10m27s	09631	2055 Jul 24	09:57:50	104	687	127	T	-p	-0.8012	1.0359	33S	26E	37		
09570	2028 Jul 22	02:56:40	77	353	146	T	p-	-0.6056	1.0560	16S	127E	53	230	05m10s	09632	2056 Jan 16	22:16:45	105	693	132	A	-n	0.4199	0.9759	4N	154W	65		
09571	2029 Jan 14	17:13:48	77	359	151	P	t-	1.0553	0.8714	64N	114W	0																	
09572	2029 Jun 12	04:06:13	77	364	118	P	-t	1.2943	0.4576	67N	66W	0			09633	2056 Jul 12	20:21:59	106	699	137	A	nn	-0.0426	0.9878	19N	124W	88		
															09634	2057 Jan 05	09:47:52	107	705	142	T	n-	-0.2837	1.0287	39S	35E	73		
09573	2029 Jul 11	15:37:19	77	365	156	P	t-	-1.4191	0.2303	64S	86W	0			09635	2057 Jul 01	23:40:15	108	711	147	A	p-	0.7455	0.9464	71N	176W	41		
09574	2029 Dec 05	15:03:58	77	370	123	P	-t	-1.0609	0.8911	68S	136E	0			09636	2057 Dec 26	01:14:35	109	717	152	T	p-	-0.9405	1.0348	85S	22E	19		
09575	2030 Jun 01	06:29:13	78	376	128	A	-p	0.5626	0.9443	57N	80E	55	250	05m21s	09637	2058 May 22	10:39:25	110	722	119	P	-t	-1.3194	0.4141	64S	61E	0		
09576	2030 Nov 25	06:51:37	78	382	133	T	-n	-0.3867	1.0468	44S	71E	67	169	03m44s	09638	2058 Jun 21	00:19:35	110	723	157	Pb	t-	1.4869	0.1260	66N	10E	0		
09577	2031 May 21	07:16:04	78	388	138	A	nn	-0.1970	0.9589	9N	72E	79	152	05m26s	09639	2058 Nov 16	03:23:07	111	728	124	P	-t	1.1224	0.7644	63N	174E	0		
09578	2031 Nov 14	21:07:31	79	394	143	H	n-	0.3078	1.0106	1S	138W	72	38	01m08s	09640	2059 May 11	19:22:16	112	734	129	T	-p	-0.5080	1.0242	11S	100W	59		
09579	2032 May 09	13:26:42	79	400	148	A	t-	-0.9375	0.9957	51S	7W	20	44	00m22s	09641	2059 Nov 05	09:18:15	113	740	134	A	-p	0.4454	0.9417	9N	47E	63		
09580	2032 Nov 03	05:34:13	79																										

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Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.
09658	2067 Jun 11	20:42:26	129	834	138	A nn	-0.0387	0.9670	21N 130W	88	119	04m05s		
09659	2067 Dec 06	14:03:43	130	840	143	H n-	0.2845	1.0011	6S 32W	74	4	00m08s		
09660	2068 May 31	03:56:39	131	846	148	T p-	-0.7970	1.0110	31S 123E	37	63	01m06s		
09661	2068 Nov 24	21:32:30	132	852	153	P t-	1.0299	0.9109	69N 131W	0				
09662	2069 Apr 21	10:11:09	133	857	120	P	-t	1.0624	0.8992	71N 101W	0			
09663	2069 May 20	17:53:18	133	858	158	Pb t-	-1.4852	0.0879	69S 70W	0				
09664	2069 Oct 15	04:19:56	134	863	125	P	-t	-1.2524	0.5298	72S 5W	0			
09665	2070 Apr 11	02:36:09	135	869	130	T	-n	0.3652	1.0472	29N 135E	68	168	04m04s	
09666	2070 Oct 04	07:08:57	136	875	135	A	-p	-0.4950	0.9731	33S 60E	60	110	02m44s	
09667	2071 Mar 31	15:01:06	138	881	140	A n-	-0.3739	0.9919	17S 37W	68	31	00m52s		
09668	2071 Sep 23	17:20:28	139	887	145	T n-	0.2620	1.0333	14N 77W	75	116	03m11s		
09669	2072 Mar 19	20:10:31	140	893	150	P t-	-1.1405	0.7199	72S 30W	0				
09670	2072 Sep 12	08:59:20	141	899	155	T t-	0.9655	1.0558	70N 102E	14	732	03m13s		
09671	2073 Feb 07	01:55:59	142	904	122	P	-t	1.1651	0.6768	70N 115E	0			
09672	2073 Aug 03	17:15:23	143	910	127	T	-t	-0.8763	1.0294	43S 89W	28	206	02m29s	
09673	2074 Jan 27	06:44:15	144	916	132	A	-n	0.4251	0.9798	7N 79E	65	79	02m21s	
09674	2074 Jul 24	03:10:32	145	922	137	A nn	-0.1242	0.9838	13N 134E	83	58	01m57s		
09675	2075 Jan 16	18:36:04	146	928	142	T n-	-0.2799	1.0311	37S 94W	74	110	02m42s		
09676	2075 Jul 13	06:05:44	147	934	147	A p-	0.6583	0.9467	63N 95E	49	262	04m45s		
09677	2076 Jan 06	10:07:27	148	940	152	T p-	-0.9373	1.0342	87S 174W	20	340	01m49s		
09678	2076 Jun 01	17:31:22	149	945	119	P	-t	-1.3897	0.2897	64S 51W	0			
09679	2076 Jul 01	06:50:43	149	946	157	P t-	1.4005	0.2746	67N 98W	0				
09680	2076 Nov 26	11:43:01	150	951	124	P	-t	1.1401	0.7315	64N 40E	0			
09681	2077 May 22	02:46:05	151	957	129	T	-p	-0.5725	1.0290	13S 148E	55	119	02m54s	
09682	2077 Nov 15	17:07:56	152	963	134	A	-p	0.4705	0.9371	8N 71W	62	262	07m54s	
09683	2078 May 11	17:56:55	153	969	139	T n-	0.1838	1.0701	28N 94W	79	232	05m40s		
09684	2078 Nov 04	16:55:44	154	975	144	A nn	-0.2285	0.9255	28S 83W	77	287	08m29s		
09685	2079 May 01	10:50:13	155	981	149	T p-	0.9081	1.0512	66N 46W	24	406	02m55s		
09686	2079 Oct 24	18:11:21	156	987	154	A t-	-0.9243	0.9484	63S 161W	22	495	03m39s		
09687	2080 Mar 21	12:20:15	157	992	121	P	-t	-1.0578	0.8734	61S 86E	0			
09688	2080 Sep 13	16:38:09	158	998	126	P	-t	1.0723	0.8743	61N 26E	0			
09689	2081 Mar 10	15:23:31	159	1004	131	A	-p	-0.3653	0.9304	22S 37W	68	277	07m36s	
09690	2081 Sep 03	09:07:31	160	1010	136	T	-n	0.3378	1.0720	25N 54E	70	247	05m33s	
09691	2082 Feb 27	14:47:00	162	1016	141	A p-	0.3361	0.9298	9N 47W	70	277	08m12s		
09692	2082 Aug 24	01:16:21	163	1022	146	T n-	-0.4004	1.0452	10S 152E	66	163	04m01s		
09693	2083 Feb 16	18:06:36	164	1028	151	P t-	1.0170	0.9433	62N 154W	0				
09694	2083 Jul 15	00:14:23	165	1033	118	Pe	-t	1.5465	0.0168	64N 38W	0			
09695	2083 Aug 13	12:34:41	165	1034	156	P t-	-1.2064	0.6146	62S 67W	0				
09696	2084 Jan 07	17:30:24	166	1039	123	P	-t	-1.0715	0.8723	64S 69E	0			
09697	2084 Jul 03	01:50:26	167	1045	128	A	-p	0.8208	0.9421	75N 169W	35	377	04m25s	
09698	2084 Dec 27	09:13:48	168	1051	133	T	-n	-0.4094	1.0396	47S 48E	66	146	03m04s	
09699	2085 Jun 22	03:21:16	169	1057	138	A nn	0.0452	0.9704	26N 131E	87	106	03m29s		
09700	2085 Dec 16	22:37:48	170	1063	143	A n-	0.2786	0.9971	7S 161W	74	10	00m19s		
09701	2086 Jun 11	11:07:14	171	1069	148	T p-	-0.7215	1.0174	23S 12E	44	86	01m48s		
09702	2086 Dec 06	05:38:55	172	1075	153	P	-p	1.0194	0.9271	67N 96E	0			
09703	2087 May 02	18:04:42	173	1080	120	P	-t	1.1139	0.8011	70N 128E	0			
09704	2087 Jun 01	01:27:14	173	1081	158	P t-	-1.4186	0.2146	68S 165E	0				
09705	2087 Oct 26	11:46:57	174	1086	125	P	-t	-1.2882	0.4696	71S 131W	0			
09706	2088 Apr 21	10:31:49	175	1092	130	T	-p	0.4135	1.0474	36N 15E	65	173	03m58s	
09707	2088 Oct 14	14:48:05	177	1098	135	A	-p	-0.5349	0.9727	40S 56W	57	115	02m38s	
09708	2089 Apr 10	22:44:42	178	1104	140	A n-	-0.3319	0.9919	10S 155W	71	30	00m53s		
09709	2089 Oct 04	01:15:23	179	1110	145	T n-	0.2167	1.0333	7N 163E	77	115	03m14s		
09710	2090 Mar 31	03:38:08	180	1116	150	P t-	-1.1028	0.7843	72S 156W	0				
09711	2090 Sep 23	16:56:36	181	1122	155	T	-t	0.9157	1.0562	61N 40W	23	463	03m36s	
09712	2091 Feb 18	09:54:40	182	1127	122	P	-t	1.1779	0.6558	71N 18W	0			
09713	2091 Aug 15	00:34:43	183	1133	127	T	-t	-0.9490	1.0216	56S 150E	18	236	01m38s	
09714	2092 Feb 07	15:10:20	184	1139	132	A	-n	0.4322	0.9840	10N 49W	64	62	01m48s	
09715	2092 Aug 03	09:59:33	185	1145	137	A nn	-0.2044	0.9794	6N 30E	78	75	02m31s		
09716	2093 Jan 27	03:22:16	186	1151	142	T n-	-0.2737	1.0340	34S 136E	74	119	02m58s		
09717	2093 Jul 23	12:32:04	187	1157	147	A p-	0.5717	0.9463	55N 1E	55	241	05m11s		
09718	2094 Jan 16	18:59:03	189	1163	152	T p-	-0.9333	1.0342	85S 11W	21	329	01m51s		
09719	2094 Jun 13	00:22:11	190	1168	119	P	-t	-1.4613	0.1618	65S 164W	0			
09720	2094 Jul 12	13:24:35	190	1169	157	P t-	1.3150	0.4224	68N 153E	0				

Catalog Number	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QLE	Gamma	Ecl. Mag.	Lat °	Long °	Sun Alt °	Path Width km	Central Dur.
09721	2094 Dec 07	20:05:56	191	1174	124	P	-t	1.1547	0.7046	65N 95W	50	0		
09722	2095 Jun 02	10:07:40	192	1180	129	T	-p	-0.6396	1.0332	17S 37E	0	145	03m18s	
09723	2095 Nov 27	01:02:57	193	1186	134	A	-p	0.4903	0.9330	7N 170E	61	285	08m47s	
09724	2096 May 22	01:37:14	194	1192	139	T nn	0.1196	1.0737	27N 153E	83	241	06m06s		
09725	2096 Nov 15	00:36:15	195	1198	144	A nn	-0.2018	0.9237	30S 163E	78	294	08m53s		
09726	2097 May 11	18:34:31	196	1204	149	T	-p	0.8516	1.0538	67N 150W	31	339	03m10s	
09727	2097 Nov 04	02:01:25	197	1210	154	A t-	-0.8926	0.9494	66S 87E	26	411	03m36s		
09728	2098 Apr 01	20:02:31	198	1215	121	P	-t	-1.1005	0.7984	61S 38W	0			
09729	2098 Sep 25	00:31:16	199	1221	126	P	-t	1.1184	0.7871	61N 101W	0			
09730	2098 Oct 24	10:36:11	200	1222	164	Pb t-	-1.5407	0.0056	62S 95W	0				
09731	2099 Mar 21	22:54:32	201	1227	131	A	-p	-0.4016	0.9318	20S 149W	66	275	07m32s	
09732	2099 Sep 14	16:57:53	202	1233	136	T	-n	0.3942	1.0684	23N 63W	67	241	05m18s	
09733	2100 Mar 10	22:28:11	203	1239	141	A n-	0.3077	0.9338	12N 162W	72	257	07m29s		
09734	2100 Sep 04	08:49:20	204	1245	146	T n-	-0.3384	1.0402	10S 39E	70	142	03m32s		

Источник: <http://eclipse.gsfc.nasa.gov/solar.html>

Обозначения: Catalog Number - номер по каталогу, Calendar Date – дата затмения по григорианскому календарю, TD of Greatest Eclipse - время середины затмения по земному динамическому времени, ΔT - поправка земного динамического времени ко всемирному времени в секундах, Luna Num - номер лунации, Saros Num - номер сароса, Ecl. Type. - тип затмения (T - полное, A - кольцеобразное, P - частное, H - гибридное), QLE - тип лунного затмения соседствующего с данным солнечным (до или после), Gamma - параметр, показывающий насколько ось лунной тени проходит выше или ниже центра Земли, Ecl. Mag. - фаза затмения, Lat - широта максимального затмения (в градусах), Long. - долгота максимального затмения (в градусах), Sun Alt – высота Солнца над горизонтом в градусах в пункте максимального затмения, Path Width km - максимальная ширина полосы затмения, Central Dur - максимальная продолжительность полной фазы затмения.

Лунные затмения с 1900 по 2100 годы (UT)

Лунные затмения с 1900 по 2100 годы (UT)

Cat Num	Calendar Date	TD of Greatest Eclipse		Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations			Cat Num	Calendar Date	TD of Greatest Eclipse		Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations		
		ΔT s	ΔT s								Pen. m	Par. m	Total m			ΔT s	ΔT s								Pen. m	Par. m	Total m
09546	1955 Jan 08	12:33:20	31	-557	143	N	a-	-1.0906	0.8555	-0.1421	236.0	-	-	09607	1981 Jul 17	04:47:40	52	-229	119	P	-t	0.7045	1.5822	0.5486	319.6	163.2	-
09547	1955 Jun 05	14:23:23	31	-552	110	N	-t	-1.2383	0.6218	-0.4498	232.3	-	-	09608	1982 Jan 09	19:56:44	52	-223	124	T	-p	-0.2916	2.3147	1.3310	319.1	203.8	77.7
09548	1955 Nov 29	17:00:00	31	-546	115	P	-a	0.9551	1.0917	0.1190	253.0	74.2	-	09609	1982 Jul 06	07:31:47	53	-217	129	T-	pp	-0.0579	2.7860	1.7179	373.8	235.6	105.7
09549	1956 May 24	15:31:52	32	-540	120	P	-t	-0.4726	2.0174	0.9647	348.5	204.5	-	09610	1982 Dec 30	11:29:37	53	-211	134	T	p-	0.3758	2.1545	1.1822	310.6	195.9	60.0
09550	1956 Nov 18	06:48:16	32	-534	125	T	-p	0.2917	2.3285	1.3172	332.2	209.5	78.4	09611	1983 Jun 25	08:23:11	53	-205	139	P	t-	-0.8151	1.3901	0.3348	314.7	134.6	-
09551	1957 May 13	22:31:28	32	-528	130	T	a-	0.3045	2.3001	1.2982	335.0	211.6	77.6														
09552	1957 Nov 07	14:27:30	32	-522	135	T	t-	-0.4332	2.0963	1.0305	349.3	206.5	27.9	09612	1983 Dec 20	01:49:57	54	-199	144	N	a-	1.0746	0.8890	-0.1167	242.3	-	-
09553	1958 Apr 04	04:00:15	32	-517	102	Ne	a-	-1.5380	0.0135	-0.9422	31.0	-	-	09613	1984 May 15	04:41:03	54	-194	111	N	-a	1.1130	0.8071	-0.1760	232.5	-	-
09554	1958 May 03	12:13:29	32	-516	140	P	a-	1.0188	0.9676	0.0092	242.2	21.0	-	09614	1984 Jun 13	14:26:39	54	-193	149	Nb	a-	-1.5239	0.0647	-0.9414	73.0	-	-
09555	1958 Oct 27	15:27:50	33	-510	145	N	-t	-1.1570	0.7825	-0.3118	257.9	-	-	09615	1984 Nov 08	17:56:08	54	-188	116	N	-t	-1.0899	0.8992	-0.1825	268.4	-	-
09556	1959 Mar 24	20:11:57	33	-505	112	P	a-	-0.8757	1.2379	0.2643	268.2	109.5	-	09616	1985 May 04	19:57:19	55	-182	121	T	-p	0.3519	2.1870	1.2369	310.2	198.9	67.7
09557	1959 Sep 17	01:03:37	33	-499	117	N	-t	1.0296	0.9874	0.0496	268.0	-	-	09617	1985 Oct 28	17:43:17	55	-176	126	T	-t	-0.4022	2.1673	1.0736	365.1	214.9	43.9
09558	1960 Mar 13	08:28:21	33	-493	122	T-	-p	-0.1799	2.5415	1.5145	344.8	219.4	94.0	09618	1986 Apr 24	12:43:30	55	-170	131	T	p-	-0.3682	2.1620	1.2022	312.6	198.8	63.6
09559	1960 Sep 05	11:21:51	33	-487	127	T+	-p	0.2422	2.4031	1.4239	326.7	210.8	86.7	09619	1986 Oct 17	19:18:54	55	-164	136	T	h-	0.3188	2.3008	1.2455	353.2	216.8	73.7
09560	1961 Mar 02	13:28:40	34	-481	132	P	t-	0.5540	1.8828	0.8006	347.6	192.9	-	09620	1987 Apr 14	02:19:50	55	-158	141	N	h-	-1.1364	0.7769	-0.2313	234.1	-	-
09561	1961 Aug 26	03:08:51	34	-475	137	P	a-	-0.4894	1.9330	0.9863	301.4	186.0	-	09621	1987 Oct 07	04:02:30	56	-152	146	N	a-	1.0189	0.9863	-0.0096	253.5	-	-
09562	1962 Feb 19	13:03:42	34	-469	142	N	t-	1.2511	0.6120	-0.4865	231.9	-	-	09622	1988 Mar 03	16:13:41	56	-147	113	Nx	-t	0.9885	1.0907	-0.0017	293.8	-	-
09563	1962 Jul 17	11:54:49	34	-464	109	N	-a	1.3370	0.3924	-0.5835	168.3	-	-	09623	1988 Aug 27	11:05:29	56	-141	118	P	a-	-0.8681	1.2380	0.2915	262.5	113.0	-
09564	1962 Aug 15	19:57:30	34	-463	147	N	a-	-1.2210	0.5963	-0.3616	198.2	-	-	09624	1989 Feb 20	15:36:18	56	-135	123	T	-p	0.2934	2.3651	1.2747	367.7	223.1	78.5
09565	1963 Jan 09	23:19:42	35	-458	114	Nx	a-	-1.0128	1.0180	-0.0185	265.3	-	-	09625	1989 Aug 17	03:09:07	57	-129	128	T-	-p	-0.1490	2.5703	1.5984	327.5	214.3	95.8
09566	1963 Jul 06	22:02:59	35	-452	119	P	-t	0.6197	1.7360	0.7060	327.2	179.9	-	09626	1990 Feb 09	19:12:02	57	-123	133	T	a-	-0.4148	2.1191	1.0750	339.6	204.3	42.3
09567	1963 Dec 30	11:07:25	35	-446	124	T	-p	-0.2889	2.3206	1.3350	320.0	204.3	78.1	09627	1990 Aug 06	14:13:16	57	-117	138	P	t-	0.6374	1.7005	0.6766	322.0	175.5	-
09568	1964 Jun 25	01:06:50	35	-440	129	T-	pp	-0.1461	2.6238	1.5565	372.1	233.2	100.8	09628	1991 Jan 30	05:59:38	58	-111	143	N	a-	-1.0752	0.8807	-0.1106	237.5	-	-
09569	1964 Dec 19	02:37:54	36	-434	134	T	p-	0.3801	2.1461	1.1748	310.1	195.5	58.9	09629	1991 Jun 27	03:15:41	58	-106	110	N	-t	-1.4063	0.3126	-0.7572	169.5	-	-
09570	1965 Jun 14	01:49:26	36	-428	139	P	t-	-0.9005	1.2351	0.1767	302.7	100.3	-	09630	1991 Jul 26	18:08:50	58	-105	148	N	t-	1.4369	0.2542	-0.8110	152.7	-	-
09571	1965 Dec 08	17:10:32	36	-422	144	N	a-	1.0774	0.8820	-0.1201	240.7	-	-	09631	1991 Dec 21	10:34:00	58	-100	115	P	a-	0.9709	1.0651	0.0876	251.5	64.1	-
09572	1966 May 04	21:12:06	37	-417	111	N	-a	1.0553	0.9157	-0.0728	246.0	-	-	09632	1992 Jun 15	04:57:57	59	-94	120	P	-t	-0.6288	1.7264	0.6822	332.2	179.8	-
09573	1966 Oct 29	10:12:53	37	-411	116	N	-t	-1.0599	0.9517	-0.1249	273.7	-	-	09633	1992 Dec 09	23:45:05	59	-88	125	T	-p	0.3144	2.2915	1.2709	334.1	208.7	73.9
09574	1967 Apr 24	12:07:04	38	-405	121	T	-p	0.2972	2.2892	1.3356	313.3	202.8	77.9	09634	1993 Jun 04	13:01:26	59	-82	130	T+	p-	0.1638	2.5532	1.5617	336.3	217.8	95.8
09575	1967 Oct 18	10:15:48	38	-399	126	T	-t	-0.3653	2.2337	1.1426	367.1	218.9	59.8	09635	1993 Nov 29	06:27:06	60	-76	135	T	p-	-0.3994	2.1633	1.0876	354.4	210.8	46.7
09576	1968 Apr 13	04:48:01	39	-393	131	T	p-	-0.4173	2.0725	1.1116	309.5	194.1	48.5	09636	1994 May 25	03:31:20	60	-70	140	P	a-	0.8933	1.1941	0.2432	261.2	104.6	-
09577	1968 Oct 06	11:42:35	39	-387	136	T	t-	0.3605	2.2242	1.1691	352.0	213.9	63.0	09637	1994 Nov 18	06:44:54	61	-64	145	N	t-	-1.1047	0.8815	-0.2189	271.6	-	-
09578	1969 Apr 02	18:33:06	39	-381	141	N	a-	-1.1764	0.7033	-0.3047	223.7	-	-	09638	1995 Apr 15	12:19:04	61	-59	112	P	a-	-0.9593	1.0836	0.1114	256.3	73.0	-
09579	1969 Aug 27	10:48:15	40	-376	108	Ne	a-	-1.5407	0.0131	-0.9516	31.3	-	-	09639	1995 Oct 08	16:05:12	61	-53	117	N	-t	1.1179	0.8252	-0.2115	247.6	-	-
09580	1969 Sep 25	20:10:19	40	-375	146	N	a-	1.0655	0.9007	-0.0953	245.1	-	-	09640	1996 Apr 04	00:10:47	62	-47	122	T-	-p	-0.2534	2.4068	1.3795	344.7	217.1	85.8
09581	1970 Feb 21	08:30:43	40	-370	113	P	-t	0.9619	1.1402	0.0463	298.5	52.7	-	09641	1996 Sep 27	02:55:24	62	-41	127	T	-p	0.3426	2.2188	1.2395	320.9	203.3	69.2
09582	1970 Aug 17	03:24:06	41	-364	118	P	-a	-0.8053	1.3521	0.4079	270.6	131.3	-	09642	1997 Mar 24	04:40:28	62	-35	132	P	t-	0.4899	1.9994	0.9195	353.9	203.1	-
09583	1971 Feb 10	07:45:21	41	-358	123	T	-p	0.2741	2.4026	1.3082	369.5	224.7	82.2	09643	1997 Sep 16	18:47:42	63	-29	137	T	p-	-0.3768	2.1417	1.1909	308.2	196.4	61.5
09584	1971 Aug 06	19:43:52	42	-352	128	T-	pp	-0.0794	2.6958	1.7283	327.3	215.5	99.4	09644	1998 Mar 13	04:21:08	63	-23	142	N	t-	1.1964	0.7086	-0.3824	246.4	-	-
09585	1972 Jan 30	10:54:05	42	-346	133	T	a-	-0.4273	2.0987	1.0497	340.3	203.4	34.8	09645	1998 Aug 08	02:25:57	63	-18	109	N	-a	1.4875	0.1206	-0.8637	96.4	-	-
09586	1972 Jul 26	07:16:22	43	-340	138	P	t-	0.7116	1.5618	0.5427	312.4	160.1	-	09646	1998 Sep 06	11:11:11	63	-17	147	N	a-	-1.1057	0.8121	-0.1544	227.8	-	-
09587	1973 Jan 18	21:17:58	43	-334	143	N	a-	-1.0844	0.8655	-0.1293	236.5	-	-	09647	1999 Jan 31	16:18:35	63	-12	114	Nx	-a	-1.0189	1.0027	-0.0258	261.7	-	-
09588	1973 Jun 15	20:50:41	44	-329	110	N	-t	-1.3216	0.4685	-0.6020	204.6	-	-	09648	1999 Jul 28	11:34:46	64	-6	119	P	-t	0.7862	1.4342	0.3966	310.9	142.5	-
09589	1973 Jul 15	11:39:19	44	-328	148	Nb	t-	1.5177	0.1046	-0.9581	99.1	-	-	09649	2000 Jan 21	04:44:34	64	0	124	T	-p	-0.2957	2.3060	1.3246	318.2	203.3	77.0
09590	1973 Dec 10	01:45:06	44	-323	115	P	-a	0.9644	1.0760	0.1007	252.0	68.5	-	09650	2000 Jul 16	13:56:39	64	6	129	T+	pp	0.0302	2.8375	1.7684	374.4	236.0	106.4
09591	1974 Jun 04	22:16:44	45	-317	120	P	-t	-0.5488	1.8752	0.8269	341.0	193.6	-	09651	2001 Jan 09	20:21:40	64	12	134	T	p-	0.3720	2.1618	1.1889			

Лунные затмения с 1900 по 2100 годы (UT)

Лунные затмения с 1900 по 2100 годы (UT)

Cat Num	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations ---			Cat Num	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations ---		
											Pen. m	Par. m	Total m												Pen. m	Par. m	Total m
09669	2009 Feb 09	14:39:22	66	112	143	N	a-	-1.0640	0.8994	-0.0882	238.8	-	-	09731	2036 Feb 11	22:13:06	82	446	124	T	-p	-0.3110	2.2751	1.2995	316.1	201.9	74.5
09670	2009 Jul 07	09:39:43	66	117	110	N	-t	-1.4915	0.1562	-0.9133	121.5	-	-	09732	2036 Aug 07	02:52:32	82	452	129	T+	pp	0.2004	2.5266	1.4544	372.1	231.3	95.3
09671	2009 Aug 06	00:40:18	66	118	148	N	t-	1.3572	0.4019	-0.6661	189.8	-	-	09733	2037 Jan 31	14:01:38	82	458	134	T	p-	0.3619	2.1803	1.2074	312.1	197.5	63.7
09672	2009 Dec 31	19:23:46	67	123	115	P	-a	0.9765	1.0556	0.0763	251.1	60.0	-	09734	2037 Jul 27	04:09:53	83	464	139	P	t-	-0.5582	1.8584	0.8095	340.8	192.4	-
09673	2010 Jun 26	11:39:34	67	129	120	P	-t	-0.7091	1.5773	0.5368	322.1	162.9	-	09735	2038 Jan 21	03:49:52	83	470	144	N	a-	1.0710	0.8996	-0.1140	245.8	-	-
09674	2010 Dec 21	08:18:04	67	135	125	T	-p	0.3214	2.2807	1.2561	335.1	208.7	72.3	09736	2038 Jun 17	02:45:02	83	475	111	N	-a	1.3082	0.4422	-0.5275	176.3	-	-
09675	2011 Jun 15	20:13:43	67	141	130	T+	pp	0.0897	2.6868	1.6999	336.1	219.3	100.2	09737	2038 Jul 16	11:35:56	84	476	149	N	a-	-1.2837	0.4999	-0.4952	192.4	-	-
09676	2011 Dec 10	14:32:56	68	147	135	T	p-	-0.3882	2.1860	1.1061	356.4	212.2	51.1	09738	2038 Dec 11	17:45:00	84	481	116	N	-t	-1.1448	0.8046	-0.2892	258.5	-	-
09677	2012 Jun 04	11:04:20	68	153	140	P	a-	0.8247	1.3183	0.3704	270.0	126.6	-	09739	2039 Jun 06	18:54:25	84	487	121	P	-a	0.5460	1.8272	0.8846	296.7	179.3	-
09678	2012 Nov 28	14:34:07	68	159	145	N	t-	-1.0869	0.9155	-0.1873	276.0	-	-	09740	2039 Nov 30	16:56:28	85	493	126	P	-t	-0.4721	2.0418	0.9426	360.1	206.0	-
09679	2013 Apr 25	20:08:38	68	164	112	P	a-	-1.0121	0.9866	0.0148	247.7	27.0	-	09741	2040 May 26	11:46:22	85	499	131	T-	p-	-0.1872	2.4938	1.5348	321.4	210.7	92.2
09680	2013 May 25	04:11:06	68	165	150	Nb	a-	1.5350	0.0157	-0.9335	33.6	-	-	09742	2040 Nov 18	19:04:40	85	505	136	T+	p-	0.2361	2.4525	1.3974	353.6	220.4	87.8
09681	2013 Oct 18	23:51:25	68	170	117	N	-h	1.1508	0.7649	-0.2718	239.1	-	-	09743	2041 May 16	00:43:03	86	511	141	P	t-	-0.9746	1.0747	0.0645	269.7	58.5	-
09682	2014 Apr 15	07:46:48	69	176	122	T	-a	-0.3017	2.3182	1.2907	343.9	214.7	77.8	09744	2041 Nov 08	04:35:05	86	517	146	P	a-	0.9212	1.1656	0.1696	268.0	90.3	-
09683	2014 Oct 08	10:55:44	69	182	127	T	-p	0.3826	2.1456	1.1659	318.1	199.5	58.8	09745	2042 Apr 05	14:30:11	86	522	113	N	-t	1.1080	0.8680	-0.2176	268.4	-	-
09684	2015 Apr 04	12:01:24	69	188	132	T	t-	0.4460	2.0792	1.0008	357.5	209.0	4.7	09746	2042 Sep 29	10:45:47	87	528	118	N	-a	-1.0261	0.9528	-0.0031	238.5	-	-
09685	2015 Sep 28	02:48:17	69	194	137	T	p-	-0.3296	2.2296	1.2764	310.7	199.9	71.9	09747	2043 Mar 25	14:32:04	87	534	123	T	-t	0.3849	2.1900	1.1142	359.3	214.6	53.4
09686	2016 Mar 23	11:48:21	70	200	142	N	t-	1.1591	0.7747	-0.3118	255.4	-	-	09748	2043 Sep 19	01:51:50	88	540	128	T	-a	-0.3316	2.2433	1.2556	325.8	206.0	71.7
09687	2016 Sep 16	18:55:27	70	206	147	N	a-	-1.0548	0.9080	-0.0635	239.3	-	-	09749	2044 Mar 13	19:38:33	88	546	133	T	a-	-0.3496	2.2303	1.2031	338.4	209.1	66.4
09688	2017 Feb 11	00:45:03	70	211	114	N	-a	-1.0254	0.9884	-0.0354	259.2	-	-	09750	2044 Sep 07	11:20:44	88	552	138	T	t-	0.4318	2.0860	1.0456	344.0	206.2	33.9
09689	2017 Aug 07	18:21:38	70	217	119	P	-t	0.8668	1.2886	0.2464	300.9	115.2	-	09751	2045 Mar 03	07:43:26	89	558	143	N	a-	-1.0274	0.9623	-0.0168	243.9	-	-
09690	2018 Jan 31	13:31:00	71	223	124	T	-p	-0.3014	2.2941	1.3155	317.2	202.7	76.1	09752	2045 Aug 27	13:54:50	89	564	148	N	t-	1.2060	0.6825	-0.3919	241.7	-	-
09691	2018 Jul 27	20:22:54	71	229	129	T+	pp	0.1168	2.6792	1.6087	373.8	234.5	103.0	09753	2046 Jan 22	13:02:37	90	569	115	P	-a	0.9885	1.0347	0.0532	250.0	50.4	-
09692	2019 Jan 21	05:13:27	71	235	134	T	p-	0.3684	2.1684	1.1953	311.5	196.8	62.0	09754	2046 Jul 18	01:06:05	90	575	120	P	-t	-0.8691	1.2807	0.2461	298.1	114.6	-
09693	2019 Jul 16	21:31:55	71	241	139	P	t-	-0.6430	1.7037	0.6531	333.7	177.9	-	09755	2047 Jan 12	01:26:14	90	581	125	T	-p	0.3317	2.2649	1.2341	337.2	208.9	70.0
09694	2020 Jan 10	19:11:11	72	247	144	N	a-	1.0726	0.8956	-0.1160	244.6	-	-	09756	2047 Jul 07	10:35:45	91	587	130	T-	pp	-0.0636	2.7310	1.7513	333.4	218.5	100.8
09695	2020 Jun 05	19:26:14	72	252	111	N	-a	1.2406	0.5683	-0.4053	198.2	-	-	09757	2048 Jan 01	06:53:55	91	593	135	T	p-	-0.3745	2.2141	1.1280	359.4	214.3	55.9
09696	2020 Jul 05	04:31:12	72	253	149	N	a-	-1.3638	0.3546	-0.6436	165.0	-	-	09758	2048 Jun 26	02:02:28	92	599	140	P	a-	0.6796	1.5825	0.6388	285.7	159.2	-
09697	2020 Nov 30	09:44:01	72	258	116	N	-t	-1.1309	0.8285	-0.2620	261.0	-	-	09759	2048 Dec 20	06:27:48	92	605	145	N	t-	-1.0624	0.9617	-0.1436	281.6	-	-
09698	2021 May 26	11:19:53	72	264	121	T	-a	0.4774	1.9540	1.0095	302.0	187.4	14.5	09760	2049 May 17	11:26:39	92	610	112	N	-a	-1.1337	0.7638	-0.2085	224.3	-	-
09699	2021 Nov 19	09:04:06	73	270	126	P	-t	-0.4552	2.0720	0.9742	361.5	208.4	-	09761	2049 Jun 15	19:14:12	92	611	150	N	a-	1.4068	0.2511	-0.6985	132.0	-	-
09700	2022 May 16	04:12:42	73	276	131	T-	p-	-0.2532	2.3726	1.4137	318.7	207.2	84.9	09762	2049 Nov 09	15:52:11	93	616	117	N	-h	1.1964	0.6808	-0.3553	226.1	-	-
09701	2022 Nov 08	11:00:22	73	282	136	T+	p-	0.2570	2.4143	1.3589	353.9	219.8	85.0	09763	2050 May 06	22:32:02	94	622	122	T	-h	-0.4181	2.1052	1.0767	340.0	206.0	43.2
09702	2023 May 05	17:24:05	73	288	141	N	h-	-1.0349	0.9636	-0.0457	257.5	-	-	09764	2050 Oct 30	03:21:47	95	628	127	T	-p	0.4435	2.0345	1.0538	313.1	192.9	34.5
09703	2023 Oct 28	20:15:18	74	294	146	P	a-	0.9471	1.1181	0.1220	264.6	77.4	-	09765	2051 Apr 26	02:16:28	96	634	132	T	p-	0.3371	2.2773	1.2022	364.8	220.8	69.6
09704	2024 Mar 25	07:13:59	74	299	113	N	-t	1.0609	0.9557	-0.1325	279.1	-	-	09766	2051 Oct 19	19:11:50	97	640	137	T-	p-	-0.2542	2.3708	1.4118	314.2	204.3	83.6
09705	2024 Sep 18	02:45:25	74	305	118	P	-a	-0.9792	1.0372	0.0848	246.3	62.8	-	09767	2052 Apr 14	02:18:06	98	646	142	N	t-	1.0628	0.9466	-0.1305	276.0	-	-
09706	2025 Mar 14	06:59:56	75	311	123	T	-p	0.3484	2.2595	1.1784	362.6	218.3	65.4	09768	2052 Oct 08	10:45:58	99	652	147	P	a-	-0.9726	1.0642	0.0821	256.6	63.3	-
09707	2025 Sep 07	18:12:58	75	317	128	T	-p	-0.2752	2.3440	1.3619	326.7	209.4	82.1	09769	2053 Mar 04	17:22:10	99	657	114	N	a-	-1.0530	0.9323	-0.0808	251.1	-	-
09708	2026 Mar 03	11:34:52	75	323	133	T	a-	-0.3765	2.1838	1.1507	338.6	207.2	58.3	09770	2053 Aug 29	08:05:50	100	663	119	Nx	-t	1.0164	1.0191	-0.0330	277.8	-	-
09709	2026 Aug 28	04:14:04	75	329	138	P	t-	0.4964	1.9645	0.9299	337.8	198.1	-	09771	2054 Feb 22	06:51:27	101	669	124	T	-p	-0.3242	2.2491	-1.2769	314.7	200.9	72.1
09710	2027 Feb 20	23:14:06	76	335	143	N	a-	-1.0480	0.9266	-0.0569	241.0	-	-	09772	2054 Aug 18	09:26:30	102	675	129	T	pp	0.2806	2.3805	1.3062	369.5	226.5	82.9
09711	2027 Jul 18	16:04:09	76	340	110	Ne	-t	-1.5758	0.0014	-1.0680	11.8	-	-	09773	2055 Feb 11	22:46:17	103	681	134	T	p-	0.3526	2.1970	1.2246	312.9	198.4	66.0
09712	2027 Aug 17	07:14:59	76	341	148	N	t-	1.2797	0.5456	-0.5254	218.6	-	-	09774	2055 Aug 07	10:53:18	104	687	139	P	t-	-0.4769	2.0069	0.9594	346.3	203.4	-
09713	2028 Jan 12	04:14:13	76	346	115	P	-a	0.9817	1.0468	0.0662	250.7	56.0	-	09775	2056 Feb 01	12:26:06	105	693	144	N	a-	1.0682	0.9056	-0.1096	247.2	-	-
09714	2028 Jul 06	18:20:17	77	352	120	P	-t	-0.7903	1.4266	0.3892	310.6	141.5	-	09776	2056 Jun 27	10:03:09	106	698	111	N	-a	1					

Лунные затмения с 1900 по 2100 годы (UT)

Лунные затмения с 1900 по 2100 годы (UT)

Cat Num	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations ---			Cat Num	Calendar Date	TD of Greatest Eclipse	ΔT s	Luna Num	Saros Num	Ecl. Type	QSE	Gamma	Pen. Mag.	Um. Mag.	Phase Durations ---		
											Pen. m	Par. m	Total m												Pen. m	Par. m	Total m
09793	2063 Sep 07	20:41:12	121	787	148	N	t-	1.1374	0.8101	-0.2678	260.4	-	-	09855	2091 Mar 05	15:58:22	182	1127	134	T	p-	0.3212	2.2537	1.2832	315.0	201.3	72.9
09794	2064 Feb 02	21:48:57	122	792	115	P	-a	0.9969	1.0197	0.0377	249.0	42.5	-	09856	2091 Aug 29	00:38:25	183	1133	139	T	t-	-0.3270	2.2810	1.2351	353.4	217.5	72.9
09795	2064 Jul 28	07:52:48	123	798	120	P	-t	-0.9473	1.1361	0.1038	284.3	75.7	-	09857	2092 Feb 23	05:20:59	184	1139	144	N	a-	1.0509	0.9383	-0.0789	252.4	-	-
09796	2065 Jan 22	09:58:58	124	804	125	T	-p	0.3371	2.2561	1.2231	338.2	209.0	68.8	09858	2092 Jul 19	00:41:58	185	1144	111	Ne	-a	1.5131	0.0620	-0.8992	67.7	-	-
09797	2065 Jul 17	17:48:40	125	810	130	T	-pp	-0.1402	2.5890	1.6121	331.0	216.3	97.0	09859	2092 Aug 17	09:13:59	185	1145	149	N	a-	-1.0568	0.9131	-0.0757	246.7	-	-
09798	2066 Jan 11	15:04:47	126	816	135	T	p-	-0.3687	2.2259	1.1378	360.7	215.2	57.9	09860	2093 Jan 12	18:00:03	186	1150	116	N	-t	-1.1733	0.7553	-0.3444	253.1	-	-
09799	2066 Jul 07	09:30:29	127	822	140	P	a-	0.6055	1.7179	0.7753	292.3	171.3	-	09861	2093 Jul 08	17:24:18	187	1156	121	P	-a	0.7632	1.4275	0.4872	275.3	141.9	-
09800	2066 Dec 31	14:30:10	128	828	145	N	t-	-1.0539	0.9773	-0.1281	283.3	-	-	09862	2094 Jan 01	17:00:06	188	1162	126	P	-t	-0.5024	1.9858	0.8871	356.5	201.2	-
09801	2067 May 28	18:56:08	129	833	112	N	-a	-1.2012	0.6403	-0.3329	208.5	-	-	09863	2094 Jun 28	10:01:57	190	1168	131	T+	pp	0.0288	2.7865	1.8234	326.5	215.7	100.6
09802	2067 Jun 27	02:41:06	129	834	150	N	a-	1.3394	0.3754	-0.5753	159.8	-	-	09864	2094 Dec 21	19:56:32	191	1174	136	T+	p-	0.2016	2.5138	1.4627	351.2	220.5	91.6
09803	2067 Nov 21	00:04:42	130	839	117	N	-h	1.2106	0.6544	-0.3811	221.5	-	-	09865	2095 Jun 17	22:00:11	192	1180	141	P	t-	-0.7653	1.4617	0.4459	304.7	146.9	-
09804	2068 May 17	05:42:17	131	845	122	P	-t	-0.4851	1.9826	0.9532	336.6	199.0	-	09866	2095 Dec 11	06:15:02	193	1186	146	P	a-	0.8742	1.2510	0.2565	272.9	108.9	-
09805	2068 Nov 09	11:47:00	132	851	127	T	-p	0.4645	1.9962	1.0149	311.2	190.2	18.4	09867	2096 May 07	11:24:42	194	1191	113	N	-t	1.2896	0.5309	-0.5469	216.9	-	-
09806	2069 May 06	09:09:57	133	857	132	T+	pp	0.2717	2.3965	1.3229	368.1	226.2	84.3	09868	2096 Jun 06	02:43:41	194	1192	151	Nb	t-	-1.5723	0.0047	-1.0584	21.2	-	-
09807	2069 Oct 30	03:35:06	134	863	137	T	-p	-0.2263	2.4235	1.4616	315.4	205.6	86.8	09869	2096 Oct 31	11:30:23	195	1197	118	N	-a	-1.1307	0.7666	-0.2006	219.3	-	-
09808	2070 Apr 25	09:21:24	135	869	142	Nx	t-	1.0044	1.0515	-0.0209	286.9	-	-	09870	2096 Nov 29	21:22:22	195	1198	156	N	a-	1.5017	0.0862	-0.8816	78.1	-	-
09809	2070 Oct 19	18:51:12	137	875	147	P	a-	-0.9406	1.1258	0.1383	263.2	81.7	-	09871	2097 Apr 26	12:18:17	196	1203	123	P	-t	0.5377	1.9013	0.8420	344.0	195.2	-
09810	2071 Mar 16	01:31:09	137	880	114	N	-a	-1.0756	0.8879	-0.1194	245.1	-	-	09872	2097 Oct 21	01:30:55	197	1209	128	T	-a	-0.4608	2.0152	1.0097	323.1	195.2	15.2
09811	2071 Sep 09	15:05:41	138	886	119	N	-t	1.0834	0.8989	-0.1586	265.2	-	-	09873	2098 Apr 15	19:04:48	198	1215	133	T-	p-	-0.2272	2.4454	1.4369	338.3	215.8	89.0
09812	2072 Mar 04	15:23:07	140	892	124	T	-p	-0.3430	2.2127	1.2441	313.2	199.4	68.5	09874	2098 Oct 10	09:19:58	200	1221	138	T	pp	0.2749	2.3831	1.3246	357.4	221.0	82.7
09813	2072 Aug 28	16:05:42	141	898	129	T	-t	0.3563	2.2428	1.1662	366.0	220.3	64.2	09875	2099 Apr 05	08:30:56	201	1227	143	P	a-	-0.9304	1.1333	0.1680	257.7	88.1	-
09814	2073 Feb 22	07:24:53	142	904	134	T	p-	0.3388	2.2218	1.2503	313.8	199.7	69.2	09876	2099 Sep 29	10:36:38	202	1233	148	Nx	t-	1.0174	1.0340	-0.0512	288.3	-	-
09815	2073 Aug 17	17:42:41	143	910	139	T	t-	-0.3998	2.1479	1.1013	350.5	211.6	50.1	09877	2100 Feb 24	15:05:11	203	1238	115	N	-a	1.0267	0.9649	-0.0170	244.6	-	-
09816	2074 Feb 11	20:55:58	144	916	144	N	a-	1.0611	0.9191	-0.0972	249.5	-	-	09878	2100 Aug 19	21:44:58	204	1244	120	N	-t	-1.0905	0.8716	-0.1575	254.2	-	-
09817	2074 Jul 08	17:21:38	145	921	111	N	-a	1.4456	0.1870	-0.7765	116.6	-	-	Источник: http://eclipse.gsfc.nasa.gov/lunar.html													
09818	2074 Aug 07	01:56:03	145	922	149	N	a-	-1.1291	0.7813	-0.2091	232.2	-	-	Обозначения: Cat Num - номер по каталогу, Calendar Date - дата затмения по григорианскому календарю, TD of Greatest Eclipse - время середины затмения по земному динамическому времени, ΔT - поправка земного динамического времени ко всемирному времени в секундах, Luna Num - номер лунации, Saros Num - номер сароса, Ecl. Type - тип затмения (T - полное, P - частное, N - полутеневое), QSE - тип солнечного затмения соседствующего с данным лунным (до или после), Gamma - параметр, показывающий насколько ось лунной тени проходит выше или ниже центра Земли, Pen. Mag. - максимальная полутеневая фаза затмения, Um. Mag. - максимальная теневая фаза затмения, Phase Durations Pen. Par. Total - продолжительность в минутах полутеневого (Pen.), частного - (Par.) и полного (Total) затмения.													
09819	2075 Jan 02	09:55:03	146	927	116	N	-t	-1.1642	0.7714	-0.3271	254.9	-	-	Сведения о солнечных затмениях, например, здесь http://www.astronet.ru/db/msg/1228001													
09820	2075 Jun 28	09:55:35	147	933	121	P	-a	0.6897	1.5624	0.6220	283.4	157.0	-	Сведения о лунных затмениях, например, здесь http://www.astronet.ru/db/msg/1208455													
09821	2075 Dec 22	08:55:55	148	939	126	P	-t	-0.4945	2.0008	0.9013	357.6	202.5	-	Ясного неба и успешных наблюдений!													
09822	2076 Jun 17	02:39:47	149	945	131	T-	pp	-0.0452	2.7554	1.7943	325.3	215.1	100.2	Подробную информацию о предстоящих явлениях всегда можно найти на сайте Астронет http://astronet.ru и в новостной рубрике сайта http://www.astronet.ru/db/news/													
09823	2076 Dec 10	11:34:51	150	951	136	T+	p-	0.2102	2.4990	1.4460	352.2	220.6	90.8	Дополнительные ссылки на ресурсы, описывающие астрономические явления и небесные тела имеются в Астрономическом календаре на 2017 год http://www.astronet.ru/db/msg/1360173 , а карты путей комет и астероидов в Календаре наблюдателя на текущий месяц, например на http://www.astronet.ru/db/msg/1366360													
09824	2077 Jun 06	14:59:52	151	957	141	P	t-	-0.8387	1.3257	0.3123	293.6	125.0	-	Оперативные сведения о явлениях и новых небесных телах - в Астрономической неделе, например на http://www.astronet.ru/db/msg/1371815													
09825	2077 Nov 29	21:35:53	152	963	146	P	a-	0.8854	1.2309	0.2356	272.0	105.0	-														
09826	2078 Apr 27	04:35:44	153	968	113	N	-t	1.2222	0.6558	-0.4246	238.2	-	-														
09827	2078 Oct 21	03:08:03	154	974	118	N	-a	-1.1021	0.8171	-0.1462	224.8	-	-														
09828	2078 Nov 19	12:40:04	154	975	156	N	a-	1.5147	0.0615	-0.9047	66.0	-	-														
09829	2079 Apr 16	05:10:45	155	980	123	P	t-	0.4799	2.0100	0.9451	350.1	203.4	-														
09830	2079 Oct 10	17:30:30	156	986	128	T	-a	-0.4246	2.0786	1.0791	323.8	198.7	42.4														
09831	2080 Apr 04	11:23:38	157	992	133	T	p-	-0.2751	2.3607	1.3460	338.3	213.6	82.1														
09832	2080 Sep 29	01:52:42	158	998	138	T	p-	0.3203	2.2967	1.2443	353.7	217.4	73.8														
09833	2081 Mar 25	00:22:01	159	1004	143	P	a-	-0.9687	1.0652	0.0953	252.4	67.1	-														
09834	2081 Sep 18	03:35:26	161	1010	148	N	t-	1.0747	0.9270	-0.1545	275.7	-	-														
09835	2082 Feb 13	06:29:19	161	1015	115	P	-a	1.0101	0.9955	0.0134	247.2	25.5	-														
09836	2082 Aug 08	14:46:42	163	1021	120	Nx	t-	-1.0203	1.0011	-0.0294	269.8	-	-														
09837	2083 Feb 02	18:26:46	164	1027	125	T	-p	0.3463	2.2400	1.2052	338.9	208.8	66.5														
09838	2083 Jul 29	01:05:34	165	1033	130	T-	pp	-0.2143	2.4520	1.4773	328.0	212.9	90.4														
09839	2084 Jan 22	23:13:00	166	1039	135	T	p-	-0.3610	2.2407	1.1513	362.0	216.3	60.5														
09840	2084 Jul 17	16:58:51	167	1045	140	P	a-	0.5312	1.8540	0.9119	298.1	181.4	-														
09841	2085 Jan 10	22:32:29	168	1051	145	N	t-	-1.0453	0.9927	-0.1119	284.9	-	-														
09842	2085 Jun 08	02:17:36	169	1056	112	N	-a	-1.2745	0.5065	-0.4682	188.5	-	-														
09843	2085 Jul 07	10:04:40	169	1057	150	N	a-	1.2694	0.5047	-0.4478	183.5	-	-														
09844	2085 Dec 01	08:25:35	170	1062	117	N	-a	1.2189	0.6387	-0.3957	218.5	-	-														
09845	2086 May 28	12:43:47	171	1068	122	P	-t	-0.5585	1.8486	0.8180	332.0	189.4	-														
09846	2086 Nov 20	20:19:42	172	1074	127	P	-p	0.4799	1.9679	0.9865	309.5	188.1	-														
09847	2087 May 17	15:55:20	173	1080	132	T+	pp	0.1999	2.5276	1.4554	371.0	230.6	95.1														
09848	2087 Nov 10	12:05:33	174	1086	137	T-	p-	-0.2043	2.4654	1.5006	316.4	206.6	88.9														
09849	2088 May 05	16:16:50	175	1092	142	P	t-	0.9387	1.1695	0.1019	297.9	77.1	-														
09850	2088 Oct 30	03:03:20	177	1098	147	P	a-	-0.9147	1.1761	0.1831	268.5	93.6	-														
09851	2089 Mar 26	09:34:14	178	1103	114	N	-a	-1.1038	0.8332	-0.1681	237																