2020 AstroCalendar for Seattle, WA

Denis G. Janky See explanatory notes at end of calendar.

January

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	605	1820	1147	2319	40%		moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark
2	605	1821	1207	0	49%	First Qrtr	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark
3	605	1822	1226	21	59%		moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark
4	605	1823	1247	125	68%		moon	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark
5	605	1824	1309	230	77%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark	dark
6	605	1825	1336	336	86%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark
7	605	1826	1408	445	92%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
8	605	1827	1449	553	97%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
9	605	1828	1539	659	100%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
10	604	1829	1641	759	NA	Full	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
11	604	1830	1753	851	100%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
12	604	1831	1910	933	97%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
13	603	1832	2029	1007	91%		sun	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
14	603	1833	2148	1037	83%		sun	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon
15	603	1834	2306	1102	73%		sun	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon
16	602	1835	0	1127	61%		sun	dark	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon
17	602	1837	22	1151	50%	Last Qrtr	sun	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon
18	601	1838	138	1217	38%		sun	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon
19	601	1839	252	1246	27%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon
20	559	1840	405	1321	18%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon
21	559	1841	514	1402	10%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
22	559	1843	617	1451	5%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
23	558	1844	711	1547	1%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
24	557	1845	756	1649	0%	New	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
25	556	1846	833	1753	1%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
26	556	1848	903	1858	4%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
27	555	1849	929	2003	9%		sun	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
28	554	1850	951	2106	15%		sun	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark
29	553	1852	1011	2209	23%		sun	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark
30	552	1853	1030	2311	31%		sun	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark
31	551	1854	1050	0	41%		sun	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark

February

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	549	1856	1111	15	50%	First Qrtr	sun	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark
2	547	1858	1135	119	60%		sun	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark
3	546	1859	1204	225	70%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark	dark
4	545	1900	1239	333	80%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark
5	544	1902	1324	439	88%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
6	543	1903	1420	542	94%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
7	541	1905	1527	637	99%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
8	540	1906	1643	724	NA	Full	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
9	539	1907	1804	803	100%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
10	537	1909	1927	835	98%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
11	536	1910	2048	904	93%		sun	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon
12	534	1912	2208	929	86%		sun	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon
13	533	1913	2326	954	76%		sun	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon
14	531	1914	0	1020	66%		sun	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	moon
15	530	1916	43	1049	54%	Last Qrtr	sun	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	sun
16	528	1917	157	1122	43%		sun	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon	sun
17	527	1919	308	1201	32%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon	sun
18	525	1920	412	1247	22%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
19	523	1922	508	1340	14%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
20	522	1923	555	1440	8%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
21	520	1925	634	1543	3%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
22	518	1926	706	1647	1%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
23	517	1927	732	1752	0%	New	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
24	515	1929	755	1856	2%		sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
25	513	1930	815	1959	5%		sun	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
26	511	1932	835	2101	10%		sun	sun	moon	dark	dark	dark	dark	dark	dark	dark	dark	sun
27	509	1933	854	2204	16%		sun	sun	moon	moon	dark	dark	dark	dark	dark	dark	dark	sun
28	508	1935	914	2308	24%		sun	sun	moon	moon	moon	dark	dark	dark	dark	dark	dark	sun
29	506	1936	936	0	33%		sun	sun	moon	moon	moon	moon	dark	dark	dark	dark	dark	sun

March

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
DST>>							*7:00 PM*	*8:00 PM*	*9:00 PM*	*10:00 PM*	*11:00 PM*	*12:00 AM*	*1:00 AM*	*2:00 AM*	*3:00 AM*	*4:00 AM*	*5:00 AM*	*6:00 AM*
1	504	1938	1002	12	43%		sun	sun	moon	moon	moon	moon	moon	dark	dark	dark	dark	sun
2	502	1939	1034	118	53%	First Qrtr	sun	sun	moon	moon	moon	moon	moon	moon	dark	dark	dark	sun
3	500	1941	1113	223	63%		sun	sun	moon	moon	moon	moon	moon	moon	moon	dark	dark	sun
4	458	1942	1202	326	74%		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	dark	sun
5	456	1944	1302	423	83%		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
6	454	1946	1413	513	91%		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
7	452	1947	1532	555	97%		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
8	450	1949	1654	630	NA		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
9	448	1950	1818	701	100%	Full	sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
10	446	1952	1941	728	99%		sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
11	444	1953	2104	753	96%		sun	sun	dark	moon	moon	moon	moon	moon	moon	moon	moon	sun
12	441	1955	2225	820	89%		sun	sun	dark	dark	moon	moon	moon	moon	moon	moon	moon	sun
13	439	1956	2343	848	80%		sun	sun	dark	dark	dark	dark	moon	moon	moon	moon	moon	sun
14	437	1958	0	920	70%		sun	sun	dark	dark	dark	dark	dark	moon	moon	moon	moon	sun
15	435	2000	58	958	59%		sun	sun	dark	dark	dark	dark	dark	dark	moon	moon	moon	sun
16	433	2001	206	1043	48%	Last Qrtr	sun	sun	dark	dark	dark	dark	dark	dark	dark	moon	moon	sun
17	431	2003	306	1134	37%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
18	428	2005	356	1233	28%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
19	426	2006	436	1335	19%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
20	424	2008	510	1439	12%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
21	422	2010	537	1543	6%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
22	419	2011	600	1647	2%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
23	417	2013	621	1751	1%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
24	415	2015	640	1853	0%	New	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
25	412	2016	659	1956	2%		sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
26	410	2018	719	2100	6%		sun	sun	moon	dark	dark	dark	dark	dark	dark	dark	sun	sun
27	408	2020	740	2204	11%		sun	sun	moon	moon	dark	dark	dark	dark	dark	dark	sun	sun
28	405	2022	804	2309	18%		sun	sun	moon	moon	moon	dark	dark	dark	dark	dark	sun	sun
29	403	2023	833	0	27%		sun	sun	moon	moon	moon	moon	dark	dark	dark	dark	sun	sun
30	400	2025	908	14	36%		sun	sun	moon	moon	moon	moon	moon	dark	dark	dark	sun	sun
31	358	2027	952	117	47%		sun	sun	moon	moon	moon	moon	moon	moon	dark	dark	sun	sun

April

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
DST>>							7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
1	356	2029	1046	215	58%	First Qrtr	sun	sun	moon	moon	moon	moon	moon	moon	moon	dark	sun	sun
2	353	2031	1151	306	69%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
3	351	2032	1304	350	79%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
4	348	2034	1423	427	88%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
5	346	2036	1545	458	95%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
6	343	2038	1708	525	NA		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
7	341	2040	1832	551	99%	Full	sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
8	338	2042	1955	617	100%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
9	336	2044	2118	644	97%		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
10	333	2046	2238	715	92%		sun	sun	sun	dark	dark	moon	moon	moon	moon	moon	sun	sun
11	331	2048	2352	751	84%		sun	sun	sun	dark	dark	dark	moon	moon	moon	sun	sun	sun
12	328	2050	0	834	75%		sun	sun	sun	dark	dark	dark	dark	moon	moon	sun	sun	sun
13	326	2052	58	925	65%		sun	sun	sun	dark	dark	dark	dark	dark	moon	sun	sun	sun
14	323	2054	153	1023	54%	Last Qrtr	sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
15	321	2056	238	1125	43%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
16	318	2058	314	1230	34%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
17	316	2100	343	1335	25%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
18	313	2102	407	1439	17%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
19	311	2105	428	1542	10%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
20	308	2107	447	1645	5%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
21	306	2109	506	1748	2%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
22	303	2111	525	1852	0%	New	sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
23	300	2113	545	1957	1%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
24	258	2116	608	2102	3%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
25	255	2118	635	2208	7%		sun	sun	sun	moon	dark	dark	dark	dark	dark	sun	sun	sun
26	253	2120	708	2312	14%		sun	sun	sun	moon	moon	dark	dark	dark	dark	sun	sun	sun
27	250	2122	749	0	22%		sun	sun	sun	moon	moon	moon	dark	dark	dark	sun	sun	sun
28	248	2125	839	11	31%		sun	sun	sun	moon	moon	moon	moon	dark	dark	sun	sun	sun
29	245	2127	939	104	42%		sun	sun	sun	moon	moon	moon	moon	moon	dark	sun	sun	sun
30	242	2129	1047	149	53%	First Qrtr	sun	sun	sun	moon	moon	moon	moon	moon	dark	sun	sun	sun

May

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		DST>> 7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
							Beginning of One-Hour Period: Evening					Next Morning						
							6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	240	2132	1202	227	64%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
2	237	2134	1320	258	75%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
3	235	2137	1440	326	85%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
4	232	2139	1601	351	93%		sun	sun	sun	sun	moon	moon	moon	moon	sun	sun	sun	sun
5	229	2141	1523	416	NA		sun	sun	sun	sun	moon	moon	moon	moon	sun	sun	sun	sun
6	227	2144	1846	441	98%		sun	sun	sun	sun	moon	moon	moon	moon	sun	sun	sun	sun
7	224	2146	2009	510	100%	Full	sun	sun	sun	sun	moon	moon	moon	moon	sun	sun	sun	sun
8	222	2149	2128	543	99%		sun	sun	sun	sun	moon	moon	moon	moon	sun	sun	sun	sun
9	219	2151	2241	623	95%		sun	sun	sun	sun	dark	moon	moon	moon	sun	sun	sun	sun
10	216	2154	2343	711	88%		sun	sun	sun	sun	dark	dark	moon	moon	sun	sun	sun	sun
11	214	2156	0	808	80%		sun	sun	sun	sun	dark	dark	dark	moon	sun	sun	sun	sun
12	211	2159	34	910	70%		sun	sun	sun	sun	dark	dark	dark	moon	sun	sun	sun	sun
13	209	2202	114	1016	60%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
14	206	2204	146	1123	50%	Last Qrtr	sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
15	204	2207	212	1228	40%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
16	201	2209	234	1332	31%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
17	159	2212	254	1436	22%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
18	156	2215	312	1538	15%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
19	154	2217	331	1642	8%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
20	151	2220	350	1747	4%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
21	149	2222	412	1852	1%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
22	146	2225	438	1959	0%	New	sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
23	144	2228	509	2105	1%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
24	142	2230	547	2207	5%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
25	139	2233	634	2302	10%		sun	sun	sun	sun	sun	dark	dark	dark	sun	sun	sun	sun
26	137	2235	732	2350	18%		sun	sun	sun	sun	sun	moon	dark	dark	sun	sun	sun	sun
27	135	2238	838	0	27%		sun	sun	sun	sun	sun	moon	dark	dark	sun	sun	sun	sun
28	132	2240	950	29	38%		sun	sun	sun	sun	sun	moon	moon	dark	sun	sun	sun	sun
29	130	2243	1105	102	50%	First Qrtr	sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
30	128	2245	1223	130	61%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
31	126	2248	1341	155	73%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun

June

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		DST>> 7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
							Beginning of One-Hour Period: Evening					Next Morning						
							6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	124	2250	1500	218	83%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
2	122	2253	1620	242	91%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
3	120	2255	1741	308	97%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
4	118	2257	1901	338	NA		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
5	116	2259	2018	414	100%	Full	sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
6	114	2302	2127	458	100%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
7	112	2304	2224	551	97%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
8	111	2306	2310	652	91%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
9	109	2307	2346	758	84%		sun	sun	sun	sun	sun	dark	moon	sun	sun	sun	sun	sun
10	108	2309	0	906	76%		sun	sun	sun	sun	sun	dark	moon	sun	sun	sun	sun	sun
11	107	2311	15	1014	67%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
12	106	2312	39	1199	57%	Last Qrtr	sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
13	105	2314	59	1223	47%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
14	104	2315	118	1327	37%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
15	103	2316	136	1430	28%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
16	103	2317	155	1534	20%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
17	103	2318	216	1638	12%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
18	102	2318	240	1746	7%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
19	103	2319	309	1853	2%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
20	103	2319	344	1957	0%	New	sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
21	103	2319	429	2057	0%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
22	104	2319	524	2148	3%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
23	105	2318	628	2231	8%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
24	106	2318	740	2306	15%		sun	sun	sun	sun	sun	dark	dark	sun	sun	sun	sun	sun
25	107	2317	855	2335	25%		sun	sun	sun	sun	sun	moon	dark	sun	sun	sun	sun	sun
26	108	2316	1012	2359	36%		sun	sun	sun	sun	sun	moon	dark	sun	sun	sun	sun	sun
27	110	2315	1129	0	47%		sun	sun	sun	sun	sun	moon	dark	sun	sun	sun	sun	sun
28	111	2314	1246	24	59%	First Qrtr	sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
29	113	2313	1404	47	71%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
30	115	2311	1522	111	81%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun

July

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
						DST>>	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
1	116	2310	1641	138	89%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
2	118	2308	1758	210	95%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
3	121	2306	1909	249	NA		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
4	123	2304	2011	338	99%	Full	sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
5	125	2303	2102	435	100%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
6	127	2301	2143	540	98%		sun	sun	sun	sun	sun	moon	moon	sun	sun	sun	sun	sun
7	129	2259	2215	648	94%		sun	sun	sun	sun	sun	moon	moon	moon	sun	sun	sun	sun
8	132	2257	2241	756	89%		sun	sun	sun	sun	sun	moon	moon	moon	sun	sun	sun	sun
9	134	2254	2303	904	81%		sun	sun	sun	sun	sun	moon	moon	moon	sun	sun	sun	sun
10	137	2252	2322	1009	73%		sun	sun	sun	sun	sun	moon	moon	moon	sun	sun	sun	sun
11	139	2250	2341	1113	64%		sun	sun	sun	sun	sun	dark	moon	moon	sun	sun	sun	sun
12	142	2248	0	1216	54%	Last Qrtr	sun	sun	sun	sun	sun	dark	moon	moon	sun	sun	sun	sun
13	144	2245	1	1320	44%		sun	sun	sun	sun	sun	dark	moon	moon	sun	sun	sun	sun
14	147	2243	19	1424	35%		sun	sun	sun	sun	sun	dark	dark	moon	sun	sun	sun	sun
15	149	2241	42	1530	25%		sun	sun	sun	sun	sun	dark	dark	moon	sun	sun	sun	sun
16	152	2238	108	1637	17%		sun	sun	sun	sun	sun	dark	dark	dark	sun	sun	sun	sun
17	154	2236	140	1742	10%		sun	sun	sun	sun	sun	dark	dark	dark	sun	sun	sun	sun
18	157	2234	221	1845	5%		sun	sun	sun	sun	sun	dark	dark	dark	sun	sun	sun	sun
19	159	2231	312	1740	1%		sun	sun	sun	sun	sun	dark	dark	dark	sun	sun	sun	sun
20	202	2229	413	2027	0%	New	sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
21	205	2226	524	2106	2%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
22	207	2224	641	2137	6%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
23	210	2221	759	2204	13%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
24	212	2219	918	2229	23%		sun	sun	sun	sun	dark	dark	dark	dark	sun	sun	sun	sun
25	215	2216	1036	2252	33%		sun	sun	sun	sun	moon	dark	dark	dark	sun	sun	sun	sun
26	217	2214	1153	2315	45%		sun	sun	sun	sun	moon	dark	dark	dark	sun	sun	sun	sun
27	220	2211	1311	2341	57%	First Qrtr	sun	sun	sun	sun	moon	moon	dark	dark	sun	sun	sun	sun
28	222	2208	1429	0	68%		sun	sun	sun	sun	moon	moon	dark	dark	sun	sun	sun	sun
29	225	2206	1545	11	78%		sun	sun	sun	sun	moon	moon	moon	dark	sun	sun	sun	sun
30	227	2203	1656	47	87%		sun	sun	sun	sun	moon	moon	moon	moon	dark	sun	sun	sun
31	230	2201	1801	131	94%		sun	sun	sun	sun	moon	moon	moon	moon	dark	sun	sun	sun

August

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
						DST>>	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
1	232	2158	1855	224	NA		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
2	234	2155	1939	325	98%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
3	237	2153	2014	432	100%	Full	sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
4	239	2150	2042	540	99%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
5	242	2148	2106	648	97%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
6	244	2145	2126	755	92%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
7	246	2142	2145	900	86%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
8	249	2140	2203	1004	79%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
9	251	2137	2222	1107	70%		sun	sun	sun	sun	moon	moon	moon	moon	moon	sun	sun	sun
10	253	2135	2243	1211	61%		sun	sun	sun	sun	dark	moon	moon	moon	moon	sun	sun	sun
11	256	2132	2307	1315	51%	Last Qrtr	sun	sun	sun	sun	dark	moon	moon	moon	moon	sun	sun	sun
12	258	2129	2336	1421	41%		sun	sun	sun	dark	dark	dark	moon	moon	moon	sun	sun	sun
13	300	2127	0	1526	32%		sun	sun	sun	dark	dark	dark	moon	moon	moon	sun	sun	sun
14	302	2124	13	1630	22%		sun	sun	sun	dark	dark	dark	dark	moon	moon	sun	sun	sun
15	304	2122	58	1728	14%		sun	sun	sun	dark	dark	dark	dark	dark	moon	sun	sun	sun
16	307	2119	155	1818	7%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
17	309	2116	302	1901	2%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
18	311	2114	418	1936	0%	New	sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
19	313	2111	537	2005	1%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
20	315	2109	659	2031	5%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
21	317	2106	819	2055	11%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
22	319	2104	940	2119	20%		sun	sun	sun	dark	dark	dark	dark	dark	dark	sun	sun	sun
23	321	2101	1059	2144	31%		sun	sun	sun	moon	dark	dark	dark	dark	dark	sun	sun	sun
24	323	2058	1218	2213	42%		sun	sun	sun	moon	dark	dark	dark	dark	dark	sun	sun	sun
25	325	2056	1336	2247	54%	First Qrtr	sun	sun	sun	moon	moon	dark	dark	dark	dark	sun	sun	sun
26	327	2053	1449	2328	65%		sun	sun	sun	moon	moon	dark	dark	dark	dark	sun	sun	sun
27	329	2051	1555	0	76%		sun	sun	sun	moon	moon	moon	dark	dark	dark	dark	sun	sun
28	331	2048	1652	18	84%		sun	sun	sun	moon	moon	moon	moon	dark	dark	dark	sun	sun
29	333	2046	1738	116	91%		sun	sun	sun	moon	moon	moon	moon	moon	dark	dark	sun	sun
30	335	2043	1815	220	96%		sun	sun	sun	moon	moon	moon	moon	moon	moon	dark	sun	sun
31	337	2041	1845	328	NA		sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun

September

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian	
1	338	2038	1909	436	99%	Full
2	340	2036	1930	543	100%	
3	342	2033	1950	648	99%	
4	344	2031	2008	752	95%	
5	346	2028	2026	856	91%	
6	347	2026	2046	959	84%	
7	349	2023	2108	1103	77%	
8	351	2021	2135	1208	68%	
9	353	2018	2207	1313	58%	
10	354	2016	2248	1416	48%	Last Qrtr
11	356	2014	2338	1516	38%	
12	358	2011	0	1609	28%	
13	359	2009	40	1654	18%	
14	401	2007	151	1732	10%	
15	403	2004	309	1803	4%	
16	404	2002	430	1830	1%	
17	406	1959	553	1855	0%	New
18	408	1957	716	1919	3%	
19	409	1955	839	1945	9%	
20	411	1953	1001	2013	18%	
21	412	1950	1122	2045	28%	
22	414	1948	1240	2125	39%	
23	415	1946	1350	2212	50%	First Qrtr
24	417	1944	1450	2309	61%	
25	419	1941	1539	0	71%	
26	420	1939	1618	12	80%	
27	422	1937	1649	118	88%	
28	423	1935	1715	226	94%	
29	425	1933	1736	333	NA	
30	426	1931	1756	439	98%	

Beginning of One-Hour Period

DST>>	Evening 7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
1	sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
2	sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
3	sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
4	sun	sun	sun	moon	moon	moon	moon	moon	moon	moon	sun	sun
5	sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	sun	sun
6	sun	sun	dark	moon	moon	moon	moon	moon	moon	moon	sun	sun
7	sun	sun	dark	moon	moon	moon	moon	moon	moon	moon	sun	sun
8	sun	sun	dark	dark	moon	moon	moon	moon	moon	moon	sun	sun
9	sun	sun	dark	dark	moon	moon	moon	moon	moon	moon	sun	sun
10	sun	sun	dark	dark	dark	moon	moon	moon	moon	moon	sun	sun
11	sun	sun	dark	dark	dark	dark	moon	moon	moon	moon	sun	sun
12	sun	sun	dark	dark	dark	dark	dark	moon	moon	moon	sun	sun
13	sun	sun	dark	dark	dark	dark	dark	dark	moon	moon	sun	sun
14	sun	sun	dark	dark	dark	dark	dark	dark	dark	moon	sun	sun
15	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
16	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
17	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
18	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
19	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
20	sun	sun	dark	dark	dark	dark	dark	dark	dark	dark	sun	sun
21	sun	sun	moon	dark	dark	dark	dark	dark	dark	dark	sun	sun
22	sun	sun	moon	dark	dark	dark	dark	dark	dark	dark	sun	sun
23	sun	sun	moon	moon	dark	dark	dark	dark	dark	dark	sun	sun
24	sun	sun	moon	moon	moon	dark	dark	dark	dark	dark	sun	sun
25	sun	sun	moon	moon	moon	moon	dark	dark	dark	dark	sun	sun
26	sun	sun	moon	moon	moon	moon	moon	dark	dark	dark	sun	sun
27	sun	sun	moon	moon	moon	moon	moon	moon	dark	dark	sun	sun
28	sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	sun	sun
29	sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	sun	sun
30	sun	sun	moon	moon	moon	moon	moon	moon	moon	moon	sun	sun

October

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian	
1	428	1928	1814	543	100%	Full
2	429	1926	1832	647	100%	
3	430	1924	1851	750	98%	
4	432	1922	1912	854	94%	
5	433	1920	1936	959	89%	
6	435	1918	2006	1104	82%	
7	436	1916	2042	1207	74%	
8	438	1914	2128	1307	65%	
9	439	1912	2223	1402	55%	Last Qrtr
10	441	1910	2328	1449	44%	
11	442	1908	0	1528	33%	
12	443	1906	41	1601	23%	
13	445	1905	200	1629	14%	
14	446	1903	321	1654	7%	
15	448	1901	443	1718	2%	
16	449	1859	607	1743	0%	New
17	450	1857	732	1809	2%	
18	452	1856	857	1840	7%	
19	453	1854	1020	1918	14%	
20	455	1852	1136	2004	24%	
21	456	1851	1243	2059	34%	
22	457	1849	1338	2201	45%	
23	459	1847	1421	2308	56%	First Qrtr
24	500	1846	1454	0	66%	
25	501	1844	1521	17	75%	
26	503	1843	1543	124	83%	
27	504	1841	1603	230	90%	
28	505	1840	1621	335	95%	
29	507	1838	1638	438	NA	
30	508	1837	1657	542	98%	
31	509	1835	1717	646	100%	Full

Beginning of One-Hour Period

DST>>	Evening 7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM
1	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun	sun
2	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
3	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
4	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
5	sun	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
6	sun	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
7	sun	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	sun
8	sun	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	sun
9	sun	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	sun
10	sun	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon	sun
11	sun	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	sun
12	sun	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	sun
13	sun	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon	sun
14	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
15	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
16	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
17	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
18	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
19	sun	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
20	sun	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
21	sun	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	sun
22	sun	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	sun
23	sun	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	sun
24	sun	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	sun
25	sun	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	sun
26	sun	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	sun
27	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark	sun
28	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
29	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
30	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
31	sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun

November

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	511	1834	1740	751	100%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
2	512	1833	1807	856	97%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
3	513	1831	1841	1001	93%		sun	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
4	515	1830	1923	1102	87%		dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
5	516	1829	2014	1158	80%		dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	sun
6	517	1828	2115	1247	71%		dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	sun
7	519	1827	2224	1328	61%		dark	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	sun
8	520	1825	2337	1402	50%	Last Qrtr	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	moon	sun
9	521	1824	0	1430	39%		dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	sun
10	523	1823	54	1455	28%		dark	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	sun
11	524	1822	214	1519	18%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon	sun
12	525	1821	334	1542	9%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
13	526	1820	457	1606	3%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
14	528	1819	622	1634	0%	New	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	sun
15	529	1819	748	1708	1%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
16	530	1818	910	1750	4%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
17	531	1817	1025	1843	10%		moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
18	533	1816	1128	1944	19%		moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
19	534	1816	1218	2052	28%		moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark
20	535	1815	1256	2203	39%		moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark
21	536	1814	1325	2312	49%	First Qrtr	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark
22	537	1814	1349	0	59%		moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark
23	538	1813	1410	20	69%		moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark
24	540	1813	1428	125	77%		moon	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark
25	541	1812	1445	229	85%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark	dark
26	542	1812	1503	333	91%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark
27	543	1811	1522	436	96%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
28	544	1811	1544	541	99%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
29	545	1811	1610	647	100%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
30	546	1810	1641	752	NA	Full	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon

December

Day	astronomical twilight begin	astronomical twilight end	moon rise	moon set	% Moon Illuminated at Meridian		Beginning of One-Hour Period: Evening 6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	Next Morning 12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM
1	547	1810	1721	856	99%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
2	548	1810	1810	954	96%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
3	549	1810	1908	1046	91%		dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
4	550	1810	2014	1129	85%		dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
5	551	1809	2125	1205	76%		dark	dark	dark	moon	moon	moon	moon	moon	moon	moon	moon	moon
6	552	1809	2240	1234	66%		dark	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon	moon
7	553	1809	2355	1259	55%	Last Qrtr	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	moon	moon
8	553	1809	0	1322	44%		dark	dark	dark	dark	dark	dark	dark	moon	moon	moon	moon	moon
9	554	1810	112	1344	32%		dark	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon	moon
10	555	1810	231	1407	21%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon	moon
11	556	1810	352	1432	12%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	moon
12	557	1810	515	1501	5%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
13	557	1810	639	1538	1%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
14	558	1810	758	1625	0%	New	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
15	559	1811	909	1723	2%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
16	559	1811	1006	1830	7%		dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
17	600	1812	1051	1941	14%		moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark	dark
18	601	1812	1125	2054	22%		moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark	dark
19	601	1812	1152	2204	31%		moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark	dark
20	602	1813	1214	2312	41%		moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark	dark
21	602	1813	1234	0	51%	First Qrtr	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark	dark
22	602	1814	1251	17	61%		moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark	dark
23	603	1815	1309	121	70%		moon	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark	dark
24	603	1815	1327	225	79%		moon	moon	moon	moon	moon	moon	moon	moon	moon	dark	dark	dark
25	604	1816	1348	329	86%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	dark
26	604	1817	1412	434	92%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
27	604	1817	1441	540	97%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
28	604	1818	1518	645	99%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
29	605	1819	1604	746	NA	Full	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
30	605	1820	1700	841	100%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
31	605	1820	1805	928	98%		moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon	moon
1	605	1821	1916	1007														

About This Calendar

This calendar was created using data from sunrise-sunset.org and timeanddate.com. My usual source, the U.S. Naval Observatory, was unavailable.
The Twilight and Moon Rise/Set times are given in military time (e.g., 2148 is 9:48 PM) for Pacific Standard Time.
If Daylight Savings Time is in effect, these times are one hour behind local time.

The left side of the calendar gives the times of beginning and end of astronomical twilight, the moon rise and set times, percent illumination of the moon when it crosses the meridian, and the four primary moon phases (for Pacific time). Shading of specific dates provide a quick means of finding the best nights for deep sky observing.
Note that on some dates the moon does not cross the meridian, and percent illumination is given as NA.
Also note that moon rise (or set) time is given as "0" when the moon does not rise (or set) on that day (under Pacific Standard Time).

Darkest blue shading is applied to New Moon dates.
Dark blue shaded dates are the best nights for deep sky observing.
Light blue shaded dates are "marginal" deep sky observing nights.

In determining which dates to shade, I gave preference to dates for which moonless conditions occurred shortly after the end of astronomical twilight.
Also, I took into account the moon's level of illumination. This process was not automated, and so my judgements may not always agree with yours.

The right side of the calendar gives more detail on exactly when there will be moonless conditions. The cell labels and shading were automated.
The column headings refer to the beginning of an hourly interval; for example, 6 PM refers to the hour beginning at 6 PM and ending at 7 PM.
Three entries are possible for each cell under these hourly headings, as described below.

sun	Astronomical twilight has not yet ended, or has begun (for the following morning). In some cases, the sun may even be above the horizon.
moon	The moon is above the horizon.
dark	Full astronomical darkness is in effect and the moon is below the horizon.

Note that for a given hourly interval, a cell will be labeled "dark" if there is at least 30 minutes of full, moonless darkness during that hour.

The cell labels are a convenience to allow the user to quickly see when best conditions for observing will occur. The details can be discerned from the actual data.

Denis Janky