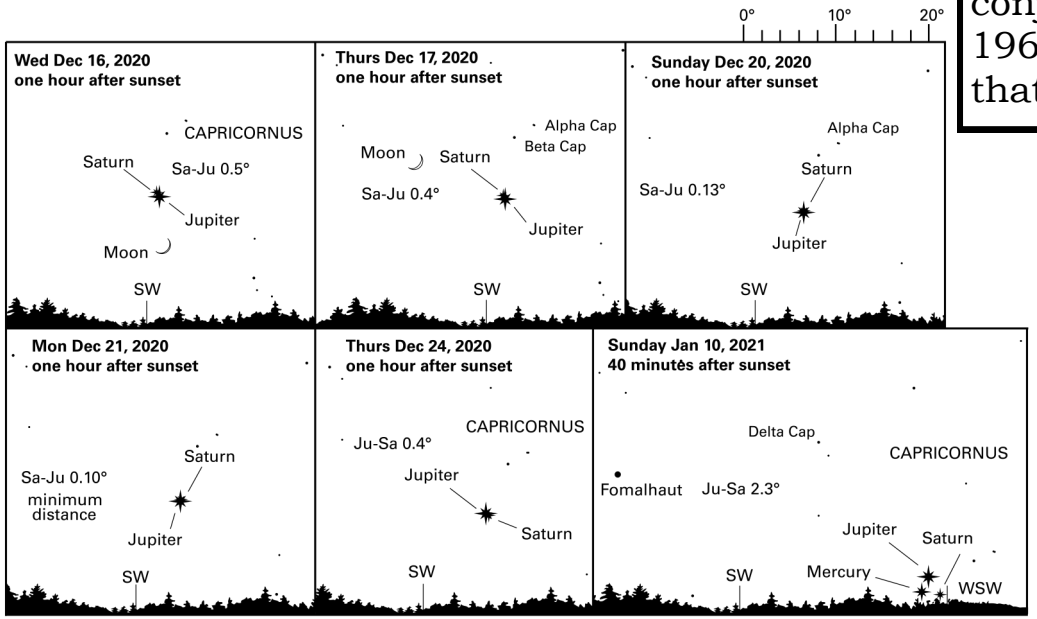
Four Big Astronomical Events

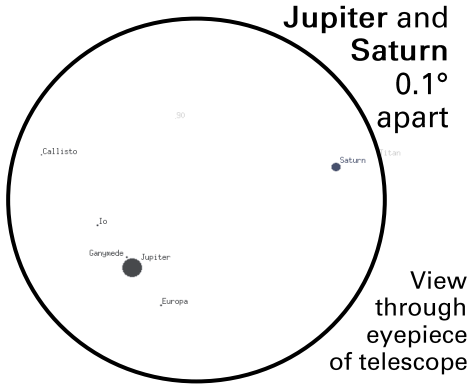
You Shouldn't Miss

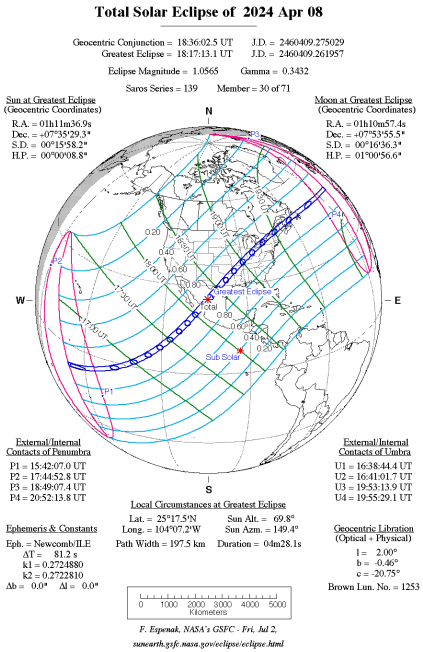
There are four big astronomical observing events coming up in the next few decades. The purpose of this poster is not to give you lots of details on how to observe, you know how to do that, but to let you know about these events so you can start to plan your observations and tell your friends about them too. This list goes from the year 2020 to 2061. While 2061 might seem a long way off for some of us, it's only 42 years. School aged people today will easily be able to witness it. A typical 3rd grader now will just be about 50 years old when Halley's Comet comes around. Imagine the thrill of seeing it after 42 years of anticipation. So, on with the list.



2020 The Great Jupiter Saturn Conjunction

Jupiter will pass Saturn December 21, 2020. The two planets will be within ***one tenth of a degree*** of each other. You will be able to see both the rigns of Saturn and the Moons of Jupiter in the same field of view in a typical telescope. Jupiter passes Saturn every twenty years, but the last time this happened, we didn't get a good view. Jupiter and Saturn were on the other side of the solar system and the Sun blocked our view. So it's been 40 years since these two gas giants were easily visible together. But they usually don't get this close. Typical Jupiter Saturn conjunctions are a degree apart. The conjunction of 1961 was *two tenths of a degree* apart, the last one that was somewhat comparable.



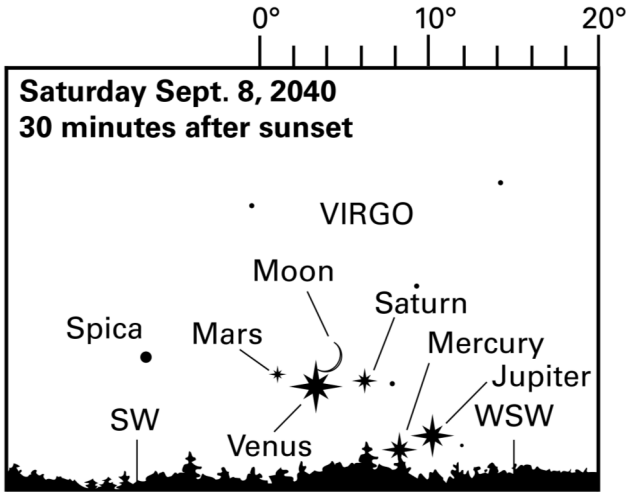


2024 The Great North American Solar Eclipse

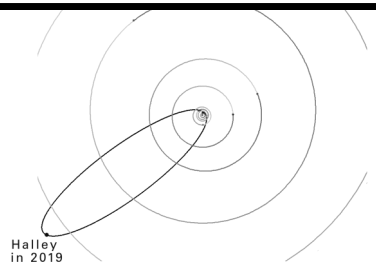
The Solar Eclipse of **April 2024** goes from Mexico to Newfoundland. The eclipse path is wider than the 2017 eclipse, so expect the sky to be darker than 2017. *After 2024, the next two solar eclipses visible from North America will be August 23, 2044 and August 12, 2045.*

2040 The Great Five Planet Gathering

On September 8, 2040, all five naked eye planets and the crescent moon will be within a 10° field of view. This is the tightest grouping of all five planets for a long time. In the year 2000, all five were within 20°. You have to go back to the year 1186 for a more compact gathering. I don't know when they will be closer but it will be after the year 2735 since that is as far as the data goes in the paper
"Quintuple Planetary Groupings"
by Salvo De Meis and Jean Meeus.



For more information, check out
Abrams Planetarium Sky Calendar
at abramsplanetarium.org
or visit your local planetarium



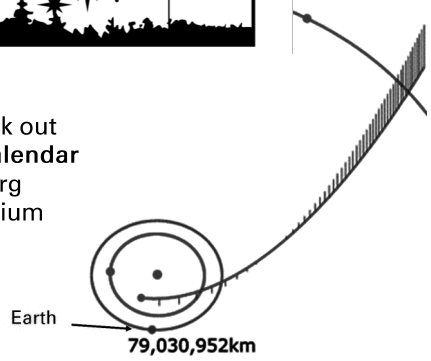


Table 1. Quintuple planetary groupings from the year –3101 to +2735

Date (TDT)	*Years elapsed*	*Separation (°)*
–3101 Feb 18	0	40.00
–2965 Aug 29	136.53	20.84
–2867 Dec 27	98.33	18.34
–2826 May 2	41.34	15.45
–2806 Feb 21	19.81	22.35
–2766 Jun 26	40.34	22.04
–2726 Oct 21	40.32	9.42
–2666 Dec 26	60.12	17.45
–2587 Aug 11	78.63	16.56
–2585 Aug 22	2.03	24.83
–2429 Dec 10	156.30	21.91
–2288 Oct 4	140.82	23.64
–2249 Jan 4	38.25	14.35
–2209 May 2	40.32	14.37
–2189 Feb 26	19.82	16.92
–2149 Jul 10	40.37	18.69
–2109 Oct 27	40.30	23.24
–1972 May 2	19.51	20.52
–1972 May 25	0.06	22.88
–1952 Feb 27	19.76	4.33
–1912 Jul 5	40.35	18.05
–1812 Dec 19	100.46	17.12
–1733 Jul 18	78.58	15.94
–1534 Mar 8	198.64	21.84
–1476 May 11	58.18	20.13
–1474 May 17	2.02	19.33
–1436 Sep 12	38.32	14.16
–1434 Sep 11	2.00	23.76
–1295 Jun 16	138.76	17.50
–1197 Nov 4	98.38	10.37
–1098 Jan 17	98.20	19.79
–1098 Feb 19	0.09	21.48
–1058 May 29	40.27	6.45
–1038 Mar 17	19.80	18.37
–960 Nov 13	78.67	21.50
–958 Nov 15	2.00	13.24
–821 Jul 12	136.65	23.71
–819 Sep 9	2.16	21.94
–801 Mar 24	17.54	23.59
–761 Jul 25	40.34	23.93
–660 Jan 11	100.47	17.62
–582 Aug 7	78.57	18.31
–582 Aug 23	0.04	16.39
–481 Feb 1	100.44	21.39
–441 May 23	40.30	17.26
–285 Oct 1	156.36	24.70
–244 Jan 24	40.31	20.43
–204 May 30	40.35	21.10
–184 Mar 25	19.82	6.74
–144 Jul 27	40.34	9.96
–46 Nov 28	98.34	9.38
35 Aug 14	80.71	22.59
53 Mar 2	17.55	23.37
53 Mar 9	0.02	22.97
133 Nov 29	80.73	15.25
193 Dec 6	60.02	23.62
193 Dec 27	0.06	23.05
232 Mar 29	38.25	20.72
272 Jul 30	40.34	15.63
292 Jun 7	19.85	23.77
332 Oct 4	40.33	8.71
334 Oct 15	2.03	23.61
529 Jun 6	194.64	24.69
531 May 28	1.97	23.90
670 Mar 18	138.81	16.38
710 Jun 26	40.27	5.91
730 Apr 15	19.80	21.28
748 Sep 30	18.46	21.93
808 Dec 18	60.22	23.43
810 Dec 11	1.98	23.20
907 Feb 14	96.18	20.52
909 Apr 14	2.16	19.40
947 Jun 15	38.17	20.88
967 Apr 14	19.83	20.17
1007 Aug 14	40.33	20.41
1088 Apr 15	80.67	19.75
1108 Feb 14	19.83	17.34
1186 Sep 17	78.86	8.86
1284 Dec 23	98.27	17.18
1483 Oct 23	198.83	21.13
1524 Feb 19	40.33	10.51
1564 Jun 21	40.34	18.60
1584 May 1	19.83	17.29
1624 Aug 26	40.32	15.76
1662 Dec 6	38.28	23.09
1821 Apr 6	158.33	19.03
1821 Apr 17	0.03	17.09
1821 Apr 30	0.04	19.70
1962 Feb 5	140.77	15.81
2000 May 17	38.28	19.47
2040 Sep 8	40.31	9.31
2060 Jul 10	19.84	22.95
2100 Nov 11	40.34	16.46
2297 Jul 15	196.67	13.95
2299 Jul 20	2.01	23.25
2337 Nov 7	38.30	20.16
2438 Apr 27	100.47	19.13
2478 Aug 6	40.28	14.94
2516 Nov 18	38.28	22.13
2675 Mar 27	158.35	16.44
2675 Apr 10	0.04	18.25
2715 Jul 26	40.29	16.61
2735 May 27	19.84	22.86

2061 Halley's Comet

The return of Halley's Comet in 2061 will be ***Spectacular!***
If your impression of Halley's Comet was the 1986 perihelion, get that idea out of your head. 1986 was about the worst view we've ever had of the comet. It pretty much stayed on the other side of the solar system the whole visit. The next time, it's going to be at perihelion around the same time as its closest approach to Earth. In 2061, it will have a magnitude of -0.3 compared with +2.1 for 1986.

To quote Bob Victor, *"Halley passes perihelion, inferior conjunction (nearly between Earth and Sun), and closest approach to Earth, all on July 28-29. In its inclined orbit, the Comet will then be north of, or "above" the plane or Earth's orbit and so will appear some 21° north of the Sun. On the nights of July 25-28, from latitude 40° N, the comet will even be seen twice each night, low in NW at dusk, and low in NE at dawn."*