

SKY CALENDAR NOVEMBER 2020

An aid to enjoying the changing sky

Use this scale to measure angular distances between objects on diagrams below.



Evenings: In mid-November, Spaceship Earth is flying directly away from the 3rd-mag. star Delta Capricorni, or Deneb Algedi, tail of Capricornus, the Sea-goat, in south as twilight ends. During last four months, our fast-moving planet overtook all five outer planets, **Jupiter and Saturn** in July, **Neptune** in September, **Mars and Uranus** in October, each in turn appearing at *opposition* as we passed between Sun and planet. Now in November 2020, we are looking behind our planet at an impressive lineup of all the outer planets across the evening sky.

Let's consider the bright planets in order from west to east. In Sagittarius, east of the Teapot, Jupiter, at mag. -2.2 to -2.0, is now the brightest "star" in the evening sky. Look for it in SSW to SW an hour after sunset, lower as month progresses. Just 5.2° to 2.3° to its upper left is **Saturn**, at mag. +0.6 about one-tenth as bright. Illustrations for Nov. 2, 13, 23, Dec. 3, 12, 21 show Jupiter creeping about 1° closer to Saturn each ten days. **A spectacular close conjunction will occur on December 21.**

These largest planets - Jupiter with cloud belts and four bright satellites, and Saturn with rings, are always pleasing for telescopic viewing.

Mars drops in brilliance from mag. -2.1 to -1.1 this month as we race away. An hour after sunset, the red planet climbs higher in ESE as month progresses, but remains near Delta and Epsilon in Pisces, a pair of matched 4th-mag stars 3.5° apart. Ending retrograde on the 13th, Mars doesn't wander far in Nov. **Using binoculars and finder chart for Nov. 13**, start at head of Cetus, then star-hop using fainter stars of Aries as stepping-stones to 5.7-mag. **Uranus.**

In morning sky, Regulus, heart of Leo, lies dead ahead of Spaceship Earth on Nov. 21. This month, we're seeing the swift inner planets, **Mercury and Venus**, racing ahead of us. In a favorable apparition lasting nearly all month, Mercury stays 13° lower left of Venus Nov. 10-18. Mercury approaches within 4° E of Spica in a *quasi-conjunction* on Nov. 2. Venus passes 4° N of the same star on Nov. 16.

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<p>Sunday Nov 1, 2 hours 22 minutes before sunrise</p> <p>LEO: Denebola, Venus, Ma both 5° up. On what date will you last see both simultaneously?</p> <p>VIRGO: E</p>	<p>Mu Uranus Hamal • CETUS: Xi² Cet, Xi¹ Cet ARIES: Alpha Psc PISCES: Mars</p> <p>W</p>	<p>Wed 4 Beta Tauri Nov 2-4, 1½ hours before sunrise</p> <p>Zeta Tauri TAURUS: Aldebaran, Hyades</p> <p>Tues 3 Pleiades</p> <p>Mon 2</p>	<p>Mon Nov 2, 45 minutes before sunrise</p> <p>Venus</p> <p>Mercury brightens rapidly this week</p> <p>VIRGO: Spica</p> <p>ESE</p>	<p>Mon. Nov. 2: As seen from Sun, Jupiter overtakes Saturn today; Sun, Jupiter, and Saturn lie in a straight line. But Earth is ahead of them, so as seen from Earth, Jupiter still appears 5° west of Saturn tonight, and won't appear to overtake Saturn until Dec. 21. Look up <i>parallax</i>.</p> <p>Saturn Jupiter Sa-Ju 5.0°</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: SSW</p>	<p>Mon Nov 2, one hour after sunset</p> <p>Beehive Cluster Sat 7 Fri 6</p> <p>POLLUX CASTOR</p> <p>CANIS MINOR: Procyon</p>	<p>Nov 5-7, 1½ hours before sunrise</p> <p>Thurs 5</p> <p>GEMINI: Betelgeuse</p>
<p>Nov 8-10, 1½ hours before sunrise</p> <p>Sunday 8 SICKLE: Last Quarter, Sunday Nov. 8. 8:46 a.m. EST.</p> <p>LEO: Regulus</p> <p>Tues 10 Denebola</p>	<p>Tues Nov 10, one hour before sunrise</p> <p>Venus</p> <p>Mercury at greatest elongation, 19° west of the Sun.</p> <p>VIRGO: Spica</p> <p>ESE</p>	<p>Thurs Nov 12, one hour before sunrise</p> <p>Moon Venus</p> <p>VIRGO: Spica</p> <p>ESE</p>	<p>Fri Nov 13, one hour before sunrise</p> <p>Moon Venus</p> <p>VIRGO: Spica</p> <p>ESE</p>	<p>Saturn Jupiter Sa-Ju 4.0°</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: SSW</p>	<p>Fri Nov 13, two hours after sunset</p> <p>Hamal Eta Epsilon Zeta Mars ARIES: Gamma 19 Omicron Nu PISCES: Alpha Psc</p> <p>Uranus 29 31 Xi Ari Xi¹ Cet Xi² Cet</p> <p>CETUS: Lambda Gamma + Mira Delta</p>	<p>Sat Nov 14, 30 minutes before sunrise</p> <p>Venus Spica</p> <p>VIRGO: Mercury</p> <p>Old Moon ESE</p> <p>Visit the Sky Calendar's Extra Content Page: abramsplanetarium.org/msta</p>
<p>Sunday, Nov. 15</p> <p>Soon after sunset, thin crescent Moon may be seen with optical aid from Southwest U.S. (age 20 hours from southern California), and with unaided eye from Hawaii (age 23 hours). Sighting marks start of month Rabi' al-Akhir.</p>	<p>Mon Nov 16, one hour before sunrise</p> <p>VIRGO: Venus, Spica</p> <p>Venus passes 3.9° N of Spica.</p> <p>Mercury ESE</p>	<p>Mon Nov 16, one hour after sunset</p> <p>SAGITTARIUS: OPHIUCHUS: Eta</p> <p>Young Moon SW</p>	<p>Saturn Jupiter</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: Moon</p> <p>SSW</p>	<p>Tues Nov 17, one hour after sunset</p> <p>Saturn Jupiter Sa-Ju 3.5°</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: Moon</p> <p>SSW</p>	<p>Wed Nov 18, one hour after sunset</p> <p>MOON: Saturn, Jupiter</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: SW</p>	<p>Thurs Nov 19, one hour after sunset</p> <p>CAPRICORNUS: Alpha Cap, Beta Cap</p> <p>Moon Saturn Jupiter</p> <p>Territory of Dogs</p>
<p>Sunday, Nov. 22</p> <p>Have you selected a site for observing the spectacular close pairing of Jupiter and Saturn on Monday, Dec. 21? In the two hours before sunset today, the Sun will trace out the same path through the SW sky that Jupiter and Saturn will follow on evening of Dec. 21. The planets will follow that path 2 hrs 21 min later than the times the Sun does so today.</p>	<p>Alpha Cap Beta Cap CAPRICORNUS: Sa-Ju 3.0°</p> <p>Saturn Jupiter</p> <p>Territory of Dogs</p> <p>SAGITTARIUS: SSW</p>	<p>Nov. 25-27 at nightfall</p> <p>See chart on this page showing position of Mars as it ends retrograde on Nov. 13. Moon passes through this same section of sky Nov. 25-27, passing 5° S of Mars on Nov. 25, and 5° S of Uranus on Nov. 27. By these dates, Mars has moved 1.1° E, and Uranus 0.5° W of their Nov. 13 positions.</p>	<p>Nov 29-Dec 1, 1¼ hours before sunrise</p> <p>Zeta Tauri Beta Tauri</p> <p>Tues 1 TAURUS: Aldebaran</p> <p>Mon 30 Pleiades Hyades</p> <p>Sunday 29 WNW</p>	<p>Sunday Nov 29, 40 minutes before sunrise</p> <p>VIRGO: Venus, Alpha Lib</p> <p>Beta Lib Mercury ESE</p> <p>Mercury still visible, within 17° lower left of Venus. On what date will you last see Mercury before superior conjunction with Sun? Venus will pass 1.4° N of Alpha Lib on Dec. 3 and 4.</p>	<p>Nov 29 and 30, 1¼ hours after sunset</p> <p>Sunday 29 TAURUS: Beta Tauri, Aldebaran</p> <p>Mon 30 Zeta Tauri ENE</p>	<p>Monday Nov 30</p> <p>Full Moon 4:30 a.m. EST</p> <p>Deepest penumbral eclipse 4:43 a.m. EST (1:43 a.m. PST). Only slight shading will be noticed on Moon's N limb.</p>

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