

BCAS OBSERVING HIGHLIGHTS for November 28 to December 11, 2025, a “bright Moon period”
Black Canyon Astronomical Society (BCAS), southwest-central Colorado, USA

DATES & TIMES (MST) FOR REGIONAL EVENTS AND EYE-CATCHING HAPPENINGS IN THE SKY:

November 28, 6:30 AM: Mercury is 6° above Venus, low in east southeast (use binoculars)
November 28-December 2, 4:30 AM to 5:30 AM: Enjoy winter & early spring stars under a dark sky!
November 28-29, 6 PM to midnight: Gibbous Moon 5° to 6° west of Saturn
November 29-30, 6 PM to midnight: Gibbous Moon 6° to 7° northeast of Saturn
November 29-December 11, 6:00 AM to 6:30 AM: Spot brightening Mercury, low in the east southeast
December 4, 4:25 PM to 5:00 PM: Watch a full “supermoon” rise in the east northeast
December 5, 7:30 AM to 8:20 AM: Watch a full “supermoon” set in the west northwest
December 5, 10:00 AM: [Western Slope Skies](#) on KVN radio
December 6, 7:35 PM to 8:30 PM: Gibbous Moon rises, 7° above bright Jupiter
December 6, 7, or 8 at about 4:46 PM: Earliest sunset on the Western Slope
December 7, 8:00 PM to 9:00 PM: Gibbous Moon rises, 7° below and left from bright Jupiter
December 9-11, 6:30 PM to 10:00 PM: Autumn stars & lingering summer stars under a dark sky!
December 10, 6:00 PM: [Western Slope Skies](#) on KVN radio

SUMMARY.

This “bright Moon” period features our earliest sunset on the Western Slope, occurring at about 4:46 PM MST on December 6, 7 or 8 (depending on your latitude), roughly two weeks before our shortest day and longest night around the winter Solstice, December 21. The Moon reaches first quarter on the night of November 27-28, and from November 29 to December 3, we can watch a gibbous Moon wax. The Moon is full on the night of December 4-5. The December 4-5 full Moon is another, so-called “supermoon”, the Moon being about 7% closer to Earth than for the average full Moon. The [Moon illusion effect](#) may make the Moon seem even larger when it's near the horizon. From December 6 to 10, the gibbous Moon wanes, and the Moon reaches last quarter on December 11.

Saturn is well placed for viewing in the evenings, culminating more than 45 degrees above the southern horizon between 5:30 and 7:30 PM MST. Bright Jupiter rises in the east northeast before 8:15 PM MST and remains visible through the rest of the night, reaching an altitude of more than 70 degrees above the southern horizon around 3:00 AM MST. With telescopes (or binoculars), we can spot Neptune, which is conveniently near Saturn in our sky, and Uranus, moving against the stars of Taurus about 4 degrees south of the Pleiades. This period is our last chance to spot Venus before its January 5 solar conjunction until it reappears as an “evening star” in February 2026. Mercury is a new “morning star”; you may spot the Innermost Planet low above the east-southeastern horizon between 6:10 AM and 6:30 AM MST, as it brightens from magnitude +0.5 to -0.5 between November 28 and December 11. Also, during this period we may be able to view two comets with “backyard” telescopes: Interstellar Comet 3I/ATLAS and Comet C/2025 K1 (ATLAS).

Several extreme solar flares occurred in recent weeks, and some of these were associated with coronal mass ejections that caused geomagnetic storms and auroras. Hope you got to see the spectacular aurora on the evening of November 11! It's possible that more auroras could be visible from the Western Slope during the current period.

Find times for local passes of bright satellites, including the International Space Station and Tiangong, the Chinese Space Station, at these links...

<https://www.heavens-above.com/>
<https://www.n2yo.com/passes/?s=25544>

THE MOON. The Moon reaches **first quarter on the night of November 27-28** (exactly at 11:59 PM MST). From November 29 to December 3, watch a gibbous Moon wax. **The Moon is full on the night of December 4-5** (exactly full December 4 at 4:14 PM MST). Around sunset on December 4 from 4:25 PM to 5:00 PM MST, watch a full “supermoon” rise in the east northeast just a few minutes before lunar perigee (the Moon’s near point to Earth). Does the Moon look especially large to you? The December 4-5 full Moon is 221,800 miles distant, considerably closer than its average distance of 238,000 miles, making it appear about 7% larger than usual. And the [Moon illusion effect](#) may make the Moon seem even larger when it's near the horizon. On December 5 between 7:30 AM and 8:20 AM MST, you can watch that full “supermoon” set in the west northwest as the Sun rises in the east southeast. From December 6 to 10, the gibbous Moon wanes. The Moon reaches **last quarter on December 11** (exactly at 1:52 PM MST).

On the evening of November 28, the waxing gibbous Moon (58% illuminated) is about 5 to 6 degrees west of Saturn. On the night of November 29-30, the Moon (now 68% illuminated) is about 6 to 7 degrees north and east of Saturn. On December 6 from about 7:35 to 8:30 PM MST, watch the bright, waning, gibbous Moon rise about 7 degrees above the bright Planet Jupiter. On December 7 from about 8:00 to 9:00 PM MST, watch the gibbous Moon rise about 7 degrees below and left of Jupiter. NASA has published a [stunning visualization of lunar phases for year 2025](#). Another fun site is [NASA's daily Moon guide](#).

OUR EARLIEST SUNSET FOR 2025: DECEMBER 6, 7, or 8. Our longest night of 2025 is December 20-21, just before the December solstice, which occurs on December 21 at 8:03 AM MST. But our earliest sunset occurs at about 4:26 PM MST on December 6, 7, or 8 (depending on your latitude in western Colorado). So, [why doesn't our earliest sunset occur just before our longest night around the December solstice](#)? Relative to our standardized clock time (mean solar time, e.g., Mountain Time for Colorado), apparent solar time (as defined by the position of the Sun in the sky, as indicated by a Sun dial) can be either “fast” or “slow” at various times of the year, due to variations in the Sun’s apparent speed against the background stars. This accounts for the earliest Sunset occurring on December 6, 7, or 8 in western Colorado, about two weeks before the solstice on December 21. The variations in apparent solar time are caused by Earth’s orbital eccentricity and its axial tilt. The difference between apparent solar time and mean solar time (clock time) is called the [equation of time](#).

SPOT AN INTERSTELLAR COMET BEFORE DAWN: 3I/ATLAS! With telescopes, early risers can challenge themselves to spot and/or image a visitor from another planetary system, Comet 3I/ATLAS (formerly designated as C/2025 N1). 3I/ATLAS was discovered by the Asteroid Terrestrial-impact Last Alert System (ATLAS) that is operated by the University of Hawaii. It’s only the third interstellar object to be discovered traversing our Solar System, hence the designation, “3I.” At a predicted magnitude range of +11 to +13 during this period, it may be possible to view or image 3I/ATLAS with “backyard” telescopes. Comet 3I/ATLAS is currently moving against the stars of western Virgo and then Leo, with a backdrop of the Virgo Galaxy Supercluster. There are many galaxies in this region of magnitude +11 to +13, so distinguishing the Comet from galaxies could be challenging. To identify 3I/ATLAS with certainty, check for motion against background stars over a period of 10 minutes or more. Look for “3I” before the bright Moon enters the predawn sky (i.e., before December 3). The Comet passed perihelion (its closest point to the Sun, 126 million miles) on October 29, and it will be closest to Earth on December 19 at 167 million miles. Comet 3I/ATLAS is following an unbound, hyperbolic trajectory past the Sun, and it will not be returning to our Solar System. Updates, photos, finder charts, and ephemerides for 3I/ATLAS are [here](#)...

<https://theskylive.com/c2025n1-info>

<https://astro.vanbuitenen.nl/comet/3i>

<http://aerith.net/comet/catalog/00031/2025N1.html>

<https://en.wikipedia.org/wiki/31/ATLAS>

ANOTHER COMET ATLAS: C/2025 K1 (ATLAS). There's another Comet ATLAS in our night sky, C/2025 K1 (ATLAS), a visitor from the distant reaches of our own Solar System. This Comet was also discovered by the Asteroid Terrestrial-impact Last Alert System (ATLAS) that is operated by the University of Hawaii, hence another "ATLAS" designation. During or after its closest approach to the Sun (31 million miles on October 8), [K1 ATLAS split into several pieces](#). It may be challenging to resolve the comet fragments, requiring high magnifications (or long focal lengths for imaging). On the morning of November 27, C/2025 K1 (ATLAS) was shining at magnitude +9 (brighter than predicted!) and displayed a prominent tail (see photo, below), as it moved rapidly against the starry background. From November 28 to December 11, "K1" is predicted to fade from magnitude +9 to +11.5 and remain "in range" of many "backyard" telescopes. Between November 28 and December 11, C/2025 K1 (ATLAS) moves through the northern Constellations Ursa Major, Camelopardalis, and Cassiopeia, and this Comet is potentially visible all night long from Colorado's mid-northern latitudes. It might be best to look for C/2025 K1 (ATLAS) before it fades below magnitude +10 and bright moonlight enters the predawn sky (i.e., before December 3), when the Comet is high in the northern sky in the hours before dawn. C/2025 K1 (ATLAS) was closest to Earth on November 24 (at 37 million miles). Updates, photos, finder charts, and ephemerides for C/2025 K1 (ATLAS) are here...

<https://theskylive.com/c2025k1-info>

<https://astro.vanbuitenen.nl/comet/2025K1>

<http://aerith.net/comet/catalog/2025K1/2025K1.html>

[https://en.wikipedia.org/wiki/C/2025_K1_\(ATLAS\)](https://en.wikipedia.org/wiki/C/2025_K1_(ATLAS))



SATURN – WELL PLACED FOR EVENING VIEWING! As the sky darkens, the Ringed Planet is more than 40 degrees above the east-southeastern horizon, culminating about 45 degrees above the southern horizon between 5:30 and 7:30 PM MST. Saturn sets in the west at about 1:17 AM MST on November

28 and 12:26 AM MST on December 11. During this period, Saturn fades from magnitude +0.90 to +0.95, as its distance from Earth increases from 852 million to 871 million miles. Through telescopes, Saturn's disk appears 18 arc seconds wide, and its rings span 42 arc seconds. During 2025, Saturn's thin rings (150,000 miles wide but only 1000 ft thick!) appear nearly "edge-on" from our perspective on Earth. Saturn's rings are not as striking as they have been in the past few years (and will be a few years from now). When seen nearly edge-on, the rings are dimmer, making it easier to spot some of Saturn's mid-sized moons, like Tethys, Dione, Rhea, and Enceladus. Titan, Saturn's largest moon, is bright enough to see with just binoculars. You can follow the changing positions of Saturn's moons by using various planetarium apps.

NEPTUNE – NEAR SATURN. Neptune, shining at magnitude +7.75, is about 4 degrees east northeast from Saturn. Like Saturn, we can see Neptune best as it culminates more than 45 degrees above the southern horizon between 5:30 and 7:30 PM MST. You'll need binoculars or a telescope to spot Neptune, moving slowly against the stars of southwestern Pisces during this period. A telescope may reveal Neptune's 2.3 arc second-wide, blue disk. Neptune is 2.75 billion miles distant during this period. You can use this link to find Neptune:

<https://theskylive.com/neptune-info>

URANUS. Uranus was opposite the Sun in our sky ("at opposition") and closest to Earth on November 21, and the 7th Planet is still well placed for viewing through much of the night. Uranus is retrograding slowly (moving westward) about 4 degrees south of the Pleiades Star Cluster in Constellation Taurus.

You can use this link to find Uranus: <https://theskylive.com/uranus-info>

At magnitude +5.6, you can see the 7th Planet easily with binoculars, and perhaps even with eyes unaided when the Moon is below the horizon. But you'll need a telescope to resolve Uranus' 3.8 arc second-wide disk and to detect color easily. Most people perceive Uranus as either blue or green. How does it appear to you? The best times to view the 7th Planet may be between 8:30 PM and 2 AM MST, when Uranus is more than 45 degrees above the horizon. Uranus is 1.7 billion miles from Earth during this period.

JUPITER AND ITS MOONS RISE IN THE EVENING. Bright Jupiter, moving against the stars of Constellation Gemini, rises in the east northeast at about 8:09 PM MST on November 28 and 7:12 PM MST on December 11. "The King of Planets" then remains visible into morning twilight. Between November 28 and December 11, the Giant Planet brightens from magnitude -2.52 to -2.60, as its distance from Earth decreases from 417 million to 405 million miles, and its apparent diameter increases from 44.0 to 45.3 arc seconds.

Use a telescope or binoculars to spot Jupiter's four bright "Galilean" moons. You can identify them by their changing positions and referring to various planetarium apps. Use a telescope to view shadows of the Galilean moons crossing the Giant Planet. These are total solar eclipses on Jupiter! Ganymede, the largest moon in the Solar System, casts the largest shadow of Jupiter's moons, and its shadow is usually the easiest to spot. Two transits of Ganymede's shadow are visible from the Western Slope during this period (on December 1-2 and December 9)! Due to their smaller diameters, the shadows of Callisto, Io, and Europa are smaller than Ganymede's shadow. But shadows of all 4 Galilean moons can be observed transiting Jupiter with telescopes having apertures as small as 3 inches. Shadow transits of Io and Europa occur frequently, because Io orbits Jupiter every 1.8 Earth days, and Europa every 3.6 days. Ganymede and Callisto have longer orbital periods (around Jupiter), 7.2 and 16.7 Earth days, respectively, so their shadows cross Jupiter less frequently. No transits of Callisto's shadow are visible from the Western Slope during this period.

November 27, 2025, 8:24 PM to 10:42 PM MST, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter only 2 degrees above the east-northeastern horizon and ends with Jupiter 27 degrees high in the east).

November 29, 2025, 7:18 PM to 10:08 PM MST, Europa's shadow crosses Jupiter (Locally, this event begins before Jupiter rises and ends with Jupiter 22 degrees above the eastern horizon).

December 1 to 2, 2025, 11:04 PM to 2:22 AM MST, Ganymede's shadow crosses Jupiter (Locally, this event begins with Jupiter 35 degrees high in the east and ends with Jupiter 70 degrees high in the southeast).

December 3, 2025, 3:50 AM to 6:08 AM MST, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter 70 degrees high in the south and ends with Jupiter 48 degrees high in the west during astronomical twilight).

December 4 to 5, 2025, 10:18 PM to 12:36 AM MST, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter 28 degrees high in the east and ends with Jupiter 55 degrees high in east southeast).

December 6 to 7, 2025, 9:56 PM to 12:44 AM MST, Europa's shadow crosses Jupiter (Locally, this event begins with Jupiter 26 degrees high in the east and ends with Jupiter 58 degrees high in the east southeast).

December 9, 2025, 3:02 AM to 6:20 AM MST, Ganymede's shadow crosses Jupiter (Locally, this event begins with Jupiter 72 degrees high in the south southwest and ends with Jupiter 40 degrees high in the west during nautical twilight).

December 10, 2025, 5:44 AM to 8:00 AM MST, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter 46 degrees above the western horizon and ends with Jupiter 20 degrees above the western horizon after sunrise, which occurs at about 7:20 AM MST).

VENUS: FAREWELL TO THE BRILLIANT MORNING STAR! Look for Venus against bright, predawn twilight, as this will be our last chance to see our Sister Planet as a "morning star" until late in 2026. Morning by morning, Venus is rapidly descending into brighter twilight, as its angular distance from the Sun decreases and it moves southeastward against the stars. Venus rises on November 28 at 6:25 AM MST during [nautical twilight](#), and at 6:56 AM MST on December 11 (only about 27 minutes before sunrise) at the start of [civil twilight](#). Venus still shines brightly at magnitude -3.9, but it gets more challenging to spot our Sister Planet against glaring twilight through this period. Venus' distance from Earth increases from 156 million on November 28 to 158 million miles on December 11. As seen through telescopes, Venus appears nearly full (99% illuminated), and its apparent diameter is 9.9 arc seconds. Venus will be at [superior solar conjunction](#) on January 5, 2026. Earth's Sister Planet will reappear as an "evening star" by February 2026. **Please do your Venus spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

MERCURY: OUR NEW "MORNING STAR"! After its [inferior solar conjunction](#) on November 20, the "Speedster Planet" moved rapidly into our predawn sky. On November 28 between 6:10 and 6:30 AM MST, look for Mercury as it rises from 4 to 7 degrees above the east-southeastern horizon. If your southeastern horizon is unobstructed, you may also spot Venus by 6:30 AM on November 28, just 1

degree above the horizon and about 6 degrees below Mercury. You might be able to see both planets at once in wide-field binoculars. Mercury will likely be easiest to see above an unobstructed east-southeastern horizon between December 2 and 11 at around 6:10 to 6:30 AM MST. Mercury's angular distance west of the Sun is maximum on December 7. Between November 28 and December 11, the Innermost Planet brightens from magnitude +0.5 to -0.5, as its phase (as seen through telescopes) waxes from a 24%-illuminated crescent to a 72%-illuminated, gibbous disk. Mercury's apparent diameter decreases from 8.6 to 6.2 arc seconds during this period, as its distance from Earth increases from 73 million to 102 million miles. **Please do your Mercury spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

WILL A BRIGHT NOVA ("NEW" STAR) APPEAR SOON? Will there be a bright "new" star in Constellation Corona Borealis sometime soon, at least briefly? As the sky darkens, Corona Borealis is only about 5 to 10 degrees above the west-northwestern horizon, and it sets soon thereafter. It's now easier to see Corona Borealis before dawn, as it rises more than 20 degrees above the east-northeastern horizon by 6:00 AM MST. [T Coronae Borealis](#) (T CrB) is a recurrent nova that (based on past behavior) may rapidly increase in brightness 1500-fold (to second magnitude) to become the brightest star (or 2nd brightest star) in Corona Borealis between now and sometime in 2026. Then this "new star" may fade rapidly below naked-eye visibility in about a week. As of 5 AM (MST) on November 27, T CrB had not yet erupted (update). Astronomer [Jean Schneider of Paris Observatory stated that an eruption is most likely on November 10, 2025 or June 25, 2026.](#) There was no eruption on November 10, 2025, but keep watch - an eruption could happen at any time! You can find additional info at these sites...
https://blogs.nasa.gov/Watch_the_Skies/2024/02/27/view-nova-explosion-new-star-in-northern-crown/
https://www.aanda.org/articles/aa/full_html/2023/12/aa48372-23/aa48372-23.html

THE SUN. The Sun has been very dynamic lately, as solar active regions containing sunspots have unleashed numerous flares and coronal mass ejections (CMEs) of charged particles. There have been many M-class (moderate) solar flares during recent weeks. And there were X-class (extreme) flares on November 4 (two!), 9, 10, and 14! Also, CMEs have triggered geomagnetic storms that caused auroras. While there was a lull in solar activity between November 17 to 21 (update), some new active regions have now rotated into view. We may experience more M- and possibly X-class (extreme) flares and powerful CMEs during the next two weeks. The best way to monitor sunspots, solar flares, CMEs, and other solar activity safely (and in "real time") is by using the internet. Check out the following sites (as of November 27, solar images on the sdo.gsfc... site have not been updated since September due to a "hardware failure with its date storage" – for "real-time" solar images, visit soho.www...) ...
<https://sohowww.nascom.nasa.gov/data/realtime-images.html>
<https://sdo.gsfc.nasa.gov/data/>
<https://stereo.gsfc.nasa.gov/beacon/>
<http://halpha.nso.edu/>
<https://www.swpc.noaa.gov/>
<http://www.sidc.be/silso/ssngraphics>

Do not look at the Sun directly without [safe, specialized solar filters](#). Looking at the Sun can be very dangerous unless you take adequate precautions. Severe eye damage and even blindness can result.

AURORAS (aka "polar lights" or "northern lights"). Hope you saw the stunning auroral display on the evening of November 11! A powerful coronal mass ejection (CMEs) of charged particles from solar active region No. 4274 was directed toward our planet, and it produced a strong (G4) geomagnetic storm. This resulted in a spectacular auroral display that was visible from Colorado (photo below).



Auroral Display of November 11, 2025. Photo by Joyce Tanihara from north of Cedaredge, CO.

With continuing high solar activity more geomagnetic storms may occur, and there may be more auroras (hopefully, at times when the bright Moon is below our horizon!). Get predictions and updates for auroras, their intensity, and geographic extent from NOAA's Space Weather Prediction Center:

<https://www.swpc.noaa.gov/products/aurora-viewline-tonight-and-tomorrow-night-experimental>

Auroras are most frequently seen from high latitudes, e.g., from Canada, Alaska, Iceland, northernmost Europe, southern New Zealand, and Antarctica. But many people have seen and photographed auroras from Colorado several times both this year and last year. Also, we can watch auroras in real-time from Yellowknife, Northwest Territories on an all-sky camera at the [Canadian Space Agency's AuroraMax website](#). Like Colorado, Yellowknife is in the Mountain Time Zone. An aurora webcam at the University of Alaska-Fairbanks is two hours behind the Mountain Time Zone...

<https://www.youtube.com/watch?v=O52zDyXg5QI>

[Airglow](#) and [SAR arcs](#) also result from high solar activity, and these phenomena have been photographed and/or observed from Colorado, including a SAR arc and airglow during the BCAS night-sky event in Ridgway on October 18.

EARTH SATELLITES. Numerous Earth satellites are visible every clear night. Satellites are visible only when they reflect sunlight during twilight or nighttime hours. We see satellites most often during late evening twilight and for an hour or so afterwards, and before and during early morning twilight. The brightest satellites are the International Space Station (ISS) and Tiangong, the Chinese Space Station. Both space stations can appear brighter than any star in the sky, and at times even brighter than the Planet Jupiter. Predictions for space station passes can change quickly, and it's best to get predictions for passes within 24 hours of when you want to see them. In low Earth orbit, both the ISS and Tiangong are subject to atmospheric drag, and they undergo frequent re-boosting. Re-boosting slightly slows

orbital speed, resulting in later passes. Also, both space stations frequently alter their orbits to avoid collisions with other satellites and space debris. Some popular sites for predicting local passes of the space stations are the following (be sure to set applications to your location and time zone):

<https://www.heavens-above.com/>

<https://www.n2yo.com/passes/?s=25544>

For ISS passes, you can use NASA's "Spot the Station" app for mobile devices ...

<https://www.nasa.gov/spot-the-station/>

Starlink satellite "trains" can be striking sights for a few days after their launch. For predictions of SpaceX's Starlink satellites, try using this site:

<https://findstarlink.com/#5431710;3>

Note: The apparent brightness of sky objects is measured in "magnitude" units. Many bright stars are magnitude +1, while the faintest stars easily visible to unaided eyes under dark skies are magnitude +6. Some of the brightest stars are 0 magnitude (e.g., Vega, Arcturus), while the brightest sky objects have negative magnitudes (e.g., Sirius at -1.5, Jupiter at -2 to -3, Venus at -4 to -5, the full Moon at -12 to -13, and the Sun at -26.7 magnitude). Angular distances on the sky are usually cited in degrees of arc. Helpful ways to estimate 1, 5, 10, 15, and 25 degrees of arc can be found here:

<https://www.timeanddate.com/astronomy/measuring-the-sky-by-hand.html>

HAPPY OBSERVING!