BCAS OBSERVING HIGHLIGHTS for May 9 to 23, 2026, a "dark Moon period"
Black Canyon Astronomical Society (BCAS), southwest-central Colorado, USA

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

May 8-17, 10 PM to 2 AM: Enjoy our spring stars & distant galaxies under a dark, moonless sky
May 8, 10:00 AM: Western Slope Skies on KVNF radio
May 12, 7:00 PM to 8:00 PM: BCAS Meeting – Astronomy in Mesoamerica
May 13, 4:45 AM to 5:00 AM: Crescent Moon rises 5° above Saturn
May 13, 6:00 PM: Western Slope Skies on KVNF radio
May 14-23, 2 AM to 4 AM: Enjoy our summer stars & the Milky Way under a dark, moonless sky
May 14, 5:00 AM to 5:15 AM: Spot Mars 6° below the crescent Moon (use binoculars)
May 15, 9:20 PM to 11:28 PM: Shadows of both Ganymede & Europa cross Jupiter (for telescopes)
May 18, 8:30 PM to 10:00 PM: Waxing crescent Moon 3° above/right of Venus (striking in binoculars!)
May 19, 10 PM to 11:30 PM: Waxing crescent Moon 6° west of Jupiter
May 22, 10 AM: Western Slope Skies on KVNF radio

SUMMARY. Clear evenings from May 8 to May 17 are great times to enjoy a dark, moonless sky and contemplate the immensity of our Universe! The obscuring dust clouds and glowing nebulae of the Milky Way are mostly below the horizon, allowing us to spot many distant galaxies beyond our own star system, especially high in the south within Constellations Virgo, Leo, and Coma Berenices and in the north around the Big Dipper in Constellations Ursa Major, and Canes Venatici. And from May 15 to 23 between 2 AM and 4 AM MDT with the Moon absent, we can preview the stars and the striking Milky Way of summer evenings.

Venus, a brilliant "evening star", is visible in the west from just after sunset until beyond 10:30 PM MDT. Jupiter, moving against the stars of Gemini, is also bright in the western evening sky, remaining visible until around midnight. With a telescope, or even with just binoculars, we can view Jupiter's four large "Galilean" moons. And we can see solar eclipses on Jupiter with a telescope, as shadows of these moons move across the Giant Planet, including a rare "double eclipse" on May 15 between 9:20 PM and 11:28 PM MDT, when shadows of the moons, Ganymede and Europa, simultaneously cross Jupiter.

Early risers can see Saturn and Mars low in the eastern sky before dawn, as these planets start emerging from morning twilight. Neptune also rises before the Sun, but you'll need a telescope (or at least binoculars) to see the 8th Planet

The Moon reaches last quarter on May 9, and from May 10 to 15, the crescent Moon wanes. The Moon is new on May 16. Between May 17 and 22, we can watch the crescent Moon wax in the evenings. The Moon reaches first quarter on May 23. Enjoy seeing earthshine delicately illuminate the nightside of the crescent Moon, especially on mornings from May 12 to 14, and on evenings from May 17 to 20 (binoculars can provide eye-catching views!).

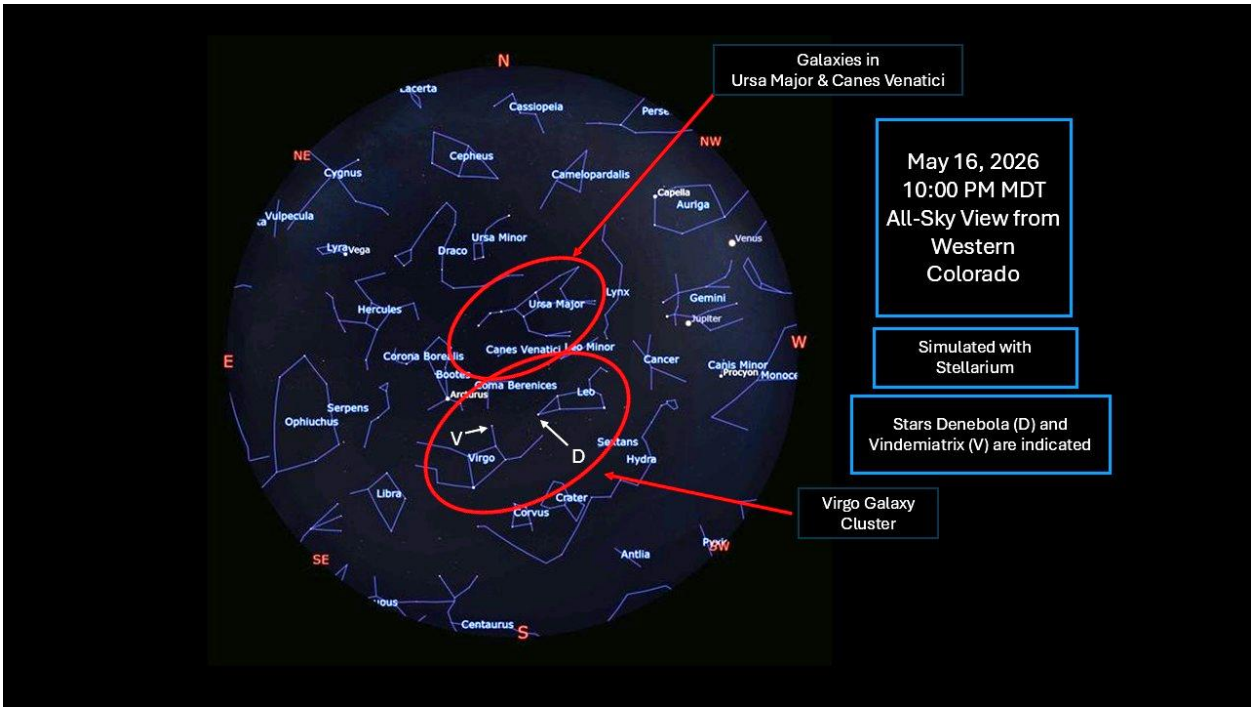
As of May 8, there are several active regions on the Earth-facing side of the Sun. We may experience more M-class (moderate) and possibly X-class (extreme) flares and powerful coronal mass ejections (CMEs). It's possible that CMEs from the Sun could trigger auroras that are visible from the Western Slope. View the Sun safely and in "real-time" via the internet. Please do your planet spotting when the Sun is below the horizon; never risk viewing the Sun without adequate eye protection, as serious eye damage can result.

Numerous Earth satellites are visible every clear evening and morning. 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

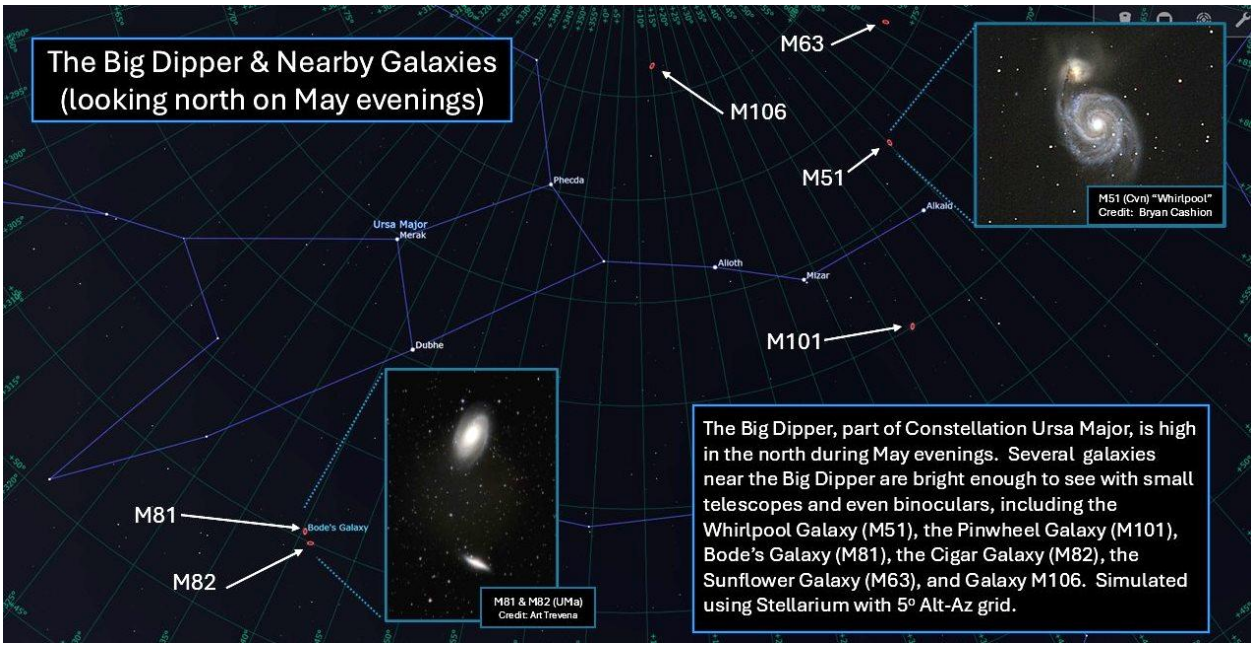
Note: The apparent brightness of sky objects is measured in "magnitude" units. Many bright stars are magnitude +1, while the faintest stars easily visible to unaided eyes under dark skies are magnitude +6. Some of the brightest stars are 0 magnitude (e.g., Vega, Arcturus), while the brightest sky objects 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 (often abbreviated as "°"). 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

ENJOY A DARK EVENING SKY & SEE DISTANT GALAXIES! Clear evenings from May 8 to May 17 after about 10 PM MDT are great times to enjoy a dark, moonless sky and contemplate the immensity of our Universe! The obscuring dust clouds and glowing nebulae of the Milky Way are mostly below the horizon, allowing us to spot many distant galaxies beyond our own star system. To navigate the mid-May evening sky, use a planetarium app or the chart below. The brilliant Planet, Venus, is descending toward the west-northwestern horizon, with the bright Planet, Jupiter, higher in the west. With even small telescopes, we can view dozens of galaxies belonging to the Virgo Galaxy Cluster in Constellations Virgo, Coma Berenices, and Leo, which are high in the south. Northern Constellations Ursa Major and Canes Venatici, also contain many galaxies, some of which can be spotted with just binoculars. You can use the all-sky chart (below) and the two larger scale charts that follow to find some of these distant galaxies with telescopes and/or binoculars. These galaxies are massive systems that contain billions of stars, and some are larger than our own Milky Way. But at their great distances, they appear as "fuzzy" patches of light in small telescopes and binoculars.

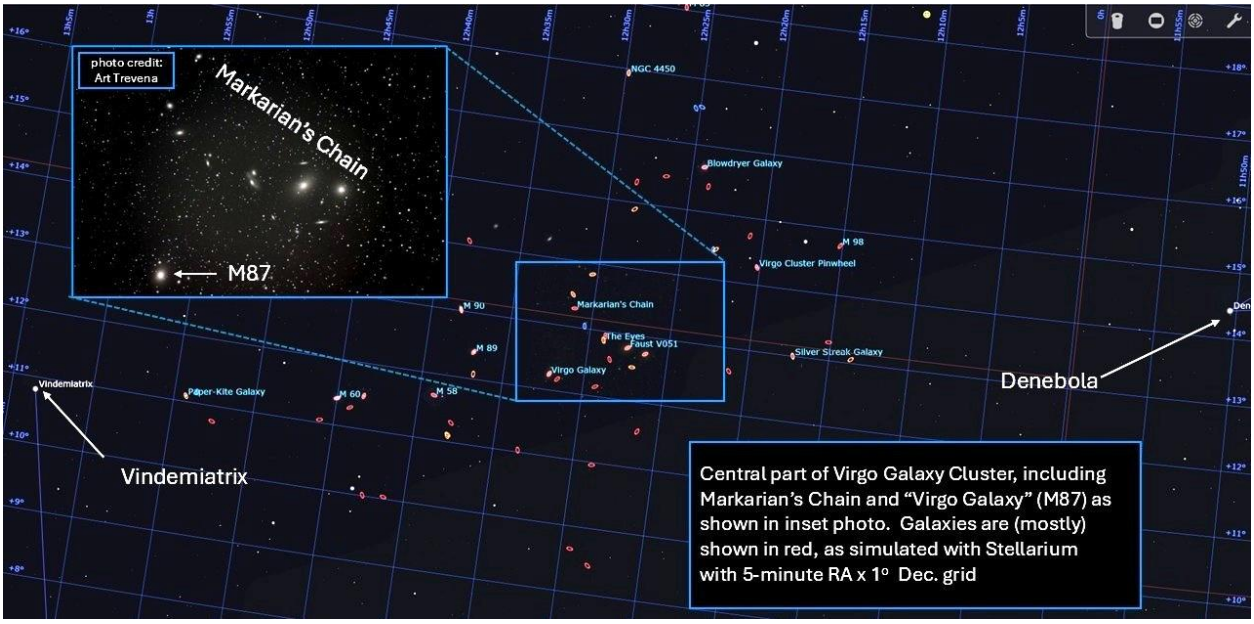


Use the familiar Big Dipper asterism as a guide for locating several galaxies high in the northern sky with telescopes or just binoculars (see chart below). The Whirlpool galaxy (M51) in Constellation Canes

Venatici, near the end of the handle of the Big Dipper, is a “face-on” spiral galaxy about 24 million light years distant (1 light year is about 6 trillion miles). With a 10-inch (or larger) telescope, you may be able to see the spiral arms of M51. The Pinwheel Galaxy (M101) is another “face-on” spiral galaxy, 21 million light years distant, the glow of which is spread over one half degree (about one apparent Moon diameter). M101 can be somewhat challenging to see, due to low surface brightness (its considerable brightness is spread over a large area). Bode’s Galaxy (M81) and the Cigar Galaxy (M82), a pair of spiral galaxies about 12 million light years distant, appear north of the Big Dipper’s Bowl, and these can be spotted with binoculars. Also, near the Big Dipper in Constellation Canes Venatici, high in the evening sky, are two other spiral galaxies: the Sunflower Galaxy (M63) and Galaxy M106, which are, respectively, 24 million and 29 million light years distant.



The Virgo Galaxy Cluster, a conglomeration of more than 1,000 galaxies at an average distance of 53 million light years, is spread through Constellations Virgo, Coma Berenices, and Leo, all of which are high in the south during May evenings. You can see dozens of these galaxies with backyard telescopes. The center of the Virgo Cluster, where galaxies are most concentrated, appears halfway between the foreground stars Denebola in Constellation Leo and Vindemiatrix in Virgo (refer to the May all-sky chart, on the previous page, and the more detailed chart, below). Within this area lies the famous “Virgo Galaxy” (M87), a giant elliptical galaxy that contains several trillion stars and harbors a monstrous, 6.5-billion solar mass black hole at its center. In a notable “first”, the “shadow” of this black hole was imaged by the Event Horizon Telescope, a collaboration that combines data from several radio telescopes located around the Earth. Some other large galaxies near the center of the Virgo Cluster appear in a curved line called “Markarian’s Chain” (see chart with inset photo, below). In the 1960’s, Armenian astronomer Benjamin Markarian found that these galaxies share a common motion through space, and this alignment now bears his name.



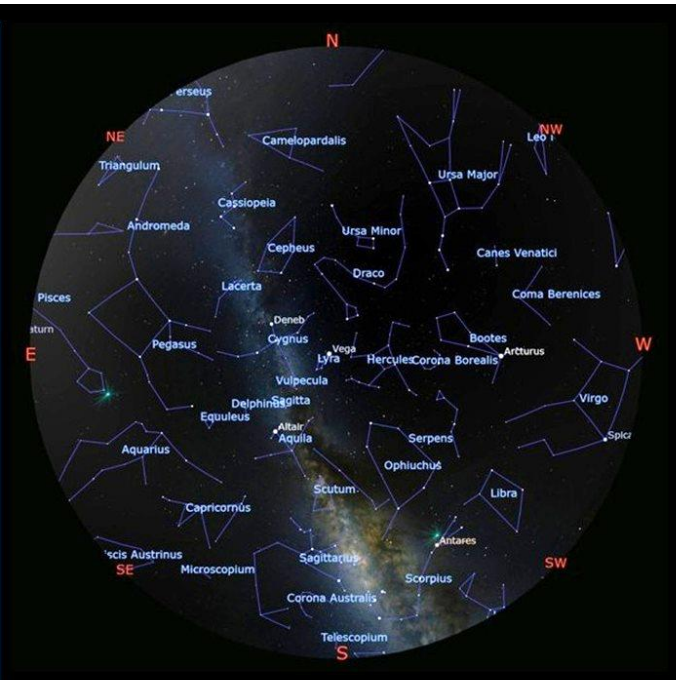
If you have a 6" aperture or larger telescope and really want to contemplate the immensity of our Universe, challenge yourself to spot Quasar 3C-273 in Constellation Virgo, usually the most distant object that we can see visually through amateur telescopes. Quasars , or "quasi-stellar objects", are the active centers of very distant galaxies that we observe in the early Universe, typically at "lookback times" of many billions of years. They appear like stars in most telescopes, hence the appellation, "quasi-stellar." Quasars can outshine their host galaxies. The immense radiation produced by quasars was emitted from superheated matter associated with supermassive black holes that exist at the centers of galaxies. Quasar 3C-273 is the brightest quasar, shining at an average visual magnitude of 12.9 (it's somewhat variable), and it's possible to spot it in Constellation Virgo with "backyard" telescopes. 3C-273 is so distant that its "lookback time" is about 2 billion years, meaning that we see it as it appeared about 2 billion years ago (accounting for the finite speed of light)! For folks with "Go-To" telescopes, the celestial coordinates for 3C-273 are: Right ascension $12^h\ 29^m\ 6.7^s$, Declination $+02^o\ 03'\ 09"$. Quasar 3C-273 is located well south of the Virgo finder chart (above), but here's a link to finder charts for "star-hopping" to spot it: https://deepskycorner.ch/obj/3c273.en.php

PREVIEW OUR SUMMER EVENING SKY DURING THE WEE HOURS. Between May 15 and 23 at around 4 AM MDT, the Moon in absent, and the stars and the striking Milky Way of our summer evenings are "front and center." These are great times to preview our summer sky under dark conditions, hopefully free from pesky bugs and monsoonal cloudiness. Use a planetarium app or the chart below to navigate. The Milky Way extends from its bright central region in Constellations Scropius and Sagittarius in the south through Cygnus, east of the zenith, to its fainter northern reaches in Perseus near the north-northeastern horizon. The Summer Triangle asterism, consisting of bright stars Vega in Lyra, Altair in Aquila, and Deneb in Cygnus, is high in the east. While the Big Dipper is descending in the northwest, autumn constellations, including Aquarius, Pegasus, and Andromeda are rising in the east.

All-Sky View
from Colorado's Western Slope
for May 16, 2026, 4:00 AM MDT

The stars of our summer evening sky are "front and center" at 4 AM. The Milky Way spans the sky from its bright central region within Constellations Scorpius and Sagittarius in the south to its somewhat fainter reaches in Aquila, Cygnus, and Cassiopeia high in the east and northeast to Perseus on the northeastern horizon. The Summer Triangle, consisting of bright stars Vega in Lyra, Altair in Aquila, and Deneb in Cygnus, is just east of the zenith. The Big Dipper is descending in the northwest, but some "autumn constellations" are already above the eastern horizon, including Aquarius, Pegasus, and Andromeda.

Simulated using Stellarium
for western Colorado



THE MOON. The Moon reaches **last quarter on May 9** (exactly at 3:10 PM MDT), and from May 10 to 15, the crescent Moon wanes. The **Moon is new on May 16** (exactly new at 2:01 PM MDT). Between May 17 and 22, watch the crescent Moon wax in the evening sky. **The Moon reaches first quarter on May 23** (exactly at 5:11 AM MDT).

On May 13 from 4:45 to 5:00 AM MDT, look east to see the 15%-illuminated, crescent Moon rise about 5 degrees above Saturn. On May 14 between about 5:00 and 5:15 AM MDT, early risers can see Mars about 6 degrees below the 8%-illuminated, crescent Moon (binoculars may help you spot Mars). On the evening of May 18 from about 8:30 PM to 10:00 PM MDT, look for the 8%-illuminated, waxing crescent Moon in the west northwest, about 3 degrees above and to the right of brilliant Venus (this could be a striking sight, especially in binoculars!). On the evening of May 19, the 16%-illuminated lunar crescent is about 6 degrees west of Jupiter and below Gemini's "twin stars", Castor and Pollux. Enjoy seeing earthshine delicately illuminate the nightside of the crescent Moon, especially on mornings from May 12 to 14, and on evenings from May 17 to 20 (binoculars can provide eye-catching views!). A fun website for enjoying the Moon is NASA's daily Moon Guide. **Please do your crescent Moon spotting before sunrise and after sunset. NEVER chance looking at the Sun directly; serious eye damage can result.**

VENUS: A STRIKING "EVENING STAR." Venus, shining brightly at magnitude -3.9, is becoming even more prominent in the western evening sky, as its angular distance from the Sun continues to increase. You can spot Earth's "Sister Planet" in the west shortly after sunset, and Venus remains visible for more than two hours afterward. Venus sets well after twilight's end at about 10:37 PM MDT on May 8 and 11:00 PM MDT on May 23. Venus is 130 million miles distant on May 8 and 121 million miles distant on May 23. Through telescopes, Venus' gibbous phase wanes from 86% illuminated on May 8 to 82% illuminated on May 23, as its distance from Earth decreases, and its apparent diameter increases from 12.0 to 12.8 arc seconds. Venus will remain a dazzling "evening star" through the spring and summer months of 2026. On the evening of May 18 from about 8:30 PM to 9:30 PM MDT, look for Venus in the west northwest, about 3 degrees to the left and below a waxing crescent Moon (this could be a striking

sight, especially in binoculars!). **Please do your Venus spotting after sunset. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

JUPITER AND ITS LARGE MOONS. Bright Jupiter, still moving against the stars of Gemini, is about 20 to 25 degrees high in the west as twilight ends. Jupiter sets in the west northwest at around 12:51 AM MDT on May 8 and 11:58 PM MDT on May 23. Between May 8 and April 23, the Giant Planet fades slightly from magnitude -2.0 to -1.9, as its distance from Earth increases from 526 million to 545 million miles, and its apparent diameter decreases from 34.8 to 33.6 arc seconds. That's still large enough for resolving Jupiter's disk with binoculars. On the evening of May 19, look for Jupiter about 6 degrees east of the crescent Moon.

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. 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. **On May 15 between 9:20 PM and 11:28 PM MDT, we can enjoy a rare, "double shadow transit", when shadows of both Ganymede and Europa simultaneously cross Jupiter (this may be best seen from about 9:45 PM to 10:30 PM MDT on May 15).**

May 15, 2026, 7:52 PM to 11:28 PM MDT, Ganymede's shadow crosses Jupiter (Locally, this event begins in daylight with the Sun 4 degrees above the horizon and Jupiter 51 degrees above the western horizon, and it ends with Jupiter 9 degrees above the west-northwestern horizon). Note: Shadows of both Ganymede and Europa are crossing Jupiter from 9:20 PM to 11:28 PM MDT!

May 15-16, 2026, 9:20 PM to 12:28 AM MDT, Europa's shadow crosses Jupiter (Locally this event begins with Jupiter 34 degrees high in the west and ends 4 minutes after Jupiter sets at about 12:24 AM MDT). Note: Shadows of both Ganymede and Europa are crossing Jupiter from 9:20 PM to 11:28 PM MDT!

May 16, 2026, 7:22 PM to 9:42 PM MDT, Io's shadow crosses Jupiter (Locally this event begins in daylight with Jupiter 65 degrees high in the west and ends with Jupiter 29 degrees above the west-northwestern horizon).

May 22-23, 2026, 11:52 PM to 3:28 AM MDT, Ganymede's shadow crosses Jupiter (Locally, this event begins with Jupiter only 2 degrees above the west-northwestern horizon and ends long after Jupiter sets).

May 22-23, 2026, 11:54 PM to 2:48 AM MDT, Europa's shadow crosses Jupiter (Locally, this event begins with Jupiter only 1 degree above the west-northwester horizon and ends long after Jupiter sets).

May 23, 2026, 9:18 PM to 11:38 PM MDT, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter 30 degrees high in the west and ends with Jupiter only 4 degrees above the west-northwestern horizon).

SATURN BEFORE DAWN. On May 9 from 4:45 AM to 5:15 AM MDT, you may spot Saturn, shining at magnitude +0.9, 3 to 7 degrees above the eastern horizon in morning twilight. By May 23, Saturn rises in a dark sky around 3:43 AM MDT, and between 4:25 AM and 4:45 AM MDT it may be easy to spot the Ringed Planet 7 to 12 degrees above the horizon in early twilight. Saturn's distance from Earth decreases from 952 million miles on May 9 to 937 million miles on May 23. Though telescopes, Saturn appears 16 arc seconds wide, and its rings span 38 arc seconds. We are now viewing Saturn's ring system at a higher angle than we did last year, when they appeared nearly "edge-on." Saturn's rings will look increasingly impressive over the coming months. On May 13 from 4:45 to 5:00 AM MDT, look east to see the 15%-illuminated, crescent Moon rise about 5 degrees above Saturn. **Please do your Saturn spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

MARS: A CHALLENGE IN MORNING TWILIGHT. Mars, at magnitude +1.2, is still challenging to spot in morning twilight, and it's best to use binoculars. On May 9 between 5:15 AM and 5:20 AM MDT, you may see Mars in bright twilight about 3 degrees above an unobstructed eastern horizon. By May 23 between 4:45 AM and 5:00 AM MDT, Mars rises from 3 to 5 degrees above the horizon in less glaring nautical twilight. With our slightly faster orbital speed (averaging 18.5 miles per second for Earth vs 14.9 miles per second for Mars), we on Earth are racing Mars around the Sun. We are winning, but the race is close, causing Mars to emerge very slowly from predawn twilight. Mars is still on the far side of the Sun from our perspective; the Red Planet is 207.3 million miles distant on May 9 and 204.7 million miles distant on May 23. On February 20, 2027, the Earth-Mars distance will be 63 million miles, the closest during the current Mars apparition. Through telescopes, Mars' reddish disk appears only 4.2 arc seconds wide during this period. On May 14 between about 5:00 AM and 5:15 AM MDT, early risers may see Mars about 6 degrees below the 8%-illuminated, crescent Moon (binoculars may help you spot Mars). **Please do your Mars spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

NEPTUNE BEFORE DAWN. The 8th Planet, Neptune, at magnitude of +7.8, is also visible before dawn, but we need a telescope, or at least binoculars, to see it. On May 9 at around 5:00 AM MDT, you may be able to spot Neptune with a telescope, about 8 degrees above the eastern horizon and about 7 degrees above and to the right of far brighter Saturn. By May 23, Neptune is easier to spot, rising higher in the predawn sky; it's already 16 degrees above the horizon by start of nautical twilight at 4:44 AM MDT. Neptune's blueish disk appears only 2.2 arc seconds wide. Neptune is 2.84 billion miles from Earth during this period. You can use this link to find Neptune:
https://theskylive.com/neptune-info
Please do your Neptune 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, if only briefly? Corona Borealis is more than 30 degrees above the eastern horizon as the sky darkens, more than 70 degrees high in the south around 1 AM MDT, and it remains more than 40 degrees high in the west as morning twilight brightens the sky after about 5 AM MDT. 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 perhaps later this year. Then this "new" star may fade rapidly below naked-eye visibility in about a week. As of 5 AM MDT on May 8, T CrB had not yet erupted. Astronomer Jean Schneider predicted that an eruption is most likely on or about June 25, 2026, or on February 8, 2027. But 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. As of May 8, there are several sunspot groups on the Earth-facing side of the Sun. There have been M-class (moderate) solar flares during recent weeks, and there were X-class (extreme) flares on March 30 and on April 24 (two X-class flares on April 24!). More solar flares may occur during this period. Also, coronal mass ejections (CMEs) have triggered geomagnetic storms that caused auroras during the past few months, some of which were observed and photographed from the Western Slope. The best way to monitor sunspots, solar flares, CMEs, and other solar activity safely (in "real time") is by using the internet. To safely monitor the Sun, check out the following sites…
https://sohowww.nascom.nasa.gov/data/realtime-images.html
https://umbra.nascom.nasa.gov/newsite/images.html
https://sdo.gsfc.nasa.gov/data/
https://stereo-ssc.nascom.nasa.gov/
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"). We are still in an active part of the solar cycle, and there may be more geomagnetic storms that trigger auroras that could become visible from the Western Slope. 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
We often see auroras from the Western Slope when the Planetary Kp Index (a measure of magnetic disturbances around Earth) is above 5 or 6. You can find predicted Kp values for the next 72 hours at this site (times are posted as Universal Time, UT; to convert to MDT, subtract 6 hours):
https://www.swpc.noaa.gov/products/3-day-geomagnetic-forecast
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 viewed and photographed auroras from the Western Slope in the past two years, including a spectacular aurora on November 11, 2025, another aurora on the evening of January 19 and early morning of January 20, 2026 , and an "aurora burst" on March 13 (thanks to BCAS member Aaron Watson for posting some of his great aurora images!). Airglow and SAR arcs also result from high solar activity, and these phenomena have been photographed and/or observed from Colorado.

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 afterward, and before and during early morning twilight. From May through July, Earth's northern hemisphere is tilted toward the Sun, and from Colorado it's possible to see satellites in the northern sky through much of the night. 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 the satellites. 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 space stations (and other satellites) 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

HAPPY OBSERVING!