BCAS OBSERVING HIGHLIGHTS for August 15 to 31, 2025, a "dark Moon period" Black Canyon Astronomical Society (BCAS), western Colorado, USA

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

August 14-17, 4:00 to 5:45 AM: Look for a few late Perseid Meteors & Jupiter still near Venus

August 14-24, 9:30 PM to after midnight: Explore the Milky Way under dark skies!

August 16, 9:00 to 10:30 PM: BCAS telescopes at Apple Valley Park, Paonia

August 18-19, 11:52 PM to 4:00 AM: Shadow of Saturn's moon, Titan, crosses Saturn

August 20, 4:30 to 5:45 AM: Crescent Moon forms triangle with Venus and Jupiter

August 21, 5:15 to 5:45 AM: Crescent Moon near Mercury and Beehive Star Cluster

August 22-31, 4:30 to 5:30 AM: Preview the bright stars of winter!

August 23, 8:00 to 11:00 PM: BCAS telescopes at Ridgway State Park/Dutch Charlie V. C.

August 25, 8:30 PM: Crescent Moon near Mars

August 26, 8:30 to 9:00 PM: Crescent Moon forms triangle with Mars and bright star, Spica

August 31, 4:30 to 5:30 AM: Spot Venus 1 degree to right of Beehive Star Cluster

SUMMARY. After twilight fades, the Milky Way spans the evening sky, from Constellations Scorpius, Sagittarius, and Scutum in the south, through Aquila and Cygnus high in the east, across Cepheus high in the northeast, to Cassiopeia and Perseus toward the northeastern horizon. Spring constellations, Virgo and Coma Berenices, are descending in the west, with Constellations Boötes and Corona Borealis above them. The "Summer Triangle" asterism, composed of bright stars Vega (in Lyra), Altair (in Aquila), and Deneb (in Cygnus), is just east of the zenith. Go outside between 4:00 and 5:30 AM MDT in mild August temperatures to preview the bright stars and constellations of winter, as they rise above the eastern horizon.

The Moon reaches last quarter on the night of August 15-16, and from August 17 to 22, the crescent Moon wanes in the morning sky. The Moon is new on August 23. Watch the crescent Moon wax during evenings from August 25 to 29. The Moon reaches first quarter on the night of August 30-31. Enjoy seeing earthshine delicately illuminate the nightside of the crescent Moon, especially on mornings from August 17 to 21 and on evenings from August 25 to 28 (binoculars can provide eyecatching views!).

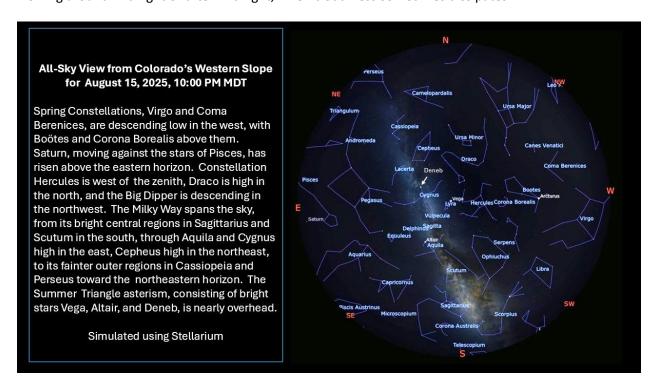
As the sky darkens, Mars shines somewhat feebly low to the western horizon. Saturn rises in the east during evening twilight and remains visible all night long. Bright Jupiter and brilliant Venus are prominent in the east northeast before dawn. Mercury is visible in predawn twilight, low to the east-northeastern horizon.

There are numerous active regions containing sunspots on the Earth-facing side of the Sun, which may produce solar flares and coronal mass ejections. Coronal mass ejections can trigger auroras (aka northern lights), which could become visible from Colorado. Never view the Sun without safe, specialized solar filters. You can monitor solar activity safely on the internet.

There are predawn passes of the bright Tiangong (Chinese) Space Station from August 19 to 31. And there are predawn passes of the even brighter International Space Staton (ISS) from August 16 to 31.

ENJOY A DARK, AUGUST EVENING SKY! By mid-August, twilight is ending earlier, night-by-night, giving us more time to enjoy the Western Slope's wonderfully dark skies! The Milky Way spans the evening sky, from Constellations Scorpius, Sagittarius, and Scutum in the south, through Aquila and Cygnus high in the east, across Cepheus high in the northeast, to Cassiopeia and Perseus toward the northeastern horizon. Note that the Milky Way is brightest in Sagittarius, the direction of our Galaxy's center, where stars are most concentrated. Spring constellations, Virgo and Coma Berenices, are descending in the west, with Constellations Boötes and Corona Borealis above them. The "Summer Triangle" asterism,

composed of bright stars Vega (in Lyra), Altair (in Aquila), and Deneb (in Cygnus), is just east of the zenith. Use a planetarium app or the chart below to navigate. If clouds obscure the evening sky, try viewing around midnight or after midnight, when cloudiness sometimes dissipates.



THE MOON. The Moon reaches **last quarter on the night of August 15-16** (exactly at 11:12 PM MDT on August 15), and from August 17 to 22, the crescent Moon wanes in the morning sky. The **Moon is new on August 23** (exactly new at 12:06 AM MDT). Watch the crescent Moon wax during evenings from August 25 to 29. The **Moon reaches first quarter on the night of August 30-31** (exactly at 12:25 AM MDT on August 31).

In the predawn of August 19, look for a 16%-illuminated, crescent Moon about 7 degrees above the bright planet, Jupiter. On August 20 between 4:30 and 5:30 AM MDT, the 9%-illuminated crescent Moon forms an elongated triangle with brilliant Venus and Jupiter. On August 21 between 5:15 and 5:45 AM MDT, a skinny crescent Moon, just 3% illuminated, may be visible a mere 4 degrees above Mercury and about 1 degree above and left from the Beehive Star Cluster, aka M44 (probably a nice sight in binoculars, especially if you can find a place with an unobstructed, east-northeastern horizon under transparent skies).

On the evening of August 25 at about 8:30 PM MDT, look for the 8%-illuminated, waxing, crescent Moon about 5 degrees above an unobstructed western horizon with reddish Mars about 6 degrees above and left from the Moon. On the evening of August 26 between 8:30 PM and 9:00 PM MDT, the 14%-illuminated, lunar crescent forms a 7°-by-7°-by-15° triangle with reddish Mars and the blue-white, first-magnitude star, Spica.

Enjoy seeing earthshine delicately illuminate the nightside of the crescent Moon, especially on mornings from August 17 to 21 and on evenings from August 25 to 28 (binoculars can provide eyecatching views!). NASA has published a <u>stunning visualization of lunar phases for year 2025</u>. Another fun site is <u>NASA's daily Moon guide</u>. Please do your crescent Moon spotting before sunrise and after sunset. NEVER chance looking at the Sun directly; serious eye damage can result.

MARS: LOW IN THE EARLY EVENING SKY. As twilight fades, reddish (or butterscotch-tinted?) Mars is less than 10 degrees above the western horizon. Mars' rapid eastward motion, currently against the stars of Virgo, will keep the Red Planet in our evening sky through the middle of fall. Mars sets at about 9:51 PM MDT on August 15 and on August 31 at 9:12 PM MDT, just before the end of astronomical twilight. The Red Planet shines somewhat feebly at magnitude +1.6 during this period, and it may be challenging to spot Mars during early twilight. Mars is getting a bit farther from Earth, from 204 million miles distant on August 15 to 210 million miles distant on August 31. Through telescopes, Mars' 95%- to 96%-illuminated, gibbous disk appears only 4.2 arc seconds in diameter. Due to Mars' small apparent size and low altitude in the sky, it's now extremely challenging to spot features on the Red Planet. Find more info on observing Mars here:

https://www.alpo-astronomy.org/jbeish/2025 MARS.htm

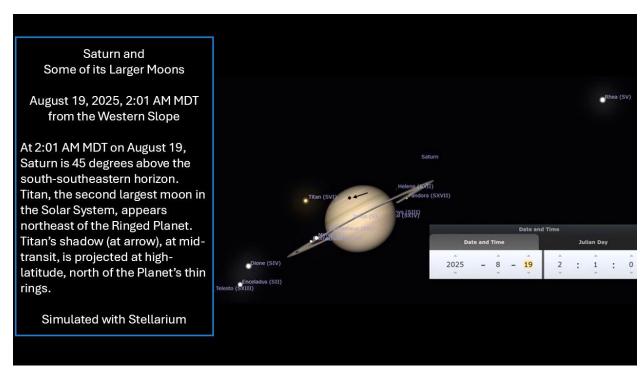
SATURN - ALL NIGHT LONG! On August 15, The Ringed Planet rises in the east at 9:43 PM MDT, the end of <u>astronomical twilight</u>. By August 31, Saturn rises during brighter <u>nautical twilight</u> at 8:38 PM MDT and remains visible all night long. Saturn brightens from magnitude +0.72 on August 15 to magnitude +0.65 on August 31, as its distance from Earth decreases from 812 million to 800 million miles. Through telescopes Saturn's disk appears 19 arc seconds wide, and its rings span 45 arc seconds. During 2025, Saturn's thin rings (150,000 miles wide but only 1000 ft thick!) are 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 and/or visiting this site:

https://skyandtelescope.org/observing/interactive-sky-watching-tools/saturns-moons-javascript-utility/ For more info on the appearance of Saturn's rings in 2025 and phenomena associated with Saturn's moons, see this article...

https://skyandtelescope.org/astronomy-news/observing-news/see-mutual-events-close-approaches-of-saturns-moons/

TITAN'S SHADOW MOVES ACROSS SATURN – AUGUST 18-19! Use a telescope to watch the rare sight of Titan's shadow moving across the Ringed Planet on the night of August 18-19! This is a total solar eclipse on Saturn! Titan is Saturn's largest moon, and the second largest moon in the Solar System. With a diameter of 3193 miles, Titan is larger than the Planet Mercury! On the Western Slope, the August 18-19 transit begins at 11:52 PM MDT, when Saturn is 26 degrees above the east-southeastern horizon. The Ringed Planet rises 46 degrees high in the south southeast by the middle of the transit at 2:01 AM MDT (see chart below). The transit ends at 4:00 AM MDT, when Saturn is 48 degrees high in the south. Titan's orbital period of Saturn is 1.5 hours short of 16 Earth days, so transits are now occurring every 16 days. After August 18-19, there will be only three more transits of Titan's shadow in 2025 (see table, below). After the transit on October 5, we will have to wait 15 years for the next group of Titan shadow transits! Through the summer, local circumstances for viewing Titan's shadow transits have been improving, because Saturn rises progressively earlier and gets higher in our sky before the Sun rises. However, transits are occurring at progressively higher latitudes in Saturn's northern hemisphere, and transit durations are decreasing. On October 5-6, only part of Titan's shadow will transit across Saturn's north polar region for about two hours. Try to view a transit at the next opportunity, as hard-to-predict sky cover can prevent visibility on some nights. Titan's shadow is large. But Saturn is on average about twice the distance of Jupiter. So, the size of Titan's shadow appears roughly the same size as the shadow of Jupiter's moon, Europa, which is smaller than Titan.

Transits						
Date UTC	Date MDT	start MDT	middle MDT	end MDT	Saturn rises MDT	
8/19/2025	8/18-19/2025	11:52 PM	2:01 AM	4:00 AM	18Aug, 8:26 PM	
9/4/2025	9/3-4/2025	11:25 PM	1:09 AM	2:50 AM	3Sep, 8:26 PM	
9/20/2025	9/19-20/2025	11:09 PM	12:20 AM	1:34 AM	19Sep, 7:21 PM	
10/6/2025	10/5-6/2025	10:29 PM	11:32 PM	12:34 AM	5Oct, 6:15 PM	
transit times from Sky & Telescope and Stellarium (converted to MDT by author)						
times for local Saturn rise and sunrise from Stellarium						



Find more info on Titan shadow transits at this link... https://skyandtelescope.org/astronomy-news/observing-news/titan-shadow-transit-season-underway/

JUPITER AND ITS MOONS BEFORE DAWN. Jupiter rises before morning twilight begins, at about 3:18 AM MDT on August 15 and 2:30 AM MDT on August 31. Between August 15 and 31, The Giant Planet brightens from magnitude -1.94 to -1.99, as its distance from Earth decreases from 550 million miles to 534 million, and its apparent diameter increases from 33.3 to 34.3 arc seconds. Jupiter appears within 5 degrees of brilliant Venus through August 17. Morning-by-morning, Jupiter is getting easier to observe; by August 31 Jupiter rises 28 degrees above the eastern horizon by the onset of astronomical twilight at 5:06 AM MDT. Use a telescope or binoculars to spot Jupiter's four bright "Galilean" moons. Identify them by their changing positions and referring to various planetarium apps or this website: https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter moons/jupiter.html
Use a telescope to view shadows of Jupiter's large 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 (unfortunately there are no transits of Ganymede's shadow that are visible locally during this period). Due to their smaller diameters (see table below), 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 even with small telescopes. Transits of lo's shadow occur frequently, because lo orbits Jupiter every 1.8 Earth days. Europa, Ganymede, and Callisto have orbital periods (around Jupiter) of 3.6, 7.2 and 16.7 Earth days, respectively, so their shadows cross Jupiter less frequently. Shadows of lo, Europa, and Ganymede reliably cross Jupiter once per orbit. Callisto's shadow had not crossed Jupiter since July 2022, but that situation changed for us on August 12, when there was a transit of Callisto's shadow (this occurred during daylight hours on the Western Slope). There's another transit of Callisto's shadow on August 29, but locally it ends when Jupiter is only 7 degrees above the east-northeastern horizon. There will be better opportunities to see Callisto's shadow during the next two years.

<u>Moon</u>	Diameter (miles)	Orbital Period (Earth days)
lo	2259	1.8
Europa	1936	3.6
Ganymede	3266	7.2
Callisto	2988	16.7

August 15, 2025, 5:14 AM to 7:58 AM MDT, Europa's shadow crosses Jupiter (Locally this event begins in early twilight, when Jupiter is 11 degrees above the east-northeastern horizon, and it ends after sunrise).

August 17, 2025, 6:02 AM to 8:18 AM MDT, lo's shadow crosses Jupiter (Locally this event begins in bright twilight with Jupiter 31 degrees above the eastern horizon when the Sun is only 5 degrees below the horizon, and it ends after sunrise).

August 26, 2025, 2:24 AM to 4:40 AM MDT, lo's shadow crosses Jupiter (Locally, this event begins before Jupiter rises and ends when Jupiter is 20 degrees above the eastern horizon).

August 29, 2025, 1:46 AM to 3:18 AM MDT, Callisto's shadow crosses Jupiter at high southern latitude on Jupiter (Locally this event begins before Jupiter rises and ends when Jupiter is 7 degrees above the east-northeastern horizon).

VENUS – STILL A BRILLIANT "MORNING STAR"! Brilliant Venus rises in the east northeast at about 3:35 AM MDT on August 15 and 4:03 AM MDT on August 31, before the start of morning twilight. Morning-by-morning, Venus is rising later, as its angular separation from the Sun continues to decrease. Between August 15 and 31, Venus fades just slightly, from magnitude -3.95 to -3.92, while its distance from Earth increases from 117 million to 126 million miles. As seen through telescopes, Venus' gibbous phase waxes from 80% illuminated on August 15 to 84% illuminated on August 31, as its apparent diameter shrinks from 13.3 to 12.3 arc seconds. On August 20 between 4:30 and 5:45 AM MDT Venus forms an elongated triangle with the crescent Moon and Jupiter. On August 31 between 4:30 and 5:30 AM MDT, use binoculars to spot Venus just 1 degree to the right of the Beehive Star Cluster (M44). Please do your Venus spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.

MERCURY IN MORNING TWILIGHT. On August 15 at about 5:35 AM MDT, you may be able to spot the "Speedster Planet" about 6 degrees above an unobstructed, east-northeastern horizon in morning twilight, when the Sun is still 11 degrees below the horizon. On August 15, Mercury, shining at magnitude +0.60, may be hard to spot in bright twilight, but try using binoculars. The Innermost Planet

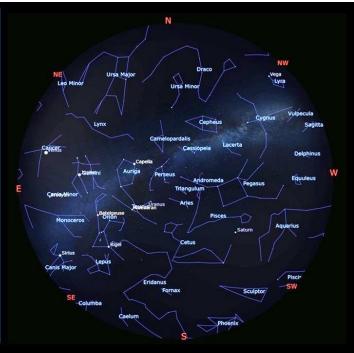
steadily brightens into late August. It may be easiest to spot Mercury around August 19, when Mercury shines at magnitude -0.06, and its angular distance from the Sun is greatest. On August 15, Mercury is 75 million miles from Earth, and its 27%-illuminated crescent appears 8.3 arc seconds wide. On August 19, Mercury is 84 million miles from the Earth, and its 42%-illuminated disk is 7.4 arc seconds in diameter. After August 19, Mercury continues to brighten, but morning-by-morning, the Innermost Planet descends into brighter morning twilight. On August 31 at 6:00 AM MDT, look for Mercury in nautical twilight, shining at magnitude -1.27, just 4 degrees above an unobstructed east-northeastern horizon (binoculars may help). By August 31, Mercury's distance from Earth has increased to 113 million miles, and its 86%-illuminated, gibbous disk appears only 5.6 arc seconds wide. On August 21 between 5:15 and 5:30 AM MDT, look for Mercury 5 degrees above the east-northeastern horizon and 4 degrees below a skinny crescent Moon and just 3 degrees below the Beehive Star Cluster (probably a nice sight in binoculars, especially if you can find a place with an unobstructed, east-northeastern horizon under transparent skies). Please do your Mercury spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.

PREVIEW THE WINTER SKY BEFORE DAWN! The stars of our winter evening sky are fabulously bright. However, observing them in winter's cold temperatures can be challenging. Fortunately, we can preview the stars and constellations of winter before dawn in late August, when temperatures are mild! Between August 22 and 31, venture out between 4:00 and 5:30 AM MDT and look to the east. The Moon is absent, and our winter constellations are rising in a dark sky! The Milky Way extends from the west-northwestern horizon, across the sky north of the zenith, to the east-southeast. Constellation Taurus with bright Aldebaran, a red giant star, and constellation Auriga with the even brighter yellow giant, Capella, are high in the northeast, leading a parade of bright winter stars. Lower toward the eastern horizon, look for Constellation Gemini with its "twin" stars, Pollux and Castor, and Orion with bright Betelgeuse, a red supergiant star, and even brighter Rigel, a blue-white supergiant star. By 5 AM MDT, Sirius, the night sky's brightest star, has cleared the east-southeastern horizon. Use a planetarium app or the chart below to help navigate the late August, predawn sky.



At 5:00 AM MDT on August 31, preview the stars of winter and three bright planets, while temperatures are still warm! The Milky Way spans the sky from the west-northwest, across the sky north of the zenith, to the east southeast. Fall Constellations Pegasus, Andromeda, and Pisces are west of the meridian (the north-south line in the sky). Bright winter constellations Auriga, Gemini, and Orion, are rising higher in the east. Sirius, the night sky's brightest star, has risen above the southeastern horizon. Saturn, moving through constellation Pisces, is high in the south southwest. Look to the eastern sky for the two brightest planets: Jupiter, moving against the stars of Gemini, and brilliant Venus, moving through Constellation Cancer near the Beehive Star Cluster (aka M44).

Simulated using Stellarium



bon't GIVE UP! KEEP WATCHING THE NORTHERN CROWN! Better late than never? Will there soon be a bright "new" star in Constellation Corona Borealis (the "Northern Crown"), at least briefly? During this period, Corona Borealis is high in the west at end of evening twilight and sets below the west-northwestern horizon after 1:30 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 sometime in 2026. Then this "new star" may fade rapidly below naked-eye visibility in about a week. As of early on August 14, T CrB had not yet erupted. Astronomer Jean Schneider of Paris Observatory states that eruptions are most likely every 228 days, a period corresponding with the orbital period of T CrB's red giant and white dwarf components. Schneider suggests that the eruption may be likely around November 10, 2025 or June 25, 2026. For more about T CrB, read the article, "Get Ready for a Nova's Bright Return", by astronomer Brad Schaefer in the March 2024 issue of Sky & Telescopes Magazine, p. 34-40. 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://skyandtelescope.org/astronomy-news/is-the-blaze-star-about-to-blow-you-may-be-the-first-to-know/

https://ui.adsabs.harvard.edu/abs/2023ATel16107....1S/abstract

https://www.aanda.org/articles/aa/full_html/2023/12/aa48372-23/aa48372-23.html

THE SUN. The Sun has been very interesting lately, as solar active regions containing sunspots have unleashed numerous flares and coronal mass ejections (CMEs) of charged particles. There have been M-class (moderate) solar flares during recent weeks, and there have been X-class (extreme) solar flares on May 13, 14, 25, June 17 and 19. Also, there have been CMEs that have triggered geomagnetic storms that caused auroras. As of 6 AM MDT on August 14, there are many active regions containing sunspots on the Earth-facing side of the Sun. We may experience more M- and possibly X-class flares and powerful CMEs during the current period. Airglow and SAR arcs also result from high solar activity, and these phenomena have been photographed and/or observed from Colorado. The safest 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...

https://sdo.gsfc.nasa.gov/data/

https://stereo.gsfc.nasa.gov/beacon/

http://halpha.nso.edu/

https://www.swpc.noaa.gov/

https://sohowww.nascom.nasa.gov/data/realtime-images.html

http://www.sidc.be/silso/ssngraphics

Do not look at the Sun directly without <u>safe</u>, <u>specialized solar filters</u>. 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"). Auroras are triggered by geomagnetic storms that derive from coronal mass ejections (CME) from active regions on the Sun. With continuing high solar activity, more geomagnetic storms may occur, and we may be able to see auroras, like those seen and photographed from the Western Slope earlier this year and last year. 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 earlier this year and last year. If we are lucky, we may see auroras from the Western Slope during this period.

EARTH SATELLITE HIGHLIGHTS. The following predictions are for western Colorado, specifically Montrose. Numerous Earth satellites are visible every clear night. Satellites are visible when they reflect sunlight during twilight or nighttime hours. Brighter satellites have smaller magnitude numbers, and the brightest (e.g., the International and Chinese Tiangong Space Stations) may have negative magnitudes. These predictions are for selected passes of some bright and/or interesting satellites (as summarized from heavens-above.com). Satellite orbits change and these predictions may be inaccurate. This is especially true for the International Space Station (ISS) and the Tiangong Space Station, because they undergo frequent orbital changes. We do not show satellite predictions more than 5 days beyond the distribution date of the current "BCAS Observing Highlights" edition. For accurate predictions of the ISS, Tiangong, and other satellites, check heavens-above.com or other satellite prediction sites for updates on the nights you wish to observe. Be sure to set application(s) for your location and time zone. 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

August 16, 2025. International Space Station (ISS). 5:25 to 5:28 to 5:31 AM MDT. S to SE to E. Appears from Earth's shadow 5 deg above S, max altitude 16 deg above SE, magnitude -1.2 (Passing through Eridanus, Lepus, Orion, Monoceros, Canis Minor, and Cancer). **Predictions for the ISS are subject to change due to orbital adjustments.** Check for updated predictions.

August 18, 2025. International Space Station (ISS). 5:24 to 5:27 to 5:30 AM MDT. SSW to SE to ENE. Appears from Earth's shadow 17 deg above SSW, max altitude 48 deg above SE, max magnitude -3.1 (Passing through Cetus/Sculptor, Eridanus, Taurus/Orion, and Gemini). Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.

August 19, 2025. International Space Station (ISS). 4:38 to 4:41 AM MDT. SE to ENE. Appears from Earth's shadow near max altitude 26 deg above SE, max magnitude -2.2 (Passing through Eridanus, Orion, and Gemini). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

August 19, 2025. Tiangong (Chinese Space Station). **5:20 to 5:21 to 5:23 AM MDT.** S to SE to ESE. Appears from Earth's shadow 9 deg above S, max altitude 13 deg above SE, max magnitude +0.5 (Passing through Sculptor, Eridanus, Lepus, Canis Major, Monoceros, and Canis Minor). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

Additional predawn passes of both the ISS and Tiangong Space Stations are predicted for August 20 to 31.

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

WESTERN SLOPE SKIES. Since 2011, KVNF Community Radio has aired <u>Western Slope Skies</u> (WSS), a biweekly astronomy feature, every two weeks on Friday mornings and on the following Wednesday evenings. On August 15 and 20, BCAS member Michael Williams presents "Mercury: Swift, Strange Messenger Planet." Then on August 29 and September 3, BCAS member, Bryan Cashion, will tell us why "A Coronal Hole Really Isn't a Hole."

HAPPY OBSERVING!