

**OBSERVING HIGHLIGHTS for April 4 to 20, 2025, a “bright Moon period”  
Black Canyon Astronomical Society (BCAS), western Colorado, USA**

**SUMMARY.**

The Moon reaches first quarter on April 4, and from April 5 to 11, we can watch a gibbous Moon wax. With mostly clear skies forecast locally for the evenings of April 5 and 6, explore the gibbous Moon with binoculars or a telescope! The Moon is full on the night of April 12-13. From April 14 to 19, watch a gibbous Moon wane. The Moon reaches last quarter on April 20. On the night of April 4-5, the first quarter Moon is in Constellation Gemini, near Mars and the bright stars, Pollux and Castor. On the morning of April 17, the waning gibbous Moon is a few degrees east of the red supergiant star, Antares. Then on the morning of April 19, the 66%-illuminated, gibbous Moon is within the “teapot asterism” in Sagittarius, at declination -29 degrees, about as far south as the Moon can ever appear!

As twilight fades, bright Jupiter is more than 35 degrees above the western horizon and remains visible until around midnight MDT. As the sky darkens, reddish Mars is more than 70 degrees above the southern horizon. Mars sets in the west northwest after 2:50 AM MDT.

Venus is now a brilliant morning star, rising well before the Sun, at about 5:38 AM MDT on April 4 and by 4:50 AM MDT on April 20. Between April 10 and 20, from 6:07 to 5:50 AM MDT, try to spot an interesting grouping of 4 planets in predawn twilight. Venus, Mercury, Saturn, and faint Neptune all appear within 8 degrees of each other. You’ll need a telescope to spot eight-magnitude Neptune, but Mercury and Saturn will be visible in binoculars, and perhaps with eyes unaided. Brilliant Venus, higher in the predawn sky, will be hard to miss. Please do your planet spotting before sunrise. Never chance looking at the Sun without adequate eye protection.

The Sun is still very active. Moderate and even extreme solar flares may occur. There may also be coronal mass ejections (CMEs) that trigger geomagnetic storms and auroras (aka, polar or northern lights). You can monitor the Sun safely on the internet. Do not look at the Sun directly without safe, specialized solar filters. Looking at the Sun can injure your eyes unless you take adequate precautions. Severe eye damage and even blindness can result.

Try to spot the bright Tiangong (Chinese) Space Station during evening passes from April 6 to 20 and the even brighter International Space Station (ISS) during predawn passes on April 16, 18, 19 and 20.

**MARS IN THE EVENING.** Reddish (or butterscotch-tinted?) Mars is more than 70 degrees above the southern horizon from mid twilight until after 9 PM MDT. Mars moves eastward against the stars in Constellation Gemini through April 11 and then enters Constellation Cancer. Mars is visible through much of the night, setting in the west northwest at about 3:35 AM MDT on April 4 and 2:51 AM MDT on April 20.

After Earth’s close approach to Mars in January, the Red Planet continues to fade, from magnitude +0.4 on April 4 to magnitude +0.8 on April 20, as its distance from Earth increases from 109 to 123 million miles. Although fading, Mars still appears a bit brighter than nearby Pollux and Castor, the two brightest stars in Gemini. Note the diverse colors of Mars, Pollux, and Castor. Through telescopes Mars’ 90%-illuminated, gibbous disk decreases from 8.0 to 7.1 arc seconds in diameter during this period. It’s getting challenging to spot features on the Red Planet. Find more info on observing Mars here:

[https://www.alpo-astronomy.org/jbeish/2025\\_MARS.htm](https://www.alpo-astronomy.org/jbeish/2025_MARS.htm)

**BRIGHT JUPITER AND ITS MOONS IN THE EVENING.** As twilight fades, bright Jupiter is more than 35 degrees above the western horizon. Jupiter is moving against the stars of Taurus, north of the red giant star, Aldebaran, and the Hyades Star Cluster. The Giant Planet sets in the west northwest at about 12:39 AM MDT on April 4 and 11:50 PM MDT on April 20. During this period Jupiter fades slightly from magnitude -2.08 to -2.02, but it’s still bright. Jupiter is 513 million miles distant on April 4 and 533

million miles distant on April 20. Through telescopes or binoculars, the Giant Planet's apparent equatorial diameter decreases from 36 to 34 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 or this website:

[https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter\\_moons/jupiter.html](https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter_moons/jupiter.html)

Use a telescope to view Jupiter's cloud belts and zones and shadow transits (total solar eclipses on Jupiter!) caused by Jupiter's large moons (see details below). 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 crossing the Giant Planet. Unfortunately, the only transit of Ganymede's shadow that is visible locally during this period occurs during daylight (see below). Io's shadow is larger than Europa's, but smaller than Ganymede's shadow. There are no transits of Callisto's shadow during this period.

April 4, 2025, 5:44 PM to 8:00 PM MDT, Io's shadow crosses Jupiter (Locally, this event begins before the Sun sets at 7:41 PM MDT and ends in bright twilight with the Sun only 5 degrees below the horizon).

April 5, 2025, 5:16 PM to 7:54 PM MDT, Europa's shadow crosses Jupiter (Locally, this event begins before the Sun sets at 7:42 PM MDT and ends in bright twilight with the Sun only 4 degrees below the horizon).

April 11, 2025, 7:40 PM to 9:56 PM MDT, Io's shadow crosses Jupiter (Locally, this event begins before the Sun sets at about 7:47 PM MDT and ends after twilight ends with Jupiter 25 degrees above the western horizon).

April 12, 2025, 7:50 PM to 10:30 PM MDT, Europa's shadow crosses Jupiter (Locally, this event begins just after the Sun sets at about 7:48 PM MDT and ends after twilight ends with Jupiter 18 degrees above the western horizon).

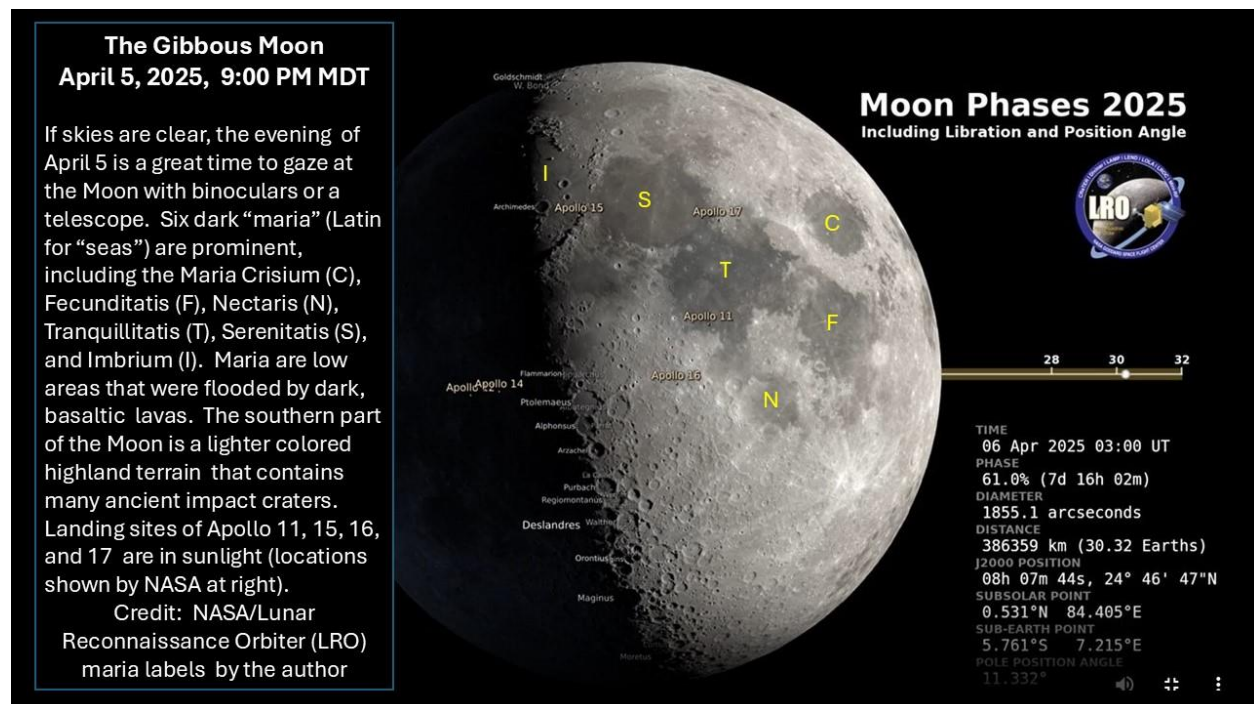
April 16, 2025, 4:36 PM to 7:22 PM MDT, Ganymede's shadow crosses Jupiter (Locally this event begins and ends in daylight before the Sun sets at about 7:49 PM MDT. Due to the large size and high contrast of Ganymede's shadow, this event may be observable if you can find Jupiter in daylight with a "go-to" telescope mount).

April 18, 2025, 9:36 PM to 11:52 PM MDT, Io's shadow crosses Jupiter (Locally, this event begins with Jupiter 25 degrees above the western horizon and ends with Jupiter less than 1 degree above the west-northwestern horizon).

April 19 to 20, 2025, 10:26 PM to 1:06 AM MDT, Europa's shadow crosses Jupiter (Locally, this event begins with Jupiter 15 degrees above the west-northwestern horizon and ends after Jupiter sets at 11:54 PM MDT).

**THE MOON.** The Moon reaches **first quarter on April 4** (exactly at 8:15 PM MDT). From April 5 to 11, we can watch the gibbous Moon wax. With mostly clear skies forecast locally for the evenings of April 5 and 6, explore the gibbous Moon with binoculars or a telescope! You can use the chart below to navigate. **The Moon is full on the night of April 12-13** (exactly full at 6:22 PM MDT on April 12). From April 14 to 19, watch a gibbous Moon wane. The Moon reaches **last quarter on April 20** (exactly at 7:35 PM MDT). On the night of April 4-5, the first quarter Moon is in Constellation Gemini, near the bright stars, Pollux and Castor, and west of reddish Mars. On the morning of April 17, the waning gibbous Moon is a few degrees east of the red supergiant star, Antares. Then on the morning of April 19, the

66%-illuminated, gibbous Moon is within the “teapot asterism” in Sagittarius, at declination -29 degrees, about as far south as the Moon can ever appear! NASA has published a [stunning visualization of lunar phases for year 2025](#). Another fun site is [NASA’s daily Moon guide](#).



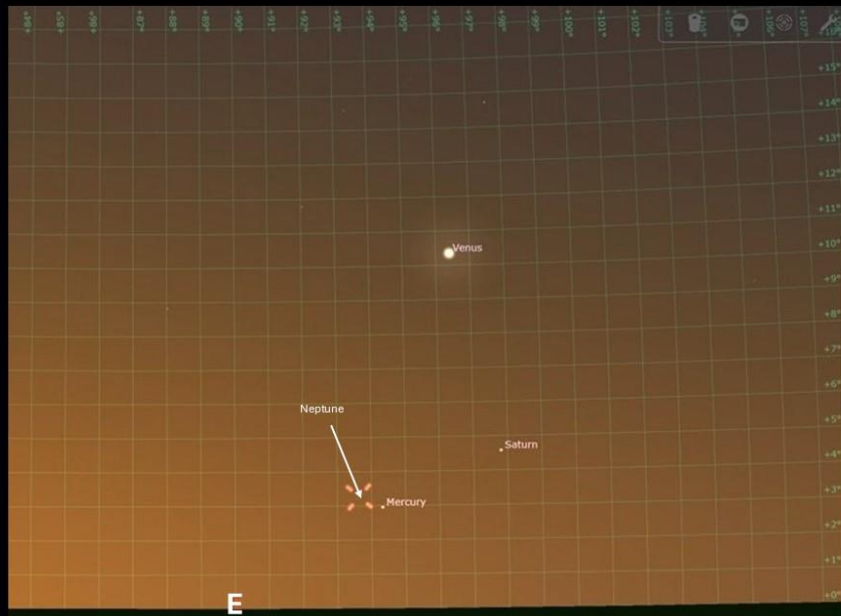
**A FOUR-PLANET GROUPING BEFORE DAWN!** Remember that planetary alignment in the evening sky during late February that got so much media attention? During the current period, there’s a 4-planet grouping in the predawn twilight that may be even more interesting (though it probably won’t be mentioned much in the press)! In late February, all 7 of the other planets appeared in the evening sky, but they were spread out widely over 110 degrees, from near the western horizon into the southeastern sky. But between April 10 and 20, Venus, Mercury, Saturn, and Neptune all appear within 8 degrees of each other before dawn! Eight degrees is just a bit wider than a typical field of view for binoculars! Viewing circumstances get better toward the end of the April 10 to 20 period, as the angular distance of all 4 planets from the Sun increases and Mercury gets brighter. Find a place with an unobstructed eastern horizon and look just south of due east. Because morning twilight occurs earlier, morning by morning, the best time to spot these planets also gets earlier, as follows:

- April 10 at 6:07 AM MDT, Mercury, magnitude +1.0, is 3 degrees above a flat horizon
  - April 16 at 5:55 AM MDT, Mercury, magnitude +0.6, is 3 degrees above a flat horizon
  - April 20 at 5:50 AM MDT, Mercury, magnitude +0.4, is 3 degrees above a flat horizon
- Use brilliant Venus as a guide for finding Mercury which appears nearer to the eastern horizon. Mercury, while much fainter than Venus, is the second brightest of this planetary foursome, and Mercury’s brightness nearly doubles between April 10 and 20. You can find fainter Saturn 2 to 5 degrees to the right and above Mercury throughout this period. Saturn and Mercury will probably be easier to spot with binoculars than with eyes unaided. With a telescope, try to locate Neptune (magnitude +7.8) on April 16 around 5:55 AM MDT, when it’s less than 1 degree to the left (north) and slightly above Mercury (Due to twilight glare, this could be challenging. Refer to chart, below).

**Planets Before Dawn  
from the Western Slope  
April 16, 2025,  
5:55 AM MDT**

With the Sun 8° below the horizon, look east to spot brilliant Venus (magnitude -4.75). Mercury is just 3° degrees above a flat horizon. Mercury (magnitude +0.6) is much fainter than Venus, but brighter than Saturn (magnitude +1.1), which appears about 4 degrees to the right of Mercury. With a telescope challenge yourself to spot Neptune (magnitude +7.8), less than 1 degree to the left of Mercury.

Simulated using Stellarium  
with 1° x 1° Alt-Az grid



**VENUS – A BRILLIANT MORNING STAR!** On April 4 brilliant Venus rises at 5:38 AM MDT, about 70 minutes before the Sun. Venus’ angular separation from the Sun increases rapidly, and by April 20, Venus rises at 4:50 AM MDT, about 97 minutes before the Sun. Venus brightens from magnitude -4.44 on April 4 to magnitude -4.78 on April 20, as its crescent phase waxes from 6% to 20% illuminated. As Venus speeds ahead of Earth in its faster orbit, its distance increases from 28.3 million miles on April 4 to 35.9 million miles on April 20, as its apparent diameter decreases from 54.9 to 43.2 arc seconds. Between April 10 and 20, Venus forms an interesting, predawn grouping with Mercury, Saturn, and Neptune (see item above). **Please do your Venus spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

**MERCURY – A SECOND MORNING STAR!** During early March, Mercury was easy to spot in the early evening. Now the Innermost Planet is entering the predawn sky, having passed [inferior solar conjunction](#) on March 24. You may get a first glimpse of Mercury as early as April 10 at about 6:07 AM MDT, when it shines against bright morning twilight at magnitude +1.0. Mercury brightens during this period, from magnitude +1.0 on April 10, to magnitude +0.6 on April 16, and to magnitude +0.4 on April 20. Mercury will likely be easiest to spot on April 19 or 20 around 5:50 AM MDT, when it gets brighter and appears farther from the Sun. From April 10 to 12 between 6:00 and 6:07 AM MDT, Mercury appears about 2 degrees to the left (north) of fainter Saturn, only 3 degrees above an unobstructed eastern horizon. You will likely need binoculars to see them both. Through telescopes between April 10 and 20, Mercury’s crescent phase waxes from 26% to 44% illuminated, as its apparent diameter decreases from 9.7 to 8.1 arc seconds, while its distance from Earth increases from 65 to 77 million miles. Mercury is part of an interesting 4-planet grouping before dawn during this period (as noted in item above). **Please do your Mercury spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

**SATURN BEFORE DAWN.** As noted above, Saturn has reappeared in the predawn sky. But at magnitude +1.1, the Ringed Planet is relatively faint and nearly overwhelmed by bright twilight, so you may need

binoculars (or a telescope) to spot it. On March 23, 2025, Saturn's thin rings (only about 1000 ft thick, but around 150,000 miles wide!) were exactly "edge on" from our perspective on Earth. On that date, we could have seen Saturn appearing ringless, an odd sight that can happen every 15 years. Unfortunately, on March 23 Saturn was very near the Sun in our sky, and hence unobservable. Saturn is low to the horizon in deep twilight during this period, so telescopic observing is likely to be compromised by poor, near-horizon "seeing." During the following weeks and months, Saturn will be rising hours before the Sun, allowing for better viewing through telescopes. **Please do your Saturn spotting before sunrise. NEVER chance looking at the Sun without taking proper precautions. Serious eye damage can result.**

**DON'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 rises in the east northeast by 9 PM MDT and remains visible through the rest of the night. T Coronae Borealis (T CrB) is a recurrent nova that (based on its past behavior) may rapidly increase in brightness 1500-fold (to second magnitude) to become the brightest star (or 2<sup>nd</sup> brightest star) in Corona Borealis between now and sometime in 2025 or 2026. Then this "new star" may fade rapidly below naked-eye visibility in about a week. As of early on April 3, T CrB had not yet erupted, although there was a prediction that it might erupt around March 27. That did not happen. 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 states that eruptions are now most 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 astrophysicist 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://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://en.wikipedia.org/wiki/T\\_Coronae\\_Borealis](https://en.wikipedia.org/wiki/T_Coronae_Borealis)

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

[https://www.aanda.org/articles/aa/full\\_html/2023/12/aa48372-23/aa48372-23.html](https://www.aanda.org/articles/aa/full_html/2023/12/aa48372-23/aa48372-23.html)

**THE SUN.** The Sun has been very interesting over the past year, when solar active regions have unleashed numerous flares and coronal mass ejections (CMEs) of charged particles. There have been M-class (moderate) solar flares each week for the past year, and there have been many X-class (extreme) solar flares, including X-class flares on January 3 and 4, February 23, and recently, on March 28. There also have been CMEs that have triggered geomagnetic storms that caused auroras. As of April 3, there are several active regions with large sunspots on the Earth-facing side of the Sun. So, we may experience more M- and possibly X-class flares and powerful CMEs. [Airglow](#) and [SAR arcs](#) also result from high solar activity, and these phenomena have been photographed and/or observed from Colorado. You can monitor sunspots, solar flares, CMEs, and other solar activity safely and in "real time" at the following sites:

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

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

<http://halphi.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 [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”).** It can be challenging to spot auroras from Colorado’s mid-northern latitudes. But on the nights of May 10-11 and October 10-11 in 2024, many people were able to see and/or photograph some amazing auroras from Colorado! Coronal mass ejections (CMEs) from the Sun were aimed at our planet. Charged particles from CMEs were captured by Earth’s magnetic field, energizing the ionosphere, thereby triggering geomagnetic storms and widespread auroras. With continuing high solar activity, geomagnetic storms may occur, and we may be able to spot auroras. You can 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. 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>

**EARTH SATELLITE HIGHLIGHTS.** The following predictions are for western Colorado, specifically Montrose. Numerous Earth satellites are visible every clear night. 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 no longer 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.

**April 6, 2025. Tiangong (Chinese Space Station). 8:43 to 8:44 PM MDT. S to SSE. Disappears into Earth’s shadow at max altitude 14 deg above SSE, max magnitude -0.1 (Passing through Puppis, Pyxis, and Antlia). Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

**April 7, 2025. Tiangong (Chinese Space Station). 9:17 to 9:19 PM MDT. SW to SSW. Disappears into Earth’s shadow at max altitude 31 deg above SSW, max magnitude -1.0 (Passing through Lepus, Canis Major and Puppis). Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

**April 8, 2025. Tiangong (Chinese Space Station). 8:16 to 8:18 to 8:21 PM MDT. SSW to SSE to E. Max altitude 25 deg above SSE, disappears into Earth’s shadow 11 deg above E, max magnitude -0.9 (Passing through Columba, Canis Major/Puppis, Pyxis, Hydra, Crater, and Virgo. This pass occurs in bright twilight and may be difficult to observe). Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

**Additional evening passes for the bright Tiangong (Chinese) Space Station are predicted for April 9 to 20. Predawn passes for the even brighter International Space Station (ISS) are predicted for April 16, 18, 19 and 20. These predictions are subject to change. For updates on times, check heavens-above (or other prediction websites) shortly before you want to observe. Be sure to enter your location and time zone info when using prediction websites.**

**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 [Western Slope Skies](#) (WSS), a biweekly astronomy feature every two weeks on Friday mornings and on the following Wednesday evenings. On April 11 and 16, Jamie Schultz of the Western Slope Dark Sky Coalition discusses “Circadian Rhythms in Nature.”

**HAPPY OBSERVING!**