

**OBSERVING HIGHLIGHTS for September 24 to October 10, 2024, a “dark Moon period”
Black Canyon Astronomical Society (BCAS), western Colorado, USA**

SUMMARY. Our daytime hours are shortening rapidly as nighttime hours lengthen. It’s still relatively warm, so this dark Moon period is a great time to enjoy the wonders of our early fall night sky! Day-by-day, twilight is ending earlier, causing the stars of summer and the central Milky Way to “linger” in the western half of the sky. When the sky darkens, the bright, red giant star, Arcturus, is descending in the west, as the Big Dipper gets lower in northwest. The “Summer Triangle” of bright stars Vega, Altair, and Deneb is nearly overhead, as our fall constellations, including Perseus, Pegasus, Andromeda, Pisces, and Aquarius rise in the eastern half of the sky.

During the last week of September and earliest October, try to spot Comet Tsuchinshan-ATLAS (C/2023 A3), which may be bright in the pre-dawn eastern sky (find a place with an unobstructed eastern horizon and use binoculars – but do your comet spotting before sunrise – directly viewing the Sun can damage your eyes).

Venus is visible in bright evening twilight, just south of west (do your Venus viewing after sunset, as direct viewing of the Sun can damage your eyes). Saturn becomes prominent in the east southeast as twilight ends. Jupiter rises in the east northeast an hour or two before midnight (MDT). If you have a telescope, watch the shadows of 3 of Jupiter’s bright Moon cross the face of the Giant Planet (Jovian solar eclipses!), including shadow transits of Ganymede, the largest moon in the Solar System, on the mornings of September 28 and October 5.

The Moon is at last quarter on September 24. On mornings from September 25 to October 1, the crescent Moon wanes. On the morning of September 25, a fat lunar crescent is about 5 degrees north of reddish Mars. The Moon is new, and consequently invisible, on October 2, except for folks in parts of South America, the Pacific and southwestern-most Atlantic Oceans, where the Moon appears to move in front of the Sun during an annular solar eclipse. On evenings from October 4 to 9, we can watch a crescent Moon wax. The Moon reaches first quarter on October 10. On October 5 at around 7:20 PM MDT, look for a thin (9%-illuminated), crescent Moon about 6 degrees above an unobstructed, west-southwestern horizon and 5 degrees left and a bit below brilliant Venus (try viewing this with binoculars- but after sunset – never risk direct viewing of the Sun). On October 7 from about 7:30 to 8:30 PM MDT, look for the 24%-illuminated lunar crescent about 3 degrees left from the bright reddish star, Antares. Enjoy seeing earthshine on the dark, nightside of the crescent Moon, especially on mornings from September 27 to September 30 and on evenings from October 4 to 7 (binoculars can provide eye-catching views).

As of September 24, there are many active regions with large sunspots on the Earth-facing side of the Sun. Moderate and even extreme solar flares are likely, as are coronal mass ejections of charged particles. You can monitor solar activity safely in real time on the internet. This high solar activity is triggering geomagnetic storms, auroras (aka “northern lights”), and airglow. Auroras were seen and/or photographed by people in all 50 states on the night of May 10-11, including by several BCAS members! So, keep watch for more of these phenomena!

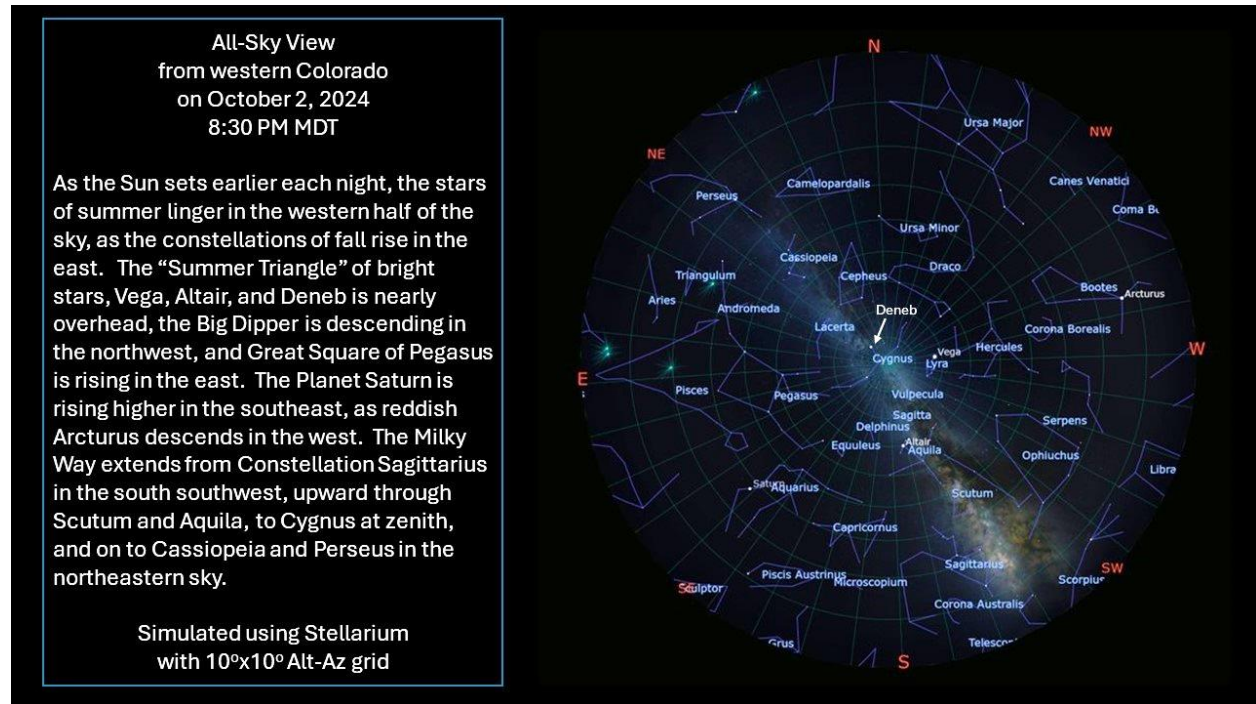
From western Colorado, view passes of interesting satellites, including evening passes of the bright International Space Station (ISS) and evening passes of the almost-as-bright Tiangong (Chinese) Space Station from September 24 to October 3.

WESTERN SLOPE SKIES. Since 2011, BCAS and KVNF Community Radio have been producing [Western Slope Skies](#) (WSS), a biweekly astronomy feature, which airs every two weeks at about 8:10 AM on Fridays and 7:00 PM on following Wednesdays. On September 27 and October 2, Kyle Johnson, a ranger at Curecanti National Recreation Area presents “Stories of the Stars.”

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>

A DARK, EARLY FALL SKY. Early fall evenings around the new Moon are great times to enjoy the night sky from western Colorado! Use a planetarium app or the chart below to help you navigate. The constellations and stars of summer linger high in the west, as, night-by-night, twilight ends earlier. The “Summer Triangle”, consisting of bright stars Vega (in Constellation Lyra), Altair (in Aquila), and Deneb (in Cygnus), is nearly overhead. The Big Dipper is getting lower in the northwest, as bright, reddish Arcturus descends toward the western horizon. The central Milky Way extends from Sagittarius in the south southwest, upward through Scutum and Aquila, to Cygnus at zenith, and into Cepheus, Cassiopeia, and Perseus in the northeast. Fall Constellations Pegasus, Pisces, Andromeda, and Aquarius (with the “visiting” Planet, Saturn) are rising in the east.



A BRIGHT COMET BEFORE DAWN. Comet [Tsuchinshan-ATLAS \(C/2023 A3\)](#) may become a beautiful sight just before dawn from September 25 to about October 2. As of September 24, C/2023 A3 is shining at magnitude +3.5, and it may be visible in binoculars, and perhaps even with eyes unaided. Find a place with an unobstructed eastern horizon and try to spot C/2023 A3 just before bright morning twilight (viewing with binoculars may be best). For a few days in early October, C/2023 A3 may become visible in images from the [C3 coronagraph on the SOHO satellite](#). For the best viewing, we hope that this Comet survives its late September brush with the Sun and then re-emerges into the evening sky as a striking object during mid to late October. You can find updates, images, brightness info, finder charts, and an ephemeris for C/2023 A3 at these links...

<http://astro.vanbuitenen.nl/comet/2023A3>

<http://www.aerith.net/comet/catalog/2023A3/2023A3.html>

<https://skyandtelescope.org/astronomy-news/update-comet-tsuchinshan-atlas-might-outshine-predictions/>

Please do your C/2023 A3 spotting before sunrise (or after sunset in mid to late October). NEVER chance looking at the Sun directly; serious eye damage can result.

THE MOON. The Moon reaches **last quarter on September 24** (exactly at 12:50 PM MDT). On mornings from September 25 to October 1, the crescent Moon wanes. On the morning of September 25, the 43%-illuminated, crescent Moon is about 4 degrees north of reddish Mars. **The Moon is new, and consequently invisible from Colorado on October 2** (exactly new at 12:49 PM MDT). From parts of South America, the Pacific Ocean, and southwestern Atlantic Ocean, the Moon appears to move in front of the Sun on October 2 during an annular eclipse (see item below). On evenings from October 4 to 9, we can watch a crescent Moon wax. The Moon reaches **first quarter on October 10** (at exactly 12:55 PM MDT). On October 5 at around 7:20 PM MDT, look for a thin (9%-illuminated), crescent Moon about 6 degrees above an unobstructed, west-southwestern horizon and 5 degrees left and a bit below brilliant Venus (try viewing this with binoculars). On October 7 from about 7:30 to 8:30 PM MDT, look for the 24%-illuminated lunar crescent about 3 degrees left from the bright, red supergiant star, Antares. Enjoy seeing earthshine on the dark, nightside of the crescent Moon, especially on mornings from September 27 to September 30 and on evenings from October 4 to 7 (binoculars can provide eye-catching views). NASA has published a [stunning visualization of lunar phases for year 2024](#). Another fun site 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.**

ANNULAR SOLAR ECLIPSE – OCTOBER 2 – PACIFIC, SW ATLANTIC & SOUTH AMERICA. On October 2, the Moon moves in front of the Sun during an annular (“ring of fire”) eclipse that is visible over parts of the Pacific and south-westernmost Atlantic Oceans, Rapa Nui (Easter Island), and southern Chile and Argentina. The Moon is near [apogee](#) during this eclipse, so it appears smaller than average. Only a maximum of 87% of the Sun’s disk is covered by the Moon. Observers in Hawaii (at sunrise!), parts of western Mexico, and much of southern South America can view a partial eclipse of the Sun on October 2. Find more information about this eclipse here...

http://xjubier.free.fr/en/site_pages/solar_eclipses/xSE_GoogleMap3.php?Ecl=+20241002

<https://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2024Oct02A.GIF>

VENUS IN EVENING TWILIGHT. On September 24 at about 7:35 PM MDT (with the Sun 7 degrees below the horizon, Venus stands 7 degrees above an unobstructed, west-southwestern horizon. Venus, at magnitude -3.9, is very bright, but its luster is diminished by glaring evening twilight. Venus’ angular separation from the Sun is increasing. But Venus will take many more weeks to rise above the glare of twilight for viewers in Colorado, because it’s moving to the southeast. By October 10 at about 7:15 PM MDT (with the Sun 8 degrees below the horizon, Venus stands 8 degrees above an unobstructed, west-southwestern horizon. Venus’ southeastward movement is making our Sister Planet prominent in a darker sky for southern-hemisphere viewers, while it’s immersed in bright twilight for us northerners. Venus is still on the opposite side of the Sun from our perspective, 130 million miles distant on September 24 and 121 million miles distant on October 10. Through telescopes, Venus’ gibbous phase wanes from 86% to 83% illuminated, as its apparent diameter increases from 12.0 to 12.8 arc seconds during this period. From western Colorado, Venus will get easier to spot very gradually through the fall, as, evening-by-evening, our Sister Planet appears farther from the Sun. **Please do your Venus spotting after sunset. NEVER chance looking at the Sun directly; serious eye damage can result.**

SATURN – MOST OF THE NIGHT. As twilight fades, Saturn becomes prominent about 20 degrees above the east-southeastern horizon. The Ringed Planet is highest in the southern sky (at about 40 degrees altitude) at around 11:30 PM MDT and sets in the west at 5:40 AM MDT on September 24 and 4:32 AM MDT on October 10. Saturn is 808 million miles distant on September 24 and 819 million miles distant on October 10. Saturn fades slightly from magnitude +0.63 to +0.70 during this period.

Through telescopes, the Ringed Planet appears 19 arc seconds wide, and its rings span 44 arc seconds. With a telescope or high-magnification binoculars, it's possible to spot Titan, Saturn's largest moon. Telescopes with apertures 5 inches or larger may reveal several other moons of the Ringed Planet. Saturn's rings now appear nearly "edge-on", so they may seem less impressive in telescopes than they did during the past several years. These thin rings will nearly disappear from our perspective during 2025. Because Saturn's rings now appear less inclined, and dimmer, than in past years, it may be easier to spot some of Saturn's mid-sized moons through telescopes. You can follow the changing positions of Saturn's moons by referring to various planetarium apps and/or this site:

<https://skyandtelescope.org/observing/interactive-sky-watching-tools/saturns-moons-javascript-utility/>

JUPITER: RISING EARLIER. Bright Jupiter rises in the east northeast at about 10:54 PM MDT on September 24 and 9:52 PM MDT on October 10. The Giant Planet is prominent from shortly after it rises into moderate morning twilight. During this period Jupiter brightens from magnitude -2.42 to -2.54, as its distance from Earth decreases from 442 to 421 million miles. Through telescopes or binoculars, the Giant Planet's apparent equatorial diameter increases from 41.5 to 43.6 arc seconds between September 24 and October 10.

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

Use a telescope to view shadow transits (total solar eclipses on Jupiter!) 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. You can see Ganymede's shadow cross Jupiter on the mornings of September 28 and October 5 (details below). Io's shadow is larger than Europa's but smaller than Ganymede's shadow. Callisto's shadow does not cross Jupiter during this period. As Jupiter becomes visible through most of the night in following weeks, many more of these Jovian solar eclipses will be visible.

September 28, 2024, 12:30 to 2:46 AM MDT, Ganymede's shadow crosses Jupiter at a very high southern latitude on Jupiter.

September 29, 2024, 2:56 AM to 5:10 AM MDT, Io's shadow crosses Jupiter.

September 30, 2024, 9:24 to 11:38 PM MDT, Io's shadow crosses Jupiter (Locally, Jupiter rises at about 10:31 PM MDT. This event begins before Jupiter rises and ends with Jupiter only 11 degrees above the east-northeastern horizon. So, it may be challenging to view.).

October 2 to 3, 2024, 9:44 PM to 12:18 AM MDT. Europa's shadow crosses Jupiter (Locally Jupiter rises at 10:23 PM MDT. This event begins before Jupiter rises and ends with Jupiter 20 degrees above the east-northeastern horizon).

October 5, 2024, 4:30 to 6:46 AM MDT, Ganymede's shadow crosses Jupiter at a very high southern latitude on Jupiter (Locally, this event begins in a dark sky but ends in bright twilight with the Sun only 6 degrees below the horizon).

October 6, 2024, 4:50 AM to 7:04 AM MDT. Io's shadow crosses Jupiter (Locally, the Sun rises at 7:11 AM MDT. This event begins in a dark sky but ends in glaring morning twilight with the Sun only 2 degrees below the horizon).

October 7 to 8, 2024, 11:18 PM to 1:32 AM MDT. Io's shadow crosses Jupiter (Locally the Sun rises at 7:11 AM MDT).

October 10, 2024, 12:22 AM to 2:56 AM MDT. Europa's shadow crosses Jupiter.

MARS RISING AROUND MIDNIGHT. Reddish Mars rises in the east northeast at about 12:22 AM MDT on September 24 and 11:55 PM MDT on October 10. Mars is prominent in the eastern sky after about 1 AM MDT until morning twilight starts interfering. Between September 24 and October 10, Mars brightens from magnitude +0.53 to +0.35, as its distance from Earth decreases from 119 to 109 million miles. Through telescopes Mars' 88%-illuminated, gibbous disk appears less than 8 arc seconds wide. Mars will be closer to Earth and more interesting to observe during late fall and early winter.

KEEP WATCHING THE NORTHERN CROWN! Will there soon be a bright "new" star in Constellation Corona Borealis (the "Northern Crown"), at least briefly? Corona Borealis is descending in the west as evening twilight fades. 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 2nd brightest star) in Corona Borealis sometime between now and early 2025. Then this "new star" may fade rapidly below naked-eye visibility in about a week. As of early on September 24, T CrB had not yet exploded. 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://skyllandtelescope.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://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 active over the past year, and intensely so in the past several months, 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 July 14, 16, and 29, August 5, 8, and 14, and September 12 and 14. There also have been CMEs that have triggered geomagnetic storms that caused auroras. Many folks in Colorado and elsewhere viewed and/or photographed auroras during the night of May 10-11. As of September 24, there are many active regions containing large sunspots on the Earth-facing side of the Sun, so we may experience more M- and possibly even X-class flares and powerful CMEs. [Airglow](#) and "SARs" also result from high solar activity, and these phenomena also 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://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 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 night of May 10-11, many of us were able to see and/or photograph some amazing auroras from Colorado! A coronal mass ejection (CME) from the Sun was aimed toward our planet. Charged particles from the CME were captured by Earth’s magnetic field, energizing the ionosphere, thereby triggering a geomagnetic storm and a widespread aurora. As of September 24, there are many large active regions on the Earth-facing side of the Sun, so chances for geomagnetic storms are good and spotting auroras may be possible. 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>

EARTH SATELLITE HIGHLIGHTS. The following predictions are for western Colorado, specifically Montrose, in Mountain Daylight Time (MDT). Numerous Earth satellites are visible every clear night. Brighter satellites have smaller magnitude numbers, and the brightest (e.g., the International and 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 can change. These predictions for satellite passes may be inaccurate by up to many minutes, especially after September 27. For more accurate predictions of these 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.

September 24, 2024. International Space Station (ISS). 8:33 to 8:35 PM MDT. NNW to NNE. Disappears into Earth’s shadow near max altitude 15 deg above NNE, max magnitude -1.5 (Passing through Ursa Major and Camelopardalis). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 24, 2024. Tiangong (Chinese Space Station). 8:36 to 8:39 PM MDT. WNW to N. Disappears into Earth’s shadow at max altitude 52 deg above N, max magnitude -1.8 (Passing through Coma Berenices/Boötes/Ursa Major, and Draco/Ursa Minor/Cepheus). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 25, 2024. Tiangong (Chinese Space Station). 7:35 to 7:38 to 7:41 PM MDT. 1st PM Tiangong pass of September 25. WNW to N to ENE. Max altitude 46 deg above N, disappears into Earth shadow 11 deg above ENE, max magnitude -1.5 (Passing through Coma Berenices, Canes Venatici, Ursa Major-Big Dipper, Draco, Ursa Minor, Cepheus, Cassiopeia, and Andromeda). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 25, 2024. International Space Station (ISS). 7:45 to 7:47 to 7:48 PM MDT. 1st PM ISS pass of September 25. N to NNE to NE. Max altitude 12 deg above N. Disappears into Earth's shadow 7 deg above NE, max magnitude -1.3 (Passing through Ursa Major, Camelopardalis, Perseus, and Triangulum). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 25, 2024. Tiangong (Chinese Space Station). 9:12 to 9:13 PM MDT. 2nd PM Tiangong pass of September 25. In WNW. Disappears into Earth shadow at max altitude 22 deg above WNW, max magnitude +0.4 (Passing through Boötes). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 25, 2024. International Space Station (ISS). 9:20 to 9:22 PM MDT. 2nd PM ISS pass of September 25. NW to NNW. Disappears into Earth's shadow at max altitude 17 deg above NNW, max magnitude -1.0 (Passing through Canes Venatici and Ursa Major). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 26, 2024. Tiangong (Chinese Space Station). 8:10 to 8:14 to 8:15 PM MDT. WNW to NNE to E. Max altitude 68 deg above NNE, disappears into Earth shadow 37 deg above E, max magnitude -2.1 (Passing through Coma Berenices, Ursa Major/Boötes, Draco, Cepheus/Cygnus, Lacerta, and Pegasus). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 26, 2024. International Space Station (ISS). 8:33 to 8:36 PM MDT. NNW to NNE. Disappears into Earth's shadow at max altitude 28 deg above NNE, max magnitude -2.4 (Passing through Ursa Major-Big Dipper and Camelopardalis). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 27, 2024. International Space Station (ISS). 7:46 to 7:48 to 7:50 PM MDT. 1st PM ISS pass of September 27. NNW to NNE to ENE. Max altitude 20 deg above NNE, disappears into Earth's shadow 13 deg above ENE, max magnitude -2.0 (Passing through Ursa Major, Camelopardalis, Perseus, and Andromeda). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 27, 2024. Tiangong (Chinese Space Station). 8:46 to 8:48 PM MDT. W to WSW. Disappears into Earth's shadow at max altitude 41 deg above WSW, max magnitude -1.0 (Passing through Boötes, Serpens, and Hercules/Ophiuchus). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 27, 2024. International Space Station (ISS). 9:22 to 9:23 PM MDT. 2nd PM ISS pass of September 27. In WNW. Disappears into Earth's shadow at max altitude 19 deg above WNW, max magnitude -1.0 (Passing through Coma Berenices and Boötes). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 28, 2024. Tiangong (Chinese Space Station). 7:44 to 7:47 to 7:50 PM MDT. 1st PM Tiangong pass of September 28. WNW to SSW to ESE. Max altitude 86 deg above SSW, disappears into Earth shadow 17 deg above ESE, max magnitude -2.2 (Passing through Boötes, Hercules, Lyra, Cygnus, Vulpecula, Pegasus, and Pisces/Aquarius). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 28, 2024. International Space Station (ISS). 8:34 to 8:37 PM MDT. NW to N. Disappears into Earth's shadow at max altitude 72 deg above N, max magnitude -3.8 (Passing through Canes Venatici, Ursa Major-Big Dipper, Draco, and Cepheus/Cygnus). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 28, 2024. Tiangong (Chinese Space Station). 9:21 to 9:22 PM MDT. 2nd PM Tiangong pass of September 28. W to WSW. Disappears into Earth's shadow at max altitude 10 deg above WSW. max magnitude +1.2 (Passing through Serpens). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 29, 2024. International Space Station (ISS). 7:46 to 7:49 to 7:51 PM MDT. 1st PM ISS pass of September 29. NW to NNE to E. Max altitude 42 deg above NNE, disappears into Earth's shadow 19 deg above E, max magnitude -3.2 (Passing through Ursa Major-Big Dipper, Draco, Ursa Minor, Cepheus/Cassiopeia, Pegasus, and Pisces). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 29, 2024. Tiangong (Chinese Space Station). 8:19 to 8:22 to 8:23 PM MDT. W to SSW to S. Max altitude 30 deg above SSW, disappears into Earth's shadow 26 deg above S, max magnitude -0.7 (Passing through Boötes, Serpens, Ophiuchus, and Scutum/Sagittarius). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 29, 2024. International Space Station (ISS). 9:23 to 9:24 PM MDT. 2nd PM ISS pass of September 29. WNW to W. Disappears into Earth's shadow at max altitude 14 deg above W, max magnitude -0.7 (Passing through Boötes and Serpens). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

September 30, 2024. Tiangong (Chinese Space Station). 7:17 to 7:20 to 7:23 PM MDT. WNW to SSW to SE. Max altitude 55 deg above SSW, max magnitude -1.6 (Passing through Boötes, Serpens, Ophiuchus, Aquila, Aquarius/Capricornus). **This pass occurs in bright twilight and may be difficult to see. Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

September 30, 2024. International Space Station (ISS). 8:35 to 8:38 to 8:39 PM MDT. WNW to SW to SSW. Max altitude 33 deg above SW, disappears into Earth's shadow 30 deg above SSW, max magnitude -2.4 (Passing through Coma Berenices, Boötes, Serpens, Ophiuchus, Scutum, and Sagittarius). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

October 1, 2024. International Space Station (ISS). 7:47 to 7:50 to 7:53 PM MDT. WNW to SW to SE. Max altitude 63 deg above SW, disappears into Earth's shadow 12 deg above SE, max magnitude -3.4 (Passing through Canes Venatici, Boötes, Hercules, Aquila, Aquarius/Capricornus, and Piscis Austrinus). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

October 1, 2024. Tiangong (Chinese Space Station). 7:53 to 7:55 to 7:57 PM MDT. W to SSW to SSE. Max altitude 19 deg above SSW, disappears into Earth's shadow 7 deg above SSE, max magnitude +0.2

(Passing through Libra, Ophiuchus/Scorpius, Sagittarius, and Microscopium). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

October 2, 2024. International Space Station (ISS). 8:37 to 8:38 to 8:39 PM MDT. WSW to SW to SSW. Max altitude 11 deg above SW, disappears into Earth's shadow 7 deg above SSW, max magnitude -0.7 (Passing through Boötes, Libra, Ophiuchus/Scorpius, Sagittarius, and Corona Australis). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

October 3, 2024. Tiangong (Chinese Space Station). 7:26 to 7:27 to 7:28 PM MDT. SW to SSW. Max altitude 11 deg above SW, max magnitude +0.9 (Passing through Libra, Scorpius, Corona Australis/Sagittarius). **Predictions for Tiangong are subject to change due to orbital adjustments. Check for updated predictions.**

October 3, 2024. International Space Station (ISS). 7:48 to 7:51 to 7:53 PM MDT. W to SW to S. Max altitude 19 deg above SW, max magnitude -1.2 (Passing through Boötes, Libra, Ophiuchus/Scorpius, Sagittarius, and Corona Australis). **Predictions for the ISS are subject to change due to orbital adjustments. Check for updated predictions.**

HAPPY OBSERVING!