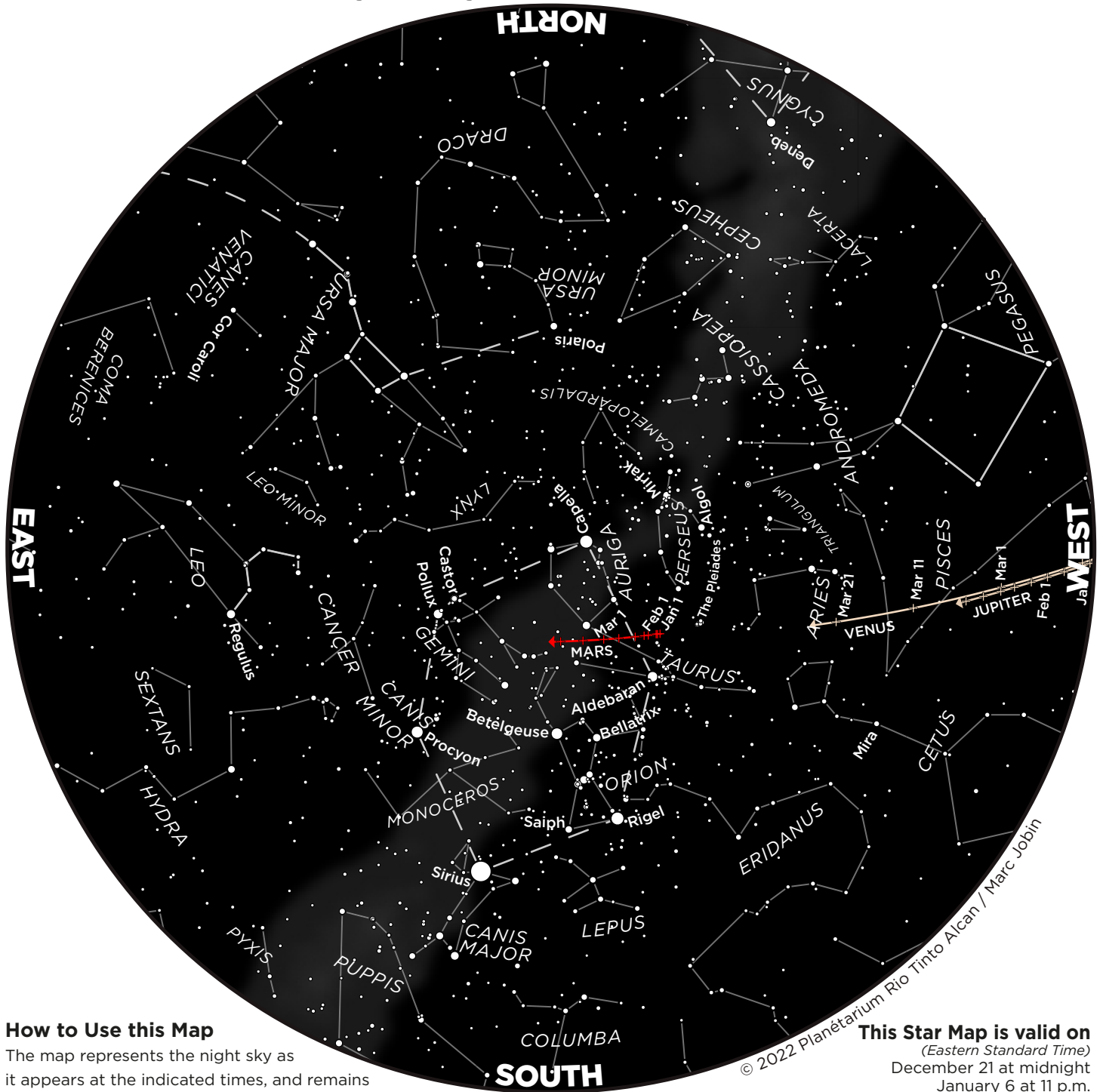


The Starry Sky – Winter 2022-23



How to Use this Map

The map represents the night sky as it appears at the indicated times, and remains usable several hours before and after.

Hold the map up to the sky in front of you and turn it so the direction you are facing appears at the bottom. Lines identify the constellations. The shaded area outlines the Milky Way.

This Star Map is valid on

(Eastern Standard Time)

December 21 at midnight

January 6 at 11 p.m.

January 21 at 10 p.m.

February 6 at 9 p.m.

February 21 at 8 p.m.

March 6 at 7 p.m.

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The Sky This Winter

As Saturn and Jupiter bow out one after the other, Venus enters the evening sky, where it stays in the limelight for the next few months.

Venus, the Evening Star

Venus slipped behind the Sun in October 2022, and after spending a few weeks hidden in the glare of our daytime star, it finally makes an appearance in the southwest during the first evenings of winter: Look for the bright object low on the horizon in the glow of twilight, about 30 minutes after sunset. Venus gains altitude with each passing evening and remains visible a little longer after nightfall. Also note that it slowly drifts westward (to the right) as the weeks go by. This fine appearance by Venus continues throughout the winter and spring: The Evening Star reaches its highest point in the sky in May, more than 30 degrees above the western horizon, before it slowly sinks back toward the horizon and disappears once again in the Sun's glare in July.

Point a telescope at the planet this winter and you'll see a small, dazzling, gibbous disc. Not till spring does Venus expand in size and significantly wane in phase. Track its appearance by checking the planet out from time to time.

The beautiful Evening Star will cross paths with the Moon and other planets several times this winter, resulting in some spectacular twilight encounters. For example, about 30 minutes after sunset **on December 24**, very low in the southwest, the thin crescent Moon lies 6 degrees to the left of Venus; tiny Mercury hangs directly above, completing the isosceles triangle. A few evenings later, **on December 28 and 29**, Venus and Mercury will be in conjunction, separated by about 1½ degrees. **On January 22 at twilight**, it's Saturn's turn to cross paths with Venus: The two planets will be only about one-third of a degree from each other during this conjunction. The next evening, **on January 23**, the thin crescent Moon joins the duo, appearing 7 degrees to the left of Venus; note that Saturn has slightly pulled away from Venus. The Moon will once again approach Venus **on February 21 and 22**, above the west-southwestern horizon at twilight. Lastly, **in the early evening of March 1**, we'll be treated to an impressive conjunction between Venus and Jupiter; the two brightest planets will hang a mere ½ a degree apart, like a pair of eyes staring at us in the

twilight glow, above the west-southwestern horizon.

Saturn sinks lower at twilight

As winter kicks off, **Saturn** can be found 25 degrees above the south-southwestern horizon at twilight and is visible for more than three hours after the Sun sets. But as the weeks go by, it becomes apparent that the gap between the Sun and the ringed planet is continually closing: Saturn hangs ever lower in the twilight sky and remains visible for an increasingly shorter time before sinking below the horizon. It eventually disappears in the dazzle of the setting Sun during the first evenings of February. Saturn is in solar conjunction on February 16, when it passes behind our star. The ringed planet will slowly return to the morning sky in early spring.

In addition to its encounter with Venus on January 22 and 23, Saturn also gets a visit from the crescent Moon, which lies 5 degrees to the left of the planet **on December 26** at twilight and in the early evening, above the south-southwestern horizon.

Last glimpse of Jupiter

Before **Venus** steals the show for good, **Jupiter** still draws our attention this winter. At the start of the season, the giant planet shines very high in the south at twilight and sets in the west in the late evening. But as the weeks go by, we'll also see it slowly sink lower: By the end of January, the planet can be spotted less than 40 degrees high in the southwest, and it sets before 10 p.m.; at the end of February, Jupiter shines only about 20 degrees above the west-southwestern horizon at twilight and sets shortly after 8 p.m.

This winter, keep an eye on the slowly shrinking gap between Jupiter and Venus. In February, it becomes obvious that the two brilliant planets are drawing closer to each other from one evening to the next. **On March 1 at twilight**, Jupiter and Venus cross paths in a spectacular conjunction that sort of marks a changing of the guard: Jupiter then moves even closer to the horizon, while Venus continues to rise and becomes the real focal point as night falls.

When springtime comes around, Jupiter can be found shining low in the western

twilight sky. The giant planet disappears by the end of March. It then reaches solar conjunction on April 11 and re-emerges in the morning sky in May.

In addition to the magnificent Venus-Jupiter conjunction on March 1, check out the crescent Moon 5½ degrees to the left of the giant planet **on the evening of December 29**. Better still, the crescent Moon will hang just 2½ degrees from Jupiter **on January 25 at twilight**, and just 1 degree from the planet **on the evenings of February 22 and March 22**.

Mars pulls away and dims

The **Mars** opposition is now a thing of the past and the Red Planet is again receding from Earth. By late December, its apparent disc is still 15 arc seconds in diameter, slightly less than when the planet was closest to Earth; a telescope will nonetheless deliver interesting views of the Red Planet, especially when it hangs very high in the sky. But as the distance between Earth and Mars increases ever more rapidly this winter, the planet grows dimmer and smaller. It gradually loses its radiant appearance and falls below the symbolic threshold of zero magnitude around February 8, at roughly the same time its diameter is less than 10 arc seconds. This marks the end of the period for observing Mars through a telescope for this opposition.

Mars's retrograde motion among the stars of the constellation Taurus ends on January 12; the Red Planet stops about 7 degrees to the left of the Pleiades before resuming its direct eastward motion and embarking on a months-long trek through the constellations.

The Moon and Mars cross paths several times this winter. **On January 3 in the early evening**, the waxing gibbous Moon lies 1½ degrees from Mars. **During the night of January 30 to 31**, the Moon passes less than ¼ of a degree below the Red Planet; the pair can be spotted in the west around midnight, above the Pleiades and Hyades. Lastly, **around the middle of the night of February 27-28**, the gibbous Moon again comes less than ⅓ of a degree from Mars; the duo can be found about 15 degrees above the west-northwestern horizon.

Mercury in the evening sky

Mercury kicks off 2023 in inferior conjunction (January 7) and immediately moves into the morning sky, where it makes an average appearance **from January 15 to February 12**. However, the best visibility occurs from January 20 to February 9, and Mercury is brighter toward the end of this period. Look for the tiny planet very low on the east-southeastern horizon, 45 minutes before sunrise; binoculars can help you locate it in the glow of dawn.

Clear skies!

Research and text: **Marc Jobin**

SEASONAL MILESTONES

The **winter solstice** occurs on December 21, 2022 at 4:48 p.m. EST, and the **spring equinox** is due on March 20, 2023 at 5:25 p.m. EDT. Winter will last precisely 88 days 23 hours and 37 minutes.

Earth reaches **perihelion** on January 4 at 11:17 a.m. Our planet is then closest to the Sun, "just" 147 098 928 km away.

The switch to Eastern Daylight Time takes place early on Sunday morning, March 12: Set your clocks ahead one hour.

PHASES OF THE MOON

(Eastern Standard Time, except * = Daylight Time)

New moon	First quarter
December 23 at 5:17	December 29 at 20:20
January 21 at 15:53	January 28 at 10:19
February 20 at 2:06	February 27 at 3:06
March 21 at 13:23*	March 28 at 22:32*
Full moon	Last quarter
January 6 at 18:08	January 14 at 21:10
February 5 at 13:29	February 13 at 11:01
March 7 at 7:40	March 14 at 22:08*
April 6 at 0:35*	April 13 at 5:11*