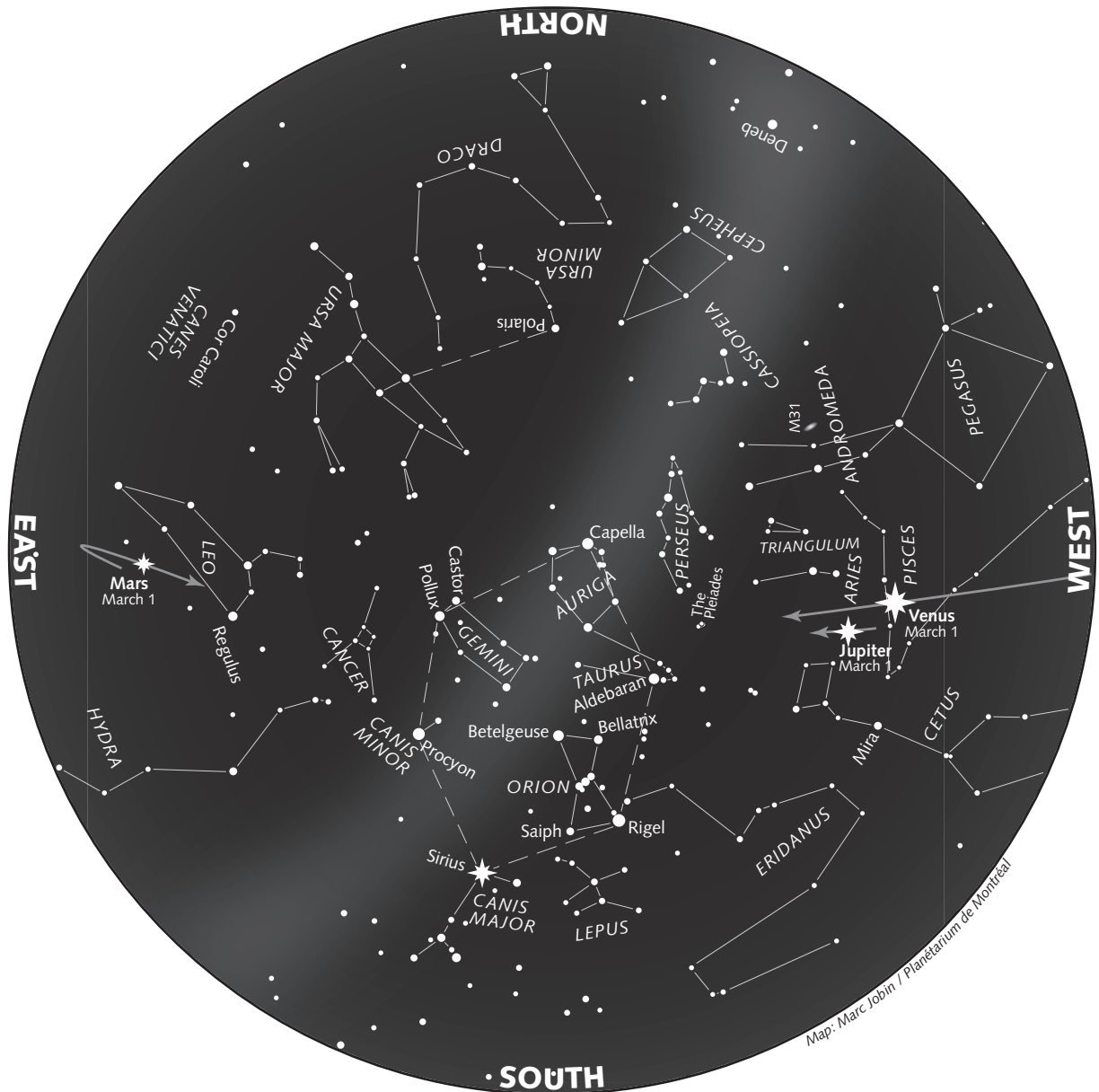


The Starry Sky — Winter 2011-12



How to Use this Map

The above 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 light-coloured area outlines the Milky Way.

Visit our Website: planetarium.montreal.qc.ca

This Star Map is Accurate 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.

The Sky This Winter

There's a meeting of planets in the evening sky! Venus, the brightest "star" in the heavens, is first to capture our attention at nightfall. But she's not alone: Jupiter, the "other" evening star, slowly closes in on her. As for Mars, the Red Planet rules the middle of the night, while Saturn is best seen just before dawn.

Venus, queen of the evening

Venus has been illuminating the twilight for several weeks now, but this winter it will be truly dazzling. During the last week of December, Venus — brightest of the planets — appears above the southwest horizon at nightfall, and sets about two-and-a-half hours after the Sun. As the weeks pass, the brilliant planet will draw farther from the Sun, gradually climbing higher in the sky and moving westward along the horizon. Just a few days before spring begins, the dazzling "evening star" will reach an altitude of forty degrees and set more than four hours after the Sun! Over the course of the winter, notice how Venus and Jupiter approach one another: **The two luminaries meet in the twilight on March 13** (see the following section for details).

Through a small telescope, Venus' disk will double in apparent size between December and March, growing from 12 to 22 arc seconds. Meanwhile, the planet's phase will also change from gibbous to quarter. However, the most dramatic transformation will occur in April and May. To be continued...

The crescent Moon will be near Venus on the evenings of December 26, January 25 & 26, and on February 25. Look for the

Seasonal Milestones

The **winter solstice** occurs on Dec. 22, 2011, at 0:30 EST; the **spring equinox** takes place on March 23, 2012, at 1:14 EDT. Winter will last 88d 23h 44min.

Earth will be at **perihelion**, the point in its orbit closest to the sun, on January 4 around 20:00 EST. The Earth-sun distance will then be 147,097,334 km.

We return to **Eastern Daylight Time** early on Sunday morning, March 11: Clocks are set ahead one hour.

Phases of the Moon

(Eastern Standard Time,
except * = Eastern Daylight Time)

New moon	First quarter
Dec. 24 at 13:06	Jan. 1 at 1:15
Jan. 23 at 2:39	Jan. 30 at 23:10
Feb. 21 at 17:35	Feb. 29 at 20:21
March 22 at 10:37*	March 30 at 15:41*
Full moon	Last quarter
Jan. 9 at 2:30	Jan. 16 at 4:08
Feb. 7 at 16:54	Feb. 14 at 12:04
March 8 at 4:39	March 14 at 21:25*
April 6 at 15:19*	April 13 at 6:50*

soft glow of earthshine on the unlit part of the lunar crescent: At twilight, with Venus shining nearby, like a brilliant diamond, the scene will be enchanting.

Jupiter accompanies Venus

This winter, another brilliant planet will appear at twilight and accompany Venus throughout the evening: it's the giant planet, **Jupiter**. As the season begins, Jupiter first appears above the southeast horizon and culminates high in the south around mid-evening. But don't wait for it to decline in the west if you wish to observe it with a telescope: Jupiter's ever-changing cloud bands, and the perpetual movement of its Galilean moons, are always a fascinating sight. The prime period for telescopic observation will occur progressively earlier in the evening, and toward the end of January, you'll need to begin your observations at twilight.

As the weeks progress, Jupiter approaches the Sun, and sets earlier and earlier. Meanwhile, Venus, to the contrary, climbs farther away from the Sun. As a result, the two brightest planets appear to slowly approach each other. In fact, **the gap between them will continue to diminish, day by day, until their spectacular twilight conjunction on March 13**, at which time the dazzling duo will be barely three degrees apart. But don't be deceived: Despite their apparent proximity, Jupiter is actually seven times farther away than Venus!

The Moon will appear near Jupiter on the evening of January 2, 30 & 31, and again on February 26.

The opposition of Mars

Mars arrives at opposition on March 3, and for several weeks surrounding that date, the distance between Earth and the Red Planet will drop to a minimum. This optimum period for observing Mars through a telescope, occurs every 26 months or so. Unfortunately, this particular opposition is not so favourable, since the distance separating the Earth and Mars will remain relatively large. As a result, the planet's orange disk will appear quite small, making it difficult to resolve surface details.

Mars' retrograde loop is easy to follow with the naked eye: From the end of January to mid-April, the planet moves westward (to the right) among the stars, and heads toward Regulus, in Leo. Also, notice how much Mars increases in bright-

ness throughout January and February, right up to its opposition. At the beginning of winter, its brightness rivals Betelgeuse, in Orion, but it eventually becomes as luminous as Sirius, though never surpasses it. With its striking orange colour well evident, the Red Planet certainly merits its name.

The Moon will be near Mars on the nights of January 13 to 14, February 9 to 10, and again on March 7 to 8.

Saturn is back

Saturn moves very slowly among the constellations of the zodiac, and this year we find it in the vicinity of Spica, the brightest star in Virgo. The cream-coloured planet is to Spica's left, and is the brighter of the two: Spica, on the other hand, shines with a vivid blue colour. At the beginning of January, this remarkable duo rises, above the eastern horizon, at around 2:00 in the morning; but at the beginning of February, they rise around midnight, and at the beginning of March, around 10:00 in the evening. Saturn culminates in the south during the latter half of the night: If you are up before dawn, why not point your telescope at the planet. Its rings are well worth the effort!

The last quarter Moon will appear near Saturn and Spica during the small hours of the morning on January 16. A gibbous Moon will also appear near the duo during the nights of February 11 to 12 and 12 to 13, and once more during the night of March 10 to 11.

Mercury at twilight

Mercury passes behind the Sun (superior conjunction) on February 7, and gradually reappears in the evening sky after February 20. This is an excellent apparition for the tiny planet, which can be found low on the west-southwest horizon, twenty minutes after sunset. You won't have much time to spot it though — about 45 minutes at most — since the furtive planet descends rapidly toward the western horizon. Mercury will be brightest, and thus easiest to see, at the beginning of this favourable window, which will last until March 10. After this date, the furtive planet will rapidly plunge toward the Sun. On February 22, look for a very thin lunar crescent, about 5 degrees to the right of Mercury.

Clear skies!

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