The Pocket Planetarium ★

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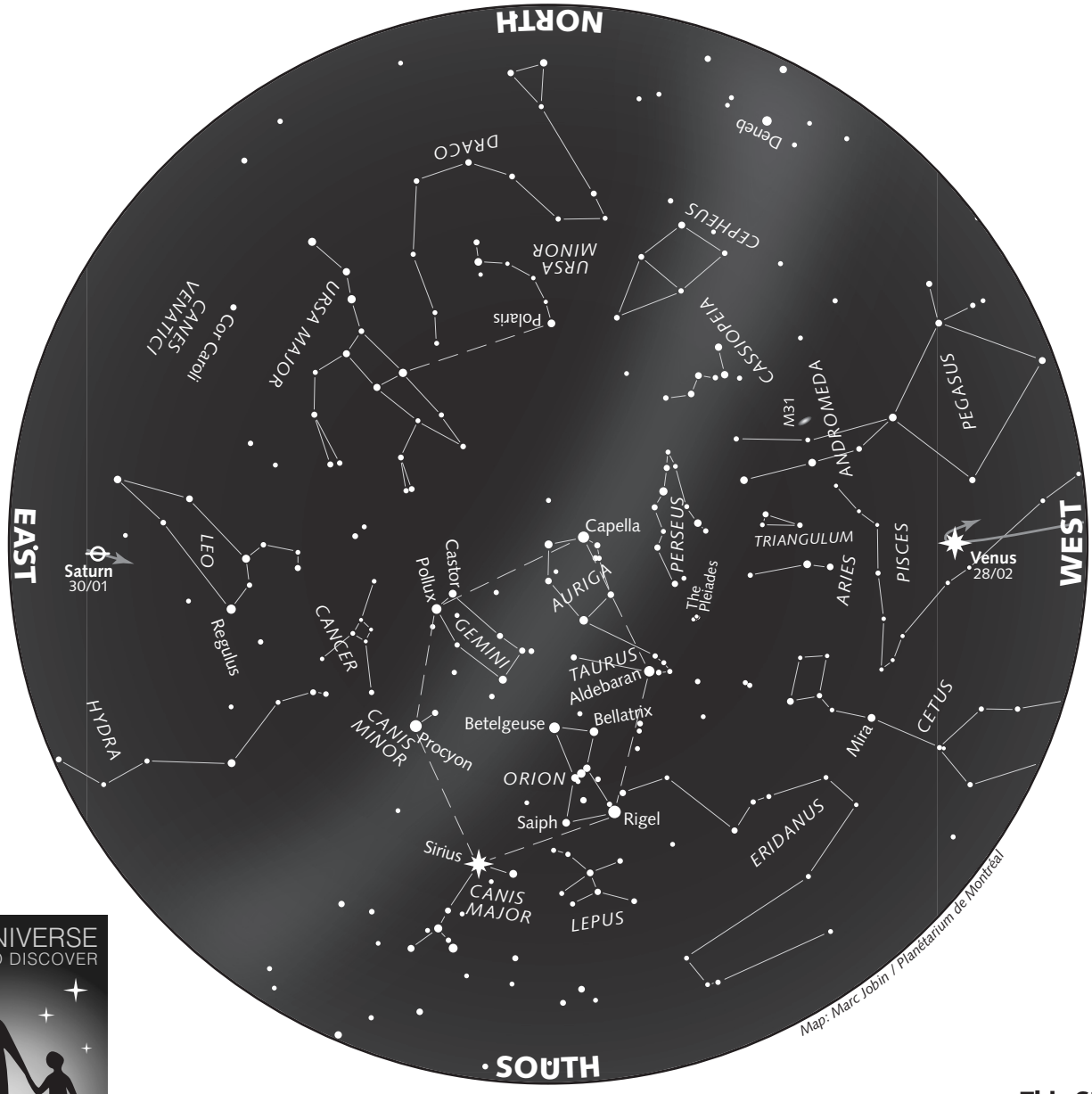
The Starry Sky — Winter 2008-09



Map: Marc Jobin / Planétarium de Montréal

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: www.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.

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The Sky This Winter

As the season begins, Venus and Jupiter dominate the evening twilight, while Mercury and the Moon rise to join the giant planet, setting the stage for a magnificent year-end conjunction. Throughout winter, Saturn adorns the stars of Leo in the mid-evening sky. By mid-season, Mars re-appears on the planetary scene after a five-month absence, rising in the east at dawn.

Venus dominates the evening

This winter, **Venus** dominates the western evening sky: By mid-February, the dazzling planet reaches an altitude of nearly 40 degrees at twilight, and sets around 21:00 — nearly 4 hours after the Sun!

From December 28 to December 31, Venus appears well above Mercury and Jupiter creating a beautiful planetary scene in the evening twilight. The trio can be found above the southwest horizon around 30 minutes after sunset. The Moon adds to the beauty of the setting as it moves among the three planets on December 29 and 30. After December 30, look for the faint glow of Earthshine illuminating the dark part of the crescent Moon: it's a truly beautiful sight! Don't wait for the sky to darken completely or you'll miss the show! And use binoculars if you have them, to make the planetary grouping stand out against the glow of twilight.

A thin crescent Moon appears just above Venus on the evenings of December 31 and January 30, and right below the dazzling planet on the evening of February 27.

Seasonal Milestones

The **winter solstice** takes place on December 21, at 07:04 EST, and the **spring equinox** will occur on March 20 at 07:44 EDT. Winter 2008/09 will last exactly 88d 23h 40m.

On January 4 at 10:00, the Earth is at **perihelion,** the point in its orbit closest to the Sun. The Earth – Sun distance will then be 147,095,260 km.

On Sunday morning, March 8, at 02:00, we return to Eastern **Daylight Time,** and clocks are set one hour ahead.

Phases of the Moon

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

First quarter	Full moon
Dec. 5 at 16:26	Dec. 12 at 11:37
Jan. 4 at 6:56	Jan. 10 at 22:27
Feb. 2 at 18:13	Feb. 9 at 9:49
March 4 at 2:46	March 10 at 22:38*
Last quarter	**New moon**
Dec. 19 at 5:29	Dec. 27 at 7:22
Jan. 17 at 21:46	Jan. 26 at 2:55
Feb. 16 at 16:37	Feb. 24 at 20:35
March 18 at 13:47*	March 26 at 12:06*

Mercury moves from dusk to dawn

As the season begins, **Mercury** appears below Jupiter and Venus, just above the southwest horizon after sunset. But the situation changes quickly. By December 31, Mercury rises just to the left of Jupiter, and together with Venus, the trio provides a stunning twilight scene. Early in January, Mercury sets about 1½ hours after the Sun, creating a good opportunity to see the elusive planet. However, Mercury and Jupiter's presence are short-lived: Both planets disappear into the Sun's glare after mid-January. By month's end, though, Mercury moves into the dawn sky and quickly ascends above the southeast horizon. During the first week of February, the tiny planet rises nearly 1½ hours before the Sun, providing another observing opportunity. After mid-February, the observing window rapidly closes, and by the beginning of March the tiny planet is lost, once more, in the Sun's glare.

An extremely thin lunar crescent appears below Mercury in the evening twilight on December 28, and to the right of Mercury in the dawn twilight, on the morning of February 22.

Jupiter follows Mercury

Jupiter has dominated the southwest horizon throughout the fall, and as winter begins, the giant planet prepares to leave the evening sky. But Jupiter does not depart without a final flourish. As the year ends, the brilliant giant stars in a celestial performance with Venus, Mercury and the Moon: The four brightest objects in the evening sky form a beautiful grouping against the glow of twilight **on the evening of December 31** — an event not to be missed! Following this spectacular show, the giant planet rapidly descends into the Sun's glare, where it remains until mid-February. Then, Jupiter returns with a dramatic dawn conjunction. On February 15, the giant planet rises about 45 minutes before the Sun and appears to the left of Mars, above the southeast horizon, Next, on February 23, it's to the left of Mercury. Binoculars will enhance your view of this planetary show.

The lunar crescent appears near Jupiter on the evenings of December 28 and 29 and on the mornings of February 22 and 23.

Saturn, a nighttime fixture

As winter begins, **Saturn** is just above the eastern horizon at 22:30, but as the season progresses the ringed planet rises earlier and earlier. Saturn begins its retrograde movement on January 1, extending its slow trek through Leo by several months. The planet's eastward motion among the stars is reversed, taking it from the eastern border of Leo, back toward the centre of the constellation. Saturn is not particularly bright because its rings appear about a degree from edge-on, reflecting less sunlight than usual back toward Earth. The nearly "ringless" planet is in opposition on March 8, at which point it rises at sunset and sets at sunrise.

A waning gibbous Moon appears below Saturn on the evenings of January 16 and February 11, while the full Moon appears below the ringed planet on the evening of March 10.

Mars re-appears at dawn

The red planet has been absent from the planetary scene, obscured by the Sun's glare since late September. But by mid-February, it finally re-emerges above the southeast horizon at dawn, about 30 minutes before sunrise. On February 10, Mars stars in a beautiful conjunction, with Jupiter and Mercury; Jupiter appears below the tiny red planet, while Mercury appears above. By February 17, Mars moves to about half-a-degree below Jupiter. A waning crescent Moon appears to the left of Mars on the morning of February 23.

Happy observing!

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