The Pocket Planetarium ★

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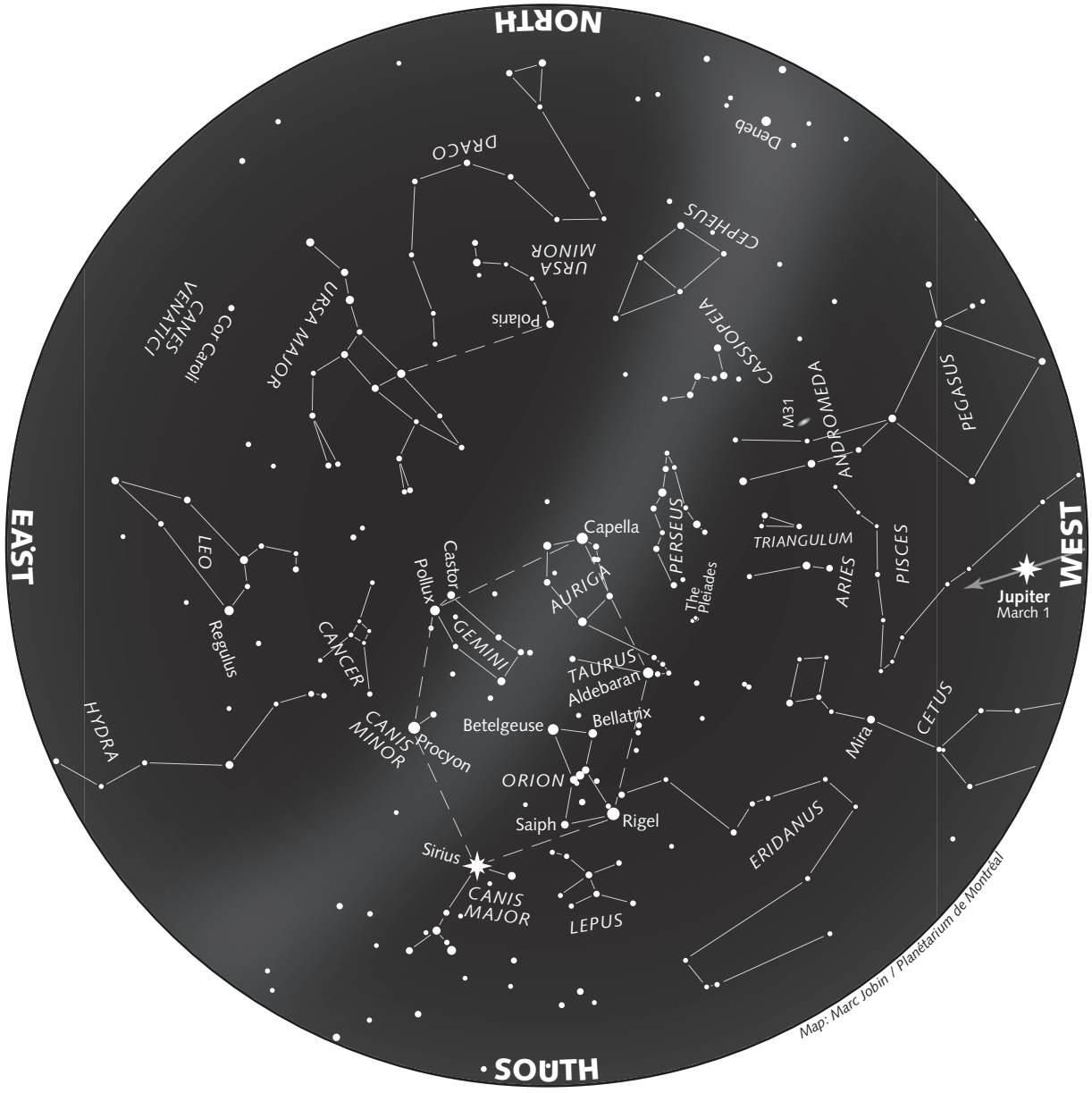
The Starry Sky — Winter 2010-11



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

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The Sky This Winter

This winter, Jupiter dominates the sky during the evening hours, while on the other side of the night, brilliant Venus reigns supreme until daybreak. Between the two, Saturn bridges the gap, occupying the heart of our cold winter nights.

Jupiter draws our attention

Jupiter is the bright star that shines in the south or southwest, as the sky darkens at day's end. The giant planet is currently moving eastward among the faint stars of Pisces, and has already culminated by twilight in December. Don't delay your telescopic observations of Jupiter because the planet gets lower in the sky, and sets progressively earlier as the season advances. In fact, toward the end of December, Jupiter sets before midnight, but three months later, around the March equinox, the planet sets less than an hour after the Sun: It will be totally lost in the glare of sunset during the first weeks of spring. This will be your last chance to witness the return of Jupiter's South Equatorial Belt, one of the planet's two dark cloud bands, which disappeared early in 2010.

From March 13 to 17, as Jupiter closes in on the Sun, it crosses paths with Mercury, which is moving in the opposite direction. This planetary encounter occurs at twilight, above the western horizon.

A crescent Moon will be in Jupiter's vicinity on the evenings of January 9 and 10; on February 6 (look for earthshine on the unlit part of the Moon); and on March 6 (the thin lunar crescent will be just 6 degrees to Jupiter's right).

Saturn at the heart of the night

Saturn spends the year in the constellation of Virgo, not far from the bright star, Spica. The ringed planet is mainly visible after midnight this winter, though it appears earlier in the evening as the season advances. During mid-January, Saturn rises in the east around midnight and culminates at 6 in the morning; by mid-February, it rises around 10 in the evening and culminates at 4 A.M.; and in March, it clears the eastern horizon at 8 in the evening and culminates around 2 A.M. With the arrival of spring, and with Saturn at opposition (April 3), interesting observations will be possible without having to wake up during the frigid, pre-dawn hours.

The moon will appear near Saturn on several occasions during the winter months. The last quarter will be in Saturn's neighbourhood on the mornings of December 28 and 29. The gibbous Moon will be near the ringed planet on the night of January 24 to 25, and again on the night of February 20 to 21. And finally, the full Moon will be in Saturn's vicinity during the night of March 19 to 20, and again the following night, March 20 to 21.

Venus, star of the morning

On January 8, **Venus** reaches its greatest elongation, 47 degrees west (that is, to the right) of the Sun. Despite its great separation from our "solar star," the planet's position deteriorates over the following weeks, because its orbit intersects with the horizon at an increasingly shallow angle. As a result, the Morning Star will appear lower and lower on the eastern horizon at dawn. While Venus rises nearly three hours before the Sun at the beginning of January, by March the difference will be less than an hour-and-a-half. Even so, the dazzling planet remains visible almost until sunrise. Through a telescope, Venus goes from a thick crescent phase in December, to a "half-Venus" early in January, and gibbous for the rest of winter. Meanwhile, its apparent size will diminish as the planet gets farther from Earth.

The crescent Moon will be near Venus on the mornings of December 31, January 29 and 30, and again on March 1: On this last occasion, Venus and the Moon will be less than four degrees apart.

Two apparitions for Mercury

Since **Mercury** is the closest planet to the Sun it is only visible during brief periods, so one has to make the most of these rare opportunities. Over the course of this winter, Mercury will be visible on two occasions. The first window of observation will take place **at dawn,** in January: The elusive planet can be seen starting on January 1 (it is too faint before then) and remains visible until the 20th. You'll find it above the southeast horizon, below and to the left of Venus, about 30 minutes before sunrise. After the 20th it gets lower, and harder to see, despite its brightness. Mercury's greatest elongation, 23 degrees west of the Sun, is on January 9. The crescent Moon will appear 5 degrees to the lower right of the tiny planet on the morning of January 2.

After passing behind the Sun in February, Mercury reappears around March 10 **at twilight:** You'll find it above the southwest horizon about 30 minutes after sunset. Jupiter will already be visible in the area, and diminutive Mercury will pass next to it between March 13 to 17: **The two planets will be within 2 degrees of each other on the 15th;** Jupiter, the brighter of the two, will be on the left. Mercury's greatest elongation from the Sun (18 degrees) will occur on March 23, but the elusive planet will only remain visible until the 25th or so: Its brightness quickly deteriorates after that, making it difficult to find in the glow of twilight.

Clear skies!

Research and text: **Marc Jobin**
Adaptation: **Louie Bernstein**

Seasonal Milestones

The **winter solstice** takes place on December 21, 2010, at 18:38 EST; the **spring equinox** will occur on March 20, 2011, at 19:21 EDT. Winter will last exactly 88 d 23 h 43 min.

On January 3 at 14:00 EST, the Earth will be at **perihelion,** the point in its orbit closest to the Sun. The Earth – Sun distance will then be 147,105,761 km.

We switch to **Daylight Saving Time** early on Sunday morning, March 13: Clocks jump forward one hour.

Phases of the Moon

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

First quarter	Full moon
Dec. 13 at 8:59	Dec. 21 at 3:13
Jan. 12 at 6:31	Jan. 19 at 16:21
Feb. 11 at 2:18	Feb. 18 at 3:36
March 12 at 18:45	March 19 at 14:10*
Last quarter	**New moon**
Dec. 27 at 23:18	Jan. 4 at 4:03
Jan. 26 at 7:57	Feb. 2 at 21:31
Feb. 24 at 18:26	March 4 at 15:46
March 26 at 8:07*	April 3 at 10:32*

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