The Pocket Planetarium ★

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Astronomical Information Newsletter of the Planétarium de Montréal

The Starry Sky — Autumn 2010

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 Daylight Time, except where mentioned otherwise)

September 21 at 1 a.m.
October 6 at midnight
October 21 at 11 p.m.
November 6 at 9 p.m. EST
November 21 at 8 p.m. EST
December 6 at 7 p.m. EST

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The Sky This Autumn

There's a changing of the guard in the heavens: Venus, Saturn and Mars depart the evening sky this fall, leaving centre stage to Jupiter. But then, Venus and Saturn reappear in the morning sky and dominate the dawn.

Jupiter grabs the spotlight

Jupiter is in opposition on September 21, as if to underscore the arrival of autumn. Right now, the brilliant planet rises at sunset and sets at dawn. At the beginning of autumn, Jupiter culminates high in the south around midnight, but this optimum position for telescopic observation will come earlier as the season progresses. Don't miss the opportunity to view the giant planet through an optical instrument, be it a small telescope or even binoculars.

You'll notice that one of Jupiter's two main, dark cloud belts is presently "missing," hidden under a blanket of pale ammonia clouds; however, it could reappear at any time over the next few months. This shows just how fluid and dynamic Jupiter's atmosphere is: It's a situation worth watching! On top of that, the fascinating orbital ballet of Jupiter's Galilean moons offers a additional bonus.

Speaking of moons, Jupiter and the full Moon will form a remarkable, naked-eye duo **on the night of September 22 to 23.** The two objects will reunite again on October 19 to 20; November 15 and 16; and once more on December 13.

Double bill for Mercury

Mercury, the closest planet to the Sun, travels very quickly. Over the course of a few weeks, the tiny orb can easily move from the evening to the morning sky. Since it never wanders far from the Sun, one must take advantage of the brief intervals when the planet is bright enough to spot with ease, close to the horizon either at dusk or dawn. This autumn, Mercury spoils us with not one, but two notable periods of visibility.

Mercury appears in the morning sky first, during the second half of September and the first week of October. The planet is situated near the eastern horizon, about 30 minutes before sunrise; it appears higher in the sky at the beginning of this period, then gradually loses altitude before vanishing in the glow of dawn.

After passing behind the Sun (superior conjunction) on October 16, Mercury gradually reappears in the evening sky. The tiny planet is once again visible low in the southwest, from the last week of November to the first week of December, about 20 or 30 minutes after sunset. Mercury then plunges toward the Sun and is at inferior conjunction on December 20.

Saturn at night's end

The planet **Saturn** is not visible during the first few weeks of autumn because it passes behind the Sun (conjunction) on September 30. However, after mid-October, it reappears in the east at dawn and rapidly gains altitude as it separates from the Sun. Toward the end of the season, Saturn rises around one o'clock in the morning and culminates in the south at dawn. The planet is then ideally positioned for observing: Early risers can take advantage of this opportunity to admire its rings through a telescope. The crescent Moon will be in Saturn's vicinity on the mornings of November 3 and 4, and again on December 1.

Venus, the morning star

At the beginning of autumn, **Venus** sinks closer to the southwest horizon and becomes harder to see after sunset. It disappears in the glow of twilight during October and passes between the Sun and Earth (inferior conjunction) on October 28. Venus then reappears as the morning star around the second week of November. The geometry of this apparition is quite favourable: The planet quickly ascends above the east-southeast horizon and rapidly gains altitude from one morning to the next. By autumn's end, Venus rises 4 hours before the Sun! The crescent Moon will be near Venus on the morning of December 2, about 7 degrees to the lower right of the brilliant planet.

Goodbye Mars!

Mars is very close to the southwest horizon at twilight and is quite faint. As a result, the Red Planet is difficult to locate this autumn even though it passes close to Venus in September, and Mercury in November. In December, Mars completely vanishes in the glow of twilight.

Clear skies!

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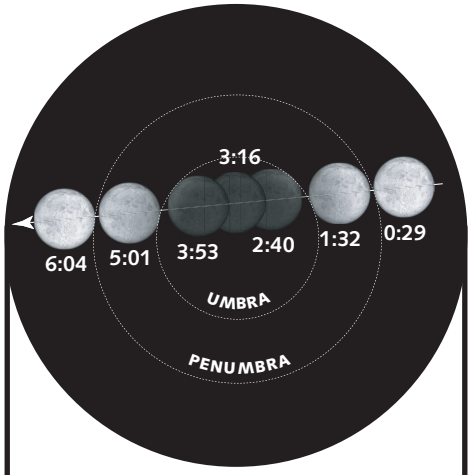
Adaptation: **Louie Bernstein**



M. Jobin / Planétarium de Montréal; data courtesy of F. Espenak, NASA/GSFC; moon images simulated with Starry Night Pro/Imaginova

A total eclipse of the Moon

Autumn ends by ushering in the winter solstice with a flourish — the first **total lunar eclipse** in almost three years (the last being on February 20, 2008): This one will be visible throughout Quebec **during the night of December 20 to 21.** The show will start during the second half of the night: Partial phases begin at 01:32 EST. During totality, which will be between 02:40 and 03:53 (mid-eclipse is at 03:16), you'll see the full Moon turn red, surrounded by the brilliant stars of the winter hexagon, as it passes through the Earth's shadow. The final partial phases of the eclipse will occur at 05:01.

Despite the late hour, this is a show you shouldn't miss: The next total lunar eclipse, visible in Quebec, won't happen until April 2014…

Seasonal Milestones

The **autumn equinox** takes place on September 22, at 23:09 EDT; the **winter solstice** will occur on December 21 at 18:38 EST; Autumn will last exactly 89 d 20 h 29 min.

On Sunday November 7, early in the morning, we **return to Eastern Standard Time:** Clocks are set back one hour.

Phases of the Moon

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

First quarter	Full moon
Sept. 15 at 1:50	Sept. 23 at 5:17
Oct. 14 at 17:27	Oct. 22 at 21:36
Nov. 13 at 11:38*	Nov. 21 at 12:27*
Dec. 13 at 8:59*	Dec. 21 at 3:13*
Last quarter	**New moon**
Sept. 30 at 23:52	Oct. 7 at 14:44
Oct. 30 at 8:46	Nov. 6 at 0:52
Nov. 28 at 15:36*	Dec. 5 at 12:36*
Dec. 27 at 23:18*	Jan. 4 at 4:03*

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