The Pocket Planetarium ★

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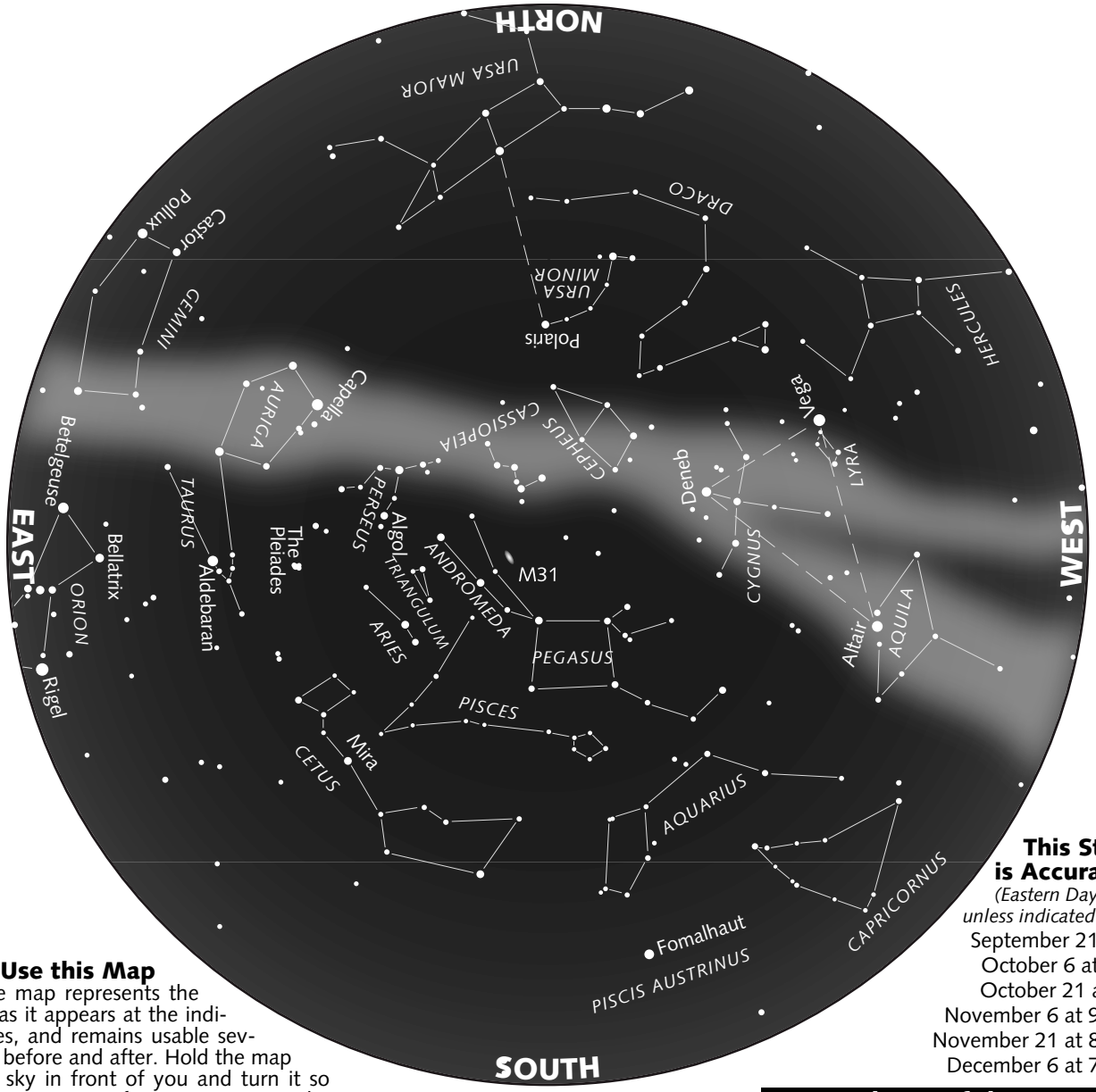
The Starry Sky — Autumn 2004



Map: Marc Jobin / Planétarium de Montréal

This Star Map is Accurate on...
(Eastern Daylight Time, unless indicated 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

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 contellations. The light band outlines the Milky way.

Seasonal Milestones

The **autumn equinox** occurs on September 22 at 12:30 EDT. The **winter solstice** will take place on December 21 at 07:42 EST. Summer 2004 will last 89d 20h 12m.

We **return to Standard Time** at 03:00 on the night of October 30 to 31. Clocks fall back one hour.

Phases of the Moon

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

New moon	First quarter
Sept. 14 at 10:29*	Sept. 21 at 11:54*
Oct. 13 at 22:48*	Oct. 20 at 17:59*
Nov. 12 at 9:27	Nov. 19 at 0:50
Dec. 11 at 20:29	Dec. 18 at 11:40
Full moon	**Last quarter**
Sept. 28 at 9:09*	Oct. 6 at 6:12*
Oct. 27 at 23:07*	Nov. 5 at 0:53
Nov. 26 at 15:07	Dec. 4 at 19:53
Dec. 26 at 10:06	Jan. 3 at 12:46

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Montréal

The Sky This Autumn

This season, the planets are reserved for early risers: The best planetary views are had very late at night or at dawn. To compensate for the lack of evening planets, there will be a total eclipse of the Moon; and on another occasion, the Moon will pass in front of Jupiter, momentarily blocking the planet from view.

Venus dominates daybreak

This fall, Venus is an extraordinary sight in the morning sky. As the season progresses the dazzling planet rises later and later while the gap between Venus and the Sun steadily diminishes. By the end of September, Venus rises nearly four hours before the Sun, but just two hours before the Sun by late December. Consequently, the brilliant planet appears lower in the dawn sky, as it gradually sinks in the southeast. At the end of autumn, as morning rush hour begins, drivers will certainly notice Venus shining above the horizon.

A thin crescent Moon appears near Venus on the mornings of October 10, November 10, and again on December 9 & 10. **On the morning of October 3,** Venus passes 1/4 of a degree to the right of Regulus, the brightest star in Leo. **On November 4 & 5,** at dawn, Jupiter and Venus graze one another (see the following description). Finally, **on December 6,** Venus is one degree to the left of Mars. Because there is a great difference in brightness between the two planets, binoculars can help you spot Mars.

Jupiter reappears at dawn

Though Jupiter is not quite as bright as Venus, this fall it steals the show because of a series of close encounters, most notably with the crescent Moon. Jupiter starts the season behind the Sun, but reappears gradually in the east at dawn during the first half of October. From night to night, the planet gains altitude and rapidly approaches Venus. **On the mornings of November 4 & 5,** the two bright planets are less than a degree from one another. (They are separated by 2/3 of a degree on the 5th.) This spectacular conjunction should not be missed!

A few days later, **at dawn on November 9,** a thin crescent Moon appears barely two degrees above Jupiter. Nearby, brilliant Venus completes the picture: A celestial masterpiece to be admired one hour before sunrise. Over the following hours the Moon continues to approach Jupiter, and shortly after 11:00 a.m. it passes completely in front of the giant planet! But since the event is in broad daylight, this occultation will be difficult to observe.

However, all is not lost! A month later, **on December 7,** Jupiter and the Moon are again in close proximity. That night, the Moon occults Jupiter once more. Later, as dawn colours the sky, both objects are found in a tight celestial embrace. A truly magical moment!

More about the occultations of Jupiter on our website **www.planetarium.montreal.qc.ca**

Saturn prepares its return

Saturn spends the autumn months in Gemini, appearing like the adopted brother of the twin stars, Pollux and Castor. As of October, the ringed planet rises in the east before midnight. Later at night Saturn clears the turbulent layers of atmosphere that hug the horizon. It culminates in the south just before dawn: this marks the best time to observe the planet with a telescope. Nothing compares to your first glimpse of Saturn through a telescope. It's guaranteed to give you a thrill!

To help you identify Saturn, the Moon is nearby on the morning of October 7; on the nights of November 2 to 3 and November 3 to 4; and again on the night of November 30 to December 1.

Happy observing!

Research, text and illustrations: **Marc Jobin**
Translation: **Louie Bernstein**

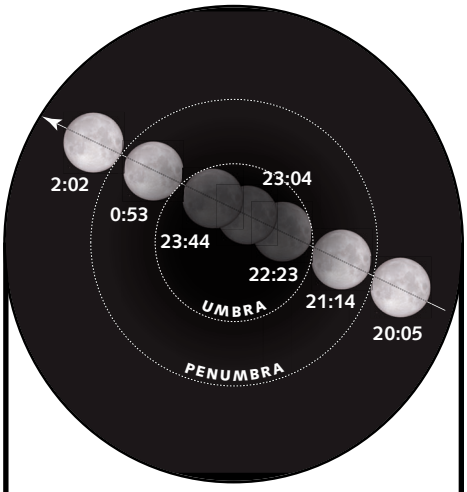

Diagram: M. Jobin / Planétarium de Montréal, based upon calculations by Fred Espenak, NASA/GSFC

A Total Eclipse of the Moon

A total lunar eclipse, visible throughout Quebec, will take place **during the late evening on October 27.** The Moon will begin moving through the Earth's shadow cone starting at 21:14 Eastern Daylight Time. Totality will last 81 minutes, from 22:23 to 23:44. During this time, the Moon takes on an impressive reddish-orange glow, caused by sunlight filtered through the Earth's atmosphere. Around mid-eclipse, the upper part of the Moon should appear lighter than the lower half because it is plunged less deeply into the Earth's shadow.

After totality, the partial phases occur in reverse order: The Moon will exit the Earth's shadow completely by 00:53. In all, the event will last 3 hours 39 minutes. Remember, lunar eclipses are completely safe to watch and don't require any special protection.

This is the third lunar eclipse visible from Quebec in slightly under 18 months. Better take advantage of it because the next one won't be until March 3, 2007!

The Pocket Planetarium *is a seasonal information newsletter published by the Planétarium de Montréal, 1000, rue Saint-Jacques, Montréal (Québec) H3C 1G7*
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