The Pocket Planetarium ★

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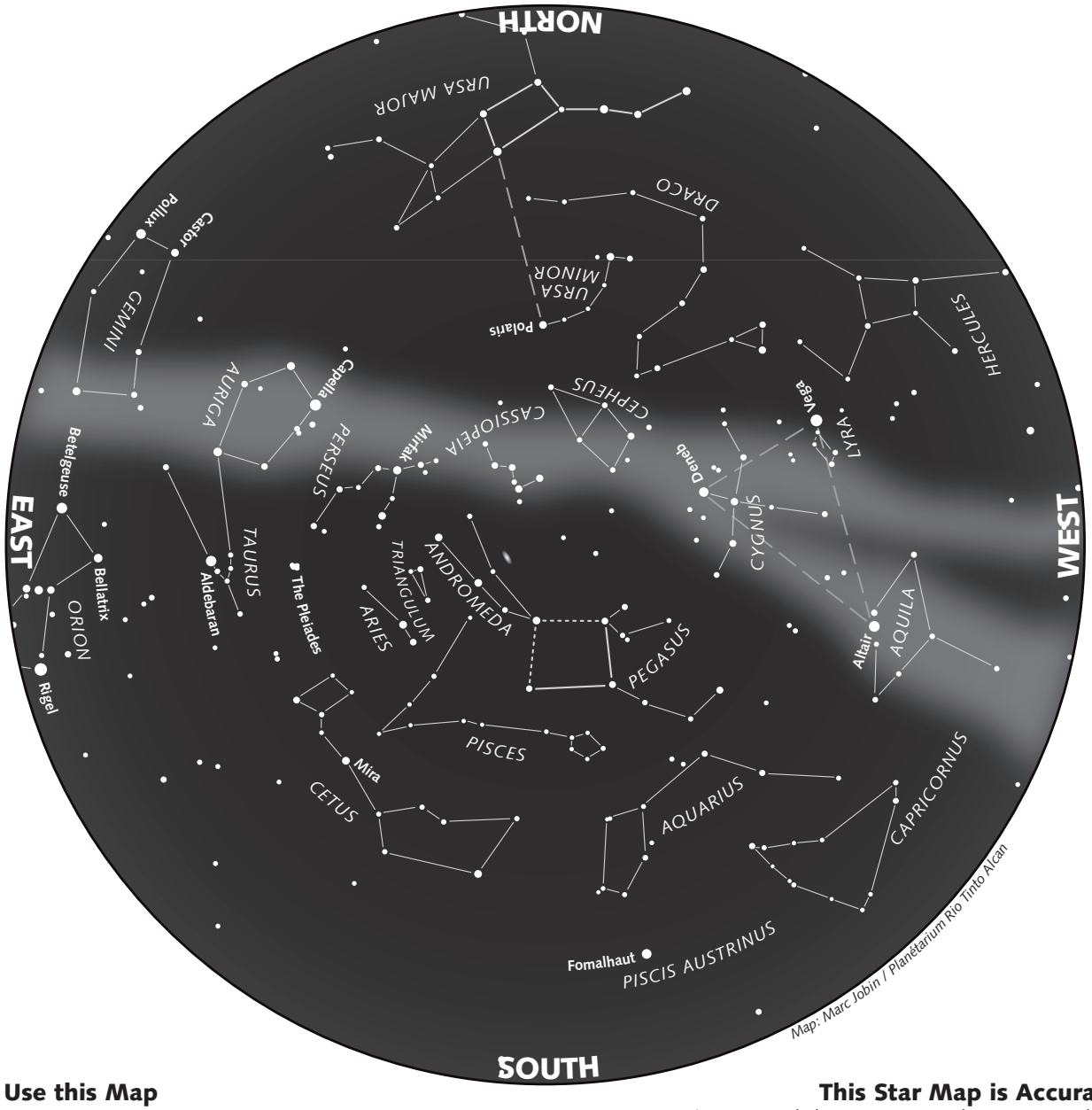
Astronomical Information Newsletter of the Rio Tinto Alcan Planetarium

The Starry Sky — Autumn 2017



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.

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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

The morning sky is where most of the action takes place this fall.
Venus meets up at dawn with Mars and Jupiter, so set your alarm clocks early.

Saturn says goodbye

Once Jupiter disappears in the glow of sunset in early October, **Saturn** remains the only visible planet in the evening sky. In early fall, the ringed planet shines at twilight only about 20 degrees above the south-southwest horizon and then sets just after 10 p.m. As the weeks go by, it appears ever closer to the horizon at nightfall. By late November, it's swallowed by the Sun's glare. Saturn is in conjunction with the Sun on December 21 and reappears at dawn in January.

If you want to glimpse the famous rings one last time through a telescope, do so at dusk and as early in the season as possible because later the planet is too low in the sky. Saturn drifts slowly across the starry background. On November 19, the planet leaves the constellation Ophiuchus and crosses the border into Sagittarius, where it remains till March 2020.

The crescent Moon is very close to Saturn **on the evening of September 26** and wanders near the planet on October 23 and 24. It passes again less than 3 degrees from Saturn **on November 20 at twilight.** On the same evening, Mercury shines 7 degrees under the Moon-Saturn pair just above the southwest horizon about a half-hour after sunset.

Venus approaches the Sun

Since late March, dazzling **Venus** has shone as the Morning Star. In early fall, it emerges above the east-northeast horizon around 4:30 a.m. and lies about 20 degrees above the east horizon in the minutes before sunrise. But as the weeks go by, Venus rises later and later and gradually loses elevation. It slowly slides to the south-southeast and appears ever lower on the horizon at dawn. In December, it lies too close to the Sun and the horizon and is lost in the glow of dawn. Venus moves behind the Sun (superior conjunction) on January 9.

Venus encounters the Moon and other planets in the dawn sky several times this fall. **On October 5,** Mars is only a quarter of a degree under Venus. **On October 18,** the crescent Moon lies 5 degrees to the lower left of Venus. In the second week of November, Jupiter moves away from the Sun and rises rapidly to meet Venus, and **on the morning of November 13,** the two brightest planets are in conjunction, separated by only a quarter of a degree. Look for this amazing pair in the light of dawn, 7 degrees above the east-southeast horizon a half-hour before sunrise. The next day, the gap between Venus and Jupiter widens again. **On November 16,** 45 minutes before sunrise, the crescent Moon arrives on the scene and lies a few degrees above the two bright planets. The next morning, **on November 17,** the crescent Moon now shines 4 degrees to the left of Venus, with Jupiter above them forming a nice triangle.

Mars in the morning sky

Mars is spending fall in the morning sky. The red planet is now at its farthest from Earth and hence not especially bright (mag. +1.8), but its glow gradually increases from week to week. As fall begins, Mars lies to the east under the sickle of Leo one hour before sunrise. Look for a small dot of orangey light between Venus and the horizon, a bit to the left. On the following mornings, Mars quickly approaches Venus, and **on October 5,** the red planet lies only a quarter of a degree under the bright Morning Star. The two planets then move away from each other, Mars drawing away from the Sun and Venus drawing closer. By mid-October, Mars crosses the border of the constellation Virgo. **On October 17,** late at night and at dawn, the crescent Moon lies only 1 degree to the left of Mars, with Venus appearing 7 degrees lower. The crescent Moon drifts near the red planet again on the mornings of November 14 and 15. **On December 13 and 14,** late at night and at dawn, the crescent Moon forms a nice triangle with Mars and bright Jupiter. In late fall, the red planet (now at mag. +1.5) shines 25 degrees above the south-southeast horizon at dawn, at the edge of Libra a few degrees above Jupiter.

Jupiter reappears at dawn

Despite shining brightly, **Jupiter** becomes harder and harder to spot at the very end of September. Look for it low on the west-southwest horizon in the light of the setting Sun. **On the evening of September 21,** the crescent Moon lies 6½ degrees to its right. The Sun eventually catches up to the giant planet, which disappears in the glow of twilight in the first week of October. Jupiter moves behind our star (conjunction) on the 26th.

Jupiter reappears at dawn in the first week of November. You can see it very low on the east-southeast horizon a half-hour before sunrise. The planet moves quickly away from the Sun and toward Venus, and the two bright planets cross paths **on the morning of November 13,** forming a dazzling pair (see the section on **Venus**). The crescent Moon joins them on the mornings of the 16th and 17th. Jupiter rises higher week after week. As fall turns to winter, the giant planet is clearly visible to the east late at night and at dawn. **On the mornings of December 13 and 14,** the crescent Moon creates a nice triangle with Mars and Jupiter (see the section on **Mars**).

Mercury in the evening sky

Visibility periods for **Mercury** are short and alternate between dawn and twilight. In early fall, the tiny planet ends its best showing in the morning sky this year. **Till September 28,** look for a small dot of light at dawn above the east horizon a half-hour before sunrise. Then, from mid-November to early December, Mercury appears in the evening sky. Use binoculars to find it very low on the southwest horizon a half-hour after sunset. The planet is much brighter at the start of this period and dims quickly after December 1.

Clear skies!

Research and text: **Marc Jobin**

Further details and more phenomena at espacepourlavie.ca/en/monthly-sky

Seasonal Milestones

The **autumn equinox** takes place on September 22, 2017 at 4:02 p.m. EDT; the **winter solstice** occurs on December 21 at 11:28 a.m. EST. Fall will last exactly 89 days 20 hours 26 minutes.

We **return to Eastern Standard Time** early on the morning of Sunday, November 5: Clocks are set back one hour.

Phases of the Moon

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

New moon	First quarter
Sept. 20 at 1:30	Sept. 27 at 22:54
Oct. 19 at 15:12	Oct. 27 at 18:22
Nov. 18 at 6:42*	Nov. 26 at 12:03*
Dec. 18 at 1:30*	Dec. 26 at 4:20*
Full moon	**Last quarter**
Oct. 5 at 14:40	Oct. 12 at 8:25
Nov. 4 at 1:23	Nov. 10 at 15:36*
Dec. 3 at 10:47*	Dec. 10 at 2:51*
Jan. 1 at 21:24*	Jan. 8 at 17:25*

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