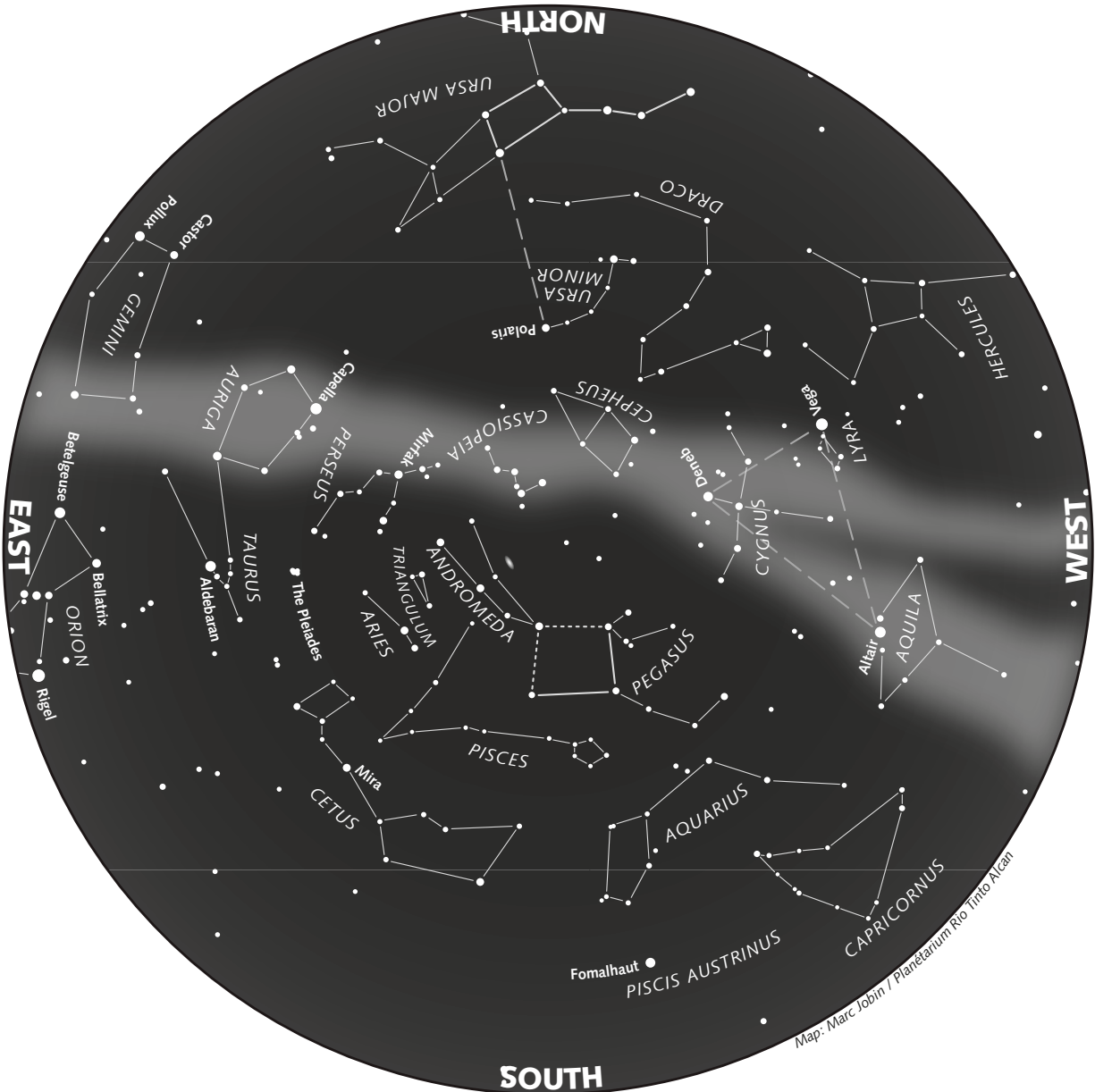


The Starry Sky — Autumn 2015



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.

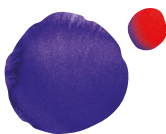
October 6 at midnight

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



The Sky This Autumn

Saturn heads toward the southwest horizon at twilight and leaves the evening sky in November.

Meanwhile, up to four planets are visible at the same time toward night's end and dawn.

Last chance for Saturn

At the beginning of the season, **Saturn** is visible about 15 degrees above the southwest horizon at nightfall and sets a bit more than two hours after the Sun. This marks the last occasion in 2015 to observe the ringed planet through a telescope, since it moves ever closer to the horizon with each passing evening. On October 16, Saturn crosses the imaginary border between Libra and Scorpius; on that same evening, the crescent moon rests to the planet's upper left. At the beginning of November, we lose sight of Saturn as it disappears into the glare of twilight.

Venus and Jupiter rendezvous at dawn

The brilliant planets **Venus** and **Jupiter** resume their early-summer tango, but this time in the morning sky. As autumn begins, Jupiter emerges above the eastern horizon at the first light of dawn, with dazzling Venus about 15 degrees higher. The planet Mars, which is much fainter, shines between them. From morning to morning, Jupiter moves away from the Sun: As a result, the giant planet rises earlier, gains altitude and climbs toward Venus. Along the way, Jupiter passes Mars on October 17 and 18.

On the morning of **October 25**, Venus and Jupiter are just one degree apart, with Mars 3 degrees below them; around 6:00

in the morning, as dawn begins, the trio dominates the sky about 30 degrees above the east-southeast horizon. Following this, the two brightest planets separate again: Jupiter continues to distance itself from the Sun and the horizon, while Venus does the opposite. On the morning of November 3, it is Venus' turn to encounter Mars: the two planets are just two-thirds of a degree apart. Then for the rest of the season Venus, Jupiter and Mars continue to move apart from one another.

The crescent moon creates a magnificent triangle with Venus (above) and Jupiter (below) on the morning of **October 9**; with Mars to the left of the Moon, the trio becomes a quartet. The lunar crescent appears to the right of Jupiter on the morning of November 6, and below the giant planet on December 4 during the latter half of the night. The Moon will also appear near Venus at night's end and dawn on November 7 (triangle with Venus) and again on December 7.

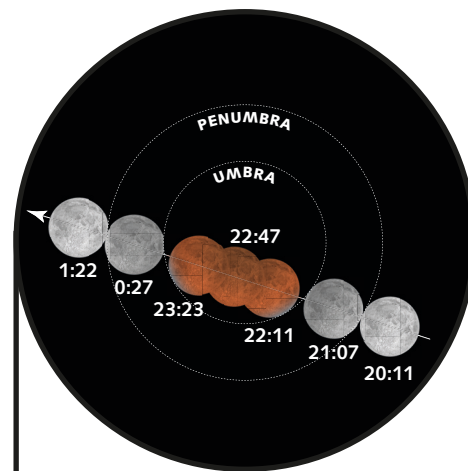
Mars in the morning sky

Though **Mars** is still far from Earth and faint (its next opposition will be at the end of May 2016) the Red Planet does take part in some interesting encounters this fall. Around the beginning of the season at the break of dawn, it appears about 15 degrees above the east-southeast horizon. On the mornings of September 24 and 25, it passes less than a degree from Regulus, the brightest star in Leo: Take a moment to compare the Red Planet's orange hue with the blue-white colour of the star. Next, Mars appears less than ½ a degree from Jupiter on the morning of October 17 and 18 and is in conjunction with Venus, less than two-thirds of a degree from the brilliant planet, on the morning of November 3. Following this encounter, Mars will be more than 25 degrees high in the east-southeast at dawn.

The waning lunar crescent appears near Mars on the morning of October 9, November 7 (triangle with Venus) and December 6.

Mercury at dawn

Mercury offers its best apparition of 2015 in the morning sky this fall. The closest planet to the Sun is quite faint at first but becomes visible **around October 9**: Look for it above the eastern horizon 45 minutes before sunrise. Over the following days, Mercury's



A total eclipse of the Moon

On the night of **September 27 to 28, 2015**, the last in a series of four total lunar eclipses, which began in the spring of last year, will transpire. Because of its favourable timing, it promises to be the most widely observed eclipse of the last several years.

On the evening of September 27 at 20:11 the subtle effects of the Moon's passage into Earth's penumbra begin; then the partial phases ensue starting at 21:07. Totality will last for 72 minutes, from 22:11 to 23:23, with mid-eclipse occurring at 22:47. The Moon will then assume a relatively dark, reddish-orange hue, caused by sunlight filtering through Earth's atmosphere, illuminating the lunar surface with the colours of sunset. Following totality, the final partial phases will take place until 00:27 A.M. and the Moon will leave Earth's penumbra at 1:22.

This eclipse coincides with a perigean full moon—the largest of the year. Try not to miss it: the next total lunar eclipse, visible in its entirety from Quebec won't occur until the night of January 20 to 21, 2019!

brightness continues to increase. During this period, *four planets* will be visible at the same time: Shining above Mercury is a trio consisting of Venus, Mars and Jupiter. After October 16, Mercury begins to approach the Sun and vanishes on the horizon during the first mornings of November. A thin lunar crescent will appear to the right of the tiny planet on the morning of October 11.

Clear skies!

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

Seasonal Milestones

The **autumn equinox** occurs on September 23, 2015, at 4:21 (EDT) and the **winter solstice** will take place on December 21 at 23:48 (EST). Autumn will last exactly 89 days 20 hours 27 minutes.

We return to **Eastern Standard Time** early on the morning of November 1: Clocks are set back one hour.

Phases of the Moon

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

New moon	First quarter
Sept. 13 at 2:41	Sept. 21 at 4:59
Oct. 12 at 20:06	Oct. 20. at 16:31
Nov. 11 at 12:47*	Nov. 19 at 1:27*
Dec. 11 at 5:29*	Dec. 18 at 10:14*
Full moon	Last quarter
Sept. 27 at 22:51	Oct. 4 at 17:06
Oct. 27 at 8:05	Nov. 3 at 7:24*
Nov. 25 at 17:44*	Dec. 3 at 2:40*
Dec. 25 at 6:11*	Jan. 2 at 0:30*