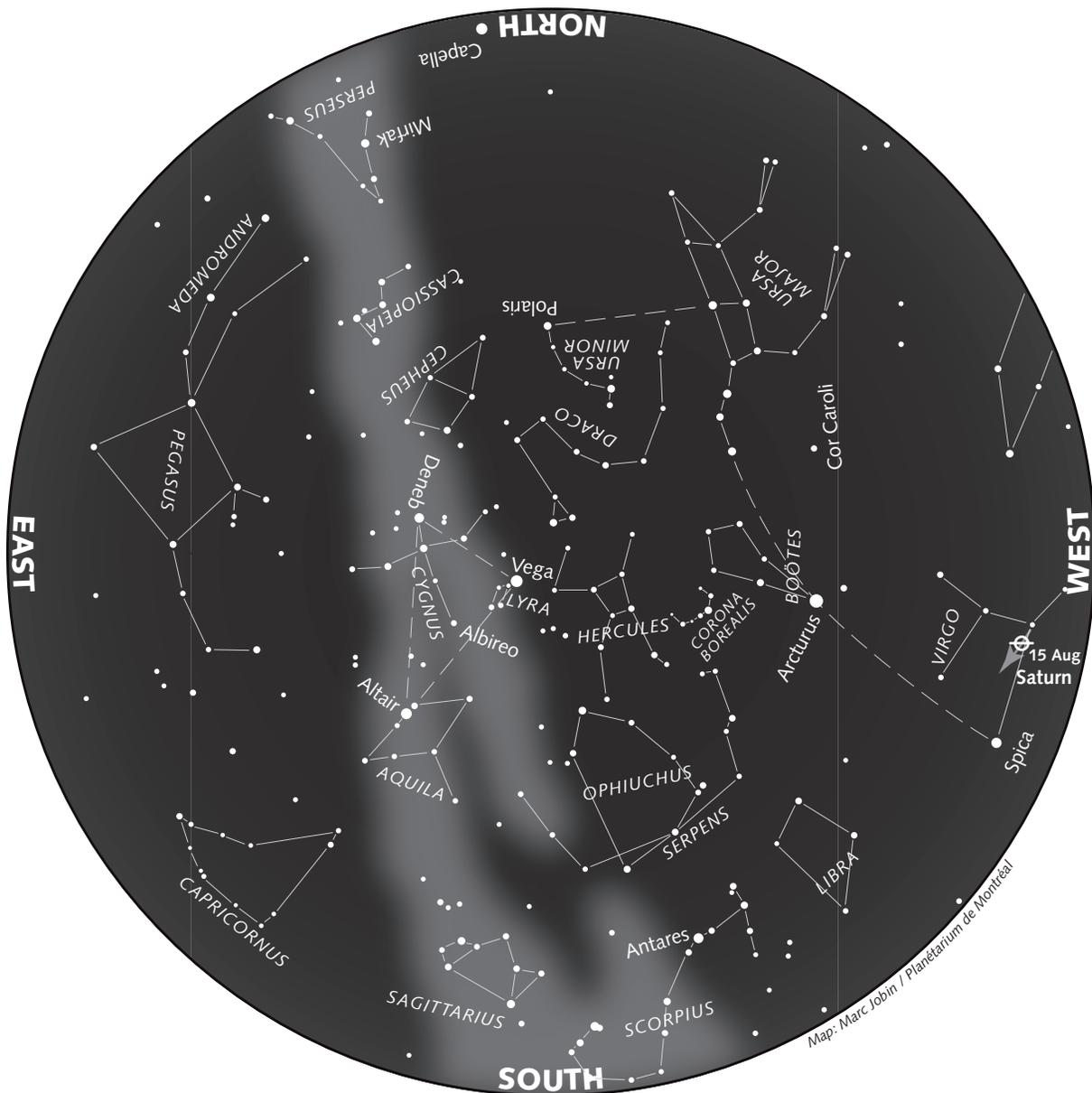


## The Starry Sky — Summer 2011



### 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](http://planetarium.montreal.qc.ca)

### This Star Map is Accurate on...

(Eastern Daylight Time)

June 21 at 1 a.m.

July 6 at midnight

July 21 at 11 p.m.

August 6 at 10 p.m.

August 21 at 9 p.m.

September 6 at 8 p.m.

# The Sky This Summer

*Saturn remains easily visible early in the evening this summer, but the ringed planet appears lower and lower at twilight. When it finally sinks beneath the western horizon, Jupiter rises in the east, occupying the celestial stage until daybreak.*

## A last look at Saturn

Saturn is the "star" of our summer evenings. Throughout June, the planet can be seen in the southwest at twilight, then progressively lower on the horizon as the season advances. Don't wait to observe the ringed planet through your telescope though, because by mid-August, it will be less than 10 degrees from the horizon at nightfall — too low for quality observing. In September, Saturn disappears, bit by bit, in the glow of twilight, and will reappear in November, above the eastern horizon at dawn.

With the naked eye or binoculars, you'll see a star of medium brightness right next to Saturn: it's called Porrima, or Gamma Virginis. In June, barely half-a-degree separates the two objects, but notice how they grow apart over the course of the summer, as Saturn moves eastward among the stars. The first quarter Moon is beneath Saturn (and closer to the horizon) on July 7; the lunar crescent will be near the ringed planet on August 3, 4 & 31.

## Jupiter takes over

After Saturn sets, the second half of the night belongs to **Jupiter**, currently located among the stars of Aries. The giant planet rises around 2:00 A.M. at the beginning of summer, and progressively earlier thereaf-

ter; starting in August it rises before midnight. By mid-September, Jupiter is visible above the eastern horizon around 9:00 P.M. and culminates in the south by night's end, just before the glow of dawn.

The lunar crescent will be near Jupiter on the morning of June 26, and the last quarter, on the mornings of July 23 & 24; a gibbous Moon will be in Jupiter's vicinity on the night of August 19 to 20, and again from September 15 to 17.

## Mars at night's end

This summer, **Mars** is only visible toward the end of night: first at dawn, very close to the northeast horizon; then gradually higher, in a darker sky, as it moves away from the Sun and rises earlier. The Red Planet moves rapidly eastward among the constellations. As summer begins, it starts off in Taurus, then crosses Gemini, and arrives in Cancer at the end of the season, en route toward the star cluster, M44, which Mars will pass on October 1. During the last days of June, Mars moves between two naked-eye star clusters, the Pleiades and Hyades: a breathtaking sight in binoculars at the first glow of dawn, on the east-northeast horizon. The lunar crescent will be near Mars on the mornings of June 28, July 27, August 25 and September 23.

## Mercury at dawn

After an unexceptional appearance in the evening sky at the end of July, **Mercury** passes between the Earth and Sun (inferior conjunction), on August 16, and reappears a few days later in the sky at dawn. This time, conditions improve dramatically, and Mercury will put on an excellent show in the morning sky at the beginning of September. The tiny planet will be visible above the eastern horizon, 45 minutes before sunrise, starting on August 27 (that morning, it will be 8 degrees to the lower left of the crescent Moon). Toward the beginning of this apparition the planet won't be bright, but its brightness increases day by day, and it will be easy to see by mid-September. On the morning of September 9, Mercury is less than  $\frac{3}{4}$  of-a-degree to the left of Regulus, the brightest star in Leo. The tiny planet plunges toward the Sun during the last days of summer

## Not a good year for the Perseids

In 2011, the Perseids are expected to peak on the night of August 12 to 13, around 2:00 in the morning, Eastern Daylight Time. **Unfortunately, observation of the meteor shower will be adversely affected this year by the Moon's presence in the sky.** In fact, the full Moon occurs on August 13 at 2:57 EDT, just a few hours before the Perseids reach their predicted peak.

As a result, the moon will be at its brightest and will remain visible from dusk to dawn during the two or three nights surrounding the Perseids' maximum: The sky will be flooded with moonlight, which will mask all but the brightest meteors. Under these circumstances, it would be futile to leave the light pollution of the city and head for darker country skies.

You'll still be able to spot the brightest meteors: just scan the sky opposite the Moon, and avoid looking at any bright light sources in your surroundings. But don't expect a breathtaking show: less than a dozen meteors an hour will be visible under such conditions, if the sky isn't too hazy.

It's also possible to observe a few Perseids (in reduced numbers) on the few nights preceding and following the most favourable period, which falls between August 11 to 14: In principle, the Perseids are active from the end of July to the third week of August.

and becomes hard to see in the glow of dawn, despite its brilliance. Mercury passes behind the Sun (superior conjunction) on September 28.

## Venus behind the Sun

**Venus** is still visible close to the northeast horizon (20 minutes before sunrise) during the first days of summer, but gradually disappears in the light of dawn in July. The dazzling planet passes behind the Sun on August 16 (superior conjunction), and gradually reappears in the evening sky, close to the western horizon, during the last days of September. Venus will be spectacular at twilight this autumn and winter.

*Clear skies!*

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

## Seasonal Milestones

The **summer solstice** occurs on June 21, 2011, at 13:16 EDT, and the **autumn equinox** takes place on Sept. 23 at 5:05. Summer will last 93 d 15 h 49 min.

On July 4 at 11 A.M. EDT, Earth reaches **aphelion**, the point on its orbit farthest from the Sun. The Earth-Sun distance will then be 152,102,140 km.

## Phases of the Moon

(Eastern Daylight Time)

First quarter	Full moon
June 8 at 22:11	June 15 at 16:14
July 8 at 2:29	July 15 at 2:40
August 6 at 7:08	August 13 at 14:57
Sept. 4 at 13:39	Sept. 12 at 5:27
Last quarter	New moon
June 23 at 7:48	July 1 at 4:54
July 23 at 1:02	July 30 at 14:40
August 21 at 17:54	August 28 at 23:04
Sept. 20 at 9:39	Sept. 27 at 7:09