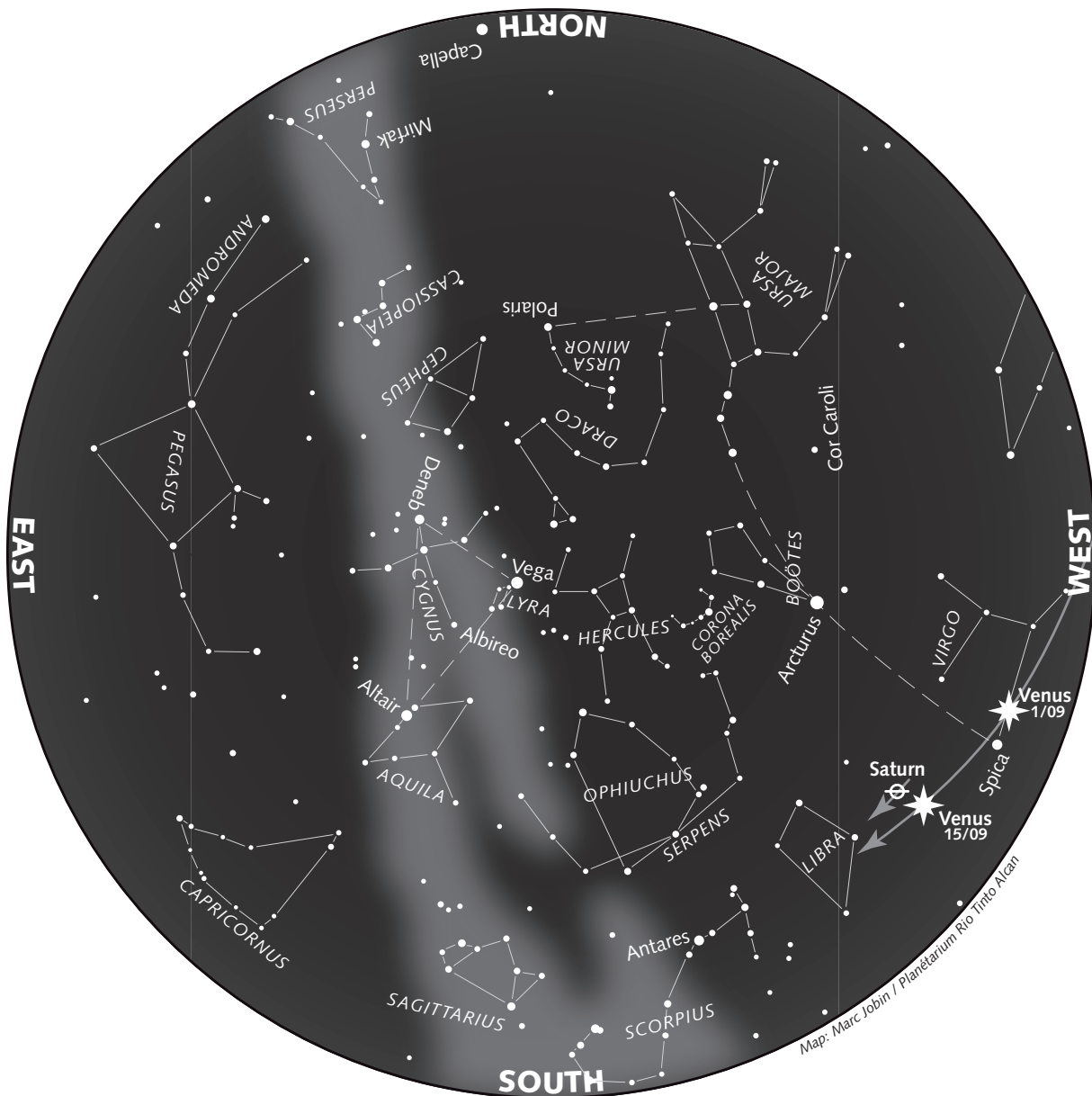


## The Starry Sky — Summer 2013



### 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)

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

Several bright planets occupy the twilight, during dusk and dawn this summer.

Saturn and Venus attract our attention in the evening,

while Jupiter, Mars and Mercury are visible in the pre-dawn hours, and at daybreak.

## Saturn stars in the evening

Currently on the border of Virgo and Libra, **Saturn** is the only planet well situated for observing this summer. But don't wait to point your telescope toward it! You should observe the planet as soon as night falls, while it's still high in the sky. Saturn gradually descends toward the west-southwest horizon and sets a few hours later. Its magnificent rings are inclined about 17 degrees and are a spectacular sight that's sure to impress. You can also see Titan, Saturn's largest moon.

As summer progresses, Saturn appears ever lower in the west at nightfall. As a result, the ringed planet will be visible for an increasingly shorter period in the evening. Note how the gap between Venus and Saturn diminishes as the weeks go by: **From September 16 to 19**, the two planets are less than 4 degrees apart. The ringed planet continues to approach the horizon and disappears in the glow of twilight in October.

The waxing gibbous Moon will be near Saturn on several occasions this summer: on the nights of June 18 to 19 & June 19 to 20; on July 16; and again on August 12 and September 9.

## Venus dazzles at twilight

**Venus** resumed its role as Evening Star at the end of April, but this is not a favourable apparition for the dazzling planet: It remains low on the horizon for the next few months. Fortunately, Venus is so bright it outshines the glow of twilight and is easy to find: Look above the west-northwest horizon, half-an-hour after sunset; the planet sets an hour later.

Over the course of this summer, Venus gradually slips toward the left along the horizon. By August, it appears due west, and in September it will be in the south-southwest.

This season, the Moon will shine near Venus several times. On the evenings of July 10 and August 9, the lunar crescent will be close to the horizon, a few degrees to the lower left of Venus. (On July 11, the Moon will be at the same height as Venus, but farther to the left.) **On the evening of September 8**, a thin crescent Moon will be less than a degree-and-a-half to the left of the dazzling planet: The duo will provide a magnificent sight against the colours of

twilight. As well, on the evenings of September 5 & 6, Venus will be less than two degrees above the star, Spica. Saturn will also be close to Venus: **From September 16 to 19**, the two planets will be less than 4 degrees apart; of course, Venus is the brighter of the two.

## Jupiter in the morning sky

As summer begins, **Jupiter** is situated on the far side of the Sun and is not visible. But the bright planet quickly moves from behind the Sun, and by early July it appears above the horizon in the morning sky: Look for Jupiter in the east-northeast at dawn, among the stars of Gemini, an hour before sunrise. As the weeks pass, the giant planet rapidly gains altitude: It passes within one degree of Mars **from July 21 to 23**. In August, Jupiter continues to rise above the horizon and is visible before dawn. When September finally arrives, the planet rises an hour-and-a-half before daybreak and is a suitable target for small telescopes. Its atmospheric cloud bands and four Galilean moons are always an impressive sight.

The crescent Moon will be 7 degrees to the right of Jupiter on the morning of August 3, and 5½ degrees to the right of the giant planet on August 31.

## Mars emerges as night ends

Mars gradually reappears in the morning sky at the beginning of summer: Look for the Red Planet low on the east-northeast horizon, among the stars of Taurus, an hour before sunrise. Mars quickly moves eastward among the constellations and crosses the border of Gemini on July 14. Notice how the gap between Mars and brilliant Jupiter diminishes from day to day: **From July 21 to 23**, the two planets meet, with less than a degree separating them.

As Mars continues its rapid swing toward the east, it moves away from Jupiter and the gap between the two increases once again. The Red Planet enters Cancer on August 25; then, **before dawn on September 8 & 9**, Mars is superimposed against the distant stars of the Beehive cluster (M44). The contrast between the orange-coloured planet and the blue-white stars, 15 million times farther away in the background, is a truly remarkable sight through binoculars or a small telescope. Through a telescope, Mars appears like a small orange disk and is too far away to distinguish surface details.

The crescent Moon will be near the Red Planet on the mornings of July 6, August 4, and September 2.

## Mercury at dawn

Closest planet to the Sun, **Mercury** is only visible at dusk or at dawn, and only during brief periods that last a few weeks at most. The tiny planet will have its only favourable apparition of the summer at the end of July and beginning of August: Look for it on the east-northeast

## 2013 — A good year for the Perseids

This year, the renowned **Perseid meteor shower** will reach its maximum on August 12 at 2 P.M. EDT — in broad daylight, unfortunately, for observers in North America. **The best time to see the Perseids will be during the pre-dawn hours of August 12**, which is closest to maximum; however, the night of the 12th to 13th will be favourable as well. The crescent Moon will set around 10:00 on the evening of the 11th, and 10:30 on the 12th — less than an hour after twilight — just in time to observe meteors. The Perseid's radiant will be well up in the northeast by 11 P.M., and following moonset the sky will remain dark until the break of day.

Just before dawn on August 12, under a clear dark sky, you should be able to count about 60 meteors per hour. However, in light polluted areas, one can expect to see half as many. Remember, the Perseids are, in fact, active from mid-July until the third week of August, so... Get your wishes ready!

horizon at dawn, about 30 minutes before sunrise, to the lower left of Mars and Jupiter.

After passing between the Earth and Sun (inferior conjunction) on July 9, Mercury emerges in the glow of dawn around mid-month. At first, the tiny planet is too faint to see, but from day to day it gradually separates from the Sun and grows brighter. By month's end, Mercury is easily visible to the naked eye; on the 30th, the planet reaches its greatest elongation, some 20 degrees west (to the right) of the Sun. Its magnitude increases considerably during the first ten days of August, but then its separation from the Sun decreases rapidly. On the morning of August 5, a thin lunar crescent will appear 5 degrees to the lower right of Mercury.

After mid-August, the furtive planet disappears in the glow of dawn; it passes behind the Sun (superior conjunction) on the 24th. Mercury will return to the evening sky during September and October, but unfortunately, its apparition this autumn will not be favourable.

Clear skies!

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

## Phases of the Moon

(Eastern Daylight Time)

<b>New moon</b>	<b>First quarter</b>
June 8 at 11:56	June 16 at 13:24
July 8 at 3:14	July 15 at 23:18
August 6 at 17:51	August 14 at 6:56
Sept. 5 at 7:36	Sept. 12 at 13:08
<b>Full moon</b>	<b>Last quarter</b>
June 23 at 7:32	June 30 at 0:53
July 22 at 14:16	July 29 at 13:43
August 20 at 21:45	August 28 at 5:35
Sept. 19 at 7:13	Sept. 26 at 23:55

## Seasonal Milestones

The **summer solstice** occurs on June 21, 2013 at 1:04 A.M. EDT, and the **autumn equinox** takes place on September 22 at 4:44 P.M. Summer will last 93 d 15 h 40 min.

On July 5 at 11:00 A.M. EDT, the Earth is at **aphelion**, the point on its orbit farthest from the Sun. The Earth – Sun distance will then be 152 097 427 km.