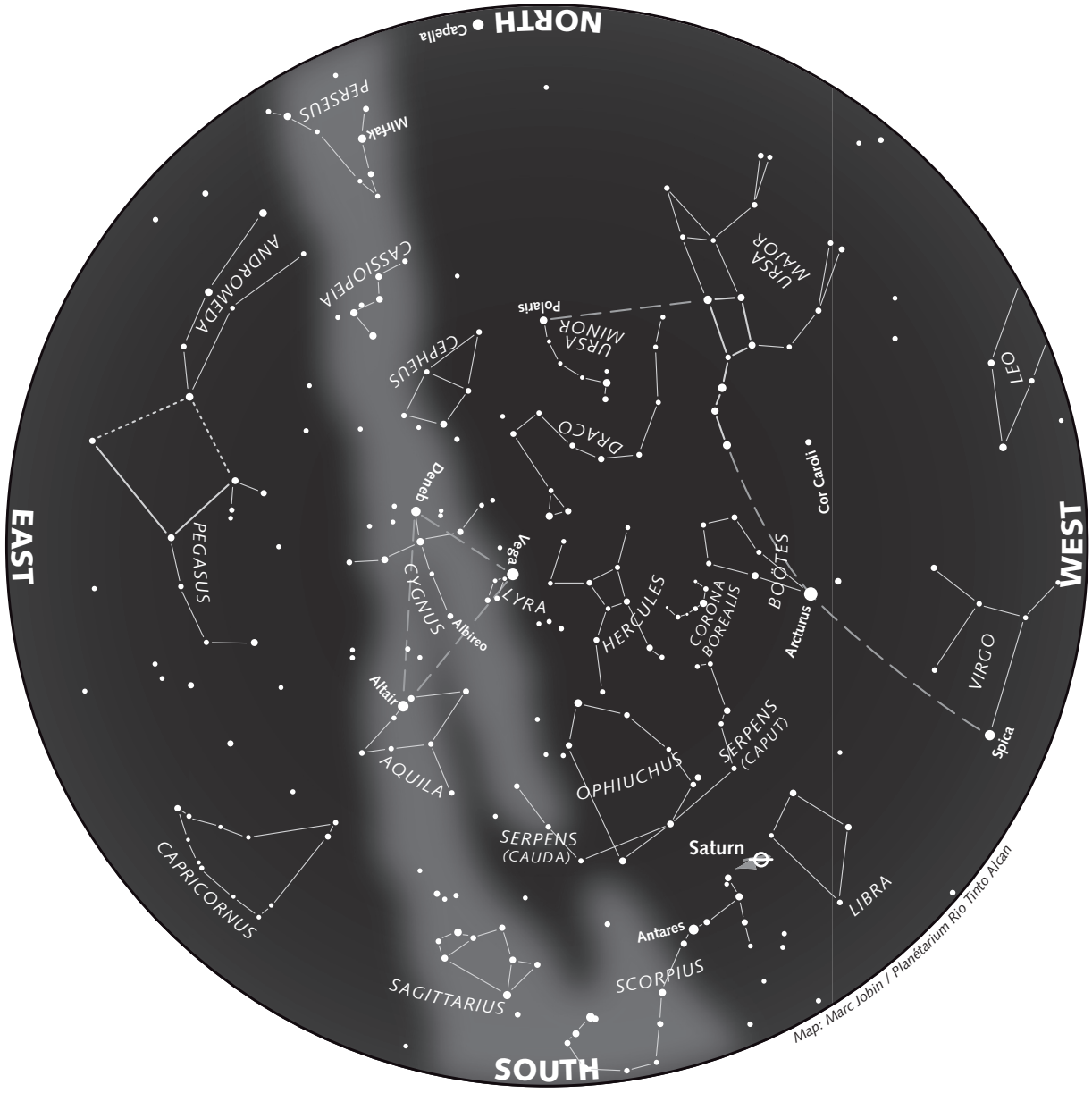
The Pocket Planetarium ★

Volume 19
Number 3
Summer 2015

Astronomical Information Newsletter of the Rio Tinto Alcan Planetarium

The Starry Sky — Summer 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.

Visit us on montrealspaceforlife.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.

espace pour la vie planétarium rio tinto alcan montréal

The Sky This Summer

Summer begins in full force with a spectacular celestial encounter between Venus and Jupiter. But the two brightest planets leave the evening sky soon after and reappear at dawn a few weeks later. Saturn will then remain the only planet visible in the evening.

Venus and Jupiter meet at twilight...
Since the beginning of spring, **Venus** and **Jupiter** have been steadily approaching one another, and their end-of-June rendezvous is about to happen. As the summer season gets underway, the two brightest planets dominate the western horizon after sunset. **On June 20,** Venus (lower right), Jupiter (upper middle) and a thin crescent moon (left) form a magnificent triangle in the twilight. By the following evening, the Moon leaves the two planets, which continue to converge. **On June 30 after sunset, the gap between the two reaches a minimum:** They're separated by just a third-of-a-degree, less than the diameter of a full moon! In fact, Venus and Jupiter are so close that in a telescope they're both visible in the same field of view: Their apparent disk diameters are about the same, but Venus looks like a tiny crescent.

After this conjunction—the most spectacular of the year—Venus and Jupiter separate, but they continue to approach the Sun and the horizon. **On July 18, 45 minutes after sunset,** look just above the western horizon and you'll see a thin crescent moon one degree below Venus, with Jupiter a bit farther to the right. Venus disappears in the glow of twilight during the last week of July; Jupiter follows and vanishes a few evenings later. Venus swoops between the Earth and Sun (inferior conjunction) on August 14, while Jupiter arrives in conjunction behind the Sun on August 27.

...then move into the morning sky
The two brilliant planets eventually move into the morning sky, emerging above the eastern horizon at dawn. Venus is the first to reappear during the last week of August: Over the following mornings, it quickly gathers distance from the Sun and gains considerable altitude in just a few days. Jupiter reappears, in turn, during the second week of September.

At summer's end, Venus rises more than three hours before the Sun; at the first hint of dawn, the dazzling Morning Star soars more than 20 degrees above the eastern horizon. At the same time, we find Jupiter much lower, and to the left of the brilliant planet. A thin lunar crescent will appear to the left of Venus on the morning of September 10.

Saturn, star of the evening
Saturn was at opposition on May 22. Its current position in Libra, close to the border of Scorpius, means the ringed planet remains low in the skies of Quebec. The best time to observe Saturn with a telescope is early in the summer as soon as it gets dark, and before the planet sinks too near the horizon. As the season begins, Saturn culminates in the south at nightfall and sets at about 3:30 in the morning. In August and September, it emerges at twilight about 15 degrees above the southwest horizon; and as summer draws to an end, Saturn sets at about 9:30 P.M.

A gibbous moon appears near Saturn on the evenings of June 28 and July 25; the first lunar quarter comes to rest next to the ringed planet on August 22, and a lunar crescent appears nearby again on September 18.

Mercury's brief presence
The best apparitions of the closest planet to the Sun occur in the fall during early morning, or in spring early in the evening. This summer, **Mercury** will be briefly visible at dawn, but under challenging conditions. From June 30 to July 12, look for the tiny planet close to the east-northeast horizon, 45 minutes before sunrise. During this window of observation, Mercury becomes brighter, but it also sinks lower. Binoculars and a clear skyline will be necessary to spot the furtive planet at daybreak, a scant 4 degrees above the horizon.

Mars reappears at dawn
After passing behind the Sun (conjunction) on June 14, **Mars** emerges from the glare of our star and reappears in mid-August at dawn: The Red Planet hovers above the east-northeast horizon an hour before sunrise. But Mars is rather faint, and binoculars will certainly help with the search. Around September 7, dazzling Venus will be 9 degrees to the right. On the morning of September 10, a crescent moon will appear between Mars et Venus.

Clear skies!

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

Seasonal Milestones

This year, the **summer solstice** occurs on June 21 at 12:38 P.M. EDT, and the **autumn equinox** will take place on September 23 at 4:21 A.M. Summer will last exactly 93 d 15 h 43 min.

On July 6 at 3 P.M., Earth reaches **aphelion,** the point in its orbit farthest from the Sun. The Earth-Sun distance will then be 152 093 478 km.

Phases of the Moon

(Eastern Daylight Time)

New moon	First quarter
June 16 at 10:05	June 24 at 7:02
July 15 at 21:24	July 24 at 0:04
August 14 at 10:53	August 22 at 15:31
Sept. 13 at 2:41	Sept. 21 at 4:59
Full moon	**Last quarter**
July 1 at 22:20	July 8 at 16:24
July 31 at 6:43	August 6 at 22:03
August 29 at 14:35	Sept. 5 at 5:54
Sept. 27 at 22:51	Oct. 4 at 17:06

An excellent year for the Perseids

This year, maximum activity for the Perseids is expected **during the night of August 12 to 13,** between 2:30 and 5:00 in the morning Eastern Time. The radiant, the area where the meteors appear to emanate, climbs higher in the sky during the second half of the night: from Quebec, it will reach optimum height just before dawn, the same time when the shower should attain its maximum intensity.

The Moon will be new on August 14 and will not affect observations in any way. It will be worth the effort to travel away from light pollution and find the darkest observing site possible, in order to take full advantage of these perfect conditions. Under a moderately dark sky, about 30 meteors should be visible per hour, and even more than 70 at a site completely free from light pollution.

Should the weather be uncooperative during the August 12-13 timeframe, keep in mind that the Perseids are also visible a few nights before and after the period of peak activity — but one has to expect significantly fewer meteors. In fact, you can spot Perseids as early as mid-July, and the shower remains active through the third week of August.

Let's hope for clear skies... and get your wish lists ready!

The Pocket Planetarium *is a seasonal information newsletter published by the Rio Tinto Alcan Planetarium, 4801, avenue Pierre-De Coubertin, Montréal (Québec) H1V 3V4*
Texts and illustrations are excerpted from HYPERESPACE, the newsletter of La Société d'astronomie du Planétarium de Montréal, and are published with permission.