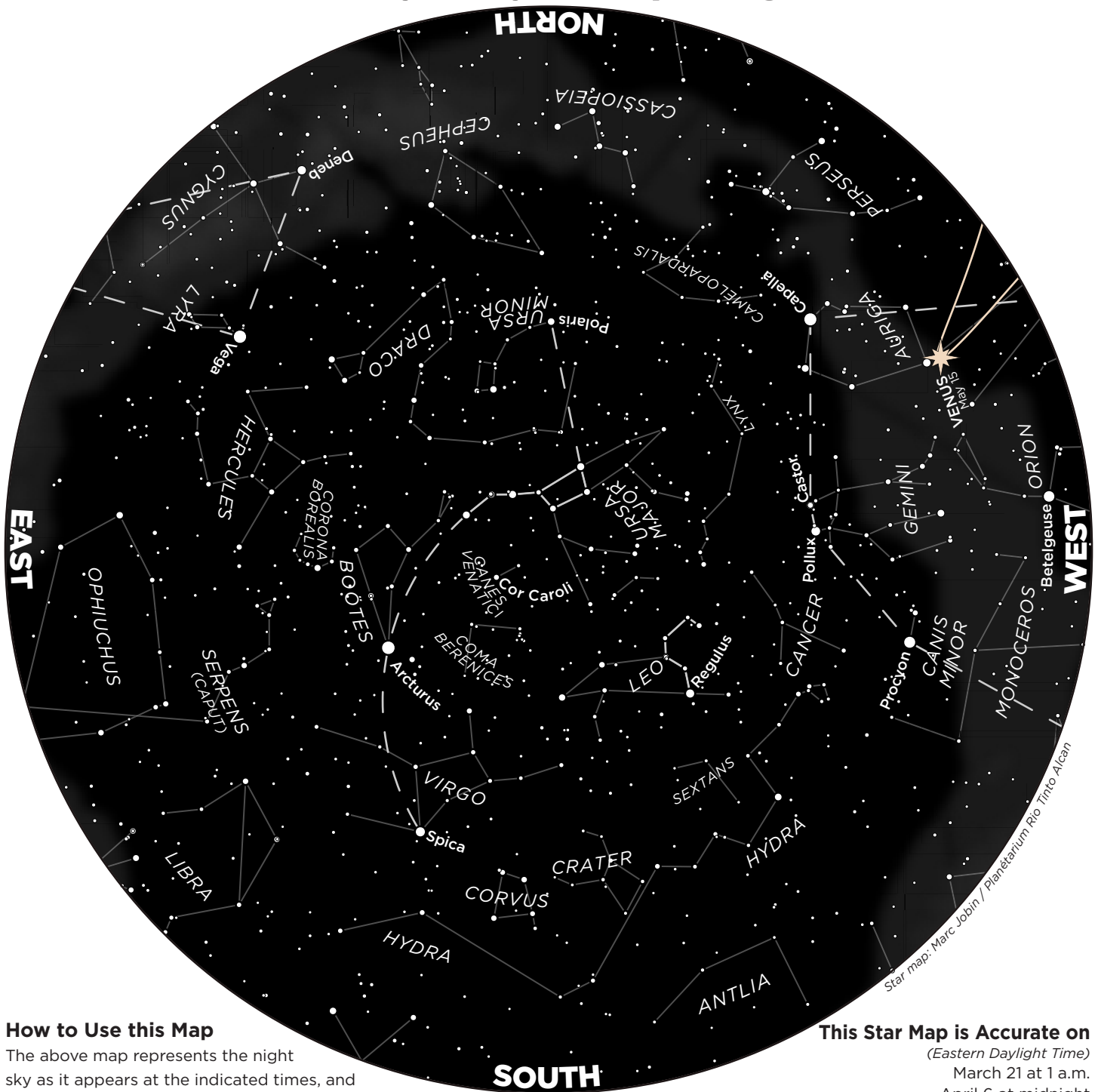


## The Starry Sky — Spring 2020



### 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.

### This Star Map is Accurate on

(Eastern Daylight Time)

March 21 at 1 a.m.

April 6 at midnight

April 21 at 11 p.m.

May 6 at 10 p.m.

May 21 at 9 p.m.

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# The Sky This Spring

*Venus's splendid apparition in the evening sky comes to an end in May, but Mars, Jupiter and Saturn are ready to take over. Even tiny Mercury makes a fine appearance at dusk.*

## Venus, glory and decline

**Venus** is at peak apparition as an Evening Star during the early spring evenings of 2020. The brilliant planet reaches its greatest elongation, 46 degrees east of the Sun, on March 24. At that moment, Venus will be visible as soon as the Sun goes down, nearly 40 degrees above the western horizon, and will dominate the evening sky until it sets in the west-northwest around 11:30 p.m. It's so bright you can't miss it! Venus reaches maximum brightness (magnitude -4.7) on April 29. But the planet gradually moves toward the Sun in April and May and loses altitude above the west-north-western horizon, very slowly at first, then increasingly fast, until it disappears in the Sun's glare during the last evenings of May. Venus is at inferior conjunction on June 3, between Earth and the Sun, but thanks to the favourable inclination of the ecliptic to the horizon, the brilliant planet quickly re-emerges in the dawn sky over the following days. When summer sets in, Venus can be spotted 6 degrees above the east-northeastern horizon, a half-hour before sunrise.

Venus has phases like those of the Moon. A small telescope is all you need to observe its changing appearance as the weeks go by. In just two months, between late March and late May, the planet transforms spectacularly from "half-Venus" to an increasingly slender crescent, constantly drawing closer to Earth and growing in apparent diameter from 23 to 55 arc seconds as it heads to inferior conjunction. When Venus switches to the morning sky, the planet's changing phases can once again be tracked, this time in reverse.

**The evening of March 28**, the waxing Moon lies 6 degrees to the left of Venus and forms a triangle with the slightly higher Pleiades star cluster (M45) towards which Venus is moving. Five days later, **on**

**the evening of April 3**, Venus grazes past the edge of the cluster, a scant ¼ degree from the star Alcyone. **On the evening of April 26**, the crescent Moon lies 7 degrees to the left of Venus. Mercury and Venus cross paths **on the evenings of May 21 and 22**, less than 1½ degrees apart: The duo will appear very low in the west-northwest at dusk. **The next evening, on May 23**, 30 minutes after sunset, a very thin lunar sliver hangs 5 degrees below both Venus and Mercury but will be hard to make out in the twilight glow.

## Jupiter and Saturn

### together in the second half of the night

Over the next few months, **Jupiter** and **Saturn** remain within 8 degrees of each other, forming a striking pair in the spring sky in the latter half of the night. As spring gets underway, Jupiter and Saturn emerge above the southeastern horizon around 4 a.m., then increasingly earlier as the weeks go by: At the beginning of May, both giant planets rise at around 2 a.m., barely reaching a height of about 20 degrees in the south at dawn. By mid-June, they rise before 11 p.m. and culminate around 3 a.m., a mere 23 degrees above the southern horizon. The duo are currently hanging at the border of Sagittarius and Capricorn, in the same section of sky where the Sun passes through in January, which explains why they don't rise much above the horizon for observers in Quebec.

At the end of the night, grab a telescope and check out the two planets as they reach their peak altitude above the horizon. Beginning April 25, Jupiter exceeds 40 arc seconds in apparent size and shines at magnitude -2.4, delivering stunning views of the giant planet's coloured cloud bands and main moons. Saturn is much fainter, but its famous rings are currently tilted about 22.5 degrees toward Earth and are sure to impress.

These two gaseous giants will be in opposition in July, within a few days of each other (on the 14<sup>th</sup> for Jupiter and on the 20<sup>th</sup> for Saturn). This is an exciting period for skywatchers as Jupiter and Saturn begin their retrograde loop nearly simultaneously: Jupiter's retrograde motion will last from May 14 to September 12, whereas Saturn's will be from May 11 to September 28.

From our Earthly viewpoint, Mars moves rapidly against the background constellations, blazing through Jupiter's and Saturn's current location in only a few days. The Red Planet is in conjunction first with Jupiter **on the morning of March 20**; the duo are separated by barely ⅔ of a degree and can be found low in the southeast by night's end and dawn. Mars continues its journey toward Saturn, and the two are in conjunction **on the morning of March 31**, less than 1 degree apart.

The Moon also approaches the Jupiter-Saturn pair several times this spring, forming outstanding triangles with the two planets, particularly **on the mornings of April 15 and May 12**, and **the night of June 8-9**.

## A fine appearance by Mercury

Until March 31, **Mercury** is difficult to see in the morning sky, very low on the east-southeastern horizon, 30 minutes before sunrise. The tiny planet then spends several weeks out of sight, on the other side of the Sun, before making an excellent appearance in the evening sky **from May 10 to June 16**: Look for the tiny planet above the west-northwestern horizon, 30 to 45 minutes after the Sun sets. Mercury is considerably brighter at the start of this visibility period and quickly dims after June 13 as it falls back toward the glare of the Sun. The prime viewing window extends from May 15 to June 6.

**At dusk on May 21 and 22**, Mercury is in conjunction with Venus, very low on the west-northwestern horizon. The gap between the two planets is less than 1½ degrees on both evenings. **The next evening, on May 23**, the very thin crescent Moon hangs 5 degrees below Venus and Mercury but is difficult to spot very low on the west-northwestern horizon at twilight. The lunar crescent is much easier to make out **on the evening of May 24**, since it will shine much higher in the sky, 5½ degrees to the left of Mercury.

## Mars prepares its big comeback

**Mars's** next opposition won't be for another few months, but the Red Planet is finally emerging from relative anonymity. As Earth gradually catches up to Mars in its orbit, the distance separating us is slowly shrinking. As a result, the Red Planet's brightness triples between early spring and early summer (from magnitude +0.9 to -0.3)—a remarkable increase. For now, however, Mars is only visible late at night: You can spot it low on the east-southeastern horizon after 4:30 a.m. at the start of the season, but by mid-June, the planet rises around 1:30 a.m. and can be found just over 30 degrees high in the southeast at dawn.

After its close encounters with Jupiter (the morning of March 20) and Saturn (the morning of March 31), the Red Planet continues its speedy trek through the constellations: Starting in Sagittarius at the equinox, Mars enters Capricorn on March 30, Aquarius on May 8, and Pisces as of June 24. The waning Moon lies only a few degrees from Mars on the mornings of **April 16, May 15 and June 13**.

*Clear skies!*

Research and text: **Marc Jobin**

## SEASONAL MILESTONES

The **spring equinox** happens on March 19, 2020 at 11:50 p.m. EDT, and the **summer solstice** occurs on June 20 at 5:44 p.m. Spring will last exactly 92 days 17 hours 54 minutes.

## PHASES OF THE MOON

(Eastern Daylight Time)

<b>New moon</b>	<b>First quarter</b>
March 24 at 5:28	April 1 at 6:21
April 22 at 22:26	April 30 at 16:38
May 22 at 13:39	May 29 at 23:30
June 21 at 2:41	June 28 at 4:16
<b>Full moon</b>	<b>Last quarter</b>
April 7 at 22:35	April 14 at 18:56
May 7 at 6:45	May 14 at 10:03
June 5 at 15:12	June 13 at 2:24
July 5 at 0:44	July 12 at 19:29