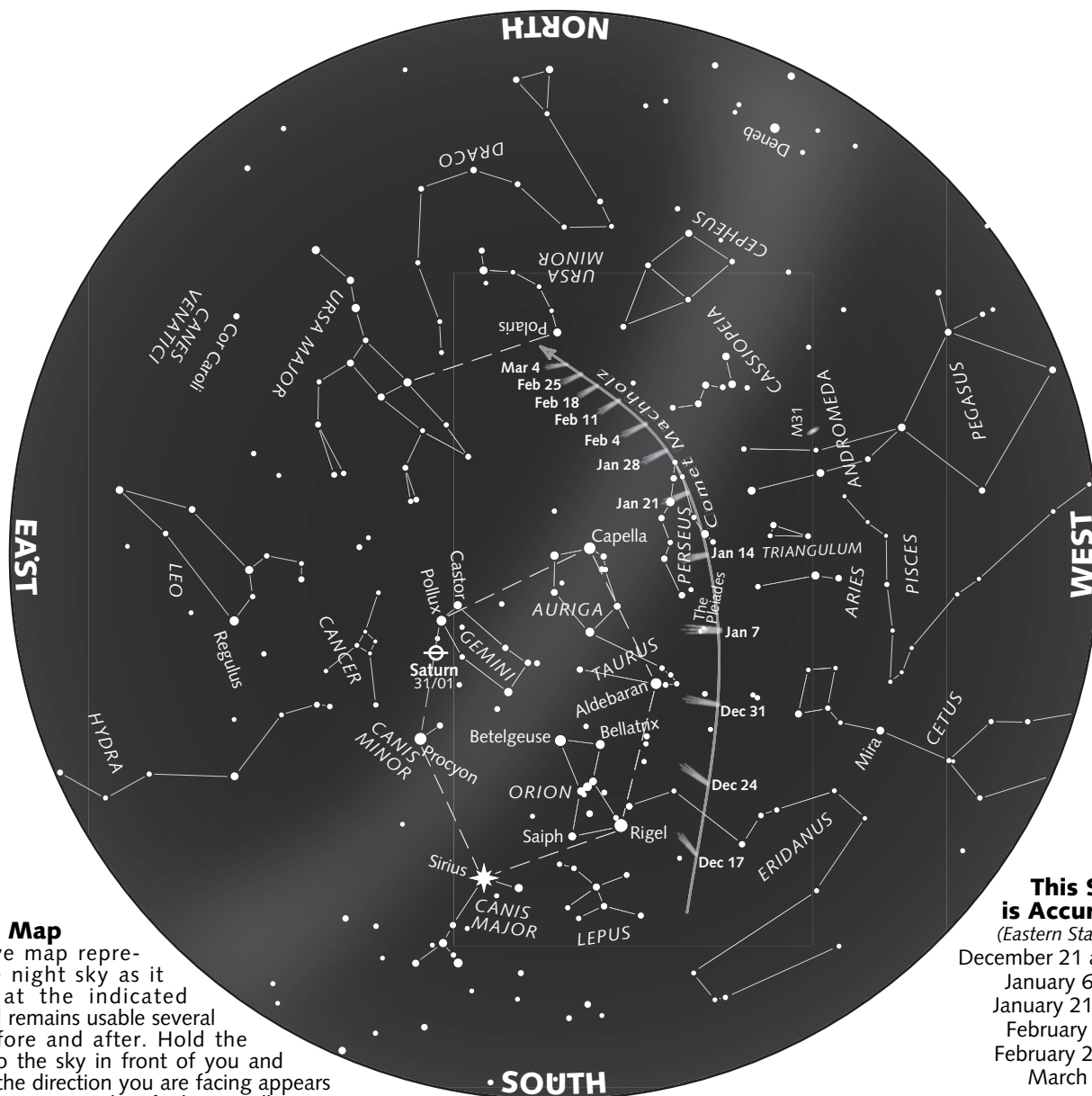


The Starry Sky — Winter 2004-05



Map: Marc Jobin / Planétarium de Montréal

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 band outlines the Milky way.

This Star Map is Accurate on...
(Eastern Standard Time)
December 21 at midnight
January 6 at 11 p.m.
January 21 at 10 p.m.
February 6 at 9 p.m.
February 21 at 8 p.m.
March 6 at 7 p.m.

Seasonal Milestones

The **winter solstice** occurs on December 21, 2004 at 07:42 EST. The **spring equinox** will take place on March 20, 2005 at 07:33. Winter 2004 / 2005 will last 88d 23h 51m.

The Earth will be at **perihelion** (the point in its orbit closest to the Sun) on January 1, 2005 at 20:00. The Earth-Sun distance will then be 147,099,100 kilometres.

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Phases of the Moon

(Eastern Standard Time)

New moon	First quarter
Dec. 11 at 20:29	Dec. 18 at 11:40
Jan. 10 at 7:03	Jan. 17 at 1:57
Feb. 8 at 17:28	Feb. 15 at 19:16
March 10 at 4:10	March 17 at 14:19
Full moon	Last quarter
Dec. 26 at 10:06	Jan. 3 at 12:46
Jan. 25 at 5:32	Feb. 2 at 2:27
Feb. 23 at 23:54	March 3 at 12:36
Mar. 25 at 15:58	April 1 at 19:50

The Sky This Winter

The planets are finally back in the night sky! Saturn and its magnificent rings are the definite stars this season. But Jupiter is not far behind, rising earlier and earlier with each passing evening.

Mars becomes visible at night's end, while Mercury makes two brief forays into the sky: One at dawn and the other at dusk. Meanwhile, Venus disappears from view completely.

Saturn triumphs

The ringed planet is at its best this winter. It arrives in opposition on January 13, which means it will remain visible all night long, rising at sunset and setting at sunrise. And as winter progresses, the higher **Saturn** will appear early in the evening. Look for Saturn high in the south: Now is the ideal time to see the planet, and its rings, through a small telescope.

Saturn is not only well placed for observing — its rings are also wide open. Don't miss this opportunity to see Saturn's show.

Along with Pollux and Castor — the twin stars in Gemini — Saturn makes an eye-catching trio. To help you identify the ringed planet, the Moon will be next to it on the following nights: December 27 to 28; January 23 to 24; February 19 to 20 and 20 to 21; as well as March 18 to 19 and 19 to 20.

Enter Jupiter...

Farther to the east, in the constellation Virgo, **Jupiter** can be seen rising several hours after Saturn. The giant planet is above the eastern horizon by 22:00 in February, and around 20:00 in March. A few hours after rising, Jupiter is a choice object for telescopes: When observing conditions are perfect, the cloud bands that circle the planet show remarkable detail. Its four largest moons are even visible in binoculars, and you can follow their orbital ballet from night to night.

The Moon appears near Jupiter on several occasions this winter: On the 3rd & 4th of January; on the night of January 30 to 31 (the gap between the two is scarcely 1 1/2 degrees); and once more on the night of February 26 to 27.

Exit Venus...

Though Venus has been visible at dawn

for the past several months, as winter sets in the dazzling planet appears lower and lower on the southeastern horizon. In fact, the gap between the Sun and Venus is steadily closing, and despite its brilliance, the planet disappears in the Sun's glare toward the end of January. It will then spend a few months behind the Sun and will reappear in the evening sky next May.

As the curtain descends on Venus, we find it in interesting company: Mercury is about 1 degree away during the last week of December and beginning of January; and a waning crescent Moon appears near Venus on the morning of January 8, about 30 minutes before sunrise.

Mercury and Mars

Apart from its dawn appearance during the last week of December (see Venus above), **Mercury** also offers an excellent early-evening apparition during the first three weeks of March: You'll find the tiny planet above the western horizon at twilight. A thin crescent Moon appears four degrees to the left of Mercury early in the evening on March 11.

Meanwhile, **Mars** is now visible above the southeastern horizon as night ends. Around January 10, the red planet appears close to Antares, a supergiant star that marks the heart of the Scorpion: It's fascinating to compare the colour of the two objects. A crescent Moon appears near Mars on the morning of January 7 (making a beautiful trio with Antares), and again on February 5, and finally on March 5 & 6.

Happy observing!

Research, text and illustrations:

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Translation: **Louie Bernstein**

Catch Comet Machholz!

It most certainly won't be spectacular — nowhere near Comet Hale-Bopp eight years ago. It will barely be visible with the naked eye — under very dark skies. But Comet C/2004 Q2, observed for the very first time on August 27, will certainly be in a prime position and a fairly easy target for binoculars in the evening sky this winter. This is California amateur astronomer Don Machholz's tenth comet discovered visually.

Experts predict, however, that the faint light of Comet Machholz will be spread out over a fairly large area in the sky, and not concentrated in a star-like point of light. This means that, to maximize your chances of catching this visitor from the farthest reaches of our solar system, you'll need the darkest possible sky. In other words, you'll have to get away from the light pollution of large urban areas.

In late December, we'll find Comet Machholz near some of the brightest winter constellations. (See map on reverse.) **On the evening of January 7**, the comet lies just two degrees west (to the right) of the Pleiades star cluster. Both will easily fit in the same binocular field of view: A great photo-op, not to be missed! It is also during this period, which luckily coincides with the New Moon, that the comet will be brightest.

Over the following three weeks, Comet Machholz will move slowly through the constellation Perseus, where many bright, naked-eye stars will help in locating it. As spring begins, the comet moves away from both Earth and the Sun, becoming an ever fainter target.