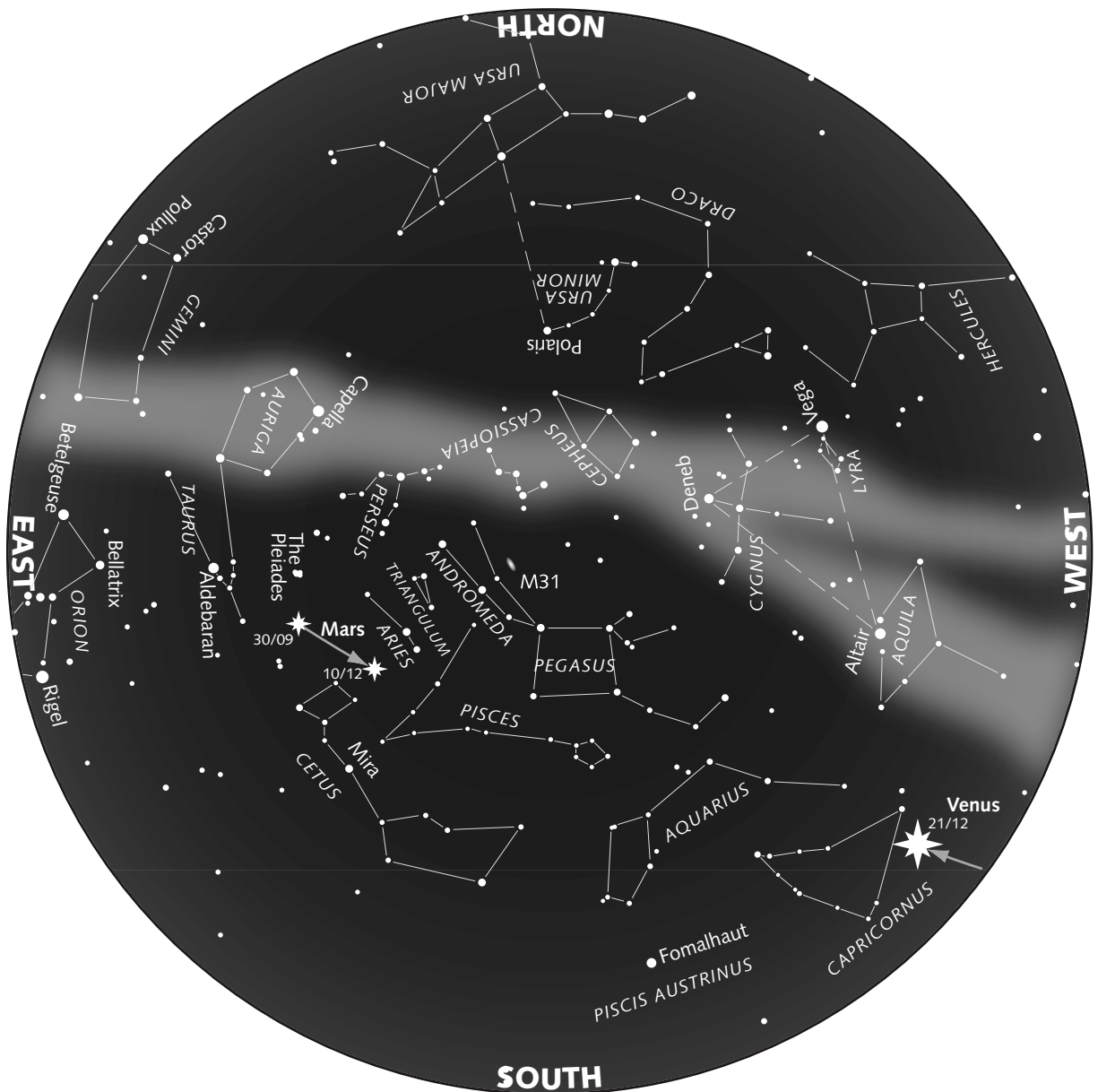


## The Starry Sky — Autumn 2005



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-coloured area outlines the Milky Way.

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

(Eastern Daylight Time, except where mentioned otherwise)

- September 21 at 1 a.m.
- October 6 at midnight
- October 21 at 11 p.m.
- November 6 at 9 p.m. EST
- November 21 at 8 p.m. EST
- December 6 at 7 p.m. EST

# The Sky This Autumn

*The opposition of Mars on November 7 is without doubt the event of the season: It quite literally steals the show from the other planets. So break out your telescopes!*

## Mars puts on a spectacular show

Mars is impossible to miss, straddling the border between Aries and Taurus, close to the Hyades and Pleiades. It's so bright that it outshines all the other stars, and its orange colour dispels any doubt about why it's called the "Red Planet".

On the evening of October 29, the distance between Earth and Mars shrinks to just 69.4 million kilometers — the closest this year. Mars' apparent diameter will then be 20.2 arc seconds — smaller than the historic opposition of 2003, but still larger than average. Plus, Mars climbs very high in the sky and reaches an altitude of 60 degrees each night — in comparison with just 28 degrees in 2003. This height advantage places the Red Planet well above the most turbulent light-path through our atmosphere, which compensates for its smaller apparent diameter.

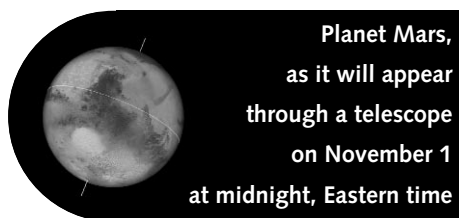
From our latitude, this opposition should offer better observing conditions than we had in 2003, especially through a telescope. In fact, conditions for observing Mars won't be this favourable again for another 15 years!

This means Mars will be the number one target for astronomers this Fall. However, high expectations usually result in disappointment, especially for novices. Remember, it's a small planet, so the amount of surface detail one sees depends on the size and quality of the telescope, and observing conditions, like the steadiness of our atmosphere.

Mars' orange colour is striking, and is due to the dominant colour of its surface. High magnification reveals vast, irregular regions, which appear dark green to some observers — especially in contrast with the surrounding orange terrain. Because a Martian day lasts 24 hours and 37 minutes, the same surface region appears at the center of Mars' disk 37 minutes later each evening.

At the beginning of October, Mars

rises in the east-northeast around 20:00 EDT. By early November, it rises at sunset (around 17:00 EST) and culminates high in the south at midnight. During early December, the planet is well up by nightfall and sets in the west-northwest about 4:30 in the morning. The Moon will be close to Mars on the evenings of October 18 to 19, November 14 to 15, and on December 11 to 12.



Planet Mars,  
as it will appear  
through a telescope  
on November 1  
at midnight, Eastern time

## Venus, the Evening Star

Venus is currently alone in the western sky at twilight. However, this apparition is poor since the planet's orbit forms a very slight angle with the horizon at sunset. As a result, though Venus appears far from the Sun (its greatest elongation — 47 degrees — occurs on November 3) it remains close to the horizon and sets less than two hours after sunset.

Despite this rather poor apparition, Venus is nonetheless a remarkable planet: It's the brightest object in the sky, after the Sun and Moon, and reaches a maximum brilliance of magnitude  $-4.5$  on December 9.

A crescent Moon appears near Venus on October 6, November 5, and December 4: These encounters are beautiful to see in the twilight sky.

## The giant planets

As autumn begins, **Saturn** is only visible during the early morning hours, but by the end of October, it can be seen in the east-northeast about midnight. At the beginning of December, the ringed planet rises by 21:00, and climbs 30 degrees

above the eastern horizon by midnight.

Saturn is in Cancer, about four degrees from Messier 44 (the Beehive star cluster): Under a dark sky, the two objects appear in the same binocular field of view. The Moon is near Saturn on the nights of September 27 to 28; October 24 to 25 and 25 to 26; again on November 21 to 22; and finally, on December 18 to 19.

**Jupiter** is in conjunction (on the far side of the Sun) on October 22, which renders it unobservable during the first weeks of autumn. However, during November, the giant planet slowly reappears in the east-southeast at dawn. A crescent Moon appears near Jupiter on the morning of November 28 to 29. In December, the planet gains altitude: On the 21st, it can be seen 24 degrees above the southeast horizon, an hour before sunrise.

*Happy observing!*

Research, text and illustrations:

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Translation: **Louie Bernstein**

## Seasonal Milestones

The **autumn equinox** takes place on September 22 at 18:23 EDT, and **winter solstice** occurs on December 21 at 13:35 EST. Autumn 2005 lasts 89d 20h 12m.

The switch to standard time occurs overnight from October 29 to 30: Clocks move back one hour.

## Phases of the Moon

(Eastern Daylight Time  
except \* = Eastern Standard Time)

New moon	First quarter
Sept. 3 at 14:45	Sept. 11 at 7:37
Oct. 3 at 6:28	Oct. 10 at 15:01
Nov. 1 at 20:25*	Nov. 8 at 20:57*
Dec. 1 at 10:01*	Dec. 8 at 4:36*
Full moon	Last quarter
Sept. 17 at 22:01	Sept. 25 at 2:41
Oct. 17 at 8:14	Oct. 24 at 21:17
Nov. 15 at 19:57*	Nov. 23 at 17:11*
Dec. 15 at 11:15*	Dec. 23 at 14:36*