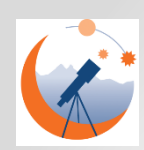




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January 2018 Sky Events

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January 2018 Sky Events – the Planets

- ★ 2018 begins with no bright planets visible in evening skies. In fact, not until late February will a single naked-eye planet make an appearance at dusk.
- ★ Fortunately, early-bird planet hunters will have plenty to entertain them in January, including a pair of close planetary conjunctions.
- ★ **Mars** makes its entrance early on January 1st, rising about 3:30 a.m. Found in the constellation Libra, it moves high near the meridian by sunrise.
- ★ The Red Planet is currently distant and dim, but just wait – by summer Mars will enjoy its closest approach to the Earth since 2003!
- ★ Bright **Jupiter**, shining at magnitude -1.8, parallels Mars closely as the month begins. The two planets trade positions on Jan. 6th and then quickly widen with each successive morning.



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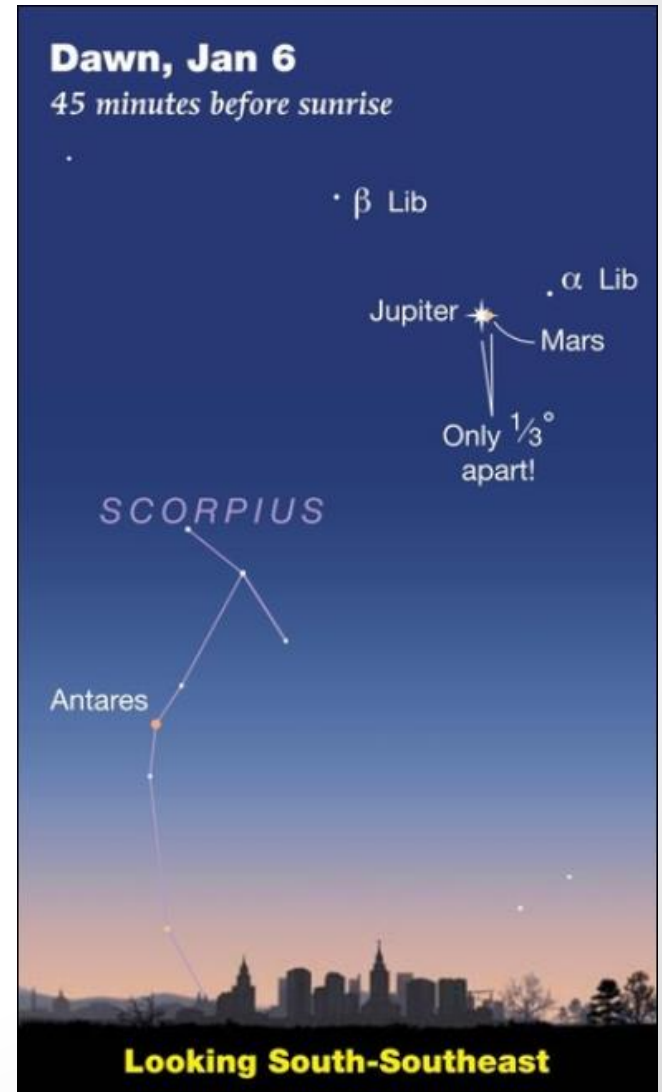
January 2018 Highlight

Close Conjunction of Jupiter and Mars

In the morning hours of **Saturday, January 6th**, the bright planet **Jupiter** and a much fainter **Mars** will be separated by just $\frac{1}{3}$ of a degree.

While the two objects are closely positioned in the sky when seen from Earth, on this morning Mars is some **177 million miles** distant, while Jupiter lies **547 million miles** away.

The pair will appear close on **Sunday, January 7th** as well, giving you two tries to catch this fine conjunction.



[Image courtesy of Sky & Telescope](#)



January 2018 Sky Events – the Planets

- ★ **Mercury** will be visible all month, moving quickly from the constellation Ophiuchus and through Sagittarius. Find it very low to the east-southeastern horizon, about one hour before sunrise.
- ★ The solar system's innermost planet opens 2018 with its *greatest elongation* of 23° west from the Sun.
- ★ By mid-month, **Saturn** emerges from its December conjunction with the Sun into dawn skies.
- ★ Don't expect sharp telescopic views, however, as the ringed planet will be too close to the horizon and therefore too distorted by the atmosphere to be seen well.
- ★ Much like Mars and Jupiter did a week earlier, Mercury and Saturn trade positions in the sky on January 13th.

January 2018 Highlight

Dawn Pairing of Mercury and Saturn

Dawn, Jan 13

30 minutes before sunrise

Moon
Jan 13

Antares

Saturn

Mercury

Looking Southeast

[Image courtesy of Sky & Telescope](#)

On the morning of **Saturday, January 13th**, very low to the east-southeastern horizon, **Mercury** and **Saturn** join to form an attractive conjunction.

Separated by 0.6° , binoculars may be necessary to discern the two planets through dawn's glow. Telescopic views will also work, though any planetary detail will be lost due to the Earth's thick atmosphere near the horizon.

Try to locate this duo about 7:00 a.m., enjoying the view as they quickly fade into morning's light.



January 2018 Sky Events – the Planets

- ★ **Venus** reaches *superior conjunction* (passing behind the Sun) on January 9th and will not be seen this month.
- ★ By late February, Venus will emerge into evening skies as the solitary bright planet seen after sunset.
- ★ **Uranus and Neptune** continue to be visible (with telescopic aid) in the early evening skies in January. Find them shortly after dark - Uranus in the constellation Pisces and Neptune in the constellation Aquarius. You will need to observe these two planets early, before they set.
- ★ A telescope will easily reveal their two faint planetary disks.



January 2018 Sky Events – Uranus and Neptune



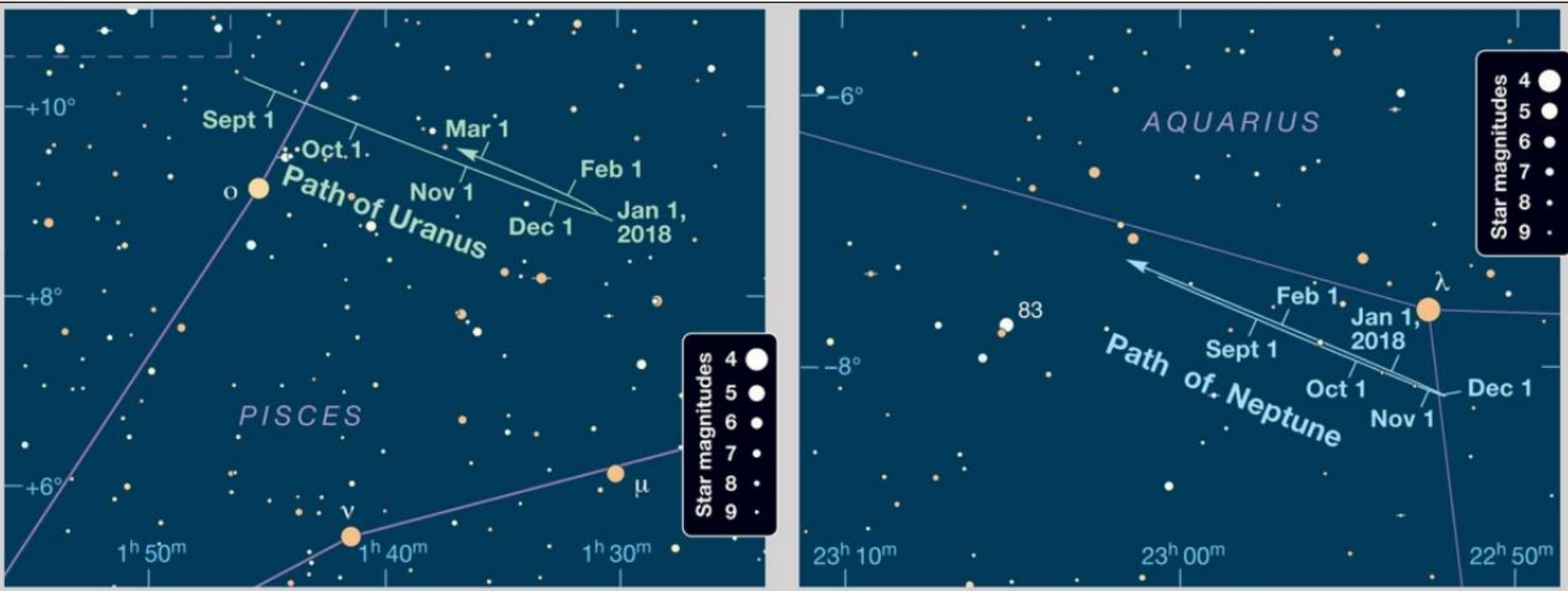
Charts courtesy of Sky & Telescope

The motion of the two ice giants, Uranus and Neptune, as they slowly move through Pisces and Aquarius, respectively, in 2018.



January 2018 Sky Events – Uranus and Neptune

Uranus and Neptune remain in great viewing positions in January. Use the below charts to find their small, distant blue disks in a telescope this month.



Charts courtesy of
Sky & Telescope






January 2018 Planet Highlights

<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
					Page 1 of 3
Mercury	1.2 AU _s	Ophiuchus, Sagittarius & Capricornus	5.6	-0.3	Positioned very low in E-SE dawn skies.
Venus	1.7 AU _s	Sagittarius & Capricornus	9.8	-4.0	Reaches <i>superior conjunction</i> on Jan. 9; not seen this month.
Mars	1.8 AU _s	Libra & Scorpius	5.2	+1.3	Seen in the SE before sunrise.

January 2018 Planet Highlights



<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
					Page 2 of 3
Jupiter	5.7 AU _s	Libra	34.5	-1.9	Rises very early; high in the SE by daybreak.
Saturn	10.9 AU _s	Sagittarius	15.2	+0.5	Emerges from dawn's glow by mid-month.
Uranus	20 AU _s	Pisces	3.5	+5.8	Near the meridian at sunset; observe before midnight.



January 2018 Planet Highlights

<u>Planet</u>	Avg. Distance from Earth	Constellation(s)	Avg. Diameter in arc seconds	Avg. Magnitude	Comments
Neptune	30.6 AU _s	Aquarius	2.2	+7.9	Find it early after dusk in southwestern skies.



The Moon – January 2018

	Full Moon*	1 st	9:24 p.m.
	Last Quarter	8 th	5:25 p.m.
	New Moon	16 th	9:17 p.m.
	First Quarter	24 th	5:20 p.m.
	Full Moon**	31 st	8:27 a.m.

*** The “Wolf Moon”**

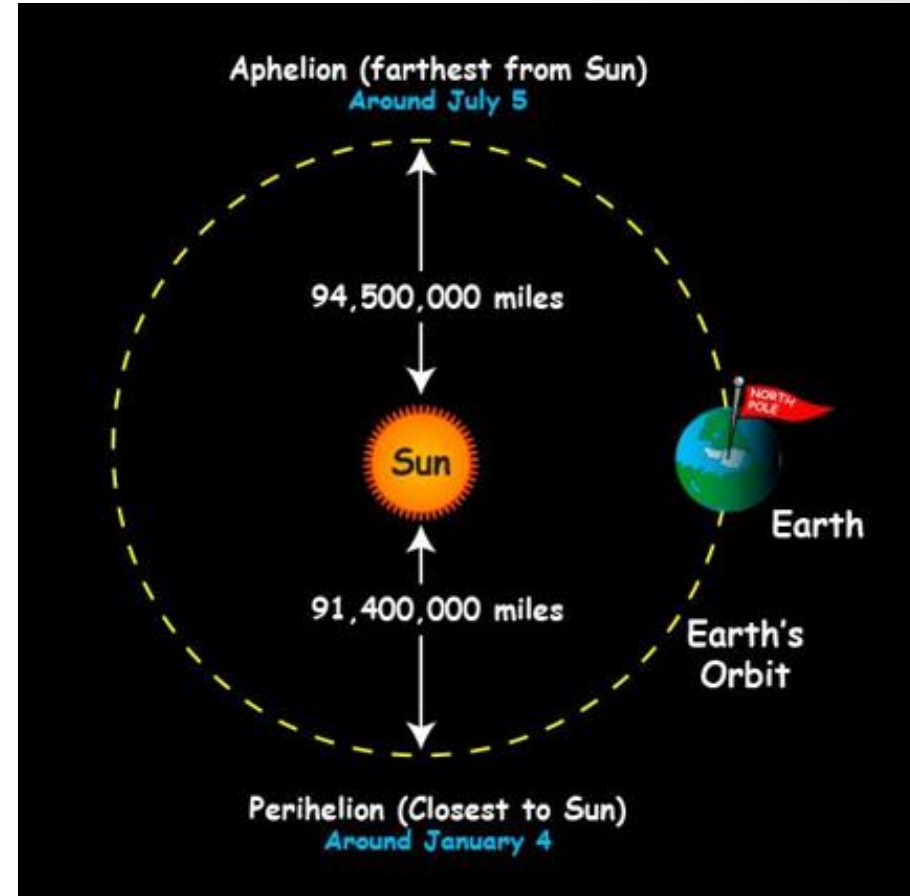
**** The “Blue Moon”**

Unless otherwise indicated, all times are EST

January 2018 Sky Events

Earth Reaches Perihelion

- ★ On **Wednesday, January 3rd**, the **Earth reaches *perihelion***, its closest approach to the Sun for the year.
- ★ The word “*perihelion*” is from the Greek: “*peri-*” meaning *near* and “*-helios*” meaning *Sun*.
- ★ Earth is some **3 million miles closer** (or one part in 30 closer) at perihelion than at the farthest point in its elliptical orbit (aphelion) in early July.
- ★ Yet we experience our coldest weather in the northern hemisphere during January.



- ★ It's the **Earth's $23\frac{1}{2}^\circ$ axial tilt combined with its orbit**, not its *distance* from the Sun, that causes the seasons.
- ★ In January the northern hemisphere is pointed away from the warmth of the Sun.



January 2018 Sky Events

Quadrantid Meteor Shower Peaks

- ★ This year's Quadrantid Meteor Shower is predicted to peak in the Asheville area during the **early evening hours of Wednesday, January 3rd.**
- ★ Under clear dark open skies, one can expect from **60 – 100 meteors per hour**, however these numbers are difficult to predict reliably and the shower's peak is narrow, lasting only a few hours.
- ★ Unfortunately, the shower's narrow window coincides this year with a 96% illuminated waning gibbous Moon, which will severely impact meteor observing. Better to wait for the 2019 Quadrantids, when a New Moon will flatter the peak hours.
- ★ The source of this meteor shower is the debris from an object labeled **2003 EH1** – an asteroid or possibly an extinct comet.
- ★ The shower's radiant is named after the now-extinct constellation Quadrans Muralis – the "*Mural Quadrant*" – which in the late 18th century occupied the area now found between the constellations Draco and Boötes.



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January 2018 Sky Events

Quadrantid Meteor Shower Peaks



Image courtesy of Sky & Telescope

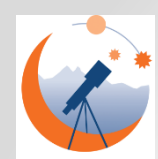
January 2018 Highlight

Dwarf Planet Ceres Reaches Opposition



Image of the asteroid Ceres, taken by NASA's *Dawn* spacecraft. The mysterious, bright region is thought to be composed of salt deposits.

- ★ On January 31st the largest object in the asteroid belt, **1 Ceres**, reaches *opposition* (positioned opposite the Sun when seen from the Earth) and thus will be in great viewing position in night skies, presenting an excellent opportunity to view this object in a modest telescope.
- ★ Hovering around magnitude +6.9, you will need [a finder's chart](#) and/or a go-to telescope to locate this faint object with certainty.
- ★ At opposition, Ceres will be about 149 million miles away, situated in the constellation Cancer.



January 2018 Highlight

Dwarf Planet Ceres Reaches Opposition

Moon



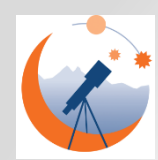
Ceres



The Earth, Moon and Ceres shown to scale

- ★ At 945 km (587 miles) in diameter, roughly the size of Texas, **Ceres** takes 4.6 years to orbit the Sun.
- ★ Launched in 2007, [NASA's Dawn spacecraft](#) visited the two largest bodies in the asteroid belt, the rocky asteroid Vesta and the dwarf planet Ceres.

- ★ After spending more than one year orbiting Vesta, *Dawn* entered orbit around Ceres in March 2015, where it remains today.



January 2018 Highlight

Dwarf Planet Ceres Reaches Opposition

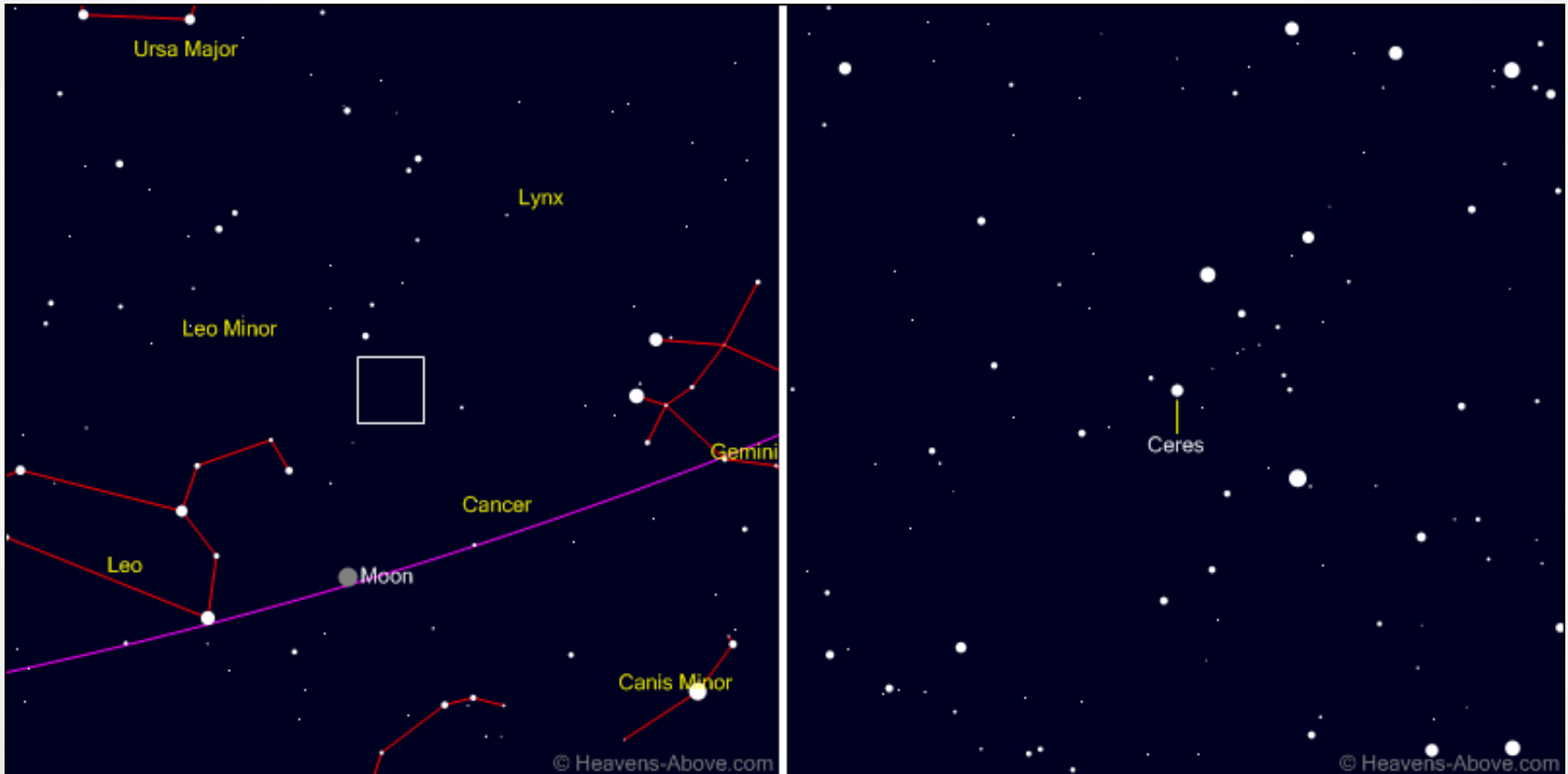
- ★ **Ceres** was the first asteroid to be discovered, on 1 January 1801 by Giuseppe Piazzi in Palermo, Sicily, and at first it was considered to be a planet.
- ★ In 1851 astronomers demoted Ceres and other known asteroids from the ranks of the planets. Does this sound anything like the 2006 IAU (International Astronomical Union) demotion of Pluto?
- ★ In 2006, Ceres was classified (like Pluto) as a *dwarf planet*.
- ★ It is the largest object in the *asteroid belt*, located between the orbits of Mars and Jupiter.
- ★ *Ceres* is the ancient Roman goddess of agriculture, grain crops, fertility and motherly relationships, and is the origin of our word *cereal*!



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January 2018 Highlight

Dwarf Planet Ceres Reaches Opposition



Find location charts for Ceres and other asteroids
at the heavens-above.com website.



End