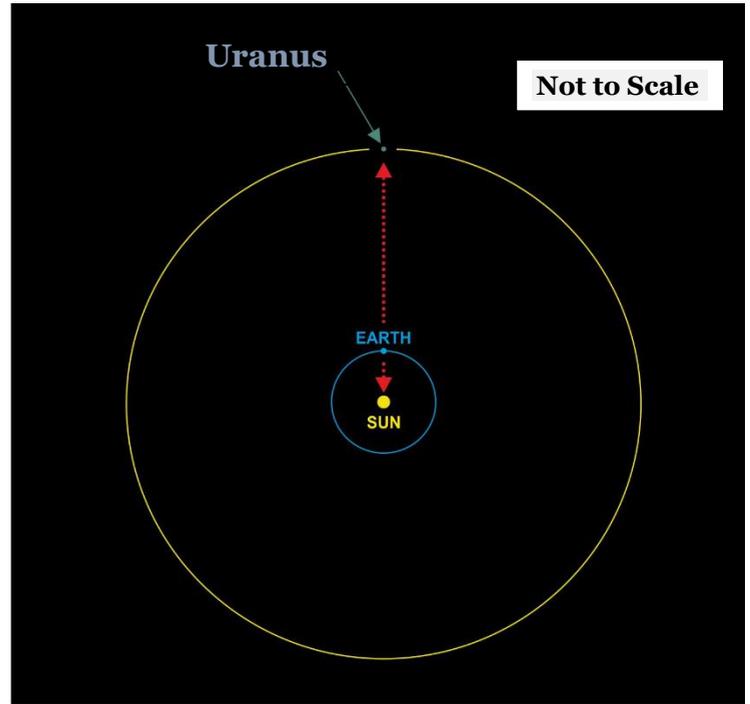


# Uranus Closest to Earth for 2020

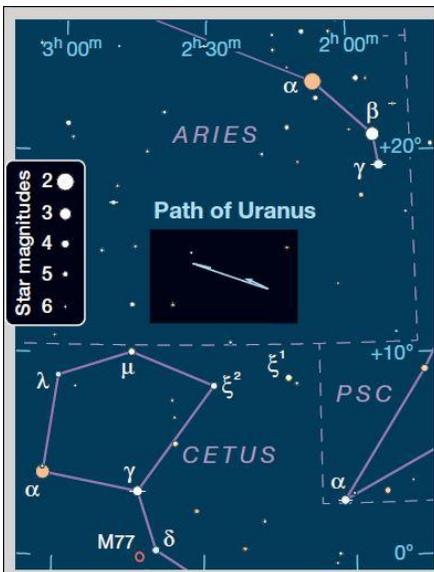
- an October 2020 Sky Event from the Astronomy Club of Asheville

Earth reaches "opposition" with the planet Uranus on **October 31<sup>st</sup>**. At opposition, speedier Earth, moving counterclockwise on its inside lane, laps Uranus, positioning the Sun directly opposite the Earth from it. This puts Uranus closest to Earth for the year and in great observing position for those using a telescope.

Rising at dusk and setting at dawn, the planet Uranus is visible all night in late October and during the month of November. Located in the constellation Aries, Uranus is positioned some 1.75 billion miles (or 156 light-minutes) away from Earth at "opposition" this month.



At magnitude 5.7, Uranus will appear as a small blue disk in most amateur telescopes. You will find Uranus along the ecliptic in the constellation Aries this year. In November, it will be located about  $2\frac{1}{2}^\circ$  southwest of the 6<sup>th</sup> magnitude, double star "29 Arietis".



Charts courtesy of [Sky & Telescope](http://www.skyandtelescope.com)

Like Neptune, Uranus has an upper atmosphere with significant methane gas ( $\text{CH}_4$ ). Methane strongly absorbs red light; thus, the blue end of the light spectrum, from the reflected sunlight, is what primarily passes through to our eyes, when observing this distant planet.



## Uranus' Discovery

Uranus was the 1<sup>st</sup> solar system planet to be discovered! British astronomer William Herschel, using a telescope, observed its bluish disk in 1781, quite by accident. He was surveying all stars of magnitude 8 or brighter, when this small blue dot appeared in his eyepiece. During follow-up observations, its position changed against the background stars. This movement made it a candidate to join the ranks of the "planets"!

Uranus' orbit had an unexplained problem – a deviation that astronomers called a "perturbation" – that led to the discovery of Neptune.



NASA image

Johannes Kepler's laws of planetary motion and Isaac Newton's laws of motion and gravity could not adequately explain this perturbation in Uranus' orbit. They suspected that a massive object, out beyond Uranus, was "pulling" on the planet. Mathematicians John Adams and Urbain Le Verrier each independently calculated the approximate celestial position of a solution. Subsequently, using a 9-inch refractor telescope at the Berlin Observatory, Johann Galle, by moving the telescope to the mathematically calculated coordinates, discovered Neptune in 1846 – problem solved!

Although Neptune was "discovered" by Johann Galle in 1846, he was not the first person to lay eyes on the planet's blue disk! On two different occasions, in 1612 and 1613, Galileo recorded Neptune's position while he was observing much brighter Jupiter. However, using his modest telescope, Galileo did not recognize it as a planet. He likely thought it was a faint background star.

**Find out more about the planet Uranus at this [NASA link](#).**

**And find out more about observing Uranus this month [here](#).**