

Uranus

Discovered by William Herschel in 1781, Uranus is sometimes called an **ice giant** rather than a gas giant planet. Although its outermost layers consist of hydrogen and helium gas, most of its mass comes from water ice, ammonia ice and methane ice.

*Like all of the gas and ice giants in our solar system, Uranus is surrounded by a system of rings. The **rings** are not easily seen in visible light but stand out in photos taken in infrared light, such as the one at left (some moons can also be seen in the background). The rings are also **elliptical** in shape, not circular, and **vary in brightness** around the planet (as seen in the outermost ring at left).*

Unlike any other planet in the solar system, Uranus is **tilted on its side**, probably due to a **tremendous collision** early in its history. This extreme tilt of Uranus' spin axis relative to the axis of its orbit produces **extreme seasons**. For half its orbit (42 years), Uranus's north pole is exposed to the Sun while its south pole is in **complete darkness**, and vice versa for the other half of its orbit. Uranus may look featureless in visible light (below left), but storms caused by its extreme tilt are easily seen in infrared light (above left and below right).

Titania

Umbriel

The moons of Uranus are named after characters in the works of **Shakespeare** and **Alexander Pope**. The names of the six moons shown in this photo from the *European Southern Observatory* are drawn from three of Shakespeare's plays and one of Pope's poems.

Miranda

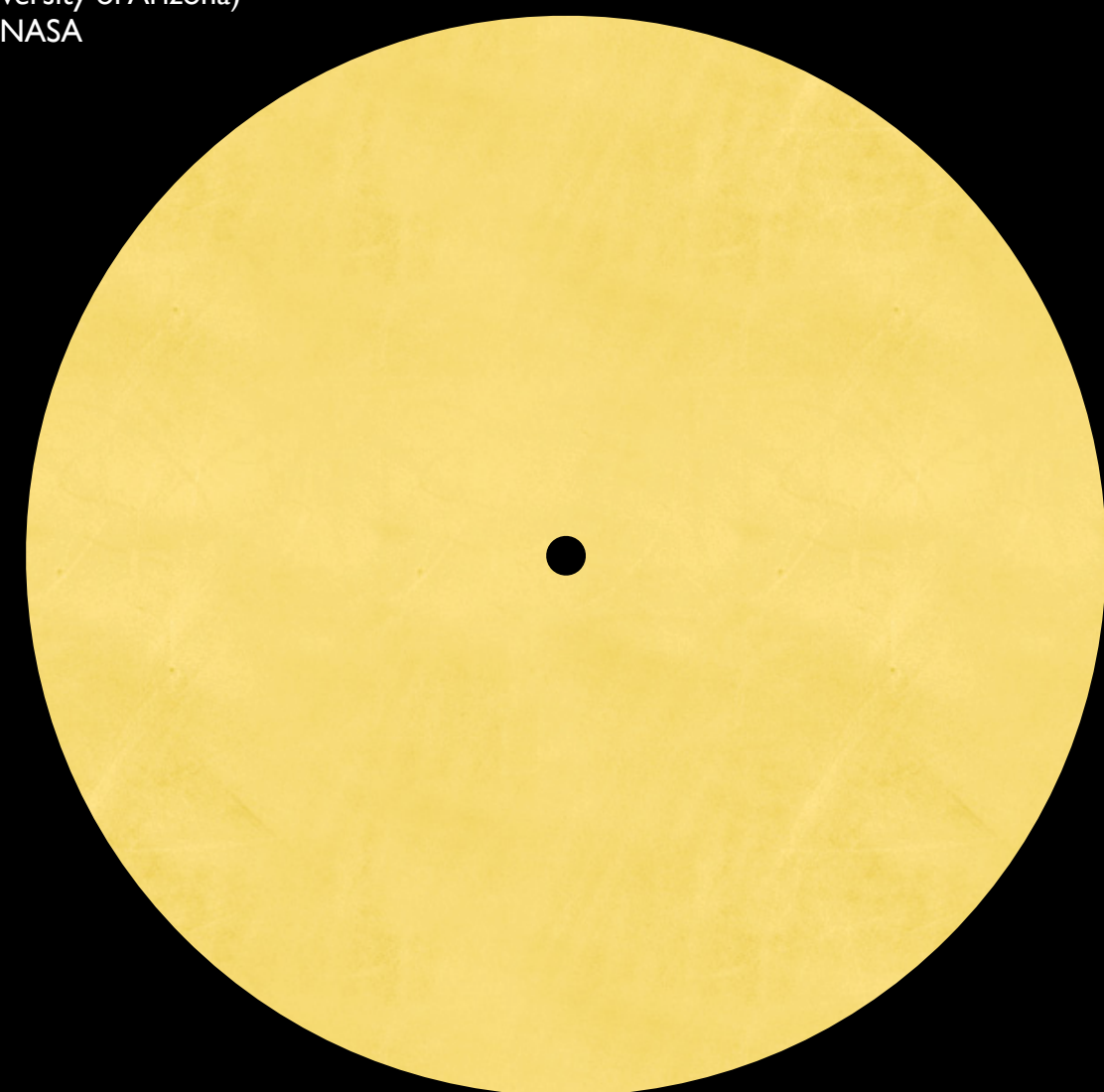
Portia →

← Puck

Ariel

! Uranian day =
17.2 Earth hours
! Uranian year =
83.8 Earth years

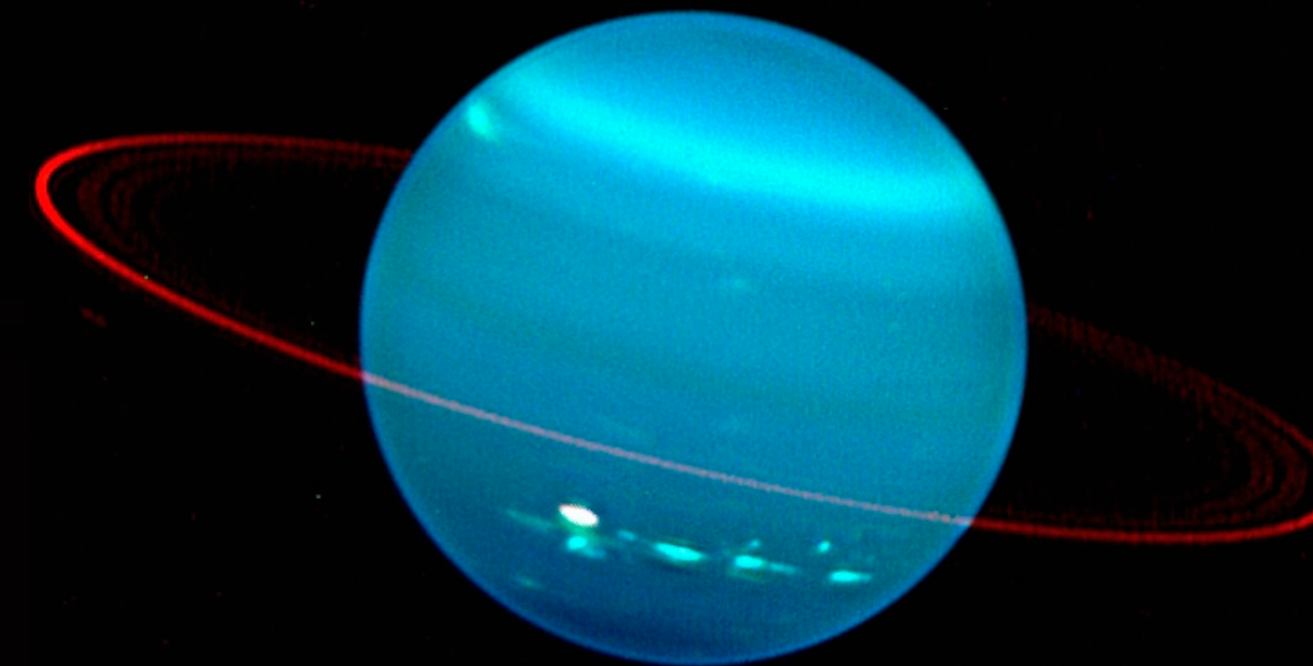
Erich Karkoschka
(University of Arizona)
and NASA



Uranus is shown above with its correct size relative to the Sun (the yellow circle) in this scale model of the solar system. None of its moons are large enough to be seen at this scale.



Voyager 2 Team / NASA



Lawrence Sromovsky (UW Madison) and Keck Observatory



Uranus' moon **Miranda** shows signs of **resurfacing** due to tidal forces. Many of its craters have been erased and replaced with long canyons. Because of this activity and its very low gravity, Miranda has some of the **highest, steepest cliffs in the solar system**.

Voyager
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