

URANUS

In January 1986, four and a half years after visiting Saturn, Voyager 2 completed the first close-up survey of the uranian system. The brief flyby revealed more information about Uranus and its retinue of icy moons than had been gleaned from ground observations since the planet's discovery over two centuries ago by the English astronomer William Herschel.

Uranus, third largest of the planets, is an oddball of the solar system.

Unlike the other planets (with the exception of Pluto), this giant lies tipped on its side with its north and south poles alternately facing the Sun during an 84-year swing around the solar system.

During Voyager 2's flyby, the south pole faced the Sun. Uranus might have been knocked over when an Earth-sized object collided with it early in the life of the solar system.

Voyager 2 discovered that Uranus' magnetic field does not follow the usual north-south axis found on the other planets. Instead, the field is tilted 60 degrees and offset from the planet's center, a phenomenon that on Earth would be like having one magnetic pole in New York City and the other in the city of Djakarta, on the island of Java in Indonesia.

Uranus' atmosphere consists mainly of hydrogen, with some 12 percent helium and small amounts of ammonia, methane and water vapor.

The planet's blue color occurs because methane in its atmosphere absorbs all other colors.

Wind speeds range up to 580 kilometers (360 miles) per hour, and temperatures near the cloud tops average -221 degrees Celsius (-366 degrees Fahrenheit).

Uranus' sunlit south pole is shrouded in a kind of photochemical "smog" believed to be a combination of acetylene, ethane and other sunlight-generated chemicals. Surrounding the planet's atmosphere and extending thousands of kilometers into space is a mysterious ultraviolet sheen known as "electroglow."

Approximately 8,000 kilometers (5,000 miles) below Uranus' cloud tops, there is thought to be a scalding ocean of water and dissolved ammonia some 10,000 kilometers (6,200 miles) deep. Beneath this ocean is an Earth-sized core of heavier materials.

Voyager 2 discovered 10 new moons, 16-169 kilometers (10-105 miles) in diameter, orbiting Uranus. The five previously known: Miranda, Ariel, Umbriel, Titania and Oberon range in size from 520 to 1,610 kilometers (323 to 1,000 miles) across. Representing a geological showcase, these five moons are half-ice, half-rock spheres that are cold and dark and show evidence of past activity, including faulting and ice flows.

The most remarkable of Uranus' moons is Miranda. Its surface features high cliffs as well as canyons, craterpocked plains and winding valleys. The sharp

variations in terrain suggest that, after the moon formed, it was smashed apart by a collision with another body - an event not unusual in our solar system, which contains many objects that have impact craters or are fragments from large impacts. What is extraordinary is that Miranda apparently reformed with some of the material that had been in its interior exposed on its surface.

Uranus was thought to have nine dark rings; Voyager 2 imaged eleven. In contrast to Saturn's rings, which are composed of bright particles, Uranus' rings are primarily made up of dark, boulder-sized chunks.

- * Uranus is named for the father of Saturn and grandfather of Jupiter.
- * Uranus' symbol is the sign used for the metal platinum.
- * This is the seventh planet from the Sun.
- * Uranus is the third largest planet in our solar system.
- * William Herschel discovered Uranus in 1781.
- * Uranus circles the Sun every 84.01 Earth years.
- * One day on Uranus is 17 hours, 14 minutes, and 24 seconds long.
- * The gravity of Uranus is .86 of Earth's gravity.
- * Uranus is one-fifth denser than Earth.
- * The diameter of Uranus is 32,116 miles.
- * Uranus is 19 times Earth's distance from the Sun.
- * Uranus' bluish-green color is caused by methane gas (natural gas).

- * Uranus' atmosphere is made up of helium, hydrogen, and methane.
- * Uranus has 15 moons (which are named for characters from famous plays): Cordelia, Rosalind, Miranda, Ophelia, Portia, Ariel, Bianca, Cressida, Umbriel, Juliet, Belinda, Titania, Desdemona, Puck, Oberon.
- * Uranus is tipped-over on its side.
- * Communication to Uranus takes about 2 hours and 45 minutes.
- * Voyager 2's flyby of Uranus took place in January 1986.

Source: NASA