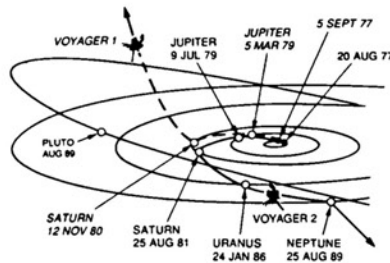




National Aeronautics and
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**Neptune
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Discovered in 1846, Neptune is the smallest of our solar system's four gaseous giant planets. With an equatorial diameter of 49,520 kilometers (30,770 miles), Neptune's volume could hold 57.7 Earths. At an average distance of 4.5 billion kilometers (2.8 billion miles) from the Sun, Neptune circles the Sun once in 165 years. A Neptunian day is slightly more than 16 hours long. Neptune has at least eight moons and three rings, as well as a highly tilted and offset magnetic field. Its atmosphere is primarily hydrogen, helium, and methane. The methane gives the planet its lovely blue color because the methane absorbs wavelengths of red light and transmits the reflected blues. Neptune also has a large internal heat source, as the planet emits nearly three times as much heat as it receives from the Sun. Voyager 2 became the first spacecraft from Earth to visit Neptune, passing about 4900 kilometers (3000 miles) above Neptune's north pole on August 25, 1989.

Three of the most prominent features in Neptune's atmosphere are captured in this photograph reconstructed from two images taken by Voyager 2. At the north (top) is the Great Dark Spot, accompanied by bright, white clouds that undergo rapid changes in appearance. To the south of the Great Dark Spot is the bright feature that Voyager scientists nicknamed "Scooter" because it rotates around the globe more rapidly than do other features. Still farther south is the feature called "Dark Spot 2," which has a bright core. Each feature moves eastward at a different velocity, so it is only occasionally that they appear close to each other, such as at the time this picture was taken. The highest wind velocities measured in Neptune's cloud tops were over 700 miles per hour westward, near the Great Dark Spot.

VOYAGER MISSION HIGHLIGHTS

In 1977, two unmanned Voyager spacecraft, designed and built by the Jet Propulsion Laboratory, were launched on reconnaissance missions to the outer planets. In 1979, Voyagers 1 and 2 sent back spectacular images of the Jovian system and made startling discoveries. Giant volcanoes spew molten sulfur hundreds of kilometers above the surface of Io, one of Jupiter's four largest moons, while Europa, Ganymede, and Callisto each have diverse surfaces. Three tiny moons were found near a thin ring of dust particles encircling the planet, and cloud-top lightning bolts and polar auroras light up the Jovian night skies.

The Voyagers traveled on to Saturn encounters in 1980 and 1981, respectively. The rings were more complex than scientists could have imagined. Although Saturn's colors are more muted than Jupiter's, storms are still visible in the cloud tops. A thick atmosphere of nitrogen and methane surrounds Titan, Saturn's largest moon, and photochemical hazes hide its surface. After its close swing past Titan, Saturn's gravity forced Voyager 1 up and out of the ecliptic plane, and the spacecraft is now on its way out of our solar system.

Mission planners took advantage of the opportunity to send Voyager 2 on to Uranus. Arriving at Uranus in 1986, Voyager 2 found a cold planet with a remarkably featureless atmosphere. The spacecraft discovered ten small moons and two new rings at Uranus. Miranda, one of the five larger moons, has one of the most complex surfaces yet seen in the solar system. Voyager 2's final planetary encounter took place on August 25, 1989, when the spacecraft sailed within 3000 miles of the cloud tops of Neptune's north pole. Five hours later, Voyager 2 swept past Triton, a cold, bright moon where volcanoes may spew ice particles into the thin nitrogen atmosphere. The spacecraft discovered six new moons and a number of rings at Neptune. Now Voyager 2 is also heading out of the solar system, diving below the ecliptic plane.

Data from both Voyagers may be received well into the next century as they search for interstellar space. The Voyager Project is managed for NASA by the Jet Propulsion Laboratory.