



Dwarf Planet: The Pluto Charon System

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DESCRIPTION

Pluto is the largest known dwarf planet in the solar system. The unusual planet is situated in the Kuiper Belt, a region beyond Neptune's orbit that is teeming with 1 trillion or more comets and hundreds of thousands of stony, ice bodies, each more than 62 miles (100 kilometers) across. The width of Pluto is only about 1,400 kilometers. Pluto is just roughly half the width of the United States when it is that small. Its atmosphere, which is made primarily of nitrogen, methane, and carbon monoxide, is thin and it is located approximately 3.6 billion miles from the Sun. Pluto's average temperature of -232°C makes it inhospitable to life.

FIVE ORBITING MOONS

The largest of the five known moons orbiting Pluto is Charon. In our solar system, Charon is the largest satellite in relation to the planet it circles since it is roughly half the size of Pluto. It's common to refer to Pluto and Charon as a "double planet." The largest moon in our solar system compared to the planet it circles is Charon, the largest of Pluto's moons. Charon is roughly half the size of Pluto itself. It travels just 12,200 miles around Pluto in its orbit (19,640 kilometers). Our Moon is 20 times further away from Earth than it is. Less than 100 miles (160 kilometers) broad, Pluto's other four moons are all significantly smaller. They are not spherical like Charon, but rather have an uneven shape. These moons are not tidally locked to Pluto, which is not true of many other moons in the solar system. They all rotate and don't maintain a constant face toward Pluto.

The formation of Pluto and how it retained enough heat to dissolve all that ice are hugely impacted by this ocean of liquid

water. Since the New Horizons flyby, two broad formation concepts have gained popularity. In the first Pluto begins as a "cold" object slowly forming over millions of years by the accretion of other cold objects. The water beneath this form of Pluto would eventually melt due to internal radioactive heating after it had consolidated enough material. The alternative theory proposes that Pluto originated over a shorter time span as a result of violent impacts that heated its interior, created the ocean, and ultimately caused the planet to cool into the ice ball we know it to be today. Unofficially referred to as the Tombaugh Patch, a sizable heart-shaped region on Pluto's surface is another distinctive feature. Carbon monoxide ice has covered the left side of the area, which has the appearance of an ice cream cone. Within Pluto's "heart," more differences in the surface materials' composition have been found. It appears implausible that life could exist on Pluto's extremely frigid surface. Water, which is fundamental for life as we know it, is practically rock-like at such low temperatures.

CONCLUSION

The inside of Pluto is warmer, though, and some people speculate that there might even be an ocean there. Pluto nonetheless manages to keep its interior warm enough to support its active geology and occasionally a very young surface that is renewed by cryovolcanism and the seasonal sublimation and deposition of volatile ices. Pluto's heat may be adequate to support an ocean of ammonia-rich water beneath a substantial bedrock roof made of water-ice in the world's interior. A deep ocean may be slowly freezing, deforming the earth and releasing additional latent heat as it turns to ice, according to long linear striations on some of Pluto's surface.

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