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10th Planet Discovered



Astronomers have found a new planet in the outer reaches of the solar system.

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July 29, 2005: "It's definitely bigger than Pluto." So says Dr. Mike Brown of the California Institute of Technology who announced today the discovery of a new planet in the outer solar system.

The planet, which hasn't been officially named yet, was found by Brown and colleagues using the Samuel Oschin Telescope at Palomar Observatory near San Diego. It is currently about 97 times farther from the sun than Earth, or 97 Astronomical Units (AU). For comparison, Pluto is 40 AU from the sun.

Right: An artist's concept of the new planet. [More]



This places the new planet more or less in the Kuiper Belt, a dark realm beyond Neptune where thousands of small icy bodies orbit the sun. The planet appears to be typical of Kuiper Belt objects--only much bigger. Its sheer size in relation to the nine known planets means that it can only be classified as a planet itself, Brown says.

Backyard astronomers with large telescopes can see the new planet. But don't expect to be impressed: It looks like a dim speck of light, visual magnitude 19, moving very slowly against the starry background. "It is currently almost directly overhead in the early-morning eastern sky in the constellation Cetus," notes Brown.

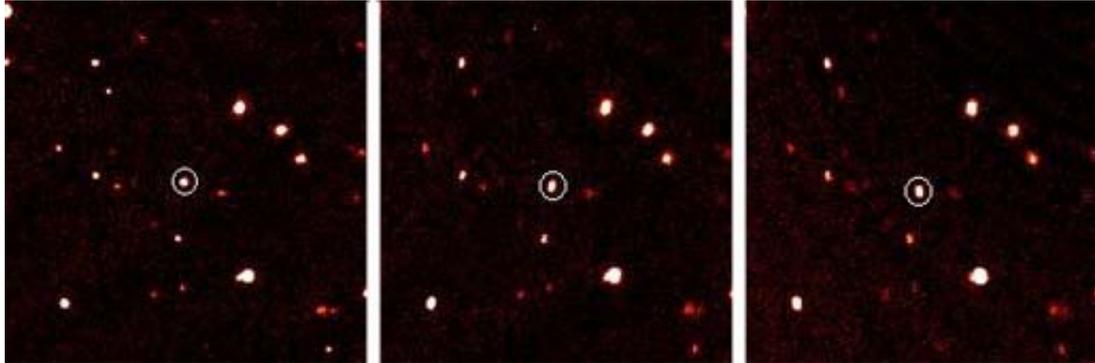
The planet was discovered by, in addition to Brown, Chad Trujillo, of the Gemini Observatory in Mauna Kea, Hawaii, and David Rabinowitz, of Yale University, New Haven, Connecticut. They first photographed the



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new planet with the 48-inch Samuel Oschin Telescope on October 31, 2003. The object was so far away, however, that its motion was not detected until they reanalyzed the data in January of this year. In the last seven months, the scientists have been studying the planet to better estimate its size and its motions.

"We are 100 percent confident that this is the first object bigger than Pluto ever found in the outer solar system," Brown adds.



Right: The new planet, circled in white, moves across a field of stars on Oct. 21, 2003. The three photos were taken about 90 minutes apart. Image credit: Samuel Oschin Telescope, Palomar Observatory. [More]

Telescopes have not yet revealed the planet's disk. To estimate how big it is, the astronomers must rely on measurements of the planet's brightness. Like all planets, this new one presumably shines by reflecting sunlight. The bigger the planet, generally speaking, the bigger the reflection. The reflectance, the fraction of light that bounces off the planet, is not yet known. Nevertheless, it is possible to set limits on the planet's diameter:

"Even if it reflected 100 percent of the light reaching it, it would still be as big as Pluto," says Brown. Pluto is 1400 miles (2300 km) wide. "I'd say it's probably [about] one and a half times the size of Pluto, but we're not sure."

The planet's temporary name is 2003 UB313. A permanent name has been proposed by the discoverers to the International Astronomical Union, and they are awaiting the decision of this body before announcing the name. Stay tuned!

Source: NASA Press Release | Editor: Dr. Tony Phillips | Credit: Science@NASA

More Information

What Lurks in the Outer Solar System? -- (Science@NASA)

Astronomers Discover "10th Planet" -- (Sky and Telescope)

Dr. Mike Brown's home page -- learn about the new planet and other objects he's discovered.

NASA-Funded Scientists Discover Tenth Planet -- NASA press release

Much Ado about Pluto -- (Science@NASA)

The Samuel Oschin Telescope

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