



Size Comparison of the 4 Plutoids

## Ceres and the 4 Plutoids

In the summer of 2008, the astronomers met and made still another new category of celestial objects-plutoids. Ceres remained as a dwarf planet. Astronomers reclassified Pluto this time as a plutoid. There are presently four plutoids-Pluto, Haumea, Makemake, and Eris. There are over 2,000 other celestial objects in the Kuiper Belt awaiting classification and names.

### CERES

Ceres was discovered in 1801. It is currently the only dwarf planet in the solar system. Ceres is located in the asteroid belt between Mars and Jupiter. Ceres is by far the largest and most massive body in the asteroid belt, which has thousands of asteroids. Even though Ceres is the largest celestial object in the asteroid belt, it is still only 975 km. (605 miles) across.

Ceres was named after the Roman goddess Ceres, the goddess of growing plants. Ceres is 447,800,000 km. from the sun. Ceres revolves around the sun every 4.6 years and rotates every 9 hours 4 minutes. It has no moons or rings. There is an atmosphere on Ceres. The warmest temperature on Ceres was recorded at  $-38^{\circ}\text{C}$ .

# PLUTO

Pluto is the 1<sup>st</sup> plutoid located beyond Neptune. Pluto was discovered in 1930 and was originally classified as one of the major planets, but in 2006 was reclassified as a dwarf planet. It has now been reclassified as a plutoid. When you compare the sizes of the dwarf planets and plutoids, Pluto is larger than Ceres, Makemake, and Haumea, but smaller than Eris.

Pluto is 4.6 billion km. from the sun. It is 2,390 km. (1,485 miles) across- smaller than our moon. It has a very unusual revolution. Once every 248 Earth years, Pluto swings inside the orbit of Neptune. It stays there for 20 years. During those 20 years, Pluto is closer to the sun than Neptune. If you visited Pluto, you would find that one day on the planet is almost a week long on Earth. Pluto's rotation is actually equal to 6 Earth days plus 9 hours.

Pluto consists of nitrogen ice and rock, although scientists are not sure which is more abundant. The temperatures of this frozen world range from -210°C. to -235 °C. Pluto has a thin atmosphere of methane gas. Pluto has 3 moons. The largest of Pluto's moons, Charon, is half the size of Pluto. The other moons are Nix and Hydra. Pluto does not have rings.

Pluto was named after the Roman god of the underworld.

# HAUMEA

(Pronounced how-MAY'-ah)

Haumea is the 2<sup>nd</sup> plutoid located in the Kuiper Belt beyond Neptune. It is approximately 1,960 km in diameter. It was discovered in 2004. Haumea has no rings, but it has 2 moons-Hi'iaka and Namaka. It has a

283 year orbit and is approximately 50 AU from the sun. Haumea also has an ultra fast spin and rotates every 3.9 hours. Haumea is elliptical or egg shaped. Some scientists say it has a squashed football shape. It is made of solid rock with a glaze of ice over the surface. It has a dark, red spot.

Haumea was named after Haumea, the Hawaiian goddess of fertility and childbirth. It was named after a Hawaiian goddess to pay homage to the place where it was discovered-the Mauna Kea Observatory on the island of Hawaii.

## **MAKEMAKE**

(Pronounced MAH-kay-MAH-kay)

Makemake is now classified as the 3rd plutoid located in the Kuiper Belt beyond Neptune. It was discovered in 2005 and is the smallest of the four plutoids. Makemake's diameter is approximately 1,600 km. and it takes 310 years to orbit the sun. Its rotation period is approximately 7.8 hours. The surface of Makemake is slightly red and covered with methane, ethane, and nitrogen ice. Its atmosphere consists of methane and nitrogen. Makemake's temperature is  $-240^{\circ}\text{C}$  ( $-406^{\circ}\text{F}$ ). It has no moons or rings.

Makemake was officially named after the god of the Rapa Nui people of Easter Island. Makemake is the god of fertility and creator of humans in Polynesian mythology. Makemake had 2 previous names-2005 FY9 and the "Easter Bunny".

## **ERIS**

Eris was discovered in 2005 and is now classified as the 4th plutoid located in the Kuiper Belt beyond Neptune. It is slightly larger than

Pluto. Eris takes 557 years to orbit the sun and its rotation period is approximately 8 hours. Its temperature ranges from  $-243^{\circ}\text{C}$  to  $-217^{\circ}\text{C}$ . The surface of Eris is covered in grey methane ice and its surface is similar to Pluto. It has one moon called Dysnomia and no rings.

Eris was officially named after the Greek goddess Eris, the goddess of strife and conflict. Eris has had previous unofficial names-2003 UB313, Xena, and planet X.

## Comparison Chart of Ceres and the 4 Plutoids

	<b>Ceres</b>	<b>Pluto</b>	<b>Haumea</b>	<b>Makemake</b>	<b>Eris</b>
<b>Diameter</b>	975 km	2,390 km	1,960 km	1,600 km	2,400-2,700 km
<b>Rotation</b>	9 hours	6 days 9 hrs.	3.9 hours	7.8 hours	8 hours
<b>Revolution</b>	4.6 years	248 years	283 years	310 years	557 years
<b>Number of moons</b>	0	3 Charon, Nix, and Hydra	2 Namaka and Hi'iaka	0	1 Dysnomia