

SATURN'S 5TH LARGEST MOON TETHYS.

After Dione, Tethys and is the next moon in size with a 1062Km diameter orbiting Saturn, the giant planet at a distance of 294,619Km, every 1.9 days.



Image of Tethys taken in 1981

Another moon that was discovered by Giovanni Cassini in 1684, Tethys is named after a Titan Greek goddess.

It is understood that Tethys has a low density of 0.98 g/cubic cm, which is the lowest of all the moons in our solar system. It is therefore concluded that it comprises mainly of water ice with very little rock. Spectroscopy has confirmed that water ice is the dominant surface feature. However unidentified dark material has also been noticed in some areas. The surface, however, is very bright and is the second brightest of Saturn after Enceladus.

Tethys is heavily cratered and cut by a number of large faults or grabens. The largest impact crater, Odysseus is about 400 km in diameter, whereas the largest graben, Ithaca Chasma is 100 km wide and more than 2000 km long, one of the biggest in our Solar system. It was assumed that these two features were related, however studies carried out by the Cassini probe now suggests that the graben was probably there before the impact crater, Odysseus was formed. This conclusion is based on the fact that there appears to be less crater counts in the graben than within the Crater, making the graben an older feature of the moon.

A small part of the surface is covered by smooth plains, indicating some form of cryovolcanic activity. Tethys is understood to have formed when from a Saturnian sub-nebula – i.e. from the dust and gas surrounding Saturn.

A number of Earth based probes have flown past and studied Tethys, namely Pioneer 11 in 1979, Voyager 1 in 1980, Voyager 2 in 1981 and the Cassini probe since 2004 and which continues to send useful data on the Saturnian Moons.

The surface of Tethys is highly reflective, which is increased by the bombardment of water-ice particles from Enceladus, the moon which spurts out water geysers on a regular basis and which we will come to in due course.

Being the third closest of the moons to Saturn, Tethys feels a strong pull from Saturn, which may be why it is partially molten than would have been further in orbit. That might explain why Tethys is less cratered than Rhea or Dione and could have been re-surfaced in the recent past.

The Cassini probe is worth following on NASA's website as it gives details of all the fly-pasts over Saturn's Moons and is still very active.



Tethys with Rhea

The picture above was taken by the Cassini Probe with Rhea in the foreground. This was taken by Cassini on April 20th 2012 and viewed from a distance of 1.8 million Kilometres from Rhea. The image scale is 11 Kilometres per pixel.

Tethys orbits Saturn with two tiny siblings, Telesto and Calypso, which are 31Km and 26Kms across respectively. Tethys herds its two sister moons along like a duck with two ducklings.

I hope that these moons are of interest to all readers. Comments and queries will be welcome. Post your queries or comments on our website, so that all can see and participate in the discussions.

Submitted by Jay Nair – July 2015.