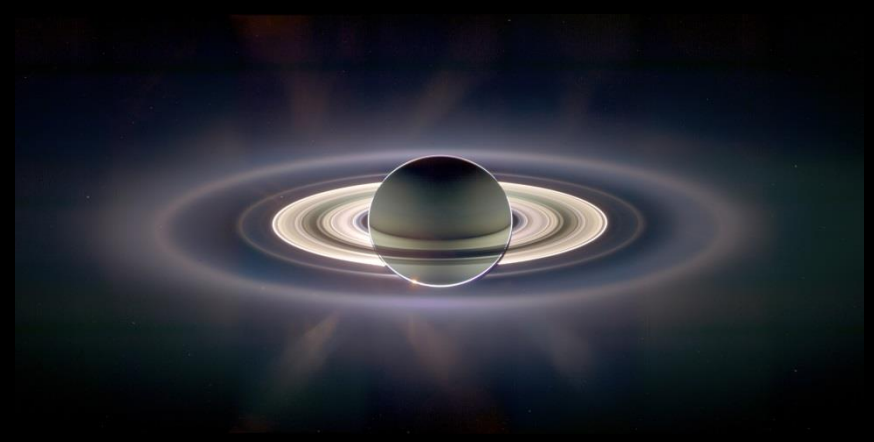




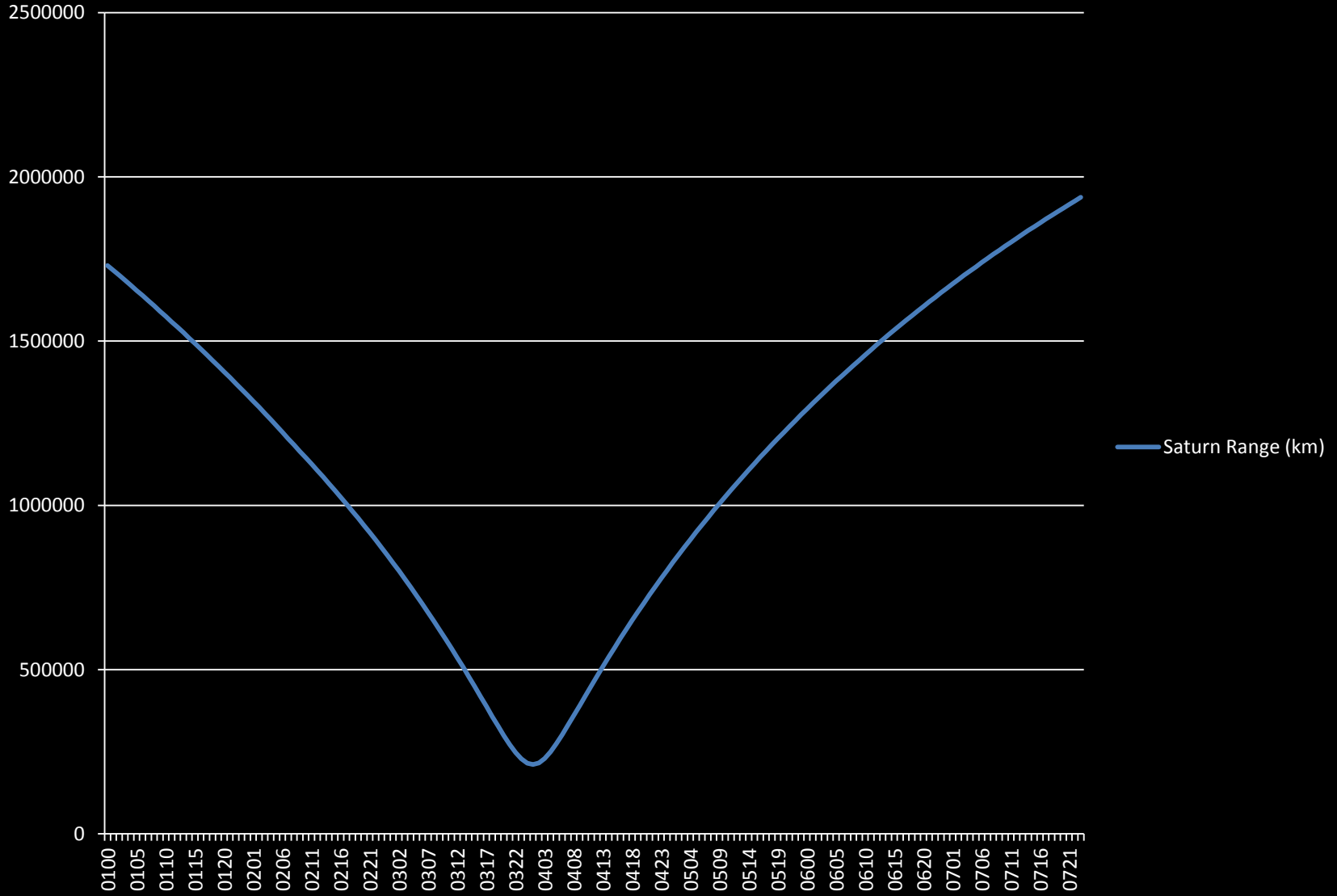
Saturn

Discovered	First observed through a telescope in 1610 by Galileo Galilei
Diameter	116,500 km
Composition	Hydrogen and Helium but it is thought to have a rocky core.
Appearance	It is a gas giant. Complex weather systems can be observed in the atmosphere of the planet.
Orbit	It orbits the Sun once every 30 years and is the sixth planet from the Sun.





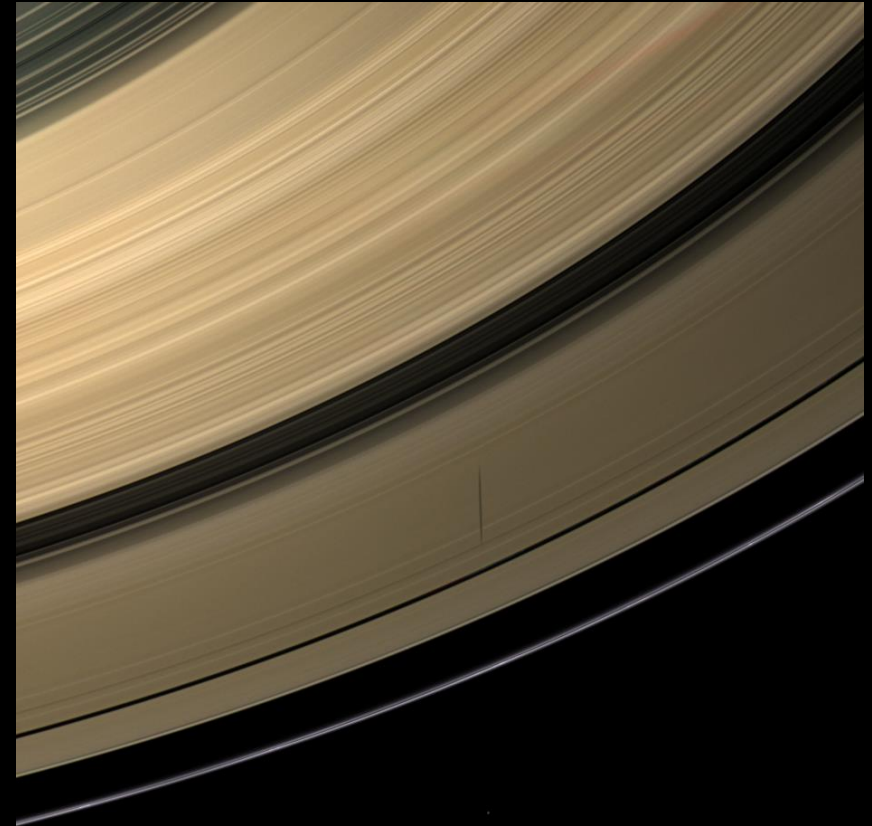
Saturn Range (km)





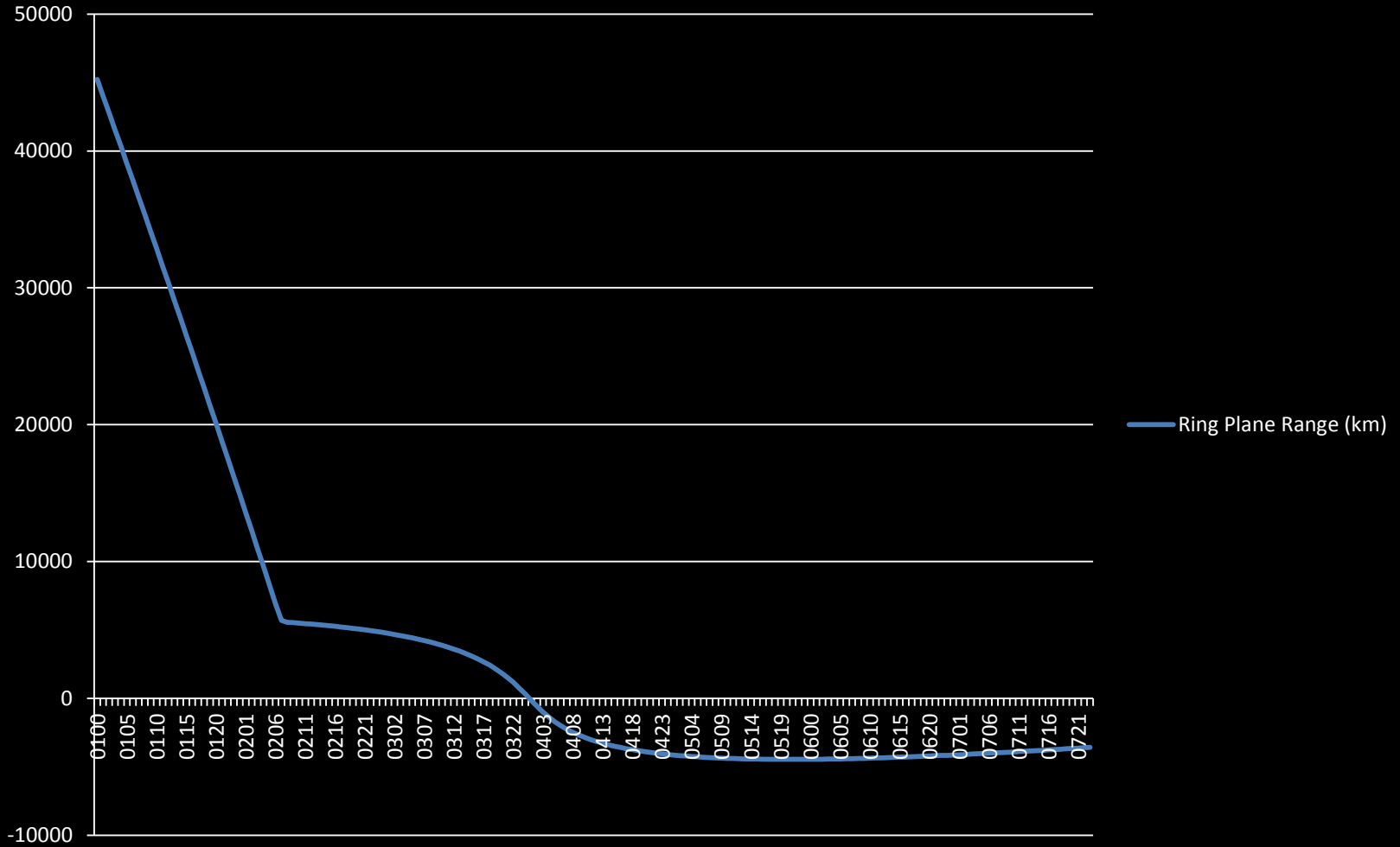
Rings

Discovered	1659 Christiaan Huygens
Diameter	E ring extends to 480, 000 km from the centre of the planet. There are 20 rings or features identified at Saturn.
Composition	Dust, water ice, rock.
Appearance	The rings are thought to be made up of pieces of asteroids, comets or moons that broke up before reaching Saturn.
Orbit	Each of the rings orbits at a different speed.
	One of the mission aims is to find out how the rings formed and how they keep in their orbit.





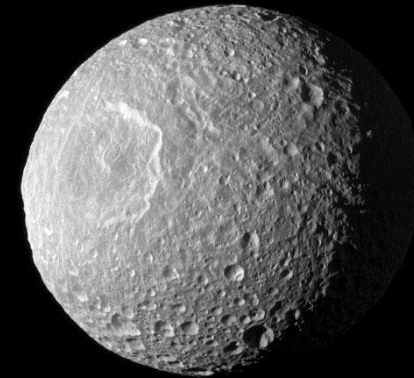
Ring Plane Range (km)





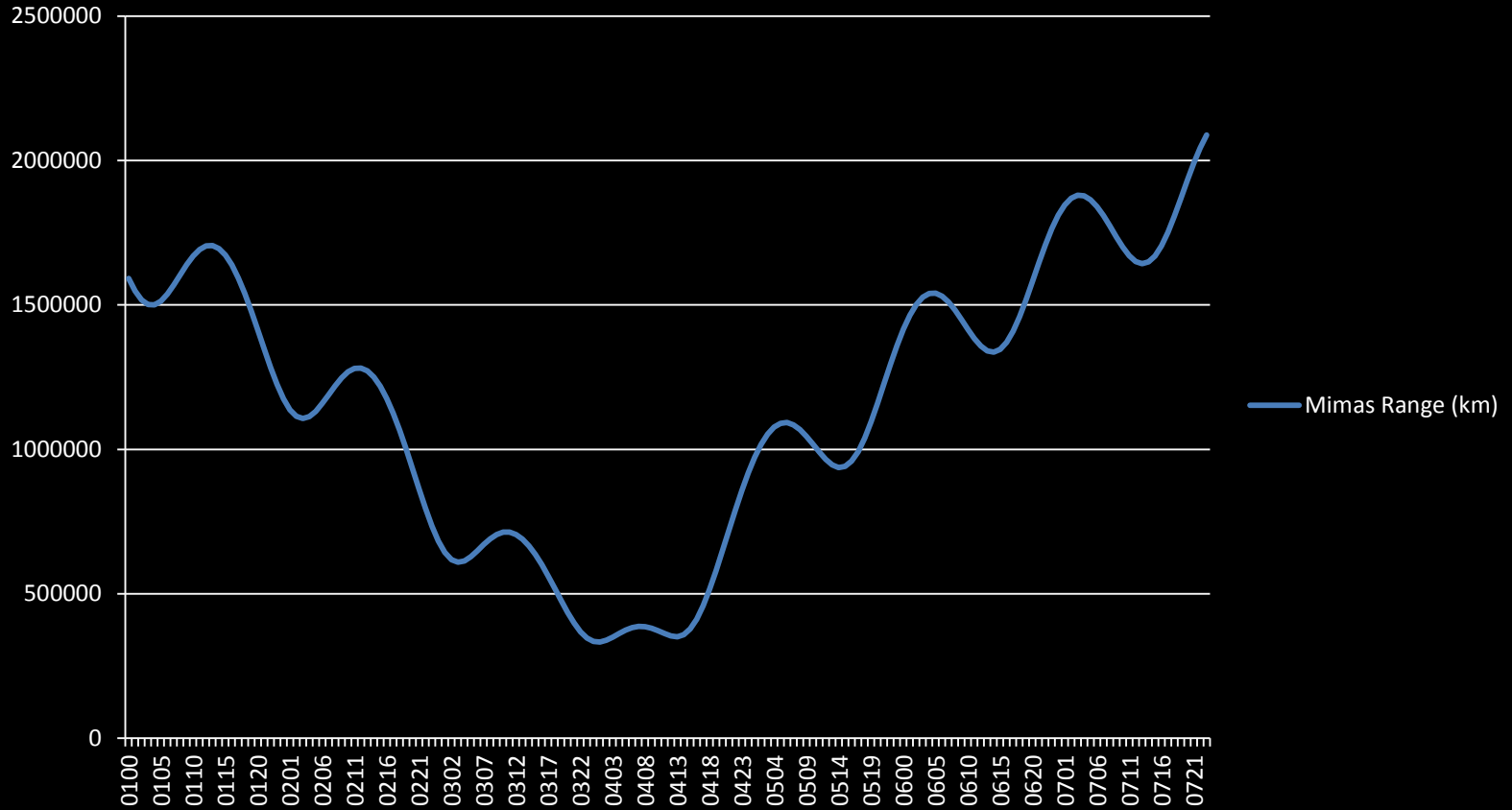
Mimas

Discovered	1789
Diameter	396 km
Composition	Water/ice, small amount of rock
Appearance	There are many different sizes of craters on the surface of the moon.
Orbit	The moon orbits in the “Cassini gap” the space between the A and the B rings of Saturn.
	Known as the “Death Star” due to a 130 km wide impact crater. Shock waves from this impact can be seen on the other side of the moon.





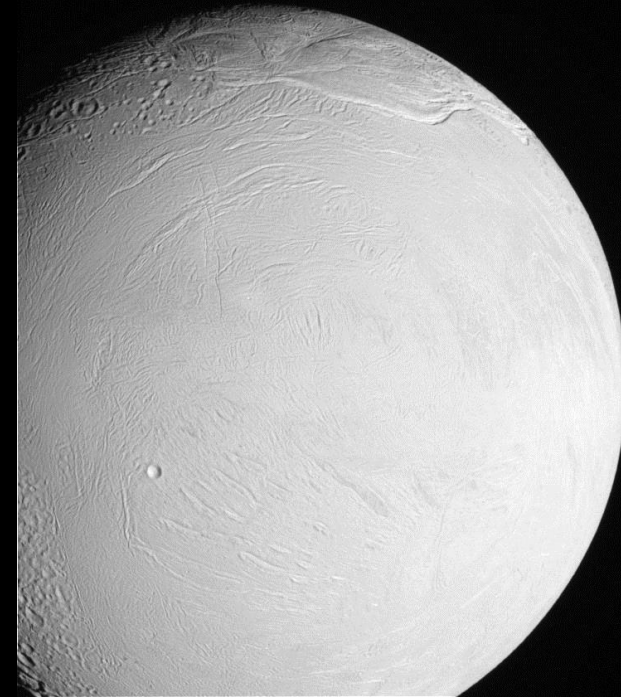
Mimas Range (km)





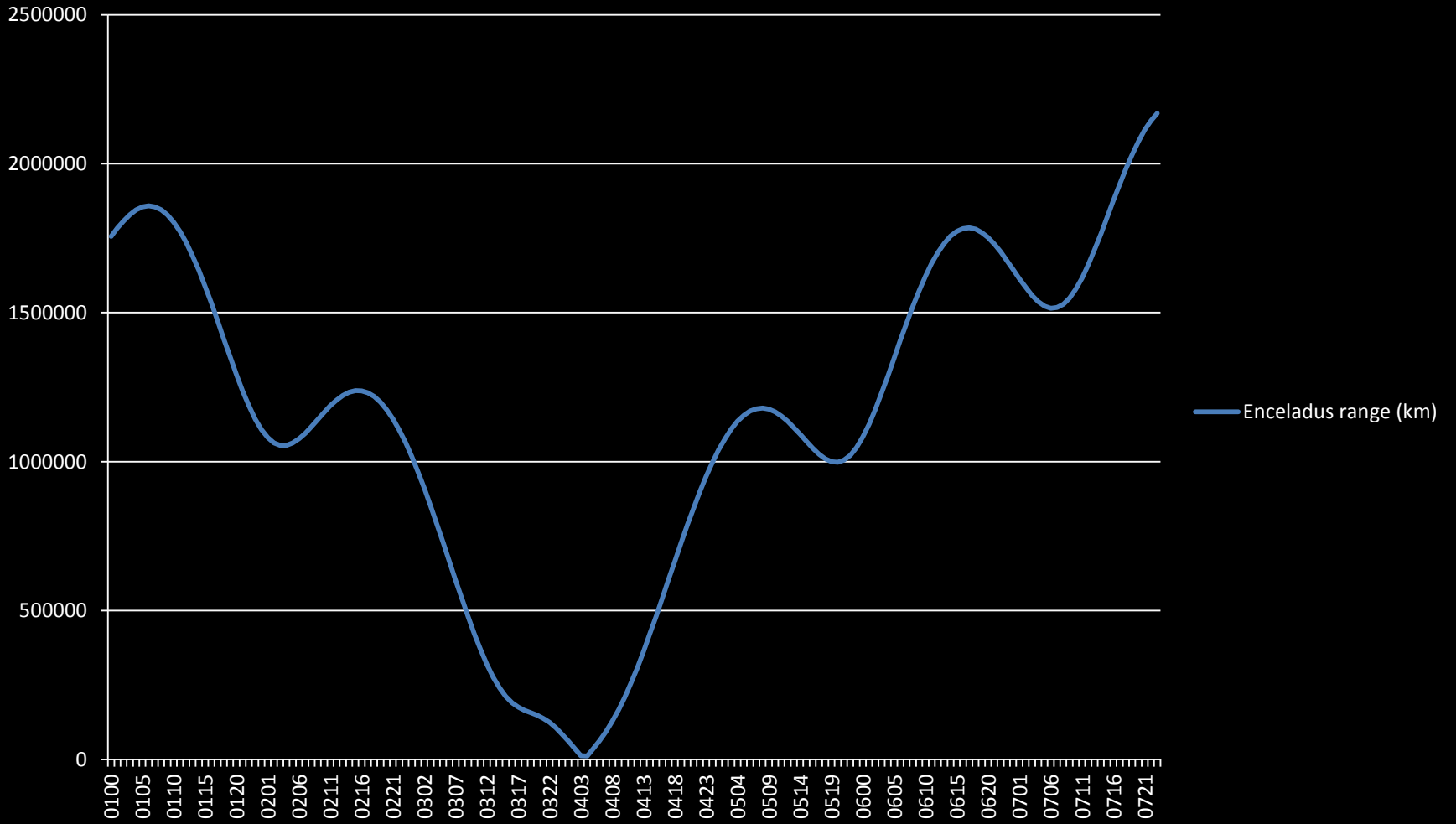
Enceladus

Discovered	1789
Diameter	500 km
Composition	Rocky core, ice/liquid water surface
Appearance	It has an icy surface but cryovolcanoes at the south pole shoot out jets of water into space. There are smooth and cratered sections of surface, the smoother areas being younger. In addition to the craters normally found on moons, there is evidence of tectonics with long fractures, rifts and grooves in the surface.
Orbit	It orbits in the E ring and is thought to be the source of the particles in that ring.
	There is the possibility that life may exist in the oceans of Enceladus.





Enceladus range (km)





Tethys

Discovered	1684
Diameter	1060 km
Composition	Rock (6%), water/ice
Appearance	Like other moons, the surface is made from water ice with some rock. It is one of the brightest moons of Saturn and is neutral in colour. There are a large number of craters, the largest is 400 km in diameter. Other large features can be found including a valley 100km wide and over 2000km long.
Orbit	The location of the orbit of Tethys is 295000 km from Saturn (4.4 Saturn's radius). It is constantly bombarded with energetic (electrons and ions) particles.
	Tethys has now been studied by four different spacecraft: Pioneer 11 (1979), Vooyager 1 (1980), Voyager 2 (1981) and Cassini (since 2004 to present).

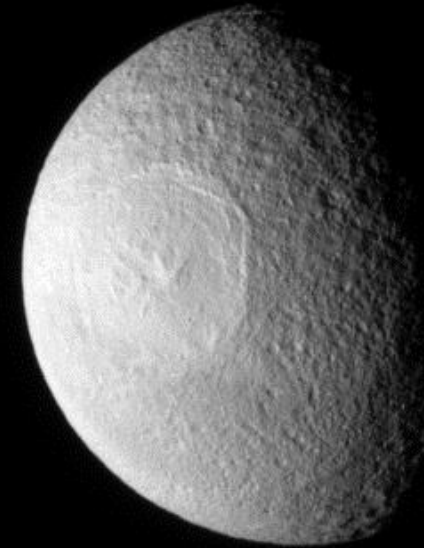
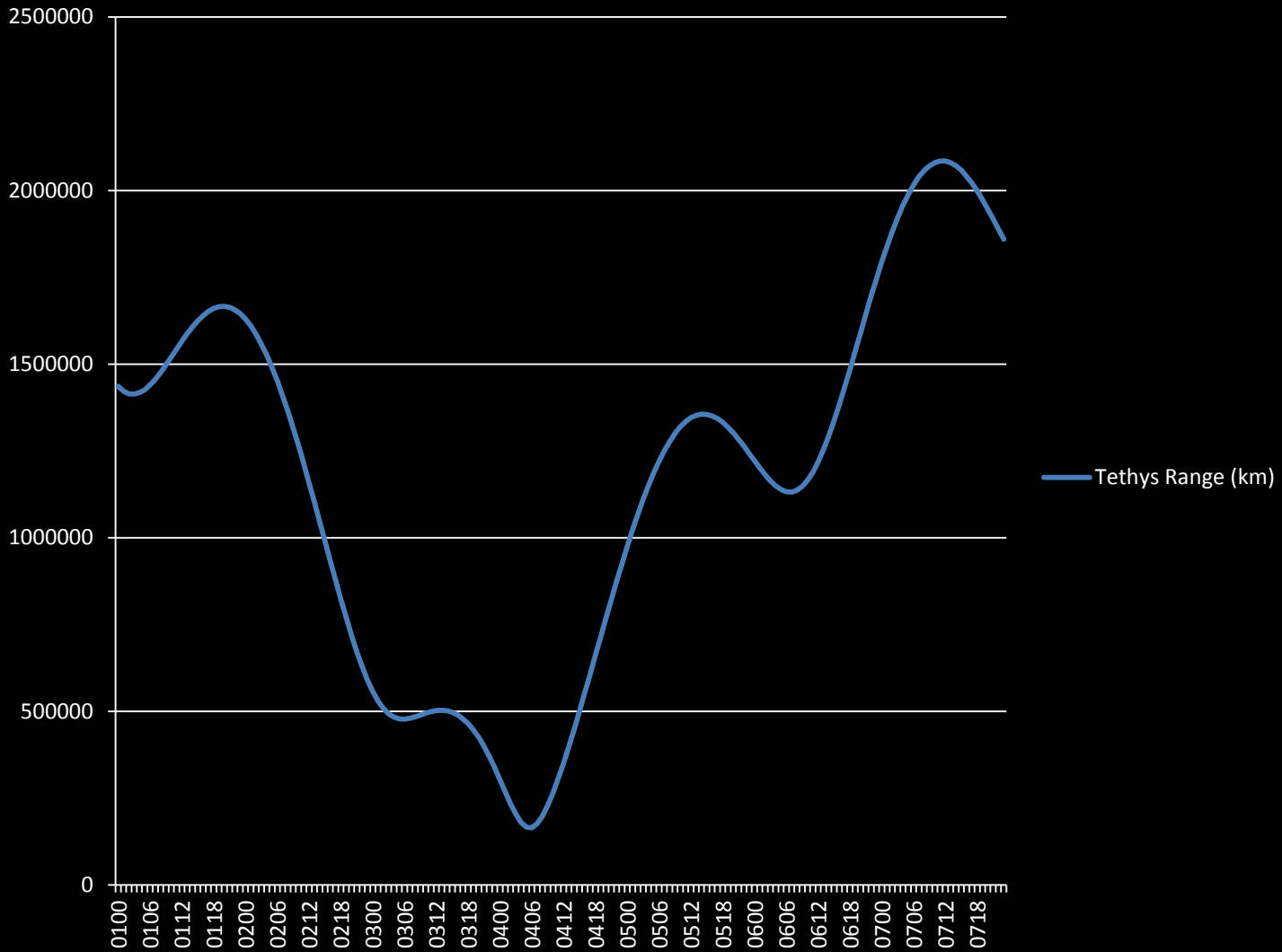


Image courtesy of NASA/JPL-Caltech/Space Science Institute



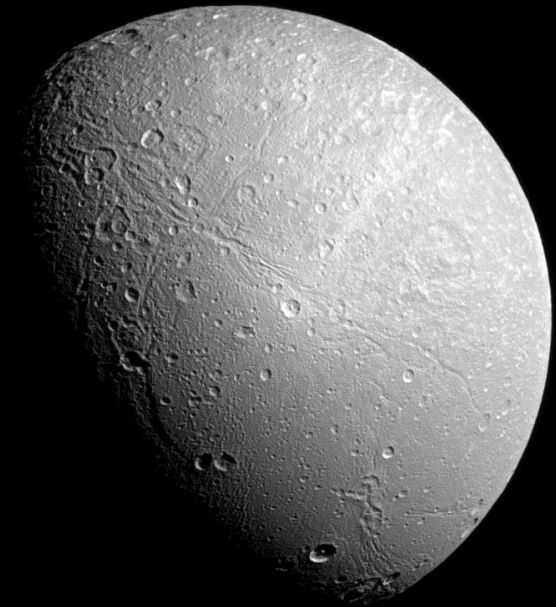
Tethys Range (km)





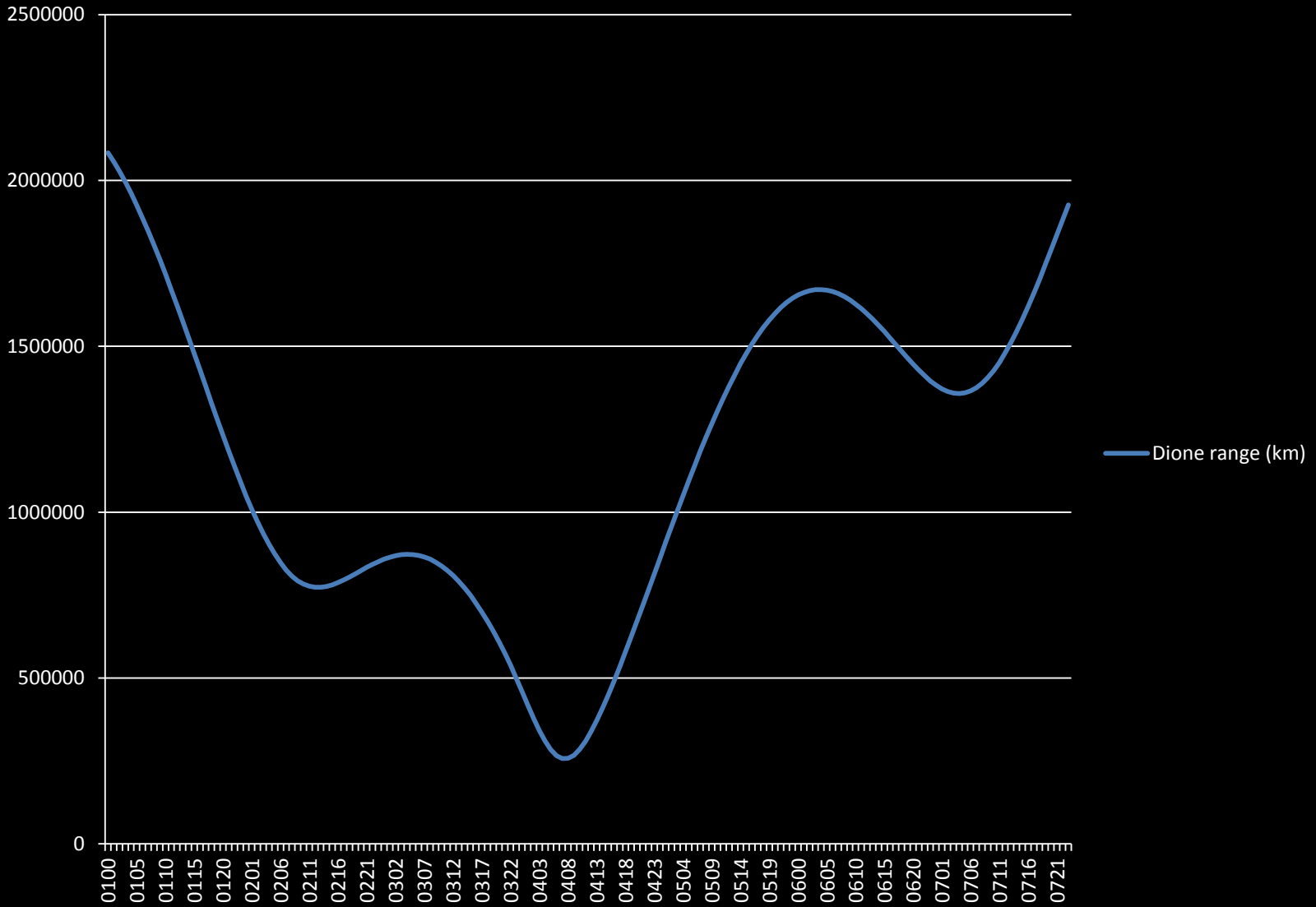
Dione

Discovered	1684
Diameter	1122km
Composition	Mainly water ice, but its high density implies there is a large proportion of rock (almost 50%) inside the moon
Appearance	Its leading hemisphere is heavily cratered and its trailing hemisphere has an unusual surface feature of ice cliffs.
Orbit	Dione orbits Saturn at a distance of 377,400 km which is roughly the same distance that the Moon orbits the Earth.
	It is thought that a relatively recent large impact has spun Dione 180 degrees as the most heavily cratered areas are expected on a trailing hemisphere – this is not what we see with Dione.





Dione range (km)





Rhea

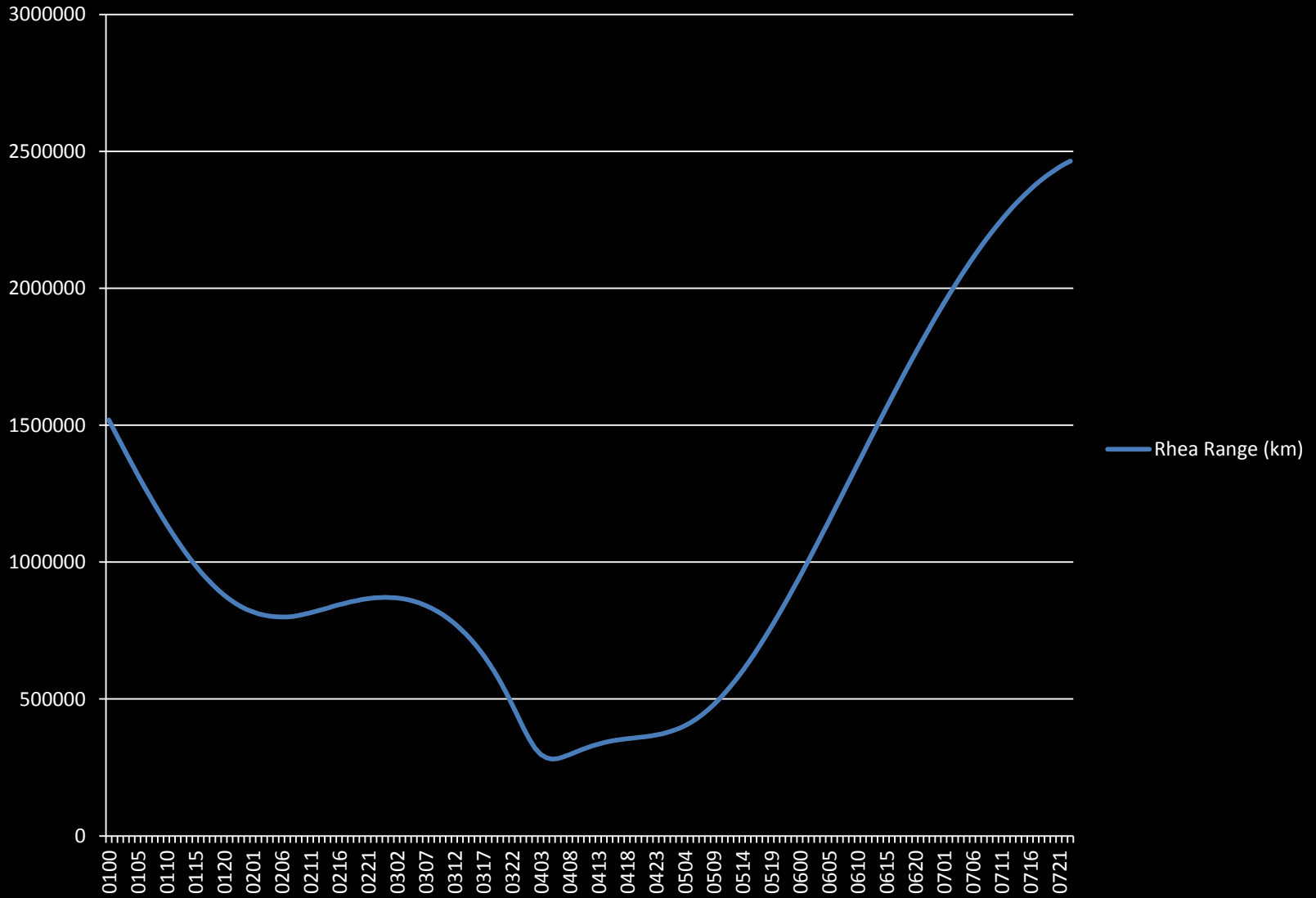
Discovered	1672
Diameter	1528 km
Composition	75% ice, 25% rock. Observations suggest that it does not have a rocky core and instead is a large, dirty snowball as the rock is spread equally through the moon.
Appearance	Rhea is more heavily cratered than the similar moons of Dione and Tethys.
Orbit	At 527,040 km it is further away from Saturn than Dione and Tethys and therefore does not experience heating that the other moons do. The heating on the other moons melts water which results in flatter surfaces.
	This is the second largest moon of Saturn. It is similar to Dione and Tethys.



Image courtesy of NASA/JPL-Caltech/Space Science Institute



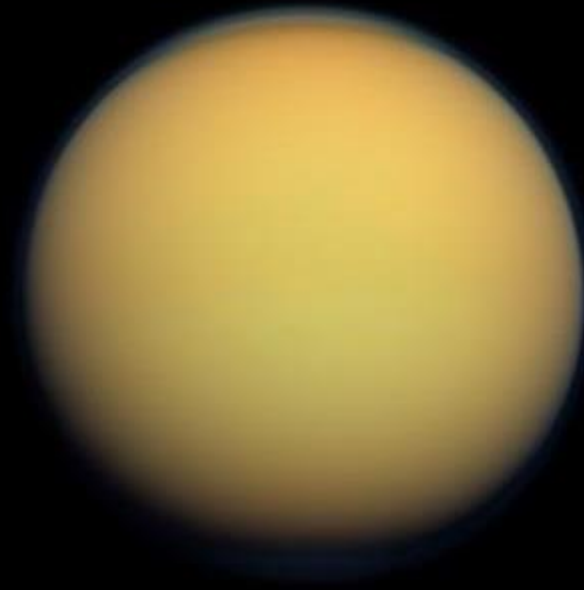
Rhea Range (km)





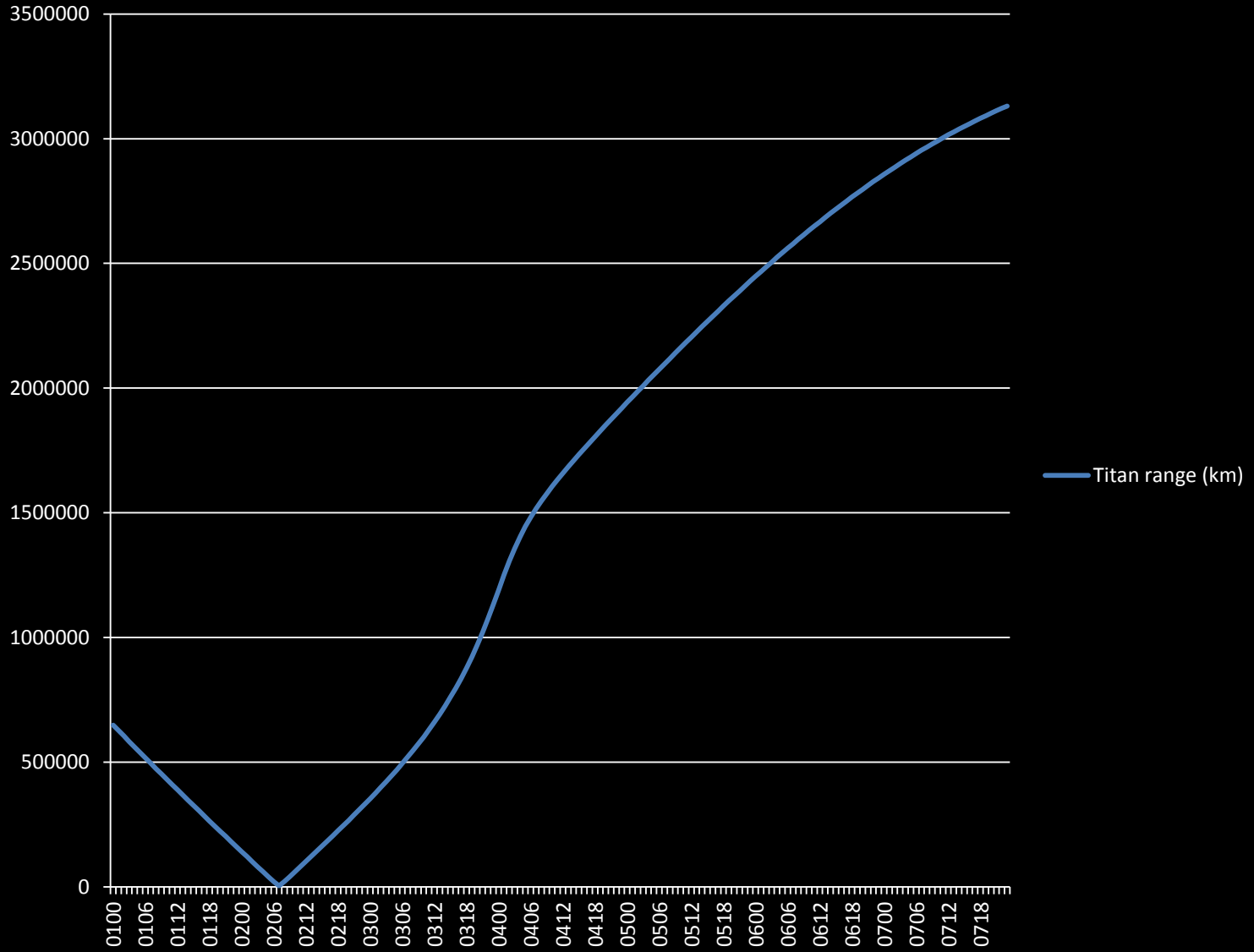
Titan

Discovered	1655
Diameter	2575 km
Composition	Water ice, rock.
Appearance	Titan has a thick atmosphere. Mountains, volcanoes and lakes have been found on the surface.
Orbit	It takes Titan 16 days to complete one orbit of Saturn and it sits 1,200,000 km from the planet.
	Titan is the second last moon in the Solar System and is even larger than the planet Mercury.





Titan range (km)





Hyperion

Discovered	1848
Diameter	270 km
Composition	Water ice, small amount of rock.
Appearance	This was the first non-spherical moon to be discovered. It looks very like a natural sponge.
Orbit	Hyperion orbits at 1,481,100 km but is affected by Titan.
	Hyperion could be what is left after a larger moon was destroyed by an impact.





Hyperion range (km)

