

The Mission to Titan

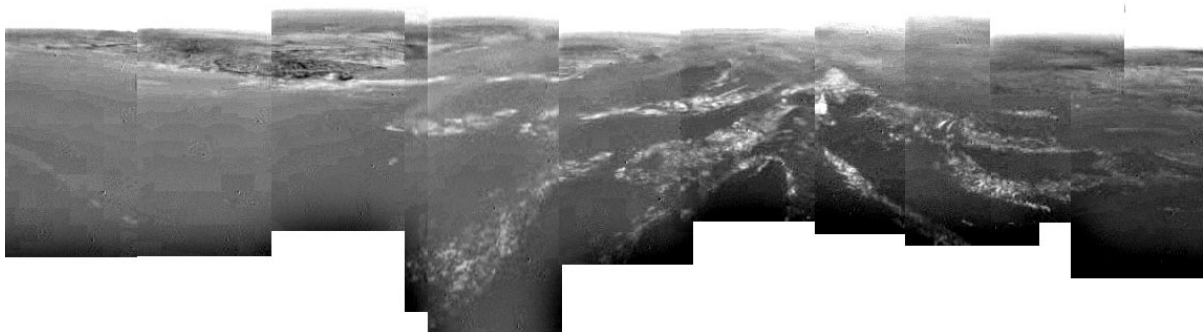
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In Greek mythology, the Titans or Numina were any of the giant, powerful children of Uranus, the primeval sky god, and Gaia, goddess of Earth. They were the elder gods who ruled Earth, until Kronos (Saturn in Greek,) ruler of the Titans, and Rhea (Ops in Roman,) his sister, had Zeus. It was prophesied that one day Kronos would be ousted by one of his children, so each time Rhea had a child, Kronos would swallow them. When Zeus was born, Rhea had him spirited away to Crete. When Zeus was grown, he fed a potion to Kronos that caused him to vomit up Zeus' five siblings, Hestia, Demeter, Hera, Hades, and Poseidon. Zeus convinced Prometheus (also a Titan) to join his side. Together, they ousted Kronos as the ruler of the world, and the Olympians reigned supreme.

Saturn, the second largest planet, takes twenty-nine and a half years to orbit the Sun (an important figure in astrology.) It is encircled by spectacular rings of rock and ice. Titan, originally named Luna Saturi, was discovered by Huygens in 1655. Cassini discovered Saturn's moons Iapetus, Rhea, Dione, and Thethys, in 1671 to 1684. There are eighteen named moons, (so far) thirty-one in all, of which Titan is the largest. Bigger than Pluto and Mercury, it is second among the solar systems moons in size to Jupiter's Ganymede. It is the only known moon with a substantial atmosphere, largely nitrogen with a minor amount of methane and other hydrocarbons. The temperature on the surface is a cool -175C, and the pressure is about one-hundred and fifty percent that of Earth.

On 15 October, 1997, Cassini-Huygens, aboard a Titan rocket, was launched from Florida. Seventeen countries took part in building it. On 1 July, 2004, after seeing the moon Phoebe, it allowed itself to be captured by the planets' gravity. The ESA's Huygens probe was set free on Christmas Day, 2004, and took twenty-one days to coast to Titan. Timers then 'woke up' the probe. In the atmosphere Huygens took data that suggested Titan may have a complete hydrological cycle with methane. That explains why the moon is an orange hue - ultraviolet radiation high in the atmosphere produces benzene. It landed, penetrometer readings suggest, on a layer of methane mud. Spectral reflectivity indicates frozen water-ice boulders. From argon-40 data we now know that cold planetesimals did'n't combine to form to moon. The probe collected two and one-half hours of parachute-assisted descent data, and more then one hour of surface data before its batteries gave out, much more than was expected. Now Cassini is on a four year, seventy-four orbit, mission to explore Saturn, its satellites, and the complex magnetic field. It will fly by Titan forty-four times and other satellites eight times.



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