



Image: NASA, ESA, G. Bacon (STScI)

## URANUS FACT FILE

Uranus takes its name from the ancient Greek god of the sky. It was discovered by William Herschel on March 13th 1781 and was the first planet to be found since ancient times. It had been seen before but had only been recorded as 'another star'; Herschel himself thought it was a comet, he wanted to call it "Georgium Sidus" in honour of his patron King George III, a name that was unpopular outside England, others wanted to call it Herschel after the founder, but finally the name Uranus was proposed by German astronomer Johann Elert Bode to continue the tradition of giving the planets names from classical mythology. However Uranus is actually the Latinised version of a Greek name whereas all the other planets have Roman names.

Uranus has only been visited by one spacecraft, Voyager 2 which flew by on January 24th 1986. Despite this solitary visit Voyager 2 revealed lots of interesting facts about Uranus.

Uranus, one of the four gas giants, is very different to Jupiter and Saturn. Underneath the clouds there is a dense region where Hydrogen and Helium are mixed together with various 'ices' commonly water, Methane and Ammonia, substances that would usually be frozen at the low temperatures of the cloud tops. The

atmosphere of Uranus is made of Hydrogen with some Helium and a little Methane, which absorbs red light, and it is because of this that Uranus is a greenish blue colour.

Uranus, unlike the other planets, does not spin perpendicular to its orbit. It rolls through space like a barrel- rather than spinning like a top. It is actually tilted so much that its north and south poles are almost parallel to its orbit. This has a unusual effect on the days as Uranus orbits the Sun. Throughout its 84 year orbit the North Pole will experience continuous daylight for 21 years. The next 21 years will see a changing mixture of daylight and night time for the 17 hours it takes Uranus to spin around once. The next 21 years will be continuous darkness and the final 21 years will be a changing mixture of day and night again. This strange effect is the opposite at the South Pole, which means that the Polar Regions receive more sunlight than the equator however the equator is still warmer! The reason for this is still unknown.

Like the other gas planets, Uranus has a ring system. They are very dark like Jupiter's rings but made of large particles like Saturn's rings. There are 13 rings and they were the first to be discovered after Saturn's. This led to ring systems becoming known as common planetary features.

### URANUS STATISTICS

Distance to URANUS from the Sun:	2,870,990,000 km (average)
Distance from the Sun compared to Earth:	19 X
Length of Year:	84 Earth years
Length of Day:	17 Hours
Diameter:	51,118 km
Diameter compared to Earth:	4x
Moons:	27

Uranus' peculiar tilt means that the rings have the appearance of a target with the planet itself at the centre.

Uranus has 27 moons which are separated into three different classes, 13 small dark inner moons which were discovered by Voyager 2, five large major moons and nine irregular distant moons. All of the moons circulate Uranus in much the same way that hands on a clock go round. They are named after characters from the works of William Shakespeare and Alexander Pope. This differs from the tradition of naming satellites after characters from Greek and Roman mythology.

#### Mysteries left to solve:

Uranus is the only gas giant that lacks an internal heat source. This means that unlike the other gas planets Uranus does

not radiate more heat than it receives from the Sun. Does this mean that the interior of the planet is cold? Or is there something stopping the heat from getting to the surface?

Why is Uranus' axis so unusually tilted? What caused this to happen? Current theories suggest that Uranus was possibly involved in a massive collision! Could it have been knocked over by another large object?

Why does Uranus have less Hydrogen and Helium than Jupiter and Saturn? Is it because it is smaller or perhaps it is due to it being further away from the Sun?