



## **Mission to Titan**

*The Cassini-Huygens Probe*

### **Adam Hart-Davis:**

This is the European Space Operations Centre in Darmstadt, Germany, and in those buildings there scientists are busy analysing all the images and data from the Huygens probe to Titan. This is just day one of a job that's going to take them years. How did they get the information? Well the Cassini Huygens Mission was one of the most ambitious space explorations ever launched, and here are five things you might like to know about it.

One. Cassini Huygens is a double-barrelled name for a double-barrelled mission. Cassini's main job is to orbit Saturn for the next four years sending back data and stunning images like this one of the rings. The much smaller Huygens probe separated from Cassini on Christmas Day and parachuted down through the atmosphere of Saturn's largest moon, Titan, recording two hours' worth of images and data on the way.

Two. Because Saturn is so far away, radio signals take about an hour-and-a-half to get there from Earth, even at the speed of light, so Cassini is steered mainly by its on-board computer. The trickiest bit for the flight team was programming Cassini to fly up between Saturn's rings.

Three. The Cassinian Huygens spacecraft are named after 17<sup>th</sup> century scientists who studied Saturn. Christian Huygens was a Dutch astronomer who discovered Titan. Jean Dominique Cassini was the first person to see a gap in Saturn's rings.

Four. Titan was chosen as the Huygens Mission target because scientists think its chemistry is similar to the Earth's millions of years ago. Like the Earth its atmosphere is mainly nitrogen but it also contains organic molecules like methane, so the instruments on board Huygens were looking for clues about how complicated molecules like DNA can develop from simple ones and so how life may have got started here on Earth.

Five. Scientists are also interested in the surface of Titan, normally hidden from view by the dense cloud cover. Radar and infrared scans by Cassini have revealed intriguing light and dark patches that could be hydro carbon oceans surrounded by Water Ice Mountains. As the images and data from Huygens are processed scientists will get their first proper view of this unknown landscape.