



## **Recent results on Titan from the HASI instrument**

M. Fulchignoni (1), F. Ferri (2) and HASI Team

(1) Observatoire de Paris, LESIA, France, (2) CISAS, Università di Padova, Italy  
(Marcello.fulchignoni@obspm.fr / Fax: +33 145077110 Phone +33.145077539)

1. The Huygens Atmospheric Structure Instrument (HASI) is a multi sensor package which has been designed to measure the physical quantities characterizing Titan's atmosphere during the Huygens entry and descent phases and at the surface. HASI's suite of sensors measured the physical and electrical properties of Titan's atmosphere. Profiles of temperature, pressure, density, atmospheric conductivity have been collected. HASI investigated the electric properties and the nature of the surface. Accelerometers measured deceleration in all three axes as the probe was in the entry phase. With the aerodynamic properties of the probe already known, it has been possible to determine the density of Titan's high atmosphere and to deduce temperature and pressure profiles. During the descent (from 162 km down to the surface), temperature and pressure of the atmosphere were measured directly and the Permittivity and Wave Analyzer sensors measured the electron and ion conductivities as well as the complex permittivity of the atmosphere and searched for electric wave activity including lightning. Acoustic signals collected by the HASI microphone were processed by the on board FFT and their amplitude and main frequency, averaged over two minutes, were transmitted to the ground. The HASI instrument package had a total mass of 5.7 kg. The accelerometers package is mounted at the center of mass of the probe and the temperature sensors and the pressure probe inlet are mounted on a stem outside of the probe. Two deployable booms carrying Permittivity and Wave electrodes stowed under the thermal shield of Huygens, has been released at the beginning of the descent into Titan's atmosphere. HASI provided, in addition to its own scientific data, calibration information of use by other instruments on Huygens and by remote sensing observations from the Cassini orbiter.