End of the journey for Galileo : October 1989- September 2003

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The Galileo spacecraft (NASA/JPL) was launched in october 1989, and orbits around Jupiter since December 1995. Its odyssey in the Solar System will take an end on September 21, a little before 9 p.m. (French hour), by plunging to burn into the atmosphere of the giant planet.

This programmated suicide was prepared by JPL engineers, to avoid a crash on the satellite Europa, which hypothetically could contaminate its surface. Pierre Drossart, from Paris Observatory gives here a summary of the discoveries of the spacecraft which are now Galileo's heritage. Famous for the numerous technical problems having appeared during its mission (antenna failure, on board storage problems, computer glitches, etc.), which all have been resolved, Galileo will also remain as one of the pioneer missions in the long list of the NASA space missions :

First space observations of Venus in Near Infrared Spectroscopy (February 1990),

Many results were obtained in the magnetosphere, the satellites and the atmosphere. Several conferences (Jupiter : Planet, Satellites and Magnetosphere, Boulder, juin 2001 ; Jupiter after Galileo and Cassini, Lisbonne, juin 2002) have recently gathered the main results of Jupiter observations, and special issues of several journals are devoted to Galileo, as well as a collective book on Jupiter (to be published). In Paris Observatory, several scientists worked, some of them since more than 20 years, on the Near Infrared Mapping Spectrometer NIMS (PI R.W. Carlson, JPL) on Galileo, and got several important results on the atmosphere of Venus, the Earth and Jupiter, published between 1990 and today. Several PhD theses have been published. One question remain unsolved : the water abundance on Jupiter. The descent module worked, as anticipated, down to about 20 bars, but reached by chance in an extremely dry region, with unusual characteristics. The deep abundance of H2O, which is a key parameter for models of formation of Jupiter, remains uncertain. New missions to Jupiter will be needed to continue the work of Galileo during the next decade !

Publications (special issues)

- General descriptions Scientists of Paris Observatory involved in NIMS/Galileo data reduction (LESIA)Th. Encrenaz, P. Drossart, E. Lellouch, M. Roos-Serote (today at Lisbon Observatory), B. Bézard, J. Rosenqvist (deceased in 1995).This work has been supported by CNES and INSU (Programme National de Planétologie)Contact :