

Galileo at Jupiter: Past, Present and Future

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Galileo has been in orbit around Jupiter for two years. As it ends its nominal mission it has amassed a tremendous record of discovery. Data from both the Probe and the Orbiter have provided new insights into the chemistry, dynamics and structure of Jupiter's atmosphere. Repeated close flybys of the four Galilean satellites have revealed their internal structures, studied the geology and chemistry of their surfaces, probed their tenuous atmospheres, and measured the temperatures of Io's volcanos. Nearly continuous observations by the space physics instrumentation has provided our first long term survey of Jupiter's magnetosphere, including the mysterious dust streams first seen by the Ulysses dust experiment, and the satellite flybys have revealed a surprising array of magnetospheric interactions, including the discovery of an intrinsic field and magnetosphere at Ganymede.

Galileo is now scheduled to continue limited operations through the end of 1999. There are sufficient power and propellant reserves to continue scientific operations through this period, although there will be increasing risk to the electronics from continued radiation exposure as the mission progresses. This extended phase of the mission is called the Galileo Europa Mission, after its primary target. The GEM will focus on several key aspects of the Jovian system. These include an intensive study of Europa, including its atmospheric and magnetospheric interactions, with eight more encounters, focused study of Jupiter's atmosphere, and finally an opportunity to penetrate the Io torus repeatedly as the spacecraft is targeted for two close encounters with Io in 1999.

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This work was done at Caltech's Jet Propulsion Laboratory under a NASA.

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