

## **FUTURE EXPLORATION OF THE JUPITER SYSTEM**

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The Galileo spacecraft completed its primary mission at Jupiter in December 1997. Since then it has been conducting an extended mission phase, call the Galileo Europa Mission (GEM), consisting of eight encounters with Europa, a reduction in peri-jove distance using four Callisto encounters, and two targeted close flybys of Io at the end of 1999. If the spacecraft survives the radiation environment is still operational following the Io encounters, a further extension of the mission has been proposed with the goals of 1.) Completing the playback of any high priority Io and Europa data still on the tape recorder, 2.) Obtaining a further close Europa flyby to investigate its interaction with Jupiter's magnetosphere, and 3.) Reducing radiation exposure in 2000 with the goal of being able to conduct a joint set of observations of the Jovian system during the Cassini flyby in December 2000. Beyond Galileo, there are plans for a Europa Orbiter mission, to be launched in November 2003. The goals of this mission are 1.) To determine the presence of absence of a subsurface ocean, 2.) To characterize the three-dimensional distribution of any subsurface liquid water and its overlying ice layers, and 3.) To understand the formation of surface features, including sites of recent or current activity, and identify candidate landing sites for future lander missions. This work represents research carried out at Caltech's Jet Propulsion Laboratory under a contract from NASA.