

In-situ Science on the surfaces of Ganymede and Europa with Penetrators

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Abstract

For relatively low cost and mass, penetrators offer the ability to perform major science investigations in the near-surface regions of both Ganymede and Europa. Candidate investigations include the determination of global geophysical parameters, in-situ astrobiological observations, and local geochemical studies. In addition, near-surface measurements would provide significant synergy with, and ground truth for, orbital observations.

We discuss the scientific objectives linked to the measurements to be made by the candidate penetrator instruments, preceded by an introduction to the architecture which delivers them to just beneath the planetary surfaces.

Finally, we present the current status of the penetrator consortium; its study program for the selection of a strawman payload for the proposed EJSM mission, and some architectural trades.

This follows the recent submission (May'09) by the penetrator consortium, of a DOI (Declaration of Interest) which proposes penetrators for both ESA JGO (Jupiter Ganymede Orbiter) and NASA JEO (Jupiter Europa Orbiter) for EJSM.