

SPACE EXPLORATION SYMPOSIUM (A3)
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AN EXPLORATION OF ICY WORLD HABITABILITY: THE EUROPA CLIPPER

Abstract

After many years of study, NASA has approved a new start for a spaceflight mission to investigate the mysteries of Jupiter's moon Europa. Galileo spacecraft data suggest that an ocean likely exists beneath Europa's icy surface and that the "ingredients" necessary for life - liquid water, chemistry, and energy - could be present within this ocean today. This implies that Europa may be a habitable world. With the potential to revolutionize our understanding of life in the solar system, future exploration of Europa has been deemed an extremely high priority for planetary science. The California Institute of Technology's Jet Propulsion Laboratory and The Johns Hopkins University Applied Physics Laboratory are leading the development of the Europa Clipper mission concept. Recently approved to move into Phase B, this mission would make multiple low-altitude flybys (25 to 100 km) of Europa to achieve global coverage without soaking in the high radiation environment of the inner Jovian system. In May of 2015 NASA selected nine investigations whose ten remote sensing and in-situ analysis instruments would provide great scientific insight into this intriguing world. This paper will present the planned mission's scientific goals and objectives, a mission design overview, the current baseline flight system design, and an overview of the selected science payload for the mission. In addition, project progress and plans forward will be detailed.