

SYMPOSIUM ON TECHNOLOGICAL REQUIREMENTS FOR FUTURE SPACE ASTRONOMY AND
SOLAR-SYSTEM SCIENCE MISSIONS (A7)

Scientific Motivation and Requirements for Future Space Astronomy and Solar System Science Missions (2)

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SCIENCE OF THE EUROPA MULTIPLE FLYBY MISSION

Abstract

NASA's next outer-planets flagship mission, now in formulation for launch some time in the 2020s, is the Europa Multiple Flyby Mission, which would investigate the habitability of the jovian ocean world Europa. The mission would send a solar-powered, radiation-tolerant spacecraft into an elliptical Jupiter to conduct more than 40 close flybys of Europa. The payload comprises a suite of nine science instruments that together would support three key objectives: detailed investigation of Europa's interior, both its internal ocean (including its salinity and depth) and its ice shell (including thickness and potential water pockets within); composition of the icy surface, notably dark reddish areas that may evince linkages between the ocean and the surface; and geology at the regional and local scales, especially areas that may show signs of recent or current activity. Project status and key science questions will be presented. We will also discuss the status of a concurrent study of a potential Europa lander.