

JUICE: A EUROPEAN MISSION TO JUPITER AND ITS ICY MOONS JUICE: A EUROPEAN MISSION TO JUPITER AND ITS ICY MOONS

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The recently adopted European Space Agency (ESA) mission JUPITER ICy moon Explorer (JUICE), the first large mission selected by ESA within the Cosmic Vision 2015-2025 Programme, is currently planned for launch in 2022. Details of the mission are described, including the payload, planned orbits and the expected science return. The focus of JUICE is to characterise the conditions that may have led to the emergence of habitable environments among the Jovian icy satellites, with special emphasis on the three worlds, Ganymede, Europa, and Callisto, likely hosting internal oceans. Ganymede, the largest moon in the Solar System, is identified as a privileged target because it provides a natural laboratory for analysis of the nature, evolution and potential habitability of icy worlds in general, but also because of the role it plays within the system of Galilean satellites, and its unique magnetic and plasma interactions with the surrounding Jovian environment. The mission also focuses on characterising the diversity of coupling processes and exchanges in the Jupiter system that are responsible for the changes in surface, ionospheric and exospheric environments at Ganymede, Europa and Callisto from short-term to geological time scales. Focused studies of Jupiter's atmosphere and magnetosphere, and their interaction with the Galilean satellites will further enhance our understanding of the evolution and dynamics of the Jovian system.

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