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Mars Exploration – missions current and future (3A)

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JAPAN'S MARS ROVER MISSION FOR EDL DEMONSTRATION AND LIFE SEARCH

Abstract

Mars Exploration Working Group in Japan Aerospace Exploration Agency (JAXA) is currently entertaining a Martian rover mission to be launched in early 2020s. The primary objectives of this mission are to demonstrate the technologies required to explore the surface of a massive planet having an atmosphere, to search for signs of live organisms, past or present, and to determine when the ocean is lost in the Martian history. In order to cut down the mission cost, the spacecraft is designed as a compact medium-class spacecraft whose total wet mass at Earth departure is approximately 900 kg. The spacecraft system consists of the cruise module and the atmospheric entry module which is subdivided into a forebody and an aftbody aeroshell, a landing module, and a rover. In an audacious mission scenario, the spacecraft will be launched in 2020, arrive at Mars in 2021. The current status of research and development is briefly presented as well.