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Small Bodies Missions and Technologies (Part 1) (4A)

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THE MMX ROVER IDEFIX: GETTING READY FOR LAUNCH AND PREPARING SCIENCE
OPERATIONS

Abstract

The Martian Moon eXploration (MMX) mission by the Japan Aerospace Exploration Agency, JAXA, is going to explore the martian moons Phobos and Deimos. Both moons will be investigated remotely from the mother spacecraft, that will also collect samples from the surface of Phobos, and a small rover, IDEFIX, will be delivered to Phobos surface.

The Rover carries a scientific payload of four instruments: RAX, a Raman spectrometer to measure the mineralogical composition of the surface material, NavCam, a stereo pair of cameras looking ahead to

image the terrain and also support navigation, miniRAD a radiometer measuring the surface brightness temperature of both regolith and rocks, and two WheelCams looking at the wheel-surface interface, and thus investigating the properties and dynamics of the regolith. The cameras, will serve for both, technological and scientific needs.

Landing of the rover is foreseen in the time period between late 2028 and early 2029, and take place in context with the rehearsal of the first landing operations of the main spacecraft. IDEFIX will be released from an altitude of about 40 m, fall to the surface, upright itself and drive and carry out scientific investigations for about 100 days.

The flight model of the rover has been delivered to JAXA/MELCO where it is going to be integrated to the main spacecraft and will undergo further qualification and functional tests. Operational sequences, e.g. defining the interplay between locomotion and science instruments are currently prepared. Launch of the MMX mission is planned for 2026.

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