



Mars MetNet Precursor Mission Status

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A new kind of planetary exploration mission for Mars is being developed in collaboration between the Finnish Meteorological Institute (FMI), Lavochkin Association (LA), Space Research Institute (IKI) and Instituto Nacional de Técnica Aeroespacial (INTA). The Mars MetNet mission is based on a new semi-hard landing vehicle called MetNet Lander (MNL), using an inflatable entry and descent system instead of rigid heat shields and parachutes as earlier semi-hard landing devices have used. This way the ratio of the payload mass to the overall mass is optimized. The landing impact will burrow the payload container into the Martian soil providing a more favorable thermal environment for the electronics and a suitable orientation of the telescopic boom with external sensors and the radio link antenna. It is planned to deploy several tens of MNLs on the Martian surface operating at least partly at the same time to allow meteorological network science.

For the precursor mission (MMPM) intended to verify the landing concept and key technology during a real Mars mission all qualification activities are completed and the payload and system flight model components are being manufactured. The descent processes dynamic properties are monitored by a special 3-axis accelerometer combined with a 3-axis gyrometer. The data will be sent via auxiliary beacon antenna throughout the descent phase starting shortly after separation from the spacecraft. Details of the current MMPM system and payload configuration and their performance parameters will be shown.