



## **MMPM - Mars MetNet Precursor Mission**

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A new kind of planetary exploration mission for Mars is being developed - MetNet in situ observation network based on a new semi-hard landing vehicle called the MetNet Lander (MNL). The eventual scope of the MetNet Mission is to deploy some 20 MNLs on the Martian surface using inflatable descent system structures, which will be supported by observations from the orbit around Mars. Currently we are working on the MetNet Mars Precursor Mission (MMPM) to deploy one MetNet Lander to Mars in 2009/2011 as a technology and science demonstration mission. The MNL will have a versatile science payload focused on the atmospheric science of Mars. Detailed characterisation of the Martian atmospheric circulation patterns, boundary layer phenomena, and climatological cycles, as well as interior investigations, require simultaneous in-situ measurements from networks of stations on the Martian surface. The scientific payload of the MetNet Mission encompasses separate instrument packages for the atmospheric entry and descent phase and for the surface operation phase.

The MetNet mission concept and key probe technologies have been developed and the critical subsystems have been qualified to meet the Martian environmental and functional conditions. This huge development effort has been fulfilled in collaboration between the Finnish Meteorological Institute (FMI), the Russian Lavoschkin Association (LA) and the Russian Space Research Institute (IKI) since August 2001. Currently the INTA (Instituto Nacional de Técnica Aeroespacial) from Spain is also participating in the MetNet payload development. The MetNet -type of mission will provide the crucial information to the understanding of the dynamics and general behaviour of the Martian atmosphere, as well as it will provide the weather forecast facility for safe

landings of the forthcoming large Martian landing missions.