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 Tecnica Aerospacial (INTA). The Mars MetNet mission is based on a new semi-hard landing vehicle called MetNet Lander (MNL).

The main idea behind the MetNet landing vehicles is to use a state-of-the-art 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 and more mass and volume resources are spared for the science payload.

Mars MetNet mission payload instruments are specially designed to operate in very low power conditions. MNL flexible solar panels provide a total of approximately 0.7-0.8 W of electric power during the daylight time. As the provided power output is insufficient to operate all instruments simultaneously they are activated sequentially according to a specially designed cyclogram table which adapts itself to the different environmental constraints.

### Payload Instruments

**Atmospheric Instruments**
- Pressure Device MetBaro (FMI)
- Temperature Sensors (IKI)
- Humidity Device MetHumi (FMI)

**Optical Devices**
- Panoramic Camera (LA)
- Solar Irradiance Sensor MetSIS (INTA)
- Optical Wireless Link System OWLS
- Dust Sensor, DS (INTA)

**Composition and Structure Devices**
- Tri-axial magnetometer MOURA (INTA)
- Tri-axis System Accelerometer and Gyroscope (FMI)

### Mission Scientific Objectives

- Atmospheric dynamics and circulation
- Surface to Atmosphere interactions and Planetary Boundary Layer
- Dust raising mechanisms
- Cycles of CO$_2$, H$_2$O and dust
- Evolution of the Martian climate

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