

Mars Orbiting Plasma Surveyor (MOPS)

S. Barabash (1), M. André (2), L. G. Blomberg (3), R. Lundin (1), G. T. Marklund (3), P. Rathsmann (4), F. von Schéele (4), and J.-E. Wahlund (2)

(1) Swedish Institute of Space Physics, Box 812, SE-98128 Kiruna, Sweden(stas@irf.se) (2) Swedish Institute of Space Physics, Box 537, SE-751 21 Uppsala (3) Royal Institute of Technology, Division of Plasma Physics, Alfvén Laboratory, SE-100 44 Stockholm, Sweden (4) Swedish Space Corporation, Box 4207, SE-171 04 Solna, Sweden

Mars Orbiting Plasma Surveyor (MOPS) is a microsatellite mission focused on studies of the near - Mars environment and the planet - solar wind interaction. The recent findings by the ESA Mars Express mission further highlighted the complexity of the processes taking place at the planet resulting from the solar wind interaction that strongly affect the planet's atmosphere. However, despite many previous Martian missions carrying different types of space plasma experiments, a comprehensive investigation including simultaneous measurements of particles, fields, and waves has never been performed.

We propose a spinning spacecraft of a mass of 50-80 kg with a 10 kg payload which can "hitchhike" on another platform until Mars orbit insertion and then be released into a suitable orbit. The spacecraft design is based on the experience gained in very successful Swedish space plasma missions, Viking, Freja, Astrid -1, and Astrid - 2. In the present mission design, the MOPS spacecraft is equipped with its own 1m high gain antenna for direct communication with the Earth. The payload includes a wave experiment with wire booms, magnetometer with a rigid boom, electron and ion energy spectrometers and an ion mass analyser. An energetic neutral atom imager and an UV photometer may complete the core payload.