ASPERA-3 - Imaging plasma and energetic neutral atoms near Mars

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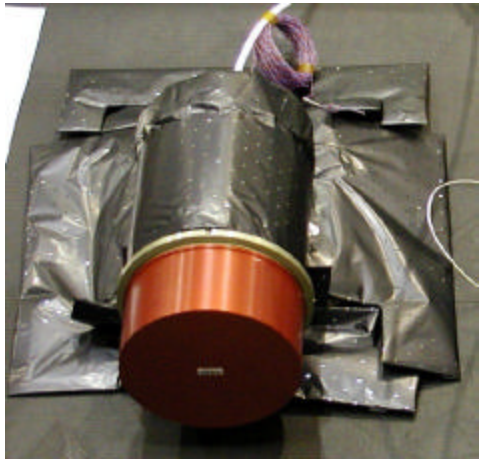
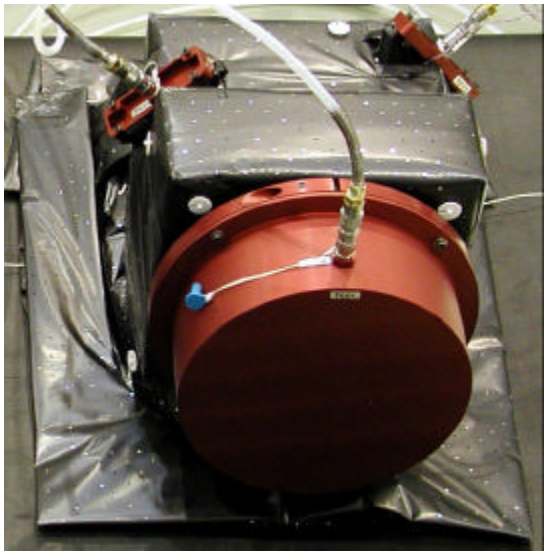
Swedish Inst of Space Physics + 14 teams from Finland, France, Japan, Germany, Irland, Italy, Russia, Switzerland, UK, and USA

Objective: **To measure solar wind scavenging : The slow "invisible" escape of volatiles (atmosphere, hydrosphere) from Mars.**

Question: **Is the solar wind erosion the prime reason for the present lack of water on Mars?**



Ion mass analyzer



Main Unit:

- **Data processing**
- **Neutral particle imagers (NPI, NPD)**
- **Electron spectrometer (ELS)**
- **Mechanical scanner**

Solar wind scavenging of the martian atmosphere

Planetary wind = Outflow of atmosphere and ionosphere (cometary interaction)

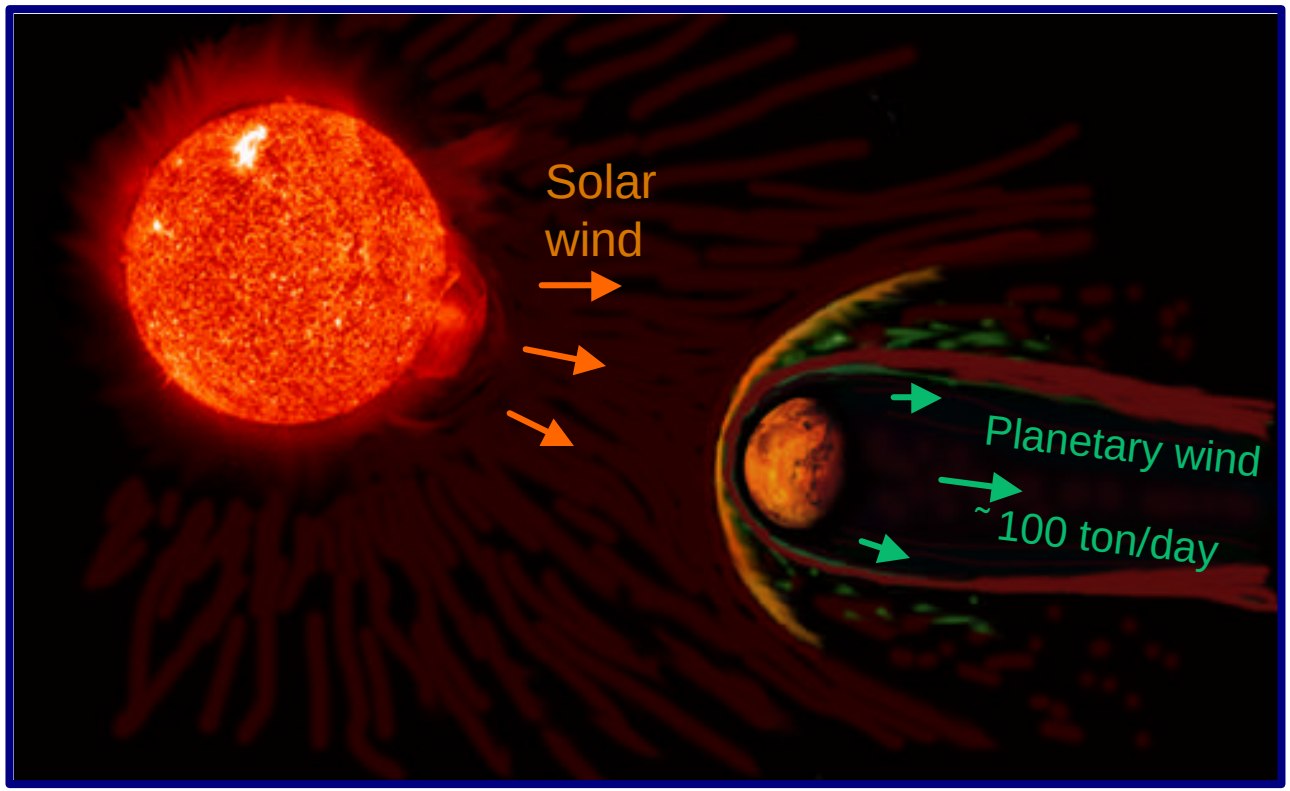
ASPERA will do global imaging and *in-situ* measurements of:

Inflow — solar wind

Outflow — planetary wind

using:

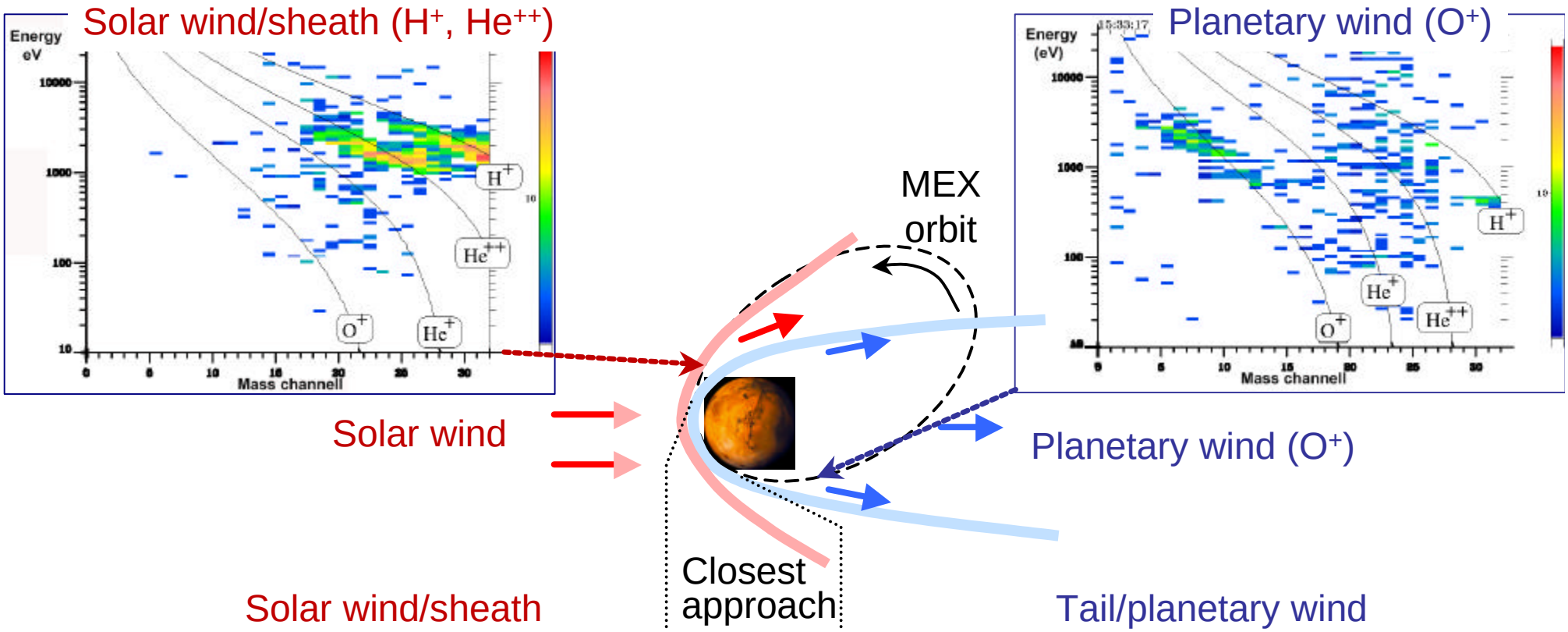
Energetic neutral atom cameras and plasma (ion+electron) spectrometers



Note: Mars (and Venus) are planets lacking a strong intrinsic magnetic field (umbrella) => dehydration.

ASPERA-3 — Preliminary results (IMA)

Confirmation of the planetary wind - O^+ and molecular ions



QuickTime och en TIFF (okomprimerat)-dekomprimerare krävs för att kunna se bilden.