

AN INTEGRATED APPROACH TO THE STUDY OF MARS WITH THE PLANETARY FOURIER SPECTROMETER

Vittorio Formisano[1], the PFS Team Vittorio.Formisano

[1] Institute of Physics of Interplanetary Space

PFS is a Fourier spectrometer which, on board the Mars Express ESA orbiter will study the Mars surface and atmosphere. By measuring the spectrum of emitted and reflected Martian radiation in the wavenumber range from 200 to 8200 cm^{-1} with the spectral resolution of 2 cm^{-1} and spatial resolution down to 10 Km we will be able to study atmospheric vertical temperature profile and composition, as well as soil and dust mineralogy. In particular the simultaneous measurement of this wide spectral range will allow 1) the retrieval of vertical temperature profile with knowledge of ground pressure. 2) the study of the composition of the dust suspended in the atmosphere. 3) the soil mineralogy. 4) The vertical water vapour mixing ratio profile. 5) Mixing ratios of minor components like CO and CH₄. Approach examples will be given using corrected IRIS Mariner 9 spectra.