



BIRA-IASB Mars activities and instrument capabilities

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The Belgian Institute of Space Aeronomy (BIRA-IASB) is involved in many areas of Mars exploration, and has been for a long time. Current activities include analysis of SPICAM data, 3D atmospheric modelling as well as instrument development and characterization. This paper will focus on two different instruments to study the Martian atmosphere.

UVIS(Patel, 2006) is part of the Exomars payload, that will gather information on the UV levels on the ground, study climatology and sterilisation and also be able to detect organic material in sublimating permafrost. BIRA-IASB is carrying out the characterization and calibration of UVIS.

SOIR is an infra-red spectrometer that uses solar occultation measurements to examine major and minor constituents of planetary atmospheres. SOIR is currently orbiting Venus on the VEX spacecraft and has already made several interesting discoveries including the first observations of a new band of a CO₂ isotopologue. The data from SOIR-VEX has allowed us to study the instrumental characteristics and perform a sensitivity study(Mahieux, 2008). These properties have been used to simulate realistic SOIR measurements of Mars atmospheric spectra. This work is supported by extensive 3D chemistry modeling work, as described in a paper by Frank Daerden (PS2.9Atmospheres of terrestrial planets).

M. R. Patel, et al.,(2006) The UV-VIS spectrometer for the ExoMars mission, in 36th COSPAR Scientific Assembly, Beijing, China.

A. Mahieux, et al.,(2008), Appl. Opt. 47 (13), 2252-65.