



## **A search for SO<sub>2</sub> on Mars from ground-based infrared spectroscopy**

Therese Encrenaz (1), Thomas Greathouse (2), Matthew Richter (3), Thierry Fouchet (1), and Bruno Bézard (1)

(1) Paris Observatory, LESIA, Meudon, France (therese.encrenaz@obspm.fr, +33 1 4507-2806), (2) SWRI, San Antonio, TX, USA, (3) Physics Department, University of California Davis, CA, USA

In spite of the discovery of sulfur-bearing molecules at the surface of Mars by the Viking lander and the Opportunity rover, no gaseous sulfur-bearing species have ever been detected in the Martian atmosphere. Recently, stringent upper limits of 1 ppb (Krasnopolsky, 2005) and 2 ppb (Nakagawa et al. 2009) have been reported using infrared spectroscopy and heterodyne submillimeter spectroscopy respectively. We have performed a search for SO<sub>2</sub> in the Martian atmosphere in October 2009 ( $L_s = 352^\circ$ ) using the TEXES imaging spectrometer at the Infrared Telescope Facility in the 7.3-7.4 micron spectral range. This instrument has the advantage of combining a high spectral resolving power ( $R=80000$ ) and a good spatial resolution (about 1 arcsec after convolution). Strong SO<sub>2</sub> transitions are present in the 1350–1375  $\text{cm}^{-1}$ . No individual transition could be identified. A preliminary analysis shows that co-adding the spectra on ten strong transitions allows us to reach an upper limit of 1 ppb or better on selected areas of the Martian disk. These results will be analysed and their implications will be discussed.