

## **Soutenance de thèse de Daniel Toledo:**

Jeudi 8 octobre 2015 à 14h

Amphithéâtre 2 (campus Sciences Exactes et Naturelles)

### **"Preparation and validation of the cloud and dust opacity sensor ODS for ExoMars 2018 mission"**

The work presented is devoted to the development of reliable retrieval procedures for a lightweight and sophisticated optical depth sensor (ODS) which measures alternatively scattered flux at zenith and the sum of the direct flux and the scattered flux in the blue and red wavelength ranges. The ODS sensor is dedicated to Mars and Earth atmosphere and its principal goals are perform measurements of the daily mean aerosol optical depth and retrieve the altitude and optical depth of high altitude clouds at twilight, crucial parameters in understanding of Mars and Earth meteorology. On Earth: high altitude thin cirrus clouds near the tropical tropopause are important players of the hydration / dehydration of the stratosphere, while aerosols play a key role in the radiative transfer in the upper troposphere. On Mars: in the absence of condensed water and precipitation, dust lifted by storms is controlling the radiative balance of the atmosphere and are the unique condensation nuclei available. Its seasonal cycle is known to show a strong interannual variability.

The goal of this work is to design the retrieval procedures to analysis the ODS signals on Earth and Mars. To this end, the different retrieval procedures to analyze ODS signals, as well as the results obtained in different sensitive analysis and comparisons with a CIMEL Sun-photometer of the AERONET network are presented and discussed.