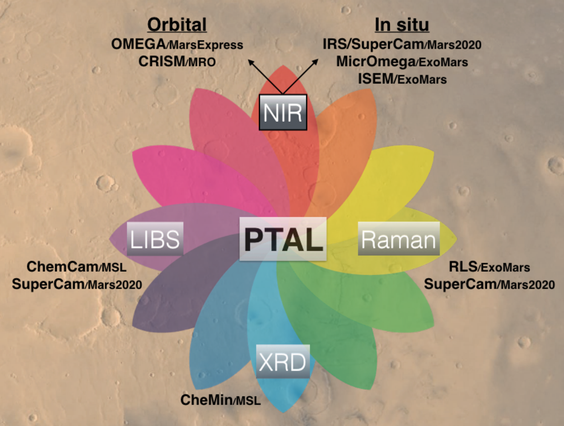
Near-Infrared spectral characterization of H2020/PTAL mineral samples

C. Lantz[1], F. Poulet[1], D. Loizeau[1], M. Veneranda[2], H. Dypvik[3], F. Rull Perez[2], L. Riu[4], C. Pilorget[1], J. Carter[1], and S.C. Werner[3]

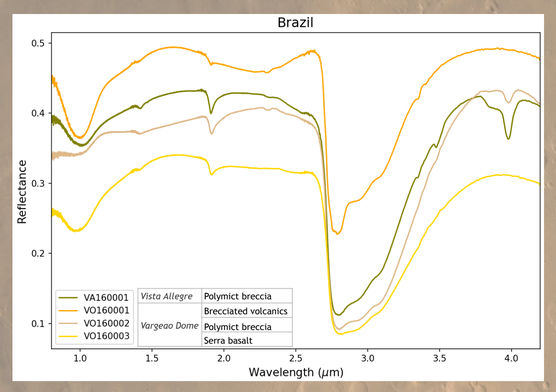
[1] Institut d'Astrophysique Spatiale, CNRS/Univ. Paris-Sud, France (Bât. 121, 91405 Orsay Cedex ; cateline.lantz@ias.u-psud.fr), [2] Department of Condensed Matter Physics, Univ. of Valladolid, Spain, [3] Department of Geosciences, Univ. of Oslo, Norway, [4] Institute of Space and Astronautical Science, Sagamihara, Japan.

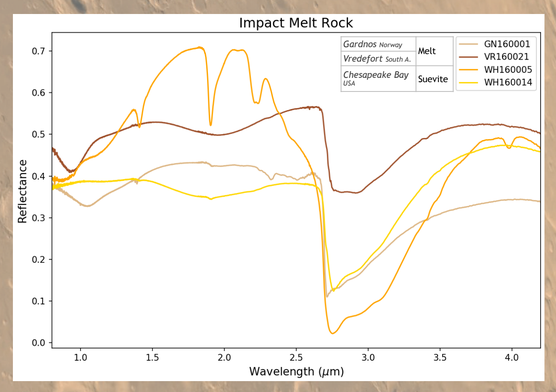
The **PTAL** project [1] aims at building and exploiting a **database** [2], the ***Planetary Terrestrial Analogues Library,*** in order to characterize the mineralogical evolution of terrestrial bodies, starting with **Mars**. 94 Earth rock samples have been collected from selected locations around the world in order to get the best analogues for martian geology. The PTAL samples represent a variety of rocks and sediments: i) igneous rocks of different plutonic and volcanic origin and composition, and ii) several different weathering and alteration products.

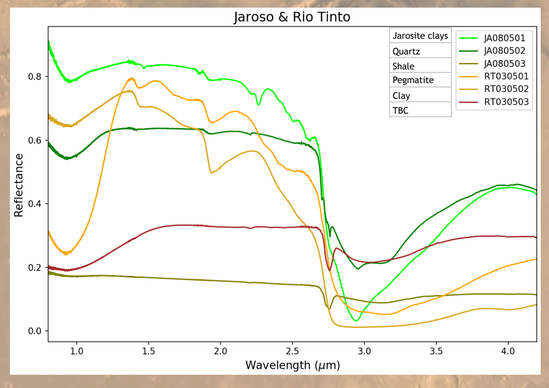


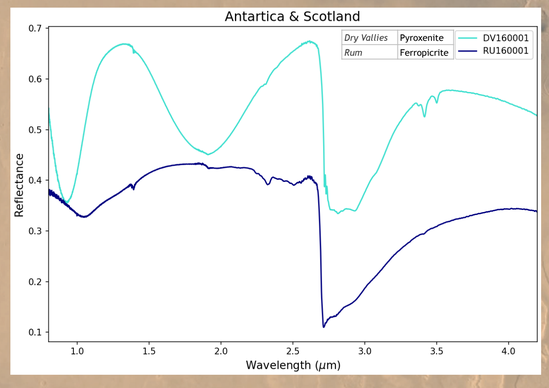
Each sample is first characterized with **XRD** and thin section analyses (Oslo University). Then, **NIR** (Paris-Sud University) and **Raman** (Valladolid University) spectroscopies are used. The samples will be finally analyzed by **LIBS** (Toulouse University) providing the elemental composition. These techniques are similar to the instruments on board current and forthcoming martian missions. Such combined analysis [3] will give the opportunity to prepare and understand ExoMars/ESA and Mars2020/NASA observations.

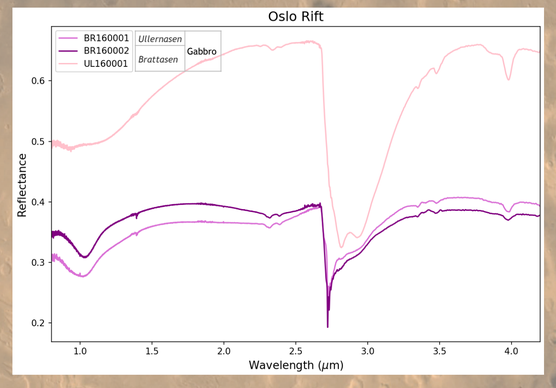
We present here the final **NIR** library that will be included in the database. All spectra are acquired on crushed samples (powder grain size < 100 µm) with a FTNIR spectrometer (Perkin Elmer Spectrum 100) that mimics spectral characterization of the missions **point spectrometers** [4-5]. Sampling site and geological context are given on each panel.

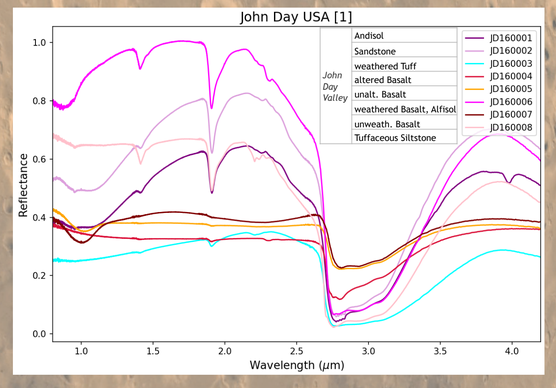


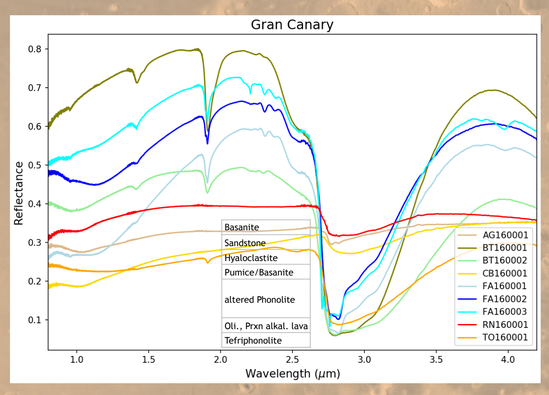


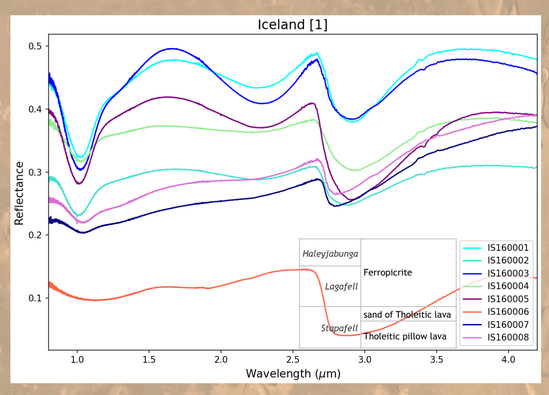


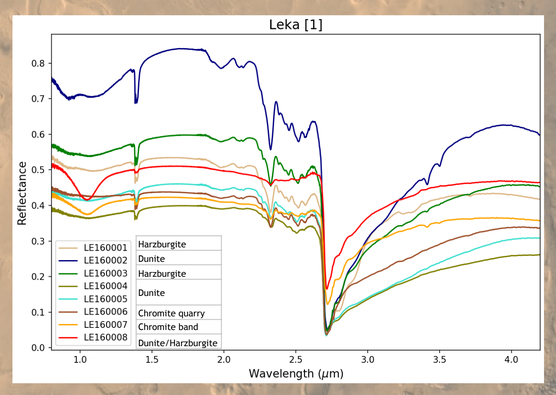


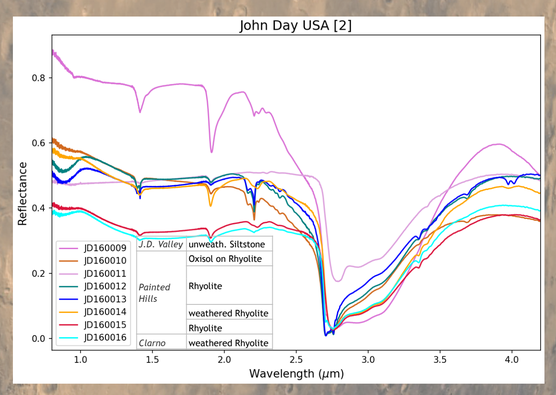


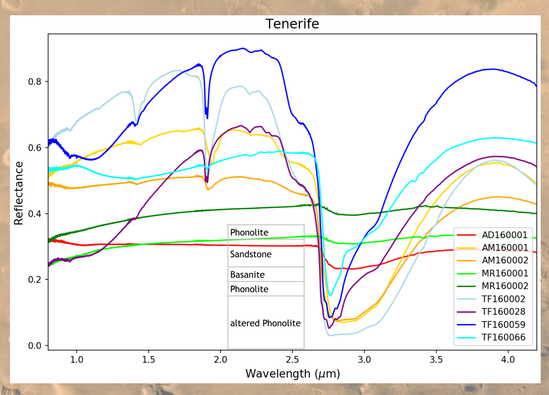


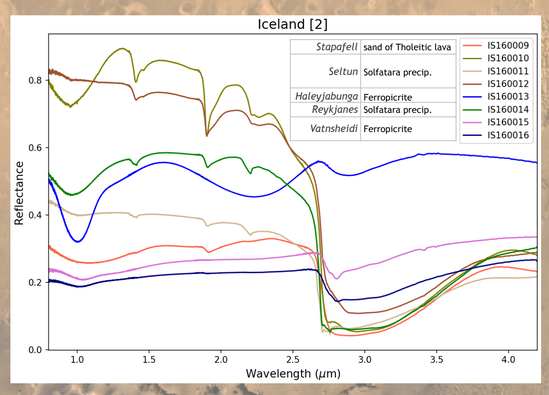


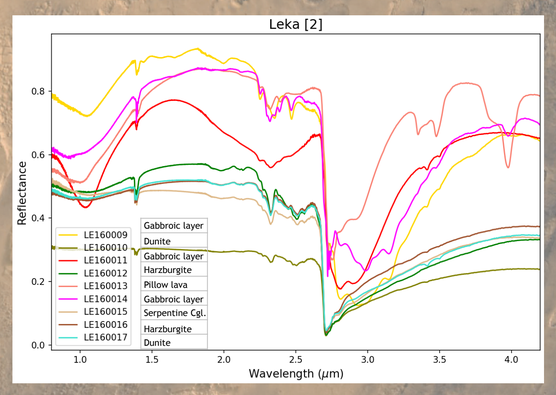


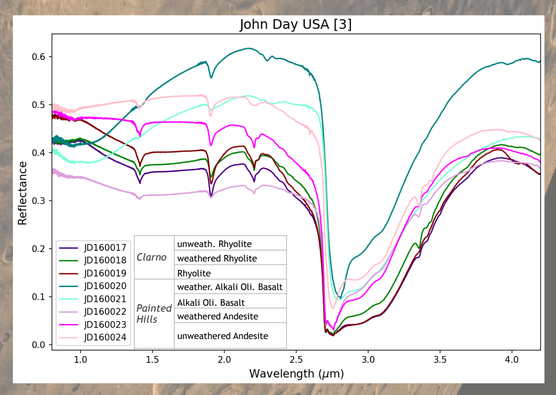




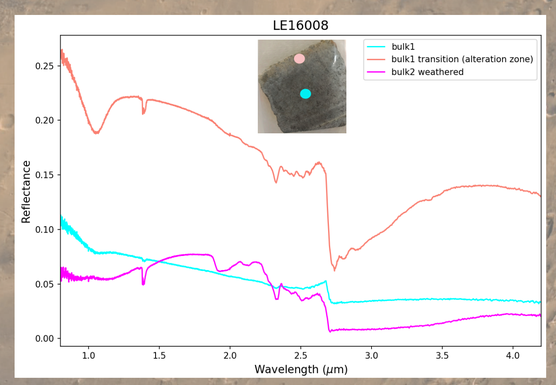


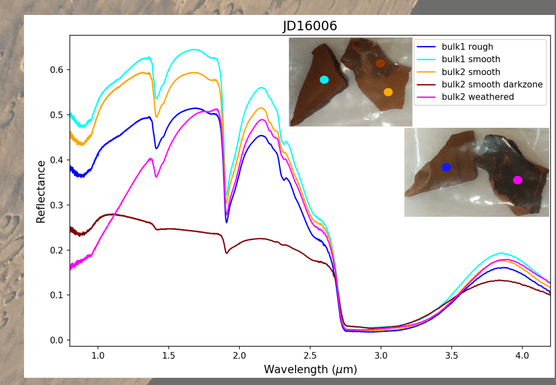






Measurements with a flight spare of **MicrOmega** (hyperspectral microscope) [6] will also be performed on the bulk samples. As a test for better comparison with both instrumentations, we analyzed two bulk samples with the point spectrometer. MicrOmega will be very useful when the sample to be analyzed will be heterogeneous with constituents at the scale of grains. Thus, we will be able to highlight the link between microscopic and macroscopic measurements.





References: *[1] Werner et al. 2018, Second International Mars Sample Return, No. 2071, 6060. [2] Veneranda et al. 2018, Second International Mars Sample Return, No. 2071, 6069. [3] Lantz et al. 2018, Second International Mars Sample Return, No. 2071, 6090. [4] Wiens et al. (2016) LPSC, No. 1903, 1322. [5] Korablev et al. (2017) Astrobiology, Vol. 17, 542-564. [6] Bibring et al. 2017, Space Science Reviews 208.*

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