



The Orléans-Lithothèque – an analogue rockstore for in situ missions

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Instruments for in-situ missions to extraterrestrial bodies should ideally be cross calibrated using a common suite of relevant materials. Such multi-instrument calibration would enable a better comparison of instrument performances during the mission, as well as aid in the interpretation of the in-situ measurements.

At the CNRS in Orléans, the Observatoire des Sciences de l'Univers de la région Centre is creating a collection of well-characterised rocks that will be available for testing and calibrating instruments to be flown on space missions. The characteristics of the collection's analogue materials will be described in an online database.

In view of the upcoming 2018 ExoMars rover mission, we are concentrating initially on materials of direct relevance to Mars. The initial collection includes basalts (ultramafic, weathered, andesitic, hydrothermally-silicified); sediments (volcanic, biolaminated, banded iron formation); and minerals (silica, evaporites, clays, Fe oxides). This set of samples will be augmented with time. All samples will be characterised petrographically, petrologically, and geochemically using the types of analyses likely to be performed during an in-situ mission: hand specimen description, optical microscopy, mineralogical analysis (XRD, Raman and IR spectrometry), elemental analysis (EDX, microprobe, ICP) and organics analysis (Raman, pyr-GCMS).