Starting a European Space Agency Sample Analogue Collection (ESA2C) and Curation Facility for Exploration Missions

The Natural History Museum is working with ESA to define and develop a Sample Analogue Collection and supporting Curation Facility for exploration missions.

The European Space Agency Sample Analogue Collection (ESA2C) for Exploration Missions: Chemical and Mineralogical Characterization

We present results from chemical/mineralogical analyses of basalt and clay/bentonite samples which form the initial ESA Sample Analogue Collection (ESA2C).

The European Space Agency Sample Analogue Collection (ESA2C) for Exploration Missions: Geotechnical Characterization

We present results from geotechnical analyses of basalt and clay/bentonite samples which form the initial ESA Sample Analogue Collection (ESA2C).

Analogue Samples in a European Sample Curation Facility — The EURO-CARES Project

Analogue samples crucial for defining the protocols necessary to accomplish safe and sustainable handling of extra-terrestrial materials in a curation facility (EURO-CARES).

Mineralogical Study and Hyperspectral Mapping of the Ries Ejecta Deposits as a Martian Analogue for Impact Melt Alteration

Extent and evolution of clay mineral alteration at the Ries is used to investigate martian post-impact alteration mineralogy and early crustal materials.

Potential Mars Analogue Minerals' Reflectance Characteristics Under Martian Conditions

Biological / Samples in Mars conditions / Which are unstable?

Reflectance and Polarization Phase Curve Measurements of Candidate Planetary Regolith Materials

We present reflectance and polarization measurement of candidate planetary regolith materials at extremely small phase angle where they are mostly observed.

Spectral Characterization of Analog Samples in Anticipation of OSIRIS-REx’s Arrival at Bennu

We present lab measurements of analog samples measured under asteroid-like conditions, which are relevant to the interpretation of observations by OSIRIS-REx.

VNIR Spectral Variability of HED Slabs

We present spectral characteristics in the VNIR of a wide range of HED. We measured bidirectional reflectance of slabs, and of powders for selected samples.
We present good quality time-gated remote Raman measurements of highly luminescent minerals and rocks from a distance of 10 m.

Raman measurements of minerals and rhyolitic or basaltic glass mixtures were made to investigate detection limits for common terrestrial planet igneous materials.

We present mid-infrared spectra of synthetic glass with the chemical composition of bulk terrestrial planets and their mantles.

We assess the difference in modeling techniques for electronic transition absorptions in olivine, a common mafic mineral in the solar system.

Several widely used Mars regolith (soil) analogs exhibit textural indications of volatiles in their environments of eruptive formation or later alteration.

We test the hypothesis that oxidative weathering dominates the alteration of sedimentary rocks in Antarctica and the implications for MSL Curiosity analyses.

Spectra of bulk sedimentary rocks and isolated organics (kerogen) are used to test our ability to quantify and map organic matter in geologic samples.
Leask E. K.  Ehlmann B. L.  POSTER LOCATION #600
*Identifying, Quantifying, and Mapping Carbonate and Serpentine at Outcrop Scale* [\#2783]
We use VSWIR imaging spectroscopy in the field and lab to identify and quantify carbonate and serpentine minerals at a Mars analogue site (Samail Ophiolite).

Ye C.  Glotch T. D.  POSTER LOCATION #601
*Spectroscopic Detection Limits of Minor Phases in Chloride-Bearing Mineral Mixtures* [\#2282]
The goal of this work is to determine the spectroscopic detection limits of additional evaporite minerals in halite/silicate mixtures.

Cannon K. M.  Mustard J. F.  POSTER LOCATION #602
*A Monte Carlo Approach to Radiative Transfer Spectral Unmixing* [\#1998]
Our approach randomly varies the radiative transfer model parameters, giving solution regions on plots of particle size vs. abundance instead of single values.