

The Berlin Emissivity Database (BED): a collection of planetary analogues

A. Maturilli, J. Helbert

Institute of Planetary Research – DLR, Berlin, Germany (alessandro.maturilli@dlr.de / Fax: +49 30-67055303)

Mineralogical composition study of planetary surfaces is mostly performed by means of remote sensing infrared spectroscopy. The interpretation of measured spectra should take advantage of laboratory measurements of analogue minerals.

The Berlin Emissivity Database (BED) is focused on relatively fine-grained size separates to provide a realistic basis for the interpretation of remote sensing thermal emission spectra of planetary regoliths. The Berlin Emissivity Database (BED) currently contains emissivity spectra of plagioclase and potassium feldspars, low Ca and high Ca pyroxenes, olivine, elemental sulphur, Martian analogue minerals, and volcanic soils measured in the wavelength range from 7 to 22 μm as a function of particle size. For each sample we measured the spectra of four particle size separates ranging from <25 to 250 μm .

The emissivity device is built at DLR (Berlin) and is coupled to a Fourier transform infrared spectrometer (Bruker IFS 88), purged with dry air and equipped with a cooled MTC detector. All spectra were acquired with a spectral resolution of 4 cm^{-1} .

We are currently working to upgrade our emissivity facility: a new spectrometer (Bruker VERTEX 80v) and new detectors will allow us to measure the emissivity of samples in the wavelength range from 1 to 50 μm , even in a vacuum environment.