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# Spectra of volcanic rocks glasses as analogues of Mercury surface spectra

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Remote-sensing studies have revealed that most of the inner planets surfaces are covered by magmatic effusive rocks, that are the natural products of magma-rock dynamic systems controlled by T, P, oxygen fugacity and time, as lava flows or pyroclastic deposits. These materials generally contain a fair amount of volcanic glass, due to the magma rapid cooling once effused on the surface. Volcanic glass can dominate or not the rock texture.
The VNIR reflectance spectroscopy is one of the most important methods for remote-sensing studies and in the last decades gave important results identifying the presence of different Fe-Mg silicates, such as olivine and pyroxenes, on the planets surfaces.
However, the mineralogical interpretation of the observed spectral features of several volcanic areas on the inner Solar System bodies is still matter of debate.
As a consequence, an important goal for studying the planetary crusts is to understand the spectral behavior of volcanic material produced by different volcanic systems, where chemical or physical parameters are different.
We present here preliminary laboratory activity to investigate in the VNIR reflectance spectra the different behaviors of volcanic glasses. Reflectance spectra, in the range of wavelength between 350-2500 nm, were measured on powders of magmatic rocks, with different composition and textures, at fine (<0.06 mm) and very fine (<0.01 mm) grain sizes. For each rock sample a corresponding glass-sample was produced by melting at 1300°C and P=1atm, than quenching it in water. Reflectance spectra of powders of glass-samples were acquired at the same grain size, and compared with rock-powder spectra.