

# VISUAL SPECTRA OF SOME CHONDRITES FROM THE ATACAMA DESERT

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**Introduction:** We are going on with meteorite visible spectra measurements, that were started some years ago [1, 2, 4]. Recently we've been able to obtain some meteorites from the Atacama Desert through the courtesy of a famous Russian researcher Timur Kryachko.

**Meteorites:** These meteorites are: chondrite H5 Calate 015 (found 21 Oct 2016, Lat. 21°35.80'S, Long. 69°37.40'W, Fig. 1); chondrite H5 Sierra Gorda 007 (found 31 Mar 2018, Lat. 22°30.59'S, Long. 69°7.40'W, Fig. 2); chondrite L6 Calama 022 (found 2017 Oct 15, Lat. 22°18.192'S, Long. 68°33.0557'W, Fig. 3).



Fig. 1. Calate 015



Fig. 2. Sierra Gorda 007



Fig. 3. Calama 022

**Methods:** We conducted the measuring of the reflectance spectra, based on the methods previously used for the experiments on physical simulation of photometric and spectral characteristics of satellite and asteroid surfaces [2]. We used a small-size monochromator with a 3-4 nm/mm dispersion concave diffraction grating. As a receiving instrument, we used a photoconductor which is sensitive within the range of 400-900 nm. The incident and scattering light beams formed the angles of 0 and 45 degrees, respectively, to the sample surface normal. For the standard, the flat surface of MgO was used. The relative error of the measurements was 3-4% in the middle of the spectral range and grew up to 10-12% at the range's limits.

**Results.** Figure 4 shows the smoothed Calate 015, Sierra Gorda 007 and Calama 022 spectra as compared to the spectra of basalt lava from Tenerife and meteorite Sierra Gorda 008 [1, 3, 4].

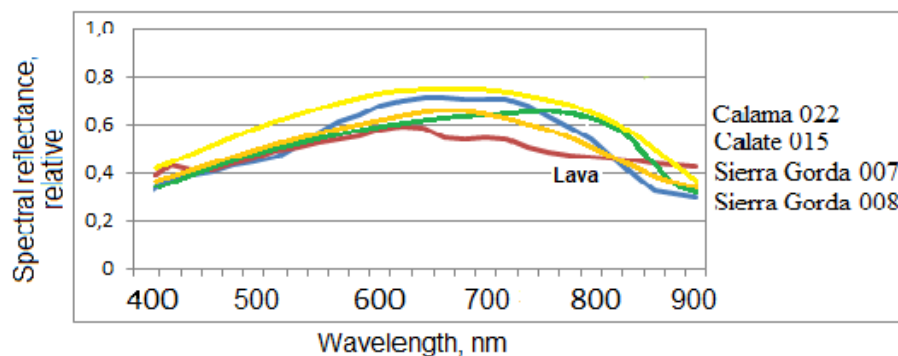


Fig. 4. Visual spectra of meteorites under study

**Conclusions:** The simplest comparative analysis of volcanic lava and basalt spectra with the spectra of stony meteorites (chondrites) shows, that visibly they are sufficiently similar.

**References:** [1]. Efimov A.V., Murtazov A.K., Zhabin V.S. (2021). *Meteoritics & Planetary Science*. 56, S1: A74. [2] Murtazov A.K. (2016) *Astronomical and Astrophysical Transactions* 29:519-528. [3] Murtazov A. K., Efimov A. V. (2017) *Ecological Bulletin of Research Centers of the Black Sea Economic Cooperation* 4:117-123. [4] Murtazov A. (2018) *Meteoritics&Planetary Science*. 53: A 218.