

PRELIMINARY RESULTS OF COMPOSITIONAL AND TEXTURAL FEATURES OF SELECTED METEORITE SPECIMENS RECOVERED DURING THE 2017 LUT DESERT JOINT ITALIAN - IRANIAN EXPEDITION

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The Lut Desert is a desertic area considered by several authors remarkably suitable for meteorite preservation and recovery [1-3]. It is located in the south – eastern part of Iran. It extends for about 270 km in longitude and 190 km in latitude. A joint Italian - Iranian team from the University of Firenze, Italy, and the Shahid Bahonar University of Kerman, Iran, organized a field trip to the Lut Desert from 10 to 25 march 2017. The field trip concentrated in the Kalut desert, which is characterized by the presence of 50-100 meters high ridges consisting of loess deposits, modeled by the action of the wind. The soil surface is consisting of hardened sand, particularly suitable for meteorite recovery. Although several small black, non magnetic rounded terrestrial stones are present, larger stones are easy recognizable as meteorites by their external features. In a 10 days campaign 143 fragments belonging to 43 separate specimens of meteorites, ranging from few grams to one kilo and totally weighing 3670 grams, and other doubtful stones have been recovered. A first essay on the fragments density allowed to discriminate terrestrial rocks and to single out three separate clusters in the range 3.2-3.4 g/cm³ for meteorites. Selected samples have been analyzed by means of optical microscope and Scanning Electron Microscope to detect the textural and compositional features. Samples from both big meteorites and small fragments have been analyzed. The big ones display remarkably different weathering conditions as compared with small pieces. Moreover analytical data from silicates suggest also a different classification for big samples: whereas all small samples data point to a classification as H5 ordinary chondrite, the presence of large chondrules and their scarce integration with matrix in big samples suggest a different classification. Further EMPA and oxygen isotope analyses are planned to allow a complete classification of these samples.

References: [1] J. Gattacceca et al. 2011. *Meteoritics & Planetary Science* 46:1276–1287; [2] H. Pourkhorsandi et al. 2016. *Journal of the Earth and Space Physics* 41:125–130. [3] H. Pourkhorsandi et al. 2016. *79th Annual Meeting of the Meteoritical Society*, abs. 6195.