

A NEW ALMAHATA SITTA SAMPLE SET – THE STORY BECOMES MORE FASCINATING

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The fall and discovery of numerous fragments of the Almahata Sitta meteorite in the desert of N Sudan has significantly deepened our knowledge concerning the formation, structure and life cycle of asteroids [1,2]. In contrast to earlier findings, Almahata Sitta - classified as a polymict ureilite - does not only contain small clasts of different meteorite lithologies but consists of individuals of a still growing number of different meteorite types and classes: various ureilites, numerous ordinary, carbonaceous and enstatite chondrites or a unique and new meteorite lithology with an affinity to Rumuruti chondrites [2].

Recently, investigations on a new set of Almahata Sitta samples, MS-MU-001–020, have been started [3,4]. Amongst various ureilites and enstatite chondrites, more fascinating new unique meteorite individuals could be identified such as an enstatite achondrite or a trachyandesite..

In our contribution we will report first results on our investigations by magnetic, Raman Spectroscopical and mineralogical means as there are:

(1) MS-MU-011, the first trachy-andesite from the UPB; magnetic susceptibility (specific MS, in decimal log of 10^{-9} m³/kg) was found to be 3.66 +/- 0.01 which is different (lower) in comparison with MS of all other Almahata Sitta individuals found so far [5]. Interestingly, the MS value is above the MS range of the Martian basaltic shergottites and above the range of the lunar basalts [6].

(2) MS-MU-012 was classified as a unique unbrecciated olivine-pyroxene-plagioclase rich ureilite. The MS value of 5.37 +/- 0.01 is one of the highest values of all investigated Almahata Sitta individuals and all ureilites in general [5,6].

(3) MS-MU-007, an EL6 chondrite, fits well the typical MS trend of the known EL6 falls: log value is 5.30 +/-0.02.

(4) MS-MU-013 has a log MS value of 5.17+/-0.01 which coincides with the H chondrite range.

References

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