THE ALMAHATA SITTA STORY – REVIEW AND STATE OF THE ART.

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The fascinating and unique Almahata Sitta meteorite (AS, fall oct 7th 2008 in the North Sudan desert) was classified as a ploymict ureilite. More systematic studies on the numerous AS fragments reported the finding of a range of different ureilite types but also of other meteorite lithologies such as enstatite and ordinary chondrites, at least one type of carbonaceous chondrite (Bencubbinite CB-a), and a unique chondrite not known before [1,2,3,4]. Recently for the first time a fragment with basaltic petrological signature could be identified which most probably represents the first sample of an ureilite parent body crust [5]. AS is in some way comparable to the Kaidun meteorite [6], and it became clear that 2008 TC3 represents a secondary rubble pile asteroid.

We have the unique and extraordinary chance to work in our laboratories on fresh material from a meteorite which has a direct link to a known asteroid. Consequently, reconstructing the evolution of the asteroidal body and trying to link the various lithologies to their respective primary parent bodies is a fascinating and realistic goal. In our contribution we will review the results of our investigations by magnetic and mineralogical means as well as Micro Raman spectroscopy which we have performed on a range of AS lithologies [7,8,9].

References:

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