NEW INDIVIDUALS FROM THE ALMAHATA SITTA STREWN FIELD: OLD FRIENDS AND BRAND-NEW FELLOWS. A. Bischoff[1], S. Ebert[1], M. Patzek[1], M. Horstmann[1], A. Pack[2], J.-A. Barrat[3], and S. Decker[4]. [1]Institut für Planetologie, Wilhelm-Klemm-Str. 10, 48149 Münster, Germany. E-mail: bischoa@uni-muenster.de. [2]Uni Göttingen, Geowissenschaftliches Zentrum, Goldschmidtstr. 1, 37077 Göttingen, Germany. [3]Université de Bretagne Occidentale, 29280 Plouzané, France. [4]Meteorite-Museum, Oberstr. 10a, 55430 Oberwesel, Germany.

Introduction: After asteroid 2008 TC_3 impacted Earth in 2008, a highly diverse range of meteorite types was identified among the numerous meteorite fragments collected in the Almahata Sitta strewn field, including various types of ureilitic rocks and chondrites (e.g. [1-9]). The petrography and mineralogy of nine new samples were studied here (MS-MU-012 – MS-MU-020), complemented with oxygen isotope compositions obtained for several of the new samples by IR laser fluorination.

Results: MS-MU-012 and -019 are the most outstanding new samples. MS-MU-012 is an unbrecciated, ureilitic feldspar-olivine-pyroxene rock. The plagioclase-rich areas do not occur as isolated fragments as observed in (polymict) ureilitic breccias, but appear to represent primary rock constituents. These plagioclase-rich areas display very low REE abundances (<0.15 x CI), except for Eu (~2 ppm; Eu/Eu*=250-300). Oxygen isotopes ($\delta^{17}O$ = 2.63‰, $\delta^{18}O$ = 6.98‰; average of 3 measurements) support the relation of the plagioclase-rich aliquot of MS-MU-012 to ureilites. MS-MU-019 is an unusual enstatite- and metal-rich achondrite with two different coexisting enstatite populations (~$En_{98.5}Wo_{1.3}$ and ~$En_{96.5}Wo_{3.2}$). Based on texture, mineralogy, and O-isotopes it might represent a unique type of meteorite. Preliminary results for MS-MU-019 indicate variable $\delta^{17}O$ (3.5-4.1‰) and $\delta^{18}O$ (6.6-7.5‰) values, which may imply a relationship to E-chondrites or aubrites.

MS-MU-013 has a chondritic texture. Based on the compositions of olivine (~Fa_{17}) and pyroxene (~Fs_{16}) the rock has to be classified as a H5 chondrite, although the O-isotope compositions ($\delta^{17}O$ = 3.38‰, $\delta^{18}O$ = 4.92‰; mean of 2 analyses) are more related to L/LL. Based on the presence of alabandite and the recrystallized texture, MS-MU-015 clearly is an EL6 chondrite ($Fs_{<0.3}$).

MS-MU-014, -016, -017, and -020 are coarse-grained ureilites. The olivine cores in MS-MU-014 have ~Fa_{20} and the pyroxene has ~Fs_{17}. MS-MU-016 has abundant pyroxene, and the olivine and pyroxene cores have ~$Fa_{12.5}$ and ~Fs_{11}, respectively. MS-MU-017 is also rich in pyroxene. The olivine and low-Ca pyroxene cores have ~Fa_{13} and ~Fs_{11}, respectively. Frequently observed Ca-pyroxenes have variable compositions (~$Fs_{6-36}Wo_{30-39}$). The olivine in MS-MU-020 is strongly zoned with the highest Fa content of ~Fa_{21}; low-Ca pyroxene cores have ~$Fs_{18.5}$. MS-MU-018 is a heavily-shocked, fine-grained ureilite with abundant opaque phases (metal, sulfides).

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