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Noble gas exposure ages of six non-ureilitic fragments from the Almahata Sitta strewn field.

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In 2008 asteroid 2008 TC_3 was found to be on a collision course with Earth and created a large strewn-field in northern Sudan [1]. The meteorite was classified as an anomalous polymict ureilite breccia, but several non-ureilitic fragments were also collected [1, 2].

Here, we present He, Ne and Ar exposure ages of some of the most exotic Almahata Sitta fragments; one CB-chondrite (MS-181), one unique R-like chondrite (MS-CH), one L4/5-chondrite (MS-197), one EL6-chondrite (MS-52) and two E-chondritic breccias (MS-D, MS-179). All samples except one EL6 breccia (MS-D) have Ne exposure ages that agree within error with the previously determined exposure age of Almahata Sitta ureilites (19.5 Ma) [3]. The EL6 breccia has a slightly higher exposure age of 28 Ma which might indicate some pre-exposure. However, this age will be better constrained once radionuclides have been analyzed.

[1] Jenniskens, P. et al. (2009) Nature 458, 485-488. [2] Bischoff, A. et al. (2010) MAPS 45, 1638-1656. [3] Welten, K.C. et al. (2010) MAPS 45, 1728-1742.

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