

THE NEWLY DISCOVERED JIDDAT AL HARASIS STREWNFIELD IN OMAN. E. Gnos¹, B. A. Hofmann², A. Al-Kathiri¹, S. Lorenzetti³, O. Eugster³, A. J. T. Jull⁴, ¹Institut für Geologie, Universität Bern, Baltzerstrasse 1, CH-3012 Bern, Switzerland, gnos@geo.unibe.ch, ²Naturhistorisches Museum der Burgergemeinde Bern, Bernastrasse 15, CH-3005 Bern, Switzerland, ³Physikalisches Institut, Universität Bern, Sidlerstrasse 5, CH-3012 Bern, Switzerland, ⁴NSF Arizona AMS Laboratory, University of Arizona, 1118 East Forth St, Tucson AZ 85721, USA.

Introduction: The newly discovered strewnfield [1] is so far the largest found in the Sultanate of Oman. The nearly 3000 single stones collected range in weight from >54 kg down to <1g (Fig. 1). The field shows a NW-SE orientation, and covers an area of ~ 20 x 4 km. The meteorite belongs to the H6 chondrites (Fa₂₃₋₂₅, Fs₂₀₋₂₂Wo_{1,4-1,7}, An_{9,9-11,8}). The material is only moderately shocked (S4). The meteorites contain frequently macroscopically visible, several mm-sized, ochre-weathering chondrules. Increased salt weathering of the stones is observed in sandy depressions. The weathering grade hence is strongly variable and ranges from 2 and 4. Within sandy areas smaller stones show in general a higher weathering grade.

Isotopic results: Neon isotopic analyses of two samples yielded an average cosmic-ray exposure age of 30.6 ± 4.0 Ma. Cosmogenic ³⁸Ar was partly lost due to weathering of Fe that is a major target element for ³⁸Ar production. Five ¹⁴C measurements on stones with variable weathering grade yielded ¹⁴C from 3.8 to 49.9 dpm/kg. Since these stones are all from the same fall, the range is only consistent with a meteoroid with a pre-atmospheric radius of >1.2m. Due to the size of the object, precise terrestrial ages can only be determined from ¹⁴C/¹⁰Be determinations [2]. However, the high values observed in one fragment suggests the shower may due to be a relatively recent fall.

Interpretation: The strong rounding by ablation, and the good sorting of the stones within the strewnfield suggest disruption far from the ground. The variable weathering grade as a function of ground/soil composition indicates that the weathering grade is not a suitable criteria for defining pairings in areas where the underground geology is strongly variable.

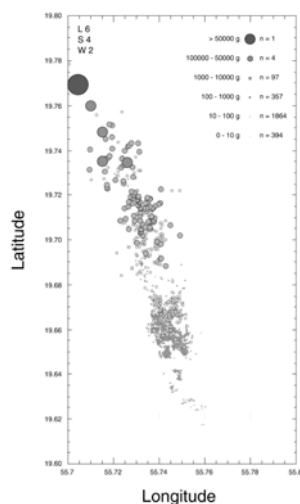


FIG. 1

References: [1] Russell, S. et al. (2003) *Meteorit. Planet. Sci.*, 38, in prep. [2] D. A. Kring et al. (2001), *Meteorit. Planet. Sci.*, 36, 1057-1066.