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**Noble gases in Antarctic Micrometeorites.**

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Since micrometeorites may have made an important contribution to the volatile budget of Earth [1], we have analyzed Antarctic Micrometeorites (AMMs) for content and isotopic composition of noble gases (He-Xe), concentrating on unmelted and scoriaceous specimens. Two sets of samples have been investigated: 11 particles of recently fallen AMMs from the CONCORDIA collection Dome C, Central Antarctica [2], and 29 particles of more ancient (up to ~ 1 Ma) AMMs collected from the Miller Butte micrometeorite traps in the Transantarctic Mountains (TAM) by [3].

Dome C micrometeorites represent a comparably homogeneous population, with high abundance of trapped noble gases, in line with the suggested similarity to primitive carbonaceous chondrites [1], while TAM micrometeorites show more variable patterns, including - based on the ratio of cosmogenic Ne and Ar - evidence for an achondritic source in at least one case. Xe isotopic compositions include such that resemble Q-Xe, while others show a signature indicative of mass fractionated air Xe, possibly acquired in the ionosphere.

[1] Maurette, M. et al. (2000) EPSL 48, 1117-1137. [2]

Duprat, J. et al. (2007) Adv. Space Res. 39, 605-611. [3]

+ Rochette, P. et al. (2008) PNAS 105, 18206-18211. +

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