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Terrestrial age of iron meteorites from the Sahara of North Africa

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During the study on the estimation of the density and flux of meteorites in the desert of North Africa made by Aboulahris et al. 2019 [1], we dated eight ordinary chondrites using the ^{14}C isotope. With the same aim, we selected six iron meteorites from the Sahara of North Africa (2 Algeria, 2 Morocco and 1 NWA) to date there terrestrial age using isotopes with long half-lives since they resist weathering such as ^{41}Ca, ^{36}Cl, and ^{10}Be. This work is inspired by the study made by Hutzler A. 2015 [2].

The protocol we followed to extract the isotopoes (Be, Ca, Cl) is the one adapted by Vogt and Herpers (1988) [3] and Merchel and Herpers (1999) [4]. Isotope measurements were made at the French AMS national facility ASTER (CEREGE, France).

The results were used according to the model of Ammon K. et al. 2009 [5], which develops a physical model for cosmogenic nuclide production rates in iron meteorites to determine Cosmic Ray Exposure (CRE) ages, terrestrial ages, pre-atmospheric radii and shielding depths. The discussion will be focused on flux of meteorites and the probability to find more pieces of them.

References:

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