RADIONUCLIDE STUDIES OF METEORITES FROM RAMLAT AL WAHIBAH AND OTHER OMANI DESERT LOCATIONS.

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Introduction: Meteorites appear to survive for long periods of time in arid environments, which makes the determination of their terrestrial age important to understanding compositional changes due to oxidation and weathering [1-3]. In the past, a dependence of the degree of oxidation on terrestrial age has been demonstrated [1-3]. At our laboratory, we make measurements of ^{14}C and $^{14}C/^{10}Be$. The ratio of $^{14}C/^{10}Be$ can be used to get better precision on terrestrial ages. Recently, we have also developed the capability to do ^{129}I measurements on meteorites, which has the potential to be useful as an exposure-age chronometer.

Oman meteorites: In 2005-2007, new samples have been recovered from the areas Ramlat al Wahibah (RaW), Ramlat as Sahmah (RaS) and Sayh al Uhaymir (SaU). We have determined the ^{14}C terrestrial ages for a new suite of samples from these sites, and of all available LL samples. The results indicate that weathering is generally dependent on terrestrial age, as noted earlier [3,4,5]. The terrestrial age distribution from RaW shows a bimodal behavior, with a suite of younger dates consistent with infall and older dates >25kyr, suggesting some removal or sorting process at this location, which is geologically different from all other Oman find sites (fossil dunes). Previously, Al-Kathiri et al. [3] have summarized the terrestrial ages of 53 meteorites from Oman, which showed an approximately exponential distribution of ages, but with a deficiency of ages <10kyr.

^{129}I studies: We have developed a new method using ^{129}I which we believe will allow us to assess exposure ages of the meteorites (in conjunction with ^{10}Be), as well as possible contamination of the weathering products of meteorites by oceanic I. In this initial study, we have applied ^{129}I to SaU 033 and the only meteorite from Qarat al Milh (QaM 001), which gives approximate exposure ages of 8.4 and ~3Myr, respectively, based on production rates for L-chondrites given by Schnabel et al. [6].

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