TERRESTRIAL AGE, WEATHERING, $\Delta^{17}O$ AND MÖSSBAUER STUDIES OF METEORITES FROM THE NULLARBOR, AUSTRALIA

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Introduction: Meteorites from hot deserts have become an important source of our collections. Over 300 distinct meteorites have now been recovered from the Nullarbor Plain of Australia [1,2] and many more remain to be characterized. The Western Australian work was strongly influenced by the observation of large concentrations of meteorites found in Roosevelt County, New Mexico [3,4].

Terrestrial ages: We have investigated the terrestrial ages, or residence times, of 77 meteorites recovered in Western and South Australia, using ^{14}C measurements and also $^{14}C/^{10}Be$. Samples were H and L chondrites, although we included two ureilites, one CK and one EL chondrite. We have included ^{10}Be measurements from 30 meteorites, including some meteorites for which the ^{14}C terrestrial age was previously determined [5]. We find that the $^{14}C/^{10}Be$ terrestrial ages are more precise than ^{14}C alone, since we can correct for shielding effects. In general, the two different age determinations age by ^{14}C-^{10}Be are precise to 0.5-1ka and ^{14}C alone within 1-2ka.

Weathering Effects: We can compare the terrestrial ages to weathering, degree of oxidation (estimated from Mössbauer studies) and $\Delta^{17}O$. In this study, we found that weathering is not well-correlated with terrestrial age for Nullarbor meteorites. However, there is a good correlation between degree of oxidation and $\Delta^{17}O$. The implications for the study of terrestrial ages and weathering from other desert environments will be discussed.

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