1979Metic..14R.345B

DEPTH AND SIZE DEPENDENCE OF ^{53}Mn ACTIVITY IN CHONDRITES

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Depth profiles of cosmic ray induced ^{53}Mn and track densities have been measured in cores taken from four chondrites: Madhipura, Udaipur, Bansur and St. Severin. Extensive measurements of track densities in the surface samples have established the pre-atmospheric shapes and sizes of these

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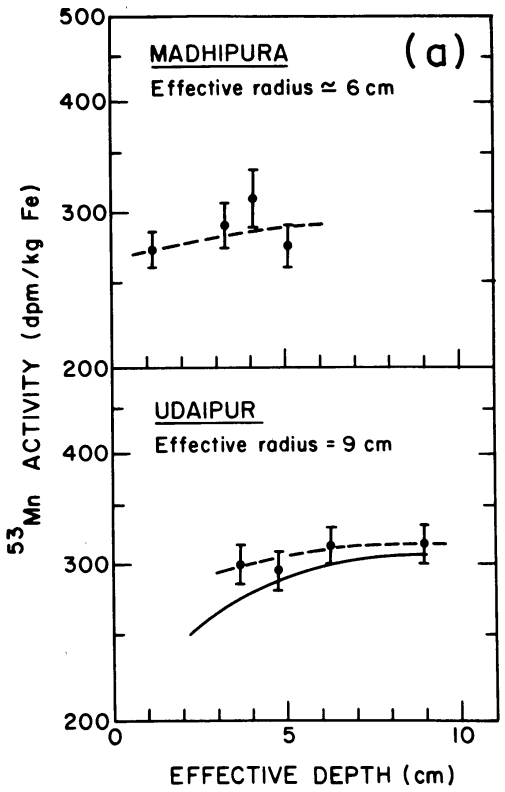
meteorites as having effective radius of 6.5, 9, 15 and 20 cm respectively (Bhandari *et al.*, 1978). The track densities in the core samples and the meteorite exposure ages are used for determining the shielding depths of samples in which ^{53}Mn is measured. The ^{53}Mn measurements were made by the neutron activation method and the profiles as measured are shown in Figures 1a and 1b. Experimental details are given in Bhattacharya (1979).

The observed depth profiles of ^{53}Mn indicate that:

1. The increase in activity from near surface regions to the centre for chondrites having effective radius $\leqslant 15$ cm is less than 10%.

2. For larger bodies (St. Severin, effective radius $\simeq 20$ cm) this increase is about 45%. The St. Severin data are in agreement with the values reported by Englert and Herr (1978).

3. The measured profiles of ^{53}Mn show significant departures from the model calculations of Bhandari *et al.* (1979) as shown in Figures 1a and 1b.



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