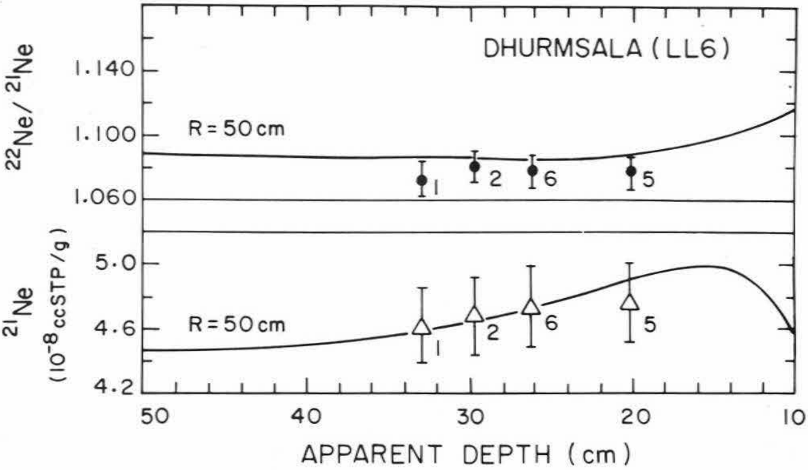

Fig. 1 **Plot of $^{22}Ne/^{21}Ne$ ratios and ^{21}Ne contents in samples 1, 2, 5 and 6 of Dhurmsala as a function of apparent depth of these samples, assuming the Preratmospheric size of the body is R = 50 cm. The solid line represents the theoretical profile estimated for the samples in a body of R = 50 cm, based on the model of Bhandari and Potdar (1982).**

the preatmospheric depth of sample 5 to be 20 cm based on neon ratio and use a depth dependent production rate of 0.37×10^{-8} cc STP/g m.y. (Bhandari and Potdar, 1982), the Ne-21 based exposure age turns out to be 12.8 m.y. In sample 5, Xe isotopic composition was measured. The 131/132 ratio is found to be 0.8056 which does not show any neutron produced Xe-131 excess. The 129/132 ratio is 1.315 which indicates the presence of radiogenic Xe-129 excess. The 126/132 ratio of 0.0057 for this sample shows spallogenic Xe contribution.

The Mn-53 values measured in samples 1, 6 and 5 of Dhurmsala are 366 ± 21; 377 ± 16 and 410 ± 20 dpm/kg Fe respectively. The Al-26 values found in above samples are 64 ± 1.9; 61.1 ± 1.8 and 69.3 ± 4.8 dpm/kg respectively (Englert *et al.*, 1982). The trend followed by these samples is in general, consistent with that observed in the case of Ne-21.

In these four samples, the Ne-22/Ne-21 ratios indicate very deep shielding which is consistent with the track data for these samples. Based on all these results, we infer that the preatmospheric radius for Dhurmsala is about 50 cm and the samples under study seem to originate at a depth of 20 to 30 cm location in that body.

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ABSENCE OF EXCESS ^{26}Mg IN ANORTHITE FROM THE VACA MUERTA MESOSIDERITE

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The absence of ^{26}Mg excesses in Al-rich phases (feldspars) from basaltic achondrites, high petrographic grade chondrites and a K-feldspar from an iron meterorite was established by previous work (Schramm *et al.*, 1970). After discovery of in situ decay of ^{26}Al in Ca-Al-rich inclusions in carbonaceous meteorites (Lee *et al.*, 1977), of ^{107}Pd decay in iron meteorites (Kelly and Wasserburg, 1979, and of ^{129}I decay in silicate inclusions in iron meteorites (Niemeyer, 1979), a re-examination of differentiated meteorites for ^{26}Mg appeared necessary. We selected a 30 g fragment of the Vaca Muerta mesosiderite with abundant silicates with crystals in the 50-1000 μm range. One surface was polished for the electron microprobe. A 12 g piece was dissolved in dilute acetic acid and coarse anorthite grains were picked from the residue. The range of compositions was An 89-94.6, Ab 10.6-5.2, Or 0.4-0.2 Some anorthites were free of inclusions but many were cloudy with silica blebs (up to 10 μm). Anorthite was also found as inclusions in tridymite, an accessory mineral in Vaca Muerta. Two anorthite crystals were analyzed for Mg by the direct loading technique. A composite of 10 crystals was checked for purity on the SEM and found to consist of anorthite with some SiO_2. The composite was dissolved. Aliquots were used to determine the Mg and Ca contents and the Mg isotopic composition. For the composite, using the Ca/Mg ratio and the assumption of anorthite stoichiometry we calculate a Mg content of 440 ppm and $^{27}Al/^{27}Mg = 5 \times 10^2$, both with an estimated uncertainty of less than 20% due to uncertainty in Ca/Al. The observed $^{26}Mg/^{24}Mg$ shows no significant excess ^{26}Mg. The data were adjusted by a 1.5‰ bias in $^{26}Mg/^{24}Mg$ for DLT analyses with high $^{27}Al^+/^{24}Mg^+$ (Table 1). By using an upper limit on $\delta^{26}Mg$ of 1.4‰ we obtain a limit on $^{26}Al/^{27}Al$ for Vaca Muerta plagioclase of 4×10^{-7}, which is in the range obtained by Schramm *et al.* (1970) and indicates a minimum free-decay interval of ~ 5 m.y. between Ca-Al-rich inclusions and the Vaca Muerta anorthite. It is clear that effects in ^{26}Mg can be resolved only if differentiated meteorites formed on a fast timescale and have remained undisturbed. The absence of evidence of ^{26}Al in differentiated meteorites leaves open the question of whether ^{26}Al provided the heat source for differentiation of the parent planets. A report of excess ^{26}Mg in a hibonite clast from Dhajala (H3) shows that ^{26}Al was not limited to CAI's in carbonaceous meteorites (Hinton and Bischoff, 1984).

Table 1
Mg in Vaca Muerta Plagioclase

Sample	F_{Mg}[a] ‰ amu^{-1}	$\delta^{26}Mg$[b] ‰	$^{27}Al^+/^{24}Mg^+$[c]	DLT[d]
#3 (250 μm)	−1.5 ± 4.4	0.5 ± 1.7	10- 45	Y
#4 (200 μm)	−1.7 ± 2.6	0.6 ± 0.8	20- 50	Y
Composite[e]	−2.4 ± 2.2	0.5 ± 0.9	20-140	Y

[a]Isotope fractionation factor from the raw measured $^{25}Mg/^{24}Mg$ (2σ uncertainty);
[b]Deviations in $^{26}Mg/^{24}Mg$ from normal, corrected for isotope fractionation ($2\sigma_{mean}$ uncertainty);
[c]Range of ion beam intensity ratios during run;
[d]Samples analyzed by the direct loading technique (DLT);
[e]Composite of 10 crystals; analysis of 10% aliquot of dissolved sample.

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ASTEROID-METEORITE CONNECTION: REGOLITH EFFECTS IMPLIED BY LUNAR REFLECTANCE SPECTRA

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A major component of absorbing lunar-like agglutinates is not expected in asteroid soils (Housen and Wilkening, 1982; Matson *et al.*, 1977), which should instead contain mostly lithic fragments. To estimate the effects of soil formation on the spectral characteristics of asteroids we thus need to consider in situ properties of materials affected by the space environment other than those associated with agglutinates.