

A CHEMICAL STUDY OF THE ABEE CONSORTIUM SLICE

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We have measured the abundance of 28 elements by instrumental and radiochemical neutron activation analysis in four splits from three clasts from the Abee meteorite. In clasts 1.1.3, 2.1.2 and 2.2.4, Ca/Mg has typical E chondrite values although Al/Mg in the remaining clast (3.3.2) is much higher than even CV values. The other refractory lithophiles scatter too much for any conclusions concerning their classification, presumably any element trends are completely obscured by sample inhomogeneity. It is frequently possible to identify the mineral responsible for the scatter by plots like those in Figure 1. (1) Fe, Co, Ni, Au, Ga, Ge, As and Sb have very similar distribution patterns and reflect metal abundances. Ir and Os are the only siderophiles which do not conform precisely, being depleted $\times 2$ in clast 2.1.2. These siderophiles show anomalous behaviour in several other chondrite groups and it is assumed to be a nebular effect. (2) Na, Se, K, Al, Cr, Mg and Ca are located in silicate phases. Their abundance patterns are the simple inverse of elements in group 1 and again reflect variation in metal abundance. (3) Lu, Yb, Sm, La, V and Ti are probably all located in fairly refractory lithophile phases which condense ahead of metal. It is not unlikely that they would be located in a common assemblage, although this has not been observed petrologically. (4) Zn, Mn and Sc show identical variations between the clasts; Cd is similar but drops more in 3.3.2. This probably reflects variation in sulfide abundance, in which case Sc is apparently located largely in CaS.

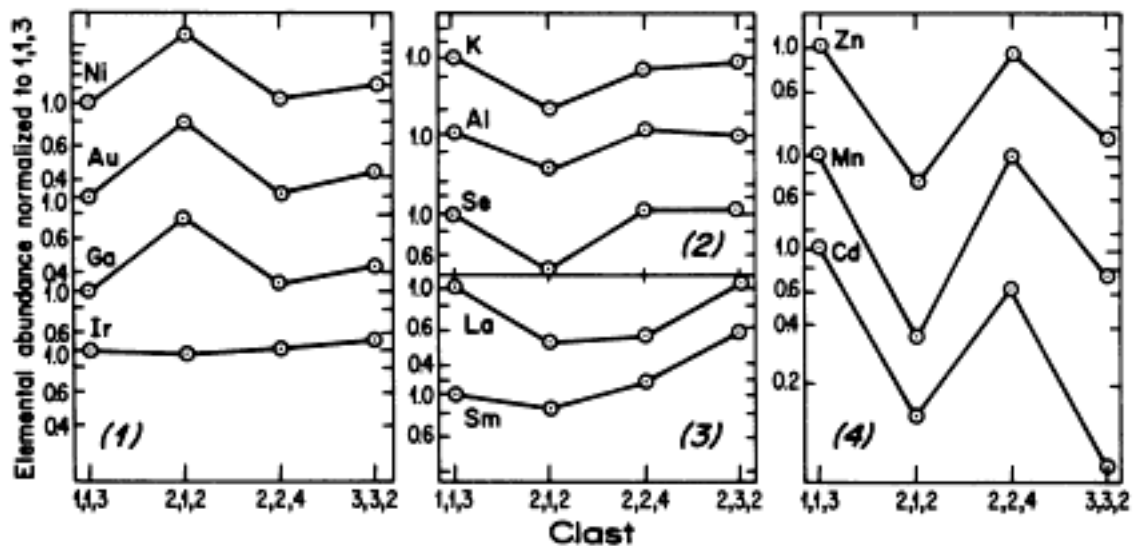


Fig. 1 Elemental abundances in four splits from 3 clasts in the Abee meteorite, normalized to clast 1.1.3.