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### **Lithophile elements in IVB iron meteorites.**

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IVB iron meteorites are a well studied group of magmatic irons. There exists a large data set of siderophile refractory and moderately volatile elements (e.g., [1]). The compositional range preserved can be modelled by fractional crystallization over a temperature range of 1760 K to 1700 K under oxidizing conditions IW-1. At such conditions the silicate proportion of the IVB parent body must have been molten. Metallographic studies reveal extremely fast cooling rates at 475 to 5000 K/Ma at low T (600 to 400 °C) [2].

We obtained data for Si, Al, Mn, V, Cr and P in four IVB irons, Tlacotepec, Hoba, Santa Clara, and Skookum by SIMS analyses. CI normalized abundances of P, Cr, Mn, V, and Si in IVB metal follow a depletion sequence expected from metal/silicate partition coefficients at IW. Some lithophile elements, Mn and V, apparently preserved the signature of a parent melt and indicate metal/silicate equilibration under highly oxidizing conditions and high T.

[1] Campbell A. J. and Humayun M. 2005. *Geochim. Cosmochim. Acta* 69:4733–4744. [2] Yang et al. 2010. *Geochim. Cosmochim. Acta* 74:4493–4506.

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