

Seminar 13 (to follow Lecture 14)

“Trace element partitioning in Earth’s lower mantle and implications for geochemical consequences of partial melting at the core-mantle boundary”, by Hirose, Shimizu, van Westrenen and Fei., Phys. Earth Planet. Int., 146, 249-260, 2004.

“Silicate perovskite-melt partitioning of trace elements and geochemical signature of a deep perovskitic reservoir”, by Corgne et al., GCA 69, 485-496, 2005.

Although the pressure dependence of partition coefficients for a given mineral/mineral or mineral/melt has received little study, the change in mineralogy with increasing pressure in the earth is important and has received considerable attention.

In particular partitioning of TE between metal (Fe-Ni), silicate and sulfide melts is important for understanding core formation. Also see papers in Section IV of Appendix 1 accompanying Lecture 7.

An understanding of TE partitioning among high pressure, mantle phases, such as perovskite, is essential for constraining mantle evolution. For background see “Early Earth Differentiation” by Walter and Tronnes, EPSL, 225, 253-269, 2004.

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