The partition coefficients of siderophile elements between sulfide and silicates at high pressure and temperature

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In the previous study on the partition coefficients of siderophile elements between metallic iron and silicates, experiments were conducted low pressure and temperature. Also, the experiments in system contains sulfur were not conducted.

This work aims to clarify the effects of sulfur content in the metal phase on the partition coefficients of Mo and W. Experimental conditions were at 15 GPa and 2773K. The partition coefficients of Mo and W were expressed by the regression equation reported by Righter et al. (1997). The partition coefficients of Mo shows a little change on the content of sulfur in the metal increased, but W strongly shows decreasing trend.

The mantle abundances of Mo and W are explained by metal-silicate equilibrium at the temperature of 2923K and pressure of 22 GPa.