

Element partitioning between wadsleyite and hydrous ultramafic melt at high pressure

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In order to understand magmatism and chemical evolution of the Earth's interior, element partitioning between wadsleyite, garnet, and hydrous ultramafic melt has been investigated at 16 GPa and 1600 degC. High pressure and high temperature experiments were conducted using a Kawai-type multi-anvil high-pressure apparatus (PREM) installed at Earthquake Research Institute, University of Tokyo. The starting material was prepared from a mixture of JB-1 (powdered standard rock sample of alkali basalt distributed by the Geological Survey of Japan), SiO₂, Mg(OH)₂, and Fe₂SiO₄. A suite of trace elements were doped using standard solutions in nitric acid. This mixture was denitrified and loaded into AuPd capsule. Major and trace element composition of the phases in recovered sample was analyzed using the JEOL JXA-8800 EPMA and LA-ICP-MS, respectively. Experimental results and their implication for magmatism and chemical evolution of the Earth's interior will be presented.