

High-pressure phase relations in the system CaMgSi₂O₆-CaFeSi₂O₆ and the solubility relation between Mg- and Ca-perovskites

Yohei Sasaki[1], Kiyoshi Fujino[2], Nagayoshi Sata[3], Takehiko Yagi[4]

[1] Earth and Planetary Sci., Hokkaido Univ., [2] Divi. of Earth and Planetary Sci., Hokkaido Univ., [3] ISSP, [4] Inst. Solid State Phys, Univ. Tokyo

High-pressure(20-40 GPa,1600-1800C) phase relations in the system CaMgSi₂O₆-CaFeSi₂O₆ have been studied using diamond anvil cell experiments, synchrotron X-ray diffraction and analytical electron microscopy. The results show that starting material pyroxenes with Di₁₀₀-Di₈₅Hd₁₅ decompose into (Mg,Fe)- and Ca-perovskites, those with Di₈₅Hd₁₅-Di₅₅Hd₄₅ decompose into (Mg,Fe)- and Ca-perovskites, stishovite and magnesiowustite, and those with Di₅₅Hd₄₅-Di₀Hd₁₀₀ decompose into Ca-perovskite , stishovite and magnesiowustite.