Phase boundaries of garnet-perovskite transition in the system Mg4Si4O12-Mg3Al2Si3O12

Masaki Akaogi [1], Eiji Ito [2]

[1] Dept. of Chem., Gakushuin Univ., [2] ISEI

Enthalpies of perovskite solid solutions in the system Mg4Si4O12-Mg3Al2Si3O12 were measured, and the boundaries of garnet-perovskite transition were calculated. The results show that the

transition occurs at about 660-730 km depth and the slope of the boundaries is about 2 MPa/K in a pyrolite mantle. This indicates that resistance to mantle convection due to postspinel transition is reduced by the positive slope boundary of the garnet-perovskite transition.