Density and seismic velocity of mantle transition zone: Komatiite?

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Duffy & Anderson(1989) proposed that transition zone contains less olivine than pyrolite in order to match with seismic data.

We conducted high-P, high-T experiments on a Al-depleted komatiite which can be regarded as a composition to satisfy the Duffy & Anderson's model. Our results (14 experiments along a model geotherm between 5-23GPa, 1100-1600 C) show that the density of komatiite fits with seismic observations better than pyrolite in the transition zone. Our experiments show that relatively steep increase in velocities throughout the transition zone is due to successive phase transitions of Cpx/Majorite, beta/gamma, and Majorite/Ca-perovskite.