Seismic wave velocity structure deduced from mantle convection models

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In this study, the 2-dimensional box-type mantle convection model with aspect ratio of 1:2 was constructed. The obtained temperature structure was converted into seismic wave velocity structure. Consequently, when the viscosity of the lower mantle is 30 times as high as that of the upper mantle, compared with the case which the viscosity of them is equal, the force of upwelling becomes weaker and the seismic velocity becomes slower. When there is the 660km phase transition, the region where temperature is low and seismic wave velocity is fast can be seen in the upwelling region, and the region where temperature is high and seismic wave velocity is slow can be seen in the downwelling.