

## Effect of pore fluid on seismic velocity of serpentinite and the origin of high $V_p/V_s$ in mantle wedge

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Serpentine is one of the candidates to explain low-velocity anomaly and high  $V_p/V_s$  in mantle wedge. However, extremely high  $V_p/V_s$  found beneath Kanto and southwest Japan requires the presence of aqueous fluid in addition to the serpentinites. In this study, we investigated the effect of pore fluid on elastic-wave velocity of antigorite during triaxial deformation using intra-vessel apparatus at  $P_c = 10\text{--}20$  MPa,  $P_p = 5\text{--}10$  MPa and room temperature. Compressional and shear-wave velocities decrease during deformation, possibly due to the formation of micro-cracks in the specimen. Since shear-wave velocity changes more drastically than compressional-wave velocity,  $V_p/V_s$  increases during deformation, which is consistent with the crack model by O'Connell and Budiansky (1974). In future, we are going to monitor volume change of pore fluid during deformation, and discuss the amounts of pore fluid to explain the observation of high  $V_p/V_s$  in mantle wedge.

Keywords: serpentinite, seismic velocity, pore fluid