Three dimensional shear wave structure in the upper mantle beneath the oldest Pacific plate

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Pacific Array, which is a large-scale virtual array experiment covering the entire Pacific Ocean by repeating 1-year seafloor observations in various part of the ocean to reveal the physical nature of the lithosphere-asthenosphere system (LAS), has been launched in 2018. As a first part of the Pacific Array, Japan-South Korea joint group conducted a one-year seafloor observation (Oldest1 Array) with 12 broadband ocean bottom seismometers and 7 ocean bottom electro-magnetometers in 2018 on the oldest seafloor in the Pacific ocean, located 1000 km east of the Guam island, to reveal the evolution of the oldest part of the Pacific plate. We measured the phase speed dispersions of Love and Rayleigh waves up to 4th higher mode with Oldest1 Array data, as well as available broadband data in the Pacific Ocean. The obtained model suggests that large-scale anomalies are similar to our previous model (Isse et al., 2019, EPSL). However, beneath the Oldest1 Array, we found that lithosphere is faster and thicker than those in the previous model. We plan to show preliminary results focused on small scale anomalies in the oldest Pacific Ocean.

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