

## Three-dimensional shear wave speed structure beneath the South Pacific superswell

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We determined three-dimensional shear wave speed model beneath the South Pacific superswell down to a depth of 200 km by analyzing broadband data from broadband ocean bottom seismograph stations and island stations in the Pacific Ocean. The temporal BBOBS stations from 2003 to 2005 on the seafloor and temporal island stations by the PLUME project from 2001 to 2005, both in the French Polynesian region, enabled to study the upper mantle structure beneath the Superswell with an unprecedented high resolution. Resolution analyses indicates that these stations improve the lateral resolution substantially to about 400 km. We measured the dispersions of fundamental mode of Rayleigh waves at periods between 40 and 140 seconds by a two-station method. We found pronounced slow anomalies near hot spots and in the Lau Basin. The slow anomalies beneath the hot spots have deeper-rooted than slow anomalies associated with spreading ridges such as the Lau basin. The slow anomalies near the Society, Macdonald, Marquesas, and Pitcairn hot spots are continued down to at least 200 km depth. The slow anomalies beneath the Samoa, Rarotonga and Arago hotspots are only existed at depths shallower than 80 km.