

## Shear velocity and attenuation of the mantle beneath the Ontong Java Plateau based on an analysis of multiple ScS wave

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\*Daisuke Suetsugu<sup>1</sup>, Hajime Shiobara<sup>2</sup>, Hiroko Sugioka<sup>3</sup>, Aki Ito<sup>1</sup>, Takehi Isse<sup>2</sup>, Yasushi Ishihara<sup>1</sup>, Satoru Tanaka<sup>1</sup>, Masayuki Obayashi<sup>1</sup>, Takashi Tonegawa<sup>1</sup>, Junko Yoshimitsu<sup>1</sup>, Takumi Kobatashi<sup>3</sup>

1. Japan Agency for Marine-Earth Science and Technology, 2. Earthquake Research Institute, the University of Tokyo, 3. Graduate School of Science, Kobe University

The Ontong Java Plateau (OJP) in the southwest Pacific is the largest oceanic Large Igneous Provinces (LIP) on Earth. Detailed seismic structure of the plateau has not been understood well because of sparse seismic stations. We investigated seismic attenuation of the mantle beneath the plateau by analyzing temporary seismic stations on the seafloor and islands in and around the plateau. We analyzed the spectra of multiple ScS waves to determine the average attenuation of the mantle ( $Q_{\text{ScS}}$ ) beneath the plateau. We estimated the average  $Q_{\text{ScS}}$  values for the paths with bounce points located in the plateau to be 309, which is significantly higher than the average (i.e., weaker attenuation than average) estimated in the western Pacific and is close to that of stable continents. We obtained positive residuals of 6 s for travel times of multiple ScS waves, which indicate that the average S velocity in the entire mantle beneath the OJP is low. While the positive residuals is at least partially attributable to the Pacific Large Low Shear Velocity Province (Pacific LLSVP), it is difficult to conclude whether low-velocity anomalies are required in the OJP upper mantle to explain the residuals from the multiple ScS analysis.