

Estimation of Subsurface Structure using Microtremor Observation in Ogasawara Iwo-To Island

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Ogasawara Iwo-To island is an active volcanic island which is located on the southernmost part of Izu-Ogasawara arc. The microtremor observation was carried out during the period from December 18 to 21, 2013 in Ogasawara Iwo-To island. The microtremor measurements were performed at 54 sites as 3-component seismometers for horizontal-to-vertical spectral ratio (HVSR) analysis. The obtained HVSRs of microtremor are used to determine the dominant frequencies of vibration of the subsurface structures beneath several recording sites in Ogasawara Iwo-To island. The H/V peak period varies from 1.1 to 3.5 sec.

For using the SPAC method of microtremor, the circular-array microtremor data were recorded by 6 seismometers distributed along the circumferences of two circles as well as a seismometer deployed in the center at two sites in the center of the island. The phase velocities and the S-wave velocities of the subsurface structures down to a depth of several km were estimated at each site from the microtremor data by using the SPAC method.

Keywords: microtremor, Ogasawara Iwo-To Island, subsurface structure