

Rough Estimate of P-wave Velocity beneath the VERA Ishigaki Island Station for Improving Accuracy of Gravity Analysis

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To detect gravity changes due to slow-slip events beneath Ishigaki Island, one superconducting gravimeter has been installed at a VERA (VLBI Exploration of Radio Astrometry) station in the island. Because this station is placed on sedimentary deposits in level land near a mountain, rainfall around the station may fluctuate nearby underground density distribution. One three-component short-period seismometer has also been installed at the station since March 5, 2012. To explore the variation beneath the station, differential arrival times of direct P-wave at the station relative to a nearby permanent (F-net) station are analyzed for three regional or teleseismic earthquakes. The seismometer at the permanent station, which is located about 1 km apart, is installed in a mountainside tunnel within the granite basement. By contrast, the VERA station is located on the sediment with a thickness of 15 m. Ray paths to the stations are almost same except for the structure just below them. Differential arrival times to the stations with epicentral distance correction thus depend on the differences of the station heights and of the velocity beneath the stations. In this talk, we obtain the P-wave velocity in the sediment beneath the VERA station and discuss its changes over time with rainfall.