

Estimation of hydraulic properties of sub-sea formation using continuous pore pressure measurement at offshore Shiranui

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Distribution of the hydraulic potential of groundwater and the hydraulic properties of sub-sea formation are necessary information to understand groundwater flow in the coastal zone, and to assess environmental impacts of SGD (submarine groundwater discharge) to the coastal sea.

In this study, pore pressures of sub-sea formation were continuously measured at three different depth intervals (A: 7.0-10.6 meters below sea floor (mbsf), B: 2.5-27.6 mbsf, C: 36.0-41.0 mbsf) in tuff breccia overlain by unconsolidated clay layer in offshore Shiranui, Kumamoto. Pore pressure data showed that the ambient excess pore pressures (than hydrostatic pressures) were determined to be 3.82 kPa, 10.4 kPa and 11.3 kPa, respectively. From the analysis of tidal signals, it was found that the amplitudes of the tidal components of pore pressures decayed and the phases advanced with the increase of depth.