

## In-situ calibration of borehole strainmeter and tiltmeter at the new wells in and around the Kii Peninsula and the Shikoku Island

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GSJ, AIST constructed twelve groundwater observation stations for the prediction research of the Tokai and Tonankai earthquakes in FY2006-2008. In these stations there are three wells of 600, 200 and 30 m in depth, and we deployed not just groundwater level and groundwater temperature sensors, but tiltmeter and borehole strainmeter that is either the Ishii's Strainmeter or the Gladwin Tensor Strainmeter (GTSM). The Ishii's Strainmeter equipped a four-component horizontal and a vertical strain sensor, a two-component tilt sensors and a three-component seismometer. The GTSM equipped a four-component horizontal strain sensor. We need calibration of the strainmeter and the tiltmeter after the deployment. Here, we report the preliminary results of the calibration of the strainmeters and tiltmeters by comparing the theoretical tidal strain.

Calibration of the strainmeter and tiltmeter deployed at the Ichiura (ICU) station in the Kumano-city, Mie-prefecture was executed. The observation was started at May 2007. Firstly we computed the theoretical tidal strain and tilt of  $M_2$  and  $O_1$  tidal constituents at ICU using the computer program GOTIC2 (Matsumoto et al., 2001). After that we compare the amplitude and phase shift of the theoretical  $M_2$  and  $O_1$  tidal strain / tilt with the tidal amplitude and phase shift extracted from observed tilt and areal strain which is composed by two of the four strain sensors. These preliminary internal consistency check shows that all two tilt sensors and four strain sensors are almost consistent with the theoretical tide, but amplitudes of the observed strain are 3-4 times as large as the that of the theoretical tide. We also determined calibration coefficients of the strainmeter when we suppose the surrounding medium is either isotropic or anisotropic.