

Hydrological disturbances on gravity at Ishigakijima and experiments for their monitoring

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In 2012, we started continuous gravity observation using a superconducting gravimeter (SG) at the VERA Ishigakijima stations, to detect the signal of long-term slow slip that occurs beneath the Yaeyama Islands. Although there are short missing data caused by a power failure (e.g. by typhoon), we have almost continuously acquired the SG data. However, it is not easy to identify the signal originating from the slow slip events, mainly because the effects of the atmosphere, the ocean and the underground water on gravity are correlated with each other in a complicated manner. In addition, microseisms with large amplitude appear to cause nonlinear responses of the gravimeter (Imanishi et al., this meeting). The hydrological effects are regarded as most important, but it is difficult to model them. For the further study of local hydrological gravity disturbances, we newly installed profile-type soil moisture meter and seismometers. In addition, we are planning seismic exploration around the VERA Ishigakijima station. On the SG, we replaced the compressor in August 2014, then, in January 2015, we replaced the refrigerator and carried out the liquid helium refill. Just before this liquid helium refill work, we carried out parallel observation with an absolute gravimeter FG5(#217) and the SG. We will also talk about these maintenances.