

Trial for detection of the slow slip event in the Tokai area by borehole strainmeters

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The slow slip event, a phenomenon of anomalous increase of non-steady displacement in a wide area, is being detected by GPS network in the Tokai area since 2001 (GSI,2001). The borehole strainmeters of JMA cannot detect this phenomenon yet. There is a possibility that ground deformation is masked by changes caused by rainfall and groundwater flow. We tried to eliminate these water effects by applying the multiple regression and autoregression analysis method based on minimum AIC, the MR-AR method, which has been developed by Matsumoto(1992).

We succeeded in eliminating the water effects for the strain data at Higashi-izu station and could find clear strain changes caused by seismic swarm activity in the east-off Izu peninsula. However, we cannot find remarkable strain changes associating with the Tokai slow slip event in the strain data at Omaezaki and the other stations. Difficulty in detecting the slow slip event can be caused by non-linear effects of intense rainfall and/or artificial water. There can be also a limitation for detection of such a long term phenomenon as the Tokai slow event by small size sensor.