

Seasonal Variation of Strain observed at Tsuruga Station

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Meteorological Research Institute has continuously observed crustal strain by borehole-type three-components strainmeter at the Tsuruga observation station (Fukui Prefecture) from June 1996, for the observation of a crustal deformation about Tsuruga-Aebano fault system in northern part of the Kinki district. We report on the relation between the amount of rainfall and the seasonal variation that is characteristically seen in one component of strain.

A clear season variation is observed only at the ST3 component (direction of N22E). The amplitude of the seasonal variation is about 0.6×10^{-6} strain when averaging in a maximum of 1.2×10^{-6} strain, a minimum of 0.3×10^{-6} strain. As one of the cause of such variation, underground water level change is thought of. We have also observed underground water level change in the observation well of the Tsuruga station. However, because influence of the water level rise by direct inflow continued for more than one year, it is impossible to think that the data reflects underground water level around the station and the underground water level data cannot be used for the comparison with strain data. Therefore, we used the rainfall data and the strain data of 9 years and examined relation among them.

As a result, it found that correlation between them is high at the period from 80 days to 1 year, and that the strain variation became delay on about 20 days than in the rainfall change. From the facts that variation of the period of longer than one year which was contained in the rainfall variation wasn't found in the strain variation, and that the correlation was lower in the case of numerous rainfall, it isn't enough to use rainfall data for correction of the strain variation. It is necessary to precisely revise a model that converts from rainfall variation to the underground water level variation.