

Relations between precipitation, underground water level and strain change at Yugawara station

Takeyasu Yamamoto[1]; Akio Kobayashi[1]

[1] MRI

MRI has observed the underground water level since April 1985 at the Yugawara volumetric strain observation station of JMA. Koizumi and Yoshida (1989) reported the characteristics of the short-term relation between strain change and water level change. We report results of investigation on the long-term relation between strain, water level and precipitation.

We used data of the volumetric strain and the underground water level observed at Yugawara, and data of precipitation observed at Ajiro from January 2000 to September 2006. The underground water level decreased rapidly at once after increasing immediately behind a rain fall, but the strain change progressed more slowly. These facts show that the observed underground water level change does not directly contribute for the strain change. Therefore, we investigated relation between precipitation and underground water level, and relation between precipitation and strain. As a result, we found that each change could be approximately expressed in setting a smaller outflow coefficient for strain than for underground water level. It was thought that the observed underground water level does not reflect the whole underground water level which influences a strain change.