

Changes in groundwater level and borehole strain data associated with the 2018 Osaka Hokubu earthquake (M6.1) at the Takarazuka observatory

*Norio Matsumoto¹, Tsutomu Kiguchi¹

1. Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology (AIST)

Groundwater level sensor and the Sakata-type three-component borehole strainmeter was deployed at the Takarazuka observation well in 1996. We observed changes in groundwater level and borehole strain data associated with the 2018 Osaka Hokubu earthquake (M6.1) at the Takarazuka observatory, which is located 26 km away from the epicenter of the earthquake. Observed groundwater level change was 14 cm decrease just after the earthquake, then, we observed rapid increase: 25 cm increase after one hour and 4.2 m increase after 8 days of the earthquake. These changes in groundwater level cannot be explained by the static strain change associated with the earthquake. We compare these changes with the changes in groundwater level and borehole strain data associated with the other distant and local earthquakes in these 20 years.

Keywords: groundwater level, strain, Osaka Hokubu earthquake