

## Changes in groundwater level due to the 2003 Tokachi-oki earthquake detected by the observation well network of AIST

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Observations of groundwater level and flow rate at 44 wells are continued by Geological Survey of Japan and Shizuoka and Gifu Prefectural Governments for monitoring seismic and volcanic activities. The 2003 Tokachi-oki earthquake (M 8.0) occurred off the south coast of Hokkaido Island, Japan on September 26, 2003. The epicentral distance to the nearest observation well is about 250 km and that to the farthest is about 1200 km. At the 22 wells, we detected changes in groundwater level or flow rate in relation to the earthquake. The most of the changes are coseismic step-like change and/or short-period oscillation. In the nearest two observation wells, long-period oscillations with the periods of 39 and 53 minutes were also observed for several days after the earthquake, which is likely due to tsunami. In comparison between distributions of the changes in groundwater level and theoretical coseismic strain by the fault model, it is clear that the step-like increases were found in the contraction area of the coseismic strain. Relationship between amounts of the observed step-like groundwater-level changes and theoretical ones calculated by the fault model using strain sensitivities of groundwater level indicates that the groundwater levels in the several wells responded to the coseismic strain.

