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# Crustal strain and groundwater level changes in Japan associated with the 2010 Chile Earthquake (M8.8)

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Active Fault and Earthquake Research Center (AFERC), Geological Survey of Japan, AIST has a network composed of about 50 groundwater observation stations in and around the Tokai, Kinki and Shikoku areas in Japan. At these stations, groundwater levels are observed. At about half of the stations, crustal strains and seismograms are also observed by the borehole strainmeters and seismometers. At February 27th, 2010, an earthquake (Mw8.8) occurred in Chile. At the above stations of AFERC, the oscillations of crustal strains and groundwater levels were observed with seismic waves of the earthquake. The analysis shows the responses of groundwater levels to crustal strain changes are dependent on frequency of the oscillations. In addition, on the following day, the fluctuations of crustal strains and groundwater levels due to tsunami were observed. We will report these observation and analysis results.

Keywords: Chile Earthquake, crustal strain, groundwater level, poroelastic theory, frequency dependence, tsunami