

## Coseismic and long term temperature change of hot spring water observed in San-in district

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Coseismic temperature changes due to several earthquakes were observed in hot springs in San-in district where we maintain observation network consist of 15 spa sites after the 2000 Tottori-ken Seibu earthquake. The changes occurred by not only near-by earthquakes but also huge earthquakes in long distance; e.g. the 2004 Sumatra and the 2008 Wenchuan earthquakes. The 2008 Wenchuan earthquake brought temperature rise in several days and decay in several dozen days in two spa sites that have characteristic changes. We assume effects of long period surface waves that cause the changes by such long distance earthquake. In fact assumed and observed amplitudes by the large long distance earthquakes is large enough to be able to compare with those by near-by earthquakes. It suggests that the source of hot spring in deep crust might be excited by long period ground motion.

We also observe very long term unidirectional trends of hot spring temperature. If the trend tells us stress conditions in deep crust, observation of hot spas could be a window to estimate stress accumulation and changes in seismogenic zone.