

## Seismicity and crustal movement in Hokuriku region

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We show the epicenter maps for microearthquake distribution in the Hokuriku region, and there temporal changes, regional changes of b values, for 1976-2011. Also three extensometer data in the tunnel of the Hokuriku observatory from 2006 to 2011 will be shown.

Two data sets were used. One is THANKS data made from 4 observatories of Kyoto Univ. for 1976 - 1998, and the other is JMA catalogue for 1999 - 2011. Earthquakes often happen as aftershocks in the region, however, some swarm-like earthquakes occur where no earthquakes had happened before. We found 3 regions, in each of them, the temporary change of b value were similar, namely Tanba, Fukui, Yoro-Nobi.

We set 3 extensometers from 2006 in the tunnel near the Hokuriku Observatory. All of these extensometers show big changes in 2008. And most clearly,  $5.0E-6$  change through 1 year almost in EW direction. The GPS SABAE-FUKUIKEDA also shows a big change pattern in the same year.

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