

Variation in concentrations of gases dissolved in groundwater at Toyohashi station and neighboring seismic activity

Naoji Koizumi[1], Makoto Takahashi[2], Eikichi Tsukuda[3], tsuneo yamauchi[4], George Igarashi[5], Akira Kubo[6]

[1] Earthq.Res.Dep.,GSJ, [2] GSJ, [3] Geological Survey of Japan, [4] RCSV, [5] Lab. for Earthq. Chem. Univ. of Tokyo, [6] Ulvac

<http://www.aist.go.jp/GSJ/~koizumi/koizumi.html>

In cooperation with Nagoya University, Geological Survey of Japan has observed levels and temperatures of groundwater, gases dissolved in the groundwater, crustal strain and crustal tilt at the observation well in Toyohashi city in Aichi Prefecture since 1998. Using the system composed of a quadrupole mass spectrometer and a gas permeable membrane (Igarashi et al., 1997), we measure concentrations of several gas components such as H₂, He, CH₄, N₂, O₂, Ar and CO₂ every two minutes. Two earthquakes of magnitude 4.7 occurred around Toyohashi City on May 7, 1999 and November 29, 1999. Before and after these two earthquakes, H₂/Ar ratio in the groundwater of the observation well changed anomalously.

In cooperation with Research Center for Seismology and Volcanology, Nagoya University, Geological Survey of Japan has observed levels and temperatures of groundwater, gases dissolved in the groundwater, crustal strain and crustal tilt at the observation well in Toyohashi city in Aichi Prefecture since 1998. We have also observed gases dissolved in discharged water in the crustal movement observation tunnel near the well (Yamauchi and Shimo, 1982; Yamauchi, 1992). Using the system composed of a quadrupole mass spectrometer and a gas permeable membrane (Igarashi et al., 1997), we measure concentrations of several gas components such as H₂, He, CH₄, N₂, O₂, Ar and CO₂ every two minutes.

Two earthquakes of magnitude 4.7 occurred around Toyohashi City on May 7, 1999 and November 29, 1999. Before and after these two earthquakes, H₂/Ar ratio in the groundwater of the observation well changed anomalously.

References

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