

A new automatic subsurface gas monitoring system at Haruno Borehole(Shizuoka).

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Various earthquake-related phenomena of groundwater system, i.e.; water-level fluctuations and changes of chemical properties of groundwater have been reported. Continual monitoring of gas bubbles issuing from groundwater wells and springs has been carried out from a view point of seismo-geochemical earthquake prediction. On the uprising process of groundwater from deep aquifer to surface, gas components of groundwater are separated from the groundwater because they are oversaturated at the surface condition. They are called gas bubbles associated with groundwater.

Haruno Borehole locates at Hamamatu city, Shizuoka Pref. ($34^{\circ}57'$ N, $137^{\circ}53'$ E).The casing reaches the depth of 500 meters and the geology of borehole site is the alternation of shale and sandstone of the Shimanto Belt. By using a new automatic gas monitoring system equipped Micro-Gas Chromatograph as the analyzer, the chemical composition of gas bubbles has been determined from Dec., 8, 2006 to Jan., 4, 2007 for the purpose of a test of the new system. The carrier gas of GC is O₂ and He, H₂, Ar, N₂ and CH₄ have been analyzed. The gas analysis was made in every one hour, because it is difficult to sample the enough volume of gas in a short time period owing to low flow rate. It was confirmed that a new system works as expected and gives us good data on gas composition of groundwater in the Haruno Borehole.