Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

SCG64-P01 Room:Convention Hall Time:May 21 18:15-19:30

Variation of concentration of dissolved gas in groundwater observed at Atotsugawa station

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A fault zone can be regarded as paths of crustal fluids. Quantification of chemical properties of the fluids penetrating the fault zone and their variation with time are important subjects to understand the relationship between fault zone activity (earthquake) and geochemistry. For the data from continuous monitoring of the fluids in the fault zone, local variations by difference in geological structures, the seasonal variation and secular change are should also be taken into account.

A new machine for continuous monitoring of dissolved gas using a quadrupole mass spectrometer (GROWDAS:GROund Water Data Analyzing System) is established and started measurement at Atotsugawa in Gifu Prefecture. In recent 10 months, we captured specific signature of chemical variation with time. We examined the factors that cause changes in the concentration of dissolved gas by comparing a variety of factors (temperature, pressure, precipitation, crustal movement). In this presentation, we discuss fundamental processes of change in chemical variations with time in the fault zone.