

AHW015-03

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Origin and genesis of deep crustal fluid component in groundwater in Japan

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As hydrothermal brines and carbonated waters have been found at places far from volcanoes, it is important to know their origin and nature to reveal the crustal fluid processes. In this study, we analyzed chemical and isotopic compositions of those groundwaters collected from deep wells and from self-spouting springs, and discuss their origin. The waters of Cl concentration higher than 1000 mg/l are selected to classify into three origin groups; fossil seawater, volcanic water, and non-volcanic water using hydrogen and oxygen isotope ratios. We also try to show information on spatial distribution of upwelling water and carbon from deep crust and helium gas from upper mantle, and discuss genesis of upwelling fluids and fossil seawater related to tectonic settings.

Keywords: crustal fluid, non-volcanic fluid, Arima-type water, slab dehydration, median tectonic line