Helium Isotopes in groundwaters from the Kobe area

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We have measured dissolved helium isotopes in groundwater from the Kobe area. Groundwater samples were collected from springs, shallow wells and deep boreholes (up to 1,000m). The results show some samples have high 3He/4He ratios relative to air-saturated water. On the 3He/4He vs. 4He/20Ne diagram, these samples plot on a mixing line between the data point of air-saturated water and that of component with 3He/4He = 3.7-3.8 x 10-6 (4He/20Ne: greater than 1,000). It is reasonable to consider that the Arima-type thermal water is present in deeper region of Kobe area and accumulates radiogenic He during its stagnation in deep-seated Quaternary sediments (Osaka group). Based on this assumption, we will estimate helium flux from sediments and up-welling thermal waters and discuss about the chemical characteristics of the Arima-type thermal water.