

Characteristics of thermal water and chemical sediments around Ohbuki spring and Yukawa stream from Tamagawa hot spring, Akita prefecture

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Abstract

Concentrations in thermal water and chemical sediments of the Ohbuki spring and Yukawa stream in Tamagawa hot spring area and their mode of distribution are investigated to examine transportation mechanisms on arsenic in natural environments using PIXE and atomic absorption spectrometry (AAS). Arsenic content of thermal water of the Ohbuki spring has a range from 1.8 to 3.4 ppm measured by PIXE, and has a range from 2.5 to 3.2 ppm measured by AAS. Arsenic content of thermal water of the Ohbuki spring ranges from 1 to 4 ppm based on the data measured by PIXE and AAS. Arsenic content (4 to 180 ppm) of chemical sediments consisting of native sulfur, tridymite and cristobalite at middle portion of Yukawa stream is higher than that (<1ppm) of chemical sediments of the Ohbuki spring. This tendency suggests that arsenic is precipitated according to decrease of temperature of thermal water into Yukawa stream that runs into Shibukuro stream.