

**Geochemical characteristics of suspended particles in water of
Shibukuro River-Tama River-Omono River system,
Akita prefecture, Japan**

Daizo Ishiyama¹, Hinako Sato¹, Toshio Mizuta¹ and Koichiro Sera²

¹Faculty of Engineering and Resource Science, Akita University
1-1 Gakuen-Machi, Tegata, Akita 010-8502, Japan

²Cyclotron Research Center, Iwate Medical University
348-58 Tomegamori Takizawa, 020-0173, Japan

Abstract

The chemical composition of residues larger than 0.45 μm in water of the Shibukuro River-Tama River-Omono River system was examined by the PIXE method to estimate the ratios of amounts of elements transported as suspended particles in total amounts transported by river water in the river system. The chemical composition of the river water is controlled by formation of suspended particles and absorption of elements on the surfaces of suspended particles. Arsenic in the river water is precipitated with iron at the point at which pH of the river water changes from 3.3. to 4.2 in the upper reach of the river system. Zinc is removed from the river water as absorption on suspended particles larger than 0.45 μm at the point at which pH of the river water changes from 5.7. to 6.2 in the middle part of the river system and in a lower reach of the river system where pH of river water is around 7. The amount of zinc transported as suspended particles in river water of the lower reach is estimated to be about 10% of the total amount of zinc transported by the river water.