

Geochemical characteristics of high-phosphorus spring water in Hachirogata land reclamation area, Akita prefecture

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Abstract

The purpose of this study was to clarify the geochemical characteristics of high-phosphorus spring water in Hachirogata land reclamation area, Akita Prefecture. Concentrations of major elements in the spring water and suspended materials over 0.45 μm in the water were measured using ion chromatography and the PIXE method. Cl concentrations of the high-phosphorus spring water were 34-69 mg/l, similar to the concentration range (25-66 mg/l) in Hachirogata residual lake water. Na^+ , K^+ and SO_4^{2-} concentrations in the spring water were high and Mg^{2+} and Ca^{2+} concentrations were low compared with concentrations in other water samples. The high-phosphorus spring water is thought to be derived from mixing of precipitation and agricultural water from a drainage pumping station in the southern part. The mixing ratio of precipitation to agricultural water (precipitation/agricultural water) is thought to be high for high-phosphorus spring water derived from shallow part and low for high-phosphorus spring water derived from deeper part.