

Elemental Analysis of Suspended Solids Determined by PIXE and the Estimation on Annual Amount of Mass Transfer in a River System

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Abstract

Water and suspended solids (SS) samples collected from Hinuma river system were analyzed by PIXE during a year to assess water quality and annual amount of elemental mass transfer. Among 11 sampling sites, the average SS concentrations were ranged from 1.4 to 12.7 mg L⁻¹. Elemental ratio of each element against aluminum in SS was affected by the geological environment and land use. The use of conventional equation ($L = a \cdot Q^b$) for SS and for each element showed the different values of a and b, suggesting the different tendency in response to the river water discharge among sampling sites. Annual amount of SS or elemental mass transfer in Hinuma river system were not always increased with the increase of the amount of water discharge from upstream to downstream.