



Temporal changes of the radiocesium concentration in river bottom sediment and suspended sediment in Fukushima

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We examined the temporal trend of Cs-137 concentration of river sediment and suspended sediment in Hamadori and Nakadori areas in Fukushima Prefecture from September 2011 to January 2017. We used 716 monitoring data by the Ministry of the Environment from 89 sites, and applied particle size correction to eliminate the influence of changes in particle size distribution in the concentration of Cs-137. Also, we also apply the activity concentration of suspended sediment in Cs-137 and compared.

The results showed that Cs-137 concentration decreased through the survey period in most sites, and the rates of decline were faster than previous studies on Chernobyl accident. The trends differed according to areas: in Hamadori area, the concentrations did not converge but showed approximately the same rates of decline (λ) at 1.13/y in during the initial 2 years but then gradually decreased in the Nakadori area. We also we found that particle-size corrected suspended sediment and bottom sediment agrees well in more than half catchment, but some catchment did not agree well. These data imply that the fast processes of interaction of dissolved radionuclides with suspended matter, but, slow processes of interaction of dissolved radionuclides with the bottom sediment interface layer in Fukushima river environment.