

## **Tracing the dispersion of sediment contaminated with radionuclides in catchments exposed to Chernobyl and Fukushima fallout**

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**Abstract** The Chernobyl and Fukushima nuclear power plant accidents led to the release of large quantities of radionuclides into the environment. Several of those radionuclides (e.g. <sup>134</sup>Cs and <sup>137</sup>Cs) strongly sorb onto soil particles. Once delivered to rivers by erosion processes and runoff, sediment redistribution can lead to the progressive dispersion of radioactive contamination into larger areas over time. This paper deals with case studies conducted in Russia (the 2000 km<sup>2</sup> River Plava catchment affected by Chernobyl fallout in 1986), and in Japan (the 5000 km<sup>2</sup> highly contaminated area of Fukushima Prefecture). A key prerequisite for undertaking studies of the subsequent redistribution of contaminated sediment in catchments and river systems is a good knowledge of the initial spatial pattern of soil contamination by fallout radionuclides. In this contribution, we check the local validity of the initial contamination map provided for the Russian case study site and outline the implications for conducting a similar study in Japan.

**Key words** fallout radionuclides; sediment tracing; nuclear accident; redistribution of contaminated sediment; catchment; agriculture