

Storm-driven flood and associated coastal dispersal of suspended radiocesium from Niida River: A high-resolution numerical assessment with a coupled river-ocean-wave-sediment model

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Niida River, Fukushima, is well known to supply highly contaminated suspended 137-Cs originated from the Fukushima Nuclear Power Plant to the ocean. We examine the oceanic dispersal and inventories of the sediments and suspended 137-Cs in the ocean floor derived from Niida River, using a quadruple nested JCOPE2-ROMS 3D circulation model in a very high resolution configuration, coupled with a 3D multi-class sediment transport model, the iRIC-Nays 2DH river sediment model, the SWAN spectral wave model, and a static 137-Cs absorption model. Our attention is paid to the particular storm and flood event associated with Typhoon 201326 (Wipha) passed off the Fukushima Coast, which provoked an enormous amount of precipitation and subsequent riverine freshwater and sediment fluxes to the ocean. We then quantitatively assess the accumulation and erosion of the sediments and resultant suspended 137-Cs inventories around the river mouth and nearshore areas.