

Modeling the oceanic flow field for investigating the dispersion of radioactive water along Fukushima coast Modeling the oceanic flow field for investigating the dispersion of radioactive water along Fukushima coast

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A numerical model is developed at the Earth Simulator Center, JAMSTEC, to investigate the dispersion of radioactive water released to the coast waters of Fukushima. This model is based on a three-dimensional particle random-walk model for simulating the dispersion of radioactive water and an ocean general circulation model for simulating the background oceanic flow field. While we were successful at modeling the dispersion of radionuclides similar to that observed, we also find the spatial variability in the oceanic flow field quite sensitive to model settings. Qualitatively, we find the radionuclides to be trapped mostly along the coast. However, differences in surface wind stress and heat flux products as well as maximum model depth gave different results. We will suggest that the differences in the development of coastal currents, meso-scale open oceanic eddy, and surface mixing to be the primary causes of the differences.

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