Geophysical Research Abstracts
Vol. 15, EGU2013-5079, 2013
EGU General Assembly 2013

Fukushima and the ocean

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The triple disaster of the March 11, 2011 earthquake, tsunami, and subsequent radiation releases at Fukushima Dai-ichi were unprecedented events for the ocean and society. The earthquake was the fourth largest ever recorded; the tsunami resulted in over 20,000 dead or missing and destroyed entire towns; and the radiation releases from the Fukushima Dai-ichi nuclear power plants created the largest accidental release of man-made radionuclides to the oceans in history— a release that continues to this day.

Compared to monitoring on land, studies of the ocean are far fewer, yet the area impacted and quantity delivered- 80% of all radioactivity released- is far greater. For oceanographers, this presents a challenge of unprecedented scope and complexity: to understand exactly how these events played out, how radiation continues to move through the marine system (including important seafood items), and, in turn, how best to communicate scientific findings that will inform public policy decisions far into the future.

This presentation will provide an overview of the sources and fate of radionuclides released from Fukushima to the ocean. An emphasis will be given on the sources of cesium, its transport in waters, and fluxes associated with sinking particles and accumulation in sediments.