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# The Specific Features of Pollution Transport in the Northwest Pacific Ocean

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Two calculations of pollutant dispersal in the Northwest Pacific Ocean are presented: (1) during possible shipwrecks in the process of spent nuclear fuel transportation from Petropavlovsk-Kamchatsky and (2) pollutant spread from the Japanese coast after the Fukushima 1 nuclear disaster on March 11, 2011. The circulation was simulated using a $\sigma$ - coordinate ocean model INMOM (Institute of Numerical Mathematics Ocean Model) developed at the INM RAS. The INMOM is based on the primitive equations using the spherical $\sigma$ - coordinate system with a free ocean surface.

The INMOM was realized for the Pacific Ocean basin from the equator to the Bering Strait with a high 1/8° spatial resolution for reproducing the mesoscale ocean variability. The pollutant dispersal in the case of possible shipwrecks was estimated for currents for a statistically average year with atmospheric forcing from Common Ocean-ice Reference Experiments (CORE) for normal year data. The pollution spread from the Fukushima 1 nuclear power plant (NPP) was estimated for currents calculated with the real atmospheric forcing in accordance with the NCEP GFS (0.5 degree grid). The simulation period of pollutant dispersal from Fukushima 1 was 17 days: from March 11 to 28, 2011.

The results of numerical simulation show that pollutant dispersal from the Fukushima 1 spread eastward according to the Kuroshio. Moreover, exceeding of natural background radiation level was simulated in the narrow region of the Japanese coast with width of less than 50 km.