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Expedition surveys of the sea water and atmospheric air radioactive contamination in the Russian Far Eastern coastal areas and in the North Western Pacific in connection with accident at the "Fukushima-1" NPP

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In accordance with decision of the Russian Federation Federal Service on Hydrometeorology and Environmental Monitoring (Roshydromet) on assessment of the sea water and atmospheric air radioactive contamination in the Sea of Japan and in Kurile-Kamchatka region of the Pacific ocean, in connection with accident at the “Fukushima-1” NPP, two expedition surveys were conducted in the Sea of Japan and in the North-Western Pacific (in the area adjacent to Kurile Islands and in the Kuroshio current selected area (coordinates 36°00’-39°33’ n., 146°33’-150°00’ e.): first survey April - May 2011, second survey August-September 2012. Both surveys were conducted under the Russian Geographical Society patronage. The results of measurements of Cs-137, Cs-134, Sr-90, Pu-239,240 and H-3 concentrations in the sea water samples and I-131, Cs-137 and Cs-134 concentrations in atmospheric aerosol samples are presented and discussed.

The data received allowed to conclude that the levels of contamination by products of accidental releases and discharges at “Fukushima-1” NPP observed in investigated water areas near the Russian Federation coast of the Sea of Japan and of the Kurile- Kamchatka region of the Pacific ocean have no hazard. However, these expedition surveys revealed large-scale contamination by Cs-137 and Cs-134 of water areas of the North-Western Pacific in the investigated region of the Kuroshio current. The Cs-137 concentration in sea water at a distance about 400 km from accidental NPP in April-May, 2011 reached 30 Bq/m3, which approximately 20 times exceed preaccidental level, and it was found that water mass till more than 100 m below the surface was contaminated.

For correct estimation of current and potential consequences of the “Fukushima-1” accident for the Far-Eastern water areas a special study is reasonable to perform of transport with marine currents of products of accidental releases and discharges at “Fukushima-1” NPP.