

Norwegian and Russian monitoring of radioactivity in air

The Joint Norwegian-Russian monitoring programme “Investigation of marine environmental radioactive contamination of the Barents Sea area” was established in 2006. In later years, this programme has been expanded to also include cooperation on air monitoring as described here.



The Norwegian air filter station at Svanhovd is demonstrated for Russian colleagues. Photo: Hilde Elise Heldal, IMR.

Objectives

The main aim of establishing the joint Norwegian-Russian monitoring programme was to provide information from both sides of the border on the status of radioactive contamination in the Barents Region. Through the availability of joint information, it is possible to better follow trends and changes in radioactive contamination levels.

Both Norwegian and Russian authorities perform air monitoring to detect radionuclides in ground level air. In both countries, this is considered to be a front line instrument in the established emergency and preparedness system.

The air monitoring in the Barents Region is performed by Federal State Budgetary Institution Murmansk Administration for Hydrometeorology and Environmental Monitoring (FSBI Murmansk UGMS) on the Russian side, and by the Norwegian

Radiation and Nuclear Safety Authority on the Norwegian side.

Monitoring systems – dose rates

On the Russian side, Murmansk territorial automated system of radiological control (MT ASKRO) is established under the regional target programme Environmental Protection in Murmansk Region. The ASKRO system allows continuous automated control of radiological and meteorological situation, alert notification of exceeding of the established threshold values for the gamma dose rate, collection and prompt transfer of data, and diagnostics of the components of the system. The data is published on www.kolgimet.ru.

On the Norwegian side, the dose rates are monitored under the RADNETT network. There are 14 fixed stations evenly distributed in Northern Norway and the Barents Region. The ambient dose rates are presented to the public on the RADNETT



The Norwegian and Russian dose rate monitoring systems with online, near real time publication. The map is compiling Norwegian and Russian data from 12.02.19.

website in near-real-time (<http://radnett.nrpa.no>). The RADNETT system triggers alarm to the officer on duty when typical exceeding 2× the normal background level measured at the specific location.

In conclusion, both nations have continuously running monitoring systems which publishes near real time updates on the radiological situation in the Barents Region. While the Russian threshold level is fixed, the Norwegian is adjusted for each location and time.

Monitoring systems – air filter stations

In Russia, sampling of atmospheric sprays at the stations Murmansk and Zasheyek is performed round the clock with the help of air-filter devices (VFU), for analytical absorption-filtering material. The sampler is running for 24 hours. Both stations are also equipped with charcoal filters to enable measurements of gaseous iodine. The air filters are measured on gamma detectors to detect both short lived and long lived man-made radionuclides.

There are three Norwegian high-volume air filter samplers located in the Barents Region (Viksjøfjell, Svanhovd and Skibotn). These are operated by DSA and filters are changed once a week. The air filters are analysed on gamma detector as soon as possible after changing filters. The data from the air monitoring are published in annual reports in the DSA report series.

According to observations by FSBI Murmansk UGMS, the activity concentrations of man-made radionuclides in the ground air and atmospheric fallouts in the Barents Region during the later years have been below the norms of radiation safety.

In Norway some very small traces of Cs-137 are occasionally detected. This is a natural variation in activity concentration occurring when Cs-137 deposited on the ground is transported back to the air by wind and caught in the filter. The effect is called "resuspension" and is most often seen in areas with higher levels of Chernobyl contamination.

The work under the Norwegian-Russian Expert Group on Investigation of Radioactive Contamination of the Northern Regions is coordinated by Roshydromet on the Russian side and the Norwegian Radiation and Nuclear Safety Authority on the Norwegian side. This expert group is working under the Joint Norwegian-Russian Commission on Environmental Protection coordinated by the Ministry for Climate and the Environment on the Norwegian side and the Ministry of Natural Resources and Environment on the Russian side.

The Expert Group coordinates a range of projects within governmental cooperation, including monitoring of decommissioning activities, risk assessments, emergency preparedness, environmental monitoring and joint cruises to specific sites of interest.