

Abstract submission form

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Abstract information

Presentation type [1]	Oral
Select one or more topic [2]	Operational aspects: from theory to practice
Subject of the presentation	Sea Eagle Radiation Monitoring Exercise 2019
Participation NERIS Young Scientist Award [3]	no
Proceedings of the Workshop 2020 [4]	no

[1] Copy paste:

Oral

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Both (The programme committee will choose oral or poster)

[2] Copy paste one or more subject(s):

Operational aspects: from theory to practice

Disaster management and resilience in communities

Preparedness for a sustainable recovery: including non radiological consequences and effects

Updating handbooks, guidelines and recommendations to support decision making

Future research needs

Other

[3] To promote young researchers, the NERIS platform awards a free participation to the 7th NERIS Workshop (2021) and diploma to the winner of the prize. To participate you must be under 35 years old in May 2020. **Answer: yes / no.**

[4] You can publish a full paper in the proceedings of the Workshop 2020 to be published by the end of 2020. The full paper deadline is 31st July 2020. If you're not sure yet, tell us and we'll come back at you on this after the Workshop. **Answer: yes / no / maybe.**

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Sea Eagle Radiation Monitoring Exercise 2019

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In October 2019, the County administrative board of Uppsala and the Swedish Radiation Safety Authority (SSM) arranged the Sea Eagle radiation monitoring exercise in Uppsala County with international participation. The exercise was part of an ongoing series of biannual exercises conducted by the counties where the Swedish nuclear power plants (NPP:s) are situated. The scenario was a severe accident at the Forsmark NPP. A customized dispersion calculation in the decision support system ARGOS was used to produce input for the simulated monitoring results. Monitoring teams gathered in Uppsala county about three days after the initiation of the accident in the scenario and after urgent protective actions had been implemented. The focus of the radiation monitoring campaign was to identify areas where early protective action, especially relocation, might be needed.

Two of the purposes of the exercise was to strengthen Sweden's ability to receive international assistance from other countries and to test the interoperability of multinational teams in a monitoring campaign. The International Atomic Energy Agency (IAEA) and the Nordic countries participated as part of a Response and Assistance Network (RANET) Joint Assistance Team mission to Sweden. In total, about 50 persons split into 17 teams conducted simulated radiation monitoring during two days in the field, of which about 25 persons were international participants as part of the RANET mission.

Prior to the exercise, SSM had developed a smart phone application that simulated dose rates and integrated dose received from ground deposition. In addition, simulation of dose rates from mobile surveys, dose rates at fixed monitoring stations and HPGe in-situ spectra was used. All simulations were based on the same ARGOS results. This contributed to a realistic experience of the monitoring challenges after a severe nuclear accident for the participants.

SSM was tasked with coordinating monitoring teams, together with the assistance mission leader from IAEA, and to produce decision support products for the incident commander appointed by the County administrative board of Uppsala. The teams in the assistance mission brought forth a broad picture of the fallout, already after one day. The second day was then used to further map the fallout and investigate locations of special interest such as villages, schoolyards and farms. Interoperability of monitoring results was achieved mainly by following the IAEA RANET and harmonization guidelines. Standard equipment, methods to use, and reporting templates had been agreed in advance to minimize time and effort spent on data conversion and manual translation.

The exercise provided decision makers with an opportunity to practice decision-making based on monitoring results rather than prognosis. Nearing the end of the exercise a decision to relocate people in the most heavily affected areas was taken. As the exercise was conducted during the early phase, and after the end of major releases, it allowed for more time for considerations and discussions on matters of radiological protection in connection to the decisions.

In conclusion, the exercise and the assistance mission was successful. Based on feedback from participants, especially the exercise format and the involvement of decision makers was appreciated. One of the main challenges identified by SSM during the exercise was quality control of the increased amount of incoming monitoring data. An important lesson learned is that some of the national or international teams instead could have been used in the monitoring command to help with this task.
