

## Abstract submission form

### Speaker or corresponding author

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### Abstract information

Presentation type [1]	Both
Select one or more topic [2]	Other
Subject of the presentation	Using ensemble forecasting for uncertainty quantification of the Se-75 concentration and comparison with observations made in May 2019 in Europe
Participation NERIS Young Scientist Award [3]	Yes
Proceedings of the Workshop 2020 [4]	Maybe

#### [1] Copy paste:

Oral

Poster

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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## Using ensemble forecasting for uncertainty quantification of the Se-75 concentration and comparison with observations made in May 2019 in Europe

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On May 15, 2019 during the manipulation of a selenium-75 capsule in one of the laboratories of the BR2 reactor at the SCK CEN a small amount of Se-75 was released to the atmosphere. This event was classified as an INES 1 event and did not require any countermeasure for the protection of the population or the food chain. The maximum effective dose was estimated at 0.1  $\mu\text{Sv}$ , which is more than 4 orders of magnitude lower than the yearly dose from natural background radiation.

Even though the amount of Se-75 released was small, the Se-75 release was detected in high volume air samplers in France and Spain. More specifically, the Se-75 release was detected in several high volume air samplers in France, with distances ranging from about 150 to 500 km from the release point.

In this work, the Se-75 release was simulated with JRODOS and FLEXPART through the use of different numerical weather prediction (NWP) datasets. The following three different datasets of NWP are compared in this work: deterministic forecast, model analyses and ensemble forecast. The ensemble forecast is used to quantify the uncertainty, arising from meteorological data, of the simulation results. The results of the simulations are compared and discussed with regard to the detections and non-detections of Se-75 in Europe. In addition, these results will be discussed in general with regard to the use of forecast data for emergency management and decision support.

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