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Title:

Uncertainty quantification of atmospheric transport modelling of radionuclides.

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Text

Atmospheric transport and dispersion modelling is indispensable for emergency and recovery preparedness and response in case of airborne radioactive releases. Results from such models, however, contain errors that are difficult to quantify. Therefore, an uncertainty quantification is of great value for decision makers in case of a nuclear accident.

We have used the Flexpart model with meteorological data from the European Centre for Medium-Range Weather Forecasts to simulate radioxenon concentrations from regional sources in Europe for a full year. We use the ensemble method to quantify uncertainty. Results are validated by using radioxenon observations from the International Monitoring System that is being set up to detect violations to the Comprehensive Nuclear-Test-Ban Treaty. The ensemble method will be discussed.