

1.3-O7. Uncertainty quantification of long-range atmospheric transport models: case study

Accurate atmospheric transport model forecasts can help detect violations of the Comprehensive Nuclear-Test-Ban Treaty, and are important for decision support in case of nuclear incidents. An as accurate as possible forecast is desired, but unfortunately the forecast is prone to errors that are difficult to quantify. A collaboration between SCK•CEN and the Royal Meteorological Institute of Belgium tries to quantify the uncertainty of long-range radioactive xenon background forecasts in the context of the Comprehensive Nuclear-Test-Ban Treaty. The FLEXPART model is used, with input data from the European Centre for Medium-Range Weather Forecasts (ECMWF). Results from the FLEXPART dispersion model will be presented and validated with xenon measurements from the International Monitoring System for a test case. Sensitivity tests will be performed to assess the model sensitivity to certain parameters. Finally, an overview of future work will be given, which consists of using the ensemble prediction system (EPS) of ECMWF to assess the uncertainty related to meteorological input.

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