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Performance Assessment of the High-Resolution Atmospheric Transport Model at the IDC of the CTBTO

The International Data Centre (IDC) of the CTBTO is developing a capability to do high-resolution atmospheric transport modelling (HRATM) using Flexpart-WRF. Compared to conventional atmospheric transport modelling, HRATM is folding the available meteorological data in coarse resolution with a static, high-resolution topography of the Earth to create new meteorological data with a resolution down to a few kilometers. The performance of Flexpart-WRF at the IDC is assessed by comparing its output to the results of the 1st and 2nd ATM (atmospheric transport modeling) Challenge. The challenge of both international exercises was to predict the impact of known radioxenon releases from a strong regional source on radionuclide stations of the CTBT International Monitoring System (IMS). For both scenarios, the IDC's HRATM installation of Flexpart-WRF is used to simulate the time series of noble gas detections that stem from the major regional emitter and to compare the results with the modelling results of all participants in those challenges.

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