

## Quantifying uncertainties and confidence level in ATM simulations

The Preparatory Commission's for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) main task is to establish a global verification regime to monitor compliance with the Comprehensive Nuclear-Test-Ban Treaty (CTBT). The Commission has developed an atmospheric transport modelling (ATM) pipeline in order to produce source-receptor-sensitivity (SRS) fields to indicate possible source regions for potential releases of radionuclides (RN) related to hypothetical or actual detections at RN stations. CTBTO mainly uses ATM guidance in backward mode to link a measurement from an IMS station to a possible source location. However, ATM is also used in forward mode to predict detections related to a potential radioactive release. Different ATM systems will generally produce different solutions because a) the input meteorological fields are different, b) the transport and dispersion models are different or configured differently, and c) the source term is specified differently. CTBTO in collaboration with Zentralanstalt fuer Meteorologie und Geodynamik (ZAMG), under funding from European Union Council Decisions VII, has initiated a project to study the impact of different meteorological input coming from an EPS to better estimate the source location and to quantify the level of confidence. This presentation will describe the project and present initial results.

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