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in Atmospheric Transport Modelling (ATM) at the CTBTO PTS during the past two decades and plans for the future.

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CTBT monitoring for nuclear explosions is based on detection of waveform signals and the related event localization and on detection of traces of treaty-relevant radioisotopes in the atmosphere. However, 25 years ago it was a challenge to obtain a clear link between a seismic event and a series of radionuclide detections. This was changed when the proper Atmospheric Transport Modelling (ATM) system with special postprocessing routines was implemented and the relevant expertise built up. The effectiveness was demonstrated by providing ATM support during events of special interest like the Fukushima accident and the nuclear tests announced by the DPRK. The lessons learnt triggered enhancements. For example, the ATM support during the first DPRK event in 2006 led to the extension of backward trajectories from 6 to 14 days. More recent enhancements include an increase of spatial resolution from 1 degree to 0.5 degree and of time resolution from 3 hours to 1 hour. PTS aims at developing a world-class ATM system and takes all opportunities to validate it against systems from other major ATM centres like participation in multi-model exercises called ATM Challenge. This presentation also addresses the plans for the next years and vision for the longer term.

Promotional text

The challenge to link a seismic event and radionuclide detections is mastered by atmospheric transport modelling with special postprocessing routines. Its effectiveness was demonstrated on special events like nuclear tests announced by the DPRK, but more enhancements are planned.

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