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## of modelled atmospheric radionuclides from the Fukushima Dai-ichi nuclear accident with CTBTO station measurements.

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The global atmospheric dispersion and deposition of radionuclides released from the Fukushima Dai-ichi nuclear power plant accident was modelled using the EMAC atmospheric chemistry – general circulation model at different resolutions (equivalent to ~50 km and ~110 km Gaussian grid). The model accounts for emissions and transport of the radioactive isotopes <sup>131</sup>I and <sup>137</sup>Cs, and removal processes through precipitation, particle sedimentation and dry deposition. In addition, we simulated the release of <sup>133</sup>Xe, a noble gas that can be regarded as a passive transport tracer of contaminated air. Modeled surface concentrations were compared to station observations by the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) global monitoring network for a number of stations through the CTBTO Virtual Data Exploitation Centre.

### Promotional text

We present a scientific application of the data used for test ban verification, by comparing modeled surface concentrations to station observations by the CTBTO global monitoring network after the Fukushima NPP accident, to evaluate model performance and investigate impacts.

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