

Atmospheric Dispersion and Ground Level Deposition of Cs-137 Released From Chernobyl Nuclear Power Plant Accident

Even though many studies have been carried out to calculate the effects of the Chernobyl Nuclear Power Plant accident of 26 April 1986, even today, major uncertainties about impact of the accident exist. None of the available source term, used in atmospheric transport models, produces a good representation of the atmospheric dispersion and ground level deposition of radionuclides. In this study, atmospheric dispersion and ground level deposition of Cs-137 released from Chernobyl nuclear power plant was simulated with the Lagrangian particle dispersion model FLEXPART. The source term estimated by Evangeliou et al. (2017) was used with ECMWF and NCEP reanalysis datasets as meteorological input data. The results were visualized with the Quicklook plotting tool and then compared with each other and with the Cs-137 contamination map of Europe after the Chernobyl accident (Cs-Atlas, EC / IGCE / Roshydromet/ Minchernobyl / Belhydromet, 1998). Some differences were observed between meteorological datasets. Moreover, the comparison with Atlas demonstrated that while in some regions the Cs-137 depositions are reproduced well, while in other regions significant deviations are found.

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