

(1) DERMA – Danish Emergency Response Model of the Atmosphere

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(3) Available modes for the model runs: Research & Operational

(4) Components & processes: Atmosphere & Physical, Chemical (Radioactivity)

-> services & end-users, assessments

(5) Brief model description

The Danish Emergency Response Model of the Atmosphere (DERMA) is a Lagrangian atmospheric long-range dispersion model. Meteorological ensemble techniques are used to estimate uncertainties of concentration values. In the model evaluations based on the European Tracer Experiment (ETEX), DERMA obtained “excellent” results in the evaluations involving around 30 models from EU, USA, Canada and Japan. The model is in operational use for the Danish nuclear and chemical emergency preparedness as well as for the veterinary preparedness for airborne animal diseases and for volcanic ash prediction (see examples of the DERMA model simulations in Fig. 1).

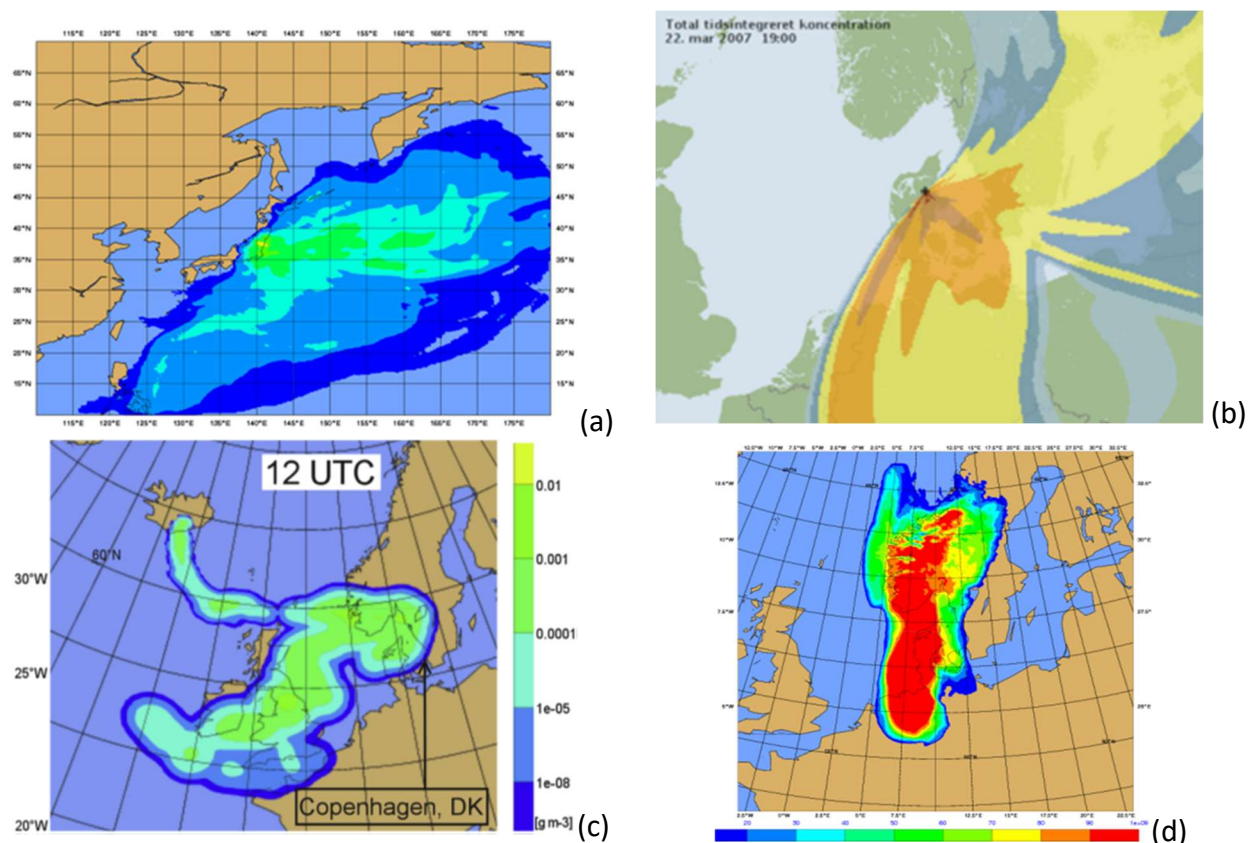


Figure 1: Examples of the DERMA model simulations: (a) Deposition of Cs-137 after the Fukushima, Japan nuclear accident; (b) Time-integrated virus concentration from a hypothetical outbreak of foot-and-mouth disease; (c) Ground-level volcanic ash concentration from the Grímsvötn, Iceland 2011 eruption; (d) Probability of exceeding a threshold deposition value of 1 kBq/m² from a hypothetical release.

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