



## **Assessment of the potential impact of Nuclear Power Plant accidents on aviation**

Gerhard Wotawa, Delia Arnold, and Christian Maurer

Central Institute for Meteorology and Geodynamics, Data, Methods and Modelling, Vienna, Austria  
(gerhard.wotawa@zamg.ac.at, +43 1 3691233)

The nuclear accidents in Chernobyl in 1986 and in Fukushima in 2011 demonstrated the urgent need to provide adequate guidance for land-based, marine and airborne transport. Quick assessments of potential impacts are essential to avoid unnecessary traffic disruptions while guaranteeing appropriate safety levels for staff in the transport industry as well as travellers. Such estimates are to be provided under difficult circumstances, mostly due to the lack of reliable initial information on the severity of the accident and the exact source term of radionuclides. Regarding aviation, there are three equally relevant aspects to look at, namely aircraft in cruising altitude (about 40000 ft), aircraft approaching an airport, and finally the airports as such as critical infrastructure, including airport operations and ground transport.

Based on the accident scenarios encountered in the Chernobyl and Fukushima cases, exemplary case studies shall be provided to assess the potential impacts of such events on aviation. The study is based on the Atmospheric Transport and Dispersion Model (ATDM) FLEXPART and a simplified scheme to calculate effective dose rates based on a few key radionuclides (Cs-137, I-131 and Xe-133). Besides the impact assessment, possible new products provided by WMO Regional Specialized Meteorological Centres in the event of an accident shall be discussed as well.