

1.5-P17. Development and application of the Bulgarian emergency response system for modeling of the atmospheric transport of radioactive substances

The network for atmospheric radioactivity monitoring has been developing since 1959 by the Bulgarian Hydro-meteorological service. The time and space variations of airborne and deposited beta activity are included in long term data records providing impact assessment of the different radioactive pollution sources. The atmospheric radioactivity monitoring is strongly supported by Atmospheric Transport Modeling represented by the Bulgarian Emergency Response System (BERS) for short term forecast in case of accidental radioactive releases to the atmosphere. BERS comprises of two main parts - operational and accidental, for two regions "Europe" and "Northern Hemisphere". The operational part runs automatically (see <http://info.meteo.bg/ews/>), using 72 hours meteorological forecast, resolution 12 hours in time, 1.5 degree in space. The accidental part is activated in case of radiological emergency, or emergency exercises. It is based on numerical weather forecast information and long-range Eulerian 3D dispersion model accounting for the transport, dispersion, and radioactive transformations of pollutants. Concentrations, depositions and major prognostic dose fields of 31 important radioactive gaseous and aerosol pollutants are calculated at every 3 hours. BERS was tested in ETEX, RTMOD, ENSEMBLE international exercises. The results from different test cases of NPP's accidental scenarios and environmental impact assessment are presented and discussed.

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