



krX system: multi-scale modelling of atmospheric dispersion and consequences assessments for radiological emergencies

O.Isnard(1), JP. Benoit(1), D.Didier(1), P. Dubiau(1), D.Quelo(2), E. Quantric(1), S. Masset(1), **A. Mathieu**(1), Y.Minier(1), L.Soulhac(3) and B. Sportisse(2)

(1) Radiation Protection and Nuclear Safety Institute, Environment and Emergency Operations Division, Emergency Response Organization Department. 92262 Fontenay aux roses cedex, France.(2) CERE Joint Research Laboratory (É

In case of a nuclear emergency, the krX system simulates the plume behaviour and assesses consequences of these releases. The krX system consists of a suite of meteorological and atmospheric dispersion models coupled with a consequences model. The meteorological module is essentially the atmospheric model, MM5. For the local scale, the atmospheric dispersion modelling is using the multi-module pX model. PX will provide 3 dispersion models: a pure Gaussian Puff, a Lagrangian model and a mixed eulerian-lagrangian one. For the regional to continental scale, the krX system uses a special adaptation of the POLAIR3D/POLYPHEMUS model. POLAIR3D is a chemistry-transport model flexible enough to handle a wide range of applications from passive tracers to complex chemical mechanisms. POLYPHEMUS is a full modelling system for air quality. It is designed to yield up-to-date simulations in a reliable framework: aerosols, data assimilation, ensemble forecast and daily forecasts.

We will present the krX system and some comparisons with experimental study. Finally, future developments will be discussed.