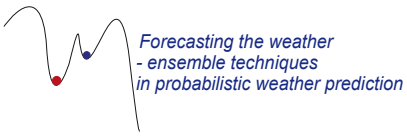
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-100, 2011
11th EMS / 10th ECAM



Probabilistic products to support oil spill drift forecasts

P. Daniel, D. Paradis, and V. Ulvoas

Meteo-France, Toulouse, France (pierre.daniel@meteo.fr)

French operational capacity in oil spill drift forecast is based on Météo-France and Cedre expertises. Drift forecasts rely on a pollutant drift model, named MOTHY. The system includes local area hydrodynamic coastal ocean modelling and real time atmospheric forcing from meteorological models. MOTHY has been operational since 1994 and has been extensively used during Erika (December 1999) and Prestige (November 2002) incidents in the Bay of Biscay.

The quality of slick drift forecasts depends primarily on the reliability of weather forecasting. Despite the increasing accuracy of weather forecasts, there is still an element of uncertainty in all predictions. We have developed new products, based on atmospheric ensemble prediction, to help decision makers in the fight against marine pollution by oil.

We show an application of this technique to the protection of sensitive areas such as nuclear power plants. France has five active nuclear reactors on the seashore. Nuclear power plants draw cooling water directly from the sea. If a slick spreads to their intake canals, oil could get into the cooling machinery and potentially shut down the plant. To be informed well in advance of this risk, the electricity company has set up surveillance zones around nuclear power plants and asked Météo-France to forecast the time before oil can enter the surveillance zones and associated probabilities. A probabilistic approach based on ensemble predictions is used to evaluate forecast uncertainty.

We show how ensemble forecasting from PEARP system of Meteo-France is a remarkable tool for quantifying the risk assessment.