Predictability of fog and low clouds at Paris CDG airport

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Fog formation and dissipation are mainly due to local physical processes (radiative cooling, turbulent exchanges, surface exchanges ...). Due to their horizontal and vertical resolution operational NWP models are almost useless for this aim. A 1D forecast method has been developed at Meteo-France/CNRM using the high resolution boundary layer model COBEL-ISBA coupling with the operational NWP model Aladin to introduce mesoscale forcing. This method including a local assimilation scheme is currently operationally used at Paris Charles de Gaulle international airport.

At Paris CdG international airport, Low Visibility Procedure (LVP) are take when visibility is less than 600m or when ceiling is less than 200ft (so called LVP conditions) leading to a decrease of landing and take-off airport capacity (reduced by a factor 2). Consequently LVP occurrence is one of the major causes of aircraft delay and airport authorities needs accurate forecast to manage airport traffic.

COBEL-ISBA inputs (initial conditions and mesoscale forcing) uncertainties can have a large impact on the forecast. In the first step of the project, those uncertainties inputs impacts bas been studied and sampled during a sensitivity study on winter season 2002-2003. Now an 1D Ensemble approach can be tested for fog and low clouds purpose using 1D COBEL-ISBA local assimilation system at CDG. In the first place we will sum up the main sensitivity study results et conclusions. Then a new ensemble approach has been especially thought for the local context of short term LVP forecast. This new method will be exposed and validated.