Improved low visibility forecasts at Amsterdam Airport

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Accurate, reliable and unambiguous information concerning the actual and expected (low) visibility conditions at Amsterdam Airport Schiphol is very important for the available operational flow capacity. Therefore visibility forecast errors can have a negative impact on safety and operational expenses. KNMI has performed an update of the visibility forecast system in close collaboration with the main users of the forecasts (Air Traffic Control, the airport authorities and KLM airlines). This automatic forecasting system consists of a Numerical Weather Prediction Model (Hirlam) with a statistical post processing module on top of it. Output of both components is supplied to a human forecaster who issues a special probabilistic forecast bulletin. This bulletin is tailored to the specific requirements of the airport community.

The improvements made to the forecast system are twofold:
1) In addition to the Meteorological Optical Range (MOR) values, RVR (Runway Visual Range) is forecasted. Since RVR depends on both MOR and the local Background Luminance, a (deterministic) statistical forecast for the latter has been developed.
2) Another improvement was achieved by calculating joint probabilities for specific combinations of visibility and cloud base height for thresholds which have direct impact on the flow capacity at the airport.

The development of this new visibility forecast will be presented briefly. Also a few verification results will be shown to demonstrate the improvements made.
Finally, the importance of explaining the user the use of the forecast information, in relation to their decision making process, will be discussed. For that reason, a simple guideline model to make a cost-optimal choice will be introduced.