EMS Annual Meeting Abstracts
Vol. 10, EMS2013-59, 2013
13th EMS / 11th ECAM

Verification of Met Office Lightning Forecasts for Aviation

R. Stretton
United Kingdom (rebecca.stretton@metoffice.gov.uk)

For the aviation authorities the safety of every flight is of high importance. The weather has a continuous impact on aviation and the forecasting of hazardous conditions such as lightning is key. Forecast products for lightning are a crucial tool used by forecasters to determine critical decisions for flights across the UK. Verification enables us to assess the performance of these products, compare the strengths of different products and to monitor future improvements.

The performance of two different Met Office models' lightning diagnostic products is investigated. The Global configuration of the Met Office Global and Regional Ensemble Prediction System (MOGREPS-G) producing lightning probabilities and the post-processed UKV (1.5km) deterministic model producing a categorical lightning risk. The model forecasts are verified against a strike count within a certain radius of every Civil Aviation Authority airport in the UK over the forecast period. The individual strike locations are registered by the Met Office ATDnet (Arrival Time Difference network) system that detects the low frequency radio waves ('Sferics') generated by a lightning strike.

Verification of the forecast products is based around thresholds on both the forecasts and observations. Verification statistics are then evaluated in the form of 2x2 contingency tables and the corresponding hit and false alarm rates. Receiver Operating Characteristic (ROC), reliability and economic value for each forecast product will also be compared.