Use of high resolution ensemble forecasting for high impact road weather events

B. Evans, A. Veal

ABSTRACT

Due to the chaotic nature of the atmosphere it is impossible to know the future state with absolute certainty. To quantify the possible future states of the atmosphere a technique called "ensemble forecasting" is now commonly used with Numerical Weather Prediction (NWP). The technique uses the uncertainty in the initial state of the atmosphere to run several NWP members each with a different initial state. The forecast output from these members can then be used to quantify the probability of a certain weather event occurring. The majority of major NWP centres now run a global ensemble at horizontal resolutions of approximately 40km. However this is not sufficient to resolve high impact road weather events such as ice, snow, hail, freezing rain, fog and high cross winds. Since June 2012 (to coincide with London 2012 Olympic games) the United Kingdom Meteorological Office (UKMO) have been routinely running a high resolution (2.2km) NWP ensemble out to 36 hours over the U.K. called MOGREPS-UK. Verification will be presented showing how MOGREPS-UK is superior in forecast skill for high impact weather events over a deterministic NWP model of a similar resolution.