



High resolution ensemble analysis: linking correlations and spread to physical processes.

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The use of kilometre-scale ensembles in operational forecasting provides new challenges in the areas of forecast interpretation and evaluation. The link between ensemble spread and meteorological predictability needs to be determined for localised weather events, as does the nature of the flow-dependence of the predictability across a range of scales. Only by understanding these properties can high resolution ensembles be used to their maximum potential.

The UK Met Office 12-member 2.2km ensemble (MOGREPS-UK) has been routinely running since July 2012. This ensemble runs over a domain covering the UK and is produced by directly downscaling from Met Office global ensemble (MOGREPS-G) with a grid spacing of ~ 33 km. This ensemble is analysed for cases with different convective forcing. Initially we focus on a case study from 8th July 2011 which saw heavy precipitation and flooding over the Edinburgh area in Scotland from an intense thunderstorm. A smaller subdomain centred on Edinburgh was selected and the 2.2km ensemble statistically analysed using multivariate and spatial correlations. Links are made between the statistical interpretation and physical processes occurring. The spatial variability between ensemble members for this case is also investigated using the Fractions Skill Score neighbourhood verification method (Roberts and Lean 2008).