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High-resolution time-lag ensemble PoP forecasts: can they add skill for high-impact events?"

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High-resolution forecasts can vary considerably from run to run. The Met Office 4-km Unified Model runs every 6 hours out to t+36h. Five member time-lag ensembles are created for the most recent 6-h period, essentially spanning the nowcasting to very short-forecast range.

We want to see whether value can be added for the forecaster attempting to issue flash warnings to the public. Mean, maximum and Probability of Precipitation (PoP) forecast fields are generated and compared with the verifying radar accumulation. Each of the individual forecasts are also evaluated. We assess the contribution of each forecast to the ensemble, and in particular whether the number of misses are reduced. We also want to reduce the high incidence of false alarms, and improve forecaster confidence. Both deterministic and probablistic means of forecast evaluation will be used to show forecast skill.

Initial results would seem to suggest that there may be real benefits in harnessing the inconsistencies (as a positive) by considering them as "spread", and, in so doing enhancing skill, at or near the grid-scale. It is speculated that the process of temporal aggregation acts in a similar fashion to spatial upscaling, albeit in a dynamically flow-consistent manner.