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Bringing ensembles to the heart of Met Office operations

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“2022 marks the 30th anniversary of the first operational ensemble forecasts at ECMWF and NCEP (USA), and also 10 years since the Met Office started running the convective-scale MOGREPS-UK ensemble for the UK. Ensembles are now central to the NWP strategies of many centres. There is extensive scientific evidence for the greater skill of probabilistic forecasts based on ensembles and the Met Office plans for its new supercomputer have high resolution ensembles as the core operational systems, with higher resolution deterministic models used for experimental purposes. We have already changed our Key Performance Indicators for forecast accuracy to measure ensemble performance. The IMPROVER post-processing system (see presentation by Moseley and Mylne) is designed to fully exploit convective-scale ensembles and provides a seamless blended probabilistic supply of forecast data to underpin multiple products and services. Despite many years development and the scientific evidence for greater skill, fully exploiting the benefits of ensembles remains a major challenge, both for operational meteorologists (forecasters) and in products and services for the public and professional users. There have been some notable successes, but many forecasts remain highly deterministic for understandable reasons. To address this, alongside our ensemble-driven NWP approach, the Met Office is seeking to make much wider use of ensembles and probabilistic forecasts throughout its operations. This will involve close collaboration between scientists, operational staff and services, for example in operational testbed experiments where scientists and forecasters work alongside each other to test new capabilities and examine potentially new working practices. This talk will review early progress in this approach and plans for future research and development.”