*BMRC RD WS on Ensemble Methods – (Melbourne, 26-30 November 2018)*

**Title: The ECMWF Ensembles of Analyses and Forecasts**

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ECMWF operational forecasts are generated using ensembles of analyses and forecasts. The former provides estimates of initial-time uncertainties to initialise the ensemble forecasts, and are used in data assimilation to estimate flow dependent background error statistics. Ensemble of forecasts provide users with estimate of forecasts uncertainties, expressed e.g. in the form of probability maps (of extreme values, tropical cyclone tracks, ..), cluster scenarios, extreme forecast indices. Some of these ensemble-based forecasts require ensembles of re-forecasts spanning the past decades to estimate the model climate, and calibrate the forecast probabilities. Furthermore, ensembles of coupled ocean/sea-ice/land/atmosphere reanalyses spanning the past 110 years have been generated to provide the distribution of the past climate, in terms of the most likely states and their confidence interval. In this talk, I will review the status ECMWF ensembles, and present on-going work to further improve them, as foreseen in the ECMWF 2016-2025 strategy.