

## Dynamical seasonal forecasting for Australian applications

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The POAMA dynamical seasonal prediction system has been developed jointly by the Bureau of Meteorology and CSIRO. Operational climate forecasts from POAMA are issued by the Bureau of Meteorology. The latest version, POAMA-2M, contains several enhancements compared to its predecessors. These include: a new pseudo-ensemble Kalman Filter ocean data assimilation system, a coupled ensemble breeding method, a pseudo-multi-model approach and the inclusion of new ocean data, such as salinity.

Results for the new system will be described on both seasonal and intra-seasonal timescales. The skill levels for regional rainfall and temperature over Australia will also be discussed. The model exhibits relatively high levels of regional skill, for example, when looking at probabilities of above median rainfall in winter/springing in the south-east of Australia. The pseudo multi-model approach and the new breeding ensemble generation method leads to forecasts with significantly improved forecast reliability. This increase in reliability, together with a real-time lagged ensemble has led to products that are sufficiently reliable so as not to require post-calibration.

A range of operational and experimental products are produced routinely for a range of applications, including agriculture, water management, Great Barrier Reef management and fisheries. The utility of the forecasts for wheat farming in western Australia has been explored. In areas where the model has significant skill, using the forecasts to determine fertilizer application can lead to significant profit gains compared to current practices. Several examples of the use of POAMA forecasts be briefly described.