# CTB Seminar

*1:30-2:30pm EST, 2 June 2016*

## NOAA Climate Test Bed Seminar Series

**Speaker:**

Dr. Q. J. Wang, Sr. Prin. Res. Scientist
CSIRO Land and Water
Melbourne, Australia

**Time:**

1:30-2:30pm EST, 2 June 2016

**Location:**

NOAA Center for Weather and Climate Prediction, Conference Room 2552-2553
5830 University Research Court
College Park, MD 20740

**Remote Access:**

https://www1.gotomeeting.com/join/714576893
Meeting ID: 714-576-893
Conference call: 1-877-680-3341
Passcode: 858747

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## ABSTRACT

The post-processing of seasonal climate forecasts from GCMs is important to enable applications in water resource management and agriculture, amongst other sectors. In Australia, seasonal rainfall and temperature outlooks have been issued based on outputs from the POAMA model for over two years now. However, the official forecasts are not currently post-processed.

With a focus on water resources management, the CSIRO water forecasting team have developed a post-processing method called CBaM, which stands for calibration, bridging and merging. CBaM is designed to correct biases and ensemble spread; improve forecast skill by using multiple GCM output fields, including patterns of large-scale oceanic circulations.; return forecasts to climatology where there is little evidence of GCM skill; downscale forecasts to catchment scales; and extend forecast lead time up to 12 months ahead. Calibration uses a Bayesian joint probability (BJP) model to post-process a target variable directly. Bridging produces additional forecasts of a target variable by using BJP models to link the GCM's SSTs to the target variable. Merging combines the two approaches using Bayesian model averaging.

In Australia, CBaM rainfall forecasts are being used to drive experimental seasonal streamflow forecasts up to 12 months ahead. Additionally, CBaM has been applied to produce gridded forecasts of seasonal rainfall, minimum temperature and maximum temperature based on outputs from the NOAA CFSv2 model and the ECMWF System4 model. Calibration is important for reducing biases and improving forecast reliability. In many instances, bridging and merging is able to significantly improve forecast skill.

In ongoing work, CBaM rainfall and temperature forecasts are being developed for important agricultural regions to provide inputs to crop models and agricultural decision support tools. Currently, CBaM BJP models rely on ensemble means. In the near future, a full-ensemble calibration method will become the core of CBaM and cater to staggered-in-time ensemble systems like CFSv2.