

## Climate Variability and Change

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Key challenges for Australian research on climate variability and change fall into two categories - the provision of useful products (service through science) and the advancement of science by using these tools (science through service). The Axford lecture will overview the work of the Centre for Australian Weather and Climate Research, which has established the priorities in these two areas as being:

### Service through science

- Provide useful advice and be able to differentiate between climate variability and climate change by understanding and providing predictions from seasonal to century scales;
- Understand how climate may change regionally over the coming decades and determine what the best methods are for providing regional projection information;
- Improved adaptive responses to climate variability and change and better informed policy and decision making.
- Increases in computer speed, communications speed and decreases in the price enable dynamical models to supplant statistical models at ever greater spatial and temporal resolution.
- Greater integration of physical, biological, social and economic information.

### Science through service

- Improved modelling results using the seasonal model POAMA, and the new Australian GCM ACCESS model for seamless prediction.
- New projection methods that better integrate all relevant climate knowledge.
- Expand research into climate change and extreme events.
- Expand research on coastal and marine applications including erosion and waves.
- Provide the fundamental science for the understanding of Australian climate, its variability, and the drivers of climate change.