

Decadal Climate Forecasting Project

Improving annual to decadal climate forecasts and advancing the usefulness of climate forecasts for Australia



THE CHALLENGE

Australia is a climate exposed nation where communities and industries require favourable climatic conditions to be sustainable. The present drought in Southeast Australia is the latest example of how climate impacts communities and industries.

Recognising the huge potential benefit of climate forecasting on the annual to decadal timescale to Australia, CSIRO has initiated the Decadal Climate Forecasting Project.

The Project's challenge is to help Australia better deal with climate extremes.

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WHAT WE'RE DOING

Developing the next generation climate forecasts by pursuing novel climate model data assimilation and initial climate state ensemble generation.

We are using our Climate Analysis and Forecast Ensemble (CAFE) system to assimilate ocean, atmosphere, and sea ice observations into our climate model to determine the initial climate state required for making a forecast. We are developing and applying extensive observations of the upper 1000 m of the ocean because it is the upper ocean which drives evolution of the climate on annual to decadal timescale. We are also making ensemble forecasts based on our understanding of the ocean processes driving climate variability to deliver forecasts that can realistically capture the probability of future climate extremes like droughts.



BENEFITS FOR AUSTRALIA

While improving multiyear climate forecasts is a crucial component of the project, we are also improving the utility of the forecasts by better understanding how the forecasts may be used and by extracting better value from the forecasts.

Climate forecasts are just one of variety sources of information that industries consider in their forward planning. By working with industries (e.g. energy and agriculture) we are exploring which climate information is desired and how best to provide it. This dialogue is essential for our climate forecasts to have impact on industry strategic planning and create benefits for Australia

