



Climate forecasts and Australian rainfall extremes

Providing a basis for understanding predictability in the climate system and the application of forecasts of climate extremes.

The challenge

From drought conditions to damaging floods, rainfall extremes affect agricultural and water resources operations across Australia.

Skilful forecasts of extreme rainfall events can assist decision-makers to plan and respond to such events. However, current forecast skill of rainfall extremes on different timescales is limited.

At CSIRO we are broadening our understanding of the atmospheric and oceanic processes that influence rainfall extremes and the representation of these processes in climate models. This work contributes to our ability to forecast and respond to extreme climate events.

What we're doing

Using observations and climate model data, we are working to understand the atmospheric processes associated with wet and dry multi-day rainfall extremes across Australia. Extreme rainfall events on this timescale underly longer term rainfall variations.

Research in this area is therefore improving our understanding of the processes important to longer term extremes, like drought and wet years.

Benefits for Australia

Skilful forecasts of extreme climate events can assist the agricultural and water resources sectors in planning for – and effectively managing – extreme events.

For example, we are currently applying forecasts to the water resources sector to assist in multi-year planning.

In dry years, water resources need to be conserved to meet minimum requirements. However, planners face costs both ways in conserving too much or reserving too little. Climate forecasts can aid water resource and hydropower managers in making these decisions.



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5,000+
dedicated people

Across the world including Australia, Singapore, Vietnam, US and Chile

\$4.5B+ a year

Value delivered to the Australian economy through our science and technology

\$1B+

Total market capitalisation of portfolio companies

170+

Start-up companies from CSIRO science and technology

2,400 partners

Turning science into solutions with industry, government and research collaborators

We are focusing on the issues that matter the most, for our quality of life, for the economy and for the environment.

There are six challenges where our science is delivering solutions to create unique advantages for Australia:

- food security and quality
- health and wellbeing
- resilient and valuable environments
- sustainable energy and resources
- future industries
- a secure Australia and region.