

8 Climate Variability and Change (CVC)

Leader: Dr Penny Whetton

8.1 Overview

The Climate Variability and Change (CVC) program houses research capability in climate variability, climate processes and drivers, seasonal prediction and climate projections, sea level rise, and climate vulnerability and risk assessment. The Program is a part of CMAR's joint operation with the Bureau, the Centre for Australian Weather and Climate Research (CAWCR), and the science and team leaders are a mix of both Bureau and CSIRO staff. The CVC Program provides a high quality national research capability for climate prediction, climate change projection, and the application of projections to risk assessment and policy issues. The Program's close links to climate modelling in the Earth System Modelling (ESM) and Weather and Environmental Prediction (WEP) programs, to the wider climate resources of the Bureau (through CAWCR), and to climate-related work elsewhere in CSIRO provide an integrated research capability that is unique internationally.

CVC scientists do research on: (1) climate variability, its mechanisms and predictability; (2) climate change science, particularly mechanisms of past change and projections for the future at the regional scale, especially for Australia and the Pacific; and (3) climate change risk, vulnerability, and adaptation. They publish strongly in the peer-reviewed literature and maintain high international profiles and engagement with key international science and climate change activities (e.g., WCRP, IPCC). The CVC Program provided two lead authors and three convening lead authors to the Fourth Assessment Report (AR 4) of the Intergovernmental Panel on Climate Change (IPCC). Dr Frederiksen is a Fellow of the Australian Academy of Science, Dr John Church is a Fellow of the Academy of Technological Sciences and Engineering, and Dr Tom Beer is the President of the International Union of Geodesy and Geophysics (IUGG) and Fellow of the Hungarian Academy of Science.

The Program provides leading advisors and consultants to the Australian Government, state governments, industry, and the wider community on regional climate change and variability matters. We do client-sponsored, policy relevant research aimed at providing knowledge essential to Australia's response to a highly variable and changing climate. Some of the Program's scientists (Drs' Penny Whetton and Kevin Hennessy) undertake significant public outreach activities, such as briefings, media interviews, and development of brochures and web material dealing with climate issues.

The CVC Program's recent track record of impact on policy includes the provision of probabilistic national climate change projections in 2007 which have been widely used in planning and policy-making nationally, a highly influential contribution to the Garnaut Climate Change Review commissioned by the Australian Government³⁶, and studies that have helped shape national and state policies in managing drought, bushfire, coastal development, and water resources. Its international impact includes the adoption by the United Nations Development Programme (UNDP) of a risk assessment approach to climate change and the adoption of its sea level data sets as the international standard.

The Program addresses Australia's National Research Priority of An Environmentally Sustainable Australia (environmental monitoring and climate change). The research done by CVC scientists specifically addresses CSIRO's strategic goals in the Climate Outcome Domain.

³⁶ The Garnaut Climate Change Review 2009 formed the basis for the Australian government's policy response to climate change, The ESM Program also made major contributions (see Chapter 5 section 5 and 6). See also Garnaut website at

http://www.garnautreview.org.au/domino/Web_Notes/Garnaut/garnautweb.html