



NEW FUNDING BACKGROUNDER

The ACE CRC research focuses on critical uncertainties in the world's understanding of climate change. These uncertainties, highlighted by the Intergovernmental Panel on Climate Change (IPCC), limit Australia's, and the global community's, ability to respond effectively to the challenges of climate change.

Recent discoveries underscore the urgency: the vast Southern Ocean is warming more rapidly than the rest of the global ocean; sea level is rising faster than predicted; the Antarctic and Greenland ice sheets are more dynamic than previously believed, increasing the risk of an abrupt increase in sea level; and increasing carbon dioxide (CO₂) concentrations are acidifying the Southern Ocean with potentially destructive impacts on marine ecosystems.

The ACE CRC will address four key challenges:

1. How is the Southern Ocean changing and what are the implications for Australian and global climate now and in the future? (Program 1)
2. How will the Antarctic ice sheet and sea ice respond to changes in climate and what impact will changes in the cryosphere have on climate and sea level? (Program 2)
3. Will the Southern Ocean continue to remove CO₂ from the atmosphere and how rapidly will this increase the acidity of the ocean? (Program 3)
4. What will be the impacts of changes in sea ice and the Southern Ocean on Antarctic ecosystems and fisheries? (Program 4)

The outcomes from the ACE CRC research will be:

- Greater knowledge of future climate and sea level rise, provided by models that better represent the Antarctic and Southern Ocean region;
- More effective national strategies for mitigating and adapting to the effects of climate change by providing policy and decision-makers with the best possible scientific knowledge in a form that is useful to them;
- Improved conservation and sustainability of marine resources by incorporating knowledge of the effects of climate change and variability into improved management strategies; and
- Enhanced standing and influence for Australia in global negotiations on climate change, the Southern Ocean and Antarctica.

ACE CRC has established itself as a world leader in polar and southern hemisphere climate research and education. The CRC is a highly effective collaboration between the most important Australian institutions in Antarctic and Southern Ocean research: Australian Antarctic Division (AAD); CSIRO Marine and Atmospheric Research (CMAR); and University of Tasmania (UTAS), as well as many foremost international research institutions.



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The leadership of the ACE CRC is exemplified by the recognition, in the IPCC's 2007 Nobel Peace Prize, of the contribution of CRC researchers to the IPCC assessment reports.

The end users in the new extension to the ACE CRC, ranging from the Department of Climate Change (DCC) to Small and Medium Enterprises (SMEs), have demonstrated their strong commitment by participating and contributing resources.

The extension of the ACE CRC will involve 23 participants from 10 countries (see list below) pledging resources worth \$94 million. The Australian Government's CRC Program will contribute a further \$20.1 million. Participants' contributions will include the time and expertise of renowned scientists, ship time in the Southern Ocean, and access to specialised laboratories and facilities.

ACE CRC PARTNERS

Essential Participants

- University of Tasmania (UTAS) - Australian Higher Education Institution
- Australian Government Department of Climate Change (DCC) - Australian End User
- Australian Antarctic Division (AAD)
- CSIRO Division of Marine and Atmospheric Research (CMAR)
- Alfred Wegener Institute for Polar and Marine Research (AWI), Germany
- National Institute of Water and Atmospheric Research Ltd (NIWA), New Zealand

Other Participants

- Centre for Polar Observation and Modelling (CPOM), University College London, UK
- Chinese Academy of Meteorological Sciences (CAMS), China
- Department of the Environment, Water, Heritage and the Arts (DEWHA), Australia
- First Institute of Oceanography (FIO), State Oceanic Administration, China
- GHD Pty Ltd, Australia
- Institute of Low Temperature Science (ILTS), Hokkaido University, Japan
- Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France
- Memorial University of Newfoundland (MUN), Canada
- Myriax Software Pty Ltd, Australia
- National Institute of Polar Research (NIPR), Japan
- Pitt & Sherry, Australia
- RPS MetOcean Pty Ltd, Australia
- SGS Economics and Planning Pty Ltd
- Tasmanian Government
- University of Texas at Austin (UT), USA
- University of Texas at San Antonio (UTSA), USA
- Vrije Universiteit Brussel (VUB), Belgium

