

Research Institute for Climate Change and Sustainability (RISCCS)

Strategic Directions 2008

Institutes like RISCCS are an exciting new initiative for the University of Adelaide, and in aspiring to be a world-leading centre of interdisciplinary studies which meets the challenges posed by global change, is strongly representative of a paradigm shift in the way innovative research is undertaken in the 21st century.

RISCCS was established in late 2006 with a core membership of over 40 leading University of Adelaide academic staff and non-academic (government and industry) stakeholders, along with their post-doctoral fellows and postgraduate students. We conduct research integrating a broad range of disciplines to mitigate carbon emissions and develop adaptive strategies to respond to the anticipated impacts of climate change

Our goal

We aim to foster the formation and ongoing development of genuinely collaborative teams of researchers, working within themes which span the five academic faculties, which 'think big' and so are best positioned to tackle the tough issues facing society in a rapidly changing world. We will do this by:

- Capitalising on our research strengths and develop capacity in emerging areas to build an international reputation in climate change and sustainability research
- Bringing together traditionally separate academic disciplines to develop multidisciplinary research teams
- Building on existing collaborative relationships and broker new partnerships with key stakeholders to explore and develop new research opportunities

Research focus

It is important to build knowledge about the climatic dependency of human and natural systems, identify how they are likely to respond to variations in climate, and seek ways to safeguard the most vulnerable systems and regions. The following areas are the focus of our research.

Energy, Emissions and Offsets

Research progressing within this program spans geothermal (hot rock), solar, wind, biofuels, combustion technologies for improved fuel efficiency and reduced emissions, and a diversity of approaches for carbon capture and storage (geosequestration, biosequestration).

Adaptive Responses for Sustainable Environments

It is anticipated that increased temperatures and drier conditions are likely to create pressures on both natural and production systems across southern Australia. This program is building knowledge about the climate dependency of native and introduced species.

Marine Impacts

The adaptability of marine species to climate forcing and other drivers of population change, such as fishing exploitation, coastal development and other forms of habitat degradation is being examined. Future impacts are being quantified and modelled to predict marine system health across Australia.

Productive Agriculture under Global Change

This program is supporting research to understand how climate change and related threatening processes impact on the interrelationships between agricultural landscapes, sustainable production systems and environmental services.

Human Health and Social Impacts

Climate change and increasing climatic variability are expected to have considerable social and economic impacts. Research is taking place to explore the likely future consequences of severe weather events (especially heatwaves and cold spells) for population health.

Water

The anticipated decline in rainfall, combined with a general drying trend over large parts of the continent, is likely to adversely impact on our water resources. This research program will provide information that will enable us to track, manage and allocate water so both society and the environment gain the greatest net benefit from the available water

Strategic directions

A number of Commonwealth and State Government documents shape the strategic directions of the Research Institute. *Australia's National Research Priorities* highlight particular areas of social, economic and environmental importance for Australia. These priorities aim to improve the impact of research efforts by building critical mass and encouraging collaborative effort. *South Australia's Strategic Plan*, and *Shaping the Future: A 10-year Vision for Science, Technology and Innovation in South Australia*, also aim to foster greater innovation and creativity through collaborative effort.

Key strategic approaches for the current year include:

- Inviting wider membership from the University of Adelaide and other local and national research institutions
- Promoting and building a culture of research collaboration amongst our researchers
- Establishing and consolidating cross-disciplinary research teams that address national research priorities and industry needs
- Exploring options to establish partnerships with other institutions, and national and international research networks
- Working with industry stakeholders to address applied problems in mitigation and adaptation
- Embedding end-users throughout the 'applied research cycle' to maximise the transfer of knowledge and technologies

Communication of research results to the broader community is a fundamental responsibility of modern researchers. If, in presenting robust and hard-won evidence, we can provoke meaningful societal change, then we have surely left an enduring legacy. It is this imperative that has encouraged our members to take an active role in the communication of climate change and sustainability issues to government, the private sector and the general community, both directly (via public lectures and workshops and advisory committees) and indirectly (via the media – including television, radio, the print media and popular science articles).