

Working with the Queensland Government

Walker Institute partnerships

Climate in Australia—the Queensland Government seeks advice from the Walker Institute

Australia has faced many periods of drought and flooding over its history. The early years of the 21st century saw severe drought conditions over much of Australia. Late 2010, early 2011 saw devastating flooding and storms over the east of the country.

The impacts of climate on sectors such as water and agriculture, and diverse business interests, have reached unprecedented levels over the last decade. Adapting to climate is now of pressing concern for the future of the country.

The State of Queensland has recognised the need for high-level expertise in climate science from the international scientific research community, and hence has formed a collaboration with the Walker Institute.

The Queensland Government has targeted the Walker Institute as an international partner because of its expertise on the impacts of climate on crops and water resources, in tropical weather systems, like El Niño and typhoons, and in the implications of hazardous weather for the insurance industry.

Our expertise fits their needs:

- Impacts of climate on crops and water resources.
- Tropical weather systems.
- Extreme events implications.
- Modelling capabilities.



Queensland's Great Barrier Reef: an important biological and ecological environment threatened by changes in climate.

The Walker Institute contribution to this collaboration

Our scientists are working with the Queensland Climate Change Centre of Excellence (QCCCE) to improve climate forecasts - for anything from a month to many decades ahead - and to develop the ability to cope with the impacts on agriculture, water resources and business sectors, like insurance.

Scientists at the Walker Institute are improving climate models so they are more realistic in the tropics, from individual tropical rain clouds to the much larger scales of the Australian/Asian monsoon and El Niño. The Walker Institute works closely with the UK Met Office and the National Centre for Atmospheric Science.

With improved models we can assess with more confidence whether man-made climate change is affecting drought and flood frequency and to improve the quality of climate forecasts for the coming

season to many decades ahead.

Scientists are investigating why Queensland's rainfall varies from year to year and how it might change in the future. They are working closely with scientists at QCCCE to investigate how best to use this knowledge to assess impacts on water resources, agriculture and other business sectors.

The insurance industry are concerned with typhoons, high winds and flooding over northern Queensland. Higher resolution climate models, being developed at the Walker Institute, will be used alongside high resolution observational data to improve seasonal forecasts of the likely location, frequency and severity of a range of hazardous weather events and to assess how such events might change over the coming decades.



Dr Nicholas Klingaman is a Walker Institute researcher, funded by the Queensland government to investigate why Queensland's rainfall varies from year to year and how it might change in the future.



www.walker-institute.ac.uk

Tel: +44 (0)118 378 7380

Email: walker_info@reading.ac.uk

Director: Prof Nigel Arnell