



NCCARF

National
Climate Change Adaptation
Research Facility



NEWSLETTER

Director's message

Professor Jean Palutikof, NCCARF Director

MARCH 2011

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NCCARF's new look

You might have noticed a change in the appearance of this NCCARF Newsletter. NCCARF has just launched a new corporate look to coincide with the end of its establishment phase, and the move into its second operation phase. Look out for the new NCCARF website in early April 2011.

Update: National Climate Change Adaptation Research Plans

Completed and released: Human Health; Emergency Management; Settlements and Infrastructure; Marine Biodiversity and Resources; Terrestrial Biodiversity; Social, Economic and Institutional Dimensions of Climate Change; Primary Industries

Consultation completed: Freshwater Biodiversity.

In development: Indigenous Communities.

Completed plans are available at www.nccarf.edu.au



The floods of summer 2010/11 in Australia: one in how many years?

The summer of 2010/11 was the wettest on record in Victoria and many parts of south-east Queensland. In both states, this led to significant flooding. I'm not a Victorian, so I won't presume to comment further on what happened

there, but in Queensland, three quarters of the state was declared a disaster zone, and the cost to repair the damage in Brisbane has been estimated at \$440 million. The cost to the country has been estimated at \$5.6 billion.

There was an immediate and widely successful response amongst emergency services and the community. Comment in the national and international press praised the depth and commitment of the community response to the clean-up. For people working in the climate adaptation community, there are important lessons in the response to the flooding and, in the longer term, to the recovery phase. For Queensland, it's a case of so far, so good. There is a Commission of Inquiry in place, with the same powers as a Royal Commission. The Queensland Premier has made remarks which suggest that the reconstruction will not be a case of more of the same - she has stated, for example, that there will need to be debate over the advisability of rebuilding in some of the recently-flooded areas of Brisbane.

Why should we care about the summer 2011 floods? Why can't we assume that they were an extremely rare event unlikely to recur on timescales of less than half a lifetime, that improvements to flood protection measures will offer increased protection in the future, and just carry on as usual?

Two papers appearing in a very recent edition of *Nature* (17 February 2011) provide very strong reasons why we can't, or shouldn't, do this. The first (Min *et al*) looks at intense rainfall extremes (annual one-day and five-day maxima) over the northern hemisphere from 1951 to 1999. Time series of observed extremes show an increase in the recorded annual maximum particularly over the United States and eastern Europe for the one-day series, and more widely for the five-day series. Then, by comparing these observed annual maxima with their equivalents from climate models run over the same period with and without anthropogenic

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forcing, they are able to identify a human contribution to the observed intensification of extreme precipitation. The rise in extreme precipitation in some Northern Hemisphere areas has been recognised for more than a decade, but this is the first time that the anthropogenic contribution has been nailed down. What has been considered a 1-in-100-years event in a stationary climate may actually occur twice as often in the future.

The second paper is by Pall *et al.* and explores the possibility that anthropogenic warming contributed to the floods in England and Wales in 2000. This study was able to perform several thousand runs with a relatively high-resolution model, using the global volunteer distributed network first developed by climateprediction.net. The authors found that anthropogenic climate change may have almost doubled the risk of the extremely wet weather that caused the floods.

So it isn't reasonable to assume that the summer 2011 floods were exceptional and highly unlikely to be repeated any time soon. Detection and attribution studies such as those by Min *et al.* and Pall *et al.* are computationally very demanding, slow and painstaking to perform. But they are vital to our understanding of future risks and climate change, and they tell us in no uncertain terms that the past cannot be relied on as a key to understanding the future.

¹ Min, S.-K., *et al.*, 2011: Human contribution to more-intense precipitation extremes. *Nature*, 470, 378-381.

² Pall, P., *et al.*, 2011: Anthropogenic

Synthesis and Integrative Research news

NCCARF has completed a comprehensive consultation process with the Commonwealth, States and Territories to identify research needs related to future Synthesis and Integrative Research.

Following prioritisation with the assistance of an expert panel, a Draft S&I Research Strategy Phase 3 (2011-2013) was prepared. The Strategy outlines a suite of projects that will be undertaken during this phase and outlines an approach that will be taken to ensure that there is strong ownership of and involvement in projects by end users. We believe this will assist NCCARF to deliver projects that are relevant, useful and accessible to end users and help them to make a difference in adaptation. The Strategy is currently under review and will soon be available on the NCCARF website.

NCCARF Flood Workshop

Following the recent extensive floods across Australia, NCCARF held a workshop with State Government representatives and NCCARF partners to determine research that was being conducted by or for these entities and to identify any additional research that may be required to add value to existing projects or to fill any gaps. Several project areas were identified and NCCARF will be working with key end users to establish a way forward for addressing these research needs.

For further information on the Synthesis and Integrative Research Program, please contact Dave Rissik d.rissik@griffith.edu.au

Expert panel meets for Coastal Ecosystems Responses project

An workshop was held in February as part of the Coastal Ecosystems Responses to Climate Change Synthesis & Integration Project (CERCCS). It was attended by more than 30 people including project team members, NCCARF staff and experts in coastal climate, physical processes, estuarine, reef, beach and dune ecology, coastal policy, planning and management. A number of regional stakeholders also attended and contributed to 3 broad case studies (Wet Tropics, Hunter River estuary and Kakadu National Park) in which contrasting ecological storylines were considered with respect to ecological outcomes of various adaptation strategies, e.g., a 'do nothing'/ business as usual strategy vs. proactive, 'hard' engineering approach vs. 'soft' retreat/resilience building approach. Workshop activities focused on developing a risk assessment framework for climate change impacts in coastal habitats and identifying

adaptation options for these. Possible unintended consequences of proposed adaptation options on both ecological and human elements were also considered

Information sheets should be available online in mid-2011. For more, visit www.nccarf.edu.au/cerccs



Above: Participants in the Coastal Ecosystems Responses to Climate Change workshop

Research grants extended

The research grants calls for the Human Health, and the Social, Economic and Institutional Dimensions of Climate Change have been extended.

The Adaptation Research Grants Call for the Social, Economic and Institutional Dimensions of climate change has been extended until **21 March 2011**.

Under this call, \$5 million is available for research that addresses the priorities identified in the *National Climate Change Adaptation Research Plan: Social, Economic and Institutional Dimensions of Climate Change*. All applicants should download a copy of this Plan and the accompanying application package, containing the application form and detailed guidelines, from the NCCARF website at www.nccarf.edu.au

The NHMRC research call for the Health Challenges of Climate Change program addressing the priority research questions in the *Human Health and National Climate Change Adaptation Research Plan: Human Health* has also been extended, and will now close **5 April 2011**. Applications for this call should be made through the National Health and Medical Research Council. To apply for the Human Health call visit www.nhmrc.gov.au



Image: Alpha

Primary Industries grants wrap-up

Expressions of Interest closed on 14 March for the \$2 million dollars available under the Australian Government Climate Change Adaptation Research Grants Program for research that meets the priorities identified in the *National Climate Change Adaptation Research Plan: Primary Industries*.

The research call for this funding will be administered by NCCARF and applications assessed by an independent scientific review panel.

Freshwater Biodiversity call opening soon

The *National Climate Change Adaptation Research Plan: Freshwater Biodiversity* has been completed and is expected to be released in coming weeks.

It will be accompanied by an open funding call of \$2 million for research addressing the priorities detailed in the Plan.

For more information check the NCCARF website regularly, or subscribe to the NCCARF Twitter feed for updates.

Grants awarded for settlements and infrastructure research

The Department of Climate Change and Energy Efficiency has announced the first round of grants allocated under the Settlements and Infrastructure research funding call.

A second raft of grants is currently being assessed by the Science Review Panel. Projects funded to date include:

- » Past, Present and Future Landscapes: Understanding Alternative Futures for Climate Change Adaptation of Coastal Settlements and Communities. Principal Investigator: Professor David Brunckhorst (University of New England).
- » Reforming Planning Processes Trial: Rockhampton 2050. Principal Investigator: Ms Penelope Fry (Rockhampton Regional Council).
- » Development of tools that allow Local Governments to translate climate change impacts on assets into strategic and operational financial and asset management plans. Principal Investigator: Dr Jacqueline Balston (Local Government Association of South Australia).

- » Pathways to Climate Adapted Public Housing Principal Investigator: Guy Bamett (CSIRO Sustainable Ecosystems).
- » A model framework for assessing risk and adaptation to climate change on Australian coasts. Principal Investigator: Professor Colin Woodroffe, (University of Wollongong).
- » Enhancing the resilience of seaports to a changing climate. Principal Investigator: Professor Darryn McEvoy (RMIT University).



Image: Marcus Wong

News from the Adaptation Research Networks

Terrestrial Biodiversity

Over the last five months the network has undertaken a series of national Roadshows with the aim of increasing stakeholder involvement in the network and helping to identify impacts, concerns and adaptation options for terrestrial biodiversity and climate change specific to each region/state and ecosystem. To date over 260 people have attended events in Qld, Vic, WA, ACT and SA. This has resulted in a significant increase in stakeholder membership in the network, clearly demonstrating a very high level of participation from a national Network of over 1000 members. All presentations and information from these and future events are available on our website www.nccarf.edu.au/terrestrialbiodiversity/index.php/roadshows.html. The next roadshows will be in NT, NSW and Tas in May 2011.

A workshop "Riparian Ecosystems and Adaptation for Climate Change" will be held in NT from 20-24 June. Approximately 20 national and international invited participants will take part, and the workshop will help to formalise links between the networks for Water Resources and Freshwater Biodiversity, Terrestrial Biodiversity and Primary Industries. Workshop participants will discuss major issues concerning the impacts, vulnerabilities and adaptation to climate change in riparian ecosystems. The outcomes from this workshop will be presented as an information sheet and papers in peer reviewed articles.

This Network has offered Honours/Masters project funding and PhD collaborative travel funding for April 2011 for projects which relate to climate change adaptation for terrestrial biodiversity. Up to 10 students may receive each grant, adding to the 33 students already funded by the Network during 2009-2010.

In addition to our usual activities, the Network will commence work on a Terrestrial Biodiversity Report Card during 2011 to add to its growing portfolio of information sheets and resources on topics relevant to adaptation of Terrestrial Biodiversity to Climate Change. Check our website to find the latest information sheet on Genetic Translocation. More Network news: <http://hosting2.arcs.org.au/terrestrialbiodiversity>

Climate Commission: Terrestrial Biodiversity Network co-convenor Lesley Hughes (right) has been appointed one of six commissioners on the Australian Government's new independent Climate Commission.

Find out more about the Commission at www.climatechange.gov.au



Human Health

The new network website is now live, featuring the latest news and events in the climate change and human health area. Please send through any items for publication on the website. For further information please visit: www.nccarf.edu.au/humanhealth

New Network Discussion Paper

Food Systems, Climate Change Adaptation and Human Health in Australia – the fourth in a series of Discussion Papers commissioned by the Network has been published. The paper reviews the current state of the human health and food systems research in the context of climate change. The paper brings together expertise from leading Australian researchers and policy-makers in the fields of health and food. Download a copy of the Discussion Paper at www.nccarf.edu.au/humanhealth (click Discussion Paper Series.)

Human Health Grants – Third Round Open

The NHMRC has announced that the call for applications for the third round of funding for project grants under the Health Challenges of Climate Change initiative has been extended to 5 April 2011. There is \$4.1 million available for new projects that address the priorities in the *National Climate Change Adaptation Research Plan: Human Health*. More Network news: www.nccarf.edu.au/humanhealth

Primary Industries (PIARN)

PIARN awarded nine postgraduate student travel scholarships in February, allowing them to attend the CCRSPI Conference. The students, all undertaking research in climate change adaptation for primary industries, came from a variety of disciplines including economics, agronomy, sociology and forest science.

They joined six other Melbourne-based students at the PIARN Postgraduate Workshop for an afternoon of networking, expert presentations and professional development. Each student gave a three-minute presentation on their thesis topic, with Tas Thamo from the University of Western Australia awarded best presentation and the chance to present his research on greenhouse gas mitigation on WA farms during the PIARN-sponsored 'Transformational Adaptation' session at the CCRSPI Conference. The PIARN session included a keynote address from PIARN convenors Snow Barlow and Mark Howden, as well as presentations on adaptation in action within the wheat and peanut industries, and a case study talk from rice grower Laurie Arthur. PIARN theme leader Peter Hayman also delivered a plenary talk on farming systems.

All presentations are available at www.theccrspiconference.com.au. More Network news www.piarn.org.au

Settlements and Infrastructure

The Year 2010 proved to be extremely busy and productive for the Adaptation Research Network for Settlements and Infrastructure (ACCARNSI) with the focus on strengthening stakeholder involvement in our research activities. In 2011 we will continue to engage with stakeholders, and concentrate on developing a local government initiative. Local government representatives from around Australia met with ACCARNSI at the end of 2010 to workshop the Initiative and inform on relevance and need from an end user perspective. The outcomes of the local government initiative will be presented around the country at a series of road shows in June/July this year.

Following the highly successful Early Career Researchers (ECR) event in Adelaide in November 2010, the 5th ACCARNSI National Forum and Workshop for Early Career Researchers will be held at the University of New South Wales from May 11-13. The event provides an opportunity for Early Career Researchers to engage with researchers from other Australian institutions and facilities. It will enable participants to discover the broad range of climate change adaptation research in Australia, and present the potential to influence the future direction of research. The Call for Abstracts is now open. See the ACCARNSI website www.nccarf.edu.au/settlements-infrastructure/node/1.

Draft Position Papers by Michelle Philp and Michael Taylor from the Urban Transport, Management and Inclusion Node and Phil Booth, Peter Graham and Nan Chen from the Built Environment, Innovation and Institutional Reform Node were well received by ACCARNSI Members, with positive feedback from a broad range of end users, including state government, industry, research institutions and government facilities. The Position Paper 'Adapting to climate change – implications for transport infrastructure, transport systems and travel behaviour' by Michelle Philp and Michael Taylor is available at www.nccarf.edu.au/settlements-infrastructure/resources More Network news: www.nccarf.edu.au/settlements-infrastructure email accarnsi@unsw.edu.au.

Right:
 Life on the edge. 2010 ACCARNSI Honours and Masters Research Grant recipient Stacey Atkinson took this image while



collecting research data in the Solomon Islands. Her thesis considered the climate change impacts specific to the Solomon Islands region, the adaptation strategies appropriate for the context and the trigger points which impel people on a community level to adapt. Stacey now holds a graduate position with AECOM's environment team.

Water Resources and Freshwater Biodiversity

Network and CSIRO collaborate on water scenarios project

The Network, in collaboration with CSIRO, has begun a one year project focusing on future water scenarios. This project aims to collate and synthesise existing research on hydrological scenarios as impacted by climate change, drawing useful conclusions of particular relevance to the freshwater biodiversity and water resources sectors. It is hoped that the results of this project will be made available via the Network's website during 2011. In addition to a major literature review, the project will involve organisation of a National workshop, to be held in August, to investigate cross-sectoral links with the water sector and identify gaps and priorities for research in water scenarios.



Carolina Casaril (left) has commenced a position as Climate-Water Scientist at CSIRO in Canberra to undertake the bulk of this project. Carolina has a Bachelor of Applied Environmental Science from the University of Queensland and Honours from

the Lund Technological Institute, Sweden. She has worked for 3 years in the development of Regional Water Supply Strategies and water policy with the QLD Government. Her particular interests lie in the integration of climate science into water management and policy. Carolina also received a 2011 QLD-China Fellowship and will spend 4 weeks in Beijing in October to investigate climate change and water policy in China. She is completing a PhD looking at constructed wetlands as tools for climate change adaptation. Contact Carolina at carolina.casaril@csiro.au More Network news www.nccarf.edu.au/water.

Marine Biodiversity and Resources

Organisers of the Marine Adaptation Network were actively involved in the first "Australian Seafood Industry and Climate Change Symposium" coordinated by the Queensland Seafood Industry Association (QSIA) held at the Mercure Hotel in Brisbane on 3-4 March 2011.

Neil Holbrook, Alistair Hobday and Sarah Jennings from the Marine Adaptation Network collectively provided keynote addresses on climate change, fisheries and economics, while Neil also participated in a plenary panel session. Paul and Nadine Marshall gave separate addresses to the meeting, and Clare Brooker was busy with recruitment of new members. The Symposium was funded through a Department of Agriculture, Fisheries and Forestry (DAFF), "Farmready" grant, and brought together peak body representatives, industry members, managers, government representatives and scientists to converse on issues surrounding the seafood industry and climate change. More Network news www.arndbr.org

Social, Economic & Institutional Dimensions

The Adaptation Research Grants Call for the Social, Economic and Institutional Dimensions of Climate Change is open, with \$5 million available for research that addresses the priorities outlined in the National Climate Change Adaptation Research Plan: Social, Economic and Institutional Dimensions. The funding call closes on 21 March. To apply see www.nccarf.edu.au

Adaptation College

Members of the Adaptation College will lead a local government program 'Adaptation in local government: New modes of communication for climate change' at the NCCARF Climate Change Adaptation Conference 2011 in Cairns on 6 April. Local governments have long been considering how best to bridge the gap between science and policy, and how to employ innovative strategies to ensure policy is inclusive and well understood by their primary 'customer' base – the community. In order to support best practice in governance and policy outcomes and to mitigate future liability/public perception issues, local governments need to ensure that their community is both aware of, and engaged in, the development of new, climate change focused policy.

This half-day workshop will explore how local government can better understand the psychology of communities to ensure the development of cohesive policy, practices and projects which engender trust in the processes and outcomes. The program will outline ways local governments can engage with their communities via new, different, innovative modes, which might reach new audiences and foster community champions. A diverse line-up of speakers working in, or with, local governments to achieve different levels of community awareness and engagement will demonstrate the different ways that local governments are seeking to engage their communities, and the interesting outcomes these strategies have yielded. More Network news www.nccarf.edu.au/social-economic-and-institutional-dimensions

Adaptation Research Network contacts:

Terrestrial Biodiversity co-convened by Professor Stephen Williams (JCU), and Professor Lesley Hughes (Macquarie). Contact: Coordinator Yvette Williams yvette.williams@jcu.edu.au

Water Resources & Freshwater Biodiversity convened by Professor Stuart Bunn (Griffith). Contact: Coordinator Sam Capon climate.water@griffith.edu.au

Marine Biodiversity & Resources convened by Associate Professor Neil Holbrook (UTas). Contact: Coordinator Clare Brooker arnmbr@arnmbr.org

Human Health convened by Professor Tony Capon (ANU). Contact: Coordinator Peter Thomas arn.humanhealth@anu.edu.au

Emergency Management

The emergency management network has several events planned in the coming months.

Recovery workshop and seminar

On Tuesday 12 April 2011, the Network will host a workshop on disaster recovery at RMIT University Melbourne. Speakers include Rebecca Whittle from Lancaster University who specialises in flood recovery, and representatives from GNS Science New Zealand focussing on earthquake recovery together with other speakers, in a workshop building on the themes canvassed in the 2010 recovery workshop.

Rebecca will also speak at a seminar on recovery from drought disasters in Perth involving the University of Western Australia and the Fire and Emergency Services Authority Western Australia, (FESA), later that week as part of the WA node of the Emergency Management Network.

Emergency Management and Climate Change Adaptation Workshop

This workshop will be held on May 20 2011, RMIT University Melbourne. It is part of the research-meets-end user activity of the Network and will include a number of international experts speaking in a workshop format in a whole-day event.

Speakers from the United Kingdom, Canada, Japan, New Zealand the Solomon Islands meeting in Australia for the IPCC Special Report on Extremes will meet with emergency management practitioners and policy representatives, such as those from the Office of the Emergency Services Commission among others in the one day workshop. More Network news www.nccarf.edu.au/emergency-management/

Settlements & Infrastructure convened by Associate Professor Ron Cox (UNSW). Contact: Coordinator Tamara Rouse accarnsi@unsw.edu.au

Primary Industries convened by Professor Snow Barlow (Melbourne) Contact: Coordinator Alison Turnbull pian-coordinator@unimelb.edu.au

Emergency Management convened by Professor John Handmer (RMIT). Contact: Coordinator Frank Yardley frank.yardley@rmit.edu.au

Social, Economic & Institutional Dimensions convened by Associate Professor Jon Barnett (Melbourne). Contact: Coordinator Tina Soundias tinias@unimelb.edu.au

Networks on the net:

Each Adaptation Research Network has its own website. See www.nccarf.edu.au/adaptation-research-networks for links.

NCCARF Conference 2011

Wednesday 6 April, 2011

Cairns Convention Centre, Cairns, Australia

The Programme for the NCCARF Conference 2011 is now available online. NCCARF will host this one-day climate change adaptation conference in Cairns, in conjunction with Greenhouse 2011. Registration is free. Workshops will include:

- » Adaptation by local government: new modes of communication for climate change
- » Uncertainty in the science and the implications for climate change adaptation
- » Science, policy and people
- » Urbanisation, human health and climate change adaptation
- » Australasia in the IPCC 5th Assessment (WGII)

Registration is now open, but space is extremely limited. Please register at www.nccarf.edu.au/conference-2011 For those unable to attend, slides and audio recording of the plenary addresses will be available online.

Register now!



Research Roadshow continues

NCCARF researchers will present recent findings from NCCARF Research Programs at a forum in Hobart, Tasmania on March 17. Held in cooperation with the Tasmanian Government Climate Change Office, the event presents key lessons learnt from the first phase Synthesis and Integrative Research projects, and an overview of Phase II and III projects. The day will explore ways to get involved in NCCARF activities including the Adaptation Research Networks, with presentations from the Primary Industries, and Marine Biodiversity and Resources Network convenors. It will be followed by a public seminar with NCCARF Visiting Fellow Declan Conway, who will share lessons from adaptation work in developing countries with a focus on water, primary industries and food security. Register to attend the [Roadshow and Seminar](#) or [Seminar only](#).

Roadshows are planned for Perth and Adelaide in April. Contact Ann Penny at a.penny@griffith.edu.au to express your interest.



Image: Peter Shanks

Climate Adaptation Masterclass

Friday 20 May 2011, Queensland Museum

In May NCCARF will host a one-off workshop dedicated to the theory and practice of climate change adaptation.

This event aims to build Australian understanding and capacity by providing researchers and decision-makers with the latest international thinking on climate change adaptation. The workshop will feature some of the world's leading climate change adaptation thinkers and practitioners.

Researchers, policy and decision makers, especially those in their early and mid careers, should attend. Sessions include:

- » Defining and assessing vulnerability
- » The process of scientific learning and scientific assessment: its role in problems of global change
- » Limits to adaptation, maladaptation
- » Risk and risk management
- » Linking global science and local knowledge
- » Bridging the science-policy interface
- » Hazard response: reducing risk or vulnerability?
- » Gender and climate change
- » Prioritising adaptation and conservation
- » Adaptive management of water resources

Register now

Places in the masterclass are strictly limited and available on a first-in basis. There is a \$80 register fee. Register at <http://register.yrd.com.au/nccarf>

Upcoming events and Activities

NCCARF hosts regular climate change adaptation seminars and networking events. To suggest speakers or host a seminar at your organisation, email j.langan@griffith.edu.au. Slides and audio from most past seminars can be viewed online at www.nccarf.edu.au

March 17: 'Adapting to climate change in China: Lessons for research and policy' HOBART. Professor Declan Conway (UEA) will present recent research on understanding the combined effects of climate change and changing water availability on national level food production in China and summarize insights from an ongoing international project to incorporate climate change adaptation into planning processes at the provincial level. WHERE: Hobart Function and Convention Centre **RSVP:** Register online at <http://conway-hobart.eventbrite.com>

Deadline extended: The 'Bommie' Awards - Searching out innovative concepts to preserve the Great Barrier Reef in the face of climate change. Entries close March 25 for the Great Barrier Reef Foundation's Bommie Awards recognising innovative adaptation solutions or concepts for the Great Barrier Reef. For more visit www.barrierreef.org

For more information about climate change adaptation events and activities visit: www.nccarf.edu.au/events

Climate Adaptation Champions

There has been an overwhelming response to the newly-established Climate Adaptation Champions initiative, with over 30 nominations received.

The aim of the initiative is to recognise and highlight individuals, organisations and programs demonstrating leadership in climate change adaptation. Climate Adaptation Champions will be awarded under two categories: individual and organisation. Climate Adaptation Champions will be announced in April 2011.

For more information contact Ann Penny a.penny@griffith.edu.au.

NCCARF partners



Contact NCCARF

Director's Office

Professor Jean Palutikof
 Director
 Email: j.palutikof@griffith.edu.au

Maree Lauder
 Personal Assistant to Director
 Tel: 07 5552 9333
 Email: m.lauder@griffith.edu.au

Sarah Boulter
 Research Fellow
 Tel: 07 3735 6594
 Email: s.boulter@griffith.edu.au

Research Planning Unit

Richard McKellar
 Deputy Director Research Manager
 Tel: 0466 130 485
 Email: r.mckellar@griffith.edu.au

Frank Stadler
 Research Team Leader
 Tel: 07 5552 7268
 Email: f.stadler@griffith.edu.au

Daniel Stock
 Research Fellow
 Tel: 07 5552 7225
 Email: d.stock@griffith.edu.au

Ida Fellegara
 Research Fellow
 Tel: 07 5552 7235
 Email: i.fellegara@griffith.edu.au

Knowledge Adoption Unit

Marie Waschka
 Manager Knowledge Adoption
 Tel: 07 5552 7735
 Email: m.waschka@griffith.edu.au

Jeannette Langan
 Knowledge Communicator
 Tel: 07 5552 8891
 Email: j.langan@griffith.edu.au

Ann Penny
 Networks Coordinator
 Tel: 07 5552 7548
 Email: a.penny@griffith.edu.au

Kathryn Wallis
 Web Communications Officer
 Tel: 07 5552 7215
 Email: k.wallis@griffith.edu.au

Donovan Burton
 Consultant
 Tel: 0435 041 385
 Email: d.burton@griffith.edu.au

Administration

David Rissik
 Deputy Director General Manager and Synthesis and Integrative Research Program
 Tel: 07 5552 8247
 Email: d.rissik@griffith.edu.au

Jenny Watson
 Business & Operations Manager
 Tel: 07 5552 7239
 Email: j.watson@griffith.edu.au

Kerry Fitzgerald
 Administration Officer
 Tel: 07 5552 7326
 Email: k.fitzgerald@griffith.edu.au

National Climate Change Adaptation Research Facility

Griffith University Gold Coast Campus
 Qld Australia 4222
 Tel: 07 5552 9333
 Fax: 07 5552 7333
www.nccarf.edu.au

If you have comments, feedback or news items you would like included in the next NCCARF Newsletter please contact Jeannette Langan j.langan@griffith.edu.au

To receive this newsletter please subscribe online at: www.nccarf.edu.au/user/register

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