

THEME 4: SCIENCE LEADERSHIP AND SUPPORT

Principal Investigators

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Background

IOCI 3 is a major research programme. In addition to the results generated by each project against its own milestones, the Initiative is expected to deliver a holistic and integrated understanding of climate change and variability to State partners and stakeholders. This requires:

- Effective coordination of the programme across the research providers and with the State.
- Regular presentations to staff from State agencies and to public audiences.
- Synthesis of emerging messages into a policy-ready form that is useful for government and industry.

Achievements

Major Revamp of IOCI Image

- New logo for IOCI – The new logo represents the interaction between the land surface of Western Australia and the Indian Ocean to its west. The ‘O’ in the logo represents a large-scale mid-latitude weather system – alluding to the emphasis within the research on examining what the large-scale weather systems reveal about climatic variability in the region and how they can provide information for regional reconstructions. The white space within the ‘O’ is the symbol for a tropical cyclone – alluding to the new emphasis on the north of the State.
- Complete make-over of the ‘look’ of the IOCI website (<http://www.ioci.org.au>), making it more approachable

New Public Outreach Material

- Three new fact sheets: *How WA's Climate has Changed*, *The Future of WA's Climate*, and *The Role of IOCI in Understanding WA's Changing Climate*.

- New, up-to-date, information on progress under each of the 10 research subprojects in the IOCI programme now available directly from the IOCI website
- IOCI booth at Greenhouse 2009 conference (23-26 March 2009, Perth)
- A poster clearly showing the spatial signature of rainfall across the South-West, including the seasonal cycle and the decadal variability at each high-quality station – used at IOCI stand at Greenhouse 2009, and posted at the front desk for climate enquiries at the WA office of Bureau of Meteorology, and used for field days. (Ganter, C.J. and P. Hope)

Events

- WAMSI Kimberley-Browse Marine Science Summit, 12 March 2008
- Science at Parliament, 19 March 2008
- IPCC Twenty-Eight Session, Budapest, Hungary, 9-10 April 2008
- Inaugural IOCI 3 workshop, 28 August 2008
- IOCI 3 session, Greenhouse 2009, Perth, 25 March 2009

Engagement

- AECOM and Main Roads – Climate Change Datasets Pilot Project: Swan River Catchment.
- Agricultural Research Western Australia's Climate Adaptation Program
- Atmospheric Circulation Reconstructions over the Earth project (<http://www.met-acre.org/Home>)
- Department of Climate Change
- NCCARF
 - Water Resources and Freshwater Biodiversity National Adaptation Research Plan
 - Water Resources and Freshwater Biodiversity Adaptation Research Network
- South Eastern Australia Climate Initiative – Technical Working Group
- Western Australian Marine Science Institution

International Visitors

- Dr Richard Chandler (Department of Statistical Sciences, University College London, UK), Perth, 12-21 May 2008
- Dr Xiaogu Zheng, (Professor and Chief Scientist, College of Global Change and Earth System Science, Beijing Normal University, China /NIWA), visited the Bureau in Melbourne for collaborative research on IOCI 3 related projects 21 January – 1 February, 2008 and 19 April – 1 May, 2009.
- Anne LeRoy, Meteo France, 5 Rue Vincent Auriol, BP 151, Noumea, 98845, New Caledonia (Email: anne.leroy@meteo.fr)

Overseas Invitations

- Dr Bates appointed as:
 - Member, Expert Group on Climate Change and Water, The United Nations' World Water Assessment Programme.
 - Member, Expert Group on Scenarios, The United Nations' World Water Assessment Programme.
 - Member, Expert Advisory Board, European Union WATER and global CHANGE (WATCH) Project.
- Dr Frederiksen was invited by Professor Xiaogu Zheng to visit:

- College of Global Change and Earth System Science, Beijing Normal University, China, 27 March – 23 April for collaborative research on IOCI 3 related projects.
- National Institute for Water and Atmospheric Research (NIWA) for collaborative research on IOCI 3 related projects, 1-14 June 2008 and 9-23 June 2009.

New Points of Access for Data Retrieval

- Bureau of Meteorology – Project 1.4

Media

- Radio interview – Nova, ABC Kimberley
- Print interviews – West Australian

List of IOCI-Related Presentations

9th International Conference on Southern Hemisphere Meteorology and Oceanography, Melbourne, 9-13 February 2009

- Frederiksen, J.S. and C.S. Frederiksen, *Changes in Southern Hemisphere Storms and Rainfall*.
- Hope, P., I. Simmonds, M. Pook, K. Keay, J. Risbey and P. McIntosh, *A Comparison of Frontal Number using a Range of Identification Methods - A Case Study in South Western Australia* (poster).
- Ganter, C. and P. Hope, *Changes in Intensity of South West Western Australian Rainfall* (poster).
- Hope, P., B. Timbal, M. Wheeler and R. Fawcett, *A Strengthening Link between Rainfall Variability in the East and West of Southern Australia*.

Greenhouse 2009 - Climate Change and Resources, Perth, 23-26 March 2009

- Bates, B.C., *Climate Activities in Australia*, (keynote), 24 March.
- Bates, B.C., R. Chandler and S.P. Charles, *Trends in Hydroclimatic Series in Southwest WA*, IOCI Session, 25 March.
- Braganza, K., D. Collins, D. Jones, M. Marinelli, C.J. Ganter, P. Hope and G. Cook, *Improved Climate Data and Monitoring for Western Australia to Support the Understanding of Past, Present and Future Climate*, IOCI Session, 25 March.
- Frederiksen, J.S., C.S. Frederiksen, and S. Osbrough, *Seasonal and Decadal Shifts in Weather Systems Affecting WA*, IOCI Session, 25 March.
- Frederiksen, J.S. and C.S. Frederiksen, *Twentieth Century Changes in Southern Hemisphere Storm Tracks in Climate Models and Reanalyses*, IOCI Session, 25 March.
- Frederiksen, C.S., J.S. Frederiksen and J.M. Sisson, *Atmospheric Winter Circulation Changes during the Twentieth Century affecting Western Australia in Climate Models and Reanalyses*, IOCI Session, 25 March.
- Fu, G., Charles, S.P. and Z. Liu, *Assessing IPCC AR4 GCMs for Statistical Downscaling in Southwest Western Australia*, IOCI Session, 25 March.
- Hope, P. and C. Ganter, *Historical, Recent and Projected Rainfall Trends in Western Australia*, (invited), IOCI Session, 25 March.
- McBride, J.L. and H. Ramsay, *Southern Hemisphere Sea Surface Temperatures and Tropical Cyclone Activity*, IOCI Session, 25 March.

- Rotstayn, L. *Why Aerosols Matter for Australian Climate Change*, IOCI Session, 25 March.

Joint AMOS-WAMSI Symposium, Perth, 27 March 2009

- Bates, B.C., *Climate Change Overview*.
- Braganza, K., D. Collins, D. Jones, M. Marinelli, C.J. Ganter, P. Hope and G. Cook, *Improved Climate Data and Monitoring for Western Australia to Support the Understanding of Past, Present and Future Climate*.
- Frederiksen, J.S., C.S. Frederiksen, and S. Osbrough, *Changes in Southern Hemisphere Storm Tracks during 20th Century*.

Other

- Bates, B.C., *Climate Change: A Predetermined Future?*, WA Wetlands Conference, Perth, 1 February 2008.
- Bates, B.C., *Climate Change and Implications for Surface Water Management*, Invited Seminar, Australian Rivers Institute, Griffith University, Brisbane, 8 May 2008.
- Bates, B.C., *Global Warming – Natural Phenomena versus Human Activity*, Australian Veterinary Association, Annual Conference, Perth, 26 May 2008.
- Bates, B.C., *Water Resources: Hydroclimatic Forensics through Reanalysis*, Atmospheric Circulation Reconstruction over the Earth (ACRE) workshop, Zurich, Switzerland, 24 June 2008.
- Bates, B.C., *CSIRO's Work Plans for Northern Australia*, Northern Australia Workshop, Perth, 30 June 2008.
- Bates, B.C., *Global Warming and Natural Resources Management – An Update*, briefing, Natural Resources Management Council, Western Australia, Perth, 5 September 2008.
- Bates, B.C., *Global Warming and its Likely Impact on the Southwest*, Carbon Futures – The Impact of Climate Change and the Carbon Pollution Reduction Scheme on Australia's South West, Critical Horizons seminar series, Bunbury, 4 December 2008.
- Bates, B.C., *Water in a Changing Climate*, Intelligent Use of Water Summit, Sydney, 19 March 2009.
- Bates, B.C., *Climate Change and Weather Extremes: The State of Knowledge*, FESA Emergency Management Conference, Perth, 17 April 2009.
- Bates, B.C., *An Update on Climate Change Science*, (invited seminar), Department of Fisheries, WA, Perth, 8 May 2009.
- Bates, B.C., *Climate Change and the Adaptation Challenge*, Community Climate Change Dialogue, Conservation Council of WA, Perth, 28 June 2009.
- Frederiksen, C.S., S. Grainger and X. Zheng, *A Method for Estimating the Potential Long-range Predictability of Precipitation over Western Australia*. 14th Biennial Computational Techniques and Applications Conference, 13-16 July, 2008, ANU, Canberra.
- Frederiksen, J.S. and C.S. Frederiksen, *Changes in Southern Hemisphere Cyclogenesis and Rainfall since the mid-1970s*. Western Pacific Geophysics Meeting, American Geophysical Union, Cairns, 29 July – 1 August, 2008.
- Frederiksen, J.S. and C.S. Frederiksen, *Changes in Southern Hemisphere storm Tracks during the Twentieth Century*. A Changing Climate: Western Australia in Focus, University of Western Australia, Perth, 27 March 2009.

- Grainger S., C.S. Frederiksen and X. Zheng, *Estimating the Potential Predictability of Western Australian Surface Temperature using Monthly Data*. 14th Biennial Computational Techniques and Applications Conference, ANU, Canberra, 13-16 July 2008.
- Hope, P., *Understanding the Drivers of Australia's Rainfall Shifts and Variability and what this means for the Future*, 5th Australian Water Summit, Sydney, April 2009.
- Hope, P., Panel discussion of: *Facing a Hot, Dry Future. How your Research-Driven Career in Environmental, Sustainability or Water Management will help us Adapt to Climate Change*, The University of Melbourne, April 2009.