

**Senate Standing Committee on Economics**  
**ANSWERS TO QUESTIONS ON NOTICE**  
Innovation, Industry, Science and Research Portfolio  
Budget Estimates Hearing 2010-11  
31 May 2010

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**AGENCY/DEPARTMENT:** AUSTRALIAN RESEARCH COUNCIL

**TOPIC:** ARC Research Grants to Climate Change

**REFERENCE:** Question on Notice (Hansard 31 May 2010, E40)

**QUESTION No:** BI-20

**Senator IAN MACDONALD**—Thank you for supplying me, on notice, an answer to a question I asked a year ago about the ARC research grants to climate change. Can you update the list I was given?

**Prof Sheil**—We will be happy to do that, but I would have to take that on notice.

**ANSWER**

Details of grants awarded under the Australian Research Council (ARC's) National Competitive Grants Program (NCGP) to projects related to climate change are provided at Attachment A. The list provided comprises those grants announced since the previous answer was provided.

To identify projects either related to climate change research, a search of projects awarded funding under the NCGP was undertaken using the following search criteria: (i) the keywords 'climate change', 'global warming' or 'greenhouse gas' in the 'Project title', 'Project abstract' or 'National Benefit Text' fields of the application; (ii) projects that had selected the Socio-Economic Objective (SEO) code of 770101 (climate change) as being relevant to the research; and (iii) projects that had selected the Field of Research (FOR) code of 040104 (climate change processes) or 050101 (ecological impacts of climate change). The list of projects identified through this search was then checked for relevance. The details provided are at the time research proposals were approved for funding and exclude any post-award variations that may subsequently have been approved.

**ATTACHMENT A**

**\*\* All figures are GST exclusive.**

<b>Start Year (Note 1)</b>	<b>Scheme (Note 2)</b>	<b>First-named Chief Investigator (Note 3)</b>	<b>Administering Organisation (Note 4)</b>	<b>Project Title</b>	<b>Funding allocated over the life of the project</b>
2009	LP	Newman, P	Curtin University of Technology	Decarbonising Cities and Regions	\$310,000
2009	FF	Dosseto, A	Macquarie University	The response of soil and river processes to climate change and human activity in Australia	\$686,400
2009	FF	Scheffers, A	Southern Cross University	Unravelling Western Australia's Stormy Past – A Precisely-Dated Sediment Record of Cyclones over the past 7000 years	\$686,400
2009	FF	Atkin, O	The Australian National University	Climate dependence of plant respiration in a warmer, drier world	\$891,200
2009	LP	Tibby, J	The University of Adelaide	The history of North Stradbroke Island's wetlands: defining natural climate variability in south-east Queensland and improving ecosystem management	\$200,000
2009	FF	Lane, T	The University of Melbourne	The dynamics of deep convective clouds and their role in the climate system	\$686,400
2009	LP	Gergis, J	The University of Melbourne	Reconstructing pre-20th century rainfall, temperature and pressure for south-eastern Australia using palaeoclimate, documentary and early weather station data	\$340,000
2009	ALF	Mumby, P	The University of Queensland	Adapting the sustainable exploitation of coral reef resources to provide for climate change	\$2,985,000
2009	FF	Richardson, A	The University of Queensland	The resilience of marine ecosystems and fisheries to climate change: exploring adaptation strategies	\$788,800
2009	FF	Franks, P	The University of Sydney	Past and future effects of climate change on the carbon-water balance of plants	\$756,800
2009	FF	Strutton, P	University of Tasmania	Southern Ocean productivity and carbon dioxide (CO <sub>2</sub> ) exchange under current and future climate regimes	\$788,800
2010	LIEF	Mather, D	Australian Institute of Nuclear Science and Engineering	High-resolution ITRAX XRF core scanning facility for global change research	\$420,000
2010	SSF	Lough, J	Australian Institute of Marine Science (AIMS)	A changing climate for calcification on the Great Barrier Reef: past, present and future	\$835,200

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2010	LIEF	Grice, K	Curtin University of Technology	High resolution liquid chromatography mass spectrometry (Orbitrap) for analyses of polar compounds in biomass, petroleum, potable and reclaimed water	\$300,000
2010	DP	Xu, Z	Griffith University	Environmental fingerprints of biogeochemical cycles embedded in tree rings: Linking global climate change to local long-term forest productivity	\$450,000
2010	DIRD	Hunter, C	James Cook University	Developing predictive tools for rapid assessment of multiple impacts, including climate change, on the marine ecosystem of Torres Strait (Australia)	\$180,834
2010	SSF	Hughes, T	James Cook University	Resilience of Coral Reef Ecosystems to Climate Change	\$556,800
2010	DP	Stern, N	La Trobe University	Human responses to long term landscape and climate change in the Willandra Lakes World Heritage Area	\$652,000
2010	DP	Petelina, S	La Trobe University	The coldest region on Earth gets even colder	\$95,000
2010	LP	Kear, B	La Trobe University	Mesozoic Austral Biodiversity: Research and Regional Museum Applications	\$600,000
2010	DP	Medlyn, B	Macquarie University	Elevated carbon dioxide (CO <sub>2</sub> ) effects on vegetation: repairing the disconnect between experiments and models	\$335,000
2010	DP	Beardall, J	Monash University	Toxic cyanobacterial blooms in a carbon dioxide (CO <sub>2</sub> )-rich world: assessing the impacts of global climate change	\$290,000
2010	DP	Christensen, S	Queensland University of Technology	An Integrated Legal Regime for a Sustainable Carbon Cycle	\$324,000
2010	DP	Nothdurft, L	Queensland University of Technology	Environmental stress indicators in coral skeletons	\$120,000
2010	DP	Cockburn, A	The Australian National University	Fitness in free-living populations in a changing world	\$626,000
2010	DP	O'Neill, T	The Australian National University	The improvement of climate change investigations by developing and applying innovative evolutionary subset time series modelling using semi-parametric sparse-patterned approaches	\$300,000

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2010	DP	Atkin, O	The Australian National University	Leaf respiration under drought: a global perspective	\$330,000
2010	DP	Griffiths, R	The Australian National University	Sensitivity and Change in the Global Ocean Overturning	\$435,000
2010	DP	Barrows, T	The Australian National University	Understanding global warming using long-term glacier retreat records	\$160,000
2010	DP	Gagan, M	The Australian National University	Multi-proxy fingerprinting, absolute dating, and large-scale modelling of Quaternary climate-volcano-environment impacts in southern Australasia	\$550,000
2010	SSF	Fifield, L	The Australian National University	Novel dating methods for marine sediments of relevance to determining past climate changes	\$556,800
2010	DP	Lambert, M	The University of Adelaide	A new flood design methodology for a variable and changing climate	\$340,000
2010	DP	Keough, M	The University of Melbourne	Understanding the ecological resilience of near shore marine communities	\$350,000
2010	DP	Han, S	The University of Melbourne	Configuring low carbon cities: an exploration of the role of spatial parameters in monocentric and polycentric examples in China	\$481,000
2010	DP	Moss, J	The University of Melbourne	Egalitarian Responses to Climate Change	\$218,500
2010	DP	Rayner, P	The University of Melbourne	Assimilation of trace atmospheric constituents for climate (ATACC): Linking chemical weather and climate	\$940,000
2010	SSF	Walker, J	The University of Melbourne	Towards operational monitoring of key climate parameters from synthetic aperture radar	\$556,800
2010	LP	Barnett, J	The University of Melbourne	Equitable local outcomes in adaptation to sea-level rise	\$298,000
2010	LP	McMahon, T	The University of Melbourne	Narrowing the scatter and assessing the uncertainty of climate change projections of Australian river flows	\$240,000
2010	DP	Metcalf, I	The University of New England	Understanding mass extinctions and deep-time climate change: International Timescale Calibration of the Late Permian-Early Triassic of Australia.	\$230,000
2010	DP	Black, K	The University of New South Wales	Drying and dying in Australia: extraordinary creatures and climate change 15 million years ago	\$550,000

<b>Start Year (Note 1)</b>	<b>Scheme (Note 2)</b>	<b>First-named Chief Investigator (Note 3)</b>	<b>Administering Organisation (Note 4)</b>	<b>Project Title</b>	<b>Funding allocated over the life of the project</b>
2010	DP	England, M	The University of New South Wales	Modes of Pacific Ocean variability and their relationship to regional Southern Hemisphere climate	\$264,237
2010	DP	Cavicchioli, R	The University of New South Wales	Microbial genomics of the southern ocean: monitoring environmental health	\$950,000
2010	DP	Peters, G	The University of New South Wales	Interdisciplinary greenhouse gas assessment - nitrous oxide emissions from marine wastewater disposal	\$320,000
2010	DP	Sijp, W	The University of New South Wales	The equable climate conundrum: the role of the global ocean in multiple climate regimes	\$524,830
2010	DP	Betz, R	The University of New South Wales	Climate change and energy policy: elements of a robust policy mix	\$300,000
2010	SSF	England, M	The University of New South Wales	Precipitation-groundwater interactions over eastern Australia: climate change impacts at multiple scales	\$835,200
2010	DP	Walter, G	The University of Queensland	Understanding responses of tightly coupled ecological interactions of biota vulnerable to climate change: endangered Australian cycads and their pollinators	\$120,000
2010	SSF	Hoegh-Guldberg, O	The University of Queensland	Treading water in a changing climate: The vulnerability of Australia's tropical islands to sea level rise.	\$556,800
2010	DP	Webster, J	The University of Sydney	Integrated Ocean Drilling Program (IODP) drilling in the Great Barrier Reef: unlocking the causes, rates and consequences of abrupt sea level and climate change.	\$372,000
2010	DP	Penny, D	The University of Sydney	Thresholds and hysteresis: how do abrupt changes in the Asian monsoon affect ecosystems and environmental processes?	\$285,000
2010	DP	Lyster, R	The University of Sydney	Developing a legal framework for Indonesia's participation in an internationally sanctioned scheme for reducing emissions from deforestation (and degradation)	\$224,000
2010	DP	Black, C	The University of Sydney	The design and application of taxation laws to domestic and cross-border transactions triggered by carbon emissions trading schemes	\$217,000
2010	DP	Waite, A	The University of Western Australia	Ocean-reef interactions as drivers of continental shelf productivity in a changing climate	\$503,000

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2010	DP	Trotter, J	The University of Western Australia	Global Climate Change, Carbon Dioxide (CO <sub>2</sub> ), and the Evolution of Life in the Palaeozoic and Early Mesozoic	\$355,000
2010	LIEF	McCulloch, M	The University of Western Australia	Advanced Geochemical Facility for Climate and Environmental Change Research: a Western Australian/Indian Ocean focus	\$700,000
2010	DP	Dutta, N	University of South Australia	Shape Controlled Nanostructured Electrocatalyst for Clean Energy Generation	\$430,000
2010	DP	Hallegraeff, G	University of Tasmania	Climate change and ocean acidification: will southern ocean coccolithophorids be winners or losers? Implications for the global carbon pump	\$280,000
2010	DP	Johnson, C	University of Tasmania	Impacts of climate change on biogenic habitat-forming seaweeds in south east Australia	\$275,000
2010	DIRD	Parker, L	University of Western Sydney	Climate change research: Can Sydney rock oysters adapt to chronic multigenerational exposure to ocean acidification and temperature?	\$199,988
2010	DP	Banerjee, S	University of Western Sydney	Corporate and institutional strategies for climate change: An international comparative study	\$295,000
2010	DP	Riegler, M	University of Western Sydney	Insect herbivore and plant responses in eucalypt forests under climate change at physiological, species and community scales	\$305,000
2010	DP	McGregor, H	University of Wollongong	Untangling the links between El Nino and the changing global climate	\$350,000
2010	DP	Dosseto, A	University of Wollongong	Soil erosion and river system response to climate change and early human activity in Australia	\$300,000
2010	DP	Warner, R	University of Wollongong	Harnessing the oceans to combat climate change: Developing law and policy frameworks for ocean energy and climate change mitigation	\$322,000
2010	DP	Nanson, G	University of Wollongong	How green were our deserts? Evidence for Late Quaternary climate change and the source of water in the Lake Eyre basin	\$350,000
2010	LP	Perera, C	Victoria University	Multi-Objective Planning and Operation of Water Supply Systems Subject to Climate Change	\$80,007

Start Year (Note 1)	Scheme (Note 2)	First-named Chief Investigator (Note 3)	Administering Organisation (Note 4)	Project Title	Funding allocated over the life of the project
2011	SSF	Blackall, L	Australian Institute of Marine Science (AIMS)	A Changing Climate on the Great Barrier Reef: Present and Future Implications	\$835,200
2011	SSF	Hughes, T	James Cook University	Resilience of Coral Reef Ecosystems to Climate Change	\$835,200
2011	SSF	Possingham, H	The University of Queensland	Defend or retreat? Adapting to the impacts of sea level rise as a result of rapid climate change.	\$835,200
2011	SSF	McCulloch, M	The University of Western Australia	Indian Ocean Climate Change: Ningaloo Reef, a litmus test for the survival of coral reefs	\$556,800
2011	SSF	Johnson, C	University of Tasmania	Effects of climate change on temperate benthic assemblages on the continental shelf in eastern Australia	\$556,800

#### Note References - (ATTACHMENT A)

**Note (1):** Start year – The list includes projects which received funding commencing in the years 2009 to 2011.

- Data for projects commencing in 2009 comprises data from those schemes for which selection rounds had not been finalised at the time the first question was asked. The schemes are *Linkage Projects Round 2, Future Fellowships* and *Australian Laureate Fellowships*.
- Data for projects commencing in 2010 is incomplete as funding for the following scheme rounds are yet to be finalised – *Linkage Projects Round 2, Future Fellowships* and *Australian Laureate Fellowships*.
- Data for projects commencing in 2011 comprises the second round of *Super Science Fellowships*

**Note (2):** Scheme – ALF (*Australian Laureate Fellowships*); DIRD (*Discovery Indigenous Researcher Development*); DP (*Discovery Projects*); FF (*Future Fellowships*); LIEF (*Linkage Infrastructure, Equipment and Facilities*); LP (*Linkage Projects*); SSF (*Super Science Fellowships*)

**Note (3):** Administering organisation – Under the NCGP, administering institutions are responsible for administration of funding if a proposal is approved for funding.

**Note (4):** First-named Chief Investigator – The first-named researcher nominated on a Proposal is considered to be the Project Leader.