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AUGUST/SEPTEMBER
 Newsletter for the Centre of Excellence for Climate System Science (COECSS)

COECSS Report



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Welcome to the third newsletter from the ARC Centre of Excellence for Climate System Science (CoECSS).

Letter from the Director

Centre of Excellence continues to expand

Since our last newsletter, 10 new staff have joined CoECSS. Our first workshop occurs next month and discussions have started on how to build communities across various Centres of Excellence. [Read more.](#)

Centre Manager report

COECSS shows remarkable progress in first year

Stephen Gray looks back over our first year which saw the Centre recruit over 20 research associates, hosted over 30 visitors and guest speakers, supervised close to 40 students and added around 25 new associate investigators. The professional staff team has had its own measure of success with Simone Purdon and Stephen presenting at the annual [Tertiary Education Management Conference \(TEMC\)](#) in



CALENDAR

2012

Third International Symposium on the Ocean in a High-CO2 World

September 24-27

The symposium will offer the worldwide community of scientists working to understand ocean acidification opportunities to share their research results and develop new research collaborations.

Plenary Speakers: Peter Brewer (US), Richard Zeebe (US), Daniela Schmidt (UK), Laurent Bopp (France), Hans-Otto Poertner (Germany), Gretchen Hoffman (US), Steve Widdicombe (UK), Richard Matear (Australia), Luke Brander (HK, China), Beatrice Crona (Sweden), Beth Fulton (Australia).

Location: Monterey, California.
[Click here for more information.](#)

4th Argo Science

September 2012. [Read more.](#)

Graduate Director report

First winter school deals with some super problems

The Centre of Excellence's first Winter School held at School of Earth Sciences, The University of Melbourne, on July 9-13, was a great success. It attracted 72 participants from eight Australian universities, our partner organisations (CSIRO, CAWCR and the Bureau of Meteorology) and four members of the Pacific Climate Change Science program hailing from Fiji, Vanuatu and Samoa. [Read more.](#)

CMS Special Feature

Gung-Ho about atmospheric modelling

CMS Director Mike Rezny was recently invited to the UK Met Office to participate in the Gung-Ho project to create a new atmospheric model that will be in operation by 2020. In this special feature Mike describes the collaboration between the MET Office and the UK academic community and the development of a new grid model to tackle scalability problems. [Read more.](#)

NEWS

ERA-Interim datasets available from ECMWF

CMS is currently downloading the ERA-Interim datasets available from the [ECMWF data server](#) on a dedicated space within the NCI data cloud server "dcc.nci.org.au".

The team recently added a new page to the wiki that shows [the current status of the dataset](#) (i.e. what has been downloaded and converted to netcdf and what we are working on at the moment). This will be updated every week.

Currently, we are not converting all the available variables to netcdf format. However, users can put in requests for additional variables to be converted.

To facilitate this, we will be adding a complete list of the variables available in the grib files while at the same time highlight those we are converting to netcdf.

We will soon add a similar page to the wiki to keep track of the CMIP5 data being downloaded and CoE user requests.

You can find information about how to access this data and how the data is organized on the [CMS wiki](#).

ClIMDDIR project website portal connected to software

The development of the [Climate Model Downscaling Data for Impacts Research \(ClIMDDIR\)](#) web portal by Centre of Excellence staff continues apace with the first milestone in the development of the project having been reached. A test web portal with basic functionality has been connected to software that extracts impacts-relevant, Regional Climate Model output and transforms it into formats useable by impact researchers. [Read more.](#)

Workshop

September 27-29

This workshop will be part of the symposium on 20 Years of Progress in Radar Altimetry organized by the European Space Agency (ESA), in collaboration with the French Space Agency, CNES. The theme of the Argo workshop is to celebrate 10 years of progress for Argo and to prepare the next decade and new challenges for Argo. The 2.5 day workshop will include both oral and poster presentations. [Follow this link to the Session overview and detailed agenda.](#)

Scientific committee: D. Roemmich, Scripps (USA); S. Wijffels, CSIRO (Australia); P.Y. Le Traon, Ifremer/Mercator-Océan (France); B. Owens, WHOI (USA); P.M. Poulain, O.G.S (Italy); S. Pouliquen, Ifremer (France); T. Suga, JAMSTEC/Tohoku University (Japan).

Organising committee: P.Y. Le Traon, Ifremer/Mercator-Océan (France); P.M. Poulain, O.G.S (Italy); S. Pouliquen, Ifremer (France); E. Mamaca, Ifremer (France); F. Loubrieu, Ifremer (France).

Location: Venice, Italy.

[Click here for more information.](#)

Online workshop - Online Giovanni Workshop

September 2012 - dates TBC

The NASA Goddard Earth Sciences Data and Information Services Centre (GES DISC) will host an online workshop focused on the use of the pioneering data visualisation and analysis tool, Giovanni.

Location: Online.

For the purpose of planning and scheduling, please indicate your interest with an email message sent to Dr. James G. Acker (james.g.acker@nasa.gov).

[Click here for more information.](#)

Australian Coastal and Ocean Modelling and

Using the services of the CMS team

Mike Rezny and Prof Andy Pitman explain the system for directing CMS requests to the right person. The system will help CMS resolve requests as efficiently as possible, both in the short term and in the long term. [Click here for more information.](#)

BRIEFS

Centre of Excellence PhD scholarships

PhD scholarships are now available at Australia's leading university-led climate science initiative, the ARC Centre of Excellence for Climate System Science. The PhD scholarships will be based at the University of New South Wales. Successful candidates can expect to collaborate with partners in the Centre of Excellence in Australia and overseas. Expressions of interest in any [area of research where the Centre has a focus](#) are encouraged. [Click on this link to find out more.](#)

David Karoly appointed to Climate Change Authority

Congratulations to CoE chief investigator David Karoly, who was appointed to the [Federal Government's Climate Change Authority](#) a few days after our last newsletter went out. The Climate Change Authority will provide advice on the Australian Government's policies for reducing greenhouse gas emissions. [Click on this link to find out more about his appointment.](#)

Andy Hogg awarded Future Fellowship

Dr Andy Hogg recently won a Future Fellowship for this work on the the physics of the circulation in the Southern Ocean. It will focus on the role of small-scale processes in controlling the ocean's response to climate change, implications for the transfer of heat towards the Antarctic continent and alterations to the natural outgassing of carbon dioxide from Southern Ocean waters. The project will directly improve our capacity to represent the Southern Ocean in global climate models, which will enhance our capacity to make accurate and confident projections of future climate.

Acknowledging NCI and our own CMS

NCI provide a very generous and fundamentally critical allocation of computer resources to the Centre of Excellence. Where NCI has been used in work leading to a publication (or for that matter a thesis) we should acknowledge them appropriately.

Something like: "This work was supported by the NCI National Facility at the ANU via the provision of computing resources to the ARC Centre of Excellence for

Observing (ACOMO) Workshop 2012

October 3-4

This is expected to be th first in a series of national workshops that, over time, will contribute to the co-evolution of an integrated national marine observing and modelling capability for Australia that is appropriate to our status as a marine nation.

Organising Committee: Katy Hill (IMOS-Chair), Andreas Schiller (CSIRO), Roger Proctor (IMOS), Chari Pattiaratchi (UWA) and Moninya Roughan (UNSW)

Location: Shine Dome, Canberra

[Click here for more information](#)

Conference - Chapman Conference on The Agulhas System and its Role in Changing Ocean Circulation, Climate, and Marine Ecosystems

October 8-12

On the Climatic Importance of the Greater Agulhas System, with the support of AGU.

Organised by SCOR/IAPSO/WCRP Working Group 136.

Conference convenors: Will de Ruijter, Rainer Zahn, Arne Biastoch, Lisa Beal

Location: Spier Wine Estate, Stellenbosch, Western Cape, South Africa.

Deadline for abstract

submission: June 1, 2012.

[Click here for more information.](#)

Understanding and prediction of monsoon weather and climate

November 12-15

[The main focus of this year's workshop is on modelling \(simulation and prediction\) but will include observational studies of physical processes and variability that are pertinent to improving modelling capability \(including improved](#)

Climate System Science”.

Where you are aware of non-CoE colleagues being helped by the CMS team to use NCI, either via advice or where they are using tools, data or library we have helped set up, it would be very welcome if they would include something like: “This work was supported by the NCI National Facility at the ANU, via the provision of computing resources, and by the Computational Modelling Systems team of the ARC Centre of Excellence for Climate System Science”.

How to use CMS team services

There is a CMS person working at each of the five university hubs under the Centre of Excellence umbrella. Each of these people has a different area of expertise. To help us get the greatest advantage for our researchers from the CMS team of experts, now and into the future, the Centre has established a set of procedures.

[Click on this link to find out more.](#)

AMOS Conference call for abstracts

AMOS has announced its first call for abstracts for [the 19th National Conference of the Australian Meteorological and Oceanographic Society \(AMOS\)](#) at the Melbourne Convention and Exhibition Centre, Monday 11th - Wednesday 13th February, 2013.

The deadline is Friday, September 21. Major topics include:

- Climates of the past and projections for the future
- Variability of atmospheric and oceanic processes at different scales
- Model development: enhancing our understanding of the climate system
- Scientific computing and the 21st century meteorologist, climatologist and oceanographer.

[For more information about abstract submission, click on this link.](#)

Storm chasing at Tornado Alley

CoE Researcher John Allen proves that climate research can be about a lot more than sitting behind a desk working with computer models. As an extremes researcher he has taken his fascination for thunderstorms into the field. Recently he went storm chasing in Tornado Alley and came back with some extraordinary stories and unbelievable pictures of storm events, including mages of tornadoes and an impressive shot of a lightning strike from just 200 metres away. You can find [six blog entries from his recent adventures on the COE website.](#)

Annual reporting season

Researchers across the CoE need to be aware that the annual report is working to a tighter deadline this year. Please ensure that all administration reporting is up to date and that bios are updated to reflect any changes in the past year. Research overviews will be due in October and we will also be looking for highlights from each research area that we can turn into stories. [Contact Alvin](#) if you have any

[understanding so as to guide model development\)](#)

[Key themes for the workshop:](#)

- [Observed monsoon Variability from Weather to Climate](#)
- [Physical Processes](#)
- [Monsoon NWP](#)
- [Intra-seasonal/Seasonal Prediction of the Monsoon](#)
- [Monsoon Decadal Prediction and Climate Change](#)

Keynote speakers: [Gill Martin \(MetOffice, UK\)](#), [Akio Kitoh \(MRI, Japan\)](#), [Ken Sperber \(PCMDI, LLNL, USA\)](#), [Eric Maloney \(Colorado State University, USA\)](#), [William Boos \(Yale, USA\)](#), [Sean Milton \(MetOffice, UK\)](#), [Masayuki Nakagawa \(JMA, Japan\)](#), [Chidong Zhang \(University of Miami, USA\)](#)

[Click here for more information.](#)

Integrated Ocean Observing System (IOOS) Summit 2012

November 13-16

This event provides an opportunity to evaluate critical elements of IOOS by:

- Seeking expert guidance on future implementation for sustained observations
- Re-establishing the priority observations needed to monitor the ocean
- Prioritizing key applications for future ocean observing development
- Exploring underused ocean observing products and services
- Celebrating and expanding on recent achievements of the IOOS community
- Determining how IOOS can better serve the scientific community
- Leveraging resources

suggestions or any strong images or photos relating to your research that we can use.

How to spot dodgy arguments

[TechNYou](#) has put together [a very useful document](#) to help people recognise dodgy arguments. This was written to meet a growing community need for balanced and factual information on emerging technologies but is very useful for understanding the approaches of climate sceptics. [TechNyou](#) is funded by the [Australian Government Department of Industry, Innovation, Science, Research and Tertiary Education \(DIISRTE\)](#).

Finding royalty free photos online

If you are looking for photos for blogs or for use in presentations and websites, try searching on [Photo Pin](#) (creative commons license) or [stock.xchnq](#) (free for use with credit)

RECENT PAPERS OF INTEREST

Extreme high temperatures increase by 40%

A recent paper by the CoE's Lisa Alexander and the CCRC's Markus Donat, [The shifting probability distribution of global daytime and night-time temperatures \(Link at bottom of media release\)](#), has shown that extremely hot temperatures around the world are 40% more common today than 60 years ago. Interestingly, there was increasing skewness revealed in the data, with daytime and nighttime temperatures becoming skewed towards hotter temperatures. The researchers used 70,000 locations around the globe to get their results.

Unusual weather conditions contributed to Black Saturday fires

CoE researchers, Todd Land, Michael Reeder and Mike Rezny, along with Chermelle Engel from The University of Melbourne, used a detailed weather forecasting model to produce high-resolution simulations of weather patterns on the day of the Black Saturday bushfires. Their research revealed that weather conditions helped make the fire more unpredictable and also documented for the first time the generation of an atmosphere wave, known technically as an undular bore. The paper, [The Meteorology of Black Saturday \(Link at bottom of media release\)](#), was reproduced in the Quarterly Journal of the Royal Meteorological Society.

Encouraging resources and materials with regional, national, and international partners

- Analyzing new and existing policy and management strategies and
- Ensuring that IOOS is meeting the critical needs of the wide variety of stakeholders who have come to depend on it.

The proceedings of the community white papers, writing teams, and Summit outcomes will be organized into a final report with the following chapters:

1. Report Highlighting the Past Decade of Progress
2. Updated User Requirements: Revisiting and Updating
3. Gap Assessment of Existing Observing System Capabilities
4. Identified Integration Challenges and Opportunities
5. Vision for the Next 10 Years

Event co-chairs: Eric Lindstrom (NASA), Paul DiGiacomo (NOAA), Jan Newton (Northwest Association of Networked Ocean Observing Systems), Ru Morrison (Northeastern Regional Association of Coastal and Ocean Observing Systems). [Click here for more information](#)

Conference - Ticking time bomb in the Human-Earth system: Second Australian Earth System Outlook Conference

November 26/27

This Second Australian Earth System Outlook Conference, open to all, will explore a small selection of globally significant "ticking time bombs" which pose risks of unmanageable undesirable change unless anticipatory actions are taken

WELCOME TO NEW STAFF

The growth of CoECSS continues with the addition of 10 new staff. Find out more about each of these individuals below.

GRADUATE DIRECTOR

Melissa Hart

In July the Centre of Excellence welcomed its new Graduate Director, Melissa Hart. Melissa has extensive international experience in tertiary education having either studied at, or worked at, universities on four continents. She returns to Australia after spending the last seven years abroad working in the USA, and most recently Hong Kong. She is looking forward to developing, along with Centre of Excellence researchers and students, a world renowned graduate program in climate system science. Melissa's individual research interests encompass the areas of urban climate, and climate and weather sensitivity of energy consumption. She will be based at the University of New South Wales.

ASSOCIATE INVESTIGATORS

Jessica Benthuisen

Jessica is a CSIRO OCE postdoctoral fellow at University of Tasmania and CSIRO. Her current research looks at the Leeuwin Current on the Western Australian coastline. Her work has involved process-oriented modelling of the South Indian Ocean currents, including the boundary currents of Western Australia, using theory and the ROMS model in simplified configurations.

Will Hobbs

Will is a climate scientist appointment at the Institute of Marine and Antarctic Studies at the University of Tasmania. His research includes studying the affect of Antarctic sea ice variability on the Southern Hemisphere using GCM simulations. He is currently working on research that looks at the penetration of heat as part of the overturning circulation using the CMIP5 GCMs and comparing this with observations.

Trevor McDougall

Trevor has recently been appointed to a chair in the School of Mathematics and Statistics at UNSW. His research has focused on the mixing processes in the ocean by analyzing ocean data and through theoretical research into the thermodynamic and physical aspects of ocean models.

Katrin Meissner

Katrin is an ARC Future Fellow who uses climate models in conjunction with observational data and paleoclimate records to improve our understanding of the

that fall well outside the corrective capacity of the invisible hand of economic market forces. On the second day the conference will examine a selected a set of just four themes that have tipping point potential, partly but not entirely involving climate change and biodiversity. These are:

- The mismatch between actual investment commitments in future fossil fuel infrastructure and the world's leading governments' recognition, in the Copenhagen Declaration, of the scientific view that *the increase in global temperature ought not to exceed 2 degrees* (Convened by Mr Ian Dunlop)
- Polar deglaciation and its repercussions for global sea level (Convened by Drs Ian Allison and Tas van Ommen)
- Interactive effects of the multiple environmental pressures on the Great Barrier Reef (Convened by Profs Terry Hughes and Brian Walker)
- Long term global food security risks (Convened by Prof Will Steffen and Dr Roger Gifford)

There will be opportunity to present posters on Earth System Science results and issues.

Conference Conveners:

Australian Academy of Science
Location: Shine Dome,
 Australian Academy of Science,
 Canberra

[Click here for more information.](#)

2013

IPCC AR5 WGI Fourth Lead Author Meeting

observational data and paleoclimate records to improve our understanding of the basic mechanisms underlying climate variability and climate change, particularly in the context of ocean circulation and biogeochemical cycles. Her research looks at problems around large-scale ocean circulation and its impact on climate variability, terrestrial feedbacks and on the ocean carbon cycle, acidification and related feedbacks.

Maxim Nikurashin

Maxim is a research and teaching appointment at the Institute of Marine and Antarctic Studies at the University of Tasmania. His scientific interests include the theoretical understanding of the deep ocean carbon cycle, meridional overturning circulation, deep stratification, geostrophic eddies and their role in ocean mixing, topographic internal waves and energy dissipation and mixing.

Helen E Phillips

Helen is another investigator from the Institute of Marine and Antarctic Studies at the University of Tasmania. She has a strong interest in ocean mixing and circulation, using observational data to collect and infer mixing rates in the Southern Ocean and elsewhere. She has undertaken a significant research project in the deployment of the EM-Apex float array in the Southern Ocean. The project is producing some important results in understanding the vertical structure of mesoscale eddies.

Robyn Schofield

Robyn is an atmospheric chemist researching cloud (ice) microphysics and transport processes in the tropical tropopause layer and the stratosphere. A focus of her research is to examine the effect these processes have on atmospheric composition. As part of this research she is using high-resolution WRF simulations of tropical convection in the maritime continent.

POSTDOCS

Laura O'Brien, (Monash)

Laura came to COECSS from University College Dublin, Ireland. Her PhD was based on the mathematical modelling of extreme ocean waves in particular, landslide generated tsunamis with Prof Frédéric Dias. It also included applications to wave energy converters and a historical survey of extreme waves in Ireland. In the Centre she will work with Prof. Michael Reeder on the effect of Rossby waves on low-frequency variability, extratropical cyclones and extremes.

PHD STUDENTS

Xuerong (Shirley) Qin (UNSW)

Shirley is interested in modeling biophysical interactions in the ocean. She

January 13-19

This is the fourth IPCC lead author meeting for Working Group 1 for AR5.

Location: Wrest Point, Hobart, Tasmania, Australia

PAGES Second Young Scientists Meeting

February 11-12

Regarded as the premier event for early-career researchers, and will be a stepping-stone for early career researchers who want to develop their professional skills and expand their scientific network. For further information, [visit the YSM website](#).

Location: Goa, India.

Conference - 2013 AMOS National Conference

February 11-13 Sense and Sensitivity: Understanding our changing weather and climate.

Location: Melbourne Convention and Exhibition Centre, South Wharf, Melbourne.

Conference - Holocene Climate Change

April 4-5

This meeting will examine high frequency climate changes reflected in the geological record, and the paces of change and their geological consequences, during the Holocene – the past 11,700 years.

Keynote speakers: Graeme Barker (Cambridge), Rosalind Rickaby (Oxford), Ian Hall (Cardiff), Bo Vinther (Copenhagen), Anthony Long (Durham), Heinz Wanner (Bern).

Location: Burlington House, London, UK

Call for papers and posters.

Email a 150 word abstract to Steve Whalley by October 12, 2012

(steve.whalley@ecampus.utd.edu)

Shirley is interested in modeling biophysical interactions in the oceans. She completed a Bachelor of Global and Ocean Sciences at The Australian National University. Her PhD will focus on understanding the distribution of nutrients using Lagrangian techniques.

Andrea Dittus (The University of Melbourne)

PhD student, Andrea Dittus, joined the Centre in July this year and will be working from The University of Melbourne in Extremes research program. She comes to us from ETH Zürich in Switzerland where she completed a Master of Science in Atmospheric and Climate Science investigating the joint variability between temperature and precipitation, and between temperature and relative humidity, in reanalysis and climate model data. At the Centre of Excellence her PhD will focus on the interaction between extreme temperature and precipitation, and the processes that link them. These relationships will be investigated using observational datasets of climate extremes indices before moving on to examine climate models to determine whether they are able to reproduce these relationships.

steve.wright@geosoc.org.uk.

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Email: alvin.stone@unsw.edu.au

Our mailing address is:

Level 4, Matthews Building, UNSW, NSW, 2052, Australia

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