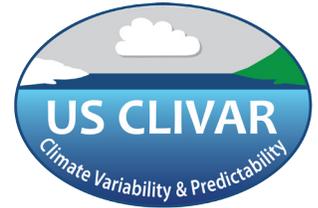


December 2013 US CLIVAR Newsgram



Please forward to interested colleagues. To include an announcement in our next issue, contact **Jennifer Mays**.

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Calendar of Upcoming Events

also see [our online calendar](#)

SPARC 2014 General Assembly

January 12-17, 2014
Queenstown, New Zealand

94th AMS Annual Meeting: "Extreme Weather - Climate and the Built Environment: New Perspectives Opportunities, and Tools"

February 2-6, 2014
Atlanta, GA

WWRP/THORPEX - WCRP International Conference on Subseasonal to Seasonal Prediction

February 10-13, 2014
NOAA Center for Weather and Climate Prediction,
College Park, MD

2014 Ocean Sciences Meeting

February 23-28, 2014
Honolulu, Hawaii

CLIVAR Town Hall at Ocean Sciences Meeting

Date TBD
Honolulu, Hawaii

IGS International Symposium on Sea Ice in a Changing Climate

March 10-14, 2014
Grand Chancellor Hotel, Hobart, Australia

WCRP Conference for Latin America and the Caribbean: Developing, linking and applying climate knowledge

March 17-21, 2014
Montevideo, Uruguay

31st AMS Conference on Hurricanes and Tropical Meteorology

March 31-April 4, 2014
San Diego, CA

WCRP VAMOS/CORDEX Second Workshop on Latin-America and Caribbean - CORDEX LAC II

April 7-9, 2014
Santo Domingo, Dominican Republic

WGOMD Workshop on High Resolution Ocean Modeling

April 7-9, 2014
Kiel, Germany
By invitation

12th CLIVAR Working Group on Ocean Model Development (WGOMD) Meeting

April 10-11, 2014
Kiel, Germany
By invitation

European Geosciences Union General Assembly 2014

April 27-May 2, 2014
Vienna, Austria
Abstract submission deadline: **Jan. 16, 2014**

Announcements

1. **US CLIVAR Releases New Science Plan & Logo**

We are pleased to announce the publication of the new US CLIVAR Science Plan outlining the research goals and strategies for the next 15 years of the program.

Specifically, the Plan is intended to:

- update the goals and priorities of US CLIVAR based on achievements to date;
- articulate the expansion of core research to target specific research challenges;
- emphasize strengthened ties to the broader Earth Sciences community and relevance to societal impacts;

- bolster research funding commitments by US agencies to achieve their mission objectives; and
- articulate the envisioned collaborations with other US and international research programs.

The Plan was developed by the US CLIVAR Scientific Steering Committee (SSC) over a 2-year period with input from its panels and members of the research community. We wish to acknowledge the significant effort of over 60 contributors to help scope, draft, review, and edit the Plan. The final document reflects revisions based on an open public review held this past summer.

To download the US CLIVAR Science Plan, please visit usclivar.org/science_plan. Printed copies can be requested as well.

A joint Town Hall with International CLIVAR summarizing the key components of the Science Plan was held at the 2013 AGU Fall Meeting. That slide presentation is [available to download here](#). There will also be a Town Hall at the 2014 Ocean Sciences Meeting in Honolulu, HI: date and location to be set.

Our new US CLIVAR logo was developed by staff at [UCAR/JOSS](#) with feedback from the SSC. The new logo is now online at www.usclivar.org.

2. New International CLIVAR Brochure

CLIVAR has published a brochure providing an overview of the new CLIVAR organization, including the Research Foci and the new structure that will be adopted as CLIVAR moves into its new phase of operation. [Download the PDF here](#) or pick up a copy at the CLIVAR Town Hall at the Ocean Sciences Meeting in Hawaii in February.

3. NOAA Releases Arctic Report Card: Update for 2013

According to a new report released today by NOAA and its partners, cooler temperatures in the summer of 2013 across the central Arctic Ocean, Greenland and northern Canada moderated the record sea ice loss and extensive melting that the surface of the Greenland ice sheet experienced last year. Yet there continued to be regional extremes, including record low May snow cover in Eurasia and record high summer temperatures in Alaska. The Arctic Report Card has, since 2006, summarized changing conditions in the Arctic. One hundred forty-seven authors from 14 countries contributed to the peer-reviewed report. <http://www.arctic.noaa.gov/reportcard/>

Some findings include:

- Summer surface air temperatures were particularly low across the central Arctic Ocean, northern Canada and Greenland relative to 2007-2012 (a period of pronounced summer sea ice retreat), and were somewhat lower than the long-term average of 1981-2010.
- Minimum sea ice extent in September 2013 exceeded the record low of 2012, but was the 6th lowest since observations began in 1979 despite the relatively cool summer of 2013. The seven lowest minimum ice extents have occurred in the last seven years, 2007-2013.
- Snow extent in May 2013 reached a new record low in Eurasia, while Northern Hemisphere-wide snow extent was below average for spring (April, May, June).
- Changes in fish and bottom dwelling organisms include continued northward migration of species not previously seen in the Arctic.

4. NMME Forecasts from December Initial Conditions Available

The seasonal and monthly mean forecasts for January to July 2014 are now available at www.cpc.ncep.noaa.gov/products/NMME/.

Both NMME and International MME (IMME) forecasts can be accessed from the homepage. Forecasts are presented for the following fields:

- 2-meter surface temperature (global and North America)
- Precipitation rate (global and North America)
- Sea-surface temperature (global and Nino3.4-region)

Mean spatial anomaly forecasts and probability forecasts can both be accessed from the homepage. Forecasts for the preview variables, maximum/minimum 2 m temperature, 200 hPa heights, and soil moisture, are available as well.

5. NRC Releases “Abrupt Impacts of Climate Change: Anticipating Surprises”

Abrupt Impacts of Climate Change is an updated look at the issue of abrupt climate change and its potential impacts. This study differs from previous treatments of abrupt changes by focusing on abrupt climate changes and also abrupt climate impacts that have the potential to severely affect the physical climate system, natural systems, or human systems, often affecting multiple interconnected areas of concern. The primary timescale of concern is years to decades. A key characteristic of these changes is that they can come faster than expected, planned, or budgeted for, forcing more reactive, rather than proactive, modes of behavior.

Abrupt Impacts of Climate Change summarizes the state of our knowledge about potential abrupt changes and abrupt climate impacts and categorizes changes that are already occurring, have a high probability of occurrence, or are unlikely to occur. Because of the substantial risks to society and nature posed by abrupt changes, this report recommends the development of an Abrupt Change Early Warning System that would allow for the prediction and possible mitigation of such changes before their societal impacts are severe. Identifying key vulnerabilities can help guide efforts to increase resiliency and avoid large damages from abrupt change in the climate system, or in abrupt impacts of gradual changes in the climate system, and facilitate more informed decisions on the proper balance between mitigation and adaptation. Although there is still much to learn about abrupt climate change and abrupt climate impacts, to willfully ignore the threat of abrupt change could lead to more costs, loss of life, suffering, and environmental degradation. Abrupt Impacts of Climate Change makes the case that the time is here to be serious about the threat of tipping points so as to better anticipate and prepare ourselves for the inevitable surprises.

Announcement of Opportunity

1. DOE Funding Opportunity Announcement

DOE Climate and Earth System Modeling: SciDAC and Climate Variability and Change

Funding Opportunity Number: **DE-FOA-0001036**

Pre-Application (required) Due Date: **01/09/2014 at 5:00 PM Eastern Time**

http://science.energy.gov/~media/grants/pdf/foas/2014/SC_FOA_0001036.pdf

Climate and Earth System Modeling is part of the Climate and Environmental Sciences Division (CESD) of the U.S. Department of Energy's Office of Biological and Environmental Research (BER). The Climate and Earth System Modeling programs seek to develop and analyze high fidelity community models representing Earth and climate system variability and change, with a significant focus on the response of systems to natural and anthropogenic forcing. As the first of two programs in Climate and Earth System Modeling that participate in this FOA, the Earth System Modeling (ESM) Program seeks to advance computational, dynamical, and biogeophysical representations of the Earth system and its components, and to calibrate, test and assess predictive capabilities using uncertainty quantification methodologies.

The second program participating in this FOA, the Regional and Global Climate Modeling (RGCM) Program, seeks to enhance the predictive understanding of the Earth system by analyzing the natural and anthropogenic components of global and regional Earth system models. The use of model simulations in combination with observations enables a deeper understanding of climate variability and change. The ESM and RGCM programs are thus complementary, with ESM focused mainly on climate model development, and RGCM focused mainly on climate system analysis. Both modeling programs collaborate and coordinate with the Terrestrial Ecosystem 2 Science (TES) and Atmospheric System Research (ASR) programs, by utilizing TES and ASR process research activities to inform model development, and by using model simulations to identify where further process research is required in atmospheric and terrestrial systems.

More information on BER's climate modeling programs can be found at <http://www.climatemodeling.science.energy.gov/> and in the recently developed strategic plan for Climate and Environmental Sciences Division (<http://science.energy.gov/~media/ber/pdf/CESD-StratPlan-2012.pdf>). BER encourages potential applicants to review this plan in order to familiarize themselves with the ESM and RGCM programs and their strategic goals.

Under this opportunity, ESM will primarily support climate model development within the Scientific Discovery through Advanced Computing (SciDAC) program, which employs computationally advanced methods for component algorithms, software, performance, validation and verification, typically involving collaboration between climate and computational scientists.

The RGCM priority for this solicitation will be on understanding climate variability and change. Analyses of simulations that enhance our understanding of the earth system with a focus on modes of variability, extremes and tipping points, detection and attribution techniques, and uncertainty quantification are priorities. Projects are encouraged to develop metrics that facilitate model-model and model-observation comparisons and will highlight gaps in state-of-the-science models.

ESM and RGCM will jointly consider applications to develop, test and analyze model simulations of the climate system over long timescales.

Technical/Scientific Program Contacts: Dr. Dorothy Koch, Program Manager for Earth System Modeling, Dorothy.Koch@science.doe.gov and Dr. Renu Joseph, Program Manager for Regional and Global Climate Modeling, Renu.Joseph@science.doe.gov.

Meetings and Workshops

1. Workshop on "Pattern scaling and its application to the new scenario process"
NCAR, Boulder, CO
April 23-25th, 2014

The goals of the workshop, a background document, a bibliography and a web form to submit an abstract or simply request participation can be found at www2.image.ucar.edu/event/PS2014 together with some initial logistical details. The deadline for requesting participation is **January 15, 2014**.

The workshop will bring together statisticians, climate scientists, integrated assessment modelers and impact analysts to assess the state of the art of pattern scaling, the needs of the impact and integrated assessment researchers for its outputs, and its potential role in influencing the choice of future CMIP6 scenario experiments. In addition, the workshop will develop a prioritized list of the most cogent and urgent developments the community should pursue.

This workshop will have three main goals:

- Assess the current state of pattern scaling science
- Assess to what extent current approaches to pattern scaling can meet the needs of integrated assessment and impact modelers for climate change information
- Identify and prioritize research directions so that pattern scaling can better meet the needs of applied research in the future

There will be invited presentations, plenary discussions, break-out groups and - depending on the number of contributed abstracts - a poster session.

The organizing committee consists of Claudia Tebaldi and Brian O'Neill (NCAR), James Murphy (UK Met Office and Hadley Centre) and Tim Carter (SYKE). Please feel free to contact any committee members (see webpage for contact information) for further details.

2. The Climate Symposium 2014

Darmstadt, Germany

October 13-17, 2014

Deadline for abstract submission: **April 15, 2014**

Satellite observations are a key element in an integrated and sustained climate observing system and have been critically important for monitoring and understanding the Earth's climate system during the past several decades. The expected completion of the IPCC Fifth Assessment (AR5) in 2013-2014 makes it timely to discuss these achievements, to assess future opportunities and challenges with satellite derived climate information, and to provide guidance on future priorities.

The symposium will be an important step towards defining requirements, and the further development of an efficient and sustained international space-based Earth observing system and intended to bring together the international experts in climate observations, research, analysis and modelling to present and discuss results from their studies, with a particular emphasis on the role of space-based Earth observations in improving our knowledge of the current climate at global and regional scales, and in the assessment of models used for climate projections.

3. 46th International Liege Colloquium: Low Oxygen Environments In Marine, Estuarine And Fresh Waters

Liege, Belgium

May 5-9, 2014

Abstract submission deadline: **January 10, 2014**

In the coming decades and centuries, it is foreseen that deoxygenation will increasingly stress aquatic ecosystems in a way that is currently ignored on the global scale, but admitted as only local problems. The expansion of O₂ minimum zones and resulting biogeochemical and ecological changes will make impossible the Good Environmental Status of marine and freshwater ecosystems, as well as their functioning and ability to underpin the delivery of services. These themes are in the focus of several international initiatives (SOLAS, IMBER, GEOTRACES, CLIVAR, etc.) and projects (PERSEUS, HYPOX, EMODNET, etc.).

The 46th Liege colloquium will investigate new developments and insights related to the critical problem of ocean deoxygenation, low oxygen zones in marine and freshwater systems. More specifically, the following topics will be considered:

- Oxygen time series and instrumental developments
- Deoxygenation, marine resources and structure of the foodweb
- Deoxygenation and biogeochemical cycles
- Meromictic systems, oxic-anoxic interfaces, and microorganisms
- Paleoproxies of hypoxia
- Deoxygenation in a global change context

A special issue will be published in “Biogeosciences” with contributions from the authors of the colloquium.

Position Announcements

1. Division Director, Division of Ocean Sciences National Science Foundation, Ballston, VA

Serves as a member of the Directorate for Geosciences (GEO) leadership team and as the Foundation’s principal spokesperson in the area of ocean sciences. The mission of the Division of Ocean Sciences (OCE) is to enable fundamental research in most areas of infrastructure and education to advance the understanding of all aspects of the global oceans and ocean basins, including their interactions with people and the integrated ocean system. These activities provide knowledge critical to addressing many of our nation’s most pressing challenges involving ocean processes. OCE supports and promotes collaboration and facilitates development of a diverse scientific and educational community, including international efforts. The Division works with the U.S. ocean sciences academic community to direct funding towards advancing the frontiers of knowledge, developing the next generation of researchers, and enhancing the public’s understanding of ocean sciences.

The Division Director has managerial and oversight responsibilities for the effective use of division staff and resources in meeting organizational goals and objectives. This includes directing the activities of the Division of Ocean Sciences, assessing the needs and trends in geosciences research and education, developing breakthrough opportunities, implementing overall strategic planning, and policy setting. Supervises and provides leadership and guidance to senior OCE staff (Section Heads), program officers, administrative and support personnel. Determines funding requirements, prepares and justifies budget estimates, balances program needs, allocates resources, oversees the evaluation of proposals and recommendations for awards and declinations, and represents NSF to relevant external groups. Fosters partnerships with other Divisions, Directorates, Federal agencies, scientific organizations, and the academic community. Job

Announcement Number: OCE-2014-0003. See USAJobs website for more information: <https://www.usajobs.gov/GetJob/ViewDetails/355104000>. Application deadline: **January 06, 2014**.

2. Division Director, Division of Atmospheric and Geospace Sciences National Science Foundation, Ballston, VA

The mission of the Division of Atmospheric and Geospace Sciences (AGS) is to enable fundamental research and support relevant infrastructure and education that advances understanding of the behavior of the earth's atmosphere and its interactions with the sun. Included are studies of the physics, chemistry, and dynamics of earth's upper and lower atmosphere and its space environment, research on climate processes and variations, and studies to understand the natural global cycles of gases and particles in the earth's atmosphere. NSF also provides support for participation by the United States scientific community in international scientific research endeavors, such as the World Climate Research Program.

The Division works with individual grants and at national research facilities, including the National Center for Atmospheric Research (NCAR), and with the U.S. atmospheric sciences academic community to direct funding towards advancing the frontiers of knowledge, developing the next generation of researchers, and enhancing the public's understanding of atmospheric sciences.

The Division Director has managerial and oversight responsibilities for the effective use of division staff and resources in meeting organizational goals and objectives. This includes directing the activities of the Division of Atmospheric and Geospace Sciences, assessing the needs and trends in geosciences research and education, developing breakthrough opportunities, implementing overall strategic planning, and policy setting. Determines funding requirements, prepares and justifies budget estimates, balances program needs, allocates resources, oversees the evaluation of proposals and recommendations for awards and declinations, and represents NSF to relevant external groups. Fosters partnerships with other Divisions, Directorates, Federal agencies, scientific organizations, and the academic community.

Announcement Number: AGS-2014-0001. See USAJobs website for more information: <https://www.usajobs.gov/GetJob/ViewDetails/355344400>. Application deadline: **January 08, 2014**.

3. NSF Section Head, National Center For Atmospheric Research and Facilities Section National Science Foundation, Arlington, VA

Job Announcement Number: AGS-2014-0002

Open period: **December 13, 2013 to February 24, 2014**

Series & Grade: ES-1301-00

Serves as a member of the Division leadership team and is responsible to the Director, Division of Atmospheric and Geospace Sciences (AGS), for the overall planning, management and commitment of budgeted funds for the Section, which includes the National Center For Atmospheric Research (NCAR) and non-NCAR based atmospheric sciences facilities and services. The incumbent also serves as a Division source of guidance concerning research priorities and program development.

The incumbent is responsible for the day-to-day operations of the Section, including developing and executing management plans for assigned projects and evaluating and ensuring the effective use of Section staff and resources in achieving organizational goals. S/he also develops and maintains effective liaison with officials in the scientific community; other federal, state, and local governments, and the private sector to represent Foundation and Division activities and interests and represents the Division on committees, boards, and panels in areas of expertise.

4. Three Tenure-Track Assistant Professor Positions, Polar Science University of Washington, Seattle, WA

The College of the Environment at the University of Washington invites applications for three 9-month, tenure-track positions (Assistant Professor). Successful candidates will be expected to enhance the University of Washington's multidisciplinary research in polar science, to develop a funded research program, to mentor the next generation of scientists, and to contribute to education at the graduate and undergraduate levels.

Polar Marine Ecosystems. Seeking an integrative scientist who will contribute to an understanding of biological processes and ongoing changes in high-latitude marine ecosystems. Research approaches could include field observations, remote sensing, or modeling. This appointment is expected to be made jointly between the School of Oceanography and School of Aquatic and Fishery Sciences, though an appointment with a different College of the Environment unit is also possible. Applicants should describe how their research and teaching will enhance collaborative linkages among disciplines. Send curriculum vitae, description of research and teaching interests, and the names of four references, addressed to Polar Marine Ecosystem Search. Electronic materials are preferred; send to qrc@uw.edu. Hard copies can be sent to Quaternary Research Center, University of Washington, Box 351310, Seattle, WA 98195-1310. Preference will be given to applications received prior to **January 25th, 2014**.

Polar Climate (Ocean-Ice-Atmosphere) Dynamics. Seeking applicants whose research contributes to quantitative understanding of coupled dynamical processes at high latitudes. Examples of relevant research areas include the polar heat and water budget, interacting ocean-atmosphere circulation dynamics, albedo changes at sea or on land, and ocean-ice sheet interactions. Approaches could include field observations, analysis of remotely-sensed observations, or modeling. This appointment will be joint between two of the following three academic units: Atmospheric Sciences, Oceanography, and Earth and Space Sciences. Applicants should describe how their research and teaching will enhance collaborative linkages among disciplines. Send curriculum vitae, description of research and teaching interests, and the names of four references, addressed to Polar Climate Dynamics Search. Electronic materials are preferred and may be sent to qrc@uw.edu. Hard copies can be sent to Quaternary Research Center, University of Washington, Box 351310, Seattle, WA 98195-1310. Preference will be given to applications received prior to **January 25th, 2014**.

Glaciology. Seeking applicants with expertise in physical glaciology. Relevant research areas include, but are not limited to, ice physics, dynamic behavior of ice sheets, sub-glacial processes, ice-shelf physics and ice-shelf/ocean interactions, and mountain glaciers. We are particularly interested in individuals who combine gathering and interpretation of data with theoretical work, and who are likely to develop a breadth of research interests over the course of their careers. The development and use of ice-sheet models to link to broader questions such as sea level rise is also a desired research direction. This appointment will be in the Department of Earth and Space Sciences. Send curriculum vitae, description of research and teaching interests, and the names of four references, addressed to Glaciology Search Committee. Electronic materials are preferred and may be sent to essast@uw.edu. Hard copies can be mailed to: April Huff, Department of Earth and Space Sciences, University of Washington, Box 351310, Seattle, WA 98195-1310. Preference will be given to applications received prior to **January 2, 2014**.

5. Canada Excellence Research Chair in Ocean Science and Technology Oceanography Department, Dalhousie University, Halifax, Canada

The Department of Oceanography at Dalhousie University in Halifax, Canada (www.oceanography.dal.ca) is respected internationally for its strong interdisciplinary training and research in ocean science. Together with partners from academia, government and industry, the Department now plays a leading role within the newly formed Halifax Marine Research Institute which seeks to maximize potential of the region's vibrant and growing ocean research and technology sector. Since 2011, the Department has hosted CERC.OCEAN, the Canada Excellence Research Chair in Ocean Science and Technology (www.dal.ca/cercocean) which is developing new approaches to observe the changing ocean and study ocean processes. In association with this CERC.OCEAN group, Dalhousie University is seeking a motivated individual to fill a new ocean research chair to be held in the Department of Oceanography: Canada Research Chair (Tier II) in Ocean Chemistry. The department is looking for applicants in all fields of observational/field-oriented ocean chemistry that complement existing strengths. The candidate should have a PhD degree, postdoctoral experience and a research track record that is exceptional for his/her career stage. It is anticipated that the appointment will be tenure-stream and made at the Assistant or Associate Professor level. The successful candidate will be expected to teach undergraduate and graduate classes in marine science and/or environmental chemistry and to develop a vigorous and creative research program with external funding.

Applications can be submitted at any time, preferably before **March 15, 2014** and consist of a curriculum vitae, list of publications, a summary of research interests, a research proposal (no more than 3 pages), a statement of teaching interests and experience, and names and contact information of at least three referees. The completed application should be sent to: Chair, Ocean Chemistry Search, Oceanography Department Dalhousie University, 1355 Oxford Street, PO Box 15000, Halifax, Nova Scotia B3H 4R2, Canada, Email: oceanography@dal.ca. Appointment to this Chair is subject to approval by the Canada Research Chair program. For information about eligibility criteria to this Chair, consult www.oceanography.dal.ca or go directly to www.chairs-chaire.gc.ca/program-programme/nominationmise_en_candidature-eng.aspx#nominees. Consideration of candidates will continue until the position is filled.

6. Research Position, Satellite Oceanography Applied Physics Laboratory, University of Washington, Seattle, WA

The Applied Physics Laboratory (APL) at the University of Washington (UW) invites applications to a research position for a Scientist using satellite observations to study the ocean and atmosphere-ocean coupling. The successful candidate will be permanent Professional Staff at APL (www.apl.washington.edu). The appointee will undertake research in the Air-Sea Interaction and Remote Sensing (AIRS) Department at APL (<http://airs.apl.washington.edu>) with opportunities for collaboration in APL's Ocean Physics Department and Polar Science Center and the UW School of Oceanography. The initial research project will be in collaboration with Prof. Kathryn A. Kelly investigating the relationships between ocean circulation and air-sea interaction.

Candidates must have a PhD in Oceanography or a closely related discipline. Seeking candidates with a demonstrated research record and high potential to develop their own well-funded program who have completed their postdoctoral research. However, exceptional candidates without postdoctoral experience will be considered at the postdoctoral level. Areas of interest include the study of ocean circulation, both coastal and high-latitude, and air-sea-ice interactions using observations from satellite altimetry, vector winds, sea surface temperature, salinity, gravity, or other sensors. Initial support over a nominal

2-year period will come from current projects and start-up funds. Thereafter support is to be provided by grant-funded research. Applicants may contact Prof. Kelly (kkelly@apl.washington.edu) for more information.

7. Postdoctoral Position, Physical Oceanography Niels Bohr Institute, University of Copenhagen, Denmark

With the framework of the EU/FP7 PREFACE project the successful applicant will analyze & parameterize tropical near-inertial waves, and assess their impact on climate & predictability. The candidate should have experience in geophysical numerical modeling & high performance Fortran, and familiarity with at least one Earth System Model. Successful candidates will also supervise PhD, Masters and Bachelors students. The position is available from March 1, 2014 but a later start is possible. The project runs for 3 years. For inquiries, contact: Markus Jochum, mjochum@nbi.dk. Application deadline: **January 15, 2014**. See more at: <http://www.nbi.ku.dk/Jobs/postdoctoral-position-in-physical-oceanography/>

8. Postdoctoral Position, Atmospheric Tropical and Extratropical Circulations Melbourne University, Australia

The Postdoctoral Research Fellow will join the research group on climate variability and climate change at The University of Melbourne led by Professor Ian Simmonds under three-year funding from the Australian Research Council. The appointee will assist in quantifying the behavior of largescale tropical circulations, and particularly the overturning Hadley and Walker circulations. Emphasis will be placed on their recent variability and trends, as well as those prognosed from model simulations and CMIP5 global climate model projections. The project will also explore the behaviour subtropical and extratropical baroclinic eddies, and how these co-vary with the tropical circulations to give rise to 'seamless' meridional energy transports. An end product will be a new perspective on Australian rainfall variability, both in the past and into the future. The project will involve the application and development of a suite of sophisticated analysis tools and physical-dynamical models. The appointee will collaborate with researchers from the Australian Bureau of Meteorology, CSIRO Marine and Atmospheric Research and the Australian Universities' Climate Consortium, as well as international research groups.

This is a three-year full time position. Further details and application procedure through <http://jobs.unimelb.edu.au/jobDetails.asp?sJobIDs=881459>. POSITION NO. 0032488. Applications close **February 7, 2014**. Contact: Professor Ian Simmonds, tel: +61 3 8344 7216, simmonds@unimelb.edu.au.

9. Postdoctoral Position, Tropical Convection Research Fellow ARC Centre of Excellence for Climate System Science & School of Earth Sciences, The University of Melbourne, Australia

Applications are invited for a three-year postdoctoral fellowship focused on modelling tropical convection. We seek a highly qualified and motivated candidate with interests in numerical modelling, cloud processes, and/or mesoscale atmospheric dynamics. The appointee will use convection-permitting and cloud-resolving simulations of tropical convection to address fundamental questions concerning the processes contributing to convective organization. We will examine the role of convective momentum transports, wave-convection coupling, and other mesoscale influences on organization. These results will also contribute to our broader efforts testing and developing new parameterization schemes for global

climate models. Prior experience with a mesoscale or cloud-resolving model (e.g., WRF, CM1, SAM, etc.) is highly desirable.

This position is located within The University of Melbourne's School of Earth Sciences under the supervision of Assoc. Prof. Todd Lane, but also sits within the tropical convection research program of the ARC Centre of Excellence for Climate System Science (www.climatescience.org.au). This program cuts across multiple institutions and the appointee will benefit from being an integral part of the team and contribute to the broader research program. Anticipating commencement of the appointment around mid-2014, but earlier or later start dates will be considered on request. Applications should be received by 11:55pm (AEST) **February 16, 2014**.

To apply for this position or obtain the full position description go to: <<http://jobs.unimelb.edu.au/jobDetails.asp?sJobIDs=881476>>. For more information please contact Todd Lane (tplane@unimelb.edu.au); full applications must be submitted via the above website.

10. Postdoctoral Position, Tropical Convective Systems Modeling Scripps Institution of Oceanography, La Jolla, CA

Applications are invited for a postdoctoral research position in the Climate, Atmospheric Science, Physical Oceanography Division of Scripps Institution of Oceanography. The research will be in the areas of modeling tropical convective systems such as MJO and ITCZ, convection and cloud parameterization, and the interaction of convection, clouds and climate. Applicants with a Ph.D. in atmospheric science or meteorology are encouraged to apply. Preference will be given to candidates with experience in cloud-resolving models (e.g. WRF) or the NCAR CAM5. Salary is commensurate with qualification and experience, and is based on University of California salary scales. Applicants should send a current curriculum vita including a list of publications, statement of research interest, and names of three references to Dr. Guang J. Zhang, Scripps Institution of Oceanography, University of California-San Diego, 9500 Gilman Dr., La Jolla, CA 92093-0221 or email to gzhang@ucsd.edu. Position is available immediately, and remains open until filled. However, applications received by **December 20, 2013** will receive the fullest attention.

11. Postdoctoral Position, ESM University of Michigan, Ann Arbor, MI

Applications are invited for a postdoctoral research position in Earth System Modeling in the Department of Earth and Environmental Sciences at the University of Michigan. The research will be broadly in the area of paleoclimate, with a focus on understanding the causes of climate change through Earth history and at critical transitions. Applicants with a Ph.D. in climate science, atmospheric science, paleoclimatology, or a related field are encouraged to apply. Preference will be given to candidates with experience using earth system models such as the NCAR CESM and strong programming and communication skills. Applicants should send a curriculum vita, statement of research interest, and names of three references to Dr. Chris Poulsen (poulsen@umich.edu, www.umclimate.com). The starting date of the position is flexible, but is nominally July 1, 2014. The position is renewable for up to three years.

12. Postdoctoral Position, Cloud-Radiation-Dynamics Interactions **NASA JPL/Caltech, Pasadena, CA**

The California Institute of Technology (Caltech) Postdoctoral Scholars Program at the Jet Propulsion Laboratory (JPL) invites applicants for a postdoctoral research positions in the study of cloud-radiation-dynamical interactions. A major emphasis of the research involves the application of satellite observations (e.g. CloudSat/Calipso, TRMM, AIRS) to better characterize and understand these interactions and improve their representation in global models. The latter includes the CMIP5 model archive and the multi-model physical processes experiment organized by the WGENE MJO Task Force and the GEWEX GASS activities (see yotc.ucar.edu). A specific focus will be on the representation, and systematic biases, of cloud and precipitation hydrometeors and their impacts on radiation, and in turn dynamics, in global models.

Applicants must have a recent Ph.D. in atmospheric science or a closely related field, must be familiar with atmospheric modeling and parameterization issues and must have a strong background in data analysis. Experience with one or more state-of-the-art global atmospheric/climate models, the framework for simulation and model intercomparison studies, and/or one or more of the above types of satellite data is desired.

Postdoctoral scholar positions are contingent upon evidence of completion of the Ph.D. The positions are awarded initially for a one-year period and may be renewed in one-year increments for a maximum of two additional years. The annual starting salary for a recent Ph.D. is approximately \$52,000 and can vary somewhat according to the applicant's qualifications.

To apply, please send a letter describing your research interests and enclose your CV and the names of three references, by mail to Duane Waliser, Jet Propulsion Laboratory, MS 183-501, 4800 Oak Grove Drive, Pasadena, CA 91109-8099, or by email to duane.waliser@jpl.nasa.gov.

13. PhD Studentship, Climate Science **Utah State University, Logan, Utah**

Utah State University opens a four-year Ph.D. position to study climate science in the Department of Plants, Soils and Climate (<http://psc.usu.edu>). The position will investigate natural variability and climate change, weather and climate extremes, paleoclimatology through dendrochronology, drought cycles and implications for water resources and human adaptation.

Responsibilities are flexible and open-ended, and student interests will guide the scientific developments. Preferred M.S. backgrounds include meteorology, atmospheric/climate science, applied physics, or physical geography. Students with an interest in cross-disciplinary research are highly encouraged. Some familiarity with computer programming languages is required (Fortran, Python, R, GrADS, NCL, etc.). Through international collaborative visits to 1-2 Asian universities and/or research centers, the student will be able to work collaboratively with scientists overseas and expose to the global perspective of climate change. The student will receive training in climate modeling, climate diagnostics, dendroclimatology, and benefit from collective mentorship in a vibrant, interdisciplinary research environment.

The Ph.D. fellowship is for 4 years with an annual stipend of \$20,000 plus full tuitions. Minimum GPA 3.0. Interested candidates should contact Prof. Simon Wang, simon.wang@usu.edu before **January 2014**.

14. PhD Studentship in Mid-Pleistocene Asian Monsoon Variability Newcastle University, UK

A Ph.D. opportunity exists for suitably qualified candidates to investigate mid-Pleistocene Asian monsoon variability using newly collected ocean sediments from the Japan Sea/East Sea on IODP Expedition 346. The objective of this project is to produce the first high-resolution record of Asian monsoon variability from the Japan Sea/East Sea over the mid-Pleistocene transition using the oxygen isotope composition of benthic and planktonic foraminifera, coupled with Mg/Ca ratios to tease out temperature effects on their geochemistry. These proxies will provide the necessary dataset to test the role of Tibetan Plateau uplift during the mid-Pleistocene transition.

Full funding is available in open competition through the newly established IAPETUS NERC Doctoral Training Partnership (iapetus.ac.uk). Applications for the project must be submitted through Newcastle University using our online application portal: <http://www.ncl.ac.uk/postgraduate/apply/form/>

Questions and queries are encouraged, so please feel free to get in touch with Andrew Henderson, Lecturer in Physical Geography, School of Geography, Politics and Sociology, andrew.henderson@ncl.ac.uk, www.ncl.ac.uk/gps, twitter: @palaeoisotopes.