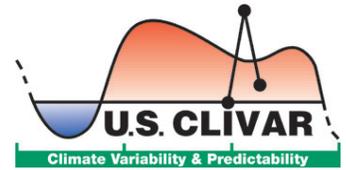


September 2013 U.S. CLIVAR Newsgram



Please forward to interested colleagues. To include an announcement in our next issue, contact [Jennifer Mays](#).

Calendar of Upcoming Events

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2. U.S. CLIVAR GRISO Working Group Publishes BAMS Article
3. Report Available from USGCRP Sustaining NCA Assessments of Oceans and Coasts Workshop
4. BAMS Publishes "Explaining Extreme Events of 2012 from a Climate Perspective"
5. IOOC and IOOS Release U.S. Integrated Ocean Observing System (IOOS) Summit Report
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1. Global Precipitation Measurement & Tropical Rainfall Measuring Mission Applications Workshop

Position Announcements

1. Chief, NASA Global Modeling and Assimilation Office, Greenbelt, MD
2. Director, Joint Center for Earth Systems Technology, UMBC, Catonsville, MD
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5. Senior Research Scientist, Bigelow Laboratory, East Boothbay, ME
6. Associate Research Scientist, Columbia/NASA GISS, New York, NY
7. Postdoc in Statistical Analysis for the OCO-2 Mission, CalTech/JPL, Pasadena, CA
8. Postdoc in Autonomous Underwater Glider Field Program, University of Minnesota-Duluth, MN
9. MS/PhD Student Assistantships in Oceanographic Research, University of Oregon, Eugene, OR
10. Two PhD Positions in Climate Science, Cornell University, Ithaca, NY

Calendar of Upcoming Events

also see [our online calendar](#)

U.S. Ocean Acidification PI Meeting

September 18-20, 2013
Washington, DC

OCEANS '13 MTS/IEEE San Diego

September 23-26, 2013
San Diego, CA

Banff International Research Station Workshop “The role of oceans in climate uncertainty”

October 6-11, 2013
Banff, Alberta, Canada

DISCCRS VIII Interdisciplinary Climate Change Research Symposium

October 12-19, 2013
La Foret Conference and Retreat Center, CO

WCRP-ACPC Africa Climate Conference 2013

October 15-18, 2013
Arusha, Tanzania

NOAA's 38th Climate Diagnostics and Prediction Workshop

October 21-25, 2013
College Park, MD

WCRP/CLIVAR 13th Session of the Asian-Austra- lian Monsoon Panel (AAMP13)

October 26-27, 2013
Macao, China

GODAE OceanView Symposium 2013 “Interna- tional Operational Oceanography: 5 years on from GODAE - where are we now?”

November 4-6, 2013
NOAA/NCWCP, Washington, DC

PMIP Ocean Workshop 2013

December 4-6, 2013
Corvallis, OR

AGU 2013 Fall Meeting

December 9-13, 2013
San Francisco, CA

Announcements

1. State of the Climate 2012 Report Released

The American Meteorological Society (AMS) released the 23rd annual State of the Climate report last month as a BAMS supplement. The report was compiled by 384 scientists from 52 countries. Some topics include La Nina in neutral conditions, sea ice extent, increasing SST, ocean salinity trends, and tropical cyclone patterns. See NOAA's climate.gov highlights here: <http://www.climate.gov/news-features/understanding-climate/state-climate-2012-highlights> including a link to download the full report.

2. U.S. CLIVAR GRISO Working Group publishes BAMS article

“Challenges to Understanding the Dynamic Response of Greenland’s Marine Terminating Glaciers to Oceanic and Atmospheric Forcing” was published in the August 2013 edition of BAMS.

This paper summarizes the current state of knowledge and highlights key physical aspects of Greenland’s coupled ice sheet–ocean–atmosphere system. Three research thrusts are identified to yield fundamental insights into ice sheet, ocean, sea ice, and atmosphere interactions, their role in Earth’s climate system, and probable trajectories of future changes: 1) focused process studies addressing critical glacier, ocean,

atmosphere, and coupled dynamics; 2) sustained observations at key sites; and 3) inclusion of relevant dynamics in Earth system models.

Understanding the dynamic response of Greenland's glaciers to climate forcing constitutes both a scientific and technological frontier, given the challenges of obtaining the appropriate measurements from the glaciers' marine termini and the complexity of the dynamics involved, including the coupling of the ocean, atmosphere, glacier, and sea ice systems. Interdisciplinary and international cooperation are crucial to making progress on this novel and complex problem.

3. Report Available from USGCRP Sustaining NCA Assessments of Oceans and Coasts Workshop

The report from the USGCRP NCA **Sustaining National Climate Assessments of Oceans and Coasts Workshop**, held April 22-23, 2013, is now available. This workshop, the first of its kind, focused explicitly on the sustained assessment process. It can be used as a framework for future sustained assessment workshops and discussions of other regions or sectors.

If you know of any networks that might be interested in the topics discussed at this workshop and in sustaining assessments of coasts and oceans, please feel free to contact Elizabeth Fly (efly@usgcrp.gov), USGCRP/NOAA CPO. You can also contact Emily Cloyd (ecloyd@usgcrp.gov), the NCA Public Participation and Engagement Coordinator, for more general information on the NCA and NCAnet, a network of organizations working with the NCA to engage producers and users of assessment information across the United States.

4. BAMS Publishes "Explaining Extreme Events of 2012 from a Climate Perspective"

BAMS released a supplemental report in their September edition: "Explaining Extreme Events of 2012 from a Climate Perspective" The report contains 19 analyses explaining 12 different extreme events from around the globe in 2012 including the regional March-May warm anomaly in the Eastern U.S.; Hurricane Sandy; and many others. Four of these extreme events were analyzed by at least two different sets of authors, so comparison of results is an added benefit to this year's report. This comparison will aid in the challenge of extreme event attribution. Here's the NOAA NCDC overview including link to download the report: <http://www.ncdc.noaa.gov/news/explaining-extreme-events-2012-climate-perspective>.

5. IOOC and IOOS Release U.S. Integrated Ocean Observing System (IOOS) Summit Report

In August, the Interagency Ocean Observation Committee (IOOC) and the U.S. Integrated Ocean Observing System (IOOS®) released the U.S. IOOS Summit Report, a culmination of the work leading up to – and a synthesis of the outcomes from – the IOOS Summit, held from November 13-16, 2012 in Herndon, Virginia, to assess ocean observing progress over the past decade, and to develop plans for the next decade of ocean observations.

The U.S. IOOS Summit Report allows the United States to move forward with the vision and insight of these over 200 ocean observing community leaders who convened in November 2012. A significant level of the consensus that transpired at the U.S. IOOS Summit was around a set of major themes and challenges that will be the ocean observing focus over the next 10 years.

A team assembled under the IOOC is currently assessing the U.S. IOOS Summit Report recommendations and determining an implementation strategy for the next 10 years. To view the entire U.S. IOOS Summit Report, see here: <http://www.iooc.us/summit/>. The next full membership meeting takes place on Monday, September 23 from 2:00-4:00 p.m. EST at the Consortium for Ocean Leadership.

More information about the IOOC can be accessed on the IOOC website: <http://www.iooc.us/>, which contains updated information regarding commenting opportunities on committee activities, upcoming and past events, and relevant scientific, technical, and policy publications. If you have any questions, please send an email to iooc@oceanleadership.org.

6. Special Issue Release “Multi-disciplinary assessment of Southeastern U.S. Climate”

A special issue, “A Multi-disciplinary assessment of Southeastern US climate” has been published in the journal of Regional Environmental Change that came to fruition after several years of collaborative work spread across several universities in the southeastern US, industry, and government labs across several fields including Climatology, Ecology, Agro-Science, Economics, Social Science, and hydrology. Articles range from ENSO and climate models, regional analysis of tropical cyclones, and sea level and climate variability for coastal resources. The articles in this special issue can be accessed at: <http://link.springer.com/journal/10113/13/1/suppl/page/1>.

7. Upcoming UCAR UForum Webinars on IPCC AR5

Faculty, students, researchers, and other members of the UCAR community and the public are invited to participate in UForum at UCAR, which offers webinars on issues and topics in atmospheric and Earth system science. During the course of the next 13 months, the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR5) will be released globally. The first part of the report, dealing with the physical science, will be rolled out later this month on September 27 and is sure to bring heightened public, media, and policy maker attention to the topic of climate change.

The UCAR scientific community has been instrumental in the production of AR5. As background in preparation for release of the first part of the report, UCAR is offering two webinars addressing the IPCC history and process as well as the public’s understanding of the science. These webinars are presented by two well-known leaders in our field who will answer questions following their brief presentations.

Topic: Inside the IPCC Climate Science Assessments: From 1990 to 2013

Presenter: Gerald “Jerry” Meehl (NCAR)

Date: September 17, 2013

Time: Noon - 1:00 pm (EDT, UTC -4)

[Click here for info, sign up to attend, or ask a question.](#)

Topic: Communicating Climate Change in the U.S

Presenter: Anthony Leiserowitz (Yale University)

Date: September 19, 2013

Time: Noon - 1:00 pm (EDT, UTC -4)

[Click here for info, to sign up to attend, or ask a question.](#)

8. New SPURS Webinar Series

The **Salinity Processes in the Upper Ocean Regional Study** (SPURS) project represents the collaborative efforts between a diverse group of scientists spanning national and international borders, from multiple organizations. These include, but are not limited to, physical oceanography experts and climate scientists from NASA, researchers from the Woods Hole Oceanographic Institute, and research professors from The University of North Carolina, Wilmington, to name a few. The following individuals have been highlighted for the well-received webinar presentations put together with the help of COSEE-Ocean Systems, on their involvement with the SPURS expeditions.

The new three-part webinar series, “Ocean Thinking: Inside and Outside of the Box”, starts on September 17th with a presentation “Changes In Latitude” featuring Julius Busecke, LDEO. Check out the SPURS webinar page for more information and to register (<http://cosee.umaine.edu/coseeos/spurs/webinars.htm>).

9. NOAA/NWS/NCEP NMME October 2013-April 2014 Forecasts Available

The National Multi-Model Ensemble (NMME) seasonal and monthly mean forecasts for October 2013 to April 2014 are now available at www.cpc.ncep.noaa.gov/products/NMME/. Both NMME and International MME (IMME) forecasts can be accessed from this page. 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. The “Phase I Plus” fields, maximum and minimum 2 m temperature, 200 mb heights, and soil moisture, are also accessible from the homepage at “Preview: additional variables.”

There will be a special section on NMME at the 38th Annual Climate Diagnostics and Prediction Workshop will be held in College Park, MD, October 21-24, 2013. More information here: <http://www.cpc.ncep.noaa.gov/products/outreach/CDPW38.shtml>.

10. Earth Observing Lab Releases Digital Guide to NSF’s Lower Atmospheric Observing Facilities

The Earth Observing Laboratory is pleased to announce the release of the new Digital Guide to the National Science Foundation’s Lower Atmospheric Observing Facilities (LAOF), which is now available to be viewed online or downloaded from the Apple and Android app stores. Through text, video, infographics, maps, timelines, and downloadable content, you’ll learn about each of the available research facilities and the extraordinary support services that go with them. You will also find out how to request these state-of-the-art platforms and instruments for your own field research.

The LAOF platforms and instruments will continue to play an integral role in taking geosciences research to the next level. These cutting-edge facilities, which include aircraft, radars, lidars, and surface and sounding systems, are available to all qualified researchers at no extra cost to their scientific grant.

View online or download app: <http://www.eol.ucar.edu/laof>. Additionally, you can find all of the LAOF videos from the Digital Guide on the EOL Youtube channel: Complete LAOF Playlist - <https://www.youtube.com/playlist?list=PLniYcV2y34EEI5tG96n541UMxeQWwwmK7>.

11. UCAR Climate Data Guide Website Update

The Climate Data Guide, <https://climatedataguide.ucar.edu>, provides concise and reliable information on the strengths and limitations of the key observational data sets, tools and methods used to evaluate Earth system models and to understand the climate system. We are very pleased to announce the launch of a redesigned website, where you will find easily searchable and relevant information on well over 100 climate data sets. Unique to the Climate Data Guide, citable expert commentaries on the data sets are authored by experienced data users and developers, enabling scientists to expose their work and the diverse user community to access and understand the essential data.

Examples of recent posts include (1) Dr Lucrezia Ricciardulli's (Remote Sensing Systems) overview of wind speed and wind direction based on the QuikSCAT mission; (2) Dr David Robinson's (Rutgers University) description of the Northern Hemisphere Snow Cover Extent Climate Data Record; (3) Dr Boyin Huang and colleagues' (NOAA/NCDC) description of the Extended Reconstruction Sea Surface Temperature data set (ERSSTv3). These pages and many more are linked at <https://climatedataguide.ucar.edu/experts>.

Individual scientists are welcomed to contribute to this resource by providing their own perspectives on climate data sets and/or analysis methods. More information is at <https://climatedataguide.ucar.edu/about/contribute-climate-data-guide>. Larger data providers who wish to use the Climate Data Guide as a venue to advertise their wares are also welcome to contact us.

Meetings and Workshops

1. **Global Precipitation Measurement & Tropical Rainfall Measuring Mission Applications Workshop** NOAA CWCP, College Park, MD November 12-13, 2013

The Global Precipitation Measurement (GPM) and Tropical Rainfall Measuring Mission (TRMM) will hold its first Applications Workshop on November 12-13th, 2013 at the NOAA Center for Weather and Climate Prediction in College Park, Maryland. This two day workshop will explore topics of weather forecasting, water resources, agricultural modeling, food security, hydrological modeling, disaster response, ecological forecasting and public health with respect to applications of TRMM and GPM satellite data. The goal is also to broaden the discussion to address the range of current and future applications of satellite data to science and societal applications and provide feedback to the TRMM and GPM teams with respect to data access, suggestions and questions. Registration deadline is **November 1st, 2013**.

For more information, logistics, and registration, visit the website: <http://pmm.nasa.gov/node/851>

Position Announcements

1. **Chief, NASA Global Modeling and Assimilation Office** Greenbelt, MD

The Earth Sciences Division at the NASA Goddard Space Flight Center (GSFC) seeks qualified candidates for the position of Chief of the Global Modeling and Assimilation Office (GMAO), located in Greenbelt, Maryland. The position will be a Career Civil Service position.

GMAO is NASA's flagship effort in global data assimilation, in climate-focused reanalyses, and in weather to short-term-climate prediction. GMAO uses data assimilation and weather and climate modeling techniques to maximize the impact of satellite observations in the analysis and prediction of weather and climate. The GMAO earth system model (GEOS-5) is used to evaluate the impact of new observational measurements on weather and climate forecasts. New data assimilation techniques improve the application of new measurement approaches to GMAO's weather and climate models. These weather and climate models are also used to support NASA field research efforts with operational weather forecast data products, and the MERRA reanalysis data products are used to support NASA's goal of understanding the dynamic Earth as a system. In order to achieve these goals, GMAO works cooperatively with the Goddard Institute for Space Studies (GISS), with other Earth Science Laboratories at the GSFC, and with other agencies and research organizations, including the interagency Joint Center for Satellite Data Assimilation.

The successful applicant will lead a team of scientists, including NASA civil servants, support scientists and software developers; about 100 staff members in total. The Chief of GMAO will supervise and direct the overall scientific program at GMAO, including planning the program, working effectively with NASA HQ and Goddard programs, maintaining the health and effectiveness of the program, and supervising and leading the highly effective GMAO research team. The Chief will be expected to play a leading role in defining and initiating GMAO research, and in developing and strengthening collaborative relationships with other climate researchers and organizations, nationally and internationally.

The scope of responsibilities includes strategic planning for GMAO, supervision and conduct of research in the broad disciplines of global modeling of the Earth system and of four-dimensional data assimilation; oversight of the design, development, evaluation, and application of the end-to-end modeling and data assimilation system needed to achieve organizational goals; obtaining and managing the resources needed to achieve the GMAO's core goals; and supervisory management of GMAO's staff. The incumbent is expected to conduct independent research and to maintain an active role as a leading scientist in a field that is central to the core of the GMAO's mission.

Candidates having extensive experience in Earth system science, climate modeling, meteorology, atmospheric, oceanic or land surface hydrology science, estimation theory, and experience conducting projects that utilize remote sensing data in conjunction with global weather and climate models are highly desirable. A Ph.D. degree, or the equivalent in training and experience in earth system science, data assimilation, climate modeling, or a closely related science discipline is required. To view the full vacancy announcement which contains further information, including qualification requirements and how to apply go to <http://www.usajobs.gov/GetJob/ViewDetails/348279600>. Applications must be received by **October 31, 2013**. For additional information and questions about the GMAO please contact Peter Hildebrand, Director, Earth Sciences Division, at Peter.H.Hildebrand@nasa.gov.

2. Director, Joint Center for Earth Systems Technology University of Maryland, Baltimore County, Catonsville, MD

The University of Maryland, Baltimore County (UMBC) seeks a Director for its Joint Center for Earth Systems Technology (JCET), who will also qualify for appointment as a tenured full professor in an academic department at UMBC. JCET was established in 1995 and is funded primarily by a cooperative agreement with the NASA Goddard Space Flight Center (GSFC). JCET has a research staff of approximately 45 scientists and faculty, many of who collaborate with scientists at GSFC and other entities in research relating to the observation, analysis and modeling of physical processes within the Earth-Sun system, and to global climate change issues on the Earth. More information can be seen at <http://jcet.umbc.edu/>.

The Director provides the overall scientific vision for JCET, and is the center's principal interface to both GSFC and to the UMBC academic community. The Director is responsible for the overall management of the Center, and for the scientific quality and integrity of the research performed by the Center's research staff, who are located at both GSFC and UMBC. Up to full academic year salary is available and the Director will be expected to spend a significant amount of time on research and teaching at UMBC. The Director reports to the Vice President for Research. The Director should possess a broad scientific and technical knowledge of Earth, atmospheric and oceanic sciences and should possess a distinguished research portfolio in one of these fields. A Ph.D. is required.

Applications including a letter of interest, a current c.v., and the names, addresses, telephone numbers and email addresses for at least three references, should be sent electronically to allison@umbc.edu. In order to receive full consideration applications should be sent before **October 21, 2013**. The search will remain open until the position is filled. For further information and questions contact Dr. Geoff Summers at gsummers@umbc.edu. UMBC is an Equal Opportunity/Affirmative Action Employer.

3. Ocean State Estimation Scientist NASA JPL, Pasadena, CA

The Jet Propulsion Laboratory invites applications for a full-time position in physical oceanography and ocean state estimation. The applicant will join a team of researchers of the Consortium for Estimating the Circulation and Climate of the Ocean (ECCO) studying ocean climate changes using multi-decadal estimates of the global three-dimensional state of the ocean and sea ice by combining satellite and in-situ observations with ocean circulation models. Expertise is sought in advancing the ECCO model-data synthesis in the areas of modeling, estimation, and scientific applications. The scope of the position includes diagnosing the nature of model-data discrepancies; ascertaining model and estimation performances and correcting their inaccuracies; improving the fidelity of the model-data synthesis by advancing estimation and optimization methods; utilizing the model-data synthesis to study ocean circulation and climate; expanding the scope of the model-data synthesis, including its regional downscaling; supporting user groups in utilizing the estimates.

The candidate will have a PhD in the field of physical oceanography, climate physics, or related disciplines, with experience in numerical modeling and estimation of ocean circulation and sea ice. The position requires strong skills in numerical computations on massively parallel supercomputers and in processing large volumes of data. The successful applicant must have an established reputation as evidenced by a significant record of peer-reviewed publications, commensurate with her or his career stage. The incumbent is expected to participate in establishing the science foundation and requirements for future ocean-viewing space missions.

Please apply online at: <http://Careerlaunch.jpl.nasa.gov/> (Job ID #12301). Applications will be reviewed as they are received, and should include a curriculum vitae, a career statement with research objectives, and contact information for three professional references.

4. Cryospheric Scientist NASA JPL, Pasadena, CA

The Jet Propulsion Laboratory invites applications for a full-time position in Cryospheric Science numerical modeling and estimation. The applicant will join a team of researchers who develop the Ice Sheet

System Model (ISSM) and use it for scientific investigations of the Cryosphere. The incumbent will ensure proper maintenance of the ISSM software in synergy with the existing ISSM team; improve representation of physical processes such as grounding-line dynamics, higher-order ice flow modeling, en-glacial, sub-glacial and supra-glacial hydrology, basal friction parameterizations; improve data assimilation capabilities towards better integration of airborne and satellite data in ice flow predictions; improve integration of ISSM and GRACE data processing, so as to improve mass balance observations, estimates and projections thereof for the Greenland and Antarctica ice sheets.

The successful applicant must have an established reputation as evidenced by a significant record of peer-reviewed publications, commensurate with her or his career stage. The candidate must have a PhD in Cryospheric Sciences or related technical discipline, with heavy emphasis on numerical Finite Element Modeling, and data assimilation techniques, such as adjoint and non-linear optimization. The candidate will ideally also have a strong background in software engineering, including C/C++/Matlab/Python coding as it applies to climate science. The incumbent is expected to participate in establishing the science foundation and requirements for future cryospheric space missions.

Please apply online at: <http://Careerlaunch.jpl.nasa.gov/> (Job ID #12328). Applications will be reviewed as they are received, and should include a curriculum vitae, a career statement with research objectives, and contact information for three professional references.

5. Senior Research Scientist (Principal Investigator) **Bigelow Laboratory, East Boothbay, ME**

Bigelow Laboratory invites applications for two Senior Research Scientist positions associated with the three centers of research in the Laboratory's new Ocean Science and Education Campus. The targeted research areas for these positions are: 1) Blue Biotechnology (e.g. synthetic biology, systems biology, biofuels, marine natural products, marine phycology, marine mycology); 2) Ocean Biogeochemistry and Climate Change (e.g. global scale modeling, ocean observing, controls on the ocean biological pump [past, present and future], stable isotope biogeochemistry, environmental radiochemistry); and 3) Ocean Health (e.g. predator-prey interactions, microbial signaling, quorum sensing, plankton physiology, and chemical ecology of marine microbes). Cross-cutting themes for these positions include human impacts, foundations of marine food webs, and climate change. The research at Bigelow Laboratory has global geographical reach, from the tropics to the poles.

Successful candidates are expected to lead transformative, translational, cross disciplinary research, examples of which include, but are not limited to: a) bioprospecting from the Laboratory's NCMA and SCGC biological collections for novel natural products and biofuels; b) using ocean observing and mesocosm assets to elucidate the impacts of climate change on biogeochemical cycles; c) better understanding of the oceanic biological processes using high-throughput molecular "-omics" tools; d) development of more accurate models to predict environmental change in the ocean, constrained by ongoing ocean observing and -omics data sets; and e) use of model organisms to understand interactions among marine microbes.

Minimum requirements are a Ph.D. with two years of postdoctoral experience and the capability to acquire external funding and lead scientific programs. Bigelow Laboratory for Ocean Sciences is a primarily soft money institution with the expectation that the PI will generate external funding and be an active participant in the Laboratory's institutionally-funded teaching through Colby College and the NSF REU program, technology transfer activities, and administrative activities associated with Laboratory governance. Salary and start-up packages are negotiable. Bigelow Laboratory for Ocean Sciences provides a gener-

ous benefits package including family medical and dental and pension/403c retirement plan. Applicants should consult the laboratory's strategic plan.

Applicants should send a cover letter describing which position they are applying for and why. They should also include their CV, a research plan, list of relevant teaching experience, plus contact information for three references to jobs@bigelow.org. Please reference Job # SRS-2013-1 in the subject line. All applications will be acknowledged upon receipt. For full consideration, the application should be received by **25 October 2013**. The search will continue until the positions are filled but the goal is to have these positions filled by summer 2014.

6. Associate Research Scientist Columbia/NASA GISS, New York, NY

The Department of Applied Physics and Applied Mathematics invites applications for an Associate Research Scientist at Columbia University's NASA Goddard Institute for Space Studies.

The research is in the field of atmospheric radiative modeling as it relates to global climate change and involves the analysis of both satellite observations and model output with the objective of evaluating the space-time behavior of aerosols and develop improved aerosol radiative property parameterizations for climate model applications.

Requirements: Preferred experience includes working with global climate models, large climate data sets, advanced scientific programming, data visualization, matrix methods and statistics. To apply for this position please visit: <https://academicjobs.columbia.edu> and search job: 58171.

7. Postdoc in Statistical Analysis for the OCO-2 Mission CalTech/JPL, Pasadena, CA

The California Institute of Technology (Caltech), Postdoctoral Scholars Program at the Jet Propulsion Laboratory (JPL) invites applications for a postdoctoral research position in JPL's Science Data Understanding Group.

The research will involve statistical analysis of optimal estimation retrieval algorithms for uncertainty quantification, data analysis of OCO-2 data products, development and application of statistical and data analysis methods for carbon cycle science. Dr. Amy Braverman, in JPL's Instrument Software and Science Data Systems section, will serve as JPL postdoctoral advisor to the selected candidate. The appointee will carry out research in collaboration with the JPL advisor, resulting in publications in the open literature.

Candidates should have a recent PhD in Statistics, Mathematics, or Computer Science with a strong background in spatial and spatio-temporal statistical methods. Experience in remote sensing data analysis is highly desirable. Candidates who have received their PhD within the past five years since the date of their application are eligible. The annual starting salary for recent PhDs is \$60,528 USD and will vary according to the selected applicant's qualifications. Postdoctoral Scholar positions are awarded for a minimum of one-year period and may be renewed up to a maximum of three years.

Please send a letter describing your research interests, a curriculum vitae, a list of three references (with telephone numbers, postal and email address) and arrange the reference letters to be sent to:

Dr. Amy Braverman
Mail Stop 168-200,
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, CA

Telephone: 818-793-4606
Fax: 818-393-6962
E-Mail: Amy.Braverman@jpl.nasa.gov

8. Postdoc Associate in Autonomous Underwater Glider (AUG) Field Program U.S. EPA/LLO/University of Minnesota-Duluth, MN

We seek a post-doctoral candidate who will be responsible for designing and executing a Autonomous Underwater Glider (AUG) field program in Lake Superior. The position is part of a nearshore monitoring development project focused on characterizing the influence of watershed/ tributary influences on the Great Lakes. The individual should be familiar with oceanographic technology, and will be part of a team to help design and test effective sampling approaches in the ongoing development of nearshore monitoring and observing systems across the Great Lakes. The project will develop and evaluate the use of high spatial intensity and repeated surveys with grids or transects. A nearshore receiving area on Lake Superior will be used as a test case for AUG technology to characterize nearshore responses to tributary outflows and nutrient loading in the Great Lakes. The project will compare watershed flow and loading data with information from other surveying techniques within and around the nearshore receiving zone. AUG/continuous in situ sensor data will be used to track tributary waters dispersed within lake waters and ultimately evaluate the nature and extent of biogeochemical responses.

The successful candidate will work with a team from the Large Lakes Observatory (LLO) of the University of Minnesota-Duluth and the US EPA Mid-Continent Ecology Division in Duluth MN to design and implement glider surveys in the nearshore environment. The candidate will receive training in operation of the glider system as part of the position. The position will be for up to 12 months; an additional year is dependent on further funding. Start date January 6th, 2014 is negotiable depending on the needs and commitments of the successful candidate.

The candidate is required to have a Ph.D. in ocean engineering, physical and/or chemical oceanography, remote sensing, or related field. Desired qualities include knowledge and/or experience with oceanographic technology, especially AUG technology and operation; knowledge of coastal dynamics and ecological processes in estuarine, marine and/or freshwater (large lake) environments, and some understanding of the interaction of physical and biogeochemical processes in aquatic ecosystems; and quantitative analysis skills and related educational training. Experience with GIS, visualization software, and mathematical modeling.

For a complete Position Description and information on how to apply, please visit our web site at <https://employment.umn.edu> and search job: 112994 or contact Dr. Jay Austin, jaustin@d.umn.edu, 2205 E 5th Street, Duluth, MN 55812, 218-726-8773. Complete applications will be reviewed beginning **October 17th, 2013**. The University of Minnesota is an equal opportunity educator and employer.

9. MS/PhD Student Assistantships in Oceanographic Research

Department of Geological Sciences, University of Oregon, Eugene, OR

MS and PhD graduate student assistantships are available for oceanographic research in the Department of Geological Sciences at the University of Oregon in Eugene, OR. Ongoing research exists in exploring the dynamics of estuaries and the coastal ocean, high-resolution numerical modeling of the ocean, and ice-ocean interactions in Greenland fjords. We are looking for highly motivated students with a quantitative geology/oceanography background that could thrive in an interdisciplinary setting. The department is a small, diverse, and energetic group of faculty and students with broad research interests in earth and ocean sciences. The campus is located in beautiful Eugene at the foot of the Cascades in a geologically active setting and with extraordinary opportunity for outdoor activities.

Interested students should contact Prof. David Sutherland for more information and with questions (<http://pages.uoregon.edu/dsuth/>). Applications for Fall 2014 are due **Jan. 10, 2014** and are available online (<http://pages.uoregon.edu/dogsci/>).

10. Two PhD Positions in Climate Science Cornell University, Ithaca, NY

Support is available for two PhD students in the area of climate science at Cornell University, Department of Earth and Atmospheric Sciences (<http://www.eas.cornell.edu/>). The first position will investigate the role of natural variability and climate change in modulating seasonal transitions and extremes (e.g., the start of the tornado season, monsoon onset, etc...). The second will seek to understand the role of variations in radiative forcings over the last millennium, their impacts on decadal to centennial variability in the observational record, and their implications for climate change and human adaptation.

Responsibilities of both positions are flexible and open ended, and student interests will necessarily guide scientific developments. Some familiarity with computer programming languages is preferred but not required (e.g., Fortran, C++, Matlab®, Python, R, etc...). Through several collaborative visits to Boulder, CO, both students will be expected to work closely with scientists at the National Center for Atmospheric Research (NCAR). Students will receive training in state-of-the-art climate modeling, data analysis and visualization, and benefit from significant mentorship in a vibrant, interdisciplinary research environment. Interested candidates should contact Prof. Toby R. Ault for more information (toby.ault@cornell.edu). Members of historically underrepresented groups in atmospheric science are especially encouraged to apply. Cornell is an equal opportunity employer.