

Classified

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research in the areas of experimental multi-phase flow, and geologic CO₂ sequestration, respectively.

Additional information is available at <http://web.engr.oregonstate.edu/~wildensd> or by contacting Associate Professor Dorthe Wildenschild at dorthe@engr.orst.edu. Please apply by February 15th for first consideration.

Ph.D. Opportunities in Carbon Sequestration Research. The Division of Marine Geology and Geophysics at the RSMAS, has initiated a major program into carbon sequestration. The work involves the fate of CO₂ pumped into reservoirs using InSAR and GPS, seismology, and geochemistry. We anticipate up to 5 openings with research areas including Geochemistry, Seismology, and Space Geodesy (<http://www.rsmas.miami.edu/> and <http://www.geodesy.miami.edu/>). Contact T. Dixon (tdixon@rsmas.miami.edu) or P. Swart (pswart@rsmas.miami.edu).

Ph.D. Position in Geophysics/Controlled-Source Seismology. We are inviting applications for a Ph.D. position at Uppsala University, Sweden. Application deadline is February 28, 2010. We are seeking a motivated candidate with a strong background in geophysics or geology. The Ph.D. candidate will perform research within the field of hardrock seismology and petrophysical measurements with applications related to carbonatic intrusions and their intrusion mechanism(s). For further information, please contact Dr. Alireza Malehmir (alireza.malehmir@geo.uu.se).

Research & Discover Undergraduate Summer Internships and Graduate Fellowships in Earth System Science. Join some of the nation's top scientists at the Institute for the Study of Earth, Oceans, and Space (EOS) in research

through the UNH-Goddard Joint Center for the Earth Sciences.

As a Research & Discover awardee, you will be involved in ground-breaking research conducted jointly at University of New Hampshire and the NASA-Goddard Space Flight Center. Our geoscience and environmental science research is among the most frequently cited in the country. Our scientists are engaged in:

- Investigating the effects of human activities on the Earth, including the causes and effects of global climate change and deforestation;
- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010. For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Summer 2010 Research Experiences for Undergraduates (REU) Program. The program will be held at the School of Marine and Atmospheric Sciences, Stony Brook University.

June 2 to August 6: will consider implications of a changing global climate for shark and fish populations, microorganisms and biogeochemical processes, coastal meteorology, and atmospheric chemistry. Students receive stipend, travel, and living expenses.

Applications due by Feb. 17, 2010. More information at: http://www.somas.stonybrook.edu/education/undergrad_reu.html. SBU is an EEO/AA Educator & Employer.

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2010 Voluntary Contribution Campaign

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STUDENT OPPORTUNITIES

Graduate Assistantships Available for New Ph.D. Program in Engineering Physics. Embry-Riddle Aeronautical University (Daytona Beach, FL) announces the availability of several Graduate Assistantships to begin each year for incoming Engineering Physics Ph.D. students. These assistantships cover full tuition and fees plus a \$20,000 per year stipend.

Applicants must have completed a M.S. in physics or engineering in order to prepare for this new program, which combines spacecraft systems engineering with space physics—thus building upon existing B.S. and M.S. programs in Engineering Physics at ERAU with the same emphasis.

Detailed program information may be found at: <http://www.erau.edu/phd-engineering-physics>. Questions may be directed to Dr. John Olivero, Chair, Physical Sciences Department, oliveroj@erau.edu or call 386-226-6453.

Graduate Opportunity (Canadian Oil Sands). The Geological Survey of Canada (Delta-Lab) in Quebec City, Canada, seeks MSc or Ph.D. candidates under our CORES project (Coal & Oil Resources Environmental Sustainability), whose goal is to identify disturbances and risks to ecosystems related to oil sands & coal development in NE Alberta. Using a variety of geochemical and isotopic techniques to characterize lake sediment cores, the work will focus on distinguishing between natural and anthropogenic sources of organic contaminants. Please contact Jason Ahad (jason.ahad@nrcan.gc.ca) for further information.

Interdisciplinary Research Opportunities for Ph.D. Students. The NSF-funded Christina Basin Critical Zone Observatory (CRB-CZO), a multidisciplinary research effort among the University of Delaware, the Stroud Water Research Center, and the Delaware Environmental Institute, has openings for 8 Ph.D. students. The CRB-CZO focuses on carbon-mineral complexes and impacts of weathering, erosion, and fluvial network dynamics on their formation and sequestration in watersheds with mixed land uses. More information and application requirements can be found at http://www.udel.edu/czo/czo_opportunities.pdf. Reviews will begin Feb. 15.

Ph.D. Candidates. Oregon State University, School of Chemical, Biological, and Environmental Engineering seeks highly qualified Ph.D. candidates to begin Fall 2010 or earlier, to work on funded

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Research Scientist IN OCEAN REMOTE SENSING

The Jet Propulsion Laboratory invites applications for a full-time position in the field of satellite oceanography and ocean remote sensing. The applicant will join a broad-based team of researchers in oceanography, who analyze spaceborne and complementary in-situ observations, carry out ocean modeling and data assimilation, support existing ocean satellite missions and help develop new remote sensing techniques for future satellite oceanography missions.

The successful applicant should have a Ph.D. degree plus a minimum of 2 years of research experience after the Ph.D. The ideal applicant combines expertise in ocean climate processes together with expertise in remote sensing. A record of peer-reviewed publications and funded research proposals appropriate to the stage in the applicant's career is a must. Emphasis will be on remote sensing of one or more of sea surface height, salinity, temperature, vector winds, or marine gravimetry. Experience developing satellite data retrieval algorithms, instruments, methods for data analysis or sensor calibration and validation, and in the design of satellite sensors or missions are desirable. The incumbent will analyze and interpret data from an array of instruments, and participate in establishing the science foundation and requirements for future satellite oceanography missions. Opportunities exist to participate in existing satellite oceanographic missions and science teams (<http://climate.jpl.nasa.gov/missions/>). The incumbent is expected to support future satellite oceanography missions as recommended by the Decadal Survey study (<http://nasascience.nasa.gov/earth-science/decadal-surveys>). Applicants at a more advanced stage in their careers will also be considered.

There are collaborative opportunities with nearby universities such as the California Institute of Technology and the University of California at Los Angeles (UCLA). Joint research staff or faculty appointments with UCLA can be made through the Joint Institute for Regional Earth System Science and Engineering (**JIFRESSE**, <http://www.jifresse.ucla.edu>). Familiarity with NASA's satellite oceanography missions and programs is desirable. Startup funds will be available for up to three years, during which time the successful candidate will develop an externally funded research program.

If you'd like to join the JPL Oceanography program, please apply online at:

<http://Careerlaunch.jpl.nasa.gov/>. (Job ID#8891). Applications will be reviewed as they are received. The applicant should include a curriculum vitae, list of peer-reviewed publications, names and contact information of at least three professional references, and a statement of research interests.

JPL/Caltech is an equal opportunity/affirmative action employer.

JPL
Jet Propulsion Laboratory
California Institute of Technology

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assistantships cover full tuition and fees plus a \$20,000 per year stipend.

Applicants must have completed an M.S. in physics or engineering in order to prepare for this new program, which combines spacecraft systems engineering with space physics—thus building upon existing B.S. and M.S. programs in Engineering Physics at ERAU with the same emphasis.

Detailed program information may be found at: <http://www.erau.edu/phd-engineering-physics>. Questions may be directed to Dr. John Olivero, Chair, Physical Sciences Department, oliveroj@erau.edu or call 386-226-6453.

Graduate Opportunities in the Earth Sciences. The Department of Marine, Earth and Atmospheric Sciences at NC State University invites applications from prospective M.S. and Ph.D. students in the Earth Sciences. The Department provides a multi-disciplinary learning environment with active

research programs in Hydrology, Marine Geology and Geophysics, Tectonics and Geomorphology. Financial support is available through research and teaching assistantships.

The deadline for fall admissions is 15 February. Please visit www.meas.ncsu.edu.

Graduate Research Assistantship. A Graduate Research Assistantship is available immediately upon acceptance for an individual with an undergraduate (or MS) degree in physics, applied math or related discipline, interested in evolving tidal amplitudes in the Pacific Ocean and their relationship to global climate. Applicants should contact Ed Zaron, zaron@cecs.pdx.edu, re: North Pacific Tides, Department of Civil & Environmental Engineering, Portland State University, P.O. Box 751, Portland, OR 97207, providing a statement of

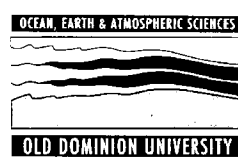
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STUDENT OPPORTUNITIES

2010 REU Program in Astrobiology. The SETI Institute seeks applicants for the 2010 REU (Research Experiences for Undergraduates) program in Astrobiology. Undergraduate students in fields such as geology, astronomy, biology, chemistry, and physics are invited to apply to spend 10 weeks in the San Francisco Bay area working on an astrobiology research project. Students receive a stipend, travel, and living expenses. Applications are due by February 1, 2010. For more information, visit <http://www.seti.org/reu>.

Graduate Assistantships. The Department of Atmospheric Sciences at the University of Alaska Fairbanks still accepts applications for graduate assistantships for fall 2010. We seek highly qualified Ph.D./M.S. applicants interested in aeronomy, remote sensing, air quality or climate modeling, ABL or cloud physics. They should have strong backgrounds in math, physics, meteorology or related. For information visit <http://www.uaf.edu/asp/>, or contact bdday@alaska.edu. Apply electronically at <http://www.uaf.edu/admissions/>.

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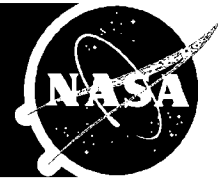


Graduate Stipends in Ocean and Earth Sciences

The Department of Ocean, Earth & Atmospheric Sciences at Old Dominion University awards stipends (including tuition waivers) on a competitive basis to students admitted to the graduate program for Fall 2010. We grant degrees in ocean and earth sciences (M.S.) and oceanography (Ph.D.); both feature specialization in physical, geological, chemical, and biological tracks. Our faculty and students carry out research projects that range geographically from the Arctic to the Antarctic and thematically from micro- to global-scale processes. We operate a research vessel, the *R/V Fay Slover*, in lower Chesapeake Bay and on the mid-Atlantic coast. Our graduates have found employment in federal, state, and local governments, colleges and universities, and private industry. Our program provides opportunities to work with interdisciplinary teams on real-world problems at the cutting edge of science and technology.

Additional information at <http://sci.odu.edu/oceanography/> or contact Prof. Fred Dobbs, OEAS, Old Dominion University, 4600 Elkhorn Ave., Norfolk, VA 23529 email: fdobbs@odu.edu Start your on-line application at: <http://admissions.odu.edu/> Old Dominion University is an equal-opportunity, affirmative-action institution.

Opportunity at NASA: World-class scientist in Active Optical Remote Sensing



The NASA Langley Research Center in Hampton, Virginia is seeking an expert in laser/lidar remote sensing for atmospheric research. This expert will serve in a Senior Scientific and Professional (ST) civil service position in the Science Directorate, a leader in lidar systems for the past three decades. Our Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite is the world's longest-lasting space lidar and recently completed its 2 billionth laser shot. Now we are looking to develop and fly the next generation of active optical remote sensing instruments to explore the Earth's atmosphere. The challenges are formidable, but the reward is an exceptional opportunity to pursue scientific discovery by exploiting the vast untapped potential of active optical remote sensing.

The successful candidate for this position is expected to:

- Define and lead active optical remote sensing research, technology, and systems studies
- Combine knowledge of atmospheric science, active optical remote sensing systems, and data retrievals from both satellites and aircraft to conduct meaningful scientific research
- Advise colleagues of the scientific challenges associated with deploying active optical remote sensing systems in space
- Initiate and lead collaborative efforts involving other NASA centers, government agencies, private industry, universities, and international organizations
- Represent agency interests and positions while interacting with the scientific community

Creativity, Ambition, Teamwork. A sense of daring. A probing mind.

That's what it takes to join NASA, one of the best places to work in the Federal Government.

Visit <http://www.usajobs.gov> and search for position LA10N0009 to read the complete job announcement and application procedures. Applications must be submitted via the online application process no later than **January 10, 2010**.

Learn more about the Science Directorate at NASA Langley Research Center by visiting <http://science.larc.nasa.gov/>

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interests, resume, undergraduate transcripts, GRE scores, and contact information for 3 references. Portland State University is an AA/EO Institution and welcomes applications from diverse candidates and candidates who support diversity.

Graduate Research Assistantship. A Graduate Research Assistantship is available immediately upon acceptance for an individual with an undergraduate (or MS) degree in physics, applied math, or related discipline, interested in buoyant plume processes in an upwelling ecosystem. Review of applications will begin January 29, 2010. Applicants should contact Ed Zaron, zaron@cecs.pdx.edu, re: Buoyant Plume Processes, Department of Civil & Environmental Engineering, Portland State University, P.O. Box 751, Portland, OR 97207, providing a statement of interests, resume, undergraduate transcripts, GRE scores, and contact information for 3 references. Portland State University is an AA/EO Institution and welcomes applications from diverse candidates and candidates who support diversity.

Graduate Research Assistantships. Available to pursue research in the Paleocology and Fire Ecology Lab at the University of Idaho. Projects focus on understanding the impacts of climate change on vegetation and fire regimes in forest and tundra ecosystems using environmental reconstructions from lake-sediment, tree-ring, and observational records. Assistantships include 2-3 years of tuition waiver and stipend, with possibilities for extension. For more information see www.uidaho.edu/cnr/paleoecologylab or contact Philip Higuera at phiguera@uidaho.edu.

Graduate Students Summer Program Hydrologic Synthesis Summer Institute. Highly motivated graduate students sought for 7 week intensive summer program (P.I. M. Sivapalan,

Univ. of Illinois) at the University of British Columbia in Vancouver. Research topics include solute transport, sediment dynamics, and nutrient cycling at various scales as well as invasion/blooming behavior of *Didymosphenia geminata* (aka "rock snot"). Application deadline is January 29. For more information, visit <http://cwaces.geog.uiuc.edu/synthesis> or contact Jennifer Wilson, project coordinator, at jswilson@illinois.edu.

IGERT Ph.D. Fellowships. IGERT Ph.D. Fellowships, Washington State University, Nitrogen Systems: Policy-oriented Integrated Research and Education (NSPIRE).

Up to 5 Ph.D. research assistantships will be available to join an interdisciplinary team working on understanding environmental aspects of the nitrogen cycle and putting that information into context for policy development.

Examples of areas of research include: 1) Vadose biogeochemistry of nitrogen and hydrology of soils in shallow ground waters; 2) Nitrogen transport in watersheds; 3) Nitrogen dynamics in specific ecosystems involving soil, plant and microbial communities; 4) Nitrogen cycling related to bioenergy production; 5) Biogeochemical cycling of nitrogen under different agricultural practices and management; 6) Emissions, transport, chemistry, and deposition of nitrogen in the atmosphere; 7) Numerical modeling of land surface hydrology; and 8) Numerical modeling of the coupled atmosphere/land surface system.

Applicants must be a U.S. Citizen or permanent resident.

Successful applicants must be entering or within their first year of a Ph.D. program at Washington State University and join the program in the fall of 2010.

Applicants must apply to one of the participating departments. Deadline for receipt of applications is January 22, 2010. For more information and details, visit the web page: <http://igert.nspire.wsu.edu/>.

Interdisciplinary Watershed Research M.S. Combined With K-12 Outreach. Central Washington University's Yakima WATERS (Watershed Activities To Enhance Research in Schools) Project has eight GK-12 graduate fellowships available for the 2010-11 academic year. Prospective students are encouraged to apply if interested in earning an MS in geological sciences, chemistry, biological sciences, or resource management while working with local teachers to integrate watershed research into the classroom. See <http://www.cwu.edu/~waters/> or contact waters@cwu.edu. Deadline February 15, 2010.

Ph.D. Assistantships. Ph.D. Assistantships available for Atmospheric Policy Trajectory (APT) program at Washington State University.

Openings are available within the APT program for engineering and science students interested in a program that emphasizes scientific research in air quality, atmospheric chemistry and climate change, mixed with quantitative policy analysis and a paid semester internship with a policy oriented agency or institution. Visit our web site (www.lar.wsu.edu) for more information. WSU is an EEO employer. Protected group members are especially encouraged to apply.

Research & Discover Undergraduate Summer Internships and Graduate Fellowships in Earth System Science. Join some of the nation's top scientists at the Institute for the Study of Earth, Oceans, and Space (EOS) in research through the UNH-Goddard Joint Center for the Earth Sciences.

As a Research & Discover awardee, you will be involved in ground-breaking research conducted jointly at University of New Hampshire and the NASA-Goddard Space Flight Center. Our geo-

science and environmental science research is among the most frequently cited in the country. Our scientists are engaged in:

- Investigating the effects of human activities on the Earth, including the causes and effects of global climate change and deforestation;
- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010. For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Research Assistantships. Research Assistantships are available to work with Professor Montesi (montesi@umd.edu) on projects involving modeling of lithosphere deformation and melting: 1) time-dependent plate boundary scale mantle flow and melting at mid-ocean ridges, (NSF Ridge 2000 program); 2) Importance of magmatism on rift morphology on Venus, Mars, and icy satellites (NASA Planetary Geology and Geophysics program). Both projects use numerical software recently developed by the geodynamics and applied mathematics communities (deal.II and GALE). <http://www.geol.umd.edu/pages/graduates/>.

Summer School in Glaciology, Alaska. A summer school in glaciology open to graduate students around the world will be offered 7-17 June 2010 by the University of Alaska, Fairbanks. The course focuses on quantitative glaciology, modeling and remote sensing and will include 8 days in McCarthy, south central Alaska, in immediate vicinity of several glaciers. Application deadline: 1 February 2010. For details see <http://www.gi.alaska.edu/snowice/glaciers/>.

Ocean Dynamics and Prediction Research Naval Research Laboratory



The Naval Research Laboratory has openings for PhD researchers to push forward the frontiers of coastal ocean forecasting. Problems that must be addressed cover a broad spectrum of physical processes including surface waves, sediment transport, nearshore circulation, estuarine and river dynamics, lateral and vertical turbulent mixing, Arctic ice modeling, internal waves, and coupled dynamics (ocean/wave/atmosphere, coastal/shelf-scale currents). This challenging work involves the development of numerical models and data assimilative approaches, the processing and analysis of satellite and in water observation and the construction of model systems for the predicting the ocean environment. This work is long term, and the end goal is to build cutting edge technology for predictive systems that transition to operational forecast centers.

This is an excellent opportunity to work with some of the best modelers and data analysts in the ocean community. The Naval Research Laboratory has access to the major supercomputer sites in addition to excellent local computer resources. The laboratory is collocated with the Naval Oceanographic Office, which is the largest national operational forecast center for oceanography.

To learn more about ongoing research projects and recent publications, visit the web site: <http://www7320.nrlssc.navy.mil/index.php>.

Salary range is \$61,000 to \$101,000 depending on experience. Applicants must be a US citizen or permanent resident at time of application. NRL is an equal opportunity employer. Send resume and references to:

Richard Allard via e-mail: allard@nrlssc.navy.mil
NRL Code 7322
Stennis Space Center, MS 39529



U.S. CLIVAR Panel Nomination



The U.S. CLIVAR program on Climate Variability and Predictability seeks qualified individuals to serve on its Panels. These Panels formulate goals and required strategies, catalyze and coordinate activities, and work with agencies and international partners to advance the progress of the climate research community, particularly with regard to addressing relevant goals of the US Climate Change Science Program, CLIVAR, and the World Climate Research Programme (WCRP). Qualified nominees are expected to represent the broader interests of the research community, be willing and able to engage in scientific as well as programmatic discussions leading to Panel activities, and work with other members of CLIVAR. U.S. CLIVAR has focused on climate extremes (particularly drought) and decadal variability/predictability. It is now beginning to explore polar climate and its role in the global climate system. Increased ties with carbon and ecosystems communities are envisioned in the future.

Nominations are sought for three Panels: 1) Predictability, Prediction and Applications Interface Panel (PPAI), 2) Process Study Model Improvement Panel (PSMI), and 3) Phenomena, Observations and Synthesis Panel (POS). These panels aid in developing and coordinating climate research plans and activities and also providing feedback to agency implementation. Further information and terms of reference for these panels can be found at www.usclivar.org/Organization.html. Each panel is seeking members to enhance current strengths while adding expertise in new areas. The PSMI Panel is specifically seeking expertise in atmospheric GCMs and land surface processes, as well as in polar/cryosphere processes, regional climate processes, downscaling of information near ocean coasts, and the Southern Ocean. The PPAI panel specifically seeks those interested in ENSO prediction, decadal prediction and initialization, polar climate modeling and prediction, modeling of extremes, as well as those interested in the application of seasonal/decadal forecasts. Finally, the POS Panel is seeking expertise in decadal variability/phenomena as well as coupled assimilation.

Panel members are expected to attend the annual U.S. CLIVAR Summit. The 2010 Summit will be held 7-9 July in Denver, CO. Additional meetings are possible; however, most Panel activity is carried out through email and teleconferences. Members generally serve terms of 3-4 years. To nominate (self nominations are welcome) and be considered for Panel membership, please submit the following:

- 2-page vitae noting the most relevant publications
- A paragraph describing qualifications, research interests, and the Panel of interest

Materials should be sent electronically to the U.S. CLIVAR Office (usco@usclivar.org) noting "Nomination" in the subject heading. The deadline for submission is **31 January 2010**. The U.S. CLIVAR Committee, in consultation with agency representatives, will review applications. Accepted applicants will be notified by **28 February 2010**.



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

The Chair of Engineering Geology at the ETH Zurich is looking for a

Senior Research Associate and Lecturer in Experimental Hydrogeology

The successful candidate must have a Ph.D. or equivalent degree in earth sciences, civil engineering, petroleum engineering or related field. Knowledge and demonstrated experience of quantitative hydrogeology of fractured rocks and in-situ experiments are of prime importance. Demonstrated experience and interest in coupled (HM, HC or HT) processes and communication skills are desired. The candidate will be expected (1) to supervise our tracer test laboratory, (2) to teach two classes in the field of experimental and fundamental hydrogeology, (3) to develop funded research programs addressing hydrogeological problems of fractured rocks, (4) to supervise graduate students and their thesis work, and (5) support students in the use of our comprehensive hydrogeologic field testing equipment.

This ETH position with an attractive pool of field and lab equipment and technical support staff can be filled by the successful candidate in summer 2010 over a period of about 6 years. The Chair of Engineering Geology is a multidisciplinary research and teaching unit devoted primarily to the study of hydromechanical processes in the subsurface within the context of deep Alpine underground constructions, unstable slopes, deep geothermal energy and deep geological waste disposal. Further information about the Chair of Engineering Geology is available at our Web Site www.engineering-geology.ethz.ch. Questions related to the open position can be addressed to Prof. Simon Löw and Dr. Peter Bayer, Engineering Geology, ETH Zurich (e-mail: bayer@erdw.ethz.ch, low@erdw.ethz.ch)

Please send your application per regular mail (not e-mail), including cover letter, curriculum vitae with full personal and career details, statement of research interests, and 3 letters of recommendation to ETH Zurich, Prof. Dr. Simon Löw, Engineering Geology, Sonneggstrasse 5, CH-8092 Zurich, Switzerland. Applications should be submitted until January 31, 2010 and will be accepted until the position is filled.

Ruhr
UNIVERSITÄT
BOCHUM



The Institute of Geology, Mineralogy and Geophysics (GMG) at the Faculty of Geosciences of Ruhr-University Bochum invites applications for the position of a

Junior-Professor (W1) for Geophysics (Earthquake Research)

The successful candidate should have earned a doctoral degree in natural sciences, mathematics or engineering within the last five years, and is expected to teach classes within the Bachelor and Master programme "Geosciences". Teaching duties will be 4 hours per week during term time.

Future research should focus on earthquakes. We invite applications of scientists from all disciplines engaged in earthquake research, e.g. experimental and theoretical seismology, geodesy, structural geology, rock mechanics and experimental and theoretical rock physics.

The Geophysics group at GMG currently leads the Collaborative Research Center (CRC) "Rheology of the earth - from the upper crust to the subduction zone" and the project RAPID within the branch "Early Warning Systems in Earth Management" of the German Geotechnologies Programme. It is further engaged in a new CRC "Interaction models in mechanical tunneling" (under review) and a further project in the Geotechnologies Programme "Tomography of the subsurface - from acoustic transmission to real-time monitoring". Candidates should be willing to contribute their expertise and research competences to these projects as well as to raise additional extramural funds in their own field of expertise.

Ruhr-University Bochum is committed to increase the number of female faculty members and particularly invites applications of qualified women. Applications of qualified candidates with handicaps are encouraged as well.

Applications with standard documents (curriculum vitae, list of publications, teaching and research statements) should be sent by **January 31, 2010** to: **Dean of the Faculty of Geosciences, Prof. Dr. Uta Hohn, Ruhr-University Bochum, 44780 Bochum, Germany.** Use **E-mail: geodekanat@rub.de** for applications in electronic form.

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in natural sciences or engineering and an interest in numerical modeling please contact Dr. Christof Meile with a CV (cmeile@uga.edu; see also <http://octopus.marsci.uga.edu/ad.htm>).

Graduate Students Summer Program Hydro-logic Synthesis Summer Institute. Highly motivated graduate students sought for 7 week intensive summer program (P.I. M. Sivapalan, Univ. of Illinois) at the University of British Columbia in Vancouver. Research topics include solute transport, sediment dynamics, and nutrient cycling at various scales as well as invasion/blooming behavior of *Didymosphenia geminata* (aka "rock snot"). Application deadline is January 29. For more information, visit <http://cwaces.geog.uiuc.edu/synthesis> or contact Jennifer Wilson, project coordinator, at jswilson@illinois.edu.

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Applicants must have completed an M.S. in physics or engineering in order to prepare for this new program, which combines spacecraft systems engineering with space physics—thus building upon existing B.S. and M.S. programs in Engineering Physics at ERAU with the same emphasis.

Detailed program information may be found at: <http://www.erau.edu/phd-engineering-physics>. Questions may be directed to Dr. John Olivero, Chair, Physical Sciences Department, oliveroj@erau.edu or call 386-226-6453.

Graduate Research Assistantship: Land-Ocean Exchanges, Marine Sciences.

U. of Georgia: Available immediately is a PhD/MSc position aimed at linking hydrology and biogeochemistry to assess the role of salt marshes in the global carbon cycle. It is part of an interdisciplinary collaboration in the Florida Big Bend, with strong ties to the GA Coastal Ecosystem LTER. Candidates with a background

NASA Student Airborne Research Program (SARP 2010).

The National Suborbital Education and Research Center (<http://www.nserc.und.edu>) invites highly motivated advanced undergraduate and early graduate students to apply for participation in the second NASA Student Airborne Research Program (SARP 2010) using NASA's DC-8 flying laboratory. The NASA DC-8 is a national research laboratory for Earth system science which has conducted major investigations worldwide. Outstanding faculty and staff for this program will be drawn from several universities and NASA centers, as well as from flight operations and engineering personnel.

The program begins June 20, 2010 and concludes July 30, 2010. Preparatory information will be presented at the University of California Irvine, where post-flight data analysis and interpretation will also take place.

Instrument and flight preparations, then the research flights themselves, will occur at NASA's Dryden Aircraft Operations Facility, Palmdale, CA.

The purpose of the Student Airborne Research Program is to provide students with hands-on research experience in all aspects of a major scientific campaign, from detailed planning for how to achieve mission objectives to formal presentation of results and conclusions to peers and others. Two major instruments will be operated by students to

Geophysical Research Letters Editors Sought

AGU is looking for dynamic, well-organized scientists with high editorial standards and strong leadership skills to serve as editors of *Geophysical Research Letters*. The search committee is currently looking for candidates from the fields of atmospheric sciences, space sciences, and oceans. The new editors will be appointed for a 3-year term, beginning as soon as possible.

Applicants should be respected leaders in the community, independent-minded, and even-handed. As editor you should be committed to further strengthening *Geophysical Research Letters* as a leading AGU letters journal and be proactive in attracting innovative contributions in traditional disciplines and in emerging fields, and able to commit to *Geophysical Research Letters'* fast publication pace. The Union is interested in attracting papers in developing areas and ensuring that readers of *Geophysical Research Letters* receive the best, most timely, and highest impact information possible.

As editor you will

- have full authority to accept or reject submitted papers
- handle the review process
- seek out stimulating papers for inclusion in the journal.

A search committee appointed by the Union president evaluates candidates and conducts personal interviews with a small number of highly qualified individuals. The president makes the final selection and appointment. All AGU editors serve at the pleasure of the AGU president.

If you would like to be considered as an editor of *Geophysical Research Letters*, send your curriculum vitae with a letter of interest via e-mail to Pubmatters@agu.org. If you would like to nominate a highly qualified colleague, send a letter of recommendation to the same e-mail address. **Please specify GRL in the subject line of the e-mail.**

EOS_09058

conduct three projects: atmospheric chemistry over California's Central Valley, evapotranspiration from agricultural crops in the same valley, and ocean biology along the California coast.

Successful applicants will be awarded a \$2,500 stipend for 6 weeks of participation in the program. Full travel and living expenses will also be provided.

Selection criteria will include:

- Excellent academic performance.
- Potential for contributing to US's future workforce as judged from career plans.
- Evidence of interest in Earth system science and hands-on research.
- Geographic, gender, and ethnic diversity.
- Ability to perform in teams.

Application materials should include:

1. Two-page personal statement describing the student's interests in pursuing research in the Earth Sciences and any special qualifications.
2. Letter of recommendation from a professor or advisor familiar with the student's abilities.
3. Official undergraduate and/or graduate transcripts.

Applications are due February 22, 2010 and should be submitted to: Rick Shetter, Director, NSERC

By mail: Rick Shetter
National Suborbital Education
and Research Center
University of North Dakota
4149 University Avenue, Stop 9011
Grand Forks, ND 58202-9011
or Electronically: r.shetter@nserc.und.edu
Additional information about the 2009 program can be found at <http://www.nserc.und.edu/learning/SARP>, and the 2010 program by telephoning Mr. Shetter at (701) 330-2126.

Research & Discover Undergraduate Summer Internships and Graduate Fellowships in Earth System Science. Join some of the nation's top scientists at the Institute for the Study of Earth, Oceans, and Space (EOS) in research through the UNH-Goddard Joint Center for the Earth Sciences.

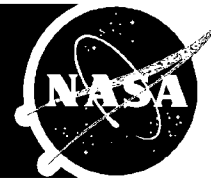
As a Research & Discover awardee, you will be involved in ground-breaking research conducted jointly at University of New Hampshire and the NASA-Goddard Space Flight Center. Our geoscience and environmental science research is among the most frequently cited in the country. Our scientists are engaged in:

- Investigating the effects of human activities on the Earth, including the causes and effects of global climate change and deforestation;
- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010. For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Undergraduate Summer Research Internship. Smithsonian Institution: Natural History Research Experience (NHRE) summer internships pair undergraduates with members of the National Museum of Natural History research and collections staff, providing a hands-on introduction to scientific research.

Dates: Jun 1 to Aug 6, 2010.
Stipend: \$5,000 plus housing.
Applications: <http://www.mnh.si.edu/NHRE/>
Application Deadline: February 8th, 2010.

Opportunity at NASA: World-class scientist in Active Optical Remote Sensing

The NASA Langley Research Center in Hampton, Virginia is seeking an expert in laser/lidar remote sensing for atmospheric research. This expert will serve in a Senior Scientific and Professional (ST) civil service position in the Science Directorate, a leader in lidar systems for the past three decades. Our Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite is the world's longest-lasting space lidar and recently completed its 2 billionth laser shot. Now we are looking to develop and fly the next generation of active optical remote sensing instruments to explore the Earth's atmosphere. The challenges are formidable, but the reward is an exceptional opportunity to pursue scientific discovery by exploiting the vast untapped potential of active optical remote sensing.

The successful candidate for this position is expected to:

- Define and lead active optical remote sensing research, technology, and systems studies
- Combine knowledge of atmospheric science, active optical remote sensing systems, and data retrievals from both satellites and aircraft to conduct meaningful scientific research
- Advise colleagues of the scientific challenges associated with deploying active optical remote sensing systems in space
- Initiate and lead collaborative efforts involving other NASA centers, government agencies, private industry, universities, and international organizations
- Represent agency interests and positions while interacting with the scientific community

Creativity, Ambition, Teamwork. A sense of daring. A probing mind.

That's what it takes to join NASA, one of the best places to work in the Federal Government.

Visit <http://www.usajobs.gov> and search for position LA10N0009 to read the complete job announcement and application procedures. Applications must be submitted via the online application process no later than **January 10, 2010**.

Learn more about the Science Directorate at NASA Langley Research Center by visiting <http://science.larc.nasa.gov/>

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STUDENT OPPORTUNITIES

Graduate Assistantships Available for New Ph.D. Program in Engineering Physics. Embry-Riddle Aeronautical University (Daytona Beach, FL) announces the availability of several Graduate Assistantships to begin each year for incoming Engineering Physics Ph.D. students. These assistantships cover full tuition and fees plus a \$20,000 per year stipend.

Applicants must have completed an M.S. in physics or engineering in order to prepare for this new program, which combines spacecraft systems engineering with space physics—thus building upon existing B.S. and M.S. programs in Engineering Physics at ERAU with the same emphasis.

Detailed program information may be found at: <http://www.erau.edu/phd-engineering-physics>. Questions may be directed to Dr. John Olivero, Chair, Physical Sciences Department, oliveroj@erau.edu or call 386-226-6453.

Interdisciplinary Research Opportunities for Ph.D. Students. The NSF-funded Christina Basin Critical Zone Observatory (CRB-CZO), a multidisciplinary research effort among the University of Delaware, the Stroud Water Research Center, and the Delaware Environmental Institute, has openings for 8 Ph.D. students. The CRB-CZO focuses on carbon-mineral complexes and impacts of weathering, erosion, and fluvial network dynamics on their

formation and sequestration in watersheds with mixed land uses. More information and application requirements can be found at http://www.udel.edu/czo/czo_opportunities.pdf. Reviews will begin Feb. 15.

NASA Student Airborne Research Program (SARP 2010). The National Suborbital Education and Research Center (<http://www.nserc.und.edu>) invites highly motivated advanced undergraduate and early graduate students to apply for participation in the second NASA Student Airborne Research Program (SARP 2010) using NASA's DC-8 flying laboratory. The NASA DC-8 is a national research laboratory for Earth system science which has conducted major investigations worldwide. Outstanding faculty and staff for this program will be drawn from several universities and NASA centers, as well as from flight operations and engineering personnel.

The program begins June 20, 2010 and concludes July 30, 2010. Preparatory information will be presented at the University of California Irvine, where post-flight data analysis and interpretation will also take place.

Instrument and flight preparations, then the research flights themselves, will occur at NASA's Dryden Aircraft Operations Facility, Palmdale, CA.

The purpose of the Student Airborne Research Program is to provide students with hands-on research experience in all aspects of a major scientific campaign, from detailed planning for how to achieve mission objectives to formal presentation of results and conclusions to peers and others. Two major instruments will be operated by students to conduct three projects: atmospheric chemistry over California's Central Valley, evapotranspiration from agricultural crops in the same valley, and ocean biology along the California coast.

Successful applicants will be awarded a \$2,500 stipend for 6 weeks of participation in the program. Full travel and living expenses will also be provided.

Selection criteria will include:

- Excellent academic performance.
- Potential for contributing to US's future workforce as judged from career plans.
- Evidence of interest in Earth system science and hands-on research.
- Geographic, gender, and ethnic diversity.
- Ability to perform in teams.

Application materials should include:

1. Two-page personal statement describing the student's interests in pursuing research in the Earth Sciences and any special qualifications.
2. Letter of recommendation from a professor or advisor familiar with the student's abilities.
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National Suborbital Education and Research Center

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Additional information about the 2009 program can be found at <http://www.nserc.und.edu/learning/SARP>, and the 2010 program by telephoning Mr. Shetter at (701) 330-2126.

Ocean Modelling Ph.D. Project. The Department of Meteorology at the University of Reading, UK, seeks applicants for a Ph.D. project on developing novel stochastic mixing schemes in ocean general circulation models. The expected start date is October 2010. Applicants should apply in time to be invited to our Ph.D. visit day on Wednesday, 10 March 2010.

For a project description and details of how to apply, visit www.met.reading.ac.uk/~williams or e-mail Paul Williams (p.d.williams@reading.ac.uk).

Ph.D. Candidates. Oregon State University, School of Chemical, Biological, and Environmental Engineering seeks highly qualified Ph.D. candidates to begin Fall 2010 or earlier, to work on funded research in the areas of experimental multi-phase flow, and geologic CO₂ sequestration, respectively.

Additional information is available at <http://web.engr.oregonstate.edu/~wildensd> or by contacting Associate Professor Dorthe Wildenschild at dorthe@engr.orst.edu. Please apply by February 15th for first consideration.

Postdoctoral Researcher. We seek a postdoctoral researcher to evaluate long-term stream chemistry and flow data from Forest Service research watersheds across the USA. The postdoc will develop ideas, analyze data, and write manuscripts with Forest Service and other researchers. Candidates must understand biogeochemical and hydrological processes, have expertise in analysis and evaluation of hydrochemical data sets, and good communication skills. For more information contact Sherri Johnson, sherrijohnson@fs.fed.us. Apply at jobs.oregonstate.edu/applicants/Central?quickFind=55979.

Research & Discover Undergraduate Summer Internships and Graduate Fellowships in Earth System Science. Join some of the nation's top scientists at the Institute for the Study of Earth, Oceans, and Space (EOS) in research through the UNH-Goddard Joint Center for the Earth Sciences.

As a Research & Discover awardee, you will be involved in ground-breaking research conducted jointly at University of New Hampshire and the NASA-Goddard Space Flight Center. Our geoscience and environmental science research is among the most frequently cited in the country. Our scientists are engaged in:

- Investigating the effects of human activities on the Earth, including the causes and effects of global climate change and deforestation;
- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010. For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Undergraduate Mentoring Program. Geoscience Research at Storm Peak (GRASP) is a mentoring program providing exceptional field research experiences for a diverse group of undergraduate students. Students selected will conduct research at the Storm Peak Laboratory (SPL) in Colorado from Aug. 1-8, visit national atmospheric research facilities and present their research results in Washington, DC the following winter. GRASP is funded by the National Science Foundation. Travel costs and \$350 stipend available. Applications due February 1, 2010 and available online at <http://www.grasp.stormpeak.dri.edu/>.

Research Scientist IN OCEAN REMOTE SENSING

The Jet Propulsion Laboratory invites applications for a full-time position in the field of satellite oceanography and ocean remote sensing. The applicant will join a broad-based team of researchers in oceanography, who analyze spaceborne and complementary in-situ observations, carry out ocean modeling and data assimilation, support existing ocean satellite missions and help develop new remote sensing techniques for future satellite oceanography missions.

The successful applicant should have a Ph.D. degree plus a minimum of 2 years of research experience after the Ph.D. The ideal applicant combines expertise in ocean climate processes together with expertise in remote sensing. A record of peer-reviewed publications and funded research proposals appropriate to the stage in the applicant's career is a must. Emphasis will be on remote sensing of one or more of sea surface height, salinity, temperature, vector winds, or marine gravimetry. Experience developing satellite data retrieval algorithms, instruments, methods for data analysis or sensor calibration and validation, and in the design of satellite sensors or missions are desirable. The incumbent will analyze and interpret data from an array of instruments, and participate in establishing the science foundation and requirements for future satellite oceanography missions. Opportunities exist to participate in existing satellite oceanographic missions and science teams (<http://climate.jpl.nasa.gov/missions/>). The incumbent is expected to support future satellite oceanography missions as recommended by the Decadal Survey study (<http://nasascience.nasa.gov/earth-science/decadal-surveys>). Applicants at a more advanced stage in their careers will also be considered.

There are collaborative opportunities with nearby universities such as the California Institute of Technology and the University of California at Los Angeles (UCLA). Joint research staff or faculty appointments with UCLA can be made through the Joint Institute for Regional Earth System Science and Engineering (**JIFRESSE**, <http://www.jifresse.ucla.edu>). Familiarity with NASA's satellite oceanography missions and programs is desirable. Startup funds will be available for up to three years, during which time the successful candidate will develop an externally funded research program.

If you'd like to join the JPL Oceanography program, please apply online at:

<http://Careerlaunch.jpl.nasa.gov/>. (Job ID#8891). Applications will be reviewed as they are received. The applicant should include a curriculum vitae, list of peer-reviewed publications, names and contact information of at least three professional references, and a statement of research interests. JPL/Caltech is an equal opportunity/affirmative action employer.

JPL
Jet Propulsion Laboratory
California Institute of Technology

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www.agu.org/elections

STUDENT OPPORTUNITIES

Graduate Students Summer Program Hydrologic Synthesis Summer Institute. Highly motivated graduate students sought for 7 week intensive summer program (P.I. M. Sivapalan, Univ. of Illinois) at the University of British Columbia in Vancouver. Research topics include solute transport, sediment dynamics, and nutrient cycling at various scales as well as invasion/blooming behavior of *Didymosphenia geminata* (aka "rock snot"). Application deadline is January 29. For more information, visit <http://cwaces.geog.uiuc.edu/synthesis> or contact Jennifer Wilson, project coordinator, at jwilson@illinois.edu.

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BIOGEOCHEMICAL MODELING SCIENTIST I/II NCAR – Boulder, Colorado

The Climate and Global Dynamics Division (CGD) at the **National Center for Atmospheric Research (NCAR)** in Boulder, Colorado, seeks an individual to conduct research that addresses scientific questions that are germane to understanding global biogeochemical cycles, their interactions with climate, and improving their numerical simulation and prediction in Earth system models.

Carries out research that diagnoses, improves, and/or introduces parameterizations of major biogeochemical processes in global scale Earth system models and specifically in NCAR's Community Climate System Model (CCSM). This includes terrestrial, marine, and/or atmospheric processes.

Develops expertise in specific fields of biogeochemical research that contribute to the development of Earth system models and specifically to CCSM and its land and/or ocean ecosystem component models as a member of the CCSM biogeochemical team. Poses appropriate scientific questions about the coupled climate-bio-geochemical system and participates in the analysis of results of the coupled model.

Requires Ph.D. in atmospheric science, earth system science, environmental sciences, oceanography, or ecology, or a related science. For Scientist I: Up to five years' experience beyond the Ph.D. and for Scientist II: Five to eight years' experience beyond the Ph.D. and evidence of a developing national scientific reputation. Post-doctoral experience is desirable for both appointment levels.

Requires technical ability to work with global scale biogeochemical models and with complex geophysical models, ability to work on a team of NCAR and non-NCAR scientists and skill in building effective collaborations inside and outside of NCAR.

Paid relocation. View detailed job description at www.ucar.edu (jobs and opportunities/careers at UCAR). Initial consideration will be given to applications received prior to **1/29/2010**. Thereafter, applications will be reviewed on an as-needed basis. Apply online (reference **tracking code #10041**). *We value diversity.* AA/EOE

University of Southern California Department of Earth Sciences



Seeking an assistant professor in

Climate System Modeling

The University of Southern California is committed to climate research and education that will address the environmental, social, and economic challenges facing society in the 21st century. We seek to add an assistant professor in the area of Climate System Modeling to the Department of Earth Sciences.

The Department is a multidisciplinary home to scientists who investigate the interacting components of the Earth system. A successful candidate would bring new expertise to the Department in the area of ocean and atmospheric dynamics and use models to advance fundamental understanding and predictability of climate system behavior at various temporal and spatial scales. We are particularly interested in candidates whose research includes regional and decadal time-scale climate system dynamics. We expect the new faculty member to participate in an expanding cross-disciplinary research and educational effort in environmental studies at USC.

The successful candidate must have a PhD at the time of appointment and could begin fall of 2010. USC strongly values diversity and is committed to equal opportunity in employment. Women and men, and members of all racial and ethnic groups, are encouraged to apply. Applicants should electronically submit a CV, statement of research and teaching interests, together with names of 4 references (addressed to: Chair, Search Committee) to Karen Young kayoung@usc.edu. The review of applications will commence on January 31, 2010.



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

The Chair of Engineering Geology at the ETH Zurich is looking for a

Senior Research Associate and Lecturer in Experimental Hydrogeology

The successful candidate must have a Ph.D. or equivalent degree in earth sciences, civil engineering, petroleum engineering or related field. Knowledge and demonstrated experience of quantitative hydrogeology of fractured rocks and in-situ experiments are of prime importance. Demonstrated experience and interest in coupled (HM, HC or HT) processes and communication skills are desired. The candidate will be expected (1) to supervise our tracer test laboratory, (2) to teach two classes in the field of experimental and fundamental hydrogeology, (3) to develop funded research programs addressing hydrogeological problems of fractured rocks, (4) to supervise graduate students and their thesis work, and (5) support students in the use of our comprehensive hydrogeologic field testing equipment.

This ETH position with an attractive pool of field and lab equipment and technical support staff can be filled by the successful candidate in summer 2010 over a period of about 6 years. The Chair of Engineering Geology is a multidisciplinary research and teaching unit devoted primarily to the study of hydromechanical processes in the subsurface within the context of deep Alpine underground constructions, unstable slopes, deep geothermal energy and deep geological waste disposal. Further information about the Chair of Engineering Geology is available at our Web Site www.engineering-geology.ethz.ch. Questions related to the open position can be addressed to Prof. Simon Löw and Dr. Peter Bayer, Engineering Geology, ETH Zurich (e-mail: bayer@erdw.ethz.ch, loew@erdw.ethz.ch)

Please send your application per regular mail (not e-mail), including cover letter, curriculum vitae with full personal and career details, statement of research interests, and 3 letters of recommendation to ETH Zurich, Prof. Dr. Simon Löw, Engineering Geology, Sonneggstrasse 5, CH-8092 Zurich, Switzerland. Applications should be submitted until January 31, 2010 and will be accepted until the position is filled.

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IGERT Ph.D. Fellowships. IGERT Ph.D. Fellowships, Washington State University, Nitrogen Systems: Policy-oriented Integrated Research and Education (NSPIRE).

Up to 5 Ph.D. research assistantships will be available to join an interdisciplinary team working on understanding environmental aspects of the nitrogen cycle and putting that information into context for policy development.

Examples of areas of research include:
1) Vadose biogeochemistry of nitrogen and hydrology of soils in shallow ground waters;
2) Nitrogen transport in watersheds;
3) Nitrogen dynamics in specific ecosystems involving soil, plant and microbial communities;
4) Nitrogen cycling related to bioenergy production;
5) Biogeochemical cycling of nitrogen under different agricultural practices and management;
6) Emissions, transport, chemistry, and deposition of nitrogen in the atmosphere;
7) Numerical modeling of land surface hydrology; and
8) Numerical modeling of the coupled atmosphere/land surface system.

Applicants must be a U.S. Citizen or permanent resident.

Successful applicants must be entering or within their first year of a Ph.D. program at Washington State University and join the program in the fall of 2010.

Applicants must apply to one of the participating departments. Deadline for receipt of applications is January 22, 2010. For more information and details, visit the web page: <http://igert.nspire.wsu.edu/>.

MS Students. MS students wanted to study Air-Land-River-Sea interactions. The Department of Marine Sciences at the University of New England has openings for students to pursue a Masters of Science degree studying some part of the interactions among land use change, precipitation, river runoff, climate change, and the chemical and microbiological loading in rivers, and ultimately how all of those changes affect coastal biology and ocean circulation.

Students are sought with expertise or interest in the following fields: biology (and all its subfields, e.g. botany, microbiology, toxicology, genetics, molecular biology, chemical ecology), physical

oceanography, hydrology, remote sensing, GIS, numerical modeling, nutrient or chemical dynamics, marine biology (especially fish, invertebrates and algae), or ecology (terrestrial, aquatic or marine).

Students may enroll in either the: Department of Marine Sciences (<http://www.une.edu/cas/marine/graduate/index.cfm>) or Department of Biology (<http://www.une.edu/cas/biological/graduate/index.cfm>).

Funding is available through: NSF GK-12 grant-<http://www.une.edu/cas/marine/spartacus.cfm>, Departmental Teaching Assistantships.

Other Grant supported activities (NASA, NOAA). The University of New England (www.une.edu) is located on the coast of Southern Maine, approximately 45 minutes from Portland. Learn more about the MS Degree at <http://www.une.edu/cas/graduate.cfm>.

To apply fill out the UNE Graduate Admissions form online: http://srm.targetx.com/orgs/00D8000000Lc6PEAS/registration/step_1.

Multi-Year Ph.D. and Postdoctoral Fellowships. Interdisciplinary: The Department of Earth and Environmental Science of the University of Pennsylvania seeks applicants for competitive, multi-year Ph.D. and postdoctoral fellowships to work with the Luquillo Critical Zone Observatory in Puerto Rico. Research areas include soil biogeochemistry and nutrient cycling, fluvial geomorphology and hydrology, cosmogenic dating, sea-level rise and coastal evolution. All inquiries should be sent to earth@sas.upenn.edu and should include a CV and brief statement of interests. Ph.D. candidates must apply on line using the Departmental Web page <http://www.sas.upenn.edu/earth/>.

Ph.D. and M.S. Student Opportunities. Ph.D. and M.S. student opportunities in climate change research at the University at Buffalo Geology Department. Foci include monitoring Greenland and Antarctic ice sheet mass balance changes using laser altimetry and other remote sensing methods as well as reconstruction of ice sheet dynamics from historical photographs. Funding also exists for Holocene climate and glacier reconstructions using lake sediments, including fieldwork. Contact Bea Csatho or Jason Briner (bcsatho/jbriner@buffalo.edu); <http://www.geology.buffalo.edu/>.

Ph.D. Assistantships in Water Resources Sustainability of Lake-Watershed Systems. Maine Sustainability Solutions Initiative offers unique interdisciplinary research opportunities through a \$20M, 5-yr NSF EPSCoR funded program. 3 assistantships available: 1) Hydrologic process models for lake-watershed systems; 2) Understanding hydroclimatic variability & change & hydrosystem decision models; 3) Land use & water quality change analyses & modeling. \$20-25,000/yr stipend & tuition waiver.

www.umaine.edu/sustainabilitysolutions.
Email: umwaterfellowships@gmail.com.

Ph.D. Candidate. We are seeking a Ph.D. candidate that will perform research within the field of hard rock seismology with applications related to deep drilling, both siting of boreholes and geological interpretation on a more regional scale.

Acquisition and processing of seismic data are part of the activities included in the position. Research will focus on (1) interpretation of geological structure based on reflection seismic data; (2) development of novel and innovative processing methods; and (3) integration of reflection seismic results with other geological and geophysical data from the Jamtland area in Sweden in order to plan deep drilling projects there. For full details on how to apply see www.personalavd.uu.se/ledigplatser/2866dorand_eng.html.

Applications due by 28 January 2010.

Ph.D. Opportunity in Atmospheric Chemistry. We seek a Ph.D. student in the School of Marine and Atmospheric Sciences at Stony Brook University, Long Island, NY. Candidates should have a BS degree in a related field (MS preferred) and strong experimental and analytical skills. The Ph.D. laboratory project is concerned with the chemical transformation of organic aerosol particles by atmospheric trace gases. For more information, please visit www.somas.stonybrook.edu or contact Dr. Daniel Knopf (Daniel.Knopf@stonybrook.edu).

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- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010. For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Stephen F. Taber Fellowship for Ph.D. Research. The Graduate Studies Program of the Department of Earth and Ocean Sciences, University of South Carolina invites applications for the Taber Fellowship. This award is intended to attract and retain exceptional new doctoral students who demonstrate the ability to make a significant contribution in the geosciences. Applications are invited from persons interested in, but not limited to: hydrology, geophysics, seismology, marine science, oceanography, geochemistry, tectonics, surface processes and structural geology. To learn more about the Department please visit our website at www.geol.sc.edu.

Each Taber Fellow will receive a three-year award consisting of a teaching assistantship plus a \$12,000/year stipend with full tuition, and fees. Total 3-year award value is over \$100,000.

Additional information concerning this fellowship can be obtained at: <http://www.geol.sc.edu/gradprog/prospective.htm>. SC is an EEO/AA Institution.

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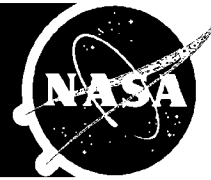
23-24 June 2010 Water Quality Conference 2010. The University of Leeds, UK.

Email: water@leeds.ac.uk.
Website: <http://wateratleeds.org/water-quality-2010.php>.

The conference will focus on issues that affect the quality of water, from land management to water treatment processes.

Topics include: Nutrient cycling in freshwater; Climate change perturbations; Novel water treatments; Issues for developing countries. Abstract deadline 15 January 2010.

Opportunity at NASA: World-class scientist in Active Optical Remote Sensing



The NASA Langley Research Center in Hampton, Virginia is seeking an expert in laser/lidar remote sensing for atmospheric research. This expert will serve in a Senior Scientific and Professional (ST) civil service position in the Science Directorate, a leader in lidar systems for the past three decades. Our Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO) satellite is the world's longest-lasting space lidar and recently completed its 2 billionth laser shot. Now we are looking to develop and fly the next generation of active optical remote sensing instruments to explore the Earth's atmosphere. The challenges are formidable, but the reward is an exceptional opportunity to pursue scientific discovery by exploiting the vast untapped potential of active optical remote sensing.

The successful candidate for this position is expected to:

- Define and lead active optical remote sensing research, technology, and systems studies
- Combine knowledge of atmospheric science, active optical remote sensing systems, and data retrievals from both satellites and aircraft to conduct meaningful scientific research
- Advise colleagues of the scientific challenges associated with deploying active optical remote sensing systems in space
- Initiate and lead collaborative efforts involving other NASA centers, government agencies, private industry, universities, and international organizations
- Represent agency interests and positions while interacting with the scientific community

Creativity, Ambition, Teamwork. A sense of daring. A probing mind.

That's what it takes to join NASA, one of the best places to work in the Federal Government.

Visit <http://www.usajobs.gov> and search for position LA10N0009 to read the complete job announcement and application procedures. Applications must be submitted via the online application process no later than **January 10, 2010**.

Learn more about the Science Directorate at NASA Langley Research Center by visiting <http://science.larc.nasa.gov/>



Government of Canada

Gouvernement du Canada

Employment Opportunity with the National Hydrology Research Centre of Environment Canada

The National Hydrology Research Centre of Environment Canada (www.ec.gc.ca/inre-nwri) invites applications for a full-time research scientist in hydrology. The successful applicant will develop a fundamental and applied research program on the hydrology of Canada and lead the investigation of the influence of scale on hydrological processes using field observations, hydrological modelling and remote sensing. The incumbent will also develop improved algorithms and parameterizations for use in hydrological models and apply hydrological models for considering both past and future states of the water cycle.

Applicants must have an acceptable doctoral degree (PhD) from a recognized university in geography, engineering, earth sciences or related disciplines, with a specialization in hydrology, or be in the final stages of thesis defence.

For full details on the position and to apply, visit: www.jobs.gc.ca

1 800 O-Canada (1 800 622-6232)
www.canada.gc.ca - TTY/TDD 1 800 465-7735

Canada

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- Formulate potential M.S., Ph.D., and post-doctoral research topics.
- Create a lasting network of professional relationships.

We invite applications from qualified graduate students who have an interdisciplinary focus and research interests related to human-natural systems interactions. Most participants are expected to have experience in one or more quantitative methods (statistics, modeling, GIS, data analysis, etc.) Graduate students in the following fields are invited to apply:

- Hydrological sciences
- Environmental sciences
- Geosciences
- Ecology
- Geography
- Humanities: history and political science
- Ecological, environmental, natural resource economics
- Urban planning and development

Scholars will be chosen through a competitive process.

Successful applicants will be awarded a \$2,500 stipend for the six-week period, in addition to housing in New York City, plus travel expenses to the 2010 Fall Meeting of the American Geophysical Union in San Francisco, where they will present their findings.

Application Process: Complete applications must be received no later than February 15th, 2010. Incomplete applications will not be considered. Notifications will be made early-April 2010. To apply for the 2010 Institute, please submit the information listed below:

1. Statement of research interests and experience. Include relevance of your educational background, research and practical experience to the theme of the 2010 Institute: The 20th Century: Relationships Linking Water and People (500 words maximum).

2. Short statement describing your views on what collaborative interdisciplinary research is in the context of natural and social science research (300 words maximum).

3. Resume, including list of courses taken (graduate and relevant undergraduate), experience in quantitative methods (modeling, data analysis, statistics, etc).

4. Two letters of recommendation, one of them from your graduate advisor, sent directly to chermans@ccny.cuny.edu.

For further information please visit <http://hydrosynthesis.cuny.edu>.

Email completed application materials to chermans@ccny.cuny.edu.

Deadline for applications is February 15th, 2010.

Graduate Students Summer Program Hydrologic Synthesis Summer Institute. Highly motivated graduate students sought for 7 week intensive summer program (P.I. M. Sivapalan, Univ. of Illinois) at the University of British Columbia in Vancouver. Research topics include solute transport, sediment dynamics, and nutrient cycling at various scales as well as invasion/blooming behavior of *Didymopanax geminata* (aka "rock snout"). Application deadline is January 29. For more information, visit <http://cwaces.geog.uuic.edu/synthesis> or contact Jennifer Wilson, project coordinator, at jswilson@illinois.edu.

Multi-Year Ph.D. and Postdoctoral Fellowships. Interdisciplinary: The Department of Earth and Environmental Science of the University of Pennsylvania seeks applicants for competitive, multi-year Ph.D. and postdoctoral fellowships to work with the Luquillo Critical Zone Observatory in Puerto Rico. Research areas include soil biogeochemistry and nutrient cycling, fluvial geomorphology and hydrology, cosmogenic dating, sea-level rise and coastal evolution. All inquiries should be sent to earth@sas.upenn.edu and should include a CV and brief statement of interests. Ph.D. candidates must apply on line using the Departmental Web page <http://www.sas.upenn.edu/earth/>.

NSF Fellowships in Watershed Science & Policy. Southern Illinois University is offering Ph.D. fellowships under NSF's IGERT program. Fellowships are available to U.S. citizens and residents in any water-, river- or watershed-related field, including Geology, Hydrology, Ecology, etc. Applicants should have a MS-level degree (direct Ph.D. in exceptional cases) and records commensurate with a coveted NSF award. Applications are due Jan. 15,

2010. See <http://www.igert.siu.edu> or contact igert@siu.edu.

Ph.D. Assistantship in Ecosystem Response to Disturbance. Topics to include: Nature, magnitude, and distinguishing attributes of large, severe ecosystem disturbances and the associated biophysical recovery processes under different physical, political and social contexts. Contact Alistair Smith (alistair@uidaho.edu) and Eva Strand (evas@uidaho.edu). Join interdisciplinary NSF-IGERT research on resiliency of social and ecological systems. Apply by 4 Jan 2010: <http://www.students.uidaho.edu/gradadmissions/IGERT>.

Ph.D. Assistantship in Plant-Soil-Disturbance Interactions & Carbon. Topics to include: How plant-soil interactions vary with fire severity across a range of spatial and temporal scales, and implications for soil carbon dynamics. Contact Jodi Johnson-Maynard (jmaynard@uidaho.edu), Katy Kavanagh (katy@uidaho.edu) and Alistair Smith (alistair@uidaho.edu). Join interdisciplinary NSF-IGERT research on resiliency of social and ecological systems. Apply by 4 Jan 2010: <http://www.students.uidaho.edu/gradadmissions/IGERT>.

Ph.D. Asst. Ecohydrological Impacts of Climate Change. Topics to include: Modeling cascading effects on ecosystem processes and distribution and abundance of plant species. Implications for forest ecosystems in the US northern Rockies. Contact Katy Kavanagh (katy@uidaho.edu), Tim Link (tlink@uidaho.edu) and Jodi Johnson Maynard (jmaynard@uidaho.edu). Join interdisciplinary NSF-IGERT research on resiliency of social and ecological systems. Apply by 4 Jan 2010: <http://www.students.uidaho.edu/gradadmissions/IGERT>.

Ph.D. Asst. Landscape Disturbance & Climate Change in Forest Ecosystems of US Northern Rockies. Topics to include: Thresholds of resiliency; interactions of climate, fire, bark beetles, vegetation and land use; modeling landscape dynamics. Contact Penny Morgan (pmorgan@uidaho.edu), Philip Higuera (phiguera@uidaho.edu) or Jeff Hicke (jhicke@uidaho.edu). Join interdisciplinary NSF-IGERT research on resiliency of social and ecological systems. Apply by 4 Jan 2010: <http://www.students.uidaho.edu/gradadmissions/IGERT>.

Ph.D. Candidate. We are seeking a Ph.D. candidate that will perform research within the field of hard rock seismology with applications related to deep drilling, both siting of boreholes and geological interpretation on a more regional scale.

Acquisition and processing of seismic data are part of the activities included in the position. Research will focus on (1) interpretation of geological structure based on reflection seismic data; (2) development of novel and innovative processing methods; and (3) integration of reflection seismic results with other geological and geophysical data from the Jamtland area in Sweden in order to plan deep drilling projects there. For full details on how to apply see www.personalavd.uu.se/~ledigaplater/2866dorand_eng.html.

Applications due by 28 January 2010.

Ph.D. Opportunity in Atmospheric Chemistry. We seek a Ph.D. student in the School of Marine and Atmospheric Sciences at Stony Brook University, Long Island, NY. Candidates should have a BS degree in a related field (MS preferred) and strong experimental and analytical skills. The Ph.D. laboratory project is concerned with the chemical transformation of organic aerosol particles by atmospheric trace gases. For more information, please visit www.somas.stonybrook.edu or contact Dr. Daniel Knopf (Daniel.Knopf@stonybrook.edu).

Ph.D. Student. Support for a Ph.D. student is available to conduct research on Lagrangian coherent structures with application to transport and mixing

processes in geophysical flows. I am especially seeking a Ph.D. student with a good mathematical background. Application deadline is January 1. Detailed program information can be found at <http://www.rsmas.miami.edu/grad-studies>. For more information, please contact M. Josefine Olascoaga, RSMAS/Applied Marine Physics (jolascoaga@rsmas.miami.edu).

Ph.D. Student. The State University of New York at Albany seeks a Ph.D. student to study the homogeneous and heterogeneous photochemical reactions by using laser photolysis in combination with cavity ring-down spectroscopy and its novel variant or with time-resolved step-scan FTIR.

Students interested in atmospheric chemistry research of the group (<http://www.wadsworth.org/resnres/bios/zhu.htm>) and with backgrounds in physical chemistry, atmospheric chemistry, laser spectroscopy, or physics are encouraged to apply. Contact Dr. Lei Zhu (zhu@wadsworth.org) for more information.

Research & Discover Undergraduate Summer Internships and Graduate Fellowships in Earth System Science. Join some of the nation's top scientists at the Institute for the Study of Earth, Oceans, and Space (EOS) in research through the UNH-Goddard Joint Center for the Earth Sciences.

As a Research & Discover awardee, you will be involved in ground-breaking research conducted jointly at University of New Hampshire and the NASA-Goddard Space Flight Center. Our geoscience and environmental science research is among the most frequently cited in the country. Our scientists are engaged in:

- Investigating the effects of human activities on the Earth, including the causes and effects of global climate change and deforestation;
- Analyzing samples of snow, ice, and the atmosphere to study climate and chemical changes;
- Exploring chemical, physical, and biological oceanography;
- Studying dynamic processes in the Earth system using remote sensing, GIS, computer models, and other state-of-the-art tools.

All awards include a competitive stipend. Applications are due February 12, 2010.

For more information, visit <http://www.eos.unh.edu/ResearchAndDiscover/>.

Stephen F. Taber Fellowship for Ph.D. Research.

The Graduate Studies Program of the Department of Earth and Ocean Sciences, University of South Carolina invites applications for the Taber Fellowship. This award is intended to attract and retain exceptional new doctoral students who demonstrate the ability to make a significant contribution in the geosciences. Applications are invited from persons interested in, but not limited to: hydrology, geophysics, seismology, marine science, oceanography, geochemistry, tectonics, surface processes and structural geology. To learn more about the Department please visit our website at www.geol.sc.edu.

Each Taber Fellow will receive a three-year award consisting of a teaching assistantship plus a \$12,000/year stipend with full tuition, and fees. Total 3-year award value is over \$100,000.

Additional information concerning this fellowship can be obtained at: <http://www.geol.sc.edu/gradprog/prospective.htm>. SC is an EEO/AA Institution.

Undergraduate Students. Bigelow Laboratory for Ocean Sciences invites undergraduates interested in gaining hands-on research experience to apply for Bigelow's Research Experience for Undergraduates (REU), Gulf of Maine and the World Ocean. Participants receive a stipend and food, housing, and travel allowances. Please visit <http://www.bigelow.org/education/reu/> for an application and program details. Application deadline is January 15th.

STUDENT OPPORTUNITIES

2010 Summer Internship Program. Monterey Bay Aquarium Research Institute (MBARI) 2010 Summer Internship Program June 14–August 20, 2010.

The program is open to undergraduate and graduate students and educators.

Deadline: All materials must be received by February 10, 2010. See the MBARI website for details about the application process: www.mbari.org/education.

There is a ~\$500 weekly stipend.

For additional information: George I. Matsumoto, 2010 Internship Program MBARI, 7700 Sandholdt Road, Moss Landing, CA 95039.

Email: mage@mbari.org.

Call for Applications, CUNY Environmental Cross-Roads Initiative and Northeast Consortium for Hydrologic Synthesis.

Third Annual Summer Synthesis Institute: The 20th Century: Relationships Linking Water and People

June 1–July 16, 2010

City University of New York, New York.

We invite you to apply to the 2010 Summer Synthesis Institute funded by the National Science Foundation and the Consortium of Universities for the Advancement of Hydrological Sciences, Incorporated (CUAHSI) and hosted by the CUNY Environmental Cross-Roads Initiative and the Northeast Consortium for Hydrologic Synthesis. The Synthesis Institute is a six-week intensive research collaborative that offers advanced graduate students the opportunity to conduct interdisciplinary research on the role of humans in shaping the character of hydrologic systems across the Northeast Corridor from 1600 to 2100. The two previous Institutes focused on the colonial era and 19th century.

In 2010, the Institute will address the relationship between human society and water systems in the 20th century and consider the following: What was the nature of hydro-systems across the Northeastern U.S. during the 20th century, how did hydrologic dynamics shape human decision-making and, in turn, how did human decision-making shape the hydrologic cycle during this timeframe?

Summer Scholars participate in a suite of fast-paced synthesis and integration research activities, guided by faculty mentors. It is anticipated that the initial set of ideas and findings of the Institute will inspire further work by the Scholars at their home institutions, with the Consortium supporting follow-up communications and guidance to the group.

Participants will benefit from a unique opportunity to:

- Engage in interdisciplinary, team-based research.
- Interact with nationally and internationally recognized leaders in the field.
- Gain important insights into generating hypotheses and asking integrative science questions.

POSTDOCTORAL POSITIONS EXPLORATION FELLOWSHIP PROGRAM

The School of Earth and Space Exploration (SESE) at Arizona State University (ASU) invites applications for the Exploration Postdoctoral Fellowship Program. SESE's core mission is to integrate science and engineering to provide a better understanding of our world and beyond. **Research areas within SESE encompass astrophysics, cosmology, Earth science, climate science, planetary science, exploration systems engineering, and science education.** The Exploration Fellowship Program aims to provide opportunities for conducting postdoctoral research on cutting-edge topics and to foster inter-disciplinary collaboration among our diverse faculty.

Applications must include a brief research proposal. Preference will be given to proposals including multiple focus areas within SESE and that will involve new collaborations among our faculty. Potential research topics span the full range of research interests of our faculty (http://sese.asu.edu/focus_areas), including key initiatives in the origin, evolution, and fate of the Universe, planetary bodies, and life; the co-evolution of Earth's surface environment and societies; and lifelong science and engineering education.

Evaluation of applications begins February 15, 2010, but applications will be accepted until positions are filled. We expect to award up to 5 fellowships in this first year of the program. Typically appointments will start between July 1 and September 1, 2010. A full description of the application process is available at (<http://sese.asu.edu/opportunities>).

ASU is an equal opportunity/affirmative action employer that actively seeks diversity among applicants and promotes a diverse workforce

Ocean Sciences Research Naval Research Laboratory

Stennis Space Center, Mississippi



The Naval Research Laboratory (NRL) is seeking Ph.D. researchers with broad oceanographic backgrounds to fill several openings in the Oceanography Division to perform research in the area of bio-optics and/or physical oceanography. The incumbents will be expected to characterize and understand the relationships between the ocean biological, chemical, geological and physical processes and how they influence optical processes. We are targeting applicants who have an understanding of one or more aspects of the following: radiative transfer theory, optical ocean instrumentation, lasers and underwater imaging and vision, satellite and aircraft remote sensing of bio-optical signatures, fine/large scale physical processes, and coupled ocean modeling.

This opportunity will allow scientists to interact with a diverse university and naval community to solve problems through the use of remote sensing and ocean models to provide for the requirements of the United States Navy.

An overview of some research projects and systems developed within the NRL Oceanography Division is available at www.ocean.nrlssc.navy.mil/

We are seeking candidates for both post-doctoral and full-time permanent positions. Annual salary ranges from \$61,000 to \$101,000 depending on experience. Applicants must be a US citizen or permanent resident at time of application. NRL is an equal opportunity employer. Send resume and references to:

Rick Gould via e-mail: Rick.Gould@nrlssc.navy.mil
NRL Code 7331
Stennis Space Center, MS 39529