

MEETINGS

Assessing the Effects of Climate Change on Northern River Basins

Northern Watershed Ecosystem Response to Climate Change (North-Watch) Workshop I: Climatic Drivers and Hydrological Regimes; Dorset, Ontario, Canada, 30 August to 3 September 2009

PAGE 414

There is compelling evidence that climate change is affecting water resources in many parts of the world. Managing the societal consequences of this is one of the 21st century's major challenges to the prosperity and security of the international community. In few places will the changes and challenges be greater than in the boreal/subarctic region (defined broadly as the higher midlatitudes) of the Northern Hemisphere. In this circumpolar, transitional climatic zone, slight temperature differences determine the status of frozen ground, whether precipitation falls as rain or snow, and the degree to which winter snowpacks accumulate and subsequently melt.

Predicting the integrated consequences of climate change on the physical, chemical, and biological characteristics of water resources is a difficult area of interdisciplinary environmental science. Fortunately, in many areas, research catchments have been established that provide high-quality

longer-term data sets that encompass integrated measurement of the linkages between the climate, hydrology, biogeochemistry, and ecology of river systems and how these are being affected by climatic change.

North-Watch is an interdisciplinary project funded by the Leverhulme Trust, UK, and run by the Northern Rivers Institute, University of Aberdeen, Aberdeen, UK. It aims to examine long-term data from experimental catchments spanning different hydroclimatic zones within the northern regions of the United States, Canada, Scotland, and Sweden to assess the integrated physical, chemical, and biological responses to climatic change. This will be achieved through intercatchment comparison from sites including sensitive boreal, subarctic, and subalpine environments. To launch North-Watch, a 4-day workshop was held at the Dorset Lakes Experimental Catchments in Ontario. The major goal of this workshop was to examine different climatic drivers of the hydrological regime

in contrasting northern river basins and how these are being affected by climatic change.

Discussion highlighted the importance of both climatic and catchment characteristics in controlling integrated hydrological response. While precipitation, temperature, and streamflow have remained unchanged for the past 50 years at some sites, other sites show marked trends. The relation between storage and discharge—and hysteretic trends in this relationship with time—were identified as a unifying theme to assess catchment functioning and its resistance and resilience to change. Other examples of catchment traits identified for intersite comparison are connectivity, memory, resilience, and process synchronicity. Participants also noted that diagnosis of patterns and signatures of variability can be used to describe the functional relationships between climate, soils, vegetation, and topography that arise from their coevolution in northern environments.

Results from the workshop will be presented in a poster at the AGU Fall Meeting in December. The next North-Watch workshop will be held in Umea, Sweden, in spring 2010, focusing on biogeochemical traits of catchment functioning. Information on North-Watch and the Canadian workshop can be found at <http://www.abdn.ac.uk/northwatch/>.

—DOERTHE TETZLAFF, Northern Rivers Institute, School of Geosciences, University of Aberdeen, Aberdeen, UK; E-mail: d.tetzlaff@abdn.ac.uk; and SEAN CAREY, Cold Regions Hydrology Lab, Department of Geography and Environmental Studies, Carleton University, Ottawa, Ontario, Canada

Multidisciplinary Perspectives in Marine Biogeochemistry and Ecology

Fourth Annual Ocean Carbon and Biogeochemistry Summer Workshop; Woods Hole, Massachusetts, 20–23 July 2009

PAGE 414

The Ocean Carbon and Biogeochemistry (OCB) program is a coordinating body for the U.S. research community that focuses on the ocean's role as a component of the global Earth system, bringing together research in geochemistry, ocean physics, and ecology. The fourth annual Ocean Carbon and Biogeochemistry summer workshop convened 147 participants at Woods Hole Oceanographic Institution, in Massachusetts.

The workshop opened with a session on the next U.S. Carbon Cycle Science Plan (CCSP) that included presentations highlighting the priorities of the next CCSP and providing atmospheric, oceanic, terrestrial, social science, and decision support perspectives. An interdisciplinary panel of CCSP working group members then fielded

audience questions and solicited feedback from the OCB community, which focused primarily on CCSP scope, ocean research and observing system priorities, and more effective integration with social science and decision support communities.

A plenary session on ocean acidification highlighted new research frontiers such as the application of genomics to assess various physiological responses to ocean acidification. Another speaker explored potential changes in the marine nitrogen cycle in response to ocean acidification. The final presentation showed evidence of ecological regime shifts in response to changing ocean chemistry and explored the predictability of such thresholds with models.

In a session focused on ocean observations, presentations included new insights on the ocean carbon system derived from measurements by the Climate Variability and

Predictability (CLIVAR)/CO₂ Repeat Hydrography program, a discussion of Ocean Observatories Initiative (OOI) infrastructural capabilities for OCB research, and applications of glider technology for global ocean biogeochemistry measurements, as well as a report from the 2009 OCB scoping workshop on floats and gliders.

OCB is working with the North American Carbon Program (NACP) and members of the OCB community to coordinate a coastal synthesis to summarize observational and modeling results on coastal carbon fluxes and quantify the role of these systems (i.e., source versus sink) in the North American carbon budget. An overview of coastal synthesis activities was presented with regional highlights for the east coast, the Arctic, and the Gulf of Mexico.

Following on a 2009 OCB scoping workshop, there was a plenary session and community discussion on the future of OCB research in the Southern Ocean, which plays a critical role in climate and biogeochemical cycles. In addition to a report on the scoping workshop, plenary talks included an overview of the Southern Ocean Gas Exchange Experiment (SOGasEx), followed by new insights on air-sea carbon dioxide

(CO₂) fluxes based on SOGasEx water column data and satellite algorithm development. The final plenary speaker discussed new results on Southern Ocean particle fluxes and implications for carbon cycling.

To facilitate scientific and programmatic links with GEOTRACES, Surface Ocean Lower Atmosphere Study (SOLAS), and Integrated Marine Biogeochemistry and Ecosystem Research (IMBER), the meeting included a session on feedbacks between micronutrients and marine ecosystems.

The session began with two plenary presentations, one on GEOTRACES that included background, future plans, and new insights from the Atlantic transect, and the other an overview of current research on micronutrient-ecosystem interactions. The session segued into a community discussion during which workshop participants made brief presentations describing relevant measurements, process studies, or scientific themes they wished to publicize or advocate.

The workshop was sponsored by the U.S. National Science Foundation, NASA, and the U.S. National Oceanic and Atmospheric Administration.

For further information, please visit <http://www.whoi.edu/workshops/ocbworkshop2009/>.

—HEATHER M. BENWAY and SCOTT C. DONEY, Department of Marine Chemistry and Geochemistry, Woods Hole Oceanographic Institution, Woods Hole, Mass.; E-mail: hbenway@whoi.edu

ABOUT AGU

New Journal Editors Appointed

PAGE 415

New editors have been appointed for *Geophysical Research Letters (GRL)*, *Journal of Geophysical Research (JGR)–Solid Earth*, *Reviews of Geophysics*, *JGR–Space Physics*, *Paleoceanography*, and *Tectonics*.

At *GRL*, new editors Noah Diffenbaugh (Stanford University, Stanford, Calif.), Paolo D'Odorico (University of Virginia, Charlottesville), Ruth Harris (U.S. Geological Survey (USGS), Menlo Park, Calif.), Wolfgang Knorr (University of Bristol, Bristol, UK), Geoffrey Tyndall (National Center for Atmospheric Research, Boulder, Colo.), and Michael Wysession (Washington University, St. Louis, Mo.) have joined Editor-in-Chief Eric Calais and other editors Margaret Chen, Fabio

Florindo, Anne Müller, Nikolai Ostgaard, Eric Rignot, and Meric Srokosz.

At *JGR–Solid Earth*, Robert Nowack (Purdue University, West Lafayette, Ind.), Tom Parsons (USGS, Menlo Park, Calif.), and Andre Revil (Colorado School of Mines, Golden) have replaced outgoing editors Richard Arculus, John Mutter, and Patrick Taylor.

Reviews of Geophysics' new editor-in-chief, Mark Moldwin (University of Michigan, Ann Arbor), replaces Peter Riley, the interim editor-in-chief.

Incoming *JGR–Space Physics* editors Philippa Browning (University of Manchester, Manchester, UK), Masaki Fujimoto (Institute of Space and Astronautical Science, Japan Space Exploration Agency (JAXA), Kanagawa, Japan), and Robert

Lysak (Institute of Technology, Minneapolis, Minn.) are replacing retiring editors Wolfgang Baumjohann, Amitava Bhattacharjee, and Zuyin Pu. The new editors will serve from 1 January 2010 to 31 December 2013.

Paleoceanography welcomes Christopher Charles (University of California, San Diego, La Jolla) and Rainer Zahn (Universitat Autònoma de Barcelona, Cataluña, Spain), who will be taking over for retiring editors Gerald Dickens and Eelco Rohling. The new editors will serve from 1 January 2010 to 31 December 2013.

At *Tectonics*, Todd Ehlers (University of Michigan, Ann Arbor) will begin handling submissions, filling the vacancy being left by Kip Hodges, who will be retiring in December. Ehlers' term runs from 1 January 2010 to 31 December 2013.

The incoming editorial boards wish to thank the outgoing editors for their service and for their assistance during these transitions.

—BARBARA MAJOR, AGU Assistant Director of Publications for Journals