

interesting aspect of the composites for flood conditions shown in the right-hand side of Figure 2 is the apparent connection between the Midwest and points well to the south. When composites of soil moisture, rainfall, and evaporative sources are calculated for the month immediately prior to the top 10% of rainfall events across the Midwest, it is found that the anomalies within the red box are much weaker but the wet conditions to the south persist. This implies that there may be a predictive element to these floods that can be exploited.

Analysis of evaporative moisture sources from back trajectories suggests a link through the regional water cycle that connects far-flung regions. It is clear that large-scale floods such as those in the U.S.

Midwest during 1993 and 2008 are part of an even larger-scale aberration in the water cycle that involves the atmosphere, the ocean, and the land across vast distances. The "Maya Express" brought vast amounts of tropical moisture northward in an anomalous atmospheric flow. This combined with antecedent wet surface conditions to cause the major floods of 1993 and 2008. The region of flooding is also a region identified in modeling studies as one of the most likely to experience significant feedbacks between land and atmosphere [Koster *et al.*, 2004]. Additional study may pinpoint the mechanisms involved and further enhance the understanding and predictability of major flood events across the central United States.

## References

- Dirmeyer, P. A., and K. L. Brubaker (1999), Contrasting evaporative moisture sources during the drought of 1988 and the flood of 1993, *J. Geophys. Res.*, 104(D16), 19,383–19,397.
- Dirmeyer, P. A., and K. L. Brubaker (2007), Characterization of the global hydrologic cycle from a back-trajectory analysis of atmospheric water vapor, *J. Hydrometeorol.*, 8(1), 20–37.
- Koster, R. D., et al. (2004), Regions of strong coupling between soil moisture and precipitation, *Science*, 305(5687), 1138–1140.

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# G E O P H Y S I C I S T S

## Honors

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**Richard Alley**, professor of geosciences at Pennsylvania State University, and **Veera-bhadran ("Ram") Ramanathan**, professor of atmospheric and climate sciences at Scripps Institution of Oceanography at the University of California, San Diego, have been selected as recipients of the 2009 Tyler Prize for Environmental Achievement. The prize committee recognized the two "for their scientific contributions that advanced understanding of how human activities influence global climate, and alter oceanic, glacial and atmospheric phenomena in ways that adversely affect planet Earth." Considered one of the premier awards for environmental science, energy, and environmental health, the award consists of a \$200,000 cash prize and a gold medallion.

**Steve Elgar**, senior scientist at the Woods Hole Oceanographic Institution, Woods Hole, Mass., has been selected as a 2009 National Security Science and Engineering Faculty Fellow. As one of eight fellows selected by the U.S. Office of the Secretary of Defense, Elgar will receive significant research funding for 5 years to conduct unclassified basic research on topics of interest to the Defense Department; he will also serve as a science advisor to the Office of the Secretary of Defense. Elgar's research involves manipulating nearshore morphology to determine the coupling and feedback between waves, currents, and bathymetric change.

**Paul F. Hoffman**, Sturgis Hooper Professor of Geology at Harvard University's Department of Earth and Planetary Sciences, Cambridge, Mass., has been selected to receive the 2009 Wollaston Medal, the highest award of the Geological

Society of London. The society presents the medal annually "to geologists who have had a significant influence by means of a substantial body of excellent research in either or both pure and applied aspects of the science."

**Neil Sheeley Jr.**, of the Space Science Division of the U.S. Department of the Navy's Naval Research Laboratory, is the 2009 recipient of the George Ellery Hale Prize. Each year, the Solar Physics Division of the American Astronomical Society presents this international award to a scientist for outstanding contributions to the field of solar astronomy over an extended period of time. The citation recognizes Sheeley "for his continuing outstanding contributions to our understanding of the solar magnetic field, coronal holes, and coronal mass ejections. His wide-ranging observational and theoretical work has laid the foundation for much current research in solar and heliospheric physics, and continues to have important applications in space weather prediction."

# MEETING

## A U.S. Carbon Cycle Science Plan

**First Meeting of the Carbon Cycle Science Working Group; Washington, D. C., 17–18 November 2008**

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The report "A U.S. carbon cycle science plan" (J. L. Sarmiento and S. C. Wofsy, U.S. Global Change Res. Program, Washington, D. C., 1999) outlined research priorities and promoted coordinated carbon cycle research across federal agencies for nearly a decade. Building on this framework and subsequent reports (available at <http://www.carboncyclescience.gov/docs.php>), the Carbon Cycle Science Working Group

(CCSWG) was formed in 2008 to develop an updated strategy for the next decade. The recommendations of the CCSWG will go to agency managers who have collective responsibility for setting national carbon cycle science priorities and for sponsoring much of the carbon cycle research in the United States.

The first meeting of the CCSWG took place in November, with the overall goals of achieving consensus on the extent to which the 1999 plan should be updated,

developing a list of overarching scientific questions to be addressed by the new plan, and identifying mechanisms for maximizing community input.

The meeting included presentations that focused on the history of the 1999 plan, the agencies' perspective on carbon cycle science, the North American Carbon Program, the "State of the carbon cycle report" released in 2007 by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research, and strategies for fostering community involvement. Breakout sessions and group discussions focusing on the specific goals of the workshop made up the majority of the agenda.

Three overarching scientific questions were tentatively proposed by the working group for the new plan:

1. What processes and feedbacks or mechanisms control the dynamics of atmospheric carbon dioxide and methane, and how?

2. What are the impacts of the changing carbon cycle, and associated changes in climate, on ecosystems?

3. How will carbon stocks and fluxes respond to policy and carbon management strategies?

The working group agreed that significant progress had been made on many of the objectives of the 1999 plan but that the revised plan should include more explicit recognition of the fact that humans are an integral part of the carbon cycle, and more detail concerning the research required for decision support, carbon management, and

improving prediction of the future carbon cycle. Questions 1 and 3 are intended to directly incorporate these new themes. An additional proposed change in scope was to include the direct effects of the carbon cycle on ecosystems (e.g., ocean acidification), as summarized in question 2. The group also reaffirmed the need for coordinated research across disciplines.

The second meeting of CCSWG occurred at the North American Carbon Program All-Investigators' Meeting, 17–20 February 2009 ([http://www.nacarbon.org/meeting\\_2009/index.htm](http://www.nacarbon.org/meeting_2009/index.htm)). This meeting also included a

plenary presentation and a breakout session to garner community input. Members of the scientific community are encouraged to provide input throughout the development of the plan at <http://www.carboncyclescience.gov/carbonplanning.php>.

—ANNA M. MICHALAK, University of Michigan, Ann Arbor; E-mail: [CCSPlan@gmail.com](mailto:CCSPlan@gmail.com); ROB JACKSON, Duke University, Durham, N. C.; GREGG MARLAND, Oak Ridge National Laboratory, Oak Ridge, Tenn.; and CHRISTOPHER SABINE, Pacific Marine Environmental Laboratory, National Oceanic and Atmospheric Administration, Seattle, Wash.

## ABOUT AGU

### Benoît-Bird Receives 2008 Ocean Sciences Early Career Award

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*Kelly Benoît-Bird received the 2008 Ocean Sciences Early Career Award at the 2008 AGU Fall Meeting Honors Ceremony, held 17 December in San Francisco, Calif. The award recognizes significant contributions to and promise in the ocean sciences. Benoît-Bird's response to receiving the award follows.*

Thank you to the colleagues who supported my nomination and the Ocean Sciences section for selecting me for this year's Early Career Award. I am so privileged to spend my days (and often nights) doing a job I love. One of the things I enjoy most about being in the interdisciplinary field of oceanography is working as part of a group of scientists whose strengths complement each other, bringing about ideas and results that would not have been possible without teamwork. I am lucky to collaborate with wonderful people who both challenge and inspire me. Special thanks to Whitlow Au, Van Holliday, Oscar Schofield, Margaret McManus, Tim Cowles, Mark Moline, William Gilly,

Mark Benfield, Scott Heppell, and Ron Kastelein and each of their research groups. I would like to thank all of my colleagues in the College of Oceanic and Atmospheric Sciences at Oregon State University who continue every day to foster the culture of collaboration that is a tradition at OSU. Upon arriving in Corvallis 4 years ago, I had been in my new office for less than 2 hours when I was approached by a senior colleague who wanted to get me excited about an idea for a collaborative proposal. That doesn't happen everywhere, and it is truly a gift. I also need to thank the collaborators who work with me most closely—my students—and in whose achievements I find the greatest satisfaction.



*Kelly Benoît-Bird*

A special thank-you to my husband and research technician, Chad Waluk, who makes 3 months per year of at-sea research possible and who fills those months, and the ones in between, with laughter. Finally, there could be no greater honor than to have my work recognized by all of you, my peers and my role models in ocean sciences.

Thank you.

—KELLY BENOÎT-BIRD, Oregon State University, Corvallis