Investigators Share Improved Understanding of the North American Carbon Cycle


The U.S. North American Carbon Pro-
gram (NACP) sponsored an “all-scien-
tist” meeting to review progress in under-
standing the dynamics of the carbon cycle of North American and adjacent oceans, and to chart a course for integration across the life-sciences, physical-sciences, and earth-system boundaries. The meeting participants also addressed the need for better decision support tools for managing the carbon cycle of North America and how to enhance the role of the North American Carbon Program in informing policy as interest in taking action increases across the nation.

Herein we report on themes to integrate the diversity of NACP science and significant gaps for understanding and managing the North American carbon cycle: integration among disciplines involving land, atmos-

erosphere, and ocean research, strengthening data management infrastructure to support modeling and analysis, identification of study regions that are critical for reducing uncertainties in the North American carbon balance, and integrating biogeochemical science with the human dimensions of carbon man-

agement and decision support.

NACP requires cross-disciplinary integra-
tion to evaluate the range of carbon sources and sinks, to identify critical regions, and to consider the human dimensions of the balance of North America and adjacent oceans. For example, carbon dynamics in coastal margins are poorly understood, in part because few studies have spanned terres-

trial, atmospheric, and oceanic domains and disciplinary boundaries. Improved integration would reduce gaps in knowledge of the carbon cycle, improve attribution of changes to major driv-

ers of climate variability, wildfire, insects, and land-use change.

Integrated long-term observation systems are a key component of the NACP and other similar programs such as land inventories conducted by the U.S. Depart-

ment of Agriculture. The AmeriFlux observ-

ation network can quantitatively affect the effects of climate variability on the carbon cycle at seasonal to interannual timescales. An open-source observing system is being developed as part of the Global Earth Observation System of Systems (GEOSS). Remote sens-

ing observations and analyses have proven critical to supporting biophysical modeling and decision making. The meeting participants noted that long-term continuity of these systems is essential.

Equally important is the need to support integrated modeling with robust data man-

agement. Large investments in individual projects were not matched by data system infrastructure to enable storage, search, and access of data.

Meeting participants identified a number of regions where integrating the data prop-

erly address NACP goals. In addition to the ongoing midcontinental intensive study, these regions include coastal margins, the interior West region of mixed grasslands and wood-

lands, and the boreal/electric region. Lack of systematic monitoring and analysis of the carbon cycle modeling across all of North America repres-

ents a critical shortcoming of carbon cycle science.

To achieve its objectives, the NACP must integrate human dimensions with the bi-

ological, atmospheric, and oceanic sciences. Social processes that drive land use and fos-

sile fuel emissions should be quantitatively integrated into land use/cover and emissions modeling, to promote the emergence of the carbon/climate/human modeling needed to provide space and analytical tools for cli-

mate action programs at various levels of government. Decision support integrated with basic research would ensure that out-

comes are as intended.

A companion meeting followed that involved the carbon programs of Canada, Mexico, and the United States, offering the intriguing possibility of a more comprehensi-

ve and management of the carbon cycle by considering a broader array of science, models, and management opportunities in the context of diverse national goals, policies, and the lands and waters within North America.

The full text of this meeting report can be found in the supplement to this EOS edition.

Earthquake Prediction: Facts Versus Hypotheses

I feel obligated to offer perspective on the article “Natural radioactivity, earthquakes, and the ionosphere,” by S. A. Poliutov, which headlined the 15 May issue of Eos. Contrary to the confident statements therein, there is no consensus, in fact there is skepticism, within the seismological commun-

ity about an “increased ionization of the ionosphere in the vicinity of active tectonic faults a few weeks before strong seismic events,” “an increase in surface temperature—observed before earthquakes,” and an “earthquake preparation area...for large earthquakes of the order of several thousand hundred square kilometers.” At least the last asser-

tion is now being warmly debated in the community.

That Earth also holds special抱望 to be pre-

sented as established fact, particularly in the case of a Holy Grail as long sought as earthquake prediction, is a disservice to AGU members and other readers.

—Kurt V. Holle,

Public Affairs Coordinator, AGU, Washington, D.C.

Travel Grant Deadline: 30 June 2007

Travel grants for Latin American and Caribbean students and young scientists can be applied for via the AGU Web site. For more information, contact Charles Dorch, e-mail: cdorch@agu.org, tel. (1) 202-777-7179.

AGU Members Visit Capitol Hill

More than 20 scientists and engineers from around the United States convened in Wash-

ington, D.C., on 1–2 May 2007 to participate in the annual Science and Engineering Techno-

logy (SET) Congressional Science Day. The Congressional SET Day is an annual event at which CVD scientists participate in the annual Science and Engineering Technology (SET) Congressional Science Day.

The AGU Office of Public Affairs fre-

quently helps to arrange for members to visit their congressional delegations, but CVD is a unique event during which AGU mem-

bers can team up with a larger group of sci-

entists and engineers to promote federal funding of scientific research.

The a4 Earth and space scientists invited by AGU, the American Geological Institute, and the Joint Oceanographic Institutions started their day on 1 May at AGU headquar-

ters by getting an overview of the budgets of several science agencies and learning how those budgets are set by the federal govern-

ment and Congress. They also heard what to expect during their congressional visits, most of which would be conducted with staff-

ers rather than with members of Congress. In addition, they received hints on how to conduct themselves appropriately, and how to effectively and quickly get their messages across. At an afternoon briefing held for CVD participants at the American Association for the Advancement of Science (AAAS), there were presentations on the broader science and technology funding situation and talks that highlighted current science and technology priorities for the U.S. government.

At an evening awards ceremony in the Senate Office Building, Sen. Ted Stevens (R-Alaska) and House Speaker Nancy Pelosi (D-Calif.) presented the George E. Brown SET Leadership Award for public leadership and support for science, engi-

neering, and technology research and education.

Rep. Mike Honda (D-Calif.), who serves on the House Science and Technology Commit-

tee, presented the award to AGU, science and engineering, and technology research and edu-

cation.

—Kurt V. Holle, Public Affairs Coordinator, AGU, Washington, D.C.