Coordinated carbon cycle research: achievements & opportunities for innovation

The U.S. Carbon Cycle Science Program, in consultation with the Carbon Cycle Interagency Working Group (CCIWG), coordinates and facilitates activities relevant to carbon cycle science, climate and global change issues under the auspices of the U.S. Global Change Research Program (USGCRP) Interagency Committee or USGCRP Principals.

MISSION
To coordinate and facilitate federally funded carbon cycle research, and provide leadership to the USGCRP on carbon cycle science priorities.

Major Programs, Activities & Achievements (in addition to funding programs by individual agencies)
- Carbon Cycle Science Interagency Working Group (CCIWG)
- North American Carbon Program
- CarboNA
- OCRB
- Ocean Carbon & Biogeochemistry
- U.S. Government level partnership
- DOE NGEE-carbon cycle information
- (6) Address undertaken to (5) Determine the likelihood of climate stabilization more critical or more difficult; potential flow those emissions (emissions)
- (3) Need for interdisciplinary research
- Other Highlights

Carbon Science Goals for the next Decade (2011-2021)
1. Provide clear & timely explanation of past & current variations observed in atmospheric CO2 & CH4, & the uncertainties surrounding them;
2. Understand & quantify the socioeconomic drivers of carbon emissions, & develop transparent methods to monitor & verify those emissions;
3. Determine & evaluate the vulnerability of carbon stocks & flow; future climate change & human activities, emphasizing potential positive feedbacks to sources or sinks that make climate stabilization more critical or more difficult;
4. Predict how ecosystems, biodiversity, & natural resources will change under different CO2 & climate change scenarios;
5. Determine the likelihood of success & the potential for side effects of carbon management pathways that might be undertaken to achieve a low-carbon future; &
6. Address decision maker needs for current & future carbon cycle information & provide data & projections that are relevant, credible, & legitimate for their decisions.

Guiding Questions
1. How do natural processes & human actions affect the carbon cycle on land, in the atmosphere, & in the oceans?
2. How do policy & management decisions affect the levels of the primary carbon-containing gases in the atmosphere?
3. How are ecosystems, species, & natural resources impacted by & how are species impacted by by carbon management decisions?

Emphasis on
1. Critical nature of long-term commitments to research & observation
2. Role of humans in global carbon cycle
3. Need for interdisciplinary research
4. Importance of dealing with & communicating role of uncertainty.

Other Highlights
Observations | Process studies | Modeling | Prediction | Synthesis | Communication

Current & Emerging Themes of Interest
1. Carbon critical systems – high latitude oceans & ecosystems, tropics, urban, terrestrial, & aquatic interfaces, major vegetation types & atmospheric inversions
2. Land use change & disturbance carbon
3. Subsurface/microbial/biogeochemistry of carbon
4. Carbon monitoring analysis incl. air & gas models

To consider in near future: Opportunities for innovation
1. Emerging CCIWG/US Carbon Program Urban Initiative
2. Emerging special Carbon Report (SOCER-2) after 2007 SOCR
3. Potential CCIWG/US Carbon Program Carbon Data Sharing Interface and workshop
4. Potential CDDY/US Carbon Program Carbon in High Latitude (CHL) Program

Examples of 2012-2015 Coordinated Interagency Activities, with a limited output

United States Carbon Cycle Science Program
An Interagency Partnership
Providing a coordinated & focused scientific strategy for conducting federal carbon cycle research

CONTACT