

U.S. Global Change Research Program (USGCRP) Carbon Cycle Interagency Working Group (CCIWG)

Terms of Reference

Date Approved by the CCIWG: May 6, 2011

Purpose

The Carbon Cycle Interagency Working Group (CCIWG) coordinates and integrates the carbon cycle research funded by the U.S. government. The CCIWG plans, evaluates and reports on interagency coordination and implementation of carbon cycle research of participating U.S. agencies. The goals and objectives of the carbon cycle research coordinated by the CCIWG align directly with the goals of the USGCRP Strategic Plan and these goals will be implemented in harmony with the USGCRP Implementation Plan. The specific carbon cycle goals will be guided by the USGCRP Strategic Plans and community based science plans (e.g., the 2011 community-based science plan: “A U.S. Carbon Cycle Science Plan¹). CCIWG activities and functions will also support new priorities and directives of the USGCRP, as well as carbon cycle research needs arising from new scientific findings and observations.

Background

The CCIWG was constituted in 1998 as a working group of U.S. Global Change Research Program (USGCRP). The CCIWG was formed in parallel with the development of a plan for U.S. carbon cycle science². The CCIWG has a strong heritage in a predecessor interagency group that coordinated the Terrestrial Ecology and Global Change³ (TECO) research program and the interagency research announcements for TECO released in 1995-1998. The CCIWG was brought under the umbrella of the U.S. Climate Change Science Program (CCSP) in 2002 as a standing working group of the program, reporting to the CCSP interagency Subcommittee on Global Change Research (SGCR). This document updates the October 2007 Terms of Reference.

CCIWG Responsibilities

The CCIWG is responsible for coordinating the research of the U.S. carbon cycle science program; specific responsibilities include, but are not limited to:

1. Convening federal program managers: The CCIWG provides a mechanism for regular interagency consultation of Federal program managers that represent carbon cycle science interests and responsibilities
2. Producing program implementation plans: The CCIWG is responsible for the development of research plans for U.S. carbon cycle science (land, ocean, atmosphere, and human dimension). Detailed implementation plans will be

developed through CCIWG-sponsorship of planning efforts involving the carbon scientific community and/or the SGCR, as appropriate.

3. Planning and coordinating activities: The CCIWG plans, strategizes, and coordinates agency and department approaches for addressing carbon cycle research priorities and needs by developing single- and multi-agency solicitations that will increase the overall value of the research. CCIWG maintains interagency awareness by exchange of agency annual plans and coordinates allocation of resources to the extent possible. CCIWG seeks to reduce redundant research, review and paperwork through this coordination. CCIWG identifies implementation priorities annually with formal recommendation of carbon cycle research priorities as requested by SGCR.
4. Evaluating and ensuring research progress is achieved: The CCIWG assesses the extent to which carbon cycle goals and objectives of the 2012 USGCRP Strategic Plan are being met by Federally-funded researchers. The CCIWG takes steps to ensure that this research remains relevant and productive and provides feedback to the SGCR on progress and priorities.
5. Reporting carbon cycle research: The CCIWG provides contributions to USGCRP's annual report (*Our Changing Planet*). The CCIWG provides input to or sponsors the development of other USGCRP documents (e.g., Strategic Plan, National Climate Assessments, etc.) and reports on research plans and results, as requested and/or appropriate.
6. Interacting with relevant USGCRP elements, relevant U.S. Government programs, the science community and public: CCIWG interacts with and supports USGCRP and its subsidiary IWG's, other related government programs, and segments of the scientific community and public. The goal of these interactions is to guide the Nation's carbon cycle research in ways that improve our understanding and prediction of coupled Earth (natural and human) systems in the context of a changing climate, and that serve governmental and societal needs.
7. Advising and participating in relevant syntheses and assessments: For example, the National Climate Assessment (NCA). The CCIWG facilitates relevant synthesis and assessment processes by coordinating interagency inputs, reviewing draft prospectuses and reports, and providing agency feedback to lead agency and authors.
8. Serving as point of contact on carbon cycle research both nationally and internationally, supporting and coordinating as appropriate: CCIWG serves as a point of contact between the SGCR (including its USGCRP Director), the National Coordination Office, other USGCRP IWGs or subcommittees, other relevant agency programs, the research community of carbon cycle science, and the general public. It also supports and coordinates with appropriate international programs such as Earth System Science Partnership (ESSP), the Global Carbon Project (GCP), the Global Atmospheric Watch Programme (GAW) of the World Meteorological Organization, and Group on Earth Observations (GEO) Carbon, the carbon component of the Global Earth Observing Systems of Systems (GEOSS). In addition, the U.S. Carbon Cycle Science Program Office serves as an Affiliate Project Office of the ESSP Global Carbon Project.

CCIWG Composition and Responsibilities of Members

Membership. The CCIWG is composed of representatives from each federal agency or department actively engaged in carbon cycle sciences with funding part of the distributed USGCRP budget cross-cut. Members must be approved by their agency or department to represent their agency or department on matters related to carbon cycle science. It is desirable that members have budgetary authority over some aspect of their agency carbon cycle research. There is no term limit on member service.

Specific responsibilities of each Federal member include, but are not limited to:

1. Helping execute CCIWG tasks, via regular participation in CCIWG meetings and contributions to requested inputs and responses to CCIWG actions in a timely manner.
2. Providing communication between their respective agencies, the CCIWG, and the CCIWG SSGs¹. CCIWG members are also responsible for communicating with their agency SGCR Principal to ensure that CCIWG matters are adequately coordinated with their agency.
3. Supporting through financial and/or “in kind” contributions, the activities of the CCIWG and its office, as appropriate to their agency role within the U.S. carbon cycle science program.

Any agency or department interested in carbon cycle research may participate in the CCIWG, by requesting observer or member status from the Co-Chairs of the CCIWG.

Co-Chairs: Co-Chairs are selected from the CCIWG membership and the selection is the responsibility of the CCIWG. Final concurrence comes from the SGCR Principal from the agency or department of the proposed new Co-Chair. Co-Chairs nominally serve 2-year terms that are staggered by 1 year. Co-Chairs may be reappointed once, thus allowing a total continuous service of 4 years. Following a Co-Chair term, a past Co-Chair may continue to serve on the CCIWG, but may not be reappointed to Co-Chair within two years. Small deviations from these terms are allowable so as to accommodate member schedules and provide for smooth transitions in leadership.

The responsibilities of the co-chairs include, but are not limited to:

1. Convene and chair regular CCIWG meetings, an annual retreat, and special meetings, as needed.
2. Communicate directly with the SGCR Principals, USGCRP NCO Director, and other USGCRP IWG Co-Chairs on behalf of the CCIWG.
3. Interface with the Carbon Cycle Science Program Office (see below) on matters associated with carbon cycle science activities, such as annual contributions and fiscal budgets, quarterly expense budget reports, planning meetings and workshops, and managing and supporting on-going science programs.

¹ SSGs: Scientific Steering Groups of the U.S. Carbon Cycle Science Program: the Carbon Cycle Science Steering Group, the North American Carbon Program SSG and the Ocean Carbon and Climate Change SSG.

4. Ensure that all reports, briefings, and documents prepared on behalf of the CCIWG are accurate, balanced, and responsive and that they fully represent the interests and activities of all CCIWG member agencies. The Co-Chairs are responsible for the overall technical quality of all reports, briefings and documents prepared on behalf of the CCIWG.
5. Facilitate the establishment and on-going activities of the CCIWG SSGs. This includes communicating regularly with SSG Chairs, ensuring that the SSGs meet regularly, ensuring that membership rotations and changes of Chairs occur on schedule, and working with the SSG Chairs to jointly develop SSGs meeting agendas.
6. Assure that the CCIWG and U.S. carbon cycle research are represented at relevant meetings convened by other Federal and international groups, scientific meetings, workshops, and conferences.

Carbon Cycle Science Program Office.

The CCIWG will establish and maintain a Carbon Cycle Science Program Office responsible for facilitating the work of the CCIWG and assisting the Co-Chairs and CCIWG with communicating with the SGCR Principals, USCRP NCO, the CCIWG SSGs, international science community, and the public. The Head of the Carbon Cycle Science Program Office serves as an *ex-officio* member of the CCIWG. Specific responsibilities are written and concurred upon by both the CCIWG and UCAR. They include, but are not limited to:

1. Maintaining meeting records of the CCIWG, including agendas, minutes, and other documents.
2. Serving as a point-of-contact for external information requests on the CCIWG and U.S. carbon cycle science program.
3. Participating in meetings coordination with USGCRP NCO on behalf of the CCIWG.
4. Preparing and/or supporting the development of CCIWG-sponsored documents and CCIWG inputs to reports of the USGCRP (e.g., *Our Changing Planet*).
5. Preparing, tracking, and reporting on the CCIWG annual budget. Overseeing and reporting on the tasks supported by that budget, including SSG meetings and workshops.
6. Maintaining cognizance of the research results of the carbon cycle science program and the status of research programs and projects and, as directed by the CCIWG, analyzing the scope and content of funded carbon cycle science program and project activities.
7. Keeping the CCIWG abreast of information relevant to carbon cycle science and more generally to climate change science provided by USGCRP NCO, the SGCR, and other organizations as it is channeled through USGCRP NCO and Carbon Cycle Science Program Office.

Science Steering Groups

The CCIWG will establish and maintain a Carbon Cycle Science Steering Group (CCSSG) composed of representatives of the carbon cycle science community. The purpose of the CCSSG is to provide broad scientific, societal, and stakeholder input to the CCIWG as the

CCIWG coordinates carbon cycle science and applications within the U.S. Federal government. The CCSSG provides relevant information and consultation to the CCIWG that helps ensure that the U.S. Carbon Cycle Science Program remains coherent and robust and addresses science questions in an integrative approach. New members of the CCSSG will be nominated by standing members of the SSG and CCIWG. Final selections are approved by the full CCIWG. SSG responsibilities and the terms of service for their members and chairs are documented in CCSSG Terms of Reference (APPENDIX A) written and concurred upon by both the CCIWG and the SSG. The CCSSG will meet regularly (at least twice each year) for the purpose of providing broad, scientific and stakeholder consultation to the CCIWG as it coordinates and promotes carbon cycle science and applications within the U.S. federal government. The CCIWG participates in all SSG meetings to enable meaningful interaction and information exchange.

The CCSSG may also assemble, as needed, Science Steering Groups for major programs and activities sponsored by the CCIWG (e.g., the North American Carbon Program SSG and the Ocean Carbon and Climate Change SSG).

CCIWG Meetings

The CCIWG will meet as needed, nominally every third week, to address carbon cycle science matters. For specific activities or additional work of the CCIWG, the Co-Chairs will request volunteers for working subcommittees that meets as needed. A subcommittee Chair is selected internally from the group and reports regularly to the CCIWG, providing information and seeking endorsement of major decisions. Subcommittees shall exist until terminated by the CCIWG. Additionally, the CCIWG holds an annual day-long retreat. Special meetings to address urgent priorities may also be convened as needed by the CCIWG Co-Chairs.

Funding

U.S. agencies and departments participating in the CCIWG are responsible for supporting the time required for Federal program managers to engage in activities with the CCIWG. The Federal program managers, through the participating agencies and departments, will fund the Carbon Cycle Science Program Office and activities of the CCIWG and its SSGs. Each year the CCIWG will develop an annual budget to support of its planned activities and program office. Each member agency will be asked to contribute an appropriate share of the required total. Agency contributions are voluntary. The CCIWG will modify its planned activities if contributions do not match the annual budget plan.

References

¹ *A U.S. Carbon Cycle Science Plan* (2011): A Report of the Carbon Cycle Science Steering Group and Subcommittee, Anna Michalak, Rob Jackson, Gregg Marland, Chris Sabine, Co-Chairs.

² *A U.S. Carbon Cycle Science Plan* (1999): A Report of the Carbon Cycle and Climate Working Group, Jorge L. Sarmiento and Steven C. Wofsy, Co-Chairs.

³ *The Role of Terrestrial Ecosystems in Global Change: A Plan for Action* (1994): National Research Council.

APPENDIX A:
Carbon Cycle Science Steering Group
Terms of Reference
(Last Accepted 14 September 2005; Revised 07 June 2010)

Purpose

This *terms-of-reference* describes the role of the Carbon Cycle Science Steering Group (CCSSG) for the U.S. Carbon Cycle Science Program under the auspices of the Carbon Cycle Interagency Working Group (CCIWG) of the U.S. Global Change Research Program (USGCRP). It addresses the relationship with the CCIWG and provides specifics concerning CCSSG leadership, membership, focal areas, and meetings.

Introduction

The USGCRP, as established in 1989, has a vision of collaboration among federal agencies that closely involves the scientific community. The goal of U.S. carbon cycle research is to understand the fate of carbon in the environment and how carbon cycling might change in the future, including the role of and implications for societal actions. The carbon cycle program encompasses terrestrial, aquatic, oceanic and atmospheric components, human dimensions, and societal concerns.

The CCIWG, whose members represent carbon cycle research and other research programs within the federal agencies, coordinates the development and execution of federal research programs in carbon cycle science. The CCIWG has established the CCSSG, a group of scientific experts involved in carbon cycle research and applications, and composed of people from several types of organizations (e.g., federal, state, university and non-government), to provide individual scientific inputs to the CCIWG regarding the current activities and future directions of the USGCRP's Global Carbon Cycle research element. The establishment of the CCSSG is a demonstration of the commitment to involving scientists and other stakeholders to enhance the quality and value of carbon cycle research supported by the federal government.

The CCSSG interacts directly with the CCIWG and assists them by providing individual perspectives on science issues and research approaches for U.S. carbon cycle research. Their focus is on providing scientific assistance to the CCIWG in carrying out the U.S. Carbon Cycle Science Program plan established in the Strategic Plan for the USGCRP.

Role of the Carbon Cycle Science Steering Group

The purpose of the CCSSG is to provide broad scientific, societal, and stakeholder input to the CCIWG as it coordinates carbon cycle science and applications within the U.S. federal government. The CCSSG provides relevant information and inputs to the CCIWG that aid them in ensuring that the U.S. Carbon Cycle Science Program remains coherent and robust and addresses its science questions in an integrated way.

The specific roles of the CCSSG are:

- Provide input on program relevance and perspectives of the scientific and stakeholder

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- communities and, insofar as possible, the general public;
- Identify carbon cycle research and applications questions; critical research directions; priorities; needed experiments, measurements and observations; new areas of emphasis and emerging issues; and other information pertinent to the goals of the U.S. Carbon Cycle Science Program and the U.S. Global Change Research Program;
 - Provide input on and assist the CCIWG with major carbon cycle science program and science management plans, implementation and strategy plans, and other important documents;
 - Assist with synthesis and integration of the multidisciplinary elements of the program;
 - Prepare or commission scientific reports to further develop new ideas and emerging issues;
 - Secure participation from a broad and diverse cross-section of scientists, research managers, and stakeholders in carbon cycle science program activities;
 - Assist in the communication of USGCRP carbon cycle research, goals, objectives, and activities;
 - Provide input on and assist the CCIWG with coordination with other national and international programs;
 - Provide scientific assessment of the overall carbon cycle science program and inputs concerning its progress on achieving its research objectives;
 - Coordinate with the Scientific Steering Groups (SSGs) of the North American Carbon Program (NACP) and Ocean Carbon and Climate Change (OCCC)/Ocean Carbon and Biogeochemistry (OCB) program, and SSGs of other interagency working groups in the USGCRP;
 - Develop and stage CCIWG-sponsored workshops, joint workshops of NACP and OCCC/OCB, and other possible complementary proceedings;
 - Assist the CCIWG in the collection of research highlights for preparation of an annual report (USGCRP's Our Changing Planet) and provide assistance in developing carbon cycle program reports; and
 - Provide other information pertinent to the goals of the U.S. Carbon Cycle Science Program and the USGCRP.

Membership

Members of the CCSSG are appointed by the CCIWG, with the concurrence of the CCSSG Chair. Before appointing new members, the CCIWG will consult with the CCSSG Chair and membership to identify qualified new members based on their scientific expertise, leadership qualities, and ability to represent the carbon cycle science perspectives of the federal agencies, academia, and other stakeholder institutions. Membership may be drawn from the scientific and application communities including, but not limited to, scientists from universities, colleges, private and public research institutions, organizations, and federal and state agencies. CCSSG members serve a term of three years, with approximately one third of the members eligible for rotation each year in order to ensure openness to the general community, maintain program integrity, and assure vitality in the group. Terms may be extended for one additional three-year period through mutual concurrence by the membership and that of the CCIWG.

The CCSSG will generally number about 20 members, pending new discipline representation. Because of the unprecedented challenges anticipated in the synthesis, integration, and societal issues of carbon cycle science, it is crucial that the membership represent a broad and balanced range of expertise. The CCSSG should have appropriate diversity in disciplinary representation, research and applications expertise, institutional representation, gender, as well as geographical coverage. Specifically, the combined membership must have expertise in carbon cycle science in terrestrial, hydrologic, oceanic, atmospheric and human dimensions, reflect a balance among researchers specializing in modeling, observations, and experimental studies and analysis, and include an appropriate mix of scientists from federal agencies, academic institutions, the private sector, and/or other stakeholder institutions. Some overlap in membership among the CCSSG, NACP SSG and OCCC/OCB SSC is acceptable and desirable.

CCSSG Leadership

The CCSSG Chair is appointed by the CCIWG. In selecting a new Chair, the CCIWG will consult with the current CCSSG Chair and membership. To promote continuity, a candidate Chair will first be sought from among the existing membership. If a new Chair is not identified from among the existing members, then a nominee from outside the committee will be considered. The Chair will serve for a two-year term. Within six months prior to the completion of a Chair's term, a new Chair will be selected or the present Chair's term will be renewed. A Chair's term can be renewed for one additional 2-year term based on mutual agreement of the Chair, the CCSSG membership, and the CCIWG.

The primary function and duties of the Chair are:

- Lead the CCSSG in completing its goals and objectives,
- Moderate all CCSSG meetings using acceptable rules of order and decorum;
- Work with the CCSSG membership and the CCIWG to set mutually agreeable dates, venues, agendas, and programs for CCSSG meetings;
- As needed and desired, appoint associate leadership (e.g., vice-chairs) and subcommittees from within the CCSSG membership, make short-term assignments to CCSSG members during the course of business meetings, and provide oversight for the accomplishment and reporting of said activities;
- Liaise with the co-Chairs of the CCIWG on important items between meetings and provide general liaison between the CCIWG and CCSSG and between CCSSG and other relevant SSGs; and
- Appoint a temporary Chair from the associate leadership or other CCSSG membership in the event the Chair cannot attend a CCSSG meeting or represent carbon cycle science at other relevant meetings.

Meetings

The CCSSG will convene approximately two times per year. Dates will be mutually agreed upon by the CCSSG and the CCIWG. All meetings will be held with the CCIWG in attendance. The primary purpose of the meetings is for the CCSSG to discuss with the CCIWG scientific issues and opportunities focused on ensuring that the U.S. Carbon Cycle Science Program achieves its objectives. These discussions may address any of the topics

outlined in the section above on the role of the CCSSG. The agenda will be prepared by the chairs of the CCSSG and CCIWG. Agenda items may include presentations followed by open discussions, program updates by CCIWG members and its Co-Chairs, reports from subcommittees and the chairs of the NACP and OCCC/OCB SSGs, and special briefings by third parties invited for that specific purpose. Additionally, members of the CCIWG and its co-Chairs may be asked to brief the CCSSG and/or respond to particular agency issues. The CCIWG's overall role at CCSSG meetings will be to listen and receive information, knowledge, and experiences of CCSSG members. CCSSG "executive sessions" will be convened only to address the most sensitive of topics.

The CCIWG and/or its member agencies will cover allowable travel and meeting expenses for CCSSG members. CCSSG meetings may be accomplished by conference call.

Approval and Amendments

Amendments to these terms-of-reference may be proposed by either CCIWG or the CCSSG. Amendments will be approved through mutual agreement of the two bodies.

APPENDIX B