



THE 2ND STATE OF THE CARBON CYCLE REPORT (SOCCR-2) : PROCESS, PROGRESS AND INSTITUTIONAL CONTEXT

<https://CarbonCycleScience.us>

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@USCarbonProgram #SOCCR2 #NCA4

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

An Interagency Partnership



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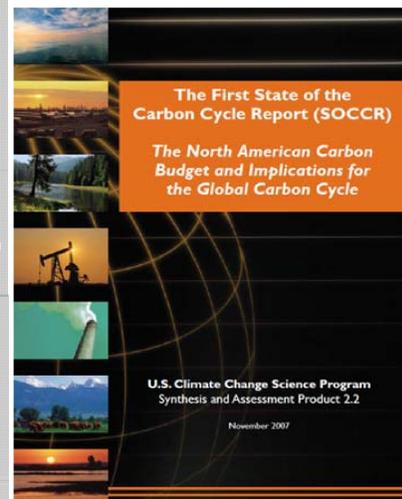
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ABSTRACT

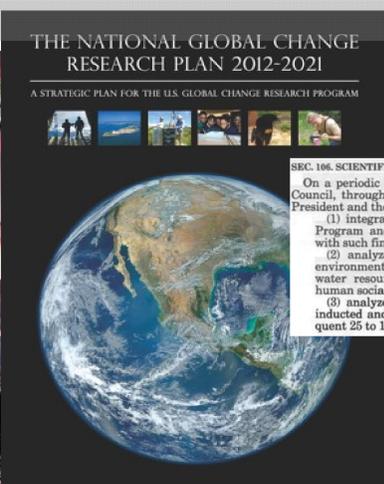
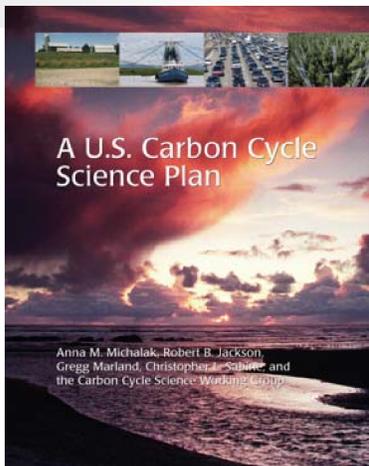
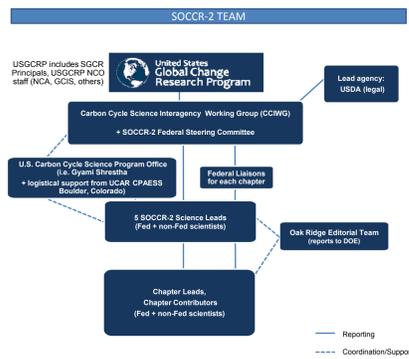
Over 200 scientists and program managers from U.S., Mexican and Canadian government and non-government institutions have been collaborating on SOCCR-2 since 2015. Responding to the 1990 U.S. Global Change Research Act (GCRA) and the 2011 U.S. Carbon Cycle Science Plan, this special Sustained National Climate Assessment report covers many of the GCRA mandated sectors such as agriculture, energy, aquatic systems and human social systems, integrating the scientific uncertainties and analyzing the effects of global change on the carbon cycle and vice versa, including projections for both human-induced and natural changes. Here, we cover the SOCCR-2 process, progress and institutional context.

PROCESS HIGHLIGHTS & INSTITUTIONAL CONTEXT

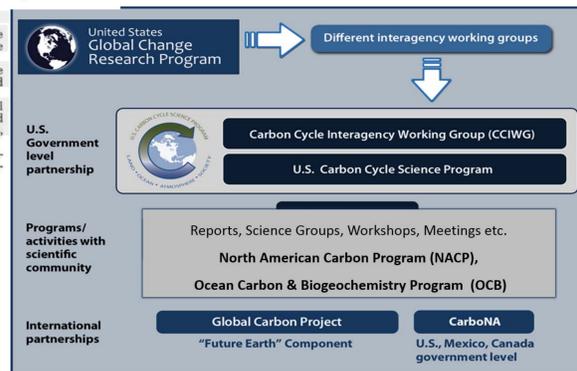
- Follow-up to the 1st SOCCR (2007)
- Led by Carbon Cycle Interagency Working Group (CCIWG)/ U.S. Carbon Cycle Science Program under USGCRP auspices
- U.S. Government, interagency report, Lead federal Administrative Agency USDA.
- Focus on U.S. and North American carbon stocks and fluxes in managed and unmanaged systems
- Includes relevant carbon management science perspectives and tools for supporting and informing decisions addressed in/related to U.S. Carbon Cycle Science Plan (2011), National Climate Assessment, USGCRP Strategic Plan (2012-2021) and Global Change Research Act (1990).



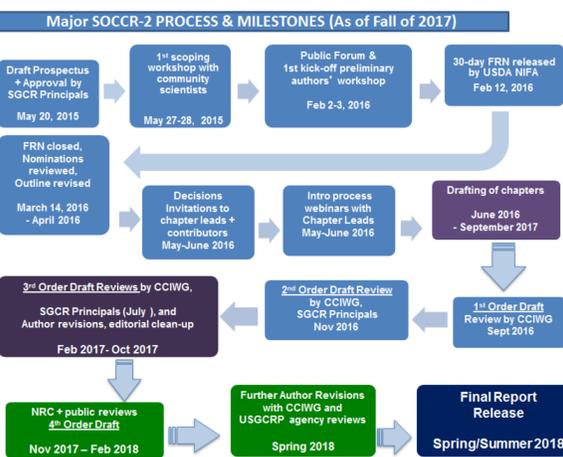
10 years before SOCCR-2: SOCCR-1 in 2007



104 STAT. 3096 PUBLIC LAW 101-606—NOV. 16, 1990
Public Law 101-606 101st Congress
An Act
To require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions toward international protocols in global change research, and for other purposes.
Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,
SECTION 1. SHORT TITLE.
This Act may be cited as the "Global Change Research Act of 1990".



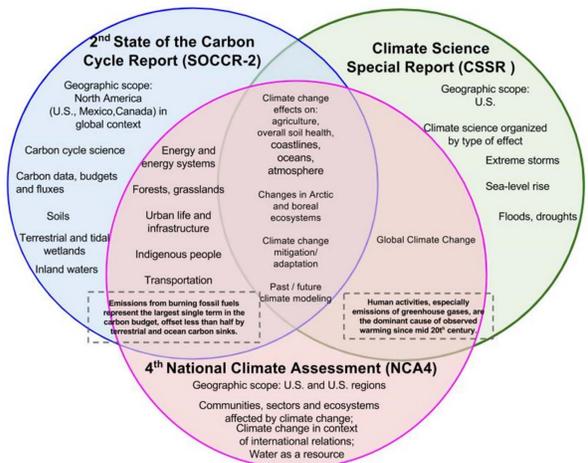
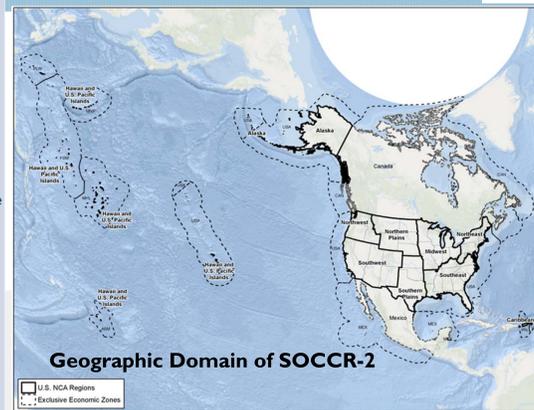
PROGRESS & OVERVIEW



The focus areas for SOCCR-2 are inspired by the U.S. Carbon Cycle Science Plan (2011), which emphasizes global scale research on long-lived, carbon based greenhouse gases and the major pools and fluxes of the global carbon cycle. Three aspects frame the SOCCR-2 focus areas: (i) Impact of natural processes and human actions on terrestrial, atmospheric and oceanic carbon cycle; (ii) Impact of policy and management decisions on the levels of CO₂ and CH₄ in the atmosphere; (iii) Impact of increasing GHG concentrations, associated changes in climate, and carbon management decisions on ecosystems, species, and natural resources.

SOCCR-2 is also informing the 4th U.S. National Climate Assessment (NCA4 due 2018).

	# SOCCR-2 Chapters	Sections for each chapter (as appropriate)
PREFACE	I About this Report	i. Key Message/ Findings/Highlights (incl. traceable accounts - see examples from Health and NCA supporting evidence)
	II Guide to the Report	
	III Interagency Context of U.S. Carbon Cycle Science	
Part I Synthesis	1 What is the C cycle and why care/the C cycle in a global context	ii. Introduction
	2 North American C budget past, present, and future	iii. Historical context (incl. socioeconomic drivers of carbon emissions)
Part II Human Dimensions of the C Cycle	3 Energy Systems (incl. Transportation)	iv. Current State of Carbon Cycle Understanding of Fluxes and Stocks
	4 Urban	v. Indicators, Trends, Feedbacks
	5 Agriculture	vi. North American and Global Context, Regional Perspective
	6 Societal Perspective on Carbon	• NCA regions
	7 Tribal Lands	• U.S., Mexico, Canada
	8 Atmosphere	• E.g. Arctic, Tropics, RECCAP
	9 Forests	vii. Societal drivers and impacts, carbon management and decisions
Part III: State of Air, Land and Water	10 Grasslands	viii. Synthesis, conclusions, gaps in knowledge, and (near) future outlook
	11 Arctic/Boreal/Permafrost regions	• overarching synthesis of the current state of the carbon cycle
	12 Soils	• key knowledge gaps/ opportunities and near-term outlook on the North American carbon cycle
	13 Terrestrial Wetlands	
	14 Inland waters	
	15 Tidal wetlands and estuaries (incl. blue carbon)	
	16 Oceans and continental Shelves (oceans, methane hydrates etc.)	
Part IV: Consequences and ways forward	17 Consequences of rising atmospheric CO ₂ (e.g. ocean acidification)	
	18 Decision-support (social, behavioral, economic)	
	19 Future projections and associated climate change in North America	



SOCCR-2 informs NCA4

REVIEW !!!

SUBMIT COMMENTS ON SOCCR-2 (AND NCA4) DRAFTS

VIA REVIEW.GLOBALCHANGE.GOV

DEADLINE FOR SOCCR-2 COMMENTS: 12 JANUARY 2018

SOCCR-2 Federal steering committee and liaisons: Nancy Cavallaro (Administrative Lead Agency POC + CCIWG co-chair) (USDA-NIFA), Zhiliang Zhu (CCIWG co-chair) (USGS), Dan Stover (DOE), Erica Ombres (NOAA), Tom Wirth (EPA), Kathy Hibbard (NASA), Marlen Eve (USDA-ARS), Carolyn Olson (USDA-OCE), Noel Gurwick (USAID), Gyami Shrestha, (U.S. Carbon Program Office Director), Karina Schafer (NSF), Anne Marsh (USDA FS), Laura Lorenzoni (NASA), Jim Butler (NOAA), Eric Kasischke (NASA), Kathy Tedesco (NOAA), Libby Larson (NASA/SSAI); **Science Leads:** Rich Birdsey (USDA FS), Melanie Mayes (ORNL), Ray Najjar (PSU), Sasha Reed (USGS), Paty Romero-Lankao (UCAR/NCAR); **Chapter Leads:** Vanessa Bailey, Lori Bruhwiler, David Butman, Wei-Jun Cai, Sarah R. Cooley, Grant Domke, Katja Fennel, Kevin Robert Gurney, Daniel J. Hayes, Alexander N. Hristov, Deborah N. Huntzinger, Andrew R. Jacobson, Jane M. F. Johnson, Randy Kolka, Kate Lajtha, Elizabeth L. Malone, Peter Marcotullio, Maureen I. McCarthy, Emily McGlynn, Dave McGuire, Anna M. Michalak, John B. Miller, David J. Moore, Elise Pendall, Stephanie Pincetl, Vladimir Romanovsky, Paty Romero-Lankao, Ted Schuur, Carl Trettin, Rodrigo Vargas, Tristram West, Christopher A. Williams, Lisamarie Windham-Myers + **ORNL Editing Team** + **All 200+ SOCCR-2 author team members + CCIWG members/agencies + USGCRP**

CREDITS

