

The National Climate Assessment: Overview

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and Development Advisory Committee (NCADAC)

Florida Water and Climate Alliance Meeting

Orlando Utilities Commission | February 27, 2013



US Global Change Research Program

Global Change Research Act
(1990) Mandate:

“To provide for development and coordination of a comprehensive and integrated United States research program which will assist the Nation and the world to **understand, assess, predict, and respond** to human-induced and natural processes of global change.”



United States
Global Change
Research Program



13 Federal Departments & Agencies +
Executive Office of the President



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**National Climate
Assessment**

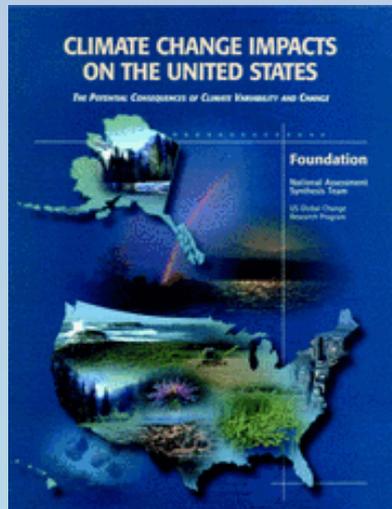
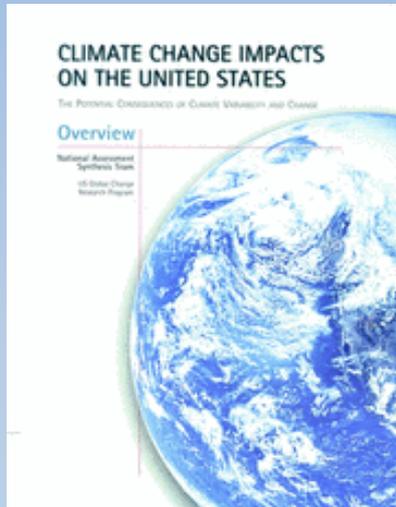
National Climate Assessment: GCRA (1990), Section 106

...not less frequently than every 4 years, the Council... shall prepare... an assessment which –

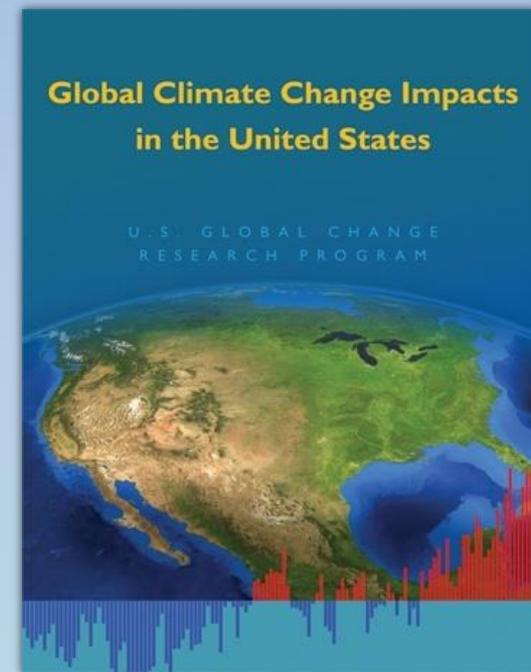
- integrates, evaluates, and interprets the findings of the Program (USGCRP) and discusses the scientific uncertainties associated with such findings;
- analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and
- analyzes current trends in global change, both human- induced and natural, and projects major trends for the subsequent 25 to 100 years.

Previous National Climate Assessments

Climate Change Impacts on the United States (2000)



Climate Change Impacts in the United States (2009)



<http://nca2009.globalchange.gov/>

The “New” National Climate Assessment



Goal

- Enhance the ability of the United States to **anticipate, mitigate, and adapt** to changes in the global environment.

Vision

- Advance an **inclusive, broad-based, and sustained process** for assessing and communicating scientific knowledge of the impacts, risks, and vulnerabilities associated with a changing global climate in support of decision-making across the United States.



Goals for the NCA

- A **sustained process for informing an integrated research program**
- New approaches to development and use of **scenarios at multiple scales**
- **Evaluation** of the implications of alternative **adaptation and mitigation options**
- **Community building** within regions and sectors that can lead to enhanced resilience



Outcomes of the NCA

- **Ongoing, relevant, highly credible analysis** of scientific understanding of climate change impacts, risk, and vulnerability
- Enhanced timely **access to Assessment-related data** from multiple sources useful for decision making
- **Systematic evaluation** of progress towards reducing risk, vulnerability, and impacts
- **National indicators** of change and the capacity to respond



Process to Date

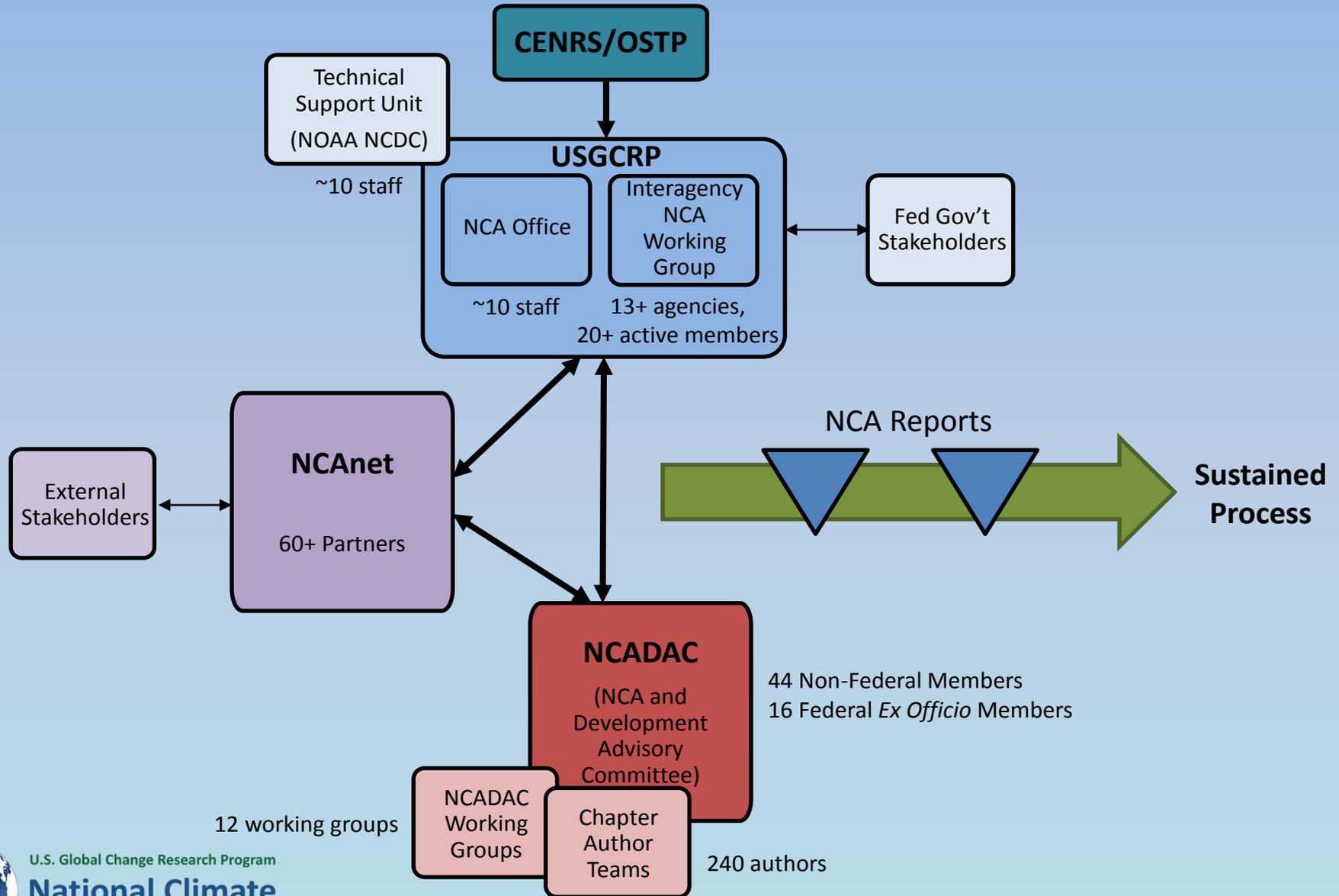
- Interagency Working Group (INCA, 13+ agencies) plans and manages federal components
- 60 member National Climate Assessment and Development Advisory Committee (NCADAC) responsible for development the Third NCA Report and providing advice on the sustained NCA process
- 240 authors selected by NCADAC, from academic, public, and private sectors
- 60+ members in NCAnet, a network of partners (mostly) outside of the federal government that connects the NCA to assessment stakeholders



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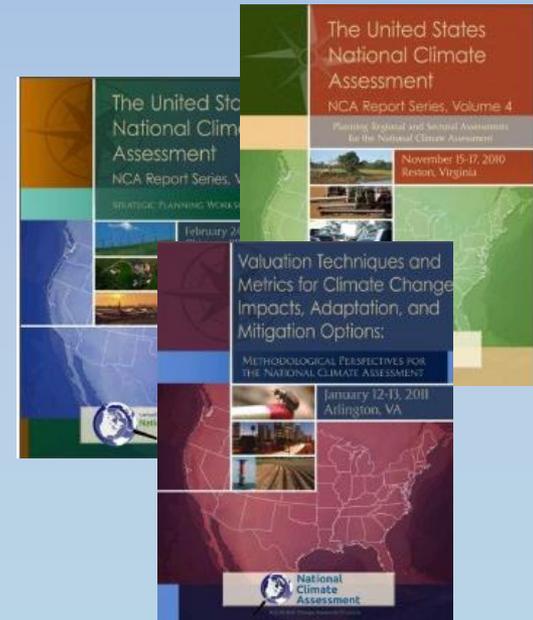
**National Climate
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NCA Structure



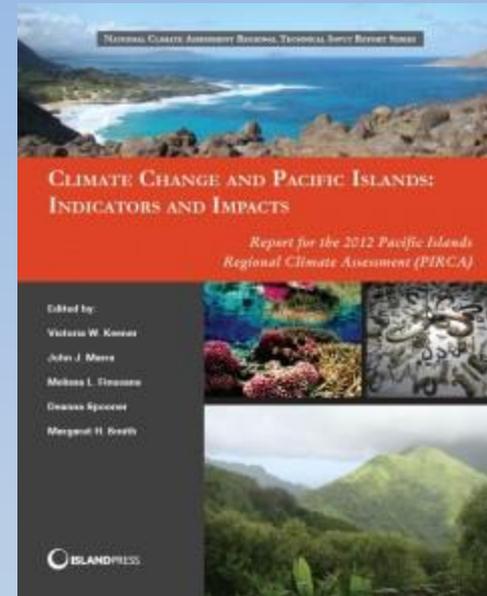
Process to Date

- Process-focused workshops established consistent methodologies, models, scenarios, and approaches
- Regional and sectoral workshops convened by agency-sponsored technical input teams
- Listening sessions and symposia at professional society meetings focusing on ecosystems, water, meteorology, soil science, applied anthropology, resource management, and more



Process to Date

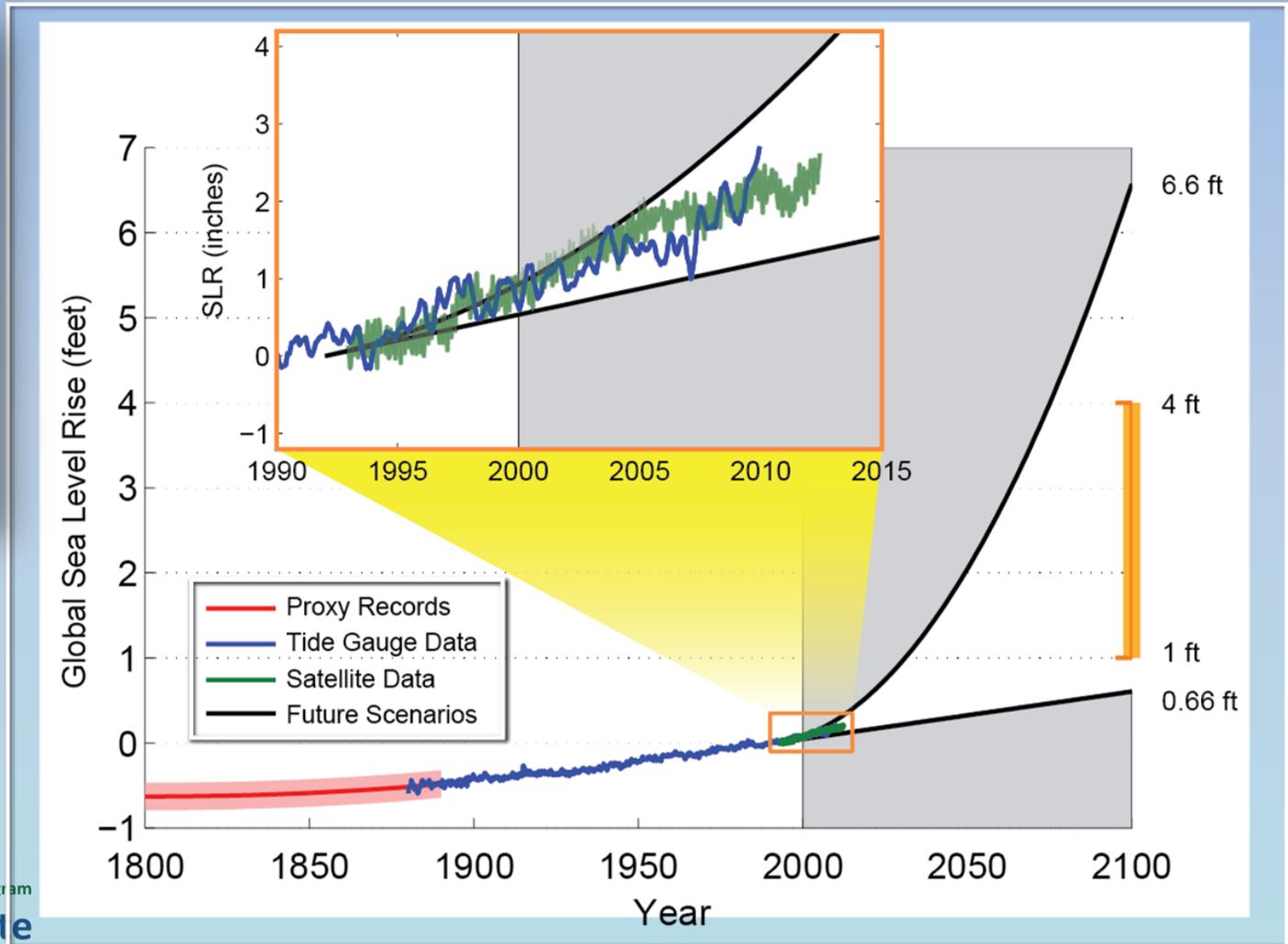
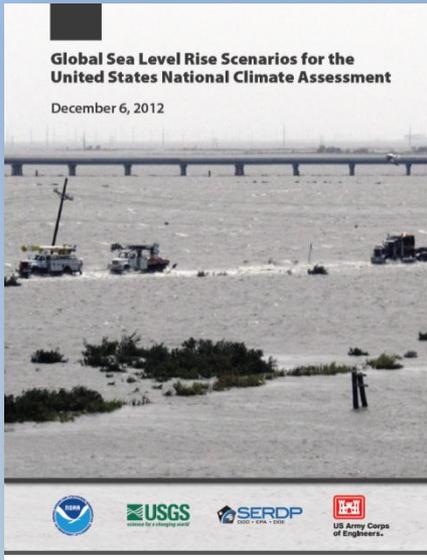
- First “request for information”:
250+ technical inputs from 100+ individuals and teams, including:
 - New regional climate histories and projections for each region
 - New sea level rise scenarios
 - **In-depth foundational assessments for each region and most sectors**
- Author teams delivered their draft chapters to the NCADAC
- Draft report released January 11, Public comment period opened January 14



Island Press is publishing most of the regional technical inputs over the next few months:
<http://www.cakex.org/NCAreports>
(Pacific Islands and Coasts currently available)

Most of the federal agency-sponsored reports are available from
<http://www.globalchange.gov/what-we-do/assessment/nca-activities/available-technical-inputs>

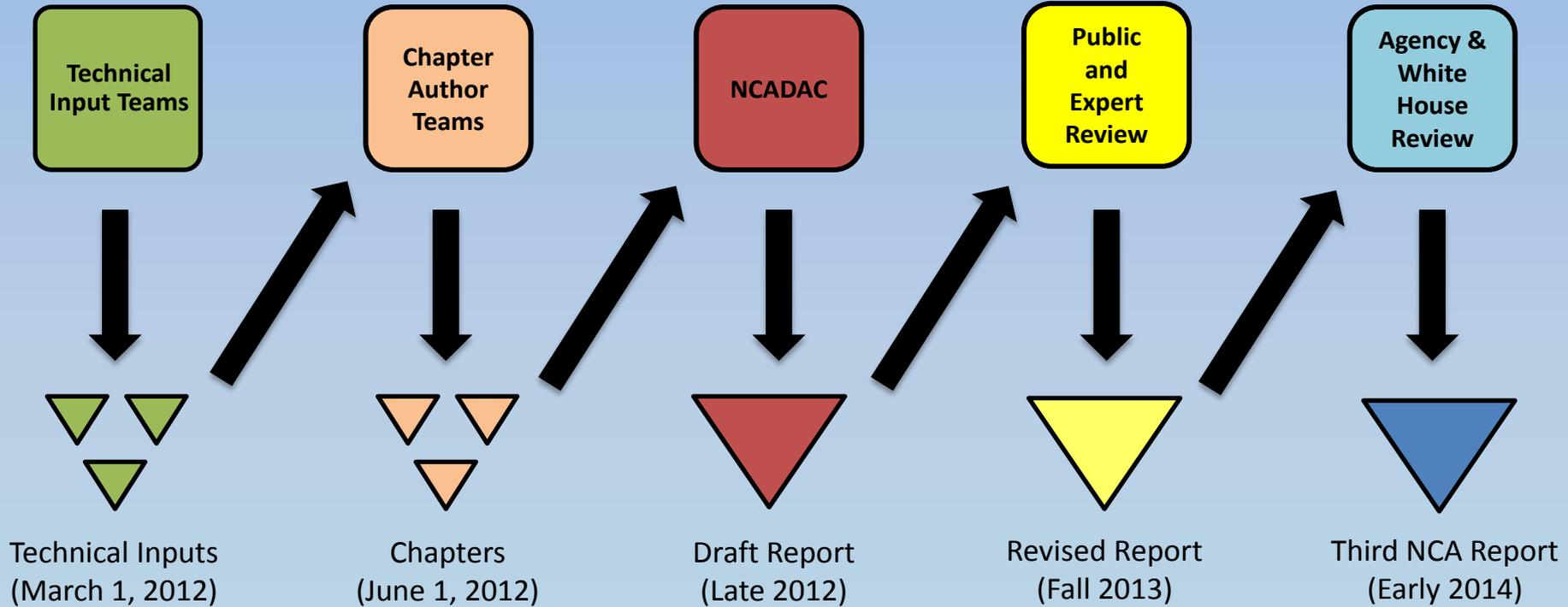
Projected range of sea level rise (National Climate Assessment, 2013)



Third NCA Report Process

Federal agencies,
universities, NCAnet
members, and others

January 14 –
April 12, 2013

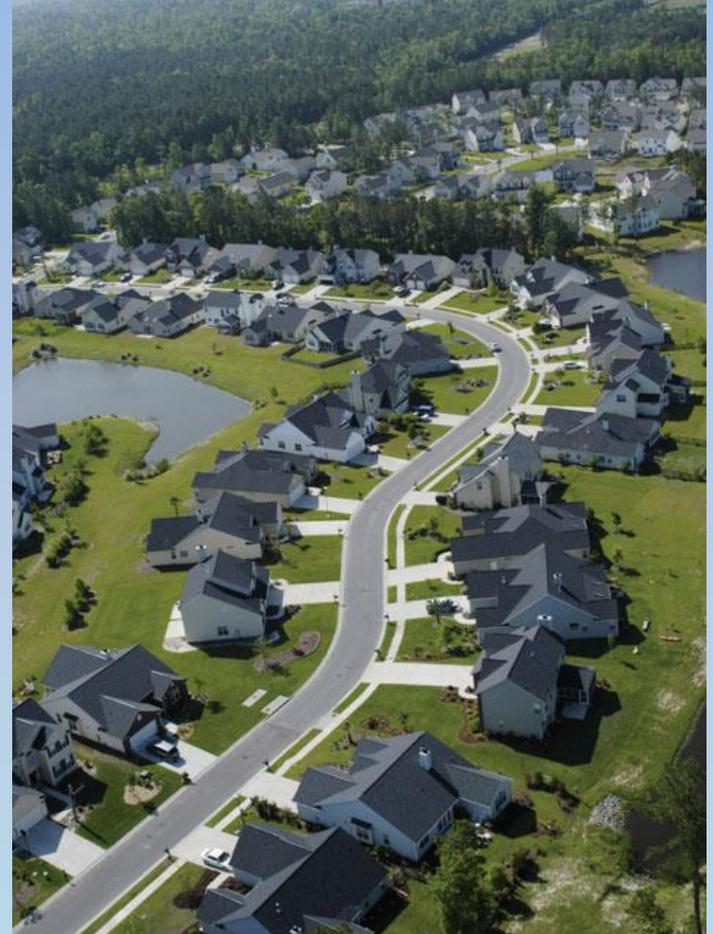


Products and Outcomes

- Third NCA Report as an e-book (300+ pages) and accompanying printed summary document (50 pages) [early 2014]
- First stage of the Global Change Information System (GCIS), which will provide access to the underlying information and analyses used in the NCA Report [early 2014]
- Foundation for strong communications products and processes useful to a variety of audiences, including national, regional, state, and local decision makers
- Sustained assessment process – special topics reports, future synthesis reports, strengthening assessment capacity

Outline for Third NCA Report

- Letter to the American People
- Executive Summary: Report Findings
- Introduction
- Our Changing Climate
- Sectors & Sectoral Cross-cuts
- Regions & Biogeographical Cross-cuts
- Responses
 - Decision Support
 - Mitigation
 - Adaptation
- Agenda for Climate Change Science
- The NCA Long-term Process
- Appendices
 - Commonly Asked Questions
 - Expanded Climate Science Info

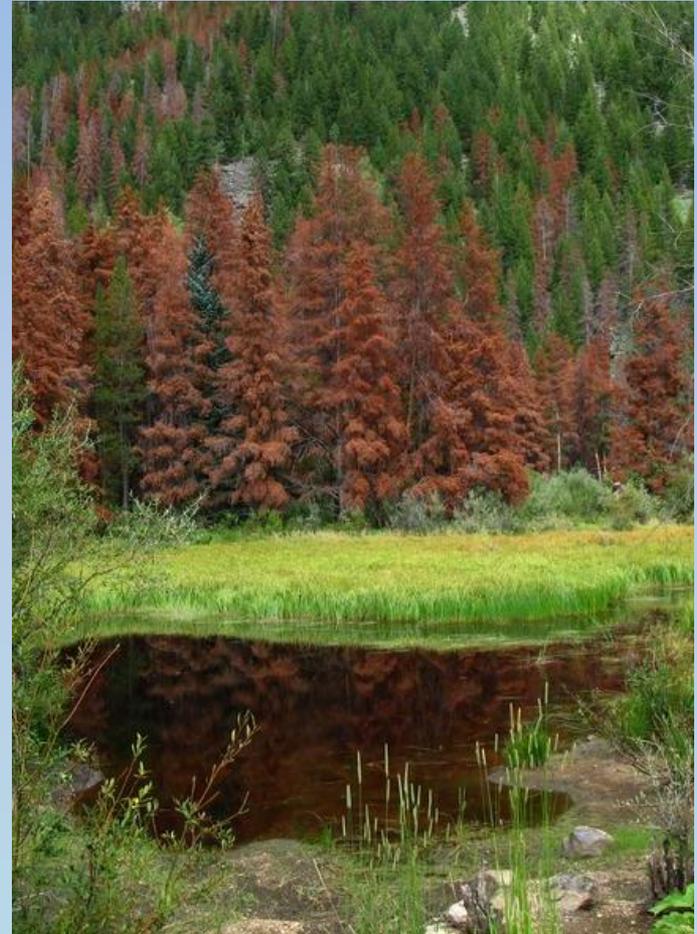


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**National Climate
Assessment**

Sectors

- Water Resources
- Energy Supply and Use
- Transportation
- Agriculture
- Forestry
- Ecosystems and Biodiversity
- Human Health



Sectoral Cross-Cuts



- Water, Energy, and Land Use
- Urban Systems, Infrastructure, and Vulnerability
- Impacts of Climate Change on Tribal, Indigenous, and Native Lands and Resources
- Land Use and Land Cover Change
- Rural Communities
- Biogeochemical Cycles



Regions & Biogeographical Cross-Cuts

Oceans and
Marine
Resources



Coasts,
Development,
and Ecosystems



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Assessment**

Draft NCA Report Findings

- Global climate is changing, and this is apparent across the U.S. in a wide range of observations. The climate change of the past 50 years is due primarily to human activities, predominantly the burning of fossil fuels.
- Some extreme weather and climate events have increased in recent decades, and there is new and stronger evidence that many of these increases are related to human activities.
- Human-induced climate change is projected to continue and accelerate significantly if emissions of heat-trapping gases continue to increase.



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Assessment**

Draft NCA Report Findings

- Impacts related to climate change are already evident in many sectors and are expected to become increasingly challenging across the nation throughout this century and beyond.
- Climate change threatens human health and well-being in many ways, including impacts from increased extreme weather events, wildfire, decreased air quality, diseases transmitted by insects, food, and water, and threats to mental health.



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Draft NCA Report Findings

- Infrastructure across the U.S. is being adversely affected by phenomena associated with climate change, including sea level rise, storm surge, heavy downpours, and extreme heat.
- Reliability of water supplies is being reduced by climate change in a variety of ways that affect ecosystems and livelihoods in many regions, particularly the Southwest, the Great Plains, the Southeast, and the islands of the Caribbean and the Pacific, including the state of Hawai`i.



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Draft NCA Report Findings

- Adverse impacts to crops and livestock over the next 100 years are expected. Over the next 25 years or so, the agriculture sector is projected to be relatively resilient, even though there will be increasing disruptions from extreme heat, drought, and heavy downpours. U.S. food security and farm incomes will also depend on how agricultural systems adapt to climate changes in other regions of the world.
- Natural ecosystems are being directly affected by climate change, including changes in biodiversity and location of species. As a result, the capacity of ecosystems to moderate the consequences of disturbances such as droughts, floods, and severe storms is being diminished.



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Draft NCA Report Findings

- Life in the oceans is changing as ocean waters become warmer and more acidic.
- Planning for adaptation (to address and prepare for impacts) and mitigation (to reduce emissions) activities is increasing, but progress with implementation is limited.



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Review of Draft Third NCA Report

Draft report:

<http://ncadac.globalchange.gov>

Comments **MUST** be submitted via the online comment tool

Main NCA page:

<http://assessment.globalchange.gov>

- Public comment period: January 14 – April 12, 2013
- Town hall meetings in each of the eight geographic regions
- Sessions at several professional society meetings prior to and during comment period
- Review by National Research Council panel
- Review comments are an important part of the process of producing a credible and relevant report



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**National Climate
Assessment**

Southeast Chapter Writing Team

Convening Lead Authors

- Lynne M. Carter, Louisiana State University (climate impacts)
(LA for Adaptation, FAC for NCA)
- James W. Jones, University of Florida (climate, agriculture)

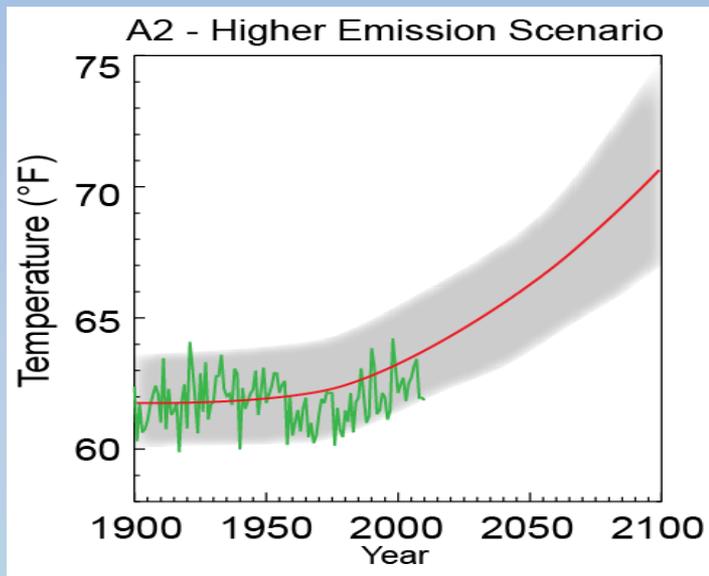
Lead Authors

- Leonard Berry, Florida Atlantic University (built environment)
- Virginia Burkett, U.S. Geological Survey (ecosystems)
- James F. Murley, S. FL Regional Planning Council (policy/energy/econ)
- Jayantha Obeysekera, South Florida Water Mngt District (water)
- Paul J. Schramm, Ctrs for Disease Control and Prevention (human health)
- David Wear, U.S. Forest Service (forests)

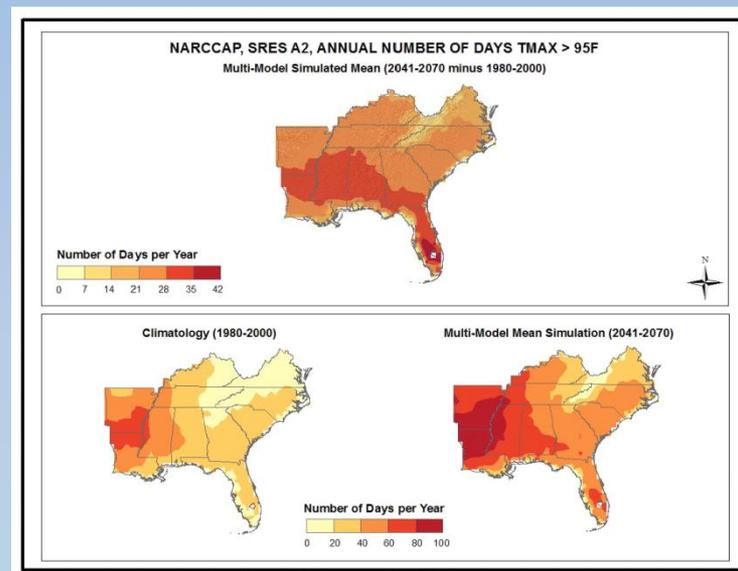
Many others contributed technical documents

Average Annual Temperature for the SE USA

Simulations of future temperatures vary over the SE region from about 10 °F higher in interior states to 2 to 4 °F in the Caribbean, with a regional average range of 2 to 6 °F



Average annual temperatures for the SE region from observations (green) and from all available CMIP3 global climate model simulations (red - average and grey – 5% and 95% limits)



Under the higher emissions trends (A2) scenario, projected annual number of days greater than 95 °F for 2041-2070, in comparison with historical values during 19890-2000 (lower left figure)

Three key Messages for the SE Region

- **Sea level rise** poses widespread and continuing threats to both natural and built environments, as well as the regional economy.
- **Rising temperatures** and the associated increase in frequency, intensity, and duration of extreme heat events will affect public health, natural and built environments, energy, agriculture, and forestry.
- **Decreased water availability**, exacerbated by population growth and land-use change, will continue to increase competition for water and impact the region's economy and unique ecosystems.



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What will happen to the comments?

- Comments will be sorted by chapter and provided to the authors
 - Although commenters must identify themselves in the online form, their identity will not be provided to the authors or review editors during the response period
- Authors and NCADAC will prepare responses
 - All comments will be responded to
- Changes will be made to the draft document
- Review editors will assess the adequacy of the responses
- The National Research Council will review the revised document and evaluate the adequacy of responses
- A revised draft report will be prepared for review and approval by the NCADAC
 - The document will be submitted for US Government review, then will be considered for submittal to Congress as the government's response to the GCRA requirements
- Comments and responses will be publicly available



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Thank you!

For more information:

<http://assessment.globalchange.gov>

- OR -

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Engagement Coordinator

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