U.S. Global Change Research Program
National Climate Assessment

http://assessment.globalchange.gov

The National Climate Assessment: Data Needs for Assessments, Indicators and Adaptation

NOAA Climate Data Records Conference

August 1, 2012

Kathy Jacobs

Director, National Climate Assessment

Assistant Director for Climate Assessments and Adaptation, OSTP

US Global Change Research Program

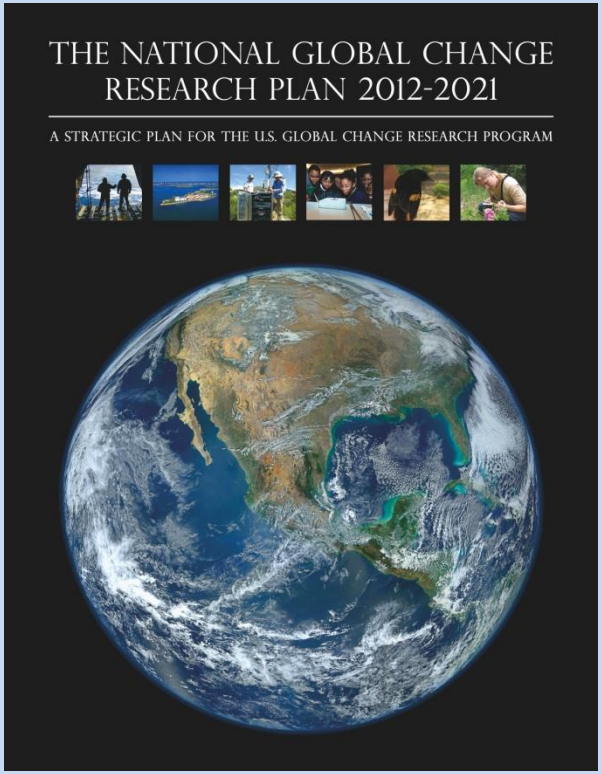
GCRA Mandate:

"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

U.S. Global Change Research Program
National Climate Assessment

The USGCRP Strategic Plan 2012-2021



More information at:
http://www.globalchange.gov

Goals:

Advance Science
Inform Decisions
Sustained Assessments
Communicate and Educate

United States Global Change Research Program

U.S. Global Change Research Program
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.

U.S. Global Change Research Program
National Climate Assessment

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.

U.S. Global Change Research Program
National Climate Assessment

Goals for the 2013 National Climate Assessment and the Sustained Process

- **Sustainable process** with multiple products over time
- New topics, **cross-sectoral studies, risk-based framing**
- Consistent national matrix of **indicators**
- Central coordination, multiple **partners**
- Regional and sectoral **networks** building assessment **capacity**
- Recognizes **international context**
- Engagement and communications focus
- Web-based data and **tools for decision support**
- Process workshops to establish **methodologies**

U.S. Global Change Research Program
National Climate Assessment

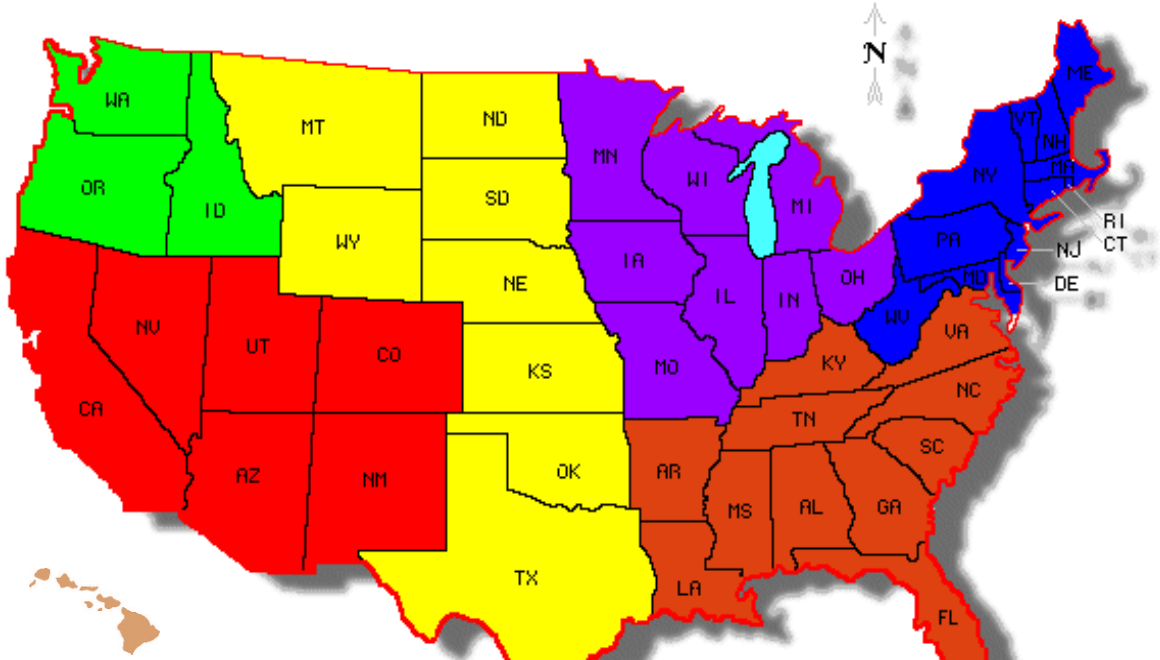
Sectors

- Water resources
- Energy supply and use
- Transportation
- Agriculture
- Forestry
- Ecosystems and biodiversity
- Human health

U.S. Global Change Research Program
National Climate Assessment

Regions

- Northeast
- Southeast and Caribbean
- Midwest
- Great Plains
- Northwest
- Southwest
- Alaska and Arctic
- Hawaii and Pacific Islands



+ Guam, Northern Mariana Islands, American Samoa and other minor outlying islands

+ Puerto Rico and US Virgin Islands

U.S. Global Change Research Program
National Climate Assessment

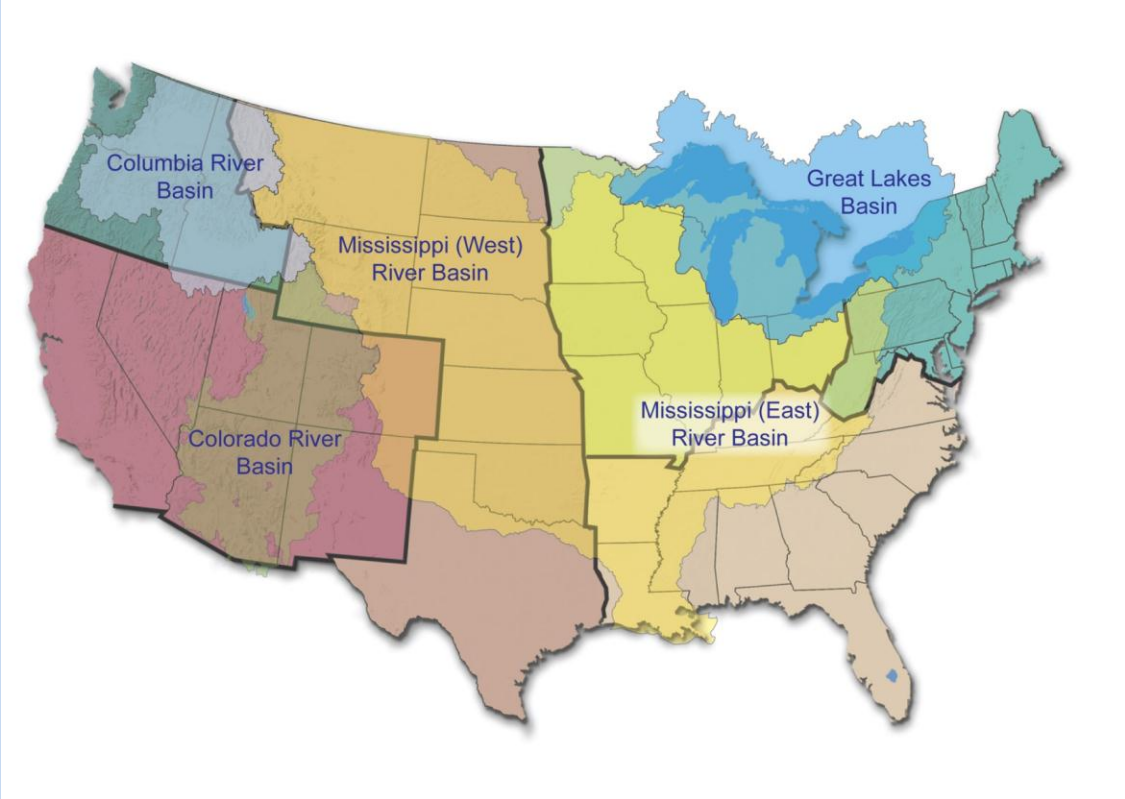
Sectoral Cross-Cuts

- Water, energy, and land use
- Urban/infrastructure/ vulnerability
- Impacts of climate change on tribal, indigenous, and native lands and resources
- Land use and land cover change
- Rural communities and development
- Impacts on biogeochemical cycles

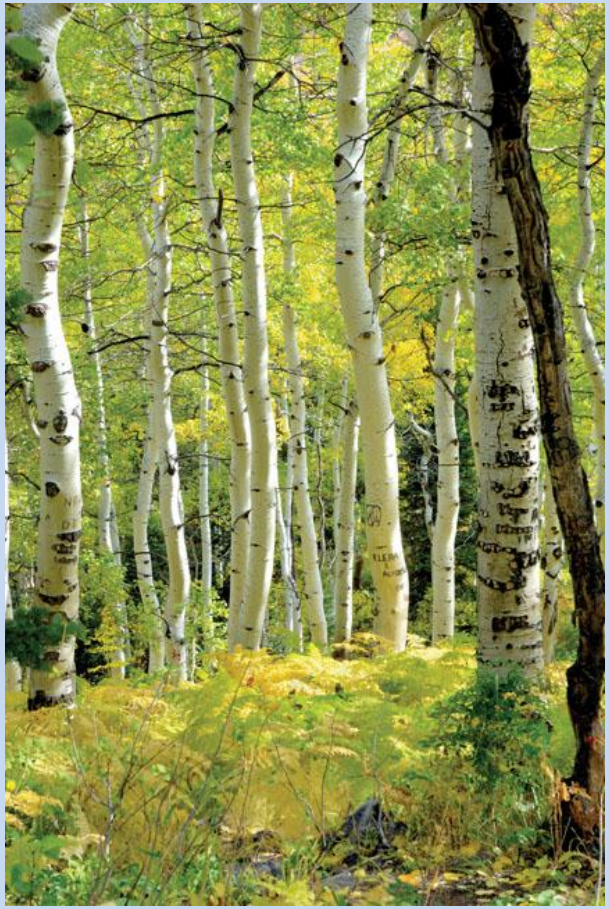
U.S. Global Change Research Program
National Climate Assessment

Biogeographical Cross-Cuts

- Oceans and marine resources
- Coastal zone, development, and ecosystems, e.g.,
  - SF Bay Delta
  - Chesapeake Bay
  - Gulf Coast
- Watersheds, e.g.,
  - Great Lakes
  - Colorado River
  - Columbia River



Building the Infrastructure: NCADAC Working Groups



1. Scenarios and Regional Summaries
2. Engagement and Communication
3. Regional Coordination /Sustained Assessment
4. Sectoral Coordination/Sustained Assessment
5. Report Integration Team
6. Adaptation, Mitigation and Decision Support
7. Indicators Development and Evaluation
8. International Implications
9. Sustained Process and Evaluation

---

10. Global Change Information System

U.S. Global Change Research Program
National Climate Assessment

Details on Contributions:
1) Global Change Information System (GCIS)

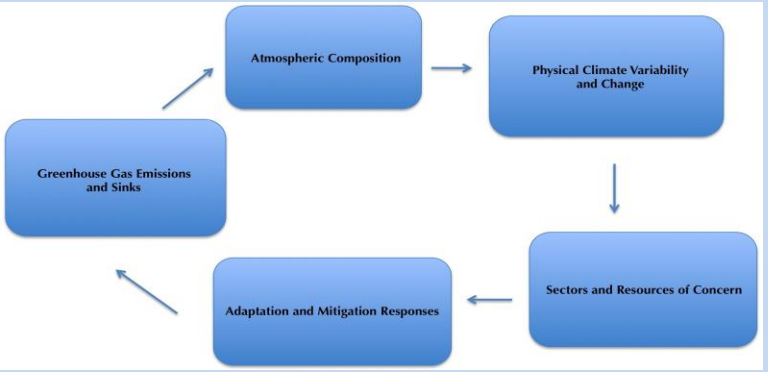
The NCA GCIS pilot will be phase I of the USGCRP-GCIS:

- Provide a user experience that is engaging;
- Enable users to find data and information without knowing the source in advance;
- Link direct output of the Government science, assessment and data enterprise with users at multiple scales (linking science to service);
- Enhance transparency of conclusions;
- Ensure traceability and appropriate metadata so that sources of derived information and statements are available to those who want it;
- Links information to decision support tools;
- Includes indicators, scenarios and other source material and related resources.

2) Indicators

The goals for the NCA indicators are to:

- Provide meaningful, authoritative climate-relevant measures about the status, rates, and trends of key physical, ecological, and societal variables and values to inform decisions on management, research, and education at regional to national scales;
- Identify climate-related conditions and impacts to help develop effective mitigation and adaptation measures; and
- Provide analytical tools to support user communities.



U.S. Global Change Research Program
National Climate Assessment

2) Indicators

Design Criteria
(to the extent possible):

- Multiple audiences
- Current and leading indicators
- Scalable indicators
- Build on or augment existing efforts
- Scientifically defensible

Process for Establishing Indicators:

- Engage stakeholders (producers and users) from development to implementation to evaluation
- Identify stakeholders diverse institutions
- Start with the questions to be addressed by indicators
- Prototype indicators to establish priorities for implementation
- Evaluate the system

U.S. Global Change Research Program
National Climate Assessment

2) Indicators

- How do we know that climate is changing and how is climate projected to change in the future?
- What important climate impacts and opportunities are occurring or are predicted to occur in the future?
- How are we preparing for rapid change or extreme events related to climate?
- How are we adapting and mitigating over longer time frames?
- What are our fundamental vulnerabilities and resiliencies to climate variability and change?

3) Scenarios of the Future

- Climate
- Sea level change
- Land use
- Socioeconomic

U.S. Global Change Research Program
National Climate Assessment

Coming soon: Participatory Scenario Planning

4) NCAnet: Partners in Assessment

- A network of organizations that extend the NCA process and products
- Building long-term capacity to conduct and use assessments
- Cultivating partnerships with organizations that will participate in the sustained assessment process

50 organizations so far
https://sites.google.com/a/usgcrp.gov/nca-net

U.S. Global Change Research Program
National Climate Assessment

5) Phase I of Regional Coordination of Science and Services:

Better access to information at regional and local scales

U.S. Global Change Research Program
National Climate Assessment

An Activity of the Interagency Climate Change Adaptation Task Force
Phase 1: Regional Hubs for the NCA

Adaptation Challenges

from ACC Adapting to the Impacts of Climate Change

- Uncertainties in estimating the nature, timing and magnitude of climate impacts
- Tendency to focus on trends rather than extremes, and ignore the potential for abrupt change
- Attribution issues: trends vs. variability
- Lack of data regarding costs and benefits of alternative adaptation options at multiple scales
- Lack of science translation capacity

U.S. Global Change Research Program
National Climate Assessment

NCA Data Needs

- Benchmark mature data sets that will underpin the climate science conclusions
- Projections (including downscaled projections) relating to deliberately-chosen emission scenarios or 'plausible futures'
- Regional and sectoral datasets that relate to impacts (like flood or drought impact info)
- Indicators - some already well established and some based on monitoring 'new' information (e.g. response actions)
- Immature datasets that will not be used to support key conclusions but are nonetheless essential for relevance (e.g. case studies or adaptation information not yet “mainstreamed”

U.S. Global Change Research Program
National Climate Assessment

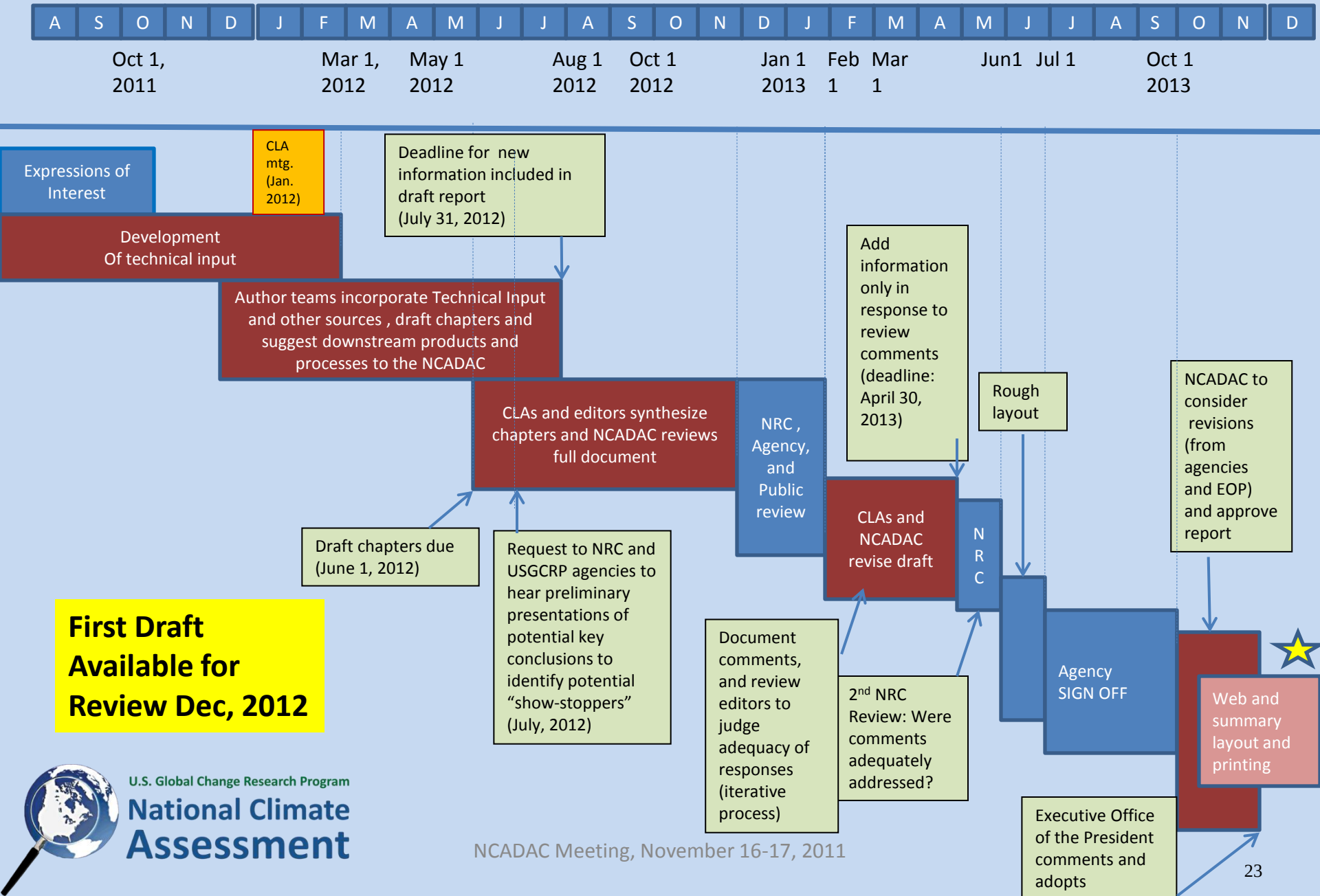
NCA Data Traceability

- Traceable accounts for all key findings
- The NCA has a dedicated data manager (at the NCA TSU in Asheville - Ana Pinheiro Privette)
- There is a commitment to accessibility and metadata about all key datasets (and most of the non-key ones as well) through the GCIS
- This effort demonstrates the credibility of the sources and process
- And will enable stakeholders to take our information and apply it in their own context.

NCA Communications: Beyond the Loading Dock

- A commitment to present the material with accuracy and utility for non-specialists.
- Multiple access paths with associated tools…
- Multi-media releases (website, ebook, videos, summary and possibly an experimental app to make the summary even more accessible).
- 3 dedicated editors, and a couple of graphics people working on illustrations and visualizations; visualization assistance from NASA.
- Professional help is required to make it usable no matter how good we are at getting good datasets in the first place.

2013 Report Production Timeline



U.S. Global Change Research Program
National Climate Assessment