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NEWSLETTER OF THE U.S. GLOBAL CHANGE RESEARCH PROGRAM & NATIONAL CLIMATE ASSESSMENT

United States Global Change Research Program

U.S. Global Change Research Program National Climate Assessment

The National Climate Assessment (NCA) community is pleased to report a major accomplishment this month, the approval of the first special report of the NCA and Development Advisory Committee (NCADAC). The Sustained Assessment Special Report (see below) provides advice to the government on how to sustain the assessment itself. This is viewed by many members of the NCADAC as the most important contribution of their tenure on the committee, since building a sustainable approach to the NCA has historically proven very challenging for a variety of reasons.

Another important event was the close of the final comment period for the draft Third NCA Report prior to its delivery to the government. NCADAC members and 16 federal agencies provided a total of 1,215 comments. The staff is now working with editors, convening lead authors, and members of the NCADAC to carefully review every comment and decide on final changes to the document prior to delivery to the federal government at the end of October. We are also selecting photographs for the chapters and editors and authors are preparing a summary "Highlights" document.

The National Research Council held a meeting of its Committee to Review the NCA on August 28, and concluded that although there were still many minor improvements that could be made, that the NCADAC had been responsive to their published review of the NCA draft. Their remaining comments will be considered by the authors of the 30 chapters along with the agency and NCADAC comments.

SUSTAINED ASSESSMENT SPECIAL REPORT

At their September 9 meeting, the National Climate Assessment and Development Advisory Committee (NCADAC) approved a special report, *Preparing the Nation for Change: Building a Sustained National Climate Assessment Process* (see the NCADAC-approved draft here). The report responds to the requirement of the NCADAC's charter to provide advice and recommendations toward the development of an ongoing, sustained national assessment of global change impacts and adaptation and mitigation strategies for the nation. NCADAC members and Convening Lead Authors James L. Buizer (University of Arizona), Paul Fleming (Seattle Public Utilities), and Sharon Hays (Computer Sciences Corporation) led a team of five Lead Authors and five Contributing Authors in developing the report.

The report provides a vision for a sustained assessment in a dynamic landscape and concludes that a sustained assessment process is better able than periodic assessment reports to support the legal mandate to integrate, evaluate, assess the findings of the U.S. Global Change Research Program and respond to the challenges of natural and human-induced global change. Specific recommendations are grouped into four critical elements:

- Establish mechanisms to support enduring collaborative partnerships that sustain assessment activities;
- Enhance and organize the scientific foundations for managing the risks and opportunities of climate change;
- Provide infrastructure to support a sustained assessment process; and
- Diversity the resource base and set priorities.

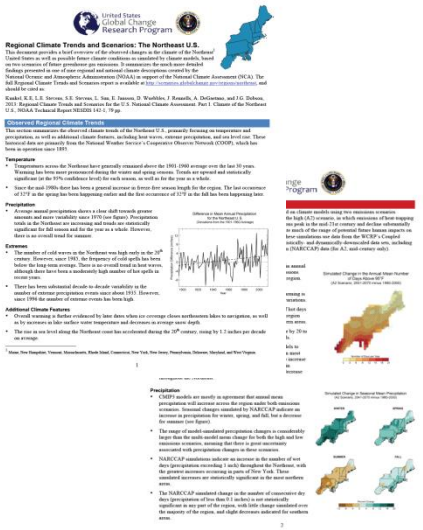
Once the report is officially received by the government, there will be efforts to evaluate each of the recommendations and decide on implementation priorities.

NEW SCENARIOS EXPLORE HOW A SHIFTING CLIMATE MAY IMPACT U.S.

In January, USGCRP released a web resource housing a suite of scenarios for climate, sea level rise, land use and land cover, and other conditions. Since then, we've been working to make the scenarios more accessible for a variety of audiences. Here are some recent products:

Regional summaries of climate trends and scenarios

A set of reports outline recent changes in climate – and projected future changes under a high and a low emissions scenario – for each of the eight NCA regions and for the nation as a whole. These are the first peer reviewed, consistent national scenarios of change within U.S. regions ever produced, and average around 80 pages each. They were used as a basis for the regional chapters of the full NCA report (due for release next spring). Two-page summaries of these reports focus on changes in temperature and precipitation and look at additional climate features, such as heat waves and precipitation, for the Northeast, Southeast, Midwest, Great Plains, Northwest, Southwest, Alaska, Pacific Islands, and the contiguous U.S.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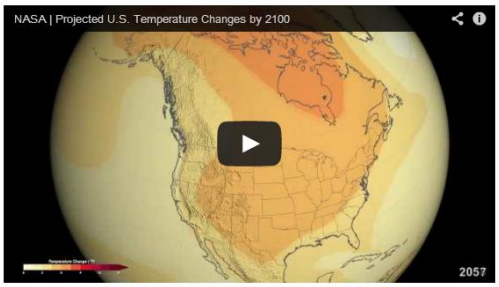
Regional Climate Trends and Scenarios: The Northeast U.S.

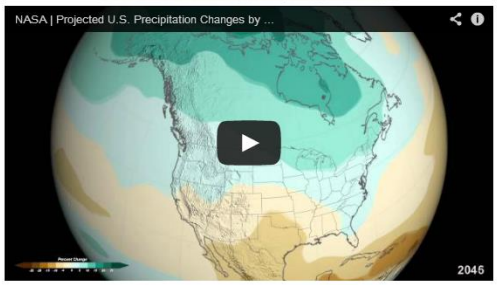
The reports detail past trends in temperatures (generally rising) for the U.S. and discuss regional differences, such as Southeast, which has not yet experienced significant warming. The contiguous U.S. has seen increases in overall annual precipitation and a larger number of extreme weather events including heat waves, droughts, and intense precipitation. "The historical climate conditions are meant to provide a perspective on what has been happening in each region, and what types of extreme events have been noteworthy, to provide a context for assessing future impacts," said lead author Dr. Kenneth E. Kunkel, NOAA and Cooperative Institute for Climate and Satellites – North Carolina (CICS-NC).

Future projections (two for each region) explore possible outcomes based upon selected high- and low-emissions scenarios generated by the Intergovernmental Panel on Climate Change (IPCC). The "higher emissions" scenario represents a fossil-fuel-intensive future in which concentrations of atmospheric CO_2 exceed 800 ppm by the year 2100. The "lower emissions" scenario represents a less fossil-fuel-intensive future in which atmospheric CO_2 concentrations level off at around 550 ppm by 2100. (The global CO_2 concentration exceeded 400 ppm for the first time in 2013).

"Readers may find it interesting to see the potential impacts of the two different emissions scenarios on the climate of the region where they live," said co-author Laura E. Stevens of NOAA's CICS-NC. According to simulations of future conditions, period of extreme heat are expected to become more frequent, with an increasing number of days over 95°F. Additionally, average annual precipitation will generally increase in the north, but decrease in the Southwestern U.S.

New NASA visualizations show temperature and precipitation projections under high and low emission scenarios





NASA recently released visualizations showing projections of Earth's temperature and precipitation patterns from today through the year 2100, revealing how "low" versus "high" emission scenarios would impact the planet's climate. The visualizations show significant warming in both scenarios; the projected average temperature change over the contiguous U.S. in the higher emissions scenario is nearly twice what is projected in the lower emissions scenario— 8°F (versus 4.5°F). Nationwide, changes in precipitation are expected to occur under both scenarios, but be more dramatic in the higher emissions scenario—with many dry areas getting dryer, while wet areas get wetter.

The NASA Goddard Scientific Visualization Studio (SVS) developed the animations in collaboration with NOAA's National Climatic Data Center, and the Cooperative Institute for Climate and Satellites – North Carolina. To develop these complex animations, scientists used results from 15 global climate models and data on monthly temperature and precipitation in the U.S. to generate maps of projected conditions through the year 2100.

USGCRP WELCOMES NEW DEPUTY EXECUTIVE DIRECTOR

Dr. Chris Weaver, who has been on detail to USGCRP from EPA since early 2012 to oversee the coordination of the program's research activities across its 13 member agencies, was recently named the USGCRP Deputy Executive Director. In this new role, Chris will be working with OSTP and the USGCRP agencies, along with other partners, to promote the collaboration and coordination needed to meet the mandates of the USGCRP decadal Strategic Plan and the President's Climate Action Plan. In addition to these new management responsibilities, Chris will continue to serve as the lead scientist in the USGCRP National Coordination Office.

Chris' background is as a climate scientist, with a Ph.D. from the Scripps Institution of Oceanography. His research has focused on the role of clouds in the climate system, terrestrial water cycle dynamics, the impacts of land-use change on atmospheric processes, and the challenge of climate-related uncertainty in decision support. Prior to joining the EPA in 2005, he was on the faculty of the Department of Environmental Sciences at Rutgers University, where he was also the Associate Director of the Center for Environmental Prediction.

GREENGOV WORKSHOP PROMOTES CLIMATE SCIENCE AND ADAPTATION PLANNING

On August 2nd, The White House Council on Environmental Quality and USGCRP co-hosted a GreenGov workshop to discuss Federal agency climate science needs. The workshop provided a forum for the Federal community to discuss the new 2013 Agency Climate Adaptation Plans and help plan a path forward.

The event showcased climate science and adaptation best practices and provided tools and information to educate agencies about what techniques and strategies have been successful and what tools are already available. "Participants joined breakout sessions that featured short talks about vital climate change resources that are available, giving it a speed dating type atmosphere," said Emily Seyller, who coordinates USGCRP's Inform Decisions and Adaptation Science programs. "In addition, the workshop helped identify gaps in adaptation plans, so agencies can collaborate to fulfill these needs."

Highlights of the resources presented included:

- The USGCRP Adaptation Science Interagency Workgroup reviewed the FY13 Agency Climate Change Adaptation Plans to identify common themes across the agencies on adaptation research and information needs. A report outlining the most common research and information needs for adaptation across the Federal government is available here and a summary of the top three adaptation research and information needs is available here.
- The Environmental Protection Agency's (EPA) Climate Ready Water Utilities (CRWU) initiative helps water utility owners and operators better prepare their systems for the impacts of climate change.
- The Integrated Sea Level Rise Tool for Sandy Recovery helps local officials and community planners understand possible future flood risks from sea level rise to make better city planning decisions.
- The Centers for Disease Control and Prevention's (CDC) National Environmental Public Health Tracking Network, a system of integrated health, exposure, and hazard information, promotes adaptation to the health impacts of climate change, relating to factors such as extreme heat.

View the PDF presentation from the GreenGov opening remarks here. Click here to view the full list of presentations.

The U.S. Global Change Research Program (USGCRP) coordinates and integrates federal research on changes in the global environment and their implications for society. The USGCRP began as a presidential initiative in 1989 and was mandated by Congress in the Global Change Research Act of 1990(P.L. 101-606), which called for "*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*."

The National Climate Assessment is being conducted under the auspices of the Global Change Research Act of 1990, which requires a report to the President and the Congress that evaluates, integrates and interprets the findings of the USGCRP every four years. The NCA aims to incorporate advances in the understanding of climate science into larger social, ecological, and policy systems, and with this provide integrated analyses of impacts and vulnerability, helping the federal government prioritize climate science investments, and helping to provide the science that can be used by communities around our Nation try to create a more sustainable and environmentally-sound plan for our future.