



EXAMPLES of NOAA PROGRAMS and PRODUCTS

Sectoral Applications Research Program (SARP)

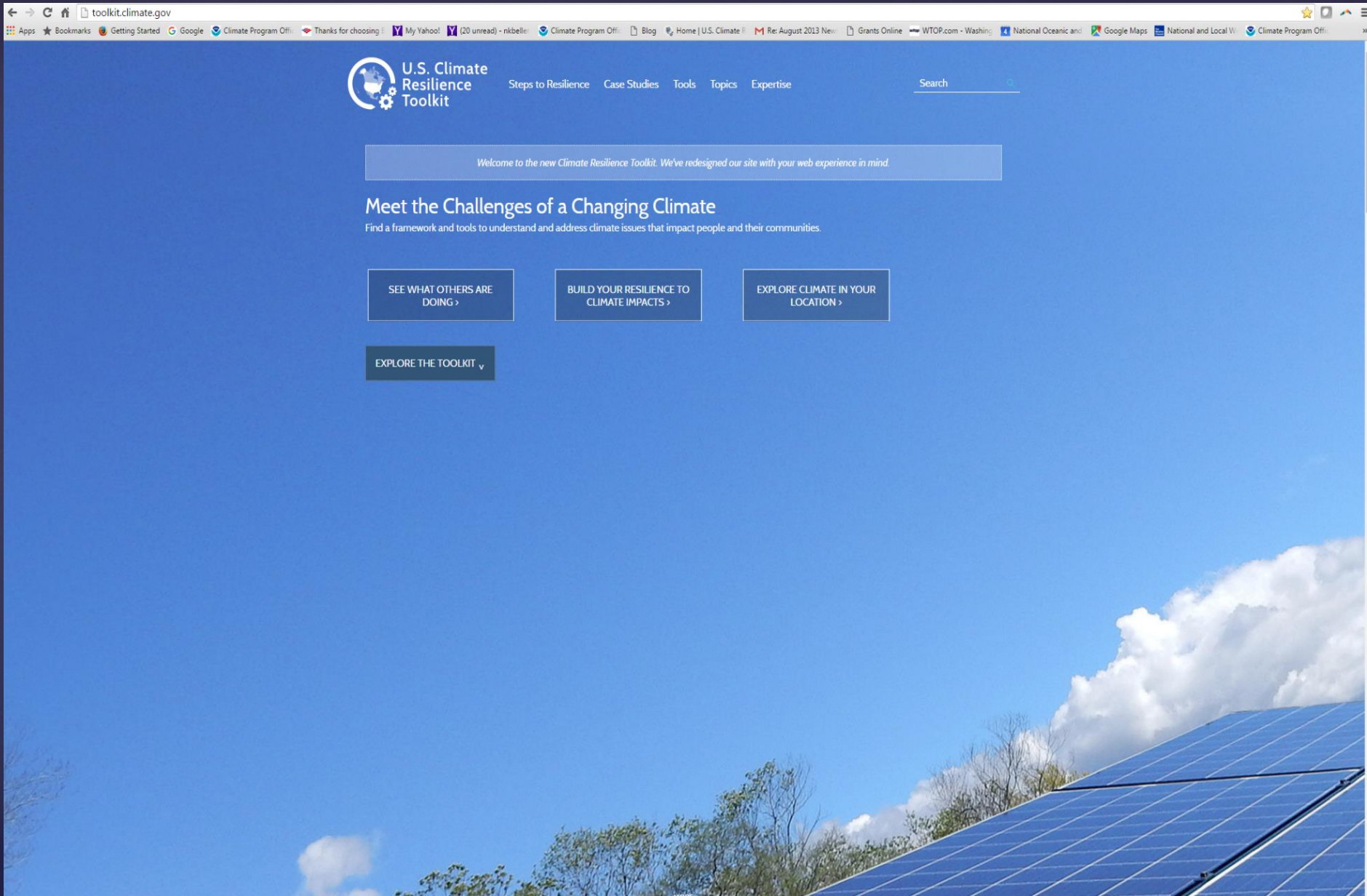
Jim Schwab, Am Planning Assoc: Incorporating Local Climate Science to Help Communities Plan for Climate Extremes

Marsha Shulski, U NE: Increasing the Capacity for Municipal Climate Adaptation Planning the Lower Missouri River Basin States

Christine Kirchoff, U CT: From Precipitation Threshold Identification in Planning: Helping Communities Plan and Adapt to Future Extreme Events

Zhaoqing Yang, PMML: Competing Water Use in the Face of Climate Change: Integrated Analysis to Support Water Resource Planning for Extreme Events

Edwin Welles, Deltares USA: Critical Infrastructure and Future Flood Resilience in South Florida: Developing Methods for Direct and Indirect Flood Impact



<http://toolkit.climate.gov/>

TOPICS



ARCTIC ›



COASTS ›



ENERGY ›



HEALTH ›



TRANSPORTATION ›



WATER ›



BUILT ENVIRONMENT ›



ECOSYSTEMS ›



FOOD ›



MARINE ›



TRIBAL NATIONS ›



Built Environment

Cities and towns are vulnerable to sea level rise, heavy downpours, and extreme heat. Cooperative efforts of local government agencies and the private sector can promote adaptation by integrating physical resilience, social resilience, and nature-based solutions.

[Topics](#) > [Built Environment](#) >

Key points:

- *The impacts of extreme weather, climate, and other hazardous events are felt particularly acutely in cities and towns.*
- *Ensuring the resilience of built environment systems takes collaboration among all interested stakeholders before, during, and after extreme events and disasters.*
- *Stressors such as economic inequality and environmental degradation, coupled with deteriorating public infrastructure, can make some communities more vulnerable to extreme weather and climate change than others.*
- *Building resilience by investing in physical adaptation efforts and/or utilizing nature-based solutions can provide co-benefits for a range of challenges, including climate mitigation.*

When extreme weather, climate, and other hazardous events occur, the most obvious and costly impacts are to the built environment. Protecting the structures, infrastructure systems, and natural spaces within our cities, towns, and communities is a key focus of resilience efforts across the public and private sectors.

Americans' everyday lives are shaped by and dependent upon our built environment. From the buildings where we live, work, and shop to open spaces and urban tree canopies that provides shade and ecosystem benefits to the equipment and connections of underlying systems that keep the lights on, water flowing, and internet humming, we are all dependent on complex systems that most people rarely consider.

In the face of climate change and other stresses, though, the continued functioning of these systems will require a greater level of attention. Ensuring that these systems are resilient—that they are resistant to

Browse Topics

✓ Built Environment

- Buildings and Structures
- Communications
- Community Resilience
- Disaster Planning
- Economics
- Energy
- Environment and Natural Resources
- Planning and Land Use
- Social Equity
- Transportation
- Water and Wastewater

> Coasts

> Ecosystems

> Energy

> Food

> Health

> Marine

> Transportation



Water

Variable precipitation and exposed water infrastructure pose increasing threats to municipal water supplies. Greater evaporation and earlier snowmelt increase the threat of seasonal drought. At the same time, increases in the frequency of heavy precipitation events increase the threat of flooding.

[Topics](#) > [Water](#) >

Key points:

- *In response to Earth's warming oceans and atmosphere, precipitation patterns are changing. Across the nation, the amount of rain falling in the heaviest precipitation events is increasing, and climate models suggest this trend will continue. Models also suggest total precipitation will increase in northern states and decrease in the Southwest.*
- *Based on results from climate models, scientists project an increase in the frequency of flooding along inland waterways in many areas of the United States.*
- *Models also indicate an increase in the length of dry periods across most of the United States. As higher temperatures lead to greater evaporation and earlier snowmelt, the threat of seasonal drought will increase. In some regions, changing conditions and increased demand will challenge the reliability of municipal water supplies.*
- *Water, energy, and land systems interact in many ways. Climate variability and change impact these systems and their interactions. The links between these systems mean they are susceptible to cascading effects from one system to the next, which in turn impacts communities and businesses.*
- *Decreases in the amount of water available to the natural environment pose threats to the viability of land and aquatic ecosystems.*

[Adapted from the Third National Climate Assessment](#)

Changes in the water cycle

Browse Topics

- › Built Environment
- › Coasts
- › Ecosystems
- › Energy
- › Food
- › Health
- › Marine
- › Transportation
- › Tribal Nations
- ✓ [Water](#)
 - Municipal Water Supply
 - Flooding
 - Drought
 - Ecosystems
 - Water Resources Dashboard



Tools

[Clear Filters](#)

Filter by topic: ▼

Filter by tool function: ▼

Tools are available to help you manage your climate-related risks and opportunities, and to help guide you in building resilience to extreme events. Browse the list below, or filter by topic and/or tool functionality in the boxes above. To expand your results, click the Clear Filters link.



AdaptMap Jamaica Bay

This online mapping tool for New York's Jamaica Bay allows users to compare and contrast historical, present day, and potential future landscapes against an array of sea level and storm tide scenarios.

[Read more >](#)



Advanced Hydrologic Prediction Service

This comprehensive suite of graphical forecast products shows a range of information on current and projected river levels for almost 4,000 stations in the contiguous United States.

[Read more >](#)



Agricultural Conservation Planning Framework (ACPF) Toolbox

This GIS toolset can help conservation planners, landowners, and researchers better manage watershed runoff while supporting agricultural production, as well as to identify appropriate locations for implementing conservation options in a watershed.

[Read more >](#)



AgroClimate—Tools for Managing Climate Risk in Agriculture

Interactive tools and climate information provide support to improve crop management decisions and reduce production risks associated with climate variability, climate change, and extreme weather events in the southeastern United States.

[Read more >](#)



Alaska and Northwestern Canada Quarterly Climate Impacts and Outlook

Each issue of this graphics-rich product describes weather and climate highlights from the previous quarter, and indicates the most likely temperature and precipitation conditions for the upcoming quarter.

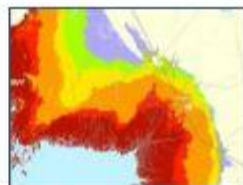
[Read more >](#)



Aquatic Connectivity Assessment and Prioritization Tool

Users in the North Atlantic—from Maine to West Virginia—can access this database and these tools to help identify bridges and culverts that impede aquatic connectivity.

[Read more >](#)



ASR Recovery Initiation Index

This spreadsheet-based tool provides guidance to water managers about when to begin recovery of water stored in underground aquifers.

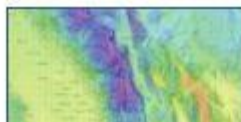
[Read more >](#)



Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans

Organizations that manage environmental resources can use this guide to prepare a broad, risk-based adaptation plan.

[Read more >](#)



Taking Action > Waterfront Restaurant Rebuilds to Remain Open Through Future Storms >



Waterfront Restaurant Rebuilds to Remain Open Through Future Storms

Property owners in New Jersey can check their vulnerability to sea level rise and storm surge using an interactive mapping tool—the NJ Flood Mapper. Here's how one restaurant owner used results from the tool in his long-term planning.

Subr

The l accompanied Hurricane Sandy in October 2012 flooded hundreds of businesses, forcing them to close. Faced with the loss of his income, restaurant owner Ivar Johnson's first reaction was to rebuild right away. His seaside restaurant, Panini Bay in Tuckerton, New Jersey, had been heavily damaged, and it seemed that reopening as quickly as possible was the best way to move forward. When his rebuilding got under way, however, Johnson learned that flooding due to storms was not the only threat to his seaside business. He learned that rising sea level was also a factor to consider.

Related Video: "After Sandy: Facing the Future" from Climate.gov



Considering the future Johnson's team examined FEMA's floodplain maps to learn about past flood conditions, and then consulted FEMA's Advisory Base Flood Elevation levels to consider the potential for future

flooding. Johnson also worked with a local expert, Lisa Auermillier of the Jacques Cousteau National Estuarine Research Reserve, to understand the vulnerabilities his restaurant faced

Steps to Resilience:

- [Step 1: Identify the Problem](#)
- [Step 2: Determine Vulnerability](#)
- [Step 3: Investigate Options](#)
- [Step 4: Evaluate Risks](#)
- [Step 5: Take Action](#)

Tools:

- [Sea Level Rise and Coastal Flooding Impacts Viewer >](#)
- [NJ Flood Mapper >](#)
- [Getting to Resilience >](#)
- [Sea Level Rise Tool for Sandy Recovery >](#)

Topic:

- [Coastal Flood Risk >](#)
- [Sea Level Rise >](#)
- [Coastal Flood Risk >](#)
- [Storm Surge >](#)

Additional Resources:

- [Climate.gov | After Sandy: Facing the Future >](#)

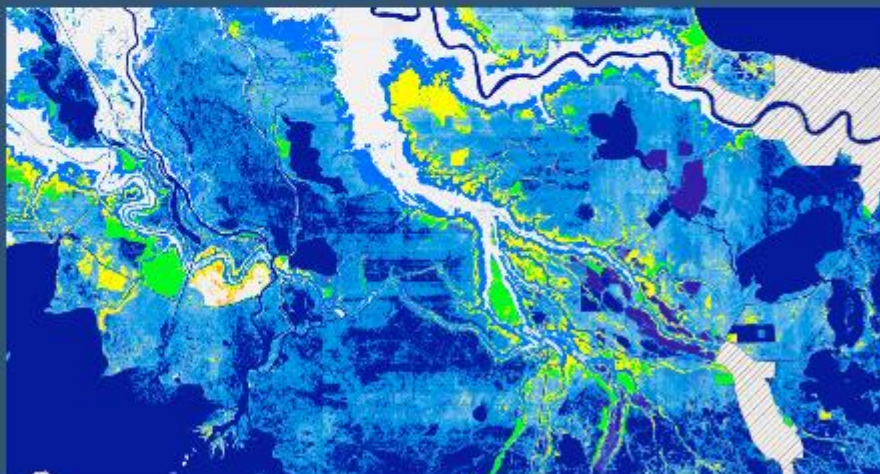
Partners:

- [Federal Emergency Management Agency \(FEMA\) >](#)



CLIMATE EXPLORER

This visualization tool provides interactive graphs and maps of climate projections and observations. It can display historical temperature and precipitation observations for hundreds of climate stations, and offers map layers of valued assets and climate threats.



LAUNCH THE CLIMATE
EXPLORER ›

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CLIMATE EXPLORER ›

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NEW YORK, NY

New York County

Graphs and maps below show observed and modeled data for the county of your selected location. Adjust the displays to focus on times or regions of interest.

JUMP TO:

Temperature

Precipitation

Other

Weather Stations



Chart: New York County

Mean Daily Maximum Temperature



How to read this



Images



Data



Temperature

Mean Daily Maximum Temperature

Annual

Monthly

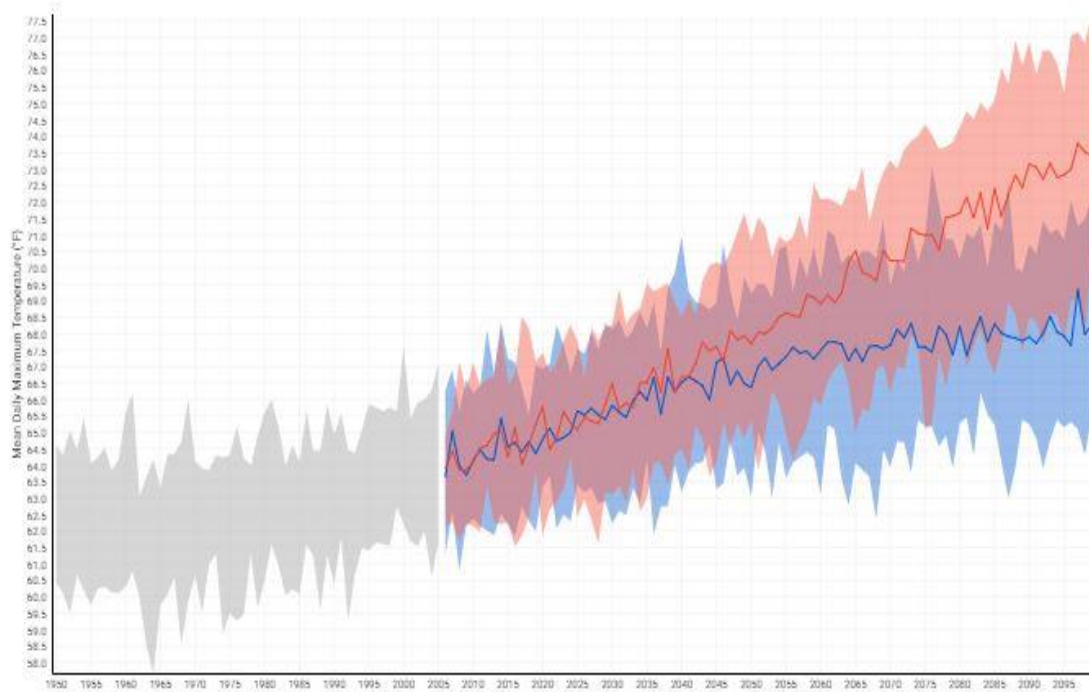
Seasonal

Mean Daily Minimum Temperature

Days with Maximum Above 95°F

Days with Minimum Below 32°F

Display: **Actual**



Water Resources Dashboard

Toolkit.climate.gov/topics/water-resources/water-resources-dashboard

Topics > Water Resources > Water Resources Dashboard >



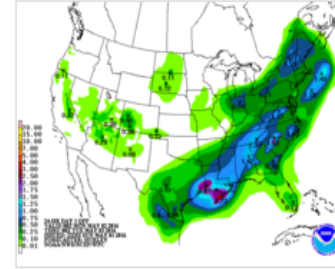
Water Resources Dashboard

Forecasts & Outlooks

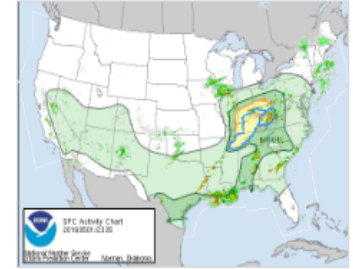


NWS Forecasts

View current conditions and



Quantitative Precipitation Forecasts



Storm Prediction Center

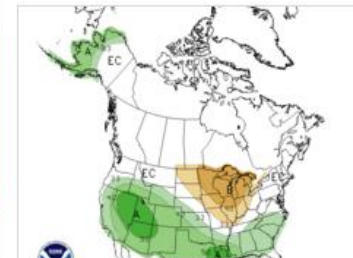
This site shows the chances for



Drought Outlook



Hazards Outlook



Precipitation Outlooks

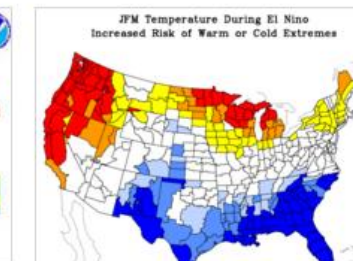


Tropical Weather Outlook

The National Hurricane Center



Probability of Exceeding a Precipitation Threshold



Increased Risk of Extremes related to ENSO states

**To be added to email list for
occasional information about
SARP**

or more information:

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