A Brief Overview of the U.S. Climate Resilience Toolkit

toolkit.climate.gov

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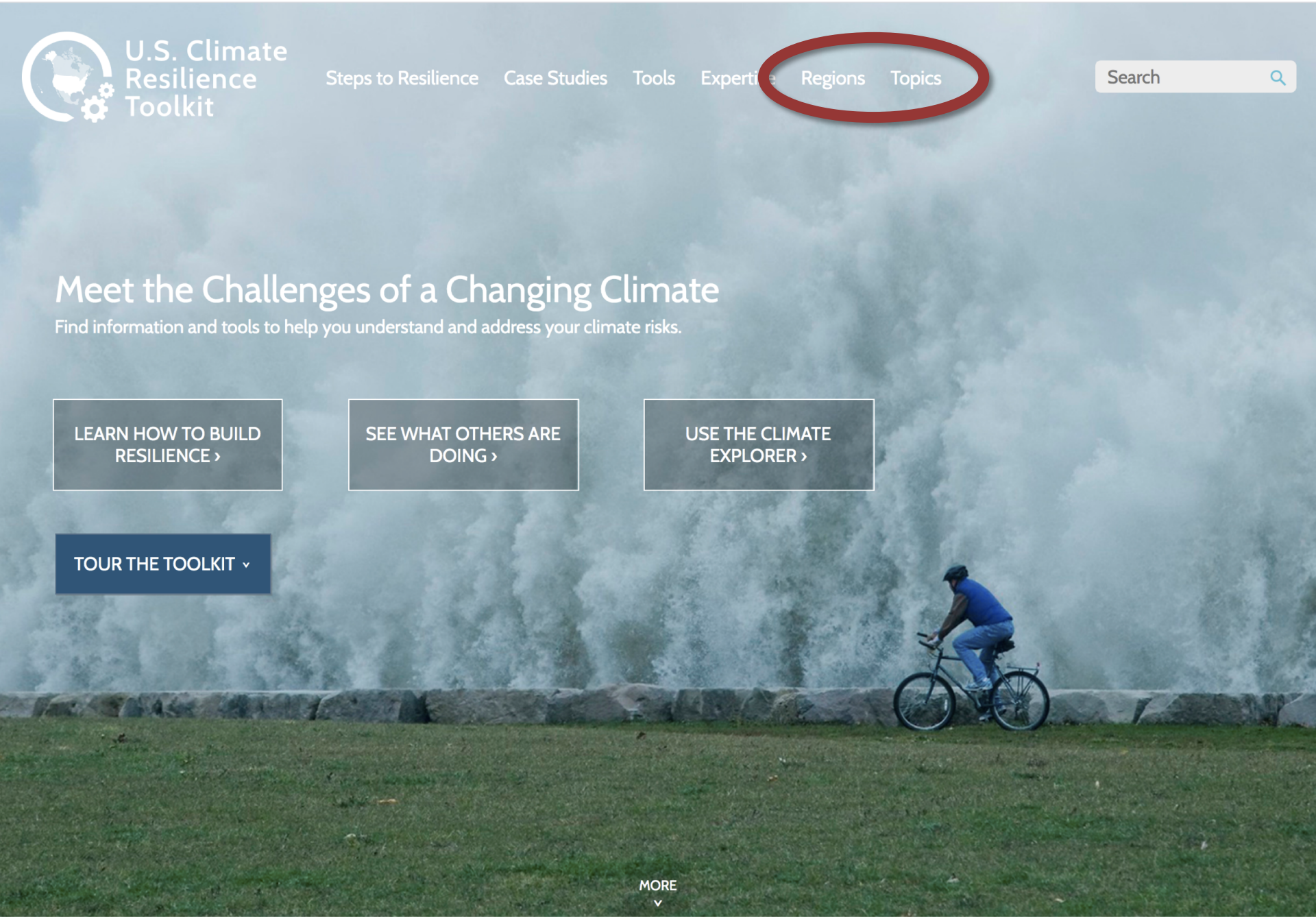
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REGIONS

ALASKA AND THE ARCTIC ›

GREAT LAKES ›

HAWAI'I AND PACIFIC ISLANDS ›

MIDWEST ›

NORTHEAST ›

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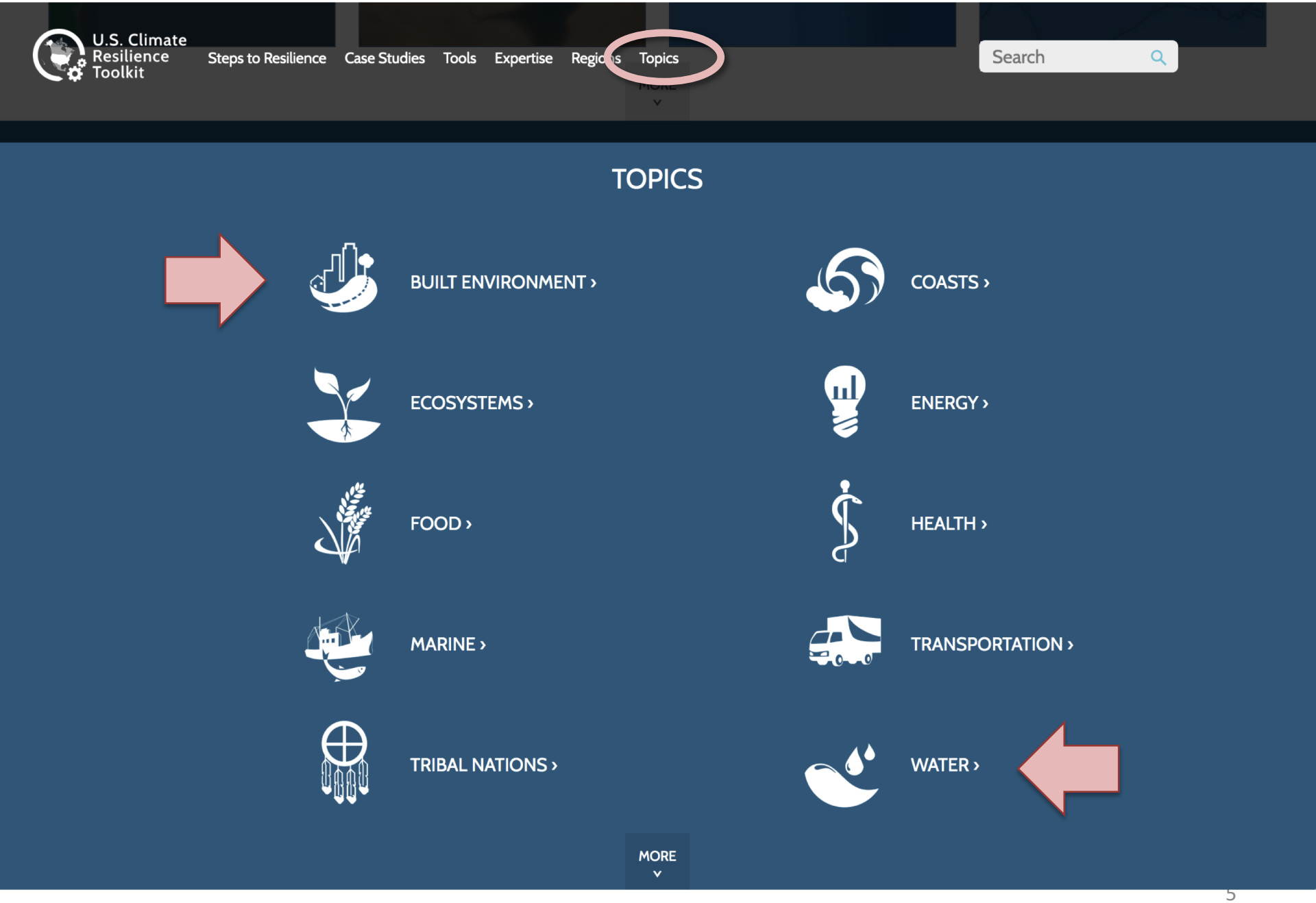
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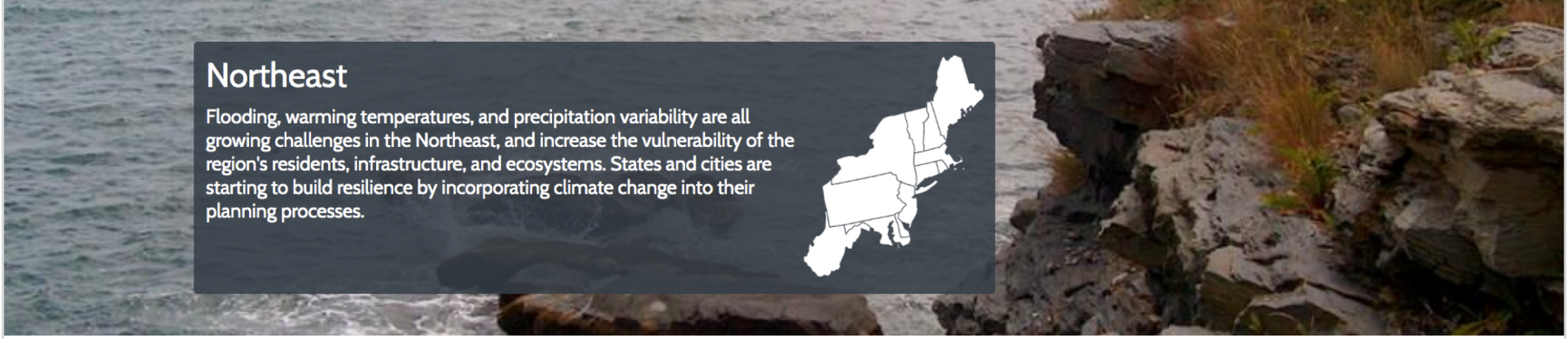


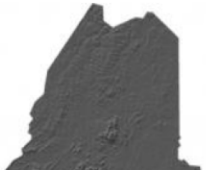
Northeast

Flooding, warming temperatures, and precipitation variability are all growing challenges in the Northeast, and increase the vulnerability of the region's residents, infrastructure, and ecosystems. States and cities are starting to build resilience by incorporating climate change into their planning processes.

Key Points:

- *Sea level along coastlines in the Northeast has risen approximately one foot since 1900—a rate that exceeds the global average. Due to local land subsidence in the region, the rate of sea level rise over the next century is expected to continue exceeding global levels.*
- *The Northeast has seen a greater increase in extreme precipitation than any other region in the United States: the amount of precipitation falling in very heavy events between 1958 and 2010 increased by more than 70 percent. The frequency of heavy downpours is projected to continue increasing as the century progresses.*
- *The frequency, intensity, and duration of heat waves in the region is expected to increase through the next century, while the frequency, intensity, and duration of cold air outbreaks is expected to decrease.*
- *Climate change impacts in the Northeast—including coastal and riverine flooding and heat waves—will challenge its environmental, social, and economic systems, increasing the vulnerability of its residents, especially its most disadvantaged populations.*
- *Public and private infrastructure in the Northeast—buildings, roads, rail lines, airport facilities, and ports—will be increasingly compromised by climate-related hazards over the next century, as will agriculture, fisheries, and ecosystems.*
- *Climate change risks are increasingly being incorporated into state and municipal planning processes; however, implementation of adaptation and resilience-building measures is just beginning.*

Adapted from the Third National Climate Assessment.



The Northeast region includes states ranging from New England to the Mid-Atlantic, encompassing Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia,

Northeast Regional Resources

View all Northeast Case Studies ›
View all Northeast Tools ›
View all Northeast Reports ›
View all Northeast Training Cours›
New England Federal Partners W›

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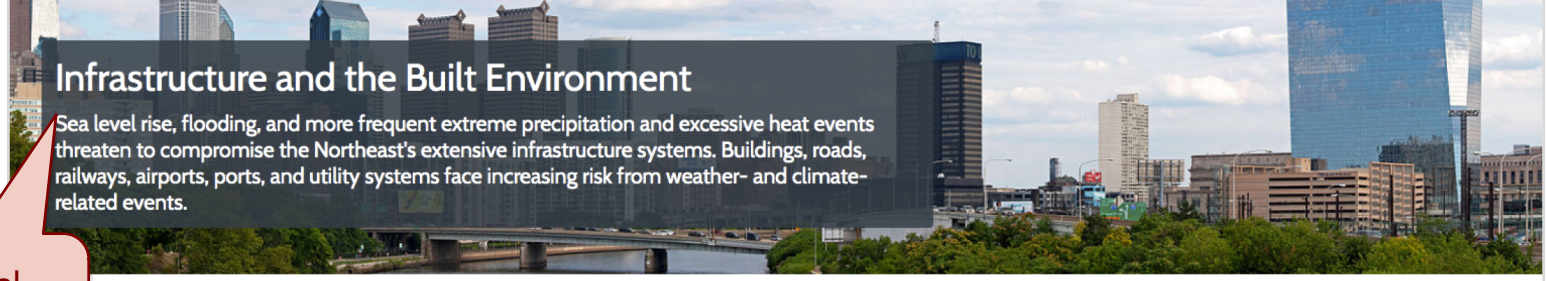
Summary messages

Reference

Narrative text

Complete set of all region's resources



Infrastructure and the Built Environment

Sea level rise, flooding, and more frequent extreme precipitation and excessive heat events threaten to compromise the Northeast's extensive infrastructure systems. Buildings, roads, railways, airports, ports, and utility systems face increasing risk from weather- and climate-related events.

Regional Subtopic

Narrative text

ensive built infrastructure present in the Northeast is increasingly challenged by weather- and e-related impacts. As a result of early settlement patterns, the region has some of the oldest buildings and facilities in the United States, much of it built along the region's coastline. These structures—as well as ergy, transportation, water, and sanitation systems that make up the regional built environment—were t to withstand the new conditions and extreme events projected to occur over the next century. ion of services that depend upon these systems can have a negative impact on public health and ith the potential for significant repercussions in the regional economy.

Manhattan suffered a widespread power outage during Hurricane Sandy.

Sea level in the Northeast has risen approximately one foot since 1900—a rate that exceeds the global average—and the rapid changes are increasing the risk for flooding in the region's coastal areas. Unless people take measures to adapt to new conditions, New York State could lose the use of 212 miles of roads, 77 miles of rail, 3,647 acres of airport facilities, and 539 acres of runways after regional sea level has risen by

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All relevant case studies

Case Studies

Addressing Water Supply Risks from Flood and Drought ›

Elevated Rehabilitation Facility Functions Flawlessly Through Hurricane Sandy ›

Exploring Adaptation Options for Water Infrastructure at Sea Level ›

Extreme Rainfall Analyses Can Point to Right Size for Culverts ›

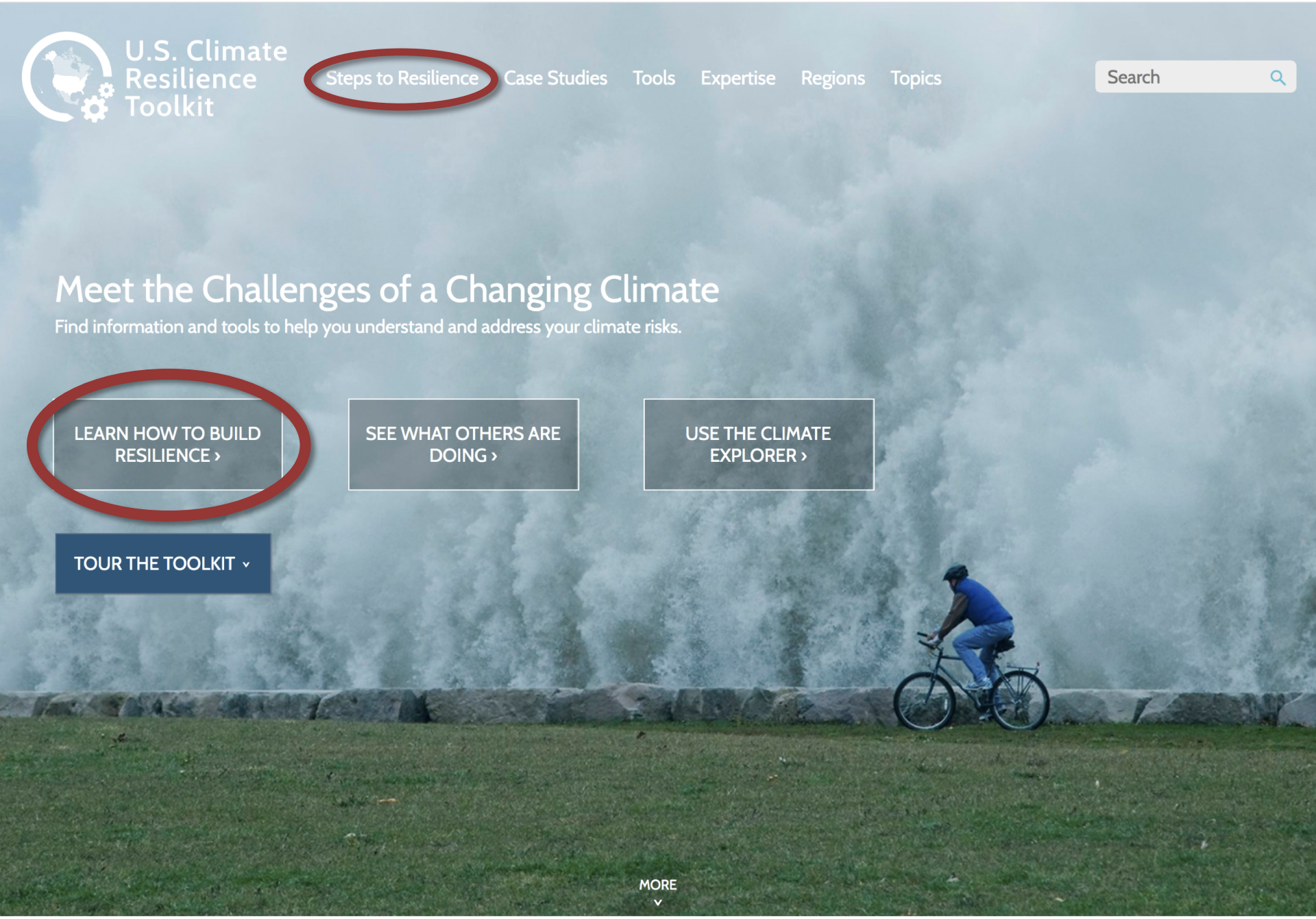
Green or Gray? Choosing to Preserve Water Quality ›

1 2 3 next › last »

All relevant tools

Related Tools

Climate Change Preparedness and Resilien Checklist ›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STEPS TO RESILIENCE

Use this framework to discover and document climate hazards, then develop workable solutions to lower climate-related risks. Click any step to learn more.

Did you know?

Why should we care?

What can we do about it?

Summary overview

You are here in the StR process

U.S. Climate Resilience Toolkit | Steps to Resilience | Case Studies | Tools | Expertise | Regions | Topics | Search

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Explore Hazards

- *Gather a team of people who want to protect local assets.*
- *Check past weather events and future climate trends.*
- *List the things you value that could be damaged.*

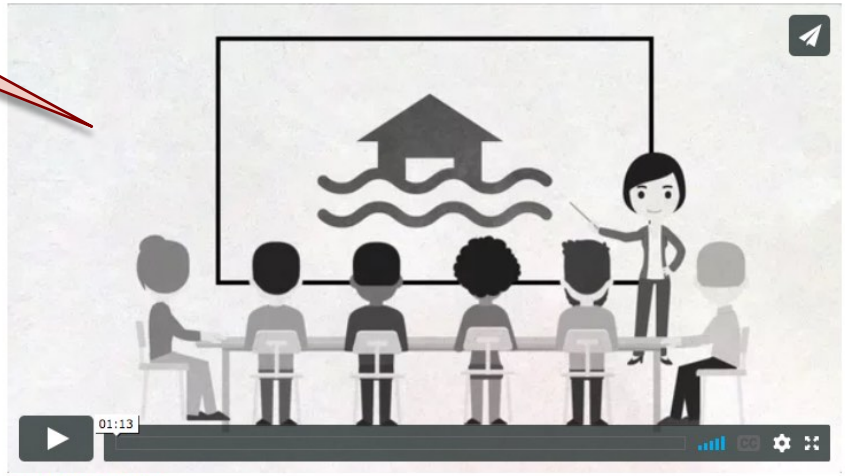
After this exploration, you'll discover if weather and climate represent a hazard to things you value.

Steps to Resilience
1. Explore Hazards
2. Assess Vulnerability & Risks
3. Investigate Options
4. Prioritize & Plan
5. Take Action

Video orientation for each step

Links to case studies showing others taking this step.

Steps to Resilience › Explore Hazards ›



Step 1. Explore Hazards

Establish a team

- Engage stakeholders and decide how you'll work together.

There's a saying: "If you want to go fast, go alone. If you want to go far, bring others." In almost every case, projects that build climate *resilience* require going far *(linked terms in these Steps to Resilience pages provide access definitions and examples)*.

To ensure you have the broad support necessary to implement a resilience-building project, start by recruiting a comprehensive group of stakeholders. All the individuals and organizations that could be

Case Studies
- Motivating the Agricultural Community to Climate Resilience ›
- Shopping Mall Exhibit Raises Awareness of Sea Level Rise ›
- Yukon Delta Villages Document Baseline Environmental Data ›

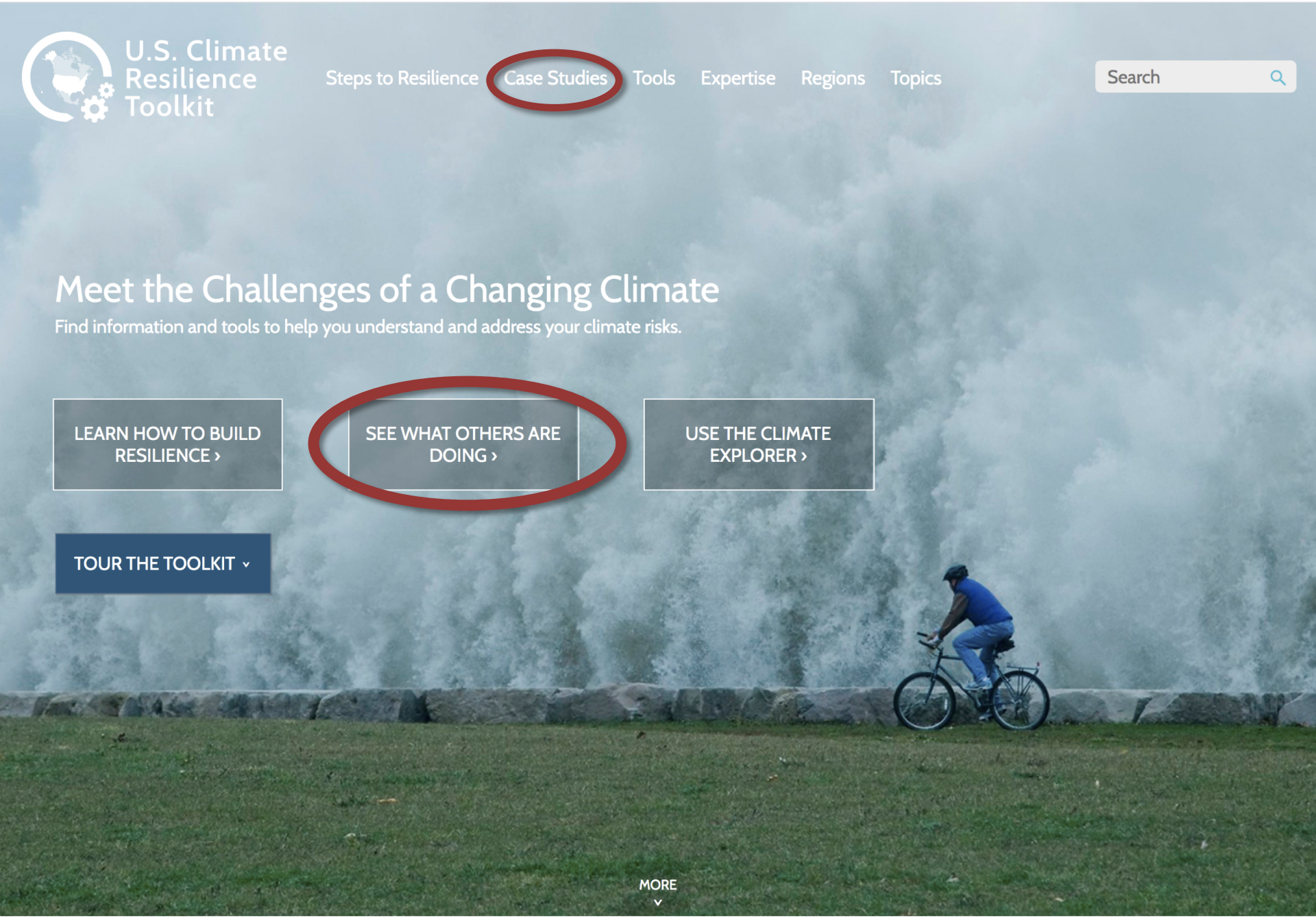
Tools
- Climate at a Glance ›
- Climate Explorer ›
- Coastal Flood Exposure Mapper ›
- Guidelines for Considering Traditional Knowledges in Climate Change Initiatives ›
- Hawai'i and U.S. Pacific Islands Region Climate Impacts and Outlook ›
- Local Environmental Observer (LEO) Network ›
- Pacific Islands Regional Climate Assessment (PIRCA) ›
- Sea Level Rise and Coastal Flooding Impacts Viewer ›

Relevant Reports
- Climate Change Impacts in the United States: The Third National Climate Assessment ›

Links to tools useful/relevant to this step.

Narrative text on each step of the StR process

Glossary & downloadable spreadsheet to help users capture notes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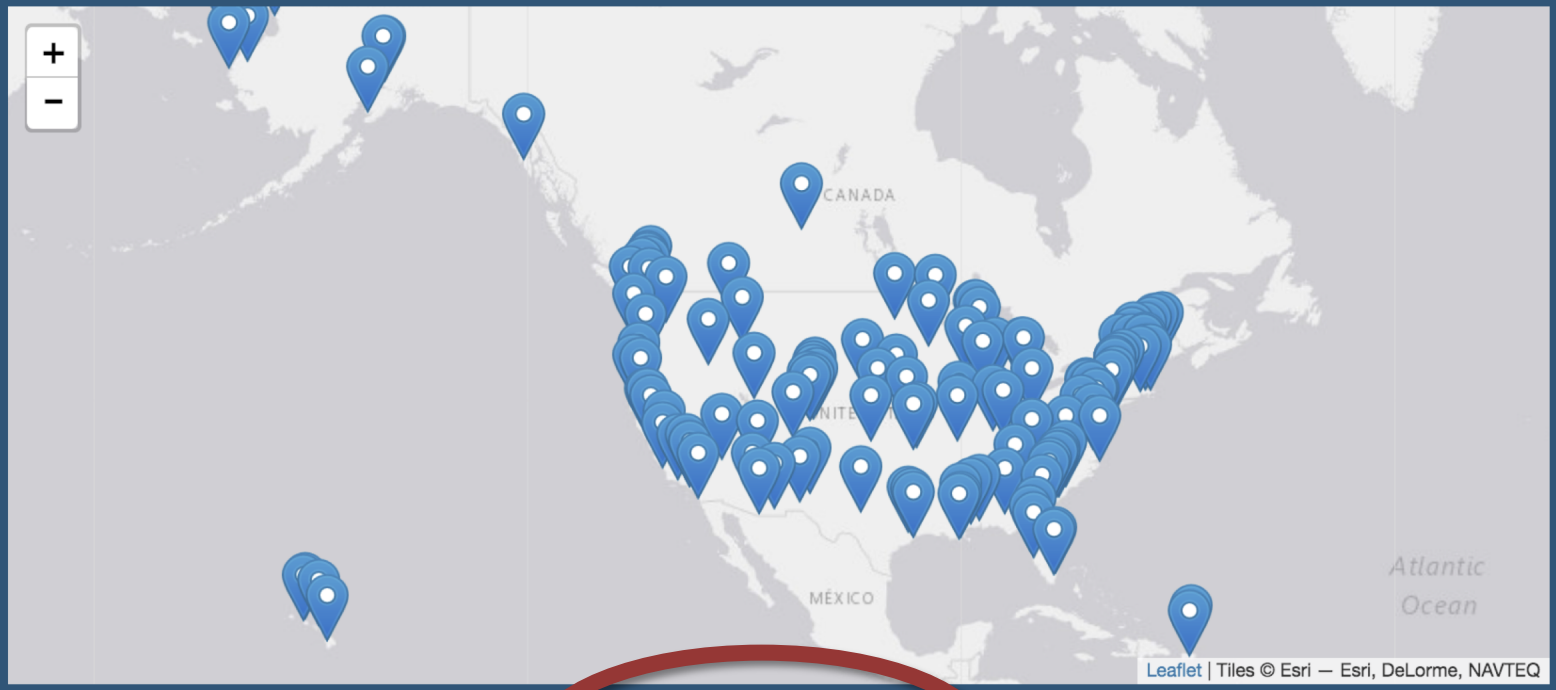
CASE STUDIES

Explore case studies to see how people are building resilience for their businesses and in their communities. Click dots on the map below to preview case studies, or browse all case studies by clicking the button below the map.



BROWSE ALL CASE STUDIES ›

MORE

Case Studies

Filter by climate threat/stressor: ▼ | Filter by topic: ▼ | Filter by steps to resilience: ▼ | Filter by region: ▼

Communities, businesses, and individuals are taking action to document their vulnerabilities and build resilience to climate-related impacts. Click dots on the map to preview case studies, or browse stories below the map. Use the drop-down menus above to find stories of interest. To expand your results, click the Clear Filters link.

A Climate for Resilience

The City of Houston faces an array of climate vulnerabilities: flooding,

A Coral Bleaching Story With an Unknown Ending

Changing ocean conditions pose

A New Generation of Water Planners Confronts Change Along the Colorado River

A Town with a Plan: Community, Climate, and Conversations

Case Studies

Filter by climate threat/stressor: ▼ | Filter by topic: ▼ | Filter by steps to resilience: ▼ | Filter by region: ▼

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A Town with a Plan: Community, Climate, and Conversations

Small Water Utility Builds Flood Resilience

Based on their locations, many water and wastewater utilities face an inherent risk of flooding. Here's how a small drinking water utility recognized its risk and took steps to reduce it.

Small Water Utility Builds Flood Resilience ›

tough question

By design, water and wastewater utilities are often located near rivers and in od-prone areas. Chris of the Berwick, ter Department d. As chief Weismann had seen two previous storms threaten his utility's ability to provide drinking water to his 000 residents. ze that a ome and bring your utility to an end in a couple of hours, and you'd be down for potentially t makes you want to know, what can I do to avoid this?," Weismann asked. Although concerned, was also bold. He posed this question to the U.S. Environmental Protection Agency (EPA), and was a Berwick/EPA pilot project to help the utility face and address its flooding risk.

Chris Weismann, Chief Operator of the Water Department in Berwick, Maine.

the answer

As part of an on-site assessment, staff from Berwick and EPA examined FEMA flood maps, identified vulnerable equipment, and evaluated possible mitigation measures. This step-wise approach provided a solid basis for actions and recommendations. With the assessment in hand, Weismann began to implement several low-cost actions to build flood resilience. Short-term mitigation measures included placing sandbags at utility entryways, installing backflow preventers on low-lying overflow pipes, securing or elevating chemical tanks to prevent floating, and topping off water storage towers prior to storm events. Other longer-term mitigation measures are scheduled to be implemented through a gradual capital improvement program. Weismann made it a point to keep his local government informed, and this helped town officials

Steps to Resilience

This content supports the highlighted step.

1. Explore Hazards
2. Assess Vulnerability & Risk
3. Investigate Options
4. Prioritize & Plan
5. Take Action

Tools

Flood Resilience: A Basic Guide for Wate Wastewater Utilities ›

Regions

Northeast › Infrastructure and the Built Environment ›

Topics

Built Environment › Water and W

Water › Municipal Water Supply ›

Water › Flooding ›

Additional Resources

EPA Connect: "Surviving the Flood" ›

Partners

Town of Berwick | Water Department ›

U.S. Environmental Protection Age

Title & summary overview

Share this on social media

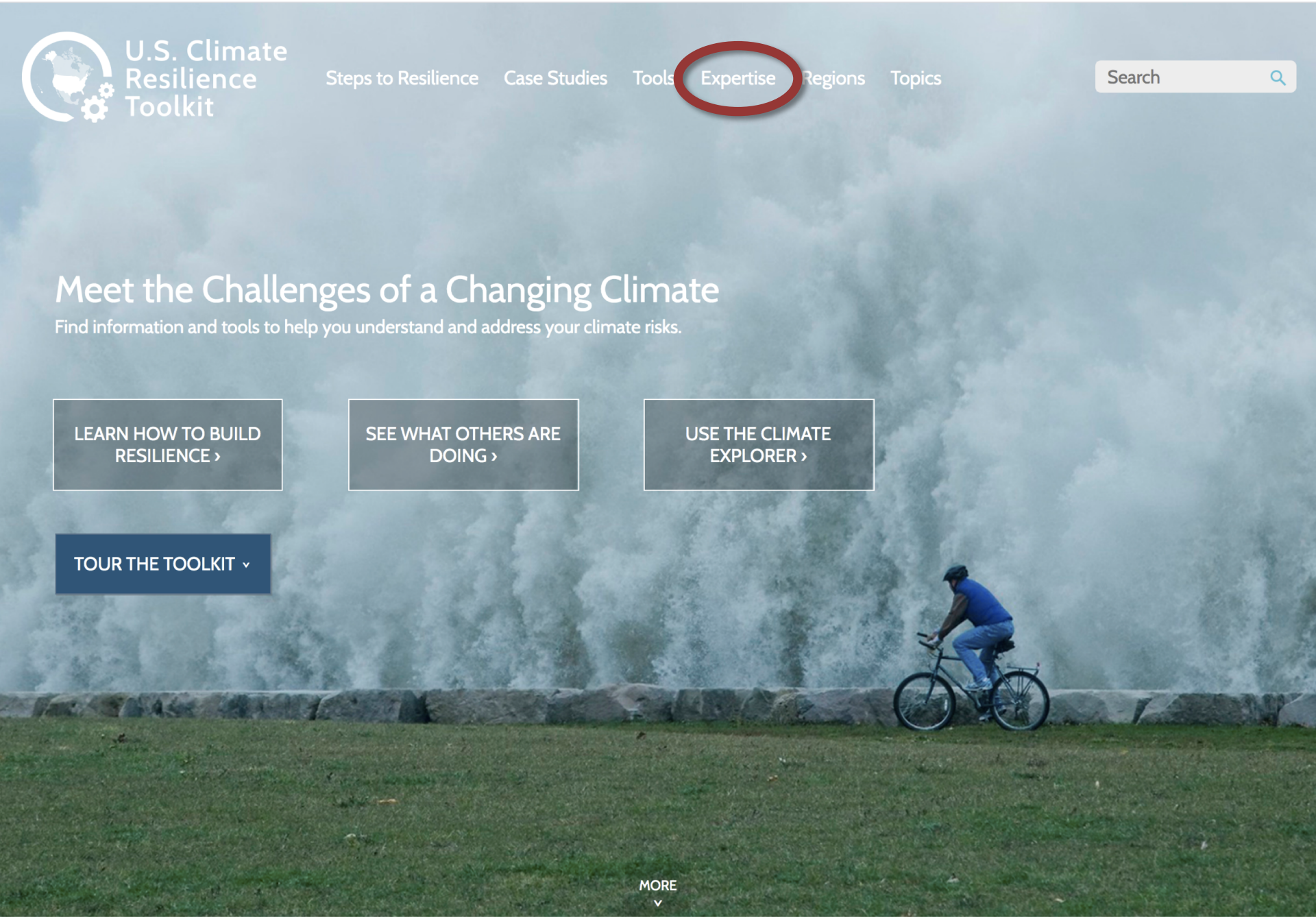
The 'story', introducing a protagonist, their climate challenge, and action(s) taken

You are here in 'Steps to Resilience'

CRT tool(s) featured in this case study

CRT **Regions** & **Topics** relevant to this case study

Whom to contact for more details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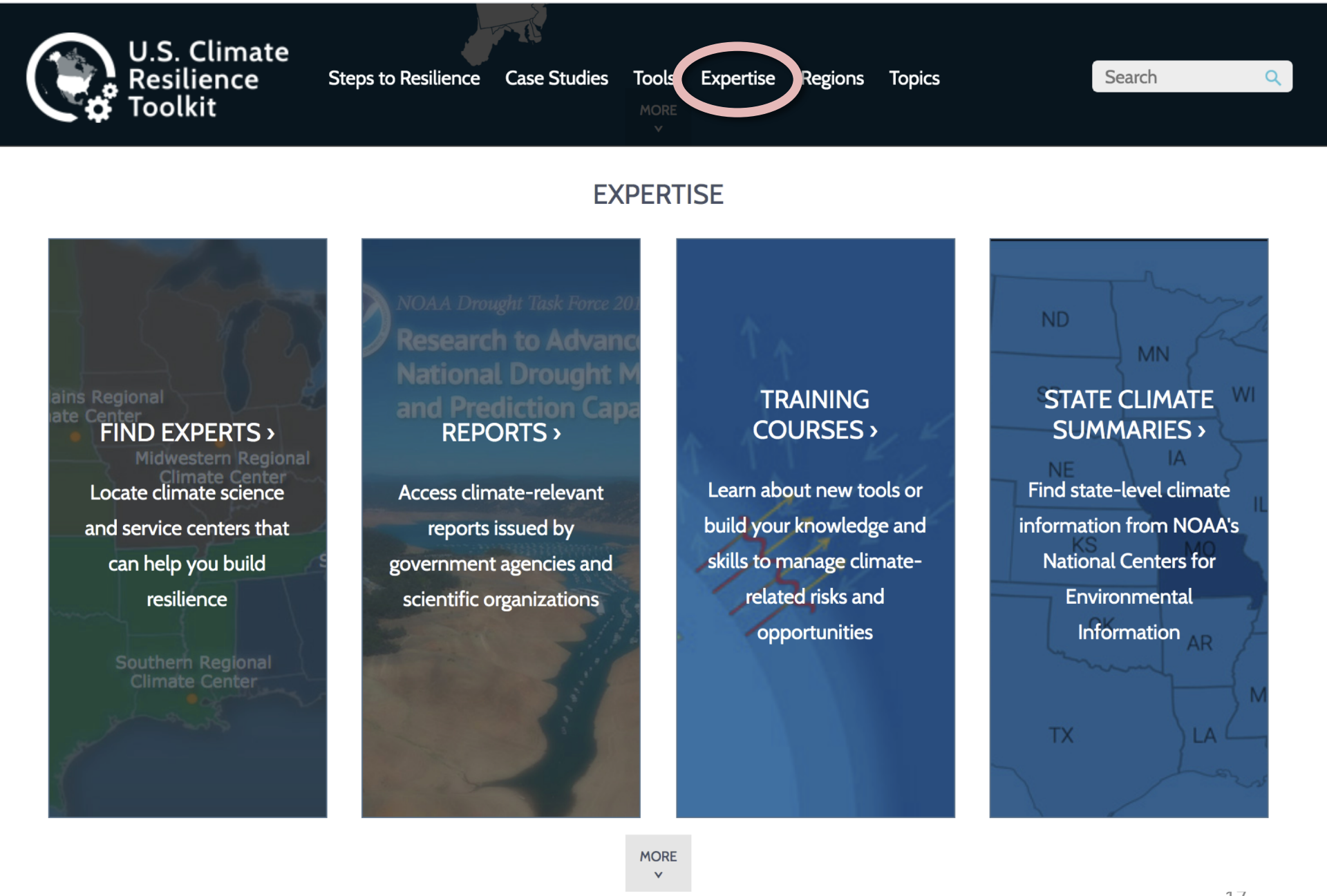
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FIND EXPERTS ›
Locate climate science and service centers that can help you build resilience
Midwestern Regional Climate Center
Southern Regional Climate Center
REPORTS ›
Access climate-relevant reports issued by government agencies and scientific organizations
TRAINING COURSES ›
Learn about new tools or build your knowledge and skills to manage climate-related risks and opportunities
STATE CLIMATE SUMMARIES ›
Find state-level climate information from NOAA's National Centers for Environmental Information
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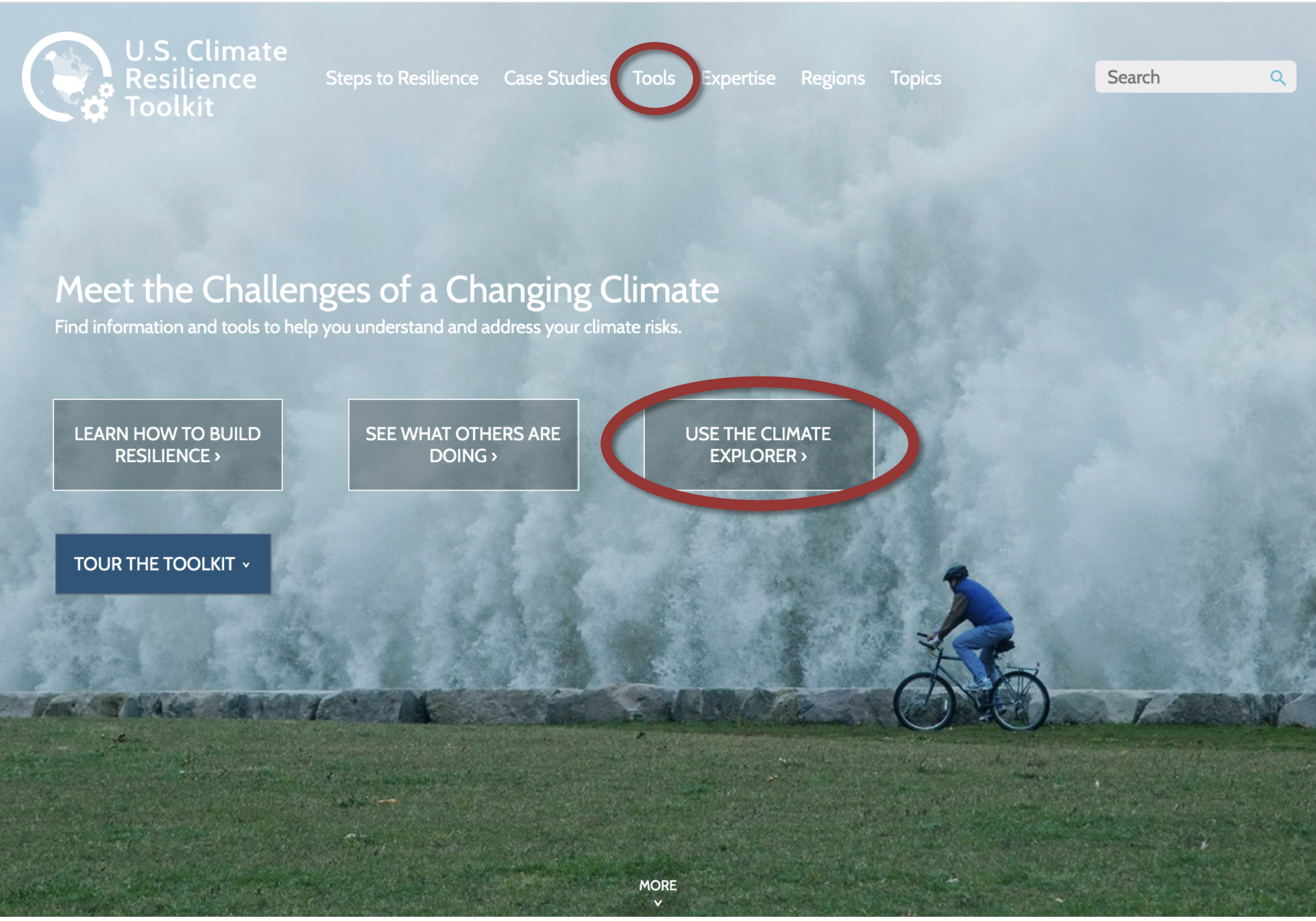
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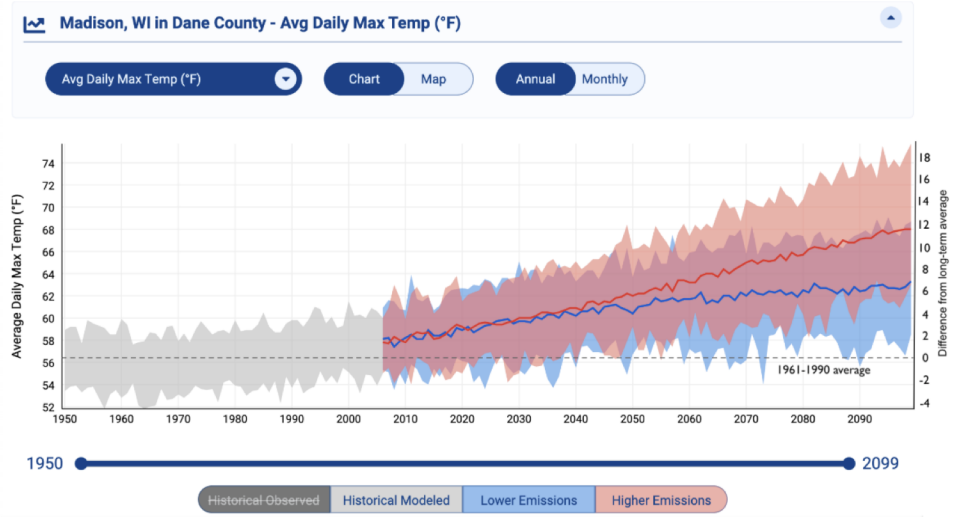
CLIMATE EXPLORER

This visualization tool generates interactive graphs and maps showing climate projections and observations for any county in the contiguous United States. You can also explore historical temperature and precipitation observations at hundreds of climate stations, and view observed and projected days of high-tide flooding at more than 90 coastal tide-gauge stations.

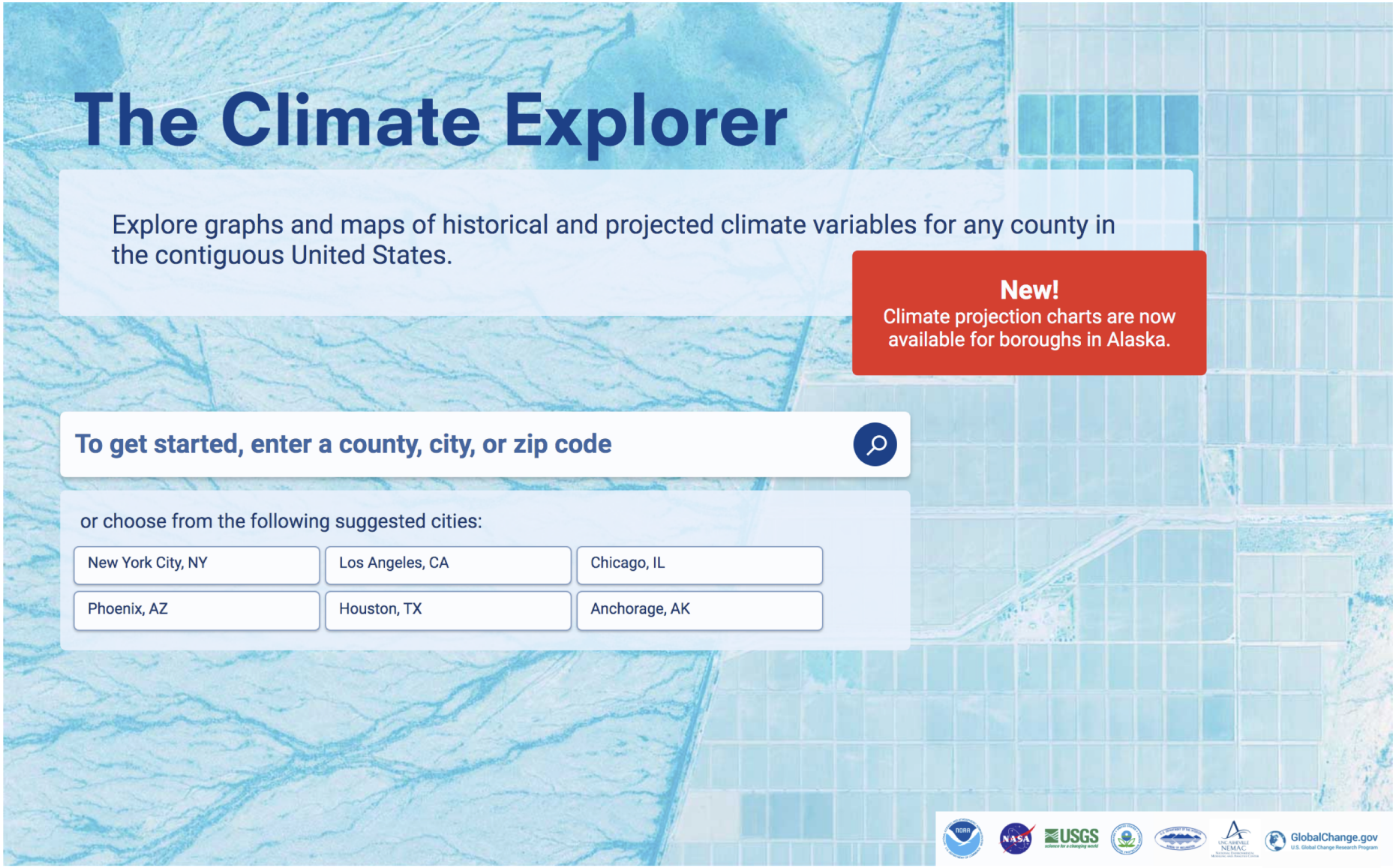


LAUNCH THE CLIMATE EXPLORER ›

LEARN MORE ABOUT CLIMATE EXPLORER ›

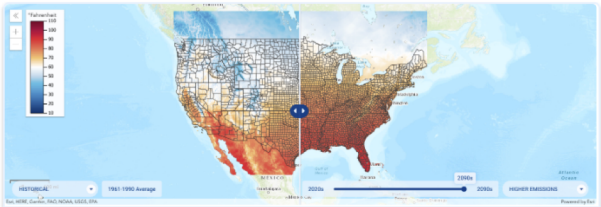
Image Credits:

Landing panel: A bicycle rider beside an apparent wall of water in Chicago's Diversey Harbor Park, as 50–60 mph winds from Hurricane Sandy kicked up 20-foot waves along the shores of Lake Michigan. Photo: Image by Chris Bentley, CC BY-NC-ND 2.0, via Flickr. Learn more about building climate resilience in the Great Lakes in our Great Lakes regional section.


About this site
The Climate Explorer
Explore graphs and maps of historical and projected climate variables for any county in the contiguous United States.
New!
Climate projection charts are now available for boroughs in Alaska.
To get started, enter a county, city, or zip code
or choose from the following suggested cities:
New York City, NY
Los Angeles, CA
Chicago, IL
Phoenix, AZ
Houston, TX
Anchorage, AK
USGS
GlobalChange.gov

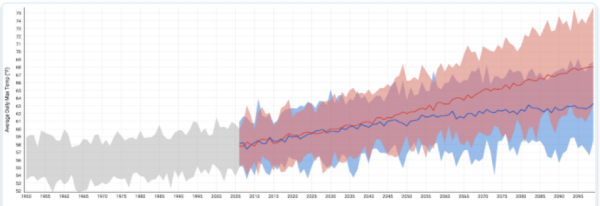
Ithaca, NY

Select one of the following for Ithaca, NY in Tompkins County



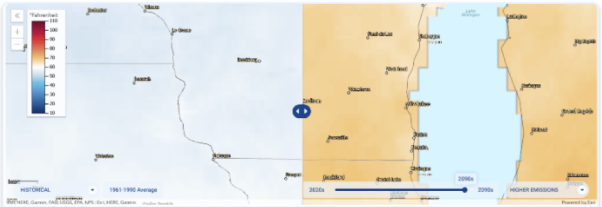
National Climate Maps

Compare maps of past and projected future conditions.



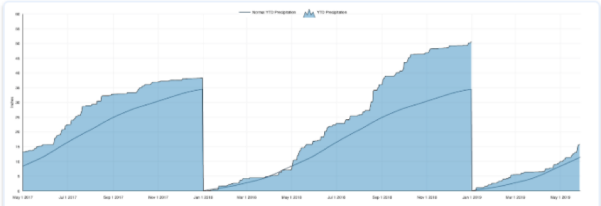
Local Climate Charts

Check past and projected values for climate variables.



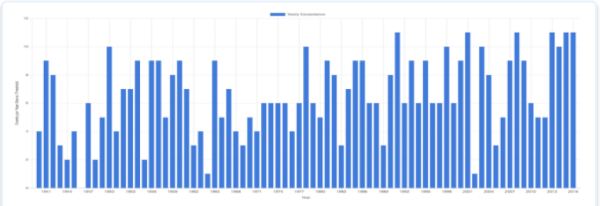
Local Climate Maps

Compare past and projected future conditions in your county.



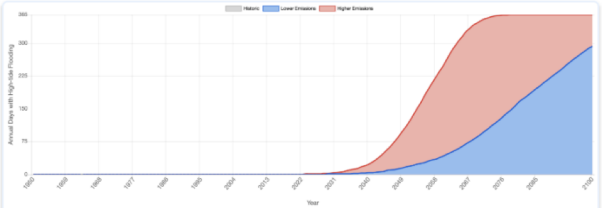
Historical Weather Data

Compare daily weather at local observing stations to long-term climate.



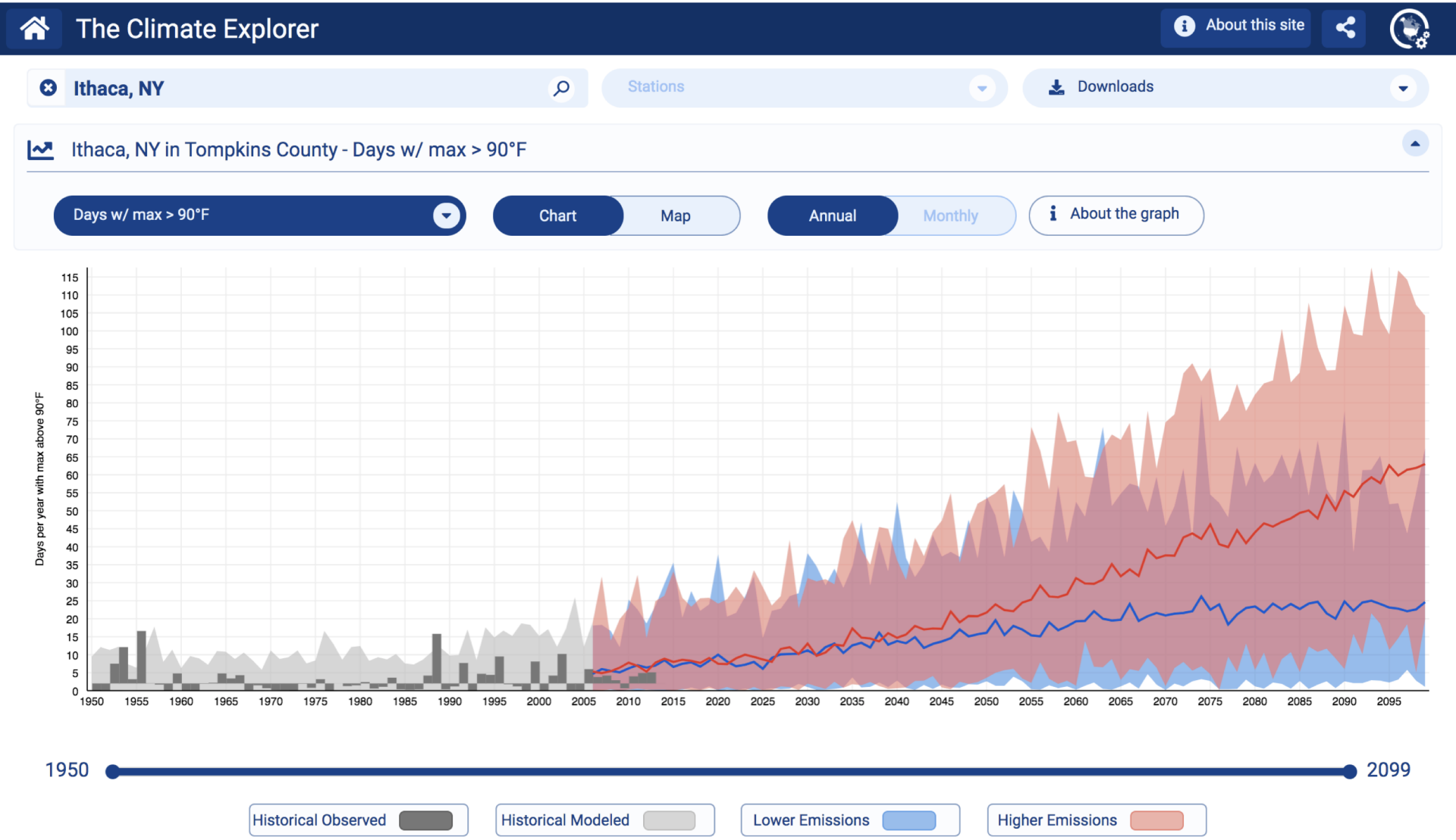
Historical Thresholds

Check how often temperature or precipitation has exceeded user-defined values.



High-Tide Flooding

View the number of high-tide floods in the past and projected for the future.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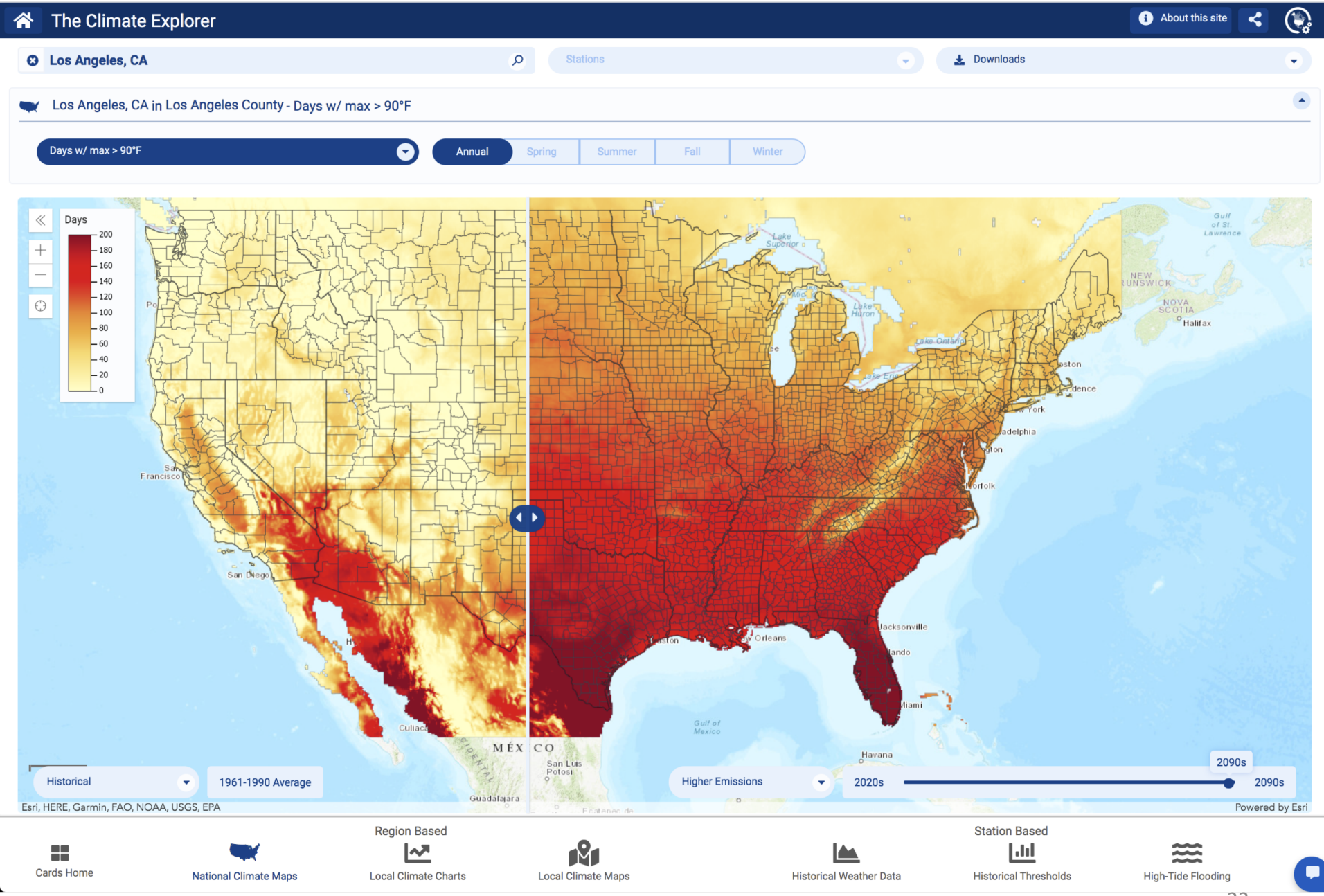
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The Climate Explorer

About this site

Ithaca, NY

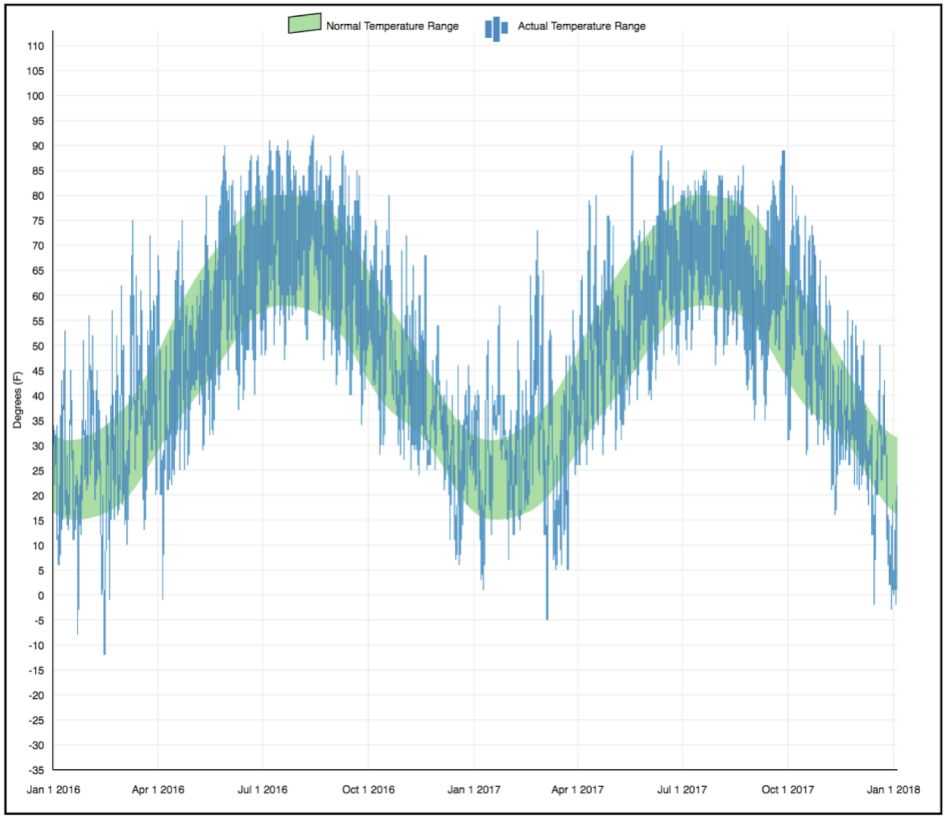
ITHACA CORNELL UNIV - (USC00304174)

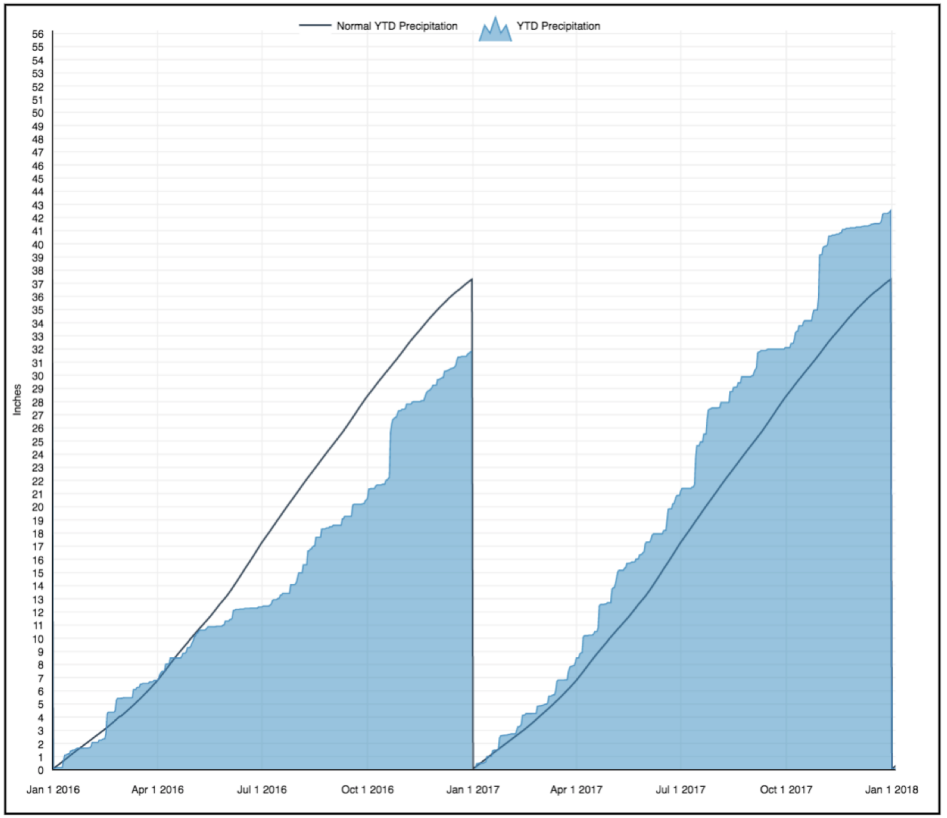
Downloads

Station id: USC00304174 Station: ITHACA CORNELL UNIV

Chart | Map

About the graph





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