

EPA Tools and Resources Webinar: 5th National Climate Assessment: Resources and Interactive Atlas

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Presentation Outline

- Background to the 5th National Climate Assessment (NCA5)
- What is new in NCA5?
- Key Takeaways
- Chapter structure and tour of a national and regional chapter
- Additional NCA5 resources
- NCA Atlas and StoryMaps

FIFTH NATIONAL CLIMATE ASSESSMENT

<https://nca2023.globalchange.gov/>



NCA5 Background

Mandate and Scope

U.S. Global Change Research Program

- The U.S. Global Change Research Program (USGCRP) was mandated by Congress in the Global Change Research Act of 1990 (P.L. 101-606), “to assist the Nation and the world to **understand, assess, predict** and **respond** to human-induced and natural process of global change”
- Through USGCRP, agencies work to:
 - Coordinate global change research across the government
 - Use research results and products to provide information regarding risk management in a changing climate
 - Inform and deliver products mandated by the Global Change Research Act, including the quadrennial National Climate Assessment (NCA)





Legislative Origins for the National Climate Assessment

Global Change Research Act of 1990, Section 106:

Not less frequently than every 4 years [USGCRP] shall prepare and submit to the President and Congress an assessment which:

- **Integrates, evaluates, and interprets** the findings of [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**
- Analyzes **current trends** in global change, both human- induced and natural, and **projects major trends** for the subsequent 25 to 100 years



National Climate Assessment History





5,000+

Authors, editors, reviewers, commenters, webinar participants, federal leadership and more.

407

407 graphics, with more than 900 individual panels, all with associated metadata and tracked source information

~460,000

Nearly half a million words, not including reference lists, make up the report.

~8,200

Over 8,200 individual references, including peer reviewed literature, government reports, traditional and ecological knowledge, and other scientific inputs were referenced.



NCA5 Table of Contents

- Overview
 - Climate Trends
 - Earth System Processes
 - Water
 - Energy
 - Land Cover and Land Use
 - Forests
 - Ecosystems and Biodiversity
 - Coastal Effects
 - Oceans and Marine Resources
 - Agriculture
 - Built Environment
 - Transportation
 - Air Quality
 - Human Health
 - Tribes and Indigenous Peoples
 - International
 - Complex Systems
 - [Economics](#)
 - [Social Systems and Justice](#)
 - Northeast
 - Southeast
 - U.S. Caribbean
 - Midwest
 - Northern Great Plains
 - Southern Great Plains
 - Northwest
 - Southwest
 - Alaska
 - Hawai'i and U.S.-Affiliated Pacific Islands
 - Adaptation
 - Mitigation
- [Focus on...](#)
- [Compound Extreme Events](#)
 - [Western Wildfires](#)
 - [COVID-19](#)
 - [Supply Chains](#)
 - [Blue Carbon](#)
- [Appendices](#)
- [Process](#)
 - [IQA](#)
 - [Data Tools](#)
 - [Indicators](#)

* [New chapters or features highlighted in blue](#)



NCA5 Table of Contents

**EPA had 28
contributors to NCA5!**

- **Overview**
- Climate Trends
- Earth System Processes
- Water
- **Energy**
- **Land Cover and Land Use**
- **Forests**
- **Ecosystems and Biodiversity**
- **Coastal Effects**
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- Agriculture
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- Northeast
- **Southeast**
- U.S. Caribbean
- Midwest
- Northern Great Plains
- Southern Great Plains
- Northwest
- Southwest
- Alaska
- Hawai'i and U.S.-Affiliated Pacific Islands

- **Adaptation**
- **Mitigation**

Focus on...

- **Compound Extreme Events**
- **Western Wildfires**
- **COVID-19**
- **Supply Chains**
- **Blue Carbon**

Appendices

- Process
- IQA
- Data Tools
- **Indicators**

* New chapters or features highlighted in blue

What is New in NCA5?



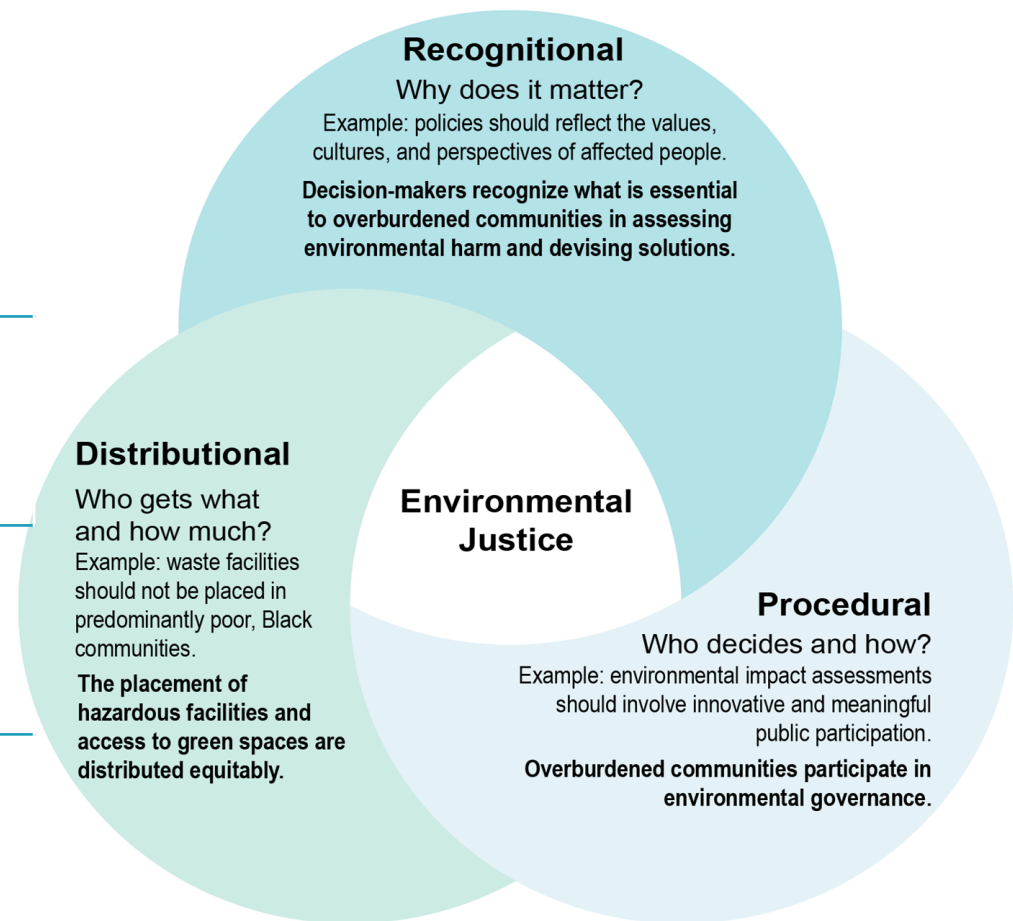
Scientific Advancements

Advancements in our understanding of observed and projected climate change (e.g., narrowed climate sensitivity; extreme event attribution)

Featuring two new chapters, one on Economics and one on Social Systems and Justice

Exploring themes of environmental justice and equity across the entire Assessment

Highlighting local and state climate mitigation and adaptation actions



Process and Structure

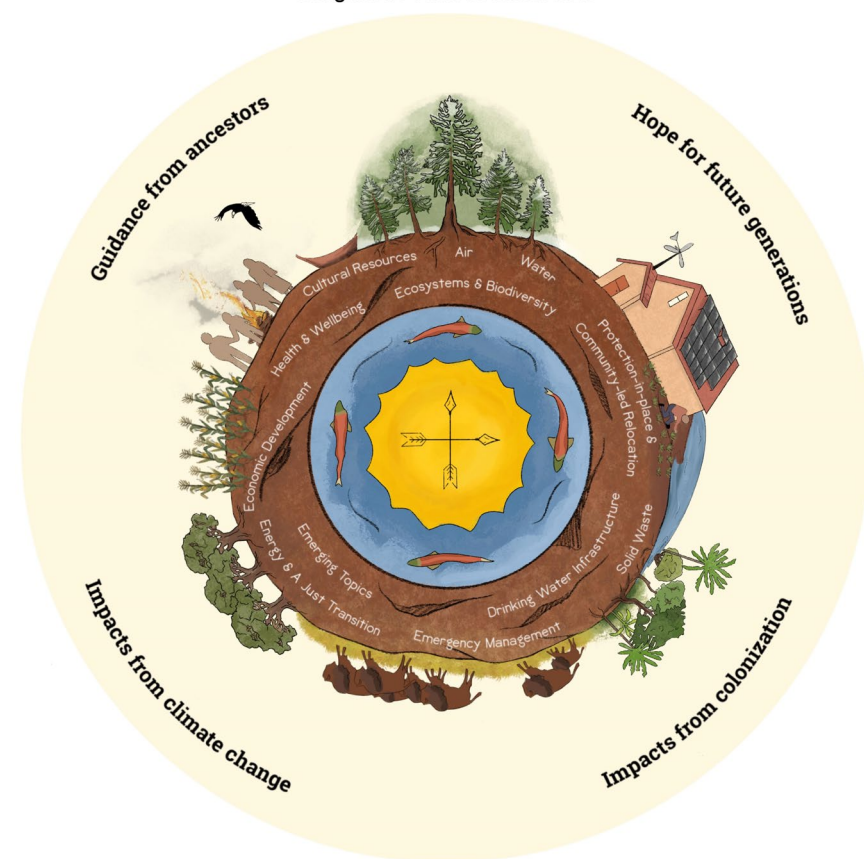
Broadened participation and more public engagement opportunities

Stronger documentation requirements and updated information quality guidance with source-specific considerations for inclusion (e.g., Indigenous Knowledge)

Improving accessibility and functionality (e.g., alt text for all figures, improved search function, Spanish translation)

Expanded representation of regions outside of the contiguous U.S. across Assessment figures (still room for improvement!)

Indigenous Holistic Worldview





Creative Communication

NCA's first-ever call for visual art, "Art x Climate," received more than 800 submissions; 92 pieces were selected for inclusion in the Assessment

NCA5 includes the poem "Startlement" written for the Assessment by the 24th US Poet Laureate Ada Limón

Six podcast episodes featuring interviews with authors, artists, and staff

Recorded "audiobook" reading of the Overview chapter (executive summary)



TAMMY WEST
KEEP IT TOGETHER
(2021, site-specific installation)

Key Takeaways

Key Takeaways from NCA5

1. The United States is taking action on climate change
2. People in the United States are experiencing increased risks from extreme events
3. Climate change exacerbates social inequities
4. Available mitigation strategies can deliver substantial emissions reductions, but additional options are needed to reach net zero
5. Climate action is an opportunity to create a more resilient and just nation

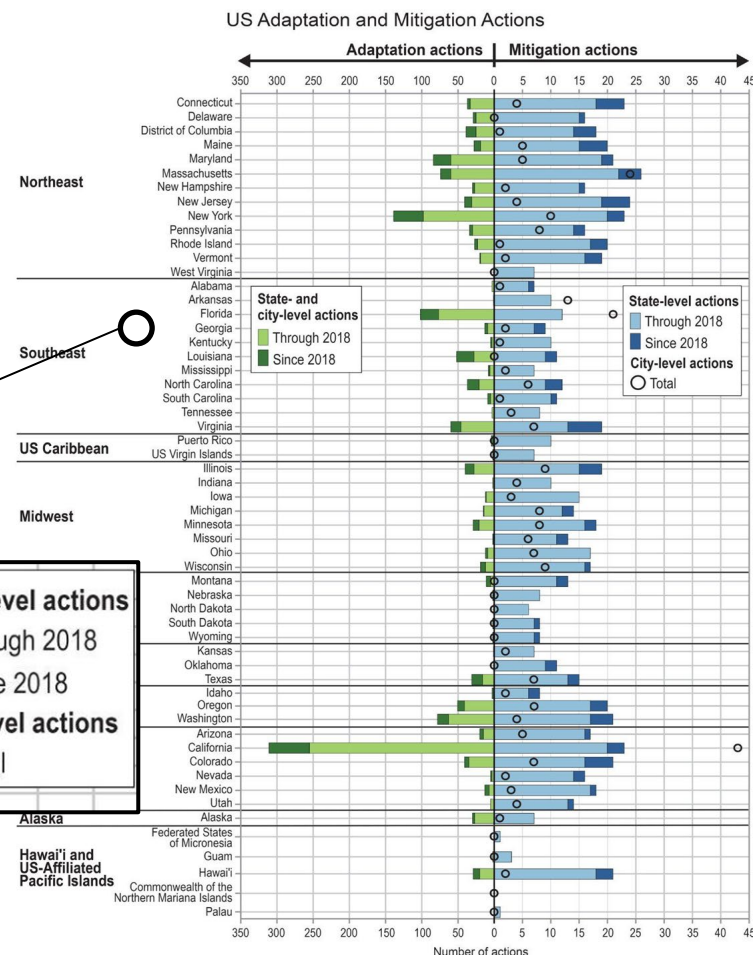
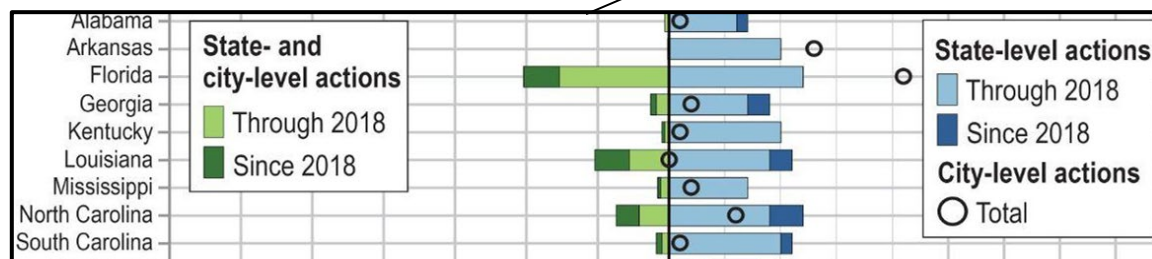


KEY MESSAGE

1

The United States is Taking Action on Climate Change

Since 2018, city- and state-level adaptation plans and actions increased by 32%, complemented by a 14% increase in the total number of new state-level mitigation activities.



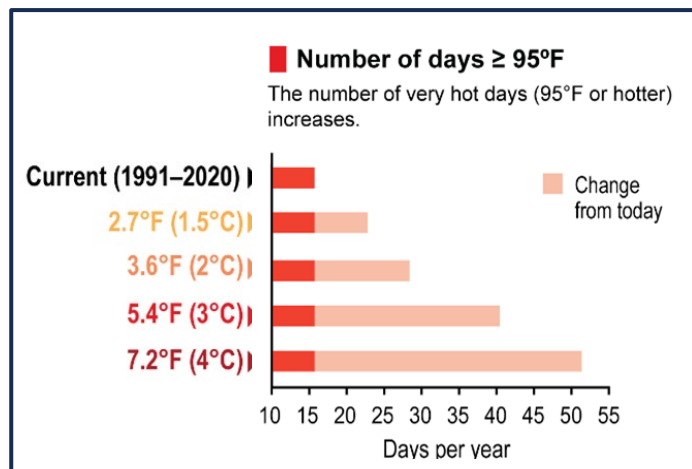


KEY MESSAGE

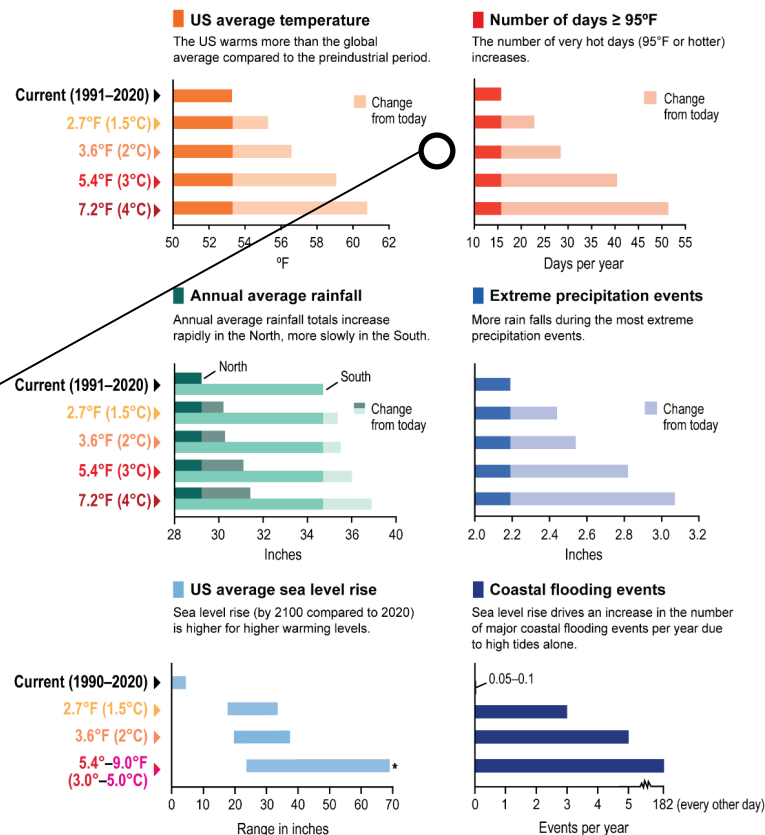
2

People in the U.S. Are Experiencing Increased Risks from Extreme Events

Every degree matters. At higher global warming levels, the U.S. will experience more severe climate impacts.



Consequences Are Greater at Higher Global Warming Levels



*Rise at the upper end of this range cannot be ruled out due to the possibility of rapid ice sheet loss. The amount of warming required to trigger such loss is not currently known but is assessed to be above 3.6°F (2°C).



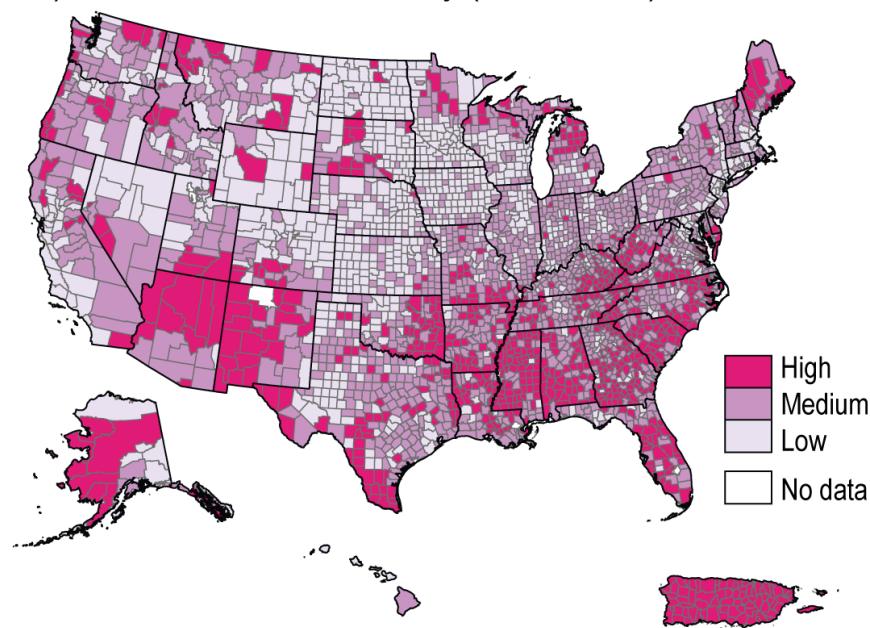
KEY
MESSAGE

3

Climate Change Exacerbates Social Inequities

Underserved and overburdened communities face disproportionate risks and impacts from climate change, which exacerbates social and economic inequities and contributes to persistent disparities in the resources needed to prepare for, respond to, and recover from climate impacts.

a) Social vulnerability (2015–2019)



Some highly vulnerable areas also have high economic losses from climate hazards (shown above: counties' Social Vulnerability Index (SoVI) scores, which comprise 29 different inputs that characterize underlying socioeconomic and demographic factors)



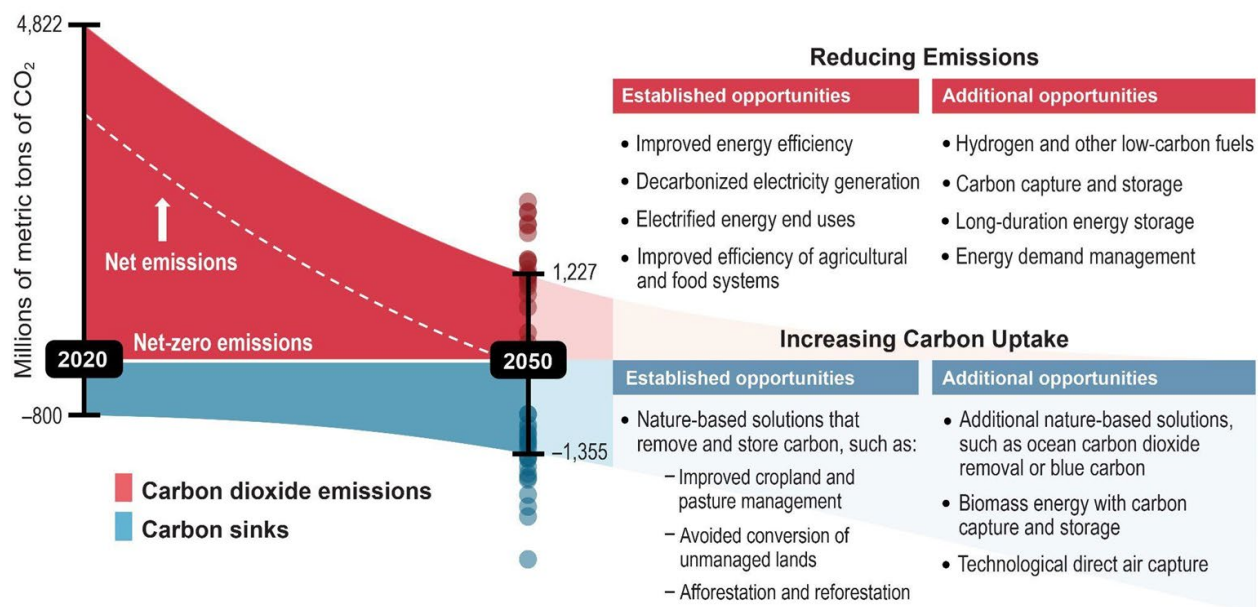
KEY MESSAGE

4

Available Mitigation Strategies Can Deliver Substantial Emissions Reductions, but Additional Options are Needed to Reach Net-Zero

Portfolio of Mitigation Options for Achieving Net Zero by 2050

Net-zero emissions pathways require widespread implementation of currently available and cost-effective options for reducing emissions alongside rapid expansion of technologies and methods to remove carbon from the atmosphere to balance remaining emissions.





KEY
MESSAGE

5

Climate Action is an Opportunity to Create a More Resilient and Just Nation

Actions taken now to accelerate net emissions reductions and adapt to ongoing changes can reduce risks to current and future generations.

Action to limit future warming and reduce risks can have near-term benefits and opportunities

Low-carbon energy jobs



Improved air quality



Health benefits



Economic benefits



Reduced risks to ecosystems



Reduced risks to biodiversity



More options for adaptation



Social benefits





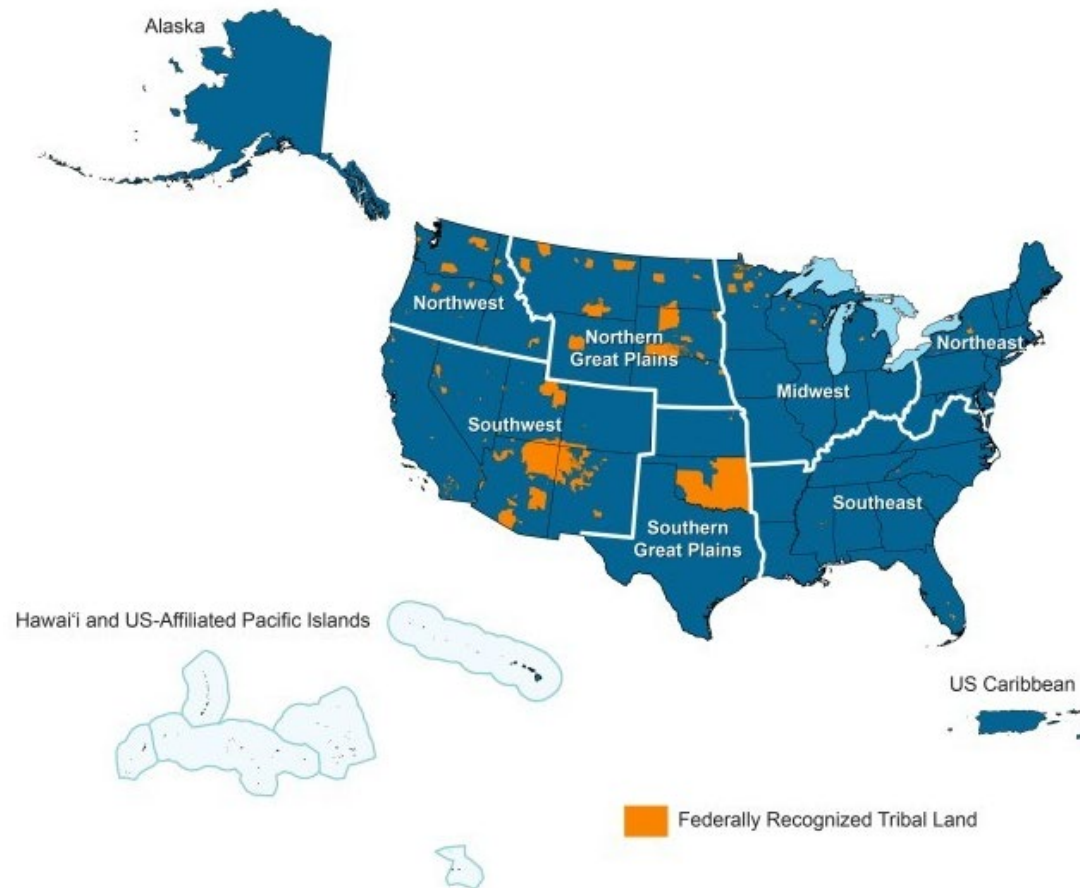
Chapter Structure

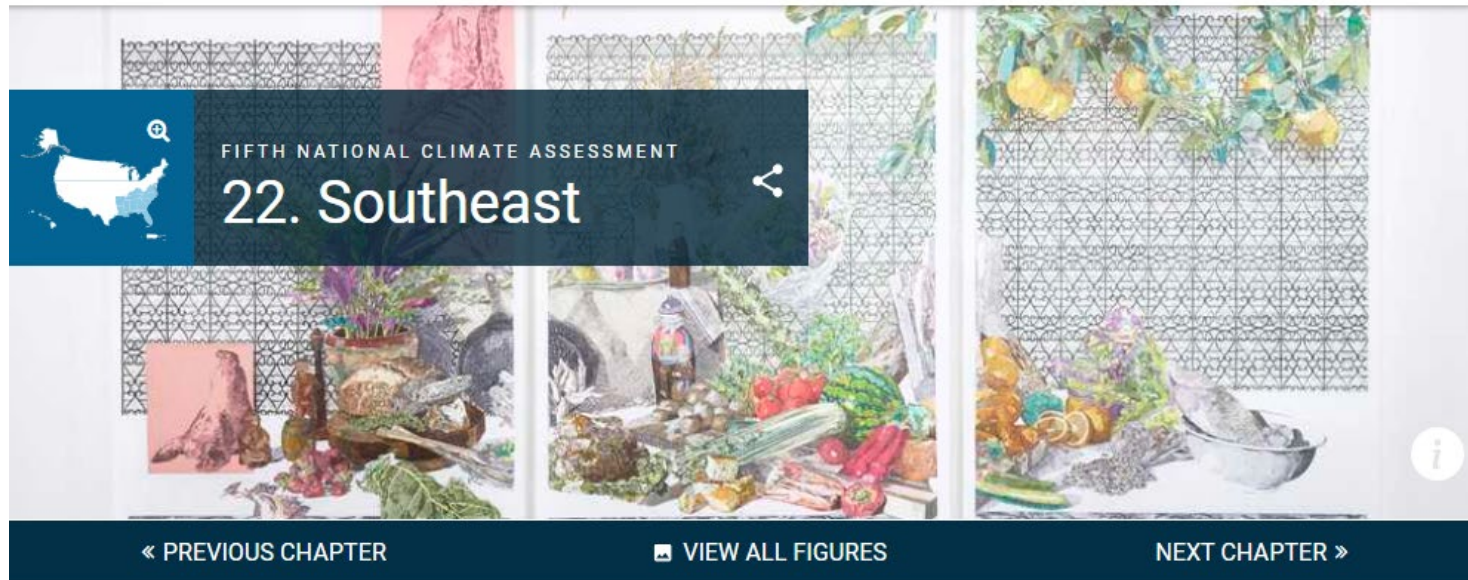
- Introduction
- Key Messages
- Narrative
- Graphics
- Traceable Accounts
- References



Regional Chapters

NCA5 assesses current and future risks posed by climate change to each of NCA's 10 regions, illustrated below.



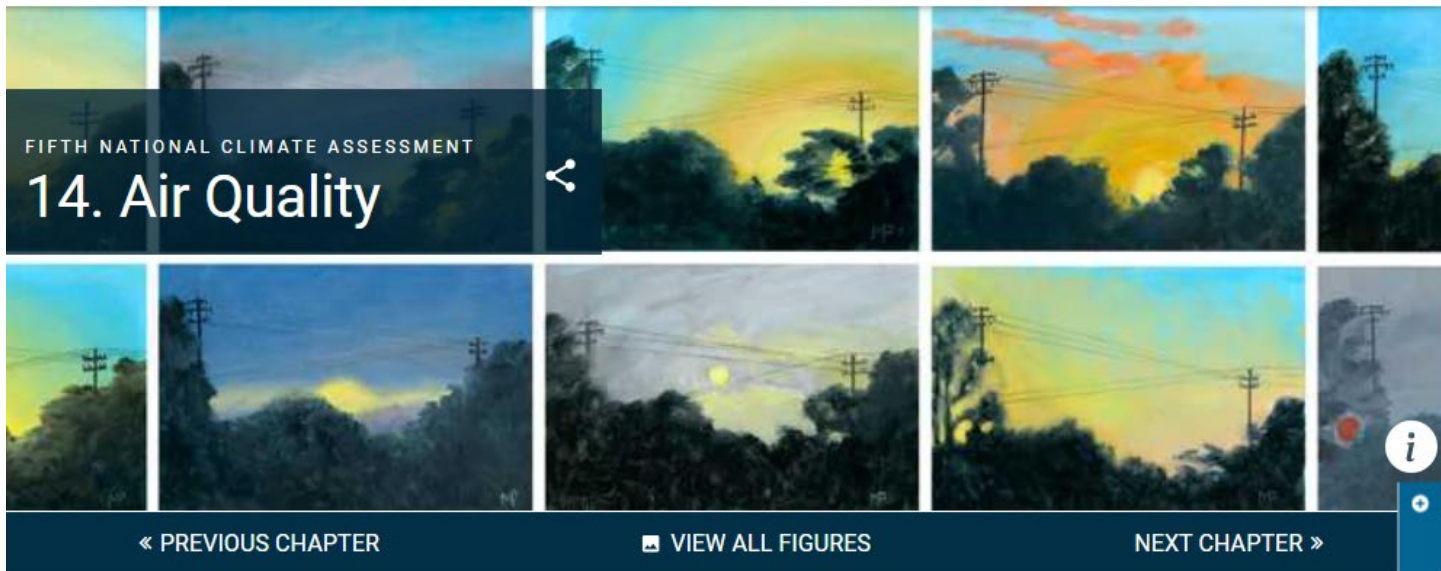


The Southeast's growing population faces increasing threats from climate change, with impacts on human health, ecosystems, economies, infrastructure, and food systems. While there have been notable advancements in adaptation throughout the region, these efforts tend to be concentrated in wealthier coastal and metropolitan areas, leaving rural and other under-resourced communities at risk. Coordinated climate strategies could improve equity, well-being, and economic vitality.



SECTIONS

Walk through of a Regional Chapter



Climate change can worsen air pollution, including by increasing wildfire smoke and pollen, impacting human health and hampering efforts to reach air quality goals. Air pollution disproportionately affects communities of color and low-income communities, and actions can be focused to increase equity despite climate hazards. Coordinated actions can sharply reduce greenhouse gas emissions while greatly improving air quality and health.

Walk through of a National Chapter

NCA5 Resources

NCA5 Resources

NCA5 website: nca2023.globalchange.gov

- Downloadable slides for each chapter, with Key Messages and Figures
- 1-2 page chapter summaries
- Art x Climate gallery
- Ada Limón's poem, "Startlement"
- NCA5 Glossary
- Full Spanish Translation of PDFs

USGCRP website: globalchange.gov

- Six podcast episodes
- Audiobook recording of NCA5 Overview chapter
- List of webinar series dates, times, and links

NCA5 Atlas: atlas.globalchange.gov

- Interactive online tool that allows users to explore different scenarios and climate variables to highlight local climate projections
- Beta version upon release, with additional features to be added

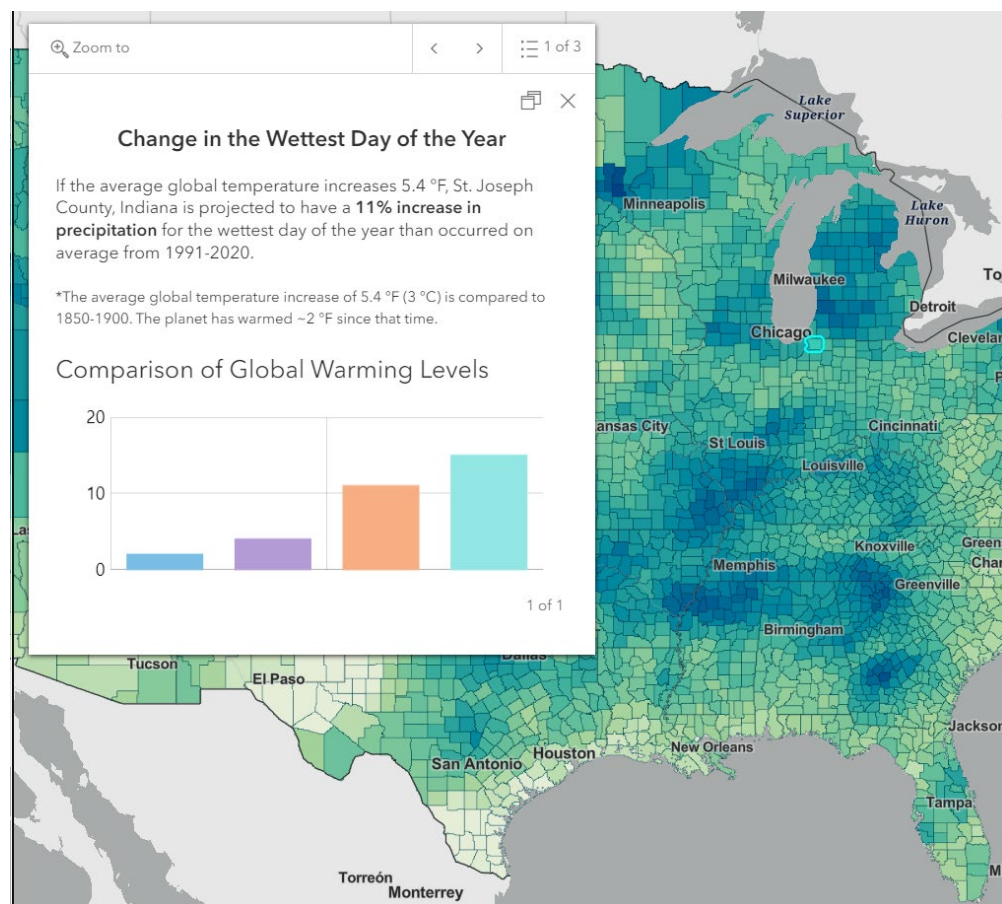
NCA Atlas

A digital data viewer developed as an extension of the NCA5 text and figures

Atlas variables were produced with the same methodology as the downscaled climate data in NCA5

Interactive features allow users to generate and download their own regional and local maps

Users can select from a range of global warming levels or scenarios/ time periods, and impact-relevant climate variables (e.g., “days over 95°F”)



Thank you

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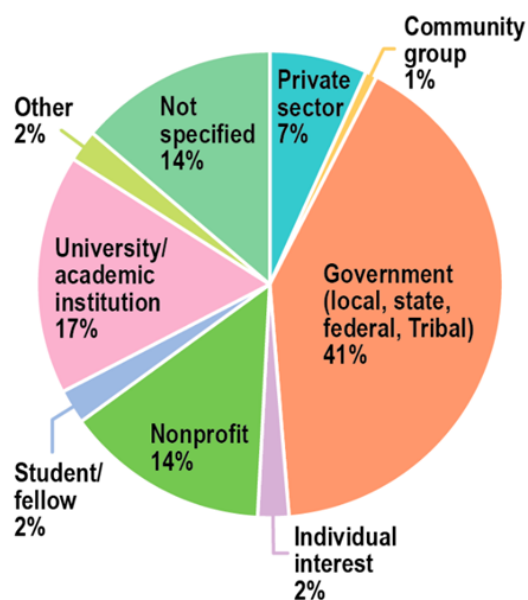
GlobalChange.gov

nca2023.globalchange.gov

Supplemental Slides

Public Engagement Workshops

% Workshop registrant by organization type



34

USGCRP hosted **34 workshops** over 6 weeks—at least one per chapter. Most workshops lasted 4–4.5 hours, with a combination of plenary and breakout room discussions.

450+

The meetings were run by the NCA's **450+ authors** and facilitated by approximately 30 USGCRP staff.

7,100

There were roughly **7,100 registrations** by 4,000 individuals from all 50 states, Puerto Rico, USVI, Guam, Micronesia, and others. About 2,800 people ultimately participated.

900+

Over a 45-day public comment period, NCA5 received **900+ written comments** on the Zero Order Draft.

% Workshop registrant by region

