

**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON ENVIRONMENT
HEARING CHARTER**

Working Towards Climate Equity: the Case for a Federal Climate Service

Wednesday, April 21, 2021

11:00 am ET

Zoom

PURPOSE

The purpose of this hearing is to highlight the need for a strengthened Federal role in climate risk information. The hearing will showcase the diverse constituencies urging improved investment in and coordination of Federal climate risk information, with a spotlight on local community planners, frontline communities, and adaptation professionals. The hearing will be an opportunity to discuss the availability of climate information that impacts local decision-making, such as designing new roads, bridges, and dams, and implementing flood control projects. It will also examine the current, fragmented landscape of Federal programs and nonfederal services that translate global climate data and model outputs to decision-relevant information for adaptation and resilience planning.

WITNESSES

- **Richard Moss, PhD**, Senior Scientist, Pacific Northwest National Laboratory's Joint Global Change Research Institute at the University of Maryland, Chair, Convening Board, SCAN, and Non-resident Fellow, Andlinger Center, Princeton University
- **Beth Gibbons**, Executive Director, American Society of Adaptation Professionals
- **Jeffrey B. Basara, PhD** Director, Kessler Atmospheric and Ecological Field Station, Executive Associate Director, Hydrology and Water Security Program, University of Oklahoma
- **Liz Williams Russell**, Climate Justice Program Director, Foundation for Louisiana

KEY QUESTIONS

- What are climate services, and what Federal programs currently provide them? What is the Federal government doing well, and what are the gaps and resource limitations?
- What is the role of the private sector in innovating to create tools to assess climate risk, and which types of communities and stakeholders purchase private sector services? What are the limitations of private sector services from an equity perspective?
- How can the Federal government better support the climate information and adaptation needs of frontline and small, rural, and underserved communities?
- How accessible is climate risk information to decisionmakers, and what are the major inequities and barriers to incorporating climate risk into projects and decisions?
- What is the importance of sustained community feedback, engagement and co-production of knowledge, and how can it be incorporated into Federal climate services?

BACKGROUND

As risks from climate change impacts, such as extreme weather events, become more frequent and severe, decisionmakers across economic sectors and civil society require increased access to climate risk information and climate services to inform critical decisions. For example, the agriculture industry uses climate records to analyze crop yields, infrastructure managers rely on climate data to create risk management plans, and insurance firms use climate data to validate catastrophe models that predict the cost of climate change-driven events.¹

Sustained Federal investments have advanced climate science and modeling over the last several decades, resulting in many robust sources of climate data. While more granular and advanced observations are important to further improve the quality and accuracy of projections, fewer resources have been directed toward climate services that translate global climate projections into vulnerability and risk information that are understandable and available to the users that need it.² Access to practical, localized climate information ensures that investment decisions, such as raising roads and bridges and designing flood control projects, are sound, science-informed, and long-lasting. Better access to climate services can also reduce the Federal government's budgetary exposure to climate change, by facilitating agencies' ability to strategically invest in climate resilience. This reduces the costs they incur through Federal disaster aid, ballooning flood insurance and crop insurance claims, and damage to the hundreds of thousands of facilities and millions of acres of land that it manages.³

Improved access to climate risk information and technical assistance is also an equity issue. Increasingly, the private sector is selling analyses, tools, and dashboards based on Federal and nonfederal data sources that help clients understand and act on climate risk. However, only well-resourced organizations and communities can hire a firm to create decision-relevant tools and frameworks for their specific climate resilience planning needs. Frontline communities and small, rural, and underserved communities, on the other hand, do not have the in-house capacity or resources to hire consultants to translate diverse and fragmented data sources to local climate resilience plans, and thus are left vulnerable to climate impacts. Further, currently there is no national system for quality control of the climate data used by private sector climate services. The National Academies of Science, Engineering, and Medicine (NASEM) and the U.S. Government Accountability Office (GAO) have recommended that the Federal government develop standardized quality assurance processes on how to use climate data that companies can use to ensure their climate services are reliable and aligned with the best available science.⁴⁵

FEDERAL CLIMATE SERVICES

Maintaining a strong foundation in climate-relevant data, modeling and research is a crucial underpinning of climate services; however, climate services are distinct from Earth observations and climate science. They represent the translation of data and modeling into decision support services which can be utilized in specific contexts, such as investment, risk management, or

¹ https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/201217_Lewis_Ladislaw_Managing_Climate_Change_0.pdf

² Ibid.

³ GAO's March 2021 report on America's Fiscal Future <https://www.gao.gov/americas-fiscal-future>

⁴ National Research Council, America's Climate Choices: Panel on Informing Effective Decisions and Actions Related to Climate Change, Informing an Effective Response to Climate Change (Washington, D.C.: 2010).

⁵ <https://www.gao.gov/assets/gao-16-37.pdf>

policy decisions. The Federal government already supports numerous successful programs across different agencies that translate and deploy localized, authoritative, and actionable information to help communities prepare for increasing risks. These programs work directly with user communities from a wide variety of regions and sectors; the programs listed below are not a comprehensive list of Federal climate services, but represent some well-known and successful examples.

National Oceanic and Atmospheric Administration (NOAA)

The National Integrated Drought Information System (NIDIS) is an interagency drought early warning program that coordinates information across federal, state, local, and tribal levels.⁶ NIDIS hosts web-based tools that visualize current and future drought risks specific to geographic locations and economic sectors, and also funds and coordinates drought research.^{7,8} NIDIS is housed in NOAA's Climate Program Office (CPO), and was authorized by the National Integrated Drought Information System Act of 2006.^{9,10,11}

The National Integrated Heat Health Information System (NIHHIS) is an interagency program, jointly developed by NOAA and the Centers for Disease Control and Prevention (CDC), which helps decision-makers manage extreme heat by integrating heat exposure information into interactive tools, planning and preparatory guidelines, and informational campaigns for topics like urban heat island mapping.¹² NIHHIS is housed within NOAA's CPO.¹³

The Regional Integrated Sciences and Assessments (RISA) program supports 11 regional centers that are hosted at universities and work with the public and private sector to translate climate data into adaptation plans.^{14,15} The RISAs do this by translating science into decision-relevant, context-specific knowledge which assesses vulnerability and risk, developing and hosting tools and trainings, and facilitating dialogue between scientists and decisionmakers.¹⁶ RISA is housed within NOAA's CPO.¹⁷

Sea Grant Extension is a program administered by the NOAA's National Sea Grant College Program, which supports federal-university research partnerships on ocean, coastal, and climate issues. Sea Grant Extension supports community needs for climate resilience planning and implementation by sharing climate science and showing communities how to use it.^{18,19} The program employs a workforce of over 500 extension agents, many of whom reside in the communities they serve. The extension agents conduct original research, share information and

⁶ What is NIDIS?: <https://www.drought.gov/about>

⁷ Drought Early Warning Activities: <https://www.drought.gov/about/drought-early-warning-activities>

⁸ Drought Early Warning Research: <https://www.drought.gov/drought-research>

⁹ P.L. 109-430

¹⁰ Climate Program Office Org Chart: <https://cpo.noaa.gov/Who-We-Are/Org-Chart>

¹¹ Drought Early Warning Research: <https://www.drought.gov/drought-research>

¹² NIHHIS: <https://nihhis.cpo.noaa.gov/>

¹³ Climate Program Office Org Chart: <https://cpo.noaa.gov/Who-We-Are/Org-Chart>

¹⁴ About RISA: <https://cpo.noaa.gov/Meet-the-Divisions/Climate-and-Societal-Interactions/RISA/About-RISA>

¹⁵ RISA Teams: <https://cpo.noaa.gov/Meet-the-Divisions/Climate-and-Societal-Interactions/RISA/RISA-Teams#739083-risa-teams>

¹⁶ About RISA: <https://cpo.noaa.gov/Meet-the-Divisions/Climate-and-Societal-Interactions/RISA/About-RISA>

¹⁷ Climate and Societal Interactions Division: <https://cpo.noaa.gov/Meet-the-Divisions/Climate-and-Societal-Interactions>

¹⁸ Sea Grant – About: <https://seagrant.noaa.gov/About>

¹⁹ Resilient Communities and Economies: <https://seagrant.noaa.gov/Our-Work/RCE>

skills through tools like workshops and courses, review research and policies, and initiate new research to meet local needs.²⁰ Sea Grant is housed within NOAA’s Oceanic and Atmospheric Research (OAR), or “NOAA Research” line office.²¹

U.S. Global Change Research Program (USGCRP)

The National Climate Assessment (NCA) is produced every four years by the USGCRP.²² The NCA reports the national and regional impacts of climate change, from economic costs and water availability, to agriculture and infrastructure.²³ In 2015, NOAA convened an Advisory Committee for the Sustained National Climate Assessment to create a plan for an “ongoing participatory process for engaging stakeholders and scientists in discovery, communication, and use of scientific knowledge on global change.” The Advisory Committee, which convened independently after it was disbanded by President Trump, established the Science for Climate Action Network (SCAN) in 2019 to coordinate civil society efforts to provide ongoing, actionable climate assessments. In recent reports, both the SCAN and NASEM have recommended that the USGCRP expand the role of public participation in the NCA development process.^{24,25}

US Department of Agriculture (USDA)

The USDA Climate Hubs are 10 regional hubs that deliver specific tools and information to support agricultural and resource managers in climate decision-making.²⁶ The Climate Hubs publish regional vulnerability assessments, host demonstrations of production strategies that promote climate resilience, support the adoption of mitigation and adaptation strategies, share regional data and research, develop web-based customizable tools, and share informational materials.^{27,28,29} The Climate Hubs are led by senior directors from the USDA’s Agricultural Research Service and Forest Service.³⁰

US Geological Survey (USGS)

The Regional Climate Adaptation Science Centers (CASCs) are nine multi-institution partnerships delivering actionable research and tools to directly support resource and adaptation planning.³¹ They do this by generating datasets and tools, and by helping plan and host trainings such as the annual Tribal Climate Camp.^{32,33} The nine regional CASCs are managed by the National CASC, and all are housed within USGS’s Ecosystems Mission Area.^{34,35}

²⁰ Sea Grant Extension: <https://seagrant.noaa.gov/extension>

²¹ NOAA OAR Programs: <https://research.noaa.gov/Labs-Programs/oar-programs>

²² Fifth National Climate Assessment: <https://www.globalchange.gov/nca5>

²³ Fourth NCA Summary Findings: <https://nca2018.globalchange.gov/>

²⁴ NAS, Global Change Research Needs and Opportunities: <https://doi.org/10.17226/26055>

²⁵ https://cd31b295-86d4-4ec9-80b6-13184ca6edde.usrfiles.com/ugd/cd31b2_de56b9eb726744d988ed620a50ecd625.pdf

²⁶ About Us | USDA Climate Hubs: <http://www.climatehubs.usda.gov/about-us>

²⁷ Climate Hubs Assessments: <https://www.climatehubs.usda.gov/actions-and-resources/assessments>

²⁸ Climate Hubs Demonstrations: <https://www.climatehubs.usda.gov/actions-and-resources/demonstrations>

²⁹ Climate Hubs Tools: <https://www.climatehubs.usda.gov/index.php/tools/all>

³⁰ Climate Hubs, About Us: <http://www.climatehubs.usda.gov/about-us>

³¹ Who We Are: <https://www.usgs.gov/ecosystems/climate-adaptation-science-centers/about/who-we-are>

³² CASC Data and Tools: <https://www.usgs.gov/ecosystems/climate-adaptation-science-centers/data-tools>

³³ <https://atntribes.org/climatechange/tribal-climate-camp/>

³⁴ History of the CASCs: <https://www.usgs.gov/ecosystems/climate-adaptation-science-centers/about/history-casc>

³⁵ CASC Who We Are: <https://www.usgs.gov/ecosystems/climate-adaptation-science-centers/about/who-we-are>

Centers for Disease Control and Prevention (CDC)

CDC's Climate and Health Program provides grants to state, tribal, local, and territorial public health agencies to assist them in preparing for the health impacts of climate change. It developed the five-step Building Resilience against Climate Effects (BRACE) framework to help health officials identify the scope of climate impacts that impact their populations, projecting the climate-related disease burden, and develop and implement a climate and health adaptation plan. It funds this collaborative work through its Climate-Ready States and Cities Initiative, Climate-Ready Tribes Program, and the “Building Capacity of the Public Health System to Improve Population Health through National, Nonprofit Organizations” Program.³⁶

RECOMMENDATIONS FOR FEDERAL CLIMATE SERVICES

Coordinated, Centralized Federal Climate Risk Information System

In recent years, numerous Federal and nonfederal organizations have called for the creation of a coordinated, centralized Federal system to improve access to authoritative climate risk information.

In a 2015 report GAO wrote that a mandate is needed for the establishment of a “national climate information system” with defined roles for both Federal agencies and civil society. Such a system would provide a Federal plan for and coordination of climate information, including the “establishment of clear roles, responsibilities, and working relationships among Federal, state, and local governments.” This delineation of roles would encourage productive collaboration and efficient use of resources. This system should emphasize “authoritative Federal data and quality assurance guidelines,” including pinpointing the best available climate information for use in decision-making. This would increase user confidence and eliminate a current disincentive for action that practitioners face due to a lack of clarity about which information to use.³⁷

The House Select Committee on the Climate Crisis Majority Staff Report recommended that Congress establish “a Climate Risk Information Service to develop and maintain a centralized portal for access to authoritative climate risk information geared toward public- and private-sector decision-makers.” It recommended that the Service collaborate closely with non-science Federal agencies and non-governmental groups to ensure that the products supported by the center reflect community needs, and the establishment of an “interagency working group to coordinate development of authoritative planning-scale climate risk information.”³⁸

Similarly, in 2020 the bipartisan think tank, the Center for Strategic and International Studies (CSIS), recommended the creation of a National Climate Information Center (NCIC) under the management of USGCRP. “The purpose of the NCIC would be to serve as a central coordinator and standard setter for climate information, to assist in getting information out to various user communities, and to provide guidance and coordination to the federal government about how to learn from how the information was used and what insights and new information were gained.”

³⁶ <https://www.cdc.gov/climateandhealth/default.htm>

³⁷ This recommendation is echoed in a 2001 NASEM Report: A Climate Services Vision: First Steps Toward the Future

³⁸ <https://climatecrisis.house.gov/sites/climatecrisis.house.gov/files/Climate%20Crisis%20Action%20Plan.pdf>

The NCIC should provide guidance on what types of information communities should use when considering climate impacts.³⁹

Better Support at the Community Level

These recommendations emphasize that Federal climate services should give stakeholders and grassroots communities a seat at the table to better prioritize investments in climate services based on the most pressing user needs. The GAO report recommended that a national system empower both Federal and nonfederal sources of technical assistance at the community level through a central hub or set of hubs. Empowering nonfederal sources would allow the system to remain nimble, flexible, and responsive to changing user needs, as the Federal government does not have the resources or trust at the local level to meet the full demand for technical assistance by communities.

Similarly, CSIS found that public and private sector collaboration is necessary to provide climate information to a vast array of user communities that represent a variety of “expected impacts, resource base(s), existing capacit(ies), and policy environment(s).” It recommended a set of regional hubs that are authorized to raise funds outside of the Federal government to “help provide additional resources and connective tissue to the existing agency-specific centers already in existence.” It also recommended funding a “National Climate Resilience Corps” to serve as community liaisons that build capacity and engagement between national programs with frontline communities and small or underserved communities not currently engaged with climate adaptation.

³⁹ https://csis-website-prod.s3.amazonaws.com/s3fs-public/publication/201217_Lewis_Ladislaw_Managing_Climate_Change_0.pdf