

KEY INSIGHTS

- **Robust assessments of climate science and impacts are critical to producing actionable insights** for households, businesses, communities, institutions, and governments to respond effectively to climate hazards.
- **Climate affects physical, social, ecological, and economic systems.** Compound and interactive events and impacts require integrated study.
- **Future climate assessments must address the convergence of accelerating risks, deepening inequities, and the urgency of coordinated action.**

This brief is based on the paper [“Research priorities for robust climate assessments in the U.S.”](#) published in *Earth’s Future* and in *BAMS* (2026)



Research priorities for robust climate assessments in the U.S.

by Chris DeLyser Roney, Laura Fischer

New 175-author paper identifies critical climate-related topics in need of assessment to inform climate response strategies.

Periodic climate assessments synthesize evidence from across the scientific community to inform decision-making and summarize illustrative topics that should be addressed in national as well as international, regional, sectoral, and local assessments. This paper supports future U.S. and subnational climate assessments by identifying advancements and research needs important to synthesize since the 2023 Fifth National Climate Assessment. Three EPRI authors contributed to the surveys of energy system impacts and potential mitigation actions, as part of a volunteer effort.

The authors found broad scientific consensus that **effective climate responses require clear translation of climate systems, risks, impacts, and solutions into meaningful action.** Climate change impacts are accelerating, and the pace of research and informed decision-making must accelerate to match.

Widely-cited scientific assessments such as the NCA and IPCC reports play a crucial role in synthesizing a complex body of knowledge, developing insights, and assessing confidence in those findings. These research priorities can guide the research needed to inform future national, regional, local, and sectoral climate assessments and help communities understand and navigate the impacts of climate change.



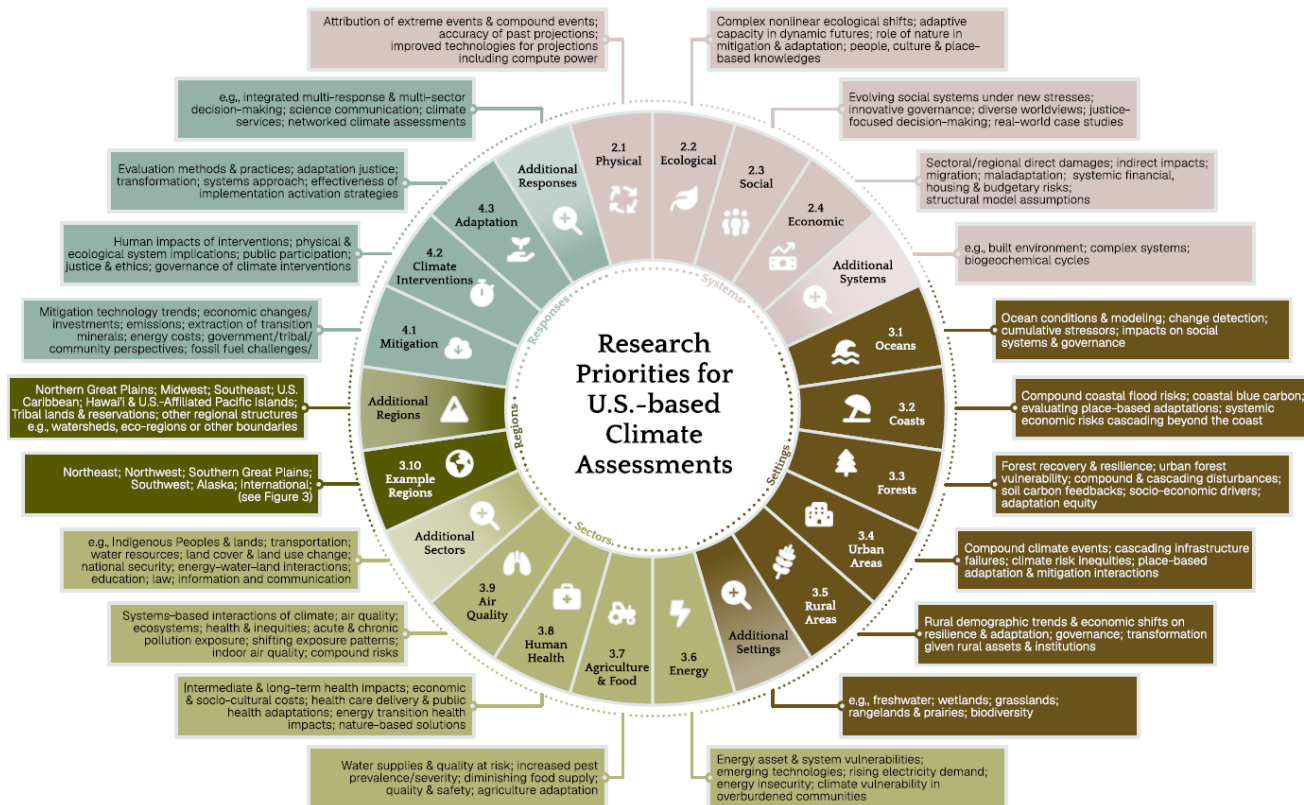


Figure 1. Research Priorities for U.S.-based Climate Assessments. *Numbering reflects paper sections for easier reference*

The paper covers climate assessment opportunities and assessment-related research needs across 4 planetary-scale systems, 5 different environmental settings, 4 economic sectors, and 5 U.S. regions, as well as U.S. international interests and key response strategies (Fig. 1). Across these domains, some common synthesis themes that require focused research emerge including:

- **Assess how greenhouse gas emissions are continuing to alter and amplify climate hazards**, including how risks are changing across places, timescales, and emission pathways.
- **Advance research and synthesis on compound extremes and cascading climate risks**, particularly how interacting hazards affect legacy policies,

infrastructure, and institutions designed around historical climate conditions or individual extreme events.

- **Strengthen understanding of interactions between climate and social systems**, including how human behaviors, decision-making, institutions, and governance, shape the distribution of climate impacts and the possibilities for climate responses.
- **Evaluate climate responses as an integrated portfolio**, including assessing how greenhouse gas emissions mitigation, climate adaptation, disaster management, climate interventions, and resilience strategies interact and understanding the effectiveness, interactions, co-benefits, trade-offs, and unintended consequences across these different climate-informed actions.

FOR MORE INFORMATION

Read [the U.S. Climate Collection](#).
Read [Research priorities for robust climate assessments in the U.S.](#)

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