

REPORT

Research Priorities for Climate Litigation

2026 Report

HIGHLIGHTS

Climate litigation continues to expand and mature, underscoring the importance of scientific evidence to support legal claims across the world. Evidence—including findings from the Intergovernmental Panel on Climate Change (IPCC) and peer-reviewed research—is already being used broadly in case development, complaints, legal briefs, and court proceedings. Here, we synthesize information from interviews with 25 litigators, identifying 10 priorities for additional research to support climate litigation. We describe structural, disciplinary, and institutional barriers that are currently impeding full integration of scientific evidence and discuss approaches that scientists and the scientific enterprise can take to overcome them.

Carly A. Phillips, PhD

L. Delta Merner, PhD

Amanda Fencl, PhD

Noah Walker-Crawford, PhD

Gary Yohe, PhD

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Introduction

Climate litigation has entered a mature and increasingly complex phase as a mechanism for addressing climate accountability and governance. By the end of 2024, nearly 3,000 climate-related cases had been filed across approximately 60 countries, with the United States accounting for roughly two-thirds of all recorded litigation (Setzer and Higham 2026). While the annual rate of new filings has moderated relative to the sharp increases observed in the immediate post-Paris Agreement period, the field continues to diversify in terms of legal theories, strategic approaches, and the range of actors involved. This includes three climate-focused advisory opinions issued by international courts, which provide new grounding for cases moving forward. Jurisdictions in the Global South are experiencing particularly dynamic growth, with nearly 60 percent of cases in these regions filed since 2020. Corporate defendants beyond fossil fuel companies are now facing scrutiny, including financial institutions, professional services firms, and the animal agriculture sector, with growing attention to Scope 3 emissions and climate-washing claims (Setzer and Higham 2025).

Apex courts are also shaping climate jurisprudence, with 276 climate cases reaching supreme or constitutional courts between 2015 and 2024 (Jackson and Setzer 2026; Setzer and Higham 2025). Nearly half resulted in outcomes enhancing climate action, including affirmation that governments' climate targets must reflect scientific evidence and principles of fairness and contain specific short-term milestones (Setzer and Higham 2026). Simultaneously, international advisory proceedings at bodies including the International Tribunal for the Law of the Sea, Inter-American Court of Human Rights, and the International Court of Justice are clarifying state obligations under international law (Peel 2026). While these advisory opinions are nonbinding, they provide a powerful interpretation of existing law that can inform future domestic and international cases. Climate litigation is also increasingly recognized as a material financial risk, with investors beginning to integrate litigation exposure into risk assessments alongside physical and regulatory risks (Sato et al. 2024).

The growth in new cases requires scientific evidence to craft and support the diversity of jurisdictions, legal theories, and defendants. Government framework cases, like *Urgenda Foundation v. State of the Netherlands*, use climate science to establish temperature thresholds and evaluate how government climate targets compare to those thresholds, while polluter pay cases rely on attribution science to establish a causal chain from conduct to emissions to harm (Walker-Crawford et al. 2026). Even as they broadly apply findings from scientific research in legal contexts, legal practitioners continue to cite lack of access to and limited availability of scientific evidence along with communication barriers as obstacles to bringing specific types of cases and to building persuasive arguments around existing cases (Merner, Phillips, and Mulvey 2024).

These research needs are directly explored in this study. We synthesized findings from 22 semistructured interviews with 25 climate litigation practitioners to identify research priorities that would most effectively inform climate accountability through legal pathways. We conducted interviews from February to April of 2026, with participants selected using a purposive sampling method based on their expertise in climate litigation and work across Africa, Asia, Europe, Latin America, North America, and Oceania / Australia (Table 1). This analysis does not explore trends by legal system or jurisdiction or examine the resulting differences in evidentiary standards. We analyzed interviews using a qualitative, grounded-theory informed analysis (Appendix A). This research builds on two previous reports that identified key trends in how legal teams used scientific evidence and named critical areas for additional research, both using a similar method (Merner et al. 2024; Wentz et al. 2023). While

this analysis captures global trends, our small sample size allows for preliminary conclusions regarding only regional trends in case types, evidence used, and research needs.

Table 1. Litigators Interviewed for the identification of Research Priorities

Interviewees by Geography	Count
Africa	2
Asia	3
Europe	5
Latin America	3
North America	9
Oceania / Australia	3
Total	25

Current State of Scientific Evidence in Climate Litigation

Foundational Scientific Evidence

Our interviewees identified several ways that scientific evidence, including authoritative assessment reports and peer-reviewed research, is already being integrated into existing litigation and used in planning for future cases. Assessment reports from the Intergovernmental Panel on Climate Change (IPCC), the most recent published between 2021 and 2023, serve as the foundation of this evidentiary base and cover key areas of evidence, like attribution science, climate-related health impacts, and sea-level-rise research (Walker-Crawford et al. 2026).

The IPCC was created by the World Meteorological Organization and United Nations Environment Program in 1988 “to provide policymakers with regular scientific assessments on climate change, its implications and potential future risks, as well as to put forward adaptation and mitigation options” (IPCC n.d.). The IPCC represents consensus information, defined as lack of disagreement among the more than 190 countries, on every word, number, and figure included in the Summary for Policymakers in each working group report. The IPCC is not intended to conduct new research, however, and its authors cannot make policy recommendations due to the narrow scope of its mandate. This mandate still guides the IPCC, but its work has reached beyond this international context and been cited in nearly every jurisdiction as a consensus baseline (Walker-Crawford et al. 2026).

One key area of evidence included as part of IPCC assessment reports is attribution science, which identifies and quantifies the contributions of climate change and specific sources of emissions to climate impacts (Seneviratne et al. 2021). Attribution science, broadly, has been included in the IPCC reports for decades. Its methods have evolved, leading to new subdisciplines, like extreme event attribution, which allows scientists to answer questions about the impact of climate change on specific events (Otto 2023). In the most recent

assessment cycle, extreme event attribution featured prominently across chapters and key findings, underscoring the scientific acceptance of the research's methodology and findings (IPCC 2023). Rapid attribution studies, based on peer-reviewed methodology, have catapulted this research into broader social and political discourse (Perkins-Kirkpatrick et al. 2024). By linking human activity or specific sources of emissions to the consequences of climate change, this research illustrates a causal chain, a critical type of evidence in litigation (Stuart-Smith et al. 2021; Walker-Crawford et al. 2026).

Our knowledge of the health effects of climate change impacts and their consequences on humanity, topics still being explored, is enormous and diverse. As a result, an IPCC chapter (or a section in a regional chapter) that examines mortality and morbidity attributed to climate change either directly (e.g., heat mortality) or indirectly (e.g., vector-borne diseases) is generally a starting point in researching a given health impact. From there, a forward-looking search across more recent literature published since the release of the last IPCC assessment in 2023 can provide new insights.

Global sea-level rise is perhaps the longest-studied source of climate-driven human and property risk, and as a result, provides critical evidence in litigation (Fox-Kemper et al. 2021; Setzer and Higham 2024; Stuart-Smith et al. 2021). Its two major drivers are thermal expansion of the oceans and melting of land-based ice sheets. Garnering attention more recently is how more localized sea-level rise can be driven by non-climate factors, such as local land subsidence as well as community and regional pathways of human development and land-use change (Lincke et al. 2022). The slow-onset nature of sea level rise and the emergence of events of low likelihood but high consequence (like the sudden and quick collapse of the Thwaites Glacier in Antarctica) have informed the use of sea-level-rise research and scientific evidence in cases worldwide (Frederikse et al. 2020; Stuart-Smith et al. 2021).

Observed Improvements in Use of Scientific Evidence

Our interviews surfaced substantial advances in lawyers' use of scientific evidence in their casework, largely because of improved communication of scientific concepts and better access to consensus reports and peer-reviewed research. For one, interviewees noted that improvements in the communication of scientific information have increased judicial and legal comprehension of scientific concepts. This is due to both consensus science, highlighted by the work of the IPCC, and the increased application of data visualization, such as 3D printed models, overlays with climate impact projections, and courtroom visuals like those used during International Court of Justice hearings on states' climate change obligations.

Further, interviewees identified that new research has allowed them to pursue novel argumentation. Two key papers published in *Nature*, Callahan and Mankin (2025) and Quilcaille et al. (2025), were repeatedly raised by interviewees. They noted that these studies, which connect emissions from major fossil fuel producers to specific heat waves and their associated economic impacts, allowed them to make but-for arguments that were impossible in climate litigation just five years ago. In addition, documented historical corporate misconduct and disinformation as well as demonstrated parallels with the strategies of the tobacco industry have been admitted as evidence across jurisdictions to illustrate the similarly deceptive conduct of several major players in the fossil fuel industry. Community-led evidence, including personal testimony before the Inter-American Court of Human Rights, has also been used more effectively since the previous iteration of this study, with the

documentation from the community of Tabasco, Mexico, leading to its recognition as the first climate-displaced community.

10 Research Priorities for the Scientific Community

Priorities are ranked by frequency of mention across interviews and strategic importance for litigation. Methodology is available in Appendices A and B.

1. Continued advances in attribution science

Attribution science establishes causal links among sources of emissions, climate change, and its impacts, and serves as a key type of scientific evidence in cases globally. Current attribution studies typically quantify the contribution of

- climate change to observed trends (trend attribution);
- climate change to the likelihood or intensity of a specific event (extreme event attribution);
- specific sources of emissions to climate change, observed trends, extreme events, or impacts (source attribution); or
- climate change to specific harms (impact attribution).

Interviewees highlighted the need for end-to-end attribution research (e.g., Callahan and Mankin 2025) that combines these approaches in a single study, quantifying the impact of specific emission sources on specific harms affecting communities. One interviewee identified this type of research as the “holy grail” of evidence for establishing causal chains in tort and human rights cases. Interviewees also noted the lack of extreme event attribution studies for event types like hailstorms, wildfires, and compound events.

Further, interviewees identified the need for broader attribution frameworks that identify and articulate principles of causality specific to climate change. In the same way a given cigarette cannot be linked to a specific instance of cancer, climate research cannot pinpoint the contribution of a given greenhouse gas molecule to a specific climate impact. However, just as public health has established a clear causal relationship between smoking cigarettes and cancer, climate research has solidly established a connection between burning fossil fuels and rising temperatures. Interviewees also identified the need for additional robust approaches to allocating responsibility among multiple emitters, specifically highlighting the need for better information about proportional contributions of emitters to impacts.

2. Localized/downscaled attribution

Since much of the existing climate research for both attribution and projection is global, interviewees pointed out the need for research at finer spatial scales. Local governments and communities require evidence specific to their jurisdiction to establish standing and show causation. This can include country- and province-specific climate impact projections as well as event attribution for understudied regions of the world, particularly in the Global South. Such efforts may require historical data reconstruction using religious records, oral histories,

or Traditional and Indigenous Knowledges, given the data inequities that persist in under-resourced countries—many having contributed the least to climate change but experiencing the brunt of its impacts (Otto 2023). Lack of data could impede vulnerable frontline communities from seeking justice through the courts. In addition, interviewees acknowledged the need for climate research that can distinguish local and regional variability and identify its effects on climate impacts. For example, urban heat islands can lead to higher temperatures than global models can capture, therefore to greater consequences for city communities.

3. Quantifying noneconomic loss and damage

Loss and damage, a term that encompasses negative impacts of climate change that are either unavoidable or irreversible, has emerged as a key mechanism for addressing climate harms, with noneconomic loss and damage proving particularly persuasive in litigation but difficult to measure. Interviewees noted the lack of established methodology for quantifying these impacts, which include culture loss, psychological harm, displacement, land loss, and intergenerational trauma. This kind of information is particularly relevant for cases focused on Indigenous communities and small island nations in the Pacific. One interviewee noted that “the way in which he [the client] spoke about the loss of his village, the loss of the land, was like a wrongful death, was like a family member.” Human rights cases also rely on this type of evidence. Specific needs identified by interviewees include the quantification of mental health impacts, like climate anxiety, solastalgia (distress from witnessing environmental damage), and trauma from displacement; the valuation of cultural heritage; and the creation of assessment frameworks for impacts on demographics and future generations.

4. Climate and health-related research

Research at the nexus of climate and its human-health impacts continues to be critical for a range of legal strategies, including personal injury, wrongful death, human rights, nuisance, and public health cases, yet systematic gaps persist across multiple domains. Documentation of these impacts is fragmented, inconsistent, and rarely litigation-ready. The specific research needs span multiple disciplines and a wide range of areas of expertise. Interviewees identified the need for robust quantification of mental health impacts and psychological harm associated with climate, including anxiety in younger generations, harms from extreme events, and trauma associated with loss of land and culture. This type of information is particularly important for characterizing impacts on Indigenous communities due to what one interviewee described as an ongoing intergenerational food transition resulting from the loss of traditional food sources and the substitution of ultra-processed alternatives.

Though existing research captures some global impacts, such as climate-linked, heat-related mortality, interviewees acknowledged the need for localized health information (see “2. Localized/downscaled attribution”). Additionally, interviewees cited a persistent gap in available information regarding health impacts associated with individual fossil fuel projects. This information may include findings from quantifying exposure zones, determining health consequences of specific pollutants, like methane, and examining various facility-based processes, such as venting and flaring, which release heat-trapping emissions to the atmosphere.

5. Impact of incremental emissions

Interviewees identified a need for research that quantifies and characterizes impacts from relatively small amounts of emissions as carbon budgets dwindle and impacts escalate. This type of research could include quantifying the climate impact of individual facilities or projects, or modeling to aggregate the impact of super-emitter clusters. One interviewee expressed the need for “scientific information that can help us say with specificity [that] small percentages of a problem that’s catastrophic in nature is still meaningful.” In addition, interviewees identified that counterfactuals that quantify the consequences of delayed action provide compelling information for case building.

6. Quantifying impacts of deception, obstruction, and disinformation

While industry disinformation campaigns are well documented historically (Merner et al. 2025), interviewees identified a critical gap in research that quantifies the climate consequences of this deception. No studies measure the amount of additional emissions that resulted from delayed action attributable to disinformation efforts. Specific research needs to include counterfactual transition pathway modeling (e.g., moving from fossil fuels to renewable energy sources) to estimate emissions trajectories without industry deception, comparative frameworks quantifying renewable energy suppression, studies measuring consumer behavior impacts from advertising and disinformation campaigns, and analyses quantifying how political lobbying has influenced policy obstruction and delays.

7. Solutions for adaptation policy effectiveness

According to one interviewee, adaptation is still “a smaller sliver of climate litigation broadly,” yet adaptation gaps and policies could be litigated in the future due to failures to adapt and accrued harms. But failure-to-adapt claims are difficult to prove because of insufficient understanding, in some instances, of which adaptation measures would have prevented specific harms. The issue, as one interviewee explained, is “How do we prove that if an adaptation policy was in place, that these harms would have been avoided?” This becomes critical for government accountability or failure-to-regulate cases, where governments have a legislated or regulatory responsibility for climate adaptation but continue to fail to protect people. Such cases would require both prospective adaptation studies of how to prevent harm in future years alongside retrospective analyses of how current harms could have been avoided. The latter requires reliable quantification methodologies for avoided harm, documentation protocols around disaster preparedness failures, and frameworks for scientists to better identify maladaptation, or adaptation measures that worsen vulnerability or cause more harm.

8. Insurance and financial sector climate causation

Insurance companies are underwriting fossil fuel projects while paying out claims for climate damages (Grasso and Heede 2023). Several interviewees noted that some insurers are no longer operating in areas at high risk of climate-fueled disasters, like wildfires and hurricanes, creating challenges for communities and governments (Sastry, Sen, and Tenekedjieva 2023). Interviewees noted that despite this conflict in insurers’ business models, no studies quantify the net costs of this strategy or enable litigation of insurers against the fossil fuel industry. Interviewees further identified the need for research into and documentation of blue-lining, where financial institutions, such as insurers, withdraw from climate-risk areas. Interviewees

also commented on the value of early warning indicators for stranded assets owned by the fossil fuel industry and climate attribution of increases in insurance premiums for homeowners and businesses.

9. Assessment and translation of Indigenous and Traditional Knowledge

Traditional Knowledge is increasingly recognized in the domain of “best available science,” but no frameworks exist for validating it within Western legal evidence standards. One interviewee noted that Traditional Knowledge “is science. . . . There are ways in which you can take an extra step to show the legitimacy of Traditional Indigenous Knowledge.” Other interviewees highlighted the importance of the coproduction of methodologies, often described as the braiding of Western science and Indigenous Knowledge, as well as the elevation of examples where this practice has already occurred, as with phenology and tidal pattern charting. Similarly, interviewees raised the need to document protocols for Traditional Ecological Knowledge. Also emphasized was the importance of pairing this integration with judicial training focused on assessing evidence from Indigenous Knowledge systems.

10. Carbon markets and offsets

Carbon markets are expanding globally, leading to litigation around false claims, noncompliance, and fraud that requires independent scientific verification. Interviewees highlighted the lack of rigorous scientific methodologies to verify whether carbon offsets reduce emissions, quantify additionality, or assess durability across different offset types (e.g., nature based, technological, avoided emissions). Further, they identified a need for protocols that quantify leakage from specific projects. Beyond evaluating the veracity of individual project-based claims, interviewees also identified the need for broader-scale analyses that assess trends, including failure rates and co-benefits, across project types.

Barriers to Integrating Scientific Evidence

Throughout conversations, interviewees identified obstacles to integrating scientific evidence into their cases. These barriers, which occur in both the scientific and legal arenas, can be broadly categorized as structural, disciplinary, or institutional.

Structural Barriers

Interviewees identified expert industry capture, resource imbalance, and geographic data gaps as key structural barriers to integrating scientific evidence into litigation. Specifically, they noted discrepancies in data availability and accessibility that can impede the research supporting those most vulnerable to climate change. Challenges like incomplete or missing historical data records complicate efforts to conduct certain types of research, such as extreme event attribution. This is particularly true in the Global South, where certain regions lack the long-term data required despite having the highest vulnerability to climate impacts. As one interviewee stated, “In Africa, we’re erasing science. . . . The number of working weather stations has drastically decreased.” Much of the data required for scientific analyses are inaccessible to those most harmed by climate change, further compounding issues with obtaining relevant scientific information.

Interviewees noted, too, that some scientific disciplines, like marine science and mining engineering, are dominated by scientists with ties to industry. Similarly, industry provides funding to research groups across universities and nongovernmental organizations, creating challenges when identifying independent experts. If a relevant expert is willing to participate in litigation, their involvement comes with risk. As one interviewee said, “You can’t keep wheeling out the same expert, because then they become the target of industry.”

The structural challenges associated with integrating evidence are amplified by a resource imbalance between the powerful actors who are often defendants in cases and the public servants or public-interest lawyers who bring cases. Nongovernmental organizations and public interest organizations may lack the resources to retain experts, particularly experts based in other countries. On the other hand, industry may have access to “armies of lawyers” or large teams that can critique the integrity of a single study or attack the credibility of an individual scientist.

Disciplinary Barriers

Differences between science and law as disciplines create barriers for the integration of scientific evidence into climate litigation. For example, distinctions between scientific certainty and legal certainty have been a long-standing challenge for the judiciary. Conventional wisdom holds that scientists require 90 percent to 100 percent certainty, while the legal system is frequently satisfied with “a preponderance of evidence” in civil law, a standard of proof that sustains an assessment greater than 51 percent (Lloyd et al. 2021). One interviewee reflected on this challenge, saying, “All the scientists would push back like, ‘We can’t say there’s more cyclones because of climate change because it’s not 99.9 percent provable,’ . . . but it is that way.” In legal settings, uncertainty is characterized as weakness, while in science, uncertainty reflects rigor. Such discrepancies, if not explored fully through expert testimony and clarifications, can impede cases in their pursuit of justice.

Mismatches in scale produce another set of challenges. Global or regional findings seldom meet the needs of specific legal proceedings because they do not address the idiosyncratic confounding factors that appear in most cases. Modern attribution science is not designed to support conclusions like, “*But for climate change, event X would not have happened.*” Instead, it answers questions like, “*How much was the likelihood of event X happening increased by the impacts of climate change? And how much did event X’s intensity increase due to climate change?*” Confounding factors are included in both questions. One interviewee noted this challenge, saying, “Scientists don’t need to account for things like urban heat, urban heat island effect,” but litigators do. Global studies may not persuade local litigators, and local studies that would be persuasive often do not exist.

Relatedly, the timeline of litigation is often mismatched with the timeline of the scientific peer review process. Litigation in many countries may move quickly, but peer review may take years. Rapid attribution research can produce preliminary likelihood results within a day or two and final analyses within a few weeks. Such analyses are based on peer-reviewed methods, but each one is not individually peer reviewed. This constraint has not been fully explored or tested in legal contexts. Further, constraints imposed by statutes of limitation can require rapid turnaround times that do not align with the scientific process.

Institutional Barriers

Interviewees also identified institutional barriers across scientific, legal, and political realms. Scientists regularly disagree with one another publicly about appropriate methodology and interpretation of findings, but interviewees noted that these disagreements can be exploited by legal teams wanting to cast doubt on the expertise of individual scientists or to emphasize uncertainty to discredit scientific findings, despite these discussions being essential to a rigorous scientific process. Even if the conclusions from various studies align, methodological differences may still be weaponized. One interviewee observed, “It’s such a gift to the companies that would just love to watch us, you know, sort of point fingers.”

Outside of scientific spheres, the specialized nature of scientific evidence in climate cases can also create challenges, particularly due to the different training that scientists and judges receive. One interviewee commented on these differences, stating, “Judges are incredibly intelligent [but] are also generalists.” Another interviewee highlighted that some jurisdictions, such as Chile, have addressed this lack of judicial scientific literacy in the judiciary through specialized environmental tribunals; however, this practice is not common globally.

Political interference further exacerbates issues with scientific literacy in the judiciary. Interviewees noted that technical reports have been overruled by political leadership, and scientifically robust rulings have been dismissed or ignored by elected officials. Interviewees repeatedly highlighted the risks that political interference poses to climate litigation, with several noting the recent example of the removal of a climate science chapter from the Federal Judicial Center’s *Reference Manual on Scientific Evidence* in the United States (Raymond 2026). One interviewee reflected on “the recent removal of the updated chapter about climate science that was supposed to go to the federal judges. I think it’s pretty unprecedented.” This high-profile example emphasizes the dangers of political interference in the judiciary and underscores the critical impact of democratic norms in driving litigation outcomes.

Addressing Challenges Ahead

Our findings highlight the need for additional scientific research to support climate litigation and the importance of scientists engaging with legal teams to ensure that the best available science is accessible. We identified several barriers that impede the integration of this science as well as ways that scientists and the scientific enterprise can modify their approaches to better support litigation—including improving communication, updating data-gathering protocols, and creating independent expert networks. This research underscores the importance of scientific evidence in informing and supporting climate litigation and provides a road map for scientists and other experts looking to engage.

A central challenge emerging from our findings is the fundamental communication gap between scientists and lawyers, who in many respects operate in distinct discipline-specific communities with different languages, norms, and expectations. These differences are particularly pronounced in the concept of uncertainty, which scientists use to describe the rigor and confidence in their findings but lawyers often use to describe apparent weaknesses. One interviewee noted the difficulty in helping litigators understand that “any discussion of uncertainty is an indication of good science.” The need for clear translation, however, extends beyond this single example. Interviewees suggested several ways scientists and lawyers could overcome these communication challenges, including training for both scientists operating in

legal contexts and lawyers conducting litigation that requires scientific comprehension. Such training and support could offer guidance for drafting expert declarations, programs in judicial education, or protocols for plain-language summaries for court filings. Importantly, consistent and prolonged engagement between scientists and lawyers would provide a long-term solution to overcome communication barriers.

Our findings also point to concrete opportunities for updating data-gathering protocols to better capture relevant information for litigation-related research. A striking example is heat-related mortality documentation, where death certificates routinely list cardiac arrest, stroke, or organ failure as underlying causes instead of heat exposure, despite well-established climate-related health research linking heat waves to these outcomes.

This documentation gap creates a significant barrier to showing causation for wrongful death and human rights cases that depend on establishing a clear link between climate impacts and specific harms. Addressing this challenge would require standardized heat mortality coding protocols for medical practitioners and possible reform of emergency room and hospital documentation practices to capture climate-relevant exposure information alongside clinical outcomes.

Perhaps the most critical barrier we identified concerns the availability and security of independent expert witnesses as well as mechanisms to support their participation in litigation, including sustainable funding and protection from harassment and intimidation. In many critical fields, including marine science, hydrogeology, mining engineering, and coastal engineering, some litigators found that nearly the entire pool of qualified experts is conflicted through industry relationships. In some jurisdictions, cases are not being filed at all due to lack of expert availability rather than lack of scientific evidence. Interviewees named several potential solutions, including dedicated funding mechanisms for independent expert networks, protection protocols for experts facing coordinated attacks, university safeguards to preserve research independence from industry influence, and pathways for early-career scientists to engage in litigation work without compromising their academic trajectories. Still, these recommendations point toward capacity building and infrastructure needs rather than discrete scientific research questions, reflecting the complex institutional realities that shape how science enters the courtroom.

Together, the findings of our study underscore both the tremendous potential and the significant constraints influencing the integration of scientific evidence into climate litigation. While the research priorities identified throughout this paper point to specific scientific questions that researchers can investigate—from end-to-end attribution methodologies to deception impact quantification—the structural, disciplinary, and institutional barriers we identified suggest that advancing climate accountability will require not only new science but also new approaches to how that science is produced, communicated, and protected. The growing sophistication of climate litigation worldwide demands equally sophisticated engagement from the scientific community, one that recognizes both the opportunities and the responsibilities that come with producing evidence that may ultimately determine liability for climate harms.

Authors

Carly A. Phillips, PhD is a senior research scientist for UCS' Science Hub for Climate Litigation, **L. Delta Merner, PhD** is lead scientist for the Hub, **Amanda Fencel, PhD** is director of research for UCS' Western States program, **Noah Walker-Crawford, PhD** is a research fellow at Grantham Research Institute on Climate Change and the Environment, London School of Economics and at the Grantham Institute – Climate Change and the Environment, Imperial College London and **Gary Yohe, PhD** is a Professor Emeritus of Economics and Environmental Studies at Wesleyan University

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Organizational affiliations are listed for identification purposes only. The opinions expressed herein do not necessarily reflect those of the individuals who reviewed the work. The authors bear sole responsibility for the report's content.

References

- Callahan, Christopher W., and Justin S. Mankin. 2025. "Carbon Majors and the Scientific Case for Climate Liability." *Nature* 640 (8060): 893–901. <https://doi.org/10.1038/s41586-025-08751-3>.
- Clarke, Victoria, and Virginia Braun. 2014. "Thematic Analysis." In *Encyclopedia of Critical Psychology*, edited by Thomas Teo. Springer. https://doi.org/10.1007/978-1-4614-5583-7_311.
- Fox-Kemper, B., H. T. Hewitt, C. Xiao, G. Aðalgeirsdóttir, S. S. Drijfhout, T. L. Edwards, N. R. Golledge, et al. 2021. "Ocean, Cryosphere and Sea Level Change." In *Climate Change 2021: The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, Y. Chen, L. Goldfarb, et al., 1211–1362. Cambridge University Press. <https://doi.org/10.1017/9781009157896.011>.
- Frederikse, Thomas, Maya K. Buchanan, Erwin Lambert, Robert E. Kopp, Michael Oppenheimer, D. J. Rasmussen, and Roderik S. W. van de Wal. 2020. "Antarctic Ice Sheet and Emission Scenario Controls on 21st-Century Extreme Sea-Level Changes." *Nature Communications* 11 (1): 390. <https://doi.org/10.1038/s41467-019-14049-6>.
- Grasso, Marco, and Richard Heede. 2023. "Time to Pay the Piper: Fossil Fuel Companies' Reparations for Climate Damages." *One Earth* 6 (5): 459–63. <https://doi.org/10.1016/j.oneear.2023.04.012>.
- IPCC (Intergovernmental Panel on Climate Change). 2023. *Climate Change 2023: Synthesis Report: Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by The Core Writing Team, H. Lee, and J. Romero. <https://doi.org/10.59327/IPCC/AR6-9789291691647>.
- IPCC———. (Intergovernmental Panel on Climate Change). n.d. "The Intergovernmental Panel on Climate Change." Accessed June 18, 2026. <https://www.ipcc.ch/>.

- Jackson, Eoin, and Joana Setzer. 2026. "Climate at the Apex: The Emerging Role of Apex Courts in Global Climate Governance." LSE Legal Studies Working Paper No. 1. London School of Economics and Political Science, May 18. <https://papers.ssrn.com/abstract=6789358>.
- Lincke, Daniel, Jochen Hinkel, Matthias Mengel, and Robert J. Nicholls. 2022. "Understanding the Drivers of Coastal Flood Exposure and Risk From 1860 to 2100." *Earth's Future* 10 (12): e2021EF002584. <https://doi.org/10.1029/2021EF002584>.
- Lloyd, Elisabeth A., Naomi Oreskes, Sonia I. Seneviratne, and Edward J. Larson. 2021. "Climate Scientists Set the Bar of Proof Too High." *Climatic Change* 165 (3): 55. <https://doi.org/10.1007/s10584-021-03061-9>.
- Merner, L. Delta, Kathy Mulvey, Laura Peterson, and Seth Shulman. 2025. *Decades of Deceit: The Case Against Major Fossil Fuel Companies for Climate Fraud and Damages*. Union of Concerned Scientists. <https://doi.org/10.47923/2025.15837>.
- Merner, L. Delta, Carly A. Phillips, and Kathy Mulvey. 2024. *Research Areas for Climate Litigation: 2024 Report*. Union of Concerned Scientists. <https://doi.org/10.47923/2024.15604>.
- Naeem, Muhammad, Wilson Ozuem, Kerry Howell, and Silvia Ranfagni. 2023. "A Step-by-Step Process of Thematic Analysis to Develop a Conceptual Model in Qualitative Research." *International Journal of Qualitative Methods* 22 (March): 16094069231205789. <https://doi.org/10.1177/16094069231205789>.
- Otto, Friederike E. L. 2023. "Attribution of Extreme Events to Climate Change." *Annual Review of Environment and Resources* 48 (1): 813–28. <https://doi.org/10.1146/annurev-environ-112621-083538>.
- Peel, Jacqueline. 2026. "Situating the ICJ's Advisory Opinion in the Wider Ecosystem of International Climate Litigation." *Review of European, Comparative & International Environmental Law*, ahead of print. <https://doi.org/10.1111/reel.70037>.
- Perkins-Kirkpatrick, Sarah E., Lisa V. Alexander, Andrew D. King, Sarah F. Kew, Sjoukje Y. Philip, Clair Barnes, Douglas Maraun, et al. 2024. "Frontiers in Attributing Climate Extremes and Associated Impacts." *Frontiers in Climate* 6 (October): 1455023. <https://doi.org/10.3389/fclim.2024.1455023>.
- Quilcaille, Yann, Lukas Gudmundsson, Dominik L. Schumacher, Thomas Gasser, Richard Heede, Corina Heri, Quentin Lejeune, et al. 2025. "Systematic Attribution of Heatwaves to the Emissions of Carbon Majors." *Nature* 645 (8080): 392–98. <https://doi.org/10.1038/s41586-025-09450-9>.
- Raymond, Nate. 2026. "US Judiciary Scraps Climate Chapter from Scientific Evidence Manual." Government. *Reuters*, February 9. <https://www.reuters.com/legal/government/us-judiciary-scraps-climate-chapter-scientific-evidence-manual-2026-02-09/>.
- Sastry, Parinitha, Ishita Sen, and Ana-Maria Tenekedjieva. 2023. "When Insurers Exit: Climate Losses, Fragile Insurers, and Mortgage Markets." SSRN Scholarly Paper No. 4674279. Social Science Research Network, December 23. <https://doi.org/10.2139/ssrn.4674279>.
- Sato, Misato, Glen Gostlow, Catherine Higham, Joana Setzer, and Frank Venmans. 2024. "Impacts of Climate Litigation on Firm Value." *Nature Sustainability* 7 (11): 1461–68. <https://doi.org/10.1038/s41893-024-01455-y>.
- Schutt, Russell K. 2018. *Investigating the Social World: The Process and Practice of Research*. SAGE Publications.

- Seneviratne, S. I., X. Zhang, M. Adnan, W. Badi, C. Dereczynski, A. Di Luca, S. Ghosh, et al. 2021. "Weather and Climate Extreme Events in a Changing Climate." In *Climate Change 2021: The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, edited by V. Masson-Delmotte, P. Zhai, A. Pirani, S. L. Connors, C. Péan, Y. Chen, L. Goldfarb, et al. Cambridge University Press. <https://doi.org/10.1017/9781009157896.013>.
- Setzer, Joana, and Catherine Higham. 2024. *Global Trends in Climate Change Litigation: 2024 Snapshot*. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2024/06/Global-trends-in-climate-change-litigation-2024-snapshot.pdf>.
- Setzer, Joana, and Catherine Higham. 2025. *Global Trends in Climate Change Litigation: 2025 Snapshot*. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. <https://doi.org/10.21953/LSE.LH46LE9Y8SGI>.
- Setzer, Joana, and Catherine Higham. 2026. *Global Trends in Climate Change Litigation: 2026 Snapshot*. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science. <https://doi.org/10.21953/researchonline.lse.ac.uk.00138625>.
- Stuart-Smith, Rupert F., Friederike E. L. Otto, Aisha I. Saad, Gaia Lisi, Petra Minnerop, Kristian Cedervall Lauta, Kristin van Zwieten, and Thom Wetzer. 2021. "Filling the Evidentiary Gap in Climate Litigation." *Nature Climate Change* 11 (8): 651–55. <https://doi.org/10.1038/s41558-021-01086-7>.
- Walker-Crawford, Noah, Jameela Joy Reyes, Nicholas Petkov, and Sofia Palazzo Corner. 2026. *Science in the Courtroom: Evidentiary Needs in Climate Litigation*. Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, Grantham Institute – Climate Change and the Environment, Imperial College London. <https://doi.org/10.21953/researchonline.lse.ac.uk.00137472>.
- Wentz, Jessica, Delta Merner, Benjamin Franta, Alessandra Lehmen, and Peter C. Frumhoff. 2023. "Research Priorities for Climate Litigation." *Earth's Future* 11 (1): e2022EF002928. <https://doi.org/10.1029/2022EF002928>.

Appendices

Appendix A – Methods

To identify current uses of scientific information and priority research areas for climate litigation, we conducted 22 semistructured interviews with 25 legal scholars and practitioners between February and April of 2026. Participants were provided with a detailed consent form outlining the purpose of the study, the nature of their participation, and the use of their data. We obtained informed consent from all interviewees prior to participation in the study and maintained the stated confidentiality and anonymity throughout. Interviews were conducted remotely, recorded with participants' consent, and transcribed for analysis.

We recruited legal scholars and practitioners through a purposive sampling method (Schutt 2018), identifying potential participants through professional networks, academic publications, and recommendations from experts in the field. All interviewees hold law degrees and have worked on climate-related issues for a minimum of two years. To assess the trustworthiness of an interviewee, we qualitatively evaluated their professional background, academic qualifications, and prior contributions to the field of climate litigation, ensuring that their insights were informed by substantial expertise and credibility. This approach brought insights from individuals who are actively engaged in or have considerable knowledge of climate litigation while also representing a range of geographies. Although this method ensures the inclusion of relevant and knowledgeable participants, it may introduce selection bias.

We analyzed these semistructured interviews using a qualitative, grounded theory–informed analysis following Clarke and Braun's (2014) approach to better understand how scientific research is used in climate litigation, where critical research gaps remain, and what barriers limit the effective use of science in legal contexts (Clarke and Braun 2014). The analysis is inductive and iterative, allowing patterns and themes to emerge from participant experiences rather than relying on a predetermined analytic framework. Grounded theory techniques are employed to ensure that findings are closely anchored in the data while allowing researchers to remain responsive to the practical needs of climate litigation and accountability work.

Interview transcripts were the primary unit of analysis and were coded at the level of meaningful text segments, including phrases, sentences, or short paragraphs that convey a single analytic idea. Transcripts were anonymized prior to coding, which was conducted by researchers using anonymized transcripts.

The analysis was organized around three core categories that align with the study's central research questions. The first category focuses on the types of scientific research currently used in climate litigation. Coding within this category captures how different forms of science are mobilized in legal contexts. The second category addresses research gaps relevant to climate litigation. Codes in this category capture participants' descriptions of missing or underdeveloped evidence. The third category examines barriers to using scientific research in climate litigation. Coding in this category focuses on structural, disciplinary, and institutional constraints that prevent scientific evidence from being introduced or relied upon in legal proceedings.

Initial open coding was conducted through close, line-by-line review of each transcript, using descriptive and provisional codes that reflect participants' own language and emphasis. These codes were then grouped through axial coding into higher-level categories aligned with the three core analytic domains. As additional interviews were analyzed, codes were refined, merged, or expanded to ensure consistency across transcripts and allow new themes to emerge.

Throughout the analysis, analytic memos were used to document emerging patterns, tensions, and relationships between categories. Reflexive attention was paid to each researcher's position at the intersection of science and law, with care taken to ground interpretations in participant testimony rather than prior assumptions or advocacy goals.

Findings were synthesized across interviews to identify recurring themes, jurisdictional differences, and cross-cutting research priorities. Final themes were defined, named, and linked to the research questions, with the findings validated by external reviewers. Notes were maintained throughout to document decisions and ensure transparency (Naeem et al. 2023). Together, this analytic approach provides a systematic and transparent assessment of how scientific research currently functions in climate litigation, where it falls short, and what changes could meaningfully strengthen its role in advancing accountability and justice.

Appendix B – Interview Script

Thank you so much for agreeing to speak today. Before we begin our interview, I'd like to go over a few important points. You are invited to participate in a research study to identify which research questions and themes require additional attention for informing legal efforts around climate change. This project will survey active climate change litigators and scholars representing a cross-section of legal approaches to better understand research areas related to climate litigation. The interview will take approximately 30–60 minutes. All interviews will be confidential. Your name and affiliation will never be published or connected to this work. Findings from this research will be synthesized into a public report, and the final research outcomes will be shared with participants.

With your permission, the interview will be audio taped and transcribed. These records will be used exclusively by the researchers for data analysis to ensure accuracy. Please understand your participation is voluntary and you have the right to stop the interview at any time. You have the right to refuse to answer particular questions.

Do you have any questions? *Do you feel comfortable proceeding, and may we have your permission to record this interview?*

1. Let's begin by getting to know you a bit better. Could you please give me an overview of your professional background, specifically your expertise in and any connections you have to climate litigation?
2. We want to understand how scientific evidence has been used to inform climate litigation and which types of evidence are most valuable for different types of cases.
(if needed) So, for those instances where scientific evidence was used in your work, what types of evidence or research areas have you found most beneficial in supporting your cases or legal efforts?
3. Could you identify any specific shortcomings or gaps in the available scientific evidence? What kind of scientific data or research do you think would add value to climate litigation efforts?
(if needed) What additional scientific research do you think is needed?
4. Are there any legal strategies that you are not able to pursue due to the lack of specific scientific evidence? What areas of study do you think require more in-depth investigation to support such strategies?
5. What barriers have you faced in integrating scientific research and data into your legal strategies?
6. Could you discuss challenges of relying on scientific evidence in climate litigation? How does this impact case outcomes and broader legal strategies?

Thank you for sharing your insights. Before we conclude, is there anything else you'd like to add or emphasize regarding the role of scientific research in supporting climate litigation?

Please reach out if you have additional thoughts you'd like to share. I'll be in touch when we have our final research product to share.

Appendix C – Discussion of Regional Trends

Our findings reveal notable variations in evidence preferences and strategic approaches across different geographic regions, though the interview sample size per region is too limited to draw definitive conclusions about regional patterns. These preliminary observations reflect the experiences of the practitioners interviewed rather than comprehensive regional characterizations and should be interpreted with appropriate caution.

In Africa, practitioners primarily rely on community testimony, environmental and social impact assessment reviews, and local pollution data. Their most distinctive strategic approach involves nonjudicial forums when courts prove inaccessible, particularly leveraging UNESCO World Heritage processes and independent recourse mechanisms at international financial institutions. This pragmatic adaptation reflects the reality that judicial pathways remain constrained in many jurisdictions, prompting practitioners to pursue accountability through alternative institutional channels.

In Asia, practitioners demonstrate a strong preference for domestically produced evidence over international research, as local courts give substantially greater weight to national institutional sources. This orientation toward local evidence reflects both strategic considerations about judicial receptivity and the growing capacity of regional scientific institutions to produce litigation-ready research.

In Australia and the Pacific, practitioners emphasize innovative visual science translation tools designed to clearly communicate complex climate evidence to judges and juries. They also identified persistent challenges in securing qualified expert witnesses within their countries, compounded by aggressive defense tactics that target expert credibility.

In Europe, practitioners feature highly sophisticated framework cases with a clear evidence hierarchy, where IPCC reports carry the greatest weight, followed by national advisory bodies, then expert reports. This structured approach reflects the region's strong institutional infrastructure for climate science and the relative receptivity of European courts to consensus-based scientific evidence.

In Latin America, practitioners rely on community-led monitoring, air and water quality testing, and Indigenous Knowledge integration. Their distinctive approach involves building parallel evidence networks through nongovernmental organizations when state data is unavailable or politically suppressed, enabling independent data collection that can withstand challenges to credibility. This grassroots evidence-generating capacity has become essential in contexts where government data cannot be trusted or do not exist.

In North America, evidence focuses on deception documentation, attribution studies, and financial disclosure records. The distinctive approach emphasizes deception-based liability theories and routinely requires attribution studies. A combative evidentiary strategy reflects the adversarial nature of common law litigation and the well-resourced opposition faced by climate plaintiffs in the region.