

Exploring research priorities for the IPCC Seventh Assessment Report

In May 2025, the Grantham Institute hosted a day-long event, bringing together experts from across the UK climate research community to discuss the Working Group outlines approved by the IPCC for its Seventh Assessment cycle. The community discussed research priorities to strengthen and support this assessment. A full report can be found [here](#).

To make it easier for geoscientists interested in contributing their research or expertise to the process, we have summarised the key information and deadlines in this article.

Important notes for contributors

- For the Special Report on Climate Change and Cities, the cut-off date for submission for publication is 1 April 2026 and the cut-off date for acceptance for publication is 15 October 2026; for the AR7 Working Group contributions, the timeline is still to be agreed but the cut-off date will likely be between mid/late 2027 to early 2028 depending on the report.
- Greater collaboration across Working Groups is required, and this should be showcased at the research community level, prioritising evidence from a multi- and inter-disciplinary evidence base.
- To ensure relevant research (especially new evidence) is considered in the IPCC assessment, researchers can send a short contribution (e.g. a paragraph) to the relevant lead author, so long as the evidence is peer-reviewed, for consideration. To facilitate the work of IPCC authors, the material should be relevant to a specific location within the report chapter. It is also helpful to find out from the relevant lead authors what is the optimal timing for submitting relevant contributions.
- Grey literature can also be included in the IPCC assessment, but authors should justify why it is relevant and ensure that the material is archived.

Research priorities highlighted to strengthen AR7 Assessment

This summary aims to signpost some key areas that would benefit from further research to deliver robust IPCC assessment findings. The bullet points in the outlines are indicative. There is scope for IPCC authors to consider topics that are not explicitly mentioned.

Working Group I

- Greater insight on the carbon cycle and transient climate response to emissions to inform emission driven projections.

- How human responses to climate impacts might alter projected pathways e.g., those resulting from adaptation and mitigation, feedback mechanisms.
- The physical feasibility and implications of overshoot scenarios, including unexpected side effects of large-scale deployment of Carbon Dioxide Removal (CDR) and Solar Radiation Modification (SRM).
- Wider sources of information for modelling e.g., new applications of AI and inclusion of greater local and indigenous knowledge.
- Use of paleo evidence to understand of abrupt changes and high impact events including thresholds, feedback, irreversibility and correlated risks.
- Greater understanding of tipping points.
- Models with greater inclusion of vegetation-climate interactions, circulation, precipitation changes and compound stress e.g., fire, drought and heatwaves.
- Research efforts should focus on providing better estimates of the costs of climate impacts and the cost of inaction.

Working Group II

- Vulnerability-led framing of risk over exposure-led.
- Understanding social tipping points and improving knowledge of where social thresholds and tipping points might lie.
- With climate change seen as part of a polycrisis, further evidence is needed to understand and address multiple hazards.
 - How key infrastructure systems (especially energy, communications, transport) mediate risk, enable resilience and shape vulnerability.
 - A shift from an asset-based approach to risk and loss assessment towards an access-based approach (for example, from understanding which hospitals are physically vulnerable towards an approach that considers who is able to access functioning hospitals)
- Research is required on the economics of adaptation beyond over simplistic cost-benefit analyses that do not effectively address deep uncertainty.
- Greater evidence generated by practitioners and indigenous knowledge, with a focus on inclusion rather than integration of different sources of knowledge, to avoid losing important context.
- WGII to provide context to WGI and III of severe impacts for people and ecosystems on overshoot pathways.
- Conditions under which adaptation strategies cease to be effective.
- Evidence is needed on responses to losses and damages around what is working at different spatial scales. This new evidence can also support the new Loss and Damage Fund instituted under the UNFCCC.

- Significantly more evidence is needed on finance, both for adaptation and loss and damage (assessment of actual financial flows going to developing countries, and the role of blended finance).

Working Group III

- The interrelationship between climate policies and other political goals (e.g. growth, health, energy security) and how climate goals interact with and influence other national policy priorities.
- Real-world outcomes of existing mitigation policies including socioeconomic conditions and changing climate that may impact policy effectiveness.
- Strengthen the risk/opportunity evidence base: more robust research on the full economic and social benefits of mitigation, including the resulting economic opportunities and co-benefits versus cost of inaction, and the potential for policy driven cost reductions.
- Impact of anti-mitigation narratives and how to counter them.
- How to more effectively integrate equity and justice considerations into scenarios e.g., reducing emissions in a world that focuses on advancing justice.
- Address remaining scenario-based questions: Are we sure we are sampling all the possible ways of achieving policy-relevant temperatures within the scenarios? Are we sure we have incorporated all the different drivers of emissions? Are we sure we are sampling and looking at regional land use and non-CO2 emissions? How can scenarios be developed in a more interdisciplinary way?
- Efforts to develop and mainstream minimum quality standards for scenario data
- Increase the diversity and transparency of integrated assessment models.
- The impact of AI and other emerging technologies on behaviour (consumption and production) and mitigation pathways, and what this means for realistic scenario development.
- The sequencing, timing, and risks around the deployment of carbon dioxide removal (CDR), when and how to use CDR responsibly.

A full report on the event can be found [here](#). Please contact us at policy@geolsoc.org.uk should you have any questions or wish to discuss contributing to this process.