

WCRP-IPCC Co-sponsored Workshop on Earth system high impact events, tipping points and their consequences

1. Overview / Executive Summary

Earth-system high-impact events and tipping points can trigger substantial, widespread, and potentially irreversible changes in the climate system, ecosystems, and human societies. For the first time, the IPCC's Seventh Assessment Report (AR7) will include a dedicated chapter on this topic. Yet questions remain regarding how "tipping points" are defined, their relevance to climate risk, and how scientific knowledge and uncertainties should be communicated to the public and the media.

To advance clarity and strengthen scientific consensus, the World Climate Research Programme (WCRP) and the Intergovernmental Panel on Climate Change (IPCC) will co-convene a high-level workshop in Paris on 26–28 November 2025, hosted by the Institut Pierre-Simon Laplace (IPSL) at Sorbonne Université. This invitation-only event will bring together leading climate scientists, including authors of the AR7. Its agenda will discuss definitions, review new findings on tipping points and threshold behaviour, identify knowledge gaps, and propose ways to assess a rapidly evolving research field. Expected outcomes will include recommendations for AR7 authors to take forward to the first IPCC Lead Author Meeting (LAM1) held jointly by the three Working Groups in Paris 1-5 December 2025, as well as guidance for the wider scientific community.

2. Why It Matters

Escalating climate risks: The world is already experiencing more frequent heatwaves, rapid ice loss, accelerating sea-level rise, unprecedented wildfires, disruptions to ocean circulation, and biodiversity decline. Understanding how these changes unfold — and whether they could amplify into high-impact or irreversible events — is essential for global risk planning.

Scientific challenges: There are growing discussions on the definition of "tipping points" and high impact events. Key uncertainties remain regarding their timing, likelihood, cascading effects across ecosystems and human systems, and how past climate shifts compare to present-day vulnerabilities. Important knowledge gaps also persist on how tipping dynamics could influence adaptation strategies and mitigation policies.

Relevance: This workshop will offer scientific input for consideration in the next IPCC assessment. For the first time, the IPCC Working Group I contribution to AR7 will feature a dedicated chapter on high-impact events and tipping points – assessing the existing body of scientific knowledge on abrupt changes, low-likelihood, high-impact events, and critical thresholds in the Earth system. A co-sponsored workshop will help to provide the foundations for that assessment. A clear and robust assessment of the science, uncertainties, and knowledge gaps is therefore essential.

Because this topic spans physical, ecological, and socio-economic systems, a shared understanding across all three IPCC Working Groups is needed. The workshop will bring together evidence from paleoclimate records, observations, and a broad set of models, and will incorporate global perspectives, including those from developing countries and vulnerable populations.

Participation: The co-sponsored workshop includes over 70 experts from all regions of the world, including those under threat from rapid or irreversible climate change, to ensure that the recommendations consider all perspectives. The meeting provides a platform for selected IPCC AR7 authors and other WCRP experts to exchange, debate, and co-develop scientific guidance.

3. Key Facts

- **Dates:** 26–28 November 2025
- **Location:** Sorbonne Université – Campus Pierre et Marie Curie, Paris, France
- **Format:** Plenary sessions, breakout working groups, general discussions, and drafting of guidance
- **Invitation-only:** Attendance is by invitation only
- **Language:** English

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IPCC co-sponsorship does not imply IPCC endorsement or approval of proceedings or any recommendations or conclusions identified to or arising from the Workshop.