

Climate Change 2023 Synthesis Report

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Section 1

Introduction



1. Introduction

This Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) summarises the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation, based on the peer-reviewed scientific, technical and socio-economic literature since the publication of the IPCC's Fifth Assessment Report (AR5) in 2014.

The assessment is undertaken within the context of the evolving international landscape, in particular, developments in the UN Framework Convention on Climate Change (UNFCCC) process, including the outcomes of the Kyoto Protocol and the adoption of the Paris Agreement. It reflects the increasing diversity of those involved in climate action.

This report integrates the main findings of the AR6 Working Group reports⁵⁸ and the three AR6 Special Reports⁵⁹. It recognizes the interdependence of climate, ecosystems and biodiversity, and human societies; the value of diverse forms of knowledge; and the close linkages between climate change adaptation, mitigation, ecosystem health, human well-being and sustainable development. Building on multiple analytical frameworks, including those from the physical and social sciences, this report identifies opportunities for transformative action which are effective, feasible, just and equitable using concepts of systems transitions and resilient development pathways⁶⁰. Different regional classification schemes⁶¹ are used for physical, social and economic aspects, reflecting the underlying literature.

After this introduction, Section 2, '*Current Status and Trends*', opens with the assessment of observational evidence for our changing climate, historical and current drivers of human-induced climate change, and its impacts. It assesses the current implementation of adaptation and mitigation response options. Section 3, '*Long-Term Climate and Development Futures*', provides a long-term assessment of climate change to 2100 and beyond in a broad range of socio-economic

futures. It considers long-term characteristics, impacts, risks and costs in adaptation and mitigation pathways in the context of sustainable development. Section 4, '*Near-Term Responses in a Changing Climate*', assesses opportunities for scaling up effective action in the period up to 2040, in the context of climate pledges, and commitments, and the pursuit of sustainable development.

Based on scientific understanding, key findings can be formulated as statements of fact or associated with an assessed level of confidence using the IPCC calibrated language⁶². The scientific findings are drawn from the underlying reports and arise from their Summary for Policymakers (hereafter SPM), Technical Summary (hereafter TS), and underlying chapters and are indicated by {} brackets. Figure 1.1 shows the Synthesis Report Figures Key, a guide to visual icons that are used across multiple figures within this report.

⁵⁸ The three Working Group contributions to AR6 are: Climate Change 2021: The Physical Science Basis; Climate Change 2022: Impacts, Adaptation and Vulnerability; and Climate Change 2022: Mitigation of Climate Change, respectively. Their assessments cover scientific literature accepted for publication respectively by 31 January 2021, 1 September 2021 and 11 October 2021.

⁵⁹ The three Special Reports are: Global Warming of 1.5°C (2018): an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (SR1.5); Climate Change and Land (2019): an IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (SRCCL); and The Ocean and Cryosphere in a Changing Climate (2019) (SROCC). The Special Reports cover scientific literature accepted for publication respectively by 15 May 2018, 7 April 2019 and 15 May 2019.

⁶⁰ The Glossary (Annex I) includes definitions of these, and other terms and concepts used in this report drawn from the AR6 joint Working Group Glossary.

⁶¹ Depending on the climate information context, geographical regions in AR6 may refer to larger areas, such as sub-continent and oceanic regions, or to typological regions, such as monsoon regions, coastlines, mountain ranges or cities. A new set of standard AR6 WGI reference land and ocean regions have been defined. WGIII allocates countries to geographical regions, based on the UN Statistics Division Classification {WGI 1.4.5, WGI 10.1, WGI 11.9, WGI 12.1–12.4, WGI Atlas.1.3.3–1.3.4}.

⁶² Each finding is grounded in an evaluation of underlying evidence and agreement. A level of confidence is expressed using five qualifiers: very low, low, medium, high and very high, and typeset in italics, for example, *medium confidence*. The following terms have been used to indicate the assessed likelihood of an outcome or result: virtually certain 99–100% probability; very likely 90–100%; likely 66–100%; more likely than not >50–100%; about as likely as not 33–66%; unlikely 0–33%; very unlikely 0–10%; and exceptionally unlikely 0–1%. Additional terms (extremely likely 95–100% and extremely unlikely 0–5%) are also used when appropriate. Assessed likelihood also is typeset in italics: for example, *very likely*. This is consistent with AR5. In this Report, unless stated otherwise, square brackets [x to y] are used to provide the assessed *very likely* range, or 90% interval.

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