

# Preface

This IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC), is the third Special Report to be produced in the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report (AR6) cycle. Its findings reinforce those of the two earlier Special Reports, the IPCC Special Report on Global Warming of 1.5°C and the IPCC Special Report on Climate Change and Land. The report was jointly prepared by Working Groups I and II, with the Working Group II Technical Support Unit leading the operational production. It was prepared following IPCC principles and procedures. This Special Report builds upon the IPCC's Fifth Assessment Report (AR5) in 2013–2014 and on relevant research published in the scientific, technical and socio-economic literature. The report sits alongside other related reports from other UN Bodies, including Intergovernmental Science Policy Platform on Biodiversity and Ecosystem Services (IPBES) Global Assessment Report on Biodiversity and Ecosystem Services.

## Scope of the Report

The IPCC SROCC responds to proposals for Special Reports from governments and observer organisations provided at the start of the IPCC AR6 cycle. It assesses the observed and projected changes to the ocean and cryosphere and their associated impacts and risks, with a focus on resilience, risk management response options, and adaptation measures, considering both their potential and limitations. SROCC brings together knowledge on physical and biogeochemical changes, the interplay with ecosystem changes, and the implications for human communities. The report was produced with careful attention to other assessments, with the aim of achieving coherence and complementarity, as well as providing an updated assessment of the current state of knowledge. The Special Report considered literature accepted for publication up to 15 May 2019.

## Structure of the Report

This report consists of a short Summary for Policymakers, a Technical Summary, six Chapters, an Integrative Cross-Chapter Box, four Annexes, as well as online Supplementary Material.

*Chapter 1: Framing and Context* introduces the reader to the structure of the report and the content presented in more detail in subsequent chapters. It highlights the role of the ocean and cryosphere in the Earth system, assessment of climate impacts and future risks for ecosystems and human societies from the high mountains to the deep ocean, the knowledge systems informing responses to climate change, as well as the capacities of governance and institutions to implement such responses, and it highlights key concepts and terms as well as linkages between chapters.

*Chapter 2: High Mountain Areas* provides a wide-ranging assessment of the observed and projected cryosphere (including snow, glaciers, permafrost, lake and river ice) changes in high mountain areas, as well as associated impacts, risks, and adaptation measures related to natural and human systems.

*Chapter 3: Polar Regions* presents the state of knowledge concerning changes in the Arctic and Antarctic oceans and marine and land cryosphere, how they are affected by climate change, and projections for the future. It assesses impacts of individual and interacting polar system changes, as well as response options to reduce risk and build resilience in the polar regions.

*Chapter 4: Sea Level Rise and Implications for Low-lying Islands, Coasts and Communities* assesses past and future contributions of various processes to global, regional and extreme sea level changes, the associated risks, and response options and pathways to resilience and sustainable development.

*Chapter 5: Changing Ocean, Marine Ecosystems, and Dependent Communities* focuses on observations of climate-related trends, impacts and adaptation, projected changes and associated risks, as well as the response options to enhance resilience.

*Chapter 6: Extremes, Abrupt Changes and Managing Risks* assesses extreme as well as abrupt or irreversible changes in the ocean and cryosphere including recent anomalous extreme events, compound risk, cascading effects, their impacts on human and natural systems, and sustainable and resilient risk management strategies.

Finally, the *Integrative Cross-Chapter Box on Low-Lying Islands and Coasts* highlights the key assessment findings relating to low lying islands and coasts. It includes summary information on the critical climate-related drivers, their observed and projected impacts on related geographies and major sectors, and responses, including adaptation strategies in practice.

## The Process

The IPCC SROCC was prepared in accordance with the principles and procedures established by the IPCC and represents the combined efforts of leading experts in the field of climate change. A scoping meeting for SROCC was held in Monaco in December 2016, and the final outline was agreed by the Panel at its 45th Session in March 2017 in Guadalajara, Mexico. Governments and IPCC observer organisations nominated more than 500 experts for the chapter team. The team of 14 Coordinating Lead Authors, 75 Lead Authors, and 15 Review Editors were selected by Working Groups I and II Bureaux. In addition, 222 Contributing Authors were invited by the chapter teams to provide scientific and technical information in the form of text, graphs or data. The report drafts prepared by the authors were subject to two rounds of formal review and revision followed by a final round of government comments on the Summary for Policymakers. The enthusiastic participation of the scientific community and governments to the review process resulted in over 31,000 written review comments, submitted by 824 expert reviewers and 43 governments. The Review Editors for the chapters monitored the review process to ensure that all substantive review comments received appropriate consideration. The Summary for Policymakers was approved at the Second Joint Session of Working Groups I and II, and the Summary for Policymakers

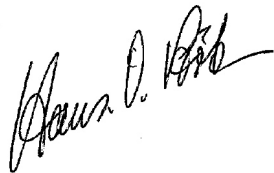
and the underlying chapters were then accepted by the IPCC at its 51st Session in September 2019 in Monaco.

## Acknowledgements

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