



IPCC Special Report

The pressure to take action is enormous

Statements on the IPCC's new Special Report "The Ocean and Cryosphere in a Changing Climate" from Hans-Otto Pörtner and AWI Director Antje Boetius

[25. September 2019] Today, in Monaco, the IPCC will present its new Special Report on the ocean and the Earth's frozen regions. The report summarises observations of and projections on climate-based changes to ecosystems in the ocean, coastal, polar and alpine regions, describes the likely impacts of these changes for society, and presents a range of options for adaptation. Over the past three years, 104 researchers from 36 countries have contributed to the report. In the statements below, Prof Hans-Otto Pörtner, Co-Chair of the IPCC's Working Group II, and AWI Director Prof Antje Boetius share their thoughts on its significance.



Hans-Otto Pörtner (Photo: Lars Grübner)

Drastic emissions reductions and an ambitious adaptation strategy could reduce risks

"The ocean and the cryosphere – the frozen regions of our planet – play an important part in the Earth

system, and in all our lives. Though they may seem very distant to some people, in fact we all directly or indirectly depend on the functions provided by the ocean and cryosphere. The effects of climate change, which we can already see first-hand in our own country, reflect how our actions are reshaping the environment: temperatures are rising, both on land and at sea. The ocean is losing oxygen and becoming more acidic, with serious consequences for fragile ecosystems like coral reefs, and for our ability to feed the global population through fishing and aquaculture. Glaciers and ice sheets around the planet are melting, causing the sea level to rise. Low-lying coastal regions and islands are increasingly being flooded. At the same time, alpine regions now face growing risks, e.g. of landslides and avalanches, not to mention changes in precipitation, which also affect many regions downstream from them. The effects of these changes often hit people who are least responsible for them, and who hardly have the resources to respond to them.

Because the ocean and cryosphere are already reacting to the current carbon dioxide emissions, and these changes are both long-term and irreversible, far-reaching risks (e.g. extreme weather events and sea level rise) can no longer be avoided – but their effects can be mitigated. We have the ability to assess these threats, and technologies that can be used to dramatically reduce emissions, and to support ambitious adaptation strategies. Yet the key is to create suitable framework conditions that will allow us to limit the changes in the ocean and cryosphere. In this way, we can preserve the vital ecosystems that provide the basis for all life.

The IPCC's recently released Special Report "The Ocean and Cryosphere in a Changing Climate" summarises observations of and projections on essential changes – from the snow-capped alpine peaks to the coastal regions and the ocean's depths, from the polar regions to the tropics. It describes the consequences for ecosystems and for us humans, as well as adaptation strategies and paths to a climate-friendly, sustainable and secure future. In addition, the report highlights the benefits of limiting global warming to 2 degrees compared to the mean temperature prior to industrialisation (the goal set by the governments in the Paris Agreement), or even to 1.5 degrees. Accordingly, the Special Report on the Ocean and Cryosphere represents a further valuable resource for the decision-makers attending the General Assembly of the United Nations, the Secretary-General's Climate Action Summit, and the Climate Week in New York, as well as the upcoming UN Climate Change Conference in Chile this December (COP25)."

Prof Hans-Otto Pörtner, AWI marine biologist and Co-Chair of Working Group II

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Institute

The Alfred Wegener Institute pursues research in the polar regions and the oceans of mid and high latitudes. As one of the 19 centres of the Helmholtz Association it coordinates polar research in Germany and provides ships like the research icebreaker Polarstern and stations for the international scientific community.

The Arctic as an early-warning system

"Our researchers' observations and projections regarding changes in the ocean and cryosphere confirm what the report summarises: carbon dioxide emissions, which have continued to rise steadily around the globe, are

producing concrete consequences for all life on Earth, including humankind. The fact that all of these trends have intensified is troubling, and constitutes a call to take action more quickly and invest in adaptation strategies. In this regard, the Arctic region serves as an early-warning system - although regional changes can also shape global processes."



AWI Director Prof. Dr. Antje Boetius (Photo: Kerstin Rolfes)

Prof Antje Boetius, marine biologist and Director of the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research

Video