Challenges of Sea-level Rise on Germany's Coasts

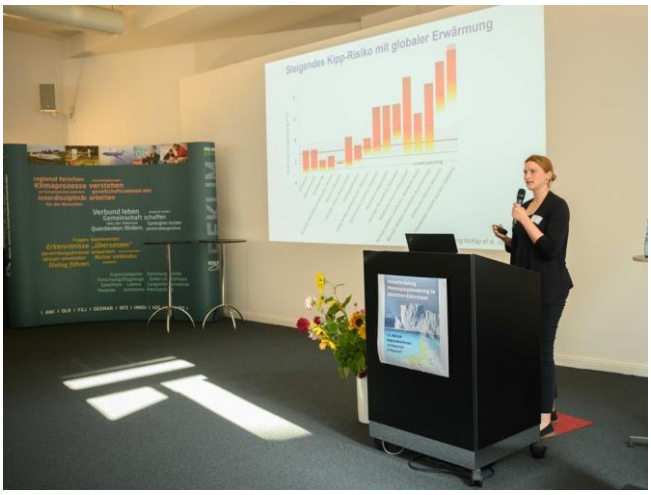
That was the motto of the **12th REKLIM Regional Conference "Regional Climate Change"**, held on 28 September 2023 at the House of Science in Bremen. The conference was jointly organised with the EU project TiPACCs (Tipping Points in Antarctic Climate Components); the Senator for Environment, Climate and Science, Federal State of Bremen; the North German Coastal and Climate Office at HEREON; and the Climate Office for Polar Regions and Sea Level Rise at the AWI.

In the 21st century, those living on the coast will have to adapt to a changed climate. The weather- and climate-related risks to the socioeconomic use of these regions will likely rise. These and other challenges on Germany's coasts were discussed at the conference of stakeholders on 28 September in Bremen. Progressive climate change and global warming are affecting sea levels, making them directly relevant to coastal protection. Accordingly, the REKLIM regional conference addressed topics ranging from global processes, especially those affected by the progressive melting of inland ice in the Arctic and Antarctic; to the regional outlook for changing sea levels on Germany's coasts; to local impacts and challenges for urban coastal protection. Actors from various fields had the chance to speak and encouraged the more than 130 invited guests to discuss and exchange views.

The conference was opened by Jan Fries, the State Councillor to the Senator for Environment and Climate, Federal State of Bremen (SUKW), who underscored the importance of dialogue between the scientific community and decision-makers for the development of preventive measures in coastal protection. Without this protection, 86% of the State of Bremen – and an area that is home to more than 500,000 people – would be covered in water twice a day. Accordingly, the long-term goal of ensuring sufficient coastal protection can only be met on the basis of reliable, scientifically sound projections and by coordinating various actors from administration and society. Dr Svein Østerhus, Scientific Coordinator of the EU project TiPACCs and an expert from the NORCE Research Institute in Bergen, Norway, welcomed those in attendance and stressed the unique role of the Antarctic and the potential impacts of exceeding tipping points on sea level rise in the Northern Hemisphere. In his view, exchanges between academic and societal actors, like at the conference, are role models for other regions that are similarly affected by these concerns. On behalf of the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Vice Director Prof Karen Wiltshire opened the conference. As Director of the AWI's coastal sites on Sylt and Helgoland, she also discussed the importance of the Wadden Sea and the effects of sea level rise on coastal ecosystems, and in particular, the role of islands as natural protection for coastlines. In turn, Prof Peter Braesicke, Scientific Coordinator of REKLIM and the event's host, highlighted the value of this format for exchanges between the scientific community and society. According to Braesicke, REKLIM addresses those places where its topics are the most important and where we can directly interact with decision-makers and actors, paving the way for initiating and maintaining lasting exchanges and collaborations.

(l. to r.) State Councillor Jan Fries (SUKW), Dr Svein Østerhus (Scientific Coordinator, TiPACCs), Prof Karen Wiltshire (Vice Director, AWI) and Prof Peter Braesicke (Scientific Coordinator, REKLIM) at the opening of the REKLIM Regional Conference. (Photo: Kerstin Rolfes)

In three scientific blocks and one exchange format (the “Topics Marketplace”), various perspectives on sea level rise were discussed. The first block was opened with two overview talks on climate research topics: Prof Olaf Eisen (AWI / University of Bremen) presented the evolution of inland ice masses in relation to our planetary history and outlined the potential effects of sea level rise under climate change. Further, he impressively highlighted the role of human beings and the need for action in order to meet the targets from the Paris Agreement. In turn, Prof Ricarda Winkelmann (PIK and Co-Speaker for the TiPACCs project) presented the results of the research project, as well as the risks involved in exceeding tipping points in the Antarctic climate system and potential impacts for the Northern Hemisphere. According to Winkelmann, sea level rise of at least 0.5 metres compared to 1900 is virtually certain by 2100; in the worst-case scenario, up to 7 metres by 2300 are possible. If global warming exceeds 3 °C, the changes could be irreversible, leading to the collapse of the West Antarctic Ice Sheet.

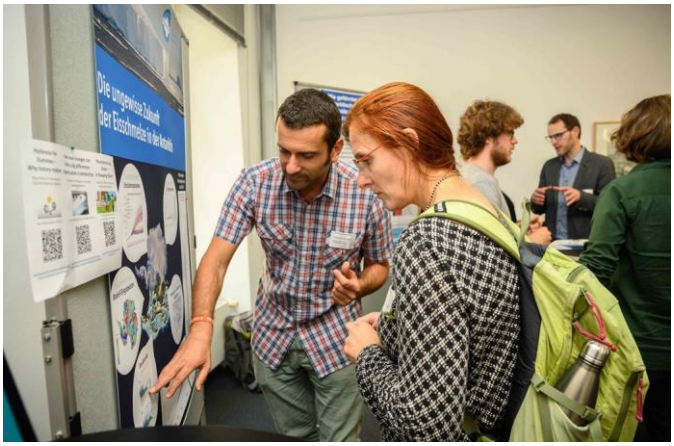


Prof Olaf Eisen (AWI / University of Bremen), left, and Prof Ricarda Winkelmann (PIK / TiPACCs), right, introduced those in attendance to the importance of the ice sheets, their potential instability, and the effects on the global mean sea level. (Photo: Kerstin Rolfes)

In the second block, this introduction was followed by observations from the regional perspective. Dr Insa Meinke (North German Coastal and Climate Office / HEREON) summarised the effects of sea level rise on Germany's coasts, while also showing how government offices, actors, and average citizens can find more information on current and likely future developments. Subsequently, Dr Thomas Schoneboom from NLWKN and Vincent Möller from SUKW provided an overview of Lower Saxony's climate adaptation strategies for coastal protection, and of the continuation of the climate adaptation strategy developed by the Federal State of Bremen and Bremerhaven – while also demonstrating how prevention can be approached and implemented as an ongoing task. In the following discussion, participants had the chance to ask questions and explore the topics in more depth.

(l. to r.) Moderator Dr Jürgen Ritterhoff (Ecolo - Agentur für Ökologie und Kommunikation), Dr Insa Meinke (HEREON), Dr Thomas Schoneboom (NLWKN) and Vincent Möller (SUKW) discuss the regional impacts, opportunities and limits of coastal protection. (Photos: Kerstin Rolfes)

After lunch, participants were invited to join a dialogue at one of four topic-specific round tables. TiPACCs and the North German Coastal and Climate Office, but also local projects like BREsilient – Climate-resilient Future for Bremen and Climate Change Adaptation in Coastal Regions – were represented. The lively talks with the experts, as well as participants' concerns regarding sustainable coastal protection, illustrated the need for this type of exchange format. Expert opinions on implementing measures, together with verified facts, are the prerequisites for ensuring the support of politicians and administrators, as well as their capacity to act.



Discussions and dialogues during the Topics Marketplace with the experts. (Photos: Kerstin Rolfes)

The third and final block focused on the questions that arise when protective measures and their implementation clash with day-to-day life. Hauke Krebs (SUKW) shed light on the problematic but vital nature of the “Stadtstrecke”, a part of downtown Bremen where the extended levee poses challenges, both from a structural and a nature conservation standpoint, which has sparked protests and resistance among the city’s populace. Dr Jan Visscher from the Ludwig Franzius Institute in Hannover presented the outcomes of its Real-World Lab project on ecosystem-strengthening coastal protection: “Gute Küste Niedersachsen” chiefly focuses on nature-based coastal protection. In closing, Dr Martin Döring (Universität Hamburg / REKLIM) and Philipp Jordan (Hamburg University of Technology) highlighted potentials in connection with the past and present dynamics of coastal protection from a social sciences perspective. “Neither levees nor retreat”, i.e., living with change and future adaptations to climate change, was the focus of a study conducted on the island Amrum and presented at the conference. All three real-world examples revealed both the challenges and importance of dialogue, and how it can help ensure not only acceptance, but also participation. After all, climate and coastal protection are tasks that can only be tackled together and which, particularly when it comes to sea level rise, must be viewed as long-term prevention.

Final discussion on the everyday relevance and implementation issues of climate protection measures (l. to r., moderator Dr Jürgen Ritterhoff (ecolo), Philipp Jordan (Hamburg University of Technology), Dr Martin Döring (University of Hamburg / REKLIM), Hauke Krebs (SUKW) and Dr Jan Visscher (Ludwig Franzius Institute Hannover). (Photo: Kerstin Rolfes)

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www.kuestengefahren.de

(Fotos: Kerstin Rolfes)

Agenda:

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Core statements: "...what we should all expect"

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Contributing institutes:

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