

02.11.2017, 15:15

# KlimaCampus Kolloquium

Ben Marzeion

## Future sea-level change from past glacier mass loss commitments

Even though glaciers store less than 1% of the global ice mass, they have probably been the strongest contributor to sea-level change in the 20th century. While mass loss from the ice sheets and thermal expansion of the ocean water are quickly increasing, glaciers will continue to play an important role in sea-level change in the 21st century. Understanding the causes, mechanisms and time scales of glacier change is therefore of paramount importance for identifying successful strategies for mitigation of, and adaption to, climate change.

In this presentation, we show that much of the future glacier-mass loss will be a response to climate change caused by past greenhouse-gas emissions. Mitigating climate change through reduced greenhouse-gas emissions therefore only has a limited influence on glaciers in the 21st century, while strongly impacting their long-term response. We will further show that currently, each emitted 1kg of carbon dioxide will eventually lead to  $10 \pm 5$ kg of ice-mass loss from glaciers, additional to ocean heat uptake, ice-sheet mass loss, etc.

*Ben Marzeion from the University of Bremen is invited by Martina Neuburger, Universität Hamburg.*

**Bundesstraße 53, Room 22/23 (ground floor)**