

## THE ROLE OF THE OCEANS IN CLIMATE CHANGE

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The relevance of the oceans for the dynamics of climate change during the last century is discussed with a focus on the following questions:

- atmospheric temperatures increase, but is there much evidence for ocean warming?
- if so, how much excess heat is absorbed by the oceans compared with atmosphere and land surface?
- How can we distinguish weather events and climate change?
- land vegetation exceeds biomass in the oceans, but play the oceans a minor role in atmospheric carbon dioxide capture and storage?
- in which way is remote sensing useful to deal with these questions?
- how much regenerative energy is produced today and is there a perspective for a full energy supply from these resources?
- How precisely is the past climate represented in climate models and what are the projections for the future climate depending on the various scenarios for energy production and consumption?