

Earth Science / Geosciences / Environment
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CO₂ and Climate Change: Past – Present – Future

Speaker:

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The Ocean's role in Climate Variability and Change in the Atlantic Sector

Three interrelated climate phenomena are at the center of climate research in Atlantic organized under the international Climate Variability and Predictability Program (CLIVAR): Tropical Atlantic Variability (TAV), the North Atlantic Oscillation (NAO), and the Atlantic Meridional Overturning Circulation (MOC). These phenomena produce a large number of impacts on society and the environment on seasonal, interannual and longer time scales through variability manifest as coherent fluctuations in ocean and land temperature, rainfall and extreme events. Improved understanding of this variability is essential for assessing the likely range of future climate fluctuations and the extent to which they may be predictable, as well as understanding the potential impact of human-induced climate change. The ocean plays a particular important role by providing a slow time timescale to those phenomena that enables potential predictability. It also integrates atmospheric variability and changes in ocean ventilation and circulation will interact at times in dramatic ways with the marine eco-systems.

The ocean research community has demonstrated the importance of ocean dynamics and properties for the climate problem. So it is time to promote a serious discussion about how to sustain the needed ocean observing and synthesis systems for both physical and biogeochemical aspects of the Atlantic and global ocean.