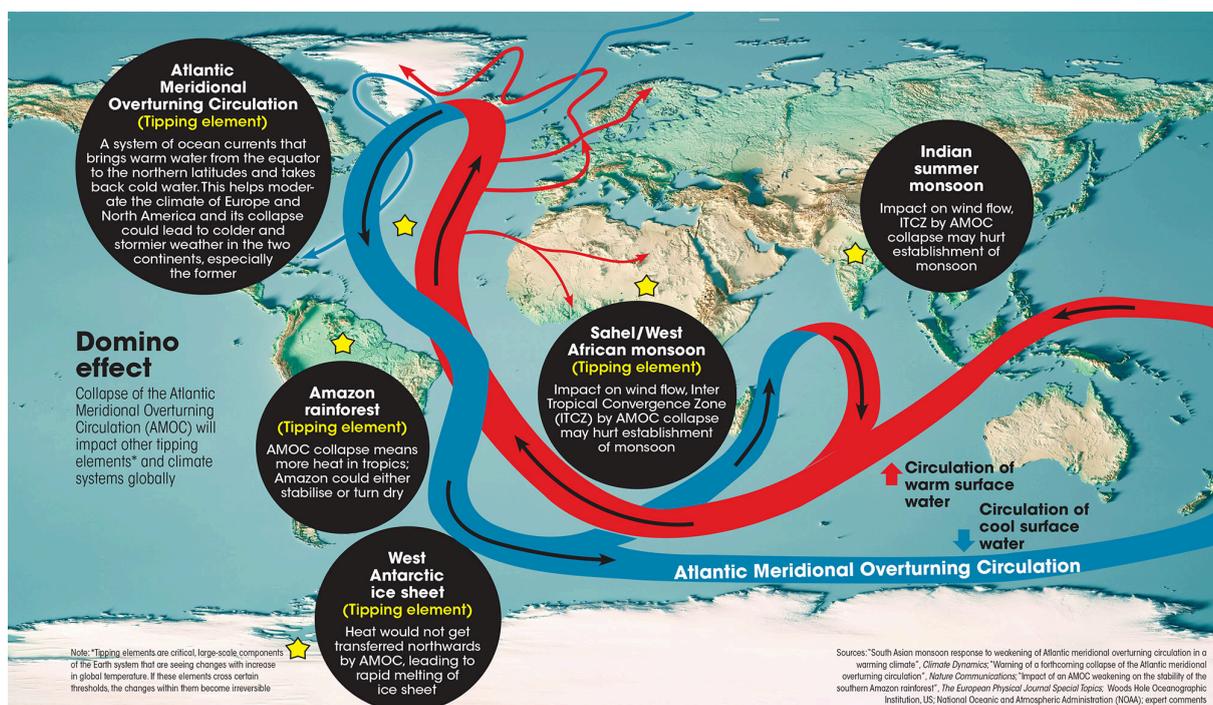


Impacts, reversibility, and risk assessment of AMOC weakening

Proposer: Prof. Katinka Bellomo

As a primary driver of global climate regulation, the Atlantic Meridional Overturning Circulation (AMOC) has exhibited a consistent weakening trend over the past thousand years. This decline is expected to accelerate this century as greenhouse gas emissions drive increased vertical stratification in the North Atlantic. While a complete AMOC shutdown is considered a possibility, the likelihood remains uncertain. However, several subsystems associated with AMOC weakening could undergo abrupt changes in a short time range with consequences felt as early as the mid of the century (e.g., the North Atlantic Warming Hole). This project aims at assessing the impacts, reversibility and risks associated with plausible future AMOC decline scenarios. The Ph.D. candidate will analyze model simulations to quantify atmospheric impacts at daily timescales, identifying hotspots of AMOC impacts at the regional level. Downstream risks and specific case studies analyzed through an interdisciplinary approach and methods can be an integral part of this project as well.



Interested applicants should ideally have a background in the following areas: climate science, meteorology or oceanography, physics, geophysics, engineering or mathematics. Prior programming experience is an asset. This position is based in the Department of Geosciences of the University of Padova (Italy) and is funded by the FIS Starting grant ACTOR (AMOC resilience during warm climate states and implications for 21st-Century climate tipping points).

Related funding: ACTOR - FIS project (Bellomo)