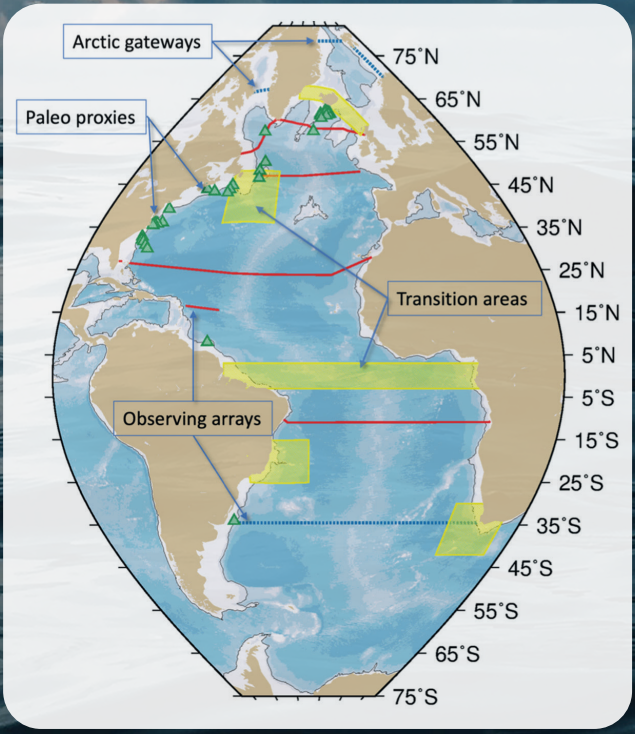
Explaining and predicting the ocean conveyor

A Horizon Europe project: 2022-2027

Generating a new concept of the AMOC, its function in the Earth system and how it impacts weather and climate



EPOC aims to:

- Assess AMOC variability and its conveyor-like nature using multi-observational and modelling approaches
- Observe and model key processes which make or break meridional connectivity
- Identify the drivers of recent change in the AMOC, including the roles of natural and anthropogenic forcing, and internal variability
- Characterise key processes and indicators of future AMOC changes and assess their impacts
- Design and deploy elements of a next-generation AMOC observing system

Observational approaches

- Multi-observational approaches for Atlantic-wide overturning
- Inverse modelling in the Arctic
- Lab-on-a-chip biogeochemical sensors on moorings
- Drift-free pressure sensors
- Evaluation of palaeoproxies along western ocean margins
- Assessment of robotic platforms for measuring ocean transports

High-resolution models

- Establishment of metrics for the AMOC to use in model intercomparison
- Coupled ocean-atmosphere-ice simulations with idealised forcing at 0.1° resolution
- Coupled ocean-atmosphere-ice simulations with < 2.5km resolution for comparison with observations

A consortium of experts

- DE: Universität Hamburg (lead), MPIM, U. Bremen, AWI
- UK: NOC, U. Reading, UCL, Seascape Consultants, Met Office
- FR: IFREMER, CNRS, CERFACS
- NO: Norsk Polarinstitutt, Havforskningsinstituttet
- CAN: Fisheries and Oceans Canada
- USA: WHOI, U. Washington, U. Miami, NOAA GFDL, U. Texas Austin, U. Rhode Island

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