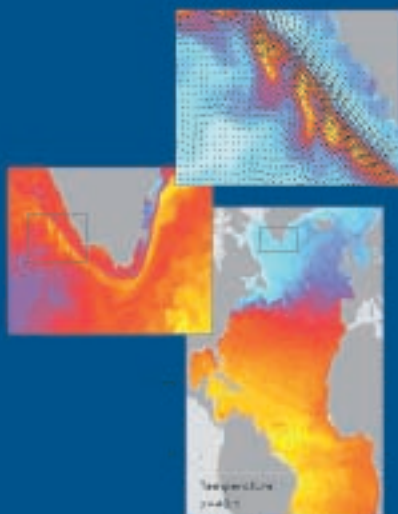


GLOBAL CHANGE OCEAN CIRCULATION



Ocean circulation models with kilometre resolution show warm (yellow) and cold (blue) water masses in the Atlantic and off SW Greenland, which play an important role in ocean mixing.

Global change impacts regional conditions especially in the North Atlantic, the European oceans and shelf seas. Processes in the ocean that point towards ongoing and anticipated changes in the Earth system have to be identified and key locations for sustained ocean observations instrumented.

Global Ocean Circulation connects all ocean basins. Sinking of water in the North Atlantic and around Antarctica and stepwise ascending water drive global overturning, which transports heat, water, carbon and oxygen globally and influences global climate.



Atlantic Ocean as part of the global ocean circulation system

RESEARCH NEEDS

- ▶ to quantify fresh water cycle and water mass transformation
- ▶ to optimize monitoring strategies
- ▶ to develop sustainable observational systems
- ▶ to improve coupled ocean-atmosphere models
- ▶ to improve assessment and prediction systems



Ocean observation infrastructure: Surface vessels, moorings, drifters, satellites, ROVs, AUVs and sea-floor observatories