EU FP7 THOR contribution to

A *Draft* Marine Research Plan for the European Atlantic Sea Basin

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Research

Climate Physics: Ocean and Atmosphere

Biology: Biodiversity and Ecosystems

Research

Climate Physics: Ocean and Atmosphere

Biology: Biodiversity and Ecosystems

Science supporting Society and Economy

Research

Society and Economy

Climate Physics: Ocean and Atmosphere

Transport, Energy

Biology: Biodiversity and Ecosystems

Biotechnology, Fisheries

Research

Society and Economy

Climate Physics: Ocean and Atmosphere   Transport, Energy

Biology: Biodiversity and Ecosystems   Biotechnology, Fisheries

?

Feedbacks

Research   *Society and Economy*

Climate Physics: Ocean and Atmosphere   Transport, Energy

Biology: Biodiversity and Ecosystems   Biotechnology, Fisheries

?

Feedbacks
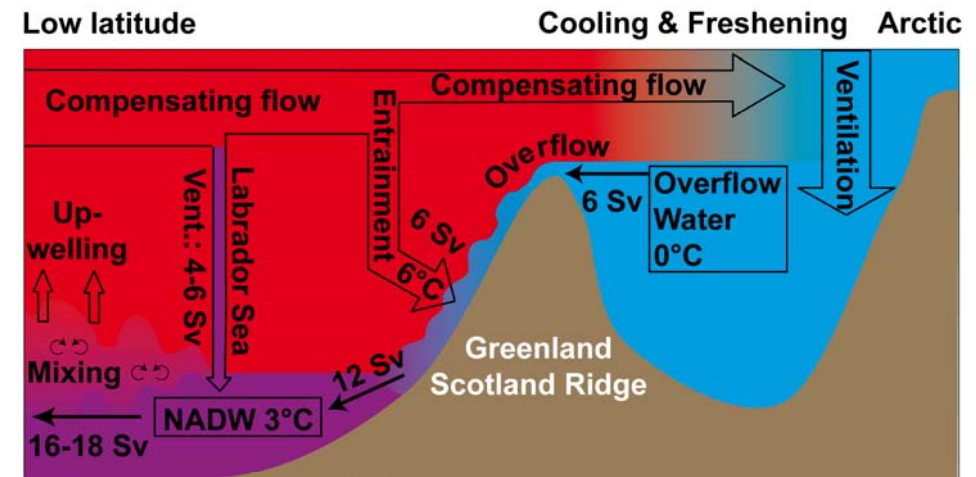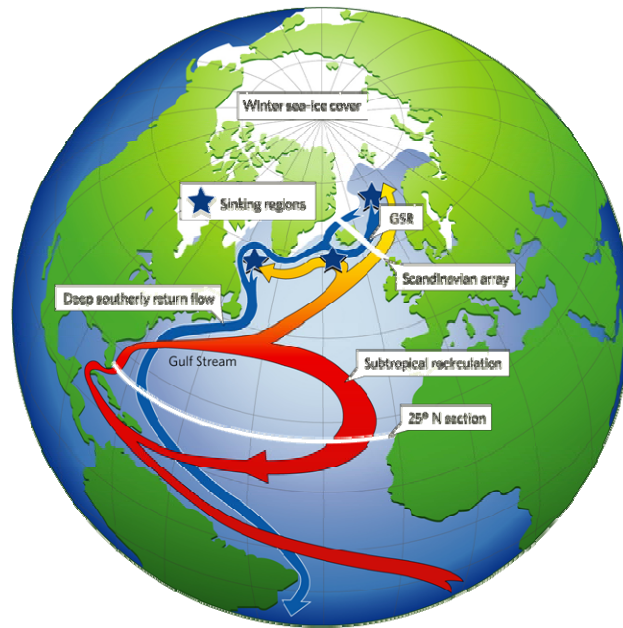
Social Science   and   Economics

may provide initial and boundary conditions for climate and ecological models

Atlantic Meridional Overturning Circulation

Sinking at high latitudes
Mixing in the interior
Southern Ocean upwelling

Climate predictions show a weakening by about 30 % until 2100
radiative forcing - Greenhouse effect, freshwater forcing

On decadal time scales ocean circulation and memory plays
the important role

Climate Change

Indicative Research Issues:

- Development of regional and local forecasting and scenarios, including risk assessment, models

- Development of autonomous and sensitive pCO2 sensors for in-situ monitoring of ocean acidification
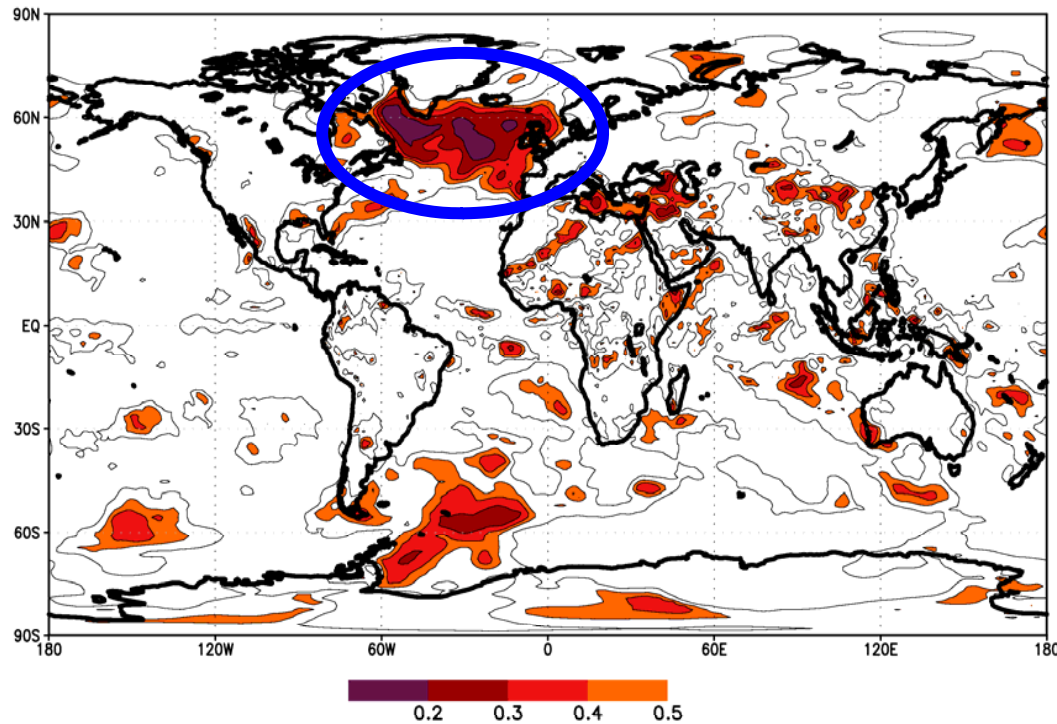
Indicative Enabling Actions:

- Create/Improve the Atlantic Ocean Observing System to better track climate change.

- Development of an Annual European Atlantic Sea Basin Marine Climate Change Report Card

Climate Change

Indicative Research Issues:

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Prognostic potential predictability (T2m, yr 1-10)
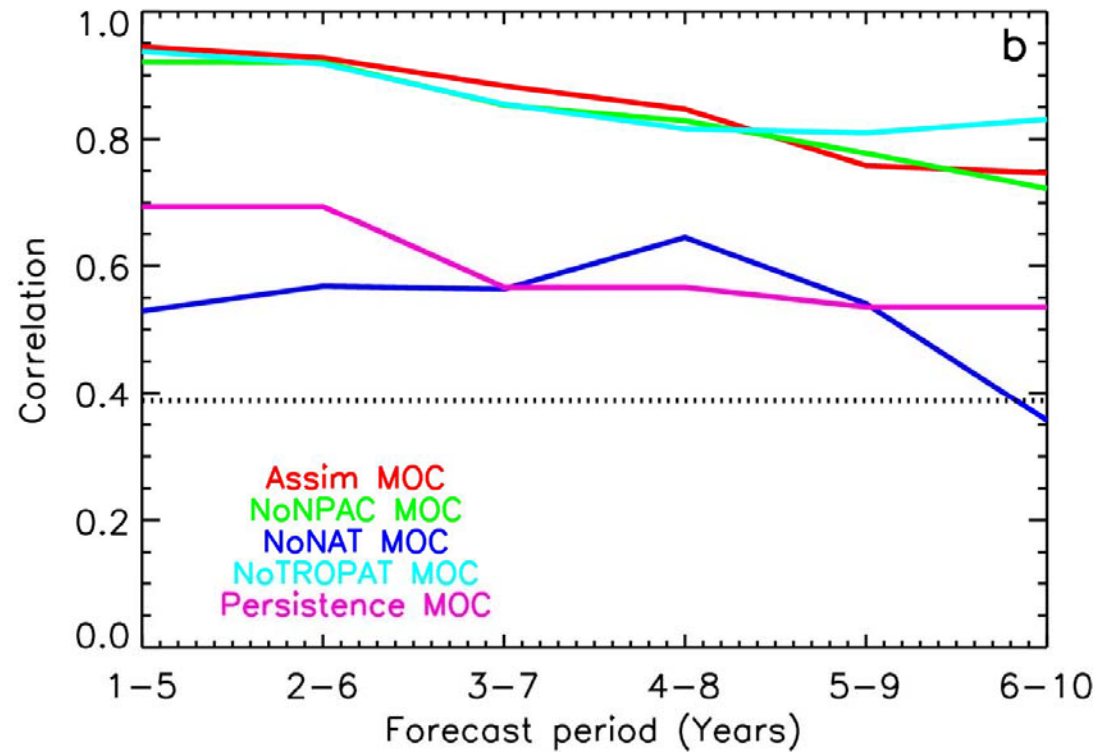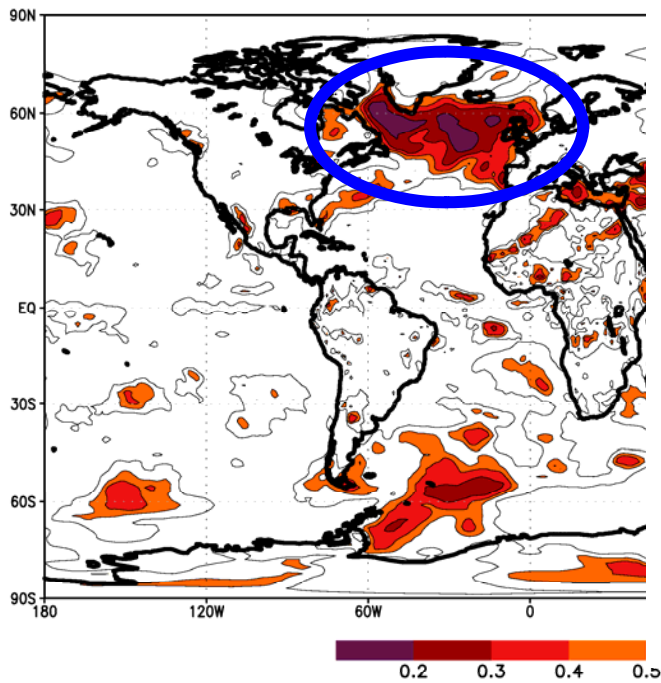*EC-Earth, T. Koenigk, SMHI, pers. comm.*

Climate Change

Indicative Research Issues:

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Forecast skill on decadal time scales

N. Dunstone. UK Met Office, pers. comm.

Climate Change

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Not only to track (that may be too late), but to allow **reliable forecasts**

Climate Change

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  Good point, but it's a detail. There are many more details.

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- Development of an Annual European Atlantic Sea Basin Marine Climate Change Report Card

  That may keep the administrators happy

Two points:

*(1) Physical and biological Research needs feedbacks
        from Socio-Economical Research*

*(2) Reliable forecasts rely on high quality sustained
        observations, we need both: models and observations*