

Fluxes across critical interfaces

MATTIAS GREEN

SCHOOL OF OCEAN SCIENCES, BANGOR
UNIVERSITY

My research

Modelling and observing tidal processes and how they interact with other components of the Earth system

A suite of models...

- UVic/OSUVic/MOBI (intermediate complexity coupled models)
- OTIS (tidal model)
- PISM (ice-sheet model)

..all with some (severe) limitations

Observations of ocean-shelf edge exchange (FASTNET)

What others do

Arctic (TEA-COSI; YDL Fellowship)

- Heat fluxes
- Mixing

Surface mixed layer dynamics (OSMOSIS)

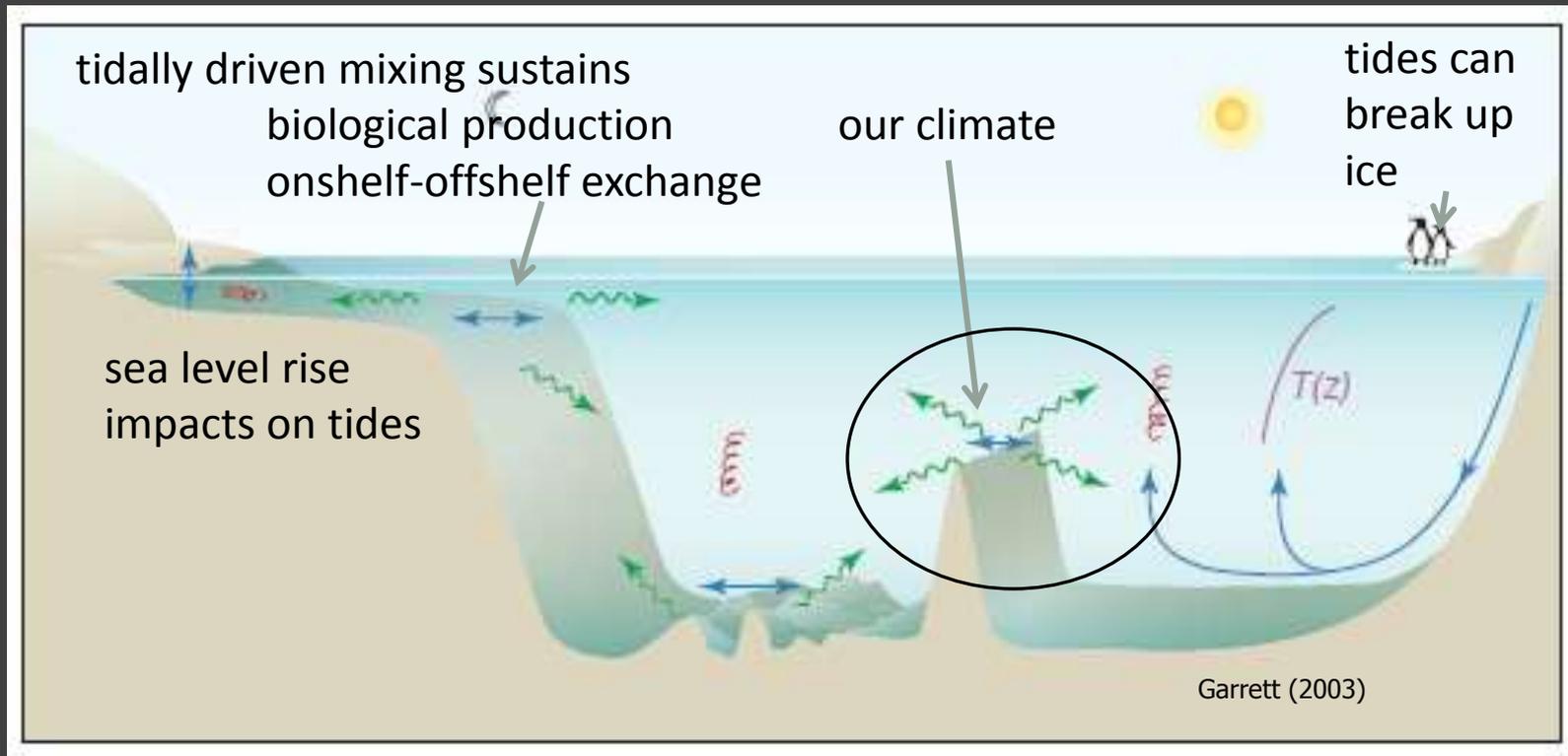
Catchment to coast modelling

Marine renewables (EPSRC grants)

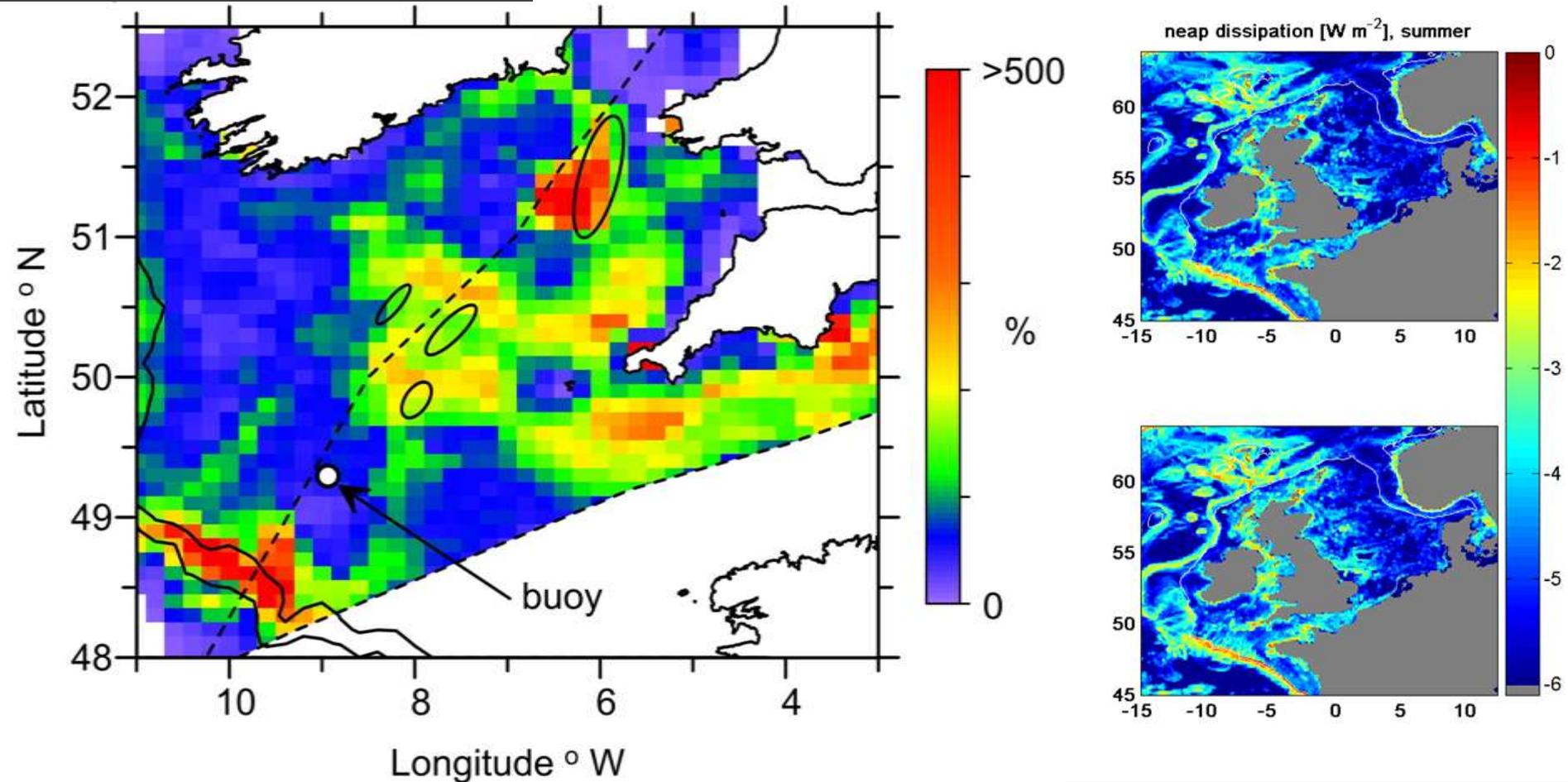
- Waves
- Tides

Overview

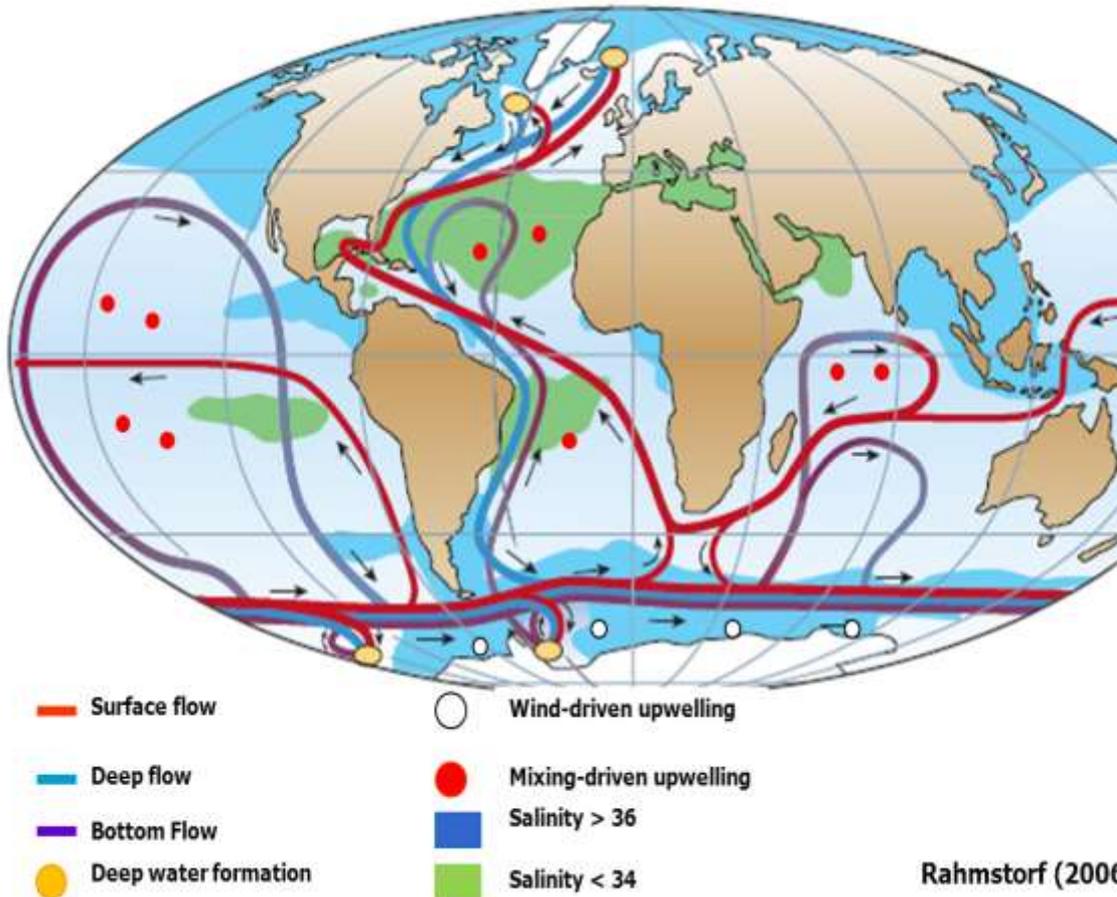
Modelling and observing tidal processes and how they interact with other components of the Earth system



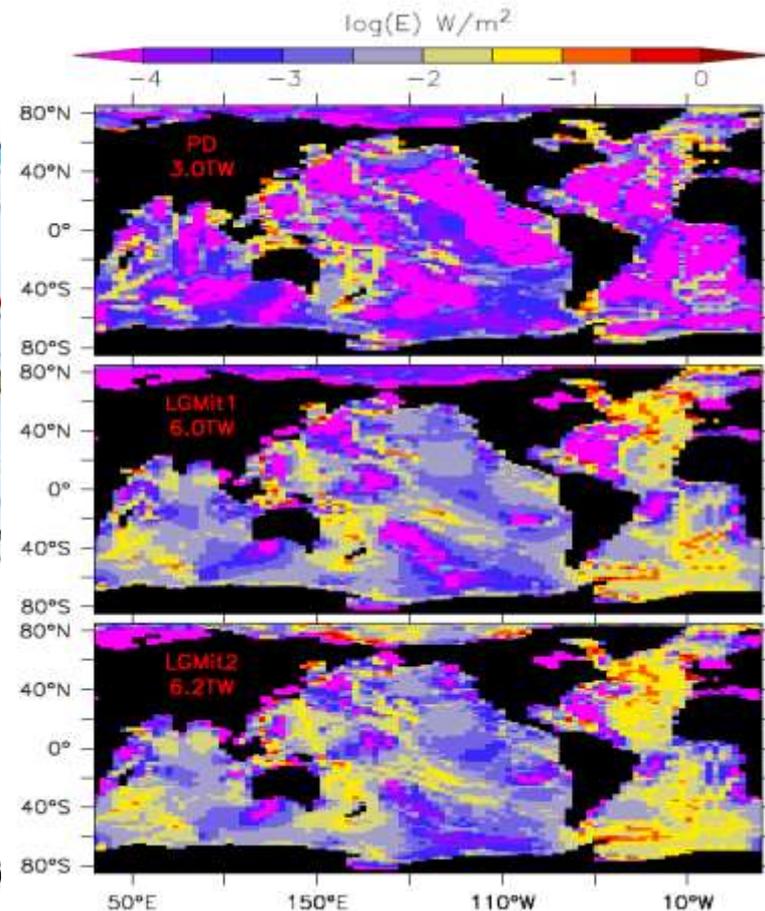
Climate change and production



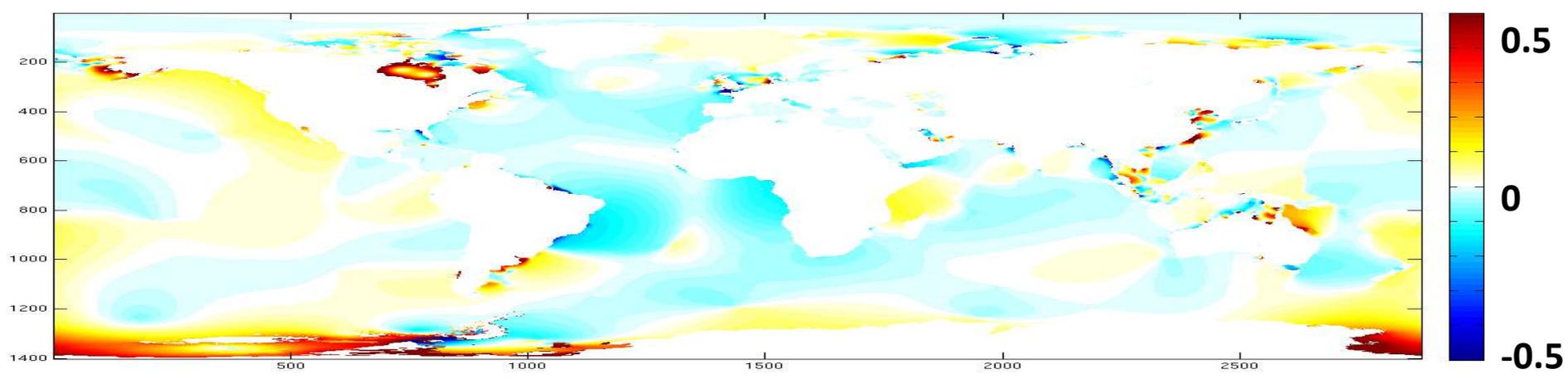
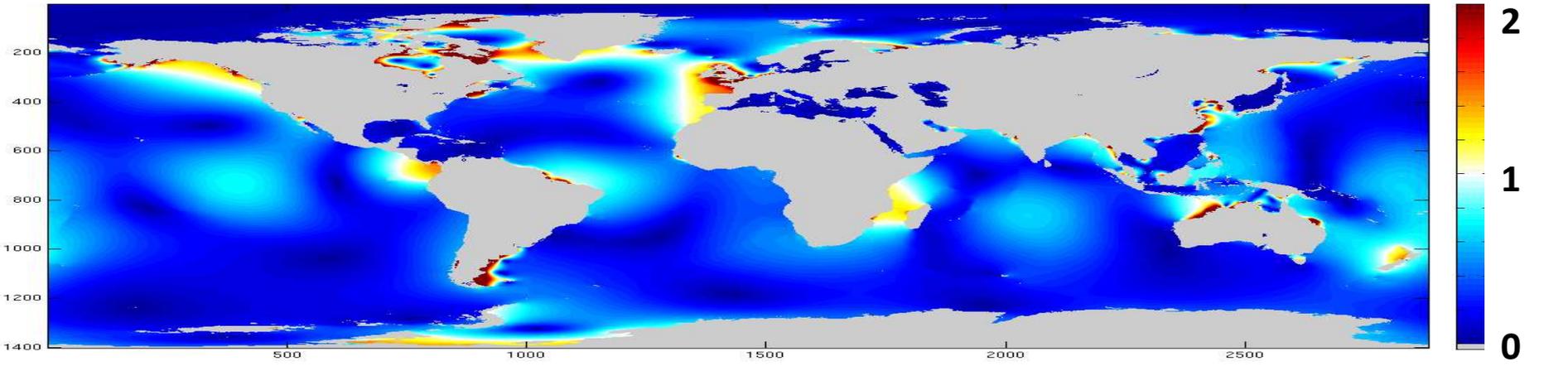
Climate modelling (with tides)



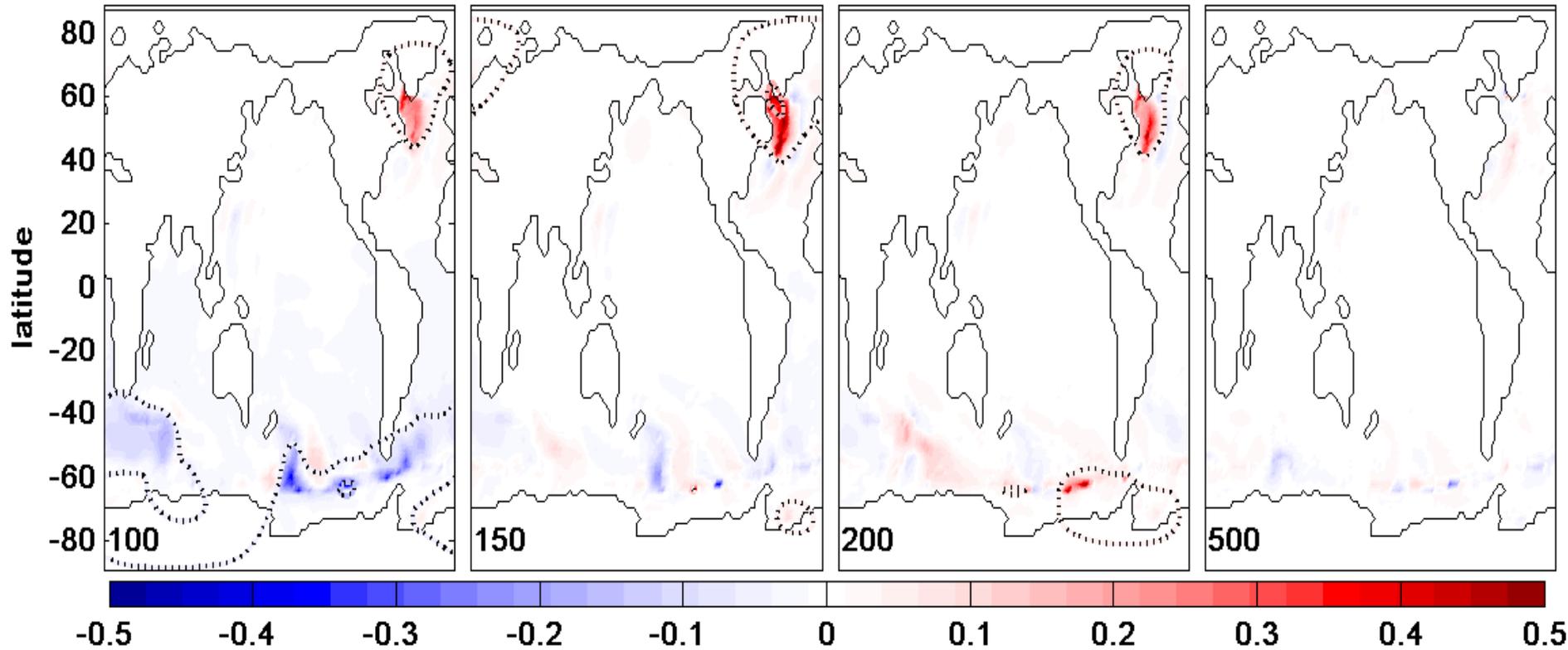
Rahmstorf (2006)



Ice and tides



Or just ice (and tides...)



UM and SOS

A natural extension and next step for the climate modelling side of what I do.

- Add tides and icebergs (discussion with Pat Hyder this week)
- What will the regional effects be of the large scale processes I investigate?
 - For example a student wanted to look at how the collapse of the WAIS could impact on the monsoon. A great idea, but UVic doesn't resolve weather
 - "SPACE 1999": What if there was no moon... (not as hare brained as one may think)
 - Ocean- and climatic impacts of Sophie's WAIS collapse simulations?

UM and SOS

A natural extension and next step for the climate modelling side of what I do

SOS currently has

- a small large-scale modelling group (me+1.5)
- an even more limited climate modelling capacity (me+0.5)
- But a large regional (applied) modelling group (Simon Neill et al., >5 people)

UM and SOS

To start collaborations to implement missing processes

- e.g., tides and tidal mixing (cf. talks with Pat)
- icebergs

To move to the next step in the research

- Higher resolution
- Better atmospheric models
- Better models

