

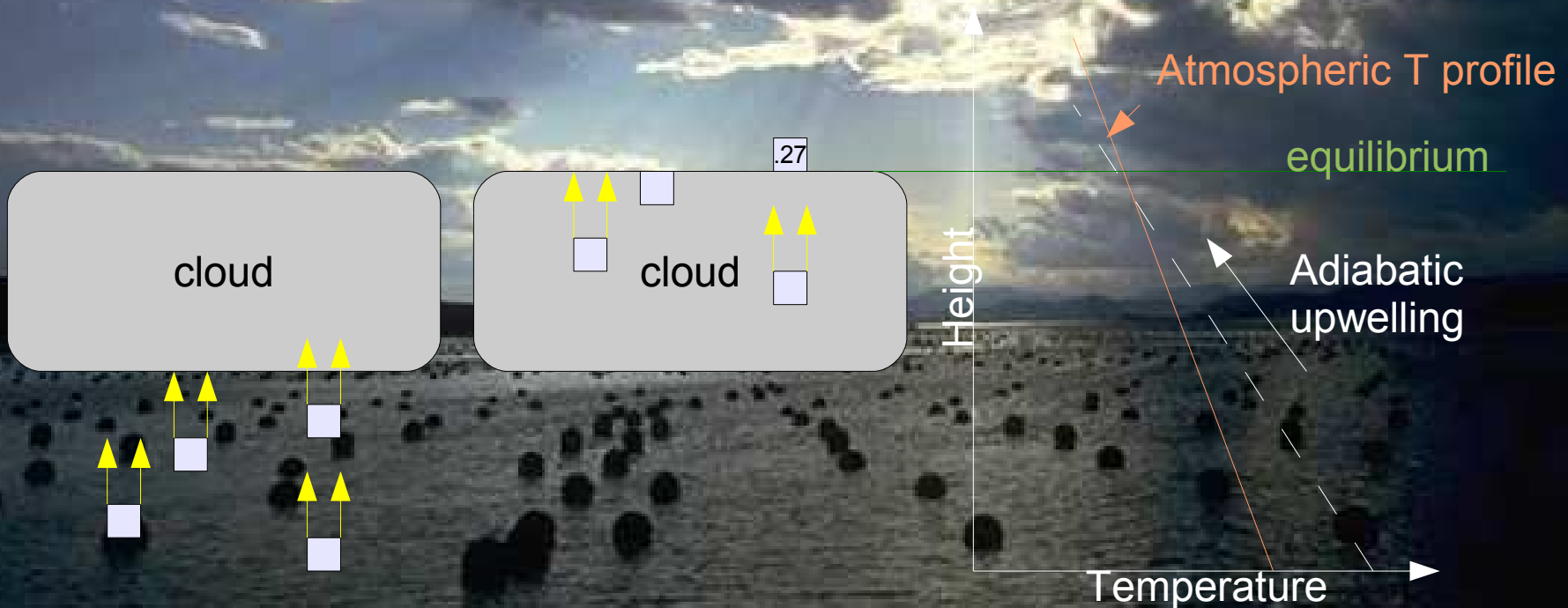


EaSyMS summerschool experiment results

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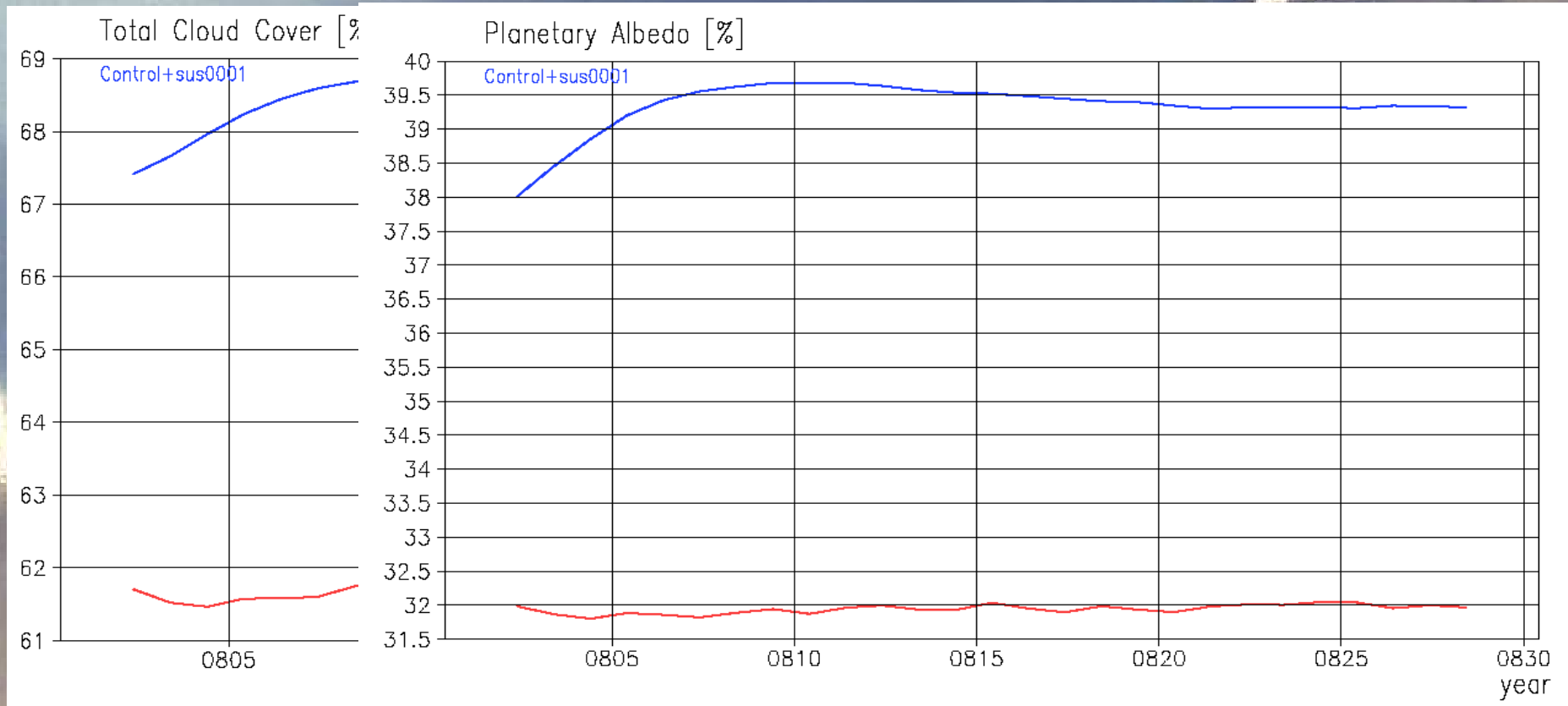
Cloud top mass flux experiment : description

- In control run, a noticeable fraction (27 %) of the rising air is allowed to go higher than its equilibrium level, on top of the cloud



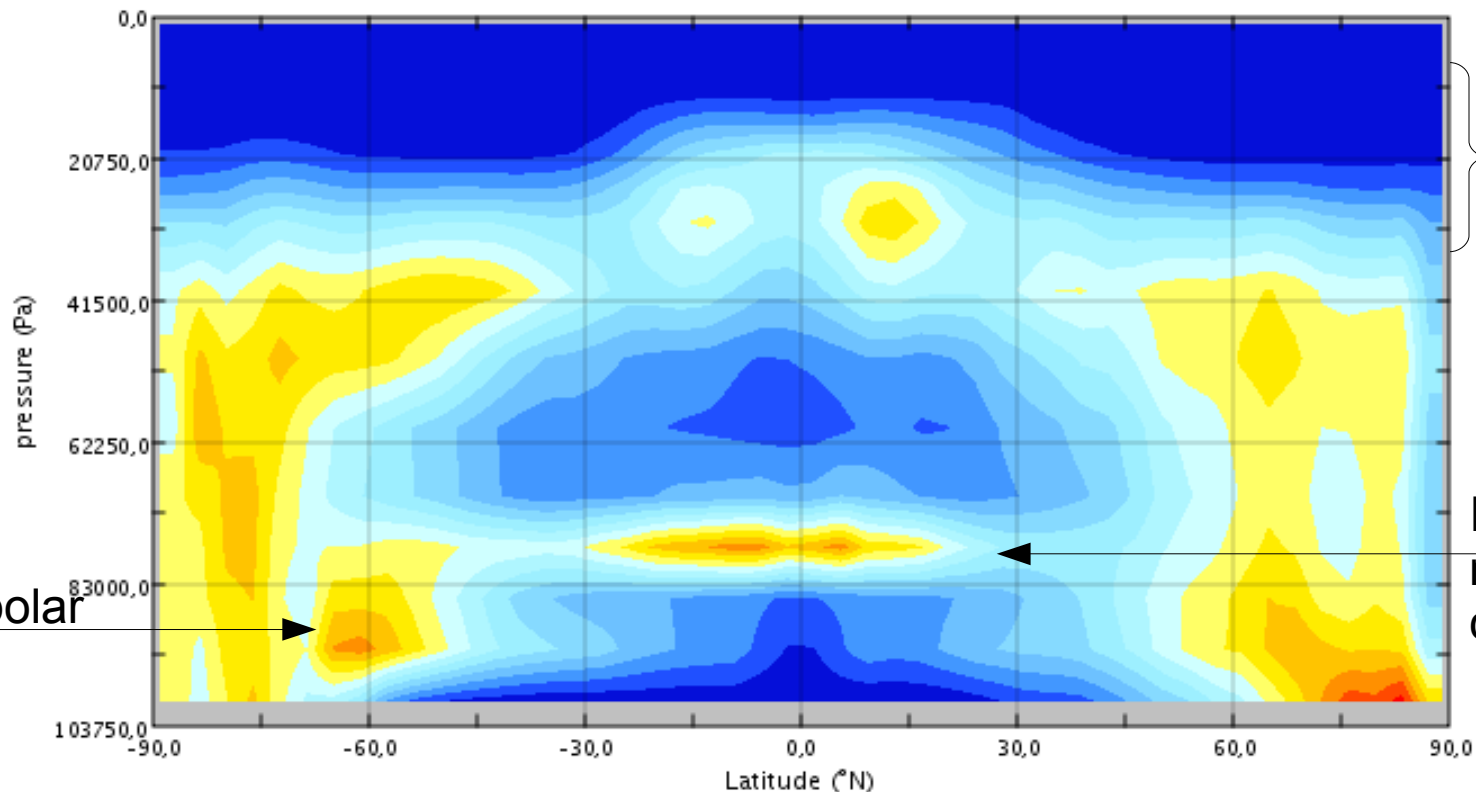
Direct consequences : clouds

- Total cloud cover offset : $\sim 62\% \rightarrow 68,5\%$
- Albedo increase : $\sim 32\% \rightarrow 39,5\%$



Direct consequences : clouds

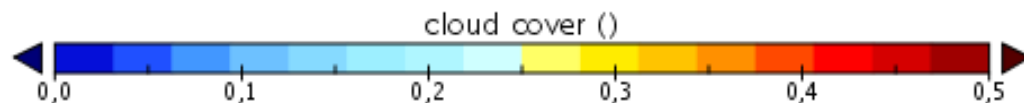
Cloud cover from sus0001



Lowered tropopause

Intertropical mid altitude clouds

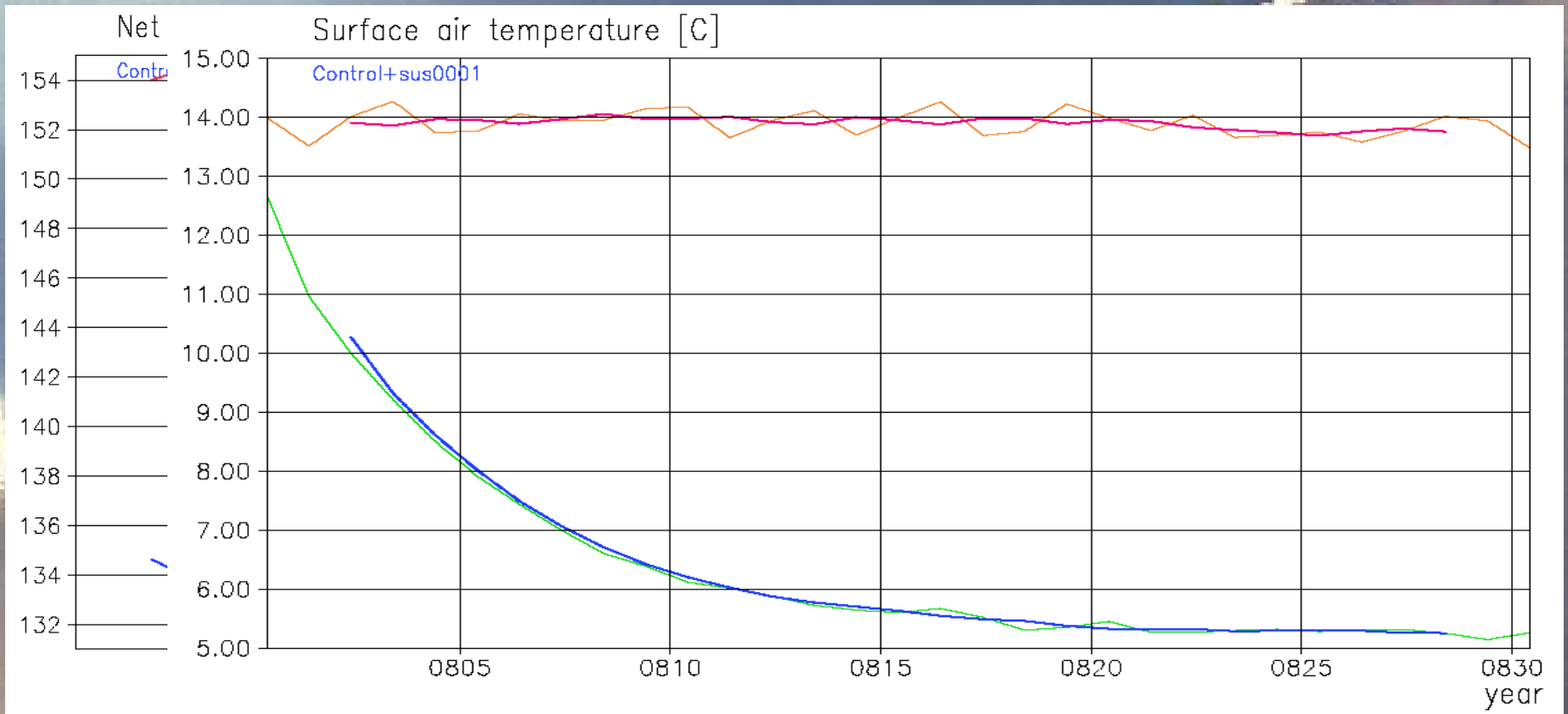
Less circumpolar clouds



Data Min = 0,0, Max = 0,4

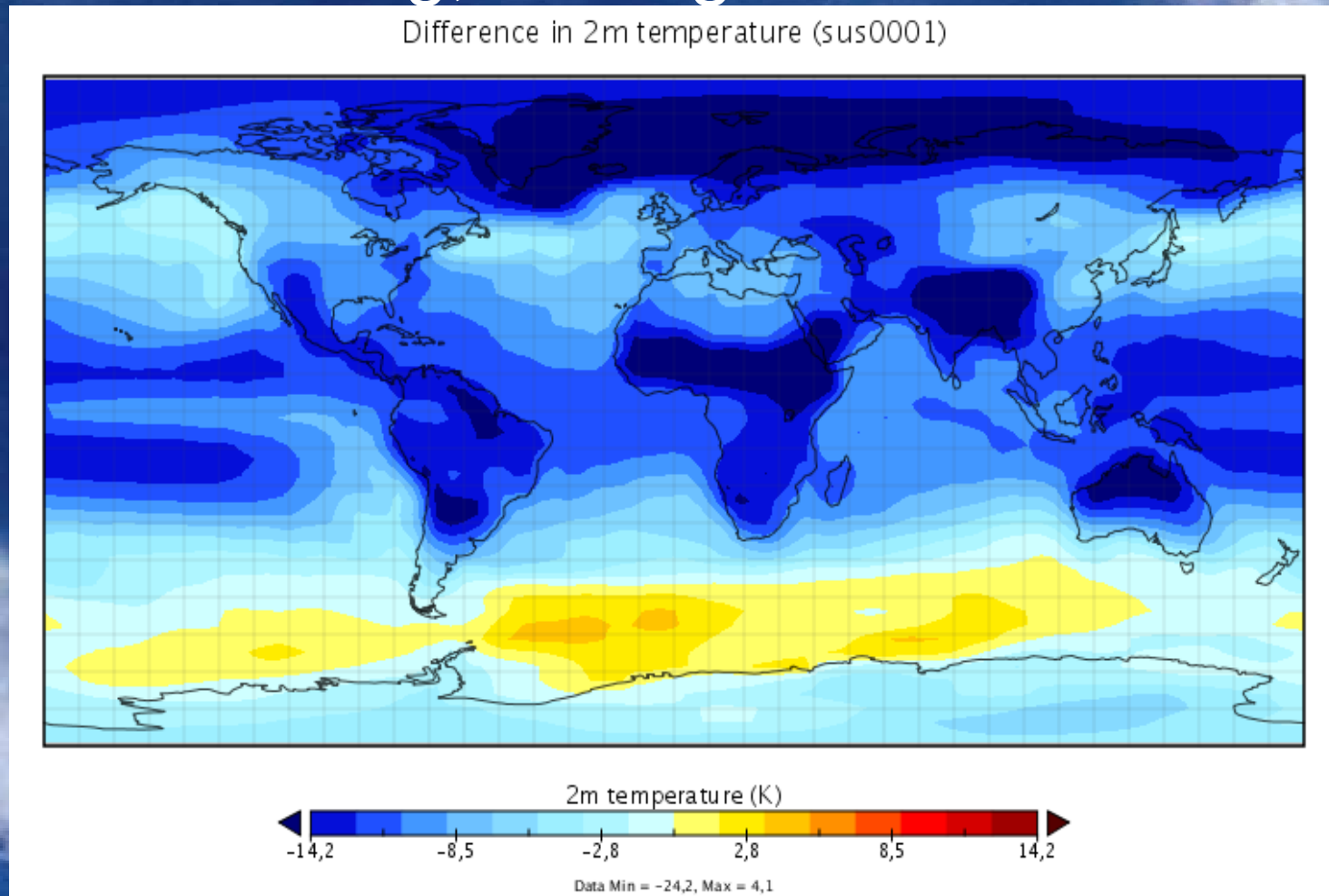
Direct consequences : radiation

- Net surf. solar radiation falls : $154 \rightarrow 134 \text{ W/m}^2$
- Temperatures fall : surf. air temp. $14 - 5 \text{ }^\circ\text{C}$



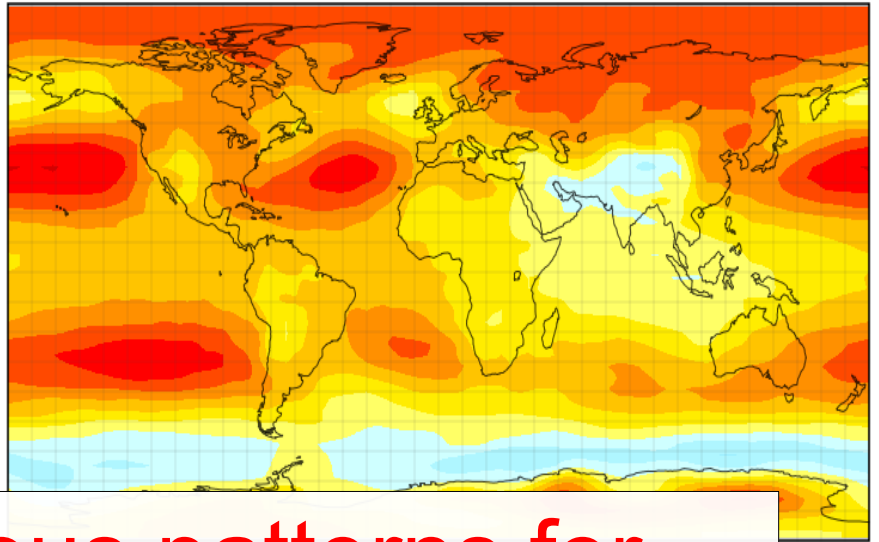
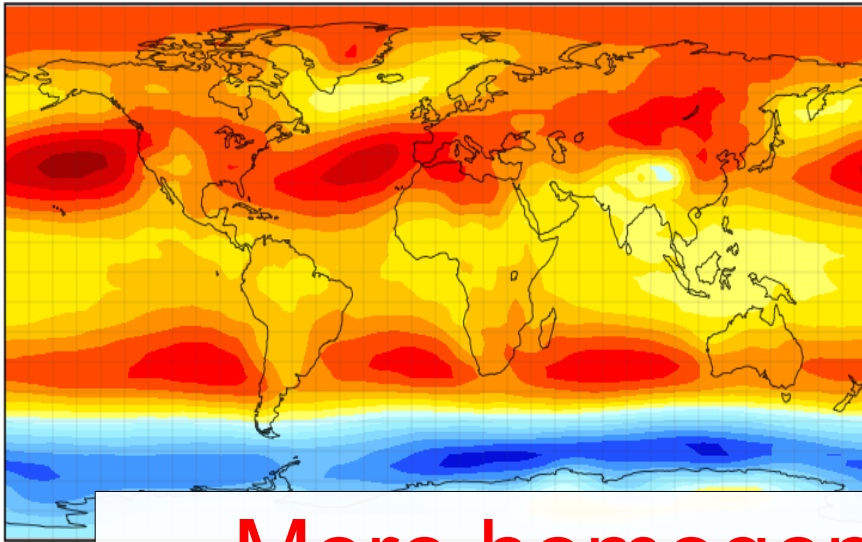
Atmospheric consequences (1)

- Global cooling, but regional differences :

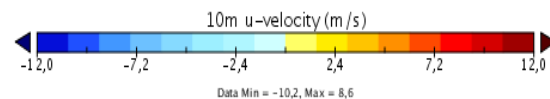
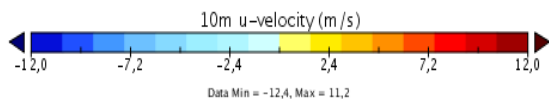
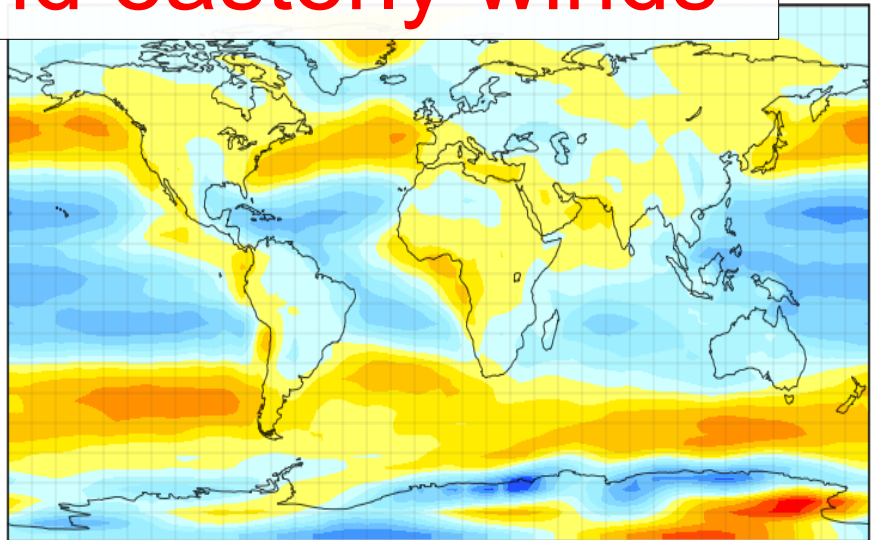
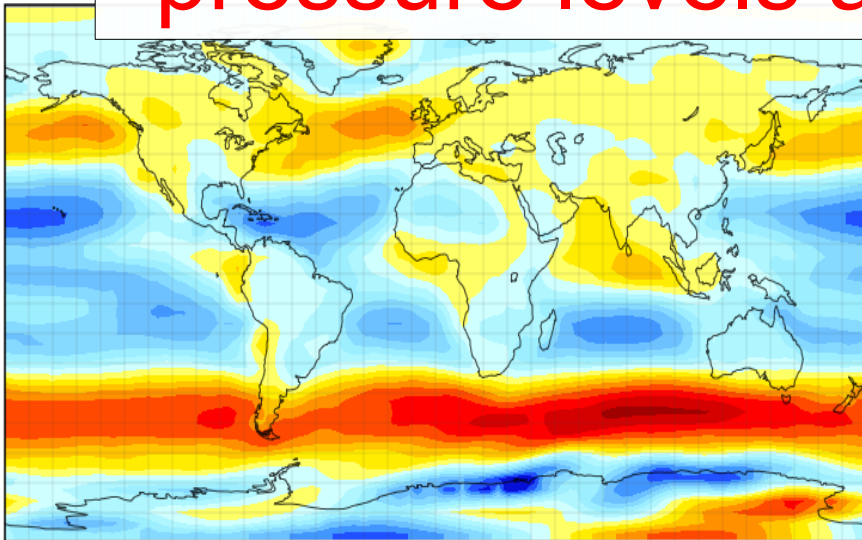


Mean sea level pressure in control

Experiment sus0001 mean sea level pressure

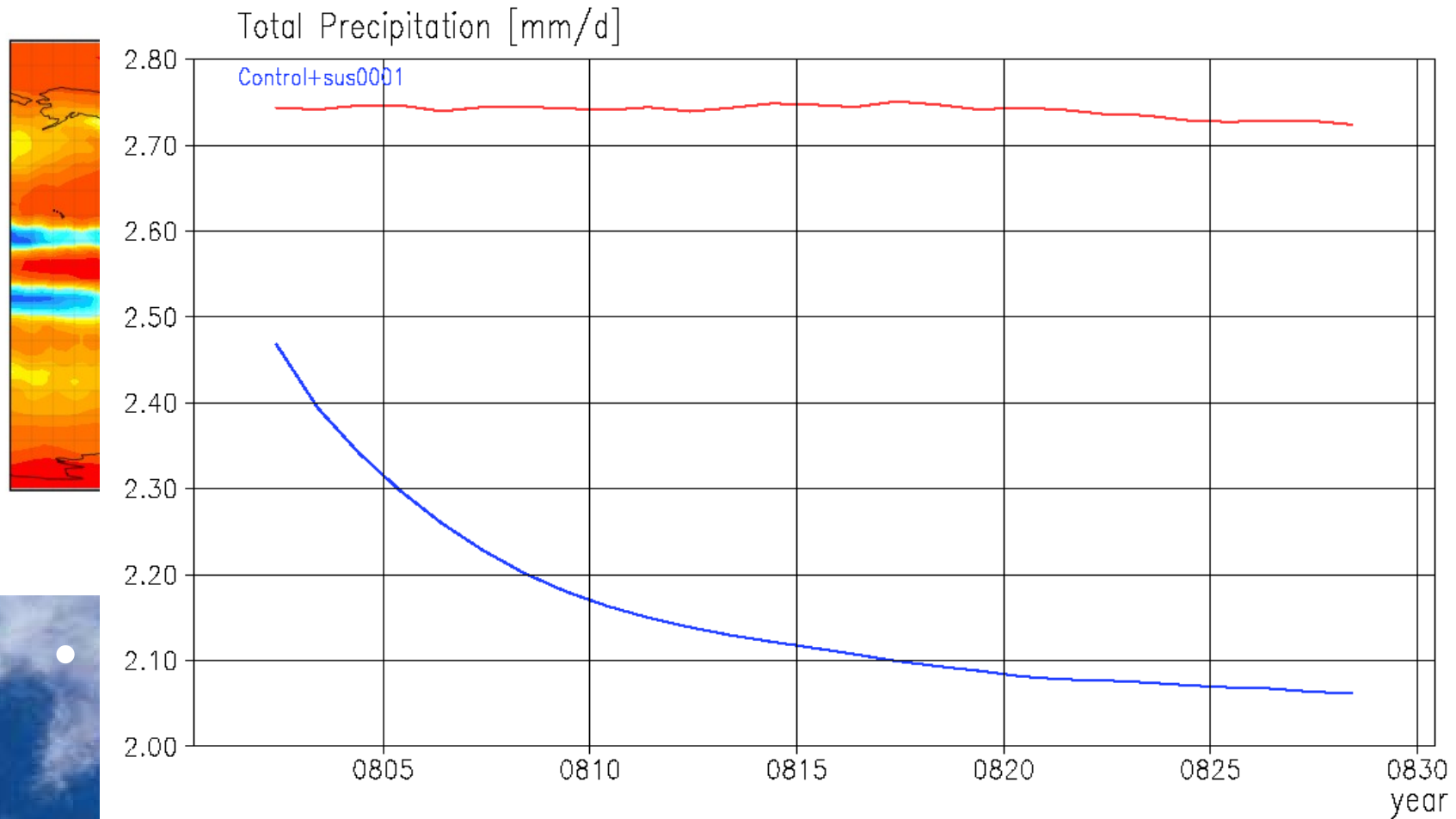


More homogenous patterns for pressure levels and easterly winds



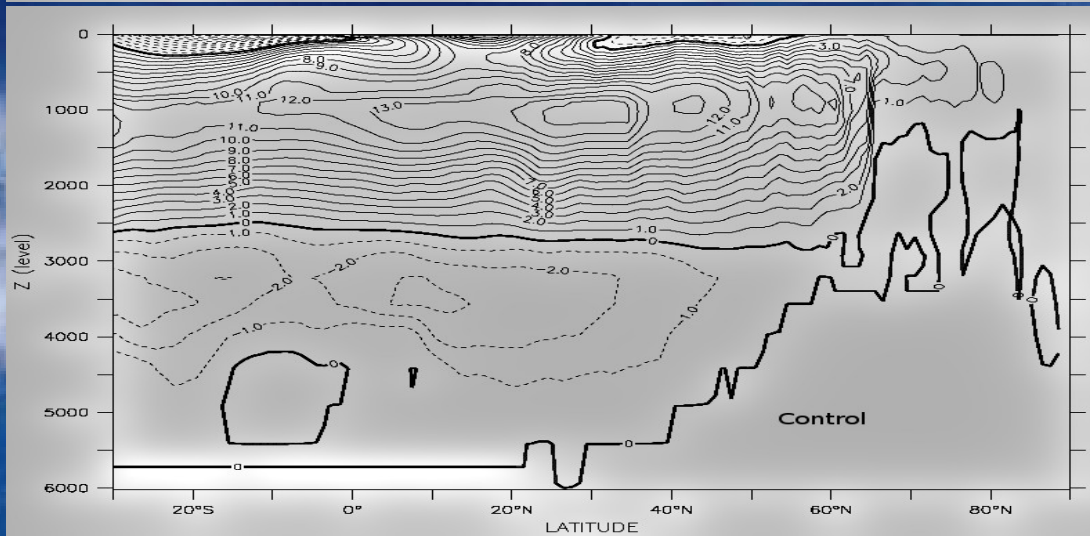
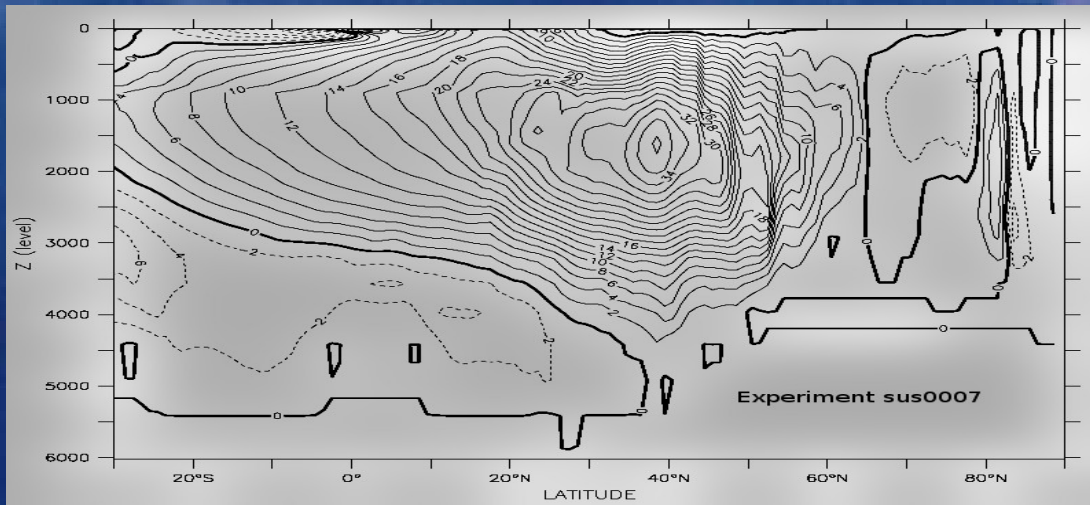
Atmospheric consequences (3)

- Global decrease, more homogenous :



Ocean consequences (1)

Meridional overturning stream function of the Atlantic Ocean

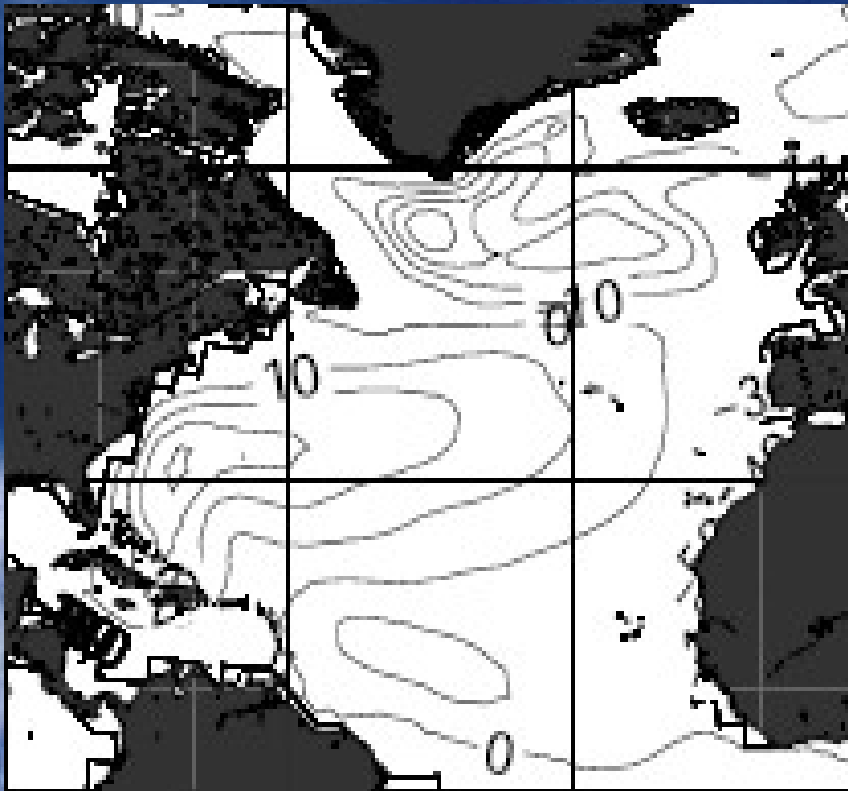


- Flow from the Atlantic to other oceans weakened
- Deep water formation region moved southwards

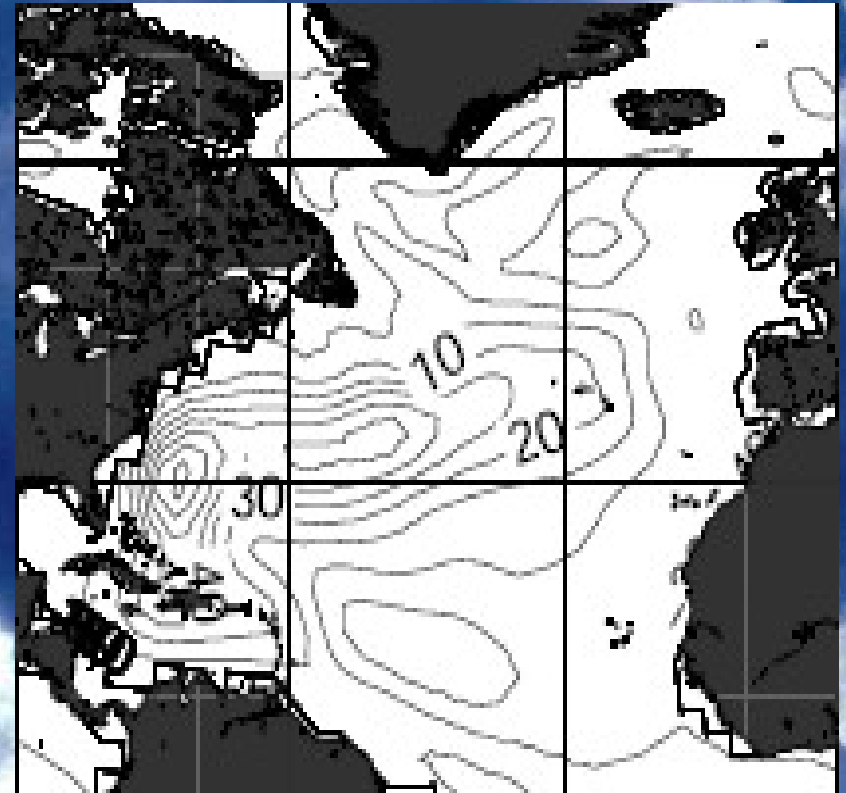
Ocean consequences (2)

Barotropic stream function

Control

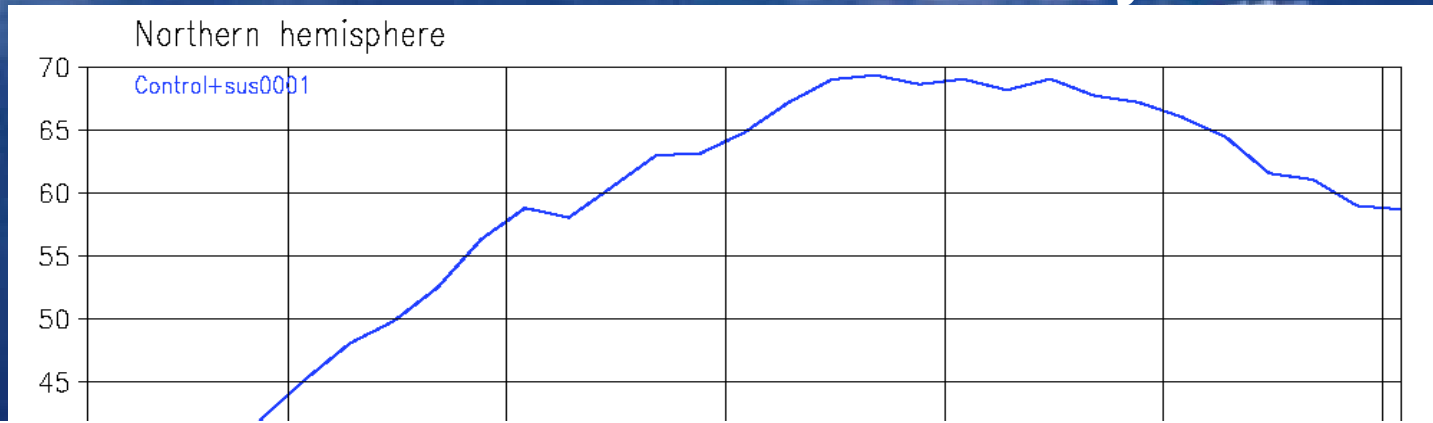


sus0007

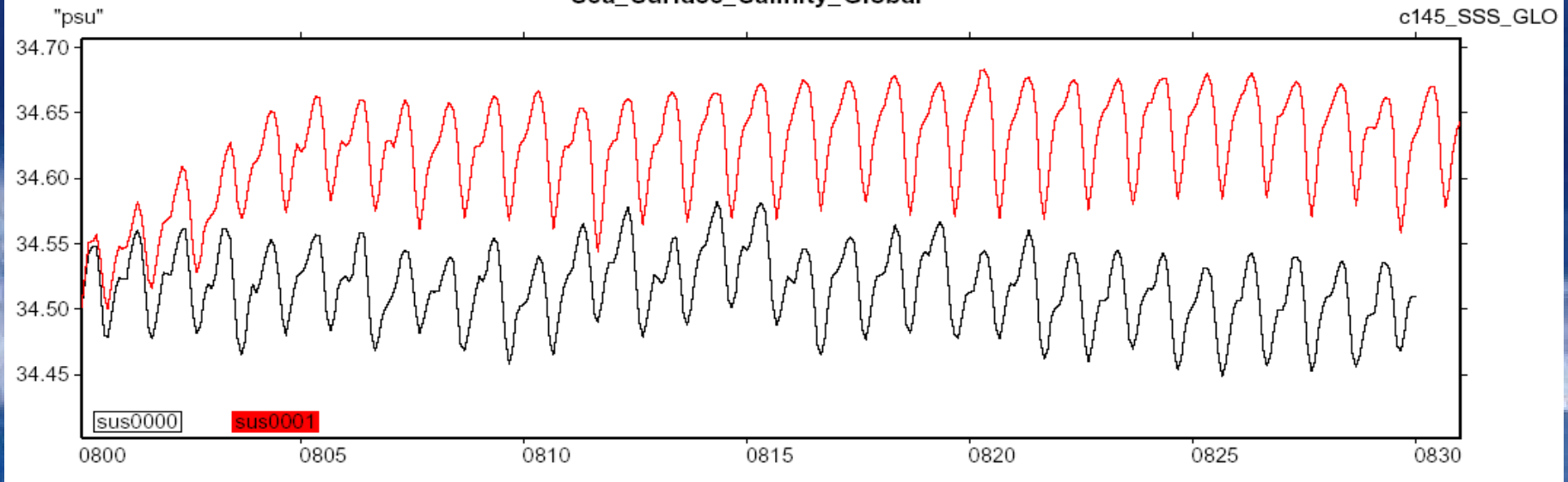


Ocean consequences (3)

Sea ice and salinity

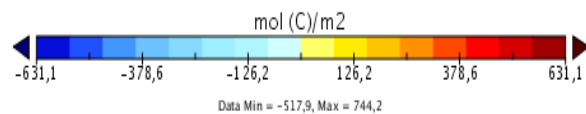
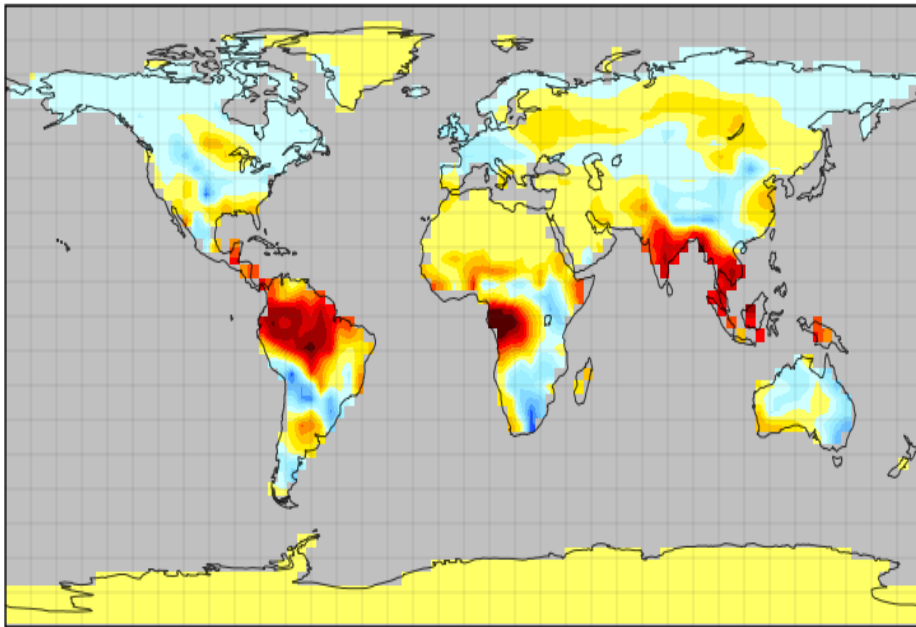


"Sea_Surface_Salinity_Global"



Consequences in carbon cycle

Differences of box C pools total



Differences of CO₂ flux

