CESM East, NBI Copenhagen

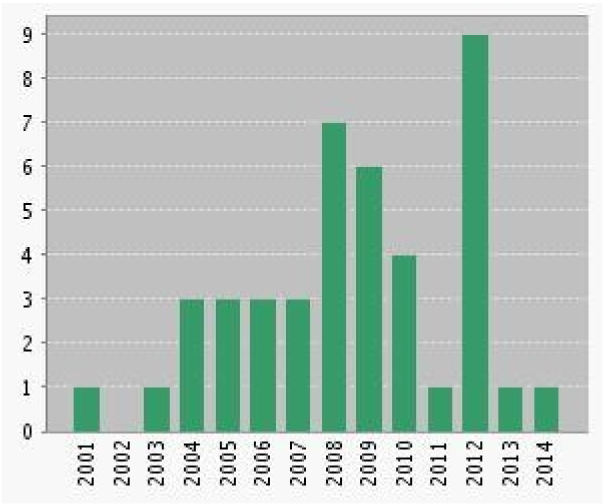
Markus Jochum

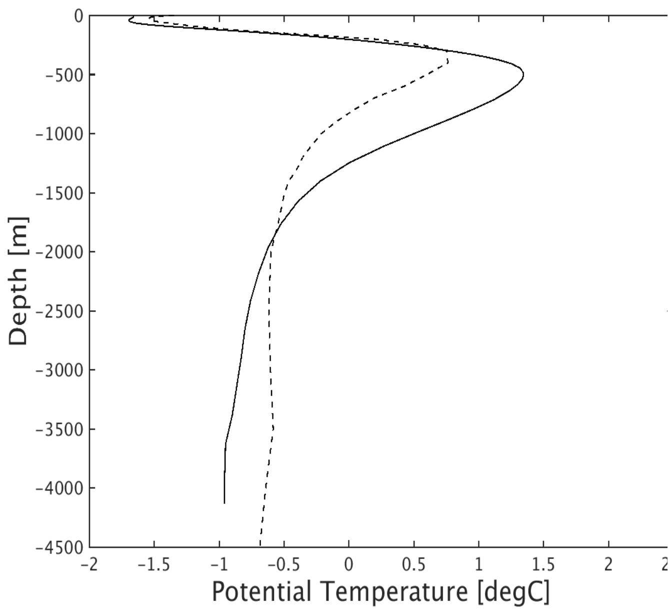
- Atlantic Layer

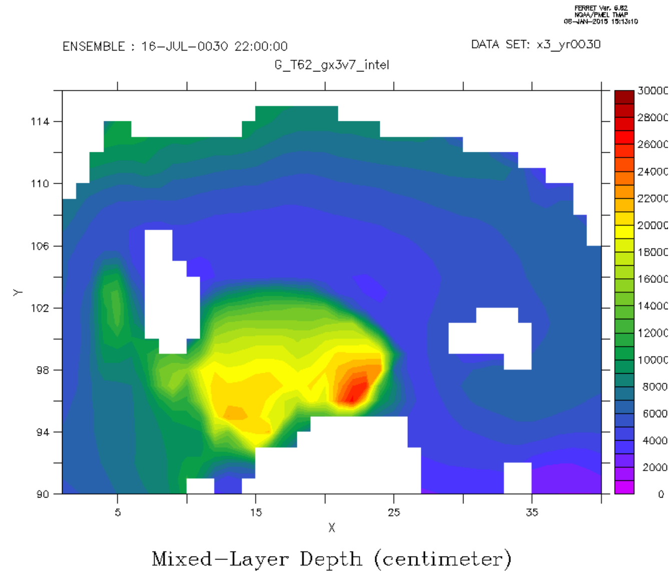
- AMOC

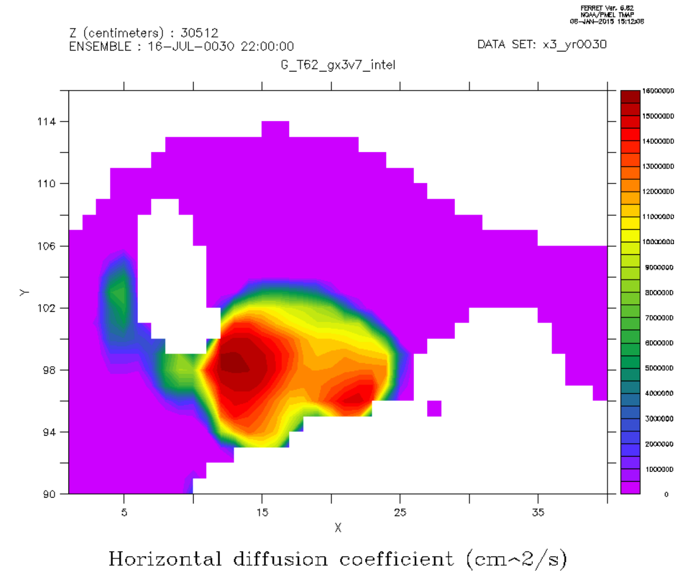
- AABW from a grid
cell

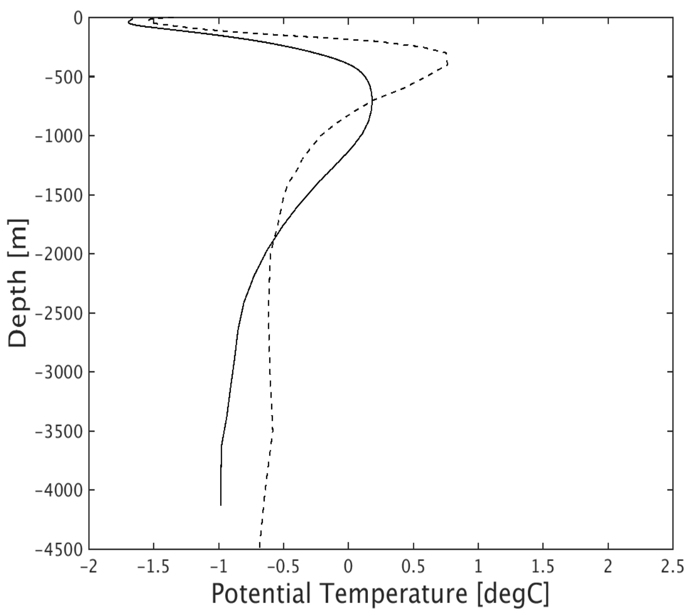
- SO winds and AMOC

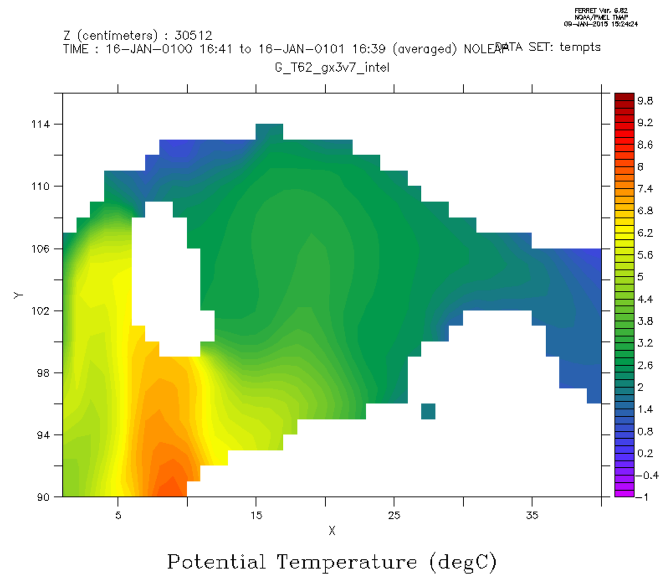


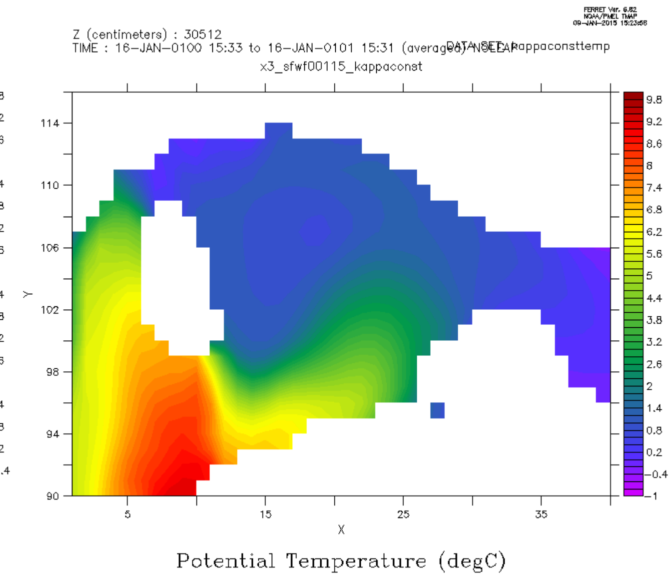








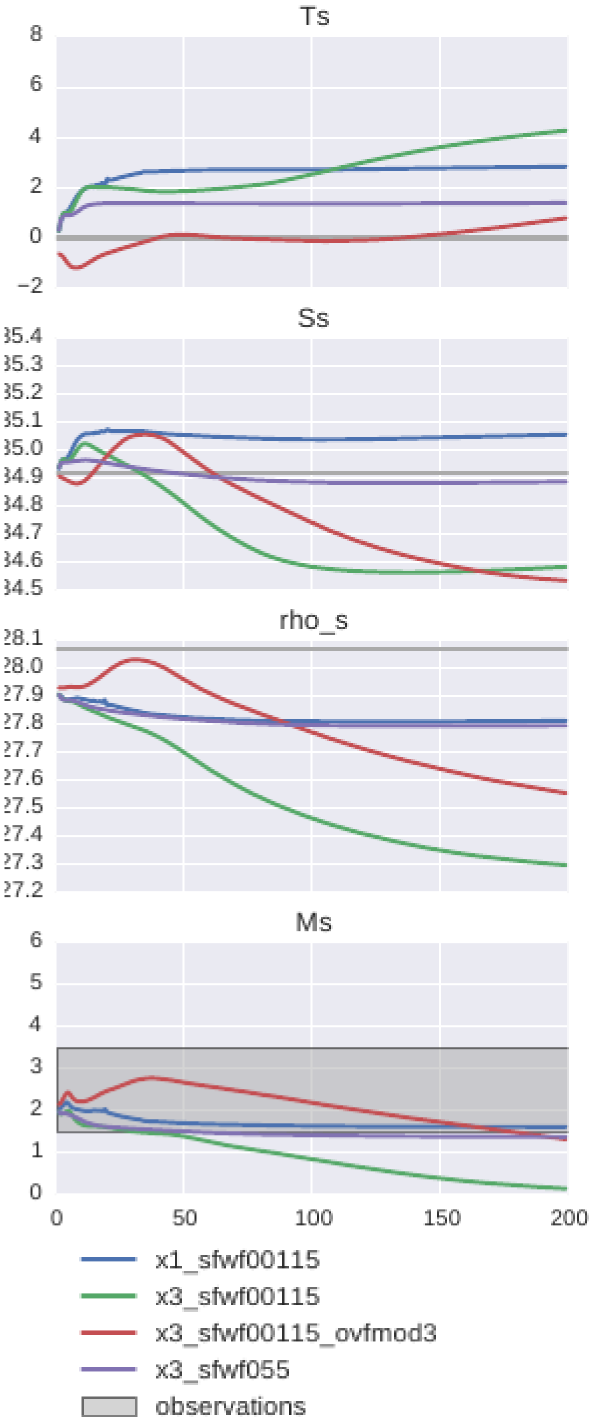




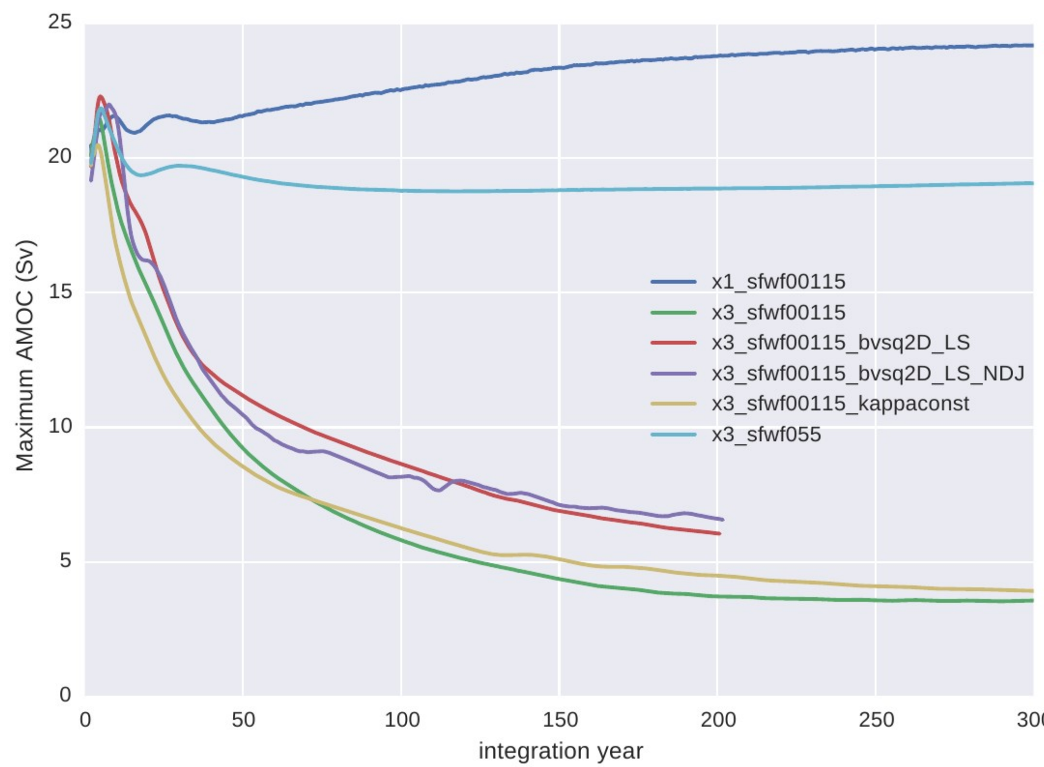
The combination of GM/NSEF destroys Norwegian Current and Atlantic Layer

with S. Nielsen

Fram Strait Overflow

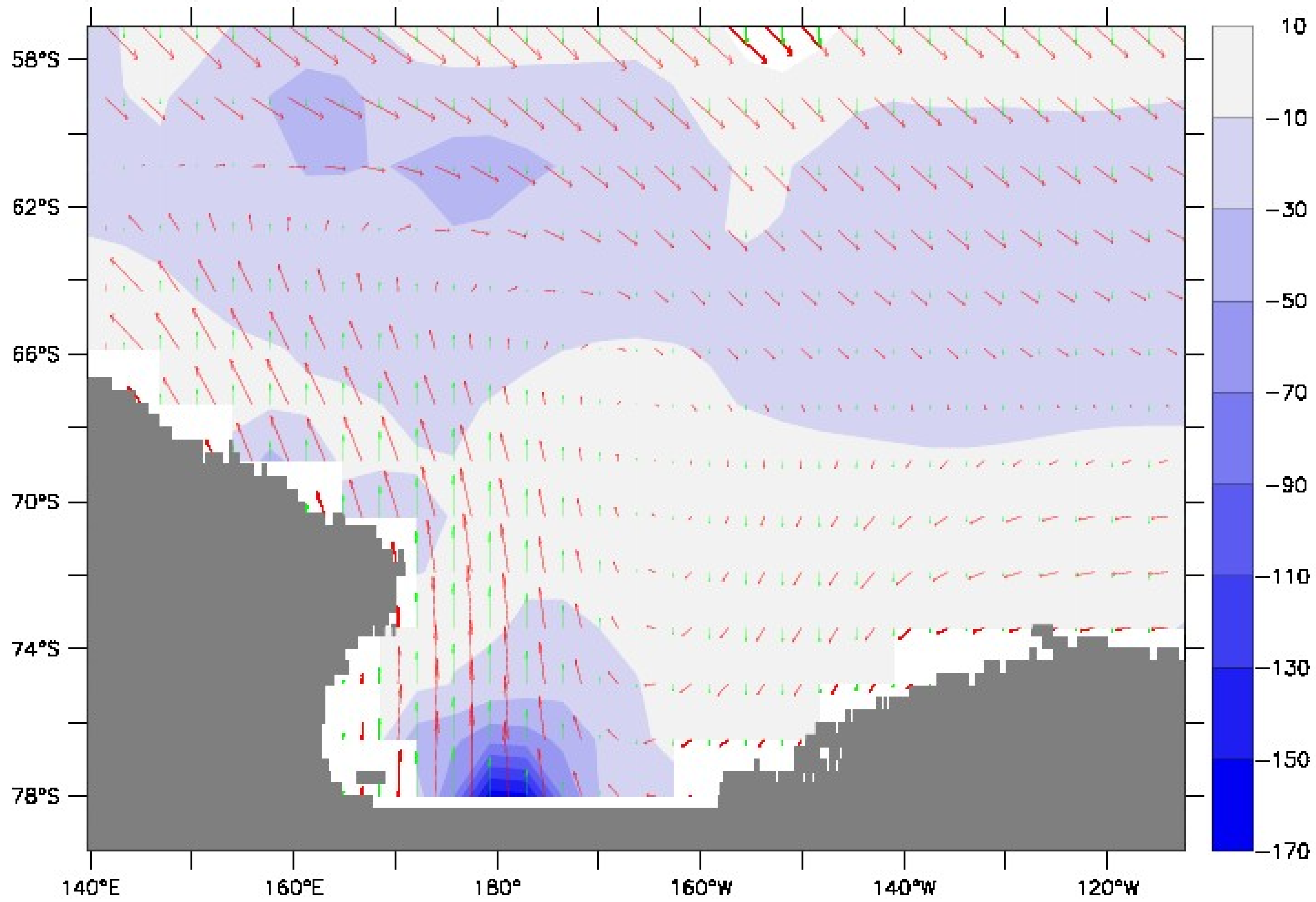


Improving Convective Parameterization



with Jonas Bluetgen

annual mean air-sea heat flux difference (HALF-CONT) and wind stress

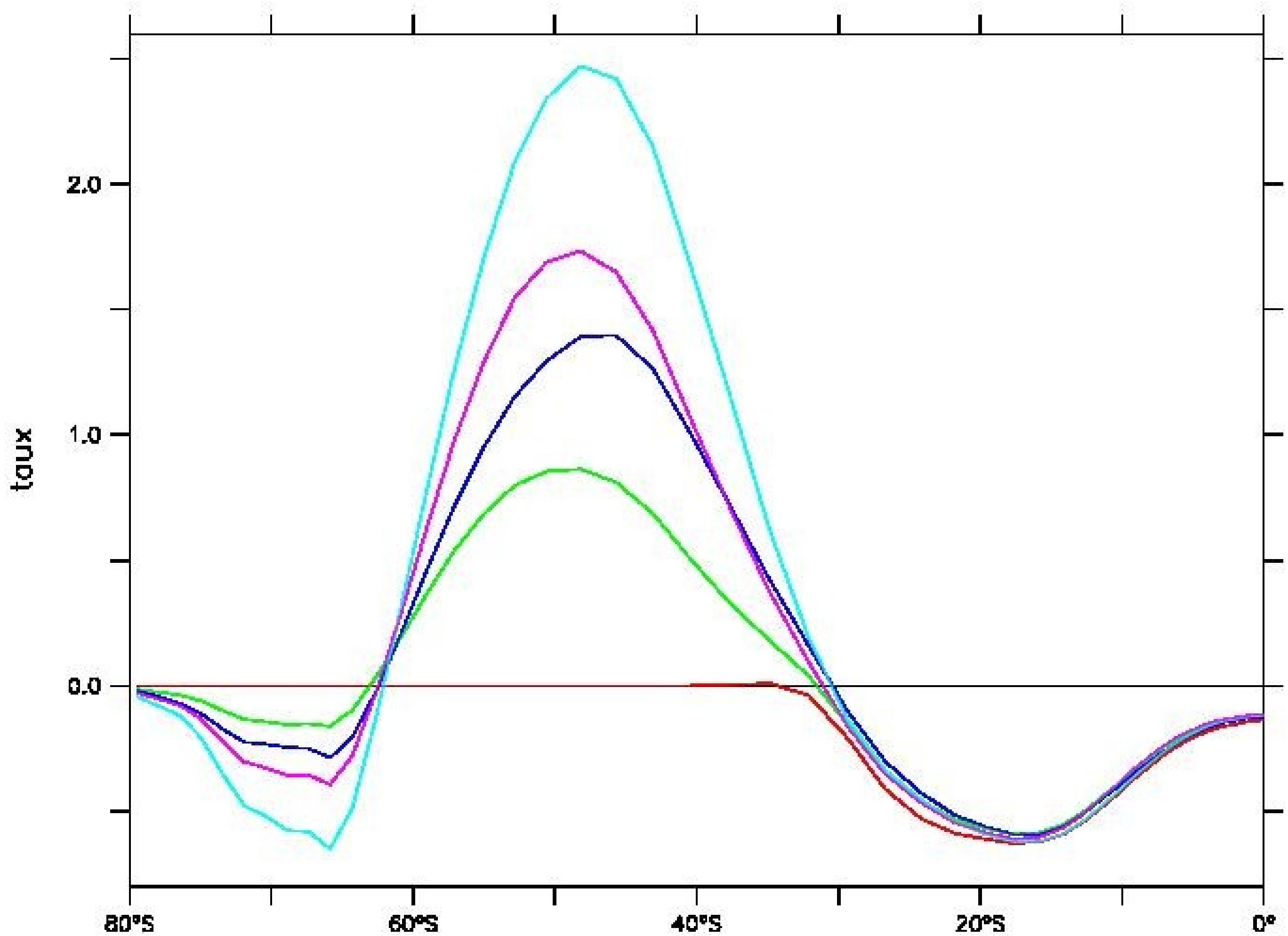


Ross Sea

- Southern Ocean Winds, Diapycnal Diffusion
- and the Atlantic Meridional Overturning

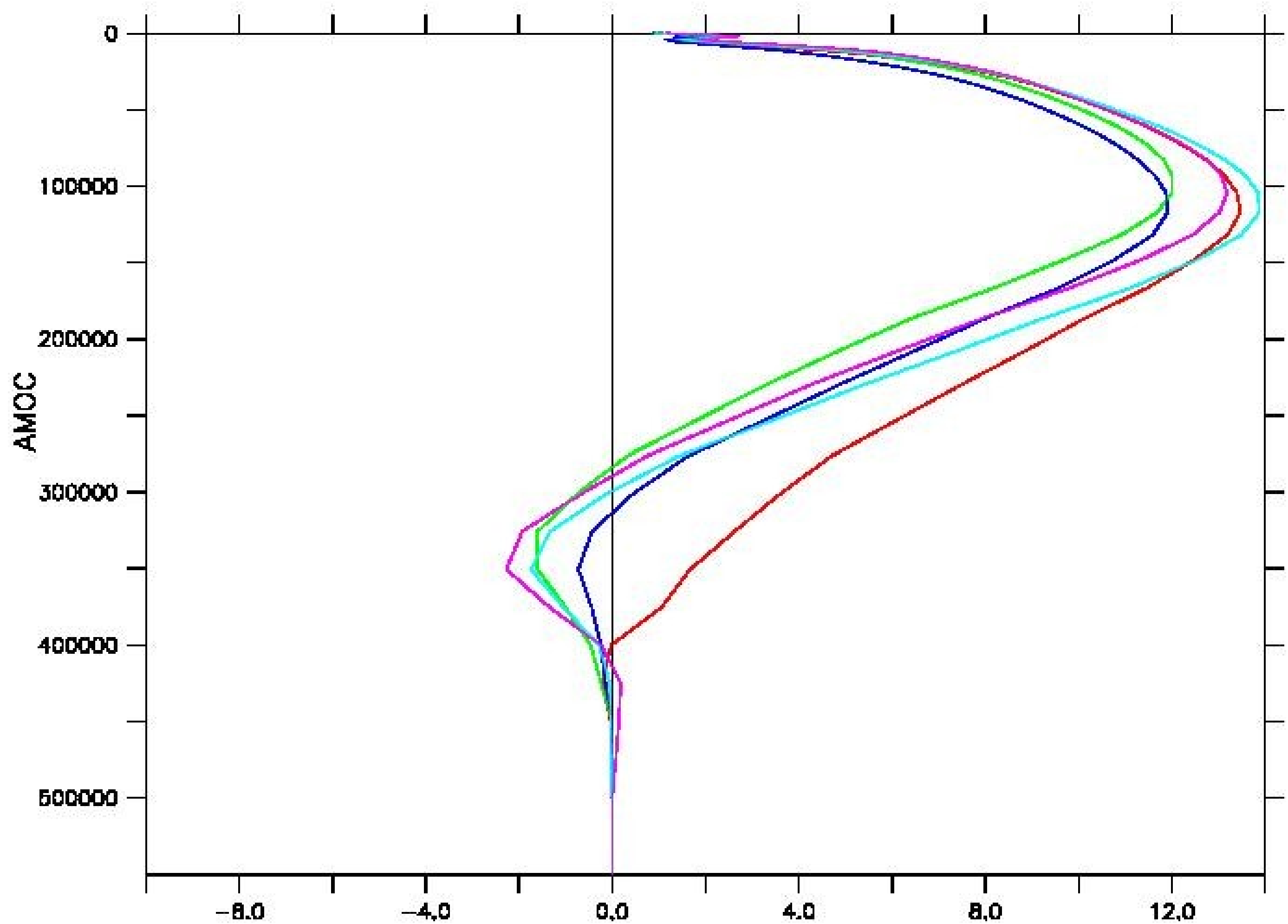
- Markus Jochum
- Niels Bohr Institute, Copenhagen
- Carsten Eden
- University of Hamburg

zonally averaged wind stress



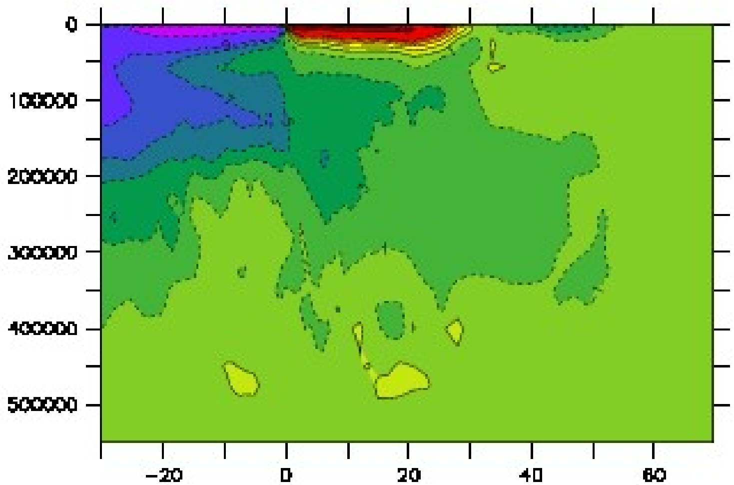
NULL, HALF, CONT, TWO, DIFF

AMOC at equator   NULL, HALF, CONT, TWO, DIFF

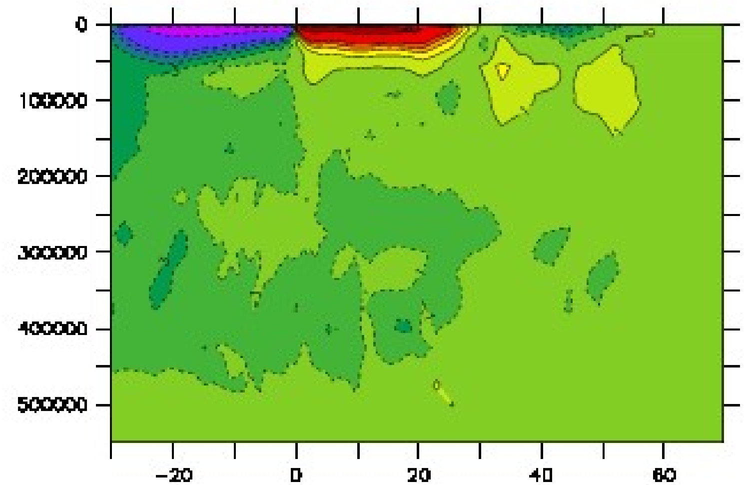


Exp.	$\int taux$	$taux_{DP}$	DP tr.	$AMOC_{eq}$	Up SO/Basin	Deac/comp.	P_{mix}
NULL	0	0	0	13.5	4/11	5/-7	0.07/0.23
HALF	0.9	0.6	110	12	6/9	20/-11	0.08/0.21
CONT	1.4	0.6	100	12	9/7	35/-15	0.09/0.17
TWO	2.5	1.4	180	14	14/6	60/-22	0.10/0.19
DIFF	1.7	1.0	160	13	10/6	40/-15	0.06/0.10

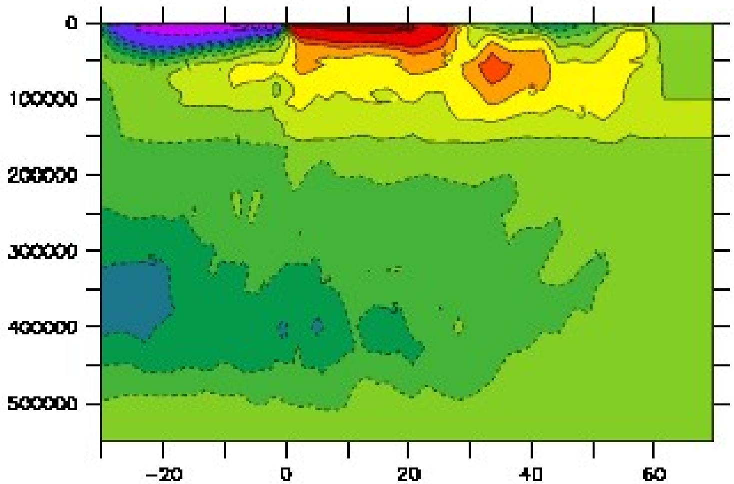
Pacific Overturning



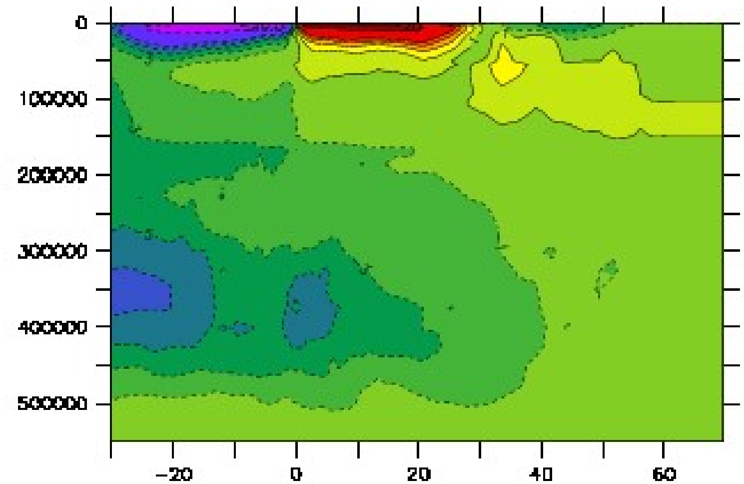
NULL



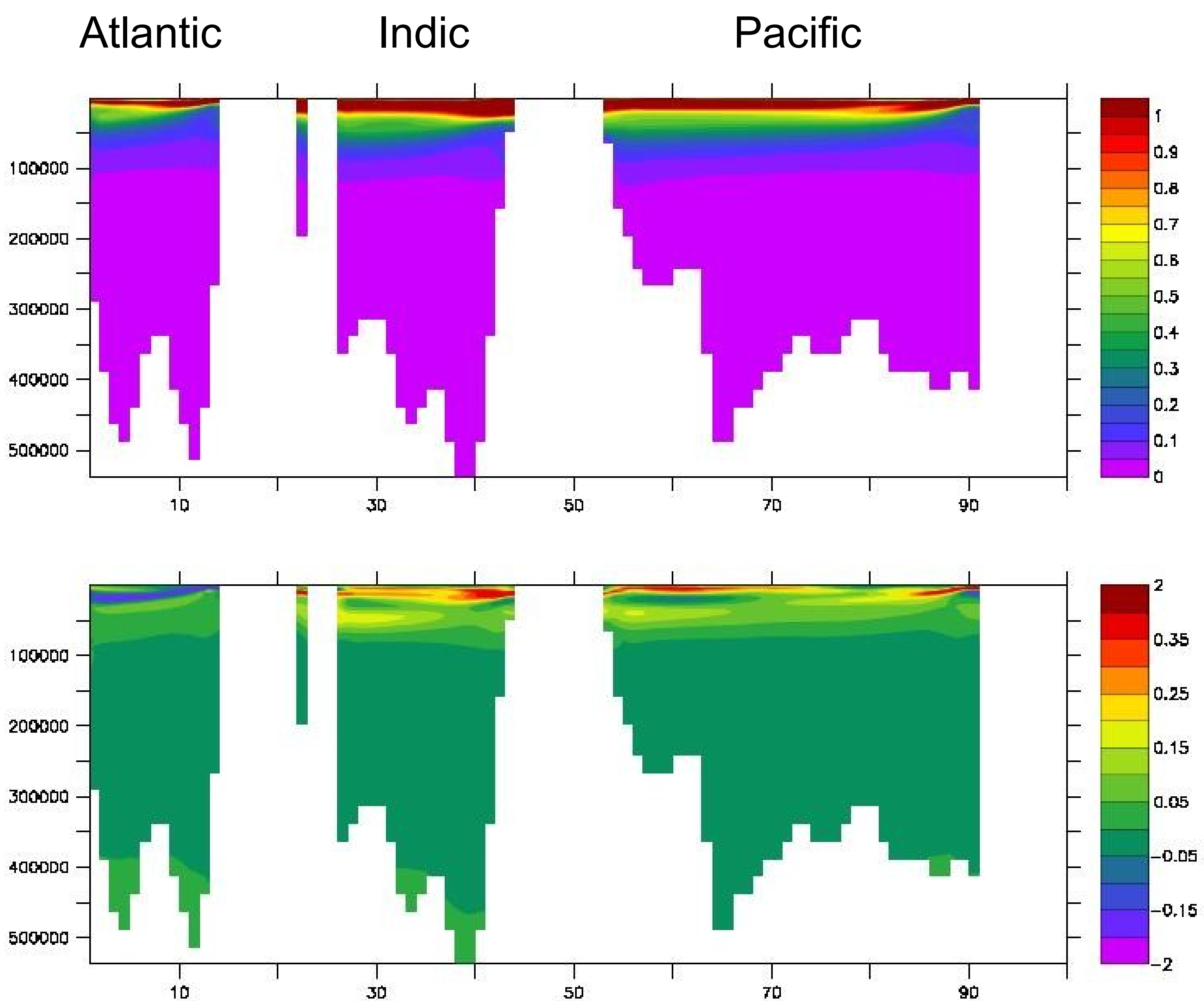
CONT



TWO



DIFF



Stratification along 30S (x1e5), top: NULL, bottom: NULL−TWO

$$\frac{\Delta b h^2}{f_3} - \left(\frac{\tau_0}{\rho_0 f_1} - K_e \frac{h}{l_s}\right) L_x = \frac{\kappa_v}{h} L_x L_y. \qquad (4.4)$$

· Conclusions

- Within realisitic parameter ranges the AMOC is mostly independent from ocean turbulence or Southern Ocean winds
- This result has to be corroborated with an eddy resolving GCM, and with a more physical parameterization of diapycnal mixing, or maybe just repeating Munday et al. with a Pacific basin
- … and, of course, we still have to figure out what the AMOC depends on

· (H. Pratt)