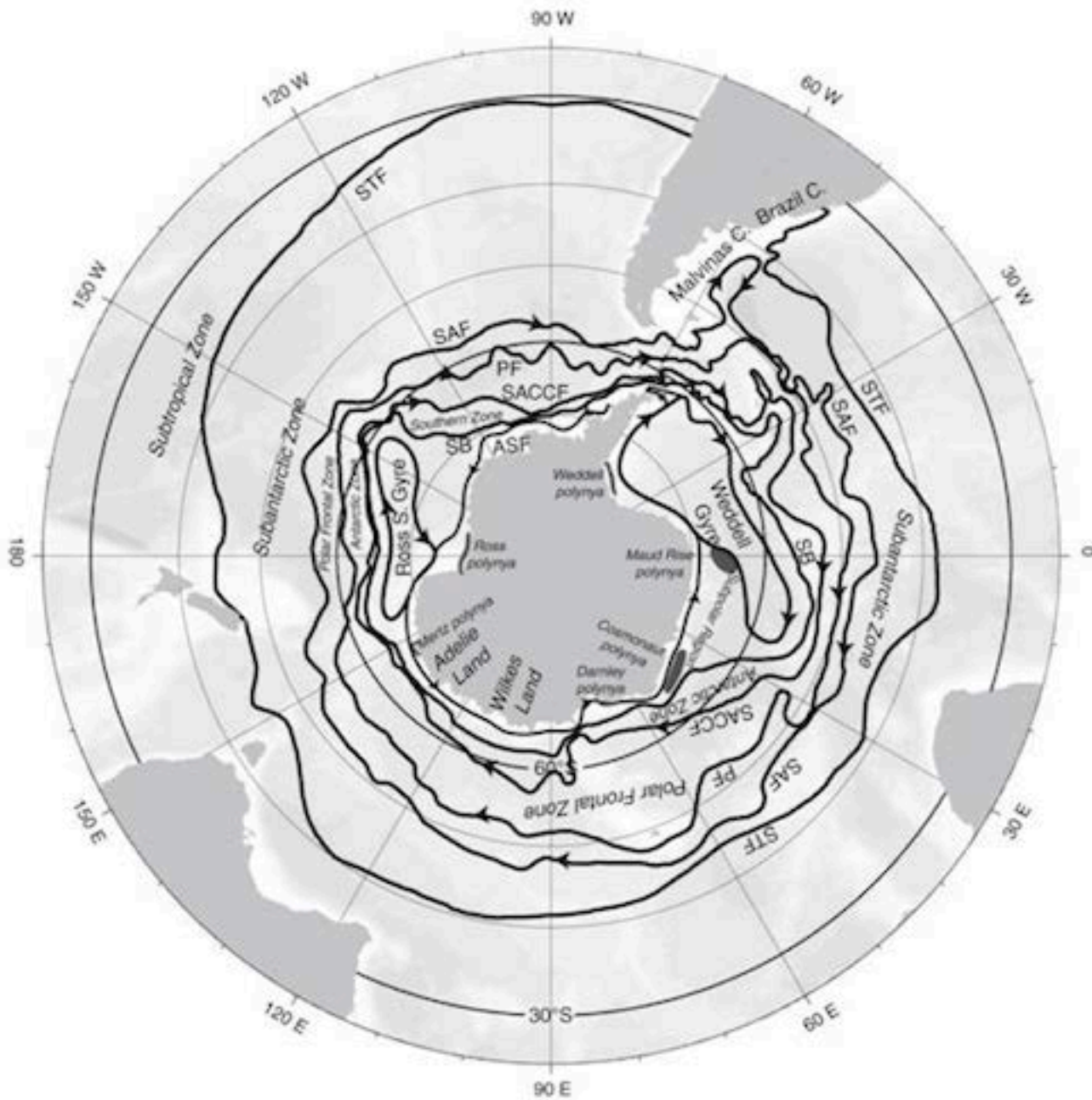


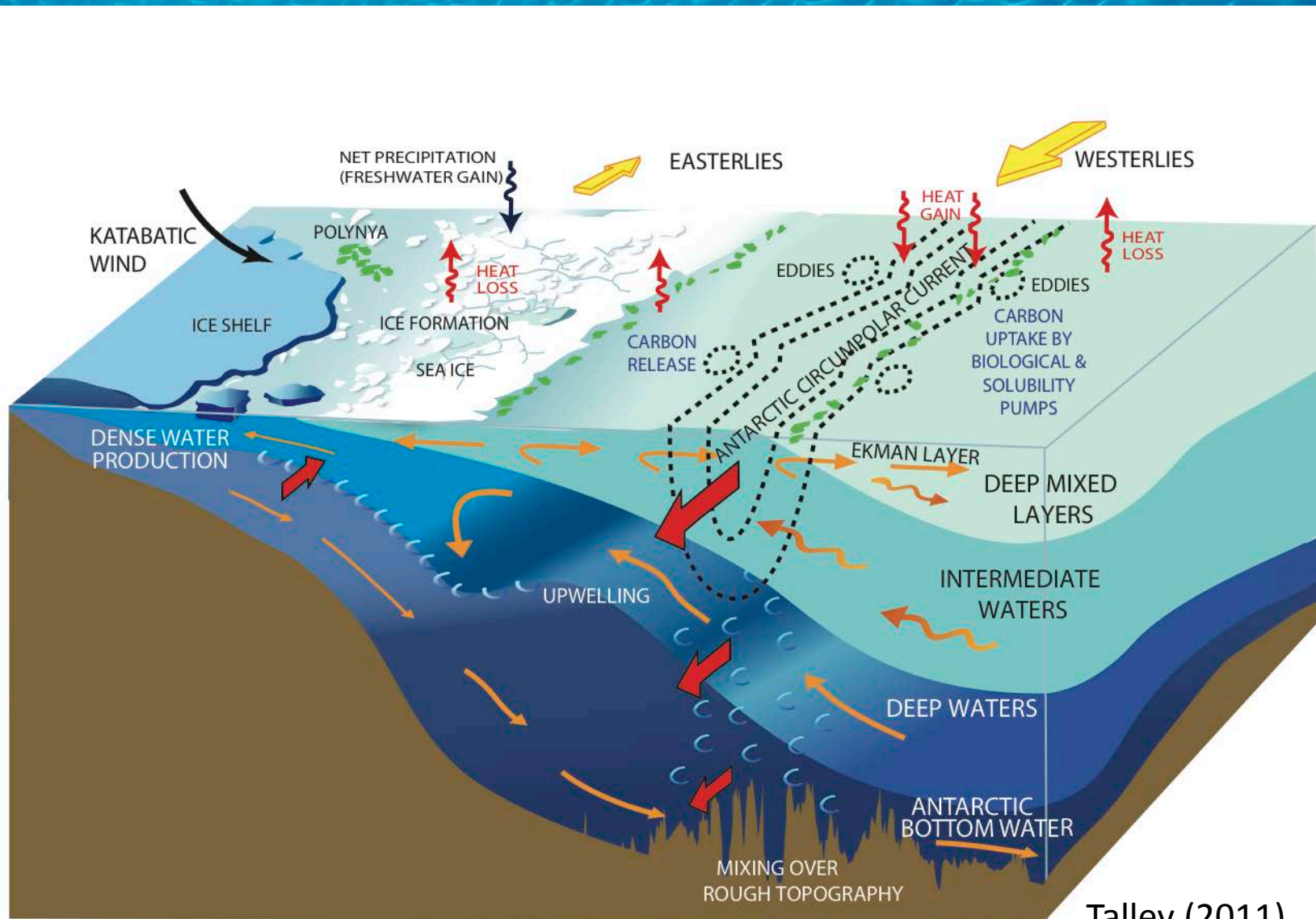
Breakout Session: Ocean Color
algorithms for Southern Ocean
to constrain the Carbon Cycle

Maria Vernet, Mati Kharu and David
Antoine



Antarctic
 Fronts
 SACCF
 PF
 SAF
 STF
 Gyres
 e.g. Orsi et al.
 (1995)

Complexity of SO waters



Talley (2011)

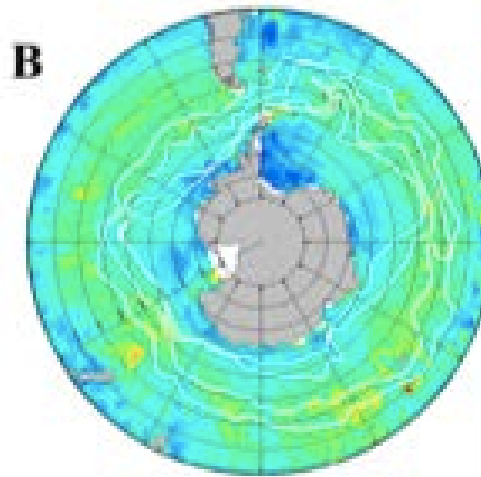
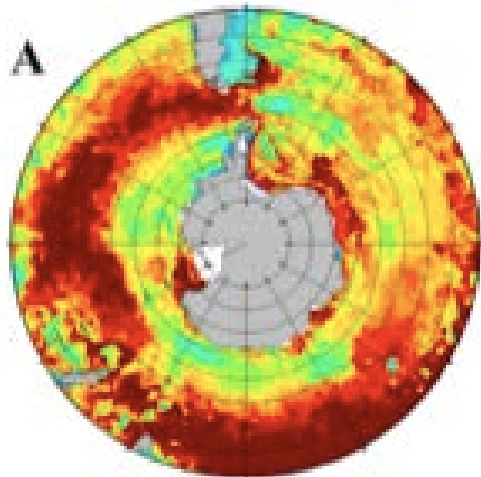
Program SO Breakout Session

- Mati Kahru and B. Greg Mitchell: *“Experiences in building a Southern Ocean chlorophyll algorithm”*
- Emmanuel Boss: *“Revisiting Ocean Color algorithms for chlorophyll a and particulate organic carbon in the Southern Ocean using biogeochemical floats”*
- Heidi Dierssen: *“Southern Ocean backscattering: bubbles, coccolithophores, Phaeocystis, and protein.”*

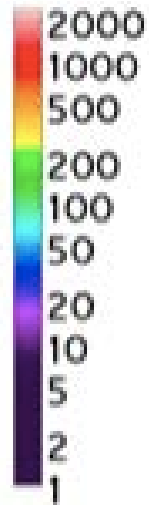
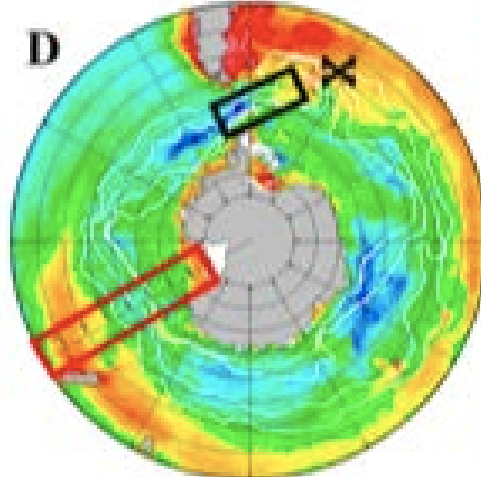
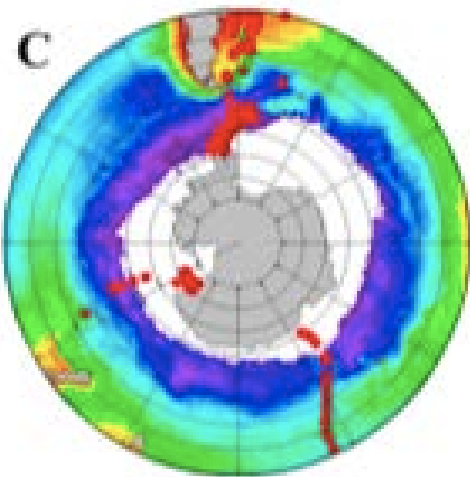
Program SO Breakout Session: speed talks

- 1. D. Antoine, "*Antarctic Circumpolar Expedition – ACE*"
- 2. M. Vernet, "*Winter primary production in the Southern Ocean*",
- 3. S. Thomalla, "*The seasonal cycle of phytoplankton chlorophyll:carbon ratios from in situ optics in the SAZ*".
- 4. A. Bracher et al., "*Variability, trend and phenology of phytoplankton groups in the Southern Ocean via combining in-situ, satellite and coupled ecosystem-ocean modelling*"
- 5. B. Balch, "The Great Calcite Belt: known knowns and known unknowns"
- 6. T. Hirawake et al., "*Phytoplankton size/group, primary production and $p\text{CO}_2$ in the Southern Ocean*"
- 7. M. Behrenfeld, "*The missing iron stress signal*"

Mixed Layer from SOSE

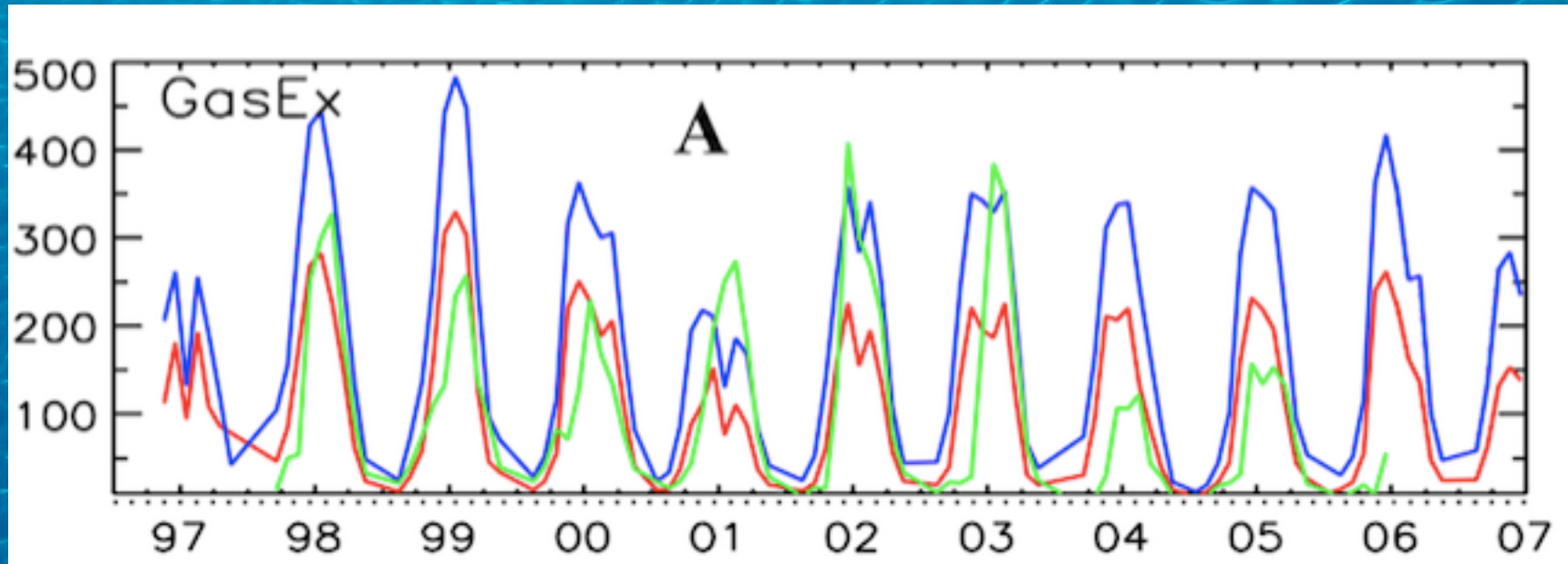


NCP computed according to Nevison et al. 2012



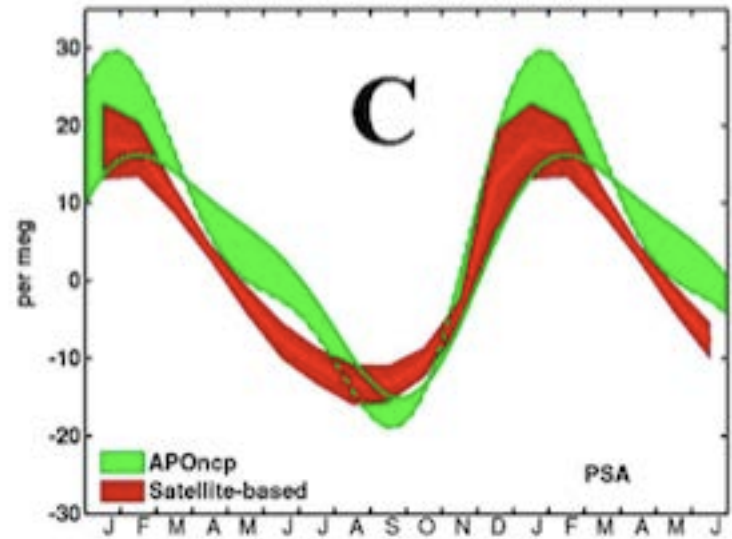
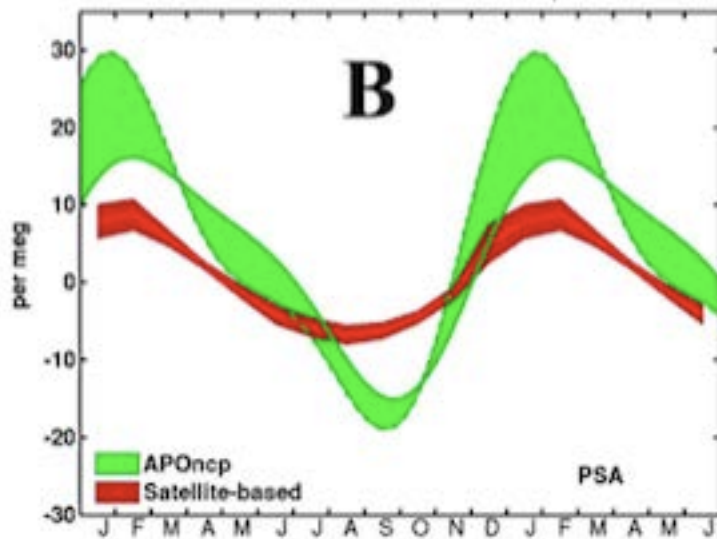
NCP (Net Community Production) and Mixed Layer Depth

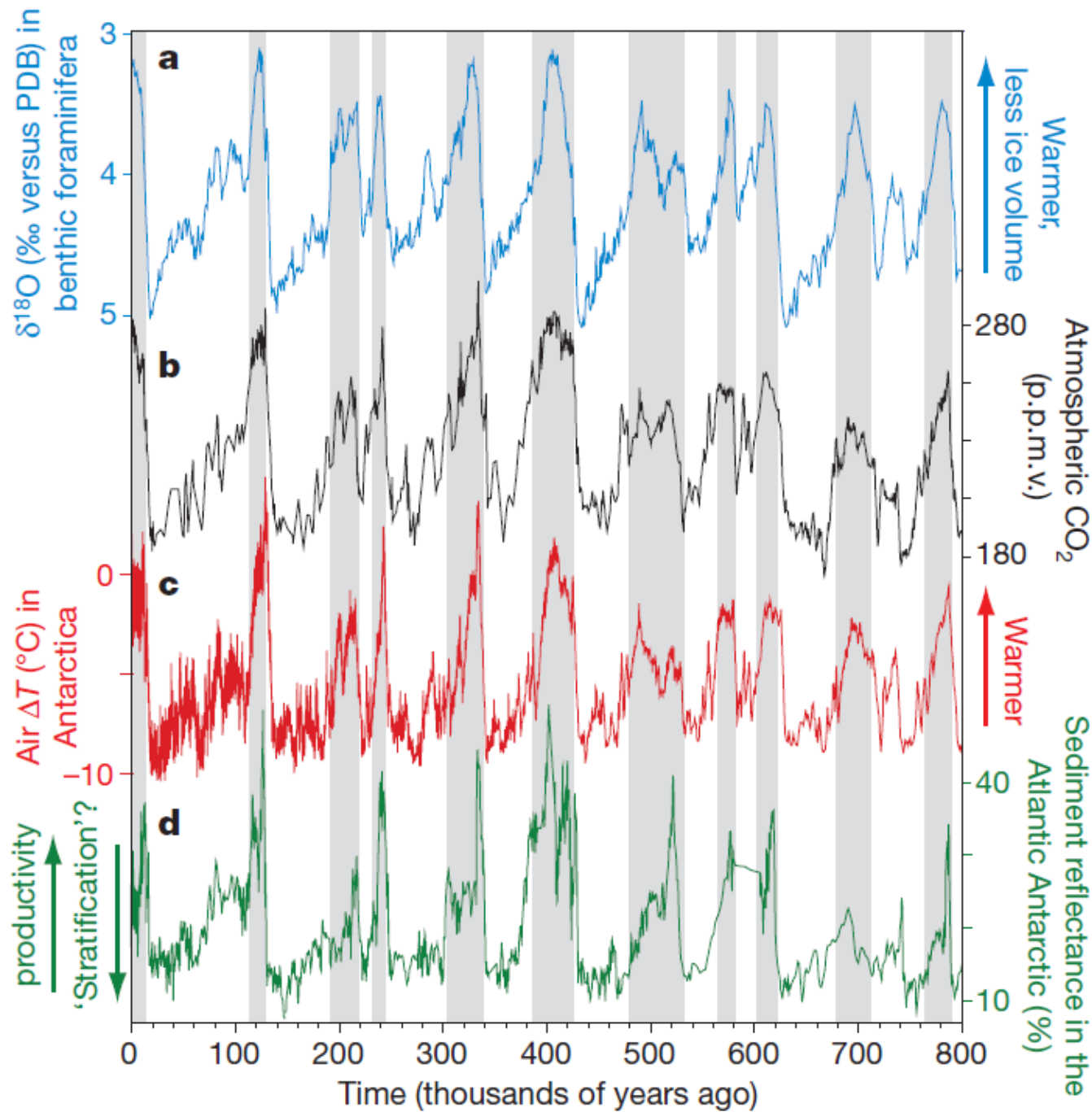
Net Community Production (NCP) based on 3 SO algorithms (NASA chla+VGPM, SPG-ANT and VGPM-ANT, and GSM01+CbPM)



OSU VGPM:Dunne vs. APOncp

SPGANT VGPM:0.725Laws vs. APOncp





Productivity in the Southern Ocean in the last 800,000 years

Oceanic biological pump blue boxes are possible research project to constrain Net Community Production (NCP) estimates

