WHERE ARE THE BIOGEOCHEMICAL CHANGES GREATEST? (NEW METHOD)

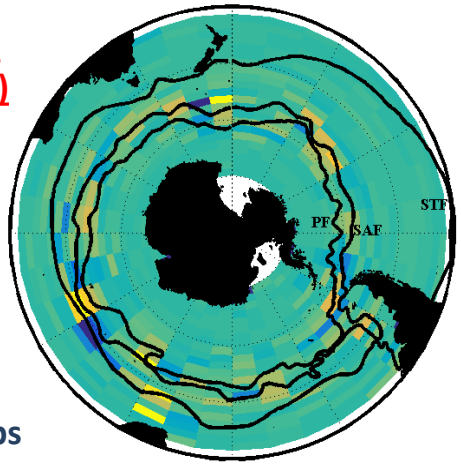
Water velocities from SOSE

Biogeochemical concentrations from GLODAPv2

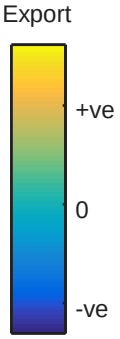
combine

Diagnosis of where changes occur

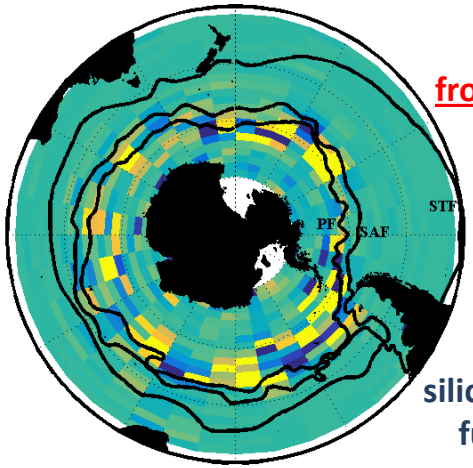
CaCO3 export from TA (Alk*)



Agrees with cocco counts, GCB, sed. traps



SiO2 export from silicic acid



Agrees with silicate removal further south

As shown, results so far show some predictive power even with relatively sparse GLODAPv2 data

Interested in joining a Challenge1 consortium, to apply the method to GLODAPv2 DIC, SOCAT pCO2, SOCCOM float pH and other datasets

University of Southampton Ocean and Earth Science

PhD work of Claudia Fry, with Matt Mazloff (Scripps)

Scripps Institution of Oceanography

Biogeochemical Interests/Expertise at OES:

UNIVERSITY OF Southampton
Ocean and Earth Science

Mark Moore: Trace metal controls on upper ocean productivity, (de-)coupling of different nutrients as a result of physical-biogeochemical interactions. (Techniques: observations of phytoplankton ecophysiology, at sea experimentation, conceptual modelling)

Phyllis Lam: Microbial controls on nutrient turnovers - with emphasis on nitrogen.
(Tools: process studies incorporating incubation experiments with stable isotope tracers, organic/ inorganic nutrient analyses, meta-omics analyses and bioimaging)

Nick Bates: ocean carbon cycle, marine biogeochemistry, physical and biological processes influencing ocean-atmosphere gas exchange of CO_2 (track record in high quality carbonate system measurements)

Tom Bibby: Drivers of phytoplankton community composition, distribution, physiology and macromolecular/elemental composition seasonally in the Southern Ocean

Anna Hickman: Phytoplankton (community structure, productivity, physiology), bio-optics, physical-biogeochemical-ecological interactions, linking observations and numerical models (expertise in both)

Toby Tyrrell: Carbonate chemistry (TA and DIC), carbon cycle, nutrient cycling, coccolithophores

Maeve Lohan: Fe regulation of growth (biological pump controlled by Fe) and impacts on stoichiometry: C:Si:N:P, & PIC:POC export ratio. Interested in measuring dissolved Fe, Fe-binding ligands, soluble Fe observations but also tracers of the different components of the iron pool and how this controls biological carbon fixation