WHERE ARE THE BIOGEOCHEMICAL CHANGES GREATEST? (NEW METHOD)

Water velocities from SOSE

Biogeochemical concentrations from GLODAPv2

Diagnosis of where changes occur

**CaCO3 export from TA (Alk*)**

Agrees with coco 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

PhD work of Claudia Fry, with Matt Mazloff (Scripps)
**Biogeochemical Interests/Expertise at OES:**

**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 CO₂ (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