

Challenges that hinder time-series science

largely from an open ocean perspective



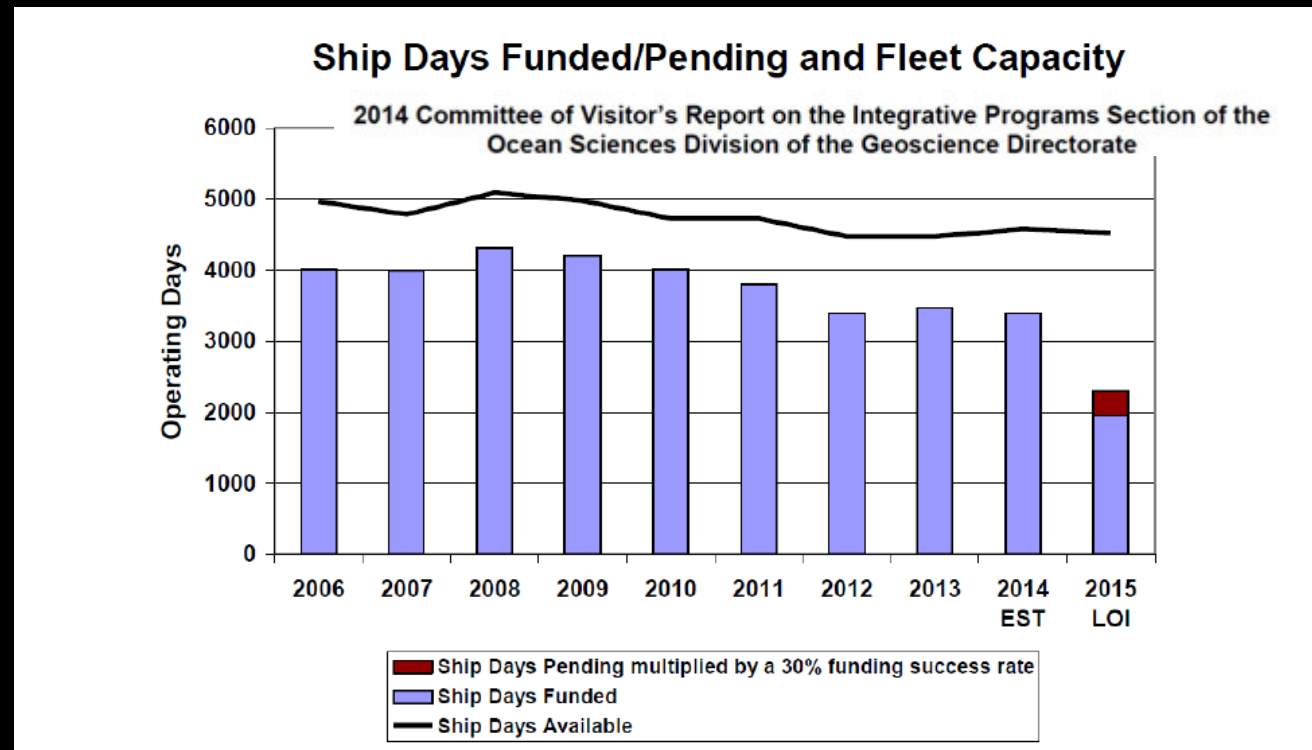
with input from Jim Potemra, Rod Johnson, & David Karl

Maintaining Infrastructure



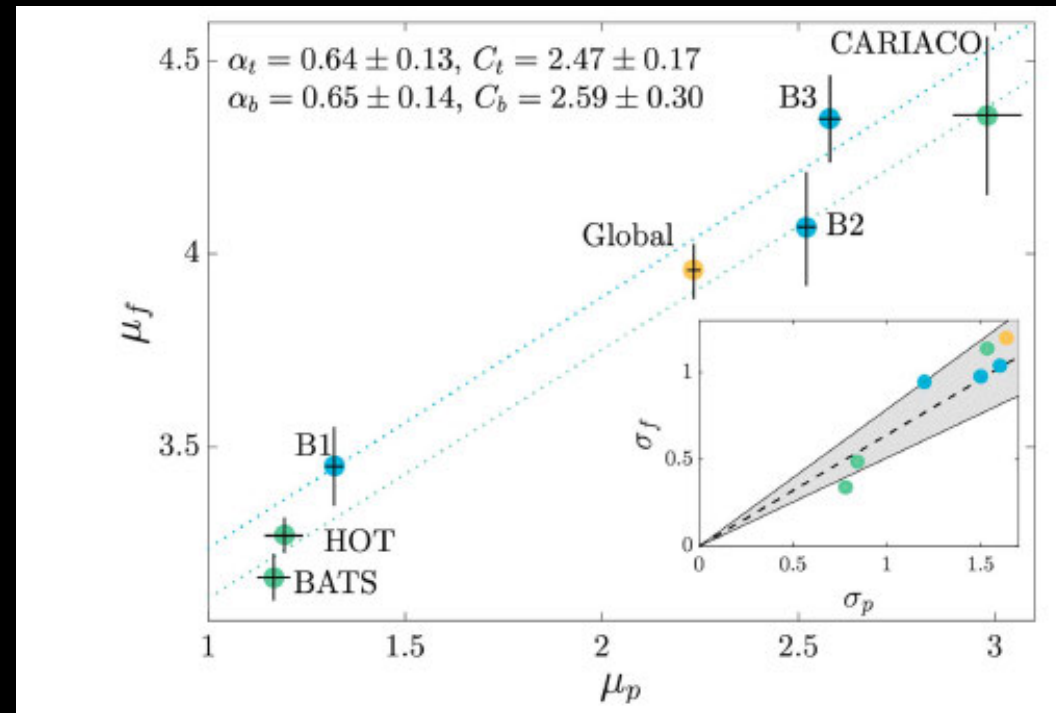
Maintaining Infrastructure

- FY 2018 funding for the academic fleet was \$86 Million to support 18 vessels, instrumentation and technical services and submersible support.
- Of the larger vessels *regional- global* many are past mid-life; replacements take decades to be approved/funded/built – this demands public engagement
- ~25% of OCE proposals request ship time (~6500 days/yr)* – *this does not reflect other proposals that piggyback on regular time-series cruises
- The FY 2020 funding level requested will support 1,625 ship operating days



Variable Methodological Approaches Hinder (but don't stop) Intercomparison

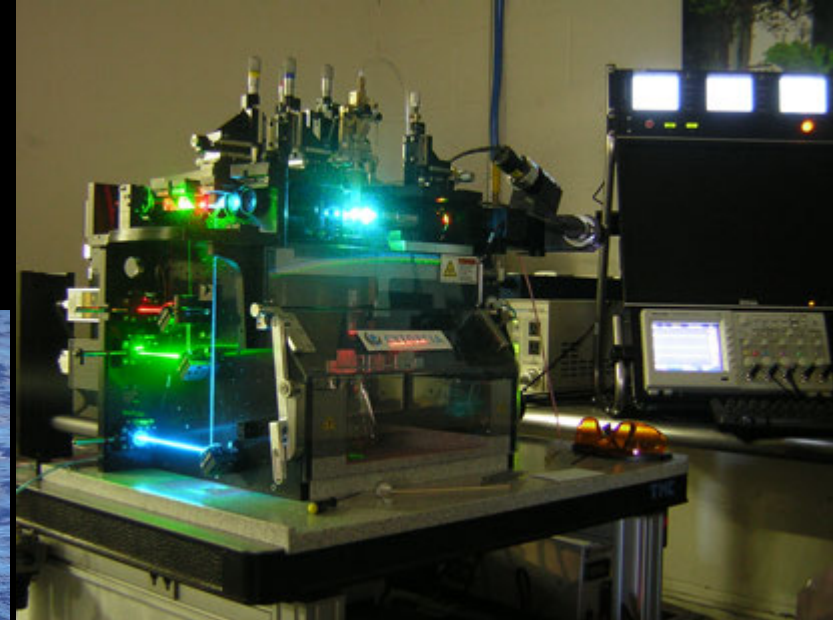
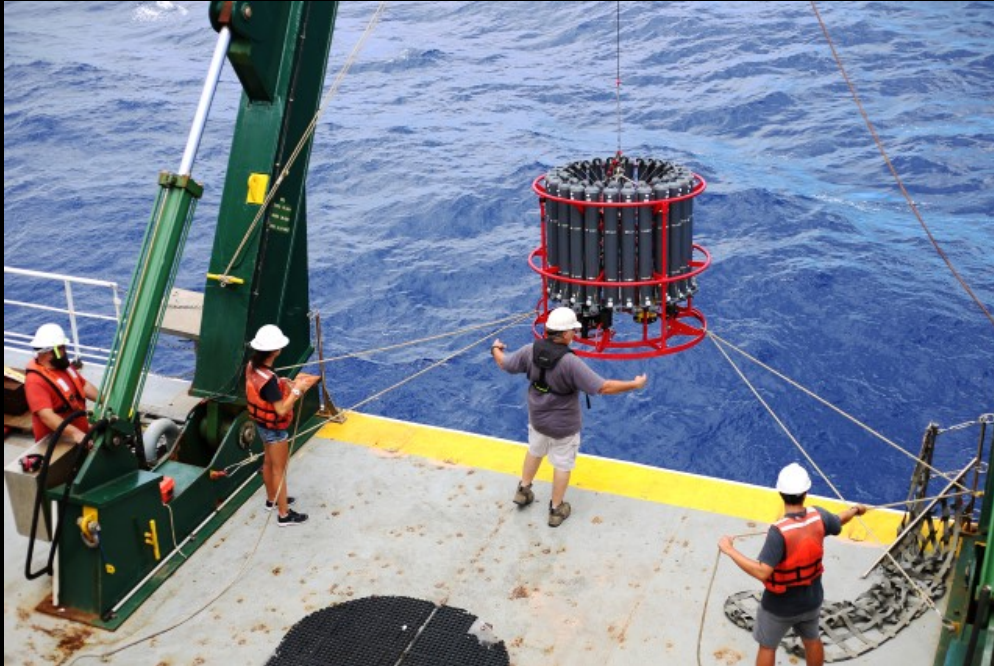
Removing swimmers also removes attached non-swimmer mass which tends to underestimate true fluxes. There is a cross-over point somewhere: no swimmer removal overestimates flux, complete swimmer removal and the attached particles underestimates flux. The "null" point will vary with size spectrum and, perhaps, species present. A most difficult problem indeed. (Dave Karl)



Can Rates of Ocean Primary Production and Biological Carbon Export Be Related Through Their Probability Distributions?

B. B. Cael^{1,2}, Kelsey Bisson³, and Christopher L. Follett¹

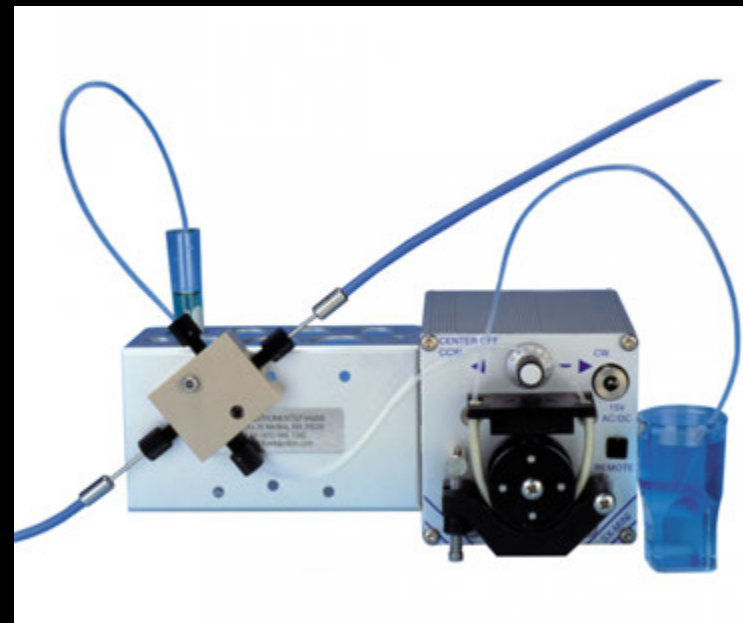
Sustaining trained technical support and instrumentation



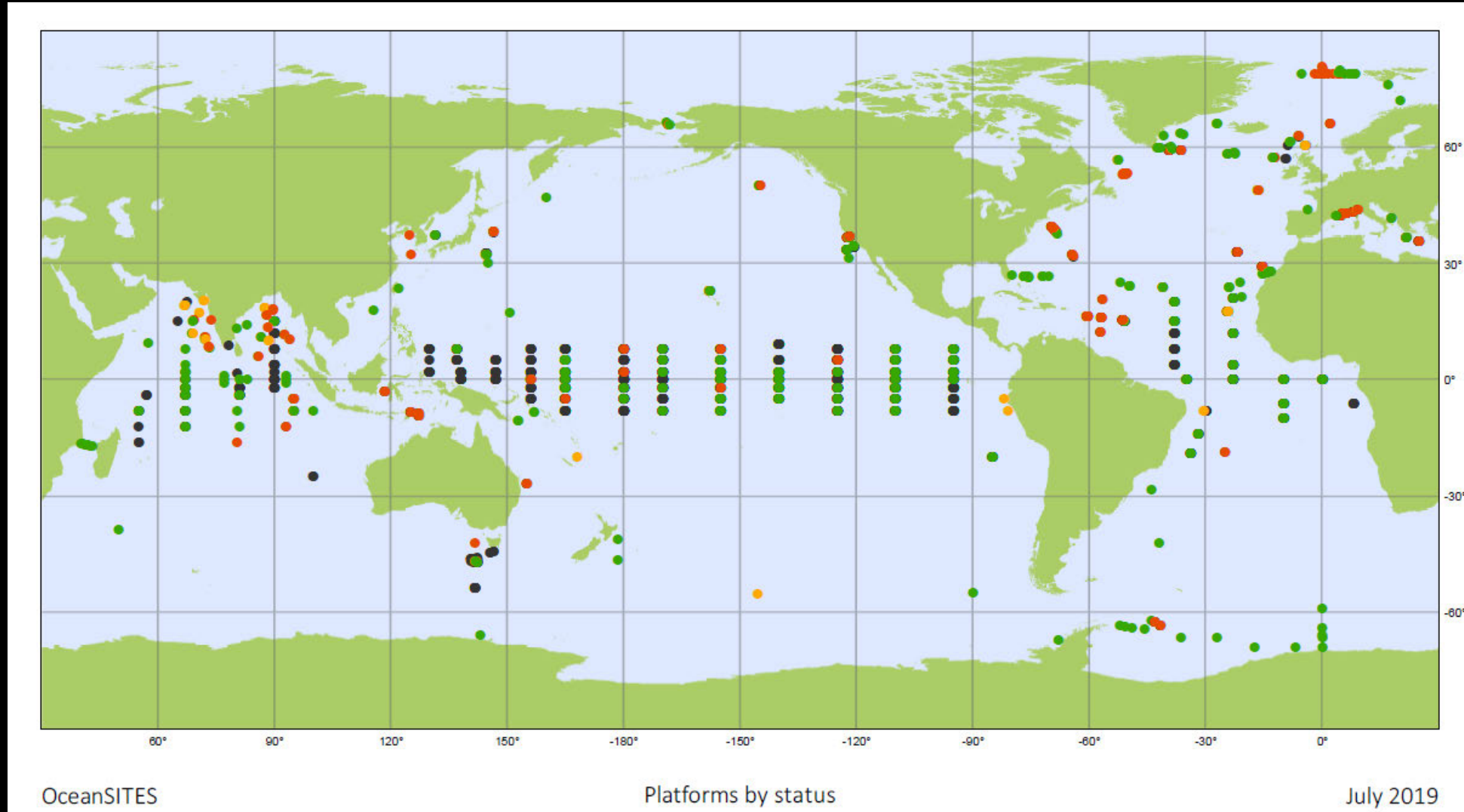
Lost institutional knowledge
or damage to critical
instrumentation can cause
delays in data availability

Fixed protocols & core parameters

- The core parameters defined by science objectives in the 80's and since then many new exciting measurements have surfaced.
- How are new measures/technology rolled into core suite especially with flat funding. Time-series model is "more for the same" but at what point does this get restrictive for future science interpretation.



Difficulty keeping track of community usage



Challenges and Opportunities

- Aging infrastructure – lobby/encourage public awareness, leverage
- Methodological heterogeneity – metadata reporting, intercomparison
- Connectivity and interoperability among databases - standardization
- Sustaining technical support – cross-training, instrument pools
- Community data usage – reporting requirements
- ...to name a few

Questions & Discussion

