Challenges that hinder time-series science largely from an open ocean perspective

with input from Jim Potemra, Rod Johnson, & David Karl
Maintaining Infrastructure
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- 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)

http://usjgofs.whoi.edu/PI-NOTES/eqpac/Gardner_trap_tech.html#txt-version
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