

# Ocean Time-Series Data Coordination Workshop

An EarthCube Sponsored Geo CI Workshop

September 13-15, 2019

C-MORE Hale Center



## Welcome & Aloha!



# Ocean Time-Series Data Coordination Workshop

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# Workshop Objectives



To address **shipboard ocean time series** data cyber-infrastructure challenges and develop strategies toward a **FAIR data model**

**Data access and discoverability**

**Interoperability**

**Data submission**

**Data citation**

**Variable user interfaces**

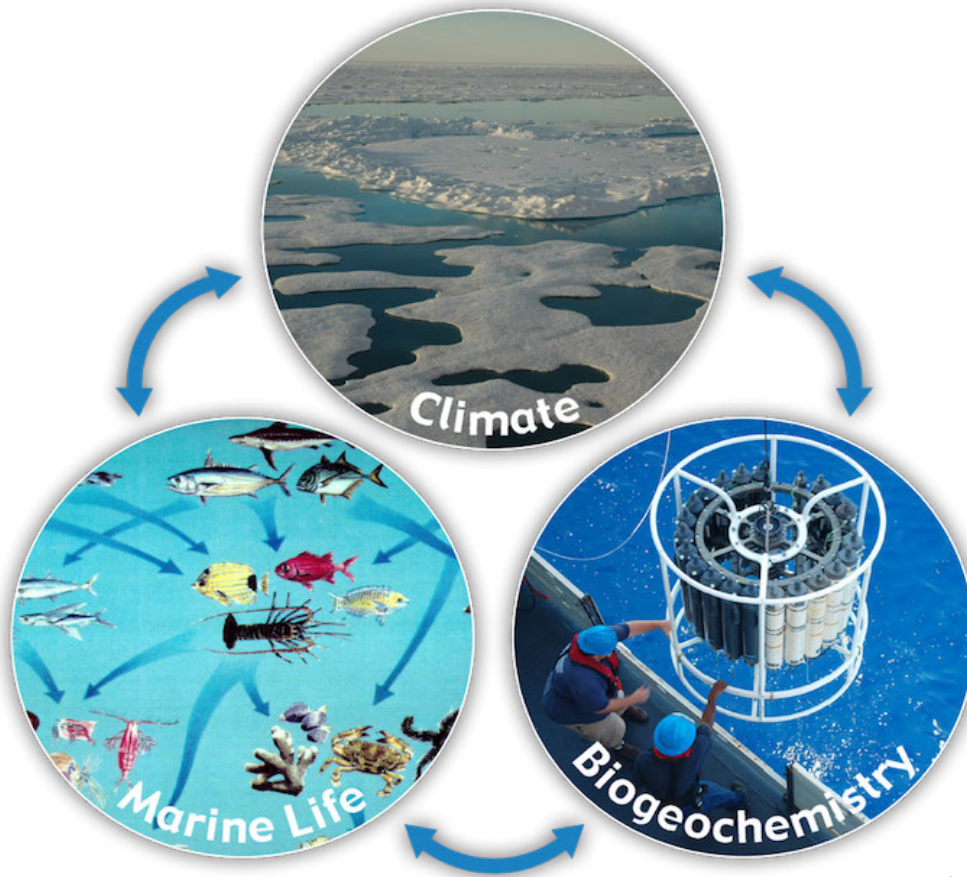
**Lack of community-adopted standards & BPs for data and metadata**

# Workshop Participants Provide Broader Insight on Ocean Data Infrastructure

- Multi-platform ocean time series, including ships, floats, moorings, etc.
- Multi-national ocean data platforms, networks, and products
- Cross-disciplinary ocean data sets (biogeochemistry, physics, biology, etc.)
- Multiple data management entities and approaches

# Shipboard Ocean Time Series Data

- **Pigments** - Chlorophyll *a* and others
- **In line measurements** – T, S,  $p\text{CO}_2$ , pH, DIC, fluorescence, oxygen, etc.
- **CTD parameters and discrete calibrations** – T, S, fluorescence, oxygen, beam attenuation
- **Inorganic macro- and micronutrients** –  $\text{NO}_3$ ,  $\text{NO}_2^-$ ,  $\text{NH}_4$ ,  $\text{PO}_4$ ,  $\text{SiO}_4$ , Fe
- **Biomass** – Bacteria, viruses, phytoplankton (micro-/nano-/pico-), zooplankton
- **Inorganic carbon parameters** – DIC, TA, pH, discrete  $p\text{CO}_2$
- **Biological rates** – Primary and bacterial production
- **Trap fluxes** – Collection methods, sample processing, data reporting, etc.
- **Organic matter** – C, N, P (dissolved and particulate fractions)



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[us-ocb.org](http://us-ocb.org)





OCB is a **network of scientists** working across disciplines to understand the ocean's role in the global carbon cycle and how marine ecosystems and biogeochemical cycles are responding to environmental change.

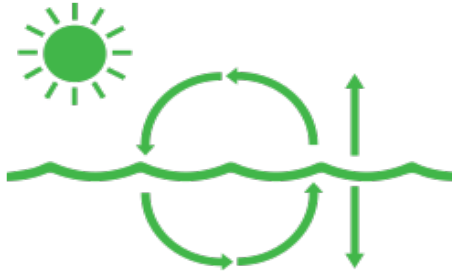


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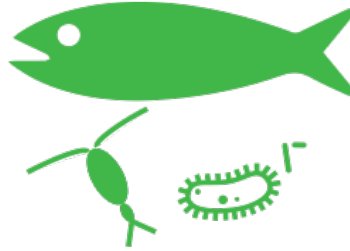
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# OCB Science Breadth



**Biological pump**



**Marine ecosystem  
function and change**



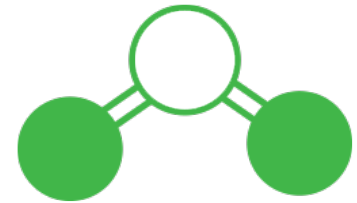
**Ocean observing**  
(ships, autonomous, space)



**Estuarine and coastal  
carbon fluxes**



**Ocean carbon uptake**



**Changing ocean  
chemistry**



# Community Ocean Time Series Efforts

- **Ocean Time series Committee** to facilitate communication among time series data generators, users, and funders
- Coordinate **workshops**, community activities, Town Hall Meetings, etc. for community building and advancing science
- Develop **publications** to highlight importance of sustained ocean measurements to broader ocean science community
- Help **establish best practices**
  - International **Time-Series Methods Workshop** to review and compare shipboard biogeochemical time-series sampling and analytical protocols
  - EarthCube **Ocean Time Series Data Workshop**

# Timeline of Community Ocean Time Series Efforts

2006

*OCB Program est.*

2007

*Ocean Time series  
Committee est.*

2010

*Sea Change workshop  
(HOT, BATS, CARIACO)*

2012

*International Time Series  
Methods Workshop*

2013

*International Group for  
Marine Ecological Time  
Series (IGMETS)*

2016

*OSM Town Hall Meeting*

2017

*Eos feature article*

2019

*OceanObs19 CWP  
Data workshop*

