2022 Ocean Carbon & Biogeochemistry Workshop
June 20-23, 2022 (Woods Hole, MA)

AGENDA

Guest Wifi Network: WHOIguest
Password: andaman5318

CELEBRATE JUNETEENTH IN WOODS HOLE!

For those in town the week/weekend before, Woods Hole celebrations of Juneteenth:
June 17, 8 pm - Juneteenth lecture (speaker B. Chad Starks, from BCS and Associates, Inc.) (hybrid, Clapp Auditorium, 7 MBL St. Woods Hole)
June 19, 11:30-1:30 - Freedom walk at Beebe Woods
More details at https://www.woodsholediversity.org/events/juneteenth/

SUNDAY, JUNE 19

1:30-3:30 pm: **Friends of Mixotrophy gathering** (Aquatic Brewing, 661 Main St, Falmouth)

7:00-9:00 pm: **Early Career Mixer with Ocean Trivia** (Aquatic Brewing, 661 Main St., Falmouth) - students, postdocs, new faculty – come mingle with OCB Scientific Steering Committee members and agency representatives! We will have pizza and appetizers from Wolf Pizza (food options for ALL!), beer, and nonalcoholic beverages

MONDAY, JUNE 20 (Redfield Auditorium to start, Clark 507 to end)

7:15	White Tie Shuttle pickups start at Inn on the Square and Holiday Inn (2 separate shuttles) – note Sands of Time is walking distance from Redfield Auditorium. White Tie Shuttles will circle back to Inn on the Square and Holiday Inn ~7:40 and ~8:10. If you miss the last shuttle, you will need to get an Uber/taxi (see logistics page of website).
7:30	Breakfast (tent)
8:30-9:15	**Welcome and Introduction** ● Heather Benway (OCB Project Office)

- Victoria Coles (UMCES) and Dreux Chappell (ODU)
- Danielle Kinkade and Adam Shepherd (Biological and Chemical Oceanography Data Management Office)

Plenary Session 1. Closing gaps in quantification of the ocean carbon sink (Chairs: Peter Landschützer, MPI; Galen McKinley, LDEO)

9:15-9:25	Introduction (Peter Landschützer, MPI)
9:25-9:55	The variable air-sea CO_2 flux: Insights from models, observations, and machine learning (Galen McKinley, LDEO)
9:55-10:25	Ocean carbon sink variability from interior carbon observations (Lydi Keppler, SIO)
10:25-10:45	Break
10:45-11:15	The land-to-ocean loops of the global carbon cycle (Ray Najjar, PSU)
11:15-11:45	Learning about the ocean carbon sink from BGC-Argo (Seth Bushinsky, UH, virtual)
11:45-12:15	Applying new observing technologies to reduce uncertainty of ocean CO_2 uptake (Adrienne Sutton, NOAA/PMEL)
12:15-12:35	Panel discussion
12:35-2:00	Networking Lunch (tent)

Plenary Session 2. Extreme ocean events (Chairs: Victoria Coles, UMCES; Patrick Rafter, UCI; Randelle Bundy, UW)

2:00-2:05	Session overview and introduction (Victoria Coles, UMCES) and C-saw Extreme Events Scoping Workshop (Sasha Kramer, UCSB)
2:05-2:35	Ocean biogeochemical extremes and compound events (Nicolas Gruber, ETH Zurich, virtual talk)
2:35-3:05	Common drivers of compound extreme events in the oceans and land (Regina Rodrigues, Federal University of Santa Catarina, Brazil)
3:05-3:15	Break
3:15-3:45	Insights and questions from extreme events in the past (Pincelli Hull, Yale Univ.)
3:45-4:15	Using the generalized extreme value distribution to describe interannual variability in the North Atlantic spring bloom (Greg Britten, MIT)
4:15-4:45	Panel discussion
5:00-5:30	White Tie Shuttles transport participants to Quissett Campus (Clark building)
5:30-7:30	Reception and poster session (Clark 507, beverages and appetizers)
7:30	White Tie Shuttles leaving Clark and heading back to all hotels (Sands of Time, Inn on the Square, Holiday Inn)

TUESDAY, JUNE 21 (All day in Redfield)

7:15 White Tie Shuttle pickups start at Inn on the Square and Holiday Inn (2 separate shuttles) – note Sands of Time is walking distance from Redfield Auditorium. White Tie Shuttles will circle back to Inn on the Square and Holiday Inn ~7:40 and ~8:10. If you miss the last shuttle, you will need to get an Uber/taxi (see logistics page of website).

7:30 Breakfast (tent)

8:30-9:45 Agency updates and Q&A (NSF, NASA, NOAA)

Plenary Session 3. Evolving understanding of biological carbon export (Chairs: Susanne Menden-Deuer, URI; Emily Osborne, NOAA/AOML; Seth Bushinsky, UH)

9:45-10:15 The ocean's biological carbon pump, its impacts, pathways and an experiment to constrain them (EXPORTS) (David Siegel, UCSB)
10:15-10:45 Global modeling perspective on budgets, projections, and uncertainties (Charlotte Laufkötter, Univ. Bern)

10:45-11:15 Break

11:15-11:45 Collecting detailed observations of the biological carbon pump at scale (Colleen Durkin, MBARI)
11:45-12:15 Biology of the biological pump and the episodic nature of carbon export (Debbie Steinberg, VIMS)

12:15-1:30 Lunch (OCB Activities and Research Areas by table under the tent)

1:30-2:30 Spotlight Talks
1:30-1:40 A widespread mixotroph produces carbon-rich mucospheres that contribute to ocean carbon fluxes (Martina Doblin, Univ. Technology, Sydney)
1:40-1:50 Food web links lay the foundation for export material and pathways. Results from the North Pacific and North Atlantic EXPORTS campaigns (Heather McNair, URI, virtual)
1:50-2:00 Ecosystem and biogeochemical constraints on pelagic tunicate carbon export (Jessica Luo, NOAA/GFDL)
2:00-2:10 New insights on the role of fishes in ocean carbon flux (Grace Saba, Rutgers)
2:10-2:20 Carbon cycling in a warmer ocean: the past and the future of the biological pump (Flavia Boscolo-Galazzo, Cardiff Univ.)
2:20-2:30 Probing sinking plankton within deep sea sedimentary DNA to reconstruct the past functioning of the biological pump (Tristan Cordier, Univ. Geneva, virtual)

2:30-3:00 Q&A and panel discussion

3:00-3:15 Grab coffee and transition to breakouts

3:15-3:40 **Breakout Sessions-** Be prepared to report out your 3 topic findings/recommendations.

Breakout topics (tables under tent will be labeled)

1. ***Instrument development*** (what are we presently unable to measure? What are we measuring well?)
2. ***Interdisciplinary research frameworks*** (What aspects of the BCP are we not effectively co-observing? What observations are needed to improve models, and vice versa?)
3. ***Integration across spatial and temporal-scales*** (How to constrain/parameterize impact of small scale/ephemeral events?)
4. ***Leveraging existing data/time-series*** (What collaborations and observational integration can enhance observing frameworks and research potential?)
5. ***Impacts of the BCP and changes***, forced by anthropogenic influence, and the importance to mCDR
6. ***Have it your way: choose at least 4 others and pick a topic*** you consider important for developing a new research framework for BCP studies

3:40-4:00 Break

4:00-5:00 **Breakout reports and open discussion** (Facilitator: Ivona Cetinic, NASA GSFC)

5:00 Adjourn, dinner on your own (see restaurant list)

5:00 White Tie Shuttles leaving Redfield and heading back to Inn on the Square, Holiday Inn)

5:30-7:00 Agency reception with students and postdocs (tent)

7:00 White Tie Shuttle leaving Redfield and heading back to Inn on the Square, Holiday Inn)

WEDNESDAY, JUNE 22 (Clark 507 to start, Redfield Auditorium to end)

7:15 White Tie Shuttle pickups start at Inn on the Square and Holiday Inn (2 separate shuttles). White Tie Shuttles will circle back to Inn on the Square and Holiday Inn ~7:40 and ~8:10. If you miss the last shuttle, you will need to get an Uber/taxi (see logistics page of website). A White Tie Shuttle will pick up participants from Sands of Time at 7:40 to transport to Clark.

7:30-10:00 Breakfast poster session (Clark 507)

10:00 White Tie Shuttle transport participants from Clark to Redfield

Plenary Session 4. Tidal carbon exports from coastal wetlands as a significant component of blue carbon sequestration (Chairs: Z. Aleck Wang, WHOI; Jaime Palter, URI; Xinping Hu, TAMUCC, Maria Tzortziou, CCNY/CUNY)

10:25-10:30 Session introduction (Z. Aleck Wang, WHOI)
10:30-11:00 A global overview of lateral carbon fluxes from mangroves and saltmarshes (Isaac Santos, Univ. Gothenburg)
11:00-11:30 Assessing lateral exports of inorganic carbon and air-water CO_2 effluxes from saltmarshes over multiple time-scales (Z. Aleck Wang, WHOI)
11:30-12:00 Examining the drivers and predictors of the lateral flux from saltmarshes: Leveraging long term, high frequency data (Kevin Kroeger, USGS)
12:00-12:30 Combining atmospheric and lateral carbon fluxes in restored and historic tidal wetlands in the San Francisco Bay delta (Patty Oikawa, CSU East Bay)

12:30-1:45 Lunch (tent)

1:45-2:15 Will it stay or will it go? Controls on organic carbon preservation and loss in salt marsh soils (Amanda Spivak, UGA)

Lightning talks (5 mins. each)
2:15-2:20 Dynamic modulation of tracer exchange in seagrass canopies (Amala Mahadevan, WHOI)
2:20-2:25 Tropical cyclones cumulatively control regional carbon fluxes in Everglades mangrove wetlands (Florida, USA) (Xiaochen Zhao, Louisiana State Univ.)
2:25-2:30 Subtropical estuarine carbon budget under various hydrologic conditions (Xinping Hu, TAMUCC)
2:30-2:35 Potential for CO_2 removal via enhanced weathering in the Amazon River-ocean Continuum (Linquan Mu, Univ. Rhode Island)
2:35-2:40 Constraining salt marsh carbon and nutrient cycling using autonomous biogeochemical measurements at the Seven Mile Island Innovation Laboratory (SMIIL) (John Supino, Boston College)
2:40-3:15 Panel discussion

Building big programs: Varying pathways to success
A collaborative set of presentations followed by a panel discussion to highlight major new OCB-relevant programs and the community championing that led up to them, as well as opportunities for community engagement in the future.

3:15-3:20 Learning the Earth with Artificial Intelligence and Physics (LEAP) Science & Technology Center (Galen McKinley, LDEO)
3:20-3:25 Chemical Currencies of a Microbial Planet (C-CoMP) Science & Technology Center (Liz Kujawinski, WHOI)
3:25-3:35 BioGeoSCAPES Accelnet and associated 'Omics intercalibration and

intercomparison activities (Bethany Jenkins, URI; Scott Gifford, UNC Chapel Hill; Mak Saito, WHOI)

3:35-4:00 Q&A and Panel Discussion

4:00 Adjourn for the day (free time)

4:00 White Tie Shuttles transport participants to Inn on the Square and Holiday Inn

6:15 White Tie Shuttles transport participants from Inn on the Square and Holiday Inn back to Redfield for workshop dinner

6:30-9:00 Workshop dinner (tent)

8:30 White Tie Shuttles start transporting participants back to Inn on the Square and Holiday Inn

THURSDAY, JUNE 23 **(Redfield)**

7:15 White Tie Shuttle pickups start at Inn on the Square and Holiday Inn (2 separate shuttles) – note Sands of Time is walking distance from Redfield Auditorium. White Tie Shuttles will circle back to Inn on the Square and Holiday Inn ~7:40 and ~8:10. If you miss the last shuttle, you will need to get an Uber/taxi (see logistics page of website).

7:30 Breakfast (tent)

Plenary Session 5. Coastal observing to understand and predict ecosystem changes
(Chairs: Charlie Stock, NOAA/GFDL; Susanne Craig, NASA GSFC; Jeff Bowman, SIO; P. Dreux Chappell, ODU)

8:30-8:40 Session Introduction (Charlie Stock, NOAA/GFDL)

8:40-9:10 Coastal observing systems for resilient living marine resources in a changing climate (Jon Hare, NOAA/NMFS)

9:10-9:30 Meeting the ocean observing challenge: Lessons from the Argo Program (Susan Wijffels, WHOI)

9:30-10:00 Remote sensing technologies for the coastal ocean: Challenges and opportunities (Susanne Craig, NASA GSFC)

10:00-10:30 Break

Plenary Session 5. (cont'd) Advances in in-situ and autonomous observing of coastal ecosystems

10:30-10:45 Surface autonomous observing technology for the coastal ocean (Adrienne Sutton, NOAA/PMEL)

10:45-11:00	‘Eco-gliders’ as novel platforms for ocean health and ecosystem monitoring and research (Grace Saba, Rutgers)
11:00-11:15	Building a cost-effective coastal biogeochemical observing network in collaboration with the commercial fishing community (Z. Aleck Wang, WHOI)
11:15-11:45	A next-generation coastal observing network for ecosystem monitoring and prediction (Clarissa Anderson, SIO/SCCOOS)
11:45-12:15	Panel Discussion
12:15-12:30	Closing remarks
12:30	Adjourn workshop and Lunch (tent)
1:00	White Tie Shuttles start transporting participants back to Inn on the Square and Holiday Inn
1:30-5:00	SSC meeting (Smith Conference Room, WHOI Village Campus, SSC members, agency program managers)