



Student Scholarship Internship Opportunity (SSIO) Online System

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SSIO 2022 Internship Opportunity Position

Internship Information

Project title: Documenting the evolving state of ocean carbon dioxide (CO₂) uptake and ocean acidification-FOR-CSC-Student

NOAA mission goal: Healthy Oceans

Hypothesis or objectives: Fundamental changes in seawater chemistry are occurring throughout the world's oceans. The ocean absorbs nearly 25% of the CO₂ we release into the atmosphere every year, so as atmospheric CO₂ levels increase, so do the levels in the ocean. Initially, many scientists focused on the benefits of the ocean removing this greenhouse gas from the atmosphere. However, decades of ocean observations now show that there is also a downside — the CO₂ absorbed by the ocean is changing the chemistry of the seawater, a process called ocean acidification. -----

The mission of the Carbon Program at NOAA's Pacific Marine Environmental Laboratory (PMEL) is to understand the changing chemistry of the oceans. Our observations of key biogeochemical parameters support NOAA's overall efforts to predict how marine ecosystems will respond and to develop management strategies for adapting to the consequences of ocean acidification. -----

Oceanographers in our group have been studying how CO₂ emissions affect the ocean system for more than three decades and continue to monitor ocean acidification in all the world's oceans from coral reef ecosystems to deep North Pacific waters. Our group collects several types of carbon measurements throughout the world's oceans. We participate in large-scale research cruises across ocean basins and along coastlines at regular intervals to study how ocean chemistry is changing through space and time. We also make measurements of the partial pressure of CO₂ (pCO₂) and pH in the surface water of the world's oceans using automated analytical systems on ships of opportunity, moorings, and other autonomous platforms. We also develop and test new autonomous sensing technology in partnership with PMEL engineers. Read more about our work here: www.pmel.noaa.gov/co2. -----

----- The hypothesis that drives much of our research is that the rates and magnitude of ocean carbon uptake and ocean acidification vary across time and space as a consequence of local and regional geochemical, hydrological, and biological processes. We are seeking an intern to use our existing data streams and/or assist in collection of new data to address this topic. Projects can vary from regionally-specific to global analyses. Specific project scope will depend on the skills and interests of the intern and how those align with our currently-funded research. ***Estimated start/end dates and duration are provided below, but these are flexible.***

Academic status: Graduate

Estimated start - end date: January 2022 - December 2022

Duration: 12 months

- Area(s) of discipline:** Chemistry, Climate Change, Earth Science, Environmental Chemistry, Environmental Science Studies, Ocean Engineering, Oceanography, Physical Sciences
- Internship location:** Seattle, WA
- Duties and responsibilities:** The specific duties and responsibilities for the interns will depend on the intern's experience, background, and interest in particular elements of our research. At a minimum, the students will participate in ocean carbon data analysis and presentation preparation with the PIs on the project.
- Special skills/training required:** Required skills include:
- Interest in the global carbon cycle, climate change science, and ocean acidification
 - Education in inorganic chemistry
 - Strong collaborative personality
 - Good critical thinking and writing skills
 - Excellent attention to detail
- Desired skills include:
- Lab experience in inorganic chemistry
 - Ability to critically review and synthesize relevant scientific literature
 - Familiarity with programming and statistical visualization software, such as MATLAB, R, or Python
- Expected outcomes:** Gained knowledge in the ocean carbon cycle and how it is changing over time
- Presentation of findings to PMEL Carbon Program staff and (optional) at scientific conferences
 - A high-quality dataset and potential for co-authorship on a paper
 - Incorporation of analyses and findings into undergraduate and/or graduate work
- Guidance and supervision:** The primary mentor(s) and type of guidance will be decided on when the potential intern's interests are aligned with the project and PIs. Possible PIs include Drs. Richard Feely, Simone Alin, Adrienne Sutton, Brendan Carter, and Sophie Chu. Learn more about us here: www.pmel.noaa.gov/co2/people. We expect to work closely with the intern on project development, data analysis and interpretation, and presentation of results.
- Application package:** Resume
- Posted or modified date/time:** Monday, September 20, 2021 - 4:26:00 PM

Internship Travel Information

- Purpose (student's role):** ---
- Mode of transportation:** ---
- Date(s):** ---
- Destination:** ---
- Estimated cost:** ---

Source of funding: ---**Mentors Contact Information**

Name: Adrienne Sutton

Organization: Office of Oceanic and Atmospheric Research (OAR)

Program office: Pacific Marine Environmental Laboratory

Mailing address: 7600 Sand Point Way Ne
Seattle, WA 98115

Fax number: None

Phone number: 206-526-6879

Email: adrienne.sutton@noaa.gov

Co-Mentor name: See Names Listed Under
Guidance/Supervision

Co-Mentor email: ---

Agency or organization: ---

**Admin Action**

Submitted internship: **Approve**
 Disapprove

Additional comment(s):
(300 characters max)

Accepted for a minimum 3-month EPP NERTO internship. Requires: a workplan developed by CSC and NOAA mentor; substantial engagement with NOAA mentor; and, NOAA-aligned professional development. Queries are sent to: oed.epp10@noaa.gov.

Admin Initials (required):

Admin Approval Information

Comments: Accepted for a minimum 3-month EPP NERTO virtual internship. A workplan developed by CSC and NOAA mentor(s) is required. A required minimum of 240 contact hours with a NOAA mentor is needed. The complete NERTO application and queries are sent to: oed.epp10@noaa.gov. Thank you.

Initials: AT

Approval date/time: 9/2/2020 1:26:11 PM

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