

The PIER Review



Welcome to the September 2018 issue of the PIER Review, the monthly [GOA-ON Pier2Peer](#) newsletter. The Review highlights accomplishments, provides updates for our members, highlights open-access research on ocean acidification, and shares funding or job opportunities. Please send all of your ideas for the newsletter to Meredith Kurz (meredith.kurz@noaa.gov) and we will be sure to incorporate your feedback into future editions of The PIER Review.

P2P FEATURE

This month's Pier2Peer feature describes the *Pacific Advanced Ocean Acidification Monitoring Training*, held at the University of Hawai'i at Manoa from 13-17 August 2018, organized by the Ocean Foundation, GOA-ON, and the US National Oceanic and Atmospheric Administration (NOAA) Ocean Acidification Program, and sponsored by the US Department of State, the Swedish International Development Agency, and the University of Hawai'i School of Ocean and Earth Science and Technology (SOEST). Eleven participants from seven Pacific Island States participated in a week of hands-on training with the equipment they received in the past year as part of the "GOA-ON in a Box" program. The program grants a set of laboratory and field equipment to qualified applicants working countries pre-determined by funding stipulations, with the long-term goal of expanding carbonate chemistry monitoring and increasing capacity of scientists to measure ocean chemistry. The GOA-ON hopes to expand the "GOA-ON in a Box" program in the coming years.



Participants and trainers pose for a group photo after touring the lab facilities at Coconut Island, part of the University of Hawaii at Manoa, and snorkeling to view Autonomous Reef Monitoring Systems (ARMS) and Calcification Accretion Units (CAUS) in situ in Kaneohe Bay, Hawaii.

Dr. Christopher Sabine of the University of Hawai'i at Manoa and Drs. Rusty Brainard, Sophie Chu, and Hannah Barkley of NOAA were the lead trainers, supported by University of Hawai'i at Manoa students Noah Howins and Lucie Knor and Hawaii Pacific University student Kellie Teague. Staff support was provided by Alexis Valauri-Orton and Alexandra Puritz of the Ocean Foundation International OA Initiative and Meredith Kurz, Sea Grant Fellow at the NOAA Ocean Acidification Program and GOA-ON Secretariat member. This workshop was a follow-up advanced training to a workshop at the University of the South Pacific in Suva, Fiji, in November 2018, organized by the same groups and involving several of the same trainers. Some of those scientists attending the Fiji workshop were selected to receive "GOA-ON in a Box" kits, and this group was invited back to this advanced training. A similar workshop will be held in the Latin America region in January 2019; details and invitations to apply will be announced soon.

Scientists representing Fiji, Papua New Guinea, Samoa, Tuvalu, Vanuatu, Tokelau, and Palau, and one representative of the Secretariat of the Pacific Regional Environment Programme (SPREP), began the week with a refresher in carbonate chemistry and the potential impacts of ocean acidification. For the next three days, they moved to the laboratory to practice measuring alkalinity of seawater, running a pH spectrophotometer, deploying a field pH sensor in a large cooler of seawater, using the co2sys software to calculate carbonate chemistry parameters, and interpreting the data collected through these aforementioned analyses. Each country team also had a chance to fine-tune their research plans through one-on-one conversations with the trainers. These conversations focused around, inter alia, best practices in site selection, instrument maintenance, and data and metadata management.

At the end of the week, participants traveled to the Coconut Island laboratory facilities in Kaneohe Bay to learn more about the Automated Reef Monitoring Systems (ARMS) and Calcification Accretion Units (CAUs) used by Dr. Rusty Brainard and other coral scientists to monitor the biodiversity around reefs and their rate of calcification, respectively. Participants also observed these systems in situ at one of the research sites associated with the NOAA Coral Reef Instrumented Monitoring Platform (CRIMP2) in the Bay.

The participants also worked with the staff to create plans to strengthen regional collaboration going forward. The staff introduced the participants to the newly finished indicator methodology for Sustainable Development Goal 14.3: "Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels." The participants familiarized themselves with the metadata and data submission requirements, and set the goal to create ongoing monitoring programs in their countries that can contribute data to the indicator 14.3.1, "Average marine acidity (pH) measured at an agreed suite of representative sampling stations." The participants, trainers, and staff are all optimistic that this workshop will support the growth of OA monitoring in a region where carbonate chemistry data has been historically scarce.

BECOME A Pier2Peer RECRUITER

We are always recruiting senior and experienced OA observing experts to serve as mentors and early career scientists from emerging regions to become mentees. If you know someone who would be a good mentor or mentee, direct them to the [Pier2Peer website](#) or put them in contact with Meredith Kurz (meredith.kurz@noaa.gov).

If you are attending a meeting or event, are interested in sharing a few slides on the program and disseminating sign-up information, please email Meredith and we will send you communication materials and sign-up sheets for your upcoming event. And thanks!

UPCOMING EVENTS and CONFERENCES

[The International Council for the Exploration of the Sea \(ICES\) Annual Science Conference 2018](#) will be held on 24-27 September 2018 in Hamburg, Germany. Abstract submission is closed but registration is still open.

[The Our Ocean Conference](#) will be hosted by the Government of the Republic of Indonesia in Bali on 29-30 October 2018. The yearly Our Ocean Conferences are by invitation only, and have generated 18 billion USD in commitments to maintain the sustainability of our oceans by governments, NGOs, and private industry. Ocean acidification and its impacts have gained increasing attention at each subsequent conference.

[The Sustainable Ocean Summit](#) organized by the World Ocean Council will be held on 14-16 November 2018 in Hong Kong.

[The American Geophysical Union \(AGU\) Fall 2018 Meeting](#) will be held on 10-14 December 2018 in Washington, D.C., U.S.A. Abstract submission is closed but registration is still open.

[The American Geophysical Union \(AGU\) Geoscience and Society Summit](#) will be held on 12-21 March 2019 in Stockholm, Sweden. Abstract submission and registration will open soon.

[The Eleventh Western Indian Ocean Marine Science Association \(WIOMSA\) Scientific Symposium](#) will be held at the University of Mauritius from 8-13 July 2019. The call for abstracts and registration will open soon.

[OceanObs'19](#) is part of a decadal conference series on setting ocean observation priorities to be held on 16-20 September 2019 in Honolulu, Hawaii, U.S.A. Abstract submission for white papers is closed; registration and a call for posters will be open in the fall of 2018. OceanObs'19 will announce some scholarships to attend for early career scientists and those working in developing nations at a later date.

UPCOMING OA Workshops

[Advanced training on the application of nuclear and isotopic techniques in ocean acidification research](#)

Organization: The International Atomic Energy Agency (IAEA)

Host and Location: Kuwait Institute for Scientific Research, Kuwait City, Kuwait

Dates: 18-29 November

Description: The aim of this training is to provide the knowledge required to design and perform a laboratory experiment in order to study impacts of ocean acidification on selected marine organisms and the use of radiotracers to assess the effect of ocean acidification on physiological processes and contaminant transport. A joint experiment will be performed during the training with the objective of publishing the results in an international scientific journal.

Requirements: Applicants must come from member states participating in the IAEA Technical Cooperation project INT7019. Please contact Lina Hansson (l.hansson@iaea.org) for more information about eligibility and application procedures.

Application details: A maximum of 15 applicants will be selected based on a short CV and a letter developing their future planned activities related to biological responses to ocean acidification as well as their needs and motivation to attend the training. Priority will be given to early-career scientists who have begun to work in the ocean acidification area.

Application deadline: 30 September 2018

Early announcement: Latin America & the Caribbean Ocean Acidification Science & Policy Symposium and Practical Training Workshop in January 2019

Organization: The Ocean Foundation, GOA-ON, US NOAA, more partners to be announced.

Host and Location: To be announced soon

Dates: Exact dates to be announced soon; will be in late January 2019

Description: The Ocean Foundation, GOA-ON, NOAA, and other partners will first hold a 4-5 day symposium on ocean acidification science and policy in the Latin American & Caribbean region. This symposium will be open to all interested scientists, policymakers, and stakeholders; details about registration and applying for limited travel support will be announced soon. Qualified scientists working in the region may apply separately to attend a second week of hands-on training to use the "GOA-ON in a Box" ocean acidification monitoring equipment. Selected applicants will be fully funded to attend this training and do not necessarily need to attend the preceding symposium week. Details on how to apply for the practical training will be announced soon.

Requirements: The symposium portion held in the first week is open to all who are interested. Qualifications for the practical training will be announced soon.

FUNDING and JOB OPPORTUNITIES

The Ocean Foundation Pier2Peer Scholarships

Organization: The Ocean Foundation

Description: Small grant program providing funds to Pier2Peer matches to collaborate on a project, conduct training visits, collect data for GOA-ON submission, etc.

Requirements: Applicants must be in a Pier2Peer partnership and applying to use funds to support this collaboration.

Amount: USD 5,000

Application Deadline: 16 October 2018 is the due date for the Fall 2018 review period; applications are accepted on a continuing basis; submit to avalauriorton@oceanfdn.org and meredith.kurz@noaa.gov.

Application Details: Attachment with this email

Assistant Professorships in Marine Geology/Geochemistry at the University of Hawai'i

Organization: Department of Oceanography, School of Ocean and Earth Science and Technology (SOEST), the University of Hawai'i at Manoa

Description: The Department of Oceanography is hiring three tenure-track faculty positions in Marine Geology/Geochemistry. Areas of interest include, but are not limited to, chemical oceanography, sediment geochemistry, biogeochemical cycles, climate dynamics, marine atmospheric chemistry and paleoceanography, with focus on observations and/or numerical modeling.

Requirements: Applicants must have a Ph.D. in oceanography, geochemistry, earth sciences, or another relevant discipline; must have demonstrated capability for creative, high quality research and the ability to contribute to teaching and mentoring both undergraduate and graduate students.

Application Deadline: 15 September 2018

[Application Details](#)

Postdoctoral Scholar in Chemical Oceanography/Metrology

Organization: The University of Delaware College of Earth, Ocean, and Environment and the US National Institute of Standards and Technology (NIST)

Description: The successful candidate will work on a NOAA funded project to aid in development of a reference material for ocean pH by establishing traceability of pH indicator dyes to the International System of Units (SI). The scholar will make use of state-of-the-art analytical and experimental facilities at the NIST in Gaithersburg, Maryland, USA, where the position will be located (with the appointment made through the University of Delaware).

Requirements: Applicants must have a Ph.D. in chemical oceanography, analytical chemistry, or a closely related field; must have demonstrated ability with spectrophotometry, potentiometry, nuclear magnetic resonance spectroscopy, and/or physical chemistry.

Application Deadline: position open until filled

[Application Details](#)

Western Indian Ocean Marine Science Association Marine Research Grant Programme

Organization: Western Indian Ocean Marine Science Association (WIOMSA)

Description: The award is designed to enhance the capacity of scientists in the Western Indian Ocean region to conduct marine research. There are three tiers (MARG I, II, III) that vary in duration and amount. MARG I applications are closed.

Requirements: Applicants should be young scientists studying the Western Indian Ocean region

Amount: USD 3,000 (MARG III), USD 6,000 (MARG II)

Application Deadline: 30 September 2018 for MARG II, no deadline for MARG III

[Application Details](#)

IAEA Coordinated Research Project: Evaluating the Impacts of OA on Seafood

Organization: International Atomic Energy Agency OA International Coordination Centre

Description: The IAEA is launching a new 4-year CRP starting in 2019 to advance understanding of the effects of OA on seafood around the world and to explore adaptation strategies for aquaculture and seafood industries using a standardized, collaborative, global approach.

Requirements: [More information about how IAEA CRPs work](#). Recipient institutions must be located in Member States to the IAEA.

Amount: No maximum specified

Application Deadline: 30 November 2018

[Application Details](#)

US Agency for International Development Partnership for Enhanced Education and Research

Organization: US Agency for International Development and US National Science Foundation

Description: The award is intended to foster international partnerships between eligible developing country institutions and a partner US institution.

Requirements: Applications must be submitted together by representatives from either a higher education institution in the US or from a higher education institution in a developing country. Either institution may be the prime awardee and the two institutions must have well developed plans to collaborate. [Examples of previous awards](#)

Amount: USD 500,00 to 1,000,000

Application Deadline: Next deadline January 2019

[Application Details](#)

EMBO Short-Term Travel Fellowships

Organization: European Molecular Biology Organization

Description: The fellowship funds research exchanges of up to three months between laboratories in [eligible member countries and cooperation partners](#).

Requirements: Applicants must be from one of the member or cooperation countries and traveling to a lab in another member or cooperation country. Research must be related to life sciences. The travel must be associated with a larger project and not just limited to training in a technique, though it can include that type of training.

Amount: Travel and living costs of the traveling fellow

Application Deadline: Three months before proposed starting date of travel

[Application Details](#)

Jobs Lists:

[The Global Marine Community Newsletter & Jobs List](#)

[Josh's Water Jobs List](#)

NEWS and links to select OPEN ACCESS ARTICLES on OA

News:

[The IAEA OA International Coordination Center ocean acidification news stream](#) is a great resource for all things OA!

Join the conversation on the OA Information Exchange! Featured conversation: “[What one piece of information would you choose to share with someone unfamiliar with ocean and coastal acidification?](#)” started by Jenn Phillips of the California Natural Resources Agency. You have to create an account on the Information Exchange to join the forum; all you need is a name and an email address.

The US National Oceanic and Atmospheric Administration Pacific Marine Environment Laboratory (NOAA PMEL) [launched a new data portal](#), **with links to datasets and metadata** from dozens of fixed platforms and cruises.

Methodology news: Australian researchers Dr. Vikashni Nand and Dr. Michael J. Ellwood published a paper in *Limnology and Oceanography: Methods* titled [A simple colorimetric method for determining seawater alkalinity using bromophenol blue](#). It describes their method for purifying the dye they used to determine seawater alkalinity using colorimetry. They utilize a relatively affordable spectrophotometer. These methods have implications for increasing the accessibility and affordability of constraining for total alkalinity in seawater. Access to the full PDF requires access to ASLO publications.

There will be [a one-hour webinar on 12 September](#) about a new pH and temperature logger designed for long-term monitoring of pH in aquatic environments.

Community-based science news: the Alaska Ocean Acidification Network described a new initiative utilizing an existing Tribal network to expand [community-based weekly water sampling](#) in Southeast Alaska. The network is part of the Sitka Tribe of Alaska’s Southeast Alaska Tribal Ocean Research (SEATOR) program. Samples collected by citizen scientists are analyzed in the lab by the “Burke-o-Lator,” a system for measuring CO₂ parameters.

The NOAA Ocean Acidification Program supported an [outreach video by the Oregon State University](#), which provides an interesting and hopeful look at the actions taken by researchers and aquaculture farmers along the US Pacific coast to combat ocean acidification.

The US State of California is working to **develop water quality thresholds for ocean acidification**; an important step in establishing a regulatory framework to combat OA. Resources on this process are found alongside a recording of a recent webinar on the California [Ocean Acidification and Hypoxia Task Force website](#).

Open-access science:

Bénard, R., Lavasseur, M., Scarratt, M., Blais, M.-A., Mucci, A., Ferreyra, G., Starr, M., Gosselin, M., Tremblay, J.-E., and M. Lizotte. 2018. [Experimental assessment of the sensitivity of an estuarine phytoplankton fall bloom to acidification and warming](#). *Biogeosciences* 15:4883-4904. doi: 10.5194/bg-15-4883-2018.

Gonclaves, P., Thompson, E.L., and D.A. Raftos. 2018. [Contrasting impacts of ocean acidification and warming on the molecular responses of CO₂-resilient oysters](#). *BMC Genomics* 18:431. doi: 10.1186/s12864-017-3818-z.

Kowek, D.A., Zimmerman, R.C., Hewett, K.M., Gaylord, B., Giddings, S.N., Nickols, K.J., Ruesink, J.L., Stachowicz, J.J., Takeshita, Y., and Caldeira, K. 2018. [Expected limits on ocean acidification buffering potential of a temperate seagrass meadow](#). *Ecological Applications* 0(0): 1-21. doi: 10.1002/eap.1771

This paper contains a link to a “Bitbucket” repository where you can access the model source code yourself.

Kriefall, N.G., Pechenik, J.A., Pires, A., and S.W. Davies. 2018. [Resilience of Atlantic slippersnail *Crepidula fornicata* larvae in the face of severe coastal acidification](#). *Frontiers in Marine Science* doi: 10.3389/fmars.2018.00312.

Lao, E., Kunz, K.L., Schmidt, M., Storch, D., Pörtner, H.-O., and F.C. Mark. 2018. [Mitochondrial acclimation potential to ocean acidification and warming of Polar cod \(*Boreogadus saida*\) and Atlantic cod \(*Gadus morhua*\)](#). *Frontiers in Zoology* 14:21. doi: 10.1186/s12983-017-0205-1.

Sato, K.N., Andersson, A.J., Day, J.M.D., Taylor, J.R.A., Frank, M.B., Jung, J.-Y., McKittrick, J., and L.A. Levin. 2018. [Response of sea urchin fitness traits to environmental gradients across the Southern California oxygen minimum zone](#). *Frontiers in Marine Science*. 5:258. doi: 10.3389/fmars.2018.00258.

Wagener, T., Metzler, N., Caffin, M., Fin, J., Nunige, S.H., Lefevre, D., Monaco, C.L., Rougier, G., and T. Moutin. 2018. [Carbonate system distribution, anthropogenic carbon and acidification in the western tropical South Pacific \(OUTPACE 2015 transect\)](#). *Biogeosciences* 15: 5221-5236. doi: 10.5194/bg-15-5221-2018.



The GOA-ON has grown to a network of over 480 scientists from 80 countries, shown in black. In the first half of 2018, the GOA-ON added 38 scientists from Argentina, Bangladesh, Belize, Brazil, Chile, Colombia, Egypt, France, Greece, India, Kenya, Monaco, Myanmar, New Zealand, Nigeria, Norway, Papua New Guinea, Peru, Portugal, Spain, Tanzania, Turkey, the United Kingdom, and the United States of America