

The PIER Review



Welcome to the November 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 showcases the partnership between mentor **Dr. Cristian Vargas** (Millennium Institute of Oceanography [IMO] and Center for the Study of Multiple Drivers on Marine Socio-Ecological Systems [MUSELS], Universidad de Concepción, Concepción, Chile) and mentee **Ms. Celeste Sanchez Noguera** (Centro de Investigaciones en Ciencias del Mar y Limnología [CIMAR], Universidad de Costa Rica, San José, Costa Rica).

Dr. Vargas and Ms. Sanchez Noguera have been working together under Pier2Peer since 2016, and were matched based on their mutual interests in experimental techniques to investigate biological impacts of OA. The pair was awarded an Ocean Foundation Pier2Peer scholarship in January 2018. The Pier2Peer Scholarship Committee found the partnership between the two to be particularly promising because of their common interests and commitment to extending capacity building beyond their one-on-one partnership, with the ambitious goal of increasing institutional ability to study OA in Costa Rica beyond Ms. Sanchez Noguera's personal progress.



Ms. Sanchez Noguera and Dr. Vargas at the 3rd GOA-ON Workshop held in Hobart, Australia, in 2016

In their application for the Ocean Foundation scholarship, the pair proposed that Dr. Vargas would visit San José for 4-5 days to teach Ms. Sanchez-Noguera and other students at CIMAR about the use of stable isotope techniques in the design of ocean acidification observing platforms and in experimental designs involving marine invertebrates. They also proposed that Ms. Sanchez-Noguera, a PhD candidate at CIMAR, would visit Concepción for one month for specific training on analytical techniques and sensor data validation, as well as to conduct a short-term experiment involving larval invertebrates that would apply stable isotope techniques.

Ms. Sanchez-Noguera spent five weeks in Concepción in late September to early October, where she and Dr. Vargas were able to conduct a demonstrative experiment with copepods to investigate the effects of pH on feeding rates of *Acartia tonsa*. Dr. Vargas also trained Ms. Sanchez-Noguera on validating data generated by SeaFET sensors. Dr. Cristian Vargas will visit CIMAR and teach a short course on the use of stable isotopes in OA studies from 26-28 November 2018; the flyer for this short course is also attached with this email.

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

[The Association for the Sciences of Limnology and Oceanography \(ASLO\)](#) will hold the 2019 Aquatic Sciences meeting in San Juan, Puerto Rico, USA, from 23 February to 2 March 2019. There will be a session (#CS05) on ocean acidification. The deadline for abstract submission has passed 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 are open.

[The 4th GOA-ON International Workshop](#) will be held on 14-17 April 2019 in Hangzhou, China. Abstract submission and registration are both open now; abstracts are due 10 January 2019. Limited travel scholarships are available for qualifying scientists; instructions to apply are attached with this newsletter.

[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. OceanObs'19 will announce some scholarships to attend for early career scientists and those working in developing nations at a later date. Abstract submission for white papers is closed. Poster abstract submissions are due 1 March 2019. Registration is open and early bird prices are available until 1 March 2019.

UPCOMING OA Workshops

Latin America & the Caribbean Ocean Acidification Science & Policy Symposium

Organization: The Ocean Foundation, GOA-ON, the Latin America Ocean Acidification Network (LAOCA), the International Atomic Energy Agency's Ocean Acidification International Coordination Centre (IAEA OA-ICC), US NOAA, and other partners. Funded by the US Department of State and the Swedish International Development Agency.

Host and Location: Instituto de Investigaciones Marinas y Costeras (INVEMAR), Santa Marta, Colombia

Dates: 21 – 24 January 2019

Description: The Ocean Foundation, GOA-ON, NOAA, and other partners will hold a 4-day symposium on ocean acidification science and policy in the Latin American & Caribbean region. Topics will include strategies for building low-cost monitoring systems, techniques for building resilient seafood supply chains including through technological interventions, and policy frameworks for building economic and social resilience at regional and national scales. The symposium will also focus both on existing practices and future options for researching the impacts on and the development of adaptation plans for coral reef ecosystems.

Requirements: The symposium is open to all interested stakeholders and scientists. There is a \$75 participation fee to cover basic costs. Details about applying for limited travel support and a fee waiver will be announced soon.

[Register here](#)

Latin America & the Caribbean Ocean Acidification Practical Training Workshop

Organization: The Ocean Foundation, GOA-ON, the Latin America Ocean Acidification Network (LAOCA), the International Atomic Energy Agency's Ocean Acidification International Coordination Centre (IAEA OA-ICC), US NOAA, and other partners. Funded by the US Department of State and the Swedish International Development Agency.

Host and Location: Instituto de Investigaciones Marinas y Costeras (INVEMAR), Santa Marta, Colombia

Dates: 28 January – 1 February 2019

Description: The practical workshop is a week of hands-on training to use the "GOA-ON in a Box" ocean acidification monitoring equipment. All selected attendees will receive a "GOA-ON a Box" kit and a two-year stipend to support the use of the kit to collect weather-quality carbonate chemistry data. Their attendance and travel will be fully funded. Attendees of this training may

attend the preceding symposium, but are not required to. Drs. Christopher Sabine and Jose Martin Hernandez-Ayon will be the lead trainers.

Requirements: Applicants must hold a Master's Degree or a PhD in chemical oceanography or a related field and must hold a permanent position at a research or government institution that conducts ocean and/or water quality research. Five years of experience in a related field can substitute the degree requirements.

Application details are included in an attached flyer. **Applications are due 15 November.**

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 January 2019 is the due date for the 2018 Fourth Quarter 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

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](#)

Western Indian Ocean Marine Science Association Call for New International Projects, Programmes, and Working Groups

Organization: Western Indian Ocean Marine Science Associated (WIOMSA)

Description: WIOMSA is calling for proposals for new projects or working groups which mobilize scientists in the region with a strong willingness to provide science services and lead international efforts in addressing the most compelling ocean-related issues. Given the upcoming UN Decade of Ocean Science for Sustainable Development (2021-2030), interested scientists should consider aligning their initiatives with desired [outcomes of the decade](#). WIOMSA is not a funding agency, but serves as a key catalyst, advocate, coordinate, and facilitator. It may only be able to provide some seed money, and/or assist in leveraging support or funding.

Application Deadline: Submit applications to the WESTPAC Office (w.zhu@unesco.org, copy n.saransuth@unesco.org) by **6 December 2018**.

Application Details in the Attached Flyers

Tenure Track Scientist – Marine Chemistry and Geochemistry

Organization: Wood's Hole Oceanographic Institution (WHOI)

Description: WHOI is hiring tenure-track assistant scientists who conduct research in any area of marine chemistry and geochemistry that complements existing programs on the chemistry of the ocean and its interactions with the Earth as a whole. Applicants should have a doctoral degree, postdoctoral experience, and a record of scientific research publications in scholarly journals. Scientific staff members are expected to develop independent, externally-funded, and internationally-recognized research programs.

Application Deadline: 17 December 2018

[Application Details](#)

Tenure Track Scientist – Physical Oceanography

Organization: Wood's Hole Oceanographic Institution (WHOI)

Description: WHOI is hiring tenure-track assistant scientists in physical oceanography regardless of approach (observational, modeling, and theory) and especially encourage those with a theoretical/dynamical focus. We seek, but not exclusively, individuals with expertise in: 1) coastal dynamics, 2) high-latitude processes, 3) climate variability, and 4) submesoscale processes and mixing. Candidates with interdisciplinary interests in the interplay between ocean dynamics and biological or geochemical processes, or in the interaction of the ocean with the atmosphere, the land, and the cryosphere are encouraged.

Application Deadline: 17 December 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](#)

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 and II 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: No deadline for MARG III

[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](#)

[Ocean Opportunities](#)

[Josh's Water Jobs List](#)

NEWS and links to select OPEN ACCESS ARTICLES on OA

News:

SDG 14.3.1 Indicator Expert Working Group Meeting: International experts on ocean acidification, including members of the GOA-ON Executive Council, met at the Intergovernmental Oceanographic Commission (IOC) of UNESCO in Paris from October 17-19 to discuss the SDG Indicator 14.3.1 Methodology. The SDG Target Indicator 14.3.1 calls for "average marine acidity measured at an agreed suite of representative sampling stations" and the Methodology provides guidance to scientists and countries on how to carry out measurements and report the findings following the established best practices. The workshop participants discussed the data reporting, quality control and visualisation mechanisms for the Indicator as well as ways to disseminate the Methodology.

The GOA-ON North American Hub held its inaugural in-person meeting. Ocean acidification researchers from Canada, the United States, and Mexico came together on 17-18 October 2018 at the Hakai Institute in Victoria, British Columbia, Canada. Members of the new network hub discussed existing work in the three countries and opportunities for collaboration on research, data management, training workshops, and data synthesis products. Participants also discussed community "best practices" in data collection and quality control and agreed upon lists of objectives and priorities for the hub's activities.

Drs. James C. Orr, Jean-Marie Epitalon, Andrew G. Dickson, and Jean-Pierre Gattuso recently released add-ons to four public packages used to make CO₂ system calculations. These add-ons are designed **to make**

uncertainty propagation easier, and are explained in [this paper](#) (subscription required). Some of the latest code for the CO2SYS program can be found at Dr. Orr's [github account](#). Other packages are easily available online for a variety of platforms.

The U.S. State of California approved the state's first [Ocean Acidification Action Plan](#). It lays out a 10-year plan for investigating and addressing ocean acidification. It is useful as an example of pragmatic actions taken at a sub-national level.

The U.S. National Marine Sanctuaries released [an educational toolkit](#) about potential impacts of ocean acidification on Dungeness crabs, designed for educators and communicators to use to introduce the concept of OA and its impacts on crabs.

Open-access science:

Diaz, R., Lardies, M.A., Tapia, F.J., Tarifeno, E., and C.A. Vargas. 2018. [Transgenerational effects of pCO₂-driven ocean acidification on adult mussels *Mytilus chilensis* modulate physiological response to multiple stressors in larvae](#). *Frontiers in Physiology* <https://doi.org/10.3389/fphys.2018.01349>

Ferriss, B.E., Conway-Cranos, L.L., Sanderson, B.L., and L. Hoberecht. [Bivalve aquaculture and eelgrass: a global meta-analysis](#). *Aquaculture*. 498: 254-262.

Franco, A. C. 2018. [Modeling the variability, trends and future changes in ocean acidification in the Humboldt Current System](#). PhD thesis, ETH Zurich University. 152 p.

Gattuso, J.-P., Magnan, A.K., Bopp, L., Cheung, W.W.L., Duarte, C.M., Hinkel, J., et al. 2018. [Ocean solutions to address climate change and its effects on marine ecosystems](#). *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2018.00337>

Harvey, B.P., Agostini, S., Wada, S., Inaba, K., and J.M. Hall-Spencer. 2018. [Dissolution: the Achilles' heel of the triton shell in an acidifying ocean](#). *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2018.00371>

O'Brien, P.A., Smith, H.A., Fallon, S., Fabricius, K., Willis, B.L., Morrow, K.M., and D.G. Bourne. 2018. [Elevated CO₂ has little influence on the bacterial communities associated with the pH-tolerant coral, *Massive Porities spp.*](#) *Frontiers in Marine Science*. DOI [10.3389/fmicb.2018.02621](https://doi.org/10.3389/fmicb.2018.02621)

Oral, N. [Ocean Acidification: Falling Between the Legal Cracks of UNCLOS and the UNFCCC?](#) 2018. *Ecology Law Quarterly* 45:9-33 (2018).

Nardone, J.A., Patel, S., Siegel, K.R., Tedesco, D., McNicholl, C.G., O'Malley, J., et al. 2018. [Assessing the impacts of ocean acidification on adhesion and shell formation in the barnacle *Amphibalanus Amphitrite*](#). *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2018.00369>

Ravaglioli, C., Lauritano, C., Buia, M.C., Balestri, E., Capocchi, A., Fontanini, D., et al. 2018. [Nutrient loading fosters seagrass productivity under ocean acidification](#). *Scientific Reports* 7:13732.

Roik, A., Rothig, T., Pogoreutz, C., Saderne, V., and C.R. Voolstra. [Coral reef carbonate budgets and ecological drivers in the central Red sea – a naturally high temperature and high total alkalinity environment.](#) *Biogeosciences* 15: 6227-6296. <https://doi.org/10.5194/bg-15-6277-2018>

Young, C.S., and C.J. Gobler. 2018. [The ability of macroalgae to mitigate the negative effects of ocean acidification on four species of North Atlantic bivalve.](#) *Biogeosciences* 15: 6167-6183. <https://doi.org/10.5194/bg-15-6167-2018>



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