

# The PIER Review

Welcome to the November 2019 issue of the PIER Review, the monthly [GOA-ON Pier2Peer](#) newsletter! This edition showcases accomplishments of the Pier2Peer members, provides updates for our members, and shares funding, job opportunities and recently published open-access publications. Please send ideas and feedback for future Pier Review editions to Alicia Cheripka ([alicia.cheripka@noaa.gov](mailto:alicia.cheripka@noaa.gov))

## P2P FEATURE

### Ocean Acidification in the Gulf of Guinea

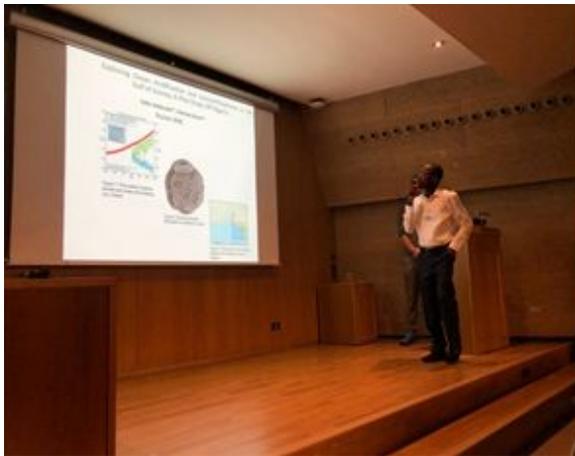


The ICTA-UAB Maria de Maeztu unit of Excellence fellowship offered an opportunity to interact with research colleagues from the Marine and Environmental Biogeosciences research group (MERS). Photo credit: Falilu

Until very recently, studies on ocean acidification (OA) around the African continent received practically no attention. The lack of data has been addressed by the GOA-ON with a new paradigm shift by young scientists who recently have delved into collecting new carbonate chemistry data and assessing how the marine ecosystem is being impacted by OA. Through the

Pier2Peer program, Dr Patrizia Ziveri at the Institute of Environmental and Technology, Autonomous University of Barcelona, Spain (ICTA-UAB), has been a mentor to Falilu Adekunbi since 2016. Falilu (mentee) is a Research Scientist at the Nigerian Institute for Oceanography and Marine Research (NIOMR). He is also a doctoral student at the University of Lagos, Nigeria with research interest to understand the impacts of ocean acidification on key marine planktonic calcifiers.

His study will elucidate the potential drivers of acidification in productive regions such as the Eastern Equatorial Atlantic Ocean (Gulf of Guinea) off West Africa. The coastal sampling off Nigeria started in December 2018 and is temporally designed to cover a seasonal cycle. The Gulf of Guinea is a productive region that faces ecological stress from climate change, ocean warming, de-oxygenation, eutrophication and potentially OA. Through a research fellowship by the ICTA-UAB (Maria de Maeztu unit of Excellence) and the Ocean Foundation, Falilu was able to have a research stay between May and July 2019, at Dr. Ziveri's laboratory at the ICTA-UAB in Barcelona as a research fellow. At ICTA, plankton samples from the Gulf of Guinea were examined. During his stay, Falilu had the opportunity to present the preliminary results of this study at the ICTA Spring Symposium.



Presenting preliminary results at the ICTA-UAB 2019 Spring Symposium. Credit: Falilu

The outcome of this study by Falilu and his mentor is needed to provide first data on the seasonality of environmental parameters including data relevant for OA and a target calcifying phytoplankton group. These new results can inform the public, coastal managers and policy makers. This is especially essential in coastal countries bordering the Gulf of Guinea region to understand potential impacts of OA.

The much-awaited outcome of this study will be open as soon as the research is concluded. We wish both mentor and mentee a successful research endeavour.



Carbonate chemistry analysis at the marine environment laboratory de Oceanografía, IEO, A Coruna Spain A Coruña Spain. The P2P program facilitated collaboration with other scientists working on OA. Credit: Falilu

Do you have an exciting accomplishment or experience with the Pier2Peer program you would like to share? Send it to Alicia Cheripka ([alicia.cheripka@noaa.gov](mailto:alicia.cheripka@noaa.gov)) and you could be featured!

## **BECOME A Pier2Peer RECRUITER**

We are recruiting senior and experienced OA observing experts to serve as mentors. If you know someone who would be a good mentor, direct them to the [Pier2Peer website](#) or put them in contact with Alicia Cheripka ([alicia.cheripka@noaa.gov](mailto:alicia.cheripka@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 Alicia and we will send you communication materials and sign-up sheets for your upcoming event. And thanks!

## **JOIN THE OA INFO EXCHANGE**

The OA Information Exchange (OAIE) is a place to swap ideas, share resources, and interact with people in a variety of disciplines across many regions. This includes your mentor or mentee!

Members can:

- post updates and comments with questions, answers or announcements
- share papers, media files, presentations and links
- add events and host webinars
- join teams based on regions and topics of interest
- meet new people from a variety of fields

Scientists, citizen scientists, educators, NGO and government employees, resource managers, fishers, aquaculturists, concerned citizens, and others are all welcome to take part in the OA Information Exchange community! You can join [here](#).

## [Join the Interdisciplinary Marine Early Career Network \(IMECaN\)](#)

### **IMECaN aims to:**

- Provide a networking platform for early career marine researchers to develop collaborations;
- Provide training and development in areas not traditionally provided through formal education and training programmes; and
- Provide leadership opportunities for ECR marine researchers, particularly from developing nations.
- IMECaN was officially launched at the IMBeR Future Oceans2 Open Science Conference in Brest, France on 16 June 2019

### **IMECaN activities:**

Even before it was officially launched, members of the newly formed IMECaN Organising Committee undertook two very successful early career events.

In June 2018, a workshop was convened in Losinj, Croatia, to teach EU-based ECRs how to work efficiently at the Science-Policy-Society interface. Thirty students and early career researchers participated in the workshop.

The IMBeR ClimEco6 summer school was held in Yogyakarta, Indonesia and brought together 50 transdisciplinary ECRs to consider Transdisciplinary Approaches towards Sustainable Oceans. Plans are now underway for the ClimEco7 summer school that will be held in Mindelo, Cabo Verde in June 2020.

Several other activities are also being discussed, including a workshop on Multi-disciplinary Marine Management, a special issue in *Frontiers in Marine Science*.....

Join [HERE](#)

## **NEWS**

### **Help share information and collaborate on ocean acidification research!**

Would you like to know about on-going and planned ocean acidification research activities? Would you like to promote others to work with you? One of the goals of the Ocean Acidification International Coordination Centre (OA-ICC) is to promote collaborative research projects, such as joint experiments and access to research facilities. To this end, the OA-ICC is looking to compile a list of ongoing and planned research projects on ocean acidification where there is a possibility for other researchers to participate. The list will be shared online to promote information exchange and collaboration.

To contribute to this effort, please send an email including the information below to:

Lina Hansson & Marine Lebrec, OA-ICC Project Office, IAEA Environment laboratories  
(oaicc(at)iaea.org)

**Information needed:**

location

contact (name, institute, email)

brief research focus

potential collaborator focus

start date

end date

web link (if available)

**OA-ICC bibliographic database is now Available!**

The OA-ICC bibliographic database currently contains more than 5,520 references related to ocean acidification, and includes citations, abstracts and assigned keywords. In addition to being available in [Mendeley](#), this bibliographic database is now freely available on the platform [Zotero](#).

In order to access this database, go to the Zotero homepage and create a free account. Click on the Groups tab, search for the group “OA-ICC”, and join this group. For more information on how to access the database and its functions, please see the “[User instructions](#)”.

## UPCOMING EVENTS and CONFERENCES

[CERF 25th Biennial Conference](#) will be held from **3-7 November 2019** in Mobile, Alabama USA. The theme of the conference this year is Responsive, Ready, Relevant. Taken from the website: “With this year's conference theme, we endeavor to connect science and society in the collective goals of preserving the coastal and estuarine habitats, resources, and heritage. Through the conference, we will discuss the nature of research agendas that are directed at finding and solving problems, and how to engage stakeholders in that process. Our goal is to balance a natural and social scientific agenda with the food, music, and art emblematic of the Gulf Coast. In keeping with tradition, we hope to create a seriously fun and memorable 25th Biennial CERF Conference.” There is an OA session: Ocean acidification in a multiple climate change stressors context: science-based tools for management at the 2019 CERF Biennial Conference.

[2019 GOA-ON North American Hub Meeting](#) -The priorities for the GOA-ON North American Hub are to help support the development of synthesis products, facilitate data exchanges, support the observing system via training, develop uniform quality control procedures, and develop OA messages for policy makers and the general public. The hub will be having their annual in person meeting in Huatulco, Oaxaca, México, **December 16-18**.

[CHANGE: The Climate Change Conference \(COP25\) in Madrid, Spain](#) - the Blue COP. This is the 25th Conference of the Parties to the United Nations Framework Convention on Climate

Change (UNFCCC) and this year the meeting is taking place from **2-13 Dec 2019** in Madrid, Spain. The meeting will focus on highlighting the response to climate change, including a need to consider how the ocean mitigates climate change and how marine ecosystems are in turn impacted by ocean acidification and other stressors such as warming and deoxygenation. The pre-session period will run from **26 November-1 December 2019**.

### [American Geophysical Union Fall Meeting](#)

#### **9-13 December 2019, San Francisco, California**

As AGU marks its Centennial in 2019, we return to San Francisco, the home of the AGU Fall Meeting for more than 40 years. Join our diverse community at the newly renovated Moscone Center as we collaborate across borders and boundaries to explore and develop our research. Don't miss this once-in-a-lifetime opportunity to participate in Centennial presentations and special events that will bring to life the past, present and the future of our science.

Today we stand at the intersection of history and our future. Fall Meeting 2019 will prepare you for what's ahead: rapid developments in our science, new approaches to observing our Earth and beyond, the introduction of new data streams, growing demand for accessible science, the expansion of convergent science, and more. AGU will celebrate our past and inspire the future by bringing together the people, the imagination, and the science that will ignite our next hundred years to make our planet safer, cleaner, and more sustainable.

This year's AGU Fall Meeting will include a session entitled "Marine-Based Management of Atmospheric Carbon Dioxide and Ocean Acidification", which will include presentations on methods of restoring, enhancing, or augmenting naturally-occurring marine processes for regulating oceanic and atmospheric CO<sub>2</sub> and ocean acidity levels. More information is available [here](#).

### [Ocean Sciences Meeting, San Diego, CA](#)

#### **16-21 February 2020**

The Ocean Sciences Meeting (OSM) is the flagship conference for the ocean sciences and the larger ocean-connected community. As we approach the UN Decade of Ocean Science for Sustainable Development, beginning in 2021, it is increasingly important to gather as a scientific community to raise awareness of the truly global dimension of the ocean, address environmental challenges, and set forth on a path towards a resilient planet. The Ocean Sciences Meeting 2020 is co-sponsored by AGU, the Association for the Sciences of Limnology and Oceanography (ASLO), and The Oceanography Society (TOS). Through the combined power of these three organizations, along with the broader conservation-focused community, this meeting provides attendees the opportunity to bridge disciplines, connect communities, and make lasting partnerships.

The Ocean Sciences Meeting will include nine sessions related to the theme titled "Ocean Change: Acidification and Hypoxia". These sessions will focus on human impacts, interactions of multiple stressors, modeling, mitigation techniques, and other relevant topics. For more

information on these sessions, visit [here](#). Abstract submissions will open 10 July 2019 and close **11 September 2019, 11:59 PM EDT**.

### [International Indian Ocean Science Conference \(IIOOSC\)-2020](#)

**March 16-20, 2020**

The International Indian Ocean Science Conference 2020 (IIOOSC-2020) sponsored by Ministry of Earth Sciences (MoES), Govt. of India, will be held during 16-20 March, 2020 at Goa India co-hosted by National Institute of Oceanography (NIO) Goa, National Centre for Polar Ocean Research (NCPOR) Goa, Goa University and Indian National Centre for Ocean Information Services (INCOIS) Hyderabad, India. The conference aims at assessing the progress and scientific knowledge gained during the last 4 years of IIOE-2 (during 2016-2020). It is also an opportunity for scientists working on different facets of the Indian Ocean to present their ideas and discuss the outstanding issues, identify the knowledge gaps and plan a way forward to address such issues.

Scientists and colleagues who are interested in the Indian Ocean may kindly take note of this and freeze their dates for the conference.

**Venue:** CSIR-National Institute of Oceanography (NIO) – Goa, India

**Website:** <https://iiosc2020.incois.gov.in/>

**More information:** [PDF](#)

### [A Changing Arctic Conference](#)

**June 2-5 2020**

*Clarion Hotel The Edge, Tromsø, Norway*

Robust evidence now exists for anthropogenically-forced shifts in the Earth's environment. Observations in the Arctic reveal dramatic reductions in the extent and thickness of the sea ice, rising atmospheric temperatures, widespread permafrost degradation and ocean acidification. These changes bring with them implications for biology, ecosystem services and society in general.

Full understanding of current and projected Arctic environmental change is becoming an imperative in order to minimize and manage corresponding impacts. This conference aims to provide a forum for the three main themes of:

**Land** - incorporating ecological impacts, permafrost, and landscape evolution

**Ocean (coastal and open)** - incorporating physical changes, ocean acidification, and ecological impacts

**The Future** — covering social aspects and including mitigation, adaptation, exploration, and management

**Abstract submission is now open**

### [5th International Symposium on the Ocean in a High-CO<sub>2</sub> World \(Lima, Peru\)](#)

The SOLAS-IMBER Working Group on Ocean Acidification (SIOA) is pleased to announce that the 5th International Symposium on the Ocean in a High-CO<sub>2</sub> World will be held in Lima, Peru, from **7-10 September 2020**. The lead organizers are Drs. Wilmer Carbajal (Pedro Ruiz Gallo National University, Peru) and Michelle Graco (Institute of the Sea of Peru, IMARPE) together with their colleagues, based on their successful bid that was submitted to the SIOA.

The previous symposia in this series were held in Paris in 2004, Monaco in 2008, Monterey in 2012, and Hobart in 2016, each proving to be essential for the international and multidisciplinary community of researchers studying ocean acidification. The same is expected for this 5th symposium, the first to be held in South America. Please save the dates! More detailed information will soon be available from the organizers.

## **FUNDING and JOB OPPORTUNITIES**

### **POGO Shipboard Fellows**

Organization: The Partnership for Observation of the Global Ocean (POGO)

Description: POGO offers a number of shipboard fellowship opportunities on ocean research vessels. Normally, specific calls for fellows working in certain sub-disciplines are issued six months before a cruise begins. However, POGO also fills available berths with qualified applicants on shorter notice. They have issued an open call for early career scientists, technicians, postgraduate students, and post-doctoral fellows involved in oceanographic work at centers in developing countries and countries with economies in transition. Qualified applicants will be contacted if an appropriate shipboard fellowship becomes available.

Requirements: Applicants must be involved in oceanographic work in a developing country or a country with an economy in transition. They must provide a fellowship proposal, intentions to build capacity for ocean observing, and a summary CV.

Amount: Round-trip ticket from home institute to the host institution; up to two months' stay at home institution to train prior to cruise; accommodation at ship port; ship messing fee; seafaring medical and sea survival course.

Application Deadline: Open call with no stated closure.

[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.

**MARG-III:** Intended to provide opportunities for individual researchers to travel to attend scientific meetings and conferences for the purpose of presenting their work and learning from others. The maximum amount offered is US\$ 3,000. Proposals for MARG III Grants are reviewed continuously through the year subject to availability of funds. MARG III grants are provided for the purchase of return tickets, accommodation or daily subsistence allowance.

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

Amount: USD 3,000 (MARG III)

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](#)

[International Ocean Carbon Coordination Project Jobs](#)

[OA-ICC Job News Stream](#)

## **Links to new OPEN ACCESS ARTICLES on OA**

Al-Janabi, B., Wahl, M., Karsten, U., Graiff, A., & Kruse, I. (2019). [Sensitivities to global change drivers may correlate positively or negatively in a foundational marine macroalga](#). *Scientific reports*, 9(1), 1-10.

Botté, E. S., Nielsen, S., Wahab, M. A. A., Webster, J., Robbins, S., Thomas, T., & Webster, N. S. (2019). [Changes in the metabolic potential of the sponge microbiome under ocean acidification](#). *Nature communications*, 10(1), 1-10.

Büscher, J. V., Wisshak, M., Form, A. U., Titschack, J., Nachtigall, K., & Riebesell, U. (2019). [In situ growth and bioerosion rates of \*Lophelia pertusa\* in a Norwegian fjord and open shelf cold-water coral habitat](#). *PeerJ*, 7, e7586.

Comeau, S., Cornwall, C. E., Pupier, C. A., DeCarlo, T. M., Alessi, C., Trehern, R., & McCulloch, M. T. (2019). [Flow-driven micro-scale pH variability affects the physiology of corals and coralline algae under ocean acidification](#). *Scientific reports*, 9(1), 1-12.

Cummings, V. J., Smith, A. M., Marriott, P. M., Peebles, B. A., & Halliday, N. J. (2019). [Effect of reduced pH on physiology and shell integrity of juvenile \*Haliotis iris\* \(pāua\) from New Zealand](#). *PeerJ*, 7, e7670.

De Lima, D. T., Moser, G. O., Piedras, F. R., da Cunha, L. C., Tenenbaum, D. R., Tenório, M. B., ... & Barrera-Alba, J. J. (2019). [Abiotic Changes Driving Microphytoplankton Functional Diversity in Admiralty Bay, King George Island \(Antarctica\)](#). *Frontiers in Marine Science*, 6, 638.

Esposito, M., Bach, L. T., Achterberg, E. P., Connelly, D. P., Riebesell, U., & Taucher, J. (2019). [Application of Stable Carbon Isotopes in a Subtropical North Atlantic Mesocosm Study: a New Approach to Assess CO<sub>2</sub> Effects on the Marine Carbon Cycle](#). *Frontiers in Marine Science*, 6, 616.

- Farcy, P., Durand, D., Charria, G., Painting, S. J., Collingridge, K., Grémare, A. J., & Puillat, I. (2019). [Towards a European Coastal Observing Network to provide better answer to science and to societal challenges: the JERICO/JERICO-NEXT Research Infrastructure](#). *Frontiers in Marine Science*, 6, 529.
- Flecha, S., Pérez, F. F., Murata, A., Makaoui, A., & Huertas, I. E. (2019). [Decadal acidification in Atlantic and Mediterranean water masses exchanging at the Strait of Gibraltar](#). *Scientific Reports*, 9(1), 1-11.
- Garmestani, A., Craig, R. K., Gilissen, H. K., McDonald, J., Soininen, N., van Doorn-Hoekveld, W., & van Rijswijk, H. F. (2019). [The role of social-ecological resilience in coastal zone management: A comparative law approach to three coastal nations](#). *Frontiers in Ecology and Evolution*, 7, 410.
- Huang, H., Feng, R., Zhu, J., & Li, P. (2019). [Prediction of pH Value by Multi-Classification in the Weizhou Island Area](#). *Sensors*, 19(18), 3875.
- Hwang, S., Jeong, B., Jung, K., Kim, M., & Zhou, P. (2019). [Life cycle assessment of LNG fueled vessel in domestic services](#). *Journal of Marine Science and Engineering*, 7(10), 359.
- Obura, D. O., Appeltans, W., Amornthammarong, N., Aeby, G., Bax, N. J., Bishop, J., ... & Gramer, L. (2019). [Coral Reef Monitoring, Reef Assessment Technologies, and Ecosystem-Based Management](#). *Frontiers in Marine Science*, 6, 580.
- Paula, J. R., Repolho, T., Pegado, M. R., Thörnqvist, P. O., Bispo, R., Winberg, S., ... & Rosa, R. (2019). [Neurobiological and behavioural responses of cleaning mutualisms to ocean warming and acidification](#). *Scientific reports*, 9(1), 1-10.
- Pisapia, C., Hochberg, E. J., & Carpenter, R. (2019). [Multi-decadal change in reef-scale production and calcification associated with recent disturbances on a Lizard Island reef flat](#). *Frontiers in Marine Science*, 6, 575.
- Reinold, M., Wong, H. L., MacLeod, F. I., Meltzer, J., Thompson, A., & Burns, B. P. (2019). [The Vulnerability of Microbial Ecosystems in A Changing Climate: Potential Impact in Shark Bay](#). *Life*, 9(3), 71.
- Renaud, P. E., Wallhead, P., Kotta, J., Włodarska-Kowalczyk, M., Bellerby, R. G., Rätsep, M., ... & Kukliński, P. (2019). [Arctic Sensitivity? Suitable habitat for benthic taxa is surprisingly robust to climate change](#). *Frontiers in Marine Science*, 6, 538.
- Saba, G., Wright-Fairbanks, E. K., Chen, B., Cai, W. J., Barnard, A., Jones, C., ... & Miles, T. (2019). [The development and validation of a profiling glider deep ISFET-based pH sensor for high resolution observations of coastal and ocean acidification](#). *Frontiers in Marine Science*, 6, 664.
- Sastri, A., Christian, J. R., Achterberg, E. P., Atamanchuk, D., Buck, J. J. H., Bresnahan, P. J., ... & Sastri, A. K. (2019). [Perspectives on in situ sensors for ocean acidification research](#). *Frontiers in Marine Science*, 6, 653.
- Schulz, K. G., Hartley, S., & Eyre, B. (2019). [Upwelling amplifies ocean acidification on the East Australian Shelf: implications for marine ecosystems](#). *Frontiers in Marine Science*, 6, 636.
- Sordo, L., Santos, R., Barrote, I., & Silva, J. (2019). [Temperature amplifies the effect of high CO<sub>2</sub> on the photosynthesis, respiration, and calcification of the coralline algae \*Phymatolithon lusitanicum\*](#). *Ecology and evolution*.
- Thompson, C. R., Fields, D. M., Bjelland, R. M., Chan, V. B., Durif, C. M., Mount, A., ... & Browman, H. I. (2019). [The planktonic stages of the salmon louse \(\*Lepeophtheirus salmonis\*\) are tolerant of end-of-century pCO<sub>2</sub> concentrations](#). *PeerJ*, 7, e7810.

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Zhen, Z., Wang, S., Luo, S., Ren, L., Liang, Y., Yang, R., ... & Lin, Z. (2019). [Significant impacts of both total amount and availability of heavy metals on the functions and assembly of soil microbial communities in different land use patterns](#). *Frontiers in microbiology*, 10, 2293.