



Global Ocean Acidification  
Observing Network

*Newsletter of the Global Ocean Acidification Observing Network (GOA-ON)*  
Issue 16, October 2021

## GOA-ON news

### New logo for OARS unveiled

The GOA-ON programme for the [UN Decade of Ocean Science for Sustainable Development](#), OARS, has a new logo! Following the official endorsement of the GOA-ON Decade programme "[OARS – Ocean Acidification Research for Sustainability](#)" earlier this year, GOA-ON members were asked to choose their favorite among a range of logos proposed, all designed to incorporate the GOA-ON colours and an oceanic theme. The winning logo was first shown in the Community discussion OARS session of OA Week2021, during which the GOA-ON co-chairs, Dr Jan Newton and Dr Steve Widdicombe, introduced OARS to the wider community, supported by Jessie Turner from the Ocean Alliance and Allison Clausen from the IOC Decade Team. The session, which was also a Satellite Activity for the Second Ocean Decade Laboratory, [A Predicted Ocean](#), featured a [video message](#) from Ambassador Peter Thomson, the UN Secretary General's Special Envoy for the Ocean, a [video introducing the OARS programme](#) and a discussion about how GOA-ON and its partners will implement OARS over the next 10 years. In case you missed it, the session can be found on the GOA-ON [YouTube Channel](#).

We invite you to find out more about OARS and to get involved in this community programme on Ocean Acidification Research for Sustainability!



## Adios y buena suerte, Trevor Eakes! Welcome, Ashley Bantelman!

Trevor has officially ended his tenure with the IAEA OA-ICC, thus leaving the GOA-ON Secretariat. He is now spending some time traveling around Europe before he decides on his next career move.

As a member of the GOA-ON Secretariat, Trevor was responsible for many of the day-to-day functions of GOA-ON: supporting the Mediterranean and African regional hubs, coordinating meetings, updating the GOA-ON Data Portal, and working to enhance GOA-ON member engagement. Additionally, he managed the OA-ICC news stream and bibliographic database, which now contains over 9000 references. Over the past year, Trevor played an important role in the success and expansion of GOA-ON. As such, the GOA-ON co-chairs, Executive Council, and Secretariat, would like to acknowledge all of Trevor's hard work and wish him the very best in all future endeavors!



In turn, we now would like to give a warm welcome to Ashley Bantelman! Ashley began her tenure with the IAEA OA-ICC in July 2021, and has previously worked at IAEA Headquarters in Vienna with the Department of Technical Cooperation and with the United Nations Industrial Development Organization (UNIDO) on an EU-funded initiative to speed up the shift to sustainable consumption and production patterns in the Southern Mediterranean through the promotion of circular economy approaches. Ashley has a background in biology and environmental science and before her work with international organizations, she studied hypoxic events in Lake Erie. We welcome her contributions to the GOA-ON Secretariat.

## GOA-ON Webinar Series

The next webinar in the series will be shared by **Dr. Meryem Mojtahid**, an Associate Professor at the University of Angers in France, will take place on [Tuesday 9 November 2021 at 16:00 CET \(UTC+1\)](#). The webinar is entitled, “**Decoupled carbonate chemistry experimental work involving deep-sea benthic foraminifera and new generation environmental simulators**”.

**Abstract:** Due to ongoing anthropogenic CO<sub>2</sub> emissions and the parallel active ocean physical CO<sub>2</sub> pumping causing acidification of waters, studying past changes in seawater carbonate chemistry has become a major focus in paleoclimate research. Insight into past marine carbon cycling and perturbations therein critically depends on robust reconstructions of the seawater carbonate system (C-system) through well-controlled experimental setups and accurate C-system manipulations. In the ocean, small calcifying micro-organisms (i.e., foraminifera) incorporate various elements into biogenic calcium carbonate in equilibrium with specific environmental parameters. Here we explore the use of deep-sea foraminiferal Sr/Ca ratio as a new C-system proxy for paleoclimate research studies. We use decoupled carbonate chemistry controls, i.e. changing pH at constant Dissolved Inorganic Carbon (DIC) and changing DIC at constant pH. This experiment was performed for the first time with a new generation of environmental simulators designed for experimentation in ecology (Ecolab system – CEREAP-ECOTRON). Four controlled and regulated climatic chambers were used with four different concentrations of atmospheric pCO<sub>2</sub> (180 ppm, 410 ppm, 1000 ppm, 1500 ppm) simulating the last glacial maximum, the current and future projection pCO<sub>2</sub> values. Preliminary results describe a positive correlation between Sr/Ca and the carbonate system, namely bicarbonate ion concentration. Register for the webinar [here](#).

The goals of the GOA-ON Webinar Series are to enable members to share their science with the broader audience, create opportunities for collaboration, and foster a sense of community among GOA-ON members. Webinars, advertised on the [GOA-ON Webinar Series webpage](#), take place every few weeks and consist of a presentation followed by a question and answer session. GOA-ON hopes to use this webinar series to lift the voices of early career scientists and other members of the GOA-ON research community who wish to share their science with a broader audience. If you are interested in giving a presentation or would like to suggest a topic, submit your proposed title and abstract [via this form](#).

All webinars are recorded and able to be viewed on the [GOA-ON Youtube Channel](#).



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## GOA-ON WEBINAR SERIES



### *Decoupled carbonate chemistry experimental work involving deep-sea benthic foraminifera and new generation environmental simulators*

**Dr. Meryem Mojtahid**

Associate Professor,  
University of Angers, France



**Tuesday, 9 November 2021,**

**16:00 Central European Time (UTC+1).**

**Register here: <https://attendee.gotowebinar.com/rt/5901378391508974095>**

**Abstract:** Due to ongoing anthropogenic CO<sub>2</sub> emissions and the parallel active ocean physical CO<sub>2</sub> pumping causing acidification of waters, studying past changes in seawater carbonate chemistry has become a major focus in paleoclimate research. Insight into past marine carbon cycling and perturbations therein critically depends on robust reconstructions of the seawater carbonate system (C-system) through well-controlled experimental setups and accurate C-system manipulations. In the ocean, small calcifying micro-organisms (i.e. foraminifera) incorporate various elements into biogenic calcium carbonate in equilibrium with specific environmental parameters. Here we explore the use of deep-sea foraminiferal Sr/Ca ratio as a new C-system proxy for paleoclimate research studies. We use decoupled carbonate chemistry controls, i.e. changing pH at constant Dissolved Inorganic Carbon (DIC) and changing DIC at constant pH. This experiment was performed for the first time with a new generation of environmental simulator designed for experimentation in ecology (Ecolab system – CEREEP-ECOTRON). Four controlled and regulated climatic chambers were used with four different concentrations of atmospheric pCO<sub>2</sub> (180 ppm, 410 ppm, 1000 ppm, 1500 ppm) simulating the last glacial maximum, the current and future projection pCO<sub>2</sub> values. Preliminary results describe a positive correlation between Sr/Ca and the carbonate system, namely bicarbonate ion concentration.



## Ocean acidification news

### COP26: the 26th UN Climate Change Conference of the Parties

Between 31 October and 12 November 2021, the UK will host the 26th UN Climate Change Conference of the Parties in Glasgow, Scotland. This conference will bring together parties, globally, with the goal to accelerate action towards the goals outlined in the Paris Agreement and the UN Framework Convention on Climate Change. Click [here](#) to find out more.



**UN CLIMATE  
CHANGE  
CONFERENCE  
UK 2021**

IN PARTNERSHIP WITH ITALY

GOA-ON co-chair Professor Steve Widdicombe will be at the conference in person and will be representing GOA-ON and highlighting the problem of ocean acidification as much as possible. GOA-ON will also be represented by several GOA-ON Executive Committee members (see below).

In addition, GOA-ON was able to secure a booth in the [Virtual Ocean Pavillion](#) thanks to GOA-ON Executive Committee member, Dr. Carol Turley at the Plymouth Marine Laboratory.



You can [register for the Virtual Ocean Pavilion](#) to access live and on-demand #COP26 ocean events and explore virtual exhibition booths. Please make sure to visit us at the GOA-ON booth!



While the schedule is still not set completely, and events are evolving in real time, please find below some events to keep your eyes peeled for. We will also be updating events and links via social media as much as possible. NB: All times are in local British Standard Time.

### Monday, 1 Nov

- 14:30 BST  
**Regional Ocean Acidification - North Sea and wider NE Atlantic.** Cryosphere Pavilion, Blue Zone; Helen Findlay (event co-lead and speaker), Carol Turley (moderator), Richard Bellerby (speaker). Re-play: [https://www.youtube.com/channel/UCr\\_TPYUAyh13kVbQjzVKh0g](https://www.youtube.com/channel/UCr_TPYUAyh13kVbQjzVKh0g)
- 15:30-16:30 BST  
**Nature-Climate-People: tales from across the ocean.** WWF Pavilion, Blue Zone; Carol Turley (moderator), Steve Widdicombe (speaker). Re-play: <https://www.youtube.com/watch?v=gcjiydfSB2Y>

### Wednesday, 3 Nov

- 09:00-10:00 BST  
**Inclusive Ocean Acidification Action: Science to Society** (IOC & GOA-ON event). Commonwealth Pavilion, Blue Zone; Kumiko Azetsu-Scott (speaker), Steve Widdicombe (speaker). Live stream: <https://climate.thecommonwealth.org/> Join online: [https://wwf.zoom.us/webinar/register/WN\\_zzgkrE9aReyD-9\\_Ja-qUUQ](https://wwf.zoom.us/webinar/register/WN_zzgkrE9aReyD-9_Ja-qUUQ)

### Thursday, 4 Nov

- 11:00-12:00 BST  
**Ocean Acidification in the North East Atlantic, Arctic and Baltic Waters.** Nordic Pavilion, Blue Zone; Carol Turley (moderator), Richard Bellerby (panel), Melissa Chierici (panel), Helen Finlay (panel). Live stream: <https://www.wedonthavetime.org/event/cop26#Register>
- 16:45-18:00 BST  
**Ocean solutions: Coordination and collaboration for ocean-based mitigation and adaptation.** Forth Room, Blue zone; Helen Findlay (speaker). In person only.

### Friday, 5 Nov

- 14:30-17:30 BST  
**High-level Marrakesh Partnership Global Climate Action (HL MP-GCA), Ocean Action Day.** TBD, Blue Zone; Steve Widdicombe (speaker). Live stream: TBD.

- 18:00 BST  
**Arctic Sea Ice.** Cryosphere Pavilion, Blue Zone; Helen Findlay (speaker). Live stream: [https://www.youtube.com/channel/UCr\\_TPYUAyh13kVbQjzVKh0g](https://www.youtube.com/channel/UCr_TPYUAyh13kVbQjzVKh0g)

## Saturday, 6 Nov (Polar Ocean Day)

- 10:00 BST onwards  
**Polar Oceans: Acidification, Warming and Freshening.** Cryosphere Pavilion, Blue Zone; Helen Findlay (even co-lead). Live stream: [https://www.youtube.com/channel/UCr\\_TPYUAyh13kVbQjzVKh0g](https://www.youtube.com/channel/UCr_TPYUAyh13kVbQjzVKh0g)  
  
10:00 “Antarctic marine ecosystems under pressure: protection needs action locally and globally” (SOOS event)  
11:30 Freshening and Warming/AMOC (SAMS event)  
13:00 “Tale of Two Oceans” (PML event), Richard Bellerby (speaker), Helen Findlay (speaker), Adrienne Sutton (speaker)  
14:30 “Polar Acidification Deep Dive” (NOAA event), Libby Jewett (moderator), Helen Findlay (speaker), Richard Bellerby (speaker), Agneta Fransson (speaker)  
16:00 Impacts on Polar/Near-polar Fisheries and Food Systems (FAO event)  
18:00 Triple Threat to Polar Oceans, Helen Findlay (PML event)
- 10.30-11.30 BST  
**Ocean Decade in the Asia Pacific** - panel on key ocean knowledge challenges in the region, with a focus on ocean acidification. Japanese Pavilion, Blue Zone; Steve Widdicombe (speaker). Virtual Japan Pavilion: <http://copjapan.env.go.jp/cop/cop26/en/pavilion/all-dates/>

## Monday, 8 Nov

- 09:00-10:00 BST  
**Raising ambition at COP26 to deliver SDG14.3 to minimise and address the impacts of ocean acidification.** Commonwealth Pavilion, Blue zone; Carol Turley (moderator - pending), Steve Widdicombe (speaker). Live stream: <https://climate.thecommonwealth.org/>

## Tuesday, 9 Nov

- 10:45-12:00 BST  
**Expanding ocean acidification observing capacity to take action.** SDG Pavilion, Blue Zone; Kirsten Isensee (moderator), Peter Thompson (speaker), Steve Widdicombe (speaker). Live stream: <https://www.facebook.com/locUnesco>

## Data collection towards SDG 14.3.1 Indicator

The Intergovernmental Oceanographic Commission (IOC) of UNESCO invites all GOA-ON members to contribute to the third annual global ocean acidification data collection for the Sustainable Development Goal 14.3.1 Indicator: *Average marine acidity (pH) measured at agreed suite of representative sampling stations*. The [SDG 14.3.1 Indicator Methodology](#), developed with support from GOA-ON and other experts in the field of ocean acidification, provides the necessary guidance on how to conduct ocean acidification observations, what to measure and how, providing standard operating procedures and methods approved by the ocean acidification community. It further provides support on what kinds of data to collect, and how to submit, towards the SDG 14.3.1 Indicator to enable the collection and comparison of ocean acidification data worldwide. To facilitate the submission, storage and sharing of ocean acidification data submitted towards the SDG 14.3.1 Indicator, [IOC-UNESCO](#) and [IODE](#) have developed an [online data portal](#) for the Indicator. Data submitted by 10 January 2022 will be included in the Sustainable Development Goals Report 2022.



## Provisional WMO Statement on the State of the Global Climate 2021



The [World Meteorological Organization](#) (WMO) has released its [provisional Climate Report](#) on the opening Day of COP26. The report combines input from multiple United Nations agencies, national meteorological and hydrological services and scientific experts and highlights the data for the first nine months of 2021, which show record atmospheric greenhouse gas concentrations and associated

accumulated heat, propelling the planet into uncharted territory, with far-reaching repercussions for current and future generations.

"The provisional WMO State of the Global Climate 2021 report draws from the latest scientific evidence to show how our planet is changing before our eyes. From the ocean depths to mountain tops, from melting glaciers to relentless extreme weather events, ecosystems and communities around the globe are being devastated. COP26 must be a turning point for people and planet," said United Nations Secretary-General António Guterres.

The Statement shows that open ocean surface pH has declined globally over the last 40 years and is now the lowest it has been for at least 26,000 years. The pH data submitted to the SDG 14.3.1 Indicator via IOC-UNESCO indicates that current rates of pH change are unprecedented since at least that time. Ocean acidification is one of the seven [Global Climate Indicators](#) which form the basis of the annual [WMO Statement of the State of the Global Climate](#), which is submitted to and informs the Conference of Parties, the COP, of the [United Nations Framework Convention on Climate Change \(UNFCCC\)](#).

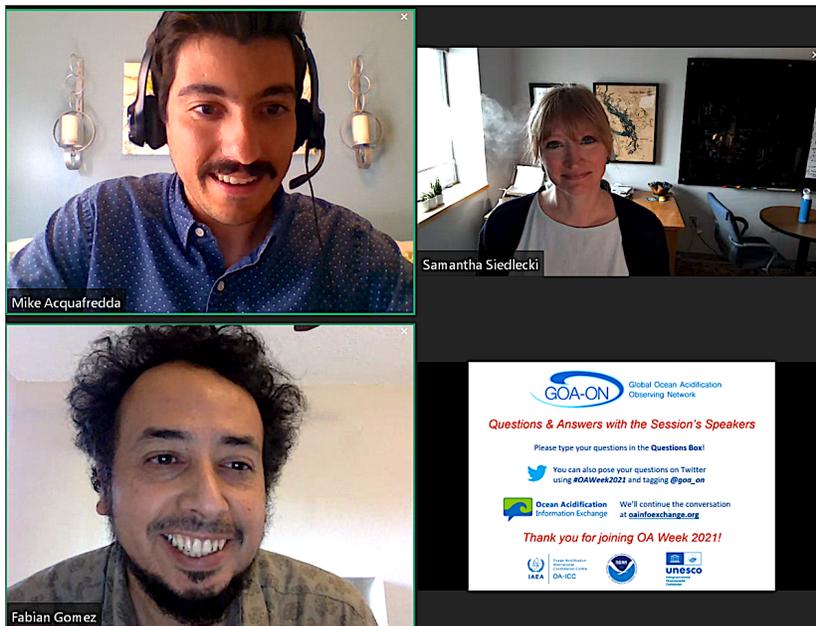
## Success Stories!

### OA Week 2021, September 13-17

Following the success of Ocean Acidification Week 2020, this September, GOA-ON hosted Ocean Acidification Week 2021. Yet this time, OA Week was hosted on a much larger scale! This multi-day forum consisted of more than 30 hours of content across 23 sessions. There were five plenaries, eight hub sessions, and nine community discussions, all highlighting the latest in OA research and initiatives. There was also one special session devoted entirely to unveiling GOA-ON's UN Ocean Decade endorsed programme, OARS; this session was designed to be a discussion between the co-chairs of GOA-ON, Alison Clausen of the UN Ocean Decade, and the broader OA community. OA Week 2021 again brought great attention to GOA-ON and the upcoming 5th International Symposium in a High CO<sub>2</sub> World.



Attendance during OA Week was fantastic. More than 580 unique attendees from 76 countries joined throughout the week, including our 93 presenters, panelists, plenary speakers, and discussion leaders, resulting in 30 hours of content. Researchers, policy makers, and other stakeholders actively participated during the sessions and on GOA-ON's Twitter and Facebook pages. Moreover, the conversations sparked during the session continued after OA Week on the OA Information Exchange. GOA-ON also added 38 new members in the two-month period around OA Week. The GOA-ON community is now more than 930 members strong!



OA Week 2021 demonstrated again that despite the challenges posed by the coronavirus pandemic, the GOA-ON community remains as resilient and adaptable as ever. The GOA-ON co-chairs and Secretariat would like to extend a huge thank you to all involved!

All session recordings can be viewed on the [GOA-ON Youtube Channel](#).

## In the spotlight

### Dr. Sam Dupont, GOA-ON Executive Council



[Dr Sam Dupont](#) is an Associate Professor and Senior Lecturer in Marine Eco-Physiology at the University of Gothenburg.

He is [studying](#) the effects of ocean acidification and other environmental changes on marine species and ecosystems. He aims at revealing the mechanisms behind species and ecosystem responses (physiology, ecology, evolution) to multiple stressors and at developing a unifying theory for large-scale projections.

This work also contributed to the development of [best practices for ocean acidification research](#) and his involvement in key international ocean acidification initiatives such as serving as a member of the executive council of the Global Ocean Acidification Observing Network (GOA-ON) and as a member of the [SCOR working group on multiple stressors](#).

Dr. Sam Dupont recently joined the IAEA' Ocean Acidification International Coordination Centre (OA-ICC) to support the Centre in developing global ocean acidification capacities. He will contribute to the evaluation and development of the OA-ICC's ocean acidification capacity building program, work he carries out as the focal point for capacity building at the OA-ICC. Several training courses will be organized in 2022 from basic to advanced communication and synthesis courses.

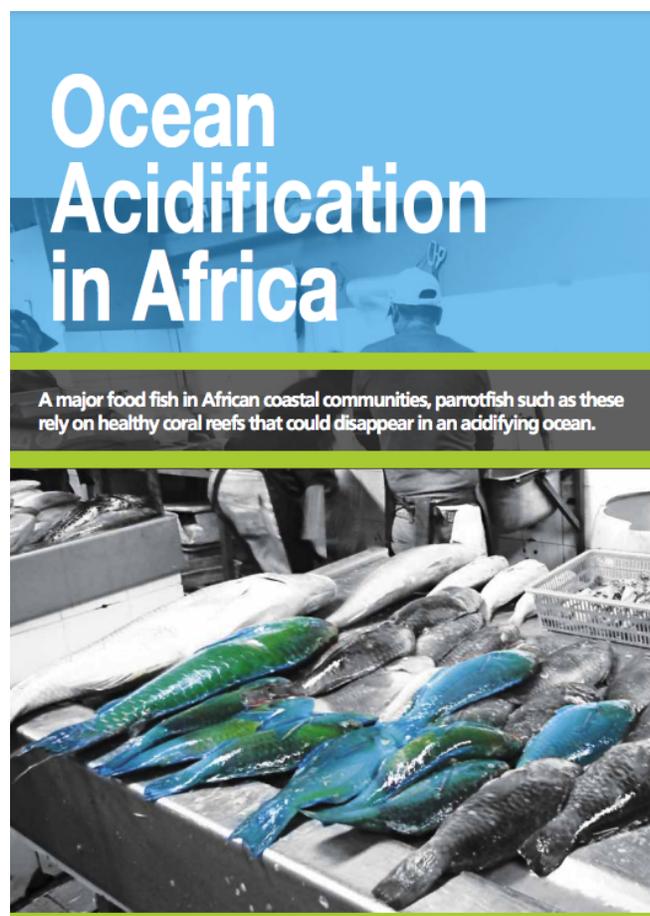


Sam is also working on the development of innovative science communication and education strategies to tackle global challenges through his roles as a member of the Steering Committee for the Centre for Collective Action Research ([CeCAR](#)), communication coordinator of the Nordic Centre of Excellence on Sustainable and Resilient Aquatic Production ([SUREAQUA](#)), Advisory Board member of the Seas, Oceans and Public Health in Europe ([SOPHIE](#)), expert in the [Ocean Blues project](#) and PI of the Inquiry to Student Environmental Actions project ([I2SEA](#)).



## Regional updates

OA-Africa and OA-ICC release [policy-brief!](#)



Ocean Acidification Africa is a pan-African network convened to coordinate and promote ocean acidification awareness and research in Africa. Research activities on ocean acidification and related stressors on the African continent are developing rapidly in response to a clear need for action to minimize and address the impacts posed by climatic and system-wide changes in African oceans. OA-Africa comprises scientists interested in conducting research on ocean acidification monitoring and observation across the continent.

Many African countries rely heavily on the sea for economic, social, and nutritional services. However, ocean acidification has the potential to negatively affect those marine ecosystems, and the losses would be alarming for the African continent. In an effort to raise awareness about ocean acidification and the challenges it poses for the African continent specifically,

OA-Africa, together with the OA-ICC, released a [policy brief](#) this month to highlight the issue and some recommendations for a Pan-African response. The document highlights the need for support from national governments, international organizations, and global scientific collaborations.

## Latin-American Ocean Acidification Network webinar!

LAOCA held their third webinar via their [YouTube channel](#), this time with the framework of "Ocean Acidification and other stressors associated with climate change: A look from evolutionary ecology". The webinar took place 29 October, and featured fantastic speakers working on different perspectives of ocean acidification, global change, and marine evolution: Dr. Sinead Collins (The University of Edinburgh, Scotland), Dr. Piero Calosi (University of Quebec, Canada), and Dr. Sam Dupont (University of Gothenburg, Sweden).

## Announcements & Reminders

### Officially rescheduled: 5th International Symposium on the Ocean in a High-CO<sub>2</sub> World

The 5th International Symposium on the Ocean in a High CO<sub>2</sub> World has officially been rescheduled for 13-16 September 2022 in Lima, Peru.

Previously submitted abstracts are still valid. The deadline for any new submissions or alterations is currently 24 April 2022. New abstracts should follow the abstract template .doc template (MS Word or compatible) and must be submitted electronically to: [abstract@highco2-lima.org](mailto:abstract@highco2-lima.org). Authors will be notified by May 8, 2022. For more information on the Symposium themes and details, please visit the [Symposium website](#).



### GOA-ON data portal support requested

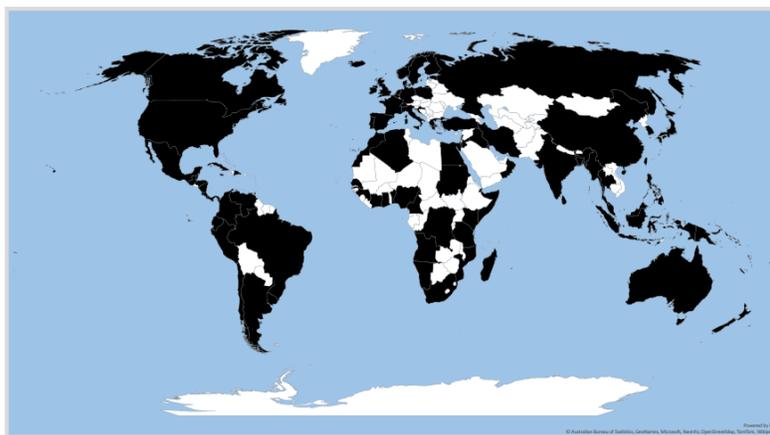
The GOA-ON data explorer contains over 800 assets and counting, and is one of the key services provided by GOA-ON. This portal is community owned and maintained; we rely on scientists to submit entries when new OA observations and monitoring activities take place, such as cruises and surveys. If you have data to submit to a portal or new updates to share about an existing asset [please do so here](#). We work hard to maintain the portal and make it more comprehensive and up to date; If you have past experience managing data portals or large spatial datasets or just have ideas to contribute please get in touch at [secretariat@goa-on.org](mailto:secretariat@goa-on.org); we would be interested in working with you.

Subscribe to the [OA-ICC news stream](#) for daily posts with new OA publications, media coverage, upcoming events, job postings, etc.

- Use the [OA-ICC portal](#) for ocean acidification biological response data to access over 1100 data sets.
- Access over 8,600 ocean acidification publications from the [OA-ICC bibliographic database](#).

### GOA-ON keeps growing

GOA-ON is a network currently composed of over 930 members from 105 countries! We appreciate the interest and look forward to facilitating new and exciting collaborations together. A full list of GOA-ON members is available online on the [GOA-ON website](#). If you wish to change your affiliation as it is presented online, please email the GOA-ON Secretariat ([secretariat@goa-on.org](mailto:secretariat@goa-on.org)).



Are you involved in OA work that you would like to have included in future newsletters? Contact the GOA-ON Secretariat: [secretariat@goa-on.org](mailto:secretariat@goa-on.org)

### GOA-ON Secretariat

Ashley Bantelman, IAEA Ocean Acidification International Coordination Centre  
Kerri Dobson, NOAA Ocean Acidification Program  
Katherina Schoo, Intergovernmental Oceanographic Commission of UNESCO



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[@goa\\_on](https://twitter.com/goa_on)

<https://www.youtube.com/channel/UCWZnXpGzQWwWfT3LEMkxXgg>