Three high-level GOA-ON goals

1. Improve our understanding of global ocean acidification conditions
   • Determine the status of spatial and temporal patterns in carbon chemistry;
   • Document and evaluate variation in carbon chemistry to infer mechanisms (including biological mechanisms) driving OA;

2. Improve our understanding of ecosystem response to ocean acidification
   • Track biological responses to OA, together with physical and chemical measurements, relevant experimental studies and theoretical frameworks;
   • Quantify rates of change and identify areas as well as species of heightened vulnerability or resilience.

3. Acquire and exchange data and knowledge necessary to optimize modeling of ocean acidification and its impacts
   • Provide spatially and temporally-resolved chemical and biological data to be used in developing models for societally-relevant analyses and projections.

Regional hubs

Ocean Acidification is a “global condition with local effects.” The formation of regional hubs under the framework of GOA-ON has facilitated coordination at a regional level, enabling collaboration and research that is better tailored to smaller geographic areas. As of 2019, seven regional hubs are operational: the Latin American Ocean and Coastal Acidification network (LAOCA); the OA Programme of the IOC Sub-commission for the Western Pacific (WESTPAC); OA-Africa; the North American Hub; the Pacific Islands and Territories Ocean Acidification network (PI-TOA); the Northeast Atlantic Hub and the Mediterranean Hub. For more information visit the GOA-ON website and the Regional Hubs tab.

GOA-ON in 2019

573 scientists from 92 countries (shown in black)

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Photo credits: Alexis Valauri-Orton, The Ocean Foundation; Carla Berghoff, INIDEP; UK Ocean Acidification research programme (UKOA); Woods Hole Oceanographic Institution (WHOI); National Oceanic and Atmospheric Administration (NOAA); Bronte Tilbrook, CSIRO; Jean-Louis Teyssie, IAEA.
What is ocean acidification?

Ocean acidification is the result of the uptake of about one third of human-generated CO₂ emissions by the oceans, leading to changes in seawater chemistry. This "other CO₂ problem" has emerged as a major environmental problem of international concern.

Ocean acidification (OA) is already detectable. Regular measurements during the past 25 years at three different stations in the Pacific and the Atlantic Oceans show a clear trend in decreasing oceanic pH.

Capacity building

Building capacity and strengthening infrastructure are essential in expanding the global coverage of ocean acidification observations. GOA-ON has two approaches to capacity building: through direct assistance in the form of organising training workshops and providing low-cost OA monitoring equipment, and through the Pier2Peer scientific mentorship program. Visit the website to learn more.

Towards a Global Ocean Acidification Observing Network

The GOA-ON data portal maps ocean acidification observing assets submitted by GOA-ON members. It provides access and visualization to ocean acidification data and data synthesis products collected around the world from a wide range of sources, including moorings, research cruises, and fixed time series stations. Shown above: global sea surface pH from the GLobal Ocean Data Analysis Project (GLODAP), as well as all observing platforms. Some platforms display real-time data, and many platforms provide links to accessible data and metadata.

Ocean acidification data portal

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GOA-ON supports the Sustainable Development Goal 14, Life below water, and has committed to expand the spatial andtemporal coverage of ocean acidification observations around the world (Voluntary Commitment #OceanAction16542) in support of the Target 14.3 ("minimize and address the impacts of ocean acidification, including through scientific cooperation at all levels"). The related indicator asks for "average marine acidity (pH) measured at an agreed suite of representative sampling stations". GOA-ON has been involved in the implementation and dissemination of the indicator methodology (IOC-UNESCO as the custodian agency), which provides guidance on how to carry out measurements following the best practices in the ocean acidification community and explains how to report the collected information. Find the Methodology on the GOA-ON Resources page.