

Future pathways for the BGC Argo program: A Workshop

Committee

Mark R. Abbott

Chair

Mark R. Abbott was the tenth Director and President of WHOI and retired in 2020. He now serves as President Emeritus. He was dean of the College of Earth, Ocean, and Atmospheric Sciences (CEOAS) at Oregon State University. His research focused on the interaction of biological and physical processes in the upper ocean and relied on both remote sensing and field observations. He has deployed a wide variety of ocean color sensors in the upper ocean, including moored arrays and ocean drifters. Dr. Abbott served as principal investigator on a grant from the Gordon and Betty Moore Foundation that formulated a new approach to the design, development, and deployment of ocean sensors. He was a member of the National Science Board and served as president of The Oceanography Society. In 2011, he received the Jim Gray eScience Award from Microsoft Research. He received his BS in Conservation of Natural Resources from UC Berkeley and his PhD in Ecology from UC Davis. He is a member of the Ocean Studies Board, served as chair of the Committee on Earth Science and Applications from Space, and as a member of the Committee on Future Directions for NSF Advanced Computing Infrastructure to Support US Science.

Lionel A. Arteaga-Quintero

Member

Dr LIONEL ARTEAGA is an oceanographer and Earth scientist at the Global Modeling and Assimilation Office in the NASA Goddard Flight Space Center. His research focuses on quantifying and understanding global biogeochemical cycles using ecological models and satellite observations in support of NASA's EXPORTS program and PACE mission. Prior to joining NASA, Dr. Arteaga was a Postdoctoral Fellow at Princeton University working on the quantification of Southern Ocean carbon fluxes from BGC-Argo floats within the Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) project. Arteaga has been awarded several NASA grants as a Principal Investigator (PI) aimed at quantifying Antarctic air-sea carbon fluxes and assessing the impact of marine heatwaves on the biological carbon pump. Arteaga graduated as a biologist from Universidad Simón Bolívar, Venezuela, and continued his studies in oceanography and biogeochemical modeling in Germany and Australia, and received his MS and PhD from the GEOMAR | Helmholtz Center for Ocean Research Kiel, where he was awarded the Prof. Dr. Werner Petersen-Stifung prize for outstanding doctoral thesis in 2015.

Seth M. Bushinsky

Member

Dr. SETH BUSHINSKY is currently an Associate Professor in the Department of Oceanography at the University of Hawaii at Manoa, where he focuses on measuring and understanding global biogeochemical cycles. Much of Seth's work involves the use of biogeochemical Argo float data. Current group projects include: determination of the mechanisms through which anthropogenic carbon enters the ocean, linking surface organic carbon production to export from the surface to the deep ocean, long-term nutrient and oxygen changes in the global ocean, and identification and correction of oxygen biases in the global float dataset. Seth's group has also produced a global compilation of biogeochemical Argo float data with bad data removed and oxygen biases corrected. Recently, Seth was awarded the American Meteorological Society's Scientific and Technical Activities Committee Outstanding Early Career Scientist award from the Committee on Air-Sea Interaction. Prior to starting at UH Manoa, Seth was an Associate Research Scholar and a Postdoctoral Research Associate at Princeton University and completed his M.S. and Ph.D. at the University of Washington.

Brian A. King

Member

BRIAN KING is an oceanographer at the UK's National Oceanography Centre. He has worked at NOC, and its previous incarnations as a research institute, since completing a PhD in 1985. King's fieldwork has focused on the sustained observing of the global oceans through the World Ocean Circulation Experiment and into the Global-Ocean Ship-Based Hydrographic Investigations Program. He has participated in 25 major research ship expeditions, more than half as Chief or Co-Chief Scientist. His particular expertise is in precise ocean measurements, sensors, data quality assurance and data reduction. King has been a member of the Argo Steering Team from Argo's inception in 1999 until the present time, and Co-Chair of the Steering Team since 2023. He has been a member of the Argo Data Management Team since 2004, and been a co-convenor of many Argo technical and data quality workshops. King's PhD thesis was an ocean modelling topic in a Department of Applied Mathematics. In 2019 and 2024, King chaired international review panels for NOAA of the proposed 5-year plans of the US Argo Consortium.

Justin E. Manley

Member

JUSTIN MANLEY is a technologist and executive with experience in startup, public corporation, academic, and public sectors. Mr. Manley founded Just Innovation Inc. in 2015 to support a variety of clients interested in ocean technology and robotics. The firm provides strategic solutions for complex technologies to government agencies, large companies, startups, investors, and philanthropies. His primary work is as a Senior Advisor to Oceankind (philanthropy) and Venture Partner with AiiM Partners (investment fund). Mr. Manley is dedicated to innovation as an advisor or Board member for several oceantech startups and as a judge for several XPRIZES. He is very active in professional organizations including the Marine Technology Society where he is a Fellow and Past-President and IEEE where he is a Senior Member. He has a strong history of advisory roles including the Integrated Ocean Observing System Advisory Committee and NOAA Ocean Exploration Advisory Board. Mr. Manley holds two patents in uncrewed systems oversight and security along with B.S. and M.S. degrees in Ocean Engineering from the Massachusetts Institute of Technology.

Raphaëlle Sauzède

Member

RAPHAËLLE SAUZÈDE is a research engineer in biogeochemical oceanography. Her main research activities rely on the development of synergic approaches using machine learning coupling in situ measurements with ocean color remote sensing data to obtain global four-dimensional views of key biogeochemical properties in the ocean. Her development focused more specifically on phytoplankton biomass and associated community composition, stocks of organic carbon matter. She is the co-chair of the 4D-BGC SCOR working group that aims at coordinating the development of gridded four-dimensional data products from BGC-Argo observations. Raphaëlle Sauzède is part of the Argo Data Management Team (ADMT) and acts more especially as a scientific expert for the treatment and quality control of BGC-Argo data, particularly in delayed mode. Raphaëlle Sauzède co-authors ~20 publications.

Lynne D. Talley

Member

LYNNE TALLEY is a Distinguished Professor of Physical Oceanography at Scripps Institution of Oceanography, University of California, San Diego. Talley's research focuses on the general circulation of the ocean and the role of various oceanic and atmospheric conditions that affect ocean currents and property distributions, and the role of the ocean in climate. Her particular emphasis over the last decade has been Southern Ocean processes. Since the 1990s, she has been a principal investigator for global ship-based hydrography (GO-SHIP). In recent years, she has been a principal investigator for the NSF-funded SOCCOM and GO-BGC programs, which are pioneering a global array of biogeochemical Argo floats. Talley has authored or co-authored more than 180 publications and is lead author of a physical oceanography textbook. She was a lead author of the IPCC Fourth and Fifth Assessment Reports Working Group I chapters on ocean observations. Talley is a member of the National Academy of Sciences and the American Academy of Arts and Science, and is a Fellow of the American Geophysical Union, American Meteorological Society, and The Oceanography Society. She received her PhD in physical oceanography from the MIT/Woods Hole Oceanographic Institution Joint Program in 1982, and BS in physics from Oberlin College in 1976. In recent years, she has served on the NAS's Polar Research Board, Ocean Decade committee, and Committee on Sustaining Ocean Observations.