December 2021 SCOR Newsletter # 46

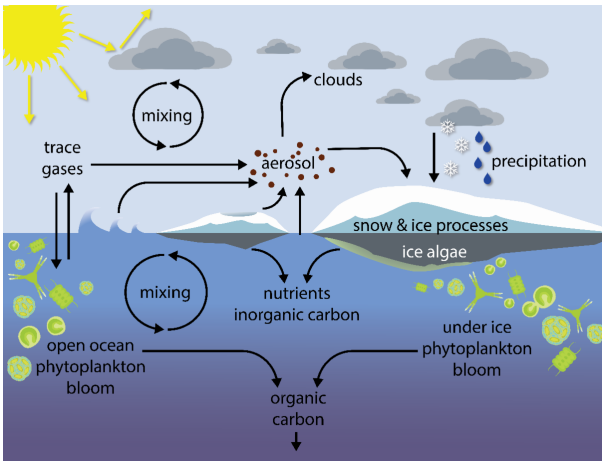
News & Updates

The SCOR 2021 Annual Meeting was held virtually between the 26-28 of October. The meeting was attended by 187 participants from 53 countries representing all continents. Despite the tremendous challenges in these difficult times, the SCOR community continued to make remarkable progress and to keep engaged and connected. Altogether, the SCOR Working Groups and large-scale projects organized more than 100 virtual meetings throughout the year and published more than 160 scientific papers.
All documents, reports and narrated presentations from the 2021 SCOR Annual Meeting can be found at the SCOR website.

Three new Working Groups were approved at the SCOR 2021 Annual Meeting:

SCOR Working Group 163: Coupling of ocean-ice-atmosphere processes: from sea-Ice biogeochemistry to aerosols and Clouds (CIce2Clouds), chaired by Nadja Steiner (Canada) and Megan Willis (USA).

CIce2Clouds will bring together international the expertise of the ocean and sea-ice oriented community and the atmospheric chemistry community to (1) synthesize and refine the conceptual representation of relevant processes impacting the interchange at the ocean-ice-snow-atmosphere interfaces, (2) address key uncertainties in the biological and chemical controls on atmospheric chemistry, aerosol, and clouds in polar ocean environments



SCOR Working Group 164: CoNCENSUS: Advancing standardisation of COastal and Nearshore demersal fish visual CENSUS techniques, chaired by Anthony Bernard (South Africa) and Rick Stuart-Smith (Australia).

CoNCENSUS is an initiative to develop capacity and expand the global coverage of comparable and complementary underwater visual census programmes delivering FAIR (Findable, Accessible, Interoperable, Reusable) data to assess coastal and nearshore fish essential ocean variables at scales relevant to both local and global reporting requirements.

Photo: Lauric Thiault

Photo: Rick Stuart-Smith

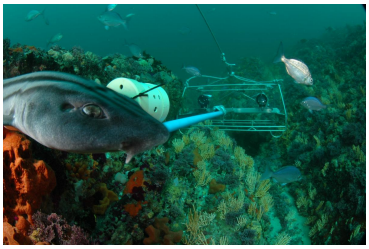
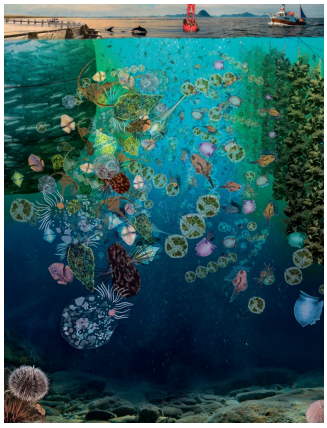


Photo: Steve Benjamin

SCOR Working Group 165: Mixotrophy in the Oceans – Novel Experimental designs and Tools for a new trophic paradigm (MixONET), chaired by Aditee Mitra (UK) and George McManus (USA).

The primary aim of **MixONET** is to identify ways to integrate a new paradigm in marine ecology within extant and emerging research methods. This new mixoplankton-centric paradigm overthrows the longstanding division of plankton into “animal-like” and “plant-like” categories, instead recognizing that many planktonic organisms can both photosynthesize and ingest other plankton for nutrition. The team is composed of pan-global multi-disciplinary experts covering global oceans from the Atlantic to Indian and Pacific Oceans, and expertise from genomics to satellites.



News from the SCOR Secretariat

SCOR involvement in the UN Decade of Ocean Science for Sustainable Development

SCOR WG 162 OASIS aimed at developing an Observing Air-Sea Interactions Strategy has been endorsed as UN Ocean Decade Project. SCOR Research Project **GEOTRACES** aimed at improving the understanding of marine biogeochemical cycles and distribution of trace elements and their isotopes was endorsed as UN Ocean Decade Contribution. **SCOR WG 159 DeepSeaDecade** aimed at developing a global plan for survey/sampling deep-sea ecosystems to underpin deep-sea research is a key contributor to the UN Ocean Decade endorsed programme Challenger 150 – A Decade to Study Deep-Sea Life. The SCOR Infrastructural Project **IOCCP** – International Ocean Carbon Coordination Project is a key contributor to five UN Ocean Decade endorsed programmes related to ocean observations, oxygen and acidification (e.g. Global Ocean Oxygen Decade, Ocean Acidification Research for Sustainability).

Full list of endorsed UN Ocean Decade programmes and contributions here.

Honours and recognitions

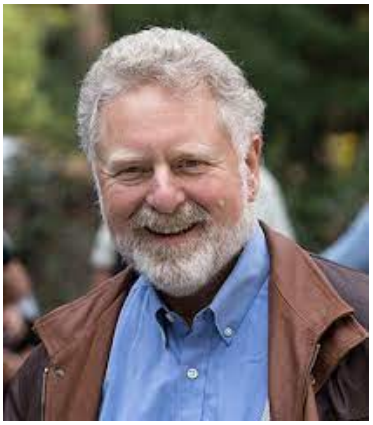
Several members of the SCOR community received in 2021 recognition for their significant contributions to ocean science and for their service to the oceanographic community:

Sinjae Yoo
PICES Wooster Award
SCOR President
Photo: https://scor-int.org/scor/about/officers/

Peter Burkill
Fellow of the MBA of the UK
Former SCOR President
Photo: https://www.mba.ac.uk/node/2594

Marie Alexandrine Sicre
Vice-Chairperson of the IOC
SCOR Past President
Photo: https://scor-int.org/scor/about/officers/

Paul Myers
Fellow Canadian Meteorological and Oceanographic Society
SCOR Secretary
Photo: https://scor-int.org/scor/about/officers/



Dan Costa
Fellow Society for Marine Mammalogy
USA SCOR Nominated Member
Photo: https://news.ucsc.edu/2019/03/costa-ims-director.html

Patricia Miloslavich
Member of the Latin-American Academy of Sciences
SCOR Executive Director
Photo: Miloslavich

Recipients of the 2021 POGO-SCOR Visiting Fellowships

Six POGO-SCOR Fellows were approved in 2021:

- **Carolina Gramcianinov (Brazil)** will train on integrated wave modelling and observation system in the South Atlantic Ocean at the Institute of Coastal Systems Analysis and Modeling - Helmholtz Centre Hereon, Germany.
- **Stella Patricia Betancur Turizo (Colombia)** will train on biogeochemical parameters analysis at Antares Cartagena station and its climatic variability in the Colombian Caribbean region at the Instituto de Investigaciones Oceanologicas, Mexico.
- **Pranav Pulukkayi (India)** will train on the use of sentinel satellite data for mangrove mapping and conservation at the Plymouth Marine Laboratory (PML), UK.
- **Dava Amrina (Indonesia)** will train on the Karimata Strait Variability in relation to Northeasterly Cold Surges and their Impact on Regional Rainfall at SCRIPPS Institution of Oceanography, USA.
- **María Mendez (Argentina)** will train on the effects of increased environmental stress on coastal biodiversity at the Universidad de Vigo, Spain.
- **Cristhian Asto (Peru)** will receive Glider training for coastal monitoring in the Peruvian upwelling system at the Mediterranean Institute of Oceanography, France.

The full list of recipients since 2001 can be foundhere.

A recent paper by Ed Urban and Sophie Seeyave reflects on lessons learned from POGO and SCOR capacity development programs:
Urban, E., and Seeyave, S. (2021). Visiting Scientists Provide Capacity Development: Lessons Learned by POGO and SCOR. Oceanog 34. doi:10.5670/oceanog.2021.306.

Renovation of the SCOR Committee on Capacity Development

The SCOR Committee on Capacity Development was renewed in 2021.

The 2021-2024 Committee is chaired by **Claudia Benitez-Nelson** (USA), and the other appointed members are **Sanae Chiba** (Canada/PICES), **Vanessa Hatje** (Brazil), **Ntahondi Nyandwi** (Tanzania), **Rui Seabra** (Portugal), **Paula Sierra** (Colombia), **Jennifer Verduin** (Australia), **Sun Xiaoxia** (China-Beijing), and **Rebecca Zitoun** (The Netherlands).

We deeply acknowledge former members **Missy Feeley** (USA/UK), **Venu Ittekot** (Germany), **Prasanna Kumar** (India), **Margareth Kyewalyanga** (Tanzania), and **Sun Song** (China) as they step down from the committee for all their dedication and commitment to SCOR capacity development activities during the many years they served.

Rocky shore monitoring training at Puerto Madryn, Argentina. *Photo: Patricia Miloslavich*

Ocean Science and Technology for the Practice of Sustainable "Blue Economy" in Developing Countries

SCOR and the Centre for Science and Technology of the Non-Aligned and Other Developing Countries (NAM S&T Centre) sponsored the Exposure Conference on Application of Ocean Science and Technology for the Practice of Sustainable “Blue Economy” in Developing Countries.

The conference was held 8-9th November 2021 organized by Venugopalan Ittekkot (University of Bremen, retired) and Ed Urban (Scientific Committee on Oceanic Research, retired). The conference was attended by nearly 450 participants representing 58 countries.

The lectures were focused on topics related to coral reefs, seagrasses and mangroves, coastal fisheries, tourism, oil and gas, minerals, coastal pollution, harmful algae as well as in the role of sustained ocean observations to society and the Blue Economy and on how we can build capacity for ocean science and technology.

2022 is the International Year of Basic Sciences for Sustainable Development

The United Nations General Assembly on the 2nd of December 2021 has proclaimed 2022 as the International Year of Basic Sciences for Sustainable Development (IYBSSD2022) based on the pressing need of more basic sciences to achieve Agenda 2030 and its 17 Sustainable Development Goals.

The IYBSSD2022 will be officially inaugurated with an opening conference 30 June – 1 July 2022 at UNESCO headquarters in Paris. Events and activities will be organized around the world until 30 June

2023. More information at: https://www.iybssd2022.org/en/home/

SCOR is a proud partner leading the IYBSSD 2022.

News from the projects

International Study of the Marine Biogeochemical Cycles of Trace Elements and Isotopes

GEOTRACES released the third version of its intermediate data product (IDP2021) gathering hydrographic and marine geochemical data acquired on 77 cruises.

The IDP2021 contains trace elements that serve as micronutrients, tracers of continental sources to the ocean (e.g., aerosols and boundary exchange), contaminants (e.g., Pb and Hg), radioactive and stable isotopes used in paleoceanography and a broad suite of hydrographic parameters used to trace water masses, as well as it provides biological data.

The recording of the IDP2021 webinar launch can be watchedhere.

Integrated Marine Biosphere Research

A new paper by Eugene Murphy and other collaborators from the Integrated Marine Biosphere Research project (IMBeR) stresses the need for an Action Plan for the Ocean and proposes the development of a risk-based framework to provide decision-makers with the tools needed to respond to future changes in the global ocean: (1) assessing and ranking risks, (2) identifying options for action, and (3) developing action plans for adaptation at local, regional and global scales to respond to future change. This process needs to be continuously updated as new information becomes available and understanding improves.

Murphy, E. J., Robinson, C., Hobday, A. J., Newton, A., Glaser, M., Evans, K., et al. (2021). The Global Pandemic Has Shown We Need an Action Plan for the Ocean. Front. Mar. Sci. 8, 760731. doi:10.3389/fmars.2021.760731.

Another paper by Ingrid van Putten and collaborators, the IMBeR project was used as a case study to understand the contribution of interdisciplinary global research networks to solving complex socio-ecological challenges.

van Putten, I., Kelly, R., Cavanagh, R. D., Murphy, E. J., Breckwoldt, A., Brodie, S., et al. (2021). A Decade of Incorporating Social Sciences in the Integrated Marine Biosphere Research Project (IMBeR): Much Done, Much to Do? Front. Mar. Sci. 8, 662350. doi:10.3389/fmars.2021.662350.

Surface Ocean - Lower Atmosphere

Cécile Guieu, a marine biogeochemist and senior scientist at the Centre National de la Recherche Scientifique (CNRS), Laboratoire d'Océanographie de Villefranche (LOV), France, has been appointed as co-chair of the SOLAS SSC replacing Cliff Law (New Zealand).

More information about Cécile here.

Cécile Guieu
Photo: Cécile Guieu

A recent paper by Kumar Nimit outlines the existing tools and explores the ongoing research that has potential to convert data into operational services in near- to midterm. The paper hypothesizes that the best possible approach to win the community attention (and to invoke the responsible ownership of the resources) is to engage the communities with the operational-ecosystem-related services. Furthermore, this paper explores the regional needs and solutions based on presently available data and technologies.

Nimit, K. 2021. Ideas and perspectives: Ushering the Indian Ocean into the UN Decade of Ocean Science for Sustainable Development (UNDOSSD) through marine ecosystem research and operational services – an early career's take, Biogeosciences, 18, 3631–3635, https://doi.org/10.5194/bg-18-3631-2021

In another article, Nick D'Adamo and collaborators make a case of the critical need to adequately monitor, understand and predict the relationships between the environmental, social, economic and geo-political elements of a changing Indian Ocean. This new understanding of the Indian Ocean will be fundamental to policymakers for the development of management strategies and also for the ecologies and human societies of island and Indian Ocean region communities.

International Quiet Ocean Experiment

A new database of passive acoustic data with sound recordings from a deep-ocean environment off central California, the Pacific Ocean Sound Recordings is available at the Registry of Open Data on AWS is available at:

A list of research papers on the effects of the COVID-19 pandemic on ocean sound has been made available at the IQOE website.

International Ocean Carbon Coordination Project

The GLobal Ocean Data Analysis Project (GLODAP) Reference Group Co-Chairs Toste

Tanhua (GEOMAR, Germany) and Siv Lauvset (NORCE, Norway) with several members of the IOCCP Scientific Steering Group published a paper highlighting the critical role of co-located and high-quality measurements of physical and biogeochemical parameters in quantifying and monitoring the ocean cycles of carbon and related biogeochemical variables, and thus informing the stakeholders (e.g. the IPCC assessments, the Global Climate Observing System indicators) on several critical processes.

Tanhua, T., Lauvset, S. K., Lange, N., Olsen, A., Álvarez, M., Diggs, S., et al. (2021). A vision for FAIR ocean data products. Commun Earth Environ 2, 136. doi:10.1038/s43247-021-00209-4.

Po Teen Lim, Associate Professor at the University of Malaya (Malaysia) has been appointed Vice-chair of the GlobalHAB SSC.

Po Teen Lim is a marine phycologist focused in phytoplankton and harmful algal blooms.

More information about Po Teen can be found here.

Po Teen Lim
Photo: Po Teen Lim

SOUTHERN OCEAN OBSERVING SYSTEM

The Southern Ocean Observing System

Alyce Hancock of the Institute of Marine and Antarctic Studies, University of Tasmania (Australia) is the new Executive Officer of SOOS replacing Louise Newman who served SOOS for 10 years.
Photo: Alyce Hancock

Sebastien Moreau from the Norwegian Polar Institute at Tromso (Norway) was appointed as Vice Chair and member of SOOS Executive Committee. He is a biological oceanographer, with expertise in microbiology and biogeochemistry.
Photo: https://sebastienmoreau.wixsite.com/sebastien-moreau

Changing Ocean Biological Systems (COBS)

Changing Ocean Biological Ecosystems (COBS)

This project evolved from SCOR WG 149 on “Changing Ocean Biological Systems (COBS): how will biota respond to a changing ocean?” to become a SCOR infrastructural project. COBS aims to promote new methods for assessing the effects of multiple environmental factors acting on organisms at the same time.

Philip Boyd from the University of Tasmania (Australia) was appointed co-chair of the COBS SSC.
Photo: https://scor149-ocean.com/

Sinead Collins from the University of Edinburgh (UK) was appointed co-chair of the COBS SSC.
Photo: https://scor149-ocean.com/

Publications

The most recent contributions from the SCOR community include:

WG 143 – Dissolved N2O and CH4 measurements: Working towards a global network of ocean

time series measurements of N2O and CH4

Bourbonnais, A., Frey, C., Sun, X., Bristow, L. A., Jayakumar, A., Ostrom, N. E., et al. (2021). Protocols for Assessing Transformation Rates of Nitrous Oxide in the Water Column. Front. Mar. Sci. 8, 611937. doi:10.3389/fmars.2021.611937.

A 'Best Practice Guide' (including seven SOPs) for dissolved CH4 and N2O is currently under public review. The 7 draft Chapters cover topics extending from sampling, calibration, quantification, and data reporting. See https://web.whoi.edu/methane-workshop/sops/

WG 145 - Modelling Chemical Speciation in Seawater to Meet 21st Century Needs (MARCHEMSPEC)

Lodeiro, P., Turner, D. R., Achterberg, E. P., Gregson, F. K. A., Reid, J. P., and Clegg, S. L. (2021). Solid–Liquid Equilibria in Aqueous Solutions of Tris, Tris-NaCl, Tris-TrisHCl, and Tris-(TrisH) 2 SO 4 at Temperatures from 5 to 45 °C. J. Chem. Eng. Data 66, 437–455. doi:10.1021/acs.jced.0c00744.

WG 148 - International Quality Controlled Ocean Database: Subsurface temperature profiles (IQuOD)

Castelão, G. P. (2021). A machine learning approach to quality control oceanographic data. Computers & Geosciences 155, 104803. doi:10.1016/j.cageo.2021.104803.

Cowley, R., Killick, R. E., Boyer, T., Gouretski, V., Reseghetti, F., Kizu, S., et al. (2021). International Quality-Controlled Ocean Database (IQuOD) v0.1: The Temperature Uncertainty Specification. Front. Mar. Sci. 8, 689695. doi:10.3389/fmars.2021.689695.

WG 151 – Iron Model Intercomparison Project (FeMIP)

Rogerson, J., and Vichi, M. (2021). FeMIPeval. University of Cape Towndoi:10.25375/UCT.14528547.

WG 153 - Floating Litter and its Oceanic TranSport Analysis and Modelling (FLOTSAM)

Mountford, A. S., and Morales Maqueda, M. A. (2021). Modeling the Accumulation and Transport of Microplastics by Sea Ice. J. Geophys. Res. Oceans 126. doi:10.1029/2020JC016826.

WG 156 - Active Chlorophyll fluorescence for autonomous measurements of global marine primary productivity

Schuback, N., Tortell, P. D., Berman-Frank, I., Campbell, D. A., Ciotti, A., Courtecuisse, E., et al. (2021). Single-Turnover Variable Chlorophyll Fluorescence as a Tool for Assessing Phytoplankton Photosynthesis and Primary Productivity: Opportunities, Caveats and Recommendations. Front. Mar. Sci. 8, 690607. doi:10.3389/fmars.2021.690607.

Tortell, P.D. and Suggett, D.J. (eds) (2021) A User Guide for the Application of Single Turnover Active Chlorophyll Fluorescence for Phytoplankton Productivity Measurements. Version 1. Scientific Committee on Oceanic Research Working Group 156, 20pp. DOI: http://dx.doi.org/10.25607/OBP-1084.

WG 157 – Toward a new global view of marine zooplankton biodiversity based on DNA metabarcoding and reference DNA sequence databases (MetaZooGene)

Patterns of Biodiversity of Marine Zooplankton Based on Molecular Analysis is a collection articles by the MetaZooGene Working Group in the latest issue of ICES Journal of Marine Science. This collection showcases examples of the ongoing refinement of molecular approaches for analysis of zooplankton diversity.
https://academic.oup.com/icesjms/issue/78/9#1302581-6403476

WG 162 - Developing an Observing Air-Sea Interactions Strategy (OASIS)

SCOR Working Group #162 (2021). Prospectus for Developing an Observing Air-Sea Interactions Strategy (OASIS). Available at: https://airseaobs.org/wp-content/uploads/2021/07/OASIS_SCORWG_Prospectus-2021.pdf.

GESAMP Working Group 38 - The Atmospheric Input of Chemicals to the Ocean

Baker, A. R., Kanakidou, M., Nenes, A., Myriokefalitakis, S., Croot, P. L., Duce, R. A., et al. (2021). Changing atmospheric acidity as a modulator of nutrient deposition and ocean biogeochemistry. Sci. Adv. 7, eabd8800. doi:10.1126/sciadv.abd8800.

Obituaries

Dr. Chibo Chikwililwa

Chibo was a researcher at the University of Namibia, and the GEOTRACES national representative for Namibia since 2019. She was the co-director and member of the SCOR's Regional Graduate Networks of Oceanography (RGNO) committee since 2016, organizing the annual RGNO Ocean discovery camps providing her expertise on harmful algal blooms, seaweeds, and geochemical processes. Chibo was actively engaged in lecturing and in the organization of the 2021 online RGNO seminars at the University of Namibia focused on the Benguela Upwelling System with more than 50 invited speakers.

Photo: https://www.geotraces.org/in-memory-of-dr-chibo-chikwililwa/

Dr. Satya Prakash

Satya was the coordinator of the Joint Project Office (JPO) - India of the Second International Indian Ocean Expedition (IIOE-2), based at the National Institute of Oceanography (NIO) in Goa, India. Satya Prakash played a key role in planning various activities leading to the formal launching of the Second International Indian Ocean Expedition (IIOE-2) from Goa. Satya also participated in the first research cruise under IIOE-2 (Goa-Mauritius). Since then, Satya served as the JPO coordinator for the India node of IIOE-2 and had been actively involved in numerous activities related to the IIOE-2 including being a part of the Editorial Team of the IIOE-2 newsletter and the Indian Ocean Bubble, as well as facilitating the hosting of the fourth meeting of the Steering Committee of the IIOE-2 in virtual space in April 2021.

Photo: https://scor-int.org/2021/08/13/dr-satya-prakash/

Dr. Raymond Pollard

Raymond was a senior researcher at the National Oceanography Centre Southampton (NOCS), University of Southampton He was an innovator and played a crucial role in the development and use of towed undulating CTD's (Seasoar particularly), an early user of Acoustic Doppler Current Profilers (ADCPs) from which he pioneered extracting vertical velocities by inference from the horizontal fields, and he played a critical role in bringing scientific computing onboard ships. Raymond exemplified the path to big cooperative programmes, leading the multi-national JASIN (Joint Air Sea Interaction) Programme involving multi-ship and aircraft studies off northwest Scotland. He also led the UK contribution to WOCE (World Ocean Circulation Experiment) and other major seagoing expeditions. He was a member of the IMBER SSC.

Photo:
https://www.facebook.com/raymond.pollard.520

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Dr. Patricia Miloslavich
SCOR Executive Director