

SOLAS annual report to SCOR

Reporting period: July 2022 - June 2023

Version of 21 July 2023 by Li Li and Jessica Gier

I. Short summary

The Surface Ocean-Lower Atmosphere Study (SOLAS) is dedicated to achieving quantitative understanding of the key biogeochemical-physical interactions and feedbacks between the ocean and atmosphere, and how this coupled system affects and is affected by climate and environmental changes.

During this reporting period, SOLAS started the strategic planning for its 3rd decadal science plan and organisational structure. Looking into the future, SOLAS launched several initiatives to further boost its science, e.g., wildfire, Earth system modelling, microplastics, marine carbon dioxide removal (CDR), and long-term large-scale multi-platform campaigns in typical marine environments. SOLAS is determined to devote her major efforts in transforming sciences into societal solutions via engaging in, e.g. the United Nations (UN) Climate Change Conference, the UN Ocean Conference and the UN Decade of Ocean Science for Sustainable Development (hereafter: UN Ocean Decade). SOLAS established its future committee, the Early Career Scientist Committee (ECSC), in Jan. 2023. Seven events have been organised or are being planned by the committee, which shows the significant momentum of the committee to further strengthen SOLAS sciences and networks. SOLAS also made breakthroughs in engaging underrepresented regions and launched a Regional Panel in Southeast Asia in Mar. 2023, which consists of eight members from six countries. The panel has been working actively together on joint grant proposals and building connections with other international scientific organisations and research projects.

SOLAS is committed to science communication and capacity building. A quarterly series was newly launched in 2022 to foster discussions on cutting-edge scientific questions, provide researchers at all career stages with the opportunity to interact and build SOLAS community across the globe. Five seminars have been organised, which attracted nearly 1000 researchers from over 30 countries. With its first hybrid and 8th Open Science Conference (OSC) on 25-29 Sep. 2022 in Cape Town, South Africa, SOLAS offered the ideal programme for ~100 onsite and ~100 online scientists who wish to learn and exchange about innovative research in the field, present their findings, and connect with colleagues from all over the world. A dedicated Early Career Scientist (ECS) Day was organised by a group of ECS for the day before the OSC. The 9th SOLAS Summer School took place in Mindelo on Cape Verde, 5-15 Jun. 2023, which was organised by an alumni-dominated organising committee. The school hosted 66 students from 25 countries who had a chance to interact with 30 lecturers. Moreover, SOLAS and the University of Galway, Ireland, initiated the 1st run of the new Research Master of Science programme on Ocean, Atmosphere and Climate in Sep 2022. It will run in its 2nd round from Sep 2023.

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II. SOLAS Mission and Organisation

The SOLAS mission is *to achieve quantitative understanding of the key biogeochemical-physical interactions and feedbacks between the ocean and the atmosphere, and of how this coupled system affects and is affected by climate and environmental change.*

The [2015-2025: Science Plan and Organisation](#) organised this mission around five core themes:

Core Theme 1: Greenhouse gases and the oceans

Core Theme 2: Air-sea interface and fluxes of mass and energy

Core Theme 3: Atmospheric deposition and ocean biogeochemistry

Core Theme 4: Interconnections between aerosols, clouds, and marine ecosystems

Core Theme 5: Ocean biogeochemical control on atmospheric chemistry

In addition, the study of these themes is integrated in efforts to understand key environments, e.g. upwelling systems, polar oceans, and the Indian Ocean, as well as to evaluate the environmental efficacy and impacts of climate intervention proposals, policy decisions, and societal developments.

The SOLAS 2015-2025: Science Plan and Organisation ([SPO](#)) is available to download from the SOLAS website, and hardcopies are available upon request from the IPO.

SOLAS chose to use a pragmatic approach to the implementation strategy with a continually-evolving live document developing plans at least 2 years into the future. This approach means that the document is a moving target that is regularly updated. The [implementation strategy](#) is intended to be a live web-based document only, and it will be revisited again in Sep./Oct. 2024.

Following recommendations from the SOLAS review panel, SOLAS has updated the Implementation Strategy with the specific involvement of SOLAS themes into the UN Ocean Decade with the [Activities Table 2022/23](#).

The importance of collecting information on SOLAS-related cruises was brought up during the latest round of Implementation Strategy update. These cruises that were included in the Implementation Strategy v2022 have now been listed on the SOLAS website. A call was issued to collect community input on the [cruise list](#) and a website developed.

Activities update

The activities reported below are of various natures, some present SOLAS's leading roles in event organisation, some SOLAS's involvement and some financial contribution. Upcoming activities include

- SOLAS Seminar VI: Halogen chemistry: from ocean to stratosphere, online, 25 Jul. 2023
- Fire science Learning Across the Earth system (FLARE) Workshop, Bermuda, USA, 18-21 Sep. 2023
- Scoping Workshop on SOLAS's future, 25-28 Sep. 2023, Xiamen, China
- World Climate Change Programme (WCRP) Open Science Conference, Side-event organised by SOLAS ECSC on Community engagement and feedback on the SOLAS science agenda, Kigali, Rwanda, 23-27 Oct. 2023
- GOOD-OARS Summer School, Coquimbo-La Serena, Chile, 6-12 Nov. 2023
- American Geophysical Union (AGU) Fall Meeting 2023, session on The Surface Ocean-Lower Atmosphere Study (SOLAS): 20-years of Progress and Developments in Ocean-Atmosphere science. San Francisco, USA, 11-15 Dec. 2023
- SOLAS Science and Society Workshop, Helsinki, Finland, 10-14 Jun. 2024 (tentatively)
- SOLAS OSC, Goa, India, 11-15 Nov. 2024
- SOLAS Scientific Steering Committee (SSC) meeting, Goa, India, 16-18 Nov. 2024

III. Progress on implementation of project science

III.a. Integrated activities

Future of SOLAS beyond 2025

National Science Foundation (NSF)/SCOR sponsorship and related funding will end in Dec. 2025. SOLAS is thus seeking the possibilities of continuation of NSF funding. During the SSC meetings 2022&2023 and the ECSC Scoping Workshop 2023, discussions on the future of SOLAS beyond 2025 took place. A new decadal science plan & organisational structure will be framed and drafted at the Scoping Workshop in Xiamen, China, 25-28 Sep. 2023. A science plan draft will be ready for a delegation visit to NSF in late 2023 or early 2024. SOLAS needs to develop innovation aspects and a big picture:

- Earth system science on a global and regional scale and predictions;
- Large scale and integrated ocean-atmosphere observations and experiments;
- Transformation from science into solutions. What should be the role of SOLAS in societal solutions, e.g. marine carbon dioxide removal (CDR)?
- Regarding the links between SOLAS science and society, several topics are currently being discussed, such as (not exclusively) coastal zones, emerging contaminants (e.g., plastics), and ship emissions.

New initiative: Modelling surface ocean and lower atmosphere interactions in the Earth System

The thematic interactions are relevant between all core themes and we need to integrate these in order to get an overall picture. SOLAS will fill the gap for an integrated modeling framework to provide input to I) PICC Climate Change Reports; II) UN Sustainable Development Goals (SDGs); and III) the 10 challenges of the UN Ocean Decade.

The targets of the Earth System Models (ESMs) will be biodiversity, food production (food chain /fisheries), and climate impact (C-sequestration into the ocean -current state modeling; N, C fluxes at the interface; aerosols/cloud/radiation; scientific basis of CDRs).

An online workshop on SOLAS and ESMs will be organised by Maria Kanakidou in Jul. 2023. The outcomes of the workshop will be discussed at the Scoping Workshop to feed into the new SOLAS Science Plan.

Contributions to the UN Ocean Decade

SOLAS is involved in the following UN Ocean Decade activities:

- Report on Integrated Ocean Carbon Research ([IOC-R](#)) was developed as part of the Decade, IOC-R is aiming to be endorsed.
- Partner of the Coastal Zones Under Intensifying Human Activities and Changing Climate: A Regional Programme Integrating Science, Management and Society to Support Ocean Sustainability ([Coastal-SOS](#)).
- Co-sponsor of the 53rd International Liège colloquium on Ocean Dynamics, which is a contribution to the Ocean Decade programme Global Ocean Oxygen Decade ([GOOD](#)).
- Co-organiser of the Satellite Activity of the Ocean Decade Laboratory on An Observing Air Sea Interactions Strategy (OASIS) for a Clean Ocean, with [OASIS](#) (SCOR WG 162, Decade endorsed).
- Partner of the Ocean to Climate Seamless Forecasting system ([OSF](#)).
- Partner of the Global Ocean Negative Carbon Emission ([Global ONCE](#)).
- Discussion session at SOLAS OSC 2022 on UN Decade of Ocean Science Proposal: Aerosol Exchange with Marine Ecosystems.

Collaboration with the Ocean Carbon & Biogeochemistry (OCB) project

- The Ocean-Atmosphere Interaction Subcommittee ([OAIC](#)) was formed by OCB to coordinate research on ocean-atmosphere interactions and their role in marine biogeochemical cycles in the US. See the [US SOLAS Science Plan](#).
- OCB was a co-sponsor of the SOLAS Summer School 2023 on Cape Verde.

Collaboration with the North Pacific Marine Science Organization (PICES)

- The PICES Biological Oceanography Committee and Physical Oceanography and Climate Committee exchange with SOLAS at their annual meetings, to maintain two-way communication between PICES and SOLAS.
- PICES was a sponsor of the SOLAS OSC 2022 and the SOLAS Summer School 2023, supporting the Early Career Scientist Day and the attendance of early career scientists from PICES countries, respectively.

III.b. Progress on Core Themes

Core Theme 1: Greenhouse gases and the oceans

SOLAS- Integrated Marine Biosphere Research (IMBER) Ocean Acidification (SIOA) Working Group

SIOA is a SOLAS-sponsored activity that provides a key advisory role to the Ocean Acidification International Coordination Centre (OA-ICC) based at the International Atomic Energy Agency Environment Laboratories in Monaco. SIOA facilitates OA-ICC activities, which include support for the Global Ocean Acidification Observing Network (GOA-ON), updating and improving best practices for making ocean acidification measurements and building global capacity.

- The largest OA community meeting, the 5th International Symposium on the Ocean in a High CO₂ World was held on 13-16 Sep. 2022.
- The annual SIOA meeting/OA-ICC expert group meeting was a hybrid 1-day side event on 12 Sep. 2022 in Lima, Peru.

Integrated Ocean Carbon Research (IOC-R)

The Working Group (WG) on Integrated Ocean Carbon Research (IOC-R) is a SOLAS sponsored activity, which is coordinated by the Intergovernmental Oceanographic Commission (IOC). It brought together five international research and coordination programmes, incl. SOLAS, the International Ocean Carbon Coordination Project (IOCCP), IMBeR, the Climate and Ocean Variability, Predictability and Change (CLIVAR), and the Global Carbon Project (GCP).

The 2023 in person meeting took place in Brussels, Belgium, 3-5 May 2023 and also involved IOC, G7 Future of the Seas and Oceans Initiative, and GlobalONCE. The meeting's focus was on reviewing the IOC-R vision document and identifying areas requiring an update on emerging issues. In the revised vision document the key messages, key actions to fill the identified gaps, and section lead authors and contributors were identified. In addition, a roadmap / timeline of activities was produced.

The Surface Ocean CO₂ Atlas (SOCAT)

SOCAT documents the increase in surface ocean CO₂, a critical measure as the oceans are taking up one quarter of the global CO₂ emissions from human activity. SOCAT was co-initiated and co-endorsed by SOLAS.

- The new SOCAT 2023 version was released in Jun. 2023 and has delivered 35.6 million, quality-controlled, in situ surface ocean fCO₂ (fugacity of CO₂) measurements collected between 1957 and 2022 with an estimated accuracy of < 5 µatm. The open ocean data collection effort has dramatically declined since 2017.
- SOCAT lost its European data management team during 2022 and is at immediate risk up on losing its capacity for future release, while facing persistent funding shortfalls.

Core Theme 2: Air-sea interface and fluxes of mass and energy

Collaboration with the European Space Agency (ESA)

The long-standing and fruitful collaboration between SOLAS and ESA is continuing.

- The 8th international Symposium on Gas Transfer at Water Surfaces took place in May 2022 and was, among others, co-sponsored by ESA and OCB. The [extended book of abstracts](#) was published in Jun. 2023. DOI: 10.17031/wazv-vw45.

- The ESA-SOLAS workshop on Eddy covariance air/sea gas flux best practice workshop took place in Mar 2023. It gathered over 20 participants from US, Europe, China and UK. Publication(s) planned to outline: I) Agreed best practice for setting up eddy covariance CO₂ flux systems; II) Comparison of results using the variety of current data processing work flows; III) Agreed data processing work flow; and IV) Agreed methodology for uncertainty estimates. Also, future field experiment(s) are needed for valuable CO₂ flux intercomparison exercise.

Core Theme 3: Atmospheric deposition and ocean biogeochemistry

Collaborations with the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) WG 38

- SOLAS co-organised a workshop with GESAMP WG 38 in 2017 on Changing Atmospheric Acidity and its Impacts on the Oceanic Solubility of Nutrients (see SOLAS Event Report [Issue 1](#)). Two papers resulted from this workshop were published in 2020 and 2021, respectively.
 - The impacts of ocean acidification on marine trace gases and the implications for atmospheric chemistry and climate (<http://dx.doi.org/10.1098/rspa.2019.0769>)
 - Changing Atmospheric Acidity and its Impacts on the Oceanic Solubility of Nutrients (<https://doi.org/10.1126/sciadv.abd8800>)
- The GESAMP WG 38 - SOLAS workshop on Atmospheric Input of Chemicals to the Ocean - Management Implications took place on 4-7 Oct. 2022, in Gqeberha, South Africa. The workshop featured an element of capacity building in the form of talks to regionally based students and interactions with policymakers. The results of the deliberations from the workshop are now being written up for publications in the scientific literature, with at least two publications anticipated, one focused on environmental sciences and one focused on the discussions of improving interactions between the scientific community and policymakers (See SOLAS Event Report [Issue 30](#)).

Collaboration with ESA

- In 2022, the ESA-Future Earth Joint Program supported the SOLAS project on Constraining High Latitude Dust activity in Greenland using the Sentinel constellation. Two summer interns participated in the project at the Loughborough University, USA, under the supervision of Santiago Gassó.
- In 2023, the ESA-Future Earth Joint Program will support the SOLAS FLARE workshop, Bermuda, USA, Sep 2023, led by Douglas Hamilton, Joan Llorc, and Morgane Perron.

Collaborations with GEOTRACES

- Following a joint session at the SOLAS OSC in Apr. 2019 in Sapporo, Japan, a GEOTRACES - SOLAS workshop was organised for 26-30 Jul. 2021 on Iron at the Air-Sea Interface, online and in Ashville, North Carolina, USA. The workshop brought together established scientists and early career researchers to provide opportunities for professional interactions (see SOLAS Event Report, [Issue 20](#)). The SCOR WG 167 on Reducing Uncertainty in Soluble aerosol Trace Element Deposition (RUSTED) now provides link between SOLAS and GEOTRACES (Led by Douglas Hamilton).

New Initiative on wildfires

- SOLAS launched a wildfires initiative to address the impacts of fire emissions on the ocean and society. It was initiated at the discussion session at the SOLAS OSC 2022 on Aerosol Exchange with Marine Ecosystems. Activities down the road include,
 - A side event at COP27 on Wildfire increase, a challenge for Earth system and societies, organised in collaboration with Future Earth, the Integrated Land Ecosystem-Atmosphere Processes Study (iLEAPS), the Past Global Changes (PAGES) project, and the BRIDGES Coalition
 - The FLARE workshop, supported by the ESA-Future Earth Joint Program
 - A proposal to be submitted to the Future Earth Cross-cutting Initiative
 - A SOLAS-RUSTED joint proposal to be submitted for endorsement by the UN Ocean Decade, in collaboration with partner programmes such as GEOTRACES and IMBER.

Core Theme 4: Interconnections between aerosols, clouds, and marine ecosystems and Core Theme 5: Ocean biogeochemical control on atmospheric chemistry

Collaborations with the International Global Atmospheric Chemistry (IGAC) project

- The 6th SOLAS Seminar will be hosted by the SOLAS ECSC and IGAC ECSC on Halogen chemistry: from ocean to stratosphere, on 25 Jul. 2023. In addition to the scientific talks, further collaborations between the two committees will be discussed. How to carry on the previous collaborative topics between SOLAS and IGAC will also be addressed, e.g., the interplay between ocean and the urban environment in coastal cities that affect the environment and human health, studies over the remote oceans, and the impact of ship plumes, nitrogen deposition, and background atmospheric chemistry.

New Initiatives

- Two new central research topics are being attempted: (1) Anthropogenic effects on aerosol in the marine environment (forever chemicals and microplastics); (2) Machine learning techniques.
- A team with members from Malaysia, Thailand, and Vietnam has worked together and applied for the Asia Pacific Network (APN) - Global Change Research grant, entitled: Establishing a pilot network for microplastic monitoring and analysis in the coastal environment of Southeast Asia.
- A joined SOLAS - International Conference on Nucleation and Atmospheric Aerosols (ICNAA) session on Interconnections between marine ecosystems, aerosols, clouds and atmospheric chemistry was organised at the ICNAA 2023 in Jun. in Brisbane, Australia.
- The objectives of the SCOR WG 166 "Developing resources for the study of Methylated Sulfur compound cycling PROCesses in the ocean (DMS-PRO)" are well aligned with those of Core Themes 4&5. Many SOLAS scientists are involved in this WG, and Tom Bell acts as a main contact point between DMS-PRO and SOLAS. DMS-PRO was represented at the SOLAS OSC 2022 and SOLAS Seminar V.

III.c. Progress on Integrated Topics

Polar Oceans and Sea Ice

Biogeochemical Exchange Processes at Sea Ice Interfaces ([BEPSII](#))

BEPSII project started in 2011 with a focus on sea-ice biogeochemistry, was a SCOR WG from 2012 until Sep. 2016, and has since been endorsed as a SOLAS- Climate and Cryosphere (CliC) activity (from 2016) and as a Scientific Committee on Antarctic Research (SCAR) Action Group (from 2017).

- Current key topics: 1) multiple data collation/synthesis projects for sea-ice biogeochemistry data. 2) The Ice Algae Model Intercomparison Project IAMIP2 is evaluating/comparing first coordinated runs. 3) Antarctic position analysis is being finalised.
- The SCOR WG 152 on Measuring Essential Climate Variables in Sea Ice (ECV-Ice), which was the Task Team 1 of BEPSII, successfully completed with final meeting in Mar 2023. The group is actively writing papers.
- BEPSII 2024 will be an online meeting which will focus on the development of a revised/updated science plan with the intention to feed into the SOLAS science plan for polar oceans and sea-ice.

Cryosphere and Atmospheric Chemistry ([CATCH](#))

CATCH, co-sponsored by SOLAS and IGAC, facilitates atmospheric chemistry research within the international community, with a focus on natural processes specific to cold regions of the Earth.

- Polar Bromine Model Intercomparison: Compare and evaluate 3-D atmospheric models which include polar halogen sources and reproduce surface ozone depletion. Models will be evaluated against in situ and satellite observations in the Arctic from 2012 and 2020. Open to the community & all welcome via <https://github.com/jenniethomas/arctic-bromine-model-intercomp>
- CATCH organised various events and sessions.
 - AGU 2022, Chicago, USA, 12-16 Dec. 2022: 1) session on "Polar and Wintertime Atmospheric Chemistry" (20 abstracts); 2) ARCUS Town Hall Meeting (25 attendees).
 - 2nd MOSAiC Science Conference, Boulder/CO, USA, 13-17 Feb. 2023: side meeting on "Planning a Modelling Strategy for MOSAiC Atmospheric Chemistry" (20 attendees)
 - European Geosciences Union (EGU) General Assembly 2023, Vienna, Austria, 23-28 Apr 2023: 1) session on "Surface Exchange Processes in the Polar Regions: Physics, Chemistry, Isotopes, and Aerosols" (26 abstracts); 2) session on "Atmosphere-ocean-sea ice interactions in the polar climate system" (24 abstracts); 3) joint splinter meeting on "The chemistry, physics and biology of polar surface interactions and links to climate – current initiatives and community activities" (~50 attendees).

Coupling of ocean-ice-atmosphere processes: from sea-ice biogeochemistry to aerosols and Clouds ([Clcea2Clouds](#))

This CATCH-BEPSII initiative grew out of a joint discussion session at the 2019 SOLAS OSC in Sapporo, Japan, which has resulted in the SCOR WG 163 Clcea2Clouds, co-chaired by an early career researcher, Megan Willis.

- The annual meeting took place back-to-back with the 2022 SOLAS OSC in Cape Town, South Africa. The next meeting will be 9-10 Sep. 2023 in Grenoble, Switzerland, ahead of

the Horizon 2020 project “Climate Relevant interactions and feedbacks: the key role of sea ice and Snow in the polar and global climate system (CRiceS)” meeting.

- The group is producing a tutorial paper on ocean-ice-atmosphere interactions in the polar oceans and synthesis papers for each of: the sulfur cycle, primary aerosols, and the nitrogen cycle in sea-ice areas, as well as developing field recommendations for combined atmosphere-sea ice research.

Upwelling Systems

Future of Tropical Upwelling Regions in the Atlantic Ocean ([FUTURO](#)) campaign

This multi-scale, year-round, multidisciplinary observational campaign is planned to take place in the Eastern Boundary Upwelling System (EBUS) region for the time frame 2027-2029.

- Remote sensing for preparation, guidance, and evaluation. Research vessel to be equipped for continuous autonomous measurements.
- Parallel measurements via mobile autonomous platforms & stationary autonomous platforms. Accompanying land-based observations.
- Embedment in accompanying social science research and citizen science projects.

Research Programmes on Upwelling

- Role of Eddies in the Carbon Pump of Eastern Boundary Upwelling Systems – Demonstration Case Canary Current System (REEBUS). SOLAS endorsed REEBUS in 2019, and REEBUS concluded in 2022.
- SCOR WG 155 “Eastern boundary upwelling systems (EBUS): diversity, coupled dynamics and sensitivity to climate change”. SOLAS co-sponsor the EBUS/Humboldt Current System Conference 2022 (see SOLAS Event Report [Issue 29](#)).
- Biogeochemical impact of mesoscale and sub-mesoscale processes along the life history of cyclonic and anticyclonic eddies: plankton variability and productivity ([e-IMPACT](#)).

SOLAS Latin American Workshop

- SOLAS held an online workshop on Marine Biogeochemistry Research on Latin American Coastal Zones on 26 May 2023, with the aim of learning about current research on coastal marine biogeochemistry in Latin America, focusing on, but not restricted to, the key biogeochemical interactions and feedback between the ocean and the atmosphere of upwelling zones.
- Following the workshop, a SOLAS Regional Panel in Latin America is going to be established to start collaborations under SOLAS common scientific interests that contribute to reducing spatial and temporal knowledge gaps, achieving a better understanding of biogeochemical variability, the processes that control the greenhouse gases cycling, and the system's response to environmental stressors on a regional scale.

Indian Ocean

- An Indian Ocean Biogeochemistry Meeting was organised in Apr. 2023. It gathered ~40 participants. Topics ranging from experimental – modelling biogeochemistry sciences in the Indian Ocean, including ocean-atmosphere impacts.
- Our current understanding of the Indian Ocean is mostly based on sporadic ship campaigns and remote sensing data. Details of the large-scale features such as the seasonal cycles over the individual ocean basins, variations of the latitudinal gradients, and the vertical

distributions and long-term changes for several trace gases, are not well known, nor are all the processes well understood.

- SOLAS started to compile a list of SOLAS-related cruises to facilitate the dissemination of the cruise information, e.g., looking for expertise and calling for piggyback projects.
- SOLAS will push the Indian Ocean initiative forward, following the model and template set by FUTURO at the international level.

Climate Intervention

Following a successful workshop in Sapporo, Japan, 2019, SOLAS is building a coalition of global research programmes to form a scientific oversight community on climate intervention.

- The Implementation team will develop small teams on lighthouse projects, seek more expertise on solar radiation management and a co-leader for the solar radiation management topic, and identify a co-leader for the carbon dioxide removal topic.
- Current lighthouse projects include a) regional WGs in measurements, reporting, and verification; and (2) a SOLAS-Carbon Dioxide Removal Model Intercomparison Project (CDRMIP) joint project led by Philip Boyd and Cliff Law.

Science and Society

- A workshop focusing on the three emerging topics of harmful algae blooms, microplastics, and nature-based climate solutions with about 40 participants is being planned for mid-2024, maybe back-to-back with the SRI2024 in Helsinki, Finland.

IV. Summary of 2022-2023 SOLAS organisation and activities

IV.a. New organisational structure

SOLAS Southeast Asia Regional Panel

Following the online workshop on Surface Ocean and Lower Atmosphere Study in Southeast Asia on 23 Aug. 2022, the SOLAS Southeast Asia Regional Panel was successfully launched in Mar 2023 to promote the development of SOLAS research in Southeast Asia, identify possibilities and coordinated methods to foster research collaboration among SOLAS-related researchers in Southeast Asia; monitor and report annually on the development of SOLAS-related research, and identify research gaps in Southeast Asia. The panel currently consists of eight members from six Asian countries, co-chaired by Mohd Talib Latif and Iskhaq Iskandar.

Watch the workshop recording on the [SOLAS YouTube Channel](#) or read the SOLAS Event Report [Issue 28](#) on the workshop.

SOLAS Early Career Scientist Committee

The ECSC has been successfully established since Jan. 2023, which consists of 16 early career scientists from 15 countries worldwide, chaired by Joan Lloret. The committee acts as a strategic and operational body to coordinate and champion early career activities within the framework of SOLAS science under the supervision of the SSC and IPO.

Activities of the committee

- ESCS Scoping Workshop, online, 19-21 Apr. 2023
 - Topics of the workshop: 1) SOLAS science beyond 2025, 2) Equity and Diversity, and 3) Committee organisation.

- SCOR China annual meeting, 5-6 Jun 2023, Fuzhou, China
- Auxiliary Event at Association for the Sciences of Limnology and Oceanography (ALSO) 2023, Palma de Mallorca, Spain, 4-9 Jun. 2023
- Participation in WCRP annual meeting, Brussels, Belgium, 8-12 May 2023
- FLARE Workshop, Bermuda, USA, 18-21 Sep. 2023
- Side Event at WCRP OSC, Kigali, Rwanda, 23-27 Oct. 2023
- SOLAS session at AGU, San Francisco, USA, 11-15 Dec. 2023
- UN Ocean Decade endorsement application on Aerosol Exchange with Marine Ecosystems: targeting next call

IV.b. New capacity building programme

SOLAS Master Programme

<https://www.solas-int.org/events/solas-masters-programme.html>

The newly developed SOLAS structured research Master programme on Ocean, Atmosphere and Climate ([MSC-OAC](#)) started in its 1st round in Sep. 2022 and will run in its 2nd round from Sep. 2023. Due to various reasons, the 2022 round had one student but it is planned to have more in the following years. The programme focusses on SOLAS science and combines both, taught and research elements. The research aspect is developed in collaboration with SOLAS and involves a 7-month research placement. The course structure is based on a 90 ECTS model, with 20 ECTS from four core modules and two optional modules (5 ECTS each). A research project accounts for the remaining 60 ECTS. Since Jessica Gier left the position, Peter Croot (also nat rep of Ireland) will take over the programme director position, while Jurgita Ovadnevaite remains as the programme coordinator.

IV.c. Event organisation and participation

SOLAS Summer School

Since the first SOLAS summer school (2003) in Cargèse, France, the SOLAS summer school became a regular and productive event (for both science and networking). SOLAS is proud to have offered 9 schools between 2003 and 2023, involving over 600 international students and produced a textbook (Le Quéré and Saltzman 2009). SOLAS is contributing to SDG 5 (Gender equality), with a gender balance of 55% females to 45% males in SOLAS Summer School participants. In 2022, SOLAS launched a virtual version of the school, 13-17 Jun., which hosted 62 students and involved 31 lecturers.

The 9th SOLAS Summer School took place at the [Ocean Science Centre Mindelo](#), Mindelo, Cape Verde from 5-16 Jun. 2023 (see the [event website](#) for more details). An outreach event was organised on 17 Jun. 2023. The school hosted 66 students from 25 countries and 30 lecturers, practical demonstrators, and organisers. The summer school included lectures on the fundamentals of ocean and atmosphere sciences, such as atmospheric physics and chemistry, global carbon cycling, remote sensing and modelling, as well as more specialised topics like, upwelling, marine aerosols, polar oceans, climate intervention as well as science and society interactions, diversity and ethics in SOLAS research. Poster sessions allowed the students to share their research and network with their peers and the lecturers. Practical sessions focused on specific aspects of SOLAS science, such as air-sea exchange, experiments on the sea-surface microlayer, modelling, remote sensing, and science communication. An alumni-dominated organising committee carried the success of the

SOLAS Summer School forward, with Christa Marandino from GEOMAR, Kiel, Germany as the director of the summer school.

SOLAS Open Science Conference

SOLAS has organised a series of highly successful Open Science Conferences (OSCs). During the OSCs, SOLAS scientists debate pressing science questions during discussion sessions and brain storm about new initiatives during targeted workshops.

The 8th SOLAS OSC was held on 25-29 Sep. 2022 in Cape Town, South Africa. With its first hybrid Open Science Conference, SOLAS offered the ideal programme for scientists who wish to learn and exchange about innovative research in the field, present their own findings, and connect with colleagues from all over the world. See more details at the [conference website](#).

The 9th SOLAS OSC will be held 11-15 Nov. 2024 in a hybrid format in Goa, India. Back-to-back with the OSC, SOLAS-related groups can suggest a workshop or side-event, taking place 8-10 Nov. 2024. The Early Career Scientist Day will take place on 11 Nov. 2024.

SOLAS Seminar Series

The SOLAS Seminar Series is a quarterly event, which is structured around SOLAS relevant topics covered by the SOLAS 2015-2025 Science Plan and beyond, with the aims of fostering discussions on innovative scientific questions, providing researchers at all career stages with the opportunity to interact and building SOLAS community across the globe. Since being launched in Apr. 2022, five seminars have been organised, which attracted nearly 1000 researchers from over 30 countries. The recordings are available on the [SOLAS YouTube Channel](#).

- Seminar I: Interconnections between aerosols, clouds and marine ecosystems, 29 Apr. 2022
- Seminar II: Atmospheric deposition and ocean biogeochemistry: in situ observation, processes studies and modeling approach, 12 Jul. 2022
- Seminar III: Ocean-atmosphere exchange of aerosol particles: impact on marine ecosystems, 19 Oct. 2022
- Seminar IV: The ABC's of the sea surface microlayer: Aerosols, Bubbles, and Composition, 27 Jan. 2023
- Seminar V: Sulfur cycling at high latitudes: New discoveries and challenges, 13 Mar. 2023

Other events

- Conference on Eastern Boundary Upwelling Systems (EBUS): Past, Present and Future & 2nd International Conference on the Humboldt Current System, Lima, Perú, 19-23 Sep. 2022
- SOLAS SSC meeting, hybrid in Cape Town, South Africa, 30 Sep.-2 Oct. 2022
- GESAMP WG 38 - SOLAS workshop on Atmospheric Input of Chemicals to the Ocean - Management Implications, Gqeberha, South Africa, 4-7 Oct. 2022
- COP27 side event on the impact of increasing fire activity on the Earth System and society, in-person/hybrid, Sharm El-Sheikh, 7-18 Nov. 2022
- SOLAS Side Event at 2022 World Ocean Week, Xiamen, China and Online, 11 Nov. 2022
- SOLAS session and town hall at the co-sponsored Sixth Xiamen Symposium on Marine Environmental Sciences (XMAS-VI), hybrid in Xiamen, China, 9-12 Jan. 2023
- BEPSII annual meeting, La Jolla, California, following the Gordon Research Conference in Polar Marine Sciences, 12-14 Mar. 2023
- ESA-SOLAS workshop on Eddy covariance measurements, London, UK, 28-30 Mar. 2023

- EGU General Assembly, SOLAS session on Air-sea chemical fluxes: impacts on biogeochemistry and climate, Vienna, Austria & Online, 23-28 Apr. 2023
- WCRP annual meeting, Brussels, Belgium, 8-12 May 2023
- SOLAS Latin America workshop, Biogeochemical Research on marine Latin-American coastal zones-Towards a Marine Biogeochemical Latin-American Network, online, 26 May 2023
- BEPSII session at the International Glaciological Society Sea-Ice Symposium, Bremen, Germany, 4-9 Jun. 2023
- Bonn Climate Change Conference, Bonn, Germany, 5-15 Jun. 2023
- SCOR China annual meeting, 5-6 Jun. 2023, Fuzhou, China
- 21st International Conference on Nucleation and Atmospheric Aerosols (ICNAA), SOLAS/ICNAA joint session on Interconnections between marine ecosystems, aerosols, clouds and atmospheric chemistry, Brisbane, Australia, 26-30 Jun. 2023
- Sustainability, Research & Innovation (SRI) Congress 2023, Panama City, Panama, 26-30 Jun. 2023
- Future Earth Assembly, Panama City, Panama, 29-30 Jun. 2023

IV.d. Communications

Website: <http://www.solas-int.org/>

Newsletter: 12 SOLAS newsletters have been sent to over 1200 SOLAS scientists since the last SCOR report. The monthly newsletter releases compile scientific highlights, news from SOLAS, opportunities for meetings, abstract submission deadlines, recent publications, vacancies, and news from relevant partner projects and collaborators. Past issues can be viewed on the SOLAS website: <https://www.solas-int.org/news/newsletter-archive.html>

Event Report series: Reports on SOLAS sponsored or co-sponsored events are published after each SOLAS-sponsored event. These reports are sent to the SOLAS sponsors and other interested parties and are released in combination with the monthly Newsletters.

<https://www.solas-int.org/publications/event-reports.html>

The following reports were published since the last reporting:

- [Issue 25](#). 8th International Symposium on Gas Transfer at Water Surfaces, 17-20 May 2022, Plymouth, UK and online.
- [Issue 26](#). SOLAS Virtual Summer School 2022, 13-17 Jun. 2022, online.
- [Issue 27](#). 8th SOLAS Open Science Conference, 25-29 Sep. 2022, hybrid in Cape Town, South Africa.
- [Issue 28](#). Online Workshop on Surface Ocean and Lower Atmosphere Study in Southeast Asia, 23 Aug. 2022, online.
- [Issue 29](#). Open Science Conference on Eastern Boundary Upwelling Systems (EBUS): Past, Present and Future & Second International Conference on the Humboldt Current System, 19-23 Sep. 2022, Lima, Peru and online.
- [Issue 30](#). GESAMP WG 38 - SOLAS workshop on Atmospheric Input of Chemicals to the Ocean - Management Implications

Twitter: Regular posts (currently 1953) and the number of followers is steadily increasing (currently 1640). [@SOLAS_IPO](#)

ResearchGate: Unfortunately, ResearchGate disbanded the project section on their platform. SOLAS is looking into options for a similar application.

YouTube: SOLAS YouTube channel (122 subscribers) includes videos of the seminar series (5 videos, 1149 views in total), the 2022 virtual summer school (5 videos, 344 views in total), and workshops (2 videos, 1029 views in total). <https://www.youtube.com/channel/UCXrW8qhTFH54mgWoVJ0h2Og>

Flickr: SOLAS public photo stream shows pictures (currently 68) of the most recent SOLAS events and SOLAS related research. In addition, SOLAS distributes event pictures (currently 344) among participants via private links. <https://www.flickr.com/photos/182357030@N02>

Summer School alumni survey: The IPO is working on the final publication of the results.

Outreach: SOLAS figures, conceptual diagrams, 3-fold SOLAS flyer, and logos are available for download from the SOLAS website. <https://www.solas-int.org/publications/downloads.html>

Presentation: A SOLAS presentation is available upon request from the IPO.

IV.e. Publications

Key integrative SOLAS publications from 2022 and 2023 are summarised on the SOLAS website: <https://www.solas-int.org/publications/publications.html>

IV.f. National and regional networks / regional panel

Currently SOLAS has 33 scientific National and Regional Networks coordinated by 36 Representatives and one Regional Panel. The representatives are listed on a separate website at <https://www.solas-int.org/index/networks.html>, which now includes their profile pictures, affiliations, website links, and information on expertise. The annual reports are now under “Publications” at <https://www.solas-int.org/publications/national-regional-reports.html>.

The representatives report annually on SOLAS-related activities. The information contained in the reports is a valuable source of information for the IPO to report to sponsors but also to facilitate coordination and dissemination of results and progress from national projects to the rest of the SOLAS community. Information provided through the reports is also used by the Scientific Steering Committee to develop the implementation strategy.

Since the last annual report, SOLAS established a South East Asia regional panel and recruited new representatives for Brazil, Chile, Denmark, Finland, Italy, Peru, Portugal and Spain. SOLAS is also working on the establishment of regional networks in South America. We wish to get the representatives more engaged in SOLAS, e.g., recruiting them to the Implementation Teams and soliciting them to organise the SOLAS seminars. A representative’s dinner was organised at the 2022 OSC and will be organised again at the OSC 2024.

Current networks:

- Australia: Andrew Bowie and Ruhi Humphries
- Belgium: Nathalie Gypens
- Brazil: Raquel Oliveira **new rep**
- Canada: Martine Lizotte → *Looking for replacement*
- Chile: Alexander Galán Mejía **new rep**
- China (Beijing): Huiwang Gao

- China (Taipei): Chonlin Lee
- Denmark: Carolin Löscher **new rep**
- Finland: Heidi Pettersson **new rep**
- France: Rémi Losno
- Germany: Christa Marandino and Hartmut Herrmann
- Greece: Alexandra Gogou
- India: Sheryl Oliveira Fernandes
- Israel: Yoav Lehahn
- Ireland: Peter Croot
- Italy: Luisa Galgani **new rep**
- Japan: Yuzo Miyazaki
- Korea: Kitack Lee
- Mexico: Jose Martin Hernandez Ayon
- Netherlands: Jan-Berend Stuut
- New Zealand: Holly Winton
- Norway: Siv Lauvset
- Peru: Ivonne Montes **new rep**
- Poland: Timon Zielinski
- Portugal: Catarina Guerreiro **new**
- South Africa: Brett Kuyper
- South East Asia Regional Panel: Co-Chairs Mohd Talib Latif & Iskhaq Iskandar **new**
- Spain: Jordi Dachs **new rep**
- Sweden: Paul Zieger
- Turkey: Baris Saglihoglu, Mustafa Koçak, Nazli Olgun
- United Arab Emirates: Diana Francis
- UK: Philippa Rickard
- USA: Rachel Stanley

IV.g. Current endorsed projects and time series – ongoing

- May 2023: Ocean Observatories Initiative ([OOI](#))
- Jul. 2022: (Biogeochemical processes and Air–sea exchange in the Sea-Surface microlayer ([BASS](#)))
- Apr. 2022: Carbon Storage in German Coastal Seas - Stability, Vulnerability and Perspectives for Manageability ([CARBOSTORE](#))
- Jan. 2022: [Carbon-FE](#) - Carbon Fixation and Export in oligotrophic ocean
- Sep. 2021: [Marine Carbon Sink](#) - Quantifying and Predicting Canada's Marine Carbon Sink ,
- Jun. 2021: Climate Relevant interactions and feedbacks: the key role of sea ice and Snow in the polar and global climate system ([CRiceS](#))
- Apr. 2021: Breathing Oceans: understanding the organic skin that modulates the exchange of greenhouse gases between the atmosphere and the ocean ([BOOGIE](#))
- Nov. 2020: Global shipping: Linking policy and economics to biogeochemical cycling and air-sea interaction ([ShipTRASE](#))
- Jul. 2020: Penlee Point Atmospheric Observatory ([PPAO](#))
- Jul. 2020: [Boknis Eck](#) Time-Series Station

- Apr. 2020: Shipping Emissions in the Arctic and North Atlantic Atmosphere ([SEANA](#))
- Dec. 2019: Are marine microorganisms influencing clouds? ([Sea2Cloud](#))
- Nov. 2019: Atmospheric Composition and Radiative forcing changes due to UN International Ship Emissions regulations ([ACRUISE](#))
- Oct. 2019: Atlantic Meridional Transect Ocean Flux from Satellite Campaign ([AMT4oceanSatFlux](#))
- Jun. 2016: [Tudor Hill](#) Marine-Atmospheric Observatory,

Information on all endorsements (also completed ones) and the formal application processes is available on the [SOLAS website](#).

IV.h. Metadata portal

The [SOLAS metadata portal](#) was set up by the SOLAS project integration initiative (2007-2013) with the intention to help SOLAS scientists identify what data exist, where they are stored, and the data originators. The portal is hosted by the BODC, and the metadata files are stored on the international standard Global Change Master Directory (GCMD).

IV.i. Income and expenses for the past year and budget for the coming year

Including funding from all sources

- [Co-executive director](#) salary, office space and in kind provided by University of Galway from Jan. 2022-Dec. 2026.
- [Co-executive director](#) salary, office space and in kind provided by MEL from Jan. 2021-Dec. 2025.
- [Project officer](#) salary, office space and in kind provided by MEL, Jun. 2021-May. 2026.

NSF/SCOR funding

- US-NSF via SCOR 55,6kUSD to use for activities, Sep. 2021-Aug. 2024.
- Project officer salary of 120kUSD provided by US-NSF via SCOR and office space/in kind by GEOMAR until Jan. 2024.
- Due to a misunderstanding, SOLAS has a money shortage because SOLAS did not receive funds for general activities from NSF in the 1st year of the funding period.
- We were able to transfer the leftover of Esther's project officer salary, 41,7kUSD, to the general SOLAS activities pot.
- Still, SOLAS is lacking of funding and we should postpone the 2024 SSC meeting to after Sep 2024, when we (hopefully) received another US-NSF via SCOR fund.

Future Earth

- Annual block grant of 10kEUR in 2021, 5kEUR in 2022 and 6kEUR in 2023, without strings attached. SOLAS did not receive the above funds yet bank transfer issues.

WCRP

- Provides funding for the travel of the WCRP representative on the SSC (Lisan Yu) to attend the SOLAS SSC meeting.

Income, expenses and budget for Aug. 2022 until Jun. 2023:

FROM SEP 2022 (in EUR)							
INCOMES						Credit (EUR)	Debit (EUR)
	Funds from National University of Ireland Galway for salary					77.000	
	Funds from NSF via SCOR for project officer salary (Sep 2022-Apr 2023)					29.400	
	Funds from MEL for salary					68.900	
	NSF fund via SCOR leftover from project officer salary					38.800	
	NSF fund via SCOR remaining until Sep 2024					19.800	
	Unrestricted funds from SOLAS activities (e.g. reg. Fees, CMC) at SCOR					20.800	
	OSC 2023 total income					60.000	
	NSFC fund - for SOLAS China activities					45.000	
	Xiamen Marine International Cooperation Center fund - for summer school					14.000	
	IUGG fund via iCACGP for summer school					2.300	
	OCB fund for summer school					800	
	Future Earth block grant 2023					5.000	
	Future Earth block grant 2022					5.000	
	Future Earth block grant 2021					10.000	
	ESA-FE fund for FLARE workshop only					18.000	
	CRNS fund 2023					8.000	
Total Income						422.800	
EXPENSES						Credit (EUR)	Debit (EUR)
IPO	Salaries						175.300
	Representational travel IPO (incl travel to SSC mtgs)						4.050
	SOLAS relevant Chinese activities (incl travel to SSC mtgs)						33.300
	Representational travel ECSC						3.000
Events	OSC 2022 South Africa						65.600
	SSC meeting 2022						19.000
	GESAMP workshop						3.000
	COP27						1.800
	Eddy Covariance workshop						6.000
	BEPSII support						5.000
	IOC-R support						2.000
	SSC meeting 2023						13.300
	SOLAS Summer School 2023						17.100
	FLARE Workshop						18.000
Publications	SOLAS Website subscription 2022						150
Total Expenses							366.600
Balance							56.200
Note:	This does not include the following items:						
	In kind from GEOMAR, MEL, and University of Galway with office space/computer/printing/administration etc.						

V. Update on the SSC, ECSC, and IPO

V.a. Scientific Steering Committee

Minhan Dai (M, China) and Cecile Guieu (F, France) are the SOLAS SSC co-chairs. Both will finish their terms in December 2023. A chair search committee was put together to nominate a new chair or co-chairs. The procedure and time line were approved by the SSC and sponsors. SOLAS plans to have the new co-chairs approved by Aug. 2023.

SOLAS has an Executive Committee composed of the Co-chairs Minhan Dai (China) and Cecile Guieu (France), Katy Altieri (F, South Africa), and Jurgita Ovadnevaite (F, Ireland).

The following SSC members will rotate off at the end of 2023:

- Arne Körtzinger (M, Germany)
- Katy Altieri (F, South Africa)
- Santiago Gassó (M, USA)
- Talib Latif (M, Malaysia)

The following members will finish their 1st terms at the end of 2023:

- Marcela Cornejo (F, Chile), expressed the willingness to rotate off after the 1st term,
- Maria Kanakidou (F, Greece)

The current membership of the SOLAS SSC is 17 members including the co-chairs:

Last name	First name	Country of employment	Gender	Scientific expertise	SOLAS expertise	Term	End
Dai	Minhan	China	M	C and nutrient bgc, trace metals, ocean acidification	Co-chair, Theme 1, Coastal ocean	1	2023
Singh	Arvind	India	M	C, N, P bgc cycles, stable isotope tracers	Theme 1, Indian Ocean	1	2024
Körtzinger	Arne	Germany	M	C cycle, Ocean observation	Theme 1, Upwelling	2	2023
Cornejo	Marcela	Chile	F	Nutrient and greenhouse gases cycling, upwelling	Theme 1, Upwelling	1	2023
Steiner	Nadja	Canada	F	Bgc of trace gases	Theme 1, Polar Ocean BEPSII liaison	1	2025
Bach	Lennart	Australia	M	Marine bgc, C cycle	Theme 1, Climate intervention	1	2025
Bell	Thomas	UK	M	Air-sea chemistry & gas exchange; bgc cycles; modelling	Themes 2 and 3 ESA connection	1	2024

Yu	Lisan	USA	F	Air-sea physical interaction, Remote Sensing	Theme 2, WCRP rep	1	2025
Latif	Mohd Talib	Malaysia	M	Microlayer, atmospheric aerosols	Themes 2 and 5	2	2023
Guieu	Cecile	France	F	Atmospheric chemistry, trace elements, C cycle	Co-Chair Themes 2 and 3	1	2023
Altieri	Katye	South Africa	F	Atmospheric molecules, climate policy	Themes 3 and 5, Polar oceans, Science & Society CATCH liaison	2	2023
Gassó	Santiago	USA	M	Remote sensing, aerosols, dust transport	Themes 3 and 4, NASA connection	2	2023
Ovadnevaite	Jurgita	Ireland	F	Aerosol chemistry, physics and cloud processes	Themes 4 and 5	2	2024
Kanakidou	Maria	Greece	F	Atmospheric modelling and pollutants	Themes 4 and 5, iCACGP connection	1	2023
Mahajan	Anoop	India	M	Atmospheric chemistry, halogens, climate modelling	Theme 5, Indian Ocean	2	2024
Llort	Joan	Spain	M	ocean bgc, aerosols, biological C pump	Theme 3, Chair of Early Career Scientist Committee	1	2025
Raspotnik	Andreas	Norway	M	Arctic policies, blue Arctic economy, Arctic geopolitics & security	Science and Society	1	2025

The current gender and country balance of the SSC for 2 co-chairs and 15 members:

- 7 female members and 10 male members
- 5 members from developing countries and 12 from developed countries

V.b. Early Career Scientist Committee

The SOLAS Early Career Scientist (ECS) Committee was launched in Jan. 2023 based on the decisions of 22nd and 23rd SSC meetings. The current membership of the Committee is 16 members including the chair:

Last name	First name	Country of employment	Gender	Scientific expertise
Llort	Joan	Spain	M	ocean bgc, aerosols, biological carbon pump
Baccarini	Andrea	Switzerland	M	atmospheric chemistry, aerosols, field measurements
Dinasquet	Julie	USA	F	microbial VOC cycling, bioaerosol, atmospheric deposition
Duke	Patrick	Canada	M	air-sea gas flux, carbon cycle, machine learning
Galgani	Luisa	Germany	F	ocean bgc, sea-surface microlayer, marine gels & microplastics
Hamilton	Douglas	USA	M	Earth system modelling, natural aerosols, wildfires
Jaars	Kerneels	South Africa	M	atmospheric chemistry, atmosphere/biosphere interaction, atmospheric deposition
Kurisu	Minako	Japan	F	atmospheric chemistry, ocean chemistry, trace metals
Kvale	Karin	New Zealand	F	ocean bgc, climate modelling, ecological microplastic impacts
Leyba	Inés	Argentina	F	air-sea interaction, sea surface temperature, South Atlantic
Marshall	Tanya	South Africa	F	ocean bgc, nitrogen cycling and fluxes
Oliveira	Raquel	Brazil	F	ocean bgc, air-sea CO ₂ fluxes, remote sensing
Perron	Morgane	France	F	atmospheric bgc, trace metals, Southern Hemisphere
Tham	Yee Jun	China	M	atmospheric chemistry, halogen cycling, chemistry in air-sea gas exchange
Tinel	Liselotte	France	F	volatile organic compounds, surface microlayer, iodine
Xue	Lei	USA	M	marine photochemistry, marine organosulfur and carbon cycle, sea spray aerosols

The current gender and country balance of the ECS Committee for 1 chair and 15 members:

- 9 female members and 9 male members
- 4 members from developing countries and 12 from developed countries

V.c. International Project Office

GEOMAR in Kiel, Germany

The SOLAS IPO was hosted at the GEOMAR Helmholtz Centre for Ocean Research Kiel in Kiel, Germany until Aug. 2021. The new US-NSF via SCOR annual grant allowed maintaining the project

officer position at GEOMAR on a half-time basis until May 2023. Esther Rickert left the SOLAS project officer position at GEOMAR on 30th Apr. 2023, which means that there is no SOLAS IPO representation at GEOMAR anymore.

[University of Galway, Ireland](#)

From Jan. 2022, the University of Galway, Ireland, hosts the IPO-Ireland and the co-executive director for 5 years with the possibility of an extension. The hosting agreement is connected to running a 1-year international SOLAS structured research MSc program on Ocean, Atmosphere and Climate (code [MSC-OAC](#)), which will run in its 2nd round from Sep. 2023. Jessica Gier left the SOLAS IPO co-executive director position on 30th Jun. 2023. Discussions on keeping the SOLAS IPO-Ireland by advertising a 50 % administrative project officer / MSc coordinator position and developing a MSc programme board are underway.

[State Key Laboratory for Marine Environmental Science \(MEL\) in Xiamen, China](#)

Minhan Dai (co-chair) from the State Key Laboratory of Marine Environmental Science (MEL), Xiamen University supports the SOLAS IPO-China. The co-executive director (Li Li) and the project officer positions are until Dec. 2025 and May 2026, respectively. Chengcheng Gao will leave the IPO project officer position by 15th Aug. and a new project officer will be employed to replace Chengcheng.

[Dual-IPO setup between Galway, Ireland and Xiamen, China](#)

While both SOLAS IPOs will fulfill separate responsibilities, they will closely collaborate and provide mutual support on major SOLAS tasks. Each IPO will be staffed and funded by their respective host institutions and manage the funds required for their responsibilities, staff, travel, and activities.