

Sabrina Speich – Curriculum Vitae



Full Professor of Physical Oceanography and Climate Sciences

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KEY WORDS: Climate sciences; Physical oceanography; Ocean changes and impact on climate at regional and global scale; Air–sea exchanges and changes; Shaping of the ocean dynamics and climate change on marine ecosystems.

EXPERTISE

I am a physical oceanographer with three decades of experience in modelling and conceiving large international observing projects to better assess ocean and climate processes and monitor changes. The approach I favored during the last 15 years is to promote interdisciplinary studies to understand the ocean nonlinear dynamics and its impact on biogeochemistry, marine biome and ecosystems and the atmosphere. I am also working together with the international community (within projects and organizations) to improve the ocean observing strategy and capacity. Indeed, the ocean is key to the future of humanity challenged by a rapidly changing climate.

I am full professor of Oceanography and Climate Sciences at the *École Normale Supérieure* (ENS¹) of Paris and I am member of the *Laboratoire de Météorologie Dynamique* (LMD²) and the French climate *Institute Pierre–Simon Laplace* (IPSL³).

I am actively participating, since the early 2000s in national and international organizations and programmes. My actual involvement in this framework is motivated by developing a fit–for–purpose global climate observing system. This materializes by co–chairing the Ocean Observations Panel for Climate (OOPC which is a panel under GOOS⁴, GCOS⁵ and WCRP⁶ programs sponsored by the UN⁷ and WMO⁸). I am also co–chairing the UN Decade of Ocean Sciences programme: Ocean Observing Co–Design⁹. I am also a member of the Scientific Steering Group developing the new Earth System Modelling and Observations¹⁰ core project of WCRP. In the past, I have been a member of the Scientific Committee on Antarctic Research (SCAR¹¹) and the co–chair of the Atlantic CLIVAR (Climate Variability and Predictability¹²) Regional Panel, which facilitates global climate research in the atmosphere and ocean with a focus on the Atlantic and pan–European regions.

In terms of my involvement in national organisms, beyond working as committee member of the CNU¹³, IRD¹⁴ and in the Scientific Council of the National Museum of Natural History (MNHN¹⁵), I am a member of the bureau of the National Committee for Marine, Maritime and Coastal Research (COMER), which is a specialized committee counseling the French National Council for the Sea

¹ <https://www.ens.fr>

² <http://www.lmd.jussieu.fr>

³ <https://www.ipsl.fr>

⁴ Global Ocean Observing System, <https://www.goosocean.org>

⁵ Global Climate Observing System, <https://gcos.wmo.int>

⁶ World Climate Research Program, <https://www.wcrp-climate.org>

⁷ United Nations

⁸ World Meteorological Organizations, <https://public.wmo.int/en>

⁹ https://www.goosocean.org/index.php?option=com_content&view=article&id=298&Itemid=433

¹⁰ <https://www.wcrp-climate.org/esmo-overview>

¹¹ <https://www.scar.org>

¹² <https://www.clivar.org>

¹³ Conseil National des Universités, <https://conseil-national-des-universites.fr/cnu/#/>

¹⁴ Commissions d'évaluation de l'Institut de Recherche pour le Développement

¹⁵ Museum National d'Histoire Naturelle, <https://www.mnhn.fr/en>

and Coasts¹⁶ and co-leading the framing of the French Open Ocean observing infrastructure (OHIS¹⁷).

EDUCATION

- 2008** “Diplôme d’Habilitation à diriger des Recherches” (HDR, equivalent to the D. Sc. in the United Kingdom, to the “Libera docenza” in Italy, to the German “Habilitation”) in Physical Oceanography and Climate Sciences, Université de Bretagne Occidentale, Brest, France;
- 1992** Ph.D. in Physical Oceanography, Université Pierre et Marie Curie, Paris;
- 1989** Laurea in Physics, Università degli Studi, Trieste, Italy.

APPOINTMENTS

- Since **2017** Associated Professor, SciencesPo, Paris, France;
- Since **2013** Full Professor (PR EX2), Department of Geosciences at the ENS & LMD-IPSL UMR 8539, Paris, France;
- 2009–2013** Full Professor, Department of Physics at the "Université de Bretagne Occidentale", & LPO, Brest, France;
- 1995–2009** Assistant Professor, Department of Physics at the "Université de Bretagne Occidentale", Brest, France.

HONORS AND AWARD (SELECT):

- 2019** Awarded the Albert Defant Medal by the German Meteorological Society (DMG: <https://www.dmg-ev.de/aktivitaeten/auszeichnungen/albert-defant-medaille/>)
- Since **2002** Awarded, every 4 years, of the National Ph.D. and Research Supervising Grant
- 1994–1995** Research associate, LOCEAN, CNRS, Paris, France
- 1992–1994** Postdoctoral researcher, Department of Atmospheric Sciences, UCLA, CA, USA

RECENT RESPONSABILITIES IN INTERNATIONAL COMMITTEES

- Since **2021** Co-chair, Ocean Observing Co-Design (ObsCoDe): A Programme under the UN Decade of Ocean Science for Sustainable Development (<https://www.oceandecade.org/>);
- Since **2021** WCRP ESMO SSG Member;
- Since **2021** GCOS Joint Study Group Member;
- Since **2021** WCRP CLIVAR-AMOC Science Team member;
- Since **2020** Co-chair, Ocean Observations Physics and Climate panel;
- 2018–2021** Co-chair of the Tropical Atlantic Observing System review committee;
- 2015–2021** Co-chair, WCRP Atlantic CLIVAR Panel;
- 2018–2019** *Misión Internacional de Sabios*¹⁸, member by invitation of the Vice-President of the Colombian Government.
- 2017–2019** Programme Committee Co-Chair, OceanObs’19, An Ocean of Opportunity (www.oceanobs19.net);
- 2017–2019** Scientific Committee of the Institut Henri Poincaré Trimester “The Mathematics of Climate and the Environment”¹⁹
- 2017–2019** Programme Committee Co-Chair, OceanObs’19, An Ocean of Opportunity²⁰;
- Since **2014** Member of the Scientific Council of the Ocean & Climate Platform²¹;
- 2012–2019** International Scientific Committee on Antarctic Research (SCAR), Member;
- 2008–2011** Co-chair of the SCAR/CLIVAR/CliC Southern Ocean Observing System (SOOS) panel.

¹⁶ <https://mer.gouv.fr/conseil-national-de-la-mer-et-des-littoraux-cnml>

¹⁷ https://wwz.ifremer.fr/ir_ohis_en/

¹⁸ https://minciencias.gov.co/mision_sabios

¹⁹ www.geosciences.ens.fr/CliMathParis2019.fr

²⁰ www.oceanobs19.net

²¹ <http://www.ocean-climate.org/?lang=en>

RECENT RESPONSABILITIES IN NATIONAL COMMITTEES

- Since **2020** Member of the bureau of the Institute of Mathematics for the Planet Earth (IMTP²²)
- Since **2014** Member of the CNU section 37 expert committee
- 2016–2019** Member of the “Comité spécialisé pour la recherche marine, maritime et littorale”, of the Council of the Sea and Coastal Ocean, Under the auspices of the Ministries of Research and Ecology,
- 2017–2019** Co–Chair Climate–Ocean of the Pilote Committee 1 of the French National Agency for Science (ANR)
- 2014–2019** Member of the IRD CSS1 committee
- 2014–2019** Member of the Research Council of the University Paris Sciences Lettres (PSL)
- 2012–2014** Member of the bureau; Scientific Council of the University of Brest (UBO)

RECENT RESEARCH PROJECT RESPONSABILITIES AT INTERNATIONAL LEVEL

- Since **2022** WP co–leader of the Ocean:Ice Europe 2030 project.
- Since **2020** Coordinator of the EUREC4A–OA JPI Ocean & Climate project international project (<http://www.jpi-oceans.eu/news-events/news/eurec4a-project-launches-its-first-international-campaign-barbados-exploring-ocean/>);
- Since **2018** Working Package Leader and Member of the Executive Committee of the EU H2020 EuroSea Project (<https://eurosea.eu>);
- Since **2018** Task Leader of the EU H2020 TRIATLAS Project (<https://triatlas.w.uib.no>);
- Since **2017** PI of the EUREC4A–OA international project (<http://eurec4a.eu/index.php?id=5201>);
- 2015–2019** Working Package Leader and Member of the Executive Committee of the EU H2020 AtlantOS Project (<https://www.atlantos-h2020.eu>);
- 2014–2019** Co–PI of the International Project: SOCLIM – Southern Ocean And CLIMate field studies with innovative tools (<http://soclim.com>);
- Since **2007** Co–chair of the “A monitoring system for heat and mass transports in the South Atlantic as a component of the Meridional Overturning Circulation (SAMOC) International initiative” (http://www.agence-nationale-recherche.fr/en/anr-funded-project/?tx_lwmsuivibilan_pi2%5BCODE%5D=ANR-11-IS56-0004 and <http://www.aoml.noaa.gov/phod/research/moc/samoc/>);
- 2003–2018** PI of the international CLIVAR Project ‘GOODHOPE / Southern Ocean : Monitoring the Indo–Atlantic connections. An international co–operative project. A process study and a contribution to CLIVAR – Southern Ocean” (<http://www.coriolis.eu.org/Science2/Atlantic-Ocean/GOODHOPE-SAMOC>);

PARTICIPATION IN ADVISORY BOARDS AT INTERNATIONAL LEVEL

- Since **2021** PAG member, Changing North Atlantic, NERC, UK and NSF, USA;
- Since **2019** ISC member, Centro Nazionale della Ricerca (CNR), Rome, Italy;
- Since **2017** SAB member, GEOMAR Helmholtz Centre, Kiel, Germany (<https://www.geomar.de/>);
- Since **2017** PAG member, ORCHESTRA–ROSES BAS projects (<https://www.bas.ac.uk/project/orchestra/>);
- Since **2015** Member of the Scientific Council of the Ocean–Climate Platform (<https://ocean-climate.org/?lang=en>)
- 2015 – 2021** SAB member, Centro Euro–Mediterraneo sui Cambiamenti Climatici (CMCC: <https://www.cmcc.it/>);

²² Institut des Mathématiques pour la Planète Terre, <https://impt.math.cnrs.fr>

SCIENTIFIC TRAINING SERVICES

I have trained 15 PhD and 14 postdoctoral researchers and more than 30 Master students. I have been invited in 40 PhD external (10 international) thesis jury as examiner.

Since **2023** Member of the Scientific Council, ENS

Since **2014** Member of the Doctoral School College, ED129 – Climate Sciences, IPSL, Paris

2014–2019 Dean of Studies of the Geosciences Department, ENS

2010–2013 Deputy Director of the Doctoral School on Marine Sciences, IUEM, UBO, Brest, France

2010–2013 Deputy Director, Department of Physics at the "Université de Bretagne Occidentale", Brest, France

PUBLICATIONS

I have published more than 100 publications on international journals, have been invited to over 40 conferences as a keynote speaker, and I have led several national and international research projects. Among them there are multidisciplinary contributions to Nature and Science. My publication record showcases my scientific interdisciplinary approach. My current h-index is: 40 (Web of Science), 43 (Scopus), 45 (Semantic Scholar), 52 (Google Scholar).

<http://orcid.org/0000-0002-5452-8287>

<https://www.scopus.com/authid/detail.uri?authorId=6602115663>

<https://loop.frontiersin.org/people/457867/network>

<https://www.webofscience.com/wos/author/record/747772>

<https://scholar.google.fr/citations?user=G0VWQsEAAAAJ&hl=fr&authuser=1>

<https://www.semanticscholar.org/author/S.-Speich/2154189>

KEYNOTES AND CONFERENCES

I gave many invited talks and seminars at international conferences, workshops and institutes. These include keynotes at different Ocean Sciences, AGU and EGU conferences and lectures in various Academic Institutions such as MIT, WHOI, Scripps, UCLA, URI, GEOMAR, the French Ministries of Research and Ecological Transition, the Collège de France and ENS. I have been the chair/co-chair of scientific committees for various conferences, workshops and specific high-level events. Among others: OceanObs19 (Hawaii, 2019: <https://www.oceanobs19.net>; 1500 participants), the 2nd Climate Observations Conference (Germany, 2022: <https://gcos.wmo.int/en/news/important-2nd-climate-observation-conference-17-19-october-2022-darmstadt-germany-submit-your>; 300 participants), the "Ocean Mesoscale Eddy Interactions with the Atmosphere" CLIVAR workshop (Oregon, 2018; Robinson et al. 2018; 50 participants upon invitation); the Trimester on "Mathematics for Climate and the Environment" (Paris, 2019: <https://www.ihp.fr/en/news-research-activities/t3-2019-mathematics-climate-and-environment>).

RECENT OCEANOGRAPHIC CRUISES

Yearly Short (1 week) training cruise for the ENS Master students

2020 EUREC4A-OA cruise, January – February 2020, Tropical North Atlantic, RV Atalante Chief Scientist.

2017 SAMOC/AtlantOS MSM60 cruise, January 2017 South Atlantic, RV Merian Co-Chief Scientist.

2016 AtlantOS M124 cruise, February–March 2016 South Atlantic, RV Meteor. Co-Chief Scientist.

2012 Oceanographic cruise TARAOCEANS RV Tara. Co-PI Physical Oceanography and Climate.

2008 Oceanographic International Polar Year cruise BONUS-GOODHOPE RV Marion Dufresne de l'Institut Polaire Français Paul Emile Victor. Chief Scientist.

INTERNATIONAL COLLABORATIONS

Due to my implication with major national and international projects, programmes and organizations, I have an extensive network of collaborations. In France, I am working with ocean and atmospheric experts from all institutions. In Europe I have been collaborating with many institutions in different countries (Belgium, Ireland, Italy, Germany, Norway, Portugal, Spain, Sweden, the Netherlands, United Kingdom) stemming from different EU projects (AtlantOS, EUREC4A, EuroSea, TRIATLAS, Ocean:Ice for the most recent). Within those projects and the longstanding GoodHope and SAMOC international initiatives, I have been actively collaborating with many pan-Atlantic institutions from Argentina, Brazil, Canada, South Africa, United States, Uruguay.

TEACHING ACTIVITIES

I teach since 1995 in the Departments of Physics and Geosciences of the Universities I have been working for at the Master and Doctoral level. Nowadays, I teach 3 courses of Physical Oceanography and Climate Sciences at the ENS and 2 at SciencesPo. I regularly teach as Invited Professors in foreign universities. I also regularly organize Summer Schools: Recent Summer schools organization: CLIVAR-FIO Summer School on Ocean Macroturbulence and Its Role in Earth's Climate, 6–11 July 2022, Qingdao, China. Summer School on “The Physics of the Ocean”, 2–10 July 2023, Bad Honnef, Germany; Summer School on “The Mathematics for Climate and the Environment”, 5–9 September 2019, Cargese, France.

OTHER SELECTED PROFESSIONAL ACTIVITIES (RECENT ONLY)

Journal reviewer: Nature, Science, J. Geophys. Res., Geophys. Res. Letters, PLOS ONE, J. of Ocean and Atmos. Technology, J. of Phys. Oceanogr., Physica D, J. Mar. Sciences, Ocean Sciences, Biogeoscience, J. Climate.

Proposal reviewer: National Science Foundation (Physical and biogeochemical Oceanography, Climate variability and changes), NASA, NOAA, South African National Research Council, CNES (French Space Agency), CNRS (French National Science Foundation), French Ministry for Research (ANR).

Session organizer at International Conferences: IAPSO-IAMAS-IAGA Conference 2017; Ocean Sciences Conference 2010 & 2018 ; AGU Meeting of the Americas 2013, EGU General Assembly 2009, SCAR Open Science Conference.

Organization of International Workshops and Conferences: Co-organizer, Advanced Workshop on “Submesoscale Dynamics”, LabexMer, Brest, France, November 2011. Advanced Workshop on “Conceiving a Submesoscale Experiment South of Africa”, ACCESS, Cape Town, South Africa, June 2012; Co-organizer SYNBIOS: Submesoscale dYnamics and BIology on steep Slopes Workshop; <http://www-iuem.univ-brest.fr/synbios/workshop2015>, ENS (2015); Workshop on mesoscale eddies , February 2018 in parallel of the Ocean Science conference, in Portland, OR, USA; Organizer and chair of two Tropical Atlantic Observing System Review workshop: Portland (Oregon, USA), February 2018 and Marseille (France), October 2018. Programme committee Co-chair, OceanObs'19, September 2019, Honolulu (Hawaii). Chair of the 2nd Global Climate Observing System Conference, Dec 4–9 2022, Darmstadt, Germany.

Summer schools organization: CLIVAR-FIO Summer School on Ocean Macroturbulence and Its Role in Earth's Climate, 6–11 July 2022, Qingdao, China. Summer School on “The Physics of the Ocean”, every 3 years since 2015, Bad Honnef, Germany; Summer School on “The Mathematics for Climate and the Environment”, 5–9 September 2019, Cargese, France.