

Fabien Roquet

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Short description

Fabien R. is a physical oceanographer interested in determining what sets the global characteristics of the ocean circulation and how they vary on climatic time scales. His research interests span the three mainstays of physical oceanography: observation, theory and modeling. Involved in research activities since 2004, his early work focused on the observation and study of the Southern Ocean. He has played an instrumental role in the development of animal-borne CTD tags, which has become over the years a major source of data in Polar Oceans. He is also interested in the study of the large-scale ocean circulation with a focus on how seawater thermodynamic properties control its structure.

Formal qualifications

- **2015:** Docent in atmosphere and ocean science at the Stockholm University (Stockholm, Sweden). Swedish title equivalent to associate professor.
- **2009:** PhD in physical oceanography at the University Pierre et Marie Curie (Paris, France) obtained in October 2009 with honors. The title was: Circulation around the Kerguelen Plateau: from observations to modelling, supervised by Prof. Y.-H. Park (MNHN) and G. Madec (LOCEAN).
- **2006:** Master degree in oceanography, meteorology and environmental sciences at the University Paris 6 (Paris, France), obtained with honors.
- **2004:** Physical Engineer in computer science, statistics and image processing, graduated from Institut National des Telecommunications (Evry, France).

Employment history

- **August 2018 - present:** Professor at the Department of Marine Sciences, University of Gothenburg
- **October 2014 - July 2018 :** Research associate at the Department of Meteorology of the Stockholm University. 4-year funding through a young-researcher grant obtained from the Swedish Research Council (VR).
- **March 2014 - September 2014:** Post-doctoral research scientist at the Department of Meteorology of the Stockholm University funded by the Bolin Center for climate research (originally a 2-year position).
- **March 2012 - February 2014:** Post-doctoral research scientist at the Department of Meteorology of the Stockholm University. 2-year funding through a post- doctoral grant obtained from the Swedish Research Council (VR).
- **December 2009 - February 2012:** 2-year post-doctoral research scientist with Prof. Carl Wunsch (MIT, Cambridge, US). Funded through the Estimating the Circulation and Climate of the Ocean (ECCO) consortium which is directed at making the best possible estimates of ocean circulation, using inverse methods to adjust a global configuration of the MITgcm model to a wide variety of available observations.
- **September 2006 - October 2009:** PhD student at the University Pierre et Marie Curie (Paris, France). Funded through a 3-year doctoral scholarship from the French ministry of science. Supervisors: Prof. Young-Hyang Park (Museum of Natural History, Paris), Gervan Madec (LOCEAN, Paris) and Frederic Vivier (LOCEAN).
- **March 2004 - August 2006:** Engineer working on seal instrumentation and hydrographic data management at the Museum of National History, Paris. Position funded by the CNES (French spatial agency).



Research grants

- **2015** AAS Grant program, Seals as Oceanographic Samplers, PI Prof Rob Harcourt. Grant total request: AUD74200 (500ksek) as part of a total funding contribution of AUD1300000 (~9000ksek) for the whole program.
- **2014** Young-Researcher grant for a 4-year period at the Stockholm University, funded by the Swedish Research Council (3000ksek). Mean success rate: 7%.
- **2013** Post-doctoral fellowship for a 2-year post-doctoral position at the Stockholm University funded by the Bolin Center for Climate Research.
- **2011** Fellowship for a 2-year post-doctoral position at the Stockholm University, funded by the Swedish Research Council (VR).

Other research appointments, honours and awards

- Invited speaker at the ALPS-II (Autonomous and Lagrangian Platforms and Sensors) meeting in March 2017 at Scripps (USA).
- Visiting Scholarships to stay one month at the University of Tasmania, Australia in December 2016
- Visiting Scholarships to stay one month at the University of Tasmania, Australia in January 2013
- Referee assignments: total 29 assignments (about 6/year) in 11 different journals including Science, Geophysical Research Letters and Journal of Physical Oceanography.
- Member of AGU and the biologging society.

Development of tools and products

- Since 2014, Fabien R. is leading the development of the MEOP-CTD database. The data from animal-borne instruments are stored in the MEOP-CTD database, which is publicly accessible through the MEOP data portal <http://meop.net>. The database currently contains 500,000+ profiles, 85% of which are freely available. Private data can be accessed upon request. The database comprises profiles of temperature and salinity as a function of pressure, located in space and time.
- Contribution to the development of the IOC-UNESCO TEOS-10 (Thermodynamic Equation of Seawater – 2010) standard, through the development of accurate polynomial expressions for the equation of state of seawater that are now distributed on <http://www.teos-10.org>.
- Contributions to the development of the widely-used state-of-the-art ocean model NEMO (Nucleus of European Model for the Ocean) regarding the thermodynamic and vertical mixing modules of the code.

Contribution to international scientific cooperation

- Leader of the MEOP consortium that currently includes around 40 members from a dozen different nations. The MEOP (Marine Mammals Exploring the Oceans Pole to Pole) international consortium aims at coordinating the cooperation between several national programmes to provide a comprehensive quality-controlled database of oceanographic data obtained with animal telemetered devices.
- Co-chair of the task team Animal-Borne Instruments of the European Global Ocean Observing System (EuroGOOS). Member of the POGO Working Group OASHIS (Observing and understanding the ocean below the Antarctic sea ice and ice shelves)
- Participation to the EOOS (European Ocean Observing System, <http://www.eoos-ocean.eu/>) in situ workshop on



May 22-23, 2015 at BELSPO, Brussels

- Organizer of the Southern Ocean workshops at the Department of Meteorology at Stockholm University on April 21, 2016 and 9-10 October 2017. The workshops were sponsored by the Bolin Center for Climate Research. Member of the International Quality Controlled Ocean Database (IQUOD) and the SOERE-Coriolis that coordinates the production of in situ oceanographic data in France.

Teaching

- **2018:** Physical Oceanography I, Bachelor course, Department of Marine Sciences, University of Gothenburg
- **2014-2017:** Global Climate Systems, Master course, Department of Meteorology at Stockholm University
- **2012-2014:** Dynamic Meteorology, Master course, Department of Meteorology at Stockholm University

Supervision

- **2018-present:** Supervision of PhD Romain Caneill-Lortal
- **2017:** EPHE (Master level) of Baptiste Picard
- **2017:** Bachelor thesis of Marcus Lindkvist
- **2016:** 2.5-month internship of Romain Caneill
- **2015:** Master thesis of Rickard Lindqvist
- **2014-2018:** Supervision of PhD Etienne Pauthenet
- **2014:** Master thesis of Friederike Pollmann
- **2014:** 1-month internship of Nora Leps
- **2013:** 1-month internship of Friederike Pollmann
- **2012-2014:** co-supervision of PhD Saeed Falahat

Fieldwork Experience

- **Jan. - Mar. 2016 :** Deployment of loggers on elephant seals and fur seals at the Kerguelen Islands (Southern Indian Ocean).
- **July 2011 :** Research cruise (Line W) between Cape Cod and Bermuda Islands on board the R/V Oceanus.
- **Mar. 2011 :** XBT section between Iceland and Newfoundland on board the merchant vessel Reykjafoss.
- **Feb. - Mar. 2009 :** TRACK oceanographic cruise on board the French R/V Marion Dufresne, over the Kerguelen Plateau in the Southern Indian Ocean (40 days of field work)
- **Jan. 2008 :** DOCONUG oceanographic cruise on board R/V Tethys, in the Gulf of Lyon, Mediterranean Sea
- **Jan. - Apr. 2006 :** Deployment of loggers on elephant seals at the Kerguelen Islands (Southern Indian Ocean).
- **June 2005 :** COSMOS oceanographic cruise on board R/V Cote de la Manche, in the Bay of Biscay, Atlantic.

Citation count

To date, Roquet have co-authored 40 peer-reviewed papers, including 9 as a first author. He currently has a H-index of 17 (Scopus, August 2018). Several publications are in high profile journals, including Nature, Proceedings of the National Academy of Science, Nature Geoscience and Nature Communication.