Miriam F. Sterl

PhD Student · Physical Oceanography

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Education

MSc Climate Physics (average grade 9.0/10) — *Utrecht, the Netherlands*
Utrecht University — *2019 - 2021*

- Courses on meteorology, oceanography, coastal processes and the climate system
- MSc advisor: Dr. Femke de Jong. Thesis grade: 8.8/10

BSc Physics and Astronomy & BSc Mathematics (cum laude, average grade 9.3/10) — *Utrecht, the Netherlands*
Utrecht University — *2015 - 2019*

- Focus on (geophysical) fluid dynamics, numerical modelling and differential equations
- Minor in Computer Science
- BSc advisor: Dr. Erik van Sebille. Thesis grade: 9.1/10

Professional Experience

PhD Physical Oceanography — *'t Horntje, the Netherlands*
Royal Netherlands Institute for Sea Research (NIOZ) & Institute for Marine and Atmospheric research Utrecht (IMAU) — *November 2021 - present*

- Supervisors: Dr. Sjoerd Groeskamp (NIOZ) and Dr. Michiel Baatsen (IMAU)
- Promotors: Prof. Dr. Gert-Jan Reichart (NIOZ) and Prof. Dr. Henk Dijkstra (IMAU)
- Research focus: mesoscale turbulence over topography; parameterising eddy diffusivity

Visiting researcher — *Oslo, Norway*
University of Oslo (UiO) — *several periods in 2022 - 2025*

- Collaborators: Prof. Dr. Joe LaCasce, Dr. André Palóczy, Prof. Dr. Pål Erik Isachsen

Research Assistant — *Utrecht, the Netherlands*
Institute for Marine and Atmospheric research Utrecht (IMAU) — *2020 - 2021*

- Developing a routine for producing ENSO predictions using deep learning techniques
- Supervisor: Prof. Dr. Henk Dijkstra

Summer School Assistant — *Utrecht, the Netherlands*
Centre for Complex Systems Studies (CCSS) — *2019*

- Assisting in organisational tasks of the summer school "Introduction to Complex Systems" for 40 international students

Student Member Selection Committee — *Utrecht, the Netherlands*
Mathematical Institute — *2019*

- Selecting candidates for a position of Assistant Professor in Applied Mathematics

Publications

Sterl, M.F., Palóczy, A.P., Groeskamp, S., Baatsen, M.L.J., LaCasce, J.H., & Isachsen, P.E. (2025). The joint effects of planetary β, topography and friction on baroclinic instability in a two-layer quasi-geostrophic model. *Journal of Fluid Mechanics*, 1012:A1. https://doi.org/10.1017/jfm.2025.10172

Sterl, M.F., LaCasce, J.H., Groeskamp, S., Nummelin, A., Isachsen, P.E., & Baatsen, M.L.J. (2024). Suppression of mesoscale eddy mixing by topographic PV gradients. *Journal of Physical Oceanography*, 54(5):1089–1103. https://doi.org/10.1175/JPO-D-23-0142.1

Sterl, M.F., & de Jong, M.F. (2022). Restratification structure and processes in the Irminger Sea. *Journal of Geophysical Research: Oceans, 127*, e2022JC019126. https://doi.org/10.1029/2022JC019126

Sterl, M.F., Delandmeter, P., & van Sebille, E. (2020). Influence of barotropic tidal currents on transport and accumulation of floating microplastics in the global open ocean. *Journal of Geophysical Research: Oceans, 125*, e2019JC015583. https://doi.org/10.1029/2019JC015583

Teaching and Supervision

Guest lecturer — *Utrecht, the Netherlands*
Utrecht University — *2025*

- Two guest lectures in the MSc course Dynamical Oceanography
- Topics: quasi-geostrophic dynamics, barotropic and baroclinic instability

Daily supervisor — *'t Horntje, the Netherlands*
Royal Netherlands Institute of Sea Research (NIOZ) — *2023*

- Daily supervisor of MSc student

Teaching Assistant — *Utrecht, the Netherlands*
Utrecht University — *2016 - 2021*

- For 8 courses in the BSc programmes Physics and Astronomy and Mathematics
- Supervising tutorial sessions and grading assignments

Presentations

2025	**European Geosciences Union (EGU) General Assembly**, *talk* The influence of oceanic bottom slopes on eddy mixing in a two-layer model	*Vienna, Austria*
2024	**Gordon Research Seminar (GRS) Ocean Mixing**, *poster* Suppression of eddy diffusivities over a sloping seafloor in a two-layer model	*South Hadley, MA, United States*
2024	**Dutch Earth Science Conference (NAC)**, *poster* Suppression of eddy diffusivities over a sloping seafloor in a two-layer model	*Utrecht, the Netherlands*
2023	**Buys Ballot Research School (BBOS) symposium**, *talk* Suppression of mesoscale eddy mixing by topographic PV gradients	*'t Horntje, the Netherlands*
2023	**International Union of Geophysics and Geodesy (IUGG)**, *talk* Suppression of mesoscale eddy mixing by topographic PV gradients	*Berlin, Germany*
2022	**International Conference for Young Marine Researchers (ICYMARE)**, *talk* How ocean bottom topography impacts eddy mixing	*Bremerhaven, Germany*
2022	**Dutch Earth Science Conference (NAC)**, *talk* How ocean bottom topography impacts eddy mixing	*Utrecht, the Netherlands*

2022	**Gordon Research Seminar (GRS) Ocean Mixing**, *talk and poster* Beyond mean flow suppression: PV suppression of eddy mixing	*South Hadley, MA, United States*
2021	**Dutch Earth Science Conference (NAC)**, *talk* Influence of tidal currents on transport and accumulation of floating microplastic in the ocean	*online*
2020	**Dutch Earth Science Conference (NAC)**, *poster* Do the tides influence the plastic soup?	*Utrecht, the Netherlands*

Awards

2024	**Winner PhD writing competition**, Dutch Physics Magazine (NTvN) Link to article (in Dutch)
2024	**Poster award**, Dutch Earth Science Conference (NAC) Link to poster
2023	**Audience award for best presentation**, BBOS symposium
2017	**Teaching assistant award**, Utrecht University

Courses

2023 - 2024	**Visualize your Science**, 10 weeks (part-time)	*online*
2022	**Air-Ice-Sea Interaction II**, 6 weeks The University Centre in Svalbard (UNIS)	*Longyearbyen, Norway*
2019	**Marine Masters Summer Course**, 2 weeks Royal Netherlands Institute for Sea Research (NIOZ)	*'t Horntje, the Netherlands*
2019	**Winter School on Analysis of Climate Variability**, 1 week Leibniz Institute for Baltic Sea Research (IOW)	*Warnemünde, Germany*

Service

2025	**Reviewer**, Journal of Physical Oceanography; Journal of Advances in Modeling Earth Systems	
2022 - 2024	**Chair**, Gordon Research Seminar on Ocean Mixing Seminar for early career researchers, preceding the Gordon Research Conference	*South Hadley, MA, United States*
2023 - 2024	**Organiser**, WomenNetPhysics conference Conference and networking event on the position of women in physics in the Netherlands	*Utrecht, the Netherlands*
2023 - pres	**PhD representative**, Department of Ocean Systems at NIOZ	*'t Horntje, the Netherlands*
2021 - pres	**General Board Member**, Dutch Physics Society (NNV)	*Amsterdam, the Netherlands*
2020 - 2021	**Student Ambassador**, MSc programme Climate Physics	*Utrecht, the Netherlands*
2018 - 2020	**Committee Member**, Study Association A-Eskwadraat	*Utrecht, the Netherlands*

Cruises

2023	**Mixation-II**, August 22 - 27 Mooring recovery	*Bermuda - Bermuda*
2022	**UNIS cruise**, October 31 - November 5 CTD measurements in Isfjorden fjord system	*Longyearbyen - Longyearbyen*
2022	**Mixation-I**, April 21 - May 1 Deployment of 4 moorings; deployment of ARGO floats; CTD measurements	*Curaçao - Bermuda*

Outreach

2023-2025	**Guest lectures for high school students**, various schools/events For various age ranges between 12–18 years Topics: physical oceanography, ocean and climate, working as a scientist
2025	**Talk at symposium on Climate Physics**, Study Association Marie Curie For university students in Physics Topic: physical oceanography
2025	**Podcast Atomen Enzo**, Utrecht University Podcast of the Faculty of Science of Utrecht University for a wide audience Topics: observational oceanography, ocean eddies, eddy parameterisations Link to podcast episode
2023	**Even Over Morgen**, Utrecht University & Utrecht public libraries Outreach event facilitating conversations between scientists and the public Topics: oceanography, the role of climate scientists in society
2019	**Kindercolleges**, Utrecht University For kids aged 8–12 years Topic: plastic soup

Languages

Dutch, native

German, native

English, proficient (C2)

French, intermediate (B2)

Norwegian, beginner (A2)

Programming languages

Python, proficient

MATLAB, intermediate

C#, intermediate

Julia, intermediate