

Miriam F. Sterl

POSTDOCTORAL RESEARCHER · 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

Postdoctoral researcher

Hamburg, Germany

MAX PLANCK INSTITUTE FOR METEOROLOGY

March 2026 - present

- Supervisor: Dr. Noel Gutierrez Brizuela
- Research focus: response of oceanic gyres to changes in large scale momentum and buoyancy forcing

PhD researcher

't Horntje, the Netherlands

ROYAL NETHERLANDS INSTITUTE FOR SEA RESEARCH (NIOZ) &

INSTITUTE FOR MARINE AND ATMOSPHERIC RESEARCH UTRECHT (IMAU)

2021 - 2025

- Supervisors: Dr. Sjoerd Groeskamp (NIOZ) and Dr. Michiel Baatsen (IMAU)
- Thesis title: *Stirring in the Deep: The impact of ocean topography on mesoscale eddy dynamics*

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

MATHEMATICAL INSTITUTE

Utrecht, the Netherlands

2019

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

Publications

- Sterl, M.F.,** Palóczy, A., LaCasce, J.H., Baatsen, M.L.J., & Groeskamp, S. Asymmetric effects of topographic slopes and bottom friction on Lagrangian and Eulerian eddy diffusivities in two-layer QG flow. *Journal of Geophysical Research: Oceans*, 131, e2025JC023770. <https://doi.org/10.1029/2025JC023770>
- Sterl, M.F.,** Palóczy, A., 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 UNIVERSITY

Utrecht, the Netherlands

2025

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

Daily supervisor

ROYAL NETHERLANDS INSTITUTE OF SEA RESEARCH (NIOZ)

't Horntje, the Netherlands

2023

- Daily supervisor of MSc student

Teaching Assistant

UTRECHT UNIVERSITY

Utrecht, the Netherlands

2016 - 2021

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

Presentations

- Warnemünde Turbulence Days**, *talk*
- 2025 The effects of topographic slopes on the vertical structure of Lagrangian and Eulerian eddy diffusivities *Vilm, Germany*
- 2025 **European Geosciences Union (EGU) General Assembly**, *talk* *Vienna, Austria*
- 2024 **Gordon Research Seminar (GRS) Ocean Mixing**, *poster* *South Hadley, MA, United States*
- 2024 **Dutch Earth Science Conference (NAC)**, *poster* *Utrecht, the Netherlands*
- 2023 **Buys Ballot Research School (BBOS) symposium**, *talk* *'t Horntje, the Netherlands*
- 2023 **International Union of Geophysics and Geodesy (IUGG)**, *talk* *Berlin, Germany*
- 2022 **International Conference for Young Marine Researchers (ICYMARE)**, *talk* *Bremerhaven, Germany*
- 2022 **Dutch Earth Science Conference (NAC)**, *talk* *Utrecht, the Netherlands*
- 2022 **Gordon Research Seminar (GRS) Ocean Mixing**, *talk and poster* *South Hadley, MA, United States*
- 2021 **Dutch Earth Science Conference (NAC)**, *talk* *online*
- 2020 **Dutch Earth Science Conference (NAC)**, *poster* *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 *Longyearbyen, Norway*
- 2019 **Marine Masters Summer Course**, 2 weeks *'t Horntje, the Netherlands*
- 2019 **Winter School on Analysis of Climate Variability**, 1 week *Warnemünde, Germany*

Service

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

Cruises

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

Outreach

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

Languages

German, native

Dutch, native

English, proficient (C2)

French, intermediate (B2)

Norwegian, beginner (A2)

Programming languages

Python, proficient

MATLAB, intermediate

C#, intermediate

Julia, intermediate