

# Miriam F. Sterl

PHD STUDENT · PHYSICAL OCEANOGRAPHY

[✉ miriam.sterl@nioz.nl](mailto:miriam.sterl@nioz.nl) | [🏠 www.miriamsterl.com](http://www.miriamsterl.com) | [🐙 github.com/MiriamSterl](https://github.com/MiriamSterl) | [🌐 linkedin.com/in/miriamsterl](https://www.linkedin.com/in/miriamsterl)

## 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 stirring 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

---

### PUBLISHED

**Sterl, M.F.,** Palóczy, A., Groeskamp, S., Baatsen, M.L.J., LaCasce, J.H., & Isachsen, P.E. (2025). The joint effects of planetary  $\beta$ , 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>

### IN REVIEW

**Sterl, M.F.,** Palóczy, A., LaCasce, J.H., Baatsen, M.L.J., & Groeskamp, S. Asymmetric effects of topographic slopes on Lagrangian and Eulerian eddy diffusivities in two-layer QG flow. Submitted to *Journal of Geophysical Research: Oceans*. <https://doi.org/10.22541/essoar.176365858.87644610/v1>

**Sterl, M.F.,** Mans, C.J., Naveira Garabato, A.C., & Groeskamp, S. Estimating cross-stream isopycnal eddy diffusivity from mooring observations in the Southern Ocean. Submitted to *Journal of Geophysical Research: Oceans*. <https://doi.org/10.22541/essoar.176279367.76125226/v1>

## 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