

Miriam F. Sterl

POSTDOCTORAL RESEARCHER · PHYSICAL OCEANOGRAPHY

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Education

MSc Climate Physics (average grade 9.0/10)

UTRECHT UNIVERSITY

Utrecht, the Netherlands

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 UNIVERSITY

Utrecht, the Netherlands

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

MAX PLANCK INSTITUTE FOR METEOROLOGY

Hamburg, Germany

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

ROYAL NETHERLANDS INSTITUTE FOR SEA RESEARCH (NIOZ) &
INSTITUTE FOR MARINE AND ATMOSPHERIC RESEARCH UTRECHT (IMAU)

't Horntje, the Netherlands

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

UNIVERSITY OF OSLO (UIO)

Oslo, Norway

several periods in 2022 - 2025

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

Research Assistant

INSTITUTE FOR MARINE AND ATMOSPHERIC RESEARCH UTRECHT (IMAU)

Utrecht, the Netherlands

2020 - 2021

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

Summer School Assistant

CENTRE FOR COMPLEX SYSTEMS STUDIES (CCSS)

Utrecht, the Netherlands

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 , <i>talk</i>	
2025	The effects of topographic slopes on the vertical structure of Lagrangian and Eulerian eddy diffusivities	Vilm, Germany
	European Geosciences Union (EGU) General Assembly , <i>talk</i>	
2025	The influence of oceanic bottom slopes on eddy mixing in a two-layer model	Vienna, Austria
	Gordon Research Seminar (GRS) Ocean Mixing , <i>poster</i>	
2024	Suppression of eddy diffusivities over a sloping seafloor in a two-layer model	South Hadley, MA, United States
	Dutch Earth Science Conference (NAC) , <i>poster</i>	
2024	Suppression of eddy diffusivities over a sloping seafloor in a two-layer model	Utrecht, the Netherlands
	Buys Ballot Research School (BBOS) symposium , <i>talk</i>	
2023	Suppression of mesoscale eddy mixing by topographic PV gradients	't Horntje, the Netherlands
	International Union of Geophysics and Geodesy (IUGG) , <i>talk</i>	
2023	Suppression of mesoscale eddy mixing by topographic PV gradients	Berlin, Germany
	International Conference for Young Marine Researchers (ICYMARE) , <i>talk</i>	
2022	How ocean bottom topography impacts eddy mixing	Bremerhaven, Germany
	Dutch Earth Science Conference (NAC) , <i>talk</i>	
2022	How ocean bottom topography impacts eddy mixing	Utrecht, the Netherlands
	Gordon Research Seminar (GRS) Ocean Mixing , <i>talk and poster</i>	
2022	Beyond mean flow suppression: PV suppression of eddy mixing	South Hadley, MA, United States
	Dutch Earth Science Conference (NAC) , <i>talk</i>	
2021	Influence of tidal currents on transport and accumulation of floating microplastic in the ocean	online
	Dutch Earth Science Conference (NAC) , <i>poster</i>	
2020	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
	Air-Ice-Sea Interaction II , 6 weeks	
2022	The University Centre in Svalbard (UNIS)	Longyearbyen, Norway
	Marine Masters Summer Course , 2 weeks	
2019	Royal Netherlands Institute for Sea Research (NIOZ)	't Horntje, the Netherlands
	Winter School on Analysis of Climate Variability , 1 week	
2019	Leibniz Institute for Baltic Sea Research (IOW)	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 Link to article and interview	Utrecht, the Netherlands
2023 - 2025	PhD representative, Department of Ocean Systems at NIOZ	't Horntje, the Netherlands
2021 - 2024	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	Longyearbyen - Longyearbyen
2022	Mixation-I, April 21 - May 1 Deployment of 4 moorings; deployment of Argo floats; CTD measurements	Curaçao - Bermuda

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 (B1/B2)

Norwegian, intermediate (B1/B2)

Programming languages

Python, proficient

MATLAB, intermediate

C#, intermediate

Julia, intermediate