

# Marion Devilliers

## Curriculum Vitae

Copenhagen  
Denmark

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### Professional Experience

- 2021– **Climate Scientist**, *Danish Meteorological Institute*, Copenhagen, Denmark  
Present
  - Assessing analog data assimilation for decadal prediction of the North Atlantic (NA).
  - Identifying early-warning indicators of AMOC tipping in CMIP6 climate models.
  - Analyzed links between NA surface temperature and the Arctic Eurasian Basin in CMIP6 climate models.
  - Conducted freshwater fluxes sensitivity experiments using observation-based forcing.
- 2018–2021 **Postdoctoral Researcher**, *EPOC, CNRS*, University of Bordeaux, France  
  - Developed a dataset of runoff fluxes and solid ice discharge from Greenland Ice Sheet melting.
  - Produced a 20-member ensemble of historical simulations forced by freshwater fluxes.
  - Investigated AMOC changes, convection variability, and connected salinity and temperature trends with observations in the subpolar gyre.
  - Contributed to CMIP6 decadal prediction experiment on the impacts of volcanic eruptions.
- 2016–2018 **Postdoctoral Researcher**, *Geophysical Institute*, University of Bergen, Norway  
  - Advanced supermodelling methods combining several Earth system models using data assimilation (EnOI).
- 2014–2016 **Research Engineer**, *CEA*, Paris, France  
  - Modeled two-phase flow dynamics in nuclear reactors.
- 2012–2014 **Postdoctoral Researcher**, *F2DP & Ifremer*, Lorient, France  
  - Developed and published an auto-adaptive mesh refinement scheme for permeable-wall flows.
- 2009–2012 **Ph.D. Researcher**, *INERIS & CEREA, IPSL*, Paris, France  
  - Improved the CHIMERE chemistry transport model for ultrafine particle dynamics.
  - Developed a hybrid scheme for condensation/evaporation processes.

### Education

- 2019 **Summer School**, ORSS2019: Ocean Remote Sensing Synergy, Brest
- 2006–2008 **Master's Degree**, Univ. Toulouse III Paul Sabatier, Mathematical Engineering
- 2005–2006 **Master's Degree**, Complutense Univ. of Madrid (Erasmus), Mathematical Engineering
- 2004–2005 **Bachelor's Degree**, Univ. Toulouse III Paul Sabatier, Mathematical Engineering
- 2002–2004 **Undergraduate Studies**, Univ. Paris IX Dauphine, Mathematics and Economics
- 2002 **Baccalauréat**, Lycée Richelieu, France, Mathematics major

### Research Projects and Leadership

**AIMOC** — Coordinator. AI-Enhanced Modelling and Projection of the AMOC (to be submitted to HORIZON-CL5-2026 - submitted to Novo Nordisk Foundation, invited to stage 2 in 2025).

**ECMWF Special Project PI** — Impact of horizontal ocean grid refinement and Greenland freshwater fluxes on AMOC predictability in EC-Earth4 (AGRIF), 2026–2028

**ObsSea4Clim** — Task Leader. Coordination of ocean observation and modeling activities.

**TipESM** — Lead Scientist. Analysis of Earth System Model simulations to detect tipping points.

**TIPMIP-OCEAN** — Hosing experiment to explore AMOC sensitivity and reversibility.

**Independent Research Fund Denmark** — Recipient of DFF grant for Arctic research.

### Lead Author Roles

- AMAP** Chapter lead for the upcoming Arctic Monitoring and Assessment Programme report.
- JPI Oceans**— Chapter lead for the Joint Initiative review on AMOC changes and impacts.  
Climate

## Selected Conference Presentations

- 2026 Session lead, CMIP Workshop (Tokyo); Ocean Science Meeting (Glasgow).  
2025 Subpolar Gyre Workshop (Utrecht).  
2018–2024 EGU General Assembly (Vienna).  
2024 Irish AMOC Meeting (Maynooth); TIPMIP General Assembly (Baltimore).  
2023 Nansen Legacy Symposium (Tromsø).  
2022 ASOF Meeting (Reykjavik); YOPP Summit (Montreal).

## Selected Publications

- Under review M. Devilliers et al., *Comment on Pontes and Menzel (2024)*, Nature Geoscience.  
Under review O. Mehling et al., *Limited impact of Greenland meltwater on abruptness and reversibility of future AMOC changes*, Science Advances.  
2025 M. Devilliers et al., *Constraining CMIP6 simulations for the deep Arctic using an AMOC-SST index*, Frontiers in Climate.  
2024 A. Drews et al., *The crucial role of the Subpolar North Atlantic for decadal climate prediction skill*, Geophysical Research Letters.  
2024 M. Devilliers et al., *Ocean response to a century of observation-based freshwater forcing around Greenland*, Climate Dynamics.  
2023 R. Bilbao et al., *Impact of volcanic eruptions on CMIP6 decadal predictions: a multi-model analysis*, Earth System Dynamics.  
2023 F. Schevenhoven et al., *Supermodeling: improving predictions with an ensemble of interacting models*, Bulletin of the American Meteorological Society.  
2023 F. Counillon et al., *Framework for an ocean-connected super-model of the Earth System*, Journal of Advances in Modeling Earth Systems.  
2022 D. Swingedouw et al., *AMOC recent and future trends: the role of oceanic resolution and Greenland melting*, Frontiers in Climate.  
2021 M. Devilliers et al., *A realistic Greenland and surroundings melting in a coupled climate model*, Climate Dynamics.

## Communication and Outreach

- 2022–2023 Teaching assistant, SALMO-Skol summer school on North Atlantic climate & salmon decline.  
2022 Organized climate & ecosystems lecture series with "Maison de la Rivière et de la Biodiversité".  
2018 Facilitator, "Train du Climat" science outreach exhibition.

## Technical Skills

- Modeling EC-Earth3/4, IPSL-CM6A-LR, NorESM, CESM  
Programming Python, Fortran, bash, git.

## Languages

- French Native  
English Advanced  
Spanish Advanced  
Danish Beginner

## Activities and Interests

- Sports Scuba diving, basketball, swimming, jogging, yoga, tai chi.  
Hobbies Literature, chess.

## References

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