Marion Devilliers

Climate Scientist

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Professional Experience

2021–Present **Climate Scientist**, *Danish Meteorological Institute*, Copenhagen, Denmark
- 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–Climate Chapter lead for the Joint Initiative review on AMOC changes and impacts.

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 Menviel (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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Juliette Mignot (Postdoctoral supervisor in Lab. LOCEAN, France) +33144273304 Juliette.Mignot@locean-ipsl.upmc.fr
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