

Career History

10/2019 – present	Research Scientist , Marine Physics and Ocean Climate, National Oceanography Centre, UK
06/2015 – 10/2019	Postdoctoral Investigator , Ocean Circulation and Climate Dynamics, GEOMAR – Helmholtz Centre for Ocean Research Kiel, Germany
09/2009 – 06/2015	Graduate Research Assistant , Physical Oceanography, Woods Hole Oceanographic Institution, USA Massachusetts Institute of Technology, USA
01/2009 – 06/2009	Undergraduate Research Assistant , Physical Oceanography, Alfred Wegener Institute for Polar and Marine Research, Germany
06/2008 – 07/2008	Undergraduate Research Assistant , Physical Oceanography, Max Planck Institute for Meteorology, Germany
06/2007 – 07/2007	Undergraduate Research Assistant , Physical Oceanography, Alfred Wegener Institute for Polar and Marine Research, Germany

Education

09/2009 – 06/2015	PhD , Physical Oceanography, Massachusetts Institute of Technology and Woods Hole Oceanographic Institution, USA
09/2006 – 06/2009	BSc , Earth and Space Sciences, Jacobs University Bremen, Germany

Awards and Honours

2021	Outstanding Early Career Scientist Award in the Ocean Sciences Division from the European Geophysical Union
2020	Early Career Researcher Award from the National Oceanography Centre (awarded for best paper)
2019	Junior Scientist at the 2019 Lindau Nobel Laureate Meeting in Physics (highly competitive, multi-step, international selection process)
2019	Marie Skłodowska-Curie Actions Seal of Excellence Award (quality label for highly-ranked research proposals)
2017	Marie Skłodowska-Curie Actions Seal of Excellence Award
2008 – 2009	Member of the President's List at Jacobs University Bremen (awarded to students with a GPA below 1.5)
2007 – 2008	Member of the President's List at Jacobs University Bremen
2006 – 2007	Honorary member of the German Physics Association for excellent results in physics during the German high school diploma (Abitur)

Other Recognition

2022 – present	Bonus award from the National Oceanography Centre for reliably delivering scientific excellence beyond my role
2021/2022	Selected as one of 10 experts by the Natural Environment Research Council in UK-wide insight activity to identify cutting-edge research ideas
2020/2021	Recognised by the American Geophysical Union for writing a 10% top downloaded article in Geophysical Research Letters
2020	Recognition Award from the National Oceanography Centre (awarded for special dedication to enhance teamwork in the group)
2015 – 2019	Member of the Excellence Cluster "The Future Ocean" in Germany (including access to research funding and travel support)
2006	Special mention during high school diploma (for achieving the highest score, skipping a year, and participating in scholar academies)

Fellowships and Grants

<i>submitted</i>	PhD studentship on climate tipping points (CO-I; led by J. Mecking)
<i>submitted</i>	PhD studentship on glider observations in the Labrador Sea; submitted to 2 proposal calls (CO-I; led by L. Clement)
<i>submitted</i>	PhD studentships on the Mathematics of Ocean and Climate Science (PI on four proposed PhD projects; CO-I on overall programme)
2023	Travel grants for conference and collaboration, Xiamen University, China (including travel, accommodation, registration and subsistence)
2022	Interviewed for ERC Starting Grant; received "A" (top score) from the European Commission evaluation panel but below the funding threshold
2022 – 2027	Co-I representing NOC (together with Sheldon Bacon) in Long-Term Science Multi-Centre (LTSM2) project, funded by the Natural Environment Research Council (NERC), UK (12M GBP; received excellent adjustment for outstanding proposal)
2018	Travel grant for the Ocean Sciences Meeting from the Excellence Cluster Future Ocean, Germany (1500 EUR)
2012	Travel grant for the Ocean Sciences Meeting, USA (500 USD)
2011	Fellowship and travel grant and for summer school on "Sea Ice in the Climate System", Norwegian Research School in Climate Dynamics, Norway (2000 EUR + tuition, accommodation and subsistence)
2007 – 2009	Scholarship by Konrad Adenauer Foundation for excellent scientific performance
2007 – 2009	Student bursary by Jacobs University Bremen
2008	Fellowship for summer school on "Physics of the Climate System", Institute for Marine and Atmospheric Research Utrecht, Netherlands (including full travel grant, accommodation and subsistence)

Leadership

12/2022 – present	Co-leader (together with Scott Osprey) of science work package in large multi-centre project with 7 partner institutes (CANARI)
03/2021 – present	Member of the EGU Ocean Science's Division Organisational Team
05/2021 – present	Core team member of institute-wide scoping study on the Arctic at NOC; Co-leader since 2022 (together with Filipa Carvalho)
06/2020 – 01/2022	Institute co-leader at NOC in multi-centre proposal development (together with Sheldon Bacon), which was funded and received excellence award
08/2021– 12/2021	Leader of research activity in Machine Learning group, organised by the Young Earth System Scientists (YESS) community
10/2021	Demonstrator of NOC's Oceans & Climate strategy to the Science and Technology Advisory Committee

Fieldwork

2022	JC238: 4-week long research expedition in the eastern subpolar North Atlantic: led CTD watches.
2018	MSM74: 4-week long research expedition through the Labrador and Irminger Seas: led CTD watches, recovered and deployed moorings, inspected data records before re-deployment of instruments.
2016	MSM54: 4-week long research expedition through the Labrador and Irminger Seas: led CTD watches, recovered and deployed moorings, inspected data records before re-deployment of instruments.
2016 – 2020	Data processing: collected, calibrated and quality-controlled data from long-term, moored ocean observatories; prepared data for submission to public data repositories.
prior to 2016	Research expeditions to the Lofoten Basin and Greenland: programmed moored instruments; led CTD watches; recovered and deployed moorings under challenging, polar environmental conditions.

Student Supervision

07/2022 – present	Co-supervisor of PhD student Xuehan Xie, Hohai University, China
10/2021 – present	Supervisor of PhD student Francesca Pereira, University of Southampton, UK
09/2017 – 02/2020	Supervisor of bachelor and master students in their thesis projects, Kiel University, Germany
09/2018 – 03/2019	Supervisor of research assistant for data processing tasks, GEOMAR, Germany
09/2015 – 03/2019	Supervisor in semester-long class projects (five projects overall, designed by me), Kiel University, Germany
03/2013 – 05/2013	Supervisor of K-12 student, Woods Hole Oceanographic Institution, USA

Teaching

02/2019 – 07/2019	Lecturer of class on regional climate variability and objective analysis methods (Master level), Kiel University, Germany
06/2014 – 08/2014	Lecturer of refresher math class in linear algebra, single- and multivariable calculus (Bachelor level), Woods Hole Oceanographic Institution, USA
2008 – 2009	Teaching assistant in computer lab, Jacobs University Bremen, Germany

Organisational Activities

04/2023	Co-organiser of Ocean Science Division programme at the European Geophysical Union meeting 2023
04/3023	Lead-organiser of open session on ocean circulation and climate at the European Geophysical Union meeting 2023 (solicited)
03/2023	Co-organiser of interdisciplinary Socio-Oceanography workshop, bringing together natural and social scientists across the UK
01/2023	Co-organiser of session for Xiamen Symposium on Marine Environmental Sciences, Xiamen University, China
04 – 06/2022	Coordinator and Selector of Outstanding Student Presentation Awards in the Ocean Sciences division at the European Geophysical Union meeting
02/2021	Organiser and chair of writing workshop, National Oceanography Centre
2009 – 2011	Environmental Officer in major student dormitory, Massachusetts Institute of Technology (MIT): organised and promoted environmental activities.
2009 – 2011	Organiser of composting programme in major student dormitory of MIT, USA: purchased bins, arranged their pick-up, reinforced trash separation.
2010	Co-organiser of the international MIT Sustainability Summit 2010, USA: helped creating an effective dialog between companies and environmental agencies.

Current Institutional Responsibilities

08/2021 – present	Organiser of Physical Oceanography and Climate Seminar Series, National Oceanography Centre (NOC) and University of Southampton
12/2020 – present	Contact person for PhD Students in the Marine Physics and Ocean Climate department at NOC to help them obtain support and advice
01/2020 – present	Organiser and chair of lunch group meetings at NOC: coordinating research updates by group members, training and discussion meetings, shut-up and write sessions during covid-lockdowns; inviting external speakers and partners for strategic exchanges of ideas and findings.
11/2019 – present	Investors in People working group member, representing the Marine Physics and Ocean Climate department: developing new approaches for NOC's People and Culture Strategy; fostering exchanges between groups and teams across NOC; contributing to progressing key people initiatives, such as the Performance and Development Review, the People Manager Development Programme and the Career Development Framework.

Reviewing Activities

2015 – present	Delivering proposal reviews for the US National Science Foundation and various European funding agencies.
2015 – present	Reviewing book chapters and articles for scientific journals and for journalists to contribute to an accurate media representation (~18 reviews since 2015).
2020 – present	Solicited as reviewer of nominations for institutional and international awards; member of internal values awards panel at the National Oceanography Centre, UK.
10/2021 – 12/2021	Developed, reviewed, evaluated and discussed cutting-edge research ideas in oceanography as invited expert in national Insight Activity, organised by the Natural Environment Research Council, UK.
01/2021-02/2021	Reviewed and ranked PhD applications for the INSPIRE PhD programme.

Training

07/2021 – 12/2021	Young Earth System Scientists (YESS) Learning Group: applied machine learning methods to Earth Science; led group research activity on freshwater feedbacks in CESM2 Large Ensemble model.
2013	Semester-long training in communicating science to diverse audiences
06/2011 – 07/2011	Summer School at the Norwegian Research School in Climate Dynamics (ResClim), Norway: acquired comprehensive background on sea ice; built a sea ice model.
08/2008	Summer School at the Institute for Marine and Atmospheric research Utrecht (IMAU), Netherlands: studied climate physics; compared firm densification in Antarctica and Greenland in individual research project.
2009 – present	Workshops on teaching and research strategies, presentation techniques, proposal writing and writing scientific papers
<i>Active fieldwork certifications</i>	Risk management, manual handling and safety on ships (National Oceanography Centre, UK); Personal survival techniques training (Fire Aid, UK); Arctic field training (CH2M Hill Polar Services, USA); Marine safety training (Alaska Marine Safety Education Association, USA)

Selected Outreach Activities and Stakeholder Engagement

2022 – present	Contributor to four stakeholder reports on ocean temperature, ocean salinity, ocean circulation and the Arctic sea ice, solicited by the <i>Marine Climate Change Impacts Partnership</i> (https://www.mccip.org.uk).
2014 – present	Interviews for <i>Spiegel Online</i> , <i>New Scientist</i> , <i>Washington Post</i> , <i>Physics Today</i> , <i>BBC</i> , <i>insideClimateNews</i> , <i>Channel 4</i> , <i>the Guardian</i> , <i>Tagesspiegel</i> , <i>NDR</i> , <i>Reportagen</i> , <i>Nature Supplements</i> and various local papers.
11/2021	Expert panellist and presenter at COP26: "Observing the North Atlantic Meridional Overturning Circulation." (https://www.youtube.com/watch?v=GCBAWDaYMrE).
09/2021	Expert panellist in pre-COP26 Q&A livestream for schools, community groups and the public, invited by the Glasgow Science Centre, UK
09/2020	Magazine article "From sea ice melt to seasonal floods: how does the Arctic affect our weather?" <i>ECO Magazine</i> , <i>Polar Special Issue</i> . http://digital.ecomagazine.com/publication/?i=674747&ver=html5&p=68
09/2018	Policy briefing in the European Parliament and report: "The slowing Gulf Stream? What we know and potential impacts." (https://zenodo.org).
2014 – 2018	Blog posts for <i>polardispatches.org</i> , <i>o-snap.org</i> , <i>planeterde.de</i> , <i>navinstitut.org</i> .
06/2016	Online article "Downslope wind storms in southeast Greenland." <i>Earth System Knowledge Platform</i> (https://www.eskp.de).
10/2015	Magazine article: "Ice, Wind and Fury." <i>Oceanus Magazine</i> : https://www.whoi.edu/oceanus/feature/piteraqs/
2013	Demonstrations of laboratory tank experiments for different audiences

Selected Research Activities

10/2019 – present	Research Scientist at the National Oceanography Centre, UK: investigating ice-ocean-atmosphere feedbacks in the North Atlantic and Arctic regions and their influence on large-scale weather and climate.
06/2015 – 10/2019	Postdoctoral Investigator at GEOMAR, Germany: investigated ocean-atmosphere interactions in the subpolar North Atlantic region; collected, calibrated, processed and quality-controlled data from long-term, deep sea, moored ocean observatories.
09/2009 – 06/2015	Graduate Research Assistant at the Massachusetts Institute of Technology and Woods Hole Oceanographic Institution, USA: characterised the dynamics of strong wind events across Greenland's coast and assessed their influences on the ice sheet, sea ice and ocean.
09/2006 - 06/2009	Undergraduate Research Assistant at Jacobs University Bremen and the Alfred Wegener Institute, Germany: assessed the risk of tipping points in Arctic sea ice cover.
06/2008 – 07/2008	Undergraduate Research Assistant at the Max Planck Institute for Meteorology, Germany: explored the role of ocean heat transports for Arctic sea ice variability with the MPI ocean model.
06/2007 – 08/2007	Undergraduate Research Assistant at the Alfred Wegener Institute, Germany: assessed drivers of ocean heat transport into the Arctic in CMIP models.

Selected Invitations

01/2023	Invited seminar at the University of Bremen, Germany
01/2023	Sponsored talk at Xiamen Symposium on Marine Environmental Sciences, Xiamen University, China
11/2022	Invited talk in international "Climate Coffee" webinar series, organised by Blue-Action and the European Climate Research Alliance (ECRA)
09/2022	Invited seminar at the National Centre for Atmospheric Science, Reading, UK
08/2022	Invited seminar at the University of Southampton, UK
06/2022	Invited seminar at the University of Bergen, Norway
05/2022	Invited talk at Planet Earth Symposium, Imperial College London, UK
03/2022	Invited seminar at ISEN Yncréa Ouest, France
02/2022	Invited seminar at GEOMAR - Helmholtz Centre for Ocean Research Kiel, Germany
11/2021	Expert panellist in the Cryosphere Pavilion at the COP26 event, UK
09/2021	Expert panellist in pre-COP26 Q&A livestream for schools, community groups and the public, invited by the Glasgow Science Centre, UK
09/2021	Invited talk and panellist at the UN Ocean Decade Laboratories
05/2021	Invited seminar for MASTS 2021 webinar series and YouTube channel (Marine Alliance for Science and Technology for Scotland)
04/2021	Invited talk at the European Geophysical Union meeting
03/2021	Invited seminar in webinar series on subpolar North Atlantic processes
01/2021	Invited seminar at Woods Hole Oceanographic Institution, USA
10/2020	Keynote talk at the European Polar Science Week 2020
10/2020	Expert panellist at the European Polar Science Week 2020
08/2020	Expert seminar, invited by the Natural Environment Research Council, UK
06/2020	Invited seminar at the Institute of Ocean Sciences, Canada
12/2019	Keynote talk at a workshop on North Atlantic - Nordic Seas Exchanges at Stockholm University, Sweden
01/2019	Invited seminar at the Alfred Wegener Institute for Polar and Marine Research, Germany
01/2019	Joint seminar, invited by the Max Planck Institute for Meteorology and University of Hamburg, Germany
09/2018	Policy briefing in the European Parliament in Brussels, Belgium

Oltmanns, M. et al.: Long-term effects of North Atlantic freshening on southern European summer climate. *In preparation for Geophysical Research Letters*.

Oltmanns, M. et al.: Accelerated North Atlantic climate variability triggered by increased seasonal melt. *In preparation for Journal of Climate*.

Oltmanns, M. et al. (submitted): European summer weather linked to North Atlantic freshwater events in preceding years. *Weather and Climate Dynamics*.

Wei, X., Hopkins, J., **Oltmanns, M.**, Johnson, C., Inall, M. (submitted): Oceanic and atmospheric drivers of interannual variability in nitrate supply at a temperate shelf sea. *Journal of Geophysical Research: Ocean*.

Blockley, E., Aksenov, Y., Campbell, K., Hewitt, H., Hwang, P., **Oltmanns, M.**, Screen, J., Tsamados, M., (submitted): Impacts of climate change on Arctic sea ice. *MCCIP Science Review 2022*.

McCarthy, G. D., Burmeister, K., Cunningham, S., Düsterhus, A., Frajka-Williams, E., Graham, J., Hodge, K., Holliday, N. P., Inall, M., Jackson, L., Menary, M., Moat, B. I., Moffa-Sanchez, P., **Oltmanns, M.**, Polton, J., Rabe, B., Robson, J., Thornalley, D. (in revision): MCCIP Ocean Circulation Report 2022. *MCCIP Science Review 2022*.

Cornes, R. C., Tinker, J., Hermanson, L., **Oltmanns, M.**, Hunter, W. R., Lloyd-Hartley, H., Kent, E. C., Rabe, B., Renshaw, R. (in revision): The impacts of climate change on sea temperature relevant to the coastal and marine environment around the UK. *MCCIP Science Review 2022*.

Yan, Y., Song, X., **Oltmanns, M.** (2022): On the effects of subdaily winds on mean surface wind stress in the tropics. *Journal of Physical Oceanography*.

Fox, A. D., Handmann, P., Schmidt, C., Fraser, N., Rühls, S., Sanchez-Franks, A., Martin, T., **Oltmanns, M.**, Johnson, C., Rath, W., Holliday, N. P., Biastoch, A., Cunningham, S. A., and Yashayaev, I. (2022): Exceptional freshening and cooling in the eastern subpolar North Atlantic caused by reduced Labrador Sea surface heat loss, *Ocean Sci.*, 18, 1507–1533, <https://doi.org/10.5194/os-18-1507-2022>.

Xie, X., Wei, Z., Wang, B., Chen, Z., **Oltmanns, M.**, Song, X. (2022): Extreme air-sea turbulent fluxes during tropical cyclone Barijat observed by a newly designed drifting buoy. *Fundamental Research*, <https://doi.org/10.1016/j.fmre.2022.08.022>

Oltmanns, M., Holliday, N. P., Screen, J., Evans, D. G., Josey, S., Bacon, S., Moat, B. (2021): North Atlantic freshwater events influence European weather in subsequent summers. *Weather and Climate Dynamics Discussions [preprint]*, <https://doi.org/10.5194/wcd-2021-79>

Li, F., Lozier, M. S., Bacon, S., Bower, A. S., Cunningham, S. A., de Jong, M. F., deYoung, B., Fraser, N., Fried, N., Holliday, N. P., Holte, J., Houpert, L., Inall, M. E., Johns, W. E., Johnson, H.

¹ Google scholar profile: https://scholar.google.com/citations?hl=en&user=rLvMu_EAAAAJ

² Preprints of manuscripts listed as "in preparation" are available upon request.

L., Johnson, C., Jones, S., Karstensen, J., Le Bras, I. A., Lherminier, P., Lin, X., Mercier, H., **Oltmanns, M.**, Pacini, A., Pickart, R. S., Rayner, D., Straneo, F., Thierry, V., Visbeck, M., Yashayaev, I., Zhou, C. (2021): Subpolar North Atlantic western boundary density anomalies and the Meridional Overturning Circulation. *Nature Communications* 12 (1), 3002, <https://doi.org/10.1038/s41467-021-23350-2>

Pacini, A., Pickart, R. S., Bahr, F., Torres, D. J., Ramsey, A. L., Holte, J., Karstensen, J., **Oltmanns, M.**, Straneo, F., Le Bras, I. A., Moore, G. W. K., de Jong, M. F., Johns, W. E., Koman, G. (2020): Mean conditions and seasonality of the West Greenland Boundary Current System. *Journal of Physical Oceanography* 50(10), 2849-2871, <https://doi.org/10.1175/JPO-D-20-0086.1>

Oltmanns, M., Karstensen, J., Moore, G. W. K., Josey, S. A. (2020). Rapid cooling and increased storminess triggered by freshwater in the North Atlantic. *Geophysical Research Letters* 47 (14), <https://doi.org/10.1029/2020GL087207>

Holliday, N. P., Bersch, M., Berx, B., Chafik, L., Cunningham, S., Florindo-López, C., Hatun, H., Johns, W., Josey, S. A., Larsen, K. M. H., Mulet, S., **Oltmanns, M.**, Reverdin, G., Rossby, T., Thierry, V., Valdimarsson, H., Yashayaev, I. (2020): Ocean circulation causes the largest freshening event for 120 years in subpolar North Atlantic. *Nature Communications* 11(1):585, <https://doi.org/10.1038/s41467-020-14474-y>

Oltmanns, M., Straneo, F., Tedesco, M. (2019): Increased Greenland melt triggered by large-scale, year-round cyclonic moisture intrusions. *The Cryosphere* 13(3), 815-825, <https://doi.org/10.5194/tc-13-815-2019>

Lozier, M. S., Li, F., Bacon, S., Bahr, F., Bower, A. S., Cunningham, S. A., de Jong, M. F., de Steur, L., deYoung, B., Fischer, J., Gary, S. F., Greenan, B. J. W., Holliday, N. P., Houk, A., Houpert, L., Inall, M. E., Johns, W. E., Johnson, H. L., Johnson, C., Karstensen, J., Koman, G., Le Bras, I. A., Lin, X., Mackay, N., Marshall, D. P., Mercier, H., **Oltmanns, M.**, Pickart, R. S., Ramsey, A. L., Rayner, D., Straneo, F., Thierry, V., Torres, D. J., Williams, R. G., Wilson, C., Yashayaev, I., Yang, J., Zhao, J. (2019): A sea change in our view of overturning — first results from the Overturning in the Subpolar North Atlantic Program. *Science*. 363(6426), 516-521, <https://doi.org/10.1126/science.aau6592>

Josey, S. A., De Jong, M. F., **Oltmanns, M.**, Moore, G. W. K., Weller, R. A. (2019): Extreme variability in Irminger Sea winter heat loss revealed by Ocean Observatories Initiative Mooring and the ERA5 Reanalysis. *Geophysical Research Letters* 46(1), 293-302, <https://doi.org/10.1029/2018GL080956>

Fischer, J., Karstensen, J., **Oltmanns, M.**, Schmidtko, S. (2018): Mean flow and eddy kinetic energy distribution in the Labrador Sea Water level of the subpolar North Atlantic. *Ocean Science* 14, 1167-1183, <https://doi.org/10.5194/os-14-1167-2018>

Olsen, S.M., Årthun, M., Eldevik, E., Fritz, J.S., Larsen, K.M., Miller, R.G., Moat, B. and **Oltmanns, M.** (2018). The Slowing Gulf Stream? What we know and potential impacts (Policy Brief).

Oltmanns, M., Karstensen, J., Fischer, J. (2018): Increased risk of a shutdown of ocean convection posed by warm North Atlantic summers. *Nature Climate Change* 8(4), <https://doi.org/10.1038/s41558-018-0105-1>

De Jong, M. F., **Oltmanns, M.**, Karstensen, J., De Steur, L. (2018): Deep convection in the Irminger Sea observed with a dense mooring array. *Oceanography* 31(1), 50–59, <https://doi.org/10.5670/oceanog.2018.109>

Oltmanns, M. (2015): “Strong wind events across Greenland's coast and their influence on the sea ice, ice sheet and ocean.” *PhD Thesis, Massachusetts Institute of Technology and Woods Hole Oceanographic Institution*: <https://dspace.mit.edu/handle/1721.1/98825>

Oltmanns, M., Straneo, F., Seo, H., Moore, G. W. K. (2015): The role of wave dynamics and small-scale topography for downslope wind events in southeast Greenland. *Journal of the Atmospheric Sciences* 72(2), 2786-2805, <https://doi.org/10.1175/JAS-D-14-0257.1>

Moore, G. W. K., Straneo, F., **Oltmanns, M.** (2014): Trend and inter-annual variability in southeast Greenland sea ice: impacts on coastal Greenland climate variability. *Geophysical Research Letters* 41(23), 8619-8626, <https://doi.org/10.1002/2014GL062107>

Oltmanns, M., Straneo, F., Moore, G. W. K., Mernild, S. H. (2014): Strong downslope wind events in Ammassalik, southeast Greenland. *Journal of Climate*. 27(3), 977-993, <https://doi.org/10.1175/JCLI-D-13-00067.1>