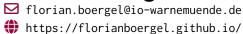
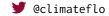
Dr. Florian Börgel







Professional Employment

- **Tenure-track researcher** Dynamics of regional climate systems, Leibniz Institute for Baltic Sea Research Warnemünde, Rostock, Germany
 - Regional climate variability and the teleconnection between the North Atlantic and Northern Europe
 - · Ocean oxygen variability during the last millennium
 - Forecasting river runoff using Recurrent Neural Networks

2019 - 2020	Parental leave 13 months, Berlin, Germany
2017 - 2020	Research scientist Dynamics of regional climate systems, Leibniz Institute for Baltic Sea Research Warnemünde, Rostock, Germany
2016 - 2017	Research assistant Biogeochemical modeling, Leibniz Institute for Baltic Sea Research Warnemünde, Rostock, Germany
2015 - 2016	Research assistant Energy Systems Analysis, Fraunhofer Institute for Manufacturing Technology and Applied Materials, Bremen, Germany
2014 - 2015	Technical support EWE Baskets Oldenburg, Oldenburg, Germany
2013 - 2014	Student assistant Engineering company for environment and climate action plans for cities, energieLenker GmbH, Münster, Germany

Education

09/2017 - 10/2020	Ph.D., Physics in Physical Oceanography, with honors (summa cum laude), Leibniz Institute for Baltic Sea Research Warnemünde Thesis title: <i>Long-term climate variability of the Baltic Sea.</i>
10/2014 - 09/2017	M.Sc. Engineering Physics in Computational physics, very good (1.2), University of Oldenburg Thesis title: <i>The influence of sea ice on Baltic inflows.</i>
09/2010 - 02/2014	B.Eng. Energy Engineering , good (2.0), Münster University of Applied Sciences Thesis title: <i>Planning of a local area heating system in the historic city of Warendorf.</i>

Honors and relevant responsibilities

- Pending application for the 'Pool of Experts' following the identification of expertise needed for developing the third World Ocean Assessment (WOA III) by the UN.
 - Pending application as working group leader 'Fresh Eyes on CMIP', an early career working group of CMIP7.
 - **Co-Speaker Baltic Earth Working Group** The international working group focuses on the impact of the North Atlantic on the Baltic Sea (see https://baltic.earth/working_groups/teleconnections/)
 - Outstanding Early Career Scientist award Ocean Science Division, European Geosciences Union, https://www.egu.eu/awards-medals/

Honors and relevant responsibilities (continued)

- **IOW appointee for the Deutsches Klima-Konsortium (DKK)** The Deutsches Klima-Konsortium (DKK) represents the leading players of German climate and climate impact research.
- Fulbright Scholarship Full scholarship to study in the United States for one year (not attended for personal reasons)

Skills

Languages German (native), English (C1), French (B1)

Coding **Expert**: python, Matlab, Linux/Unix, git, HPC computing, Twitter API **Advanced**: R, Fortran, Pytorch, julia, docker **Basic**: Django, C, HTML, Java, Tensorflow

Methods Singular value decomposition, low-frequency component analysis, multi-regression analysis for data prediction, time series prediction using recurrent neural networks, cluster analysis (k-Means), big data handling (TB), wavelet analysis

Software Development

pyTEF is a python package that can be used to apply the total exchange flow analysis framework to analyze the exchange flow of an estuary.

https://github.com/florianboergel/pyTEF

Teaching

WS 2022/2023 Climate of the Earth System University of Rostock, master level, co-instructor (see https://florianboergel.github.io/climateoftheocean/intro.html)

WS 2021/2022 **Baltic Earth Winter School** University of Rostock, master and Ph.D. students, Interactive lecture about wavelet analysis and statistics

WS 2020/2021 Climate of the Ocean University of Rostock, master level, co-instructor

WS 2018/2019 **Baltic Earth Winter School** University of Rostock, Interactive lecture about wavelet analysis

Supervising

Bachelor student Marti Wolff, co-supervisor
Thesis title: Analysis of Baltic Sea climate based on climate model data from 6000 BCE to 1850 CE

since 2022 PhD student Leonie Barghorn, co-supervisor
Thesis title: Understanding Baltic Sea saltwater inflow dynamics under changing climate

Research Publications

Journal Articles

- Dutheil, C., **Börgel**, **F.**, Gröger, M., & Meier, H. E. M. (n.d.). Changes in spatial structure of weather regimes dominate european precipitation changes since 1950. *Sciences advances*. under review.
- Gröger, M., Dutheil, C., **Börgel**, **F.**, & Meier, H. E. M. (n.d.). Winter marine heatwaves promoted by warm deepwater showcased in a sub-polar marginal sea. *Climate Dynamics*. under review.

- Aue, L., & **Börgel**, **F.** (2023). From "Bangtan Boys" to "International Relations Professor": Mapping Self-Identifications in the UN's Twitter Public. *Politics and Governance*, 11(3).

 6 doi:10.17645/pag.v11i3.6769
- Börgel, F., Gröger, M., Meier, H. E. M., Dutheil, C., Radtke, H., & Borchert, L. (2023). The impact of Atlantic Multidecadal Variability on Baltic Sea temperatures limited to winter. *npj Climate and Atmospheric Science*, *6*(1), 1–9. δ doi:10.1038/s41612-023-00373-8
- Meier, H. E. M., Barghorn, L., **Börgel**, **F.**, Gröger, M., Naumov, L., & Radtke, H. (2023). Multidecadal climate variability dominated past trends in the water balance of the Baltic Sea watershed. *npj Climate and Atmospheric Science*, *6*(1), 1–9. δ doi:10.1038/s41612-023-00380-9
- **Börgel**, F., Neumann, T., Rooze, J., Radtke, H., Barghorn, L., & Meier, H. E. M. (2023). Deoxygenation of the baltic sea during the last millennium. *Frontiers in Marine Science*, 10. Odoi:10.3389/fmars.2023.1174039
- Dutheil, C., Meier, H. E. M., Gröger, M., & **Börgel**, **F.** (2022). Warming of Baltic Sea water masses since 1850. Climate Dynamics. 6 doi:10.1007/s00382-022-06628-z
- Gröger, M., Placke, M., Meier, M., **Börgel**, **F.**, Brunnabend, S.-E., Dutheil, C., ... Väli, G. (2022). The Baltic Sea Model Inter-Comparison Project BMIP a Platform for Model Development, Evaluation, and Uncertainty Assessment. *Geoscientific Model Development Discussions*, 1–34. Publisher: Copernicus GmbH. &doi:10.5194/gmd-2022-160
- 9 Börgel, F., Meier, H. E. M., Gröger, M., Rhein, M., Dutheil, C., & Kaiser, J. M. (2022). Atlantic Multidecadal Variability and the Implications for North European Precipitation. *Environmental Research Letters*, 17(4), 044040. Publisher: IOP Publishing. 6 doi:10.1088/1748-9326/ac5ca1
- Meier, H. E. M., Kniebusch, M., Dieterich, C., Gröger, M., Zorita, E., Elmgren, R., ... Zhang, W. (2022). Climate Change in the Baltic Sea Region: A Summary. *Earth System Dynamics*, 13(1), 457–593. Publisher: Copernicus GmbH. 6 doi:10.5194/esd-13-457-2022
- Meier, H. E. M., Dieterich, C., Gröger, M., Dutheil, C., **Börgel**, **F.**, Safonova, K., ... Kjellström, E. (2022). Oceanographic Regional Climate Projections for the Baltic Sea until 2100. *Earth System Dynamics*, 13(1), 159–199. Publisher: Copernicus GmbH. 6 doi:10.5194/esd-13-159-2022
- Dutheil, C., Meier, H. E. M., Gröger, M., & **Börgel**, **F.** (2021). Understanding Past and Future Sea Surface Temperature Trends in the Baltic Sea. *Climate Dynamics*. Odoi:10.1007/s00382-021-06084-1
- Börgel, F., Frauen, C., Neumann, T., & Meier, H. E. M. (2020). The Atlantic Multidecadal Oscillation Controls the Impact of the North Atlantic Oscillation on North European Climate. *Environmental Research Letters*, 15(10), 104025. Publisher: IOP Publishing. 6 doi:10.1088/1748-9326/aba925
- Meier, H. E. M., **Börgel**, **F.**, Frauen, C., & Radtke, H. (2020). Commentary: Lake or Sea? The Unknown Future of Central Baltic Sea Herring. *Frontiers in Ecology and Evolution*, 8. Retrieved September 24, 2022, from 6 https://www.frontiersin.org/articles/10.3389/fevo.2020.00055
- Radtke, H., **Börgel**, **F.**, Brunnabend, S.-E., Eggert, A., Kniebusch, M., Meier, H. E. M., ... Placke, M. (2019). Validator a Web-Based Interactive Tool for Validation of Ocean Models at Oceanographic Stations. *Journal of Open Research Software*, 7(1), 18. Number: 1 Publisher: Ubiquity Press. **6** doi:10.5334/jors.259
- Kniebusch, M., Meier, H. M., Neumann, T., & **Börgel**, **F.** (2019). Temperature Variability of the Baltic Sea Since 1850 and Attribution to Atmospheric Forcing Variables. *Journal of Geophysical Research: Oceans*, 124(6), 4168–4187. Odoi:10.1029/2018JC013948

Scientific Presentations

Scientific Presentations (continued)

- **EGU General Assembly**, Speaker medal lecture, Atlantic Multidecadal Variability and the Implications for North European climate
- Research Unit Climate Modeling, University of Hamburg, Speaker, Atlantic Multidecadal Variability and the implications for North European Climate
 - **Baltic Earth Conference**, Speaker, Atlantic Multidecadal Variability and the implications for North European Climate
- 2021 University of Bremen physics seminar, Speaker, Atlantic Multidecadal Variability and the implications for North European Climate
 - **EGU General Assembly**, Speaker, The Atlantic Multidecadal Oscillation controls the impact of the North Atlantic Oscillation on North European climate
- **EGU General Assembly**, Poster session, The impact of the Atlantic Multidecadal Oscillation on Baltic Sea variability
- Baltic Earth Conference, Speaker, The impact of the Atlantic Multidecadal Oscillation on Baltic Sea variability
- Baltic Sea Science Congress, Poster session, The influence of sea ice on Baltic Inflows

Outreach

- Interview by the radio station MDR about the ongoing warming of the Baltic Sea and the North Sea (see mdr.de)
 - Visit of Steffi Lemke (Federal Minister for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection) and Bettina Martin (State Minister for Science, Culture, Federal and European Affairs). I presented the ongoing climate research. I was actively involved in the invitation of Steffi Lemke.
 - Press release about my research on the seasonal impact of the AMV on the Baltic Sea region, (see: idw-online)
- Visit of Katrin Zschau (Member of the German Bundestag), I presented the ongoing activities related to climate modeling
- Contributor to the Baltic Sea Climate Change Fact Sheets published within EN-CLIME, a joint expert network by HELCOM and Baltic Earth
- Visit of Dr. Ingrid Nestle (Member of the German Bundestag), I invited Dr. Nestle and organized her visit to the Leibniz Institute for Baltic Sea Research
- 2019 Reviewer for the IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC)
 - Coastal Research on Tour, I presented my research to a broad audience, organized by Helmholtz center Hereon
 - Warnemünder Abende, Presenting my research to a broad audience, organized by Leibniz-Institute for Baltic Sea Research
 - Rostock's Eleven, science communication challenge, nominee for the Leibniz Institute for Baltic Sea Research
- 2018 Create your own #Scicomm bot, speaker, host of an interactive session at Forum Wissenschaftskommunikation (German forum science communication)

Volunteering

2021 Committee member, urban development, City of Rostock

2020-2022 **Deputy speaker**, state working group 'Energy and Climate', Bündnis 90/Die Grünen

2019-2022 Member Radentscheid Rostock, citizen-initiated cycling referendum for the City of Rostock

2018 Co-organization, young scientists event, Baltic Earth Conference