

# Dr. Katharina Bülow

## Climate Scientist

### Details

#### Address

Climate Service Center  
Germany (GERICS)  
Helmholtz-Zentrum hereon  
GmbH

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Fischertwiete 1  
D-20095 Hamburg

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### Area of Expertise

Quantitative Analysis of  
Climate Data  
Data Management  
Climate Data Repositories  
Ensemble Analysis  
Programming Languages  
Statistical Analysis  
Climate Modelling  
Visualization Tools  
Scientific Writing  
Literature Review  
Project Coordination  
User Engagement  
Collaboration  
Public Outreach

### Languages

German (mother tongue)  
Englisch

### Profile

Oceanographer and longtime experienced climate scientist specializing in regional climate modelling. Proficient in high-performance computing, statistical analysis, and data visualization with a strong focus on communicating complex scientific concepts. Proven ability to collaborate in interdisciplinary research teams and manage projects. Passionate about addressing climate change impacts through user engagement.

### Professional Experience

11/2014 – Present

#### Research Scientist

##### Climate Service Center Germany (GERICS) (Prof. Dr. D. Jacob)

- Summarized the local impacts of climate change in the brochure "Stadtwald Karlsruhe im Klimawandel."
- Coordinated user engagement to ensure a co-design approach in all activities in the EUCP project.
- Conducting regional climate simulations, validating and integrating results into the new CMIP6 ensemble in a Copernicus C3S project.
- Investigate snow cover across Europe in the EURO-CORDEX ensemble.
- Calculated climate change indices for the EURO-CORDEX simulations and made them available to users ReKliEs-De project.

09/2011 - 10/2014

#### Research Scientist

##### Federal Maritime and Hydrographic Agency (BSH) (Prof. Dr. H. Heinrich)

- Validated coupled atmosphere-ocean models for the North Sea region and evaluated scenario simulations (Project: KLIWAS).

06/2001 - 08/2011

#### Research Scientist

##### Max Planck Institute for Meteorology (Prof. Dr. Daniela Jacob)

- Conducted climate simulations and analysed simulations with a focus on extreme events using time series analysis (Projects: GLOWA, KLIWA, KLIWAS).

02/1997 - 04/2001

#### Research Scientist

##### Helmholtz Centre Geesthacht (Prof. Dr. H. von Storch)

- Optimized parameters of a nutrient model.

07/1996 - 12/1996

#### Research Assistant

##### GEOMAR Helmholtz Centre for Ocean Research Kiel (Prof. Dr. B. Zeitschel)

- Conducted oceanographic measurements in the North Atlantic.

04/1996 - 06/1996

### Intern

University of Rhode Island, U.S.A. (Prof. Dr. M. L. Spaulding)

- Worked on ocean modelling.

## Education

1979 bis 1989

Gymnasium Blankenese,  
Hamburg, Abitur  
(High School Diploma)

1985 bis 1986

Truro School,  
Truro/Cornwall, England

## Higher Education

2009

### Ph.D. in Climate Science

University of Hamburg

Supervisors: Prof. Dr. D. Jacob and Prof. Dr. H. Graßl

Dissertation: Time Series Analysis of Regional Temperature and Precipitation  
Simulations in Germany

1990 bis 1996

### Diploma in Oceanography

University of Hamburg

Diploma Thesis at the Federal Maritime and Hydrographic Agency (BSH)

Supervisor: Dr. G. Becker

Thesis: Currents, Stratification, and Fronts in the German Bight – Comparison of  
Model Simulations and Measurement Results from a Summer 1994 Experiment

1989

Geology

Freie Universität Berlin

## Publications

Bülow, K., Bauer, S., Steuri, B., Groth, M., Knutzen, F., & Rechid, D. (2024). Stadtwald Karlsruhe im Klimawandel - Der Wald heute und in Zukunft. Zenodo. <https://doi.org/10.5281/zenodo.11473737>

Sobolowski, S., Somot, S., Fernandez, J., Evin, G., Maraun, D., Kotlarski, S., Jury, M., Benestad, R. E., Teichmann, C., Christensen, O. B., Katharina, B., Buonomo, E., Katragkou, E., Steger, C., Sørland, S., Nikulin, G., McSweeney, C., Dobler, A., Palmer, T., Brands, S. (2023). EURO-CORDEX CMIP6 GCM Selection & Ensemble Design: Best Practices and Recommendations. Zenodo. <https://doi.org/10.5281/zenodo.7673400>, submitted to BAMS

Delpiazzo, E., Bülow, K., Baulenas Serra, E., Teichmann, C., Hesselbjerg Christensen, J., Matte, D., Bojovic, D., Kalverla, P., Booth, B., Goddard, C., Fung, F., Solaraju-Murali, B., Lowe, J. (2024). Extended Prototyping as Co-Production of Cutting-Edge Climate Science, submitted to WCAS. Summary of our activities: <https://www.openaccessgovernment.org/european-climate-prediction-system-project-eucp/140470/>

Diez-Sierra, J., Iturbide, M., Gutiérrez, JM., Fernández, J., Milovac, J., Cofiño, AS., Cimadevilla, E., Nikulin, G., Levavasseur, G., Kjellström, E., Bülow, K., Horányi, A., Brookshaw, A., García-Díez, M., Pérez, A., Baño-Medina, J., Ahrens, B., Alias, A., Ashfaq, M., Bukovsky, M., Buonomo, E., Caluwaerts, S., Chou, SC., Christensen, OB., Ciarlo, JM., Coppola, E., Corre, L., Demory, M-E., Djurdjevic, V., Evans, JP., Fealy, R., Feldmann, H., Jacob, D., Jayanarayanan, S., Katzfey, J., Keuler, K., Kittel, C., Kurnaz, ML., Laprise, R., Lionello, P., McGinnis, S., Mercogliano, P., Nabat, P., Öno, B., Ozturk, T., Panitz, H-J., Paquin, D., Pieczka, I., Raffaele, F., Remedio, AR., Scinocca, J., Sevault, F., Somot, S., Steger, C., Tangang, F., Teichmann, C., Termonia, P., Thatcher, M., Torma, C., van Meijgaard, E., Vautard, R., Warrach-Sagi, K., Winger, K., Zittis, G (2022). The worldwide C3S CORDEX grand ensemble: A major contribution to assess regional climate change in the IPCC AR6 Atlas. Bull Am Meteorol Soc. <https://doi.org/10.1175/BAMS-D-22-0111.1>

- Giorgi, F., Coppola, E., Jacob, D., Teichmann, C., Omar, S., Ashfaq, M., Ban, N., Bülow, K., Bukovsky, M., Buntemeyer, L., Cavazos, T., Ciarlo, J., da Rocha, R., Das, S., di Sante, F., Evans, J., Gao, X., Giuliani, G., Glazer, R., Hoffmann, P., Im, E., Langendijk, G., Lierhammer, L., Llopart, M., Mueller, S., Luna-Nino, R., Nogherotto, R., Pichelli, E., Raffaele, F., Reboita, M., Rechid, D., Remedio, A., Remke, T., Sawadogo, W., Sieck, K., Torres-Alavez, J., Weber, T. (2022). The CORDEX-CORE EXP-I Initiative: Description and Highlight Results from the Initial Analysis. *Bull. Amer. Meteor. Soc.*, 103, E293–E310, <https://doi.org/10.1175/BAMS-D-21-0119.1>
- Coppola, E., Raffaele, F., Giorgi, F., Giuliani, G., Xuejie, G., Ciarlo, J.M., Sines, T. R., Torres-Alavez, J. A., Das, S., di Sante, F., Pichelli, E., Glazer, R., Müller, S. K., Abba Omar, S., Ashfaq, M., Bukovsky, M., Im, E.-S., Jacob, D., Teichmann, C., Remedio, A., Remke, T., Kriegsmann, A., Bülow, K., Weber, T., Buntemeyer, L., Sieck, K., Rechid, D. (2021). Climate hazard indices projections based on CORDEX-CORE, CMIP5 and CMIP6 ensemble. *Clim Dyn* **57**, 1293–1383. <https://doi.org/10.1007/s00382-021-05640-z>
- Coppola, E., Nogherotto, R., Ciarlò, J. M., Giorgi, F., van Meijgaard, E., Kadygrov, N., Iles, C., Corre, L., Sandstad, M., Somot, S., Nabat, P., Vautard, R., Levvasseur, G., Schwingshackl, C., Sillmann, J., Kjellström, E., Nikulin, G., Aalbers, E., Lenderink, G., Christensen, O. B., Boberg, F., Sørland, S. L., Demory, M.-E., Bülow, K., Teichmann, C., Warrach-Sagi, K., Wulfmeyer, V. (2021). Assessment of the European Climate Projections as Simulated by the Large EURO-CORDEX Regional and Global Climate Model Ensemble, *Journal of Geophysical Research: Atmospheres*, 126, e2019JD032356, <https://doi.org/10.1029/2019JD032356>
- Vautard, R., Kadygrov, N., Iles, C., Boberg, F., Buonomo, E., Bülow, K., Coppola, E., Corre, L., Meijgaard, E., Nogherotto, R., Sandstad, M., Schwingshackl, C., Somot, S., Aalbers, E., Christensen, O. B., Ciarlò, J. M., Demory, M.-E., Giorgi, F., Jacob, D., Jones, R., Keuler, K., Kjellström, E., Lenderink, G., Levvasseur, G., Nikulin, G., Sillmann, J., Solidoro, C., Sørland, S. L., Steger, C., Teichmann, C., Warrach-Sagi, K., Wulfmeyer, V. (2020). Evaluation of the large EURO-CORDEX regional climate model ensemble, *Journal of Geophysical Research: Atmospheres*, 125, e2019JD032344, <https://doi.org/10.1029/2019JD032344>
- Teichmann, C., Jacob, D., Remedio, A. R., Remke, T., Buntemeyer, L., Hoffmann, P., Kriegsmann, A., Lierhammer, L., Bülow, K., Weber, T., Sieck, K., Rechid, D., Langendijk, G., Coppola, E., Giorgi, F., Ciarlo, J. M., Raffaele, F., Giuliani, G., Xuejie, G., Sines, T. R., Torres-Alavez, J. A., Das, S., Di Sante, F., Pichelli, E., Glazer, R., Ashfaq, M., Bukovsky, M., Im, E.-S. (2020). Assessing mean climate change signals in the global CORDEX-CORE ensemble, *Clim. Dyn.*, <https://doi.org/10.1007/s00382-020-05494-x>
- Ciarlo, J. M., Coppola, E., Fantini, A., Giorgi, F., Xuejie, G., Tong, Y., Glazer, R., Torres, A., Sines, T., Pichelli, E., Raffaele, F., Das, S., Bukovsky, M., Ashfaq, M., Im, E.-S., Nguyen xuan, T., Teichmann, C., Remedio, A., Remke, T., Bülow, K., Weber, T., Buntemeyer, L., Sieck, K., Rechid, D., Jacob, D. (2020). A new spatially distributed added value index for regional climate models: the EURO-CORDEX and the CORDEX-CORE highest resolution ensembles, *Clim. Dyn.*, <https://doi.org/10.1007/s00382-020-05400-5>
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- Bülow, K., Huebener, H., Keuler, K., Menz, C., Pfeifer, S., Ramthun, H., Spekat, A., Steger, C., Teichmann, C., Warrach-Sagi, K. (2019). User tailored results of a regional climate model ensemble to plan adaption to the changing climate in Germany, *Adv. Sci. Res.*, 16, 241–249, <https://doi.org/10.5194/asr-16-241-2019>
- Teichmann, C., Bülow, K., Otto, J., Pfeifer, S., Rechid, D., Sieck, K., Jacob, D. (2018). Avoiding Extremes: Benefits of Staying below +1.5 °C Compared to +2.0 °C and +3.0 °C Global Warming, *Atmosphere*, 9, 115, <https://doi.org/10.3390/atmos9040115>
- Preuschmann, S., & Bülow, K. (2016): Unsicherheiten in Klimamodelldaten. In W. Strasdas & R. Zeppenfeld (Eds.), *Tourismus und Klimawandel in Mitteleuropa, Wissenschaft trifft Praxis - Ergebnisse der Potsdamer Konferenz 2014* (pp. 50–56). Springer Fachmedien Wiesbaden. <https://doi.org/10.1007/978-3-658-14707-5>

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Pfeifer, S., Bülow, K., Gobiet, A., Hänslar, A., Mudelsee, M., Otto, J., Rechid, D., Teichmann, C., Jacob, D. (2015). Robustness of Ensemble Climate Projections Analyzed with Climate Signal Maps: Seasonal and Extreme Precipitation for Germany, *Atmosphere*, 6, 677-698, doi: 10.3390/atmos6050677

Hennemuth, B., Bender, S., Bülow, K., Dreier, N., Hoffmann, P., Keup-Thiel, E. and Mudersbach, C. (2015) Collecting Statistical Methods for the Analysis of Climate Data as Service for Adaptation Projects. *American Journal of Climate Change*, 4, 8- 21. doi: 10.4236/ajcc.2015.41002

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