



Denica Bozhinova

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Research experience

Researcher & Developer

Hydrological Research and Development Unit,
Swedish Meteorological and Hydrological Institute, Norrköping, Sweden

2018 – current

- Climate extremes in the past and future climate
- Future climate projections and climate indicators
- Bias correction and evaluation
- Climate science information capacity development

Post-doc researcher

Oeschger Centre for Climate Change Research, University of Bern,
Bern, Switzerland

2016 – 2018

- Regional climate dynamical downscaling
- Modeling software development (WRF)
- Bias evaluation and correction

Research assistant, Ph.D. student

Wageningen University, Wageningen, the Netherlands

2009 – 2013

- Modelling software development (WRF, SUCROS)
- Validating and assessing model performance, sensitivity studies
- Designing numerical and field experiments
- Executing experimental field and laboratory work

Education

Ph.D. in Meteorology and Air Quality

Wageningen University, Wageningen, the Netherlands

2009 – 2015

Thesis title: “Interpreting plant-sampled $\Delta^{14}\text{CO}_2$ to study regional anthropogenic CO_2 signals in Europe”, defended on 21.10.2015

M.Sc. in Meteorology

Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria

2006 – 2008

Thesis title: “Analysis of the climate variability for the Balkan peninsula”

B.Sc. in Physics

Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria

2002 – 2006

Thesis title: “The phenomenon of El Niño and Southern Oscillation – behaviour and physical mechanism”

Skills

Software:	Working experience with Windows, Linux, Mac OSX, office applications, LaTeX
Programming:	Strong experience with Python, working with Fortran, HPC systems, code development and version control with Git.
Numerical models:	Development and proficient use of regional weather and climate model (WRF-Chem) and crop growth model (SUCROS)
Data analysis:	Using Python for pre- and post-processing of large (NetCDF) datasets, data visualization and statistical analysis; Bias-adjustment and evaluation
Organisation:	Planning of scientific symposium and field experiments; social and team building events for staff, students and guests
Communication:	Experienced in communicating interdisciplinary research to non-scientists, most recently used in training workshops on the use of climate science information for climate action
Languages:	Bulgarian (native), English (fluent/C2), Swedish (intermediate/B1)

Academic activities

Journal publications

- Berg, P., Almén, F., and **Bozhinova, D.**: *HydroGFD3.0 (Hydrological Global Forcing Data): a 25 km global precipitation and temperature data set updated in near-real time*, Earth Syst. Sci. Data, 13, 1531–1545, <https://doi.org/10.5194/essd-13-1531-2021>, 2021
- Schleiss, M., Olsson, J., Berg, P., Niemi, T., Kokkonen, T., Thorndahl, S., Nielsen, R., Ellerbæk Nielsen, J., **Bozhinova, D.**, and Pulkkinen, S.: *The accuracy of weather radar in heavy rain: a comparative study for Denmark, the Netherlands, Finland and Sweden*, Hydrol. Earth Syst. Sci., 24, 3157–3188, <https://doi.org/10.5194/hess-24-3157-2020>, 2020
- Belusic, D., Berg, P., **Bozhinova, D.**, Barring, L., Döscher, R., Eronn, A., Kjellström, E., Klehmet, K., Martins, H., Nilsson, C. and Olsson, J.: *Climate extremes for Sweden*, Swedish Meteorological and Hydrological Institute, doi:10.17200/Climate_Extremes_Sweden, 2019.
- Gómez-Navarro, J. J., Raible, C. C., **Bozhinova, D.**, Martius, O., García-Valero, J. A., and Montávez, J. P.: *A new region-aware bias correction method for simulated precipitation in the Alpine region*, Geosci. Model Dev., vol. 11, p. 2231 – 2247, doi:10.5194/gmd-11-2231-2018, 2018.
- Felder, G., Gómez-Navarro, J. J., Zischg, A. P., Raible, C. C., Röthlisberger, V., **Bozhinova, D.**, Martius, O., and Weingartner, R.: *From global circulation to local flood loss: Coupling models across the scales*, Science of the Total Environment, vol. 635, p.1225 – 1239, doi:10.1016/j.scitotenv.2018.04.170, 2018.
- **Bozhinova, D.**, Palstra, S.W.L., van der Molen, M. K., Krol, M. C., Meijer, H. A. J., and Peters, W.: *Three years of $\Delta^{14}\text{CO}_2$ observations from maize leaves in the Netherlands and Western Europe*, Radiocarbon, vol. 58 (3), p. 459 – 478, doi:10.1017/RDC.2016.20, 2016.
- **Bozhinova, D.**, van der Molen, M. K., van der Velde, I.R., Krol, M. C., van der Laan, S., Meijer, H. A. J., and Peters, W.: *Simulating the integrated summertime $\Delta^{14}\text{CO}_2$ signature from anthropogenic emissions over Western Europe*, Atmos. Chem. Phys., vol. 14 (14) pp. 7273 – 7290, doi:10.5194/acp-14-7273-2014, 2014.
- **Bozhinova, D.**, Combe, M., Palstra, S.W.L., Meijer, H.A.J., Krol, M.C., and Peters, W.: *The importance of crop growth modeling to interpret the $\Delta^{14}\text{CO}_2$ signature of annual plants*, Global Biogeochemical Cycles, vol. 27 (3), p. 792 – 803, doi:10.1002/gbc.20065, 2013.

Recent workshops and trainings

- WMO Climate Science Information for Climate Action Regional Workshop, Jakarta, Indonesia, 2023 (*trainee*)
- WMO Climate Science Information for Climate Action Regional Workshop, Johannesburg, South Africa, 2022 (*trainer*)

Selected work

- [European hydrology and climate data explorer](#) and [European hydrology seasonal forecast explorer](#) - Applications developed for the Copernicus Climate Change Service as part of the *Operational service for the water sector*