

Andreas F. Prein

Curriculum Vitae

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Education

- 7/11/2013 **PhD, magna cum laude**, *Institute of Physics, Karl-Franzens-University, Graz, Austria*, Thesis: *Added Value of Convection-Permitting Climate Simulations*.
- 10/14/2009 **Master of Science, cum laude**, *Institute of Physics, Karl-Franzens-University, Graz, Austria*, Thesis: *Uncertainties in the Driving Data of Regional Climate Models (RCMs) in the Alpine Region*.
- 10/11/2006 **Bachelor of Science**, *Institute of Physics, Karl-Franzens-University, Graz, Austria*, Theses: *Conceptual Climate Models; The Potential of Wind Energy in Austria*.

Research Positions

- since– **Deputy Director of the Capacity Center for Climate and Weather Extremes (C3WE)**, *National Center for Atmospheric Research (NCAR), Boulder, USA*, Mesoscale & Microscale Meteorology Laboratory (MMM).
06/2022
- since– **Project Scientist 2**, *National Center for Atmospheric Research (NCAR), Boulder, USA*, Mesoscale & Microscale Meteorology Laboratory (MMM).
11/2019
Research focus: 1) The importance of mesoscale processes in the Earth's water and energy cycle; 2) Organized convective storms in past, current, and future climates; 3) Precipitation extremes and climate change.
- 11/2016– **Project Scientist 1**, *National Center for Atmospheric Research (NCAR), Boulder, USA*, Mesoscale & Microscale Meteorology Laboratory (MMM).
11/2019
- 11/2014– **Postdoctoral Scientist**, *National Center for Atmospheric Research (NCAR), Boulder, USA*, Advanced Study Program (ASP).
11/2016
Research focus: 1) Representation and climate change projections of sub-daily extreme precipitation in convection-permitting climate simulations over North America; 2) weather patterns as a driver of precipitation changes in the U.S.; 3) using weather patterns as a tool for climate model evaluation and climate change assessments.
- 07/2013– **Postdoctoral Scientist**, *Wegener Center for Climate and Global Change, Karl-Franzens-University, Graz, Austria*, Projects: EURO-CORDEX, NHCM-2.
11/2014
Research focus: 1) Added value in convection-permitting climate simulations; 2) uncertainties in gridded observational datasets and their impacts on climate model evaluation; 3) extreme precipitation in the European Alpine region.
- 05/2008– **Scientist**, *Wegener Center for Climate and Global Change, Karl-Franzens-University, Graz, Austria*, Projects: reclip:century, NHCM-1, ACQWA.
07/2013
Research focus: 1) Uncertainties in European climate change projections; 2) added value of convection-permitting climate simulations

Research Visits

- 10/2011– **Visiting scientist**, *Regional Climate Group, MMM, NCAR, Boulder, CO, USA*.
02/2012

09/2006– **Exchange semester**, *University of Turku, Turku, Finland.*
12/2006

Research Interests

Weather and climate extremes
Mesoscale processes in the Earth's water and energy cycle
Interaction of processes across spatiotemporal scales
Process-based model evaluation

Grants and Fellowships

Pending

2022 **Understanding the scales and processes driving future changes in U.S. streamflow by integrating machine learning and physically-based models**, *DOE.*

Funded

9/2020 **The big data and climate FRONTIER: making sense of the explosive increase in climate data through smart designs and big data methods**, *Norwegian Research Council.*

9/2019 **Convection-Permitting Modeling for Intense Precipitation Processes**, *Nuclear Regulatory Commission.*

6/2019 **Using ARM Observations to Evaluate Process-Interactions in MCS Simulations Across Scales**, *Principal Investigator*, Awarded by Department of Energy.

5/2019 **Building an Integrative Geoengineering (Climate and Weather Intervention) Modeling Research Initiative**, *CO-Principal Investigator*, Awarded by UCAR.

9/2016 **Detecting, Interpreting, and Modeling Hydrologic Extremes to Support Flexible Water Management and Planning**, *Co-Principal Investigator*, Awarded by Bureau of Reclamation.

9/2013 **Non-Hydrostatic Climate Modeling Phase-II**, *Co-Investigator*, Awarded by Austrian Science Found (FWF).

9/2013 **High-End:Extremes**, *Co-Investigator*, Awarded by Austrian Climate Research Program (ACRP).

Fellowships

12/2014 **Advanced Study Program (ASP) sholarship**, *Awarded by the National Center for Atmospheric Research (NCAR), Boulder, USA.*

04/2011 **Marshall Plan Scholarship holder**, *Awarded by the Austrian Marshall Plan Foundation, Vienna.*

Peer-Reviewed Publications

2022

Prein AF et al. (submitted) **Convection-Permitting Third Pole Experiment – Towards Ensemble-Based Kilometer-Scale Climate Simulations over the Third Pole Region.** *Climate Dynamics*

Chan CS, Kendon EJ, Fowler HJ, Kahraman A, Crook J, Ban N, **Prein AF** (submitted) Large-scale dynamics moderate impact-relevant changes to organised convective storms. *Nature Geoscience*

Kukulies J, **Prein AF**, Curio J; Chen D (submitted) Evaluating kilometer-scale multi-model and multi-physics ensemble simulations of a mesoscale convective system in the lee of the Tibetan Plateau. *Journal of Climate*

Liu Y, **Prein AF** (submitted) Increasing Extreme Precipitation Polarizes Spatial Patterns of Flood Risks in China. *Nature Climate Change*

Yu H, **Prein AF**, Qi D, Zhao R, Wang K (submitted) Roles of Grid-Spacing and Convection Parameterization in Simulating a Record-Breaking Rainstorm in Henan Province, China. *Journal of Geophysical Research - Atmospheres*

Bromley G, **Prein AF**, Albeke SE, Stoy PC (submitted) The decline in summer fallow in the Northern Plains cooled near-surface climate but had minimal impacts on precipitation. *Climate Dynamics*

Wang D, **Prein AF**, Giangrande S, Ramos-Valle R, Ge M, and Jensen M (2022) Convective Updraft and Downdraft Characteristics of Mesoscale Convective Systems in the Model Gray Zone. *GJR-A*

Prein AF, Ge M, Ramos Valle A, Wang D, Giangrande SE (2022) Towards a Unified Setup to Simulate Mid-Latitude and Tropical Mesoscale Convective Systems at Kilometer-Scales *Earth and Space Science*

Giorgi F, **Prein AF** (2022) Populated regional climate models (Pop-RCMs): the next frontier in regional climate modeling. *PLOS Climate*

Done J, Lackmann G, **Prein AF** (2022) The Response of Tropical Cyclone Intensity to Temperature Profile Change. *Weather and Climate Dynamics*

Prein AF, Coen J, Jaye A (2022) The Character and Changing Frequency of Extreme California Fire Weather. *Journal of Geophysical Research – Atmosphere*, <http://doi.org/10.1029/2021JD035350>

Quintero F, Villarini G, **Prein AF**, Zhang W, Krajewski WF (submitted) Discharge and Floods in Iowa Projected to Increase More Than Precipitation Extremes. *Advances in Water Resources*

Prein AF, Towler E, Ge M, Llewellyn D, Baker S, Tighi S, Barrett L (2022) Sub-Seasonal Predictability of North American Monsoon Precipitation. *Geophysical Research Letters*, <https://doi.org/10.1029/2021GL095602>

Quintero F, Villarini G, **Prein AF**, Witold FK, Wei Zhang (2022) On the Role of Atmospheric Simulations Horizontal Grid Spacing for Flood Modeling. *Climate Dynamics*

Li Z, Gao S, Chen M, Gourley J, Liu C, **Prein AF**, and Hong Y (2022) The conterminous United States are projected to become more prone to flash floods in a high-end emissions scenario. *Communications Earth & Environment*

2021

Tilmes S, et al. (2021) Developing a framework for an interdisciplinary and international climate intervention strategies research program. *BAMS*

Molina MJ, Gagne DJ, **Prein AF** (2021) Deep learning classification of potentially severe convective storms in a changing climate. *Earth and Space Science*, <https://doi.org/10.1002/essoar.10504498.1>

Scaff L, **Prein AF**, Li Y, Clark AJ, Krogh S, Taylor N, Liu C, Rasmussen RM, Ikeda K, Li Z (2021) Dryline characteristics in North America's historical and future climates. *Climate Dynamics* <https://doi.org/10.1007/s00382-021-05800-1>

Prein AF, Rasmussen RM, Wang D., Giangrande S. (2021) Sensitivity of Organized Convective Storms to Model Grid Spacing in Current and Future Climates. *Phil. Trans. R. Soc. A*; 379: 20190546. <https://doi.org/10.1098/rsta.2019.0546>

Prein AF, Mearns L (2021) U.S. Extreme Precipitation Weather Types Increased in Frequency During the 20th Century. *Journal of Geophysical Research – Atmosphere* <https://doi.org/10.1029/2020JD034287>

Fowler HJ, et al. (2021) Towards advancing scientific knowledge of climate change impacts on short-duration rainfall extremes. *Philosophical Transactions of the Royal Society A.*, <https://doi.org/10.1098/rsta.2019.0542>

Fowler HJ, Lenderink G, **Prein AF**, et al. (2021) Anthropogenic intensification of short-duration rainfall extremes. *Nature Reviews*, <https://doi.org/10.1038/s43017-020-00128-6>

Kendon EJ, **Prein AF**, Senior CA, Stirling A (2021) Challenges and outlook for convection-permitting climate modelling. *Philosophical Transactions of the Royal Society A.*, <https://doi.org/10.1098/rsta.2019.0547>

Poujol B, **Prein AF**, Molina MJ, Muller C (2021) Dynamic and Thermodynamic Impacts of Climate Change on Organized Convection in Alaska. *Climate Dynamics*, <https://doi.org/10.1007/s00382-020-05606-7>

Zhou X, Yang K, Ouyang L, Wang Y, Jiang Y, Li X, Chen D, **Prein AF** (2021) Added Value of Kilometer-scale Modeling over the Third Pole Region: A Pilot Study. *Climate Dynamics*, <https://doi.org/10.1007/s00382-021-05653-8>

2020

Poujol B, **Prein AF**, Newman AJ (2020) Kilometer-scale modeling projects a tripling of Alaskan convective storms in future climate. *Climate Dynamics*

Li P, Moseley C, **Prein AF**, Chen H, Li J, Furtado K, Zhou T (2020) Mesoscale convective systems precipitation characteristics over East Asia. Part I: regional differences and seasonal variations. *Journal of Climate*

Prein AF, Heymefield AJ (2020) The Impacts of an Increasing Melting Level Height on Surface Precipitation Phase and Intensity. *Nature Climate Change*

Pavlidis V, Katragkou E, **Prein AF**, Georgoulas AK, Kartsios S, Zanis P, Karacostas T (2020) Investigating the sensitivity to resolving aerosol interactions in downscaling regional model experiments with WRFv3.8.1 over Europe. *Geoscientific Model Development*

Molina MJ, Allen JT, **Prein AF** (2020) Moisture Attribution and Sensitivity Analysis of a Winter Tornado Outbreak. *Weather and Forecasting*

Wang D, Giangrande SE, Feng Z, Hardin JC, **Prein AF** (2020) Updraft and Downdraft Core Size and Intensity as Revealed by Radar Wind Profilers: MCS Observations and Idealized Model Comparisons. *Journal of Geophysical Research*

Jacob D, Teichmann C, Sobolowski S, et al. (2020) Regional climate downscaling over Europe: perspectives from the EURO-CORDEX community. *Reg Environ Change* 20, 51 (2020). <https://doi.org/10.1007/s10113-020-01606-9>

Towler E, Llewellyn D, **Prein AF**, Gilleland E (2020) Extreme-value analysis for the characterization of extremes in water resources: A generalized workflow and case study on New Mexico monsoon precipitation. *Weather and Climate Extremes*

Lopez-Cantu TP, **Prein AF**, Samaras C (2020) Integrating uncertainties across U.S. rainfall projections can increase robustness in planning for climate resilience. *Geophysical Research Letters*

Shen X, Huang DD, Wang W, **Prein AF**, and Togneri R (2020) Retrieval of Cloud Liquid Water Using Microwave Signals from LEO Satellites: a Feasibility Study through Simulations. *Atmosphere*

Darwish MM, Tye MR, **Prein AF**, Fowler HJ, Blenkinsop S, Dale M, Duncan F (2020) New hourly extreme precipitation regions and regional annual probability estimates for the UK. *International Journal of Climatology*

Bromley GT, Gerken T, **Prein AF**, Stoy PC (2020) Recent trends in the near-surface climatology of the northern North American Great Plains. *Journal of Climate*

2019

Tamang SK, Ebtehaj AM, **Prein AF**, Heymsfield AJ (2019) On Changes of Global Wet-bulb Temperature and Snowfall Regimes. *Journal of Climate*

Grabowski WW, **Prein AF** (2019) Separating dynamic and thermodynamic impacts of climate change on daytime convective development over land. *Journal of Climate*

Piazza M, **Prein AF**, Truhetz H, and Csaki A (2019) On the sensitivity of precipitation in convection-permitting climate simulations in the Eastern Alpine region. *Meteorologische Zeitschrift*

Prein AF, Bukovsky MS, Mearns LO, Bruyère C, and Done JM (2019) Simulating North American Weather Types with Regional Climate Models. *Frontiers*

Prein AF, AG Pendergrass (2019) Can we Constrain Uncertainty in Hydrologic Cycle Projections? *Geophysical Research Letters*

Scaff L, **Prein AF**, Li Y, Liu C, Rasmussen R, and Ikeda K (2019) Simulating the diurnal cycle of convective precipitation in North America's current and future climate with a convection-permitting model. *Climate Dynamics*

2018

Prein AF, GJ Holland (2018) Global Estimates of Damaging Hail Hazard. *Weather and Climate Extremes*, <https://doi.org/10.1016/j.wace.2018.10.004>

Musselman KN, Lehner F, Ikeda K, Clark M, **Prein AF**, Liu C, Barlage M, and Rasmussen R (2018) Projected increases and regime shifts in rain-on-snow flood potential over western North America. *Nature Climate Change*

Blenkinsop S, Fowler HJ, Barbero R, Chan SC, Guerreiro SB, Kendon E, Lenderink G, Lewis E, Li X, Westra S, Alexander L, Allan RP, Berg P, Dunn RJD, Ekström M, Evans JP, Holland G, Jones R, Kjellström E, Klein-Tank A, Lettenmaier D, Mishra V, **Prein AF**, Sheffield J, Tye MR (2018) The INTENSE project: using observations and models to understand the past, present and future of sub-daily rainfall extremes. *Advances in Science and Research*

2017

KL Rasmussen, **AF Prein**, RM Rasmussen, K Ikeda, C Liu (2017) Changes in the convective population and thermodynamic environments in convection-permitting regional climate simulations over the United States. *Climate Dynamics*

Prein AF, C Liu, K Ikeda, S Trier, RM Rasmussen, GJ Holland, MP Clark (2017) Increasing rainfall volume from future severe convective storms. *Nature Climate Change*. doi:10.1038/s41558-017-0007-7

Prein AF, C Liu, K Ikeda, R Bullock, RM Rasmussen, GJ Holland, M Clark (2017) Simulating North American Mesoscale Convective Systems with a Convection-Permitting Climate Model. *Climate Dynamics*. doi:10.1007/s00382-017-3947-8

Aiguo D, RM Rasmussen, C Liu , K Ikeda , **AF Prein** (2017) Changes in Precipitation Characteristics over North America by the Late 21st Century Simulated by a Convection-Permitting Model. *Climate Dynamics*

Půčik T, P Groenemeijer, AT Rädler, L Tijssen, G Nikulin, **AF Prein**, E van Meijgaard, R Fealy, C Teichmann, D Jacob (2017) Future changes in European severe convection environments in a regional climate model ensemble. *Journal of Climate*

PA Mooney, DC Broderick, CL Bruyere, FJ Mulligan, **AF Prein** (2017) The role of regional climate model physics in simulating the summertime diurnal cycle of precipitation over the contiguous United States. *Journal of Climate*

Prein AF, RM Rasmussen, G Stephens (2017) Challenges and Advances in Convection-Permitting Climate Modeling. *BAMS*; doi:10.1175/BAMS-D-16-0263.1

Prein AF, A Gobiet (2017) Impacts of uncertainties in European gridded precipitation observations on regional climate analysis. *Int. J. Climatol.*, 37: 305–327. doi:10.1002/joc.4706

Prein AF, RM Rasmussen, K Ikeda, C Liu, M Clark, GJ Holland (2017) The future intensification of hourly precipitation extremes. *Nature Climate Change*; 7(1):48–52; doi:10.1038/nclimate3168

2016

Liu C, K Ikeda, RM Rasmussen, M Barlage, AJ Newman, **AF Prein** et al. (2016), Continental-scale convection-permitting modeling of the current and future climate of North America. *Climate Dynamics*, doi:10.1007/s00382-016-3327-9

Prein AF, GJ Holland, RM Rasmussen, MP Clark, MR Tye (2016) Running dry: The US Southwest's drift into a drier climate state. *Geophysical Research Letters*, 43 (3), 1272-1279

Prein AF, et al. (2016) Precipitation in the EURO-CORDEX 0.11° and 0.44° simulations: high resolution, high benefits? *Climate Dynamics*, 46 (1-2), 383-412

Tobin I, Jerez S, Vautard R, Thais F, Van Meijgaard E, **Prein A**, Déqué M, Kotlarski S, Maule CF, Nikulin G, Noël T. (2016) Climate change impacts on the power generation potential of a European mid-century wind farms scenario. *Environmental Research Letters*. 2016 Mar 4;11(3):034013.

2015

Prein AF, et al. (2015) A review on regional convection-permitting climate modeling: demonstrations, prospects, and challenges. *Reviews of Geophysics*, 53, 323–361

Jury MW, **Prein AF**, Truhetz H., Gobiet A. (2015) Evaluation of CMIP5 Models in the Context of Dynamical Downscaling over Europe. *Journal of Climate*, 28, 5575–5582

2013

Prein AF, A Gobiet, M Suklitsch, H Truhetz, NK Awan, K Keuler, G Georgievski (2013) Added Value of Convection Permitting Seasonal Simulations. *Climate Dynamics*, 41(9–10), 2655–2677.

Prein AF, GJ Holland, RM Rasmussen, J Done, K Ikeda, MP Clark, CH Liu (2013) Importance of Regional Climate Model Grid Spacing for the Simulation of Heavy Precipitation in the Colorado Headwaters. *Journal of Climate*, 26, 4848–4857.

2011

Prein AF, A Gobiet and H Truhetz (2011) Analysis of Uncertainty in Large Scale Climate Change Projections Over Europe. *Meteorologische Zeitschrift*, 20(4), 383–395.

Invited Talks

Prein AF Modeling the Impacts of Climate Change on Extreme Precipitating Storm Colloquium at the University of Vienna, March 22, 2022; Vienna, Austria

Prein AF, Rasmussen R, Liu C, and Ikeda K Convection-Permitting WRF Climate Modeling at Continental-Scales WRF/MPAS Users' Workshop 2021, 9 June, 2021, Boulder, CO, USA

Prein AF; Rasmussen R, Ikeda K, Liu C, Dominquez F The use of Convective Permitting Modeling in South America Research AGU 2021 Fall Meeting, Dec. 17, 2021; New Orleans and Online

Prein AF; Rasmussen R, Ikeda K, Liu C, Dominquez F The use of Convective Permitting Modeling in South America Research AGU 2021 Fall Meeting, Dec. 17, 2021; New Orleans and Online

Prein AF; Ramos A, Ge M, Wang D, Giangrande S, Elsaesser G, Wu J Ensemble Based LES Simulations of Mesoscale Convective Systems AGU 2021 Fall Meeting, Dec. 15, 2021; New Orleans and Online

Prein AF; Advances and challenges in global and regional climate modeling WCRP Climate Research Forum - Climate research priorities for the next decade, May 11, 2021 https://www.wcrp-climate.org/images/activities_iniatives/WCRP-Climate-Research-Forum-NCACG-May2021.pdf

Prein AF; Modeling of Mesoscale-Convective Systems Downstream of Mountain Regions EGU Annual Assembly, April 27, 2021, <https://meetingorganizer.copernicus.org/EGU21/EGU21-1313.html>

Prein AF, Jordan Powers, Erin Towler, and David Ahijevych; On the Applicability of Kilometer-Scale Heavy Precipitation in Flood Risk Assessments Nuclear Regulatory Commission - Probabilistic Flood Hazard Assessment (PFHA) Research Workshop – 2021, Feb. 22, 2021

Prein AF, Roy M. Rasmussen, Kyoko Ikeda, Changhai Liu; What can Kilometer-Scale Models Tell Us About Climate Change Impacts on Extreme Precipitation? University of Arizona, Department of Hydrology and Atmospheric Sciences, Tucson, Arizona, USA, October 1, 2020

Prein AF, Roy M. Rasmussen, Kyoko Ikeda, Changhai Liu; Towards Global Convection-Permitting Earth System Modeling? NASA, ACCP webinar, USA, September 28, 2020

Prein AF, Die Wang, Basile Poujol, Roy Rasmussen, Scot Giangrande, Kyoko Ikeda, Changhai Liu, Mike Barlage, Alexandra Ramos Valle, Fei Cheng; International Workshop - Convection-Permitting Modeling for Climate Research - Current and Future Challenges? Virtual Workshop, September 2–3, 2020

Prein AF; What can Storm-Scale Models Tell us About Climate Change Impacts on Extreme Rainfall? Royal Society meeting on "Intensification of short-duration rainfall extremes and implications for flash flood risks", London, UK, February 3, 2020

Prein AF, Roy M. Rasmussen, Kyoko Ikeda, Changhai Liu; Simulating Organized Convective Storms in Climate Models UK Met Office 4th Convective Scale Modelling Workshop, Boulder, Colorado, USA, January 30, 2020

Prein AF; Kilometer-Scale Climate Modeling in Mountain Regions: Advances, Challenges, and Opportunities ICRC-CORDEX 2019, Beijing, China, October 17, 2019

Prein AF, Roy M. Rasmussen, Kyoko Ikeda, Changhai Liu, Mike Barlage, Die Wang, Scott Giangrande; The Effect of Model Resolution on Simulated Mesoscale Convective Systems Simulating Organized Convective Storms in Climate Models Latsis Symposium 2019, ETH Zurich, Switzerland, August 23, 2019

Prein AF, Roy M. Rasmussen, Kyoko Ikeda, Changhai Liu; The Effect of Model Resolution on Simulated Mesoscale Convective Systems. Simulating Organized Convective Storms in Climate Models Invited seminar at the German National Meteorological Service (DWD), Offenbach, Germany, August 19, 2019

Prein AF; Continental-Scale Convection-Permitting Climate Modeling at NCAR: Advances, Challenges, and Lessons Learned for S2S and Climate Predictions. International Workshop on Climate Prediction: Past, Present, and Future 2019, Taipei, Taiwan, June 3-4, 2019

Prein AF; Severe Convection In Climate Models. North American Hail Workshop. August 14, 2018, Boulder, CO.

Prein AF; North American Mesoscale Convective Systems Under Climate Change. AOGS annual meeting. June 4, 2018, Honolulu, Hawaii.

Prein AF et al.; North American Mesoscale Convective Systems Under Climate Change. University of Michigan, March. 8, 2018, Ann Arbor, Michigan.

Prein AF et al.; Mesoscale Convective Systems Under Climate Change: Results from North American Scale Convection-Permitting Climate Simulations. AGU Fall meeting, Dec. 11, 2017, New Orleans, Louisiana.

Prein AF; North American Scale Convection-Permitting Climate Modeling: Mesoscale Convective Systems Under Climate Change. AMS 17th Conference on Mesoscale Processes, July 27, 2017, San Diego, California.

Prein AF; North American Extreme Rainfall Events Under Climate Change. CNR-CWP annual science meeting, May 3, 2017, Montreal, Canada.

Prein AF et al.; Changing Characteristics of Convective Systems: Results from a Continental-Scale Convection-Permitting Climate Simulations. American Geophysical Union, Fall Meeting 2016, December 12, 2016, San Francisco, USA.

Prein AF et al.; Climate simulations on the impact-scale. Newcastle University, May 22, 2016, Newcastle, U.K.

Prein AF et al.; Regional Convection-Permitting Climate Modeling: Demonstrations, Prospects, and Challenges. International ICRC-CORDEX Conference, May 18, 2016, Stockholm, Sweden.

Prein AF et al.; A Review on Regional Convection-Permitting Climate Modeling: Demonstrations, Prospects, and Challenges. American Geophysical Union, Fall Meeting 2015, December 16, 2015, San Francisco, USA.

Prein AF, R Rasmussen, M. Clark, K, Ikeda, C. Liu; Continental-Scale Convection-Permitting Regional Climate Modeling. American Geophysical Union, Fall Meeting 2015, December 16, 2015, San Francisco, USA.

Prein AF et al.; Precipitation in the EURO-CORDEX 0.11° and 0.44° simulations: high resolution, high benefits? American Geophysical Union, Fall Meeting 2014, December 17, 2014, San Francisco, USA.

Prein AF; The EURO-CORDEX Initiative: A new generation of regional climate scenarios for Europe. Seventh ICTP Workshop on the Theory and Use of Regional Climate Models, May 13, 2014. ICTP, Trieste, Italy.

Prein AF; Added Value of Convection Permitting Climate Simulations (CRCSs). Institut f. Atmosphäre und Klima, May 21, 2013, Zürich, Switzerland.

Honors, Awards, and Accomplishments

- 00/2021 **NCAR & UCAR Outstanding Publication Award**, Prein AF, RM Rasmussen, K Ikeda, C Liu, M Clark, GJ Holland (2017) The future intensification of hourly precipitation extremes. *Nature Climate Change*; 7(1):48–52;doi:10.1038/nclimate3168.
- 04/2020 **Geophysical Research Letters - top downloaded article in 2018-2019**, Prein, A.F. and Pendergrass, A.G., 2019. Can We Constrain Uncertainty in Hydrologic Cycle Projections? *Geophysical Research Letters*, 46(7), pp.3911-3916..
- 07/2018 **Highlighted as promising future leader in climate science by the World Climate Research Program (WCRP)**, <https://www.wcrp-climate.org/future-science-leadership/spotlight-on-early-career-researchers>.
- 06/2018 **Early Career Researcher Kamide Lecturer**, 15th AOGS annual meeting, Honolulu, HI.
- 06/2018 **Wiley top downloaded article in 2016-2017**, Prein and Gobiet 2017, Impacts of uncertainties in European gridded precipitation observations on regional climate analysis, *Int. J. Climatol.*, 37: 305–327. doi:10.1002/joc.4706, 1380 downloads within the first 12 months of online publication.
- 05/2018 **Early Career Researcher presentation award**, 8th GEWEX Open Science Conference 2018, Canmore, CA.
- 03/2017 **AGU top-cited papers in 2015-2016**, Prein et al. 2015, A review on regional convection-permitting climate modeling: Demonstrations, prospects, and challenges, *Reviews of Geophysics*, 53, 323–361, Highlighted in *Meteorology and Atmospheric Science* quarterly newsletter, March 2017.
- 01/2017 **Cover story Nature Climate Change**, Prein et al. 2016, The future intensification of hourly precipitation extremes. *Nature Climate Change*, 7(1):48–52, In January 2017 issue.
- 05/2016 **Poster Award**, *International Conference on Regional Climate (ICRC)-CORDEX 2016*, Stockholm, Sweden.

11/2009 **Poster Award**, 3. *Austrian Day of Meteorology*, November 5–6, 2009, Graz, Austria.

Professional Leadership and Development

- 08/2019 – **Panel Member**, *GEWEX Hydroclimatology Panel*, <http://www.gewex.org/current/panels/gewex-hydroclimatology-panel/>.
- 11/2020 – **Steering Committee Member**, *WCRP Digital Earths Lighthouse Activity*, <https://www.wcrp-climate.org/wcrp-ip-1a>.
- 05/2022 – **Associate Editor**, *Atmospheric Science (specialty section of Frontiers in Earth Science, Frontiers in Environmental Science and Frontiers in Physics)*, <https://www.frontiersin.org/journals/all/sections/atmospheric-science>.
- 12/2021 – **Affiliate member**, *WCRP Safe Landing Climates Lighthouse Activity*, <https://www.wcrp-climate.org/safe-landing-climates>.
- 10/2019 – **Working Group Leader**, *WCRP CORDEX project - Convection-Permitting Third Pole (CPTP)*, http://rcg.gvc.gu.se/cordex_fps_cptp/.
- 08/2022 – **Guest Editor**, *Journal of the Meteorological Society of Japan (JMSJ) and Scientific Online Letters on the Atmosphere (SOLA)*, Japan.
- 06/2019 – **Scientific Advisor**, *EU Horizon 2020 project - European Climate Prediction system (EUCP)*, <https://www.eucp-project.eu/>.
- 02/2020 – **Guest Editor**, *For the Philosophical Transactions of the Royal Society A*, London, UK.
- 11/2016 – **Associate Editor**, *For the international journal Climate Dynamics*, Springer, Germany.
- 10/2016 – **Coordinator**, *Climate Dynamics Special Issue on “Advances in Convection Permitting Climate Modeling”*, Springer, Germany.
- 10/2018 **Participant**, *High Impact Communication for Scientists, October 16–17, 2018*, Boulder, CO, CI International Training.
- 9/2018 **Coordinator**, *2nd GEWEX Convection Permitting Climate Modeling Workshop, September 4–6, 2018*, Boulder, CO, <https://ral.ucar.edu/events/2018/cpcm>.
- 9/2016 **Coordinator**, *GEWEX Convection Permitting Climate Modeling Workshop, September 6–9, 2016*, Boulder, CO, <https://ral.ucar.edu/events/2016/cpcm>.
- 5/2016 **Coordinator**, *ICRC-CORDEX conference side event on Convection-Permitting Climate Modeling*, Stockholm, Sweden.
- 4/2016 **Session Co-Chair**, *EGU Annual Meeting, Atmospheric convection and convection-permitting modelling*, Vienna, Austria.
- 2016– **Organizer**, *”MMM Dynamic Happy Hour”*, National Center for Atmospheric Research, Mesoscale and Microscale Meteorology Laboratory.
- 12/2015 **Coordinator**, *AGU Annual Meeting side event on Convection-Permitting Climate Modeling*, San Francisco, CA.
- 09/2015 **Participant**, *2015 Swiss Climate Summer School: Extreme events and climate*, Ascona, Switzerland.
- 2014–2016 **Organizer**, *”Thompson Lecture Series” seminar*, National Center for Atmospheric Research, Advanced Study Program.
- 02/2010– **Co-Coordinator**, *COSMO-CLM Convection Resolving Climate Simulation (CRCS) group*.
- 11/2014

- 01/2012 **Participant**, *WRF tutorial*, Boulder, CO, USA.
- 02/2010 **Participant**, *COSMO/CLM Spring School 2010*, Langen, Germany.
- 06/2009 **Participant**, *Summer School on “Climate Variability & Climate Change: Estimating and Reducing Uncertainties”*., Visegrad, Hungary.

Outreach

- 08/2018 **Press Conference**, *At the “1st North American Hail Workshop”*, Coverage of hail hazard in a changing climate.
- 05/2018 **NCAR Journalism Summit**, *Member on the panel about “Future storms, future risks”*.
- 11/2017 **Press Release**, *On article “Increasing rainfall volume from future severe convective storms”*, Nationwide coverage in media outlets such as The Washington Post, NPR, CBS News, and Scientific American.
- 12/2016 **Press Release**, *On article “The future intensification of hourly precipitation extremes”*, Triggered more than 300 nationwide news articles in newspapers such as The New York Times, The Washington Post, or Physics Today.
- 2/2016 **Press Release**, *On article “Running dry: The U.S. Southwest’s drift into a drier climate state”*, Nationwide coverage and interviewed by reporters from multiple newspapers and radio stations.
- 2011– **Journal Reviewer**, *Nature Climate Change, Bulletin of the American Meteorological Society (BAMS), Scientific Reports, Journal of Climate, Climate Dynamics, Journal of Geophysical Research: Atmosphere, Geophysical Research Letters, Weather and Climate Extremes, Journal of Hydrometeorology, International Journal of Climatology, Monthly Weather Review, Water Resources Research, Geoscientific Model Development, Environmental Research Letters, Tellus A, Quarterly Journal of the Royal Meteorological Society, Journal of Applied Meteorology and Climatology, Meteorologische Zeitschrift.*

Languages

- German **Mother tongue**
- English **Fluent**

Computer Skills

- Platforms Linux, Windows
- Programming Python, IDL, R, MATLAB, FORTRAN, Scripting
- Editing Writing and editing of scientific documents with \LaTeX