

Michael F. Wehner

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Education:

Ph.D., 1983, University of Wisconsin-Madison (Nuclear Engineering)
M.S., 1980, University of Wisconsin-Madison (Nuclear Engineering)
B.S., 1978, University of Delaware, Graduated with High Honors (Physics)

Dissertation:

Numerical Evaluation of Path Integral Solutions to Fokker-Planck Equations
(Advisor: Professor W.G. Wolfer)

Biography:

Michael F. Wehner was a senior staff scientist in the Applied Mathematics and Computational Research Division at the Lawrence Berkeley National Laboratory. Dr. Wehner's current research concerns the behavior of extreme weather events in a changing climate, especially heat waves, intense precipitation, drought and tropical cyclones. Before joining the Berkeley Lab in 2002, Wehner was an analyst at the Lawrence Livermore National Laboratory in the Program for Climate Modeling Diagnosis and Intercomparison. He is the author or co-author of over 270 scientific papers and reports. He was a lead author for the 2013 5th and 6th Assessment Reports of the Intergovernmental Panel on Climate Change and the 2nd, 3rd, 4th and 5th US National Assessments on climate change. He received the 2022 LBNL Director's Award for Exceptional Scientific Achievement and was named a Clarivate Highly Cited Researcher in 2020, 2021, 2022, 2023 and 2024.

Employment:

May 2025-Present: I am recently retired but actively maintaining my research portfolio through a 1 year appointment as a part time rehired retiree at LBNL.

2013-May 2025: Senior Staff Scientist, Scientific Computing Group, Applied Mathematics and Computational Research Division, Lawrence Berkeley National Laboratory, Berkeley, CA

2002-2013: Staff Scientist, Scientific Computing Group, Computational Research Division, Lawrence Berkeley National Laboratory, Berkeley, CA

1998-2002: Physicist, Program for Climate Modeling and Intercomparison, Lawrence Livermore National Laboratory, Livermore, CA

1991-1998: Physicist, Climate System Modeling group, A-division, Lawrence Livermore National Laboratory, Livermore, CA

1985-1991: Physicist, Code Development group, B-division, Lawrence Livermore National Laboratory, Livermore, CA

1983-1984: Post doctoral Research Associate, Nuclear Engineering Department, University of Wisconsin-Madison

Selected Professional Activities:

- Member of Lead Author team, Intergovernmental Panel on Climate Change 6th Assessment Report (IPCC AR6), chapter 11, *Weather and climate extreme events in a changing climate* (2018-2021)
- Contributing author, SF Bay Area Regional Report for California's Fourth Climate Assessment 2018
- Member of Lead Author team, US Global Change Research Program, 2nd, 3rd, 4th and 5th US National Climate Assessment Reports 2009-present
- Chief Scientific Editor and co-founder, *Advances in Statistical Meteorology, Climatology and Oceanography*. A Copernicus journal. 2014-present
- Chair, Ad-Hoc International Detection and Attribution Group (IDAG), 2010-2020
- Member of Lead Author team, Intergovernmental Panel on Climate Change 5th Assessment Report (IPCC AR5), chapter 12, *Long Term Projections* (2010-2014)
- Chapter 14 Lead, US Government IPCC AR5 Review Committee (2012)
- Member of Lead Author team, US Climate Change Science Program, Unified Synthesis Report, "*Global Climate Change Impacts in the United States*" 2009
- Member of Lead Author team, US Climate Change Science Program Synthesis and Assessment Report 3.3, "*Weather and Climate Extremes in a Changing Climate. Regions of Focus: North America, Hawaii, Caribbean, and U.S. Pacific Islands.*" 2008
- Testified before the US Senate Environments and Public Works Committee "*The Science of Extreme Event Attribution: How Climate Change Is Fueling Severe Weather Events*" November 1, 2023.
- Testified before the US House of Representatives Select Committee on Energy Independence and Global Warming at the briefing "*Extreme Weather in a Warming World*" September 23, 2010.
- Awarded 2010 Editors' Citation for Excellence in Refereeing for *Geophysical Review Letters*
- I am a frequent reviewer of scientific papers and proposals and also have been on many scientific meeting organizing committees and review panels.
- I am comfortable in dealing with the media, both in print and television/radio. Selected audio and video clips are linked on my website above.

Publications

I have written over 285 scientific articles. According to google.scholar.com, my h-index is 87, my i10-index is 207, with over 39,000 total citations. My most recent publications are below, a complete list may be found this link:

https://crd.lbl.gov/assets/Uploads/Wehner/d687d3e26a/publications_062825.pdf

Publications in 2024-2025 (as of June 28, 2025):

1. Xueke Li, Michael E. Mann, Michael F. Wehner, Shannon Christiansen (2025) Increased frequency of planetary wave resonance events over the past half-century. *Proceedings of the National Academy of Sciences* 122 (25) e2504482122, <https://www.pnas.org/doi/10.1073/pnas.2504482122>
2. Yang Zhou, Michael Wehner, William Collins (2025) How can rivers flow through the sky? *Environmental Science Journal for Kids*. <https://www.sciencejournalforkids.org/articles/how-can-rivers-flow-through-the-air>
3. Robert Lund, Thomas J. Fisher, Norou Diawara, Michael Wehner (2025) Multiple Changepoint Detection for Non-Gaussian Time Series. *Journal of Time Series Analysis*. <https://doi.org/10.1111/jtsa.12833>
4. Mark D. Risser, Mohammed Ombadi, Michael F. Wehner (2024) Granger causal inference for climate change attribution. *Environmental Research: Climate* <https://iopscience.iop.org/article/10.1088/2752-5295/add046>
5. Kamoru Abiodun Lawal, Oluwatosin Motunrayo Akintomide, Eniola Olaniyan, Andrew Bowery, Sarah N Sparrow, Michael F Wehner, Dáithí A Stone (2024) Performance Evaluation of

- Weather@home2 Simulations over West African Region. *Atmosphere* 2025, 16(4), 392; <https://doi.org/10.3390/atmos16040392>
6. Roberts, M. J., Reed, K. A., Bao, Q., Barsugli, J. J., Camargo, S. J., Caron, L.-P., Chang, P., Chen, C.-T., Christensen, H. M., Danabasoglu, G., Frenger, I., Fučkar, N. S., Hasson, S. U., Hewitt, H. T., Huang, H., Kim, D., Kodama, C., Lai, M., Leung, L.-Y. R., Mizuta, R., Nobre, P., Ortega, P., Paquin, D., Roberts, C. D., Scoccimarro, E., Seddon, J., Treguier, A. M., Tu, C.-Y., Ullrich, P. A., Vidale, P. L., Wehner, M. F., Zarzycki, C. M., Zhang, B., Zhang, W., Zhao, M. (2025) High Resolution Model Intercomparison Project phase 2 (HighResMIP2) towards CMIP7, Geoscientific Model Development, 18, 1307–1332 <https://doi.org/10.5194/gmd-18-1307-2025>
 7. Mark Risser, Likun Zhang, Michael Wehner (2025) Data-driven upper bounds and event attribution for unprecedented heatwaves *Weather and Climate Extremes* 47, 100743 <https://doi.org/10.1016/j.wace.2025.100743>
 8. William Davis Rush, Juan Manuel Lora, CB Skinner, SA Menemenlis, Christine A Shields, P Ullrich, Travis Allen O'Brien, Swen Brands, Bin Guan, Kyle S Mattingly, Elizabeth McClenny, K Nardi, A Nellikkattil, Alexandre M Ramos, Kimberley Jane Reid, E Shearer, Ricardo Tomé, JD Wille, L Ruby Leung, F Martin Ralph, Jonathan J Rutz, M Wehner, Zhenhai Zhang, Mengqian Lu, Kwesi Twentwewa Quagraine (2025) Atmospheric river detection under changing seasonality and mean-state climate: ARTMIP tier 2 paleoclimate experiments. *Journal of Geophysical Research: Atmospheres* 130, e2024JD042222, <https://doi.org/10.1029/2024JD042222>
 9. Zeng, X., Alves, L., Boucher, M.-A., Cherchi, A., DeMott, C., Dimri, A., Gettelman, A., Hanna, E., Horinouchi, T., Huang, J., Lennard, C., Leung, L., Luo, Y., Thampan, M., Palanisamy, H., Pryor, S., Saint-Lu, M., Sobolowski, S., Stammer, D., Steiner, J., **Stevens, B.**, Uhlenbrook, S., Wehner, M. & Zuidema, P. (2025) Global Precipitation Experiment—A New World Climate Research Programme Lighthouse Activity. *Bulletin of the American Meteorological Society* 106, E408–E418, <https://doi.org/10.1175/BAMS-D-23-0242.1>.
 10. Sarah Elizabeth Perkins-Kirkpatrick, Lisa Alexander, Andrew King, Sarah Kew, Sjoukje Philip, Clair Barnes, Douglas Maraun, Rupert Stuart-Smith, Aglae Jezequel, Emanuele Bevacqua, Samantha Burgess, Erich Markus Fischer, Gabriele Hegerl, Joyce Kimutai, Gerbrand Koren, Kamoru Abiodun Lawal, Seung-Ki Min, Mark New, Romaric C. Odoulami, Christina M Patricola, Izidine Pinto, Aurelien Ribes, Tiffany Shaw, Wim Thiery, Blair Trewin, Robert Vautard, Michael Wehner, Jakob Zscheischler (2024) Frontiers in attributing climate extremes and associated impacts. *Frontiers in Climate, Sec. Climate Detection and Attribution*. 6 <https://doi.org/10.3389/fclim.2024.1455023>
 11. Julio Bacmeister, Alyssa Stansfield, Kevin Reed, Colin Zarzycki, Ping Chang, Dan Fu, Michael Wehner, Malcolm Roberts, Karthik Balaguru, Monica Morrison, Nan Rosenbloom, Susan Bates (2025) Projecting global and regional changes in tropical cyclones and their potential impacts. Chapter 11 in “Tropical Cyclones and Associated Impacts: A Global Perspective”, Gabriele Villarini, Enrico Scoccimarro, **Gabriel A. Vecchi**, editors. pp 223-253, ISBN: 9780323957618, <https://doi.org/10.1016/B978-0-323-95390-0.00011-X>
 12. Robinson Negron-Juarez, Michael Wehner, Maria Assunção F. Silva Dias, Paul Ullrich, Jeffrey Q. Chambers, William J. Riley (2024) CMIP6 HighResMIP Bias in Extreme Rainfall Drives Underestimation of Amazonian Precipitation Patterns. *Environmental Research Communications*, 6 091001 <https://doi.org/10.1088/2515-7620/ad6ff9>
 13. Abhishekh Kumar Srivastava, Michael Wehner, Céline Bonfils, Paul Aaron Ullrich, Mark Risser (2024) Local hydroclimate drives differential warming rates between regular summer days and extreme hot days in the Northern Hemisphere. *Weather and Climate Extremes*, 100709, <https://doi.org/10.1016/j.wace.2024.100709>.
 14. David R. Easterling, Kenneth E. Kunkel, Allison R. Crimmins, Michael F. Wehner (2024) Long Term Planning Requires Climate Projections Beyond 2100, *Nature Climate Change*. <https://www.nature.com/articles/s41558-024-02085-0>

15. Alan M. Rhoades, Colin M. Zarzycki, Benjamin J. Hatchett, Héctor Inda-Díaz, William Rudisill, Benjamin Bass, Eli Dennis, Anne Heggli, Rachel McCrary, Seth McGinnis, Mohammed Ombadi, Stefan Rahimi-Esfarjani, Emily Slinskey, Abhishekh Srivastava, Julia Szinai, Paul A. Ullrich, Michael Wehner, David Yates & Andrew D. Jones (2024) Anticipating how rain-on-snow events will change through the 21st century: lessons from the 1997 new year's flood event. *Climate Dynamics* <https://doi.org/10.1007/s00382-024-07351-7>
16. Likun Zhang, Mark D. Risser, Michael F. Wehner, Travis A. O'Brien (2024) Explaining the unexplainable: leveraging extremal dependence to characterize the 2021 Pacific Northwest heatwave, *Journal of Agricultural, Biological, and Environmental Statistics*. <https://doi.org/10.1007/s13253-024-00636-8>
17. Xubin Zeng, Lincoln Alves, Marie-Amélie Boucher, Annalisa Cherchi, Charlotte DeMott, A.P. Dimri, Andrew Gettelman, Edward Hanna, Takeshi Horinouchi, Jin Huang, Chris Lennard, Ruby Leung, Yali Luo, Thamban Meloth, Hindumathi Palanisamy, Sara Pryor, Marion Saint-Lu, Stefan P. Sobolowski, Detlef Stammer, Jakob Steiner, Bjorn Stevens, Stefan Uhlenbrook, Michael Wehner, and Paquita Zuidema (2024) Global Precipitation Experiment - A New World Climate Research Programme Lighthouse Activity. *Bulletin of the American Meteorological Society*. <https://doi.org/10.1175/BAMS-D-23-0242.1>
18. Jiwoo Lee, Peter J. Gleckler, Min-Seop Ahn, Ana Ordonez, Paul Ullrich, Kenneth R. Sperber, Karl E. Taylor, Yann Y. Planton, Eric Guilyardi, Paul Durack, Celine Bonfils, Mark D. Zelinka, Li-Wei Chao, Bo Dong, Charles Doutriaux, Chengzhu Zhang, Tom Vo, Jason Boutte, Michael F. Wehner, Angeline G. Pendergrass, Daehyun Kim, Zeyu Xue, Andrew T. Wittenberg, John Krasting (2024) Objective Evaluation of Earth System Models: PCMDI Metrics Package (PMP) version 3. *Geoscientific Model Development* 17, 3919–3948. <https://doi.org/10.5194/gmd-17-3919-2024>
19. Yang Zhou, Michael F. Wehner, and William D. Collins (2024) Back-to-back high category atmospheric river landfalls occur more often on the west coast of the United States. *Communications Earth & Environment* 5, 187. <https://doi.org/10.1038/s43247-024-01368-w>
20. Karthik Balaguru, Chuan-Chieh Chang, L. Ruby Leung, Gregory R. Foltz, Samson M. Hagos, Michael F. Wehner, James P. Kossin, Mingfang Ting, Wenwei Xu (2024) A global increase in nearshore tropical cyclone intensification. *Earth's Future*, 12, e2023EF004230. <https://doi.org/10.1029/2023EF004230>
21. Michael F. Wehner, Margaret L. Duffy, Mark Risser, Christopher J. Paciorek, Dáithí A. Stone, Pardeep Pall (2024) On the uncertainty of long-period return values of extreme daily precipitation. *Frontiers in Climate* (6) <https://doi.org/10.3389/fclim.2024.1343072>
22. Mark D. Risser, William D. Collins, Michael F. Wehner, Travis A. O'Brien, Huanping Huang, Paul A. Ullrich (2024) Anthropogenic aerosols mask increases in US rainfall by greenhouse gases. *Nature Communications*, 15, 1318 <https://doi.org/10.1038/s41467-024-45504-8>
23. Xueke Li, Michael E. Mann, Michael F. Wehner, Stefan Rahmstorf, Stefan Petri, Shannon Christiansen, Judit Carrillo (2024) Role of atmospheric resonance and land-atmosphere feedbacks as a precursor to the June 2021 Pacific Northwest “Heat Dome” event. *Proceedings of the National Academy of Science*. 121 (4) e2315330121 <https://doi.org/10.1073/pnas.2315330121>
24. Michael F. Wehner, James P. Kossin (2024) The Growing Inadequacy of an open-ended Saffir-Simpson Hurricane-Wind Scale in a Warming World. *The Proceedings of the National Academies*. 121 (6) e2308901121 <https://doi.org/10.1073/pnas.2308901121>
25. C. J. Paciorek, M.F. Wehner (2024) Comment on 'Five Decades of Observed Daily Precipitation Reveal Longer and More Variable Drought Events Across Much of the Western United States', *Geophysical Research Letters*. 51, e2023GL104550. <https://doi.org/10.1029/2023GL104550>
26. Peter Larsen, Michael Grussing, Emily Bercos-Hickey, Christine Bidner, Kristina LaCommare; Kirsten Landers, Brenda Mehnert, Christina Patricola, Austin Powell, Michael Spears, Michael Wehner (2024) Weather Effects on the Lifecycle of U.S. Department of Defense Equipment Replacement (WELDER) *Building and Environment* 257, 111639 <https://doi.org/10.1016/j.buildenv.2024.111639>