

## **Michael F. Wehner**

### Publications

#### **2017**

Christine Shields, Jonathan Rutz, Ruby Leung, Martin Ralph, Michael Wehner, Brian Kawzenuk, Juan Lora, Elizabeth McClenny, Tashiana Osborne, Ashley Payne, Paul Ullrich, Alexander Gershunov, Naomi Goldenson, Bin Guan, Yun Qian, Alexandre Ramos, Chandan Sarangi, Scott Sellars, Irina Gorodetskaya, Karthik Kashinath, Vitaliy Kurliin, Kelly Mahoney, Grzegorz Muszynski, Roger Pierce, Aneesh Sabramanian, Ricardo Tome, Duane Waliser, Daniel Walton, Gary Wick, Anna Wilson, David Lavers, Prabhat, Allison Collow, Harinarayan Krishnan, Gundrun Magnusdottir, and Phu Nguyen (2017) Atmospheric River Tracking Method Intercomparison Project (ARTMIP): Project Goals and Experimental Design. Submitted to Geoscientific Model Development.

Michael F. Wehner, Kevin A. Reed, Burlen Loring, Dáithí Stone, Harinarayan Krishnan (2017) Changes in tropical cyclones under stabilized 1.5°C and 2.0°C global warming scenarios as simulated by the Community Atmospheric Model under the HAPPI protocols. Submitted to a special issue of *Earth System Dynamics*. <https://www.earth-syst-dynam-discuss.net/esd-2017-101/>

Kamoru A. Lawal, Babatunde J. Abiodun, Dáithí A. Stone and Mike F. Wehner (2017) Simulating the summer rainfall patterns over Southern Africa with CAM5.1. Submitted to International Journal of Climatology

Mark D. Risser and Michael F. Wehner (2017) Attributable human-induced changes in the likelihood and magnitude of the observed extreme precipitation in the Houston, Texas region during Hurricane Harvey. To appear *Geophysical Review Letters*, December 13, 2017.

D. Cooley, E. Thibaud, F.C. Castillo, M.F. Wehner (2017) A Nonparametric Method for Producing Isolines of Exceedance Probabilities. Submitted to *Extremes*

M. J. Roberts, P. L. Vidale, C. Senior, H.T. Hewitt, C. Bates, S. Berthou, P. Chang, H. M. Christensen, S. Danilov, M.-E. Demory, S. M. Griffies, R. Haarsma, T. Jung, G. Martin, S. Minobe, T. Ringler, M. Satoh, R. Schiemann, E. Scoccimarro, G. Stephens, M. F. Wehner (2017) The benefits of global high-resolution for climate simulation: process-understanding and the enabling of stakeholder decisions at the regional scale. Submitted to the *Bulletin of the American Meteorological Society*.

Michael Wehner, Dáithí Stone, Dann Mitchell, Hideo Shiogama, Erich Fischer<sup>4</sup>, Lise S. Graff, Viatcheslav V. Kharin, Benjamin Sanderson, Harinarayan Krishnan (2017) Changes in extremely hot days under stabilized 1.5°C and 2.0°C global warming scenarios as simulated by the HAPPI multi-model ensemble. Submitted to a special

issue of *Earth System Dynamics*. <https://www.earth-syst-dynam-discuss.net/esd-2017-89/>

Michael Wehner, Dáithí Stone, Hideo Shiogama, Piotr Wolski, Andrew Ciavarella, Nikolaos Christidis, Harinarayan Krishnan (2017) Early 21<sup>st</sup> century anthropogenic changes in extremely hot days as simulated by the C20C+ Detection and Attribution multi-model ensemble. Submitted to *Weather and Climate Extremes* special C20C+ issue.

Dáithí A. Stone, Mark D. Risser, Oliver M. Angelil, Michael F. Wehner, Shreyas Cholia, Noel Keen, Harinarayan Krishnan, Travis A. O'Brien, Christopher J. Paciorek, William D. Collins (2017) A basis set for exploration of sensitivity to prescribed ocean conditions for estimating human contributions to extreme weather in CAM5.1-1degree. Submitted to *Weather and Climate Extremes* special C20C+ issue.

Christopher J. Paciorek, Dáithí Stone Michael Wehner (2017) Quantifying uncertainty in the attribution of human influence on severe weather. Submitted to *Climate Dynamics*.

Stone, D. A., H. Krishnan, R. Lance, S. Sippel, and M. F. Wehner. 2017. The First and Second Hackathons of the International CLIVAR C20C+ Detection and Attribution Project. *CLIVAR Exchanges*, No. 71, 55-57.

Wuebbles, D.J., D.R. Easterling, K. Hayhoe, T. Knutson, R.E. Kopp, K.E. Kunkel, A.N. LeGrande, C. Mears, W.V. Sweet, P.C. Taylor, R.S. Vose, M.F. Wehner (2017) Our globally changing climate. In: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 35-72, doi: 10.7930/J08S4N35

Knutson, T., J.P. Kossin, C. Mears, J. Perlwitz, M.F. Wehner (2017) Detection and attribution of climate change. In: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, p. 114-132, doi: 10.7930/J01834ND

Hayhoe, K., J. Edmonds, R.E. Kopp, A.N. LeGrande, B.M. Sanderson, M.F. Wehner, D.J. Wuebbles (2017) Climate models, scenarios, and projections. In: *Climate Science Special Report: Fourth National Climate Assessment, Volume I* [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, p. 133-160, doi:10.7930/J0WH2N54

Vose, R.S., D.R. Easterling, K.E. Kunkel, M.F. Wehner (2017) Temperature changes in the United States. In: *Climate Science Special Report: Fourth National Climate*

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Easterling, D.R., J.R. Arnold, T. Knutson, K.E. Kunkel, A.N. LeGrande, L.R. Leung, R.S. Vose, D.E. Waliser, M.F. Wehner (2017) Precipitation change in the United States. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 207-230, doi: 10.7930/J0H993CC

Wehner, M.F., J.R. Arnold, T. Knutson, K.E. Kunkel, and A.N. LeGrande, 2017: Droughts, floods, and wildfires. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 231-256 doi: 10.7930/J0CJ8BNN

Kossin, J.P., T. Hall, T. Knutson, K.E. Kunkel, R.J. Trapp, D.E. Waliser, and M.F. Wehner (2017) Extreme storms. In: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 257-276, doi: 10.7930/J07S7KXX

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L. Ruby Leung Mingua Zhang, David A. Randall, James T. Randerson, Charles Jackson, Gerald A. Meehl, Michael Wehner (2017) Grand Challenges in Earth and Environmental Systems Sciences. Chapter 3 in "Grand Challenges for Biological and Environmental Research: Progress and Future Vision". <https://science.energy.gov/~media/ber/berac/pdf/Reports/BERAC-Grand-Challenges-Draft-Report.pdf>

Benjamin M. Sanderson, Yangyang Xu, Claudia Tebaldi, Michael Wehner, Brian O'Neill, Alexandra Jahn, Angeline G. Pendergrass, Flavio Lehner, Warren G. Strand, Lei Lin, Reto Knutti, and Jean Francois Lamarque (2017) Community Climate Simulations to assess avoided impacts in 1.5 °C and 2 °C futures. *Earth System Dynamics*, 8, 827-847. <https://doi.org/10.5194/esd-8-827-2017>

P. Pall, C. M. Patricola, M. F. Wehner, D. A. Stone, C. Paciorek, W. D. Collins (2017) Diagnosing Anthropogenic Contributions to Heavy Colorado Rainfall in September 2013. *Weather and Climate Extremes* 17, 1-6. 10.1016/j.wace.2017.03.004

Michael F. Wehner, Kevin A. Reed and Colin M. Zarzycki (2017) High-Resolution Multi-Decadal Simulation of Tropical Cyclones. Chapter 8 in *Hurricanes and Climate Change*, Jennifer Collins and Kevin Walsh, eds., Springer, pp 187-207

Oliver Angelil, Dáithí Stone, Michael Wehner, Christopher J. Paciorek, Harinarayan Krishnan, William Collins (2017) An independent assessment of anthropogenic attribution statements for recent extreme weather events. *Journal of Climate* 30, 5-16, DOI: 10.1175/JCLI-D-16-0077.1

Mark D. Risser, Dáithí A. Stone, Christopher J. Paciorek, Michael F. Wehner, Oliver Angelil (2017) Quantifying the effect of interannual ocean variability on the attribution of extreme climate events to human influence. *Climate Dynamics* 49, 3051–3073 doi:10.1007/s00382-016-3492-x

Wehner, Michael, Federico Castillo, and Dáithí Stone (2017). "The Impact of Moisture and Temperature on Human Health in Heat Waves." Oxford Research Encyclopedia of Natural Hazard Science. 2017-04-26. Oxford University Press. <<http://naturalhazardscience.oxfordre.com/view/10.1093/acrefore/9780199389407.001.0001/acrefore-9780199389407-e-58>>

Benjamin Sanderson, Michael Wehner, Reto Knutti (2017) Skill and independence weighting for multi-model assessments. . Early release *Geoscientific Model Development* <https://doi.org/10.5194/gmd-2016-285>

Oliver Angelil, Daithi Stone, Sarah Perkins-Kirkpatrick, Lisa Alexander, Michael Wehner, Hideo Shiogama, Piotr Wolski, Andrew Ciavarella, Nikos Christidis (2017) On the nonlinearity of spatial scales in extreme weather attribution statements, early on release *Climate Dynamics* doi:10.1007/s00382-017-3768-9

B. Timmermans, D. Stone, M. Wehner, H. Krishnan (2017) Impact of tropical cyclones on modeled extreme wind-wave climate. *Geophysical Research Letters* 44, 1393-1401

Jennifer Nakamura, Suzana Camargo, Adam Sobel, Naomi Henderson , Kerry Emanuel, Arun Kumar, Tim LaRow , Hiroyuki Murakami, Malcolm Roberts, Enrico Scoccimarro, Pier Luigi Vidale, Hui Wang, Michael Wehner, Ming Zhao (2017) Western North Pacific tropical cyclone model tracks in present and future climates. *Journal of Geophysical Research-Atmospheres* 122, 9721–9744, <https://doi.org/10.1002/2017JD027007>

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Eli Dart, Prabhat, Michael F. Wehner, William D. Collins (2017) An Assessment of Data Transfer Performance for Large-Scale Climate Data Analysis and Implications for the Design of CMIP6. <https://arxiv.org/abs/1709.09575>

## **2016**

Oliver Angelil, Sarah Perkins-Kirkpatrick, Lisa Alexander, Dáithí Stone, Markus Donat, Michael Wehner, Hideo Shiogama, Andrew Ciavarella, Nikolaos Christidis (2016) Comparing regional precipitation and temperature extremes in climate model and reanalysis products. *Weather and Climate Extremes* 13, 35-43 DOI: 10.1016/j.wace.2016.07.001

Michael Wehner, Dáithí Stone, Hari Krishnan, Krishna AchutaRao, Federico Castillo (2016) The deadly combination of heat and humidity in India and Pakistan in summer 2015 [in “Explaining Extremes of 2015 from a Climate Perspective”]. *Bull. Amer. Meteor. Soc.*, 97 (12), S81 –S86, doi: 10.1175/BAMS-D-16-0145.1.

Kamoru A. Lawal, Abayomi A. Abatan, Oliver Angélil, Eniola Olaniyan, Victoria H. Olusoji, Philip G. Oguntunde, Benjamin Lamptey, Babatunde J. Abiodun, Hideo Shiogama, Michael F. Wehner, Dáithí A. Stone (2016) The Late Onset of the 2015 Wet Season in Nigeria [in “Explaining Extremes of 2015 from a Climate Perspective”]. *Bull. Amer. Meteor. Soc.*, 97 (12), S63 –S69, doi: 10.1175/BAMS-D-16-0131.2.

Yunjie Liu, Evan Racah, Prabhat, Joaquin Correa, Amir Khosrowshahi, David Lavers, Kenneth Kunkel, Michael Wehner, William Collins (2016) Application of Deep Convolutional Neural Networks for Detecting Extreme Weather in Climate Datasets. International Conference on Advances in Big Data Analytics (ABDA) 2016.

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S. E. Strazzo, J. B. Elsner, T. E. LaRow, H. Murakami, M. Wehner, M. Zhao (2016) The influence of model resolution on the simulated sensitivity of tropical cyclone maximum intensity to sea surface temperature. *Journal of Advances in Modeling Earth Systems*. 8, 1037–1054. DOI:10.1002/2016MS000635

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David R. Easterling, Kenneth E. Kunkel, Michael F. Wehner, Liqiang Sun (2016) Detection and Attribution of Climate Extremes in the Observed Record. *Weather and Climate Extremes* 11, 17-27. doi:10.1016/j.wace.2016.01.001

Claudia Tebaldi and Michael Wehner (2016) Benefits of mitigation for future heat extremes under RCP4.5 compared to RCP8.5. *Climatic Change*. DOI:10.1007/s10584-016-1605-5

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## **2015**

Wehner, M.F. and D.R. Easterling (2015) The global warming hiatus's irrelevance. *Science* 350, 1482-1483 (Originally entitled: Is the global warming hiatus important?)

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## **2013**

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