

# Curriculum Vitae

*Gabriele Villarini*

## WORK ADDRESS

IIHR-Hydrosience & Engineering  
The University of Iowa  
107C C. Maxwell Stanley Hydraulics Laboratory  
Iowa City, Iowa 52242  
Office: (319) 384-0596  
Fax: (319) 335-5238  
E-mail: gabriele-villarini@uiowa.edu  
Personal Webpage: <http://www.gabrielevillarini.com>

## RESEARCH INTERESTS:

Hydrometeorology, climatology, extreme events, hurricanes, atmospheric rivers, seasonal forecasting, applied statistics, remote sensing of rainfall.

## EDUCATION:

- May 2018:* Executive MBA, Tippie College of Business, the University of Iowa (With Distinction).
- May 2018:* Certificate in Leadership, Tippie College of Business, the University of Iowa.
- August 2008:* Ph.D., Department of Civil and Environmental Engineering, the University of Iowa.
- July 2003:* Degree in Civil Engineering, Universita' degli Studi "La Sapienza", Rome, Italy.

## THESIS:

- *"Empirically-Based Modeling of Radar-Rainfall Uncertainties"*. The University of Iowa, Iowa City, USA.
- *"From Measurements to Modeling: the Use of NEXRAD Weather Radar for Hydrological Applications"*. Universita' degli Studi "La Sapienza", Rome, Italy.

## **PROFESSIONAL EXPERIENCE:**

*July 2020 – present:* Professor, Civil & Environmental Engineering. The University of Iowa.

*February 2018 – present:* Director, IIHR—Hydroscience & Engineering. The University of Iowa.

*August 2017 – February 2018:* Interim Director, IIHR-Hydroscience & Engineering. The University of Iowa.

*December 2016 – August 2017:* Associate Director, IIHR-Hydroscience & Engineering. The University of Iowa.

*July 2016 – June 2020:* Associate Professor, Civil & Environmental Engineering. The University of Iowa.

*July 2016 – August 2017:* Director of Graduate Studies, Civil & Environmental Engineering. The University of Iowa.

*June 2012 – June 2016:* Assistant Professor, Civil & Environmental Engineering. The University of Iowa.

*June 2012 – present:* Assistant Research Engineer, IIHR-Hydroscience & Engineering. The University of Iowa.

*August 2008 – May 2012:* Willis Research Network Fellow.

*August 2011 – May 2012:* Associate Research Scholar, Civil & Environmental Engineering. Princeton University.

*February 2012 – May 2012:* Lecturer, Civil & Environmental Engineering. Princeton University.

*August 2008 – July 2011:* Research Associate, Civil & Environmental Engineering. Princeton University.

*August 2003 – July 2008:* Graduate Research Assistant, Hydrometeorology Group, IIHR – Hydroscience & Engineering. The University of Iowa. Adviser: Prof. W.F. Krajewski.

*December 2003 – December 2004:* President of SIIHR (Students of Iowa Institute of Hydraulic Research), The University of Iowa, Iowa City, USA

*December 2003 – December 2004:* President of SIAHR (University of Iowa Student Chapter, International Association of Hydraulic Engineering and Research), The University of Iowa, Iowa City, USA

January 2003 – June 2003: Research Assistant, Environmental Sciences, State University of New York, Purchase College

#### **AWARDS AND FELLOWSHIPS:**

April 2021: “Hot List of the world’s 1,000 top climate scientists” by Reuters.

November 2020: “2020 Highly Cited Researcher” by Clarivate Web of Science.

July 2020 – June 2023: “Robert & Virginia Wheeler Faculty Fellow in Engineering” awarded by the College of Engineering at the University of Iowa.

May 2018: Fellow in the “2018-2019 Big Ten Academic Alliance (BTAA) Academic Leadership Program (ALP).”

April 2017: “2017 Water Young Investigator Award” awarded by Water.

December 2016: “Fellow” awarded by the American Geophysical Union.

December 2016: “James B. Macelwane Medal” awarded by the American Geophysical Union.

April 2014: “NSF CAREER Award” for the proposal entitled "CAREER: Temporal Clustering of Hydrometeorological Extremes"

February 2014: “Editor’s Award – Journal of Climate” awarded by the American Meteorological Society (AMS). Citation: “For thorough, prompt, and fair reviews on topics addressing the interface between water, statistics, and climate.”

January 2014: “2014 Old Gold Summer Fellowship” awarded by The University of Iowa.

December 2013: Nominated to represent The University of Iowa for the “2014 Blavatnik Award for Young Scientists” in the Physical Sciences & Engineering Category.

April 2013: “Hydrological Sciences Outstanding Young Scientist Award” awarded by the European Geosciences Union (EGU). Citation: “For innovative studies in the field of remote sensing of rainfall, flood prediction, and hydroclimatological trend analysis.”

September 2012: “Premio Torricelli” awarded by the Gruppo Italiano di Idraulica for the best young Italian researcher in hydrology and hydraulics. Citation: “Per la vasta produzione scientifica caratterizzata da importanti contributi nel settore dell’idrometeorologia e della previsione delle piene.” (“For the vast scientific production characterized by important contributions in the field of hydrometeorology and flood prediction”).

Fall 2006 – Summer 2008: NASA Earth System Science (ESS) Fellowship, National Aeronautics and Space Administration (Code Y), USA.

*January 2008:* Center for Global and Regional Environmental Research (CGRER) Graduate Student Travel Award, The University of Iowa, Iowa City, Iowa, USA.

*December 2007:* *Outstanding Student Paper Award*, Hydrology Section of the American Geophysical Union (AGU), 2007 Fall Meeting, San Francisco, California, USA.

*July 2007:* Center for Global and Regional Environmental Research (CGRER) Graduate Student Travel Award, The University of Iowa, Iowa City, Iowa, USA.

*March 2007:* Third Place in the Mathematical, Physical Sciences and Engineering Division, The University of Iowa 2007 Ninth Annual James F. Jakobsen Graduate Conference, The University of Iowa, Iowa City, Iowa, USA.

*Fall 2006:* Graduate Incentive Fellowship (GIF), The University of Iowa, Iowa City, Iowa, USA.

*Fall 2003 – Summer 2006:* Graduate Research Assistantship, IIHR–Hydroscience & Engineering, The University of Iowa, Iowa City, Iowa, USA.

*July 2006:* Center for Global and Regional Environmental Research (CGRER) Graduate Student Travel Award, The University of Iowa, Iowa City, Iowa, USA.

*May 2006:* Graduate Student Senate Travel Funds Award, The University of Iowa, Iowa City, Iowa, USA.

*April 2006:* Travel grant by the World Meteorological Organization to present at the Second International Symposium on Quantitative Precipitation Forecasting and Hydrology, Boulder, Colorado.

*March 2006:* Third Place in the Mathematical, Physical Sciences and Engineering Division, The University of Iowa 2006 Eighth Annual James F. Jakobsen Graduate Conference, The University of Iowa, Iowa City, Iowa, USA.

*January 2006:* Center for Global and Regional Environmental Research (CGRER) Graduate Student Travel Award, The University of Iowa, Iowa City, Iowa, USA.

*October 2005:* Travel grant to attend the International Conference on Civil and Environmental Engineering 2005 (ICCEE05), Hiroshima, Japan.

*October 2004:* International Programs Graduate Student Travel Award, The University of Iowa, Iowa City, Iowa, USA.

## **PROFESSIONAL SOCIETIES:**

*American Geophysical Union (AGU)*

**PEER-REVIEWED PAPERS:**

1. **Villarini, G.**, W. Zhang, P. Miller, D. Johnson, L. Grimley, and H. Roberts, Probabilistic rainfall generator for tropical cyclones affecting Louisiana, *International Journal of Climatology*, 2021 (in press).
2. Ayers, J., **G. Villarini**, K. Schilling, and C. Jones, Projected changes in monthly baseflow across the U.S. Midwest, *International Journal of Climatology*, 41(12), 5536-5549, 2021.
3. **Villarini, G.**, and C. Wasko, Humans, climate and streamflow, *Nature Climate Change*, 1-2, 2021.
4. Scoccimarro, E., **G. Villarini**, S. Gualdi, and A. Navarra, The Pacific Decadal Oscillation modulates tropical cyclone days on the interannual timescale in the North Pacific Ocean, *Journal of Geophysical Research*, 126, e2021JD034988, 1-10, 2021.
5. Vecchi, G.A., C. Landsea, W. Zhang, **G. Villarini**, and T. Knutson, Changes in Atlantic major hurricane frequency since the late-19th century, *Nature Communications*, 12, 4054, 1-9, 2021.
6. Zhang, W., **G. Villarini**, E. Scoccimarro, M. Roberts, P.L. Vidale, B. Vanniere, L.-P. Caron, D. Putrasahan, C. Roberts, R. Senan, and M.-P. Moine, Tropical cyclone precipitation in the HighResMIP Atmosphere-only Experiments of the PRIMAVERA Project, *Climate Dynamics*, 57, 253-273, 2021.
7. Trambly, Y., **G. Villarini**, E.M. El Khalki, G. Gründemann, and D. Hughes, Evaluation of the drivers responsible for flooding in Africa, *Water Resources Research*, 57, e2021WR029595, 1-14, 2021.
8. Yang, L., Y. Yang, **G. Villarini**, X. Li, H. Hu, L. Wang, G. Blöschl, and F. Tian, Climate more important for Chinese flood changes than reservoirs and land use, *Geophysical Research Letters*, 48, e2021GL093061, 1-10, 2021.
9. Ayers, J., **G. Villarini**, K. Schilling, and C. Jones, Development of statistical models for estimating daily nitrate load in Iowa, *Science of the Total Environment*, 782, 1-10, 2021.
10. Slater, L., **G. Villarini**, S. Archfield, D. Faulkner, R. Lamb, A. Khouakhi, and J. Yin, Global changes in 20-year, 50-year and 100-year river floods, *Geophysical Research Letters*, 48, e2020GL091824, 2021.
11. Fowler, H.J., H. Ali, R.P. Allan, N. Ban, R. Barbero, P. Berg, S. Blenkinsop, N. Senol Cabi, S. Chan, M. Dale, R.J.H. Dunn, M. Ekström, J.P. Evans, G. Fosser, B. Golding, S.B. Guerreiro, G.C. Hegerl, A. Kahraman, E.J. Kendon, G. Lenderink, E. Lewis, X. Li,

- P.A. O’Gorman, H.G. Orr, K.L. Peat, A.F. Prein, D. Pritchard, C. Schär, A. Sharma, P.A. Stott, R. Villalobos-Herrera, **G. Villarini**, C. Wasko, M.F. Wehner, S. Westra, and A. Whitford, Towards advancing scientific knowledge of climate change impacts on short-duration rainfall extremes, *Philosophical Transactions A*, 379(2195), 1-22, 2021.
12. Wasko, C., S. Westra, R. Nathan, H.G. Orr., **G. Villarini**, R. Villalobos Herrera, and H.J. Fowler, Incorporating climate change in flood estimation guidance, *Philosophical Transactions A*, 379(2195), 1-24, 2021.
  13. Zhang, W., and **G. Villarini**, Greenhouse gases drove the increasing trends in spring precipitation across the Central United States, *Philosophical Transactions A*, 379(2195), 1-9, 2021.
  14. Zhang, W., **G. Villarini**, E. Scoccimarro, and F. Napolitano, Examining the precipitation associated with medicanes in the high-resolution ERA-5 reanalysis data, *International Journal of Climatology*, 41(S1), E126-E132, 2021.
  15. Yang, Z., and **G. Villarini**, Evaluation of the capability of global climate models in reproducing the temporal clustering in heavy precipitation over Europe, *International Journal of Climatology*, 41(1), 131-145, 2021.
  16. Ayers, J.R., **G. Villarini**, K.E. Schilling, and C.S. Jones, On the statistical attribution of changes in monthly baseflow across the U.S. Midwest, *Journal of Hydrology*, 592, 1-10, 2021.
  17. Fowler, H.J., G. Lenderink, A.F. Prein, S. Westra, R.P. Allan, N. Ban, R. Barbero, P. Berg, S. Blenkinsop, H.X. Do, S.B. Guerreiro, J.O. Haert, E.J. Kendon, E. Lewis, C. Schär, A. Sharma, **G. Villarini**, C. Wasko, and X. Zhang, Anthropogenic intensification of short-duration rainfall extremes, *Nature Reviews Earth & Environment*, 2, 107-122, 2021.
  18. Wang, C., W. Zhang, and **G. Villarini**, On the use of convolutional Gaussian processes to improve the seasonal forecasting of precipitation and temperature, *Journal of Hydrology*, 593, 1-9, 2021.
  19. Vittal, H., **G. Villarini**, S. Karmakar, L. Wilcox, and M. Collins, Northward propagation of the intertropical convergence zone and strengthening of Indian summer monsoon rainfall, *Geophysical Research Letters*, 47, 23, 1-10, 2020.
  20. **Villarini, G.**, W. Zhang, F. Quintero, W.F. Krajewski, and G.A. Vecchi, Attribution of the impacts of the 2008 flooding in Cedar Rapids (Iowa) to anthropogenic forcing, *Environmental Research Letters*, 15, 1-8, 2020.
  21. Vittal, H., **G. Villarini**, and W. Zhang, Fidelity of global climate models in representing the horizontal water vapor transport, *International Journal of Climatology*, 40, 5714-5726, 2020.

22. Neri, A., **G. Villarini**, and F. Napolitano, Intraseasonal predictability of the duration of flooding above National Weather Service flood warning levels across the U.S. Midwest, *Hydrological Processes*, 34, 4505-4511, 2020.
23. Nayak, M.A., M.K. Cowles, **G. Villarini**, and B. Wafa, Bayesian hierarchical models for the frequency of winter heavy precipitation events over the central United States: The role of atmospheric rivers, *Water Resources Research*, 56, e2020WR028256, 1-18, 2020.
24. Trambly, Y., **G. Villarini**, and W. Zhang, Observed changes in flood hazard in Africa, *Environmental Research Letters*, 15(10), 1-8, 2020.
25. Yang, Z., and **G. Villarini**, On the role of CO<sub>2</sub> concentrations in enhancing the temporal clustering of heavy precipitation events across Europe, *Climatic Change*, 162, 1455-1472, 2020.
26. Zhang, W., and **G. Villarini**, Deadly compound heat stress-flooding hazard across the Central United States, *Geophysical Research Letters*, 47(15), 1-7, e2020GL089185, 2020.
27. Zhang, W., **G. Villarini**, and G.A. Vecchi, The East Asian Subtropical Jet Stream and Atlantic tropical cyclones, *Geophysical Research Letters*, 47(15), 1-9, e2020GL088851, 2020.
28. **Villarini, G.**, and W. Zhang, Projected changes in flooding: A continental U.S. perspective, *Annals of the New York Academy of Sciences*, 1472(1), 95-103, 2020.
29. Veatch, W., and **G. Villarini**, Modeling the seasonality of extreme coastal water levels with mixtures of circular probability density functions, *Theoretical and Applied Climatology*, 140, 1199-1206, 2020.
30. Neri, A., **G. Villarini**, and F. Napolitano, Statistically-based projected changes in the frequency of flood events across the U.S. Midwest, *Journal of Hydrology*, 584, 124314, 1-10, 2020.
31. Miniussi, A., **G. Villarini**, and M. Marani, Analyses through the metastatistical extreme value distribution identify contributions of tropical cyclones to rainfall extremes in the eastern US, *Geophysical Research Letters*, 47(7), e2020GL087238, 1-9, 2020.
32. Payne, A.E., M.-E. Demory, L.R. Leung, A.M. Ramos, C.A. Shields, J.J. Rutz, N. Siler, **G. Villarini**, A. Hall, and F.M. Ralph, Responses and impacts of atmospheric rivers to climate change, *Nature Reviews Earth & Environment*, 1, 143-157, 2020.
33. Yang, L., **G. Villarini**, Z. Zeng, J. Smith, M. Liu, X. Li, L. Wang, and A. Hou, Riverine flooding and landfalling tropical cyclones over China, *Earth's Future*, 8, e2019EF001451, 1-13, 2020.

34. Vittal, H., **G. Villarini**, and W. Zhang, Early prediction of the Indian summer monsoon rainfall by the Atlantic Meridional Mode, 54, 2337-2346, *Climate Dynamics*, 2020.
35. Vittal, H., **G. Villarini**, and W. Zhang, On the role of the Atlantic Ocean in exacerbating Indian heat waves, *Climate Dynamics*, 54, 1887-1896, 2020.
36. Zhang, W., **G. Villarini**, and E. Scoccimarro, Reduced extremes of sub-daily temperature swings during the boreal summer in the northern hemisphere, *International Journal of Climatology*, 40, 1306–1315, 2020.
37. Miniussi, A., M. Marani, and **G. Villarini**, Metastatistical extreme value distribution applied to floods across the continental United States, *Advances in Water Resources*, 136, 1-10, 2020.
38. Zhang, W., and **G. Villarini**, On the weather types that shape the precipitation patterns across the U.S. Midwest, *Climate Dynamics*, 53, 4217-4232, 2019.
39. Khouakhi, A., **G. Villarini**, W. Zhang, and L.J. Slater, Seasonal predictability of high sea level frequency using ENSO patterns along the U.S. West Coast, *Advances in Water Resources*, 131, 1-11, 2019.
40. Zhang, W., H. Vittal, and **G. Villarini**, Potential impacts of anthropogenic forcing on the frequency of tropical depressions in the North Indian Ocean in 2018, *Journal of Marine Science and Engineering*, 7(12), 1-7, 2019.
41. Zhang, W., **G. Villarini**, and G.A. Vecchi, Impacts of Pacific Meridional Mode on rainfall over the Maritime Continent and Australia: Potential for seasonal predictions, *Climate Dynamics*, 53, 7185-7199, 2019.
42. Slater, L.J., **G. Villarini**, A.A. Bradley, and G.A. Vecchi, A dynamical statistical framework for seasonal streamflow forecasting in an agricultural watershed, *Climate Dynamics*, 53, 7429-7445, 2019.
43. **Villarini G.**, B. Luitel, G.A. Vecchi, and J. Ghosh, Multi-model ensemble forecasting of North Atlantic tropical cyclone activity, *Climate Dynamics*, 53, 7461-7477, 2019.
44. Slater, L.J., **G. Villarini**, and A.A. Bradley, Evaluation of the skill of North-American Multi-Model Ensemble (NMME) global climate models in predicting average and extreme precipitation and temperature over the continental USA, 53, 7381-7396, *Climate Dynamics*, 2019.
45. Vecchi, G.A., T. Delworth, H. Murakami, S. Underwood, A.T. Wittenberg, F. Zeng, W. Zhang, J. Baldwin, K. Bhatia, W. Cooke, J. He, S.B. Kapnick, T. Knutson, **G. Villarini**, K. van der Wiel, W. Anderson, V. Balaji, J.-H. Chen, K. Dixon, R. Gudgel, L. Harris, L. Jia, N. Johnson, S.-J. Lin, M. Liu, J. Ng, A. Rosati, J. Smith, and X. Yang, Tropical



cyclone sensitivities to CO<sub>2</sub> doubling: Roles of atmospheric resolution, synoptic variability and background climate changes, *Climate Dynamics*, 53, 5999-6033, 2019.

46. Black, A.W., and **G. Villarini**, Effects of methodological decisions on rainfall-related crash risk estimates, *Accident Analysis & Prevention*, 130, 22-29, 2019.
47. Morrison, A., **G. Villarini**, W. Zhang, and E. Scoccimarro, Projected changes in extreme precipitation at sub-daily and daily time scales, *Global and Planetary Change*, 182, 1-11, 2019.
48. Yang, Z., and **G. Villarini**, Examining the capability of reanalyses in capturing the temporal clustering of heavy precipitation across Europe, *Climate Dynamics*, 53, 1845-1857, 2019.
49. Zhang, W., and **G. Villarini**, Seasonal forecasting of Western North Pacific tropical cyclone frequency using the North American Multi-Model Ensemble, *Climate Dynamics*, 52, 5985-5997, 2019.
50. Zhang, W., **G. Villarini**, and M. Wehner, Contrasting the responses of extreme precipitation to changes in surface air and dew point temperatures, *Climatic Change*, 154, 257-271, 2019.
51. Zhang, W., **G. Villarini**, G.A. Vecchi, and H. Murakami, Rainfall from tropical cyclones: High-resolution simulations and seasonal forecasts, *Climate Dynamics*, 52(9), 5269-5289, 2019.
52. Neri, A., **G. Villarini**, L.J. Slater, and F. Napolitano, On the statistical attribution of the frequency of flood events across the U.S. Midwest, *Advances in Water Resources*, 127, 225-236, 2019.
53. Neri, A., **G. Villarini**, K. Salvi, L.J. Slater, and F. Napolitano, On the decadal predictability of the frequency of flood events across the U.S. Midwest, *International Journal of Climatology*, 39(3), 1796-1804, 2019.
54. Ayers, J.R., **G. Villarini**, C.S. Jones, and K.E. Schilling, Changes in monthly baseflow across the U.S. Midwest, *Hydrological Processes*, 33(5), 748-758, 2019.
55. Zhang, W., and **G. Villarini**, On the role of the Atlantic Ocean in forcing tropic cyclones in the Arabian Sea, *Atmospheric Research*, 220, 120-124, 2019.
56. Barth, N.A., **G. Villarini**, and K. White, Accounting for mixed populations in flood frequency analysis: A Bulletin 17C perspective, *Journal of Hydrologic Engineering*, 24(3), 1-12, 2019.

57. Zhang, W., **G. Villarini**, G.A. Vecchi, and J.A. Smith, Urbanization exacerbated the rainfall and flooding caused by hurricane Harvey in Houston, *Nature*, 563, 384-388, 2018.
58. Barth, N.A., **G. Villarini**, and K. White, Contribution of tropical cyclones and their remnants on flooding in the Western United States, *International Journal of Climatology*, 38, 5441-5446, 2018.
59. Giuntoli, I., **G. Villarini**, C. Prudhomme, and D.M. Hannah, Uncertainties in projected runoff over the conterminous United States, *Climatic Change*, 150(3), 149-162, 2018.
60. Rios Gaona, M.F., and **G. Villarini**, Characterization of the diurnal cycle of maximum rainfall in tropical cyclones, *Journal of Hydrology*, 564, 997-1007, 2018.
61. Slater, L.J., and **G. Villarini**, Enhancing the predictability of seasonal streamflow via a statistical-dynamical approach, *Geophysical Research Letters*, 45, 6504-6513, 2018.
62. Dhanya, C.T., and **G. Villarini**, On the inherent predictability of precipitation across the United States, *Theoretical and Applied Climatology*, 133, 1035-1050, 2018.
63. Aryal, Y.N., **G. Villarini**, W. Zhang, and G.A. Vecchi, Long term changes in flooding and heavy rainfall associated with North Atlantic tropical cyclones: Roles of the North Atlantic Oscillation and El Niño-Southern Oscillation, *Journal of Hydrology*, 559, 698-710, 2018.
64. Rios Gaona, M.F., **G. Villarini**, W. Zhang, and G.A. Vecchi, The added value of IMERG in characterizing rainfall in tropical cyclones, *Atmospheric Research*, 209, 95-102, 2018.
65. Zhang, W., **G. Villarini**, G.A. Vecchi, and H. Murakami, Impacts of the Pacific Meridional Mode on landfalling North Atlantic tropical cyclones, *Climate Dynamics*, 50(3-4), 991-1006, 2018.
66. Zhang, W., and **G. Villarini**, Uncovering the role of the East Asian jet stream and heterogeneities in atmospheric rivers affecting the western United States, *Proceedings of the National Academy of Sciences of the United States of America*, 115(5), 891-896, 2018.
67. Zhang, W., G.A. Vecchi, H. Murakami, **G. Villarini**, T. Delworth, X. Yang, and L. Jia, Dominant role of Atlantic Multidecadal Oscillation in the recent decadal changes in western North Pacific tropical cyclone activity, *Geophysical Research Letters*, 45, 354-362, 2018.
68. Nayak, M.A., and **G. Villarini**, Remote sensing-based characterization of rainfall during atmospheric rivers over the central United States, *Journal of Hydrology*, 556, 1038-1049, 2018.

69. Luitel, B., **G. Villarini**, and G.A. Vecchi, Verification of the skill of numerical weather prediction models in forecasting rainfall from U.S. landfalling tropical cyclones, *Journal of Hydrology*, 556, 1026-1037, 2018.
70. **Villarini, G.**, and L.J. Slater, Examination of changes in annual maximum gage height in the continental United States using quantile regression, *Journal of Hydrologic Engineering*, 23(3), 1-5, 2018.
71. Zhang, W., and **G. Villarini**, Extreme precipitation is highly sensitive to the magnitude of future warming, *Climatic Change*, 145, 249-257, 2017.
72. Salvi, K., **G. Villarini**, G.A. Vecchi, and S. Ghosh, Decadal temperature predictions over the continental United States: Analysis and enhancement, *Climate Dynamics*, 49, 3587-3604, 2017.
73. Zhang, W., **G. Villarini**, L. Slater, G.A. Vecchi, and A.A. Bradley, Improved ENSO forecasting using Bayesian updating and the North American Multi Model Ensemble (NMME), *Journal of Climate*, 30, 9007-9025, 2017.
74. Bin, O. J. Czajkowski, J. Li, and **G. Villarini**, Housing market fluctuations and the implicit price of water quality: Empirical evidence from a South Florida housing market, *Environmental and Resource Economics*, 68, 319-341, 2017.
75. Mallakpour, I., and **G. Villarini**, Analysis of changes in the magnitude, frequency, and seasonality of heavy precipitation over the contiguous United States, *Theoretical and Applied Climatology*, 130, 345-363, 2017.
76. Slater, L.J., and **G. Villarini**, Evaluating the drivers of seasonal streamflow in the U.S. Midwest, *Water*, 9(9), 1-22, 2017.
77. Salvi, K., **G. Villarini**, and G.A. Vecchi, High resolution decadal precipitation predictions over the continental United States for impacts assessment, *Journal of Hydrology*, 553, 559-573, 2017.
78. **Villarini, G.**, A. Khouakhi, and E. Cunningham, On the impacts of computing daily temperatures as the average of the daily minimum and maximum temperatures, *Atmospheric Research*, 198, 145-150, 2017.
79. Zhang, W., **G. Villarini**, E. Scoccimarro, and G.A. Vecchi, Stronger influences of increased CO<sub>2</sub> on sub-daily precipitation extremes than at the daily scale, *Geophysical Research Letters*, 44, 7464-7471, 2017.
80. Slater, L.J., and **G. Villarini**, On the impact of gaps on trend detection in extreme streamflow time series, *International Journal of Climatology*, 37(10), 3976-3983, 2017.

81. Slater, L.J., **G. Villarini**, and A.A. Bradley, Weighting of NMME temperature and precipitation forecasts across Europe, *Journal of Hydrology*, 552, 646-659, 2017.
82. Weiss, T.L., R.F. Denniston, A.D. Wanamaker, **G. Villarini**, and A.S. von der Heydt, El Niño-Southern Oscillation-like variability in a late Miocene Caribbean coral, *Geology*, 45(7), 643-646, 2017.
83. Mallakpour, I., **G. Villarini**, M.P. Jones, and J.A. Smith, On the use of Cox regression to examine the temporal clustering of flooding and heavy precipitation across the central United States, *Global and Planetary Change*, 155, 98-108, 2017.
84. Zhang, W., and **G. Villarini**, On the unseasonal flooding over the central United States during December 2015 and January 2016, *Atmospheric Research*, 196, 23-28, 2017.
85. Zhang, W., G.A. Vecchi, **G. Villarini**, H. Murakami, R. Gudgel, and X. Yang, Statistical-dynamical seasonal forecast of Western North Pacific and East Asia landfalling tropical cyclones using the GFDL FLOR coupled climate model, 30(6), 2209-2232, *Journal of Climate*, 2017.
86. Zhang, W., **G. Villarini**, and G.A. Vecchi, Impacts of the Pacific Meridional Mode on June-August precipitation in the Amazon River Basin, *Quarterly Journal of the Royal Meteorological Society*, 143, 1936-1945, 2017.
87. Nayak, M.A., and **G. Villarini**, A long-term perspective of the hydroclimatological impacts of atmospheric rivers over the central United States, *Water Resources Research*, 53, 1144-1166, 2017.
88. Barth, N.A., **G. Villarini**, M. Nayak, and K. White, Mixed populations and annual flood frequency estimates in the western United States: The role of atmospheric rivers, *Water Resources Research*, 53, 257-269, 2017.
89. Czajkowski, J., **G. Villarini**, M. Montgomery, E. Michel-Kerjan, and R. Goska, Assessing current and future freshwater flood risk from North Atlantic tropical cyclones via insurance claims, *Scientific Reports*, 7, 1-10, 2017.
90. Black, A.W., **G. Villarini**, and T.L. Mote, Effects of rainfall on vehicle crashes in six U.S. states, *Weather, Climate, and Society*, 9, 53-70, 2017.
91. Zhang, W., G.A. Vecchi, **G. Villarini**, H. Murakami, A. Rosati, X. Yang, L. Jia, and F. Zeng, Modulation of Western North Pacific tropical cyclone activity by the Atlantic Meridional Mode, *Climate Dynamics*, 48(1), 631-647, 2017.
92. Khouakhi, A., and **G. Villarini**, Attribution of annual maximum sea levels to tropical cyclones at the global scale, *International Journal of Climatology*, 37, 540-547, 2017.

93. Khouakhi, A., **G. Villarini**, and G.A. Vecchi, Contribution of tropical cyclones to rainfall at the global scale, *Journal of Climate*, 30, 359-372, 2017.
94. Dhanya, C.T., and **G. Villarini**, An investigation of predictability dynamics of temperature and precipitation in reanalysis datasets over the continental United States, *Atmospheric Research*, 183, 341-350, 2017.
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- Ciach, G.J., W.F. Krajewski, and **G. Villarini**, Large sample nonparametric modeling of the uncertainties in radar rainfall products, *33rd Conference on Radar Meteorology*, Cairns, Australia, August 6-10, 2007.
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- **Villarini, G.**, P.V. Mandapaka, W.F. Krajewski, and G.J. Ciach, A simulation study to investigate spatial representativeness errors in lognormal fields: Application to rainfall, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H51D-0514, 2006.
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- **Villarini, G.**, F. Lombardo, F. Napolitano, F. Russo, and W.F. Krajewski, Scaling properties of a polarimetric C-band weather radar: preliminary results, *XXX° Convegno di Idraulica e Costruzioni Idrauliche*, Rome, Italy, September 10-15, 2006.
- Krajewski, W.F., **G. Villarini**, and G.J. Ciach, Effects of radar-rainfall estimates uncertainties on inferring scaling properties of space-time rainfall, *20 Years of Nonlinear Dynamics in Geosciences*, Rhodes, Greece, June 11-16, 2006.
- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Generator of empirically-based synthetic radar-rainfall data, *Second International Symposium on Quantitative Precipitation Forecasting and Hydrology*, Boulder, Colorado, June 4-8, 2006.
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- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Empirically-based ensemble generator of radar rainfall, *The University of Iowa College of Engineering 4th Research Open House*, Iowa City, April 20, 2006.
- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Empirically-based ensemble generator of radar-rainfall data, *General Assembly, EGU*, Vienna, Austria, April 2-7, 2006.
- **Villarini, G.**, Empirical characterization of radar rainfall uncertainties: preliminary results, *The University of Iowa 2006 Eighth Annual James F. Jakobsen Graduate Conference*, Iowa City, March 25, 2006.
- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Nonlinear modeling of radar-rainfall errors at different time scales, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H31J-04, 2005.
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- Ciach, G.J., W.F. Krajewski, **G. Villarini**, D. Kitzmiller, and R.A. Fulton, Ensemble generator of radar-based QPE, *32nd Conference on Radar Meteorology*, Albuquerque, New Mexico, October 24-29, 2005.
- Ciach, G.J., W.F. Krajewski, and **G. Villarini**, Radar based probabilistic quantitative precipitation estimation: first results of large sample data analysis, *Eos Trans. AGU*, Jt. Assem. Suppl., Abstract H43E-06, 2005.
- Krajewski, W.F., and **G. Villarini**, Radar-rainfall, uncertainties: implications for flash-flood forecasting and rainfall modeling, *New Frontiers in Hydrology*, 3rd CNR-Princeton Workshop, May 18-20, 2005.
- Krajewski, W.F., G.J. Ciach, and **G. Villarini**, Towards probabilistic quantitative precipitation estimation, *HFP Workshop*, Montreal, Canada, May 9-12, 2005.
- **Villarini, G.**, Effects of observational uncertainties on the estimated multifractal properties in radar rainfall fields, *The University of Iowa 2005 Seventh Annual James F. Jakobsen Graduate Forum*, Iowa City, April 29-30, 2005.
- Krajewski, W.F., G.J. Ciach, and **G. Villarini**, Towards uncertainty-based forecasting of rainfall-induced hazards, *General Assembly, EGU*, Vienna, Austria, April 24-29, 2005.
- **Villarini, G.**, G.J. Ciach, and W.F. Krajewski, Effects of observational uncertainties on the estimated multifractal properties in radar rainfall fields, *The University of Iowa College of Engineering 3rd Research Open House*, Iowa City, April 7, 2005.
- **Villarini G.**, G.J. Ciach, and W.F. Krajewski, Effects of observational uncertainties on the estimated multifractal properties in radar rainfall fields. *8<sup>th</sup> International Conference on Precipitation*, Vancouver, Canada, August 8-11, 2004.
- **Villarini, G.**, G.J. Ciach, and W.F. Krajewski, Multifractal analyses of radar rainfall fields - effects of the uncertainties, *The University of Iowa College of Engineering 2nd Research Open House*, Iowa City, April 29, 2004.
- **Villarini G.**, and G.J. Ciach, Multifractal analyses of radar rainfall fields – effects of the uncertainties. *Eos Trans. AGU*, 85 (17), Joint Assembly Suppl., Abstract NG23A-04, 2004.
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## SEMINARS:

- **Villarini, G.**, *Increasing Frequency of Flood Events across the Central United States: A Hierarchy of Whys*, Beijing Normal University, August 24, 2020.
- **Villarini, G.**, *Increasing Frequency of Flood Events across the Central United States: A Hierarchy of Whys*, Arizona State University, March 18, 2020.
- **Villarini, G.**, *Increasing Frequency of Flood Events across the Central United States: A Hierarchy of Whys*, University of Oxford, February 7, 2020.
- **Villarini, G.**, *Looking Back to Move Forward: Future Changes in the Frequency of Flood Events across the Central United States*, University of California Los Angeles, October 22, 2019.
- **Villarini, G.**, *Hydrometeorological Extremes and Tropical Cyclones*, University of Central Florida, Florida, October 9, 2019.
- **Villarini, G.**, *Hydrometeorological Extremes and Tropical Cyclones*, Asian Institute of Technology, Bangkok, Thailand, June 24, 2019.
- **Villarini, G.**, *Hydrometeorological Extremes and Tropical Cyclones*, CMCC, Bologna, Italy, June 27, 2019.
- **Villarini, G.**, *Looking Backward to Move Forward: Future Changes in the Frequency of Flood Events*, University of Padua, Padua, Italy, June 26, 2019.
- **Villarini, G.**, *Hydrometeorological Extremes and Tropical Cyclones*, University of Rome “La Sapienza”, Rome, Italy, June 24, 2019.
- **Villarini, G.**, *Flooding and Heavy Rainfall Associated with Tropical Cyclones*, University of Notre Dame, Notre Dame, IN, February 19, 2019.
- **Villarini, G.**, *Flooding Across the Central United States: Ieri, Oggi e Domani*, CMCC, Bologna, Italy, June 21, 2018.
- **Villarini, G.**, *Past and future changes in streamflow in the U.S. Midwest: Bridging across time scales*, University of Illinois, Champaign, IL, November 10, 2017.
- **Villarini, G.**, *Flooding Across the Central United States: Past, Present and Future*, CMCC, Bologna, Italy, June 16, 2016.

- **Villarini, G.**, *Flooding Across the Central United States: Past, Present and Future*, Grinnell College, Grinnell, IA, October 6, 2015.
- **Villarini, G.**, *The Changing Nature of Flooding Across the Central United States*, Northern Illinois University, DeKalb, IL, September 11, 2015.
- **Villarini, G.**, *The Changing Nature of Flooding Across the Central United States*, U.S. Geological Survey, Reston, VA, August 14, 2015.
- **Villarini, G.**, *Flooding over the United States: A climatic perspective and the role of tropical cyclones*, Bermuda Insurance Institute, Bermuda, October 28, 2014.
- **Villarini, G.**, *Flooding over the Central United States*, U.S. Geological Survey, IA, August 14, 2014.
- **Villarini, G.**, *Flooding over the Central United States*, Geophysical Fluid Dynamics Laboratory, NJ, June 20, 2013.
- **Villarini, G.**, *Is it going to rain tomorrow? Heavy rainfall and flooding over the Central United States*, Luther College, Decorah, IA, April 4, 2013.
- **Villarini, G.**, *Is it going to rain tomorrow? Heavy rainfall and flooding over the Central United States*, Coe College, Cedar Rapids, IA, March 19, 2013.
- **Villarini, G.**, *What do the observational records tell us about flooding and climate change?*, The National Center for Atmospheric Research, Boulder, CO, July 20, 2012.
- **Villarini, G.**, *A data-driven perspective on flooding and changing climate*, University of Iowa, Iowa City, IA, March 8, 2012.
- **Villarini, G.**, *A data-driven perspective on flooding and changing climate*, University of Washington, Seattle, WA, February 29, 2012.
- **Villarini, G.**, *Flooding and changing climate: A data driven perspective*, IHR-Hydroscience & Engineering, The University of Iowa, Iowa City, IA, September 2, 2011.
- **Villarini, G.**, *Extreme events and changing climate: What does the data tell us?*, Aggravated Natural Disaster Seminar, Chartis Insurance, New York, NY, July 15, 2011.
- **Villarini, G.**, *Flooding, tropical cyclones, and climate change in the Eastern United States*, Columbia University, New York, NY, April 8, 2010.
- **Villarini, G.**, *Flooding, tropical cyclones, and climate change in the Eastern United States*, James J. Howard Marine Sciences Laboratory, Sandy Hook, NJ, March 11, 2010.

- **Villarini, G.**, *Flood frequency in the Eastern United States*, Geophysical Fluid Dynamics Laboratory, NJ, July 15, 2009.
- **Villarini, G.**, *Empirically-based modeling of radar-rainfall uncertainties*, University of Connecticut, CT, April 11, 2008.

#### **TECHNICAL REPORTS:**

- Krajewski, W.F., G.J. Ciach, and **G. Villarini**, *Towards Probabilistic Quantitative Precipitation WSR-88D Algorithms: Data Analysis and Development of Ensemble Model Generator: Phase 4*, final report, 202 pp., NWS Office of Hydrologic Development, Silver Spring, MD, 2005.

#### **STUDENTS AND POST-DOCTORAL RESEARCHERS:**

##### *Research Scientists*

- Wei Zhang (2017-2020)

##### *Post-Doctoral Researchers*

- David A. Lavers (2013-2014)
- Kaustubh Salvi (2015-2016)
- Abdou Khouakhi (2015-2016)
- Louise Slater (2015-2016)
- Alan Black (2015-2016)
- Wei Zhang (2016-2017)
- Manuel F. Ríos Gaona (2017-2018)
- Vittal Hari (2018-2019)
- Hanbeen Kim (2021-)

##### *Ph.D. Students*

- Iman Mallakpour (2012-2016)
- Munir Nayak (2013-2016)
- Nancy Barth (2015-2018)
- Jessica Ayers (2017-2021)
- Zhiqi Yang (2017-2021)
- William Veatch (2018-)
- Sadya Islam (2020-)
- Alexander Michalek (2021-)
- Lily Kraft (2021-)
- Renato Amorim (2021-)

### *M.S. Students*

- Scott Rowe (2012-2014)
- Beda Luitel (2013-2016)
- Yog Aryal (2015-2017)
- Alex Morrison (2017-2019)

### *Undergraduate Students*

- Anda Shi (2014-2015)
- Alexa Hanson (2016-2017)
- Lara Gavin (2021-2021)
- Katey Namanny (2020-)
- Laura Zepeski (2021-)

### *Visiting Students and Researchers*

- Ignazio Giuntoli (2014)
- Dr. Dhanya C.T. (2015)
- Evan Cunningham (2016)
- Andrea Neri (2017-2018)
- Arianna Miniussi (2018-2019)
- Ottavio Cavalcanti (2019)
- Bo Pang (2019-2020)
- Meifang Ren (2019-2020)

### **FUNDED PROJECTS:**

- Source of Support: US Department of Housing and Urban Development (subaward)  
PI. Title: GLO Flood Studies - Region 2 (TGL20583)  
Award: \$83,020 [05/27/2021 – 04/26/2022]
- Source of Support: US Department of Housing and Urban Development (subaward)  
PI. Title: Flood Studies within Combined River Basins For Texas (GLO): Dannenbaum  
Award: \$191,500 [05/11/2021 – 03/15/2023]
- Source of Support: US Department of Housing and Urban Development (subaward)  
PI. Title: Probabilistic modeling of rainfall associated with tropical cyclones affecting Louisiana  
Award: \$190,095 [04/01/2019 – 11/01/2021]
- Source of Support: Willis Tower Watson  
Co-PI. Title: Towards Physically Based and Usable Climate Event Scenarios  
Award: \$13,457 [01/01/2021 – 12/31/2021]
- Source of Support: National Aeronautics and Space Administration

Lead PI. Title: Impacts of Coronavirus-driven Reduction in Aerosols on Precipitation in the Western United States

Award: \$63,374 [08/06/2020 – 02/05/2021]

- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: 2020 IPA with USACE  
Award: \$150,000 [07/01/2020 – 12/31/2022]
- Source of Support: Iowa Department of Transportation  
PI. Title: Projected Changes in Flood Peak Discharge across Iowa: A Flood Frequency Perspective  
Award: \$313,923 [03/01/2020 – 02/28/2023]
- Source of Support: National Science Foundation  
Co-PI. Title: Support for Young Investigator Participation at the 8th International Conference on Flood Management (ICFM8), Iowa City, August 17-19, 2020  
Award: \$45,405 [12/01/2019 – 11/30/2020]
- Source of Support: Thomas Jefferson Fund  
Lead PI. Title: Attribution and Projections of Changes in Discharge Across Africa and the Euro-Mediterranean Region  
Award: \$10,000 [09/01/2019 – 08/31/2021]
- Source of Support: National Science Foundation  
Lead PI. Title: Quantification of the Impacts of Urban Areas on Heavy Rainfall and Flooding from North Atlantic Tropical Cyclones  
Award: \$399,934 [04/15/2019 – 03/31/2022]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: 2018 IPA with USACE  
Award: \$160,000 [09/01/2018 – 12/31/2020]
- Source of Support: Center for Global & Regional Environmental Research  
Co-PI. Title: Detection, Attribution and Projection of Changes in Temperature Extremes, Heat Waves and Heat Stress across the U.S. Midwest  
Award: \$35,000 [07/01/2018 – 06/30/2019]
- Source of Support: US Department of Housing and Urban Development (subaward)  
Lead PI. Title: Hydrometeorological Impacts on Water Quantity and Quality across Iowa's Streams  
Award: \$253,496 [01/01/2017 – 12/31/2019]
- Source of Support: National Science Foundation  
Co-PI. Title: NRT-INFEWS: Paths to Sustainable Food-Energy-Water Systems in Resource-Limited Communities  
Award: \$2,999,869 [08/30/2016 – 08/29/2021]

- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: Water Resources and Geospatial Analysis: Attribution of Changes and Evaluation of Actionable Climate Information across the Northern Great Plains and the Central United States  
Award: \$384,471 [12/28/2015 – 06/30/2018]
- Source of Support: National Oceanic and Atmospheric Administration  
Lead PI. Title: NMME Precipitation and Temperature Forecasts for the Continental United States and Europe: Diagnostic Evaluation and Development of Multi Model Applications  
Award: \$69,999 [08/01/2015 – 07/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: U.S. Army Corps of Engineers (USACE) Research Participation Program - Nancy Barth  
Award: \$165,618 [06/01/2015 – 05/31/2018]
- Source of Support: U.S. Geological Survey  
Lead PI. Title: Development of a Comprehensive Hazard to Loss Modeling Methodology for the Residential Damage Associated with Inland Flooding from North Atlantic Tropical Cyclones  
Award: \$119,532 [09/01/2014 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$75,000 [09/01/2014 – 08/31/2015]
- Source of Support: National Aeronautics and Space Administration  
Lead PI. Title: Remote-sensing Based Characterization of Rainfall Associated with Atmospheric Rivers  
Award: \$90,000 [09/01/2014 – 08/31/2017]
- Source of Support: Iowa Nutrient Research Center  
Lead PI. Title: Modeling of Nitrate Loads and Concentrations in the Raccoon River  
Award: \$50,000 [07/01/2014 – 06/30/2015]
- Source of Support: Center for Global & Regional Environmental Research  
Lead PI. Title: How Is Discharge Projected to Change for an Agricultural Watershed in Iowa Over the 21st Century?  
Award: \$30,000 [07/01/2014 – 06/30/2015]
- Source of Support: National Science Foundation  
Lead PI. Title: CAREER: Temporal Clustering of Hydrometeorological Extremes  
Award: \$508,405 [05/01/2014 – 04/30/2019]

- Source of Support: U.S. Geological Survey (via the Iowa Water Center)  
Lead PI. Title: Development of a Framework for Discharge Forecasting over Iowa  
Award: \$59,929 [04/15/2014 – 04/14/2016]
- Source of Support: NOAA Programs for Disaster Relief Appropriation Act –Non Construction and Construction (subaward)  
Lead PI. Title: Skillful Prediction of Seasonal Hurricane Frequency, Track and Fall  
Award: \$234,537 [12/01/2013 – 02/28/2018]
- Source of Support: National Science Foundation  
Lead PI. Title: Collaborative Research: Understanding and Forecasting North Atlantic and US Landfalling Tropical Cyclone Activity and Associated Rainfall  
Award: \$263,206 [09/01/2013 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$27,888 [09/01/2013 – 07/31/2014]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$200,000 [09/26/2012 – 08/31/2014]

**SERVICE:**

- *October 2020 – present:* Editor-in-Chief for Advances in Water Resources.
- *July 2018 – present:* Member of the Iowa Water Center Advisory Board.
- *January 2017 – present:* Representative of the University of Iowa to the Consortium of Universities for the Advancement of Hydrologic Science (CUAHSI).
- *March 2015 – September 2020:* Associate Editor for Advances in Water Resources.
- *April 2014 – present:* Associate Editor for Journal of Climate.
- *November 2015 –2016:* member of the American Meteorological Society (AMS) Flash Flood Statement Update Team.
- *July 2010 – 2015:* member of the American Geophysical Union (AGU) Precipitation Committee.
- *January 2011 – 2014:* member of the U.S.-CLIVAR Working Group on Hurricanes and Climate.



- Co-chair of the “Hydroclimatic Extremes: Estimation and Forecasting” session; AGU 2013 Fall Meeting.
- Invited Participant, NOAA National Climate Assessment Forum on Heatwaves, Cold Waves, Floods, and Droughts, 2011.
- *November 2010*: member of a National Academy of Sciences delegation meeting with members of the Ukrainian Academy of Sciences.
- Article reviewer for: *Advances in Water Resources*; *Annals of Geophysics*; *Asia-Pacific Journal of Atmospheric Sciences*; *Atmospheric Research*; *Atmospheric Science Letters*; *Australian Meteorological and Oceanographic Journal*; *Bulletin of the American Meteorological Society*; *Climate Dynamics*; *Climatic Change*; *Earth-science Reviews*; *Earth System Dynamics*; *Environmental Engineering and Management Journal*; *Environmental Research Letters*; *Environmental Science & Technology*; *Geophysical Research Letters*; *Hydrological Processes*; *Hydrological Sciences Journal*; *Hydrology and Earth System Sciences*; *IEEE Geoscience and Remote Sensing Letters*; *IEEE Transactions on Geoscience and Remote Sensing*; *International Journal of Climatology*; *International Journal of River Basin Management*; *Journal of Applied Meteorology and Climatology*; *Journal of Atmospheric Sciences*; *Journal of Climate*; *Journal of Flood Risk Management*; *Journal of Geophysical Research*; *Journal of Hydro-Environment Research*; *Journal of Hydrologic Engineering*; *Journal of Hydrology*; *Journal of Hydrometeorology*; *Journal of Mountain Science*; *Journal of the American Water Resources Association*; *Monthly Weather Review*; *Natural Hazards*; *Natural Hazards and Earth System Sciences*; *Natural Hazards Review*; *Nature*; *Nature Climate Change*; *Nature Communications*; *Nature Geoscience*; *One Earth*; *Physical Geography*; *Proceedings of the National Academy of Sciences*; *Quarterly Journal of the Royal Meteorological Society*; *Regional Environmental Changes*; *Philosophical Transactions A*; *Science*; *ScienceAsia*; *Scientific Reports*; *Stochastic Environmental Research and Risk Assessment*; *Tellus A*; *Water Resources Management*; *Water Resources Research*; *Weather and Forecasting*; *Weather, Climate, and Society*.
- Proposal reviewer for: City University of New York; Department of Defense; Department of Energy; Deutsche Forschungsgemeinschaft (DFG); Global and Regional Environmental Research; National Science Foundation; Netherlands Organisation for Scientific Research; U.S. Bureau of Reclamation; U.S. Geological Survey.
- Book reviewer for: American Geophysical Union; Springer.