

Curriculum Vitae

Gabriele Villarini

WORK ADDRESS

Civil and Environmental Engineering
Princeton University
E418 Engineering Quad
Princeton, New Jersey 08544
Office: (609) 258-3761
E-mail: gvillari@princeton.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, Università 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 "*. Università degli Studi "La Sapienza", Rome, Italy.

PROFESSIONAL EXPERIENCE:

July 2023 – present: Professor, Civil & Environmental Engineering and High Meadows Environmental Institute. Princeton University.

July 2020 – June 2023: Professor, Civil & Environmental Engineering. The University of Iowa.

February 2018 – August 2022: 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 – June 2023: 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

AWARDS AND FELLOWSHIPS:

May 2022: “Faculty Excellence Award for Research” by the College of Engineering at the University of Iowa.

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); American Meteorological Society (AMS)

PEER-REVIEWED PAPERS:

1. Treppiedi, D., **G. Villarini**, and L.V. Noto, Climate change exacerbates the compounding of heat stress and flooding in the mid-latitudes, *International Journal of Climatology*, 2024 (in press).
2. Kim, T., and **G. Villarini**, Projected changes in daily precipitation, temperature and wet-bulb temperature across Arizona using statistically downscaled CMIP6 climate models, *International Journal of Climatology*, 44, 1994-2010, 2024.
3. Kim, H., **G. Villarini**, C. Wasko, and Y. Trambly, Changes in the climate system dominate the inter-annual variability in flooding across the globe, *Geophysical Research Letters*, 51, e2023GL107480, 2024.
4. Amorim, R., and **G. Villarini**, Assessing the performance of parametric and non-parametric tests for trend detection in partial duration time series, *Journal of Flood Risk Management*, 17(1), e12957, 2024.
5. Wasko, C. S. Westra, R. Nathan, A. Pepler, T.H. Raupach, A. Dowdy, F. Johnson, M. Ho, K.L. McInnes, D. Jakob, J. Evans, **G. Villarini**, and H.J. Fowler, A systematic review of climate change science relevant to Australian design flood estimation, *Hydrology and Earth System Sciences*, 28, 1251-1285, 2024.
6. Deng, Z., X. Wu, G. Villarini, Z. Wang, C. Lai, and Z. Zeng, Stronger exacerbation of extreme rainfall at the hourly than daily scale by urbanization in a warming climate, *Journal of Hydrology*, 633, 131025, 2024.
7. Michalek, A., **G. Villarini**, and T. Kim, Understanding the impact of precipitation bias-correction and statistical downscaling methods on projected changes in flood extremes, *Earth's Future*, 12(3), e2023EF004179, 2024.
8. Kim, H., and **G. Villarini**, Higher emissions scenarios lead to more extreme flooding in the United States, *Nature Communications*, 15, 237, 2024.
9. Kuntla, S.K., M. Saharia, S. Prakash, and **G. Villarini**, Precipitation inequality exacerbates streamflow inequality, but dams moderate it, *Science of the Total Environment*, 912, 169098, 2024.
10. Michalek, A., **G. Villarini**, T. Kim, F., Quintero, and W.F. Krajewski, Disentangling the sources of uncertainties in the projection of floods risk across the central United States (Iowa), *Geophysical Research Letters*, 50, e2023GL105852, 2023.

11. **Villarini G.**, D., Treppiedi, and L.V. Noto, Sensitivity of the SIMulation-EXtrapolation (SIMEX) methodology to mis-specification of the statistical properties of the measurement errors, *Theoretical and Applied Climatology*, 153, 311-321, 2023.
12. Kim, H., and **G. Villarini**, On the potential use of weather types to describe the interannual variability of annual maximum discharge across the conterminous United States, *Hydrological Processes*, 37(11), e15014, 2023.
13. Michalek, A., **G. Villarini**, and A. Husic, Climate change projected to impact structural hillslope connectivity at the global scale, *Nature Communications*, 14, 1-8, 2023.
14. Amorim, R., **G. Villarini**, W. Veatch, and K. White, Reduced and more fragmented Mississippi River navigability by rising flow, *Geophysical Research Letters*, 50(19), 1-8, 2023.
15. Li, X., J. Ghosh, and **G. Villarini**, A comparison of Bayesian multivariate versus univariate regression models for prediction in moderate dimensional model, *The American Statistician*, 77(3), 304-312, 2023.
16. Islam, S., **G. Villarini**, and W. Zhang, Quantification of the role of urbanization in changing the rainfall associated with tropical cyclones affecting Charlotte, North Carolina, *Urban Climate*, 52, 101681, 2023.
17. Michalek, A., **G. Villarini**, T. Kim, F., Quintero, W.F. Krajewski, and E. Scoccimarro, Evaluation of CMIP6 HighResMIP for hydrologic modeling of annual maximum discharge in Iowa, *Water Resources Research*, 59, 1-18, 2023.
18. Kraft, L., **G. Villarini**, and J. Czajkowski, Characterizing the 2019 Midwest flood: A hydrologic and socio-economic perspective, *Weather, Climate, and Society*, 15(3), 603-617, 2023.
19. Michalek, A., F. Quintero, **G. Villarini**, and W.F. Krajewski, Projected changes in annual maximum discharge for Iowa communities, *Journal of Hydrology*, 625, 1-8, 2023.
20. Li, X., J. Ghosh, and **G. Villarini**, Bayesian negative binomial regression model with unobserved covariates for predicting the frequency of North Atlantic tropical storms, *Journal of Applied Statistics*, 50(9), 2014-2035, 2023.
21. Slater, L.J., L. Arnal, M.-A. Boucher, A. Y.-Y. Chang, S. Moulds, C. Murphy, G. Nearing, G. Shalev, C. Shen, L. Speight, **G. Villarini**, R.L. Wilby, A. Wood, and M. Zappa, Hybrid forecasting: Blending climate predictions with AI models, *Hydrology and Earth System Sciences*, 27, 1865-1889, 2023.
22. Kim, T., **G. Villarini**, H. Kim., R. Jane, and T. Wahl, On the compounding of nitrate loads and discharge, *Journal of Environmental Quality*, 52(3), 706-717, 2023.

23. Su, Y., J.A. Smith, and **G. Villarini**, Extreme convective rainfall and flooding from winter season extratropical cyclones in the Mid-Atlantic region of the United States, *Journal of Hydrometeorology*, 24(3), 497-520, 2023.
24. Yang, Z., W. Zhang, and **G. Villarini**, Impact of coronavirus-driven reduction in aerosols on precipitation in the western United States, *Atmospheric Research*, 288, 1-7, 2023.
25. Kim, H., **G. Villarini**, R. Jane, T. Wahl, S. Misra, and A. Michalek, On the generation of high-resolution probabilistic design events capturing the joint occurrence of rainfall and storm surge in coastal basins, *International Journal of Climatology*, 43(2), 761-771, 2023.
26. Su, Y., J.A. Smith, and **G. Villarini**, The hydrometeorology of extreme floods in the Lower Mississippi River, *Journal of Hydrometeorology*, 24(2), 203-219, 2023.
27. Rashid, M., T. Wahl, **G. Villarini**, and A. Sharma, Fluvial flood losses in the contiguous United States under climate change, *Earth's Future*, 11(2), 1-14, 2023.
28. Kemter, M., N. Marwan, G. Villarini, and B. Merz, Controls on flood trends across the United States, *Water Resources Research*, 59(2), 1-21, 2023.
29. Ayers, J., **G. Villarini**, Y. Tramblay, and H. Kim, Observed changes in monthly baseflow across Africa, *Hydrological Sciences Journal*, 68(1), 108-118, 2023.
30. Denniston, R.F., C.C. Ummenhofer, K. Emanuel, R. Ingrassia, F.S.R. Pausata, A.D. Wanamaker, M.S. Lachniet, K.T. Carr, Y. Asmerom, V.J. Polyak, J. Nott, W. Zhang, **G. Villarini**, J. Cugley, D. Brooks, D. Woods, and W.F. Humphreys, Sensitivity of northwest Australian tropical cyclone activity to ITCZ migration since CE 500, *Science Advances*, 9(2), 1-10, 2023.
31. Kim, H., and **G. Villarini**, On the attribution of annual maximum discharge across the conterminous United States, *Advances in Water Resources*, 171, 1-13, 2023.
32. Tramblay, Y., **G. Villarini**, M. Saidi, C. Massari, and L. Stein, Classification of flood-generating processes in Africa, *Scientific Reports*, 12, 1-9, 2022.
33. Quintero, F., **G. Villarini**, A.F. Prein, W. Zhang, and W.F. Krajewski, Discharge and floods projected to increase more than precipitation extremes, *Hydrological Processes*, 36(11), 1-12, 2022.
34. Ekolu, J., B. Dieppois, M. Sidibe, J.M. Eden, Y. Tramblay, **G. Villarini**, D. Peña-Angulo, G. Mahé, J.-E. Paturel, C. Onyutha, and M. van de Wiel, Long-term variability in hydrological droughts and floods in sub-Saharan Africa: New perspectives from a 65-year daily streamflow dataset, *Journal of Hydrology*, 613A, 1-17, 2022.

35. Quintero, F., **G. Villarini**, A.F. Prein, W.F. Krajewski, and W. Zhang, On the role of atmospheric simulations horizontal grid spacing for flood modeling, *Climate Dynamics*, 59, 3167-3174, 2022.
36. Michalek, A., F. Quintero, **G. Villarini**, and W.F. Krajewski, Advantages of physically based flood frequency analysis with long-term simulations for Iowa, *Journal of Hydrologic Engineering*, 27(12), 1-11, 2022.
37. Veatch, W., and **G. Villarini**, Modeling riverine flood seasonality with mixtures of circular probability density functions, *Journal of Hydrology*, 613, 1-11, 2022.
38. Kim, H., and **G. Villarini**, Evaluation of the Analysis of Record for Calibration (AORC) rainfall across Louisiana, *Remote Sensing*, 14(14), 3284, 2022.
39. Ren, M., **G. Villarini**, B. Pang, Z. Xue, L. Du, and Y. Wang, Hydrological response in a highly urbanized watershed in China, *Journal of Water and Climate Change*, 13(5), 2171-2187, 2022.
40. Zhang, J., C. Lu, W. Crumpton, C. Jones, H. Tian, **G. Villarini**, K. Schilling, and D. Green, Heavy precipitation impacts on nitrogen loading to the Gulf of Mexico in the 21st century: Modeling projections under future climate scenarios, *Earth's Future*, 10(4), e2021EF002141, 2022.
41. Mishra, A., S. Mukherjee, B. Merz, V. Singh, D. Wright, **G. Villarini**, S. Paul, N. Kumar, P. Khedun, D. Niyogi, G. Schumann, and J.R. Stedinger, Challenges and future directions in flood research, *Journal of Hydrologic Engineering*, 27(6), 1-30, 2022.
42. **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*, 42(3), 1789-1802, 2022.
43. Ayers, J.R., **G. Villarini**, K. Schilling, C. Jones, A. Brookfield, S.C. Zipper, and W.H. Farmer, The role of climate in monthly baseflow changes across the continental United States, *Journal of Hydrologic Engineering*, 27(5), 04022006, 2022.
44. Yang, Z., **G. Villarini**, and E. Scoccimarro, Evaluation of the capability of regional climate models in reproducing the temporal clustering in heavy precipitation over Europe, *Atmospheric Research*, 269, 106027, 1-10, 2022.
45. 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.
46. **Villarini, G.**, and C. Wasko, Humans, climate and streamflow, *Nature Climate Change*, 1-2, 2021.

47. 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.
48. 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.
49. 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.
50. 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.
51. 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.
52. 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.
53. 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.
54. 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.
55. 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.
56. 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.

57. 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.
58. 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.
59. 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.
60. 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.
61. 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.
62. 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.
63. **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.
64. 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.
65. 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.
66. 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.
67. Trambly, Y., **G. Villarini**, and W. Zhang, Observed changes in flood hazard in Africa, *Environmental Research Letters*, 15(10), 1-8, 2020.

68. Yang, Z., and **G. Villarini**, On the role of CO₂ concentrations in enhancing the temporal clustering of heavy precipitation events across Europe, *Climatic Change*, 162, 1455-1472, 2020.
69. 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.
70. 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.
71. **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.
72. 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.
73. 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.
74. 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.
75. 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.
76. 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.
77. 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.
78. 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.
79. 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.

80. 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.
81. 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.
82. 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.
83. 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.
84. 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.
85. 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.
86. **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.
87. 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.
88. 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 CO₂ doubling: Roles of atmospheric resolution, synoptic variability and background climate changes, *Climate Dynamics*, 53, 5999-6033, 2019.
89. Black, A.W., and **G. Villarini**, Effects of methodological decisions on rainfall-related crash risk estimates, *Accident Analysis & Prevention*, 130, 22-29, 2019.
90. 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.

91. 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.
92. 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.
93. 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.
94. 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.
95. 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.
96. 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.
97. 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.
98. 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.
99. 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.
100. 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.
101. 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.
102. 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.

103. 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.
104. Slater, L.J., and **G. Villarini**, Enhancing the predictability of seasonal streamflow via a statistical-dynamical approach, *Geophysical Research Letters*, 45, 6504-6513, 2018.
105. Dhanya, C.T., and **G. Villarini**, On the inherent predictability of precipitation across the United States, *Theoretical and Applied Climatology*, 133, 1035-1050, 2018.
106. 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.
107. 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.
108. 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.
109. 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.
110. 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.
111. 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.
112. 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.
113. **Villarini, G.**, and L.J. Slater, Examination of changes in annual maximum gauge height in the continental United States using quantile regression, *Journal of Hydrologic Engineering*, 23(3), 1-5, 2018.
114. Zhang, W., and **G. Villarini**, Heavy precipitation is highly sensitive to the magnitude of future warming, *Climatic Change*, 145, 249-257, 2017.

115. 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.
116. 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.
117. 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.
118. 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.
119. Slater, L.J., and **G. Villarini**, Evaluating the drivers of seasonal streamflow in the U.S. Midwest, *Water*, 9(9), 1-22, 2017.
120. 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.
121. **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.
122. Zhang, W., **G. Villarini**, E. Scoccimarro, and G.A. Vecchi, Stronger influences of increased CO₂ on sub-daily precipitation extremes than at the daily scale, *Geophysical Research Letters*, 44, 7464-7471, 2017.
123. 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.
124. 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.
125. 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.
126. 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.

127. 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.
128. 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.
129. 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.
130. 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.
131. 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.
132. 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.
133. 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.
134. 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.
135. 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.
136. 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.
137. 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.
138. Slater, L.J., and **G. Villarini**, Recent trends in US flood risk, *Geophysical Research Letters*, 43(24), 12428-12436, 2016.

139. Zhang, W., G.A. Vecchi, H. Murakami, G. Villarini, T.L. Delworth, K. Paffendorf, R. Gudgel, L. Jia, F. Zeng, and X. Yang, Influences of natural variability and anthropogenic forcing on the extreme 2015 accumulated cyclone energy in the Western North Pacific [in “Explaining Extremes of 2015 from a Climate Perspective”], *Bulletin of the American Meteorological Society*, 97(12), S131-S135, 2016.
140. **Villarini G.**, C.S. Jones, and K.E. Schilling, Soybean area and baseflow driving Raccoon River nitrate, *Journal of Environmental Quality*, 45(6), 1949-1959, 2016.
141. Zhang, W., G.A. Vecchi, **G. Villarini**, H. Murakami, T. Delworth, L. Jia, R. Gudgel, and F. Zeng, Simulated connections between ENSO and tropical cyclones near Guam in a high-resolution GFDL coupled climate model: Implications for seasonal forecasting, *Journal of Climate*, 29, 8231-8248, 2016.
142. Murakami, H., G.A. Vecchi, **G. Villarini**, T. Delworth, R. Gudgel, S. Underwood, X. Yiang, W. Zhang, and S.-J. Lin, Seasonal forecasts of major hurricanes and landfalling tropical cyclones using a high-resolution GFDL coupled climate model, *Journal of Climate*, 29, 7977-7989, 2016.
143. Denniston, R.F., C.C. Ummenhofer, A.D. Wanamaker, M.S. Lachniet, **G. Villarini**, Y. Asmerom, V.J. Polyak, K.J. Passaro, J. Cugley, D. Woods, and W.F. Humphreys, Expansion and contraction of the Indo-Pacific tropical rain belt over the last three millennia, *Scientific Reports*, 6, 1-9, 2016.
144. Khouakhi, A., and **G. Villarini**, On the relationship between atmospheric rivers and high sea water levels along the U.S. West Coast, *Geophysical Research Letters*, 43, 8815-8822, 2016.
145. Zhang, W., **G. Villarini**, G.A. Vecchi, H. Murakami, and R. Gudgel, Statistical-dynamical seasonal forecast of western North Pacific and East Asia landfalling tropical cyclones using the High-Resolution GFDL FLOR coupled model, *Journal of Advances in Modeling Earth Systems*, 8, 538-265, 2016.
146. **Villarini G.**, K.E. Schilling, and C.S. Jones, Assessing the relation of USDA conservation expenditures to suspended sediment reductions in an Iowa watershed, *Journal of Environmental Management*, 180, 375-383, 2016.
147. Murakami, H., **G. Villarini**, G.A. Vecchi, W. Zhang, and R. Gudgel, Statistical-dynamical seasonal forecast of North Atlantic and U.S. landfalling tropical cyclones using the high-Resolution GFDL FLOR Coupled Model, *Monthly Weather Review*, 144(6), 2101-2123, 2016.
148. Mallakpour, I., and **G. Villarini**, Investigating the relationship between the frequency of flooding over the central United States and large-scale climate, *Advances in Water Resources*, 92, 159-171, 2016.

149. Zhang, W., G.A. Vecchi, H. Murakami, T. Delworth, A. Wittenberg, W. Anderson, A. Rosati, S. Underwood, L. Harris, R. Gudgel, S.-J. Lin, **G. Villarini**, and J.-H. Chen, Improved simulation of tropical cyclone responses to ENSO in the western North Pacific in the high-resolution GFDL HiFLOR coupled climate model, *Journal of Climate*, 29(4), 1391-1415, 2016.
150. Zhang, W., G.A. Vecchi, H. Murakami, **G. Villarini**, and L. Jia, The Pacific Meridional Mode and the occurrence of tropical cyclones in the Western North Pacific, *Journal of Climate*, 29(1), 381-398, 2016.
151. Mallakpour, I., and **G. Villarini**, A simulation study to examine the sensitivity of the Pettitt test to detect abrupt changes in mean, *Hydrological Sciences Journal*, 61(2), 245-254, 2016.
152. **Villarini, G.**, and R.F. Denniston, Contribution of tropical cyclones to extreme rainfall in Australia, *International Journal of Climatology*, 36(2), 1019-1025, 2016.
153. Nayak, M., and **G. Villarini**, Evaluation of the capability of the Lombard test in detecting abrupt changes in variance, *Journal of Hydrology*, 534, 451-465, 2016.
154. Nayak, M.A., **G. Villarini**, and A.A. Bradley, Atmospheric rivers and rainfall during NASA's Iowa Flood Studies (IFloodS) campaign, *Journal of Hydrometeorology*, 17(1), 257-271, 2016.
155. **Villarini, G.**, On the seasonality of flooding across the continental United States, *Advances in Water Resources*, 87, 80-91, 2016.
156. Little, C.M., R.M. Horton, R.E. Kopp, M. Oppenheimer, G. Vecchi, and **G. Villarini**, Joint projections of US East Coast sea level and storm surge, *Nature Climate Change*, 5, 1114-1120, 2015.
157. Giuntoli, I., **G. Villarini**, C. Prudhomme, I. Mallakpour, and D. Hannah, Evaluation of global impact models ability to reproduce runoff characteristics over the central United States, *Journal of Geophysical Research*, 120, 9138-9159, 2015.
158. **Villarini, G.**, E. Scoccimarro, K.D. White, J.R. Arnold, K.E. Schilling, and J. Ghosh, Projected changes in discharge in an agricultural watershed in Iowa, *Journal of the American Water Resources Association*, 51(5), 1361-1371, 2015.
159. Knutson, T., J. Sirutis, M. Zhao, R. Tuleya, M. Bender, G.A. Vecchi, **G. Villarini**, and D. Chavas, Global projections of intense tropical cyclone activity for the late 21st century from dynamical downscaling of CMIP5/RCP4.5 scenarios, *Journal of Climate*, 28(18), 7203-7224, 2015.
160. Denniston, R.F., **G. Villarini**, A.N. Gonzales, V.J. Polyak, C.C. Ummenhofer, M.S. Lachniet, A.D. Wannamaker, W.F. Humphreys, D. Woods, and J. Cugley, Reply to

- Nott: Assessing biases in speleothem records of flood events, *Proceedings of the National Academy of Sciences of the United States of America*, 112(34), E4637, 2015.
161. Scoccimarro, E., **G. Villarini**, M. Vichi, M. Zampieri, P.G. Fogli, A. Bellucci, and S. Gualdi, Projected changes in intense precipitation over Europe at the daily and sub-daily time scales, *Journal of Climate*, 28(15), 6193-6203, 2015.
 162. Yeung, J.K., J.A. Smith, M.L. Baeck, and **G. Villarini**, Lagrangian analyses of rainfall structure and evolution for organized thunderstorm systems in the urban corridor of the Northeastern US, *Journal of Hydrometeorology*, 16(4), 1575-1595, 2015.
 163. Bates, N.S., J.A. Smith, and **G. Villarini**, Flood response for the watersheds of the Fernow experimental forest in the central Appalachians, *Water Resources Research*, 51(6), 4431-4453, 2015.
 164. Walsh, K.J.E., S.J. Camargo, G.A. Vecchi, A.S. Daloz, J. Elsner, K. Emanuel, M. Horn, Y.-K. Lim, M. Roberts, C. Patricola, E. Scoccimarro, A.H. Sobel, S. Strazzo, **G. Villarini**, M. Wehner, M. Zhao, J. Kossin, T. LaRow, K. Oouchi, S. Schubert, H. Wang, J. Bacmeister, P. Chang, F. Chauvin, C. Jablonowski, H. Murakami, T. Ose, K.A. Reed, R. Saravanan, Y. Yamada, C.M. Zarzycki, P.L. Vidale, J.A. Jonas, and N. Henderson, Hurricanes and climate: the U.S. CLIVAR working group on hurricanes, *Bulletin of the American Meteorological Society*, 96(6), 997-1017, 2015.
 165. Lavers, D.A., and **G. Villarini**, The relationship between daily European precipitation and measures of atmospheric water vapour transport, *International Journal of Climatology*, 35(8), 2187-2192, 2015.
 166. Denniston, R.F., **G. Villarini**, A.N. Gonzales, K.-H. Wyrwoll, V.J. Polyak, C.C. Ummenhofer, M.S. Lachniet, A.D. Wannamaker, W.F. Humphreys, D. Woods, and J. Cugley, Extreme rainfall activity in the Australian tropics reflects changes in the El Niño/Southern Oscillation over the last two millennia, *Proceedings of the National Academy of Sciences of the United States of America*, 112(15), 4576-4581, 2015.
 167. Mallakpour, I., and **G. Villarini**, The changing nature of flooding across the central United States, *Nature Climate Change*, 5, 250-254, 2015.
 168. Lavers, D.A., and **G. Villarini**, The contribution of atmospheric rivers to precipitation in Europe and the United States, *Journal of Hydrology*, 522, 382-390, 2015.
 169. **Villarini, G.**, R. Goska, J.A. Smith, and G.A. Vecchi, North Atlantic tropical cyclones and U.S. flooding, *Bulletin of the American Meteorological Society*, 95(9), 1381-1388, 2014.
 170. Vecchi, G.A., T. Delworth, R. Gudgel, S. Kapnick, A. Rosati, A. Wittenberg, F. Zeng, W. Anderson, V. Balaji, K. Dixon, L. Jia, H.-S. Kim, L. Krishnamurthy, R. Msadek,

- W.F. Stern, S.D. Underwood, **G. Villarini**, X. Yang, and S. Zhang, On the seasonal forecasting of regional tropical cyclone activity, *Journal of Climate*, 27, 7994-8016, 2014.
171. Chaney, N.W., J. Sheffield, **G. Villarini**, and E.F. Wood, Development of a high resolution gridded daily meteorological data set over Sub-Saharan Africa: Spatial analysis of trends in climate extremes, *Journal of Climate*, 27(15), 5815-5835, 2014.
172. Nayak, M.A., **G. Villarini**, and D.A. Lavers, On the skill of numerical weather prediction models to forecast atmospheric rivers over the central United States, *Geophysical Research Letter*, 41, 4354-4362, 2014.
173. Ferguson, C.R., and **G. Villarini**, An evaluation of the statistical homogeneity of the Twentieth Century Reanalysis, *Climate Dynamics*, 42(11-12), 2841-2866, 2014.
174. Scoccimarro, E., S. Gualdi, **G. Villarini**, G.A. Vecchi, M. Zhao, K. Walsh, and A. Navarra, Intense precipitation events associated with landfalling tropical cyclones in response to a warmer climate and increased CO₂, *Journal of Climate*, 27(12), 4642-4654, 2014.
175. **Villarini, G.**, D.A. Lavers, E. Scoccimarro, M. Zhao, M.F. Wehner, G.A. Vecchi, T.R. Knutson, and K.A. Reed, Sensitivity of tropical cyclone rainfall to idealized global scale forcings, *Journal of Climate*, 27(12), 4622-4641, 2014.
176. Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, Long-term high-resolution radar rainfall fields for urban hydrology, *Journal of the American Water Resources Association*, 50(3), 713-734, 2014.
177. Fox, J. W. Ford, K. Strom, **G. Villarini**, and M. Meehan, Benthic control upon the morphology of transported fine sediments in a low-gradient stream, *Hydrological Processes*, 28(11), 3776-3788, 2014.
178. **Villarini, G.**, and A. Strong, Roles of climate and agricultural practices in discharge changes in an agricultural watershed in Iowa, *Agriculture, Ecosystems and Environment*, 188, 204-211, 2014.
179. Vecchi, G.A., and **G. Villarini**, Next season's hurricanes, *Science*, 343(6171), 618-619, 2014.
180. Vecchi, G.A., R. Msadek, W. Anderson, Y.-S. Chang, T. Delworth, K. Dixon, R. Gudgel, A. Rosati, W. Stern, **G. Villarini**, A. Wittenberg, X. Yang, F. Zeng, R. Zhang, and S. Zhang, Reply to comments on "Multi-year predictions of North Atlantic hurricane frequency: Promise and limitations," *Journal of Climate*, 27(1), 490-492, 2014.
181. **Villarini, G.**, B.-C. Seo, F. Serinaldi, and W.F. Krajewski, Spatial and temporal modeling of radar rainfall uncertainties, *Atmospheric Research*, 135-136, 91-101, 2014.

182. Lavers, D.A., and **G. Villarini**, Were global numerical weather prediction systems capable of forecasting the extreme Colorado rainfall of 9-16 September 2013?, *Geophysical Research Letters*, 40(24), 6405-6410, 2013.
183. Czajkowski, J., **G. Villarini**, E. Michel-Kerjan, and J.A. Smith, Determining tropical cyclone inland flooding loss on a large-scale through a new flood peak ratio-based methodology, *Environmental Research Letters*, 8(4), 1-7, 2013.
184. Smith, J.A., M.L. Baeck, **G. Villarini**, D.B. Wright, and W.F. Krajewski, Extreme flood response: The June 2008 flooding in Iowa, *Journal of Hydrometeorology*, 14(6), 1810-1825, 2013.
185. Yang, L. J.A. Smith, D.B. Wright, M.L. Baeck, **G. Villarini**, F. Tian, and H.Hu, Urbanization and climate change: An examination of nonstationarities in urban flooding, *Journal of Hydrometeorology*, 14(6), 1791-1809, 2013.
186. Lavers, D.A., and **G. Villarini**, Atmospheric rivers and flooding over the central United States, *Journal of Climate*, 26(20), 7829-7836, 2013.
187. Knutson, T.R., J.J. Sirutis, G.A. Vecchi, S. Garner, M. Zhao, H.-S. Kim, M. Bender, R.E. Tuleya, I.M. Held, and **G. Villarini**, Dynamical downscaling projections of late 21st century Atlantic hurricane activity: CMIP3 and CMIP5 model-based scenarios, *Journal of Climate*, 26(17), 6575-6590, 2013.
188. **Villarini, G.**, and J.A. Smith, Flooding in Texas: Examination of temporal changes and impacts of tropical cyclones, *Journal of the American Water Resources Association*, 49(4), 825-837, 2013.
189. Vecchi, G.A., R. Msadek, W. Anderson, Y.-S. Chang, T. Delworth, K. Dixon, R. Gudgel, A. Rosati, W. Stern, **G. Villarini**, A. Wittenberg, X. Yang, F. Zeng, R. Zhang, and S. Zhang, Multi-year predictions of North Atlantic hurricane frequency: Promise and limitations, *Journal of Climate*, 26(15), 5337-5357, 2013.
190. Lavers, D.A., R.P. Allan, **G. Villarini**, B. Lloyd-Hughes, D.J. Brayshaw, and A.J. Wade, Future changes in atmospheric rivers and their implications for winter flooding in Britain, *Environmental Research Letters*, 8(3), 1-8, 2013.
191. Lavers, D.A., and **G. Villarini**, The nexus between atmospheric rivers and extreme precipitation across Europe, *Geophysical Research Letters*, 40(12), 3259-3264, 2013.
192. **Villarini, G.**, E. Scoccimarro, and S. Gualdi, Projections of heavy rainfall over the central United States based on CMIP5 models, *Atmospheric Science Letters*, 14(3), 200-205, 2013.
193. Peterson, T.C., R.R. Heim, R. Hirsch, D.P. Kaiser, H. Brooks, N.S. Diffenbaugh, R.M. Dole, J.P. Giovannetone, J. Guirguis, T.R. Karl, R.W. Katz, K. Kunkel, D.

- Lettenmaier, G.J. McCabe, C.J. Paciorek, K.R. Ryberg, S. Schubert, V.B.S. Silva, B.C. Stewart, A.V. Vecchia, **G. Villarini**, R.S. Vose, J. Walsh, M. Wehner, D. Wolock, K. Wolter, C.A. Woodhouse, and D. Wuebbles, Monitoring and understanding changes in heat waves, cold waves, floods and droughts in the United States: State of knowledge, *Bulletin of the American Meteorological Society*, 94(6), 821-834, 2013.
194. Smith, B.K., J.A. Smith, M.L. Baeck, **G. Villarini**, and D.B. Wright, The spectrum of storm event hydrologic response in urban watersheds, *Water Resources Research*, 49(5), 2649-2663, 2013.
195. Yang, L., **G. Villarini**, J.A. Smith, F. Tian, and H. Hu, Changes in seasonal maximum daily precipitation in China over the period 1961-2006, *International Journal of Climatology*, 33(7), 1646-1657, 2013.
196. **Villarini, G.**, and G.A. Vecchi, Multi-season lead forecast of the North Atlantic Power Dissipation Index (PDI) and Accumulated Cyclone Energy (ACE), *Journal of Climate*, 26(11), 3631-3643, 2013.
197. **Villarini, G.**, and G.A. Vecchi, Projected increases in North Atlantic tropical cyclone intensity from CMIP5 models, *Journal of Climate*, 26(10), 3231-3240, 2013.
198. Rowe, S.T., and **G. Villarini**, Flooding associated with predecessor rain events over the Midwest United States, *Environmental Research Letters*, 8, 1-5, 2013.
199. Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, Estimating the frequency of extreme rainfall using weather radar and stochastic storm transposition, *Journal of Hydrology*, 488, 150-165, 2013.
200. **Villarini, G.**, and J.A. Smith, Spatial and temporal variability of cloud-to-ground lightning over the continental U.S. during the period 1995-2010, *Atmospheric Research*, 124, 137-148, 2013.
201. **Villarini, G.**, J.A. Smith, R. Vitolo, and D.B. Stephenson, On the temporal clustering of US floods and its relationship to climate teleconnection patterns, *International Journal of Climatology*, 33(3), 629-640, 2013.
202. **Villarini, G.**, J.A. Smith, M.L. Baeck, B.K. Smith, and P. Sturdevant Rees, Hydrologic analyses of the 17-18 July 1996 flood in Chicago and the role of urbanization, *Journal of Hydrologic Engineering*, 18(2), 250-259, 2013.
203. **Villarini, G.**, J.A. Smith, and G.A. Vecchi, Changing frequency of heavy rainfall over the central United States, *Journal of Climate*, 26(1) 343-350, 2013
204. **Villarini, G.**, Analyses of annual and seasonal maximum daily rainfall accumulations for Ukraine, Moldova and Romania, *International Journal of Climatology*, 32(14), 2213-2226, 2012.

205. **Villarini, G.**, and F. Serinaldi, Development of statistical models for at-site probabilistic seasonal rainfall forecast, *International Journal of Climatology*, 32(14), 2197-2212, 2012.
206. Lavers, D.A., **G. Villarini**, R.P. Allan, E.F. Wood, and A.J. Wade, The detection of atmospheric rivers in atmospheric reanalyses and their links to British winter floods and the large-scale climatic circulation, *Journal of Geophysical Research*, 117, D20106, doi:10.1029/2012JD018027, 2012.
207. **Villarini, G.**, J.A. Smith, F. Serinaldi, A.A. Ntelekos, and U. Schwarz, Analyses of extreme flooding in Austria over the period 1951-2006, *International Journal of Climatology*, 32, 1178-1192, 2012.
208. Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, The hydroclimatology of flash flooding in Atlanta, *Water Resources Research*, doi:10.1029/2011WR011371, 48, W04524, 1-14, 2012.
209. Smith, J.A., M.L. Baeck, **G. Villarini**, C. Welty, A. J. Miller, and W.F. Krajewski, Analyses of a long-term, high-resolution radar rainfall data set for the Baltimore metropolitan area, *Water Resources Research*, doi:10.1029/2011WR010641, 48, W04504, 1-14, 2012.
210. Ferguson, C.R., and **G. Villarini**, Detecting inhomogeneities in the Twentieth Century Reanalysis over the central United States, *Journal of Geophysical Research*, 117, D05123, doi:10.1029/2011JD016988, 2012.
211. **Villarini, G.**, and G.A. Vecchi, North Atlantic Power Dissipation Index (PDI) and Accumulated Cyclone Energy (ACE): Statistical modeling and sensitivity to sea surface temperature changes, *Journal of Climate*, 25(2), 625-637, 2012.
212. **Villarini, G.**, G.A. Vecchi, and J.A. Smith, U.S. landfalling and North Atlantic hurricanes: Statistical modeling of their frequencies and ratios, *Monthly Weather Review*, 140(1), 44-65, 2012.
213. **Villarini, G.**, and G.A. Vecchi, Twenty-first-century projections of North Atlantic tropical storms from CMIP5 models, *Nature Climate Change*, 2, 604-607, 2012.
214. **Villarini, G.**, J.A. Smith, M.L. Baeck, T. Marchok, and G.A. Vecchi, Characterization of rainfall distribution and flooding associated with U.S. landfalling tropical cyclones: analyses of Hurricanes Frances, Ivan, and Jeanne (2004), *Journal of Geophysical Research*, 116, D23116, doi:10.1029/2011JD016175, 2011.
215. Lavers, D.A., R.P. Allan, E.F. Wood, **G. Villarini**, D.J. Brayshaw, and A.J. Wade, Winter floods in Britain are connected to tropical atmospheric rivers, *Geophysical Research Letters*, 38, L23803, doi:10.1029/2011GL049783, 2011.

216. **Villarini, G.**, J.A. Smith, F. Napolitano, and M.L. Baeck, Hydrometeorological analyses of the December 2008 flood in Rome, *Hydrological Sciences Journal*, 56(7), 1150-1165, 2011.
217. **Villarini, G.**, G.A. Vecchi, T.R. Knutson, M. Zhao, and J.A. Smith, North Atlantic tropical storm frequency response to anthropogenic forcing: Projections and sources of uncertainty, *Journal of Climate*, 24(13), 3224-3238, 2011.
218. **Villarini, G.**, J.A. Smith, M.L. Baeck, and W.F. Krajewski Examining flood frequency distributions in the Midwest U.S., *Journal of the American Water Resources Association*, 47(3), 447-463, 2011.
219. **Villarini, G.**, G.A. Vecchi, T.R. Knutson, and J.A. Smith, Is the recorded increase in short duration North Atlantic tropical storms spurious?, *Journal of Geophysical Research*, 116, D10114, doi:10.1029/2010JD015493, 2011.
220. Krajewski, W.F., B. Vignal, B.-C. Seo, and **G. Villarini**, Statistical model of the range dependent error in radar-rainfall estimates due to the vertical profile of reflectivity, *Journal of Hydrology*, 402(3-4), 306-316, 2011.
221. Smith, J.A., M.L. Baeck, A.A. Ntelekos, **G. Villarini**, and M. Steiner, Extreme rainfall and flooding from orographic thunderstorms in the Central Appalachian, *Water Resources Research*, 47, W04514, doi:10.1029/2010WR010190, 2011.
222. Vecchi, G.A., M. Zhao, H. Wang, **G. Villarini**, A. Rosati, A. Kumar, I.M. Held, and R. Gudgel, Statistical-dynamical predictions of seasonal North Atlantic hurricane activity, *Monthly Weather Review*, 139(4), 1070-1082, 2011.
223. Smith, J.A., **G. Villarini**, and M.L. Baeck, Mixture distributions and the climatology of extreme rainfall and flooding in the Eastern US, *Journal of Hydrometeorology*, 12(2), 294-309, 2011.
224. **Villarini, G.**, J.A. Smith, A.A. Ntelekos, and U. Schwarz, Annual maximum and peaks-over-threshold analyses of daily rainfall accumulations for Austria, *Journal of Geophysical Research*, 116, D05103, doi:10.1029/2010JD015038, 2011.
225. **Villarini, G.**, J.A. Smith, M.L. Baeck, R. Vitolo, D.B. Stephenson, and W.F. Krajewski, On the frequency of heavy rainfall for the Midwest of the United States, *Journal of Hydrology*, 400(1-2), 103-120, 2011.
226. **Villarini, G.**, J.A. Smith, F. Serinaldi, and A.A. Ntelekos, Analyses of seasonal and annual maximum daily discharge records for Central Europe, *Journal of Hydrology*, 399(3-4), 299-312, 2011.

227. Yeung, G.K., J.A. Smith, **G. Villarini**, A.A. Ntelekos, M.L. Baeck, and W.F. Krajewski, Analyses of the warm season rainfall climatology of the Northeastern US using regional climate model simulations and radar rainfall fields, *Advances in Water Resources*, 34(2), 184-204, 2011.
228. **Villarini, G.**, Evaluation of the research-version TMPA rainfall estimate at its finest spatial and temporal scales over the Rome metropolitan area, *Journal of Applied Meteorology and Climatology*, 49(12), 2591-2602, 2010.
229. **Villarini, G.**, W.F. Krajewski, A.A. Ntelekos, K.P. Georgakakos, and J.A. Smith, Towards probabilistic forecasting of flash floods: The combined effects of uncertainty in radar-rainfall and flash flood guidance, *Journal of Hydrology*, 394(1-2), 275-284, 2010.
230. Lin, N., J.A. Smith, **G. Villarini**, T.P. Marchok, and M.L. Baeck, Modeling extreme rainfall, winds, and surge from Hurricane Isabel (2003), *Weather and Forecasting*, 25(5), 1342-1361, 2010.
231. **Villarini, G.**, J.A. Smith, and F. Napolitano, Nonstationary modeling of a long record of rainfall and temperature over Rome, *Advances in Water Resources*, 33(10), 1256-1267, 2010.
232. Mandapaka, P., **G. Villarini**, B.-C. Seo, and W.F. Krajewski, Effect of radar-rainfall uncertainties on the spatial characterization of rainfall events, *Journal of Geophysical Research*, 115, D17100, doi:10.1029/2009JD013366, 2010.
233. Smith, J.A., M.L. Baeck, **G. Villarini**, and W.F. Krajewski, The hydrology and hydrometeorology of flooding in the Delaware River Basin, *Journal of Hydrometeorology*, 11(4), 841-859, 2010.
234. **Villarini, G.**, G.A. Vecchi, and J.A. Smith, Modeling of the dependence of tropical storm counts in the North Atlantic Basin on climate indices, *Monthly Weather Review*, 138(7), 2681-2705, 2010.
235. **Villarini, G.**, and J.A. Smith, Flood peak distributions for the Eastern United States, *Water Resources Research*, doi:10.1029/2009WR008395, 46, W06504, 2010.
236. **Villarini, G.**, and W.F. Krajewski, Sensitivity studies of the models of radar-rainfall uncertainties, *Journal of Applied Meteorology and Climatology*, 49(2), 288-309, 2010.
237. Krajewski, W.F., **G. Villarini**, and J.A. Smith, Radar-rainfall uncertainties: Where are we after thirty years of effort?, *Bulletin of the American Meteorological Society*, 91(1), 87-94, 2010.

238. **Villarini, G.**, J.A. Smith, M.L. Baeck, P. Sturdevant-Rees, and W.F. Krajewski, Radar analyses of extreme rainfall and flooding in urban drainage basins, *Journal of Hydrology*, 381(3-4), 266-286, 2010.
239. Javier, J.R.N., J.A. Smith, M.L. Baeck, and **G. Villarini**, Flash flooding in the Philadelphia metropolitan region, *Journal of Hydrologic Engineering*, 15(1), 29-38, 2010.
240. **Villarini, G.**, and W.F. Krajewski, Review of the different sources of uncertainty in single-polarization radar-based estimates of rainfall, *Surveys in Geophysics*, 31, 107-129, 2010.
241. **Villarini, G.**, and W.F. Krajewski, Inference of spatial scaling properties of rainfall: Impact of radar-rainfall estimation uncertainties, *IEEE Geoscience and Remote Sensing Letters*, 6(4), 812-815, 2009.
242. **Villarini, G.**, and W.F. Krajewski, Empirically based modelling of uncertainties in radar rainfall estimates for a C-band weather radar at different time scales, *Quarterly Journal of the Royal Meteorological Society*, 135, 1424-1438, 2009.
243. **Villarini, G.**, F. Serinaldi, J.A. Smith, and W.F. Krajewski, On the stationarity of annual flood peaks in the continental United States during the 20th century, *Water Resources Research*, 45, W08417, doi:10.1029/2008WR007645, 2009.
244. **Villarini, G.**, J.A. Smith, F. Serinaldi, J. Bales, P.D. Bates, and W.F. Krajewski, Flood frequency analysis for nonstationary annual peak records in an urban drainage basin, *Advances in Water Resources*, 32(8), 1255-1266, 2009.
245. **Villarini, G.**, W.F. Krajewski, and J.A. Smith, New paradigm for statistical validation of satellite precipitation estimates: Application to a large sample of the TMPA 0.25-degree three hourly estimates over Oklahoma, *Journal of Geophysical Research*, 114, D12106, doi:10.1029/2008JD011475, 2009.
246. Mandapaka, P.V., W.K. Krajewski, G.J. Ciach, **G. Villarini**, and J.A. Smith, Estimation of radar-rainfall error spatial correlation, *Advances in Water Resources*, 32(7), 1020-1030, 2009.
247. **Villarini, G.**, W.F. Krajewski, G.J. Ciach, and D.L. Zimmerman, Product-error-driven generator of probable rainfall conditioned on WSR-88D precipitation estimates, 45, W01404, doi:10.1029/2008WR006946, *Water Resources Research*, 2009.
248. **Villarini, G.**, F. Serinaldi, and W.F. Krajewski, Modeling radar-rainfall estimation uncertainties using parametric and non-parametric approaches, *Advances in Water Resources*, 31(12), 1674-1686, 2008.

249. **Villarini, G.**, and W.F. Krajewski, Empirically-based modeling of spatial sampling uncertainties associated with rainfall measurements by rain gauges, *Advances in Water Resources*, 31(7), 1015-1023, 2008.
250. **Villarini, G.**, P.V. Mandapaka, W.F. Krajewski, and R.J. Moore, Rainfall and sampling errors: A rain gauge perspective, *Journal of Geophysical Research*, 113, D11102, doi:10.1029/2007JD009214, 2008.
251. Ciach, G.J., W.F. Krajewski, and **G. Villarini**, Product-error-driven uncertainty model for probabilistic precipitation estimation with NEXRAD data, *Journal of Hydrometeorology*, 8(6), 1325-1347, 2007.
252. **Villarini, G.**, J.B. Lang, F. Lombardo, F. Napolitano, F. Russo, and W.F. Krajewski, Impact of different regression frameworks on the estimation of the scaling properties of radar rainfall, *Atmospheric Research*, 86(3-4), 340-349, 2007.
253. **Villarini, G.**, and W.F. Krajewski, Evaluation of the research-version TMPA three-hourly $0.25^{\circ} \times 0.25^{\circ}$ rainfall estimates over Oklahoma, *Geophysical Research Letters*, 34, L05402, doi:10.1029/2006GL029147, 2007.
254. Gorokhovitch Y., and **G. Villarini**, Application of GIS for processing and establishing the correlation between weather radar reflectivity and precipitation data, *Meteorological Applications*, 12 (1), 91-99, 2005.

PAPERS UNDER REVIEW:

1. Ekolu, J., B. Dieppois, Y. Trambly, **G. Villarini**, L.J. Slater, G. Mahé, J.-E. Paturel, J.M. Eden, S. Moulds, M. Sidibe, P. Camberlin, B. Pohl, and M. van de Wiel, Flood hazard variability in Sub-Saharan Africa: The role of large-scale climate modes of variability and their future impacts, submitted to *Journal of Hydrology*, 2023.
2. Amorim, R., and **G. Villarini**, Impacts of urbanization in the flood hydrology of major cities across the eastern United States, submitted to *Journal of the American Water Resources Association*, 2023.
3. Michalek, A., J. Done, and **G. Villarini**, Future changes in regional tropical cyclone wind, precipitation and flooding using event-based downscaling, submitted to *Earth's Future*, 2023.
4. Treppiedi, D., **G. Villarini**, J. Bender, and L.V. Noto, Precipitation extremes projected to increase and to occur in different times of the year, submitted to *Geophysical Research Letters*, 2023.
5. Torelló-Sentelles, H., F. Marra, M. Koukoulou, **G. Villarini**, and N. Peleg, Intensification and changing spatial extent of heavy rainfall in urban areas, submitted to *Earth's Future* (2024).

6. Kim, H., and **G. Villarini**, Floods across the eastern United States are projected to last longer, submitted to *npj Natural Hazard* (2024).
7. Kim, T., **G. Villarini**, J.M. Done, D.R. Johnson, A.F. Prein, and C. Wang, Dominant sources of uncertainty for downscaled climate: A military installation perspective, submitted to *Journal of Geophysical Research – Atmospheres* (2024).
8. Michalek, A., F. Quintero, and **G. Villarini**, Continental-scale hydrologic modeling using the HLM TETIS, submitted to *Journal of the American Water Resources Association* (2024).
9. Deng, Z., **G. Villarini**, Z. Wang, X. Wu, Z. Zeng, and C. Lai, Urbanization intensifies heavy hourly rainfall preconditioned by heatwaves, submitted to *Journal of Geophysical Research – Atmospheres* (2024).
10. Nanditha, J.S., **G. Villarini**, H. Kim, and P. Naveau, Strong linkage between observed daily precipitation extremes and anthropogenic emissions across the contiguous United States, submitted to *Geophysical Research Letters* (2024).
11. Islam, S., and **G. Villarini**, Exploring the influence of coastal urban areas on tropical cyclone-induced precipitation dynamics, submitted to *Atmospheric Research* (2024).
12. Maduwantha, P., T. Wahl, S. Santamaria-Aguilar, R. Jane, J. Booth, H. Kim, and **G. Villarini**, A multivariate statistical framework for mixed populations in compound flood analysis, submitted to *Natural Hazards and Earth System Sciences* (2024).
13. Kraft, L.L., **G. Villarini**, J. Czajkowski, D. Zimmerman, and R. Amorim, Developing a spatial regression model framework for insured flood losses in Houston, Texas, submitted to *Natural Hazards* (2024).

OTHER PEER-REVIEWED PUBLICATIONS:

1. **Villarini, G.**, S. Taylor, C. Wobus, R. Vogel, J. Hecht, K. White, B. Baker, K. Gilroy, R. Olsen, and D. Raff, *Floods and Nonstationarity: A Review*, CWTS 2018-01, U.S. Army Corps of Engineers, Washington, D.C., 2018.
2. **Villarini, G.**, and L.J. Slater, Climatology of Flooding in the United States, in *Oxford Research Encyclopedia of Natural Hazard Science*, doi:10.1093/acrefore/9780199389407.013.123, 2017.
3. Wright, D., J.A. Smith, **G. Villarini**, and M.L. Baeck, Applications of radar-based rainfall estimates for urban flood studies, *Pragmatic Modeling of Urban Water Systems*, Monograph 21, edited by W. James, et al., pp. 85-110, CHI, Guelph, ON, 2012.

4. **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Empirically-based generator of synthetic radar-rainfall data, in *Quantification and Reduction of Predictive Uncertainty for Sustainable Water Resources Management*, edited by E. Boegh, H. Kunstmann, T. Wagener, A. Hall, L. Bastidas, S. Franks, H. Gupta, D. Rosbjerg and J. Schaake, pp. 78-85, IAHS, 2007.
5. **Villarini, G.**, G.J. Ciach, W.F. Krajewski, K.M. Nordstrom, and V.K. Gupta, Effects of systematic and random errors on the spatial scaling properties in radar-estimated rainfall, in *Nonlinear Dynamics in Geosciences*, edited by A.A. Tsonis and J. Elsner, pp. 37-51, Springer, 2007.

CONFERENCE PROCEEDINGS:

- Trambly, Y., **G. Villarini**, E.M. El Khalki, C. Massari, and L. Stein, Classification of flood-generating processes in Africa, *General Assembly, EGU*, virtual, May 23-27, 2022.
- Ekolu, J., B. Dieppois, J. Eden, Y. Trambly, **G. Villarini**, G. Mahé, J.-E. Paturel, and M. Van de Wiel, Decadal to multidecadal variability in long- and short-lived hydrological extremes in sub-Saharan Africa, *General Assembly, EGU*, virtual, May 23-27, 2022.
- Villarini, G., H. Kim, R. Jane, T. Wahl, S. Misra, and A. Michalek, On the generation of high-resolution probabilistic design events capturing the joint occurrence of rainfall and storm surge in coastal basins, *EVAN 2022 Conference*, Orlando, Florida, May 17-19, 2022.
- Su, Y., J.A. Smith, and **G. Villarini**, Extreme rainfall and flooding in the lower Mississippi: The role of extratropical cyclones, *AGU Fall Meeting, AGU*, virtual, December 13-17, 2021.
- Kemter, M., M. Norbert, **G. Villarini**, and B. Merz, United States flood trends and their drivers, *Second International Conference on Natural Hazards and Risks in a Changing World 2021*, virtual, October 5-6, 2021.
- Wasko, C., S. Westra, R. Nathan, H.G. Orr, **G. Villarini**, R. Villalobos Herrera, and H.J. Fowler, Incorporating climate change in Australian flood estimation guidance, *Hydrology & Water Resources Symposium 2021*, virtual, August 31 – September 1, 2021.
- **Villarini, G.**, Severe weather and flooding as consequence of climate change, *Global Climate Conference*, virtual, July 4, 2021.
- Scoccimarro, E., **G. Villarini**, S. Gualdi, and A. Navarra, The Pacific Decadal Oscillation modulates tropical cyclone days in the North Pacific Ocean, *General Assembly, EGU*, virtual, April 19-30, 2021.

- Ekolu, J., B. Dieppois, M. Sidibe, J. Eden, Y. Trambly, **G. Villarini**, G. Mahé, J.-E. Paturel, and M. Van de Wiel, Multi-year variability in hydrological extremes in Africa: what are the main drivers?, *General Assembly, EGU*, virtual, April 19-30, 2021.
- Trambly, Y., **G. Villarini**, E.M. El Khalki, G. Gründemann, and D. Hughes, On the influence of extreme rainfall and antecedent soil moisture on flood hazards in Africa, *General Assembly, EGU*, virtual, April 19-30, 2021.
- **Villarini, G.**, The frequency of flood events across the central United States and climate change, *Drake Risk and Insurance Workshop on Catastrophe Risk*, virtual, February 19, 2021.
- **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, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- **Villarini, G.**, W. Zhang, and Z. Yang, Impacts of Coronavirus-driven Reduction in Aerosols on Precipitation in the Western United States, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- Veatch, W., and **G. Villarini**, Modeling river flood seasonality with mixtures of circular probability density functions, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- Ayers, J., **G. Villarini**, K.E. Schilling, and C. Jones, Projected changes in monthly baseflow across the U.S. Midwest, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- Trambly, Y., **G. Villarini**, and W. Zhang, Observed changes in flood risk in Africa, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- Zhang, J., C. Lu, W.G. Crumpton, C.S. Jones, H. Tian, **G. Villarini**, K.E. Schilling, and D.I. Green, Predicting the impacts of intensifying heavy precipitation on nitrogen loading to the Gulf of Mexico during the 21st Century, *AGU Fall Meeting, AGU*, virtual, December 1-17, 2020.
- **Villarini, G.**, Frequency of flood events and climate change, *IFSMA 8th Annual Fall Conference*, virtual, October 8, 2020.
- **Villarini, G.**, and W.F. Krajewski, Overview on the Iowa Flood Center and the projected changes in flooding across Iowa, *Joint Tran-Set Webinar Series*, virtual, September 15, 2020.
- Trambly, Y., and **G. Villarini**, Flood trends in Africa, *General Assembly, EGU*, virtual, May 4-8, 2020.
-

Miniussi, A., M. Marani, and **G. Villarini**, Extreme rainfall from Tropical Cyclones described through the Metastatistical Extreme Value Distribution, *General Assembly, EGU*, virtual, May 4-8, 2020.

- Brocca, L., S. Camici, C. Massari, L. Ciabatta, P. Filippucci, **G. Villarini**, and Y. Trambly, Satellite soil moisture improves rainfall just where needed, *General Assembly, EGU*, virtual, May 4-8, 2020.
- **Villarini, G.**, Non-stationarity and flooding, *Understanding intensification of short-duration rainfall extremes*, London, UK, February 5, 2020.
- **Villarini, G.**, Increasing frequency of flood events across the central United States: A weather-type perspective, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Miniussi, A., M. Marani, and **G. Villarini**, Metastatistical extreme value distribution applied to floods across the Continental United States: Use of mixed distributions and the impact of ENSO on flood regimes, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Zhang, W., **G. Villarini**, G. Vecchi, and J. Smith, Influence of urbanization on precipitation and flooding caused by landfalling hurricanes along the U.S. Coast, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Yang, Z., and **G. Villarini**, On the role of CO₂ in enhancing the temporal clustering of heavy precipitation across Europe, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Veatch, W., and **G. Villarini**, Modeling the seasonality of extreme coastal water levels with mixtures of circular probability density functions, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Ayers, J., **G. Villarini**, K. Schilling, and C. Jones, On the influence of climate and land use change on monthly baseflow across the U.S. Midwest, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Vecchi, G., H. Murakami, T. Delworth, S. Underwood, A. Wittenberg, F. Zeng, W. Zhang, J. Baldwin, W. Cooke, J. He, S. Kapnick, T. Knutson, **G. Villarini**, K. van der Wiel, W. Anderson, V. Balaji, J.-H. Chen, K. Dixon, R. Gudgel, and L. Harris and the Team Working on HiFLOR and FLOR, Tropical cyclone sensitivity to CO₂ doubling: Impact of resolution and forcing, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2019.
- Miniussi, A., **G. Villarini**, and M. Marani, Flood frequency analysis based on the Metastatistical Extreme Value Distribution: Performance and evaluation of ENSO signal across the continental United States, *General Assembly, EGU*, Vienna, Austria, April 7-12, 2019.

- Vecchi, G., H. Murakami, T. Delworth, S. Underwood, A. Wittenberg, F. Zeng, W. Zhang, J. Baldwin, W. Cooke, J. He, S. Kapnick, T. Knutson, **G. Villarini**, K. van der Wiel, W. Anderson, V. Balaji, J.-H. Chen, K. Dixon, R. Guedel, and L. Harris and the Team Working on HiFLOR and FLOR, Tropical cyclone sensitivity to CO₂ doubling: Impact of resolution and forcing, *General Assembly, EGU*, Vienna, Austria, April 7-12, 2019.
- White, K., T. Wahl, A. Pinson, W. Veatch, and **G. Villarini**, Understanding the impacts of compound and cascading event on water resources management, *AGU Fall Meeting*, Washington, D.C., December 10-14, 2018.
- Klug, P., C. Martin, R. Denniston, C.C. Ummenhofer, **G. Villarini**, Y. Asmerom, V.J. Polyak,, J. Cugley, D. Woods, W.F. Humphreys, and A. Gonzales, A 4100-Year Composite Stalagmite Record of Cave Flooding Events from Cave KNI-51, Central Australian Tropics, *Geological Society of America*, Indianapolis, Indiana, November 4, 2018.
- **Villarini, G.**, Past and future changes in flooding over the central United States: Bridging across time scales, *Land-Atmosphere Interactions and Extremes Workshop*, College Park, Maryland, April 4, 2018.
- Dhanya, C.T., and **G. Villarini**, Predictability of precipitation and its spatio-temporal variation across the United States, *General Assembly, EGU*, Vienna, Austria, April 8-13, 2018.
- Scoccimarro, E., **G. Villarini**, M. Vichi, M. Zampieri, A. Bellucci, P.G. Fogli, and S. Gualdi, Future changes in intense precipitation over Europe at the daily and sub-daily time scales, *General Assembly, EGU*, Vienna, Austria, April 8-13, 2018.
- **Villarini, G.**, L.J. Slater, and K.A. Salvi, Past and future changes in streamflow in the U.S. Midwest: Bridging across time scales, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- **Villarini, G.**, N.A. Barth, and K.D. White, Flooding and atmospheric rivers across the western United States, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- Slater, L.J., and **G. Villarini**, Can we use Earth Observations to improve monthly water level forecasts? *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- Zhang, W., **G. Villarini**, E. Scoccimarro, and G.A. Vecchi, Changes and attribution of extreme precipitation in climate models: Subdaily and daily scales, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- White, K.D., B. Baker, C. Mueller, **G. Villarini**, P. Foley, and D. Friedman, Characterizing and addressing the need for statistical adjustment of global climate model data, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.

- Murakami, H., G.A. Vecchi, **G. Villarini**, T. Delworth, R. Gudgel, S. Underwood, X. Yang, W. Zhang, and S.-J. Lin, Seasonal forecasts of major hurricanes and landfalling tropical cyclones using a high-resolution GFDL coupled climate model, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- Baker, B., K.D. White, C. Mueller, **G. Villarini**, P. Foley, and D. Friedman, Regional Patterns and spatial clusters of nonstationarities in annual peak instantaneous streamflow, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- Khouakhi, A., **G. Villarini**, W. Zhang, and L.J. Slater, Subseasonal to seasonal predictions of U.S. West Coast high water levels, *AGU Fall Meeting*, New Orleans, Louisiana, December 11-15, 2017.
- Denniston, R., C.C. Ummenhofer, A.D. Wanamaker, M.S. Lachniet, **G. Villarini**, Y. Asmerom, V.J. Polyak,, J. Cugley, D. Woods, and W.F. Humphreys, Comparison of south Asian and tropical Australian stalagmites reveals expansion and contraction of the Indo-Pacific tropical rain belt over the last 3000 years, *17th International Congress of Speleology*, Sydney, Australia, July 23, 2017.
- **Villarini, G.**, Seasonal to decadal discharge predictions: Dream, reality, or somewhere in between?, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Slater, L., and **G. Villarini**, Statistical attribution of changes in streamflow in the U.S. Midwest over the 20th and 21st centuries, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Aryal, Y., **G. Villarini**, W. Zhang, and G.A. Vecchi, Long term changes in flooding and heavy rainfall associated with North Atlantic tropical cyclones, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Zhang, W., **G. Villarini**, and G.A. Vecchi, On the influence of the Pacific and Atlantic Meridional Modes on precipitation over the continental United States, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Barth, N., **G. Villarini**, and K. White, Accounting for atmospheric rivers in the flood frequency estimation in the western United States, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Khouakhi, A., and **G. Villarini**, On the relationship between atmospheric rivers and high sea water levels along the U.S. West Coast, *AGU Fall Meeting*, San Francisco, California, December 12-16, 2016.
- Khouakhi, A., **G. Villarini**, G.A. Vecchi, and J.A. Smith, Contribution of tropical cyclones to global rainfall, *General Assembly, EGU*, Vienna, Austria, April 17-22, 2016.

- Slater, L., **G. Villarini**, A. Bradley, and G.A. Vecchi, Seasonal forecasting of discharge for the Raccoon River, Iowa, *General Assembly, EGU*, Vienna, Austria, April 17-22, 2016.
- Giuntoli, I., **G. Villarini**, C. Prudhomme, and D.M. Hannah, Uncertainties in transient projections of maximum and minimum flows over the United States, *General Assembly, EGU*, Vienna, Austria, April 17-22, 2016.
- Denniston, R., **G. Villarini**, V.J. Polyak, Y. Asmerom, C.C. Ummenhofer, W.F. Humphreys, J. Cugley, and D. Woods, Controls on flood event frequencies recorded in stalagmites from Cave KNI-51, Australian tropics, *General Assembly, EGU*, Vienna, Austria, April 17-22, 2016.
- Mallakpour, I., **G. Villarini**, M.P. Jones, and J.A. Smith, Characterization of the temporal clustering of flood events across the central United States in terms of climate states, *General Assembly, EGU*, Vienna, Austria, April 17-22, 2016.
- **Villarini, G.**, L. Slater, and K. Salvi, Discharge forecasting for the Raccoon River at Van Meter, Iowa: From next season to the next decade, *Environmental and Water Resources Conference*, Ames, Iowa, April 7, 2016.
- Nayak, M.A., M.K. Cowles, and **G. Villarini**, Modelling the number of winter season extreme precipitation events over the central United States, *Workshop on Bayesian Environmetrics*, Columbus, Ohio, March 31-April 1, 2016.
- **Villarini, G.**, and L. Slater, Seasonal forecasting of discharge for the Raccoon River at Van Meter, Iowa, *Iowa Water Conference*, Ames, Iowa, March 24, 2016.
- Salvi, K., **G. Villarini**, and G. Vecchi, On the use of statistical downscaling to improve the skill in decadal predictions of temperature over the continental United States, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Barth, N., **G. Villarini**, and M. Nayak, Mixed populations and annual flood frequency estimates in the western United States: The role of atmospheric rivers, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Mallakpour, I., and **G. Villarini**, Examining the relationship between flooding and large-scale climate indices over the central United States, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Slater, L., **G. Villarini**, and A. Bradley, Diagnosis of North American Multi-Model Ensemble (NMME) skill for predicting floods and droughts over the continental USA, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Khouakhi, A., and **G. Villarini**, Attribution of annual maximum sea levels to tropical cyclones, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.

- Denniston, R., T. Weiss, **G. Villarini**, and A. Wanamaker, A monthly-resolved oxygen isotopic time series from a pristine fossil Caribbean coral supports modern ENSO conditions at the Miocene/Pliocene boundary, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Vecchi, G., and coauthors, Toward a unified system for understanding, predicting and projecting regional hurricane activity, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Scoccimarro, E., **G. Villarini**, M. Vichi, M. Zampieri, P. Fogli, A. Bellucci, S. Gualdi, Projected changes in intense precipitation over Europe at the daily and sub-daily time scales, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Luitel, B., **G. Villarini**, G. Vecchi, H. Murakami, and W. Zhang, A climatological perspective on U.S. rainfall and North Atlantic tropical cyclones, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2015.
- Denniston, R.F., C.C. Ummenhofer, A.D. Wannamaker, **G. Villarini**, K.-H. Wyrwoll, M.S. Lachniet, Y. Asmerom, V.J. Polyak, and W.F. Humphreys, Late Holocene dynamics of the Indo-Pacific tropical rain belt, *11th International Conference on Southern Hemisphere Meteorology and Oceanography*, Santiago, Chile, October 5-9, 2015.
- Denniston, R.F., C.C. Ummenhofer, A.D. Wannamaker, **G. Villarini**, K.-H. Wyrwoll, M.S. Lachniet, Y. Asmerom, V.J. Polyak, and W.F. Humphreys, Late Holocene expansion and contraction of the Indo-Pacific tropical rain belt, *The Width of the Tropics: Climate Variations and Their Impacts*, *AGU Chapman Conference*, Santa Fe, New Mexico, July 27-31, 2015.
- Scoccimarro, E., **G. Villarini**, S. Gualdi, A. Navarra, G.A. Vecchi, K. Walsh, and M. Zhao, Tropical cyclone rainfall changes in a warmer climate, *5th International Summit on Hurricanes and Climate Change*, Chania, Greece, June 9 - July 14, 2015.
- **Villarini, G.**, Past, present and future floods in Iowa, *127th Annual Meeting of the Iowa Academy of Science*, Iowa City, IA, April 17-18, 2015.
- Scoccimarro, E., **G. Villarini**, S. Gualdi, A. Navarra, G.A. Vecchi, K. Walsh, and M. Zhao, Tropical cyclone rainfall changes in response to a warmer climate and increased CO₂, *General Assembly, EGU*, Vienna, Austria, April 12-17, 2015.
- **Villarini, G.**, Seasonal discharge forecasting over Iowa: Preliminary results for the Raccoon River, *Iowa Water Conference*, Ames, IA, March 2-3, 2015.
- Mallakpour, I., and **G. Villarini**, The tale of flooding over the central United States: Not bigger but more frequent, *95th American Meteorological Society Annual Meeting*, Phoenix, Arizona, January 4-8, 2015.

- Karlovits, G.S., **G. Villarini**, A.A. Bradley, and G.A. Vecchi, Diagnostic evaluation of NMME precipitation and temperature forecasts for the continental United States, *95th American Meteorological Society Annual Meeting*, Phoenix, Arizona, January 4-8, 2015.
- Knutson, T.R., J.J. Sirutis, M. Zhao, R.E. Tuleya, M.A. Bender, and **G. Villarini**, Global Projections of intense tropical cyclone activity for the late 21st century from dynamical downscaling of CMIP5/RCP4.5 scenarios, *95th American Meteorological Society Annual Meeting*, Phoenix, Arizona, January 4-8, 2015.
- **Villarini, G.**, Changes in discharge in an agricultural watershed in Iowa: Modeling and projections, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2014.
- Mallakpour, I., and **G. Villarini**, The tale of flooding over the central United States: Not bigger but more frequent, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2014.
- Luitel, B., **G. Villarini**, and G.A. Vecchi, On the characterization of rainfall associated with U.S. landfalling North Atlantic tropical cyclones based on satellite data and numerical weather prediction outputs, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2014.
- Karlovits, G.S., **G. Villarini**, A. Bradley, and G.A. Vecchi, Diagnostic evaluation of NMME precipitation and temperature forecasts for the continental United States, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2014.
- Nayak, M., **G. Villarini**, D. Lavers, and A. Bradley, Characterization of the rainfall associated with atmospheric rivers during the IFloodS campaign over the central United States, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2014.
- **Villarini, G.**, North Atlantic tropical cyclones and U.S. flooding, *Fourth Biennial Colloquium on Hydrologic Science and Engineering*, Shepherdstown, West Virginia, July 28-30, 2014.
- **Villarini, G.**, R. Goska, J.A. Smith, and G.A. Vecchi, North Atlantic tropical cyclones and U.S. flooding, *31st Conference on Hurricanes and Tropical Meteorology*, San Diego, California, March 31-April 4, 2014.
- **Villarini, G.**, D.A. Lavers, E. Scoccimarro, M. Zhao, M.F. Wehner, G.A. Vecchi, and T.R. Knutson, Sensitivity of tropical cyclone rainfall to idealized global scale forcings, *31st Conference on Hurricanes and Tropical Meteorology*, San Diego, California, March 31-April 4, 2014.
- Luitel, B., **G. Villarini**, and G.A. Vecchi, Multi-model ensemble forecasting of North Atlantic tropical cyclone activity, *31st Conference on Hurricanes and Tropical Meteorology*, San Diego, California, March 31-April 4, 2014.

- Scoccimarro, E., S. Gualdi, **G. Villarini**, G.A. Vecchi, M. Zhao, K. Walsh, and A. Navarra, Intense precipitation events associated with landfalling tropical cyclones in a warmer climate, *31st Conference on Hurricanes and Tropical Meteorology*, San Diego, California, March 31-April 4, 2014.
- **Villarini**, G., and A. Strong, Are the discharge changes in an agricultural watershed in Iowa driven by changes in climate or agriculture?, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2013.
- Nayak, M.A., **G. Villarini**, and D.A. Lavers, On the skill of numerical weather prediction models to forecast atmospheric rivers over the central United States, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2013.
- Lavers, D.A., and **G. Villarini**, The nexus between atmospheric rivers and extreme precipitation across Europe, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2013.
- Rowe, S.T., **G. Villarini**, D.A. Lavers, and E. Scoccimarro, Linking teleconnections and Iowa's climate, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2013.
- Mallakpour, I., and **G. Villarini**, How has discharge been changing over the U.S. Midwest during the last fifty years?, *AGU Fall Meeting*, San Francisco, California, December 9-13, 2013.
- Ferguson, C.R., and **G. Villarini**, Coupled models yield greater inhomogeneity, *12th International Meeting on statistical Climatology*, Jeju, Korea, June 24-28, 2013.
- Ferguson, C.R., and **G. Villarini**, Suitability of the Twentieth Century Reanalysis for climate change assessment, *General Assembly, EGU*, Vienna, Austria, April 7-12, 2013.
- **G. Villarini**, Heavy rainfall and flooding over the Central United States, *2013 Iowa Section ASCE Environmental and Water Resource Design Conference*, Cedar Rapids, Iowa, March 21, 2013.
- Peterson, T.C., and Coauthors, Monitoring and understanding changes in heat waves, cold waves, floods and droughts in the United States: State of knowledge, *93rd American Meteorological Society Annual Meeting*, Austin, Texas, January 6-10, 2013.
- Knutson, T.R., and Coauthors, Dynamical downscaling projections of late 21st century Atlantic hurricane activity: CMIP3 and CMIP5 model-based scenarios, *93rd American Meteorological Society Annual Meeting*, Austin, Texas, January 6-10, 2013.
- Carroll, D., J.M. Done, D. Ahijevych, and **G. Villarini**, Mapping social vulnerability to landfalling hurricanes in the Atlantic basin, *93rd American Meteorological Society Annual Meeting*, Austin, Texas, January 6-10, 2013.

- **Villarini, G.**, B.C. Seo, F. Serinaldi, and W.F. Krajewski, Modeling of radar-rainfall uncertainties for hydrologic applications: Preliminary results, *AGU Fall Meeting*, San Francisco, California, December 3-7, 2012.
- Seo, B.C., W.F. Krajewski, and **G. Villarini**, Rain gauge data quality control and combining data from different networks for hydrologic applications, *AGU Fall Meeting*, San Francisco, California, December 3-7, 2012.
- Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, New approaches to rainfall and flood frequency analysis using high resolution radar rainfall fields and stochastic storm transposition, *AGU Fall Meeting*, San Francisco, California, December 3-7, 2012.
- Smith, B.K., J.A. Smith, M.L. Baeck, and **G. Villarini**, Flood-producing rainfall and storm event hydrologic response in urban watersheds near Baltimore, MD, *AGU Fall Meeting*, San Francisco, California, December 3-7, 2012.
- Czajkowski, J., **G. Villarini**, E. Michel-Kerjan, and J.a. Smith, Catastrophe economics: Modeling the losses due to tropical cyclone related flooding during Hurricane Ivan in 2004, *Reckoning with the Risk of Catastrophe Research Conference*, Washington, D.C., October 3-5, 2012.
- Knutson, T.R., G.A. Vecchi, and **G. Villarini**, Is there a detectable human influence on hurricane activity?, *Attribution of Climate and Weather Extremes: Assessing, Anticipating and Communicating Climate Risks*, Oxford, UK, September 12-14, 2012.
- Ferguson, C.R., and **G. Villarini**, Detecting inhomogeneities in the Twentieth Century Reanalysis over the Central United States, *4th WCRP International Conference on Reanalyses*, Silver Spring, Maryland, May 7-11, 2012.
- Fewtrell, T.J., J.C. Neal, J.A. Smith, P.D. Bates, A.J. Miller, M.L. Baeck, and **G. Villarini**, Flood inundation modeling for urban watersheds, *General Assembly, EGU*, Vienna, Austria, April 22-27, 2012.
- Werner, A., G. Holland, J. Done, J. Czajkowski, I. Scott, H. Galy, P.L. Vidale, J. Strachan, T. Knutson, M. Zhao, H.-S. Kim, J. Smith, **G. Villarini**, P. McSharry, D. Stephenson, R. Vitolo, B. Khazai, and G. Michel, Towards a global tropical cyclone risk model, *30th Conference on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, Florida, April 15-20, 2012.
- Vecchi, G.A., I.M. Held, B.J. Soden, **G. Villarini**, and M. Zhao, Tropical changes in CMIP5 projections: Role of greenhouse and non-greenhouse forcing, *WCRP Workshop on Coupled Model Intercomparison Project Phase 5 (CMIP5) Model Analysis*, Honolulu, Hawaii, March 5-9, 2012.

- Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, Application of radar-based rainfall estimates to urban flood studies, *International Stormwater and Urban Water Systems Conference*, Toronto, Canada, February 22-23, 2012.
- **Villarini, G.**, and J.A. Smith, Empirical examination of the changes in the frequency of extreme rainfall in the Central United States, *92nd American Meteorological Society Annual Meeting*, New Orleans, Louisiana, January 22-26, 2012.
- **Villarini, G.**, and G.A. Vecchi, Seasonal forecast of the North Atlantic Power Dissipation Index (PDI) and Accumulated Cyclone Energy (ACE), *92nd American Meteorological Society Annual Meeting*, New Orleans, Louisiana, January 22-26, 2012.
- Yeung, J.K., J.A. Smith, M.L. Baeck, and **G. Villarini**, Towards an understanding of the impact of land surface heterogeneity on regional climate in the New York-New Jersey region, *92nd American Meteorological Society Annual Meeting*, New Orleans, Louisiana, January 22-26, 2012.
- **Villarini, G.**, and J.A. Smith, Regional analysis of extreme flooding in Texas using long-term discharge measurements, *AGU Fall Meeting*, San Francisco, California, December 5-9, 2011.
- Smith, B.K., J.A. Smith, M.L. Baeck, and **G. Villarini**, Urban effects on storm even hydrologic response in metropolitan Baltimore, MD, *AGU Fall Meeting*, San Francisco, California, December 5-9, 2011.
- Wright, D.B., J.A. Smith, **G. Villarini**, and M.L. Baeck, The flood hydroclimatology of urban environments in the Southeastern United States, *AGU Fall Meeting*, San Francisco, California, December 5-9, 2011.
- Lavers, D.A., R. Allan, E.F. Wood, **G. Villarini**, D.J. Brayshaw, and A.J. Wade, A hydroclimatological analysis of floods in Britain, *AGU Fall Meeting*, San Francisco, California, December 5-9, 2011.
- **Villarini, G.**, Changes in floods in the Midwest and Eastern U.S., *Forum on Trends and causes of observed changes in heat waves, cold waves, floods and drought*, Climate Science Working Group of the National Climate Assessment, Asheville, North Carolina, November 8-10, 2011
- Knutson, T. G. Vecchi, I. Held, M. Zhao, J. Sirutis, S. Garner, and **G. Villarini**, Atlantic hurricanes and climate change: Examining some uncertainties, *WCRP Open Science Conference*, Denver, Colorado, October 24-28, 2011.
- **Villarini, G.**, J.A. Smith, M.L. Baeck, G.A. Vecchi, T.R. Knutson, and T. Marchok, Flooding and tropical cyclones in the Eastern United States, *3rd International Summit on Hurricanes and Climate Change*, Rhodes, Greece, June 27 - July 2, 2011.

- **Villarini, G.**, G.A. Vecchi, T.R. Knutson, M. Zhao, and J.A. Smith, North Atlantic tropical storm frequency response to anthropogenic forcing: Projections and sources of uncertainty, *3rd International Summit on Hurricanes and Climate Change*, Rhodes, Greece, June 27 - July 2, 2011.
- **Villarini, G.**, J.A. Smith, and M.L. Baeck, Towards the development of a US flood model, *General Assembly, EGU*, Vienna, Austria, April 3-8, 2011.
- **Villarini, G.**, F. Serinaldi, and J.A. Smith, Development of a pan-European seasonal forecasting system for hydrometeorological variables: Rainfall forecast for Ukraine, Moldova and Romania, *General Assembly, EGU*, Vienna, Austria, April 3-8, 2011.
- Smith, J.A., M.L. Baeck, **G. Villarini**, D.B. Wright, J.K. Yeung, and W.F. Krajewski, Extreme flood response and spatial Extremes: analyses of the June 2008 flooding in Iowa, *General Assembly, EGU*, Vienna, Austria, April 3-8, 2011.
- Smith, J.A., M.L. Baeck, **G. Villarini**, B.K. Smith, and D.B. Wright, Urbanization and the regional rainfall climatology of the Baltimore metropolitan region, *AGU Fall Meeting*, San Francisco, California, December 13-17, 2010.
- Yeung, J.K., J.A. Smith, **G. Villarini**, M.L. Baeck, and E. Bou-Zeid, Sensitivity of WRF-simulated water and energy budget to land-surface parameterization over a heterogeneous landscape in the Northeastern U.S., *AGU Fall Meeting*, San Francisco, California, December 13-17, 2010.
- Wright, D.B., J.A. Smith, M.L. Baeck, and **G. Villarini**, Hydroclimatologic analyses of extreme rainfall and flooding in Atlanta, Georgia using long-term rainfall datasets, *AGU Fall Meeting*, San Francisco, California, December 13-17, 2010.
- **Villarini, G.**, On the stationarity of flood peaks in the continental US and central Europe, *Global and Regional Climate Changes*, Kiev, Ukraine, November 16-19, 2010.
- **Villarini, G.**, and J.A. Smith, On the stationarity of flood peaks for the eastern United States, *General Assembly, EGU*, Vienna, Austria, May 2-7, 2010.
- **Villarini, G.**, J.A. Smith, G.A. Vecchi, and M.L. Baeck, On the impact of extratropical systems and tropical storms in the characterization of flood risk for the eastern United States, *General Assembly, EGU*, Vienna, Austria, May 2-7, 2010.
- **Villarini, G.**, and J.A. Smith, Analysis of the stationarity of flood peaks in the U.S., *Workshop on Nonstationarity, Hydrologic Frequency Analysis, and Water Management*, Boulder, Colorado, January 13, 2010.
- **Villarini, G.**, and J.A. Smith, Flood peak distribution for the Eastern United States, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2009.

- Smith, J.A., M.L. Baeck, J.K. Yeung, **G. Villarini**, and W.F. Krajewski, The climatology of extreme rainfall in the Eastern US, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2009.
- Yeung, J.K., J.A. Smith, M.L. Baeck, and **G. Villarini**, The land surface energy balance and regional climate over a heterogeneous landscape in the Northeastern US, *AGU Fall Meeting*, San Francisco, California, December 14-18, 2009.
- **Villarini, G.**, Flood Frequency and Climate of the Eastern United States, *Fall Conference, Documents Association of New Jersey (DANJ)*, Princeton, New Jersey, November 6, 2009.
- **Villarini, G.**, F. Napolitano, J.A. Smith, and M.L. Baeck, How extreme was the December 2008 flood in Rome?, *IV CNR-Princeton Workshop “New Frontiers in Hydrology”*, Rome, Italy, July 1-3, 2009.
- Smith, J.A., **G. Villarini**, M.L. Baeck, and J.K. Yeung, Extreme rainfall and flooding in the Eastern United States, *IV CNR-Princeton Workshop “New Frontiers in Hydrology”*, Rome, Italy, July 1-3, 2009.
- **Villarini, G.**, J.A. Smith, F. Serinaldi, and W.F. Krajewski, Extreme floods in the Continental US: Analyses of long streamflow records, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- **Villarini, G.**, J.A. Smith, F. Serinaldi, J. Bales, P.D. Bates, and W.F. Krajewski, Flood frequency analysis for nonstationary annual peak records in an urban drainage basin, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- **Villarini, G.**, J.A. Smith, M.L. Baeck, P.L. Sturdevant-Rees, and W.F. Krajewski, Radar analyses of space-time variability of rainfall for extreme flood-producing storms in an urban environment, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- **Villarini, G.**, J.A. Smith, and A.A. Ntelekos, Flood risk characterization for the Eastern United States, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- Yeung, J., J.A. Smith, **G. Villarini**, A.A. Ntelekos, and M.L. Baeck, Regional precipitation climatology of the New York metropolitan region, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- Meierdiercks, K.L., J.A. Smith, **G. Villarini**, A. Miller, and M.L. Baeck, Extreme flooding in urban environment: Analyses from the Baltimore Ecosystem Study, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.
- Smith, J.A., M.L. Baeck, A.A. Ntelekos, **G. Villarini**, and M. Steiner, Extreme rainfall from orographic thunderstorms in the Central Appalachians, *General Assembly, EGU*, Vienna, Austria, April 19-24, 2009.

- **Villarini, G.**, J.A. Smith, M.L. Baeck, P.L. Sturdevant-Rees, and W.F. Krajewski, Radar analyses of space-time variability of rainfall for extreme flood-producing storms in an urban environment, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2008.
- Serinaldi, F., **G. Villarini**, J.A. Smith, and W.F. Krajewski, Change-point and trend analysis on annual maximum discharge in continental United States, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2008.
- Lin, N., **G. Villarini**, J.A. Smith, T. Marchok, and M.L. Baeck, Multiple hazard assessment of extreme rainfall, winds, and flooding from Hurricane Isabel, *AGU Fall Meeting*, San Francisco, California, December 15-19, 2008.
- Krajewski, W.F., B.C. Seo, A. Kruger, P. Domaszczynski, **G. Villarini**, and J.A. Smith, Multiple radar data merging in Hydro-NEXRAD, *World Environmental and Water Resources Congress 2008*, Honolulu, Hawaii, May 13-16, 2008.
- Krajewski, W.F., P.V. Mandapaka, **G. Villarini**, and P. Lewandowski, Bridging the scale gap: Radar and small-scale rainfall variability, *General Assembly, EGU*, Vienna, Austria, April 13-18, 2008.
- Krajewski, W.F., P.V. Mandapaka, **G. Villarini**, and P. Lewandowski, Bridging the scale gap: Radar and small-scale rainfall variability, *EGU General Assembly*, Vienna, Austria, April 13-18, 2008.
- Krajewski, W.F., **G. Villarini**, G.J. Ciach, and J.A. Smith, New paradigm for statistical validation of satellite precipitation estimates: Application to a large sample of the TMPA 0.25-degree three hourly estimates over Oklahoma, *Third NASA/JAXA International Science Conference*, Las Vegas, Nevada, February 4-8, 2008.
- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Sensitivity studies of the radar-rainfall error models, *AGU Fall Meeting*, San Francisco, California, December 10-14, 2007.
- Serinaldi, F., **G. Villarini**, and W.F. Krajewski, Modeling radar-rainfall estimation uncertainties using parametric and non-parametric approaches, *AGU Fall Meeting*, San Francisco, California, December 10-14, 2007.
- Krajewski, W.F., A. Kruger, J.A. Smith, M.L. Baeck, P. Domaszczynski, R. Goska, B. Seo, L. Cunha, C. Gonyon, **G. Villarini**, A. Ntekos, Hydro-NEXRAD: A community resource for future research on improving radar-rainfall estimation and hydrologic applications, *AGU Fall Meeting*, San Francisco, California, December 10-14, 2007.
- Krajewski, W.F., **G. Villarini**, G.J. Ciach, and P.V. Mandapaka, Statistical modeling of rainfall in time and space: Some results and challenges, *2007 NBER-NSF Time Series Conference*, Iowa City, Iowa, September 14-15, 2007.

- 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.
- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Empirically-based generator of synthetic radar-rainfall data, *IUGG 2007*, Perugia, Italy, July 2-13, 2007.
- **Villarini, G.**, P.V. Mandapaka, and W.F. Krajewski, Rainfall sampling uncertainties: A rain gauge perspective, *AGU Joint Assembly*, Acapulco, Mexico, May 22-25, 2007.
- **Villarini, G.**, P.V. Mandapaka, and W.F. Krajewski, Evaluation of radar-rainfall uncertainties by a highly dense rain gauge network, *AGU Joint Assembly*, Acapulco, Mexico, May 22-25, 2007.
- Krajewski, W.F., B.C. Seo, A. Kruger, P. Domaszczynski, **G. Villarini**, and C. Gunyon, Hydro-NEXRAD radar rainfall estimation algorithm development, testing and evaluation, *World Environmental and Water Resources Congress 2007*, Tampa, Florida, May 15-19, 2007.
- **Villarini, G.**, P.V. Mandapaka, W.F. Krajewski, and G.J. Ciach, A simulation study to investigate rain gauge representativeness errors in rainfall fields, *The University of Iowa College of Engineering 5th Research Open House*, Iowa City, April 19, 2007.
- **Villarini, G.**, and W.F. Krajewski, Detailed evaluation of the research-version of TMPA three-hourly $0.25^{\circ} \times 0.25^{\circ}$ rainfall estimates over Oklahoma, *General Assembly, EGU*, Vienna, Austria, April 15-20, 2007.
- **Villarini, G.**, J.B. Lang, F. Lombardo, F. Napolitano, F. Russo, and W.F. Krajewski, Impact of different regression frameworks on the estimation of the scaling properties of radar-rainfall, *General Assembly, EGU*, Vienna, Austria, April 15-20, 2007.
- **Villarini, G.**, A simulation study to investigate rain gauge representativeness errors in rainfall fields, *The University of Iowa 2007 Ninth Annual James F. Jakobsen Graduate Conference*, Iowa City, March 31, 2007.
- **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.
- Mandapaka, P.V., W.F. Krajewski, G.J. Ciach, and **G. Villarini**, Estimation of radar-rainfall error spatial correlation, *Eos Trans. AGU*, 87(52), Fall Meet. Suppl., Abstract H51D-0515, 2006.
- Krajewski, W.F., **G. Villarini**, and G.J. Ciach, Recent advances in modeling radar-rainfall uncertainties at small space-time scales, *The 7th International Workshop on Precipitation in Urban Areas*, St. Moritz, Switzerland, December 7-10, 2006.

- **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.
- **Villarini, G.**, W.F. Krajewski, K.P. Georgakakos, and A. Ntelekos, An investigation on the combined effects of the uncertainties in radar-rainfall estimates and flash flood guidance, *AGU Joint Assembly*, Baltimore, Maryland, May 23-26, 2006.
- Mandapaka, P.V., W.F. Krajewski, and **G. Villarini**, Effects of sampling on the estimation of spatial correlation structure of normal and lognormal random fields, *AGU Joint Assembly*, Baltimore, Maryland, May 23-26, 2006.
- Kitzmiller, D., R. Fulton, S. Guan, F. Ding, W.F. Krajewski, **G. Villarini**, and G.J. Ciach, Development and planned operational applications of a conditional error model for radar rainfall estimates, *AGU Joint Assembly*, Baltimore, Maryland, May 23-26, 2006.
- **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.
- Mandapaka, P.V., W.F. Krajewski, G.J. Ciach, and **G. Villarini**, Estimation of radar-rainfall error spatial covariance, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract H33E-1422, 2005.

- **Villarini, G.**, W.F. Krajewski, and G.J. Ciach, Empirical characterization of radar rainfall uncertainties: preliminary results, *International Conference on Civil and Environmental Engineering 2005*, Hiroshima, Japan, October 26-27, 2005.
- 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. *8th 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.
- Gorokhovich Y., and **G. Villarini**, Study of correlation between weather radar reflectivity and precipitation data in continental United States using free Internet resources. *Remote Sensing 2003 Conference*, Barcelona, Spain, September 8-12. Vol. 5232, 616-626, 2003.

SEMINARS:

- **Villarini, G.**, *Looking Back to Move Forward: Future Changes in the Frequency of Flood Events across the Central United States*, Princeton University, April 22, 2022.
- **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*, IIHR-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-)
- Taareem Kim (2022-)

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 (2018-2022)
- 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 (2020-22)
- Laura Zepeski (2021-22)

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)
- Dario Treppiedi (2022)
- Roberto Quaglia (2022)
- Herminia Torelló I Sentelles (2023-2024)
- Zifeng Deng (2024)

FUNDED PROJECTS:

- Source of Support: Cooperative Institute for Modeling the Earth System
Lead PI. Title: Expanding the capabilities of the SHiELD modeling framework to high-resolution flood inundation modeling
Total award: \$55,200. Award to Villarini: \$55,200
[7/1/2024 – 6/30/2025]
- Source of Support: City of Jacksonville (subaward)
Lead PI. Title: Citywide Probabilistic and Compound Flood Model and Real Time Forecasting System
Total award: \$50,000. Award to Villarini: \$50,000
[1/1/2024 – 6/30/2024]
- Source of Support: National Oceanic and Atmospheric Administration (subaward)

PI. Title: Co-LEARN: A Midwestern Community of Learning for Empowerment, Climate Adaptation and Resilience for the Next Generation

Total award: \$6,000,000. Award to Villarini: \$176,169

[9/1/2023 – 8/31/2028]

- Source of Support: Texas Water Development Board (subaward)
Lead PI. Title: Literature Review on relevant models & probabilistic analysis for flood hazard characterizations, and development of workflows for compound flood hazard assessment in the Coastal Texas Region
Total award: \$105,861. Award to Villarini: \$105,861
[8/1/2023 – 2/1/2024]
- Source of Support: North Atlantic Treaty Organization
Lead PI. Title: NATO STO CMRE (Science and Technology Organisation - Centre for Maritime Research and Experimentation)
Total award: \$159,000. Award to Villarini: \$159,000
[8/1/2023 – 1/31/2024]
- Source of Support: National Oceanic and Atmospheric Administration (subaward)
Lead PI. Title: Building relationships of reciprocity among researchers and marginalized groups for resilience in the Central Midwest
Total award: \$99,954. Award to Villarini: \$47,120
[12/1/2022 – 11/30/2024]
- Source of Support: Department of Defense
Lead PI. Title: Development of a decision support aid system connecting climate model downscaling and DoD infrastructure
Total award: \$1,217,735. Award to Villarini: \$487,074
[12/1/2022 – 11/30/2025]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: GLO Flood Studies - Region 1 (Phase 3)
Total award: \$267,895. Award to Villarini: \$267,895
[10/21/2022 – 08/14/2023]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: GLO Flood Studies - Region 2 (Phase 3)
Total award: \$292,120. Award to Villarini: \$292,120
[09/25/2022 – 07/01/2024]
- Source of Support: National Institutes of Health
Co-PI. Title: Statistical and agent-based modeling of complex microbial systems: A means for understanding enteric disease transmission among children in urban neighborhoods of Kenya
Total award: \$109,453. Award to Villarini: \$20,826
[08/30/2022 – 05/31/2023]

- Source of Support: Office of the Vice President for Research, University of Iowa
Lead PI. Title: Building Connected Communities in Rural Watersheds: Collaborative Partnerships for Actionable Science
Total award: \$50,000. Award to Villarini: \$50,000
[06/01/2022 – 05/31/2023]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: Statewide high-resolution tropical cyclone rainfall generator and error/bias quantification for Louisiana
Total award: \$50,000. Award to Villarini: \$50,000
[04/01/2022 – 09/30/2022]
- Source of Support: U.S. Geological Survey (via the Iowa Water Center)
Lead PI. Title: Understanding the impacts of corona virus-related reduction in aerosols and pollution on precipitation and discharge across Iowa
Total award: \$20,000. Award to Villarini: \$20,000
[09/01/2021 – 08/31/2022]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: GLO Flood Studies - Region 2 (TGL20583)
Total award: \$83,020. Award to Villarini: \$83,020
[05/27/2021 – 04/26/2022]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: Flood Studies within Combined River Basins For Texas (GLO): Dannenbaum
Total award: \$191,500. Award to Villarini: \$191,500
[05/11/2021 – 03/15/2023]
- Source of Support: US Department of Housing and Urban Development (subaward)
Lead PI. Title: Probabilistic modeling of rainfall associated with tropical cyclones affecting Louisiana
Total award: \$190,095. Award to Villarini: \$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
Total award: \$13,457. Award to Villarini: \$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
Total award: \$63,374. Award to Villarini: \$63,374
[08/06/2020 – 02/05/2021]

- Source of Support: U.S. Army Corps of Engineers
Lead PI. Title: 2020 IPA with USACE
Total award: \$150,000. Award to Villarini: \$150,000
[07/01/2020 – 12/31/2022]
- Source of Support: Iowa Department of Transportation
Lead PI. Title: Projected Changes in Flood Peak Discharge across Iowa: A Flood Frequency Perspective
Total award: \$313,923. Award to Villarini: \$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
Total award: \$45,405. Award to Villarini: \$0
[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
Total award: \$10,000. Award to Villarini: \$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
Total award: \$399,934. Award to Villarini: \$399,934
[04/15/2019 – 03/31/2023]
- Source of Support: U.S. Army Corps of Engineers
Lead PI. Title: 2018 IPA with USACE
Total award: \$160,000. Award to Villarini: \$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
Total award: \$35,000. Award to Villarini: \$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
Total award: \$253,496. Award to Villarini: \$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
Total award: \$2,999,869. Award to Villarini: \$220,000
[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
Total award: \$384,471. Award to Villarini: \$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
Total Award: \$69,999. Award to Villarini: \$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
Total Award: \$165,618. Award to Villarini: \$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
Total award: \$119,532. Award to Villarini: \$119,532
[09/01/2014 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers
Lead PI. Title: IPA Agreement with USACE
Total award: \$75,000. Award to Villarini: \$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
Total award: \$90,000. Award to Villarini: \$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
Total award: \$50,000. Award to Villarini: \$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?
Total award: \$30,000. Award to Villarini: \$30,000
[07/01/2014 – 06/30/2015]
- Source of Support: National Science Foundation
Lead PI. Title: CAREER: Temporal Clustering of Hydrometeorological Extremes
Total award: \$508,405. Award to Villarini: \$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
Total award: \$59,929. Award to Villarini: \$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
Total award: \$234,537. Award to Villarini: \$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
Total award: \$263,206. Award to Villarini: \$263,206
[09/01/2013 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers
Lead PI. Title: IPA Agreement with USACE
Total award: \$27,888. Award to Villarini: \$27,888
[09/01/2013 – 07/31/2014]
- Source of Support: U.S. Army Corps of Engineers
Lead PI. Title: IPA Agreement with USACE
Total award: \$200,000. Award to Villarini: \$200,000
[09/26/2012 – 08/31/2014]

SERVICE:

- *January 2023 – present*: member of the American Meteorological Society (AMS) Probability and Statistics Committee.
- *October 2020 – present*: Editor-in-Chief for *Advances in Water Resources*.
- *April 2014 – present*: Associate Editor for *Journal of Climate*.
- Co-chair of the “Hydrometeorologic extremes: prediction, simulation, and change” session; AGU 2020-202e Fall Meeting.
- *July 2018 – June 2023*: Member of the Iowa Water Center Advisory Board.
- *January 2017 – June 2023*: 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*.
- *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.