

# Curriculum Vitae

*Gabriele Villarini*

## WORK ADDRESS

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

## PERSONAL DATA

Date of Birth: July 30, 1978  
Place of Birth: Rome, Italy  
Citizenship: Italian; U.S.A.  
Family Status: Married  
Personal Webpage: <http://www.gabrielevillarini.com>

## RESEARCH INTERESTS:

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

## EDUCATION:

*August 2008:* Ph.D., Department of Civil and Environmental Engineering, The University of Iowa.

*July 2003:* Degree in Civil Engineering, Universita' degli Studi "La Sapienza", Rome, Italy.

## THESIS:

- *"Empirically-Based Modeling of Radar-Rainfall Uncertainties"*. The University of Iowa, Iowa City, USA.

- *“From Measurements to Modeling: the Use of NEXRAD Weather Radar for Hydrological Applications “*. Università degli Studi “La Sapienza”, Rome, Italy.

## **PROFESSIONAL EXPERIENCE:**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **TEACHING EXPERIENCE:**

*Spring 2016: Water Resources Engineering, Civil and Environmental Engineering, The University of Iowa (undergraduate/graduate).*

*Fall 2015: Engineering Fundamentals I: Statics, Civil and Environmental Engineering, The University of Iowa (undergraduate).*

*Spring 2015: Hydroclimatology, Civil and Environmental Engineering, The University of Iowa (graduate).*

*Fall 2014: Probabilistic Methods in Hydroscience, Civil and Environmental Engineering, The University of Iowa (graduate).*

*Spring 2014: Water Resources Engineering, Civil and Environmental Engineering, The University of Iowa (undergraduate/graduate).*

*Fall 2013: Probabilistic Methods in Hydroscience, Civil and Environmental Engineering, The University of Iowa (graduate).*

*Spring 2013: Water Resources Engineering, Civil and Environmental Engineering, The University of Iowa (undergraduate/graduate).*

*Fall 2012: Probabilistic Methods in Hydroscience, Civil and Environmental Engineering, The University of Iowa (graduate).*

*Spring 2012: Environmental Engineering Fundamentals II: Surface and Subsurface Processes, Civil and Environmental Engineering, Princeton University (graduate).*

## **AWARDS AND FELLOWSHIPS:**

*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. 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*, 2017 (in press).
2. **Villarini, G.**, and L.J. Slater, Examination of changes in annual maximum gage height in the continental United States using quantile regression, *Journal of Hydrologic Engineering*, 2017 (in press).
3. Dhanya, C.T., and **G. Villarini**, On the inherent predictability of precipitation across the United States, *Theoretical and Applied Climatology*, 2017 (in press).
4. Slater, L.J., **G. Villarini**, A.A. Bradley, and G.A. Vecchi, A statistical/dynamical framework for seasonal streamflow forecasting in an agricultural watershed, *Climate Dynamics*, 2017 (in press).
5. Zhang, W., **G. Villarini**, G.A. Vecchi, and H. Murakami, Impacts of the Pacific Meridional Mode on landfalling North Atlantic tropical cyclones, *Climate Dynamics*, 2017 (in press).
6. **Villarini G.**, B. Luitel, G.A. Vecchi, and J. Ghosh, Multi-model ensemble forecasting of North Atlantic tropical cyclone activity, *Climate Dynamics*, 2017 (in press).
7. Nayak, M.A., and **G. Villarini**, Remote sensing-based characterization of rainfall during atmospheric rivers over the central United States, *Journal of Hydrology*, 2017 (in press).

8. 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*, 2017 (in press).
9. 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, doi:10.1007/s00382-016-3286-1, *Climate Dynamics*, 2017 (in press).
10. Zhang, W., and **G. Villarini**, Extreme precipitation is highly sensitive to the magnitude of future warming, *Climatic Change*, 145, 249-257, 2017.
11. 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.
12. 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.
13. 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.
14. 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.
15. Slater, L.J., and **G. Villarini**, Evaluating the drivers of seasonal streamflow in the U.S. Midwest, *Water*, 9(9), 1-22, 2017.
16. 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.
17. **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.
18. Zhang, W., **G. Villarini**, E. Scoccimarro, and G.A. Vecchi, Stronger influences of increased CO<sub>2</sub> on sub-daily precipitation extremes than at the daily scale, *Geophysical Research Letters*, 44, 7464-7471, 2017.
19. 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.

20. 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.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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.
31. 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.

32. 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.
33. 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.
34. Slater, L.J., and **G. Villarini**, Recent trends in US flood risk, *Geophysical Research Letters*, 43(24), 12428-12436, 2016.
35. 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.
36. **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.
37. 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.
38. 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.
39. 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.
40. 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.
41. 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.
42. **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.



43. 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.
44. 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.
45. 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.
46. 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.
47. 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.
48. **Villarini, G.**, and R.F. Denniston, Contribution of tropical cyclones to extreme rainfall in Australia, *International Journal of Climatology*, 36(2), 1019-1025, 2016.
49. 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.
50. 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.
51. **Villarini, G.**, On the seasonality of flooding across the continental United States, *Advances in Water Resources*, 87, 80-91, 2016.
52. 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.
53. 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.

54. **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.
55. 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.
56. 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.
57. 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.
58. 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.
59. 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.
60. 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.
61. 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.
62. 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.
63. Mallakpour, I., and **G. Villarini**, The changing nature of flooding across the central United States, *Nature Climate Change*, 5, 250-254, 2015.

64. 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.
65. **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.
66. 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.
67. 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.
68. 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.
69. 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.
70. 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 CO<sub>2</sub>, *Journal of Climate*, 27(12), 4642-4654, 2014.
71. **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.
72. 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.
73. 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.
74. **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.

75. Vecchi, G.A., and **G. Villarini**, Next season's hurricanes, *Science*, 343(6171), 618-619, 2014.
76. 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.
77. **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.
78. 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.
79. 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.
80. 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.
81. 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.
82. Lavers, D.A., and **G. Villarini**, Atmospheric rivers and flooding over the central United States, *Journal of Climate*, 26(20), 7829-7836, 2013.
83. 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.
84. **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.
85. 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.

86. 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.
87. Lavers, D.A., and **G. Villarini**, The nexus between atmospheric rivers and extreme precipitation across Europe, *Geophysical Research Letters*, 40(12), 3259-3264, 2013.
88. **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.
89. 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.
90. 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.
91. 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.
92. **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.
93. **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.
94. Rowe, S.T., and **G. Villarini**, Flooding associated with predecessor rain events over the Midwest United States, *Environmental Research Letters*, 8, 1-5, 2013.
95. 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.
96. **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.

97. **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.
98. **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.
99. **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
100. **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.
101. **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.
102. 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.
103. **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.
104. **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.
105. 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.
106. 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.
107. 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.

108. **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.
109. **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.
110. **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.
111. 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.
112. **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.
113. **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.
114. **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.
115. **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.
116. 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.
117. 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.
118. 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.

119. 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.
120. **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.
121. **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.
122. **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.
123. 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.
124. **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.
125. **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.
126. 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.
127. **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.
128. 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.
129. 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.



130. **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.
131. **Villarini, G.**, and J.A. Smith, Flood peak distributions for the Eastern United States, *Water Resources Research*, doi:10.1029/2009WR008395, 46, W06504, 2010.
132. **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.
133. 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.
134. **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.
135. 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.
136. **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.
137. **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.
138. **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.
139. **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.
140. **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.
141. **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.
142. 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.
143. **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.
144. **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.
145. **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.
146. **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.
147. 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.
148. **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.
149. **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.
150. Gorokhovich 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. Black, A.W., and **G. Villarini**, Effects of methodological decisions on rainfall-related crash risk estimates, submitted to *Accident Analysis & Prevention*, 2016.

2. 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, submitted to *Journal of Hydrology*, 2017.
3. Giuntoli, I., **G. Villarini**, C. Prudhomme, and D.M. Hannah, Uncertainties in projected runoff over the continental United States, submitted to *Climatic Change*, 2017.
4. Rios Gaona, M.F., I., **G. Villarini**, W. Zhang, and G.A. Vecchi, The added value of IMERG in characterizing rainfall in tropical cyclones, submitted to *Atmospheric Research*, 2017.
5. Khouakhi, A., **G. Villarini**, W. Zhang, and L.J. Slater, Long-range predictability of high sea levels using the October-March Niño3.4 index at Toke Point, Washington, submitted to *Natural Hazards*, 2017.
6. Zhang, W., G.A. Vecchi, H. Murakami, **G. Villarini**, T. Delworth, X. Yang, and L. Jia, Dominant role of Atlantic Multi-decadal Oscillation in the recent decadal changes in western North Pacific tropical cyclone activity, submitted to *Geophysical Research Letters*, 2017.

#### **OTHER PEER-REVIEWED PUBLICATIONS:**

1. **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.
2. 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.
3. **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.
4. **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:**

- **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, *11<sup>th</sup> 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, *127<sup>th</sup> 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 CO<sub>2</sub>, *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, *95<sup>th</sup> 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, *95<sup>th</sup> 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, *95<sup>th</sup> 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, *31<sup>st</sup> 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, *31<sup>st</sup> 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, *31<sup>st</sup> 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, *31<sup>st</sup> 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, *12<sup>th</sup> 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, *93<sup>rd</sup> American Meteorological Society Annual Meeting*, Austin, Texas, January 6-10, 2013.
- Knutson, T.R., and Coauthors, Dynamical downscaling projections of late 21<sup>st</sup> century Atlantic hurricane activity: CMIP3 and CMIP5 model-based scenarios, *93<sup>rd</sup> 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, *93<sup>rd</sup> 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, *4<sup>th</sup> 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, *30<sup>th</sup> 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, *92<sup>nd</sup> 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), *92<sup>nd</sup> 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, *92<sup>nd</sup> 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. Gunyon, **G. Villarini**, A. Ntelekos, 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 5<sup>th</sup> 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<sup>o</sup> 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. Ntekos, 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. Jacobsen Graduate Forum*, Iowa City, April 29-30, 2005.
- Krajewski, W.F., G.J. Ciach, and **G. Villarini**, Towards uncertainty-based forecasting of rainfall-induced hazards, *General Assembly, EGU*, Vienna, Austria, April 24-29, 2005.
- **Villarini, G.**, G.J. Ciach, and W.F. Krajewski, Effects of observational uncertainties on the estimated multifractal properties in radar rainfall fields, *The University of Iowa College of Engineering 3rd Research Open House*, Iowa City, April 7, 2005.
- **Villarini G.**, G.J. Ciach, and W.F. Krajewski, Effects of observational uncertainties on the estimated multifractal properties in radar rainfall fields. *8<sup>th</sup> International Conference on Precipitation*, Vancouver, Canada, August 8-11, 2004.
- **Villarini, G.**, G.J. Ciach, and W.F. Krajewski, Multifractal analyses of radar rainfall fields - effects of the uncertainties, *The University of Iowa College of Engineering 2nd Research Open House*, Iowa City, April 29, 2004.
- **Villarini G.**, and G.J. Ciach, Multifractal analyses of radar rainfall fields – effects of the uncertainties. *Eos Trans. AGU*, 85 (17), Joint Assembly Suppl., Abstract NG23A-04, 2004.
- 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.**, *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-)

### *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-)

### *Ph.D. Students*

- Iman Mallakpour (2012-2016)
- Munir Nayak (2013-2016)
- Nancy Barth (2015-)
- Jessica Ayers (2017-)
- Alex Morrison (2017-)
- Zhiqi Yang (2017-)

### *M.S. Students*

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

### *Undergraduate Students*

- Anda Shi (2014-2015)
- Alexa Hanson (2016-2017)

### *Visiting Students and Researchers*

- Ignazio Giuntoli (2014)
- Dr. Dhanya C.T. (2015)
- Evan Cunningham (2016)

## **FUNDED PROJECTS:**

- Source of Support: US Department of Housing and Urban Development (subaward)  
Lead PI. Title: Hydrometeorological Impacts on Water Quantity and Quality across Iowa's Streams  
Award: \$253,496 [01/01/2017 – 12/31/2019]
- Source of Support: National Science Foundation  
Co-PI. Title: NRT-INFEWS: Paths to Sustainable Food-Energy-Water Systems in Resource-Limited Communities  
Award: \$2,999,869 [08/30/2016 – 08/29/2021]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: Water Resources and Geospatial Analysis: Attribution of Changes and Evaluation of Actionable Climate Information across the Northern Great Plains and the Central United States  
Award: \$468,264 [12/28/2015 – 12/31/2018]
- Source of Support: National Oceanic and Atmospheric Administration  
Lead PI. Title: NMME Precipitation and Temperature Forecasts for the Continental United States and Europe: Diagnostic Evaluation and Development of Multi Model Applications  
Award: \$69,999 [08/01/2015 – 07/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: U.S. Army Corps of Engineers (USACE) Research Participation Program - Nancy Barth  
Award: \$165,618 [06/01/2015 – 05/31/2018]
- Source of Support: U.S. Geological Survey  
Lead PI. Title: Development of a Comprehensive Hazard to Loss Modeling Methodology for the Residential Damage Associated with Inland Flooding from North Atlantic Tropical Cyclones  
Award: \$119,532 [09/01/2014 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$75,000 [09/01/2014 – 08/31/2015]
- Source of Support: National Aeronautics and Space Administration  
Lead PI. Title: Remote-sensing Based Characterization of Rainfall Associated with Atmospheric Rivers  
Award: \$90,000 [09/01/2014 – 08/31/2017]
- Source of Support: Iowa Nutrient Research Center  
Lead PI. Title: Modeling of Nitrate Loads and Concentrations in the Raccoon River

Award: \$50,000 [07/01/2014 – 06/30/2015]

- Source of Support: Center for Global & Regional Environmental Research  
Lead PI. Title: How Is Discharge Projected to Change for an Agricultural Watershed in Iowa Over the 21st Century?  
Award: \$30,000 [07/01/2014 – 06/30/2015]
- Source of Support: National Science Foundation  
Lead PI. Title: CAREER: Temporal Clustering of Hydrometeorological Extremes  
Award: \$508,405 [05/01/2014 – 04/30/2019]
- Source of Support: U.S. Geological Survey (via the Iowa Water Center)  
Lead PI. Title: Development of a Framework for Discharge Forecasting over Iowa  
Award: \$59,929 [04/15/2014 – 04/14/2016]
- Source of Support: NOAA Programs for Disaster Relief Appropriation Act –Non Construction and Construction (subaward)  
Lead PI. Title: Skillful Prediction of Seasonal Hurricane Frequency, Track and Fall  
Award: \$234,537 [12/01/2013 – 02/28/2018]
- Source of Support: National Science Foundation  
Lead PI. Title: Collaborative Research: Understanding and Forecasting North Atlantic and US Landfalling Tropical Cyclone Activity and Associated Rainfall  
Award: \$263,206 [09/01/2013 – 08/31/2016]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$27,888 [09/01/2013 – 07/31/2014]
- Source of Support: U.S. Army Corps of Engineers  
Lead PI. Title: IPA Agreement with USACE  
Award: \$200,000 [09/26/2012 – 08/31/2014]

#### **SERVICE:**

- *March 2015 – present:* Associate Editor for Advances in Water Resources
- *April 2014 – present:* Associate Editor for Journal of Climate
- *November 2015 –2016:* member of the American Meteorological Society (AMS) Flash Flood Statement Update Team
- *July 2010 – 2015:* member of the American Geophysical Union (AGU) Precipitation Committee

- *January 2011 – 2014*: member of the U.S.-CLIVAR Working Group on Hurricanes and Climate
- Co-chair of the “Hydroclimatic Extremes: Estimation and Forecasting” session; AGU 2013 Fall Meeting
- Invited Participant, NOAA National Climate Assessment Forum on Heatwaves, Cold Waves, Floods, and Droughts, 2011
- *November 2010*: member of a National Academy of Sciences delegation meeting with members of the Ukrainian Academy of Sciences.
- Article reviewer for:
  - *Advances in Water Resources*
  - *Asia-Pacific Journal of Atmospheric Sciences*
  - *Atmospheric Research*
  - *Atmospheric Science Letters*
  - *Australian Meteorological and Oceanographic Journal*
  - *Climate Dynamics*
  - *Climatic Change*
  - *Earth-science Reviews*
  - *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*
  - *Physical Geography*
  - *Proceedings of the National Academy of Sciences*
  - *Quarterly Journal of the Royal Meteorological Society*
  - *Regional Environmental Changes*
  - *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*
    - *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*