

Curriculum Vitae - James A. Smith

Education:

Ph.D. (1981), Environmental Engineering, The Johns Hopkins University
MSE (1979), Mathematical Sciences, The Johns Hopkins University;
B.S. (1974), Mathematics, University of Georgia.

Experience:

- 1) Chair, Department of Civil and Environmental Engineering, Princeton University (2011 - 2017),
- 2) William and Edna MacAler Professor of Engineering and Applied Science (2014 – present)
- 3) Professor, Department of Civil and Environmental Engineering, Princeton University (July 1998 - present),
- 4) Associate Professor, Princeton University (1995 - 1998)
- 5) Assistant Professor, Princeton University (1990 - 1994),
- 6) Research Scientist in Hydrometeorology, Hydrologic Research Laboratory, NOAA, 1981 - 1985 and 1987 - 1989.
- 7) Research Scientist, Center for Mathematics and Computer Science, Amsterdam, 1985 - 1986.

Membership in Scholarly Societies:

American Geophysical Union (AGU),
American Meteorological Society (AMS).

Honors:

- 1) Fellow, American Meteorological Society (AMS)
- 2) Fellow, American Geophysical Union (AGU)
- 3) 2011 Robert E. Horton Lecturer (AMS)
- 4) Fulbright Research Fellow, Center for Mathematics and Computer Science, Amsterdam, The Netherlands.
- 5) DAAD Graduate Fellow, Institute for Applied Mathematics, University of Bonn, Federal Republic of Germany.
- 6) Phi Beta Kappa Honor Society
- 7) Engineering Council Teaching Award: CIV306 (Environmental Fluid Dynamics).

Journal Articles:

Liu, M., G. Vecchi, H. Murakami, and J. A. Smith, The present-day simulation and future projection of Landfalling TC rainfall in the US using the FLOR model, *J. of Climate*, in review, 2017.

Lu, P., N. Lin, K. Emanuel, D. Chavas and J. A. Smith, A physics-based hurricane rainfall model, *J. of the Atmospheric Sciences*, in review, 2017.

Wang, W., J. A. Smith, P. Ramamurthy, M. L. Baeck, and E. Bou-Zeid, Sensitivity analysis of diurnal surface energy balance partitioning in the Noah Land Surface Model, *Water Resources Research*, in review, 2017.

Liu, M., G. Vecchi, H. Murakami, and J. A. Smith, Tropical cyclone intensification and increased vapor amount explain the increase of tropical cyclone rainfall under anthropogenic warming, in review, 2017.

Smith, J. A., A. A. Cox, M. L. Baeck, Long Yang and P. Bates, Strange floods: the upper tail of flood peaks in the US, *Water Resources Research*, in review, 2017.

Zhou, Z., J. A. Smith, D. B. Wright, M. L. Baeck, L. Yang, and S. Liu, Regional frequency analysis of extreme rainfall in the Baltimore metropolitan region using Stochastic Storm Transposition, *J. of Hydrometeorology*, in review, 2017.

Yang, L. and J. A. Smith, Sensitivity of extreme rainfall to atmospheric water vapor the arid/semi-arid Southwestern US: Implications for PMP estimates, *J. Geophysical Research (Atmospheres)*, in press, 2017.

ten Veldhuis, M.-c., Z. Zhou, L. Yang, S. Liu and J. A. Smith, The role of storm dynamics in controlling urban flood response, *Hydrology and Earth System Sciences*, DOI10.5194/hess-2017-197, 1 – 28, 2017.

Yang, L., J. A. Smith, M. L. Baeck, E. Morin, and D. Goodrich, Flash Flooding in Arid/Semi-arid Regions: Dissecting the 19 August 2014 Flood over Arizona, Southwestern United States, 18(12), 3110 – 4124, *J. of Hydrometeorology*, 2017.

Zhou, Z., J. A. Smith, L. Yang, M. L. Baeck, M. Chaney, M.-C. ten Veldhuis, and S. Liu, The Complexities of Urban Flood Response: Hydrologic Analyses for the Charlotte, North Carolina Metropolitan Region, *Water Resources Research*, 53(8), 7401 – 7425, 2017.

I. Mallakpour, 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.

Lu, P., J. A. Smith and N. Lin, Spatial characterization of flood magnitudes over the drainage network of the Delaware River basin, *J. of Hydrometeorology*, 18, 957 – 976, 2017.

Liu, M., G. Vecchi, J. A. Smith and H. Murakami, The present-day simulation and twenty-first-century projection of the climatology of extratropical transition in the North Atlantic, *J. of Climate*, 30, 2739 -2756, 2017.

Yang, L, J. A. Smith and M. Liu, Typhoon Nina and the August 1975 Flood in Central China, *J. of Hydrometeorology*, 18, 451 - 472, 2017.

Wang, W., J. A. Smith, P. Ramamurthy, M. L. Baeck, E. Bou-Zeid and T. M. Scanlon, On the correlation of water vapor and CO2: application to flux partitioning of evaporation, *Water Resources Research*, 52, 9452–9469, doi:10.1002/2015WR018161, 2016.

Liu, M. and J. A. Smith, Extreme rainfall from landfalling tropical cyclones in the Eastern United States: Hurricane Irene (2011), *J. of Hydrometeorology*, 17, pp. 2883 - 2904, 2016.

Ryu, Y.-H., J. A. Smith, M. L. Baeck, L. K. Cunha, E. Bou-Zeid and W. F. Krajewski, The regional water cycle and heavy Spring rainfall in Iowa: Observational and modeling analyses from the IFloodS Campaign, *J. of Hydrometeorology*, 17, 2763 – 2784, 2016.

Yang, L., J. A. Smith, M. L. Baeck and Y. Zhang, Flash flooding in small urban watersheds: storm event hydrologic response, *Water Resources Research*, 52(6), pp. 4571 – 4589, doi:10.1002/2015WR018326, 2016.

Yang, L., J. A. Smith, M. L. Baeck, B. K. Smith, F. Tian and D. Niyogi, Structure and evolution of flash flood producing storms in a small urban watershed, *J. of Geophysical Research (Atmospheres)*, 121, 3139–3152, doi:10.1002/2015JD024478. 2016.

Smith, B. K., J. A. Smith and M. L. Baeck, Flash flood producing storm properties in a small urban watershed, *J. of Hydrometeorology*, 17, 2631 - 2647, 2016.

Ryu, Y.-H., E. Bou-Zeid, Z.-H. Wang and J. A. Smith, Realistic representation of trees in an urban canopy model, *Boundary Layer Meteorology*, 159(2), 193 – 220, 2016.

Schleiss, M. and J. A. Smith, A method to quantify the temporal intermittency of rainfall: the burstiness and memory of inter-amount times, *J. of Hydrometeorology*, doi: <http://dx.doi.org/10.1175/JHM-D-15-0078.1>, 17, 421 - 436, 2016.

- Ryu, Y.-H., J. A. Smith, M. L. Baeck and E. Bou-Zeid, The influence of land-surface heterogeneities on heavy convective rainfall in the Baltimore-Washington metropolitan area, *Monthly Weather Review*, **144**, 553–573, 2016.
- Smith, J. A. and M. L. Baeck, “Prophetic Vision, Vivid Imagination”: The 1927 Mississippi River Flood, *Water Resources Research*, 51, 9964–9994, doi:10.1002/2015WR017927., 2015.
- Smith, B. K. and J. A. Smith, The flashiest watersheds in the contiguous United States, *J. of Hydrometeorology*, 16(6), 2365 – 2381, 2015.
- 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, DOI: 10.1002/2014WR015871, 2015.
- Yeung, J. K., J. A. Smith, M. L. Baeck and G. Villarini, Lagrangian analyses of rainfall structure and evolution for organized thunderstorms in the urban corridor of the northeastern US, *J. of Hydrometeorology*, 16(4), 1575 - 1595, 2015.
- Schleiss, M. and J. A. Smith, A method to estimate the 3D+time structure of the raindrop size distribution using radar and disdrometer data, *J. of Hydrometeorology*, 16(3), 1222 - 1242, 2015.
- Wright, D. B., T. R. Knutson and J. A. Smith, Regional climate model projections of rainfall from landfalling tropical cyclones, *Climate Dynamics*, 45, 3365 - 3379, 2015.
- Cunha, L. K., J. A. Smith, W. F. Krajewski, M. L. Baeck, and B.-C. Seo, NEXRAD NWS polarization precipitation product evaluation for IFloodS, *J. of Hydrometeorology*, 16, 1676 - 1699, 2015.
- Smith, B. K., J. A. Smith, M. L. Baeck and A. J. Miller, Exploring storage and runoff generation processes for urban flooding through a physically-based hydrologic model, *Water Resources Research*, 51, 1552–1569, doi:10.1002/2014WR016085, 2015.
- Ryu, Y.-H., J. A. Smith, and E. Bou-Zeid, On the climatology of precipitable water and water vapor flux in the mid-Atlantic region of the US, *J. of Hydrometeorology*, 16, 70 – 87, 2015.
- Wang, W. E., A. P. M. Michel, L. Wang, T. Tsai, M. L. Baeck, J. A. Smith, and G. Wysocki, A quantum cascade laser-based water vapor isotopes analyzer for environmental monitoring, *AIP Review of Scientific Instruments*, 85, 093103 (2014); doi: 10.1063/1.4894161, 2014.
- Zhang, Yan, James A. Smith, Lifeng Luo, Zifa Wang and Mary Lynn Baeck, Urbanization and rainfall variability in the Beijing metropolitan region, *Journal of Hydrometeorology*, 15(6), 2219 - 2235, 2014.
- Thorndahl, S., J. A. Smith, M. L. Baeck, and W. F. Krajewski, Analyses of the Temporal and Spatial Structure of Heavy Rainfall from a Catalog of High-Resolution Radar Rainfall fields, *Atmospheric Research*, 144, 111-125, 2014.
- Ramamurthy, P., E. Bou-Zeid, J. A. Smith, Z. Wang, M. L. Baeck, N. Saliendra, J. Hom and C. Welty, Influence of Sub-Facet Heterogeneity and Material Properties on the Urban Surface Energy Budget, *J. of Applied Meteorology and Climate*, 53, 2114 – 2129, 2014.
- Wright, D. B., J. A. Smith, and M. L. Baeck, Flood frequency analyses using radar rainfall fields and stochastic storm transposition, *Water Resources Research*, 50, 1592 - 1615, 2014.
- Villarini, G., R. Goska, J. A. Smith and G. Vecchi, North Atlantic Tropical Cyclones and U. S. Flooding, *Bull. of the Amer. Meteor. Soc.*, 95, 1381 - 1388, 2014.
- Yang, L., F. Tian, J.A. Smith, and H. Hu, Urban Signatures in the Spatial Clustering of Summer Heavy Rainfall Events over the Beijing Metropolitan Region, *J. Geophys. Res. Atmospheres*, 119, 1203–1217, doi:10.1002/2013JD020762,

2014.

Wright, D. B., J. A. Smith, G. Villarini, and M. L. Baeck, Long-term, high-resolution, radar rainfall records for urban hydrology, *J. of the American Water Resources Associations*, 50(3), 713-734, 2014.

Wright, D. B., J. A. Smith and M. L. Baeck, A critical examination of areal reduction factors, *J. of Hydrological Engineering*, 19(4), 769 – 776, 2014.

Seo, B.-C., W. F. Krajewski, and J. A. Smith, Four-Dimensional Reflectivity Data Comparison between Two Ground-Based Radars: Methodology and Statistical Analysis, *Hydrological Sciences Journal*, 59(7), 1320-1334, 2014.

Yang, L., J. A. Smith, M. L. Baeck, E. Bou-Zeid, S. M. Jessup, F. Tian, and H. Hu., Impact of Urbanization on Heavy Convective Precipitation under Strong Large-Scale Forcing: A Case Study over the Milwaukee-Lake Michigan Region, *J. of Hydrometeorology*, 15, 261-278, 2014.

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 methodology, *Environmental Research Letters*, 8(4), 1-7, 2013, 2013.

Li, D., E. Bou-Zeid, M. Barlage, F. Chen and J. A. Smith, Development and Evaluation of a Mosaic Approach in the WRF-Noah Framework, *J. Geophys. Res. Atmospheres*, 118, 1 – 18, doi:10.1002/2013JD020657, 2013.

Cunha, L. K., J. A. Smith, M. L. Baeck and W. F. Krajewski, An Early Performance Evaluation of the NEXRAD Dual Polarization Radar Rainfall Estimates for Urban Flood Applications, *Weather and Forecasting*, 28, 1478–1497, 2013.

Smith, J. A., M. L. Baeck, G. Villarini, D. B. Wright, W. F. Krajewski, Extreme Flood Response: The June 2008 Flooding in Iowa, *J. of Hydrometeorology*, 14, 1810–1825. 2013.

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 flood frequency, *Journal of Hydrometeorology*, 14(6), 2013, doi: JHM-D-12-095.1 , 2013.

Li, D., E. Bou-Zed, M. L. Baeck, S. M. Jessup, and J. A. Smith, Modeling Land Surface Processes and Heavy Rainfall in Urban Environments: Sensitivity to Urban Surface Representations, *J. of Hydrometeorology*, 14, 1098 - 1118, 2013.

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.

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, *J. of Hydrology*, 488, 150-165, 2013.

Villarini, G. and J. A. Smith, Flooding in Texas: Examination of temporal changes, and impacts of tropical cyclones and urbanization, *Journal of the American Water Resources Association*, 49(4), 825-837, 2013.

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.

Wang, Z., E. Bou-Zeid and J. A. Smith, A coupled energy transport and hydrological model for urban canopies evaluated using a wireless sensor network, *Quarterly Journal of the Royal Meteorological Society*, 139 (675), 1643-1657, 2013.

Yang, L., G. Villarini, J. A. Smith, F. Tian, and H. Hu, Changes in Seasonal Extreme Rainfall in China over the period 1961-2006, *International Journal of Climatology*, 33(7), 1646-1657, 2013.

Krajewski, W.F., A. Kruger, S. Singh, B.-C. Seo and J.A. Smith, Hydro-NEXRAD 2: Real time access to customized radar-rainfall for hydrologic applications, *Journal of Hydroinformatics*, 15(2), 580-590, 2013.

- 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.
- 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.
- Villarini, G., G.A. Vecchi, and J.A. Smith, Changing frequency of heavy rainfall over the central United States, *J. of Climate*, 26(1) 343-350, 2013.
- Wright, D.B., J.A. Smith, G. Villarini, and M.L. Baeck, The hydroclimatology of flash flooding in Atlanta, *Water Resources Research*, 48, W04524, doi:10.1029/2011WR011371, 2012.
- Talbot, C., E. Bou-Zeid and J. A. Smith, Nested mesoscale-large eddy simulations with WRF: performance tests in idealized and real cases, *J. of Hydrometeorology*, 13 (5), 1421-1441, 2012.
- Smith, J. A., M. L. Baeck, G. Villarini, C. Welty, A. J. Miller, W. F. Krajewski, Analyses of a long-term high-resolution radar rainfall data set for the Baltimore metropolitan region, *Water Resources Research*, 48, W04504, doi:10.1029/2011WR010641, 2012.
- 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, doi:10.1175/MWR-D-11-00063.1, 2012.
- Villarini, G., J.A. Smith, F. Serinaldi, A.A. Ntelekos, and U. Schwarz, Analyses of extreme flooding in Austria over the period 1951 - 2006, *Int. J. of Climatology*, 32, 1178 - 1192, 2012.
- 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), *J. of Geophysical Research (Atmospheres)*, 116, D23116, doi:10.1029/2011JD016175, 2011.
- 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.
- 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*, 339, pp. 299 – 312, 2011.
- 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 upper Midwest of the United States, *Journal of Hydrology*, 400, pp 103 - 120, 2011.
- Villarini, G. G. A. Vecchi, T. R. Knutson, M. Zhao and J. A. Smith, Reconciling Differing Model Projections of Changes in the Frequency of Tropical Storms in the North Atlantic Basin in a Warmer Climate, *Journal of Climate*, 24(13), 3224-3238, 2011.
- Villarini, G. G. A. Vecchi, T. R. Knutson and J. A. Smith, Is the Recorded Increase in Short Duration North Atlantic Tropical Storms Spurious?, *J. Geophys. Res.*, 116, D10114, doi:10.1029/2010JD015493, 2011.
- Smith, J.A., M.L. Baeck, A.A. Ntelekos, G. Villarini, and M. Steiner, Extreme rainfall and flooding from orographic thunderstorms in the Central Appalachians, *Water Resources Research*, 47, W04514, doi:10.1029/2010WR010190, 2011.
- Yeung, J. K, J. A. Smith, G. Villarini, A. A. Ntelekos, M. L. Baeck, and W. F. Krajewski, Regional precipitation climatology of the New York – New Jersey Metropolitan Region, *Advances in Water Resources*, 34(2), 184-204, 2011.
- Rosenzweig, B. R., J. A. Smith, M. L. Baeck, and P. R. Jaffe, Monitoring nitrogen loading and retention in an urban stormwater detention pond, *Journal of Environmental Quality*, 40(2), 598 – 609, doi: 10.2134/jeq2010.0300, 2011.

Villarini, G., J.A. Smith, A.A. Ntelekos, and U. Schwarz, Heavy rainfall analyses for Austria, *Journal of Geophysical Research-Atmospheres*, 116, D05103, doi:10.1029/2010JD015038, 2011.

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.

Seo, B.-C., W. F. Krajewski, A. Kruger, P. Domaszczynski, J. A. Smith and M. Steiner, Radar-Rainfall Estimation Algorithms of Hydro-NEXRAD, *Journal of Hydroinformatics*, 13(2), 277-291, 2011.

Smith, J. A. and T. C. Onstott, "Follow the Water": Steve Squyres and the Mars Exploration Rovers, *J. of the Franklin Institute*, 348, 446 - 452, 2011.

Wang, Z., Bou-Zeid, E., Au, S.K., Smith J.A. (2011) " Sensitivity analysis of surface parameters in urban canopy models using advanced Monte Carlo simulation", *The Journal of Applied Meteorology and Climatology*, "e-view", DOI: [10.1175/2011JAMC2685.1](https://doi.org/10.1175/2011JAMC2685.1).

Krajewski, W.F., A. Kruger, J. A. Smith, R. Lawrence, C. Gunyon, R. Goska, B.-C. Seo, P. Domaszczynski, M. L. Baeck, M. K. Ramamurthy, J. Weber, A. A. Bradley, S. A. DelGrec, and M. Steiner, Towards better utilization of NEXRAD data in hydrology: An overview of Hydro-NEXRAD, *Journal of Hydroinformatics*, 13(2), 255-266, 2011.

Kruger, A., W. F. Krajewski, P. Domaszczynski and J. A. Smith, Hydro-NEXRAD: Metadata computation and use, *Journal of Hydroinformatics*, 13(2), 267-276, 2011.

Villarini, G., J. A. Smith, M. L. Baeck, and W.F. Krajewski, Examining regional flood frequency in the Midwest US, *Journal of the American Water Resources Association*, *Journal of the American Water Resources Association*, 47(3), 447-463, 2011.

Michel, A. P. M., P. Q. Liu, J. K. Yeung, P. Corrigan, M. L. Baeck, Z., Wang, T. Day, F. Moshary, C. F. Gmachl, and J. A. Smith, Quantum Cascade Laser Open-Path System for Remote Sensing of Trace Gases in Beijing, China", *Optical Engineering*, 49, 111125 DOI:10.1117/1, 2010.

Meierdiercks, K. L., J. A. Smith, M.L. Baeck, and A. J. Miller, Heterogeneity of Hydrologic Response in Urban Watersheds, *Journal of the American Water Resources Association*, 46(6), 1221 - 1237, 2010.

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.

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.

Lin, N., K. Emanuel, J. A. Smith and E. Vanmarcke, Risk assessment of hurricane storm surge for New York City, *Journal of Geophysical Research-Atmospheres*, 115, D18121, doi:10.1029/2009JD013630, 2010.

Meierdiercks, K. L., J. A. Smith, M.L. Baeck, and A. J. Miller, The Urban Drainage Network and Flood Response, *Journal of the American Water Resources Association*, 46(5), 932-943, 2010.

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.

Lin, N., J.A. Smith, G. Villarini, T.P. Marchok, and M.L. Baeck, Hazard Assessment of Extreme Rainfall, Flooding and Storm Surge from Hurricane Isabel (2003), *Weather and Forecasting*, 25(5), 1342 – 1361, 2010.

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.

Julie Rose N. Javier, James A. Smith, Mary Lynn Baeck, and Gabriele Villarini, Flash Flooding in the Philadelphia Metropolitan Region, *ASCE J. of Hydrologic Engineering*, 15(1), pp. 29 – 38, 2010.

Ntelekos, A. A., M. Oppenheimer, J. A. Smith, A. J. Miller, Urbanization, Climate Change and Flood Policy in the United States, *Climatic Change*, 103, pp. 597 – 616, DOI 10.1007/s10584-009-9789-6, 2010.

Villarini, G., and J.A. Smith, Flood peak distributions for the Eastern United States, *Water Resources Research*, doi:10.1029/2009WR008395, 46, W06504, 2010.

Krajewski, W.F., G. Villarini and J.A. Smith, Radar-rainfall uncertainties: where are we after thirty years of efforts? *Bulletin of the American Meteorological Society*, 91(1), 87 - 94, 2010.

Villarini, Gabriele, James A. Smith, Mary Lynn Baeck, Paula Sturdevant-Rees, Witold F. Krajewski, Radar Analyses of Space-Time Variability of Extreme Flood-Producing Rainfall in Urban Drainage Basins, *J. of Hydrology*, 381(3-4), 266-286, 2010.

Pielke Sr., R., K. Beven, G. Brasseur, J. Calvert, M. Chahine, R. Dickerson, D. Entekhabi, E. Foufoula-Georgiou, H. Gupta, V. Gupta, W. Krajewski, E. Philip Krider, W. K.M. Lau, J. McDonnell, W. Rossow, J. Schaake, J. Smith, S. Sorooshian, and E. Wood, 2009: Climate change: The need to consider human forcings besides greenhouse gases. *Eos*, 90(45), 413, 2009.

Zhang, Yan, James A. Smith, Alexandros A. Ntelekos, Mary Lynn Baeck, Witold F. Krajewski, and Fred Moshary, Structure and Evolution of Precipitation along a Cold Front in the Northeastern US, *J. of Hydrometeorology*, 10(5), 1243–1256, 2009.

Ntelekos, A. A., J. A. Smith, L. Donner, J. D. Fast, W. I. Gustafson Jr., E. G. Chapman and W. F. Krajewski, The Effects of Aerosols on Intense Convective Precipitation in the Northeastern US, *Q. J. R. Meteorol. Soc.*, 135, pp. 1367 – 1391, 2009.

Villarini, G., W. F. Krajewski, 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.

Villarini, Gabriele, James A. Smith, Francesco Serinaldi, Jerad Bales, Paul D. Bates, and Witold F. Krajewski, Flood Frequency Analysis for Nonstationary Annual Peak Records in an Urban Drainage Basin, *Advances in Water Resources*, 32(8), 1255-1266, 2009.

Villarini, Gabriele, Francesco Serinaldi, James A. Smith, and Witold F. Krajewski, On the Stationarity of Annual Flood Peaks in the Continental United States During the 20th Century, *Water Resources Research*, 45, W088417, doi:10.1029/2008WR007645, 2009.

Smith, James A., Eric Hui, Matthias Steiner, Mary Lynn Baeck, Witold F. Krajewski, Alexandros A. Ntelekos, Variability of Rainfall Rate and Raindrop Size Distributions in Heavy Rain, *Water Resour. Res.*, 45, W04430, doi:10.1029/2008WR006840, 2009.

Pradeep V. Mandapaka, Witold F. Krajewski, Grzegorz J. Ciach, Gabriele Villarini, James A. Smith, 2009, Estimation of radar-rainfall error spatial correlation, *Advances in Water Resources*, 32(7), 1020-1030, 2009.

Chung, Wei-hao and James A. Smith, Viscosity-excluded formulations of 2-D river flow with a new wetting and drying algorithm, *Advances in Water Resources*, 31(2), 298 – 312, 2008.

- Ntelekos, A. A., J. A. Smith, M. L. Baeck, W. F. Krajewski, A. J. Miller, and R. Goska, Extreme hydrometeorological events and the urban environment: Dissecting the 7 July 2004 thunderstorm over the Baltimore MD Metropolitan Region, *Water Resour. Res.*, 44, W08446, doi:10.1029/2007WR006346, 2008.
- Rosenzweig, B. R., H. S. Moon, J. A. Smith, M. L. Baeck, and P. R. Jaffe, Variation in the instream dissolved inorganic nitrogen response between and within rainstorm events in an urban watershed, *J. Environ. Sci. Health, Part A.*, A43, No.11, 2008.
- Javier, J. R. N., J. A. Smith, J. England, M. L. Baeck, M. Steiner, and A. A. Ntelekos, 2007, Climatology of extreme rainfall and flooding from orographic thunderstorm systems in the upper Arkansas River basin, *Water Resources Research.*, 43, W10410, doi:10.1029/2006WR005093
- Javier, J. R. N., J. A. Smith, K. L. Meierdiercks, M. L. Baeck, and A. J. Miller, 2007, Flash Flood Forecasting for Small Urban Watersheds in the Baltimore Metropolitan Region, *Weather and Forecasting*, 22(6), 1331 - 1344.
- Ntelekos, A. A., J. A. Smith, and W. F. Krajewski, 2007, Climatological Analyses of Thunderstorms and Flash Floods in the Baltimore Metropolitan Region, *Journal of Hydrometeorology*, 8(1), 88-101.
- Smith, J. A., M. L. Baeck, K. L. Meierdiercks, A. J. Miller and W. F. Krajewski, 2007, Radar Rainfall Estimation for Flash Flood Forecasting in Small Urban Watersheds, *Advances in Water Resources*, 30, 2087 – 2097.
- Nelson, P. A., J. A. Smith and A. J. Miller, 2006, Evolution of channel morphology and hydrologic response in an urbanizing drainage basin, *Earth Surface Processes and Landforms*, 31(9), 1063 - 1079.
- Slutzman, J. E. and J. A. Smith, 2006, Effects of flood control structures on flood response for Hurricane Floyd in the Brandywine Creek watershed, Pennsylvania, *ASCE J. of Hydrologic Engineering*, 11(5), 432-441.
- Smith, J. A., P. Sturdevant-Rees, M. L. Baeck, and M. C. Larsen, 2005, Tropical cyclones and the flood hydrology of Puerto Rico, *Water Resources Research*, 41, W06020.
- Hicks, N. S., J. A. Smith, A. J. Miller, and P. A. Nelson, 2005, Catastrophic flooding from an orographic thunderstorm in the central Appalachians, *Water Resour. Res.*, 41, W12428, doi:10.1029/2005WR004129.
- Smith, J. A., A. J. Miller, M. L. Baeck, P. A. Nelson, G. T. Fisher, and K. L. Meierdiercks, 2005, Extraordinary flood response of a small urban watershed to short duration convective rainfall, *J. of Hydrometeorology*, Vol. 6, No. 5, pages 599–617.
- Smith, J. A., M. L. Baeck, K. L. Meierdiercks, P. A. Nelson, A. J. Miller, and E. J. Holland, 2005, Field studies of the storm event hydrologic response in an urbanizing watershed, *Water Resources Research*, 41, W10413.
- Nelson, B. R., W. F. Krajewski, J. A. Smith, E. Habib, and G. Hoogenboom, 2005, Archival precipitation data set for the Mississippi River Basin: Evaluation, *Geophysical Research Letters*, 32, L18403.
- Steiner, M., and J. A. Smith, Scale-dependence of radar rainfall rates -- An assessment based on raindrop spectra. *Journal of Hydrometeorology*, 5(6), 1171-1180, 2004.
- Steiner, M., J. A. Smith, and R. Uijlenhoet, A microphysical interpretation of radar reflectivity - rain rate relationships. *Journal of the Atmospheric Sciences*, 61(10), 1114-1131, 2004
- Turner-Gillespie, D. F., J. A. Smith and P. D. Bates, Attenuating reaches and the regional flood response of an urban drainage basin, *Advances in Water Resources*, 26, 673 – 684, 2003.
- Zhang, Y., and J. A. Smith, Space-time variability of rainfall and extreme flood response in the Menomonee River basin, Wisconsin, *J. of Hydrometeorology*, 4, 506 – 517, 2003.

- Uijlenhoet, R., J. A. Smith and M. Steiner, The microphysical structure of extreme precipitation, *Journal of the Atmospheric Sciences*, 60, 1220-1238, 2003.
- Nelson, B. R., W. F. Krajewski, A. Kruger, J. A. Smith and M. L. Baeck, Archival precipitation data sets for the Mississippi River basin: Development of a GIS-based data browser, *Computers and Geoscience*, 29, 595 – 604, 2003.
- Nelson, B. R., W. F. Krajewski, A. Kruger, J. A. Smith and M. L. Baeck, Archival precipitation data set for the Mississippi River basin: Algorithm development, *J. of Geophysical Research*, 108 (D22), 2003.
- Uijlenhoet, R., M. Steiner, and J. A. Smith, Variability of raindrop size distributions in a squall line and implications for radar rainfall estimation, *J. of Hydrometeorology*, 4(1), 43 – 61, 2003.
- Giannoni, F., J. A. Smith, Y. Zhang, and G. Roth, Hydrologic modeling of extreme floods using radar rainfall estimates, *Advances in Water Resources*, 26, 195-203, 2003.
- Morrison, J. E. and J. A. Smith, Stochastic modeling of flood peaks using the Generalized Extreme Value (GEV) distribution, *Water Resources Research*, 38(12), 41-1 – 41-12, 2002.
- Krajewski, W. F. and J. A. Smith, Radar hydrology: rainfall estimation, *Advances in Water Resources*, 25, 1387 – 1394, 2002.
- Smith, J. A., M. L. Baeck, J. E. Morrison, P. L. Sturdevant-Rees, D. F. Turner-Gillespie and P. D. Bates, The regional hydrology of extreme floods in an urbanizing drainage basin, *J. of Hydrometeorology*, 3(3), 267 – 282, 2002.
- Steiner, M., and J. A. Smith, Use of three-dimensional reflectivity structure for automated detection and removal of nonprecipitating echoes in radar data, *J. of Atmospheric and Oceanic Technology*, 19(5), 673 – 686, 2002.
- Chung, W.-H. and J. A. Smith, Comparisons of flood routing by the Muskingum model and Advection-Diffusion equation with time-dependent coefficients, *Journal of the Chinese Institute of Civil and Hydraulic Engineering*, 14(2), 297 – 306, 2002.
- Bradley, A. A., C. Peters-Lidard, B. R. Nelson, J. A. Smith, and C. B. Young, Rainage Network Design Using NEXRAD Precipitation Estimates. *Journal of the American Water Resources Association*, 38(5), 1393-1407, 2002.
- Smith, J. A., M. L. Baeck, Y. Zhang and C. A. Doswell, Jr., Extreme rainfall and flooding from supercell thunderstorms, *J. of Hydrometeorology*, 2(3), 469 - 489, 2001.
- Morrison, J. E. and J. A. Smith, Scaling properties of flood peaks, *Extremes*, 4(1), 5 - 23, 2001.
- Zhang, Y., J. A. Smith, and M. L. Baeck, The hydrology and hydrometeorology of extreme floods in the Great Plains of eastern Nebraska, *Advances in Water Resources*, 24(9-10), 1037 – 1050, 2001.
- Sturdevant-Rees, P. L., J. A. Smith, J. Morrison, and M. L. Baeck, Tropical storms and the flood hydrology of the Central Appalachians, *Water Resources Research*, 37(8), 2143 - 2168, 2001.
- Bates, P. D., M. D. Stewart, A. Desitter, M. G. Anderson, J.-P. Renaud, and J. A. Smith, Numerical simulation of floodplain hydrology, *Water Resources Research*, 36(9), 2517 - 2529, 2000.
- Steiner, M. and J. A. Smith, Reflectivity rain rate and kinetic energy flux relationships based on raindrop spectra, *J. of Appl. Meteorology*, 39, 1923 - 1940, 2000.
- Smith, J. A., M. L. Baeck, J. L. Morrison, and P. Sturdevant Rees, Catastrophic rainfall and flooding in Texas, *Journal of Hydrometeorology*, 1(1), 5 - 25, 2000.

Ogden, F.L., H.O. Sharif, S.U.S. Senarath, J.A. Smith, M.L. Baeck, and J.R. Richardson, Hydrologic Analysis of the Fort Collins, Colorado, Flash Flood of 1997, *J. Hydrology*, 228, pp. 82 - 100, 2000.

Landel, G., J. A. Smith, M. L. Baeck, and M. Steiner, Radar studies of heavy convective rainfall in mountainous terrain, *J. of Geophysical Research*, 104(D24), 31451 - 31465, 1999.

Ogden, F.L., J.R. Richardson, J.A. Smith, and M.E. Smith, Fort Collins Flood Dataset, *EOS, Trans. Amer. Geophys. Union*, 80(23):257-258, 1999.

Steiner, M., J. A. Smith, S. J. Burges, C. V. Alonso, and R. W. Darden, Effect of bias adjustment and rain gage data quality control on radar rainfall estimates, *Water Resources Research*, 35, 2487 - 2503, 1999.

Young, C. B., B. R. Nelson, A. A. Bradley, J. A. Smith, C. Peters-Lidard, A. Kruger, and M. L. Baeck, An evaluation of NEXRAD precipitation estimates in complex terrain, *J. Geophys. Research*, 104(D16), 19691 - 19704, 1999.

Anagnostou, E. N., W. F. Krajewski and J. A. Smith Uncertainty quantification of mean-area radar-rainfall estimates, *Journal of Atmospheric and Oceanic Technology*, 16, 206 - 215, 1999.

Tapia, A., J. A. Smith, and M. Dixon, Estimation of convective rainfall from lightning observations, *Journal of Applied Meteorology*, 37(11), 1497 - 1509, 1998.

Baeck, M. L. and J. A. Smith, Estimation of heavy rainfall by the WSR-88D, *Weather and Forecasting*, 13, 416 - 436, 1998.

Steiner, M. and J. A. Smith, Convective versus stratiform rainfall: an ice microphysical and kinematic conceptual model, *Atmospheric Research*, 48, pp 317 - 326, 1998.

Bauer-Messmer, B., J. A. Smith, M. L. Baeck, and W. Zhao, Heavy rainfall: contrasting two concurrent Great Plains thunderstorms, *Weather and Forecasting*, 12, 785 - 798, 1997.

Zhao, W., J. A. Smith, and A. A. Bradley, Numerical simulation of a heavy rainfall event during the PRE-STORM experiment, *Water Resources Research*, 33(4), 783 - 799, 1997.

Ciach, G. J., W. F. Krajewski, E. N Anagnostou, M. L. Baeck, J. A. Smith, J. R. McCollum, and A. Kruger, Radar rainfall estimation for ground validation studies of the Tropical Rainfall Measuring Mission, *J. of Applied Meteorology*, 36(6), 735 - 747, 1997.

Smith, J. A., M. L. Baeck, M. Steiner, and A. J. Miller, Catastrophic rainfall from an upslope thunderstorm in the Central Appalachians: the Rapidan Storm of June 27, 1995, *Water Resources Research*, 32(10), 3099 - 3113, 1996.

Smith, J. A., D.-J. Seo, M. L. Baeck, and M. D. Hudlow, An intercomparison study of NEXRAD precipitation estimates, *Water Resources Research*, 32(7), 2035 - 2045, 1996.

Seo, D.-J. and J. A. Smith, Characterization of the climatological variation of mean areal rainfall through fractional coverage, *Water Resources Research*, 32(7), 2087 - 2095, 1996.

Seo, D.-J. and J. A. Smith, On the relationship between catchment scale and climatological variability of surface-runoff volume, *Water Resources Research*, 32(3), 633 - 643, 1996.

Fan, Y., E. F. Wood, M. L. Baeck, and J. A. Smith, Fractional coverage of rainfall over a grid: Analyses of NEXRAD data over the Southern Plains, *Water Resources Research*, 32(9), 2787 - 2908, 1996.

Abdulla, F. A., D. P. Lettenamier, E. F. Wood, and J. A. Smith, Application of a macroscale hydrologic model to estimate the water balance of the Arkansas-Red River Basin, *J. Geophys. Res.*, 101(D3), 7449 - 7459, 1996.

- Baeck, M. L. and J. A. Smith, Climatological analysis of Manually Digitized Radar data for the United States, *Water Resources Research*, 31(12), 3033 - 3049, 1995.
- Smith, J. A., A. A. Bradley, and M. L. Baeck, The space-time structure of extreme storm rainfall in the Southern Plains, *Journal of Applied Meteorology*, 33(12), 1402-1417, 1994.
- Bradley, A. A. and J. A. Smith, The hydrometeorological environment of extreme rainstorms in the southern plains of the United States, *Journal of Applied Meteorology*, 33(12), 1418 - 1432, 1994.
- Smith, J. A. and R. D. De Veaux, A stochastic model relating rainfall intensity to raindrop processes, *Water Resources Research*, 30(3), 651 - 664, 1994.
- Troch, P. A., J. A. Smith, E. F. Wood, and F. O. de Troch, Hydrologic controls of large floods in a small basin: central Appalachian case study, *Journal of Hydrology*, 156, 285 - 309, 1994.
- Chung, W.-H., A. A. Aldama, and J. A. Smith, On the effects of downstream boundary conditions on diffusive flood routing, *Advances in Water Resources*, 16, 259 - 275, 1993.
- Smith, J. A. and W. F. Krajewski, A modeling study of rainfall rate - reflectivity relationships, *Water Resources Research*, 29(8), 2505 - 2514, 1993.
- Smith, J. A., A marked point process model of raindrop size distributions, *Journal of Applied Meteorology*, 32(2), 284 - 296, 1993a.
- Smith, J. A., Conditional Yield operating rules for low flow management, *Journal of Water Resources Planning and Management*, ASCE, 119(3), 324 - 338, 1993a.
- Smith, J. A., Representation of basin scale in flood peak distributions, *Water Resources Research*, 28(11), 2993 - 2999, 1992.
- Smith, J. A. and R. D. De Veaux, The temporal and spatial variability of rainfall power, *Environmetrics*, 3(1), 1 - 16, 1992.
- Smith, J. A., G. N. Day, and M. D. Kane, A statistical framework for long-term streamflow forecasting, *Journal of Water Resources Planning and Management*, ASCE, 82 - 93, 1992.
- Seo, D.-J. and J. A. Smith, Radar-based short-term rainfall prediction, *Journal of Hydrology*, 131, 341-367, 1992.
- Krajewski, W., M. Morrissey, J. Smith, and D. Rexroth, On the accuracy of the Area Threshold Method: a model-based simulation study, *Journal of Applied Meteorology*, 31(10), 1436 - 1445, 1992.
- Smith, J. A., Long-range streamflow forecasting using nonparametric regression, *Water Resources Bulletin*, 27(1), 39 - 46, 1991.
- Smith, J. A. and W. F. Krajewski, Estimation of the mean field bias of radar rainfall estimates, *Journal of Applied Meteorology*, 30(4), 397 - 412, 1991.
- Krajewski, W.F. and J. A. Smith, On the estimation of climatological Z-R relationships, *Journal of Applied Meteorology*, 30(10), 1436-1445, 1991.
- Seo, D.-J. and J. A. Smith, Rainfall estimation using raingages and radar: A Bayesian approach, *Journal of Stochastic Hydrology and Hydraulics*, 5(1), 1 - 14, 1991.
- Seo, D.-J. and J. A. Smith, Rainfall estimation using raingages and radar: Case studies, *Stochastic Hydrology and Hydraulics*, 5(1), 15 - 33, 1991.

- Smith, J. A. and A. F. Karr, A statistical model of extreme storm rainfall, *Journal of Geophysical Research*, 95(D3), 2083 - 2092, 1990.
- Jacobson, R. B., A. J. Miller, and J. A. Smith, The role of catastrophic events in evolution of the central Appalachian landscape, *Journal of Geomorphology*, 2, 257-284, 1989.
- Smith, J. A., Regional Flood frequency analysis using upper order statistics of the annual peak record, *Water Resources Research*, 25(2), 311 - 317, 1989a.
- Smith, J. A., Yield analysis for the Washington D. C. Metropolitan Area water supply system, *Journal of Water Resources Planning and Management*, ASCE, 115(2), 230 - 242, 1989b.
- Krajewski, W. F. and J. A. Smith, Sampling properties of parameter estimators of a space-time rainfall model, *Water Resources Research*, 25(9), 2067 - 2075, 1989.
- Smith, J. A., A model of daily municipal water use for short-term forecasting, *Water Resources Research*, 24(2), 201 - 206, 1988.
- Smith, J. A., Statistical modeling of daily rainfall occurrences, *Water Resources Research*, 23(5), 885 - 893, 1987a.
- Smith, J. A., Estimating the upper tail of flood frequency distributions, *Water Resources Research*, 23(8), 1657 - 1666, 1987b.
- Smith, J. A. and W. F. Krajewski, Statistical modeling of space-time rainfall using radar and rain gage observations, *Water Resources Research*, 23(10), 1893 - 1900, 1987.
- Smith, J. A. and A. F. Karr, Flood frequency analysis using the Cox regression model, *Water Resources Research*, 22(6), 890 - 896, 1986.
- Smith, J. A. and A. F. Karr, Parameter estimation for a model of space-time rainfall, *Water Resources Research*, 20(8), 1251 - 1257, 1985.
- Smith, J. A. and A. F. Karr, Statistical inference for point process models of rainfall, *Water Resources Research*, 21(1), 73 -79, 1985.
- Smith, J. A. and A. F. Karr, A point process model of summer season rainfall occurrences, *Water Resources Research*, 19(1), 95 - 103, 1983.
- Palmer, R. N., J. A. Smith, J. L. Cohon, and C. S. Revelle, Reservoir management in the Potomac River basin, *ASCE Journal of the Water Resources Planning and Management Division*, 108(WR1), 47 - 66, 1982.