

Long Yang, Ph.D.

Postdoctoral Research Associate, Department of Civil and Environmental Engineering
E312 Engineering Quad E-Wing
Princeton University, Princeton, NJ 08544
Email: longyang@princeton.edu
Phone: 765-476-6519
Skype: longyang.princeton

Education

Tsinghua University, Beijing, China P.R. (2009-2014)

- Doctor of Philosophy, Department of Hydraulic Engineering

Princeton University, Princeton, New Jersey, US (2011-2012)

- Non-degree Graduate Student, Department of Civil and Environmental Engineering

Hohai University, Nanjing, China P.R. (2005-2009)

- Bachelor of Engineering, Department of Hydrology and Water Resources Engineering

Research Interests

- Urban Hydrology and Hydrometeorology
- Extreme Rainfall and Flooding in Urban Environments
- Land-atmosphere Interactions
- Hydrological and Regional Climate Modelling
- Urban Sustainability

Research Experience

- **Postdoctoral Research Associate**, Department of Civil and Environmental Engineering, Princeton University, Princeton, New Jersey (January 2015-present)
- **Visiting Research Scholar**, Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, West Lafayette, Indiana (September 2014-January 2015)
- **Postdoctoral Research Associate**, Institute of Hydrology and Water Resources, Tsinghua University, China R.R. (September 2014-January 2015)
- **Research Assistant**, Department of Hydraulic Engineering, Tsinghua University, Beijing, China (September 2009-July 2014)

Teaching and Mentoring Experience

- **Teaching Assistant**, Department of Hydraulic Engineering, Tsinghua University, Fall 2010, 2013
Physical Hydrology, Compulsory course for graduate students in Hydraulic Engineering

- **Teaching Program**, McGraw Center for Teaching and Learning, Princeton University, Fall 2015
Attended workshops on a wide range of topics about teaching skills, as well as discussions with faculty and students, micro-teaching training, and guest lectures.
- **Mentor**, Princeton University, Summer 2016
Mentored three undergraduate students from Cornell University, Johns Hopkins University and Alfred University on urban flooding and regional climate modelling.
- **Mentor**, Princeton University, Summer 2015
Mentored two undergraduate students from Princeton University and Cornell University on watershed modelling and field experiments.

Funded Research Proposal

- Title: Extreme rainfall and flooding in small urban watersheds (Principal Investigator)
Source of Support: Chinese Postdoctoral Scientific Funding, Award: \$14,000. Award term: May 2015 - June 2016.

Peer-Reviewed Publications

- Xu, R., F. Tian, **L. Yang**, H. Hu, A. Hou, H. Lu, Ground validation of GPM IMERG and TRMM 3B42V7 rainfall products over southern Tibet Plateau based on a high-density rain gauge network, *Journal of Geophysical Research-Atmosphere*, 2016. (in press)
- He, Z., **L. Yang**, F. Tian, G. Ni, A. Hou and H. Lu, Intercomparisons of rainfall estimates from the TRMM and GPM multi-satellite products over the Upper-Mekong River basin, *Journal of Hydrometeorology*, 2016. (in press)
- **Yang, L.**, M. Liu, J.A. Smith and F. Tian, Typhoon Nina and the August 1975 flood over Central China, *Journal of Hydrometeorology*, 2016. (in press)
- **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, 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, *Journal of Geophysical Research-Atmosphere*, 121: 3139-3152, 2016.
- **Yang, L.**, D. Niyogi, T. Mukul, A. Daniel, F. Chen, F. Tian and G. Ni, Contrasting impacts of urban forms on future thermal environment: example of Beijing metropolitan area, *Environmental Research Letters*, 11(3), 2016.
- Li, D., T. Sun, M. Liu, **L. Yang**, L. Wang and Z. Gao, Contrasting responses of urban and rural surface energy budgets to heat waves explain synergies between urban heat islands and heat waves, *Environmental Research Letters*, 10(5), 2015.
- **Yang, L.**, F. Tian and D. Niyogi, A need to revisit hydrologic responses to urbanization by incorporating the feedback on spatial rainfall patterns, *Urban Climate*, 12: 18-140, 2015.
- **Yang, L.**, F. Tian, T. Sun and G. Ni, Advances in the urban modification on rainfall over Beijing metropolitan region, *Journal of Hydroelectric Engineering*, 34(1): 37-44, 2015.
- **Yang, L.**, F. Tian, Y. Sun, X. Yuan and H. Hu, Attribution of hydrologic forecast uncertainty within scalable forecast windows, *Hydrology and Earth System Sciences*, 18: 1-12, 2014.
- Sun, Y, F. Tian, **L. Yang** and Hu H, Exploring the spatial variability of contributions from climate variation and change in catchment properties to streamflow decrease in a mesoscale basin by three different methods, *Journal of Hydrology*, 508: 170-180, 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, *Journal of Geophysical Research: Atmospheres*, 119: 2013JD020762, 2014.

- **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*, 1646-1657, 2013.
- **Yang, L.**, J.A. Smith, M.L. Baeck, E. Bou-Zeid, S. 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, *Journal of Hydrometeorology*, 15: 261-278, 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 urban flooding, *Journal of Hydrometeorology*, 14: 1791-1809, 2013.
- **Yang, L.**, F. Tian and H. Hu, Modified ESP with information on the atmospheric circulation and teleconnection incorporated and its application, *Journal of Tsinghua University (Sci & Tech)*, 53(5): 606-612, 2013.
- Wang, B., F. Tian and **L. Yang**, Performance of spatio-temporal scale in the streamflow trend: Evidence in Jialing river basin, China, *Water Resource and Environmental Protection*, 709-712, 2011.

Papers under Review

- **Yang, L.**, D. Niyogi, Q. Li, Z. Wang, P. Schmid, R. Vose and J.A. Smith, Urban signatures in planetary boundary-layer heights: evidence from high-resolution rawinsonde observations, *International Journal of Climatology*, 2016. (under review)
- Zhou, Z., J.A. Smith, **L. Yang**, M.L. Baeck, M. Veldhuis, S. Liu, The complexities of urban flood response: hydrologic analyses for the Charlotte, North Carolina metropolitan region, *Water Resources Research*, 2016. (under review)
- Veldhuis, M., **L. Yang**, Z. Zhou, J.A. Smith, Space-time characteristics of rainfall and flood response in urban watersheds, *Water Resources Research*, 2016. (under review)
- **Yang, L.** and J.A. Smith, Flash flooding in arid/semi-arid regions: Dissecting the 19 August 2014 flood over Arizona, Southwestern US, *Water Resources Research*, 2016. (to be submitted)
- Smith, J, M.L. Baeck, J. Signell, **L. Yang**, E. Morin, "The Paroxysmal Precipitation of the Desert": Flash Floods in the Southwestern US, *Water Resources Research*, 2016. (to be submitted)

Invited Presentations

- **Yang, L.**, Urban Flooding: Facts, Mechanisms and Adaptations, School of Geographic Sciences, East China Normal University, Shanghai, China, April 2016.
- **Yang, L.**, Flash Floods in a Small Urban watershed: Storm Properties and Flood Response, School of Geographic and Oceanographic Sciences, Nanjing University, Nanjing, China, April 2016.

Conference Presentations

- **Yang, L.**, J.A. Smith, M.L. Baeck and D. Niyogi, Flash Flooding in Arid/Semi-arid Urban Environments: Storm Structure, Evolution and Storm Environment, American Meteorological Society 97th Annual Meeting, Seattle, Washington, January 2017. (Poster)
- **Yang, L.**, J.A. Smith, M.L. Baeck, J. Signell and E. Morin, The Hydrometeorology and Hydrology of Extreme Floods in Urban Watersheds of the Southwestern U.S., American Geophysical Union Fall Meeting, San Francisco, CA, December 2016. (Poster)
- **Yang, L.**, M. Liu, J.A. Smith, F. Tian, The August 1975 Flood over Central China, European Geosciences Union General Assembly, Vienna, Austria, April 2016. (Poster)
- **Yang, L.** and J.A. Smith, Rainfall Micro-structure and Its Linkage to Structure and Evolution of Flash-Flood Producing Storms, American Meteorological Society 96th Annual Meeting, New Orleans, Louisiana, January 2016. (Talk)

- **Yang, L.** and D. Niyogi, Urbanization Impacts on Climatology of Planetary Boundary Layer Heights over the Continental United States, The 9th International Conference on Urban Climate, Toulouse, France, July 2015. (Poster)
- **Yang, L.** and D. Niyogi, Contribution of Urbanization and Future Climate Change to Urban Heat Island: Case Study of a Severe Heat Wave over Beijing, China, The 9th International Conference on Urban Climate, Toulouse, France, July 2015. (Poster)
- **Yang, L.**, J.A. Smith, M.L. Baeck and D. Niyogi, The Hydroclimatology of Flash Flooding in the Urban Corridor of the Northeastern US, European Geosciences Union General Assembly, Vienna, Austria, April 2015. (Talk)
- **Yang, L.**, F. Tian and D. Niyogi, Hydrologic responses to urbanization patterns, American Geophysical Union Fall Meeting, San Francisco, CA, December 2014. (Poster)
- **Yang, L.**, J.A. Smith, M.L. Baeck, E. Bou-Zeid, S. Jessup, F. Tian and H. Hu, Urban Modification of Heavy Rainfall: a Case Study over Milwaukee-Lake Michigan Region, European Geosciences Union General Assembly, Vienna, Austria, April 2013. (Talk)
- **Yang, L.**, Modification of summer rainfall over Beijing metropolitan region, 350th Doctoral consortium, Tsinghua University, Beijing, China, April 2013. (Talk)
- **Yang, L.**, F. Tian, J.A. Smith and H. Hu, Urban Signatures in the Spatial Clustering of Warm-season Heavy Rainfall Events over the Beijing Metropolitan Region, American Geophysical Union Fall Meeting, Francisco, CA, December 2013. (Poster)
- Wright, D.B., J.A. Smith, M.L. Baeck, J. Yeung, **L. Yang**, Rainfall modification in urban areas: no easy answers, Symposium on Fluid Dynamics and the Global Environment, Princeton University, Princeton, NJ, May 22, 2012.
- **Yang, L.**, F. Tian and H. Hu, Proper Forecast Window in Ensemble Streamflow Prediction, American Geophysical Union Fall Meeting, San Francisco, CA, December 2011. (Poster)

Honors and Awards

- Outstanding Doctoral Thesis Award, Tsinghua University, Beijing, China, 2014
- National Scholarship for Graduate Students, Tsinghua University, Beijing, China, 2013
- Guanghua Scholarship, Tsinghua University, Beijing, China, 2012
- National Award for Best Undergraduate Student in Engineering, China, 2009
- National Award for Students in Hydraulic Engineering, Nanjing, China, 2009
- Principal Scholarship, Hohai University, Nanjing, China, 2008; 2009; 2010

Academic Services

- Peer Review for: *Scientific Reports, Journal of Geophysical Research-atmosphere, Journal of Hydrometeorology, Journal of Hydrology, Hydrology and Earth System Sciences, International Journal of Climatology, Sustainability, Frontiers of Earth Science, Urban Climate, Journal of Atmospheric and Oceanic Technology, Advances in Atmospheric Sciences, Journal of the American Water Resources Association, Atmospheric Research, Environmental Research Letters.*
- Peer Review for Book chapter in: *Hydrologic Remote Sensing: Capacity Building for Sustainability and Resilience* published by the International Water Association.

Professional Membership

- American Geophysical Union
- American Meteorological Society

- European Geosciences Union
- International Association of Hydraulic Engineering Research

Media Report

- News, PHYS.ORG, Flood models need to include cities' impact on rainfall, according to study, November 3, 2015, <http://phys.org/news/2015-11-cities-impact-rainfall.html>.
- News, PHYS.ORG, Designing cities to combat climate change, May 24, 2016, <http://phys.org/news/2016-05-cities-combat-climate.html>.