

---

# Ping LU

Dept. of Civil and Environmental Engineering  
Princeton Hydrometeorology Research Group, Natural Hazards and Risk Analysis Group  
E315 Engineering Quad, Princeton University, Princeton, NJ, 08544  
609-216-2276, [pingl@princeton.edu](mailto:pingl@princeton.edu), [luping53@gmail.com](mailto:luping53@gmail.com)

---

## EDUCATION

2008 – 2012: B.S. (first class honors, GPA 3.91/4.0, Ranking 1/92) in Environmental Engineering, Tsinghua University  
2012 – 2018: Ph.D. in Environmental Engineering and Water Resources, Princeton University

## HONORS & AWARDS

Gordon Y. S. Wu Graduate Fellowship in Engineering, Princeton University	2012 ~ 2016
Distinguished Graduates, Tsinghua University	2012
The Comprehensive Scholarship, Tsinghua University	2010 ~ 2011

## PROGRAMMING SKILLS

Matlab (proficient), ArcGIS, R, Python

## PUBLICATIONS

**Ping Lu**, James A. Smith, Ning Lin (2017), Spatial Characterization of Flood Magnitudes over the Drainage Network of the Delaware River Basin, *Journal of Hydrometeorology*.

**Ping Lu**, Ning Lin, Kerry Emanuel, Dan Chavas, James A. Smith, A Physically-based Tropical Cyclone Rainfall Model (accepted, *Journal of the Atmospheric Sciences*)

## CONFERENCE PRESENTATIONS

**Ping Lu**, Ning Lin, James A. Smith, Kerry A. Emanuel, Risk Assessment of Tropical Cyclone Rainfall Flooding in the Delaware River Basin, 2016 American Geophysical Union (AGU)

**Ping Lu**, Ning Lin, James A. Smith, Kerry Emanuel, Dan Chavas. A Physically-based Tropical Cyclone Rainfall Model. 2015 American Geophysical Union (AGU)

**Ping Lu**, James Smith, Luciana Cunha, Ning Lin, and Mary Lynn Baeck, Spatial Characterization of Flood Magnitudes from Hurricane Irene Over the Delaware River Basin, 2014 American Geophysical Union (AGU)

(Publications and presentations can be found at <https://drive.google.com/drive/folders/0B1idksxzLJscWExnd3InLVFibDg?usp=sharing> )

## RESEARCH EXPERIENCES

**Risk Assessment of Tropical Cyclone Rainfall Flooding in the Delaware River Basin**, Department of Civil and Environmental Engineering, Princeton University. (11/2016 – present)

Standard observations-based risk assessment techniques are not broadly applicable to flooding (and other hazards) from Tropical Cyclones (TCs) because they are extreme events with limited historical observations. In this project, we develop a computationally efficient climatological-hydrological method to assess the risk of inland flooding with TCs, by coupling a simplified physics-based hurricane rainfall model, with storm generation and hydrologic modeling.

**A Simplified Physics-based Hurricane Rainfall Model**, Department of Civil and Environmental Engineering, Princeton University. (04/2014 – 9/2017)

Here we work on a simple, physics-based rainfall model, where the rain rate is obtained from estimated vertical velocity induced by frictional convergence, storm evolution as well as the interaction of the storm with topography and wind shear. We evaluate this model on an event basis with WRF simulation for Hurricane Irene (2011) and Isabel (2003). With track, gradient wind, wind shear and humidity inputs from WRF, this TC rainfall model gives very good hourly rainfall estimates in both radial and spatial distribution. Given its high computational efficiency (takes seconds to run a TC case on a laptop), this model can be applied to large numbers

---

of simulations to quantify the risk of inland flooding associated with landfalling TCs.

**Spatial Characterization of Flood Magnitudes over the Drainage Network of the Delaware River Basin,**

Department of Civil and Environmental Engineering, Princeton University. (09/2013 – 03/2016)

We develop a framework to characterize the distribution of flood magnitudes over large river networks is developed using the Delaware River basin in the northeastern US as our principal study region. Flood magnitudes are characterized by the flood index, which is defined as the ratio of the flood peak for a flood event to the historical 10-year flood magnitude. Event flood peaks are computed continuously over the drainage network using a distributed hydrologic model, CUENCAS, with high-resolution radar rainfall fields as the principal forcing.

**Research on the Decision Support System for Waste Water Reclamation and Reuse,** under the supervision of Professor Siyu Zeng, Tsinghua University. (10/2010-6/2012)

**Streamflow Forecasting at Merwin Reservoir, WA, US up to 3 months lead time,** under the supervision of Professor Sankar Arumugam, North Carolina State University. (6/2011-8/2011)

Sinha, T., H. Wang, P. Lu, K. Waight, G. E. VanKnowe, and A. Sankarasubramanian, Utility of monthly updated GCM forecasts in improving seasonal streamflow forecasting, 92nd American Meteorological Society (AMS), New Orleans, LA, Jan 22-26, 2012.

**Research on the Rapid Detection of Total Bacterial Amount in Water Based on ATP Bioluminescence Technology,** under the supervision of Professor Miao He, Tsinghua University. (10/2009-8/2010)

**EXTRACURRICULAR EXPERIENCE**

• **I love to work in small groups**

I was the team leader of Mathematical Modeling Competition, the Summer Social Practical Investigation Contest and a bunch of course projects. My groups are usually no more than 5 people. I enjoy communicating with everyone in the team and come up with the solutions together.

- Mathematical Modeling Competition (MMC) in Tsinghua (in April 2011), as well as the National MMC (in Jan 2012). Our team was awarded the second prize and we are between the best two teams out of all the teams in Tsinghua University, 2011
- Social Survey on the Attitudes from the Government and the Public toward the changes of Shenzhen River, Honor Award for critical thinking of Summer Social Practical Investigation Contest in School of Environment, Tsinghua University, 2009
- Course projects on a variety of environmental issues, such as Investigation and Suggestions of the Noise on Campus, Production of Biodegradable Thermoplastic (PHAs) from Activated Sludge, Collecting and Classification of Solid Waste in small towns. We won highest scores and special praise for these projects.

• **Teaching**

Teaching Assistant for Hydrology (CEE306), Princeton University (2014-2015 spring)

I was a volunteering tutor at Mingyuan Elementary School (a school for children of immigrant farmers) and got Honor Award for Excellent Volunteer Tutor in 2010.

• **Member of Graduate Student Advisory Board for Career Services, Princeton University (2014 – present)**

This board was founded in September 2014 to work with Career Services to offer better career development ideas for graduate students. I was one of the first board members.

• **Member of Chinese Traditional Orchestra in Tsinghua University (2008-2011) and Princeton (2012-2015)**

We Won 1st Prize in the 4th Peking Orchestra Contest out of All the Campus-orchestra in Beijing.