Dan Li

Department of Earth and Environment, Boston University,
685 Commonwealth Avenue, Boston, MA 02215, USA
phone: +1-609-937-2644
E-mail: lidan@bu.edu

Research Interests

- Urban Climate and Urban Hydrology
- Boundary Layer Meteorology
- Environmental Fluid Mechanics and Turbulence
- Multi-Scale Numerical Modeling
- Hydrometeorology and Micrometeorology
- Land-Atmosphere Interaction

Professional Experience

- **2016.1 -** **Assistant Professor**
  Department of Earth and Environment, Boston University, USA
- **2013.12 - 2015.12** **Postdoctoral Research Associate**
  Program of Atmospheric and Oceanic Sciences, Princeton University, USA

Education

- **2009.9 - 2013.9** **Ph.D. in Civil and Environmental Engineering**
  Dissertation: "Surface-atmosphere interaction: the impact of buoyancy and heterogeneity"
  Department of Civil and Environmental Engineering, Princeton University, USA
- **2005.9 - 2009.7** **Bachelor in Hydraulic Engineering**
  Department of Hydraulic Engineering, Tsinghua University, China

Publications

* *corresponding author*.

1. **Li, D.*,** S. Malyshev, E. Shevliakova (2016), Exploring historical and future urban climate in the Earth System Modeling framework. Part II: interactions between urban heat islands and climate change over the Continental United States. *J Adv Model Earth Syst.* (in review)
2. **Li, D.*,** S. Malyshev, E. Shevliakova (2016), Exploring historical and future urban climate in the Earth System Modeling framework. Part I: model development and evaluation. *J Adv Model Earth Syst.* (in review)
3. Ramamurthy P.*, **D. Li,** E. Bou-Zeid (2015), High-resolution Simulation of Heatwave Events in New York City. *Theor. Appl. Climatol.* 1-14
4. Assouline, S., **D. Li*,** S. Tyler, J. Tanny, S. Cohen, E. Bou-Zeid, M. Parlange, G. Katul (2015), On the variability of the Priestley-Taylor coefficient over water bodies. *Water Resour. Res.*, DOI: 10.1002/2015WR017504
5. Zhang, Y., Z. Pan, Z. Gao*, **D. Li** and B. Wan (2015), Record-breaking temperatures in China during the warming and recent hiatus periods, *J. Geophys. Res.: Atmospheres,* DOI: 10.1002/2015JD023886.

6. **Li, D.*,** G. Katul, and P. Gentine (2015), The k^{-1} Scaling of air temperature spectra in atmospheric surface layer flows, *Q. J. Roy. Meteor. Soc.* doi: 10.1002/qj.2668.
7. Banerjee, T.*, **D. Li** , J-Y Juang, G. Katul (2015), A spectral budget model for the longitudinal turbulent velocity in the stable atmospheric surface layer. *J Atmos Sci.* 73, 145–166.
8. **Li, D.*,** G. G. Katul, and E. Bou-Zeid (2015), Turbulent Energy Spectra, Momentum and Heat Flux Co-spectra in Stable Atmospheric Surface Layers, *Bound. Layer Meteorol.,* 157(1), 1-21
9. Sun, K., **D. Li*,** L. Tao, Z. Zhao, and M. A. Zondlo (2015), Quantifying the Influence of Random Errors in Turbulence Measurements on Scalar Similarity in the Atmospheric Surface Layer, *Bound. Layer Meteorol.,* 157(1), 61-80
10. **Li, D.*,** G. G. Katul and S. Zilitinkevich (2015), Revisiting the Turbulent Prandtl Number in an Idealized Atmospheric Surface Layer, *J Atmos Sci.* 72, 2394–2410.
11. **Li, D.,** T. Sun*, M. Liu, L. Yong, Z. Gao, L. Wang (2015), Contrasting responses of urban and rural surface energy budgets to heat waves explain synergies between urban heat islands and heat waves, *Environ. Res. Lett.,* 10, 054009
12. Zhang, N., Z. Gao*, **D. Li** and Y. Liu (2015), Sensitivity of Climate Models to the Critical Richardson Number in the Boundary Layer Parameterization, *J. Geophys. Res.: Atmospheres*, 120, 3310-3328.
13. Li, Y., Z. Gao*, **D. Li.,** F. Chen, Y. Yang, L. Sun (2015), An update of non-iterative solutions for surface fluxes under unstable conditions, *Bound. Layer Meteorol.,* 156(3), 501-511
14. Chen, C., **D. Li,** Z. Gao*, J. Tang, Y. Gao, X. Guo, L. Wang, and B. Wan (2015), Seasonal and inter-annual variations of sensible heat, water vapor and CO_2 fluxes over a rice-wheat rotation system in North China Plain, *Adv. Atmos. Sci.* 32(10), 1365-1380
15. Yang, W., **D. Li,** T. Sun*, and G. H. Ni (2015), Saturation-excess and Infiltration-excess Runoff on Green Roofs, *Ecol Eng,* 74, 327–336.
16. Cong, Z.*, X. Zhang, **D. Li,** H. Yang and D. Yang (2015), Understanding Hydrological Trends by Combining the Budyko Hypothesis and a Stochastic Soil Moisture model, *Hydrol. Sci. J.* 60(1), 145-55.
17. Wang, L., Z. Gao*, S. Miao, X. Guo, T. Sun, M. Liu, and **D. Li** (2015), Contrasting Characteristics of the Surface Energy Balance between the Urban and Rural Areas of Beijing, China, *Adv. Atmos. Sci.* 32(4) 505-14 .
18. **Li, D.*,** and E. Bou-Zeid (2014), Quality and Sensitivity of High-resolution Numerical Simulation of Urban Heat Islands, *Environ. Res. Lett.*, 9(5), 055001.
19. **Li, D.*,** E. Bou-Zeid, and M. Oppenheimer (2014), The Effectiveness of Cool and Green roofs as Urban Heat Island Mitigation Strategies, *Environ. Res. Lett.,* 9(5), 055002.
20. **Li, D.*** (2014), Assessing the Impact of Interannual Variability of Precipitation and Potential Evaporation on Evapotranspiration, *Adv. Water Resour.,* 70, 1-11.
21. Hu, X., **D. Li,** H. Huang*, S. Shen, and E. Bou-Zeid (2014), Modeling and Sensitivity Analysis of Transport and Deposition of Radionuclides From the Fukushima Daiichi Accident, *Atmos. Chem. Phys.,* 14, 11065-11092.
22. Wang, L., **D. Li*,** Z. Gao, T. Sun, X. Guo, and E. Bou-Zeid (2014), Turbulent Transport of Momentum and Scalars Above an Urban Canopy, *Bound. Layer Meteorol.,* 150(3), 485-511.
23. Li, Y., Z. Gao*, **D. Li,** L. Wang, and H. Wang (2014), An Improved Non-iterative Surface Layer Flux Scheme for Atmospheric Stable Stratification Conditions, *Geosci. Model Dev.,* 7(2), 515-529.
24. Zhang, Y., Z. Gao*, **D. Li,** Y. Li, N. Zhang, X. Zhao and J. Chen (2014), On the Computation Of Planetary Boundary Layer Height Using the Bulk Richardson Number Method, *Geosci. Model Dev.,* 7, 2599-2611.
25. **Li, D.*,** M. Pan, Z. T. Cong, L. Zhang, and E. Wood (2013), Vegetation Control on Water and Energy

Balance Within the Budyko Framework, *Water Resour. Res.*, 49(2), 969-976.

26. **Li, D.*,** and E. Bou-Zeid (2013), Synergistic Interactions Between Urban Heat Islands and Heat Waves: the Impact in Cities Is Larger Than the Sum of Its Parts, *J. Appl. Meteorol. Climatol.*, 52(9), 2051-2064.
27. **Li, D.*,** E. Bou-Zeid, M. L. Baeck, S. Jessup, and J. A. Smith (2013), Modeling Land Surface Processes and Heavy Rainfall in Urban Environments: Sensitivity to Urban Surface Representations, *J. Hydrometeorol.*, 14(4), 1098-1118.
28. **Li, D.*,** E. Bou-Zeid, M. Barlage, F. Chen, and J. A. Smith (2013), Development and Evaluation of a Mosaic Approach in the WRF-Noah Framework, *J. Geophys. Res.: Atmospheres,* 118(21), 2013JD020657.
29. Katul, G. G.*, **D. Li,** M. Chameki, and E. Bou-Zeid (2013), Mean Scalar Concentration Profile in a Sheared and Thermally Stratified Atmospheric Surface Layer, *Phys. Rev. E.*, 87(2), 023004.
30. Zhao, Z.*, Z. Gao, **D. Li,** X. Bi, C. Liu, and F. Liao (2013), Scalar Flux–Gradient Relationships Under Unstable Conditions over Water in Coastal Regions, *Bound. Layer Meteorol.*, 148(3), 495-516.
31. **Li, D.*,** G. G. Katul, and E. Bou-Zeid (2012), Mean Velocity and Temperature Profiles in a Sheared Diabatic Turbulent Boundary Layer, *Phys. Fluids,* 24(10).
32. **Li, D.*,** E. Bou-Zeid, and H. De Bruin (2012), Monin–Obukhov Similarity Functions for the Structure Parameters of Temperature and Humidity, *Bound. Layer Meteorol.*, 145(1), 45-67.
33. **Li, D.,** and E. Bou-Zeid* (2011), Coherent Structures and the Dissimilarity of Turbulent Transport of Momentum and Scalars in the Unstable Atmospheric Surface Layer, *Bound. Layer Meteorol.*, 140(2), 243-262.

Conference Presentations

1. **Li, D.,** E. Shevliakova, S. Malyshev, L. Harris, S.J. Lin, 2015, *Impacts and feedbacks of urbanization on regional hydroclimate: a case study with a high-resolution GFDL AGCM (oral)*, American Geophysical Union Fall Meeting, San Francisco, CA.
2. **Li, D.,** G. Katul, and P. Gentine, 2015, *On the k^{-1} scaling of air temperature spectra in atmospheric surface layer flows (poster)*, American Geophysical Union Fall Meeting, San Francisco, CA.
3. **Li, D.,** E. Shevliakova, S. Malyshev, and S.J. Lin, 2015, *Towards understanding the hydro-climatic implications of urbanization in the GFDL global climate and earth system modeling framework (oral)*, 9th International Conference on Urban Climate, Toulouse, France.
4. **Li, D.,** E. Shevliakova, S. Malyshev, and S.J. Lin, 2014, *Towards understanding implications of urbanization for regional and global climate in the GFDL Earth System Modeling framework (oral)*, American Geophysical Union Fall Meeting, San Francisco, CA.
5. **Li, D.,** G. Katul, and E. Bou-Zeid, 2014, *The evolution of turbulent energy spectra, heat and momentum flux co-spectra in the stable atmospheric surface layer (oral)*, American Geophysical Union Fall Meeting, San Francisco, CA.
6. **Li, D.,** T. Sun, and E. Bou-Zeid, 2014, *Heat Waves in Urban Environments (invited)*, Urban Environmental Pollution 2014, Toronto, Canada
7. **Li, D.,** E. Shevliakova, S. Malyshev, and S.J. Lin, 2014, *Urbanizing GFDL's global climate models (oral)*, European Geosciences Union General Assembly, Vienna, Austria
8. **Li, D.,** and E. Bou-Zeid, 2014, *Heat Waves in Urban Areas: the Hot is Getting Hotter (oral)*, 2014 American Meteorological Socienty Annual Meeting, Atlanta, GA
9. **Li, D.,** E. Bou-Zeid, M. Barlage, F. Chen, and J. A. Smith, 2013, *Development and evaluation of a mosaic approach in the WRF-Noah framework(oral)*, the 14th WRF Users' Workshop, Boulder, CO

10. **Li, D.,** E. Bou-Zeid, M.L. Baeck, S. Jessup and J.A. Smith, 2012, *Hydrometeorological and Microclimatic Impacts of Urbanization (poster)*, American Geophysical Union Fall Meeting, San Francisco, CA.
11. **Li, D.,** and E. Bou-Zeid, 2012, *Urban Heat Island: Modeling, Sensing and Mitigation Strategies (oral)*, the 20th Symposium on Boundary Layers and Turbulence, Boston, MA.
12. **Li, D.,** G. Katul, and E. Bou-Zeid, 2012, *On the Dissimilarity of Turbulent Transport of Momentum and Scalars (poster)*, the Brutsaert – Parlange Hydrologic Meeting. Ithaca, NY.
13. **Li, D.,** and E. Bou-Zeid, 2011, *The Role of Stability in Modulating the Structure and Transport Efficiency of Turbulence in the Atmospheric Surface Layer (oral)*, the 64th Annual Meeting of the APS Division of Fluid Dynamics. Baltimore, MD.
14. **Li, D.,** and E. Bou-Zeid, 2011, *On the Dissimilarity of Turbulent Transport of Momentum and Scalars (poster)*, Conference on Coherent Flow Structures in Geophysical Flows at Earth's Surface, Vancouver, BC, Canada
15. **Li, D.,** and E. Bou-Zeid, 2010, *Coherent Structures and the Dissimilarity of Turbulent Transport of Momentum and Scalars (oral),* American Geophysical Union Fall Meeting, San Francisco, CA.

Invited Talks

1. **Li, D.,** 2015, *Contrasting responses of urban and rural surface energy budgets to heat waves*, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
2. **Li, D.,** 2015, *Monin-Obukhov Similarity Theory: A new perspective on an old topic*, Center for Earth System Science, Tsinghua University, Beijing, China
3. **Li, D.,** 2015, *Monin-Obukhov Similarity Theory: A new perspective on an old topic*, Department of Atmospheric Sciences, Peking University, Beijing, China
4. **Li, D.,** 2015, *Monin-Obukhov Similarity Theory: A new perspective on an old topic*, Department of Atmospheric Sciences, University of Miami, Miami, FL
5. **Li, D.,** 2015, *Monin-Obukhov Similarity Theory: A new perspective on an old topic*, Department of Atmospheric and Oceanic Sciences, University of California at Los Angeles, Los Angeles, CA
6. **Li, D.,** 2015, *Monin-Obukhov Similarity Theory: A new perspective on an old topic*, Department of Earth and Planetary Sciences, University of California at Santa Cruz, Santa Cruz, CA
7. **Li, D.,** 2015, *Towards urban sustainability under a changing climate*, Department of Earth and Planetary Sciences, University of California at Santa Cruz, Santa Cruz, CA
8. **Li, D.,** 2015, *Towards urban sustainability under a changing climate*, Department of Earth and Environment, Boston University, Boston, MA
9. **Li, D.,** 2014, *Towards urban sustainability under a changing climate*, Earth System Science Programme, Chinese University of Hong Kong, Hong Kong, China
10. **Li, D.,** 2014, *Climate extremes in the built environment: how to achieve urban sustainability under a changing climate*, School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
11. **Li, D.,** 2014, *Climate extremes in the built environment: how to achieve urban sustainability under a changing climate*, Department of Earth and Environmental Engineering, Columbia University, New York, NY
12. **Li, D.,** 2014, *Climate extremes in the built environment: how to achieve urban sustainability under a changing climate*, Department of Atmospheric Sciences, UIUC, Champaign, IL
13. **Li, D.,** 2014, *Climate extremes in the built environment: how to achieve urban sustainability under a changing climate*, Department of Civil and Environmental Engineering, Duke University, Durham, NC
14. **Li, D.,** 2014, *Climate extremes in the built environment: how to achieve urban sustainability under a changing climate*, Department of Civil and Environmental Engineering, MIT, Boston, MA

15. **Li, D.,** 2013, *Urban sustainability under a changing climate*, Geophysical Fluid Dynamics Laboratory, Princeton, NJ
16. **Li, D.,** 2013, How to include the heterogeneity effect in modeling urban surface?, Shanghai Typhoon Institute, China Meteorological Administration, Shanghai, China
17. **Li, D.,** 2013, *How to include the heterogeneity effect in modeling urban surface?*, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
18. **Li, D.,** 2013, *Surface-atmosphere interaction: the impact of buoyancy*, Department of Hydraulic Engineering, Tsinghua University, Beijing, China
19. **Li, D.,** 2013, *Dissimilarity between turbulent transport of momentum and temperature: implication for the mean profiles,* Guangzhou Institute of Tropical and Marine Meteorology, China Meteorological Administration, Shanghai, China
20. **Li, D.,** 2013, *Land-atmosphere interactions over urban terrain*, Pacific Northwest National Laboratory, Richland, WA.
21. **Li, D.,** 2011, *On the Dissimilarity of Turbulent Transport of Momentum and Scalars*, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
22. **Li, D.,** 2010, *Turbulent Transport: New Perspectives on an Old Subject*, Department of Hydraulic Engineering, Tsinghua University, Beijing, China.

Honors & Awards

➢ 2014.5	Chinese Government Award for Outstanding Students Abroad	China Scholarship Council
➢ 2012.12	Outstanding Student Paper Award	American Geophysical Union
➢ 2012.5	Princeton Energy and Climate Scholars	Princeton University
➢ 2012.5	Wu Prize for engineering graduate students who have performed at the highest level as scholars and researchers	Princeton University
➢ 2011.6	Science, Technology, Environmental Policy Fellowship	Princeton University
➢ 2009.9	Graduate Student Fellowship	Princeton University
➢ 2009.8	National Award for Outstanding Students in Hydraulic Engineering	Chinese Ministry of Education
➢ 2009.6	Excellent Thesis Award	Tsinghua University

Professional Affiliations

- American Geophysical Union
- American Meteorological Society
- American Physical Society
- European Geosciences Union

Review

- Proposals: *US Army Research Office, Research Grants Council of Hong Kong, German Federal Ministry of*

Education and Research

- Journal articles: *Hydrological Research Letters, Journal of Hydrology, PLOS ONE, Environmental Research Letters, Environmental Pollution, Urban Climate, International Journal of Climatology, Remote Sensing of Environment, Quarterly Journal of the Royal Meteorological Society, Geophysical Research Letters, Journal of Geophysical Research-Atmospheres, Water Resources Research, Journal of Climate, Journal of Atmospheric Sciences, Journal of Applied Meteorology and Climatology, Journal of Hydrometeorology, Journal of Atmospheric and Oceanic Technology, Boundary-Layer Meteorology, Hydrology and Earth System Sciences, Advances in Water Resources, Hydrological Processes, Hydrological Sciences Journal, Atmospheric Environment, Frontiers of Earth Science, Atmosphere, Geoinformatics and Geostatistics: An overview, Journal of Arid Land, Advances in Atmospheric Sciences, Atmospheric and Oceanic Science Letters*