Dan Li

Department of Earth and Environment, Boston University
685 Commonwealth Ave, Boston, MA02215, USA
+1-617-358-0170
lidan@bu.edu

RESEARCH INTERESTS

Urban Climate, Boundary-Layer Meteorology, Environmental Fluid Mechanics, Turbulence, Climate Modeling

ACADEMIC BACKGROUND

Ph.D., Civil and Environmental Engineering, Princeton University 2013.11

B.E., Hydraulic Engineering, Tsinghua University 2009.6

EMPLOYMENT HISTORY

Associate Professor 2022.6 - Present
Department of Earth and Environment, Boston University

Assistant Professor 2016.1 - 2022.5
Department of Earth and Environment, Boston University

Postdoctoral Research Associate 2013.12 - 2015.12
Program of Atmospheric and Oceanic Sciences, Princeton University

VISITING APPOINTMENT

Visiting Scholar 2020.3 - 2020.8
Institute of Meteorology and Climatology, Leibniz Universität Hannover

Visiting Scholar 2019.6 - 2019.8
Program of Atmospheric and Oceanic Sciences, Princeton University

Visiting Scientist 2013.12 - 2015.12
Geophysical Fluid Dynamics Laboratory

AWARDS

- *Timothy Oke Award for Original Research in the Field of Urban Climatology*, International Association for Urban Climate, 2022
- *Humboldt Fellowship for Experienced Researchers*, Alexander von Humboldt Foundation, 2020
- *Young Investigator Program*, Army Research Office, 2018
- *Junior Faculty Fellow of the Hariri Institute for Computing*, Boston University, 2016
- *Outstanding Self-financed Students Abroad*, China Scholarship Council, 2014
- *Outstanding Student Paper Award*, American Geophysical Union, 2012
- *Princeton Energy and Climate Scholars*, Princeton University, 2012
- *Wu Prize for engineering graduate students who have performed at the highest level as scholars and researchers*, Princeton University, 2012
- *Science, Technology, Environmental Policy Fellowship*, Princeton University, 2011

PUBLICATIONS

[1] E. Akinlabi, B. Maronga, M. G. Giometto, and D. Li. Dispersive Fluxes Within and Over a Real Urban Canopy: A Large-Eddy Simulation Study. *Boundary-Layer Meteorology* 185.1 (2022), pp. 93–128.

[2] W. Chen, Y. Zhou, Y. Xie, G. Chen, K. J. Ding, and D. Li. Estimating spatial and temporal patterns of urban building anthropogenic heat using a bottom-up city building heat emission model. *Resources, Conservation and Recycling* 177 (2022), p. 105996.

[3] C. Lan, H. Liu, G. G. Katul, D. Li, and D. Finn. Turbulence structures in the very stable boundary layer under the influence of wind profile distortion. *Journal of Geophysical Research: Atmospheres* 127.20 (2022), e2022JD036565.

[4] B. Maronga and D. Li. An investigation of the grid sensitivity in large-eddy simulations of the stable boundary layer. *Boundary-Layer Meteorology* 182.2 (2022), pp. 251–273.

[5] B. Maronga, M. Winkler, and D. Li. Can area-wide building retrofitting affect the urban microclimate? An LES study for Berlin, Germany. *Journal of Applied Meteorology and Climatology* (2022).

[6] Y. Qian, T. Chakraborty, J. Li, D. Li, C. He, C. Sarangi, F. Chen, X. Yang, and L. R. Leung. Urbanization impact on regional climate and extreme weather: Current understanding, uncertainties, and future research directions. *Advances in Atmospheric Sciences* (2022), pp. 1–42.

[7] P. Vahmani, A. D. Jones, and D. Li. Will anthropogenic warming increase evapotranspiration? Examining irrigation water demand implications of climate change in California. *Earth's Future* 10.1 (2022), e2021EF002221.

[8] C. Chen, D. Li, and T. F. Keenan. Enhanced surface urban heat islands due to divergent urban-rural greening trends. *Environmental Research Letters* 16.12 (2021), p. 124071.

[9] Y. Cheng, Q. Li, D. Li, and P. Gentine. Logarithmic profile of temperature in sheared and unstably stratified atmospheric boundary layers. *Physical Review Fluids* 6.3 (2021), p. 034606.

[10] J. A. Geddes, B. Wang, and D. Li. Ozone and nitrogen dioxide pollution in a coastal urban environment: The role of sea breezes, and implications of their representation for remote sensing of local air quality. *Journal of Geophysical Research: Atmospheres* 126.18 (2021), e2021JD035314.

[11] D. Li. The O'KEYPS equation and 60 years beyond. *Boundary-Layer Meteorology* 179.1 (2021), pp. 19–42.

[12] W. Liao, D. Li, S. Malyshev, E. Shevliakova, H. Zhang, and X. Liu. Amplified increases of compound hot extremes over urban land in China. *Geophysical Research Letters* 48.6 (2021), e2020GL091252.

[13] I. A. Smith, J. B. Winbourne, K. F. Tieskens, T. S. Jones, F. L. Bromley, D. Li, and L. R. Hutyra. A satellite-based model for estimating latent heat flux from urban vegetation. *Frontiers in Ecology and Evolution* (2021), p. 573.

[14] K. Sun, L. Li, S. Jagini, and D. Li. A satellite-data-driven framework to rapidly quantify air-basin-scale NO x emissions and its application to the Po Valley during the COVID-19 pandemic. *Atmospheric Chemistry and Physics* 21.17 (2021), pp. 13311–13332.

[15] L. Wang and D. Li. Urban heat islands during heat waves: A comparative study between Boston and Phoenix. *Journal of Applied Meteorology and Climatology* 60.5 (2021), pp. 621–641.

[16] L. Wang, M. Huang, and D. Li. Strong influence of convective heat transfer efficiency on the cooling benefits of green roof irrigation. *Environmental Research Letters* 16.8 (2021), p. 084062.

[17] W. Zhou, L. Wang, D. Li, and L. R. Leung. Spatial pattern of lake evaporation increases under global warming linked to regional hydroclimate change. *Communications Earth & Environment* 2.1 (2021), pp. 1–10.

[18] P. C. Campbell, J. O. Bash, J. A. Herwehe, R. C. Gilliam, and D. Li. Impacts of Tiled Land Cover Characterization on Global Meteorological Predictions Using the MPAS-A. *Journal of Geophysical Research: Atmospheres* 125.15 (2020), e2019JD032093.

[19] C. Chen, D. Li, Y. Li, S. Piao, X. Wang, M. Huang, P. Gentine, R. R. Nemani, and R. B. Myneni. Biophysical impacts of Earth greening largely controlled by aerodynamic resistance. *Science advances* 6.47 (2020), eabb1981.

[20] C. Chen, L. Wang, R. B. Myneni, and D. Li. Attribution of Land-Use/Land-Cover Change Induced Surface Temperature Anomaly: How Accurate Is the First-Order Taylor Series Expansion? *Journal of Geophysical Research: Biogeosciences* 125.9 (2020), e2020JG005787.

[21] P. Ji, X. Yuan, and D. Li. Atmospheric radiative processes accelerate ground surface warming over the southeastern Tibetan Plateau during 1998–2013. *Journal of Climate* 33.5 (2020), pp. 1881–1895.

[22] W. Liao, X. Liu, E. Burakowski, D. Wang, L. Wang, and D. Li. Sensitivities and responses of land surface temperature to deforestation-induced biophysical changes in two global earth system models. *Journal of Climate* 33.19 (2020), pp. 8381–8399.

[23] M. Moon, D. Li, W. Liao, A. J. Rigden, and M. A. Friedl. Modification of surface energy balance during springtime: The relative importance of biophysical and meteorological changes. *Agricultural and Forest Meteorology* 284 (2020), p. 107905.

[24] L. Wang, D. Li, N. Zhang, J. Sun, and W. Guo. Surface urban heat and cool islands and their drivers: an observational study in Nanjing, China. *Journal of Applied Meteorology and Climatology* 59.12 (2020), pp. 1987–2000.

[25] L. Wang, M. Huang, and D. Li. Where are white roofs more effective in cooling the surface? *Geophysical Research Letters* 47.15 (2020), e2020GL087853.

[26] J. B. Winbourne, T. S. Jones, S. M. Garvey, J. L. Harrison, L. Wang, D. Li, P. H. Templer, and L. Hutyra. Tree transpiration and urban temperatures: current understanding, implications, and future research directions. *BioScience* 70.7 (2020), pp. 576–588.

[27] J. Yao, H. Liu, J. Huang, Z. Gao, G. Wang, D. Li, H. Yu, and X. Chen. Accelerated dryland expansion regulates future variability in dryland gross primary production. *Nature communications* 11.1 (2020), pp. 1–10.

[28] Y. Zhang, K. Sun, Z. Gao, Z. Pan, M. A. Shook, and D. Li. Diurnal climatology of planetary boundary layer height over the contiguous United States derived from AMDAR and reanalysis data. *Journal of Geophysical Research: Atmospheres* 125.20 (2020), e2020JD032803.

[29] Y. Zhang, L. Wang, J. A. Santanello Jr, Z. Pan, Z. Gao, and D. Li. Aircraft observed diurnal variations of the planetary boundary layer under heat waves. *Atmospheric Research* 235 (2020), p. 104801.

[30] X. Ao, L. Wang, X. Zhi, W. Gu, H. Yang, and D. Li. Observed synergies between urban heat islands and heat waves and their controlling factors in Shanghai, China. *Journal of Applied Meteorology and Climatology* 58.9 (2019), pp. 1955–1972.

[31] G. Katul, D. Li, and C. Manes. A primer on turbulence in hydrology and hydraulics: the power of dimensional analysis. *Wiley Interdisciplinary Reviews: Water* 6.2 (2019), e1336.

[32] C. Lan, H. Liu, G. G. Katul, D. Li, and D. Finn. Large eddies regulate turbulent flux gradients in coupled stable boundary layers. *Geophysical Research Letters* 46.11 (2019), pp. 6090–6100.

[33] D. Li. Turbulent Prandtl number in the atmospheric boundary layer-where are we now? *Atmospheric Research* 216 (2019), pp. 86–105.

[34] D. Li, W. Liao, A. J. Rigden, X. Liu, D. Wang, S. Malyshev, and E. Shevliakova. Urban heat island: Aerodynamics or imperviousness? *Science Advances* 5.4 (2019), eaau4299.

[35] D. Li and L. Wang. Sensitivity of surface temperature to land use and land cover change-induced biophysical changes: the scale issue. *Geophysical Research Letters* 46.16 (2019), pp. 9678–9689.

[36] L. Wang and D. Li. Modulation of the urban boundary-layer heat budget by a heatwave. *Quarterly Journal of the Royal Meteorological Society* 145.722 (2019), pp. 1814–1831.

[37] P. Wang, D. Li, W. Liao, A. Rigden, and W. Wang. Contrasting evaporative responses of ecosystems to heatwaves traced to the opposing roles of vapor pressure deficit and surface resistance. *Water Resources Research* 55.6 (2019), pp. 4550–4563.

[38] Y. Zhang, D. Li, Z. Lin, J. A. Santanello Jr, and Z. Gao. Development and evaluation of a long-term data record of planetary boundary layer profiles from aircraft meteorological reports. *Journal of Geophysical Research: Atmospheres* 124.4 (2019), pp. 2008–2030.

[39] Y. Zhou, D. Li, and X. Li. The effects of surface heterogeneity scale on the flux imbalance under free convection. *Journal of Geophysical Research: Atmospheres* 124.15 (2019), pp. 8424–8448.

[40] Z. Gao, H. Liu, D. Li, G. G. Katul, and P. D. Blanken. Enhanced temperature-humidity similarity caused by entrainment processes with increased wind shear. *Journal of Geophysical Research: Atmospheres* 123.8 (2018), pp. 4110–4121.

[41] Y. Gu and D. Li. A modeling study of the sensitivity of urban heat islands to precipitation at climate scales. *Urban Climate* 24 (2018), pp. 982–993.

[42] S. J. Jacobs, A. J. Gallant, N. J. Tapper, and D. Li. Use of cool roofs and vegetation to mitigate urban heat and improve human thermal stress in Melbourne, Australia. *Journal of Applied Meteorology and Climatology* 57.8 (2018), pp. 1747–1764.

[43] C. Lan, H. Liu, D. Li, G. G. Katul, and D. Finn. Distinct turbulence structures in stably stratified boundary layers with weak and strong surface shear. *Journal of Geophysical Research: Atmospheres* 123.15 (2018), pp. 7839–7854.

[44] D. Li, G. G. Katul, and H. Liu. Intrinsic constraints on asymmetric turbulent transport of scalars within the constant flux layer of the lower atmosphere. *Geophysical Research Letters* 45.4 (2018), pp. 2022–2030.

[45] W. Liao, X. Liu, D. Li, M. Luo, D. Wang, S. Wang, J. Baldwin, L. Lin, X. Li, K. Feng, et al. Stronger contributions of urbanization to heat wave trends in wet climates. *Geophysical Research Letters* 45.20 (2018), pp. 11–310.

[46] W. Liao, A. J. Rigden, and D. Li. Attribution of local temperature response to deforestation. *Journal of Geophysical Research: Biogeosciences* 123.5 (2018), pp. 1572–1587.

[47] L. Peng, D. Li, and J. Sheffield. Drivers of variability in atmospheric evaporative demand: Multiscale spectral analysis based on observations and physically based modeling. *Water Resources Research* 54.5 (2018), pp. 3510–3529.

[48] A. Rigden, D. Li, and G. Salvucci. Dependence of thermal roughness length on friction velocity across land cover types: A synthesis analysis using AmeriFlux data. *Agricultural and Forest Meteorology* 249 (2018), pp. 512–519.

[49] Y. Zhou, D. Li, H. Liu, and X. Li. Diurnal variations of the flux imbalance over homogeneous and heterogeneous landscapes. *Boundary-Layer Meteorology* 168.3 (2018), pp. 417–442.

[50] X. Hu, P. Chen, H. Huang, T. Sun, and D. Li. Contrasting impacts of heat stress on violent and nonviolent robbery in Beijing, China. *Natural Hazards* 87.2 (2017), pp. 961–972.

[51] X. Hu, J. Wu, P. Chen, T. Sun, and D. Li. Impact of climate variability and change on crime rates in Tangshan, China. *Science of the total environment* 609 (2017), pp. 1041–1048.

[52] D. Li and G. G. Katul. On the linkage between the k- 5/3 spectral and k- 7/3 cospectral scaling in high-Reynolds number turbulent boundary layers. *Physics of Fluids* 29.6 (2017), p. 065108.

[53] D. Li, A. Rigden, G. Salvucci, and H. Liu. Reconciling the Reynolds number dependence of scalar roughness length and laminar resistance. *Geophysical Research Letters* 44.7 (2017), pp. 3193–3200.

[54] P. Ramamurthy, D. Li, and E. Bou-Zeid. High-resolution simulation of heatwave events in New York City. *Theoretical and applied climatology* 128.1 (2017), pp. 89–102.

[55] A. J. Rigden and D. Li. Attribution of surface temperature anomalies induced by land use and land cover changes. *Geophysical Research Letters* 44.13 (2017), pp. 6814–6822.

[56] T. Sun, S. Kotthaus, D. Li, H. C. Ward, Z. Gao, G.-H. Ni, and C. S. B. Grimmond. Attribution and mitigation of heat wave-induced urban heat storage change. *Environmental Research Letters* 12.11 (2017), p. 114007.

[57] J. Wang, L. Hutyra, D. Li, and M. Friedl. Gradients of atmospheric temperature and humidity controlled by local urban land-use intensity in Boston. *Journal of Applied Meteorology and Climatology* 56.4 (2017), pp. 817–831.

[58] Y. Zhang, Z. Gao, Z. Pan, D. Li, and X. Huang. Spatiotemporal variability of extreme temperature frequency and amplitude in China. *Atmospheric Research* 185 (2017), pp. 131–141.

[59] X. Zhu, D. Li, W. Zhou, G. Ni, Z. Cong, and T. Sun. An idealized LES study of urban modification of moist convection. *Quarterly Journal of the Royal Meteorological Society* 143.709 (2017), pp. 3228–3243.

[60] S. Assouline, D. Li, S. Tyler, J. Tanny, S. Cohen, E. Bou-Zeid, M. Parlange, and G. G. Katul. On the variability of the Priestley-Taylor coefficient over water bodies. *Water Resources Research* 52.1 (2016), pp. 150–163.

[61] T. Banerjee, D. Li, J.-Y. Juang, and G. Katul. A spectral budget model for the longitudinal turbulent velocity in the stable atmospheric surface layer. *Journal of the Atmospheric Sciences* 73.1 (2016), pp. 145–166.

[62] G. G. Katul, D. Li, H. Liu, and S. Assouline. Deviations from unity of the ratio of the turbulent Schmidt to Prandtl numbers in stratified atmospheric flows over water surfaces. *Physical Review Fluids* 1.3 (2016), p. 034401.

[63] D. Li. Revisiting the subgrid-scale Prandtl number for large-eddy simulation. *Journal of Fluid Mechanics* 802 (2016).

[64] D. Li, G. G. Katul, and S. S. Zilitinkevich. Closure schemes for stably stratified atmospheric flows without turbulence cutoff. *Journal of the Atmospheric Sciences* 73.12 (2016), pp. 4817–4832.

[65] D. Li, G. G. Katul, and P. Gentine. The k- 1 scaling of air temperature spectra in atmospheric surface layer flows. *Quarterly Journal of the Royal Meteorological Society* 142.694 (2016), pp. 496–505.

[66] D. Li, S. Malyshev, and E. Shevliakova. Exploring historical and future urban climate in the Earth System Modeling framework: 1. Model development and evaluation. *Journal of Advances in Modeling Earth Systems* 8.2 (2016), pp. 917–935.

[67] D. Li, S. Malyshev, and E. Shevliakova. Exploring historical and future urban climate in the Earth System Modeling framework: 2. Impact of urban land use over the Continental United States. *Journal of Advances in Modeling Earth Systems* 8.2 (2016), pp. 936–953.

[68] D. Li, S. T. Salesky, and T. Banerjee. Connections between the Ozmidov scale and mean velocity profile in stably stratified atmospheric surface layers. *Journal of Fluid Mechanics* 797 (2016).

[69] D. Li, T. Sun, M. Liu, L. Wang, and Z. Gao. Changes in wind speed under heat waves enhance urban heat islands in the Beijing metropolitan area. *Journal of Applied Meteorology and Climatology* 55.11 (2016), pp. 2369–2375.

[70] A. J. Parolari, D. Li, E. Bou-Zeid, G. G. Katul, and S. Assouline. Climate, not conflict, explains extreme Middle East dust storm. *Environmental Research Letters* 11.11 (2016), p. 114013.

[71] Y. Zhang, Z. Gao, Z. Pan, D. Li, and B. Wan. Record-breaking temperatures in China during the warming and recent hiatus periods. *Journal of Geophysical Research: Atmospheres* 121.1 (2016), pp. 241–258.

[72] D. Zhou, D. Li, G. Sun, L. Zhang, Y. Liu, and L. Hao. Contrasting effects of urbanization and agriculture on surface temperature in eastern China. *Journal of Geophysical Research: Atmospheres* 121.16 (2016), pp. 9597–9606.

[73] D. Zhou, L. Zhang, D. Li, D. Huang, and C. Zhu. Climate–vegetation control on the diurnal and seasonal variations of surface urban heat islands in China. *Environmental Research Letters* 11.7 (2016), p. 074009.

[74] X. Zhu, G. Ni, Z. Cong, T. Sun, and D. Li. Impacts of surface heterogeneity on dry planetary boundary layers in an urban-rural setting. *Journal of Geophysical Research: Atmospheres* 121.20 (2016), pp. 12–164.

[75] C. Chen, D. Li, Z. Gao, J. Tang, X. Guo, L. Wang, and B. Wan. Seasonal and interannual variations of carbon exchange over a rice-wheat rotation system on the North China Plain. *Advances in Atmospheric Sciences* 32.10 (2015), pp. 1365–1380.

[76] Z. Cong, X. Zhang, D. Li, H. Yang, and D. Yang. Understanding hydrological trends by combining the Budyko hypothesis and a stochastic soil moisture model. *Hydrological Sciences Journal* 60.1 (2015), pp. 145–155.

[77] D. Li, G. G. Katul, and E. Bou-Zeid. Turbulent energy spectra and cospectra of momentum and heat fluxes in the stable atmospheric surface layer. *Boundary-Layer Meteorology* 157.1 (2015), pp. 1–21.

[78] D. Li, G. G. Katul, and S. S. Zilitinkevich. Revisiting the turbulent Prandtl number in an idealized atmospheric surface layer. *Journal of the Atmospheric Sciences* 72.6 (2015), pp. 2394–2410.

[79] D. Li, 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), p. 054009.

[80] Y. Li, Z. Gao, D. Li, F. Chen, Y. Yang, and L. Sun. An update of non-iterative solutions for surface fluxes under unstable conditions. *Boundary-Layer Meteorology* 156.3 (2015), pp. 501–511.

[81] K. Sun, D. Li, L. Tao, Z. Zhao, and M. A. Zondlo. Quantifying the influence of random errors in turbulence measurements on scalar similarity in the atmospheric surface layer. *Boundary-Layer Meteorology* 157.1 (2015), pp. 61–80.

[82] L. Wang, Z. Gao, S. Miao, X. Guo, T. Sun, M. Liu, and D. Li. Contrasting characteristics of the surface energy balance between the urban and rural areas of Beijing. *Advances in Atmospheric Sciences* 32.4 (2015), pp. 505–514.

[83] W.-Y. Yang, D. Li, T. Sun, and G.-H. Ni. Saturation-excess and infiltration-excess runoff on green roofs. *Ecological engineering* 74 (2015), pp. 327–336.

[84] N. Zhang, Z. Gao, Y. Liu, and D. Li. Sensitivity of a global climate model to the critical Richardson number in the boundary layer parameterization. *Journal of Geophysical Research: Atmospheres* 120.8 (2015), pp. 3310–3328.

[85] X. Hu, D. Li, H. Huang, S. Shen, and E. Bou-Zeid. Modeling and sensitivity analysis of transport and deposition of radionuclides from the Fukushima Dai-ichi accident. *Atmospheric Chemistry and Physics* 14.20 (2014), pp. 11065–11092.

[86] D. Li. Assessing the impact of interannual variability of precipitation and potential evaporation on evapotranspiration. *Advances in Water Resources* 70 (2014), pp. 1–11.

[87] D. Li and E. Bou-Zeid. Quality and sensitivity of high-resolution numerical simulation of urban heat islands. *Environmental Research Letters* 9.5 (2014), p. 055001.

[88] D. Li, E. Bou-Zeid, and M. Oppenheimer. The effectiveness of cool and green roofs as urban heat island mitigation strategies. *Environmental Research Letters* 9.5 (2014), p. 055002.

[89] Y. Li, Z. Gao, D. Li, L. Wang, and H. Wang. An improved non-iterative surface layer flux scheme for atmospheric stable stratification conditions. *Geoscientific Model Development* 7.2 (2014), pp. 515–529.

[90] L. Wang, D. Li, Z. Gao, T. Sun, X. Guo, and E. Bou-Zeid. Turbulent transport of momentum and scalars above an urban canopy. *Boundary-Layer Meteorology* 150.3 (2014), pp. 485–511.

[91] Y. Zhang, Z. Gao, D. Li, Y. Li, N. Zhang, X. Zhao, and J. Chen. On the computation of planetary boundary-layer height using the bulk Richardson number method. *Geoscientific Model Development* 7.6 (2014), pp. 2599–2611.

[92] G. G. Katul, D. Li, M. Chamecki, and E. Bou-Zeid. Mean scalar concentration profile in a sheared and thermally stratified atmospheric surface layer. *Physical Review E* 87.2 (2013), p. 023004.

[93] D. Li and E. Bou-Zeid. Synergistic interactions between urban heat islands and heat waves: The impact in cities is larger than the sum of its parts. *Journal of Applied Meteorology and Climatology* 52.9 (2013), pp. 2051–2064.

[94] D. Li, E. Bou-Zeid, M. L. Baeck, S. Jessup, and J. A. Smith. Modeling land surface processes and heavy rainfall in urban environments: Sensitivity to urban surface representations. *Journal of Hydrometeorology* 14.4 (2013), pp. 1098–1118.

[95] D. Li, E. Bou-Zeid, M. Barlage, F. Chen, and J. A. Smith. Development and evaluation of a mosaic approach in the WRF-Noah framework. *Journal of Geophysical Research: Atmospheres* 118.21 (2013), pp. 11–918.

[96] D. Li, M. Pan, Z. Cong, L. Zhang, and E. Wood. Vegetation control on water and energy balance within the Budyko framework. *Water Resources Research* 49.2 (2013), pp. 969–976.

[97] Z. Zhao, Z. Gao, D. Li, X. Bi, C. Liu, and F. Liao. Scalar flux–gradient relationships under unstable conditions over water in coastal regions. *Boundary-Layer Meteorology* 148.3 (2013), pp. 495–516.

[98] D. Li, E. Bou-Zeid, and H. A. De Bruin. Monin–Obukhov similarity functions for the structure parameters of temperature and humidity. *Boundary-Layer Meteorology* 145.1 (2012), pp. 45–67.

[99] D. Li, G. G. Katul, and E. Bou-Zeid. Mean velocity and temperature profiles in a sheared diabatic turbulent boundary layer. *Physics of Fluids* 24.10 (2012), p. 105105.

[100] D. Li and E. Bou-Zeid. Coherent structures and the dissimilarity of turbulent transport of momentum and scalars in the unstable atmospheric surface layer. *Boundary-Layer Meteorology* 140.2 (2011), pp. 243–262.

CONFERENCE PRESENTATIONS

1. D. Li, Y. Qin, H. Liu, 2022, On the logarithmic behavior of streamwise velocity variance in the neutral atmospheric surface layer (oral), 100 years of turbulence: Innsbruck 1922 – 2022, Innsbruck, Austria
2. D. Li, Y. Zhang, 2022, Dynamics of the planetary boundary layer height and lifting condensation level from aircraft observations (poster), 3rd Pan-GASS Meeting, Understanding and Modeling Atmospheric Processes, Monterey, CA
3. D. Li, K. Sun, Y. Zhang, S. Tao, 2021, From Satellite Measurements of Trace Gases to Surface Applications: The Bridging Role of the Planetary Boundary Layer (oral), American Meteorological Society Annual Meeting, online
4. D. Li, L. Wang, 2020, Land use and land cover change impact on surface temperature: the scale issue (oral), European Geosciences Union General Assembly, online
5. D. Li, 2020, Land Use and Land Cover Change–Induced Surface Temperature Anomalies: The Scale Issue (poster), American Meteorological Society Annual Meeting, Boston, MA

6. D. Li, W. L. Liao, 2019, The urban-rural contrast of heat stress in a global earth system model (oral), American Geophysical Union Fall Meeting, San Francisco
7. D. Li, P. Wang, W. L. Liao, 2019, Contrasting evaporative responses of ecosystems to heat waves traced to the roles of vapor pressure deficit and canopy resistance (oral), American Meteorological Society Annual Meeting, Phoenix, AZ.
8. D. Li, W. L. Liao, 2018, Interpreting urban heat islands as perturbations on surface energy and water balances (oral), American Geophysical Union Fall Meeting, Washington D.C.
9. D. Li, L. Wang, 2018, Scale issue in the attribution of land use and land cover change-induced surface temperature anomalies (poster), American Geophysical Union Fall Meeting, Washington D.C.
10. D. Li, G. Katul, H. Liu, 2018, Intrinsic Constraints on Asymmetric Turbulent Transport of Scalars Within the Constant Flux Layer of the Lower Atmosphere (poster), American Geophysical Union Fall Meeting, Washington D.C.
11. D. Li, Y. J. Zhang, Z. K. Lin, L. Wang, J. Santanello, 2018, Characterizing diurnal variations of the PBL with Aircraft Meteorological Data Reports (oral), NASA Sounder Science Team Meeting, Washington D.C.
12. D. Li, W. L Liao, 2018, Urban heat islands: roughness or imperviousness? (oral), 10th International Conference on Urban Climate/14th Symposium on the Urban Environment, New York, NY
13. D. Li, Y. J. Zhang, Z. K. Lin, L. Wang, 2018, Characterizing urban boundary layer structures under heat waves (oral), 10th International Conference on Urban Climate/14th Symposium on the Urban Environment, New York, NY
14. D. Li, Y. J. Zhang, Z. K. Lin, L. Wang, 2018, Developing a Data Record of PBL Temperature Profiles for Diurnal Land-Atmosphere Coupling Investigations (oral), American Meteorological Society's 23rd Symposium on Boundary Layers and Turbulence, Oklahoma City, OK
15. D. Li, L. Wang, 2018, Attribution of heat wave-induced urban boundary layer warming (oral), 8th GEWEX Science Conference, Canmore, Canada
16. D. Li, A. Rigden., G. Salvucci, H. Liu, 2017, Reconciling the Reynolds number dependence of scalar roughness length and laminar resistance (oral), American Geophysical Union Fall Meeting, New Orleans, LA.
17. D. Li, G. Katul, 2016, Connecting macroscopic flow properties with turbulent energy spectra in stratified atmospheric surface layers (invited), American Geophysical Union Fall Meeting, San Francisco, CA.
18. D. Li, Yaofeng, G., 2016, A large-scale sensitivity study of urban heat islands using GFDL's earth system model (oral), American Geophysical Union Fall Meeting, San Francisco, CA.
19. D. Li, A. Rigden, 2016, Overestimated surface roughness impact on land use/land cover change induced temperature anomaly (oral), American Geophysical Union Fall Meeting, San Francisco, CA.
20. D. Li, T. Sun, L. Wang, and Z. Gao, 2016, Contrasting responses of urban and rural surface energy budgets to heat waves (oral), the 22nd Symposium on Boundary Layers and Turbulence, Salt Lake City, Utah.

21. D. Li, E. Shevliakova, S. Malyshev, L. Harris, and 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.
22. D. Li, 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.
23. D. Li, 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.
24. D. Li, 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.
25. D. Li, 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.
26. D. Li, E. Shevliakova, S. Malyshev, and S.J. Lin, 2014, Urbanizing GFDL's global climate models (oral), European Geosciences Union General Assembly, Vienna, Austria
27. D. Li, and E. Bou-Zeid, 2014, Heat Waves in Urban Areas: the Hot is Getting Hotter (oral), 2014 American Meteorological Socienty Annual Meeting, Atlanta, GA
28. D. Li, 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
29. D. Li, 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.
30. D. Li, and E. Bou-Zeid, 2012, Urban Heat Island: Modeling, Sensing and Mitigation Strategies (oral), the 20th Symposium on Boundary Layers and Turbulence, Boston, MA.
31. D. Li, 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.
32. D. Li, 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.
33. D. Li, 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
34. D. Li, 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. D. Li, 2022, Urban heat mitigation: bridging thermodynamics with aerodynamics, Institute of Meteorology and Climatology, Leibniz Universität Hannover, Germany (online)
2. D. Li, 2022, Urban heat mitigation: bridging thermodynamics with aerodynamics, Nanjing University of Information Science Technology, China (online)
3. D. Li, 2022, Urban heat mitigation: is it a simple surface energy balance problem? Environmental Science Graduate Program Annual Symposium, Iowa State University, Ames, US
4. D. Li, 2022, Urban heat mitigation: bridging thermodynamics with aerodynamics, Department of Civil and Environmental Engineering, Colorado State University, Fort Collins, US
5. D. Li, 2022, Urban heat mitigation: is it a simple surface energy balance problem? Department of Civil and Environmental Engineering, MIT, Boston, US
6. D. Li, 2021, Some thoughts on the attribution of urban heat island intensity, China Meteorological Research Institute, Beijing, China (online)
7. D. Li, 2021, Biophysical impacts of land-use/land-cover changes: a simple surface energy balance model and the roles of convective heat transfer and boundary layer feedback, Program in Atmospheres, Oceans and Climate, MIT, Boston, US
8. D. Li, 2020, Perturbing the land-ABL system, Karlsruhe Institute of Technology, Karlsruhe, Germany
9. D. Li, 2020, Perturbing the land-ABL system, Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany
10. D. Li, 2019, Extreme heat in cities: synergies between urban heat islands and heat waves, NOAA Earth System Sciences and Modeling Community Workshop on Extreme Heat, Washington D.C.
11. D. Li, 2019, Urban Heat Islands: new perspectives on an old topic, Department of Civil and Environmental Engineering, Princeton University, Princeton, NJ
12. D. Li, 2019, Urban Heat Islands: new perspectives on an old topic, Department of Civil and Environmental Engineering, University of Connecticut, Storrs, CT
13. D. Li, 2019, Urban Heat Islands: new perspectives on an old topic, Department of Civil, Structural, and Environmental Engineering, University of Buffalo, Buffalo, NY
14. D. Li, 2019, From Global Climate Change to Local Policy Decisions, Boston University Academy, Boston, MA
15. D. Li, 2018, Urban Climate Modeling: From Simulation to Understanding, School of Hydrology and Water Resources, Nanjing University of Information Science and Technology, Nanjing, China
16. D. Li, 2018, Urban Climate Modeling: From Simulation to Understanding, Department of Atmospheric Sciences, Nanjing University, Nanjing, China
17. D. Li, 2018, Urban Climate Modeling: From Simulation to Understanding, Pacific Northwest National Laboratory, Richland, WA
18. D. Li, 2018, Urban Heat Islands, Global Synthesis on Budyko's Framework - Powell Center Meeting, Fort Collins, CO

19. D. Li, 2017, Turbulent transport of momentum and heat in the atmospheric boundary layer: new perspectives on an old subject, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA.
20. D. Li, 2017, The Fluid Mechanics of Surface-Atmosphere Interaction, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
21. D. Li, 2017, The Fluid Mechanics of Surface-Atmosphere Interaction, International Pacific Research Center, University of Hawaii at Manoa, Honolulu, HI.
22. D. Li, 2016, From Global Climate Change to Local Policy Decisions, Environmental Volunteering Outreach Group -Branch Out, Boston University, Boston, MA.
23. D. Li, 2016, From Global Climate Change to Local Policy Decisions, Hariri Institute for Computing and Computational Science and Engineering, Boston University, Boston, MA.
24. D. Li, 2016, Hydrology meets turbulence over lakes, Department of Hydraulic Engineering, Tsinghua University, Beijing, China.
25. D. Li, 2016, Hydrology meets turbulence over lakes, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China.
26. D. Li, 2016, Hydrology meets turbulence over lakes, College of Global Change and Earth System Science, Beijing Normal University, Beijing, China.
27. D. Li, 2016, Turbulence in land-atmosphere coupling, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
28. D. Li, 2015, Contrasting responses of urban and rural surface energy budgets to heat waves, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
29. D. Li, 2015, Monin-Obukhov Similarity Theory: A new perspective on an old topic, Center for Earth System Science, Tsinghua University, Beijing, China
30. D. Li, 2015, Monin-Obukhov Similarity Theory: A new perspective on an old topic, Department of Atmospheric Sciences, Peking University, Beijing, China
31. D. Li, 2015, Monin-Obukhov Similarity Theory: A new perspective on an old topic, Department of Atmospheric Sciences, University of Miami, Miami, FL
32. D. Li, 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
33. D. Li, 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
34. D. Li, 2015, Towards urban sustainability under a changing climate, Department of Earth and Planetary Sciences, University of California at Santa Cruz, Santa Cruz, CA
35. D. Li, 2015, Towards urban sustainability under a changing climate, Department of Earth and Environment, Boston University, Boston, MA
36. D. Li, 2014, Towards urban sustainability under a changing climate, Earth System Science Programme, Chinese University of Hong Kong, Hong Kong, China
37. D. Li, T. Sun, and E. Bou-Zeid, 2014, Heat Waves in Urban Environments, Urban Environmental Pollution 2014 conference, Toronto, Canada

38. D. Li, 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
39. D. Li, 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
40. D. Li, 2014, Climate extremes in the built environment: how to achieve urban sustainability under a changing climate, Department of Atmospheric Sciences, UIUC, Champaign, IL
41. D. Li, 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
42. D. Li, 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
43. D. Li, 2013, Urban sustainability under a changing climate, Geophysical Fluid Dynamics Laboratory, Princeton, NJ
44. D. Li, 2013, How to include the heterogeneity effect in modeling urban surface?, Shanghai Typhoon Institute, China Meteorological Administration, Shanghai, China
45. D. Li, 2013, How to include the heterogeneity effect in modeling urban surface?, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
46. D. Li, 2013, Surface-atmosphere interaction: the impact of buoyancy, Department of Hydraulic Engineering, Tsinghua University, Beijing, China
47. D. Li, 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
48. D. Li, 2013, Land-atmosphere interactions over urban terrain, Pacific Northwest National Laboratory, Richland, WA.
49. D. Li, 2011, On the Dissimilarity of Turbulent Transport of Momentum and Scalars, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
50. D. Li, 2010, Turbulent Transport: New Perspectives on an Old Subject, Department of Hydraulic Engineering, Tsinghua University, Beijing, China.

PROFESSIONAL ACTIVITIES

- Associate Editor for Journal of the Atmospheric Sciences, 2021 - Present
- Chair, Outstanding Student Paper Award Committee, Global Environmental Change Section, American Geophysical Union, 2017
- Member, Outstanding Student Paper Award Committee, Global Environmental Change Section, American Geophysical Union, 2016
- Session convener and chair, Boundary Layer Processes and Turbulence, American Geophysical Union Fall Meeting, 2020, 2019, 2018
- Session convener and chair, Advances in Understanding Impacts of Land Use and Land Cover Change Using Earth System Models and Data Records, American Geophysical Union Fall Meeting, 2020, 2019, 2018

- Session convener and chair, Heat Waves: Mechanisms, Predictability and Prediction, American Meteorological Society Annual Meeting, 2022
- Session convener and chair, Advances in Understanding Land–Atmosphere Interactions, American Meteorological Society Annual Meeting, 2019
- Session convener, Urban Ecohydrology: understanding urban-natural systems for the design of future cities, European Geophysical Union General Assembly, 2019
- Panel review, US Department of Energy, Atmospheric Systems Research Program, 2020
- Panel review, US National Science Foundation, PREEVENTS Program, 2016

UNIVERSITY SERVICES

- Merit review committee, Department of Earth and Environment, Boston University, 2022
- Ad hoc Chair committee, Department of Earth and Environment, Boston University, 2022
- Diversity, Equity and Inclusion (DEI) Committee, Department of Earth and Environment, Boston University, 2020 - Present
- URBAN Research and Travel Award Committee, URBAN Program, Boston University, 2021
- Student Award Committee, Biogeoscience Program, Boston University, 2020, 2016
- Ph.D. admission committee, Department of Earth and Environment, Boston University, 2018

OUTREACH ACTIVITIES

- Speaker, Museum of Science Boston EmPowered by A.I. Forum, 2022
- Lecturer, Boston University Academy Global Climate Change Lecture Series, 2019
- Speaker, Environmental Volunteering Outreach Group - Branch Out, 2016
- Hosted lab visits by high-school students from Boston University Academy as part of their STEM research seminar, 2022, 2021, 2020, 2019

MENTORING

- Postdoctoral Research Associates: Linying Wang, Emmanuel Akinlabi
- Ph.D. Students: Liang Wang, Yue Qin, Heng Yu
- Master Students: Shivani Ehrenfeucht, Zekun Lin, Shiqi Tao
- Undergraduate Students: Andrew Pineda, Yaofeng Gu, Kaiya Weatherby, Yiming Zhang
- High-school Students: Kaiti Filippou, Abhishikth Lingareddy

TEACHING

- The Atmospheric Boundary Layer, Boston University, 2022, 2018, 2016 Spring
- Environmental and Geophysical Fluid Dynamics, Boston University, 2018, 2016 Fall
- Introduction to Hydrology, Boston University, 2021, 2019, 2017 Spring
- Biogeosciences Colloquium/Practicum, Boston University, 2018 Spring, 2017 Fall
- Urban Climate, Boston University, 2022, 2021, 2020, 2019 Fall

GRANTS

- Urban climate modeling in the Integrated Multi-sector, Multi-scale Modeling framework Phase 2 (sole PI, $600,794), DOE, 11/2020-9/2024
- Observational data-driven surface concentrations derived from satellite columns and aircraft profiles (Co-PI, $164,523 to BU), NASA, 5/2019-5/2022
- Collaborative Research: The role of coherent structures in scalar transport over heterogeneous landscapes (PI, $306,191), NSF, 6/2019-5/2022
- Collaborative Research: PREEVENTS Track 2: Land-atmosphere feedbacks over urban terrain under heat waves (PI, $680,273), NSF, 6/2019-5/2022
- Advancing theory and modeling of land-atmosphere coupling over heterogeneous urban terrain (sole PI, $359,801), ARO, 9/2018-8/2021
- Urban climate modeling in the Integrated Multi-sector, Multi-scale Modeling framework (sole PI, $245,233), DOE, 11/2018-10/2020
- Revolutionizing flow, heat, and dispersion predictions over complex urban environments (PI, $28,288), BU-Hariri Center, 6/2019-6/2021
- Observing and modeling urban boundary layers under heat waves (PI, $10,000), BU-Initiative on Cities, 6/2018-5/2019
- Mitigation of Boston heat island effect with urban canopy (co-PI, $30,000), BU-Pardee Center, 9/2018-8/2020
- Coupled human-natural dynamics in urban heat islands: From big data to local policies (co-PI, $27,000), BU-Hariri Center, 1/2016-12/2016

MEMBERSHIP

- American Geophysical Union
- American Meteorological Society