Curriculum Vitae

Elie Bou-Zeid, Professor

Department of Civil & Environmental Engineering, Princeton University

Office: E414 Engineering Quadrangle, Princeton, NJ 08544, USA

office:+1-609-258-5429 fax:+1-609-258-2799 email: ebouzeid@princeton.edu

Lab website: http://efm.princeton.edu/

Google scholar profile http://scholar.google.com/citations?user=OGbrzHAAAAAJ

Research Interests

Environmental Fluid Mechanics & Turbulence, Boundary-Layer Meteorology, Surface-Atmosphere Interactions, Urban Climatology & Hydrology, Buoyancy Effects in Fluids, Wind Energy.

Higher Education

Ph.D. in Environmental Engineering, 2005
Johns Hopkins University, Baltimore, USA
Dissertation: "Large Eddy Simulation of Atmospheric Boundary Layer Flow over Heterogeneous Surfaces"

Master of Science in Mechanical Engineering, 2004
Johns Hopkins University, Baltimore, USA

Master of Engineering in Environmental and Water Resources Engineering, 2000
American University of Beirut, Beirut, Lebanon
Dissertation: "Modeling Leachate Generation and Transport from Waste Disposal at a Former Quarry Site"

Bachelor of Engineering in Mechanical Engineering, 1997
American University of Beirut, Beirut, Lebanon

Professional Appointments

Director, Princeton's School of Engineering and Applied Science "Metropolis Project", 2016-ongoing

Professor, 2018 - ongoing
Princeton University, Department of Civil and Environmental Engineering, Princeton, USA
Associated Faculty appointments in the Department of Mechanical and Aerospace Engineering, the Atmospheric and Oceanic Sciences Program, the Princeton Environmental Institute, and the Princeton Program in Urban Studies

Director, Program in Environmental Engineering and Water Resources, Princeton University, 2017-2021

Associate Professor, 2014 - 2018
Princeton University, Department of Civil and Environmental Engineering, Princeton, USA

Assistant Professor, 2008 – 2014
Princeton University, Department of Civil and Environmental Engineering, Princeton, USA

Postdoctoral Researcher, 2005 – 2008
Swiss Federal Institute of Technology - Lausanne, Environmental Fluid Mechanics Laboratory

Mechanical Engineer in Heating, Ventilation, and Air Conditioning (HVAC) contracting, July 1997 - October 1997, "Mechanical Engineering Office", Beirut, Lebanon

Selected Honors, Awards, and Distinctions

Second most cited paper in the Journal of Applied Meteorology and Climatology since 1990: https://journals.ametsoc.org/view/journals/apme/apme-overview.xml?contents=most-cited

Princeton Engineering Commendations for Outstanding Teaching, 2016 and 2020

Beyond Bauhaus - Prototyping the Future Award for CityReader Project**,** Landen Der Ideen, Germany, 2019

E. Lawrence Keyes Jr. / Emerson Electric Co. Faculty Advancement Award, the award "recognizes and assists promising junior faculty members" at Princeton University, 2011

Prize of the "Fondation Latsis Internationale" for best research work across all fields at the Ecole Polytechnique Fédérale de Lausanne, Switzerland, 2009

Abel Wolman Graduate Fellowship, Johns Hopkins University, 2000

Dean's Honor List, American University of Beirut, School of Engineering, 1997

Selected Professional Services and Activities

External

Editor, Journal of the Atmospheric Sciences, American Meteorological Society, since 2020

Advisory board member for the "Integrating Chemistry and Earth Science" NSF-funded project to infuse Earth Sciences into the Chemistry Curriculum of Baltimore City high schools, since 2018

Member, American Meteorological Society's "Boundary Layers and Turbulence" committee, February 1, 2012 – 2018

Deputy Chair, American Geophysical Union's Technical Committee on "Large-Scale Field Experimentation", July 1, 2010 – December 31, 2012

Internal

CEE department representative on the School of Engineering and Applied Science committee for addressing institutional racism, 2020

Member, Princeton-GFDL Cooperative Institute for Modeling the Earth System, Executive Board, 2019-ongoing

Member, Princeton University's Program in Transportation Executive Committee, 2019-ongoing

Member, Princeton Environmental Institute Advisory Committee, 2016-2019

Member, the Tiger Challenge advisory group (a co-curricular program designed to empower students to tackle complex issues and develop innovations using Design Thinking)

Faculty Fellow, Princeton Energy and Climate Scholars (PECS) student group, 2012-ongoing

Academic co-chair, "Princeton Sustainability Committee", tasked with improving the operational sustainability of the university and promoting the use of "campus-as-a-lab", 2010-2014

Published Journal Papers (Refereed)

1. Allouche M., Bou-Zeid E., Ansorge C., Katul G.G., Chamecki M., Acevedo O., Thanekar S., Fuentes J.D. (2022), "The Detection, Genesis, and Modeling of Turbulence Intermittency in the Stable Atmospheric Surface Layer", *Journal of the Atmospheric Sciences*, in press, https://dx.doi.org/10.1175/JAS-D-21-0053.1

2. Zahn E., Bou-Zeid E., Good S.P., Katul G.G., Thomas C.K., Ghannam K., Smith J.A., Chamecki M., Dias N.L., Fuentes J.D., Alfieri J.G., Kwon H., Caylor K.K., Gao Z., Soderberg K., Bambach N.E., Hipps L.E., Prueger J.H., Kustas W.P. (2022), "Direct Partitioning of Eddy-Covariance Water and Carbon Dioxide Fluxes into Ground and Plant Components", *Agricultural and Forrest Meteorology*, in press.

3. Zahn E., Welty C., Smith J.A., Kemp S.J., Baeck M-L, Bou-Zeid E. (2021) "The Hydrological Urban Heat Island: Determinants of Acute and Chronic Heat Stress in Urban Streams", *Journal of the American Water Resources Association*, 57, 941-955, https://doi.org/10.1111/1752-1688.12963

4. Talebpour M., Welty C., Bou-Zeid E. (2021) "Development and testing of a fully-coupled subsurface-land surface-atmosphere hydrometeorological model: High-resolution application in urban terrains", *Urban Climate*, 40, 100985, https://doi.org/10.1016/j.uclim.2021.100985

5. Choi B., Bergés M., Bou-Zeid E., Pozzi M. (2021) "Short-term probabilistic forecast of meso-scale near-surface temperature", *Environmental Modelling and Software*, 145, 105189, https://doi.org/10.1016/j.envsoft.2021.105189

6. Allouche M., Katul G.G., Fuentes J.D., and Bou-Zeid E. (2021) "Probability law of turbulent kinetic energy in the atmospheric surface layer", *Physical Review Fluids*, 6, 074601, https://doi.org/10.1103/PhysRevFluids.6.074601

7. Geng X., Katul G.G., Gerges F., Bou-Zeid E., Nassif H., Boufadel M.C. (2021) "A kernel-modulated SIR model for Covid-19 contagious spread from county to continent", *Proceedings of the National Academy of Science*s, 118, e2023321118, https://doi.org/10.1073/pnas.2023321118

8. González J.E., Ramamurthy P., Bornstein R.D., Chen F., Bou-Zeid E., Ghandehari M., Luvall J., Mitra C., Niyogi D. (2021) "Urban climate and resiliency: A synthesis report of state of the art and future research directions", *Urban Climate,* 38, 100858, https://doi.org/10.1016/j.uclim.2021.100858

9. Zhao L., Oleson K., Bou-Zeid E., Krayenhoff E.S., Bray A., Zhu Q., Zheng Z., Chen C., and Oqppenheimer M. (2021), "Global multi-model projections of local urban climates", *Nature Climate Change*, 11, 152–157, https://doi.org/10.1038/s41558-020-00958-8

10. Geng X., Gerges F., Katul G.G., Bou-Zeid E., Nassif H., Boufadel M.C. (2021) "Population agglomeration is a harbinger of the spatial complexity of COVID-19", *Chemical Engineering Journal*, 420, 127702, https://doi.org/10.1016/j.cej.2020.127702

11. Ghannam K. and Bou-Zeid E. (2021) "Baroclinicity and directional shear explain departures from the logarithmic wind profile", *Quarterly Journal of the Royal Meteorological Society*, 174, 443– 464, https://doi.org/10.1002/qj.3927

12. Gideon R.A., Bou-Zeid E. (2021) "Collocating offshore wind and wave generators to reduce power output variability: A Multi-site analysis", *Renewable Energy*, 163, 1548-1559,

https://doi.org/10.1016/j.renene.2020.09.047.

13. Smith A.K., Barth M., Boos W.R., Bou-Zeid E., Kawatani Y., Lee S., Mechem D., Remer L., Rozoff C., van den Heever S., Wang Z., Wicker L., Yang P. (2020) “Data Availability Principles and Practice”. *Journal of Atmospheric Sciences*, 77, 3983–3984. https://dx.doi.org/10.1175/JAS-D-20-0303.1.

14. Pigliautile I, Pisello A. L., and Bou-Zeid E (2020) “Humans in the city: representing outdoor thermal comfort in urban canopy models”, *Renewable & Sustainable Energy Review*, 133, 110103, https://dx.doi.org/10.1016/j.rser.2020.110103.

15. Couvreux F., Bazile E., Rodier Q., Maronga B., Matheou G., Chinita M.J. , Edwards J., van Stratum B.J.H., van Heerwaarden C.C., Huang J., Moene A.F., Cheng A., Fuka V., Basu S., Bou-Zeid E., Canut G., and Vignon E. (2020) “Intercomparison of Large-Eddy Simulations of the Antarctic Boundary Layer for Very Stable Stratification” *Boundary-Layer Meteorology*, 176, 369–400, https://dx.doi.org/10.1007/s10546-020-00539-4.

16. Bou-Zeid E., Anderson W., Katul G.G., and Mahrt, L (2020) “The Persistent Challenge of Surface Heterogeneity in Boundary-Layer Meteorology: A Review”, *Boundary-Layer Meteorology*, 177, 227–245, https://dx.doi.org/10.1007/s10546-020-00551-8.

17. Mahrt L and Bou-Zeid E. (2020), “Non-stationary Boundary Layers”, *Boundary-Layer Meteorology*, 177, 189–204, https://dx.doi.org/10.1007/s10546-020-00533-w.

18. Li Q, Bou-Zeid E, Grimmond S, Zilitinkevich S, Katul G (2020) “Revisiting the Relation Between the Momentum and Scalar Roughness Lengths of Urban Surfaces”, *Quarterly Journal of the Royal Meteorological Society*, 146, 3144 -3164, https://dx.doi.org/10.1002/qj.3839.

19. Omidvar H, Bou-Zeid E., Li Q., Mellado J.P., and Klein P. (2020) “Plume or bubble? mixed convection flow regimes and city-scale circulations”, *Journal of Fluid Mechanics*, 897, A5, https://dx.doi.org/10.1017/jfm.2020.360.

20. Ghannam K., Poggi D., Bou-Zeid E., Katul G.G. (2020) “Inverse cascade evidenced by information entropy of passive scalars in submerged canopy flows”, *Geophysical Research Letters*, 47, e2020GL087486, https://dx.doi.org/10.1029/2020GL087486.

21. Llaguno-Munitxa M. and Bou-Zeid E. (2020) "The environmental neighborhoods of cities and their spatial extent", *Environmental Research Letters*, 15, 074034, https://dx.doi.org/10.1088/1748-9326/ab8d7e

22. Manoli G., Fatichi S., Bou-Zeid E. and Katul G.G. (2020) “Seasonal hysteresis of surface urban heat islands”, *Proceedings of the National Academy of Science*s, 117, 7082-7089, https://dx.doi.org/10.1073/pnas.1917554117.

23. Meili N., Manoli G., Burlando P., Bou-Zeid E., Chow, W. T. L., Coutts A. M., Daly E., Nice K. A., Roth M., Tapper N. J., Velasco E., Vivoni E. R., and Fatichi, S. (2020) “An urban ecohydrological model to quantify the effect of vegetation on urban climate and hydrology (UT&C v1.0)”, *Geoscientific Model Development*, 13, 335–362, https://dx.doi.org/10.5194/gmd-13-335-2020.

24. Li Q., Bou-Zeid E. (2019) “Contrasts Between Momentum and Scalar Transport Over Very Rough

Surfaces", *Journal of Fluid Mechanics*, 880, 32-58. https://dx.doi.org/10.1017/jfm.2019.687.

25. Manoli G., Fatichi S., Schläpfer M, Yu K., Crowther T.W., Meili N, Burlando P., Katul G.G., and Bou-Zeid E. "*Magnitude of urban heat islands largely explained by climate and population*", *Nature*, 573, 55–60. https://dx.doi.org/10.1038/s41586-019-1512-9**.**

26. Shah S. and Bou-Zeid E. (2019) "Rate of decay of turbulent kinetic energy in abruptly stabilized Ekman boundary layers", *Physical Review Fluids*, 4, 074602. https://dx.doi.org/10.1103/PhysRevFluids.4.074602**.**

27. Yang J. and Bou-Zeid E. (2019) "Designing sensor networks to resolve spatio-temporal urban temperature variations: fixed, mobile or hybrid?", *Environmental Research Letters,* 14, 074022, https://dx.doi.org/10.1088/1748-9326/ab25f8.

28. Fabiani C., Pisello A.L., Bou-Zeid E., Yang J., Cotana F. (2019) "Adaptive measures for mitigating urban heat islands: the potential of thermochromic materials to control roofing energy balance", *Applied Energy*, 247, 155-170, https://dx.doi.org/10.1016/j.apenergy.2019.04.020.

29. Omidvar H., Bou-Zeid E., and Chiaramonte M. (2019) "Physical determinants and reduced models of the rapid cooling of urban surfaces during rainfall", *Journal of Advances in Modeling Earth Systems,* 11, 1364-1380, https://dx.doi.org/10.1029/2018MS001528.

30. Caulton D.R., Lu J., Lane H.M., Buchholz B., Fitts J.P., Golston L.M., Guo X., Li Q., McSpiritt J., Pan D., Wendt L., Bou-Zeid E., and Zondlo M.A. (2019) "Importance of Super-Emitter Natural Gas Well Pads in the Marcellus Shale", *Environmental Science & Technology,* 53, 4747-4754, https://dx.doi.org/10.1021/acs.est.8b06965.

31. Freire L.S., Chamecki M., Bou-Zeid E., and Dias N.L. (2019) "Critical flux Richardson number for Kolmogorov turbulence enabled by TKE transport", *Quarterly Journal of the Royal Meteorological Society*, 145, 1551-1558, https://dx.doi.org/10.1002/qj.3511.

32. Yang J. and Bou-Zeid E. (2019) "Scale dependence of the benefits and efficiency of green and cool roofs", *Landscape and Urban Planning*, 185, 127-140, https://dx.doi.org/10.1016/j.landurbplan.2019.02.004.

33. Omidvar H. and Bou-Zeid E. (2019) "Hacking a soil water content reflectometer to measure liquid level", Flow Measurement and Instrumentation, 65, 174-179, https://dx.doi.org/10.1016/j.flowmeasinst.2018.11.014.

34. Hezaveh S.H. and Bou-Zeid E. (2018) "Mean Kinetic Energy Replenishment Mechanisms in Vertical-Axis Wind Turbine Farms", *Physical Review Fluids*, 3, 094606, https://dx.doi.org/10.1103/PhysRevFluids.3.094606.

35. Bou-Zeid E., Gao X., Ansorge C., and Katul G. (2018) "On the role of return-to-isotropy in wall-bounded turbulent flows with buoyancy", *Journal of Fluid Mechanics*, 856, 61-78, https://dx.doi.org/10.1017/jfm.2018.693.

36. Momen M., Bou-Zeid E., Giometto M, Parlange M. (2018) "Modulation of Mean Wind and Turbulence in the Atmospheric Boundary Layer by Baroclinicity", *Journal of the Atmospheric*

Sciences, 75, 3797–3821, https://dx.doi.org/10.1175/JAS-D-18-0159.1

37. Llaguno-Munitxa M. and Bou-Zeid E. (2018) "Shaping buildings to promote street ventilation: a large-eddy simulation study", *Urban Climate*, 26, 76-94, https://dx.doi.org/10.1016/j.uclim.2018.08.006.

38. Omidvar H., Song J., Yang J., Arwatz G., Wang Z.-H., Hultmark M., Kaloush K., Bou-Zeid E. (2018) "Rapid Modification of Urban Land Surface Temperature during Rainfall", *Water Resources Research*, 54, 4245-4264, https://dx.doi.org/10.1029/2017WR022241.

39. Hezaveh S.H., Bou-Zeid E., Dabiri J., Kinzel M., Cortina G., Martinelli L. (2018) "Increasing the Power Production of Vertical-Axis Wind-Turbine Farms using Synergistic Clustering", *Boundary-Layer Meteorology*, 169, 275–296, https://dx.doi.org/10.1007/s10546-018-0368-0.

40. Caulton D. R., Li Q., Bou-Zeid E., Lu J., Lane H. M., Fitts J. P., Buchholz B., Golston L. M., Guo X., McSpiritt J., Pan D., Wendt L., and Zondlo, M. A. (2018) "Improving Mobile Platform Gaussian-Derived Emission Estimates Using Hierarchical Sampling and Large Eddy Simulation", Atmospheric Chemistry and Physics, 18, 15145-15168, https://dx.doi.org/10.5194/acp-18-15145-2018.

41. Malings C., Pozzi M., Klima K., Bergés M., Bou-Zeid E., Ramamurthy P. (2018) "Surface Heat Assessment for Developed Environments: Optimizing Urban Temperature Monitoring", *Building and Environment*, 141, 143-154, https://dx.doi.org/10.1016/j.buildenv.2018.05.059.

42. El-Samra R., Bou-Zeid E., Bangalath H.K., Stenchikov G., El-Fadel M. (2018) "Seasonal and regional patterns of future temperature extremes: High-resolution dynamic downscaling over a complex terrain", *Journal of Geophysical Research - Atmospheres*, 123, 6669–6689, DOI:10.1029/2017JD027500.

43. Yang J. and Bou-Zeid E. (2018) "Should cities embrace their heat islands as shields from extreme cold?" *Journal of Applied Meteorology and Climatology*, 57, 1309–1320, https://dx.doi.org/10.1175/JAMC-D-17-0265.1

44. Ghannam K., Katul G.G., Bou-Zeid E., Gerken T., Chamecki M. (2018) "Scaling and similarity of the anisotropic coherent eddies in near-surface atmospheric turbulence", *Journal of the Atmospheric Sciences,* 75, 943–964, https://dx.doi.org/10.1175/JAS-D-17-0246.1.

45. Zhao L., Oppenheimer M., Qing Z., Baldwin J., Ebi K., Bou-Zeid E.; Guan K., Liu X. (2018) "Interactions between urban heat islands and heat waves", *Environmental Research Letters*, 13, 034003, https://dx.doi.org/10.1088/1748-9326/aa9f73.

46. Li Q., Bou-Zeid E., Vercauteren N. Parlange M.B. (2018) "Signatures of Air-Wave Interactions over a Large Lake", *Boundary-Layer Meteorology*, 167, 445–468, https://dx.doi.org/10.1007/s10546-017-0329-z.

47. El-Samra R., Bou-Zeid E., El-Fadel M. (2018) "What Model Resolution is required in Climatological Downscaling over Complex Terrain?", *Atmospheric Research*, 203, 68–82, https://dx.doi.org/10.1016/j.atmosres.2017.11.030.

48. El-Samra R. , Bou-Zeid E., El-Fadel M. (2018) "To What Extent Does High Resolution Dynamical

Downscaling Improve the Representation of Climatic Extremes over an Orographically Complex Terrain?", *Theoretical and Applied Climatology*, 134, 265–282, https://dx.doi.org/10.1007/s00704-017-2273-8.

49. Momen M., Zheng Z., Bou-Zeid E. Stone H.A. (2017) "Inertial gravity currents produced by fluid drainage from an edge", *Journal of Fluid Mechanics*, 827, 640-663, https://dx.doi.org/10.1017/jfm.2017.480.

50. Malings C., Pozzi M., Klima K., Bergés M., Bou-Zeid E., Ramamurthy P. (2017) "Surface Heat Assessment for Developed Environments: Probabilistic Urban Temperature Modeling", *Computers, Environment and Urban Systems*, 66, 53-64, https://dx.doi.org/10.1016/j.compenvurbsys.2017.07.006.

51. Momen M. and Bou-Zeid E. (2017) "Analytical reduced models for the non-stationary diabatic atmospheric boundary layer", *Boundary-Layer Meteorology*, 164, 383-399, https://dx.doi.org/10.1007/s10546-017-0247-0.

52. Llaguno-Munitxa M., Bou-Zeid E., Hultmark M. (2017) "The influence of building geometry on street canyon air flow: validation of large eddy simulations against wind tunnel experiments", *Journal of Wind Engineering & Industrial Aerodynamics*, 165, 115-130. https://dx.doi.org/10.1016/j.jweia.2017.03.007.

53. El-Samra R., Bou-Zeid E., Bangalath H.K., Stenchikov G., El-Fadel M. (2017) "Future intensification of hydro-meteorological extremes: downscaling using the weather research and forecasting model", *Climate Dynamics,* 49, 3765–3785, https://dx.doi.org/10.1007/s00382-017-3542-z.

54. Hezaveh S.H., Bou-Zeid E., Lohry M.W., Martinelli L. (2017) "Simulation and wake analysis of a single vertical axis wind turbine", *Wind Energy,* 20, 713–730, https://dx.doi.org/10.1002/we.2056.

55. Ramamurthy P., Li D. , Bou-Zeid E. (2017) "High-resolution Simulation of Heatwave Events in New York City", *Theoretical and Applied Climatology*, 128, 89–102, https://dx.doi.org/10.1007/s00704-015-1703-8.

56. Momen M. and Bou-Zeid E. (2017) "Mean and turbulence dynamics in unsteady Ekman boundary layers", *Journal of Fluid Mechanics*, 816, 209-242, https://dx.doi.org/10.1017/jfm.2017.76.

57. Salesky S. T., Chamecki M., Bou-Zeid E. (2017) "On the nature of the transition between roll and cellular organization in the convective boundary layer", *Boundary-Layer Meteorology*, 163, 41-68, https://dx.doi.org/10.1007/s10546-016-0220-3.

58. Williams O., Hohman T., Van Buren T., Bou-Zeid E., Smits A.J. (2017) "The effect of stable thermal stratification on turbulent boundary layer statistics", *Journal of Fluid Mechanics*, 812, 1039-1075, https://dx.doi.org/10.1017/jfm.2016.781.

59. Ramamurthy P. and Bou-Zeid E. (2017) "Heatwaves and urban heat islands: a comparative analysis of multiple cities using a high-resolution numerical model", *Journal of Geophysical Research-Atmosphere*, 122, 168-178, https://dx.doi.org/10.1002/2016JD025357.

60. Yang J., Wang Z., Li Q., Vercauteren N., Bou-Zeid E., Parlange M.B. (2017) "A novel approach for

unraveling the energy balance of water surfaces with a single depth temperature measurement", *Limnology and Oceanography*, 62, 89–103, https://dx.doi.org/10.1002/lno.10378.

61. Wang W., Smith J.A., Ramamurthy P., Baeck M.L., Bou-Zeid E., Scanlon T.M.(2016) "On the correlation of water vapor and CO_2 : Application to flux partitioning of evapotranspiration", *Water Resources Research,* 52, 9452–9469, https://dx.doi.org/10.1002/2015WR018161.

62. Parolari A., Li D., Bou-Zeid E., Katul G., Assouline S., (2016) "Climate, not conflict, explains extreme Middle East dust storm", *Environmental Research Letters*, 11, 114013. https://dx.doi.org/10.1088/1748-9326/11/11/114013.
Featured in international media in English, Hebrew, and Russian

63. Ryu Y.H., Smith J.A., Baeck M.L., Cunha, L.K., Bou-Zeid E., Krajewski, W.(2016) "The Regional Water Cycle and Heavy Spring Rainfall in Iowa: Observational and Modeling Analyses from the IFloodS Campaign", *Journal of Hydrometeorology,* 17, 2763-2784, https://dx.doi.org/10.1175/JHM-D-15-0174.1.

64. Li Q., Bou-Zeid E., Anderson W., Grimmond S., Hultmark M. (2016)"Quality and Reliability of LES of Convective Scalar Transfer at High Reynolds Numbers", *International Journal of Heat and Mass Transfer*, 102, 959–970, DOI:10.1016/j.ijheatmasstransfer.2016.06.093.

65. Bradshaw J., Bou-Zeid E, Harris R.H. (2016) "Greenhouse gas mitigation benefits and cost-effectiveness of weatherization treatments for low-income, American, urban housing stocks", *Energy and Buildings*, 128,911-920, https://dx.doi.org/10.1016/j.enbuild.2016.07.020.

66. Kuehni S.M., Bou-Zeid E., Webb C., Shokri N. (2016), "Roof cooling by direct evaporation from a porous roof layer", *Energy and Buildings*, 127, 512-528, https://dx.doi.org/10.1016/j.enbuild.2016.06.019.

67. Tomaszkiewicz M., Abou Najm M., Beysens D., Alameddine I., Bou Zeid E., El-Fadel M. (2016) "Projected climate change impacts upon dew yield in the Mediterranean basin", *Science of the Total Environment,* 566-567,1339-1348, https://dx.doi.org/10.1016/j.scitotenv.2016.05.195 .

68. Li Q., Bou-Zeid E., Anderson W. (2016), "The impact and treatment of the Gibbs phenomenon in immersed boundary method simulations of momentum and scalar transport", *Journal of Computational Physics*, 10, 237–251, https://dx.doi.org/10.1016/j.jcp.2016.01.013.

69. Alameddine I., Abi Esber L., Bou Zeid E., Hatzopoulou M., El-Fadel M. (2016), "Operational and Environmental Determinants of In-Vehicle CO and PM2.5 Exposure", *Science of the Total Environmental*, 551-552, 42-50, https://dx.doi.org/10.1016/j.scitotenv.2016.01.030.

70. Assouline S., Li D., Tyler S., Tanny J., Cohen S., Bou-Zeid E., Parlange M.B., Katul G.G. (2016) "On the variability of the Priestley-Taylor coefficient over water bodies", *Water Resources Research,* 52,150-163, https://dx.doi.org/10.1002/2015WR017504.

71. Ryu Y.H., Bou-Zeid E., Wang Z.-H. Smith J.A. (2016) "Realistic representation of trees in an urban canopy model". *Boundary-Layer Meteorology*, 159,193-220, https://dx.doi.org/10.1007/s10546-015-0120-y.

72. Momen M. and Bou-Zeid E. (2016) "Large Eddy Simulations and Damped-Oscillator Models of the Unsteady Ekman Boundary Layer", *Journal of the Atmospheric Sciences*, 73, 25-40, https://dx.doi.org/10.1175/JAS-D-15-0038.1.

73. Ryu Y.H., Smith J.A., Bou-Zeid E., Baeck M.L. (2016) "The Influence of Land-Surface Heterogeneities on Heavy Convective Rainfall in the Baltimore-Washington Metropolitan Area", *Monthly Weather Review,* 144, 553-573, https://dx.doi.org/10.1175/MWR-D-15-0192.1.

74. Katul G.G., Manes C., Porporato A., Bou-Zeid E., Chamecki M. (2015) "Bottlenecks in turbulent kinetic energy spectra predicted from structure function inflections using the Von Karman-Howarth equation" *Physical Review E*, 92, 033009, https://dx.doi.org/10.1103/PhysRevE.92.033009.

75. Li D., Katul G.G., Bou-Zeid E. (2015) "Turbulent energy spectra and cospectra of momentum and heat fluxes in the stable atmospheric surface layer", *Boundary-Layer Meteorology*, 157(1), 1-21, https://dx.doi.org/10.1007/s10546-015-0048-2.

76. Ramamurthy P., Sun T. Rule K., Bou-Zeid E. (2015) "The Joint Influence of Albedo and Insulation on Roof Performance: A Modeling Study", *Energy and Buildings*, 102, 317-327, https://dx.doi.org/10.1016/j.enbuild.2015.06.005.

77. Ramamurthy P., Sun T. Rule K., Bou-Zeid E. (2015) "The Joint Influence of Albedo and Insulation on Roof Performance: An Observational Study", *Energy and Buildings*, 93, 249-258, https://dx.doi.org/10.1016/j.enbuild.2015.02.040.

78. Anderson W., Li Q., Bou-Zeid E. (2015) "Numerical simulation of flow over urban-like topographies and evaluation of turbulence temporal attributes", *Journal of Turbulence*, 16 (9), 809-831, https://dx.doi.org/10.1080/14685248.2015.1031241.

79. Solecki W., Rosenzweig C., Blake R., de Sherbinin A., Matte T., Moshary F., Rosenzweig B., Arend M., Gaffin S., Bou-Zeid E., Rule K., Sweeny G., Dessy W. (2015) "New York City Panel on Climate Change 2015 Report Chapter 6: Indicators and Monitoring". *Annals of the New York Academy of Sciences*, 1336, 89–106, https://dx.doi.org/10.1111/nyas.12587.

80. Ryu Y.H., Smith J.A., Baeck M.L., Bou-Zeid E. (2015) "On the Climatology of Precipitable Water and Water Vapor Flux in the Mid-Atlantic Region of the US". *Journal of Hydrometeorology*, 16, 70-87, https://dx.doi.org/10.1175/JHM-D-14-0030.1.

81. Bou-Zeid E. (2015) "Challenging the large eddy simulation technique with advanced a posteriori tests". *Journal of Fluid Mechanics*, 764, 1-4, https://dx.doi.org/10.1017/jfm.2014.616.

82. Shah S. and Bou-Zeid E. (2014) "Direct Numerical Simulations of Turbulent Ekman Layers with Increasing Static Stability: Modifications to the Bulk Structure and Second-Order Statistics". *Journal of Fluid Mechanics*, 760, 494-539, https://dx.doi.org/10.1017/jfm.2014.597.

83. Shah S. and Bou-Zeid E. (2014) "Very-Large-Scale Motions in the Atmospheric Boundary Layer Educed by Snapshot Proper Orthogonal Decomposition". *Boundary-Layer Meteorology*, 153(3), 355-387, https://dx.doi.org/10.1007/s10546-014-9950-2.

84. Hu X., Li D., Hong H., Shifei S., Bou-Zeid E. (2014) “Modeling and Sensitivity Analysis of Transport and Deposition of Radionuclides from the Fukushima Daiichi Accident”. *Atmospheric Chemistry and Physics*, 14, 11065-11092, https://dx.doi.org/10.5194/acp-14-11065-2014.

85. Ramamurthy P., Bou-Zeid E., Smith J.A., Wang Z., Baeck M.L., Saliendra N.Z., Hom J., Welty C. (2014) “Influence of Sub-Facet Heterogeneity and Material Properties on the Urban Surface Energy Budget”. *Journal of Applied Meteorology and Climatology*, 53 (9), 2114-2129, https://dx.doi.org/10.1175/JAMC-D-13-0286.1.

86. Ramamurthy P. and Bou-Zeid E, (2014) "Contribution of Impervious Surfaces to Urban Evaporation". *Water Resources Research*, 50(4), 2889-2902, https://dx.doi.org/10.1002/2013WR013909.

87. Li D. and Bou-Zeid E (2014) "Quality and Sensitivity of High-Resolution Numerical Simulation of Urban Heat Islands". *Environmental Research Letters*, 9, 055001, https://dx.doi.org/10.1088/1748-9326/9/5/055001.

88. Li D., Bou-Zeid E., Oppenheimer M. (2014) "The Effectiveness of Cool and Green Roofs as Urban Heat Island Mitigation Strategies". *Environmental Research Letters*, 9, 055002, DOI:10.1088/1748-9326/9/5/055002 + supplementary material.

89. Katul G.G., Porporato A., Shah S., Bou-Zeid E. (2014) “Two phenomenological constants explain similarity laws in stably stratified turbulence”. *Physical Review E,* 89, 023007, https://dx.doi.org/ 10.1103/PhysRevE.89.023007.

90. Yang L., Smith J.A., Baeck M.L., Bou-Zeid E., Jessup S.M., Tian F., Hu H. (2014) “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(1), 261-278, https://dx.doi.org/10.1175/JHM-D-13-020.1.

91. Sun T., Bou-Zeid E., Ni G.-H. (2014) “To Irrigate or not to Irrigate: Analysis of Green Roof Performance via a Vertically-Resolved Hygrothermal Model”. *Building and Environment,* 73, 127-137, https://dx.doi.org/10.1016/j.buildenv.2013.12.004.

92. Wang L., Li D., Gao Z., Sun T., Guo X., Bou-Zeid E. (2014) “Turbulent transport of momentum and scalars above an urban canopy”. *Boundary-Layer Meteorology*, 150(3), 485-511, https://dx.doi.org/10.1007/s10546-013-9877-z.

93. Bradshaw J., Bou-Zeid E, Harris R.H. (2014) “Comparing the effectiveness of weatherization treatments for low-income, American, urban housing stocks in different climates”, *Energy and Buildings*, 69, 535–543, https://dx.doi.org/10.1016/j.enbuild.2013.11.035.

94. Li D., Bou-Zeid E, Barlage M., Chen F., Smith J.A. (2013) “Development and evaluation of a mosaic approach in the WRF-Noah framework”, *Journal of Geophysical Research – Atmospheres*, 118 (21), 11,918–11,935, https://dx.doi.org/10.1002/2013JD020657.

95. Wang L., Gao Z., Pan Z., Guo X., Bou-Zeid E. (2013) "Evaluation of Turbulent Surface Flux Parameterizations Over Tall Grass in a Beijing Suburb". *Journal of Hydrometeorology*, e-view, https://dx.doi.org/10.1175/JHM-D-12-0103.1

96. Li D. and Bou-Zeid E. (2013). "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), 2051–2064, https://dx.doi.org/10.1175/JAMC-D-13-02.1.
Featured in a podcast by *Scientific American* (http://tinyurl.com/HW-UHI-podcast).

97. Wang Z., Bou-Zeid E., Smith J.A. (2013) "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, https://dx.doi.org/10.1002/qj.2032.

98. Li D., Bou-Zeid E., Baeck M.L., Jessup S., Smith J.A. (2013) "Modeling Land Surface Processes and Heavy Rainfall in Urban Environments: Sensitivity to Urban Surface Representations". *Journal of Hydrometeorology*, 14, 1098-1118, , https://dx.doi.org/10.1175/JHM-D-12-0154.1.

99. Huang J. and Bou-Zeid E. (2013) "Turbulence and Vertical Fluxes in the Stable Atmospheric Boundary-Layer I: A Large-Eddy Simulation Study". *Journal of the Atmospheric Sciences*, 70(6), 1513–1527, https://dx.doi.org/10.1175/JAS-D-12-0167.1.

100. Huang J., Bou-Zeid E., Golaz J.C. (2013) "Turbulence and Vertical Fluxes in the Stable Atmospheric Boundary-Layer II: A Novel Mixing Length Model". *Journal of the Atmospheric Sciences*, 70(6), 1528–1542, https://dx.doi.org/10.1175/JAS-D-12-0168.1.

101. Mirocha J., Kirkil G., Bou-Zeid E., Chow F.K., Kosović B. (2013) "Transition and Equilibration of Neutral Atmospheric Boundary Layer Flow in One-Way Nested Large-Eddy Simulations Using the Weather Research and Forecasting Model". *Monthly Weather Review*, 141, 918–940, https://dx.doi.org/10.1175/MWR-D-11-00263.1.

102. Katul G.G., Li D., Chamecki M., Bou-Zeid E. (2013) "Mean scalar concentration profile in a sheared and thermally stratified atmospheric surface layer". *Physical Review E*, 87(2), 023004, https://dx.doi.org/10.1103/PhysRevE.87.023004.

103. Sun T., Bou-Zeid E., Wang Z., Zerba E., Ni G. (2013) "Hydrometeorological Determinants of Green Roof Performance via a Vertically-Resolved Model for Heat and Water Transport". *Building and Environment*, 60, 211-224. https://dx.doi.org/10.1016/j.buildenv.2012.10.018.

104. Talbot C., Bou-Zeid E., Smith J.A. (2012) "Nested mesoscale-large eddy simulations with WRF: performance in real test cases". *The Journal of Hydrometeorology,* 13(5), 1421–1441*,* https://dx.doi.org/10.1175/JHM-D-11-048.1.

105. Li D., Katul G.G., Bou-Zeid E. (2012) "Mean velocity and temperature profiles in a sheared diabatic turbulent boundary layer". *Physics of Fluids*, 24 (10), 105105, https://dx.doi.org/10.1063/1.4757660.

106. Myhrvold C., Stone H., Bou-Zeid E. (2012) "What is the use of elephant hair?". *PLoS ONE*, 7(10): e47018. DOI:10.1371/journal.pone.0047018.
See also list of media articles covering this paper at http://efm.princeton.edu/News.htm

107. Li D., Bou-Zeid E., De Bruin H.A.R. (2012) "Monin-Obukhov Similarity Functions for the Structure Parameters of Temperature and Humidity". *Boundary-Layer Meteorology*, 145 (1), 45-67, https://dx.doi.org/10.1007/s10546-011-9660-y.

108. Wang Z. and Bou-Zeid E. (2012) “A novel approach for the estimation of soil ground heat flux”. *Agricultural and Forest Meteorology*, 154–155, 214-221, https://dx.doi.org/10.1016/j.agrformet.2011.12.001.

109. Kirkil G., Mirocha J., Bou-Zeid E., Chow F.K., Kosović B. (2012) “Implementation and Evaluation of Dynamic Subfilter-Scale Stress Models for Large-Eddy Simulation using WRF”, *Monthly Weather Review*, 140, 266–284, https://dx.doi.org/10.1175/MWR-D-11-00037.1.

110. Vercauteren N., Huwald H., Bou-Zeid E, Selker J.S., Lemmin U., Parlange M.B., Lunati I. (2011) “Evolution of Superficial Lake Water Temperature Profile Under Diurnal Radiative Forcing”, *Water Resources Research*, 47, W09522, DOI:10.1029/2011WR010529.

111. Wang Z., Bou-Zeid E., Au S.K., Smith J.A. (2011) “Analyzing the Sensitivity of WRF’s Single-Layer Urban Canopy Model to Parameter Uncertainty Using Advanced Monte Carlo Simulation”, *the Journal of Applied Meteorology and Climatology*, 50, 1795–1814, DOI:10.1175/2011JAMC2685.1.

112. Li D. and Bou-Zeid E. (2011) “Coherent Structures and the Dissimilarity of Turbulent Transport of Momentum and Scalars in the Unstable Atmospheric Surface Layer”. *Boundary-Layer Meteorology*, 140(2), 243-262, DOI:10.1007/s10546-011-9613-5.

113. Wang Z. and Bou-Zeid E. (2011) “Comment on “Impact of wave phase difference between soil surface heat flux and soil surface temperature on soil surface energy balance closure” by Z. Gao, R. Horton and H. P. Liu”, *the Journal of Geophysical Research – Atmospheres*, 116, D08110, DOI:10.1029/2010JD015117.

114. Wang Z., Bou-Zeid E., Smith J.A. (2011) “A spatially-analytical scheme for surface temperatures and conductive heat fluxes in urban canopy models”, *Boundary-Layer Meteorology*, 138(2), 171-193, https://dx.doi.org/10.1007/s10546-010-9552-6.

115. Bou-Zeid E., Higgins C., Huwald H., Parlange M.B., Meneveau C. (2010). “Field study of the dynamics and modelling of subgrid scale turbulence in a stable atmospheric surface layer over a glacier”. *the Journal of Fluid Mechanics*, 665, 480-515, https://dx.doi.org/10.1017/S0022112010004015.

116. Nadeau D.F., Brutsaert W., Parlange M. B., Bou-Zeid E., Barrenetxea G., Couach G., Boldi M.-O., Selker J., Vetterli M. (2009) "Estimation of Urban Sensible Heat Flux Using a Dense Wireless Network of Observations". *Environmental Fluid Mechanics,* 9, 635–653, https://dx.doi.org/10.1007/s10652-009-9150-7.

117. Huwald H., Higgins C., Boldi M., Bou-Zeid E. , Lehning M., Parlange M.B. (2009) "Albedo effect on radiative errors in air temperature measurements". *Water Resources Research,* 45, W08431, https://dx.doi.org/10.1029/2008WR007600.

118. Bou-Zeid E., Overney J., Rogers B.D., Parlange M.B., (2009) "The Effects of Building Representation and Clustering in Large Eddy Simulations of Flows in Urban Canopies". *Boundary-Layer Meteorology,* 132(3), 415-436, https://dx.doi.org/10.1007/s10546-009-9410-6.

119. Vercauteren N., Bou-Zeid E., Huwald H., Parlange M.B., Brutsaert W. (2009) "The estimation of wet-surface evaporation from sensible heat flux measurements". *Water Resources Research*, 45, W06424, DOI:10.1029/2008WR007544.

120. Bou-Zeid E, Vercauteren N., Parlange M.B., Meneveau C. (2008) “Scale dependence of subgrid-scale model coefficients: an a-priori study”. *Physics of Fluids*, 20(11), 115106. https://dx.doi.org/10.1063/1.2992192.

121. Vercauteren N., Bou-Zeid E., Parlange M.B., Lemmin U., Huwald H., Selker J., Meneveau C. (2008) “Subgrid-scale dynamics for water vapor, heat, and momentum over a lake”. *Boundary-Layer Meteorology*, 128(2), 205-228. https://dx.doi.org/10.1007/s10546-008-9287-9.

122. Assouline S., Tyler S., Tanai Y., Cohen S., Bou-Zeid E., Parlange M.B., Katul G. (2008) “Evaporation from three water bodies of different sizes and climates: Measurements and scaling analysis”. *Advances in Water resources*, 31(1), 160-172. https://dx.doi.org/10.1016/j.advwatres.2007.07.003.

123. Bou-Zeid E., Parlange M.B., Meneveau C. (2007) “On the parameterization of surface roughness at regional scales”. *Journal of the Atmospheric Sciences*, 64 (1), 216–227. https://dx.doi.org/10.1175/JAS3826.1.

124. Bou-Zeid E. Meneveau C., Parlange M.B. (2005) “A scale-dependent Lagrangian dynamic model for large eddy simulation of complex turbulent flows”. *Physics of fluids,* 17, 025105. https://dx.doi.org/10.1063/1.1839152.

125. Bou-Zeid E., Meneveau C., Parlange M.B. (2004) “Large-eddy simulation of neutral atmospheric boundary layer flow over heterogeneous surfaces: Blending height and effective surface roughness”. *Water Resources Research*, 40, W02505. https://dx.doi.org/10.1029/2003WR002475.

126. Bou-Zeid E and El-Fadel M. (2004) “Parametric sensitivity analysis of leachate transport simulations at landfills”. *Waste Management*, 24, 681-689. https://dx.doi.org/10.1016/j.wasman.2004.03.004.

127. El-Fadel M., Bou-Zeid E., Chahine W. (2003) “Landfill evolution and treatability assessment of high-strength leachate from MSW with high organic and moisture content”. *International Journal of Environmental Studies*, 60, 603-615. https://dx.doi.org/10.1080/0020723032000069187.

128. El-Fadel M. Bou-Zeid E., Chahine W. (2002) “Leachate generation and transport from solid waste disposal at a former quarry site”. *Journal of Solid Waste Technology and Management*, 28, 60-70.

129. Bou-Zeid E and El-Fadel M. (2002) “Climate change and water resources in the Middle East: a vulnerability and adaptation assessment”. *ASCE, Journal of Water Resources Planning and Management*, 128(5), 343-355. https://dx.doi.org/10.1061/(ASCE)0733-9496(2002)128:5(343).

130. El-Fadel M., Bou-Zeid E. Chahine W., Alayli B., (2002) “Temporal variation of leachate quality from pre-sorted and baled MSW with high organic and moisture content”. *Waste Management*, 22(3), 269-282. https://dx.doi.org/10.1016/S0956-053X(01)00040-X.

131. El-Fadel M. and Bou-Zeid E (2001) "Climate Change and water resources in the middle east: vulnerability, socio-economic impacts, and adaptation". *Fondazione Eni Enrico Mattei (FEEM)* Working Paper No. 46.2001. https://dx.doi.org/10.2139/ssrn.278514.

132. El-Fadel M. and Bou-Zeid E. (2001) “Economic valuation of greenhouse gas emissions reduction in Lebanon”. *International Journal of Environmental Studies*, 58(4), 459486. https://dx.doi.org/10.1080/00207230108711344.

133. El-Fadel M. and Bou-Zeid E. (1999) “Transportation GHG emissions in developing countries. The case of Lebanon”. *Transportation Research Part D*, 4(4), 251-264. https://dx.doi.org/10.1016/S1361-9209(99)00008-5.

Patents

Bou-Zeid E., and M. Momen (2018) “System and method for performing wind forecasting.” US Patent Publication number US 2018/0062393 A1, http://www.freepatentsonline.com/y2018/0062393.html

Book Chapters and other Archival Publications

Llaguno-Munitxa M. and Bou-Zeid E. (2021) "Sensing the Environmental Neighborhoods: Mobile Urban Sensing Technologies (MUST) for High Spatial Resolution Urban Environmental Mapping", Proceedings of the 2020 DigitalFUTURES: The 2nd International Conference on Computational Design and Robotic Fabrication. Springer, Singapore, https://www.doi.org/10.1007/978-981-33-4400-6_12

Golston L., Davies G., Edwards R., Miller M., Momen M., Nealon T., Bou-Zeid E., Chen M., Hansen M.O.L., Hultmark M., Socolow R. (2019) ”Wind Power: An Energy Technology Distillate from the Andlinger Center for Energy and the Environment at Princeton University”, Technical Report, https://acee.princeton.edu/distillates/windpower/#overview.

Llaguno-Munitxa M., Bogosian B., Bou-Zeid E., Al Tair A., Radcliff D., Fischer S., Youngryel R. (2017) “SEOUL ON-AIR. Augmented Environments for Urban Activism”. In *Imminent Commons: The Expanded City,* eds. Zaera-Polo A. and Anderson J.S., Seoul Biennale of Architecture and Urbanism 2017.

El-Fadel M. and Bou-Zeid E. (2003) “Climate change and water resources in the Middle East: vulnerability, socio-economic impacts, and adaptation”. In *Climate Change in the Mediterranean*, eds. Giupponi, C. and Schechter, M., Edward Elgar Publishing, Cheltenham, UK.

Refereed Proceedings Papers

1. Yang J. and Bou-Zeid E. (2018) “Greening rooftops to reduce heat islands: how large is large enough?” International Building Physics Conference 2018, Syracuse, NY, USA: http://amz.xcdsystem.com/476EFEC7-D8CF-7470-232B140485F971CA_abstract_File1159/FinalPaperFileUpload_402_0619093018.pdf

2. Li Q., Bou-Zeid E., Yang J., Wang Z.-H. (2018) “Improving the representation of convective heat transfer in an urban canopy model”, International Building Physics Conference 2018, Syracuse, NY, USA: http://amz.xcdsystem.com/476EFEC7-D8CF-7470-232B140485F971CA_abstract_File1159/FinalPaperFileUpload_424_0612122558.pdf

3. Llaguno Munitxa M., Bou-Zeid E., Bogosian B., Al Tair A., Radcliff D., Fisher S., Ryu Y. (2018) “Sensing and information technologies for the environment (SITE); hardware and software innovations in mobile sensing applications”, International Building Physics Conference 2018, Syracuse, NY, USA:

http://amz.xcdsystem.com/476EFEC7-D8CF-7470-232B140485F971CA_abstract_File1159/FinalPaperFileUpload_430_0630060005.pdf

4. Fabiani C., Posello A.L., Bou-Zeid E., and Yang J (2018) "Using advanced urban canopy models to investigate the potential of thermochromic materials as urban heat island mitigation strategies" International Building Physics Conference 2018, Syracuse, NY, USA: http://amz.xcdsystem.com/476EFEC7-D8CF-7470-232B140485F971CA_abstract_File1159/FinalPaperFileUpload_283_0627023621.pdf

5. Omidvar H. and Bou-Zeid E. (2018) "Rapid cooling of urban surfaces during rainfall: physical basis, dominant energy fluxes, and sensitivity to pavement and rainfall properties" International Building Physics Conference 2018, Syracuse, NY, USA: http://amz.xcdsystem.com/476EFEC7-D8CF-7470-232B140485F971CA_abstract_File1159/FinalPaperFileUpload_400_0628030315.pdf

6. Malings C., Pozzi M., Klima K., Bou-Zeid E., Ramamurthy P., and Bergés M. (2016) "Optimal Sensor Placement for Urban Heat Risk Response", 13th International Conference on Probabilistic Safety Assessment and Management (PSAM 13). Seoul, Republic of Korea.

7. Teitelbaum, E., Meggers F., Scherer G., Ramamurthy P., Wang L., and Bou-Zeid E., (2015) "ECCENTRIC Buildings: Evaporative Cooling in Constructed ENvelopes by Transmission and Retention Inside Casings of Buildings". Proceedings of the 6th International Building Physics Conference, IBPC 2015, *Energy Procedia*, 78, 1593–1598. https://dx.doi.org/10.1016/j.egypro.2015.11.218

8. Wang W., Smith C., So S., Bou-Zeid E., Wysocki G. (2011) "Wireless Sensor Networks for Monitoring of Atmospheric Chemicals". Optical Instrumentation for Energy and Environmental Applications Conference, Optical Society of America, Austin, TX, Joint Poster Session PV/SOLAR/SOLED/E2 (JWE).

9. Bou-Zeid E., Shah, S., Parlange M.B., Smits, L., Higgins, C., Huwald, H., and Meneveau C. (2010) "Experimental and numerical investigations of stably stratified atmospheric flows". 16th US National Congress of Theoretical and Applied Mechanics, State College, PA, Paper number USNCTAM2010-636.

10. Wang Z-H., Bou-Zeid E., Smith J. A. (2010) "Application of a sensor network to study the energy budget in urban canopies". Proceedings of the 15th Symposium on Meteorological Observation and Instrumentation, American Meteorological Society 2010 Annual Meeting, Atlanta, GA. (paper) (presentation).

11. Talbot C. Bou-Zeid E., Smith J.A. (2010) "Multiscale Atmospheric Simulations Over a Complex and Heterogeneous Terrain: Surface Variability and Land-Atmosphere Interactions". Proceedings of the 22nd Conference on Climate Variability and Change the 24th Conference on Hydrology, American Meteorological Society 2010 Annual Meeting, Atlanta, GA. (paper) (presentation).

12. Bou-Zeid E., Huwald H., Lemmin U., Selker J.S., Meneveau C., Parlange M.B. (2007) "Atmospheric surface layer turbulence over water surfaces and sub-grid scale physics". pp.517-519 in *Advances In Turbulence XI,* Proceedings of the 11th EUROMECH European Turbulence Conference, June 25-28, 2007, Porto, Portugal, Editors: J.M.L.M. Palma and A.Silva Lopes Springer Proceedings in Physics 117, Springer, Heidelberg, ISBN 978-3-540-72603-6

13. Parlange M.B., Bou-Zeid E., Huwald H., Chamecki M., Meneveau C. (2007) "SNOHATS: Stratified atmospheric turbulence over snow surfaces". pp.520-522 in *Advances In Turbulence XI,* Proceedings of the 11th EUROMECH European Turbulence Conference, June 25-28, 2007, Porto, Portugal, Editors: J.M.L.M. Palma and A. Silva Lopes Springer Proceedings in Physics 117, Springer, Heidelberg, ISBN 978-3-540-72603-6

14. Bou-Zeid E., Meneveau C., Parlange M.B. (2004) "Applications of the Lagrangian dynamic model in LES of turbulent flow over surfaces with heterogeneous roughness distributions". Paper number HT-FED2004-56127, Proceedings of the *2004 ASME Heat Transfer/Fluids Engineering Summer Conference*, July 11-15, 2004, Charlotte, North Carolina, USA.

15. Bou-Zeid E., Meneveau, C., Parlange M.B. (2004) "Comparison of four eddy-viscosity SGS models in large-eddy simulation of flows over rough walls". Paper number HT-FED2004-56126, Proceedings of the *2004 ASME Heat Transfer/Fluids Engineering Summer Conference*, July 11-15, 2004, Charlotte, North Carolina, USA.

16. Pahlow M, Bou-Zeid E, Parlange M.B. (2001) "Entrainment into the atmospheric boundary layer: LIDAR observations and LES simulations". Proceedings of the *2001 International Symposium on Environmental Hydraulics*, Tempe, Arizona, December 5-8.

17. El-Fadel M. and Bou Zeid E. (1999) "Transportation emissions in Lebanon: extent and mitigation". In *Urban Transport V: Urban Transport and the Environment for the 21st Century*, *volume 5*, Sucharov L.J., ed, WIT Press, Southampton, UK, pp. 149-158.

Unrefereed or Archives Scientific Publications

Bou-Zeid E. (2022) "An Equitable Technological Future for Cities", *The Sci Tech Lawyer - The American Bar Association Science & Technology Law Section*, Winter 2021 Edition, 18, 10-13.

Manoli G, Fatichi S, Katul GG and Bou-Zeid E (2020) "Magnitude and seasonality of global surface urban heat islands: A coarse-grained approach", *Urban Clime News - Quarterly Newsletter of the International Association for Urban Climate*, Issue 76 - June 2020, 10-15, http://www.urban-climate.org/newsletters/IAUC076.pdf

Omidvar H., Bou-Zeid E., et al. (2018) "Rapid drop of surface temperature in urban terrain during rainfall: Physical representation and reduced models", *Urban Clime News - Quarterly Newsletter of the International Association for Urban Climate*, Issue 69 - September 2018, 12-15,

Li D. and Bou-Zeid E. (2014) "Heat waves in urban areas: impacts and mitigation". *Urban Clime News - Quarterly Newsletter of the International Association for Urban Climate*, Issue 53 - September 2014, 7-14, http://urban-climate.org/newsletters/IAUC056.pdf

Li Q. and Bou-Zeid E. (2018) "Contrasts Between Momentum and Scalar Transport Over Very Rough Surfaces" arXiv: 1812.03238 [physics. flu-dyn], https://arxiv.org/abs/1812.03238.

Margulis, S. and Bou-Zeid E. (2010) "Large-scale field experiments in hydrology: What have we learned and where do we go from here?" AGU Hydrology Section Newsletter, December 2010, pp. 28-30, http://hydrology.agu.org/pdf/AGUHydro-201012.pdf.

Selected Invited Talks, Seminars, Webinars, and Panels

2021: ➲ New Jersey Institute of Technology's chapter of the National Academy of Inventors, Sustainable Societies and Climate Change: The Quest for Sustainable Global Solutions workshop.
➲ Brookhaven National Lab, Department of Environmental and Climate Sciences
➲ University of Maryland Baltimore County, Center for Urban Environmental Research and Education
➲ Princeton University, Department of Mechanical and Aerospace Engineering

2020: ➲ Stanford University, Fluid Mechanics Seminar Series
➲ Northeastern University, School of Architecture - webinar for a Studio course on cities and urbanization
➲ Swiss Federal Institute of Technology - Zürich, Future Cities Lab's web conference: Ecosystem Services in Urban Landscapes

2019: ➲ Samsung Research America, Mountain View, CA
➲ American Geophysical Union, Fall 2019 meeting, invited talk in session "Interdisciplinary Sustainable Solutions for Urban Areas"
➲ Rutgers University, Department of Civil and Environmental Engineering.
➲ International Summer School on "Urban resilience in a changing world: energy, safety and wellbeing challenges", University of Perugia, University of Rome - Sapienza, UNESCO
➲ Federal University of Parana, Brazil, Department of Environmental Engineering
➲ Federal University of Santa Maria, Brazil, Department of Physics
➲ University of Sao Paolo, Brazil, Department of Atmospheric Sciences.

2018: ➲ American Geophysical Union, Fall 2018 meeting, invited talk in session "Urban Areas and Global Change"
➲ Columbia University, Department of Earth and Environmental Engineering
➲ 55PLUS Organization of Princeton, NJ
➲ Argonne National Laboratory, invited talk in the workshop "Workshop on High Reynolds Number Flow Simulations on Exascale Platforms"
➲ International Conference on Urban Climate, 2018 meeting, invited talk in session "Numerical Studies of Urban Environments II"
➲ Bridgewater-Raritan High School, iSTEM club
➲ University of Rochester, Department of Mechanical Engineering
➲ IEEE Integrated STEM Education Conference, Keynote Talk, https://tinyurl.com/ybaepy9h
➲ University of Minnesota, Saint Anthony Falls Lab, Keynote Speaker at the Edward Silberman Student Award Ceremony

2017: ➲ Stevens Institute of Technology, Department of Civil, Environmental and Ocean Engineering
➲ Seoul National University, College of Agriculture and Life Sciences
➲ Yonsei University, Department of Atmospheric Sciences
➲ Princeton Plasma Physics Laboratory, The Ronald E. Hachter "Science on Saturdays" Lecture for high school students and teachers, https://tinyurl.com/yar3dbmy
➲ Notre Dame University, Department of Civil and Environmental Engineering
➲ University of Washington, Department of Mechanical Engineering

2016: ➲ Tiger Talks in the City "Smart Solutions for Smart Cities" panel participant
➲ Brookhaven National Lab, Symposium on "Energy & water cycles in the urban-natural system:

challenges and opportunities
➲ University of Perugia, Italy, Department of Engineering, Interuniversity Research Center
➲ 2016 MIRTHE+ Symposium on Regional Air Quality Monitoring, and Urban Sensing in Safety and Security Applications, City College of New York
➲ Duke University, Workshop on Wireless Intelligent Sensor Networks (WISeNet)
➲ Baltimore Ecosystem Study Long Term Ecological Research Network, 2016 Annual Meeting

2015: ➲ American Geophysical Union, Fall 2015 meeting, invited talk in session "A52B: Atmospheric Boundary Layer Processes and Turbulence"
➲ 13th US National Congress on Computational Mechanics, invited talk in the mini-symposium on "Large eddy and direct numerical simulations with geophysical applications"
➲ Commonwealth Scientific and Industrial Research Organisation (CSIRO), Weather & Renewable Energy, CSIRO Oceans & Atmosphere Flagship
➲ Melbourne University, Department of Mechanical Engineering
➲ Monash University, Department of Civil Engineering
➲ Monash University, School of Geography & Environmental Science

2014: ➲ National Center for Atmospheric Research, Mesoscale & Microscale Meteorology Division
➲ Carnegie Mellon University, Department of Civil and Environmental Engineering
➲ Johns Hopkins University, Center for Environmental and Applied Fluid Mechanics
➲ University of Reading (UK), Department of Meteorology (two talks)
➲ City University of New York CREST Institute & Brookhaven National Laboratory workshop on "Developing a Strategy to Advance Our Understanding of the Urban Environment and Its Impact on Local and Regional Weather and Climate"
➲ Arizona State University, School of Sustainable Engineering and the Built Environment
➲ Columbia University, Sustainable Development (SDEV) program

2013: ➲ The New York City Panel on Climate Change (NPCC2), Climate Risk Information Report on Climate Change Indicators and Monitoring Workshop (short talk + panel discussions).
➲ Stony Brook University, Institute for Terrestrial and Planetary Atmospheres, School of Marine and Atmospheric Sciences.
➲ Traversing New Terrain in Meteorological Modeling, Air Quality and Dispersion Conference, University of California at Davis.
➲ Urban Landscapes and Climate Change workshop, Argonne National Laboratory
➲ National Weather Center Colloquium, NOAA & Oklahoma University School of Meteorology

2012: ➲ American Geophysical Union, Fall 2012 meeting, invited talk in session "EP31E. Aeolian Processes and Desert Landscape Development: Feedbacks Among Atmospheric Boundary Layer Turbulence, Sediment Transport, and Morphodynamics II."
➲ American Geophysical Union, Fall 2012 meeting, invited talk in session "H53N. Water Quality and Quantity in Urban Systems: Energy Budgets, Microbes, and Human Interactions"
➲ University of Virginia, Department of Environmental Sciences
➲ Energy Path 2012: America's Sustainable Energy Future, http://energypath.org/energypath2012/Home.aspx

2011: ➲ Oregon State University, Department of Biological and Ecological Engineering and College of Atmospheric and Oceanic Sciences
➲ The Chinese Academy of Science, Institute of Atmospheric Physics, Beijing, China
➲ University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering

➲ King Abdullah University of Science and Technology (KAUST), Invited lecture in the Red Sea Research Center Symposium, Jeddah, Saudi Arabia.
➲ Columbia University, Department of Applied Physics and Applied Mathematics, Colloquium in Climate Science
➲ University of Maryland at Baltimore County, Center for Urban Environmental Research and Education

2010: ➲ Pennsylvania State University, Department of Meteorology
➲ John Wyngaard's Retirement Symposium, Pennsylvania State University

2009: ➲ Massachusetts Institute of Technology, Department of Civil & Environmental Engineering
➲ Patterns in Soil-Vegetation-Atmosphere Systems Monitoring, Modelling and Data Assimilation, International Workshop, Invited Keynote Lecture, Aachen, Germany
➲ European Geosciences Union, General Assembly 2009, Vienna, solicited talk in the session: Scaling, subgrid models, downscaling and parameterization

2008: ➲ Geophysical Fluid Dynamics Laboratory, National Oceanic and Atmospheric Administration
➲ Imperial College London, Institute for Mathematical Sciences, 3d-IMS Turbulence Workshop: Informal discussions on fractal-generated turbulence, London, UK.
➲ King's College London, Department of Geography, London, UK.

2007: ➲ Harvard University, Division of Engineering and Applied Sciences
➲ Rice University, Department of Civil and Environmental Engineering
➲ University of Houston, Department of Earth And Atmospheric Sciences
➲ University of Washington – Seattle, Department of Atmospheric Sciences
➲ Drexel University – Philadelphia, Department of Civil and Environmental Engineering
➲ City University of New York, Department of Civil Engineering
➲ University of Surrey, Environmental Flow Research Centre, Surrey, UK.

2006: ➲ Mathematisches Forschungsinstitut Oberwolfach, Workshop on Mathematical Theory and Modelling in Atmosphere-Ocean Science, Oberwolfach , Germany.
➲ ETH Swiss Federal Institute of Technology at Zurich, Institute of Hydromechanics and Water Resources Management, Zurich, Switzerland.
➲ American University of Beirut, Department of Civil and Environmental Engineering, Beirut, Lebanon.

2005: Cornell University, Department of Civil and Environmental Engineering

2003: Virginia Polytechnic Institute and State University, Department of Engineering Science & Mechanics

Selected Recent Conference Presentations

1. Wang J, Bou-Zeid E, Li Q, Giometto MG, Munitxa ML (2021) "Understanding the Extreme Winds over Built Surfaces". Fall meeting of the American Geophysical Union.
2. Zahn E, Bou-Zeid E, Good SP, Katul GG, Thomas CK, Ghannam K, Smith JA, Chamecki M, Dias NL, Fuentes JD, others (2021) "Experimental and Numerical Investigation of Flux Partitioning methods for water vapor and carbon dioxide" Fall meeting of the American Geophysical Union.

3. Munitxa ML, Bou-Zeid E (2021) “Influence of vehicular road emissions on urban air quality examined through high spatio-temporal resolution data during the COVID-19 lockdown”. Fall meeting of the American Geophysical Union.
4. Ghannam K, Malyshev S, Chaney NW, Bou-Zeid E, Tan Z, Zhao M, Shevliakova E (2021) “An Eddy Diffusivity Mass Flux (EDMF) Scheme for the Atmospheric Boundary Layer over Spatially Heterogeneous Surfaces: Implementation and Effects on the Global Climate in GFDL’s Coupled Land-Atmosphere Model”. Fall meeting of the American Geophysical Union.
5. Bou-Zeid E, Ghannam K (2021) Baroclinicity and directional shear explain departures from the logarithmic wind profile. Meeting of the Division of Fluid Dynamics of the Physical Society.
6. Kustas W, Knipper K, Anderson MC, Alfieri J, Nieto H, Torres-Rua A, Oritz NB, Bou-Zeid E, Zahn E, Prueger J, others (2021) “A remote Sensing-based modeling system for partitioning of evapotranspiration into soil evaporation and plant transpiration”. 101st American Meteorological Society Annual Meeting
7. Choi B, Pozzi M, Berges M, Bou-Zeid E (2021) “Developing time-variant filter for meso-scale surface temperature prediction”. IABSE Conference Seoul 2020: Risk Intelligence of Infrastructures. pp 59–65.
8. Talebpour M, Welty C, Bou-Zeid E (2021) “A new fully-coupled atmospheric-hydrological model for urban areas: development and testing”. European Geosciences Union - General Assembly
9. Allouche M, Bou-Zeid E (2020) “A Dimensionless Analysis of Coastal Circulation Dynamics”. Fall meeting of the American Geophysical Union, online.
10. Choi B, Pozzi M, Berges M, Bou-Zeid E (2020) “Probabilistic Approaches for Surrogate Modeling with High-Dimensional Data to Predict Short-Term Meso-scale Surface Temperature”. Fall meeting of the American Geophysical Union, online.
11. Fogarty J, Bou-Zeid E, Grachev AA, Pan M, Boisvert L, Bushuk M, Deike L, Fuentes JD (2020) “Turbulence-Resolving Simulations of Atmosphere-Surface Coupling in the Marginal Ice Zone: The Interacting Effects of Temperature and Roughness Heterogeneity”. Fall meeting of the American Geophysical Union, online.
12. Allouche M, Katul GG, Fuentes JD, Bou-Zeid E (2020) “On the probability law of turbulent kinetic energy in the atmospheric surface layer”. American Physical Society Division of Fluid Dynamics Meeting*, online.* Meeting of the Division of Fluid Dynamics of the Physical Society.
13. Ghannam K, Bou-Zeid E (2020) “Second-moment Budgets of the Baroclinic Atmospheric Boundary Layer”. 100th American Meteorological Society Annual Meeting. Boston, MA.
14. Llaguno-Munitxa M, Bou-Zeid E (2020) “Opportunistic Mobile Urban Sensing Technologies”. 100th American Meteorological Society Annual Meeting. Boston, MA.
15. Bou-Zeid E (2020) “Atmospheric boundary layer processes: Accomplishments to date and future research endeavors”. 100th American Meteorological Society Annual Meeting. Boston, MA.
16. Talebpour M, Welty C, Bou-Zeid E (2020) “A New Fully-Coupled Model for Improving the Representation of Urban Heterogenous Hygrothermal Processes”. 100th American Meteorological Society Annual Meeting. Boston, MA.

Editorial Positions and Reviews

Editor: Journal of the Atmospheric Sciences (2020 - ongoing)

Editorial Board: Advances in Water Resources (2014 - 2020)

Papers for Atmospheric Sciences Journals: Journal of the Atmospheric Sciences, Boundary-Layer Meteorology, Journal of Applied Meteorology and Climatology, Journal of Hydrometeorology, Journal of Geophysical Research – Atmospheres, Monthly Weather Review, Geophysical Research Letters, Atmospheric Environment, Atmospheric and Oceanic Science Letters, Quarterly Journal of the Royal Meteorological Society, Agricultural and Forest Meteorology, Eos, Journal of Atmospheric and Oceanic Technology, Weather and Forecasting, Urban Climate, Atmospheric Research, Scientific Online Letters on the Atmosphere, Theoretical and Applied Climatology.

Papers for Fluid Mechanics Journals: Journal of Fluid Mechanics, Physics of Fluids, Computers and Fluids, Journal of Turbulence, Environmental Fluid Mechanics, Theoretical and Computational Fluid Dynamics, Physical Review - Fluids.

Papers for Hydrology and Water Resources Journals: Water Resources Research, Advances in Water Resources, Journal of Hydrology, Hydrological Processes, Transport in Porous Media, Water International, Hydrology and Earth System Sciences

Other Journals: Proceedings of the National Academy of Science, Journal of Environmental Engineering, Environmental Science and Technology, Environmental Engineering Science, Physics and Chemistry of the Earth, Environmental Management, Journal of the Air and Waste Management Association, Waste Management and Research, Journal of Applied Mathematics, Limnology and Oceanography, Wind Energy, Journal of Renewable and Sustainable Energy, IEEE Transactions on Geoscience and Remote Sensing, Geoscientific Model Development, Energy, Environmental Modelling & Software, PLoS ONE, Scientific Reports, Nature Communications, Geophysical Model Development, Science Advances, Solar Energy, Journal of Computational Physics, Sustainable Cities and Society, International Journal of Heat and Mass Transfer, Fractals.

Proposal reviews and panel participations: US National Science Foundation (various programs), German Research Foundation, Natural Environment Research Council (NERC) of the UK, Swiss National Science Foundation, Czech Science Foundation, Natural Sciences and Engineering Research Council of Canada (NSERC), Netherlands Organisation for Scientific Research, US Environmental Protection Agency, US Army Research Laboratory, American Chemical Society – Petroleum Research Fund, École Polytechnique Fédérale de Lausanne fellowship program.

Book proposal reviews: Oxford University Press, Wiley Press

Current Ph.D. Students, Postdoctoral Researchers and Visiting Students

Ph.D. Students: Mohammad Allouche, Joseph Fogarty, Einara Zahn, Jing Wang

Previously Advised Students and Postdoctoral Researchers

Postdocs:

- Maider Llaguno Munitxa, now assistant professor at Université Catholique de Louvain, Belgium
- Khaled Ghannam, 2019, now postdoc at The Geophysical Fluid Dynamics Lab, Princeton
- Jiachuan Yang, 2018, now assistant professor at Hong Kong University of Science and Technology

➲ Dana Caulton, 2018, co-advised with prof Mark Zondlo, now assistant professor at the University of Wyoming
➲ Seyed Hossein Hezaveh, 2016, now data scientist at CareFirst BlueCross BlueShield
➲ Young-Hee Ryu, 2015, now Research Associate Professor at POSTECH (Pohang University of Science and Technology) in South Korea
➲ Prathap Ramamurthy, 2014, now assistant professor at The City University of New York
➲ Steve Jessup, 2013, now assistant professor at SUNY - The College of Brockport
➲ Jing Huang, 2012, now Research Scientist at CSIRO, Australia
➲ Charles Talbot, 2011, now researcher in École des Mines de Saint-Étienne, France

Ph.D. Students:
➲ Hamidreza Omidvar, 2018, now carbon mitigation scientist at Sylvera, UK
➲ Mostafa Momen, 2016, now assistant professor at the University of Houston
➲ Qi Li, 2016, now assistant professor at Cornell University
➲ Seyed Hossein Hezaveh, 2016, now data scientist at CareFirst BlueCross BlueShield
➲ Stimit Shah, 2014, now CFD software developer at Aerion Corporation (aerionsupersonic.com)
➲ Dan Li, 2013, now assistant professor at Boston University
➲ Zhihua Wang, 2011, now associate professor at Arizona State University

Masters Students:
➲ Yinzhen Jin, 2013, co-advised with Professor Warren Powell, started a tech company in China.
➲ Xiang Gao, 2017, in Mechanical and Aerospace Engineering Department.

Visiting Graduate Students:
➲ Ran Wang, 2019-2020, The Chinese University of Hong Kong
➲ Ilaria Pigliautile, 2018, University of Perugia
➲ Claudia Fabiani, 2017, University of Perugia
➲ Maider Llaguno Munitxa, 2013-2016, Swiss Federal Institute Technology – Zurich
➲ Xiaofeng Hu, 2013, Tsinghua University
➲ Renalda El-Samra, 2013, American University of Beirut
➲ Ting Sun, 2012, Tsinghua University

Undergraduate Senior Theses Supervised:
➲ Jonathan Bradshaw, 2010: Cost-effectiveness of weatherization in low-income urban housing stock
➲ Thomas Maltbaek, 2011: Optimal mitigation strategies for the urban heat island effect
➲ Emily Moder, 2013: A decision-making model for building energy retrofits
➲ Christopher Hamm, 2014: Pushing the envelope: the feasibility of passive house integration in the United States
➲ Taylor Morgan, 2016: Understanding the water-energy nexus: a Princeton university case study
➲ Ingrid Yen, 2016: Novel methods for measuring heat exchanges between urban facets and the atmosphere
➲ Hope Lorah, 2017: The water-energy nexus in large cities
➲ Christie Jiang, 2017: Improving urban climate data collection: assessment and redesign of Tsinghua's meteorological sensor network
➲ Alistair Berven, 2017: Improving algae growth for carbon sequestration and biofuel production
➲ Roan Gideon, 2018: Integrated Wave and Offshore Wind Energy Farms: Benefits and Challenges
➲ Tobi Ayeni and Jess Hunt, 2020.

See list of other undergraduate and high-school advisees at http://efm.princeton.edu/People.htm

Awards to students and postdocs while working in Bou-Zeid's lab

- Mohammad Allouche, The Princeton School of Engineering and Applied Science's Award for Excellence, 2021
- Einara Zahn, Walbridge Fund Graduate Award for Environmental Research, Princeton University, 2021
- Mohammad Allouche, The Princeton School of Engineering and Applied Science's Award for Excellence, 2020
- Einara Zahn, The William G. Bowen Merit Fellowship of Princeton University, 2019
- Hamidreza Omidvar, the Mary and Randall Hack '69 Graduate Award, Princeton Environmental Institute
- Maider Llaguno Munixta, selected to participate in MIT's CEE Rising Stars program.
- Qi Li, Fellowship in Geophysical Fluid Dynamics at Woods Hole Oceanographic Institution
- Qi Li, student presentation award at the 9th ICUC/12th AMS symposium on the urban environment
- Qi Li, Wu Prize for Excellence from the Princeton Engineering Office of Graduate Affairs
- Stimit Shah, Selected to Participate in Argonne Training Program for Extreme-Scale Computing
- Dan Li, "Award for Outstanding Students Abroad" from Chinese Government
- Dan Li, Outstanding Student Paper Award in AGU's Fall Meeting 2012.
- Dan Li, Wu Prize for Excellence from the Princeton Engineering Office of Graduate Affairs
- Undergrad student team co-led by Elie Bou-Zeid, EPA's National Sustainable Design competition "P3: People, Prosperity and the Planet" for their project "Power in a Box" (http://www.princeton.edu/main/news/archive/S33/55/56I53/index.xml?section=topstories)

Teaching at Princeton (co-taught courses are in italics)

- Environmental Fluid Mechanics (undergraduate, CEE 305, 2009-ongoing)
- Boundary Layer Meteorology (graduate, CEE 588, 2010-ongoing)
- Flow and Turbulence in Geophysical Systems, 2021 (graduate, CEE 599, 2021)
- The Climatological, Hydrological and Environmental Footprints of Cities (undergraduate, CEE 474, 2020)
- Cities in the 21st Century: The Nexus of Climate, Water and Energy Challenges (graduate & undergraduate, Springs of 2013 and 2017)
- Environmental Engineering Laboratory (undergraduate, CEE 308, 2017)
- Environmental Engineering Fundamentals I: Atmospheric and Surface Processes (graduate, CEE 501, 2008-2011)
- Introduction to Environmental Engineering (undergraduate, CEE 303, once in 2009)
- Engineering Projects in Community Service (EPICS): the student team in the course went on to win a 90,000 USD grant through EPA's national "P3: People, Prosperity and the Planet Student Design Competition for Sustainability" for their project "Power in a Box", which aims to develop a portable

hybrid wind-solar renewable energy system that fits in a shipping container (http://www.princeton.edu/main/news/archive/S33/55/56I53/index.xml?section=topstories), (undergraduate, EGR 250, 251, 350, 351, 450, & 451, one three-year session)

- **Teaching at Other Institutions:** Taught a one-week short course on "The Urban Environment: Microclimatology, Thermal Transport and Hydrology" at Tsinghua University, Department of Hydraulic Engineering, July 2011. (see lectures at http://efm.princeton.edu/Urban%20Lectures.htm).

Membership in Professional Societies

- American Geophysical Union (AGU)
- American Physical Society (APS)
- European Geosciences Union (EGU)
- American Meteorological Society (AMS)
- International Association for Urban Climate (IAUC)

Selected Funded Research (role, budget, start date, duration)

National Science Foundation
"Meteorological Islands: How the Atmosphere Interacts with Large Individual Patches of Heterogeneity"

PI	$ 557,420	Aug 2021	3 years

National Science Foundation
"MCA: In flux: the role of dynamic urban greenspace in energy, water and carbon cycling"

Institutional PI	$54,172	Sep 2021	3 years

Andlinger Center for Energy and the Environment
"Data-Enhanced Computational Modeling of Wake Effects and their Uncertainties in Offshore Wind Farms"

co-PI	$300,000	Jan 2021	2 years

Princeton Environmental Institute
"The Atmospheric and Oceanic Wakes of Offshore Wind Turbines and Their Effects on Local Marine Environments"

co-PI	$150,000	Jul 2020	2 years

Department of Defense, Army Research Office
"Understanding and predicting the complex wind, temperature, and concentration patterns over built surfaces"

PI	$399,971	Jun 2020	3 years

The Cooperative Institute for Modeling the Earth System (NOAA-Princeton U. collaboration)
"Coastal microscale dynamics and their parametrization"

PI	$ 157,620	Feb 2020	2 years

Samsung Corporation
"Hybrid Sensing and Simulation Technology for Air Quality"

PI	$300,000	Nov 2019	2.5 years

School of Engineering and Applied Science Innovation Funds, Princeton University
"Evapotranspiration and Carbon Flux Partitioning"

PI	$100,000 of $100,000	Jan 2019	1 year

Princeton's Campus as lab Initiative
"Technological innovations to mitigate exposure to air pollution"

PI	$75,000 of $149,000	May 2018	1 year

National Science Foundation
"PREEVENTS Track 2: Collaborative Research: SHADE: Surface Heat Assessment for Developed Environments"

Institutional PI	$305,763 of $820,762	Sep 2017	4 years

Princeton's School of Engineering Innovation Funds
"Augmented reality for environmental visualization"

PI (sole)	$75,000	Feb 2016	14 months

Princeton Environmental Institute, Climate Grand Challenge
"Baroclinicity in the Lower Atmosphere"

PI (sole)	$149,500	Sep 2016	2 years

Siebel Energy Institute
"Novel physically-driven approaches for multiscale wind-energy forecasting"

PI (sole)	$50,000	Apr 2016	1 year

HKF technology
"Short Term Wind Forecasting for Energy Applications"

PI	$149,000	Feb 2016	1 year

Princeton University & GFDL, Cooperative Institute for Climate Science
"Exchange Mechanisms in the Urban Boundary Layer"

co-PI	$25,000 of $99,500	Mar 2016	3 years

National Science Foundation, Sustainability Research Network
"Urban Water Innovation Network (UWIN)"

Institutional PI	$380,000 of $ 1,149,346	Jul 2015	5 years

Department of Defense, Army Research Office
"Rapid Modifications of Land Surface Temperature During Rainfall: Basics and Implications"

PI	$210,264 of $ 360,262	Jan 2015	3 years

National Oceanic and Atmospheric Administration, Office of Oceanic and Atmospheric Research
"Distribution of fugitive methane emissions in the Marcellus Shale"

co-PI	Total grant budget of $ 598,451	Aug 2014	3 years

National Science Foundation, Program of Environmental Sustainability
Grant supplement for international collaboration with the Urban Micromet group at the University of Reading under the "United States and United Kingdom Clean Water Collaboration"

co-PI	$40,767 of $40,767	Sep 2013	1 year

Princeton University, the Princeton Environmental Institute

Organization of a Workshop on "The Climatic and Environmental Impacts of Urbanization"
PI $15,600 of $15,600 Sep 2013 1 year

Princeton University, The Helen Shipley Fund
"Health Risks of Urban Inhabitants Under a Warmer Climate"
PI $148,800 of $148,800 Feb 2013 2 years

Princeton University & GFDL, Cooperative Institute for Climate Science
The Response of a Turbulent Boundary Layer to a Step Change in Stabilizing Surface Heat Flux.
co-PI $69,500 of $139,000 Feb 2013 2 years

Department of Energy - Greater Philadelphia Innovation Cluster (GPIC) for Energy-Efficient Buildings
"Roofing for the Region - Cool, Vegetative or Black: Experimental Evaluation and Modeling "
PI $112,500 of $193,250 Jan 2012 1 year

National Science Foundation, Program of Environmental Sustainability
Grant supplement for international collaboration with the American University of Beirut on the USAID funded project "A collaborative approach towards Integrated Water Resources Management in the Litani river basin: Opportunities for climate change adaptation and socio-economic growth"
co-PI $59,415 of $59,415 Sep 2012 1 year

Princeton University, Siebel Energy Grand Challenge
"Vertical Axis Wind Turbine Farms: Modeling and Optimization"
PI $100,000 of $200,000 Sep 2011 2 years

Princeton University, Andlinger Center for Energy and the Environment
"Wet walls from the pore-scale to the city-scale: a study of a novel passive cooling approach"
PI $25,000 of $50,000 Jul 2011 1 years

Princeton University, MIRTHE Internal Research Grant
"Integrating MIRTHE Sensors into Wireless Meteorological Sensing Networks"
PI $90,000 of $90,000 Jul 2011 1 year

Princeton University, School of Engineering and Applied Science
"Water in China"
co-PI $166,000 of $500,000 Apr 2011 3 years

National Science Foundation, Water Sustainability and Climate Solicitation
"Collaborative Research, WSC-Category 2: Regional Climate Variability and Patterns of Urban Development - Impacts on the Urban Water Cycle and Nutrient Export"
co-PI $599,954 of $5,000,000 Jan 2011 5 years

National Science Foundation, Physical and Dynamical Meteorology Program
"The effect of surface heterogeneity and mesoscale variability on the dynamics of stable atmospheric boundary layers"
PI $370,902 of $370,902 Sep 2010 3 years

Princeton University, MIRTHE Internal Research Grant
"Integrating MIRTHE Sensors into Wireless Meteorological Sensing Networks"
PI $108,000 of $108,000 Jul 2010 1 year

National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems
"RAPID: Wind Energy and Rainwater Harvesting Solutions for Sustainable Recovery of Haiti"
co-PI | Total grant budget: $102,000 | May 2010 | 1 years

Princeton University, High Meadows Sustainability Fund
"A Sensor Network over Princeton"
PI | Total grant budget of $323,160 | Apr 2009 | 2 years

Princeton University, Siebel Energy Grand Challenge
"Experimental and Numerical Studies of Stably Stratified Turbulent Boundary Layers"
PI | $149,000 of $254,500 | Jul 2009 | 2 years

Princeton University, MIRTHE Internal Research Grant
"Integrating MIRTHE Sensors into Wireless Meteorological Sensing Networks"
PI | $102,000 of $102,000 | Jul 2009 | 1 year