CURRICULUM VITAE

ZHIHUA WANG, PH.D.
ARIZONA STATE UNIVERSITY
School of Sustainable Engineering and the Built Environment
Tempe, AZ, 85287-3005
Tel: +1-480-727-2933; Fax: +1-480-965-0557
Email: zhwang@asu.edu

EDUCATION

2011 Ph.D., Civil and Environmental Engineering, Princeton University
2008 M.A., Civil and Environmental Engineering, Princeton University
2004 M.Eng, Civil and Environmental Engineering, Nanyang Technological University, Singapore
2002 B.Eng (1st Class Honors), Civil and Environmental Engineering, Nanyang Technological University, Singapore

ACADEMIC APPOINTMENT

2026.08 – present Professor, School of Sustainable Engineering and the Built Environment, Arizona State University
2018.08 – 2026.07 Associate Professor, School of Sustainable Engineering and the Built Environment, Arizona State University
2012.01 – 2018.07 Assistant Professor, School of Sustainable Engineering and the Built Environment, Arizona State University
2011.09 – 2011.12 Post-doctorate Research Associate, Department of Civil and Environmental Engineering, Princeton University
2004.04 – 2006.08 Research Project Officer, Nanyang Technological University, Singapore

AREAS OF EXPERTISE

Teaching

Fluid Mechanics for Civil Engineers; Environmental Fluid Mechanics; Hydrometeorology; Atmospheric Convection and Thermodynamics; Urban Water System Design

Research

My primary research interest focuses on the sustainable development of the built environment, including urban land-atmosphere interactions, heat mitigation strategies, environmental quality, and complex urban system modeling.

HONORS AND AWARDS

- Timothy Oke Award, International Association for Urban Climate, 2023
- Professor of Impact Award, Arizona State University, 2023
- Graduate Prize, Department of Civil and Environmental Engineering, Princeton University, 2006
- Dean's list of distinguished students, School of Civil and Environmental Engineering, Nanyang Technological University, 2001

PUBLICATIONS, INTELLECTUAL PROPERTY, AND PRESENTATIONS
SUMMARY OF PUBLICATION AND INTELLECTUAL PROPERTY

LEGEND
(*) Corresponding author
Bold Font: ASU Ph.D. Student for whom Dr. Wang is the sole advisor
Bold Italic Font: ASU Ph.D. Student for whom Dr. Wang is a co-advisor or has significant mentoring responsibility
Underline Font: ASU Master's Student for whom Dr. Wang is the sole advisor or a co-advisor
(^) ASU Undergraduate Student
(∞) Other/Visiting Student
(✕) ASU Postdoctoral Researcher
‡ High School Student
(+) Equal Contributions (if not equal include % of participation)
(~) Presenting author

Total Peer-Reviewed Journal Publications (published or in press): 132
Google Scholar Citation: 8650; h-index: 51 (as of 8/11/2026)

Journal Publications from ASU: 116

132. Huang, X., Q. Kong, M. Huber, M. Nikolopoulou, Z.H. Wang, … E. Bou-Zeid* (2026), Divergent heat assessments across thermal stress and sensation metrics, *Earth's Future*, 14, e2026EF008395. https://doi.org/10.1029/2026EF008395

131. **Wang, Y.**, Z.H. Wang*, H. Hou, C. Wang, and **T. Xia** (2026), Characterizing causal urban climate networks of major cities in China, *Sustainable Cities and Society*, 148, 107636. https://doi.org/10.1016/j.scs.2026.107636

130. Huang, Y., C. Wang*, and Z.H. Wang (2026), Enhanced representation of hydrological processes in urban climate modeling: A multi-city global assessment, *Urban Climate*, 67, 102908. https://doi.org/10.1016/j.uclim.2026.102908

129. Yang, X., Z.H. Wang, and C. Wang* (2026), Directed causal coupling between urban heat and air pollution in U.S. cities, *Environmental Research Letters*, 21, 064029. https://doi.org/10.1088/1748-9326/ae53fd

128. Jongen, H.J., M. Lipson, A.J. Teuling, … Z.H. Wang, and G.J. Steeneveld* (2026), Surface runoff discrepancy in Urban-PLUMBER land surface models, *Geophysical Research Letters*, 53, e2026GL122048. https://doi.org/10.1029/2026GL122048

127. Li, H.*, S. Shen, M. Gao, Y. Wu, Z.H. Wang, and H. Shen (2026), Spatiotemporal temperature variations induced by urban extreme heat events at the micro-scale, *Urban Climate*, 66, 102831. https://doi.org/10.1016/j.uclim.2026.102831

126. **Rahmatollahi, N.**, Z.H. Wang*, **Y. Wang**, and X. Yang (2026), Machine learning and causal attribution of urban heat in the Phoenix metropolitan, *Sustainable Cities and Society*, 137, 107145. https://doi.org/10.1016/j.scs.2026.107145

125. ***Wei, S***., **Y. Wang**, T. Xu*, V.R. Buzzard, G. McCormick, B. Yang, **T. Xia**, and Z.H. Wang* (2026), Machine learning-based multi-objective optimization of smart irrigation of urban

trees in Arizona, *Landscape and Urban Planning*, 267, 105539. https://doi.org/10.1016/j.landurbplan.2025.105539

124. Huang, Y., C. Wang*, and Z.H. Wang (2025), Multi-parameterization of hydrological processes in an urban canopy model, *Building and Environment*, 285A, 113567. https://doi.org/10.1016/j.buildenv.2025.113567

123. **Rahmatollahi, N.**, **Y. Wang**., T. Sun, and Z.H. Wang* (2025), Modeling urban land surface dynamics using Arizona single-layer urban canopy model in Python (ASLUM-Py), *Journal of Environmental Management*, 392, 126840. https://doi.org/10.1016/j.jenvman.2025.126840

122. Cui, Y., M. Chu, Z. He, J.D. Albertson, Z.H. Wang, and Q. Li*, (2025), Estimating anthropogenic heat flux by assimilating meteorological observations with Kalman filter approach, *Philosophical Transactions of the Royal Society A*, 383, 20240572. https://doi.org/10.1098/rsta.2024.0572.

121. Wang, C.*[+], **Y. Wang**[+], Z.H. Wang[+], and X. Yang (2025), Causal network and dynamic synchronization of urban thermal environment, *Philosophical Transactions of the Royal Society A*, 383, 20250041. https://doi.org/10.1098/rsta.2025.0041

120. Wang, C.*, Y. Zhao, Q. Li, Z.H. Wang, and J. Fan (2025), Ultrafine-resolution urban climate modeling: Resolving processes across scales, *Journal of Advances in Modeling Earth Systems*, 17, e2025MS005053. http://dx.doi.org/10.1029/2025MS005053

119. Hou, H.*, W. Zhou, J. Wang, M. Yu, J. Cao, **Y. Wang**, A. Middel, and Z.H. Wang (2025), Urbanization-induced disparity of extreme heat distribution in metropolitan Beijing, *Sustainable Cities and Society*, 127, 106458. https://doi.org/10.1016/j.scs.2025.106458

118. Xu, Y., S. Willis, A. Dallman, … Z.H. Wang, … X. Ye* (2025), Urban Climate Adaptation and REsilience (U-CARE) in Texas: Insights from interdisciplinary perspectives, *Applied Spatial Analysis and Policy*, 18, 53. https://doi.org/10.1007/s12061-025-09655-5

117. Wang, S., W. Zhan*, B. Zhou, S. Ting, T.C. Chakraborty, Z.H. Wang, et al. (2025), Dual impact of global urban overheating on mortality, *Nature Climate Change*, 15, 497-504. https://doi.org/10.1038/s41558-025-02303-3

116. Wang, Z.H.*, **P. Li**, **C. Wang**, and **X. Yang** (2025), Impact of urban trees on carbon dioxide exchange: Mechanistic pathways, environmental controls, and feedback, *Journal of Environmental Management*, 374, 124028. https://doi.org/10.1016/j.jenvman.2025.124028

115. Du, H., W. Zhan*, B. Zhou, Y. Ju, Z. Liu, A. Middel, K. Huang, Z. Lei, T.C. Chakraborty, Z.H. Wang, S. Wang, et al. (2025), Exacerbated heat stress induced by urban browning in the global South, *Nature Cities*, 2, 157-169. https://doi.org/10.1038/s44284-024-00184-9

114. Jongen, H.*, M. Lipson, …, Z.H. Wang, and G.J. Steeneveld (2024), The water balance representation in Urban-PLUMBER land surface models, *Journal of Advances in Modeling Earth Systems*, 16(10), e2024MS004231. https://doi.org/ 10.1029/2024MS004231

113. **Wang, Y.**, Z.H. Wang*, N. Rahmatollahi, and H. Hou (2024), The impact of roof systems on cooling and building energy efficiency, *Applied Energy*, 376B, 124339. https://doi.org/10.1016/j.apenergy.2024.124339

112. Zhai, Z.M., M. Moradi, S. Panahi, Z.H. Wang, and Y.C. Lai* (2024), Machine-learning nowcasting of the Atlantic Meridional Overturning Circulation, *APL Machine Learning*, 2(3), 036103. https://doi.org/10.1063/5.0207539

111. **Yang, X.**, Z.H. Wang*, Q. Li, and Y.-C. Lai (2024), Time variability and periodicity of cross-regional hydroclimatic causation in the U.S., *Quarterly Journal of the Royal Meteorological Society*, 150(764), 3942-3956. https://doi.org/ 10.1002/qj.4800

110. **Li, P.**, Z.H. Wang*, and **C. Wang** (2024), The potential of urban irrigation for counteracting carbon-climate feedback, *Nature Communications*, 15, 2437. https://doi.org/10.1038/s41467-024-46826-3.

109. **Yang X.**, Z.H. Wang*, C. Wang, and Y.C. Lai (2024), Megacities are causal pacemakers of extreme heatwaves, *npj Urban Sustainability*, 4, 8. https://doi.org/10.1038/s42949-024-00148-x

108. Zhong, X., H. Li*, J. He, M. Gao, Z.H. Wang, and H. Shen (2024), Local climate zone mapping by coupling multi-level features with prior knowledge based on remote sensing images, *IEEE Transactions on Geoscience and Remote Sensing*, 62, 4403014. https://doi.org/ 10.1109/TGRS.2024.3360522

107. Li, H.*, Y. Han, T. Wang, Z.H. Wang, Y. Li, H. Shen (2024), Evolution of urban morphological polycentricity and the thermal response in Wuhan from 2000 to 2020, *Sustainable Cities and Society*, 100, 105055. https://doi.org/10.1016/j.scs.2023.105055

106. **Wang Y.**, **X. Yang**, and Z.H. Wang* (2024), Causal mediation of urban temperature by geopotential height in U.S. cities, *Sustainable Cities and Society*, 100, 105010. https://doi.org/10.1016/j.scs.2023.105010

105. Lipson, M.*, S. Grimmond, M. Best, …, Z.H. Wang, and A.J. Pitman (2024), Evaluation of 30 urban land surface models in the Urban-PLUMBER project: Phase 1 results, *Quarterly Journal of the Royal Meteorological Society*, 150(758), 126-169. https://doi.org/10.1002/qj.4589

104. Li, P., A. Sharma*, Z.H. Wang, and D. Wuebbles (2023), Assessing impacts of environmental perturbations on urban biogenic carbon exchange in the Chicago region, *Journal of Advances in Modeling Earth Systems*, 15, e2023MS003867. https://doi.org/10.1029/2023MS003867

103. Du, H., W. Zhan*, J. Voogt, B. Bechtel, T.C. Chakraborty, Z. Liu, L. Hu, Z.H. Wang, J. Li, P. Fu, W. Liao, M. Luo, L. Li, S. Wang, F. Huang, and S. Miao (2023), Contrasting trends and drivers of global surface and canopy urban heat islands, *Geophysical Research Letters*, 50, e2023GL104661. https://doi.org/10.1029/2023GL104661

102. Hou H.[∞], ***Q. Longyang***, H. Su, R. Zeng, T. Xu, and Z.H. Wang* (2023), Prioritizing environmental determinants of urban heat islands: A machine learning study for major cities in China, *International Journal of Applied Earth Observation and Geoinformation*, 122, 103411. https://doi.org/10.1016/j.jag.2023.103411

101. **Yang X.**, **P. Li**, and Z.H. Wang* (2023), The impact of urban irrigation on the temperature-

carbon feedback in U.S. cities, *Journal of Environmental Management*, 344, 118452. https://doi.org/ 10.1016/j.jenvman.2023.118452

100. Li, L., W. Zhan*, L. Hu, T. Chakraborty, Z.H. Wang, P. Fu, D. Wang, W. Liao, F. Huang, H. Fu, J. Liu, Z. Liu, H. Du, and S. Wang (2023), Divergent urbanization-induced impacts on global surface urban heat island trends since 1980s, *Remote Sensing of Environment*, 295, 113650. https:// //doi.org/10.1016/j.rse.2023.113650

99. Li, P.*, Y. Yu, D. Huang, Z.H. Wang, and A. Sharma (2023), Regional heatwave prediction using Graph Neural Network and weather station data, *Geophysical Research Letters*, 51, e2023GL103405. https://doi.org/10.1029/2023GL103405

98. Hou, H.[∞], H. Su, C. Yao, and Z.H. Wang* (2023), Spatiotemporal patterns of the impact of surface roughness and morphology on urban heat island, *Sustainable Cities and Society*, 92, 104513. https://doi.org/10.1016/j.scs.2023.104513

97. **Yang, X**., Z.H. Wang*, C. Wang, and Y.-C. Lai (2023), Finding causal gateways of precipitation over the contiguous United States, *Geophysical Research Letters*, 50, e2022GL101942. https://doi.org/10.1029/2022GL101942

96. Xiang, Y., Y. Tang, Z.H. Wang, C. Peng, C. Huang, Y. Dian, M. Teng, and Z. Zhou* (2023), Seasonal variations of the relationship between spectral indexes and land surface temperature based on local climate zones: A study in three Yangtze River megacities, *Remote Sensing*, 15, 870. https://doi.org/10.3390/rs15040870

95. Liu, Z., W. Zhan*, B. Bechtel, J. Voogt, J. Lai, T. Chakraborty, Z.H. Wang, M. Li, F. Huang, and X. Lee (2022), Surface warming in global cities is substantially more rapid than in rural background areas, *Communications Earth & Environment*, 3, 219. https://doi.org/10.1038/s43247-022-00539-x

94. **Yang, X**., Z.H. Wang*, C. Wang, and Y.-C. Lai (2022), Detecting the causal influence of thermal environments among climate regions in the United States, *Journal of Environmental Management*, 322,116001. https://doi.org/10.1016/j.jenvman.2022.116001

93. **Yang, X.**, Z.H. Wang*, and C. Wang (2022), Critical transition in the hydrological system: Early-warning signals and network analysis, *Hydrology and Earth System Sciences*, 26, 1845-1856. https://doi.org/10.5194/hess-26-1845-2022

92. **Li, P.**, T. Xu, S. Wei, and Z.H. Wang* (2022), Multi-objective optimization of urban environmental system design using machine learning, *Computers, Environment and Urban Systems*, 94, 101796. https://doi.org/10.1016/j.compenvurbsys.2022.101796

91. Wang, Z.H.* (2022), Reconceptualizing urban heat island: Beyond the urban-rural dichotomy, *Sustainable Cities and Society*, 77, 103581. https://doi.org/10.1016/j.scs.2021.103581

90. Wang, Z.H.* (2021), Compound environmental impact of urban mitigation strategies: Co-benefits, trade-offs, and unintended consequence, *Sustainable Cities and Society*, 75, 103284. https://doi.org/10.1016/j.scs.2021.103284

89. Cui, Y., L. Hu, Z.H. Wang, and Q. Li*, (2021), Urban nocturnal cooling mediated by

bluespace, *Theoretical and Applied Climatology*, 146, 277-292. https://doi.org/10.1007/s00704-021-03727-5

88. Li, H.*, Y. Li, T. Wang, Z.H. Wang, M. Gao, and H. Shen (2021), Quantifying 3D building form effects on urban land surface temperature and modeling seasonal correlation patterns, *Building and Environment*, 204, 108132. https://doi.org/10.1016/j.buildenv.2021.108132

87. Wang, Z.H.*, **C. Wang**, and **X. Yang** (2021), Dynamic synchronization of extreme heat in complex climate networks in the contiguous United States, *Urban Climate*, 38, 100909. https://doi.org/10.1016/j.uclim.2021.100909

86. **Li, P.** and Z.H. Wang* (2021), Environmental co-benefit of urban greening for mitigating heat and carbon emissions, *Journal of Environmental Management*, 293, 112963. https://doi.org/10.1016/ j.jenvman.2021.112963

85. **Wang, C.***, Z.H. Wang, K.E. Kaloush, and J. Shacat (2021), Cool pavements for heat island mitigation: a synthetic review, *Renewable and Sustainable Energy Review*, 146, 111171. https://doi.org/10.1016/j.rser.2021.111171

84. Wang, Z., E.R. Vivoni*, T.J. Bohn, and Z.H. Wang (2021), A multiyear assessment of irrigation cooling capacity in agricultural and urban settings of central Arizona, *Journal of the American Water Resources Association*, 57(5), 771-788. https://doi.org/10.1111/1752-1688.12920

83. **Wang, C.***, Z.H. Wang, and Y.H. Ryu (2021), A single-layer urban canopy model with transmissive radiation exchange between trees and street canyons, *Building and Environment*, 191, 107593. https://doi.org/10.1016/j.buildenv.2021.107593

82. **Wang, C.***, Z.H. Wang, K.E. Kaloush, and J. Shacat (2021), Perceptions of urban heat island mitigation and implementation strategies: survey and gap analysis, *Sustainable Cities and Society*, 66, 102687. https://doi.org/10.1016/j.scs.2020.102687

81. **Li, P.** and Z.H. Wang* (2021), Uncertainty and sensitivity analysis of modeling plants CO2 exchange in the built environment, *Building and Environment*, 189, 107539. https://doi.org/10.1016/j.buildenv.2020.107539

80. Zhang, F., **C. Wang**, and Z.H. Wang* (2020), Responses of natural vegetation to climate in dryland ecosystems: A comparative study between Xinjiang and Arizona, *Remote Sensing*, 12, 3567. https://doi.org/10.3390/rs12213567

79. **Wang, C.**, Z.H. Wang*, and Q. Li (2020), Emergence of urban clustering among U.S. cities under environmental stressors, *Sustainable Cities and Society*, 63, 102481. https://doi.org/10.1016/j.scs.2020.102481

78. **Li, P.** and Z.H. Wang* (2020), Modeling carbon dioxide exchange in a single-layer urban canopy model, *Building and Environment*, 184, 107243. https://doi.org/10.1016/j.buildenv.2020.107243

77. Huang, F.[∞], W. Zhan*, Z.H. Wang, J. Voogt, L. Hu, J. Quan, C. Liu, N. Zhang, and J. Lai (2020), Satellite identification of atmosphere-surface-subsurface urban heat islands under clear sky, *Remote Sensing of Environment*, 250, 112039.

https://doi.org/10.1016/j.rse.2020.112039

76. **Wang, C.**, Z.H. Wang*, and L. Sun‡ (2020), Early warning signals for critical temperature transition, *Geophysical Research Letters*, 47, e2020GL088503. https://doi.org/10.1029/2020GL088503

75. Wang, Z.H.* (2020), Can trees pollute cities? *Atmosfera*, 1-11. https://doi.org/10.20937/ATM.52907

74. **Wang, C.** and Z.H. Wang* (2020), A network-based toolkit for evaluation and intercomparison of weather prediction and climate modeling, *Journal of Environmental Management*, *268*, 110709. https://doi.org/10.1016/j.jenvman.2020.110709

73. **Li, P.** and Z.H. Wang* (2020), A nonequilibrium thermodynamic approach for surface energy balance closure, *Geophysical Research Letters*, *47*(3), e2019GL085835. https://doi.org/10.1029/2019GL085835

72. **Yang, J.***, Z.H. Wang, and H.P. Huang (2019), Intercomparison of the surface energy partitioning in CMIP5 simulations, *Atmosphere*, *10*(10), 602. https://doi.org/10.3390/atmos10100602

71. **Wang, C.**, Z.H. Wang*, and J. Yang (2019), Urban water capacity: Irrigation for heat mitigation, *Computers, Environment and Urban Systems*, *78*, 101397. https://doi.org/10.1016/j.compenvurbsys.2019.101397

70. Wang, Z.H.*, R. von Gnechten^, D. Sampson, and D.D. White (2019), Wastewater reclamation holds a key for water sustainability in future urban development of Phoenix Metropolitan Area, *Sustainability*, *11*, 3537. https://doi.org/10.3390/su11133537

69. **Li, P.**, and Z.H. Wang* (2019), Estimating evapotranspiration over vegetated surfaces based on wet patch patterns, *Hydrology Research*, *50*(4), 1037-1046. https://doi.org/10.2166/nh.2019.034

68. **Wang, C.**, Z.H. Wang*, C. Wang, and S.W. Myint (2019), Environmental cooling provided by urban trees under extreme heat and cold waves, *Remote Sensing of Environment*, *227*, 28-43. https://doi.org/10.1016/j.rse.2019.03.024

67. Wang, Z.H.*, and *R. Upreti* (2019), A scenario analysis of thermal environmental changes induced by urban growth in Colorado River Basin, USA, *Landscape and Urban Planning*, *181*, 125-138. https://doi.org/10.1016/j.landurbplan.2018.10.002

66. **Wang, C.**, Q. Li, and Z.H. Wang* (2018), Quantifying the impact of urban trees on passive pollutant dispersion using a coupled large-eddy simulation-Lagrangian stochastic model, *Building and Environment*, *145*, 33-49. https://doi.org/10.1016/j.buildenv.2018.09.014

65. **Wang, C.**, Z.H. Wang*, and **J. Yang** (2018), Cooling effect or urban trees on the built environment of contiguous United States, *Earth's Future*, *6*, 1066-1081. https://doi.org/10.1029/2018EF000891

64. **Song, J.***, Z.H. Wang, and **C. Wang** (2018), The regional impact of urban heat mitigation strategies on planetary boundary-layer dynamics over a semi-arid city, *Journal of*

Geophysical Research: Atmospheres, *123*, 6410-6422. https://doi.org/10.1029/2018JD028302

63. Omidvar, H., **J. Song**, **J. Yang**, G. Arwatz, Z.H. Wang, M. Hulme, K. Kaloush, and E. Bou-Zeid* (2018), Rapid modification of urban land surface temperature during rainfall, *Water Resources Research*, *54*, 4245-4264. https://doi.org/10.1029/2017WR022241

62. **Wang, C.**, Z.H. Wang*, **J. Yang**, and Q. Li (2018), A backward-Lagrangian-stochastic footprint model for the urban environment, *Boundary-Layer Meteorology*, *168*(1), 59-80. https://doi.org/10.1007/s10546-018-0338-6

61. Li, Q.* and Z.H. Wang (2018), Large-eddy simulation of the impact of urban trees on momentum and heat fluxes, *Agricultural and Forest Meteorology*, *255*, 44-56. https://doi.org/10.1016/j.agrformet.2017

60. Templeton, N.A., E.R. Vivoni*, Z.H. Wang, and A. Schreiner-McGraw (2018), Quantifying water and energy fluxes over different urban land covers in Phoenix, Arizona, *Journal of Geophysical Research-Atmospheres*, *123*(4), 2111–2128. https://doi.org/10.1002/2017JD27845

59. Zhao, Q.*, J. Yang, Z.H. Wang, and E.A. Wentz (2018), Assessing the cooling and locational benefits of tree shade by an outdoor urban physical scale model at Tempe, AZ, *Urban Science*, *2*, 20. https://doi.org/10.3390/urbansci2010004

58. Huang, F.[∞], W. Zhan*, Z.H. Wang, K. Wang, J.M. Chen, Y. Liu, J. Lai, and W. Ju (2017), Positive or negative? Urbanization-induced variations in diurnal skin-surface temperature range detected using satellite data, *Journal of Geophysical Research: Atmospheres*, *122*(24), 13229-13244. https://doi.org/10.1002/2017JD027021

57. **Wang, C.***, C. Wang, S.W. Myint, and Z.H. Wang (2017), Landscape determinants of spatio-temporal patterns of aerosol optical depth in the two most polluted metropolitans in the United States, *Science of the Total Environment*, *609*, 1556-1565. https://doi.org/10.1016/j.scitotenv.2017.07.273

56. **Yang, J.**, and Z.H. Wang* (2017), Planning for a sustainable desert city: The potential water buffering capacity of urban green infrastructure, *Landscape and Urban Planning*, *167*, 339-347. https://doi.org/10.1016/j.landurbplan.2017.07.014

55. **Song, J.**, Z.H. Wang*, S.W. Myint, and C. Wang (2017), The hysteresis effect on surface-air temperature relationship and its implications to urban planning: An examination in Phoenix, Arizona, USA, *Landscape and Urban Planning*, *167*, 198-211. https://doi.org/10.1016/j.landurbplan.2017.06.024

54. Sun, T.*, Z.H. Wang, W. Oechel, and C.S.B. Grimmond (2017), The analytical objective hysteresis model (AnOHM v1.0): Methodology to determine bulk storage heat flux coefficients, *Geoscientific Model Development*, *10*, 2875-2890. https://doi.org/doi:10.5194/gmd-10-2875-2017

53. *Upreti, R.*, Z.H. Wang*, and J. Yang (2017), Radiative shading effect of urban trees on cooling the regional built environment, *Urban Forestry & Urban Greening*, *26*, 18-24. https://doi.org/10.1016/j.ufug.2017.05.008

52. **Wang, C.**, and Z.H. Wang* (2017), Projecting population growth as a dynamic measure of regional urban warming, *Sustainable Cities and Society*, *32*, 357-365. https://doi.org/10.1016/j.scs.2017.04.010

51. Wang, Z.H.* and Q. Li (2017), Thermodynamic characterisation of urban nocturnal cooling, *Heliyon*, *3*, e00290. https://doi.org/10.1016/j.heliyon.2017.e00290

50. **Song, J.***, Z.H. Wang, and **C. Wang** (2017), Biospheric and anthropogenic contributors to atmospheric CO2 variability in a residential neighborhood of Phoenix, Arizona, *Journal of Geophysical Research: Atmospheres*, *122*, 3317-3329. https://doi.org/doi:10.1002/2016JD026267

49. Aflaki, A.*, M. Mirnezhad, A. Ghaffarianhoseini, A.G. Ghaffarianhoseini, H. Omrany, Z.H. Wang, and H. Akbari (2017), Urban heat island mitigation strategies: A state-of-the-art review on Kuala Lumpur, Singapore and Hong Kong, *Cities*, *62*, 131-145. https://doi.org/doi: 10.1016/j.cities.2016.09.003

48. **Yang, J.**, Z.H. Wang*, Q. Li, N. Vercauteren, E. Bou-Zeid, and M.B. Parlange (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://doi.org/10.1002/lno.10378

47. **Song, J.** and Z.H. Wang* (2016), Diurnal changes in urban boundary layer environment induced by urban greening, *Environmental Research Letters*, *11*, 114018. https://doi.org/10.1088/1748-9326/11/11/114018

46. Wang, Z.H.*, C. Fan, S.W. Myint, and **C. Wang** (2016), Size matters: what are the characteristic source areas for urban planning strategies?, *PLoS One*, *11*(11), e0165726. https://doi.org/10.1371/journal.pone.0165726

45. Wang, C.*, **J. Yang**, S.W. Myint, Z.H. Wang, and B. Tong (2016), Empirical modelling and spatio-temporal patterns of urban evapotranspiration for the Phoenix Metropolitan area, Arizona, *GIScience & Remote Sensing*, *53*(6), 778-792. https://doi.org/10.1080/15481603.2016.1243399

44. **Yang, J.***, Z.H. Wang, K. Kaloush, and H. Dylla (2016), Effect of pavement thermal properties on mitigating urban heat islands: A multi-scale modeling case study in Phoenix, *Building and Environment*, *108*, 110-121. https://doi.org/10.1016/j.buildenv.2016.08.021

43. Huang, F.[∞], W. Zhan*, J. Voogt, L. Hu, Z.H. Wang, J. Quan, W. Ju, and Z. Guo (2016), Temporal upscaling of surface urban heat island by incorporating an annual temperature cycle model: A tale of two cities, *Remote Sensing of Environment*, *186*, 1-12. https://doi.org/10.1016/j.rse.2016.08.009

42. **Song, J.** and Z.H. Wang* (2016), Evaluating the impact of built environment characteristics on urban boundary layer dynamics using an advanced stochastic approach, *Atmospheric Chemistry and Physics*, *16*, 6285-6301. https://doi.org/10.5194/acp-16-1-2016

41. **Yang, J.**, Z.H. Wang*, M. Georgescu, F. Chen, and M. Tewari (2016), Assessing the impact of enhanced hydrological processes on urban hydrometeorology with application to two

cities in contrasting climates, *Journal of Hydrometeorology*, *17*, 1031-1047. https://doi.org/10.1175/JHM-D-15-0112.1

40. Wang, C.*, S. Myint, Z.H. Wang, and **J. Song** (2016), Spatio-temporal modeling of the urban heat island in the Phoenix Metropolitan area: Land use change implications, *Remote Sensing*, *8*, 185. https://doi.org/10.3390/rs8030185

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

38. **Song, J.***, J. Xia, L. Zhang, Z.H. Wang, H. Wan, and D. She (2016), Streamflow prediction in ungauged basins by regressive regionalization: A case study in Huai River Basin, China, *Hydrology Research*, *47*(5), 1053-1068. https://doi.org/10.2166/nh.2015.155

37. Wang, Z.H.*, X. Zhao∞, **J. Yang**, and **J. Song** (2016), Cooling and energy saving potentials of shade trees and urban lawns in a desert city, *Applied Energy*, *161*(3), 437-444. https://doi.org/10.1016/j.apenergy.2015.10.047

36. **Song, J.** and Z.H. Wang* (2015), Impacts of mesic and xeric urban vegetation on outdoor thermal comfort and microclimate in Phoenix, AZ, *Building and Environment*, *94*(2), 558-568. https://doi.org/10.1016/j.buildenv.2015.10.016

35. **Yang, J.** and Z.H. Wang* (2015), Optimizing urban irrigation schemes for the trade-off between energy and water consumption, *Energy and Buildings*, *107*, 335-344. https://doi.org/10.1016/j.enbuild.2015.08.045

34. Georgescu, M.*, W.T. Chow, Z.H. Wang, A. Brazel, B. Trapido-Lurie, M. Roth, and V. Benson-Lira (2015), Prioritizing urban sustainability solutions: coordinated approaches must incorporate scale-dependent built environment induced effects, *Environmental Research Letters*, *10*, 061001. https://doi.org/10.1088/1748-9326/10/6/061001

33. **Yang, J.**, Z.H. Wang*, and K.E. Kaloush (2015), Environmental impacts of reflective materials: Is high albedo a 'silver bullet' for mitigating urban heat island? *Renewable and Sustainable Energy Reviews*, *47*, 830-843. https://doi.org/10.1010/j.rser.2015.03.092. (*IF:* 16.799)

32. **Yang, J.**, Z.H. Wang*, F. Chen, S. Miao, M. Tewari, J. Voogt, and S. Myint (2015), Enhancing hydrologic modeling in the coupled Weather Research and Forecasting - urban modeling system, *Boundary-Layer Meteorology*, *155*(1), 87-109. https://doi.org/10.1007/s10546-014-9991-6

31. **Song, J.** and Z.H. Wang* (2015), Interfacing urban land-atmosphere through coupled urban canopy and atmospheric models, *Boundary-Layer Meteorology*, *154*(3), 427-448. https://doi.org/10.1007/s10546-014-9980-9

30. **Yang, J.** and Z.H. Wang* (2014), Land surface energy partitioning revisited: A novel approach based on single depth soil measurement, *Geophysical Research Letters*, *41*, 8348-8358. https://doi.org/10.1002/2014GL062041

29. Wang, Z.H.* (2014), Monte Carlo simulations of radiative heat exchange in a street canyon

with trees, *Solar Energy*, *110*, 704-713. https://doi.org/10.1016/j.solener.2014.10.012

28. Wang, Z.H.* (2014), A new perspective of urban-rural differences: The impact of soil water advection, *Urban Climate*, *10*, 19-34. https://doi.org/10.1016/j.clim.2014.08.004

27. Huang, F., W. Zhan*, W. Ju, and Z.H. Wang (2014), Improved reconstruction of soil thermal field using two-depth measurements of soil temperatures, *Journal of Hydrology*, *519*, 711-719. https://doi.org/10.1016/j.jhydrol.2014.08.014

26. **Yang, J.**, and Z.H. Wang* (2014), Physical parameterization and sensitivity of urban hydrological models: Application to green roof systems, *Building and Environment*, *75*, 250-263. https://doi.org/10.1016/j.buildenv.2014.02.006

25. Ramamurthy, P.*, E. Bou-Zeid, J. Smith, Z.H. Wang, M. Baeck, J. Hom, and C. Welty (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://doi.org/10.1175/JAMC-D-13-0286.1

24. Shan, W.*, T. Lu, Z.H. Wang, and C. Majidi (2013), Thermal analysis and design of a multi-layered rigidity tunable composite, *International Journal of Heat and Mass Transfer*, *66*, 271-278. https://doi.org/10.1016/j.ijheatmasstransfer.2013.07.031

23. **Yang, J.**, Z.H. Wang*, and T.W. Lee (2013), Relative efficiency of surface energy partitioning over different land covers, *British Journal of Environment and Climate Change*, *3*(1), 86-102.

22. Sun, T., Z.H. Wang*, and G. Ni (2013), Revisiting the hysteresis effect in surface energy budgets, *Geophysical Research Letters*, *40*, 1741-1747. https://doi.org/10.1002/grl.50385

21. Sun, T.*, E. Bou-Zeid, Z.H. Wang, E. Zerba, and G.H. Ni (2013), Hydrological determinants of green roof performance via a vertically-resolved model for heat and water transport, *Building and Environment*, *60*, 211-224. https://doi.org/10.1016/j.buildenv.2012.10.018

20. Wang, Z.H.*, E. Bou-Zeid, and J.A. Smith (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://doi.org/10.1002/qj.2032

19. Lee, T.-W.*, J.Y. Lee, and Z.H. Wang (2012), Scaling of the urban heat island intensity using time-dependent energy balance, *Urban Climate*, *2*, 16-24. https://doi.org/10.1016/j.uclim.2012.10.005

18. Wang, Z.H.* (2012), Reconstruction of soil thermal field from a single depth measurement, *Journal of Hydrology*, *464-465*, 541-549. https://doi.org/10.1016/j.jhydrol.2012.07.047

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

Journal Publications Prior to ASU: 16

16. Wang, Z.H.*, E. Bou-Zeid, S.K. Au, and J.A. Smith (2011), Analyzing the sensitivity of WRF's single-layer urban canopy model to parameter uncertainty using advanced Monte Carlo simulation, *Journal of Applied Meteorology and Climatology*, *50*(9), 1795-1814. https://doi.org/10.1175/2011jamc2685.1

15. Wang, Z.H.*, and E. Bou-Zeid (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, *Journal of Geophysical Research - Atmospheres*, *116*, D08110. https://doi.org/10.1029/2010jd015117

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

13. Wang, Z.H.* (2010), Geometric effect of radiative heat exchange in concave structure with application to heating of steel I-sections in fire, *International Journal of Heat and Mass Transfer*, *53*(5-6), 997-1003. https://doi.org/10.1016/j.ijheatmasstransfer.2009.11.013

12. Scherer, G.W.*, J.H. Prevost, and Z.H. Wang (2009), Bending of a poroelastic beam with lateral diffusion, *International Journal of Solids and Structures*, *46*(18-19), 3451-3462. https://doi.org/10.1016/j.ijsolstr.2009.05.016

11. Wang, Z.H., J.H. Prevost*, and O. Coussy (2009), Bending of fluid-saturated linear poroelastic beams with compressible constituents, *International Journal for Numerical and Analytical Methods in Geomechanics*, *33*(4), 425-447. https://doi.org/10.1002/nag.722

10. Wang, Z.H.* and K.H. Tan (2008), Green's function approach for heat conduction: application to steel members protected by intumescent paint, *Numerical Heat Transfer Part B-Fundamentals*, *54*(6), 435-453. https://doi.org/10.1080/10407790802554034

9. Wang, Z.H.*, and K.H. Tan (2008), Radiative heat transfer for structural members exposed to fire: An analytical approach, *Journal of Fire Sciences*, *26*(2), 133-152. https://doi.org/10.1177/0734904107085746

8. Au, S.K.*, Z.H. Wang, and S.M. Lo (2007), Compartment fire risk analysis by advanced Monte Carlo simulation, *Engineering Structures*, *29*(9), 2381-2390. https://doi.org/10.1066/j.engstruct.2006.11.024

7. Wang, Z.H.* and K.H. Tan (2007), Temperature prediction of concrete-filled rectangular hollow sections in fire using Green's function method, *Journal of Engineering Mechanics-ASCE*, *133*(6), 688-700. https://doi.org/10.1061/(asce)0733-9399(2007)133:6(688)

6. Wang, Z.H.* and K.H. Tan (2007), Temperature prediction for multi-dimensional domains in standard fire, *Communications in Numerical Methods in Engineering*, *23*(11), 1035-1055. https://doi.org/10.1002/cnm.950

5. Wang, Z.H.* and K.H. Tan (2007), Temperature prediction for contour-insulated concrete-filled CHS subjected to fire using large time Green's function solutions, *Journal of Constructional Steel Research*, *63*(7), 997-1007. https://doi.org/10.1016/j.jcsr.2006.08.014

4. Wang, Z.H.* and K.H. Tan (2006), Green's function solution for transient heat conduction in concrete-filled CHS subjected to fire, *Engineering Structures*, *28*(11), 1574-1585. https://doi.org/10.1016/j.engstruct.2006.02.007

3. Wang, Z.H.* and K.H. Tan (2006), Residual area method for heat transfer analysis of concrete-encased I-sections in fire, *Engineering Structures*, *28*(3), 411-422. https://doi.org/10.1016/j.engstruct.2005.08.013

2. Wang, Z.H.* and K.H. Tan (2006), Sensitivity study of time delay coefficient of heat transfer formulations for insulated steel members exposed to fire, *Fire Safety Journal*, *41*(1), 31-38. https://doi.org/10.1016/j.firesaf.2005.07.008

1. Wang, Z.H.*, S.K. Au, and K.H. Tan (2005), Heat transfer analysis using a Green's function approach for uniformly insulated steel members subjected to fire, *Engineering Structures*, *27*(10), 1551-1562. https://doi.org/10.1016/j.engstruct.2005.05.005

Manuscripts Submitted/In Revision from ASU: 7

1. Wang, S., W. Zhan*, T.C. Chakraborty, Y. Ju, B. Zhou, Z.H. Wang, et al (2026), Urban microclimate changes substantially amplify future global urban population exposure to extreme moist heat, *The Innovation Geoscience*, submitted.

2. Hou H., Q. Longyang, **Y. Wang**, Z.H. Wang*, S. Fan‡, et al. (2026), Causal and machine learning attribution of urban thermal environment in the contiguous United States, *Urban Climate*, submitted.

3. **Wang, Y.**, Z.H. Wang*, and Q. Longyang (2026), Potential tipping and causation of urban hydroclimate systems in the contiguous United States, *Urban Climate*, Submitted.

4. Li, H.* et al. (2026), Agricultural restructuring modulates the intra-annual rhythms of surface urban heat islands, submitted.

5. **Rahmatollahi**, **N.,** Q. Longyang, and Z.H. Wang* (2026), Local climate zones-based urban heat mapping in a desert city using graph neural networks, submitted.

6. **Xia, T.**, P. Li, **Y. Wang**, S. Wei, T. Xu, and Z.H. Wang* (2026), Optimizing heat-water-carbon trade-offs induced by urban irrigation for sustainable urban planning, submitted.

7. Ding, Y., C. Wang*, Z.H. Wang, and O.C. Acevedo (2026), Flux footprints in urban canopies with a Lagrangian stochastic model: Effects of stability, geometry, and measurement configuration, *Journal of Atmospheric Science*, submitted.

Manuscripts in Preparation from ASU: 5

8. Zhan, W. et al. (2026), Globally overestimated outward thermal relief from urban parks and implications for heat mitigation, in preparation.

9. Wang, Z.H.*, **N. Rahmatollahi**, and **Y. Wang** (2026), Contribution of freeway segments to

urban heat in Phoenix Metropolitan: Physics-base modeling and machine learning analysis, in preparation.

10. **Wang, Y**., Z.H. Wang* (2026), Detecting potential tipping in hydroclimate systems of contiguous United States by reservoir computing, in preparation.

11. Li, H.* et al. (2026), Clouds distort global land surface warming trends in remotely sensed thermal infrared observations, in preparation.

12. **Xia, T.** and Z.H. Wang* (2026), Dynamic synchronization of urban hydroclimate networks in contiguous United States, under preparation.

Book Chapters: 1

1. Tewari, M., Z.H. Wang, D. Chen, Q-V Doan, H. Kusaka, P. Ramamurthy and P. Ray (2022), Chapter 1.3: Extreme weather forecasting in urban areas, In: *Extreme Weather Forecasting* (edited by M. Astitha & E. Nikolopoulos), pp. 14-31. Elsevier, ISBN: 978-0-12-820124-4

Technical Reports: 7

1. **Wang C.**, Z.H. Wang, and K.E. Kaloush (2020), *Critical review and gap analysis of impacts from pavements on urban heat island*. Final project report prepared for National Asphalt Pavement Association (NAPA).

2. Wang Z.H., K.E. Kaloush, and **C. Wang** (2017), *Sustainability and scaling of urban transportation network*. Report for National Transportation Center, 33 pp.

3. Kaloush K.E., Z.H. Wang, and J. **Yang** (2015), *Examining the Use of Reflective Pavements to Mitigate Urban Heat Island Effect.* Asphalt Pavement Magazine, vol. 33, p. 44-47.

4. **Yang J.**, Z.H. Wang, and K.E. Kaloush (2015), *Effect of Pavement Properties on Building Energy Efficiency.* Final project report prepared for National Asphalt Pavement Association (NAPA).

5. **Yang J.**, Z.H. Wang, and K.E. Kaloush (2013), *Unintended Consequence*: *A Research Synthesis Examining the Use of Reflective Pavements to Mitigate the Urban Heat Island Effect*. 17 pp. National Center of Excellence on SMART Innovations, Arizona State University.

6. Kaloush K.E., Z.H. Wang, T. Pourshams-Manzouri, and J.J. Stempihar (2013), *Asphalt Pavement Temperature Effects on Overall Urban Heat Island, Phase II Report*, prepared for National Asphalt Pavement Association (NAPA).

7. Wang Z.H. (2004), *FEMHT – Finite Element Modelling for Heat Transfer: Theoretical and User's manuals*, Building and Construction Authority (BCA) Project Report, Singapore.

Refereed Conference Publications: 6

1. **Li P**, Wang ZH (2020), Modeling biogenic and anthropogenic carbon dioxide exchange in urban area – a data fusion approach. In: Proceedings of the 54th International Conference of the Architectural Science Association (ANZAScA) [Editors, A. Ghaffarianhoseini, A. Ghaffarianhoseini, N. Naismith], Auckland, New Zealand, pp. 755-764.

2. Scherer GW, Prévost JH, Wang ZH (2009), Finite element analysis of the bending of a saturated beam. In: *Poromechanics IV*, *Proc. Fourth Biot Conf. on Poromechanics*, Eds. H.I. Ling, A. Smyth, R. Betti (DEStech Publications, Lancaster, PA, 2009), New York, USA, pp. 890-895,

3. Wong MB, Tan KH, Wang ZH (2006), Effect of temperature prediction methods on fire resistance of steel members. *Proceedings of the 19th Australasian Conference on the Mechanics of Structures and Materials* (*ACMSM*), Christchurch, New Zealand.

4. Wang ZH, Tan KH (2006), Time delay coefficient of temperature formulations in EC3 Part 1-2 and classification of fire protection materials. *Proceedings of 4th international workshop of Structures in Fire*, Aveiro, Portugal, pp.3-11.

5. Tan KH, Wang ZH, Au SK (2004), Heat transfer analysis for steel work insulated by intumescent paint exposed to standard fire conditions. *Proceedings of 3rd international workshop of Structures in Fire*, Ottawa, Canada, pp. 49-58.

6. Wang ZH, Zhao J (2000) Numerical modeling of stress development in rock under dynamic loading. *Proceedings of 6th National Undergraduate Research Opportunity Programme (NUROP) Congress*, National University of Singapore, Singapore.

SUMMARY OF PRESENTATION

Invited Presentations – External: 18

1. Yang, B., Buzzard, R., Wang, Z.H. Danforth, A., Baldwin, B., “Promoting tree establishment in arid climates: Insights into smart watering techniques for urban forestry”. The Sonoran Urban Resilience and Green Infrastructure Exchange (SURGE) Webinar, 18 March 2026.

2. Wang, Z.H., “Modeling of urban climate as complex dynamic systems”. South China University of Technology, Guangzhou, 18 June 2025.

3. Wang, Z.H., “Causal pacemakers of hydroclimate systems in contiguous United States”. In: *2024 Data-driven Causal Inference: Information Theory Meets Dynamical Systems*, Arlington, VA, 22 August 2024.

4. Wang, Z.H., “A new paradigm of urban climate modeling: from complex processes to complex systems”. In: *Urban Climate & Environment Seminar series* (virtue), 28 October 2023.

5. Wang, Z.H., “Complex urban climate system modeling”. In: *NSF Urban Climate Solution Workshop*, Taxes A&M University, Bryan, TX, 8 October 2023.

6. Wang, Z.H., “Urban climate modeling: from complex processes to complex systems”. University of Notre Dame, Notre Dame, IN, 30 November 2021.

7. Wang, Z.H., “Toward more livable cities in the future: heat mitigation, predictions, and system dynamics”. IBM Environmental Seminar, 01 July 2021.

8. Wang, Z.H., Wang, C., Kaloush, K.E., “Impact of pavements on urban heat island: A critical review and gap analysis”. NAPA online webinar, 15 October 2020.

9. Wang, Z.H., “Trade-off of energy and water for sustainable urban development”. University of Arizona, Tuscan, 23 January 2020.

10. Wang, Z.H., “Urban green infrastructure in an arid city: cooling, irrigation, and heat-water trade-off”. *NSF Workshop of Networking for Environmental Sustainability in Arid Region Urban Communities*. Texas Tech University, 14-16 August 2019.

11. Wang, Z.H., “The role of green infrastructure in sustainable urban development: Modeling & implications”. University of California, Irvine, 13 November 2017.

12. Wang, Z.H., “Climate-energy-water repercussions of urban green infrastructure”. Nanjing University, Nanjing, China, 13 June 2016.

13. Wang, Z.H., “Urban green infrastructure: Modeling and Implications to sustainable development of cities”. Nanyang Technological University, Singapore, 02 June 2016.

14. Wang, Z.H., “Urban sustainability research under the changing climate”. Southwest University of Science and Technology, Mianyang, China, 23 May 2013.

15. Wang, Z.H., “The role of water in land surface energy balance: an analytical perspective”. Tsinghua University, Beijing, China, 15 May 2013.

16. Wang, Z.H., “Field measurements and numerical modeling of energy transport in urban areas”. University of Southern California, Los Angeles, 30 March 2011.

17. Wang, Z.H., “Transport of surface energetics from urban areas: field measurements and numerical modeling”. Institute of Atmospheric Physics, Chinese Academy of Science, Beijing, 25 Feb 2011.

18. Wang, Z.H., “A Sensor Network Over Princeton – application to the study of urban micrometeorology”. Mid-InfraRed Technologies for Health and Environment (MIRTHE) Monthly Lecture Series, Princeton, 09 Dec 2010.

Invited Presentations – ASU Internal: 7

1. Wang, Z.H., “Thermodynamic liquid-water-vapor equilibrium: Applications to some environmental problems”. SEBE Environmental Engineering Seminar, Arizona State University, Tempe, 30 October 2018.

2. Wang, Z.H., “Energy-water trade-off of urban irrigation: How much water does it take to cool Phoenix”. Joint ASU Global Drylands Center and SEBE Hydrosystems Seminar, Tempe, 29 November 2017.

3. Wang, Z.H., “Size matters: footprint modeling in the built environment and its implications to urban planning strategies”. SEMTE Environmental Fluid Dynamics Seminar, Tempe, 15 November 2016.

4. Wang, Z.H., “Urban land-atmosphere interactions: Implications to sustainable city development”. SEBE Environmental Engineering Seminar Series, Arizona State University, Tempe, 18 November 2014.

5. Wang, Z.H., “Sustainable cities under future climate challenges: Measurement, modeling, and adaptation”. SEBE external advisory board meeting, Tempe, 21 February 2013.

6. Wang, Z.H., “Transport of heat and water in canopy layers”. SEBE Environmental Engineering Seminar Series, Arizona State University, Tempe, 17 January 2012.

7. Wang, Z.H., “Surface exchange scheme coupling energy and water transport in urban canopies”. Arizona State University, Tempe, 21 April 2011.

Conference Presentations: 118

(~) Presenting Author

1. Danforth A~, et al. [Faculty advisers: Yang B, Buzzard V, McCormick G, Loy D, Li S, Wang ZH, Xu T]. Growing impact: Advancing knowledge of urban desert tree care. In: *ASLA (American Society of Landscape Architect) 2026 Conference on Landscape Architecture*, Los Angeles, 16 September 2026. (Winner of Honor Award, Communications)

2. Wang C~, **Wang Y**, Wang ZH, Yang X. Urban thermal environments as interconnected systems: Emergent causal networks and dynamic synchronization, In: *European Geosciences Union (EGU) General Assembly 2026*, Vienna, Austria & Online, 3–8 May 2026.

3. Yang B~, Vanessa B, Grant M, …, Wang ZH et al. Can smart watering promote tree health? An empirical study in Arizona’s urban environment, In*: CELA (Council of Educators in Landscape Architecture) 2026 Annual Conference*, Cincinnati, OH, March 18-21, 2026.

4. **Rahmatollahi N~**, Wang ZH, **Wang Y**, Yang X. Rethinking urban heat mitigation: Causal insights and machine learning in Phoenix, Arizona. In: 16th *SSEBE Graduate Research Symposium*, Tempe, AZ, 27 February 2026.

5. **Xia T~**, **Wang Y**, Wang ZH. Multi-objective optimization of heat-water-carbon trade-off induced by urban irrigation. In: 16th *SSEBE Graduate Research Symposium*, Tempe, AZ, 27 February 2026.

6. **Wang Y~**, Longyang Q, Wang ZH. Potential tipping and causation of urban hydroclimate systems in the contiguous United States. In: 16th *SSEBE Graduate Research Symposium*, Tempe, AZ, 27 February 2026.

7. **Xia T~**, Wang ZH, **Wang Y**. Multi-objective optimization of heat-water-carbon trade-off

induced by urban irrigation. In: *2025 AGU Fall Meeting,* New Orleans, MD, 15-19 December, 2025.

8. Bou-Zeid E~, Huang X, …, Wang ZH. Upgrading the urban fabric: Novel technologies for mitigating extreme heat in cities. In: *ICUC12 – 12th International Conference on Urban Climate*, Rotterdam, 7-11 July 2025.

9. Huang X~, Kong Q, Wang ZH, et al. The diverging predictions of extreme heat risk indicators. In: *ICUC12 – 12th International Conference on Urban Climate*, Rotterdam, 7-11 July 2025.

10. Lipson M~, Grimmond S, Best M, …, Wang ZH. The Urban-PLUMBER multi-site model evaluation project: Phase 2 initial results. In: *ICUC12 – 12th International Conference on Urban Climate*, Rotterdam, 7-11 July 2025.

11. **Rahmatollahi N~**, **Wang Y**, Wang ZH. Urban heat mitigation: A data-driven evaluation using ASLUM-Py. In: *15th SSEBE Graduate Research Symposium*, Tempe, AZ, 23 February 2025.

12. **Wang Y~**, Longyan Q, Wang ZH. Urban heat mitigation: Machine learning prediction of tipping points in the urban hydroclimatic system. In: *15th SSEBE Graduate Research Symposium*, Tempe, AZ, 23 February 2025.

13. **Rahmatollahi N~**, Wang ZH, Wang Y. Assessing the impact of heat mitigation strategies in urban ecosystems using ASLUM-Py. In: *The 105th AMS Annual Meeting*, New Orleans, MD, 12-16 January, 2025.

14. Yang X~, Wang ZH, Wang C. Complex interplay of temperature and air pollutants for U.S. cities. In: *2024 AGU Fall Meeting*, Washington D.C., 9-13 December 2024.

15. **Wang Y~**, Wang ZH, Longyang Q. Machine Learning Prediction of Tipping Points in the Urban Hydroclimatic System. In: *2024 AGU Fall Meeting*, Washington D.C., 9-13 December 2024.

16. Wei S~, **Wang Y**, Wang ZH, Yang B, Buzzard V, Xu T. Trade-offs between water conservation and heat mitigation: Multi-objective optimization of urban tree watering solutions in arid landscapes. In: *2024 AGU Fall Meeting*, Washington D.C., 9-13 December 2024.

17. Hummel A~, Murrieta CA, Lee C, [Faculty advisers: Yang B, Buzzard V, McCormick G, Loy D, Li S, Wang ZH, Xu T]. Smart tree watering in Southern Arizona's urban environment. In: *ASLA (American Society of Landscape Architect) 2024 Conference on Landscape Architecture*, Washington DC, 6-9 October 2024. (2024 Student Research Honor Award)

18. **Wang Y~**, Wang ZH. Finding a roof type to maximize the building energy efficiency. In: 14th SSEBE Graduate Research Symposium, Tempe, AZ, 16 February 2024.

19. **Rahmatollahi N~**, Wang ZH. ASLUM-Python: Arizona Single-Layer Urban canopy Model. In: *14th SSEBE Graduate Research Symposium*, Tempe, AZ, 16 February 2024.

20. **Wang Y~**, Wang ZH, Yang X. Causal interactions between temperature and geopotential height in cities of contiguous United States. In: *The 104th AMS annual meeting*, Baltimore, MD, 28 January – 1 February, 2024.

21. **Rahmatollahi N~**, Wang ZH. Arizona Single-Layer Urban canopy Model in Python (ASLUM-Python). In: *2023 AGU Fall Meeting*, San Francisco CA, 11-15 December 2023.

22. Martin, R~, Wang ZH, Xu T, Yang B, Li S, Buzzard V, McCormick G, Loy D. Mitigating impacts of urban water availability during tree establishment in arid environments: Testing technology and irrigation practices. In: *2023 AGU Fall Meeting*, San Francisco CA, 11-15 December 2023.

23. Wang C~, Yang X, Wang ZH. Modeling urban climates as complex dynamic systems. In: *11th International Conference on Urban Climate (ICUC11)*, Sydney, 28 August – 1 September, 2023.

24. Lipson M~, Grimmond S, Best M, … Wang ZH. The Urban-PLUMBER land surface model evaluation project; Phase 1 results. In: *11th International Conference on Urban Climate (ICUC11)*, Sydney, 28 August – 1 September, 2023.

25. Hou H~∞, Wang ZH. Spatiotemporal patterns of the impact of surface roughness and morphology on urban heat island. In: *2023 Urban Climate Research Center Annual Poster Competition*, Tempe AZ, 20 April 2023.

26. **Yang X~**, Wang ZH. Time evolution of cross-regional hydroclimatic causation in the U.S. In: *103rd AMS Annual Meeting*, Denver CO, 8-12 January 2023.

27. **Yang X~**, Wang ZH, Wang C. Causal propagation of extreme heatwaves in the urban USA. In: *103rd AMS Annual Meeting*, Denver CO, 8-12 January 2023.

28. **Yang X~**, Wang ZH. Quantifying variability and periodicity of cross-regional climatic causation in the U.S. In: 2022 *AGU Fall Meeting*, Chicago IL, 12-16 December 2022.

29. Wang C~, Wang ZH, Ryu Y. A single-layer urban canopy model with transmissive radiation exchange between trees and street canyons. In: 2022 *AGU Fall Meeting*, Chicago IL, 12-16 December 2022.

30. Hou H~∞, Wang ZH, Su H. Investigate the spatiotemporal impacts of urban morphology on land surface temperature. In: 2022 *AGU Fall Meeting*, Chicago IL, 12-16 December 2022.

31. **Yang X~**, Wang ZH, Wang C. Finding causal gateways of heatwave propagation among U.S. cities. In: 2022 *AGU Fall Meeting*, Chicago IL, 12-16 December 2022.

32. Li P~, Yu Y, Huang D, Wang ZH, Sharma A. Predicting regional heatwaves using Interpretable Graph Neural Networks. In: 2022 *AGU Fall Meeting*, Chicago IL, 12-16 December 2022.

33. **Yang X~**, Wang ZH, Wang C. Causal analysis of spatial patterns of urban heatwaves among U.S. cities. In: *International Association for Urban Climate (IAUC) virtual poster conference*, Aug 30 – Sept 1, 2022.

34. **Yang X~**, Wang ZH. Finding regional atmospheric mediators in the U.S. using causality inference. In: 12nd *SEBE Annual Graduate Research Symposium*, Tempe, February 11, 2022.

35. **Yang X~**, Wang ZH, Wang C. Detecting critical transitions in urban hydrological system in the contiguous United States. In: *102nd Annual Meeting of American Meteorological Society*, Huston, TX, 23-27 January 2022.

36. Wang ZH~, Wang C, **Yang X**. Simulating heat extremes using dynamic synchronization in complex climate networks. In: 2021 *AGU Fall Meeting*, New Orleans, LA, 13-17 December 2021.

37. **Yang X~**, Wang ZH, Wang C. Data-driven prediction of urban hydrological transitions in the Contiguous United States. In: 2021 *AGU Fall Meeting*, New Orleans, LA, 13-17 December 2021.

38. **Li P~**, Xu T, Wei S, Wang ZH. Assessment and multi-objective optimization of urban environmental system design using a machine learning approach. In: 2021 *AGU Fall Meeting*, New Orleans, LA, 13-17 December 2021.

39. **Li P~**, Wang ZH, Wang C. Estimating the impact of urban irrigation on carbon dioxide exchange using a coupled WRF-UCM and photosynthesis model. In: 2021 *AGU Fall Meeting*, New Orleans, LA, 13-17 December 2021.

40. **Yang X~**, Wang ZH. Detecting phase shift in the hydrological system. In 11th *SEBE Annual Graduate Research Symposium*, Tempe, 19 February, 2021.

41. **Li P~**, Wang ZH. Environmental co-benefits from urban greening for mitigating heat and carbon emissions. In: 11th *SEBE Annual Graduate Research Symposium,* Tempe, 19 February, 2021.

42. Sun L‡~, Wang C, Wang ZH. Climatology of solar radiation in the Contiguous United States (CONUS) (1960-2019). In: *101st Annual Meeting of American Meteorological Society*, Virtual, 10-15 January, 2021.

43. **Li P~**, Wang ZH. Modeling and sensitivity analysis of carbon dioxide exchange in urban environment. In: *101st Annual Meeting of American Meteorological Society*, Virtual, 10-15 January, 2021.

44. Sun L‡~, Wang C, Wang ZH. Long-term solar radiation patterns across the Contiguous United States. In: 2020 *American Geophysical Society Fall Meeting*, Virtual, December 7-11, 2020.

45. **Li P~**, Wang ZH. Carbon dioxide exchange in urban areas: modeling, uncertainties and sensitivity analysis. In: 2020 *American Geophysical Society Fall Meeting*, Virtual, December 7-11, 2020.

46. Wang Z~, Vivoni ER, Bohn TJ, Wang ZH. Irrigation Cooling Capacity in Agricultural and Urban Settings of Central Arizona: A Multiyear Assessment. In: 2020 American Geophysical Society Fall Meeting, Virtual, December 7-11, 2020.

47. **Li P~**, Wang ZH. Modeling carbon dioxide exchange in a single-layer urban canopy model. In: The 54th International Conference of the Architectural Science Association (ANZAScA) 2020, Auckland, New Zealand, November 25-28, 2020.

48. **Wang C~**, Li Q, Wang ZH. The residence time of pollutants emitted within the urban canopy influenced by street canyon geometry and emission conditions. In: *100th Annual Meeting of American Meteorological Society*, Boston, MA, January 13-17, 2020.

49. **Wang C~**, Wang ZH, Yang J. Evaluating the potential of irrigation for mitigating urban heat: Trade-off between water use and heat mitigation capacity. In: 2019 American Geophysical Society Fall Meeting, San Francisco, CA, December 9-13, 2019.

50. Yang J~, Wang ZH. Cooling an arid city: the energy-water trade-off of urban irrigation. In: *AOGS 16th Annual Meeting*, Singapore, July 28-August 2, 2019.

51. **Wang C~**, Wang ZH, Wang C, Myint SW. The cooling capacity of urban trees in response to thermal extremes in U.S. cities, In: 2019 Urban Climate Research Center Poster Symposium, Tempe, March 27, 2019.

52. **Li P~**, Wang ZH. Live in a steam engine - Surface energy imbalance revisited in the light of non-equilibrium thermodynamics. In: In: 2019 SEBE Graduate Poster Symposium, Tempe, February 22, 2019.

53. **Wang C~**, Wang ZH. Structure of similarity-driven clustering among U.S. cities in response to environmental stressors, In: 2019 SEBE Graduate Poster Symposium, Tempe, February 22, 2019.

54. **Wang C~**, Wang ZH. A statistical view of the Phoenix urban heat island during the past 86 Years (1933–2018), In: 2019 CAP LTER All Scientist Meeting, Tempe, January 11, 2019.

55. Wang ZH~, Li P. Surface energy imbalance revisited in the light of nonequilibrium thermodynamics. In: *99th Annual Meeting of American Meteorological Society*, Phoenix, AZ, January -6-10, 2019.

56. **Wang C~**, Wang ZH. Temperature regulation of the surface cooling rate of urban trees under climatic extremes. In: *99th Annual Meeting of American Meteorological Society*, Phoenix, AZ, January -6-10, 2019.

57. **Li P~**, Wang ZH. A novel approach to estimate actual evapotranspiration using soil moisture and meteorological measurements. In: *99th Annual Meeting of American Meteorological Society*, Phoenix, AZ, January -6-10, 2019.

58. Li Q~, **Yang J**, Wang ZH, Bou-Zeid E. Improving the representation of convective heat transfer in an urban canopy model. In: *7th International Building Physics Conference*, Syracuse, NY, September 23-26, 2018.

59. Wang ZH~. Energy-water trade-offs: Irrigating urban vegetation for cooling an arid city. In: *10th International Conference of Urban Climate (ICUC10)*, New York City, NY, August 06-10, 2018.

60. **Wang C~**, Li Q, Wang ZH. Quantifying the impact of urban trees on pollutant dispersion using a coupled LES-Lagrangian stochastic model. In: *10th International Conference of Urban Climate (ICUC10)*, New York City, NY, August 06-10, 2018.

61. **Wang C~**, Wang ZH, Li Q, Yang J. A coupled large-eddy simulation-Lagrangian stochastic modeling framework with applications to urban areas. In: *23rd Symposium on Boundary Layers and Turbulence*, American Meteorological Society, Oklahoma City, OK, June 11-15, 2018.

62. **Wang C**, Li Q, Wang ZH~. Impacts of urban trees on particle dispersion in street canyons: Modeling and applications. In: *8th International Symposium on Environmental Hydraulics*, University of Notre Dame, IN, June 04-07, 2018.

63. Li Q~, Wang ZH. Large-eddy simulation of the impact of urban trees on momentum and heat fluxes. In: *8th International Symposium on Environmental Hydraulics*, University of Notre Dame, IN, June 04-07, 2018.

64. Omidvar H~, Bou-Zeid E, Song J, Yang J, Arwatz G, Wang ZH, Hultmark M, Kaloush K. Rapid modification of land surface temperature during rainfall. In: *8th International Symposium on Environmental Hydraulics*, University of Notre Dame, IN, June 04-07, 2018.

65. Bou-Zeid E~, Yang J, Omidvar H, Li D, Wang ZH, Ryu YH, Ramamurthy P. Hydrological determinants of temperature extremes in cities. In: *98th American Meteorological Society Annual Meeting,* Austin, TX, January 7-11, 2018.

66. **Wang C~**, Wang ZH, Yang J, Li Q. A Lagrangian stochastic urban footprint model: Model development and evaluation. In: *98th American Meteorological Society Annual Meeting,* Austin, TX, January 7-11, 2018.

67. **Wang C~**, Wang C, Myint SW, Wang ZH. Spatial and temporal variability of satellite-based aerosol optical depth in the dynamic urban environment. In: 2018 CAP LTER All Scientist Meeting, Tempe, January 5, 2018.

68. Wang ZH~, Yang J. The potential water buffering capacity of urban green infrastructure in an arid environment. In: *2017 American Geophysical Union Annual Meeting, New Orleans, LA*, December 11-15, 2017.

69. **Wang C~**, Upreti R, Wang ZH, Yang J. Impacts of trees on urban environment in the Contiguous United States. In: *2017 American Geophysical Union Annual Meeting, New Orleans, LA*, December 11-15, 2017.

70. Omidvar H~, Bou-Zeid E, **Song J**, **Yang** J, Arwatz G, Wang ZH, Hultmark M, Kaloush K. Rapid modification of land surface temperature during rainfall. In: *2017 American Geophysical Union Annual Meeting, New Orleans, LA*, December 11-15, 2017.

71. **Wang C~**, Wang ZH, Yang J, Krayenhoff ES. Radiative shading effect of trees on the built environment in the contiguous United States. In: 2017 Urban Water Innovative Network

(UWIN) Annual Meeting, Denver, August 2, 2017. (Second place in student poster award)

72. *Upreti R*~, Wang ZH, **Yang J**. Assessment of impacts of land use change on urban hydroclimate for Phoenix, Denver, and Las Vegas. In: 2017 American Association for the Advancement of Science (AAAS) Annual Meeting, Boston, February 16-20, 2017.

73. Omidvar H~, Bou-Zeid E, **Song J**, **Yang J**, Arwatz G, Wang ZH, Hultmark M, Kaloush K. Rapid modification of land surface temperature during rainfall. In: 97th Annual Meeting of American Meteorological Society, Seattle, January 22-26, 2017.

74. **Wang C**~, Upreti R, Wang ZH, Yang J. Impact of shade trees on urban hydroclimate for Phoenix and the continental United States. In: 2017 CAP LTER All Scientist Meeting, Tempe, January 13, 2017.

75. Templeton N~, Vivoni ER, Wang ZH, Schreiner-McGraw AP. Quantifying water and energy fluxes over different urban land covers in Phoenix, Arizona. In: 2017 CAP LTER All Scientist Meeting, Tempe, January 13, 2017.

76. **Yang J**~, Wang ZH. Potential water buffering capacity of urban green infrastructure in a desert city. In: AMS 32nd Conference on Agricultural and Forest Meteorology, Salt Lake City UT, June 20-24, 2016.

77. **Song J**~, Wang ZH. Urban land-atmosphere coupling system: Model development and applications. In: AMS 22nd Symposium on Boundary Layer and Turbulence, Salt Lake City UT, June 20-24, 2016.

78. **Yang J**, Wang ZH~, Kaloush KE, Dylla H. Effect of pavement types on urban thermal environment. In: 4th International Conference on Countermeasures to Urban Heat Island, Singapore, May 31 – June 1, 2016.

79. **Yang J**~, Wang ZH. Potential water buffering capacity of urban green infrastructure in the Phoenix metropolitan area. In: AZ water 89th Annual Conference, Gilbert AZ, May 13, 2016.

80. Upreti R~, Wang ZH, **Yang J**. Assessing impact of landscape characteristics on urban hydroclimate. In: 2016 American Association for the Advancement of Science (AAAS) Annual Meeting, Washington DC, February 11-15, 2016.

81. Upreti R~, Wang ZH, **Yang J**. Assessing impact of landscape characteristics on urban hydroclimate. In: 2016 CAP LTER All Scientist Meeting, Tempe, January 15, 2016.

82. **Yang J**~, Wang ZH, and Kaloush KE. Unintended consequence of cool roofs. In: *2015 Annual Membership Meeting of the Cool Roof Rating Council*, Las Vegas, June 2015.

83. **Yang J**~, Wang ZH, and Kaloush KE. Pavements and building energy efficiency. In: *Transportation Research Board 94th Annual Meeting*, Washington DC, January 2015.

84. Wang ZH~, **Yang J**. A novel approach in estimating surface energy balance: new perspective of urban-rural contrast in arid cities. In: *2015 American Geophysical Union Annual Meeting, San Francisco*, December 13-18, 2015.

85. **Song J**~, Wang ZH. Quantifying the boundary-layer dynamics of carbon dioxide from a built

environment using a coupled urban land-atmospheric model. In: *2015 American Geophysical Union Annual Meeting, San Francisco*, December 13-18, 2015.

86. **Yang J**˜, Wang ZH, Chen F, Georgescu M, Miao S, Voogt JA, Tewari M. Implementing hydrological processes into the coupled WRF-urban modeling system: Physical parameterizations and case studies. In: *Croucher Advanced Study Institute 2015-2016: Changing Urban Climate & the Impact on Urban Thermal Environment and Urban Living*, Hong Kong, December 7-11, 2015.

87. Wang ZH˜, **Yang J**. Optimizing urban irrigation schemes for a trade-off between energy and water consumption. In: *9th International Conference on Urban Climate (ICUC9)*, Toulouse, France, July 20-24, 2015.

88. Wang ZH˜, **Song J**. Interfacing the urban land-atmosphere system with a coupled UCM-SCM framework: model development and sensitivity. In: *9th International Conference on Urban Climate (ICUC9)*, Toulouse, France, July 20-24, 2015.

89. Ryu YH, Bou-Zeid E, Wang ZH˜, Smith J. Development and implementation of tree processes in an urban canopy model. In: *9th International Conference on Urban Climate (ICUC9)*, Toulouse, France, July 20-24, 2015.

90. Yang L, Niyogi D˜, Schmid P, Li Q, Wang ZH, Vose R, Smith J. Urban signatures in planetary boundary-layer heights: Evidence from high-resolution rawinsonde observations. In: *9th International Conference on Urban Climate (ICUC9*), Toulouse, France, July 20-24, 2015.

91. Wang ZH˜, **Yang J**. Estimation of land surface energy partitioning: A novel approach using a single depth soil measurement. In: *American Meteorological Society 95th Annual Meeting*, Phoenix, AZ, January 2015.

92. **Song J**˜, Wang ZH. Impact of built environments on hydroclimate though coupled land-atmospheric modeling, In: *American Meteorological Society 95th Annual Meeting*, Phoenix, AZ, January 2015.

93. **Yang J**˜, Wang ZH, Chen F, and Georgescu M. Effect of surface hydrological processes in urban climate with case study of green roofs. In: *American Meteorological Society 95th Annual Meeting*, Phoenix, AZ, January 2015.

94. Zhao X˜∞, Wang ZH. Effect of shade trees on building energy efficiency. In: 17th *Annual CAP LTER All-Scientist Meeting*. Tempe, AZ, January 2015.

95. **Yang J**˜, Wang ZH. Shift of paradigm in urban irrigation: Finding the optimal scheme for building energy efficiency. In: 17th *Annual CAP LTER All-Scientist Meeting*. Tempe, AZ, January 2015.

96. **Song J**˜, Wang ZH, Vivoni ER, Mascaro G, Ruddell BL. Investigating the impacts of urbanization on regional hydrometeorology by coupling an urban canopy model into a distributed hydrological model. In: 17th *Annual CAP LTER All-Scientist Meeting*. Tempe, AZ, January 2015.

97. **Song J**˜, Wang ZH, Effect of landuse landcover changes on urban land-atmosphere

interactions. In: *87th AZ Water Annual Conference*, Glendale, Arizona, May 2014.

98. **Yang J**~, Wang ZH, Chen F, Miao S, Tewari M and Georgescu M. Towards realistic representation of hydrological processes in integrated WRF-urban modeling system. In: *European Geosciences Union General Assembly 2014*. Vienna, Austria, April 2014.

99. Wang ZH~, **Yang J**. Sensitivity analysis of hydrological modeling in the WRF-Urban modeling system using advanced Monte Carlo simulations, In: *American Meteorological Society 94th Annual Meeting*, Atlanta, GA, February 2014.

100. **Yang J**~, Wang ZH, Chen F, Miao S, Tewari M. Enhancing hydrological modeling in the coupled WRF-urban modeling system, In: *American Meteorological Society 94th Annual Meeting*, Atlanta, GA, February 2014.

101. Chen F~, Miao S, Tewari M, Barlage M, **Yang J**, Wang ZH, Meng C, Ching J. Recent Enhancements to the Integrated WRF-Urban Modeling System, In: *American Meteorological Society 94th Annual Meeting*, Atlanta, GA, February 2014.

102. **Song J**~, Yang J, Wang ZH. Studying urban land-atmospheric interactions by coupling an urban canopy model with a single column atmospheric model. In: 16th *Annual CAP LTER All-Scientist Meeting*. Tempe, AZ, January 2014.

103. **Yang J**~, Wang ZH. Accessing the Potential and Sensitivity of Green Roof System in Mitigating Urban Environmental Problems, In: *AZ Water Research Workshop*, Tempe, AZ, January 2014.

104. *Pourshams-Manzouri T*~, Stempihar JJ, Kaloush KE, Wang ZH. Pavement effects on near surface air temperature and urban heat island, In: 93rd Annual Meeting of Transportation Research Board, Washington DC, January 2014.

105. **Song J**~, Wang ZH. Studying urban land-atmospheric interactions by coupling an urban canopy model with single column atmospheric models, In: *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2013.

106. Wang ZH~, **Yang J**. Test and sensitivity analysis of hydrological modeling in the coupled WRF-urban modeling system, In: *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2013.

107. **Yang J**~, **Song J**, Wang ZH. Modeling hydrological processes in the coupled urban-land-atmosphere system. In: *2013 NSF CAP LTER Site Review*. Tempe, AZ, September, 2013.

108. **Song J**~, **Yang J**, Wang ZH. Modeling CAP-LTER flux tower measurements using an advanced urban canopy model. In: 15th *Annual CAP LTER All-Scientist Meeting*. Tempe, AZ, January 2013.

109. Wang ZH~, A theoretic framework for coupled heat and moisture transfer in soils. In: 2012 *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2012.

110. Bou-Zeid E~, Wang ZH, Ramamurthy P, Ting S, Li D, Smith JA. The urban water cycle and how it modulates the microclimate and the energy cycle. In 2012 *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2012.

111. Wang ZH, Bou-Zeid E~, Smith JA. A coupled energy transport and hydrological model for urban canopies. In: *The International Association for Urban Climate (IAUC) Eighth International Conference on Urban Climate*. Dublin, Ireland, August, 2012.

112. Wang ZH~. A unified theoretic framework for reconstructing soil thermal field from single depth measurements. In: 30th *AMS Conference on Agricultural and Forest Meteorology*. Boston, MA, June 2012.

113. Wang ZH~, Bou-Zeid E, Smith JA. A coupled energy transport and hydrological model for urban canopies. In: 2011 *American Geophysical Union Fall Meeting.* San Francisco CA, December 2011.

114. Wang ZH~, Bou-Zeid E, Smith JA. A new urban surface exchange scheme: coupling physically-based energy transport with hydrological model. In: *European Geoscience Union General Assembly* 2011. Vienna, Austria, April 2011.

115. Wang ZH~, Bou-Zeid, Smith JA, Au SK, Miller S, Schreiber D. Towards improving energy budgets in urban canopy models. In: 2010 *American Geophysical Union Fall Meeting.* San Francisco CA, December 2010.

116. Wang ZH, Bou-Zeid E~, Smith JA. Simple models and sensor networks to study flow and energy transport in urban canopies. In: *Ninth Symposium on the Urban Environment.* Keystone CO, August 2010.

117. Wang ZH~, Bou-Zeid E, Smith JA. A sensor network to study turbulent fluxes in urban canopies. In: *Fluid Dynamics & the Global Environment, the 2nd SEAS-AOS-GFDL workshop*, Princeton NJ, May 2010.

118. Wang ZH~, Bou-Zeid E, Smith JA. Application of a sensor network to study the energy budget in urban canopies. In: 90th *Annual Meeting of American Meteorological Society*, Atlanta GA, January 2010.

PROFESSIONAL ACTIVITIES AND SERVICE

SUMMARY OF PROFESSIONAL ACTIVITIES AND SERVICE

Editor, Associate Editor for 2 peer-reviewed journals:

- Associate Editor (2023-2027): *Journal of Advances in Modeling Earth Systems*, American Geophysical Union
- Academic Editor (2018-2022): *PLoS One*

Member of Editorial Board: 1

- Editorial Board member (2023-present): *Urbanization, Sustainability and Society*

Guest Editor of Journal Special Issues: 3

- Guest editor, Special issue *Climate change impacts on public health and lives and strategies for resilient and liveable cities*, Urban Climate, Elsevier (2022-2023)
- Guest editor, Special issue *Development and applications of advanced urban models across scales*, Journal of Advances in Modeling Earth Systems, American Geophysical Union (2022-2024)
- Handling academic editor, Special collection *Urban Ecosystems*, PLoS One (2019)

International/National Professional Committees: 2

- International Association for Urban Climate (IAUC) Award Committee (2025-present)
- Board of Urban Environment, American Meteorological Society (AMS) (2014-2016)

International/National Conference Sessions Organized: 3

- Future Energy Landscape Working Group, In: 4th APRU Sustainable Cities and Landscapes Conference (virtual), 14-18 December 2020.
- Scientific Committee, In: Architectural Science Association (ASA) 2020 Conference, Auckland, New Zealand, 25-28 November 2020.
- Joint Board of Urban Environment Conferences with 30th Conference of Hydrology, In: 96th American Meteorological Society Annual Meeting, New Orleans, LA, January 2016.

International/National Conference Sessions Chaired: 3

- Session A045: Atmospheric processes at the kilometer scale: implications for air quality, urban climate, weather, wildfires, and energy, In: 2024 AGU Fall Meeting, Washington DC, December 9-13, 2024. (co-conveners: Paolo Giani, Paola Crippa)
- Session 6C: Urban Design and Planning with Climate, In: 10th International Conference of Urban Climate/14th Symposium on the Urban Environment, New York City, NY, August 08, 2018.
- 11th Symposium on the Urban Environment, In: 94th American Meteorological Society Annual Meeting, Atlanta, GA, January 2014.

Membership of National/International Professional Societies: 6

- American Meteorological Society (AMS), member since 2009
- American Physical Society (APS), member since 2009
- American Geophysical Union (AGU), member since 2010
- International Association for Urban Climate (IAUC), member since 2009

- American Society of Civil Engineers (ASCE), member since 2017
- American Association for the Advancement of Science (AAAS), member since 2025

Chair/Leadership Roles: 3
- Specialty Area Coordinator, Hydrosystems Engineering, School of Sustainable Engineering and the Built Environment, ASU (2026 – present).
- National Center of Excellence on SMART Innovations, Co-director for Climate System Research (2012 - present).
- Urban Climate Research Center (UCRC), Leadership Team (2016 - 2022).

ASU University-level Committee: 2
- ASU Knowledge Enterprise Research Computing Governance Board (2022-2025)
- ASU Working Group for Research Computing (2015 - 2017)

Engineering School-level Committee: 1
- Fulton Schools of Engineering Academic Integrity Committee (2024-2027)

SEBE Unit-level Committee: 6
- SEBE Advisory Committee (2018 – 2021, 2022 - 2024)
- SEBE Awards Committee (2019 - 2022)
- Faculty Search Committees (2014, 2015, 2019)
- SEBE Laboratory Committee (2015 - 2018)
- SEBE Curriculum Committee (2015 - 2016)
- CESE Scholarship Committee (2012 - 2018)

Review Panelist for National Agencies: 4
- U.S. Department of Energy (DoE) (2022)
- National Aeronautics and Space Administration (NASA) (2017-2020)
- National Science Foundation (NSF) (2016-2024)
- U.S. Environmental Protection Agency (USEPA) (2013, 2015)

Proposal Reviewer for National/International Funding Agencies: 7
- National Science Foundation (NSF)
- Army Research Office (ARO)
- National Aeronautics and Space Administration (NASA)
- U.S. Environmental Protection Agency (USEPA)
- U.S. Department of Energy (DoE)
- U.K. Natural Environment Research Council (NERC)
- Canada Foundation for Innovation (CFI)
- Netherlands Organisation for Scientific Research

Peer Reviewer for Journals: 115 journals in total (selected journals shown below)
- Applied Energy
- Environmental Science & Technology
- Geophysical Research Letters
- Journal of Climate
- Journal of Hydrology

- Landscape and Urban Planning
- Nature Communications
- Nature Cities
- Remote Sensing of Environment
- Renewable & Sustainable Energy Reviews

Reviewer for Policy Reports: 2
- NPCC 3rd report: Chapter 2: Climate Science, New York City Panel on Climate Change 2018.
- Arizona BRACE Report II: Vulnerability Assessment and Disease Projections for Climate and Extreme Weather Hazards, Arizona State University, 2016.

Reviewer for Book Proposals: 5
- Faisal Hossain, 2023, *Tracking Water from Space: A Water Management Perspective*, McGraw Hill.
- Turshen M, & Schneider D, 2019, *The Violence of Global Climate Change: Shattered lives and livelihoods*, Elsevier.
- Metzger J, Lindblad J (Eds.), 2018, *Difficult Doings: The Challenging Practice of Sustainable Urban Development*, Taylor & Francis/Routledge.
- Barry R, and Blanken P, 2015, *Microclimates and Local Climates*, Cambridge University Press.
- Brutsaert W, 2014, *Hydrology – An Introduction*, 2nd Ed. Cambridge University Press.

PERSONNEL: STUDENT SUPERVISION/MENTORING, TEACHING, DISSERTATION COMMITTEES, RESEARCH, AND OUTREACH

SUMMARY OF MENTORING

Mentored Personnel in US Academia (Tenure-track positions): 2
- Dr. Saurav Kumar (2022-present), School of Sustainable Engineering and the Built Environment, ASU
- Dr. Ruijie Zeng (2020-present), School of Sustainable Engineering and the Built Environment, ASU

Ph.D. Students Graduated: 5
- Xueli Yang (Fall 2023): currently post-doc researcher at University of California, San Diego
- Peiyuan Li (Fall 2021): currently post-doc researcher at University of Illinois Urbana-Champaign
- Chenghao Wang (Fall 2019): currently Assistant Professor at the University of Oklahoma
- Jiyun Song (Fall 2016): currently Professor at Wuhan University
- Jiachuan Yang (Fall 2016): currently Associate Professor at Hong Kong University of Science and Technology

Ph.D. Students Current: 3
- Tianlu Xia (Fall 2024 – present)
- Negar Rahmatollahi (Fall 2023 – present)

- Yihang Wang (Fall 2022 – present)

M.S. Thesis Students Graduated: 3
- Ruby Upreti (Summer 2017)
- Jiachuan Yang (Fall 2012)
- Tina Pourshams-Manzouri (Spring 2013, co-advised with K. Kaloush)

Undergraduate Students (Research): 5
- Mars Coughlan (Spring 2025), Undergraduate Honors Thesis
- Denisse Arellano (2019), Learn Explore Advance Design (LEAD) fellowship
- Rachel Von Gnechten (Spring 2017), Undergraduate Honors Thesis
- Hannah Housenga (Spring 2015, co-advised with K. Kaloush), Undergraduate Honors Thesis
- David Little (Spring 2013), independent student researcher

Visiting Graduate Students: 3
- Haoran Hou (Ph.D. student, Chinese Academy of Science, 02/2022-06/2023)
- Fan Huang (Ph.D. student, Nanjing University, 09/2016-12/2017)
- Xiaoxi Zhao (M.S. student, China Three Gorge University, 09/2014-03/2015)

Student Fellowships and Awards: 18
- Tianlu Xia: Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, ASU, 2025
- Yihang Wang: Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, ASU, 2025
- Yihang Wang: Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, ASU, 2024
- Xueli Yang: Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, ASU, 2022
- Peiyuan Li: National Award for Outstanding Self-financed Chinese Students Study Abroad, China Scholarship Council, 2021
- Peiyuan Li: Dean's Dissertation Award, Ira A. Fulton Schools of Engineering, ASU, 2021
- Peiyuan Li: Ph.D. Dissertation Completion Fellowship, Graduate College, ASU, 2021
- Peiyuan Li: Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, ASU, 2020
- Chenghao Wang: National Award for Outstanding Self-financed Chinese Students Study Abroad, China Scholarship Council, 2019
- Chenghao Wang: Outstanding Research Award, ASU Graduate & Professional Student Association, 2019
- Chenghao Wang: Ph.D. Dissertation Completion Fellowship, ASU Graduate College, 2019
- Chenghao Wang: Teaching Excellence Award, ASU Graduate & Professional Student Association, 2017
- Jiyun Song: Best Dissertation Award, Chinese-American Oceanic and Atmospheric Association (COAA), 2017
- Jiachuan Yang: Dean's Dissertation Award, Ira A. Fulton Schools of Engineering, ASU, 2016

- Jiyun Song: National Award for Outstanding Self-financed Chinese Students Study Abroad, China Scholarship Council, 2016
- Ruby Upreti: Hydrological Science Graduate Student Fellowship, Ivanhoe Foundation, 2016
- Jiachuan Yang: National Award for Outstanding Self-financed Chinese Students Study Abroad, China Scholarship Council, 2015
- Jiachuan Yang: Croucher Advanced Study Institute Travel Award, Chinese University of Hong Kong, 2015

Graduate Student Dissertation/Thesis Committees: 30

- Kashina Kompally (Ph.D.) – in progress
- Isaiah Wall (Ph.D.) – in progress
- Connor Grayson (Ph.D.) – Summer 2026
- Aashish Aryal (M.S.) – Summer 2026
- Mary Ferguson (M.S.) – Spring 2026
- Cassady Swinbourne (Ph.D. University of Queensland) – Fall 2025
- Han Wang (Ph.D. Hong Kong University of Science & Technology) – August 2025
- Shiqi Wei (Ph.D.) – Fall 2024
- Chuncheng Yao (Ph.D.) – Fall 2024
- Qianqiu Longyang (Ph.D.) – Spring 2024
- Shuai Shuai (Ph.D.) – Spring 2024
- Zhaocheng Wang (Ph.D.) – Spring 2023
- Meteb Mejbel (M.S.) – Fall 2021
- Ara Ko (Ph.D.) – Fall 2018
- Chuyuan Wang (Ph.D.) – Summer 2018
- Jenita Gautam (M.S.) – Spring 2018
- Qunshan Zhao (Ph.D.) – Fall 2017
- Nicole Templeton (Ph.D.) – Summer 2017
- Tiantian Xiang (Ph.D.) – Summer 2016
- Mason Lacy (M.S.) – Spring 2016
- Sushant George (M.S.) – Spring 2016
- Jorge E. Cazares Rodrigues (M.S.) – Fall 2015
- Puneet N. Khatavkar (M.S.) – Fall 2015
- Daniel Che (Ph.D.) – Summer 2015
- Cody Anderson (M.S.) – Fall 2013
- Thomas Volo (M.S.) – Summer 2013
- Houk Paek (Ph.D.) – Spring 2013
- Nicole Pierini (M.S.) – Spring 2013
- Hernan Moreno Ramirez (Ph.D.) – Summer 2012
- Gretchen Hawkins (M.S.) – Summer 2012

Professional Development Program: 1

- Participation in the Just-in-Time Teaching with Pedagogy to the Multiple Disciplinary (JTFD) Program (2016 Fall – 2017 Spring), Ira A. Fulton Schools of Engineering, ASU

SUMMARY OF TEACHING

Undergraduate Courses Taught, including New Course Development: 2

- CEE 341: Fluid Mechanics for Civil Engineers
- CEE 466: Urban Water System Design

Graduate Courses Taught, including New Course Development: 5
- CEE 598: Environmental Fluid Mechanics
- CEE 598: Hydrometeorology
- CEE 598: Atmospheric Convection and Thermodynamics
- CEE 598: Urban Water System Design
- CEE 591: Hydrosystems Engineering Seminar

Average Teaching Evaluation Scores for Undergraduate Courses Taught at ASU:
4.31 (Instructor) / 4.20 (Course)

Average Teaching Evaluation Scores for Graduate Courses Taught at ASU:
4.84 (Instructor) / 4.77 (Course)

List of Courses Taught (Evaluation scale out of 5, with 5 being the most effective)

Semester	Course	Title	Number of students	Credit hours	Avg score (course)	Avg score (instructor)
Spring 26	CEE 598	Hydrometeorology	8	3.0	4.95	5
Fall 25	CEE 598	Urban Water System Design	6	3.0	5	5
Fall 25	CEE 466	Urban Water System Design	41	3.0	4.55	4.79
Fall 25	CEE 591	Hydrosystems Engineering Seminar	19	1.0	4.85	4.78
Spring 25	CEE 598	Atmospheric Convection and Thermodynamics	8	3.0	4.83	4.89
Fall 24	CEE 598	Urban Water System Design	12	3.0	4.48	4.74
Fall 24	CEE 466	Urban Water System Design	38	3.0	3.98	4.28
Spring 24	CEE 598	Environmental Fluid Mechanics	10	3.0	4.85	4.89
Spring 24	CEE 598	Hydrometeorology	16	3.0	4.81	4.83
Fall 23	CEE 598	Urban Water System Design	11	3.0	4.80	4.97
Fall 23	CEE 466	Urban Water System Design	38	3.0	4.30	4.49
Fall 23	CEE 591	Hydrosystems Engineering Seminar	19	1.0	4.87	4.90
Spring 23	CEE 598	Atmospheric Convection and Thermodynamics	9	3.0	4.87	4.89

Fall 22	CEE 598	Urban Water System Design	5	3.0	4.76	5
Fall 22	CEE 466	Urban Water System Design	40	3.0	4.49	4.65
Spring 22	CEE 598	Environmental Fluid Mechanics	4	3.0	5	5
Spring 22	CEE 598	Hydrometeorology	7	3.0	5	5
Fall 21	CEE 598	Urban Water System Design	11	3.0	4.97	4.97
Fall 21	CEE 466	Urban Water System Design	28	3.0	4.35	4.68
Fall 21	CEE 591	Hydrosystems Engineering Seminar[3]	20	1.0	4.88	5
Spring 21	CEE 598	Environmental Fluid Mechanics	7	3.0	4.81	4.83
Spring 21	CEE 598	Atmospheric Convection & Thermodynamics	5	3.0	4.94	4.89
Fall 20	CEE 598	Urban Water System Design	7	3.0	4.61	4.54
Fall 20	CEE 466	Urban Water System Design	45	3.0	4.20	4.47
Spring 20	***Sabbatical leave***					
Fall 19	CEE 598	Urban Water System Design	8	3.0	4.56	4.79
Fall 19	CEE 466	Urban Water System Design	46	3.0	4.56	4.59
Spring 19	CEE 598	Environmental Fluid Mechanics	9	3.0	4.83	4.82
Spring 19	CEE 341	Fluid Mechanics for Civil Engineers	83	4.0	3.90	3.98
Fall 18	CEE 598	Urban Water System Design[2]	5	3.0	4.66	4.53
Fall 18	CEE 466	Urban Water System Design[2]	34	3.0	3.97	4.20
Spring 18	CEE 598	Atmospheric Convection & Thermodynamics	9	3.0	4.84	4.93
Spring 18	CEE 341	Fluid Mechanics for Civil Engineers	91	4.0	4.08	4.13
Fall 2017	CEE 598	Hydrometeorology	15	3.0	4.79	4.90
Spring 17	CEE 598	Environmental Fluid Mechanics	6	3.0	4.76	4.89

Spring 17	CEE 341	Fluid Mechanics for Civil Engineers	87	4.0	4.07	4.29
Fall 16	CEE 598	Atmospheric Convection & Thermodynamics	12	3.0	4.74	4.89
Spring 16	CEE 598	Environmental Fluid Mechanics	13	3.0	4.66	4.70
Spring 16	CEE 341	Fluid Mechanics for Civil Engineers	88	4.0	3.98	3.88
Fall 15	CEE 598	Hydrometeorology	8	3.0	4.82	4.96
Spring 15	CEE 598	Atmospheric Convection & Thermodynamics[1]	6	3.0	4.63	4.93
Spring 15	CEE 341	Fluid Mechanics for Civil Engineers	80	4.0	4.11	4.17
Fall 14	CEE 598	Environmental Fluid Mechanics	10	3.0	4.67	4.76
Spring 14	CEE 341	Fluid Mechanics for Civil Engineers	47	4.0	4.51	4.38
Fall 13	CEE 598	Hydrometeorology[1]	10	3.0	4.49	4.74
Spring 13	CEE 341	Fluid Mechanics for Civil Engineers	53	4.0	4.35	4.56
Fall 12	CEE 598	Environmental Fluid Mechanics[1]	6	3.0	4.64	4.52
Spring 12	CEE 341	Fluid Mechanics for Civil Engineers[2]	56	4.0	4.08	3.97

[1]New course to the University
[2]New/revised materials for an existing course
[3]Seminar series

RESEARCH SUPPORT

SUMMARY OF RESEARCH SUPPORT

Total amount of all pending proposals in which Dr. Wang is the PI or co-PI: $700,000
Total amount of all awards in which Dr. Wang is the PI or co-PI: $15,894,362
Dr. Wang's share (recognition) in all awards as PI or co-PI: $2,448,855
Total amount of all awards in which Dr. Wang is the PI: $2,255,163

Dr. Wang's share (recognition) of the total award amount received at ASU as PI or co-PI as of 05/27/2025: $2,448,855
Dr. Wang's share (recognition) of research expenditures as of 05/27/2025: $1,993,613

List of Funded Projects: (SP: Senior Personnel; * ASU institutional PI on collaborative projects)

ABOR: Arizona Board of Regents
ADOT: Arizona Department of Transportation
ARO: Army Research Office
NAPA: National Asphalt Pavement Association
NASA: National Aeronautics and Space Administration
NSF: National Science Foundation
NTC: National Transportation Center
SRP: Salt River Project (Arizona)

Agency	Title	Role	Period	Project total	Wang's recogn.
ADOT	Assessing the contribution of freeway surface types to Phoenix's Urban Heat Island (UHI) effect	Co-PI	3/1/24-2/28/26	$320,000	$96,000
SRP	Smart Irrigation of Arizona's Urban Trees for Heat Mitigation and Water Saving	PI	8/1/23-7/30/24	$70,000	$70,000
NSF	CAS-Climate: Actionable heat and carbon mitigation by urban greening: Integrating physical modeling and machine learning for decision support	PI	5/1/23-4/30/26	$746,097	$447,658
ABOR	Smart Tree Watering in Arizona's Urban Environment	PI	1/17/23-1/16/25	$231,791	$115,895
NSF	Collaborative Research: Geoengineering of Urban Green Infrastructure to Improve Outdoor Livability	Co-PI	11/1/20-10/31/23	$300,000	$120,000
NASA	Connecting Urbanization to Patterns of Heat and Precipitation Risk: Linking Mechanistic Understanding to Quantification by Remote Sensing	Co-PI	7/1/20-6/30/23	$1,468,268	$288,382

NSF	Co-evolution of anthropogenic stressors and regional urban hydroclimate through multiscale land-atmosphere interactions	PI	12/1/19-11/30/22	$150,000	$150,000
NAPA	Critical review and gap analysis of impacts from pavements on urban heat island	PI	8/1/18-7/31/19	$63,326	$31,663
NSF	LTER: CAP IV - Investigating urban ecology and sustainability through the lens of Urban Ecological Infrastructure	SP	12/1/18-11/30/22	$4,507,998	$90,160
ARO	The impact of landscape characteristics on urban surface energy balance	PI	1/1/16-9/30/16	$50,000	$50,000
NTC	Sustainability and scaling of urban transportation networks	PI	1/1/16-12/31/16	$30,062	$21,043
NSF	Urban Water Innovation Network (U-WIN): Transitioning Toward Sustainable Urban Water Systems	ASU Co-PI	9/15/15-9/14/18	$1,191,572	$345,556
NSF	DMUU: DCDC III: Transformational Solutions for Urban Water Sustainability Transitions in the Colorado River Basin	SP	9/1/15-8/31/19	$4,499,896	$89,998
ARO	Rapid modifications of land surface temperature during rainfall: basics and implications	Co-PI	9/1/14-5/31/18	$360,263	$89,999
NSF	Sustainable urban development in the Sun Corridor: Finding engineering alternatives through coupled WRF-urban land surface modeling	PI	9/1/14-8/31/18	$299,838	$269,854
NAPA	Effect of pavement materials on building energy efficiency	PI	7/1/14-6/30/15	$75,041	$60,033
NAPA	Unintended consequence of reflective pavements	PI	3/15/13-12/31/13	$19,618	$15,694
SRP	Temperature effects on the water level height measurements	Co-PI	09/01/12-08/31/14	$38,212	$19,106

Last updated: March 12, 2026