



## Chenghao Wang

Postdoctoral Scholar, Earth System Science

 Curriculum Vitae available Online

### Bio

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#### BIO

Chenghao is a postdoctoral research fellow in the Jackson Lab in the Department of Earth System Science. As a part of the New Map of Life Initiative, he is also a fellow in the domain of Environment at the Stanford Center on Longevity. He is currently studying the relationship between multi-scale energy consumption and human well-being metrics to reduce the need for global energy infrastructure and increase global equality. Chenghao received his Ph.D. from Arizona State University where he focused on the impacts of green infrastructure (especially urban trees) on urban meteorology and climatology using numerical simulations and remote sensing techniques.

#### HONORS AND AWARDS

- Chinese Government Award for Outstanding Students Abroad, Ministry of Education (2020)
- International Journal of Environmental Research and Public Health Travel Award, IJERPH (2020)
- Graduate College Completion Fellowship (Spring and Fall semesters), Arizona State University (2019)
- Outstanding Research Award (2018–2019), Graduate and Professional Student Association (2019)
- Graduate College Travel Award, Arizona State University (2019)
- 23rd Symposium on Boundary Layers and Turbulence Travel Award, American Meteorological Society Committee on Boundary Layers and Turbulence (2018)
- 3rd Place in the Student Poster Competition, 8th Annual SSEBE Graduate Research Symposium (2018)
- Teaching Excellence Award (2017–2018), Graduate and Professional Student Association (2018)
- 1st Place in the Urban Climate Research Center 1st Annual Poster Competition, Global Institute of Sustainability (2018)
- Graduate College Travel Award, Arizona State University (2018)
- 2nd Place (for Runner-up) in the Student Poster Competition, 3rd Urban Water Innovation Network – Annual Meeting (2017)
- First Prize Scholarship, Student Merit Award for Outstanding Achievement, China Three Gorges University (2015)
- The Qiu Suo Prize Scholarship, China Three Gorges University (2015)
- Second Prize, College Students Outstanding Scientific Achievement Award, Ministry of Education of Hubei Province, China (2015)
- Outstanding Thesis Award, China Three Gorges University (2015)
- 2nd Yangtze River Student - Hubei Province Outstanding Graduate, Ministry of Education of Hubei Province, China (2015)
- Outstanding Undergraduate Student in Scientific Research, Engineering Research Center of Eco-environment in TGR Region, Ministry of Education, China (2015)
- 7th China National Excellent Graduate in Hydraulic Engineering, China Association of Hydraulic Engineering Education and Ministry of Education (2015)
- Best Bachelor's Degree Thesis Award of Hubei Province, Ministry of Education of Hubei Province, China (2015)
- Top Grade Scholarship, Student Merit Award for Outstanding Achievement, China Three Gorges University (2014)

- Outstanding Exchange Student, China Three Gorges University (2014)
- Top 10 Outstanding Youths of China Three Gorges University, China Three Gorges University (2014)
- Honorable Mention Award, 4th China National Top 10 Future Hydraulic Stars, China Association of Hydraulic Engineering Education and Ministry of Education (2014)
- China Yangtze Power Co., Ltd. Scholarship, China Yangtze Power Co., Ltd. (2014)
- Top Grade Scholarship, Student Merit Award for Outstanding Achievement, China Three Gorges University (2013)
- Second Prize, 3rd China National Undergraduate Hydraulic Innovational Design Competition, China Association of Hydraulic Engineering Education and Ministry of Education (2013)
- National Scholarship of China, Ministry of Education, China (2012)
- First Prize Scholarship, Student Merit Award for Outstanding Achievement, China Three Gorges University (2012)
- First Prize, Structure Model Design Competition, China Three Gorges University (2012)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Editorial Board Member, Data in Brief (2020 - present)
- Topic Editor, Sustainability (2020 - present)
- Chair, International Association for Urban Climate - Bibliography Committee (2020 - present)
- Member, International Association for Urban Climate - Bibliography Committee (2019 - 2020)
- Student Member, American Meteorological Society - Committee on Meteorological Aspects of Air Pollution (2018 - 2020)
- Co-chair, Postdoctoral Advisory Council Committee, School of Earth, Energy & Environmental Sciences, Stanford University (2020 - present)
- Member, Respectful Community Committee, School of Earth, Energy & Environmental Sciences, Stanford University (2020 - present)

## **PROFESSIONAL EDUCATION**

- Ph.D., Arizona State University , Civil, Environmental and Sustainable Engineering (2019)
- M.S.E., Arizona State University , Civil, Environmental and Sustainable Engineering (2018)
- Visiting Student, The Ohio State University , Environmental Science (2013)
- B. Eng., China Three Gorges University , Hydrology and Water Resources Engineering (2015)

## **STANFORD ADVISORS**

- Rob Jackson, Postdoctoral Faculty Sponsor

## **PATENTS**

- Chenghao Wang, Z. Luo, L. Peng. "China P.Rep. Patent CN201420121440.8 An automatic flood diversion and aerating system for urban landscape river channels", China Three Gorges University, Aug 6, 2014
- Chenghao Wang, P. Zhao, X. Li, J. Liu, Y. She, H. Zhong. "China P.Rep. Patent CN201420174368.5 An air sample and inhalable particle sampler", China Three Gorges University, Aug 6, 2014
- Chenghao Wang. "China P.Rep. Patent CN201320536201.4 A solar screened water bloom eliminating boat", China Three Gorges University, Jun 4, 2014
- Chenghao Wang, Z. Luo, Y. Lei, M. Wang, Y. Liu, H. Peng. "China P.Rep. Patent CN201320661937.4 A flood discharge, power generation, and energy dissipation hydropower station", China Three Gorges University, Apr 2, 2014
- Chenghao Wang. "China P.Rep. Patent CN201320578623.8 Spillway impulse water turbine", China Three Gorges University, Mar 26, 2014
- Chenghao Wang. "China P.Rep. Patent CN201320535504.4 An anti-blocking catch basin lid", China Three Gorges University, Feb 12, 2014
- Chenghao Wang. "China P.Rep. Patent CN201320561220.2 The water stopper for gas inlet system of gas analyzer", China Three Gorges University, Jan 29, 2014
- Chenghao Wang, Z. Luo, Y. Lei, M. Wang, Y. Liu, H. Peng. "China P.Rep. Patent CN201310508610.8 A flood discharge, power generation, and energy dissipation hydropower station (Invention Patent, Public)", China Three Gorges University, Jan 22, 2014
- Chenghao Wang. "China P.Rep. Patent CN201320535849.X A multifunctional field environment factor collection work box", China Three Gorges University, Jan 1, 2014

## LINKS

- Google Scholar Profile: <https://scholar.google.com/citations?hl=en&user=XFBSta4AAAAJ>
- ResearchGate Profile: [https://www.researchgate.net/profile/Chenghao\\_Wang](https://www.researchgate.net/profile/Chenghao_Wang)

## Publications

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### PUBLICATIONS

- **Critical transitions in the hydrological system: early-warning signals and network analysis** *HYDROLOGY AND EARTH SYSTEM SCIENCES*  
Yang, X., Wang, Z., Wang, C.  
2022; 26 (7): 1845-1856
- **Black carbon in the Southern Andean snowpack** *ENVIRONMENTAL RESEARCH LETTERS*  
Cordero, R. R., Sepulveda, E., Feron, S., Wang, C., Damiani, A., Fernandoy, F., Neshyba, S., Rowe, P. M., Asencio, V., Carrasco, J., Alfonso, J. A., MacDonell, S., Seckmeyer, et al  
2022; 17 (4)
- **Human well-being and per capita energy use** *ECOSPHERE*  
Jackson, R. B., Ahlstrom, A., Hugelius, G., Wang, C., Porporato, A., Ramaswami, A., Roy, J., Yin, J.  
2022; 13 (4)
- **Black carbon footprint of human presence in Antarctica.** *Nature communications*  
Cordero, R. R., Sepulveda, E., Feron, S., Damiani, A., Fernandoy, F., Neshyba, S., Rowe, P. M., Asencio, V., Carrasco, J., Alfonso, J. A., Llanillo, P., Wachter, P., Seckmeyer, et al  
2022; 13 (1): 984
- **The synergistic effect of urban heat and moisture islands in a compact high-rise city** *BUILDING AND ENVIRONMENT*  
Huang, X., Song, J., Wang, C., Chui, T., Chan, P.  
2021; 205
- **Evaluation of CMIP6 Models over Two Third Pole Subregions with Contrasting Circulation Systems** *JOURNAL OF CLIMATE*  
Li, Y., Wang, C., Su, F.  
2021; 34 (22): 9133-9152
- **Spatial and temporal variability of dissolved methane concentrations and diffusive emissions in the Three Gorges Reservoir.** *Water research*  
Liu, J., Xiao, S., Wang, C., Yang, Z., Liu, D., Guo, X., Liu, L., Lorke, A.  
2021; 207: 117788
- **Evaluation of MODIS-derived estimates of the albedo over the Atacama Desert using ground-based spectral measurements.** *Scientific reports*  
Cordero, R. R., Feron, S., Sepulveda, E., Damiani, A., Carrera, J. M., Jorquera, J., Alfonso, J. A., Fuenzalida, R., Rivas, M., MacDonell, S., Seckmeyer, G., Wang, C., Ouyang, et al  
2021; 11 (1): 19822
- **Contribution of moisture sources to precipitation changes in the Three Gorges Reservoir Region** *HYDROLOGY AND EARTH SYSTEM SCIENCES*  
Li, Y., Wang, C., Peng, H., Xiao, S., Yan, D.  
2021; 25 (9): 4759-4772
- **Cool pavements for urban heat island mitigation: A synthetic review** *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*  
Wang, C., Wang, Z., Kaloush, K. E., Shacat, J.  
2021; 146
- **Dynamic synchronization of extreme heat in complex climate networks in the contiguous United States** *URBAN CLIMATE*  
Wang, Z., Wang, C., Yang, X.  
2021; 38
- **A single-layer urban canopy model with transmissive radiation exchange between trees and street canyons** *BUILDING AND ENVIRONMENT*  
Wang, C., Wang, Z., Ryu, Y.  
2021; 191

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- **Perceptions of urban heat island mitigation and implementation strategies: survey and gap analysis** *Sustainable Cities and Society*  
Wang, C., Wang, Z. H., Kaloush, K. E., Shacat, J.  
2021; 66
  - **A single-layer urban canopy model with transmissive radiation exchange between trees and street canyons** *Building and Environment*  
Wang, C., Wang, Z. H., Ryu, Y. H.  
2021
  - **A network-based toolkit for evaluation and intercomparison of weather prediction and climate modeling** *Journal of Environmental Management*  
Wang, C., Wang, Z. H.  
2020; 268
  - **Early-warning signals for critical temperature transitions** *Geophysical Research Letters*  
Wang, C., Wang, Z. H., Sun, L.  
2020; 47 (14)
  - **Emergence of urban clustering among U.S. cities under environmental stressors** *Sustainable Cities and Society*  
Wang, C., Wang, Z. H., Li, Q.  
2020; 63
  - **Responses of natural vegetation to climate in dryland ecosystems: A case study between Xinjiang and Arizona** *Remote Sensing*  
Zhang, F., Wang, C., Wang, Z. H.  
2020; 12 (21)
  - **Environmental cooling provided by urban trees under extreme heat and cold waves in U.S. cities** *Remote Sensing of Environment*  
Wang, C., Wang, Z. H., Wang, C. Y., Myint, S. W.  
2019; 227: 28-43
  - **Population dynamics modify urban residents' exposure to extreme temperatures across the United States** *Science Advances*  
Yang, J., Hu, L., Wang, C.  
2019; 5 (12)
  - **Urban water capacity: Irrigation for heat mitigation** *Computers, Environment and Urban Systems*  
Wang, C., Wang, Z. H., Yang, J.  
2019; 78
  - **A backward-Lagrangian-stochastic footprint model for the urban environment** *Boundary-Layer Meteorology*  
Wang, C., Wang, Z. H., Yang, J., Li, Q.  
2018; 168: 59-80
  - **Quantifying the impact of urban trees on passive pollutant dispersion using a coupled large-eddy simulation–Lagrangian stochastic model** *Building and Environment*  
Wang, C., Li, Q., Wang, Z. H.  
2018; 145: 33-29
  - **Cooling effect of urban trees on the built environment of contiguous United States** *Earth's Future*  
Wang, C., Wang, Z. H., Yang, J.  
2018; 6 (8): 1066-1081
  - **The regional impact of urban heat mitigation strategies on planetary boundary-layer dynamics over a semiarid city** *Journal of Geophysical Research: Atmospheres*  
Song, J., Wang, Z. H., Wang, C.  
2018; 123 (12): 6410-6422
  - **Biospheric and anthropogenic contributors to atmospheric CO<sub>2</sub> variability in a residential neighborhood of Phoenix, Arizona** *Journal of Geophysical Research: Atmospheres*  
Song, J., Wang, Z. H., Wang, C.  
2017; 122 (6): 3317-3329
  - **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*
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Wang, C., Wang, C. Y., Myint, S. W., Wang, Z. H.  
2017; 609: 1556-1565

- **Projecting population growth as a dynamic measure of regional urban warming** *Sustainable Cities and Society*

Wang, C., Wang, Z. H.  
2017; 32: 357-365

- **Theoretical model for diffusive greenhouse gas fluxes estimation across water-air interfaces measured with the static floating chamber method** *Atmospheric Environment*

Xiao, S., Wang, C., Wilkinson, R. J., et al  
2016; 137: 45-52

- **Size matters: What are the characteristic source areas for urban planning strategies** *PLoS ONE*

Wang, Z. H., Fan, C., Myint, S. W., Wang, C.  
2016; 11 (11)