

## Kangning Huang

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### EDUCATION

- 2019 (expected) Ph.D., Urbanization and Global Change  
Yale University, School of Forestry and Environmental Studies
- 2014 M.S., Cartography and Geographic Information System  
Sun Yat-sen University, School of Geography and Planning
- 2011 B.S. (Hons), Geographic Information System  
Sun Yat-sen University, School of Geography and Planning

### RESEARCH INTERESTS

- Environmental impacts from urbanization and climate change (paper 6, 7, 9, 10, 11, 12);
- Future urbanization and its interaction with climate change (paper 3, 4, 5, 8 & grant 3);
- Urban vulnerability assessment and reduction (paper 1, 2, 12, 13 & grant 1, 2);

### AWARDS

- 2020-2021 NCAR Advanced Study Program Postdoctoral Fellowship
- 2017-2019 NASA Earth and Space Science Fellowship
- 2014-2019 Yale University Doctoral Fellowship
- 2012 P. R. China National Graduate Scholarship
- 2009-2010 P. R. China National Undergraduate Scholarship
- 2009-2010 Sun Yat-sen University Undergraduate Scholarship

### FUNDED GRANTS

- 2017-2019 **Co-PI**, “Modeling the water requirement for urban heat island mitigation with multi-sensor and multi-temporal remote sensing data”, funded by NASA Earth and Space Science Fellowship (NESSF) Program (\$120,000).
- 2017-2018 **PI**, “The compound heat extreme in China from the urban heat island effect and climate change”, funded by Yale Tropical Resources Institute Fellowship, Yale Hixon Fellowship Grant and Yale Institute for Biospheric Studies Doctoral Pilot Grant (\$16,400).

### PUBLICATIONS

#### Journal Articles, In Preparation

1. **Kangning Huang**, Michelle L. Bell, Brian Stone Jr., Xuhui Lee, Karen C. Seto. The underestimated vulnerability to heat extremes in rapidly urbanizing regions.
2. **Kangning Huang**, Xuhui Lee, Karen C. Seto. Diurnally differentiated effects on heat stress from urban expansion and adaptation. Target: *Nature Climate Change*.

### Journal Articles, Under Review / In Revision

3. **Kangning Huang**, Xia Li, Xiaoping Liu, Karen C. Seto. Forecasting global urban land expansion and heat island intensification through 2050. *Nature Sustainability*. In 1<sup>st</sup> revision.
4. **Kangning Huang**, Jiye Leng, Yong Xu, Xinwei Li, Meng Cai, Ran Wang, Chao Ren. Facilitating urban climate forecasts in rapidly urbanizing regions with land use change modeling. *Urban Climate*. Under review.
5. Guangzhao Chen, Xia Li, Xiaoping Liu, Xun Liang, Jiye Leng, Yao Yao, Yue'an Qiu, Qianlian Wu, **Kangning Huang**. Global urban change and its environmental effects under the shared socioeconomic pathways. *Nature Communication*. In 1<sup>st</sup> revision.
6. Tango Hu, Jiahong Liu, Gang Zheng, Dengrong Zhang, **Kangning Huang**. Evaluation of historical and future wetland degradation using remote sensing imagery and land use modeling. *Land Degradation and Development*. In 1<sup>st</sup> revision.
7. Siyu Chen, Xiaorui Zhang, Jintai Lin, Jianping Huang, Dan Zhao, Tiangang Yuan, **Kangning Huang**, Yuan Luo, Zhuo Jia, Zhuo Zang, Yue'an Qiu, Li Xie. Fugitive road dust PM<sub>2.5</sub> emission and their potential health impacts. *Environmental Science & Technology*. Under review.
8. Pak Shing Yeung, Jimmy Chi-Hung Fung, Chao Ren, Yong Xu, **Kangning Huang**, Jiye Leng, Michael Mau-Fong Wong. Projecting future urbanization and its impact on local climate under different climate change scenarios in 2030 in the Pearl River Delta. Under review.

### Journal Articles, Accepted / Published

9. Xiaoping Liu, Shuli Chen, Li Zhuo, Jun Li, **Kangning Huang**. 2018. Multi-sensor image registration by combining local self-similarity matching and mutual information. *Frontiers of Earth Science*. DOI: 10.1007/s11707-018-0717-9.
10. Siyu Chen, Nanxuan Jiang, Jianping Huang, Xiaoguang Xu, Huiwei Zhang, Zhou Zhang, **Kangning Huang**, Xiaocong Xu, Yun Wei, Xiaodan Guan, Xiaorui Zhang, Yuan Luo, Zhiyuan Hu, Taichen Feng. 2018. Quantifying contributions of natural and anthropogenic dust emission from different climate regions. *Atmospheric Environment*. 191: 94-104.
11. Jiayong Liang, Xiaoping Liu, **Kangning Huang**, Xia Li, Xun Shi, Yaning Chen. 2015. Improved snow depth retrieval by integrating microwave brightness temperature and visible/infrared reflectance. *Remote Sensing of Environment*. 156: 500-509.
12. Jiayong Liang, Xiaoping Liu, **Kangning Huang**, Xia Li, Dagang Wang, Xianwei Wang. 2013. Automatic registration of multi-sensor images using an integrated spatial and mutual information (SMI) metric. *IEEE Transaction on Geoscience and Remote Sensing*, 52(1): 603-615.
13. **Kangning Huang**, Xiaoping Liu, Xia Li, Jiayong Liang, Shenjing He. 2012. An improved artificial immune system for seeking the Pareto front of land-use allocation problem in large areas. *International Journal of Geographical Information Science*, 27(5): 922-946.

14. Xiaoping Liu, Xia Li, Xun Shi, **Kangning Huang**, Yilun Liu. 2012. A multi-type ant colony optimization (MACO) method for optimal land use allocation in large areas. [\*International Journal of Geographical Information Science\*, 26\(7\): 1325-1343.](#)

### **Books**

1. Kelly Aho, T. Chakraborty (TC), Bowen Fang, **Kangning Huang**, Ava Liang, Natalie Schultz, Charlotte Stanley, Anna Walsh, Zhongwang Wei, Yichen Yang, Bowen Zhao, Xuhui Lee. 2017. *Fundamentals of Boundary-Layer Meteorology: Solution Manual*. [Springer International Publishing](#). ISBN: 978-3-319-60853-2.

### **Reports**

1. Lead author. *Nature in the Urban Century: A global assessment of where and how to conserve nature for biodiversity and human wellbeing*. 2018. [The Nature Conservancy](#).

## **PRESENTATIONS AND CONFERENCES**

### **Invited talks**

- 2017 “Forecasting urban land expansion and heat island intensification globally through 2050.” Silk Road Innovation Forum on Surveying, Remote Sensing, and Geographical Information Sciences. Xi’an University of Science and Technology, Xi’an, China.
- 2017 “Urbanization, climate adaptation and resources constraints.” Sun Yat-sen University, Guangzhou; Zhejiang University, Hangzhou; Lanzhou University, Lanzhou; The Hong Kong Polytechnic University, Hong Kong.

### **Sessions organized**

- 2018 “Building resilience to natural hazards by utilizing citizen science and understanding compound hazards.” American Geophysical Union Fall Meeting, Washington, DC.

### **Oral presentations**

- 2018 “Escalating heat street by mid-century from large-scale urban land expansion.” American Geophysical Union Fall Meeting, Washington, DC.
- 2018 “Global forecasts of urban land expansion and heat island intensification by 2050 and the implications for climate mitigation.” International Conference on Systematizing and Upscaling Urban Solutions for Climate Change Mitigation, Berlin, Germany.
- 2018 “A spatial lag model for global urban heat island.” American Association of Geographers Annual Meeting, New Orleans, LA.
- 2016 “Contributions to augmented compound urban temperature extreme (ACUTE) from climate change and the urban heat island effect.” Urban Transitions Global Summit, Shanghai, China.

- 2013 “Improving un-gauged hydrological modeling by assimilating GRACE Terrestrial Water Storage data.” American Geophysical Union Fall Meeting, San Francisco, CA.
- 2012 “An artificial immune system for multi-objective land-use allocation (AIS-MOLA).” International Conference on GeoInformatics, Hong Kong.

### **TEACHING EXPERIENCE**

- 2015-2017 **TA** for three semesters, holding office hours, “Modeling Geographic Objects”, Yale School of Forestry and Environmental Studies, instructor: C. Dana Tomlin.

### **RESEARCH EXPERIENCE**

- 2011-2014 **RA**, “Theory and methodology of space-air-ground integrated earth observation network”, funded by the National Program on Key Basic Research Project of China.
- 2010-2012 **RA**, “Spatial-temporal land-use resources allocation based on decision agents and dynamic multi-objective optimization”, funded by the National Natural Science Foundation of China.

### **JOURNAL REVIEWERS**

*Journal of Geophysical Research-Atmospheres; International Journal of Climatology; Atmospheric Environment; Urban Climate; International Journal of Geographical Information Science; Journal of Urban Health; Journal of Big Data; Frontiers of Earth Science.*

### **ASSOCIATIONS**

American Geophysical Union  
American Association of Geographers

### **PROFESSIONAL SKILLS**

Land Use / Cover Change Modeling; Hydroclimatic Modeling; Data Assimilation; Image Processing; Nonlinear Optimization; Spatial Data Analysis / Visualization; ArcGIS; QGIS; ENVI; Google Earth Engine; NCL; R; Fortran; Python; MATLAB;