Shiqi Miao

University Program in Ecology, Nicholas School of Environment, Duke University
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Education

M.S. in Cartography and Geography Information System **Sep 2020 – June 2023**
Nanjing University, China
Advisor: Wenfeng Zhan

B.S. in Geographic Information Science **Sep 2016 – June 2020**
Nanjing University, China

Research Interests

Climate extremes, urban thermal dynamics, terrestrial ecosystems, public health, remote sensing

Research Experiences

Spatiotemporal patterns and drivers of intra-urban thermal environment responsive to heat waves **Mar 2022 – May 2023**

Supervised independent research

- Investigated the changes in intra-urban canopy and surface temperature heterogeneity caused by heatwaves with high-density meteorological data and thermal satellite observations
- Examined the effects of meteorological factors, surface properties and socioeconomic factors on heatwave-induced intra-urban canopy/surface warming patterns through correlation analysis and regression method

Heat wave-induced augmentation of surface urban heat islands (SUHI) strongly regulated by rural background **Nov 2019 – Mar 2022**

Supervised independent research

- Quantified heatwave-induced changes in SUHI intensity (ΔI) for 354 Chinese cities, and verified the synergy between heatwaves and urban–rural difference in surface temperature
- Discussed the influence of rural land cover on the spatial pattern of ΔI through comparison among various climate zones
- Achieved a first insight into the continuous variation of ΔI depending on heatwave intensity (published in *Sustainable Cities and Society*, IF=10.696)

Quantitative analysis on coastline changes of Yangtze River Delta based on high spatial resolution remote sensing images **Oct 2018 – May 2020**

Jiangsu Provincial College Students' Innovation and Entrepreneurship Training Program,
Cooperation | data processing, results analysis, and report drafting

- Analyzed coastline changes in the Yangtze River Delta and the coastline type distribution using high-resolution remote sensing imagery
- Independently extracted and classified sections of the coastline through a water index threshold method and visual interpretation
- Revealed a trend of coastline advancement toward the sea, attributed to a combination of artificial construction and natural factors (published in *Remote Sensing*, IF=5.349)

Publications

1. **Miao, S.**, Zhan, W., Lai, J., Li, L., Du, H., Wang, C., Wang, C., Li, J., Huang, F., Liu, Z. & Dong, P. (2022). Heat wave-induced augmentation of surface urban heat islands strongly regulated by rural background. *Sustainable Cities and Society, 82*, 103874.
2. Wu, Q., **Miao, S.**, Huang, H., Guo, M., Zhang, L., Yang, L., & Zhou, C. (2022). Quantitative analysis on coastline changes of Yangtze River Delta based on high spatial resolution remote sensing images. *Remote Sensing, 14*(2), 310.
3. Dong, P., Jiang, S., Zhan, W., Wang, C., **Miao, S.**, Du, H., Li, J., Wang, S. & Jiang, L. (2022). Diurnally continuous dynamics of surface urban heat island intensities of local climate zones with spatiotemporally enhanced satellite-derived land surface temperatures. *Building and Environment, 218*, 109105.
4. Wang, C., Zhan, W., Liu, X., Liu, Z., **Miao, S.**, Du, H., Li, J., Wang, C., Li, L. & Yue, W. (2022). Strong modulation of human-activity-induced weekend effect in urban heat island by surface morphology and weather conditions. *Journal of Geophysical Research: Atmospheres, 127*(17), e2022JD036905.
5. Wang, C., Zhan, W., Li, L., Wang, S., Wang, C., **Miao, S.**, Du, H., Jiang, L. & Jiang, S. (2023). Urban heat islands characterized by six thermal indicators. *Building and Environment, 244*, 110820.
6. Chen, Y., Zhan, W., Liu, Z., Dong, P., Fu, H., **Miao, S.**, Ji, Y., Jiang, L. & Jiang, S. (2023). Combining spatiotemporally global and local interpolations improves modeling of annual land surface temperature cycles. *Land, 12*(2), 309.
7. Jiang, S., Zhan, W., Dong, P., Wang, C., Li, J., **Miao, S.**, Jiang, L., Du, H. & Wang, C. (2022). Surface air temperature differences of intra-and inter-local climate zones across diverse timescales and climates. *Building and Environment, 222*, 109396.
8. Du, H., Zhan, W., Liu, Z., Li, J., Li, L., Lai, J., **Miao, S.**, Huang, F., Wang, C., Wang, C., Fu, H., Jiang, L., Hong, F. & Jiang, S. (2021). Simultaneous investigation of surface and canopy urban heat islands over global cities. *ISPRS Journal of Photogrammetry and Remote Sensing, 181*, 67-83.
9. Wang, S., Zhan, W., Du, H., Wang, C., Li, L., Jiang, S., Fu, H., **Miao, S.** & Huang, F. (2022). Identifying analogs of future thermal comfort under multiple projection scenarios in 352 Chinese cities. *Sustainable Cities and Society, 82*, 103889.
10. Li, J., Zhan, W., Chakraborty, T.C., Liu, Z., Du, H., Liao, W., Luo, M., Li, L., **Miao, S.**, Fu, H., Wang, S., Huang, F. & Li, M. (2023). Satellite-based ranking of the world's hottest and coldest cities reveals inequitable distribution of temperature extremes. *Bulletin of the American Meteorological Society, 104*(7), 1268-1281.

Awards and Honors

- James B. Duke Fellowship, Duke University ($5,000/y) 2025-2029
- Outstanding Graduates, Nanjing University 2023
- National Scholarship (2/129, RMB 20,000) 2022
- Pacemaker to Excellent Postgraduate Student, Nanjing University 2022
- Outstanding Graduates, Nanjing University 2020
- First Prize in the 16th “Challenge Cup” National College Student Curricular Academic Science and Technology Works Competition 2019

- Outstanding Camper of Jiangsu Provincial College Student Winter Camp Academic Training on "Geographic Information Science" 2019
- Huawei Scholarship (2/70, RMB 5,000) 2018
- Excellent Student, Nanjing University 2018
- National Scholarship (1/70, RMB 8,000) 2017

Miscellaneous

- **Language:** Mandarin Chinese (native), English (fluent)
- **Computer:** MATLAB, Python, C, ArcGIS, OriginLab, ENVI