Fengxiang Guo

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Academic Education

University of Leipzig — Feb 2020 - Oct 2023
Geography Doctor , School of Physics and Earth Sciences — Leipzig, Germany

Jilin University — Sep 2015 - Jun 2018
Geomatics and Surveying Master , College of Earth Exploration Science and Technology — Changchun, China

Jilin University — Sep 2011 - Jun 2015
Surveying and mapping Bachelor , College of Earth Exploration Science and Technology — Changchun, China

Professional Experience

Helmholtz Center for Environmental Research - UFZ — Apr 2021 - Present
Scientific research assistant Department of Urban and Environmental Sociology — Leipzig, Germany

Helmholtz Centre for Environmental Research – UFZ — Apr 2019 - Jan 2020
Scientific research assistant Department of Urban and Environmental Sociology — Leipzig, Germany

Project Experience

Resilient cities — Apr 2021 - Present
Analysis of German building characteristics based on remote sensing and its multi-scale relationship with urban thermal environment — Leipzig

European Urban Transformation Project — Sep 2019 - Mar 2021
Using the ENVI-MET to simulate the atmospheric temperature, combined with the ground measured data based on Bayesian maximum entropy theory to improve the accuracy of variables — Leipzig

Research Interest

Urban thermal environment research based on remote sensing, including but not limited

1. Urban heat island effect
2. Urban transformation and urban renewal
3. Urban land surface temperature downscaling
4. Urban building information extraction and large-scale mapping
5. Quantitative urban form on the urban thermal environment of the spatial and temporal impact, mechanism analysis
6. urban surface energy transfer
7. Nature-based solutions (Nature-based solutions)

Other research interests include urban microclimate simulation (ENVI-met), thermal comfort, spatial and temporal evolution of mountain landscapes, driving mechanisms, evapotranspiration of forest systems, etc.

Honors& Awards

Excellent academic degree master's degree thesis of jilin province — 2019
The State Scholarship Council (CSC) funded students — 2021
Joint Urban Remote Sensing Event (JURSE), 2023 (the best student papers) — 2023

Journal Reviewer

ISPRS Journal of Photogrammetry and Remote Sensing, Landscape and Urban Planning, Sustainable Cities and Society, Science of The Total Environment, International Journal of Applied Earth Observation and Geoinformation, Urban Climate, Landscape Ecology, Environmental Earth Sciences, Ecological Indicators, Land Use Policy, Journal of Mountain Science, Remote Sensing, Sustainability, Land

Selected Publications

Ongoing

1. **Guo F**, Schlink U. SEBAL-based urban heat island decomposition [J]. *IEEE Transactions on Geoscience and Remote Sensing*, under review.
2. **Guo F**, Schlink U. Sentinel-based high-resolution mapping of surface heat fluxes [J]. *ISPRS Journal of Photogrammetry and Remote Sensing*, under review.

Published articles

1. **Guo F**, Schlink U, Wu W, et al. A new framework quantifying the effect of morphological features on urban temperatures[J]. *Sustainable Cities and Society*, 2023: 104923. (11.7)
2. **Guo F**, Schlink U, Wu W, et al. Scale-dependent and season-dependent impacts of 2D/3D building morphology on land surface temperature[J]. *Sustainable Cities and Society*, 2023, 97: 104788. (11.7)
3. **Guo F**, Schlink U. A nationwide dataset of building features for Germany[C]//2023 Joint Urban Remote Sensing Event (JURSE). IEEE, 2023: 1-4. (EI)
4. Wu, W. B ., Ma, J., Banzhaf, E., Meadows, M. E., Yu, Z. W., Guo, F .... & Zhao, B. A first Chinese building height estimate at 10 m resolution (CNBH-10 m) using multi-source earth observations and machine learning[J]. Remote Sensing of Environment, 2023, 291: 113578.
5. **Guo F**, Schlink U, Wu W, et al. Differences in Urban Morphology between 77 Cities in China and Europe[J]. *Remote Sensing*, 2022, 14(21): 5462. (5.0)
6. **Guo F**, Hu D, Schlink U. A new nonlinear method for downscaling land surface temperature by integrating guided and Gaussian filtering[J]. *Remote Sensing of Environment* 2022, 271: 112915. (13.5)
7. **Guo F**, Wu Q, Schlink U. 3D building configuration as the driver of diurnal and nocturnal land surface temperatures: Application in Beijing's old city[J]. *Building and Environment*, 2021, 206: 108354. (7.4)
8. Wu Q, **Guo F**, Li H, et al. Measuring landscape pattern in three dimensional space[J]. *Landscape and Urban Planning*, 2017, 167: 49-59. (9.1)
9. Wu Q, **Guo F**, Li H. Wavelet-based correlation identification of scales and locations between landscape patterns and topography in urban-Rural profiles: case of the Jilin City, China[J]. *Remote sensing*, 2018, 10(10): 1653. (5.0)
10. Hu, D., Meng, Q., Schlink, U., Hertel, D., Liu, W., Zhao, M., & **Guo, F**. How do urban morphological blocks shape spatial patterns of land surface temperature over different seasons? A multifactorial driving analysis of Beijing, China[J]. *International Journal of Applied Earth Observation and Geoinformation*, 2022, 106: 102648.
11. Wu, Q., Li, Z., Yang, C., Li, H., Gong, L., & **Guo, F**. On the scale effect of relationship identification between land surface temperature and 3D landscape pattern: The application of random forest[J]. *Remote Sensing*, 2022, 14(2): 279.
12. Wu Q, Tan J, **Guo F**, et al. Multi-scale identification of urban landscape structure based on two-dimensional wavelet analysis: The case of metropolitan Beijing, China[J]. *Ecological complexity*, 2020, 43: 100832.
13. Wu Q, Tan J, **Guo F**, et al. Multi-scale relationship between land surface temperature and landscape pattern based on wavelet coherence: the case of metropolitan Beijing, China[J]. *Remote Sensing*, 2019, 11(24): 3021.

Conferences

1. Oral presentation at Joint Urban Remote Sensing Event (JURSE) 2023, organized by the Remote Sensing Lab of FORTH in Heraklion Crete, Greece, May 2023 (Title: A nationwide dataset of building features for Germany)
2. Oral presentation at HIGRADE Conference 2022, Leipzig, Germany, June 2022 (Title: A new nonlinear method for downscaling land surface temperature by integrating guided and Gaussian filtering)