

## Chenchen Zhang

Ph.D. Candidate, Graduate Research Assistant, University of Oklahoma

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### Education

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| 2021-     | <p>Ph.D. in Plant Biology (interdisciplinary field of Remote Sensing and Ecology)</p> <p><b>University of Oklahoma</b>, Norman, OK, USA</p> <p>Proposed dissertation title: Water-related Land Cover Dynamics in Northeast Asia Under Climate Change and Anthropogenic Activities</p> <p>Expected graduation: May 2025</p>          |
| 2017-2020 | <p>M.Sc. in Cartography and Geographic Information System</p> <p><b>Institute of Geographic Sciences and Natural Resource Research, Chinese Academy of Sciences</b>, Beijing, China</p> <p>Thesis: Spatial Distribution and Change Detection of Rubber Plantation in Northeast Thailand Using Time Series Remote Sensing Images</p> |
| 2013-2017 | <p>B. Ag. in Soil and Water Conservation and Combating Desertification</p> <p><b>Beijing Forestry University</b>, Beijing, China</p> <p>Thesis: Spatial Variability and Distribution Characteristics of Soil Organic Matter in the Yellow River Delta</p>   |

### Professional Experience

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| 07/2020- | <p>Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences</p> <p>Research Assistant</p> |
| 07/2021  |  |

### Research Interests

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- Land use and land cover change
- Surface water and terrestrial water storage dynamics
- Wetland classification and monitoring
- Agriculture monitoring and its driving factors
- Forest/plantation change and carbon storage
- Urban expansion
- Impacts of climate change, extreme events, and human activities
- GeoAI
- Time series analysis

### Honors and Awards

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| 2024 | <p>Best Student Poster Presentation, International Association for Landscape Ecology–North America (IALE-NA) annual meeting 2024</p> |
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2024	Cindy and Jizhong Zhou Graduate Student and Postdoctoral Award in Environmental Science and Technology
2024	OU Dodge Family College of Arts and Sciences (DFCAS) Student Travel Grant
2024, 2023	Robberson Conference Presentation and Creative Exhibition Travel Grant, University of Oklahoma (OU)
2024	Graduate Student Senate (GSS) Conference Grant, OU
2024, 2023, 2022	Kenneth & Joye Harwell Endowed Scholarship, OU
2020	Outstanding Master Graduate Award, IGSNRR, Chinese Academy of Sciences
2017	Outstanding Undergraduate Thesis Award, Beijing Forestry University

### Peer-Reviewed Journal Articles (<sup>1</sup>Equal contribution, \*Corresponding) ([Google Scholar](#))

#### First Author and Corresponding Author

Submitted	<b>Zhang, C.</b> , Xiao, X., Wang, X., Yi, S., Meng, C., Qin, Y., ... & Dong, J. Climate-induced losses of surface water and total water storage in Northeast Asia. (Submitted)
Under Review	<b>Zhang, C.</b> , Xiao, X., Wang, X., Qin, Y., Doughty, R., Yang, X., ... & Dong, J. Mapping paddy rice in Northeast China with a knowledge-based algorithm and time series optical, microwave, and thermal imagery. (Under review after revision)
Submitted	Wang, S., Huang, C., Huang, L., Xu, X., Shi, H., Gu, Q., & <b>Zhang, C*</b> . Mapping paddy rice in Northeast China during 2019-2023 with automatic sampling and deep learning. (Submitted)
2024	<b>Zhang, C.</b> , Xiao, X., Wang, X., Qin, Y., Doughty, R., Yang, X., ... & Dong, J. (2024). Mapping wetlands in Northeast China by using knowledge-based algorithms and microwave (PALSAR-2, Sentinel-1), optical (Sentinel-2, Landsat), and thermal (MODIS) images. <i>Journal of Environmental Management</i> , 349, 119618. <a href="https://doi.org/10.1016/j.jenvman.2023.119618">https://doi.org/10.1016/j.jenvman.2023.119618</a>
2023	<b>Zhang, C.</b> , Xiao, X., Zhao, L., Qin, Y., Doughty, R., Wang, X., ... & Yang, X. (2023). Mapping Eucalyptus plantation in Guangxi, China by using knowledge-based algorithms and PALSAR-2, Sentinel-2, and Landsat images in 2020. <i>International Journal of Applied Earth Observation and Geoinformation</i> , 120, 103348. <a href="https://doi.org/10.1016/j.jag.2023.103348">https://doi.org/10.1016/j.jag.2023.103348</a>
2023	Huang, C. <sup>1</sup> , <b>Zhang, C.</b> <sup>1</sup> (2023). Time-series remote sensing of rice paddy expansion in the Yellow River Delta: Towards sustainable ecological conservation in the context of water scarcity. <i>Remote Sensing in Ecology and Conservation</i> , 9(4), 454-468. <a href="https://doi.org/10.1002/rse2.320">https://doi.org/10.1002/rse2.320</a>
2022	Huang, C. <sup>1</sup> , <b>Zhang, C.</b> <sup>1</sup> (2022). Characterizing urban growth in Vientiane from 2000 to 2019 using time-series optical and SAR-based estimates of urban land. <i>International Journal of Applied Earth Observation and Geoinformation</i> , 109, 102798. <a href="https://doi.org/10.1016/j.jag.2022.102798">https://doi.org/10.1016/j.jag.2022.102798</a>
2022	Huang, C. <sup>1</sup> , <b>Zhang, C.</b> <sup>1</sup> , Li, H. (2022). Assessment of the impact of rubber plantation expansion on regional carbon storage based on time series remote sensing and the invest model. <i>Remote Sensing</i> , 14(24), 6234. <a href="https://doi.org/10.3390/rs14246234">https://doi.org/10.3390/rs14246234</a>

- 2020 **Zhang, C.**, Huang, C., Li, H., Liu, Q., Li, J., Bridhikitti, A., & Liu, G. (2020). Effect of textural features in remote sensed data on rubber plantation extraction at different levels of spatial resolution. *Forests*, 11(4), 399. <https://doi.org/10.3390/f11040399>
- 2020 **Zhang, C.**, Huang, C., He, Y., Liu, Q., Li, H., Wu, C., & Liu, G. (2020). An analysis of the space-time patterns of precipitation-shallow groundwater depth interactions in the Yellow River Delta. *Hydrogeology & Engineering Geology*, 47(5), 21-30. DOI: 10.16030/j.cnki.issn.1000-3665.202002033

### **Co-author**

- 2024 Meng, C., Xiao, X., Wagle, P., **Zhang, C.**, Pan, L., Pan, B., ... & Newman, G. S. (2024). Exponential or Unimodal Relationships Between Nighttime Ecosystem Respiration and Temperature at the Eddy Covariance Flux Tower Sites. *Ecology Letters*, 27(10), e14532. <https://doi.org/10.1111/ele.14532>
- 2024 Pan, L., Xiao, X., Pan, B., Meng, C., Staebler, R. M., **Zhang, C.**, & Qin, Y. (2024). Interannual variations and trends of gross primary production and transpiration of four mature deciduous broadleaf forest sites during 2000–2020. *Remote Sensing of Environment*, 304, 114042. <https://doi.org/10.1016/j.rse.2024.114042>
- 2024 Yang, X., Xiao, X., **Zhang, C.**, & Celis, J. (2024). Changes in Water and Carbon Fluxes in the USA Southern Great Plains Grassland Due to Evergreen Forest Encroachment. *Canadian Journal of Remote Sensing*, 50(1), 2333976. <https://doi.org/10.1080/07038992.2024.2333976>
- 2024 Pan, L., Xiao, X., Yao, Y., Pan, B., Yin, C., Meng, C., ... & **Zhang, C.** (2024). Site-specific apparent optimum air temperature for vegetation photosynthesis across the globe. *Scientific Data*, 11(1), 758. <https://doi.org/10.1038/s41597-024-03603-7>
- 2023 Wang, X., Xiao, X., **Zhang, C.**, Dong, J., & Li, B. (2023). Effects of the 2022 extreme droughts on avian influenza transmission risk in Poyang Lake. *The Innovation Life*, 1(3), 100044. <https://doi.org/10.59717/j.xinn-life.2023.100044>
- 2023 Yang, X., Xiao, X., & **Zhang, C.** (2023). Spatiotemporal variability and key factors of evergreen forest encroachment in the southern Great Plains. *Journal of Environmental Management*, 329, 117012. <https://doi.org/10.1016/j.jenvman.2022.117012>
- 2021 Li, H., He, Z., Huang, C., Liu, Q., Liu, G., & **Zhang, C.** (2021). Spatiotemporal evolution of rubber forests in southern Myanmar during 2000-2019. *Resources Science*, 43(12), 2403-2415. DOI: 10.18402/resci.2021.12.04
- 2021 Huang, C., **Zhang, C.**, Liu, Q., Li, H., Yang, X., & Liu, G. (2021). Multi-Feature Classification of Optical and SAR Remote Sensing Images for Typical Tropical Plantation Tree Species Classification, *Scientia Silvae Sinicae*, 57(7), 80-91. DOI:10. 11707 / j.1001-7488.20210709
- 2020 Huang, C., **Zhang, C.**, He, Y., Liu, Q., Li, H., Su, F., ... & Bridhikitti, A. (2020). Land cover mapping in cloud-prone tropical areas using Sentinel-2 data: Integrating spectral features with Ndvi temporal dynamics. *Remote Sensing*, 12(7), 1163. <https://doi.org/10.3390/rs12071163>
- 2020 Huang, C., **Zhang, C.**, Liu, Q., Wang, Z., Li, H., & Liu, G. (2020). Land reclamation and risk assessment in the coastal zone of China from 2000 to 2010. *Regional Studies in Marine Science*, 39, 101422. <https://doi.org/10.1016/j.rsma.2020.101422>

- 2020 Huang, C., Xu, Z., **Zhang, C.**, Li, H., Liu, Q., Yang, Z., & Liu, G. (2020). Extraction of rice planting structure in tropical region based on Sentinel-1 temporal features integration. *Transactions of the Chinese Society of Agricultural Engineering*, 36(9), 177-184. DOI: 10.11975/j.issn.1002-6819.2020.09.020
- 2020 Li, H., Huang, C., **Zhang, C.**, Liu, Q., & Liu, G. (2020). Coastal Erosion and Sediment Dynamics of the Yellow River Delta and its Response to the Runoff-sediment Flux Since 1976. *Resources Science*, 42(3), 486-493. DOI: 10.18402/resci.2020.03.07
- 2019 He, Y., Huang, C., Li, H., Liu, Q., Liu, G., Zhou, Z., & **Zhang, C.** (2019). Land-cover Classification of Random Forest Based on Sentinel- 2A Image Feature Optimization. *Resources Science*, 41(5), 992-1001. DOI: 10.18402/resci.2019.05.15

### Conference Presentations

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- 2024 **Zhang, C.**, Xiao, X., Yin, L., Wang, X., Qin, Y., Meng, C., ... & Dong, J. (2024, December). Water-related Land Cover Mapping through Multi-Source Remote Sensing and Deep Learning. AGU Fall Meeting 2024 (H53N-1297). Washington, D.C., USA (Poster)
- 2024 **Zhang, C.** (2024, November). Mapping paddy rice with a knowledge-based algorithm and multi-source satellites. *Ecomunch Seminar*. Norman, OK, USA (Oral presentation)
- 2024 **Zhang, C.** (2024, October). Widespread decline in surface and terrestrial water resources in Northeast Asia. *Microbiology and Plant Biology Seminar*. Norman, OK, USA (Oral presentation)
- 2024 **Zhang, C.**, Xiao, X., Wang, X., & Qin, Y. (2024, August). Mapping paddy rice with a knowledge-based algorithm and time series optical, microwave, and thermal imagery, ESA annual meeting 2024. (PS 36-005). Long Beach, CA, USA (Poster)
- 2024 **Zhang, C.**, Xiao, X., Wang, X., & Qin, Y. (2024, April). Mapping paddy rice with an enhanced knowledge-based algorithm and time series optical (Sentinel-2 and Landsat), microwave (Sentinel-1), and thermal (MODIS) imagery. IALE-North America Annual Meeting 2024 (P-46). Oklahoma City, OK, USA (Poster) (**Best Student Poster**)
- 2023 **Zhang, C.**, Xiao, X., Wang, X., Qin, Y., Meng, C., Yin, S., & Yao, Y. (2023, December). Surface Water Body Dynamics in Northeast Asia During 2015-2022 Using Time Series Landsat and Sentinel-2 Images. AGU Fall Meeting 2023 (GC31J-1163). San Francisco, CA, USA (Poster)
- 2022 **Zhang, C.**, Xiao, X., Qin, Y., & Yang, X. (2022, December). Annual Maps of Surface Water Body, Paddy Rice, and Wetlands in Northeast China Using PALSAR, Sentinel-1, Sentinel-2, Landsat, and MODIS Imagery in 2020. *AGU Fall Meeting 2022* (B42J-1749). Chicago, IL, USA (Poster)
- 2022 **Zhang, C.**, Xiao, X., Qin, Y., & Yang, X. (2022, December). Mapping Eucalyptus Plantation in Guangxi, China Using PALSAR-2, Sentinel-2, and Landsat Images in 2020. *AGU Fall Meeting 2022* (C32F-0678). Chicago, IL, USA (Poster)
- 2022 **Zhang, C.** (2022, September). Annual maps of surface water, paddy rice, and wetlands in Northeast China using multiple remote sensing data in 2020. *Microbiology and Plant Biology Seminar*. Norman, OK, USA (Oral presentation)
- 2018 **Zhang, C.**, Huang C. (2018, July). Groundwater Variation Characteristics and Influencing Factors in the Yellow River Delta. *19th Cross-strait Symposium on Environment, Resources and Ecological Conservation*. Guizhou, China (Oral presentation)

## **Teaching**

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- Spring 2024 GIS/PBIO 4733/5733 Environmental Remote Sensing, I served as an instructor for *Hyperspectral and Multispectral Remote Sensing*, including in-class lectures and field measurement of Spectroradiometer PSR 3500+, FieldSpec®3 ASD, and LAI 2200. I also assisted with *Google Earth Engine (GEE) Module* for data processing and land cover classification lectures. I was responsible for grading weekly textbook or article reading reports (15 weeks), grading student project reports, and designing and grading exams.
- Spring 2023 GIS/PBIO 4733/5733 Environmental Remote Sensing, 15 weeks.

## **Services and Outreach**

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### **Workshops**

- 2022-2024 I serve as the contact person and moderator for the International Forum on Ecology and Evolution of Avian Influenza (IFEEAI) and have held 65 webinars by Nov. 2024. (<https://www.ceom.ou.edu/outreach/workshops/content/10>)
- 2023 I participated in the GIS Day at the Oklahoma State Capitol and taught people from the public and private sectors how to use the free tools on the CEOM website to explore land cover change, land surface temperature changes, and field photos from around the world.
- 2022 I attended the GIS Day at the University of Oklahoma and presented the recent progress from the CEOM in land cover/land use mapping and GPP modeling. I also showed the use of instruments to faculty and students from different majors, including LAI-2200c, ASD, PSR+, and UAV.

### **Conferences**

- 2024 I served as a Student/Early Career Convener and Outstanding Student Presentation Awards (OSPA) Liaison for the American Geophysical Union (AGU) 2024 Fall Meeting session "Forest cover dynamics, drivers, and impacts under diverse human activities and climate change".
- 2023 I served as a Student/Early Career Convener and Outstanding Student Presentation Awards (OSPA) Liaison for the AGU 2023 Fall Meeting session "Advances in land cover and land use changes: data products, driving factors, and impacts".

### **Journal referee**

*ISPRS Journal of Photogrammetry and Remote Sensing; IEEE Transactions on Geoscience and Remote Sensing; Journal of Environmental Management; Scientific Data; Science of Remote Sensing; Remote Sensing; Journal of Plant Ecology; Ecosystem Health and Sustainability; Journal of Environmental Engineering and Landscape Management; Environmental Research Communications; Atmosphere; Land; All Earth*

### **Professional Affiliations**

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- 2024-present Ecological Society of America (ESA)
- 2024-present International Association for Landscape Ecology–North America (IALE-NA)
- 2022-present American Geophysical Union (AGU)

## References

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