

BIOGRAPHICAL SKETCH

Name: Zutao Yang

Position: Assistant Professor College of Forestry, Wildlife and Environment, Auburn University

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1. Education

Michigan State University	East Lansing, MI, USA	Physical Geography	2015, PhD
University of Illinois	Urbana-Champaign, IL	Data Science	2020, MS
Fudan University	Shanghai, China	Ecology	2010, MS
Sun Yet-Sen University	Guangzhou, China,	GIS	2007, BS

2. Appointments

09/2023-present	Assistant Professor, Auburn University,
06/2022-08/2023	Research Scientist, Stanford University, 06/2022-08/2023
06/2019-06/2022	Postdoc research fellow, Stanford University, 06/2019-06/2022
10/2015-05/2019	Research associate, Michigan State University, 10/2015-05/2019

3. Product

A. Most Closely Related to the Project

- **Zutao Ouyang**, Robert Jackson, Gavin McNicol, Etienne Fluet-Chouinard, Benjamin R.K. Runkle, Dario Papale, Sara Knox, et al. 2022. Paddy-rice Methane Emission across Monsoon Asia. **Remote Sensing of Environment**. 284,113335.
- Gavin McNicol, Etienne Fluet-Chouinard, **Zutao Ouyang**, et al. 2023. Upscaling Wetland Methane Emissions From the FLUXNET-CH4 Eddy Covariance Network (UpCH4 v1. 0): Model Development, Network Assessment, and Budget Comparison. **AGU Advances**. 5, e2023AV000956.
- Kyle B Delwiche, Sarah Helen Knox, Avni Malhotra, Etienne Fluet-Chouinard, Gavin McNicol, Sarah Feron, **Zutao Ouyang**, et al. 2021. FLUXNET-CH4: A global, multi-ecosystem dataset and analysis of methane seasonal-ity from freshwater wetlands. **Earth System Science Data**. 1-111.
- Housen Chu, Jiquan Chen, Johan F Gottgens, **Zutao Ouyang**, Ranjeet John, Kevin Czajkowski, Richard Becker. 2014. Net ecosystem methane and carbon dioxide exchanges in a Lake Erie coastal marsh and a nearby crop-Land, **Journal of Geophysical Research: Biogeosciences**, 5, 722-740.
- **Zutao Ouyang**, Richard Becker, Wade Shaver, Jiquan Chen. 2014. Evaluating the sensitivity of wetlands to climate change by remote sensing techniques, **Hydrological Processes**, 28, 1703-1712.
- **Zutao Ouyang**, Yu Gao, Xiao Xie, Haiqiang, Guo, Tingting Zhang, Bin Zhao. 2013. Spectral Discrimination of the Invasive Plant *Spartina alterniflora* at Multiple Phenological Stages in a Saltmarsh Wetland, **PLOS One**, 8, e67315.
- **Zutao Ouyang**, MoQian Zhang, Xiao Xie, Qi Shen, HaiQiang Guo, Bin Zhao. 2011. A comparison of pixel-based and object-oriented approaches to VHR imagery for mapping saltmarsh plants, **Ecological Informatics**, 6, 136-146.

A. Other Significant Products, Whether or Not Related to the Project

- Yannai S Kashtan, Metta Nicholson, Colin Finnegan, **Zutao Ouyang**, Eric D Lebel, Drew R Michanowicz, Seth BC Shonkoff, Robert B Jackson. 2023. Gas and Propane Combustion from Stoves Emits Benzene and Increases Indoor Air Pollution. **Environmental Science & Technology**. 57, 26, 9653–9663.
- **Zutao Ouyang**, Pietro Sciusco, Tong Jiao, Sarah Feron, Cheyenne Lei, Fei Li, Ranjeet John, Peilei Fan, Xia Li, Christopher A Williams, Guangzhao Chen, Chenghao Wang, Jiquan Chen. 2022. Albedo changes caused by future urbanization contribute to global warming. **Nature Communications**. 13, 380.
- Eric D. Lebel, Colin J. Finnegan, **Zutao Ouyang**, Robert B. Jackson. 2022. Methane and NO_x Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes. **Environmental Science & Technology**, 56(4).
- Peilei Fan, Myung Sik Cho, Zihan Lin, **Zutao Ouyang**, Jiaguo Qi, Jiquan Chen, Emilio F Moran. 2022. Recently constructed hydropower dams were associated with reduced economic production, population, and green-ness in nearby areas. **Proceedings of the National Academy of Sciences**, 119(8)
- Housen Chu, Xiangzhong Luo, **Zutao Ouyang**, et al. 2021. Representativeness of Eddy-Covariance flux foot-prints for areas surrounding AmeriFlux sites. *Agricultural and Forest Meteorology*. 301, 108350.
- Dong Liu, Jiquan Chen, **Zutao Ouyang**. 2020. Responses of landscape structure to the ecological restoration programs in the farming-pastoral ecotone of Northern China. **Science of the Total Environment**. 701, 136311.
- Yu Gao, Ronghao Peng, **Zutao Ouyang**, Changliang Shao, Jiquan Chen, Tingting Zhang, Haiqiang Guo, Jianwu Tang, Feng Zhao, Ping Zhuang, Bin Zhao. 2020. Enhanced Lateral Exchange of Carbon and Nitrogen in a Coastal Wetland with Invasive *Spartina alterniflora*. *Journal of Geophysical Research: Biogeosciences*. 125(5), e2019JG005459.
- **Zutao Ouyang**, Peilei Fan, Jiquan Chen, Raffaele Laforteza, Joseph P. Messina, Vincenzo Giannico, Ranjeet John. 2019. A Bayesian approach to mapping the uncertainties of global urban lands. **Landscape and Urban Planning**, 187, 210-218.
- **Zutao Ouyang**, Meimei Lin, Jiquan Chen, Peilei Fan, Song S. Qian, Hogeun Park. 2019. Improving estimates of built-up area from nighttime light across globally distributed cities through hierarchical modeling, **Science of the Total Environment**, 647, 1266-1280.
- Rong Zhang, Xuhui Zhou, **Zutao Ouyang**, Valerio Avitabile, Jiaguo Qi, Jiquan Chen, Vincenzo Giannico. 2019. Estimating aboveground biomass in subtropical forests of China by integrating multisource remote sensing and ground data. **Remote Sensing of Environment**. 232, 111341.
- Rong Zhang, **Zutao Ouyang**, Xiao Xie, Haiqiang Guo, Dunyan Tan, Xiangming Xiao, Jiaguo Qi, Bin Zhao. 2016. Impact of Climate Change on Vegetation Growth in Arid Northwest of China from 1982 to 2011, **Remote Sensing**, 8, 364.
- Jiquan Chen, Pietro Sciusco, **Zutao Ouyang**, Rong Zhang, Geoffrey M Henebry, Ranjeet John, David P Roy. 2019. Linear downscaling from MODIS to Landsat: connecting landscape composition with ecosystem functions. **Landscape Ecology**. 34(12), 2917-2934.
- Peilei Fan, Ying-Chieh Lee, **Zutao Ouyang**, Shu-Li Huang. 2019. Compact and green urban development—towards a framework to assess urban development for a high-density metropolis. **Environmental Research Letters**. 14, 115006.
- **Zutao Ouyang**, Song S Qian, Richard Becker, Jiquan Chen. 2018. The effects of nutrients on stream in-vertebrates: a regional estimation by generalized propensity score, **Ecological**

Processes, 1, 21.

- Yu Gao, **Zutao Ouyang**, Changliang Shao, Chu Housen, Yahn-Jauh Su, Haiqiang Guo, Jiquan Chen, Bin Zhao. 2018. Field observation of lateral detritus carbon flux in a coastal wetland, **Wetlands**, 3, 613-625.
- Peilei Fan, **Zutao Ouyang**, Nguyen Dinh Duong, Nguyen Thuy Hang, Hogeun Park, Jiquan Chen. Urban land- scape, economic development, environmental and social changes in transitional economies: Vietnam after Doimoi. 2018. **Landscape and Urban Planning**, 187, 145-155.
- Peilei Fan, Jiquan Chen, **Zutao Ouyang**, et al. 2018. Urbanization and sustainability under transitional economies: a synthesis for Asian Russia. **Environmental Research Letters**, 13(9), 095007.
- Hong Li, Shengqi Dai, **Zutao Ouyang**, Xiao Xie, Haiqiang Guo, Caihong Gu, Xiangming Xiao, Zhenming Ge, Changhui Peng, Bin Zhao. 2018. Multiscale temporal variation of methane flux and its controls in a subtropical tidal salt marsh in eastern China, **Biogeochemistry**, 137, 163-179
- **Zutao Ouyang**, Changliang Shao, Housen Chu, Richard Becker, Thomas Bridgeman, Carol A Stepien, Ranjeet John, Jiquan Chen. 2017. The Effect of Algal Blooms on Carbon Emissions in Western Lake Erie: An Integration of Remote Sensing and Eddy Covariance Measurements, **Remote Sensing**, 9.
- Peilei Fan, **Zutao Ouyang**, Corina Basnou, Joan Pino, Hogeun Park, Jiquan Chen. 2017. Nature-based solutions for urban landscapes under post-industrialization and globalization: Barcelona versus Shanghai, **Environmental Research**, 156, 272-283.
- **Zutao Ouyang**, Peilei Fan, Jiquan Chen. 2016. Urban built-up areas in transitional economies of Southeast Asia: spatial Extent and dynamics, **Remote Sensing**, 8, 819.

3. Synergistic Activities

- Coordinating Methane Emissions Technology Alliance (META) Seminars: as a co-founder and core members of META, invite speakers from both the industry and academic and coordinate a series of talks with a great mix of practical industry and cutting-edge academic research.
- Editor: Leading editor of a special issue "Using Remote Sensing and GIS Technique/Methods to Address Current Urbanization Issues" for the journal of Remote Sensing, one of the top open-access journals in remote sensing.
- Editor: Associate Editor of Geo-spatial Information Science (IF:6.0), one of the top journals in geo-spatial science.
- Editor: Topic Editor of Big Earth Data
- Development of global Fluxnet-CH4 database: working with my colleges at Stanford University, help developing the Fluxnet-CH4 community product, which has become a standard benchmark dataset for studying and modeling wetland CH4 emissions.
- Undergraduate Mentor: At Stanford University, I mentored 2 undergraduate students, one from the department of computer science and another from the department of engineering. I motivated their interests in climate change science, and both have made a significant role at Stanford's AI for Climate Change program.