

LIUYUE HE



Ph.D.

Hydraulic engineering, Hydrology and Water resources

Research Area: Marine ecosystem assessment; Marine planning and management;
Spatial-temporal optimization of water resources; Water-energy-food-carbon nexus

Date of Birth: Feb.07 1993

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Hobbies: Badminton, Handicrafts

EDUCATION

- **Ph.D.** China Agricultural University (2016.09~2022.01)
Major: Hydraulic engineering (Hydrology and Water resources)
Advisor: Sufen Wang
Research Area: Spatial-temporal optimization and estimation of Crop water consumption
- **Visiting student** University of California, Davis, United states (2019.10~2020.09)
Major: Agricultural engineering
Advisor: Andre Daccache
Research Area: Spectral measurement of soil parameters, Research on water consumption of crops by drone
- **MA.Eng.** China Agricultural University (2014.09~2016.06)
Major: Hydraulic engineering (Hydrology and Water resources)
Advisor: Ling Tong
Research Area: Physiology of plants
- **B.A.** China Agricultural University (2010.09~2014.06)
Major: Agricultural Irrigation Engineering
Advisor: Ling Tong
Research Area: Crop water consumption & Agronomic measure

EMPLOYMENT

- **Post Doctor** Ocean college, Zhejiang University, China/ Donghai Laboratory (2023.03~now)
- **Post Doctor** College of Remote Sensing and Information Engineering, Wuhan University, China (2022.04~2022.12)
- **Senior Research Assistant** Shenzhen Institute of Research and Innovation, The University of Hong Kong, China (2022.02~2022.03)
- **Research Assistant** Development Research Center of the Ministry of Water Research of China (2016.06~2019.05)

INTERNATIONAL COMMUNICATIONS

- 2019.08, China Agricultural University Hydraulic Engineering doctoral students to Israel international academic visit exchange, Israel
Topic: Study on spatial optimization of crop water consumption (Oral report)
- 2019.06, China Agricultural University and New Mexico State University had one-on-one exchanges, Beijing, China
Topic: Study on spatial optimization of crop water consumption (Oral report)
- 2018.06, Asian and Oceanian Geoscience Society 2018 Annual Meeting (AOGS2018), Hawaii, USA
Topic: Optimization of spatial and temporal distribution of crop water consumption in middle reaches of Heihe River (Poster)

EXPERIENCE

- ✧ 2025.01~2027.12, Spatiotemporal coupling and synergistic regulation of regional agricultural Water-Energy-Food-Environment nexus (Young Scientists Fund of the National Natural Science Foundation of China, Recipient, 30W)
- ✧ 2024.01~2025.12, Study on multi-coupling and synergistic optimization of water-energy-food-ecosystem nexus in China's coastal zone (China Postdoctoral Science Foundation, Recipient, 8W)
- ✧ 2023.10~2025.09, Synergistic regulation of coastal zone based on the Water-Energy-Food-Carbon Nexus (Talent Foundation in Donghai Lab, Recipient, 30W)
- ✧ 2020.01~2021.12, Spatial and temporal pattern optimization of regional crop water consumption based on cellular automata model (National Natural Science Foundation project, Main Participant)

- ✧ 2020.01~2021.12, Spatial pattern optimization of crop water demand based on satellite-UAV remote sensing platform (Regional cooperation project of National Natural Science Foundation, Main Participant)
- ✧ 2016.09~2020.12, Efficient water-saving irrigation technology and integrated application in typical agricultural areas of Northwest China (National key research and development program, Main Participant)
- ✧ 2016.09~2018.12, Multi-process coupling and efficient water use regulation of oasis agricultural water conversion in Heihe River Basin (National Natural Science Foundation of China - Major Research Program, Main Participant)
- ✧ 2016.09~2018.12, Demonstration of efficient utilization of water and soil resources in North China (Horizontal project of the Ministry of Land and Infrastructure, Main Participant)
- ✧ 2016.06~2016.12, Research and demonstration on Water demand and efficient water use technology of high yield cropland in Huang-Huai-hai (Public welfare industry (agriculture) research special, Main Participant)

ACADEMIC EMPLOYMENT

Reviewers in *Journal of Environmental Management*, *International Journal of Applied Earth Observation and Geoinformation*, *Geography and Sustainability*, *Journal of Cleaner Production*, *Agricultural System*, *Geocarto Internationa*, etc.

RESEARCH ACHIEVEMENT

I have published 23 papers in English, 3 papers in Chinese, and 2 patents. (#Co-first author; *Corresponding author)

First author/ Corresponding author:

- [1] Ruifeng Yang[#], **Liuyue He**[#], Dajiong Zhu, Qiting Zuo, Lei Yu^{*}. Optimizing the management of multiple water resources in irrigation area under uncertainty: A novel scenario-based multi-objective fuzzy-credibility constrained programming model. *Journal of Hydrology*, 2024, 640, 131633. (Q1, IF=6.4)
- [2] **Liuyue He**, Nishan Bhattarai, Yadu Pokhrel, Nan Jia, Peng Zhu, Guanqiong Ye, Zhenci Xu^{*}, Shaohua Wu, Zhongbin B. Li^{*}. Dynamics of land cover changes and carbon emissions driven by large dams in China. *iScience*, 2024, 27(4): 109516. (Q2, IF=5.8)
- [3] Lu Liu, **Liuyue He**^{*}, Qiting Zuo^{*}. Evaluation of the human-water relationship in the Yellow River Basin. *Water*, 2024, 16(7): 916. (Q3, IF=3.4)
- [4] **Liuyue He**, Zhongbin Li, Qian Jia, Zhenci Xu^{*}. Soil microplastics pollution in agriculture. *Science*, 2023, 6632: 547. (Letters) (Q1, IF=63.714)
- [5] **Liuyue He**[#], Jingyuan Xue[#], Sufen Wang^{*}. WHCrop: A novel water-heat driven crop model for estimating the spatiotemporal dynamics of crop growth for arid region. *Agricultural Water Management*, 2023, 287: 108410. (Q1, IF=6.611)
- [6] **Liuyue He**, Zhenci Xu, Sufen Wang^{*}, Jianxia Bao, Yunfei Fan, Andre Daccache. Optimal crop planting pattern can be harmful to reach carbon neutrality: Evidence from food-energy-water-carbon nexus perspective. *Applied Energy*, 2022, 308: 118364. (Q1, IF=11.446)
- [7] **Liuyue He**, Jianxia Bao, Andre Daccache, Sufen Wang^{*}, Ping Guo. Optimize the spatial distribution of crop water consumption based on a cellular automata model: A case study of the middle Heihe River basin, China. *Science of The Total Environment*, 2020, 720: 137569. (Q1, IF=10.753)
- [8] **Liuyue He**, Sufen Wang^{*}, Congcong Peng, Qian Tan. Optimization of water consumption distribution based on crop suitability in the middle reaches of Heihe River. *Sustainability*, 2018, 10(7): 2119. (Q3, IF=3.889)
- [9] Juan Gong, **Liuyue He**^{*}, Sufen Wang. Agricultural drought disaster risk assessment based on fuzzy rough set model A case study of Hetao Irrigation District. *Journal of Natural Disasters*. 2021, 30(2):147-158. (In Chinese)

Co-author:

- [10] Cuicui Feng[#], Song Ge[#], Jiangning Zeng, **Liuyue He**, Guanqiong Ye^{*}. Mapping the Global Carbon Emissions of Marine Sectors. *Environmental Science & Technology*. 2024, (Q1, IF=10.8)
- [11] Tianran Hua, **Liuyue He**, Qutu Jiang, Loke-Ming Chou, Zhenci Xu, Yanming Yao, Guanqiong Ye^{*}. Spatio-temporal coupling analysis and tipping points detection of China's coastal integrated land-human activity-ocean system. *Science of The Total Environment*, 2024, 914: 169981. (Q1, IF=10.753)
- [12] Yuyan Gong, **Liuyue He**, Guanqiong Ye^{*}, Jiangning Zeng. Climate policy must integrate blue energy with food security. *Nature*, 2024, 625: 241. (Correspondence) (Q1, IF=69.504)
- [13] Cuicui Feng, Guanqiong Ye^{*}, Jiangning Zeng, Jian Zeng, Qutu Jiang, **Liuyue He**, Yaowen Zhang, Zhenci Xu^{*}. Sustainably developing global blue carbon for climate change mitigation and economic benefits through international cooperation. *Nature Communications*, 2023, 14: 6144. (Q1, IF=17.694)
- [14] Nan Jia, Yinshuai Li, Andrés Viña, Jie Cheng, Yue Dou, Qian Song, **Liuyue He**, Jianguo Liu^{*}. Long Image Time Series for Crop Extraction Based on the Automatically Generated Samples Algorithm. IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium, Pasadena, CA, USA, 2023, pp. 3502-3505. (Conference paper)
- [15] Yu Hou, Yi Liu, Xiaoyu Xu, Yunfei Fan, **Liuyue He**, Sufen Wang^{*}. Improving food system sustainability: Grid-scale crop layout model considering resource-environment-economy-nutrition. *Journal of Cleaner Production*, 2023, 403: 136881. (Q1, IF=11.072)
- [16] Shimeng Ma, **Liuyue He**, Yu Fang, Xiuxia Liu, Yunfei Fan, Sufen Wang^{*}. Intensive land management through policy intervention and spatiotemporal optimization can achieve carbon neutrality in advance. *Journal of Cleaner Production*, 2022, 385: 135635. (Q1, IF=11.072)

- [17] Yunfei Fan, **Liuyue He**, Yi Liu, Sufen Wang*. Spatiotemporally optimize water-nitrogen management of crop planting in response to carbon emissions mitigation. *Journal of Cleaner Production*, 2022, 380: 134974. (Q1, IF=11.072)
- [18] Yunfei Fan, **Liuyue He**, Yi Liu, Sufen Wang*. Optimal cropping patterns can be conducive to sustainable irrigation: Evidence from the drylands of Northwest China. *Agricultural Water Management*, 2022, 274: 107977. (Q1, IF=6.611)
- [19] Yunfei Fan, **Liuyue He**, Yi Liu, Sufen Wang*. Reallocating crop spatial pattern improves agricultural productivity and irrigation benefits without reducing yields. *Environment, Development and Sustainability*, 2022: 1-22. (Q4, IF=4.080)
- [20] Juan Gong, **Liuyue He**, Xiuxia Liu, Sufen Wang*. Optimizing the allocation of irrigation water for multiple crops based on the crop water allocation priority. *Irrigation Science*, 2023,41: 49-68. (Q2, IF=3.519)
- [21] Rongchao Shi, Jintao Wang, Ling Tong*, Taisheng Du, Manoi Kumar Shukla, Xuelian Jiang, Donghao Li, Yonghui Qin, **Liuyue He**, Xiaorui Bai, Xiaoxu Guo. Optimizing planting density and irrigation depth of hybrid maize seed production under limited water availability. *Agricultural Water Management*, 2022, 271: 107759. (Q1, IF=6.611)
- [22] Yunfei Fan, **Liuyue He**, Shaozhong Kang, Sufen Wang*, Yu Fang. A novel approach to dynamically optimize the spatio-temporal distribution of crop water consumption. *Journal of Cleaner Production*, 2021,310:127439. (Q1, IF=11.072)
- [23] Arman Ahmadi, Mohammad Emami, Andre Daccache*, **Liuyue He**. Soil properties prediction for precision agriculture using visible and near-infrared spectroscopy: A systematic review and meta-analysis. *Agronomy*, 2021,11(3):433. (Q2, IF=3.949)
- [24] Jian Kang, Xin Zi, Sufen Wang*, **Liuyue He**. Evaluation and optimization of agricultural water resources carrying capacity in Haihe River basin, China. *Water*, 2019, 11(5):999. (Q3, IF=3.530)
- [25] Rongchao Shi, Ling Tong*, Taisheng Du, Yonghui Qin, **Liuyue He**, Xiaorui Bai. Simulation of hybrid maize seeds yield under different water regimes and planting densities based on modified AquaCrop–KR model. Transactions of The Chinese Society of Agricultural Engineering. 2022, 38(15):63-71. (EI, In Chinese)
- [26] Rongchao Shi, Ling Tong, **Liuyue He**, Xuelian Jiang. Effect of planting density on water consumption of seed-maize and validation of a model. *Journal of Irrigation and Drainage*. 2017, 36(4):68-73. (In Chinese)

Patent:

- [27] Sufen Wang, Yunfei Fan, Jianxia Bao, **Liuyue He**. A method for optimizing spatial pattern of regional crop water consumption. (Chinese patent, ZL201910142416.X)
- [28] Sufen Wang, Yu Hou, Yunfei Fan, **Liuyue He**, Shimeng Ma. An optimization method for regional crop planting layout considering dietary balance. (Chinese patent, CN202111383827.1)

AWARDS

- Awarded the Outstanding graduate of Beijing, Outstanding graduate of CAU in 2022
 - Awarded the First/Second Prize Graduate Scholarship, Grand Prize of the 3rd Graduate Academic Forum of the Department of Hydraulic Engineering from 2017 to 2020
 - Awarded the Second Prize Graduate Scholarship of CAU and “Research Contribution Award” of College of Water Resources and Civil Engineering in 2015
 - Awarded the CAU’s Second Prize Scholarship, XIGENITE Second Prize Scholarship, and “Excellent league member” from 2011 to 2013
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