MINHUI LI

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School of the Environment
Yale University
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Current Appointment

School of the Environment, Yale University — United States

Postdoctoral associate — *Advisor:* Peter Raymond — *Jan. 2025-today*

Education

Department of Hydraulic Engineering, Tsinghua University — China

Doctor of Engineering — *Supervisors:* Xudong Fu & Baosheng Wu — *Aug. 2018-Jun. 2024*

Dissertation Topic: "Controls on Stream Networks and Drainage Basin Shapes"

College of Harbor, Coastal and Offshore Engineering, Hohai University — China

Bachelor of Engineering — *Sep. 2014-Jun. 2018*

Professional Experiences

Department of Environmental Systems Science, ETH Zurich — Switzerland

Postdoctoral researcher	*Advisor:* James Kirchner	*Aug. 2024-Dec. 2024*
Scientific assistant	*Advisor:* James Kirchner	*Dec. 2023-Jul. 2024*
Visiting Ph.D. student	*Advisor:* James Kirchner	*Dec. 2021-Nov. 2023*

Research Interests

Geomorphology, Hydrology and Biogeochemistry

- Hydrological controls on stream network expansion and contraction and their implications for riverine carbon dynamics
- Continental- to Global-Scale morphological analysis of stream networks and watersheds
- Dynamic connectivity between landscapes and stream networks and their controls on hydrologic response across different climates

Publications

Peer-reviewed journal papers

9. **Li, M.**, Seybold, H., Fu, X., Wu, B., Raymond, P., & Kirchner, J.W. (2026). Climate's influence on topography encoded in stream network topology and geometry. *Nature Communications, 17,* 3426.

8. **Li, M.**, Seybold, H., Beria, H., Floriancic, M., Fu, X., Raymond, P., & Kirchner, J.W. (2026). Controls on the magnitude and timing of runoff response to rainfall across the continental US. *Environmental*

Research Letters, 21, 054017.

7. **Li, M.**, Seybold, H., Wu, B., Chen, Y., Fu, X., & Kirchner, J.W. (2024). Global analysis of topographic and climatic controls on drainage basin shapes. *Geophysical Research Letters, 51*(8), e2023GL105804.
6. **Li, M.**, Seybold, H., Wu, B., Chen, Y., & Kirchner, J.W. (2023). Interaction between tectonics and climate encoded in the planform geometry of stream networks on the eastern Tibetan Plateau. *Geophysical Research Letters, 50*(14), e2023GL104121.
5. **Li, M.**, Wu, B., Chen, Y., & Li, D. (2022). Quantification of river network types based on hierarchical structures. *Catena*, *211*, 105986.
4. Ciais, P., Zhu, Y., Cai, Y., Lan, X., Michel, S., Zheng, B., Zhao, Y., Hauglustaine, D.A., Lin, X., Zhang, Y., Sun, S., Tian, X., Zhao, M., Wang, Y., Chang, J., Dou, X., Liu, Z., Andrew, R., Quinn, C.A., Poulter, B., Ouyang, Z., Yuan, W., Yuan, K., Zhu, Q., Li, F., Pan, N., Tian, H., Yu, X., Rocher-Ros, G., Johnson, M.S., Li, M., **Li, M.**, Feng, D., Raymond, P., Canadell, P., Jackson, R.B., Saunois, M., Bousquet, P., Peng, S. (2025). Why methane surged in the atmosphere during the early 2020s. *Science*, *391*(6785), eadx8262.
3. Zhang, B., Wu, B., Zhang, R., Ren, S., & **Li, M.** (2021). 3D numerical modelling of asynchronous propagation characteristics of flood and sediment peaks in Three Gorges Reservoir. *Journal of Hydrology*, *593*, 125896.
2. Chen, Y., Wu, B., Xiong, Z., Zan, J., Zhang, B., Zhang, R., Xue, Y., **Li, M.**, & Li, B. (2021). Evolution of eastern Tibetan river systems is driven by the indentation of India. *Communications Earth & Environment*, *2*(1), 256.
1. Qin, C., Wu, B., Wang, Y., Fu, X., Xue, Y., Li, D., **Li, M.**, & Zhang, Y. (2020). Dynamic variability of at-a-station hydraulic-geometry for mountain rivers in the southeast Qinghai-Tibet Plateau: The cases of Yalong River and upper Jinsha River. *Catena*, *194*, 104723.

Peer-reviewed journal papers in Chinese

3. **Li, M.**, Wu, B, & Chen Y (2022). Planform geometry and controlling factors of river networks in the Yellow River source zone. *Acta Geographica Sinica*, 77(11): 2878-2889.
2. **Li, M.**, Chen Y., & Wu, B**.** (2020). Analysis of features and factors controlling typical drainage networks in the Tibetan Plateau. *Journal of Tsinghua University* (*Science and Technology*), *60*(11), 951-957.
1. Chen, Y, Wu, B., & **Li, M.** (2022). Chemical weathering to climatic variations in the Yellow River source region. *Journal of Tsinghua University* (*Science and Technology*), *62*(12), 1945-1952.

Presentations

Dec. 2025	**Li, M.**, Beria, H., Seybold, H., van Meerveld, I., Kirchner, J.W., & Raymond, P. Effects of hillslope-network connectivity on rainfall- runoff response. *American Geophysical Union Fall Meeting*, New Orleans, United States (poster)
Jun. 2025	**Li, M.**, Seybold, H., Beria, H., Floriancic, M.,Fu, X., Raymond, P., & Kirchner, J.W. Controls on the magnitude and timing of runoff response to rainfall across the continental US. *Gordon Research Conference on Catchment Science*, Andover, New Hampshire, United States (poster)

May 2024 (invited)	**Li, M.**, Controls on stream network and drainage basin shapes, Hohai University, Nanjing, China (talk)
Apr. 2024	**Li, M.**, Seybold, H., Fu, X., Wu, B., & Kirchner, J.W. Climatic controls on stream network topology. *European Geosciences Union General Assembly*, Vienna, Austria (talk)
Dec. 2023	**Li, M.**, Seybold, H., Wu, B., Chen, Y., Fu, X., & Kirchner, J.W. Topographic and climatic controls on global patterns in drainage basin shape. *American Geophysical Union Fall Meeting*, San Francisco, United States (talk)
Oct. 2023 (invited)	**Li, M.**, Controls on stream network and drainage basin shapes, Department of Earth and Planetary Sciences, ETH, Zurich, Switzerland (talk)
Apr. 2023	**Li, M.**, Seybold, H., Wu, B., Chen, Y., & Kirchner, J.W. Interaction between tectonics and climate encoded in the planform geometry on the Tibetan Plateau. *European Geosciences Union General Assembly*, Vienna, Austria (talk)
May 2022	**Li, M.**, & Wu, B. Planform geometries and controlling factors of river networks in the Yellow River source zone. *European Geosciences Union General Assembly*, Vienna, Austria (talk)
May 2020	**Li, M.**, Wu, B., & Chen, Y. Features and controlling factors of drainage networks in the Tibetan Plateau. *European Geosciences Union General Assembly*, virtual (talk)
May 2026	Brinkerhoff, C., Raymond, P., Flores, J., **Li, M.**, Zhang, S., Sun, X., & Feng, D. Using SWOT to revisit global river gas exchange. *European Geosciences Union General Assembly*, Vienna, Austria (talk)
Dec. 2025	Allen, G., **Li, M.**, & Go, D. Variability of stream and river inundation across scales. *American Geophysical Union Fall Meeting*, New Orleans, United States (poster)
Dec. 2025	Brinkerhoff, C., Raymond, P., Shrestha, B., & **Li, M.** Informing non-perennial stream models with in-situ sensing. *American Geophysical Union Fall Meeting*, New Orleans, United States (poster)
Dec. 2023	Seybold, H., **Li, M.**, & Kirchner, J.W. Runoff controls on stream network branching. *American Geophysical Union Fall Meeting*, San Francisco, United States (talk)

Mentoring

2026	*Undergraduate* Bryan Bautista (Central Connecticut State University)
2026	*Undergraduate* Yazim Alicea Roman (Southern Connecticut State University)

Academic Services

Journal Reviewer

Water resources research; Journal of geophysical research: Earth Surface; Geomorphology

Skills

Program

- Proficient in geospatial data analysis using Python and ArcGIS
- Experienced in working with Linux operating system and HPC

- Expertise in working with MATLAB and R

Language

- Chinese: Native.
- English: Fluent. Certificate: Level 5 of the Public English Test System (PETS5)

Honors and Awards

Dec. 2022	The Second Prize Scholarship (Tsinghua University)
Apr. 2021	Best Paper Award (Tsinghua University)
Dec. 2019	The Second Prize Scholarship (Tsinghua University)
Jun. 2018	Outstanding Graduate (Hohai University)
Apr. 2017	Meritorious Winner in Interdisciplinary Contest In Modeling
Aug. 2016	First Prize in the 13th Mathematics Competition
Jul. 2016	Second Prize of National Mathematic Modeling Competition
Nov. 2015	Academic Excellence Scholarship (Hohai University)