JINGTAO LAI

Marie Skłodowska-Curie Postdoctoral Fellow
Section 4.7: Earth Surface Process Modelling
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Education

University of Illinois at Urbana-Champaign, USA 2015–2020

Ph.D. in Geology
Dissertation: Constraining tectonic and climatic controls on glacial/postglacial landscape evolution using numerical modeling
Advised by Dr. Alison Anders

Peking University, China 2011–2015

B.Sc. in Geology
Thesis: Using surface roughness to understand spatial scale of erosional and tectonic processes
Advised by Dr. Jianqing Ji

Research Interests

- Fluvial and glacial geomorphology
- Numerical modeling of Earth surface processes
- Coupling of climate, tectonics and surface processes

Publications

Published or accepted

Anders, A. M., **J. Lai**, and S. Marshak (2022). "Development of Foreland Intracratonic Plateaus (Ozark Plateau and Appalachian Plateaus): A Consequence of Topographic Inversion Due To Erosion of Adjacent Fold-Thrust Belts". In: *Tectonics* 41.4. DOI: 10.1029/2021TC006957.

Cullen, C., A. M. Anders, **J. Lai**, and J. L. Druhan (2021). "Numerical modeling of groundwater-driven stream network evolution in low-relief post-glacial landscapes". In: *Earth Surface Processes and Landforms* October, pp. 1–14. DOI: 10.1002/esp.5278.

Lai, **J.** and A. M. Anders (2021). "Climatic controls on mountain glacier basal thermal regimes dictate spatial patterns of glacial erosion". In: *Earth Surface Dynamics* 9.4, pp. 845–859. DOI: 10.5194/esurf-9-845-2021.

Lai, **J.** and A. M. Anders (2020). "Tectonic controls on rates and spatial patterns of glacial erosion through geothermal heat flux". In: *Earth and Planetary Science Letters* 543, p. 116348. DOI: 10.1016/j.epsl.2020.116348.

Lai, **J.** and A. M. Anders (2018). "Modeled Postglacial Landscape Evolution at the Southern Margin of the Laurentide Ice Sheet: Hydrological Connection of Uplands Controls the Pace and Style of Fluvial Network Expansion". In: *Journal of Geophysical Research: Earth Surface* 123.5, pp. 967–984. DOI: 10.1029/2017JF004509.

Selected Conference Abstracts

Lai, J. and K. Huppert (2022). "Cross-divide topographic contrasts created by asymmetrical glaciation: A case study from the northeastern Qilian Shan". In: *EGU General Assembly 2022*. EGU.

Lai, J. and A. M. Anders (2021). "Climatic controls on mountain glacier basal thermal regimes dictate spatial patterns of glacial erosion". In: *EGU General Assembly 2021*. EGU.

Lai, J. and K. Huppert (2021). "What We Can Expect from Our Model–a Comparison of Sediment Conservation Schemes in Models of Bedrock-alluvial River Channel Evolution". In: *AGU Fall Meeting 2021*. AGU.

Lai, J., A. Anders, and S. Marshak (2019). "The influence of flexural unloading and rock fractures on landscape evolution at the boundary between a cratonic platform and an orogen: A case study of uplift in the southern Ozark Plateau". In: *GSA Annual Meeting in Phoenix, Arizona, USA-2019*. GSA.

Lai, J. and A. M. Anders (2019). "Tectonic controls on rates and spatial patterns of glacial erosion through geothermal heat flux". In: *AGU Fall Meeting 2019*. AGU.

Lai, J. and A. Anders (2018). "Climatic controls on glacial erosion – insights from numerical glacial landscape evolution modeling". In: *GSA Annual Meeting in Indianapolis, Indiana, USA-2018*. GSA.

Lai, J. and A. M. Anders (2018). "A Comparison of Basal Sliding and Erosion in Numerical Glacial Landscape Evolution Models Using Two Different Sliding Laws". In: *AGU Fall Meeting 2018*.

Invited Talks

Zhejiang University, China	Dec 2021
China University of Geosciences (Wuhan), China	Dec 2021
Peking University, China	Dec 2021
GFZ German Research Centre for Geosciences, Geomorphology Seminar, Germany	May 2021
CSDMS Annual Meeting 2019, USA	May 2019

Appointments

Marie Skłodowska-Curie Postdoctoral Fellow, GFZ	June 2021–now
Postdoctoral Researcher, GFZ	Apr 2021–June 2022
Graduate Teaching Assistant, UIUC	Aug 2017–Dec 2020
Graduate Research Assistant, UIUC	Aug 2016–Dec 2020
Graduate Fellow, UIUC	Aug 2015–May 2016

Teaching Experience

Teaching assistantship at UIUC 2017–2020

GEOL 107 Physical Geology: Spring 2018, Spring 2019 (rank as excellency), Spring 2020 (rank as excellency), Fall 2020

GEOL 401 Geomorphology: Fall 2017

GEOL 143 History of Life: Fall 2018

Guest lectures: Glacial erosion (GEOL 401), Oct 2019; Glacier dynamics (GEOL 401), Oct 2017; Glacier dynamics (GEOL 107), Apr 2020.

Awards & Honors

EGU Outstanding Student and PhD candidate Presentation Awards 2021

SESE Research Review Outstanding Poster Award, Geology – 3rd place, UIUC	2020
CSDMS Student Modeler Award, 3rd place	2019
SESE Research Review Outstanding Poster Award, Geology – 2rd place, UIUC	2017
Wanless Graduate Fellowship, Department of Geology, UIUC	2015
Model Student of Academic Records, Peking University	2013
Merit Student, Peking University	2012

Skills

Computer skills

Python (main tool for data analysis and visualization), C/C++
ArcGIS, QGIS, Matlab, GMT (The Generic Mapping Tools), LaTeX
Experience in linux-based supercomputing environments

Language skills

Chinese (native language), English (fluent)

Field skills

Geological mapping

Updated on June 10, 2022.