

LINGXIAO GONG

POSTDOCTORAL RESEARCH SCHOLAR

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Research interest

Tectonic Geomorphology, Glacial and Fluvial Geomorphology, Low-temperature Thermochronology, Geodynamics, Numerical modelling, Landscape evolution, Statistical Analyses, Remote Sensing, Cosmogenic isotopes, Tectonics, Structural Geology, Source-to-Sink, Basin Analysis, Field Geology

Professional experiences

Postdoctoral Research Scholar

Raleigh, U.S.

MARINE, EARTH AND ATMOSPHERIC SCIENCE, NORTH CAROLINA STATE UNIVERSITY

October 2025 - present

- Project: **Re-evaluating the Timing and Drivers of Escarpment Retreat in Southeast Australia (NSF 2347491)**
- PIs: *Dr. Magdalena Ellis Curry, Dr. Marissa Tremblay*
- Task 1: Developing and pairing landscape evolution and thermo-kinematic models to investigate escarpment retreat processes and their primary drivers.
- Task 2: Compiling thermochronology ($^4\text{He}/^3\text{He}$, AHe, AFT) and cosmogenic nuclides (^{10}Be) datasets from the Great Escarpment system and modelling post-rifting erosion rates.
- Task 3: Integrating modeling results with field and proxy data to quantify spatial and temporal variability in erosion processes.

Research Assistant

Potsdam, Germany

GFZ HELMHOLTZ CENTRE FOR GEOSCIENCES

March 2025 – July 2025

- Project: **Quantifying Terrace Cut-and-Fill Cycles since the Mid-Pleistocene with Cosmogenic Nuclide ^{10}Be Dating**
- PI: *Dr. Taylor Schildgen*
- Task: Conducting Terrestrial (in situ) cosmogenic nuclide (^{10}Be) sample preparation, in support of two postdoctoral research projects

Visiting Graduate Student

Grenoble, France

INSTITUT DES SCIENCES DE LA TERRE, UNIVERSITÉ GRENOBLE ALPES

May 2017 – August 2017

- Project: **Apatite Fission-Track Sample Preparation, Analysis, and Thermal History Modelling**
- PI: *Dr. Matthias Bernet*
- Task: Conducting apatite fission track sample preparation and 1D thermal history modelling, in preparation for my M.Sc. project

Education

PhD in General Geology

Potsdam, Germany

INSTITUTE OF GEOSCIENCES, UNIVERSITY OF POTSDAM

November 2020 - February 2025

- Thesis: **Surface uplift, exhumation and drainage evolution of the Central Tian Shan, Kyrgyzstan**
- Advisors: *Dr. Peter van der Beek, Dr. Edward Sobel*
- Grade: Magna cum laude (German equivalent of 1.3–1.5, “very good”)
- Defense date: 24 June 2025

M.Sc. in Structural Geology

Beijing, China

CHINA UNIVERSITY OF GEOSCIENCES, BEIJING, CHINA

September 2017 – June 2020

- Thesis: **Fission Track and (U-Th)/He constraints on Min Shan tectonic deformation: Implication for the Cenozoic growth of the northeastern Tibetan Plateau**
- Advisor: *Dr. Dan-Ping Yan*

B.Sc. in Geoscience

Beijing, China

CHINA UNIVERSITY OF GEOSCIENCES, BEIJING

September 2013 – June 2017

- Grade (GPA): 3.72/4.00

Skills

SOFTWARE & CODING

- **Programming & Scientific Computing:** Python (numpy, pandas, xarray, geopandas, matplotlib, seaborn), Fortran, MATLAB, Jupyter Notebook, HPC clusters, LaTeX, GMT
- **Numerical Modelling Tools:** Pecube, FastScape, HeFTy, QTQt, Basinga
- **Topographic & Geomorphologic Analysis:** LSDTopoTools, TopoToolbox, TAK
- **GIS & Spatial Analysis:** QGIS, ArcGIS, Google Earth Engine
- **Visualization & Graphic Design:** Inkscape, CorelDRAW, ParaView, PyVista
- **General Productivity:** Microsoft Office

THERMOCHRONOLOGY

- Sample preparation (bedrock and detrital), mineral separation (drying, crushing, chemical, heavy liquid, magnetic, hand-picking of apatites and zircons) (>100 samples processed, University of Potsdam & GFZ)
- Fission-track: mounting, polishing, counting (University of Potsdam & Université Grenoble Alpes)
- (U-Th)/He and $^4\text{He}/^3\text{He}$ analyses: hand-picking, measuring and packing
- LA-ICP-MS zircon U-Pb dating, China University of Geosciences, China

COSMOGENIC ISOTOPES

- Sampling for exposure ages and denudation rates
- Quartz separation, ^{10}Be and ^{26}Al laboratory chemistry (HELGES Clean Lab, GFZ)
- Calculation of production rates, exposure ages, and denudation rates

FIELD

- Field logistics, camping, and sampling in diverse regions including Tian Shan (Kyrgyzstan) and Eastern Tibet (China)
- Geological mapping and structural measurements (e.g., bedding, lineation, faults) using compass-clinometer and GPS in active tectonic areas

Publications

PEER-REVIEWED PUBLICATIONS

- Gong, L.**, van der Beek, P., Sobel, E., Schildgen, T., Mariotti, A., Bernard, M., Glodny, J., & Wapenhans, I. M. (2026), Late-Cenozoic tectonic versus glacial control on the topographic evolution of the Terskey Range, Kyrgyz Tian Shan. *Geology*, <https://doi.org/10.1130/G53908.1>
- Gong, L.**, van der Beek, P., Schildgen, T. F., Sobel, E. R., Racano, S., Mariotti, A., & McNab, F. (2024), Drainage rearrangement in an intra-continental mountain belt: a case study from the central South Tian Shan, Kyrgyzstan. *Earth Surface Dynamics*, 12(5), 973-994, <https://doi.org/10.5194/esurf-12-973-2024>
- Kudriavtseva, A., Codilean, A. T., Sobel, E. R., Landgraf, A., Fülöp, R. H., Dzhumabaeva, A., Abdrakhmatov, K., Wilcken, K. M., Schildgen, T., Fink, D., Fujioka, T., **Gong, L.**, Rosenwinkel, S., Merchel, S., & Rugel, G. (2023), Impact of Quaternary Glaciations on Denudation Rates in North Pamir—Tian Shan Inferred From Cosmogenic ^{10}Be and Low-Temperature Thermochronology. *J. Geophys. Res. Earth Surf.*, 128, 1–23, <https://doi.org/10.1029/2023JF007193>
- Zhang, Y., Yan, D. P., Qiu, L., **Gong, L.**, & Shao, Y. (2023). Stepwise growth of the southeastern Tibetan Plateau: Structural and thermochronological evidence from the Panxi tectonic belt. *Palaeogeogr. Palaeoclimatol. Palaeoecol.*, 621, 111542, <https://doi.org/10.1016/j.palaeo.2023.111542>
- Qiu, L., Yan, D. P., Tang, S. L., Chen, F., **Gong, L.**, & Zhang, Y. X. (2019). Cenozoic exhumation of the Neoproterozoic Sanfang batholith in South China. *J. Geol. Soc.*, 177(2), 412-423, <https://doi.org/10.1144/jgs2019-041>
- Mu, H., Yan, D. P., Qiu, L., Yang, W. X., Kong, R. Y., **Gong, L.**, & Li, S. (2019). Formation of the Late Triassic western Sichuan foreland basin of the Qinling Orogenic Belt, SW China: Sedimentary and geochronological constraints from the Xujiahe Formation. *J. Asian Earth Sci.*, 183, 103938, <https://doi.org/10.1016/j.jseas.2019.103938>

OPEN-SOURCE CODE

Gong, L., Wapenhans, I., & van der Beek, P. (2025). MATPIVoT – MATLAB toolbox for PecubeGUI inversion plotting. Zenodo. <https://doi.org/10.5281/zenodo.17110623>

Gong, L., Wapenhans, I., & van der Beek, P. (2025). MATHeAT – MATLAB toolbox for (U-Th-Sm)/He data trends analysis. Zenodo. <https://doi.org/10.5281/zenodo.17115445>

Wapenhans, I., **Gong, L.**, & van der Beek, P. (2025). PyPIVoT. Zenodo. <https://doi.org/10.5281/zenodo.17079596>

Wapenhans, I., **Gong, L.**, & van der Beek, P. (2025). PyHeAT. Zenodo. <https://doi.org/10.5281/zenodo.17096096>

McNab, F. & **Gong, L.** (2024). Simulating knickpoint migration due to drainage capture and accelerated base-level fall with the 1D detachment-limited stream-power law (Version 1). Zenodo. <https://doi.org/10.5281/zenodo.11505509>

MANUSCRIPTS UNDER REVIEW & IN PREPARATION

Gong, L., van der Beek, P., Sobel, E., Mariotti, A., Wang, F., Colleps, C., Schildgen, T., Glodny, J., Asilbekov, K., & Seitkaziev, N., Along-strike spatial variation in Cenozoic uplift and exhumation of the Central South Tian Shan, Kyrgyzstan (intended to submit to *Tectonics*)

Gong, L., Zhan, W., Curry, M. E., Tremblay, M. M., McMillan, M., Combining landscape evolution and thermo-kinematic modeling to investigate the post-rifting evolution of the Great Escarpment, SE Australia

Gong, L., Yan, D. P., Bernet, M., Qiu, L., Mu, H., & Kong, R., Growth of the NE-most Tibetan Plateau by the Minshan fault-related fold dominated in-sequence imbricated thrust system: structural and geochronological constraints

Mariotti, A., Schildgen, T., Sobel, E., Bernard, M., **Gong, L.**, van der Beek, P., & Glodny, J., Impact of glaciations on the exhumation history of the Kyrgyz Range - Western Tien Shan (Kyrgyzstan) (under review in *Tectonics*)

Wapenhans, I.M., van der Beek, P.A., Bernard, M., Colleps, C., **Gong, L.**, Mariotti, A., Amalberti, J., Sobel, E., Glodny, J., & Stammeier, J., Quaternary glacial erosion of the Hohe Tauern, Eastern European Alps: Assessing the resolution potential of low-temperature thermochronology (under review in *Geochemistry, Geophysics, Geosystems*)

Zhan, W., **Gong, L.**, Tremblay, M., Curry, M., & McMillan, M., Post-rift evolution of the southeastern Australia Great Escarpment from apatite 4He/3He thermochronology (intended to submit to *Geology*)

Large, E., **Gong, L.**, Mariotti, A., & Sobel, E., Disentangling the Tectonic vs. Glacial control over millennial-scale denudation rates of the Niedere Tauern, Eastern Alps, Austria

Proposals submitted/in preparation

2025 **From Crust to Channel – Modelling River Bends and Incision in Coupled Tectonic-Climate Systems**, revising with intent to resubmit in 2026 *MSCA-PFs*

Bridging timescales in erosion rate estimates using data-driven synthesis and physics-based inversion, in preparation to submit in 2026 or 2027

Selected awards & honors

2024-2025 **Travel grants for international conferences**, Potsdam Graduate School *€900/award*

2023 **Student Presentation Award**, 18th International Conference on Thermochronology *€500*

2017-2019 **First Prize Scholarship of Academic Merit**, China University of Geoscience, Beijing, China *€1,500*

2015 **First Prize of the National University Student Innovation Program**, China University of Geoscience, Beijing, China *€1,000*

Presentations

INVITED TALKS

May 2026 Bridging Timescales in Landscape Dynamics: Revisiting the Post-Rifting Evolution of the Great Escarpment, SE Australia, *Institute of Geosciences, University of Potsdam, Germany*

April 2026 Integrating Tectonic Geomorphology, ThermoChronology, and Numerical Modelling: Insights from the Kyrgyz Tian Shan and SE Australia, *Department of Earth, Marine and Environmental Sciences, University in Chapel Hill, North Carolina, U.S.*

June 2024 Quantifying surface processes in an intra-continental mountain belt: A case study from the Tian Shan, Kyrgyzstan, *Section 4.6 Geomorphology Group Seminar, GFZ Helmholtz Centre for Geosciences, Germany*

SELECTED CONFERENCES & WORKSHOP PRESENTATIONS

regularly joining EGU and AGU since 2022, only listing selected ones here

Gong, L., Zhan, W., Curry, M. E., Tremblay, M. M., McMillan, M., Combining landscape evolution and thermo-kinematic modeling to investigate the post-rifting evolution of the Great Escarpment, SE Australia. EGU2026, Vienna, Austria, *Poster*

Gong, L., van der Beek, P., Sobel, E. R., Schildgen, T. F., Mariotti, A. Bernard, M., Glodny, J., & Wapenhans, I., Late-Cenozoic Tectonic and Glacial Imprint on the Terskey Range, Kyrgyz Tian Shan. 19th International Conference on ThermoChronology, Kanazawa, Japan, *Oral*

Gong, L., Building and Carving mountains: Uplift, Erosion and Surface processes in the Central Tian Shan, Kyrgyzstan, International Young Geomorphologists' Meeting, Trier, Germany, *Oral*

Gong, L., van der Beek, P., Sobel, E. R., Schildgen, T. F., Mariotti, A., Glodny, J., Asilbekov, K., & Seiitkaziev, N., Cenozoic uplift and exhumation of the central South Tian Shan, Kyrgyzstan. EGU2025, Vienna, Austria, *Poster*

Gong, L., van der Beek, P., Sobel, E. R., Schildgen, T. F., Mariotti, A. Bernard, M., & Glodny, J., Late-Cenozoic Tectonic and Glacial Imprint on the Terskey Range, Kyrgyz Tian Shan. AGU Annual Meeting 2024, Washington, D.C., U.S., *Poster*

Gong, L., Surface process and exhumation of the southern Central Tian Shan, Kyrgyzstan. International Winter School 2023 - Dynamics and Sedimentary Systems in Collisional Zones, University of Pavia, Pavia, Italy, *Oral*

Teaching Experience

April 2026	Numerical Modelling in Geo- and ThermoChronology (5 hours), NC State University, Guest Lecturer	<i>Raleigh, U.S.</i>
September 2025	Short Course on ThermoChronology and Landform Development (Pecube-GUI) (5 hours), Thermo2025, Co-lecturer	<i>Kanazawa, Japan</i>
October-December 2024	GEW-MF01 Earth Surface Dynamics Part 1 – Earth Surface Processes (50 hours), University of Potsdam, Teaching Assistant	<i>Potsdam, Germany</i>
June 2023	Introduction to Geosciences II – Geological Mapping (35 hours), University of Potsdam, Teaching Assistant	<i>Harz, Germany</i>
September 2022	Field camp in the Carpathians, Romania (120 hours), University of Potsdam & Université Grenoble Alpes, Teaching Assistant	<i>Romania</i>
November 2018	Short Course on ThermoChronology (40 hours), China University of Geosciences, Beijing, Teaching Assistant	<i>Beijing, China</i>

Field Experience

- September 2025 **Observing post-earthquake restoration and natural hazards, 1 day**, Noto Peninsula, Japan
- June 2025 **Soil geomorphology field observation, 1 day**, Mosel Valley, Germany
- October 2024 **River sand sampling to study glacial–interglacial impacts for postdoc project of Etienne Large, 4 days**, Austrian Alps, Austria
- May 2024 **Postglacial landscape observation, 1 day**, Black Forest, Germany
- September 2023 **Field mapping and sampling, 2.5 weeks**, Central Tian Shan, Kyrgyzstan
- September 2023 **Observation of tectonics–glacial interactions in southern Alps, 3 days**, Alps, Italy
- June 2023 **Field teaching of geological mapping for bachelor students, 4 days**, Harz, Germany
- September 2022 **Field teaching for master students from Potsdam and Grenoble, 1.5 weeks**, Carpathians, Romania
- August 2022 **Bedrock sampling and field observation for PhD project of Isabel Wapenhans, 1 week**, Austrian & Italian Alps
- September 2021 **Structural geology and geomorphology mapping, thermochronology and cosmogenic nuclides sampling, 3.5 weeks**, Central Tian Shan, Kyrgyzstan
- 2019 - 2020 **Structural and geomorphological field studies, bedrock sampling for geochronology, 7 weeks total**, Qinling, China
- 2016 - 2018 **Structural geology, fault trace measurements, bedrock sampling for thermochronology**, Eastern Tibet & Sichuan Basin, China

Outreach & Professional Development

SERVICE AND OUTREACH

- 2024-2025 **German Young Geomorphologists (DGGM)**, Board member
- 2023-2025 **Doctoral Seminar at Institute of Geosciences**, Co-organizer

CONFERENCE CONVENING

- 2024-2026 **Dates, Rates and Bytes: advances in cosmogenic nuclides and other geochronological techniques to quantify surface processes and landscape dynamics**, Co-convener *EGU-GM*
- 2024-2026 **Advances in Geochronology and Thermochronology: from traditional methods to avant-garde applications**, Co-convener *EGU-TS*
- 2023 **The Tethyan Belt, Central Asia, and Circum Pacific margins: Formation, Evolution, Structure, Topography, and Resources**, Co-convener *EGU-GD*

References

Magdalena Ellis Curry (current postdoc advisor)

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Peter van der Beek (PhD main advisor)

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14476 Potsdam-Golm, Germany
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Edward Sobel (PhD second advisor)

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Karl-Liebknecht-Str. 24-25, Haus 27, Raum 2.30
14476 Potsdam-Golm, Germany
Email: edsobel@gmail.com, sobel@uni-potsdam.de

Taylor Schildgen (short-term research project advisor)

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