

(Larry) Syu-Heng Lai

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Professional Preparation

- 2017–present Ph.D. in Earth Sciences (expected 2022.06), University of Oregon (Advisor: Dr. Rebecca J. Dorsey)
2015 M.Sc. in Geosciences, National Taiwan University (Advisor: Dr. Louis Suh-Yui Teng)
2011 B.Sc. in Geosciences, National Taiwan University

Appointments

- 2017.09–present Graduate Employee, Department of Earth Sciences, University of Oregon
2016.12–2017.07 Research Assistant, Department of Science Education, National Taipei University of Education
2015.04–2016.06 Substitute Military Service, Taroko National Park Headquarters
2013.03–2013.12 Intern, Oil and Gas Exploration and Production Department, Formosa Petrochemical Corporation
2011.01–2014.06 Teaching Assistant, Department of Geosciences, National Taiwan University

Expertises and Research Interests

Sedimentology and stratigraphy
Sedimentary basin evolution
Tectonic geomorphology
Sediment production and transport processes
Active tectonics

Research Tools

Field geological and geomorphic surveys
Lithofacies and stratigraphic analysis
Paleomagnetism
Calcareous nannoplankton biostratigraphy
Numerical modeling (source and sink systems)

Refereed Journal Articles (*Corresponding)

- [08] *Lai, L.S.-H., Roering, J.J., Finnegan, N.J., Dorsey, R.J., and Yen, J.-Y. (2021) Coarse sediment supply sets the slope of bedrock channels in rapidly uplifting terrain: Field and topographic evidence from eastern Taiwan. *Earth Surface Processes and Landforms*, v. 46, no. 13, 2671-2689. <https://doi.org/10.1002/esp.5200>
- [07] *Lai, L.S.-H., Dorsey, R.J., Horng, C.-S., Chi, W.-R., Shea, K.-S., and Yen, J.-Y. (2021) Polygenetic mélange in retrowedge foredeep of an active arc-continent collision, Coastal Range of eastern Taiwan. *Sedimentary Geology*, v. 418, 105901. <https://doi.org/10.1016/j.sedgeo.2021.105901>
- [06] Retallack, G., Broz, A.P., Lai, L.S.-H., Gardner, K. (2021) Neoproterozoic marine chemostratigraphy or glacioeustatic sea level change? *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 562, no. 15, 110155. <https://doi.org/10.1016/j.palaeo.2020.110155>
- [05] *Lai, L.S.-H., Ng, T.-W., and Teng, L.S. (2018) Stratigraphic correlation of tuffaceous and psephitic strata in the Paliwan formation, southern Coastal Range of eastern Taiwan. *Bulletin of the Central Geological Survey, Ministry of Economic Affairs of Taiwan*, no. 31, 1-32.
- [04] *Lai, L.S.-H. and Teng, L.S. (2016) Stratigraphy and structure of the Tai-Yuan Basin, southern Coastal Range. *Bulletin of the Central Geological Survey, Ministry of Economic Affairs of Taiwan*, no. 29, 45-76.
- [03] *Lai, L.S.-H. and Teng, L.S. (2016) Geomorphologic and sedimentary features of the Chi-Shing-Tan gravel beach, Hualien, eastern Taiwan. *Journal of Geographical Research*, no. 64, 1-26. <http://doi.org/10.6234%2FJGR.2016.64.01>
- [02] Hsieh, M.-L., Lai, L.S.-H., Lin, C.D.-J., and Shyu, J.B.H. (2012) Late Quaternary landscape evolution and genesis of the 2009 catastrophic landslide in the Hsiao-lin area, southwestern Taiwan. *Geomorphology*, v. 179, 225-239. <https://doi.org/10.1016/j.geomorph.2012.08.014>
- [01] Hsieh, M.-L., Lai, L.S.-H., Lin, C.D.-J., Hsu, C., Chen, I., Chen, H., Kang, S., Chou, C. and Shyu, J.B.H. (2012) Late Quaternary landscape evolution and genesis of the 2009 catastrophic landslide in the Hsiao-lin area, southwestern Taiwan. *Western Pacific Earth Sciences*, v. 12, no. 1, 120-145.

Papers in Submission or Review (*Corresponding)

- [02] Chang, Q., Hren, M.T., **Lai, L.S.-H.**, Dorsey, R.J., and Byrne, T.B. (In Review) Rapid topographic growth of the Taiwan orogen since 1.5 Ma. Submitted to *Science*.
- [01] ***Lai, L.S.-H.**, Dorsey, R.J., Horng, C.-S., Chi, W.-R., Shea, K.-S., and Yen, J.-Y. (Reviewed, In Revision) Extremely rapid up-and-down motions of island arc crust during arc-continent collision. Submitted to *Communication Earth & Environment*.

Papers in Preparation

- [02] ***Lai, L.S.-H.**, Dorsey, R.J., Horng, C.-S., Chi, W.-R., and Yen, J.-Y. (In Prep.) Development of retro-foredeep basin system during arc-continent collision, Coastal Range of eastern Taiwan. Planned for submission to *Basin Research*.
- [01] **Lai, L.S.-H.**, Zheng, C.Y.-C., and Ng, T.-W., (In Prep.) Pleistocene deepwater slope to basin plain environment of retro-foredeep flyschs in east Taiwan: evidence from ichnofossils. Planned for submission to *Lethaia*.

Books and Book Chapters

- [02] **Lai, L.S.-H.** (In Press) "*Stories Woven in the Rock - Geology and Landscapes of the Turtle River Geopark*." Planned to be published by National Dong Hwa University & Forestry Bureau, Council of Agriculture of Taiwan, Hualien, Taiwan.
- [01] Wang, C.-L., **Lai, L.S.-H.**, Chien, C.-Y. (2021) "*Ancestry in the Valley - Tour Guide to the Turtle River Geopark*." National Dong Hwa University & Forestry Bureau, Council of Agriculture of Taiwan, Hualien, Taiwan. 120 pp.

Selected Conference Presentations (*presenting author)

- [11] ***Lai, L.S.-H.**, Roering, J.J., Finnegan, N.J., Dorsey, R.J., and Yen, J.-Y., (2021) Coarse sediment supply sets the slope of bedrock channels in rapidly uplifting terrain: Field and topographic evidence from eastern Taiwan. Abstract (EP45C-1529) presented at *2021 AGU Fall Meeting*, New Orleans, LA, 13-17 December.
- [10] ***Lai, L.S.-H.**, Dorsey, R.J., Horng, C.-S., Shea, K.-S., Chi, W.-R., and Yen, J.-Y. (2021) Extreme up-and-down vertical motions of accreting arc crust in an active collisional suture, Coastal Range of eastern Taiwan. *Geological Society of America Abstracts with Programs*, v. 53, no. 6.
- [09] ***Lai, L.S.-H.**, Dorsey, R.J., Horng, C.-S., Shea, K.-S., Chi, W.-R., and Yen, J.-Y. (2019) Sedimentary mélange in retrowedge foredeep of arc-continent collision zone, southern Coastal Range of eastern Taiwan. Abstract (T14A-05) presented at *2019 AGU Fall Meeting*, San Francisco, CA, 9-13 December.
- [08] ***Lai, L.S.-H.**, Roering, J.J., Finnegan, N.J., Dorsey, R.J., and Yen, J.-Y., (2019) Coarse sediment supply sets the slope of bedrock channels in a rapidly uplifting terrain, Coastal Range of eastern Taiwan. *Geological Society of America Abstracts with Programs*, v. 51, no. 5.
- [07] ***Lai, L.S.-H.**, Roering, J.J., Dorsey, R.J., and Yen, J.-Y. (2018) Channel profiles set by lithology and uplift in the Coastal Range of eastern Taiwan orogen, Abstract (T23A-0336) presented at *2018 AGU Fall Meeting*, Washington, D.C., 10-14 December.
- [06] ***Lai, L.S.-H.**, Dorsey, R.J., and Teng, L.S. (2017) Thrust-related growth strata in the retrowedge of arc-continent collision zone, southern Coastal Range of eastern Taiwan. *Geological Society of America Abstracts with Programs*, v. 49, no. 6.
- [05] ***Lai, L.S.-H.** (2013) Preliminary sedimentary study of gravel beach in Chi-Shin-Tang, Hua-Lien. *Taiwan Geosciences Assembly (TGA)*. Taoyuan, Taiwan.
- [04] ***Lai, L.S.-H.** (2014) Stratigraphic architecture and depositional evolution of the Plio-Pleistocene Tai-yuan collisional basin, Coastal Range of eastern Taiwan. *Asia Oceania Geosciences Society 11th Annual Meeting*, Sapporo, Japan.
- [03] Hsieh, M., ***Lai, L.S.**, Lin, C.D., Chen, X., Liao, B., Chen, Y., Shyu, C.J. and Shyu, J.B.H. (2011) Chronology of ancient mass-wasting deposits and their significance upon the 2009 catastrophic rain-induced landslide, Shiaolin, Southwestern Taiwan. *Annual Meeting of the Geological Society of Taiwan*. Taipei, Taiwan.

Curriculum Vita

Last update: Feb 4, 2022

- *Lai, L.S.-H., Cheng, T. and Lin, L. (2011) The effects of pyrrhotite and CO₂ on H₂ generation during olivine [02] serpentinization under near surface conditions. *Annual Meeting of the Geological Society of Taiwan*. Taipei, Taiwan.
- *Lai, L.S.-H., Lin, C.D., Chen, Y., Liao, B., Shyu, C.J., Hsieh, M. and Shyu, J.B.H. (2010) Late Quaternary landscape [01] evolution and mass-wasting events in the Hsiao-lin area, southwestern Taiwan. *Annual Meeting of the Geological Society of Taiwan*. Taipei, Taiwan.

Awards and Honors

- 2021.06 Research Excellence Award, Department of Earth Sciences, University of Oregon
- 2020.06 Outstanding Teaching Assistant Award, Department of Earth Sciences, University of Oregon
- 2015.06 Dean's Award of College of Science (Master's Degree), National Taiwan University
- 2014.05 Advanced Research Award, 28th Youth Forum, Department of Geosciences, National Taiwan University
- 2014.04 Outstanding Student Paper Award, Joint Annual Meeting of Geological and Geophysical Society of Taiwan
- 2011.06 Dean's Award of College of Science (Bachelor's Degree), National Taiwan University
- 2011.04 Outstanding Student Paper Award, Joint Annual Meeting of Geological and Geophysical Society of Taiwan
- 2008–11 Presidential Award (4 times), National Taiwan University

Grants and Fellowships

- 2021.09 GSA Cordilleran Section Student Travel Grant, Geological Society of America. (\$350 USD)
- 2020.06 2020-21 General University Scholarship, University of Oregon. (\$3,000 USD)
- 2019.06 2019 Government Scholarship for Study Abroad, Ministry of Education, Taiwan. (\$32,000 USD for 2 years)
- 2019.06 Smith Scholarship, Department of Earth Sciences, University of Oregon. (\$1,200 USD)
- 2018.04 2018 Graduate Student Research Grants, Geological Society of America. (\$2,500 USD)
- 2018.03 Scholarship for 2018 Summer School in Rock Magnetism, University of Minnesota. (\$225 USD)
- 2017.09 GSA Cordilleran Section Student Travel Grant, Geological Society of America. (\$125 USD)
- 2017.08 Johnston Scholarship, Department of Earth Sciences, University of Oregon. (\$4,000 USD)

Invited Talks and Public Lectures

- 2019.04 “Basin evolution constrained by high-resolution magneto-biostratigraphy and event marker beds in the southern Coastal Range of eastern Taiwan.” Workshop on Paleo-, Rock, and Environmental Magnetism: From Nano to Global Scales. Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan
- 2017.05 “An Introduction to Turbidites in the Deformed Retrowedge Foredeep Basin, Coastal Range of Eastern Taiwan.” Workshop on Processes and Products of Deep-Sea Sediment Gravity Flows, National Central University, Taoyuan, Taiwan
- 2016.03 “Let's Chat about Geology in Taroko!” Invited instructor for Science Education Training Program for park rangers and volunteers of conservation in Taroko National Park, Hualien, Taiwan

Services Activities

[Professional Services]

- 2021–present Volunteered graduate mentor. Geoscience Education & Mentorship Support (GEMS) program
- 2020 Undergraduate thesis committee member. Department of Earth Sciences, University of Oregon
- 2019 Symposium organizer: “Mini Workshop & Group Field Trip: Dynamics of Basin Evolution and Orogen Exhumation, Eastern Taiwan: Ongoing studies.” National Dong Hwa University, Hualien, Taiwan

[Journal Peer-Reviewer]

- 2021.02 Tectonics
- 2021.04 Progress in Earth and Planetary Science

Curriculum Vita

Last update: Feb 4, 2022

[Other Volunteer Activities]

2009.01 Volunteer instrumentalist. Volunteer services at preschools, nursing homes and remote villages. College Students' Circuit Choral Team, China Youth Corps, Taipei, Taiwan.

Teaching Experience

[Graduate Teaching Assistant]

**Asterisks are courses that I am in charge of independent lecturing, leading labs and discussions, and/or field trips.*

Undergraduate (100-300 level) courses

@ National Taiwan University

- Earth History* (3 times)
- Stratigraphy* (2 times)
- Introduction of Geological Survey* (5 times)

@ University of Oregon

- Sedimentology and Stratigraphy* (3 times)
- Structural Geology*
- Introduction of Field Methods* (2 times)
- Exploring Planet Earth*
- Mountain and Glaciers

Upper-division (400-500 level) courses

@ National Taiwan University

- Geological Resources
- Field Geological Survey (5 times)

@ University of Oregon

- Summer Field Camp* (4 times)
- Basin Analysis
- Graduate Seminar*

Language Ability

Mandarin (native); English (fluent)

Computer Skills

[Programming]

MATLAB, R, Python, Genetic Mapping Tools

[Professional Softwares]

QGIS, IHS Petra, IHS Kingdom, Adobe Illustrator, Microsoft Office.

Professional Societies

Geological Society of America

Society for Sedimentary Geology

American Geophysical Union

International Association of Sedimentologists

Geological Society Located in Taipei