

Haolin Zhou

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Dept. of Geology & Geophysics, Texas A&M University, College Station, TX, USA, 77843

Research Interest: C-S-O cycling (surface), paleoenvironment, diagenesis, weathering

ACADEMIC APPOINTMENTS

Michel T. Halbouty '30 Postdoctoral Fellow | Texas A&M University College Station, TX | Jan 2026 - Present
Primary Mentor: Lucien Nana Yobo

EDUCATION

Ph.D. in Earth Science | Rice University Houston, TX | Aug 2020 - Dec 2025
Thesis Advisor: Mark A. Torres

M.S. in Geological Sciences | University of Alberta Edmonton, Alberta, Canada | Aug 2017 - Jul 2020
Thesis Advisor: Nicholas B. Harris

B.S. in Geological Engineering | China University of Petroleum (Beijing) Beijing, China | Sep 2013 - Jun 2017

PUBLICATIONS

Zhou, H., Negi, P., Ramos, E.J., Nutt, M.R., Scheingross, J.S., Torres, M.A. (in prep.). Stratigraphic variations in mineralogy affect the carbon budget of shale weathering.

Preoteasa, L., Vespremeanu-Stroe, A., Tutuianu, L.F., Hanganu, D., Formácková, A., Hamerlík, L., Jakab, G., Ilie, M., Manailescu, C., Popescu, R.A., Vasile, A., Stoicescu, D., **Zhou, H.**, Magyari, E. (in review.). The Bâlea Lake Record: 15,000 Years of Debris-Flow Activity and Alpine Sedimentation Sensitivity to Climate and Human-Induced Ecological Change. *Catena*

Jemison, N.E., Winnick, M.J., Muñoz, S., Ibarra, D., Torres, M.A., **Zhou, H.**, Williams, K.H., Ramos, E.J. (in review.). Reconciling the role of clay mineral formation on net alkalinity: Insights from reactive transport models of shale, granite, and basalt. *Geochimica et Cosmochimica Acta*

Zhou, H., Costin, G., Birdwell, J.E., Hackley, P.C., Minisini, D., Terlier, T., Torres, M.A. (2025). Using the X-ray spectrum of carbon in electron micro-probe analysis to determine thermal maturity of organic matter in mudstones. *Geostandards and Geoanalytical Research*. DOI: 10.1111/ggr.12611

Zhou, H., Torres, M.A., Harris, N.B., Costin, G., Terlier, T. (2024). Apportioning the molybdenum budget in shales to improve paleoenvironmental interpretations. *Geochimica et Cosmochimica Acta*, 369. DOI: 10.1016/j.gca.2024.01.027

Zhou, H., Harris, N.B., Dong, T., Ayranci, K., Feng, J., Rivard, B., Hackley, P.C., Hatcherian, J. (2021). New insights into organic matter accumulation from high-resolution geochemical analysis of a black shale: Middle and Upper Devonian Horn River Group, Canada. *GSA Bulletin*, 134(7-8). DOI: 10.1130/B36091.1

HONORS & AWARDS

Michel T. Halbouty '30 Postdoctoral Fellowship (Texas A&M University)	2026-2028
Grants-in-Aid, American Association of Petroleum Geologists Foundation	2022, 2025
First Prize of Presentation of Surface Analysis & SIMS workshop	2023
Geological Society of America Graduate Student Research Grant	2022
Department Travel Award, EEPs, Rice University	2021-2024
The Second Prize Scholarship, China University of Petroleum (Beijing)	2015
Merit Student of China University of Petroleum (Beijing)	2013

TEACHING & MENTORING

Teaching Assistant

ESCI321 Planetary Surface Processes

Fall 2023

Mentoring

RET-Rice University

Summer 2025

Mentored a middle-school physical teacher, Mila Taylor, from the Research Experience for Teachers (RET) Program for the summer project on quantifying the link between mineralogy and grain size in sedimentary rocks

Undergraduate Honors Thesis-Rice University

Fall 2023 - Spring 2024

Mentored Rice undergraduate student Valentina Osorio (now at University of Colorado Boulder) for lab work and research related to rainwater chemistry

NSF-REU

Summer 2023

Mentored NSF-REU undergraduate student, Jacob Shiller (Pitzer College), for summer research project on understanding C cycle in shale weathering through aqueous and rock geochemistry in Santa Ynez Mountains, California

SURF-Rice University

Summer 2023

Mentored Rice undergraduate student, Ibane Delgado, for the Summer Undergraduate Research Fellowships (SURF) program, to work on understanding how secondary minerals modulate organic carbon preservation in soils in the Upper Deschutes Basin, Oregon

SELECTED ABSTRACTS (recent 5 years)

Zhou, H., Negi, P., Ramos, E.J., Nutt, M.R., Shiller, J., Scheingross, J.S., Torres, M.A., Stratigraphic variations in mineralogy affect the carbon budget of shale weathering. *American Geophysical Union, Fall Meeting 2025*

Scheingross, J.S., Nutt, M.R., Robinson, M.J., Duvall, A., Granger, D., Heimsath, A., Kirby, E., Torres, M.A., **Zhou, H.** Influence of tectonics and lithology on topographic form spanning millennial and million-year timescales in the Santa Ynez Mountains, Transverse Ranges, CA. *American Geophysical Union, Fall Meeting 2024*

Negi, P., **Zhou, H.**, Scheingross, J.S., Torres, M.A., Poulson, S. Topographic controls on atmospheric CO₂ release from shale weathering. *American Geophysical Union, Fall Meeting 2024*

Zhou, H., Ramos, E.J., Negi, P., Nutt, M.R., Scheingross, J.S., Torres, M.A. Potential competition between pyrite and petrogenic carbon oxidation during shale weathering. *Goldschmidt Conference, 2024*

Zhou, H., Torres, M.A., Scheingross, J.S., Costin, G., Harris, N.B., Birdwell, J.E., Hackley, P.C., Minisini, D. Combining bulk-rock and microanalytical approaches to interpret the interplay between mudstone geochemistry and Earth surface processes. *Gordon Research Conference, Geobiology, 2024*

Zhou, H., Nutt, M.R., Shiller, J., Torres, M.A., Scheingross, J.S. Preliminary results quantifying the effects of stratigraphic heterogeneity on the CO₂ budget for shale weathering. *American Geophysical Union, Fall Meeting 2023*

Zhou, H., Torres, M.A., Costin, G., Minisini, D., Birdwell, J.E., Hackley, P.C. Changes in carbon K α peak spectrum: A novel method to estimate organic matter thermal maturity using an electron probe microanalyzer. *IMAGE 2023*

Zhou, H., Torres, M.A., Costin, G., Terlier, T., Harris, N.B. Micro-scale geochemical analysis of molybdenum distribution in shales deposited under different redox conditions. *American Geophysical Union, Fall Meeting 2022*

Nutt, M.R., **Zhou, H.**, Scheingross, J.S., Torres, M.A. The role of tectonics in regulating CO₂ release from shale weathering. *American Geophysical Union, Fall Meeting 2022*

Zhou, H., Torres, M.A., Costin, G., Terlier, T., Harris, N.B. Micro-scale analyses of traditional geochemical proxies for organic matter preservation in mudstones. *American Geophysical Union, Fall Meeting 2021*

Zhou, H., Harris, N.B., Feng, J., Dong, T., Ayranci, K., Rivard, B. High-resolution geochemical profiles provide new insights into controls on organic matter accumulation in the Middle and Upper Devonian Horn River Group. *Geo-Convention 2020*

WORKSHOPS

Surface Analysis & SIMS workshop Rice University, Houston, Texas	Sep 12 - 14, 2023
Reactive Transport Modeling HUB Colorado School of Mines, Gordon, Colorado	Jul 24 - 27, 2023
IsoCamp University of New Mexico, Albuquerque, New Mexico	Jun 19 - 30, 2023
Visual Communication Symposium Rice University, Houston, Texas	Mar 2 - 3, 2023
Workshop of Essentials for Understanding Unconventional Mudrock Plays AAPG, San Antonio, Texas	May 18, 2019

SKILLS

Analytical: Ion Chromatography, XRD, SEM, EPMA, TQ-ICP-MS, micro-XRF, portable EDXRF, ToF-SIMS, Raman Microscopy, XPS, Elemental Analyzer, Orbitrap.
Coding: MATLAB, CrunchTope, R, Python, LaTeX

Employment

Geologist Intern DeGolyer & MacNaughton	Jun - Aug 2024
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SERVICE

Reviewer <i>Marine Chemistry, GSA Bulletin, Applied Geochemistry, IMAGE2024</i>	
Volunteering <i>Undergraduate Research Scholars Symposium</i>	2026
Serve as Active Listener to provide feedback for undergraduate research projects at Texas A&M University	
<i>Houston Independent School District(HISD)-Rice-NASA</i>	2024
Volunteer to help STEM educators in the Teacher Professional Development and Middle School Planetary Exploration Day	
<i>GeoUnion-Rice</i>	2021-2022
Help the communications between students and faculty and organize intra- and inter-departmental events	