Ronnakrit Rattanasriampaipong

Curriculum Vitae (*updated 2023–12–21*)

Address | Department of Geosciences, Gould-Simpson Building, Room 513A
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Research Interests | Mesozoic–Cenozoic Paleoceanography/Paleoclimatology, Archaeal Lipid Biomarker, Marine Ammonia Oxidizing Archaea, Archaeal Ecology & Evolution

Appointment | The University of Arizona — Tucson, AZ
2023– *NOAA Climate & Global Change Postdoctoral Fellow*
Mentor: Jessica Tierney

Education | Texas A&M University — College Station, TX
2018–2023 Ph.D. in Oceanography (Paleoceanography/Organic Geochemistry)
Dissertation Committee Chair: Yige Zhang
Committee Members: Ethan Grossman, Robert Korty, Jason Sylvan

Chulalongkorn University — Bangkok, THA
2015–2016 M.S. in Petroleum Geoscience
2009–2013 B.S. in Geology

Publications | Manuscript in preparation

3. **Rattanasriampaipong, R.**, Zhang, Y. G., Alo, O., Liu, X.-L., Zhang, Y., Kim, B., Marcantonio, F., and Bassinot, F. (in prep.). Methylation index of Overly Branched glycerol dialkyl glycerol tetraethers (MOB): a proxy for deep ocean (de)oxygenation?

Published refereed journals

2. Judd, E. J., Tierney, J. E., Huber, B. T., Wing, S. L., Lunt, D. J., Ford, H. L., Inglis, G. N., McClymont, E. L., O'Brien, C. L., **Rattanasriampaipong, R.**, Si, W., Staitis, M. L., Thirumalai, K., Anagnostou, E., Cramwinckel, M. J., Dawson, R. R., Evans, D., Gray, W. R., Grossman, E. L., Henehan, M. J., Hupp, B. N., MacLeod, K. G., O'Connor, L. K., Sánchez Montes, M. L., Song, H., and Zhang, Y. G. (2022). The PhanSST global database of Phanerozoic sea surface temperature proxy data. *Scientific Data*, 9(1)

1. **Rattanasriampaipong, R.**, Zhang, Y. G., Pearson, A., Hedlund, B. P., and Zhang, S. (2022). Archaeal lipids trace ecology and evolution of marine ammonia-oxidizing archaea. *Proceedings of the National Academy of Sciences*, 119(31):e2123193119

Awards | Fellowships, Scholarships & Awards

NOAA Climate & Global Change Postdoctoral Fellowship, UCAR | CPAESS, 2023–2025

Texas A&M Dissertation Fellowship, Texas A&M University, 2023–2024

Texas Sea Grant's Grants-In-Aid, Texas Sea Grant, 2022–2024

Schlanger Ocean Drilling Fellowship, U.S. Science Support Program (USSSP) associated with the International Ocean Discovery Program (IODP), 2021–2022

Fulbright Thai Graduate Scholarship, Thailand-U.S. Education Foundation (TUSEF), Fulbright Thailand, 2018–2020

Champion of The Hitachi Trophy 2013 Senior Project Competition, "won first place in Physical Science of the annual scientific pitching competition for all senior year students in the Faculty of Science," Chulalongkorn University, April 2013

Chevron Thailand Graduate Scholarship, Chevron Thailand, 2015–2016

Chevron Undergraduate Scholarship, Chevron Thailand, 2012–2013

Mitsui Oil Exploration Company (MOECO) Undergraduate Scholarship, MOECO, 2011–2013

Honors

Invited student speaker to give a reception speech at the Annual AGU Student Travel Grant Luncheon, AGU Fall Meeting, Chicago, IL, December 12th, 2022.

Invited student speaker to give a reception speech at the Award Recognition Ceremony, Ministry of Foreign Affairs, Bangkok, June 6th, 2018.

Presentations | Academic & Scientific Conferences

8. **Rattanasriampaipong, R.**, Zhang, Y. G., Alo, O., Liu, X. L., Zhang, Y., Kim, B., Marcantonio, F., and Bassinot, F. (2023, December). *Bacterial tetraether lipids as a proxy for ocean (de)oxygenation*, Abstract (PP33B-04) presented at the 2023 AGU Fall Meeting, Moscone Center, San Francisco, CA, USA.

7. **Rattanasriampaipong, R.**, Zhang, Y. G., Pearson, A., Hedlund, B., and Zhang, S (2022, December). *Archaeal lipids suggest ecological shifts of marine ammonia-oxidizing archaea in greenhouse worlds*, Abstract (PP13C-04) presented at the 2022 AGU Fall Meeting, McCormick Place Convention Center, Chicago, IL, USA.

6. **Rattanasriampaipong, R.**, Zhang, Y. G., Pearson, A., Hedlund, B., and Zhang, S (2022, April). *Tracing ecology and evolution of marine ammonia-oxidizing archaea using archaeal lipid biomarkers.* Oral presentation for the departmental seminar at the Department of Oceanography, Texas A&M University, TX, USA.

5. **Rattanasriampaipong, R.**, Zhang, Y. G., Pearson, A., and Hedlund, B. (2021, December). *Beyond TEX86: GDGTs Inform Marine Archaeal Community Ecology and Evolution.* Oral presentation (hybrid) at the 2021 AGU Fall Meeting, Ernest N. Morial Convention Center, New Orleans, LA, USA.

4. **Rattanasriampaipong, R.**, Zhang, Y. G., Pearson, A., Hedlund, B., and Zhang, S. (2021, September). *Beyond TEX86: GDGT Distributions Inform Archaeal Ecology.* Lightning (3-minute) oral presentation at the 2021 PhanTASTIC Workshop.

3. **Rattanasriampaipong, R.** (2021, April). *Closing the gaps of Cenozoic sea surface temperature history using tetraether archaeal lipid biomarkers.* Oral presentation for the departmental seminar at the Department of Oceanography, Texas A&M University, TX, USA.

2. **Rattanasriampaipong, R**. and Zhang, Y. G. (2019, December). Towards complete global sea surface temperature reconstructions over the Cenozoic Era. Poster presentation at the 2019 AGU Fall Meeting, Moscone Center, San Francisco, CA, USA.

1. **Rattanasriampaipong, R**. (2013, April). *Quantification of Tsunami Magnitude from Sedimentation Modeling of Re-occurring Indian Ocean Tsunamiites at Phra Thong Island, Phang Nga, Thailand.* Oral Presentation at the annual Hitachi Senior Project Competition, Faculty of Science, Chulalongkorn University, Thailand.

Industry

4. **Rattanasriampaipong, R.**, Marksamer, A., and Kantatong, P. (2018, April). *A new approach for pore pressure prediction using neutron-density log separation.* Oral presentation at the 2019 Sub-Surface Technical Forum, Chevron Thailand Headquarter, Bangkok, Thailand.

3. **Rattanasriampaipong, R.**, Paiboon, P., and Thatmali, P. (2015, February). *Pattani Basin Regional Pore Pressure Study.* Oral Presentation at the annual meeting of Chevron Thailand Reservoir Management Forum, Swissotel Le Concorde, Bangkok, Thailand.

2. **Rattanasriampaipong, R.**, Kananithikorn, N., Keawmoon, N., and Prasongtham, P. (2014, June). *Causes of ballooning and lost circulation in Erawan and Satun fields.* Poster session presented at the bi-annual meeting of Chevron Reservoir Management Forum, The Woodlands Waterway Marriott Hotel, Houston, TX, USA

1. **Rattanasriampaipong, R.**, Kananithikorn, N., Keawmoon, N., and Prasongtham, P. (2014, April). *Causes of ballooning and lost circulation in Erawan and Satun fields.* Oral Presentation at the annual meeting of Chevron Thailand Reservoir Management Forum, Renaissance Hotel, Bangkok, Thailand.

Invited Talks & Lectures |

Conducted in English

7. *Archaeal lipids trace ecology and evolution of marine ammonia-oxidizing archaea*, the geobiology session Where Rock Meets Life: Geobiology of Modern and Ancient Aquatic Ecosystems at the 50th SACNAS NDiSTEM, Portland Convention Center, Portland, OR, *October 28, 2023. Talk.*

6. *Marine AOA ecology shifts with Earth's climate* (slides), The 2nd International GDGT Workshop, ETH Zurich, *September 8, 2023. Talk.*

5. *Archaeal lipids reveal distinct AOA ecology in past warm oceans* (slides), Modern Geobiology Lecture Series, Department of Ocean Science and Engineering, Southern University of Science and Technology (SUSTech), *June 12, 2023. Talk.*

4. *A suppression of deep-water clades of marine ammonia oxidizers in past warm oceans*, Biology and Paleo Environment (BPE) Fall 2022 Seminar Series, Lamon-Doherty Earth Observatory (LDEO), Columbia University, *October 24th, 2022. Talk.*

3. *Untapped potential of archaeal lipids beyond ocean temperature reconstructions* (recording), The Pal(a)eo EaRly Career Seminar (Pal(a)eoPERCS), Virtual Seminar, *October 11th, 2022. Talk.*

2. 2021–22 Schlanger Ocean Drilling Student Fellow Research Talks, 2022 Summer Meeting of the U.S. Advisory Committee for Scientific Ocean Drilling (USAC), American Museum of Natural History, NY, *July 25th, 2022. Talk.*

1. *The Anthropocene: Human Footprints on Planet Earth* (slides), Marine Science Department, Chulalongkorn University, one lecture for Global Biogeochemical Cycles, Course instructor: Dr. Chawalit "Net" Chareonpong, *December 8th, 2021. Lecture.*

Conducted in English

4. *Ammonia Oxidizers in Past Warm Oceans* (slides), Department of Earth Sciences, Kasetsart University, one lecture for Dynamic Biosphere, Course instructor: Dr. Chatchalerm "Kendo" Ketwetsuriya. *January 10th, 2023. Lecture.*

3. *Inferred paleoecology of marine archaea from today's oceans* (recording), Department of Marine Technology, Burapha University, Virtual Marine Technology Colloquium #62, *October 28th, 2022. Talk.*

2. *Life after resignation: 'Fulbright' has so much to offer* (slides), Department of Geology, Faculty of Science, Chulalongkorn University, Virtual seminar, *February 18th, 2022. Talk.*

1. *Fossil lipids: Thermometers for the Earth's climate history* (recording), Department of Marine Technology, Burapha University, Virtual Marine Technology Colloquium #26, *September 24th, 2020. Talk.*

Teaching | Department of Oceanography, Texas A&M University — College Station, TX

Undergraduate Classes *(Class Size/Instructor Rating)*
Rating of *"the instructor fostered an effective learning environment."*
Scale: 1 (Strongly Disagree) to 5 (Strongly Agree)

Graduate Assistant Lecturer
The Blue Planet - Our Oceans (OCNG 251)
Spring 2021 (116/4.78), Summer 2021 (36/4.86), Summer 2022 (48/4.64), Fall 2022 (194/4.41)

Graduate Assistant - Teaching
The Blue Planet - Our Oceans (OCNG 251)
Spring 2023 (300/3.72)
Data Analysis Methods in Geosciences (GEOS 470)
Spring 2023 (30/5.00)

Mentoring | Department of Oceanography, Texas A&M University — College Station, TX

Zhang Lab Mentor
Responsibilities: Trained on-campus and visiting undergraduate students on sample preparation (marine muds from ocean drilling programs) and lab procedures for archaeal lipid biomarker (specifically GDGTs) LC-MS analysis. Hands-on trainings are included, but not limited to: (1) freeze-drying samples, (2) homogenizing samples for total lipid extract (TLE) extraction using an Accelerated Solvent Extractor (ASE), (3) setting ACE methods, (4) purifying samples for LC-MS analysis (cellulose filtering and silica-gel column chromatography)

Undergraduate Student Mentees
Connor Wood (TAMU | Fall 2022–Spring 2023), Roy Jui-Yu Huang (Emory U | Summer 2022), Ray Tarpey (TAMU | Spring 2022), Natalie York (TAMU | Fall 2021)

Chevron Thailand Exploration and Production Limited — Bangkok, THA

Geology Mentor | Accelerated Earth Scientist Orientation Program (AESOP), 2014–15
Responsibilities: Trained two new-hired geologists on geology-related works for targeting hydrocarbon in Gomin D drilling project such as wireline logging interpretation, stratigraphic correlation, pore pressure prediction, and basic of well design, to achieve safe-and-effective drilling operations

Leaderships | **Co-founder and Moderator** | Thai Earth and Planetary Scientists in North America
Hosted and moderated semi-monthly discussions about earth and space sciences research for Thai students in the US who study earth and planetary sciences, May 2020–December 2020

Student President | Undergraduate Geology Student Union, 2012–13
Department of Geology, Faculty of Science, Chulalongkorn University

Outreach | Press and Media
Interviewed Articles in English

1. *Brave the World* (online article), Fulbright Thailand, Stories of Fulbrighters' Impact—70th Anniversary of the Fulbright Program in Thailand, *December 24th, 2021.*

Interviewed Articles in Thai

4. *Talk with Fulbrighter: Ronnakrit Rattanasriampaipong* (online article), Fulbright Thailand, *May 18th, 2022.*
3. *Recommended Field of Study: Paleoclimatology/Paleoceanography* (online article), Fulbright Thailand, *December 8th, 2021.*
2. *Fulbright in My View* (online article), Fulbright Thailand, Fulbright Experiences, *October 6th, 2021.*
1. *A journey without a map* (online article), The Science Scholars Facebook page, *June 16th, 2020.*

Panel Discussions in Thai

3. *Fulbright Thai Graduate Scholarship (TGS): More Than Just a Scholarship* (recording), Fulbright Thailand, Virtual event, *February 17th, 2023.*
2. *Meet the Fulbrighter Series: Study Pure & Applied Science in the U.S.* (recording), Fulbright Thailand, Virtual event, *March 31st, 2021.*
1. *Meet the Fulbrighter Series: Doctoral Studies in the U.S.* (recording), Fulbright Thailand, Virtual event, *March 5th, 2021.*

Professional Experience | Chevron Thailand Exploration and Production Limited — Bangkok, THA
Development Geologist | Satun-Funan Asset Team, 2016–18
Horizons Earth Scientist | AESOP, 2013–15

Highlighted Responsibilities:

- Identify hydrocarbon potentials and conduct detailed geological assessments within the extensional basin (mainly fluvio-deltaic depositional environments) based only multiple data sets including wireline logs, 3D seismic, and historical production data
- Manipulate geological data from over 5,000 drilled wells and establish meaningful data visualizations – such as detailed pore pressure analysis and geo-statistical reserves booking
- Integrate cross-disciplinary data including geological, petroleum engineering, and drilling engineering data to optimize hydrocarbon exploration and production

- Re-evaluate and discriminate regional pore pressure and temperature regime to enhance the accuracy of predrilled reserves prediction for all undeveloped projects in the Gulf of Thailand
- Developed a new method for reservoir pressure evaluation using wireline logging and gas show Student Intern, Reservoir Management Team, two consecutive summers, April–May 2012/13
- Wireline logging interpretation (triple combo suites) and stratigraphic correlation (mainly fluvio-deltaic depositional environments)
- Pore pressure profile prediction and oil and gas reserves estimation for YUWA platform
- Re-targeting geological targets for nine future platforms in Dara geologic trend

Undergraduate Student Intern | Reservoir Management Team, Summer 2012/23

Highlighted Responsibilities:

- Conducted the first geological assessment of mercury-contaminated produced hydrocarbon in the Gulf of Thailand with multi-disciplinary data including C-O isotopic analysis in siliciclastic cuttings
- Established and applied C-O isotopic analysis to siliciclastic cuttings
- Established correlation of Hg-CO_2 for multiple scales; from reservoirs to platforms scale

Previous Research Experience | Texas A&M University — College Station, TX

Doctoral Dissertation Research, 2018–23 | *"Beyond TEX86: Evaluating Archaeal Evolution Coupled with Oceans and Climate Changes using Tetraether Lipids"* | Advisor: Yige Zhang

Chapter 1. Towards continuous sea surface temperature records inferred from archaeal lipids over the past 66 million years

- Identified spatio-temporal gaps in publicly available Cenozoic TEX86 records
- Collected core samples at Gulf Coast Repository (GCR) (College Station, TX) for lipid biomarker analysis (multiple visits)
- Conducted analytical work for coarse-resolution SST reconstructions from ten ODP/IODP sites
- Revisiting temperature calibrations with the new insight into the evolution of marine AOA paleoecology

Chapter 2. Archaeal lipids trace ecology and evolution of marine ammonia-oxidizing archaea

- Compiled and quality controlled an extensive dataset (n = ≈4,000 entries from 79 publications) of isoprenoidal glycerol dialkyl glycerol tetraethers (GDGTs) derived from different archives
- Identified diagnostic distribution patterns of GDGT assemblages that trace marine archaeal ecology and evolution
- Utilized modern statistical analyses and unsupervised clustering algorithms

Chapter 3. Investigating changes of oxygen in past oceans through the lens of lipid biomarkers

- Investigating the potential of overly-branched (OB-), branched (B-), and sparsely-branched (SB-) GDGTs as a proxy for oxygen deoxygenation events in past oceans
- Integrating available archaeal lipid data with gridded World Ocean Atlas (WOA) datasets, including temperature and oxygen, to extract modern-day distributions of the known range of glycerol ether lipids in several settings, including Black Sea, Arabian Sea, Eastern Equatorial Pacific (EEP)

Chulalongkorn University Bangkok, THA
Masters Thesis Research, 2016 | *"Potential Sources of Mercury in Southern Pattani Basin, the Gulf of Thailand"* | Advisor: John Warren

- Conducted the first geological assessment of mercury-contaminated produced hydrocarbon in the Gulf of Thailand with multi-disciplinary data including C-O isotopic analysis in siliciclastic cuttings
- Established and applied C-O isotopic analysis to siliciclastic cuttings
- Established correlation of Hg-CO_2 for multiple scales; from reservoirs to platforms scale

Chulalongkorn University Bangkok, THA
Undergraduate Senior Year Research, 2011–13 | *"Quantification of Tsunami Magnitude from Sedimentation Modeling of Re-occurring Indian Ocean Tsunamiites at Phra Thong Island, Phang Nga, Thailand"* | Advisor: Kruawun Jankaew

- Tsunami sample preparation for grain size analysis, Earth Observatory of Singapore (EOS), Nanyang Technological University (NTU), Singapore, May 2013
- Fieldwork and sample collection of tsunami sediments, Phrathong Island, Phang-nga, Thailand, June 2011 - July 2013 (multiple field campaigns)
- Collaborated with research teams from EOS-NTU and Stockholms Universitet