

# Y. Datu Adiatma, Ph.D.

Postdoctoral Research Associate

Department of Earth Ocean and Atmospheric Science

Florida State University

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## Education

**PhD in Earth Science, The Ohio State University** Fall 2023

Dissertation title: Chemostratigraphic and numerical modeling constraints on Ordovician climate, carbon cycling, and carbonate diagenesis

Advisor: Matthew R. Saltzman

**MS in Earth Science, The Ohio State University** Fall 2018

Thesis title: Did early land plants produce a step-change in atmospheric oxygen centered on the Late Ordovician Sandbian Age ~458 Ma?

Advisor: Matthew R. Saltzman

**BS in Geology, Institut Teknologi Bandung** Spring 2014

Thesis title: The geology and shale gas reservoir potential of Tanjung Formation in Suato District, Barito Basin, Indonesia

Advisors: Benyamin Sapiie and Dwiharso Nugroho

## Academic Appointments and Research Experience

**Postdoctoral Research Associate, Florida State University** 2024 - present

Conducted a field campaign to collect samples and perform geochemical analyses (thallium isotopes, trace metal concentrations, Fe speciation, I/Ca) on Paleozoic-aged sedimentary rocks to reconstruct biogeochemical cycling and the paleoredox states of Cambrian - Ordovician oceans, and mentor undergraduate and graduate students.

**Postdoctoral Research Associate, The Ohio State University** Fall 2023

Performed calcium isotope analyses ( $\delta^{44/40}\text{Ca}$ ) on Paleozoic-aged carbonate rocks and developed numerical models to constrain the role of diagenesis in affecting geochemical proxies in carbonate rocks.

**Graduate Research Associate, The Ohio State University** 2019 - 2023

Performed laboratory maintenance (e.g., repairing Milli-Q system, replacing fume hood motors, and scroll pump maintenance), assisted visiting scientists in the Clean Lab and TIMS Lab, separated conodont apatite fossil materials using LMT heavy liquid, collected samples, performed geochemical analyses ( $\delta^7\text{Li}$ ,  $^{87}\text{Sr}/^{86}\text{Sr}$ ,  $\epsilon_{\text{Nd}}$ ,  $\text{Sr}/\text{Ca}$ ,  $\delta^{44/40}\text{Ca}$ ) on Ordovician-aged carbonate rocks, and developed a suite of numerical models to reconstruct changes in global silicate weathering and its role in causing climate cooling.

## Professional Experience

**Subsurface Geologist, Vico Indonesia (contract-via LAPI ITB)** 2014 – 2016

Developed static reservoir models for the Semberah Field (Kutai Basin), using integrated geological and petrophysical data, performed petrophysical analysis and resource estimation using industry-standard software (Petrel and Geolog), collaborated with multidisciplinary teams to characterize reservoir properties and estimate remaining hydrocarbon resources.

**Field Geologist, Noras Nusantara**

Summer 2012

Conducted comprehensive geological mapping of coal seam formations to support client exploration and development projects. Executed intensive 10-day field campaign in Nanga Mentebah, West Kalimantan, collecting geological data and samples across diverse terrain conditions. Prepared detailed technical reports documenting coal seam characteristics, geological interpretations, and resource assessments for client deliverables. Demonstrated proficiency in field data collection, geological logging, and translating complex geological findings into actionable recommendations for mining operations.

**Field Engineer Intern, Schlumberger**

Summer 2011

Gained hands-on experience in oilfield operations through direct participation in drilling and measurement activities at Limau Field South Sumatra. Assisted senior field engineers with tool lay down procedures and Measurement While Drilling (MWD) operations. Assisted in various sensor calibration processes to maintain accuracy of downhole measurement tools. Completed comprehensive intern project utilizing Petrel software for reservoir modeling and analysis.

## Publications

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## Peer-reviewed articles

- 2024                    **Adiatma, Y.D.**, Saltzman, M.R., Liu X-M., Wang, X-K., Edwards, C.T., Lithium isotope stratigraphy and Ordovician weathering. *Earth and Planetary Science Letters* 647, 119030.
- 2024                    **Adiatma, Y.D.**, Saltzman, M.R., Griffith, E.M., 2024. Calcium isotope constraints on a Middle Ordovician carbon isotope excursion. *Earth and Planetary Science Letters* 641, 118805.
- 2022                    Avila, T.D., Saltzman, M.R., **Adiatma, Y.D.**, Joachimski, M.M., Griffith, E.M., Olesik, J.W., 2022. Role of seafloor production versus continental basalt weathering in Middle to Late Ordovician seawater  $^{87}\text{Sr}/^{86}\text{Sr}$  and climate. *Earth and Planetary Science Letters* 593, 117641.
- 2022                    Conwell, C.T., Saltzman, M.R., Edwards, C.T., Griffith, E.M., **Adiatma, Y.D.**, 2022. Nd isotopic evidence for enhanced mafic weathering leading to Ordovician cooling. *Geology* 50, 886-890.
- 2019                    **Adiatma, Y.D.**, Saltzman, M.R., Young, S.A., Griffith, E.M., Kozik, N.P., Edwards, C.T., Leslie, S.A., Bancroft, A.M., 2019. Did early land plants produce a stepwise change in atmospheric oxygen during the Late Ordovician (Sandbian ~458 Ma)? *Palaeogeography, Palaeoclimatology, Palaeoecology* 534, 109341.

## Manuscripts in review / in preparation

- In review*                    Wang, X-K., Liu, X-M., Husinec, A., Cao, C., Dera, G., **Adiatma, Y. D.**, Lithium isotope evidence for enhanced hydrothermal activity in the Jurassic, in review for *Earth and Planetary Science Letters*
- in preparation*                    **Adiatma, Y.D.**, Lindskog, A., Fravel, M.S., Crissey, J.T., Schwartz, M., White, G.A., Ahlberg, P., Owens, J.D., Young, S.A., Oscillatory paleoredox conditions during the early Paleozoic. *in preparation*.

*in preparation*      Haber, P.C., Griffith, E.M., Fantle, M.S., **Adiatma, Y.D.**, Saltzman, M.R., Calcium isotope constraints on an Early Mississippian carbon isotope excursion. *in preparation*

## Research Grants

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| 2025        | CRC Seed Grant Research Fund <b>(\$70,000)</b>   |
| 2020        | Graduate Student Research Grants, Geological Society of America <b>(\$2,800)</b>   |
| 2020        | Grants-in-Aid, American Association of Petroleum Geologist <b>(\$2,500)</b>  |
| 2017 - 2021 | Friends of Orton Hall travel and research grant, The Ohio State University, School of Earth Sciences (varied from <b>\$1,500</b> to <b>\$5,000</b> ) |
| 2013        | L. Austin Weeks Grant American Association of Petroleum Geologist <b>(\$500)</b>   |

## Teaching Experience

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**Lecturer**, ESC1000 Introductory Earth Science (Instructor of Record) Fall 2024  
**Florida State University, Dept. Earth Ocean & Atmospheric Science**

Designed and delivered lectures, developed course materials, and assessed student learning in a large introductory class (207 students); Integrated active learning strategies to enhance student engagement and foster critical thinking.

**Guest Lecturer**, ES2155/ENR2155 Energy and Environment Spring 2023  
**The Ohio State University, School of Earth Sciences**

Delivered a lecture focused on Earth system dynamics and anthropogenic climate change; led and facilitated students in discussion that focused on connecting earth science concepts to current anthropogenic global warming.

**Teaching Assistant**, ES5189 Field Geology Summer 2023  
**The Ohio State University, School of Earth Sciences**

Supported a six-week field camp in Utah, guided students through hands-on geological mapping and data collection exercises and coordinated field logistics to ensure safety and effective learning experiences for a group of students with diverse physical fitness, abilities, and academic backgrounds.

**Teaching Assistant**, ES1200 Introduction to Earth Science (Lab) Spring 2022  
**The Ohio State University, School of Earth Sciences**

Taught lab sessions for introductory Earth science, incorporating practical exercises to solidify student comprehension of basic earth science concepts, and provided one-on-one support during office hours

**Teaching Assistant**, ES1122 Earth through Time (Lab) Fall 2020  
**The Ohio State University, School of Earth Sciences**

Developed online lab materials and spearheaded efforts to transition the course to a virtual format during the pandemic, ensuring continuity in student learning, taught lab. sessions and provided academic support through virtual office hours, adapting teaching methods to remote learning.

**Teaching Assistant**, ES1121 Dynamic Earth (Lab) Spring 2019  
**The Ohio State University, School of Earth Sciences**

Taught lab sessions for introductory Earth science, incorporating practical exercises a solidify student comprehension of basic earth science concepts and provided one-on-one support during office hours

**Head Teaching Assistant**, Sedimentology Spring – Fall 2013  
Institut Teknologi Bandung, Geology Study Program  
Led and managed a team of teaching assistants, developed lab materials, and organized geologic field trips for a class of over 80 students.

**Teaching Assistant**, Petroleum Geology and Well Logging & Petrophysics Fall 2013  
Institut Teknologi Bandung, Geology Study Program  
Taught lab sessions for Petroleum Geology and Well Logging & Petrophysics. Provided one-on-one support during office hours.

## Undergraduate Student Mentoring

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**Mackenzie Fravel**, Florida State University Summer 2024 - Present  
Records of Early Ordovician Carbon Cycling in Deep Water Settings from Baltica

**Josh Crassey**, Florida State University Fall 2024 - Present  
Records of Middle Ordovician Carbon Cycling in Deep Water Settings from Baltica

**Blake Roberts** Florida State University Spring 2025 - Present

**Lucas Carter**, The Ohio State University Spring 2019 – Fall 2022  
Thesis title: Lithofacies and Neodymium Isotope Stratigraphy of the Knox Unconformity in the Central Appalachian Basin

## Graduate Student Mentoring

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**Gwen Barnes**, Florida State University (PhD) Spring 2024 - Present  
Thesis title: An investigation of the marine redox conditions, sedimentology, and biotic dynamics of the Early-Middle Ordovician Baltoscandian paleobasin.

**Charlie Smith**, Florida State University (MS) Fall 2024 - Present  
Thesis title: Insights on redox conditions through the Great Ordovician Biodiversification Event from deep water facies of western Laurentia

## Honors and Awards

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2022 The Michael S. Johnson Outstanding Graduate Student Award, The Ohio State University, School of Earth Sciences

2010 – 2013 Dean's List, Institut Teknologi Bandung, Faculty of Earth Sciences and Technology

## Laboratory Technical Skills

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### ***Mass Spectrometry:***

Thermal Ionization Mass Spectrometer (TIMS)

- Isotope analysis for Sr, Nd, Sm, and Ca isotopes
- Basic maintenance and troubleshooting

Multi-Collector Inductively Coupled Plasma Mass Spectrometer (MC ICP MS)

- Thallium isotope analysis

Inductively Coupled Plasma Mass Spectrometer (ICP MS)

- High-precision trace element analysis
- Method development for trace element analysis in geologic materials
- Basic maintenance and troubleshooting

Inductively Coupled Plasma Optical Emission Spectrometer (ICP OES)

- High-precision major and trace element analysis

### ***Geochemistry***

- Column chemistry (Sr, Li, Nd, Sm, Ca, U, Tl)
- Ultra-low blank sample processing for sub ppb elemental concentration analysis
- Iron speciation
- Chromium Reducible Sulphur Extraction
- UV Spectrophotometry
- Basic lab. maintenance

## Field Geology Technical Skills

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### ***Sedimentology and Stratigraphy***

- High-resolution stratigraphic logging
- Facies analysis and sequence stratigraphy

### ***Structural Geology and Tectonics***

- Geologic Mapping
- Structural geology mapping and fault kinematic analysis

## Computational Technical Skills

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### ***Programming and Data Analytics***, Python and Matlab

- Statistical analysis
- Data visualization using Matplotlib and Seaborn
- Statistical learning techniques (e.g., deep learning) using Sci-Kit Learn and PyTorch
- Geochemical Modeling (isotope mixing model, reservoir box model, diagenesis model)
- Stochastic Inverse Modeling

### ***Industry Standard Software and Application***, Petroleum Geology

- Static reservoir modeling: Petrel
- Petrophysical analysis: Gelog, TehcLog, and Interactive Petrophysics
- Seismic Stratigraphy: Kingdom

## Field Work Experience

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| <i>Trail Creek, Idaho (USA), 12 days</i>                     | 2024 |
| <i>Colliers town, Virginia (USA), 7 days</i>                 | 2019 |
| <i>Germany Valley, West Virginia (USA), 7 days</i>           | 2018 |
| <i>Antelope Range, Nevada (USA), 7 days</i>                  | 2018 |
| <i>East River Mountain, West Virginia (USA), 7 days</i>      | 2017 |
| <i>Tapin District, South Kalimantan (Indonesia), 35 days</i> | 2013 |
| <i>Nanga Mentebah, West Kalimantan (Indonesia), 10 days</i>  | 2013 |

## Community Service and Leadership Roles

**Reviewer** 2023 - present

I have been doing review for scientific journals, which include Geology, Science Advances, Geochimica et Cosmochimica Acta, Journal of Marine and Petroleum Geology, Sedimentary Geology, Chemical Geology

**Session Organizer**, GSA Southeastern Section Meeting 2025

**T19. Co-evolution of Life and its Environment: From Biodiversification Events to Mass Extinction and Everything in Between**

Organized and coordinated a scientific session for the Geological Society of America Southeastern Section Meeting, managing abstract review, speaker selection, and session logistics.

**Earth Science Delegate**, Council of Graduate Student 2022

**The Ohio State University**

Represented graduate students at the School of Earth Sciences at a university-level graduate student government. Together with other council members, played an active role in passing resolutions to improve graduate students' well-being. One of the resolutions we passed proposed an increase in university/employee health insurance contribution from 85% to 100%, which was later brought up to the university senate, approved, and implemented starting in the Fall 2023 semester.

**Student Representative**, Graduate Study Committee 2022

**The Ohio State University, School of Earth Sciences**

Represented graduate students in the department graduate study committee, hosted graduate student townhall meetings, conducted surveys to gauge graduate students' satisfaction and collected issues to bring up during townhall meetings, and together with other graduate study committee members, spearheaded efforts to improve graduate students' well-being (e.g., stipend adjustment, training for faculties and graduate student leaders).

**Session Organizer**, GSA Connect Online 2020

**T63. The Ordovician Earth: New Insights to Environmental and Biotic Response in the Fossil and Rock Record**

Organized and coordinated a scientific session for the Geological Society of America annual conference, managing abstract review, speaker selection, and session logistics.

**Session Organizer**, GSA Annual Meeting 2019

**T116. The Ordovician Earth: Integrated Perspective on the Fossil and Rock Records**

Organized and coordinated a scientific session for the Geological Society of America annual meeting in Phoenix, AZ, managing abstract review, speaker selection, and session logistics. Successfully managed session timeline and moderated discussions to ensure productive academic discourse.

Led student organization operations including event planning, member engagement, budget management, and liaison activities with faculty and industry partners. Successfully secured full sponsorship from major oil companies for two geological field trips to Mahakam Delta and Northwest Java Basin, eliminating student costs and providing hands-on industry exposure to chapter members. Organized and coordinated multiple guest lecture series featuring petroleum industry professionals from various oil companies, enhancing students' understanding of current industry practices and career opportunities. Strengthened chapter's industry connections while significantly expanding educational opportunities for geology students.

## Professional Associations

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Indonesia Association of Geologists (IAGI)  
Geological Society of America (GSA)  
American Geophysical Union (AGU)  
American Association of Petroleum Geologists (AAPG)

## Conference Abstracts

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Selected abstracts from the past 3 years

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| 2025 | Smith, C., <b>Adiatma Y.D.</b> , Owens, J.D., Goldman, D., Leslie, S., Gill, B. C., Young, S. A., Insights on redox conditions through the great Ordovician Biodiversification Event from deep water facies of western Laurentia. Presented at the GSA Connects 2025 meeting in San Antonio, Texas   |
| 2025 | Barnes, G. L., <b>Adiatma, Y. D.</b> , Lindskog, A., Owens, J. D., Young, S. A., An investigation of the local redox landscape of the Middle Ordovician Baltoscandian carbonate shelf using I/Ca records. Presented at the GSA Connects 2025 meeting in San Antonio, Texas   |
| 2025 | Saltzman, M.R., Griffith, E.M., <b>Adiatma, Y.D.</b> , Haber, P., Fantle, M. S., Pairing Ca and C isotopes to disentangle diagenesis and carbon cycling during Paleozoic carbon isotope excursions. Presented at Goldschmidt Conference 2025 in Prague, Czech Republic   |
| 2024 | <b>Adiatma, Y.D.</b> , Schwarts, M.J, Ahlberg, P., Owens, J.D. Young, S.A., Multiproxy chemostratigraphic constraints on paleoredox conditions during the Early to Middle Ordovician interval in the Baltic Basin. Presented at the GSA Connects 2024 meeting in Anaheim, California   |
| 2024 | Goodin, J.T., Them, T.R., Caruthers, A.H., Hagen, A., Marroquin, S., McCabe, K., <b>Adiatma, Y.D.</b> , Grocke, D., Alexandre, J.T., Gill, B.C., Owens, J.D., A brief period of marine oxygenation during the End-Triassic Mass Extinction—a Thallium isotope modeling approach. Presented at the GSA Connects 2024 meeting in Anaheim, California |
| 2024 | Liu, X.M. Wang, X.K, Husinec, A., Cao, C., <b>Adiatma, Y.D.</b> , Tracing Ancient Hydrothermal Activity: Lithium Isotope Insights into the Jurassic Adriatic Platform. Presented at Goldschmidt Conference 2024 in Chicago, Illinois   |

- 2024 Saltzman, M.R., Griffith, E.M., **Adiatma, Y.D.**, Al-Musawi, M., The Cambrian SPICE event: perturbation of global carbon cycle or global diagenesis? Presented at Goldschmidt Conference 2024 in Chicago, Illinois
- 2023 **Adiatma, Y.D.**, Saltzman, M.R., Griffith, E.M., Haber, P.C., Braun, M.G., Edwards, C.T., Diamond, C.W., Calcium isotope constraints on the origin of the Mid-Darriwilian Carbon Isotope Excursion (MDICE). Presented at the GSA Connects 2023 meeting in Pittsburgh, Pennsylvania
- 2022 **Adiatma, Y.D.**, Saltzman, M.R., Wang, X.K., Liu, X.M., Constraining changes in silicate weathering during the Early Ordovician using lithium isotope chemostratigraphy. Presented at the GSA Connects 2024 meeting in Denver, Colorado
- 2022 Haber, P.C., Saltzman, M.R., Griffith, E.M., **Adiatma, Y.D.**, Bergmann, K.D., Anderson, N.T., The application of calcium isotopes to understand the effect of diagenesis on carbon isotope trends in ancient carbonate: an example from the Early Mississippian. Presented at the GSA Connects 2024 meeting in Denver, Colorado
- 2022 **Adiatma, Y.D.**, Saltzman, M.R., Griffith, E.M., Haber, P.C., Edwards, C.T., Diamond, C.W., Calcium isotope constraints on diagenetic effects in carbon isotope ( $\delta^{13}\text{C}$ ) data: a case study from Middle Ordovician Carbonate Strata at Meiklejohn Peak, Nevada. Presented at the AGU 2023 Fall meeting in Chicago, Illinois
- 2022 **Adiatma, Y.D.**, Saltzman, M.R., Griffith, E.M., O'Neill, B.E., Chemostratigraphic correlation of a Darriwilian unconformity in the Appalachian Basin. Presented at the GSA North-Central and Southeastern 2024 Section meeting in Cincinnati, Ohio
- 2022 Carter, L.C., Saltzman, M.R., Griffith, E.M., **Adiatma, Y.D.**, Conwell, C.T., Lithofacies and Nd isotope stratigraphy of the Knox Unconformity in the Central Appalachian Basin. Presented at the GSA North-Central and Southeastern 2024 Section meeting in Cincinnati, Ohio
- 2022 Haber, P.C., Saltzman, M.R., Griffith, E.M., **Adiatma, Y.D.**, Early Mississippian calcium isotope stratigraphy and implications for conditions of carbonate deposition. Presented at the GSA North-Central and Southeastern 2024 Section meeting in Cincinnati, Ohio

## References

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Matthew R. Saltzman (PhD advisor)  
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