

MD RIAZ UDDIN

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[Google Scholar](#)

[Personal Website](#)

[LinkedIn](#)

RESEARCH INTERESTS Sedimentology, Hydrogeology, Geochemistry, Subsidence due to Climate Change, Lithofacies Studies of Quaternary Sediments, Salinity Intrusion, Water Quality, Environmental Risk Assessment, Geospatial Data Analytics, GIS Modeling, and Environmental Sustainability.

EDUCATION

August 2021-
Present

Auburn University, Alabama, USA

Department of Geosciences

PhD in Earth System Science (In progress, August 2023 -Present)

MS in Geology (Completed on August 05, 2023)

MS Thesis Topic:

Geochemistry and Mineralogy of Contaminant Groundwater and Sediments from Coastal Aquifers of Southwest Bangladesh

2013-2014

University of Dhaka, Bangladesh

MS in Geology (Specialization on Hydrogeology)

Thesis Title:

Evaluating the influence of hydrogeology and physiography on waterlogging in southwest regions of Bangladesh

2009-2012

University of Dhaka, Bangladesh.

Bachelor of Science in Geology

RELEVANT COURSEWORKS Hydrogeology, Geocommunication, Geochemistry, Sedimentary Petrology, Advanced GIS, and Remote Sensing

PROFESSIONAL EXPERIENCES (Duration, Designation, Institution, Major Responsibilities)

August 2021-
Present

Graduate Teaching and Research Assistant

Auburn University, Auburn, AL, 36849, USA

- Performing weekly lectures with designated topics of an undergraduate lab course titled "Dynamic Earth"
- Grading exams, homework, and class projects in canvas
- Proctoring lecture and lab examinations
- Preparing instructional materials
- Providing other general assistance to the students in the instructional process
- Sedimentological assessment and geochemical analysis in the Himalayan Research Laboratory

May 2020 –
December 2020

Research Consultant

[CEGIS \(Remote Sensing Division\)](#), Agargaon Administrative Area, Dhaka-1207, Bangladesh

- Analyzed satellite images with visual interpretation
- Performed on screen digitization and feature extraction from satellite images
- Prepared ESRI supported GIS shape file preparing, editing and topology building
- Conducted field survey within the city corporation areas as per requirement of the assignment

June 2016 –
May 2018

Investigator

International research project funded by USAID & [Pure Earth, USA](#)
Bangladesh Office; Block-A, Lalmatia-1205, Bangladesh

- Managed country office effectively
- Conducted field visits, collected water and soil samples, and identified sources of toxic pollutants
- Analyzed geochemical properties of soil sample in the field & laboratory
- Prepared graphic charts and required visual representations for final reports
- Performed spatial analysis, hotspot analysis and GIS mapping for environmental health safety
- Participated in risk-reduction activities to prevent exposures from lead-contaminated soil and dust.

January 2014 –
January 2016

Research Assistant

GIS and Remote Sensing Laboratory, [Department of Geology, University of Dhaka](#), Dhaka-1000,
Bangladesh

- Developed project proposal and made fund raising efforts for qualitative research.
- Planned and implemented annual budget plan for smooth project execution.
- Visited field regularly for questionnaire survey with community-based stakeholders.
- Assisted statistical data collection, data processing, and corrected problems with GIS application.
- Accessed regional databases to collect information for spatial analysis and prepared final reports.

PEER REVIEWED PUBLICATIONS

- 1) **Uddin, M. R^{1*}**, Uddin, A¹, Nelson, J¹, Rahman, S.K. N^{1,2}, 2024, Zahid, A³, 2025, Spatial Mapping of Vegetation's Potential to Counter Seasonal Groundwater Salinity in Coastal Bangladesh. Earth Systems and Environment, Springer Nature. <https://doi.org/10.1007/s41748-025-00574-6>
- 2) **Uddin, M.R¹**, Uddin, A^{1*}, Lee, M.K¹, Nelson, J¹, Zahid, A², Haque, M.M², Sakib, N², 2024, Geochemistry of Arsenic and Salinity-Contaminated Groundwater and Mineralogy of Sediments in the Coastal Aquifers of Southwest Bangladesh: Water 16, no. 10: 1442. <https://doi.org/10.3390/w16101442>
- 3) Mahmud, I.M.,^{1*} Jafor, M.A¹, **Uddin, M.R.²**, Rahman, M.M², Rahman, M.H³, 2017, Assessment on seasonal variations in waterlogging using remote sensing and GIS techniques in Satkhira District in Bangladesh” Barishal University Journal Part 1, Volume 4, Issue 1, ISSN 2411-247X: pp 67-80, June 2017. <https://bu.ac.bd/uploads/BUJ1V4I1/7.%20Illias%20Mahmud.pdf>

CONFERENCE PRESENTATIONS

- 1) Rahman, S.K.N¹, **Uddin, M. R¹**, Uddin, A¹, Pricope, G. N², 2024, A comparative machine learning approach to map seasonal salinity intrusion in the mangrove surrounded coastal regions of Bangladesh. American Geophysical Union (AGU) annual meeting, 9-13 December 2024, Washington, D.C. USA, Abstract ID#1725717, EP11D-1305. <https://agu.confex.com/agu/agu24/meetingapp.cgi/Paper/1725717>
- 2) Uddin, A^{1*}, **Uddin, M.R¹**, Zahid, A², Sakib, N², Haque, M.M², 2024, Evolution of coastal islands at the Bengal Basin: geochemistry, sediment composition, subsidence, and sea level changes at Sandwip island, Chittagong, Bangladesh. GSA Annual Conference, Anaheim, California, 22-25 September 2024; Topical Presentation Session 222: T183. Climate and Tectonic Interactions from Bedrock to Basins; Geological Society of America, Abstracts with Programs, Vol. 56, No. 5, doi: [10.1130/abs/2024AM-405084](https://doi.org/10.1130/abs/2024AM-405084)
- 3) **Uddin, M. R^{1*}**, Uddin, A¹, Nelson, J¹, Rahman, S.K.N¹, 2024, Multivariate regression model evaluation of the contributing factors to groundwater salinity in the southwest coastal regions of Bangladesh: GSA Annual Conference, Anaheim, California, 22-25 September 2024. Topical Poster Session 109 - T83; Geological Society of America Abstracts with Programs, Vol. 56, No. 5, 2024, [doi: 10.1130/abs/2024AM-404952](https://doi.org/10.1130/abs/2024AM-404952)

- 4) **Uddin, M.R^{1*}**, Uddin, A^{1.}, Lee, M.K^{1.}, Nelson, J^{1.}, Zahid, A^{2.}, 2023, Geochemistry and mineralogy of contaminant groundwater and sediments from coastal aquifers of southwest Bangladesh: GSA Annual Conference, Pittsburgh, PA, USA, October 15-18 October 2023. Poster Session 35: T88, Urban Geochemistry; Geological Society of America Abstracts with Programs. Vol. 55, No. 6, [doi: 10.1130/abs/2023AM-395736](https://doi.org/10.1130/abs/2023AM-395736)
- 5) **Uddin, M. R^{1*}**, Uddin, A^{1.}, 2022, Characterizing contaminant groundwater and sediment from coastal aquifers of southwest Bangladesh. GSA annual Conference, Denver, Colorado, USA, October 09-12, 2022. Poster session number 271, T133-Groundwater Security Toward Sustainable Development; Geological Society of America Abstracts with Programs. Vol 54, No. 5, 2022 [doi: 10.1130/abs/2022AM-382460](https://doi.org/10.1130/abs/2022AM-382460)
- 6) Hasan, M. A.¹, Sikder, A. M.², Kabir, M. L.¹, Jaman, M. H.¹, **Uddin, M. R¹**, Rashid, M. H.¹, Akter, A.³, Liu, X-C.⁴ and McCartor, D^{5.}, 2017, Soil pollution from informal recycling of used Lead-acid battery in Bangladesh: GSA Annual Conference, Seattle, Washington, USA, 22-25 October 2017. Topical presentation session 301-T35, Urban Geochemistry, paper number 16. Geological Society of America Abstracts with Programs. Vol. 49, No. 6, [doi: 10.1130/abs/2017AM-302812](https://doi.org/10.1130/abs/2017AM-302812)

TECHNICAL SKILLS

- Programming languages: Python (learning stage), Google Earth Engine (learning stage)
- Microsoft Office: Word, Excel, PowerPoint
- Google Suite (Docs, Sheets, Slides, Forms)
- Basic Knowledge of non-destructive elemental analysis by XRF, XRD, SEM and ICP-MS
- Software proficiency on ArcGIS, ArcGIS pro, QGIS, Erdas Imagine, SPSS, Minitab, Google Earth Pro, DIFFRAC.EVA

INTERPERSONAL SKILLS

- Interdisciplinary team leader
- Independent research-focused
- Excellent communicator and project manager
- Cooperative & time conscious
- Social media management

GRANTS & AWARDS

- Received “2025 Outstanding International Student Award” from the College of Sciences and Mathematics, Auburn University
- Received “Going places with Geosciences Excellence Competition” FY 2024-2025, from the [Department of Geosciences, Auburn University](#)
- Received GAB Student Research & Travel Grant 2022 and 2024 from the Geosciences Advisory Board &
- Received COSAM Travel Award 2022 from the [College of Science and Mathematics respectively at Auburn University, AL.](#)
- Awarded [Graduate Student Research Grant 2022 and 2024 by the Geological Society of America.](#)
- Received [On To the Future \(OTF\) Travel award for 2022 & 2023 cohort by the Geological Society of America](#) to attend GSA Connects 2022 at Denver, Colorado & 2023 at Pittsburgh, PA, USA.
- Received On To the Future (OTF) Mentor award 2024 cohort by the [Geological Society of America](#)

FIELD EXPERIENCES

- Completed Geological mapping, sedimentological assessment of Eastern Hill Tracks and along coastal regions of the Bengal Basin as a part of mandatory undergraduate and graduate research study.

PROFESSIONAL MEMBERSHIPS

- [Sigma Gamma Epsilon, Auburn University](#), Member since November 2022 - Present
- [Geological Society of America](#), Student Member since January 2022 - Present
- [American Association of Petroleum Geologists](#), Student Member since January 2022 - Present

TRAINING, WORKSHOPS & MENTORSHIP EXPERIENCES

- Served as a Senior Judge in the [Alabama Science and Engineering Fair \(ASEF\)](#) at Auburn University on April 13, 2024.
- Participated in a weeklong teaching and learning workshop titled “[Auburn University Summer STEM Institute \(AUSSI\)](#)” facilitated by the [Auburn University Biggio Center](#), funded by National Science Foundation, during July 8 -12, 2024.
- Participated in a weeklong teaching and learning workshop titled “[Course Redesign \(CRD\)](#)” facilitated by the [Auburn University Biggio Center](#), during May 8-14, 2024
- Professional training on Responsible Conduct of Research for Physical Science offered by Collaborative Institutional Training Initiative (CITI) on 21 October 2021. Record ID: 45737551. <https://www.citiprogram.org/verify/?wdce51556-6b16-4c46-bddf-bbf894ca0c89-45737551>
- Attended in person short course titled “[520- On To the Future Professional Development Workshop](#)” as a part of Continuing Education Credits, awarded by The Geological Society of America at Pittsburgh, PA, USA, held on October 14, 2023.
- Attended in person short course titled “[520- On To the Future Professional Development Workshop](#)” as a part of Continuing Education Credits, awarded by The Geological Society of America at Denver, Colorado, USA, held on October 08, 2022.
- Completed a professional Training Course on GIS October 2017–December 2017 [Department of Geography and Environment](#), University of Dhaka, Dhaka-1000, Bangladesh.
- Attended a daylong workshop on “Research Methodology & Scientific Paper Writing” organized by Dhaka University Science Society (DUSS), held on November 11, 2017.