

CV of Alamgir Hosain

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Graduate Research Assistant (Ph.d. student)

Center for Earthquake Research and Information

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Career objectives

A young researcher with over five years of experience in research and teaching; recognized consistently for performance excellence and contributions to success in research, teaching, and industry experience. Strengths are in fieldwork and sediment sample analysis backed by training in Geology and Geophysics.

Job Experience

- **Assistant Professor at Department of Coastal Studies and Disaster Management**, University of Barisal, Barishal 8254, Bangladesh from December 04, 2020, to present (on study leave). Job responsibility was to teach undergraduate students (eight theory and two lab courses), research, evaluate student grades, and perform administrative tasks.
- **Student Advisor at Department of Coastal Studies and Disaster Management**, University of Barishal, Barishal 8254, Bangladesh from January 08, 2017 to present. Job responsibility was to solve the student's on and off-campus problems.
- **Lecturer at Department of Coastal Studies and Disaster Management**, University of Barishal, Barishal 8254, Bangladesh from January 08, 2017 to December 03, 2020. Job responsibility was to teach undergraduate students, research, and administrative works.
- **Mud Logger** (surface data logger sr.) in **Halliburton International GmbH**, Bangladesh, from March 06 to October 25, 2016. Job responsibility was collecting cuttings samples, packing samples, study under the microscope, data input, data interpretation, and reporting to the company.
- **Research Assistant of Dhaka University Earth Observatory (DUEO)**, at Department of Geology, **University of Dhaka** from November 2014 to February 2016. Job responsibility was to conduct the geophysical survey (ERT), seismograph installation, and data collection.
- **Internship at Chevron Bangladesh** as Earth Scientists from July 01 to 30 September, 2015. The topic of the internship project was **Reservoir Characterization of Jalalabad Gas Field by Rock Physics Analysis**.

Primary Research Interest

- Machine Learning in Earth Sciences
- Induced Seismicity
- Dynamic Triggering

Subjects I Taught

- **Theory Courses:** CDM 101: Introduction to Coastal & Estuarine Studies, CDM 104: Fundamentals of Earth Sciences, CDM 108: Geomorphology & Tectonics, CDM 201: Introduction and History of Coastal Morphology, CDM 205: Geological & Hydro-meteorological Hazards, CDM 209: Geodetic Surveying and Mapping, CDM 311: Geophysical Tools and Practices, CDM 406: Coastal Resource Conservation and Management.
- **Lab Courses:** CDM 109: Practical I (Earth Materials Lab), CDM 212: Practical I: Geodetic Surveying and Mapping Lab

Educational Records

- **MS in Geology (Geophysics) (2012-13)** University of Dhaka, Bangladesh (Exam held in 2014)
Thesis: Tectonics of Madhupur Tract, its effects on Cenozoic sediments and Jamuna River avulsion, Tangail, Bangladesh
CGPA: 3.65 out of 4.00 (Published in 2016)
- **BS in Geology (2008-2009)** University of Dhaka, Bangladesh (Exam held in 2013)
CGPA: 3.59 out of 4.00 (Published in 2014)

Publications

Article:

- Pedraz M. N., Cardenas M. B., **Hosain A.**, Demir C., Ahmed K. M., Akhter S. H., Wang L., Datta S., Knappett P. S. K., 2021. Application of electrical resistivity to map the stratigraphy and salinity of fluvio-deltaic aquifers: case studies from Bangladesh that reveal benefits and pitfalls. *Hydrogeology Journal*. <https://doi.org/10.1007/s10040-021-02342-y>.
- **Hosain A.**, Rafiq M. R., and Uddin M. R., 2019. Preparedness and Management of Coastal Storm Surge, Kuakata, Bangladesh. *Barishal University Journal Part 1, V 6, Issue 2, P (59-77)*.
- Berube M., Jewell K., Myers K. D., Peter S. K. Knappett P., Shuai P., Hossain A., D Mehtaz Lipsi M., Hossain S., **Hosain A.**, Peterson J. A., Ahmed K. M., and Datta S., 2018. The fate of arsenic in groundwater discharged to the Meghna River, Bangladesh. *Environmental Chemistry*. <https://doi.org/10.1071/EN17104>.
- Shuai, P., Knappett, P.S.K., Hossain, S., **Hosain, A.**, Rhodes, K., Ahmed, K.M., And Bayani M., 2017. The impact of the degree of aquifer confinement and anisotropy on tidal pulse propagation. *National Ground Water Association*. <https://doi.org/10.1111/gwat.12509>.

Poster/Oral:

- Kwak, K., Knappett, P.S.K., Cardenas, M.B., Datta, S., Huang, Y., Pedrazas, M., Demir, C., Arman, A.S., **Hosain, A.**, Aitkenhead-Peterson, J.A., Ahmed, K.M., and Akhter, S.H., 2020. Analysis of mixing between river water and groundwater along the banks of a large tidal river receiving as-laden groundwater. *GSA 2020 Connects Online*, Paper No. 148-8, Geological Society of America Abstracts with Programs. Vol 52, No. 6, doi: 10.1130/abs/2020AM-357857.

- **Hosain, A.**, 2018. Preparedness and Management of Coastal Storm Surge, Kuakata, Patuakhali. First International Conference on Energy and Environment, Sep 2018. Paper ID: ICEE_2018_173.
- Knappett, P.S.K., Myers, K. D., Shuai, P., Cardenas, B., Jewell, K., Datta, S., Berube, M., **Hosain, A.**, Hossain, A., Lipsi, M., M., Ahmed, K., M., Dimova, N., And Malo, B., K., 2016. Formation of Natural Reactive Barriers at the interface between reduced aquifers and dynamic fluctuating, gaining rivers. GSA Annual Meeting in Denver, Colorado, USA 2016, Paper no 250-11.
- Pin, S., Bayani, M., Knappett, P., **Hosain, A.**, Hossain, S., Ahmed, K. M., And Rhodes, K., 2016. Estimating hydraulic properties of a riverbank aquifer under tidal influence. GSA Annual Meeting in Denver, Colorado, USA 2016, Paper no 157-4.
- Knappett, P., Myers, K., Shuai, P., Rhodes, K., Jewell, K., Peterson, J., Dimova, N., Datta, S., Berube, M., Hossain, A., Lipsi, M., Hossain, S., **Hosain, A.**, Ahmed, K.M., and Cardenas, M.B., 2016. Tracking the fate of Arsenic in groundwater discharged to the Meghna River. 6th International Congress on Arsenic in the environment 2016, Stock Home, Sweden (oral presentation).
- Knappett, P., Datta, S., Dimova, N., Mayers, K., Hossain, A., Berube, M., Shuai, P., Rhodes, K., Jewell, K., Lipsi, M., Hossain, S., **Hosain, A.**, Peterson, J., and Ahmed, K., 2016. Hydrological mechanism for Arsenic deposits in Meghna River hyporheic zone sediments. EGU General Assembly 2016, Vol. 18, Egu2016-14501, 2016.
- **Hosain, A.**, Akhter, S.H., Steckler, M.S., 2014. Tectonics of Madhupur Tract, its effects on Cenozoic sediments, and Jamuna river avulsion. American Geophysical Union Fall Meeting, T31C-4636 (Poster).

Projects as Co-PI or (PI)

- **National Science Foundation (NSF) funded project** named “Collaborative Research: The dynamic iron curtain surrounding fluctuating rivers and its impacts on arsenic fate and transport” as a **local collaborator (Co-PI)**, **May 15, 2019, to April 30, 2022** (Estimated) (Cardenas cardenas@jsg.utexas.edu (PI) Award Number: 1852652).
- **PI** of the project named “Safety issues of launch journey and the possible measures in Bangladesh” funded by University Grand Commission, the project Year 2018-19.
- **PI** of the project named “Assessment of geology and hydrogeology using ERT at Karnakati, Barisal” funded by University Grand Commission of Bangladesh, the project Year 2017-18.

Awards

- **National Science and Technology (NST) fellowship** of session 2014-2015, by the **Ministry of Science and Technology**, Government of Bangladesh. (Only toppers get such government fellowship)
- **Berkner Travel Fellowship** to attend American Geological Union (AGU) Fall Meeting (December 15 to 19) 2014 in **San Francisco, California, USA**. (Only 30 students had selected from Asia)
- Travel Grant for **Summer Institute on Earth-surface Dynamics (SIESD)** 2014, organized by National Centre for Earth Surface Dynamics (NCED) in **University of Minnesota**, Minneapolis, Minnesota, USA.

- **L. Austin Week Undergraduate Grant 2014**, by American Association of Petroleum Geologists (AAPG) foundation. (Only 69 students over the world got this grant in 2014)
- Scholarship from the **Department of Secondary and Higher Education, Government of Bangladesh** for B.S. (Honor's) 2012 exam result among the postgraduate students of session 2012-2013. (Only one student from each department and dormitory can get this scholarship)

Academic and Professional Membership

- **Former President** of 'American Association of Petroleum Geologist' Student Chapter, University of Dhaka, Bangladesh (**AAPG-10098260**) (November 2014 – November 2015).
- **Former Vice president** of Dhaka University Geophysical Society (DUPS) (2013), a university student chapter of 'Society of Exploration Geophysicists' at Department of Geology, University of Dhaka, Bangladesh (**SEG- 246071**).
- Former student member of '**Society of Petroleum Engineers**' Student Chapter at University of Dhaka, Bangladesh (**SPE- 3582314**).
- Former Berkner student Member of **American Geophysical Union (AGU)** (Member ID **Berkner 2016**).
- Former student Member of **Geological Society of America (GSA-9188819)**.
- Participated in **National Earth Olympiad 2014** as an organizer, arranged by **Bangladesh Youth Environmental Initiative (BYEI)**.
- **Advisor** of **Shahidullah Hall Language Club**, at University of Dhaka, Bangladesh.

Training

- Training Program on **Introductory Training Courses in Nanofabrication Technology**, at the Centre for Nano Science and Engineering, Indian Institute of Sciences, Bengaluru, from January 14 to February 01, 2019. The program was conducted by International Science and Technological Educational Program (I-STEP) and supported by the ITEC, DPA-II, Ministry of External Affairs, Government of India.
- Training Program on **Seismic Interpretation in Fold and Thrust Belts**, at Department of Geology, University of Dhaka, Bangladesh from July 07 to 10, 2014. The training was conducted by **Judith Hubbard (Earth Observatory of Singapore)** and developed by **Prof. John H. Shaw (Harvard University)** using fault-related folding techniques.
- Training course on **Earthquake Geology and Paleo-Seismology** at Department of Geology, University of Dhaka, from October 18 to 26, 2015. The trainer was **Dr. Cecilia McHugh** of Queens College, **The City University of New York (CUNY)**. The training course includes lectures, lab work, and one-day fieldwork in Teknaf, Bangladesh.
- Training program on **XRF and Laser Particle Size Analyzer Instrument Operation and Data Interpretation**, at Department of Geology, University of Dhaka from May 6 to 7, 2016. The program was conducted by **Steven Goodbred Jr.**, Professor and Chair, Department of Earth and

Environmental Sciences, **Vanderbilt University, USA**. It was focused on the analysis of shallow drilling soil sample data of Bengal Basin.

Community Services and Leadership

- **Founder of Kachua Sattro O Jubo Unnoyon Shongho**, a nonprofit, developing, social welfare organization. It works in education, health, social and cultural aspects in the rural village at Kachua, Baraigram, Natore, Bangladesh.
- **Advisor of Badhon, Shahidullah Hall**, a voluntary blood donor's organization at the University of Dhaka, Bangladesh.
- Advisor of **Iccheferi**, a campus-based non-profitable organization run by students. It works on social, educational, economic development among the street children, slum people in the city area.
- **Executive member of Barishal University Teachers Association (BUTA)** in the calendar year of 2018 and 2019.

Project Work Experiences

- January 02 to 12, 2020, fieldwork on the project “**Collaborative Research: The dynamic iron curtain surrounding fluctuating rivers and its impacts on arsenic fate and transport**” in Araihasar, Naraonganj, Bangladesh to find the groundwater-surface water interaction using ERT, monitoring wells, and the piezometer installation.
- July 30 to August 03, 2019, five days fieldwork on **Installation of GPS station and Rod Surface Elevation Table (RSET)** at the southern part of Bangladesh to see periodic shallow and deep subsidence as well as sedimentation rate at the inner and outer part of polder system. This fieldwork was leading by Prof. Michael S Steckler of Lamont Doherty Earth Observatory, Columbia University and Prof (Assistant) Carol Wilson from **Louisiana State University, USA**.
- December 05 to 15, 2016, eleven days fieldwork on **Electrical Resistivity Survey at Jaflong, Sylhet**, Bangladesh to find the continuity of Indo-Burma fold ranges in Bangladesh part.
- June 03 to 16, 2016, sixteen days fieldwork on **installation of sixteen (short period and broadband) seismometers**, which was a collaboration project of Earth Observatory of Singapore (EOS) and Dhaka University Earth Observatory (DUEO). The purpose of this field was to detect the small magnitude earthquake in Sylhet.
- May 18 to 22, 2016, five days fieldwork on **Electrical Resistivity Survey** on both banks of Titas River to see the cause of gas seepage at Titas gas field at the well no 6, 8, 9, and 10 in Comilla.
- January 16 to 27, 2016, twelve days fieldwork on **corals, shells and soil sampling, and GPS survey**. The purpose of this field was to identify 1762 earthquake traces as tsunami deposits along the sea coast (Megathrust zone) in Teknaf, St. Martin's Island, Sera Dip, and Cox's Bazar area Bangladesh. This fieldwork was leading by **Cecilia McHugh, professor, Queens College of New York, USA**.
- January 09 to 14, 2016, six days fieldwork on **Electrical Resistivity Tomography Survey** on both Coasts of Meghna River near Araihasar Upazila in Bangladesh. The purpose of this field was to study “Hydrological Mechanism for Arsenic Deposits in Meghna River Hyporheic Zone Sediments” with **Peter Knappett**, assistant professor, **Texas A & M University, USA**.

- November 16 to 24, 2015, nine days fieldwork on **Scouting for a shallow seismic survey** in Comilla and Sylhet region, Bangladesh. The purpose of this field was to identify a suitable location for seismic lines and check the roads are good enough to run a mini buggy or not.
- October 07 to 14, 2015, seven days fieldwork on **Electrical Resistivity Survey and Optical Stimulated Luminescence (OSL) sampling** in Titas River near the area between Brahmanbaria and Comilla district of Bangladesh, under the supervision of Michael S. Steckler, professor, Lamont Doherty Earth Observatory, Columbia University, USA. The purpose of this field was to find the avulsion history of the Titas River channel (and if it was a previous course of the Meghna River) using OSL sampling (to find sediment age) and geophysical survey data.
- May 28 to June 02, 2015, six days fieldwork on **Electrical Resistivity Survey** in east side of **Madhupur Tract and Lalmai anticline**. The purpose was to identify the Holocene-Pleistocene boundary in those areas.
- June 03 to 06, 2015, six days fieldwork on **Electrical Resistivity Survey in Lalmai Hill Ranges** at Brahmanbaria and Comilla area in Bangladesh. The purpose was to identify the clay layer at the Holocene-Pleistocene boundary of Lalmai Anticline, which works as a barrier of Arsenic percolation to the upper Holocene water reservoir.
- March 13 to 24, 2015, a field course titled **“SDEV 3550, Life on a Tectonically Active Delta, Bangladesh”** at Sundarban (World’s largest mangrove forest), organized by the collaboration of **Columbia University, USA and University of Dhaka, Bangladesh**.
- January 05 to March 01, 2015, participated in **Imperial Barrel Award 2015** competition as a **team leader** of University of Dhaka, organized by AAPG Asia Pacific Region. Using **petrel software**, analysis of a basin petroleum prospect was the main emphasis of this competition.
- December 15 to 19, 2014, Participated in **AGU Fall Meeting 2014** and presented a poster named **“Tectonics of Madhupur Tract, its effects on Cenozoic sediments and Jamuna river avulsion”** in **San Francisco, California, USA**.
- November 20, 2014, participated in an electrical resistivity survey, titled **“Identification of proposed Madhupur fault in the western margin of Madhupur Tract”**, Tangail, Bangladesh.
- February 23 to March 06, 2014, a training named **“Field School in Bangladesh: Interaction of sedimentation and tectonics in the Ganges-Brahmaputra River delta”** organized by BanglaPIRE, a collaboration program of **Columbia University, USA and University of Dhaka, Bangladesh**. The training covers the following task: classroom training and fieldwork about the sedimentation, tectonics, and evolution of the Bengal Delta.

Computer Skill

- **Operating System/Operating Environment:** Microsoft Windows, Linux, Internet browsing.
 - **Geological Packages:**

Petrel 2013.2	AGI 2D	Erdas 9.1	Imagine	ArcGIS 9.3.1	GeoMapApp	ENVI 4.7	Sperry INSITE
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- **Graphics & Multimedia:** Paint.

Academic Fieldworks

- December 18 to 20, 2012, **Geological fieldwork** to visit **Maddhapara Hard Rock Mine** and **Barapukuria Coal Mining Company Limited** at Dinajpur. The field investigation covers the following: the observation of Coal mine and Hard rock mine development plan, production, ventilation, shaft system, and the resulting subsidence because of coal extraction.
- March 15 to 21, 2013, a weeklong **geological field investigation** on the eastern flank of **Sitapahar Anticline**, Chittagong, Bangladesh. The field investigation covers the following: the identification and description of lithofacies, measurements of stratigraphic sections, structural data collection, sedimentology, stratigraphy, and methods of geological mapping.
- December 21 to 27, 2011, a weeklong **geological field investigation** on **Jaintia-Jaflong Homocline, Sylhet**, Bangladesh. The field investigation covers the following: the study of paleontology, sedimentology, stratigraphy, structural geology, paleo-channel identification, hydrogeology, quaternary geology, and geological field mapping.
- March 23 to 29, 2011, a weeklong **geological field investigation** on the western flank of **Sitapahar Anticline**, Chittagong, Bangladesh. The field investigation covers the following: the measurements of stratigraphic sections, structural data collection, and methods of geological mapping.
- November 14 to 20, 2009, a weeklong **geological field investigation** on **Sitakund Anticline**, Chittagong, Bangladesh. The field investigation covers the following: the study of geomorphology, measurement of sedimentary beds attitude, identification of rock types, systematic sampling, the study of sedimentary features, and field mapping.

References

- **Dr. Thomas Goebel**, Assistant Professor, Center for Earthquake Research and Information, The University of Memphis, TN 38152, USA. Email: thgoebel@memphis.edu, Research Group Website: <http://www.ceri.memphis.edu/people/thgoebel/>.
- **Dr. Syed Humayun Akhter**, Professor, Department of Geology, University of Dhaka, Bangladesh. Tel.: +88029661900-73/7300, +8801552423975 (mob), E-mail: shakhter@du.ac.bd.
- **Michael S. Steckler**, Lamont Research Professor, Lamont-Doherty Earth Observatory, Marine Geology and Geophysics, 108E Oceanography, 61 Route 9W - PO Box 1000, Palisades NY 10964-8000 US, Phone: (845) 365-8479, Fax: (845) 365-8156, E-mail: steckler@ldeo.columbia.edu.
- **Peter S. K. Knappett**, Ph.D., Associate Professor of Hydrogeology, Dept. Geology & Geophysics, Texas A&M University, College Station, TX 77843, Cell: (917) 797-8371, Email: knappett@tamu.edu, Webpage: <https://geoweb.tamu.edu/people/faculty/knappettpeter.html>, Personal Website: <https://hydrosens.wordpress.com/>.