

RESUME

Aktarul AHSAN
Deputy Director (Geologist)
Geological Survey of Bangladesh



Career Objectives:

- Conducting research on Geoscience
- Educating/Teaching Geoscience
- Consulting Geoscience

Research Interests:

Earthquake Geology/Active Tectonics
/Seismotectonics/Seismology/Paleoseismology
Geomorphology
Structural Geology
Geodynamics

Quaternary Geology
Hazards and Disasters
Climate Change
Sea level change
Remote Sensing and GIS

Professional Experience:

- 2007-- present: Geologist, Geological Survey of Bangladesh

Language: English (CLB7) French (B2)

Driving License: B

Field Work:

- Extensive geological fieldwork experience along the Folded and Neotectonically active parts, Coastal areas and Jamuna flood plains of Bangladesh
- Neotectonically active parts of Himalaya (Assam--Arunachal)

Geological Methods used: I use a range of Optical Satellite Images, DEM as primary tool and then utilize surveying equipments for topography, geomorphology and mapping. I also use C14 and Be10 dating for the age of earthquake events targeting deformed beds and terraces. In an area that has a strong evidences of earthquake signature, I use trenching for paleoseismological investigation. Where available, I combine subsurface seismic data and structural elements to make a better geodynamic picture. I am also planning to introduce coral and microatol data along with tectonic data to make a relation with sea level and tectonics/earthquakes. I use mapping softwares like ArcGIS, ENVI, Map Publisher. I also use Adobe Illustrator for annotation. For topographic data analysis I use Matlab scripts.

Research Work:

1. **Bangladesh-Assam-IndoBurman Ranges:** I have been working on the Seismotectonics of Bangladesh-Assam-IndoBurma Region by collaboration with the Earth Observatory of Singapore, Nanyang Technological University and University of Strasbourg, France. The objectives of this research are to identify and map the active faults in this region by studying paleo-earthquakes, listing their recurring period and calculating shortening rate along the faults and to make a brief seismotectonic map. Combining several geological, geophysical and paleoseismological methods, we successfully identified several faults that ruptured in the past and could generate large earthquakes in the future.
2. **Dauki Fault System:** I am also working on the Southern Dauki Fault (which is believed to generate 8.9 magnitude Great Shillong Earthquake in 1897) along which deformed Tertiary and Quaternary beds outcrop in North-East Bengal Basin. We discovered N-S segments of Dauki Fault System which acts as a decollement over an area of 300 km. We found several young gravel terraces in Bangladesh territory which had been uplifted by paleo-earthquakes of Dauki Fault System.
3. **IndoBurman Ranges:** Another interesting ongoing work is to identify the shortening rate of western segment of IndoBurman Ranges in Bangladesh. Along the western most exposed anticlines, we did extensive fieldwork and discovered 2 distinct wide terraces along the Raghunandan Anticline. We dated the terraces and excavated a trench. We are still working on it.

Lab Work: Preparing Be10 dating samples at the Institute of Earth Physics (IPGS), University of Strasbourg, France.

Team Work: I worked actively in the field and in preparing manuscripts with scientists from France, Singapore, India, Bhutan, Nepal, Indonesia, Phillipines.

Managerial: Operated several fieldworks as a Team leader and handled the logistics.

Education:

- 2005--2007 : Master of Science in Geology and Geophysics (**Thesis**), University of Dhaka, Bangladesh.
- 1999--2005 : Bachelor of Science in Geology, University of Dhaka, Bangladesh.

Papers:

2020: Kathryn Materna, Lujia Feng, Eric O. Lindsey, Emma M. Hill, Aktarul Ahsan, A.K.M. Khorshed Alam, Kyaw Moe Oo, Oo Than, Thura Aung, Saw Ngwe Khaing and Roland Burgmann, **GNSS characterization of hydrological loading in South and Southeast Asia**, *Geophysical Journal International* (2020) 0, 1-0, doi:10.1093/gji/ggaa500.

2020: Mallick, R., Hubbard, J.A., Lindsey, E.O., Bradley, K.E., Moore, J.D.P., Ahsan, A., Alam, A.K.M.K., Hill, E.M., **Subduction initiation and the rise of the Shillong Plateau**. *Earth Planet. Sci. Lett.* 543, 116351. doi:10.1016/j.epsl.2020.116351

2020 (in press): Ahsan, A. and Alam, A.K.M.K., **Medieval Human Settlement affected by the Active Tectonics of Lalmai Anticline, Cumilla, Bangladesh**, *Rivers and Religion, 8th SSEASR Conference, Dhaka*.

2017: Debbarma, J., Martin, S. S., Suresh, G., Ahsan, A., Gahalaut, V. K., **Preliminary observations from the 3 January 2017, Mw 5.6 Manu, Tripura (India) earthquake**, *Journal of Asian Earth Sciences*, vol. 148, 173-180, <http://dx.doi.org/10.1016/j.jseas.2017.08.030>

2016: Alam, A.K.M.K. and Ahsan, A. **Bangladesh's Experience of the Nepal Earthquake: a story of the Impact on a Seemingly Unconnected Region**, In: S.P. Singh, Sudarshan C. Khanal, Madhu Joshi (eds), LESSONS FROM NEPAL'S EARTHQUAKE FOR THE INDIAN HIMALAYAS AND THE GANGETIC PLAINS, Central Himalayan Environment Association (CHEA), Nainital, 102-113.

2014: Alam, A.K.M.K., Tapponnier, P., Banerjee, P., Van der Woerd, J., Kali, E., Ahsan, A., Curveur, A. C., **Active Deformation and Seismicity of the NE Part of Bangladesh**, *Souvenir, 1st Bangladesh Earthquake Exhibition, Dhaka 2014, 12-15*.

2013: Sarker, N.M., and Ahsan, A. **Gravel Deposits of Dhalai River and Surrounding Flood Plains**, *The Journal of NOAMI*, vol 30, 25-38.

Abstracts:

2019: Ahsan, A. and Alam, A.K.M.K., **Medieval Human Settlement affected by the Active Tectonics of Lalmai Anticline, Cumilla, Bangladesh**, *Rivers and Religion, 8th SSEASR Conference, Dhaka, p-30*.

2018: Ahsan, A., Kali, E., Curveur, A. C., Van der Woerd, J., Tapponnier, P., Alam, A.K.M.K., Ildefonso, S., Banerjee, P., Dorbath, C., **Active folding in the Indo-Burman ranges: a case study along the Raghunandan hill, northeast Bengal basin (Bangladesh)**, In: *20th EGU General Assembly, EGU2018, Proceedings from the conference held 4-13 April, 2018 in Vienna, Austria, p.14843*

2016: Van der Woerd, J., Ahsan, A., Kali, E., Curveur, A. C., Tapponnier, P., Alam, A.K.M.K., Ildefonso, S., Banerjee, P., Dorbath, C., **Active Folding in the Indo-Burman ranges: a case study along the Raghunandan hill, northeast Bengal basin (Bangladesh)**, In: *2016 Himalayan-Karakorum-Tibet (HKT) Workshop*, Aussios, France, 9-12 May 2016.

2015: Ahsan, A., Kali, E., Curveur, A. C., Van der Woerd, J., Tapponnier, P., Alam, A.K.M.K., Ildefonso, S., Banerjee, P., Dorbath, C., **Active Faulting in Raghunandan Anticline, NE Bengal basin, implications for future earthquake hazards**, In: *American Geophysical Union, Fall Meeting*

2015, Abstract # T41B-2885.

2015: Alam, A.K.M.K. and Ahsan, A., **Impact of 25 April 2015 Nepal Earthquake in Bangladesh**, In: *30 th Himalayan-Karakoram-Tibet Workshop, 2015*, Dehradun, India

2013: Alam. A.K.M.K., Talukdar. A., Ahsan, A., **Geological Exploration in the Coastal Zone of Bangladesh**, In: *8th IAG International Conference on Geomorphology, Paris 2013*, 918.

2012: Kali, E., Taponnier, P., Van der Woerd, J., Choudhury, S., Baruah, S., Alam, A.K.M.K., Ahsan, A., Dorbath. C., Bollinger, L., Banerjee, P., **Tectonic Geomorphology and Active Megathrust Traces in the East-Himalayan Syntaxis**, In: *Journal of Nepal Geological Society*, 45 (sp.Issue), 47-48.

Reviewer of Arabian Journal of Geosciences

Member of American Geophysical Union

Member of Dhaka University Geological Alumni Association

Member of French Alumni Association

Member of Dhaka University Registered Graduates

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<https://scholar.google.com/citations?user=2FvQFVEAAAAJ&hl=en>

References:

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