

Mohammad Rubaiat Islam

ATMOSPHERIC RESEARCHER AND MODELER · REMOTE SENSING PROFESSIONAL

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“A wise man will make more opportunities than he finds - Sir Francis Bacon”

Education

University of Chinese Academy of Sciences

Beijing, China

MASTER OF SCIENCE IN PHYSICAL GEOGRAPHY

Sep 2017 - Aug 2020

- **Thesis Title:** Variations of stable isotopes in precipitation over Bangladesh related to climatic controls and moisture transports
- **Key Courses:** Earth System Science, Climate Change, Physical Geography, Global Change Ecology, Data Mining.

Jahangirnagar University

Dhaka, Bangladesh

MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCES

Sep 2013 - Aug 2014

- **Thesis Title:** Modeling the changes in the distribution of extreme temperature in Bangladesh.
- **Key Courses:** Global Climate Change, Disaster Management, Water Resources Management, Environmental Management Systems.

Jahangirnagar University

Dhaka, Bangladesh

BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCES

Apr 2009 - Aug 2013

- **Undergraduate Research:** Use of Educational Global Climate Model (EdGCM) for understanding the basics of climate modeling.
- **Key Courses:** Environmental Modeling, Meteorology and Climatic Process, Bio-geochemistry, Remote Sensing, Oceanography.

Experience

Precipitation Research Group

Dhaka, Bangladesh

FOUNDER AND ATMOSPHERIC RESEARCHER

Sep. 2020 - Present

- Understanding how well does the remotely sensed precipitation products perform in reproducing observed spatial and temporal variations in precipitation over south-east Asia.
- Investigate the performance of precipitation retrievals in remotely sensed products and reanalysis datasets during extreme events e.g. tropical cyclones and flash floods.
- Using the Coupled Model Intercomparison Project datasets to understand precipitation variation in south-east Asia by the end of the twenty-first century based on different emission scenarios.

Institute of Tibetan Plateau Research, Chinese Academy of Sciences

Beijing, China

GRADUATE RESEARCH ASSISTANT

Sep. 2017 - Aug. 2020

- Laboratory analysis of precipitation water stable isotopes ($\delta^{18}O$ and δD) samples collected from different sampling sites using Picarro's Cavity Ring-Down Spectroscopy (CRDS) technique.
- Understanding the influence of local meteorological variation on precipitation stable isotopes using surface observation of Bangladesh Meteorological Department
- Studying the role of large-scale meteorological processes using the National Centers for Environmental Prediction (NCEP) and European Centre for Medium-Range Weather Forecasts (ECMWF) reanalysis products

Bangladesh Meteorological Department

Dhaka, Bangladesh

REMOTE SENSING SPECIALIST

Jan. 2015 - Mar. 2017

- Use of geospatial and earth observation techniques to improve the existing agro-meteorological bulletin disseminated by Bangladesh Meteorological Department.
- Generate quantitative rainfall forecast using the Weather Research and Forecasting (WRF) model with real-time meteorological data available from the National Centers for Environmental Prediction (NCEP) GFS model.
- Facilitate hands-on training for the officials at the agro-meteorology division of Bangladesh Meteorological Department (BMD) on remote sensing and earth observation.

Bangladesh Centre for Advanced Studies

Dhaka, Bangladesh

RESEARCH ASSISTANT

May 2014 - Jul. 2014

- Field-level data collection on potentially polluting industries located at and around the Bangladesh Small and Cottage Industries Corporation (BSCIC) cluster at Konabari, Gazipur.
- Using high resolution imagery from IKONOS satellite, a GIS-based industrial drainage network for the BSCIC cluster has been developed that helped reduce the pollution load to the natural rivers and lakes.
- Post-construction ground verification of the prepared drainage network throughout the BSCIC cluster area using hand-held GPS.

Honors & Awards

- 2017 **Belt and Road Master's Fellowship**, Government of the People's Republic of China *Beijing, China*
2014 **Research Fellowship**, International Centre for Integrated Mountain Development (ICIMOD) *Dhaka, Bangladesh*

Publications

1. **Islam, M.R.**, Gao, J., Ahmed, N., Karim, M.M., Bhuiyan, A.Q., Ahsan, M.A., Ahmed, S., 2020. Controls on spatiotemporal variations of stable isotopes in precipitation across Bangladesh. *Atmospheric Research*, doi:10.1016/j.atmosres.2020.105224

Skills

Modeling and Simulations	Weather Research and Forecasting (WRF) Model, HYSPLIT
Remote Sensing and GIS	ESRI ArcGIS, ERDAS Imagine, Harris Geospatial ENVI
Research Applications	MATLAB, R, SPSS, EndNote, Origin, GrADS, NCL, CDO, NCO
Office Applications	Microsoft Office Suite, Open Office, Adobe Acrobat, LaTeX
Operating System	Microsoft Windows (7, 10), Linux (Ubuntu, CentOS), MacOS
Graphic Design	Adobe Illustrator CC, Adobe Photoshop CC, Adobe InDesign CC
Languages	Bengali (Native or bilingual proficiency), English (Full professional proficiency)

Certificates

2020	Introduction to Programming with MATLAB , Vanderbilt University	<i>Coursera</i>
2020	Python Basics , University of Michigan	<i>Coursera</i>
2020	Fundamentals of GIS , University of California, Davis	<i>Coursera</i>
2019	Data Science for Environmental Modelling and Renewables , University of Glasgow	<i>FutureLearn</i>
2017	Climate Change: Challenges and Solutions , University of Exeter	<i>FutureLearn</i>
2016	Come Rain or Shine: Understanding the Weather , University of Reading	<i>FutureLearn</i>

Training & Workshop

Professional course: Paleoclimatology *Beijing, China*
JOINTLY ORGANIZED BY THE BYRD POLAR RESEARCH CENTER, OHIO STATE UNIVERSITY AND ITP-CAS *Dec. 2018 - Apr. 2019*

- Improve student understanding of the geological record of climate change, exploring what we know as well as what we need to know in order to better predict future global change.
- Evaluate the strength and weaknesses of different paleoclimate proxy records (ice core, lake sediments, marine cores, tree rings, corals, speleothems and loess) and their role in complementing instrumental records.

Professional course: Isotopes in the Atmospheric Hydrological Cycle *Beijing, China*
ORGANIZED BY THE INSTITUTE OF TIBETAN PLATEAU RESEARCH, CHINESE ACADEMY OF SCIENCES (ITP-CAS) *Nov. 2017*

- Introduce the role of different fractionation processes in the hydrological cycle that influences water stable isotopes in the atmosphere and their role in phase-change (evaporation, sublimation, and condensation) processes.
- Critically assess the strengths and limitations of currently used formulations for parameterization of fractionation processes, and to develop and model the transport of atmospheric water stable isotope.

Professional Training on Weather Research and Forecasting Model *Dhaka, Bangladesh*
ORGANIZED BY INSTITUTE OF WATER AND FLOOD MANAGEMENT AND BANGLADESH METEOROLOGICAL DEPARTMENT *Aug. 2015 - Oct. 2015*

- Provide a theoretical background on the major processes and parameterizations available at the mesoscale non-hydrostatic Weather Research and Forecasting (WRF) model.
- Hands-on training on the compilation of WRF model from source code with different dynamic options, compilation of necessary libraries required for the successful compilation of the model and perform test simulations.

Professional Training on Remote Sensing and Earth Observation *Dhaka, Bangladesh*
JOINTLY ORGANIZED BY INTERNATIONAL CENTRE FOR INTEGRATED MOUNTAIN DEVELOPMENT, NASA AND USAID. *May 2014*

- Introduce the application of remote sensing and earth observation technologies in the monitoring of land-use, land-cover, forest-fire at different parts of the world with a special focus on how they can be used in Bangladesh.

References

Available upon request