

Morshad Ahmed

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EDUCATION

Ph.D. Candidate

Expected Graduation Dec 2023

Department of Earth and Atmospheric Sciences

University of Houston, CGPA: 3.833/4.00

Thesis title: Sources and Photochemical Behavior of Atmospheric Pollutants (Nitrophenols, Mercury, and Non-Methane Hydrocarbons) in the Houston, Texas, Area

Academic Advisor: Dr. Bernhard Rappenglueck

M.S., 2018

Inorganic and Analytical Chemistry, University of Dhaka, CGPA: 3.73/4.00

Thesis title: Investigation of Trace Elements in Suspended Particulate Matters with Special Emphasis on Source Identification and Health Risk Assessment

Academic Advisor: Dr. Abdus Salam

B.S., 2016

Chemistry, University of Dhaka, CGPA: 3.40/4.00

RESEARCH & WORK EXPERIENCE

Fall 21 – Present

Atmospheric Nitrophenols in Houston: Sources and Photochemical Behavior

Source apportionment of nitrophenols using PMF and understanding secondary NPs formation using a AtChem MCM box model.

Fall 19-Present

University of Houston – Teaching Assistant

Responsible for teaching and grading Atmospheric Science lab courses.

Lab Courses Instructed: Introduction to Climate Change Laboratory, Air Pollution Meteorology Laboratory, Atmospheric Chemistry Laboratory.

Summer 21

Texas Commission on Environmental Quality, Mickey Leland Environmental Internship Program (MLEIP) – Research Intern (Virtual, 12 weeks)

Assisted in Atmospheric Science research project for Air Modeling and Data Analysis Section, reviewed research publications, prepared research summary, and created databases.

Fall 19 – Spring 21

VOCs and Metal Source Apportionment in Houston, Texas

Source apportionment of VOCs and trace metals to identify source emission fingerprints using PMF along with polar plots to identify the location of the pollutants over Houston.

PUBLICATIONS

Ahmed M, Rappenglück B, Das S, and Chellam S (2021). Source Apportionment of Volatile Organic Compounds, CO, SO₂ and Trace Metals in a complex urban atmosphere. Environmental Advances, 100127. DOI: 10.1016/j.envadv.2021.100127.

Akther T, Ahmed M, Shohel M, Ferdousi F K, Salam A (2018) Particulate Matters and Gaseous Pollutants in Indoor Environment and Association of Ultra-fine Particulate Matters (PM_{1.0}) with Lung Function. Environmental Science and Pollution Research, 26(6), 5475-5484. DOI: 10.1007/s11356-018-4043-2.

Ahmed M, Hossain A, Akther T, Shohel M, Salam A (2018) Chemical Composition and Source Identification of Fog Water at an Indo-Gangetic Plain (IGP) Outflow Location (Coastal Bhola Island), Bangladesh. Journal of Environmental Pollution and Management 1: 104.

Ahmed M, Das M, Afser T, Rokonujjaman M, Akther T, Salam A (2018) Emission of Carbonaceous Species from Biomass Burning at the Traditional rural Cooking Stove in Bangladesh. Open Journal of Air Pollution, 07(04):287-297.

Samiha RA, **Ahmed M**, Shohel M, Salam A (2018) Chemical Composition and Source Characterization of Hailstones in Dhaka, Bangladesh. Journal of Geoscience and Environment Protection, 6, 71-82.

SKILLS & QUALIFICATIONS

Instruments

Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES), Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Particulate matter samplers, Aethalometer, AERONET.

Software Skills

R programming (openair), ArcGIS, PMF, HYSPLIT, AERMOD, CALPUFF, CALINE

KEY WORKSHOPS & PRESENTATIONS

- 2020** HYSPLIT Workshop (online), 22-25 June, NOAA Air Resources Laboratory
- 2019** Fourth Atmospheric Composition and Asian Monsoon, 26-28 June 2019, Malaysia
- 2018** 14th iCACGP Quadrennial Symposium/15th IGAC Science Conference, 25-30 September, Japan
- 2017** Second Atmospheric Composition and Asian Monsoon Training School, 10-12 June 2017, China
- 2017** Third Atmospheric Composition and Asian Monsoon, 5-9 June 2017, China
- 2015** Persistent Winter Fog over the Indo-Gangetic Plain, 1-3 December 2015, ICIMOD, Nepal

HONORS & AWARDS

- 2021** Outstanding Academic Achievement Award in Atmospheric Science, University of Houston
- 2020** Outstanding Academic Achievement Award in Atmospheric Science, University of Houston
- 2019** Graduate Tuition Fellowship (GTF), University of Houston
- 2019** Travel award for Fourth Workshop on Atmospheric Composition and Asian Monsoon in Malaysia
- 2018** Outstanding Graduate Scholarship in undergraduate level from the Department of Chemistry, University of Dhaka (15 out of 90 students)
- 2018** Travel award for 14th iCACGP Symposium/15th IGAC Science Conference in Japan
- 2017** Travel award for Third Workshop on Atmospheric Composition and Asian Monsoon in China
- 2015** Travel award for Persistent Winter Fog over the IGP in ICIMOD, Nepal

PROFESSIONAL MEMBERSHIP

- 2021** Member; American Geophysical Union (AGU)
- 2021** Member; American Meteorological Society (AMS)

RELEVANT COURSEWORKS

Mesoscale Meteorology Forecast, Atmospheric Chemistry, Atmospheric Data Analysis and Statistics, Boundary Layers and Turbulence, Analytical Methods in Inorganic Geochemistry, Atmospheric Radiation

EXTRACURRICULAR INTERESTS

Cricket

Soccer

Badminton