OINDRILA GHOSH

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EDUCATION

2018-Present **Graduate Research Assistant**, Environmental Engineering,
University of Maryland, Baltimore County.
Thesis: Actively shaken in situ passive sampler platform for methylmercury and organics
Advisor: Dr. Upal Ghosh

2017-2018 **Graduate Research Assistant,** Water Management and Hydrological Sciences**,**
College of Geosciences, Texas A&M University**.**
Project: Hydrochemical connectivity in the Allende-Piedras Negras transboundary aquifer across the border between Texas and Mexico
Advisors: Dr. Inci Güneralp, Dr. Rosario Sanchez

2015-2017 **Master of Science,** Ecology and Environment Studies**,** Nalanda University, Rajgir, India.
Thesis: Transport of Biochar in saturated porous medium under various physical and chemical conditions
Advisor: Dr. Prabhakar Sharma

2012-2015 **Bachelor of Science with First Class Honours,** Chemistry, Miranda House,
University of Delhi, New Delhi, India.

HONOURS AND AWARDS

2017-2018 Awarded *Lechner Graduate Fellowship* by the College of Geosciences, Texas A&M University

2016 *Summer Research Fellowship* (2016), Indian Institute of Science Education and Research (IISER) Kolkata

2012 Awarded *Certificate of Merit* for outstanding achievement in the field of Academics, Hem Sheela Model School for ranking among the top 1% of high school in the Class XII CBSE Boards Examination

RESEARCH INTERESTS

- Behavior of contaminants in the soil and water in river environments
- Heavy metal contamination of groundwater aquifers and the methods of their remediation
- Fate and Transport of contaminants in soil and water environments, their impact on the environment and the methods of their remediation.

RESEARCH EXPERIENCE

Sept, 2017-May, 2018 **Graduate Research Assistant,** Texas Water Resources Institute (TWRI)

- Established lateral and vertical hydrochemical connectivity of the Allende-Piedras Negras transboundary aquifer across the border between Texas and Mexico
- Determined the hydrochemical tendency of the main aquifer and the deeper aquifers

- Determined the influence of depth on the chemistry within a single aquifer on either side of the border.

Aug 2016- May 2017 **Graduate Student,** Nalanda University

- Master's thesis determined the transport of biochar in saturated porous medium under various physical and chemical conditions
- Analysed the stability of rice husk biochar in various salt concentrations and pH through different collector grain sized saturated porous medium by column transport mechanisms.
- Decreasing pH, rising ionic strength and lowering of collector grain size increased the retention of biochar particles in saturated porous medium.
- Observations explained on the basis of DLVO Theory of Colloidal Dispersion.

August-Dec, 2016 **Graduate Student,** Nalanda University

- Independent Study project focussed on the synthesis of biochar from biomass sources and comparison of their corresponding stabilities
- Synthesized biochar (size ~743.5±71.7 nm) by pyrolysis of rice husk and sugarcane bagasse in a muffled furnace and performed their characterization.
- Analysed the stability of rice husk biochar in varying concentration of salt solutions.
- The carbon content of sugarcane bagasse biochar was higher than the rice husk biochar.
- Stability of rice husk biochar decreased with increasing ionic concentration of salt solution.

May-July, 2016 **Summer Intern,** Department of Earth Science, IISER, Kolkata

Part 1:

- Examined the trends in reported HCH and pyrethroid levels in human milk.
- Reviewed and compiled around 139 published values for HCH and three pyrethroids- Bifenthrin, Permethrin and λ-Cyhalothrin in MATLAB.
- Compiled results into a research journal.

Part 2:

- Estimated the physio-chemical water quality parameters to check the efficiency of a DSIR, Government of India funded project of artificial aquifer recharge.
- Laboratory assessments of water quality performed.
- Compared results of the raw stream water, the first filtration chamber, the final filtration chamber and the water from the tubewell, over a period of 5 months from February to June, 2016

- Water quality, in general, improves from raw stream, through filtration chambers to the tubewell, except phosphate and nitrate levels increase above permissible limits.

May-June, 2013 **Summer Intern,** Department of Soil Science, BCKV, Kalyani

- Project focused on the study of pH of soils of different agro-climatic zones of West Bengal

WORK IN PROGRESS

Worldwide trend analysis of bioaccumulation of organochlorine pesticides and synthetic pyrethroids in human milk. For submission to the International Journal of Hygiene and Environmental Health.

Colloidal Biochar: Synthesis, Characterization and Interaction Mechanisms within soil and water environments. For submission to the Archives of Agronomy and Soil Science.

CONFERENCES ATTENDED

July, 2018 AWRA Summer Specialty Conference, 2018 on the Science, Management, and Governance of Transboundary Groundwater, Fort Worth, TX.

April, 2018 *Rethinking Texas Water Policy*, organized by The Bush School, Texas A&M University

2013 *The Delhi Youth Summit on Climate Change* DYSoC-2013, organized by the Delhi Greens at Miranda House College, University of Delhi.

2014 *YUVA Meet* 2014, organized by The Energy and Resources institute (TERI)

PRESENTATIONS

July, 2018 *Hydrochemical Connectivity of the Allende-Piedras Negras Transboundary Aquifer*. AWRA Summer Specialty Conference, 2018 on the Science, Management, and Governance of Transboundary Groundwater, Fort Worth, TX.

July, 2016 *Demographic and Economic Impacts of Agent Orange in Vietnam*. International Conference on Energy, Economy and Sustainable Development: Opportunities & Challenges, organized by the Department of Economics, Jamia Millia Islamia (Central University), New Delhi.

MEMBERSHIPS

Aug 2018-Present **Graduate Research Assistant**, Ghosh Lab, Environmental Engineering, UMBC

Jan 2018-Aug 2018 **Graduate Student,** Fluvial Landscape Dynamics (FLUD) Lab, Department of Geography, Texas A&M University

Aug 2017- Aug 2018 **Member,** Texas A&M Water Network, Water Management and Hydrological Sciences, Texas A&M University

2012-2015 **Member,** MH-VATAVARAN,The Miranda House Environment Society

TECHNICAL SKILLS and EQUIPMENTS

ArcGIS, MATLAB, MODFLOW, AQTESOLV, Geochemist's Workbench

EXTRA-CURRICULAR ACHIEVEMENTS

Memberships:

- Member of Editorial Board for The Drop, Newsletter WMHS, 2017-present
- Member of the English Literary society, Miranda House, 2012-2013.
- Member of the editorial board of the college magazine, Miranda House, 2014-2015.
- Certificate of participation in World Ozone Day celebrations,2014 organized by Millennium India Education Foundation at Hans Raj College, University of Delhi.

Music: Certificate of Sangeet Visharad Pratham Khand (4th year) by the Pracheen Kalakendra, Chandigarh, 2007, 2008 in Rabindrasangeet (vocals), in first division.

Set Designing: Certificate of Cultural Excellence and adjudged the Best Set Designer in recognition of contribution to the cultural life at Nalanda University, 2017.