

Education

- 2022-present **Doctor of Philosophy (Ph.D.) in Paleoclimatology**, *University of Queensland, Australia & Indian Institute of Technology Delhi, India.*
- 2017-2022 **Integrated BS-MS, Chemistry Majors (Minor in Earth Sciences)**, *Indian Institute of Science Education & Research (IISER) Mohali, India, CPI - 9.6/10.*
- 2016 **CBSE**, *Central Hindu Girls School, Varanasi, India, Percentage - 92.2%.*
- 2014 **BSEB**, *Baldeo High School, Rohtas, India, Percentage - 73%.*

List of Publications

- in preparation Variability in Westerlies-driven precipitation in India during the past two millennia (**Aakanksha Kumari**, Dr. Yama Dixit, Anubhav Singh)
- in preparation Molecular signatures of natural organic matter sources & Anthropogenic contamination in a high altitude lake system in Kashmir Himalayas (**Aakanksha Kumari**, Dr. Anoop Ambili, Diptimayee Behera, Nishant)
- in preparation Emerging contaminants in the largest freshwater system in Kashmir Himalayas, India (Diptimayee Behera, **Aakanksha Kumari**, Dr. Anoop Ambili, Nishant)

Research Experiences

- Jan 2023 – present **Project**, *Variability in Westerlies-driven precipitation in India during the past two millennia*, **Dr. Yama Dixit**, IIT Delhi, India.
Conducting analysis to identify locations strongly affected by MWA and LIA events, determine dominant periodicities, and quantify precipitation variability in Northern India while identifying the source of moisture in modern times, using the HYSPLIT model, Acycycle software, OxCal, and ArcGIS/QGIS.
- Aug 2022 – Nov 2022 **Project**, *Identifying rainfall patterns in the past using various paleoclimatic data archives in India*, **Dr. Sandeep Sukumaran & Dr. Yama Dixit**, IIT Delhi, India.
Conducted paleoclimatic data extraction from multiple Indian archives, including tree rings, speleothems, and lake records, followed by data re-scaling and the compilation from different proxies to identify trends and comparison with modern-day precipitation data (IMD data).
- May 2022 – Oct 2022 **Summer Project**, *Spatial variation of the local meteoric water lines across India*, **Dr. S. Chakraborty**, IITM Pune, India.
Acquired knowledge on the amount effect and isotope ratios of precipitation for rainfall analysis, plotted of the Local Meteoric Water Line (LMWL) in various regions of India for comparison, followed by statistical data analysis.
- Sept 2021 – May 2022 **MS Thesis**, *Distribution and occurrence of organic contaminants from freshwater aquatic systems in Kashmir Himalayas*, **Dr. Anoop Ambili**, IISER Mohali, India.
Investigated the lake system using biomarker analysis, using techniques like Speed extraction, Column chromatography, and Gas chromatography-mass spectrometry (GC-MS).
- May 2021 – Aug 2021 **Research Intern**, *Source Apportionment and Degradation Status of Organic Matter*, **Dr. Anoop Ambili**, IISER Mohali, India.
Learned about different indices based on lipid biomarkers and amino acid derivatives and learned techniques like Speed extraction, Column chromatography, Grain size analysis (using MALVERN Master sizer), and Gas chromatography-mass spectrometry (GC-MS).

May 2019 – **Research Intern**, *Literature review on the use of Reformatsky Reaction in the synthesis and worked in CAMMOS Lab*, **Dr. S. Arulananda Babu**, IISER Mohali, India.

Dec 2020
Worked on making a monograph of the research papers published related to this topic, along with gaining hands-on experience in various techniques- Column chromatography, NMR sample preparation, Distillation, Rotary evaporator, TLC, Acid-base extraction, Gravity and vacuum filtration, crystallization, etc.

Computational skills and Analytical skills

Analytical skills	GC-MS, IR & UV-Vis spectrophotometer, NMR, AAS, XRD, XRF, SEM
Softwares	ChemDraw, ArcGIS/QGIS, Bacon age-modeling software, Acycle software, HYSPLIT model
Languages	Python, MATLAB, SageMath
Other Skills	LaTeX, MS Office

Scholarships and Scholastic Achievements

- 2023 Scored 314 in **GRE** General Test
- 2023 Scored 99 in **TOEFL iBT®** Test
- 2022 Cleared **Graduate Aptitude Test in Engineering (GATE)**
- 2019-20 Awarded **thrice** with the **Academic Excellence Certificate** for securing highest SPI in the 5th, 6th and 9th semesters (BS-MS degree)
- 2017-22 Awarded with **DST INSPIRE** Fellowship by Ministry of Science & Technology
- 2016 All India Topper in Chemistry (100/100 marks)), CBSE 12th Board

Seminars, Presentations and Science Outreach

- Sep 2022 Presented Poster presentation on **Holocene hydro-climatic variability in South Asia: Lessons from the past proxy records**, Asian Climates, Biodiversity, and Tectonics Hybrid Conference, The Geological Society, London
- April 2022 Presented thesis presentation on Distribution and Sources of **Organic Matter in a fresh-water aquatic system** in Kashmir Himalaya, IISER Mohali
- March 2021 Presented a talk on **Oxygen and hydrogen isotope ratios**, talked about the field paleo-climatology, isotope ratio correlation with temperature in tree rings and ice cores, IISER Mohali
- Nov 2020 Presented a talk on **Detergent of the Atmosphere**, talked about the role of hydroxy radicals in the atmosphere, global OH distribution and its variability, IISER Mohali
- Nov 2018 Attended a seminar on **Evaluation of black carbon aerosols measurements in the Arctic**, P. R. Sinha (TIFR Balloon Facility, Hyderabad) explained laboratory and field experiments to assess the accuracy of **Black Carbon (BC) aerosol** measurement in the Arctic, IISER Mohali

Academic Referees

- Referee 1 **Dr. Dr. Supriyo Chakraborty**, Retired Scientist, Indian Institute of Tropical Meteorology Pune, **Email:** supriyo@tropmet.res.in, **Contact:** +91-(0)20-25904427
- Referee 2 **Dr. Chandrakanta Ojha**, Assistant Professor, Earth and Environmental Sciences, IISER Mohali, **Email:** chandrakanta@iisermohali.ac.in, **Contact:** +91 6239988351