Monojit Saha

monojits76@gmail.com | www.monojitsaha.com | ORCID | Citations: 106 (Google Scholar)

Education & Training

PhD in Geographical Sciences, University of Maryland, College Park, US & NASA Cryospheric Sciences Laboratory, NASA Goddard, Greenbelt, US (Fall 2024)
Project: Improving near-shore satellite altimetry derived snow depth and sea ice thickness products.

MSc. Environment and Geography, Centre for Earth Observation Science, University of Manitoba, Manitoba, Winter 2021-Fall 2023
Thesis Title: Altimetry for Estimating Snow Depth on Sea Ice: Surface and Satellite Observations from the Canadian Arctic
Relevant Courses: GEOG 7872: Advanced Methods in Geomatics; GEOG 7480: Advanced Methods in Remote Sensing

BSc. Geography and Environment, University of Dhaka, January 2015- December 2019

Field Experience

Churchill Freeze-Up Campaign, December 2021, Churchill, Manitoba.
Experience: Deploying the Ku-Ka Radar on Sea Ice and Lake Ice, Snow Magnaprobe, Snow Geophysical (Salinity, Density, Temperature) Sampling, Sea Ice Cores, GPS Navigation.

CRYO2ICE Validation Campaign, April 2022, Cambridge Bay, Nunavut.
Experience: Pre-Planning Navigation Map Preparation, Satellite Validation, Helicopter Survey, Snow Magnaprobe, Snow Geophysical Sampling, Sea Ice Cores, GPS Navigation

Awards

Faculty of Graduate Studies Research Completion Scholarship, 2023 for successfully defending MSc research proposal

ESRI GIS Scholarship 2021 for project titled "Natural Disaster amidst a Pandemic: a case of the July 2020 Floods in Bangladesh" (ESRI Scholar Profile: Monojit Saha | Esri Canada Scholars Portal)

University of Manitoba Graduate Fellowship (UMGF) for MSc Project 2021-2022

Skills

GIS Software/Cloud Platforms: ArcGIS Online, ArcGIS Pro, ArcGIS Dashboard, QGIS, Google Earth Engine

Remote Sensing Sensors/Satellites: ICESat-2, Cryosat-2, Sentinel 1 SAR, Sentinel-2, Sentinel-3, Sentinel- 5p, Landsat, MODIS, Radarsat Constellation Mission (RCM)

Remote Sensing Software: ERDAS Imagine, ENVI, E-Cognition, SNAP
Spatial Data Handling with **Python** and **R**

Field Data Collection: GPS Surveys, Snow depth sampling with Magnaprobe, Ice coring, Snow and Sea Ice geophysical parameter field retrievals, surface based KuKa Band radar.

Work Experience

Faculty Assistant, Earth System Science Interdisciplinary Center (ESSIC), University of Maryland & NASA Cryospheric Sciences Laboratory, March 2024 to July 2024

Research Technician, Center for Earth Observation Science (CEOS), University of Manitoba, January 2024 to February 2024

Teaching Assistant, GEOG 7480: Advanced Methods in Geomatics; GEOG 3730: Geographical Information Systems University of Manitoba, February 2022- Present
Accomplishments: Assessed and supervised undergraduate and graduate students with course projects focused on QGIS, ArcGIS and R-based geospatial applications

GIS Analyst (Summer Student/Part-Time), Manitoba Agricultural Services Corporation (MASC) June 2021-December 2021
Accomplishments: Helped convert desktop-based spatial geodatabase to **ArcGIS Online** platform. Produced visualizations and conducted spatial analysis involving insurance assessments based on spatial-crop damage analysis.

Climate Data Analyst (Contractual/Part- Time) Friends of Sebago Lake, August 2022-Present
Accomplishments: **Gathered, analyzed and visualized** climatic data for temperature, relative humidity, precipitation near large hydropower dams and reservoirs.

Research Apprentice, Geographical Research Unit, Bengal Institute, January 2020-December 2020
Accomplishments: Developed ArcGIS Dashboard and Maps for COVID-19 response , Environment Inventory and detailed city-scale visualizations and design to support in Dhaka, Rajshahi and Sylhet

Leadership

Department Representative & Social Coordinator, **Environment and Geography Graduate Student's Association (EGGSA)**, Fall 2021- Present

Remote Sensing Working Group Member, **Association of Polar Early Career Scientists (APECS)**, January 2022 – December 2022

Current Projects

Saha, M., Stroeve, J., Islefison, D., Yackel, J., Nanda,V., Landy, J., Lam, H.M., (2023) Snow Depth estimation from Cryo2Ice satellite observations from the Land-fast and Lead-less Sea Ice in the Canadian Arctic Archipelago, In review at ***The Cryosphere,*** Preprint: https://doi.org/10.5194/egusphere-2023-2509 .

Saha,M., Willatt,R.,Nandan,V., Isleifson,D., Stroeve,J., Yackel, J., Mallett,R., Newman,T., Jensen,D.,(2023) Surface-Based Fully Polarized Dual-Frequency Altimeter Retrievals Over Snow On First-Year Sea Ice and Lake Ice at Churchill, Manitoba, Manuscript in Preparation.

Mallett,R., Nandan,V., Stroeve,J., Willatt,R., Newman,T., **Saha,M.,** Yackel,J., Veysiere,G., Wilkinson,J., (2023) Dye tracing of upward brine migration in snow, Manuscript in Preparation.

Publications

Saha,M., Sauda, S.S., Real, H.R.K. Mahmud, M.,(2022) Estimation of annual rate and spatial distribution of soil erosion in the Jamuna basin using RUSLE model: A geospatial approach, Environmental Challenges,8, doi: https://doi.org/10.1016/j.envc.2022.100524

Roy, S., **Saha, M.,** Dhar, B., Pandit, S., Nasrin, R. (2020) Geospatial analysis of COVID-19 lockdown effects on air quality in the South and Southeast Asian region, Science of the Total Environment, 756, doi: https://doi.org/10.1016/j.scitotenv.2020.144009

Mahboob, M., **Saha, M.** & Hossain, M.I. (2023) Spatial assessment of the seasonal impact of brickfields on air pollution in Dhaka metropolitan area using ordination techniques, *Air Qual Atmos Health* , https://doi.org/10.1007/s11869-023-01345-w

Sarif, M.N., Siddiqui,L., Islam, M.S., Parveen, N. & **Saha M.,** (2021) Evolution of rivercourse and morphometric features of the River Ganga: A case study of up and downstream of Farakka Barrage, International Soil and Water Conservation Research, doi: https://doi.org/10.1016/j.iswcr.2021.01.006

Conference Presentations

Saha,M., Willatt,R.,Nandan,V.,Stroeve,J., Isleifson,D.,Yackel, J., Mallett,R., Newman,T., Jensen,D.,(2023) Exploring Ku-Ka band interaction over Snow on Sea Ice and Lake Ice at Churchill, Manitoba, Presented at the **IGS Sea Ice Symposium 2023,** Bremerhaven, Germany.

Saha,M., Stroeve,J.,Isleifson,D. , Nandan,V., Lam, H.M., Yackel,J., Landy, J., (2022) Estimating **Snow Depth on Land-fast Sea Ice** from CRYO2ICE in the **Canadian Arctic Archipelago**, Presented at the **American Geophysical Union (AGU)** 2022, Chicago, USA.

Saha,M & Sauda, S.S. (2020) Rapid Upstream Rainfall Induced Flood Mapping and Monitoring Using Open Source Data: A Case of The July 2020 Flood In the Jamuna Basin, Presented at the **American Geophysical Union (AGU)** 2020.

Saha, M., Sauda, S.S., Mahmud, M.S. (2019) Estimation of Annual Soil Erosion Rate using RUSLE: A Study On The Jamuna River Sub-basin in Bangladesh, presented at the **European Space Agency (ESA) Living Planet Symposium** 2019, Milan, Italy.

Rutter,N., Sandells,M., Meloche,J., Essery,R., Löwe,H., Jaggi., M., Scharien, R., Blanco,A., Yackel., J., Lam., H.M., **Saha., M**., Langois,A., (2022) Variability of snow and ice thickness on first year sea ice in Cambridge Bay, Canada., Presented at **ArcticNet Annual Science Meeting (ASM)** 2022, Toronto, Canada.

Lam.,H., Geldsetzer., T., Yackel.,J., Howell,S., **Saha,M.,** Stroeve,J., Nandan,V., (2022) Estimating near-shore winter snow depth on landfast sea ice in the Canadian Arctic from satellite altimetry and SAR imagery, Presented at the **Living Planet Symposium 2022**, Bonn, Germany.

Lam.,H., Geldsetzer., T., Yackel.,J., Howell,S., **Saha,M.,** Stroeve,J., Nandan,V.,(2022) In situ snow depth on sea ice records in the Canadian Arctic (1955-2019) and Development plans for multi-satellite snow depth retrieval on landfast sea ice, Presented at **CMOS-CGU-ESC Joint Congress**, Saskatoon, Canada.

Rosenblum, E., and the **Team** (2023) Exploring ice-ocean boundary layer dynamics in climate models, idealized simulations, and outdoor lab experiments, European Geophysical Union General Assembly 2023, Vienna, Austria, https://doi.org/10.5194/egusphere-egu23-10302

Outreach & Media

• Presenter, Arctic Science Day organized by ForthWhyteAlive 2022 & 2023
Presented research and field work experiences to 300+ students from grades 7–12 from different schools in Manitoba
• Community Pitch Award at ArcticNet Annual Science Meeting (ASM) 2022
Presented my research to the members of the indigenous communities, high-school students and fellow researchers
• Coordinator, National Environment Olympiad (NEO) 2017 & 2018 by University of Dhaka
Raised awareness about the impacts of climate change to 200+ high school and university students in Bangladesh