Pritam Das

PH.D. CANDIDATE, UNIVERSITY OF WASHINGTON, SEATTLE WA

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Education

Ph.D. with **Data Science Option,** *University of Washington*　　　　　**Expected March 2025**

Civil and Environmental Engineering | Hydrology and Hydrodynamics

Dissertation: *Regulated Surface Water: How Much and Where is it Flowing?*

M.S., *University of Washington*　　　　　**2022**

Civil and Environmental Engineering | Hydrology and Hydrodynamics

Thesis: *Reservoir Assessment Tool 2.0.* Related paper and operational decision support system.

Integrated M.Tech., *Indian Institute of Technology Roorkee*　　　　　**2020**

Department of Earth Sciences | Geological Technology

Awards

People's Choice Graduate Poster Presentation　　　　　**2022**

American Water Resources Association (AWRA). Renton, WA.

People's Choice award for the Best Poster Presentation.

Department Gold Medal　　　　　**2020**

Department of Earth Sciences, Indian Institute of Technology, Roorkee. Roorkee, India.

Awarded with the Department Gold Medal for academic excellence.

Peer Reviewed Publications

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1. **Das, P**., and F. Hossain. (2024). Multi-satellite Tracking of Surface Water Storage Change in the Era of Surface Water and Ocean Topography (SWOT) Satellite Mission. *Earth and Space Science, Science from the Surface Water and Ocean Topography Mission (submitted).*
2. **Das, P.**, S. Suresh, F. Hossain, *et al.* (2024) Forecast informed reservoir operations within a satellite-based framework for mountainous and high precipitation regions: The case of the 2018 kerala floods. *ASCE Journal of Hydrologic Engineering (in print).*
3. **Das, P.**, Hossain, F., Minocha, S., Suresh, *et al.* (2024). ResORR: A globally scalable and satellite data-driven algorithm for river flow regulation due to reservoir operations. *Environmental Modelling & Software*, *176*, 106026. https://doi.org/10.1016/j.envsoft.2024.106026
4. **Das, P.**, Hossain, F., Khan, S., *et al.* (2022). Reservoir Assessment Tool 2.0: Stakeholder driven improvements to satellite remote sensing-based reservoir monitoring. *Environmental Modelling & Software*, *157*, 105533. https://doi.org/10.1016/j.envsoft.2022.105533
5. S. Minocha, **Das, P.**, and F. Hossain. (2024) Reservoir assessment tool (RAT): A python package for monitoring the dynamic state of reservoirs and analyzing dam operations. *Digital Water (in review).*
6. Suresh, S., Hossain, F., Minocha, S., **Das, P.**, *et al.* (2024). Satellite-based tracking of reservoir operations for flood management during the 2018 extreme weather event in Kerala, India. *Remote Sensing of Environment*, *307*, 114149. https://doi.org/10.1016/j.rse.2024.114149
7. Darkwah, G. K., Hossain, F., Tchervenski, V., Holtgrieve, G., Graves, D., Seaton, C., Minocha, S., **Das, P.**, Khan, S., & Suresh, S. (2024). Reconstruction of the Hydro-Thermal Behavior of Regulated River Networks of the Columbia River Basin Using Satellite Remote Sensing and Data-Driven Techniques. *Earth's Future*, *12*(10), e2024EF004815. https://doi.org/10.1029/2024EF004815

8. Dixit, A., Goswami, A., Jain, S., & **Das, P.** (2024). Assessing snow cover patterns in the Indus-Ganga-Brahmaputra River Basins of the Hindu Kush Himalayas using snow persistence and snow line as metrics. *Environmental Challenges*, *14*, 100834. https://doi.org/10.1016/j.envc.2023.100834

9. Dixit, A., Goswami, A., Jain, S. K., & **Das, P.** (2024). Remote sensing of snow cover dynamics and climate implications in the Indus, Ganga, and Brahmaputra River basins. *Climate Dynamics*, *62*(8), 7309–7327. https://doi.org/10.1007/s00382-024-07280-5

10. Minocha, S., Hossain, F., **Das, P.**, *et al.* (2023). Reservoir Assessment Tool Version 3.0: A Scalable and User-Friendly Software Platform to Mobilize the Global Water Management Community. *Geoscientific Model Development Discussions*, *2023*, 1–23. https://doi.org/10.5194/gmd-2023-130

11. Khan, S., Hossain, F., Pavelsky, T., Parkins, G. M., Lane, M. R., Gómez, A. M., Minocha, S., **Das, P.**, *et al.* (2023). Understanding Volume Estimation Uncertainty of Lakes and Wetlands Using Satellites and Citizen Science. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, *16*, 2386–2401. https://doi.org/10.1109/JSTARS.2023.3250354

12. Hossain, F., **Das, P.**, Srinivasan, M. *et al.* (2022). Building User-Readiness for Satellite Earth Observing Missions: The Case of the Surface Water and Ocean Topography (SWOT) Mission. *AGU Advances*, *3*(6). https://doi.org/10.1029/2022AV000680

13. Sattar, A., Goswami, A., Kulkarni, A. V., & **Das, P**. (2019). Glacier-Surface Velocity Derived Ice Volume and Retreat Assessment in the Dhauliganga Basin, Central Himalaya – A Remote Sensing and Modeling Based Approach. *Frontiers in Earth Science*, *7*, 105. https://doi.org/10.3389/feart.2019.00105

Journal Peer Review Activity

Geophysical Research Letters (1)   Scientific Reports (1)   Environmental Earth Sciences (1)

Journal of Open-Source Software (1)   Discover Applied Sciences (1)

Conference Presentations

1. H. Lee, F. Hossain, **Das, P.**, et al. Toward Integrative Flood and Drought Management Services for Lower Mekong (Invited). In *AGU Fall Meeting Abstracts*, 2024.

2. S. Minocha, F. Hossain, J. Zhao, S. Suresh and **Das, P**. Hidden Sediments, Lost Capacity: How Swiftly Are Global Reservoirs Depleting? In *AGU Fall Meeting Abstracts*, 2024.

3. **Das, P.**, N. Sobhani, T. Zhang, and N. Cherukuru. Interactive Visualization of the CESM-LENS2 Climate Dataset – Lessons Learned and Recommendations for Visualizing Gridded Datasets using Open Science Tools. In *104th Annual Meeting, American Meteorological Society, 2024.*

4. **Das, P.**, F. Hossain, and S. Minocha. Monitoring and predicting reservoir driven river regulation from space. In *AGU Fall Meeting Abstracts*, 2023.

5. Sobhani, N., **Das, P.**, Cherukuru, N. W., and Zhang T. Unlocking Climate Data Insights: A Comparative Study of Interactive Visualization Approaches. In *AGU Fall Meeting Abstracts*, 2023.

6. F. Hossain and **Das, P.**, Reservoir assessment tool 2.0: Stakeholder-driven improvements to satellite remote sensing-based monitoring of reservoirs. In *American Meteorological Society Annual Meeting – Roger Pielke Symposium*, 2023.

7. **Das, P.**, F. Hossain, S. Khan, N. K. Biswas, H. Lee, T. Piman, C. Meechaiya, U. Ghimire, and K. Hosen. Monitoring reservoir operations of the mekong river from space: A self-correcting multi-sensor approach. In *AWRA 2022 Annual Water Resources Conference*, 2022.

8. A. Goswami, **Das, P.**, and A. V. Kulkarni. Estimation of seasonal snow cover and the amount of melt contribution to major river basins of indian sub-continent and its impact on surface heat flux. In *NCHC (National Conference on Himalayan Cryosphere), IISc Bangalore*, 2017.

Magazine Articles

S. Minocha, **Das, P.** and F. Hossain., Reimagining dams as transit hubs: visualising global water networks with DamNet. In *International Water Power and Dam Construction*, 2024.

F. Hossain, **Das, P.**, et al. A satellite remote sensing perspective on water resources. In *International Water Power and Dam Construction*, 2023.

Das, P., F. Hossain, H. B. Helgason, and S. Khan. Satellites over the amazon capture the choking of the 'house of god' by the belo monte dam – they can help find solutions, too. In *The Conversation*, 2022.

Experience

Graduate Research Assistant at **University of Washington**, Seattle WA   **2025**

- Developed version 2.0 of the satellite remote sensing-based operational reservoir dynamics monitoring framework, Reservoir Assessment Tool (RAT), combining gridded hydrological, meteorological and runoff routing models and Google Earth Engine for tracking fluxes and storage change of reservoirs as an open-source tool. Trained end-users and technical users of the tool involving personnel from member countries of the Mekong River Commission (MRC) and the Asian Disaster Preparedness Center (ADPC).
- Developed and tested a globally scalable river regulation model, ResORR, for modeling the regulation effect of upstream reservoirs on downstream water availability.
- Collaborated extensively to package the RAT framework as a python package and its application. Communicated research through peer-reviewed and science magazine articles. *Full list of publications in the publications section.*

SIParCS Summer Intern at **National Center for Atmospheric Research**, Boulder CO   **2023**

- Developed interactive dashboard for visualizing global ensemble gridded predictions and compared two paradigms of building interactive dashboards.

Summer Intern at **Cairn Oil and Gas**, Gurugram India   **2019**

- Modeling response of a volcanic reservoir to tectonic stresses leading and related enhancement of permeability.

Teaching, Trainings and Workshops

Hacker at Project Pythia Cook-Off, **National Center for Atmospheric Research**, Boulder CO   **2023**

- Developed cookbook style guide on how to create interactive visualization of cloud hosted satellite imagery.

Hacker at UW Cloud ReproHack, **eScience Institute, University of Washington**, Seattle WA   **2022**

- Reproduced and scaled research work developed on local servers of UW to the AWS cloud platform.

Trainer at Satellite Observations and Tools for Reservoir Monitoring in relation to Enhancing Flood and Drought Management in the Mekong Region, Asian Disaster Preparedness Centre (ADPC), Bangkok Thailand   **2022**

- Trained delegates, primarily engineers and water resource managers, of member countries of the Mekong River Commission on the Reservoir Assessment Tool 2.0.

Trainer at 3rd SWOT Early Adopter Virtual Hackathon, **University of Washington**, Seattle WA   **2022**

- Trained early adopters of the Surface Water and Ocean Topography (SWOT) mission from ADPC and brainstormed on leveraging future SWOT observations to enhance existing ADPC projects.

Society Affiliations

- *Student Member* at American Geophysical Union (AGU)
- *Student Member* at American Water Resources Association (AWRA)

Skills & interests

- Programming Languages: Python, Bash, Google Earth Engine
- Software: ArcGIS, QGIS, Git, Figma, Linux, Dask, XArray, HoloViews
- Languages: English, Hindi, Bangla
- Interests: Photography, Hiking, Volunteering