ABHAY MASIWAL

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SUMMARY

Hydrologist and water resource engineer with experience in hydrodynamic modelling, remote sensing, and GIS. Looking for a role in applied research and data-driven water management solutions.

PROFESSIONAL EXPERIENCE

Research Scientist, IIRS-Indian Space Research Organisation (ISRO): Dehradun, India **Aug 2023 – Present**

- Working under Geo-Ganga Project for **National Mission for Clean Ganga (NMCG)**.
- **Flood Management** Modeling for the Ganga River (Kanpur to Varanasi): Set up a **hydrodynamic model** of the Ganga River stretch from Kanpur to Varanasi for flood simulation and analysis.
- **Water Quality** Parameter Estimation Using **ML-Based** Modelling: Developed machine learning models to estimate parameters such as Dissolved Oxygen (DO) and Turbidity from satellite-derived data.

Assistant Professor, Delhi, NCR: **July 2017 – May 2022**

- Worked in **ABES, Ghaziabad** and **Galgotias University, Greater Noida**.
- Taught **water resources engineering** courses and supervised laboratory sessions.
- Developed curriculum for hydraulic engineering and water management courses.
- Guided student projects on **rainfall runoff modelling** using the **SCS-CN** methodology.
- Researched **hydraulic jump** phenomena and bed slope effects.

TECHNICAL SKILLS

Hydrodynamic Modeling: HEC-RAS, HEC-HMS, MIKE+, SWAT, SWMM, ANSYS-Fluent
GIS and Remote Sensing: ArcGIS, QGIS, Google Earth Engine (GEE), SAR Analysis
Programming and Analysis: Python

EDUCATION

PG Diploma in RS & GIS (Water Resources), (IIRS-ISRO), Dehradun: **Aug 2022 – Jul 2023**

- SGPA: 9.07

M.Tech. in Hydraulic and Water Resources, Delhi Technological University (DTU), Delhi: **Aug 2015 – Jul 2017**

- CGPA: 8.95

B.Tech. in Civil Engineering, Kumaon Engineering College, Dwarahat: **Aug 2011 – Jul 2015**

- Percentage: 82.5%

KEY PROJECTS

Potential GLOF Modelling for High Risk Glacial Lake **2024**

Conducted under the directive of NDMA (National Disaster Management Authority).

- Part of the core team that conducted field visits to **Panikar Glacial Lake** and **Vasudhara Glacial Lake**.
- Performed **Dam Break Analysis** simulations for lake breaching scenarios.
- Featured in a media report: Times of India Article.

Habitat Hydrodynamic Modelling for E-flow Assessment **2023**

Ecological flow assessment for Mahanadi River using advanced hydrodynamic modelling techniques.

- Developed comprehensive HEC-RAS models for ecological flow determination.
- Integrated ArcGIS spatial analysis for habitat suitability assessment.

Flood Hazard Zonation Using Time Series Analysis **2023**

Advanced flood risk mapping for Chindwin river basin using satellite imagery and machine learning.

- Implemented SAR data analysis and Google Earth Engine for flood detection.
- Developed automated thresholding algorithms for flood boundary delineation.

PUBLICATIONS

Variability of Hydro-Meteorological Fluxes in North West Himalayan Basins for Hydrological and Sustainability Studies **2024**

Review of hydrological parameters using satellite and modelled outputs.

- Published in The International Archives of the Photogrammetry Remote Sensing and Spatial Information Sciences.
- DOI: http://dx.doi.org/10.5194/isprs-archives-XLVIII-3-2024-427-2024.
- Featured the variation of various hydrological parameters over the North-Western Himalayas.

Machine Learning Based Estimation of Water Quality Parameters Using Multisource Satellite Data **2025**

Water Quality parameter estimation using Machine Learing model

- Abstact accepted in conference of AIEO.
- https://ai4eo2025.irisa.fr/conference-posters/

Bathymetric Survey of Panikhar Glacial Lake, Kargil, Ladakh **2025**

Bathymetric survey of Panikhar Glacial lake, Kargil, Ladakh and its volume computation as of 2025

- The report will act as an internal report that was sent to NDMA, which will act as a repository for lake volume and other geometric characteristics
- IIRS/WRD/Report/USDMA/375/2025

Bathymetric Survey of Vasudhara Tal Glacial Lake, Chamoli, Uttarakhand **2025**

Bathymetric survey of Vasudhara Glacial Lake and its volume computation as of 2025

- The report will act as an internal report that was sent to NDMA, which will act as a repository for lake volume and other geometric characteristics
- IIRS/WRD/Report/USDMA/375/2025

ACHIEVEMENTS

- 1st Prize, IIRS Hackathon on Geospatial Research Problem: **Spatio-Temporal Mapping of Water Body**
- Winner, ESRI Story Map Contest 2024, Ganga: Story of Civilisation
- Gold Medallist in M.Tech. (Water Resources)
- GATE 2020 – AIR 1320 (Civil Engineering)

REFERENCES

- **Dr. Vaibhav Garg**, Scientist, IIRS-ISRO vaibhav@iirs.gov.in
- **Dr. Pankaj R Dhote**, Scientist, IIRS-ISRO pdh@iirs.gov.in