

Dr. Simir Biriha Atanaw

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PROFILE

Hydrologist with a PhD in Hydrology and Water Resources Management specialising in hydroclimatic extremes, climate change impacts, hydrological modelling, flood and drought risk assessment, and environmental modelling. Experienced in integrating physically based models (SWAT+, HEC-HMS), CMIP6 climate projections, GIS, remote sensing, and field observations to investigate catchment processes and support climate adaptation. Passionate about interdisciplinary research combining hydrology, climate science, and environmental modelling to improve resilience to climate extremes.

RESEARCH INTERESTS

- Hydroclimatic extremes
- Climate change impacts
- Hydrological modelling
- Flood and drought risk
- Environmental modelling
- Catchment hydrology
- Climate adaptation
- AI for hydrology
- Remote sensing

EDUCATION

PhD – Hydrology & Water Resources Management

Africa Centre of Excellence for Water Management Addis Ababa University | 2019–2025

Thesis: Modelling Spatial Patterns of Runoff-Generating Areas and Soil Erosion Using SWAT+

MSc Engineering Hydrology

Bahir Dar University | 2015–2017

BSc Water Resources & Irrigation Management

Wollega University | 2011–2014

RESEARCH EXPERIENCE

Assistant Professor at University of Gondar | 2025

- Conducted research in hydrological modelling, hydroclimate, and watershed processes.
- Established and managed an experimental watershed for long-term hydrological monitoring.
- Supervised MSc research in hydrological modelling and climate impact assessment.
- Developed collaborative research proposals and scientific publications.

Project Manager - SWAMP | 2024–2025

- Led multidisciplinary research on sustainable water resources management.
- Coordinated field observations, environmental datasets, and hydrological modelling.
- Collaborated with international partners from Germany and Ethiopia.
- Delivered research reports and stakeholder engagement activities.

Lecturer | University of Gondar | 2017–2025

- Conducted research in hydrology, climate change, and catchment management.
- Delivered training in SWAT+, GIS, R, and environmental modelling.

RESEARCH HIGHLIGHTS

- Established an experimental watershed for hydrological monitoring.
- Applied SWAT+ to assess runoff, erosion, sediment yield, and nutrient transport.
- Integrated CMIP6 climate projections into hydrological impact assessment.
- Published peer-reviewed papers on climate impacts and hydrological modelling.
- Led international water resources research projects.

PUBLICATIONS

1. Atanaw, S. B., Zimale, F. A., & Ayenew, T. (2024). *Assessment of erosion, sediment yield, and runoff generating areas in Dirima catchment, upper Blue Nile, Tana Basin, Ethiopia*. <https://doi.org/https://doi.org/10.1007/s40899-024-01167-3>.
2. Atanaw, S. B., Zimale, F. A., Ayenew, T., & Ayele, G. T. (2023). Modeling future hydrological responses through parameter optimization and climate change scenarios in Dirima Watershed, Ethiopia. *Modeling Earth Systems and Environment*, 10(1), 1117–1135. <https://doi.org/10.1007/s40808-023-01817-z>.
3. Atanaw, S. B., Aynalem, D. W., Adem, A. A., Mekuria, W., & Tilahun, S. A. (2019). Effects of soil and water conservation practices on runoff, soil and nutrient losses in Alekt Wenz Watershed, Ethiopian Highland. *Lecture Notes of the Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, LNICST*, 274, 170–182. https://doi.org/10.1007/978-3-030-15357-1_14.

TECHNICAL SKILLS

Hydrological Modelling: SWAT+, HEC-HMS

Climate Analysis: CMIP6, climate impact assessment

Programming: R, Python, and SPSS

GIS & Remote Sensing: ArcGIS, QGIS, and Google Earth Engine

Statistics: Time-series analysis, Calibration-Validation, and Uncertainty analysis

Field Hydrology: Hydrometry, Environmental monitoring, and Experimental watersheds

PROFESSIONAL MEMBERSHIP

- British Hydrological Society
- International Association of Hydrological Sciences
- International Water Resources Association

AWARDS & TRAINING

- Nature-Based Solutions for Climate Resilience (2025)
- Kiel University Research Stay (2022 & 2024)
- Project Management in Practice (2025)

ADDITIONAL INFORMATION

- Full right to work in the UK
- Willing to relocate internationally
- Available for fieldwork and international collaboration