Tadele Melese Lebeza

Lecturer and Researcher

Department of Natural Resource Management

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Education

- MSc, Soka University, Information Systems Science, 2025
- MSc, Mekelle University, GIS and Remote Sensing, 2017
- BSc, Wolaita Sodo University, Geography and Environmental Studies, 2010

Professional Experience

- Lecturer and Researcher, Dept. of Natural Resource Management, Bahir Dar University, Ethiopia, 03/2025Present.
- Graduate Research Assistant, Faculty of Science and Engineering, Soka University, Tokyo, Japan, 06/202303/2025.
- Lecturer and Researcher, Dept. of Natural Resource Management, Bahir Dar University, Ethiopia, 10/201906/2023.
- Lecturer and Researcher, Dept. of Geography, Dilla University, Ethiopia, 04/201810/2019.
- Teacher, Yeduha Secondary and Preparatory School, Ministry of Education, Ethiopia, 07/201001/2017.

Awards and Affiliations

- MEXT Scholarship, Awarded for academic excellence to pursue MSc in Information Systems Science, Soka University, Japan, 2023
- SATREPS EARTH Project Member, Contributed to environmental and agricultural research initiatives, Japan-Ethiopia collaboration, 2023Present

Research Metrics

- Total Publications: 15 (81% in Q1 journals)
- h-index: 7, i10-index: 7
- Research Interest Score: 389.8

Peer-Reviewed Publications

1. **Melese, T.**, & Belay, T. (2022). Groundwater potential zone mapping using analytical hierarchy process and GIS in Muga Watershed, Abay Basin, Ethiopia. *Global Challenges*, 6(1), 2100068. DOI (**Q1**)
2. **Melese, T.**, Senamaw, A., Belay, T., & Bayable, G. (2021). The spatiotemporal dynamics of land use land cover change, and its impact on soil erosion in Tagaw Watershed, Blue Nile Basin, Ethiopia. *Global Challenges*, 5(7), 2000109. DOI (**Q1**)
3. Belay, T., **Melese, T.**, & Senamaw, A. (2022). Impacts of land use and land cover change on ecosystem service values in the Afroalpine area of Guna Mountain, Northwest Ethiopia. *Heliyon*, 8(12). DOI (**Q1**)
4. **Melese, T.**, Belay, T., & Andemo, A. (2022). Application of analytical hierarchal process, frequency ratio, and Shannon entropy approaches for landslide susceptibility mapping using geospatial technology: The case of Dejen district, Ethiopia. *Arabian Journal of Geosciences*, 15(5), 424. DOI
5. Berhanu, A. A., Ayele, Z. B., Dagnew, D. C., **Melese, T.**, Fenta, A. B., & Kassie, K. E. (2024). Smallholder farmers' vulnerability to climate change and variability: Evidence from three agroecologies in the Upper Blue Nile, Ethiopia. *Heliyon*, 10(7). DOI (**Q1**)
6. **Lebeza, T. M.**, Gashaw, T., Bayabil, H. K., van Oel, P. R., Worqlul, A. W., Dile, Y. T., & Chukalla, A. D. (2024). Performance of specific CMIP6 GCMs for simulating the historical rainfall and temperature climatology of Lake Tana sub-basin, Ethiopia. *Scientific African*, 26, e02387. DOI (**Q1**)
7. **Lebeza, T. M.**, Gashaw, T., Tefera, G. W., & Mohammed, J. A. (2023). Trend analysis of hydro-climate variables in the Jemma sub-basin of Upper Blue Nile (Abbay) Basin, Ethiopia. *SN Applied Sciences*, 5(5), 129. DOI
8. Wubaye, G. B., Gashaw, T., Worqlul, A. W., Dile, Y. T., **Melese, T.**, Haileslassie, A., & Srinivasan, R. (2023). Trends in rainfall and temperature extremes in Ethiopia: Station and agro-ecological zone levels of analysis. *Atmosphere*, 14(3), 483. DOI (**Q1**)
9. Terefe, B., **Melese, T.**, Temesgen, F., Anagaw, A., Afework, A., & Mitikie, G. (2024). Comparative analysis of RUSLE and SWPT for sub-watershed conservation prioritization in the Ayu watershed, Abay basin, Ethiopia. *Heliyon*, 10(15). DOI (**Q1**)
10. Andemo, A., Getahun, K., Melese, A., & **Melese, T.** (2024). Application of geospatial technology for potential ecotourism site selection in Masha district, Southwest Ethiopia. *International Journal of Environmental Science and Technology*, 21(5), 50195034. DOI
11. Belay, T., & **Lebeza, T. M.** (2024). Livelihood vulnerability of rural households to climate variability and change: An agroecological system-based approach in Northwestern Ethiopia. *Heliyon*. DOI (**Q1**)
12. Belay, T., & **Lebeza, T. M.** (2024). Meteorological drought under historical and future climate scenarios in North Gojjam sub-basin, Abay River basin of Ethiopia. *PLOS ONE*. DOI (**Q1**)
13. **Lebeza, T. M.**, Gizache, A., Belay, T., & Terefe, B. (2024). Machine Learning-Driven Drought Prediction Using Palmer Drought Severity Index and TerraClimate Data over Ethiopia. *PLOS ONE*. DOI (**Q1**)
14. Bayable, G., Gebrie, G., **Melese, T.**, & Melaku, A. (2025). Land Use/Cover Classification Using Machine Learning Algorithms and Their Impacts on Land Surface Temperature and Soil Moisture in the Alawuha Watershed, Ethiopia. *Environmental and Sustainability Indicators*, 100797. DOI (**Q1**)

15. Bayable, G., & **Melese, T.** (2025). Assessment of long-term spatiotemporal variability of vegetation drought and its link with teleconnection factors in Ethiopia. *Natural Hazards Research*. DOI (**Q1**)

Manuscripts Under Review

1. **Lebeza, T. M.**, Bismark, A., & Hiroki, I. (2024). Enhanced detection of water hyacinth using PSPNet deep learning semantic segmentation. *Artificial Intelligence in Agriculture* (Under review).

Conference Abstracts

1. **Melese, T.** (2022). Trend analysis of hydro-climatic variables in the Jemma Sub-Basin, Upper Blue Nile Basin, Ethiopia. *Abbay Journal of Water and Environmental Sciences (AJWES)*, May 12, 2022.

Research Interests

- Remote sensing and geospatial analysis (LiDAR, satellite imagery) for environmental monitoring
- Climate change impacts on water resources, drought prediction, and hydrological modeling
- Application of machine learning and Bayesian methods to ecological and environmental data
- Land use/cover dynamics, tropical forest change, and ecosystem services
- Spatiotemporal modeling of vegetation-climate-hydrology interactions in vulnerable ecosystems

Software and Programming Skills

- **Geospatial Tools:** ArcGIS, QGIS, Google Earth Engine, ENVI, ERDAS Imagine, GeoAI
- **Programming:** Python, JavaScript, R, SQL
- **Deep Learning/Machine Learning:** PyTorch, TensorFlow/Keras, scikit-learn, OpenCV
- **Web Development:** JavaScript, CSS, HTML, Bootstrap, React
- **Others:** Git, Jupyter Notebook, Visual Studio Code

References

- **Dr. Haimanot Bayabil**, Associate Professor, University of Florida, USA Expertise: Precision Water & Nutrient Management, Hydrologic Modeling, Crop Simulation, Remote Sensing, Machine Learning
  Email: hbayabil@ufl.edu
- **Dr. Pieter van Oel**, Wageningen University, Netherlands
  Expertise: Socio-hydrology, Water Management, Drought
  Verified email: pieter.vanoel@wur.nl
- **Dr. Temesgen Gashaw Tarkegn**, Postdoctoral Researcher, Prairie View A&M University, Texas, USA
  Expertise: Hydrology, Climate, Geospatial Data Analysis, Drought, Sediment Studies
  Email: gtemesgen114@gmail.com
- **Dr. Anwar Assefa Adem,** Postdoctoral Researcher, Prairie View A & M University, Texas, USA
  Expertise: Hydrology and Water Resources Engineering, Geospatial Data Analysis, Remote Sensing & GIS Email: anwarasefa@gmail.co

Certificates and Academic Trainings

- Certificate of Attendance, NASA's Applied Remote Sensing Training (ARSET) Program on Invasive Species Monitoring with Remote Sensing, August–September 2024
- Certificate of Developer, Responsive Web Design, FreeCodeCamp, 300 hours
- Certificate of Attendance, End-to-End Google Earth Engine, Spatial Thoughts Centre, July 29–August 16, 2024

Journal Peer Reviewer

- *Journal of Hydrology*
- *Journal of Science and Engineering*