MERHAWI GEBREEGZIABHER GEBREMICHAEL

Assistant Professor of Hydrogeology
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EDUCATION

2020	Ph.D. in Civil Engineering, *Washington State University*, Department of Civil and Environmental Engineering
2012	M.Sc. in Hydrogeology with Great Distinction, *Addis Ababa University,* Department of Earth Sciences
2008	B.Sc. in Earth Sciences with Great Distinction, *Addis Ababa University,* Department of Earth Sciences

EMPLOYMENT

2026-Present	Assistant Professor, Department of Geoscience, Auburn University, AL, USA
2021-2025	Postdoctoral scholar, University of California, Santa Barbara, CA, USA
2020-2021	Staff Research Associate, University of California, Santa Barbara, CA, USA
2015-2020	Graduate Research Assistant and Preceptor I, Washington State University, Richland, WA, USA
2012-2015	Lecturer, Addis Ababa University, Addis Ababa, Ethiopia
2009-2012	Assistant Lecturer, Addis Ababa University, Addis Ababa, Ethiopia
2008-2009	Graduate Assistant, Addis Ababa University, Addis Ababa, Ethiopia

PEER-REVIEWED PUBLICATIONS

7 Thaw, M., **GebreEgziabher, M.**, Villafañe-Pagán, J. Y., & Jasechko, S. (2022). Modern groundwater reaches deeper depths in heavily pumped aquifer systems. Nature Communications, 13, 5263. Modern groundwater reaches deeper depths in heavily pumped aquifer systems | Nature Communications

6 **GebreEgziabher, M.,** Jasechko, S. & Perrone, D. (2022). Widespread and increased drilling of wells into fossil aquifers in the USA. Nature Communications 13, 2129. Widespread and increased drilling of wells into fossil aquifers in the USA | Nature Communications

5 **GebreEgziabher, M.,** & Demissie, Y. (2020). Modeling Urban Flood Inundation and Recession Impacted by Manholes. Water, 12, 1160. Modeling Urban Flood Inundation and Recession Impacted by Manholes *(Selected as Editor's Choice Article)*

4 Ayenew, T., & **GebreEgziabher, M.** (2015). Morphometric Characteristics and Hydrology of Selected Ethiopian Rift Lakes. World Geomorphological Landscapes. General Introduction to the Geomorphology of Ethiopia Eighth Volume. Paolo Billi. Netherlands: Springer. 2015. 275-287. Morphometric Characteristics and Hydrology of Selected Ethiopian Rift Lakes | SpringerLink

3 **GebreEgziabher, M.**, Ayenew, T., & Kebede, S. (2013). Understanding the Hydrogeology of Raya Valley Basin, Northern Ethiopia Using Stable Isotopes of Water. In Isotopes in Hydrology, Marine Ecosystems and Climate Change Studies, Vol. 2. Proceedings of the International Symposium. International Atomic Energy Agency (IAEA): IAEA. Isotopes in Hydrology, Marine Ecosystems and Climate Change Studies

2 Ayenew, T., **GebreEgziabher, M.,** Kebede, S., & Mamo, S. (2013). Integrated assessment of hydrogeology and water quality for groundwater-based irrigation development in the Raya Valley, northern Ethiopia. Water International, 38(4), 480–492. Integrated assessment of hydrogeology and water quality for groundwater-based irrigation development in the Raya Valley, northern Ethiopia

1 **GebreEgziabher, M.,** Ayenew, T., Kebede, S., & Mamo, S. (2012). Integrated hydrogeological study of the groundwater flow dynamics in Raya valley basin, northern Ethiopia. Proceedings of the 2nd national workshop on challenges and opportunities of water resources management in Tana Basin, Upper Blue Nile Basin, Ethiopia, 5-19.

DISSERTATION, THESIS OR TECHNICAL REPORTS

4 **Merhawi GebreEgziabher** (2020). Novel Approaches to Simulate Flood Inundation from Manholes and Watersheds. Ph.D. thesis, Washington State University, Washington, USA. pp. 136.

3 Seifu Kebede, Tigistu Haile, Tilahun Azagegn and **Merhawi GebreEgziabher** (2012). Groundwater resources investigation of West Ziway embayment, Main Ethiopian Rift Valley. pp. 70.

2 **Merhawi GebreEgziabher** (2012). An integrated hydrogeological study to understand the groundwater flow dynamics in Raya Valley basin, Northern Ethiopia: Hydrogeochemical, Isotope Hydrology and Flow modeling approaches. M.Sc. thesis, Addis Ababa University, Addis Ababa, Ethiopia. pp. 165.

1 Tenalem Ayenew, Sileshi Mamo, Elias Ali, Abdela Abdu, **Merhawi GebreEgziabher** & Afework D. (2011). Hydrogeological & groundwater potential evaluation, water quality assessment and socio-economic surveying for small-scale irrigation development in the Raya-Kobo Valleys, Northern Ethiopia. pp. 279.

SELECTED PAPER PRESENTED

GebreEgziabher, M., Jasechko, S., & Perrone, D. (2023). Access and suitability of fossil aquifers in the United States. Presentation at the 2023 CUAHSI Biennial Colloquium. June 11-14, 2023, in Tahoe City, CA.

GebreEgziabher, M., Jasechko, S., & Perrone, D. (2022). Fossil groundwater prevalence and access analyzed via the new US Aquifer Database. Presentation at American Geophysical Union 2022 Fall Meeting.

GebreEgziabher, M., Jasechko, S., Munyai, B., Perrone, D., Sauramba, J. (2021). Observation based continental-scale groundwater study in Africa: Drilling trends, water level fluctuations, and depletion. SADC 4th Groundwater Conference Theme: Towards a Water Resilient SADC—Groundwater Systems Thinking.

Demissie, Y. & **GebreEgziabher, M.** (2020). Estimation of Grid-based Design Floods for Stormwater Applications. Presentation at American Geophysical Union 2020 Fall Meeting.

GebreEgziabher, M., Chen. X, Demissie, Y., & Fang, Y. (2019). Hydrogeochemical characterization of Priest Rapid Watershed, Upper Columbia River Basin with implication of nitrate contamination. Presentation at American Geophysical Union 2018 Fall Meeting.

GebreEgziabher, M., & Demissie, Y. (2018). Urban Storm Water Management and Flooding under Extreme Precipitation Events in Seattle. Presentation at American Geophysical Union 2018 Fall Meeting.

GebreEgziabher, M., Shiferaw D., & Abebe A. (2015). The National Isotope hydrology laboratory and its impact on water research in Ethiopia. Presentation at International Symposium on Isotope Hydrology: Revisiting Foundations and Exploring Frontiers.

GebreEgziabher, M. & Jasechko, S. (2015). The oxygen and hydrogen isotopic composition of Ugandan Water. Presentation at International Symposium on Isotope Hydrology: Revisiting Foundations and Exploring Frontiers.

GebreEgziabher, M., Kebede S., & Ayenew, T. (2014). Groundwater quality and groundwater quality management practices in Central and Main Ethiopian Rift Valley, Ethiopia. Presentation at American Geophysical Union 2013 Science and Policy Conference.

GebreEgziabher, M., & Jasechko, S. (2013). Hydrochemistry and $^{18}O/^{16}O$ and $^{2}H/^{1}H$ Ratios of Ugandan Waters. Presentation at American Geophysical Union 2013 Fall Meeting.

GebreEgziabher, M., Ayenew, T., Kebede., et al. (2013). The application of environmental isotopes to understand the groundwater flow dynamics in Raya Valley Basin, Northern Ethiopia Presentation at 24th Colloquium of African Geology.

GebreEgziabher, M., Ayenew, T., & Kebede. (2011). Applications of $\delta^{2}H$ and $\delta^{18}O$ to understand the groundwater system in the Raya valley, Northern Ethiopia. Presentation at Monaco, Principality of Monaco.

GebreEgziabher, M., Ayenew, T., & Kebede. (2012). An integrated hydrogeological study to understand the groundwater flow dynamics in Raya Valley basin, Northern Ethiopia Presentation at Bahir Dar University, Bahir Dar, Ethiopia.

GebreEgziabher, M., Ayenew, T., and Kebede. (2012). Applications of $\delta^{2}H$ and $\delta^{18}O$ to understand the groundwater system in the Raya valley, Northern Ethiopia. Presentation at 9th International Symposium on Applied Isotope Geochemistry and at Hydrogeology of Arid Environments.

PROFESSIONAL ACTIVITIES

June 2022	Certificate of Recognition. Organized by The Nature Conservancy, California, USA.
Fall-2014/15	Certificate of Appreciation to Participate in Volunteer Tutorial Program. Organized by the Gender Office of the College of Natural Sciences, Addis Ababa University, Ethiopia.
May 2014	A Short Course in Contaminant Hydrogeology. Organized by the Czech Republic Development Cooperation, Czech Geological Survey and Aquatest, held in Addis Ababa, Ethiopia.
Nov. 2012	Isotope Hydrology Courses. Organized by the Ethiopian Water Technology Center, Ministry of Water and Energy, and Japan International Cooperation Agency, held in Addis Ababa, Ethiopia.
Apr. 2012	A Short Course on Groundwater Management in IWRM. Organized by Cap-Net, UNDP, World Bank, Africa Groundwater Network, International Association of Hydrogeology, Zambia University and Water and Sanitation Association of Zambia, held in Lusaka, Zambia.
Sep. 2011	Groundwater Modeling Courses. Organized by the Ethiopian Water Technology Center, Ministry of Water and Energy, and Japan International Cooperation Agency, held in Addis Ababa, Ethiopia.
Aug. 2010	Groundwater Management Course. Organized by African Groundwater Network, Nile IWRM-Net, Addis Ababa University, Cap-Net, and BGR, held in Addis Ababa, Ethiopia.
Feb. 2010	Measurement of Stable Isotopes of Water by Laser Spectroscopy. Organized by the UN-International Atomic Energy Agency (IAEA) at the IAEA Headquarters in Vienna, Austria.
Nov. 2010	Regional Training Course on Basic Isotope Hydrology. Organized by the International Atomic Energy Agency and Addis Ababa University, held in Addis Ababa, Ethiopia.
May. 2009	Regional (AFRA) Training Course on Isotope Hydrology and Integrated Water Resources

Management. Organized by the International Atomic Energy Agency and Addis Ababa University, held in Addis Ababa, Ethiopia.

AWARDS

1. MDPI-Water journal published-article is selected as an "Editor's Choice Article of Water journal", June, 2022.
2. University of California Santa Barbara Open Access Publishing fund for an article processing fee, April, 2022, Santa Barbara, California, U.S.A. ($5970).
3. Washington State University, the Office of International Program, Emergency Tuition Support Award, Spring 2020, Pullman, Washington, U.S.A. ($1500).
4. On To the Future (OTF) travel grants to attend the Geological Society of America, GSA-2020, Annual Meeting, Mar 20 – 22, 2020, Reston, Virginia, U.S.A. (This meeting has been canceled due to COVID-19).
5. A student travel grant to attend the Geological Society of America, GSA-2019, Annual Meeting, Sep 22 – 25, 2019, Phoenix, Arizona, U.S.A. (~$500).
6. A partial travel grant to attend Short Course: Beyond Groundwater Modeling - Integrated Simulation of Watershed Systems Using ParFlow, May 29 – 31, 2019, Colorado School of Mines in Golden, CO, U.S.A.
7. Andy Studebaker travel grant to attend the 2018 American Geophysical Union, 10-14 December 2018, Washington DC, U.S.A. (US $400).
8. A travel grant to attend the International Symposium on Isotope Hydrology: Revisiting Foundations and Exploring Frontiers, 11– 15 May 2015, Vienna, Austria (US $1600).
9. A Berkner Fellowship awardee (awarded for outstanding early career scientists and students) to attend the 2014 AGU Science Policy Conference in Washington DC, U.S.A.
10. A Berkner Fellowship (awarded for outstanding early career scientists and students) to attend the 2013 AGU Fall Meeting in San Francisco, California, U.S.A.
11. Best presenter on the applications of Isotopes in Groundwater studies during the training course on Isotope Hydrology. Awarded book entitled "Tracers in Hydrology " by Prof. Piot Maloszewski in 2012.
12. Awarded a grant to participate in a Symposium on Isotopes in Hydrology, Marine Ecosystems, and Climate Change Studies, which was held in Monaco in 2011 (US $2100).

MEMBERSHIPS

- Ethiopian Association of Hydrogeologists (***EAH***)
- Ethiopian Geological, Mineral & Engineering Association (***EGMEA***)
- Africa Groundwater Network *(**AGW-NET***)
- Geological Society of America (***GSA***)
- American Geophysical Union (***AGU***)
- International Association of Hydrogeologists (***IAH***)
- International Association of Applied Geochemistry (***IAAG***)

SKILLS

- ***Data Analysis***: R programming, ArcGIS, Global Mapper, MATLAB, Excel and Python.
- ***Hydrological modeling***: Storm Water Management Model (SWMM); Better Assessment Science Integrating Point and Nonpoint Sources (BASINS); Processing Modflow for Windows (PMWIN); Hydrological Modeling System (HEC-HMS); Soil & Water Assessment Tool (SWAT); Aquachem; and Parallel, integrated hydrological model (ParFlow).

INTERNSHIP

- PhD Intern Summer 2019 at the Pacific Northwest National Laboratory, Richland, Washington, USA.

JOURNAL OR PROPOSAL REVIEWED

- Peer-review journal reviewing (total of n=24 peer-reviewed articles reviewed): Communications Earth & Environment (Nature Portfolio) (**1** occasion), Isotopes in Environmental and Health Studies (**1** occasion); Hydrological Sciences Journal (**1** occasion); Water (**5** occasions); Marine Science and Engineering (**1** occasion); Sustainability (**5** occasions); Applied Sciences (**3** occasions); Hydrology (**3** occasions); land (**2** occasions); Hydrogeology Journal (**2** occasions); International Journal of Environmental Research and Public Health (**1** occasion).
- Proposal reviewed: National Science Foundation's Hydrologic Sciences Program (**2** occasions).

SERVICE

- Served as a Judge for the American Geophysical Union, Outstanding Student Presentation Awards (OSPA) program, AGU Fall Meeting December 12 – 16, 2022.

MENTORSHIP

- 2020-present: Trevor Maggart, Andre Dextre, Paige Lund, Luna Herschenfeld-Catalan and Jobel Villafane-Pagan:
    - Trevor Maggart is working on transcribing hundreds of thousands of well-log data to identify regions of water-bearing zones.
    - Andre Dextre worked on digitizing aquifer boundaries across the world and transcription of borehole lithological data from compiled scanned softcopies.
    - Paige Lund worked on the aquifer boundary map and lines of profile section in geographic information system software. Paige and I met with Prof. Jasechko frequently to review this work and identify new hydrogeologic cross-sections to map.
    - Luna Herschenfeld-Catalan worked on an aquifer boundary map and lines of profile section in geographic information system software. I met with Luna and reviewed her work during the project.
    - Jobel Villafane-Pagan digitized and georeferenced maps depicting the locations of hydrogeologic cross-sections. I mentored Jobel by meeting with him frequently reviewing his work, and showing him how to use ArcGIS software.
- Pre-2020: I mentored more than 30 undergraduate students and three Masters graduate students at Addis Ababa University, Ethiopia.

GOOGLE SCHOLAR: (HTTPS://SCHOLAR.GOOGLE.COM/CITATIONS?USER=B87JICYAAAAJ&HL=EN)

Google Scholar

Merhawi GebreEgziabher

Other names

University of California Santa Barbara
Verified email at ucsb.edu - Homepage
Groundwater Hydrogeology Hydrology

FOLLOWING

TITLE	CITED BY	YEAR
Integrated assessment of hydrogeology and water quality for groundwater-based irrigation development in the Raya Valley, northern Ethiopia T Ayenew, M GebreEgziabher, S Kebede, S Mamo Water international 38 (4), 480-492	66	2013
Modern groundwater reaches deeper depths in heavily pumped aquifer systems M Thaw, M GebreEgziabher, JY Villafañe-Pagán, S Jasechko Nature Communications 13 (1), 5263	56	2022
Modeling urban flood inundation and recession impacted by manholes M GebreEgziabher, Y Demissie Water 12 (4), 1160	47	2020
Widespread and increased drilling of wells into fossil aquifers in the USA M GebreEgziabher, S Jasechko, D Perrone Nature communications 13 (1), 2129	38	2022
Morphometric characteristics and hydrology of selected Ethiopian Rift lakes T Ayenew, M GebreEgziabher Landscapes and landforms of Ethiopia, 275-287	12	2015

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Citations	230	181
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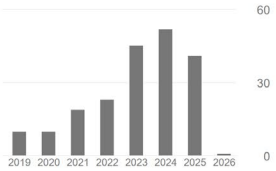

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Based on funding mandates

US AQUIFER DATABASE (HTTPS://WWW.HYDROSHARE.ORG/RESOURCE/D2260651B51044D0B5CB2D293D21AF08/)

United States Aquifer Database

Open with...

Authors: Merhawi GebreEgziabher | Scott Jasechko | Debra Perrone
Owners: Scott Jasechko
Type: Resource
Storage: The size of this resource is 3.7 MB
Created: Feb 24, 2022 at 6:06 p.m.
Last updated: Apr 19, 2022 at 4:20 p.m. Scott Jasechko
Citation: See how to cite this resource
Content types: Geographic Feature Content

Sharing Status: Public
Views: 2119
Downloads: 118
+1 Votes: 1 other +1 this +1
Comments: No comments (yet)

Abstract

Here we present a geospatial dataset representing local- and regional-scale aquifer system boundaries, defined on the basis of an extensive literature review and published in GebreEgziabher et al. (2022). Nature Communications, 13, 2129, https://www.nature.com/articles/s41467-022-29678-7

The database contains 440 polygons, each representing one study area analyzed in GebreEgziabher et al. (2022). The attribute table associated with the shapefile has two fields (column headings): (1) aquifer system title (Ocala Uplift sub-area of the broader Floridan Aquifer System), and (2) broader aquifer system title (e.g., the Floridan Aquifer System).

- to explore the available data via an interactive app please visit the following URL: https://ucsb.maps.arcgis.com/apps/instant/nearby/index.html?appid=2a238e4ed2434d21b3b53c861a064d8f
- to explore the 3D nature of a dozen aquifer systems please see the following storymap: https://storymaps.arcgis.com/stories/a91f061759e64e44af38daf6cefa4259

Subject Keywords

USA | groundwater | boundaries | hydrogeological | United States | hydrogeologic | aquifers | hydrogeology | aquifer | ground water | shapefile | aquifer systems