MOHAMMAD HAGHIRI

Research Assistant at University of Illinois Chicago, Department of Earth and Environmental Sciences

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EDUCATION

University of Illinois Chicago Chicago, IL, USA
Ph.D. Candidate – Department of Earth and Environmental Sciences August 2023 – Present
Research Subject: Predicting groundwater (from 0CE to 2300CE) resources and assessing the impact of climate variables using the Water Table Model (WTM) ; **GPA: 4.00**
Advisor: Kerry Callaghan

University of Tehran Tehran, Iran
M.Sc. Hydrogeology – Department of Geology September 2020 – May 2022
Research Subject: Hydrochemical and isotopic analysis of karst aquifers; **GPA: 3.47**
Advisor: Morteza Mozafari

Kharazmi University Tehran, Iran
B.Sc. Geology – Department of Geology September 2016 – August 2020
Research Subject: Remote Sensing and Field Visit for Runoff Harvesting; **GPA: 3.40**
Advisor: M.R. Asef

PUBLICATIONS

Haghiri, M., Callaghan, K. *Mega-Accelerate Groundwater Depletion across North America (1500–2020)* (Submitting to Nature Journal).

Haghiri, M., Meysami, S., Asef, M.R. *The Present and Future of North American Rainwater Harvesting.*(Under review at Hydrological Science Journal).

Haghiri, M., Callaghan, K., Creel, R., Austermann, J., Wickert, A.D. *300-Year Transient Simulation of Water Table Dynamics across North America from 1800 to 2100 CE.* (Accepted at AGU Conference, 2025).

Haghiri, M., et al. *Comparative Assessment of Hydraulic Conductivity Estimation Techniques in Alluvial Aquifers.* Environ Earth Sci 89, 216 (2025). https://doi.org/10.1007/s12665-025-12650-1

Haghiri, M., Callaghan, K. *Simulation of seasonal water table dynamics across North America using the Water Table Model (WTM).* (Accepted at CSDMS Conference, 2025).

Haghiri, M., Callaghan, K., Wickert, A.D., Austermann, J., Creel, R. *Using the Water Table Model (WTM) to predict Climate-Induced Changes in North American Water Table Levels from 2020 to 2100.* (Accepted at AGU Conference, 2024).

Haghiri, M., Mozafari, M. *Characterization of karst aquifers of the Hashtgerd Basin.* Hydrogeol J (2025). https://doi.org/10.1007/s10040-025-02885-4

Haghiri, M., Asef, M.R. *Remote sensing and field visit for small scale runoff harvesting for agricultural water consumption management.* Environ Earth Sci 83, 416 (2024). https://doi.org/10.1007/s12665-024-11734-8

Haghiri, M., Raeisi, N., Azizi, R., et al. (2024). *Evaluation of karst aquifer development and karst water resource potential using FAHP and AHP.* Carbonates Evaporites 39, 11 (2024). https://doi.org/10.1007/s13146-024-00925-w

PRESENTATION AND SEMINAR

- **Invited Seminar**, *Water Resources Mission Area*, U.S. Geological Survey (USGS). *Impacts of Climate Change on Groundwater Resources Across North America*. January 2026.
- **Poster Presentation**. *American Geophysical Union (AGU). 300-Year Transient Simulation of Water Table Dynamics across North America from 1800 to 2100 CE*. December 2025. (Poster Link)
- **Poster Presentation**. *Community Surface Dynamics Modeling System (CSDMS). Simulation of Seasonal Water Table Dynamics Across North America Using the Water Table Model (WTM)*. May 2025. (Poster Link)
- **Poster Presentation**. *American Geophysical Union (AGU). Using the Water Table Model (WTM) to Predict Climate-Induced Changes in North American Water Table Levels from 2020 to 2100*. December 2024.(Poster Link)

RESEARCH INTERESTS

Hydrogeology; Climate Change; Water Table; Landscape Analysis and Evolution; Groundwater; GIS; Rainwater Harvesting.

ACADEMIC AND WORK EXPERIENCE

Researcher, Earth and Environmental Science Lab, University of Illinois Chicago 2024–Present
I am working with water table model to model the large-scale groundwater.

GIS Specialist, Zamin Kavosh Oxin Consultant Engineering Company 2023
I used GIS to assess land potential and perform site suitability analysis for environmental and water resource projects.

Senior Hydrology & Hydrogeology, Toossab Consultant Engineering Company 2022–2023
I worked in the field of data monitoring and quantitative and qualitative analysis. I also use GMS (MODFLOW) to simulate and analyze groundwater flow and conditions within the study area.

Hydrogeologist, Barsad Shide Company 2021–2022
I work on identifying potential sites for rainwater harvesting using software such as ArcGIS, Global Mapper, AutoCAD, and Surfer to analyze and evaluate suitable locations.

Geologist, Toossab Consultant Engineering Company 2020–2021
I have conducted rock sampling, created geological maps, analyzed zonal geologic structures, and written geological reports.

EDITORIAL AND REVIEW

Peer Reviewer: Journal of Scientific Reports;Journal of Water Resources Management; Journal of Applied Water Science; Journal of Water Resources Planning and Management;Journal of Infrastructure, Policy, and Development.
Editorial Board: Global Journal of Earth Science and Engineering.

FUNDING, ACHIEVEMENTS AND AWARDS

Community Surface Dynamics Modeling System (CSDMS) Best Research Award 2025
Community Surface Dynamics Modeling System (CSDMS) Conference Grant 2025
University of Illinois Chicago, Department of Earth Sciences 2023–2028

CERTIFICATES AND SOFTWARE

- GMS-MODFLOW
- FEFLOW
- AqQA
- HydroChem
- AQTESOLV
- ANSDIMAT (AnsTest)
- Res2DInv
- Res3DInv
- Python
- R
- SQL
- IBM SPSS
- Access
- ArcGIS
- ArcGIS Pro
- QGIS
- GRASS GIS
- Surfer
- Global-Mapper
- AutoCAD
- OriginLab