

Alan Ernest Fryar
Summary CV
July 2023

Business address

Department of Earth and Environmental Sciences
University of Kentucky
101 Slone Building
Lexington, KY 40506-0053 USA
E-mail: alan.fryar@uky.edu
Web: <http://ees.as.uky.edu/users/afryar1>

Education

PhD Geology, University of Alberta (Canada), Nov. 1992 (advisors F.W. Schwartz and J. Tóth)
MS Geology, Texas A&M University, Aug. 1986 (advisor P.A. Domenico)
BS *cum laude*, Geology and History, Duke University, Sep. 1984

Employment History

- Department of Earth and Environmental Sciences (formerly Geological Sciences), University of Kentucky (Professor, 2019–; Associate Professor, 2001–2019; Assistant Professor, 1995–2001)
- Department of Forestry and Geology, University of the South, Sewanee, Tennessee (Visiting Associate Professor 2006–2007)
- Kentucky Water Resources Research Institute, University of Kentucky (half-time staff, 1995–1999)
- Research Associate, Bureau of Economic Geology, The University of Texas at Austin (1992–1995)

Professional Recognition

- Fulbright-Kalam Climate Fellow, India, Jan.–May 2023
- Sigma Xi (Scientific Research Honor Society), 2021
- George Burke Maxey Distinguished Service Award, Hydrogeology Division, Geological Society of America, 2019
- Fulbright Specialist, Environmental Science: Pakistan, Dec. 2009–Jan. 2010; India, Feb.–Mar. 2017
- International Service Award, U.S. National Chapter, International Association of Hydrogeologists, 2016
- Fulbright Scholar, Geology, Morocco, Jan.–May 2014
- Fellow, Geological Society of America, 2006

Papers—Last 3 Years (* = current/former student; † = Fryar corresponding author)

Fryar, A.E., *Currens, B.J., *Alvarez Villa, C.S. 2023. Hydrochemical delineation of spring recharge in an urbanized karst basin, central Kentucky: *Environmental & Engineering Geoscience*, 14 p., <https://doi.org/10.2113/EEG-D-22-00066>.

*Dapkus, R.T., †Fryar, A.E., Tobin, B.W., Byrne, D.M., Sarker, S.K., Bettel, L., Fox, J.F., 2023. Utilization of tryptophan-like fluorescence as a proxy for *E. coli* contamination in a mixed-land-use karst basin: *Hydrology* 10: 74.

*Sarker, S.K., Zhu, J., †Fryar, A.E., Jeelani, G. 2023. Hydrological functioning and water availability in a Himalayan karst basin under climate change: *Sustainability* 15: 8666.

Al-Mohammadawi, J.A., Al-Abadi, A.M., Al-Ali, A.K., Shahid, S., Fryar, A., Wang, X., 2022. Assessing the spatial and temporal variations of terrestrial water storage of Iraq using GRACE satellite data and reliability-resiliency-vulnerability indicators. *Arabian Journal of Geosciences* 15: 342.

- *Avery, E., Samonina, O., Kryshchuk, L., Vyshenska, I., Fryar, A.E., Erhardt, A.M., 2022, Use of isotopes in examining precipitation patterns in north-central Ukraine. *Isotopes in Environmental and Health Studies* 58: 380–401.
- *Avery, E., Samonina, O., Vyshenska, I., Fryar, A.E., Erhardt, A.M., 2022, Variation of tap-water isotope ratios and municipal water sources across Kyiv city, Ukraine. *Discover Water* 2: 13.
- Bagheri, D., Taheri Tizro, A., Okhravi, S., Fryar, A., Kazakis, N., Voudouris, K., 2022. Delineation of groundwater potential areas using RS/GIS method and its comparison with resistivity surveys: A case study in western part of Iran. *Arabian Journal of Geosciences* 15: 1633.
- Chakraborty, M., *Mukherjee, A., Ahmed, K.M., Fryar, A.E., Bhattacharya, A., Zahid, A., Das, R., Chattopadhyay, S., 2022. Influence of lithology-controlled hydrostratigraphy on three-dimensional distribution of groundwater arsenic in the transboundary Ganges River aquifer, India and Bangladesh. *Geological Society of America Bulletin* 134: 2680–2692.
- *Sarker, S., †Fryar, A.E., 2022. Characterizing hydrological functioning of three large karst springs in the Salem Plateau, Missouri, USA. *Hydrology* 9: 96.
- Zarinmehr, H., Taheri Tizro, A., Fryar, A.E., Pour, M.K., Fasihi, R., 2022. Prediction of groundwater level variations based on gravity recovery and climate experiment (GRACE) satellite data and a time-series analysis: a case study in the Lake Urmia basin, Iran. *Environmental Earth Sciences* 81: 180.
- Al-Abadi, A., Fryar, A.E., Rasheed, A.A., Pradhan, B., 2021. Assessment of groundwater potential in terms of the availability and quality of the resource: a case study from Iraq. *Environmental Earth Sciences* 80: 426.
- Al-Mayahi, H.M., Al-Abadi, A., Fryar, A.E., 2021. Probability mapping of groundwater contamination by hydrocarbon from the deep oil reservoirs using GIS-based machine-learning algorithms: a case study of the Dammam aquifer (middle of Iraq). *Environmental Science and Pollution Research* 28: 13736–13751.
- Al-Ozeer, A.Z., Al-Abadi, A.M., Hussain, T.A., Fryar, A., Pradhan, B., Maulud, K.M.A., Alamri, A., 2021. Modeling of groundwater potential using cloud computing platform: a case study from Nineveh Plain, northern Iraq. *Water* 13: 3330
- Cao, L., Liu, S., Wang, S., Cheng, Q., Fryar, A.E., Zhang, Z., Zhang, L., Yue, F., Peng, T., 2021. Factors controlling discharge-suspended sediment hysteresis in karst basins, southwest China: implications for sediment management. *Journal of Hydrology* 594: 125792.
- †Fryar, A.E., Schreiber, M.E., Pholkern, K., Srisuk, K., Ziegler, B.A., 2021. Variability in groundwater flow and chemistry in the Mekong River alluvial aquifer (Thailand): implications for arsenic and manganese occurrence. *Environmental Earth Sciences* 80: 225.
- Nosair, A.M., Shams, M.Y., AbouElmagd, L.M., Hassanien, A.E., †Fryar, A.E., Abu Salem, H.S., 2021. Predictive model for progressive salinization in a coastal aquifer using artificial intelligence and hydrogeochemical techniques: A case study of the Nile Delta aquifer, Egypt. *Environmental Science and Pollution Research* 29: 9318–9340.
- Taheri Tizro, A., Fryar, A.E., Vanaei, A., Kazakis, N., Voudouris, K., Mohammadi, P., 2021. Estimation of total dissolved solids in Zayandehrood River using intelligent models and PCA analysis. *Sustainable Water Resources Management* 7: 22.
- *Tripathi, G.N., †Fryar, A.E., Hampson, S.K., *Mukherjee, A., 2021. Seasonal to decadal variability in focused groundwater and contaminant discharge along a channelized stream. *Groundwater Monitoring & Remediation* 41: 32–45.

Research, Training, and Instrumentation Grants—Last 3 Years

IRES Track I: A multi-faceted approach for understanding hydrologic controls on transmission losses in dryland environments (A.M. Milewski [University of Georgia] and A.E. Fryar, PIs; R. El Kadiri

[Middle Tennessee State University], C. Garing [University of Georgia], and C.D. Hanley, co-PIs): National Science Foundation, \$299,908 (UK share \$90,952), Sep. 2020–Aug. 2024.

Kentucky Research Consortium for Energy and Environment, budget period 7, allocation revisions (A.E. Fryar, PI; R. Andrews, co-PI): U.S. Department of Energy, \$36,018, Oct. 2022–Sep. 2023.

Identifying recharge signals in spring flow on the Shillong Plateau, Meghalaya (India) (A.E. Fryar, PI [direct award]): U.S.-India Educational Foundation, \$16,130, Jan.–May 2023.

Early detection and quantitative risk assessment of microbial contamination in karst basins (A.E. Fryar, PI; R.T. Dapkus and D.M. Byrne, co-PIs): Kentucky Water Resources Research Institute, \$10,001, Sep. 2021–Aug. 2022.

Courses Taught (University of Kentucky)

A&S 100/UK 100 (Pathways and Barriers to Environmental Sustainability)

A&S 100/UK 100 (A World of Rivers)

A&S 101/BIO 199 (Tracking Contaminants in the Central Kentucky Water Supply)

ENS 300/EES 480 (World/Global Water Issues)

GLY 110/242 (Endangered Planet: An Introduction to Environmental Geology)

GLY/EES 385 (Hydrology and Water Resources)/GLY 480 (Environmental Geohydrology)

GLY 470 (Senior Seminar: Recent Advances in Geological Sciences)

GLY/EES 570 (Seminar in Geological Sciences: Current Topics in Geology)

GLY 570 (Seminar in Geological Sciences: Professional Practice in Earth Sciences)

GLY/EES 585 (Hydrogeology)

GLY 610 (Topics in Hydrogeology and Surficial Processes: Environmental Characterization and Restoration at U.S. Department of Energy Facilities)

GLY 610 (Topics in Hydrogeology and Surficial Processes: Contaminant Hydrogeology) and GLY 787 (Research in Hydrogeology and Low-Temperature Geochemistry: Contaminant Hydrogeology)

GLY 750 (Sedimentology/Stratigraphy Seminar: Stratigraphic and Structural Controls on Ground-Water Flow)

Graduate Advising (University of Kentucky)

Primary advisor, 8 PhD and 18 MS graduates; committee member, 23 PhD and 13 MS graduates

Selected Professional Service

Fulbright Scholar Program:

- Faculty Associate (host): Moumouni Ali (Faculté des Sciences et Techniques, Université Dan Dicko Dankoulodo, Maradi, Niger), Aug. 2016–Jan. 2017; Ahmed Fekri (Faculté des Sciences Ben M'Sik, Université Hassan II, Casablanca, Morocco), Jun.–Sep. 2011; Nour-Eddine Laftouhi (Faculté des Sciences Semlalia, Université Cadi Ayyad, Marrakech, Morocco), Jun.–Sep. 2008; Lahcen Benaabidate (Faculté des Sciences et Techniques, Université Sidi Mohamed Ben Abdellah, Fez, Morocco), Jun.–Aug. 2005
- Discipline Peer Review Committee Member, Environmental/Geosciences, 2016
- National Screening Committee, Middle East and North Africa, Fulbright U.S. Student Program, 2019–2021
- Panelist for review of Pakistani applicants, U.S. Educational Foundation in Pakistan, 2010
- Panelist, Middle East and North Africa Pre-Departure Orientation, Washington, DC, Jun. 2016
- Campus review committee, Fulbright U.S. Student Program, University of Kentucky, 2022
- Panel moderator, Indian Fulbright Scholar Orientation, Kolkata, India, May 12, 2023

Geological Society of America:

- Hydrogeology Division: Chair 2013–2014; Management Board 2011–2015; Chair, Historical Committee, 2005–2013; Nominating Committee, 2014–2017; Maxey Distinguished Service Award

Committee, 2019–2022; Schwartz Award for Excellence in Mentoring and Education Committee, 2023–2025

- Joint Technical Program Committee, 2001–2003
- Publications Committee, 2002–2006
- Technical Program Co-Chair, North-Central/Southeastern Section Meeting, 2022

Host/mentor for visiting scholars:

- Dr. Javad Ashjari, Abanrood Institute, Iran, Oct. 2022–Oct. 2023
- Dr. Alaa Al-Abadi, University of Basrah, Iraq, Feb. 2020–Aug. 2021
- Le Cao (PhD student), Institute of Geochemistry, Guiyang, China, Dec. 2019–Dec. 2020
- Dr. Benyu Su, China University of Mining and Technology, Jan.–May 2018
- Dr. Zulfiqar Ahmad, Quaid-i-Azam University, Pakistan, Jan.–May 2011

Instructor:

- ARCHES—An innovative workshop to better understand the water resources of the MENA region (with Adam Milewski, University of Georgia): Winter Enrichment Program, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia, Jan. 11–13, 2015
- Global Water Issues course: Jilin University, Changchun, China, May 27–Jun. 15, 2021 (virtual)
- Groundwater Sustainable Development and Water Resources Management 3-in-1 program: Universitas Brawijaya, Malang, Indonesia, Sep. 8–15, 2021 (virtual)

Journal editorial service:

- Environmental & Engineering Geoscience: Co-Editor, 2002–2006; Associate Editor, 2019–present
- Groundwater: Associate Editor, 2000–2002; Book Editor, 2012–present
- Groundwater for Sustainable Development: Associate Editor, 2014–2021

Reviewer, application for promotion/tenure (USA unless otherwise noted):

- American University of Beirut, Lebanon, 2020
- Birzeit University, Palestine, 2022
- Bucknell University, 2013
- Georgia State University, 2021
- Quaid-i-Azam University, Pakistan, 2010, 2019
- University of Kansas, 2016
- University of North Carolina–Charlotte, 2021
- University of the Punjab, Pakistan, 2013
- University of Texas at San Antonio, 2021
- University of Toledo, 2020

Reviewer, Ground Water Resource Estimation Methodology, Ministry of Water Resources, River Development and Ganga Rejuvenation, Government of India, 2017

Reviewer, PhD/master's theses:

- Cairo University, Egypt, 2015, 2021
- Indian Institute of Technology Gandhinagar, 2020
- Indian Institute of Technology Guwahati, 2017
- Indian Institute of Technology Kharagpur, 2005, 2022
- National Institute of Technology Durgapur, India, 2020
- Quaid-i-Azam University, Pakistan, 2007, 2012 (2), 2018, 2022
- Université Sidi Mohamed Ben Abdellah, Morocco, 2013
- University of New South Wales, Australia, 2005
- University of the Punjab, Pakistan, 2010, 2017
- University of the West Indies, Mona, Jamaica, 2021